Angle Broom
AP-AB72, & AP-AB84
For Skid Steers and Tractors With Front Loaders

Read the Operator’s Manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!

Cover photo may show optional equipment not supplied with standard unit.
For an Operator’s Manual and Decal Kit in French Language, please see your Kubota dealer.

Printed 4/10/19
Machine Identification
Record your machine details in the log below. If you replace this manual, be sure to transfer this information to the new manual.

If you, or the dealer, have added Options not originally ordered with the machine, or removed Options that were originally ordered, the weights and measurements are no longer accurate for your machine. Update the record by adding the machine weight and measurements provided in the Specifications & Capacities Section of this manual with the Option(s) weight and measurements.

<table>
<thead>
<tr>
<th>Model Number</th>
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<tbody>
<tr>
<td>Serial Number</td>
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<tr>
<td>Machine Height</td>
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<td>Machine Width</td>
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<td>Machine Weight</td>
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<td>Delivery Date</td>
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<tr>
<td>First Operation</td>
<td></td>
</tr>
<tr>
<td>Accessories</td>
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</tbody>
</table>

Dealer Contact Information
Name: ____________________________
Street: ____________________________
City/State: _______________________
Telephone: ________________________
Email: __________________________

California Proposition 65
WARNING: Cancer and reproductive harm - www.P65Warnings.ca.gov
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All other brands and product names are trademarks or registered trademarks of their respective holders.

*Printed in the United States of America.*
See previous page for Table of contents.
Listed below are common practices that may or may not be applicable to the products described in this manual.

**Safety at All Times**

Careful operation is your best assurance against an accident.

All operators, no matter how much experience they may have, should carefully read this manual and other related manuals, or have the manuals read to them, before operating the power machine and this attachment.

- Thoroughly read and understand the “Safety Label” section. Read all instructions noted on them.
- Do not operate the equipment while under the influence of drugs or alcohol as they impair the ability to safely and properly operate the equipment.
- Operator should be familiar with all functions of the tractor/skid steer and attachment and be able to handle emergencies quickly.
- Make sure all guards and shields appropriate for the operation are in place and secured before operating attachment.
- Keep all bystanders away from equipment and work area.
- Start tractor/skid steer from the driver’s seat with steering levers and hydraulic controls in neutral.
- Operate tractor/skid steer and controls from the driver’s seat only.
- Never dismount from a moving tractor/skid steer or leave machine unattended with engine running.
- Do not allow anyone to stand between tractor/skid steer and attachment while hooking-up.
- Keep hands, feet, and clothing away from power-driven parts.
- While transporting and operating equipment, watch out for objects overhead and along side such as fences, trees, buildings, wires, etc.
- Store attachment in an area where children normally do not play. When needed, secure attachment against falling with support blocks.

**Look for the Safety Alert Symbol**

The SAFETY ALERT SYMBOL indicates there is a potential hazard to personal safety involved and extra safety precaution must be taken. When you see this symbol, be alert and carefully read the message that follows it. In addition to 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.

**Be Aware of Signal Words**

A signal word designates a degree or level of hazard seriousness. The signal words are:

- **DANGER**
  Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

- **WARNING**
  Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

- **CAUTION**
  Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.

**Safety Precautions for Children**

Tragedy can occur if the operator is not alert to the presence of children. Children generally are attracted to attachments and their work.

- Never assume children will remain where you last saw them.
- Keep children out of the work area and under the watchful eye of a responsible adult.
- Be alert and shut the attachment and skid steer/track loader down if children enter the work area.
- Never carry children on the power machine or attachment. There is not a safe place for them to ride. They may fall off and be run over or interfere with the control of the power machine.
- Never allow children to operate the power machine, even under adult supervision.
- Never allow children to play on the power machine or attachment.
- Use extra caution when backing up. Before the power machine starts to move, look down and behind to make sure the area is clear.
These are common practices that may or may not be applicable to the products described in this manual.

### Dig Safe - Avoid Underground Utilities
- **USA:** Call 811
- **CAN:** digsafeCanada.ca

Always contact your local utility companies (electrical, telephone, gas, water, sewer, and others) before digging so that they may mark the location of any underground services in the area.

Be sure to ask how close you can work to the marks they positioned.

### Transport Safely
- Comply with federal, state, and local laws.
- Use towing vehicle and trailer of adequate size and capacity. Secure equipment towed on a trailer with tie downs and chains.
- Sudden braking can cause a towed trailer to swerve and upset. Reduce speed if towed trailer is not equipped with brakes.
- Avoid contact with any overhead utility lines or electrically charged conductors.
- Always drive with load on end of loader arms low to the ground.
- Always drive straight up and down steep inclines with heavy end of skid steer or tractor with loader attachment on the “uphill” side.
- Engage park brake when stopped on an incline.
- Maximum transport speed for an attached equipment is 20 mph. DO NOT EXCEED. Never travel at a speed which does not allow adequate control of steering and stopping. Some rough terrains require a slower speed.
- As a guideline, use the following maximum speed weight ratios for attached equipment:
  - **20 mph** when weight of attached equipment is less than or equal to the weight of machine towing the equipment.
  - **10 mph** when weight of attached equipment exceeds weight of machine towing equipment but not more than double the weight.

**IMPORTANT:** Do not tow a load that is more than double the weight of the vehicle towing the load.

### Practice Safe Maintenance
- Understand procedure before doing work. Refer to the Operator’s Manual for additional information.
- Work on a level surface in a clean dry area that is well-lit.
- Lower attachment to the ground and follow all shutdown procedures before leaving the operator’s seat to perform maintenance.
- Do not work under any hydraulic supported equipment. It can settle, suddenly leak down, or be lowered accidentally. If it is necessary to work under the equipment, securely support it with stands or suitable blocking beforehand.
- Use properly grounded electrical outlets and tools.
- Use correct tools and equipment for the job that are in good condition.
- Allow equipment to cool before working on it.
- Disconnect battery ground cable (−) before servicing or adjusting electrical systems or before welding on equipment.
- Inspect all parts. Make certain parts are in good condition & installed properly.
- Replace parts on this attachment with genuine Kubota parts only. Do not alter this attachment in a way which will adversely affect its performance.
- Do not grease or oil attachment while it is in operation.
- Remove buildup of grease, oil, or debris.
- Always make sure any material and waste products from the repair and maintenance of the attachment are properly collected and disposed.
- Remove all tools and unused parts from the equipment before operation.

### Tire Safety
- Tire changing can be dangerous and must be performed by trained personnel using the correct tools and equipment.
- Always maintain correct tire pressure. Do not inflate tires above recommended pressures shown in the Operator’s Manual.
- When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.
- Securely support the attachment when changing a wheel.
- When removing and installing wheels, use wheel handling equipment adequate for the weight involved.
- Make sure wheel bolts have been tightened to the specified torque.
Listed below are common practices that may or may not be applicable to the products described in this manual.

### Prepare for Emergencies
- Be prepared if a fire starts.
- Keep a first aid kit and fire extinguisher handy.
- Keep emergency numbers for doctor, ambulance, hospital, and fire department near phone.

### Wear Personal Protective Equipment (PPE)
- Wear protective clothing and equipment appropriate for the job such as safety shoes, safety glasses, hard hat, and ear plugs.
- Clothing should fit snug without fringes and pull strings to avoid entanglement with moving parts.
- Prolonged exposure to loud noise can cause hearing impairment or hearing loss. Wear suitable hearing protection such as earmuffs or earplugs.
- Operating equipment safely requires the operator’s full attention. Avoid wearing headphones while operating equipment.

### Avoid High Pressure Fluids Hazard
- Escaping fluid under pressure can penetrate the skin causing serious injury.
- Relieve all residual pressure before disconnecting hydraulic lines or performing work on the hydraulic system.
- Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.
- Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.
- Wear protective gloves and safety glasses or goggles when working with hydraulic systems.
- **DO NOT DELAY.** If an accident occurs, see a doctor familiar with this type of injury immediately. Any fluid injected into the skin or eyes must be treated within a few hours or gangrene may result.

### Use Personal Protective Equipment (PPE)
- Use protective clothing and equipment appropriate for the job such as safety shoes, safety glasses, hard hat, and ear plugs.
- Clothing should fit snug without fringes and pull strings to avoid entanglement with moving parts.
- Prolonged exposure to loud noise can cause hearing impairment or hearing loss. Wear suitable hearing protection such as earmuffs or earplugs.
- Operating equipment safely requires the operator’s full attention. Avoid wearing headphones while operating equipment.

### Use Safety Lights and Devices
- A slow moving excavator can create a hazard when driven on public roads. They are difficult to see, especially at night. Use the Slow Moving Vehicle (SMV) sign when on public roads.
- Flashing warning lights and turn signals are recommended whenever driving on public roads.

### Use Seat Belt and ROPS
- Kubota recommends the use of a CAB or roll-over-protective-structures (ROPS) and seat belt in almost all power machines. Combination of a CAB or ROPS and seat belt will reduce the risk of serious injury or death if the power machine should be upset.
- If ROPS is in the locked-up position, fasten seat belt snugly and securely to help protect against serious injury or death from falling and machine overturn.

### Keep Riders Off Machinery
- Never carry riders on the power machine or attachment.
- Riders obstruct operator’s view and interfere with the control of the power machine.
- Riders can be struck by objects or thrown from the equipment.
- Never use power machine or attachment to lift or transport riders.
Important Safety Information

These are common practices that may or may not be applicable to the products described in this manual.

Handle Chemicals Properly
- Protective clothing should be worn.
- Handle all chemicals with care.
- Follow instructions on container label.
- Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil, and property.
- Inhaling smoke from any type of chemical fire is a serious health hazard.
- Store or dispose of unused chemicals as specified by the chemical manufacturer.

Avoid Silica Dust
- There are guidelines which should be followed if crystalline silica (quartz) is present in the dust.
- Be aware of and follow OSHA (or other local, State, or Federal) guidelines for exposure to airborne crystalline silica.
- Know the work operations where exposure to crystalline silica may occur.
- Participate in air monitoring or training programs offered by the employer.
- Be aware of and use optional equipment controls such as water sprays, local exhaust ventilation, and enclosed cabs with positive pressure air conditioning if the machine has such equipment. Otherwise respirators shall be worn.
- Where respirators are required, wear a respirator approved for protection against crystalline silica containing dust. Do not alter respirator in any way. Workers who use tight-fitting respirators can not have beards/mustaches which interfere with the respirator seal to the face.
- If possible, change into disposable or washable work clothes at the work site; shower and change into clean clothing before leaving the work site.
- Do not eat, drink, use tobacco products, or apply cosmetics in areas where there is dust containing crystalline silica.
- Store food, drink, and personal belongings away from the work area.
- Wash hands and face before eating, drinking, smoking, or applying cosmetics after leaving the exposure area.

Tractor Shutdown & Storage
- Reduce engine speed and shut-off all power to the attachment.
- Park on solid, level ground and lower attachment to ground or onto support blocks.
- Put tractor in park or set park brake, turn off engine, and remove switch key to prevent unauthorized starting.
- Relieve all hydraulic pressures.
- Wait for all components to stop before leaving operator’s seat.
- Use steps, grab-handles and anti-slip surfaces when stepping on and off the tractor.
- Detach and store implement in an area where children normally do not play. Secure implement using blocks and supports.

Skid Steer Shutdown And Storage
- Reduce engine speed and shut-off all power to the attachment.
- Park on solid, level ground and lower attachment until it is flat on the ground or support blocks.
- Turn off engine, and remove switch key to prevent unauthorized starting.
- Relieve all hydraulic pressures.
- If included, raise seat bar and move controls until both lock.
- Wait for all components to stop before leaving operator’s seat.
- Use steps, grab-handles and anti-slip surfaces when stepping on and off the skid steer.
- Detach and store attachment in an area where children normally do not play. Secure attachment by using blocks and supports.
This page left blank intentionally.
Safety Labels

Your Angle Broom comes equipped with all safety labels in place. They are designed to help you safely operate your attachment. Read and follow their directions.

1. Keep all safety labels clean and legible.
2. Refer to this section for proper label placement. Replace all damaged or missing labels. Order new labels from your nearest Kubota dealer. To find your nearest dealer, visit our dealer locator at www.landpride.com.
3. Some new equipment installed during repair requires safety labels to be affixed to the replaced component as specified by Kubota. When ordering new components make sure the correct safety labels are included in the request.
4. Refer to this section for proper label placement.
   To install new labels:
   a. Clean surface area where label is to be placed.
   b. Spray soapy water onto the cleaned area.
   c. Peel backing from label and press label firmly onto the surface.
   d. Squeeze out air bubbles with edge of a credit card or with a similar type of straight edge.

838-293C
Warning: Read Manual

838-094C
Warning: High Pressure Fluid Hazard

858-235C
Caution: Hydraulic Hose Hazard
**848-372C**

**Warning:**
Flying Objects Hazard & Entanglement Hazard

---

**848-392C**

**Warning:**
Wear Eye Protection & Dust Mask

---

**818-045C**

**Warning:**
Pinch Point or Crushing Hazard
WARNING

SILICA DUST HAZARD

Silica dust can cause serious injury to the lungs. To avoid exposure to silica dust particles:

- Be aware of and follow the OSHA (or other regulatory body) guidelines for exposure to airborne crystalline silica.
- To meet OSHA silica guidelines, use appropriate Personal Protective Equipment and dust abatement systems, such as waterspray systems.

