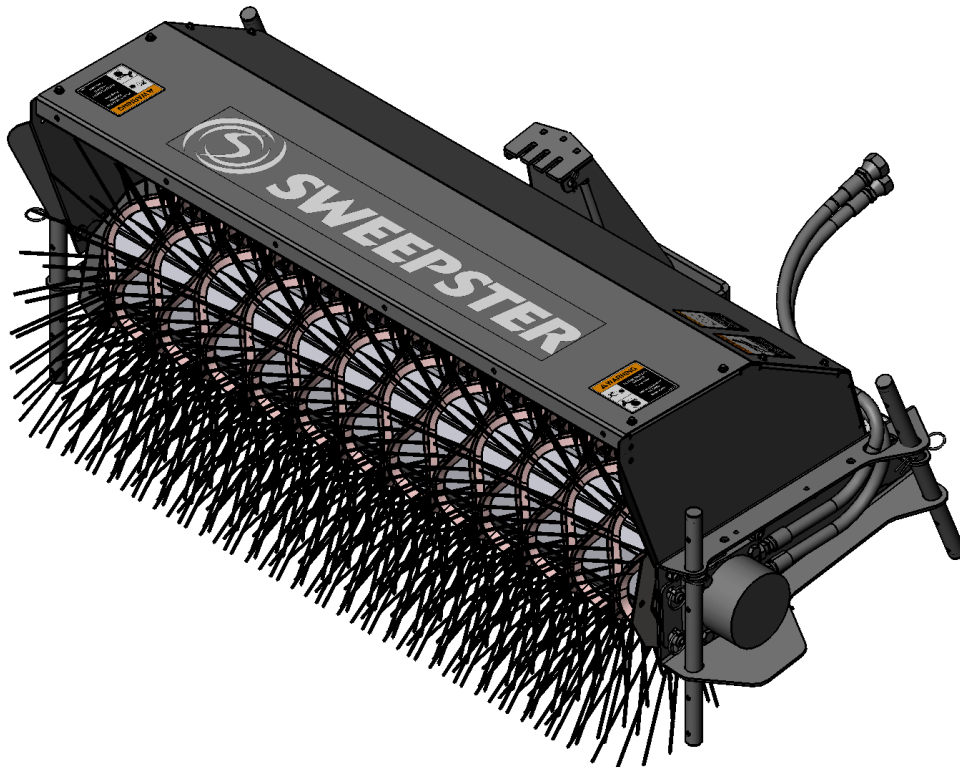




SWEEPSTER

BY PALADIN

OPERATOR'S AND PARTS MANUAL S26 & S30 Series CTH & MRH Hydraulic Windrow Sweepers



Serial Number: _____

Model Number: _____

**Manual Number: 51-4180
Release Date: January 2014
Serial Number: 0906001 & Up
Rev. 1**

Notes


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PREFACE

GENERAL INFORMATION

This product was carefully designed and manufactured to give you many years of dependable service. Only minor maintenance (such as cleaning and lubricating) is required to keep it in top working condition. Be sure to observe all maintenance procedures and safety precautions in this manual and on any safety decals located on the product and on any equipment on which the attachment is mounted.

WARNING!  **Never let anyone operate this unit without reading the “Safety Precautions” and “Operating Instructions” sections of this manual. Always choose hard, level ground to park the vehicle on and set the brake so the unit cannot roll.**

Unless noted otherwise, right and left sides are determined from the operator’s control position when facing the attachment.

NOTE: The illustrations and data used in this manual were current (according to the information available to us) at the time of printing, however, we reserve the right to redesign and change the attachment as may be necessary without notification.

BEFORE OPERATION

The primary responsibility for safety with equipment falls to the operator. Make sure the equipment is operated only by trained individuals that have read and understand this manual. If there is any portion of this manual or function you do not understand, contact your local authorized dealer or manufacturer to obtain further assistance. Keep this manual available for reference. Provide this manual to any new owners and/or operator’s

SAFETY ALERT SYMBOL



This is the “Safety Alert Symbol” used by this industry. This symbol is used to warn of possible injury. Be sure to read all warnings carefully. They are included for your safety and the safety of others working with you.

SERVICE

Use only manufacturer replacement parts. Substitute parts may not meet the required standards.

Record the model and serial number of your unit on the cover of this manual. The parts department needs this information to insure that you receive the correct parts.

SOUND AND VIBRATION

“Sound pressure levels and vibration data for this attachment are influenced by many different parameters; some items are listed below (not inclusive):

- prime mover type, age, condition, with or without cab enclosure and configuration
- operator training, behavior, stress level
- job site organization, working material condition, environment

Based on the uncertainty of the prime mover, operator, and job site, it is impossible to get precise machine and operator sound pressure levels, or vibration levels for this attachment.”

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.

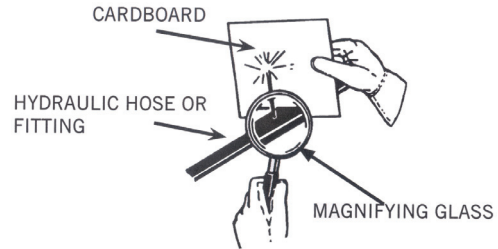
- Wear safety glasses, protective clothing, and use a sound piece of cardboard or wood when searching for hydraulic leaks.
**DO NOT USE YOUR HANDS!
SEE ILLUSTRATION.**

WARNING!



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.

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

GENERAL SAFETY PRECAUTIONS

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.

WARNING!



KNOW WHERE UTILITIES ARE.

Observe overhead electrical and other utility lines. Be sure equipment will clear them. When digging, call your local utilities for location of buried utility lines, gas, water and sewer, as well as any other hazard you may encounter.

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.

WARNING!



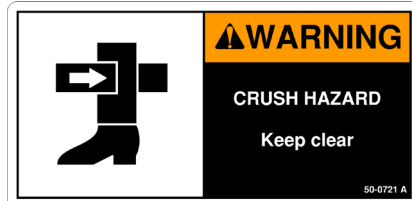
END OF LIFE DISPOSAL.

At the completion of the useful life of the unit, drain all fluids and dismantle by separating the different materials (rubber, steel, plastic, etc.). Follow all federal, state and local regulations for recycling and disposal of the fluid and components.

SAFETY SIGNS & LABELS



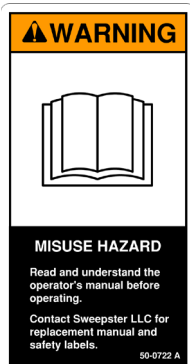
4. 41043



7. 50-0721



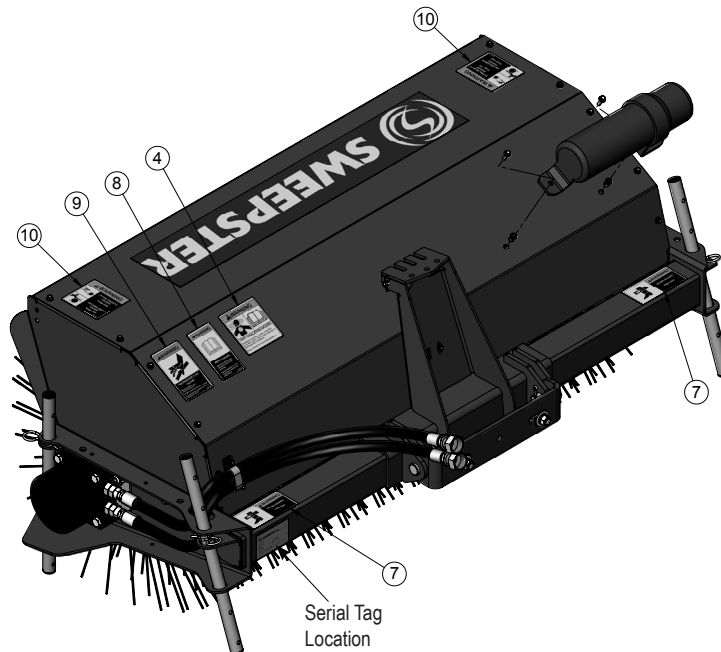
10. 50-0726



8. 50-0722



9. 50-0724



Item	Part	Qty	Description
4.	41043	1	Decal, Warning, Hazardous Dust
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 Objects & Entanglement

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.

INSTALLATION

MRH/CTH on Tractor

1. Install the mounting assembly (figure 1) according to instructions included with the mounting assembly.
2. Position the swing assembly in front of the mounting assembly (figure 1).
3. Fasten the swing assembly to the mounting assembly.
4. Position the brush head assembly in front of the swing assembly (figure 1).
5. Fasten the brush head assembly to the swing assembly with 2, 1/2 inch carriage bolts, flat washers, lock washers and nuts.

NOTICE! *The measurement from the ground to the middle of the brush head tube should be 12 inches (305 mm), use either the top or bottom set of slots depending on the tractor height.*

6. Install the spring-chain assembly by following the set of instructions that applies to your sweeper.

For Units with Hydraulic Power Pack (11-17176) or Hydraulic Lift (11-17410)

NOTICE! *Refer to figures 2 and 3 and the parts breakdown during installation.*

- a. Attach a spring to each end of a 10-link chain.
- b. Connect 1 end of the 26-link chain to 1 spring.
- c. Pass the other end of the 26-link chain through the front eye on the swing assembly.
- d. Attach the 26-link chain to the other spring.
- e. Loop the 10/26-link chain assembly on the outside slots of the brush head upright.
- f. Attach the second 10-link chain to the cylinder's rod end with a shackle. Place the other end of the 10-link chain in the center slot of the brush head upright.
- g. Attach the cylinder's barrel end to the rear eye of the swing assembly with a shackle.
- h. Connect the adapter fitting and hose to the port on the cylinder's rod end.
- i. Connect the vent fitting and hose to the port on the cylinder's barrel end.

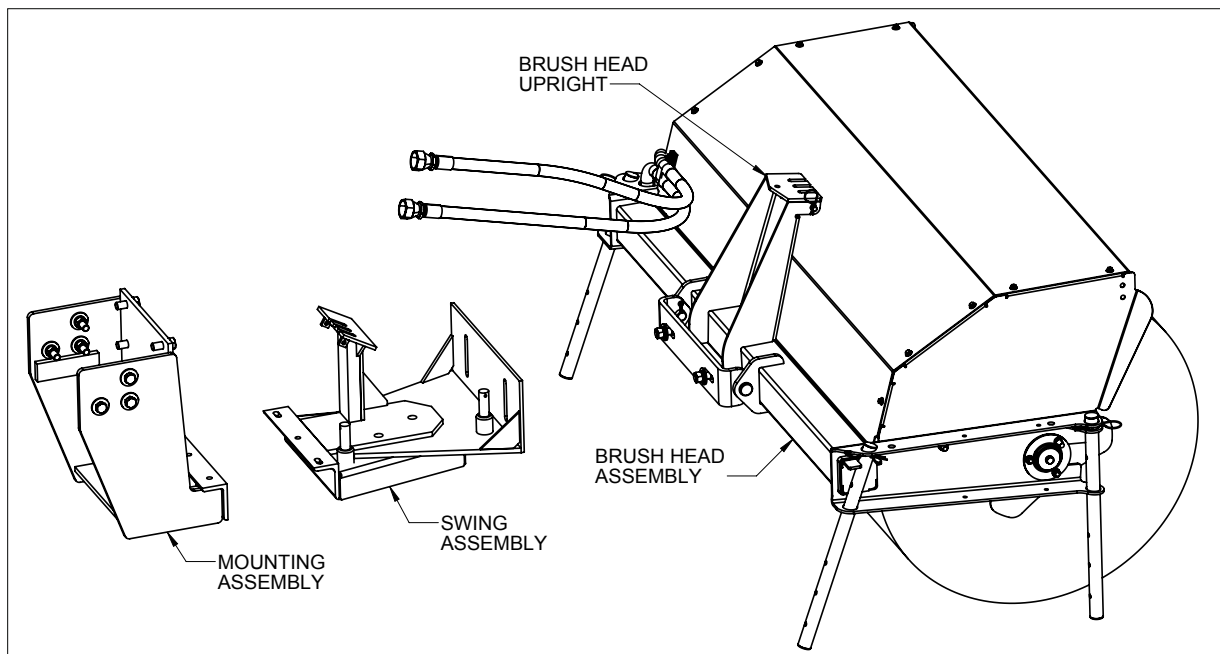


figure 1

INSTALLATION

CAUTION! Avoid cylinder damage. Bleed air out of the cylinder before use.



NOTICE! Go to **Adjustments: Leveling.**

For Units with Electric Lift

NOTICE! Refer to figures 4 and 5 and the parts breakdown during installation.

- Attach a spring to 1 end of each 7-link chain.
- Connect the springs to the holes in the swing assembly upright.
- Place chains in the outside slots on the brush head upright.
- Install the lift cable by feeding it through the center hole in the brush head upright. Loop the loose end around and secure it with a cable clamp. Loop the other end through the center hole in the swing assembly upright; secure with a cable clamp.

CAUTION! Install cable clamps as shown in figure 4; otherwise the cable could slip, possibly damaging the sweeper or injuring the operator.



NOTICE! Refer to **Leveling.**



figure 2

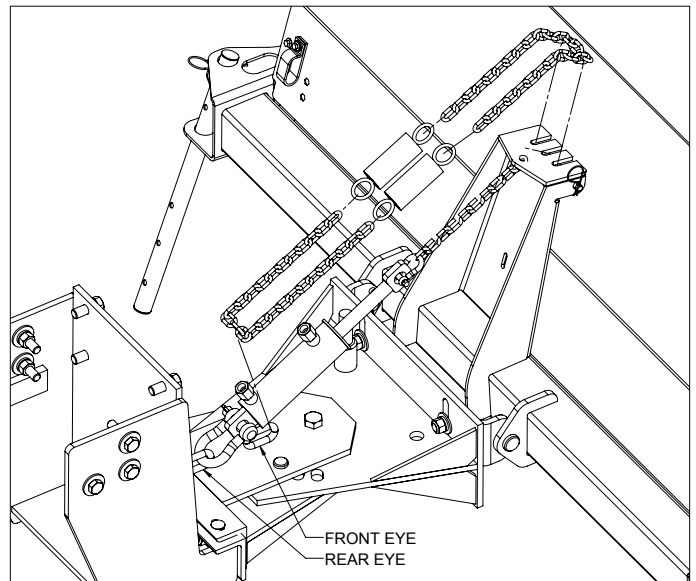


figure 3

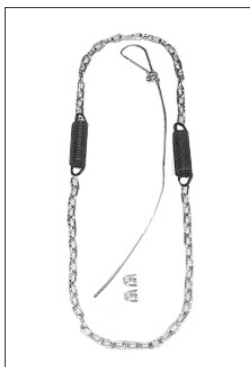


figure 4

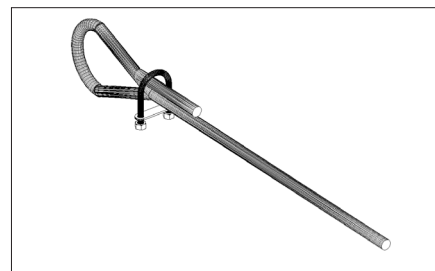


figure 5

INSTALLATION

For CTH Units that Include Assembly 11-17174

NOTICE! Refer to figures 1 and 2 during installation.

- a. Assemble 2, 26-link chains and 2 springs into a spring-chain assembly as shown in figure 1.
- b. Loop 1, 26-link chain on the outside slots of the brush head upright.
- c. Loop the other 26-link chain on the outside slots of the swing assembly upright.
- d. Install the 36-link transport chain by placing 1 end in the center slot of the brush head upright and the other end in the center slot in the swing assembly upright.

NOTICE! Refer to Leveling.

For Units that Include Assembly 11-17432 & Hydraulic Lift System

NOTICE! Refer to parts list during installation.

- a. Assemble 2, 26-link chains and 2 springs into a spring-chain assembly as shown in figure 1.
- b. Loop 1, 26-link chain on the outside slots of the brush head upright.
- c. Loop the other 26-link chain on the outside slots of the swing assembly upright.
- d. Attach adapter fittings to both cylinder ports, and install elbow fittings on the adapter fittings. Then, attach hoses to the elbow fittings and install quick coupler fittings on the hoses.
- e. Place a shackle on the rod end of the cylinder; then, attach the shackle to the brush frame upright (figure 2).
- f. Place a shackle on the barrel end of the cylinder and attach the chain to the shackle. Then, attach the chain to the center slot in the drive mounting assembly upright .

- g. Completely collapse the cylinder to check for adjustment.

- If the brush head assembly lifts 4 in. (10.1 cm) off the ground, the hydraulic lift is properly adjusted.
- If the brush head assembly does not lift 4 in. (10.1 cm) off the ground, adjust the chain. To raise the brush head assembly more, shorten the chain length between the cylinder and upright. To lower the brush head assembly, add to the chain length.



figure 1

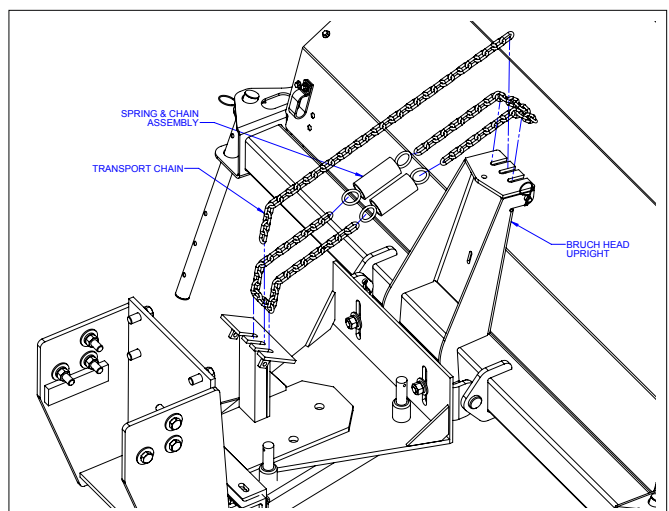


figure 2

INSTALLATION

For Units that Include Assembly 11-17174 & Lift System within Mounting Assembly

NOTICE! Refer to figure 3 during installation.

- a. Assemble 2, 26-link chains and 2 springs into a spring-chain assembly as shown in figure 3.
- b. Loop the chain on the outside slots of the brush head upright and swing assembly upright.
- c. Install the lift cable by feeding it through the center hole in the brush head upright. Loop the loose end around and secure it with a cable clamp (figure 4).
- d. Attach the other end of the cable to the lift actuator system. (If the mounting assembly includes a welded link, then thread the cable through the link before attaching it to the lift actuator system.)



figure 3

CAUTION! Avoid injury or sweeper damage. Install cable clamps as shown in figure 4; otherwise the cable could slip, possibly damaging the sweeper or injuring the operator.

NOTICE! Refer to Leveling.

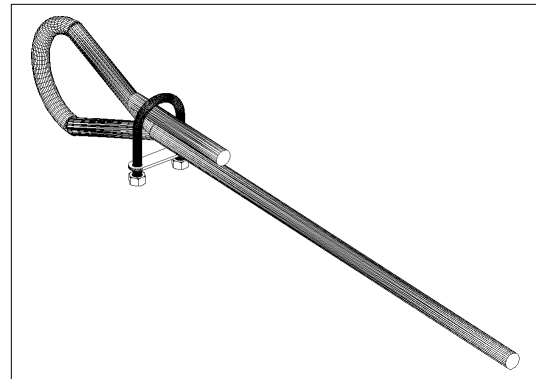


figure 4

INSTALLATION

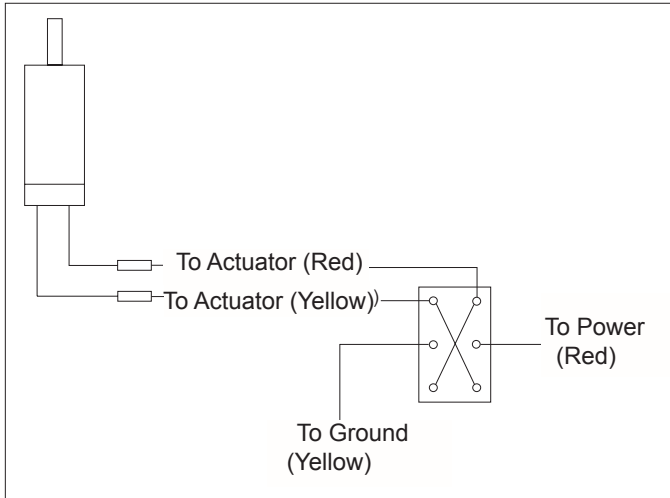


figure 1

Electric Lift

NOTICE! *Not all sweepers use electric lift.*

1. Locate a convenient area on the prime mover dash to mount the lift switch.

NOTICE! *Some units include a bracket for mounting the lift switch. Refer to specific instructions included with the mounting assembly.*

CAUTION! **Avoid damage to the prime mover.** Before drilling, make sure that you will not drill into wires or other parts. Disconnect battery.

