



# QC Series

221 Model

Hydraulic Windrow Sweeper  
for Loaders



**PALADIN**  
LIGHT CONSTRUCTION GROUP

 **BRADCO**

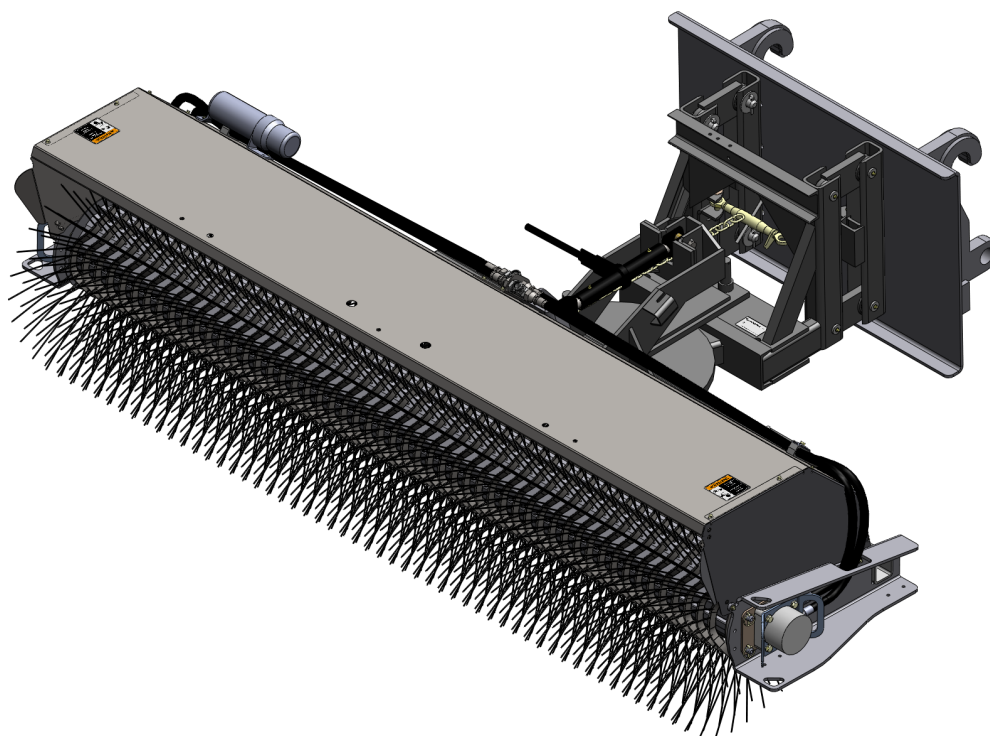
 **FFC**

 **HARLEY**

 **McMILLEN**

 **SWEEPSTER**

*The Power of Combined Excellence*



Sweepster Serial Number \_\_\_\_\_

Manual Number: 51-4162  
Release Date: September 2011  
Serial Number 0910001 and Up

## Notes

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## INTRODUCTION

### Purpose of Sweeper

This sweeper is designed solely for the use in construction cleanup, road maintenance and similar operations. Use in any other way is considered contrary to the intended use. Compliance with and strict adherence to operation, service and repair conditions, as specified by the manufacturer, are also essential elements of the intended use.

### Contacting Sweepster

If you have any questions about information in this manual or need to order parts, please call, write, fax or e-mail SWEEPSTER.

Sweepster  
2800 North Zeeb Road  
Dexter, Michigan 48130  
Phone: (734)-996-9116 - (800)-456-7100  
Fax: (734) 996-9014  
e-mail: [sweepster@paladinbrands.com](mailto:sweepster@paladinbrands.com)

For help with installation, operation or maintenance procedures, contact our Technical Service Department. Direct product questions and parts orders to our Sales Department.

When ordering parts or accessories, be prepared to give the following information:

- Sweeper model, serial number and date of purchase
- Prime mover, make and model
- Part number, description and quantity

### Terms Used in Manual

*Right-hand, left-hand, front and rear* are determined from the operator's perspective (either the operator's seat or standing behind a walk-behind unit), facing forward in the normal operating position.

### Warranty

To validate the warranty for this unit, fill out the warranty card or warranty pages located in the back of this manual. Then send this information to SWEEPSTER.

## SAFETY STATEMENTS

### DANGER!



THIS SIGNAL WORD IS USED WHERE SERIOUS INJURY OR DEATH WILL RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.

### WARNING!



THIS SIGNAL WORD IS USED WHERE SERIOUS INJURY OR DEATH COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.

### CAUTION!



THIS SIGNAL WORD IS USED WHERE MINOR INJURY COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.

### NOTICE!

THIS SIGNAL WORD IS USED WHERE EQUIPMENT OR PROPERTY DAMAGE COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.



THIS SYMBOL BY ITSELF OR USED WITH A WARNING WORD THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY OR THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

## GENERAL SAFETY PRECAUTIONS

### WARNING!



#### **READ MANUAL PRIOR TO INSTALL**

Improper installation, operation, or maintenance of this equipment could result in serious injury or death. Operators and maintenance personnel should read this manual as well as all manuals related to this equipment and the prime mover thoroughly before beginning installation, operation, or maintenance. **FOLLOW ALL SAFETY INSTRUCTIONS IN THIS MANUAL AND THE PRIME MOVERS MANUAL.**

### WARNING!



#### **READ AND UNDERSTAND ALL SAFETY STATEMENTS**

Read all safety decals and safety statements in all manuals prior to operating or working on this equipment. Know and obey all OSHA regulations, local laws and other professional guidelines for your operation. Know and follow good work practices when assembling, maintaining, repairing, mounting, removing or operating this equipment.



#### **KNOW YOUR EQUIPMENT**

Know your equipment's capabilities, dimensions and operations before operating. Visually inspect your equipment before you start, and never operate equipment that is not in proper working order with all safety devices intact. Check all hardware to assure it is tight. Make certain that all locking pins, latches, and connection devices are properly installed and secured. Remove and replace any damaged, fatigued or excessively worn parts. Make certain all safety decals are in place and are legible. Keep decals clean, and replace them if they become worn and hard to read.

## GENERAL SAFETY PRECAUTIONS

### WARNING!



#### **PROTECT AGAINST FLYING DEBRIS**

Always wear proper safety glasses, goggles or a face shield when driving pins in or out or when operation causes dust, flying debris, or any other hazardous material.

### WARNING!



#### **LOWER OR SUPPORT RAISED EQUIPMENT**

Do not work under raised booms without supporting them. Do not use support material made of concrete blocks, logs, buckets, barrels or any other material that could suddenly collapse or shift positions. Make sure support material is solid, not decayed, warped, twisted, or tapered. Lower booms to ground level or onto blocks. Lower booms and attachments to the ground before leaving the cab or operator's station.

### WARNING!



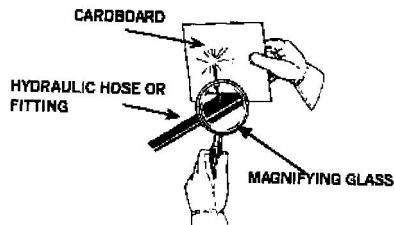
#### **USE CARE WITH HYDRAULIC FLUID PRESSURE**

Hydraulic fluid under pressure can penetrate the skin and cause serious injury or death. Hydraulic leaks under pressure may not be visible. Before connecting or disconnecting hydraulic hoses, read your prime movers operator's manual for detailed instructions on connecting and disconnecting hydraulic hoses or fittings.

- Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.
- If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research immediately to determine proper treatment.

## GENERAL SAFETY PRECAUTIONS CONTINUED

- Wear safety glasses, protective clothing, and use a sound piece of cardboard or wood when searching for hydraulic leaks.  
**DO NOT USE YOUR HANDS!  
SEE ILLUSTRATION.**



### WARNING!



#### **DO NOT MODIFY MACHINE OR ATTACHMENTS**

Modifications may weaken the integrity of the attachment and may impair the function, safety, life and performance of the attachment. When making repairs, use only the manufacturer's genuine parts, following authorized instructions. Other parts may be substandard in fit and quality. Never modify any ROPS (Roll Over Protection System) equipment or device. Any modifications must be authorized in writing by the manufacturer.

### WARNING!



#### **SAFELY MAINTAIN AND REPAIR EQUIPMENT**

- Do not wear loose clothing, or any accessories that can catch in moving parts. If you have long hair, cover or secure it so that it does not become entangled in the equipment.
- Work on a level surface in a well-lit area.
- Use properly grounded electrical outlets and tools.
- Use the correct tool for the job at hand. Make sure they are in good condition for the task required.

## GENERAL SAFETY PRECAUTIONS CONTINUED

- Wear the protective clothing equipment specified by the tool manufacturer.

### WARNING!

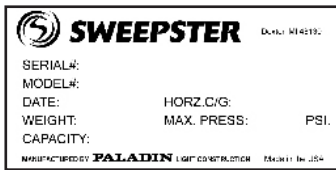


#### **SAFELY OPERATE EQUIPMENT**

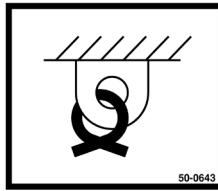
Do not operate equipment until you are completely trained by a qualified operator in how to use the controls, know its capabilities, dimensions, and all safety requirements. See your prime movers manual for these instructions.

- Keep all step plates, grab bars, pedals, and controls free of dirt, grease, debris, and oil.
- Never allow anyone to be around the equipment when it is operating.
- Do not allow riders on the attachment or the prime mover.
- Do not operate the equipment from anywhere other than the correct operators position.
- Never leave equipment unattended with the engine running or with this attachment in a raise position.
- Do not alter or remove any safety feature from the prime mover or this attachment.
- Know your work site safety rules as well as traffic rules and flow. When in doubt on any safety issue, contact your supervisor or safety coordinator for an explanation.

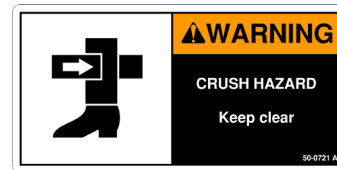
# SAFETY SIGNS & LABELS



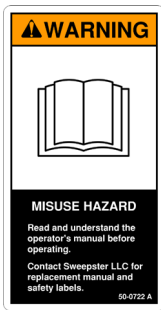
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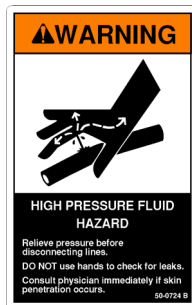
3. 50-0643



4. 50-0721



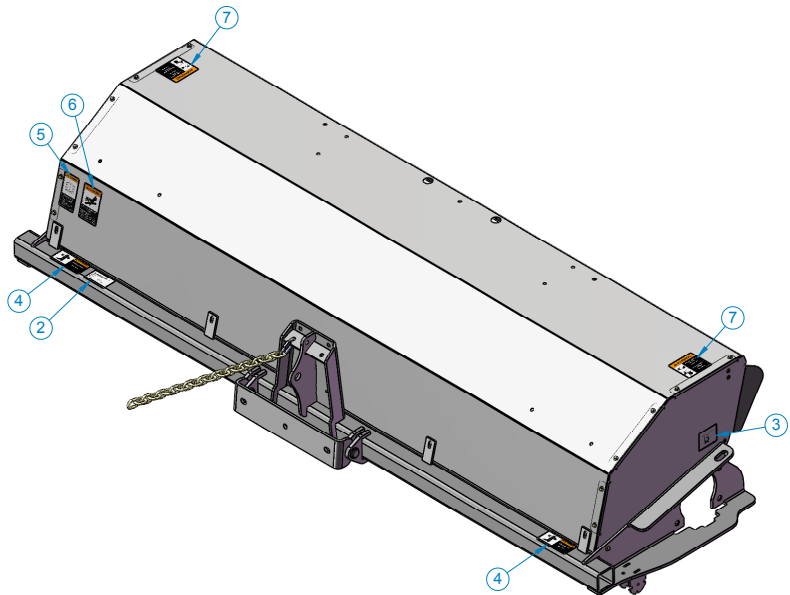
5. 50-0722



6. 50-0724



7. 50-0726



## SAFETY SIGNS & LABELS

There are several specific signs on this sweeper. The exact location of the hazards and description of the hazards are reviewed.

### Placement or replacement of Safety Signs

1. Clean the area of application with nonflammable solvent, and then wash the same area with soap and water.
2. Allow the surface to fully dry.
3. Remove the backing from the safety sign, exposing the adhesive surface.
4. Apply the safety sign to the position shown in the diagram above and smooth out any bubbles.

### Instructions

1. Keep all safety signs clean and legible.
2. Replace all missing, illegible, or damaged safety signs.
3. Replacement parts, for parts with safety signs attached, must also have safety signs attached.
4. Safety signs are available, free of charge, from your dealer or from SWEEPSTER.

Item	Part	Qty	Description
2.	50-0634	1	Label, Serial Number
3.	50-0643	2	Label, Tie Down Point
4.	50-0721	2	Label, Warning, Crush Hazard
5.	50-0722	1	Label, Warning, Misuse Hazard
6.	50-0724	1	Label, Warning, High Pressure Fluid
7.	50-0726	2	Label, Warning, Flying Objects & Entanglement



## SERVICE & REPAIR - SAFETY

### CAUTION!



**DO NOT MODIFY THE SWEEPER IN ANY WAY.** Personal injury could result. If you have questions, contact your dealer or SWEEPSTER.

Repair or adjust the sweeper in a safe area, away from traffic and other hazards.

Before adjusting or servicing the sweeper, lower the sweeper to the ground, stop the prime mover engine, set the brakes and remove the key from the ignition.

### CAUTION!



**A SWEEPER IS A DEMANDING MACHINE.** Only fully trained operators or trainee operators under supervision of a fully trained person should use this machine.

Before operating sweeper:

- Learn sweeper and prime mover controls in an off-road location.
- Be sure that you are in a safe area, away from traffic or other hazards.
- Check all hardware holding the sweeper to the host machine, making sure it is tight.
- Replace any damaged or fatigued hardware with properly rated fasteners.
- Make sure all hydraulic hardware and hydraulic fittings are tight.
- Replace any damaged or fatigued fittings or hoses.
- Remove from the sweeping area all property that could be damaged by flying debris.
- Be sure all persons not operating the sweeper are clear of the sweeper discharge area.
- Always wear proper apparel such as a long sleeved shirt buttoned at the cuffs; safety glasses, goggles or a face shield; ear protection; and a dust mask.

While operating sweeper:

- When operating sweeper, adhere to all government rules, local laws and other professional guidelines for your sweeping application.
- Before leaving the operators area for any reason, lower the sweeper to the ground. Stop the prime mover engine, set the brakes and remove the key from the ignition.
- Minimize flying debris - use the slowest rotating speed that will do the job.
- Keep hands, feet, hair and other loose clothing away from all moving parts.
- Leave the brush hood (shield) and all other shields and safety equipment in place when operating the sweeper.
- Be aware of extra weight and width a sweeper adds. Reduce travel speed accordingly.
- When sweeping on rough terrain, reduce speed to avoid "bouncing" the sweeper. Loss of steering can result.
- Never sweep toward people, buildings, vehicles or other objects that can be damaged by flying debris.
- Only operate the sweeper while you are in the seat of the prime mover. The seat belt must be fastened while you operate the prime mover. Only operate the controls while the engine is running. Protective glasses must be worn while you operate the prime mover and while you operate the sweeper.
- While you operate the sweeper slowly in an open area, check for proper operation of all controls and all protective devices. Note any repairs needed during operation of the sweeper. Report any needed repairs.



## SERVICE & REPAIR - SAFETY

**CAUTION !** Do not modify the sweeper in any way. Personal injury could result. If you have questions, contact your dealer or SWEEPSTER.



Repair or adjust the sweeper in a safe area, away from traffic and other hazards.

Before adjusting or servicing - lower the sweeper to the ground, set parking brake, shut down the prime mover and remove the key from the ignition.

When working on or around the sweeper, safely secure it from falling or shifting.

### Service & Repair - Hydraulic Safety

Stop the prime mover engine and release hydraulic pressure before servicing or adjusting sweeper hydraulic systems.

**WARNING!** Escaping hydraulic fluid can have enough pressure to penetrate the skin, causing serious personal injury.



Check lines, tubes and hoses carefully. Do not use your hand to check for leaks. Use a board or cardboard to check for leaks. Tighten all connections to the recommended torque.

Do not bend high pressure lines. Do not strike high pressure lines, Do not install bent lines, bent tubes, or kinked hoses. Do not install damaged lines, damaged tubes, or damaged hoses.

Repair loose lines, loose tubes, and loose hoses. Repair damaged lines, damaged tubes, and damaged hoses. Leaks can cause fires. See your SWEEPSTER dealer for repair or replacement parts.

Replace the parts if any of the following conditions are present:

- The end fittings are damaged or leaking.
- The outer covering is chafed or cut.
- The reinforcing wire layer is exposed.

- The outer covering is ballooning locally.
- The hose is kinked or crushed.
- The hoses have been pulled or stretched.

Make sure that all clamps, guards, and shields are installed correctly.

**WARNING!**



**EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA DUST ALONG WITH OTHER HAZARDOUS DUSTS MAY CAUSE SERIOUS OR FATAL RESPIRATORY DISEASE.**

It is recommended to use dust suppression, dust collection and if necessary personal protective equipment during the operation of any attachment that may cause high levels of dust.

**WARNING!**



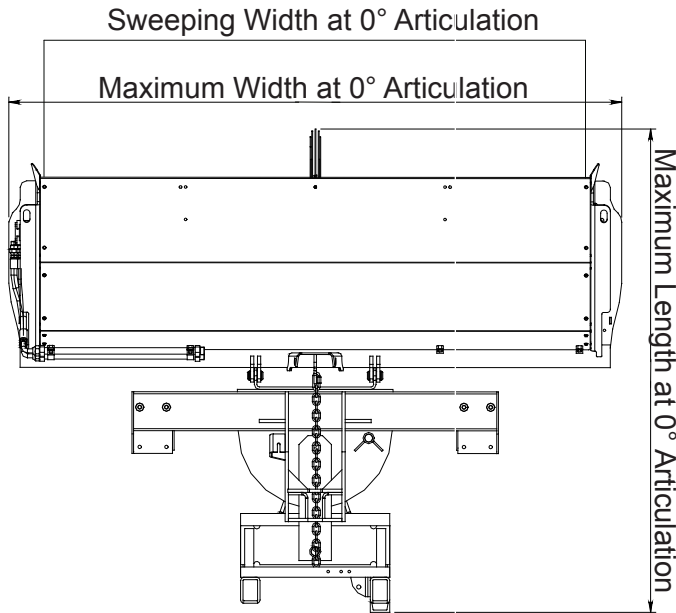
**REMOVE PAINT BEFORE WELDING OR HEATING.**

Hazardous fumes/dust can be generated when paint is heated by welding, soldering or using a torch. Do all work outside or in a well ventilated area and dispose of paint and solvent properly. Remove paint before welding or heating.

