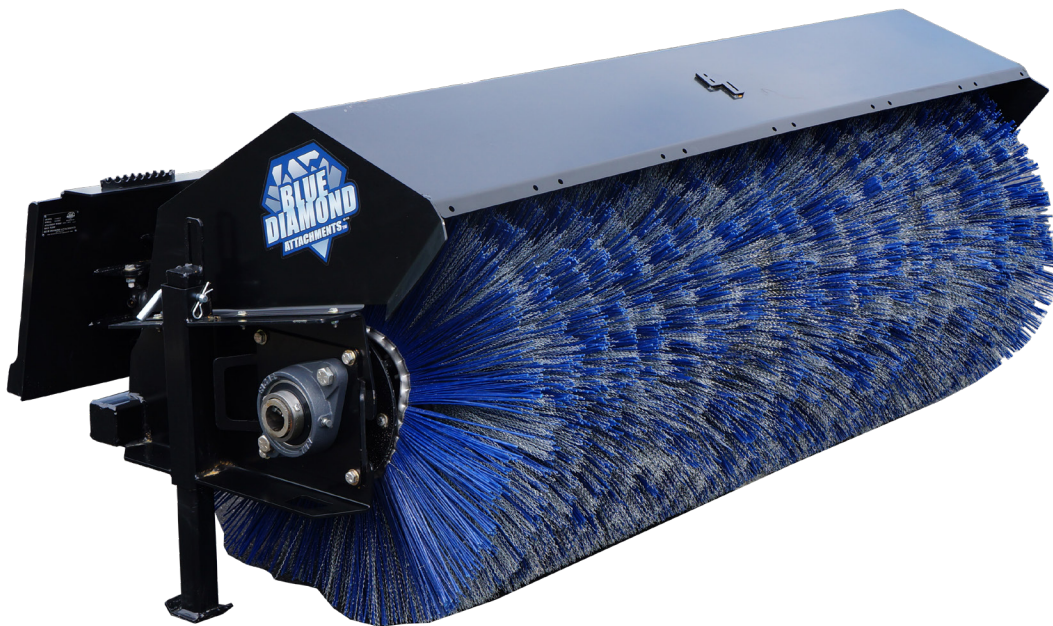


Angle Broom Severe Duty Series 2

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® Severe Duty Series 2 Angle Broom. To ensure maximum performance of your equipment, it is mandatory that you thoroughly study the Operator's Manual and follow the recommendations. Proper operation and maintenance are essential to maximize equipment life and prevent personal injury.

Operate and maintain this equipment in a safe manner and in accordance with all applicable local, state, and federal codes, regulations, and/or laws. Follow all on-product labeling and instructions.

Make sure that all personnel have read this Operator's Manual and thoroughly understand safe and correct operating, installation, and maintenance procedures.

Blue Diamond® is continually working to improve its products. Blue Diamond® reserves the right to make any improvements or changes as deemed practical and possible without incurring any responsibility or obligation to make any changes or additions to equipment sold previously.

Although great care has been taken to ensure the accuracy of this publication, Blue Diamond® makes no warranty or guarantee of any kind, written or expressed, implied or otherwise with regard to the information contained within this manual. Blue Diamond® assumes no responsibility for any errors that may appear in this manual and shall not be liable under any circumstances for incidental, consequential or punitive damages in connection with, or arising from the use of this manual.

Keep this manual available for frequent reference. All new operators or owners must review the manual before using the equipment and annually thereafter. Contact your Blue Diamond® Attachments Dealer for assistance, information, or additional copies of the manual. Contact www.bluediamondattachments.com or call 888-376-7027 for a complete list of dealers in your area.

Serial Number Location:

Please record attachment information in the space provided for future reference.



Model Number: _____

Serial Number: _____

Dealer Name: _____

Dealer Number: _____

Date of Purchase: _____

The serial number plate is located on the front of the mount plate on the right hand side 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 the 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@battachments.com

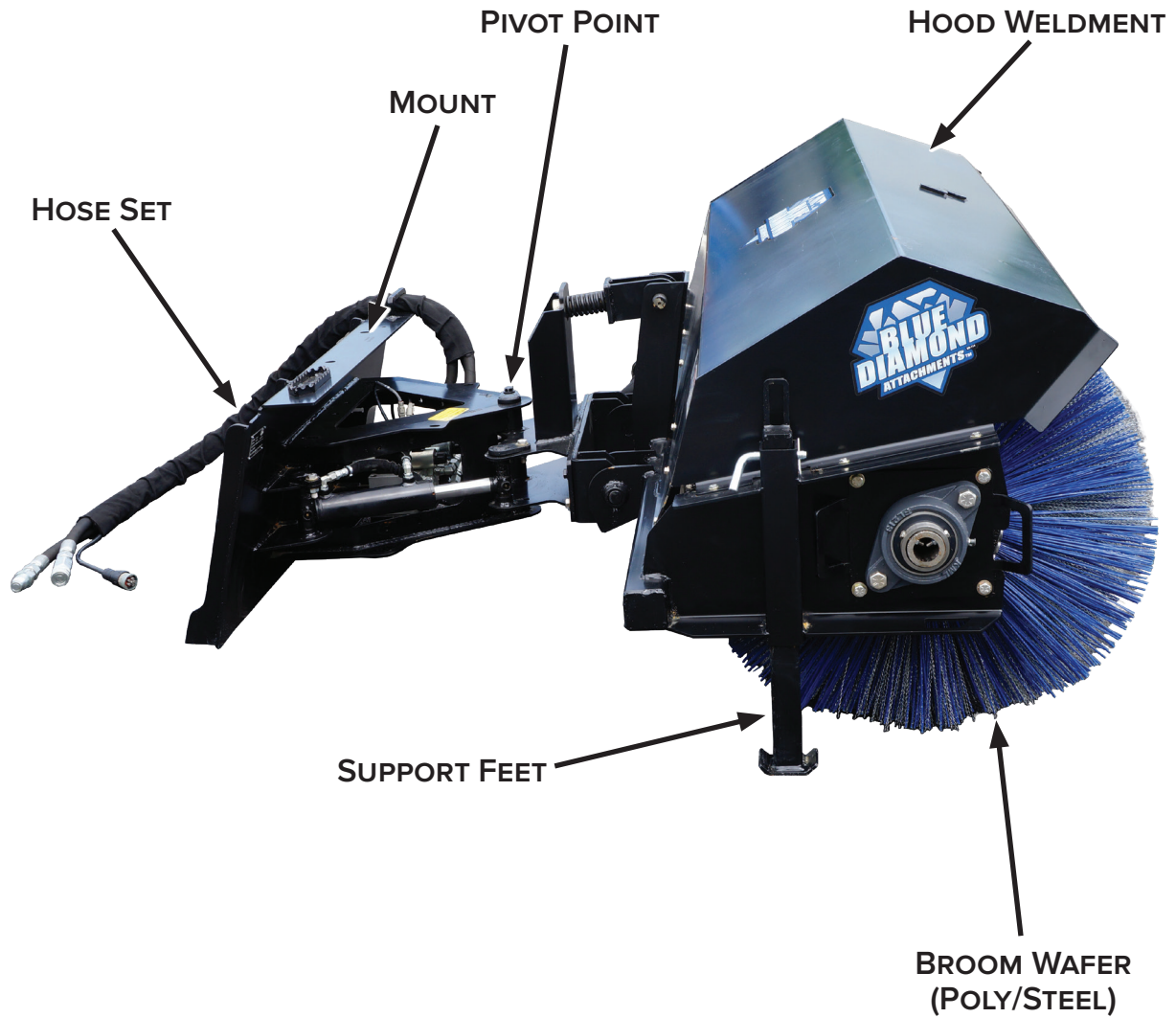
TECHNICIAN: _____

CUSTOMER: _____

DATE: _____

2. Introduction

2.1 Attachment Identification



2. Introduction

2.2 About this Attachment

The Blue Diamond® Severe Duty Series 2 Rotating Angle Broom is a brutal attachment for the serious user. This broom makes quick work of dirt, snow, gravel, and debris on construction sites, driveways, parking lots, and so much more.

Available with manual or hydraulic angle options, the broom's hydraulic version includes an easy-to-use in-cab control for smooth angle adjustments while operating. Choose between poly or poly-steel bristles for maximum durability and sweeping efficiency. When not in use, retractable support legs protect the broom and maintain bristle shape for longer life. Built for heavy-duty cleanup and year-round use, this broom delivers performance, reliability, and control you can count on.

2.3 Attachment Model Numbers

MODEL NUMBER	ACTUATION	WIDTH
116408*	Manual	60"
116410*	Hydraulic	
116413	Manual	72"
116415	Hydraulic	
116418	Manual	84"
116420	Hydraulic	
116423*	Manual	96"
116425	Hydraulic	

*Discontinued.

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 Angle 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 Angle 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 valid driver's 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 position 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 sweeping 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 shutdown 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 Severe Duty Series 2 Angle 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 19.
 - Check the attachment mounting frame for damage or cracks.
 - Check that all shields and guards are in place.
 - Check for loose hardware (e.g. 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.

- Make sure all pivot pins are well lubricated and the gimbal is moving freely. Re-grease if required.
- 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 damaged 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 Severe Duty Series 2 Angle Broom on compatible host machines. Hydraulic flow must not exceed twenty-six gallons per minute (26 GPM) or ninety-eight liters per minute (98 L/min). Do not use high flow hydraulics when operating this attachment.



IMPORTANT



Do not use high flow hydraulics when operating the Severe Duty Series 2 Angle 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 Severe Duty Series 2 Angle Broom model.

MODEL NUMBER	WIDTH	WEIGHT
116408	60"	995 lbs (451 kg)
116410		
116413	72 "	1,125 lbs (510 kg)
116415		
116418	84"	1,300 lbs (590 kg)
116420		
116423	96"	1,450 lbs (658 lbs)
116425		

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 Angle Broom.

Lower the support leg so it is engaged.

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

Disconnect the Angle Broom from the host machine. See "Disconnecting Attachment From the Machine" on page 15.

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

Use a minimum of four (4) heavy duty ratchet straps or chains rated for the attachment's weight. See "8.1 Attachment Specifications" on page 49 for more information.

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

4. Operation

4.3 Transporting the Attachment Cont'd

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

4.4 Entering & Exiting the Prime Mover

IMPORTANT



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 the safety seat bar, start the engine, and release the parking brake.

Leaving the Operator's Position

WARNING

AVOID SERIOUS INJURY OR DEATH

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



WARNING



CRUSH HAZARD

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

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

Enter the operator's position. See "Entering the Operator's Position" on page 13.

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.)



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.

4. Operation

4.5 Attachment Installation Cont'd

Connecting Attachment to the Machine Cont'd

Leave the operator's position. See "Leaving the Operator's Position" on page 13.

Connecting Hydraulic Hoses



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 Severe Duty Series 2 Angle Broom must be angled manually and not equipped with a water kit, a wire harness is not needed.

If the Severe Duty Series 2 Angle Broom must be angled manually and is equipped with a water kit, a wire harness is needed. A universal wire harness or OEM wire harness can be used. It is sold separately from the water kit.

If the Severe Duty Series 2 Angle Broom is equipped to hydraulically adjust the angle, a wire harness will be needed. A universal wire harness or OEM wire harness can be used.

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 more information.

If using a universal wire harness purchased from Blue Diamond®, it will plug 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 the Severe Duty Series 2 Angle Broom is equipped with the hydraulic angle adjustment and a water kit, an additional wire harness will need to be purchased. One wire harness must be an OEM and the other wire harness must be a universal (PN 200010).

See "7.6 Hydraulic Angle Kit Components" on page 42 and "7.7 Water Kit Components" on page 45 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 13.

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 13.

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 the Angle Broom in vicinity of bystanders, animals, or damageable property. Objects can be thrown more than several feet.
- Keep all shields installed. Repair or replace if damaged or missing.
- Check broom core, broom wafers, and mounting hardware. Replace if damaged. Never weld or modify.



WARNING



AVOID SERIOUS INJURY OR DEATH

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



WARNING



Never allow riders on the attachment.