2. Mark the lift switch location with a punch. Drill a pilot hole with a 1/4 inch bit; then, drill the finish hole with a 1/2 inch bit.
3. Insert the switch and secure with a nut.
4. Route the control wires and connector to the front of the prime mover. If necessary, secure the wires to the tractor frame to prevent them from hanging down.

CAUTION! **Avoid wire damage.** Do not route wires near hot and/or moving parts.

5. Connect the red wire from the switch to the tractor power supply. Connect the yellow wire to a good ground, preferably the battery ground or tractor frame (figure 1).

CAUTION! **Avoid damage to the electric lift system. Add a 13-amp, 12-volt fuse if the power supply is not fused.**



6. Mount the actuator on the mounting assembly, if not installed.
7. Connect the wires from the lift switch to the actuator.
8. Verify wiring is correct, then reconnect battery.

NOTICE! *When replacing a wire, use a 14 gauge or heavier wire.*

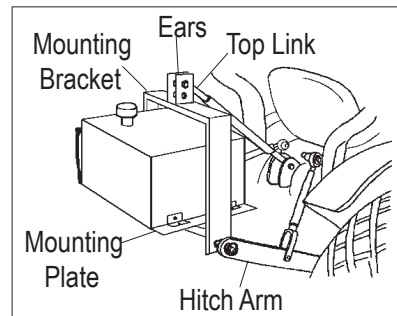


figure 2

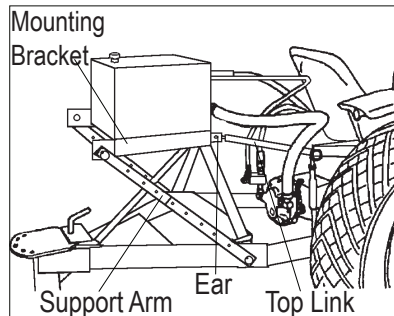


figure 3

MRH Power Pack

The hydraulic tank can be mounted in 1 of 2 positions:

- On 3-point arms or
- Above the 3-point hitch attachment.

If you wish to use another attachment on the hitch, mount the tank above it. Otherwise, mount the tank on the 3-point arms.

INSTALLATION

On 3-Point Hitch Arms

Refer to figure 2 during installation.

1. Connect the mounting bracket to the hitch arms with hitch pins. Secure with ring pins.
2. Connect the hitch's top link to ears on the mounting bracket.
3. Fasten 2 mounting plates to the mounting bracket's bottom channel. Use 2, 1/2 inch carriage bolts, flat washers, lock washers and nuts.
4. Place the tank on top of the mounting plates and bolt in place with 4, 3/8 inch carriage bolts, lock washers and nuts.
5. Go to Installation: Pumps & Hoses.

Above 3-Point Hitch

Refer to figure 3 during installation.

1. Connect the attachment, the mounting bracket ears and the hitch's top link.
2. Assemble the support arms using 4, 3/8 inch cap screws, flat washers, lock washers and nuts.
3. Connect support arms to the hitch arms (with pins used on the hitch) and to the mounting bracket.
4. Level mounting bracket from front to back and from left to right by adjusting the support arms.
5. Install the tank on the mounting bracket with 4 carriage bolts.
6. Go to Installation: Pumps & Hoses.

Pump & Hoses

1. Install the relief valve and fittings on the pump.
(Refer to figure 4 during installation.)
 - The 1 5/16 inch - 1 1/4 inch barb fitting goes in the pump inlet.

- Place fittings on the pump outlet in this order: 1 1/16 inch - 3/4 inch elbow fitting in the outlet opening. 3/4 inch - 3/4 inch nipple fitting on the elbow fitting, relief valve on the nipple and 3/4 inch elbow fitting on the relief valve.
2. Slide the pump onto the tractor PTO shaft. Make sure that the relief valve is on the left-hand side.
 3. Fasten the 10-link chain to the bottom threaded hole on the right-hand side of the pump. Bolt the other end of the chain to the tractor. The chain must be attached to a position on the tractor that is above and forward of the connection on the pump. The chain must also be taught. (Refer to figure 5)

NOTICE! *This chain holds the pump on the shaft and prevents it from spinning during operation.*

NOTICE! *For steps 4 through 8 refer to figure 6.*

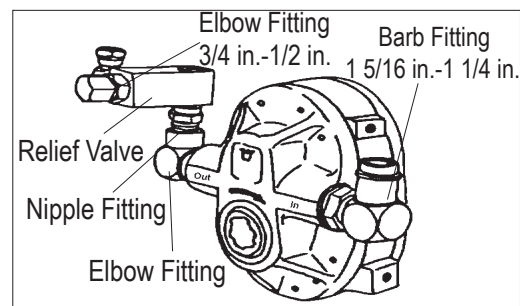


figure 4

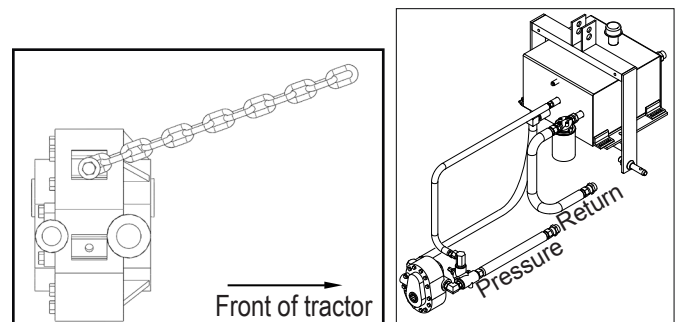


figure 5

figure 6

INSTALLATION & OPERATION

4. Install the 1 inch - 1 1/4 inch barb fitting in the 1 inch port on the side of the tank.
5. Connect the suction hose to the barb fitting on the pump port and to the barb fitting on the tank. Secure with hose clamps.

NOTICE! If needed, cut the suction hose to length, leaving enough slack to allow the 3-point hitch to move up and down.

6. Connect 1 end of the 48 inch hose to the center port on the tank. Connect the other end to the elbow fitting on the relief valve.
7. Install the 1/2 inch - 3/4 inch nipple fitting on the tank.
8. Install the hydraulic filter assembly on the 1/2 inch - 3/4 inch nipple fitting.

NOTICE! Make sure the arrow points toward the tank.

9. Connect the 156 inch, 1-wire hose to the filter assembly.
10. Connect the 156 inch, 2-wire hose to the relief valve.
11. Route both 156 inch hoses to the front of the tractor.
12. Install couplings on the 156 inch hoses.
13. Connect hoses included with the swing assembly (120 inch or 98 inch) to the hydraulic motor.

Leveling

Level your sweeper before each use for efficient sweeping and even brush wear.

MRH/CTH

1. Drive the unit to a level, paved area.
2. Move stands to highest position.

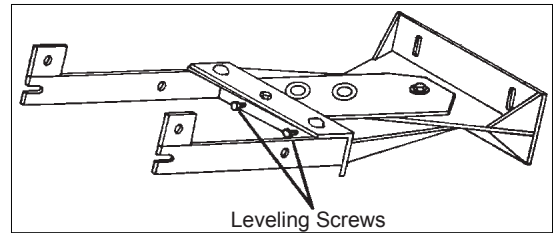


figure 1

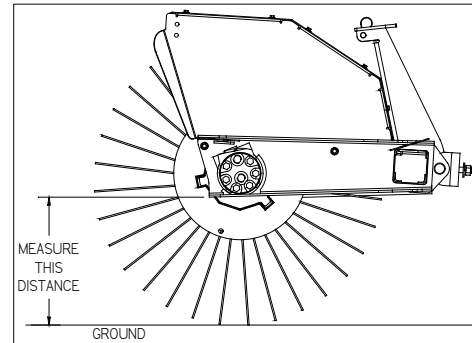


figure 2

3. Lower the brush into the sweeping position with the weight of the brush head on the spring-chain assembly and the bristles just touching the ground.
4. Level the mounting/swing assembly using a level.
 - If the front of the assembly is high, turn the leveling screws clockwise to lower it.
 - If the front of the assembly is low, turn the leveling screws counterclockwise to raise it.

See figure 1 for leveling screw locations.

5. With the brush head assembly straight ahead, measure from each end of the brush frame tubing to the ground (figure 2).
6. If the measurements are not equal, loosen hardware that attaches the brush head assembly to the swing assembly and slide the low side of the brush head assembly up in the slots on the swing assembly.
7. Repeat steps 5 and 6 until measurements are equal. Tighten the hardware.

OPERATION

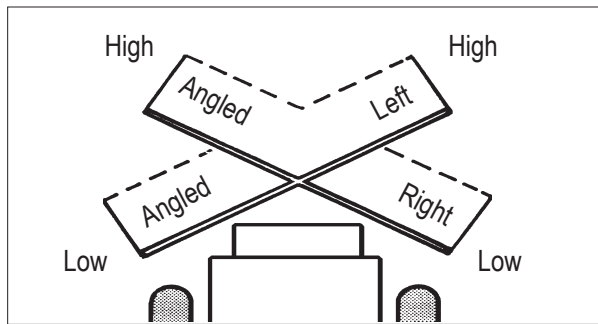


figure 3

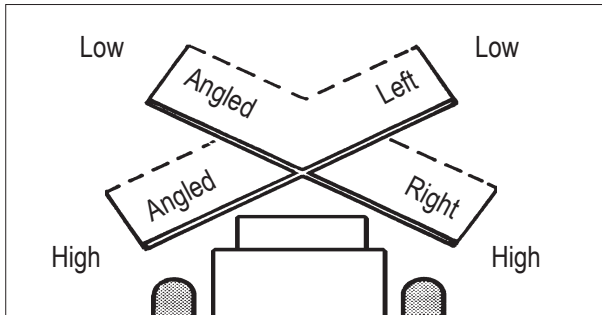


figure 4

8. Swing the brush head assembly to the right. Measure from each end of the brush frame tubing to the ground. Then, swing the brush head assembly to the left. Measure from each end of the brush frame tubing to the ground.
 - If all 4 measurements are the same, the brush head assembly is level.
 - If the measurements are not equal, adjust the mounting assembly upright. For measurements that resemble figure 3, turn the leveling bolts counterclockwise. For measurements that resemble figure 4, turn the leveling bolts clockwise.
9. Repeat step 8 until the brush head assembly is level.

Brush Pattern Adjustment

A properly leveled brush offers the best sweeper performance. If your unit has optional casters, see Option - Casters. To check the brush pattern for all other units:

1. Move the sweeper to a dusty, flat surface.
2. Set the prime mover's parking brake. Leave the engine running.

3. Start the sweeper at a slow speed; then, lower it completely to the surface 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 wide, running the length of the brush. (Compare the swept area with figure 5.)
5. If necessary, adjust the brush pattern with the spring-chain assembly (figure 6).
 - a. Raise the sweeper.
 - b. Tighten the transport chain (figure 6) or lift cable and lower the sweeper so it supports weight.

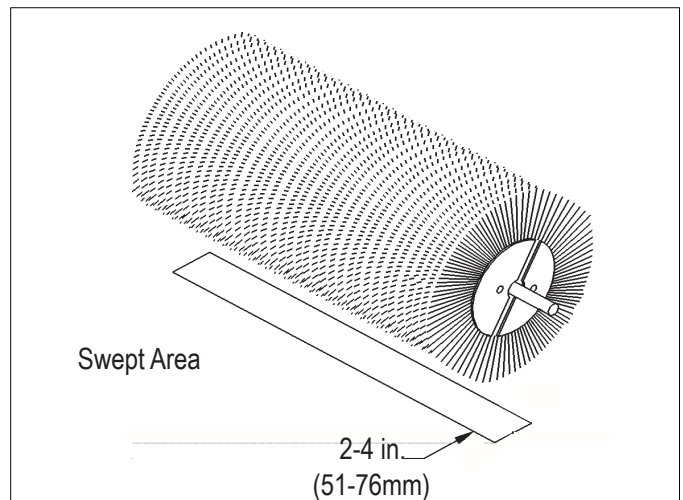


figure 5

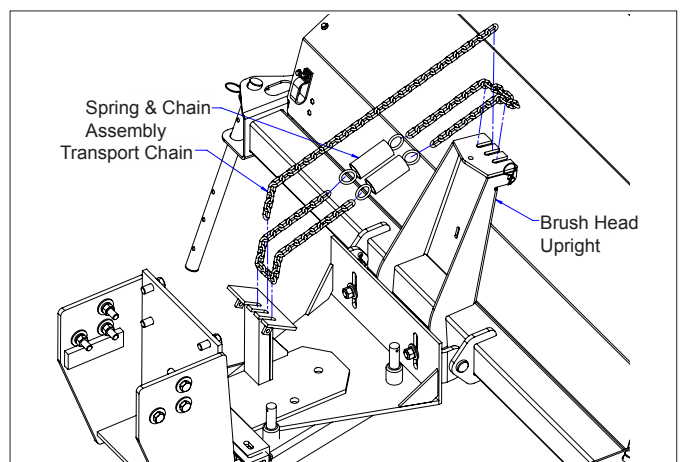


figure 6

OPERATION

- c. Move the spring-chain forward in the swing assembly chain holder to lower the brush head assembly or backward in the holder to raise it.

Transport Chain

NOTICE! *Units with a lift cable do not have a transport chain.*

The transport chain supports the weight of the brush head assembly during transport between work sites and during adjustment of the spring-chain assemblies. It should remain slack during sweeping.

To adjust the transport chain:

1. Raise the sweeper.
2. Tighten the transport chain.
3. Lower the sweeper so the transport chain supports the weight of the sweeper.

Operating Tips

CAUTION! **Avoid sweeper damage. Do not ram into piles.** Use a dozer blade for this type of job.



Snow

High brush speeds and slow ground 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 more than one pass to get down to a clean surface.

To keep snow from blowing back onto a swept area, always sweep so the wind is at your back or so it follows the brush angle.

Dirt & Gravel

To keep dust at a minimum, plan your sweeping for days when it is overcast and humid or after it has rained. Also, sweep so the wind blows at your back or in the direction the brush head is angled.

Low brush speeds and moderate ground speeds work best for cleaning debris from hard surfaces. Brush speeds that are too fast tend to raise dust because of the aggressive sweeper action.

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

Heavy Debris

For 2 inches (51mm) or more of heavy debris, a maximum brush speed in the low range and ground speeds of less than 5 mph (8 kph) are recommended.

Thatch

Low brush speeds and low prime mover speeds do the best thatching job.

To prevent the brush from pulling itself into the ground, adjust the spring-chain assembly so the bristle tips barely touch the grass.

If the brush pulls into the grass and stalls while sweeping, use the lift to raise the brush. **Do not** increase throttle to override a stall out.

Use a combination of brush speeds and ground speeds that rolls up a neat windrow.

To keep thatch from blowing back into a swept area, sweep with the wind at your back or in the direction the brush is angled.

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.



OPERATION

WARNING!



Never raise the sweeper more than a few feet off the ground. The sweeper can tip back or the prime mover can tip over causing death or serious injury.

- Before leaving the operator's area for any reason, lower the sweeper to the ground. Stop the prime mover engine, set the parking brake and remove the key from the ignition.
- Minimize flying debris - use the slowest rotating speed that will do the job. See Operating Tips
- Keep hands, feet, hair and 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 and prime mover.
- Be aware of the extra weight and width a sweeper adds. Reduce travel speed accordingly. See Operating the Sweeper.
- 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 operating position. The safety restraint 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 needed repairs during operation of the sweeper. Report any needed repairs.

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.

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. Replace 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.

MAINTENANCE RECORD

Maintenance Record

Use this log to record maintenance performed on your unit.

Date	Maintenance Performed	Performed By	Comments

MAINTENANCE SCHEDULE

Schedule

For best sweeper performance, follow this maintenance schedule.

Part	Schedule				
	Daily	Every 50 hr.	Every 100 hr	Every 500 hr	See Prime Mover Manual
Brush Head Assembly: Check brush pattern (See Adjustments: Brush Pattern)	✓				
Hardware: Check and tighten if necessary	✓				
Hydraulic Filter Element: Change			✓		
Hydraulic Fittings & Hoses: Inspect for leaks or damage; repair or replace when necessary	✓				
Hydraulic Oil: Check level; add as needed	✓				
Change; Use ISO VG-46 oil				✓	
Prime Mover Air Cleaner: Clean or replace					✓
Swing Plate: Grease with EP2 or equivalent		✓			

Hydraulic System

CAUTION! To prevent hydraulic system contamination, change hydraulic oil and filters at regularly scheduled intervals.



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

MAINTENANCE

Replacing Brush Sections

1. Remove motor mount lynch pins. Retain pins for reinstallation. Remove motor mount.
2. Remove motor assembly from core. Do not tangle hoses.
3. Remove bearing mount lynch pins. Retain pins for reinstallation.
4. Remove core from brush head assembly.
5. Remove retaining plate from core assembly.
6. Remove old sections.
7. Install new sections by doing the following:
 - a. Number the drive locations on the core as 1, 2, and 3 (figure 1)
 - b. Slide the first section onto the core with the drive pins on either side of the tube 1 (figure 2). Make sure that the drive pins face up.
 - c. Place the second section on the core with the drive pins on either side of tube 2. Be sure the drive pins face down.
 - d. Put the third section on with the drive pins around tube 3. Be sure the drive pins face up.
 - e. Slide sections on until the core is full, making sure to alternate the tubes used and the direction of the drive pins.
8. Re-attach the section retaining plate.
9. Place the core back into the brush frame.
10. Slide motor assembly back into the core taking care not to tangle hoses.
11. Re-attach motor mount with pins removed in first step.
12. Re-attach the bearing plate removed

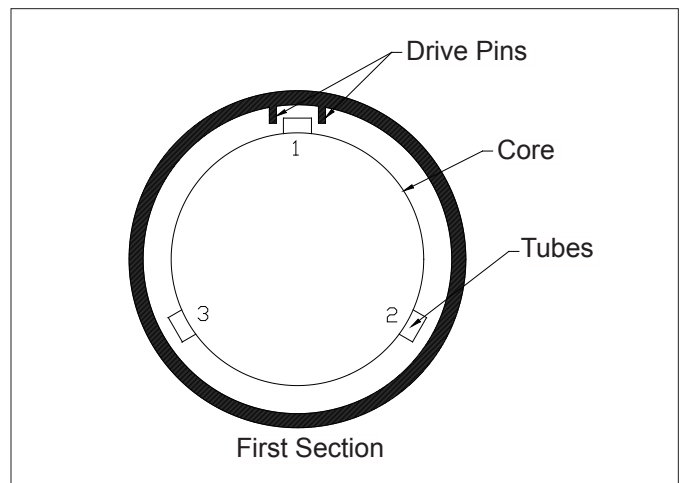


figure 1

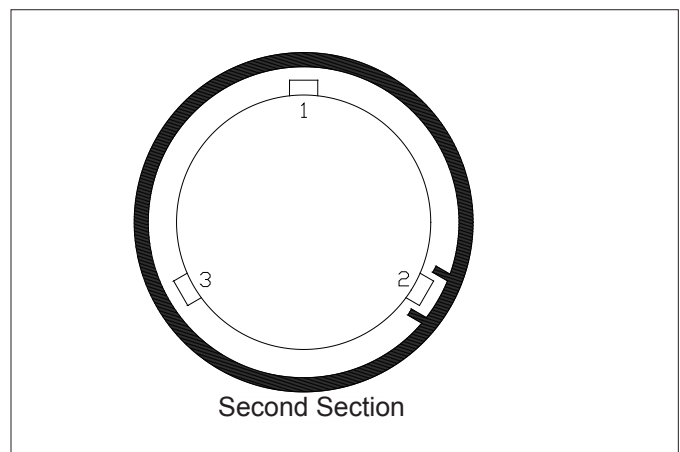
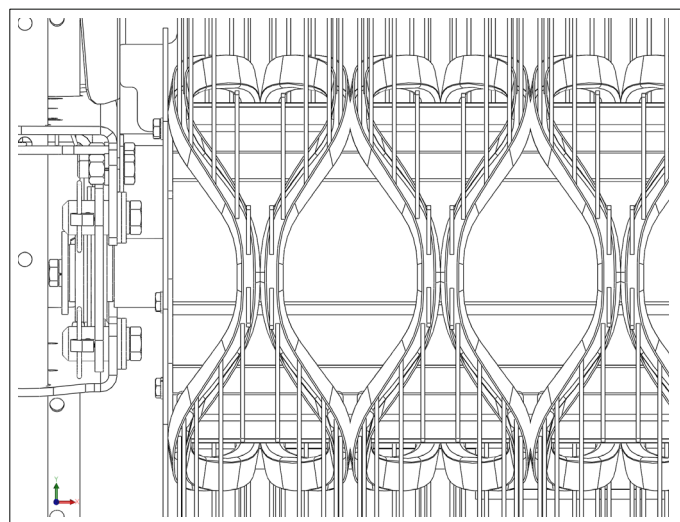


figure 2



TROUBLESHOOTING

Brush Head

Problem	Possible Causes	Possible Solution
Brush rotates wrong direction	Hoses installed incorrectly	Switch hoses at brush head tubes
Brush slows or stops when sweeping	Brush pattern too wide	Adjust brush pattern to 2-4 inches (51-102mm) wide: see Adjusting Brush Pattern
	Travel speed too fast	Travel no more than 5 mph (8 kph) while sweeping
	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)
	Pump has failed	Contact dealer to repair or replace
	Filter plugging	Change or clean filter
	Hydraulic motor is failing	Test hydraulic system: see Troubleshooting: Hydraulic Problems
Brush head assembly "bounces" during sweeping	Spring-chain assembly too loose	Adjust spring-chain assembly: see Adjusting Spring-Chain Assembly
	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)
	Core is bent	Replace core
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 pattern to 2-4 inches (51-102mm) wide: see Setting Brush Pattern