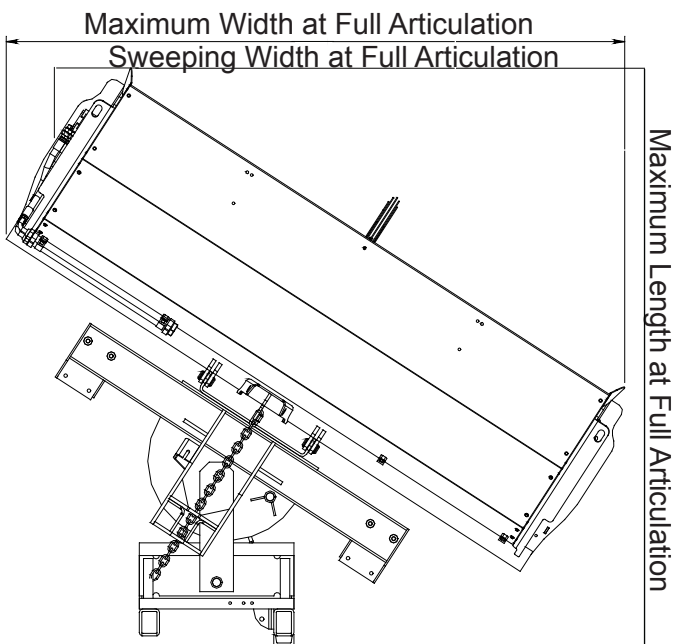
When sanding or grinding paint, avoid breathing the dust. Wear an approved respirator. If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

# PRODUCT INFORMATION

## Specifications and Model Views



QC Brush Head			
	Single Motor	Dual Motor	
Approximate Weight with SAE J2513 Mounting	991 lbs	1031 lbs	8 Ft
	lbs	lbs	9 Ft
Maximum Length at 0° Articulation	80 inches with SAE J2513 Mounting		
Maximum Width at 0° Articulation	110.8 inches	8 Ft	
	122.8 inches	9 Ft	
Maximum Length at Full Articulation	97 inches	8 Ft	
	100 inches	9 Ft	
Maximum Width at Full Articulation	105.8 inches	8 Ft	
	115.7 inches	9 Ft	
Sweeping Width at 0° Articulation	95 inches	8 Ft	
	107 inches	9 Ft	
Sweeping Width at Full Articulation	82 inches	8 Ft	
	93 inches	9 Ft	



Range of Hydraulic Oil Flow		
Single Motor	18 cubic inch	10-18
Single Motor	28 cubic inch	12-25
Dual Motor	18 cubic inch	18-36
Maximum Hydraulic Oil Pressure		
Single Motor	18 cubic inch	3500 psi
Single Motor	28 cubic inch	3000 psi
Dual Motor	18 cubic inch	3500 psi

# INSTALLATION & REMOVAL

## Sweeper Installation

### WARNING!



**Improper attachment of sweeper could result in injury or death.** Do not operate this machine until you have positive indication that the attachment is securely mounted.

1. Position the broom on a level surface.
2. Enter the prime mover.
3. Fasten the safety restraints.
4. Start the engine.
5. Disengage the parking brake.
6. Align the attachment mechanism with the mounting on the broom, attach to the prime mover. Follow the attaching procedure in the prime mover owners manual.
7. Engage the parking brake and shut down the prime mover. Be sure to relieve pressure to the auxiliary hydraulic lines.
8. Unfasten safety restraints and exit the prime mover.
9. Lock jack stands in stowed position. (if available)
10. Ensure that the hydraulic quick couplers are clean. Connect hydraulic lines for the broom to the prime mover. Twist the collar of the quick couplers one quarter of a turn in order to secure the hydraulic connections.
11. While the loader arms are lowered, visually inspect the attachment mechanism to ensure that it is securely mounted.
12. Enter prime mover, fasten safety restraints and start the prime mover.
13. Carefully raise the loader and cycle the rollback/dump cylinders to check clearances, that limiting stops make proper contact and

verify that all mounting procedures have been successfully completed. Contact SWEEPSTER for instructions if the limiting stops do not contact properly.

## Removing the Sweeper

### WARNING!



**Serious injury or death may result from disengaging the sweeper when the sweeper is in an unstable position or carrying a load.** Place the sweeper in a stable position before disengaging.

### NOTICE!



**Hoses for the sweepers must be removed before the quick attach is disengaged. Pulling the sweeper with the hoses could result in damage to the prime mover or the sweeper.**

1. Lower the broom to the ground.
2. Engage the parking brake and shut down the prime mover. Be sure to relieve pressure to the auxiliary hydraulic lines.
3. Unfasten safety restraints and exit prime mover.
4. Lock jack stands in lowered position. (if available)
5. Disconnect the broom hydraulic lines from the prime mover. Connect quick couplers together to keep clean.
6. Disengage attachment locking mechanism. (mechanical type)
7. Enter prime mover, fasten safety restraints and start the prime mover.
8. Disengage attachment mechanism. (hydraulic type)
9. Disengage the parking brake, and back away from the broom.

# STORAGE & OPERATION

## Storage

**NOTICE!** Do not store the sweeper with weight on the brush. Weight will deform the bristles, destroying the sweeping effectiveness. To avoid this problem, place the sweeper on blocks or use storage stands.

Do not store polypropylene brushes in direct sunlight. The material can deteriorate and crumble before the bristles are worn out. Keep polypropylene brush material away from intense heat or flame.

## During Use:

Carry the sweeper low to the ground so the operator has good visibility and stability. Avoid any sudden movements.

Avoid excessive downward pressure on the brush sections to prevent excessive wear. A two to four inch wide pattern is sufficient for most applications. Ensure that the adjustment bolts are equally adjusted in order to prevent an uneven wear pattern. To adjust pattern see "Adjusting Brush Pattern".

Observe wind direction. Sweeping with the wind makes sweeping more effective and helps keep debris off the operator.

The terms *swing* and *angle* are used interchangeably.

## Manual Angle

1. Remove the lock pin from links.
2. Position the brush head at the desired angle, aligning holes in the inner and outer link.
3. Insert and close the lock pin.

## Hydraulic Angle

1. Start the prime mover.

2. Position the brush head at the desired angle by using the valve control for the swing function.

To sweep:

1. **Manual angle only** - Swing the brush head assembly the direction that you want to direct debris.
2. Start the prime mover at idle and raise the brush.
3. **Hydraulic angle only** - Swing the brush head assembly the direction that you want to direct debris.
4. Engage the brush and then lower it to the ground.
5. Increase prime mover engine rpm to sweeping speed.
6. Travel forward at 5 mph (8 kph) or less.

## Operating Tips

Vary brush, engine and travel speeds to match sweeping conditions.

### Large Areas

When sweeping a large area, as a parking lot, make a path down the middle and sweep to both sides. This reduces the amount of debris that the sweeper must sweep to one side.

### Snow

Fast brush speeds and slow travel speeds are needed to sweep snow effectively. Start at 3/4 throttle and the lowest gear of the prime mover. For wet and/or deep snow, increase to almost full throttle. This helps keep snow from packing up inside the brush hood.

In deep snow you may need to make multiple passes to get down to a clean surface.

Always sweep with the wind at your back.

# OPERATION

## Dirt & Gravel

To keep dust at a minimum, use the optional dust suppression kit or plan sweeping for days when it is overcast and humid or after it has rained.

Low brush speeds and moderate travel speeds work best for cleaning debris from hard surfaces. Brush speeds that are too fast tend to raise dust.

To sweep gravel, use just enough brush speed to “roll” the gravel, not throw it.

## Heavy Debris

Travel slowly - 2 to 3 mph (3-5 kph)

Sweep a path less than the full width of the sweeper.

Increase engine speed if debris becomes very heavy.

## Aligning Mounting

The mounting incorporates a four-bar linkage system that allows the sweeper to move up and down independently of the loader arms. This feature is very important because it permits the sweeper to follow the contours of the ground, offering a good sweep.

**NOTICE!**      **ADJUST THE FOUR-BAR LINKAGE**  
before each operation to avoid  
sweeper damage.

Sweeping with a properly adjusted mounting offers efficient performance, while using the mounting out of adjustment can cause severe damage to the sweeper and can result in a poor sweep. If the U-channels on the loader arms are positioned too low, the sweeper must support the loader arms, an amount of weight far greater than the sweeper is designed to carry. If the U-channels on the loader arms are too high, the sweeper cannot sweep into the low areas.

To adjust the mounting:

1. Drive the loader and sweeper to a flat surface.
2. Lower the sweeper so the casters sit on the ground.
3. Adjust the loader arms so the tops of the U-channels on the sweeper and the tops of the U-channels on the loader arms are even (figure 1).
4. Adjust the brush height according to Setting Brush Pattern.

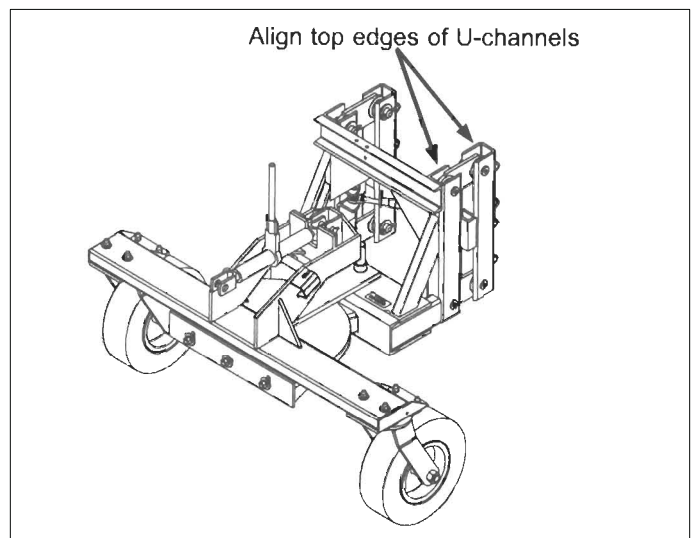


Figure 1

# OPERATION

## Leveling

Level the sweeper for even brush wear and effective use.

### CAUTION!



Avoid injury. Before adjusting the sweeper, always turn off the sweeper and the prime mover engine and remove the key.

1. Move the sweeper to a flat, paved surface.
2. Lower the brush head assembly to the ground.
3. Position the brush head assembly straight ahead.
4. Engage the parking brake and shut down the prime mover. Be sure to relieve pressure to the auxiliary hydraulic lines.
5. Unfasten safety restraints and exit prime mover.
6. On each side, measure from the brush frame to the ground (figure 1). If measurements are not equal:

Loosen hardware that attaches the swing assembly to the brush head assembly; lower the high side of the brush head until both sides are an equal distance above the ground. Tighten the hardware. (figure 2)

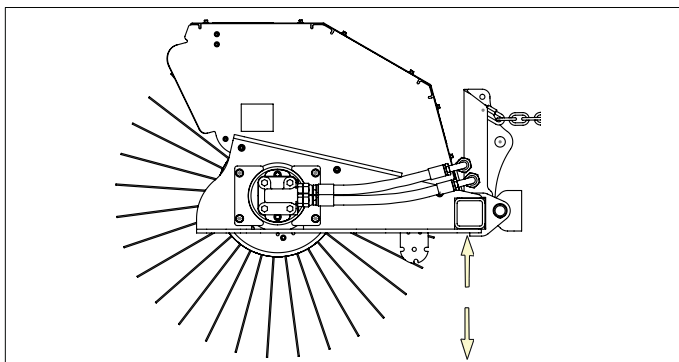


Figure 1

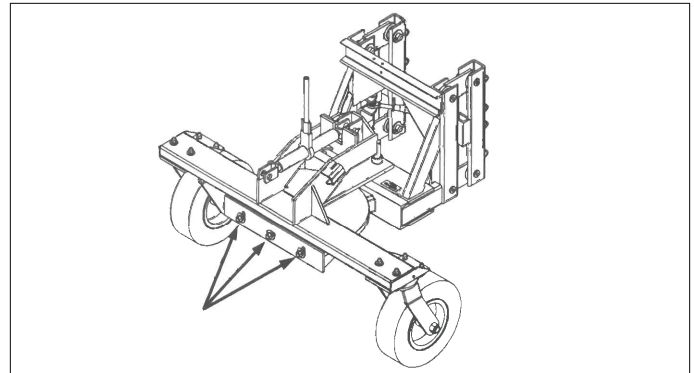


Figure 2

## Setting Brush Pattern

A properly adjusted brush offers the best sweeper performance. To check the brush pattern:

1. Move the sweeper to a dusty, flat surface.
2. Set the prime mover's parking brake and leave the engine running.
3. Start the sweeper at a slow speed: lower it so the bristle tips touch the ground. Run the sweeper in a stationary position for 10 seconds.
4. Raise the sweeper and back away; switch off the engine and remove the key. The brush pattern left in the dust should be 2-4 inches (51-102 mm) wide, running the length of the brush. (Compare the swept area with figure 3.)
5. Adjust the brush pattern as necessary according to instructions found in adjusting the Spring-Chain Assembly.

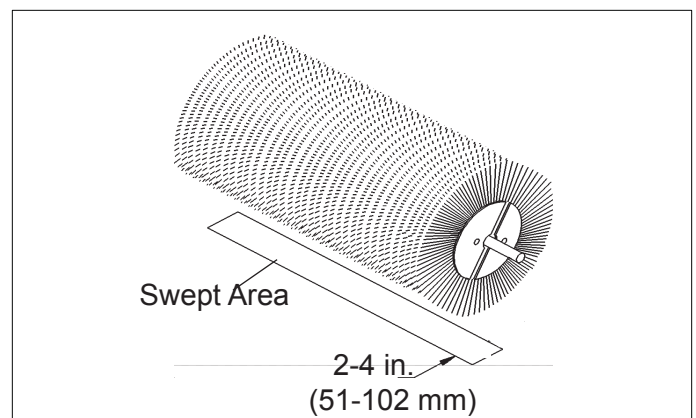


Figure 3

# MAINTENANCE SCHEDULE

## Maintenance Schedule

Procedure	Before Each Use	After Each Use	100 Hours	500 Hours	See Prime Mover Manual
<b>Brush Head Assembly</b> - Level	✓				
<b>Brush Pattern</b> - Check (See Pattern Adjustment)	✓				
<b>Cylinders</b> - Retract rods		✓			
- Grease threaded and ball ends to prevent rust.		✓			
<b>Filter, Air, Prime Mover</b> - Clean					✓
<b>Fittings/Hoses, Hydraulic</b> - Check for leaks/Tighten Check for damage	✓				
<b>Fittings, Zerk</b> - Grease (See lubrication points)	✓				
<b>Oil, Hydraulic</b> - Check level	✓				
<b>Hardware</b> - Check for tightness	✓				

## Oil Cleanliness Requirements

**NOTICE!** All hydraulic fluid shall be filtered before use in any SWEEPSTER product to obtain the ISO cleanliness standard of 17-14 or better, unless explicitly specified otherwise.



## MAINTENANCE RECORD

[illegible]

# MAINTENANCE

## Replacing Brush Sections

1. Remove motor mount retainer pins. Retain hardware for reinstallation. Remove motor mount(s).
2. Remove idler bearing shaft mounting plate retainer pins from side. Retain hardware for reinstallation. (Single motor only)
3. Remove core from brush head assembly.
4. Remove one half of bearing mount plate from bearing.
5. Remove retaining plate from core assembly.
6. Remove old sections.
7. Install new sections by doing the following:
  - a. Slide the first section onto the core with the drive pins on each side of a tube. Make sure that the drive pins angle up. (figure 1)
  - b. Install a second section with drive pins rotated 180° from those on the first section. (figure 2)
  - c. Continue installing sections, rotating each section 180° until the core is full.
8. Re-attach the section retainer and bearing mounting plate with previously removed hardware.
9. Lay core on ground. Lower frame over core.
10. Re-attach bearing mounting plate with previously removed hardware.
11. Re-attach motor mount with hardware removed in first step.

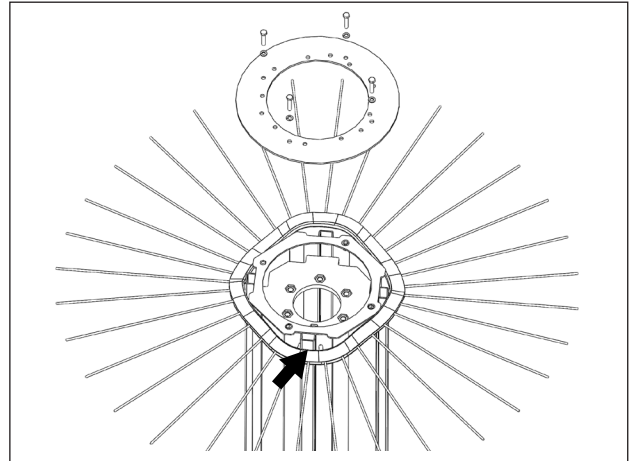


figure 1

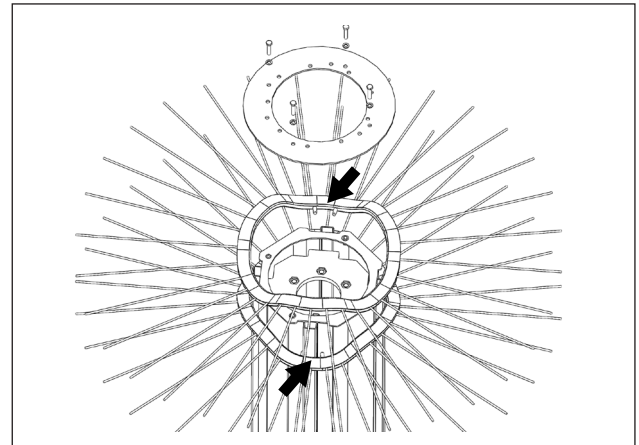
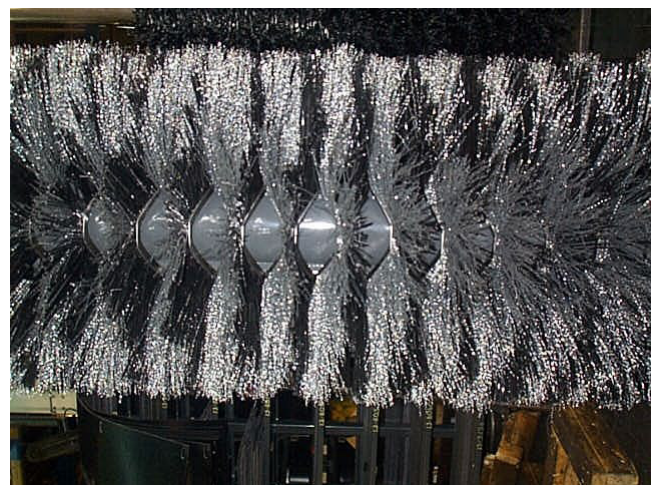


