LOFTNESS

Carbide Cutter

61G4 • 71G4

Owner's Manual and Parts Book

(Originating w / Serial Number 42-1158 to 42-1197)

Model Number: N38517 (61" Double Carbide)
N38518 (61" Quadco)
N38440 (71" Double Carbide)
N38516 (71" Quadco)

Serial Number: _____

Date of Purchase: _____

N38489 Rev. A

03.28.16

Warranty

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Owner Information

Thank you for your decision to purchase a Carbide Cutter 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 Carbide Cutter is an effective, reliable machine used for maintaining grass, weeds, brush and trees. Efficiently cuts and mulches up to 6" diameter material. Intermittently cuts larger diameter material. For best results, operate the machine as low to the ground as possible without the teeth striking ground or other obstructions. Lifting or tilting the carbide cutter increases the risk of flying debris. 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. Areas to be mowed should be free of debris such as rocks, bottles, large branches etc. The teeth cut and pulverize the grass, weeds and brush. The carbide cutter deposits cut material over the entire width-of cut, which eliminates bunching or windrowing behind the machine.

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.

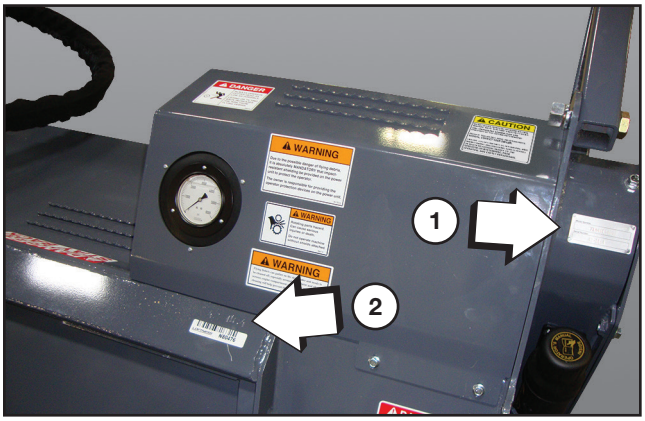
Make sure that all personnel have read this owner's manual and thoroughly understand safe and correct operating, installation and maintenance procedures.

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.

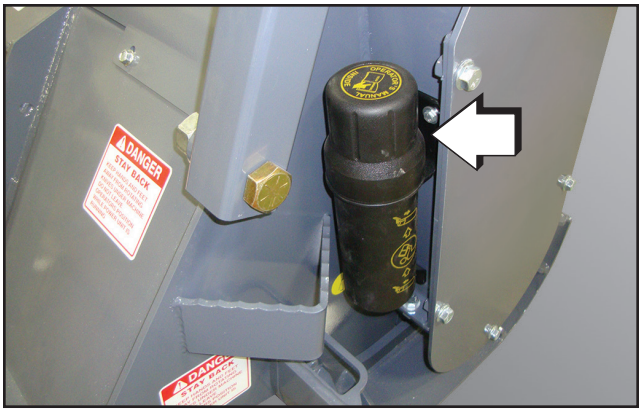
Serial Number Location



The arrows above indicate the location of the serial number tag (1) and the location of the serial number stamped into the frame (2).

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

Manual Storage



Keep the owner's manual and the entire documentation packet in the storage compartment provided on your carbide cutter. The owner's manual must be available for all operators.

Introduction

Carbide Cutter Features

- Downward Rotation Design
- Premium Strength Steel Body & Rotor
- Front Mounted
- Hydraulic Driven
- Universal Skid-Steer Mount
- Adjustable Tree Pusher
- Claw Hooks On Tree Pusher
- 17 In. (43 cm) Diameter Rotor (1600 – 2200 RPM)
- 2 3/16 In. (56 mm) Rotor Bearings
- Anti Wrap Bearing Protection
- Heavy Duty Bearing Block
- Variable Displacement Piston Type Motor
- Dual Cross-Over Relief Protection
- Pressure Gauge
- Steel Chain Deflectors
- Synchronous Belt
- Tapered-Lock Sheaves
- Skid Shoes - Adjustable +.5 in. to -1.5 in. (+12.7 to -38.1 mm)
- Hydraulic Hoses and Hose Holder
- Adjustable Shear Bar
- Double Carbide or Quadco Planer Teeth (sharpenable)

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 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 4.

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 warnings 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, etc., that might become tangled in the rotor, causing damage to the machine or be thrown striking other objects.
- Do not allow any people and 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 handholds 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 snuggly 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-steer 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.

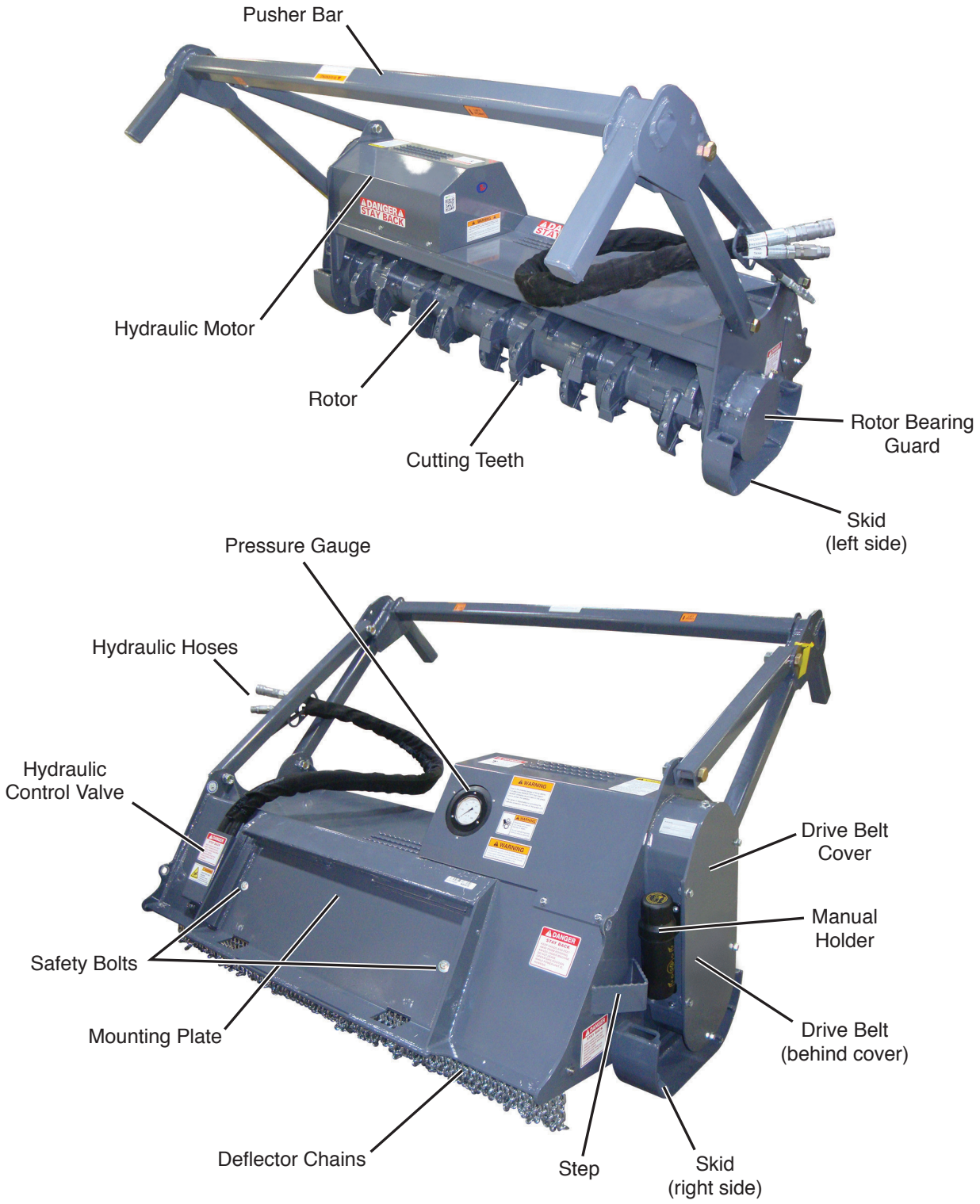
Safety Rules (Cont'd)

- 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 4. 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.
- 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 to know the location and function of all guards and shields including but not limited to belt drives and rotor. Operators are responsible to make certain that all guards are in place when operating the machine and attachment.
- 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

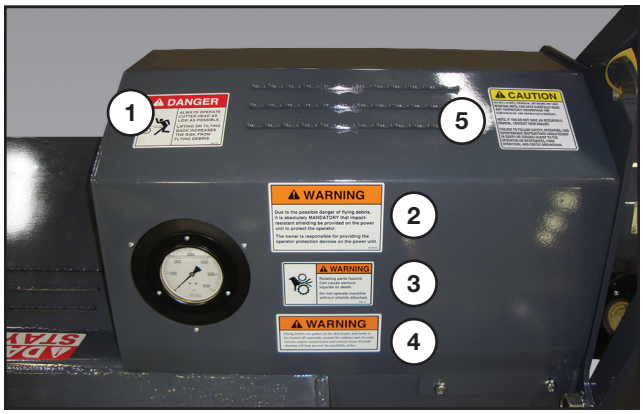
- The hydraulic system is under high pressure. Make sure all lines and fittings are tight and in good condition. These fluids escaping under high pressure can have sufficient force to penetrate skin and cause serious injury.
- Never check for leaks by using any part of your body to feel for escaping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

Carbide Cutter Identification



Safety Decal Locations

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



1

DANGER

ALWAYS OPERATE CUTTER HEAD AS LOW AS POSSIBLE.

LIFTING OR TILTING BACK INCREASES THE RISK FROM FLYING DEBRIS.

N68724

Part No. N68724

2

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

3

WARNING

Rotating parts hazard. Can cause serious injuries or death.

Do not operate machine without shields attached.

N68716

Part No. N68716

4

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

5

CAUTION

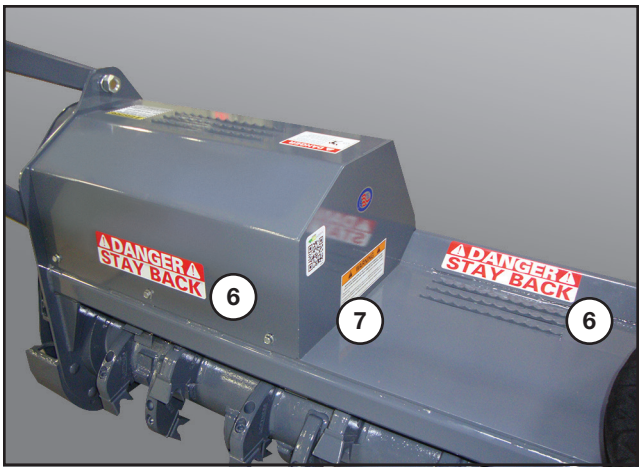
DO NOT START, OPERATE, OR WORK ON THIS MACHINE UNTIL YOU HAVE CAREFULLY READ AND THOROUGHLY UNDERSTAND THE CONTENTS OF THE OPERATOR'S MANUAL.

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

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. N28384

Safety Decal Locations (Cont'd)



6

DANGER
STAY BACK

Part No. 4334

7

WARNING

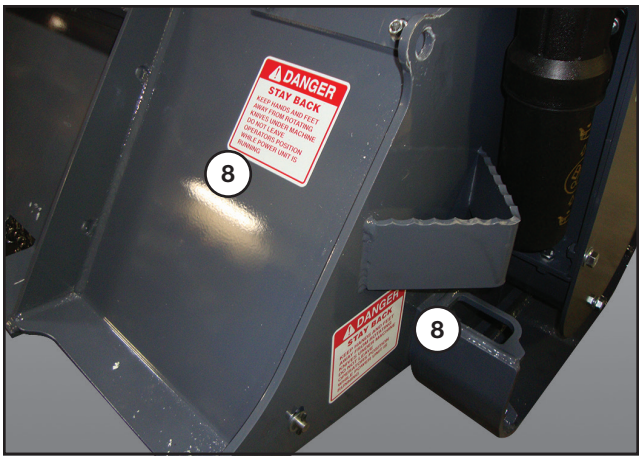
IMPROPER CONNECTION TO THE POWER UNIT'S HYDRAULIC SYSTEM COULD CAUSE SERIOUS COMPONENT DAMAGE AND PERSONAL INJURY.

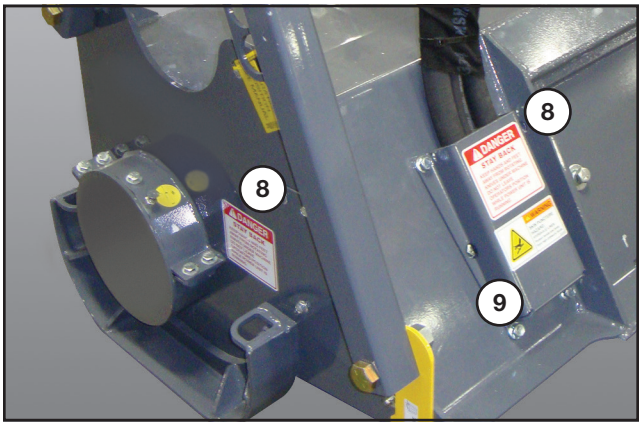
This attachment can be configured with different components to operate on a variety of power units.

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.

Part No. N28385





8

DANGER

STAY BACK

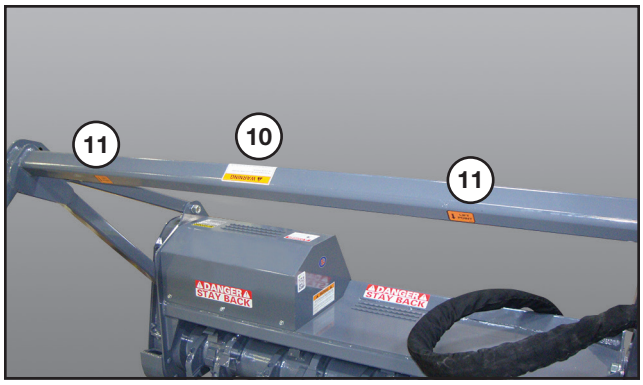
KEEP HANDS AND FEET AWAY FROM ROTATING KNIVES UNDER MACHINE DO NOT LEAVE OPERATORS POSITION WHILE POWER UNIT IS RUNNING

Part No. N28386

9

Part No. N23506

Safety Decal Locations (Cont'd)



10

⚠ WARNING

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

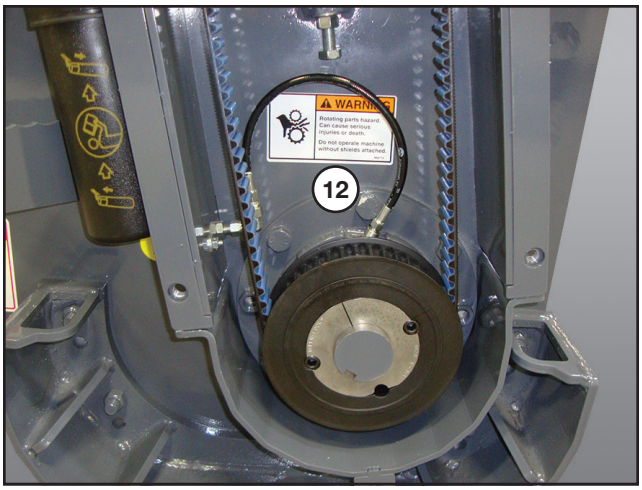
Before starting the power unit, set the push bar in the most forward position, then slowly rotate the cutter head back while an assistant checks for clearance.