844-124C

Warning: Silica Dust Hazard
Kubota welcomes you to the growing family of new product owners. This Angle Broom has been designed with care and built by skilled workers using quality materials. Proper assembly, maintenance, and safe operating practices will help you get years of satisfactory use from this product.

**Application**
The Kubota AB72, and AB84 Angle Brooms are designed for mounting on skid steer hitch plates and tractor loaders equipped with skid steer adapter hitch plates. The companion tractor or skid steer must have at least a minimum hydraulic flow capability of 12 gallons per minute and maximum capacity of 30 gallons per minute. The Angle Brooms are intended for use and has applications in construction site cleanup, road maintenance, light snow removal on paved surfaces, cart path maintenance, and turf scalping operations prior to overseeding operations. An optional dust control curtain or optional spray system is available for areas where dust control is desired or mandated.

See “Specifications & Capacities” on page 43 and “Features & Benefits” on page 44 for additional information and performance enhancing options.

**Using This Manual**
• This Operator’s Manual is designed to help familiarize you with safety, assembly, operation, adjustments, troubleshooting, and maintenance. Read this manual and follow the recommendations to help ensure safe and efficient operation.
• The information contained within this manual was current at the time of printing. Some parts may change slightly to assure you of the best performance.
• To order a new Operator’s or Parts Manual, contact your authorized dealer. Manuals can also be downloaded, free-of-charge, from our website at www.landpride.com

**Terminology**
“Right” or “Left” as used in this manual is determined by facing the direction the machine will operate while in use unless otherwise stated.

**Definitions**

<table>
<thead>
<tr>
<th>IMPORTANT:</th>
<th>A special point of information related to the following topic. Kubota’s intention is this information must be read &amp; noted before continuing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTE:</td>
<td>A special point of information that the operator should be aware of before continuing.</td>
</tr>
</tbody>
</table>

**Owner Assistance**
The dealer should complete the Online Warranty Registration at the time of purchase. This information is necessary to provide you with quality customer service.

The parts on your Angle Broom have been specially designed by Kubota/Land Pride and should only be replaced with genuine Kubota parts. Contact a Kubota dealer if customer service or repair parts are required. Your Kubota dealer has trained personnel, repair parts, and equipment needed to service the attachment.

**Serial Number**
For quick reference and prompt service, record model and serial number on the inside cover page and again on the warranty page. Always provide model number and serial number when ordering parts and in all correspondences with your Kubota dealer. For location of your serial number plate, see Figure 1.

Further Assistance
Your dealer wants you to be satisfied with your new Angle Broom. If for any reason you do not understand any part of this manual or are not satisfied with the service received, the following actions are suggested:

1. Discuss any problems you have with your attachment with your dealership service personnel so they can address the problem.
2. If you are still not satisfied, seek out the owner or general manager of the dealership, explain the question/problem, and request assistance.
3. For further assistance write to:

   **Kubota by Land Pride**
   **Service Department**
   **1525 East North Street**
   **P.O. Box 5060**
   **Salina, Ks. 67402-5060**
   **E-mail address lpservicedept@landpride.com**
Section 1: Assembly & Set-up

Tractor & Skid Steer Requirements
The Angle Broom is designed to attach to skid steer Loaders and Tractor Loaders equipped with a skid steer adapter hitch with the following minimum requirements:

- SAE Lift Capacity .................. 2,000 lbs. min.
- Hydraulic gpm Range ........... 12 - 30 gpm.
- Hydraulic Flow Rate ............. 12 gpm @ 2,000 PSI.
- Hydraulic Connections .......... 1 - Duplex outlet

⚠️ WARNING
To avoid serious injury or death:
Lightweight power machines may need weight added to the rear to maintain steering control and prevent forward tipping or side tipping caused by a heavy front load. Consult your power machine Operator’s Manual to determine proper weight requirements and maximum weight limitations.

Torque Requirements
Refer to “Torque Values Chart for Common Bolt Sizes” on page 46 to determine correct torque values when tightening hardware.

Before You Start
Make sure the intended tractor/skid steer conforms to the requirements stated above. Also, read and understand the Operator’s Manual for your Angle Broom. An understanding of how it works will aid in its assembly and set-up.

Go through the “Pre-Assembly Checklist” before assembling the Angle Broom. To speed up your assembly task and make the job safer, have all needed parts and equipment readily at hand.

Pre-Assembly Checklist

<table>
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<tr>
<th>☑</th>
<th>Check</th>
<th>Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Have a fork lift or loader with properly sized chains and safety stands capable of lifting and supporting equipment on hand.</td>
<td>Assembly &amp; Set-up</td>
</tr>
<tr>
<td></td>
<td>Have a minimum of two people available during assembly.</td>
<td></td>
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<tr>
<td></td>
<td>Make sure all major components and loose parts are shipped with the attachment.</td>
<td></td>
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<tr>
<td></td>
<td>Double check to make sure all parts, fasteners, and pins are installed in the correct location. Refer to the Parts Manual if unsure. By double checking, you will lessen the chance of incorrectly using a bolt that may be needed later.</td>
<td>Operator’s Manual 323-033MK</td>
</tr>
<tr>
<td></td>
<td>Make sure working parts move freely, bolts are tight &amp; cotter pins are spread.</td>
<td>Operator’s Manual</td>
</tr>
<tr>
<td></td>
<td>Make sure all grease fittings are in place and lubricated.</td>
<td>Page 42</td>
</tr>
<tr>
<td></td>
<td>Make sure all safety labels are correctly located and legible. Replace if damaged.</td>
<td>Page 4</td>
</tr>
</tbody>
</table>

Dealer Set-up
Refer to Figure 1-1:
The Angle Broom is shipped mostly assembled. The spring (#7) is shipped unhooked from eye bolt (#9). Welded chain (#2) is shipped with clevis (#4) mounted in the end chain loop.

1. Cut top half of crate off and remove. Cut off lumber in front of hitch plate and remove.
2. Tilt top of broom hitch plate forward and hook spring (#7) to eye bolt (#9). There are several ways to do this:
   Using The Loader Hitch Plate
   a. Attach Angle Broom hitch plate to loader hitch plate. Refer to “Angle Broom Hook-Up” on page 8 for hook-up instructions.
   b. Raise hitch plate up several inches until top of hitch plate can be tilted forward towards the broom shroud.

   Using a Chain Hoist
   a. Attach a chain hoist to the hitch plate.
   b. Raise hitch plate up several inches until top of hitch plate can be tilted forward towards the broom shroud.
3. Hook 8th link of welded chain in T-slot (#3) for safety.
4. Loosen nut (#8) to extend eye bolt (#9) towards spring (#7). Do not move nut (#10) on eye bolt.
5. Hook spring (#7) in eye bolt (#9). Make sure hook opening is facing down to keep spring from coming unhooked.
6. Without moving nut (#10), re-tighten nut (#8). There should be 3” of bolt extending pass nut (#8) when tight. See “Spring Eye Bolt Adjustment” on page 24 for adjustment instructions.
7. Attach 3/16” utility clevis (#4) with clevis pin (#5) in the 12th link from clevis (#1). Secure clevis pin with cotter pin (#6). Bend one or more legs of cotter pin.
8. Rotate chain until the 11th link is vertical and then hook that link into T-slot (#3).
Remove Angle Broom From Crate
The Angle Broom can be removed from the crate with either a chain hoist or by attaching it to a front loader hitch.

Remove Angle Broom With A Loader
1. If not already done, remove lumber in front of hitch plate.
2. Attach Angle Broom hitch plate to loader hitch plate. Refer to “Angle Broom Hook-Up” on this page for hook-up instructions.
3. Raise Angle Broom up. Be careful not to catch any components on the crate while raising broom up.
4. Back loader away from crate.

Remove Angle Broom With A chain Hoist
Refer to Figure 1-2:

Three strands of chain are required with a spreader bar positioned between two of the three strands. The spreader bar should be a little longer than the width of the hood to keep the chains from damaging the hood.
1. Attach two of the three strands to the lifting slots on each end of the broom header frame.
2. Position the spreader bar above the hood and between the two strands hooked to the lifting slots.
3. Attach the third strand around the broom header lug.
4. Lift Angle Broom off of the crate floor while being careful not to catch any components on the crate while lifting and removing the broom.
5. Continue with “Angle Broom Hook-Up” instructions on this page.

Angle Broom Hook-Up
Refer to Figure 1-3:

⚠️ DANGER
To avoid serious injury or death:
A crushing hazard exists while hooking-up and unhooking the attachment. Do not allow anyone to stand between attachment and power machine while approaching or backing away from the attachment. Do not operate lift and/or tilt controls while someone is near the power machine and/or attachment.

⚠️ WARNING
To avoid serious injury or death:
Check hitch fit-up frequently. An improper fit-up can cause the attachment to come loose from the loader hitch plate and fall.
1. Make sure hydraulic hoses do not interfere with hitch hook-up.
2. Drive tractor/skid steer slowly to the Angle Broom hitch plate. Make sure the tractor/skid steer hitch plate is parallel with the broom hitch plate.
3. Rotate top of tractor/skid steer tilt arms slightly forward.
4. Place top of tractor/skid steer hitch plate under the top angled bar on the broom’s hitch plate.
5. Slowly lift tractor/skid steer hitch up until the hitch plate has seated into the top angle bar.
6. Continue to raise tractor/skid steer hitch up until Angle Broom is slightly off the ground.

⚠️ WARNING
To avoid serious injury or death:
If proceeding alone, confirm unit is properly shut down before performing additional work to prevent serious injury or death. Refer to “Skid Steer Shutdown And Storage” on page 2.
7. Push lock handles on the tractor/skid steer hitch down to extend the lock pins through the bottom slots in the broom hitch plate.
8. Continue to push the lock handles down until the handles are locked fully down.
Section 1: Assembly & Set-up

CAUTION
To avoid serious injury:
Wear gloves when working around or near the bristles. Poly and especially wire bristles can suddenly poke the hands causing injuries that can become infected.

Refer to Figure 1-4:
9. With Angle Broom raised slightly off the ground and gloves on, remove wire snap pins (#1) on both sides of the broom and rotate support stands (#2) up.
10. Replace wire snap pins in the location shown. Make sure wire snaps are securely caught over end of pins to keep pins from falling out.

IMPORTANT: Make sure coupler fittings are clean before making connections. Dirt can quickly damage the hydraulic system. Inspect couplers for corrosion, cracks and excessive wear. Replace couplers if any of these conditions exist.

IMPORTANT: Make sure hydraulic hoses are routed properly so that they will not become pinched or kinked while operating. If necessary, loosen hoses at the fittings to relieve twisting and kinking. Tighten all connections before starting power equipment.

1. Route hydraulic hoses through the most convenient path to access your tractor/skid steer couplings.

NOTE: Refer to Figure 1-5 below for correct hose routing when attaching Angle Broom to a Kubota compact track loader or skid steer loader. Do not use Kubota’s SVL or SSV Hose Stay (Not Shown).

WARNING
To avoid serious injury or death:
• Hydraulic fluid under high pressure can penetrate the skin and/or eyes causing a serious injury. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Use a piece of cardboard or wood rather than hands when searching for leaks. A doctor familiar with this type of injury must treat the injury within a few hours or gangrene may result. DO NOT DELAY.
• Make sure hydraulic hoses are properly routed without twists to prevent becoming stretched, pinched, or kinked. A damaged hose can burst and leak hydraulic fluid.

IMPORTANT: Collect and dispose all oil spills and leaks in an environmentally safe manner.

Hydraulic Hose Hook-up

IMPORTANT: Make sure coupler fittings are clean before making connections. Dirt can quickly damage the hydraulic system. Inspect couplers for corrosion, cracks and excessive wear. Replace couplers if any of these conditions exist.

IMPORTANT: Make sure hydraulic hoses are routed properly so that they will not become pinched or kinked while operating. If necessary, loosen hoses at the fittings to relieve twisting and kinking. Tighten all connections before starting power equipment.

1. Route hydraulic hoses through the most convenient path to access your tractor/skid steer couplings.

NOTE: Refer to Figure 1-5 below for correct hose routing when attaching Angle Broom to a Kubota compact track loader or skid steer loader. Do not use Kubota’s SVL or SSV Hose Stay (Not Shown).

IMPORTANT: Collect and dispose all oil spills and leaks in an environmentally safe manner.
Electrical Control Harness (Optional)

Kubota offers five electrical control harness. If not purchased with the broom, one may be purchased from your nearest Kubota dealer. Additional instructions are provided on the page noted in the list below.

- Kubota Part No. 323-094A - 73" Long wire harness with Deutsch 14 pin power plug.
- Kubota Part No. 823-095A - 10' Long wire harness with Deutsch 14 pin power plug.
- Kubota Part No. 323-096A - Switch & wire harness with Deutsch 2 pin power plug.
- Kubota Part No. 323-097A - Skid steer switch & wire harness connects direct to a 2V power source.
- Kubota Part No. 323-098A - Tractor switch & wire harness connects direct to a 12V power source.

