

Severe Duty Excavator Drum Mulcher

Operation and Maintenance Manual



190605, 190615

Register your
WARRANTY
within 30 days
of purchase



888-376-7027 | BlueDiamondAttachments.com



BD-092

Introduction: Owner Information

Thank you for your decision to purchase a Blue Diamond® Severe Duty Excavator Drum Mulcher. To ensure maximum performance of your equipment, it is mandatory that you thoroughly study the Operator's 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 Operator's 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.



Model Number: _____

Serial Number: _____

Dealer Name: _____

Dealer Number: _____

Date of Purchase: _____

The serial number plate is located on the left side of the frame.

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.

Table of Contents

Introduction: Owner Information	2	5.13 Drive Side Rotor Bearing Assembly — 290679	44
Table of Contents	3	5.14 Non-Drive Side Rotor Bearing Assembly — 290688..	45
1. Introduction.....	5	5.15 Rotor Bearing Assembly — 290723	46
1.1 Attachment Identification.....	5	5.16 Rotor Assembly Parts.....	47
1.2 About this Attachment.....	6	5.17 Hydraulic Hoses	48
1.3 Attachment Model Numbers.....	6	5.18 Universal Wire Harness Kit — 290680	49
1.4 Key Parts of the Drum		5.19 Electrical Wire Harness Options.....	50
Mulcher	7	5.20 Decals.....	51
2. Safety	9	6. Specifications	53
2.1 General Safety Information.....	9	6.1 Attachment Specifications	53
2.2 Operators	10	6.2 Torque Specifications	54
2.3 Operational Safety.....	11	Warranty	55
2.4 Safety Regulations	13		
3. Start-Up and Operation.....	15		
3.1 Entering and Exiting the Prime Mover.....	15		
3.2 Attachment Installation with Excavator.....	15		
3.3 Initial Set Up Instructions	17		
3.4 Machine Operation.....	20		
4. Maintenance.....	21		
4.1 Precautions During Maintenance	21		
4.2 Cleaning.....	21		
4.3 Greasing and Lubrication.....	21		
4.4 Hoses and Cylinder.....	23		
4.5 Belts.....	23		
4.6 Cutting Elements.....	24		
4.7 Spare Parts	24		
4.8 Service Schedule	25		
4.9 Troubleshooting	26		
5. Parts.....	28		
5.1 Main Components.....	28		
5.2 Main Components - 2	30		
5.3 Main Components - 3.....	32		
5.4 Main Components - 4.....	34		
5.5 Main Frames	36		
5.6 Right Front Access Cover	37		
5.7 Right Rear Access Cover.....	38		
5.8 Hydraulic Solenoid Valve Block Parts	39		
5.9 Hydraulic Valve Block Assembly.....	40		
5.10 Motor and Load Adapter Assembly — 290714	41		
5.11 Overhung Load Adapter — 290766.....	42		
5.12 Polychain Belt and Pulley Parts.....	43		

Pre-Delivery Inspection Instructions

Use this checklist to verify safety, function, and readiness prior to delivery.

END USER'S NAME: _____

DATE: _____

ITEM NUMBER & DESCRIPTION: _____

SERIAL NO.: _____

HOST MACHINE MAKE/MODEL: _____

1. Safety & Documentation

- Operation and Maintenance Manual is included.
- Safety decals are present and legible.
- Model and serial number plate is present and intact.
- Verify required hydraulic flow range for customer's host machine.

2. Visual Inspection

- Unit is free of shipping damage, dents, cracked welds, etc.
- Verify motor and safety covers are in place and secure.
- Mount matches the host machine.
- Ensure drive system is correctly lubricated.
- Fasteners are properly torqued.

3. Hydraulic System & Operational Test

- Hydraulic hose routing is appropriate for application.

- Fittings are properly tightened; verify no leakage.
- Quick couplers are correct and clean.
- Case drain line is installed.
- Smooth operation; no hydraulic leaks or excessive vibration of attachment.
- Verify that the rotor speed has been measured within 2200 – 2500 rpms.
- Verify attachment has been connected to the host machine that will be used for operation and tested.
- Verify the host machine's hydraulic flow with a flow meter.

4. Final Delivery

- Maintenance schedule located in Operation and Maintenance Manual has been reviewed.
- Grease type and intervals were provided.
- Teeth change procedure and maintenance safety have been explained.
- Register the attachment for warranty by following the instructions below:
 - Fill out this form and email it to warranty@bdattachments.com

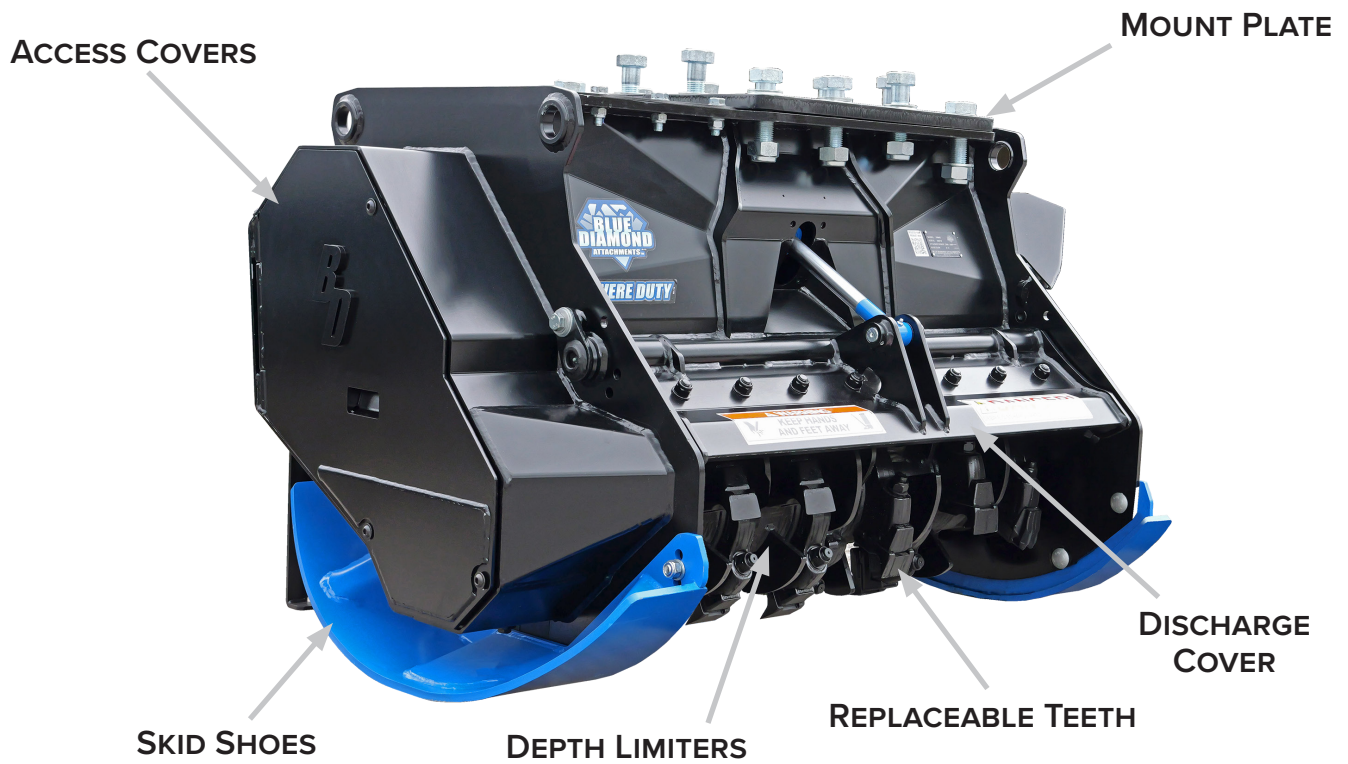
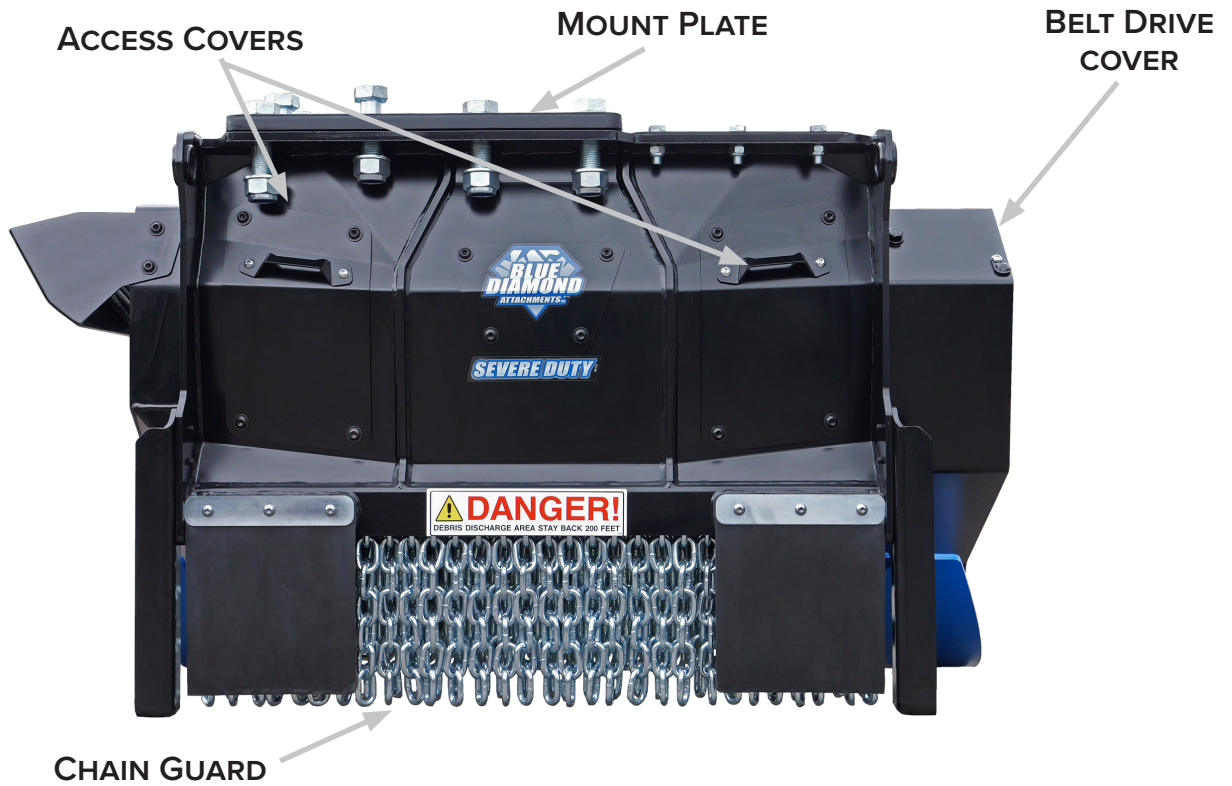
TECHNICIAN: _____

CUSTOMER: _____

DATE: _____

1. Introduction

1.1 Attachment Identification



1. Introduction

1.2 About this Attachment

Blue Diamond® recommends that you carefully read and understand this manual before putting the machine into operation. Follow all safety measures and maintenance procedures described in this manual to ensure proper and efficient use of machine.

NOTE: Blue Diamond® cannot be held liable if specified limits are exceeded.

NOTE: Noise emissions in the environment measured as sound power level (LWA) according to EC directive 2000/14/EC.

The Severe Duty Excavator Drum Mulchers are specially designed for work with excavators. They meet the highest requirements of the forestry sector, as their configuration and design allow them to perform any work with maximum reliability and efficiency. They are made of high elastic limit steel and coated with wear resistant steel. They also have thermally hardened replaceable counterblades and an optimized rotor for lower power consumption, making them the most reliable hydraulic machines on the market.

Intended Use

The Severe Duty Excavator Drum Mulcher is specially designed for basic clearing, maintenance, and mulching of trees and stumps.



WARNING



If you do not understand any of the points in this manual, do not connect, operate, or service the machine. Immediately contact Blue Diamond® for your own safety and that of the machine.

Sound Pressure Level Indication

NOISE EMISSIONS	dB(A)
Measured sound power level	85
Guaranteed sound power level (LWA)	85

1.3 Attachment Model Numbers



IMPORTANT



DO NOT exceed max flow.

MODEL NUMBER	MOTOR SIZE	CUTTING WIDTH
160605	80-115cc	40"
190615	80-115cc	50"

1. Introduction

1.4 Key Parts of the Drum Mulcher

Discharge Cover with Hydraulic Adjustment

This mulcher is fitted with a hydraulically adjusted discharge cover [Figure 1] (choose open or closed, for more efficient mulching or finer finish).



Figure 1

Rotor

The rotor [Figure 2] is responsible for mulching the material and is driven by pulleys.



CAUTION



- Before operating the machine, check that the cutting elements are correctly fastened.
- Before starting operation of the machine, check that the rotor and its hammers are in good condition.
- Check that there are no objects wrapped around the rotor.



Figure 2

Replaceable Liner

This mulcher features a liner (Item 1) [Figure 3] made from high strength steel that is easily replaceable.

Counterblades

The counterblades (Item 2) [Figure 3] and the rotor grind and process the material.

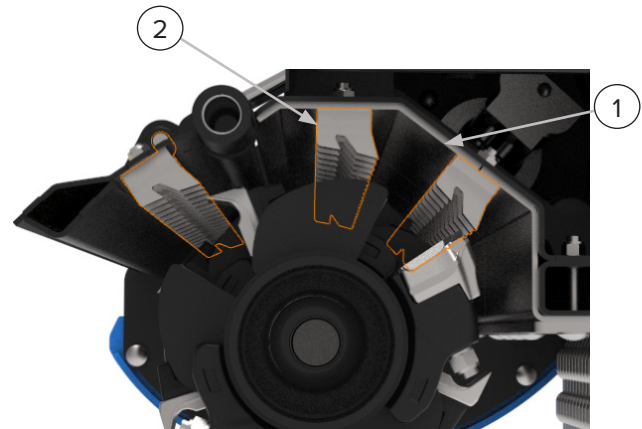


Figure 3

Belt Drive

Belts and pulleys transmit the rotary motion from the gearbox to the rotor.

The belt tension is manually adjusted [Figure 4].

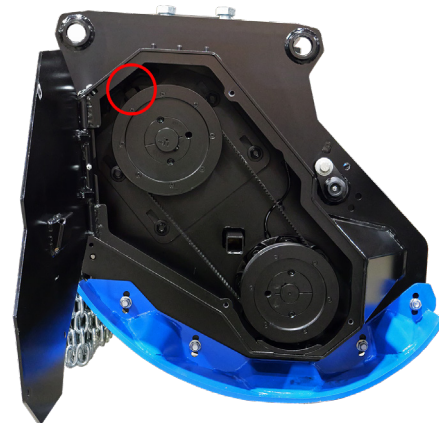


Figure 4

1. Introduction

1.4 Key Parts of the Drum Mulcher Cont'd

Replaceable Skid Shoes

This mulcher features skid shoes [Figure 5] made from wear-resistant steel that are easily replaceable.

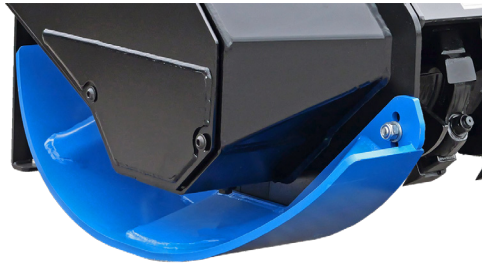


Figure 5

Hydraulic Motor

The mulcher is powered by an 80-115cc variable hydraulic motor [Figure 6].

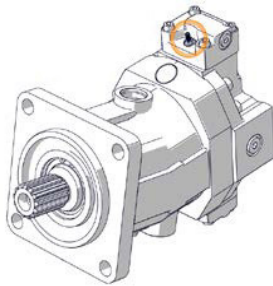


Figure 6

Hydraulic Connection Panel

The hydraulic connection panel [Figure 7] connects the excavator hoses to the mulcher.



Figure 7

Chain Guards

The Severe Duty Excavator Drum Mulcher uses chain guards [Figure 8] to prevent mulched material from getting out of control.



Figure 8

Mount Plate

The mulcher has a 24x24 inch plate to allow for any excavator mount.

Adjustable Intake Plate

This mulcher features an adjustable intake plate [Figure 9] to control the size of material processed.

