

Rock Rake

Operation and Maintenance Manual



133010



888-376-7027 | BlueDiamondAttachments.com

Register your
WARRANTY
within 30 days
of purchase



Introduction: Owner Information

Thank you for your decision to purchase a Blue Diamond® Hydraulic Rock 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 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 right side of the hydraulic cover as shown above.

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

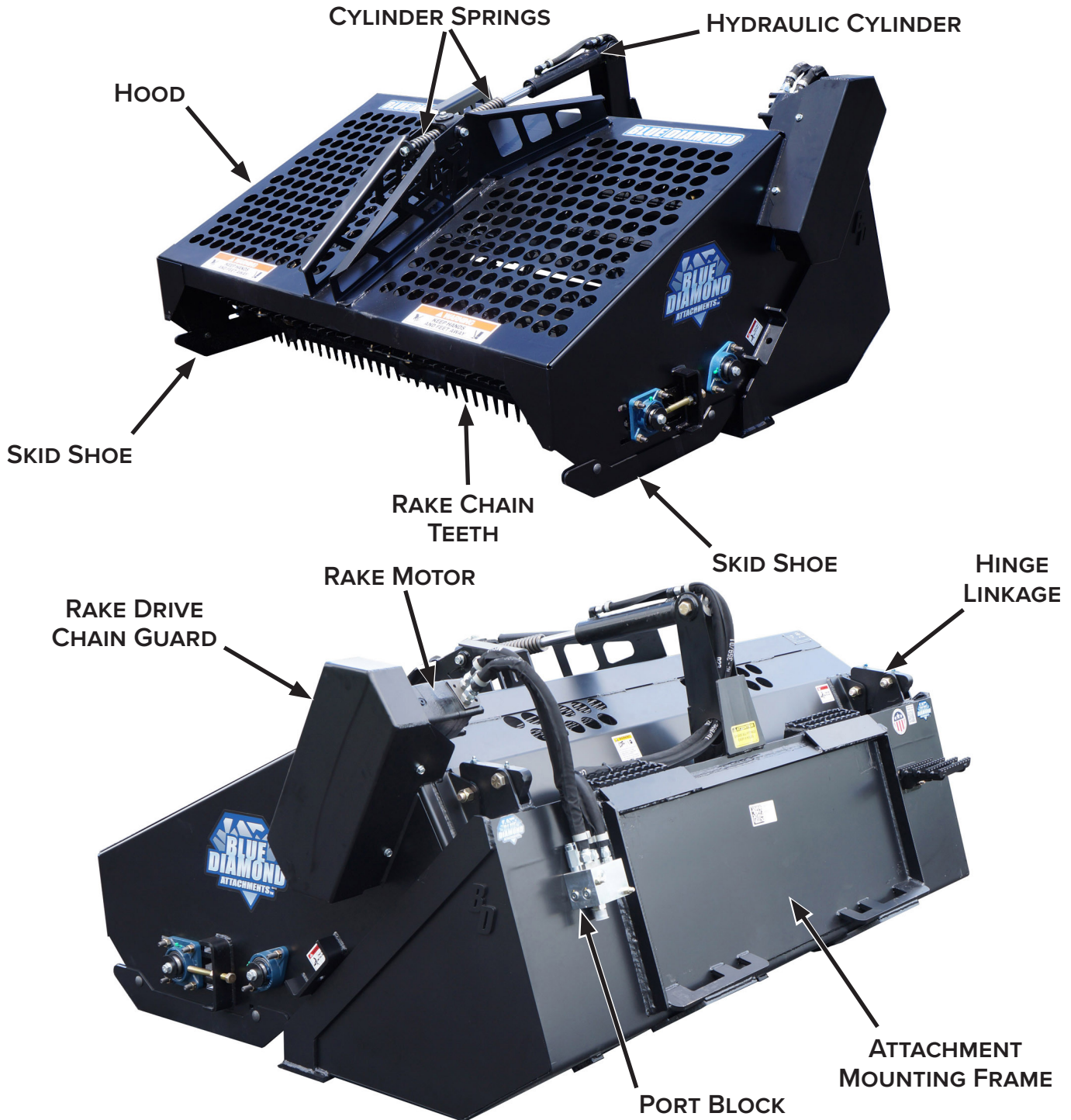
NOTE: The directions left, right, front, and rear, as mentioned throughout this manual, are as viewed from the operator's position.

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1. Introduction

1.1 Attachment Identification



1.2 About this Attachment

Blue Diamond® recommends that you carefully read and understand this manual before putting the Rock Rake in operation. Bear in mind any safety measures and maintenance procedures described herein, in order to ensure proper and efficient use of the machine.

- The Rock Rake picks up small to medium sized rocks as small as 3/4" (19 mm) as well as most rocks up to 8" (203 mm).
- The Rock Rake rakes and collects surface debris while smoothing and leveling the soil.
- The Rock Rake has adjustable skid shoes for setting depths.

2. Safety

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



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.

Terminology

Host Machine, Machine, Prime Mover:

- The Hydraulic Rock Rake can be attached to many different pieces of equipment; therefore, the terms “host machine”, “machine”, and “prime mover” will be used. Host machine, machine, and prime mover mean any equipment, tractor, or skid steer providing power to the attachment.

Attachment, Implement, Equipment:

- The Hydraulic Rock Rake is the tool that is being attached to the host machine; therefore, the terms “attachment”, “implement”, and “equipment” will be used. The attachment, implement, and equipment mean any tool that is being used on any machine, tractor, or skid steer being used for different applications.

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.

2. Safety

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®.

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, dust-mask, 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. Safety

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

- The machine's operator's cab should be equipped with a thermoplastic polycarbonate or similar material front window, and similar protection on the sides of the operator's cab before operating the equipment.
- Keep bystanders clear of moving parts and the work area. Keep children away.
- Do not exceed 3000 psi (206 bar) operating pressure.
- The machine's hydraulic flow must be within 13 – 23 gallons per minute (GPM) (49 – 87 liters per minutes [LPM]).
- Use caution on slopes and near banks and ditches to prevent overturn.

2. Safety

2.3 Safety Guidelines Cont'd

Fire Prevention Safety

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

Transporting Safety

- Comply with state and local laws governing highway safety and movement of machinery on public roads.
- Check local laws for all highway lighting and marking requirements.
- 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. Operation

3.1 Pre–Operation Inspection

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



WARNING



AVOID SERIOUS INJURY OR DEATH

- Disengage machine's auxiliary hydraulics, engage the machine's parking brake, stop the engine, and make sure all moving parts are completely stopped before connecting, disconnecting, adjusting, or cleaning equipment.
- Always keep shields and guards in place when using the equipment.
- Disengage machine's auxiliary hydraulics for road travel.
- Keep hands, feet, and clothing away from rotating parts.

- Lubricate the attachment per the schedule outlined in the Maintenance section. See "5.2 Lubrication" on page 15.
- Check the attachment mounting frame for damage or cracks.
- Check that all shields and guards are in place.
- Check for loose bolts and tighten them if necessary.
- Check all welds on the attachment for wear and damage each time the attachment is removed from the machine.
- Check for damaged or missing safety decals. Replace if necessary.
- Inspect the machine's mounting frame. (See the machine's Operator's Manual for inspecting the mounting frame.) Replace any parts that are damaged, bent, or missing. Keep all fasteners tight. Look for cracked welds.
- Verify that the attachment is properly connected to the machine.



WARNING



Leaking fluids under pressure can enter the skin and cause serious injury or death. Immediate medical attention is required.

Wear goggles. Use cardboard to check for leaks.

- Check the condition of all hydraulic components for leaks. Repair as required.

NOTE: Do not operate with hydraulic leaks.

3. Operation

3.2 Attachment Installation

Connecting Attachment to the Machine

IMPORTANT



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

Entering The Operator's Position

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

When in the operator's position, lower safety seat bar, 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 parking 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.

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 10.

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

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

Leave the operator's position. See "Leaving The Operator's Position" on page 10.

3. Operation

3.2 Attachment Installation Cont'd

Connecting Attachment to the Machine Cont'd



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

Connecting Hydraulic Hoses



IMPORTANT



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. For the hydraulic hoses, the return hose must be connected before the pressure hose.

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.



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 pressure hose must be disconnected before the return hose.

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 10.

Disconnect attachment hydraulic hoses from the machine.