1. Install the Angle Broom onto the host machine. (See "Connecting Attachment to the Machine" on page 13.)
2. Move the support feet into the upper position, so that they are not dragging on the ground or impeding the rotation of the broom drum/wafers.
3. Raise the attachment approximately six (6) inches (152 mm) off the ground.

4. Operation

4.6 Operating the Attachment Cont'd

4. 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.
5. Slowly raise the machine's engine's RPM to the desired brush speed, maintaining a safe speed.



IMPORTANT



DO NOT exceed 3,500 psi (241 bar) operating pressure and twenty-six gallons per minute (26 GPM) hydraulic flow. Doing so can result in serious damage.

6. Adjust the Angle Broom so the broom pivot pin is perpendicular to the ground. This ensures even sweeping when the attachment is angled. The ends of the attachment will rise or lower when angled if the pivot pin is not perpendicular to the ground. See "How to Angle the Broom" on page 16 for additional information.
7. Limit travel speed to five miles per hour (5 mph) or eight kilometers per hour (8 km/h).
8. Adjust the brush using the host machine's tilt function to give a two – four inch (2 – 4") wide pattern. Excessive down-force will prematurely wear the bristles.
9. Slow down when sweeping heavy material. Allow time for the broom to sweep.

NOTE: The Severe Duty Series 2 Angle Broom can sweep with the drum rotating forward or in reverse. See "How to Change Direction of Drum Rotation" on page 16 for more information.

How to Change Direction of Drum Rotation

To change the direction of the drum rotation, either forward or in reverse, perform the following:

Manual Angle

1. Lower the machine's engine RPM to just above idle.
2. Disengage the auxiliary hydraulics.
3. Wait for the drum to completely stop rotating.
4. Engage the auxiliary hydraulics once again but in the opposite direction.
5. Slowly raise the machine engine's RPM to the desired brush speed, maintaining a safe speed.

Hydraulic Angle

1. Lower the machine's engine RPM to just above idle.
2. Disengage the auxiliary hydraulics.
3. Using electrical controls, change the flow direction of the motor.
4. Engage the auxiliary hydraulics.
5. Slowly raise the machine's engine RPM to the desired brush speed, maintaining a safe speed.

NOTE: Changing flow direction from the host machine will not change the direction of the rotating drum on the hydraulic Angle Brooms. The direction of drum rotation is a function of the wire harness.

How to Angle the Broom

To angle the broom left or right, perform the following:

Manual Angle

1. Raise the Angle Broom slightly above the ground with the pivot pin vertical.
2. Remove the angle link pin connecting the two (2) angle links.
3. Manually swing the broom all the way left or right.
4. Reinsert the angle link pin.

4. Operation

4.6 Operating the Attachment Cont'd

How to Angle the Broom Cont'd

Hydraulic Angle

To angle the broom left or right, perform the following:

1. Ensure the correct wire harness is properly connected.
NOTE: If using the hydraulic angle without a water kit connected, the wire harness can be OEM or universal.
2. Engage the electrical controls to direct the hydraulic flow towards the cylinder.
NOTE: The angle function can be completed while sweeping.
3. Use the auxiliary hydraulics to angle the broom either left or right. Keep the auxiliary hydraulics engaged until the broom reaches the desired angle. (See the host machine's Operator's Manual for more information.)
4. Once at the desired angle, disengage the electrical controls to direct the auxiliary hydraulics back towards the broom's motor, which is responsible for the sweeping function.



CAUTION



AVOID INJURY

When adjusting the angle while sweeping, be sure no person or animal has entered the work area and is at risk for injury caused by potential flying debris.

Water Kit (Optional)

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

Water Kit with Manual Angle Broom

In addition to the water kit, if equipped with a manually adjusted Angle Broom, a wire harness will be needed for the water kit to function.

To use the water kit, perform the following:

2. Install the water kit. [See "5.12 Water Kit Installation (Optional)" on page 25.]
3. Install the wire harness, either OEM or universal, onto the installed water kit.
3. Engage the wire harness to start the water pump, allowing water to flow out of the nozzles.
4. To turn off the water kit, disengage the wire harness.

Water Kit with Hydraulic Angle Broom

If using a water kit with a hydraulic Angle Broom, an additional wire harness will be needed. One wire harness will need to be OEM, and the other wire harness will need to be universal. This allows the water kit to be independently controlled from the hydraulic adjustment.

NOTE: It is not possible to use two (2) universal wire harnesses or two (2) OEM wire harnesses with this broom.

1. Install the water kit. [See "5.12 Water Kit Installation (Optional)" on page 25.]
2. Install either the OEM wire harness or universal wire harness onto the water kit, whichever one is NOT already installed on the Angle Broom.
3. Engage the wire harness to turn on the water pump, allowing water to flow out of the nozzles.
4. To turn off the water kit, disengage the wire harness.

4. Operation

4.7 Operating Tips

- To keep the attachment in optimal condition, always allow the maintenance schedule outlined in “5.1 Service Schedule” on page 19.
- Perform “4.1 Pre–Operation Inspection” on page 11 each time you operate the attachment.
- Operate the Angle 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 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 Angle 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 Angle 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 you need an attachment to lift, carry, push, or tow, 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 Angle Broom as it can throw debris when it is in operation. Shut down 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)	•					
Vertical Angle 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 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.
- Set the support feet.

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



WARNING



AVOID SERIOUS INJURY OR DEATH

Before operating or servicing 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

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

- Always keep the work area clean and dry.
- Always use personal 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 while 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 the 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 both 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 10 for additional safety 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.

5.3 Daily Maintenance

Inspect the attachment by performing a walk-around 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.
- 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 broom wafers for excessive wear or damage. Adjust if necessary. See “5.7 Broom Height & Pattern Adjustment” on page 22 for additional information.
- 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.

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.

5.4 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 22 for additional information.

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.

5. Maintenance

5.5 Monthly Maintenance Cont'd

- Check for damaged or missing decals. Replace if necessary.
- Check for damaged or leaking hydraulic hoses or fittings. Replace if necessary.
- Clean all debris, leaves, and grass 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 a quality lithium-based multi purpose grease when lubricating the attachment.

Broom Vertical Angle Point

This zerk is located on the back of the vertical angle pivot. Apply three – four (3 – 4) pumps of grease to the grease zerk.

Broom Horizontal Angle Point

These two (2) zerks are located one (1) on each side of the broom in front of the vertical pivot pin on the intermediate frame. Apply three – four (3 – 4) pumps of grease to each grease zerk.

Broom Height Adjustment Yoke

This zerk is located on the adjustment yoke near the broom height adjustment bolt. Apply three – four (3 – 4) pumps of grease to the grease zerk.

Right Side Bearing

This zerk is located on the bearing on the right side of the broom. Apply three – four (3 – 4) pumps of grease to the grease zerk.

5.7 Broom Height & Pattern Adjustment

The broom height must be adjusted when the broom is new and as the bristles wear. The brush pattern should be checked and adjusted after every eight (8) hours of operation or once daily. To check and adjust the pattern, perform the following:

1. Move the Angle Broom to a flat, dusty 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 (loader arms down and loader mount vertical).
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 leave the operator's position. (See "Leaving the Operator's Position" on page 13.)
6. Measure the pattern width left by the broom. The broom pattern should be two – four inches (2 – 4") wide and even across the width of the attachment [Figure 1].

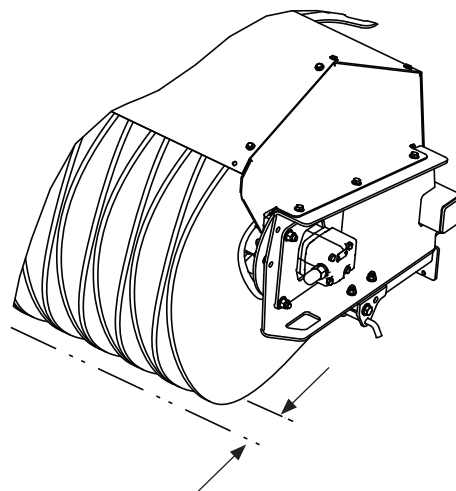


Figure 1

5. Maintenance

5.8 Broom Core

See “7.4 Drum & Motor Components” on page 38 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 13.
3. Disconnect the attachment hydraulic hoses from the machine.
4. Remove the motor to broom housing hardware.
5. Remove the motor subassembly. The motor hoses can remain connected.
6. Remove the bearing housing hardware and the bearing assembly [Figure 2].

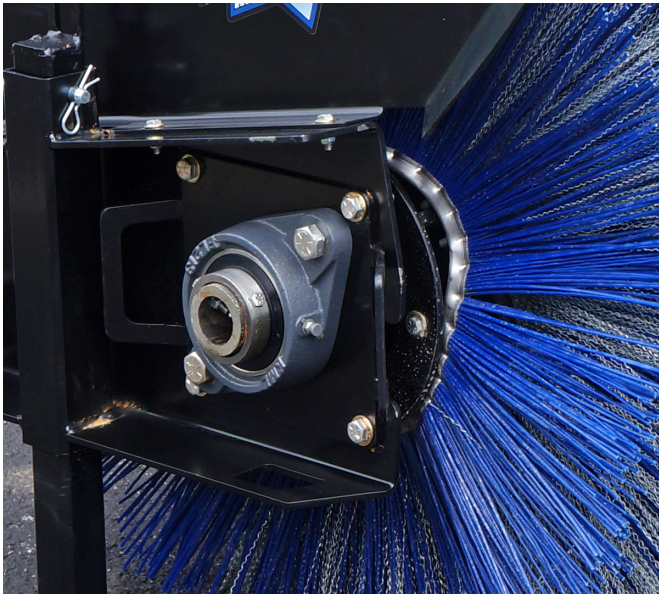


Figure 2

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

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

8. Roll the broom core away from the hood.

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

5.9 Motor

See “7.4 Drum & Motor Components” on page 38 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 13.
3. Disconnect the hydraulic hoses from the host machine.
4. Remove the motor to broom housing hardware.
5. Remove the motor.

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

5.10 Bearing

See “7.4 Drum & Motor Components” on page 38 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 13.
3. Disconnect the attachment's hydraulic hoses from the host machine.
4. Remove the shaft retaining hardware and the bearing hardware.
5. Remove the bearing.

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

5. Maintenance

5.11 Broom Wafer Replacement

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

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 13.
3. Disconnect the attachment’s hydraulic hoses from the host machine.
4. Remove the motor to broom housing hardware.
5. Remove the motor. The hoses can remain connected.
6. Remove the bearing hardware and the bearing [“Figure 2” on page 23].
7. 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 drum from the core.
8. Roll the broom core away from the hood.
9. Remove the hardware from the end retainer, and then remove the end retainer plate [Figure 3].



Figure 3

10. Remove the wafers.

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

Replacement

1. Using a hoist or a 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 making sure the two (2) pins hug one of the drum’s bars. See Figure 4.

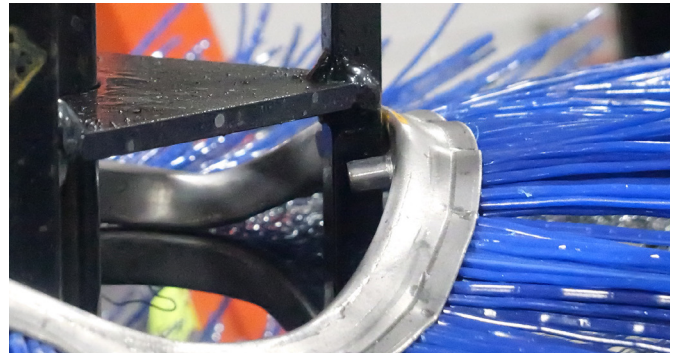


Figure 4

3. Install additional wafers with the convolutions (waves) opposing each other to expand the broom [Figure 5].

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



Figure 5

5. Maintenance

5.11 Broom Wafer Replacement Cont'd

Replacement Cont'd

4. After installing the last wafer, install the end retainer plate. Carefully lay the core on its side [Figure 6].



Figure 6

5. Using a hoist 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, and motor subassembly (if removed).
7. Be sure everything is properly torqued. Refer to “8.2 Torque Specifications – Imperial” on page 50.

