

Angle Broom Heavy Duty Series 2

Operation and Maintenance Manual



Register your
WARRANTY
within 30 days
of purchase



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BD-092

Introduction: Owner Information

Thank you for your decision to purchase a Blue Diamond® Heavy Duty Series 2 Angle Broom. 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 top right side of the angle broom's pivot as shown above.

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

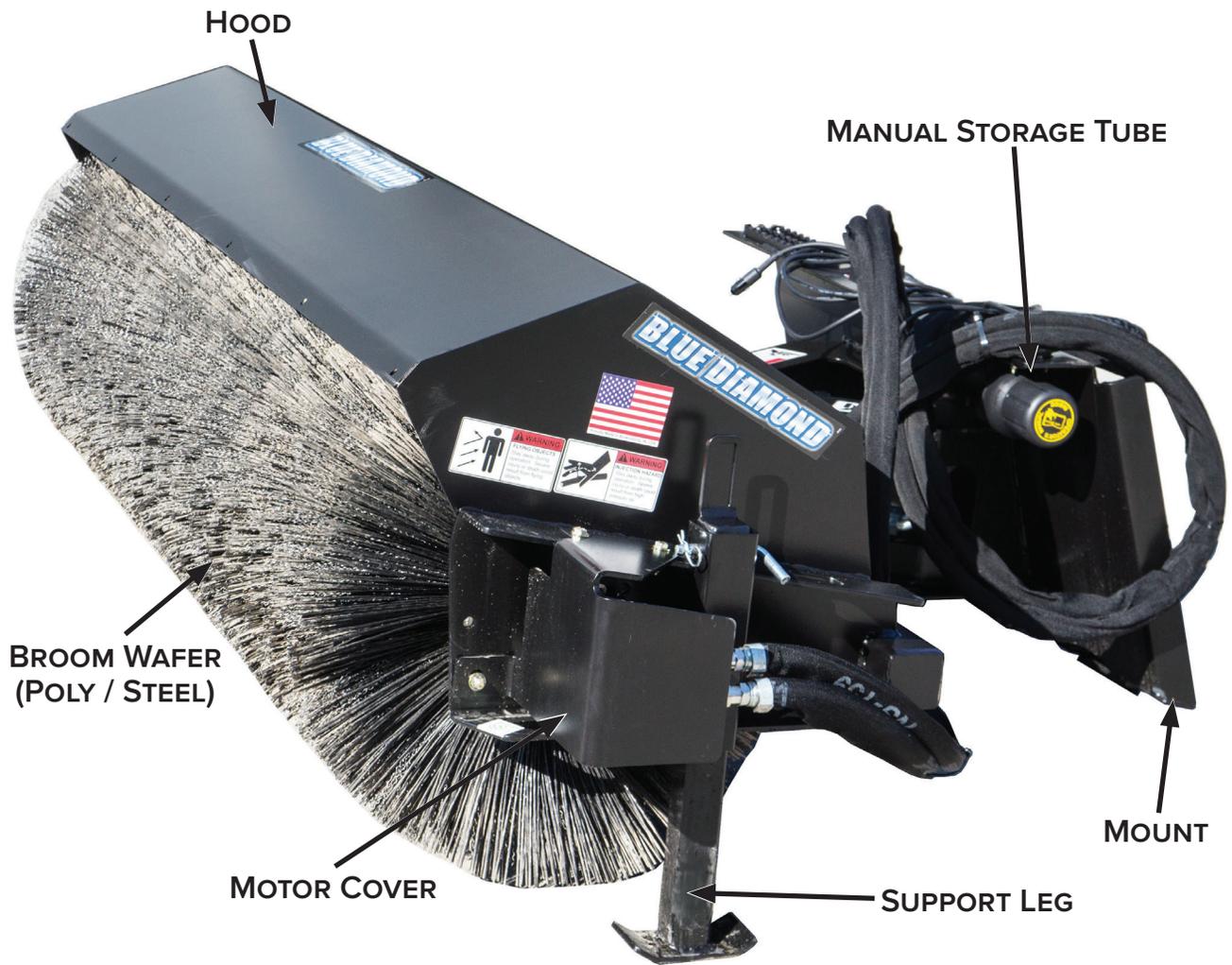
NOTE: The directions left, right, front and rear, as mentioned throughout this manual, are as viewed from the operator's position.

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1. Introduction

1.1 Attachment Identification



1. Introduction

1.2 About This Attachment

The Heavy Duty Series 2 Angle Broom is built with the user in mind. Blue Diamond® offers a wide variety of sizes with the choice of manual or hydraulic angle. This broom is the best choice to continuously sweep any type of debris in any type of space. A support leg comes standard, protecting the integrity of the bristles when the broom is being stored.

1.3 Attachment Model Numbers

BROOM MODEL	ACTUATION	WIDTH
116180	Hydraulic	36"
116182	Manual	
116200	Hydraulic	48"
116202	Manual	
116205	Hydraulic	60"
116207	Manual	
116210	Hydraulic	72"
116212	Manual	
116215	Hydraulic	84"
116217	Manual	
116220	Hydraulic	96"
116222	Manual	

2. Safety

2.1 General Safety Information



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



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



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



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



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

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 Operators Manual before operating.
- The manual must always remain with the machine. In case of loss or damage, request a new copy from your dealer or from Blue Diamond®.
- Strictly follow all rules prescribed by the safety pictograms/decals applied to the machine. Ensure that all safety pictograms/decals are legible. If pictograms/decals are worn, they must be replaced with new ones obtained from Blue Diamond® and placed in the position indicated by this manual.
- Before using the machine, make sure that all safety devices are installed and in good working 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 as 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 (207 bar) operating pressure.
- Use caution on slopes and near banks and ditches to prevent overturn.

2. Safety

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 Workclothes: To help ensure your safety as a designated operator wear proper workclothes 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 General Information

IMPORTANT



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

Pre-Operation Inspection

Before operating the Heavy Duty Series 2 Angle Broom for the first time and each time after, use the following list a guideline during equipment inspection.

WARNING

AVOID SERIOUS INJURY OR DEATH

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

- Fully clean the attachment. See "Cleaning the Attachment" on page 19.
- Lubricate the attachments as explained in the Maintenance section. See "Lubrication" on page 17.
- Check the angle broom mounting plate for damage. Check for loose or missing parts. Repair as needed before operation.
- Check that all shields and guards are in place.
- Check for loose bolts and tighten them if necessary.
- Check all welds on the attachments for wear and damage each time the attachment is removed from the machine.