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

Enter the operator's position. See "Entering The Operator's Position" on page 10.

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

Drive the machine slowly backward, away from the attachment.

3. Operation

3.3 Operating the Attachment

Machine Requirements

DESCRIPTION	REQUIRED
Minimum – Maximum Flow	13 – 23 GPM (49 – 87 LPM)
Maximum Pressure	3000 PSI (206 bar)

Clear the Work Area

Remove large branches and stones larger than six (6) inches (152 mm) in diameter or larger before raking an area.

NOTE: If the ground is extremely compacted, use an attachment such as a tiller or scarifier to loosen the ground at least four (4) inches (102 mm) in depth.



IMPORTANT



- DO NOT operate in a work area that has not been cleared of foreign debris and obstacles.
- Rocks, metals, and other objects can damage the attachment.
- Clearly mark any objects that cannot be removed.

3.4 Recommended Raking Procedure

NOTE: Refer to your machine's Operator's Manual for the correct function of the controls.



WARNING



AVOID SERIOUS INJURY OR DEATH

Bystanders must stay at least 9 ft. (3 m) away from the rake when operating.

DO NOT leave the operator's position while the engine is running.

With the operator in the operator's position, seat belt fastened, and seat bar lowered, start the

engine.

Tilt the attachment back with the loader tilt cylinder and move the attachment to the starting point.

Tilt the attachment forward until the skid shoes are touching the ground.

Engage the auxiliary hydraulics. (Refer to your machine's Operator's Manual for the control functions.)

Lower the attachment to the ground and engage the float. While operating, slowly drive backwards.

Control ground penetration by removing the skid shoes bolts and reposition the skid shoes in any of the mounting holes as needed.

Use the tilt control cylinder to tilt the attachment up or down as needed during raking.

NOTE: Soil conditions may require multiple passes.



CAUTION



RAKE CHAIN WRAPPING

Debris such as rope, wire, plastic, etc. may wrap around the rake chain. STOP IMMEDIATELY and remove the foreign material. Spinning of the rake chain and throwing of material may cause harm to operator and / or bystander.

3.5 Dumping the Attachment

When the material begins to bounce out of the bucket and up against the screen, the bucket is full.

Lift the attachment slightly off the ground, carry the load low, and drive to the dump site.

Move the control to retract the cylinder and open the attachment.

Raise the attachment and tilt it forward until all the debris is removed from the bucket.

Extend the cylinder to close the attachment is level with the ground.

Return to the landscaping site, lower the attachment to the ground, and continue raking.

4. Transport

4.1 Lifting the Attachment

NOTE: Use chains that are in good condition and of adequate size to lift or secure the attachment.

Hook each end of the chain to the rear lifting slots [Figure 1, Item 1] on the Rock Rake. Use a loader or chain hoist to lift the Rock Rake.

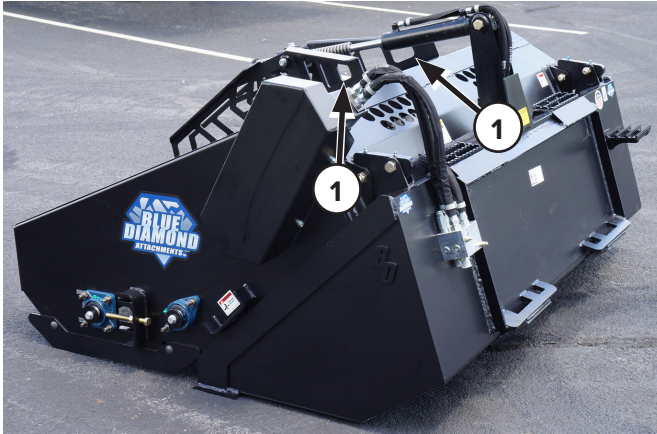


Figure 1

4.2 Chaining the Attachment to the Transport Vehicle

Use a loader or chain hoist to load the Rock Rake onto the transport vehicle.

Route a chain through the eyes on the transport vehicle and hook each end of the chain to the front slots [Figure 2, Item 1] on the Rock Rake.

Route a chain through the eyes on the transport vehicle and hook each end of the chain to the Rock Rake mounting frame [Figure 2, Item 2].

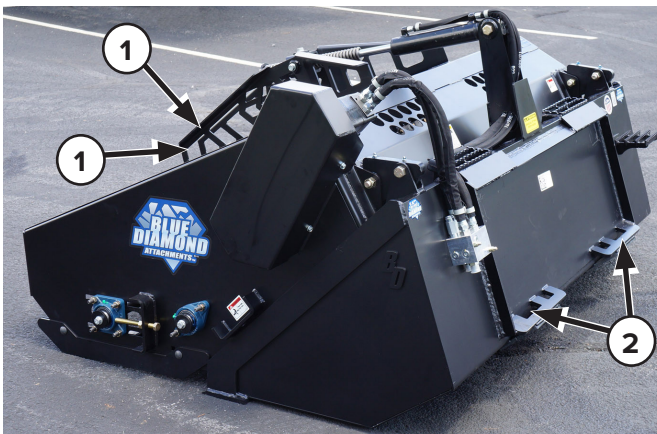


Figure 2

4.3 Loading the Host Machine / Attachment onto the Transport Vehicle

NOTE: Refer to your machine's Operator's Manual to correctly load and chain the host machine / attachment onto the transport vehicle.

The rear of the trailer must be properly blocked or supported when loading or unloading the equipment.

With the attachment connected to the host machine, drive the host machine onto the transport vehicle in a forward direction (attachment first).

Lower the attachment to the transport vehicle.

Engage the parking brake and stop the engine.

Install tie down chains and binders to prevent the host machine and attachment from moving during transportation.

Install a chain to the rear of the host machine.

Use chain binders to secure the chains and prevent the host machine / attachment from moving during transportation.

5. Maintenance

5.1 Service Schedule

DESCRIPTION	SERVICE PROCEDURES			
	Check	Clean	Lube	Change
Daily Maintenance (or every 8 hours)				
Hydraulic Fittings	•			
Hydraulic Hoses	•			
Hydraulic Motor	•	•		
Rake Chain (wear, damage, and loosening) (see page 15)	•	•		
Rake Teeth (wear, damage, and loosening) (see page 15)	•	•		
Rake Chain Bearings (see page 15)			•	
Hinges (see page 15)			•	
All Hardware	•			
Attachment Frame	•		•	
Weekly Maintenance (or every 40 hours)				
Drive Sprocket Bearing (under chain guard)			•	
Drive Chain			•	
Drive Chain Adjustment (see page 15)	•			
Rake Chain Adjustment (see page 15)	•			



5. Maintenance

5.2 Lubrication



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.



WARNING



AVOID SERIOUS INJURY OR DEATH

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

Every eight (8) hours of operation, grease the bearings [Figure 3, Item 1] (both sides) and the hinges [Item 2] (both sides).

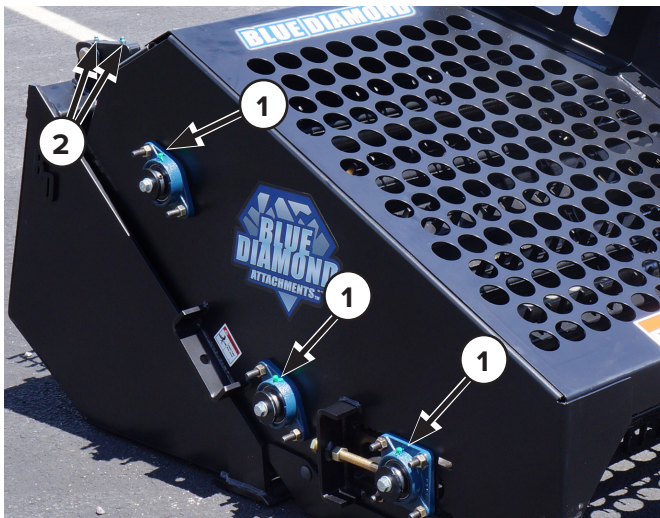


Figure 3

Rake Chain

Every forty (40) hours of operation, lubricate the rake chain with a light coat of oil.

5.3 Drive Chain and Teeth

Drive Chain Adjustment

NOTE: The drive chain should be inspected monthly. New chain has a tendency to stretch.

Remove the chain guard. Loosen the idler sprocket bolt and move the idler sprocket to adjust chain tension to 1/2" (13 mm) deflection in the center of the chain. Tighten idler sprocket bolt. Reinstall chain guard.