5.12 Water Kit Installation (Optional)

Water kits are sold separately from the Angle Broom. Be sure to purchase a wire harness, which is sold separately. The wire harness is needed to operate the water kit.

See “7.7 Water Kit Components” on page 45 for diagrams.

1. Install the support plate (216360) to the top of the mount.
2. Install the mounting bracket (116152) above the pivot point.
3. Install the base weldment for the water tank (255420) to both the support plate (216360) and the mounting bracket (116152).
4. Install the water pump bracket (216673) to the base weldment (255420).
5. Bolt the pump (216540) to the water pump bracket (216673).
6. Crimp the connector pins onto the pump wires.
7. Push the connector pins into the Deutsch connector, black on “1” and red on “2”. Pull on the wire to test that they are securely connected.
8. Insert the green connector piece into the Deutsch connector.
9. Secure the water tank (255424) to the base weldment (255420) using the straps (255422) and the J-bolts (216548) and nuts (299620).
10. Thread the fitting (216555) onto the water tank.
11. Thread the filter fitting (216660) onto the water pump.
12. Thread the filter (216542) and the other fitting (216658) into the pump inlet. Ensure the direction of flow through the filter is towards the pump.
13. Attach one end 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).
14. Connect the water pump fitting (216662) to the water pump.

5. Maintenance

5.12 Water Kit Installation (Optional) Cont'd

15. Attach one end of another section of the 1/2" inner diameter hose (216688) to the water pump fitting (216662).
16. Loop the long hose (216688) around the back of the water tank to where the other end of the hose is on the right side of the broom attachment.
17. Every broom model will have two (2) water nozzles that use a 90 degree fitting for each end of the water hose. 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. Secure the internal pieces inside the water nozzle fitting (216315) with a plastic nut (216693).
 4. Place the assembled nozzle through the nozzle holder plate (216325) so that the hardware end of the plate is facing upwards and the assembled nozzle is pointing downwards.
 5. Repeat the above steps for the second water nozzle that uses a 90 degree fitting, 216315.
18. Every broom model will have at least one (1) water nozzle that uses a barbed tee fitting (216310). The total number varies per model. 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 top of the water nozzle strainer (216320).
 3. Secure the internal pieces inside the water nozzle fitting (216310) with a plastic nut (216693).
 4. Place the assembled nozzle through the nozzle holder plate (216325) so that the hardware end of the plate is facing upwards and the assembled nozzle is pointing downwards.
 5. Repeat the above steps for the second water nozzle that uses a barbed tee fitting, 216310.
19. Set the assembled nozzles aside momentarily, and attach the nozzle tee fitting (216694) to the end of the 1/2" inner diameter hose (216688) that was brought around to the front of the broom. Secure with a hose crimp (216691).
20. Connect the assembled nozzles using 3/8" inner diameter hose (216690). Be sure to use the 90 degree nozzles at the end of the hoses.

NOTE: Be sure to keep the nozzle tee fitting (216694) in the middle of the water system as much as possible.
21. Once all the assembled nozzles are connected to the hoses, secure the nozzle holder plates (216325) to the front of the hood weldment.
22. Connect the wire harness to the Deutsch connector.
23. See "Water Kit (Optional)" on page 17 for instructions on how to operate the water kit.

5.13 Cleaning the Attachment

To maintain safety and quality performance, it is best to clean the Angle 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 13.
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 13.
6. Start the engine and fully lower the machine's lift arms while tilting the Angle Broom forward (down) until the support feet come in contact with the ground.

5. Maintenance

5.13 Cleaning the Attachment Cont'd

7. Use water or air pressure to clean debris from the Angle Broom's frame and shields.

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

5.14 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 and are identified in parts diagrams by the Blue Diamond® OEM icon. 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

5.15 Storage

Storing the Attachment

Sometimes it may be necessary to store your Severe Duty Series 2 Angle Broom for an extended period of time. Below is a list of items to perform before storage.

- Raise the broom housing so that the broom wafers are two – four inches (2 – 4") (50 – 100 mm) above the ground before lowering the

support feet's position. The support feet should now be preventing the broom wafers from touching the ground.

- Make sure the hydraulic hose couplers are capped, plugged, or connected to each other.
- Thoroughly wash the attachment before storing it for long periods.
- Lubricate the attachment.
- Coat the exposed portion of the cylinder with oil, if equipped with hydraulic angle adjustment.
- 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.
- Do not store the polypropylene broom wafers in direct sunlight. The material can deteriorate.

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 Angle Broom has been in storage, it is necessary to follow a list of items to return the attachment to service.

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

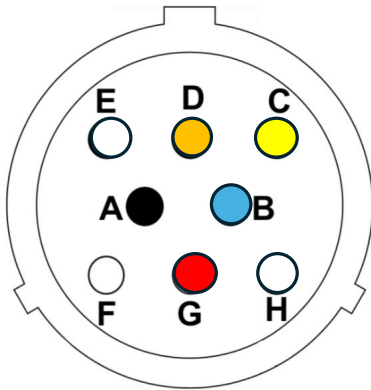
5. Maintenance

5.16 Troubleshooting

PROBLEM	CAUSE	SOLUTION
Hydraulic angle adjustment does not work.	Blown fuse caused by electrical overload	Replace fuse. Refer to the host machine's Operator's Manual for more information.
	Damaged wire or electrical connections.	Repair wire connections. See your local dealer for electrical issues with the host machine.
	Damaged wire harness	Replace wire harness.
Hydraulic fluid is leaking.	Damaged O-rings	Replace O-rings. Be sure that the valve is properly seated in the attachment. Bolts may need to be shortened and washers added if seated improperly as to not have this issue repeat. If still loose, contact Blue Diamond® Product Support.
	Damaged hoses, couplers, and other hydraulic components.	Replace the hydraulic components. Be sure to figure out root cause(e.g. damaged hose due to debris) so the issue is not repeated.
Hydraulic angle adjustment moves in the wrong direction.	Hydraulic flow going the wrong direction	Switch the couplers on the hoses.
Broom does not rotate.	Auxiliary hydraulics switch for continuous operation not engaged	Engage auxiliary hydraulics switch for continuous operation.
	One or both hydraulic couplers not fully connected	Check and reconnect couplers.
Broom wafers wear down too quickly.	Too much down-pressure	Raise loader arms to the correct height [2 – 4" (50 – 100 mm)] for a wide sweeping pattern.
Broom wafers wear more on one end than the other.	Broom not level	Make sure the host machine's mount is positioned to keep the main pin vertical.
Poor sweeping quality	Broom wafers are worn	Replace the broom wafers.
	Broom RPM too low	Reduce travel speed and increase engine rpm to increase hydraulic flow.
	Hydraulic flow is restricted with foreign material	Purge hydraulics to remove foreign material. See your local service technician to service the host machine's hydraulic system.

6. Wire Harness Control Guide

6.1 ASV & Terex 8-Pin



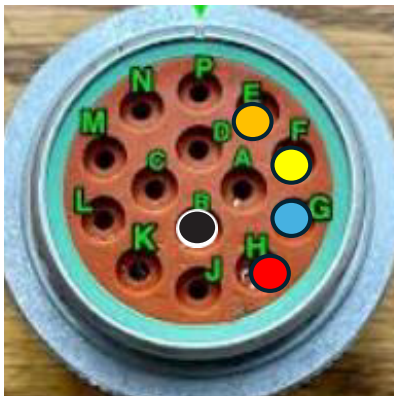
PIN	COLOR	CONTROL
A	Black (Ground)	—
B	Blue	Reverse Rotation
C	Yellow	Angle Right
D	Orange	Angle Left
G	Red	Forward Rotation

6.2 ASV 14-Pin



PIN	COLOR	CONTROL
B	Black (Ground)	—
C	Red	Forward Rotation
D	Blue	Reverse Rotation
E	Yellow	Angle Right
F	Orange	Angle Left

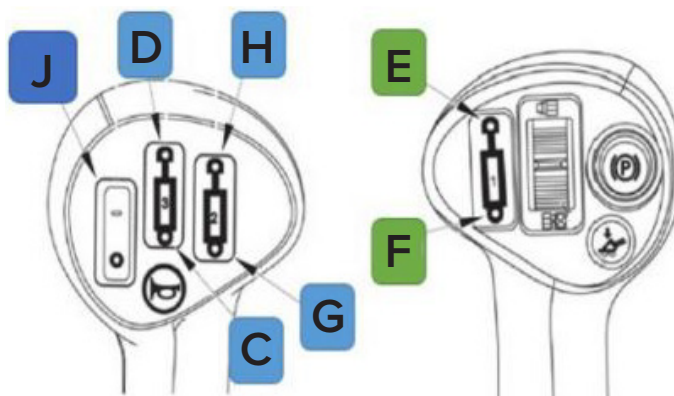
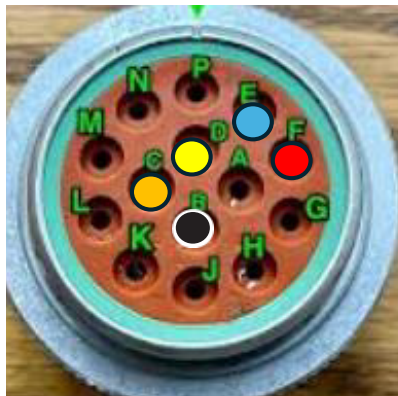
6.3 Bobcat 14-Pin (S Models)



PIN	COLOR	CONTROL
B	Black (Ground)	—
E	Orange	Angle Left
F	Yellow	Angle Right
G	Blue	Reverse Rotation
H	Red	Forward Rotation

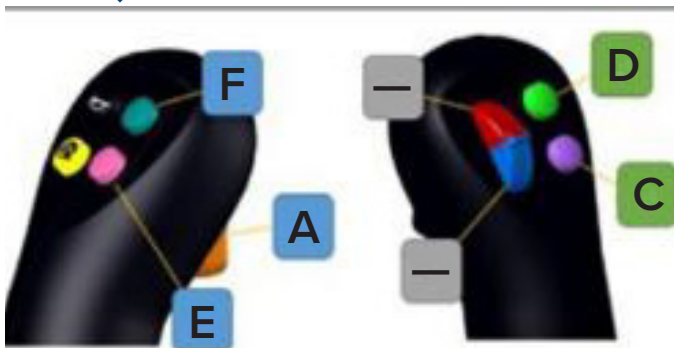
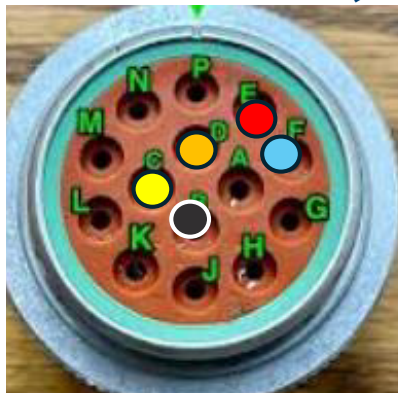
6. Wire Harness Control Guide

6.4 CASE/New Holland 14-Pin



PIN	COLOR	CONTROL
B	Black (Ground)	—
C	Orange	Angle Left
D	Yellow	Angle Right
E	Blue	Reverse Rotation
F	Red	Forward Rotation

6.5 CAT 14-Pin (D Models)



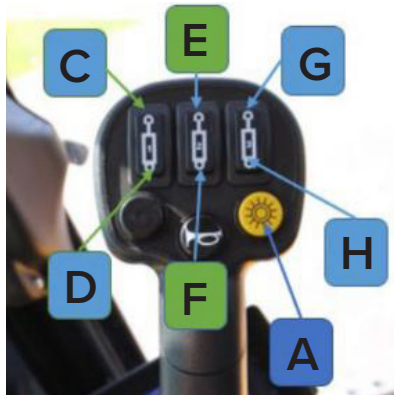
ADVANCED JOYSTICK



PIN	COLOR	CONTROL
B	Black (Ground)	—
C	Yellow	Angle Right
D	Orange	Angle Left
E	Red	Forward Rotation
F	Blue	Reverse Rotation

