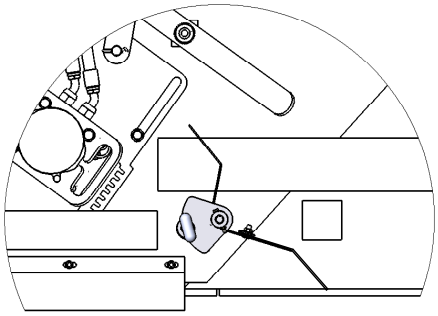
SWEEPSTER

VRS/VS Series

Vacuum Ready Sweeper
Vacuum Sweeper

PALADIN LIGHT CONSTRUCTION GROUP
BRADCO
FFC
HARLEY
McMILLEN
SWEEPSTER

The Power of Combined Excellence



With Patented Volumizer

Sweepster Serial Number_____

Manual Number: 51-4019
Release Date: February 10, 2012
Serial Number 0836012 & Up

800-456-7100 www.paladinlcg.com Sweepster 2800 N. Zeeb Rd., Dexter, MI. 48130 United States of America

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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

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!

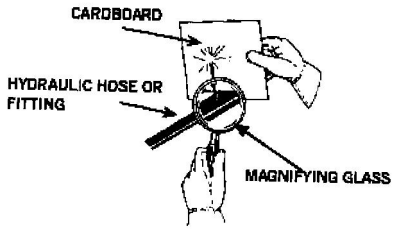
USE CARE WITH HYDRAULIC FLUID PRESSURE

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

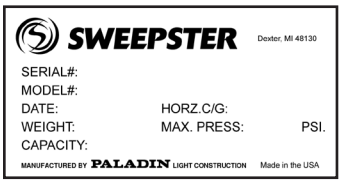
- Wear the protective clothing equipment specified by the tool manufacturer.

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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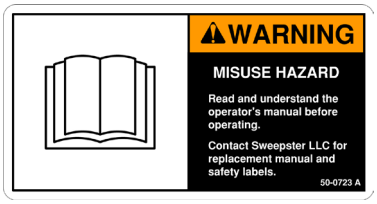

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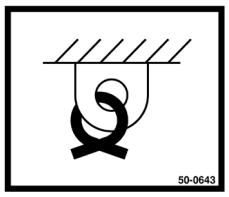

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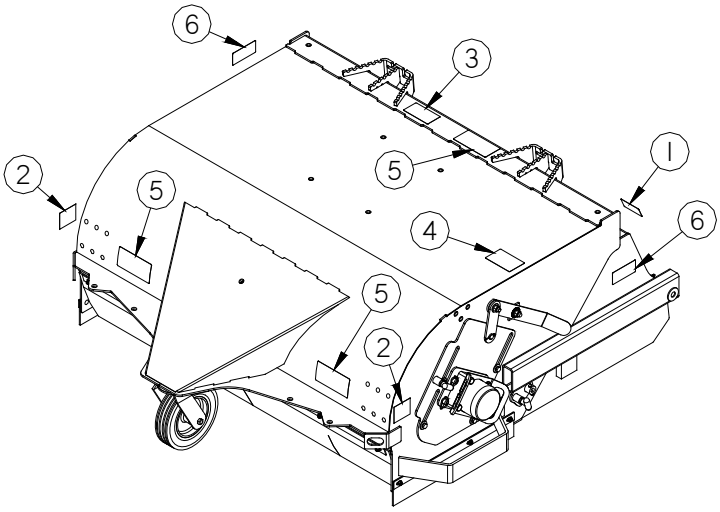


Item	Part	Qty	Description
1.	50-0634	1	Label, Serial Number
2.	50-0643	2	Label, Tie Down Point
3.	50-0723	1	Label, Warning, Misuse Hazard
4.	50-0724	1	Label, Warning, High Pressure Fluid
5.	50-0727	3	Label, Warning, Flying Objects
6.	50-0737	2	Label, Warning, Pinch Point Hazard

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.

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.

When working on or around the sweeper, lower it to the ground or secure it with transport chains or cylinder-stop locks.

Stop the prime mover engine and cycle control levers to 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, tubes, or hoses.

Repair damaged or loose lines, tubes and 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 hose has been pulled or stretched.

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

OPERATION

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.
- •Check all tire pressures before sweeping.
- •Check tire ratings to be sure they match the prime mover load. Weigh the sweeper end of the prime mover, if necessary, to insure proper tire rating.
- •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 and primer mover.

•Be aware of extra weight and width a sweeper adds. Reduce travel speed accordingly.

•Leave the brush hood (shield) and all other shields and safety equipment in place when 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 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.

Before Each Use

Perform daily maintenance as indicated in Maintenance Schedule.

Run the prime mover and sweeper at a low idle. Check for hydraulic leaks or other problems and make corrections, if necessary, before using the sweeper.

WARNING!  **AVOID SERIOUS INJURY.** Check for large objects that could harm the operator or others if thrown by the sweeper. Remove these items before operating.

During Use

Carry the sweeper low to the ground so that the operator has good visibility and stability. Avoid any sudden movements from one side to the other side when you carry a sweeper.

Avoid excessive downward pressure on the brush sections to prevent excessive wear. A two to six inch wide pattern is sufficient for most applications. Ensure that the motor and bearing plates are equally adjusted in order to prevent an uneven wear pattern.

Directing Debris

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.

NOTICE! **AVOID SWEEPER DAMAGE.** Reduce travel speed to avoid hitting immovable objects.

Brush, Engine & Travel Speeds

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

Large Areas

When sweeping a large area, such 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 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.

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

Dirt & Gravel

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

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 because of the aggressive sweeper action.

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

Heavy Debris

Travel slowly - 1-2 mph.

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

Increase engine speed if debris becomes very heavy.

STORAGE

NOTICE!

Do not store the sweeper with weight on the brush. Weight will deform the bristles, destroying the sweeping effectiveness.

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.

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.

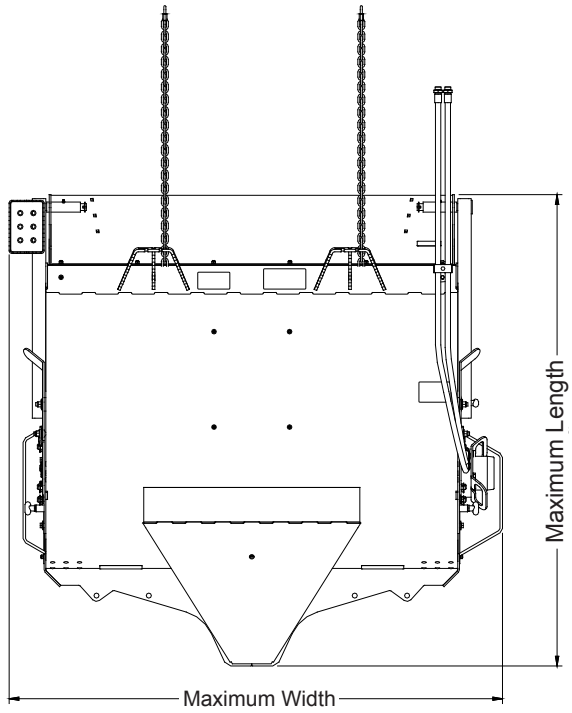
WARNING!