Drive Chain Removal

Remove the chain cover.

Remove the master link, remove the chain, and install new chain and master link.

Check for proper tension. Reinstall the chain guard.

Rock Rake Chain Adjustment

Loosen the jam nut [Figure 4, Item 1] (both sides), tighten the bolt [Item 2] evenly (both sides) until there is 1" – 2" (25 – 51 mm) of deflection in the center of the longest span of the chain.



Figure 4

5. Maintenance

5.3 Drive Chain and Teeth Cont'd

Rake Chain Teeth

NOTE: Rake chain teeth are 3" (76 mm) long when new. If a tooth is worn 1/4" (6 mm) or more, the tooth should be resurfaced with a hard surface welding rod.

- If a tooth is damaged or worn and needs to be replaced, cut and remove the damaged tooth and weld on the new tooth.
- If a tooth is bent, the tooth can usually be straightened.

NOTE: Do not use heat to straighten a bent tooth, heat will cause the hardened tooth to become soft.

5.4 Cleaning the Attachment

Remove all debris that could be entangled in the rake chain and teeth.

Thoroughly wash the Rock Rake.

5.5 Storing the Attachment

Storage

Sometimes it may be necessary to store your Rock Rake for an extended period of time. Below is a list of items to perform before storage.

- Make sure the hydraulic hose couplers are capped, plugged, or connected to each other.
- Thoroughly wash the attachment before storing it for long periods.
- Lubricate the attachment.
- Coat the exposed portion of the cylinder with oil.
- Check for loose hardware, missing guards, or damaged parts.
- Check for damaged or missing decals. Replace if necessary.
- Replace worn or damaged parts.
- Place the attachment flat on the ground in a dry, protected shelter.

NOTE: In muddy conditions or to prevent the attachment from freezing to the ground, put the attachment on planks or blocks before removing the attachment from the machine.

Return to Service

After the Rock Rake has been in storage, it is necessary to follow a list of items to return the attachment to service.

- Lubricate the attachment.
- Clean the exposed portion of the cylinder rod and apply a light coating of oil.
- Connect and operate the attachment and check for correct function.
- Check for leaks. Repair as needed.

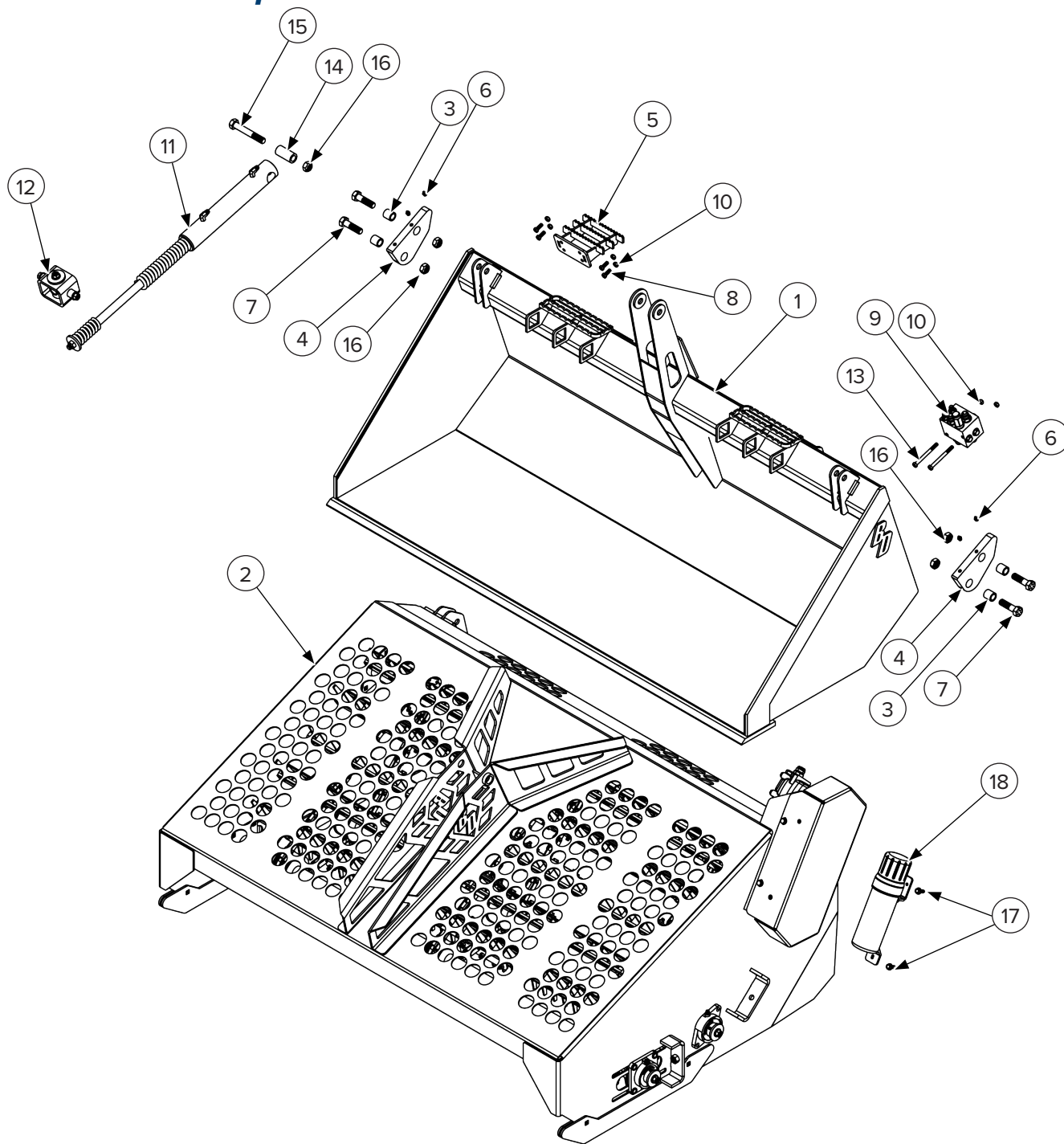
5. Maintenance

5.6 Troubleshooting

PROBLEM	CAUSE	SOLUTION
Chain does not turn	Faulty drive motor	Repair or replace motor.
	Key sheared	Replace key.
	Drive chain on hydraulic motor broken or loose	Replace the chain or adjust as needed.
	Auxiliary hydraulics not activated	Activate auxiliary hydraulics.
	Faulty loader drive	Repair loader drive.
Chain comes off	Chain is too loose	Adjust chain tension.
Chain jumps irregularly	Sprockets worn	Replace socket section of chain.
	Stretched chain	Replace chain.
	Stone / rock lodged in chain link	Remove stone / rock.
Abnormal noise in drive chain cover	Drive chain and sprockets worn	Replace chain & sprockets.
	Broken or stretched chain tensioner spring	Replace spring.
	Idler worn	Replace idler.