Spring-Chain Assemblies

Problem	Possible Causes	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)

TROUBLESHOOTING

Hydraulic System

Problem	Possible Causes	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
	Host pump flow rate exceeds maximum gpm rating for broom. Back pressure exceeds BTU removal by heat exchanger	Contact host manufacturer for proper flow control method
Hydraulic quick couplers leak	Quick coupler poppet is unseated	Reseat poppet; replace quick coupler if poppet is beyond repair
Hydraulic motor seals leak	Flow rate exceeds maximum gpm rating for broom. Hydraulic pressure exceeds maximum psi rating for broom	Contact Sweepster
	Motor is failing	High number of hours on motor; Contact dealer to rebuild or replace
Hydraulic oil flows from breather cap on hydraulic tank	Hydraulic tank too full	Drain hydraulic tank until level is 2 inches (51mm) from top

Hydraulic Swing with Electric Valve

Problem	Possible Causes	Possible Solution
Brush head swings too quickly	Set screw in plug on manifold loose	Loosen jam nut and then turn set screw in until it stops; turn set screw out 1 1/2 turns; tighten jam nut
Brush head swings too slowly or won't swing	Set screw in plug on manifold too tight	Loosen jam nut and then turn set screw in until it stops; turn set screw out 1 1/2 turns; tighten jam nut
Brush head swings only one direction	Set screw in plug 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
	Dirt or debris in spools	Contact Sweepster Technical Service

TROUBLESHOOTING

Hydraulic Problems

If hydraulic problems - which include the brush failing to rotate, the brush slowing or stopping when making contact with the sweeping surface or swing/lift cylinders not functioning - occur, complete all the following checks on the hydraulic system.

WARNING! Avoid serious injury.



Test components must have a minimum rating of 3000 psi (206.0 bars). Otherwise, components could rupture, causing serious injury. Open the gate valve before beginning any tests.

Do not operate the hydraulic system more than 5 seconds with pressure over 2000 psi (138.0 bars). Higher pressures can rupture hydraulic components and cause serious injury.

Testing Relief Setting

1. Add a flow meter, pressure gauge and gate valve on the pressure side of the sweeper hydraulic system.
2. Raise the sweeper. Then, engage the brush.
3. Shut the gate valve and note the reading on the pressure gauge.

CAUTION! Avoid pump damage. Do not run test for more than 5 seconds.



4. Refer to the prime mover manual for proper relief setting. If the pressure gauge reading does not match manufacturer's recommendations, take the prime mover to your dealer for repair.
5. Go to Testing Pump or Prime Mover Hydraulics.

Testing Pump or Prime Mover Hydraulics

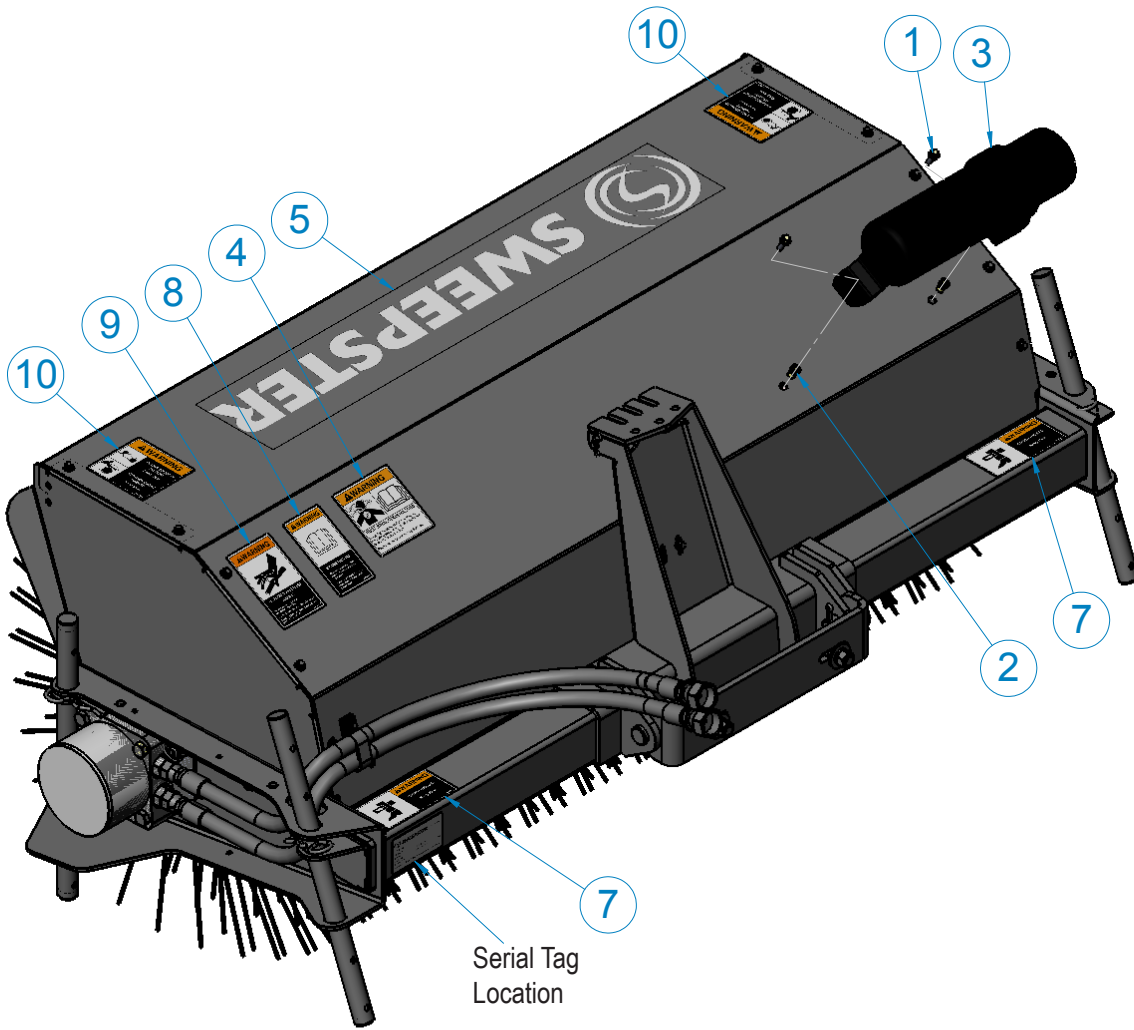
Complete the following steps to test the pump (units with a power pack) or prime mover hydraulics.

1. Place a pressure gauge, flow gauge and gate valve between the pump and the pressure line on the brush hood (figure 1).
2. Make sure the prime mover is in Neutral with the parking brake on. Start the prime mover at idle and engage the sweeper.
3. Raise engine speed to normal operating rpm.
4. Note the reading on the flow gauge. Then, shut the gate valve. Note the reading on the pressure gauge.
 - If the flow gauge reads at least 10 gpm (.63 lps) and the pressure gauge reached 2000 psi (138.0 bars), the pump is functioning properly.
 - If the flow and/or pressure did not reach the proper reading, the pump has failed. Take it to your dealer to have it rebuilt or replaced.
5. Remove the pressure gauge, flow gauge and gate valve and reconnect hoses.
6. Go to Testing Brush Head Motors.

Testing Brush Head Motors

1. Place a pressure gauge and flow gauge between the sweeper or prime mover hydraulic tank and the return line on the brush hood (figure 2).
2. Make sure the prime mover is in Neutral with the parking brake on. Start the tractor at idle and engage the sweeper. Then, adjust the brush to the maximum sweeping pattern.
3. When the brush stalls, note the reading on the flow gauge. If it is 3 gpm (.19 lps) or more, the motor(s) need(s) to be replaced.

BRUSH HEAD LABELS

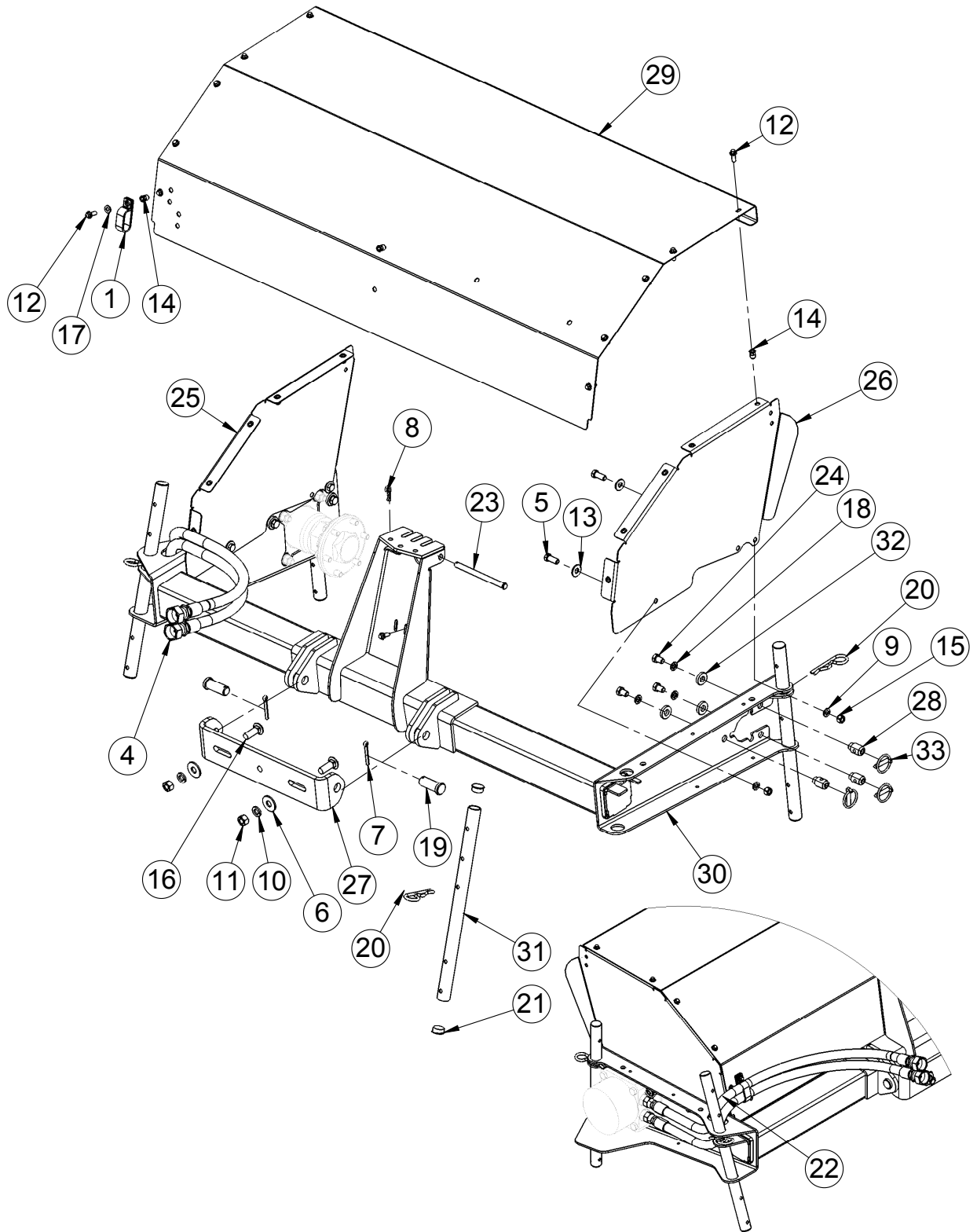


Item	Part	Qty	Description
1.	07-3522	2	Screw, HFH, CL10.9, M6-1 x 20
2.	07-3617	2	Nut, Insert, M6 x 1
3.	07-6869	1	Manual Holder
4.	41043	1	Decal, Warning, Hazardous Dust
5.	50-0252	1	Label, Sweepster, Large, White
7.	50-0721	2	Label Warning, Crush Hazard
8.	50-0722	1	Label, Warning, Misuse Hazard
9.	50-0724	1	Label, Warning, High Pressure Fluid Hazard
10.	50-0726	2	Label, Warning, Flying Objects & Entanglement

BRUSH HEAD S26

Item	Part	Qty	Description
1.	03-2490	1	Clamp, Hose, Double, Rubber Coat
4.	03-5620	2	Hose, .5 x 72, TC, 8FF-12FF (4-5 ft)
	03-5111	2	Hose, 5 x 84, TC, 8FF-12FF (6 ft)
5.	07-0018	4	Screw, HHC, Gr8, 3/8-16 x 1
6.	07-0156	2	Washer, Flat, Gr8, 1/2
7.	07-0206	2	Pin, Cotter, Gr2, 3/16 x 2
8.	07-0209	1	Clip, Hairpin, 16ga x 1 3/8
9.	07-1718	4	Washer, Lock, Split, Medium, 3/8
10.	07-1762	2	Washer, Lock, Split, Medium, 1/2
11.	07-1764	2	Nut, Hex, Gr8, 1/2-13
12.	07-2952	12	Screw, HFH, CL10.9, M6-1 x 20
13.	07-3279	4	Washer, Flat, Gr8, 3/8
14.	07-3617	12	Nut, Insert, Hex, M6 x 1
15.	07-3654	4	Nut, Gr8, 3/8-16
16.	07-3708	2	Bolt, Carriage, Gr5, 1/2-13 x 1 1/2
17.	07-3736	1	Washer, Flat, CL8.8, M8
18.	07-3747	6	Washer, Lock, Split, Medium, M10
19.	07-4046	2	Pin, Clevis, 3/4 x 2
20.	07-4522	4	Clip, Hairpin, .162 x 3.43
21.	07-4523	8	Cap, Tube, Vinyl, 1 x .51, Black
22.	07-4539	1.5ft	Sleeve, Hose, 3/4, Partek
23.	07-6488	1	Pin, Clevis, 3/8 x 5 1/2
24.	07-6769	6	Screw, HHC, CL10.9, M10-1.5 x 16mm
25.	13-13457	1	Sheet, Side, Hood, Left
26.	13-13458	1	Sheet, Side, Hood, Right
27.	13-13525	1	Plate, Mounting
28.	13-14083	6	Stud, Mounting, Motor
29.	13-16178-4	1	Sheet, Hood (4 ft)
	13-16178-5	1	Sheet, Hood (5 ft)
	13-16178-6	1	Sheet, Hood (6 ft)
30.	13-16638-4	1	Weld, Brush Head Frame (4 ft)
	13-16638-5	1	Weld, Brush Head Frame (5 ft)
	13-16638-6	1	Weld, Brush Head Frame (6 ft)
31.	13-9818	4	Tube, Round, Stand
32.	P852608	6	Washer, Hard, 1/2
33.	RHW8068	6	Pin, Lynch, .25-1.56