Kubota offers two controllers for operating the Powered Rake attached to a Kubota compact track loader or skid steer loader. See your nearest Kubota dealer to purchase one of their controllers.

- Kubota Part No. V0511-97010 - SVL Electrical connector (2 functions)
- Kubota Part No. W/G S6699 - SVL Multifunction handle (7 functions.)

Control Harness with Deutsch 14 Pin Plug

323-094A . . . . . . . . . . . . DEUTSCH HD30 14 PIN PLUG 73"
323-095A . . . . . . . . . . . . DEUTSCH HD30 14 PIN PLUG 10'

Refer to Figure 1-6:

If Skid Steer Loader is equipped with a Deutsch 14 Pin male connector, then push button control box can be eliminated and a 73 inch or 10 foot long Deutsch 14 pin plug & cable (#6) can be purchased to connect the solenoid directly to the Skid Steer Loader controls. Purchase the one that is the right length for your skid steer from your nearest Kubota dealer.

1. Connect green & black wire plug (#1) to top solenoid wire (#2).
2. Connect red and white wire plug (#3) to bottom solenoid wire (#4).
3. Attach Deutsch 14 pin plug (#7) to the skid steer’s Deutsch 14 pin male plug.
Control Harness With Deutsch 2 Pin Plug

323-096A . . . SWITCH & WIRE HARNESS DTP PLUG

Refer to Figure 1-7:
This switch and wire harness is designed for attaching the Angle Broom to a Kubota CTL when a 14 pin Deutsch plug is not available and 2 pin Deutsch plug located behind the driver’s seat is available. The 2 push button control switch can be placed approximately 9 ft. from the solenoid valve.

Refer to Figure 1-8:
1. Attach Deutsch 2 pin plug (#9) to the Kubota CTL male plug (#11) located behind the driver’s seat.

Refer to Figure 1-9:
2. Fuse (#12) is supplied by customer. Install 10 amp fuse (#12) in Kubota’s fuse box slot #17 labeled “Electrical Outlet-2”.

Refer to Figure 1-7:
3. The push button control switch (#10) is mounted with magnets on the back. Locate and mount this switch in a convenient easy to reach location.
4. Connect power cord (#8) to control switch wire (#7).
5. Connect green & black wire connector (#1) to top solenoid wire (#2).
6. Connect red and white wire connector (#3) to bottom solenoid wire (#4).
7. Skip to “Operational Check” on page 13.
Skid Steer Control Harness W/ 2 Eyelets
323-097A SWITCH & WIRE HARNESS
Refer to Figure 1-10:
This switch and wire harness is designed for attaching the Angle Broom to a Skid steer without a 2 pin or 14 pin Deutsch plug. The 2 push button control switch can be placed approximately 9 ft. from the solenoid valve.

1. Disconnect negative (-) black ground wire from the skid steer’s battery post (Not shown).
2. Attach positive (+) red wire eyelet (A) to a 12 volt power source. Tighten fastener hardware.
3. Attach negative (-) black wire eyelet (B) to ground. Tighten fastener hardware.
4. Reconnect negative (-) black ground wire to the skid steer’s battery. Tighten fastener hardware.
5. The push button control switch (#9) is mounted with magnets on the back. Locate and mount this switch in a convenient easy to reach location.
6. Connect power cord (#8) to control switch wire (#7).
7. Connect green & black wire connector (#1) to the top solenoid wire (#2).
8. Connect red and white wire connector (#3) to the bottom solenoid wire (#4).
9. Skip to “Operational Check” on this page.

Tractor Control Harness W/ 2 Eyelets
323-098A ... SWITCH & WIRE HARNESS TRACTOR
Refer to Figure 1-11:
This switch and wire harness is designed for attaching the Angle Broom to a tractor loader. The 2 push button control switch can be placed approximately 18 ft. from the solenoid valve.

1. Disconnect negative (-) black ground wire from the skid steer’s battery post (Not shown).
2. Attach positive (+) red wire eyelet (A) to a 12 volt power source. Tighten fastener hardware.
3. Attach negative (-) black wire eyelet (B) to ground. Tighten fastener hardware.
4. Reconnect negative (-) black ground wire to the skid steer’s battery. Tighten fastener hardware.
5. The push button control switch (#11) is mounted with magnets on the back. Locate and mount this switch in a convenient easy to reach location.
6. Connect power cord (#10) to extension cable (#9).
7. Connect extension cable (#9) to control switch cable (#8).
8. Connect dual end extension cable (#6) to control switch cable (#7). Be sure to match wire colors.
9. Connect green & black wire connector (#1) to the top solenoid wire (#2).
10. Connect red and white wire connector (#3) to the bottom solenoid wire (#4).
11. Continue with “Operational Check” on this page.
Operational Check

Refer to Figure 1-7 on page 11 or Figure 1-10:

1. With hydraulics hooked-up, start tractor/skid steer and press buttons to angle broom to sweep material to the right and left.

⚠️ **WARNING**

To avoid serious injury or death:

If proceeding alone, confirm unit is properly shut down before performing additional work to prevent serious injury or death. Refer to “Skid Steer Shutdown And Storage” on page 2.

2. If broom angles in opposite direction desired, switch plugs (#1 & #3) with solenoid wires (#2 & #4).
3. If everything is working correctly, secure harness (#6) near the solenoid valve with zip tie (#5).
4. Make certain hydraulic hoses from tractor/skid steer to broom are kept away from all pinch points.
5. Tie hydraulic hoses and electrical cables together 12" and 29" away from quick release couplers with zip ties (#5).

**NOTE:** Additional zip ties may be needed to properly secure all wiring harness. Customer to supply and locate all additional zip ties.

Purging Hydraulic Angling System

Refer to Figure 2-4 on page 18:

**IMPORTANT:** Purge hydraulic cylinders and/or hoses of air before putting the equipment into service. Not purging the system can cause uneven cylinder movement and positioning.

**IMPORTANT:** The hydraulic motor is self purging and requires no further action.

1. With Angle Broom raised off the ground about 12", cycle hydraulic cylinder several times from fully extended to fully retracted.

⚠️ **WARNING**

To avoid serious injury or death:

If proceeding alone, confirm unit is properly shut down before performing additional work to prevent serious injury or death. Refer to “Skid Steer Shutdown And Storage” on page 2.

2. If angle cylinder operates unevenly after cycling it several times, then purge system as follows:
   a. Loosen hydraulic hose fitting (#1A) at the rod end of the hydraulic cylinder (#16).
   b. Slowly retract and extend cylinder to purge any trapped air from the system.
   c. Tighten fitting (#1A) when trapped air is removed.

Check Equipment Clearances

It is important to check clearance before putting unit into operation.

1. Visually inspect hydraulic hoses to make sure they are long enough and won’t become pinched or entangled in the equipment. Make hose adjustments before ever starting the tractor/skid steer.
2. Start tractor/skid steer and lower broom until it is in its sweeping position. If necessary, rotate loader tilt cylinders to realign hitch plate vertical.

**NOTE:** Do not change position of loader tilt cylinders while raising and lowering loader arms. Doing so will require realigning the hitch plate vertically before beginning to sweep.

3. Make sure Angle Broom does not come in contact with power equipment and tires by carefully going through its full range of motions. If necessary, have someone stand nearby that can motion to the operator to stop if a problem develops.
   a. Angle broom head fully left. Raise loader arms up and down while watching for interferences with the hoses and Angle Broom.
   b. Angle broom head fully right. Raise loader arms up and down while watching for interferences with hydraulic hoses and Angle Broom.
Unhooking Angle Broom

Refer to Figure 1-9:

1. Park tractor/skid steer with Angle Broom on a flat level surface. Lower loader arms until Angle Broom is slightly off the ground.

**WARNING**

To avoid serious injury or death:

If proceeding alone, confirm unit is properly shut down before performing additional work to prevent serious injury or death. Refer to “Skid Steer Shutdown And Storage” on page 2.

2. With gloves on for protection from bristles poking, remove wire snap pins on both sides and rotate support stands down to storage position as shown.

3. Replace wire snap pins in the location shown. Make sure wire snaps are securely caught over end of pins so that they cannot fall out.

4. Rotate top of tilt arms back and lower tractor/skid steer lift arms down until the Angle Broom support stand and hitch plate are resting on the ground.

5. Stop engine, engage parking brake, raise seat bar, move controls until both are locked, and remove key to prevent unauthorized starting. Use steps, grab-handles, and skid-resistant surfaces when getting on or off the loader.

**IMPORTANT:** Angle Broom should be resting on its hitch plate and support stands with broom bristles off the ground as shown. If not, tighten transport chain in the T-slot to raise broom up.

Refer to Figure 1-10:

6. Disconnect hydraulic hoses. It may be necessary to release hydraulic pressure in the lines before hoses will disconnect from the tractor/skid steer.

7. Release hitch plate locking levers or pins. Verify locking pins are out of the hitch plate bottom slots.

8. Restart tractor/skid steer and slowly lower loader arms while rotating top of tilt arms forward and backing-up until loader hitch plate clears top angle bar on the Angle Broom hitch plate.

9. Back away from the Angle Broom and then raise tractor/skid steer loader arms up.
5. Attach extension spring (#11) to the hitch plate with 5/8" clevis pin (#6) and 1/8" cotter pin (#7). Bend one or more legs of cotter pin to secure it in place.
6. Hook other end of spring to eye bolt (#2). Make sure hook opening is facing down to keep spring from coming unhooked.
7. While holding nut (#3A) from turning, draw hex nut (#3B) up against broom head spring plate.
8. Attach one end of welded chain (#12) to the broom head spring plate with 5/16" utility clevis (#9A). Secure clevis in place with clevis pin (#13) and cotter pin (#10). Bend one or more legs of cotter pin.
9. Insert chain through T-slot (A) in chain plate. Attach 3/16" utility clevis (#9B) to the 12th link from clevis (#9A) and secure with clevis pin (#13) and 1/8" cotter pin (#10). Bend one or more legs of cotter pin.
10. Adjust eye bolt (#2) to the proper length. See “Spring Eye Bolt Adjustment” on page 24.
Hydraulic Flow Options
It is important to know which flow option, standard or high flow, the tractor or skid steer uses to operate.

Standard Flow
This option is for skid steers and tractors capable of producing hydraulic oil flow at 12 to 24 gpm. The customer can choose between an 18 gpm motor or a 25 gpm motor depending on flow capabilities of the tractor/skid steer. This system does not include a flow control valve to protect against power equipment capable of producing more than 25 gpm oil flow.

See “3500 PSI Set-up With Standard Flow” on page 17 for standard flow set-up instructions.

High Flow
With this option, a flow control valve is provided to protect the motor from power equipment that will produce more than 25 gpm of oil flow. The broom can be angled with either a manual operated ratchet jack or hydraulic operated cylinder. A 25 gpm hydraulic motor is used in conjunction with a flow control valve to divert hydraulic fluid in excess of 25 gpm back to the sump.

See “3500 PSI Set-up With High Flow” on page 20 for detailed instructions.

3500 PSI Hydraulic Motor
Before continuing, it is important to understand that the 3500 PSI motor is plumbed with the pressure line connected to the top motor port and return line connected to the bottom motor port. The 3500 PSI motor can be identified by its round end cover.
3500 PSI Set-up With Standard Flow

WARNING
To avoid serious injury or death:
Hydraulic fluid under high pressure can penetrate the skin and/or eyes causing a serious injury. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Use a piece of cardboard or wood rather than hands when searching for leaks. A doctor familiar with this type of injury must treat the injury within a few hours or gangrene may result. DO NOT DELAY.

IMPORTANT: Make sure inside of hoses and fittings and their external threads are clean.

The standard flow can be angled manually with a ratchet jack or hydraulically with a hydraulic cylinder.

- For manual set-up instructions, refer to “Standard Flow Manual Angling (Option)” on this page.
- For hydraulic set-up instructions, skip to “Standard Flow Hydraulic Angling (Option)” on page 18.

Standard Flow Manual Angling (Option)
Refer to Figure 2-3:
1. Mount ratchet jack (#14) to right-hand side of hitch. Secure with cylinder pins (#13) and hairpins (#12).
2. Tighten straight fittings (#11) to hydraulic motor (#6).
3. Attach 5/8" x 136" hydraulic hoses (pressure line #9 & return line #10) to fittings (#11) and tighten.
4. Route hydraulic hoses (#9 & #10) along the back side of broom shroud, through loop (C), down through opening in top of A-frame, out through opening (B), and up through loop (A) as shown.
5. Consult your tractor/skid steer Operator’s Manual to determine which hydraulic line on your tractor/skid steer is under pressure. Select coupling (#7 or #8) that will mate with your machine’s pressure line coupling.
6. Connect selected coupling to pressure line (#9). Connect remaining coupling to return line (#10).
7. Insert two 5/16"-18 x 2" full threaded bolts (#2) through flat washer (#5) and through holes in back of broom shroud. Secure cap screws with locknuts (#4) and tighten locknuts to the correct torque.
8. Attach hydraulic hoses (#9 & #10) to back of broom shroud with hose clamps (#1). Secure clamps to cap screws (#2) with 5/16" nylock nuts (#3). Tighten nylock nuts as needed to secure hoses in place.
Section 2: Hitch & Hydraulic Flow Assembly

Standard Flow Hydraulic Angling (Option)

**IMPORTANT**: Make sure inside of hoses and fittings and their external threads are clean.

Hydraulic Cylinder & Cylinder Control Valve

Refer to Figure 2-4 & Figure 2-5 on page 19:

1. Attach 9/16” straight fittings (#2A & 2B) to front ports on cylinder control valve (#13) and 1 1/6” straight fitting (#17) to port on top. Tighten fittings to valve.