- Check for damaged or missing safety decals. Replace if necessary.
- Inspect the machine's mounting frame. (See the machine's Operator's Manual for inspecting the mounting frame.) Replace any parts that are damaged, bent, or missing. Keep all fasteners tight. Look for cracked welds.

WARNING



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

Wear goggles. Use cardboard to check for leaks.

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

NOTE: DO NOT operate with hydraulic leaks.

- Verify that the angle broom is properly connected to the machine.

3. Operation

3.2 Attachment Inspection

Daily Inspection

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

Check the following items every 10 hours of operation:

- Verify that the angle broom is properly connected to the machine.
- Check that all shields and guards are in place.
- Check hydraulic lines, connections, and fittings for hydraulic oil leaks. Repair or replace damaged parts if necessary.
- Check the angle broom mounting hardware for wear or damage. Inspect the pins and mount (on the attachment) for wear or damage. Repair or replace damaged parts if necessary.

Weekly Inspection

Check the following items every 40 hours of operation:

- Check all bolts for tightness.
- Inspect the frame for cracks, bends, or damage.

Monthly Inspection

- Inspect the broom wafers for excessive wear.
- Check that all bolts are tight.
- Check frame, shields, and guards. Repair if damaged or replace if necessary.
- Check for damaged or missing decals. Replace if necessary.
- Check for damaged or leaking hydraulic hoses or fittings. Replace if necessary.
- Clean all debris, leaves, grass, and flammable material from deck area and under covers.
- Lubricate as required.



WARNING



AVOID SERIOUS INJURY OR DEATH

Before servicing the attachment:

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

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

3.3 Attachment Installation



IMPORTANT



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

Entering the Operator's Position

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

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

3. Operation

3.3 Attachment Installation Cont'd

Leaving the Operator's Position



WARNING



AVOID SERIOUS INJURY OR DEATH

Before leaving the operator's position:

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

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

Park the machine / attachment on a flat level surface.

Place all controls in neutral, engage the 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 Operators Manual for inspecting the mounting frame).

Enter the operator's position. See "Entering the Operator's Position" on page 11.

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 mount 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 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. Pull on each hose to verify full connection is made.

3. Operation

3.3 Attachment Installation Cont'd

Disconnecting Hydraulic Hoses



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 correct procedure.)

Disconnect the attachment hydraulic hoses from the machine.

Disconnecting Attachment from the Machine

Relieve auxiliary hydraulic pressure. (See the machine's operator's manual for correct procedure.)

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

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

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 11.

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.

3.4 Operating the Attachment

Machine Requirements



DANGER



FLYING DEBRIS OR OBJECTS WILL CAUSE SERIOUS INJURY OR DEATH

To protect the operator from any flying debris or objects, it is important that 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 Heavy Duty Series 2 Angle Broom.

- Blue Diamond® recommends that the machine be equipped with a thermoplastic polycarbonate or similar material front window, and similar protection on the sides of the operator's cab.
- Only use the broom on compatible loaders. Loader flow must not exceed 25 gallons per minute. DO NOT use high flow hydraulics.
- Loader relief pressure must not exceed 3500 PSI (241 bar). Consult loader manual for flow and pressure specifications.
- See chart below for minimum lift capacity required for each angle broom model.

HEAVY DUTY SERIES 2 ANGLE BROOM	WEIGHT
36"	495 lbs. (225 kg)
48"	564 lbs. (256 kg)
60"	620 lbs. (345 kg)
72"	665 lbs. (374 kg)
84"	811 lbs. (411 kg)
96"	980 lbs. (445 kg)

3. Operation

3.4 Operating the Attachment Cont'd

Operation



WARNING



THROWN OBJECTS OR ROTATING BLADES CAN CAUSE SERIOUS INJURY OR DEATH

- Clear work area of all debris, such as rope, wire, cable or other materials that can wrap around broom core and broom wafers, causing entanglement and attachment damage.
- **DO NOT** operate broom in vicinity of bystanders, animals, or damageable property. Objects can be thrown more than several feet.
- Keep all shields installed. Repair or replace if damaged or missing.
- Check broom core, broom wafers, and mounting hardware. Replace if damaged. Never weld or modify.



WARNING



AVOID SERIOUS INJURY OR DEATH

Never operate the attachment with any guards removed, including the motor cover.



WARNING



Never allow riders on the attachment.

Using the Angle Broom

Install the Heavy Duty Series 2 Angle Broom onto the machine.

Move storage feet to the upper position.

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

Raise the angle broom approximately 6 inches (152 mm) off the ground.

With the machine's engine RPM just above idle, engage the auxiliary hydraulic flow (see the machine operator's manual) to the cutter head.

Slowly raise the machine's engine RPM to the correct and desired brush speed.



CAUTION



DO NOT exceed 3500 PSI operating pressure. Doing so can result in serious damage.

Adjust the Angle broom so the broom pivot pin is perpendicular to the ground. This ensures even sweeping when the attachment is angled. The ends of the broom will rise or lower when angled if broom pivot pin is not perpendicular to the ground.

Limit travel speed to 5 mph.

Adjust brush using loader tilt to give a 2" – 4" wide pattern. Excessive downforce will prematurely wear wafers.

Slow down in heavy material. Allow time for broom to sweep.

Storage

DO NOT store the polypropylene broom wafers in direct sunlight. The material can deteriorate.

Park the machine and attachment on a flat level surface.

Raise broom housing, keeping the broom wafers 2" – 4" above the ground.

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

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

Remove storage feet pins, and move storage feet to lower position and replace pins.

Disconnect attachment hydraulic hoses from the machine.

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

3. Operation

3.4 Operating the Attachment Cont'd

Operation Cont'd

Storage Cont'd

Enter the operator's position. See "Entering the Operator's Position" on page 11.

Lower the angle broom, setting the storage feet on the ground.

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.

Angling Broom (Manual Angle)

Raise the broom slightly above the ground with the pivot pin vertical. Remove the angle pin connecting the two angle links.

Manually swing the broom all the way left or right and replace angle link pin.

Angling Broom (Hydraulic Angle)

Activate electrical control (in cab or optional control box) to select angle function. Then actuate loader auxiliary hydraulics to swing left or right. Deactivate electrical control to actuate broom motor.