figure 2



# MAINTENANCE

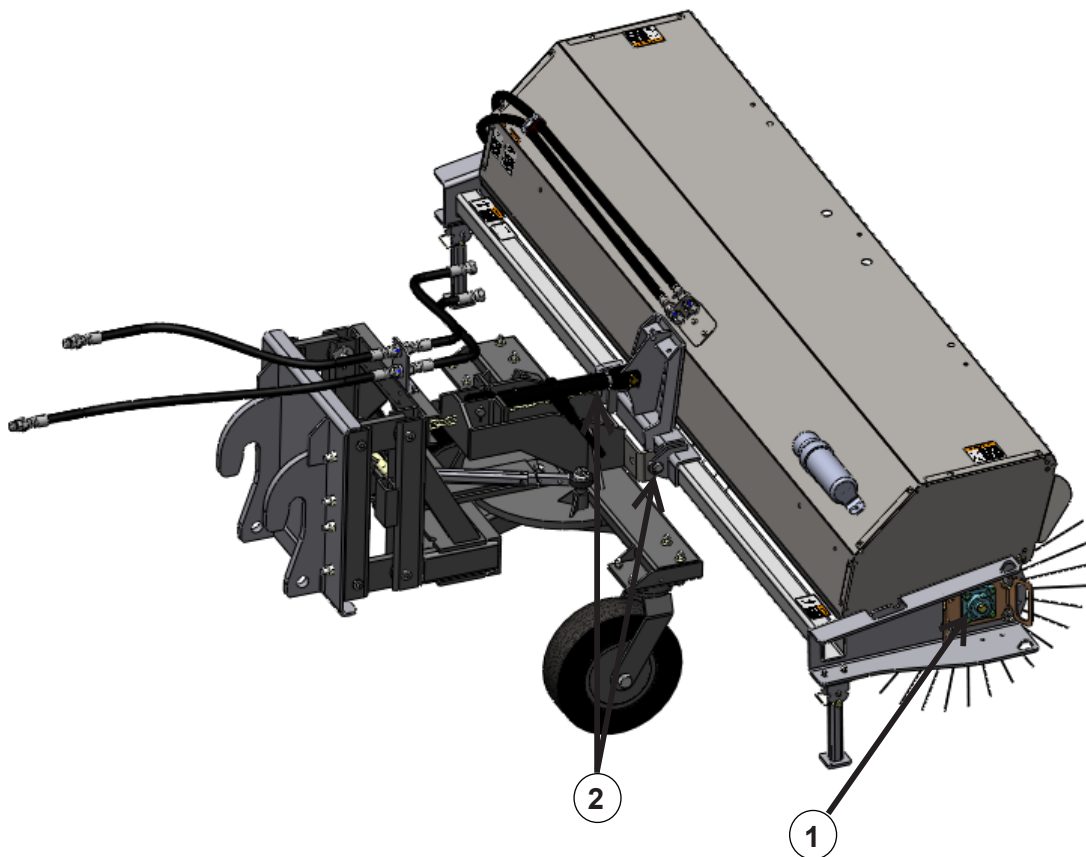
## Lubrication Points

The following grease fittings should be greased before each use. See figure for locations.

1. Core bearing (1 fitting - single motor only)
2. Brush Head Pivot (2 fitting)

Not Shown:

Hydraulic Angle Cylinder (2 fitting)  
Caster Assembly (2 fittings)  
Parallel Link Pins (8)



# TROUBLESHOOTING

## Brush Head Assembly

Problem	Possible Cause	Possible Solution
Brush rotates in wrong direction	Hoses installed incorrectly	Switch hoses at bulk head fittings
Brush slows or stops when sweeping	Brush pattern too wide	Adjust brush pattern to 2-4 inches (5-10cm) wide: see: Adjusting Brush Pattern
	Travel speed too fast	Travel no more than 5 mph (8 kph) while sweeping (2-3 mph recommended)
	Trying to sweep too much material at once	Make several passes with sweeper
	Relief pressure set too low	Set relief pressure to 2000 psi (138.0 bars)
	Filter plugging	Change or clean hydraulic oil filter
Brush head assembly “bounces” during sweeping	Travel speed too fast and/or brush speed too slow	Find correct combination of ground and brush speeds: do not travel at more than 5 mph (8 kph)
Brush wears into cone shape	Sweeper is not level	Level sweeper before each use: see: Leveling
	Tires on prime mover at different pressures or are different sizes	Check tire sizes and rating: make corrections as necessary
Brush wears very quickly	Brush pattern too wide	Adjust brush pattern to 2-4 inches (5-10cm) wide: see: Setting Brush Pattern

Worn Section Standard				Reference Information	
Section OD, New	Ring ID	Section OD, Worn	Exposed Bristle, Worn	Bristle Length	Exposed Bristle, New
24	6.38	17	3.8	8.50	7.5
26	8.00	18	4.0	9.00	8.0
32	10.00	22	5.0	11.00	10.0
36	10.00	24	6.0	13.00	12.0
36	10.63	25	6.0	12.69	11.4
46	19.38	34	6.0	13.31	12.1

# TROUBLESHOOTING

## Spring-Chain Assemblies

Problem	Possible Cause	Possible Solution
Springs on spring-chain assemblies stretching	Transport chain too loose when traveling between job sites	Adjust according to Adjustment: Transport Chain
	Travel speeds too fast when sweeping	Do not travel at speeds over 5 mph (8 kph).

## Hydraulic Cylinders - Lift & Swing

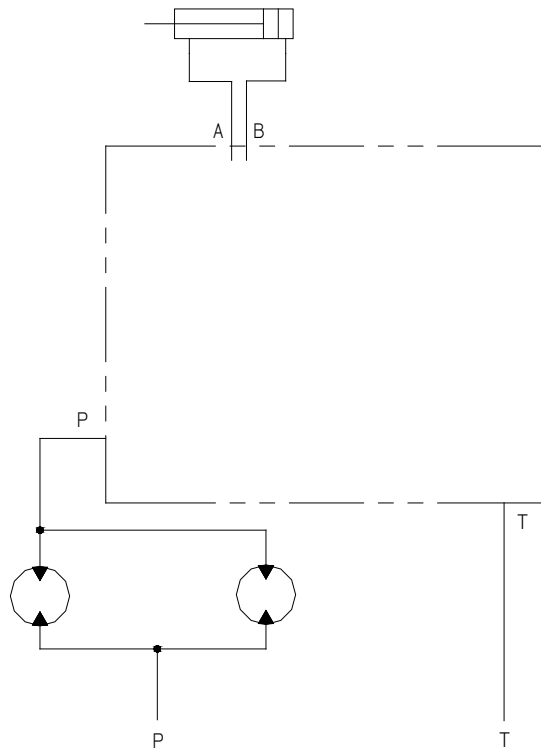
Problem	Possible Cause	Possible Solution
Hydraulic cylinder neither extends nor retracts	<u>Manual valve</u> - Control rods not connected or are binding	Check control rod linkage; make sure all parts are connected and are not binding; fix if necessary
	<u>Electric valve</u> - No power from controls because wires are broken or disconnected	Reconnect wires if disconnected; replace wires if broken
	<u>Electric valve</u> - No power from controls because switch is broken	Replace switch
	<u>Both types of valves</u> - Hydraulic oil level too low	Fill tank to 2-3 inches (51-76mm) from top of tank with ISO VG-46 oil
	<u>Both types of valves</u> - Hoses or fittings loose or disconnected	Tighten hoses and fittings
	<u>Both types of valves</u> - Restriction in hoses	Remove bends in hoses, remove obstructions inside hoses
Hydraulic cylinder only extends or only retracts	<u>Electric valve</u> - Set screw in flow divider on manifold out of adjustment	Loosen jam nut and then turn set screw in until it stops; turn set screw out 1 1/2 turns; tighten jam nut
	<u>Electric valve</u> - Dirt or debris in spools	Contact Sweepster Technical Service
Hydraulic cylinder extends or retracts too quickly	<u>Manual valve</u> - Flow too high because restrictor fitting missing from cylinder	Reinstall restrictor fitting on barrel end of cylinder
	<u>Manual valve</u> - Flow too high even though restrictor fitting is installed	Contact Sweepster for smaller orifice fitting

# TROUBLESHOOTING

## Hydraulic System

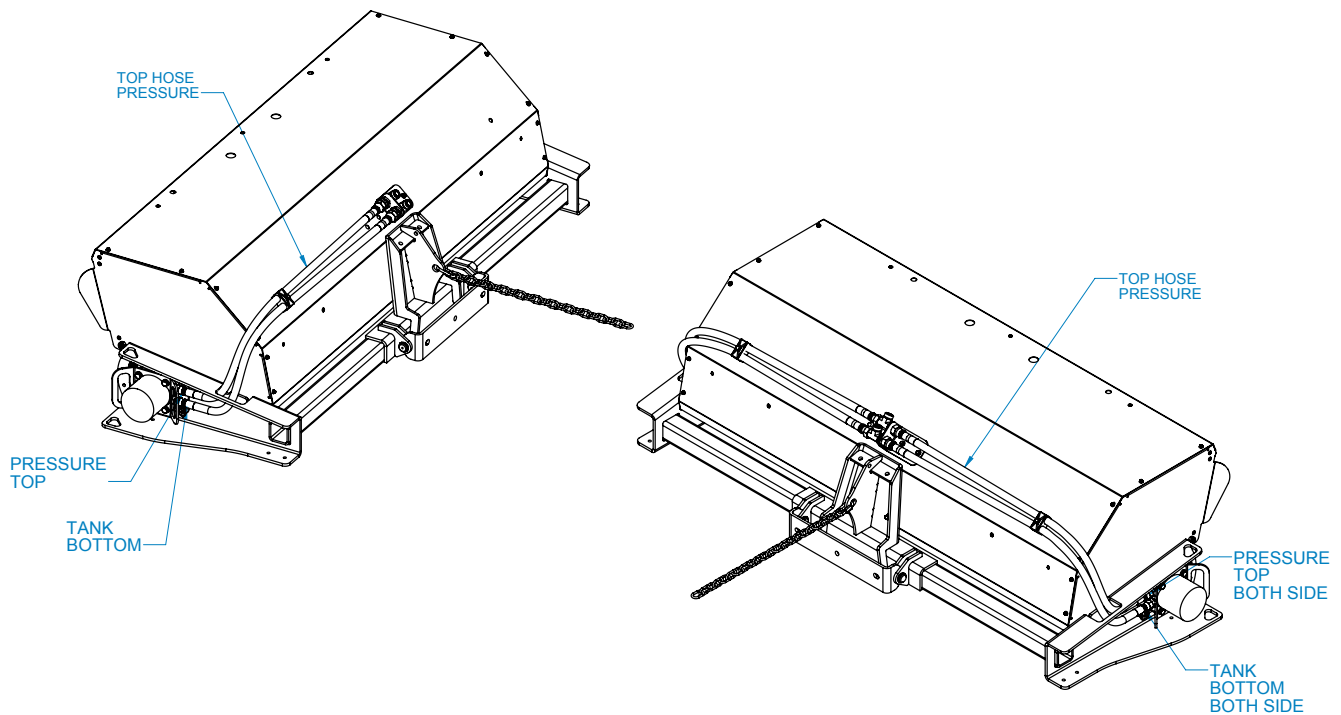
Problem	Possible Cause	Possible Solution
Hydraulic system overheats	Hydraulic oil level too low	Add hydraulic oil to tank until it comes to 2 inches (51mm) from top
	Restriction in hoses	Remove bends in hoses; remove obstructions inside hoses / Replace Hose
	Host pump flow rate exceeds maximum rate of broom	Contact host manufacturer for proper flow control method
Hydraulic motor seals leak	Back pressure exceeds 1000 psi	Contact Sweepster
	Motor is failing	High number of hours on motor; Contact dealer to rebuild or replace

## Hydraulic Schematic



# TROUBLESHOOTING

## Hydraulic Hose Routings



**Manual Angle:** Connect pressure line to female quick disconnect. Connect return line to male quick disconnect.

**Hydraulic Angle:** Connect pressure line to female quick disconnect . Connect return line from brush motor(s) to “P” port on manifold. Connect “T” port on manifold to male quick disconnect.

**Note:**  
Quick Disconnect Set-Up

Your broom comes equipped with standard ISO 16028 hydraulic quick disconnects (QD's). They are factory installed using the broom female QD as the pressure line. If your skid steer loader male QD is not the pressure line you will need to swap the positions of the broom QD's.



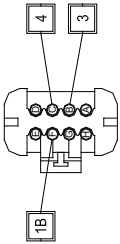
TROUBLESHOOTING

Wiring Harness

ItemPartQtyDescription

1. 07-3152 1 Circuit Breaker
2. 07-0868 1 Switch

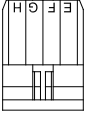
LAF9444 WIRE HARNESS				
WIRE NO.	GAUGE	APPLICATION		
		IDENTIFICATION	FROM	TO
1A	16	BLACK	BATTERY +12V	SPADE TERMINAL (MALE)
1B	16	BLACK	PACKARD CONN. PIN F	SPADE TERMINAL (FEMALE)
2A	16	RED	BATTERY +	CIRCUIT BREAKER 10A - BATT
2B	16	RED	CIRCUIT BREAKER 10A - AUX	SWITCH 1-A
3	16	RED	PACKARD CONN. PIN B-DEPTH	SWITCH 1-B
4	16	YELLOW	PACKARD CONN. PIN C-TILT	SWITCH 1-C



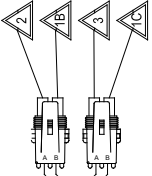
PLUG - A, D, E, G & H  
 VIEW "A-A"



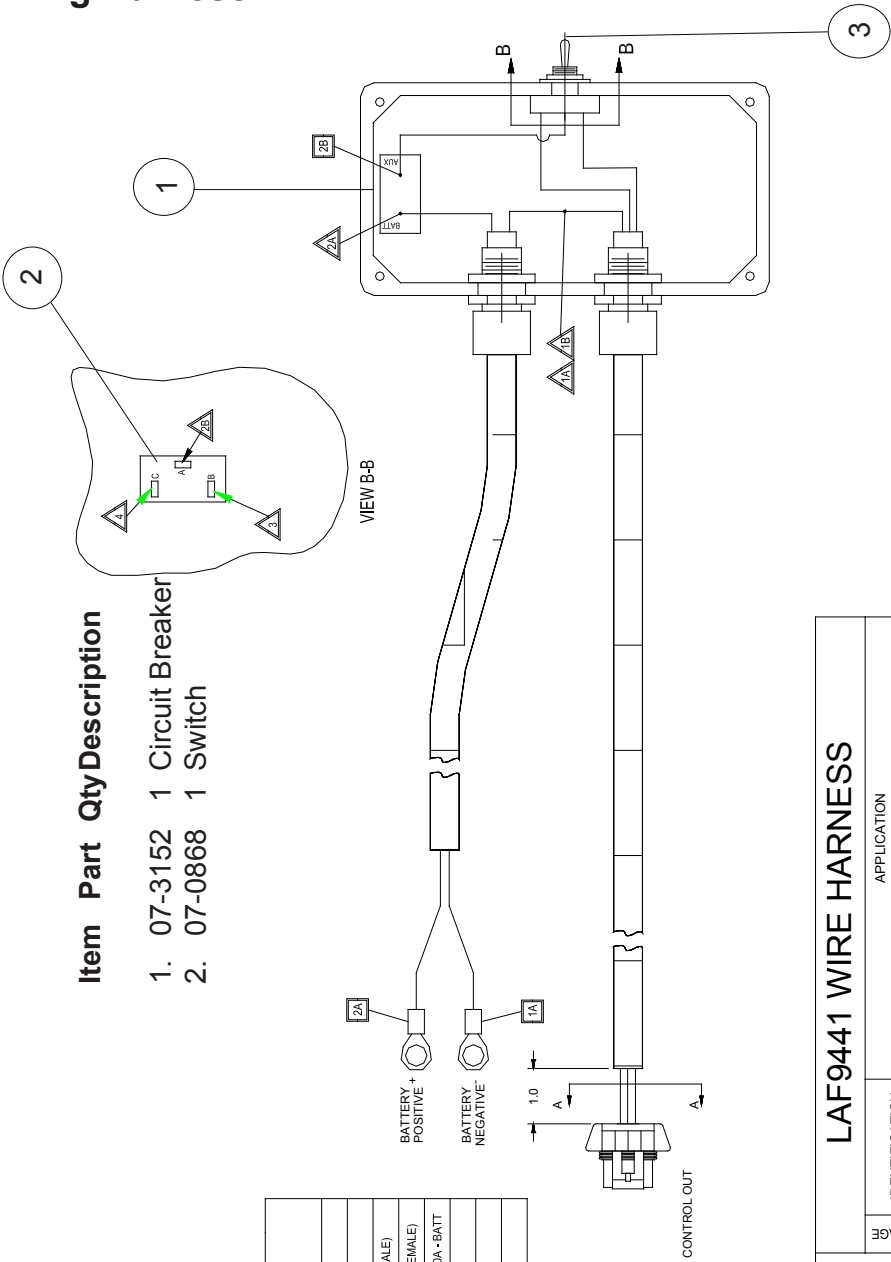
ADEGH PLUG



CONTROL IN

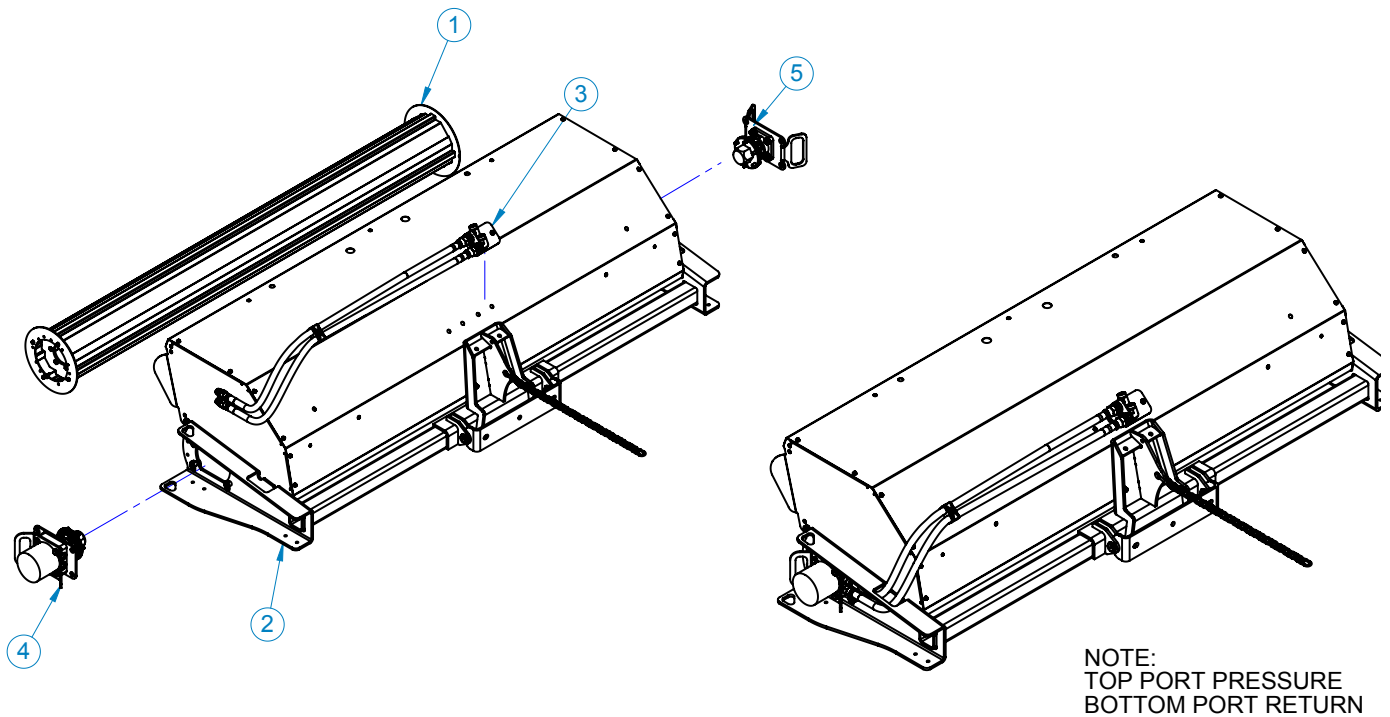


SPLICE



LAF9441 WIRE HARNESS				
WIRE NO.	GAUGE	APPLICATION		
		IDENTIFICATION	FROM	TO
1A	16	BLACK	PACKARD PIN F	ULTRA SONIC SPLICE
1B	16	BLACK	ULTRA SONIC SPLICE	PACKARD 1 PIN B
1C	16	BLACK	ULTRA SONIC SPLICE	PACKARD 2 PIN B
2	16	RED	PACKARD PIN B	PACKARD 1 PIN A
3	16	YELLOW	PACKARD PIN C	PACKARD 2 PIN A