6. Parts

6.1 Bucket Components



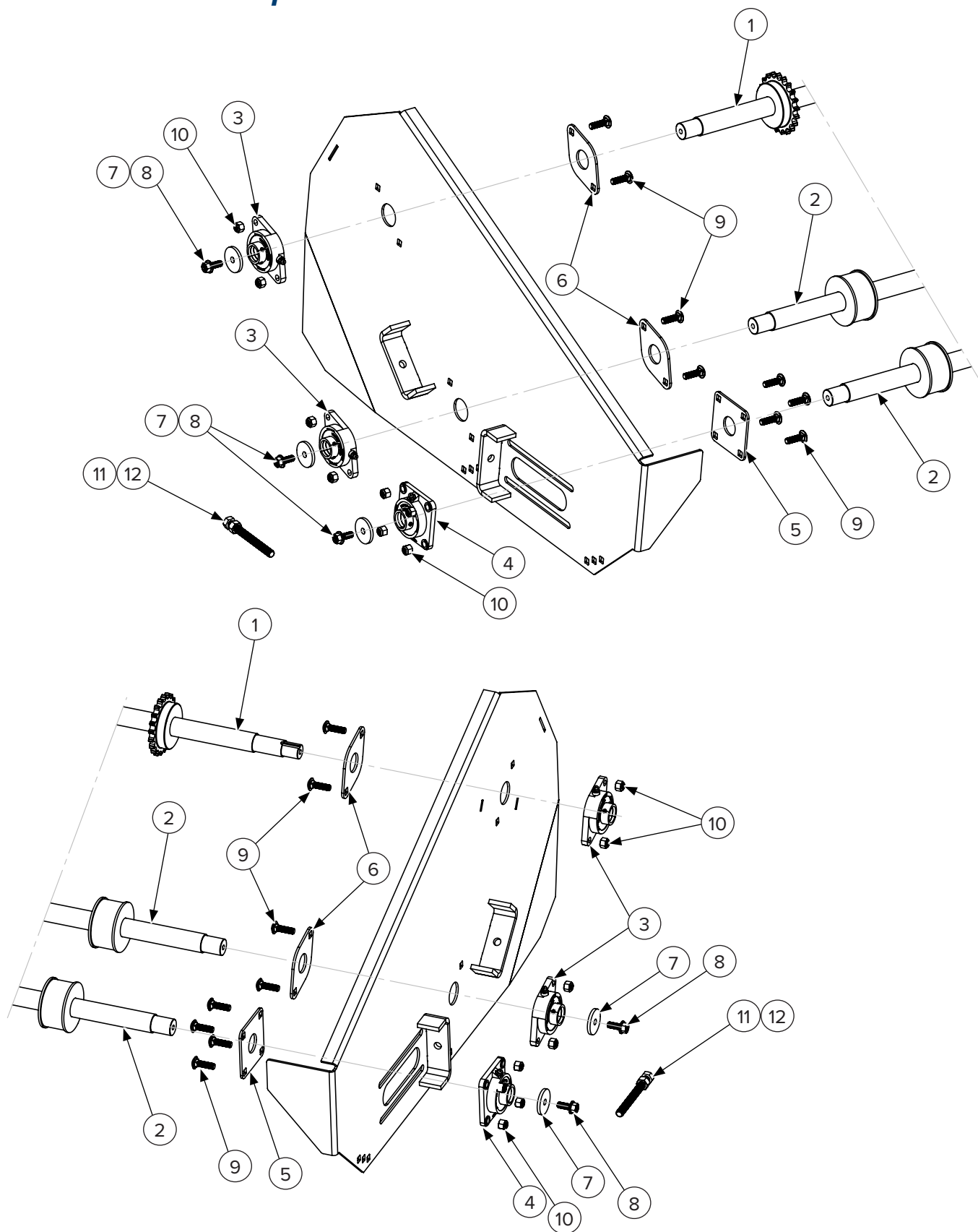
6. Parts

6.1 Bucket Components Cont'd

ITEM	PART NUMBER	DESCRIPTION	QTY
1	233050	68" Main Frame Bucket	1
2	See page 20 – page 23	Hood Assembly	1
3	233066	Hinge Linkage Bushing	4
4	233065	Hinge Linkage	2
5	233058	Bolt-On Step	1
6	299016	1/8" NPT Steel Grease Zerk Fitting	4
7	299489	3/4"–10 x 2 3/4" Bolt Hex Head Grade 8 Zinc Yellow Chromate Plated	4
8	299423	3/8"–16 x 1" Bolt Hex Head Grade 8	4
9	233106	Diverter Manifold Assembly with Fittings, Relief, & Check Valve (See page 26)	1
10	208550	3/8" Stover Lock Nut	6
11	See page 25	Top Cylinder Assembly	1
12	See page 25	Cylinder Mount Pivot Bracket Assembly	1
13	299447	3/8"–16 x 4" Bolt Hex Head Grade 8	2
14	233090	0.78" ID x 1.25" OD x 2.5625" Long Bushing	1
15	299338	3/4"–10 x 3" Carriage Bolt Grade 5	1
16	216571	3/4" Stover Locknut	5
17	203006	3/8"–16 x 1" Bolt Self Tapping	2
18	216402	Manual Storage Tube	1

6. Parts

6.2 Hood #1 Components



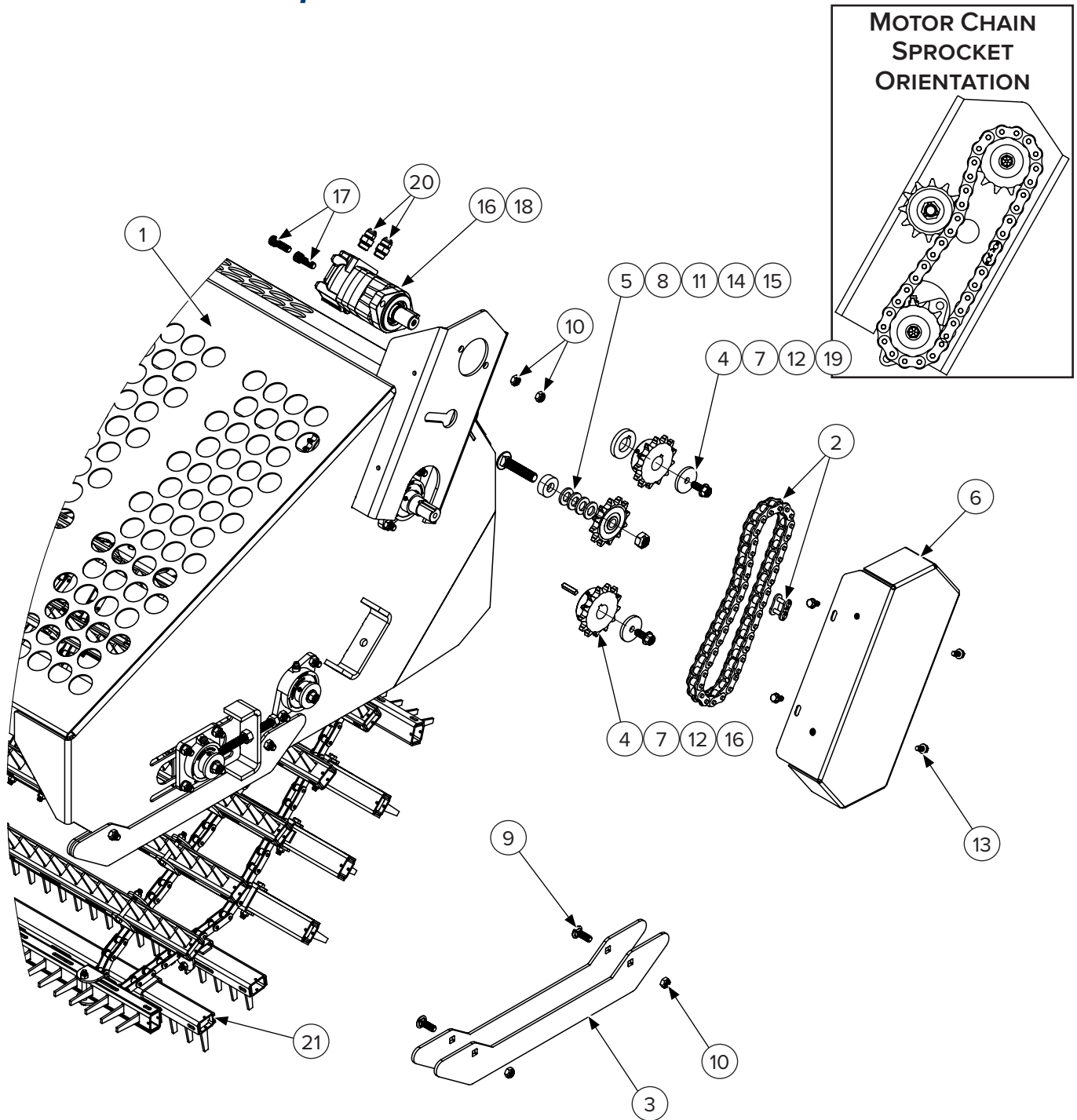
6. Parts

6.2 Hood Components #1 Cont'd

ITEM	PART NUMBER	DESCRIPTION	QTY
1	233080	Rear Chain Shaft with Sprockets	1
2	233070	Front Idler Shaft with Rollers	2
3	233125	1 7/16" Flange Mounted Ball Bearing 2 Bolt Set Screw	4
4	233128	1 7/16" Flange Mounted Ball Bearing 4 Bolt Set Screw	2
5	233007	Carriage Bolt Spacer Plate for 233128	2
6	233008	Carriage Bolt Spacer Plate for 233125	4
7	233040	1/4" x 1/2" x 2 1/4" Retaining Washer	5
8	299334	1/2"-13 x 1 1/4" Bolt Hex Head Serrated Flange Grade 8	5
9	299337	1/2"-13 x 1 3/4" Carriage Bolt Grade 5 Zinc Plated	16
10	299655	1/2"-13 Stover Nut Grade 8	16
11	299575	5/8"-11 Nut Hex Head Grade 8	2
12	299458	5/8"-11 x 6" Bolt Hex Head Fully Threaded Grade 8	2