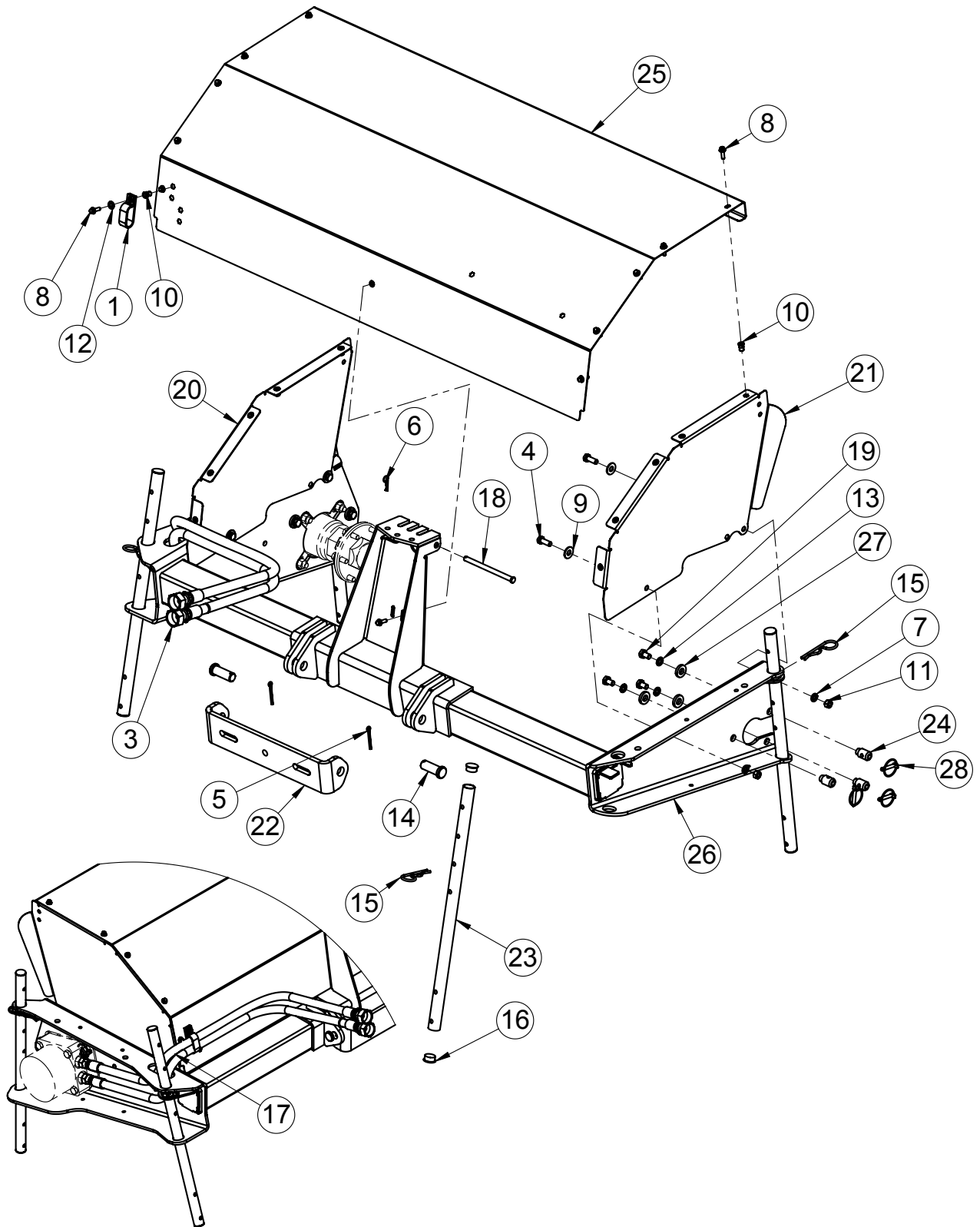
BRUSH HEAD S26



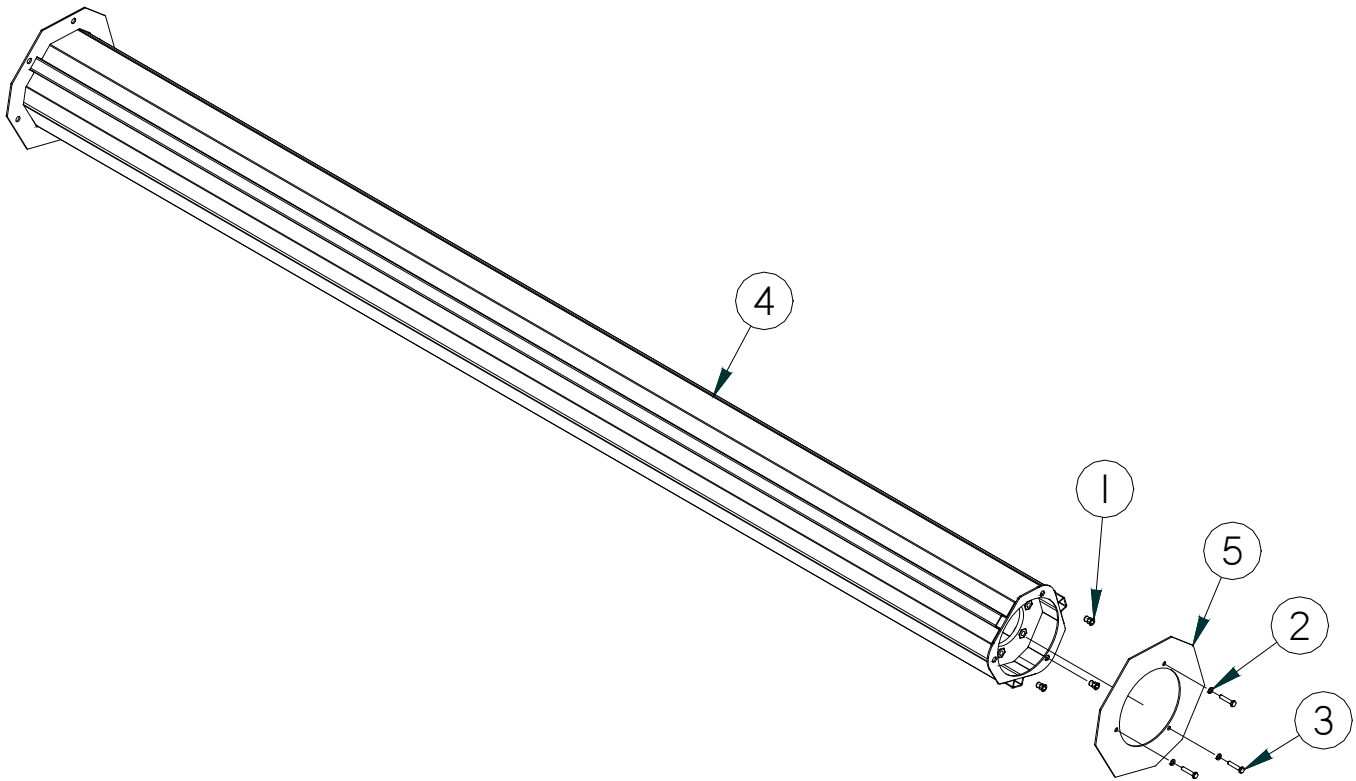
BRUSH HEAD S30

Item	Part	Qty	Description
1.	03-2490	1	Clamp, Hose, Double, Rubber Coat
3.	03-5620	2	Hose, .5 x 72, TC, 8FF-12FF (4-5 ft)
	03-5111	2	Hose, 5 x 84, TC, 8FF-12FF (6-7 ft)
4.	07-0018	4	Screw, HHC, Gr8, 3/8-16 x 1
5.	07-0206	2	Pin, Cotter, Gr2, 3/16 x 2
6.	07-0209	1	Clip, Hairpin, 16ga x 1 3/8
7.	07-1718	4	Washer, Lock, Split, Medium, 3/8
8.	07-2952	12	Screw, HFH, CL10.9, M6-1 x 20
9.	07-3279	4	Washer, Flat, Gr8, 3/8
10.	07-3617	12	Nut, Insert, Hex, M6 x 1
11.	07-3654	4	Nut, Gr8, 3/8-16
12.	07-3736	1	Washer, Flat, CL8.8, M8
13.	07-3747	6	Washer, Lock, Split, Medium, M10
14.	07-4046	2	Pin, Clevis, 3/4 x 2
15.	07-4522	4	Clip, Hairpin, .162 x 3.43
16.	07-4523	8	Cap, Tube, Vinyl, 1 x .51, Black
17.	07-4539	1.5ft	Sleeve, Hose, 3/4, Partek
18.	07-6488	1	Pin, Clevis, 3/8 x 5 1/2
19.	07-6769	6	Screw, HHC, CL10.9, M10-1.5 x 16mm
20.	13-13457	1	Sheet, Side, Hood, Left
21.	13-13458	1	Sheet, Side, Hood, Right
22.	13-13525	1	Plate, Mounting
23.	13-13655	4	Tube, Round, Stand
24.	13-14083	6	Stud, Mounting, Motor
25.	13-16178-4	1	Sheet, Hood (4 ft)
	13-16178-5	1	Sheet, Hood (5 ft)
	13-16178-6	1	Sheet, Hood (6 ft)
	13-16178-7	1	Sheet, Hood (7 ft)
26.	13-17045-4	1	Weld, Brush Head Frame (4 ft)
	13-17045-5	1	Weld, Brush Head Frame (5 ft)
	13-17045-6	1	Weld, Brush Head Frame (6 ft)
	13-17045-7	1	Weld, Brush Head Frame (7 ft)
27.	P852608	6	Washer, Hard, 1/2
28.	RHW8068	6	Pin, Lynch, .25-1.56

BRUSH HEAD S30

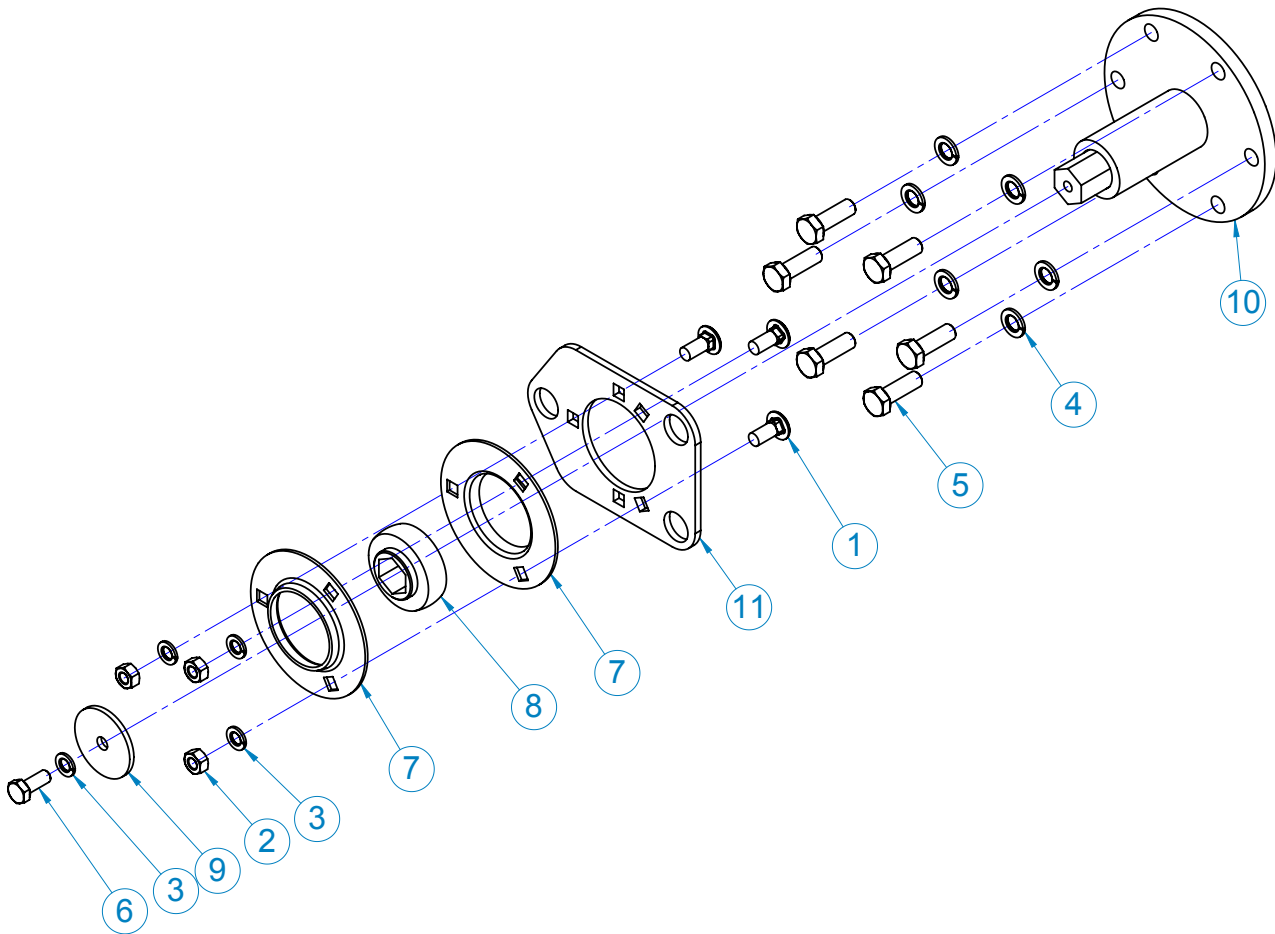


CORE



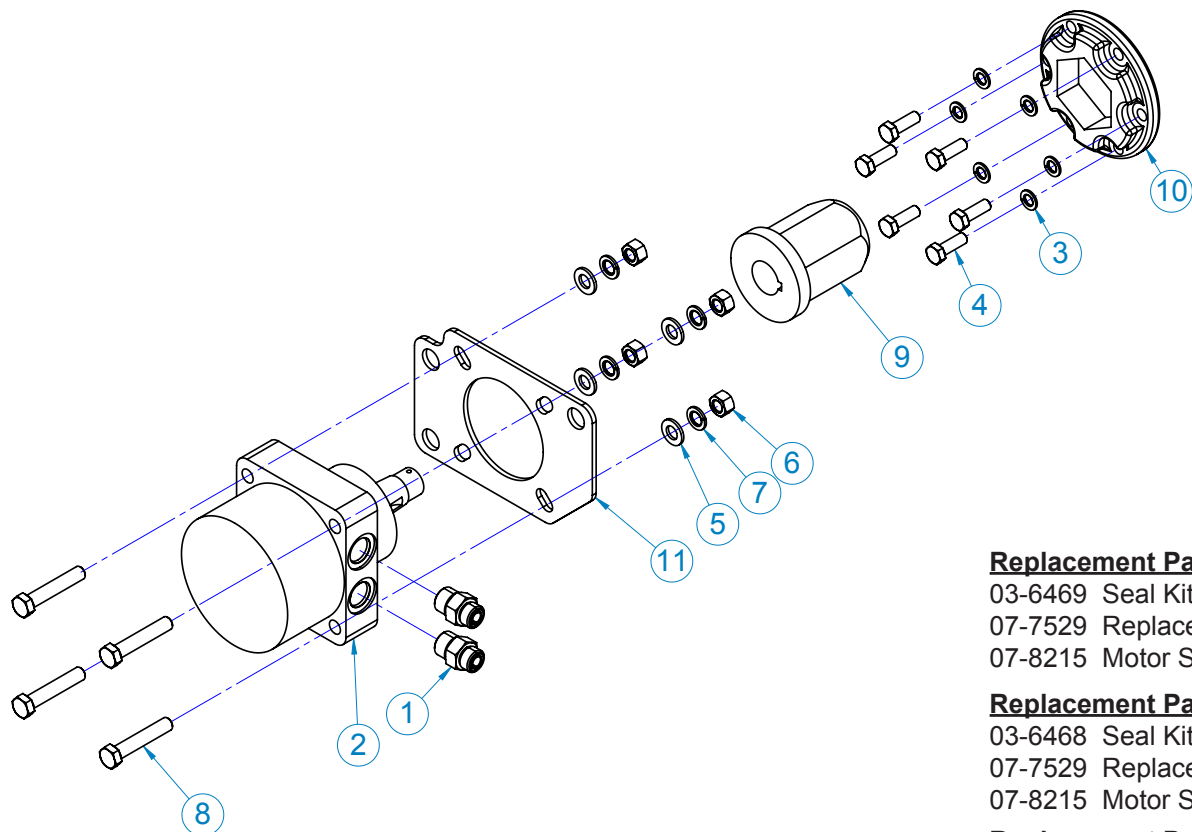
Item	Part	Qty	Description
1.	07-3617	3	Nut, Insert, Hex, M6 x 1
2.	07-3730	3	Washer, Lock, Split, Medium, M6
3.	07-3731	3	Screw, HHC, CL10.9, M6-1 x 30mm
4.	13-15657-4	1	Weld, Core, 8, 4 ft
	13-15657-5	1	Weld, Core, 8, 5 ft
	13-15657-6	1	Weld, Core, 8, 6 ft
	13-15657-7	1	Weld, Core, 8, 7 ft
5.	13-15662	1	Plate, Section Retainer, 8

BEARING



Item	Part	Qty	Description
1.	07-2950	3	Bolt, Carriage, CL8.8, M8-1.25 x 20mm
2.	07-3737	3	Nut, Hex, CL10, M8-1.25
3.	07-3738	4	Washer, Lock, Split, Medium, M8
4.	07-3747	6	Washer, Lock, Split, Medium, M10
5.	07-3749	6	Screw, HHC, CL10.9, M10-1.5 x 30mm
6.	07-3777	1	Screw, HHC, CL10.9, M8-1.25 x 20
7.	08-0008	2	Bearing, Flange, 3 Bolt
8.	08-0037	1	Bearing, 7/8 Hex, without Hub
9.	13-11903	1	Washer, .34 x 1.88 x 10ga
10.	13-16923	1	Weld, Hex, Shaft, Idler, Bolt-In
11.	13-17015	1	Plate, Mounting, Bearing

MOTOR ASSEMBLY



Replacement Part for 03-6445

- 03-6469 Seal Kit
- 07-7529 Replacement Key
- 07-8215 Motor Shaft Nut

Replacement Part for 03-6444

- 03-6468 Seal Kit
- 07-7529 Replacement Key
- 07-8215 Motor Shaft Nut

Replacement Part for 03-6335

- 03-6468 Seal Kit
- 07-7529 Replacement Key
- 07-8215 Motor Shaft Nut

Item Part Qty Description

1.	03-3481	2	Fitting, 10MB-8MF
2.	03-6445	1	Motor, 14.5 CID (CTH & MRH) (Serial # 1234001 & Up)
	03-5614	1	Motor, 14.2 CID (CTH & MRH) (Serial # 1233199 & Down)
	03-6444	1	Motor, 17.1 CID (CTH & MRH) (Serial # 1234001 & Up)
	03-5612	1	Motor, 18.3 CID (CTH & MRH) (Serial # 1233199 & Down)
	03-6335	1	Motor, 24.7 CID (CTH & MRH) (Serial # 1234001 & Up)
	03-5613	1	Motor, 28.3 CID (CTH & MRH) (Serial # 1233199 & Down)
3.	07-3747	6	Washer, Lock, Split, Medium, M10
4.	07-3749	6	Screw, HHC, CL10.9, M10-1.5 x 30mm
5.	07-3754	4	Washer, Flat, CL10.9, M12
6.	07-3755	4	Nut, Hex, CL10.9, M12-1.75
7.	07-3756	4	Washer, Lock, Split, Medium, M12
8.	07-6683	4	Screw, HHC, CL10.9, M12-1.75 x 65mm
9.	13-15206	1	Hub, Hex, 2 1/2 x 1 1/4 Tapered Bore x 3.75
10.	13-16225	1	Plate, Receiver, Hex, 2.5
11.	13-17016	1	Plate, Mounting, Motor

Service Parts for 03-5614

- 03-5503 Seal Kit
- 07-7286 Replacement Key

Service Parts for 03-5612

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

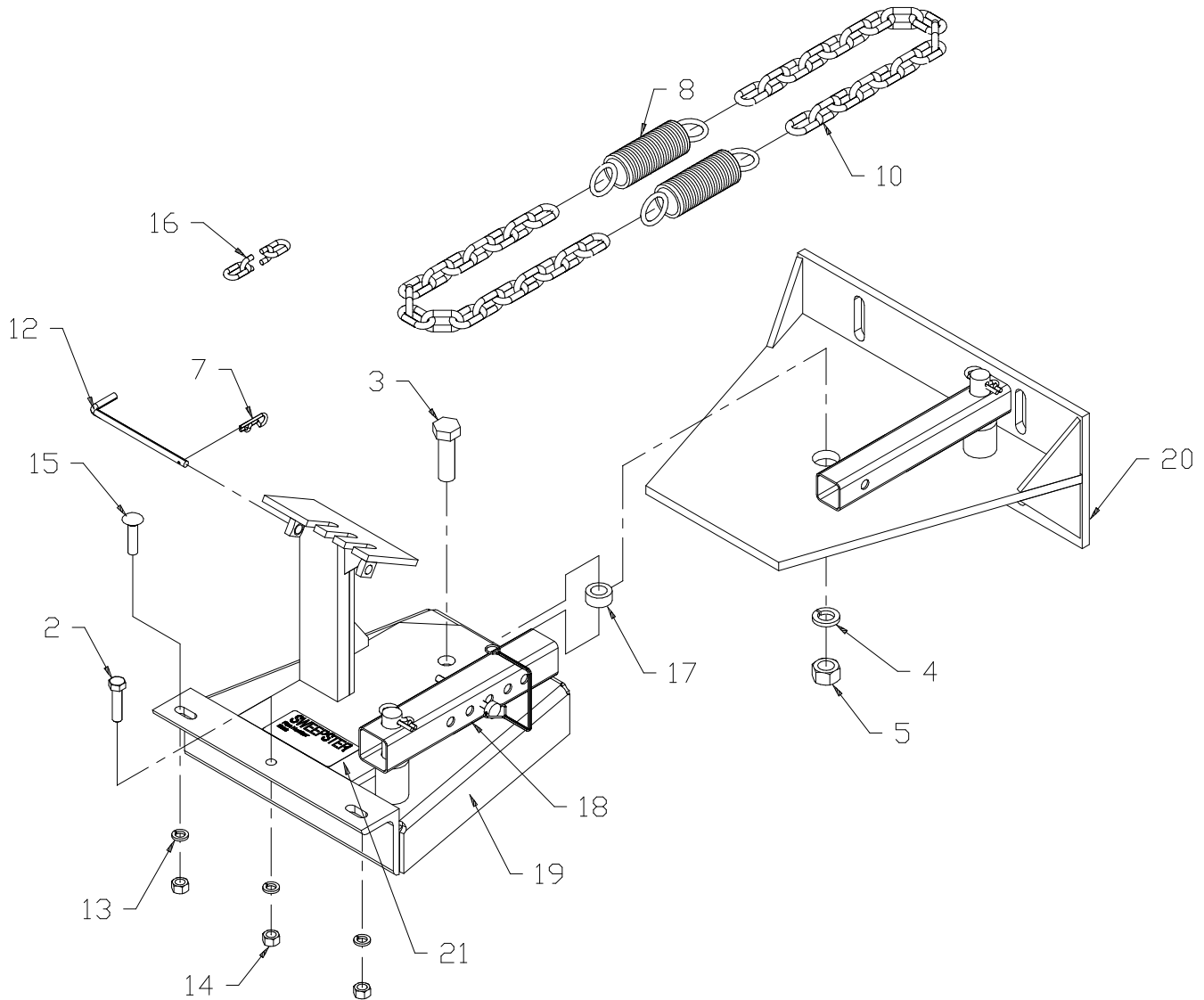
Not Shown:

- 07-4568 1 Nut, Motor, Shaft

Service Parts for 03-5613

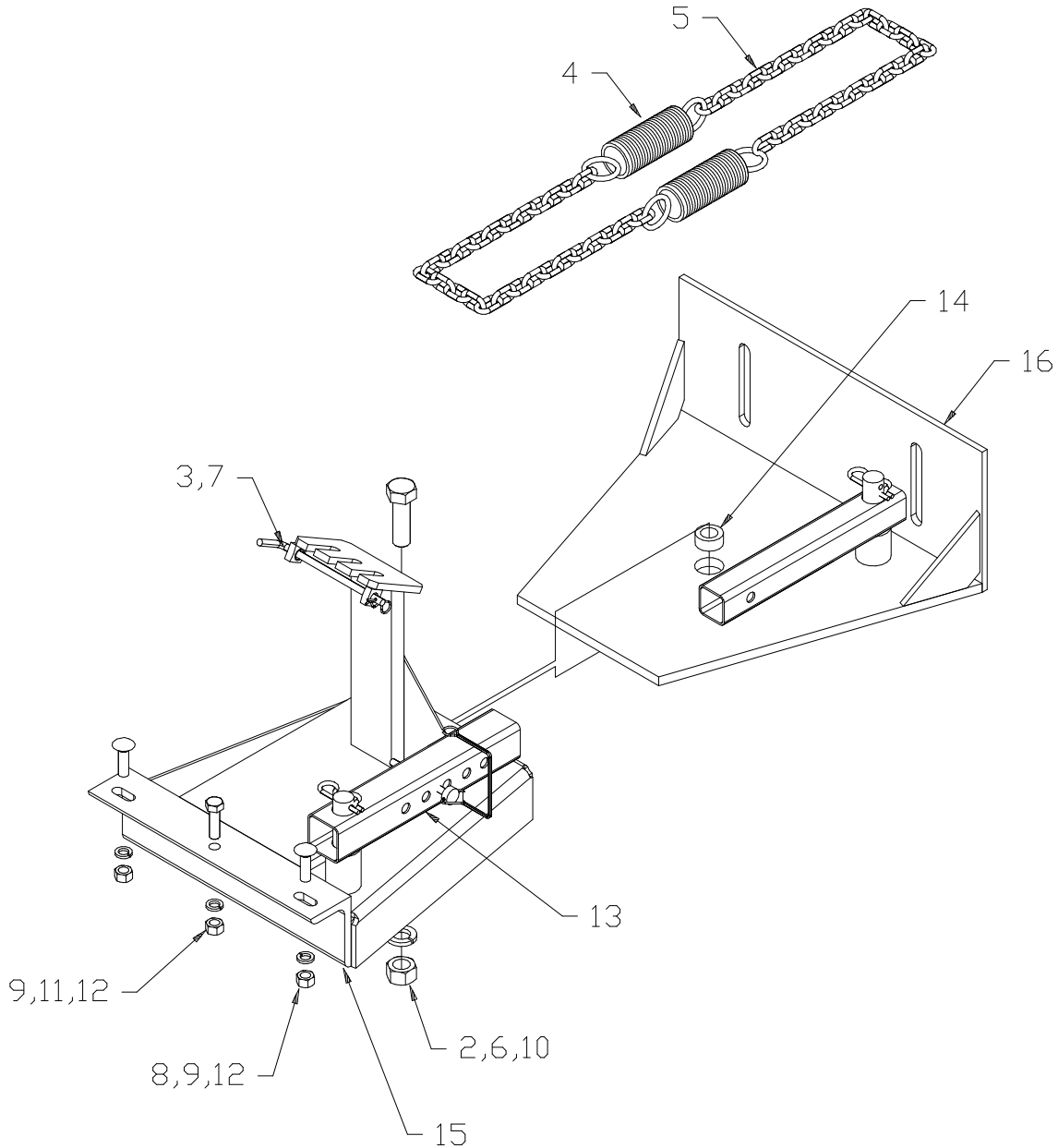
- 07-4568 Motor, Shaft, Lock, Nut
- 03-5503 Seal Kit
- 07-7286 Replacement Key

MRH & CTH SWING ASSEMBLY 11-17174



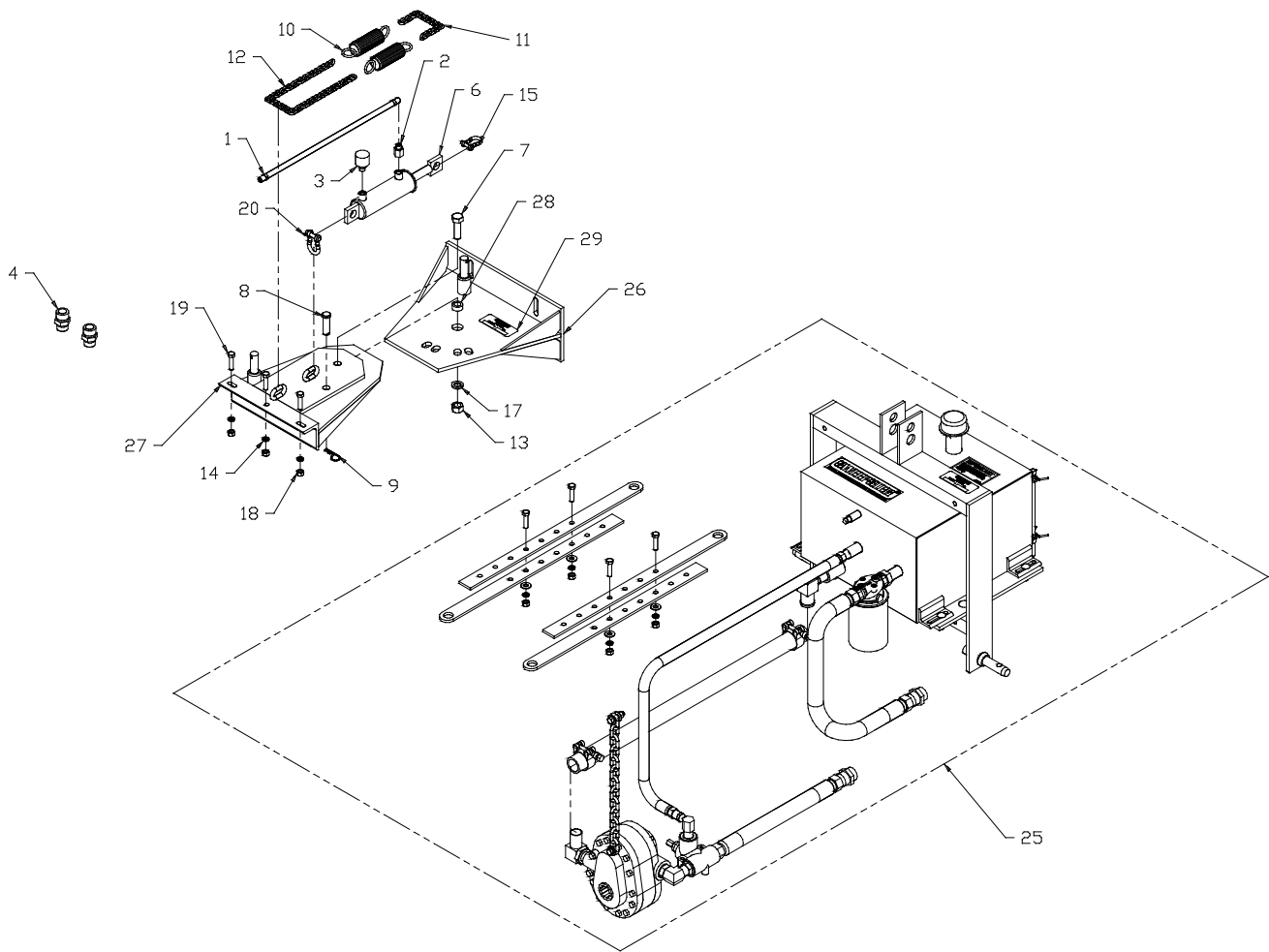
Item	Part	Qty	Description	Item	Part	Qty	Description
2.	07-0041	1	Screw, Cap, 3/8-16 x 1 1/2	13.	07-1718	3	Washer, Lock, Split, 3/8
3.	07-0066	1	Screw, Cap, 5/8-11 x 2	14.	07-3654	3	Nut, Hex, 3/8-16
4.	07-1872	1	Washer, Lock, Split, 5/8	15.	07-1730	2	Bolt, Carriage, 3/8-16 x 1 1/2
5.	07-1294	1	Nut, Hex, 5/8-11	16.	07-1759	1	Chain, 3/16, 36 Links
7.	07-0209	1	Clip, Hairpin, 16 Ga x 1 3/8	17.	11-7479	1	Bushing, 1 x 5/8 x 7/16
8.	07-0237	2	Spring, Tension, 1 13/32 x 6	18.	11-4371	1	Kit, Manual, Angle, 24
10.	07-0387	2	Chain, 3/16, 26 Links	19.	13-8695	1	Weld, Frame, Swing
12.	07-1709	1	Pin, Clevis, 1/4 x 4 1/2	20.	13-8696	1	Weld, Plate, Swing, 3/8 Top Pin
				21.	50-0635	1	Label, Plate, Part Number

MRH & CTH SWING ASSEMBLY 11-17283



Item	Part	Qty	Description	Item	Part	Qty	Description
2.	07-0066	1	Screw, Cap, 5/8-11 x 2	9.	07-1718	3	Washer, Lock, Split, 3/8
3.	07-0209	1	Clip, Hairpin, 16 Ga x 1 3/8	10.	07-1872	1	Washer, Lock, Split, 5/8
4.	07-0237	2	Spring, Tension, 1 13/32 x 6	11.	07-2116	1	Screw, Cap, 3/8-16 x 1 1/4
5.	07-0387	2	Chain, 3/16, 26 Links	12.	07-3654	3	Nut, Hex, 3/8-16
6.	07-1294	1	Nut, Hex, 5/8-11	13.	11-4371	1	Kit, Manual, Angle, 24
7.	07-1709	1	Pin, Clevis, 1/4 x 4 1/2	14.	11-7479	1	Bushing, 1 x 5/8 x 7/16
8.	07-1717	2	Bolt, Carriage, 3/8-16 x 1 1/4	15.	13-0499	1	Frame, Swing
				16.	13-4206	1	Plate, Swing, Top Pin

MRH & CTH WITH POWER PACK 11-17176

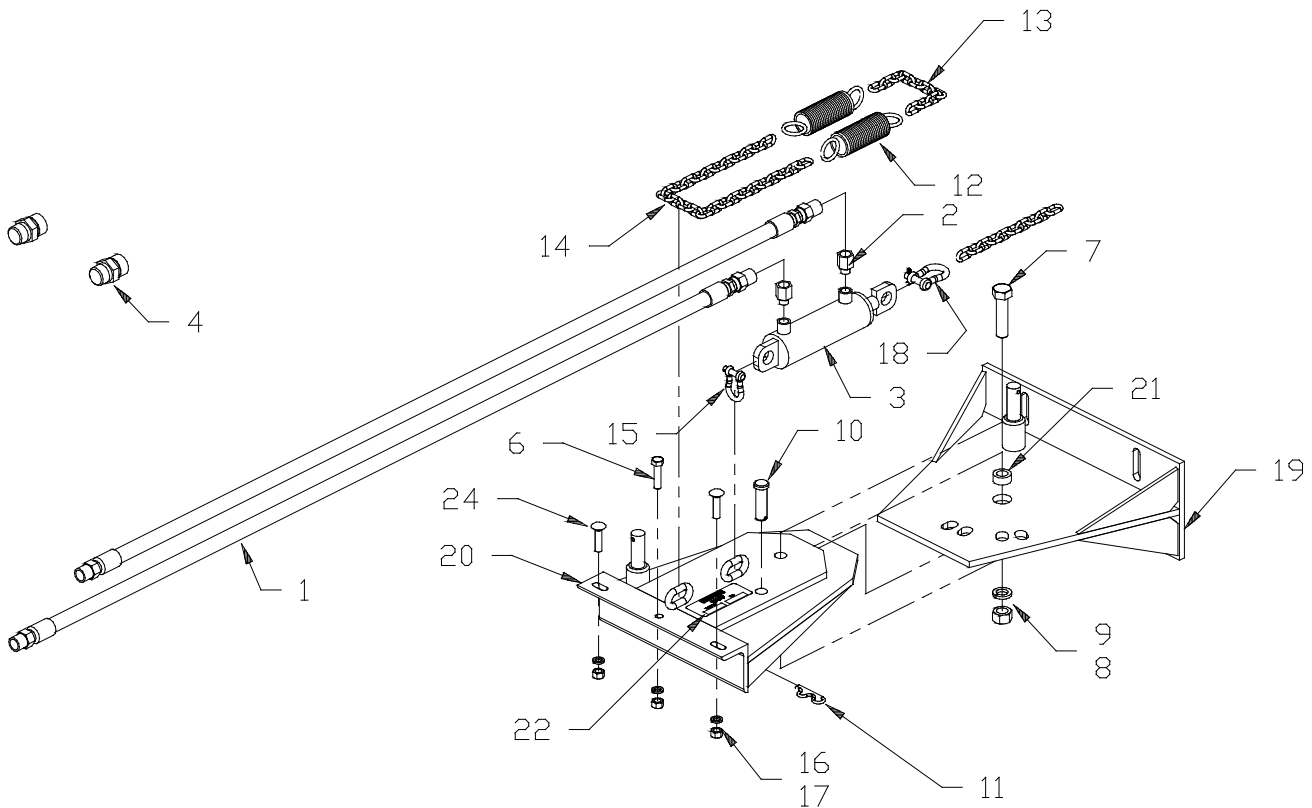


Item	Part	Qty	Description	Item	Part	Qty	Description
1.	03-0064	1	Hose, 1 1/4 x 144, 1W, 1/4MP, 1/4MPS	13.	07-1294	1	Nut, Hex, Gr8, 5/8-11
2.	03-0898	1	Fitting, Adapter, HP, 9/16MOR, 1/4FP	14.	07-1718	3	Washer, Lock, Split, Medium, 3/8
3.	03-1932	1	Fitting, Vent, 9/16MOR, with Bell Cap	15.	07-1732	1	Shackle, Chain, 1/4, with Screw Pin
4.	03-1943	2	Fitting, Adapter, HP, 3/4MFS, 3/4MP	17.	07-1872	1	Washer, Lock, Split, Medium, 5/8
6.	03-3381	1	Cylinder, 1.75 x 4 x 9 (09/23/09 & Before)	18.	07-3654	3	Nut, Hex, Gr8, 3/8-16
	03-5719	1	Cylinder, 1.75 x .75 x 4 (09/24/09 & After)	19.	07-3655	3	Screw, HHC, Gr8, 3/8-16 x 1 1/2
7.	07-0066	1	Screw, HHC, Gr8, 5/8-11 x 2	20.	07-4350	1	Shackle, Chain, 3/8 Round, Pin
8.	07-0201	1	Pin, Clevis, 5/8 x 2	25.	11-5346	1	Assembly, Power Pack, 3 Point, 12gpm
9.	07-0210	1	Clip, Hairpin, 14Ga x 1 3/4	26.	11-7467	1	Weld, Plate, Swing
10.	07-0237	2	Spring, Tension, 1 13/32 x 6	27.	11-7472	1	Weld, Frame, Swing
11.	07-0238	2	Chain, 3/16, 10 Links	28.	11-7479	1	Bushing, 1 x 5/8 x 7/16
12.	07-0387	1	Chain, 3/16, 26 Links	29.	50-0635	1	Label, Plate, Part Number

Service Part for 03-3381 Cylinder
03-3382 Seal Kit

Service Part for 03-5719 Cylinder
46072 Seal Kit
114406 Cylinder Rod

MRH & CTH WITH HYDRAULIC LIFT 11-17410



Item Part Qty Description

- 1. 03-0064 2 Hose, .25 x 144, 4MP-4MP, 3.25K
- 2. 03-0898 2 Fitting, Adapter, HP, 9/16MOR, 1/4FP
- 3. 03-3381 1 Cylinder, 1.75 x 4 x .75 (09/23/09 & Before)
- 03-5719 1 Cylinder, 1.75 x .75 x 4 (09/24/09 & After)
- 4. 03-1943 2 Fitting, Adapter, HP, 3/4MFS, 3/4MP
- 6. 07-0041 3 Screw, HHC, Gr8, 3/8-16 x 1 1/2
- 7. 07-0066 1 Screw, HHC, Gr8, 5/8-11 x 2
- 8. 07-0171 1 Washer, Lock, Split, Gr2, 5/8
- 9. 07-0185 1 Nut, Hex, Gr2, 5/8-11
- 10. 07-0201 1 Pin, Clevis, 5/8 x 2
- 11. 07-0210 1 Clip, Hairpin, 14Ga x 1 3/4

Item Part Qty Description

- 12. 07-0237 2 Spring, Tension, 1 13/32 x 6
- 13. 07-0238 2 Chain, 3/16, 10 Links
- 14. 07-0387 1 Chain, 3/16, 26 Links
- 15. 07-4350 1 Shackle, Chain, 3/8, Round Pin
- 16. 07-1718 3 Washer, Lock, Split, Gr5, 3/8
- 17. 07-3654 3 Nut, Hex, Gr8, 3/8-16
- 18. 07-1732 1 Shackle, Chain, 5/16, with Screw Pin
- 19. 11-7467 1 Weld, Plate, Swing, 1.8 Tractors
- 20. 11-7472 1 Weld, Frame, Swing, 1.8 Tractors
- 21. 11-7479 1 Bushing, 1 x 5/8 x 7/16
- 22. 50-0635 1 Label, Plate, Part Number
- 24. 07-1730 2 Bolt, Carriage, Gr5, 3/8-16

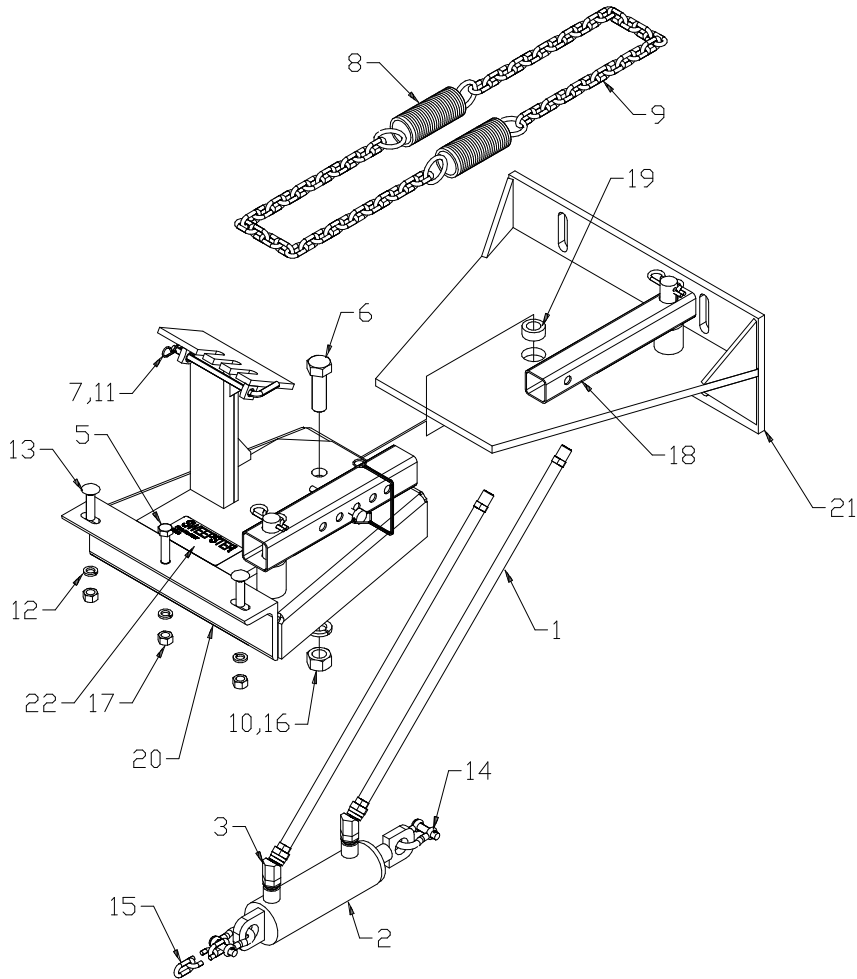
Service Part for 03-3381 Cylinder

03-3382 Seal Kit

Service Part for 03-5719 Cylinder

46072 Seal Kit
114406 Cylinder Rod

MRH & CTH WITH HYDRAULIC LIFT 11-17432



Item Part Qty Description

1.	03-0064	2	Hose, .25 x 144, 4MP-4MP, 3.25K
2.	03-3381	1	Cylinder, 1 3/4 x 4 x 9 (09/23/09 & Before)
	03-5719	1	Cylinder, 1.75 x .75 x 4 (09/24/09 & After)
3.	03-1884	2	Fitting, Elbow, HP, 45°, 9/16MOR, 1/4FPS
5.	07-3655	1	Screw, HHC, Gr8, 3/8-16 x 1 1/2
6.	07-0066	1	Screw, HHC, Gr8, 5/8-11 x 2
7.	07-0209	1	Clip, Hairpin, 16Ga x 1 3/8
8.	07-0237	2	Spring, Tension, 1 13/32 x 6
9.	07-0387	2	Chain 3/16, 26 Links