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

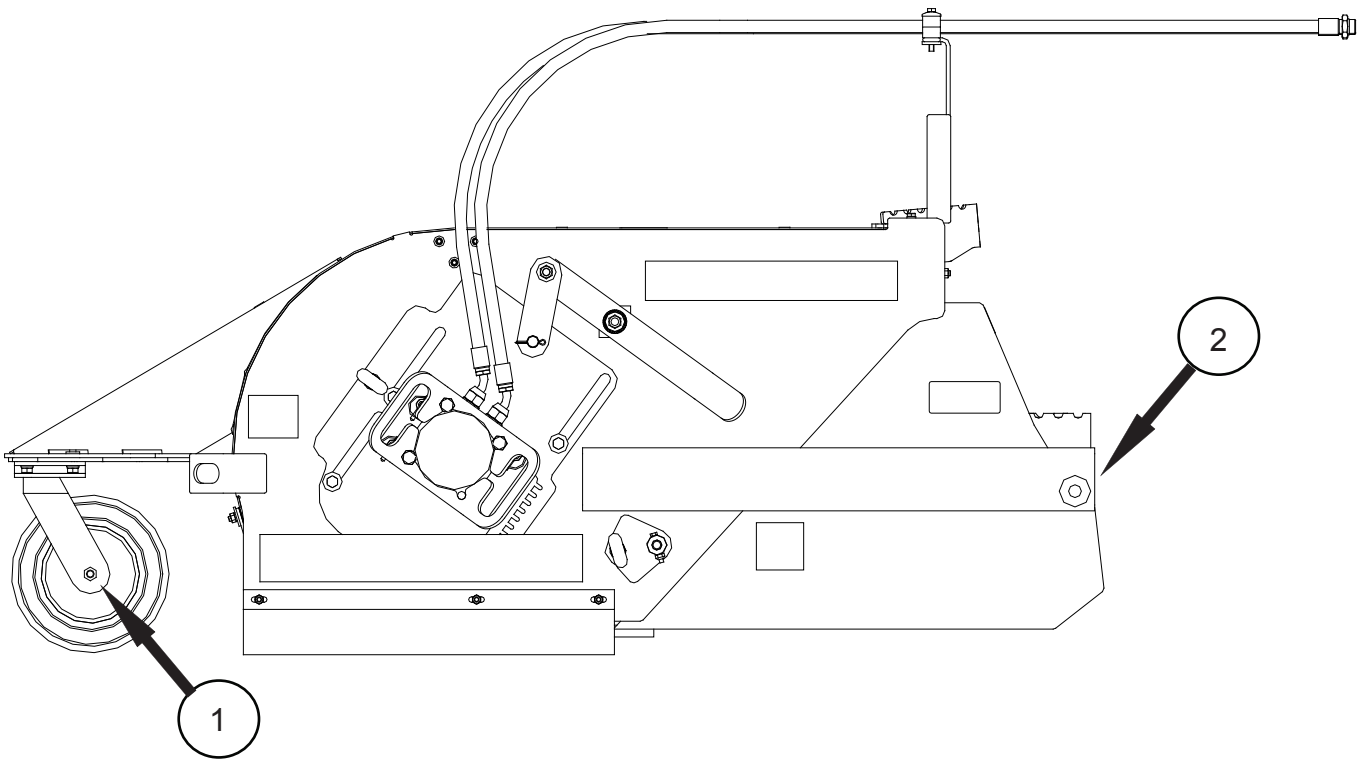


Maximum Weight with Bucket	1201 lbs (VRS 60) 1294 lbs (VRS 72) 1385 lbs (VRS 84)
Actual Sweeping Width	60 inches (VRS 60) 72 inches (VRS 72) 84 inches (VRS 84)
Maximum Length	69 inches (all models)
Maximum Width	72 inches (VRS 60) 85 inches (VRS 72) 97 inches (VRS 84)
Maximum Hydraulic Oil Flow	25 gpm
Maximum Hydraulic Oil Pressure	3000 psi

LUBRICATION POINTS

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

1. Caster (2 fittings)
2. Bucket Pivot (1 Fitting each)



MAINTENANCE

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 movers parking brake and leave the engine running.

3. Start the sweeper at a slow speed; then, lower it so the boom arms bottom out. 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 from the prime mover. The brush pattern left in the dust should be 2-4 inches wide, running the length of the brush. (figure 1)

5. Adjust the brush pattern as necessary according to the following instructions.

    a. If the brush pattern is too wide, pull the “T” handle quick pin and move it up one notch. Repeat on the opposite side.

    b. If the brush pattern is too narrow, pull the “T” handle quick pin and move it down one notch. Repeat on the opposite side.

    c. Use the sight indicator to be sure sweeper brush is level at all times.

6. Repeat steps # 1 through #5 until the brush pattern is 2-4 inches wide.

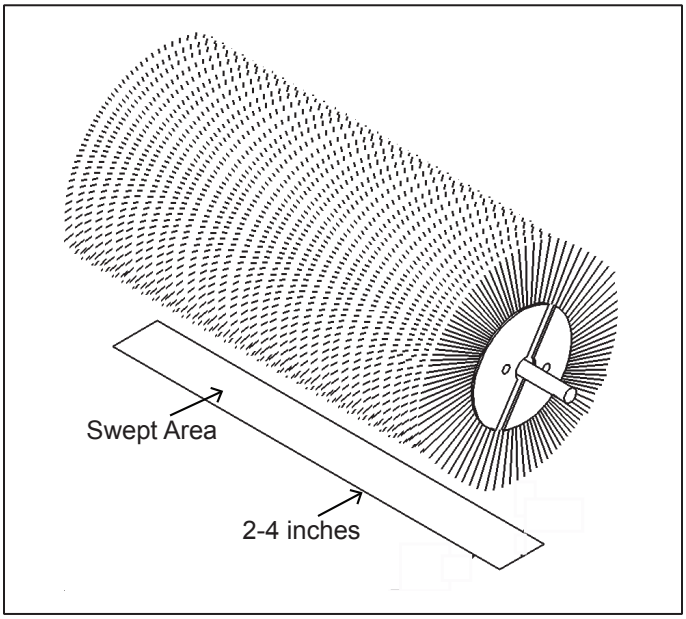
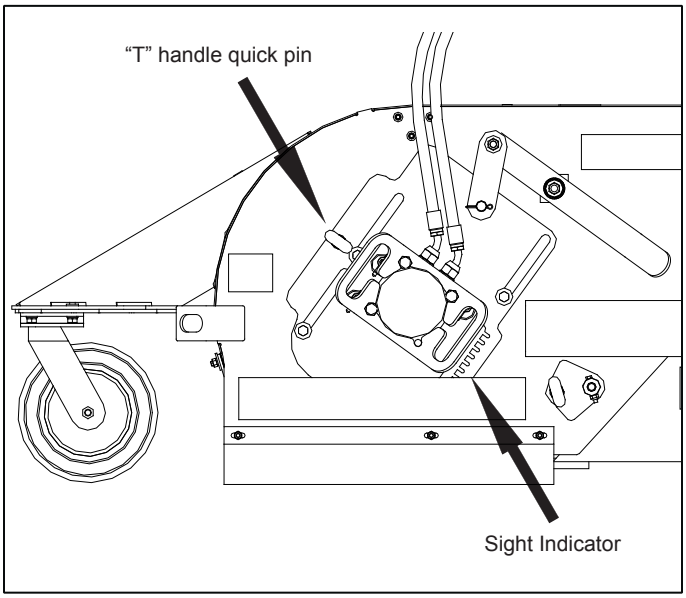


figure 1



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

REPLACING BRUSH SECTIONS

1. Remove four motor mount screws. Retain hardware for reinstallation. Remove motor mount.

2. Detach four bearing mount screws from side plate. Retain hardware for reinstallation.

3. Lift sweeper body leaving core on ground.

4. Remove the core hat plate. Retain hardware for reinstallation.

5. Remove old sections.

6. Install new sections by doing the following:

   a. Number the tubes 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 tube 1. Make sure that the drive pins angle up (figure 1).

   c. Place the second section on the core with the drive pins on either side of tube 2. Be sure the drive pins angle down (figure 2).

   d. Put the third section on with the drive pins around tube 3. Be sure the drive pins angle up.

   e. Slide sections on until the core is full, making sure to alternate the tubes used and the direction of the drive pins.