2. Attach union (#25) to 45° elbow (#26) and check valve (#14) to union (#25). Tighten union to 45° elbow and check valve to union.

3. Attach 45° elbow (#26) to side port on control valve (#13). Do not tighten elbow to control valve.

4. Attach cylinder control valve (#13) to hitch mounting lugs with 3/8"-16 x 5" GR5 cap screws (#7) and hex locknuts (#9). Tighten locknuts to the correct torque.

5. Attach 3/4” orifice elbow (#1B) to the port on the base end of hydraulic cylinder (#16). Do not tighten.

6. Attach 3/4” elbow (#1A) to the port on the rod end of hydraulic cylinder (#16). Do not tighten.

7. Connect 3/8” x 20” hydraulic hoses (#23 & #24) to elbows (#1A & #1B). Tighten hoses to elbow fittings.

8. Route hydraulic hoses (#23 & #24) through opening on right side of A-frame hitch. Attach hydraulic cylinder (#16) to hitch mounting lugs with cylinder pins (#5) and hairpin cotters (#4).

9. Connect hydraulic hose (#24) to lower fitting (#2B) and hydraulic hose (#23) to upper fitting (#2A).

10. Tighten hydraulic hoses (#23 & #24) to straight fittings (#2A & #2B) and elbow fittings (#1A & #1B) to hydraulic cylinder (#16).
Hydraulic Motor

Refer to Figure 2-4 on page 18 & Figure 2-5:

1. Attach straight fittings (#3A & #3B) to hydraulic motor (#15). Tighten fittings to motor.
2. Connect 5/8" x 136" hydraulic hose (pressure line #21) to fitting (#3B). Tighten hose to fitting.
3. Route pressure line (#21) along the back side of broom shroud, through loop (C), down through opening in top of hitch A-frame, out through opening (B), and up through loop (A).
4. Connect return line (#22) to fitting (#3A). Tighten hoses to fitting.
5. Connect return line (#22) along back side of broom shroud, through loop (C).
6. Connect return line (#22) to adapter fitting (#17) and tighten hose to fitting.
7. Route 5/8" x 74" hydraulic hose (return line #20) down through loop (A).
8. Connect return hose (#20) to in-line check valve (#14) and tighten hose to valve.
9. Tighten 45° elbow (#26) to control valve (#13).
10. Insert two 5/16"-18 x 2" full threaded cap screws (#8) through flat washer (#12) and then through holes in back of broom shroud. Secure cap screws with hex locknuts (#11) and tighten nuts to the correct torque.
11. Connect hydraulic hoses (#21 & #22) to back of broom shroud with hose clamps (#6). Secure clamps with hex nylock nuts (#10). Tighten nylock nuts as needed to secure hoses in place.
12. Consult your tractor/skid steer Operator’s Manual to determine which hydraulic line on your tractor/skid steer is under pressure. Select coupling (#18 or #19) that will mate with your machine’s pressure line coupling.
13. Connect selected coupling to pressure line (#21). Connect remaining coupling to return line (#20).
3500 PSI Set-up With High Flow

**WARNING**

To avoid serious injury or death:

Hydraulic fluid under high pressure can penetrate the skin and/or eyes causing a serious injury. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Use a piece of cardboard or wood rather than hands when searching for leaks. A doctor familiar with this type of injury must treat the injury within a few hours or gangrene may result. DO NOT DELAY.

**IMPORTANT:** Make sure inside of hoses and fittings and their external threads are clean.

The high flow can be angled manually with a ratchet jack or hydraulically with a hydraulic cylinder.

- For manual set-up instructions, refer to “High Flow Manual Angling (Option)” on this page.
- For hydraulic set-up instructions, skip to “High Flow Hydraulic Angling” on page 22 for instructions to set-up hydraulic operation.

**High Flow Manual Angling (Option)**
Refer to Figure 2-6 & Figure 2-7 on page 21:

1. Mount ratchet jack (#23) to right-hand side of hitch. Secure with cylinder pins (#22) and hairpins (#21).
2. Attach tee fitting (#13) to port on top of flow control valve (#11) and tighten tee oriented as shown.
3. Attach elbows (#8A & #8B) to side and bottom ports of flow control valve. Do not tighten elbows.
4. Orient flow control valve (#11) with tee (#13) up and attach to valve mount (#1) with 3/8”-16 x 2 3/4” GR5 cap screws (#3) and hex nuts (#6). Tighten nuts to the correct torque.
5. Attach float valve mount (#1) to the hitch mounting lugs with 3/8”-16 x 5” GR5 cap screws (#4) and locknuts (#6). Tighten nuts to the correct torque.
6. Tighten straight fittings (#18) to motor (#12).
7. Connect 5/8”x 86” hydraulic hoses (pressure line #16 & return line #17) to straight fittings (#18) & tighten.
8. See Figure 2-7: Route pressure line (#16) along back side of broom shroud, through loop (C), down through opening in top of hitch A-frame and out through opening (B) on the left side. Connect hose to elbow (#8B) as shown in Figure 2-6 and tighten.

9. Tighten elbow fitting (#8B) to flow control valve (#11).

10. Route return line (#17) along back side of broom shroud and through loop (C) to tee (#13). Tighten hose to tee.

11. Route 5/8" x 50" hydraulic hose (pressure line #19) through loop (A) and connect to elbow (#8A). Tighten hose to elbow fitting.

12. Tighten elbow fitting (#8A) to flow control valve (#11).

13. Attach remaining 50" hydraulic hose (return line #20) to top of tee (#13) and tighten.

14. Consult your tractor/skid steer Operator’s Manual to determine which hydraulic line on your machine is under pressure. Select coupling (#14 or #15) that will mate with your machine’s pressure line coupling.

15. Connect selected coupling to pressure line (#19). Connect remaining coupling to return line (#20).

16. Insert two 5/16"-18 x 2" full threaded cap screws (#5) through flat washer (#10) and then through holes in back of broom shroud. Secure cap screws with hex locknuts (#9). Tighten locknuts to the correct torque.

17. Attach hydraulic hoses (#16 & #17) to back of broom shroud with hose clamps (#2). Secure clamps to cap screws (#5) with 5/16" nylock nuts (#7). Tighten nylock nuts as needed to secure hoses in place.
Section 2: Hitch & Hydraulic Flow Assembly

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**Section 2: Hitch & Hydraulic Flow Assembly**

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**High Flow Hydraulic Angling**

**IMPORTANT:** Make sure inside of hoses and fittings and their external threads are clean.

**Hydraulic Cylinder & Cylinder Control Valve**

*Refer to Figure 2-8 & Figure 2-9 on page 23:*

1. Attach 9/16” straight fittings (#4A & 4B) to front ports on cylinder control valve (#17) and 1 1/6” straight fitting (#23) to the top port. Tighten fittings to valve.

2. Attach 1 1/16” elbow (#1A) to side port on cylinder control valve (#17). Do not tighten elbow fitting.

3. Attach cylinder control valve (#17) to hitch mounting lugs with 3/8”-16 x 5” GR5 cap screws (#5B) and lock nuts (#12). Tighten nuts to the correct torque.

4. Attach 3/4” orifice elbow (#3A) to the port on the base end of hydraulic cylinder (#21). Do not tighten.

5. Attach 3/4” elbow (#3B) to the port on the rod end of hydraulic cylinder (#21). Do not tighten.

6. Connect 3/8” x 20” hydraulic hoses (#31 & #32) to elbows (#3A & #3B). Tighten hoses to elbow fittings.

7. Route hydraulic hoses (#31 & #32) through opening on right side of A-frame hitch and attach hydraulic cylinder (#21) to mounting lugs. Secure hydraulic cylinder with cylinder pins (#7) and hairpins (#6).

8. Connect hydraulic hose (#32) to lower fitting (#4B) and hydraulic hose (#31) to upper fitting (#4A).

9. Tighten hydraulic hoses (#31 & #32) to straight fittings (#4A & #4B) and elbow fittings (#3A & #3B) to hydraulic cylinder (#21).
Hydraulic Motor & Flow Control Valve

Refer to Figure 2-8 on page 22 & Figure 2-9:
1. Attach tee fitting (#22) to port on top of flow control valve (#18) and tighten with tee oriented as shown.
2. Attach union (#33) to tee (#22) and tighten.
3. Attach check valve (#19) to union (#33) and tighten.
4. Attach elbows (#1B & #1C) to side and bottom ports on flow control valve (#18). Do not tighten elbows.
5. Orient flow control valve (#18) with tee (#22) up and attach to valve mount (#8) with 3/8"-16 x 2 3/4" GR5 cap screws (#10) and hex nuts (#12). Tighten nuts to the correct torque.
6. Attach float valve mount (#8) to mounting lugs with 3/8"-16 x 5" GR5 cap screws (#5A) and lock nuts (#12). Tighten nuts to the correct torque.
7. Attach straight fittings (#2A & #2B) to hydraulic motor (#20) and tighten.
8. Connect 5/8" x 86" hydraulic hose (pressure line #26) to fitting (#2B) and tighten.
9. Route pressure line (#26) along back side of broom shroud, through loop (C), down through opening in top of hitch A-frame, and out through opening (B). Connect hose to elbow fitting (#1B) and tighten. Tighten elbow fitting (#1B) to flow control valve (#18).
10. Connect 5/8" x 95" hydraulic hose (return line #30) to straight fitting (#2A) and tighten. Route return line along back side of broom shroud, through loop (C) to straight fitting (#23). Connect hose to fitting and tighten.
11. Insert two 5/16"-18 x 2" full threaded cap screws (#11) through flat washer (#15) and then through holes in back of broom shroud. Secure cap screws with hex locknuts (#14) and tighten locknuts to the correct torque.
12. Attach hydraulic hoses (#26 & #30) to back of broom shroud with hose clamps (#9) and nylock nuts (#13). Tighten nylock nuts as needed to secure hoses.

Hydraulic Hoses to Couplings

Refer to Figure 2-8 on page 22 & Figure 2-9:
1. Connect 5/8" x 12" lg. hydraulic hose (#27) to tee fitting (#22) and elbow fitting (#1A). Tighten hose to fittings and elbow to cylinder control valve (#17).
2. Connect 5/8" x 50" hydraulic hose (return line #29) to in-line check valve (#19) as shown and tighten.
3. Route 5/8" x 50" hydraulic hoses (pressure line #28) through loop (A) and connect to elbow (#1C). Tighten hose to fitting and fitting to flow control valve (#18).
4. Consult your tractor/skid steer Operator’s Manual to determine which hydraulic line on your machine is under pressure. Select coupling (#24 or #25) that will mate with your machine's pressure line coupling.
5. Connect selected coupling to pressure line (#28). Connect remaining coupling to return line (#29).
Section 3: Adjustments

Broom Adjustments

IMPORTANT: When adjusting the broom, adjust eye bolt length first, chain length second, and broom leveling last. Following this procedure will make adjusting the broom easier and safer.

Spring Eye Bolt Adjustment

Refer to Figure 3-1:

Do not lower loader arms down as the bristles wear. This will eventually force the frame and support legs into the ground. Instead, adjust spring eye bolt length to lower the broom down.

1. See Figure 3-5 on page 25: Measure bristle length. New bristles are 10" long. Wafers with bristles shorter than 4" should be replaced. See “Wafer Removal and Installation” on page 40 for instructions on how to replace worn bristles.

2. Match measured bristle length with length of spring eye bolt (#1) in chart below. Adjust eye bolt length to dimension (A).
   a. Loosen hex nut (#2) until the distance from face of nut to end of eye bolt is equal to dimension (A) provided in the eye bolt chart below.
   b. Hold nut (#2) still and tighten 3/4"-10 hex nut (#3).

<table>
<thead>
<tr>
<th>Bristle Length (See Figure 3-5 on page 25)</th>
<th>Eye Bolt Length (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10&quot; New</td>
<td>3&quot;</td>
</tr>
<tr>
<td>9&quot;</td>
<td>2 9/16&quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>2 1/16&quot;</td>
</tr>
<tr>
<td>7&quot;</td>
<td>1 9/16&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
<td>1 1/8&quot;</td>
</tr>
<tr>
<td>5&quot;</td>
<td>11/16&quot;</td>
</tr>
<tr>
<td>4&quot;</td>
<td>Replace Wafer Brushes</td>
</tr>
</tbody>
</table>

Eye Bolt Chart

27573

Chain Adjustment

Refer to Figure 3-2:

The purpose of chain (#2) is to protect spring (#7) from becoming overextended and damaged. The spring’s purpose is to float the broom over uneven surfaces.

IMPORTANT: Never allow spring (#7) to stretch beyond the 12 1/4" shown in Figure 3-2. The spring can be damaged if stretched too far. Use chain (#2) and utility clevis (#4) to protect the spring.