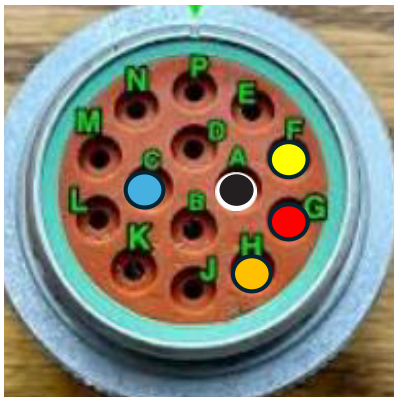
6. Wire Harness Control Guide

6.6 Gehl/Manitou/Mustang 14-Pin



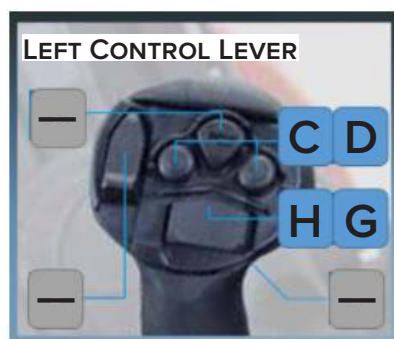
PIN	COLOR	CONTROL
B	Black (Ground)	—
C	Orange	Angle Left
D	Yellow	Angle Right
E	Red	Forward Rotation
F	Blue	Reverse Rotation

6.7 John Deere 14-Pin (G, D, or P Models)



PIN	COLOR	CONTROL
A	Black (Ground)	—
C	Blue	Reverse Rotation
F	Yellow	Angle Right
G	Red	Forward Rotation
H	Orange	Angle Left

6.8 Kubota 14-Pin



PIN	COLOR	CONTROL
B	Black (Ground)	—
C	Red	Forward Rotation
D	Blue	Reverse Rotation
G	Yellow	Angle Right
H	Blue	Angle Left

6. Wire Harness Control Guide

6.9 Takeuchi/JCB 14–Pin



PIN	COLOR	CONTROL
B	Black (Ground)	—
C	Red	Forward Rotation
D	Blue	Reverse Rotation
E	Yellow	Angle Right
F	Orange	Angle Left

7. Parts

7.1 Wear Parts

Broom Wafer Kits

PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
216205-KIT-60	Broom Wafer Kit – 10" x 32" Steel Convuluted for 60" Models	1	—	—	—
216205-KIT-72	Broom Wafer Kit – 10" x 32" Steel Convuluted for 72" Models	—	1	—	—
216205-KIT-84	Broom Wafer Kit – 10" x 32" Steel Convuluted for 84" Models	—	—	1	—
216205-KIT-96	Broom Wafer Kit – 10" x 32" Steel Convuluted for 96" Models	—	—	—	1
216207-KIT-60	Broom Wafer Kit – 10" x 32" Poly Convuluted for 60" Models	1	—	—	—
216207-KIT-72	Broom Wafer Kit – 10" x 32" Poly Convuluted for 72" Models	—	1	—	—
216207-KIT-84	Broom Wafer Kit – 10" x 32" Poly Convuluted for 84" Models	—	—	1	—
216207-KIT-96	Broom Wafer Kit – 10" x 32" Poly Convuluted for 96" Models	—	—	—	1
216209-KIT-60	Broom Wafer Kit – 10" x 32" Combo Convuluted for 60" Models	1	—	—	—
216209-KIT-72	Broom Wafer Kit – 10" x 32" Combo Convuluted for 72" Models	—	1	—	—
216209-KIT-84	Broom Wafer Kit – 10" x 32" Combo Convuluted for 84" Models	—	—	1	—
216209-KIT-96	Broom Wafer Kit – 10" x 32" Combo Convuluted for 96" Models	—	—	—	1

Water Kits – Requires a Wire Harness

PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
316154	Water Kit for 60" Models	1	—	—	—
316156	Water Kit for 72" Models	—	1	—	—
316158	Water Kit for 84" Models	—	—	1	—
316160	Water Kit for 96" Models	—	—	—	1

Wire Harnesses for Water Kits*

PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
200010	Universal Wire Harness with Control Switch & 12V Plug	1	1	1	1
216900	Wire Harness Flat 2 Pin to 14 Pin	1	1	1	1
216905	Wire Harness Flat 2 Pin to 8 Pin	1	1	1	1
216951-KIT	Wire Harness Adapter Kit 7 Pin Low Voltage Bobcat to 2 Pin Trailer Plug	1	1	1	1

*NOTE: If using a water kit with a hydraulic Angle Broom, one universal wire harness and one OEM wire harness must be used.

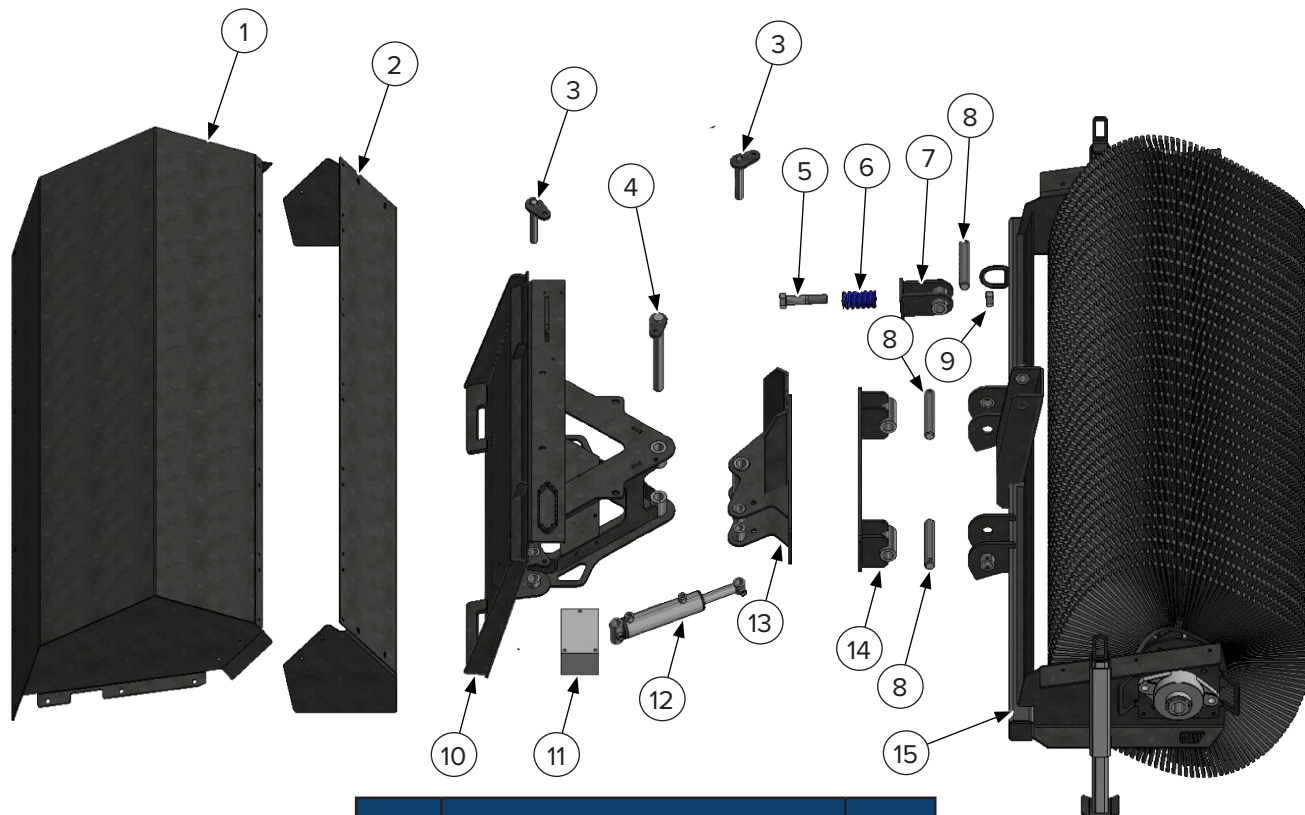
Wire Harnesses for Hydraulic Angle*

PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
103884	Wire Harness Attachment Side	1	1	1	1
103885	Wire Harness Machine Side Universal Control	1	1	1	1
103887	Wire Harness Machine Side 14–Pin	1	1	1	1
103888	Wire Harness Machine Side Bobcat 7–Pin	1	1	1	1
103889	Wire Harness Machine Side 8–Pin	1	1	1	1

*NOTE: If using a water kit with a hydraulic Angle Broom, one universal wire harness and one OEM wire harness must be used.

7. Parts

7.2 Mount & Hood Components

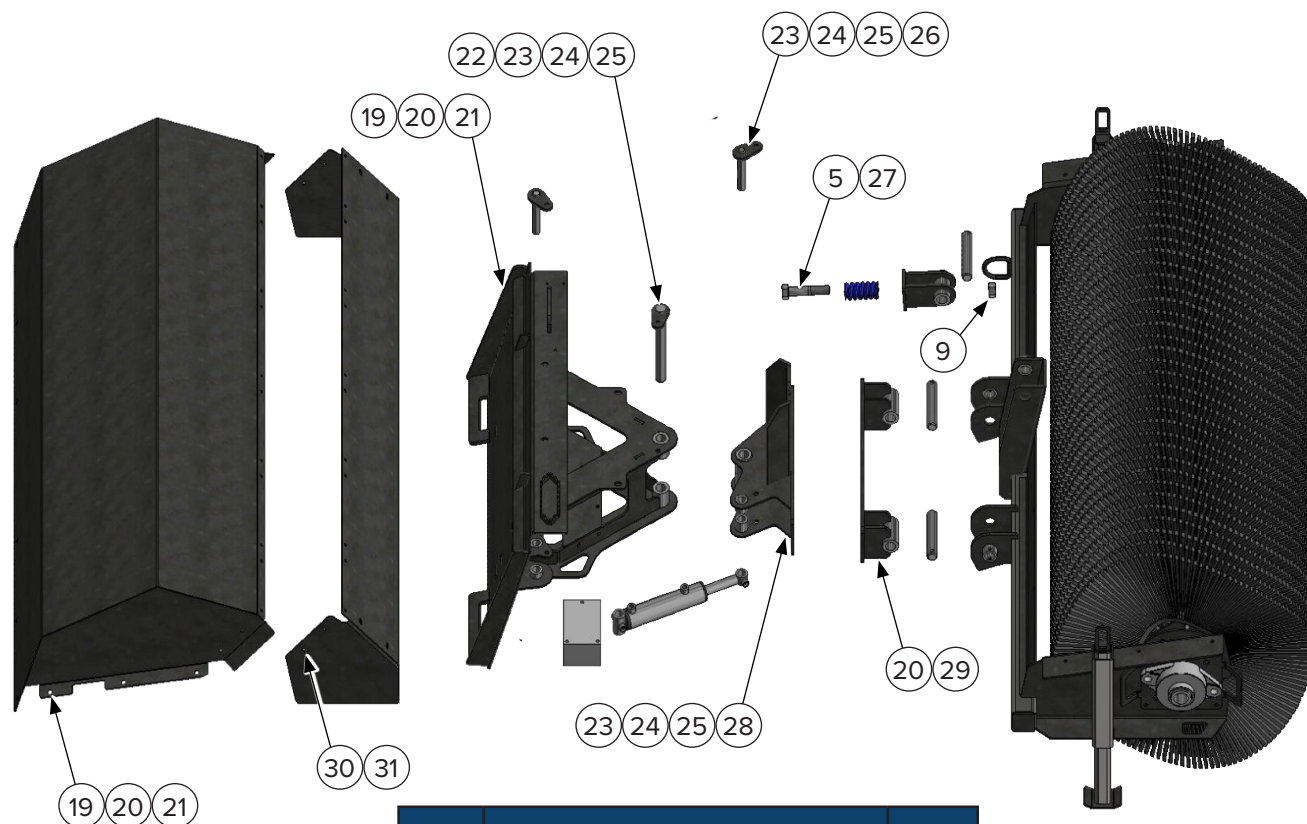


ITEM	PARTS NOT SHOWN INDIVIDUALLY	QTY
16	Manual Angle Arm	1
17	Hose Set	1
18	Manual Storage Tube	1