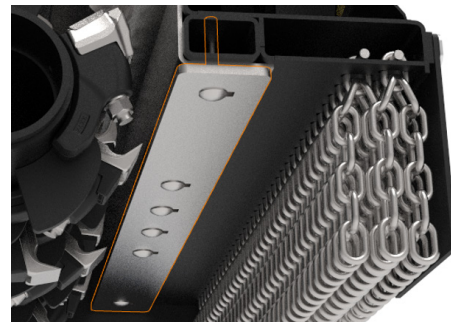


Figure 9

2. Safety

2.1 General Safety Information



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.



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



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.



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.



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.

Operating Safety

- Read and follow instructions in this manual and the machine's Operators Manual before operating.
- The manual must always remain with the machine. In case of loss or damage, request a new copy from your dealer or from Blue Diamond®.
- Strictly follow all rules prescribed by the safety pictograms/decals applied to the machine. Ensure that all safety pictograms/decals are legible. If pictograms/decals are worn, they must be replaced with new ones obtained from Blue Diamond® and placed in the position indicated by this manual.
- Before using the machine, make sure that all safety devices are installed and in good working conditions. In case of damage to shields, replace them immediately.
- remove or alter safety devices and/or safety precautions
- Pay maximum attention to avoid any accidental contact with rotating parts of the machine.
- If the use of the machine is required at night or in conditions of reduced visibility, use the lighting system of the prime mover and possibly an auxiliary lighting system.



Before performing any of the actions in this section, section 2.0 Safety must be read in its entirety and understood fully to avoid any type of risk or accident. If you do not fully understand this manual, **DO NOT** connect or operate the machine or carry out any maintenance operations. Contact your local dealer or Blue Diamond® Product Support immediately to ensure your safety and that of the machine.

NOTE: Notes are used to indicate important information. This information may be repeated in other areas of the manual.

2. Safety



DANGER



- The machine may only be operated, maintained, repaired, serviced, or handled by qualified personnel or an authorized service technician.
- **DO NOT** approach the mulcher, carry out maintenance, inspections, or connect or disconnect components while the machine is running. Before carrying out any of the aforementioned tasks, disengage the hydraulics to stop the rotor. Once the rotor has stopped, rest the mulcher (without applying excessive pressure with the excavator arm) on a level, flat, and firm surface. Park the machine, set the parking brake, turn the machine off, and remove the key from the ignition. Wait until all moving parts have come to a complete stop before approaching the machine.

2.2 Operators

Qualified Operators

The operator is a person suited to the work and who is physically and psychologically able to withstand the demands connected with operating the equipment for its intended use. The operator must not allow anyone to approach the machine while it is working and must not allow external personnel to operate the machine or attachment.

The operator is to follow the given instructions in this manual and the machine operator's manual in order to obtain maximum performance, minimum consumption, and maximum safety for himself and for others.

The operator is responsible for scrupulously observing all the instructions given in this manual.

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.

Operator Safety

- Before starting, and during operation of the attachment, make sure there are no people or animals in the operation area; the machine can project material, causing serious injury or death.
- During operation, adjustment, maintenance, repairing, or transportation of the machine, the operator must always use appropriate Personal Protective Equipment (PPE) including, but not limited to, safety glasses, working gloves, dust mask, safety helmet, and hearing protection.
- **DO NOT** operate the attachment or machine while wearing loose fitting clothing that can be caught or entangled in parts of the machine.
- **DO NOT** operate the implement when tired, not in good condition, or under the influence of alcohol or drugs.

2. Safety

2.3 Operational Safety

Operating Safety

- Follow all laws and regulations in your jurisdiction when operating and maintaining your equipment.
- Users must strictly observe all safety regulations indicated in this user manual and all warning signs indicated on the machine.
- Correct use of the machine implies compliance with all maintenance and operating instructions described in this manual and the use of original Blue Diamond® spare parts.
- Prolonged use of the machine causes components to become hot, and there is a burn hazard from direct contact with them. Avoid direct contact with the machine until these components have cooled down.
- DO NOT handle hydraulic components until the pressure in the hydraulic circuit has been relieved. Avoid direct contact with the machine until these components have cooled down.
- The operator must ensure at all times that there are no persons, animals, or obstacles within 1000 feet (300 meters) of the machine's location while in operation.
- Make sure that the machine is in a proper state of repair (cleaning), maintenance (lubrication), and components.
- If the machine vibrates, behaves strangely, or makes unusual noises, stop operation and contact your local dealer or Blue Diamond® Product Support immediately.
- When operating on sloping terrain, check that you are working safely and that there is no risk of tipping over.
- The movement of the excavator arm must be as near to the ground as possible to avoid the risk of overturning.
- The machine must be stopped and inspected for damage after striking an object. In the event of damage, it must be repaired before continuing with the machine operation.

Operator Training

- Read and follow instructions in this manual and the machine's Operators Manual before operating.
- Under no circumstances should young children be allowed to work with this equipment.
- This equipment is dangerous to persons unfamiliar with its operation.
- Check for overhead and/or underground utility 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 the 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. This attachment discharges debris that can be hazardous.
- 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 could affect the life of the equipment.
- DO NOT make any adjustments or repairs on the equipment while the machine is running.
- Keep shields and guards in place. Replace if damaged.

2. Safety

2.3 Operational Safety Cont'd

- DO NOT operate equipment in poor visibility conditions such as fog, darkness, or any conditions that limit clear visibility less than 1000 feet (300 meters) 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 cutter running at optimal cutting 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.
- DO NOT position and work with the rotor facing the operator's cab.

Machine Requirements and Capabilities

- The machine 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.
- Keep bystanders clear of moving parts and the work area. Keep children away.
- DO NOT exceed 5500 psi (380 bar) operating pressure.
- Use caution on slopes and near banks and ditches to prevent overturn

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.

- Power equipment can cause sparks and start fires. Be especially careful on hot, dry days. Exercise caution while operating and watch for sparks.
- Keep a working fire extinguisher and shovel should be kept near the working area.

Transporting Safety

- Blue Diamond® Attachments cannot be held responsible for any damage due to transport that was carried out by the customer and/or operator or by carriers chosen by the customer and/or operator.
- Comply with state and local laws governing highway safety and movement of machine on public roads.
- Check local laws for all highway lighting and marking requirements.
- Always yield to oncoming traffic and move to the side of the road so any following traffic may pass.
- Never allow riders on either machine or equipment.
- If transporting the drum mulcher on a truck or trailer, make sure the drum mulcher is properly secured to the transport vehicle.

2. Safety

2.3 Operational Safety Cont'd

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.



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.

2.4 Safety Regulations

Precautions and Hazards during Machine Operation

- When moving the machine from the transport position to the working position, the operator must keep all persons and animals in the operation area at least 1000 feet (300 meters) away from the outer contour of the machine.
- Keep away from crushing or shearing zones between moving parts driven by mechanical, hydraulic, or pneumatic power.
- DO NOT operate the machine without its safety devices and guards in place.
- DO NOT operate the machine if the safety devices and guards are not in perfect condition. Replace them before continuing to work with the machine.
- DO NOT climb on the machine while it is in operation or when it is off.
- DO NOT start the mulcher rotor without first raising the machine off the ground.

- DO NOT transport persons or animals or to load or transport goods on the machine.
- DO NOT exceed the machine's power capacity as specified by the manufacturer.
- Keep a sufficient distance from utility lines and pipes.
- When the mulcher is in operation, fire may occur. Keep a fire extinguisher nearby the work area.



DANGER



- Before any maneuver, the operator must ensure that there are no persons, animals, or obstacles within 1000 feet (300 meters) of the machine's location.
- DO NOT work with the machine at a distance of less than 1000 feet (300 meters) from roads on which motor vehicles, lorries, or horse-drawn vehicles may travel if the operator does not comply with all the safety procedures in this manual.
- DO NOT work with the machine at a distance of less than 1000 feet (300 meters) from public areas (parks and/or gardens), civil, residential, or industrial buildings if the operator does not comply with all the safety procedures in this manual.
- DO NOT handle hydraulic hoses and connections when the machine is running, as there is a high risk of penetration into the skin and eyes due to oil pressure.



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.

2. Safety

2.4 Safety Regulations Cont'd



Precautions and Hazards during Machine Operation Cont'd


- DO NOT leave the machine unless the rotor of the mulcher is stopped, there is no excessive pressure being applied to the excavator arm, the machine is placed on a flat, level, and firm surface, the excavator (excavator arm) is placed in the rest position, parking brake is engaged, the machine is off, and the key is removed from the ignition.
- Use Blue Diamond® approved spare parts for better performance and increased safety.

Precautions during Maintenance

- Refer to the user manual of the machine.
- A qualified operator must carefully read the entire safety manual and fully understand and follow the information before connecting or disconnecting the machine.
- Use appropriate PPE including but not limited to eye and ear protection, work gloves, work boots, safety hat, dust mask, and work clothes.
- The machine may only be operated, maintained, repaired, serviced, and/or handled by qualified personnel or an authorized service technician.
- DO NOT conduct maintenance work while in the field. All maintenance must be completed as authorized technical service in the proper environment with all safety precautions.
- DO NOT stand between the excavator and the machine.
- Before carrying out any maintenance, all fastening elements (fittings, screws, nuts, bolts, pins, etc.) must be checked for tightness to prevent moving parts from coming loose on the operator.

- There is a risk of leaks in hoses or hydraulic components.

**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.

Storage of the Machine

- When the machine is not in operation and must be stored for a certain time, the mulcher must be separated from the excavator according to all the safety rules in this manual.
- For storage, the mulcher must be placed on a level, flat, and firm surface.
- It is advisable to store the machine in a covered and dry place.
- Before storing the machine, clean, dry, and lubricate all components.
- Always use original greases and lubricants recommended by Blue Diamond®.
- Once the machine has been positioned and cleaned on a flat, level, and firm surface, a general inspection must be made to ensure that there are no anomalies (i.e, condition of the cutting elements).
- Before storage, check that all fasteners (fittings, screws, nuts, pins, bolts, etc.) are tight, and check for leaks in the hydraulic circuit.
- Use original Blue Diamond® spare parts for better performance and increased safety.
- Check that the safety decals are in perfect condition. Otherwise, replace them before operating the machine.
- When operating or maintaining the machine again, the safety rules mentioned in this manual must be followed.

3. Start-Up and Operation

3.1 Entering and Exiting the Prime Mover



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, start the engine, and release the parking brake.

Leaving the Operator's Position



AVOID SERIOUS INJURY OR DEATH

- 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.

3.2 Attachment Installation with Excavator

Connecting Attachment to the Machine



AVOID SERIOUS INJURY OR DEATH

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

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

Order the appropriate bracket interchange from your local Blue Diamond® Attachments dealer by supplying the brand and model information of your machine.

The bracket interchange is secured to the attachment with bolts.

Use an appropriate lifting device and slings to place the bracket interchange onto the attachment.

Align the holes between the bracket interchange and deck and install the appropriate hardware.

Torque hardware to the specification detailed in the **"6.2 Torque Specifications" on page 54.**

Position the excavator at the rear of the attachment.

Extend the tool cylinder and paddle until the pin position is aligned.

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

Install the pin through the attachment and paddle and secure with appropriate hardware.

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

Adjust the height of the dipperstick to align with the pin position.

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

Install the pin through the attachment and paddle and secure with appropriate hardware.

3. Start-Up and Operation

3.2 Attachment Installation with Excavator Cont'd

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. The hydraulic hoses must be connected in the following order: case drain, return hose, and pressure hose.

Pull on each hose to verify full connection is made.



The case drain **MUST** be connected to the machine; otherwise, it will result in damage to the attachment.

Disconnecting Hydraulic Hoses



AVOID SERIOUS INJURY OR DEATH

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



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.

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

Disconnect attachment hydraulic hoses from the machine. The hoses must be disconnected in the following order: pressure hose, return hose, and case drain.

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 15.

Disconnect attachment hydraulic hoses from the machine.

Remove hardware securing the pins and remove the pins from the paddle and attachment.

Enter the operator's position. See **"Entering the Operator's Position"** on page 15

Raise the dipperstick to clear the attachment.

Drive the machine slowly backward, away from the attachment.

3. Start-Up and Operation

3.3 Initial Set Up Instructions



WARNING



Read and follow completely before operating or using the mulcher in any capacity.



Figure 10

TOOLS NEEDED	PURPOSE
Adjustable Wrenches	Hose Connections
6,000 PSI Pressure Gauge	Pressure Measurement
Laser Tachometer and Reflective Tape	Speed Measurement
19mm Open Head Wrench	Displacement Adjustment
10mm Open Head Wrench	Shift Pressure Adjustment
19mm Socket	Guard Plate
8mm Allen Key	Hose Guard and Access Plates
6mm Allen Key	Displacement Adjustment
3mm Allen Key	Shift Pressure Adjustment

Hydraulic Connections

P: Pressure 1" (#16) JIC

R: Return 1" (#16) JIC

D: Case Drain 3/4" (#12) JIC

MP: Working Pressure Gauge Port

MD: Case Drain Pressure Gauge Port



Figure 11



Figure 12

Greasing Points

B1-B2: Rotor

E: Overhung Load Adapter

NS: Access Door Hinge

NS: Hydraulic Gate Hinge Points

NS: Hydraulic Gate Cylinder

Hose Connection

1. Connect the case drain hose.
2. Connect the return hose.
3. Connect the pressure hose.

NOTE: Disconnect in reverse order.

3. Start-Up and Operation

3.3 Initial Set Up Instructions Cont'd

Adjust Shift Pressure

The shift pressure of the motor may need adjusted to match the mulcher to the auxiliary pressure of the host machine. Depending on site conditions and personal preference, the shift pressure should be adjusted to 70 – 80% of the system pressure.


WARNING


AVOID SERIOUS INJURY OR DEATH

Keep away from moving parts.


WARNING




AVOID SERIOUS INJURY OR DEATH

Keep the discharge area clear of personnel, bystanders, or damageable property.

Measure System Relief Pressure

1. Set the mulcher firmly on the ground with the rotor blocked to prevent rotation.
2. Remove the plug from the MP port, and attach the pressure gauge. For ease of installation, the guard plate may be removed from around the hydraulic connections.
3. Engage the excavator auxiliary hydraulics at full pressure to determine the maximum system pressure.

NOTE: DO NOT engage the hydraulics for more than 30 seconds to avoid heat buildup in the hydraulic system.


WARNING


Disengage the hydraulics and wait for all moving parts to stop before performing any adjustments. Place the mulcher on a firm, level surface before performing any maintenance procedures.

Measure Shift Pressure

1. With the hydraulics disengaged and the pressure gauge still installed, lift the mulcher clear of the rotor block and anything else that might be caught or entangled in the rotor.
2. With the rotor completely still, engage the hydraulics at full flow and pressure. As the rotor builds speed, the pressure reading on the gauge will spike to the system relief pressure and then begin to fall. The gauge will slow and pause momentarily at a slightly lower reading, and then continue falling to a working pressure of around 600 – 700 PSI. The shift pressure is the level at which the gauge paused. If the shift pressure reading is not 70 – 80% of the system relief pressure, it can be adjusted for a better mulching experience.

Adjust Shift Pressure

1. Disengage the auxiliary hydraulics, wait for all moving parts to stop, and set the mulcher on a flat, level, and firm surface.
2. Remove the top cover plate on top of the mulcher and the cap off the adjustment screw on top of the motor. See Item 1, [Figure 13].

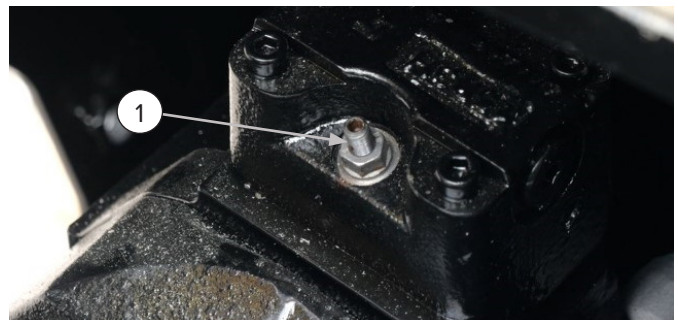


Figure 13

3. Loosen the jam nut, and turn the 3mm allen key to adjust. A half turn is equal to 1,160 PSI.

DIRECTION	SHIFT PRESSURE
Clockwise	Decrease
Counterclockwise	Increase

4. Hold the allen key in place, and tighten the jam nut. Repeat the above steps for measurement and adjustment until the desired shift pressure is reached.