New 10" Bristles

1. With chain extending through T-slot in plate (#3), make sure utility clevis (#4) is in the 12th link down from the top and cotter pin (#6) has one or both legs bent to keep it from falling out.

2. Place the 11th link in the T-slot in plate (#3) and raise rotary broom approximately 6" off the ground.

3. Push down on broom shroud to make chain tight. Measure distance from inside of spring hook to inside of spring hook. This distance should be between 11 1/4" and 12 1/4".

4. If chain #2 is tight and spring (#7) is stretched beyond 12 1/4", then readjust chain link in T-slot until spring stretch is between 11 1/4" & 12 1/4".

5. Move utility clevis (#4) to the first link just outside of the slot. Secure clevis with clevis pin (#5) and cotter pin (#6). Make sure the cotter pin has one or both legs bent to prevent it falling out.

Worn Bristles

Check spring length each time the spring eye bolt is adjusted. See “Spring Eye Bolt Adjustment” this page.

1. Raise Angle Broom approximately 6" off the ground and measure spring length from inside of spring hook to inside of spring hook.

2. If spring is stretching beyond 12", readjust chain link in T-slot in plate (#3) until spring stretch is between 11 1/4" & 12".

3. Move utility clevis (#4) to the first link just outside of the slot. Secure clevis with clevis pin (#5) and cotter pin (#6). Make sure the cotter pin has one or both legs bent to prevent it falling out.
Broom Leveling

Refer to Figure 3-3:

It is important that the broom is level and at the proper operating height to prevent improper wearing of the bristles. A properly adjusted broom should produce a sweeping pattern on the ground that is 2" to 4" wide. A broom that is not adjusted level will produce a tapered sweeping pattern.

IMPORTANT: Broom leveling procedures must be made with the tractor/skid steer and Angle Broom parked on a flat level surface.

1. Park tractor/skid steer with Angle Broom on a dusty flat level surface.

2. Lower loader arms until bristles on the rotary broom are slightly bent against the surface to be swept.

Refer to Figure 3-4:

IMPORTANT: The Angle Broom operates best if pivot pin (#3) is vertical when broom is sweeping. If pivot pin is not vertical, the broom will make a tapered sweeping pattern when angled and wear the bristles out faster on one end.

3. The pivot pin (#3) and hitch plate are designed to be parallel with each other. Align pivot pin vertically by rotating loader tilt arms until hitch plate is vertical.

4. With broom straight across (not angled) and pivot pin vertical, check broom ends to make sure they are the same dimension B (See Figure 3-5) off the ground. If not, make the following adjustments to the broom head lug.
   a. Loosening broom leveling bolts (#1) 1/2 of a turn and center bolt (#2) 1/4 of a turn.
   b. Rotate broom head lug about the center bolt until both ends of the broom are at an equal distance (dim. B) off the ground.
   c. Re-tighten 5/8"-11 GR5 broom leveling bolts (#1) and center pivot bolt (#2) to the correct torque.

5. Start broom at a slow speed and then lower brush until bristles are making a pattern approximately 2" to 4" in width along the full length of the broom.

6. Stop brush rotation and recheck hitch plate to make sure it is vertical. Make final adjustments to the tilt arms if required.

7. After everything is adjusted (brush height, pivot pin and broom head lug), set detent on the hydraulic control lever to lower the loader arms to the same sweeping position every time. If there is no detent, then use spacers on the cylinder rods (customer to supply spacers) or make a mark on the loader that will indicate when the arms are lowered to the correct sweeping position.

8. Raise brush up several feet. Do not change position of loader tilt cylinders when raising and lowering loader arms.

9. Verify brush pattern to make sure it is 2" to 4" wide. If brush pattern is tapered, repeat steps 1 to 9.

10. If brush pattern is correct, angle brush 30° to the right, and lower brush down to sweep another 2" to 4" pattern. Stop brush rotation and raise brush up to check patter width.

11. If brush pattern is tapered, recheck hitch plate to make sure it is still vertical when the sweeping position. If hitch plate is vertical, recheck broom ends to make sure they are equal distance off the ground.
Pre-Start Checklist
Hazard control and accident prevention are dependent upon awareness, concern, prudence and proper training involved in the operation, transport, maintenance, and storage of the Angle Broom. Therefore, it is absolutely essential that no one operates the Angle Broom unless they are age 16 or older and have read, fully understood, and are totally familiar with the Operator’s Manual.

Perform the following inspections before using your Angle Broom.

Operating Checklist

<table>
<thead>
<tr>
<th>Check</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read and follow all safety rules &amp; safety decals carefully. Refer to “Important Safety Information”.</td>
<td>1</td>
</tr>
<tr>
<td>Read and follow hook-up &amp; preparation instructions. Refer to “Section 1: Assembly &amp; Set-up”.</td>
<td>7</td>
</tr>
<tr>
<td>Read and make all required adjustments. Refer to “Section 3: Adjustments”.</td>
<td>24</td>
</tr>
<tr>
<td>Read and follow all operating procedures. Refer to “Section 4: Operating Procedures”.</td>
<td>26</td>
</tr>
<tr>
<td>Read and follow all maintenance instructions. Refer to “Section 6: Maintenance &amp; Lubrication”.</td>
<td>39</td>
</tr>
<tr>
<td>Read and follow all lubrication Instructions. Refer to “Lubrication Points”.</td>
<td>42</td>
</tr>
<tr>
<td>Check Angle Broom initially and periodically for loose bolts and pins. Refer to “Torque Values Chart for Common Bolt Sizes”.</td>
<td>46</td>
</tr>
</tbody>
</table>

General Safety Information

Safety Before Operating the Angle Broom

**DANGER**
To avoid serious injury or death:

Keep all shields in place and secure. Becoming entangled in the equipment can cause serious injury or death.

**WARNING**
To avoid serious injury or death:

- **Refer to Figure 4-1 on page 27:**
  Use stepping pads on the hitch plate and hand holds on the skid steer when climbing into the skid steer cab. Never step on smooth surfaces or on the broom shroud. Feet can slip on smooth surfaces especially if wet or icy.

- Allow only persons to operate this implement who have fully read and comprehended this manual, who have been properly trained in the safe operation of this implement, and who are age 16 or older. Serious injury or death can result from the inability to read, understand, and follow instructions provided in this manual.

- Do not operate Angle Broom with people or animals nearby. The operator should always wear a dust mask and eye protection. Flying dust, debris and bristles can enter the lungs causing respiratory problems, enter the eyes causing eye injury and/or cause bodily injury to the body of people or animals.

- Avoid exposure to dust containing crystalline silica particles. This dust can cause serious injury to the lungs (silicosis). Because crystalline silica is a basic component of sand and granite, many activities at construction sites produce dust containing crystalline silica. Trenching, sawing and boring of material containing crystalline silica can produce dust containing crystalline silica.

- Make sure hydraulic hoses are properly routed without twists to prevent becoming stretched, pinched, or kinked. A damaged hose can burst and leak hydraulic fluid.

- Never adjust skid steer relief valve for a pressure rating higher than what is recommended by the skid steer manufacturer.

- Check hitch fit-up frequently. An improper fit-up can cause the attachment to come loose from the loader hitch plate and fall.

- **Hydraulic fluid and components that the fluid flows through such as couplers, hoses, hydraulic lines, fittings and motor become hot from use. Be careful when connecting and disconnecting couplings. It is best to allow hydraulic fluid and hydraulic components to cool before touching them.**

**CAUTION**
To avoid minor or moderate injury:

- Wear gloves when working around or near the bristles. Poly and especially wire bristles can suddenly poke the hands causing injuries that can become infected.

- Do not let children operate, play on, or be near the attachment.

- Check for loose bolts and pin connections. Make sure all hardware is tight and that worn or damaged hardware is replaced with properly rated hardware.

- Don’t wear loose apparel. All shirts should be buttoned up the front and tucked in the trousers. Long sleeve shirts should be buttoned at the cuffs.

- Always dress to stay warm in cold weather. Never allow body or extremities to become too cold. Go inside to warm-up before continuing when getting too cold.

- Make sure all safety labels are in their proper location and in good readable condition before operating.

- Always wear seat belt when provided and lower skid steer seat bar if equipped.

- Inspect hydraulic fittings and hoses for leaks with a board or cardboard. Do not use your hands. Make sure all connections are tight and in good working condition. Replace damaged or fatigued fittings and hoses. See “Avoid High Pressure Fluids Hazard” on page 3.

**IMPORTANT:** Mark locations of all curbs, hydrants, stumps, and other obstructions in the area that can damage the equipment and property when hit. Do not hit solid objects with the brush.

**IMPORTANT:** Remove all property from the area that can be damaged by flying debris and bristles.
Safety While Operating the Angle Broom

**DANGER**

To avoid serious injury or death:
- Never raise brush more than a few feet off the ground. The tractor/skid steer could tip over if raised too high.
- Keep all persons away from the Angle Broom a distance in excess of its throwing capabilities when broom is rotating. Shut broom rotation off if anyone comes near the discharge area. A person can become entangled in rotating equipment or hit by flying debris.
- Do not allow anyone to stand close to the broom while angling, raising or lowering the broom. A person can become pinched, entangled and/or crushed.

**WARNING**

To avoid serious injury or death:
- Make sure controls are all in neutral position before starting the tractor/skid steer.
- Keep hands, feet, hair, and clothing away from moving parts and pinch points.
- Keep all shields and safety equipment in place while operating the broom.
- Never allow passengers on the tractor/skid steer or carry a rider on the attachment.
- Be aware of the extra weight and width the Angle Broom adds to the tractor or skid steer. Reduce speed accordingly. Avoid traveling too fast over rough terrain that will bounce the broom causing loss of control.
- Do not travel at high speeds while sweeping. High speeds can result in sudden loss of control leading to damaged property, equipment, and bodily harm.
- Do not rotate front loader hitch plate fully down. Doing so, can damage hydraulic hoses and cause a high pressure fluid leaks. Fluid under pressure can penetrate the body.
- The Angle Broom is designed primarily for moving light dust and snow. Do not use the brush to move aggregate materials such as pea gravel, grain, loose soil, undisturbed soil, heavy materials, gravel, rocks, or similar items.
- Keep flying debris to a minimum. Always operate broom at slowest rotating speed that will do the job.

**CAUTION**

To avoid minor or moderate injury:
- Always exercise safety, courtesy, and common sense. Be aware of pedestrian and vehicle traffic. Never sweep towards people, buildings, vehicles, or other objects that can be damaged from flying debris. Check blind spots before moving equipment. It is best to move debris during low-traffic hours.
- Keep brush properly attached to the power equipment when in use.
- Use Angle Broom for its intended purpose only. Do not use it for pulling, pushing, or lifting objects.

Safety While Servicing and Repairing

**WARNING**

To avoid serious injury or death:
- Hydraulic fluid under high pressure can penetrate the skin and/or eyes causing a serious injury. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Use a piece of cardboard or wood rather than hands when searching for leaks. A doctor familiar with this type of injury must treat the injury within a few hours or gangrene may result. DO NOT DELAY.
- Protect against equipment falling unexpectedly. Pin support stands in the down position and then lower brush to ground or securely block brush up with support blocks before servicing or working under and around the unit.
- Inspect hydraulic fittings and hoses for leaks with a board or cardboard. Do not use your hands. Make sure all connections are tight and in good working condition. Replace damaged or fatigued fittings and hoses.
- Place tractor or skid steer in park, shut engine off and release all hydraulic pressure at the controls before servicing the Angle Broom.
- Lubricate, make adjustments and repairs in a safe area away from traffic and other hazards.
- Do not alter the Angle Broom. Making alterations to the Angle Broom can void its warranty.

**Refer to Figure 4-1:** Use stepping pads on the hitch plate and hand holds on the skid steer when climbing into the skid steer cab. Never step on smooth surfaces or on the brush shield. Feet can slip on smooth surfaces especially if wet or icy and the shield is not designed to withstand loads.
Safety While Transporting the Angle Broom

**WARNING**

To avoid serious injury or death:

- When traveling on public roadways, travel in such a way that faster moving vehicles may pass safely. Use accessory lights, clean reflectors, and a slow moving vehicle sign that is visible from the back to warn operators in other vehicles of your presence. Always comply with all federal, state, and local laws.
- Backup alarm must be in good working order to warn others. Use a backup camera or rear-view mirror that is in good condition to help see undesirable situations behind the unit. Drive at a slower speed to compensate for blind spots.
- Reduce ground speed when turning and leave enough clearance to avoid making contact with obstacles such as buildings, trees, fences, etc. Making contact can result in equipment damage and cause serious injury or death.
- Select a safe ground speed when transporting. Never travel at a speed which does not allow adequate control of steering and stopping, and never exceed 20 mph (32.2 km/h) with attached equipment. Rough terrain requires a slower speed.

When transporting a skid steer on a trailer, use towing vehicle and trailer of adequate size and capacity. Always drive up a ramp with heavy end uphill. Engage skid steer park brake and remove ignition switch key once it is loaded. Secure Skid Steer and attachment using tie downs and chains.