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

Part No. N17014

11

Part No. N29769



12

⚠ WARNING

Rotating parts hazard. Can cause serious injuries or death.

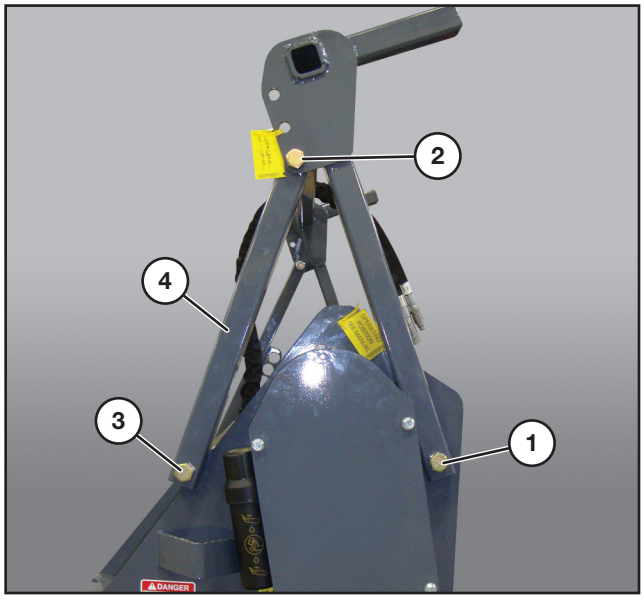
Do not operate machine without shields attached.

N68716

Part No. N68716


LOFTNESS

Pusher Bar Assembly



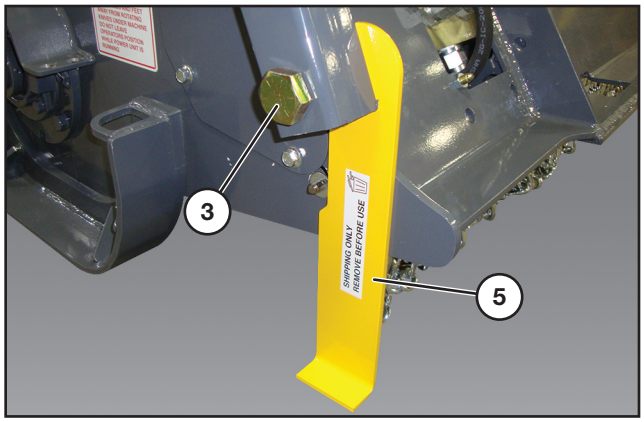
NOTE: *Assembling the pusher bar requires two people or the use of an approved lifting device to support the push bar as it is being adjusted.*

Ensure pusher bar is being safely supported.

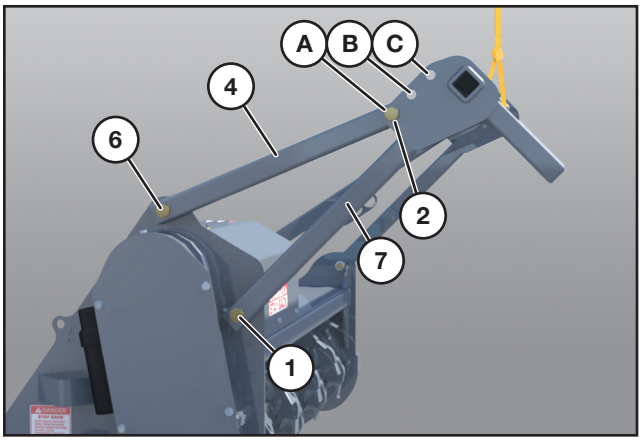
Loosen nuts (1 and 2).

Remove nut, bolt, and washer (3) securing the rear arm (4) to the rear of the frame.

Repeat on other side.



NOTE: *When removing the hardware (3) on the left side, remove the shipping support stand (5) and discard.*



Move rear arms into position so hole in lower end of rear arm (4) aligns with the top hole (6) of the side plates (indicated by the shipping tag). Remove the shipping tag.

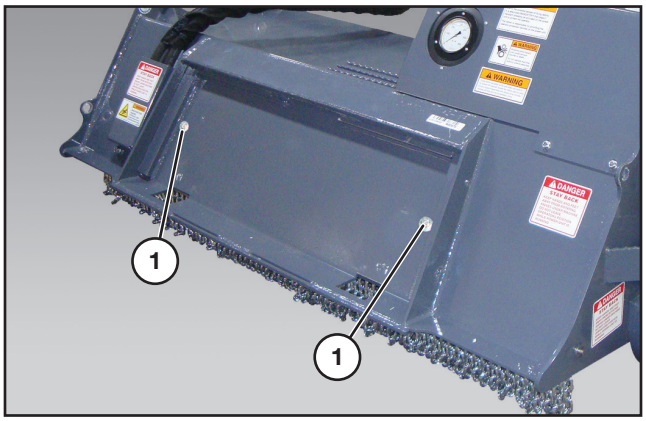
NOTE: *The pusher bar is factory-set so the upper hole in the rear arm (4) aligns with hole "A". If a different pusher bar angle is desired, remove nut and bolt (2) from their current position while holding on to the rear arm (4). Once the hardware is removed, let the rear arm rest on pusher bar side assembly (7).*

Repeat procedure on other side.

Raise or lower the pusher bar and align the rear arm (4) with the desired hole (A ,B, or C) on the pusher bar side assembly.

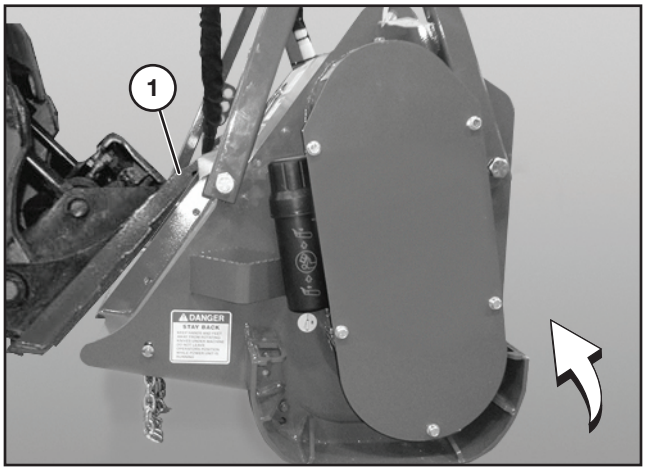
Reinstall all hardware and tighten (1, 2, and 6) securely. This must be done on both sides.

Installing the Carbide Cutter to the Loader



Remove the two safety bolts (1).

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 carbide cutter mounting plate. Be careful not to damage the locking levers on the loader mounting plate.

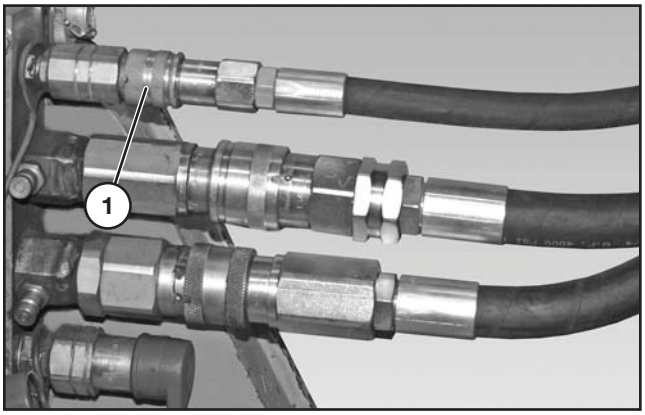
Tilt the loader mounting plate back until the carbide cutter mounting plate is firmly against the loader mounting plate, but Do Not lift the attachment off the ground.

⚠	**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.*

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.*

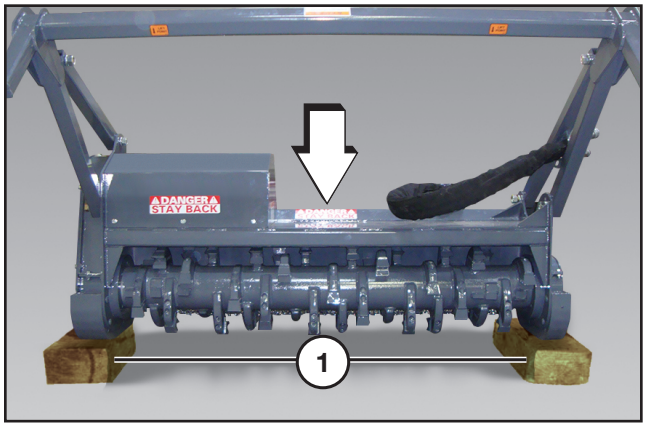
Install the two safety bolts through the loader mounting plate and into the carbide cutter mounting plate. Tighten the two safety bolts to the proper torque, see "Torque Specifications" on page 49.



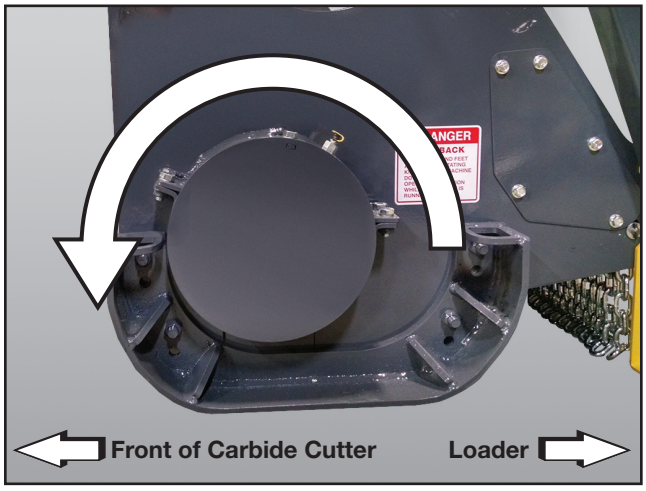
Install the carbide cutter quick couplers to the loader.

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

Checking Rotor Rotation



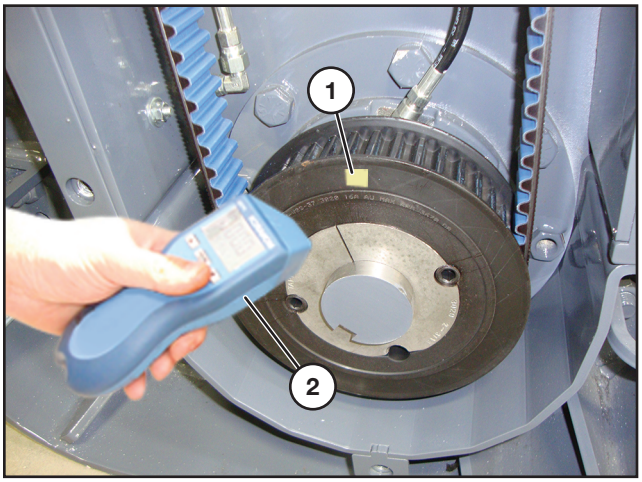
Raise the carbide cutter off the ground and place blocks (1) underneath the skids. Lower the carbide cutter down on the blocks.



Engage the loader auxiliary hydraulics, the rotor should start rotating in forward direction. The rotation should be counterclockwise as viewed from the left side of the carbide cutter.

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

Checking Rotor Speed



Remove right side belt cover. Apply a small piece of reflective tape (1) to the outer edge of the lower sheave. Point an electronic (photo) tachometer (2) towards the edge of the sheave to check the rotor speed.

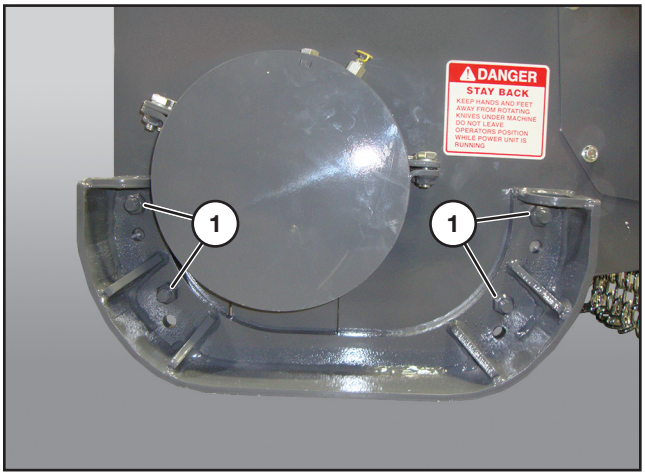
NOTE: *The tachometer shown is not supplied with the carbide cutter.*

Test the rotor RPM with loader engine at full throttle.

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

If it is outside the recommended range (2100-2200 RPM), it may be necessary to disconnect the carbide cutter and test the hydraulic output of the loader with a flow meter to see if it corresponds with the factory specifications.

Skid Adjustment

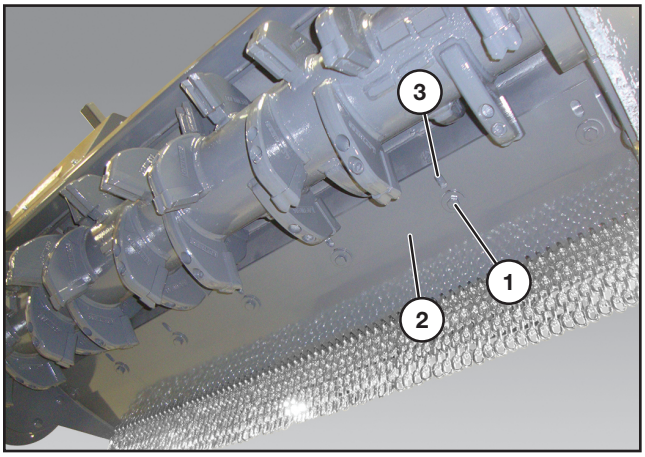


NOTE: *The skid(s) can be adjusted to increase or decrease the distance between the ground and the rotor.*

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

Repeat the procedure on the opposite side.

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.*

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

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

To move the cutter bar a greater distance, remove the bolts, washer, and bar and reposition into the next row of bolt holes (3).

Getting Started

For best results, the areas to be mowed 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 carbide cutter 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 carbide cutter 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 carbide cutter 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 carbide cutter slightly above the ground when moving the carbide cutter and machine.

