

Pickup Broom Series 2

Operation and Maintenance Manual



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® Pickup 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 right side near the mounting plate 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. Pre-Delivery Inspection Instructions

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

END USER'S NAME: _____

DATE: _____

ITEM NUMBER & DESCRIPTION: _____

SERIAL NO.: _____

HOST MACHINE MAKE/MODEL: _____

1.1 Safety & Documentation

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

1.2 Visual Inspection

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

1.3 Hydraulic System & Operational Test

- ☐ Hydraulic hose routing is appropriate for application.

- ☐ Fittings are properly tightened; verify no leakage.
- ☐ Quick couplers are correct and clean.
- ☐ Smooth operation; no hydraulic leaks or excessive vibration of attachment.
- ☐ Verify attachment has been connected to the host machine that will be used for operation and tested.
- ☐ Verify the host machine's hydraulic flow with a flow meter.

1.4 Final Delivery

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

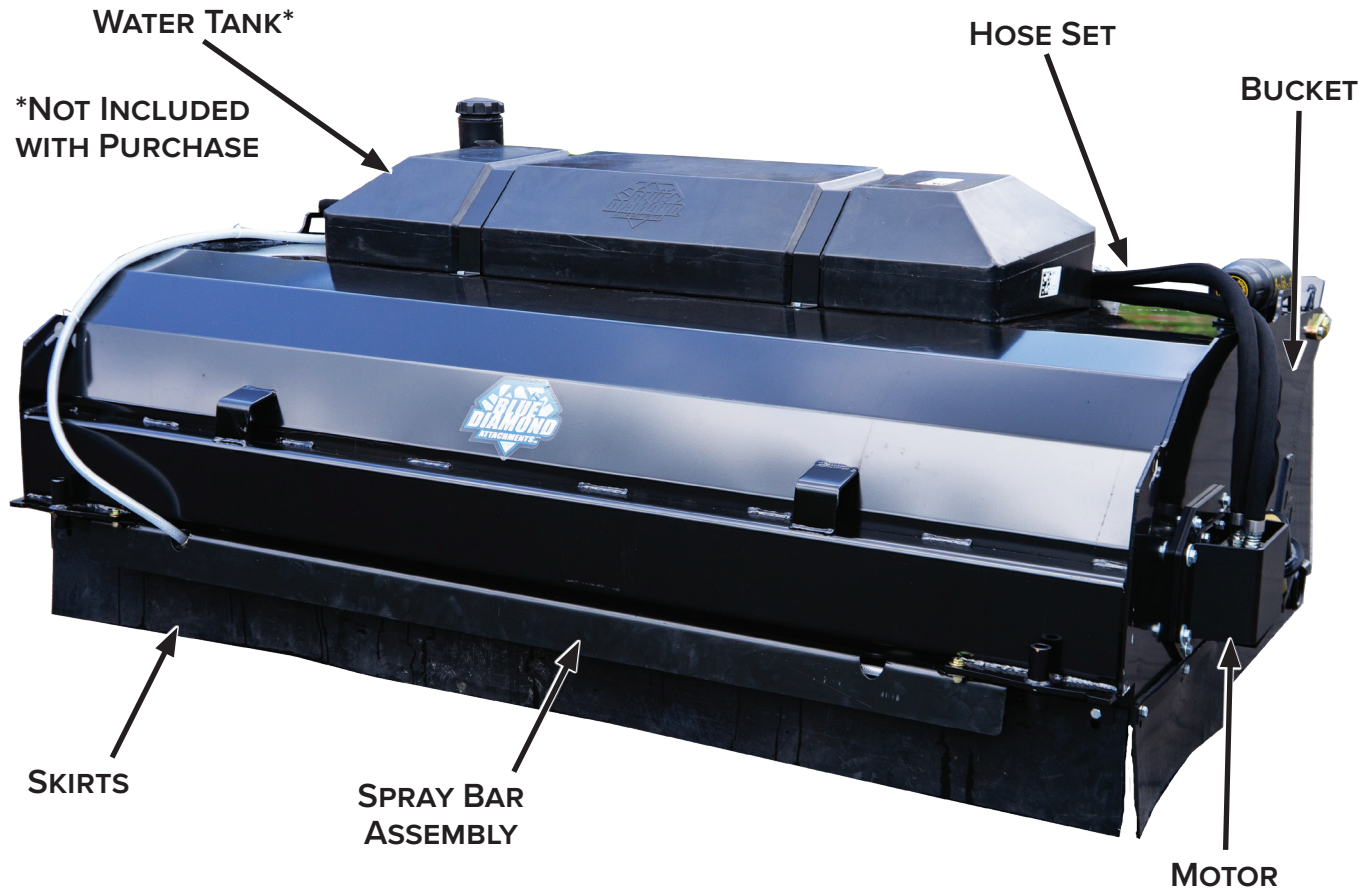
TECHNICIAN: _____

CUSTOMER: _____

DATE: _____

2. Introduction

2.1 Attachment Identification



2.2 About this Attachment

The Blue Diamond® Series 2 Pickup Broom is built for heavy commercial and industrial sweeping applications, delivering unmatched durability and performance for skid steers and compact track loaders. Designed through years of field testing and market research, this premium skid steer pickup broom attachment stands up to the toughest conditions – from roadwork and construction cleanup to demanding rental use.

Its simple, reinforced design strengthens high-wear areas and protects critical components from impact damage. The low-profile water tank enhances visibility and operator safety, while the optional pressurized water system helps control dust during sweeping.

The 26" poly/steel broom provides power to debris collections and is available in 60", 72", 84", and 96" widths. A bolt-on 8" x 3/4" double bevel edge adds strength to the bucket's leading edge, while wear bars on the bottom prevent premature bucket wear. With oversized bearings, spindles, and a heavy duty 2" main shaft, the Series 2 sets a new standard for durability among competitive pickup brooms.

2.3 Attachment Model Numbers

MODEL NUMBER	WIDTH	HYDRAULIC FLOW
116512	60"	15 – 25 GPM
116517	72"	
116522	84"	
116527	96"	

3. Safety

3.1 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.

Terminology

Host Machine, Machine, Prime Mover:

- The Pickup Broom 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 vehicle, tractor, or skid steer providing power to the attachment.

Attachment, Implement, Equipment:

- The Pickup Broom 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 vehicle, 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.

3. Safety

3.2 Operators

Qualified Operators

The operator is a person who is suited to the work and 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.
- It is the skill, care, common sense, and good judgment of the operator that will determine how efficiently and safely the job is performed.
- 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

- Any use of the machine other than the intended use is a non-intended use and is considered to be unauthorized and dangerous. Blue Diamond® is not liable for any damage or injury resulting from non-intended use.
- 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 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.

3. Safety

3.3 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.
- 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 to less than 300 feet (100 m) in front of and to the sides of the equipment.
- When conditions make it necessary to slow ground speed, shift to a lower gear rather than reducing engine speed. The engine will maintain rated speed and keep the broom running at optimum cutting speed.
- The operator is responsible for the safety of all people in the vicinity of the operating area. If any person enters the operating area, the operator must immediately stop the machine and attachment.
- Make sure everyone on site is accounted for and their location is known.
- 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.
- Know the capabilities of your equipment and practice its operation to become familiar with the controls, emergency shut down procedures, and the way it handles your machine.
- 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 3,500 psi (241 bar) operating pressure.
- Use caution on slopes and near banks and ditches to prevent overturn.

3. Safety

3.3 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.

4. Operation

4.1 Pre–Operation Inspection

Before operating the Pickup Broom 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.

- Inspect the attachment for shipping damage. If damage does exist, do not operate until the damaged parts have been replaced or repaired.
- Lubricate the attachment per the schedule outlined in the Maintenance section. See "5.1 Service Schedule" on page 17.
- Check the attachment mounting frame for damage or cracks.
- Check that all shields and guards are in place.
- Check for loose hardware (i.e. nuts, bolts, screws, etc.), 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.
- Check for wear and tear on pins, linkages, cutting edges and replace any damaged and/or excessively worn parts.
 - Use only Blue Diamond® recommended replacement parts. Other parts may be substandard in fit and quality.
 - Ensure any damage or excessively worn parts are replaced.
 - Always wear safety goggles or glasses when inspecting equipment.
 - If equipped with a water kit, remove dirt or debris from the strainer bowl and nozzles.

4. Operation

4.2 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 windshield and similar protection on the sides of the operator's cab before operating the attachment.

Blue Diamond® recommends that the machine be equipped with a thermoplastic polycarbonate or similar material front windshield and similar protections on the side of the operator's cab.

Only use the Pickup Broom on compatible host machines. Hydraulic flow must not exceed twenty-five gallons per minute (25 GPM) or ninety-four liters per minute (94 L/min). Do not use high flow hydraulics when operating this attachment.



IMPORTANT



Do not use high flow hydraulics when operating the Pickup Broom as this could result in serious damage.

The host machine's relief pressure must not exceed 3,500 psi (241 bar). Consult the host machine's Operator's Manual for hydraulic flow and pressure specifications.

See chart below for minimum lift capacity required for each Pickup Broom model.

MODEL NUMBER	WIDTH	WEIGHT
116512	60"	1,258 lbs (570 kg)
116517	72"	1,428 lbs (647 kg)
116522	84"	1,591 lbs (721 kg)
116527	96"	1,757 lbs (797 kg)

4.3 Transporting the Attachment



CAUTION



The operator in charge of the transportation and installation of the attachment must be familiar with the following instructions.

Be sure to pay careful attention to the weight of the Pickup Broom.

Disconnect the hydraulics and the wire harness (if applicable) from the host machine. See "Disconnecting Attachment From the Machine" on page 14.

Clear dirt, rocks, and any other debris from the Pickup Broom.

Use a minimum of four (4) heavy duty ratchet straps or chains for the attachment's weight. See "7.1 Attachment Specifications" on page 46 for more information.

Hook the ratchet straps to designated anchor points. Do not drape straps over the hood weldment or motor cover as this can dent or crack the weldments.

Make sure the Pickup Broom is secured prior to heading towards the next location.

4. Operation

4.4 Entering & Exiting the Prime Mover



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

Entering the Operator's Position

Use the safety treads, handles, and steps on the attachment and machine to enter the operator's position. Always maintain three (3) points of contact.

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

Leaving the Operator's Position



AVOID SERIOUS INJURY OR DEATH

- Always park on a flat, level surface.
- Lower lift arms and place attachment flat on the ground.
- Place all controls in **NEUTRAL**.
- Engage the 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.

4.5 Attachment Installation

Connecting Attachment to the Machine



CRUSH HAZARD

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

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

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

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.

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

4. Operation

4.5 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.**

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

Connecting Hydraulic Hoses



IMPORTANT



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

Verify that all hydraulic couplings are compatible with the host machine.

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

Connect the attachment hydraulic hoses to the machine. The hydraulic hoses must be connected in the following order: return hose then pressure hose.

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

Pull on each hose to verify full connection is made.

Connecting the Wire Harness

If the Pickup Broom is not equipped with a water kit, a wire harness is not needed.

The water kit comes with a universal wire harness. If an OEM wire harness is desired, it can be ordered separately.

The universal wire harness from Blue Diamond® plugs into a 12-volt power socket, otherwise known as a cigarette lighter plug, which tends to be located within the cab of the host machine.

If using an OEM wire harness, it will typically plug into the same area as the hydraulic connections. See your host machine's Operator's Manual for additional information.

See "6.8 Water Kit Components" on page 38 for more information.

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 attachment hydraulic hoses from the machine. The hoses must be disconnected in the following order: pressure hose then return hose.

The pressure hose must be disconnected before the return hose.

4. Operation

4.5 Attachment Installation Cont'd

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 12.

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.

4.6 Operating the Attachment



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 the broom core and broom wafers, causing entanglement and attachment damage.
- **DO NOT** operate Pickup Broom in vicinity of bystanders, animals, or damageable property. Objects can be thrown more than several hundred feet.
- Keep all chains and 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



AVOID SERIOUS INJURY OR DEATH

Never allow riders on the attachment.

1. Install the Pickup Broom onto the host machine. (See "Connecting Attachment to the Machine" on page 12.)

4. Operation

4.6 Operating the Attachment Cont'd

2. Lower the broom until wafers can create a two – four inch (2 – 4”) wide sweeping pattern, the rubbers skirts are within a half inch (1/2”) of the ground, and the bolt-on edge is one inch (1”) above the ground.

Only the broom wafers should come in contact with the ground. Too much downpressure will cause premature wear on the bristles.



DO NOT exceed 3,500 psi (241 bar) operating pressure and twenty-five gallons per minute (25 GPM) hydraulic flow. Doing so can result in serious damage.

3. With the machine's engine RPM just above idle, engage the auxiliary hydraulic flow (see the host machine's Operator's Manual) so that the drum begins to slowly rotate.
4. Slowly raise the machine's engine RPM to the desired brush speed, maintaining a safe speed.

When sweeping forward, rotate the brush so material is pushed away from the loader and over the broom into the bucket [Figure 1].

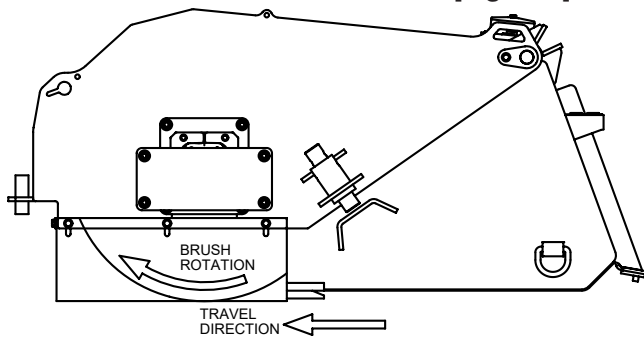


Figure 1

When sweeping backward, rotate the brush so material is pushed toward from the loader and under the broom into the bucket [Figure 2].

