# Standard Duty Power Rake

# **Operation and Maintenance Manual**







Register your
WARRANTY
within 30 days
of purchase



888-376-7027 | BlueDiamondAttachments.com

## Introduction: Owner Information

Thank you for your decision to purchase a Blue Diamond® Standard Duty Power Rake. 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 onproduct 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 at the top right corner on the back of the attachment as shown above.

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.

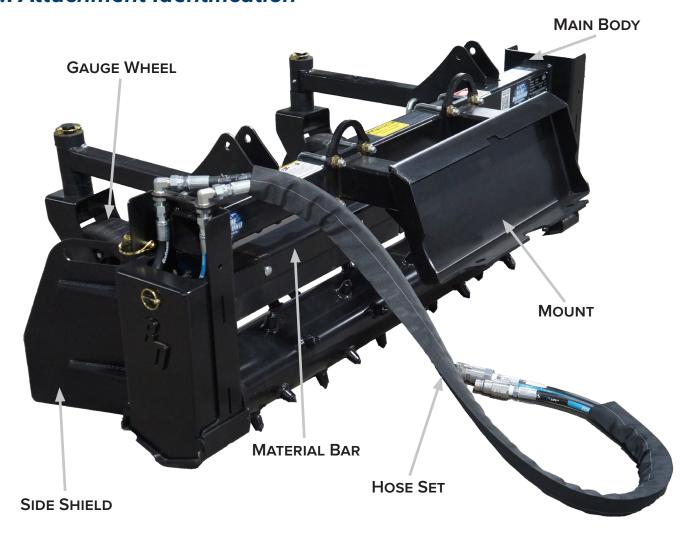
# **Table of Contents**

| Introduction: Owner Information           | 2  |
|---|----|
| 1. Introduction                           |    |
| 1.1 Attachment Identification             |    |
| 1.2 About this Attachment                 | 5  |
| 1.3 Attachment Model Numbers              | 5  |
| 2. Safety                                 | 6  |
| 2.1 General Safety Information            | 6  |
| 2.2 Operators                             | 7  |
| 2.3 Safety Guidelines                     | 8  |
| 3. Initial Setup                          | 10 |
| 3.1 Unpacking the Attachment              | 10 |
| 3.2 Gauge Wheel Installation              | 10 |
| 3.3 Hydraulic Hose Installation           | 10 |
| 4. Pre-Operation                          | 12 |
| 4.1 Pre-Operation Checklist               | 12 |
| 4.2 Pre-Start Up Instructions             | 12 |
| 4.3 Attachment Installation               | 12 |
| 4.4 Angle Adjustment                      | 14 |
| 4.5 Material Bar                          | 15 |
| 4.6 Side Shields                          | 15 |
| 4.7 Gauge Wheel Adjustment                | 16 |
| 5. Operation                              | 17 |
| 5.1 Break–In Period                       | 17 |
| 5.2 <b>Site Prep</b>                      | 17 |
| 5.3 Start Up                              | 17 |
| 5.4 Operating Speed                       | 17 |
| 5.5 Operating the Attachment              | 18 |
| 6. Maintenance                            | 19 |
| 6.1 Service Schedule                      | 19 |
| 6.2 General Maintenance                   | 20 |
| 6.3 Bearing and Pivot Points              | 20 |
| 6.4 Material Bar                          | 22 |
| 6.5 Troubleshooting                       | 23 |
| 7. Parts                                  | 24 |
| 7.1 Parts Overview                        | 24 |
| 7.2 Main Body Components                  | 25 |
| 7.3 <b>Drive Assembly — 232559</b>        | 26 |
| 7.4 Bearing Assembly, 1 3/8" — 232658     | 27 |
| 7.5 Side Shield Right Assembly            | 28 |
| 7.6 Side Shield Left Assembly             | 28 |
| 7.7 Gauge Wheel Assembly, Folding 232561  | 29 |
| 7.8 Material Bar Assembly                 | 30 |
| 7.9 Mount Assembly — Mini Fixed 132460-25 | 31 |

|    | 7.10 Mount Assembly — Mini Pivot Manual 132462 +                   |      |
|----|--|------|
|    | 132461–25  | 32   |
|    | 7.11 Mount Assembly — Standard Fixed 132460                        | 33   |
|    | 7.12 Mount Assembly — Standard Pivot Manual 132462                 | +    |
|    | 132461   | 34   |
|    | 7.13 Mount Assembly — Bobcat MT Fixed 132460-26                    | 35   |
|    | 7.14 Mount Assembly — Bobcat MT Pivot Manual 13246                 | 2 +  |
|    | 132461–26  | 36   |
|    | 7.15 Hydraulics — Fixed Mount Hoses                                | 37   |
|    | 7.16 <b>48" Hydraulic Pivot Kit — 132470</b>                       | 38   |
|    | 7.17 <b>60"</b> and <b>72"</b> Hydraulic Pivot Kit — <b>132471</b> | 39   |
|    | 7.18 Hydraulic Pivot Kit, Electrical                               | 40   |
|    | 7.19 Safety Decals   | . 41 |
| 8. | Specifications   | .42  |
|    | 8.1 Attachment Specifications                                      | 42   |
|    | 8.2 Torque Specifications  | 43   |
|    | t  | 4 -  |

# 1. Introduction

# 1.1 Attachment Identification



## 1. Introduction

## 1.2 About this Attachment

The Standard Duty Power Rakes are specially designed with rental companies in mind. The bolt—on mount allows more flexibility for the compatibility of mini and full size skid steers. The choice of a fixed mount, manual angle mount, or hydraulic angle mount provides the availability that is best suited to your needs and budget.

# 1.3 Attachment Model Numbers

| MODEL<br>NUMBER | Working<br>Width | Angle<br>Type | WORKING<br>WIDTH<br>(ANGLE<br>10° / 20°) |
|-----------------|------------------|---------------|--|
| 332450          | 48"              | _             | _  |
| 332451          | 48"              | Manual        | 46" / 44"                                |
| 332452          | 48"              | Hydraulic     | 46" / 44"                                |
| 332453          | 60"              |               | _  |
| 332454          | 60"              | Manual        | 46" / 44"                                |
| 332455          | 60"              | Hydraulic     | 46" / 44"                                |
| 332456          | 72"              |               | _  |
| 332457          | 72"              | Manual        | 46" / 44"                                |
| 332458          | 72"              | Hydraulic     | 46" / 44"                                |

## 2.1 General 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.



# IMPORTANT A



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



### **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.

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

#### **Operating Safety**

- Read and follow instructions in this manual and the machine's Operator's 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 condition. In case of damaged or missing shields, replace them immediately.
- It is absolutely forbidden to 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 an auxiliary lighting system if required.



## WARNING



Before performing any of the actions in this section, section 2. 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.

## 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, minimal fuel consumption, and maximum safety for himself and for others.

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



### **DANGER**



#### **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. For an operator to be qualified, he or she must have read and understood the instructions of this manual, he or she must make adequate preparation for the proper use of the machine, and he or she must hold a driving license.

In case of doubt regarding the use of the machine and/or the interpretation of this manual, the operator must contact either their dealer or Blue Diamond<sup>®</sup>.

#### **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 from the back with risks of 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, dustmask, safety helmet, and hearing protection.
- Do not operate the attachment or machine while wearing loose fitting clothing that can be entangled or caught in parts of the machine.
- Do not operate the implement when tired, not in good condition, or under the influence of alcohol or drugs.

## 2.3 Safety Guidelines

#### **Operating Safety**

- Read and follow instructions in this manual and the machine's Operator's 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 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.
- 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.

- 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 cutter running at optimum 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.

#### **Machine Requirements and Capabilities**

- Keep bystanders clear of moving parts and the work area. Keep children away.
- Do not exceed 3000 psi (206 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.

## 2.3 Safety Guidelines Cont'd

#### **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.
- 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 equipment on a truck or trailer, make sure the equipment 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.

#### **Personal Protective Equipment**



Proper Work Clothes: To help ensure your safety as a designated operator wear proper work clothes including tight fitting clothes, protective gloves, and shoes.



Hand Protection: To help ensure your safety as a designated operator wear protective gloves.



Protective Shoes: To help ensure your safety as a designated operator wear protective shoes.



Safety Helmet: To help ensure your safety as a designated operator wear a safety helmet.



Safety Helmet and Eye/Ear Protection: To help ensure your safety as a designated operator wear a safety helmet and eye/ear protection.

## 3. Initial Setup



## DANGER



Never work under raised booms without supporting them.

Never place any part of the body underneath equipment or between movable parts.

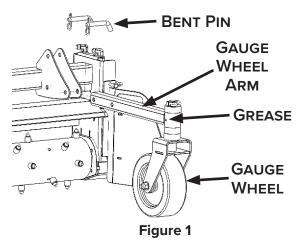
The Standard Duty Power Rake comes 90% assembled. Bearings are greased. The following procedure needs to be accomplished prior to operation.