3. Start-Up and Operation

3.3 Initial Set Up Instructions Cont'd

Adjust Rotor Speed

The minimum displacement of the motor may need adjusted to match the auxiliary flow of the machine.

The motor displacement varies between 55cc (factory setting) and 85cc. The lower displacement can be decreased from the factory setting.

Measure Rotor Speed

1. Lift the front cover to access the rotor pulley.

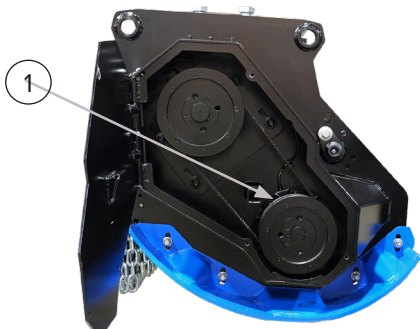


Figure 14

2. Apply reflective tape to the rotor pulley. See Item 1, [Figure 14].
3. Engage the rotor. Use a tachometer to measure the speed. The rotor speed should be between 2200 – 2500 rpm. If the rotor speed is not between the stated range, adjust the displacement.

NOTE: 2200 – 2500 RPM is for optimum performance. Maximum RPM is 2800.

NOTE: Rotor speed may decrease as hydraulic oil temperature increases.



WARNING



Disengage the hydraulics and wait for all moving parts to stop before performing any adjustments. Place the mulcher on a firm, level surface before performing any maintenance procedures.

Adjust Displacement

1. Disengage the auxiliary hydraulics, wait for all moving parts to stop, and set the mulcher on a flat, level, and firm surface.
2. Remove the access cover on the side of the mulcher to access the motor. See item 1, [Figure 15]

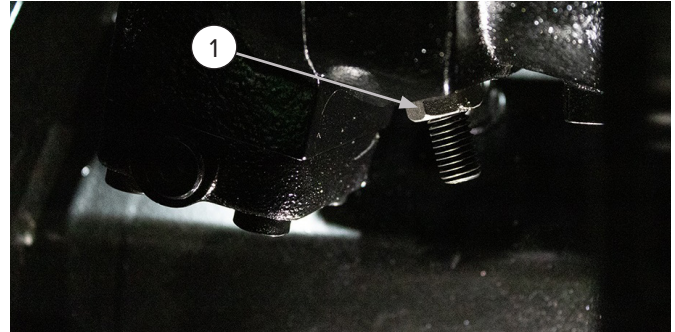


Figure 15

3. Loosen the jam nut, and turn the allen bolt to adjust the minimum displacement. Tighten the jam nut when complete. See Item 1, [Figure 16].

DIRECTION	MINIMUM DISPLACEMENT	ROTOR SPEED
Clockwise	Increase	Decrease
Counterclockwise	Decrease	Increase

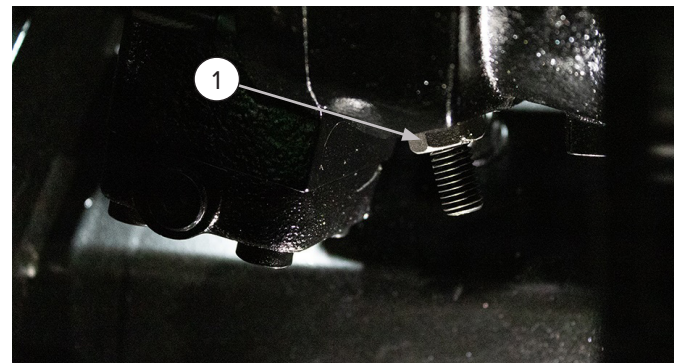


Figure 16

4. Measure the rotor speed again, and adjust as needed.

3. Start-Up and Operation

3.4 Machine Operation



WARNING



- DO NOT start the mulcher rotor without first raising the machine off the ground.
- The movement of the excavator arm must be as near to the ground as possible to avoid the risk of overturning.

Starting the Machine

- Check that the coupling and adjustment operations have been in accordance with this manual.
- Check that the machine's hoses have enough length to move freely and that the mulcher is securely attached to the excavator arm and cannot move unexpectedly.
- Raise the machine off the ground.

Mulching Procedure

- When the excavator is powered on, and auxiliary hydraulics engaged, use the control switch to open or close the discharge cover. Open the discharge cover while moving to the left to expose the rotor to mulch a greater volume and for a rougher finish or initial cutting operation. Close the discharge cover to obtain a finer finish or secondary mulching while moving to the right.
- DO NOT put pressure on the mulcher when it is on the ground. This could damage the machine.
- For best results, find the balance between speed, power, and material mulched.

Alignment of the Machine to Terrain

- At working position, DO NOT put pressure on the mulcher with the arm (ground), as this could damage a component.

Turning with the Machine

- When changing direction, avoid abrupt maneuvers that can cause damage to the machine components that come into contact with the ground.
- Lift the machine slightly and perform the rotation or direction change. Once the maneuver is completed, lower the machine carefully without applying pressure to the mulcher with the excavator arm to continue operation.

Stopping the Machine

Once all moving parts of the machine have come to a complete stop, follow these steps:

- Release hydraulic pressure prior to disconnecting any hydraulic component.
- Disconnect the fittings from the hydraulic connections.
- Disconnect the mulcher from the excavator arm.

4. Maintenance

Before carrying out any maintenance operations, the operator must carefully read and understand the instructions contained in this manual.

Regular and thorough maintenance keeps the machine in optimal condition and prolongs its service life.



WARNING



Before performing any of the actions in this section, section 2.0 Safety in this manual must be read in its entirety and understood fully to avoid any type of risk or accident. If, after reading this manual, you do not understand any point, **DO NOT** connect or operate the machine or carry out any maintenance operations. Contact your local dealer or Blue Diamond® Product Support immediately to ensure your safety and that of the machine.

4.1 Precautions During Maintenance

- If a safety device is removed during maintenance of the machine, it must be replaced and checked for correct operation of the machine.
- Check that the safety symbols are in perfect condition. Otherwise, replace them before operating the machine.
- Before and after all maintenance work on the machine, check that all fastening elements (fittings, screws, nuts, pins, bolts, etc.) are tight, and check for leaks in the hydraulic circuit.
- Before carrying out any welding work (with Blue Diamond's approval) on the machine, the mulcher must be uncoupled from the excavator.
- Cleaning of the mulcher and its parts must be done with the machine stopped and disconnected from the excavator.
- **DO NOT** throw away, dump, or burn products that could pollute the environment.
- Blue Diamond® shall not be held responsible in the event of poor waste management by any maintenance personnel.

- Use original Blue Diamond® spare parts for better performance and increased safety.
- Always use original greases and lubricants recommended by Blue Diamond®

4.2 Cleaning

- Before conducting any maintenance work on the machine, a general cleaning of the working area must be carried out.
- Remove items such as branches, twigs, ropes, wires, or cables from the rotor.
- Remove brush, wood chips, or mulched material from the top of the machine.
- Clean the inside walls of the machine and the cutting elements according to section **"4.8 Service Schedule"** on page 25.
- Before greasing, clean the grease zerks.
- Use the lubricants listed in this manual.

4.3 Greasing and Lubrication

Lubrication of the machine is simple and can be performed by the operator following the instructions in this manual and the following recommendations:

- Lubrication and greasing of moving components is essential to prevent friction between moving and stationary bodies.
- Excessive lubrication and greasing can be harmful, so the times and quantities specified in these instructions must be observed.
- The use of approved PPE is mandatory for this operation. The safety measures to be followed during the greasing process are indicated on the greasing container.



CAUTION



The greases and oils must be disposed of in accordance with the local regulations. Blue Diamond® cannot be held responsible for improper waste disposal.

4. Maintenance

4.3 Greasing and Lubrication Cont'd

! IMPORTANT !

- Clean grease zerks prior to greasing.
- Use LITHIC SYNTHETIC EP NI GI grade 2 grease or equivalent.

Lubrication of the Machine

- Grease according to procedures in section “4.8 Service Schedule” on page 25.
- The lubrication points are shown in [Figure 17-1], [Figure 17-2], [Figure 17-3], and [Figure 17-4].



Figure 17-1

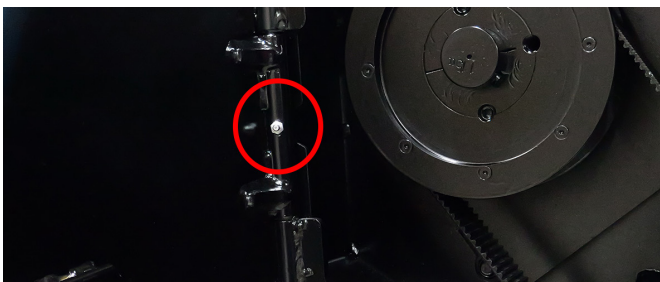


Figure 17-2

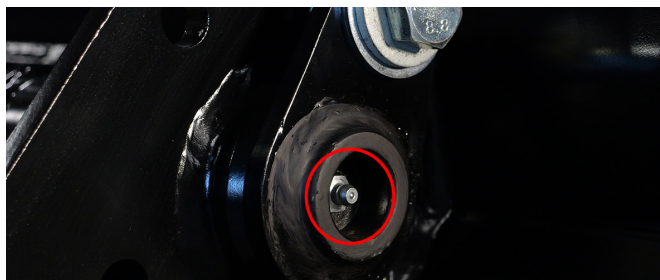


Figure 17-3



Figure 17-4

Lubrication of the Machine Cont'd

- The grease zerks for the rotor bearing housings should be lubricated every 4 hours by applying 10 pumps or every 8 hours by applying 20 pumps using the grease pump. The rotor bearing housing grease zerks are labeled B1 and B2 on the rear grease zerk panel [Figure 17-1].
- The overhung load adapter grease zerk should be lubricated every 20 hours applying 10 pumps using the grease pump. The overhung load adapter grease zerk is labeled E on the rear grease zerk panel.
- Apply grease to the cylinder zerk [Figure 17-4], and discharge cover pins [Figure 17-3], every 8 hours until the fresh grease squeezes out.
- Apply grease to the access door [Figure 17-2], every 50 hours.
- After greasing, remove any grease residue from the surface of the machine.

4. Maintenance

4.4 Hoses and Cylinder

- Every 20 hours check the hoses and cylinder for leaks.
- Verify that the hoses do not have cracks that could cause leaks.
- Check the piston rod on the cylinder for scratches that could damage the seals.

NOTE: Use original Blue Diamond® spare parts for better performance and increased safety.

SEVERE DUTY MODEL PARAMETERS	NEW BELT	USED BELT
STRAND DEFLECTION FORCE	55-59 lbs ft (24.9-26.9 Kgf)	42-46 lbs ft (18.9-20.9 Kgf)
STRAND DEFLECTION DISTANCE	.28 IN (7.2MM)	.28 IN (7.2MM)



If the cylinder can be moved manually without machine input, stop operation and contact Blue Diamond® Product Support.

NOTE: Apply the force indicated in the table with the tensiometer at the midpoint of the center-to-center distance (Point A) [Figure 19]

4.5 Belts

The Severe Duty Excavator Drum Mulchers use a Polychain belt [Figure 18] with a manual tensioning system.



Figure 18

Manual Tensioning System

- After the first 5 hours of operation, check the tension and condition of the belts.
- Every 50 hours, check the tension and condition of the belts.
- The belt is properly tensioned when the deflection in the center of the span (Point A) [Figure 19] is equal to the deflection distance shown in the table when the deflection force shown is applied with a tensiometer.

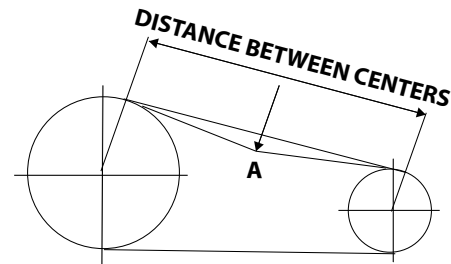


Figure 19

- If necessary, tighten the belt to the value shown in the table.



Belt tensioning must be done by qualified personnel or an authorized service technician.

Belt Replacement

- Replace worn or broken belts.
- When one or more belts need to be replaced due to damage or wear, replace all belts to maintain even tension.

NOTE: Use original Blue Diamond® spare parts for better performance and increased safety.

4. Maintenance

4.6 Cutting Elements

The Severe Duty Excavator Drum Mulchers can use chipping teeth or carbide teeth.

Chipping Teeth [Figure 20]



Figure 20

Carbide Teeth [Figure 21]



Figure 21

- See section “**6.2 Torque Specifications**” on **page 54** for the proper tightening torque that must be applied to the screws that secure the cutting elements.
- After the first 5 hours of operation, check the torque of the teeth as indicated in section “**6.2 Torque Specifications**” on **page 54**.
- After every 20 hours, check the torque of the teeth as indicated in section “**6.2 Torque Specifications**” on **page 54**.
- Every 8 hours clean the teeth.
- **DO NOT** operate the machine with worn teeth as this may cause damage to the rotor.
- When replacing one or more teeth, replace all teeth to maintain the balance of the rotor.
- Stop operating the machine immediately if you notice any abnormal vibration of the rotor or machine. Contact Blue Diamond® immediately or an authorized technical service.



DANGER



The replacement of cutting elements and tightening torque of cutting elements must be carried out by qualified personnel or an authorized service technician.

- **NOTE:** Use original Blue Diamond® spare parts for better performance and increased safety.

4.7 Spare Parts

- To order a spare part, the customer must contact an authorized Blue Diamond® dealer.
- The customer must provide the authorized dealer with the machine model and serial number.

4. Maintenance

4.8 Service Schedule

DESCRIPTION	Every 4h	After first 5 hours	Every			
			8h	20h	40h	50h
Cleaning / Maintenance						
*Teeth			•			
Machine				•		
Checking						
Condition of teeth	•					
*Seals	•					
*Belt		•				•
Adjusting						
*Teeth		•		•		
*Tooth holders and hardware				•		
*Other machine hardware		•				•
*Belt		•				•
Lubrication**						
*Rotor bearing housings	•					
*Cylinder Pin			•			
*Discharge Cover Pins			•			
*Overhung Load Adapter				•		
*Access Door Hinge						•

* These tasks must be carried out by qualified personnel or authorized service technicians.

* Refer to “4.3 Greasing and Lubrication” on page 21 for quantities.

4. Maintenance

4.9 Troubleshooting

PROBLEM	CAUSE	SOLUTION
Abnormal vibrations of the machine.	Unevenly worn teeth.	Replace all teeth with new ones.
	Unbalanced rotor.	Have the rotor balanced, Contact your dealer or Blue Diamond® Product Support.
	Accumulation of debris or rolled-up elements on the rotor.	Check the rotor for dirt or other unbalance-causing elements.
	Loss of one or more of the teeth.	Replace the teeth.
	Rotor bearings damaged or broken.	Replace the rotor bearings with new ones.
Poorly mulched material or poor finish.	The rotor does not reach the intended speed.	Check the tension of the belt. Contact your dealer or Blue Diamond® Product Support.
	Adjustment of the machine not in accordance with the instructions.	Adjust the motor to the host machine specifications. Contact your dealer or Blue Diamond® Product Support.
	High ground speed.	Reduce the working speed and adjust it to the working conditions.
	Worn teeth.	Replace worn teeth with new ones.
	Wrong working height.	Adjust the height of the skid shoes.
High power consumption.	Too much material.	Reduce speed.
	High ground speed.	Reduce the working speed and adjust it to the working conditions.
	High working depth.	Adjust the working height of the skid shoes.
Loud and continuous noise during operation of the machine.	Low oil level in the excavator tank.	Check hydraulic oil level, and check for leaks.
Broken seals.	Lack or excess of lubrication.	Lubricate correctly, respecting the intervals indicated in this manual.
	Wear and tear.	Replace broken seals with new ones.
	Mechanical problems in bearings or shafts near the seal.	Replace damaged components.
Frequent bearing breakage.	Frame bent with excessive axial loads.	Contact your dealer or Blue Diamond® Product Support.
	Lack of lubrication.	Lubricate according to the intervals indicated in this manual.
	Machine overloaded.	Respect the working limits indicated by the manufacturer (in case of doubt, contact your dealer or Blue Diamond® Product Support..
	Incorrect rotor mounting or adjustment.	Check assembly and adjustments.
	Excessive vibrations due to unbalance in the rotor.	Contact your dealer or Blue Diamond® Product Support.