Pre-Operation Inspection

1. Park tractor/skid steer with Angle Broom on a flat level surface. Place transmission in park, set park brake, and lower brush onto the level surface.
2. Shut tractor/skid steer off, remove switch key, relieve all pressure in hydraulic lines, and wait for all moving parts to come to a complete stop before dismounting from tractor or skid steer.
3. Visually check for excessive wear, worn, damaged, cracked, or loose parts. Replace parts with genuine Kubota parts.
4. With tractor/skid steer shut off and all hydraulic pressure removed, inspect hydraulic connections for leaks. Tighten any connection that is loose.
5. Start tractor/skid steer and check hydraulic oil leaks with a piece of paper or cardboard. **Do not** use your hands as invisible thin streams of high pressure oil can be injected into your skin. See “Avoid High Pressure Fluids Hazard” on page 3.
6. Inspect hydraulic hose for pinch points that can damage the hose during operation and for sufficient length and equipment clearances. See “Check Equipment Clearances” on page 13.
7. Check all controls and operating functions of the tractor/skid steer.

**Angle Broom Functions**

**Leveling**

With broom in sweeping position, extend or retract tilt cylinders at front of loader to rotate hitch plate forward or backward until it is vertical. Do not use tilt cylinders to apply down pressure on the brush. This will cause uneven bristle wear especially when sweeping at an angle. See Broom Leveling on page 25 for more details.

**Angling Manually**

The broom can be angled 30° left and right with a ratchet jack. Set ratchet lock on jack and pump lever back and forth to angle broom in one direction. Reposition ratchet lock and pump lever back and forth again to angle broom in the opposite direction.

**Angling Hydraulically (Optional)**

The broom can be angled 30° left and right with an optional hydraulic cylinder. Press and hold right button on the electrical box to angle broom to the left and left button to angle broom to the right. Release button when broom is at preferred angle. See “Electrical Control Harness (Optional)” on page 10 for detailed wiring instructions.

**Raising & Lowering**

Use only loader arms to raise and lower the broom. If control lever for raising and lowering loader arms has a detent, set detent to lower loader arms to the same sweeping position every time. If there is no detent, use spacers on cylinder rods (customer to supply spacers) or make a mark on loader arms that will indicate when arms are lowered to correct sweeping position.
General Operating Instructions
Once you have read the Angle Broom Operator’s Manual, properly installed the unit on your skid steer or tractor loader, leveled unit to the intended sweeping height, and reviewed operating checklist, it is time to put your new brush attachment to work.

Ratchet Jack Angling: With brush above ground level and power to the broom OFF, rotate broom with ratchet jack to the desired angle you want to direct debris.

Hydraulic Angling: With brush above ground level and power to the broom ON, rotate broom with push button switch to the desired angle you want to direct debris.

Engage power to the broom motor and slowly lower broom to the ground until you make appropriate contact with the surface without heavy down pressure that will result in excessive brush wear.

Begin moving forward until you achieve an approximate ground speed of 5 mph or less. Reduce ground speed if necessary to avoid hitting immovable objects. The optional Marker Kit can provide a keener indication of exactly where your front corners are located with respect to curbs and obstacles. Do not ram into accumulated debris piles or brush damage could result. Vary brush, engine, and travel speeds to match sweeping conditions.

**IMPORTANT:** Remember, the broom frame extends beyond the markers by several inches. Always allow room for the frame to clear objects.

Make a pass down the middle when sweeping large areas such as parking lots. Work progressively from the center out to both sides of the lot. This will reduce the amount of debris that the broom must move to each side. Low brush speeds and moderate travel speeds will work best when cleaning debris from hard surfaces. Excessive brush speeds tend to raise too much dust. Use optional sprayer-type Dust Suppression System or optional Dust Deflector Kit to keep dust to a minimum.

When operating in deep snow, you may need to make multiple passes to get down to a clean paved surface. You will want to keep the wind to your back to keep snow from blowing back on you and on the area you have just cleaned. Fast brush speeds and slow travel speeds are required to sweep snow effectively. Operate in the lowest gear possible for best results. For wet and deep snow, you may need to speed up a bit to keep snow from packing up inside of brush shroud.

If you are using your broom to assist in turf scalping operations prior to over seeding Rye grass with warm season Bermuda grass, it is best to cut grass as low as possible, vacuum up clippings and then run the broom over scalped area to provide maximum soil exposure for overseeding. This practice is frequently used by superintendents on Southern golf courses to promote rapid green growth for winter operations.
Section 5: Options & Accessories

3500 PSI Hydraulic Motors
810-732C . . . 18 GPM HYDRAULIC MOTOR (18 CID)
810-731C . . . 25 GPM HYDRAULIC MOTOR (23 CID)

Refer to Figure 5-1:
There are two 3500 PSI hydraulic motors (#5) available, 18 gpm and 25 gpm. The 18 gpm motor is used with skid steers & tractors with 18 gpm hydraulic systems and under. The 25 gpm motor is used with skid steers & tractors whose systems are rated higher than 18 gpm. If tractor or skid steer rating exceeds 25 gpm, the Angle Broom should include a flow control valve.

Refer to Figure 5-2:
1. For safety, rotate support stands (#1) down and secure in place with wire snap lock pins (#5).
2. Support brush close to the motor to prevent it from falling.
3. Tag upper hydraulic hose (#6) “Pressure Hose” and remove from existing hydraulic motor.
4. Tag lower hydraulic hose (#7) “Return Hose” and remove from existing hydraulic motor.
5. Remove hose fittings from existing hydraulic motor.
6. Remove bolts (#3), lock washers (#4), and hydraulic motor (#5) with mounting plate (#2).

Refer to Figure 5-1:
7. Remove motor mount (#2), special made lock nut (#7) and hex hub (#6). Keep motor mount hardware (#2, #3, & #4) and hex hub (#6) for reinstallation.
8. Attach existing motor mount (#2) to new motor with 1/2"-13 x 2 1/4" GR5 cap screws (#3) and hex flange locknuts (#4). Tighten locknuts to the correct torque.
9. Attach existing hex hub (#6) with key (#1) and special locknut (#7). Tighten locknut to the correct torque.
10. Remove port plugs in new motor and screw existing hose fittings into the ports. Tighten fittings in place.

Refer to Figure 5-2:
11. Properly align and insert hex hub into hex opening in broom drum. Attach new hydraulic motor with existing lock washers (#4) and bolts (#3). Tighten bolts to the correct torque.
12. Attach “High Pressure Hose” (#6) to the top port in new motor. Attach “Return Hose” (#7) to the bottom port in the new motor.
13. Tighten all fittings and hoses tight.
Orange Marker Package
323-026A ......................... MARKER ASSY

Refer to Figure 5-3:
Kubota offers 28" tall orange markers that can be bolted to the sides of the broom shroud. These assist in locating the outer ends of the Angle Broom when approaching buildings, trees, poles, and other obstacles that could damage the unit and other obstacles.

**NOTE:** The 5/16" hex nylock nuts included with Orange Marker Package are not used.

1. Attach 28" orange marker (#2) to the right side with two 5/16"-18 x 1" GR5 hex head cap screws (#1). Tighten cap screws to the correct torque.
2. Repeat step 1 for the left side.
Metal Shroud Extension
Model AB72 ........................ Part No. 323-072A
Model AB84 ........................ Part No. 323-037A

Refer to Figure 5-4:
The metal shroud extension is recommended to help contain dust. A rubber dust deflector flap or water spray nozzles can be mounted to increase dust suppression. See “Dust Deflector & Shroud Extension” on page 33 and “Dust Suppression Kit” on page 34 for additional information.

1. Remove existing 1/4” cap screws (#2A) and lock washers (#4) from both ends of the broom shroud. Save caps screws and locks washer for reuse.

2. Attach both ends of the metal shroud extension (#1) to the broom shroud with three 5/16"-18 x 3/4" GR5 cap screws (#3) and spring lock washer (#6). Do not tighten cap screws.

3. Attach top side of metal shroud extension at both ends with existing 1/4"-20 GR5 cap screws (#2A), existing lock washers (#4) and new flat washers (#5). Do not tighten cap screws.

4. Attach center of metal shroud extension (#1) to broom shroud with 1/4"-20 x 3/4" GR5 cap screws (#2) and flat washers (#5).

5. Tighten all cap screws to the correct torque.

Assembly of Metal Shroud Extension to Broom Shroud
Figure 5-4
Section 5: Options & Accessories

Section 5: Options & Accessories

Dust Deflector & Shroud Extension

Model AB72 .......................... Part No. 323-074A
Model AB84 .......................... Part No. 323-021A

Refer to Figure 5-5:

Kubota offers a dust deflector flap with shroud extension that can be mounted on the front of the broom shroud to help keep debris from flying around in the air and into the operator cab.

1. Attach two dust deflector stiffener bars (#4) to the bottom of the rubber dust deflector flap (#10) with 1/4"-20 x 3/4" GR5 cap screws (#6), 1/4" fender washers (#9) and whiz nuts (#7). Tighten nuts to the correct torque.

NOTE: Do not install end cap screws (#6B) until instructed in steps 3 & 14.

2. Attach rubber dust deflector flap (#10) to shroud extension (#1) with 1/4"-20 x 3/4" GR5 cap screws (#6A), flat washers (#8A) and deflector support (#5) as shown. Secure with whiz nuts (#7A). Draw whiz nuts up snug, do not tighten.

3. Attach right-hand dust deflector bracket (#3) to shroud extension (#1) with 1/4"-20 x 3/4" GR5 cap screws (#6B), flat washers (#8B) & whiz nuts (#7B).

4. Attach left-hand dust deflector bracket (#2) to shroud extension (#1) with 1/4"-20 x 3/4" GR5 cap screws (#6B), flat washers (#8B) & whiz nuts (#7B).

5. Tighten whiz nuts (#7A & #7B) to the correct torque.

6. See “Metal Shroud Extension” on page 32 for detailed assembly instructions.
Dust Suppression Kit
Part No. 323-030A

Refer to Figure 5-6 on page 35:
Kubota offers a shroud mounted spray boom and nozzles to dispense a fine spray mist to control and minimize airborne dust particles. Included with the Dust Suppression Kit is a hitch mounted water tank with pump, PVC hoses, fittings, and control switch. The spray nozzles are mounted directly to the optional shroud extension with or without optional dust deflector flap. An optional metal shroud extension or dust deflector with metal shroud extension can be purchased from your nearest Kubota dealer if needed. See pages 32 & 33 for part numbers and detail descriptions of metal shroud and dust deflector flap.

⚠️ WARNING
To avoid serious injury or death:
Use only clean fresh water in the Dust Suppression System. Do not use dirty water, salt water or chemicals. Dirty water can plug the system. Salt water and chemicals will corrode the system. Chemicals can also cause serious injury to persons, animals, plants, soil and property.

NOTE: Five zip ties (#33) are provided to secure the PVC hoses. Customer may install these as needed.

Water Tank Assembly
Refer to Figure 5-6 on page 35:
1. Attach support brackets (#1 & #2) to water tank (#20) with 5/16”-18 x 1” GR5 cap screws (#13), lock washers (#15), and flat washers (#16). Draw cap screws up snug, do not tighten.
2. Attach rear support bracket (#2) to center serrated step with 3/8”-16 x 1” GR5 cap screws (#11) and nylock locknuts (#14). Draw cap screws up snug, do not tighten.
3. Attach the front support bracket (#1) to pivot plate with two 3/8”-16 x 1 1/4” GR5 cap screws (#12), four flat washers (#17), and two nylon locknuts (#14).
4. Tighten all 5/16” cap screws (#13) and 3/8” nylock nuts (#14) to the correct torque.
7. Connect OUT port of line filter (#27) to adapter (#25). Tighten filter tilted out as shown.
8. Connect 1/2” MNPT x 5/8” hose barb adapter (#8A) to IN port of line filter (#27). Screw on tight.
9. Attach pump (#28) to tank (#3) with 24 x 1” cap screws (#10) and flat washers (#18). Tighten cap crews to the correct torque.
10. Insert garden hose washer (#34) into garden hose adapter (#26).
11. Connect 1/2” FNPT x 3/4” garden hose adapter (#26) to water tank outlet. Screw on tight.
12. Connect 1/2” MNPT x 1/2” MNPT adapter (#23) to adapter (#26). Screw on tight.
13. Connect 1/2” FNPT single ball valve (#21) to adapter (#23). Screw on tight with lever on top.
14. Connect 1/2” MNPT x 5/8” ID hose push lock adapter (#8B) to ball valve (#21). Screw on tight.

Spray Nozzle Assembly To Broom Shroud
Refer to Figure 5-6 on page 35:

IMPORTANT: 3/8” ID x 1/8” wall clear PVC hoses (#30, #31 & #32) are provided in one length that will need to be cut into three lengths in field assembly.