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

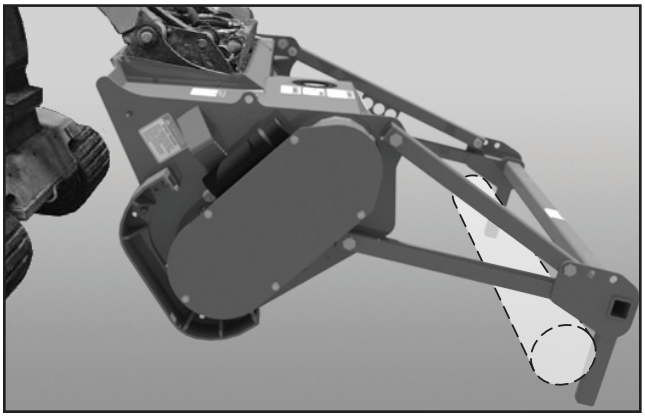
⚠	**WARNING:** *Lifting or tilting the carbide cutter increases the risk of flying debris.*

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

Lower the carbide cutter until the skids contact the ground. Engage the auxiliary hydraulics. Move the loader and carbide cutter forward and begin mowing.

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

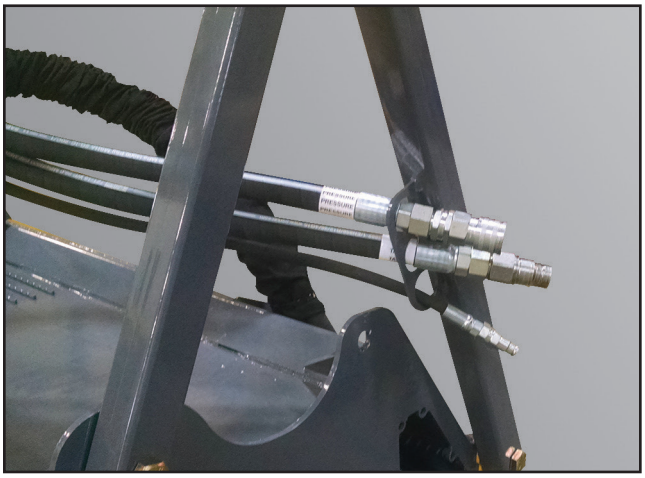
Log Moving



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

Raise the loader lift arms and tilt the carbide cutter forward until the push bar extensions are over the log or item being moved. Lower the lift arms and position the log between push bar extensions and the carbide cutter. Move the loader backwards, dragging the log to the desired location.

Hydraulic Hose Storage



When not in use, protect the hose couplers by securing the hydraulic hoses in the storage position on the left side pusher arm.

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 carbide cutter after each use.

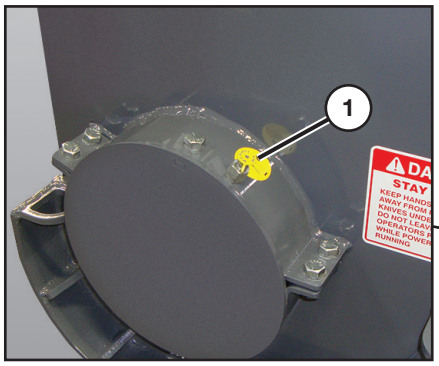
Proper lubrication is important. Too little lubricant will cause premature failure of a bearing. Too much lubrication usually causes high operating temperature and early failure of seals. Follow all lubrication instructions and schedules included in this section.

Maintenance Schedule

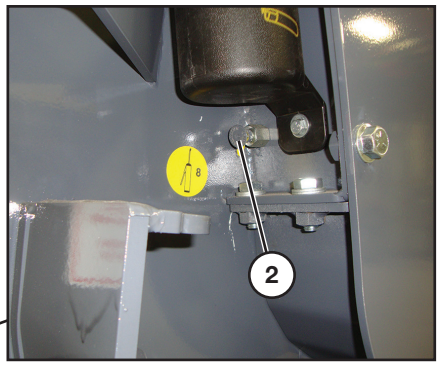
HOURS	SERVICE POINTS	SERVICE REQUIRED					
		CHECK	CLEAN	CHANGE	GREASE	ADJUST	OIL
Every 8	Machine		X				
	Loose Bolts					X	
	Hoses and Wiring	X					
	Oil Leaks	X					
	Rotor Bearing				X		
	Carbide Teeth	X					
Every 100	Belt Tension	X					
	Drive Belt	X					
	Safety Labels	X					
Every 500	Overhung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

Lubrication

Grease Point Location



Rotor Bearing, left



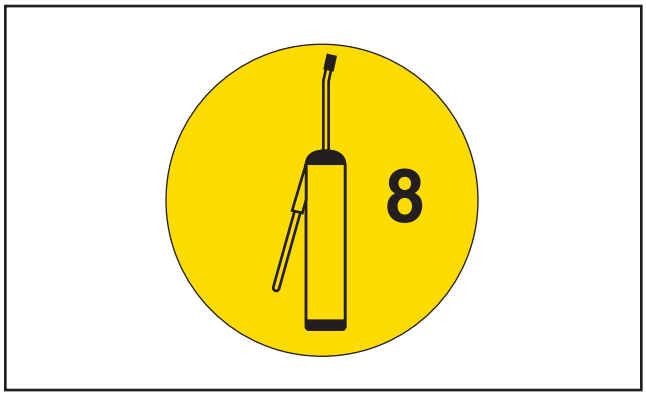
Rotor Bearing, right

Lubrication (Cont'd)

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 "Carbide Cutter Identification" on page 6 for component location and identification.

- **Rotor Bearings Grease Fittings**

  Location: **(1) Left side:** Located at the left side of the carbide cutter, at the top of the bearing guard. Refer to item 1 on page 18.

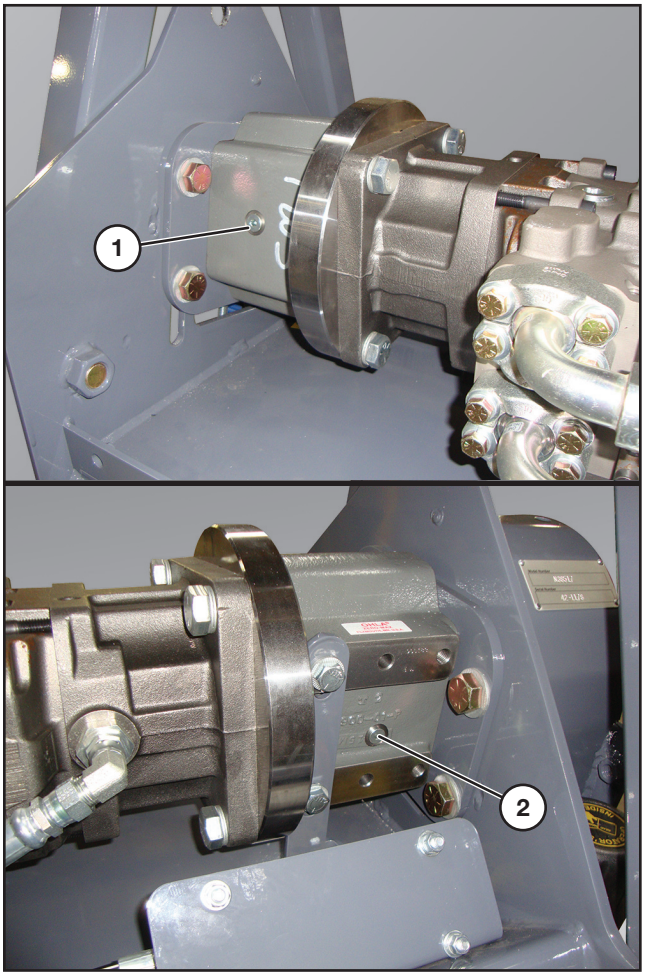
  (2) Right side: Located at the rear of the right side belt drive cover, below the manual holder. Refer to item 2 on page 18.

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.

Overhung Load Adapter

Cover must be removed to access the overhung load adapter. Refer to"Removing Motor Cover" on page 20 for instructions.



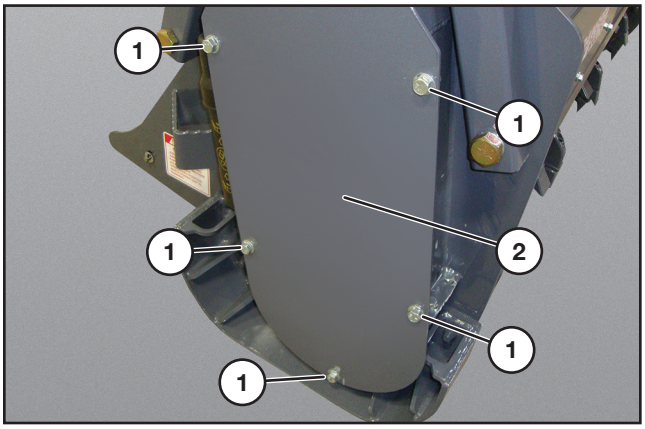
Remove the plug from the upper port (1) located on front side of the overhung load adapter, and the plug from the lower port (2) located on the back side.

Using a funnel, add hydraulic oil into the upper port until it runs out through the bottom port (approximately 6 oz.). Reinsert the plug back into the lower port and tighten.

Return the remaining plug back into the upper port and tighten.

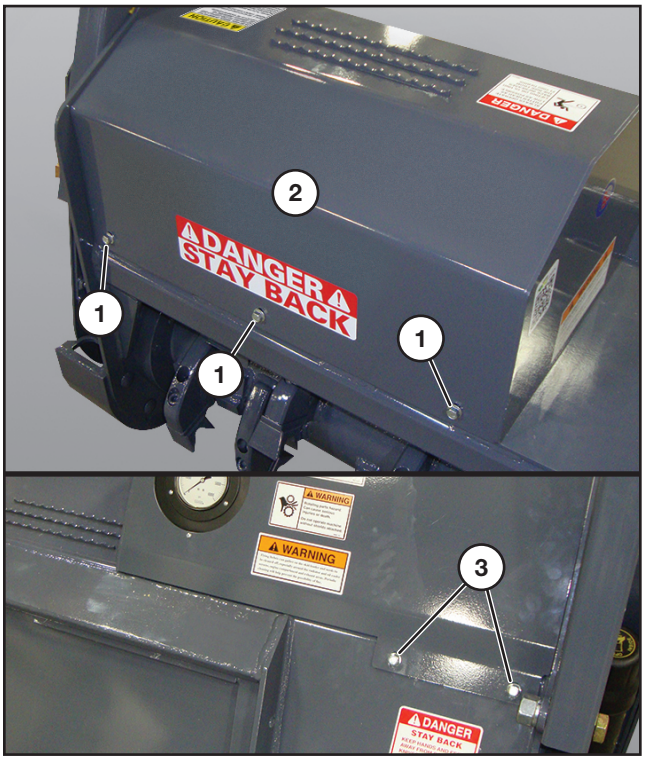
NOTE: *If replacing bearings or seals in the overhung load adapter, be certain to refill with hydraulic fluid after reassembly.*

Removing Belt Cover

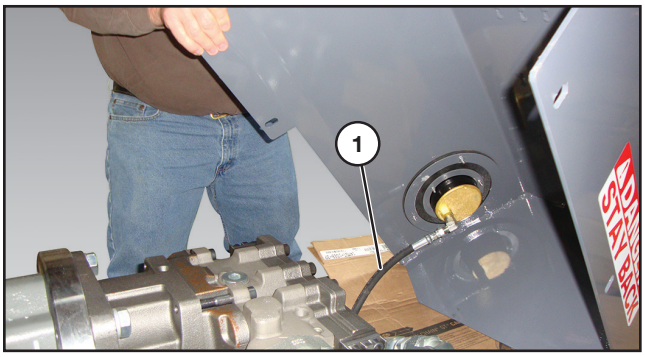


Remove the five bolts (1) and lift the drive belt cover (2) off of the frame.

Removing Motor Cover



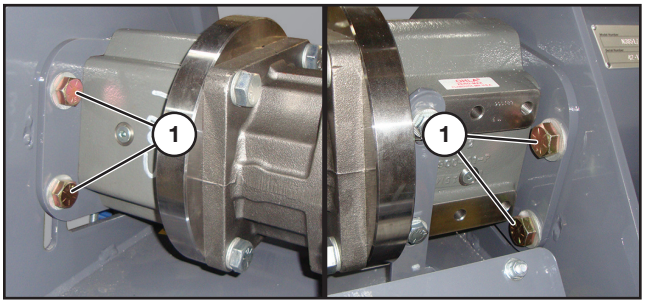
Remove the 3 bolts (1) on the front of the motor cover (2) followed by the two bolts (3) at the rear.



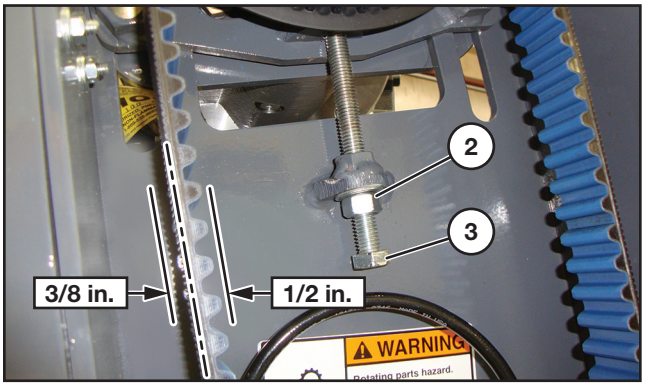
Carefully lift the cover off of the frame, being cautious not to pinch or damage the pressure gauge hose (1) under the motor cover.

Belt Adjustment

Remove belt cover and motor cover following the instructions earlier on this page.



Loosen the four bolts (1).



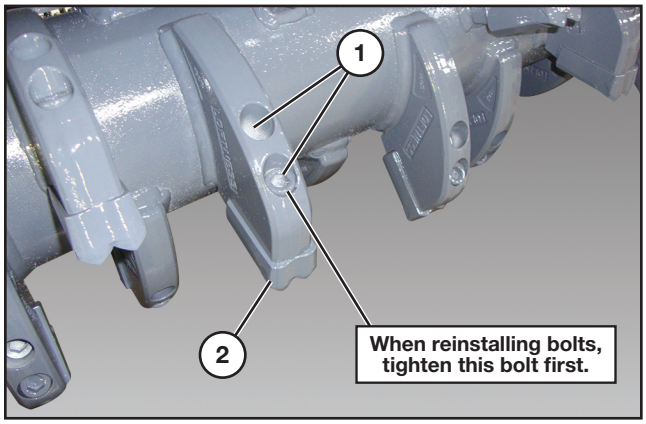
Loosen the jam nut (2).

Turn the hex nut (3) to either increase or decrease belt tension. Tighten jam nut (2) to lock.

