

DRUM MULCHER

Operation and Maintenance Manual



*Register your
WARRANTY
within 30 days
of purchase*



BD-092



888-376-7027 | BlueDiamondAttachments.com

Owner Information

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

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

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

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

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

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

Serial Number Location

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

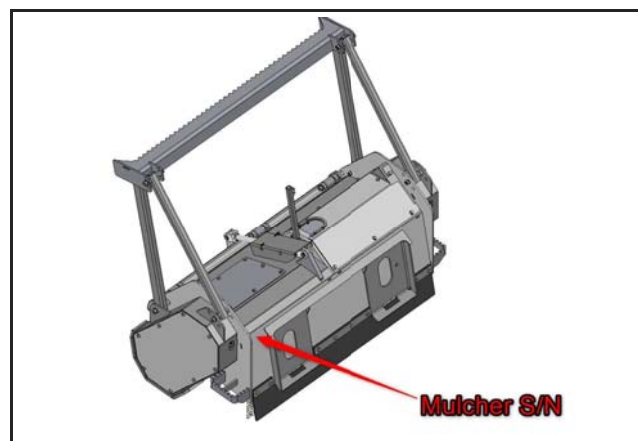


Figure 1

Model Number: _____

Serial Number: _____

Dealer Name: _____

Dealer Number: _____

Date of Purchase: _____

The serial number plate **[Figure 1]** is located on the rear left side of the Drum Mulcher.

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

NOTE: The directions left, right, front and rear, as mentioned throughout this manual, are as viewed from the operator's position.

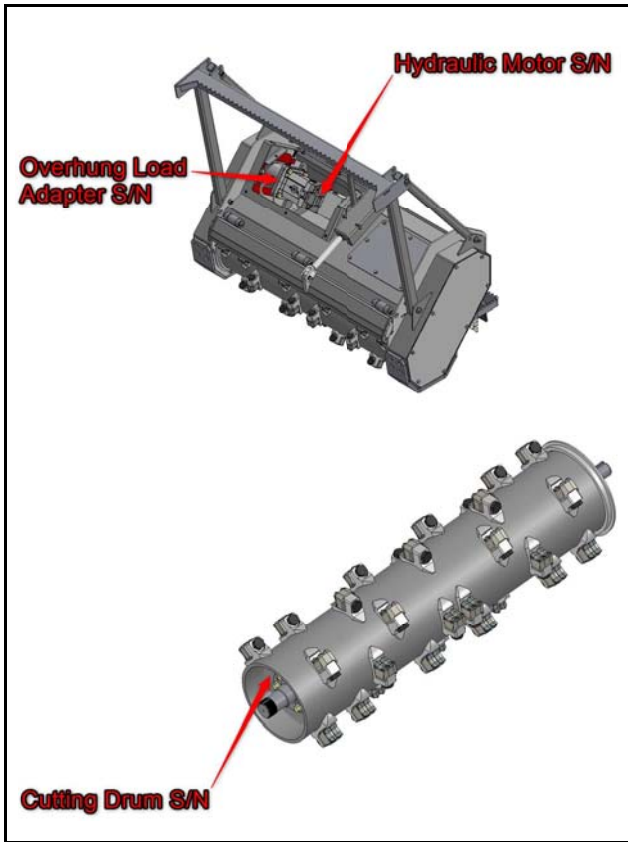


Figure 2

Hydraulic Motor
Serial Number: _____

Overhung Load
Adapter Serial
Number: _____

Cutting Drum
Serial Number: _____

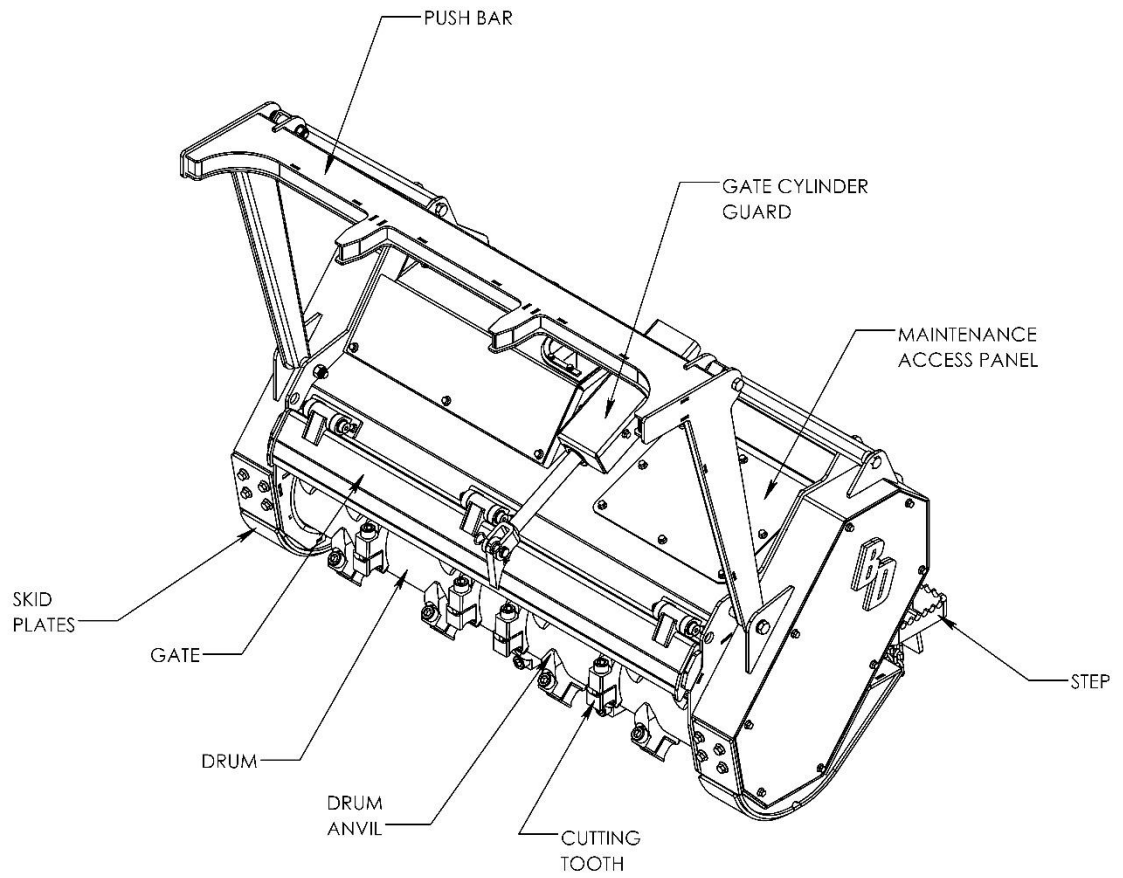
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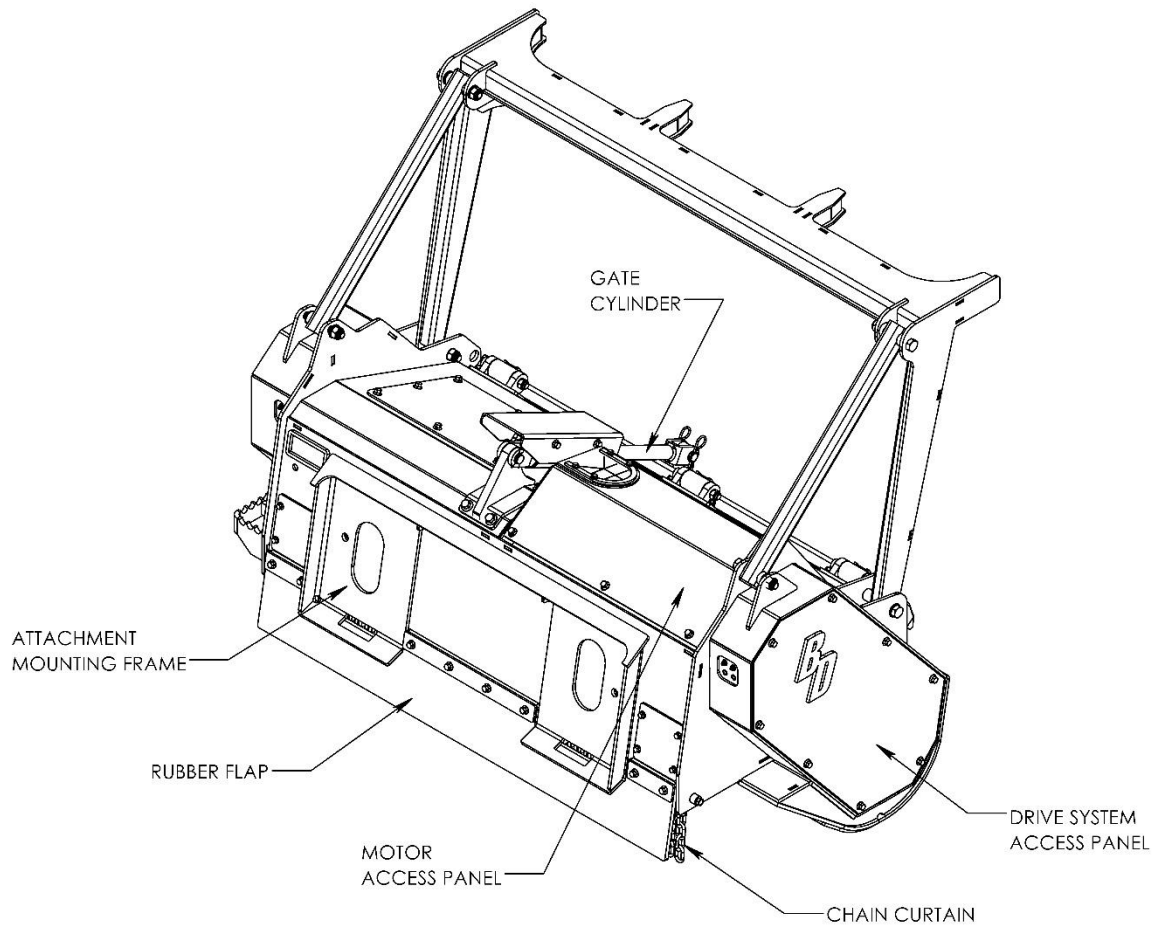
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ATTACHEMENT IDENTIFICATION – FRONT



ATTACHMENT IDENTIFICATION – BACK



Safety Information



SAFETY ALERT SYMBOL

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



DANGER

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



WARNING

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



CAUTION

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



IMPORTANT

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

Safe Operation Needs A Qualified Operator



WARNING

AVOID SERIOUS INJURY OR DEATH

Operators must receive instructions before operating the machine. Untrained operators can cause serious injury or death.

For an operator to be qualified, he or she must not use drugs or alcoholic drinks which impair alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine and the equipment.

Operator Training

- Check the rules and regulations at your location. The rules may include an employer's work safety requirements. Regulations may apply to local driving requirements or use of a Slow Moving Vehicle (SMV) emblem. Regulations may identify a hazard such as a utility line.
- The new operator must start in an area without bystanders and use all the controls until he or she can operate the machine safely under all conditions of the work area.

Importance of Safety

Operating Safety

- Read and follow instructions in this manual and the machine's Operator's Manual before operating.
- This equipment is dangerous to persons unfamiliar with its operation.
- Check for overhead and / or underground lines before operating equipment (if applicable).
- In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.
- Check that the attachment is securely fastened to the machine.
- Make sure all the machine controls are in NEUTRAL before starting the machine.
- Operate the equipment only from the operator's position.
- Operate the equipment according to the Operator's Manual.
- When learning to operate the equipment, do it at a slow rate in an area clear of bystanders.
- DO NOT permit personnel to be in the work area when operating the equipment.
- The equipment must be used ONLY on approved machines.
- DO NOT modify the equipment in any way. Unauthorized modification may impair the function and/or safety and may void the warranty.
- DO NOT make any adjustments or repairs on the equipment while the machine is running.
- Keep shields and guards in place. Replace if damaged.
- DO NOT operate equipment in poor visibility conditions such as fog, darkness, or any conditions that limit clear visibility less than 300 feet (100 m) in front of and to the sides of the equipment.
- When conditions make it necessary to slow ground speed, shift to a lower gear rather than reducing engine speed. The engine will maintain rated speed and keep the drum mulcher running at optimum speed.
- DO NOT operate in a work area that has not been inspected for foreign debris and obstacles.
- Remove any foreign objects and clearly mark any objects that cannot be removed.
- Wear safety glasses, gloves, hearing protection and other protective clothing when required.

Machine Requirements And Capabilities

- The machine's operator's cab should be equipped with a thermoplastic polycarbonate or similar material front window, and similar protection on the sides of the operator's cab before operating the equipment.
- Do Not exceed 5800 psi (400 bar) operating pressure.
- Use caution on slopes and near banks and ditches to prevent overturn.

Importance of Safety Cont'd

Fire Prevention Safety

- Flammable debris (leaves, grass, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it can cause a fire hazard. Clean often to avoid this accumulation.
- The equipment's hydraulic motor compartment must be inspected every day and cleaned if necessary to prevent fire hazards and overheating.
- All fuels, most lubricants and some coolant mixtures are flammable. Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire.

Transporting Safety

- Comply with state and local laws governing highway safety and movement of machinery on public roads.
- Check local laws for all highway lighting and marking requirements.
- Never allow riders on either machine or equipment.
- If transporting the attachment on a truck or trailer, make sure it is properly secured to the transport vehicle.

Hydraulic System

- Check hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. Hydraulic tubes and hoses must be properly routed and have adequate support and secure clamps. Tighten or replace any parts that show leakage.
- Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.

General Information

Pre-Operation Inspection

Before operating the drum mulcher for the first time and each time thereafter, use the following list as a guideline during equipment inspection.



WARNING



AVOID SERIOUS INJURY OR DEATH

- Disengage machine's auxiliary hydraulics, engage the machine's parking brake, stop the engine and make sure all rotating components are completely stopped before connecting, disconnecting, adjusting or cleaning equipment.
 - Always keep shields and all guards in place when using the equipment.
 - Disengage machine's auxiliary hydraulics for road travel.
 - Keep hands, feet and clothing away from rotating parts.
-
- Fully clean the attachment. See "Cleaning the Attachment" on page 47.
 - Lubricate the attachment per the schedule outline in the Maintenance Section. See "Service Schedule" on page 33.
 - Check the drum mulcher mounting frame for damage or cracks.
 - Check that all shields and guards are in place.
 - Check for loose bolts and tighten them if necessary.
 - Inspect the rotating drum for damage and/or loose or missing teeth.
 - Check that the drum rotates freely.

- Check all welds on the attachment for wear and damage each time the attachment is removed from the machine.
- Check for damaged or missing safety decals. Replace if necessary.
- Inspect the machine's mounting frame. (See the machine's Operator's Manual for inspecting the mounting frame). Replace any parts that are damaged, bent or missing. Keep all fasteners tight. Look for cracked welds.



WARNING



Leaking fluids under pressure can enter the skin and cause serious injury or death. Immediate medical attention is required. Wear goggles. Use cardboard to check for leaks.

- Check condition of all hydraulic components for leaks. Repair as required.
- NOTE:** Do not operate with hydraulic leaks.
- Verify that the drum mulcher is properly connected to the machine.

Attachment Inspection

Daily Inspection



WARNING



AVOID SERIOUS INJURY OR DEATH

Before servicing the attachment:

- **Always park on a flat level surface.**
- **Lower lift arms and place attachment flat on the ground.**
- **Place all controls in NEUTRAL.**
- **Engage the park brake.**
- **Wait for all moving parts to stop.**
- **Stop the engine and remove the key.**

SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.

NOTE: Inspect the attachment by performing a walk around daily before and after use. Use the following inspection checklist as a guideline.

Check the following items every 10 hours of operation:

- Lubricate the two grease zerks labeled "8 hour" on the cutting drum bearings located on each side of the mulcher. See "Lubrication" on page 34.
- Inspect for loose, damaged or missing cutting teeth. Tighten any loose teeth and replace damaged or missing teeth.
- With a pry bar, lever the cutting drum up at each end where the bearings are located. No movement is expected.
- With a pry bar, inspect the cutting drum for left to right play. Expect 1/8" to 1/4" play.

- Inspect the grease overflow port for signs of liquid overflow. Liquid grease streaks may be a sign of bearing overheating or the operating temperature of the grease used is too low.
- Clean the debris off the mulcher body. Pay particular attention to debris accumulations between the main body and the gate hydraulic cylinder. A significant amount of debris caught between the cylinder and the main body can damage the cylinder when the gate is pushed down.
- Remove an access panel to inspect the interior of the mulcher for debris, hydraulic oil leaks, water accumulations and other foreign objects.
- Check hydraulic lines, connections and fittings for hydraulic oil leaks. Repair or replace damaged parts if necessary.
- Inspect cylinder pins and pin locks on the hydraulic gate, push bar.
- Check that the drum rotates freely.
- Verify that the drum mulcher is properly connected to the machine.
- Check that all shields and guards are in place.
- Check the drum mulcher mounting hardware for wear or damage. Inspect the pins and mount (on the attachment) for wear or damage. Repair or replace damaged parts if necessary.
- Inspect the integrity of the debris shield for holes, tears, or missing sections. Fix and repair any issues before operation.

Weekly Inspection



WARNING



AVOID SERIOUS INJURY OR DEATH

Before servicing the attachment:

- Always park on a flat level surface.
- Lower lift arms and place attachment flat on the ground.
- Place all controls in **NEUTRAL**.
- Engage the park brake.
- Wait for all moving parts to stop.
- Stop the engine and remove the key.

SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.

NOTE: In addition to the daily inspection tasks, perform the following maintenance tasks weekly or after 40 hours of operation. Perform inspections at the end the work shift while the machine is hot.

Check the following items every 40 hours of operation:

- Lubricate the grease zerk labeled "40 hour" on the overhung load adapter bearing located on the right side of the mulcher. See "Lubrication" on page 34.
- Inspect the grease overflow port for signs of liquid overflow. Liquid grease streaks may be a sign of bearing overheating or the operating temperature of the grease used is too low.
- Clean debris from the compartment and drive components.
- Inspect condition of drive belt cogs for wear and damage.

NOTE: No play should be observed between the sprockets and respective shafts.

- Verify belt tension.
- Check for damaged or missing decals. Replace if necessary.

Attachment Installation

! IMPORTANT !



See the machine's Operator's Manual for detailed information on operating the loader.

Entering The Operator's Position

Use the attachment safety treads, handles and steps (on the machine) to enter the operator's position.

When in the operator's position, lower safety seat bar, fasten the seat belt, start the engine and release the parking brake.

Leaving The Operator's Position

! WARNING !

AVOID SERIOUS INJURY OR DEATH

Before leaving the operator's position:

- Always park on a flat level surface.
- Lower lift arms and place attachment flat on the ground.
- Place all controls in **NEUTRAL**.
- Engage the park brake.
- Stop the engine and remove the key.
- Wait for all moving parts to stop.

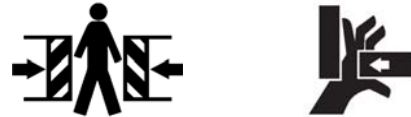
SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.

Park the machine / attachment on a flat level surface.

Place all controls in neutral, engage the park brake, stop the engine and wait for all moving parts to stop. Leave the operator's position.

Connecting Attachment To The Machine

! WARNING !



CRUSH HAZARD

- Before moving the machine, look in all directions and make sure no bystanders, especially small children are in the work area. Do not allow anyone between the machine and attachment when approaching the attachment for connecting.
- Keep fingers and hands out of pinch points when connecting and disconnecting attachment.

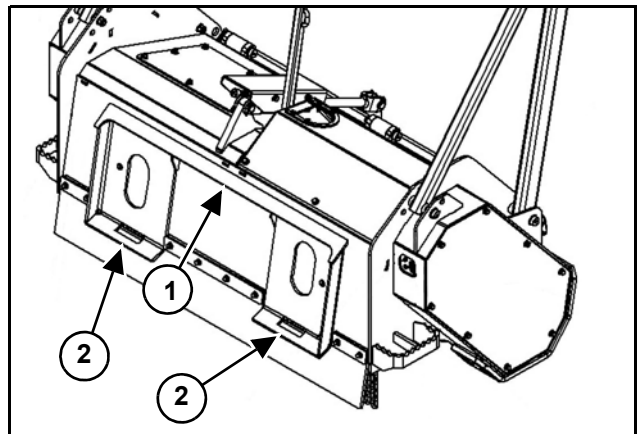


Figure 3

Inspect the drum mulcher's mounting flange (Item 1) and wedge mounts (Item 2) [Figure 3] and all welds on the drum mulcher for wear or damage each time the drum mulcher is removed from the machine.

(See the machine's Operator's Manual for inspecting the mounting frame).

Connecting Attachment To The Machine Cont'd

Enter the operator's position. See "Entering The Operator's Position" on page 22.

Drive the machine slowly forward, until the top edge of the machine's mounting plate is under the top flange of the attachment mounting frame.

Slowly tilt the machine's mounting plate back until the attachment mounting frame fully contacts the front of the machine's mounting plate.

Leave the operator's position. See "Leaving The Operator's Position" on page 22.



AVOID SERIOUS INJURY OR DEATH

The locking pins / wedges must extend through the holes in the attachment mounting frame. Failure to secure locking pins / wedges can allow attachment to come off.

SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.

Engage attachment locking levers / wedges (See the machine's Operator's Manual for detailed information).

Connecting Hydraulic Hoses



- **Thoroughly clean the quick couplers before making connections. Dirt can quickly damage the hydraulic system.**

Remove dirt or debris from the male and female couplers. Visually inspect the couplers for corroding, cracking, damage, or excessive wear. Replace as needed.

Connect the attachment hydraulic hoses to the machine. Pull on each hose to verify full connection is made.

Disconnecting Hydraulic Hoses



AVOID BURNS

Hydraulic fluid, tubes, fittings and quick couplers can get hot during operation. Be careful when connecting and disconnecting hydraulic hoses.

Relieve auxiliary hydraulic pressure. (See the machine's Operator's Manual for correct procedure.)

Disconnect attachment hydraulic hoses from the machine.

Disconnecting Attachment From The Machine

Relieve auxiliary hydraulic pressure. (See the machine's Operator's Manual for correct procedure.)

Park the machine and attachment on a flat level surface. Lower the attachment flat on the ground.

Leave the operator's position. See "Leaving The Operator's Position" on page 22.

Disconnect attachment hydraulic hoses from the machine.

Disengage locking pins / wedges. (See the machine's Operator's Manual for correct procedure.)

Enter the operator's position. See "Entering The Operator's Position" on page 22.

Slowly tilt the machine's mounting plate forward until the attachment mounting frame is free from the machine's mounting plate.

Drive the machine slowly backward, away from the attachment.

Operating The Attachment

Machine Requirements

- The machine must be equipped with a case drain.

MACHINE REQUIREMENTS
35-52 GPM Auxiliary Flow
Roll-Over Protective Structure (ROPS)
Falling Object Protective Structure (FOPS)
Operator Protective Structure (OPS)

NOTE: The machine must be equipped with under belly removable plates for cleaning dust and debris out of the machine's frame work; mulcher heads are known to kick up large amount of wood dust and debris.

Machine Hydraulic Loop Capacity

Mulcher must be configured according to the machines hydraulic loop system; open or closed loop.

NOTE: Total loop flush volume must not exceed 60% of the machines charge pump capacity.

Closed Loop System

- Enable mulcher motor loop flush.

Open Loop System

- It is recommended to disable the mulcher motor loop flush to reduce the flow to the machine case drain line which reduces the pressure on the mulcher hydraulic motor case.

Clearing Work Area



- DO NOT** operate in a work area that has not been cleared of foreign debris and obstacles.
- Rocks, metal, construction debris and other objects can damage the drum mulcher.
- Clearly mark any objects that cannot be removed.
- If an area contains tall grass, clear cut the area first, either by mowing or tilling the ground.

Safety Perimeter

The area within 300 ft. (100 m) radius of an operating mulcher is considered a hazard zone in which a person may be injured. No personnel can be inside a 300 ft. (100 m) radius of a mulcher in operation.



AVOID SERIOUS INJURY OR DEATH

If personnel enter the hazard zone, the machine operator must stop all work and give a warning signal, so that person may leave the hazard zone.

Initial Setup

Attach Plate

Mulcher may be fitted with a quick attach plate or customized fixed pin system.

Hydraulic

The mulcher head has three main hydraulic components:

- Hydraulic motor
- Hydraulic gate cylinder (optional)
- Hydraulic push bar (optional)

Hydraulic Motor

- Pressure Line
 - Fitting size - ORFS #16 Female
 - Hose size - #16
- Return Line
 - Fitting size - ORFS #16 Female
- Hose size - #16
- Drain Line
 - Fitting size - ORFS #12 Female
 - Hose size - #12

Hydraulic Gate Cylinder (Option)

- Extend and Retract Lines
 - Fitting size – SAEORFS #6
 - Hose size - #6

Operation

NOTE: Under operating conditions, rated case drain pressure must not be exceeded.

NOTE: During cold start, case pressure must be kept below maximum case pressure.

NOTE: Operation with case pressure in excess of stated limits will damage seals, gaskets, and or hydraulic motor housings.

See page 49 in Maintenance Section for causes of high case drain pressure.

Starting the Drum Mulcher



At the sign of any unusual vibrations during operation, stop and inspect for loose, damaged or missing cutting teeth.



The cutting drum must not exceed 2400 rpm. Serious damage can result.

Install the drum mulcher onto the machine.

Move to the operator's position, lower seat bar, start the engine and release the parking brake.

Raise the drum mulcher slightly off the ground to allow the mulcher drum to rotate freely.

With the machine's engine RPM just above idle, engage the auxiliary hydraulic flow (see the machine's operator's manual) to the drum mulcher. Allow the hydraulic system to properly warm up.

Slowly raise the machine's engine RPM to the correct maximum speed and begin mulching.



WARNING



AVOID SERIOUS INJURY OR DEATH

Before servicing the attachment:

- Always park on a flat level surface.
- Lower lift arms and place attachment flat on the ground.
- Place all controls in NEUTRAL.
- Engage the park brake.
- Wait for all moving parts to stop.
- Relieve hydraulic system pressure.
- Stop the engine and remove the key.

SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.



WARNING



Drum Wrapping

Debris such as rope, wire, roots, plastic etc. may wrap around rotating drum. **STOP IMMEDIATELY** and remove foreign material. Spinning of drum and throwing of material may cause harm to operator/bystander!

Stopping the Drum Mulcher

Position the drum mulcher slightly off the ground.

Set the machine's engine RPM to an idle, allow the drum mulcher to slow down, disengage the auxiliary hydraulic flow (see the machine's operator's manual) to the drum mulcher.

Allow the time for the drum to stop rotating and lower the drum to the ground.

Stop the engine.

Mulcher Functions

Gate

The optional mulcher gate pushed down produces a finer mulch and can be used to help control debris ejection out of the cutting chamber.

Push Bar

The optional hydraulic push bar is essential for tree felling control; among other uses, it is generally used to push a standing tree forward while cutting the base.

Push bar horizontal extensions are used to nudge a falling tree over sideways to control the direction of the fall.

Cutting Drum Variable Speed

The cutting drum is most efficient at high speed (1800 to 2400 rpm).

When hydraulic system pressure reaches the hydraulic motor shift point, the cutting drum speed drops in torque mode and becomes ineffective. Lift the head up and allow cutting drum to regain speed.

Mulching Techniques

Mulching techniques vary from regions, vegetation types, conditions and operators preferences. The following is an overview of the more common techniques.

Tree Felling

Small Trees - Less than 3 in. (8 cm) diameter

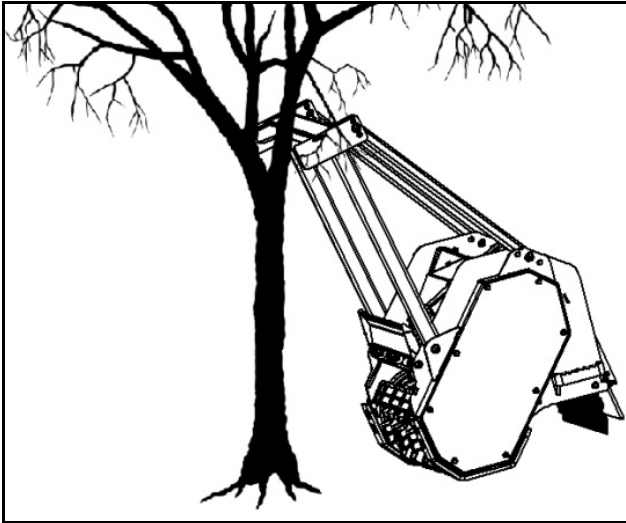


Figure 4

NOTE: If equipped, gate must always be open in a full back position when attacking trees.

Attack low to the ground.

Position mulching head tilted forward enough to engage the push bar against the tree [Figure 4]. Use the machine to push and bend the tree forward until the rotating drum is in cutting range.

NOTE: Most of the mulching and finish work is done on the reverse pass.

Large Trees - Larger than 3 in. (8 cm) diameter

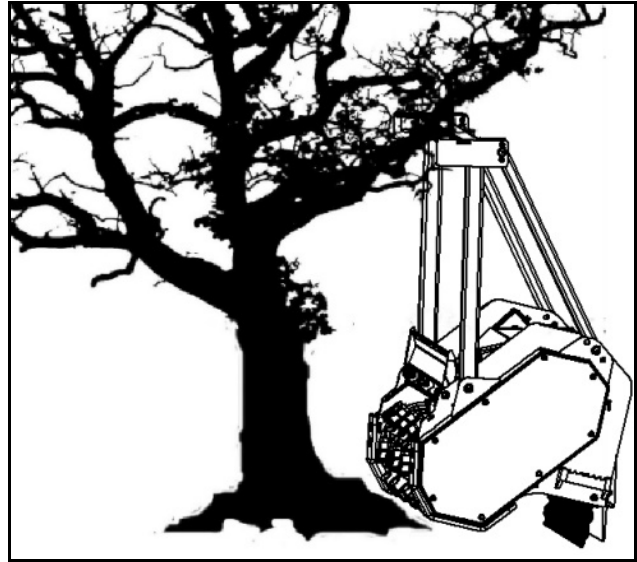


Figure 5

Attack tree at 24 to 36 in. (60 to 90 cm) off the ground.

Position mulching head tilted back to expose the drum cutting teeth to the tree before the push bar makes contact [Figure 5].

Mulching - Tree down on ground

The mulching teeth contact the ground before the two side skid plates do; cutting teeth protrude past the skid plates by 0.4 in. (10 mm).

For effective shredding, move the machine at a slow advancing speed while maintaining the drum rotation speed high.

Make a first pass forward to shred the upper half of the tree diameter and then finish the lower diameter half on the reverse pass.

Drum Stall

NOTE: If the rotation of the cutting drum stops due to jammed up debris in the cutting chamber, promptly shut down hydraulic flow to the mulcher to avoid hydraulic oil overheating.

Causes and Remedy

- Operator induced.
 - Lift head to recover.
- Debris jammed up in cutting chamber.
 - Immediately shut down hydraulic flow to the mulcher.
 - Press the head's rotating drum against the ground.
 - Drive the machine in reverse, dragging the head on the ground, to force the drum to turn backward and dislodge jammed up debris until the drum turns free.
 - In extreme cases, blockage must be manually removed.

WARNING

AVOID SERIOUS INJURY OR DEATH

Before servicing the attachment:

- **Always park on a flat level surface.**
- **Lower lift arms and place attachment flat on the ground.**
- **Place all controls in NEUTRAL.**
- **Engage the park brake.**
- **Wait for all moving parts to stop.**
- **Relieve hydraulic system pressure.**
- **Stop the engine and remove the key.**

SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.

Grease Overflow

Below each of the three grease zerks is a grease overflow port. Grease overflow during operation may occur.

NOTE: If the grease overflow is liquid, it may be a sign of bearing overheating or the operating temperature of the grease used is too low.

Vibration

NOTE: Do not operate with an unbalanced cutting drum. The resulting vibration can cause severe damage to the mulcher and the machine.

IMPORTANT

Mulchers are known to generate tremendous vibrations when the cutting drum becomes unbalanced. The resulting vibration will reduce the life of all mechanical and structural systems of both the mulcher head and the machine. Do not operate with an unbalanced cutting drum.

Service Schedule

Maintenance Intervals

DESCRIPTION	SERVICE PROCEDURES			
	Check	Clean	Lube	Change
Daily Maintenance (or every 8 hours)				
Cutting Drum Bearings	•		•	
Hydraulic Fittings	•			
Hydraulic Hoses	•			
Hydraulic Cylinder	•			
Hydraulic Gate	•			
Hydraulic Motor	•	•		
Cutting Teeth (wear, damage, and loosening)	•	•		
Attachment Mounting Frame	•			
All Hardware	•			
Drum Mulcher Frame	•	•		
Weekly Maintenance (or every 40 hours)				
Overhung Load adapter Bearings	•		•	
Drive Belt	•			
Sprockets	•			
Cutting Drum	•			
Push Bar	•			
All Hardware	•			
Compartments		•		
Decals	•			

Lubrication



DANGER



AVOID SERIOUS INJURY OR DEATH

Before servicing the Drum Mulcher:

- Lower the machine's lift arms and place the drum mulcher on flat, level surface.
- Engage parking brake, stop engine, remove the key and exit the machine.
- Disconnect attachment hydraulic hoses.



WARNING



AVOID SERIOUS INJURY OR DEATH

DO NOT work under the machine lift arms in the raised position without the lift arms being properly locked or blocked (see machine operator manual for more information.)



IMPORTANT



Fluid such as hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for the correct disposal.

NOTE: Use high temperature with a dropping point of minimum 340° (170°C) such as Mobil PolyrexEM.

Below each of the three grease zerks is a grease overflow port. Grease overflow during operation may occur.

NOTE: Inspect the grease overflow port for signs of liquid overflow. Liquid grease streaks may be a sign of bearing overheating or the operating temperature of the grease used is too low.

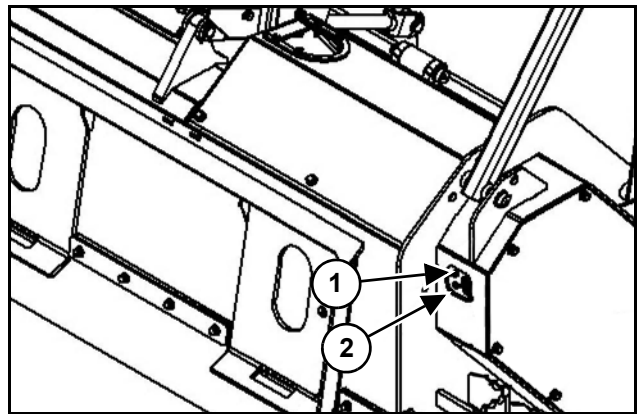


Figure 6

Every 8 Hours: Lubricate the two grease zerks (Item 1) [Figure 6] labeled “8 hour” located on each side of the mulcher with three to four pumps of grease each. The “8 hour” grease zerks lubricate the cutting drum bearings.