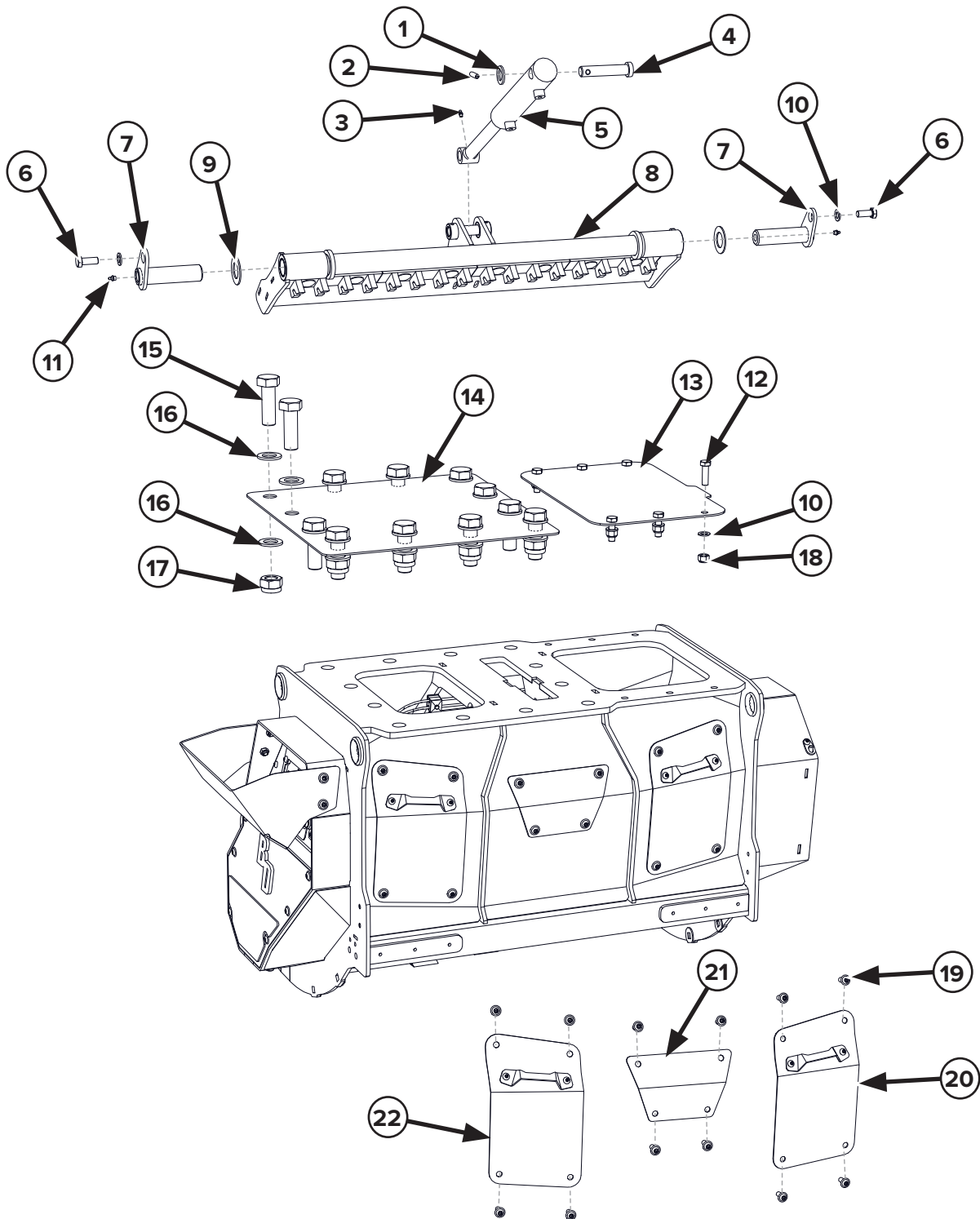
4. Maintenance

4.9 Troubleshooting Cont'd

PROBLEM	CAUSE	SOLUTION
Rotor not turning.	Jamming (due to the presence of a foreign body).	Turn the rotor in the reverse direction to clear jammed material. Check and clean the rotor and teeth according to the Service Schedule.
	Lack of lubrication.	Lubricate according to the Service Schedule.
	Belt breakage or wear.	Replace the belt.
	Broken hydraulic motor bearing or drive shaft.	Check the hydraulic motor drive shaft and if necessary, have it repaired or replaced. Contact your dealer or Blue Diamond® Product Support.
	Oil leak.	Identify and repair all leaks in the hydraulic circuit.
	Host machine pump in bad condition.	Contact your dealer or Blue Diamond® Product Support.
	Mulcher hydraulic motor malfunctioning.	
Broken teeth and hardware.	Stones or other elements (metals, foreign bodies, etc.).	Avoid these materials.
	Low rotor RPM or low machine power.	Contact your dealer or Blue Diamond® Product Support.
Premature belt wear.	Rotation rate too low.	Adjust the rotation speed according to the operating instructions.
	Starting the mulcher with the rotor touching the terrain.	Lift the machine slightly before starting the rotor. Replace the belt.
	Rotor does not start and belt slips.	Check that the rotor is not jammed.
	Slack belt.	Tighten the belt. Contact your dealer or Blue Diamond® Product Support.
Motor leaking.	Loose Connections.	Check to make sure all hydraulic fittings and hardware are tight.
	Possible Motor Failure.	Contact your dealer or Blue Diamond® Product Support.
Hydraulic oil in the overhung load adapter.	Damaged motor shaft seal.	Check the condition of the motor shaft seal, and replace if required. Contact your dealer or Blue Diamond® Product Support.
High-pitched noise during operation, with the machine working harder when overloaded.	Slack belt.	Tighten the belt. Contact your dealer or Blue Diamond® Product Support.

5. Parts

5.1 Main Components



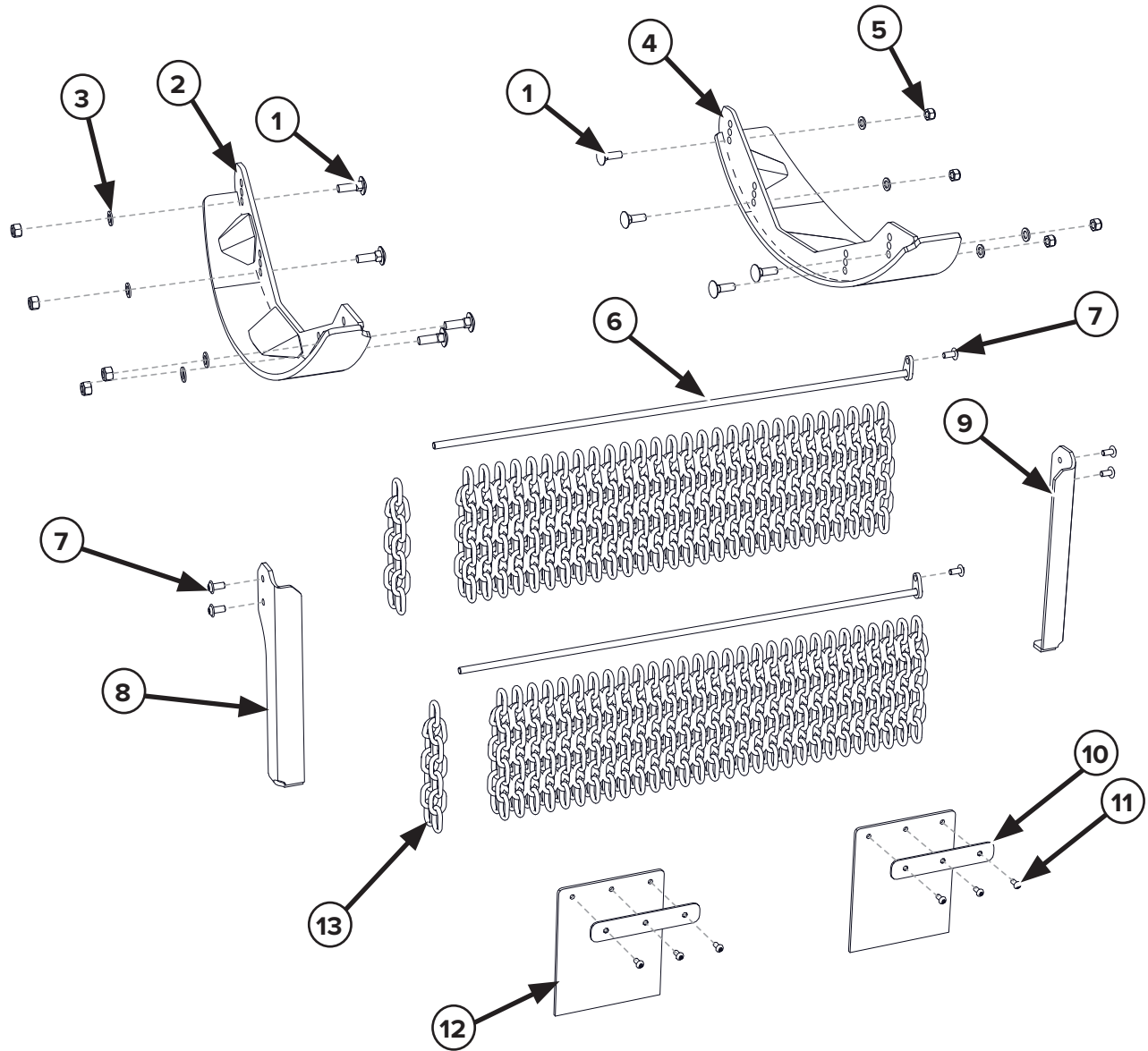
5. Parts

5.1 Main Components Cont'd

ITEM	PART NUMBER	DESCRIPTION	QTY
1	—	3.7MM X M24 X 44MM FLAT WASHER	1
2	—	10MM X 40MM ELASTIC COTTER PIN	1
3	290422	M8 X 1.25MM GREASE ZERK STRAIGHT	1
4	290769	PIN FOR HYDRAULIC CYLINDER BODY END	1
5	290736	30MM BORE x 50MM ROD x 200MM STROKE DOUBLE ACTING HYDRAULIC CYLINDER	1
6	299047	M16 X 2MM X 40MM BOLT HEX HEAD FULL THREAD	2
7	290664	DISCHARGE COVER PIVOT PIN	2
8	290737	40" - DISCHARGE COVER ASSEMBLY (SEE PAGE 34)	1
	290771	50" - DISCHARGE COVER ASSEMBLY (SEE PAGE 34)	1
9	—	PIVOT MOUNT WASHER	2
10	290276	2.7MM X M16 X 30MM FLAT WASHER	8
11	290428	M10 GREASE ZERK STRAIGHT FITTING	2
12	299045	M16 X 2MM X 50MM BOLT HEX HEAD FULL THREAD	6
13	290666	40" - SMALL TOP COVER	1
	290770	50" - SMALL TOP COVER	1
14	290417	MOUNT PLATE	1
15	—	SCREW FOR MOUNT PLATE	12
16	—	WASHER FOR MOUNT PLATE	12
17	—	NUT FOR MOUNT PLATE	8
18	—	M16 X 2.00MM NYLOCK NUT	6
19	290643	M12 X 1.75MM X 25MM BOLT FLANGED BUTTON HEAD	12
20	290699	40" - RIGHT FRONT ACCESS COVER (SEE PAGE 37)	1
	290775	50" - RIGHT FRONT ACCESS COVER (SEE PAGE 37)	1
21	290698	RIGHT CENTER ACCESS COVER	1
22	290697	40" - RIGHT REAR ACCESS COVER (SEE PAGE 38)	1
	290776	50" - RIGHT REAR ACCESS COVER (SEE PAGE 38)	1

5. Parts

5.2 Main Components - 2



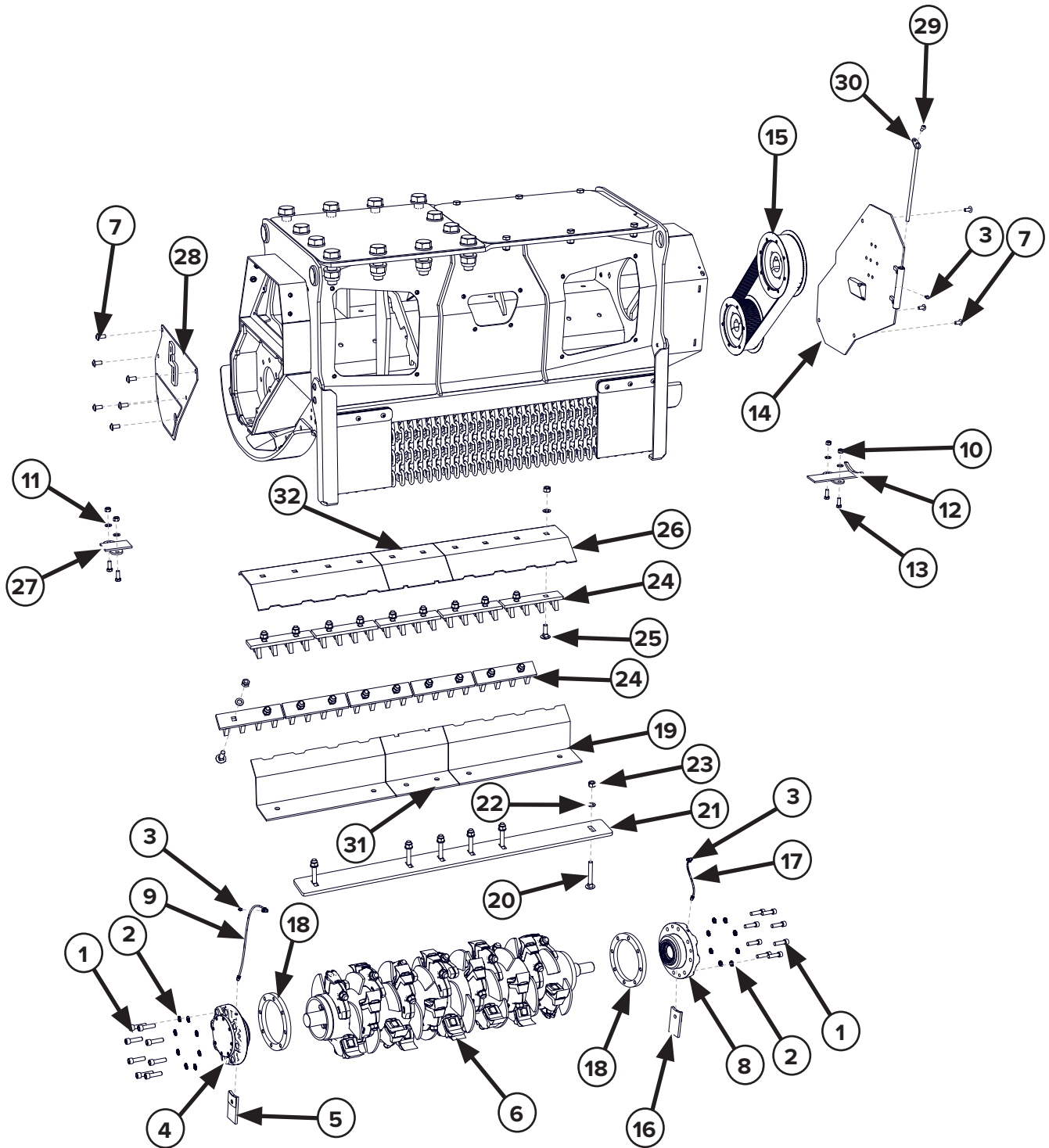
5. Parts

5.2 Main Components - 2 Cont'd

ITEM	PART NUMBER	DESCRIPTION	QTY
1	—	M16 X 2MM X 50MM CARRIAGE BOLT FULL THREAD	8
2	290667	REAR SKID SHOE	1
3	290276	2.7MM X M16 X 30MM FLAT WASHER	8
4	290668	FRONT SKID SHOE	1
5	299011	M16 X 2.00MM NYLOCK NUT	8
6	290521	CHAIN ROD 40" ONLY	2
	290515	CHAIN ROD 50" ONLY	2
7	290643	M12 X 1.75MM X 25MM BOLT FLANGED BUTTON HEAD	6
8	290669	REAR SUPPORT LEG	1
9	290670	FRONT SUPPORT LEG	1
10	290671	SUPPORT PLATE	2
11	290545	SCREW FOR RUBBER GUARD	6
12	290672	RUBBER GUARD	2
13	290673	CHAIN 10 13 LINKS L=460 MM (FOR 40" ONLY)	59
		CHAIN 10 13 LINKS L=460 MM (FOR 50" ONLY)	73