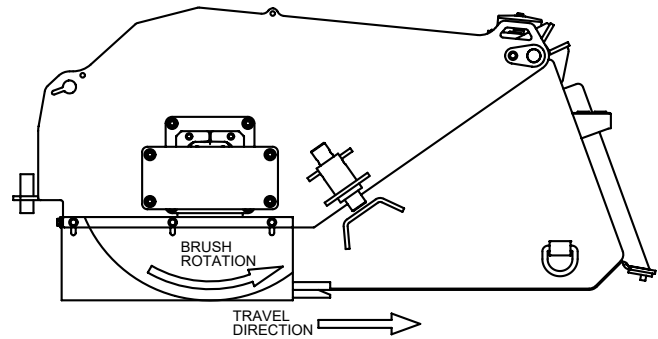


Figure 2

NOTE: Do not reverse sweeping direction without first disengaging the auxiliary hydraulic flow.

5. When the bucket is full, disengage the auxiliary hydraulic flow, raise the attachment above the ground and drive toward the dumping area.
6. Once in the dumping area, slowly raise the lift arms to the required dump height and tilt the Pickup Broom forward to empty the bucket. Once empty, resume sweeping.

Gutter Brush (Optional)

The gutter brush is an optional accessory for the Pickup Broom that aids in sweeping tight corners and along curbs and walls. It pushes debris into the sweeping path of the Pickup Broom that would be left behind otherwise.

1. Install the gutter brush. [See “5.13 Gutter Brush Installation” on page 25.]
2. The hoses should be routed to where they are connected to the shut off valve of the gutter brush, so that when the auxiliary hydraulic flow is engaged, the gutter brush will run at the same time. Only use the gutter brush when sweeping in a forward direction.
3. Adjust the height using the retention chain so the gutter brush's bristle tips are touching the ground.

When not in use for a short period of time, raise the gutter brush one – two inches (1 – 2”) off the ground with the retention chain. Use the shut off valve to keep the bristles from rotating when the gutter brush is raised.

When not in use for long periods of time, remove the gutter brush from the Pickup Broom, and reroute the hydraulics back to the broom's motor.

4. Operation

4.6 Operating the Attachment Cont'd

Water Kit (Optional)

Blue Diamond® offers a water kit that mounts onto the Pickup Broom itself. The water kit dispenses water to control and minimize airborne dust and debris particles.

1. Install the water kit. [See “5.12 Water Kit Installation (Optional)” on page 24.]
2. Install the wire harness, either OEM or universal, onto the installed water kit. See “Connecting the Wire Harness” on page 13.
3. Engage the wire harness to engage the water pump, allowing water to flow out of the nozzles.
4. To turn off the water kit, disengage the wire harness.

4.7 Operating Tips

- To keep the attachment in optimal condition, always follow the maintenance schedule outlined in “5.1 Service Schedule” on page 17.
- Perform “4.1 Pre–Operation Inspection” on page 10 each time the attachment is operated.
- Slow down in heavy material. Allow time for the Pickup Broom to sweep.
- Operate the Pickup Broom from inside an enclosed cab or wear a dust mask and eye protection. Flying dust, rocks, and other debris can enter the lungs causing respiratory problems, enter the eyes, causing injury; or can become projectiles, causing injury to bystanders or animals.
- Avoid excessive downpressure.
- Avoid hitting solid objects with this attachment, as hitting solid objects will result in damage to the attachment or serious injury or death to the operator.
- Always operate the Pickup Broom at the slowest rotating speed that will perform the job. This is to keep flying debris to a minimum.
- Avoid traveling at high speeds while operating the Pickup Broom as this can result in sudden loss of control, leading to damaged equipment, damaged property, and injury to the operator or bystanders.
- Sweep areas when traffic is low.
- Do not sweep debris towards buildings, bystanders, people, etc. This can result in damage or injury.
- Make sure hydraulic hoses and wire harnesses are properly routed without twists to prevent damage, such as stretching, pinching, crushing, or kinking. A damaged hydraulic hose can burst and leak hydraulic fluid.
- Avoid exposure to dust containing crystalline silica particles. This dust can cause serious injury to the lungs (silicosis). Because crystalline silica is a basic components of sand and granite, many construction sites produce dust containing crystalline silica.
- Do not use this attachment to lift, carry, push, or tow other equipment or objects. This is not what this attachment is designed for. If an attachment is needed for lifting, carrying, pushing, or towing, contact your local Blue Diamond® dealer for other attachments to better fit this need.
- Do not use this attachment to lift the front or back of the host machine off the ground. Doing so will result in damage to the host machine and attachment. It can also result in serious injury or death to the operator and/or bystanders.
- Keep bystanders far away from the Pickup Broom as it can throw debris when it is in operation. Shut off the broom’s rotating drum if any person enters the discharge area.

5. Maintenance

5.1 Service Schedule

DESCRIPTION	SERVICE PROCEDURES					
	Check	Clean	Lube	Change	Adjust	Drain
Daily Maintenance (or every 8 hours)						
Hydraulic Fittings	•					
Hydraulic Hoses	•					
All Hardware	•					
Safety Decals	•					
Broom Wafers	•					
Strainer (if equipped)	•	•				
Nozzles (if equipped)	•	•				
Weekly Maintenance (or every 40 hours)						
All Hardware	•					
Frame (cracks, bends, or damage)	•					
Angle Vertical Point			•			
Right Side Bearing			•			
Monthly Maintenance						
Broom Wafers	•					
Frame (cracks, bends, or damage)	•					
Safety Decals	•					
All Hardware	•					
Hydraulic Fittings	•					
Hydraulic Hoses	•					
Motor Cover		•				

5. Maintenance

Proper and regular maintenance ensures a long life of the attachment, avoids failures, and saves time and repair costs.

Periodic inspections and maintenance operations described in this section must be performed by an operator in times and terms prescribed. Failure to comply with maintenance prescriptions can compromise the function and lifetime of the attachment, which will result in the warranty becoming void.

Repairs, maintenance, and modifications other than those mentioned in this manual should NOT be performed without consulting Blue Diamond® Product Support.

Wrong or inappropriate repairs or maintenance may generate abnormal operating conditions, equipment damage, and generate risks for the operator.



WARNING



AVOID SERIOUS INJURY OR DEATH

The following must always be performed prior to any adjustment being made:

- 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.



WARNING



AVOID SERIOUS INJURY OR DEATH

Before operating or serving the unit:

- Read and understand the machine's Operator's Manual.
- Follow the warnings and instructions in this 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.

5.2 Maintenance Safety



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.

- Always keep the work area clean and dry.
- Always use personal protective equipment (PPE), such as eye, hand, and hearing protection when performing any service or maintenance.
- A fire extinguisher and first aid kit should be readily accessible when performing maintenance on the attachment and machine.
- Before working or doing maintenance on the attachment and machine, shut off the engine and remove the key. Make sure the host machine's wheels are blocked.
- Never work under the machine or attachment unless the machine or attachment is blocked or securely supported.
- Disconnect the battery (both terminals) before welding on any part of the machine. Failure to do so may cause damage to electrical components.

5. Maintenance

5.2 Maintenance Safety Cont'd

- When working around batteries, remember that all 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 for additional information.
- 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 attachment, make sure all shields and guards are installed before operating the attachment.
- Check the attachment’s mounting hardware for wear or damage. Inspect the pins and mount on the attachment for wear or damage.
- Check for damaged or missing safety decals. Replace if necessary.
- Check the broom wafers for excessive wear or damage.
- Check hydraulic hoses and fittings for wear, damage, or leaks.
- Verify that the attachment is properly connected to the machine.
- Check that all shields and guards are in place.
- If the water kit is equipped, check the strainer bowl daily for dirt and debris. This debris can plug the nozzles.
- If the water kit is equipped, check the nozzles daily for debris. Remove and clean plugged nozzles.
- If the gutter brush is equipped, check the bristles for wear.

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.

5.3 Daily Maintenance

Inspect the attachment by performing a walkaround daily before and after use. Use the following inspection checklist as a guideline.

Perform the following after every eight (8) hours of operation:

- Verify that the attachment is properly connected to the host machine.
- Check all components and hardware to ensure the equipment is secure and thoroughly tightened.
- Check the frame and all welds for cracks or damage.
- Check the mounting frame for proper operation and signs of damage or unusual wear.

5.4 Weekly Maintenance

Perform the following after every forty (40) hours of operation:

- Check all bolts, nuts, and other hardware for proper torque.
- Inspect the frame for cracks, bends, or damage.
- Lubricate the attachment. See “5.6 Lubrication” on page 20 for additional information.

5. Maintenance

5.5 Monthly Maintenance

Perform the following after every thirty (30) days of operation:

- Inspect the broom wafers for excessive wear.
- Check that all bolts are properly torqued.
- 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 dirt, leaves, grass, rocks, and other debris from the motor area and under covers.

5.6 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 every forty (40) hours of operation or once a week, whichever occurs first. Always use an EP Lithium NLGL No. 2 grade grease, e.g. Mobilux EP2, when lubricating the attachment.

Hood Pivot Points

The broom hood pivot points are located on the back of the bucket towards the top (see Figure 3). There is one (1) on each side.

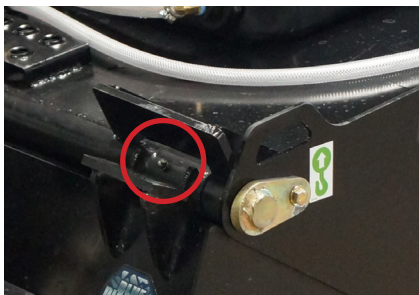


Figure 3

Apply three – four (3 – 4) pumps of grease to each grease zerk.

Right Side Bearing

These are two (2) grease zerks located on the bearing, which is on the right side of the Pickup Broom (see Figure 4). Grease only one (1) of two (2) zerks. Both zerks do not need to be greased.

Apply three – four (3 – 4) pumps of grease to only one of the grease zerks.



Figure 4

5.7 Broom Pattern Adjustment

The brush pattern should be checked every eight (8) hours of operation or once daily. To check and adjust the pattern, perform the following:

1. Move the broom to a dusty, flat surface.
2. With the host machine at a low throttle, start the broom's motor.
3. Slowly lower the broom until it is in the operating position. The bolt-on edge must be one inch (1") off the ground.
4. Keep the broom in this position for ten (10) seconds. Do not move the host machine.
5. Raise the broom, stop the broom's motor, and move the host machine back several feet. Lower the broom to the ground, and set the host machine's parking brake. Once all parts have stopped moving, exit the host machine (see "Leaving the Operator's Position" on page 12).
6. Measure the pattern width left by the broom wafers. The pattern left behind should be two – four inches (2 – 4") wide. See Figure 5.

5. Maintenance

5.7 Broom Pattern Adjustment Cont'd

If the pattern does not measure between 2 – 4" wide, the broom hood assembly will need adjusted. To adjust, perform the following:

1. Carefully prop up the broom hood assembly, so that it does not fall while being adjusted.
2. Remove the bent leg pin from each side of the hood assembly.
3. Move the stop pin on each side to a different hole location, and re-insert each bent pin.

To widen the pattern, move the stop pins up, which lowers the hood assembly.

To narrow the pattern, move the stop pins down, which lifts the hood assembly.

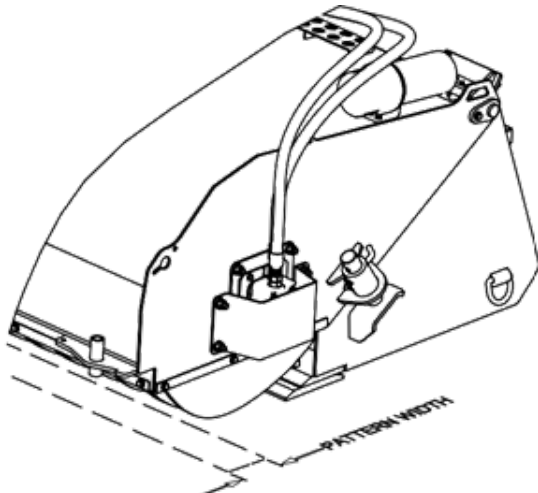


Figure 5

5.8 Broom Core

See “6.2 Main Components” on page 30 for parts diagrams.

To remove the broom core from the attachment, perform the following:

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's hydraulic hoses from the host machine.
4. Remove the side rubber skirt retainers.

5. Remove the motor guard hardware and the motor guard plate.
6. Remove the motor plate to broom housing hardware, and remove the motor subassembly.
7. Remove the bearing plate to broom housing hardware.
8. Using the host machine's arms or a hoist in combination with lifting straps, raise the broom housing off of the broom core.

NOTE: A pry bar may need to be used to remove the core from the bucket.

9. Roll the broom core away from the bucket.

To reinstall the broom core onto the attachment, perform the above steps in reverse order.

5.9 Motor

See “6.2 Main Components” on page 30 for parts diagrams.

To remove the broom motor from the attachment, perform the following:

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's hydraulic hoses from the host machine.
4. Remove the left side rubber skirt retainer.
5. Remove and cap the motor hoses.
6. Remove the motor guard hardware and the motor guard plate.
7. Remove the motor subassembly from the broom housing.
8. Remove the coupler bolt, and loosen the coupler set screw. Remove the coupler from the motor shaft.
9. Remove the motor gasket plate hardware, gasket plates, and gasket.
10. Remove the motor hardware, and then remove the motor.

To reinstall the broom motor onto the attachment, perform the above steps in reverse order.

5. Maintenance

5.10 Bearing

See “6.2 Main Components” on page 30 for parts diagrams.