Every 40 Hours: Lubricate the grease zerk (Item 2) [Figure 6] labeled “40 hour” located on right side of the mulcher with six to eight pumps of grease. The “40 hour” grease zerk lubricates the hydraulic motor overhung load adapter bearings.

Mulcher

Removal / Replacement



AVOID SERIOUS INJURY OR DEATH

Before servicing the Drum Mulcher:

- Lower the machine's lift arms and place the drum mulcher on flat, level surface.
- Engage parking brake, stop engine, remove the key and exit the machine.
- Disconnect attachment hydraulic hoses.

Torque Pattern

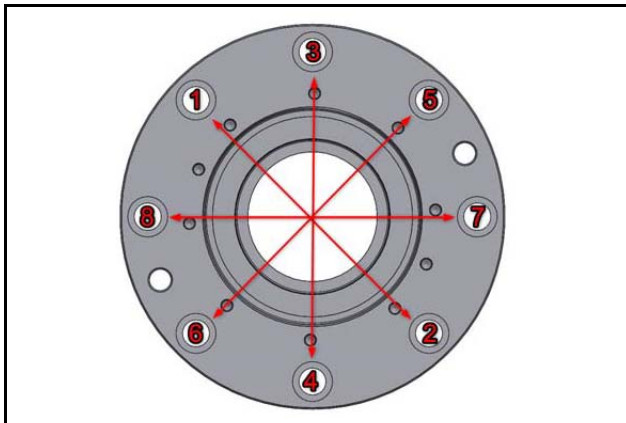


Figure 7

A number of mechanical components involve torquing bolts in circle or square patterns. The torquing pattern is known to all certified mechanics, however, as a reminder, the following illustrates the pattern of torquing the fasteners on the opposite side of the last fastener tightened [Figure 7].

Teeth

Chipping Teeth

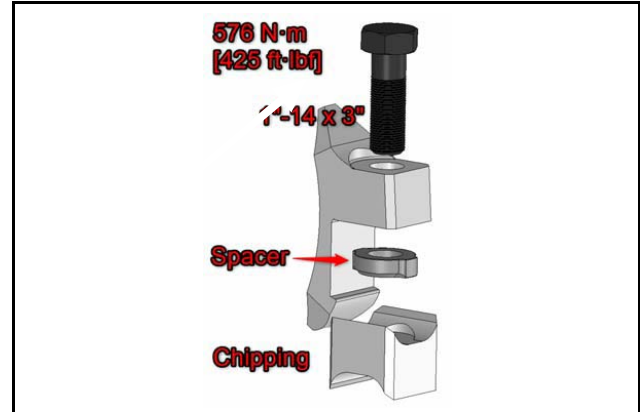


Figure 8

Chipping teeth have 4 cutting edges. They can be rotated as they wear to use all 4 edges during the life of the teeth.

Chipping teeth are installed with a spacer. The spacer can only sit one way [Figure 8].

Bolts for chipping teeth are 3" long and cannot be used with carbide style teeth.

Carbide Teeth



Figure 9

Some carbide teeth are double sided and can be rotated [Figure 9].

Bolts for carbide teeth are 2-1/2" long.

Drive Belt

Removal

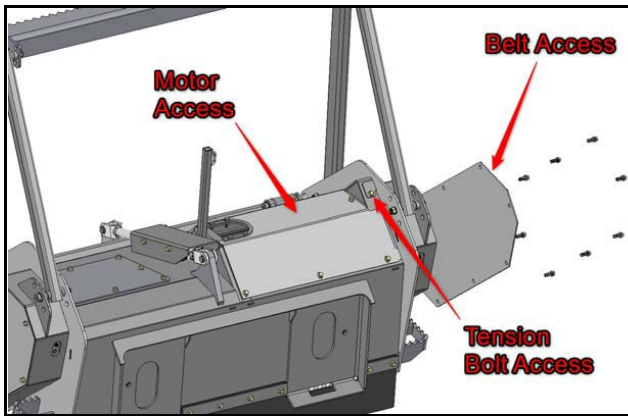


Figure 10

1. Remove 3 access panels: belt access, motor access, tension access [Figure 10].

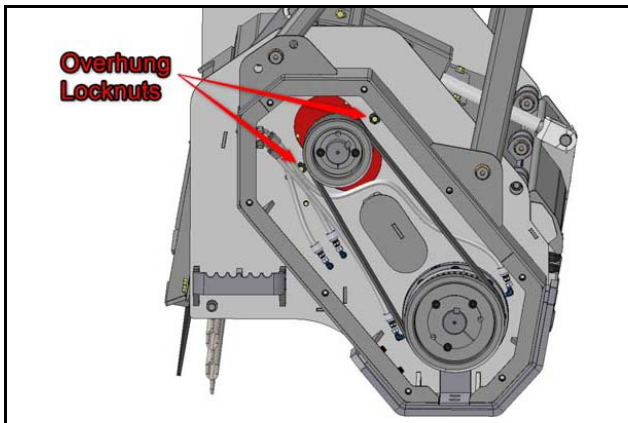


Figure 11

2. Loosen both overhung locknuts [Figure 11].

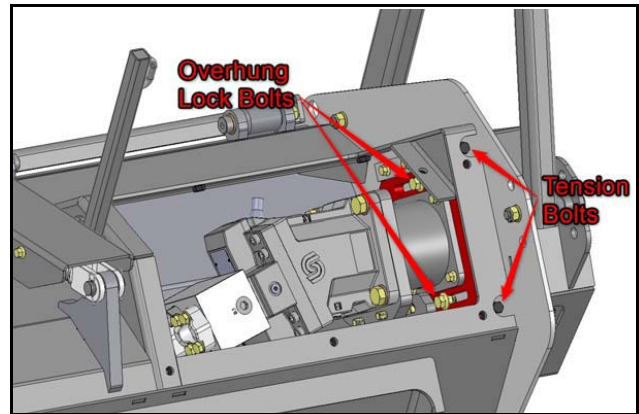


Figure 12

3. Loosen both tension bolts [Figure 12].
4. Loosen both overhung locknuts.

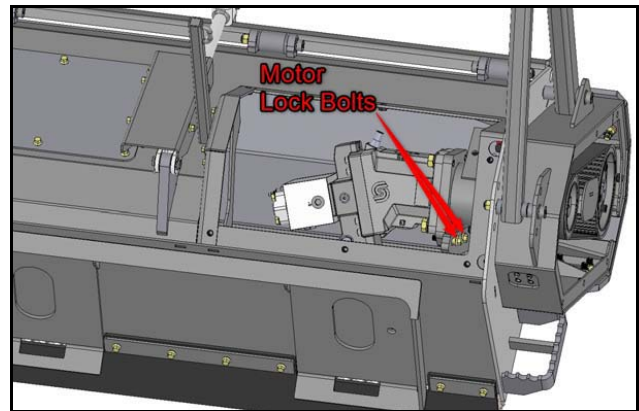


Figure 13

5. Loosen both motor lock bolts [Figure 13].

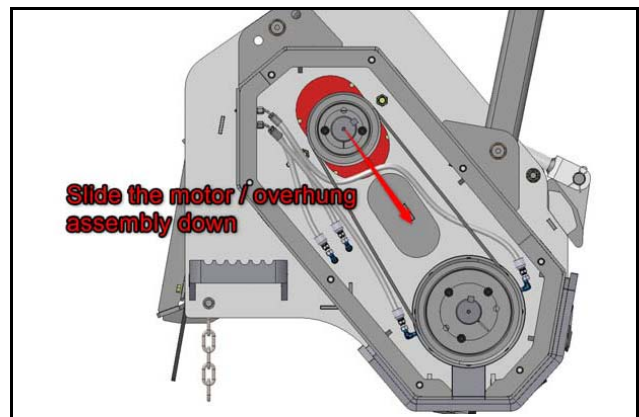


Figure 14

6. Slide the motor / overhung assembly down and remove belt [Figure 14].

Replacement

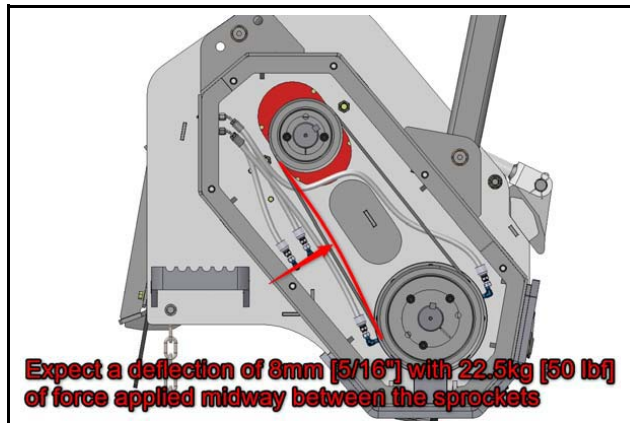


Figure 15

NOTE: Very important the belt be fully seated in the sprocket grooves before applying final tension.

1. Install replacement belt **[Figure 15]**.
2. Tighten the tension bolts to apply tension on the belt.
3. Tighten overhung lock bolts and check tension.

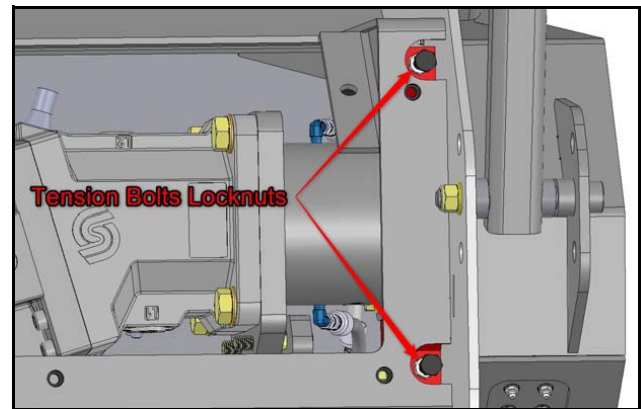


Figure 16

4. Once belt tension is as specified, tighten and torque:
 - a. Overhung Lock Bolts: 218 ft lb (296 N·m)
 - b. Overhung Locknuts: 218 ft lb (296 N·m)
 - c. Motor Lock Bolts: 140 ft lb (190 N·m)
 - d. Tension Bolt Locknut: light lock **[Figure 16]**

Sprocket

Removal

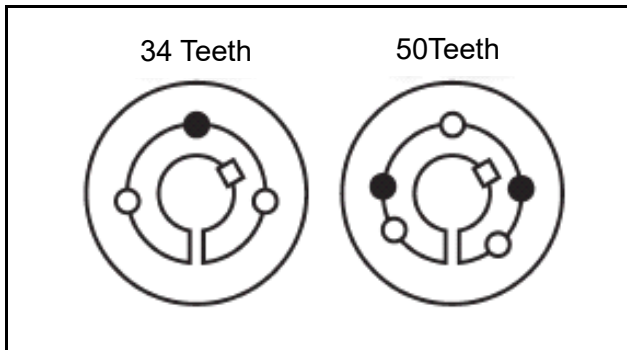


Figure 17

1. Remove the drive belt; see “Drive Belt” on page 36 for belt removal and replacement instructions.
2. Loosen and remove all taper lock mounting screws.
3. Insert the screws into all jack screw holes indicated by (•) [Figure 17].
4. Remove the taper lock and key.
5. Loosen the bushing by alternately tightening the screws in small but equal increments until sprocket and bushing surfaces disengage.
6. Remove sprocket.

Installation

NOTE: Do not lubricate the bushing taper, hub taper, bushing bore, or shaft. Doing so could result in sprocket breakage.

1. Clean the sprocket of all oil paint and dirt.
2. File off any burrs.
3. Insert bushing into the sprocket hub. Match the hole pattern, each complete hole will only be threaded on one side.
4. Lightly oil the screws and thread them into the half threaded holes indicated by (O) [Figure 17].
5. Place the key in the shaft keyway, ensure it is fully in the slot.
6. Position the assembly onto the shaft, allow for small axial movement of the sprocket which will occur during tightening process.
7. Insert a flat head screw driver in the gap of the taper lock to widen and fit onto the shaft.
8. Alternately torque the screws until the sprocket and bushing tapers are completely seated together; approximately half of the recommended torque, see table below.
9. Check alignment of both upper and lower sprockets; adjust as necessary.
10. Torque the screws alternately to the recommended torque values.
11. Recheck all screw torque values after initial drive run in.

Torque Specifications

Bushing Style	Bolts		Torque	
	Qty	Size	ft-lb	N•m
34 Teeth	2	1/2 x 13 x 1	35.8	49
50 Teeth	3	1/2 x 13 x 1 x 1/2	83.3	113

Skid Plate

Removal

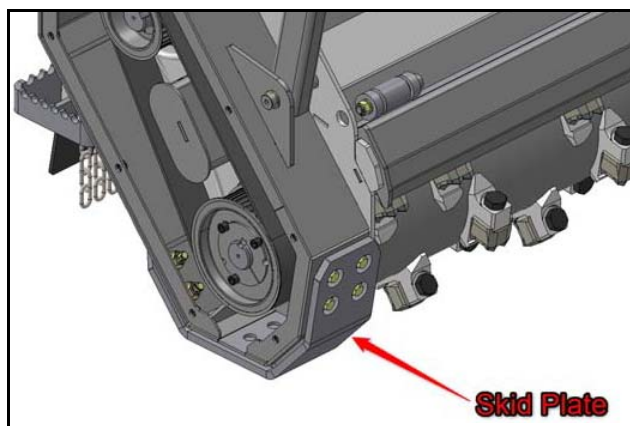


Figure 18

1. Rest the mulcher skid plates on blocks, elevated off the ground for easier access to the fasteners.
2. Remove the belt access panel and the twin access panel on the opposite side of the mulcher.
3. Remove the skid plates bolts and nuts **[Figure 18]**.
4. Raise the mulcher off the blocks to free up the skid plates.

Installation

1. Position the replacement skid plates on elevated blocks and lower the mulcher onto the skid plates.
2. Fasten together and torque to 218 ft-lb (296 N·m).

Cutting Drum Bearing and Shaft Seal

Removal

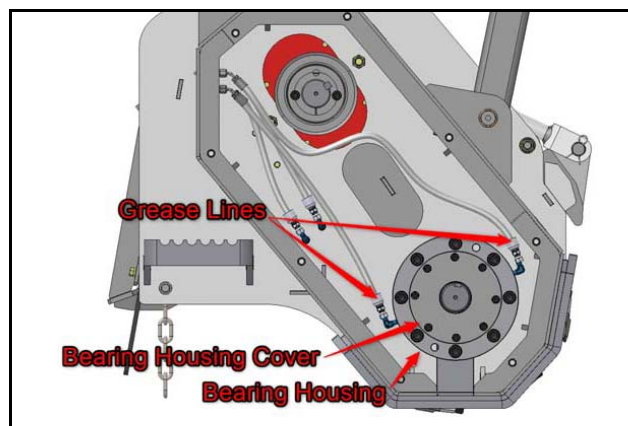


Figure 19

1. Remove drive belt and lower sprocket; see “Drive Belt” on page 36 and “Sprocket” on page 38 for instructions.
2. Rest the mulcher on blocks under the cutting drum.
3. Remove grease lines from the bearing housing on both sides; leave the fittings in the bearing housing **[Figure 19]**.
4. Remove bearing housing cover plate.
5. Remove bearing housing cover plate shaft seal.
6. Remove excess grease out of the housing.

Removal (Cont'd)

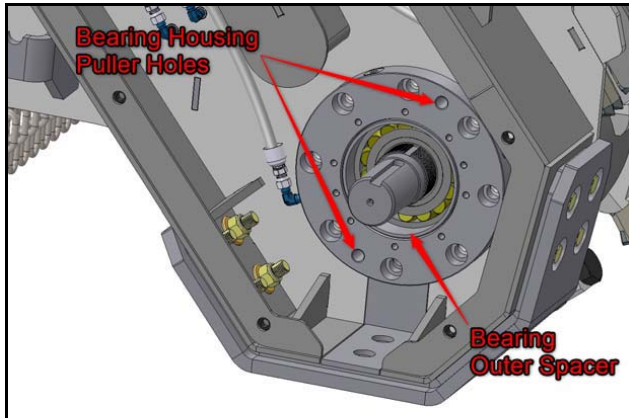


Figure 20

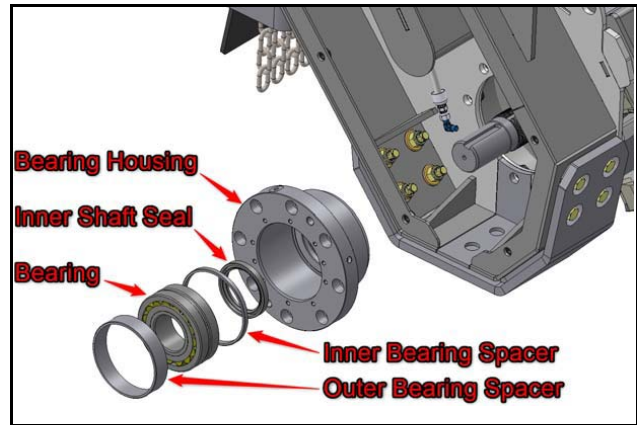


Figure 21

7. Straighten out the locking petal of the daisy lock washer [Figure 20].
 8. Remove the bearing nut; a deep locknut socket is required.
 9. Remove the bearing housing screws.
 10. Ensure the cutting drum is well supported before pulling the bearing housing out.
 11. Apply lubricating oil on the threads of two of the M16 bearing housing screws and use in the puller holes to separate the bearing housing away from the side wall along with the bearing and both inner and outer spacers inside the housing.
- NOTE:** Bearing spacers are only installed with the bearing on the drive belt side. The bearing on the opposite side has no spacers in the bearing housing.
12. Pull the bearing housing completely out along with bearing and spacers still inside the housing. Note: The bearing housing opposite side to the drive belt has no bearing spacers inside [Figure 21].
 13. Pull bearing out of the housing.
 14. Wipe the old grease out of the bearing housing.
 15. Wipe the old grease out of the bearing spacer.