NOTE: Broom angle cannot be adjusted while sweeping.

Water Kit (Optional)

Check the strainer bowl daily for dirt and debris. This debris can plug the nozzles.

Check the nozzles daily for debris. Remove and clean plugged nozzles.

4. Maintenance

4.1 Maintenance Safety



WARNING



AVOID SERIOUS INJURY OR DEATH

Never operate the machine in a closed building. Proper ventilation is required when operating the machine under all circumstances.

- Always keep the work area clean and dry.
- Always use personal protection devices such as eye, hand and hearing protection when performing any service or maintenance.
- A fire extinguisher and first aid kit should be readily accessible while performing maintenance on this machine.
- Before working or doing maintenance on this machine, shut off the engine and remove the key. Make sure the machine's wheels are blocked.
- Never work under the machine or attachment unless the machine or equipment is blocked or supported securely.
- Disconnect the battery (both terminals) before welding on any part of the machine. Failure to do so may cause damage to electrical components.
- When working around batteries, remember that all of the exposed metal parts are "live". Never lay a metal object across the terminals because a spark, short circuit, explosion or personal injury may result.
- Battery posts, terminals and related accessories contain lead and lead components. **Wash hands after handling.**
- Always relieve hydraulic system pressure before repairing, adjusting or disconnecting. Never search for leaks with your hands (See "Hydraulic System" on page 9.)
- When replacement parts are necessary, genuine factory replacement parts must be used to restore your equipment to original specifications. Blue Diamond® will not be responsible for injuries or damage caused by use of unapproved parts and / or accessories.

- When completing service or maintenance on this machine, make sure all shields and guards are installed before placing the machine into service.

4.2 General Maintenance



WARNING



AVOID SERIOUS INJURY OR DEATH

Before operating or servicing the unit:

- Read and understand the machine's Owner's Manual.
- Follow the warnings and instructions in the manual when making repairs, adjustments or servicing.
- Check for correct function after adjustments, repairs or service.

Untrained operators and failure to follow instructions can cause serious injury or death.

To ensure efficient operation, the operator should inspect, lubricate and make necessary adjustments and repairs at regular intervals. Keep good maintenance records and adequately clean the machine after each use.

Proper lubrication is important. Follow all lubrication instructions and schedules included in this section.

Daily Inspection

- Check all components and hardware to ensure equipment is secure and thoroughly tightened.
- Check frame and all welds for cracks or damage.
- Check the mounting frame for proper operation and signs of damage or unusual wear.
- Check safety signs and reflectors for damage. Replace any missing or damaged decals.
- Check broom wafers for excessive wear or damage.
- Hydraulic hoses and fittings for wear, damage or leaks

4. Maintenance

4.2 General Maintenance Cont'd

Daily Inspection Cont'd

NOTE: Repair or replace any damaged parts.

NOTE: After initial use or repair / replacement of damaged parts, it is important to check the repaired / replaced parts for proper bolt torque and operation.

4.3 Lubrication



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

Grease the following lube points every 40 hours (weekly). Always use a quality lithium based multi purpose grease when lubricating the attachment.

Broom Angle Vertical Point

This zerk is located at the left side of the vertical angle pivot.

Apply 3 – 4 pumps of grease to the grease zerk.

Right Side Bearing

These two zerks are located on the bearing located on the right side of the broom. Grease either of the two zerks. Both do not need greased.

Apply 3 – 4 pumps of grease to the grease zerk.

4.4 Removal and Installation



DANGER



AVOID SERIOUS INJURY OR DEATH

Before servicing the Angle Broom:

- Lower the lift arms and place the angle broom on a flat level surface.
- Engage the parking brake, stop the engine, and exit the machine.
- Disconnect attachment hydraulic hoses.

Broom Core

See parts section for parts diagrams.

1. Park the machine and attachment on a flat level surface. Lower the attachment flat on the ground.
2. Leave the operator's position. See "Leaving the Operator's Position" on page 12.
3. Disconnect the attachment hydraulic hoses from the machine.
4. Remove the motor guard hardware and motor guard.
5. Remove the motor hardware and remove motor. Motor hoses can remain connected.
6. Remove broom bearing hardware and bearing.
7. Using the skid loader or a hoist, raise the broom hood off of the broom core. Roll the broom core away from the hood.
8. To install broom core, repeat the steps in reverse order.

4. Maintenance

4.4 Removal and Installation Cont'd

Broom Wafers

See parts section for parts diagrams.

1. Park the machine and attachment on a flat level surface. Lower the attachment flat on the ground.
2. Leave the operator's position. See "Leaving the Operator's Position" on page 12.
3. Disconnect the attachment hydraulic hoses from the machine.
4. Remove broom core. See "Broom Core" on page 17.
5. Remove the bristle retaining ring from one end of the broom core.
6. Stand the broom core on the end with the remaining retaining ring and remove the worn broom wafers.
7. Install the new wafers, making sure the wafer retention pins are trapped on the drum shaft.
8. Install remaining broom wafers, alternating steel and poly wafers. The retention pins on consecutive wafers should alternate 180 degrees and be trapped by opposite bars.
9. After installing the last broom wafer, reinstall the bristle retaining ring. Carefully lay the broom core on its side.
10. Move the broom core under the broom hood and lower the hood onto the core.
11. Reinstall the broom core. See "Broom Core" step 8 on page 17.

Broom Motor

See parts section for parts diagrams.

1. Park the machine and attachment on a flat level surface. Lower the attachment flat on the ground.
2. Leave the operator's position. See "Leaving the Operator's Position" on page 12.
3. Disconnect the attachment hydraulic hoses from the machine.
4. Remove the motor guard hardware and the motor guard. Remove and cap the motor hoses.
5. Remove the motor hardware and the motor.
6. Reassemble in reverse order.

Bearing

See parts section for parts diagrams.

1. Park the machine and attachment on a flat level surface. Lower the attachment flat on the ground.
2. Leave the operator's position. See "Leaving the Operator's Position" on page 12.
3. Disconnect the attachment hydraulic hoses from the machine.
4. Remove the shaft retaining hardware and the bearing hardware.
5. Remove bearing.
6. Reassemble in reverse order.

NOTE: To tighten bearing lock collar, use hammer and drift punch. Clockwise movement tightens the collar.