# SINGLE MOTOR BRUSH HEAD

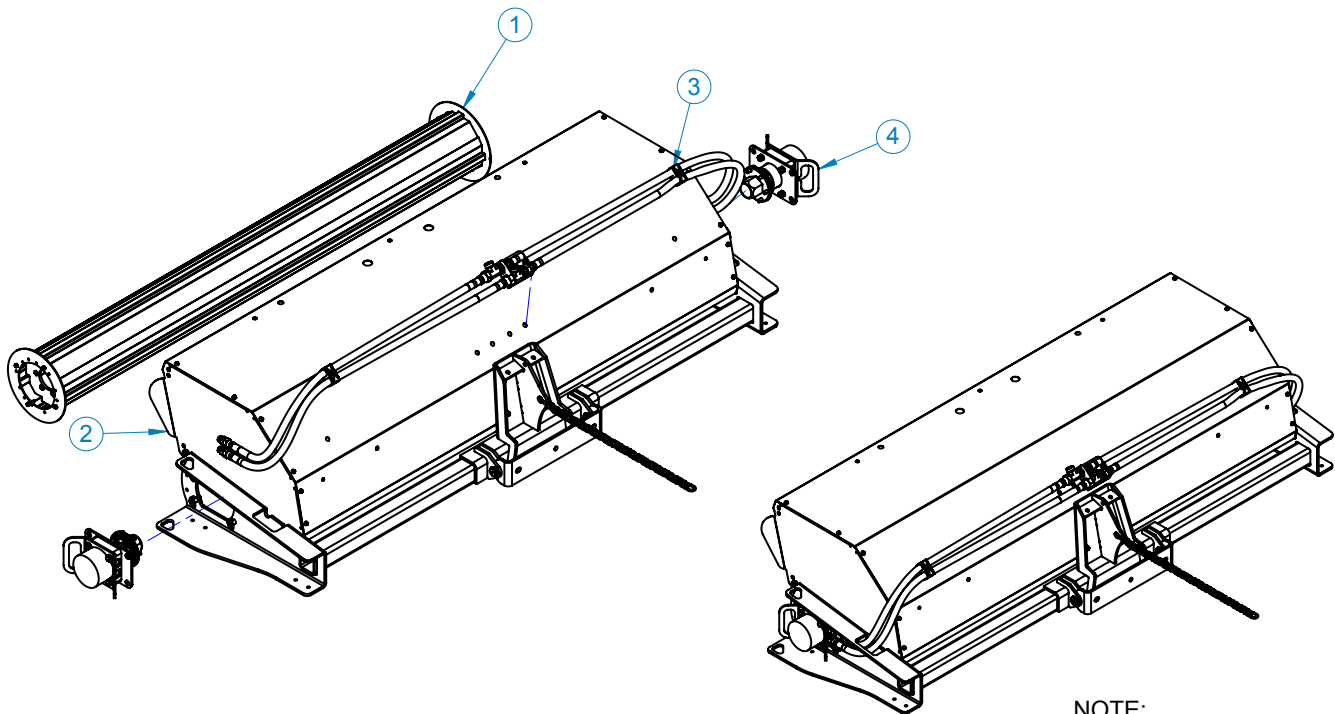


Item	Part	Qty	Description
1.	28-10095-8	1	Assembly, Core 8 Ft
	28-10095-9	1	Assembly, Core 9 Ft
2.	28-10309-8	1	Assembly, Brush Frame 8 Ft
	28-10309-9	1	Assembly, Brush Frame 9 Ft
3.	28-10313-8	1	Assembly, Hydraulic Hose 8 Ft
	28-10313-9	1	Assembly, Hydraulic Hose 9 Ft
4.	28-9849-1	1	Assembly, Motor, Hydraulic, 18.3 CI
	28-9849-2	1	Assembly, Motor, Hydraulic, 28.3 CI
5.	28-9862	1	Assembly, Idler

## Not Shown:

01-1210-8	1	Set Section, 32, 10, Poly, Convolute, 8 Ft
01-1210-9	1	Set Section, 32, 10, Poly, Convolute, 9 Ft
01-1209-8	1	Set Section, 32, 10, Mixed, Convolute, 8 Ft
01-1209-9	1	Set Section, 32, 10, Mixed, Convolute, 9 Ft
01-1213-8	1	Set Section, 32, 10, Wire, Convolute, 8 Ft
01-1213-9	1	Set Section, 32, 10, Wire, Convolute, 9 Ft
01-1214-8	1	Set Section, 32, 10, 1/2 & 1/2, Convolute, 8 Ft
01-1214-9	1	Set Section, 32, 10, 1/2 & 1/2, Convolute, 9 Ft

## DUAL MOTOR BRUSH HEAD



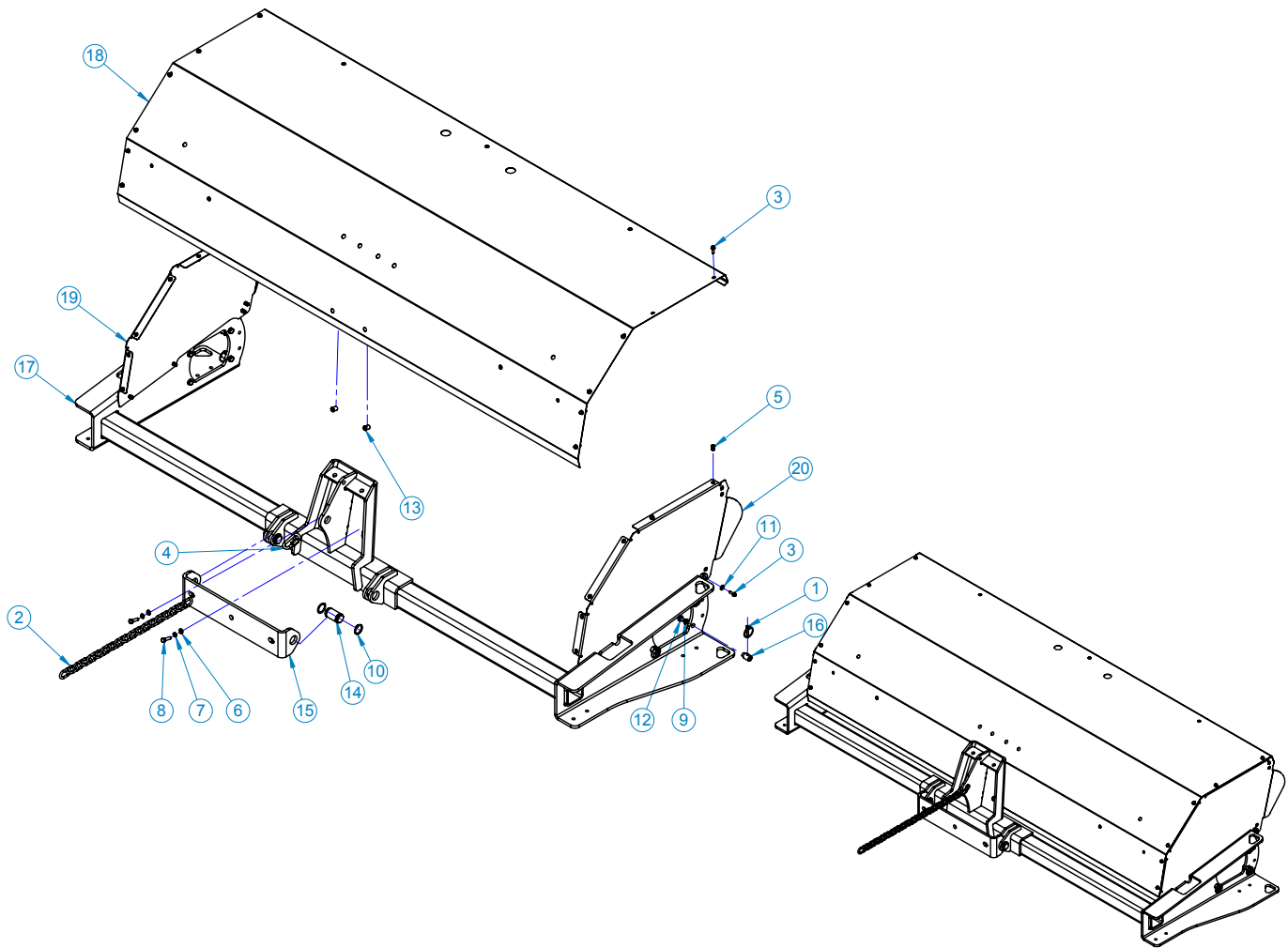
NOTE:  
TOP PORT PRESSURE  
BOTTOM PORT RETURN

Item	Part	Qty	Description
1.	28-10095-8	1	Assembly, Core 8 Ft
	28-10095-9	1	Assembly, Core 9 Ft
2.	28-10309-8	1	Assembly, Brush Frame 8 Ft
	28-10309-9	1	Assembly, Brush Frame 9 Ft
3.	28-10314-8	1	Assembly, Hydraulic Hose 8 Ft
	28-10314-9	1	Assembly, Hydraulic Hose 9 Ft
4.	28-9849-1	2	Assembly, Motor, Hydraulic, 18.3 CI

### Not Shown:

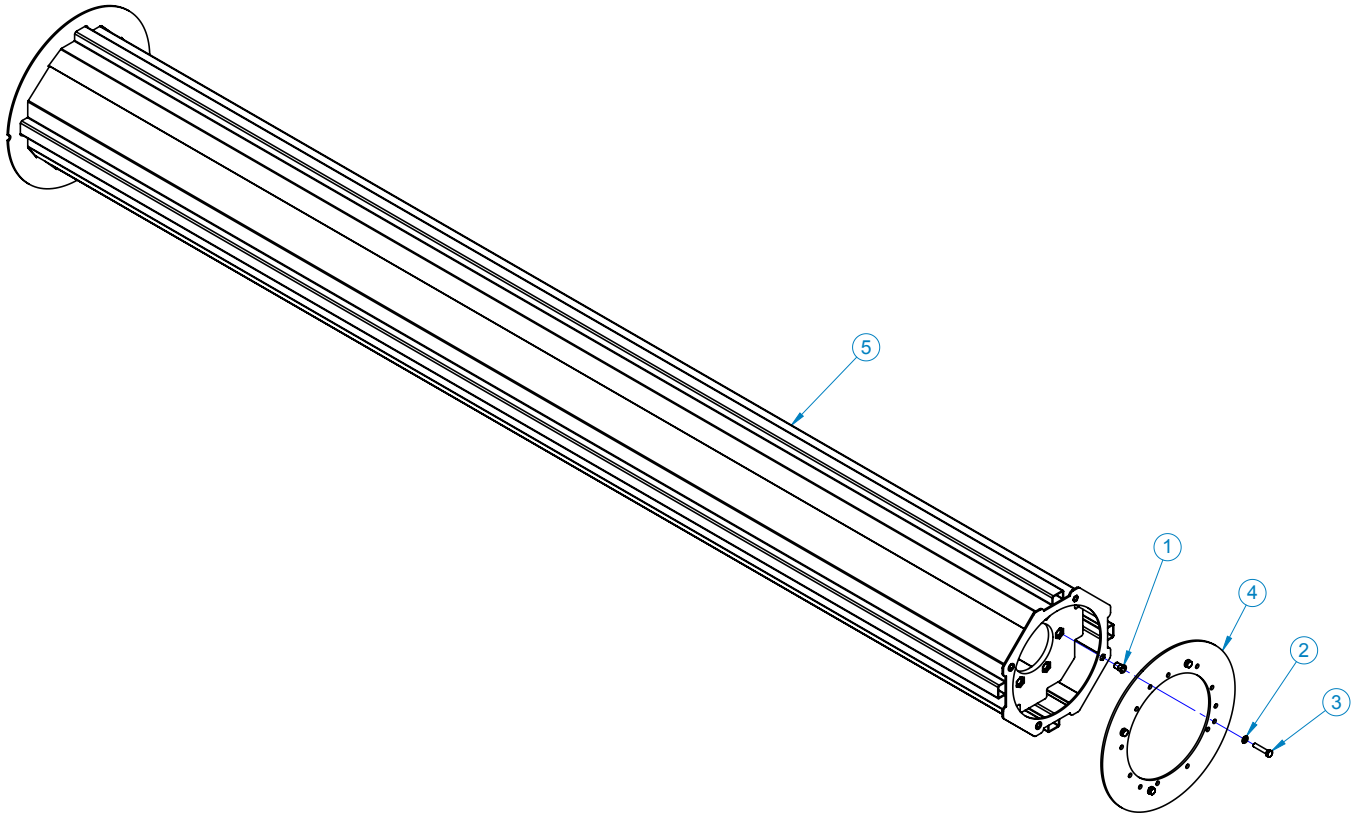
01-1210-8	1	Set Section, 32, 10, Poly, Convolute, 8 Ft
01-1210-9	1	Set Section, 32, 10, Poly, Convolute, 9 Ft
01-1209-8	1	Set Section, 32, 10, Mixed, Convolute, 8 Ft
01-1209-9	1	Set Section, 32, 10, Mixed, Convolute, 9 Ft
01-1213-8	1	Set Section, 32, 10, Wire, Convolute, 8 Ft
01-1213-9	1	Set Section, 32, 10, Wire, Convolute, 9 Ft
01-1214-8	1	Set Section, 32, 10, 1/2 & 1/2, Convolute, 8 Ft
01-1214-9	1	Set Section, 32, 10, 1/2 & 1/2, Convolute, 9 Ft

# BRUSH FRAME ASSEMBLY



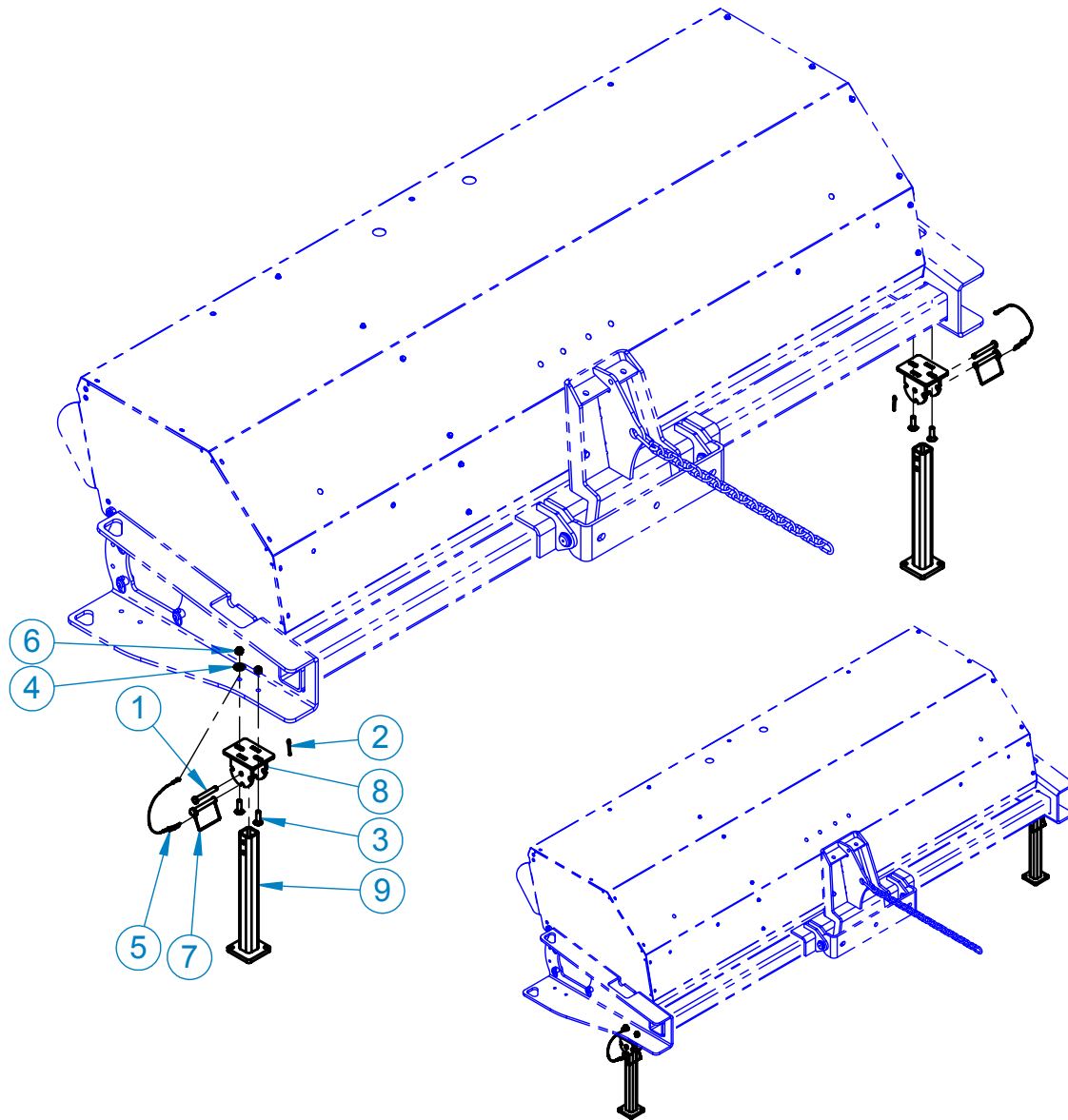
Item	Part	Qty	Description	Item	Part	Qty	Description
1.	07-0244	8	Pin, Linch, 1/4	13.	07-7115	2	Nut, Insert, M8-1.25
2.	07-0249	1	Chain, 1/4 x 22 Links	14.	13-10004	2	Pin, Pivot, Lift, Arm
3.	07-2952	18	Screw, HFH, CL10.9, M6-1 x 20	15.	13-12617	1	Plate, Mounting, Pivot
4.	07-3311	1	Link, Quick, 5/16	16.	13-14083	8	Stud, Mounting, Motor
5.	07-3617	29	Nut, Insert, Hex, M6 x 1	17.	13-16994-8	1	Weld, Frame, Brush 8 Ft
6.	07-3736	2	Washer, Flat, CL8.8, M8		13-16994-9	1	Weld, Frame, Brush 9 Ft
7.	07-3738	2	Washer, Lock, Split, Medium, M8	18.	13-16995-8	1	Sheet, Hood 8 Ft
8.	07-3740	2	Screw, CL10.9, M8-1.25 x 30mm		13-16995-9	1	Sheet, Hood 9 Ft
9.	07-3747	8	Washer, Lock, Split, Medium, M10	19.	13-16996	1	Sheet, Hood, Side, Left
10.	07-3842	4	Ring, Snap	20.	13-16997	1	Sheet, Hood, Side, Right
11.	07-4927	6	Washer, Fender, CL8.8, M6				
12.	07-6769	8	Screw, CL10.9, M10-1.5 x 16mm				