Replacement

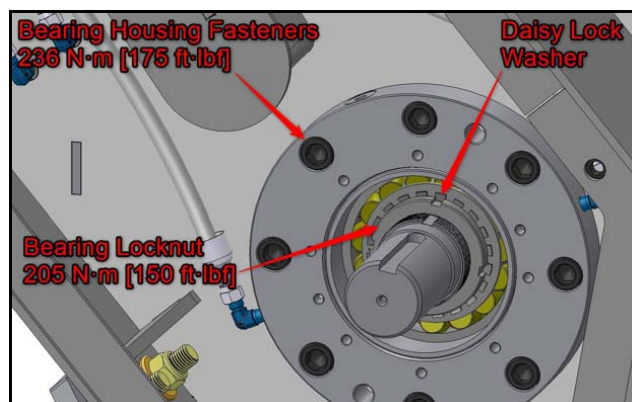


Figure 22

1. Install replacement inner shaft seal in the bearing housing.
2. Install the empty bearing housing back in position.
3. Pack the replacement bearing with grease on both sides in between the bearing internal rollers.
4. Insert the inner and outer bearing spacer and bearing as shown in **[Figure 22]**.
5. Place the bearing locknut without the daisy lock washer.
6. Screw the bearing locknut gradually coaxing the bearing along in position.
7. Torque the bearing locking nut to 150 ft-lb (205 N·m).
8. Unscrew the bearing locking nut and remove it.
9. Install the daisy lock washer.
10. Apply medium strength thread-locker on the shaft bearing locknut threads.
11. Install the bearing locking nut and torque to 150 ft-lb (205 N·m) and line up with one of the daisy lock washer petals with one of the bearing locknut groove.
12. Bend one of the daisy lock washer petals to lock the bearing locknut.
13. Torque the bearing housing fasteners to 174 ft-lb (236 N·m) with medium strength thread-locker.

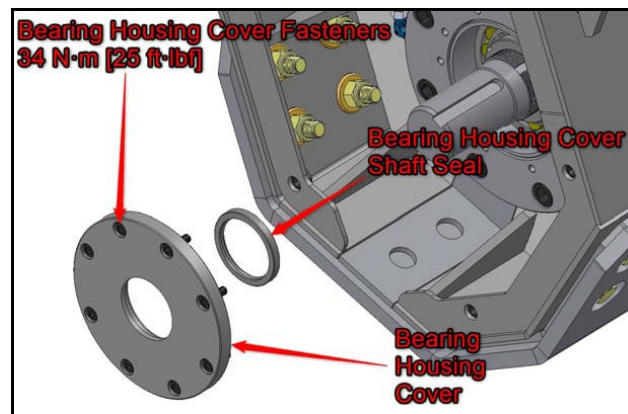


Figure 23

1. Pack the space between the bearing and the bearing housing cover with grease **[Figure 23]**.
2. Install replacement bearing housing cover shaft seal.
3. Install the bearing housing cover and torque the fasteners with a medium strength thread-locker to 25 ft-lb (34 N·m).
4. With a pry bar, inspect the cutting drum for left to right play. Expect 1/8" to 1/4" play.
5. Ensure the cutting drum can turn freely with a push of a foot.
6. Connect the bearing housing grease lines.

Bearing break-in

With the panels removed, engage the mulcher at full speed and monitor the bearing temperature with a temperature gun. The break in process can take up to 3 hours.

Expect the temperature to rise steadily to maximum 300°F (149°C) and then drop. The break in period can stop as soon as a temperature drop is observed.

A steady rise in temperature without drop is indicative of a bad bearing or bad installation.

Stub Shaft

Removal

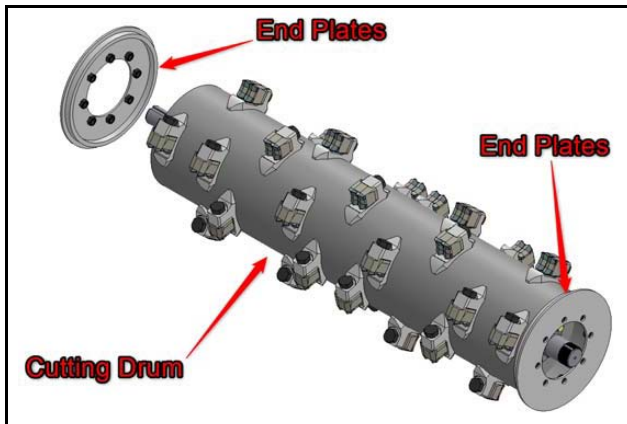


Figure 24

1. Remove drive belt, lower sprocket, skid plates and cutting drum bearings; see “Drive Belt” on page 36, “Sprocket” on page 38, “Skid Plate” on page 39 and “Cutting Drum Bearing and Shaft Seal” on page 39 for instructions.
2. Slip the cutting drum out with the end plates on [Figure 24].

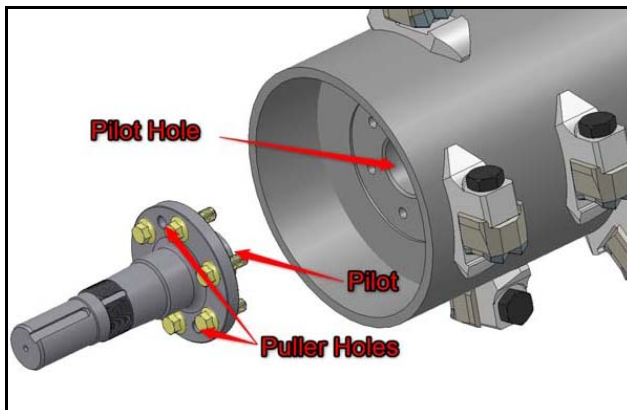


Figure 25

3. Remove all M16 fasteners off the stub shaft [Figure 25].
4. Use two of the M16 fasteners with clean and lubricated threads to insert in the puller holes to separate the stub shaft flange away from the cutting drum.

Replacement

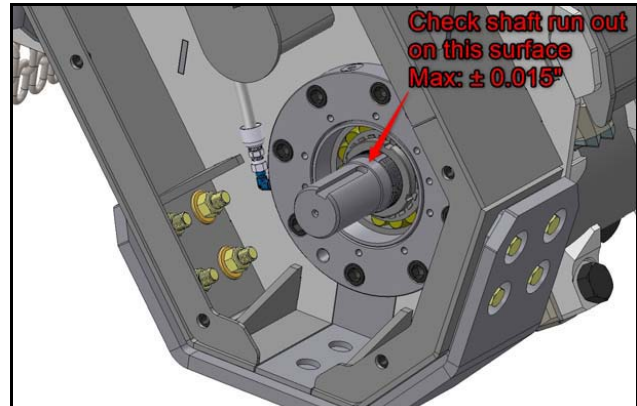


Figure 26

1. Inspect stub shaft pilot and cutting drum pilot hole; sand the surfaces smooth if necessary [Figure 26].
2. Lubricate cutting drum pilot hole.
3. Install stub shaft with medium strength thread-locker on the fasteners. Torque to 218 ft-lb (296 N·m).
4. Before installing the bearing housing covers, inspect the shaft run out. Maximum run out: ± 0.015 ".

Overhung Load Adapter (OLA) Bearing and Shaft Seal

Removal

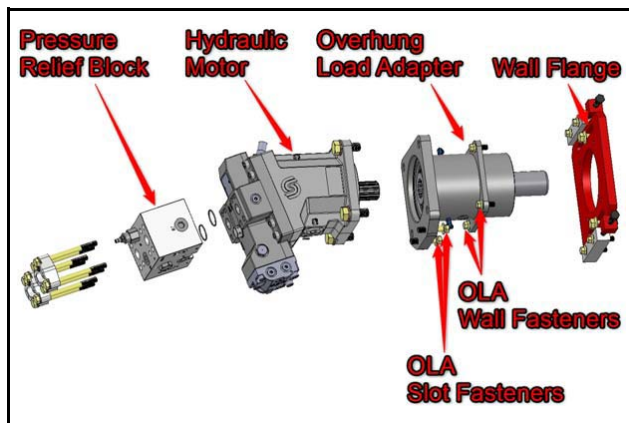


Figure 27

1. Remove drive belt, upper sprocket; see "Drive Belt" on page 36 and "Sprocket" on page 38 for instructions.
2. Remove all the hydraulic hoses off the hydraulic motor and pressure relief block; The fasteners holding the hoses on the pressure relief block also hold the block on the hydraulic motor **[Figure 27]**.
3. Remove all four fasteners to separate the hydraulic motor from the overhung load adapter (OLA).
4. Remove the grease lines off the OLA case.
5. Remove both OLA slot fasteners.
6. Remove all 4 OLA wall fasteners to separate the overhung load adapter from the wall flange.

OLA Dissassembly

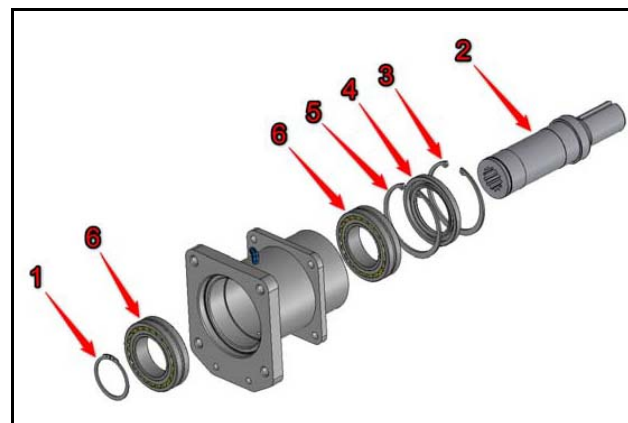


Figure 28

1. Remove the OLA shaft retaining ring (Item 1) **[Figure 28]**.
2. Push the OLA shaft (Item 2) out of the assembly.
3. Remove the shaft seal outer retaining ring (Item 3).
4. Remove the shaft seal (Item 4).
5. Remove the shaft seal inner retaining ring (Item 5).
6. Remove both bearings (Item 6).

OLA Assembly

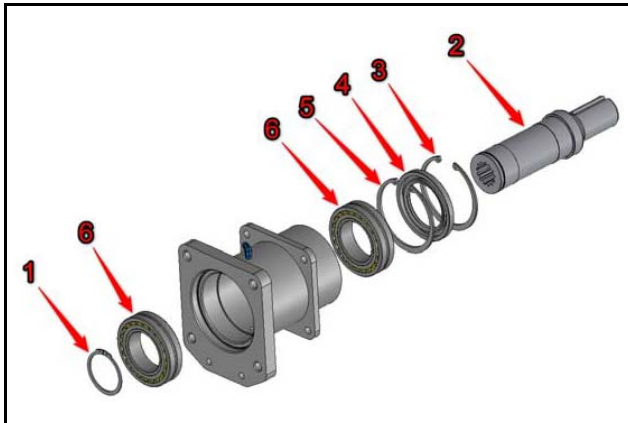


Figure 29

1. Pack grease in the bearing. Fill the space in between the internal rollers on both sides of the bearing then insert the bearing into the OLA case **[Figure 29]**.
2. Install the shaft seal inner retaining ring (Item 5).
3. Install the shaft seal (Item 4).
4. Install the shaft seal outer retaining ring (Item 3).
5. Push the shaft (Item 2) through the assembly.
6. Pack grease in the bearings (Item 6). Fill the space in between the internal rollers on both sides of the bearings then insert the bearing into the OLA case.
7. Install the OLA shaft retaining ring (Item 1).

Bearing break-in

With the panels removed, engage the mulcher at full speed and monitor the bearing temperature with a temperature gun. The break in process can take up to 3 hours.

Expect the temperature to rise steadily to maximum 300°F (149°C) and then drop. The break in period can stop as soon as a temperature drop is observed.

A steady rise in temperature without drop is indicative of a bad bearing or bad installation.

Drum Anvil



Figure 30

NOTE: Use Blue Diamond approved cutting teeth and anvils. The replaced teeth must all be of the same type and series to avoid cutting drum imbalance.

1. Remove damaged anvil.
2. Grind the cutting drum to a smooth surface.
3. Place new anvil to its original position to maintain the balance of the cutting drum and tack weld into place.
4. Preheat to 160°F (70°C).

Follow welding pattern illustrated below:

NOTE: Cutting drum anvils can be welded with rod or mig.

Rod weld.....7018

Mig wire weld.....1/16 Flux Core (AWS A5.20)

Weld fillet size.....5/16"

- Overlap weld #2 over #1 **[Figure 30]**
- Overlap weld #3 over #1

Frame Mounted Stationary Anvil Removal and Replacement

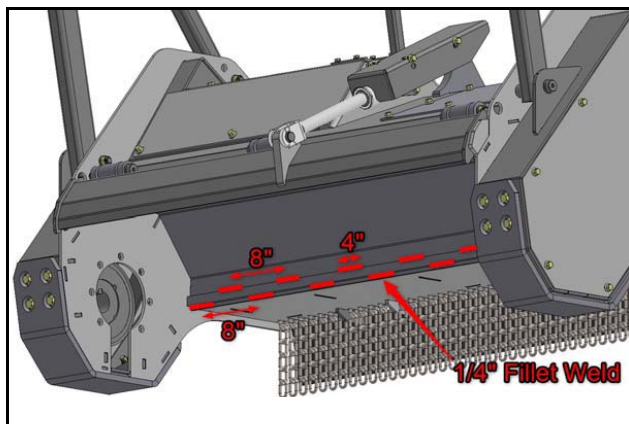


Figure 31

1. Remove the cutting drum to access the stationary anvils. See “Cutting Drum Bearing and Shaft Seal” on page 39 and “Stub Shaft” on page 42 for instructions.
2. Remove damaged stationary anvil.
3. Grind the frame to a smooth surface.
4. Place the new stationary anvil to the original position.
5. Tack weld into place.
6. Preheat to 160°F (70°C).

Follow the welding pattern illustrated [Figure 31].

Mig wire weld.....0.45 Flux Core (AWS A5.29)

Weld fillet size.....1/4”

Relief Valve Adjustment

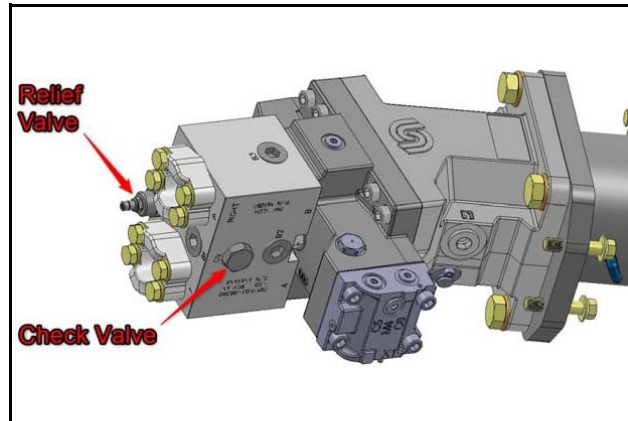


Figure 32

1. Tighten the relief valve to maximum [Figure 32].
2. Block the cutting drum so as to prevent rotation when engaged.
3. Adjust the machine pressure limiter to the desired relief valve pressure value.
4. Engage the mulcher pump.
5. While the cutting drum is blocked, dial down the relief valve until an audible crackling can be heard indicating the relief valve is starting to open.
6. Lock the relief valve in position.
7. Adjust the machine pressure limiter 200 psi below the mulcher head relief valve.

Shift Pressure Adjustment

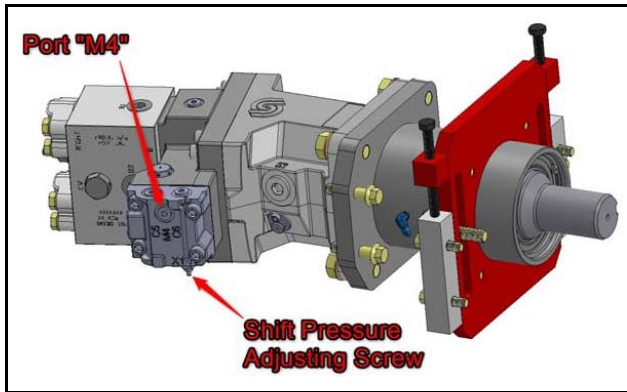


Figure 33

1. Connect a pressure gauge on the hydraulic motor port M4; Pressure gauge range must be the same as the maximum pressure expected in the system [Figure 33].
2. Block the cutting drum so as to prevent rotation when engaged.
3. Adjust the machine pressure limiter to the desired shift pressure value.
4. Engage the mulcher pump.
5. Adjust screw on the hydraulic motor until M4 pressure reads half of the current system pressure.
6. Turn adjusting screw clockwise to increase the shift pressure.
 - a. Turn adjusting screw clockwise to increase the shift pressure.
 - b. Turn adjusting screw counterclockwise to decrease the shift point pressure.
 - c. One full turn of the adjusting screw changes the shift pressure by approximately 1305 psi (90 bar).
 - d. Tighten adjusting screw locknut to 6 ft-lb (8 N·m).
 - e. Maximum shift pressure: 4,350 psi (300 bar).