## 3.1 Unpacking the Attachment

- 1. Place the shipping pallet on a hard, flat surface.
- 2. Remove all strapping and plastic wrap.
- Remove the attachment, gauge wheel assemblies, and hardware packet from the shipping pallet.
- 4. Set the attachment on a flat surface.

## 3.2 Gauge Wheel Installation

- 1. Raise and support the attachment.
- 2. Use the bent pin hardware to attach the gauge wheel assemblies to the frame.
- 3. Grease the gauge wheel pivot.
- 4. Repeat steps 1-3 for the second gauge wheel assembly.
- 5. Ensure the spacer adjustment is the same for both assemblies.

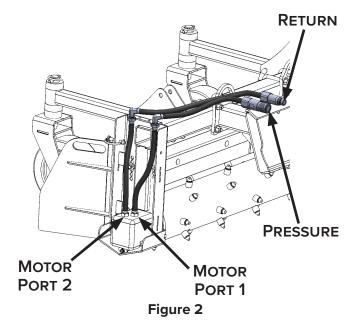


# 3.3 Hydraulic Hose Installation

The Standard Duty Power Rake is shipped with the hydraulic hoses and couplers installed. There are different styles of flat face couplers. Contact Blue Diamond® Product Support if the supplied couplers do not fit.

#### **Without Hydraulic Pivot Option**

- Read the machine's Owner's Manual for proper coupling selection.
- 2. Supplied hoses are connected as shown in Figure 2. This is the typical method. Other connection options are dependent upon specific applications and travel direction.
  - Connect the pressure hose to motor port 1.
  - Connect the return hose to motor port 2.



# 3.3 Hydraulic Hose Installation Cont'd

#### **With Hydraulic Pivot Option**

- Read the machine's Owner's Manual for proper coupling selection.
- Supplied hoses are connected as shown in Figure 3. This is the typical method. Other connection options are dependent upon specific applications and travel direction.
  - Connect the pressure hose to motor port 1.
  - Connect the return hose to motor port 2.
  - Connect the electrical cables provided to the skid steer as required.



DO NOT operate the manual adjustment pin installed with hydraulic pivot attachment. Damage to the equipment could result if left installed.

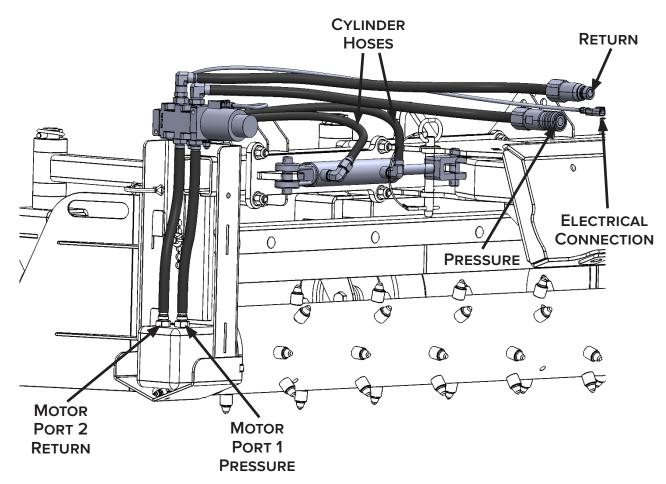


Figure 3

## 4.1 Pre-Operation Checklist

|          | PRE-OPERATION CHECKLIST  |
|----------|--|
| <b>✓</b> | Machine is lubricated.   |
| <b>✓</b> | Fasteners are tight.   |
| <b>✓</b> | Rotor turns freely.  |
| <b>✓</b> | Operating and safety instructions have been reviewed and understood. |
| ✓        | Guards and shields are installed.                                    |

## 4.2 Pre-Start Up Instructions





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

- Make sure the machine is turned off, and the key is removed.
- 2. Read all safety decals.
- 3. Make sure that the attachment is properly sized for the attachment being used.

## 4.3 Attachment Installation

## **Entering the Operator's Position**

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

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

#### **Leaving the Operator's Position**



## **WARNING**



#### **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 parking 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 the attachment.

Before connecting to the attachment, inspect the machine's mounting plate. (See the machine's Operator's Manual for inspecting the mounting frame.)

Enter the operator's position. See "Entering the Operator's Position" on page 12.

## 4.3 Attachment Installation Cont'd

#### **Connecting Attachment to the Machine** Cont'd

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 comes in contact with the front of the machine's mounting plate.

Leave the operator's position. See "Leaving the Operator's Position" on page 12.



### WARNING



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

#### **Connecting Hydraulic Hoses**



# IMPORTANT **A**



Throughly 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 Hose**



## WARNING



#### **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.

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

Disconnect the attachment hydraulic hoses from the machine.

### **Disconnecting Attachment from the** Machine

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

Park the machine and attachment on a flat, level surface. Lower the attachment until it is flat on the ground.

Leave the operator's position. See "Leaving the Operator's Position" on page 12.

Disconnect the attachment hydraulic hoses from the machine.

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

Enter the operator's position. See "Entering the Operator's Position" on page 12.

## 4.4 Angle Adjustment

#### **Manual Adjustment**

The Power Rake can be adjusted 10 or 20 degrees to the left or right.

- 1. Raise the attachment slightly off the ground.
- 2. Make sure the machine's motor is shut off, and the key is removed.
- 3. Remove the lynch pin and pivot pin [Figure 4].

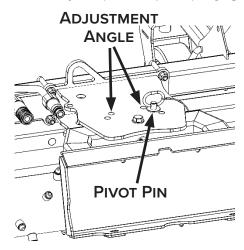


Figure 4

- 4. Manually position to the desired angle.
- 5. Reinstall pivot pin and lynch pin.

#### **Hydraulic Adjustment**



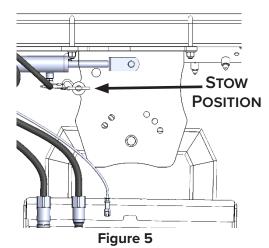
## **CAUTION**



DO NOT operate the manual adjustment pin installed with hydraulic pivot attachment. Damage to the equipment could result if left installed.

The Power Rake can be adjusted between 0 – 20 degrees left or right with the hydraulic adjustment attachment.

1. Ensure the pivot pin is in the stowed position hole [Figure 5].



- 2. Energize the electrical circuit.
- 3. Engage the auxiliary hydraulics until the desired angle is achieved.



## CAUTION



Rake may move rapidly. Decrease throttle or reduce flow rate if possible.

4. De-energize the electrical circuit.

## 4. Pre-Operation

## 4.5 Material Bar

The material bar can be adjusted for a wide range of applications. Raising the material bar to its highest position allows maximum to pass over the rotor. Lower the material bar to just above the rotor teeth to achieve maximum processing to break down heavy sod and dirt clumps when landscaping.

1. Remove hairpins from the clevis pins [Figure 6].

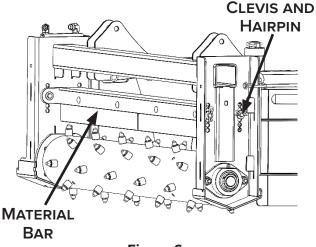


Figure 6

- 2. Support the material bar, and remove the front or rear clevis pin.
- 3. Raise or lower the material bar as needed.
- 4. Reinstall the clevis pins.
- 5. Repeat on remaining clevis pins.
- 6. Install the hairpins.
- 7. Ensure the material bar does not make contact with the rotor.

## 4.6 Side Shields

The Power Rake can be operated with or without side shields.

- Side shields can be mounted on the front or back of the attachment, depending on the direction of travel.
- With side shield mount and attachment straight, material is allowed to stay in front of the rotor which aids in filling low spots.
- When windrowing, the attachment angled, remove the side shield on the trailing side of the Power Rake. The shield can be stowed on the opposite side of the attachment.

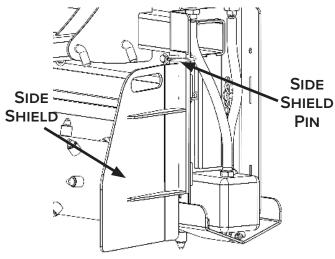


Figure 7

## 4. Pre-Operation

## 4.7 Gauge Wheel Adjustment



## **DANGER**



Never work under the attachment unless it is securely supported or blocked to prevent sudden or inadvertent falling which could result in death or serious injury.



## **CAUTION**



Gauge wheel assemblies are heavy. Adjustments may require additional personnel. Minor injury or damage to equipment could result if instructions are not followed properly.

Gauge wheels need to be adjusted so the attachment is level.

To adjust, raise the attachment or tilt back so the wheel spindles can be removed.