1. Insert threaded end of elbow (#9A) through hole in broom shroud in the location shown.
2. Insert brass nozzle tip (#6A) into elbow (#9A) and secure with nozzle cap (#7A). Rotate notch in nozzle down to direct spray onto the ground and then screw cap on tight.
3. Connect one end of PVC hose (#31) to elbow (#9A) with wire hose clamp (#5).
4. With tee (#22) inserted through center hole in broom shroud, route PVC hose (#31) to tee (#22) and cut to length.
5. Attach PVC hose (#31) to tee (#22) with wire hose clamp (#5).
6. Insert threaded end of elbow (#9B) through hole in broom shroud in the location shown.
7. Insert brass nozzle tip (#6B) into elbow (#9B) and secure with nozzle cap (#7B). Rotate notch in nozzle down to direct spray onto the ground and then screw cap on tight.
8. Connect one end of PVC hose (#32) to elbow (#9B) and secure with wire hose clamp (#5).
9. Route PVC hose (#32) to tee (#22) and cut to length.
10. Attach PVC hose (#32) to tee (#22) with wire hose clamp (#5).
11. Insert grommet (#19) into broom shroud center hole.
12. Insert PVC hose (#30) through grommet (#19) and connect to tee (#22) with wire hose clamp (#5).
13. Route PVC hose (#30) to adapter (#24) and cut to length.
14. Connect hose (#30) to adapter (#24) with wire hose clamp (#5).
Dust Suppression Electrical Hook-Up

Refer to Figure 5-7:

1. Install 18 ft. power cord (#1) by connecting eye (A) with a red wire to the 12 volt power source and eye (B) with a black wire to ground.
2. Mount control switch (#3) in a convenient, easy to reach location. Back of control switch is magnetized for easy mounting.
3. Connect power cord (#1) to control switch wire (#2).
4. Connect red wire of jumper (#5) to red wire of pump harness (#8) with butt splice (#6).
5. Connect black wire of jumper (#5) to black wire of pump harness (#8) with butt splice (#7).
6. Connect jumper wire (#5) to 18'-0" power cord (#4).
7. Make sure all wiring is routed safely so that no wires will be pinched, kinked, or pulled apart while operating the Angle Broom. Tie or tape wiring to secure it in its routed location.
Spray Nozzle Assembly To Shroud Extension

Refer to Figure 5-8:

1. Insert threaded end of elbow (#6A) through hole in broom shroud in the location shown.
2. Insert brass nozzle tip (#9) into elbow (#6A) and secure with nozzle cap (#7). Rotate notch in nozzle down to direct spray onto the ground and then screw cap on tight.
3. Connect one end of PVC hose (#11) to elbow (#6A) with wire hose clamp (#2).
4. With tee (#4) inserted through center hole in broom shroud, route PVC hose (#11) to tee (#4) and cut to length.
5. Attach PVC hose (#11) to tee (#4) with wire hose clamp (#2).
6. Insert threaded end of elbow (#6B) through hole in broom shroud in the location shown.
7. Insert brass nozzle tip (#9) into elbow (#6B) and secure with nozzle cap (#7). Rotate notch in nozzle down to direct spray onto the ground and then screw cap on tight.
8. Connect one end of PVC hose (#12) to elbow (#6B) and secure with wire hose clamp (#2).
9. Route PVC hose (#12) to tee (#4) and cut to length.
10. Attach PVC hose (#12) to tee (#4) with wire hose clamp (#2).
11. Insert grommet (#3) into broom shroud center hole.
12. Insert PVC hose (#10) through grommet (#3) and connect to tee (#4) with wire hose clamp (#2).
13. Route PVC hose (#10) to adapter (#5) and cut to length.
14. Connect hose (#10) to adapter (#5) with wire hose clamp (#2).

IMPORTANT: 3/8” ID x 1/8” wall clear PVC hoses (#8, #9 & #10) are provided in one length that will need to be cut into three lengths in field assembly.
Hose And Spray Kit Accessory
Part No. 323-043A

Refer to Figure 5-9:

This kit may be purchased when customer is supplying the water tank and pump. An additional 6 feet of 3/8” ID x 1/8” wall clear PVC hose is provided with this kit for reaching to customer supplied water tank.

**IMPORTANT:** 3/8” ID x 1/8” wall clear PVC hoses (#10, #11 & #12) are provided in one length that will need to be cut into three lengths in field assembly.

1. Insert threaded elbow (#6A) through hole in broom shroud shown in Figure 5-8 on page 36.
2. Insert brass nozzle tip (#9) into elbow (#6A) and secure with nozzle cap (#7). Rotate notch in nozzle down to direct spray onto the ground and then screw cap on tight.
3. Connect one end of PVC hose (#11) to elbow (#6A) and secure with wire hose clamp (#2).
4. With tee inserted through center hole in broom shroud shown in Figure 5-8 on page 36, route hose (#11) to tee (#4) and cut to length.
5. Connect hose to tee with wire hose clamp (#2).
6. Insert threaded end of elbow (#6B) through hole in broom shroud as shown in Figure 5-8 on page 36.
7. Insert brass nozzle tip (#9) into elbow (#6B) and secure with nozzle cap (#7). Rotate notch in nozzle down to direct spray onto the ground and then screw cap on tight.
8. Connect one end of PVC hose (#12) to elbow (#6B) and secure with wire hose clamp (#2).
9. Route PVC hose (#12) to tee (#4) and cut to length.
10. Attach PVC hose (#12) to tee (#4) with wire hose clamp (#2).
11. Insert grommet (#3) into center hole in broom shroud as shown in Figure 5-8 on page 36.
12. Insert PVC hose (#10) through the grommet (#3) and connect to tee (#4) with wire hose clamp (#2).
13. Route PVC hose (#10) to customer supplied pump and cut to length. Connect hose to customer supplied pump with wire hose clamp (#2).
14. Secure water hose to hydraulic hoses with zip ties (#1A, #1B, #1C, #1D & #1E) as follows:
   - Attach zip tie (#1A) 8” from the quick couplers.
   - Attach zip tie (#1B) 20” from zip tie (#1A).
   - Attach zip tie (#1C) 48” from zip tie (#1B).
   - Attach zip tie (#1D) 48” from zip tie (#1C).
   - Attach zip tie (#1E) 22” from zip tie (#1D).
Section 5: Options & Accessories

Brooms & Individual Wafers

Refer to Figure 5-10:
Kubota offers broom construction of three different bristle materials: Poly bristles, steel bristles or combination wafers constructed of poly and steel bristles. Poly bristles are more gentle on the surface being brushed while steel bristles will loosen stubborn caked on areas.

Refer to Figure 5-11:
Individual straight wafers (#6) & convoluted wafers (#7) are replaceable. See “Wafer Removal and Installation” instructions on page 40 for additional information.

Part Number & Description

Poly Brushes (See Note above Figure 5-11)
- 323-001A Poly Broom Assembly for 3000 PSI Motor
- 323-047A Poly Broom Assembly for 3500 PSI Motor
- 890-999C Polypropylene Convoluted Wafer
- 890-998C Polypropylene Straight Wafer
- 891-163C Wafer Spacer Ring

Wire Brushes (See Note above Figure 5-11)
- 323-009A Wire Broom Assembly for 3000 PSI Motor
- 323-048A Wire Broom Assembly for 3500 PSI Motor
- 891-114C Wire Convoluted Wafer
- 891-132C Wire Straight Wafer
- 891-163C Wafer Spacer Ring

Combination Poly & Wire Brushes (See Note Below)
- 323-010A Comb. Broom Assembly for 3000 PSI Motor
- 323-049A Comb. Broom Assembly for 3500 PSI Motor
- 890-999C Polypropylene Convoluted Wafer
- 891-114C Wire Convoluted Wafer
- 890-998C Polypropylene Straight Wafer
- 891-163C Wafer Spacer Ring

NOTE: Each Broom Assembly includes one roller drum (#1), six 1/4"-20 x 1" cap screws (#2), six lock washers (#3), one drum plate (#4), two wafer spacer rings (#5) two straight wafers (#6) and convoluted wafers (#7) as follows:

AB72
Poly Broom- 34 Polypropylene Convoluted Wafers
Wire Broom - 34 Wire Convoluted Wafers
Comb. Broom 17 Poly & 17 Wire Convoluted Wafers

AB84
Poly Broom- 40 Polypropylene Convoluted Wafers
Wire Broom - 40 Wire Convoluted Wafers
Comb. Broom 20 Poly & 20 Wire Convoluted Wafers
General Maintenance Information
Proper servicing and adjustment are key to the long life of any attachment. With careful inspection and routine maintenance, you can avoid costly downtime and repair.

Check all bolts after using the unit for several hours to be sure they are tight. Replace any worn, damaged, or illegible safety labels by obtaining new labels from your Kubota dealer.

Broom Removal
The bristles will need replacing as they wear. The brush is designed for easy removal from under the hood. Once the brush is removed, individual wafers can be slid on and off for easy replacement.

Refer to Figure 6-1 & Figure 6-2:
1. For safety, support both ends of the broom shroud main frame so that the bottom of the frame is 22" off the ground. Make sure supports are secure before continuing. The 22" clearance between the main frame and ground is necessary when replacing the broom with new bristles that are 10" long.

Refer to Figure 5-11 on page 38:
2. Support rotary drum (#1) at both ends to keep the rotary broom from falling while unbolting it from the main frame. Make sure supports are secure before continuing.

Refer to Figure 6-1:
3. Remove cap screws (#3) and lock washers (#4) securing the motor to the main frame.
4. Pull hydraulic motor & mounting plate assembly (#2) out 3" or 4" from mounting frame. If hydraulic hoses (#6 & #7) will not allow proper motor movement, loosen dual hose clamps on back of shroud to free-up hose movement.

Refer to Figure 6-2:
5. Remove cap screws (#3) and lock washers (#4) securing flange bearing to the main frame. Do not remove flange bearing and mounting plate (#5) from end of brush.

Refer to Figure 6-3:
6. Carefully lower broom assembly straight down until bearing assembly has passed through slot in the main frame.
7. Once bearing assembly is below the slot, pull brush from the hex drive shaft and continue to safely lower assembly to the ground.
8. See “Wafer Removal and Installation” on page 40 for removal and installation instructions of wafers.
Wafer Removal and Installation

Refer to Figure 6-4:

The polypropylene and wire broom consists of (2) wafer spacer rings, (2) straight wafers, and (28, 34, or 40) convoluted wafers in the middle.

The combination broom consists of (2) wafer spacer rings, (2) straight wafers, and alternating (14, 17, or 20) poly convoluted wafers and (14, 17, or 20) wire convoluted wafers.


For ordering information, see “Brooms & Individual Wafers” on page 38.

1. Remove cap screws (#2), lock washers (#3) and drum plate (#4) from bearing end of brush. Keep components for reassembly. Do not remove flange bearing.

2. Stand roller drum (#1) on the hydraulic motor end for easier removal and installation of wafers.

3. Slide wafer spacer rings (#5 & #11) and worn wafers (#6, #7, #8, #9, & #10) off end of rotary drum.

4. With rotary drum empty, slide new wafer spacer ring (#11) on.

5. Align guide pins on straight wafer (#10) with guide bar (A) and then slide straight wafer onto the drum.

6. Align guide pins on convoluted wafer (#9) with guide bar (B) and then slide wafer onto the drum.

7. Align guide pins on convoluted wafer (#8) with guide bar (C). Make sure three high points on wafer (#8) touch three high points on wafer (#9). If wafer rings make continuous contact, turn wafer (#8) around and reinstall on guide bar (C).

8. Align guide pins on convoluted wafer (#7) with guide bar (A). Make sure three high points on wafer (#7) touch three high points on wafer (#8). If wafer rings make continuous contact with each other, turn wafer (#7) around and reinstall on guide bar (A).

9. Continue to install convoluted wafers (#7 & #8) on rotary drum (#1) alternating from guide bar (B) to guide bar (C) to guide bar (A) until rotary drum is full of wafers. Make sure three high points are touching and three low points are not touching as each wafer is installed.

10. Once all convoluted wafers are on, install remaining straight wafer (#6) and new wafer spacer ring (#5).

11. Install existing drum plate (#4) and secure with lock washers (#3) and 1/4"-20 x 1" GR5 cap screws (#2). Tighten cap screws to the correct torque.

12. Reassemble brush to the Angle Broom in reverse order it was removed. See “Broom Removal” on page 39.
Long-Term Storage
Refer to Figure 6-5:

Clean, inspect, service, and make necessary repairs to the attachment when storing it for long periods and at the end of the season. This will help ensure the unit is ready for field use the next time you hook-up to it.

1. Store unit on a level surface in a clean, dry place. Be sure unit is properly supported on its support stands and hitch plate. When supported properly, the brush will be off the ground to protect its bristles from becoming deformed.

2. Tighten transport chain to relieve tension on the spring and to protect it from becoming deformed.

3. Clean off any dirt and grease that may have accumulated on the unit and moving parts. Scrape off compacted dirt and then wash surfaces thoroughly with a garden hose.

4. Inspect unit for loose, damaged or worn parts and adjust or replace as needed.

5. Repaint parts where paint is worn or scratched to prevent rust. Ask your Kubota dealer for touch-up paint. Paint is available in aerosol can, quarts, and gallon sizes. See chart below.