7. Re-attach the core hat plate.

8. Lay core on ground. Lower body over core.

9. Re-attach the bearing plate with previously removed hardware.

10. Attach motor mount with hardware removed in step one.

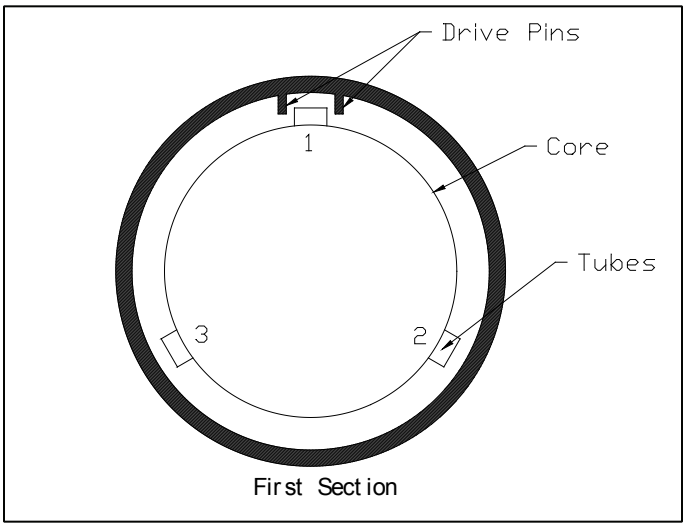


figure 1

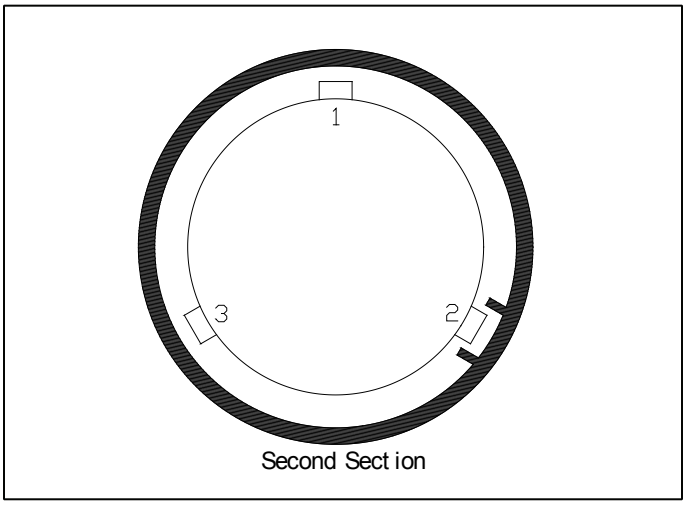
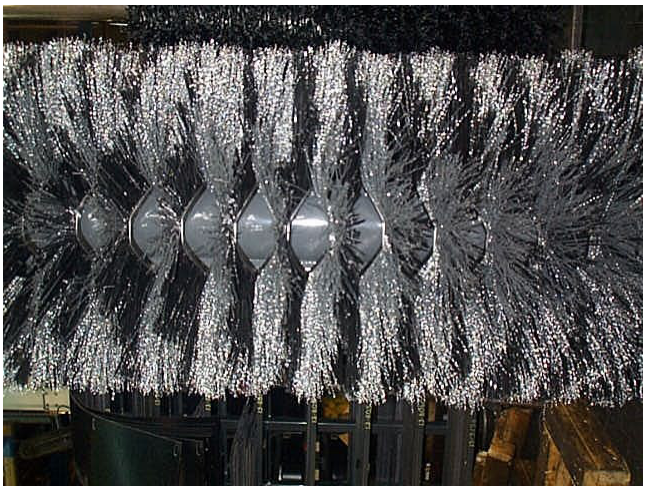


figure 2



ATTACHING CHAINS

1. Install the sweeper to the prime movers quick attach mounting.

2. Attach chains to SSL grab bars using one 5/16 quick link.

3. Attach chains to sweeper using one 5/16 wide jaw quick clip per side. (figure 1) Leave the chains loose with equal slack in both sides. **Do not entangle hydraulic hoses.**

4. Connect hydraulic hoses to prime mover remote hydraulics.

CAUTION! **AVOID EQUIPMENT DAMAGE AND PERSONAL INJURY.** Chains must be of equal length and long enough to keep the sweeper level during dumping. Short chains may cause the sweeper body to tip back and damage the sweeper body.

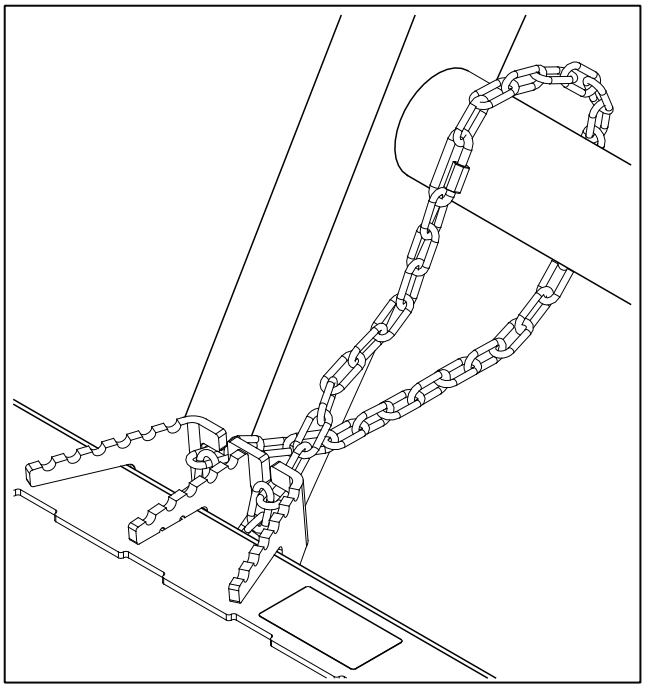


figure 1

ADJUSTING CHAINS

1. Make sure chains are quite loose

2. Raise the sweeper and then dump the bucket slowly. The sweeper will dump correctly if chains have the proper tension. If the sweeper tips down when test dumping, go to step 3.

3. Tighten both chains by the same amount but no more than two links each.

4. Repeat steps 2 and 3 until the sweeper dumps correctly.

VOLUMIZER FEATURE

The Volumizer is designed to allow the level of debris to be controlled in the hopper and to prevent carry over of material.

VOLUMIZER ADJUSTMENT

As brush sections wear, the volumizer can be adjusted by pulling the “T” handle quick pin and moving it down one notch.

VOLUMIZER REMOVAL

To remove volumizer for pan sweeping, remove M10 screw and mounting pin from bearing side, then remove M6 screw and weld handle on motor side. Next, secure bucket and lift body to pull out volumizer.

MAINTENANCE SCHEDULE

Procedure	Before Each Use	After Each Use	100 Hours	500 Hours	See Prime Mover Manual
Brush pattern - Check (See Brush Pattern)	✓				
Fittings/hoses, hydraulic - Tighten **-** Check for damage	✓				
Fittings, zerk - Grease (See Lubrication Points)	✓				
Oil, hydraulic (Prime Mover)- Check Level **-** Check Cleanliness	✓				✓
Hardware -Tighten	✓				

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

Date	Maintenance Procedure Performed	Performed by	Comments

TROUBLESHOOTING

Brush Head Assembly

Problem	Possible Cause
Motor for pick-up broom will not operate	Auxiliary hydraulics control on prime mover is activated in the wrong position
	Hoses improperly connected to prime mover
	Hoses on prime mover are obstructed
	Hoses on broom are obstructed
	The motor has failed
Sluggish broom operation	Insufficient oil flow from the prime mover
	One or more seals have failed in the motor
	Hydraulic filter on prime mover is dirty
The motor runs but the broom does not run	Motor shaft has a sheared key
Oil leaks from the motor	One or more seals have failed in the motor
	Seals on the fittings are damaged
	Fittings are loose or damaged
	Hydraulic hoses are loose or damaged
Brush rotates in wrong directions	Hoses installed incorrectly
Brush slows or stops when sweeping	Brush pattern too wide
	Travel speed too fast
	Trying to sweep too much material at once.
	Hydraulic motor is failing
Brush wears very quickly	Brush pattern is too wide