- 1. Raise and support the attachment.
- 2. Support the gauge wheel assembly.
- 3. Remove the lynch pin.
- 4. Remove the upper spacers.
- 5. Slide the spindle out of the gauge wheel arm pivot.
- 6. Add or remove lower spacers as required.
- 7. Slide the spindle in the gauge wheel arm pivot.
- 8. Replace the upper spacers and lynch pins.

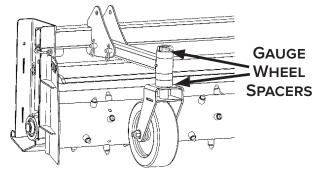


Figure 8

## 5. Operation



## **WARNING**



Read and understand the Operator's Manuals before operating attachment.

## 5.1 Break-In Period

After running the machine for five (5) hours, check for the loosening of bolts.

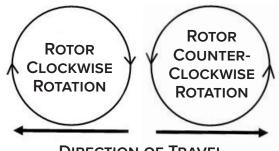
- During the break-in period, hardware could seat into the paint, causing the loosening of bolts.
- Factory-installed thread locker is used in assembly to prevent bolts from loosening.

## 5.2 Site Prep

- Survey the work site to become familiar with the area.
- · Identify all utilities prior to starting work.
- Remove obstacles and large debris.
- Cut and remove all tall grass and brush which might get entangled around the rotor.
- Ensure bystanders are aware of the work to be accomplished.

## 5.3 Start Up

- See "Entering the Operator's Position" on page
   and start the engine.
- 2. Raise the attachment to a height so the rotor is clear off the ground.
- 3. Slowly engage the hydraulics.
  - Ensure the rotor is spinning smoothly and in the correct rotation [Figure 9].
  - After the hydraulics are engaged, slowly increase the engine speed until desired RPM is achieved.
  - Normal operating speed is approximately 270 rpm.



DIRECTION OF TRAVEL Figure 9

## 5.4 Operating Speed



## CAUTION



Operate attachment at a ground speed and engine RPM appropriate for the application, site conditions, and operator's experience level. Excessive speeds are dangerous and may cause operator injuries or damage to equipment and unnecessary strain on power unit.



### WARNING



High speed turns can cause equipment to go out of control and cause serious injuries to operator and damage equipment.

- Travel at slower ground speeds until comfortable with operation.
- Never travel faster than the operator can react to changing terrain.
- Ground speed should be between 3 and 5 miles per hour (mph) under normal conditions.
- In heavy rock, reduce ground speed to 1 3 mph.
- Reduce speed when turning.

## 5.5 Operating the Attachment



## **WARNING**



Never raise the Power Rake more than a few inches off the ground when traveling from job site to job site. Be careful when operating the equipment. Lifting can be dangerous. Proper machine and attachment compatibility and stability is important. Check with the machine's owner's manual for proper specifications.

- Position the attachment to make the first pass.
- When operating or transporting, run the attachment on gauge wheel to minimize counterweight balancing.
  - This is done by lifting the boom and tilting the bucket cylinder forward so that the gauge wheels are in contact with the ground.
- Slowly lower the attachment until the rotor is at the desired depth.
  - When operating with a skid steer, use float mode if equipped. Adjust working depth by tilting the attachment forward and backward.
  - Travel at the slow, steady pace.
  - Slowly raise the attachment at the end of a pass.
  - Any unwanted debris will be left at the end of the site to be removed later.

## 6. Maintenance

The information in this section is written for operators who possess basic mechanical skills. Should the operator need help, your dealer has trained service technicians available.



## **DANGER**



Never work under the attachment unless it is securely supported or blocked to prevent sudden or inadvertent falling which could result in death or serious injury.



## **WARNING**



Before performing any of the actions in this section, section 2. 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.

## 6.1 Service Schedule

| DESCRIPTION                            | SERVICE PROCEDURES                     |       |      |  |
|--|--|-------|------|--|
| DESCRIPTION                            | Check                                  | Clean | Lube |  |
| Daily Maintenance (or every 8 hours)   |  |       |      |  |
| All Safety Devices                     | •                                      |       |      |  |
| Fasteners                              | •                                      |       |      |  |
| Rotor                                  | •                                      |       |      |  |
| Teeth                                  | •                                      |       |      |  |
| Hydraulic Hoses                        | •                                      |       |      |  |
| Couplers                               | •                                      |       |      |  |
| Hydraulic Fittings                     | •                                      |       |      |  |
| Weekly Maintenance (or every 40 hours) | Weekly Maintenance (or every 40 hours) |       |      |  |
| Mount Pivot (if installed)             |  |       | •    |  |
| Gauge Wheels                           |  |       | •    |  |
| Bearings                               |  |       | •    |  |
| Monthly Maintenance                    |  |       |      |  |
| Safety Decals                          | •                                      | •     |      |  |
| All Hardware                           | •                                      |       |      |  |
| Hydraulic Motor                        | •                                      |       |      |  |
| Material Bar Rubber Skirt              | •                                      |       |      |  |

## 6.2 General Maintenance

Good maintenance is the operator's responsibility. Poor maintenance is an invitation to trouble.

- Make sure there is plenty of ventilation. Never operate the engine of the machine in a closed building.
  - The exhaust fumes may cause asphyxiation.
- Before working on the attachment:
  - Disengage the auxiliary hydraulics.
  - Ensure the attachment is properly blocked up.
  - · Set the brakes.
  - Shut off the engine, and remove the ignition keys.
- Be certain all moving parts on the machine
   / attachment have come to a complete stop
   before attempting to perform maintenance.
- Always use a safety support and block the wheels. Never use a jack to support the attachment.
- Always use proper tools or equipment for the job at hand.
- Use extreme caution when performing maintenance.
- Where replacement parts are necessary for periodic maintenance and servicing, original Blue Diamond® parts must be used to restore equipment to original specifications. Blue Diamond® will not claim responsibility for use of unapproved parts and / or accessories and other damages because of their use.
- After servicing, ensure all tools, parts, and service equipment are removed.
- If the attachment has been altered in any way from the original design, Blue Diamond® does not accept any liability for injury or warranty.

## 6.3 Bearing and Pivot Points

#### **Inspect**

- Inspect for loose, missing, or damaged hardware.
- · Inspect for cracked bearing houses.
- · Inspect gauge wheel spacers for wear.
- Inspect damage and general condition.

#### Lubrication



## **CAUTION**



DO NOT over grease bearings. Seal damage could occur if over greased

• Grease mount pivot (if installed) [Figure 10].

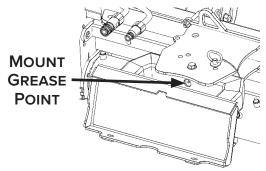


Figure 10

Grease bearings [Figure 11, Figure 12, Figure 13].

- DO NOT over grease. 1 pump only. If resistance is felt, STOP.
- Excessive pressure could dislodge the seals.
- Gauge wheels [Figure 11, Figure 14].
  - Grease axles.
  - Grease spindle pivot.

•

# 6. Maintenance

# 6.3 Bearing and Pivot Points Cont'd



Figure 11



Figure 12



Figure 13



LUBRICATION POINTS
Figure 14

## 6.4 Material Bar



## **CAUTION**



Ensure the material bar is NOT in contact with rotor teeth. This may cause damage to attachment or material bar.

#### **Inspect**

- Inspect for loose, missing, or damaged hardware.
- Inspect the rubber skirt for wear [Figure 15, Item 1].

### **Material Bar Adjustment**

- Remove hairpins and clevis pins [Figure 15, Item 2].
- 2. Adjust the bar up or down as needed.
  - The material bar is designed to keep material in front of the rotor for processing.
  - By adjusting the bar, you control the size of the material passing over the rotor.
  - Adjust the bar all the way up on initial passes to prevent clogging.
  - Adjust the bar to just above the rotor teeth on the final pass to achieve the smoothest finish.
- 3. Reinstall the clevis pins and hair pins.