To remove the bearing from the attachment, perform the following:

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's hydraulic hoses from the host machine.
4. Remove the right side rubber skirt retainer.
5. Remove the bearing guard hardware and bearing guard plate.
6. Remove the bearing plate to broom housing hardware.
7. Loosen the bearing lock collar with a drift punch and hammer in a counterclockwise motion.
8. Remove the bearing and bearing plate.
9. Remove the bearing plate to bearing hardware to then remove the bearing.

To reinstall the bearing onto the attachment, perform the above steps in reverse order.

Be sure to tighten the bearing lock collar in a clockwise motion.

5.11 Broom Wafers

Broom wafers need replaced as soon as a sweeping pattern of two – four inches (2 – 4”) (50 – 100 mm) can no longer be achieved when the Pickup Broom's frame is one inch (1”) (25 mm) off the ground.

The following table lists all the tools needed to completely replace the broom wafers from start to finish.

TOOLS NEEDED	
✓	1/2" Socket & Wrench
✓	9/16" Socket & Wrench
✓	1 1/8" Socket & Wrench
✓	1/2" Impact Drive
✓	3/8" Drive Ratchet
✓	1/2" Drive Ratchet
✓	2 Lifting Straps
✓	Allen Wrenches for Set Screws
✓	Pry Bar
✓	Stand for Broom Assembly

Removal

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's hydraulic hoses from the host machine.
4. Remove the side rubber skirt retainers.
5. Remove the motor guard hardware and motor guard plate.
6. Remove bearing guard hardware and bearing guard plate.
7. Remove the motor plate to broom housing hardware, and remove the motor subassembly.
8. Remove the bearing plate to broom housing hardware.

5. Maintenance

5.11 Broom Wafers Cont'd

Removal Cont'd

9. Using the host machine's lift arms or a hoist in combination with lifting straps, raise the broom hood off the broom core.

NOTE: A pry bar may need to be used to remove the core from the bucket.

10. Roll the broom core away from the hood.
11. Remove the hardware from the end retainer, and then remove the end retainer [Figure 6].



Figure 6

12. Remove the wafers.

NOTE: If poly/steel combination or steel wafers are used, the steel wires may need cut for the wafers to separate from each other.

Replacement

1. Using a hoist or loader with lift straps attached to the drum, stand the broom drum vertical with the installed end retainer on the bottom.
2. Install a new wafer by make sure the two (2) pins hug on of the drum's bar. See Figure 7.

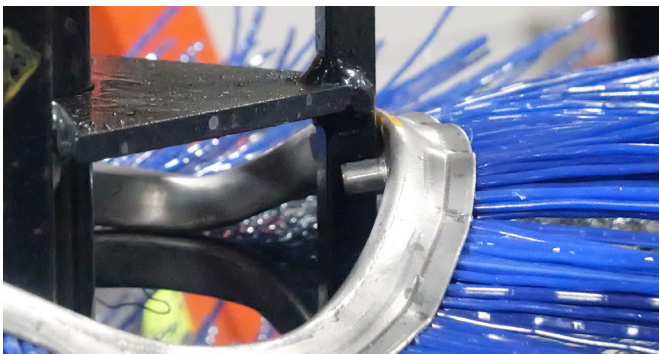


Figure 7

3. Install additional wafers with the convolutions (waves) opposing each other to expand the broom [Figure 8].

NOTE: Poly wafers should alternate with steel wafers if both are being used.

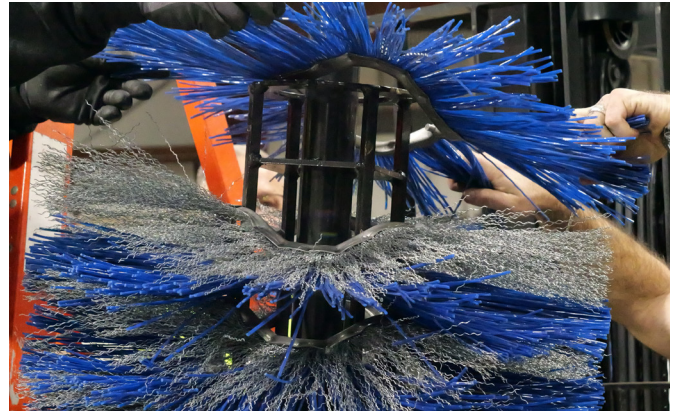


Figure 8

4. After installing the last wafer, install the end retainer plate. Carefully lay the core on its side [Figure 9].



Figure 9

5. Using a host or loader, raise the broom core from the ground, and insert it into the broom frame.
NOTE: Make sure the broom core is loaded with the splined end lined up with the motor splines.
6. Reinstall the bearing guard, motor plate, motor subassembly (if removed), and motor guard plate.
7. Reinstall the rubber skirting and side skirting retainers.
8. Be sure everything is properly torqued. Refer to "7.2 Torque Specifications – Imperial" on page 47.

5. Maintenance

5.12 Water Kit Installation (Optional)

Water kits are sold separately from the Pickup Broom. A universal wire harness is included with the purchase of the water kit. If an OEM harness is preferred, it can be purchased separately.

See “6.8 Water Kit Components” on page 38 and “6.9 Spray Bar Assembly Components” on page 40 for diagrams.

1. Install the pump mount bracket (216673) to the top of the hood weldment using four (4) of the bolts provided (299423).
2. Install the water pump (216540) to the pump mount bracket (216673) using four (4) bolts (299418), eight (8) washers (299715), and secure with four (4) nuts (299615).
3. Crimp the connector pins onto the pump's wires.
4. Push the connector pins into the Deutsch connector (298115), black on “1” and red on “2”. Pull on the wire to test that they are securely connected.
5. Insert the green connector piece into the Deutsch connector.
6. Secure the water tank (216650) to the hood weldment using the two (2) tank straps (216655) using the hardware provided (299423).
7. Thread the fitting (216556) onto the water tank, and attach the cap (216651).
8. Thread the filter fitting (216660) onto the water pump.
9. Thread the filter (216542) and the remaining fitting (216658) into the pump inlet. Ensure the direction of flow through the filter is towards the pump.
10. Attach one end of a section of the 1/2” inner diameter hose (216688) to the pump's fitting (216658). Attach the other end of the hose to the tank's fitting (216555). Secure with hose crimps (216691).
11. Connect the water pump fitting (216662) to the water pump.
12. Attach one end of another section of the 1/2” inner diameter hose (216688) to the water pump fitting (216662).
13. Loop the long hose (216688) around the right side of the hood weldment, wrapping it around the outside of the Operator's Manual Storage Tube (216402). Secure in place with zip ties.
14. Every broom model will have two (2) water nozzles that use a 90 degree fitting for each end of the water hose. These are placed at each end of the spray bar weldment. To assemble these, perform the following:
 1. Place a water nozzle strainer (216320) inside the water nozzle fitting (216315).
 2. Place a water nozzle (216305) on top of the water nozzle strainer (216320).
 3. While carefully holding the partially assembled water nozzle together, insert it through the nozzle holder plate inside one half the spray bar weldment.
 4. To secure the internal pieces inside the water nozzle fitting (216315) and to secure the assembled water nozzle to one half of the spray bar weldment, thread the plastic retainer nut (216993) onto the water nozzle fitting (216315). The assembled nozzle should be pointing downwards.
 5. Repeat the above steps for the second water nozzle that use a 90 degree fitting, 216315.
15. Every broom model will have at least two (2) water nozzles that use a barbed tee fitting (216310). The total number varies per model. These are placed in the middle of one half of the spray bar weldment. To assemble these, perform the following:
 1. Place a water nozzle strainer (216320) inside the water nozzle fitting (216310).
 2. Place a water nozzle (216305) on the top of the water nozzle strainer (216320).
 3. While carefully holding the partially assembled water nozzle together, insert it through the nozzle holder plate inside one half of the spray bar weldment.

5. Maintenance

5.12 Water Kit Installation (Optional) Cont'd

4. To secure the internal pieces inside the water nozzle fitting (216320) and to secure the assembled water nozzle to one half of the spray bar weldment, thread the plastic retainer nut (216993) onto the water nozzle fitting (216315). The assembled nozzle should be pointing downwards.
5. Repeat the above steps for the second water nozzle that use a barbed tee fitting, 216310.
16. Connect the assembled nozzles using 3/8" inner diameter hose (216690). Secure with hose crimps (216691).
17. Bolt both halves of the spray bar weldment together using 299413.
18. Loosely attach the coupled spray bar weldment to underneath the front of the hood weldment using two (2) bolts (299426) and four (4) washers (299725) and secure with two (2) nuts (299625).
19. Attach the loose end of the long hose (216688) to the assembled 90 degree fitting (216310) using a hose crimp (216691).
20. Tighten the zip ties securing the hose to the hood weldment.
21. Tighten the hardware holding the coupled spray bar weldment to the Pickup Broom.
22. Insert the grommet (216538) into the pump cover (216539). Secure the pump cover to the water pump mount bracket (216673) using three (3) bolts (299423).
23. Connect the wire harness (200010) to the Deutsch connector (298115).
24. See "Water Kit (Optional)" on page 16 for instruction on how to operate the water kit.

5.13 Gutter Brush Installation

The gutter brush is sold separately from the Pickup Broom. The additional hoses are included with the purchase of the Gutter Brush.

See "6.10 Gutter Brush Components" on page 41 for parts diagrams.

1. To install the Gutter Brush onto the Pickup Broom, line the holes of the brush's mount weldment (216622) to that of the holes on the left or right side on the front of the attachment. The following steps are written for when the Gutter Brush is placed on the right side.
2. Secure the brush to the broom using the clevis pin (216621).
3. Remove the return hose from the broom's motor (216425), and set it aside.
4. Install one end of the long extension hose (216520) into the motor's return port.
5. Install the other end of the long extension hose (216520) into the port of the shut off valve (216630).
6. Install one end of the short extension hose (216522) into the fittings connected Gutter Brush's motor (216585).
7. Install the other end of the short extension hose (216522) to the return hose that was previously removed from the broom's motor (216425).
8. The chain (216623) is used to adjust the operating height of the Gutter Brush, making sure the bristle's wear evenly. The retention chain can be secured to the Pickup Broom using the hole provided on the hood weldment. Insert the remaining clevis pin (216621) through both the appropriate chain link and the hood weldment.
9. See "Gutter Brush (Optional)" on page 15 for instructions on how to operate the Gutter Brush.

To remove the Gutter Brush, perform these steps in reverse.

To place the Gutter Brush on the left side of the Pickup Broom, switch the orientation of the short and long hose extensions (216522 & 216520).

5. Maintenance

5.14 Cleaning the Attachment

To maintain safety and quality performance, it is best to clean the Pickup Broom after each use.

To clean the attachment, perform the following:

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 host machine.
4. Lower the support feet.
5. Enter the operator's position. See "Entering the Operator's Position" on page 12.
6. Start the engine and fully lower the machine's lift arms while tilting the Pickup Broom until the attachment is level.
7. Use water or air pressure to clean debris from the Pickup Broom's frame and shields.

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

5.15 Spare Parts & Accessories

To maintain safety, performance, and product reliability, Blue Diamond® recommends the use of genuine Blue Diamond® replacement parts for all repairs and service.

Genuine Blue Diamond® parts are specifically designed and tested for your attachment. These components include critical items, such as hydraulic motors, cylinders, and structural weldments.

Use of non-genuine parts for components identified as Blue Diamond® OEM may affect product performance and could void applicable warranty coverage.

To obtain replacement parts, contact Blue Diamond® Product Support with the following information:

- Type of attachment
- Serial number
- Part number and/or description of part(s) needed
- Quantity of part(s) needed

5.16 Storage

Storing the Attachment

Sometimes it may be necessary to store your Pickup Broom 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.
- 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 Pickup Broom has been in storage, it is necessary to follow a list of items to return the attachment to service.

- Lubricate the attachment.
- Connect and operate the attachment and check for correct function.
- Check for leaks. Repair as needed.

5. Maintenance

5.17 Troubleshooting

PROBLEM	CAUSE	SOLUTION
Broom bogs down or loses power.	Debris or foreign material stuck under the hood weldment	Remove excess foreign material from under the broom hood.
	Bearing failure	Repair or replace bearings. (To diagnose, shut off the auxiliary hydraulics to the attachment, and then slowly rotate and listen for bearing noise.)
	Broom speed too slow or ground speed too fast	Increase RPMs, and reduce ground speed.
	Auxiliary hydraulics flow too slow or machine RPM's not high enough	Look for hydraulic leaks and repair. Ensure proper hydraulic flow setting and RPM for host machine.
Broom becomes uneven or bristles wear unevenly.	Bristles repeatedly collide with solid objects, i.e. pipes, rocks, etc.	Clear the sweeping area of solid objects, and flag those that cannot be removed. Lift the broom to clear exposed solid objects.
Hydraulic fluid level decreases during operation.	Hydraulic motor leak or leak in the host machine's hydraulic system	Investigate and repair the leaks.
Bristles do not rotate, rotates slowly, or stalls easily when contacting the ground.	Auxiliary hydraulic hoses not connected or quick couplers not fully or properly connected	Ensure all hydraulic connections are properly secured.
	Auxiliary hydraulics not engaged	Engage auxiliary hydraulics.
	Air in hydraulic lines	Cycle auxiliary hydraulics several times to remove air from the line.
	Obstructed or damaged hydraulic hoses	Replace obstructed or damaged hose.
	Worn or damaged host machine's hydraulic pump or attachment's motor	Repair or replace the host machine's hydraulic pump or the attachment's motor.
	Low hydraulic fluid in the host machine	Check the host machine's hydraulic fluid level and add fluid if needed. Check for leaks and repair.
	Motor shaft and/or splined hub(s) on broom core damaged	Disassemble the broom core from the attachment, and inspect the motor shaft and splined hub(s). Repair or replace damaged components.
Excessive vibration and/or attachment jumps over the ground.	Excessive debris wrapped around the broom core.	Remove debris and clean the bristle/core. Increase the bristle/core speed if turning slow.
	Broom core RPM or travel speed too fast	Decrease broom core RPM if turning too fast and/or decrease travel speed.
	Worn, damaged, or bent broom core.	Replace broom core.
	Missing, loose, damaged, or unbalanced broom core	Replace the broom wafers on the broom core to restore balance to the broom core.
	Bearing failure.	Repair or replace bearing.
Cutting edge and bottom of bucket worn.	Constant excessive downpressure	Slightly raise the broom when sweeping. The bottom of the bucket should not be fully dragging against the ground. Replace the worn cutting edge. The bucket may need replaced too, depending on the extent of damage.