TROUBLESHOOTING

Hydraulic Assembly

Problem	Possible Cause
Excessive hydraulic oil temperature	Low hydraulic oil level on the prime mover
	Hydraulic hoses are obstructed
	Hydraulic oil is dirty
	Quick couplers are loose
Hydraulic quick coupler leaks	Quick coupler poppet is unseated

VRS BODY ASSEMBLY

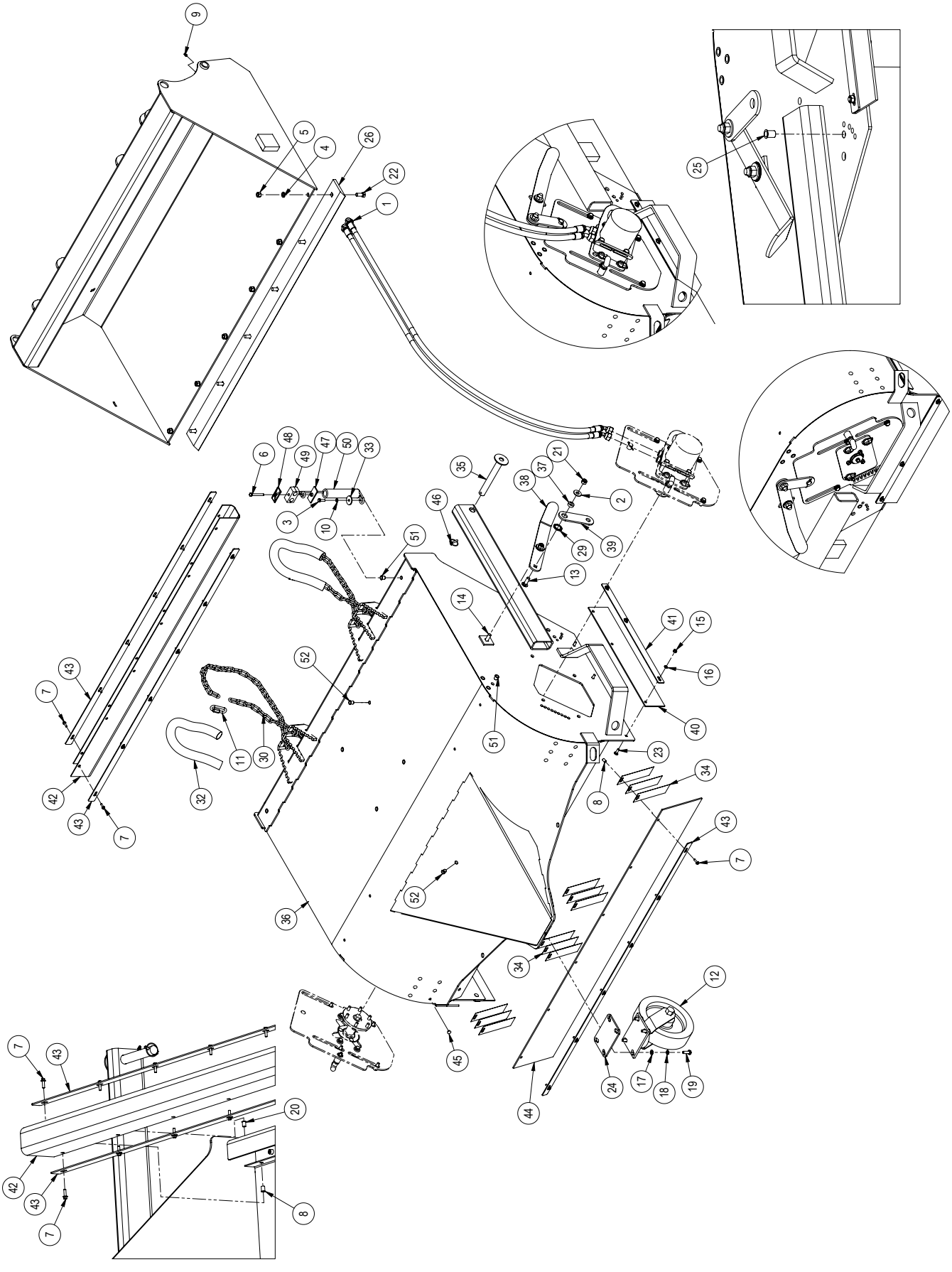
Item	Part	Qty	Description
1.	03-5224	2	Hose, 1/2 x 96, 10MOR, 10FFS45
2.	07-0156	4	Washer, Flat, Gr8, 1/2
3.	07-1714	1	Screw, HHC, Gr8, 5/16-18 x 1
4.	07-1762	6	Washer, Lock, Split, Medium, 1/2, 5ft
	07-1762	7	Washer, Lock, Split, Medium, 1/2, 6ft
	07-1762	8	Washer, Lock, Split, Medium, 1/2, 7ft
5.	07-1764	6	Nut, Hex, Gr8, 1/2-13 (5ft)
	07-1764	7	Nut, Hex, Gr8, 1/2-13 (6ft)
	07-1764	8	Nut, Hex, Gr8, 1/2-13 (7ft)
6.	07-1784	1	Screw, HHC, Gr8, 5/16-18 x 2 1/2
7.	07-2952	18	Screw, HFH, CL10.9, M6-1 x 20, 5ft
	07-2952	21	Screw, HFH, CL10.9, M6-1 x 20, 6ft
	07-2952	24	Screw, HFH, CL10.9, M6-1 x 20, 7ft
8.	07-2956	12	Nut, Insert, M6 x 1, Grip .027-.165, 5ft
	07-2956	14	Nut, Insert, M6 x 1, Grip .027-.165, 6ft
	07-2956	16	Nut, Insert, M6 x 1, Grip .027-.165, 7ft
9.	07-3112	2	Fitting, Zerk, 1/4-28, Self Tap
10.	07-3273	1	Washer, Lock, Split, Medium, 5/16
11.	07-3311	2	Link, Quick, 5/16
12.	07-7739	1	Caster, Assembly, 10 x 2.75, 5,6,7ft (1110001 & Up)
	07-6798	1	Caster, Assembly, 10 x 2.75, 5,6,7ft (1109199 & Down)
	07-3516	1	Caster, Assembly, Kingpinless, 6HC
13.	07-3708	2	Bolt, Carriage, Gr5, 1/2-13 x 1 1/2
14.	07-3709	2	Bolt, Carriage, Gr5, 1/2-13 x 1 3/4
15.	07-3737	6	Nut, Hex, CL10, M8-1.25
16.	07-3738	6	Washer, Lock, Split, Medium, M8
17.	07-3745	4	Washer, Flat, CL8.8, M10
18.	07-3747	4	Washer, Lock, Split, Medium, M10
19.	07-3749	4	Screw, HHC, CL10.9, M10-1.5 x 30mm
20.	07-3922	6	Nut, Insert, M6 x 1, Grip .165-.251, 5ft
	07-3922	7	Nut, Insert, M6 x 1, Grip .165-.251, 6ft
	07-3922	8	Nut, Insert, M6 x 1, Grip .165-.251, 7ft
21.	07-4037	4	Nut, Hex, Nylock, Gr8, 1/2-13
22.	07-4454	6	Bolt, Plow. Gr8, 1/2 x 1 1/2, 5ft
	07-4454	7	Bolt, Plow. Gr8, 1/2 x 1 1/2, 6ft
	07-4454	8	Bolt, Plow. Gr8, 1/2 x 1 1/2, 7ft
23.	07-5933	6	Bolt, Carriage, CL8.8, M8-1.25 x 5mm
24.	07-6521	1	Plate, Shim, 1/4
25.	07-6682	1	Nut, Insert, M10-1.5
26.	07-6974	1	Edge, Cut, 1/2 x 4 x 60.5, 6 Bolt, 5ft
	07-6975	1	Edge, Cut, 1/2 x 4 x 72.56, 7 Bolt, 6ft
	07-6976	1	Edge, Cut, 1/2 x 4 x 84.5, 8 Bolt, 7ft