Item Part Qty Description

10.	07-1294	1	Nut, Hex, Gr8, 5/8-11
11.	07-1709	1	Pin, Clevis, 1/4 x 4 1/2
12.	07-1718	3	Washer, Lock, Split, Medium, 3/8
13.	07-1730	2	Bolt, Carriage, Gr5, 3/8-16 x 1 1/2
14.	07-1732	2	Shackle, Chain, 1/4, with Screw Pin
15.	07-1759	1	Chain, 3/16, 36 Links
16.	07-1872	1	Washer, Lock, Split, Medium, 5/8
17.	07-3654	3	Nut, Hex, Gr8, 3/8-16
18.	11-4371	1	Kit, Manual, Angle
19.	11-7479	1	Bushing, 1 x 5/8 x 7/16
20.	13-8695	1	Weld, Frame, Swing, for 3/8 Top Pin
21.	13-8696	1	Weld, Plate, Swing, 3/8 Top Pin
22.	50-0635	1	Label, Plate, Part Number

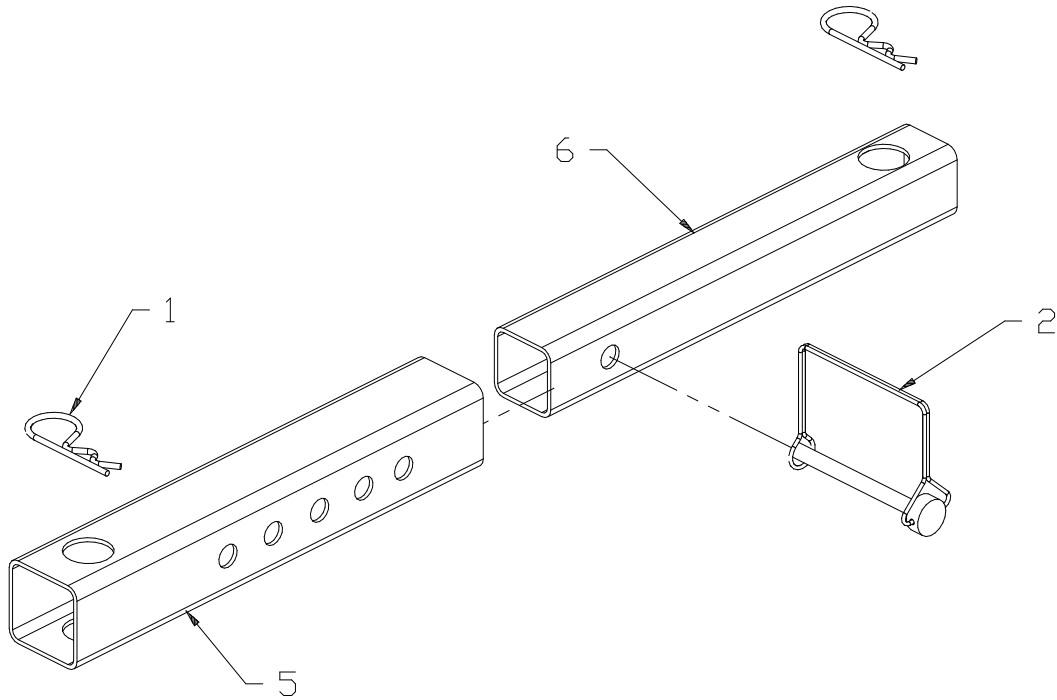
Service Part for 03-3381 Cylinder

03-3382 Seal Kit

Service Part for 03-5719 Cylinder

46072 Seal Kit
114406 Cylinder Rod

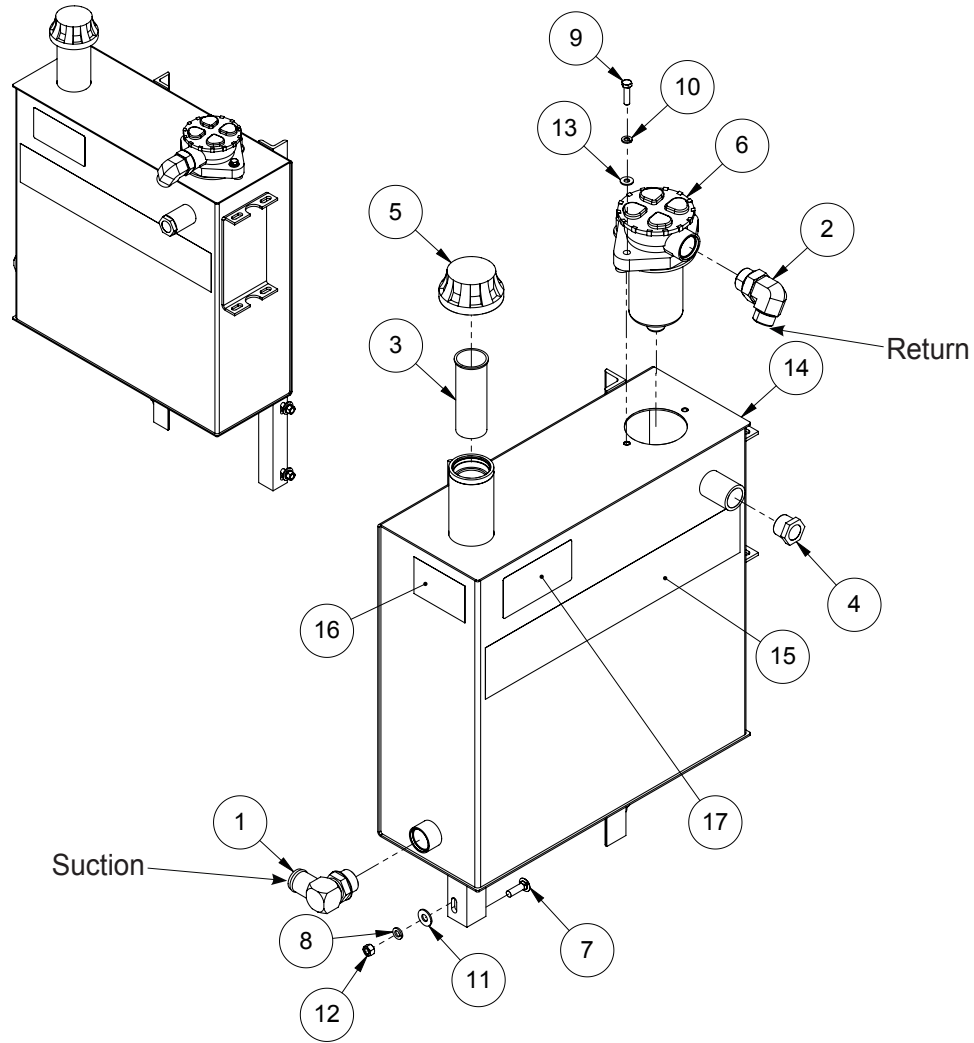
MANUAL ANGLE KIT 11-5819



Item	Part	Qty	Description
1.	07-0210	2	Clip, Hairpin, 14Ga x 1 3/4
2.	07-2105	1	Pin, Lock, 3/8 Square Bail
5.	13-4193	1	Tube, Link, Outer
6.	13-4194	1	Tube, Link, Inner

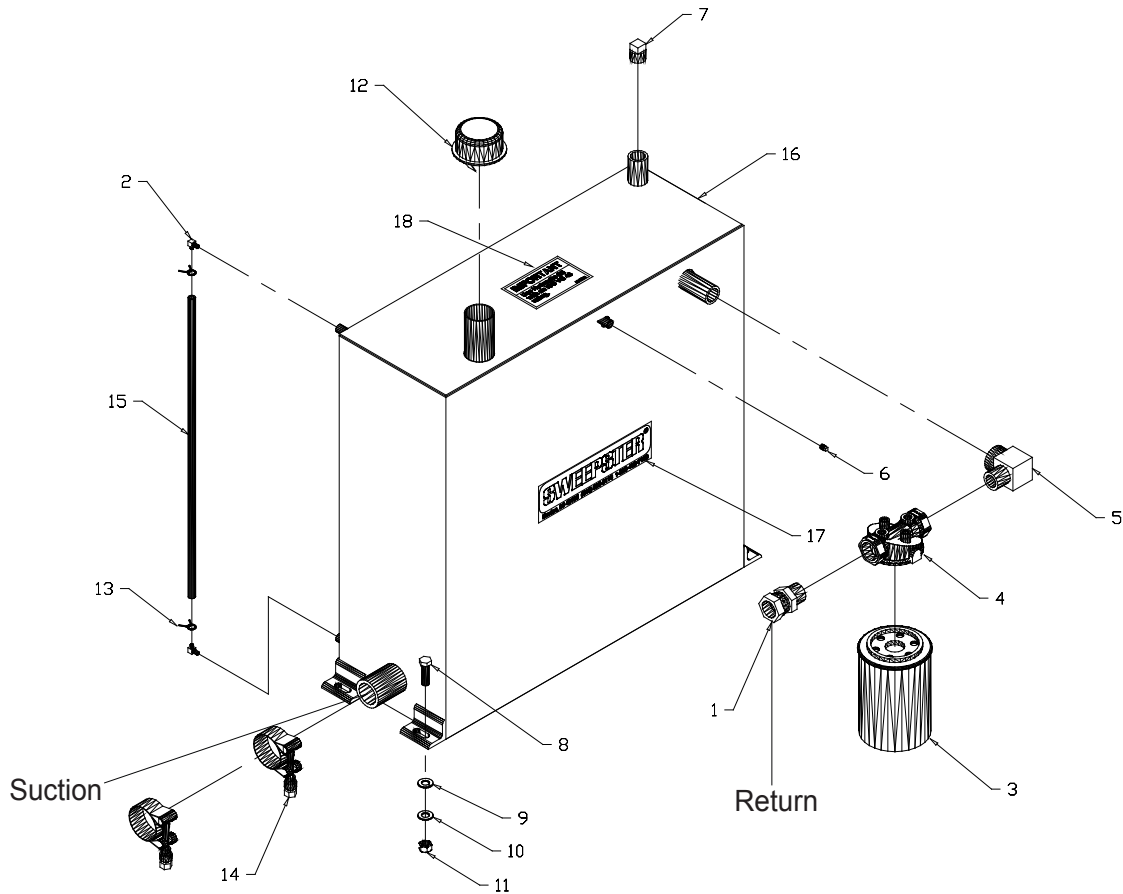
CTH TANK ASSEMBLIES

11-5318, 11-5320



Item	Parts	Qty	Description
1.	03-0710	1	Fitting, Barb, HP, 90°, 1 1/4, 1 5/16MOR
2.	03-1956	1	Fitting, Elbow, HP, 90°, 1 5/16MOR, 3/4MFS
3.	03-4642	1	Strainer, Filler, Spout, for 03-4939
4.	03-4709	1	Gauge, Sight, Window, 1 Inch NPT
5.	03-5055	1	Cap, Filler, Hydraulic, Breather
6.	03-5056	1	Filter, Hydraulic, In Tank, 39gpm
7.	07-1717	4	Bolt, Carriage, Gr5, 3/8-16 x 1 1/4
8.	07-1718	4	Washer, Lock, Split, Medium, 3/8
9.	07-1973	2	Screw, HHC, Gr8, 5/16-18 x 1 1/4
10.	07-3273	2	Washer, Lock, Split, Medium, 5/16
11.	07-3279	4	Washer, Flat, Gr8, 3/8
12.	07-3654	4	Nut, Hex, Gr8, 3/8-16
13.	07-4032	2	Washer, Flat, Gr8, 1/4
14.	13-13254	1	Weld, Tank, Front (11-5320)
	13-12698	1	Weld, Tank, Front (11-5318)
15.	50-0185	1	Label, Logo, Sweepster, White, Medium
16.	50-0272	1	Label, Oil, ISO VG 46
17.	50-0725	1	Label, Warning, High Pressure Fluid Hazard

CTH TANK ASSEMBLY 11-5321

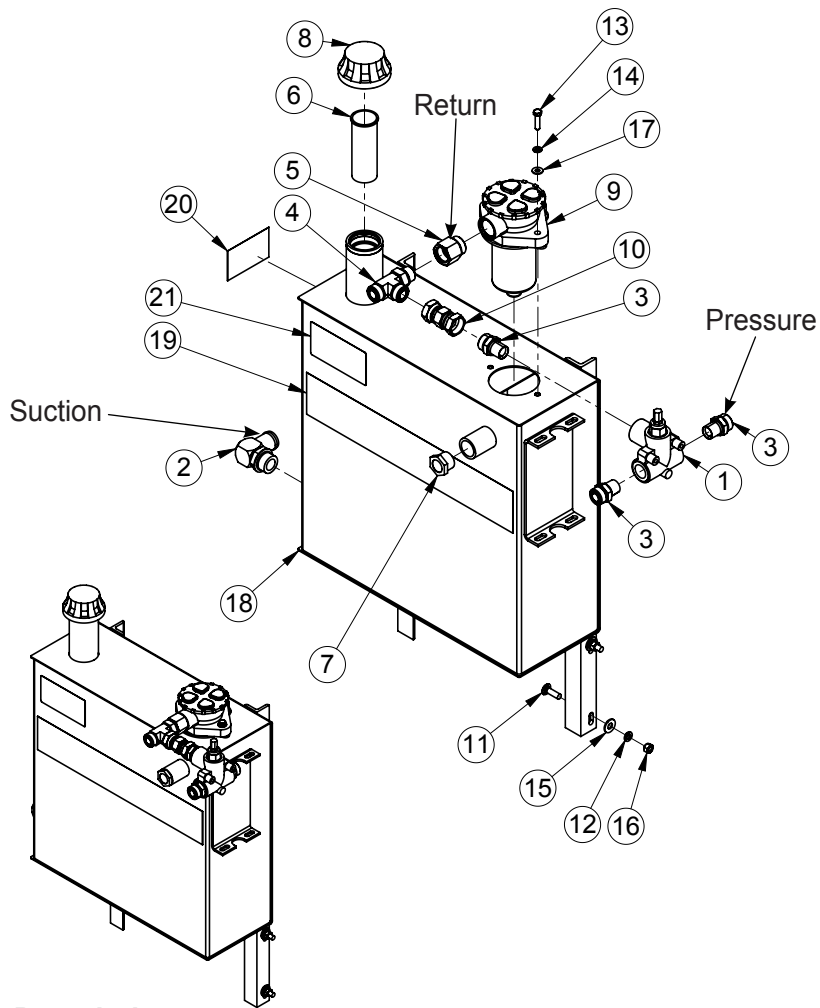


Item	Part	Qty	Description
1.	03-0039	1	Fitting, Adapter, HP, 3/4MP, 3/4FPS
2.	03-0454	2	Fitting, Barb, HP, 90°, 1/4, 1/8MP
3.	03-0744	1	Filter, Element, 25 Micron, Spin-On
4.	03-0745	1	Filter, Base, Spin-On
5.	03-1039	1	Fitting, St Elbow, HP, 90°, 3/4
6.	03-1182-1	1	Fitting, Plug, BP, Square, 1/8
7.	03-1182-4	1	Fitting, Plug, BP, Square, 1/2
8.	07-0025	4	Screw, HHC, Gr2, 3/8-16 x 1-1/4
9.	07-0154	4	Washer, Flat, Gr2, 3/8
10.	07-0168	4	Washer, Lock, Split, Gr2, 3/8
11.	07-0183	4	Nut, Hex, Gr2, 3/8-16
12.	07-0245	1	Cap, Breather, Hydraulic Tank
13.	07-0551	2	Clamp, Spring, 1/4, Hose
14.	07-1192	2	Clamp, T-Bolt, 1-1/4
15.	09-0054	1.5 ft	Tube, Bulk, Ply, 3/8, 1/4, Sight Gage
16.	11-7582	1	Weld, Tank, Hydraulic
17.	50-0184	1	Label, Sweepster, Small, White
18.	50-0272	1	Label, Oil, ISO VG 46

Not Shown:

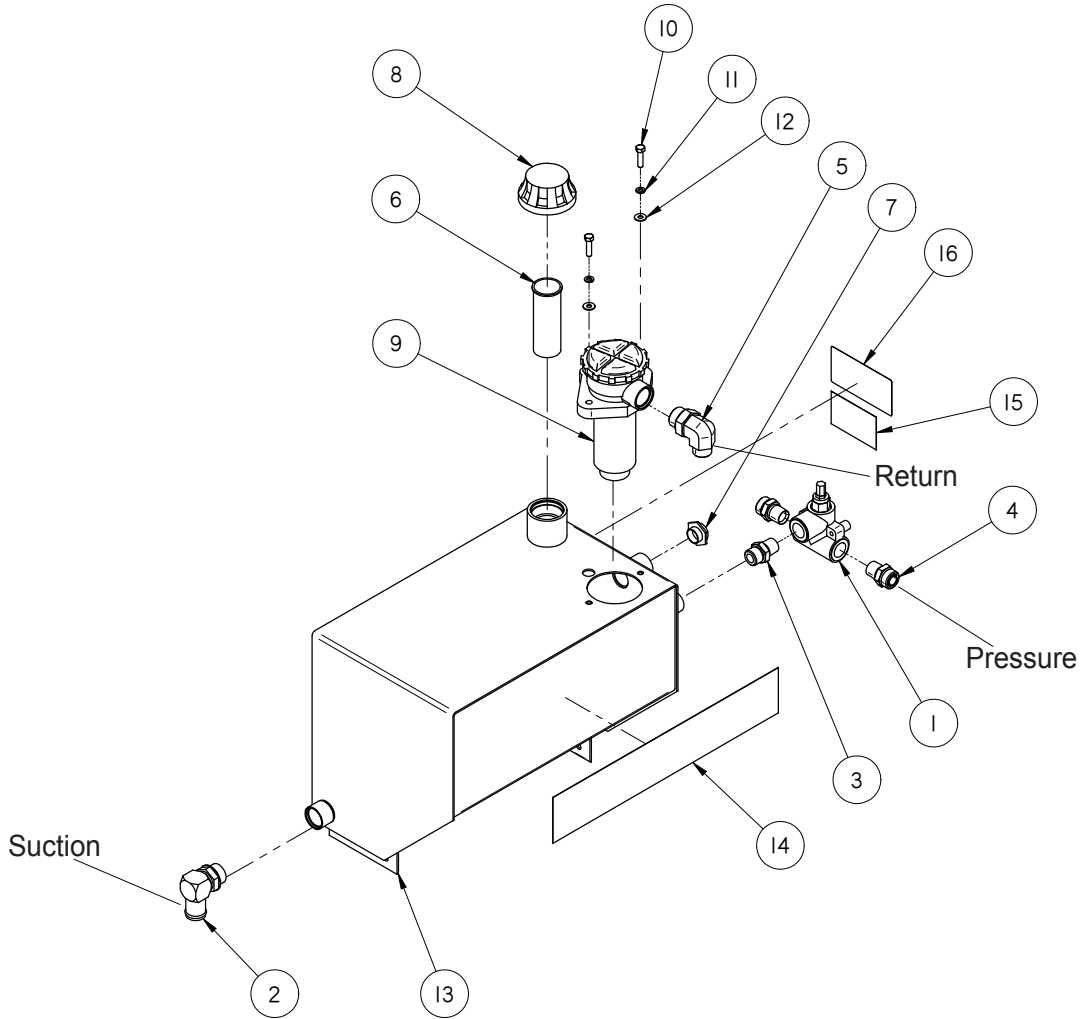
50-0439 1 Label, Warning, Inspect Hydraulics

MRH TANK ASSEMBLY 11-5327



Item	Part	Qty	Description
1.	03-0129	1	Valve, Relief, 3/4 MP Ports
2.	03-0710	1	Fitting, Barb, HP, 90°, 1 1/4, 1 5/16MOR
3.	03-1943	3	Fitting, Adapter, HP, 3/4MFS, 3/4MP
4.	03-3135	1	Tee, 12MB-12MF-12MF
5.	03-3142	1	Fitting, 12FB-16MB
6.	03-4642	1	Strainer, Filler, Spout
7.	03-4709	1	Gauge, Sight, Window, 1 Inch, NPT
8.	03-5055	1	Cap, Filler, Hydraulic
9.	03-5056	1	Filter, Hydraulic, In Tank, 39gpm
10.	03-5494	1	Fitting, 12FF-12FF
11.	07-1717	4	Bolt, Carriage, Gr5, 3/8-16 x 1 1/4
12.	07-1718	4	Washer, Lock, Split, Medium, 3/8
13.	07-1973	2	Screw, HHC, Gr8, 5/16-18 x 1 1/4
14.	07-3273	2	Washer, Lock, Split, Medium, 5/16
15.	07-3279	4	Washer, Flat, Gr8, 3/8
16.	07-3654	4	Nut, Hex, Gr8, 3/8-16
17.	07-4032	2	Washer, Flat, Gr8, 1/4
18.	13-12698	1	Weld, Tank, Front
19.	50-0185	1	Label, Logo, Sweepster, White, Medium
20.	50-0272	1	Label, Oil, ISO VG-46
21.	50-0725	1	Label, Warning, High Pressure, Fluid Hazard