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6. Parts

6.1 Wear Parts

Broom Wafer Kits

PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
216410-KIT-60	Broom Wafer Kit – 8" x 26" Steel Convolute for 60" Models	1	—	—	—
216410-KIT-72	Broom Wafer Kit – 8" x 26" Steel Convolute for 72" Models	—	1	—	—
216410-KIT-84	Broom Wafer Kit – 8" x 26" Steel Convolute for 84" Models	—	—	1	—
216410-KIT-96	Broom Wafer Kit – 8" x 26" Steel Convolute for 96" Models	—	—	—	1
216415-KIT-60	Broom Wafer Kit – 8" x 26" Poly Convolute for 60" Models	1	—	—	—
216415-KIT-72	Broom Wafer Kit – 8" x 26" Poly Convolute for 72" Models	—	1	—	—
216415-KIT-84	Broom Wafer Kit – 8" x 26" Poly Convolute for 84" Models	—	—	1	—
216415-KIT-96	Broom Wafer Kit – 8" x 26" Poly Convolute for 96" Models	—	—	—	1
216417-KIT-60	Broom Wafer Kit – 8" x 26" Combo Convolute for 60" Models	1	—	—	—
216417-KIT-72	Broom Wafer Kit – 8" x 26" Combo Convolute for 72" Models	—	1	—	—
216417-KIT-84	Broom Wafer Kit – 8" x 26" Combo Convolute for 84" Models	—	—	1	—
216417-KIT-96	Broom Wafer Kit – 8" x 26" Combo Convolute for 96" Models	—	—	—	1

Water Kits – Comes with a Universal Wire Harness

PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
316571	Water Kit for 60" Models	1	—	—	—
316573	Water Kit for 72" Models	—	1	—	—
316576	Water Kit for 84" Models	—	—	1	—
316579	Water Kit for 96" Models	—	—	—	1

Bolt-On Edge Kits

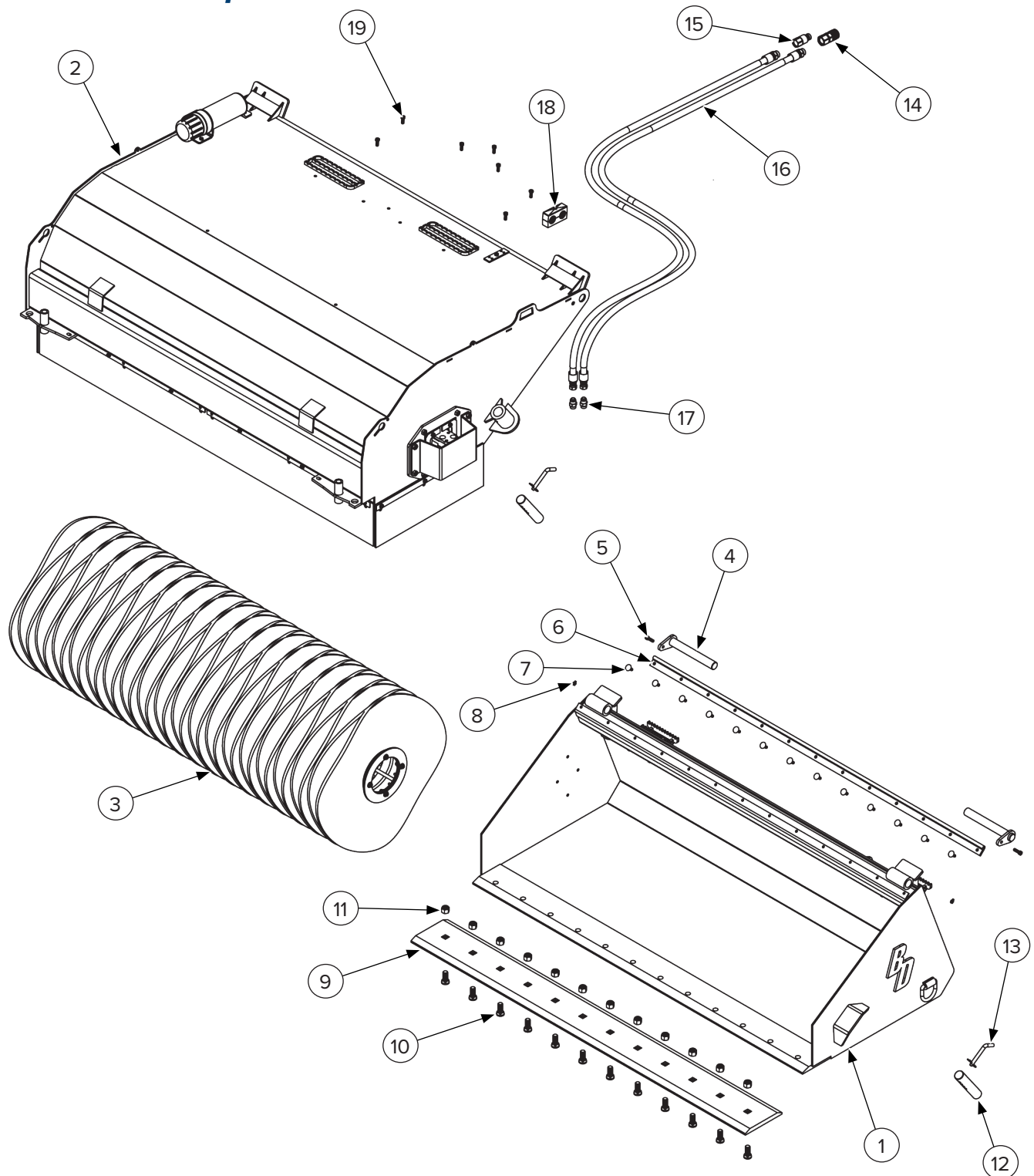
PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
216560-KIT	Bolt-On Edge Kit for 60" Models (Includes Hardware)	1	—	—	—
216562-KIT	Bolt-On Edge Kit for 72" Models (Includes Hardware)	—	1	—	—
216564-KIT	Bolt-On Edge Kit for 84" Models (Includes Hardware)	—	—	1	—
216566-KIT	Bolt-On Edge Kit for 96" Models (Includes Hardware)	—	—	—	1

Broom Skirt Kits

PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
216453-KIT	Skirt Kit for 60" Models (Skirts Only)	1	—	—	—
216455-KIT	Skirt Kit for 72" Models (Skirts Only)	—	1	—	—
216457-KIT	Skirt Kit for 84" Models (Skirts Only)	—	—	1	—
216459-KIT	Skirt Kit for 96" Models (Skirts Only)	—	—	—	1

6. Parts

6.2 Main Components



6. Parts

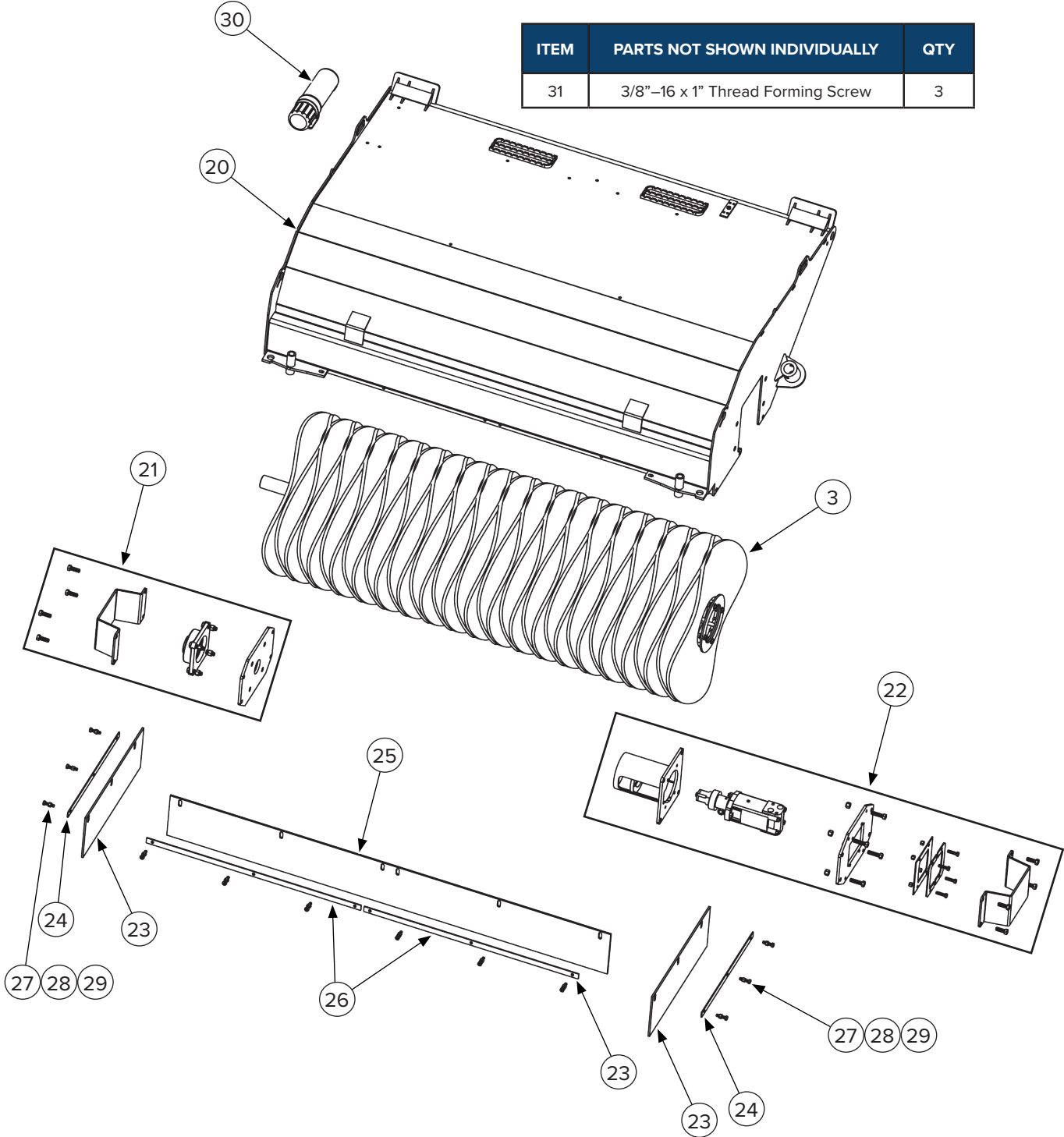
6.2 Main Components Cont'd

ITEM	PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
1	216370-60	60" Bucket Weldment	1	—	—	—
	216380-60*					
	216370-72	72" Bucket Weldment	—	1	—	—
	216380-72*					
	216370-84	84" Bucket Weldment	—	—	1	—
	216380-84*					
	216370-96	96" Bucket Weldment	—	—	—	1
	216380-96*					
2	See 6.3 Hood Assembly Components	Main Frame Hood Assembly	1	1	1	1
3	See 6.6 Drum Shaft Components	Drum Shaft Assembly	1	1	1	1
4	216465	Main Hood Pivot Pin	2	2	2	2
5	299428	3/8"–16 x 1 1/2" Hex Head Bolt Grade 8	2	2	2	2
6	216440-60	60" Internal Rubber Flap	1	—	—	—
	216440-72	72" Internal Rubber Flap	—	1	—	—
	216440-84	84" Internal Rubber Flap	—	—	1	—
	216440-96	96" Internal Rubber Flap	—	—	—	1
7	216375	Black Push-In Rivets for 3/8" Hole	18	20	22	24
8	299016	1/8" NPT Steel Grease Zerk Fitting	2	2	2	2
8	297005*	5/16"–32 UNEF Grease Zerk Fitting 65 Degree Elbow 51/64" Overall Length	2	2	2	2
9	216560	60" Bolt-On Cutting Edge	1	—	—	—
	216562	72" Bolt-On Cutting Edge	—	1	—	—
	216564	84" Bolt-On Cutting Edge	—	—	1	—
	216566	96" Bolt-On Cutting Edge	—	—	—	1
10	216570	3/4" x 2" Plow Bolt Grade 8	10	12	14	16
11	299628	3/4"–10 Nylock Nut Grade 8	10	12	14	16
12	216462	1.5" x 7" Pivot Stop Pin	2	2	2	2
13	216573	Pin for Pivot Stop Pin	2	2	2	2
14	224011	Female Coupler	1	1	1	1
15	224012	Male Coupler	1	1	1	1
16	216430-2	Hose Set for 60" & 72" Models (Couplers Not Included)	1	1	—	—
	216431-2	Hose Set for 84" & 96" Models (Couplers Not Included)	—	—	1	1
17	295010-M10ORB-M10JIC	Hydraulic Straight Fitting Male #10 O-Ring Boss to Male #10 JIC	2	2	2	2
18	206825	Hose Clamp Fits 1" Dual Hoses with 5/16"–18 x 2 3/8" Bolt	1	1	1	1
19	299423	3/8"–16 x 1" Hex Head Bolt Grade 8	7	7	7	7