7. Parts

7.2 Mount & Hood Components Cont'd

ITEM	PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
1	216756-60	60" Bolt-On Hood Weldment	1	—	—	—
	216756-72	72" Bolt-On Hood Weldment	—	1	—	—
	216756-84	84" Bolt-On Hood Weldment	—	—	1	—
	216756-96	96" Bolt-On Hood Weldment	—	—	—	1
2	216262-60	60" Steel Deflector (Optional)	1	—	—	—
	216262-72	72" Steel Deflector (Optional)	—	1	—	—
	216262-84	84" Steel Deflector (Optional)	—	—	1	—
	216262-96	96" Steel Deflector (Optional)	—	—	—	1
3	216722	1" x 4 1/8" with Tab Cylinder Pin	2	2	2	2
4	216721	1 1/4" x 11 1/4" with Tab Main Pivot Pin	1	1	1	1
5	299493	1"—8 x 6" Hex Head Bolt for Spring	1	1	1	1
6	216241	Ø.312 x 2" OD x 4" Long Compression Spring	1	1	1	1
7	216760	Spring to Main Frame Connection Float Weldment	1	1	1	1
8	216740	7 1/2" x 1 1/4" Float Weldment Pivot Pin	3	3	3	3
9	299659	1"—8 Stover Nut for Spring	1	1	1	1
10	216745	Mount Weldment with A-Frame for Angle Pivot	1	1	1	1
11	216743	Hydraulic Manifold Block	1	1	1	1
12	216158	2" Bore x 6" Stroke Cylinder	1	1	1	1
13	216747	Float/Angle Pivot Connection Weldment	1	1	1	1
14	216742	Front Hinge Bracket	1	1	1	1
15	216750-60	60" Main Frame Only	1	—	—	—
	216750-72	72" Main Frame Only	—	1	—	—
	216750-84	84" Main Frame Only	—	—	1	—
	216750-96	96" Main Frame Only	—	—	—	1
16	216784	Manual Angle Arm	1	1	1	1
17	216746	Hose Set	1	1	1	1
18	216402	Manual Storage Tube	1	1	1	1



ITEM	PARTS NOT SHOWN INDIVIDUALLY	QTY
19	Manual Storage Tube Bolt	3
20	Manual Storage Tube Nut	3
21	Manual Storage Tube Washer	6

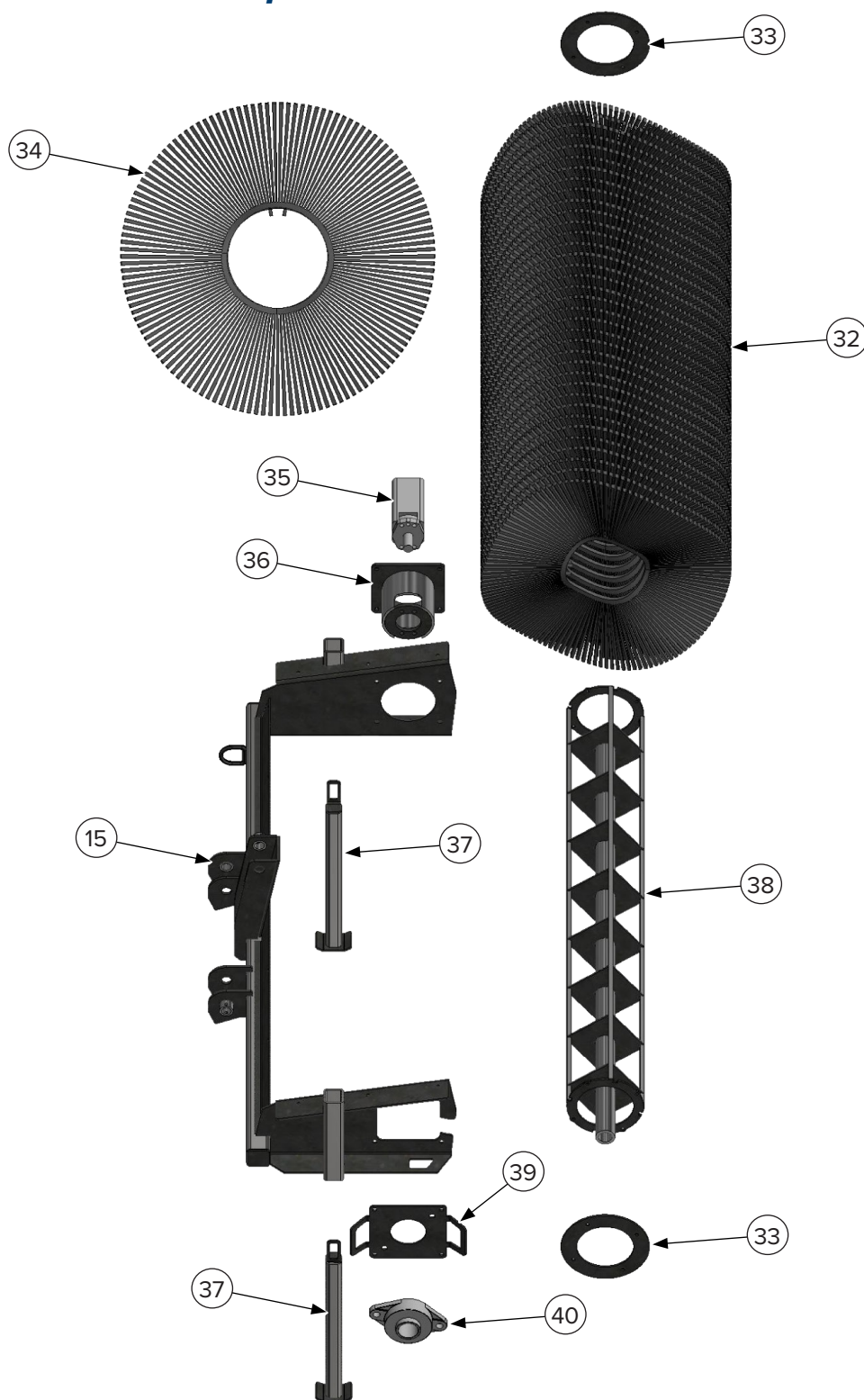
7. Parts

7.3 Mount & Hood Hardware Cont'd

ITEM	PART NUMBER	DESCRIPTION	SPECIFICATION	60" QTY	72" QTY	84" QTY	96" QTY
5	299493	Hinge Spring Bolt	1"–8 x 6" Hex Head Bolt	1	1	1	1
9	299659	Hinge Spring Nut	1"–8 Stover Nut	1	1	1	1
19	299317	Hood Bolt	5/16"–18 x 1" Hex Head Bolt	12	12	14	14
		Manual Storage Tube Bolt		3	3	3	3
20	299654	Hood Nut	5/16"–18 Stover Nut	12	12	14	14
		Hinge Pivot Pin Nut		3	3	3	3
		Manual Storage Tube Nut		3	3	3	3
21	299720	Hood Washer	5/16" Washer	24	24	28	28
		Manual Storage Tube Washer		6	6	6	6
22	299474	Main Pivot Pin Bolt	1/2"–13 x 2 1/2" Hex Head Bolt	1	1	1	1
23	299655	Main Pivot Pin Nut	1/2"–13 Stover Lock Nut	1	1	1	1
		Cylinder/Angle Arm Pivot Pin Nut		2	2	2	2
		Pivot/Spring Mount to Hinge Weldment Nut		4	4	4	4
24	299830	Main Pivot Pin Washer	1/2" Lock Washer	1	1	1	1
	299830	Cylinder/Angle Arm Pivot Pin Washer		2	2	2	2
	299830	Pivot/Spring Mount to Hinge Weldment Washer		4	4	4	4
25	299732	Main Pivot Pin Washer	Ø1/2" Washer	2	2	2	2
		Cylinder/Angle Arm Pivot Pin Washer		4	4	4	4
		Pivot/Spring Mount to Hinge Weldment Washer		8	8	8	8
26	299439	Cylinder/Angle Arm Pivot Pin Bolt	1/2"–13 x 1 3/4" Hex Head Bolt	1	1	1	1
27	223178	Hinge Spring Washer	1" Washer (2 1/2" OD)	1	1	1	1
28	299433	Pivot/Spring Mount to Hinge Weldment Bolt	1/2"–13 x 2" Hex Head Bolt	4	4	4	4
29	299315	Hinge Pivot Pin Bolt	5/16"–18 x 2 1/4" Hex Head Bolt	3	3	3	3
30	299342	Hood Extension Bolt	3/8"–16 x 1" Hex Head Bolt	—	—	16	—
31	208550	Hood Extension Nut	3/8"–16 Stover Lock Nut	—	—	16	—

7. Parts

7.4 Drum & Motor Components



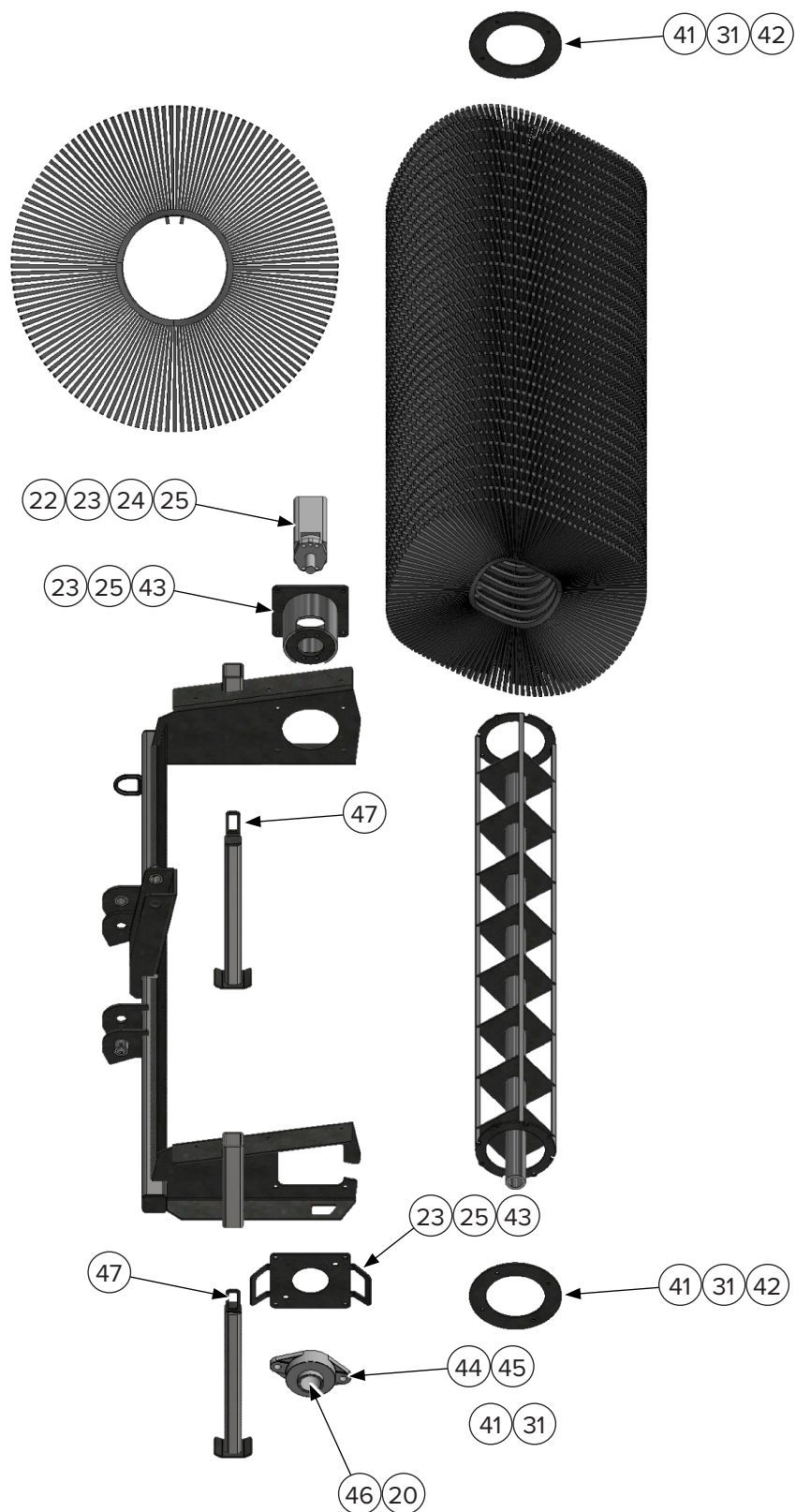
7. Parts

7.4 Drum & Motor Components Cont'd

ITEM	PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
15	216750-60	60" Main Frame Only	1	—	—	—
	216750-72	72" Main Frame Only	—	1	—	—
	216750-84	84" Main Frame Only	—	—	1	—
	216750-96	96" Main Frame Only	—	—	—	1
32	See 7.1 Wear Parts	Complete Broom Wafer Replacement Kit	1	1	1	1
33	216782	Drum Shaft End Plate	2	2	2	2
34	216205	10" x 32" Steel Wafer Convolute	14	17	20	23
	216207	10" x 32" Poly Wafer Convolute	15	18	21	24
	216209	10" x 32" Poly/Steel Mix Wafer Convolute	29	35	41	47
35	216705	315cc Motor	1	1	1	1
36	216744	Motor Support Bracket	1	1	1	1
37	216752	24" Adjustable Support Leg	2	2	2	2
38	216607	60" Drum Weldment	1	—	—	—
	216608	72" Drum Weldment	—	1	—	—
	216606	84" Drum Weldment	—	—	1	—
	216609	96" Drum Weldment	—	—	—	1
39	216758	Bearing Attachment Plate	1	1	1	1
40	216741	Bearing	1	1	1	1