5. Parts

5.3 Main Components - 3



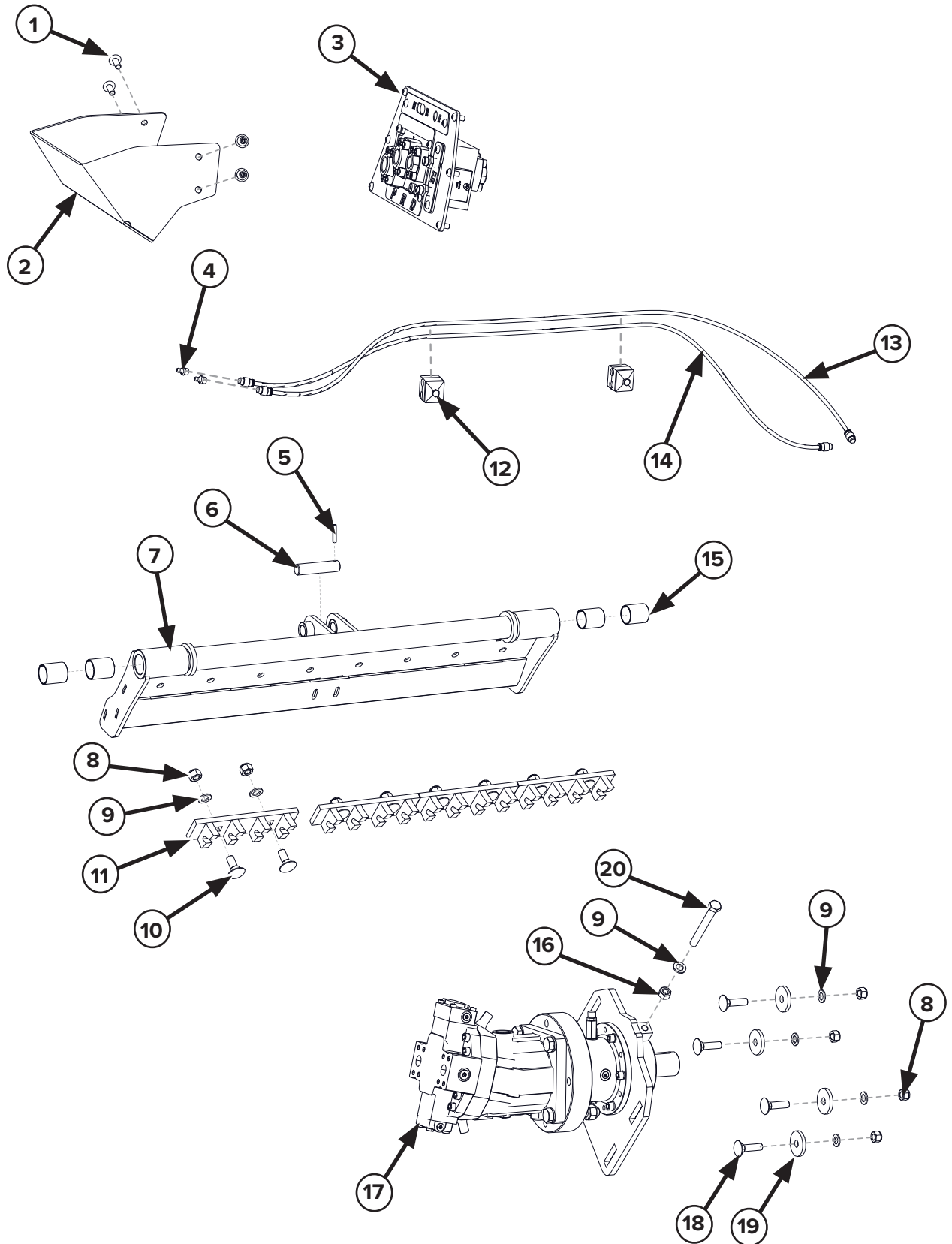
5. Parts

5.3 Main Components - 3 Cont'd

ITEM	PART NUMBER	DESCRIPTION	QTY 40"	QTY 50"
1	299043	M16 X 2.00MM X 40MM BOLT SOCKET HEAD FULL THREAD	16	16
2	290543	M16 GROOVED WASHER	16	16
3	290428	M10 GREASE ZERK STRAIGHT FITTING	2	2
4	290688	NON-DRIVE SIDE ROTOR BEARING ASSEMBLY (SEE PAGE 45)	1	1
5	290686	NON-DRIVE SIDE ROTOR SHAFT SIDE COVER	1	1
6	290685	40" - ROTOR ASSEMBLY (SEE PAGE 47)	1	
	290741	50" - ROTOR ASSEMBLY (SEE PAGE 47)		1
7	290643	M12 X 1.75MM X 25MM BOLT FLANGED BUTTON HEAD	9	9
8	290679	DRIVE SIDE ROTOR BEARING ASSEMBLY (SEE PAGE 44)	1	1
9	290678	NON-DRIVE SIDE ROTOR BEARING GREASE LINE	1	1
10	299000	M12 X 1.75 NYLOCK NUT	4	4
11	299062	2.3MM X M12 X 24MM WASHER	4	4
12	290674	DRIVE SIDE ROTOR SHAFT OUTLET COVER	1	1
13	299142	M12 X 1.75MM X 30MM HEX BOLT FULL THREAD	4	4
14	290677	BELT DRIVE COVER PLATE	1	1
15	290676	POLYCHAIN BELT ASSEMBLY (SEE PAGE 43)	1	1
16	290687	DRIVE SIDE ROTOR SHAFT SIDE COVER	1	1
17	290689	DRIVE SIDE ROTOR BEARING GREASE LINE - SHORT HOSE	1	1
18	290690	INNER ROTOR WASHER	2	2
19	290691	LOWER COUNTERBLADE PLATE	2	2
20	—	BOLT FOR ADJUSTABLE INTAKE PLATE	4	6
21	290692	40" - ADJUSTABLE INTAKE PLATE	1	
	290779	50" - ADJUSTABLE INTAKE PLATE		1
22	290276	2.7MM X M16 X 30MM FLAT WASHER	22	26
23	299011	M16 X 2.00MM NYLOCK NUT	22	26
24	290693	COUNTERBLADE	8	10
25	—	M16 X 2MM X 50MM CARRIAGE BOLT FULL THREAD	16	20
26	290694	UPPER COUNTERBLADE PLATE	2	2
27	290695	NON-DRIVE SIDE ROTOR SHAFT OUTLET COVER	1	1
28	290696	NON-DRIVE SIDE ACCESS COVER	1	1
29	290545	ALLEN HEAD ROUNDED CAP BOLT	1	1
30	290700	PULLEY CALIBRATION COVER	1	1
31	290777	50" - LOWER CENTER COUNTERBLADE PLATE		1
32	290778	50" - UPPER CENTER COUNTERBLADE PLATE		1

5. Parts

5.4 Main Components - 4



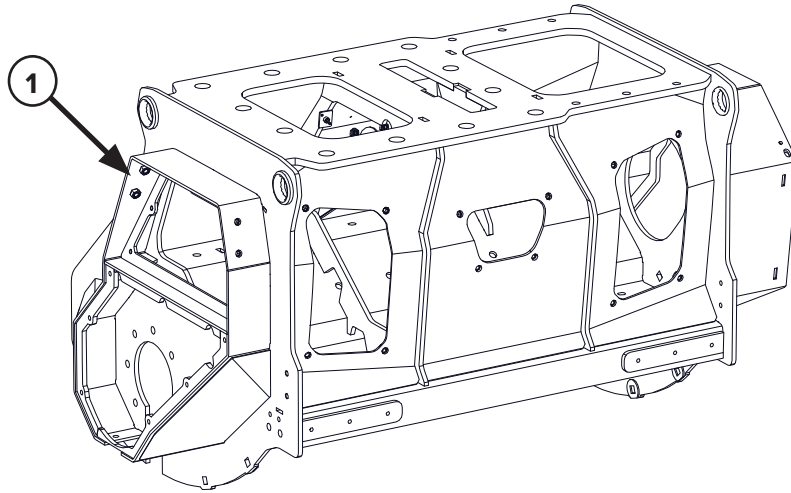
5. Parts

5.4 Main Components - 4 Cont'd

ITEM	PART NUMBER	DESCRIPTION	QTY 40"	QTY 50"
1	290643	M12 X 1.75MM X 25MM BOLT FLANGED BUTTON HEAD	4	4
2	290701	HOSE PROTECTION BRACKET	1	1
3	—	HYDRAULIC CONNECTION BLOCK ASSEMBLY (SEE PAGE 39)	1	1
4	290428	M10 GREASE ZERK STRAIGHT FITTING	2	2
5	290703	ROLL PIN	1	1
6	290704	PIN	1	1
7	290708	40" - DISCHARGE COVER WELDMENT	1	
	290772	50" - DISCHARGE COVER WELDMENT		1
8	299011	M16 X 2.00MM NYLOCK NUT	12	14
9	290276	2.7MM X M16 X 30MM FLAT WASHER	13	15
10	—	M16 X 2MM X 50MM CARRIAGE BOLT FULL THREAD	8	10
11	290693	COUNTERBLADE	4	5
12	290599	DOUBLE HOSE CLAMP	2	2
13	290711	40" - LOAD ADAPTER GREASE LINE	1	
	290773	50" - LOAD ADAPTER GREASE LINE		1
14	290712	40"- DRIVE SIDE ROTOR BEARING GREASE LINE-LONG HOSE	1	
	290774	50"- DRIVE SIDE ROTOR BEARING GREASE LINE-LONG HOSE		1
15	290709	DISCHARGE COVER PIVOT BUSHING	4	4
16	299048	M16 X 2.0MM HEX NUT	1	1
17	290714	115CC VARIABLE HYDRAULIC MOTOR WITH TENSIONER (SEE PAGE 41 FOR PARTS)	1	1
18	—	M16 X 2MM X 60MM CARRIAGE BOLT FULL THREAD	4	4
19	290276	M16 FLAT WASHER	4	4
20	—	M16 X 2MM X 130MM BOLT HEX HEAD FULL THREAD	1	1

5. Parts

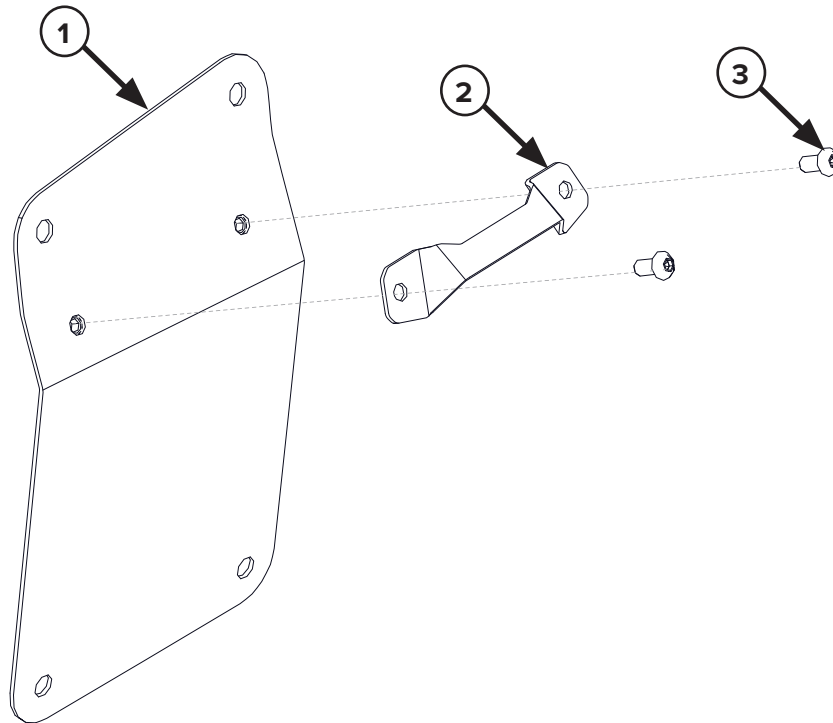
5.5 Main Frames



ITEM	PART NUMBER	DESCRIPTION	QTY
1	290716	40" - MAIN FRAME	1
2	290717	50" - MAIN FRAME	1

5. Parts

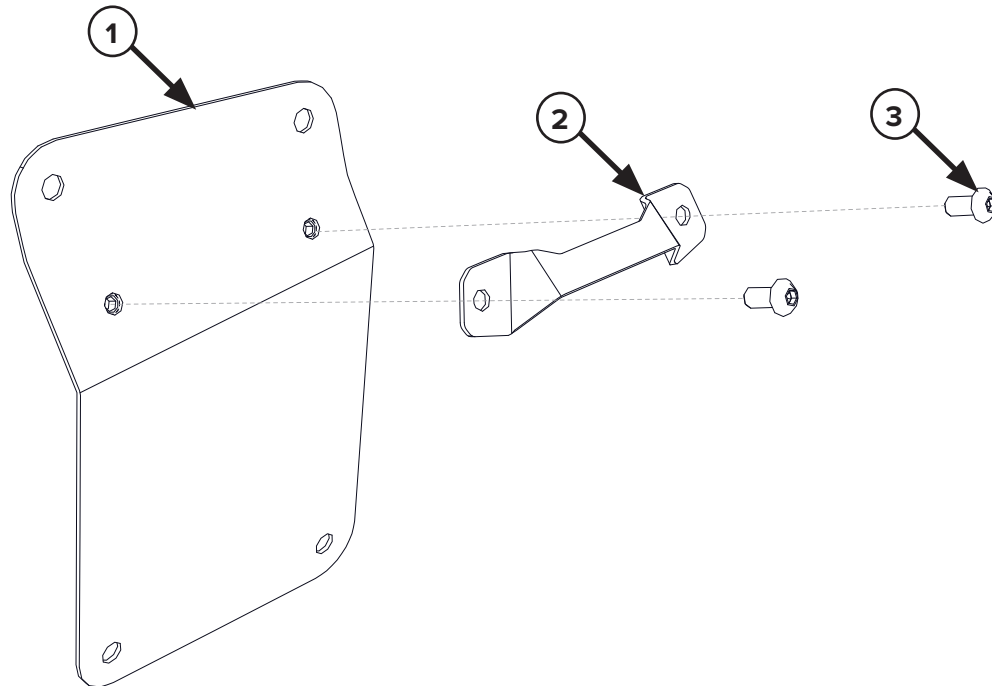
5.6 Right Front Access Cover



ITEM	PART NUMBER	DESCRIPTION	QTY
1	290742	40" - RIGHT FRONT ACCESS COVER	1
	290743	50" - RIGHT FRONT ACCESS COVER	1
2	290744	HANDLE	1
3	290545	ALLEN HEAD ROUNDED CAP SCREW FOR HANDLE	2

5. Parts

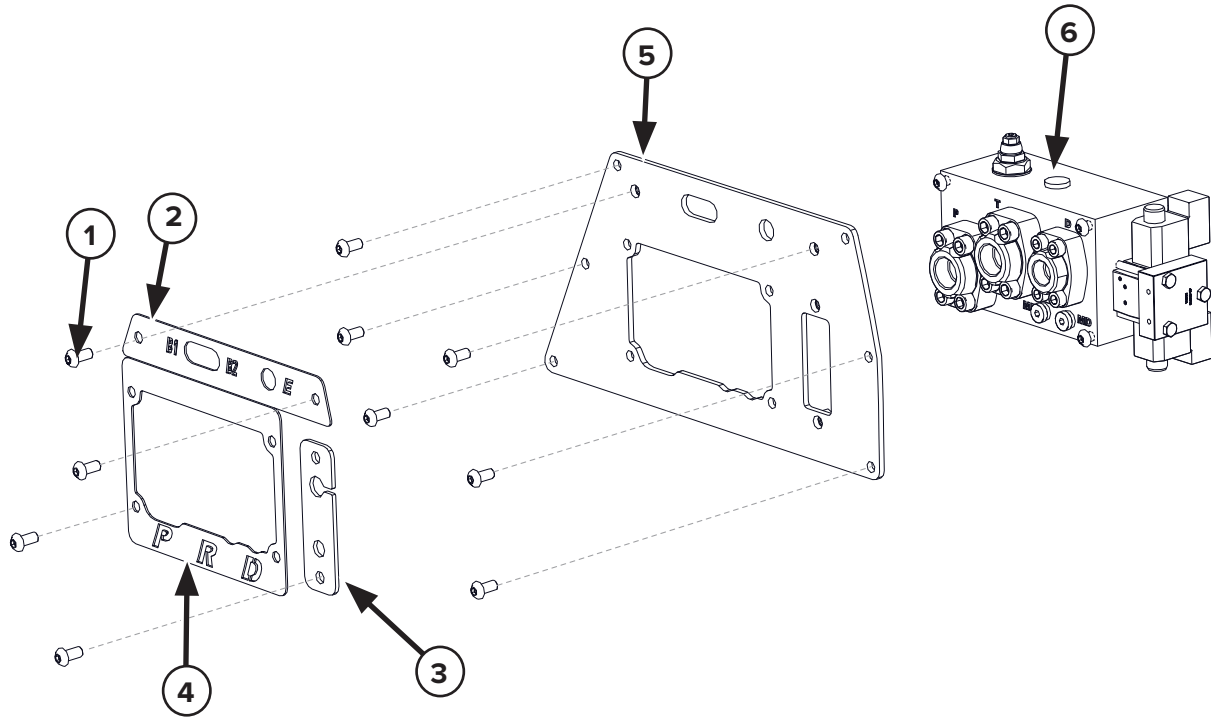
5.7 Right Rear Access Cover



ITEM	PART NUMBER	DESCRIPTION	QTY
1	290746	40" - RIGHT REAR ACCESS COVER	1
	290747	50" - RIGHT REAR ACCESS COVER	1
2	290744	HANDLE	1
3	290545	ALLEN HEAD ROUNDED CAP SCREW FOR HANDLE	2