6. Parts

6.3 Hood #2 Components



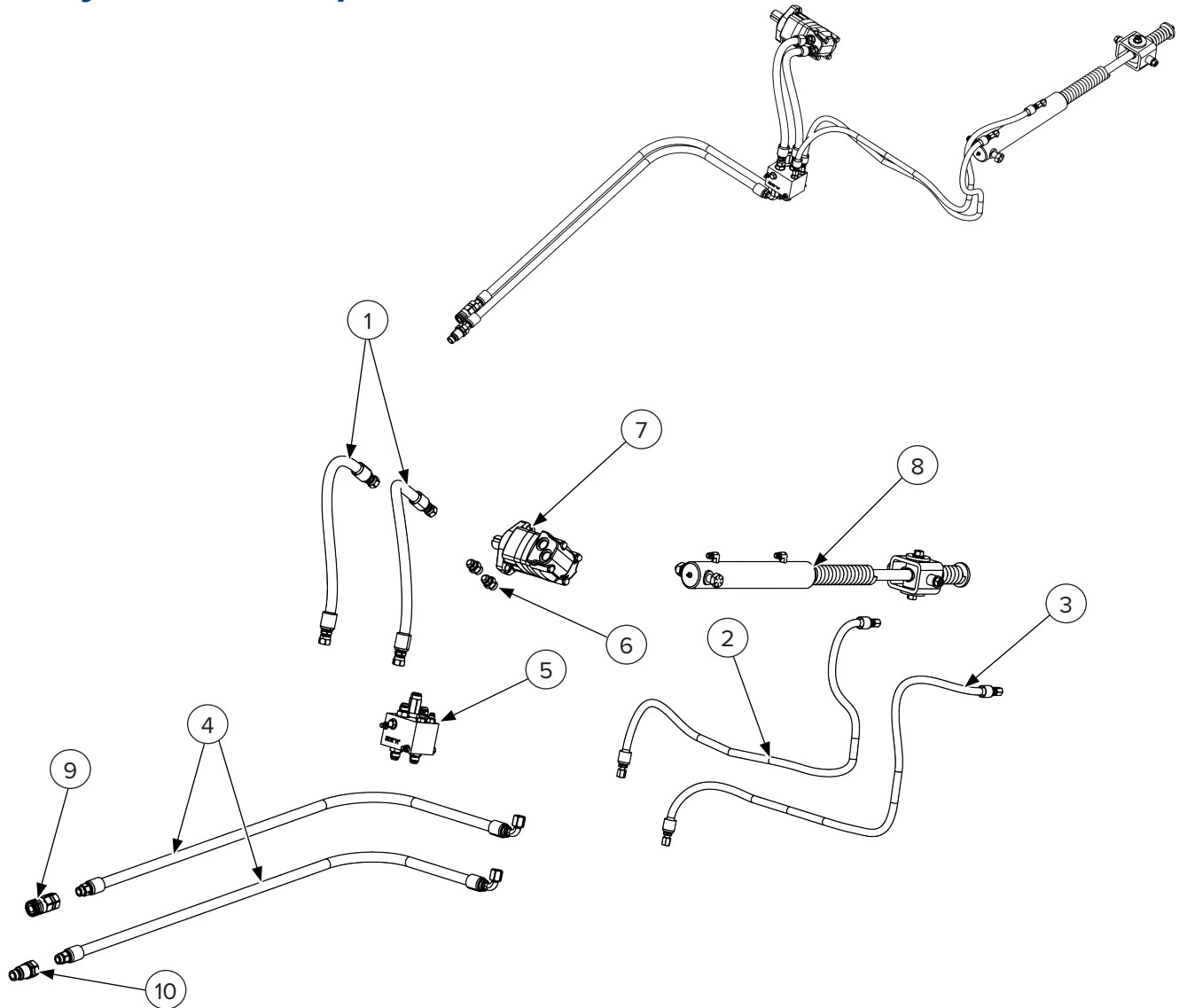
6. Parts

6.3 Hood #2 Components Cont'd

ITEM	PART NUMBER	DESCRIPTION	QTY
1	233055	Hood Weldment	1
2	233036	Motor Chain (RS80H) 40 Links with Master Link	1
3	233085	Skid Shoe	4
4	233030	1 1/4" X 13 H 80 BS Drive Sprocket	2
5	233032	12 x 3/4 Idler Sprocket Roller ANSI Chain #80	1
6	233060	Chain Cover	1
7	233040	Washer / Spacer	2
8	233033	Carriage Bolt Head Spacer	1
9	299336	1/2"-13 x 1 1/2" Carriage Bolt Grade 8	4
10	299655	1/2"-13 Stover Nut Grade 8	6
11	299726G	3/4" Flat Washer Galvanized 1 1/2" OD	4
12	299334	1/2"-13 x 1 1/4" Hex Bolt Serrated Flange Grade 8	2
13	299327	3/8"-16 x 3/4" Hex Head Bolt Thread Forming	4
14	299338	3/4"-10 x 3" Carriage Bolt Grade 5	1
15	216571	3/4" Stover Locknut	1
16	232028	5/16" x 1 1/2" Shaft Key	2
17	299331	1/2"-13 x 1 1/2" Socket Head Bolt	2
18	233110	400cc Motor Keyed Shaft (Key Included)	1
19	233029	Gear Spacer	1
20	295010-M10ORB-M10JIC	Hydraulic Straight Fitting Male #10 O-Ring Boss x Male #10 JIC	2
21	See page 27	Rake Chain Assembly	1