Minimum Displacement Adjustment

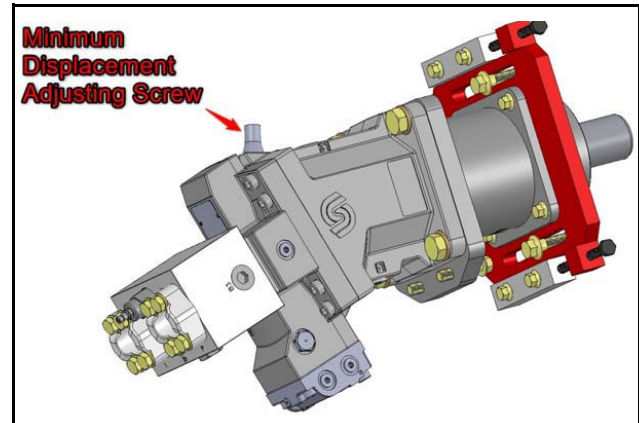


Figure 34

1. Minimum Displacement Adjustment.
 2. The minimum displacement screw setting limits the motor maximum speed [Figure 34].
 3. Cutting drum maximum speed: 2400 rpm.
- NOTE:** Adjust while the mulcher is disengaged and turned off.
4. Hold the adjusting screw in place and loosen the locknut.
 5. Turn adjusting screw clockwise to increase minimum displacement (reduce speed) or counterclockwise to decrease minimum displacement (increase speed).
 6. When properly adjusted, hold adjusting screw in place and torque locknut to 32 ft-lb (45 N·m).
 - a. 3.2cc (0.20in³) displacement change per turn.

Cleaning the Attachment

**DANGER**

AVOID SERIOUS INJURY OR DEATH

Before servicing the Drum Mulcher:

- Lower the machine's lift arms and place the drum mulcher on flat, level surface.
- Engage parking brake, stop engine, remove the key and exit the machine.
- Disconnect attachment hydraulic hoses.

**IMPORTANT**

Drum wrapping may cause damage to bearings or bearing seals by jamming/cutting causing premature wear and damage.

**WARNING**

AVOID SERIOUS INJURY OR DEATH

Securely block up the attachment before working underneath.

**WARNING**

Drum Wrapping

Debris such as rope, wire, roots, plastic etc. may wrap around drum. **STOP IMMEDIATELY** and remove foreign material. Spinning of drum and throwing of material may cause harm to operator/bystander!

Troubleshooting

PROBLEM	CAUSE	SOLUTION
Drum Mulcher Vibrating.	Debris build up in cutting chamber.	Remove debris.
	Faulty drum bearing.	Replace bearing.
	Debris build up between drum and frame.	Remove debris.
	Loose, damaged or missing cutting teeth.	Tighten or replace cutting teeth.
Drum Not Turning.	Broken belt.	Replace belt.
	Sheared key in sprocket.	Replace key.
	Bad hydraulic hose connection.	Check hydraulic hose connections.
	Obstruction between drum and frame.	Remove debris.
	Damaged motor shaft or seized motor.	Contact your dealer or Blue Diamond Attachments Service Department.
	Faulty hydraulic coupler.	Replace hydraulic coupler.
	Hydraulics not engaged.	Engage hydraulics.
Low Pressure at Startup / Drum Turning Slow.	Hydraulic couplers are reversed.	Reverse male and female. Check for correct pressure.
	Faulty relief valve on drum mulcher or machine.	Contact your dealer or Blue Diamond Attachments Service Department.
	Debris build up between drum and frame.	Remove debris.
Noise in Drive Compartment.	Belt and sprockets worn.	Replace belt and sprockets.
	Belt tension not properly adjusted.	Adjust belt tension.

Case Drain Pressure

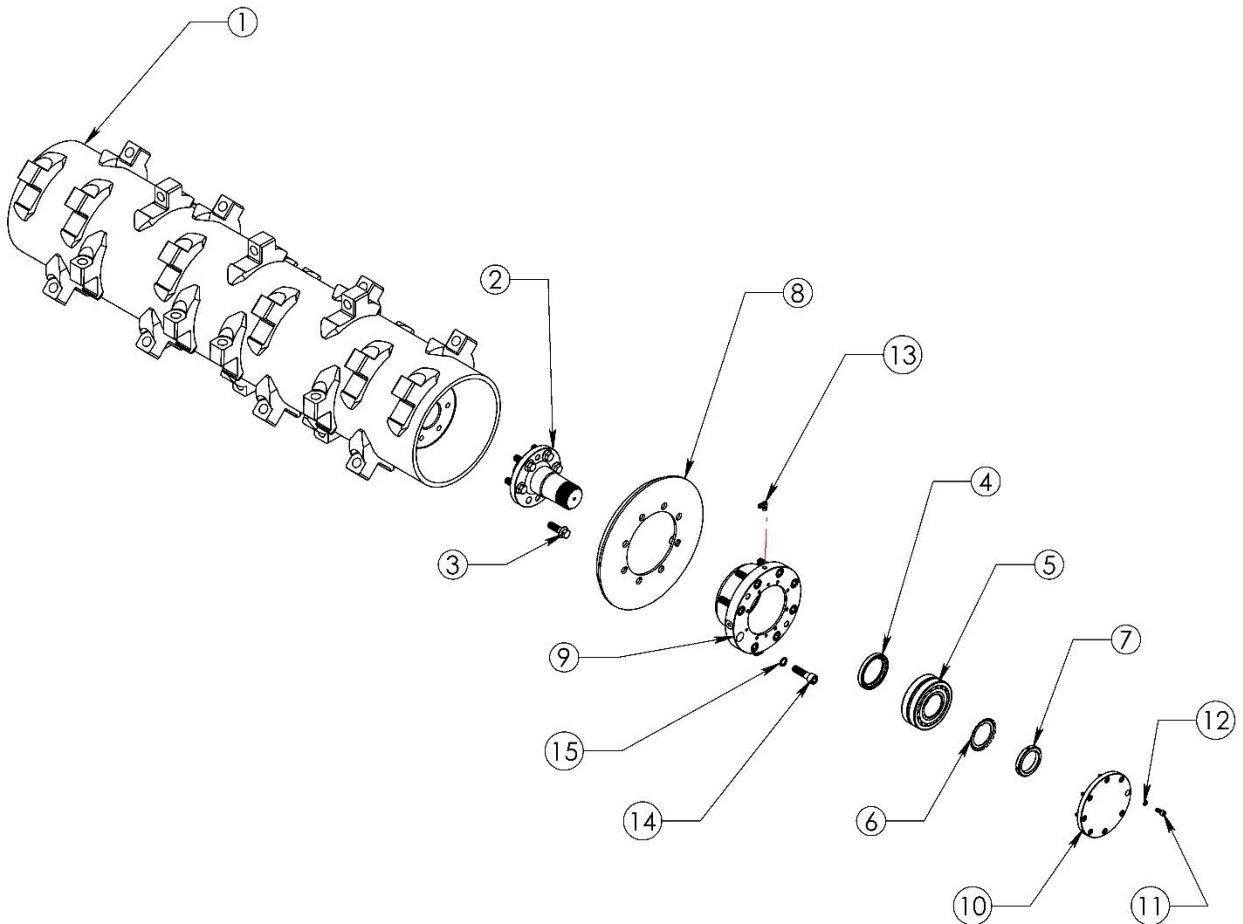
The following table shows possible causes of high case drain pressure.

PROBLEM	CAUSE	SOLUTION
Hydraulic Oil Too Thick.	Frequent when the machine is started before the hydraulic oil has reached proper operating temperature and engine rpm is raised quickly.	Allow oil to warm to proper operating temperature
Drain Line Restriction.	Oil flow restriction in hydraulic lines from quick coupler.	Remove the quick coupler from the drain line to lower case pressure.
Machine Hydraulic Design.	Machine's hydraulic system not setup properly for drum mulcher causing pressure spikes.	Install Hydraulic Motor Case Pressure Protection Kit.
Excessive Case Drain Flow	Machine has loop flush valve system.	Disable the loop flush valve on the machine.

DRUM - REPLACEABLE PARTS - 01

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	290591	MULCHER DRUM	1
2	290180	STUB SHAFT	1
3	290640	PLATE BOLT 16-2 X 50MM	6
4	290195	SHAFT SEAL	1
5	290115	BEARING	1
6	290150	FLAT WAHER 65MM	1
7	290145	LOCK NUT M65	1
8	290412	DRUM GAP RING PLATE	1

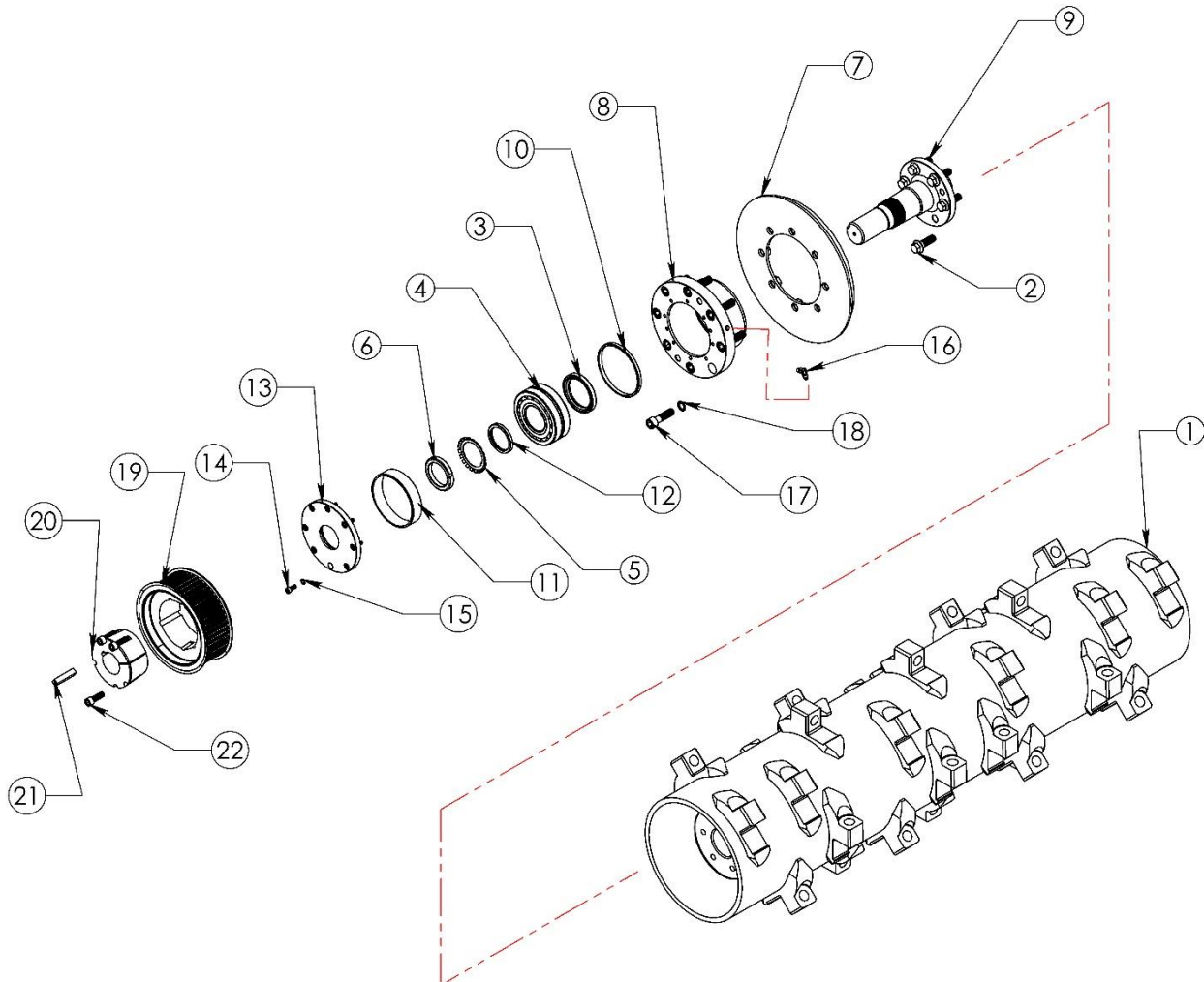
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
9	290425	BEARING HOUSING LOWER	1
10	290420	BEARING COVER PLATE	1
11	290605	COVER PLATE CAP SCREW	8
12	290655	COVER PLATE WASHER	8
13	290705	HOSE FITTING	3
14	290645	HOUSING SCREW 16-2 X 60MM	8
15	290665	HOUSING WASHER	8



DRUM - REPLACEABLE PARTS - 02

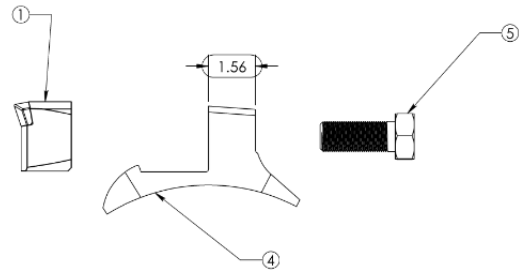
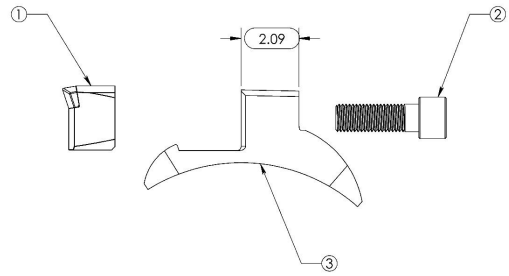
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	290591	MULCHER DRUM	1
2	290640	PLATE BOLT 16-2 X 50MM	6
3	290195	SHAFT SEAL	1
4	290115	BEARING	1
5	290150	FLAT WAHER 65MM	1
6	290145	LOCK NUT M65	1
7	290412	DRUM GAP RING PLATE	1
8	290425	BEARING HOUSING LOWER	1
9	290175	STUB SHAFT FLANGE	1
10	290430	BEARING SPACER 9MM	1
11	290435	BEARING SPACER 30MM	

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
12	290190	SHAFT SEAL	1
13	290415	HOUSING COVER PLATE	1
14	290605	COVER PLATE CAP SCREW	8
15	290655	COVER PLATE WASHER	8
16	290705	HOSE FITTING	2
17	290645	HOUSING SCREW 16-2 X 60MM	8
18	290665	HOUSING WASHER	8
19	290125	PULLY	1
20	290135	BUSHING	1
21	290142	KEY	1
22	290144	BOLT	3



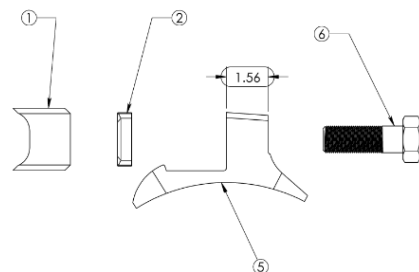
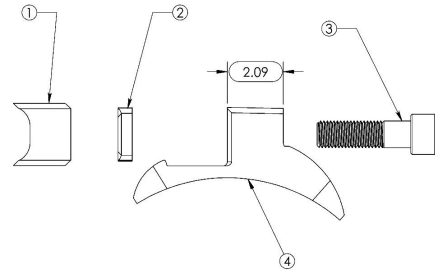
CUTTING TEETH - CARBIDE

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	290101 / 290102	TOOTH (1 sided / 2 sided)	1
2	290108	BOLT 1"-14 x 3"	1
3	290201	TOOTH HOLDER 2.09" - Series 2	1
4	290200	TOOTH HOLDER 1.56" - Series 1	1
5	290106	BOLT 1"-14 x 2.5"	1