7. Parts

7.5 Drum & Motor Hardware



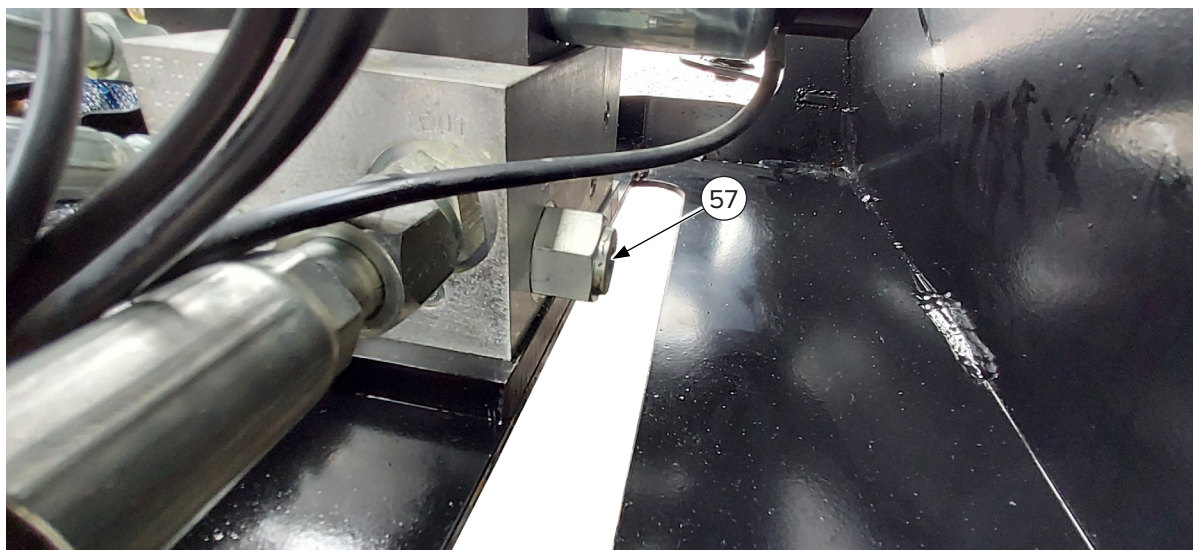
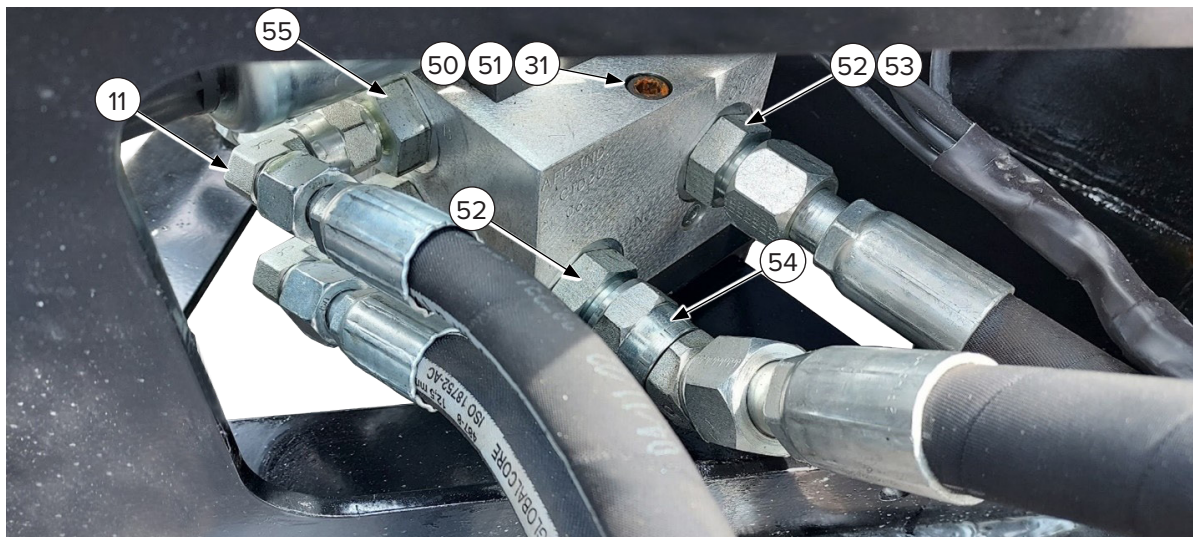
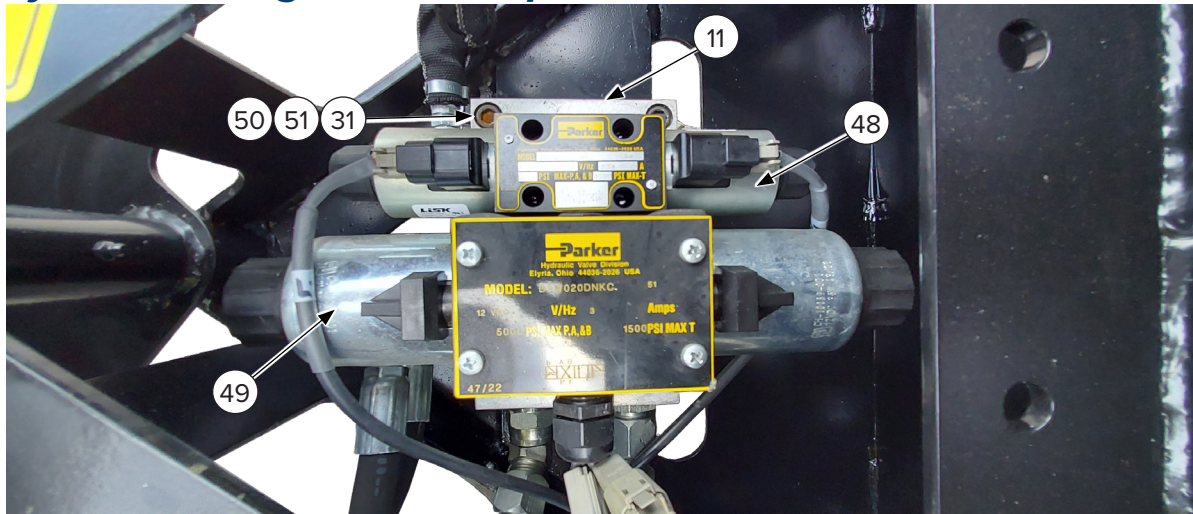
7. Parts

7.5 Drum & Motor Hardware Cont'd

ITEM	PART NUMBER	DESCRIPTION	SPECIFICATION	60" QTY	72" QTY	84" QTY	96" QTY
20	299654	Bearing Shaft Retainer Nut	5/16" Stover Nut	2	2	2	2
22	299474	Motor to Motor Coupler Bolt	1/2"–13 x 2 1/2" Hex Head Bolt	4	4	4	4
23	299655	Motor to Motor Coupler Nut	1/2"–13 Stover Lock Nut	4	4	4	4
		Motor Coupler Mount Nut		4	4	4	4
		Bearing Mount Plate Nut		4	4	4	4
24	299830	Motor to Motor Coupler Lock Washer	1/2" Lock Washer	4	4	4	4
25	299732	Motor to Motor Coupler Washer	Ø1/2" Washer	4	4	4	4
		Motor Coupler Mount Washer		8	8	8	8
		Bearing Mount Plate Washer		8	8	8	8
31	208550	Drum Shaft End Plate Nut	3/8" Stover Lock Nut	8	8	8	8
41	299428	Drum Shaft End Plate Bolt	3/8"–16 x 1 1/2" Hex Head Bolt	8	8	8	8
42	299725	Drum Shaft End Plate Washer	3/8" Flat Washer	16	16	16	16
43	299344	Motor Coupler Mount Bolt	1/2"–13 x 1 1/4" Hex Head Bolt	4	4	4	4
		Bearing Mount Plate Bolt		4	4	4	4
44	299454	Bearing Mount Bolt	3/4"–10 x 2" Hex Head Bolt	2	2	2	2
45	299657	Bearing Mount Nut	3/4"–10 Stover Nut	2	2	2	2
46	299318	Bearing Shaft Retainer Bolt	5/16"–18 x 1 1/2" Hex Head Bolt	2	2	2	2
47	270505	Support Leg Pin	5/8" x 3" Usable Length Bent Pull Clevis Pin with Clip	2	2	2	2