*For serial numbers 144361, 151397, 151398, 151839 – 151844, 151113

6. Parts

6.3 Hood Assembly Components



6. Parts

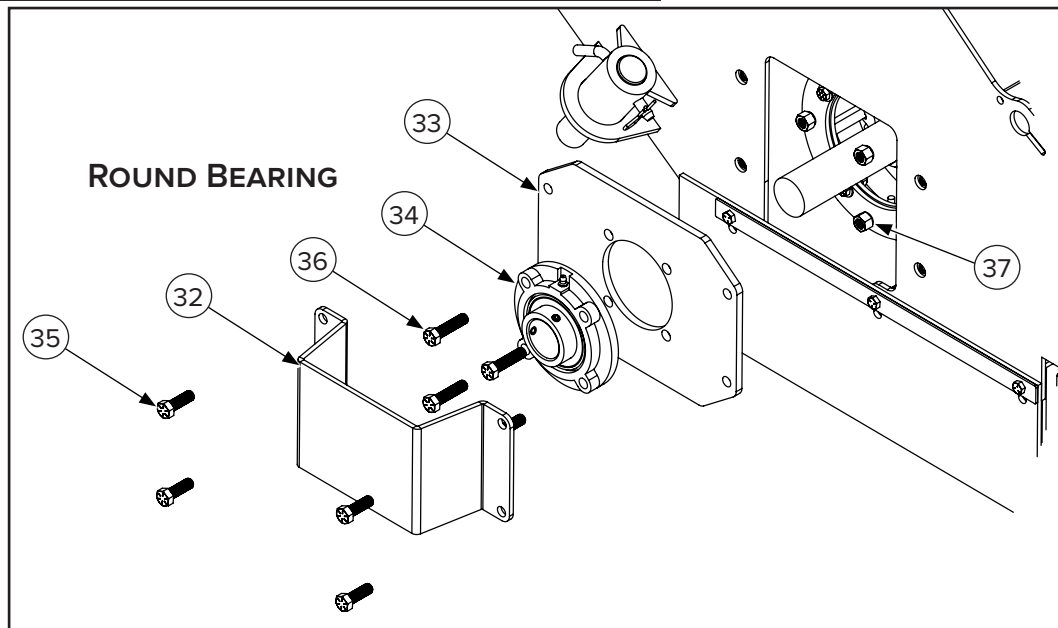
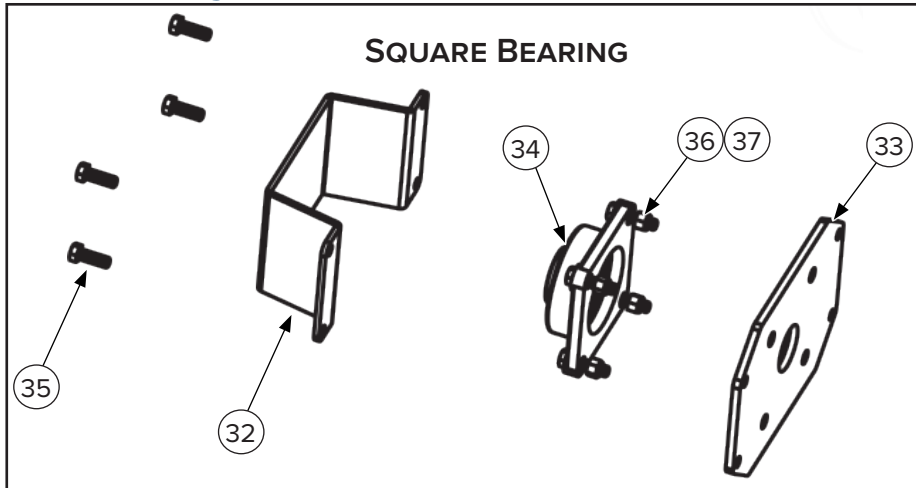
6.3 Hood Assembly Components Cont'd

ITEM	PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
3	See 6.6 Drum Shaft Components	Drum Shaft Assembly	1	1	1	1
20	216371-60	60" Main Frame Hood Weldment	1	—	—	—
	216381-60*					
	216371-72	72" Main Frame Hood Weldment	—	1	—	—
	216381-72*					
	216371-84	84" Main Frame Hood Weldment	—	—	1	—
	216381-84*					
	216371-96	96" Main Frame Hood Weldment	—	—	—	1
	216381-96*					
21	See 6.4 Bearing Components	Bearing Mount Assembly	1	1	1	1
22	See 6.5 Motor Mount Components	Motor Mount Assembly	1	1	1	1
23	216451	Side Skirt	2	2	2	2
24	216450	Side Skirt Retainer	2	2	2	2
25	216453	60" Front Skirt	1	—	—	—
	216455	72" Front Skirt	—	1	—	—
	216457	84" Front Skirt	—	—	1	—
	216459	96" Front Skirt	—	—	—	1
26	216452	60" Front Skirt Retainer	1	—	—	—
	216454	72" Front Skirt Retainer	—	1	—	—
	216456	84" Front Skirt Retainer	—	—	1	—
	216458	96" Front Skirt Retainer	—	—	—	1
27	299426	3/8"—16 x 1 1/4" Hex Head Bolt Grade 8	12	12	14	14
28	299625	3/8"—16 Nylock Nut Grade 8	12	12	14	14
29	299724	0.065" x 3/8" x 0.812" Washer SAE	12	12	14	14
30	216402	Manual Storage Tube	1	1	1	1
31	203006	3/8"—16 x 1" Thread Forming Screw	3	3	3	3

*For serial numbers 144361, 151397, 151398, 151839 – 151844, 153113

6. Parts

6.4 Bearing Components

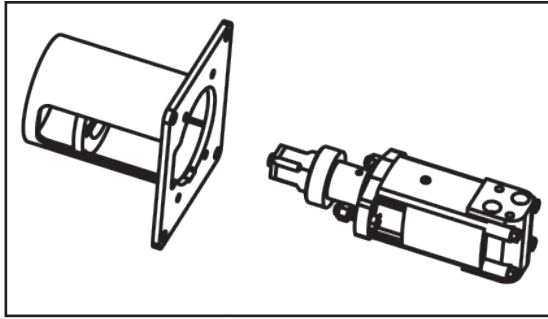


ITEM	PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
32	216372	Cover for Square Bearing	1	1	1	1
	216382*	Cover for Round Bearing				
33	216373	Mount Plate for Square Bearing	1	1	1	1
	216383*	Mount Plate for Round Bearing				
34	216590	Square Bearing	1	1	1	1
	216479*	Round Bearing				
35	299432	1/2"-13 x 1 1/2" Hex Head Bolt Grade 8	4	4	4	4
	299439*	1/2"-13 x 1 3/4" Hex Head Bolt Grade 8				
36	299440	5/8"-11 x 1 3/4" Hex Head Bolt Grade 8	4	4	4	4
	299433-2.25*	1/2"-13 x 2 1/4" Hex Head Bolt Grade 8				
37	109177	5/8"-11 Stover Locknut Class C	4	4	4	4
	299618*	1/2"-13 Hex Head Nylock Nut Grade 8				

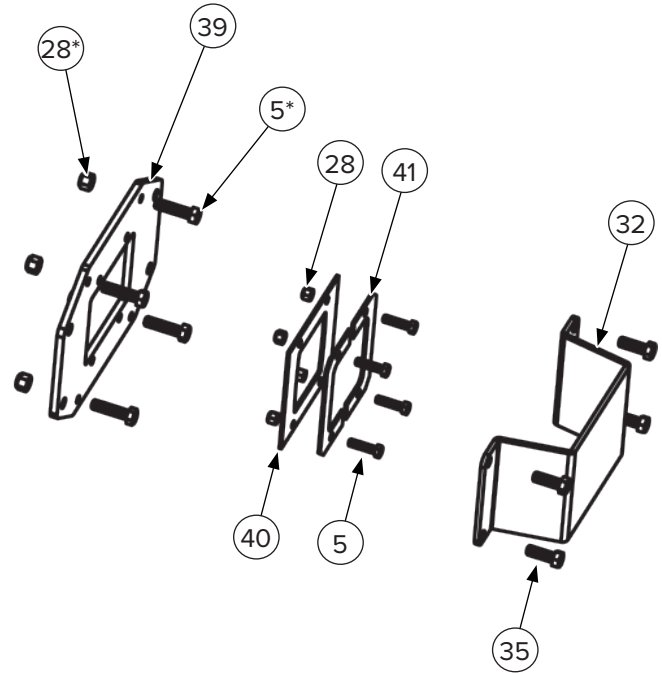
*For serial numbers 144361, 151397, 151398, 151839 – 151844, 153113

6. Parts

6.5 Motor Mount Components



38

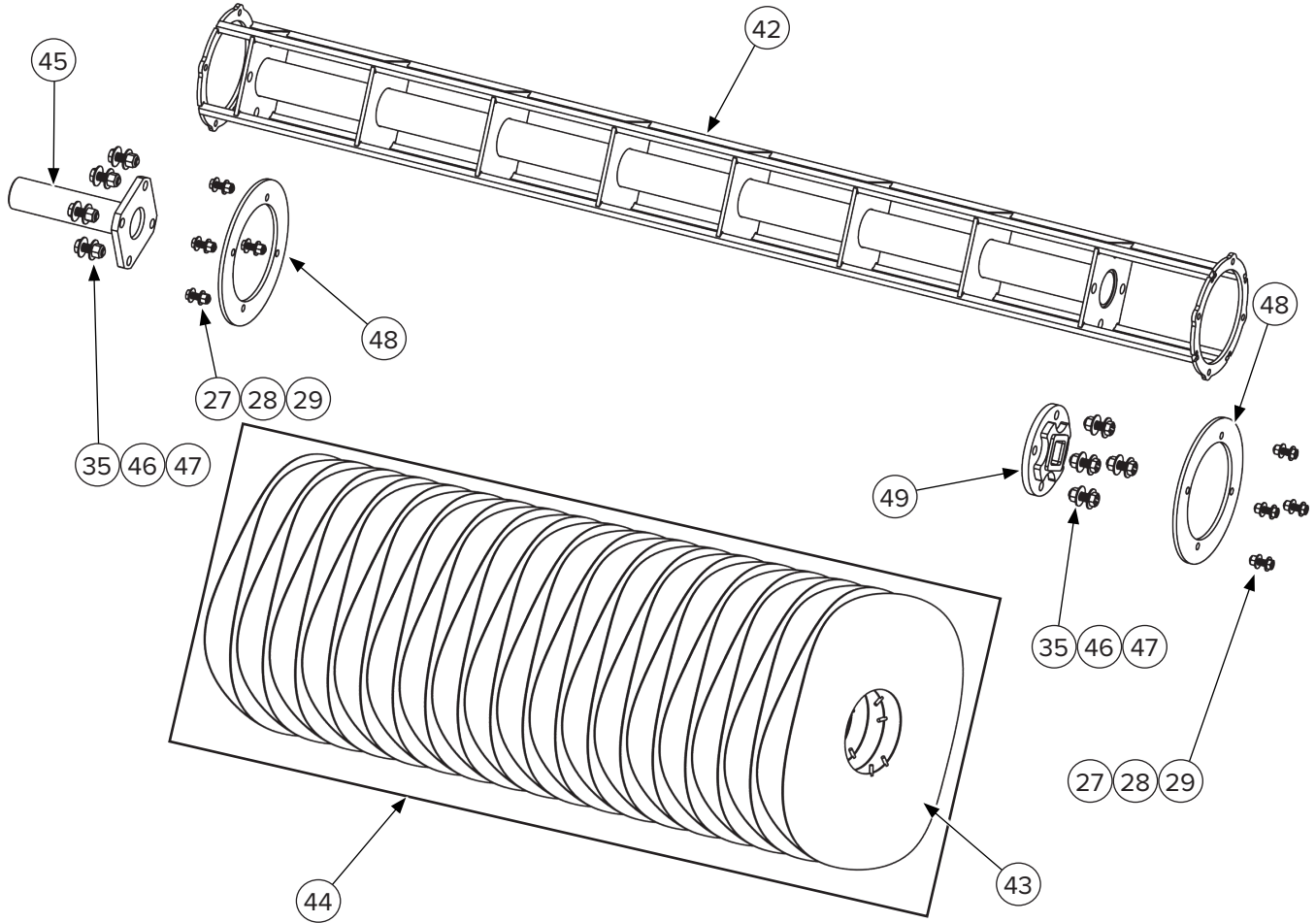


ITEM	PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
5	299428	3/8"–16 x 1 1/2" Hex Head Bolt Grade 8	4	4	4	4
5*	299428	3/8"–16 x 1 1/2" Hex Head Bolt Grade 8	4	4	4	4
	299439*	1/2"–13 x 1 3/4" Hex Head Bolt Grade 8				
28	299625	3/8"–16 Hex Head Nylock Nut Grade 8	4	4	4	4
28*	299625	3/8"–16 Hex Nylock Nut Grade 8	4	4	4	4
	299618**	1/2"–13 Hex Head Nylock Nut Grade 8				
32	216372	Cover for Square Bearing	1	1	1	1
	216382*	Cover for Round Bearing				
35	299432	1/2"–13 x 1 1/2" Hex Head Bolt Grade 8	4	4	4	4
	299439*	1/2"–13 x 1 3/4" Hex Head Bolt Grade 8				
38	See 6.7 Motor Assembly Components	Motor Assembly	1	1	1	1
39	216374	Motor Mount Plate	1	1	1	1
	216384*					
40	216376	Rubber Motor Cover	1	1	1	1
41	216377	Rubber Motor Cover Retaining Plate	1	1	1	1