## CORE ASSEMBLY



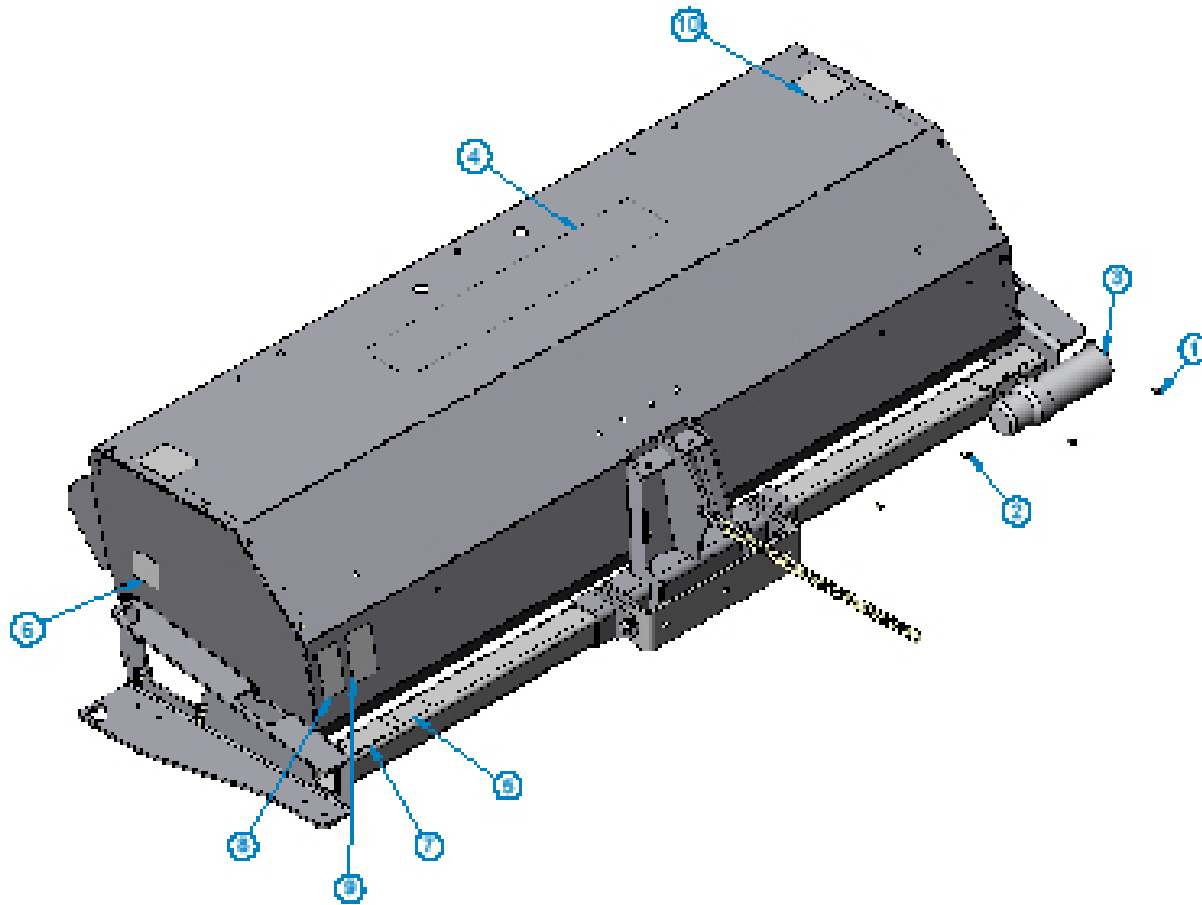
Item	Part	Qty	Description
1.	07-3617	4	Nut, Insert, Hex, M6 x 1
2.	07-3730	4	Washer, Lock, Split, Medium, M6
3.	07-3731	4	Screw, HHC, CL10.9, M6-1 x 30mm
4.	13-13166	1	Plate, Ring, Core, End
5.	13-15866-8	1	Weld, Core, 8 Ft
	13-15866-9	1	Weld, Core, 9 Ft

## BRUSH HEAD STANDS



Item	Part	Qty	Description
1.	07-0260	2	Pin, Clevis, Gr2, 3/8, 2 3/4
2.	07-0699	2	Pin, Cotter, Gr2, 1/8 x 1 1/4
3.	07-1717	4	Bolt, Carriage, Gr5, 3/8-16 x 1 1/4
4.	07-3279	2	Washer, Flat, Gr8, 3/
5.	07-3375	2	Lanyard, 1/16 Cable, 1 1/4 Tab, 8
6.	07-4036	4	Nut, Hex, Nylock, Gr8, 3/8-16
7.	07-4748	2	Pin, Lock, 3/8 x 2
8.	13-17002	2	Weld, Stand, Mounting
9.	13-17118	2	Weld, Stand

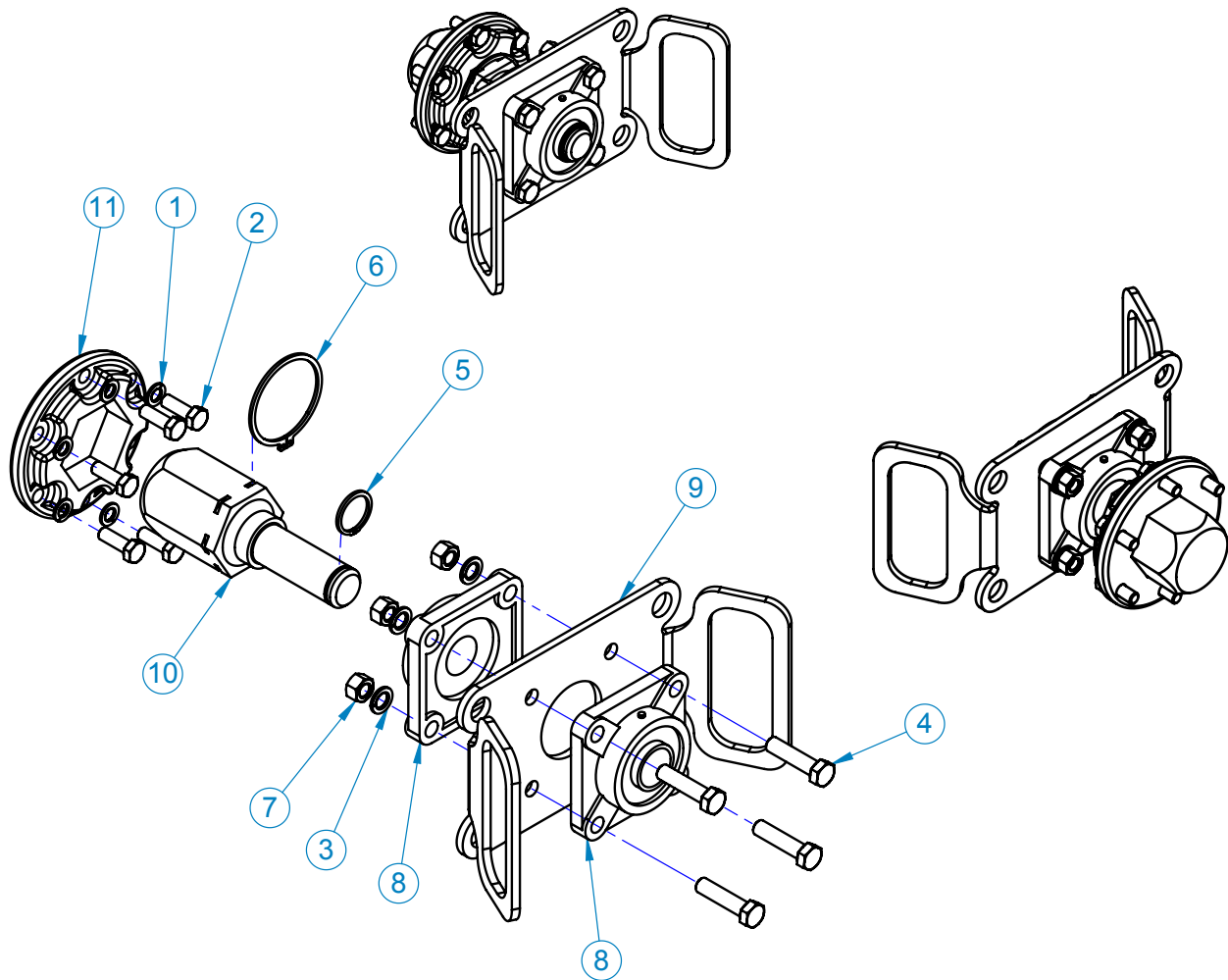
## BRUSH HEAD LABELS



Item	Part	Qty	Description
1.	07-3522	2	Screw, HFH, CL10.9, M6 x 1
2.	07-3617	2	Nut, Insert, Hex, M6 x 1
3.	07-6869	1	Manual, Holder
4.	50-0252	1	Label, Logo, Sweepster, Large
5.	50-0634	1	Label, Serial Number
6.	50-0643	2	Label, Tie Down Point
7.	50-0721	2	Label, Warning, Crush Hazard
8.	50-0722	1	Label, Warning, Misuse Hazard
9.	50-0724	1	Label, Warning, High Pressure Fluid Hazard
10.	50-0726	2	Label, Warning, Flying Object & Entanglement

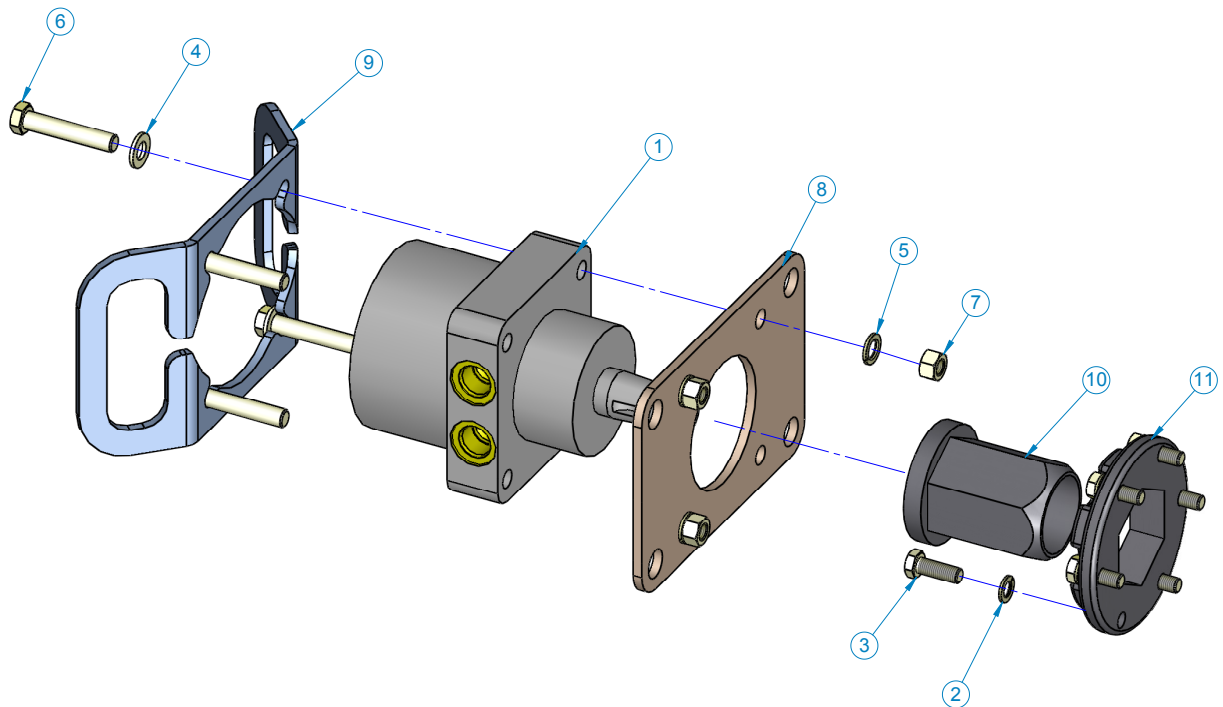


## HEX DRIVE HUB ASSEMBLY



Item	Part	Qty	Description
1.	07-3747	6	Washer, Lock, Split, Medium, M10
2.	07-3749	6	Screw, HHC, CL10.9, M10-1.5 x 30mm
3.	07-3756	4	Washer, Lock, Split, Medium, M12
4.	07-3762	4	Screw, HHC, CL10.9, M12-1.75 x 50mm
5.	07-3842	1	Ring, Snap
6.	07-6196	1	Ring, Snap
7.	07-6766	4	Nut, Hex, CL10.9, M12-1.75
8.	08-0067	2	Bearing, 1 1/4, 4 Bolt
9.	13-14133	1	Plate, Mounting, Bearing
10.	13-14135	1	Hub, Hex, 2 1/2, Single Motor
11.	13-16225	1	Plate, Receiver, Hex, 2.5

# MOTOR ASSEMBLIES



Item	Part	Qty	Description
1.	03-5612	1	Motor, 18.3 CI, 1.25, White-CE
	03-5613	1	Motor, 28.3 CI, 1.25, White-RE
2.	07-3747	6	Washer, Lock, Split, Medium, M10
3.	07-3749	6	Screw, HHC, CL10.9, M10-1.5 x 30mm
4.	07-3754	4	Washer, Flat, CL10.9, M12
5.	07-3756	4	Washer, Lock, Split, Medium, M12
6.	07-6683	4	Screw, HHC, CL10.9, M12-1.75 x 65mm
7.	07-6766	4	Nut, Hex, CL10.9, M12-1.75
8.	13-14085	1	Plate, Mounting, Motor
9.	13-14086	1	Plate, Handle, Motor
10.	13-5206	1	Hub, Hex, 2 1/2 x 1 1/4 Tapered Bore x 3.75
11.	13-16225	1	Plate, Receiver, Hex, 2.5