4. Maintenance

4.5 Cleaning the Attachment



DANGER



AVOID SERIOUS INJURY OR DEATH

Before servicing the Angle Broom:

- Lower the lift arms and place the angle broom on a flat level surface.
- Engage the parking brake, stop the engine, and exit the machine.
- Disconnect attachment hydraulic hoses.

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 12.

Disconnect the attachment hydraulic hoses from the machine.

Enter the operator's position. See "Entering the Operator's Position" on page 11.

Start the engine, fully lower the machine's lift arms, while tilting the Angle Broom forward (down) until the support feet contact the ground.

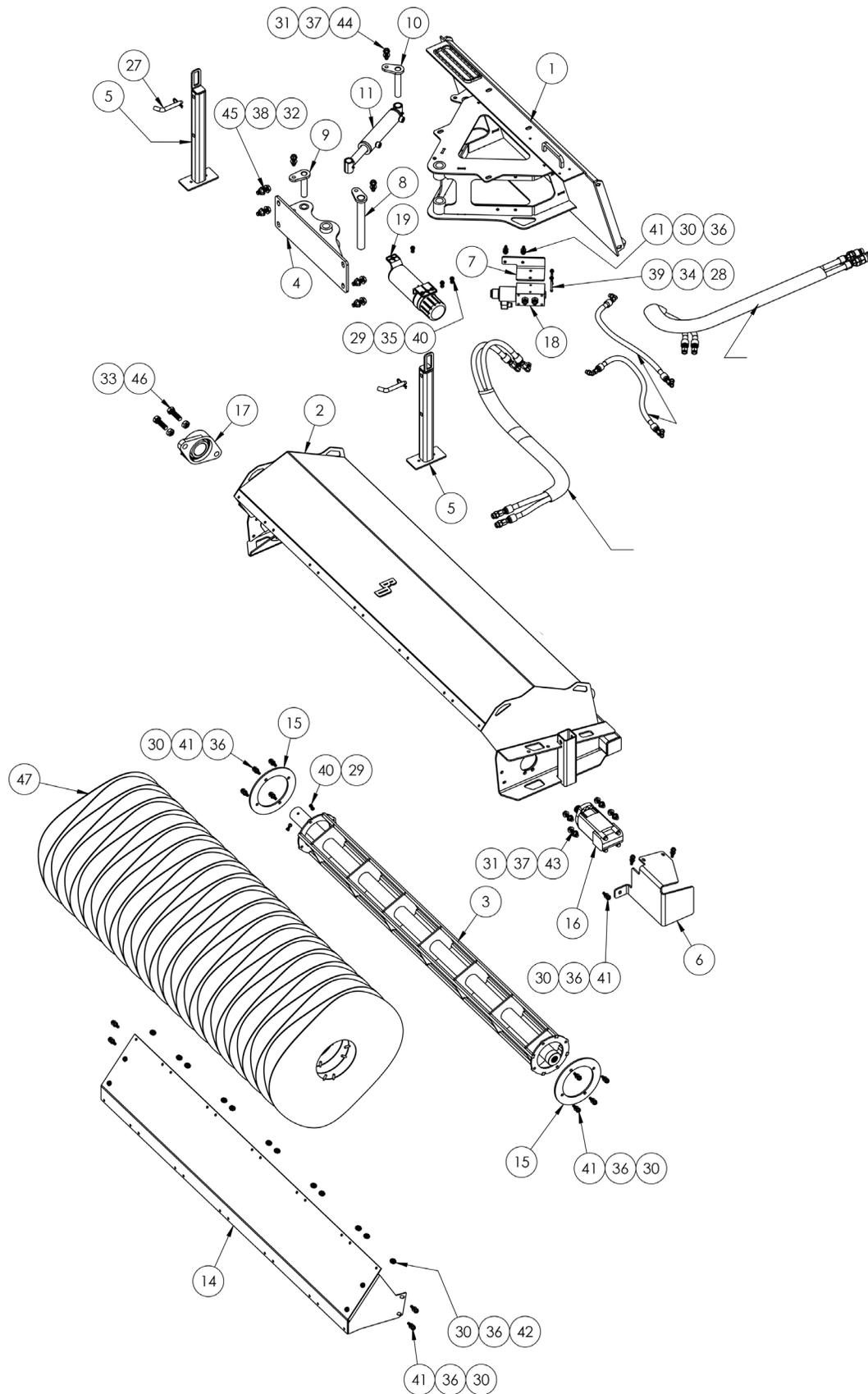
Stop the engine, engage the parking brake and leave the operator's position. See "Leaving the Operator's Position" on page 12.

Use water or air pressure to clean debris from under the Angle Broom frame / shields.

Be careful when removing any obstructions that are wrapped around the broom core or broom wafers.

5. Parts

5.1 Main Breakdown



5. Parts

5.1 Main Breakdown Cont'd

ITEM	PART NUMBER	DESCRIPTION	QTY
1	216161	Pivot Mount Weldment - Skid Steer Mount	1
2	216265-36	Main Hood Weldment – 36”	1
	216265-48	Main Hood Weldment – 48”	
	216265-60	Main Hood Weldment – 60”	
	216265-72	Main Hood Weldment – 72”	
	216265-84	Main Hood Weldment – 84”	
	216265-96	Main Hood Weldment – 96”	
3	216581	Drum Shaft Weldment – 36”	1
	216582	Drum Shaft Weldment – 48”	
	216583	Drum Shaft Weldment – 60”	
	216584	Drum Shaft Weldment – 72”	
	216586	Drum Shaft Weldment – 84”	
	216587	Drum Shaft Weldment – 96”	
4	216163	Pivot Connection Weldment	1
5	216572	Support Leg Weldment	2
6	216706	Heavy Duty Motor Guard	1
7	216238	Solenoid Mounting Plate	1
8	216721	Main Pivot Pin – Bolt On	1
9	216722	Cylinder Pivot Pin – Bolt On 4.5”	1
10	216723	Cylinder Pivot Pin – Bolt On 5.5”	1
11	208993	Hydraulic Cylinder, 2” Bore, 6” Stroke, 14” Retraction, SAE 6 Ports	1
12	216783	Manual Pivot Arm Front Weldment	1
13	216785	Manual Pivot Arm Rear Weldment	1
14	216257	Debris Deflector Hood Extension	1
15	216378	Bristle Retaining Ring	2
16	216705	Motor – 315cc	1
17	216156	Bearing – 2 Bolt Flange – UCFL 212-39	1
18	216702	Directional Solenoid Valve (DSV-62-10-12)	1
19	216402	Storage Tube for Manual	1
20	224020	Coupler, Female Flat Face, 1/2” Body 5/8” Oring #10	1
21	224021	Coupler, Male Flat Face, 1/2” Body 5/8” Oring #10	1
22	295010-M08JIC-M10ORB	Hydraulic Straight Fitting Male #10 Jic to Male #10 ORB	6
23	295010-M10ORB-M06JIC	Hydraulic Straight Fitting Male #10 Oring Boss x Male #6 JIC	2
24	295030-M06JIC-F06JICS	Hydraulic 90 Degree Fitting Male #6 JIC x Female #6 JIC Swivel	2
25	295030-M08JIC-F08JIC	Hydraulic 90 Degree Fitting Male #8 JIC to Female #8 JIC	2
26	295030-M06ORB-M06JIC	Hydraulic 90 Degree Fitting Male #5 Oring Boss x Male #6 JIC	2
27	270505	Clevis Pin – 5/8” x 3”	3