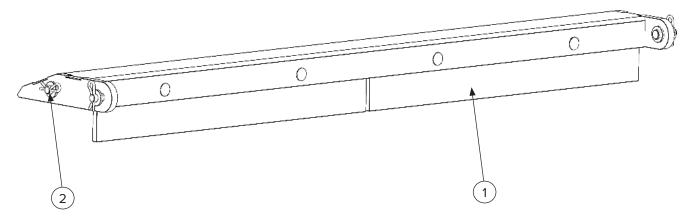


Figure 15

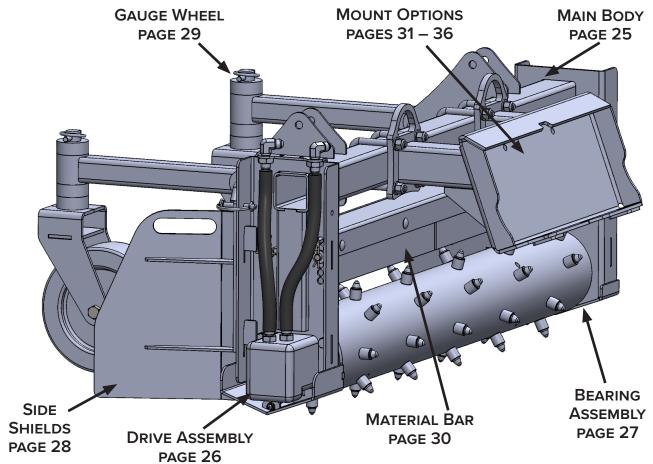
22

# 6. Maintenance

# **6.5** *Troubleshooting*

| PROBLEM                        | CAUSE  | SOLUTION  |
|--------------------------------|--|---|
|                                | Sheared key on the hydraulic motor or rotor        | Replace key.  |
|                                | Rotor obstruction                                  | Remove obstruction.                                   |
|                                | Machine auxiliary valve not engaged                | Engage auxiliary valve.                               |
|                                | Relief valve setting adjusted too low              | Refer to machine's Operator's Manual.                 |
| Rotor does not turn.           | Inadequate hydraulic flow                          | Check hydraulic flow to attachment.                   |
|                                | Couplers not properly connected to your power unit | Connect couplers.                                     |
|                                | Low hydraulic fluid                                | Add fluid.  |
|                                | Loose or damaged fittings or hoses                 | Tighten or replace fittings or hose.                  |
|                                | Hydraulic motor damaged                            | Contact Blue Diamond® Product Support for assistance. |
|                                | Blown fuse   | Replace 15—amp fuse.                                  |
| Hydraulic angle does not work. | Damaged electrical cables                          | Inspect and replace cables as needed.                 |
| WOTK                           | Hydraulics not engaged                             | Refer to the machine's Operator's Manual.             |
|                                | Debris entangled around rotor                      | Remove debris.  |
| Excessive vibration            | Rotor or driveline components bent or damaged      | Contact Blue Diamond® Product Support for assistance. |
|                                | Couplers not properly connected                    | Connect couplers.                                     |
| Leaking oil                    | Loose or damaged fittings or hose.                 | Tighten or replace fittings or hose.                  |
|                                | Hydraulic motor damaged or seal blown.             | Contact Blue Diamond® Product Support for assistance. |
| Carrier alle de med            | Axle bolt too tight                                | Loosen axle bolt.                                     |
| Gauge wheels do not spin.      | Wheel obstruction                                  | Remove obstruction.                                   |

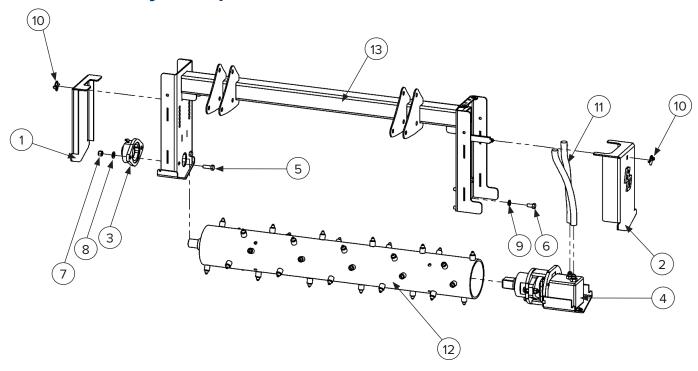
## 7.1 Parts Overview



HYDRAULIC AND ELECTRICAL OPTIONS PAGES 37 – 40

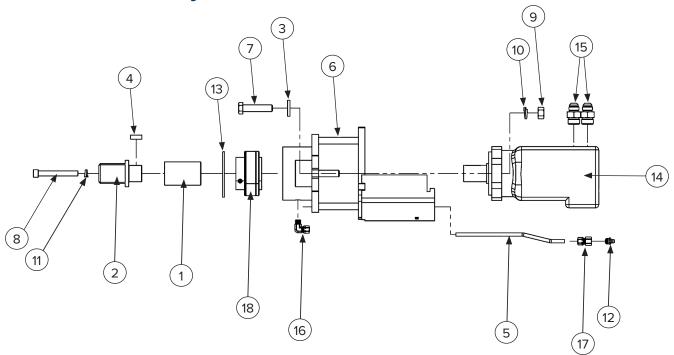
## 7. Parts

# 7.2 Main Body Components



| ITEM | PART NUMBER | DESCRIPTION   | QTY |
|------|-------------|---|-----|
| 1    | 232555      | Side Cover Non–Drive Side                                       | 1   |
| 2    | 232556      | Side Cover Drive Side   | 1   |
| 3    | 232658      | 13/8" Bearing Assembly (see page 27)                            | 1   |
| 4    | 232559      | Drive Assembly (see page 26)                                    | 1   |
| 5    | 232638      | 1/2"–13 x 1 1/2" Bolt Hex Head Cap Screw                        | 2   |
| 6    | 299431      | 1/2"–13 x 1.0" Bolt Hex Head Cap Screw                          | 4   |
| 7    | 232233      | 1/2"–13 Nylock Nut, 1/2" - 13 Nyloc Gr8                         | 2   |
| 8    | 232234      | 1/2" Washer SAE   | 2   |
| 9    | 232049      | 1/2" Washer Split Lock Med                                      | 4   |
| 10   | 299521      | 3/16" x 1 1/4" Lynch Pin  | 2   |
| 11   | 232578      | Motor to Bulkhead Hose, 13" OAL 1/2" ID #8 Female JIC Both Ends | 2   |
|      | 232540      | 48" Rotor, Fixed Carbide Teeth                                  | 1   |
| 12   | 232553      | 60" Rotor, Fixed Carbide Teeth                                  | 1   |
|      | 232548      | 72" Rotor, Fixed Carbide Teeth                                  | 1   |
|      | 232547      | 48" Main Frame  | 1   |
| 13   | 232550      | 60" Main Frame  | 1   |
|      | 232552      | 72" Main Frame  | 1   |

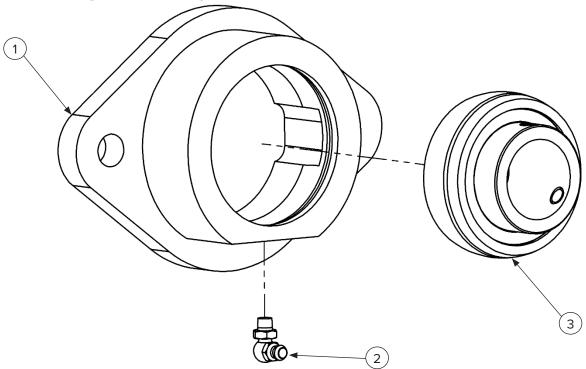
# 7.3 *Drive Assembly* — 232559



| ITEM | PART NUMBER | DESCRIPTION   | QTY |
|------|-------------|---|-----|
| 1    | 232531      | Drive Coupler   | 1   |
| 2    | 232533      | Square Drive  | 1   |
| 3    | 232534      | 1/2" Washer Clipped   | 2   |
| 4    | 232535      | 5/16" x 0.85" Key   | 1   |
| 5    | 232536      | 1/4" OD x 8 1/2" Brass Tube                                   | 1   |
| 6    | 232543      | Motor and Bearing Mount Weldment                              | 1   |
| 7    | 232231      | 1/2"–13 x 2 1/4" Bolt Hex Head Cap Screw                      | 2   |
| 8    | 299350      | 3/8"–16 x 3.0" Bolt Socket Head Cap Screw                     | 1   |
| 9    | 299574      | 1/2"–13 Nut Hex Head  | 2   |
| 10   | 232049      | 1/2" Washer Split Lock Med                                    | 2   |
| 11   | 299825      | 3/8" Washer Split Lock  | 1   |
| 12   | 299016      | 1/8" Grease Zerk Fitting NPT Steel                            | 1   |
| 13   | 232571      | 85 mm Internal Retaining Ring                                 | 1   |
| 14   | 232652      | Hydraulic Motor   | 1   |
| 15   | 232653      | Hydraulic Straight Fitting Male #8 JIC x Male #10 O–Ring Boss | 2   |
| 16   | 232573      | Grease Line 90 Degree Compression Fitting                     | 1   |
| 17   | 232574      | Grease Line Straight Compression Fitting                      | 1   |
| 18   | 232064      | Bearing Insert  | 1   |