5. Parts

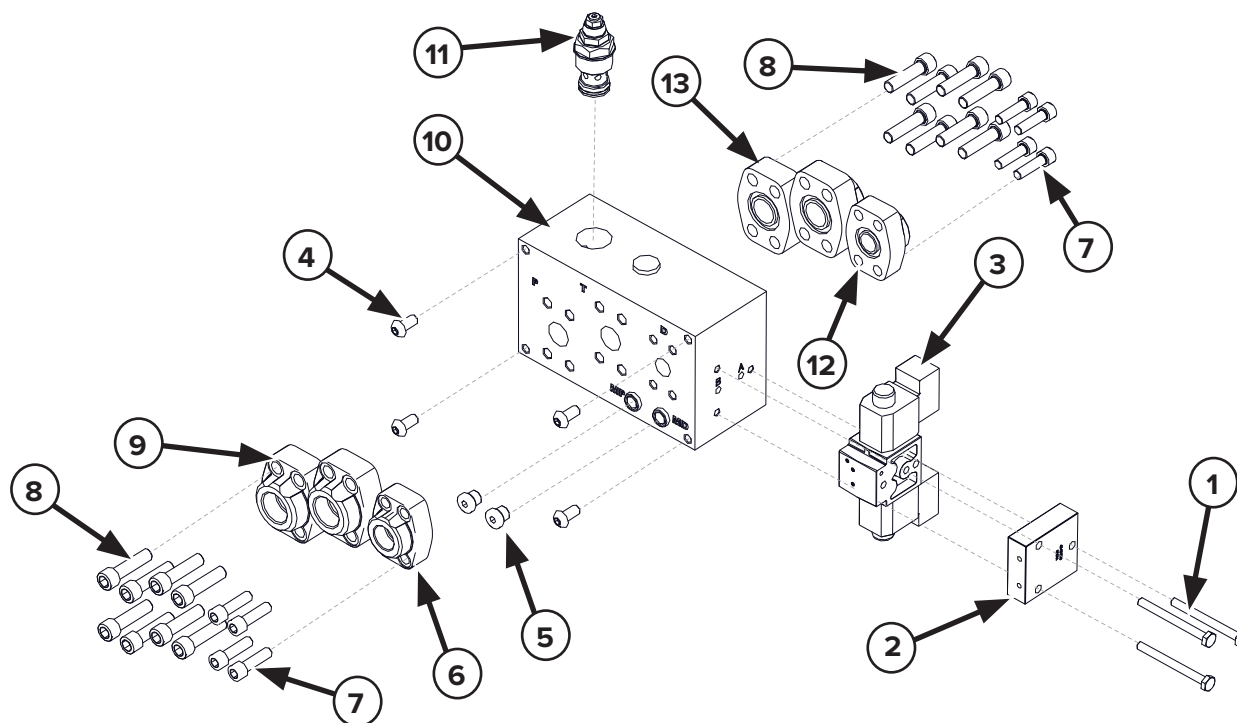
5.8 Hydraulic Solenoid Valve Block Parts



ITEM	PART NUMBER	DESCRIPTION	QTY
1	290545	ALLEN HEAD ROUNDED CAP BOLT	10
2	290718	CYLINDER CONNECTION COVER PLATE	1
3	290467	CYLINDER CONNECTION BACKING PLATE	1
4	290469	HYDRAULIC CONNECTIONS IDENTIFICATION PLATE	1
5	290719	VALVE BLOCK MOUNT PLATE	1
6	290489	HYDRAULIC VALVE BLOCK ASSEMBLY (SEE PAGE 40)	1

5. Parts

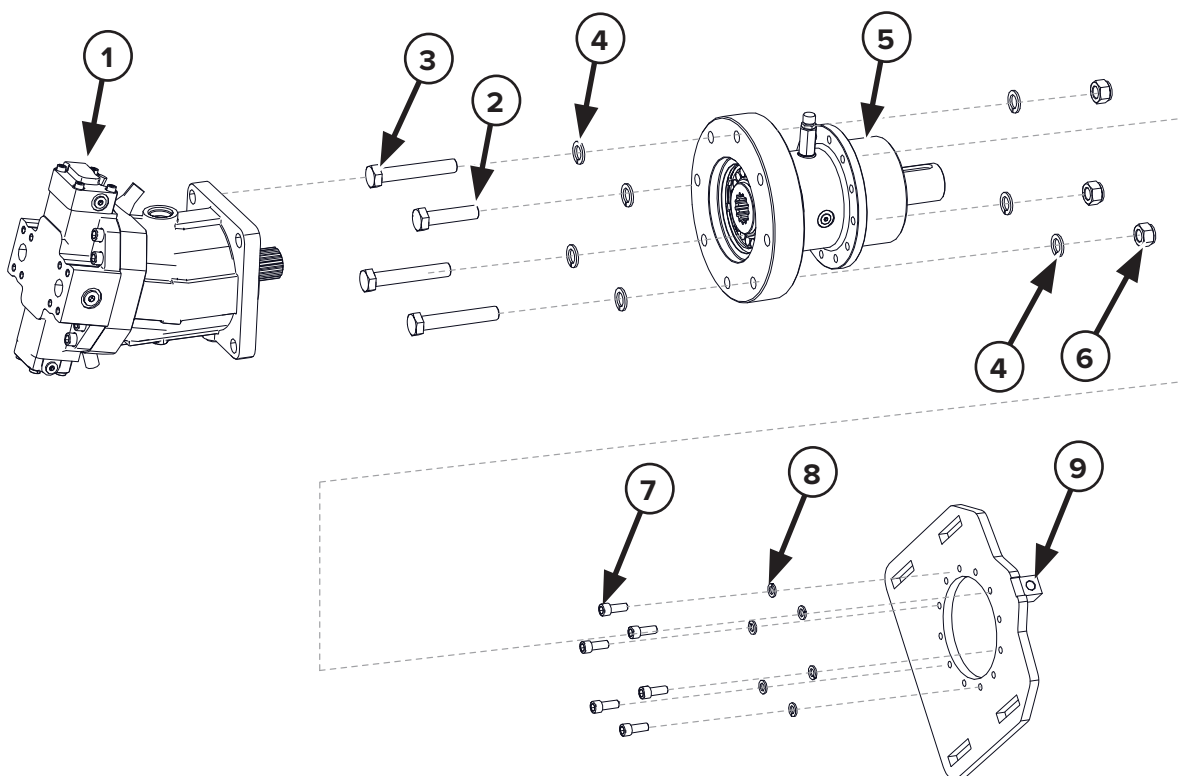
5.9 Hydraulic Valve Block Assembly



ITEM	PART NUMBER	DESCRIPTION	QTY
1	—	BOLT FOR SOLENOID END COVER	3
2	290482	SOLENOID END COVER	1
3	290402	SOLENOID DIVERTER VALVE (INCLUDES ITEM 1 BOLTS)	1
4	—	BOLT FOR HYDRAULIC BLOCK	4
5	290483	M14 X 1.5MM HEXAGON THREADED PLUG	2
6	295010-F12BSPP-12C62P	STRAIGHT FITTING FEMALE #12 BSPP TO #12 CODE 62 FLANGE PAD (REQUIRES O-RING 295001-12)	1
7	—	M10 X 1.50MM X 35MM BOLT SOCKET HEAD FULL THREAD	8
8	—	M12 X 1.75MM X 45MM BOLT SOCKET HEAD FULL THREAD	16
9	295010-F16BSPP-16C62P	STRAIGHT FITTING FEMALE #16 BSPP TO #16 CODE 62 FLANGE PAD (REQUIRES O-RING 295001-16)	4
10	290486	VALVE BLOCK	1
11	290487	PRESSURE LIMITING VALVE	1
12	295000-12-62SF	SAE SPLIT FLANGE HALF #12 CODE 62 (2 HALVES REQUIRED 1X O-RING 295001-12)	2
13	295000-16-62SF	SAE SPLIT FLANGE HALF #16 CODE 62 (2 HALVES REQUIRES 1X O-RING 295001-16)	4

5. Parts

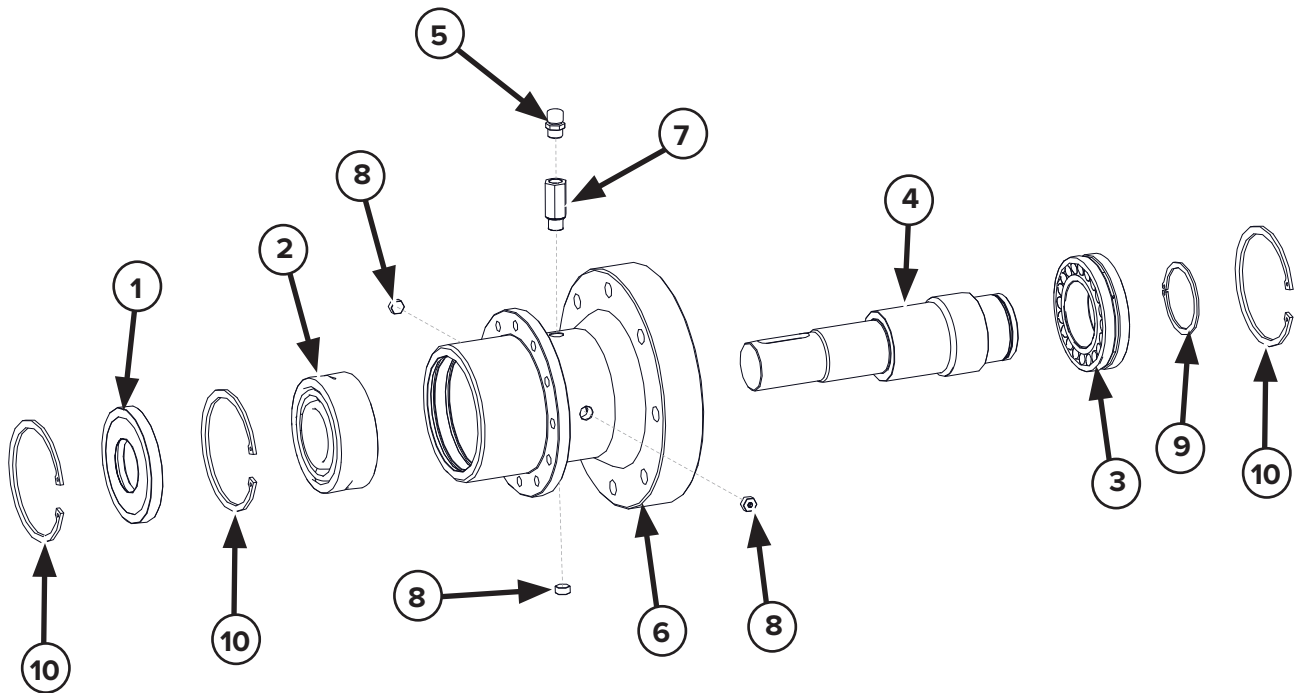
5.10 Motor and Load Adapter Assembly — 290714



ITEM	PART NUMBER	DESCRIPTION	QTY
1	290767	HYDRAULIC PISTON MOTOR 80-115 CC	1
2	—	M20 X 2.50MM X 80MM BOLT HEX HEAD PARTIAL THREAD	1
3	299025	M20 X 2.50MM X 100MM BOLT HEX HEAD PARTIAL THREAD	3
4	290270	M20 WASHER	7
5	290766	OVERHUNG LOAD ADAPTER (SEE PAGE 42)	1
6	299150	M20 X 2.50MM NYLOCK NUT	3
7	—	M12 X 1.75MM X 30MM BOLT SOCKET HEAD FULL THREAD	6
8	—	2.3MM X M12 X 24MM FLAT WASHER	6
9	290768	TENSIONER PLATE	1

5. Parts

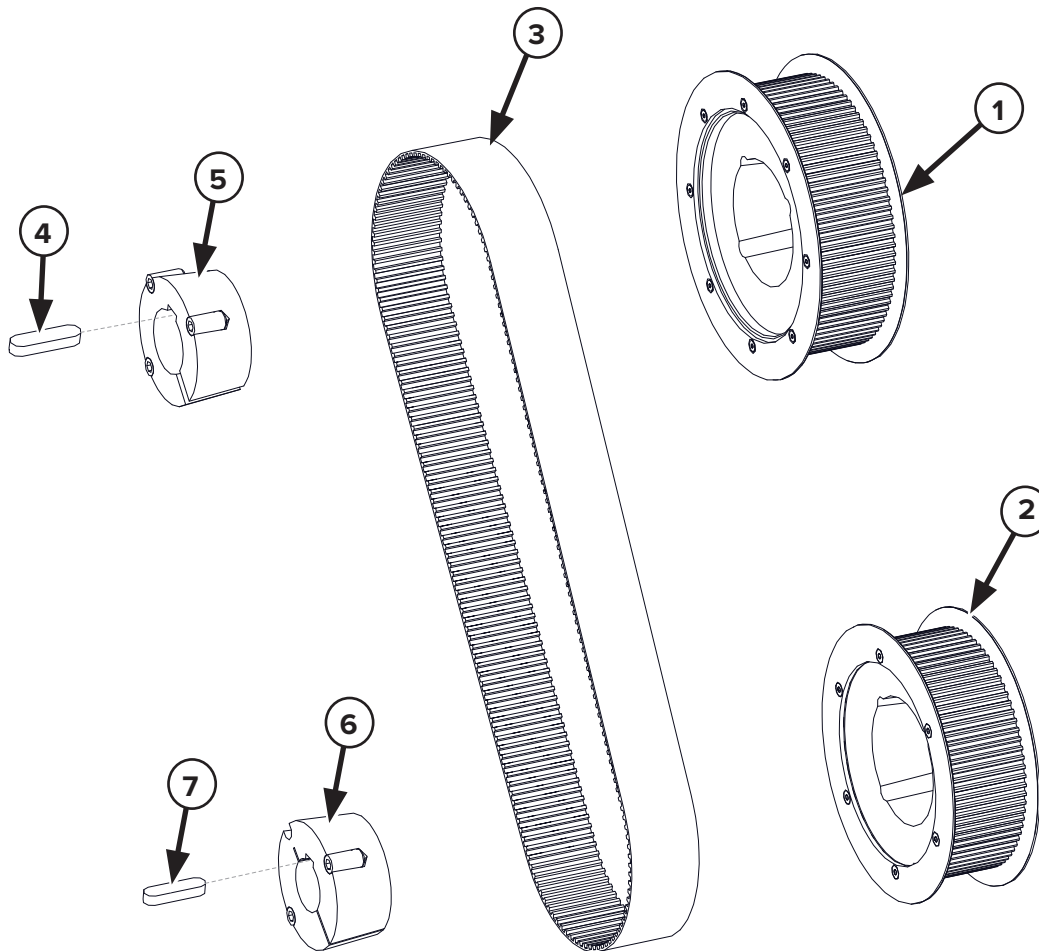
5.11 Overhung Load Adapter — 290766



ITEM	PART NUMBER	DESCRIPTION	QTY
1	290759	60MM ID X 130MM OD X 14MM THICK SEAL	1
2	290760	SPHERICAL ROLLER BEARING 22312	1
3	290764	SPHERICAL ROLLER BEARING 22215	1
4	290763	SPINDLE	1
5	290586	OIL PLUG FOR GEARBOX B. 3/8"	1
6	290762	HOUSING	1
7	290761	ADAPTER	1
8	290637	3/8" MALE PLUG	3
9	290765	75MM ID X 4MM THICK RETAINING RING INTERNAL	1
10	290562	130MM ID X 4MM THICK RETAINING RING INTERNAL	3