5. Parts

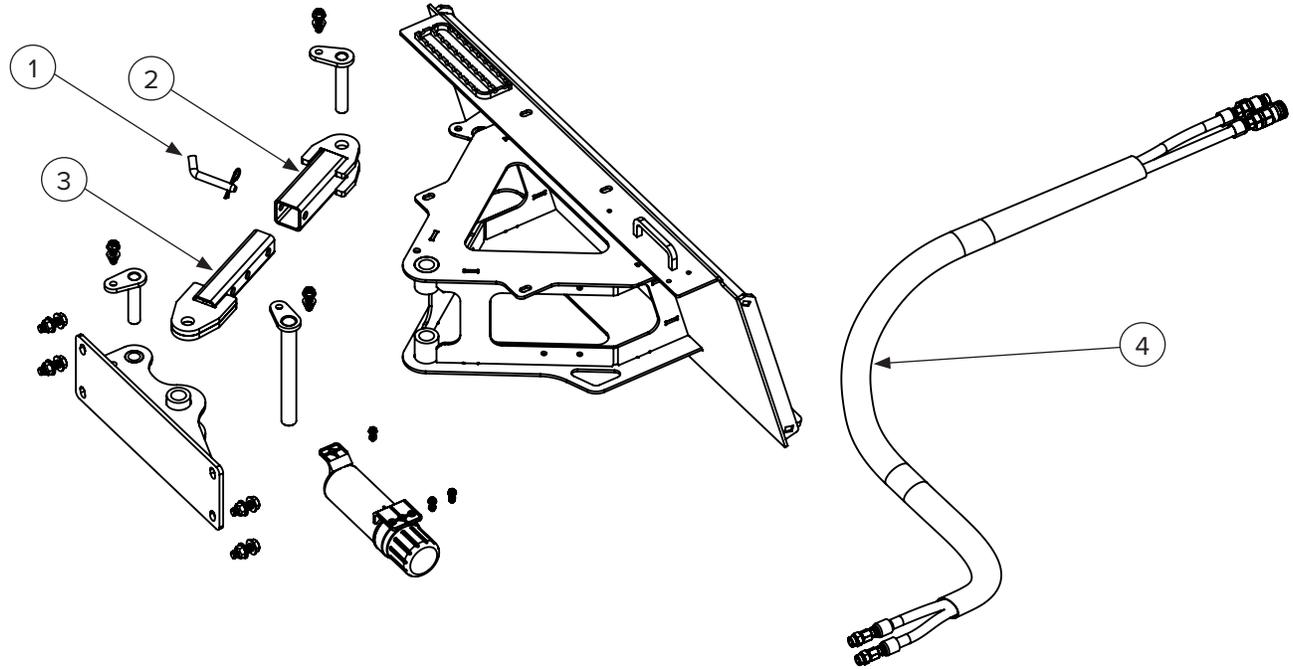
5.1 Main Breakdown Cont'd

ITEM	PART NUMBER	DESCRIPTION	QTY
28	299653	Stover Lock Nut – 1/4"-20 Grade C Zinc Plated	2
29	299654	Stover Lock Nut – 5/16"-18 Grade C Zinc Plated	5
30	208550	Stover Lock Nut – 3/8"-16 Grade C Zinc Plated	33
31	299655	Stover Lock Nut – 1/2"-13 Grade C Zinc Plated	7
32	109177	Stover Lock Nut – 5/8"-11 Grade C Zinc Plated	4
33	216571	Stover Lock Nut – 3/4"-10 Grade C Zinc Plated	2
34	299715	Washer – 1/4" SAE Grade 8 Steel	2
35	299721	Flat Washer – 5/16" Grade 8 Zinc Plated	3
36	299724	Washer – 3/8" SAE Grade 8 Steel	66
37	299732	Washer – 1/2" Grade 8 Zinc Plated	14
38	299844	Washer – 5/8" Grade 8 Zinc Plated Steel	8
39	299313	Bolt – 1/4"-20 x 3" Socket Head Black Oxide Finish	2
40	299317	Bolt – 5/16"-18 x 1" Hex Head Grade 8 Zinc Plated	5
41	299416	Bolt – 3/8"-16 x 1.5" Hex Head Grade 8	17
42	299424	Bolt – 3/8"-16 x 3/4" Hex Head Grade 8 Zinc Plated	16
43	299433	Bolt – 1/2"-13 x 2" Hex Head Grade 8 Zinc Plated	4
44	299439	Bolt – 1/2"-13 x 1 3/4" Hex Head	3
45	299465	Bolt – 5/8"-11 x 2" Hex Head Grade 8 Zinc Plated	4
46	299466	Bolt – 3/4"-10 x 2 1/2" Hex Head Grade 8 Zinc Plated	2
47	216410	Broom Wafer – 8" x 26" Steel Convoluted (Optional)	See Table Below
	216415	Broom Wafer – 8" x 26" Poly Convoluted (Optional)	
	216417	Broom Wafer – 8" x 26" Combo Convoluted (Standard)	