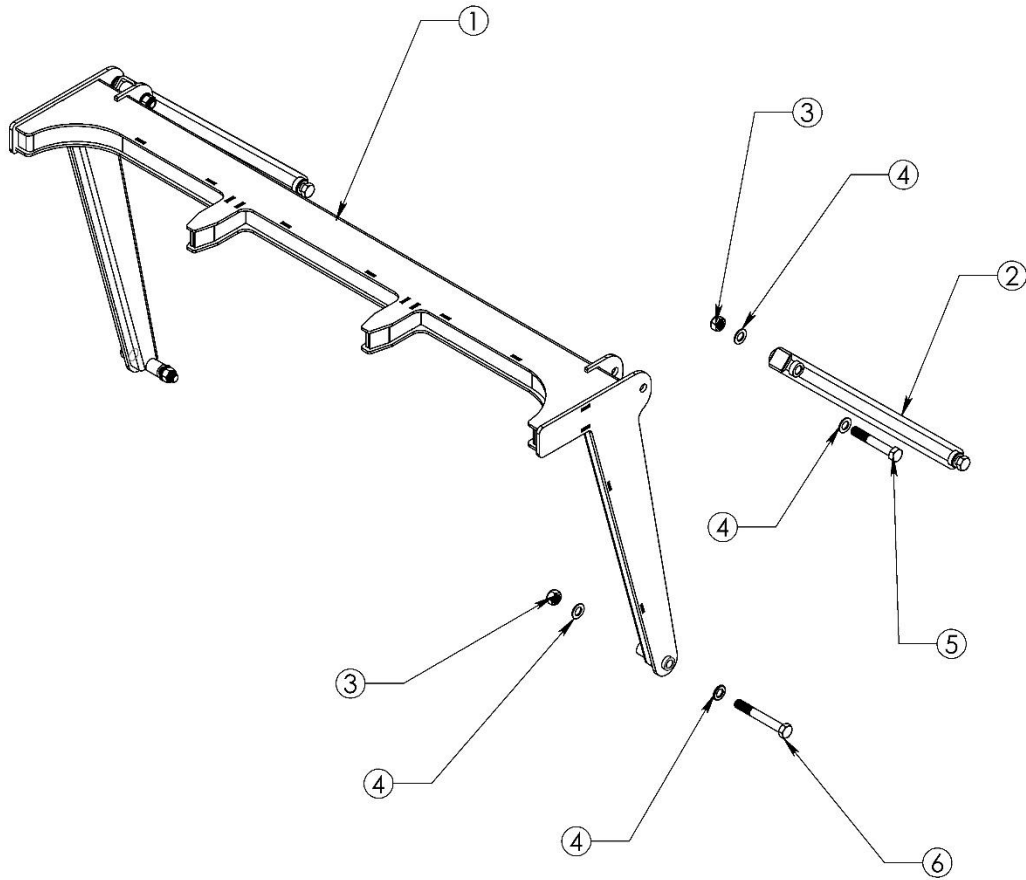
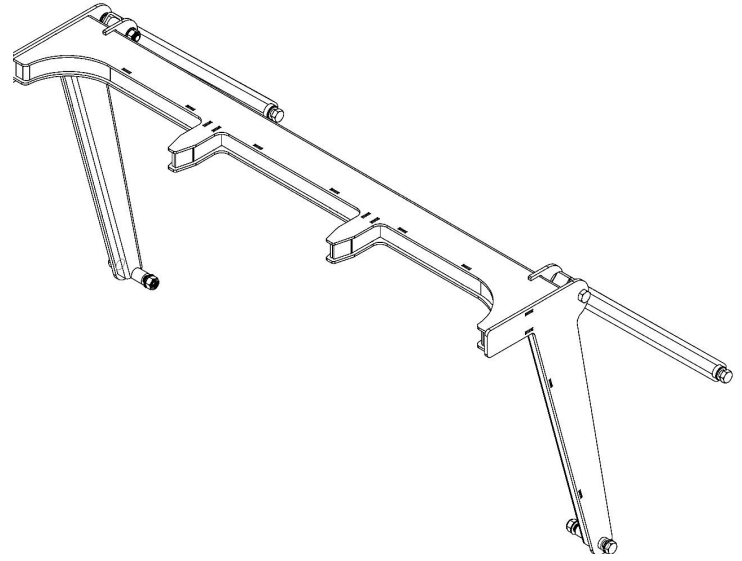
CUTTING TEETH - CHIPPING

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	290100	TOOTH CHIPPING	1
2	290110	TOOTH SPACER	1
3	290107	BOLT (1"-14 X 3.5" GR 8)	1
4	290201	TOOTH HOLDER 2.09"	1
5	290200	TOOTH HOLDER 1.56"	1
6	290105	BOLT (1"-14 X 3" GR8)	1



TREE PUSHER COMPONENTS

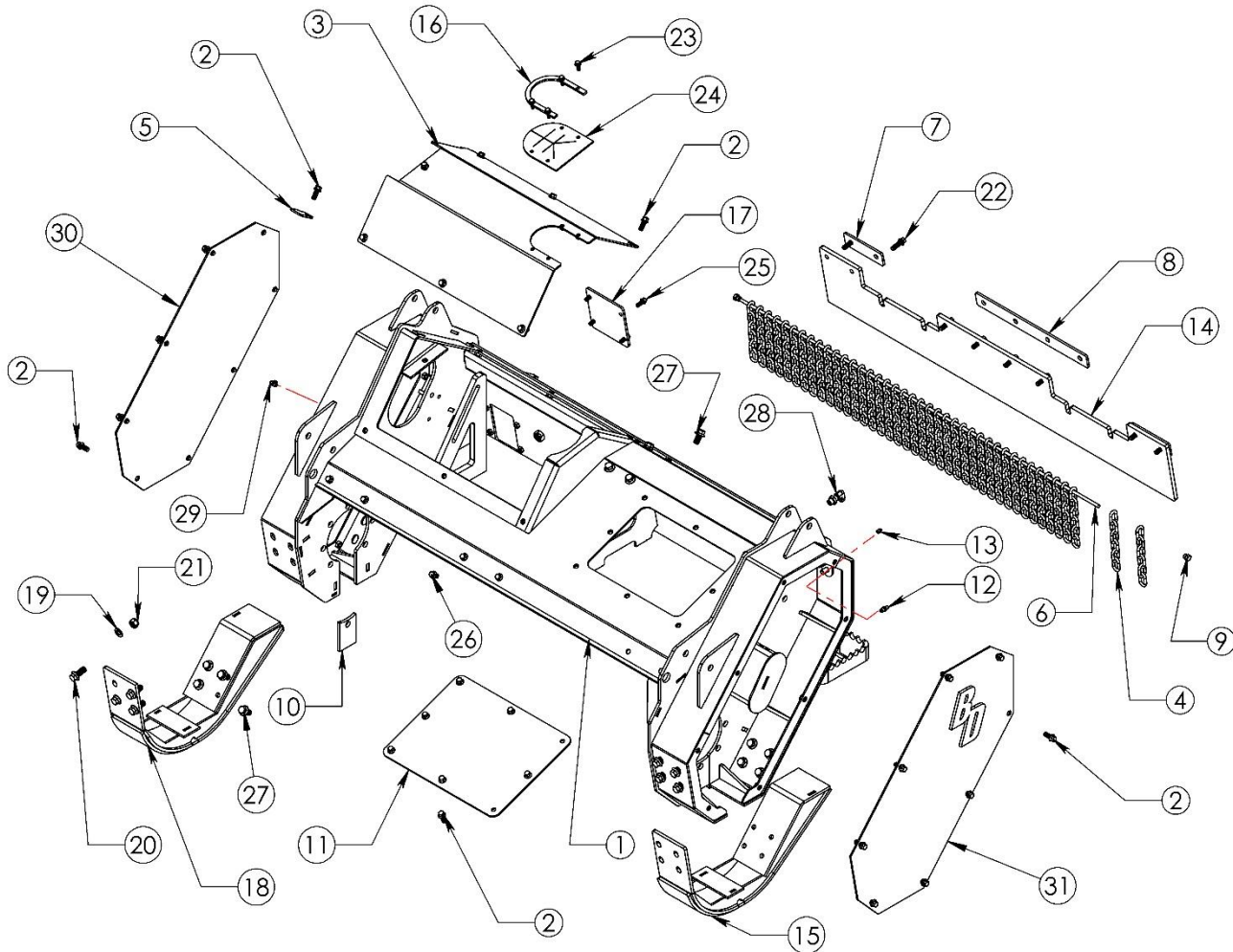
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	290350-2	TREE PUSHER	1
2	290355-2	TREE PUSHER BRACE	2
3	290282	PUSH BAR NUT	6
4	290270	FLAT WASHER M20	12
5	290284	BOLT M20-2.5 X 130	4
6	290285	BOLT M20-2.5 X 150	2



MAIN FRAME - OVERALL

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	2900102-2	MULCHER MAIN FRAME	1
2	290262	BOLT M12-1.75-030	32
3	290580-2	ACCESS PANEL HYDRAULIC MOTOR	1
4	290151	CHAIN LINK	41
5	290577	ACCESS PANEL-BELT TENSIONER	1
6	290152	CHAIN CURTAIN ROD	1
7	290157	RUBBER FLAP CLAMP OUTER PLATE	2
8	290158	RUBBER FLAP CLAMP CENTER PLATE	1
9	290452	HOSE FITTING	2
10	290410	STUB SHAFT SLIP ON GAP PLATE	2
11	290575	FRAME ACCESS PANEL	1
12	290706	HOSE FITTING	5
13	290710	GREASE NIPPLE	3
14	290155	RUBBER FLAP	1
15	290166-L	LEFT SIDE MULCHER SKATE	1
16	290585	RUBBER FLAP CLAMP	1

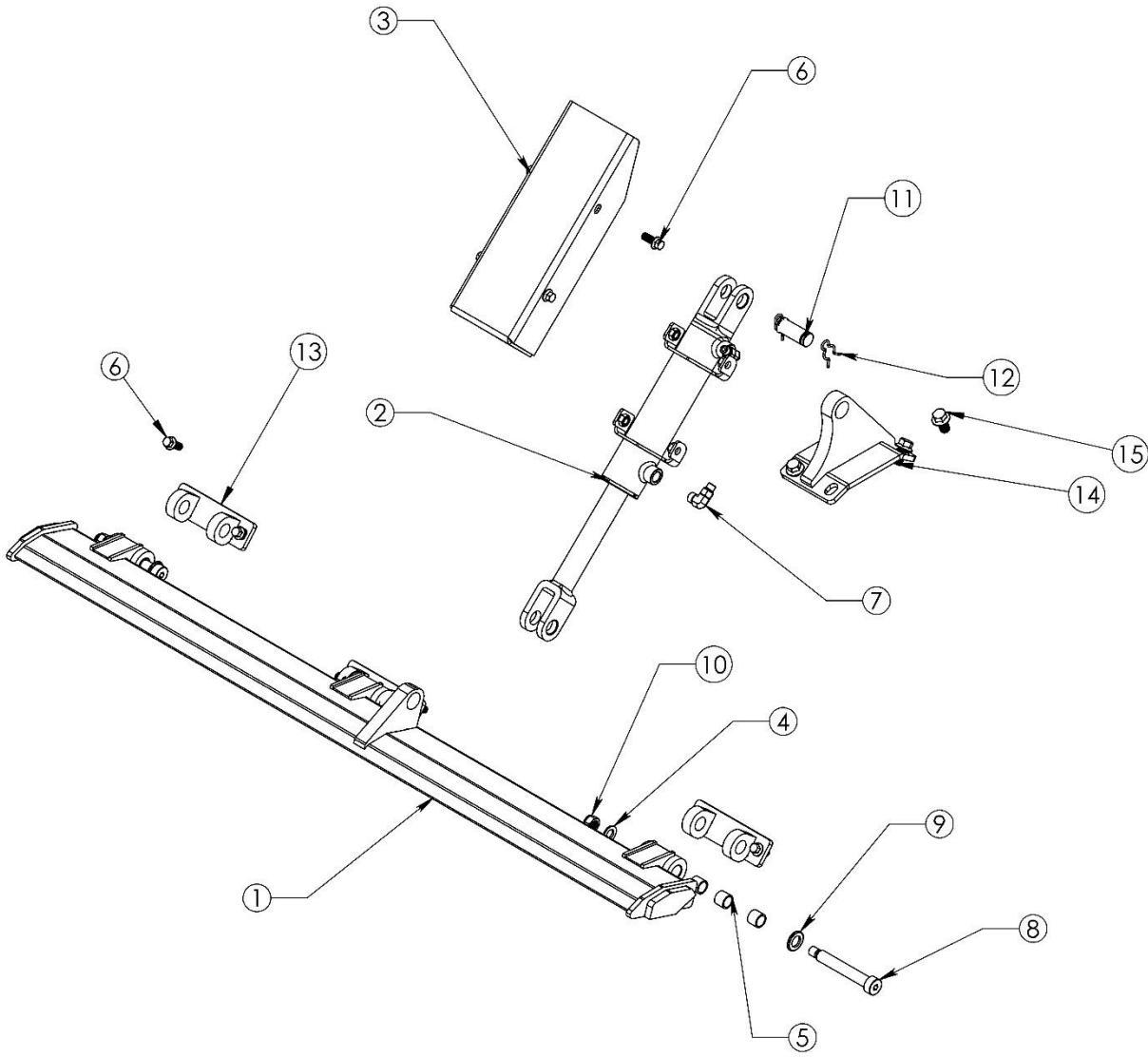
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
17	290578-2	BACK PLATE DRAIN COVER	2
18	290166-R	RIGHT SIDE MULCHER SKATE	1
19	290276	FLAT WASHER M16	8
20	290635	FLANGE SCREW M16-2 X 40MM	8
21	290280	NYLOCK NUT M16	8
22	290156	RUBBER FLAP BOLT	8
23	290610	MOTOR PANEL GROMMET SCREW	4
24	290155-2	RUBBER MAT	1
25	290579	REAR DRAIN PANEL BOLT	8
26	290263	BOLT M12-1.75-020	6
27	290273-B	BOLT FOR CYLINDER M16-2.00-030	12
28	290295	PRESSURE BYPASS FITTING	1
29	290705	HOSE FITTING	2
30	290570-R	ACCESS PANEL RIGHT	1
31	290570-L	ACCESS PANEL LEFT	1



MAIN FRAME - GATE (OPTIONAL)

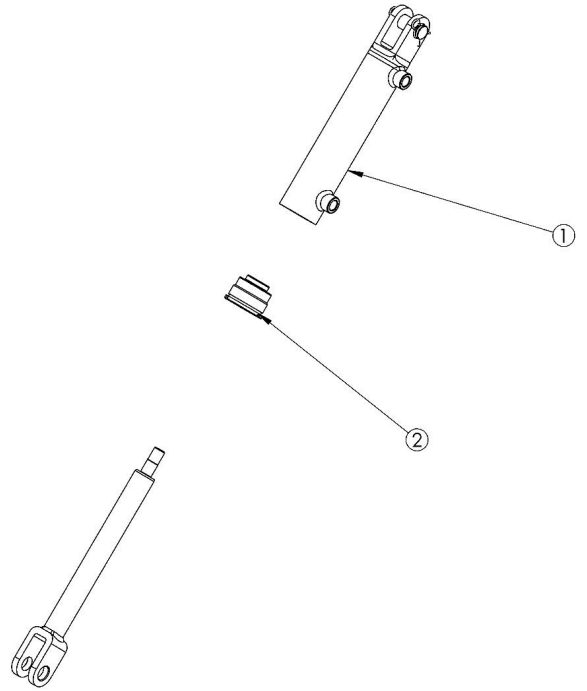
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	290250	FRONT GATE	1
2	290255	GATE CYLINDER	1
3	290260	GATE CYLINDER COVER	1
4	290276	FLAT WASHER M16	3
5	290275	BUSHING	9
6	290262	BOLT M12-1.75-030	10
7	290259	HOSE FITTING 90 DEGREE ELBOW	2

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
8	290278	BOLT M20	3
9	290270	WASHER M20	3
10	290280	NYLOCK NU M16	3
11	290253	HYDRAULIC CYLINDER & CLIP	2
13	290256	HINGE FOR DOOR	3
14	290273	BRACKET FOR DOOR	1
15	290273-B	BOLT M16-2.00-030	4
	390215	FULL GATE KIT	



MAIN FRAME - GATE HYDRAULIC CYLINDER

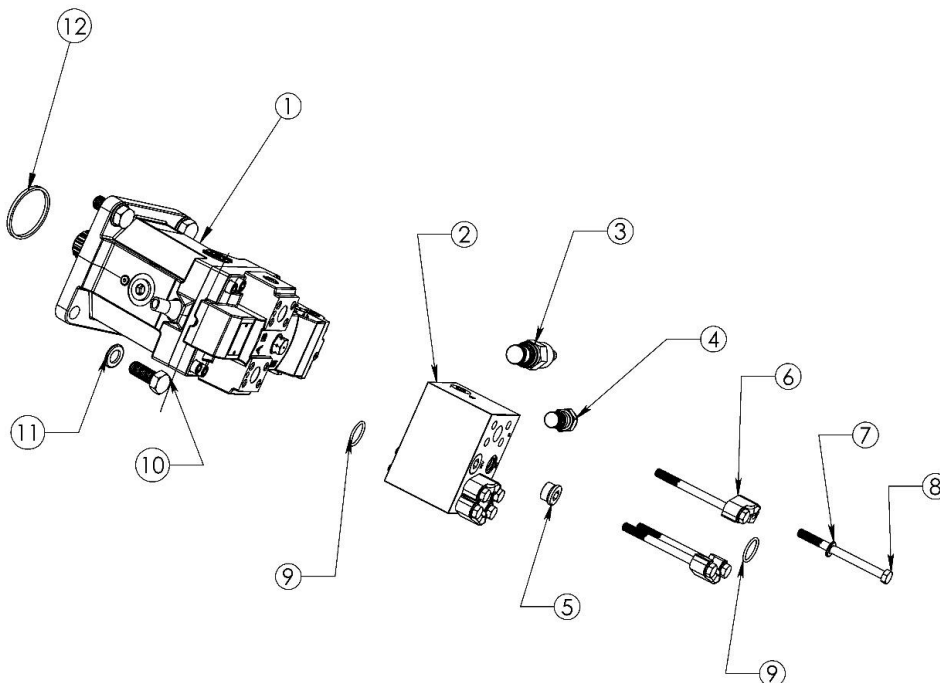
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	290255	DOOR CYLINDER	3
2	290255-1	SEAL KIT	1