6. Replace all damaged or missing decals.

7. A coating of oil may also be applied to the underside of the hood to minimize oxidation.

8. Lubricate unit as noted on page 42.

Kubota Touch-up Paint

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Part Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>77700-06430</td>
<td>GLOSS BLACK ENAMEL SPRAY CAN</td>
</tr>
<tr>
<td>77700-06431</td>
<td>GLOSS BLACK ENAMEL QUART</td>
</tr>
<tr>
<td>700 00-00017</td>
<td>GLOSS BLACK ENAMEL GALLON</td>
</tr>
</tbody>
</table>

Brush Removal, Bearing End
Figure 6-5
Lubrication Points

**Broom Angle Pivot**
1 - Zerk
Type of Lubrication: Multi-purpose Grease

**Broom Head Pivot**
2 - Zerks: Left Side Shown
Type of Lubrication: Multi-purpose Grease

**Broom Rotary Bearing**
1 - Zerk
Type of Lubrication: Multi-purpose Grease
## AB Series

### Specifications & Capacities

<table>
<thead>
<tr>
<th>Model Number</th>
<th>AB72</th>
<th>AB84</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hitch</td>
<td>Skid steer quick attach, meets ISO 24410</td>
<td></td>
</tr>
<tr>
<td>Weight w/ high flow set-up, hydraulic angling jack &amp; combination broom</td>
<td>854 lbs (387.4 kg)</td>
<td>930 lbs (421.8 kg)</td>
</tr>
<tr>
<td>Overall Width</td>
<td>81 1/2” (2.07 m)</td>
<td>93 1/2” (2.37 m)</td>
</tr>
<tr>
<td>Overall Height</td>
<td>33” (83.8 cm)</td>
<td>33” (83.8 cm)</td>
</tr>
<tr>
<td>Wafer Quantities, Poly or Wire</td>
<td>2 Straight Poly Wafers</td>
<td>2 Straight Poly Wafers</td>
</tr>
<tr>
<td>Wafer Quantities, Combination Poly &amp; Wire</td>
<td>34 Convoluted Wafers</td>
<td>40 Convoluted Wafers</td>
</tr>
<tr>
<td>Sweeping Width</td>
<td>72” (1.83 m)</td>
<td>84” (2.13 m)</td>
</tr>
<tr>
<td>Sweeping Width @ 30° Max Angle</td>
<td>65” (1.65 m)</td>
<td>76” (1.93 m)</td>
</tr>
<tr>
<td>Maximum Angle</td>
<td>Manual Angling: 30 Degrees left or right</td>
<td>Optional Hydraulic Angling: 30 Degrees left or right</td>
</tr>
<tr>
<td>Brush Diameter</td>
<td>32” (81.3 m)</td>
<td></td>
</tr>
<tr>
<td>Brush Rotor Shaft</td>
<td>Quick change broom core with no hydraulic breakage in changeover</td>
<td></td>
</tr>
<tr>
<td>Hex Drive System</td>
<td>Replaceable</td>
<td></td>
</tr>
<tr>
<td>Brush Bristle Type</td>
<td>100% Poly or 100% Metallic or 50% Poly and 50% Metallic</td>
<td></td>
</tr>
<tr>
<td>Hood</td>
<td>Sheet Metal</td>
<td></td>
</tr>
<tr>
<td>Jack Stands</td>
<td>Standard</td>
<td></td>
</tr>
<tr>
<td>Float Control</td>
<td>Spring Loaded with adjustable down pressure &amp; stops</td>
<td></td>
</tr>
<tr>
<td>Hydraulic GPM Range</td>
<td>12-30 gpm (45.4-113.6 lpm)</td>
<td></td>
</tr>
<tr>
<td>Motor Rated Hydraulic Flow</td>
<td>18 gpm (68.1 lpm) @ 220 rpm brush speed (“High Flow” option not available.)</td>
<td></td>
</tr>
<tr>
<td>18 CID Motor</td>
<td>25 gpm (94.6 lpm) @ 230 rpm brush speed (“High Flow” option available for units capable of producing flows above 25 gpm (94.6 lpm). This option protects the hydraulic motor by diverting excess flow back to the tank.)</td>
<td></td>
</tr>
<tr>
<td>23 CID Motor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Hydraulic Flow Required</td>
<td>12 gpm (45.4 lpm) @ 2000 PSI (13.79 MPa)</td>
<td></td>
</tr>
<tr>
<td>Maximum Hydraulic Pressure Rating</td>
<td>3500 PSI (24.13 MPa)</td>
<td></td>
</tr>
<tr>
<td>Brush Speed Range</td>
<td>100 - 230 Rpm</td>
<td></td>
</tr>
<tr>
<td>Hydraulic Rotor Drive Motor</td>
<td>Single motor drive standard</td>
<td></td>
</tr>
<tr>
<td>Hydraulic Hoses</td>
<td>Standard for drive motor hook-up</td>
<td></td>
</tr>
<tr>
<td>Hydraulic couplers</td>
<td>Optional with angling cylinder</td>
<td></td>
</tr>
</tbody>
</table>

![Diagram of AB Series Angle Broom](image-url)
# Section 8: Features and Benefits

## AB72, & AB84 Models

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>32” Bristle Diameter</td>
<td>Provides for long service life.</td>
</tr>
<tr>
<td>Available in 72” &amp; 84” Working widths</td>
<td>Provides for excellent productivity and ideal sizes for most skid steers and compact utility tractors.</td>
</tr>
<tr>
<td>Choice of poly or combination poly/wire bristles</td>
<td>Allows owner/operators to meet operational needs. Poly/wire combinations provide more wear life and more aggressive sweeping action.</td>
</tr>
<tr>
<td>Faceted hood design</td>
<td>Provides for a higher level of overall structural integrity.</td>
</tr>
<tr>
<td>Easily removable brush drive</td>
<td>Allows for quick and easy change out of brushes without motor removal or opening hydraulic lines.</td>
</tr>
<tr>
<td>Choice of manual or hydraulic angling</td>
<td>Allows owner/operators to meet budgetary and operational needs. High or Standard Flow hydraulic options are offered to ensure that cylinder travel response is safe and appropriately matched to output flow of the tractor.</td>
</tr>
<tr>
<td>Brush angles 30 degrees to the left or right</td>
<td>Provides for excellent material control and puts sweepings where the operator wants them.</td>
</tr>
<tr>
<td>Compatible with 12GPM to 25GPM hydraulic flow at 2,000 psi</td>
<td>Allows attachment to a wide range of skid steers and compatible compact utility tractors equipped with loader arms and skid steer adapter plates.</td>
</tr>
<tr>
<td>Integral flow control valve</td>
<td>Protects hydraulic system and motor from hydraulic inputs exceeding 25 gpm.</td>
</tr>
<tr>
<td>Integral float control design</td>
<td>Spring loaded adjustable down pressure control and stops prevent premature brush wear while providing appropriate surface contact with the rotary brush.</td>
</tr>
<tr>
<td>100 to 230 rpm brush rotation</td>
<td>Enables easy dismount and storage and keeps bristle ends from becoming deformed by supporting weight of the unit.</td>
</tr>
</tbody>
</table>

## Options

<table>
<thead>
<tr>
<th>Options</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rubber Dust Deflector Flap</td>
<td>Helps keep dust levels under control and down and under the hood cowling and out of the operators field of vision.</td>
</tr>
<tr>
<td>Dust Suppression system</td>
<td>Hood mounted spray boom and nozzles dispense a fine spray mist in front of the broom to control and minimize airborne dust particles.</td>
</tr>
<tr>
<td>Metal Shroud Extension</td>
<td>Extends the broom shroud further forward to help control dust. Spray nozzles can be mounted on the extension to help minimize airborne dust particles.</td>
</tr>
<tr>
<td>Marker Indicators</td>
<td>Aids operator in knowing exact position of extreme left and right edges of the unit for safer and unencumbered operation.</td>
</tr>
</tbody>
</table>
## Troubleshooting Chart

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not able to change broom angle</td>
<td>Blown fuse caused by an electrical overload.</td>
<td>Replace fuse. Refer to the tractor/skid steer Operator’s Manual for size and location.</td>
</tr>
<tr>
<td></td>
<td>Damaged wiring or electrical connections.</td>
<td>Repair wiring and/or connections. See your tractor/skid steer dealer for electrical problems with the tractor or skid steer.</td>
</tr>
<tr>
<td></td>
<td>Switch box is damaged</td>
<td>Replace switch box.</td>
</tr>
<tr>
<td></td>
<td>Solenoids are not working.</td>
<td>Replace solenoids.</td>
</tr>
<tr>
<td></td>
<td>Auxiliary hydraulics switch for continuous operation is not engaged.</td>
<td>Engage auxiliary hydraulics switch for continuous operation.</td>
</tr>
<tr>
<td>Broom angles wrong direction</td>
<td>Wiring harness incorrectly connected to the control valve solenoid.</td>
<td>Switch plugs on the wire harness with solenoid plugs.</td>
</tr>
<tr>
<td>Broom does not rotate</td>
<td>Auxiliary hydraulics switch for continuous operation is not engaged.</td>
<td>Engage auxiliary hydraulics switch for continuous operation.</td>
</tr>
<tr>
<td></td>
<td>One or both of the hydraulic couplers are not fully connected.</td>
<td>Reconnect couplers to front auxiliary hydraulics outlets.</td>
</tr>
<tr>
<td></td>
<td>Male and female hydraulic coupling are connected in reverse order.</td>
<td>Switch male and female couplers on hydraulic hoses and then reconnect hoses to auxiliary hydraulic outlets.</td>
</tr>
<tr>
<td>Broom bristles are wearing down too quick</td>
<td>Broom spring eyebolt is adjusted incorrectly causing too much broom pressure against the ground.</td>
<td>Readjust spring eye bolt and transport chain. See “Spring Eye Bolt Adjustment” and “Chain Adjustment” on page 24.</td>
</tr>
<tr>
<td></td>
<td>The loader arms are too low causing too much broom pressure against the ground.</td>
<td>Raise loader arms to the correct height for a 2” to 4” wide sweeping pattern.</td>
</tr>
<tr>
<td>Broom bristles are wearing more on one end than the other</td>
<td>Hitch plate pivot pin is not vertical.</td>
<td>Adjust hitch plate pivot pin to be vertical. See “Broom Leveling” on page 25.</td>
</tr>
<tr>
<td></td>
<td>Broom head lug is not adjusted properly.</td>
<td>Adjust broom head lug. See “Broom Leveling” on page 25.</td>
</tr>
<tr>
<td>Broom is not doing an effective job of cleaning</td>
<td>Broom bristles are 4” or shorter in length.</td>
<td>Replace wafers on broom rotary drum. See “Broom Removal” on page 39</td>
</tr>
<tr>
<td></td>
<td>Broom rpm too low.</td>
<td>Reduce travel speed and increase engine rpm to increase hydraulic flow.</td>
</tr>
<tr>
<td></td>
<td>Hydraulic flow is restricted with foreign material.</td>
<td>Purge hydraulics to remove foreign material. Have a qualified technician service the hydraulic system.</td>
</tr>
<tr>
<td>Bolt Size (inches)</td>
<td>Grade 2</td>
<td>Grade 5</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>in-tpi 1</td>
<td>N · m 2</td>
<td>ft-lb 3</td>
</tr>
<tr>
<td>1/4&quot; - 20</td>
<td>7.4 5.6</td>
<td>11 8 16 12</td>
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<tr>
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<td>8.5 6</td>
<td>13 10 18 14</td>
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<td>15 11 24 17 33 25</td>
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</tr>
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<td>1&quot; - 8</td>
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<td></td>
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<tr>
<td>1&quot; - 12</td>
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<td>1180 870 2640 1950 4290 3160</td>
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<td>1-1/2&quot; - 12</td>
<td>1330 980 2970 2190 4820 3560</td>
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1 in-tpi = nominal thread diameter in inches-threads per inch
2 N · m = newton-meters
3 ft-lb = foot pounds
4 mm x pitch = nominal thread diameter in millimeters x thread pitch

Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.
Warranty

Land Pride warrants to the original purchaser that this Land Pride product will be free from defects in material and workmanship beginning on the date of purchase by the end user according to the following schedule when used as intended and under normal service and conditions for personal use.

Overall Unit and Driveline: One year Parts and Labor
Hydraulic Cylinder: One year Parts and Labor.
Hoses and Seals: Considered wear items.
Hydraulic Motor: Two years Parts and Labor.
Solenoid Controlled Valves: One year Parts and Labor.

This Warranty is limited to the repair or replacement of any defective part by Land Pride and the installation by the dealer of any such replacement part, and does not cover common wear items. Land Pride reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

This Warranty does not apply to any part or product which in Land Pride’s judgment shall have been misused or damaged by accident or lack of normal maintenance or care, or which has been repaired or altered in a way which adversely affects its performance or reliability, or which has been used for a purpose for which the product is not designed. Misuse also specifically includes failure to properly maintain oil levels, grease points, and driveline shafts.

Claims under this Warranty should be made to the dealer which originally sold the product and all warranty adjustments must be made through an authorized Land Pride dealer. Land Pride reserves the right to make changes in materials or design of the product at any time without notice.

This Warranty shall not be interpreted to render Land Pride liable for damages of any kind, direct, consequential, or contingent to property. Furthermore, Land Pride shall not be liable for damages resulting from any cause beyond its reasonable control. This Warranty does not extend to loss of crops, any expense or loss for labor, supplies, rental machinery or for any other reason.

No other warranty of any kind whatsoever, express or implied, is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale.

This Warranty is not valid unless registered with Land Pride within 30 days from the date of original purchase.

IMPORTANT: The Online Warranty Registration should be completed by the dealer at the time of purchase. This information is necessary to provide you with quality customer service.

Model Number ____________________ Serial Number ____________________
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