WIDTH	QTY OF WAFERS
36"	18
48"	24
60"	30
72"	36
84"	42
96"	48

5. Parts

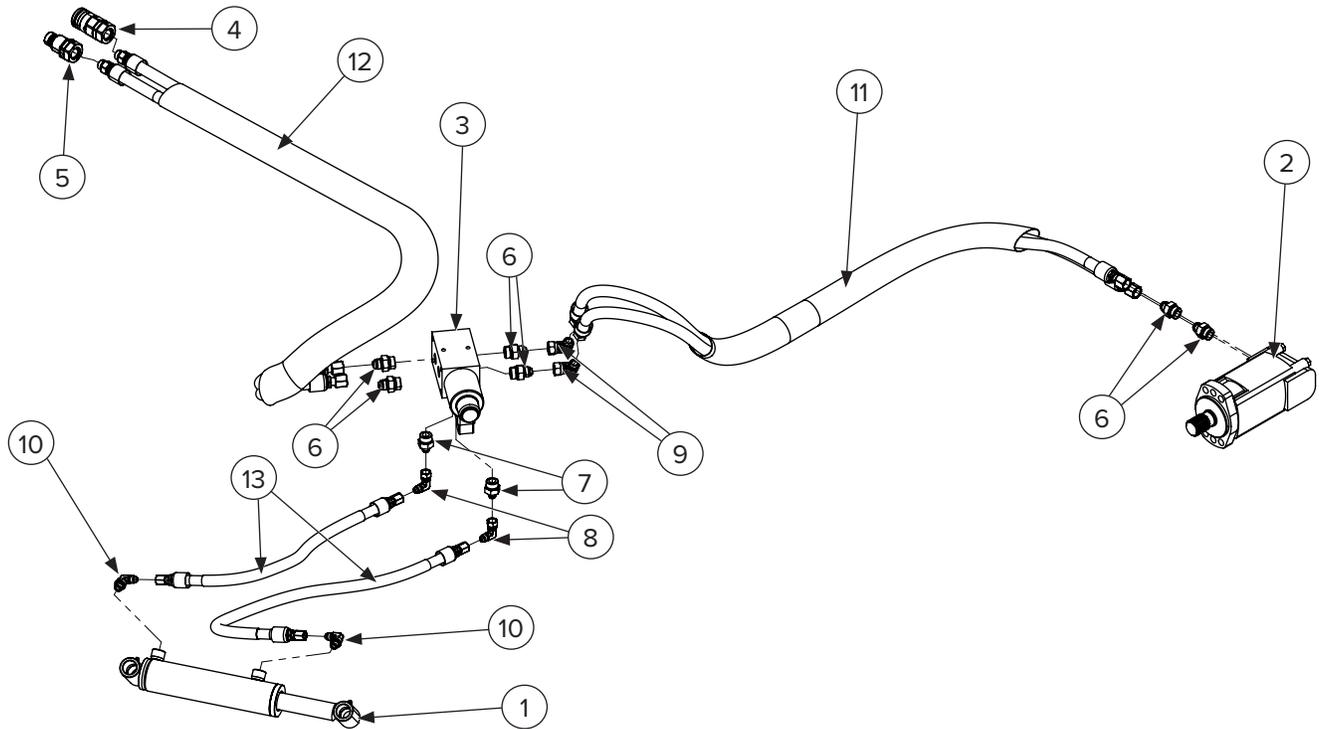
5.2 Manual Components



ITEM	PART NUMBER	DESCRIPTION	QTY
1	270505	Clevis Pin – 5/8" x 3"	1
2	216785	Manual Pivot Arm Rear Weldment	1
3	516783	Manual Pivot Arm Front Weldment	1
4	216289	Manual Machine Hose Set	1