6. Parts

6.4 Hydraulic Components

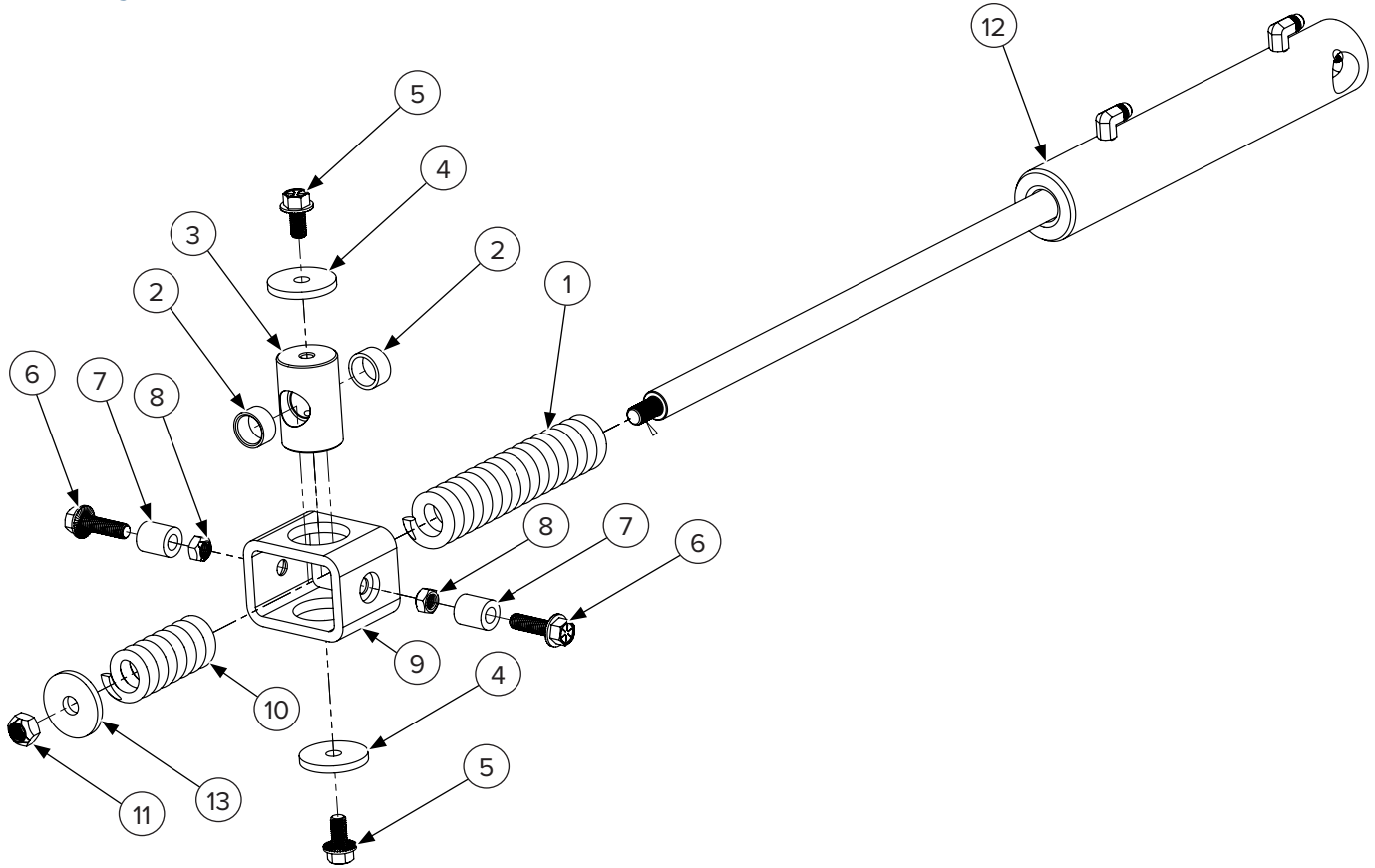


ITEM	PART NUMBER	DESCRIPTION	QTY
1	233142	5/8" ID 23" OAL Motor to Port Block Hose 4000 PSI	2
	233143*	5/8" ID 78 OAL Motor to Port Block Hose for Right Side Coupler Option	
2	233144	3/8" ID 49" OAL Cylinder Hose Short	1
3	233146	3/8" ID 59" OAL Cylinder Hose Long	1
4	233140	5/8" ID 52" OAL Machine Hose Set	1
5	233106	Diverter Manifold with Fittings, Relief & Check Valve (see page 26)	1
6	295010-M10ORB-M10JIC	Hydraulic Straight Fitting Male #10 O-Ring Boss x Male #10 JIC	2
7	233110	400cc Motor	1
8	See page 25	Top Cylinder Assembly	1
9	224020	Coupler Female Flat Face Straight 1/2" Body Female #10 O-Ring Boss	1
10	224021	Coupler Male Flat Face Straight 1/2" Body Female #10 O-Ring Boss	1

***NOTE:** To route the machine hoses to the right side for host machines with couplers on the right side, swap the positions of the access steps and the port block, and replace the hoses between the motor and the port block with 233143.

6. Parts

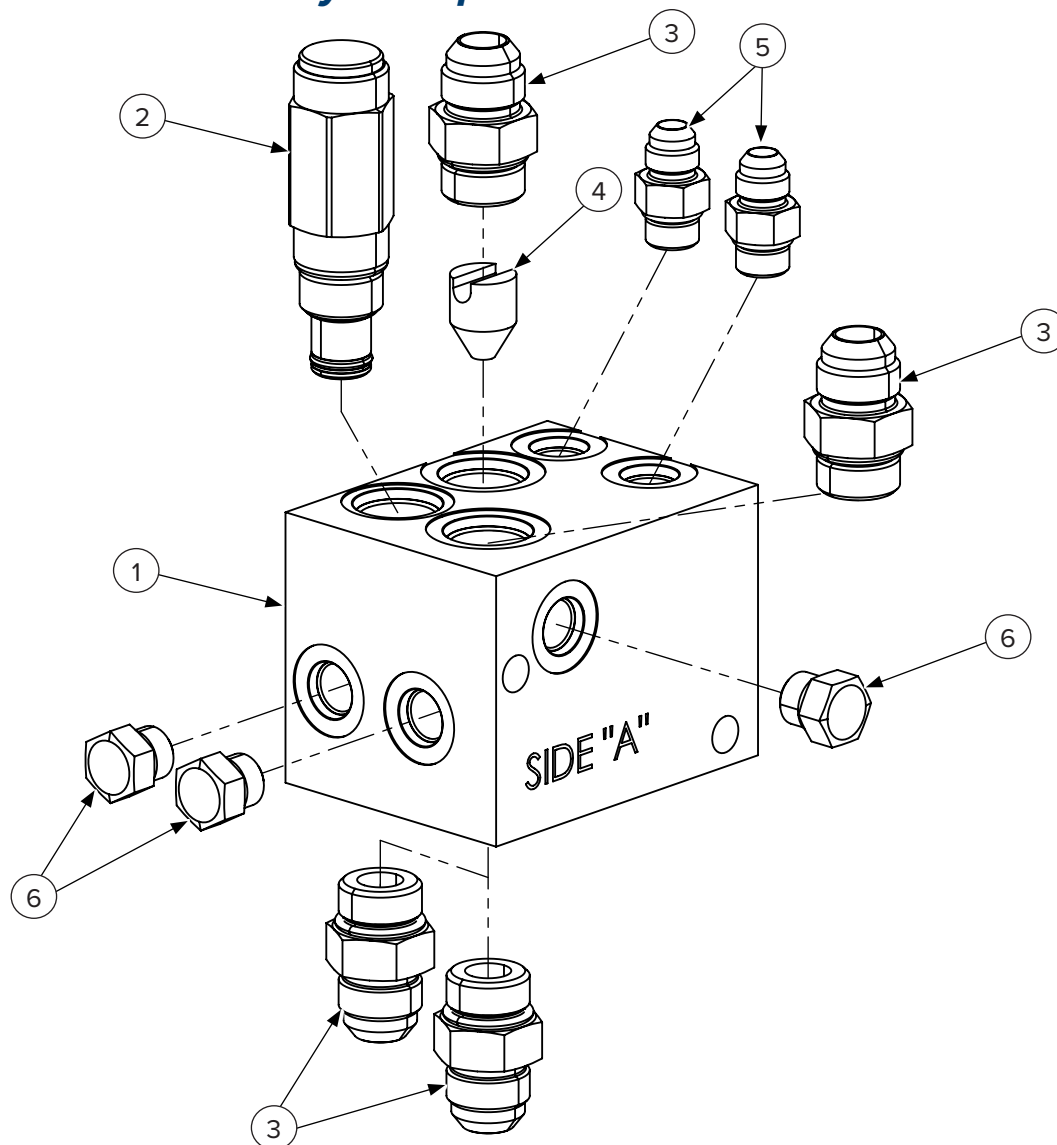
6.5 Cylinder Components — 233105



ITEM	PART NUMBER	DESCRIPTION	QTY
1	233017	1.0625" ID x 1.85 OD Top Cylinder Spring Long	1
2	233103	1.003" ID x 1.251" OD x 0.625" Long Bushing	2
3	233102	Front Pivot Insert	1
4	233040	1/4" x 1/2" x 2 1/4" Washer / Spacer	2
5	299333	1/2"-13 x 1" Bolt Hex Head with Serrated Flange Grade 8	2
6	299336	1/2"-13 x 1 3/4" Bolt Hex Head with Serrated Flange Grade 8	2
7	299092	0.53" ID x 1" OD x 1.125" Long Front Pivot Bushing	2
8	299655	1/2"-13 Stover Nut Grade 8	2
9	233104	Front Pivot Bracket	1
10	233015	1.0625" ID x 1.75" OD Top Cylinder Spring Short	1
11	299586	5/8"-18 Stover Nut Grade C Zinc Plated	1
12	233105	Top Cylinder	1
13	233041	1/4" x 5/8" x 2 1/4" Cylinder Rod Retaining Washer	1
NS	299016	1/8" NPT Steel Grease Zerk Fitting	1