5. Parts

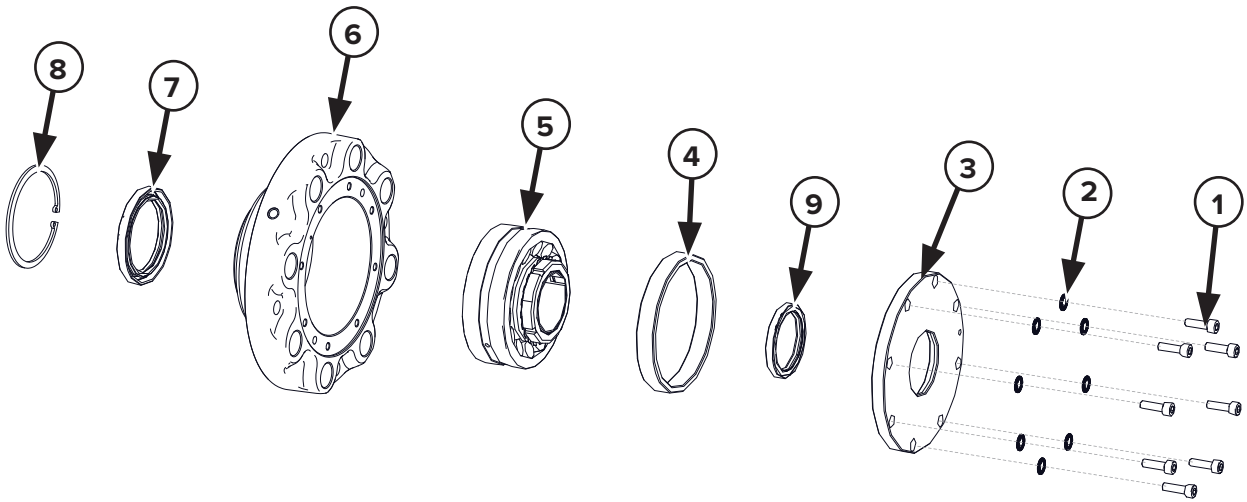
5.12 Polychain Belt and Pulley Parts



ITEM	PART NUMBER	DESCRIPTION	QTY
1	290626	FLANGED BELT PULLEY - 90	1
2	290624	FLANGED BELT PULLEY - 80	1
3	290729	SYNCHRO BELT POLYCHAIN GTC-GTV 1600MM OD X 8MM PITCH X 62MM WIDE	1
4	290756	BELT DRIVE TAPERLOCK KEY	1
5	290731	TAPERLOCK FOR KEY 3020 SHAFT 55MM	2
6	290627	TAPERLOCK FOR KEY 3020 SHAFT 45MM	1
7	290757	BELT DRIVE TAPERLOCK KEY	1

5. Parts

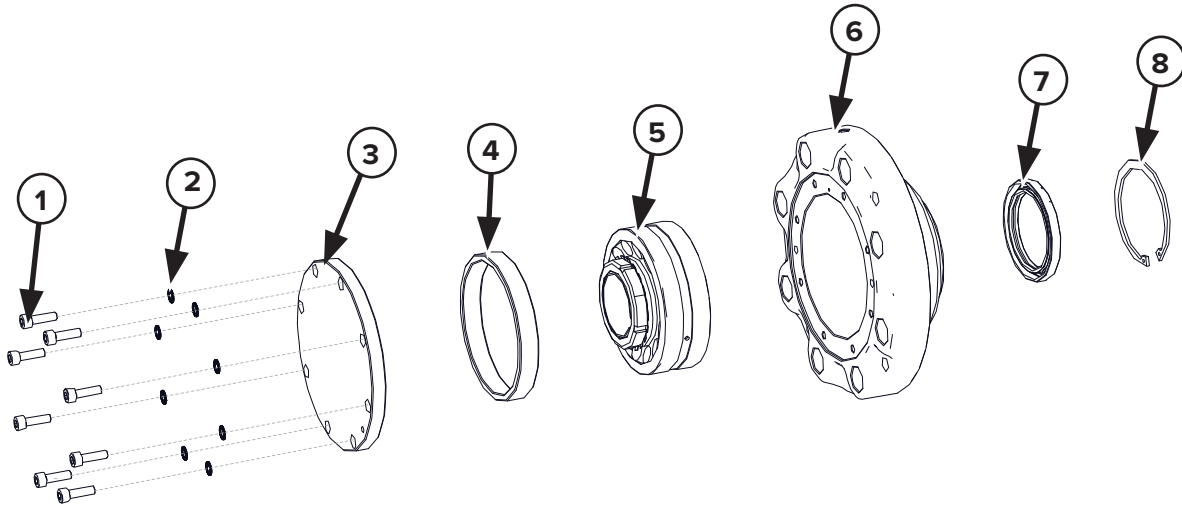
5.13 Drive Side Rotor Bearing Assembly – 290679



ITEM	PART NUMBER	DESCRIPTION	QTY
1	299054	M8 X 1.25MM X 25MM BOLT SOCKET HEAD FULL THREADED	8
2	—	M8 GROOVED WASHER	8
3	290511	DRIVE SIDE ROTOR BEARING SUPPORT COVER	1
4	290726	ROTOR SPACER	1
5	290723	ROLLER BEARING + SLEEVE H2313 (SEE PAGE 46)	1
6	290727	BEARING HOUSING	1
7	290728	ROTOR SEAL	1
8	290447	100MM ID X 3MM THICK RETAINING RING INTERNAL	1
9	290724	60MM ID X 75MM OD X 8MM THICK SEAL	1

5. Parts

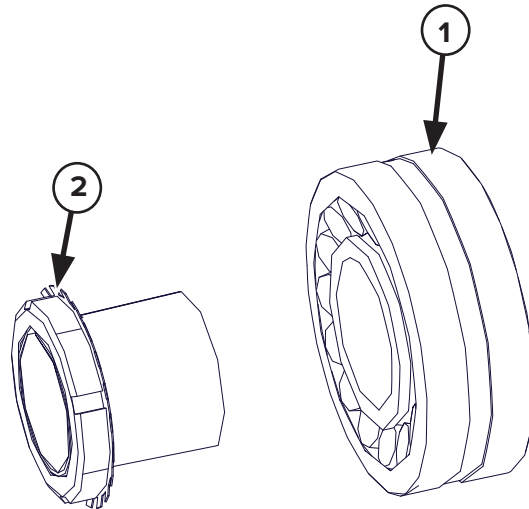
5.14 Non-Drive Side Rotor Bearing Assembly – 290688



ITEM	PART NUMBER	DESCRIPTION	QTY
1	299054	M8 X 1.25MM X 25MM BOLT SOCKET HEAD FULL THREAD	8
2	—	M8 GROOVED WASHER	8
3	290512	NON-DRIVE SIDE ROTOR BEARING SUPPORT COVER	1
4	290726	ROTOR SPACER	1
5	290723	ROLLER BEARING + SLEEVE H2313 (SEE PAGE 46)	1
6	290727	BEARING HOUSING	1
7	290728	ROTOR SEAL	1
8	290447	100MM ID X 3MM THICK RETAINING RING INTERNAL	1

5. Parts

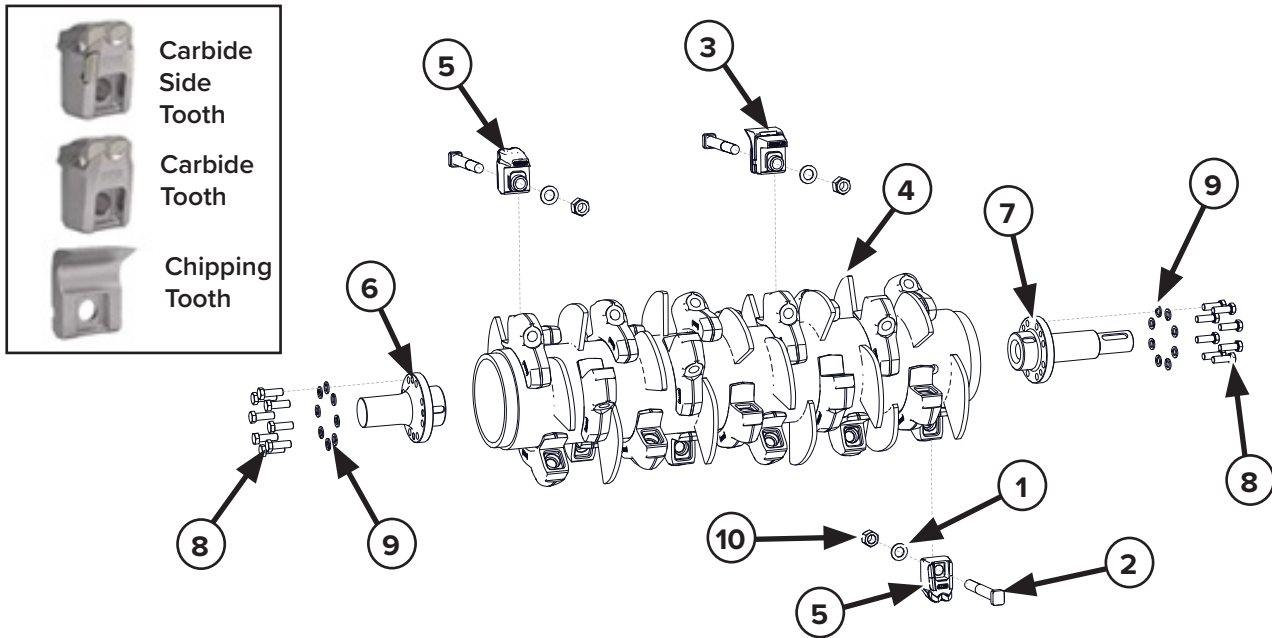
5.15 Rotor Bearing Assembly – 290723



ITEM	PART NUMBER	DESCRIPTION	QTY
1	290721	SPHERICAL ROLLER BEARING	1
2	290722	TAPERED SLEEVE	1

5. Parts

5.16 Rotor Assembly Parts

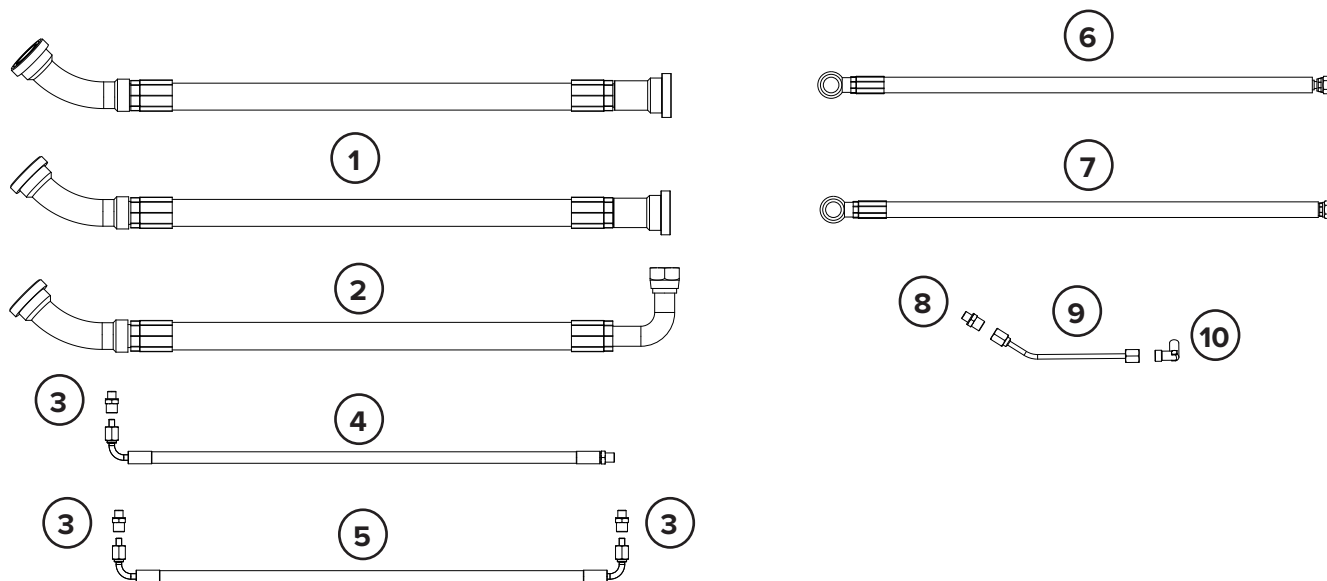


ITEM	PART NUMBER	DESCRIPTION	QTY 40"	QTY 50"
1	299027	3.3MM X M20 X 37MM FLAT WASHER	24	30
2	290754	BOLT FOR CHIPPING AND CARBIDE TEETH	24	30
3	290504	CHIPPING TOOTH	22	28
	290505	CARBIDE TOOTH		
4	290749	40" - ROTOR WELDMENT WITH DEPTH LIMITERS	1	
	290751	50" - ROTOR WELDMENT WITH DEPTH LIMITERS		1
5	290506	CARBIDE SIDE TOOTH	2	2
6	290748	ROTOR SHAFT NON DRIVE SIDE	1	1
7	290755	ROTOR SHAFT DRIVE SIDE	1	1
8	299054	M8 X 1.25MM X 25MM BOLT HEX HEAD FULL THREAD	16	16
9	—	2.3MM X M12 X 24MM FLAT WASHER	16	16
10	299028	M20 X 1.50MM HEX NUT	24	30

TOOTH KIT	MULCHER MODEL	DESCRIPTION
290504-KIT-40	190605	40" CHIPPING TEETH
290505-KIT-40	190605	40" CARBIDE TEETH
290504-KIT-50	190615	50" CHIPPING TEETH
290505-KIT-50	190615	50" CARBIDE TEETH

5. Parts

5.17 Hydraulic Hoses

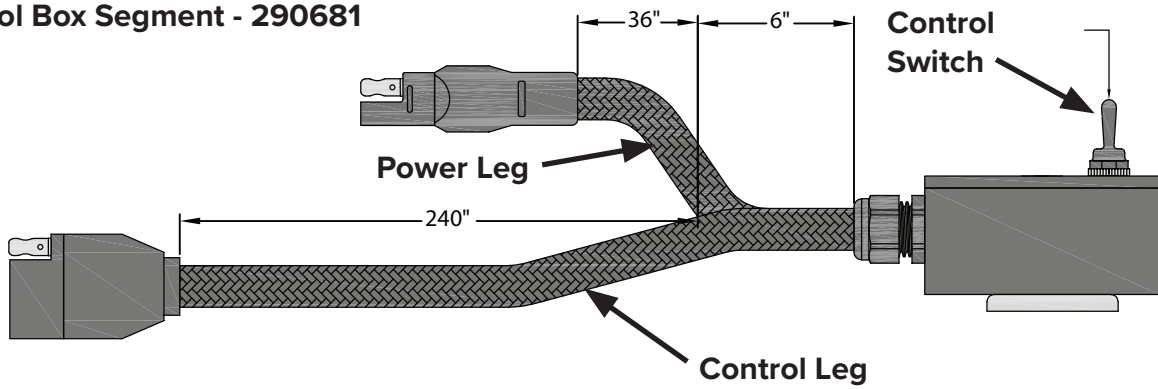


ITEM	PART NUMBER	DESCRIPTION	QTY 40"	QTY 50"
1	—	PRESSURE / RETURN HOSES - 45° #16 CODE 62 FLANGE TO STRAIGHT #16 CODE 62 FLANGE 25.6" LONG	2	
		PRESSURE / RETURN HOSES - 45° #16 CODE 62 FLANGE TO STRAIGHT #16 CODE 62 FLANGE 35.4" LONG		2
2	—	CASE DRAIN HOSE - 45° #12 CODE 62 FLANGE TO 90° FEMALE #16 JIC 33.9" LONG	1	
		CASE DRAIN HOSE - 45° #12 CODE 62 FLANGE TO 90° FEMALE #16 JIC 43.7" LONG		1
3	—	STRAIGHT FITTING FEMALE 1/8" JIC TO MALE 1/8" MALE PIPE	3	3
4	—	GREASE HOSE - 90° 1/8" MALE JIC TO STRAIGHT FEMALE 1/8" JIC 51.2" LONG	1	1
5	—	GREASE HOSE - 90° 1/8" MALE JIC TO 90° 1/8" MALE JIC 53.1" LONG	1	1
6	—	SHORT CYLINDER HOSE - #6 BANJO TO FEMALE #6 JIC 15.75" LONG	2	
		SHORT CYLINDER HOSE - #6 BANJO TO FEMALE #6 JIC 28.3" LONG		2
7	—	LONG CYLINDER HOSE - #6 BANJO TO FEMALE #6 JIC 21.7" LONG	2	
		LONG CYLINDER HOSE - #6 BANJO TO FEMALE #6 JIC 36.2" LONG		2
8	—	STRAIGHT FITTING FEMALE 1/8" JIC TO MALE 1/8" MALE PIPE	1	1
9	—	GREASE HOSE - 90° MALE 1/8" NPT TO STRAIGHT FEMALE 1/8" NPT 13.8" LONG	1	1
10	—	90° ELBOW FITTING FEMALE 1/8" JIC TO MALE 1/8" MALE PIPE	1	1
NS	295030-M16JIC-M16ORB	MOTOR CASE DRAIN FITTING 90 DEGREE MALE #16 JIC X MALE #16 ORING BOSS	1	1