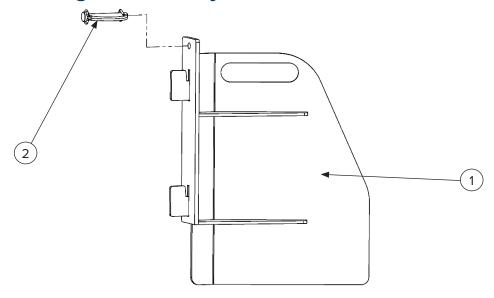
# 7. Parts

# 7.4 Bearing Assembly, 13/8" — 232658



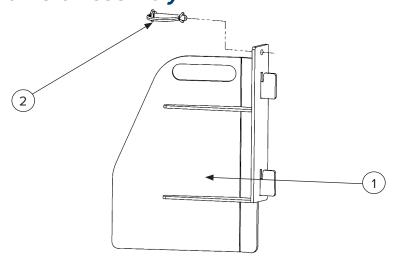
| ITEM | PART NUMBER | DESCRIPTION                             | QTY |
|------|-------------|---|-----|
| 1    | 232542      | Bearing Housing Only – For 13/8" Insert | 1   |
| 2    | 232572      | 1/4"–28 Grease Zerk 65 Degree Fitting   | 1   |
| 3    | 232579      | 13/8" Bearing Insert with Set Screw     | 1   |

# 7.5 Side Shield Right Assembly



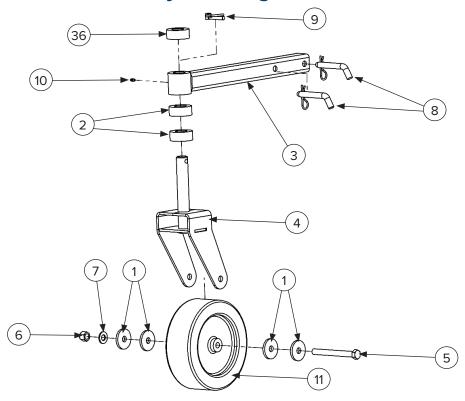
| ITEM | PART NUMBER | DESCRIPTION                             | QTY |
|------|-------------|---|-----|
| 1    | 232538      | Side Shield Right (Direction of Travel) | 1   |
| 2    | 232564      | Round Loop Lock Pin 3/8"                | 1   |

# 7.6 Side Shield Left Assembly



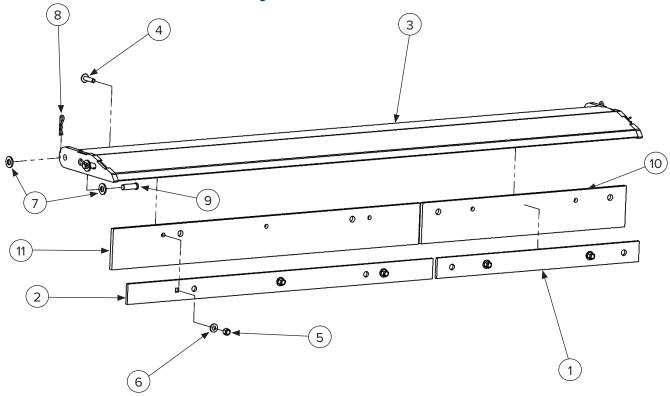
| ITEM | PART NUMBER | DESCRIPTION                            | QTY |
|------|-------------|--|-----|
| 1    | 232539      | Side Shield Left (Direction of Travel) | 1   |
| 2    | 232564      | Round Loop Lock Pin 3/8"               | 1   |

# 7.7 Gauge Wheel Assembly, Folding 232561



| ITEM | PART NUMBER | DESCRIPTION                            | QTY |
|------|-------------|--|-----|
| 1    | 232249      | 1/4" x 0.656" x 2 1/4" Washer          | 4   |
| 2    | 232120      | Gauge Wheel Spacer                     | 3   |
| 3    | 232078      | Gauge Wheel Arm                        | 1   |
| 4    | 232549      | Gauge Wheel Spoke                      | 1   |
| 5    | 299351      | 5/8"–11 x 6.0" Bolt Hex Head Cap Screw | 1   |
| 6    | 232294      | 5/8"–11 Nylock Nut                     | 1   |
| 7    | 232093      | 5/8" x 1.31" Washer SAE                | 1   |
| 8    | 232667      | 5/8" x 3.0" Bent Hitch Pin             | 2   |
| 9    | 232296      | 7/16" x 1 5/8" Lynch Pin               | 1   |
| 10   | 232079      | 1/2"—28 Grease Zerk Straight Fitting   | 1   |
| 11   | 232570      | 10" Wheel, Laminated                   | 1   |

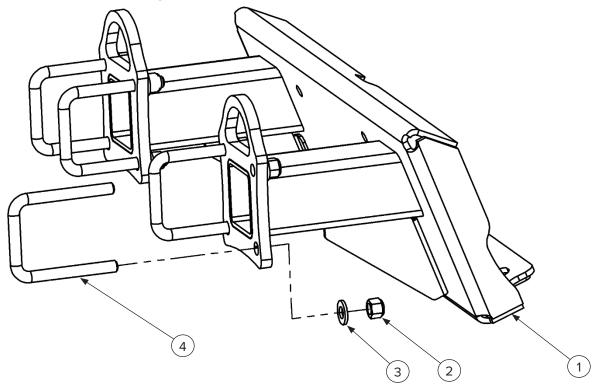
# 7.8 Material Bar Assembly



| ITEM | PART NUMBER | DESCRIPTION                                     | QTY<br>48" | QTY<br>60" | QTY<br>72" |
|------|-------------|---|------------|------------|------------|
| 1    | 232297      | Bar, 24" Clamp                                  | 2          | 1          | _          |
| 2    | 232136      | Bar, 36" Clamp                                  | _          | 1          | 2          |
|      | 232560      | 48" Material Bar Assembly                       | 1          | _          | _          |
| 3    | 232563      | 60" Material Bar Assembly                       |            | 1          | _          |
|      | 232562      | 72" Material Bar Assembly                       | -          | _          | 1          |
| 4    | 232304      | 3/8"–16 x 1 1/2" Carriage Bolt                  | 4          | 5          | 6          |
| 5    | 232279      | 3/8"–16 Nylock Nut                              | 4          | 5          | 6          |
| 6    | 232314      | 3/8" Washer SAE                                 | 4          | 5          | 6          |
| 7    | 232234      | 1/2" Washer SAE                                 | 8          | 8          | 8          |
| 8    | 232566      | 0.12" Diameter x 1/2" — 3/4" Hairpin Cotter Pin | 4          | 4          | 4          |
| 9    | 232567      | 1/2" Diameter x 1 1/4" Usable Length Clevis Pin | 4          | 4          | 4          |
| 10   | 232306      | 24" Rubber Flap, 2 Ply                          | 2          | 1          | _          |
| 11   | 232135      | 36" Rubber Flap, 2 Ply                          |            | 1          | 2          |

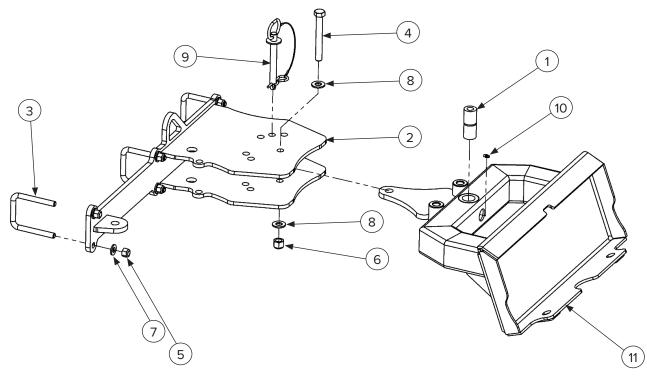
## 7. Parts

# 7.9 Mount Assembly — Mini Fixed 132460–25



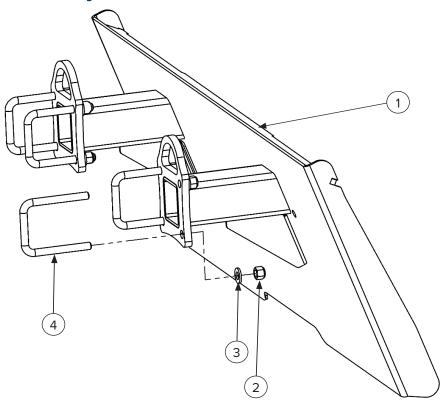
| ITEM | PART NUMBER | DESCRIPTION                   | QTY |
|------|-------------|-------------------------------|-----|
| 1    | 232541      | Fixed Mini Universal Mount    | 1   |
| 2    | 232233      | 1/2"–13 Nylock Nut            | 8   |
| 3    | 232234      | 1/2" Washer SAE               | 8   |
| 4    | 232569      | 1/2"-13 x 3.0" x 4.63" U-Bolt | 4   |