Item	Part	Qty	Description
29.	07-7024	4	Washer, Belleville, 1.063 x 1.496
30.	07-7157	2	Chain, 1/4 x 66 Links, Gr43
32.	09-0066	2ft	Hose, LP, 1 Fiber Braid
33.	105840	1	Washer, Fender
34.	13-10060	12	Finger, Apron
35.	13-11734	2	Weld, Pin, 1 x 8
36.	13-15218-5S	1	Weld, Body (5ft)
	13-15218-6S	1	Weld, Body (6ft)
	13-15218-7S	1	Weld, Body (7ft)
37.	13-15223	4	Tube, Round, 1 x .562 x .375
38.	13-15246	2	Plate, Handle, Adjustment
39.	13-15262	2	Plate, Link, Adjustment, Motor
40.	13-15265	2	Flap, Side
41.	13-15267	2	Plate, 1/8 x 1 1/4 x 23.5, with Slots
42.	13-15273	1	Flap, 1/8 x 9 x 61.5, 12 Holes, 5ft
	13-15274	1	Flap, 1/8 x 9 x 73.5, 14 Holes, 6ft
	13-15275	1	Flap, 1/8 x 9 x 85.5, 16 Holes, 7ft
43.	13-15276	3	Plate, 1/8 x 1 1/4 x 60, 6 Slot,5ft
	13-15277	3	Plate, 1/8 x 1 1/4 x 72, 7 Slot, 6ft
	13-15278	3	Plate, 1/8 x 1 1/4 x 84, 8 Slot, 7ft
44.	13-15279	1	Flap, 3/16 x 10 x 61.5, 6 Hole, 5ft
	13-15280	1	Flap, 3/16 x 10 x 73.5, 7 Hole, 6ft
	13-15281	1	Flap, 3/16 x 10 x 85.5, 8 Hole, 7ft
45.	LAF9853	12	Plug, .375, Black Plastic
46.	RHW8068	2	Pin, Linch, 1/4
47.	RHW8613	1	Weld, Plate
48.	RHW8614	1	Cover, Plate
49.	RHW8616	1	Hose, Cradle
50.	RHW8618	1	Hose, Spring
51.	RHW8642	8	Nut, Rivet, 5/16-18, .15-.312 Grip
52.	RHW8645	5	Nut, Rivet, 5/16-18, .027-.15 Grip

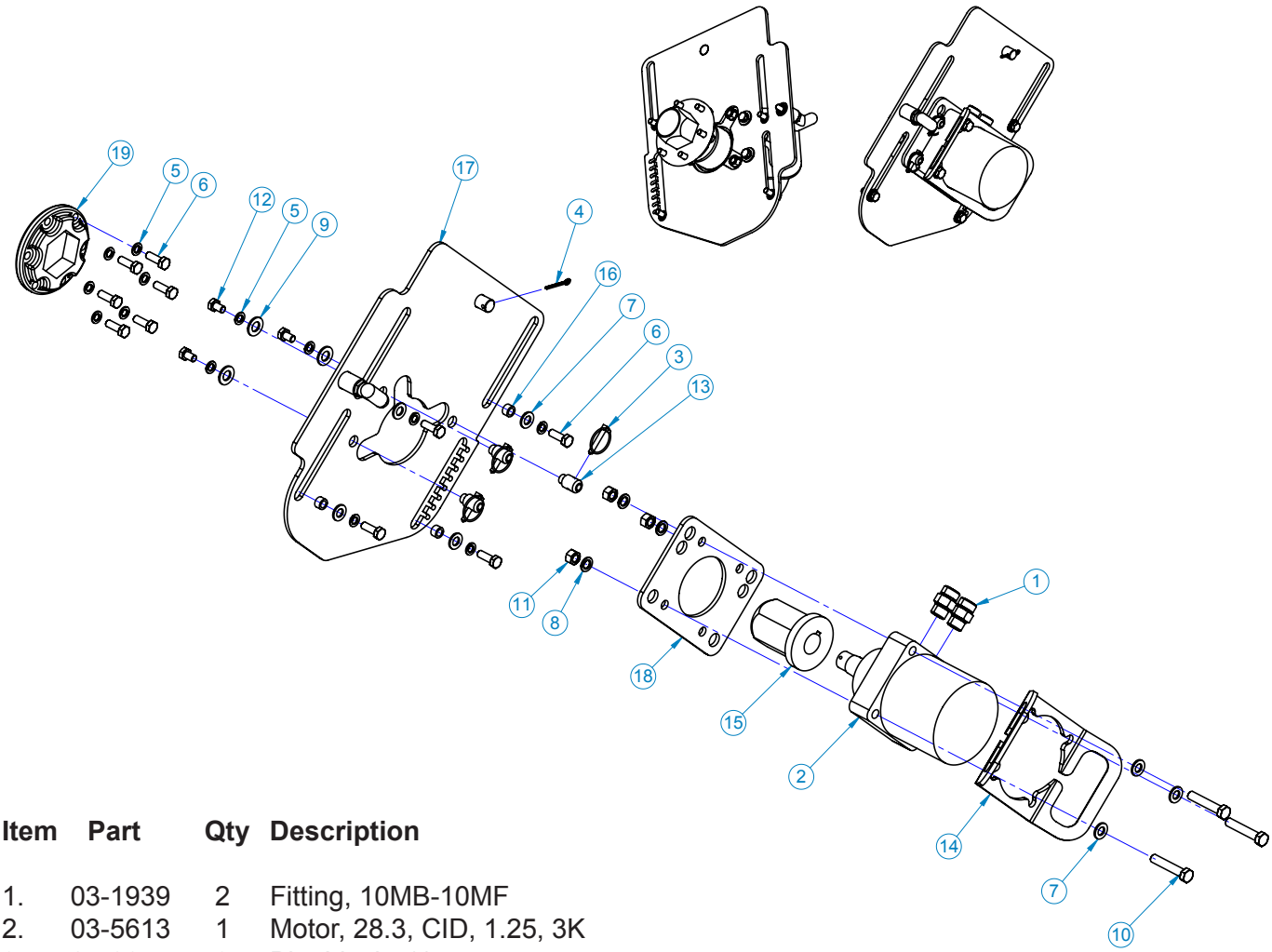
Replacement Parts for 07-6798 :

07-6520	Caster, Rig, with Axle and Nut
07-6522	Spanner, Bushing, for 3/4 Roller Bearing
07-6523	Spacer
07-6524	Bolt, 1/2 x 5 1/2
07-6525	Nut, Lock, Axle, 3/4
07-6792	Washer, Flat, Axle, 3/4
07-6799	Wheel, 10 x 2.75, 3/4 Roller Bearing

VRS BODY ASSEMBLY



VRS MOTOR ASSEMBLY



Item	Part	Qty	Description
1.	03-1939	2	Fitting, 10MB-10MF
2.	03-5613	1	Motor, 28.3, CID, 1.25, 3K
3.	07-0244	3	Pin, Linch, 1/4
4.	07-1044	1	Pin, Cotter, Gr2, 5/32 x 1 1/2
5.	07-3747	13	Washer, Lock, Split, Medium, M10
6.	07-3749	10	Screw, HHC, CL10.9, M10-1.50 x 30mm
7.	07-3754	7	Washer, Flat, CL10.9, M12
8.	07-3756	3	Washer, Lock, Split, Medium, M12
9.	07-4228	3	Washer, Flat, CL8.8, M14
10.	07-6683	3	Screw, HHC, CL10.9, M12-1.75 x 65mm
11.	07-6766	3	Nut, Hex, CL10.9, M12-1.75
12.	07-6769	3	Screw, HHC, CL10.9, M10-1.5 x 16mm
13.	13-14083	3	Stud, Mounting, Motor
14.	13-14086	1	Plate, Handle, Motor
15.	13-15206	1	Hub, Hex, 2 1/2 x 1 1/4 Tapered Bore x 3.75
16.	13-15247	4	Tube, Round, 5/8 x 12ga x .375
17.	13-15248	1	Weld, Mounting, Motor Core, Left
18.	13-15264	1	Plate, Mounting, Motor
19.	13-16225	1	Plate, Receiver, Hex, 2.5