MRH TANK ASSEMBLY 11-5350



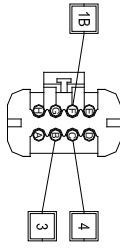
Item	Part	Qty	Description
1.	03-0129	1	Valve, Relief, 3/4 Ports
2.	03-0710	1	Fitting, Barb, HP, 90°, 1 1/4, 1 5/16MOR
3.	03-0938	1	Fitting, Adapter, HP, 1 1/16MOR, 3/4MP
4.	03-1943	2	Fitting, Adapter, HP, 3/4MFS, 3/4MP
5.	03-1956	1	Fitting, Elbow, HP, 90°, 1 5/16MOR, 3/4MFS
6.	03-4642	1	Strainer, Filler Spout
7.	03-4709	1	Gauge, Sight, Window, 1 Inch NPT
8.	03-5055	1	Cap, Filler, Breather, Hydraulic
9.	03-5056	1	Filter, Hydraulic, In Tank, 39gpm
10.	07-1973	2	Screw, HHC, Gr8, 5/16-18 x 1 1/4
11.	07-3273	2	Washer, Lock, Split, Medium, 5/16
12.	07-4032	2	Washer, Flat, Gr8, 1/4
13.	13-14121	1	Weld, Tank
14.	50-0185	1	Label, Logo, Sweepster, White, Medium
15.	50-0272	1	Label, Oil, ISO, VG-46
16.	50-0725	1	Label, Warning, High Pressure Fluid Hazard

WIRING HARNESS LAF9441 / LAF9444

Serial # 1118199 & Down

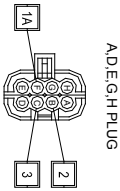
WIRE NO.		APPLICATION	
GUAGE	IDENTIFICATION	FROM	TO
16	1A	BATTERY -12V	SPADE TERMINAL (MALE)
16	1B	PACKYARD CONN. PIN F	SPADE TERMINAL (FEMALE)
16	2A	BATTERY +	CIRCUIT BREAKER 10A - BATT
16	2B	CIRCUIT BREAKER 10A - AUX	SWITCH 1-A
16	3	PACKYARD CONN. PIN B-DEPTH	SWITCH 1-B
16	4	PACKYARD CONN. PIN C-TILT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

LAF9444 WIRE HARNESS



PLUG - A, D, E, G & H

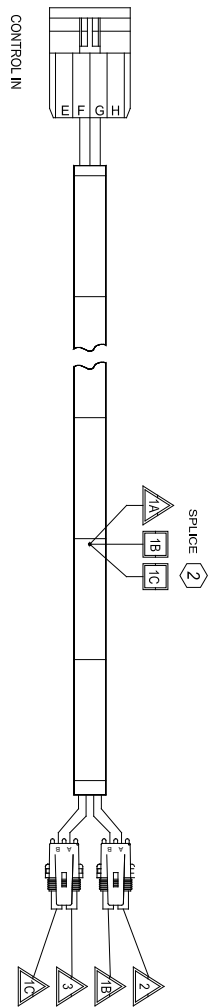
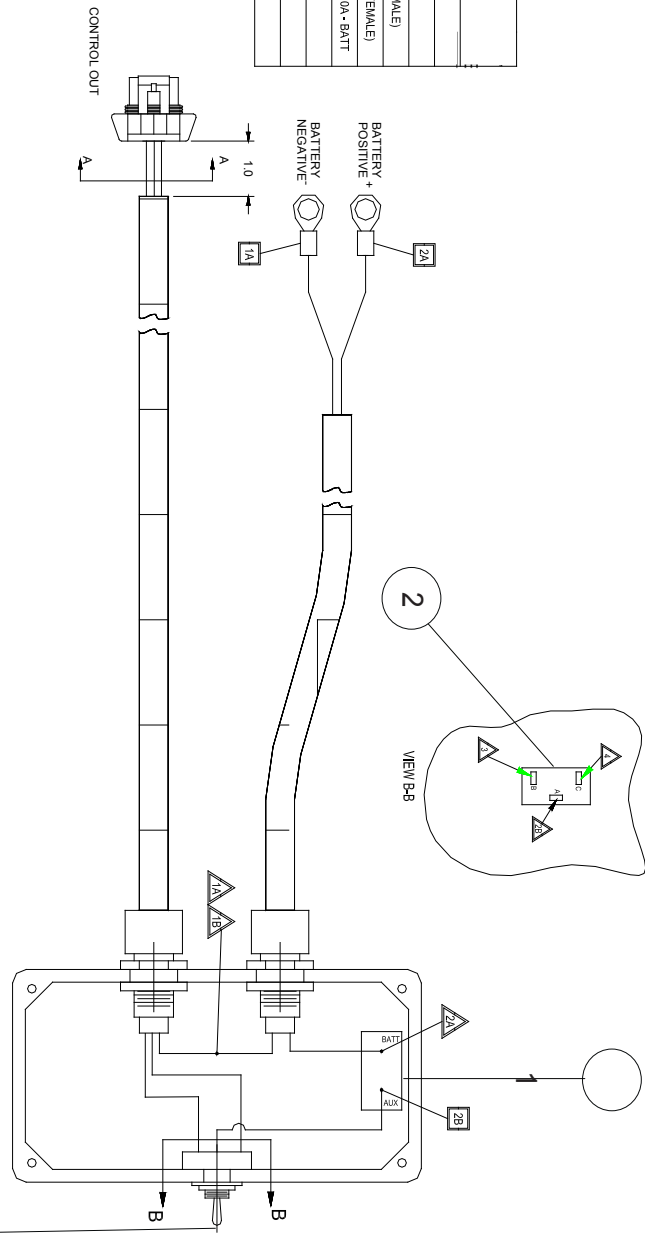
VIEW "A-A"



A, D, E, G, H PLUG

WIRE NO.		APPLICATION	
GUAGE	IDENTIFICATION	FROM	TO
16	1A	PACKYARD PIN F	ULTRA SONIC SPUCE
16	1B	ULTRA SONIC SPUCE	PACKYARD 1 PIN B
16	1C	ULTRA SONIC SPUCE	PACKYARD 2 PIN B
16	2	PACKYARD PIN B	PACKYARD 1 PIN A
16	3	PACKYARD PIN C	PACKYARD 2 PIN A

LAF9441 WIRE HARNESS



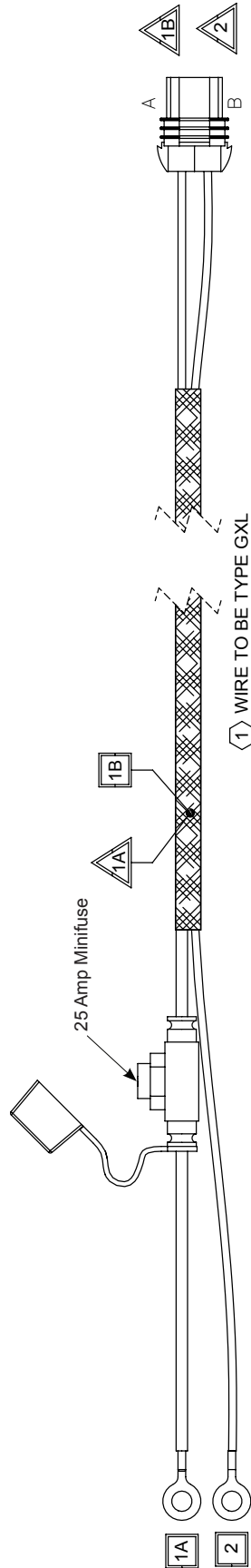
Wiring Harness

WIRING HARNESS

Serial Number 1119001 & Up

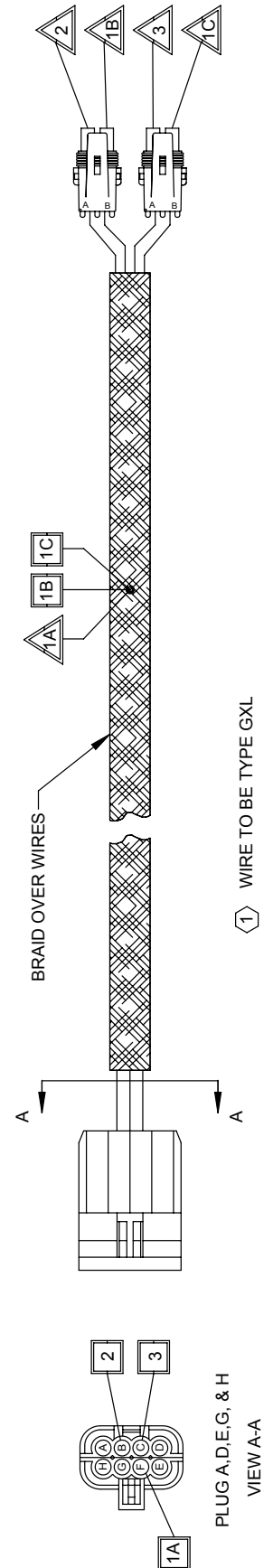
07-7733

WIRE NO.	GAUGE	IDENTIFICATION	APPLICATION		END (LEFT) (BEYOND HARNESS)				END (RIGHT) (BEYOND HARNESS)				
			FROM	TO	SIZE	TERMINAL TYPE	EXTRA WIDE PROTECTION	WIRE NO.	SIZE	TERMINAL TYPE	EXTRA WIDE PROTECTION		
1A	12	RED	BATTERY (+)	ULTRA SONIC SPLICE	0.38	RING TERMINAL (WAYTEK # 32205)	-	X	-	ULTRA SONIC SPLICE	-	X	1A
1B	12	RED	ULTRA SONIC SPLICE	PACKARD PIN A	-	ULTRA SONIC SPLICE	-	X	-	PACKARD 12129493 & SEAL	-	X	1B
2	12	BLACK	BATTERY (-)	PACKARD PIN B	0.38	RING TERMINAL (WAYTEK # 32205)	-	X	-	PACKARD 12129493 & SEAL	-	X	2



07-7737

WIRE NO.	GAUGE	IDENTIFICATION	APPLICATION		END (LEFT) (BEYOND HARNESS)				END (RIGHT) (BEYOND HARNESS)				
			FROM	TO	SIZE	TERMINAL TYPE	EXTRA WIDE PROTECTION	WIRE NO.	SIZE	TERMINAL TYPE	EXTRA WIDE PROTECTION		
1A	16	BLACK	PACKARD PIN F	ULTRA SONIC SPLICE	-	PACKARD 12045773 & SEAL	-	X	-	ULTRA SONIC SPLICE	-	X	1A
1B	16	BLACK	ULTRA SONIC SPLICE	DEUTSCH 1 PIN B	-	ULTRA SONIC SPLICE	-	X	-	DEUTSCH 0462-201-16141 & SEAL	-	X	1B
1C	16	BLACK	ULTRA SONIC SPLICE	DEUTSCH 2 PIN B	-	ULTRA SONIC SPLICE	-	X	-	DEUTSCH 0462-201-16141 & SEAL	-	X	1C
2	16	RED	PACKARD PIN B	DEUTSCH 1 PIN A	-	PACKARD 12045773 & SEAL	-	X	-	DEUTSCH 0462-201-16141 & SEAL	-	X	2
3	16	YELLOW	PACKARD PIN C	DEUTSCH 2 PIN A	-	PACKARD 12045773 & SEAL	-	X	-	DEUTSCH 0462-201-16141 & SEAL	-	X	3

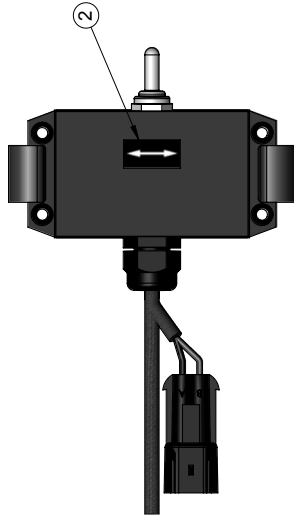


07-7734

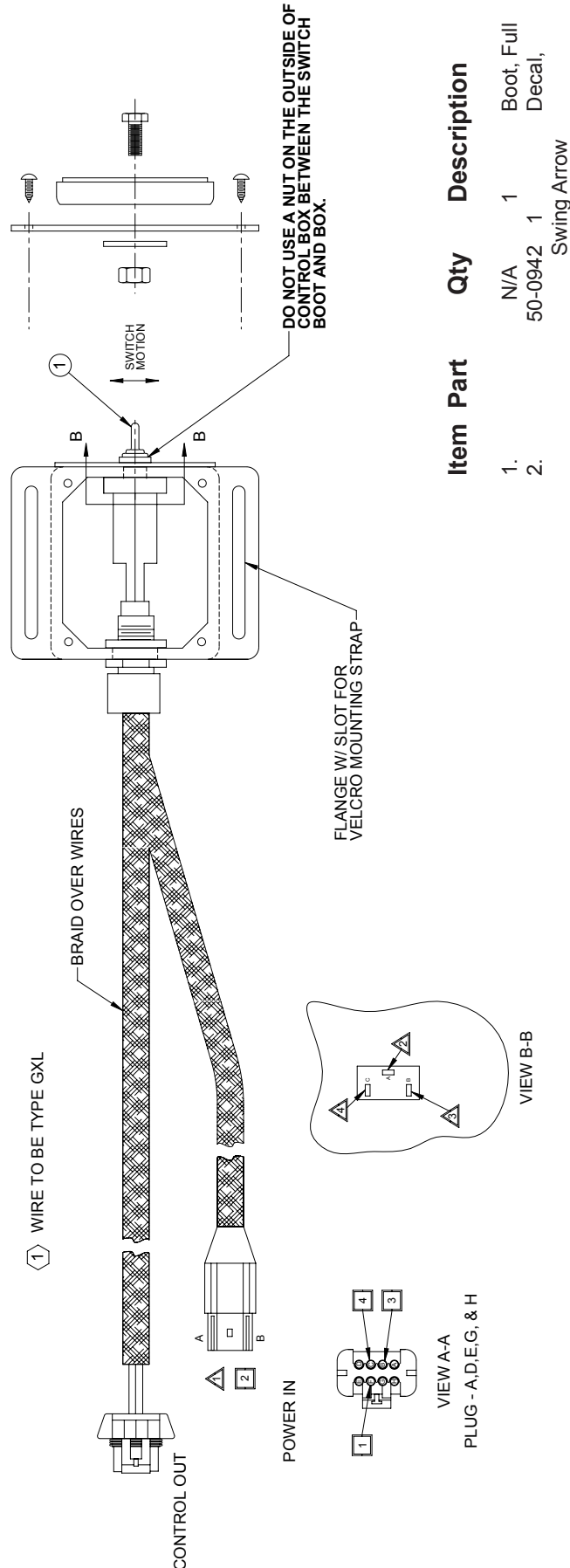
Wiring Harness

WIRING HARNESS

Serial Number 1119001 & Up



WIRE NO	GAUGE	IDENTIFICATION		APPLICATION		□ END (LEFT) (BEYOND HARNESS)		△ END (RIGHT) (BEYOND HARNESS)					
		FROM	TO	SIZE	TYPE	EXTRA WIDE PROTECTION	TERMINAL	SIZE	TYPE	EXTRA WIDE PROTECTION	TERMINAL		
1	16	BLACK	PACKARD PIN F (6-PIN)	PACKARD PIN A (2-PIN)	-	PACKARD 12048159 & SEAL	-	X	-	X	PACKARD 12048074 & SEAL	-	X
2	16	RED	PACKARD PIN B (2-PIN)	SWITCH 1-A	-	PACKARD 12048159 & SEAL	-	X	-	X	SPADE TERMINAL (FEMALE)	-	X
3	16	RED	PACKARD PIN B (6-PIN)	SWITCH 1-B	-	PACKARD 12048074 & SEAL	-	X	-	X	SPADE TERMINAL (FEMALE)	-	X
4	16	YELLOW	PACKARD PIN C (6-PIN)	SWITCH 1-C	-	PACKARD 12048074 & SEAL	-	X	-	X	SPADE TERMINAL (FEMALE)	-	X

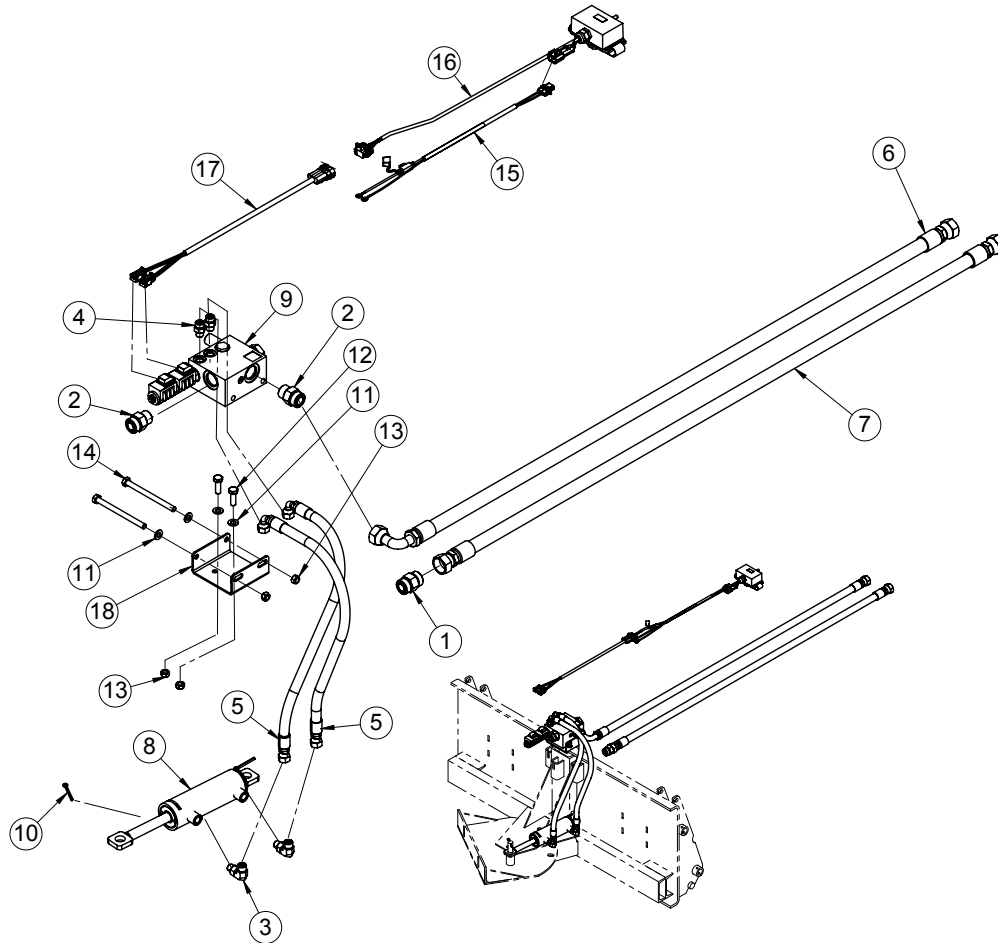


Item	Part	Qty	Description
1.	N/A	1	Boot, Full
2.	50-0942	1	Decal, Swing Arrow

HYDRAULIC SWING WITH ELECTRIC VALVE

11-5433

Serial # 1119100 & Up



Item	Part	Qty	Description
1.	03-1920	1	Fitting, 12MF-12MF
2.	03-1945	2	Fitting, Adapter, HP, 1 1/16MOR, 3/4MFS
3.	03-2092	2	Fitting, Elbow, HP, 90°, 3/16MOR, 3/8MFS
4.	03-2291	2	Fitting, Adapter, HP, 3/8MFS, 9/16MOR
5.	03-2352	2	Hose, 3/8 x 32, 2W, 3/8FFS90, 3/8FFS
6.	03-3968	1	Hose, .75 x 60, 12FF-12FF90, 3.125K
7.	03-4506	1	Hose, .75 x 60, 12FF-12FF, 3.125K
8.	03-5719	1	Cylinder, 1.75 x .75 x 4
9.	03-5835	1	Manifold, Swing, 12 Volt
10.	07-0206	2	Pin, Cotter, Gr2, 3/16 x 2
11.	07-3745	4	Washer, Flat, CL8.8, M10
12.	07-3749	2	Screw, HHC, CL10.9, M10-1.5 x 30mm
13.	07-4622	4	Nut, Hex, Lock, M10-1.5, CL10.9
14.	07-7028	2	Screw, HHC, CL10.9, M10-1.5 x 130mm
15.	07-7733	1	Wire Harness, Power Lead, 126 Inches
16.	07-7734	1	Wire Harness, with Box
17.	07-7737	1	Wire Harness, 108 Inches
18.	13-16972	1	Bracket, Hydraulic