**For serial numbers 144361, 151397, 151398, 151839 – 151844, 153113

6. Parts

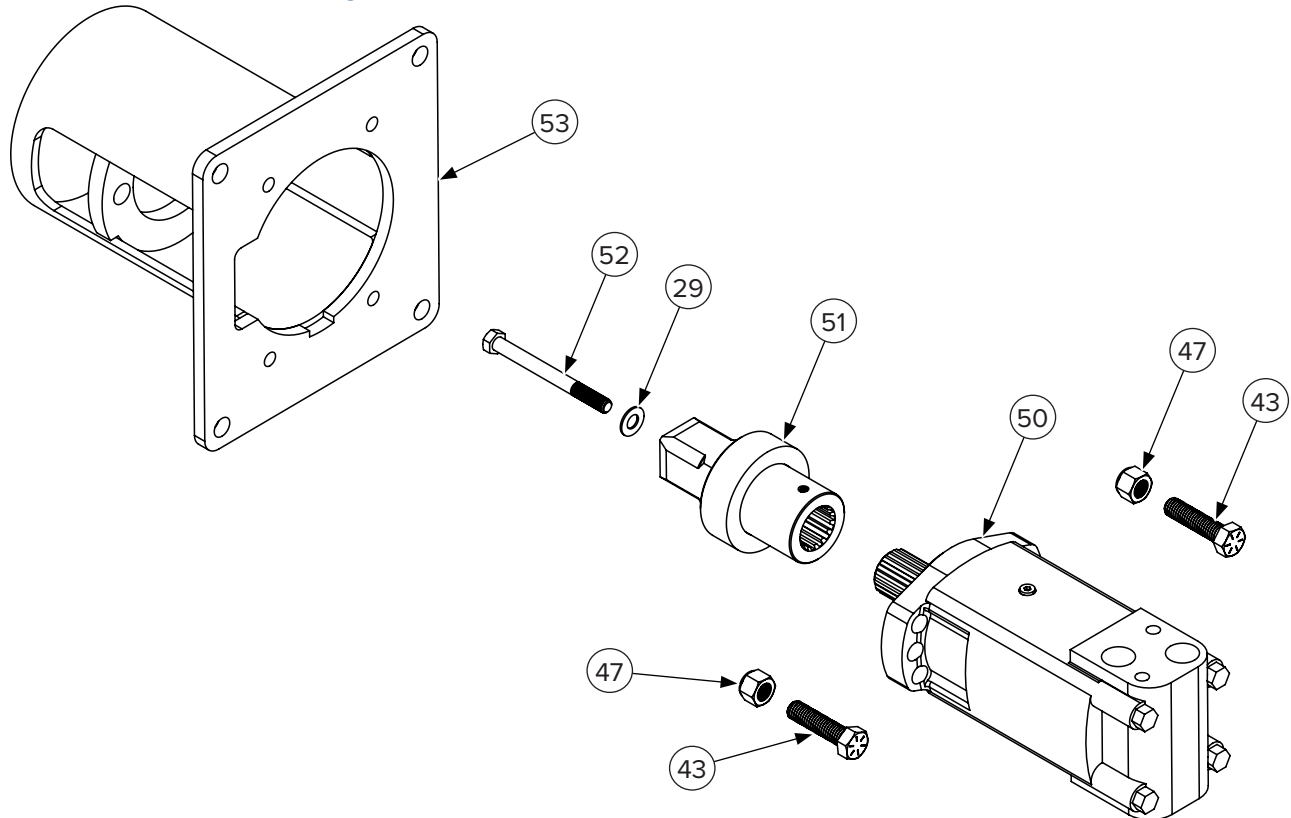
6.6 Drum Shaft Components



ITEM	PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
27	299426	3/8"–16 x 1 1/4" Hex Head Bolt Grade 8	8	8	8	8
28	299625	3/8"–16 Hex Head Nylock Nut Grade 8	8	8	8	8
29	299724	0.065" x 3/8" x 0.812 Washer SAE	16	16	16	16
35	299432	1/2"–13 x 1 1/2" Hex Head Bolt Grade 8	8	8	8	8
42	216481	60" Drum Shaft	1	—	—	—
	216482	72" Drum Shaft	—	1	—	—
	216483	84" Drum Shaft	—	—	1	—
	216484	96" Drum Shaft	—	—	—	1
43	216410	Broom Wafer – 8" x 26" Steel Convoluted	31	37	43	49
	216415	Broom Wafer – 8" x 26" Poly Convoluted				
	216417	Broom Wafer – 8" x 26" Poly/Steel Combo Convoluted				
44	See 6.1 Wear Parts	Broom Wafer Kit for Complete Replacement	1	1	1	1
45	216480	Bearing Support	1	1	1	1
46	299730	1/2" Flat Wide Washer	16	16	16	16
47	299618	1/2"–13 Hex Head Nylock Nut Grade 8	8	8	8	8
48	216378	Retainer Plate	2	2	2	2
49	216478	Motor to Shaft Flange	1	1	1	1

6. Parts

6.7 Motor Assembly Components

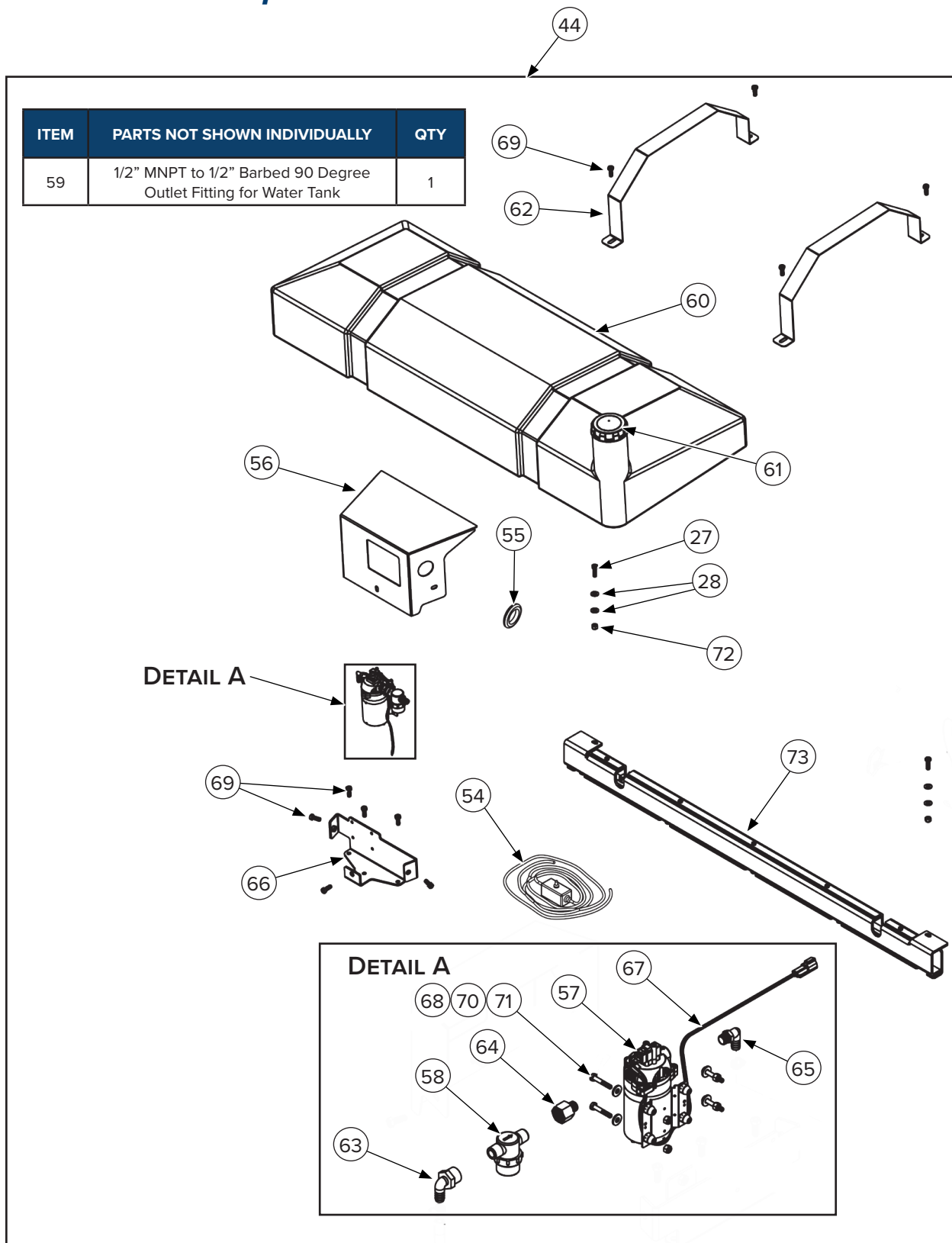


ITEM	PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
29	299724	0.065" x 3/8" x 0.812" Washer SAE	1	1	1	1
	N/A*	Motor Coupler Washer				
43	299433	1/2"-13 x 2" Hex Head Bolt Grade 8	2	2	2	2
	299433-2.25*	1/2"-13 x 2 1/4" Hex Head Bolt Grade 8				
47	299618	1/2"-13 Hex Head Nylock Nut Grade 8	2	2	2	2
50	216425	315cc Motor	1	1	1	1
	216385*					
51	216421-2	Motor Shaft Coupler	1	1	1	1
	216386*					
52	299447	3/8"-16 x 4" Hex Head Bolt Grade 8	1	1	1	1
53	216419	Motor Support	1	1	1	1

*For serial numbers 144361, 151397, 151398, 151839 – 151844, 153113

6. Parts

6.8 Water Kit Components



6. Parts

6.8 Water Kit Components Cont'd

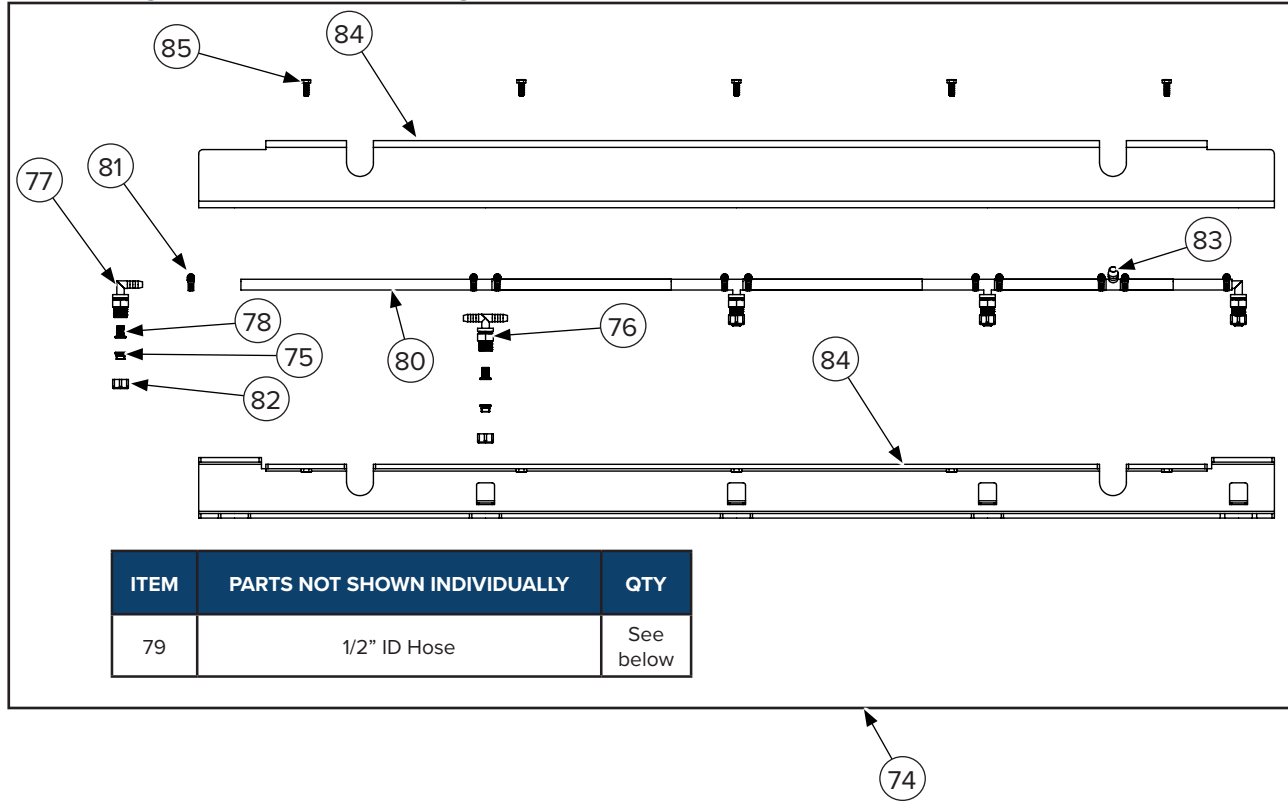
ITEM	PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
27	299426	3/8"–16 x 1 1/4" Hex Head Bolt Grade 8	2	2	2	2
28	299625	3/8"–16 Hex Nylock Nut Grade 8	2	2	2	2
44	See 6.1 Wear Parts	Water Kit Assembly	1	1	1	1
54	200010	Universal Wire Harness with Control Switch	1	1	1	1
55	216538	Pump Cover Grommet	1	1	1	1
56	216539	Pump Cover Plate	1	1	1	1
57	216540	Pump	1	1	1	1
58	216542	Strainer for Water Tank	1	1	1	1
59	216556	1/2" MNPT to 1/2" Barbed 90 Degree Outlet Fitting for Water Tank	1	1	1	1
60	216650	Water Tank	1	1	1	1
61	216651	Cap for Water Tank	1	1	1	1
62	216655	Strap for Water Tank	2	2	2	2
63	216658	Water Pump Filter to Hose Fitting 1/2" FNPT x 1/2" Barbed	1	1	1	1
64	216660	Water Pump to Filter Fitting 3/8" MNPT x 1/2" FNPT Brass	1	1	1	1
65	216662	90 Degree Fitting for Water Pump	1	1	1	1
66	216673	Mount Bracket for Water Pump	1	1	1	1
67	298115	Electrical Plug Deutsch DT2 Receptacle	1	1	1	1
68	299418	1/4"–20 x 1 1/2" Hex Head Bolt Grade 8	4	4	4	4
69	299423*	3/8"–16 x 1" Hex Head Bolt Grade 8	3	3	3	3
70	299615	1/4"–20 Hex Nylock Nut Grade 8	4	4	4	4
71	299715	1/4" Flat Washer Grade 8	8	8	8	8
72	299725	3/8" Flat Washer Grade 8	4	4	4	4
73	See 6.9 Spray Bar Assembly Components	Spray Bar Complete Assembly	1	1	1	1
OTHER WIRE HARNESS OPTIONS – 200010 IS ALREADY PROVIDED WITH THE WATER KIT.						
54	200011**	Universal Wire Harness Attachment End Flat 2–Pin to Male 2–Pin Deutsch	1	1	1	1
	216900	OEM Wire Harness Flat 2–Pin to 14–Pin (Specify Make/Model/Year)				
	216951-KIT	OEM Wire Harness Adapter Kit 7–Pin Low Voltage Bobcat to 2–Pin Trailer Plug				

*Some 299423 are already provided. They are bolted into the hood weldment.