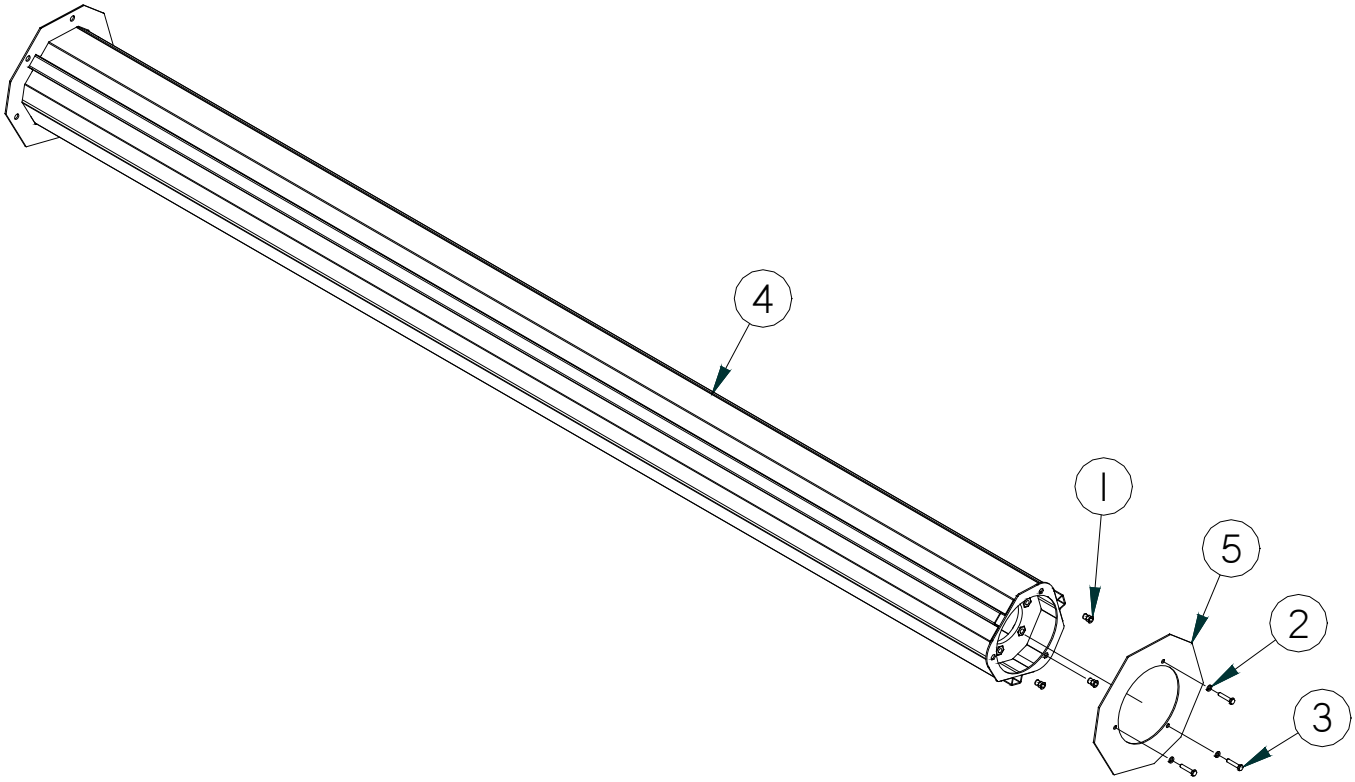
Replacement Parts for 03-5613 Motor 28.3 CID