# 7.10 Mount Assembly — Mini Pivot Manual 132462 + 132461-25



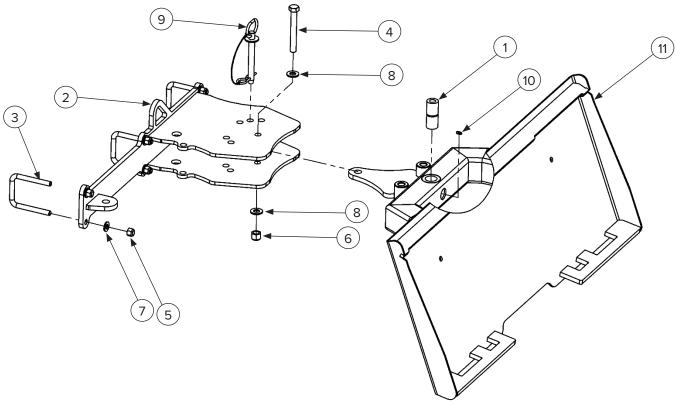
| ITEM    | PART NUMBER | DESCRIPTION                            | QTY |  |
|---------|-------------|--|-----|--|
| 132462  |             |  |     |  |
| 1       | 232532      | Mount Pivot Bushing 3/4" D1            | 1   |  |
| 2       | 232544      | Pivot Mount Frame                      | 1   |  |
| 3       | 232569      | 1/2"-13 x 3.0" x 4.63" U-Bolt          | 3   |  |
| 4       | 299352      | 5/8"–11 x 5.0" Bolt Hex Head Cap Screw | 1   |  |
| 5       | 232233      | 1/2"–13 Nylock Nut                     | 6   |  |
| 6       | 232294      | 5/8"–11 Nylock Nut                     | 1   |  |
| 7       | 232234      | 1/2" Washer SAE                        | 6   |  |
| 8       | 232093      | 5/8" x 1.31" Washer SAE                | 2   |  |
| 9       | 232565      | 5/8" Diameter x 4.5" Drawbar Pin       | 1   |  |
| 132461- | 132461–25   |  |     |  |
| 10      | 232079      | 1/2"—28 Grease Zerk Straight Fitting   | 1   |  |
| 11      | 232545      | Pivot Mount Mini Universal             | 1   |  |

# 7.11 Mount Assembly — Standard Fixed 132460



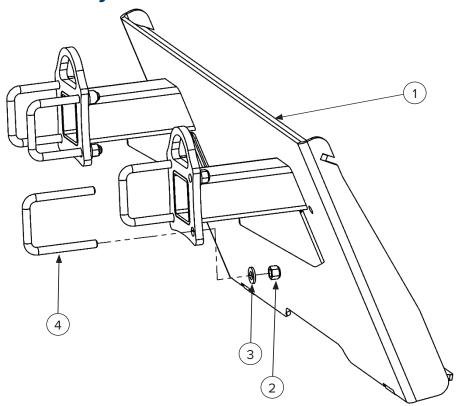
| ITEM | PART NUMBER | DESCRIPTION                      | QTY |
|------|-------------|----------------------------------|-----|
| 1    | 232537      | Fixed Full Size Skid Steer Mount | 1   |
| 2    | 232233      | 1/2"–13 Nylock Nut               | 8   |
| 3    | 232234      | 1/2"Washer SAE                   | 8   |
| 4    | 232569      | 1/2"-13 x 3.0" x 4.63" U-Bolt    | 4   |

# 7.12 Mount Assembly — Standard Pivot Manual 132462 + 132461



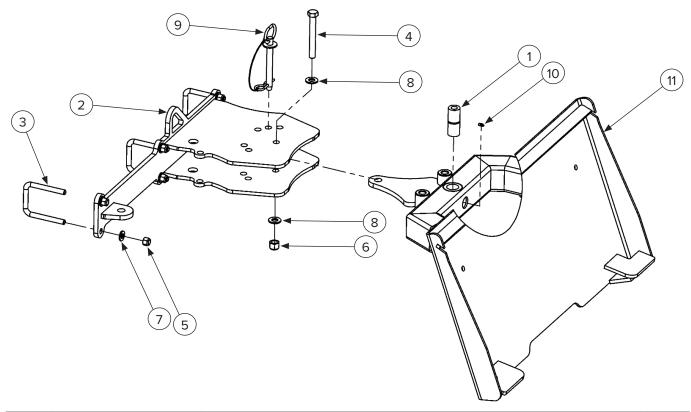
| ITEM   | PART NUMBER | DESCRIPTION                            | QTY |  |  |
|--------|-------------|--|-----|--|--|
|        | TAKTROMBEK  | DESCRIPTION                            | 4   |  |  |
| 132462 | 132462      |  |     |  |  |
| 1      | 232532      | Mount Pivot Bushing 3/4" D1            | 1   |  |  |
| 2      | 232544      | Pivot Mount Frame                      | 1   |  |  |
| 3      | 232569      | 1/2"-13 x 3.0" x 4.63" U-Bolt          | 3   |  |  |
| 4      | 299352      | 5/8"–11 x 5.0" Bolt Hex Head Cap Screw | 1   |  |  |
| 5      | 232233      | 1/2"–13 Nylock Nut                     | 6   |  |  |
| 6      | 232294      | 5/8"–11 Nylock Nut                     | 1   |  |  |
| 7      | 232234      | 1/2" Washer SAE                        | 6   |  |  |
| 8      | 232093      | 5/8" x 1.31" Washer SAE                | 2   |  |  |
| 9      | 232565      | 5/8" Diameter x 4.5" Drawbar Pin       | 1   |  |  |
| 132461 | 132461      |  |     |  |  |
| 10     | 232079      | 1/2"—28 Grease Zerk Straight Fitting   | 1   |  |  |
| 11     | 232546      | Pivot Mount Full Size Skid Steer       | 1   |  |  |

# 7.13 Mount Assembly — Bobcat MT Fixed 132460-26



| ITEM | PART NUMBER | DESCRIPTION                   | QTY |
|------|-------------|-------------------------------|-----|
| 1    | 232551      | Fixed Bobcat MT Mount         | 1   |
| 2    | 232233      | 1/2"–13 Nylock Nut            | 8   |
| 3    | 232234      | 1/2"Washer SAE                | 8   |
| 4    | 232569      | 1/2"-13 x 3.0" x 4.63" U-Bolt | 4   |

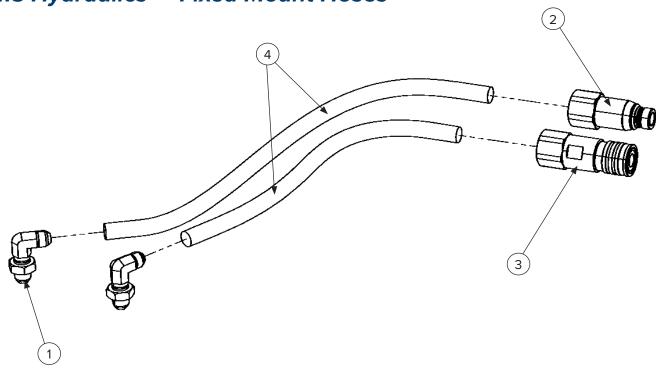
# 7.14 Mount Assembly — Bobcat MT Pivot Manual 132462 + 132461-26



| ITEM    | PART NUMBER | DESCRIPTION                            | QTY |  |  |
|---------|-------------|--|-----|--|--|
| 132462  | 132462      |  |     |  |  |
| 1       | 232532      | Mount Pivot Bushing 3/4" D1            | 1   |  |  |
| 2       | 232544      | Pivot Mount Frame                      | 1   |  |  |
| 3       | 232569      | 1/2"-13 x 3.0" x 4.63" U-Bolt          | 3   |  |  |
| 4       | 299352      | 5/8"–11 x 5.0" Bolt Hex Head Cap Screw | 1   |  |  |
| 5       | 232233      | 1/2"–13 Nylock Nut                     | 6   |  |  |
| 6       | 232294      | 5/8"–11 Nylock Nut                     | 1   |  |  |
| 7       | 232234      | 1/2" Washer SAE                        | 6   |  |  |
| 8       | 232093      | 5/8" x 1.31" Washer SAE                | 2   |  |  |
| 9       | 232565      | 5/8" Diameter x 4.5" Drawbar Pin       | 1   |  |  |
| 132461- | 132461–26   |  |     |  |  |
| 10      | 232079      | 1/2"—28 Grease Zerk Straight Fitting   | 1   |  |  |
| 11      | 232554      | Pivot Mount Bobcat MT                  | 1   |  |  |