5. Parts

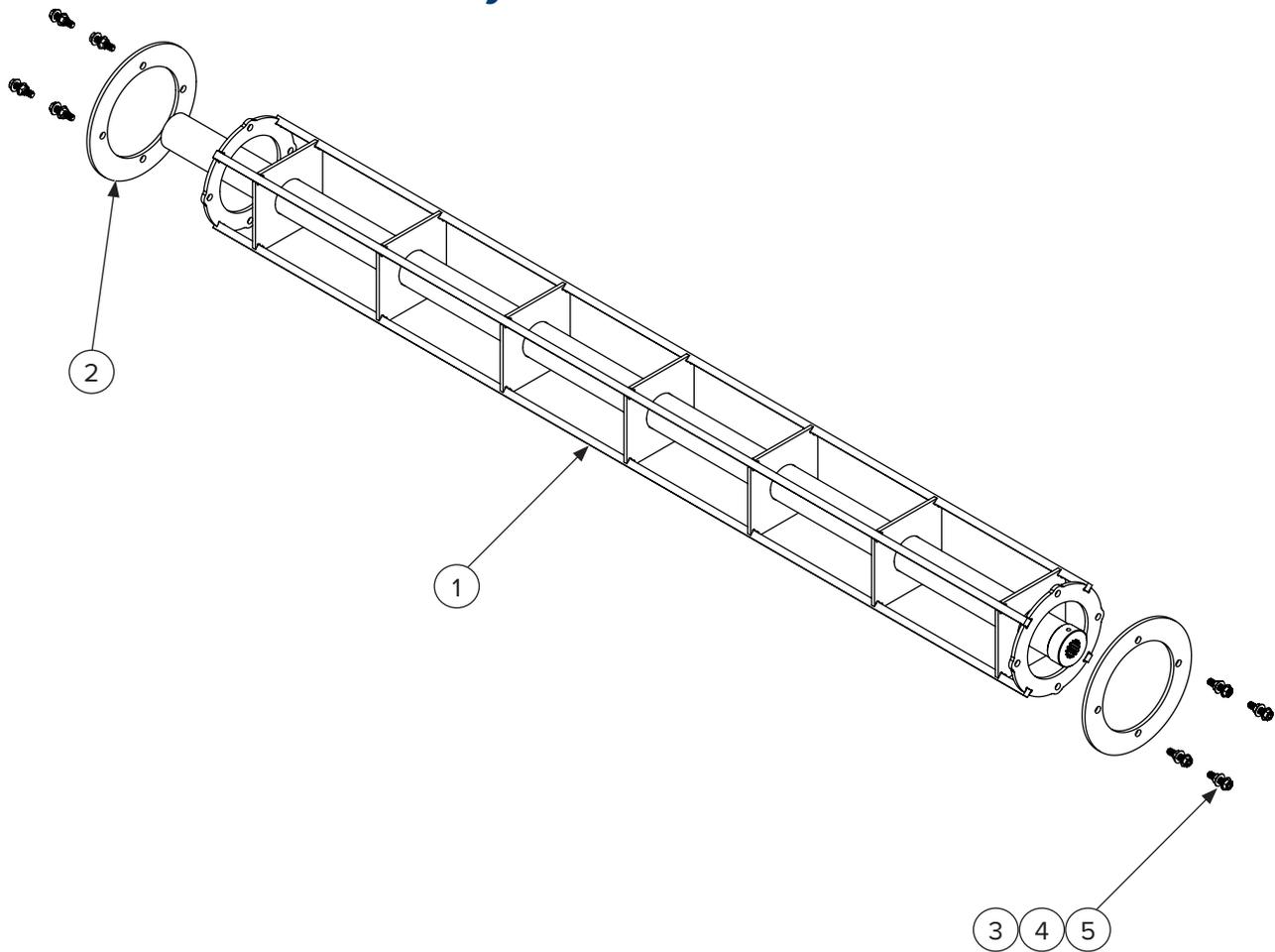
5.3 Hydraulic Components



ITEM	PART NUMBER	DESCRIPTION	QTY
1	208993	Hydraulic Cylinder, 2" Bore, 6" Stroke, 14" Retraction, SAE 6 Ports	1
2	216705	Motor – 315cc	1
3	216702	Directional Solenoid Valve (DSV-62-10-12)	1
4	224020	Coupler, Female Flat Face, 1/2" Body 5/8" Oring #10	1
5	224021	Coupler, Male Flat Face, 1/2" Body 5/8" Oring #10	1
6	295010-M08JIC-M10ORB	Hydraulic Straight Fitting Male #10 Jic to Male #10 ORB	6
7	295010-M10ORB-M06JIC	Hydraulic Straight Fitting Male #10 Oring Boss x Male #6 JIC	2
8	295030-M06JIC-F06JICS	Hydraulic 90 Degree Fitting Male #6 JIC x Female #6 JIC Swivel	2
9	295030-M08JIC-F08JIC	Hydraulic 90 Degree Fitting Male #8 JIC to Female #8 JIC	2
10	295030-M06ORB-M06JIC	Hydraulic 90 Degree Fitting Male #5 Oring Boss x Male #6 JIC	2
11	216293	36" - 48" Hydraulic Diverter to Motor Hose Set	1
	216295	60" - 72" Hydraulic Diverter to Motor Hose Set	
	216296	84" Hydraulic Diverter to Motor Hose Set	
	216297	96" Hydraulic Diverter to Motor Hose Set	
12	216291	Hydraulic Machine Hose Set	1
13	216299	Hydraulic Diverter to Cylinder Hose	2

5. Parts

5.4 Drum Shaft Assembly

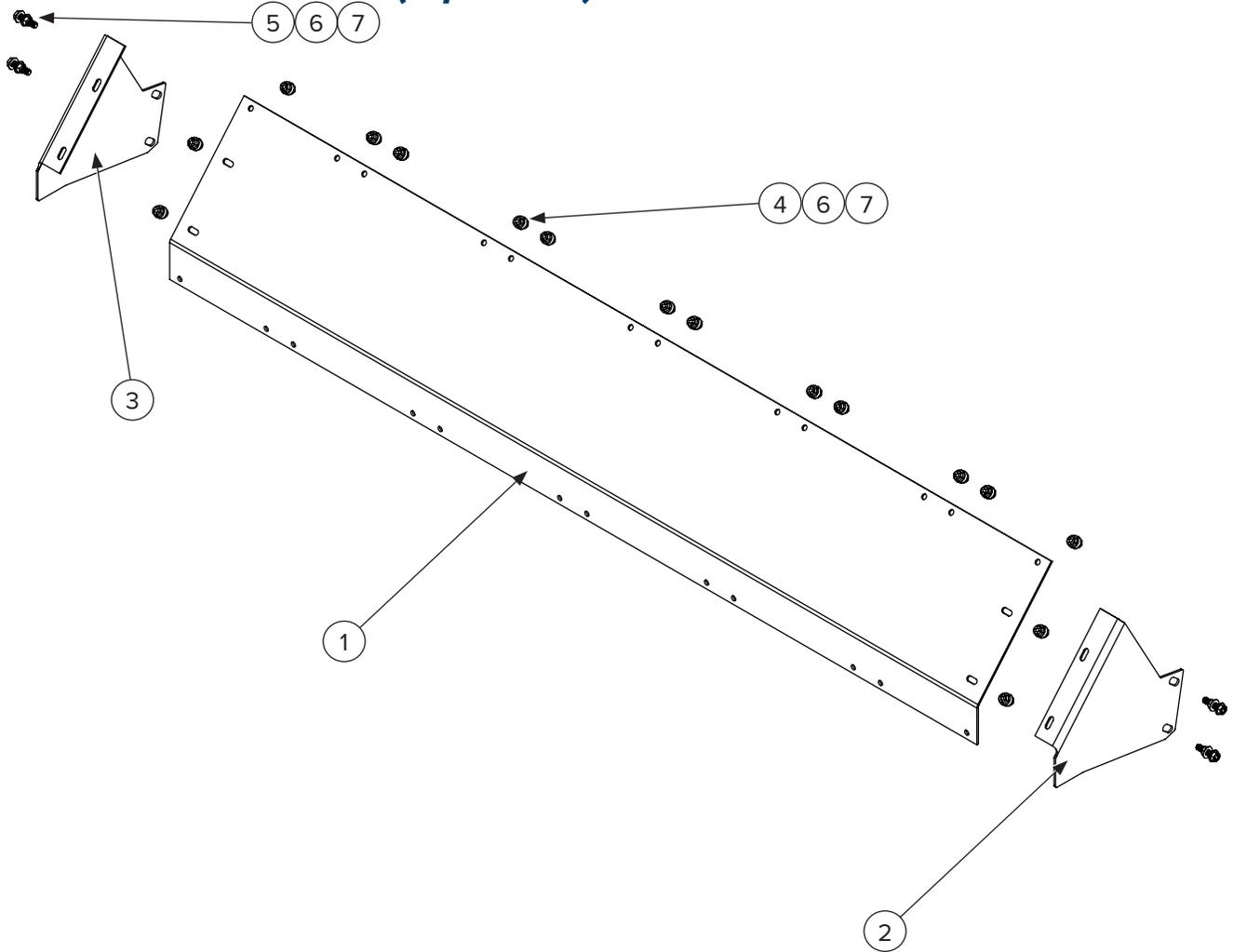


ITEM	PART NUMBER	DESCRIPTION	QTY
1	216581 / 216588*	Drum Shaft Weldment – 36"	1
	216582 / 216589*	Drum Shaft Weldment – 48"	
	216583 / 216591*	Drum Shaft Weldment – 60"	
	216584 / 216592*	Drum Shaft Weldment – 72"	
	216586 / 216596*	Drum Shaft Weldment – 84"	
	216587 / 216598*	Drum Shaft Weldment – 96"	
2	216378	Bristle Retaining Ring	2
3	299416	Bolt – 3/8"-16 x 1.5" Hex Head Grade 8	8
4	299724	Washer – 3/8" SAE Grade 8 Steel	16
5	208550	Stover Lock Nut – 3/8"-16 Grade C Zinc Plated	8

*These part numbers are kits that include all items 1–5 needed for a full replacement.