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

Replacement Parts for 03-5087 Motor 25 CID

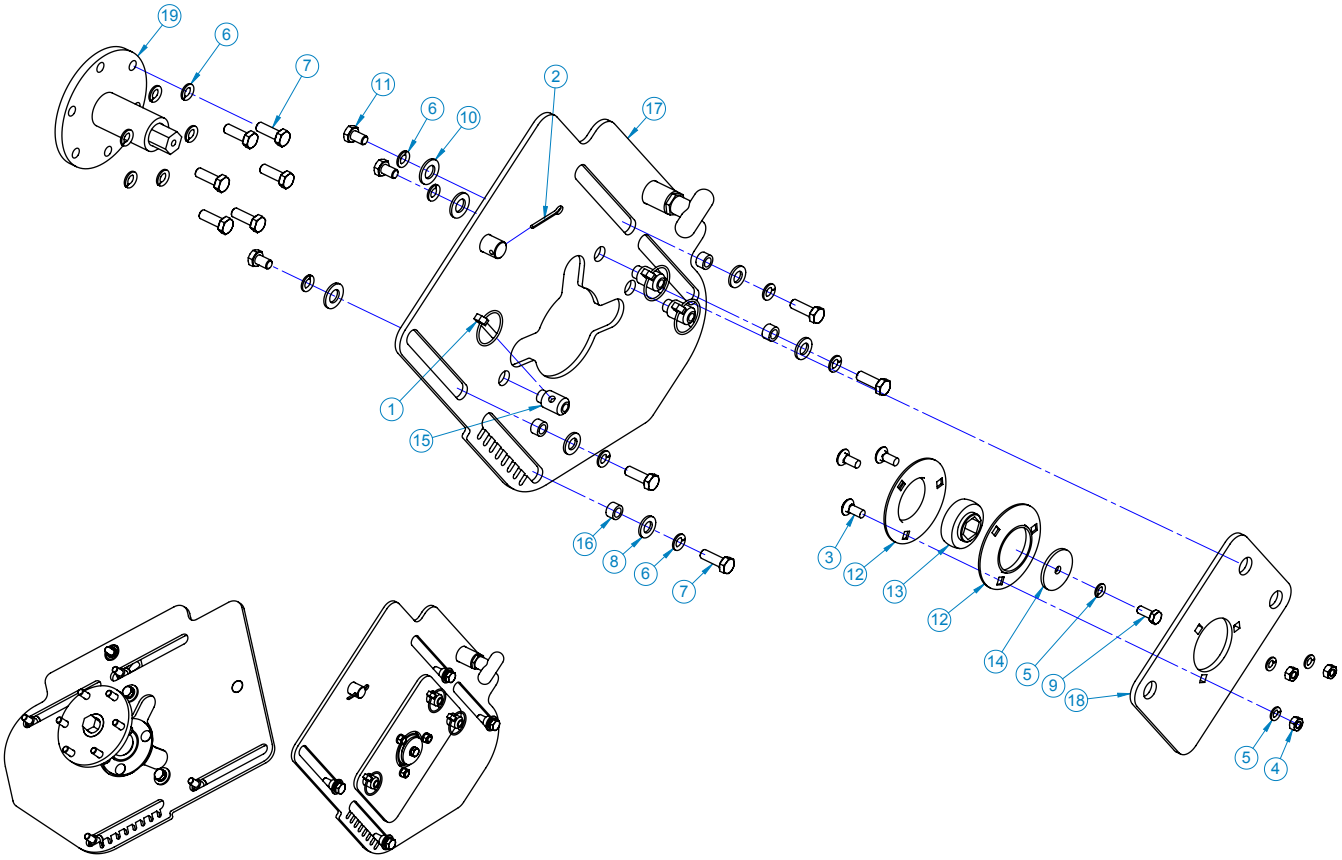
03-5503 Seal Kit

VRS CORE ASSEMBLY



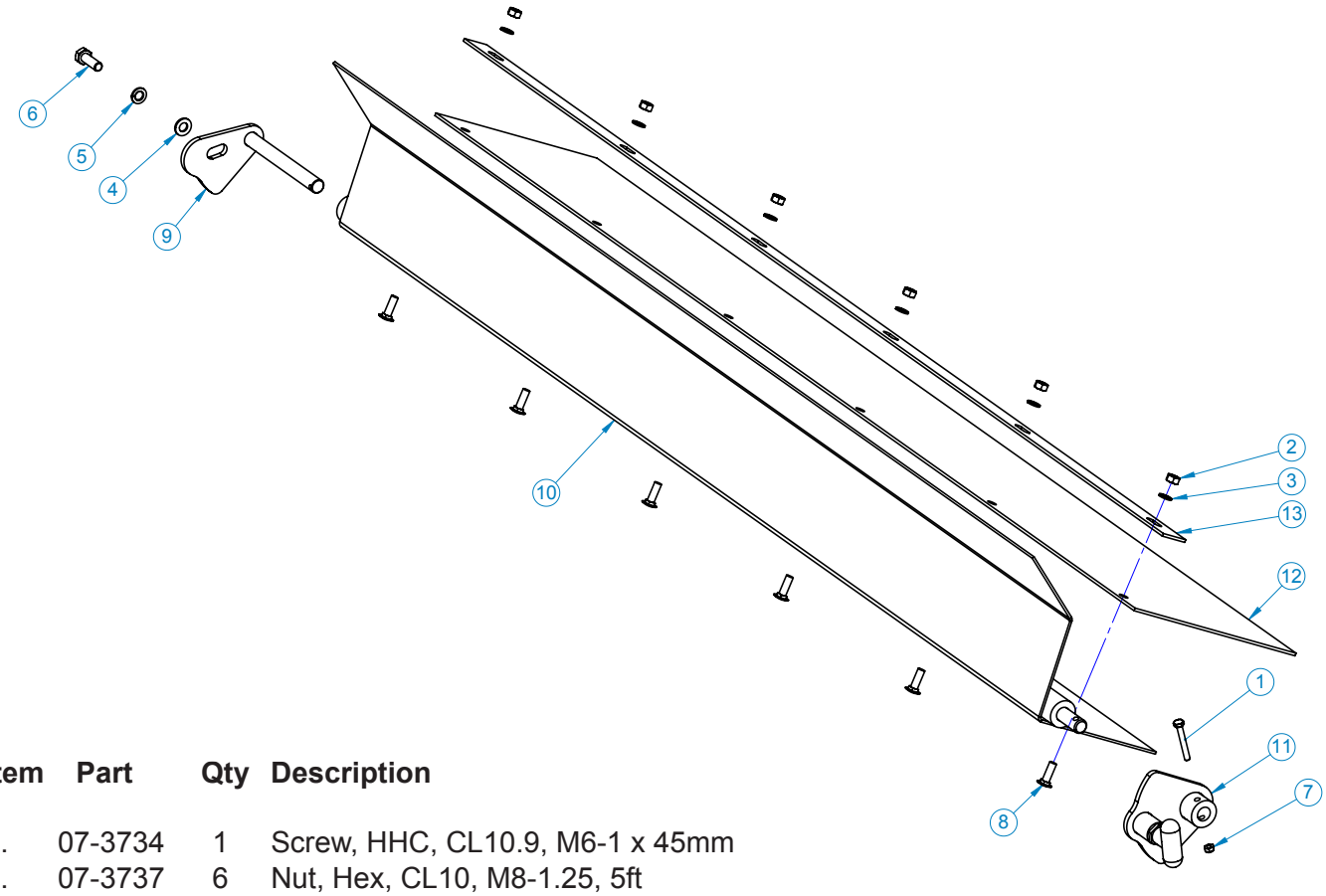
Item	Part	Qty	Description
1.	07-3617	3	Nut, Insert, Hex, M6 x 1
2.	07-3730	3	Washer, Lock, Split, Medium, M6
3.	07-3731	3	Screw, HHC, CL10.9, M6-1 x 30mm
4.	13-15657-5	1	Weld, Core, 8, 5ft
	13-15657-6	1	Weld, Core, 8, 6ft
	13-15657-7	1	Weld, Core, 8, 7ft
5.	13-15662	1	Plate, Section Retainer

VRS BEARING ASSEMBLY



Item	Part	Qty	Description
1.	07-0244	3	Pin, Linch, 1/4
2.	07-1044	1	Pin, Cotter, Gr2, 5/32 x 1 1/2
3.	07-2950	3	Bolt, Carriage, CL8.8, M8-1.25 x 20mm
4.	07-3737	3	Nut, Hex, CL10, M8-1.25
5.	07-3738	4	Washer, Lock, Split, Medium, M8
6.	07-3747	13	Washer, Lock, Split, Medium, M10
7.	07-3749	10	Screw, HHC, CL10.9, M10-1.5 x 30mm
8.	07-3754	4	Washer, Flat, CL10.9, M12
9.	07-3777	1	Screw, HHC, 10.9, M8-1.25 x 20
10.	07-4228	3	Washer, Flat, CL8.8, M14
11.	07-6769	3	Screw, HHC, CL10.9, M10-1.5 x 16mm
12.	08-0008	2	Bearing, Flange, 3 Bolt
13.	08-0037	1	Bearing, 7/8 Hex, without Hub
14.	13-11903	1	Washer, .34 x 1.8 x 10ga
15.	13-14083	3	Stud, Mounting, Motor
16.	13-15247	4	Tube, Round, 5/8 x 12ga x .375
17.	13-15249	1	Weld, Mounting, Motor, Core, Right
18.	13-15263	1	Plate, Mounting, Core
19.	13-16923	1	Weld, Hex, Shaft, Idler, Bolt-in

VRS VOLUMIZER ASSEMBLY



Item	Part	Qty	Description
1.	07-3734	1	Screw, HHC, CL10.9, M6-1 x 45mm
2.	07-3737	6	Nut, Hex, CL10, M8-1.25, 5ft
	07-3737	7	Nut, Hex, CL10, M8-1.25, 6ft
	07-3737	8	Nut, Hex, CL10, M8-1.25, 7ft
3.	07-3738	6	Washer, Lock, Split, Medium, M8, 5ft
	07-3738	7	Washer, Lock, Split, Medium, M8, 6ft
	07-3738	8	Washer, Lock, Split, Medium, M8, 7ft
4.	07-3745	1	Washer, Flat, CL8.8, M10
5.	07-3747	1	Washer, Lock, Split, Medium, M10
6.	07-3749	1	Screw, HHC, CL10.9, M10-1.50 x 30mm
7.	07-4603	1	Nut, Hex, Top-Lock, CL10.9, M6-1
8.	07-5933	6	Bolt, Carriage, CL8.8, M8-1.25 x 25mm, 5ft
	07-5933	7	Bolt, Carriage, CL8.8, M8-1.25 x 25mm, 6ft
	07-5933	8	Bolt, Carriage, CL8.8, M8-1.25 x 25mm, 7ft
9.	13-14187	1	Weld, Mounting, Volumizer
10.	13-15256-5	1	Weld, Volumizer, 5ft
	13-15256-6	1	Weld, Volumizer, 6ft
	13-15256-7	1	Weld, Volumizer, 7ft
11.	13-15260	1	Weld, Handle
12.	13-15270	1	Flap, 1/8 x 9 x 60.0, 6 Hole, 5ft
	13-15271	1	Flap, 1/8 x 9 x 72.0, 7 Hole, 6ft
	13-15272	1	Flap, 1/8 x 9 x 84.0, 8 Hole, 7ft
13.	13-15276	1	Plate, 1/8 x 1 1/4 x 60.0, 6 Slot, 5ft
	13-15277	1	Plate, 1/8 x 1 1/4 x 72.0, 7 Slot, 6ft
	13-15278	1	Plate, 1/8 x 1 1/4 x 84.0, 8 Slot, 7ft