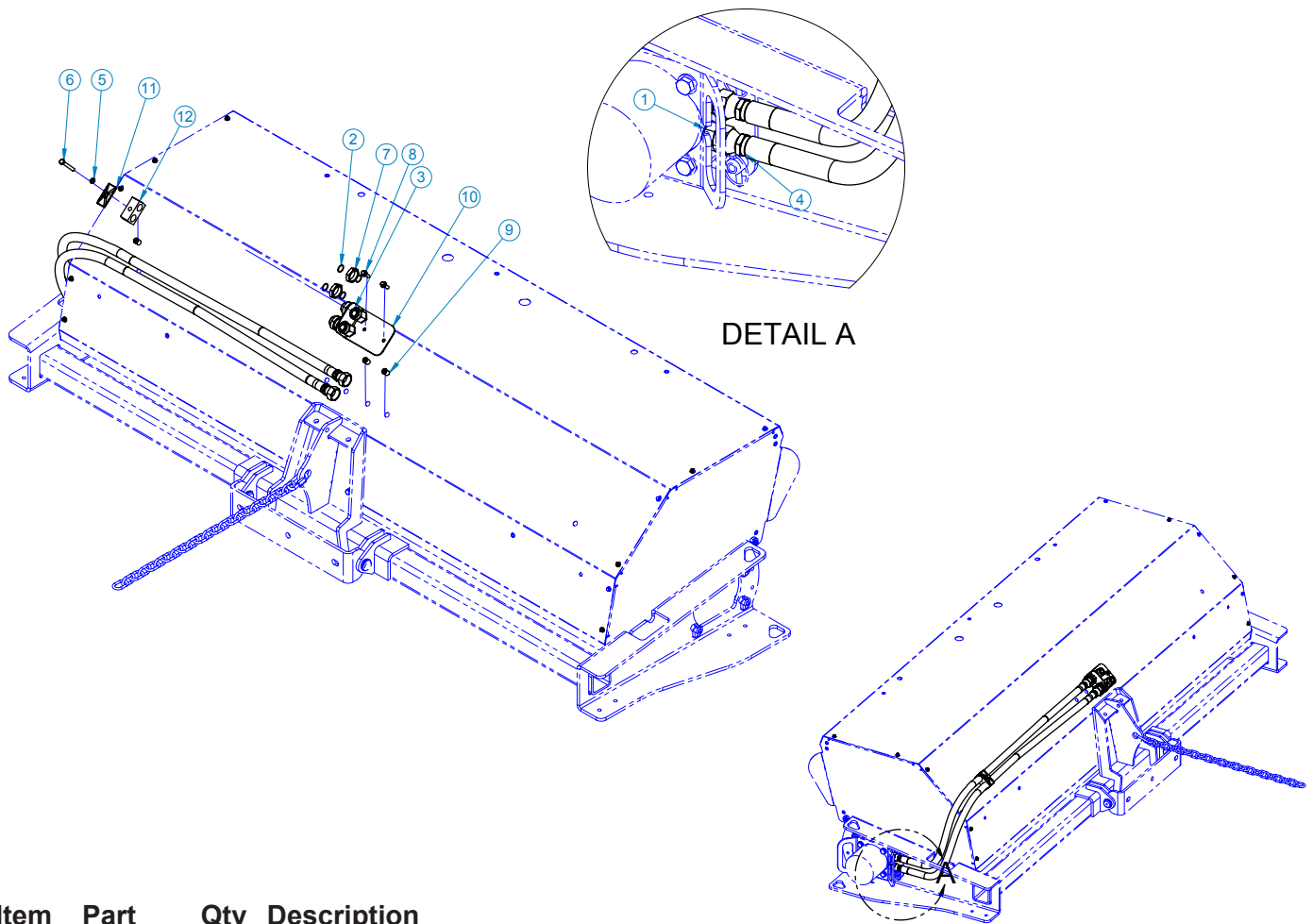
## Service Parts for 03-5612 Motor

07-4568	Motor, Shaft, Lock, Nut
03-5503	Seal Kit
07-7286	Replacement Key

## Service Parts for 03-5613 Motor

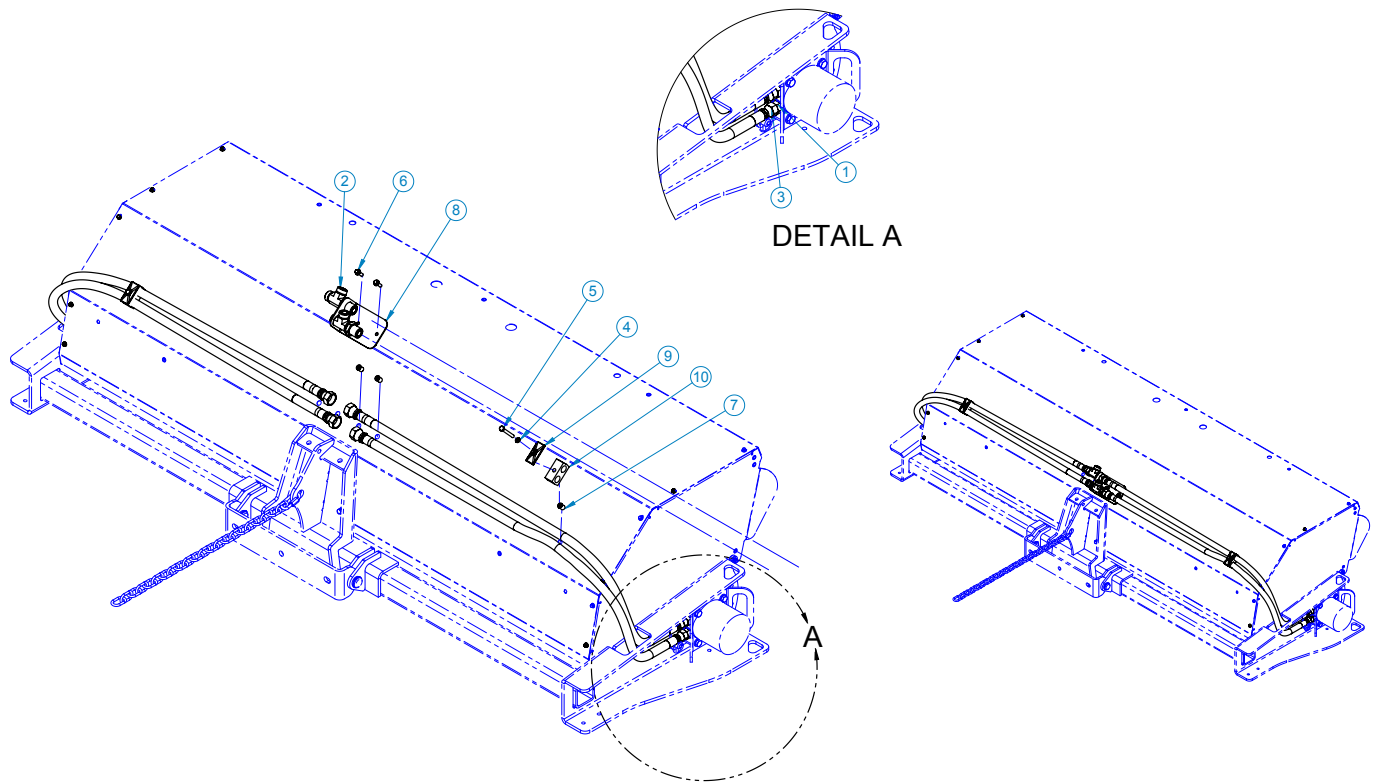
07-4568	Motor, Shaft, Lock, Nut
03-5644	Seal Kit
07-7286	Replacement Key

# HYDRAULIC HOSE ASSEMBLY SINGLE MOTOR



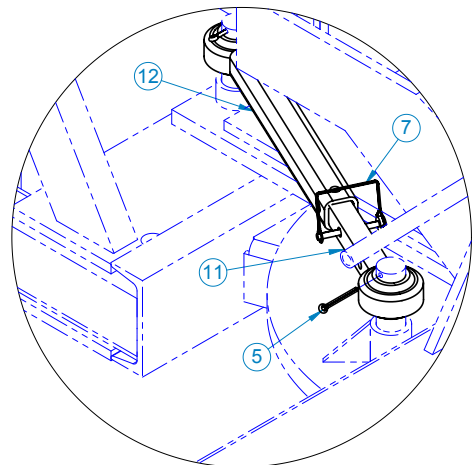
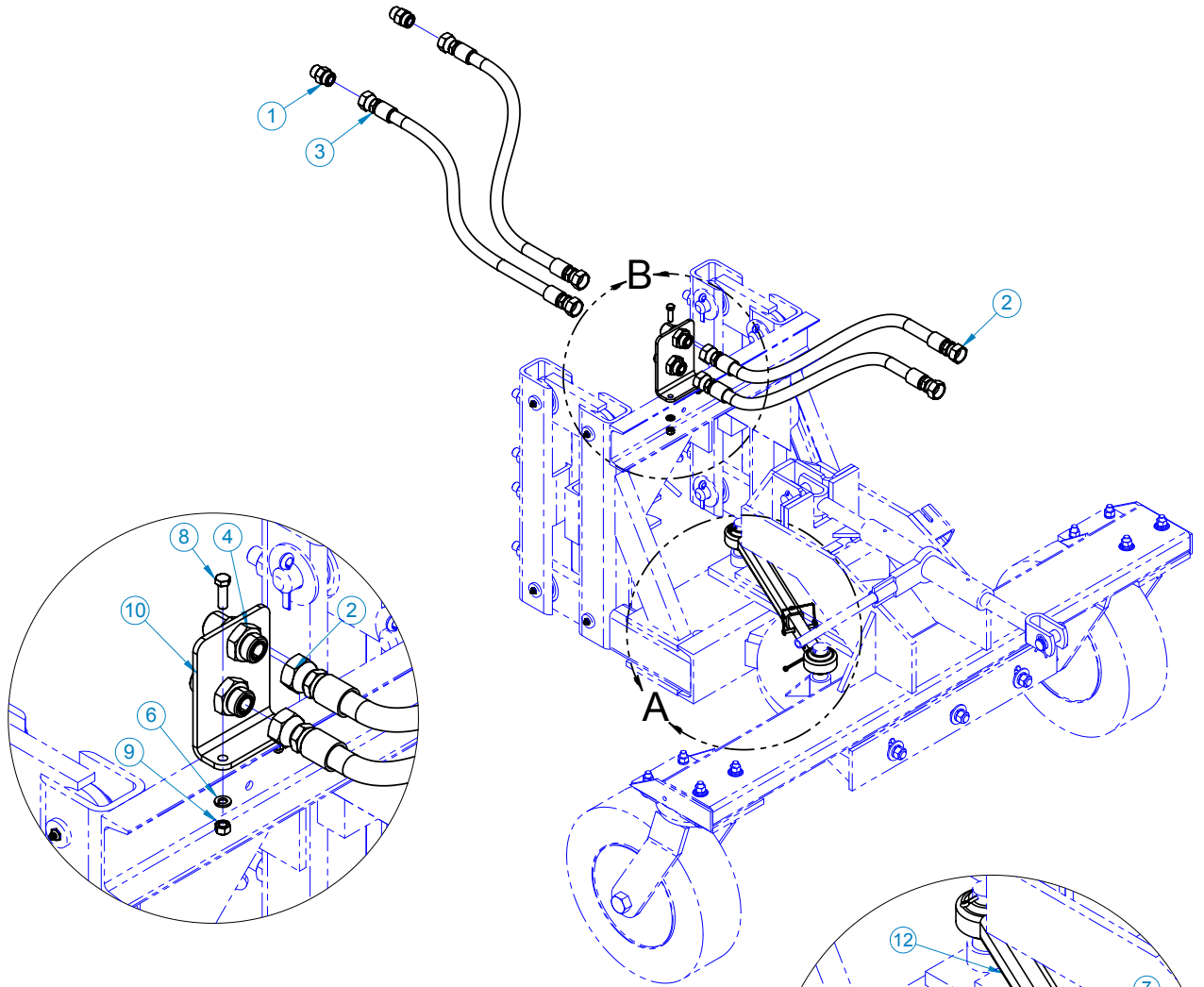
Item	Part	Qty	Description
1.	03-1939	2	Fitting, 10MB-10MF
2.	03-2003	4	O-Ring, FS, 3/4
3.	03-3531	2	Elbow, 90°, 12MF-12MF
4.	03-5655	2	Hose, .5 x 68, 10FF, 12FF, 3.5K 8 Ft
	03-5656	2	Hose, .5 x 74, 10FF, 12FF, 3.5K 9 Ft
5.	07-3738	1	Washer, Lock, Split, Medium, M8
6.	07-5287	1	Screw, HHC, CL10.9, M8-1.25 x 65mm
7.	07-6396	2	Nut, Bulkhead, #12
8.	07-6531	2	Screw, HFH, CL10.9, M8-1.25 x 25mm
9.	07-7115	3	Nut, Insert, M8-1.25, 22-10ga
10.	13-17014	1	Plate, Mounting, Bulkhead Fittings
11.	RHW8614	1	Cover, Plate
12.	RHW8616	1	Hose, Cradle

# HYDRAULIC HOSE ASSEMBLY DUAL MOTOR



Item	Part	Qty	Description
1.	03-1939	4	Fitting, 10MB-10MF
2.	03-5160	2	Tee, 12MF-12MF-12MF
3.	03-5655	4	Hose, .5 x 68, 10FF, 12FF, 3.5K 8 Ft
	03-5656	4	Hose, .5 x 74, 10FF, 12FF, 3.5K 9 Ft
4.	07-3738	2	Washer, Lock, Split, Medium, M8
5.	07-5287	2	Screw, HHC, CL10.9, M8-1.25 x 65mm
6.	07-6531	2	Screw, HFH, CL10.9, M8-1.25 x 25mm
7.	07-7115	4	Nut, Insert, M8-1.25, 22-10ga
8.	13-17014	1	Plate, Mounting, Bulkhead Fittings
9.	RHW8614	2	Cover, Plate
10.	RHW8616	2	Hose, Cradle

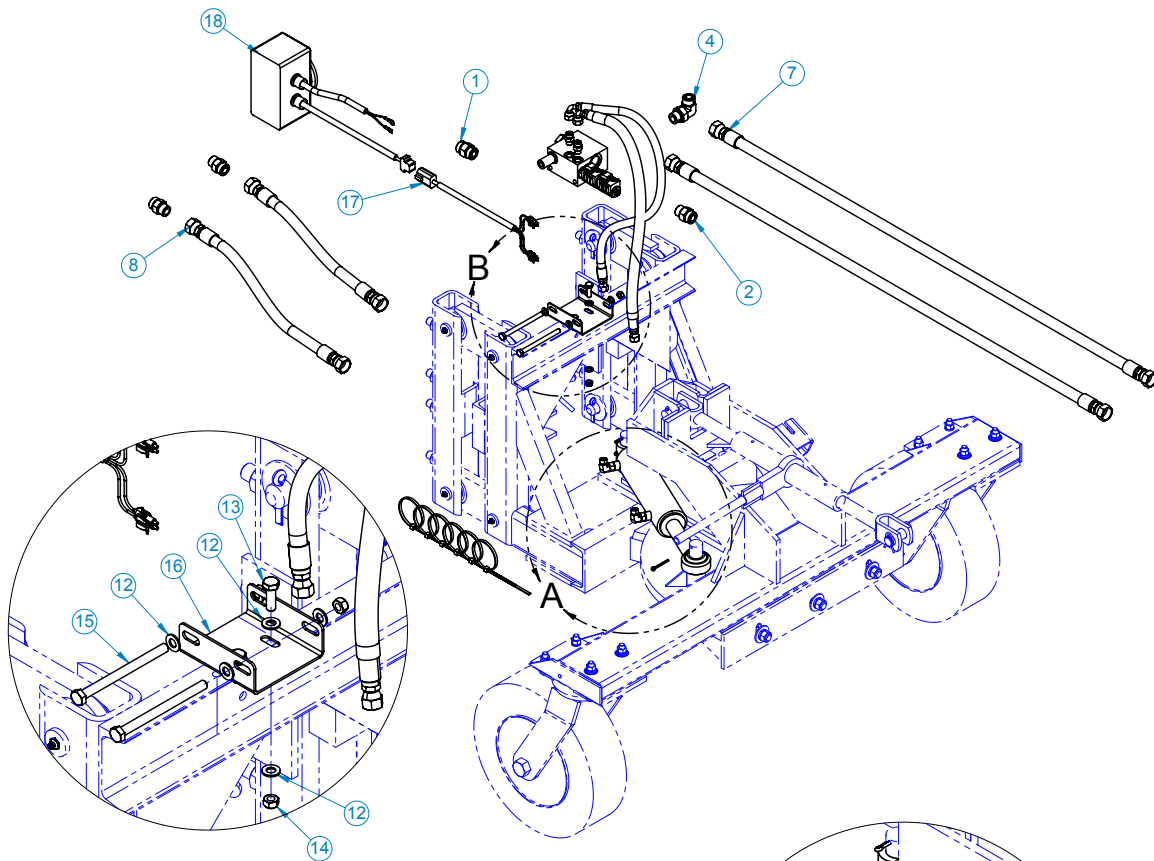
# HYDRAULIC MANUAL ANGLE ASSEMBLY



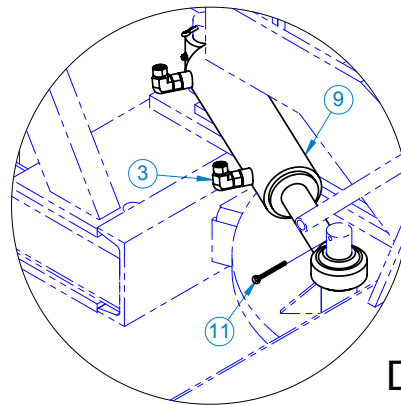
DETAIL A

Item	Part	Qty	Description
1.	03-1945	2	Fitting, 12MB-12MF
2.	03-3351	2	Hose, .75 x 65, 12FF-12FF, 3K, TC
3.	03-3763	2	Hose, .75 x 91, 12FF-12FF, 3K, TC
4.	03-9539	2	Fitting, Bulkhead, 12MFS-12MFS
5.	07-0206	2	Pin, Cotter, Gr2, 3/16 x 2
6.	07-1718	2	Washer, Lock, Split, Medium, 3/8
7.	07-2105	1	Pin, Lock, 3/8, Square Bail
8.	07-2116	2	Screw, HHC, Gr8, 3/8-16 x 1 1/4
9.	07-3654	2	Nut, Hex, Gr8, 3/8-16
10.	13-17041	1	Plate, Mounting, Bulkhead
11.	13-2452	1	Weld, Link, Inner
12.	13-2453	1	Weld, Link, Outer

# HYDRAULIC ANGLE ASSEMBLY WITH MANIFOLD



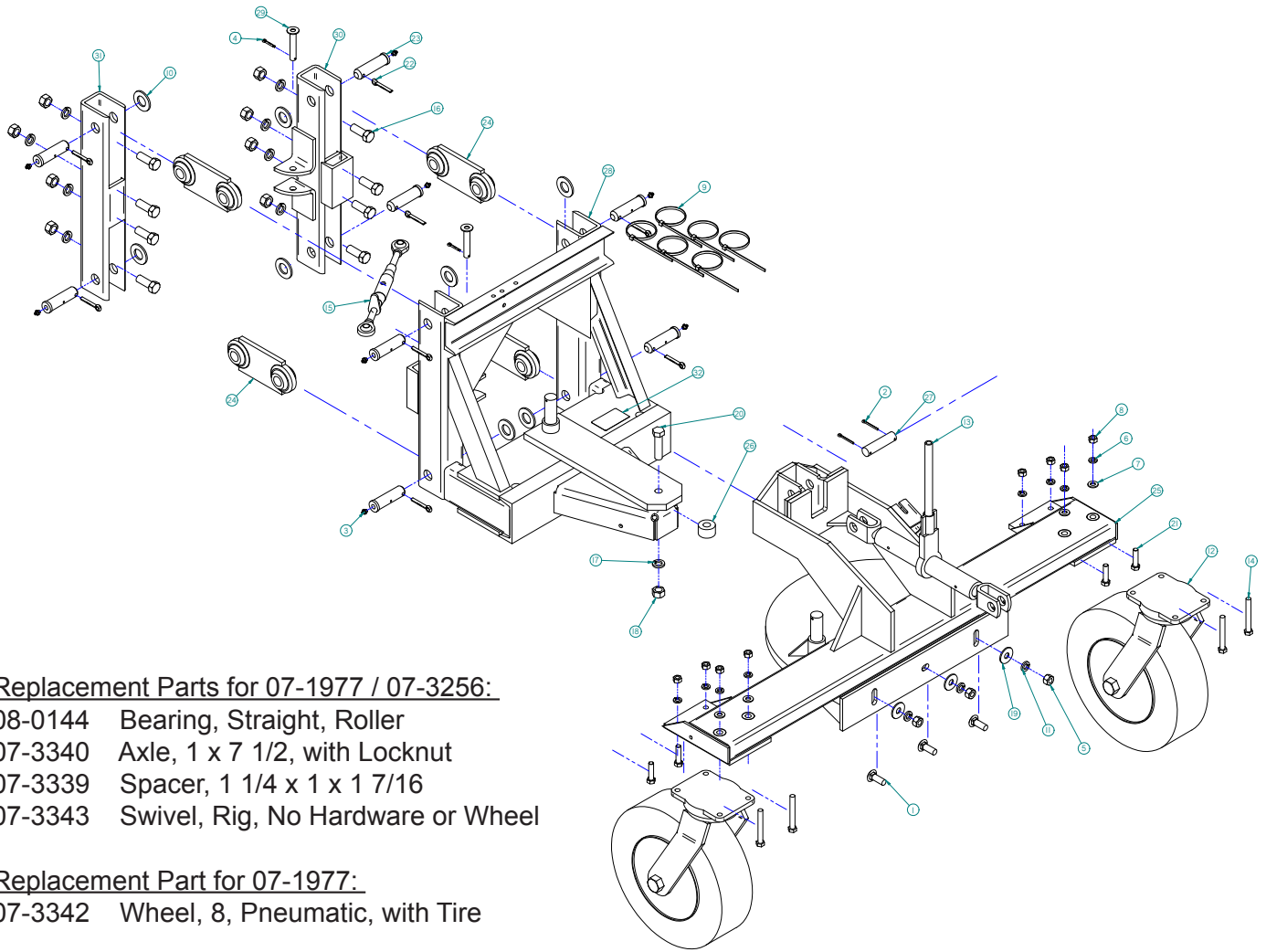
DETAIL B



DETAIL A

Item	Part	Qty	Description
1.	03-1920	1	Fitting, 12MF-12MF
2.	03-1945	3	Fitting, 12MB-12MF
3.	03-2092	2	Elbow, 90°, 6MB-6MF
4.	03-2177	1	Elbow, 90°, 12MB-12MF
5.	03-2291	2	Fitting, 6MF-6MB
6.	03-2352	2	Hose, .38 x 32, 6FF-6FF90, 4.75K
7.	03-3351	2	Hose, .75 x 65, 12FF-12FF, 3K
8.	03-3763	2	Hose, .75 x 91, 12FF-12FF, 3.125K
9.	03-4887	1	Cylinder, 2.5 x 1.38 x 7.5, 3.5K
10.	03-5215	1	Manifold, Swing, 12 Volt
	03-5280	1	Manifold, Swing, 24 Volt
11.	07-0206	2	Pin, Cotter, Gr2, 3/16 x 2
12.	07-3745	8	Washer, Flat, CL8.8, M10
13.	07-3749	2	Screw, HHC, CL10.9, M10-1.5 x 30mm
14.	07-4622	4	Nut, Hex, Lock, M10-1.5, CL10.9
15.	07-7028	2	Screw, HHC, CL10.9, M10-1.5 x 130mm
16.	13-15085	1	Plate, Mounting, Valve
17.	LAF9441	1	Wire, Harness
18.	LAF9444	1	Wire, Harness, with Box