6. Parts

6.6 Port Block Assembly Components — 233106



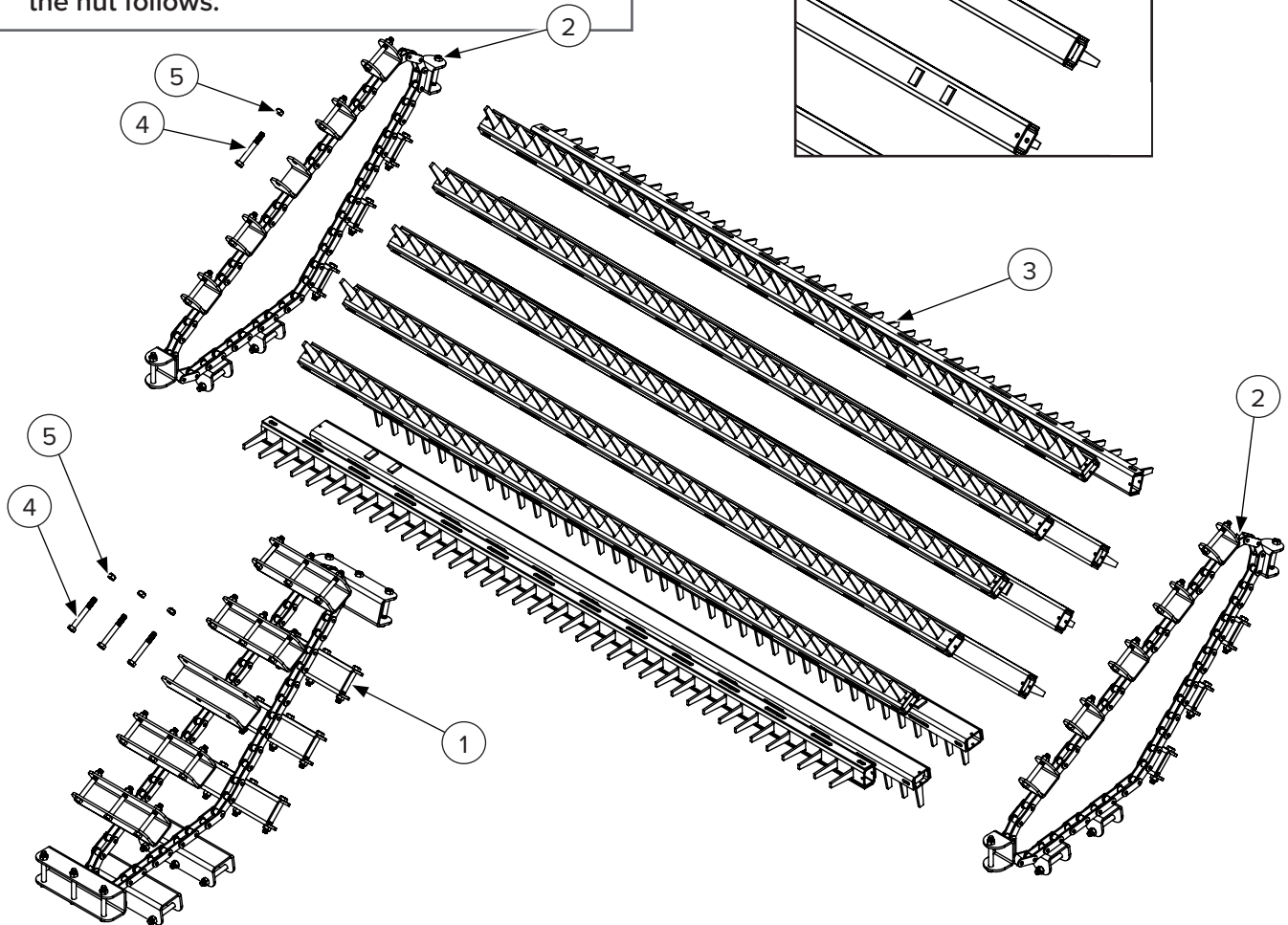
ITEM	PART NUMBER	DESCRIPTION	QTY
1	233107	Port Block	1
2	233108	Relief Valve Cartridge	1
3	295010-M10ORB-M10JIC	Hydraulic Straight Fitting Male #10 O–Ring Boss x Male #10 JIC	4
4	233109	Poppet	1
5	295010-M06JIC-M06ORB	Hydraulic Straight Fitting Male #6 JIC x Male #6 O–Ring Boss	2
6	295005-M06ORB	#6 SAE O–Ring Boss Port Plug	3

6. Parts

6.7 Chain Components

! IMPORTANT !

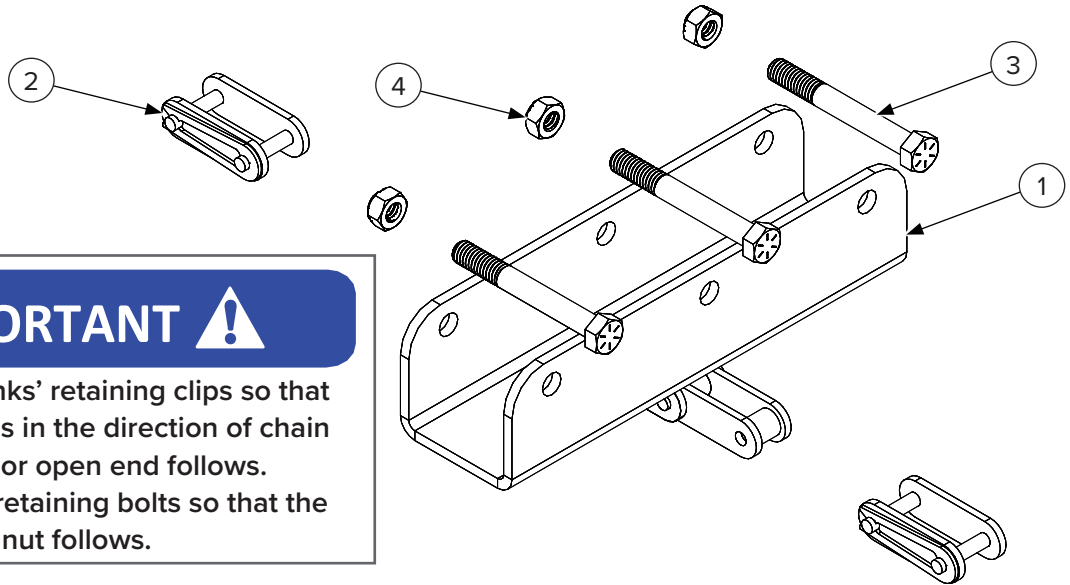
- The rake bars should be installed with the long (keyed) and short offset ends on alternate sides every other bar.
- Install the rake bar retaining bolts so that the head leads in the direction of chain travel and the nut follows.



ITEM	PART NUMBER	DESCRIPTION	QTY
1	233076	Center Rake Chain – Wide	1
2	233077	End Rake Chain – Narrow	2
3	233075	Rake Bar	12
4	299425	3/8"–16 x 3" Bolt Hex Head Grade 8	60
5	299625	3/8"–16 Nylock Nut Hex Grade 8	60

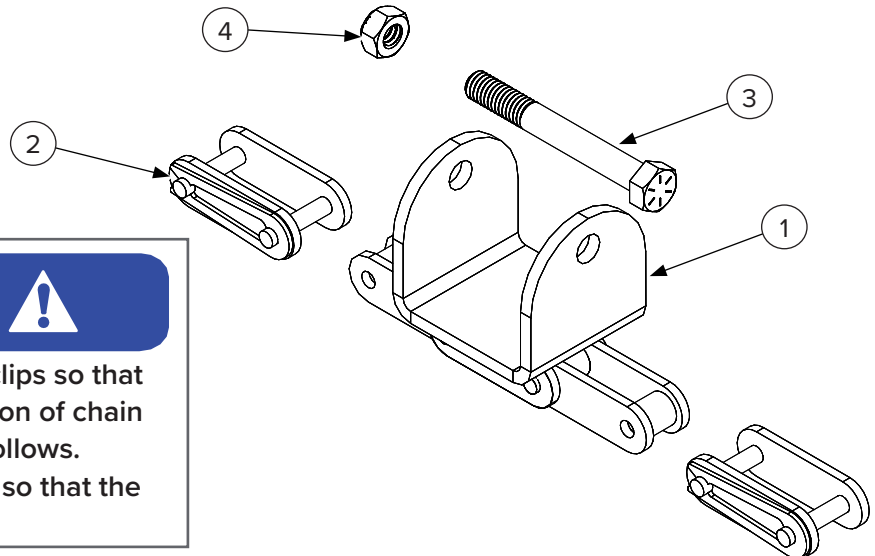
6. Parts

6.8 Wide Chain Segment Repair Kit – 233088-KIT



ITEM	PART NUMBER	DESCRIPTION	QTY
1	233088	Wide Chain Segment	1
2	233079	Master Link 1 1/2" Double Pitch C2060H	2
3	299425	3/8"-16 x 3" Bolt Hex Head Grade 8	3
4	299625	3/8"-16 Nylock Nut Hex Grade 8	3