5. Parts

5.5 Debris Deflector (Optional)

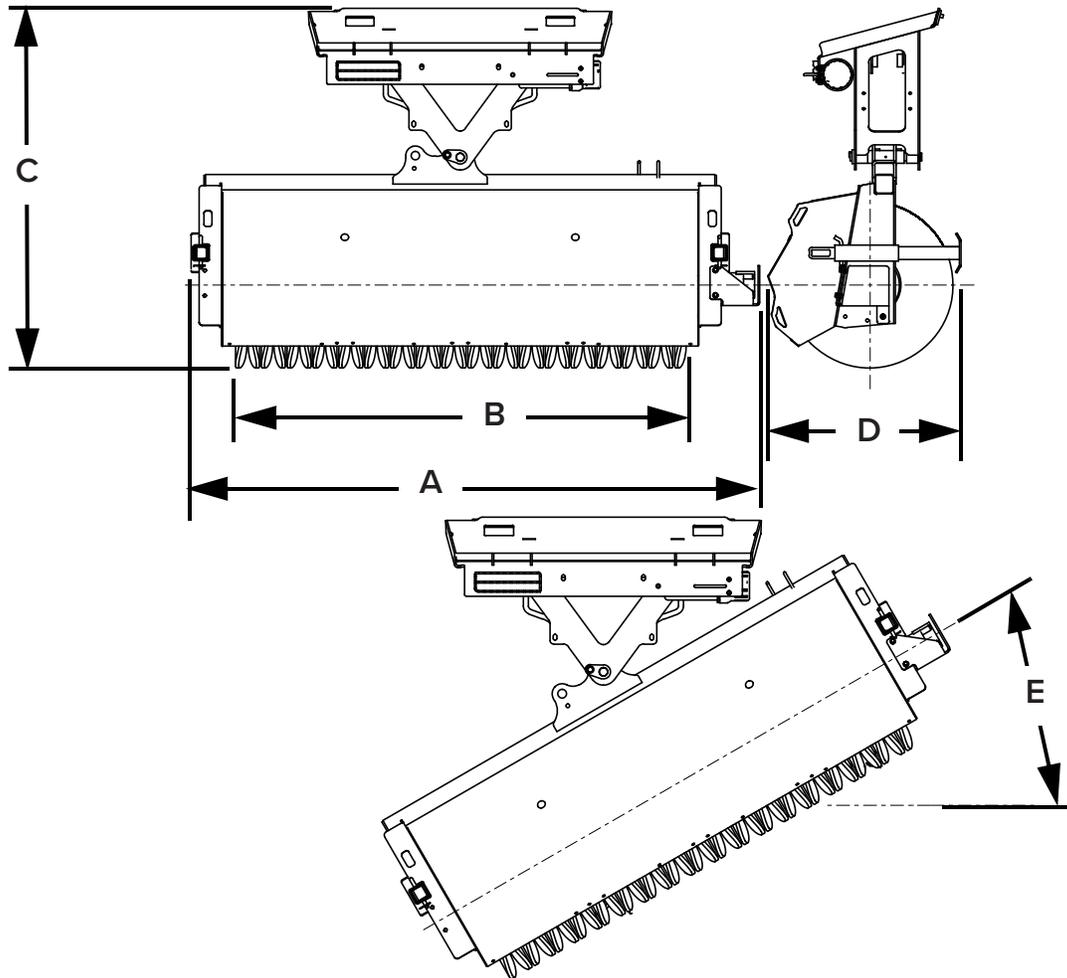


ITEM	PART NUMBER	DESCRIPTION	QTY
1	216254*	Front Panel – 36"	1
	216255*	Front Panel – 48"	
	216256*	Front Panel – 60"	
	216257*	Front Panel – 72"	
	216258*	Front Panel – 84"	
	216259*	Front Panel – 96"	
2	216252	Left End	1
3	216253	Right End	1
4	299424	Bolt – 3/8"-16 x 3/4" Hex Head Grade 8 Zinc Plated	16
5	299416	Bolt – 3/8"-16 x 1.5" Hex Head Grade 8	17
6	299724	Washer – 3/8" SAE Grade 8 Steel	66
7	208550	Stover Lock Nut – 3/8"-16 Grade C Zinc Plated	33

*Add -KIT to include all items 1–7, i.e. 216254-KIT.

6. Specifications

6.1 Attachment Specifications



DESCRIPTION	36"	48"	60"	72"	84"	96"
Overall Width (A)	54 in. (1372 mm)	66 in. (1676 mm)	78 in. (1981 mm)	90 in. (2286 mm)	102 in. (2591 mm)	114 in. (2896 mm)
Working Width (B)	36 in. (914 mm)	48 in. (1219 mm)	60 in. (1524 mm)	72 in. (1829 mm)	84 in. (2134 mm)	96 in. (2438 mm)
Overall Depth (C)	56.8 in. (1443 mm)					
Overall Height (D)	30.2 in. (767 mm)					
Pivot Angle Left & Right (E)	30°					
Approximate Weight	580 lbs. (263 kg)	629 lbs. (285 kg)	662 lbs. (300 kg)	716 lbs. (325 kg)	759 lbs. (344 kg)	808 lbs. (367 kg)

6. Specifications

6.2 Torque Specifications

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

6. Specifications

6.1 Torque Specifications

Standard Hardware and Lock Nuts

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



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 Heavy Duty Series 2 Angle Broom 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

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QUALITY | DEPENDABILITY | INTEGRITY

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