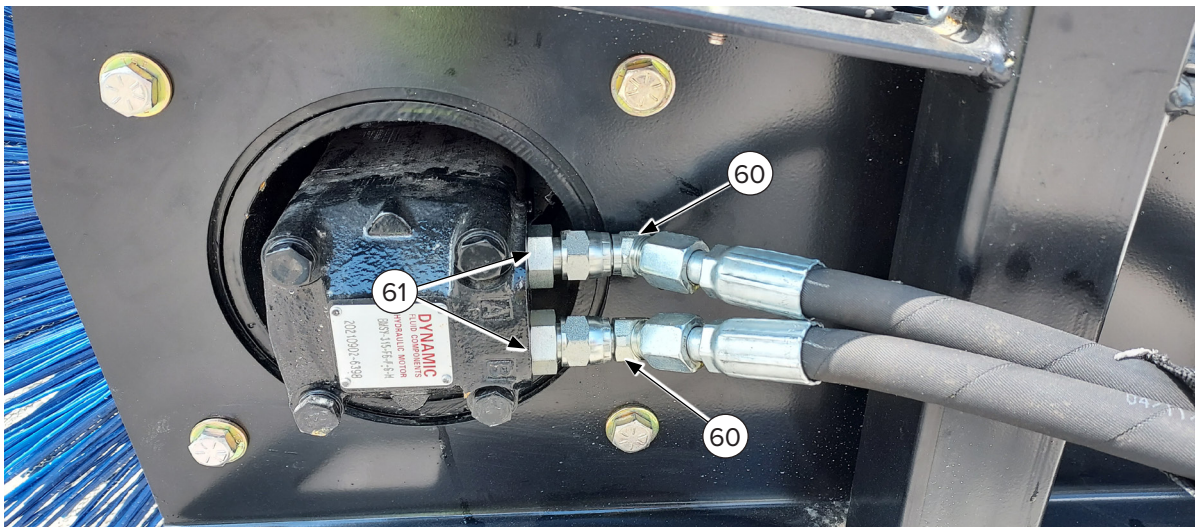
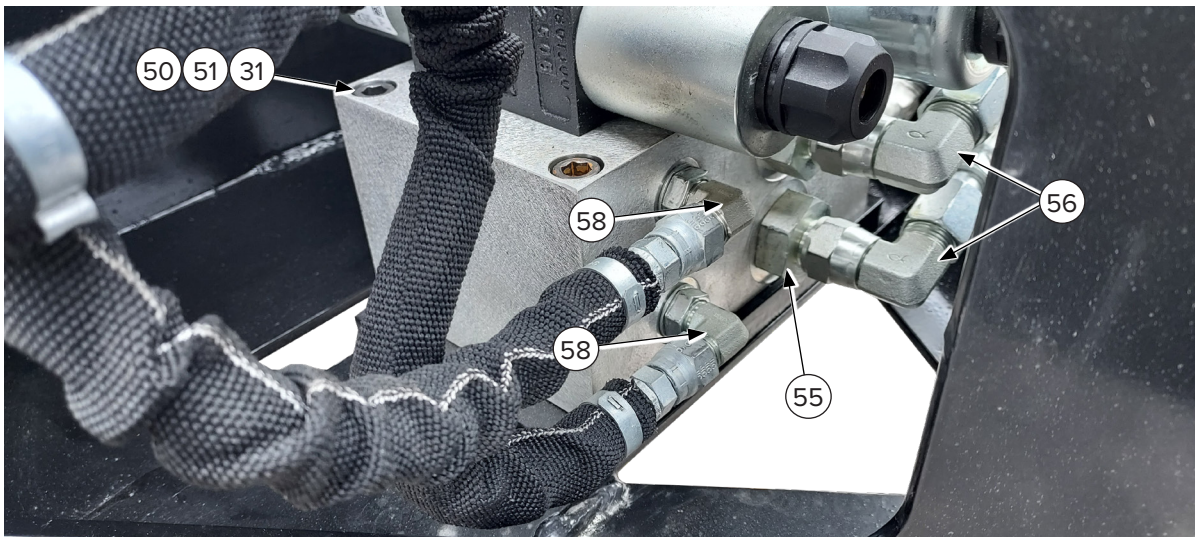
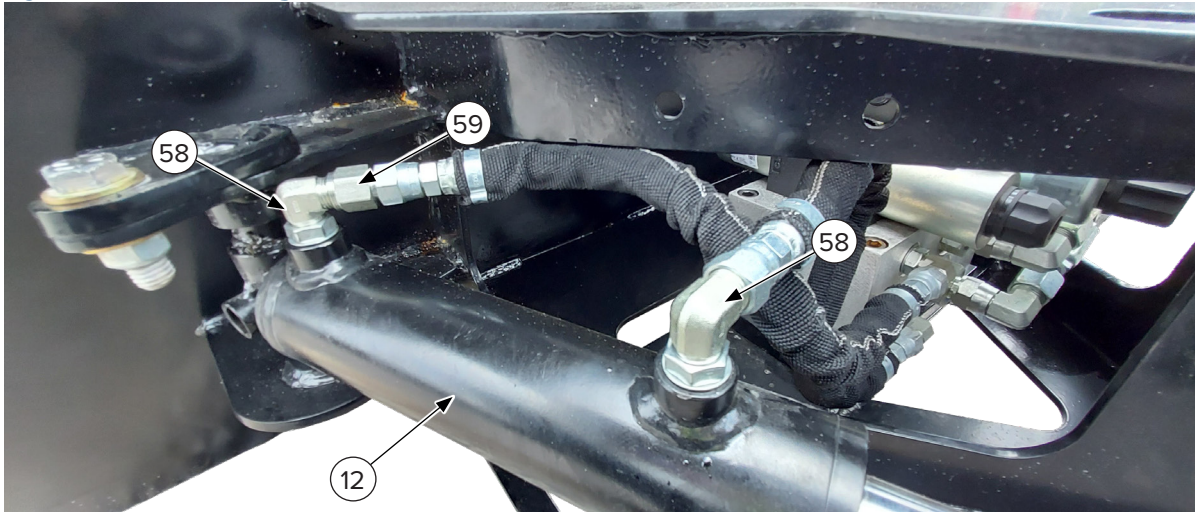
7. Parts

7.6 Hydraulic Angle Kit Components



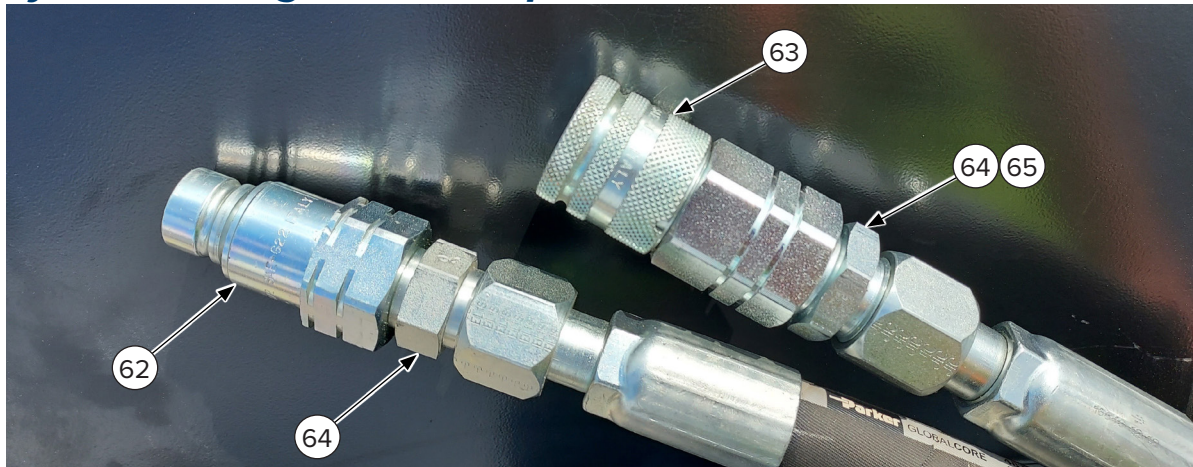
7. Parts

7.6 Hydraulic Angle Kit Components Cont'd



7. Parts

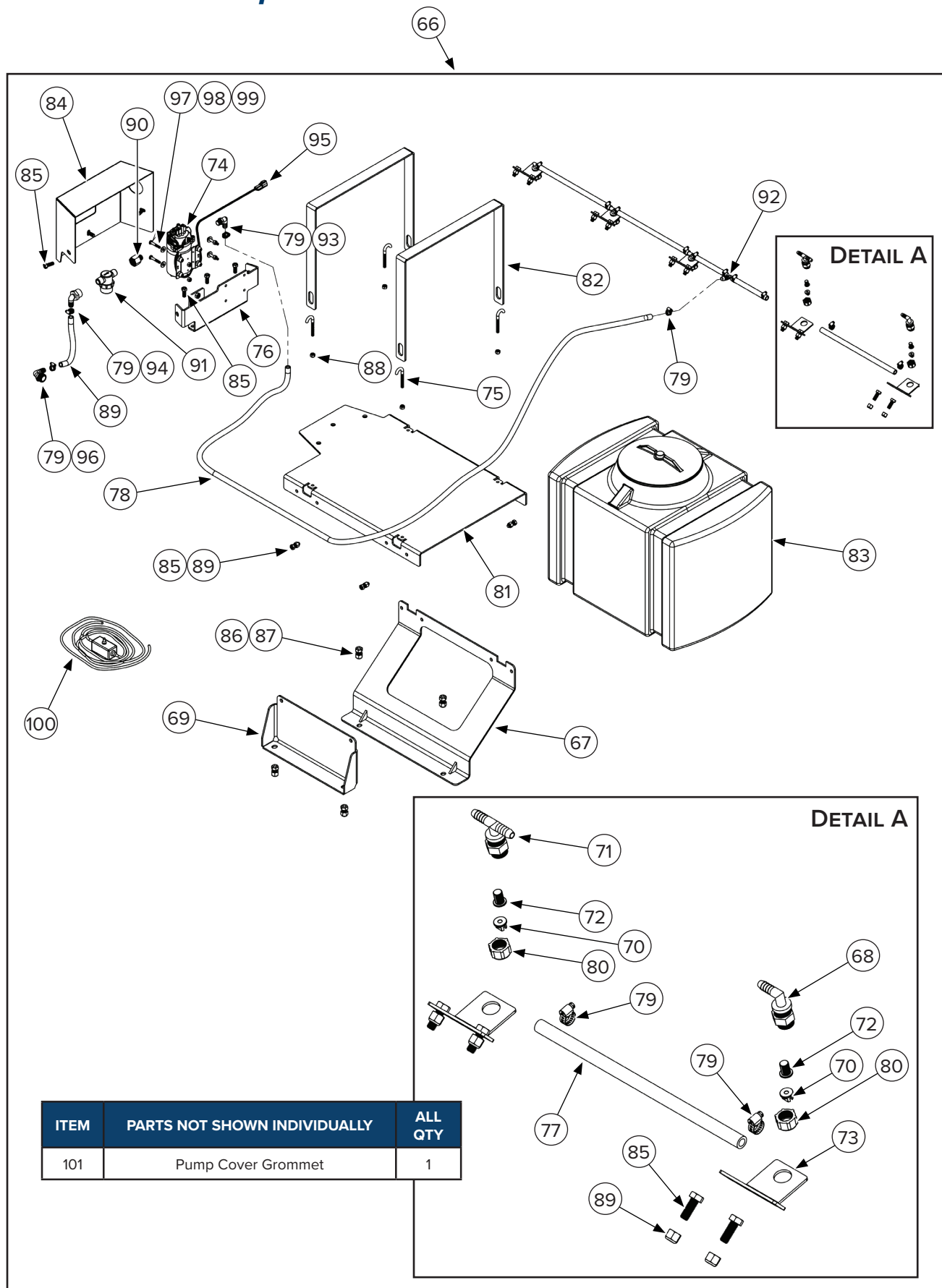
7.6 Hydraulic Angle Kit Components Cont'd



ITEM	PART NUMBER	DESCRIPTION	QTY
11	216743	Hydraulic Manifold Valve Block	1
12	216158	2" Bore x 6" Stroke Hydraulic Cylinder	1
31	208550	3/8"-16 Stover Lock Nut for Valve Block	3
48	216351	Small Solenoid Valve	2
49	216352	Large Solenoid Valve	2
50	299321	3/8"-16 x 5" Socket Head Bolt for Valve Block	3
51	299724	0.065" x 3/8" x 0.812" Washer for Valve Block	3
52	295010-M12JIC-M12ORB	Hydraulic Straight Fitting Male #12 JIC to Male #12 O-Ring Boss	1 or 2
53	216354	Manifold Return Port Check Valve Fitting (not required if #65 is present)	0 or 1
54	295020-M12JIC-F12JIC	Hydraulic 45 Degree Fitting Male #12 JIC to Female #12 JIC (Supply Fitting for Valve Block)	1
55	295010-M08JIC-M12ORB	Hydraulic Straight Fitting Male #8 JIC to Male #12 O-Ring Boss (Motor Supply & Return Fittings at Valve Block)	2
56	295030-M08JIC-F08JIC	Hydraulic 90 Degree Fitting Male #8 JIC to Female #8 JIC (Motor Supply & Return Fittings at Valve Block)	2
57	216748	Hydraulic Manifold Valve Block Cartridge	1
58	295030-M06JIC-M08ORB	Hydraulic 90 Degree Fitting Male #6 JIC to Male #8 O-Ring Boss (Fittings for Cylinder Hose)	4
59	206052	Cylinder Restrictor Fitting Female #6 JIC to Male #6 JIC with 0.0625" Hole (Base End)	1
60	295020-M08JIC-F08JIC	Hydraulic 45 Degree Fitting Male #8 JIC to Female #8 JIC (Motor Fittings)	2
61	205010-M08JIC-M10ORB	Hydraulic Straight Fitting Male #8 JIC to Male #10 O-Ring Boss (Motor Fittings)	2
62	224010	Male Coupler, Flat Face Straight 1/2" Body Female #8 O-Ring Boss	1
63	224009	Female Coupler, Flat Face Straight 1/2" Body Female #8 O-Ring Boss	1
64	295010-M12JIC-M08ORB	Hydraulic Straight Fitting Male #12 JIC to Male #8 O-Ring Boss (Supply Line Coupler Fitting)	1 or 2
65	216353	Return Line Check Valve Coupler Fitting (not required if #53 is present)	0 or 1