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 applied at the midpoint.

Tooth Removal and Installation

Double Tooth

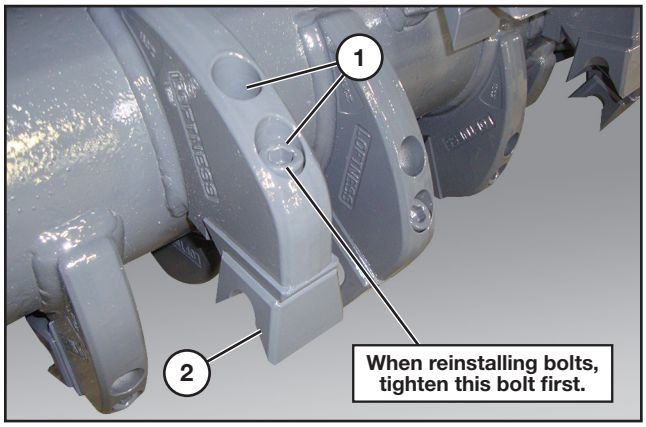


Remove the two bolts (1) and tooth (2).

Use copper based anti-seize when reinstalling the bolts. Torque to 137 ft.-lbs.

IMPORTANT: *Tighten the bolt on the top edge of the tooth first when reinstalling.*

Quadco Teeth



Remove the two bolts (1) and tooth (2).

Use copper based anti-seize when reinstalling the bolts. Torque to 137 ft.-lbs.

IMPORTANT: *Tighten the bolt on the top edge of the tooth first when reinstalling.*

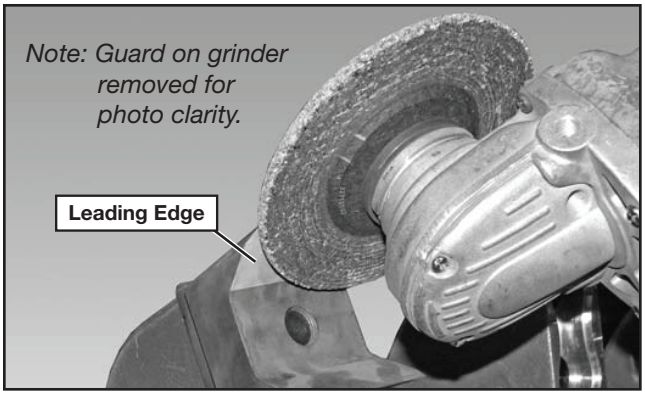
IMPORTANT: *When a damaged tooth is replaced, the tooth directly opposite (180 degrees) must be replaced at the same time to retain balance.*

Tooth Sharpening (Quadco Option 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.*



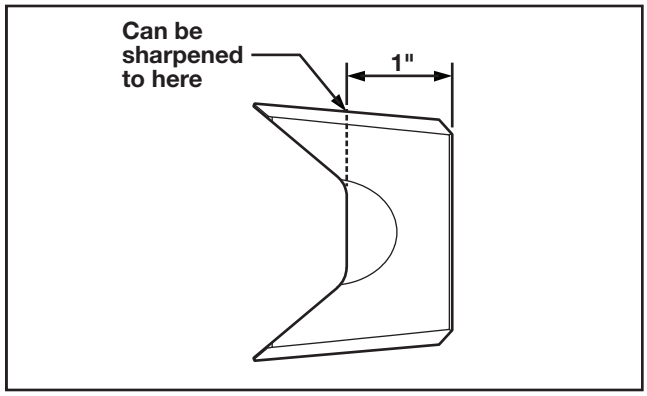
NOTE: *The Quadco cutter teeth have been heat treated to a specific hardness. Care must be taken to avoid overheating the leading edge of the tooth while sharpening. If the coloring in the tooth changes to either a blue or brown during the sharpening, you have removed the temper and the tooth will not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

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

Tooth Sharpening (Quadco Option Only) - Cont'd

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.*



NOTE: *Tooth can be sharpened to distance shown in illustration above.*

Storage

End of Season

- Clean entire carbide cutter thoroughly.
- Clean belt and sprockets, relax the belt tension.
- Lubricate all parts of the machine. See "Lubrication" on page 18.
- Make a list of all worn or damaged parts and replace them.
- Paint all parts that are worn or rusted.
- Store carbide cutter in a clean, dry area.
- Review the carbide cutter operator's manual.
- Secure hydraulic hoses in storage position. See "Hydraulic Hose Storage" on page 16.

Beginning of the Season

- Review the carbide cutter operator's manual.
- Lubricate all parts of the machine. See "Lubrication" on page 18.
- Tighten all bolts, nuts, and set screws. See "Torque Specifications" on page 49.
- Adjust belt tension. See "Removing Belt Cover" on page 20.
- Replace all damaged, worn or missing decals.
- Install the carbide cutter on a loader and test the carbide cutter for proper operation.

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

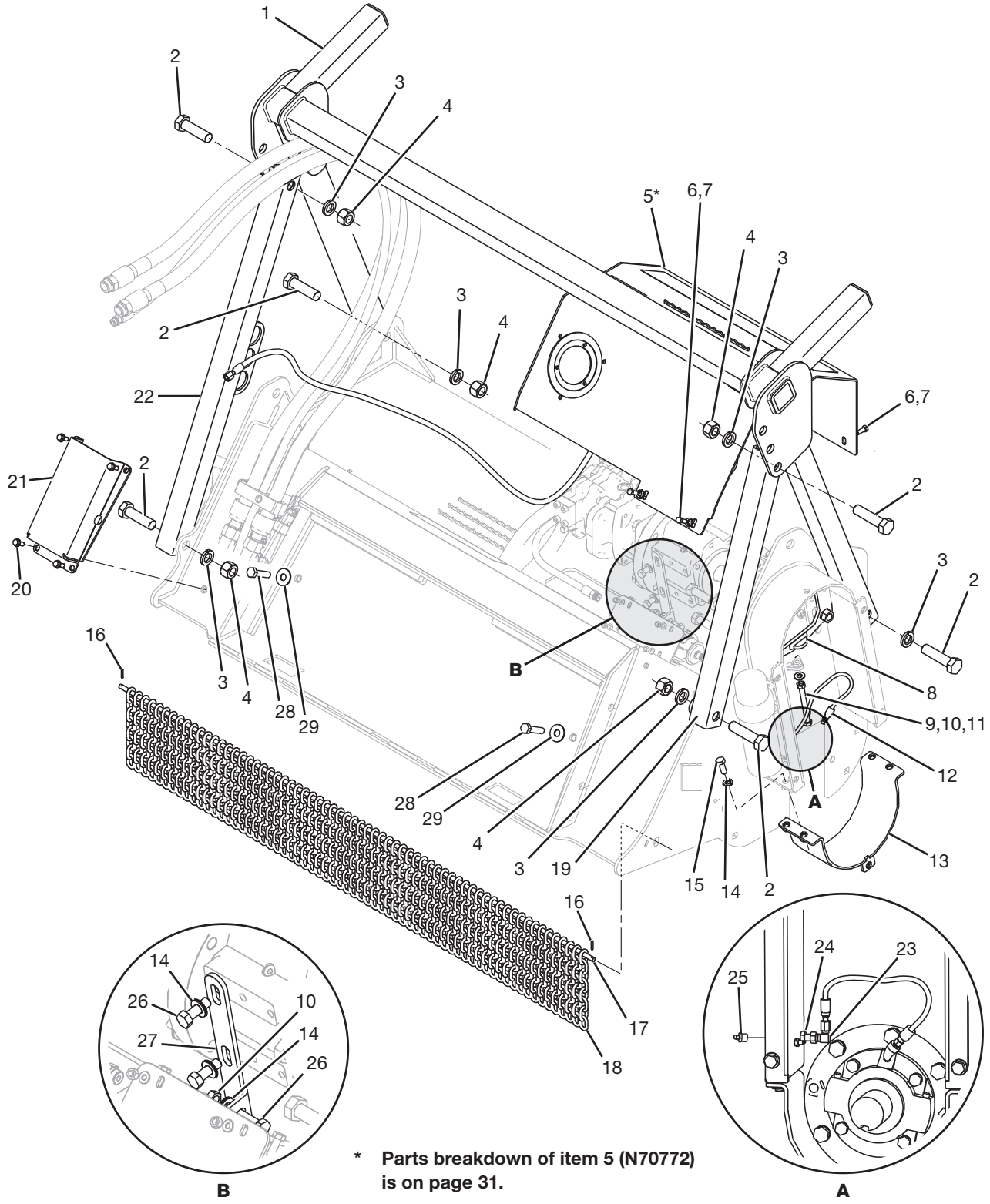
Troubleshooting

PROBLEM	CAUSE	SOLUTION
Excessive Vibration	Broken or missing teeth.	Replace teeth.
	Mud and/or debris wrapped around the rotor.	Clean the carbide cutter.
	Faulty drive line bearing.	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

Carbide Cutter Body Assembly

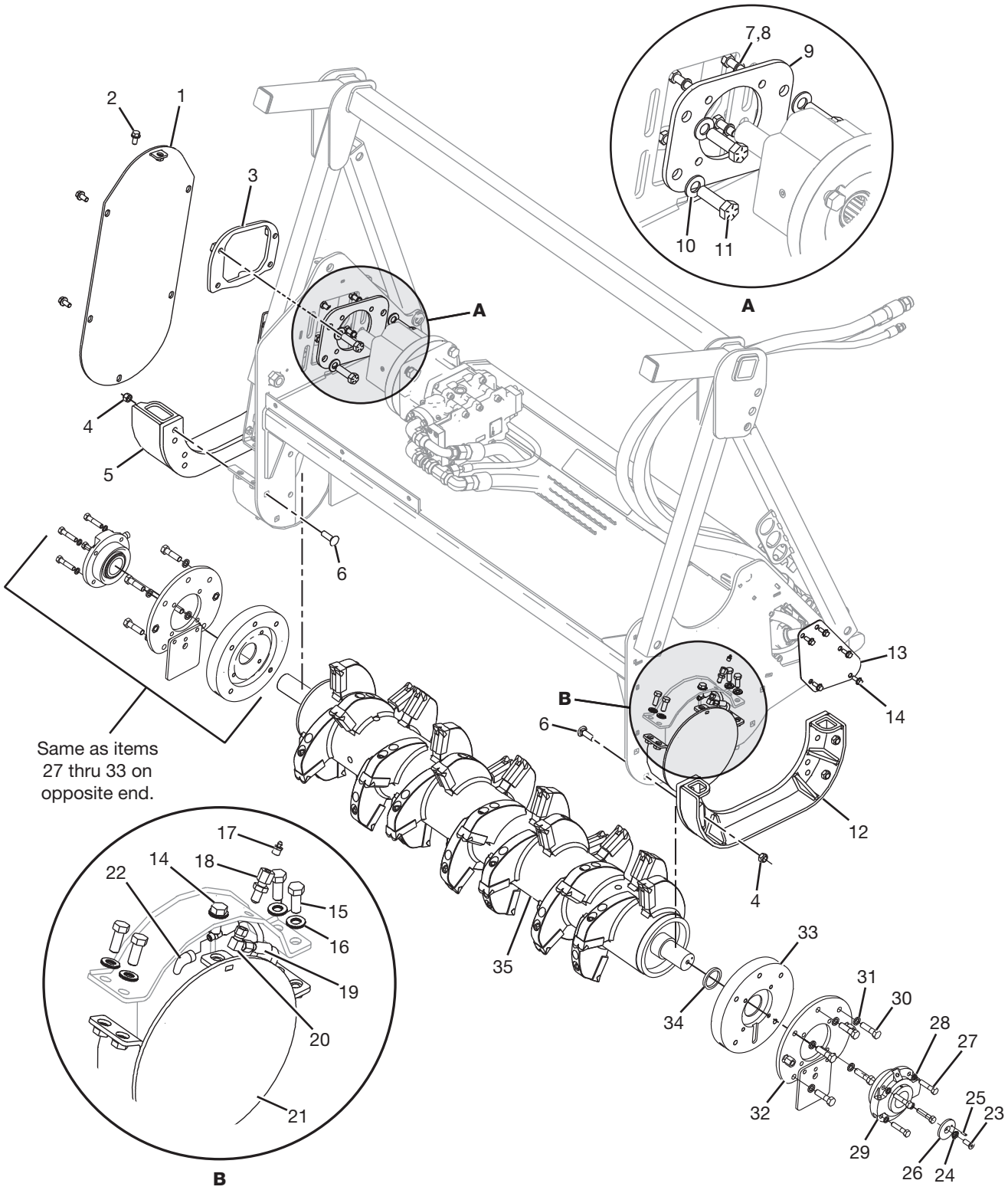


* **Parts breakdown of item 5 (N70772) is on page 31.**

Carbide Cutter Body Assembly

#	QTY.	PART #	DESCRIPTION
1	1	N38523	PUSHER, 61 W/DECALS
	1	N68438	PUSHER, 71 W/DECALS
2	6	N64492	BOLT, 1-14 X 4" GR. 8 FN. THR
3	6	4166	WASHER, 1" LOCK
4	5	4490	NUT, 1"-14UNF STANDARD
5	1	N70770	SHIELD, MOTOR
6	5	4195	BOLT, 3/8" X 1" GRADE 5
7	5	N37756	WASHER, NORD-LOCK 3/8" SP
8	1	N45488	PLATE, WELDMENT MOTOR
9	1	N27483	BOLT, 1/2" X 5" GR 5 FL TH
10	2	4250	NUT, STANDARD 1/2
11	1	4068	WASHER, 1/2" SAE FLAT
12	1	4304	HOSE, GREASE 1/8" X 15"
13	1	N49680	COVER, WELDMENT BELT BOTTOM
14	7	N37780	WASHER, NORD-LOCK 1/2" SP
15	4	4012	BOLT, 1/2" X 1-1/4" GRADE 5
16	2	4375	PIN, ROLL 3/16" X 1"
17	1	N20102	ROD, CARBIDE 61" CHAIN
	1	N20166	ROD, CARBIDE 71" CHAIN
18	66	N15589	CHAIN, CARBIDE AX REAR 61"
	76	N15589	CHAIN, CARBIDE AX REAR 71"
19	1	N67045	TUBE, PUSHER SHORT W/BUSHING
20	4	N26748	BOLT, 1/2" X 1" SER FLG
21	1	N68396	COVER, HOSE W/DECALS
22	1	N67081	TUBE, PUSHER LONG W/BUSHING
23	1	N25125	ELBOW, 90 DEG - 4FJIC - 4MJIC
24	1	4304-10	BULKHEAD, FITTING-GREASE HOSE
25	1	N17007	GREASEZERK, 1/8" NPT
26	3	4011	BOLT, 1/2" X 1" GRADE 5
27	1	N49792	PLATE, SUPPORT MOTOR ASSY
28	2	4023	BOLT, 5/8" x 2-1/2" GRADE 5
29	2	4069	WASHER, FLAT 5/8"