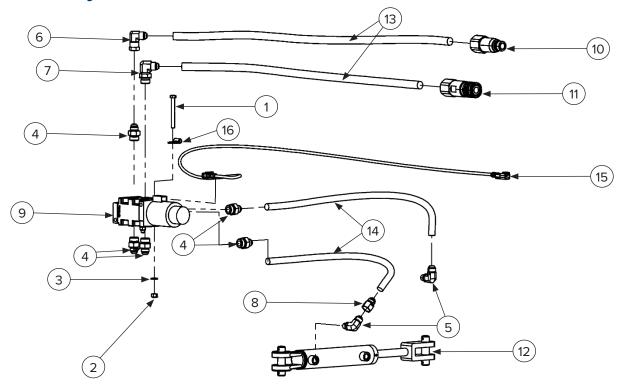
# 7. Parts

# 7.15 Hydraulics — Fixed Mount Hoses



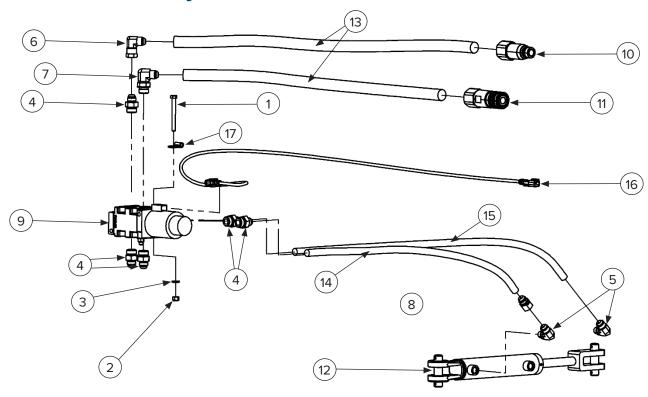
| ITEM | PART NUMBER            | DESCRIPTION  | QTY |
|------|------------------------|--|-----|
| 1    | 295030-M08JIC-M08JICBH | Hydraulic 90 Degree Fitting Male #8 JIC to Male #8 Bulkhead JIC                  | 2   |
| 2    | 224006                 | Coupler, Male Flat Face Style 1/2" Body, 1/2" Pipe Thread                        | 1   |
| 3    | 224005                 | Coupler, Female Flat Face Style 1/2" Body, 1/2" Pipe Thread                      | 1   |
| 4    | 232577                 | Machine Hose Set 2 Hoses 66" OAL 1/2" Diameter #8 Female JIC to Male Pipe Thread | 2   |
| 5    | 232568                 | 2.91" Hose Sleeve  | 4.5 |

# 7.16 *48*" *Hydraulic Pivot Kit* — *132470*



| ITEM | PART NUMBER              | DESCRIPTION   | QTY |
|------|--------------------------|---|-----|
| 1    | 299314                   | 5/16"–18 x 3.0" Bolt Hex Head Cap Screw   | 2   |
| 2    | 299620                   | 5/16"—18 Nylock Nut   | 2   |
| 3    | 299721                   | 5/16" Washer SAE  | 2   |
| 4    | 232653                   | Hydraulic Straight Fitting Male #8 JIC x Male #10 O–Ring Boss                             | 5   |
| 5    | 295030-M08JIC-M06ORB     | Hydraulic 90 Degree Fitting Male #8 JIC to Male #6 O–Ring Boss                            | 2   |
| 6    | 232654                   | Hydraulic 90 Degree Fitting Male #8 JIC to Male #8 O–Ring Boss Swivel                     | 1   |
| 7    | 232655                   | Hydraulic 90 Degree Fitting Male #8 JIC to Male #8 O–Ring Boss                            | 1   |
| 8    | 295010-F08JIC-M08JIC0625 | Hydraulic Straight Fitting Female #8 JIC to Male #8 JIC with 1/16" Orifice (Restricter)   | 1   |
| 9    | 232575                   | Diverter Valve  | 1   |
| 10   | 224006                   | Coupler, Male Flat Face Style 1/2" Body, 1/2" Pipe Thread                                 | 1   |
| 11   | 224005                   | Coupler, Female Flat Face Style 1/2" Body, 1/2" Pipe Thread                               | 1   |
| 12   | 232576                   | Welded Cylinder 11/2" Bore x 6"   | 1   |
| 13   | 232577                   | Machine Hose Set 2 Hoses 66" OAL 1/2" Diameter #8 Female JIC to Male Pipe Thread          | 2   |
| 14   | 232578                   | Motor to Bulkhead Hose 13" OAL 1/2" Diameter #8 Female JIC, Both Ends                     | 2   |
| 15   | 232580                   | Hydraulic Angle Kit Wire Harness 96" Extension Male 2 Pin Deutsch to Female 2 Pin Deutsch | 1   |
| 16   | 232589                   | 1/4" Vibration Damping Clamp  | 1   |

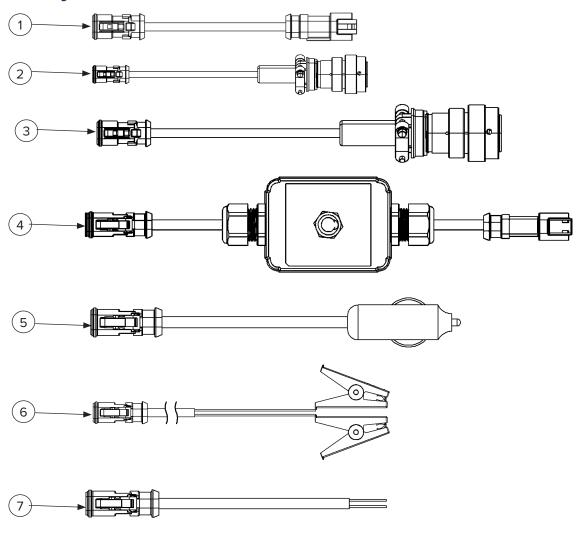
# 7.17 60" and 72" Hydraulic Pivot Kit — 132471



| ITEM | PART NUMBER              | DESCRIPTION   | QTY |
|------|--------------------------|---|-----|
| 1    | 299314                   | 5/16"–18 x 3.0" Bolt Hex Head Cap Screw   | 2   |
| 2    | 299620                   | 5/16"—18 Nylock Nut   | 2   |
| 3    | 299721                   | 5/16" Washer SAE  | 2   |
| 4    | 232653                   | Hydraulic Straight Fitting Male #8 JIC x Male #10 O–Ring Boss                             | 5   |
| 5    | 295030-M08JIC-M06ORB     | Hydraulic 90 Degree Fitting Male #8 JIC to Male #6 O–Ring Boss                            | 2   |
| 6    | 232654                   | Hydraulic 90 Degree Fitting Male #8 JIC to Male #8 O–Ring Boss Swivel                     | 1   |
| 7    | 232655                   | Hydraulic 90 Degree Fitting Male #8 JIC to Male #8 O–Ring Boss                            | 1   |
| 8    | 295010-F08JIC-M08JIC0625 | Hydraulic Straight Fitting Female #8 JIC to Male #8 JIC with 1/16" Orifice (Restricter)   | 1   |
| 9    | 232575                   | Diverter Valve  | 1   |
| 10   | 224006                   | Coupler, Male Flat Face Style 1/2" Body, 1/2" Pipe Thread                                 | 1   |
| 11   | 224005                   | Coupler, Female Flat Face Style 1/2" Body, 1/2" Pipe Thread                               | 1   |
| 12   | 232576                   | Welded Cylinder 11/2" Bore x 6"   | 1   |
| 13   | 232577                   | Machine Hose Set 2 Hoses 66" OAL 1/2" Diameter #8 Female JIC to Male Pipe Thread          | 2   |
| 14   | 232587                   | Short Cylinder Hose 24" OAL 3/8" Diameter #8 Female JIC, Both Ends                        | 1   |
| 15   | 232588                   | Long Cylinder Hose 30" OAL 3/8" Diameter #8 Female JIC, Both Ends                         | 1   |
| 16   | 232580                   | Hydraulic Angle Kit Wire Harness 96" Extension Male 2 Pin Deutsch to Female 2 Pin Deutsch | 1   |
| 17   | 232589                   | 1/4" Vibration Damping Clamp  | 1   |

## 7. Parts

# 7.18 Hydraulic Pivot Kit, Electrical



| ITEM    | PART NUMBER | DESCRIPTION  |
|---------|-------------|--|
| Standar | d           |  |
| 1       | 232580      | Hydraulic Angle Kit Wire Harness 96" Extension Male 2 Pin Deutsch to Female 2 Pin Deutsch                    |
| Optiona | ıl          |  |
| 2       | 232581      | Hydraulic Angle Kit Machine Wire Harness 16" 14 Pin to Male 2 Pin Deutsch                                    |
| 3       | 232582      | Hydraulic Angle Kit Machine Wire Harness 16" 8 Pin to Male 2 Pin Deutsch                                     |
| 4       | 232583      | Hydraulic Angle Kit Machine Universal Wire Harness Control Switch Male 2 Pin Deutsch to Female 2 Pin Deutsch |
| 5       | 232584      | Hydraulic Angle Kit 12" Wire Harness 2 Pin Male Deutsch to DC Plug   |
| 6       | 232585      | Hydraulic Angle Kit 12" Wire Harness 2 Pin Male Deutsch to Alligator Clip                                    |
| 7       | 232586      | Hydraulic Angle Kit 12" Wire Harness 2 Pin Male Deutsch to Pig Tail  |