MAIN FRAME - MOTOR

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	290300	HYDRAULIC MOTOR	1
2	290510	MANIFOLD	1
3	290310-2	RELIEF VALVE	1
4	290312-2	CHECK VALVE	1
5	290535-2	HOLLOW HEX PLUG	4
6	290530	FLANGE HALF	4

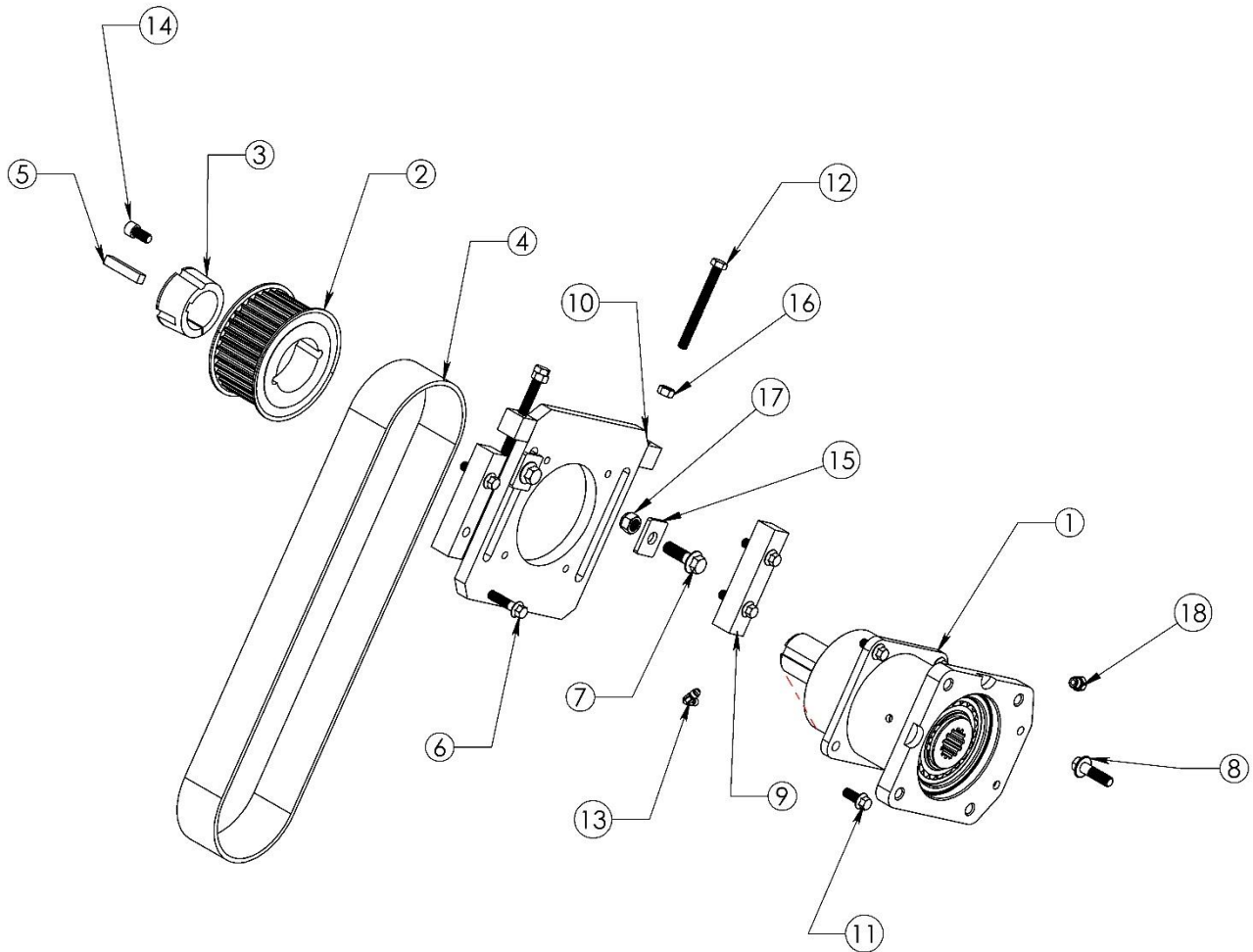
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
7	290660	RELIEF BLOCK WASHER	8
8	290307	RELIEF BLOCK BOLT	8
9	290306	RELIEF BLOCK O RING	4
10	290650	MOTOR BOLT 20-2.5 X 50MM	4
11	290270	FLAT WASHER M20	4
12	290300-1	MOTOR SEAL KIT	1



MAIN FRAME - OVERHUNG LOAD ADAPTER

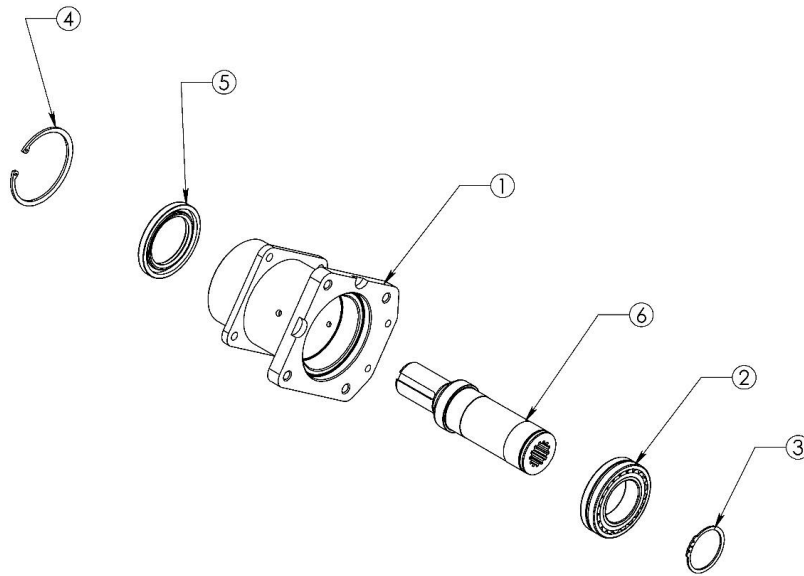
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	290450	OVERHUNG LOAD ADAPTER	1
2	290120	PULLEY	1
3	290140	BUSHING	1
4	290130	POLY CHAIN BELT	1
5	290142	KEY	1
6	290615	BELT TENSIONER SCREW	4
7	290640	BELT TENSIONER PLATE BOLT	2
8	290631	FLANGE BOLT M14-2 X 50MM	2
9	290131	BELT TENSIONER GUIDE	2

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
	290132	BELT TENSIONER PLATE	1
	290262	BOLT M12-1.75-030	4
	290620	PLATE ADJUSTMENT BOLT	2
	290705	LOWER BEARING HOSE FITTING	2
	290143	PULLEY BUSHING	2
	290641	WASHER	2
	290622	JAM NUT	2
	290642	NUT M16-2	2
	290452	SIDE FITTING 05CP-06	1



MAIN FRAME - OVERHUNG LOAD ADAPTER

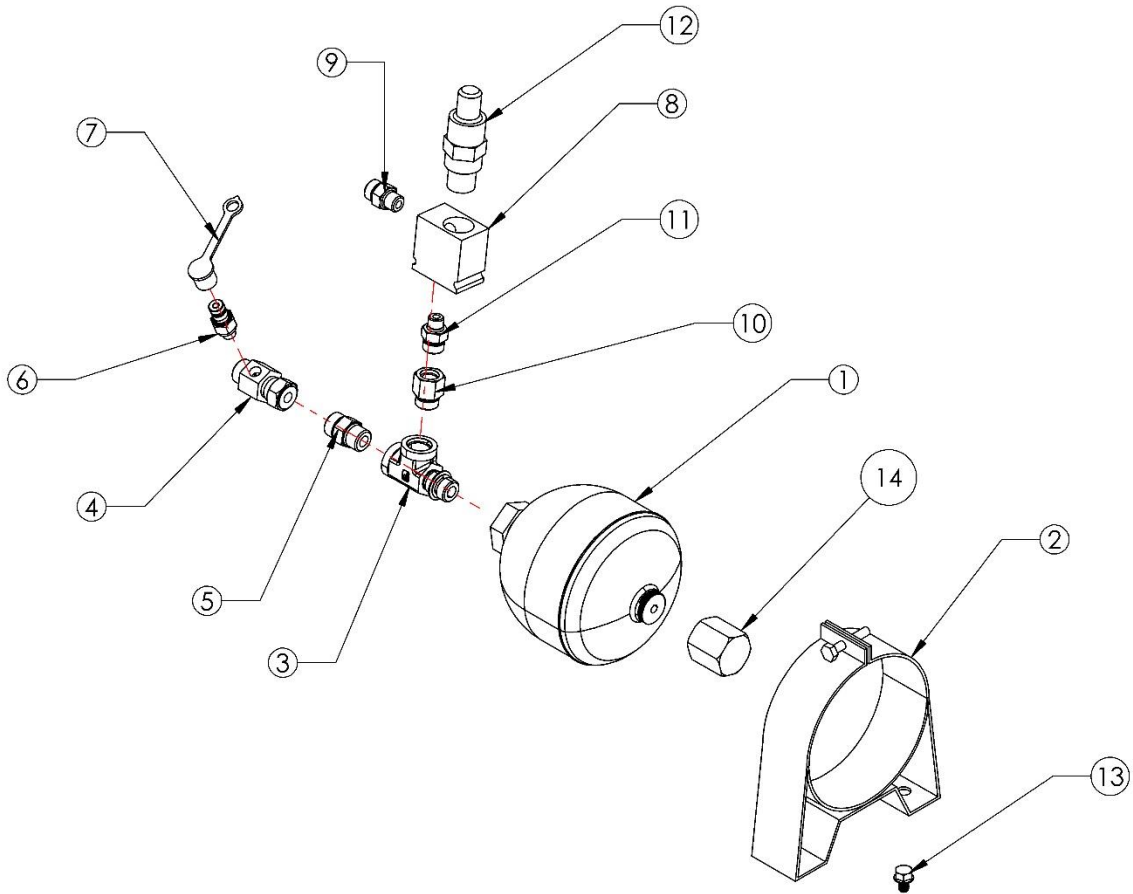
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	290440	OVERHUNG LOAD ADAPTER CASE	1
2	290185	BEARING	2
3	290465	RETAINING RING EXTERANL -SHAFT	1
4	290460	RETAINING RING INTERNAL -BORE	2
5	290455	SHAFT SEAL	1
6	290445	SHAFT	1

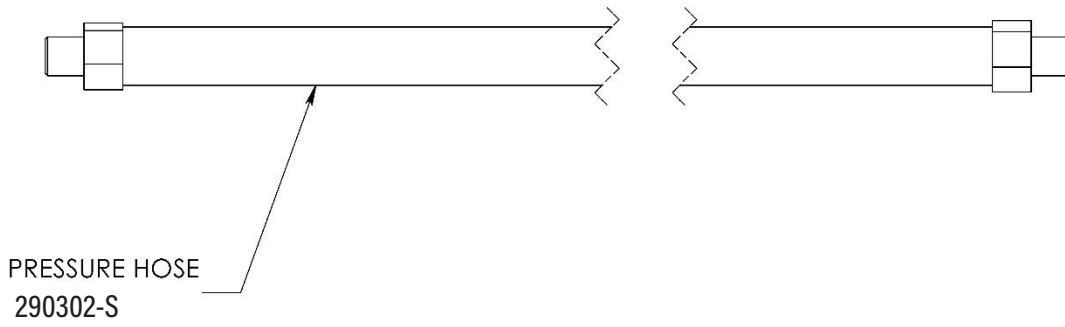
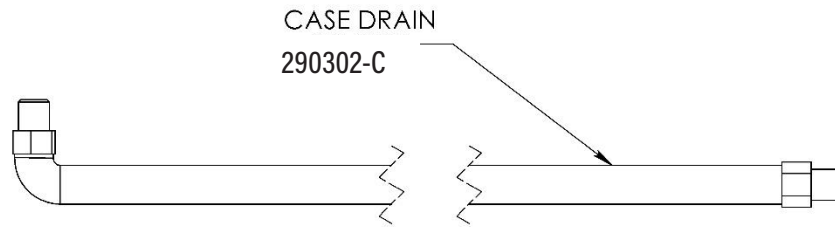
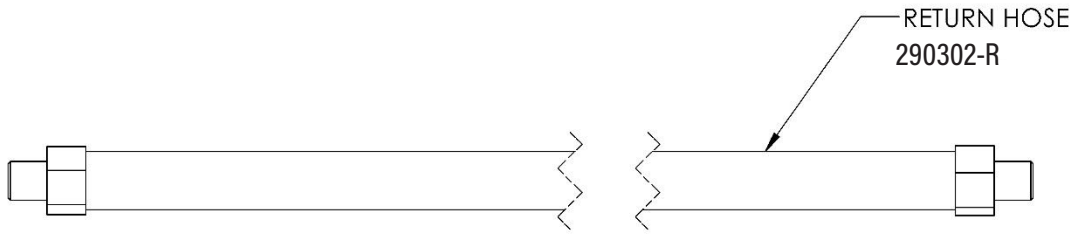


ACCUMULATOR

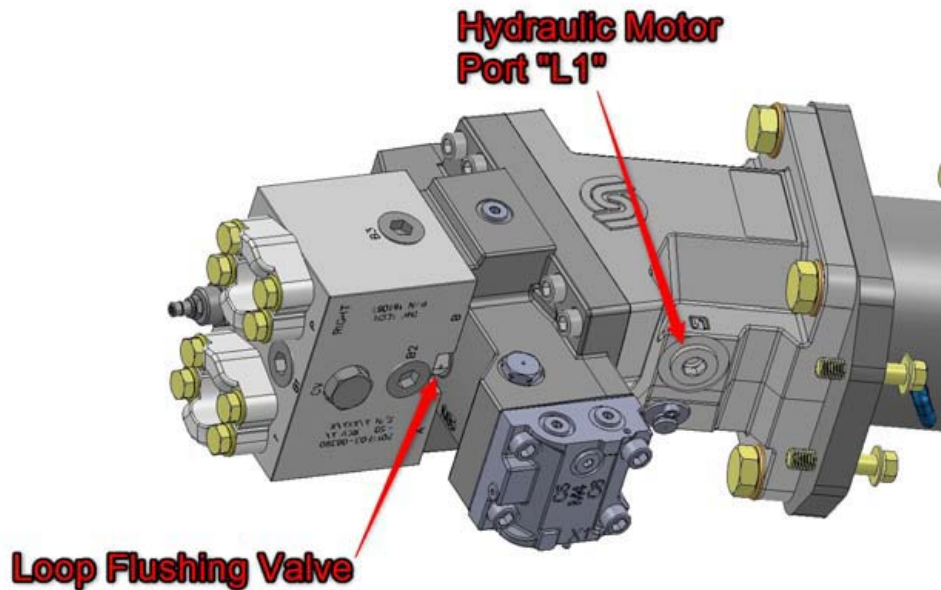
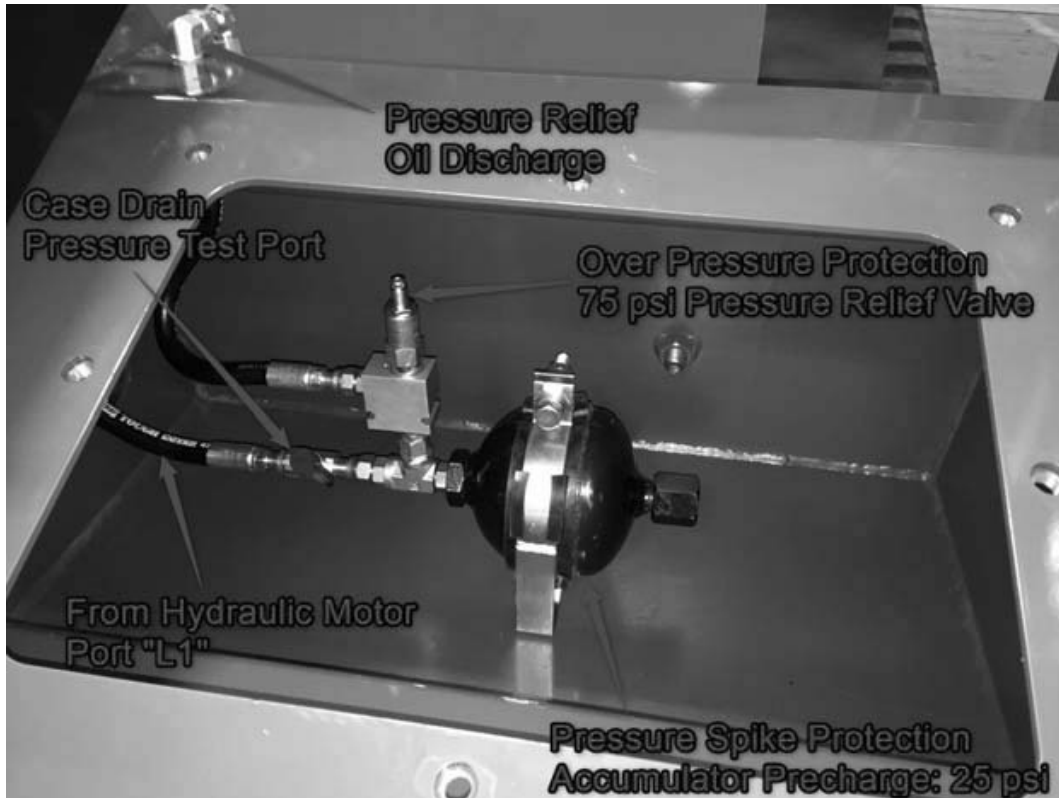
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	290805	ACCUMULATOR	1
2	290810	ACCUMULATOR BRACKET HOLDER	1
3	290815	FITTING 8-AQG5JG5-S	1
4	290820	FITTING 8-4LOHL6G5TP-S	1
5	290825	FITTING - 8F50LO-S	1
6	290830	TEST PORT FITTING PD-341	1
7	290835	DUST PLUG TEST PORT	1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
8	290840	RELIEF PORT HOUSING	1
9	290845	FITTING 6-F50LO-S	1
10	290850	FITTING 8-6F50G5	1
11	290855	FITTING 0505-06-06	1
12	290860	RELIEF CARTRIDGE	1
13	290812	BOLT	2
14	290865	CHARGE ADAPTER	1





Hydraulic Motor Case Drain Protection Kit (Option)



Kit can be connected to the hydraulic motor port "L1" to protect against case drain over pressure and spikes minimizing the possibility of shaft seal failures, case cracking or other case over pressure related failures.