Carbide Cutter Body Assembly (Cont'd)

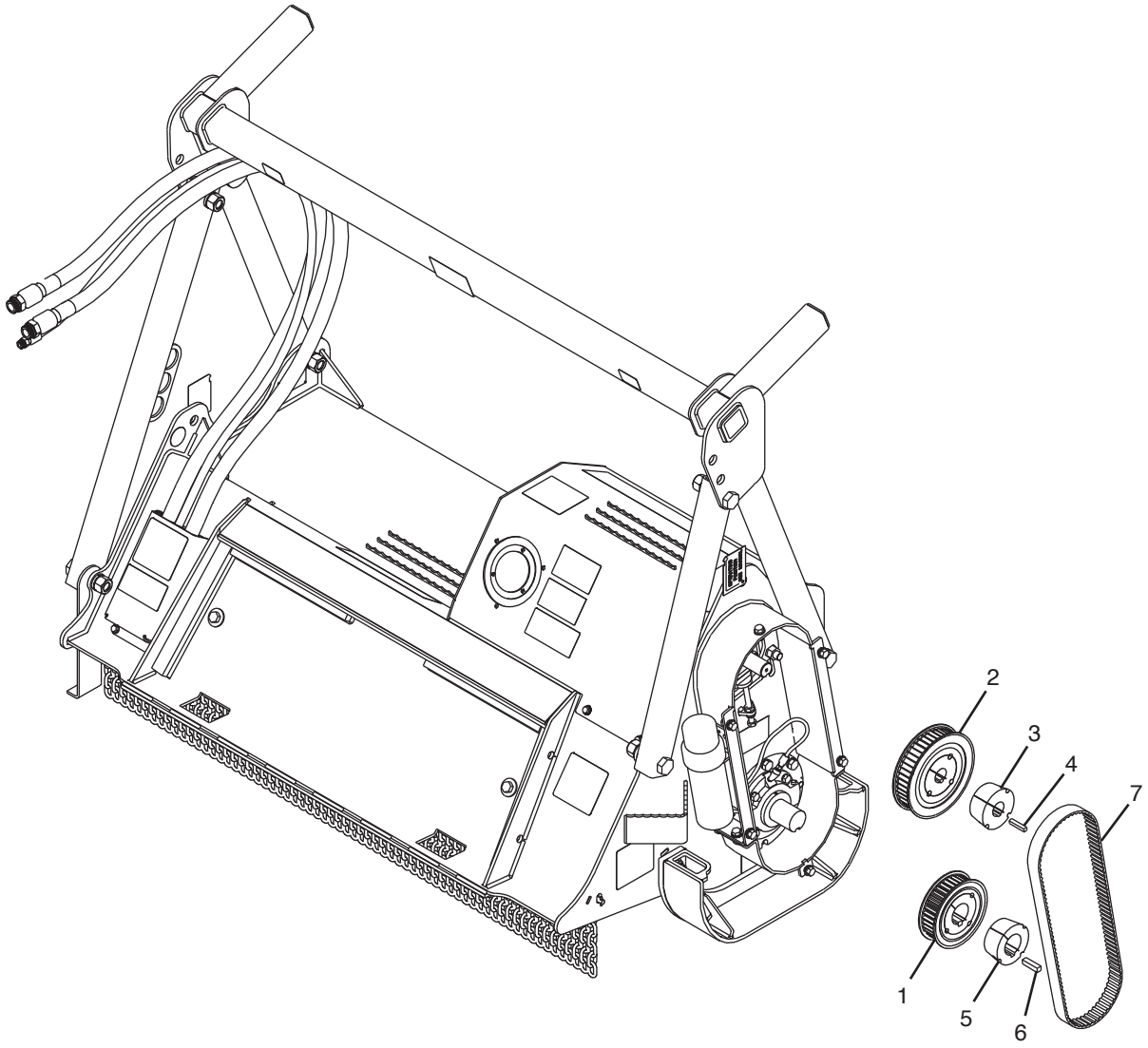


Carbide Cutter Body Assembly (Cont'd)

#	QTY.	PART #	DESCRIPTION
1	1	N66932	COVER, BELT
2	6	N26748	BOLT, 1/2" X 1" SER FLG
3	1	N45488	PLATE, WELDMENT MOTOR
4	8	4055	NUT, LOCK 5/8" TOP
5	1	N47366	SKID SHOE
6	8	4339	BOLT, CARRIAGE 5/8" X 2"
7	4	4466	BOLT, 1/2" X 1-1/2" GRADE 8
8	6	N16472	WASHER, 1/2 NORDLOCK
9	1	N41636	PLATE, MOUNT MOTOR
10	4	N28567	WASHER, 3/4 NORDLOCK SP
11	4	N16349	BOLT, 3/4 X 2-1/2 FN TH GR 8
12	1	N49750	SKID SHOE, NON DRIVEN
13	1	N68442	PLATE, MOUNT STEP
14	5	N26743	BOLT, 3/8" X 1" SER FLG
15	5	4012	BOLT, 1/2" X 1-1/4" GRADE 5
16	4	N37780	WASHER, NORD-LOCK 1/2" SP
17	1	N17007	GREASEZERK, 1/8" NPT
18	1	4304-10	BULKHEAD, FITTING-GREASE HOSE
19	1	4304	HOSE, GREASE 1/8" X 15"
20	1	N25125	ELBOW, 90 DEG - 4FJIC - 4MJIC
21	1	N65479	COVER, NON-DRIVEN
22	1	4472	ELBOW, 1/8" 90 DEG. STREET
23	1	4468	SCREW, 1/2" x 20UNF x 1 1/4" FN TD FL HD CAP
24	1	4076	WASHER, 1/2" EXT CNTSK LOCK
25	1	4085	PIN, ROLL 3/16" x 3/4"
26	1	4075	WASHER, 2 -5/8" OD BEARING RETAINER
27	8	N20043	BOLT, 1/2" x 2 - 1/4" FN TD GR 8
28	8	N16472	WASHER, 1/2" NORDLOCK
29	2	N16417	BEARING, 2 - 3/16" PILOT ROLLER
30	10	4494	BOLT, 5/8" x 2 - 1/4" GRADE 8 FINE THREAD
31	10	N16473	WASHER, 5/8" NORDLOCK
32	2	N41590	MOUNT, CARBIDE ROTOR BEARING
33	2	N41572	ANTIWRAP, CARBIDE MACHINED
34	1	N16445	BUSHING, 2 - 3/16" ID x 2 - 3/4" OD
35	1	N38536*	ROTOR, ASSY 61" DOUBLE CARBIDE
	1	N78331*	ROTOR, ASSY 61" QUADCO
	1	N47831**	ROTOR, ASSY 71" DOUBLE CARBIDE
	1	N38522**	ROTOR, ASSY 71" QUADCO

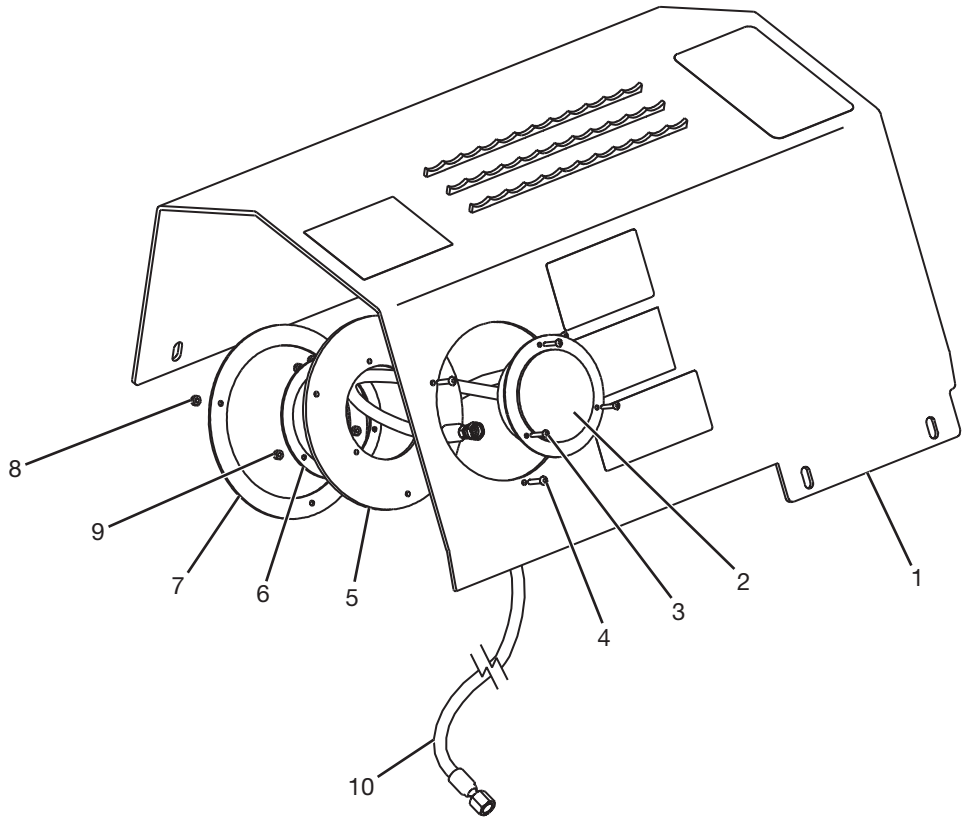
*** Parts breakdown of N38536 and N78331 is on page 39**
**** Parts breakdown of N47831 and N38522 is on page 40.**

Belt and Sheaves



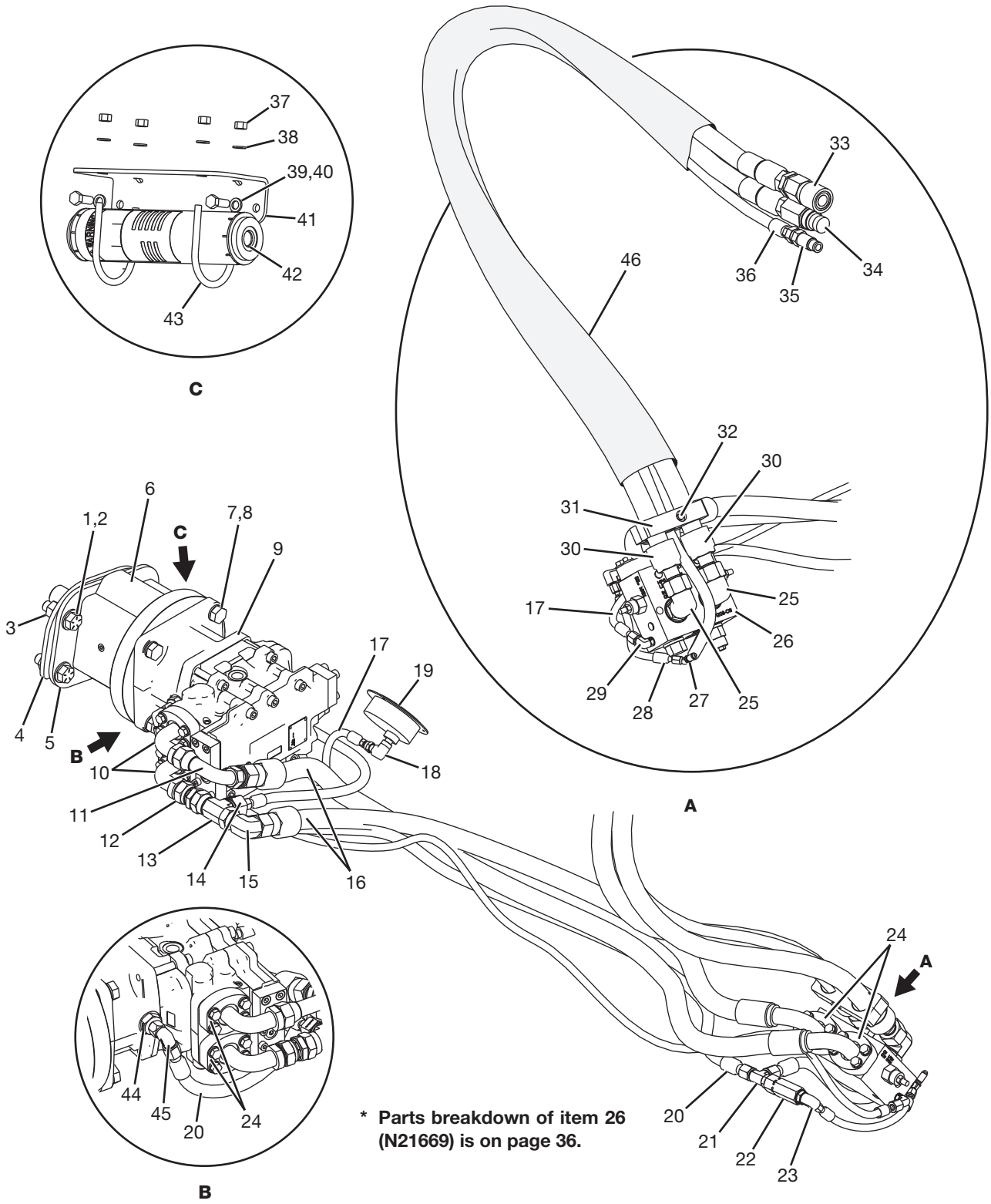
#	QTY.	PART #	DESCRIPTION
1	1	N34647	SPROCKET, 14MM 43 TOOTH 37
2	1	N47578	SPROCKET, 14MM 45 TOOTH 37
3	1	N20805	BUSHING, 1-1/2" TPL 3020
4	1	7121 -03	KEY, 3/8" X 2"
5	1	N18975	BUSHING, 2 3/16 TPL 3020
6	1	7122-04	KEY, 1/2” X 2"
7	1	N34646	BELT, POLY CHAIN 14MM 1568 X 3

Motor Shield w/Gauge (N70770)



#	QTY.	PART #	DESCRIPTION
1	1	N70772	COVER, MOTOR
2	1	N16163	GAUGE, 0 - 6000 PSI 4" PRESS
3	3	N16132	BOLT, BHCS #8 - 32 x 1"
4	3	N16133	NUT, NYLON INSERT #8
5	1	N16332	FLANGE, MOUNT GAUGE
6	1	N16331	FLANGE, MOUNT GAUGE #8
7	1	N16335	FLANGE, MOUNT #10
8	3	N16334	NUT, NYLON INSERT #10
9	3	N16133	NUT, NYLON INSERT #8
10	1	N38498	HOSE, 1/4 100 -6FJIC -6FPSWIVL