6.9 Narrow Chain Segment Repair Kit – 233089-KIT



ITEM	PART NUMBER	DESCRIPTION	QTY
1	233089	Narrow Chain Segment	1
2	233079	Master Link 1 1/2" Double Pitch C2060H	2
3	299425	3/8"-16 x 3" Bolt Hex Head Grade 8	1
4	299625	3/8"-16 Nylock Nut Hex Grade 8	1

6. Parts

6.10 Safety Decal Identification and Location



6. Parts

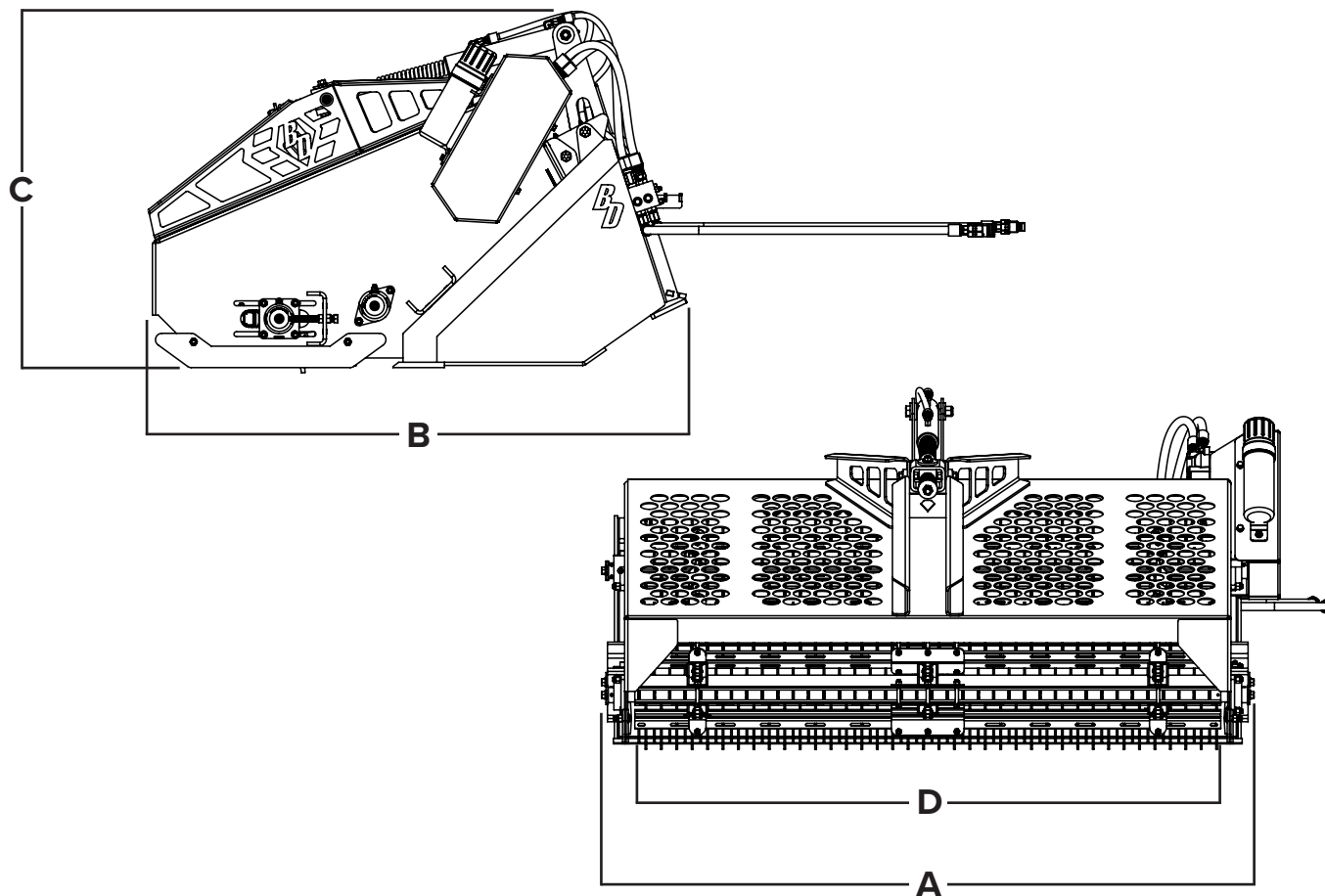
6.10 Safety Decal Identification and Location Cont'd



ITEM	PART NUMBER	DESCRIPTION	QTY
1	BD-113	5.0" x 6.35" Decal, Blue Diamond Attachments, Diamond	2
2	BD-057	2.9" x 17.364" Decal, Blue Diamond	2
3	BD-081	3.0" x 12.0" Decal, Warning Keep Hands and Feet Away	2
4	BD-002	2.0" x 2.5" Decal, Pinch Point Stay Clear	4
5	BD-123	3.0" x 3.0" Decal, High Pressure Fluid Hazard	1
6	BD-004	2.0" x 4.0" Decal, Grease All Fitting Every 8 Hours	1
7	BD-001	3.0" x 3.0" Decal, Read Owners Manual	1
8	BD-060	2.4375" x 3.375" Blue Diamond Attachments, Diamond	2
9	BD-092	1.5" x 2.0" Decal, Warranty Registration QR Code	1

7. Specifications

7.1 Attachment Specifications



DESCRIPTION	123515
Overall Width (A)	79"
Overall Length (B)	63"
Overall Height (C)	47"
Working Width (D)	68"
Maximum Pressure	3000 PSI
Minimum – Maximum Hydraulic Flow	13 – 23 GPM
Weight	1638 lbs

7. Specifications

7.2 Torque Specifications – Imperial

Standard Hardware and Lock Nuts

BOLT TYPE	SAE GRADE 5		SAE GRADE 8		LOCK NUTS			
Nominal Size	Plated or Unplated Silver	Plated W/ ZnCr Gold	Plated or Unplated Silver	Plated W/ ZnCr Gold	Plated or Unplated Silver	Plated W/ ZnCr Gold	W/ Grade 5 Bolt	W/ Grade 8 Bolt
1/4	4.6 lbf•ft	6.0 lbf•ft	7.2 lbf•ft	9.3 lbf•ft	10.0 lbf•ft	13.1 lbf•ft	5.1 lbf•ft	7.2 lbf•ft
	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	9.6 lbf•ft	12.5 lbf•ft	14.8 lbf•ft	19.2 lbf•ft	20.7 lbf•ft	27.3 lbf•ft	10.3 lbf•ft	14.8 lbf•ft
	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 lbf•ft	22 lbf•ft	26 lbf•ft	34 lbf•ft	37 lbf•ft	48 lbf•ft	19 lbf•ft	26 lbf•ft
	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 lbf•ft	35 lbf•ft	42 lbf•ft	54 lbf•ft	59 lbf•ft	77 lbf•ft	30 lbf•ft	42 lbf•ft
	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 lbf•ft	54 lbf•ft	64 lbf•ft	83 lbf•ft	91 lbf•ft	117 lbf•ft	45 lbf•ft	65 lbf•ft
	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 lbf•ft	77 lbf•ft	92 lbf•ft	120 lbf•ft	130 lbf•ft	169 lbf•ft	65 lbf•ft	92 lbf•ft
	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 lbf•ft	107 lbf•ft	128 lbf•ft	165 lbf•ft	180 lbf•ft	233 lbf•ft	90 lbf•ft	127 lbf•ft
	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 lbf•ft	189 lbf•ft	226 lbf•ft	293 lbf•ft	319 lbf•ft	413 lbf•ft	160 lbf•ft	226 lbf•ft
	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 lbf•ft	183 lbf•ft	365 lbf•ft	473 lbf•ft	515 lbf•ft	667 lbf•ft	258 lbf•ft	364 lbf•ft
	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 lbf•ft	275 lbf•ft	547 lbf•ft	708 lbf•ft	773 lbf•ft	1000 lbf•ft	386 lbf•ft	545 lbf•ft
	289 N•m	373 N•m	742 N•m	960 N•m	1048 N•m	1356 N•m	523 N•m	739 N•m



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 Hydraulic Rock 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.

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