## MOUNTING/SWING QUICK ATTACH



### Replacement Parts for 07-1977 / 07-3256:

- 08-0144 Bearing, Straight, Roller
- 07-3340 Axle, 1 x 7 1/2, with Locknut
- 07-3339 Spacer, 1 1/4 x 1 x 1 7/16
- 07-3343 Swivel, Rig, No Hardware or Wheel

### Replacement Part for 07-1977:

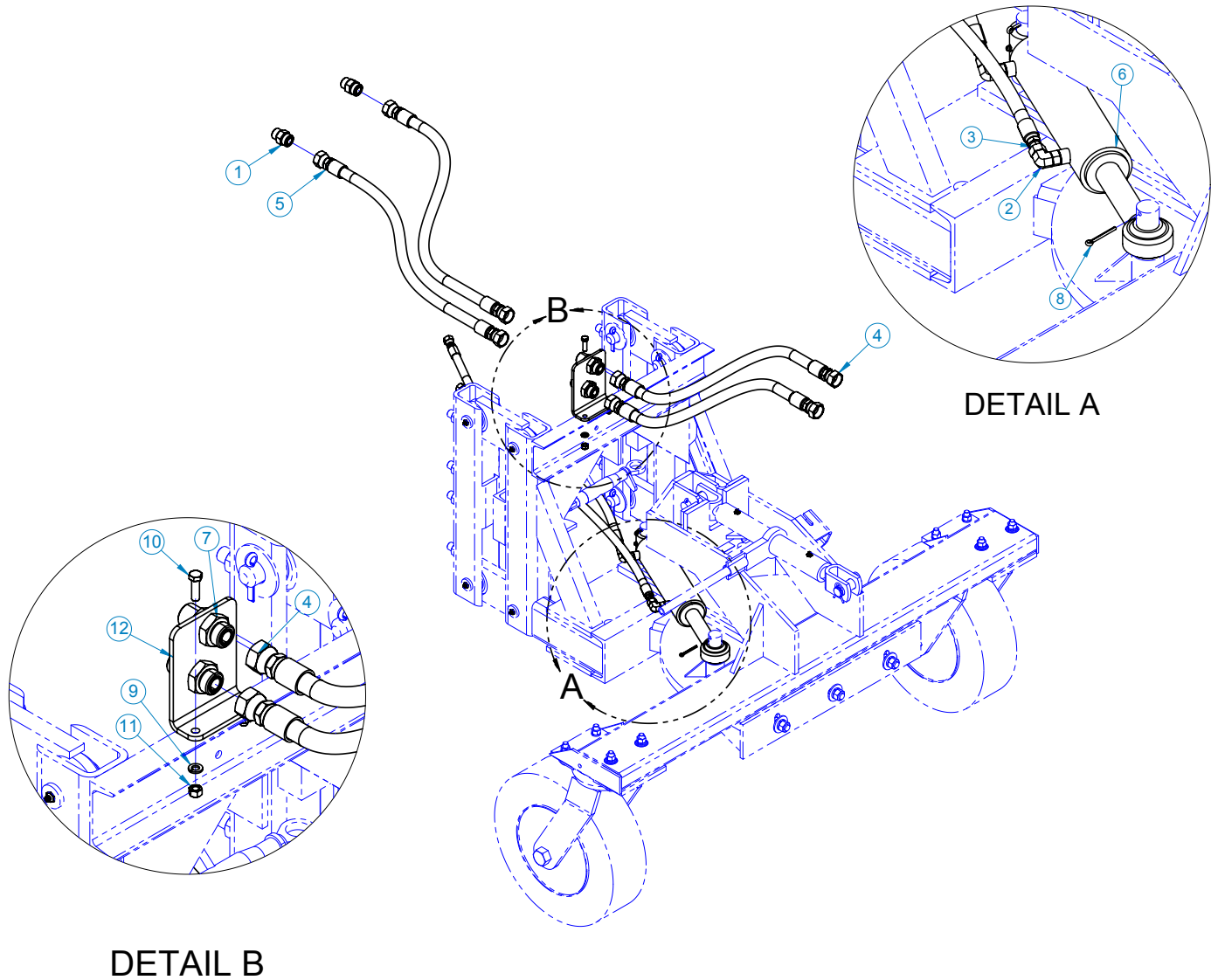
- 07-3342 Wheel, 8, Pneumatic, with Tire

Item	Part Qty	Description
1.	07-0119 3	Bolt, Carriage, Gr5, 5/8-11 x 1 3/4
2.	07-0206 2	Pin, Cotter, Gr2, 3/16 x 2
3.	07-0223 8	Fitting, Zerk, Straight, 1/8 NPT
4.	07-0786 2	Pin, Cotter, Gr2, 3/16 x 1 1/2
5.	07-1294 3	Nut, Hex, Gr8, 5/8-11
6.	07-1762 8	Washer, Lock, Split, Medium, 1/2
7.	07-1763 4	Washer, Flat, Gr8, 1/2
8.	07-1764 8	Nut, Hex, Gr8, 1/2-13
9.	07-1817 6	Tie, Plastic, 15 Inch
10.	07-1841 8	Washer, Flat, Gr2, 1 1/8
11.	07-1872 3	Washer, Lock, Split, Medium, 5/8
12.	07-1977 2	Assembly, Caster, 4.80-8, 4 Ply
	07-3256 2	Assembly, Caster, 4.80-8, 6-Ply
	07-3941 2	Assembly, Caster, 4.80-8, Solid
13.	07-2104 1	Toplink, Ratchet
14.	07-2360 4	Screw, HHC, Gr8, 1/2-13 x 4
15.	07-2484 1	Toplink, Category 0

Item	Part Qty	Description
16.	07-3064 8	Screw, HHC, Gr8, 3/4-10 x 2
17.	07-3065 9	Washer, Lock, Split, Medium, 3/4
18.	07-3066 9	Nut, Hex, Gr8, 3/4-10
19.	07-3120 3	Washer, Flat, Gr8, 5/8
20.	07-3544 1	Screw, HHC, Gr8, 3/4-10 x 3
21.	07-5075 4	Screw, HHC, Gr8, 1/2-13 x 2
22.	07-5355 8	Pin, Cotter, 5/16 x 2
23.	12-0292 8	Pin, Hitch, 1.122 x 4
24.	12-4152 4	Weld, Link, Hitch, 6.25
25.	13-2218 1	Weld, Plate, Swing
26.	13-2230 1	Bushing, 1 3/4 x 25/32 x 1 1/16
27.	13-2484 1	Pin, 1 x 4, with Holes
28.	13-3134 1	Weld, Frame, Swing
29.	13-3413 2	Weld, Pin, Mounting, 5/8 x 3 1/2
30.	13-4386 1	Weld, Bracket, Lift, Left
31.	13-4387 1	Tube, Bracket, Lift
32.	50-0635 1	Label, Plate, Part Number



# HYDRAULIC ANGLE CYLINDER ASSEMBLY

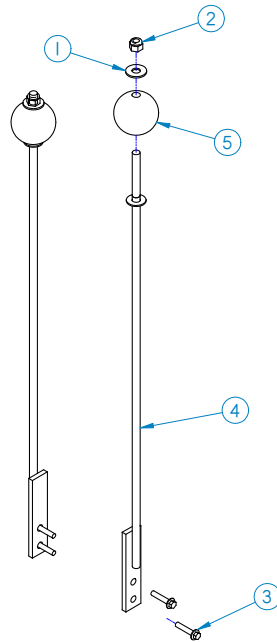


DETAIL B

Item	Part	Qty	Description
1.	03-1945	2	Fitting, 12MB-12MF
2.	03-2092	2	Elbow, 90°, 6MB-6MF
3.	03-2270	2	Hose, .38 x 72, 6FF-6FF, 4.75K
	03-2642	2	Hose, .38 x 144, 6FF-6FF, 4.75K
4.	03-3351	2	Hose, .75 x 65, 12FF-12FF, 3K, TC
5.	03-3763	2	Hose, .75 x 91, 12FF-12FF, 3K, TC
6.	03-4887	1	Cylinder, 2.5 x 1.38 x 7.5, 3.5K
7.	03-9539	2	Fitting, Bulkhead, 12MFS-12MFS
8.	07-0206	2	Pin, Cotter, Gr2, 3/16 x 2
9.	07-1718	2	Washer, Lock, Split, Medium, 3/8
10.	07-2116	2	Screw, HHC, Gr8, 3/8-16 x 1 1/4
11.	07-3654	2	Nut, Hex, Gr8, 3/8-16
12.	13-17041	1	Plate, Mounting, Bulkhead

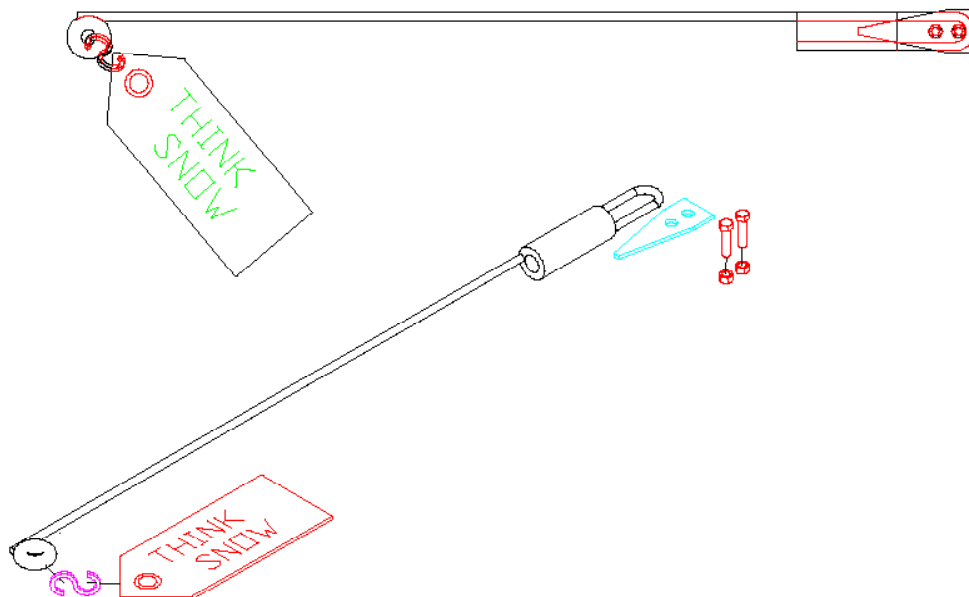
## SIGHT INDICATORS

Kit: 28-9965

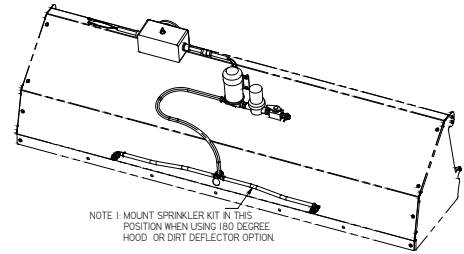
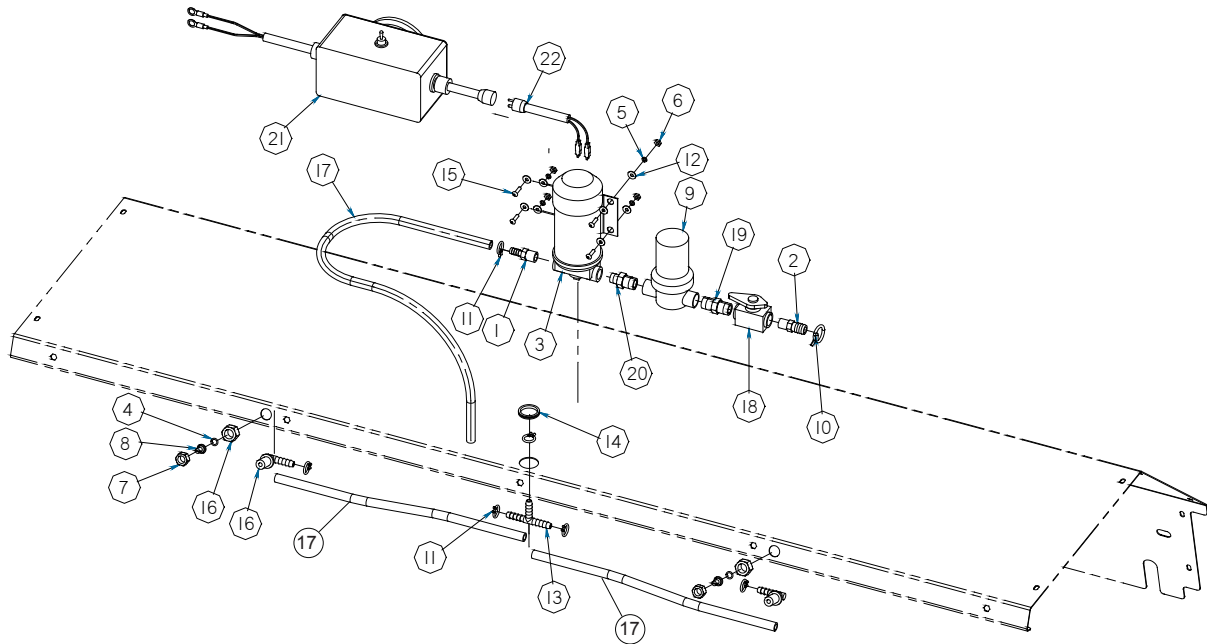


Item	Part	Qty	Description
1.	07-3279	2	Washer, Flat, Gr8, 3/8
2.	07-4036	2	Nut, Hex, Nylock, 3/8-16
3.	07-6597	4	Screw, HFH, CL10.9, M6-1 x 30
4.	13-14857	2	Weld, Sight Indicator
5.	13-9567	2	Ball, 2 1/8 Round, Red, with Hole

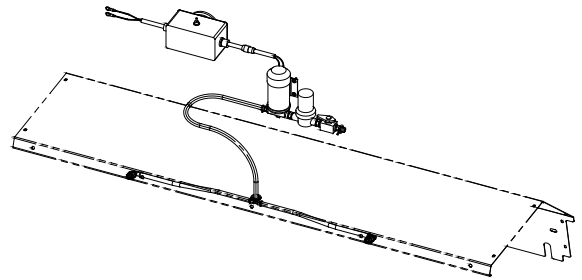
Kit: 11-5897



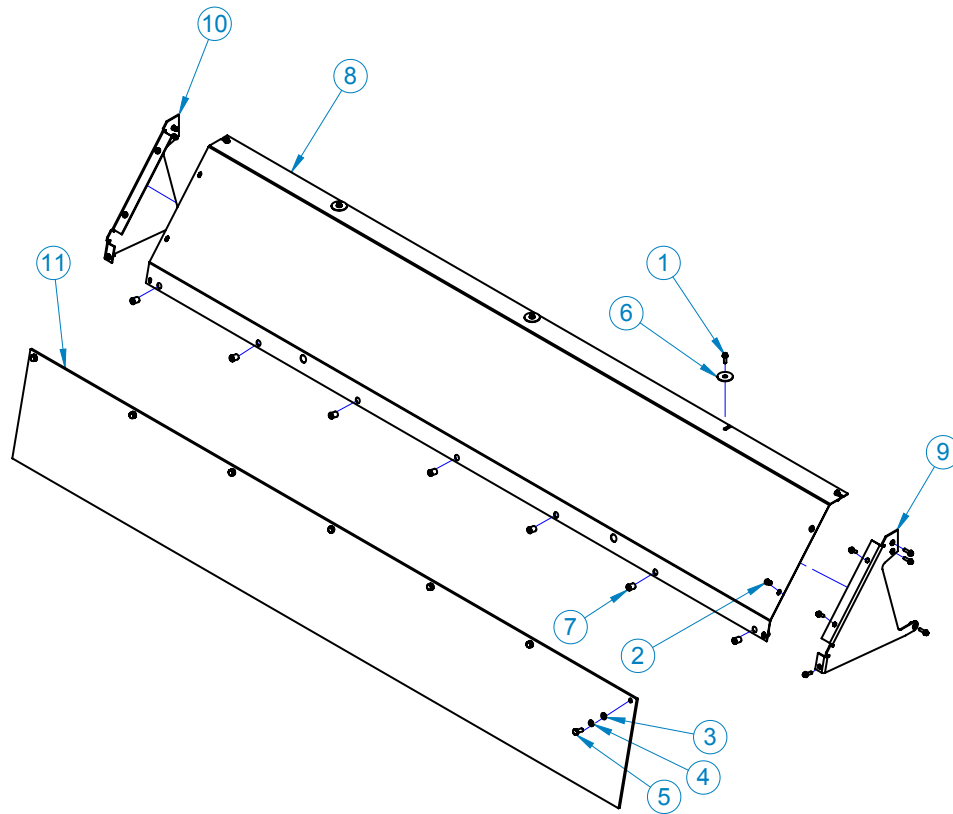
# SPRINKLER KIT WITHOUT TANK



Item	Part	Qty	Description
1.	03-0457	1	Fitting, Barb, Nylon, 3/8, 3/8MP
2.	03-1226	1	Fitting, Barb, HP, 5/8, 1/2MP
3.	03-1326	1	Pump, Flojet, 2.1gpm, 12 volt, 7amp, 35psi
	03-2558	1	Pump, Flojet, 2.1gpm, 24 volt, 3.5amp, 60psi
4.	03-3537	2	O-Ring, #8 Face Seal
5.	07-0140	4	Washer, Lock, Gr2, #10
6.	07-0141	4	Nut, Hex, Gr2, 10-24
7.	07-0413	2	Nozzle, Cap, Nylon
8.	07-0414	2	Nozzle, Tip, Brass
9.	07-0532	1	Strainer, Water
10.	07-0547	1	Clamp, Spring, 7/8, Hose
11.	07-0549	6	Clamp, Spring, 5/8, Hose
12.	07-1430	8	Washer, Flat, #10
13.	07-3869	1	Fitting, Barb, Tee, Nylon, 3/8
14.	07-4804	1	Grommet, Rubber, 1 1/4 Hole x 7/8 Bore x 1/16 Panel
15.	07-4831	4	Screw, BHC, 10-24UNC, 2B x 3/4
16.	07-4862	2	Nozzle, Elbow, without Clamp
17.	07-5127	25ft	Hose, Clear, Vinyl, 3/8
18.	07-6862	1	Valve, Shut-Off, 1/2, Nylon
19.	07-6863	1	Fitting, Nipple, 1/2, Nylon
20.	07-6864	1	Fitting, Nipple, 1/2 x 3/8, Nylon
21.	LAF8316	1	Wire, Harness, with Box
22.	LAF8320	1	Wire, Assembly, x 11 Ft