**To replace the attachment side connector harness, use 200011 with an OEM adapter.

6. Parts

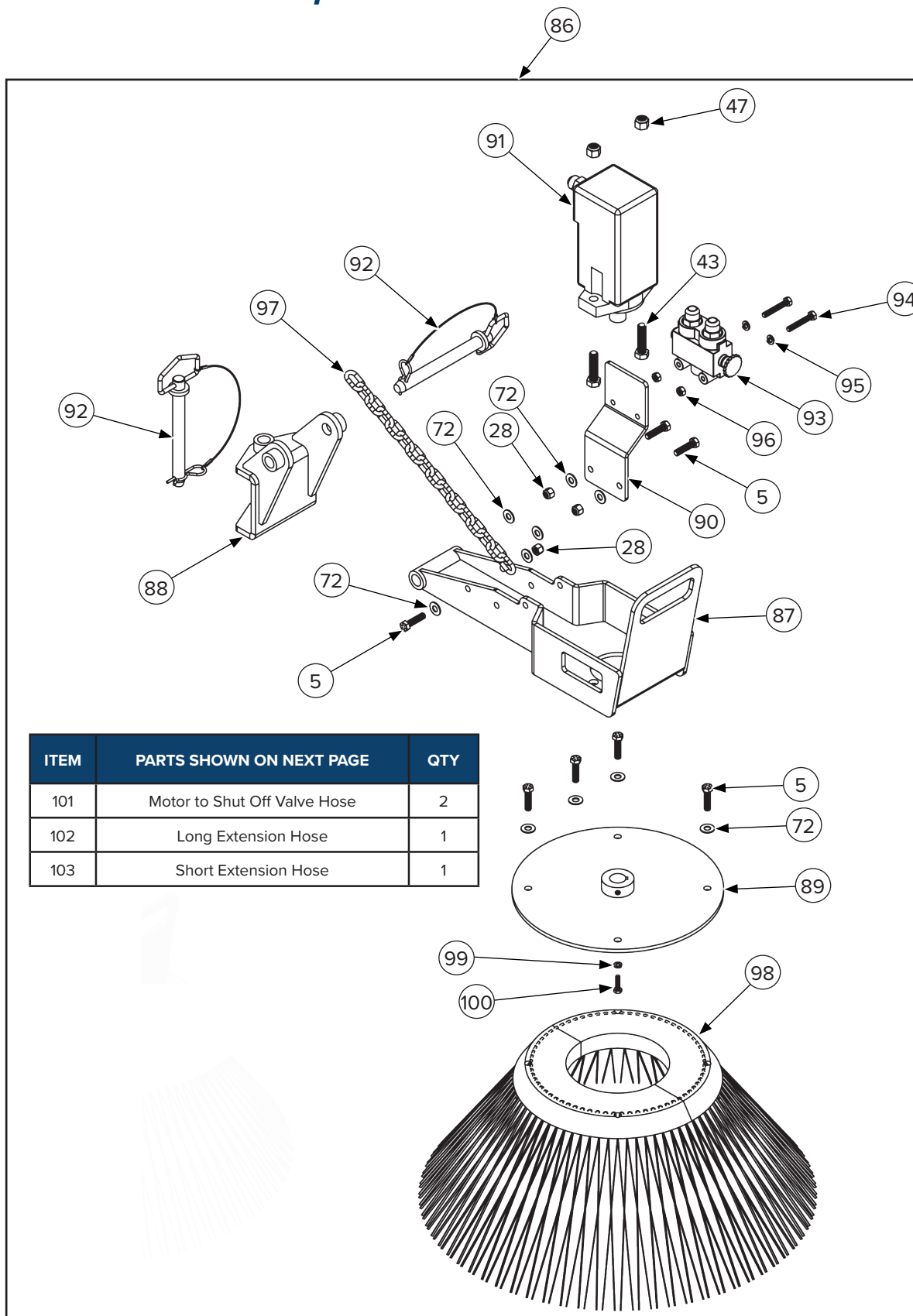
6.9 Spray Bar Assembly Components



ITEM	PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
74	316580	60" Spray Bar Kit Assembly	1	—	—	—
	316583	72" Spray Bar Kit Assembly	—	1	—	—
	316586	84" Spray Bar Kit Assembly	—	—	1	—
	316589	96" Spray Bar Kit Assembly	—	—	—	1
75	216305	80 Degree Water Nozzle	4	5	6	7
76	216310	Tee Water Nozzle with Jam Nut	2	3	4	5
77	216315	Elbow Water Nozzle with Jam Nut (for End Position)	2	2	2	2
78	216320	Strainer for Water Nozzle	4	5	6	7
79	216688	1/2" ID Hose	4	5	6	7
80	216690	3/8" ID Hose	5	5	7	8
81	216691	Hose Crimp	10	12	14	16
82	216693	Retainer Nut	4	5	6	7
83	216694	1/2" x 3/8" x 3/8" 3-Way Barbed Tee Fitting	1	1	1	1
84	216695	60" Spray Bar Weldment (Includes 1 Inner & 1 Outer Channel)	1	—	—	—
	216696	72" Spray Bar Weldment (Includes 1 Inner & 1 Outer Channel)	—	1	—	—
	216697	84" Spray Bar Weldment (Includes 1 Inner & 1 Outer Channel)	—	—	1	—
	216698	96" Spray Bar Weldment (Includes 1 Inner & 1 Outer Channel)	—	—	—	1
85	299413	1/4"—20 x 3/4" Hex Head Bolt Grade 8	5	5	7	7

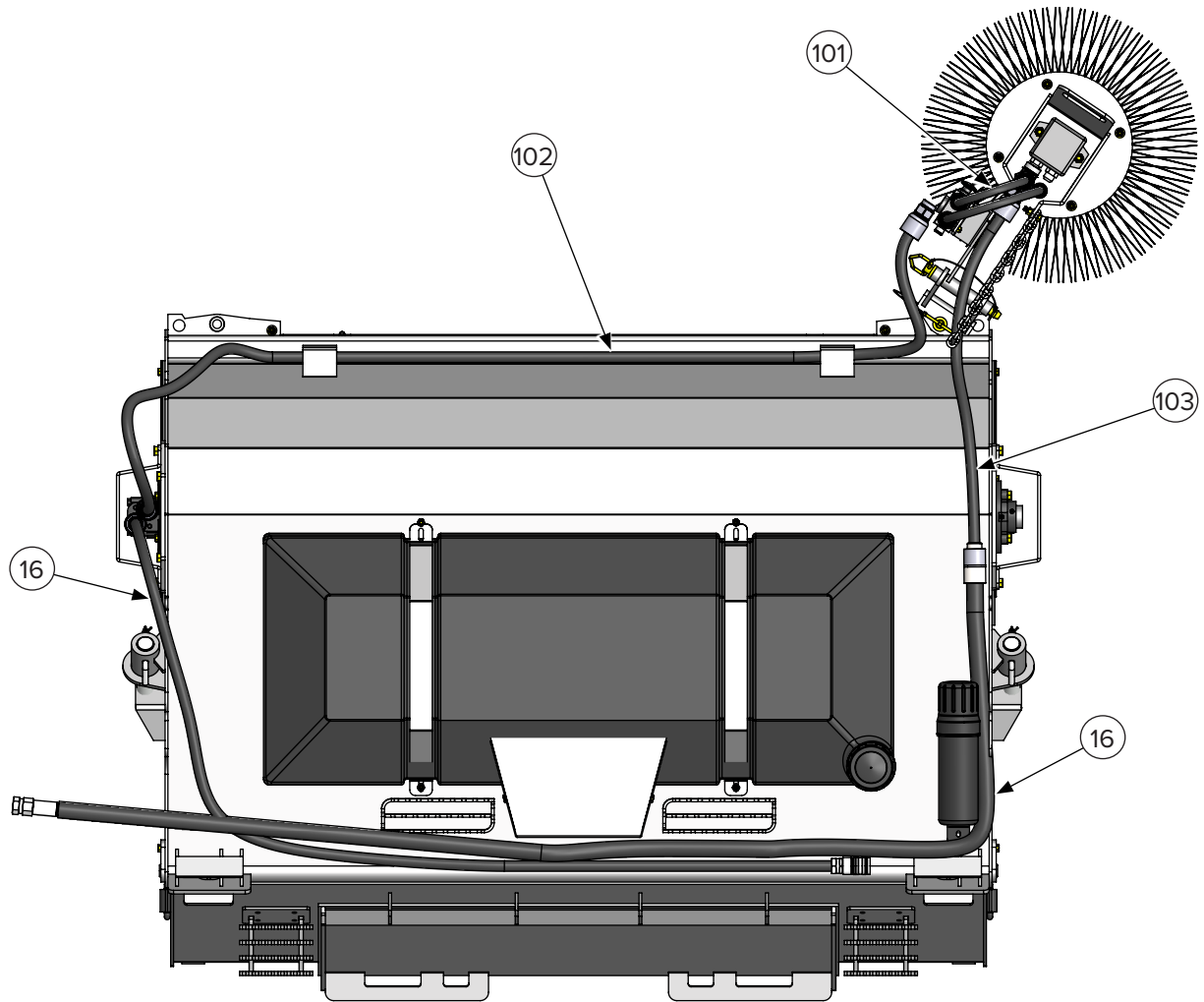
6. Parts

6.10 Gutter Brush Components



6. Parts

6.10 Gutter Brush Components Cont'd



6. Parts

6.10 Gutter Brush Components Cont'd

ITEM	PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
5	299428	3/8"–16 x 1 1/2" Hex Head Bolt Grade 8	7	7	7	7
16	216430-2	Hose Set for 60" & 72" Models (Couplers Not Included)	1	1	1	1
	216431-2	Hose Set for 84" & 96" Models (Couplers Not Included)	1	1	1	1
28	299625	3/8"–16 Hex Nylock Nut Grade 8	3	3	3	3
43	299433	1/2"–13 x 2" Hex Head Bolt Grade 8	2	2	2	2
47	299618	1/2"–13 Hex Nylock Nut Grade 8	2	2	2	2
72	299725	3/8" Flat Washer Grade 8	8	8	8	8
86	116555	Gutter Brush Assembly with Extension Hoses (1" Round Motor Shaft)	1	1	1	1
87	216620	Main Arm Weldment	1	1	1	1
88	216622	Main Arm Pivot Linkage Weldment	1	1	1	1
89	216615	Hub Weldment – 11" Diameter (1" Round Motor Shaft)	1	1	1	1
90	216625	Shut Off Valve Mounting Bracket	1	1	1	1
91	216585	Hydraulic Motor	1	1	1	1
92	216621	3/4" x 6 1/4" Usable Length Clevis Pin	2	2	2	2
93	216630	Shut Off Valve	1	1	1	1
94	299319	5/16"–18 x 2" Hex Head Bolt Grade 8	2	2	2	2
95	299815	5/16" Lock Washer Grade 8	2	2	2	2
96	299571	5/16"–18 Hex Nut Grade 8	2	2	2	2
97	216623	Chain	1	1	1	1
98	216600	Steel Replacement Bristle – 15" Diameter	1	1	1	1
	216605	Poly Replacement Bristle – 11" Diameter	1	1	1	1
99	299810	1/4" Lock Washer Grade 8	1	1	1	1
100	299418-1	1/4"–20 x 1" Hex Head Bolt Grade 8	1	1	1	1
101	216524	Motor to Shut Off Valve Hose	2	2	2	2
102	216520	Long Extension Hose for Gutter Brush	1	1	1	1
103	216522	Short Extension Hose for Gutter Brush	1	1	1	1