Hydraulics



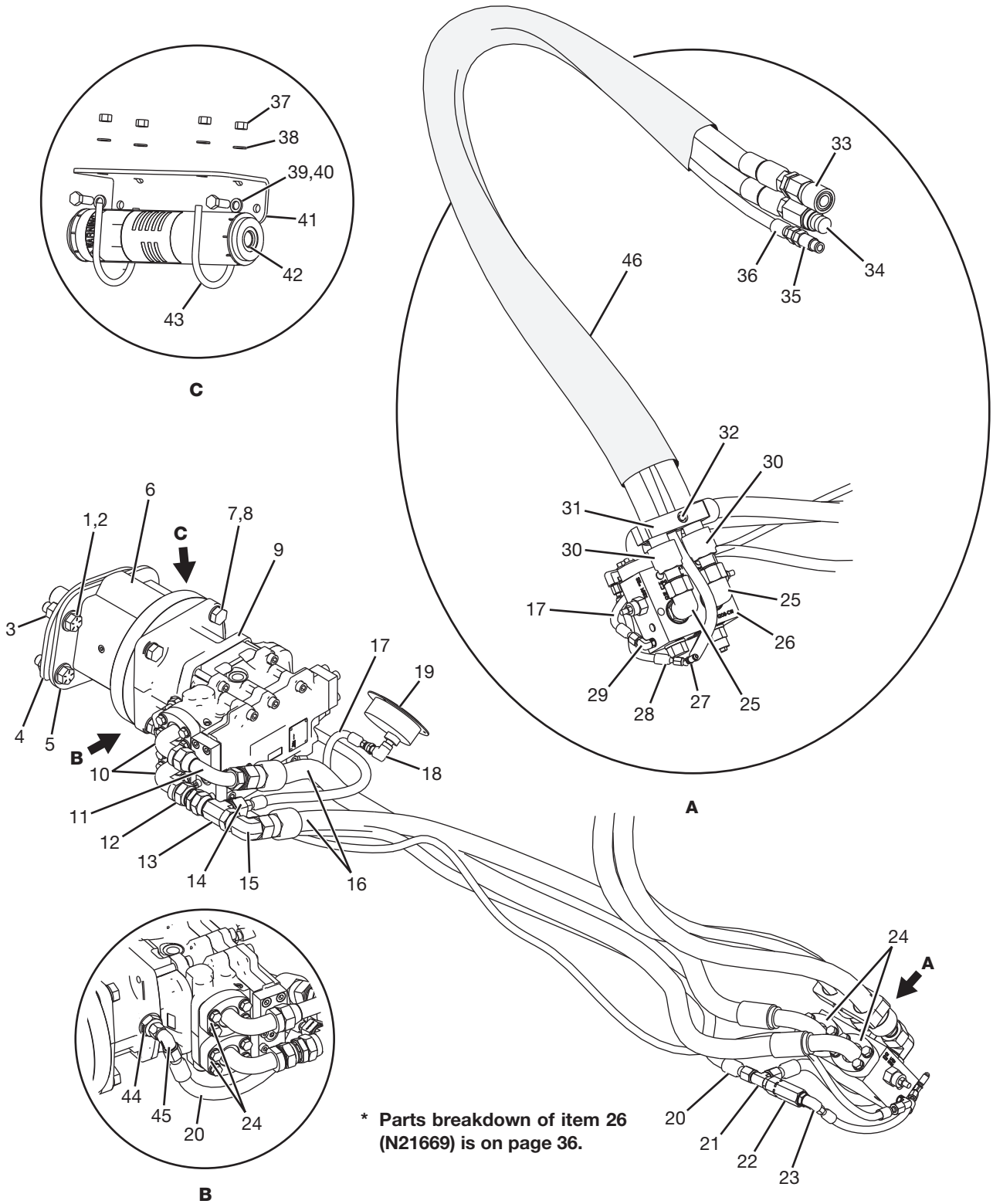
*** Parts breakdown of item 26 (N21669) is on page 36.**

Hydraulics

#	QTY.	PART #	DESCRIPTION
1	4	N16349	BOLT, 3/4 X 2-1/2 FN TH GR 8
2	4	N28567	WASHER, 3/4 NORDLOCK SP
3	4	4341	NUT, 3/4" FINE THREAD GRADE 8
4	1	N45488	PLATE, WELDMENT MOTOR
5	1	N41636	PLATE, MOUNT MOTOR
6	1	N51193	OHLA, 900 W C TO D ADAPTER
7	4	4475	BOLT, 3/4" X 2-1/4" GRADE 5
8	4	N16474	WASHER, 3/4 NORDLOCK
9	1	N38488	MOTOR, VARIABLE 80CC-110CC
10	2	N20818	ELBOW, 90DEG 16MJIC-16 CODE 62
11	1	N28903	ELBOW, 90DG TUBE 16MJIC-16FJIC
12	1	N19271	ADAPTER, 16MJIC - 16FJIC SWVL
13	1	N19272	TEE, 16MJIC-16FJIC-16MJIC
14	1	N16166	HOSE, 3/8" X 24" -6FJX -8MOR
15	1	N19270	ELBOW, 90 DEG - 16MJC - 16FJC
16	2	N90323	HOSE, 1 64 - 16FJIC - 16 90CD62
17	1	N38498	HOSE, 1/4 100 -6FJIC -6FPSWIVL
18	1	N16162	ELBOW, 1/4" BLK 90 DEG STREET
19	1	N16163	GAUGE, 0-6000PSI 4" PRESS
20	1	N38500	HOSE, 1/2 80 -8FJIC -8FJIC
21	1	N11953	TEE, 8MJIC-8MOR-8MJIC
22	1	N38505	VALVE, RELIEF 65PSI
23	1	N38520	ADAPTER, 90 -4MJIC -8MORB
24	4	N20288	KIT, SPLIT FLANGE SFXK-16
25	2	N41121	ELBOW, 90 DEG -16MJIC-16MOR
26	1	N21669	VALVE, OPEN LOOP CW
27	1	N38519	ADAPTER, BULKHEAD 45DEG -4MJIC
28	1	N69021	HOSE, 1/4 X 14 -4FJIC -4FJIC
29	1	N28907	ELBOW, 90DEG -6MJIC -4MOR
30	2	N38496	HOSE, 1 78 -16FJIC -16MORB
31	2	N63426	CLAMP, HOSE

Hydraulics parts list and drawing continued on the following two pages.

Hydraulics (Cont'd)

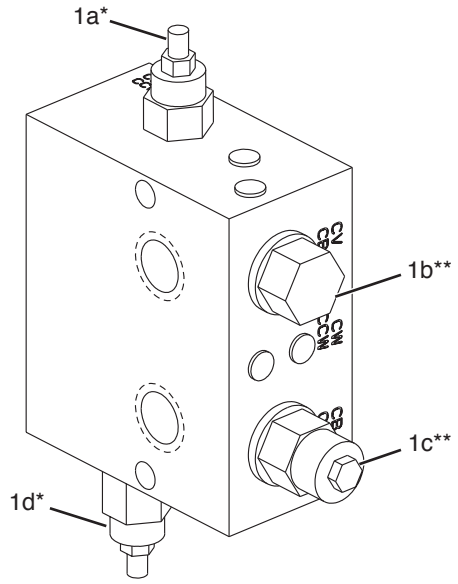


*** Parts breakdown of item 26 (N21669) is on page 36.**

Hydraulics (Cont'd)

#	QTY.	PART #	DESCRIPTION
32	1	N13811	BOLT, 1/4" X 2-3/4" GRADE 5
33	1	N28249	COUPLER, 3/4 FEM FLAT -16FORB
34	1	N28250	COUPLER, 3/4 MALE FLAT -16FORB
35	1	N28248	COUPLER, 3/8 MALE FLAT -8FORB
36	1	N38499	HOSE, 1/2 94 -8FJIC -8MORB
37	4	4237	NUT, 5/16" STANDARD
38	4	4460	WASHER, 1/4" SAE FLAT
39	7	4195	BOLT, 3/8" X 1" GRADE 5
40	2	N16470	WASHER, 3/8 NORDLOCK
41	1	N16124	MOUNT, ACCUMULATOR
42	1	N87003	ACCUMULATOR, 5000PSI 100PSI PC
43	2	N16125	U-BOLT, 5/16 X 2-1/2 X 3-1/2
44	1	N29731	ADAPTER, 8MJC - 12MOR
45	1	N24827	ELBOW, 90 DEG - 8FJC - 8MJC
46	1	N88334	SLEEVE, HOSE 4.75 X 70"

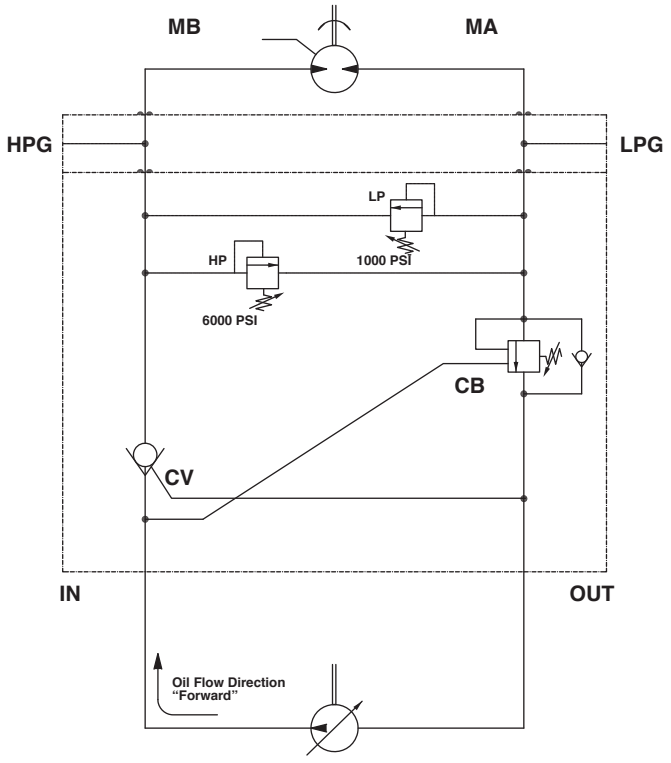
Valve, Open Loop CW (N21669)



*** Use item 2 in parts list, part number N38181, for seal kit for items 1a and 1d.**

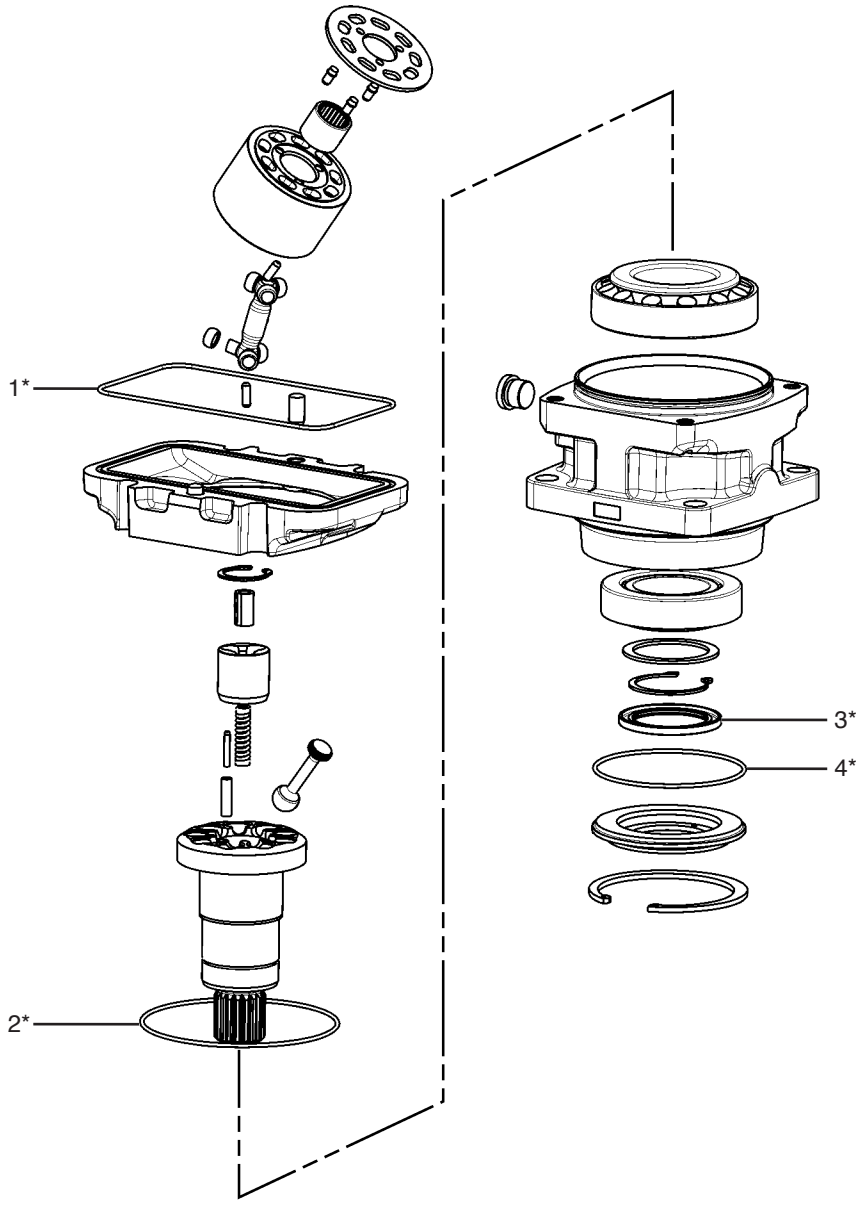
**** Use item 3 in parts list, part number N14170, for seal kit for items 1b and 1c.**

Valve Open Loop CW (N21669) Schematic



#	QTY.	PART #	DESCRIPTION
1a	1	N28100*	RELIEF, LOW PRESSURE 1000PSI
1b	1	N28102**	VALVE, CHECK PILOT OPERATED
1c	1	N28103**	VALVE, COUNTERBALANCE
1d	1	N28099*	RELIEF, HIGH PRESSURE 5000PSI
2	1	N38181	KIT, SEAL CART SUN RDFA-LCN
3	1	N14170	KIT, COUNTER BALANCE SEAL