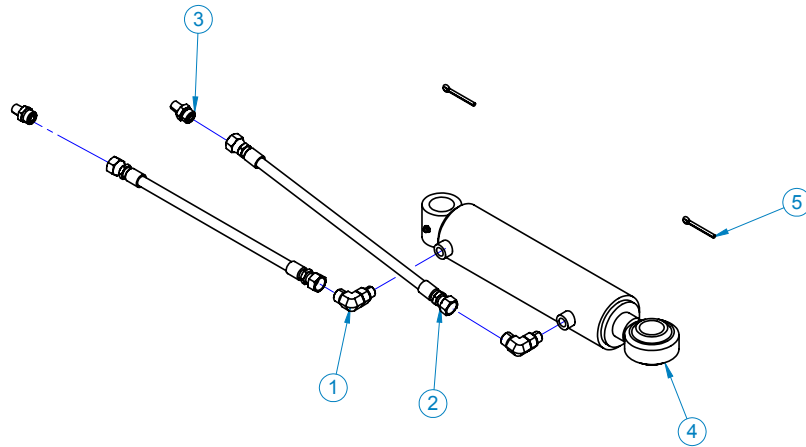
# HOOD EXTENSION AND DRAPE ASSEMBLY



Item	Part	Qty	Description
1.	07-3522	17	Screw, HFH, CL10.9, M6 x 1
2.	07-3617	12	Nut, Insert, Hex, M6 x 1
3.*	07-3736	9	Washer, Flat, CL8.8, M8
4.*	07-3738	9	Washer, Lock, Split, Medium, M8
5.*	07-3777	9	Screw, HHC, CL10.9, M8-1.25 x 20
6.	07-4942	3	Washer, Fender, 5/16 x 1 1/2
7.	07-7115	9	Nut, Insert, M8-1.25, 22-10ga
8.	13-16998-8	1	Sheet, Hood, Extension 8 Ft
	13-16998-9	1	Sheet, Hood, Extension 9 Ft
9.	13-16999	1	Sheet, Hood, Extension, Side, Left
10.	13-17000	1	Sheet, Hood, Extension, side, Right
11.*	13-17030-8	1	Flap, Deflector 8 Ft
	13-17030-9	1	Flap, Deflector 9 Ft

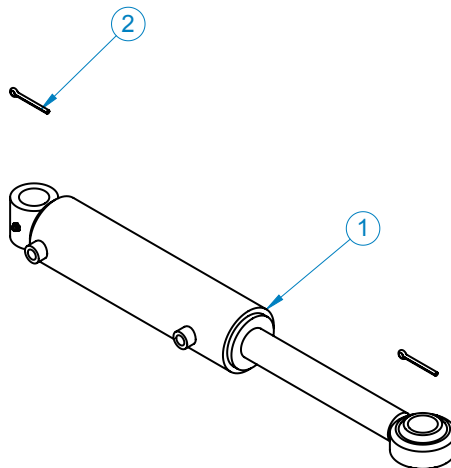
\* Designates Drape Assembly

## HYDRAULIC ANGLE KIT



Item	Part	Qty	Description
1.	03-2092	2	Elbow, 90°, 6MB-6MF
2.	03-2155	2	Hose, .25 x 72, 6FF-6FF, 3.25K
	03-2158	2	Hose, .25 x 144, 6FF-6FF, 3.25K
3.	03-2159	2	Fitting, 6MF-4MP
4.	03-4887	1	Cylinder, 2.5 x 1.38 x 7.5, 3.5K
5.	07-0206	2	Pin, Cotter, Gr2, 3/16 x 2

## HYDRAULIC ANGLE CYLINDER



Item	Part	Qty	Description
1.	03-4887	1	Cylinder, 2.5 x 1.38 x 7.5, 3.5K
2.	07-0206	2	Pin, Cotter, Gr2, 3/16 x 2

# BOLT TORQUE SPECIFICATIONS

## GENERAL TORQUE SPECIFICATION TABLES


Use the following charts when determining bolt torque specifications when special torques are not given. Always use grade 5 or better when replacing bolts.

## SAE BOLT TORQUE SPECIFICATIONS


**NOTE:** The following torque values are for use with extreme pressure lubricants, plating or hard washer applications increase torque 15% when using hardware that is unplated and either dry or lubricated with engine oil.


Bolt Size		SAE GRADE 5 TORQUE				SAE GRADE 8 TORQUE				Bolt head identification marks as per grade. NOTE: Manufacturing Marks Will Vary
		Pounds Feet		Newton-Meters		Pounds Feet		Newton-Meters		
Inches	Millimeters	UNC	UNF	UNC	UNF	UNC	UNF	UNC	UNF	
1/4	6.35	8	9	11	12	10	13	14	18	
5/16	7.94	14	17	19	23	20	25	27	34	
3/8	9.53	30	36	41	49	38	46	52	62	
7/16	11.11	46	54	62	73	60	71	81	96	
1/2	12.70	68	82	92	111	94	112	127	152	
9/16	14.29	94	112	127	152	136	163	184	221	
5/8	15.88	128	153	174	207	187	224	254	304	
3/4	19.05	230	275	312	373	323	395	438	536	
7/8	22.23	340	408	461	553	510	612	691	830	
1	25.40	493	592	668	803	765	918	1037	1245	
1-1/8	25.58	680	748	922	1014	1088	1224	1475	1660	
1-1/4	31.75	952	1054	1291	1429	1547	1700	2097	2305	
1-3/8	34.93	1241	1428	1683	1936	2023	2312	2743	3135	
1-1/2	38.10	1649	1870	2236	2535	2686	3026	3642	4103	


GRADE 2




GRADE 5









GRADE 8










## METRIC BOLT TORQUE SPECIFICATIONS

**NOTE:** The following torque values are for use with metric hardware that is unplated and either dry or lubricated with engine oil. Reduce torque 15% when using hardware that has extreme pressure lubricants, plating or hard washer applications.

Bolt head identification marks as per grade.		
		

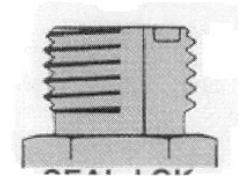
Size of Bolt	Grade No.	Pitch (mm)	Pounds Feet	Newton-Meters	Pitch (mm)	Pounds Feet	Newton-Meters
M6	5.6	1.0	3.6-5.8	4.9-7.9	-	-	-
	8.8		5.8-4	7.9-12.7		-	-
	10.9		7.2-10	9.8-13.6		-	-
M8	5.6	1.25	7.2-14	9.8-19	1.0	12-17	16.3-23
	8.8		17-22	23-29.8		19-27	25.7-36.6
	10.9		20-26	27.1-35.2		22-31	29.8-42
M10	5.6	1.5	20-25	27.1-33.9	1.25	20-29	27.1-39.3
	8.8		34-40	46.1-54.2		35-47	47.4-63.7
	10.9		38-46	51.5-62.3		40-52	54.2-70.5
M12	5.6	1.75	28-34	37.9-46.1	1.25	31-41	42-55.6
	8.8		51-59	69.1-79.9		56-68	75.9-92.1
	10.9		57-66	77.2-89.4		62-75	84-101.6
M14	5.6	2.0	49-56	66.4-75.9	1.5	52-64	70.5-86.7
	8.8		81-93	109.8-126		90-106	122-143.6
	10.9		96-109	130.1-147.7		107-124	145-168
M16	5.6	2.0	67-77	90.8-104.3	1.5	69-83	93.5-112.5
	8.8		116-130	157.2-176.2		120-138	162.6-187
	10.9		129-145	174.8-196.5		140-158	189.7-214.1
M18	5.6	2.0	88-100	119.2-136	1.5	100-117	136-158.5
	8.8		150-168	203.3-227.6		177-199	239.8-269.6
	10.9		175-194	237.1-262.9		202-231	273.7-313
M20	5.6	2.5	108-130	146.3-176.2	1.5	132-150	178.9-203.3
	8.8		186-205	252-277.8		206-242	279.1-327.9
	10.9		213-249	288.6-337.4		246-289	333.3-391.6

**NOTE** - Nylock nuts are utilized when greater resistance to vibrating loose is required, and greater operating temperatures are not a factor. In addition, like lock nuts, nylock nuts have a safety feature that if the bolt does vibrate loose, the nut will remain on the screw. Install nylock nuts to the standard torque shown above.

# HYDRAULIC TORQUE SPECIFICATIONS

## Face Seal: Assembly, Tube to Fitting

**NOTICE -** Face seal fittings have the most reliable sealing method and therefore, should be used whenever possible.



## Installation

1. Make sure threads and sealing surfaces are free of burrs, nicks, scratches, or foreign materials.
2. Install proper SAE O-ring to end of fitting if not already installed. Ensure O-ring is fully seated and retained properly.
3. Lubricate O-ring with a light coating of clean hydraulic oil.
4. Position tube and nut squarely on face seal of fitting and tighten nut finger tight.
5. Using appropriate torquing device, tighten to given torque rating from the table below.

## Torque Values

SAE Dash Size	Tube Side Thread Size	In-lbs	Ft-lbs
-4	9/16 - 18	220 ± 10	18 ± 1
-6	11/16 - 16	320 ± 25	27 ± 2
-8	13/16 - 16	480 ± 25	40 ± 2
-10	1 - 14	750 ± 35	63 ± 3
-12	1 3/16 - 12	1080 ± 45	90 ± 4
-16	1 7/16 - 12	1440 ± 90	120 ± 8
-20	1 11/16 - 12	1680 ± 90	140 ± 8
-24	2 - 12	1980 ± 100	165 ± 8

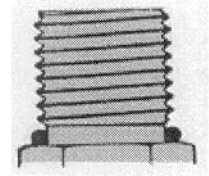
**NOTE** - ft-lb may be converted to Newton Meters by multiplying by 1.35582.

**NOTE** - in-lbs may be converted to Newton Meters by multiplying by 0.11298.

# HYDRAULIC TORQUE SPECIFICATIONS

## Straight Thread O-ring Fitting: Assembly, Fitting to Port

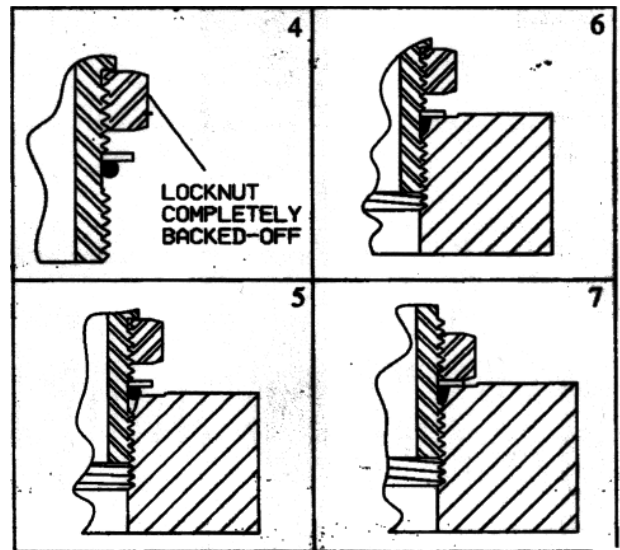
**NOTE -** Straight thread o-ring fittings are utilized to adapt hydraulic systems to motors, pumps, cylinders, and valves.



## Installation (Adjustable Fitting)

1. Make sure threads and sealing surfaces are free of burrs, nicks, scratches, or any foreign materials.
2. Install proper SAE o-ring on port end of fitting if not already installed. Ensure o-ring is fully seated and retained properly.
3. Lubricate o-ring with a light coating of clean hydraulic oil.
4. Back off nut as far as possible and push washer up as far as possible. (figure 4 & 5)
5. Screw fitting into port. Hand tighten fitting until backup washer contacts face of port. (figure 6)
6. To position the fitting, unscrew to desired position, but not more than one full turn.
7. Hold fitting in position with wrench. Using appropriate torquing device, tighten nut to given torque rating from table. (figure 7)

Fitting Size	SAE Port Thread Size	In-lbs	Ft-lbs
-4	7/16 - 20	190 ± 10	16 ± 1
-6	9/16 - 18	420 ± 15	35 ± 1
-8	3/4 - 14	720 ± 25	60 ± 2
-10	7/8 - 14	1260 ± 50	105 ± 5
-12	1 1/16 - 12	1680 ± 75	140 ± 6
-16	1 5/16 - 12	2520 ± 100	210 ± 8
-20	1 5/8 - 12	3100 ± 150	260 ± 12
-24	1 7/8 - 12	3800 ± 150	315 ± 12



**NOTE** - ft-lb may be converted to Newton Meters by multiplying by 1.35582.

**NOTE** - in-lbs may be converted to Newton Meters by multiplying by 0.11298.



# GLOSSARY

**angle or angle assembly** - portion of the sweeper that allows the brush head assembly to angle.

**BP** - black pipe.

**brush head assembly** - assembly that includes the core, hood, and brush frame.

**brush pattern** - area of dirt removed from sweeping surface; with a properly adjusted sweeper; the pattern is the same width for the entire length.

**castellated** - having battlements like a castle.

**caution** - indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

**core** - weldment that holds brush sections.

**danger** - indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

**F** - female.

**FS** - face seal.

**front** - side that is in front when facing the normal forward direction of travel of the machine.

**gpm** - gallons per minute.

**HP** - high pressure.

**hood** - brush shield.

**hydraulic angle kit** - means of swinging an assembly hydraulically

**in.** - inch.

**kph** - kilometers per hour.

**lb** - pounds.

**left-hand** - side that is on left when facing the normal forward direction of travel of the machine.

**lift cylinder** - means of raising the brush head assembly hydraulically.

**lps** - liters per second.

**M** - male.

**mm** - millimeters.

**mph** - miles per hour.

**manual angle kit** - means of swinging the brush head assembly mechanically.

**mounting assembly** - portion of the sweeper that attaches to the primer mover; designed specifically for each prime mover.

**NPT** - national pipe thread.

**note** - indicates supplementary information.

**notice** - used for instructions when machine damage may be involved.

**psi** - pounds per square inch.

**PTO** - power take off; shaft on the prime mover used to drive attachments.

**prime mover** - refers to the tractor, truck, loader or other vehicle to which a sweeper is attached.

**qty** - quantity.

**quick change core** - core designed in a way that allows brush sections to be changed without removing hoses from motors.

**rpm** - revolutions per minute.

**rear** - side that is in the rear when facing the normal forward direction of travel of the machine.

**retainer** - removable plate or set of plates that keep sections on the core.

**right-hand** - side that is on the right when facing the normal forward direction of travel of the machine.

# GLOSSARY

**section** - single brush wafer.

**section set** - replacement brush wafers.

**sprinkler system** - system that sprays water ahead of the sweeper used to reduce dust.

**sprinkler tank** - assembly that includes the water reservoir and mounting used in a sprinkler system.

**stands** - devices designed to keep the components off the ground when the sweeper is dismounted.

**swing cylinder** - means of angling the brush head assembly hydraulically.

**warning** - indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**weld** - weldment.

**windrow** - pile of debris.

**zerk** - grease fitting.

# WARRANTY

## Limited Warranty

Except for the Excluded Products as described below, all new products are warranted to be free from defects in material and/or workmanship during the Warranty Period, in accordance with and subject to the terms and conditions of this Limited Warranty.

1. Excluded Products. The following products are excluded from this Limited Warranty:

(a) Any cable, part that engages with the ground (i.e. sprockets), digging chain, bearing, teeth, tamping and/or demolition head, blade cutting edge, pilot bit, auger teeth and broom brush that either constitutes or is part of a product.

(b) Any product, merchandise or component that, in the opinion of Paladin Light Construction<sup>1</sup>, has been (i) misused; (ii) modified in any unauthorized manner; (iii) altered; (iv) damaged; (v) involved in an accident; or (vi) repaired using parts not obtained through Paladin Light Construction.

2. Warranty Period. The Limited Warranty is provided only to those defects that occur during the Warranty Period, which is the period that begins on the first to occur of: (i) the date of initial purchase by an end-user, (ii) the date the product is first leased or rented, or (iii) the date that is six (6) months after the date of shipment by Paladin Light Construction as evidenced by the invoiced shipment date (the "Commencement Date") and ends on the date that is twelve (12) months after the Commencement Date.

3. Terms and Conditions of Limited Warranty. The following terms and conditions apply to the Limited Warranty hereby provided:

(a) Option to Repair or Replace. Paladin Light Construction shall have the option to repair or replace the product.

(b) Timely Repair and Notice. In order to obtain the Limited Warranty, (i) the product must be repaired within thirty (30) days from the date of failure, and (ii) a claim under the warranty must be submitted to Paladin Light Construction in writing within thirty (30) days from the date of repair.

(c) Return of Defective Part or Product. If requested by Paladin Light Construction, the alleged defective part or product shall be shipped to Paladin Light Construction at its manufacturing facility or other location specified by Paladin Light Construction, with freight PRE-PAID by the claimant, to allow Paladin Light Construction to inspect the part or product.

Claims that fail to comply with any of the above terms and conditions shall be denied.

### **LIMITATIONS AND EXCLUSIONS.**

**THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY BASED ON A COURSE OF DEALING OR USAGE OF TRADE.**

**IN NO EVENT SHALL PALADIN LIGHT CONSTRUCTION BE LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGES.**

**IN NO EVENT SHALL PALADIN LIGHT CONSTRUCTION BE LIABLE FOR ANY LOSS OR CLAIM IN AN AMOUNT IN EXCESS OF THE PURCHASE PRICE, OR, AT THE OPTION OF PALADIN LIGHT CONSTRUCTION, THE REPAIR OR REPLACEMENT, OF THE PARTICULAR PRODUCT ON WHICH ANY CLAIM OF LOSS OR DAMAGE IS BASED. THIS LIMITATION OF LIABILITY APPLIES IRRESPECTIVE OF WHETHER THE CLAIM IS BASED ON BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE OR OTHER CAUSE AND WHETHER THE ALLEGED DEFECT IS DISCOVERABLE OR LATENT.**

<sup>1</sup>Attachment Technologies Inc., a subsidiary of Paladin Brands Holding, Inc. (PBHI) is referred to herein as Paladin Light Construction.