7. Parts

7.7 Water Kit Components



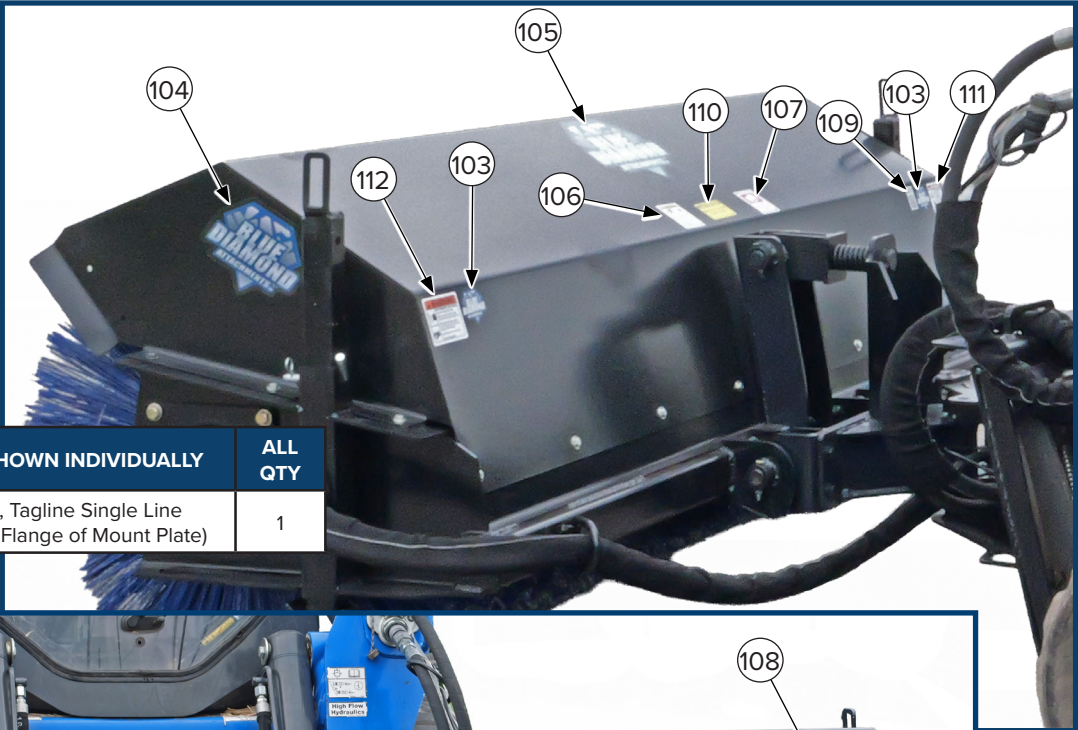
7. Parts

7.7 Water Kit Components Cont'd

ITEM	PART NUMBER	DESCRIPTION	60" QTY	72" QTY	84" QTY	96" QTY
66	See 7.1 Wear Parts	Water Kit Assembly	1	1	1	1
67	116151	Mounting Bracket	1	1	1	1
68	216315	Water Nozzle Elbow with Jam Nut	2	2	2	2
69	216360	Support Plate	1	1	1	1
70	216305	80 Degree Water Nozzle	5	5	5	7
71	216310	Water Nozzle Tee with Jam Nut	3	3	3	5
72	216320	Strainer for Water Nozzle	5	5	5	7
73	216325	Holder Plate for Water Nozzle	5	5	5	7
74	216540	Water Pump	1	1	1	1
75	216548	5/16"–18 x 3" J–Bolt for Water Tank Mount	4	4	4	4
76	216673	Water Pump Mount Bracket	1	1	1	1
77	216690	3/8" ID Hose	3	5	5	7
78	216688	1/2" ID Hose	7	7	7	7
79	216691	Hose Crimp	14	14	14	18
80	216693	Retainer Nut for Nozzle	5	5	5	7
81	255420	Base Weldment for Water Tank	1	1	1	1
82	255422	Strap for Water Tank	2	2	2	2
83	255424	26 Gallon Water Tank	1	1	1	1
84	255458	Pump Cover Weldment	1	1	1	1
85	299423	3/8"–16 x 1" Hex Head Bolt Grade 8	20	20	20	24
86	299431	1/2"–13 x 1" Hex Head Bolt Grade 8	4	4	4	4
87	299618	1/2"–13 Hex Nylock Nut Grade 8	4	4	4	4
88	299620	5/16"–18 Hex Nylock Nut Grade 8	4	4	4	4
89	299625	3/8"–16 Hex Nylock Nut Grade 8	14	14	14	18
90	216660	Pump to Filter Fitting 3/8" Male NPT x 1/2" Female NPT Brass	1	1	1	1
91	216542	Strainer for Water Tank	1	1	1	1
92	216694	3–Way Barbed Tee Fitting	1	1	1	1
93	216662	Water Pump 90 Degree Fitting	1	1	1	1
94	216658	Pump Filter to Hose Fitting 1/2" Female NPT x 1/2" Barb	1	1	1	1
95	298115	Electrical Plug Deutsch DT2 Receptacle (Includes Two 16-14 GA Male Contacts)	1	1	1	1
96	216555	Water Tank 90 Degree Outlet Fitting 3/4" Male NPT x 1/2" Barb	1	1	1	1
97	299418	1/4"–20 x 1 1/2" Hex Head Bolt Grade 8	4	4	4	4
98	299715	1/4" Flat Washer Grade 8	8	8	8	8
99	299615	1/4"–20 Hex Nylock Nut Grade 8	4	4	4	4
100	200010	Universal Wire Harness with Control Switch & 12V Plug	1	1	1	1
101	216538	Pump Cover Grommet	1	1	1	1

7. Parts

7.8 Safety Decals



ITEM	PARTS NOT SHOWN INDIVIDUALLY	ALL QTY
102	2" Tall Decal, Tagline Single Line (Placed on Top Flange of Mount Plate)	1



BUILT STRONG. ATTACHED FOR LIFE.

BD-133



7. Parts

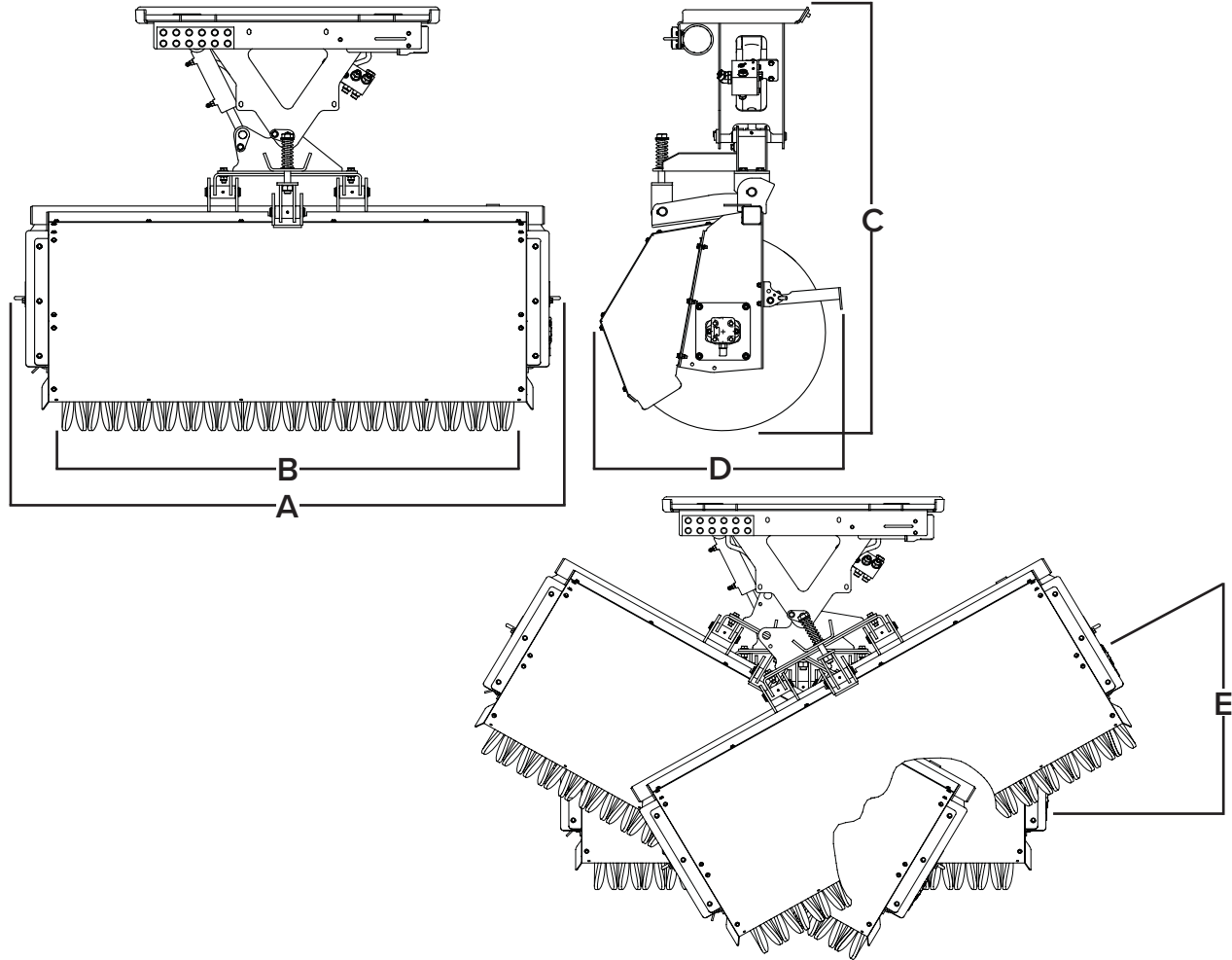
7.8 Safety Decals Cont'd



ITEM	PART NUMBER	DESCRIPTION	QTY
102	BD-134	2" Tall Decal, Tagline Single Line	1
103	BD-060	2.4375" x 3.375" Decal, Blue Diamond Attachments	2
104	BD-111	7.75" x 6" Decal, Blue Diamond Attachments	2
105	BD-112	12.18" x 9.47" Decal, Blue Diamond Attachment	1
106	BD-123	3.0" x 3.0" Decal, High Pressure Fluid Hazard	1
107	BD-001	3.0" x 3.0" Decal, Read Owner's Manual	1
108	BD-130	12" x 3.25" Decal, Warning Thrown Debris	2
109	BD-092	1.5" x 2.0" Decal, Warranty Registration QR	1
110	BD-004	2.0" x 4.0" Decal, Grease All Fitting Every 8 Hours	1
111	—	Decal, Danger Do Not Place Any Part of Body	1
112	—	Warning, High Pressure Fluid Hazard	1

8. Specifications

8.1 Attachment Specifications



DESCRIPTION	116408 & 116410	116413 & 116415	116418 & 116420	116423 & 116425
Overall Width	69 1/2 in. (1,765 mm)	81 1/2 in. (2,070 mm)	93 1/2 in. (2,375 mm)	105 1/2 in. (2,680 mm)
Working Width	60 in. (1,524 mm)	72 in. (1,829 mm)	84 in. (2,134 mm)	96 in. (2,438 mm)
Overall Depth	68 1/4 in. (1,733 mm)			
Overall Height	37 3/4 in. (959 mm)			
Pivot Angle – Left & Right	30 Degrees			
Required Hydraulic Flow	15 – 25 GPM (57 – 94 LPM)			
Maximum Horsepower	115 HP			
Minimum Pressure	2,000 psi (138 bar)			
Maximum Pressure	3,500 psi (241 bar)			
Weight	995 lbs (451 kg)	1,125 lbs (510 kg)	1,300 lbs (590 kg)	1,450 lbs (658 kg)

8. Specifications

8.2 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

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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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