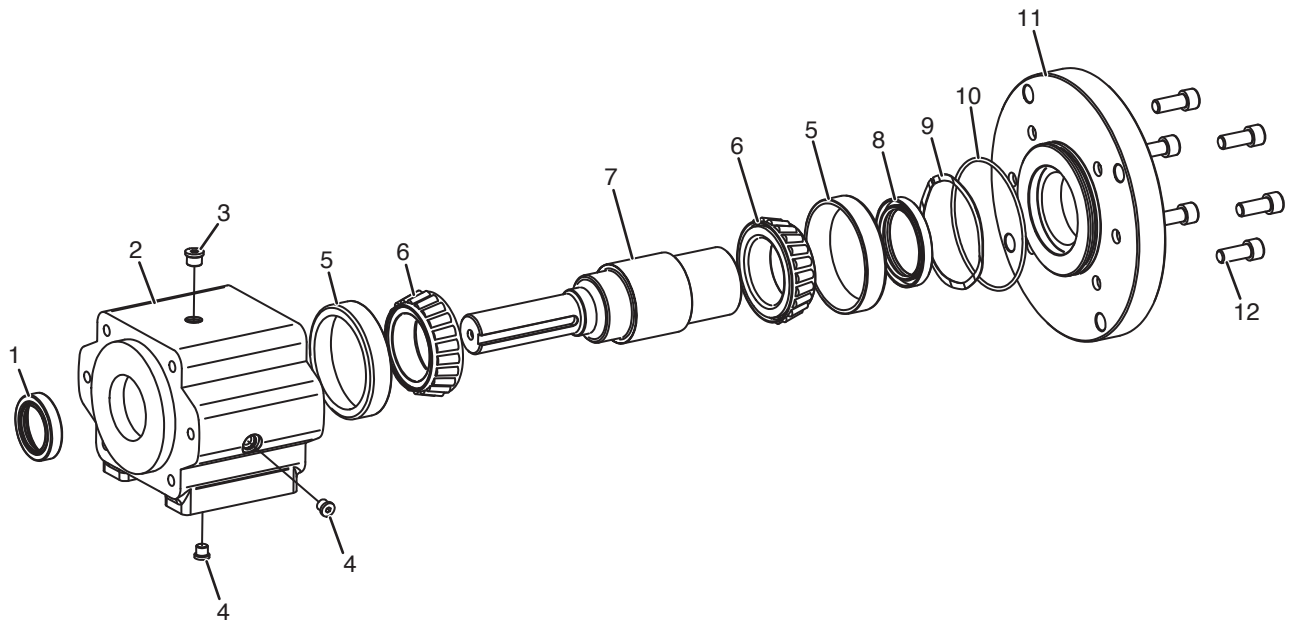
Hydraulic Motor, Variable 80cc to 110cc (N38488)



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

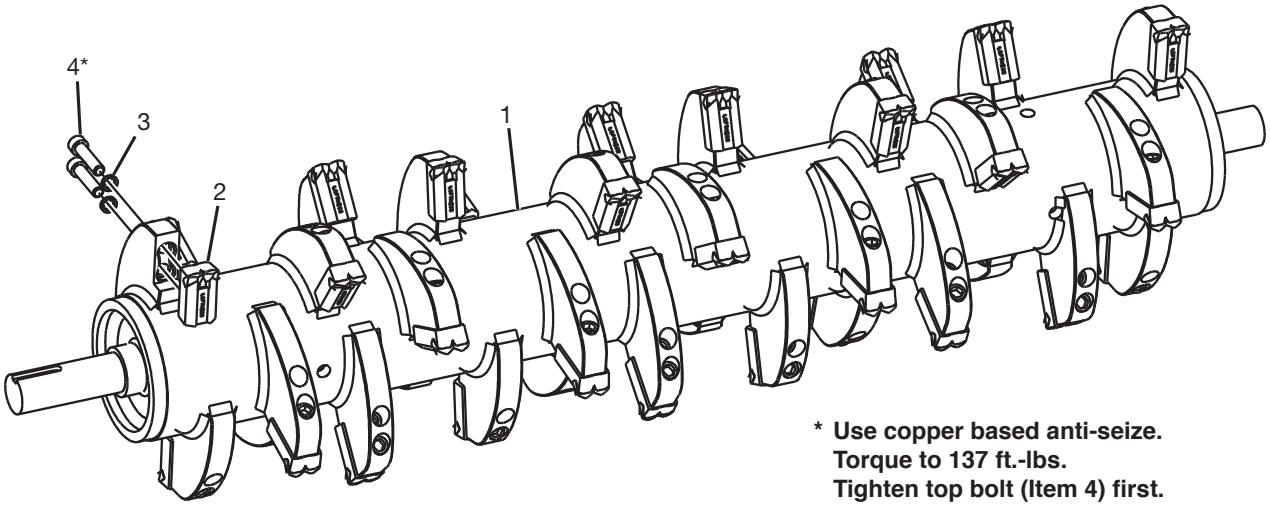
#	QTY.	PART #	DESCRIPTION
*	1	N28376	SEAL KIT (Includes Items 1, 2, 3, and 4)
1	1	-	O-RING 194.1 X 3 V80 / 220 X 3 V80
2	1	-	O-RING 144.5 X 3 V70 / 168 x 3 V70
3	1	-	SHAFT SEAL 60 X 80 X 6
4	1	-	O-RING 114.5 X 3 V80

Overhung Load Adapter (N51193)



#	QTY.	PART #	DESCRIPTION
1	1	N28447	FRONT SEAL
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	1	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

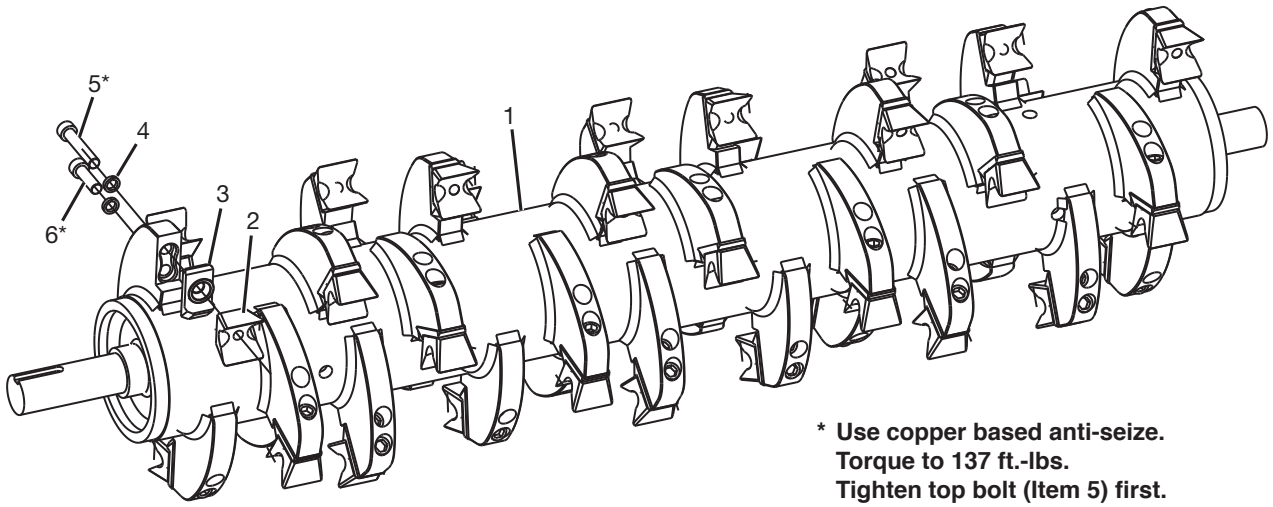
Rotor (w/Double Carbide Teeth) 61" (N38536), 71" (N47831)



*** Use copper based anti-seize.**
Torque to 137 ft.-lbs.
Tighten top bolt (Item 4) first.

#	QTY.	PART #	DESCRIPTION
1	1	N38537	ROTOR, 61" CARBIDE SPIRAL W / O CUTTERS
	1	N47832	ROTOR, 71" CARBIDE SPIRAL W / O CUTTERS
2	36	N15510	TOOTH, DOUBLE CARBIDE (61")
	42	N15510	TOOTH, DOUBLE CARBIDE (71")
3	72	N17041	WASHER, LOCK 5/8" (61")
	84	N17041	WASHER, LOCK 5/8" (71")
4	72	N15646	SCREW, 5/8" - 18UNF x 2 - 1/2" GR 8 (61")
	84	N15646	SCREW, 5/8" - 18UNF x 2 - 1/2" GR 8 (71")

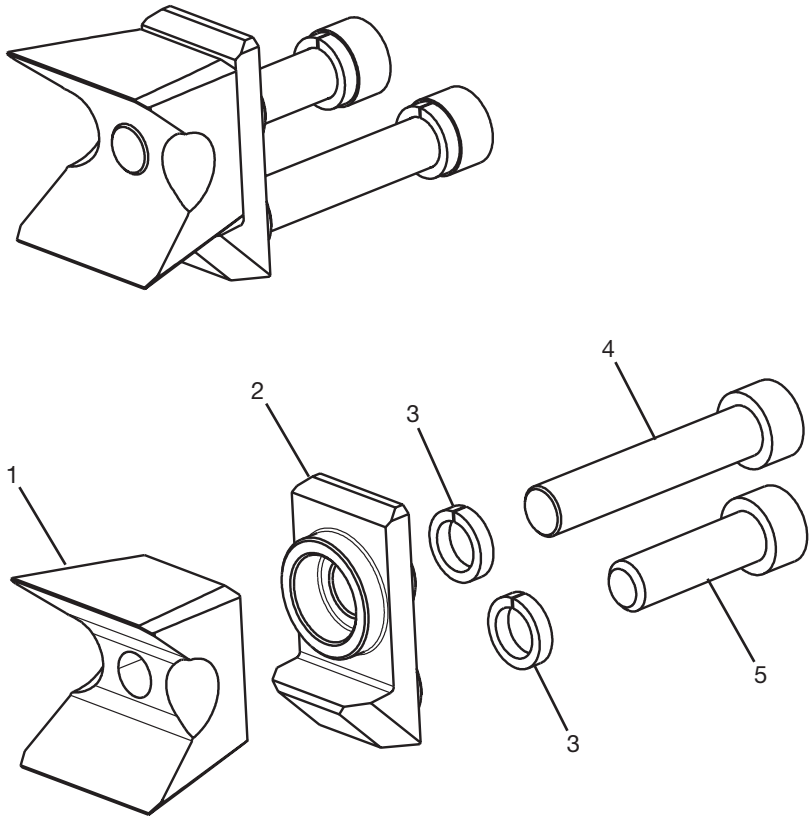
Rotor (W / Quadco Planer Teeth) 61" (N78331), 71" (N38522)



*** Use copper based anti-seize.**
Torque to 137 ft.-lbs.
Tighten top bolt (Item 5) first.

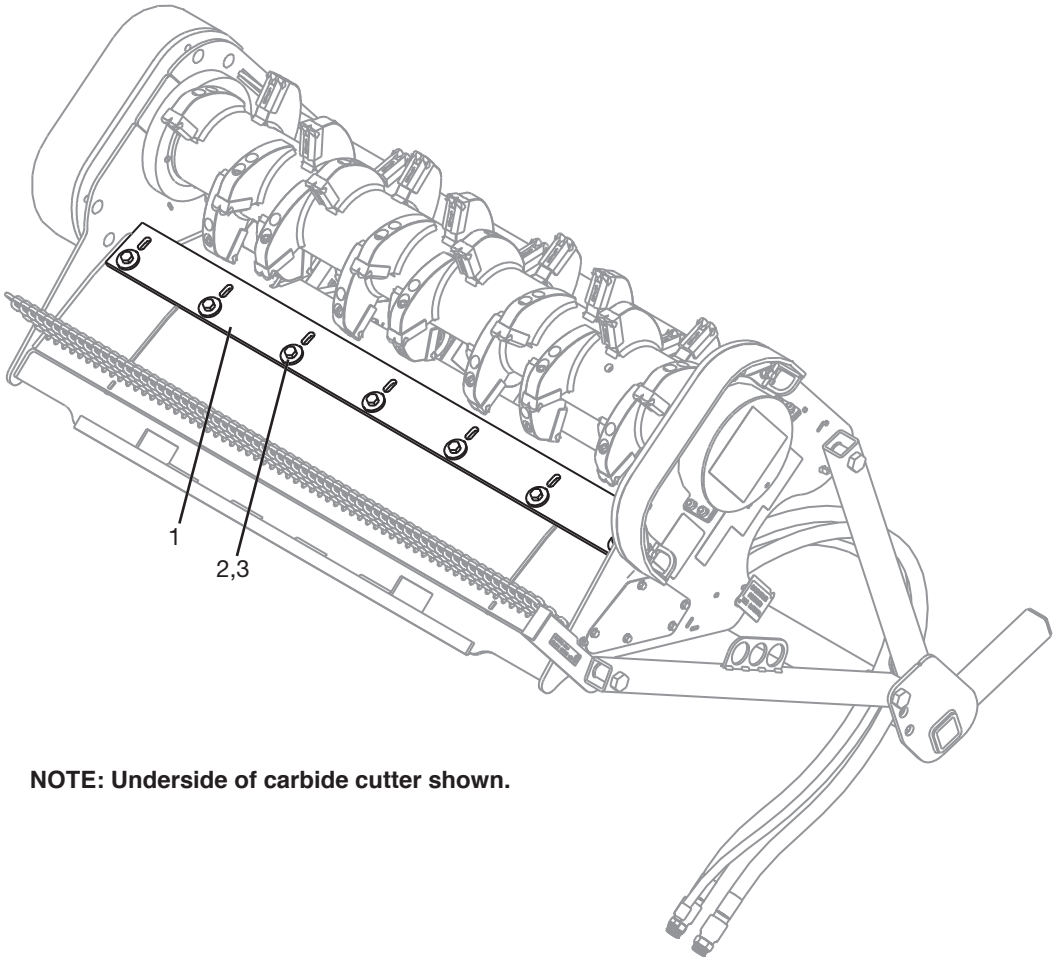
#	QTY.	PART #	DESCRIPTION
1	1	N38537	ROTOR, 61" CARBIDE SPIRAL W / O CUTTERS
	1	N47832	ROTOR, 71" CARBIDE SPIRAL W / O CUTTERS
2	36	N24279	TOOTH, QUADCO PLANER (61")
	42	N24279	TOOTH, QUADCO PLANER (71")
3	36	N24139	HOLDER, TOOTH QUADCO PLANER (61")
	42	N24139	HOLDER, TOOTH QUADCO PLANER (71")
4	72	N17041	WASHER, LOCK 5/8" (61")
	84	N17041	WASHER, LOCK 5/8" (71")
5	36	N26490	SCREW, 5/8" - 18UNF x 3 - 1/4" GR 8 (61")
	42	N26490	SCREW, 5/8" - 18UNF x 3 - 1/4" GR 8 (71")
6	36	N17036	SCREW, 5/8" - 18UNF x 2" GR 8 (61")
	42	N17036	SCREW, 5/8" - 18UNF x 2" GR 8 (71")

Tooth Assembly, Quadco Planer (N24281)



#	QTY.	PART #	DESCRIPTION
1	1	N24279	TOOTH, QUADCO PLANER
2	1	N24139	HOLDER, TOOTH QUADCO PLANER
3	2	N17041	WASHER, LOCK 5/8"
4	1	N26490	SCREW, SHCS 5/8"-18UNF X 3-1/4"
5	1	N17036	SCREW, SHCS 5/8"-18UNF X 2"

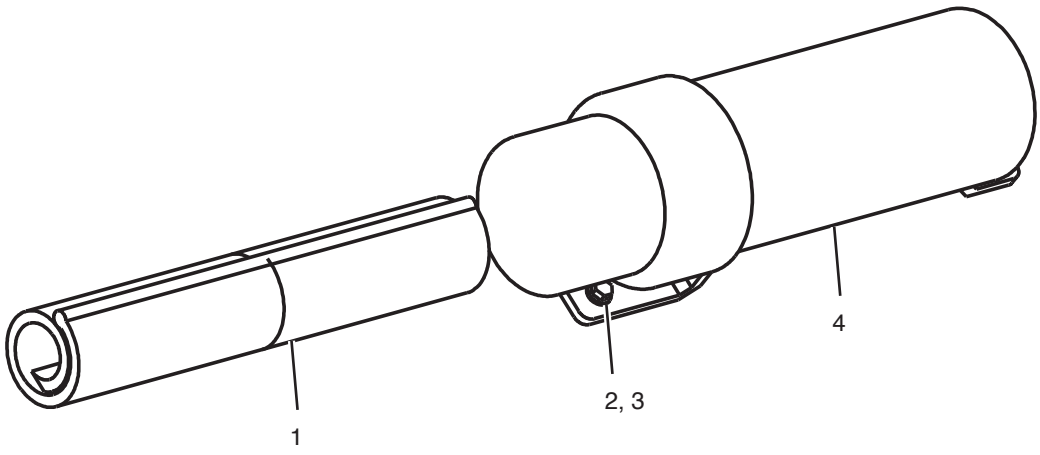
Rear Cutter Bar 61" (N20281), 71" (N21908)



NOTE: Underside of carbide cutter shown.