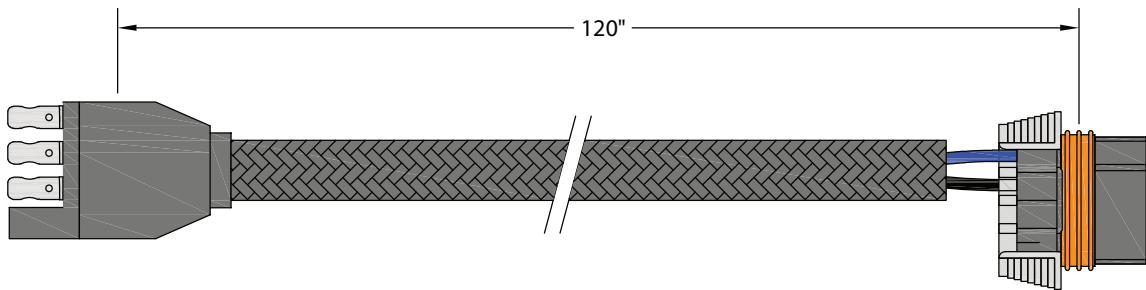
5. Parts

5.18 Universal Wire Harness Kit – 290680

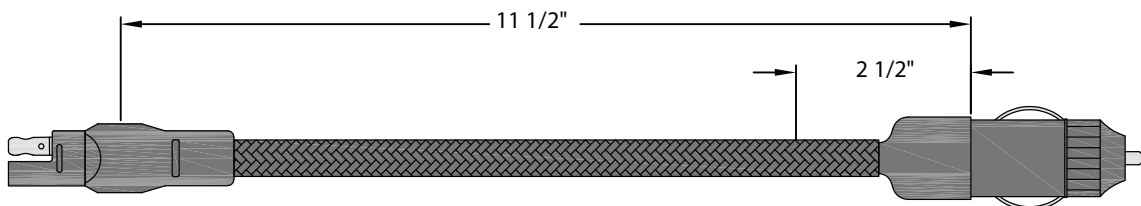
Control Box Segment - 290681



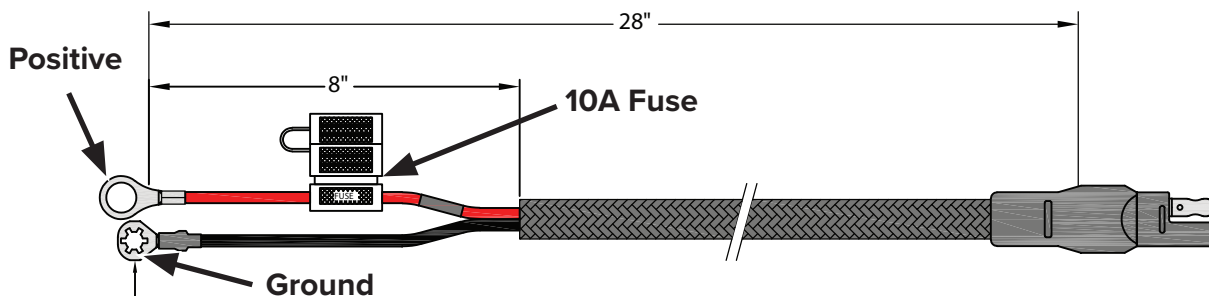
Delphi Adapter Segment - 290683



12V Plug Segment - 200021



Battery Terminal Segment - 290682



5. Parts

5.19 Electrical Wire Harness Options

PIN CONTROLS (DELPHI CONNECTOR)

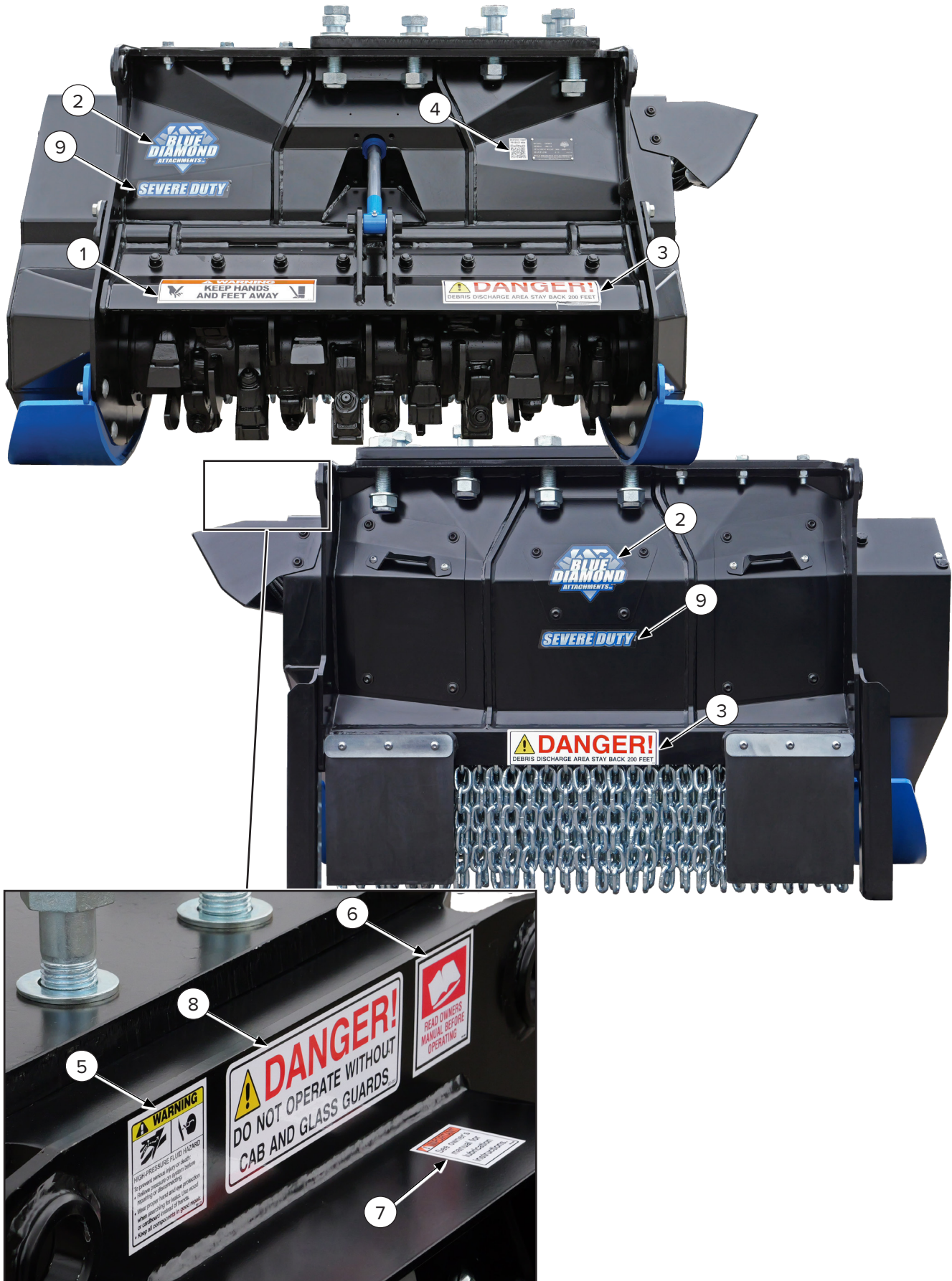
PIN	FUNCTION
D	CLOSE DISCHARGE COVER
E	OPEN DISCHARGE COVER
F	GROUND

OTHER COMPONENTS:

PART NUMBER	DESCRIPTION
290023	ATTACHMENT HARNESS TO SOLENOIDS (NOT SHOWN)
290684	5 FT CONTROL LEG EXTENSION (OPTIONAL)
216921	10 FT CONTROL LEG EXTENSION (OPTIONAL)
200013	10 FT POWER LEG EXTENSION (OPTIONAL)

5. Parts

5.20 Decals



5. Parts

5.20 Decals Cont'd



ITEM	PART NUMBER	DESCRIPTION	QTY
1	BD-081	3.0" x 12.0" Decal, Warning Keep Hands and Feet Away	1
2	BD-113	5.0" x 6.35" Decal, Blue Diamond Attachments Diamond Shape	1
3	BD-055	3.0" x 11.9" Decal, Danger Debris Discharge Area	2
4	BD-092	1.5" x 2.0" Decal, Warranty Registration QR	1
5	BD-123	3.0" x 3.0" Decal, High Pressure Fluid Hazard	1
6	BD-001	3.0" x 3.0" Decal, Read Owner's Manual	1
7	BD-008	Decal, Important Lubrication Instructions	1
8	BD-053	3.0" x 8.0" Decal, Danger Do Not Operate without Cab & Glass Guard	1
9	BD-118	1.5" x 8.1" Decal, Severe Duty	2

6. Specifications

6.1 Attachment Specifications



DESCRIPTION	SEVERE DUTY EXCAVATOR DRUM MULCHER	
	190605	190615
Excavator Size (Pounds)	37,000 - 49,000	
Overall Height (No Mount) (A)	38"	
Overall Width (B)	39"	
Working Width (C)	40"	50"
Overall Length (D)	63"	73"
Working Pressure (PSI)	4000-5500	
Weight (No Mount)	2400	2825
Motor Size	Variable 80 - 115 cc	
Recommended Flow (GPM)	37-48	
Pulley Ratio	1.125	
Rotor Diameter	16"	
Number of Belts	1 Polychain Carbon Fiber Belt	
Recommended Rotor RPM (Max)	2200 - 2500 (2800)	
Counterblades	3	
Chain Guard	4 Rows	
Maximum Cutting Capacity	8"	

In the table below, document the specifications of the excavator the mulcher is tuned to each time it is tuned for a new machine.

DATE	HOST MACHINE ID	AUXILIARY PRESSURE	AUXILIARY FLOW

6. Specifications

6.2 Torque Specifications

Standard Hardware and Lock Nuts

BOLT TYPE	CLASS 4.8		CLASS 8.8 OR 9.8		CLASS 10.9		CLASS 12.9	
	Lubricated	Dry	Lubricated	Dry	Lubricated	Dry	Lubricated	Dry
M6	4.8 N•m	6 N•m	9 N•m	11 N•m	13 N•m	17 N•m	15 N•m	19 N•m
	3.5 lbf•ft	4.5 lbf•ft	6.5 lbf•ft	8.5 lbf•ft	9.5 lbf•ft	12 lbf•ft	11.5 lbf•ft	14.5 lbf•ft
M8	12 N•m	15 N•m	22 N•m	28 N•m	32 N•m	40 N•m	37 N•m	47 N•m
	8.5 lbf•ft	11 lbf•ft	16 lbf•ft	20 lbf•ft	24 lbf•ft	30 lbf•ft	28 lbf•ft	35 lbf•ft
M10	23 N•m	29 N•m	43 N•m	55 N•m	63 N•m	80 N•m	75 N•m	95 N•m
	17 lbf•ft	21 lbf•ft	32 lbf•ft	40 lbf•ft	47 lbf•ft	60 lbf•ft	55 lbf•ft	70 lbf•ft
M12	40 N•m	50 N•m	75 N•m	95 N•m	110 N•m	140 N•m	130 N•m	165 N•m
	29 lbf•ft	37 lbf•ft	55 lbf•ft	70 lbf•ft	80 lbf•ft	105 lbf•ft	95 lbf•ft	120 lbf•ft
M14	63 N•m	80 N•m	120 N•m	150 N•m	175 N•m	225 N•m	205 N•m	260 N•m
	47 lbf•ft	60 lbf•ft	88 lbf•ft	110 lbf•ft	130 lbf•ft	165 lbf•ft	150 lbf•ft	190 lbf•ft
M16	135 N•m	175 N•m	260 N•m	330 N•m	375 N•m	475 N•m	440 N•m	560 N•m
	100 lbf•ft	125 lbf•ft	195 lbf•ft	250 lbf•ft	275 lbf•ft	350 lbf•ft	325 lbf•ft	410 lbf•ft
M18	135 N•m	175 N•m	260 N•m	330 N•m	375 N•m	475 N•m	440 N•m	560 N•m
	100 lbf•ft	125 lbf•ft	195 lbf•ft	250 lbf•ft	275 lbf•ft	350 lbf•ft	325 lbf•ft	410 lbf•ft
M20	190 N•m	240 N•m	375 N•m	475 N•m	530 N•m	675 N•m	625 N•m	800 N•m
	140 lbf•ft	180 lbf•ft	275 lbf•ft	350 lbf•ft	400 lbf•ft	500 lbf•ft	460 lbf•ft	580 lbf•ft
M22	260 N•m	330 N•m	510 N•m	650 N•m	725 N•m	925 N•m	850 N•m	1075 N•m
	190 lbf•ft	250 lbf•ft	375 lbf•ft	475 lbf•ft	540 lbf•ft	675 lbf•ft	625 lbf•ft	800 lbf•ft
M24	330 N•m	425 N•m	650 N•m	825 N•m	925 N•m	1150 N•m	1075 N•m	1350 N•m
	250 lbf•ft	310 lbf•ft	475 lbf•ft	600 lbf•ft	675 lbf•ft	850 lbf•ft	800 lbf•ft	1000 lbf•ft
M27	490 N•m	625 N•m	950 N•m	1200 N•m	1350 N•m	1700 N•m	1600 N•m	2000 N•m
	360 lbf•ft	450 lbf•ft	700 lbf•ft	875 lbf•ft	1000 lbf•ft	1250 lbf•ft	1150 lbf•ft	1500 lbf•ft
M30	675 N•m	850 N•m	1300 N•m	1650 N•m	1850 N•m	2300 N•m	2150 N•m	2700 N•m
	490 lbf•ft	625 lbf•ft	950 lbf•ft	1200 lbf•ft	1350 lbf•ft	1700 lbf•ft	1600 lbf•ft	2000 lbf•ft
M33	900 N•m	1150 N•m	1750 N•m	2200 N•m	2500 N•m	3150 N•m	2900 N•m	3700 N•m
	675 lbf•ft	850 lbf•ft	1300 lbf•ft	1650 lbf•ft	1850 lbf•ft	2350 lbf•ft	2150 lbf•ft	2750 lbf•ft
M36	1150 N•m	1450 N•m	2250 N•m	2850 N•m	3200 N•m	4050 N•m	3750 N•m	4750 N•m
	850 lbf•ft	1075 lbf•ft	1650 lbf•ft	2100 lbf•ft	2350 lbf•ft	3000 lbf•ft	2750 lbf•ft	3500 lbf•ft



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 Severe Duty Excavator 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 claim must be filed with BLUE DIAMOND® ATTACHMENTS before work is performed. The BLUE DIAMOND® PRODUCT SUPPORT TEAM will advise repairs and applicable parts exchanges. 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

Blue Diamond® Attachments
4512 Anderson Road, Knoxville, TN 37918
888-376-7027