Serviceable Parts

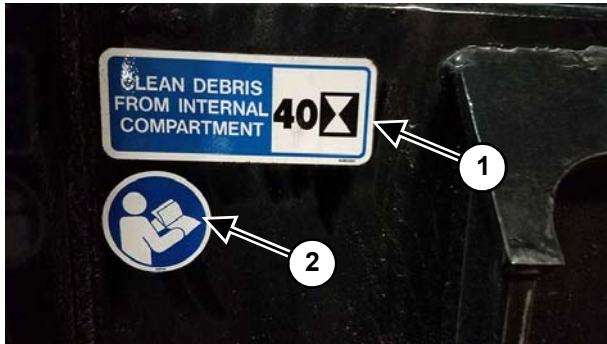
CUTTING TEETH	PART #	QTY
Anvil Drum Tooth Holder	290200	34
Tooth Carbide Reversible	290101	34
Hex Head Cap Screw, 1"-14 x 2.5" GR8 Black Oxide	290106	34
Tooth Woodchuck Reversible	290100	34
Spacer Tooth Adapter	290110	34
Hex Head Cap Screw, 1"-14 x 3.0" GR8 Black Oxide	290105	34

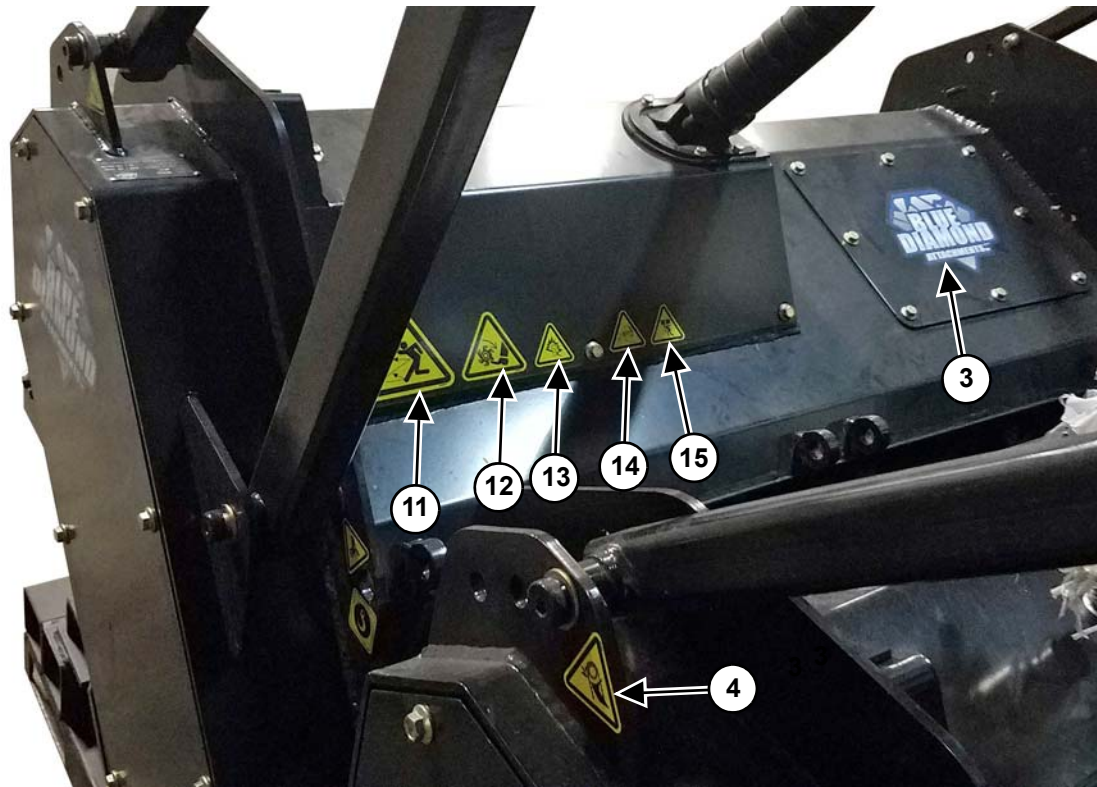
DEBRIS SHIELD	PART #	QTY
Rubber Flap Clamp, Outer Plate	290157	2
Rubber Flap Clamp, Center Plate	290158	1
Flange Hex Head Cap Screw, M12-1.75 x 40mm GR10.9 Yellow Zinc	290156	8
Rubber Flap	290155	1

SKID PLATES	PART #	QTY
Skid Plate	290165	2
Flange Hex Head Cap Screw, M16-2.00 x 40mm GR10.9 Yellow Zinc	290635	16
Flat Washer, M20 x 37MM OD DIN 125 Low Carbon Yellow Zinc	290270	16
Hex Locknut, M16-2.00 GR8 Yellow Zinc	290280	16

STATIONARY ANVIL	PART #	QTY
Stationary Anvil Drum Well Cutter Bar		2

Decal Identification And Location

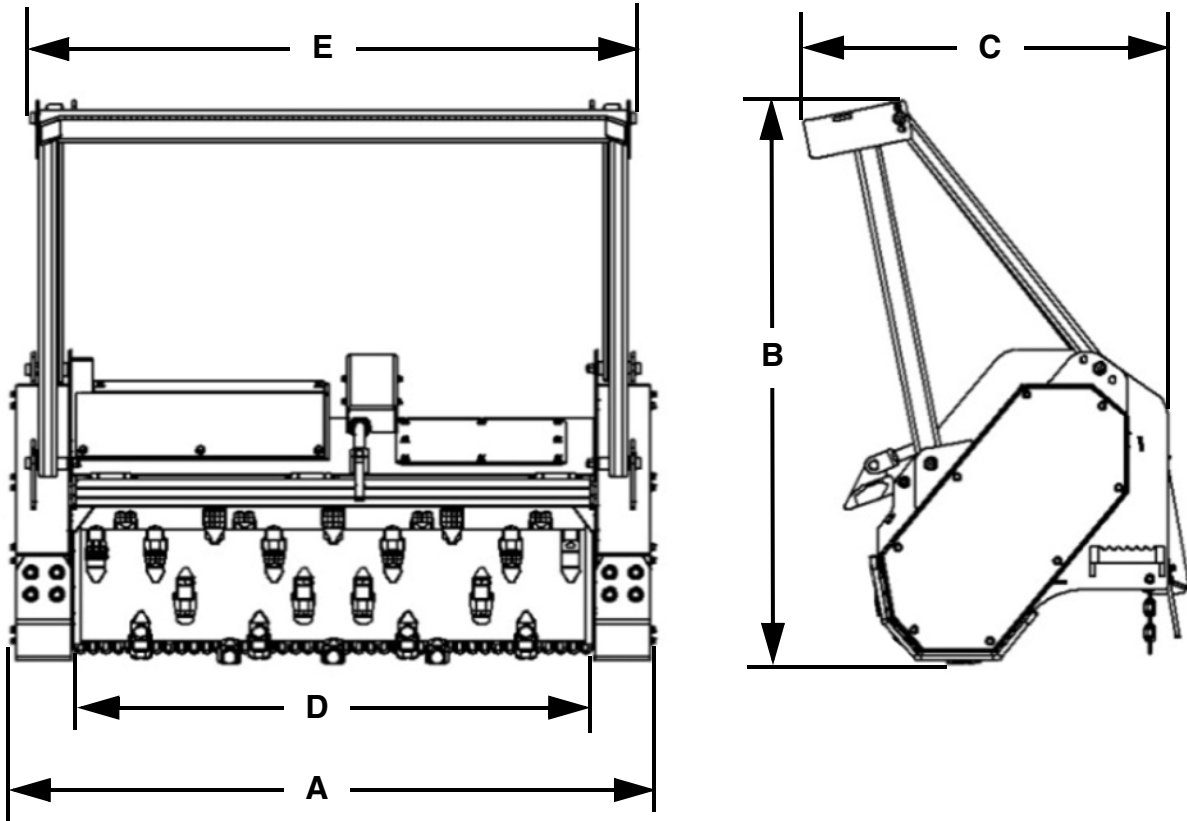




ITEM	DESCRIPTION	PART #	QTY
1	DECAL, CLEAN EVERY 40 HOURS	BD-900	
2	DECAL, READ MANUAL	BD-901	
3	DECAL, BLUE DIAMOND	BD-111	
4	DECAL, WARNING MOVING PARTS	BD-903	
5	DECAL, REGISTER PRODUCT	BD-904	
6	DECAL, GREASE EVERY 40 HOURS	BD-905	
7	DECAL, GREASE EVERY 8 HOURS	BD-906	
8	DECAL, WARNING	BD-907	
9	DECAL, WARNING PINCH POINT	BD-908	
10	DECAL, LIFT POINT	BD-909	
11	DECAL, WARNING FLYING DEBRI	BD-910	
12	DECAL, WARNING STAY CLEAR	BD-911	
13	DECAL, WARNING	BD-912	
14	DECAL, WARNING WEAR PROTECTIVE GEAR	BD-913	
15	DECAL, WARNING STAY CLEAR	BD-914	

Attachment Specifications

Dimensions



DESCRIPTION	DRUM MULCHER
Overall Width (A)	72.8 in. (1848 mm)
Overall Height (B)	64.3 in. (1633 mm)
Length (C)	41.8 in. (1061 mm)
Drum Width (D)	59.5 in. (1511 mm)
Push Bar Width (E)	69.5 in. (1767 mm)
Weight	2500 lbs. (1136 kg)

Cutting Drum

DESCRIPTION	CUTTING DRUM
Drum Width	59.5 in. (1511 mm)
Drum Diameter	12.8 in. (324 mm)
Drum Tip to Tip diameter	18.5 in. (470 mm)
Frame Mounted Stationary Anvil	Yes
Max Drum Rotation Speed	2400 rpm
Number of Cutting Teeth	34
Tooth Fastener Torque	425 ft lb (576 N•m)

Hydraulic

DESCRIPTION	DRUM MULCHER
Min Flow Rate	32 gpm (121 l/min)
Max Flow Rate	52 gpm (197 l/min)
Motor Displacement	110 cc. (6.7 in ³) or 115 cc. (7.0 in ³)
Max Pressure	6000 psi (413 bar)
Rated Pressure	5800 psi (400 bar)
Mfg	Sauer Danfoss or Leduc
Model	H1B or MVA
Type	2 Speeds
Number of Motors	1
Maximum Motor Speed	3600 rpm
Max Case Drain Pressure	73 psi (5 bar)
Rated Case Drain Pressure	44 psi (3 bar)
Minimum Case Drain Pressure	4.4 psi (0.3 bar)
Rated Case Drain Flow Rate (with no flushing valve)	0.8 gpm (3.0 l/min)
Max Case Drain Flow Rate (with flushing valve)	3.4 gpm (13.0 l/min)
Max Shift Pressure	4350 psi (300 bar)
Relief Valve Flow Rate.	50 gpm (190 l/min)
Relief Valve Pressure Range	1000 - 6000 psi (70 - 420 bar)
Relief Valve Adjustment	1000 psi / turn (70 bar / turn)
Pressure Test Port Type	Compucheck®

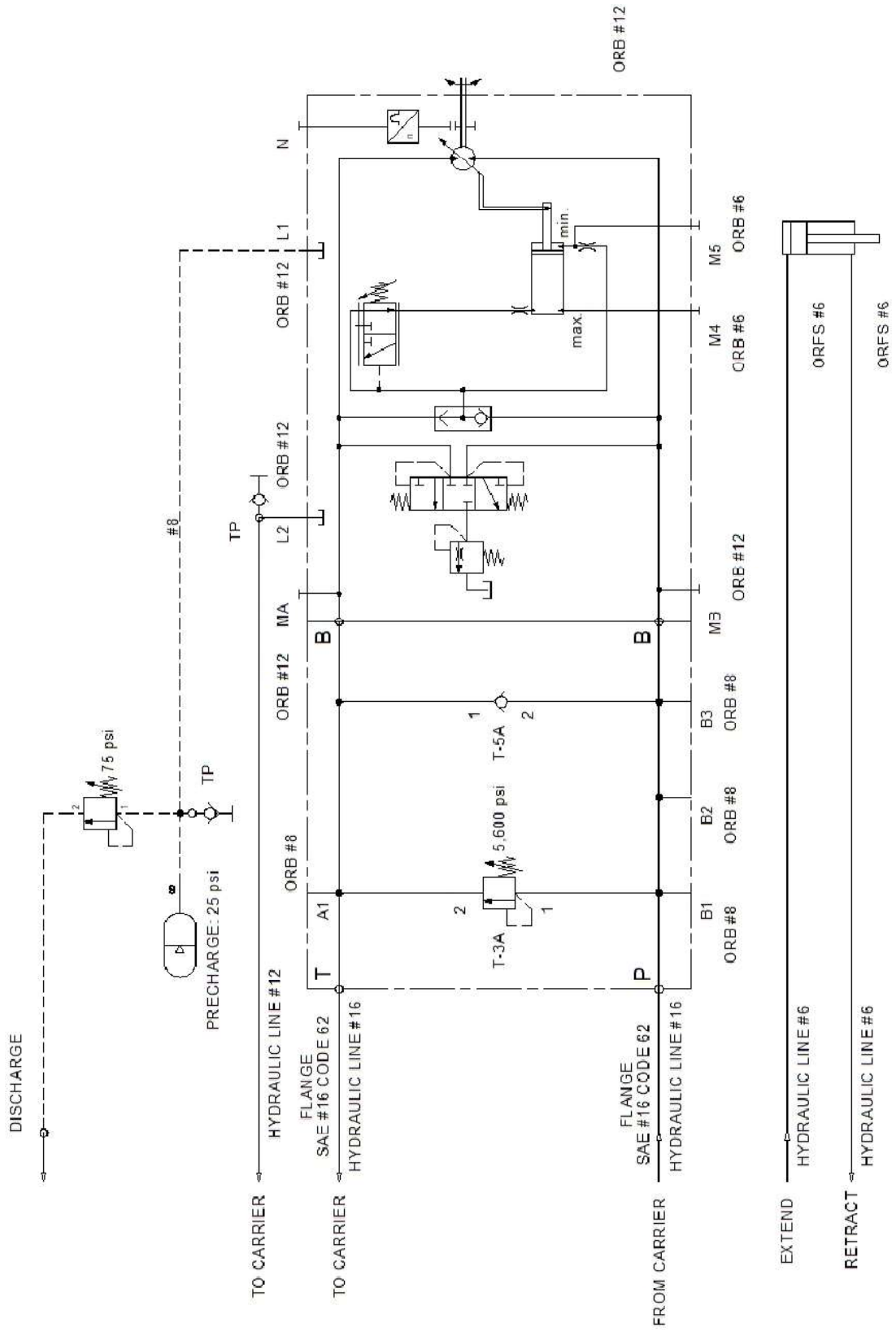
Relief Valve

DESCRIPTION	CUTTING DRUM
Mfg	Sun Hydraulics
Model	RDFA
Series	2
Capacity	50 gpm
Response Time - Typical	2 ms
Adjustment (Number of Clockwise Turns to Increase Setting)	6
Valve Hex Size	1-1/8 in.
Valve Installation Torque	45 - 50 ft-lb
Adjustment Screw Internal Hex Size	5/32 in.
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 ft-lb
Seal kit - Cartridge	Buna, 990303007

Check Valve

DESCRIPTION	CUTTING DRUM
Mfg	Sun Hydraulics
Model	CXFA
Series	2
Capacity	40 gpm
Valve Hex Size	1-1/8 in.
Valve Installation Torque	45 - 50 ft-lb
Seal kit - Cartridge	Buna, 990203007

Hydraulic Schematic



Torque Specifications

Standard Hardware And Lock Nuts

BOLT TYPE	SAE GRADE 5		SAE GRADE 8		LOCK NUTS				
	Nominal Size	Plated or Unplated	Plated W / ZnCr	Plated or Unplated	Plated W / ZnCr	Plated or Unplated	Plated W / ZnCr	W / Grade 5 Bolt	W / Grade 8 Bolt
	Silver	Gold	Silver	Gold	Silver	Gold			
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)	325 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)	



DRUM MULCHER

Limited Warranty

MANUFACTURER'S LIMITED WARRANTY

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

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

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

WARRANTY CLAIM

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

EXCLUSIONS OF WARRANTY

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

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

This warranty policy supersedes any previous documents.

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

QUALITY | DEPENDABILITY | INTEGRITY



QUALITY | DEPENDABILITY | INTEGRITY

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