6. Parts

6.11 Safety Decals

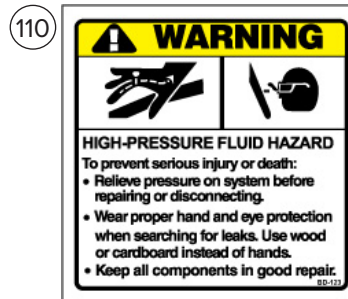


6. Parts

6.11 Safety Decals Cont'd

104 BUILT STRONG. ATTACHED FOR LIFE.

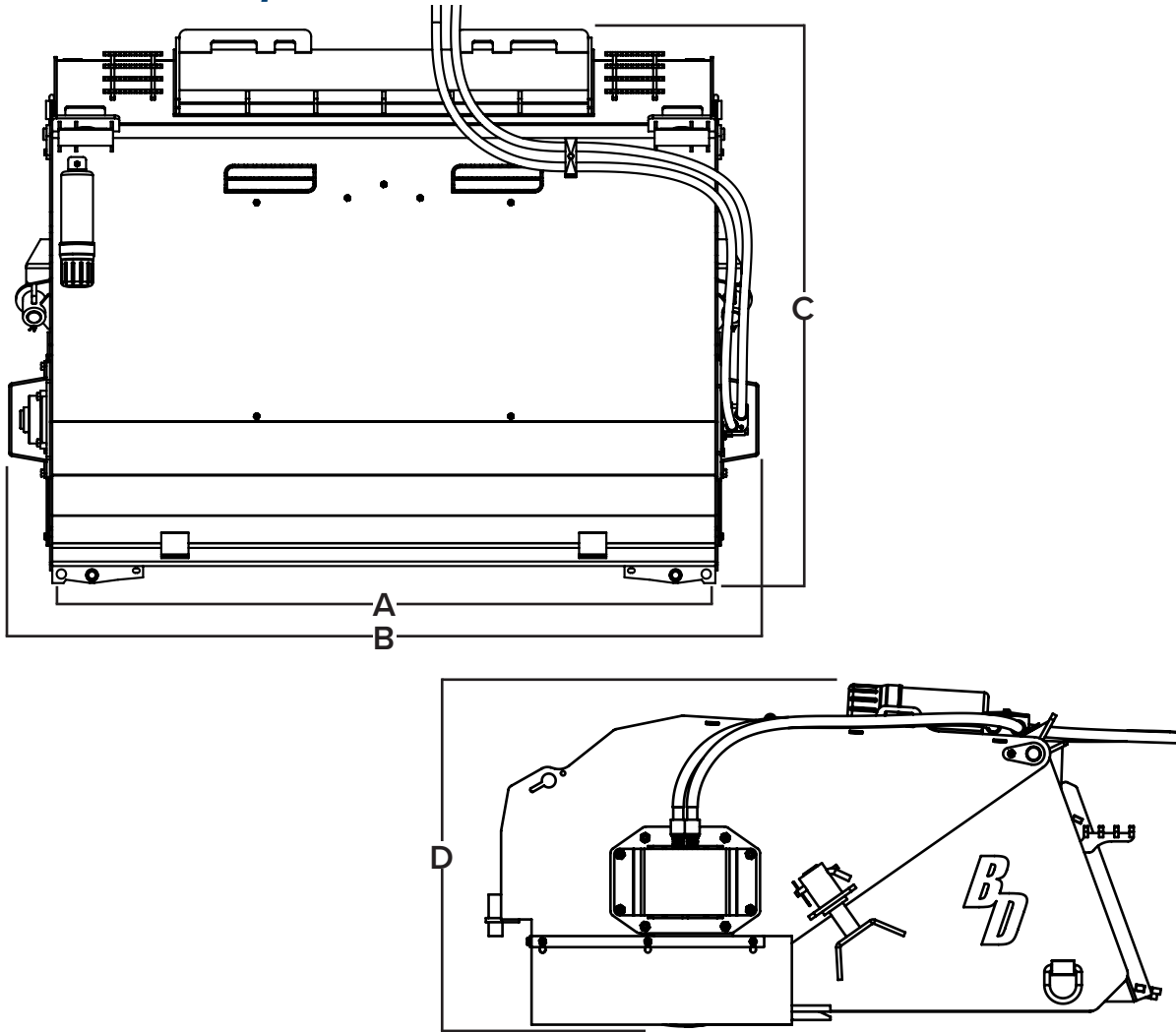
BD-133



ITEM	PART NUMBER	DESCRIPTION	QTY
104	BD-134	2" Tall Decal, Tag Line Single Line	1
105	BD-057	2.9" x 17.364" Decal, Blue Diamond	1
106	BD-092	1.5" x 2.0" Decal, Warranty Registration QR	1
107	BD-112	12.18" x 9.47" Decal, Blue Diamond Attachments	1
108	BD-114	10.35" x 8.08" Decal, Blue Diamond Attachments	2
109	BD-060	2.4375" x 3.375" Decal, Blue Diamond Attachments	2
110	BD-123	3.0" x 3.0" Decal, High Pressure Fluid Hazard	1
111	BD-001	3.0" x 3.0" Decal, Read Owners Manual	1
112	BD-087	Decal, Grease Drive Every 250 Hours	1

7. Specifications

7.1 Attachment Specifications



DESCRIPTION	116512	116517	116522	116527
Working Width (A)	60 in. (1,524 mm)	72 in. (1,829 mm)	84 in. (2,133 mm)	96 in. (2,438 mm)
Overall Width (B)	70 1/2 in. (1,791 mm)	82 1/2 in. (2,095 mm)	94 1/2 in. (2,400 mm)	106 1/2 in. (2,705 mm)
Length (C)	59 9/16 in. (1,513 mm)			
Height (D)	30 11/16 in. (779 mm)			
Required Hydraulic Flow (GPM)	15 – 25 GPM (57 – 94 L/min)			
Number of Wafers	31	37	43	49
Maximum Recommended Horsepower	115 HP			
Maximum Pressure	3,500 psi (241 bar)			
Weight	1,258 lbs (570 kg)	1,428 lbs (647 kg)	1,591 lbs (721 kg)	1,757 lbs (797 kg)

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

7. Specifications

7.3 Torque Specifications – Metric

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

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Warranty Policies

OUR WARRANTY PROMISE

At Blue Diamond® Attachments, we stand by our products. Our warranty ensures you can depend on our attachments for your toughest jobs. We are committed to your satisfaction and peace of mind, offering reliable support for continued productivity.

MANUFACTURER'S LIMITED WARRANTY

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

BDA's liability for any defect with respect to accepted goods shall be limited to repairing the goods at a BDA designated location or at an authorized dealer location, or replacing them, as BDA shall elect. The above shall be in accordance with BDA warranty adjustment policies.

WARRANTY TERM

BDA's warranty obligation is subject to the following terms, whichever occurs first:

- The warranty terminates twelve (12) months after the date of delivery of the attachment from the dealer to the end user (original purchaser); or
- The warranty terminates thirty-six (36) months after the date of BDA's invoice to the dealer, regardless of whether the attachment has been sold to an end user.

For the purposes of this warranty, "delivery" means the date on which the authorized dealer delivers the attachment to the end user.

WARRANTY ELIGIBILITY AND REGISTRATION

BDA warrants its products to the original purchaser only. Warranty coverage is not transferable.

Product registration is strongly encouraged and assists BDA in processing warranty claims efficiently. Registration may be completed at any time prior to filing a warranty claim at bluediamondattachments.com/warranty-registration. If registration has not been completed at the time a claim is filed, BDA may request a valid bill of sale or other proof of original purchase to verify eligibility.

This warranty shall not apply to any machine or attachment which has been repaired or altered in any way outside the BDA factory or an authorized BDA dealership in any way so as to, in BDA's judgment, affect its stability or reliability, nor which has been subject to misuse, negligence, or accident beyond the company-recommended machine rated capacity.

USED AND SECONDARY MARKET EQUIPMENT

Attachments sold through used equipment channels, dealer-to-dealer transactions, auctions, or any source other than the original authorized sale to an end user do not carry BDA warranty coverage unless BDA has explicitly granted warranty coverage for that specific attachment by serial number in writing. No implied warranty coverage applies to used or secondary market purchases.



Warranty Policies Cont'd

HOW TO SUBMIT A WARRANTY CLAIM

At Blue Diamond® Attachments, streamlining your warranty claim is a priority. Contact the Product Support Team at the first sign of equipment issues for efficient management of your claim.

SUBMITTING A WARRANTY CLAIM ONLINE

To file a warranty claim, complete the online form at www.bluediamondattachments.com/warranty-claim. Before starting, gather the information below to ensure your claim can be processed without delay:

- Contact and shipping information, including your name, company, phone, email, and billing and shipping addresses.
- Attachment details, including the model number, attachment type, attachment name, and serial number.
- Purchase information, including the purchase invoice date, invoice number, and the name and city of the selling dealer.
- Failure information, including the failure date, the host machine make and model, and a description of the issue.
- Photos of the failure, including detailed images of the failed component and overall images showing the condition of the attachment.

When completing the form, provide a clear response in each of the following fields:

- Complaint, describing what is not functioning correctly.
- Cause, describing what you believe led to the failure.
- Correction, describing any corrective action taken or proposed.
- Key Part, providing the part number of the components that caused the failure.

Upload all supporting photos, accept the warranty policies, and click Submit. A member of the BDA Product Support Team will follow up to advise on next steps. Do not perform any repairs or disassembly until your claim has been reviewed and approved by BDA.

GENERAL CLAIM TERMS

A claim must be filed with BDA and approved before any work is performed.

BDA will advise on repairs and applicable parts exchanges.

Submit detailed photos of the issue and images of overall condition of the attachment to warranty@bdattachments.com. Photos are required for processing.

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 and delivery charges are the customer's responsibility and will not be paid by BDA.

BDA covers standard Less-Than-Truckload (LTL) freight and UPS ground shipping on warranty parts and attachments sent from the factory to the dealer or end user. Next Day Air (NDA) or any other special freight services are not covered under warranty but can be arranged at the dealer and/or end user's expense.

Labor, where covered, is typically credited to your account at \$105 per hour. When more than four (4) hours are needed for repair, BDA requires an estimate before work is performed.

Coverage of travel time, host machine service and repairs, diagnostics, and business downtime are neither expressed or implied.



Warranty Policies Cont'd

EXCLUSIONS OF WARRANTY

Except as otherwise expressly stated herein, BDA 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 OR THAT THEY ARE FIT FOR ANY PARTICULAR PURPOSE.

BDA shall not be liable for incidental or consequential damages for any breach of 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 personal injury and property damage resulting from handling, possession, or use of goods by the buyer.

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

PLEASE NOTE: Replacing genuine OEM parts with aftermarket parts may void the warranty.

HOSES, COUPLERS, HOSE ROUTING, AND CONNECTIONS

BDA supplies attachments with hoses that are universal in length, but hose configuration may vary by machine manufacturer. BDA cannot guarantee that the hose length will be correct on every machine or for every routing.

It is the responsibility of the end user to adjust hose length to fit their specific machine and to ensure that hose routing does not result in hoses becoming tangled, caught, pinched, crushed, or run over during operation.

- It is the end user's responsibility to ensure that hose routing clears pinch points and allows the attachment to move properly.
- BDA will not cover hose or coupler damage due to poor hose routing. Hose extenders and hose keeps are available at additional cost.

BDA supplies most attachments with standard size quick couplers; some attachments may have couplers sold separately. Coupler configuration varies by machine manufacturer, and BDA cannot guarantee that the standard coupler will be correct for every application. Coupler changes can be made before the attachment leaves the BDA facility if noted on the sales order. BDA is not responsible for coupler compatibility after the attachment has left the facility unless a specific configuration was requested at the time of order.

HYDRAULIC MOTORS

Do not disassemble any hydraulic motor. Disassembly of the motor voids the warranty.

BDA products equipped with hydraulic motors or gearbox assemblies carry a one (1) year warranty on parts and labor. A warranty claim must be submitted and reviewed by an authorized BDA representative before any action is taken.

Under no circumstances should a hydraulic motor or gearbox be disassembled by the customer. Disassembled units cannot be returned to the original manufacturer and will void the warranty. BDA will replace motors or gearboxes found to be defective under warranty. There are no user-serviceable internal parts in these components while under warranty.

CYLINDERS

Defective cylinders are covered for one (1) year. Disassembly of the cylinder will void the cylinder warranty. In any event of cylinder issue or failure, submit a warranty claim prior to disassembly or repair. Cylinders under warranty are exchanged if found to be defective. For a cylinder claim to be granted, the defective cylinder must be returned to BDA.



Warranty Policies Cont'd

FREIGHT DAMAGE AND CONCEALED FREIGHT DAMAGE

Blue Diamond® Attachments, LLC ("BDA") is not responsible for damage that occurs during shipment once the product has been released to the carrier. It is the responsibility of the receiving dealer or end user ("Receiver") to inspect all shipments immediately upon delivery, regardless of shipping method, including small package carriers (e.g. UPS, FedEx) and Less-Than-Truckload (LTL) freight.

VISIBLE FREIGHT DAMAGE

All shipments must be inspected at the time of delivery prior to signing the Bill of Lading (BOL) or delivery receipt. Any visible damage, shortage, or indication of mishandling must be clearly noted on the BOL or delivery receipt at the time of delivery and acknowledged by the carrier. The Receiver must retain a copy of the signed BOL with damage notation and submit clear photographic evidence of the damage and packing to BDA.

If the BOL or delivery receipt is signed without notation of damage or shortage, the shipment will be deemed received in good condition. No freight damage claim may be made in such cases, and responsibility for any damage rests solely with the Receiver.

CONCEALED FREIGHT DAMAGE

Concealed damage is damage that is not reasonably apparent at the time of delivery and is discovered only after unpacking. The Receiver must notify BDA of any concealed damage within five (5) business days of receipt. Notification must include written notice and clear photographic documentation of the damage and all original packaging materials.

Failure to notify BDA and provide required documentation within five (5) business days will result in the concealed damage being deemed the responsibility of the Receiver, and BDA will have no obligation or liability for such damage.

GENERAL CONDITIONS

- All original packaging must be retained until any freight damage claim is resolved.
- BDA reserves the right to request additional documentation or inspection as required by the carrier.
- Freight damage claims are separate from and not covered under BDA's product warranty.
- BDA's determination regarding freight damage claims shall be final.

WARRANTY MAY BE VOIDED IF ATTACHMENT IS ALTERED IN ANY WAY.

This warranty policy supersedes any previous documents.

For the most current information, visit bluediamondattachments.com/warranty-policies.

NOTE: Blue Diamond® Attachments is a trademark of BLUE DIAMOND® ATTACHMENTS, LLC.



QUALITY | DEPENDABILITY | INTEGRITY

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