#	QTY.	PART #	DESCRIPTION
1	1	N38534	PLATE, 61" CARBIDE CUTTER
	1	N41754	PLATE, 71" CARBIDE CUTTER
2	7	4062	WASHER, 2" OD X 11/16" ID X 1/4 T (61")
	7	4062	WASHER, 2" OD X 11/16" ID X 1/4 T (71")
3	7	4042	BOLT, 5/8" x 2" FINE THRD. GR. 8 (61")
	7	4042	BOLT, 5/8" x 2" FINE THRD. GR. 8 (71")

Manual Holder



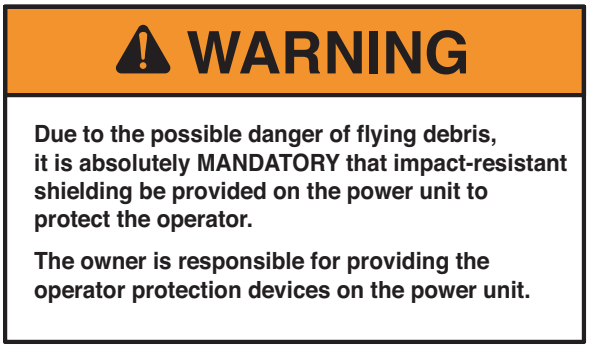
#	QTY.	PART #	DESCRIPTION
1	1	N38489	OPERATORS MANUAL
2	3	4000	BOLT, 1/4" X 1" GRADE 5
3	3	4050	NUT, 1/4" LOCK
4	1	N19600	HOLDER, 01-315A STND. MANUAL

Machine Decals and Signs

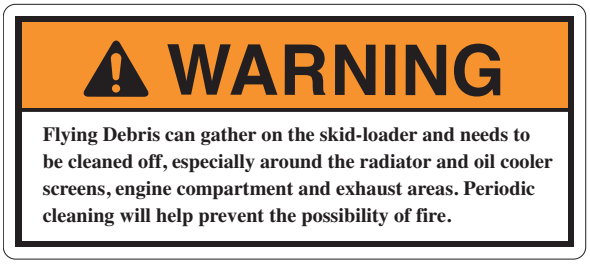
NOTE: *All safety related decals are also shown in the Safety Instructions Section along with their location on the machine. See "Safety Decal Locations" on page 7.*

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

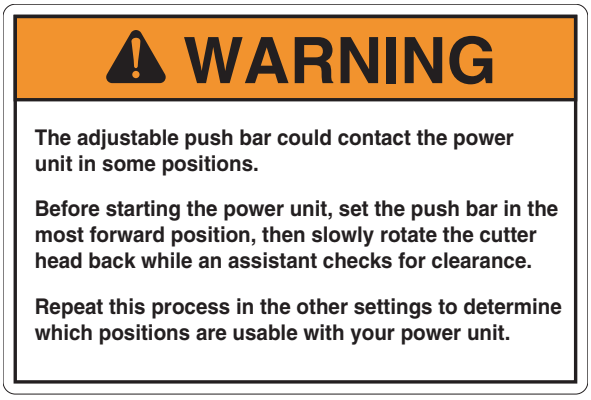
Part No. N17013



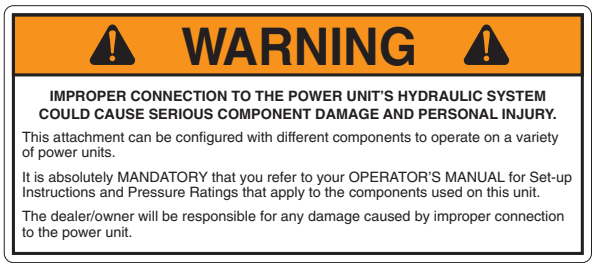
Part No. N20661



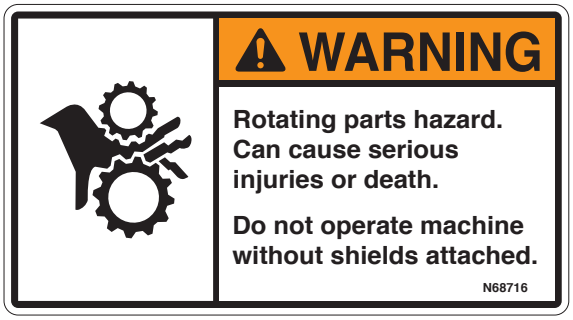
Part No. N17014



Part No. N28385



Part No. N68716



Part No. N28386

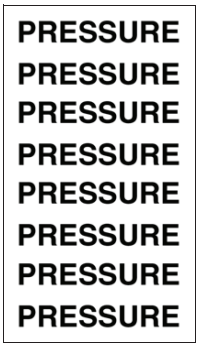
Part No. 4334

Machine Decals and Signs (Cont'd)

Part No. N68724

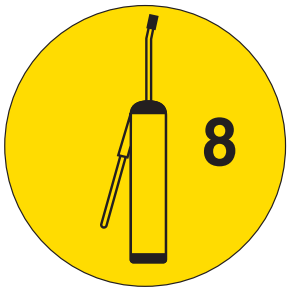
Part No. N24823

Part No. N24822



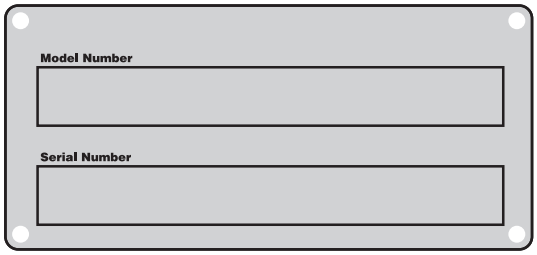
Part No. N28384

Part No. N28010



Part No. N33105

Part No. N13721



Part No. N29769

Part No. N13517

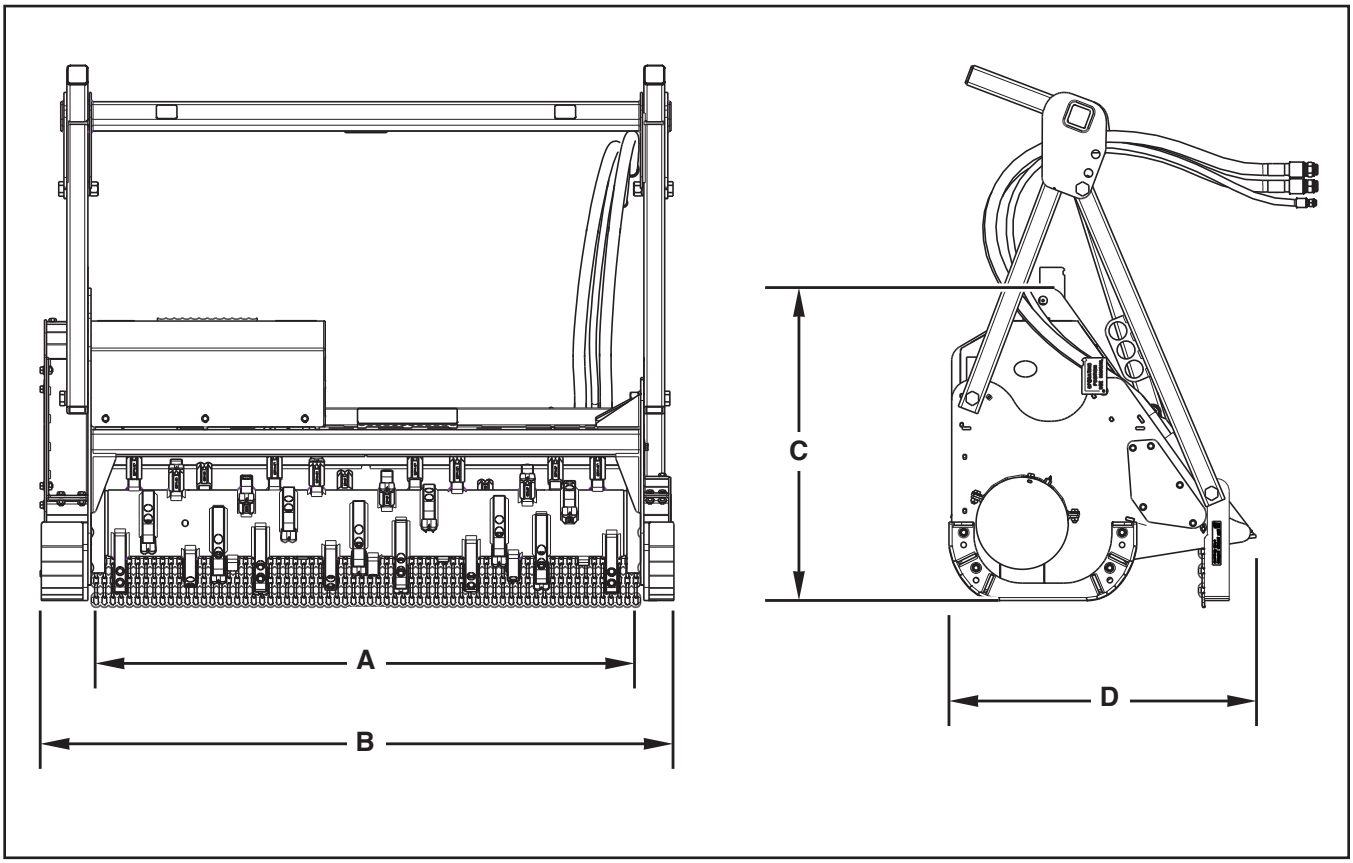
Part No. 4138


LOFTNESS

Specifications

DESCRIPTION	CARBIDE CUTTER
Cutting Width	61 in. (154.9 cm)
	71 in. (180.3 cm)
Operating Capacity	6 in. (15.2 cm) Continuous
	10 in. (25.4 cm) Intermittent
Capacity Monitor	Pressure Gauge
Motor	Variable Displacement
Rotor Bearing	2.1875 in. Piloted Double Taper
Rotor Tip Diameter	17 in. (43.2 cm)
Sheaves	Taperlock
Belt	14 mm x 37 Synchronous
Mount	Universal Skid Type
Shear Bar	Adjustable
Pusher Bar	Adjustable Rigid Bar
Knives	Double Carbide Teeth
	Quadco Planer Teeth, Sharpenable (Optional)
Skid Shoes	Adjustable .5 in. (1.3 cm) Above Grade to 1.5 in. (3.8 cm) Below Grade
Deflector	Steel Chain
Anti-Wrap Protection	Bearing

Dimensions



DESCRIPTION	CARBIDE CUTTER	
	61	71
Cutting Width (A)	61 in. (155 cm)	71 in. (180.3 cm)
Overall Width (B)	76.2 in. (193.5 cm)	86.2 in. (220 cm)
Operating Height (C)	37.71 in. (95.8 cm)	37.71 in. (95.8 cm)
Overall Length (D)	37.09 in. (94.2 cm)	37.09 in. (94.2 cm)
Number Of Knives	36	42
Weight	2453 lb. (1113 kg)	2688 lb. (1219 kg)
Crated Weight	2700 lb. (1225 kg)	2915 lb. (1322 kg)

Torque Specifications

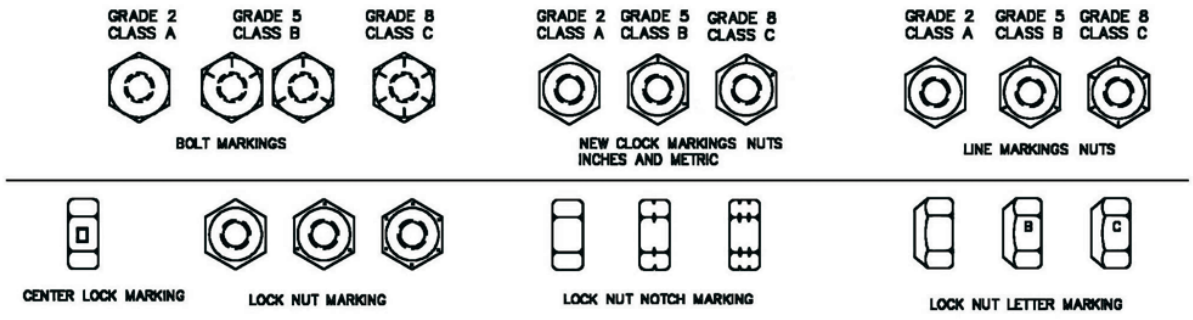
Inches Hardware and Lock Nuts

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)

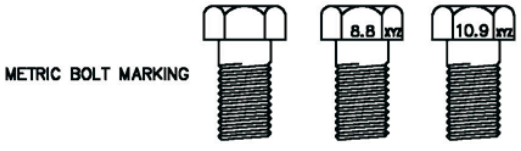
Metric Hardware and Lock Nuts

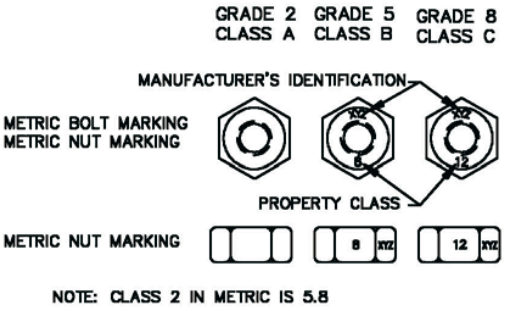
TORQUE CHARTS

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.)





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