# 7.19 Safety Decals





(3) **GREASE ALL FITTINGS EVERY 8 HOURS** 



HIGH-PRESSURE FLUID HAZARD

- To prevent serious injury or death: Relieve pressure on system before repairing or disconnecting.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
  Keep all components in good repair

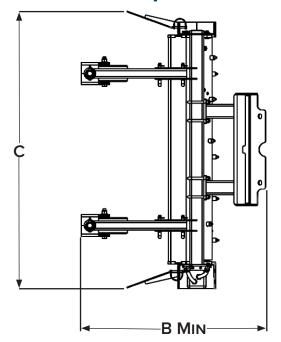


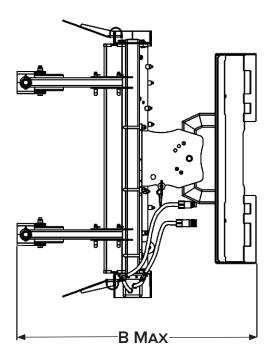


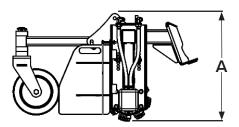
| ITEM | PART NUMBER | DESCRIPTION   | QTY |
|------|-------------|---|-----|
| 1    | BD-056      | 2.0" x 12.0" Decal, Blue Diamond                    | 1   |
| 2    | BD-060      | 2.4375" x 3.375" Decal, Blue Diamond Attachments    | 2   |
| 3    | BD-004      | 2.0" x 4.0" Decal, Grease All Fitting Every 8 Hours | 1   |
| 4    | BD-123      | 3.0" x 3.0" Decal, High Pressure Fluid Hazard       | 1   |
| 5    | BD-001      | 3.0" x 3.0" Decal, Read Owner's Manual              | 1   |
| 6    | BD-092      | 1.5" x 2.0" Decal, Warranty Registration QR         | 1   |

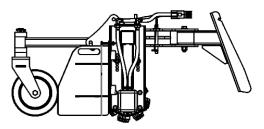
# 8. Specifications

# **8.1 Attachment Specifications**









| DESCRIPTION        | 48"                                    | 60"                           | 72"    |  |  |  |
|--------------------|--|-------------------------------|--------|--|--|--|
| Overall Height (A) | 23 in.                                 |                               |        |  |  |  |
| Overall Length (B) | 40 in. Minimum – 52 in. Maximum        |                               |        |  |  |  |
| Overall Width (C)  | 60 in.                                 | 72 in.                        | 84 in. |  |  |  |
| Cutting Width      | 48 in.                                 | 60 in.                        | 72 in. |  |  |  |
| Weight*            | 390 – 508 lbs.                         | 390 – 508 lbs. 421 – 539 lbs. |        |  |  |  |
| Rotor Diameter     | 6 in.                                  |                               |        |  |  |  |
| Tooth              | Carbide                                |                               |        |  |  |  |
| Mount              | Mini, Standard, and MT; Fixed or Pivot |                               |        |  |  |  |

<sup>\*</sup>Weight fluctuates depending on the mount.

# 8. Specifications

# **8.2 Torque Specifications**

**Standard Hardware and Lock Nuts** 

| Standard Hardware and Lock Nuts |                                 |                           |                                 |                           |                                 |                           |                    |                    |  |  |
|---------------------------------|---------------------------------|---------------------------|---------------------------------|---------------------------|---------------------------------|---------------------------|--------------------|--------------------|--|--|
| BOLT<br>TYPE                    | SAE GRADE 5                     |                           | SAE GRADE 8                     |                           | LOCK NUTS                       |                           |                    |                    |  |  |
| Nominal<br>Size                 | Plated or<br>Unplated<br>Silver | Plated<br>W/ ZnCr<br>Gold | Plated or<br>Unplated<br>Silver | Plated<br>W/ ZnCr<br>Gold | Plated or<br>Unplated<br>Silver | Plated W/<br>ZnCr<br>Gold | W/ Grade<br>5 Bolt | W/ Grade<br>8 Bolt |  |  |
| 1/4                             | 55 in / lb                      | 72 in / lb                | 86 in / lb                      | 112 in / lb               | 121 in / lb                     | 157 in / lb               | 61 in / lb         | 86 in / lb         |  |  |
|                                 | (6.2 N•m)                       | (8.1 N•m)                 | (9.7 N•m)                       | (12.6 N•m)                | (13.6 N•m)                      | (17.7 N•m)                | (6.9 N•m)          | (9.8 N•m)          |  |  |
| 5/16                            | 115 in / lb                     | 149 in / lb               | 178 in / lb                     | 229 in / lb               | 250 in / lb                     | 325 in / lb               | 125 in / lb        | 176 in / lb        |  |  |
|                                 | (13 N•m)                        | (17 N•m)                  | (20 N•m)                        | (26 N•m)                  | (28 N•m)                        | (37 N•m)                  | (14 N•m)           | (20 N•m)           |  |  |
| 3/8                             | 17 ft / lb                      | 22 ft / lb                | 26 ft / lb                      | 34 ft / lb                | 37 ft / lb                      | 48 ft / lb                | 19 ft / lb         | 26 ft / lb         |  |  |
|                                 | (23 N•m)                        | (30 N•m)                  | (35 N•m)                        | (46 N•m)                  | (50 N•m)                        | (65 N•m)                  | (26 N•m)           | (35 N•m)           |  |  |
| 7/16                            | 27 ft / lb                      | 35 ft / lb                | 42 ft / lb                      | 54 ft / lb                | 59 ft / lb                      | 77 ft / lb                | 30 ft / lb         | 42 ft / lb         |  |  |
|                                 | (37 N•m)                        | (47 N•m)                  | (57 N•m)                        | (73 N•m)                  | (80 N•m)                        | (104 N•m                  | (41 N•m)           | (57 N•m)           |  |  |
| 1/2                             | 42 ft / lb                      | 54 ft / lb                | 64 ft / lb                      | 83 ft / lb                | 91 ft / lb                      | 117 ft / lb               | 45 ft / lb         | 64 ft / lb         |  |  |
|                                 | (57 N•m)                        | (73 N•m)                  | (87 N•m)                        | (113 N•m)                 | (123 N•m)                       | (159 N•m)                 | (61 N•m)           | (88 N•m)           |  |  |
| 9/16                            | 60 ft / lb                      | 77 ft / lb                | 92 ft / lb                      | 120 ft / lb               | 130 ft / lb                     | 169 ft / lb               | 65 ft / lb         | 92 ft / lb         |  |  |
|                                 | (81 N•m)                        | (104 N•m)                 | (125 N•m)                       | (163 N•m)                 | (176 N•m)                       | (229 N•m)                 | (88 N•m)           | (125 N•m)          |  |  |
| 5/8                             | 83 ft / lb                      | 107 ft / lb               | 128 ft / lb                     | 165 ft / lb               | 180 ft / lb                     | 233 ft / lb               | 90 ft / lb         | 127 ft / lb        |  |  |
|                                 | (112 N•m)                       | (145 N•m)                 | (174 N•m)                       | (224 N•m)                 | (244 N•m)                       | (316 N•m)                 | (122 N•m)          | (172 N•m)          |  |  |
| 3/4                             | 146 ft / lb                     | 189 ft / lb               | 226 ft / lb                     | 293 ft / lb               | 319 ft / lb                     | 413 ft / lb               | 160 ft / lb        | 226 ft / lb        |  |  |
|                                 | (198 N•m)                       | (256 N•m)                 | (306 N•m)                       | (397 N•m)                 | (432 N•m)                       | (560 N•m)                 | (217 N•m)          | (306 N•m)          |  |  |
| 7/8                             | 142 ft / lb                     | 183 ft / lb               | 365 ft / lb                     | 473 ft / lb               | 515 ft / lb                     | 667 ft / lb               | 258 ft / lb        | 364 ft / lb        |  |  |
|                                 | (193 N•m)                       | (248 N•m)                 | (495 N•m)                       | (641 N•m)                 | (698 N•m)                       | (904 N•m)                 | (350 N•m)          | (494 N•m)          |  |  |
| 1                               | 213 ft / lb                     | 275 ft / lb               | 547 ft / lb                     | 708 ft / lb               | 773 ft / lb                     | 1000 ft / lb              | 386 ft / lb        | 545 ft / lb        |  |  |
|                                 | (289 N•m)                       | (373 N•m)                 | (742 N•m)                       | (960 N•m)                 | (1048 N•m)                      | (1356 N•m)                | (523 N•m)          | (739 N•m)          |  |  |

# This page intentionally left blank



## **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 Standard Duty Power Rake 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. Please see bluediamondattachments.com/warranty-policies for the most up to date warranty information.

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