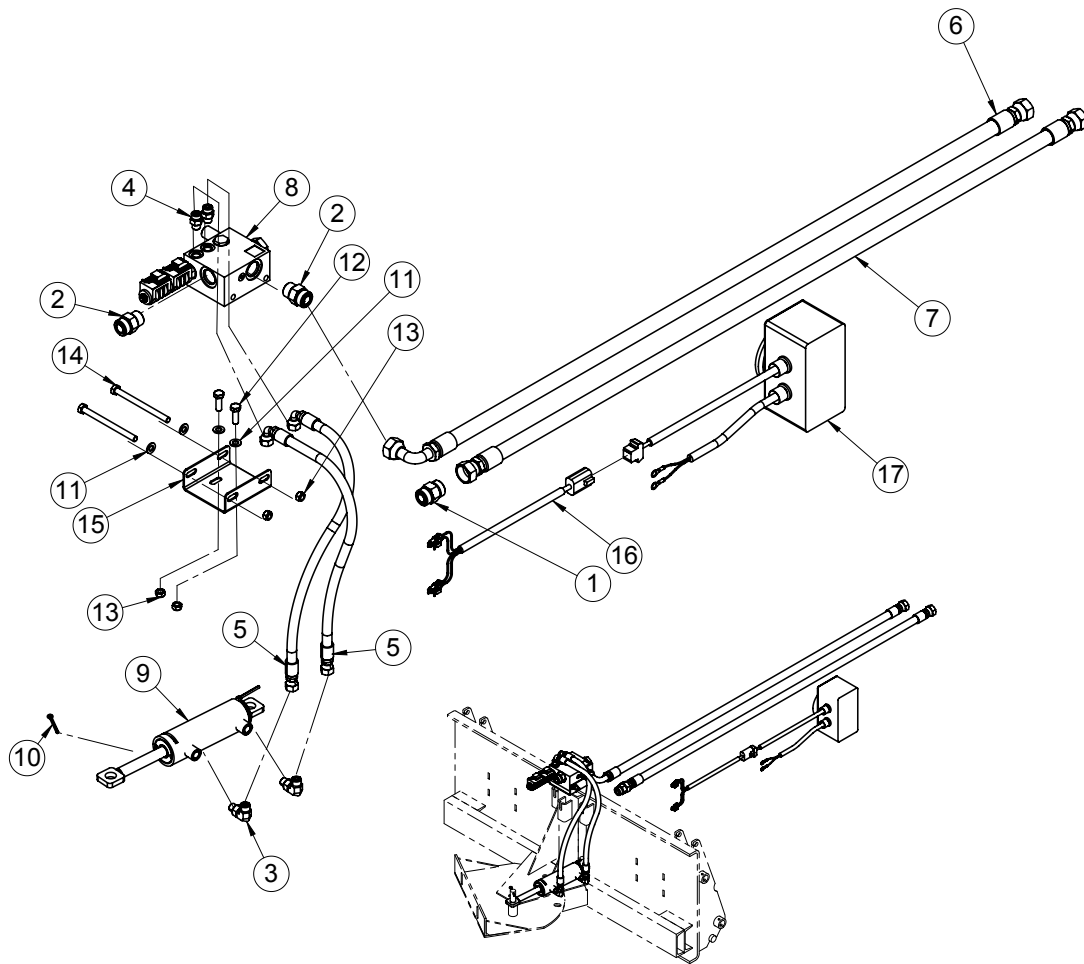
Service Part for 03-5719 Cylinder

46072 Seal Kit
114406 Cylinder Rod

HYDRAULIC SWING WITH ELECTRIC VALVE

11-5310

Serial # 1118199 & Down

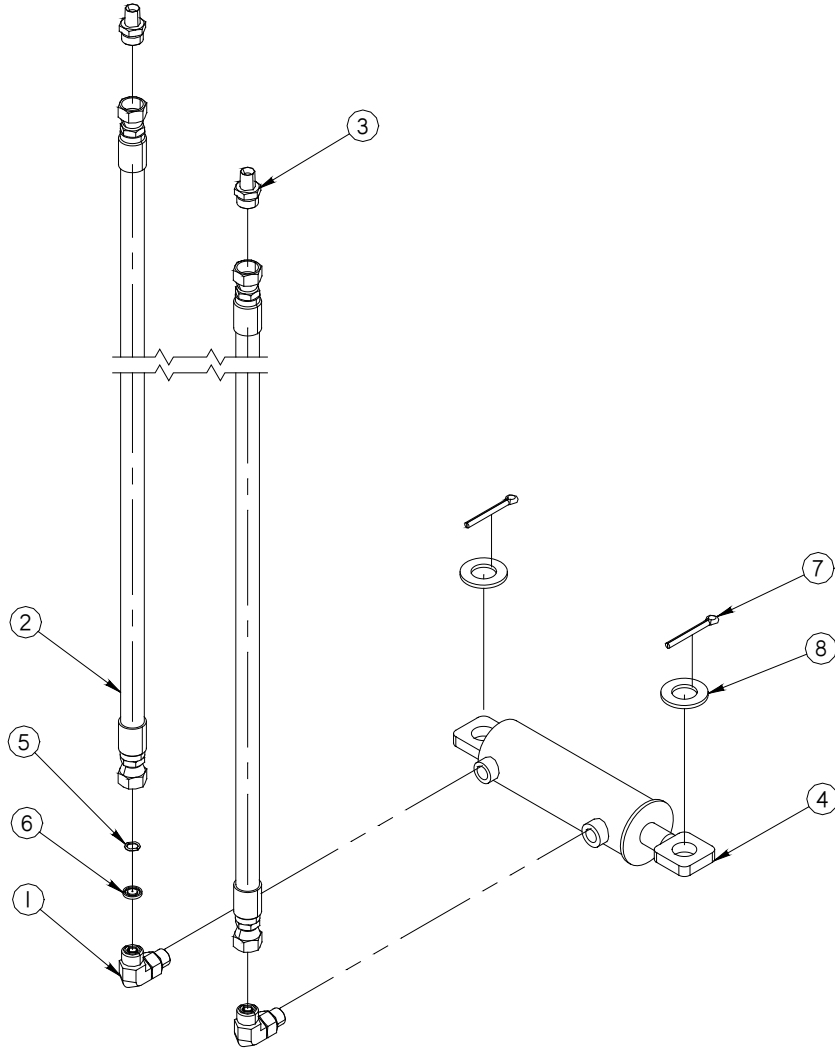


Item	Part	Qty	Description
1.	03-1920	1	Fitting, 12MF-12MF
2.	03-1945	2	Fitting, Adapter, HP, 1 1/16MOR, 3/4MFS
3.	03-2092	2	Fitting, Elbow, HP, 90°, 3/16MOR, 3/8MFS
4.	03-2291	2	Fitting, Adapter, HP, 3/8MFS, 9/16MOR
5.	03-2352	2	Hose, 3/8 x 32, 2W, 3/8FFS90, 3/8FFS
6.	03-3968	1	Hose, .75 x 60, 12FF-12FF90, 3.125K
7.	03-4506	1	Hose, .75 x 60, 12FF-12FF, 3.125K
8.	03-5215	1	Manifold, Swing, 12 Volt
9.	03-3381	1	Cylinder, 1.75 x .75 x 4
10.	07-0206	2	Pin, Cotter, Gr2, 3/16 x 2
11.	07-3745	4	Washer, Flat, CL8.8, M10
12.	07-3749	2	Screw, HHC, CL10.9, M10-1.5 x 30mm
13.	07-4622	4	Nut, Hex, Lock, M10-1.5, CL10.9
14.	07-7028	2	Screw, HHC, CL10.9, M10-1.5 x 130mm
15.	13-15085	1	Plate, Mounting, Valve
16.	LAF9441	1	Wire, Harness
17.	LAF9444	1	Wire, Harness, with Box

Service Part for 03-3381 Cylinder
03-3382 Seal Kit

Service Part for 03-5719 Cylinder
46072 Seal Kit
114406 Cylinder Rod

HYDRAULIC SWING 11-4191



Item	Part	Qty	Description
1.	03-2092	2	Fitting, Elbow, HP, 90°, 9/16MOR, 3/8MFS
2.	03-2270	2	Hose, 3/8 x 72, 3/8FFS, 3/8FFS
3.	03-2159	2	Fitting, Adapter, HP, 3/8MFS, 1/4MP
4.	03-3381	1	Cylinder, 1.75 x .75 x 4 (09/23/09 & Before)
	03-5719	1	Cylinder, 1.75 x .75 x 4 (09/24/09 & After)
5.	03-3573	1	O-Ring, Face Seal, 3/8, SAE #6
6.	03-4668	1	Plate, Hydraulic, Orifice, .028, #6 O-Ring Face Seal
7.	07-0206	2	Pin, Cotter, Gr2, 3/16 x 2
8.	07-1782	2	Washer, Flat, Gr2, 3/4SAE, 1 1/2

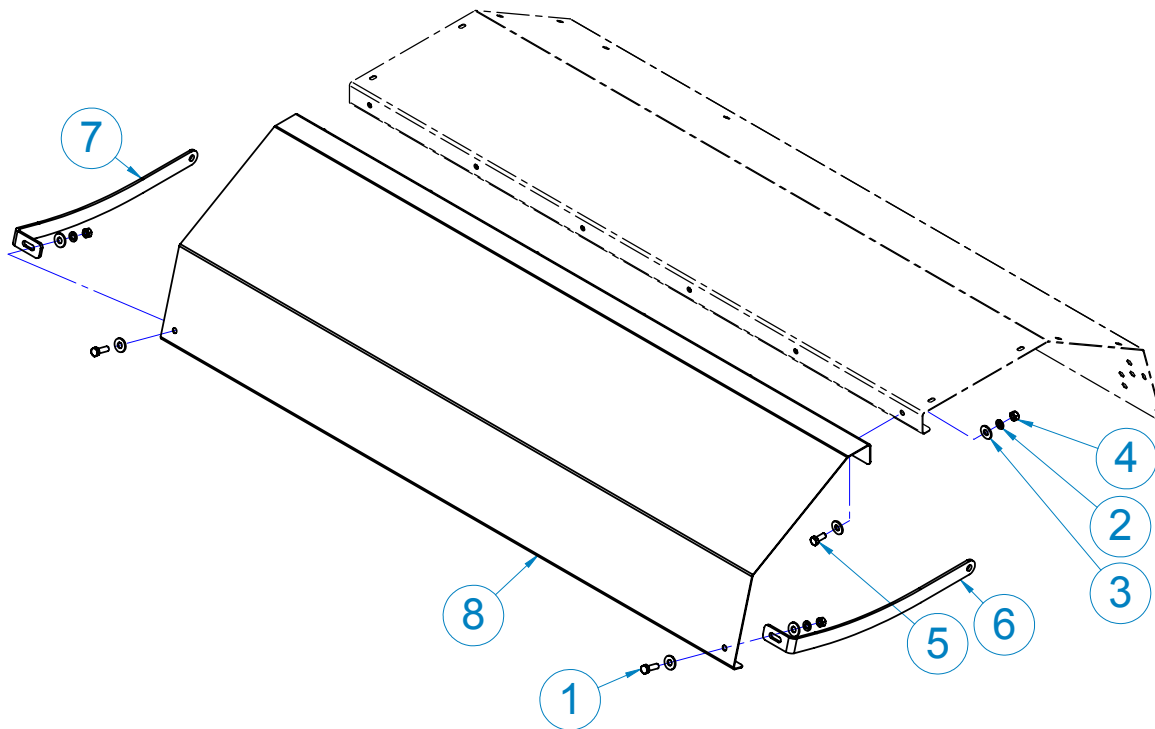
Service Part for 03-3381 Cylinder
03-3382 Seal Kit

Service Part for 03-5719 Cylinder
46072 Seal Kit
114406 Cylinder Rod

DIRT DEFLECTOR KITS S26 & S30

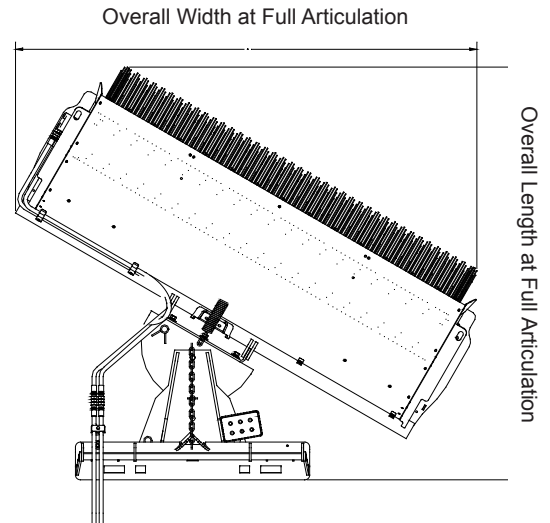
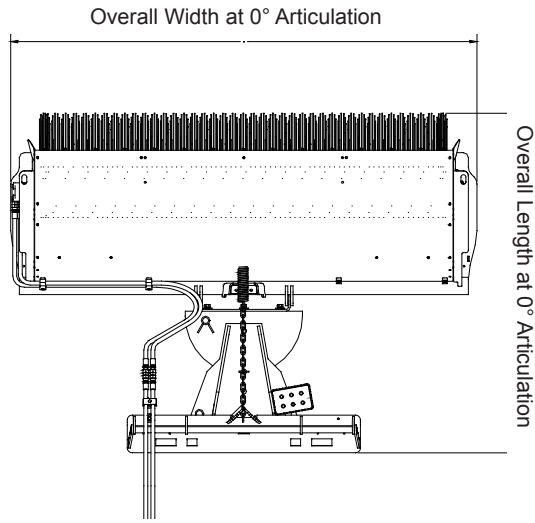
S26 & S30

28-10162-4 4 Ft.
 28-10162-5 5 Ft.
 28-10162-6 6 Ft.
 28-10162-7 7 Ft.



Item	Part	Qty	Description
1.	07-1714	2	Screw, HHC, Gr8, 5/16-18 x 1
2.	07-3273	8	Washer, Lock, Split, Medium, 5/16
3.	07-3275	16	Washer, Flat, Gr8, 5/16
4.	07-3278	8	Nut, Hex, Gr8, 5/16-18
5.	07-3436	6	Screw, HHC, Gr8, 5/16-18 x 3/4
6.	13-13634	1	Plate, Mounting, Left
7.	13-13635	1	Plate Mounting, Right
8.	13-16201-4	1	Sheet, Dirt Deflector (4 ft.)
	13-16201-5	1	Sheet, Dirt Deflector (5 ft.)
	13-13633	1	Sheet, Dirt Deflector (6 ft.)
	13-16201-7	1	Sheet, Dirt Deflector (7 ft.)

PRODUCT INFORMATION



S26 222 Brush Head		
Approximate weight	370 lbs (168 kg)	4 ft (1.2 m)
	405 lbs (184 kg)	5 ft (1.5 m)
	440 lbs (200 kg)	6 ft (1.8 m)
Overall Length at 0° Articulation	54.4 inches (138 cm)	All Lengths
Overall Width at 0° Articulation	59.4 inches (151 cm)	4 ft (1.2 m)
	71.4 inches (181 cm)	5 ft (1.5 m)
	83.4 inches (212 cm)	6 ft (1.8 m)
Overall Length at 30°	60.7 inches (154 cm)	4 ft (1.2 m)
	63.7 inches (162 cm)	5 ft (1.5 m)
	66.7 inches (169 cm)	6 ft (1.8 m)
Overall Width at 30°	60 inches (152 cm)	4 ft (1.2 m)
	72 inches (183 cm)	5 ft (1.5 m)
	84 inches (213 cm)	6 ft (1.8 m)
Sweeping Width at 0° Articulation	48 inches (122 cm)	4 ft (1.2 m)
	60 inches (152 cm)	5 ft (1.5 m)
	72 inches (183 cm)	6 ft (1.8 m)
Sweeping Width at 30°	41.5 inches (105 cm)	4 ft (1.2 m)
	52 inches (132 cm)	5 ft (1.5 m)
	60.4 inches (153 cm)	6 ft (1.8 m)
Hydraulic Flow Requirements	8-15 gpm 14.2 Motor 10-18 gpm 18.3 Motor	All Lengths
Maximum Oil Pressure	3000 psi (206 bar)	All Lengths

S30 225 Brush Head		
Approximate Weight	445 lbs (202 kg)	5 ft (1.5 m)
	485 lbs (220 kg)	6 ft (1.8 m)
	525 lbs (238 kg)	7 ft (2.1 m)
Overall Length at 0° Articulation	58.3 inches (148 cm)	All Lengths
Overall Width at 0° Articulation	70.3 inches (179 cm)	5 ft (1.5 m)
	82.3 inches (209 cm)	6 ft (1.8 m)
	94.3 inches (240 cm)	7 ft (2.1 m)
Overall Length at 30°	67.1 inches (170 cm)	5 ft (1.5 m)
	70.1 inches (178 cm)	6 ft (1.8 m)
	73.1 inches (186 cm)	7 ft (2.1 m)
Overall Width at 30°	70.7 inches (180 cm)	5 ft (1.5 m)
	81.1 inches (206 cm)	6 ft (1.8 m)
	91.5 inches (232 cm)	7 ft (2.1 m)
Sweeping Width at 0° Articulation	48 inches (122 cm)	5 ft (1.5 m)
	60 inches (152 cm)	6 ft (1.8 m)
	72 inches (183 cm)	7 ft (2.1 m)
Sweeping Width at 30°	52 inches (132 cm)	5 ft (1.5 m)
	62.4 inches (158 cm)	6 ft (1.8 m)
	72.8 inches (185 cm)	7 ft (2.1 m)
Hydraulic Flow Requirements	8-15 gpm 14.2 Motor 10-18 gpm 18.3 Motor	All Lengths
Maximum Oil Pressure	3000 psi (206 bar)	All Lengths




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
		Ft-lbs		Newton-Meter		Ft-lbs		Newton-Meter		
Inches	mm	UNC	UNF	UNC	UNF	UNC	UNF	UNC	UNF	
1/4	6,35	8	9	11	12	10	13	14	18	<p>Grade 2</p>  <p>Grade 5</p>  <p>Grade 8</p> 
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	

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.		
		

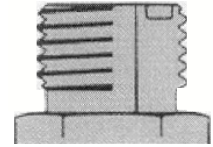
Bolt Size	Grade No.	Pitch (mm)	Ft-lbs	Newton-Meter	Pitch (mm)	Ft-lbs	Newton-Meter
M6	5.6	1,0	3,6-5,8	4,9-7,9	-	-	-
	8.8		5,8-4	7,9-12,7		-	-
	10.9		7,2-10	9,8-13,6		-	-
M8	5.6	1,25	7,2-14	9,8-19	1,0	12-17	16,3-23
	8.8		17-22	23-29,8		19-27	25,7-36,6
	10.9		20-26	27,1-35,2		22-31	29,8-42
M10	5.6	1,5	20-25	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

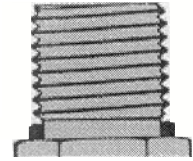
NOTE - ft-lb may be converted to Newton Meters by multiplying by 1.35582.

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

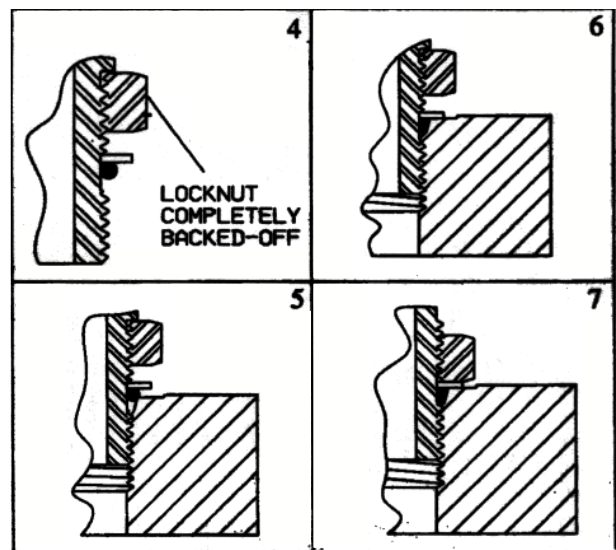
NOTE - Straight thread o-ring fittings are utilized to adapt hydraulic systems to motors, pumps, cylinders, and valves.



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.

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.

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 Construction¹, 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.

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