VRS SINGLE GUTTERBROOM

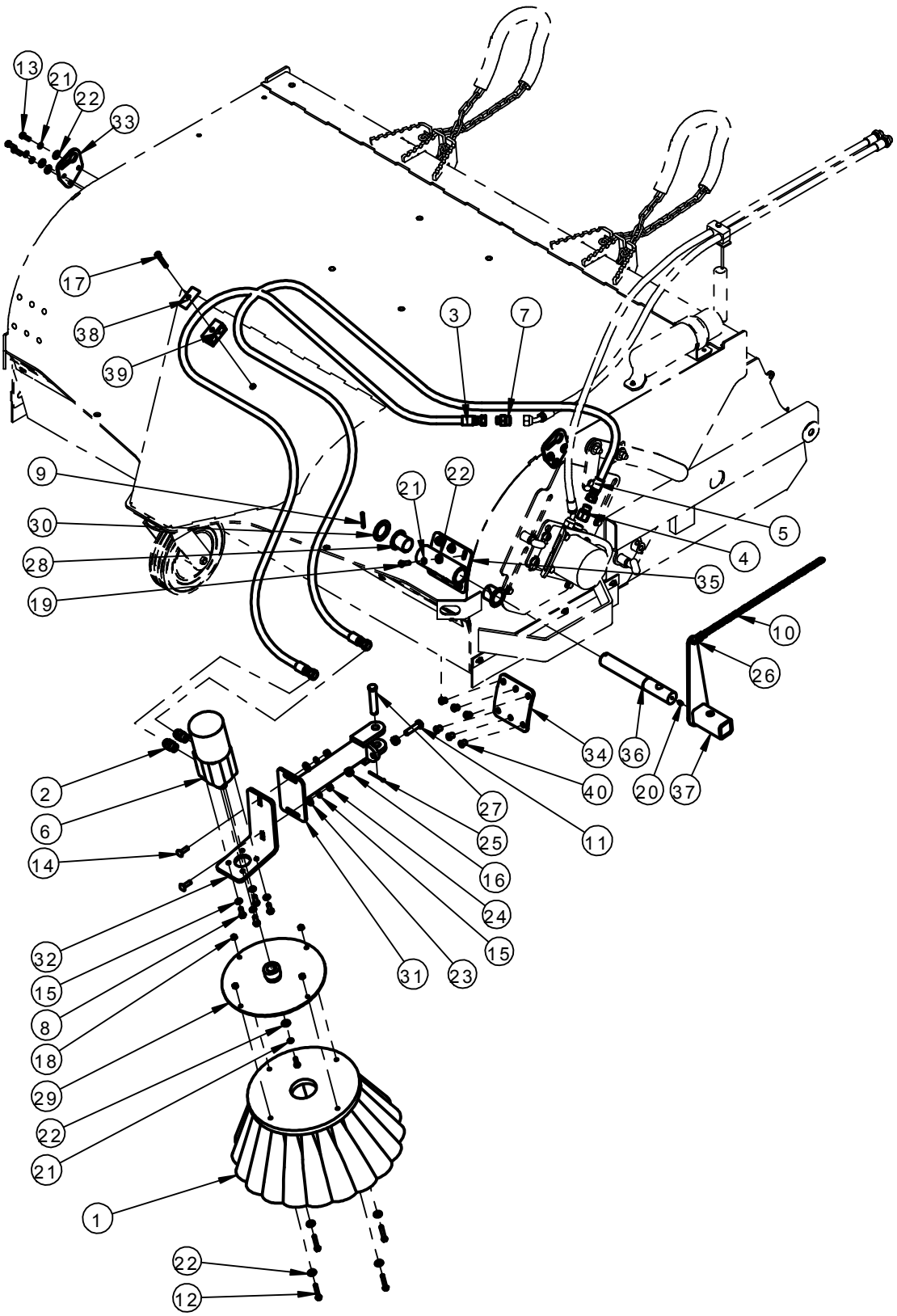
Item	Part	Qty	Description
1.	01-0704	1	Gutterbroom, Ecolo, 13 Woodback, Poly
	01-0523	1	Gutterbroom, Ecolo, 13 Woodback, Wire
2.	03-3481	2	Fitting, Adapter, HP, 1/2MFS, 7/8MOR
3.	03-4440	1	Hose, 1/2 x 126, TC, 1/2FFS, 1/2FFS
4.	03-4624	1	Fitting, 8MF-10FF
5.	03-3577	1	Hose, .5 x 150, 8FF-8FF, 3K
6.	03-5611	1	Motor, 24.6, CID
7.	03-5645	1	Fitting, 8MF-10MF
8.	07-0018	4	Screw, HHC, Gr8, 3/8-16 x 1
9.	07-0204	1	Pin, Roll, Gr2, 1/4 x 2
10.	07-0387	1	Chain, 3/16, 26 Links
11.	07-1125	1	Screw, HHC, Tap, Gr5, 1/2-13 x 2
12.	07-1698	4	Screw, HHC, Gr8, 5/16-18 x 2
13.	07-1714	7	Screw, HHC, Gr8, 5/16-18 x 1
14.	07-1717	2	Bolt, Carriage, Gr5, 3/8-16 x 1 1/4
15.	07-1718	6	Washer, Lock, Split, Medium, 3/8
16.	07-1764	2	Nut, Hex, Gr8, 1/2-13
17.	07-1784	1	Screw, HHC, Gr8, 5/16-18 x 2 1/2
18.	07-1810	4	Nut, Hex, Lock, 5/16-18, Gr8
19.	07-1973	6	Screw, HHC, Gr8, 5/16-18 x 1 1/4
20.	07-3112	1	Fitting, Zerk, 1/4-28, Self Tap
21.	07-3273	13	Washer, Lock, Split, Medium, 5/16
22.	07-3275	17	Washer, Flat, Gr8, 5/16
23.	07-3279	2	Washer, Flat, Gr8, 3/8
24.	07-3654	2	Nut, Hex, Gr8, 3/8-16
25.	07-4961	1	Pin, Cotter, Gr2, 1/8 x 2
26.	07-5054	1	Link, Quick, 3/16
27.	07-6358	1	Pin, Clevis, 3/4 x 3 1/2, 3 17/64 Grip Length
28.	09-0156	2	Flange, Bearing, Nylon
29.	13-0374	1	Weld, Plate, Gutterbroom
30.	13-12291	1	Washer, Flat, 2.375 x 1.625 x .134
31.	13-2264	1	Weld, Arm, Gutterbroom
32.	13-2265	1	Plate, Mounting, Motor, Gutterbroom
33.	13-50075	2	Plate, Adjustment, Gutterbroom
34.	13-50076	1	Plate, Attachment, Gutterbroom
35.	13-50088	1	Weld, Mounting, Gutterbroom
36.	13-50093	1	Rod, Pivot, Pin
37.	13-50096	1	Weld, Pivot, Arm
38.	RHW8614	1	Cover, Plate
39.	RHW8616	1	Hose, Cradle
40.	RHW8642	6	Nut, Rivet, 5/16-18, .15-.312 Grip Range

Replacement Part for 03-5611 :

03-5643	Seal Kit
07-7719	Replacement Key

VRS SINGLE GUTTERBROOM

Assembly 28-10323



VRS DUAL GUTTERBROOM

Item	Part	Qty	Description
2.	01-0704	2	Gutterbroom, Ecolo, 13 Woodback, Poly
	01-0523	2	Gutterbroom, Ecolo, 13 Woodback, Wire
3.	03-3481	4	Fitting, 10MB-8MF
4.	03-3820	2	Hose, .5 x 110, 8FF-8FF, 3K
5.	03-5146	1	Hose, .5 x 48, 8FF-10FF45, 3K
6.	03-5611	2	Motor, 24.6, CID
7.	03-5645	1	Fitting, 8MF-10MF
8.	07-0018	8	Screw, HHC, Gr8, 3/8-16 x 1
9.	07-0204	2	Pin, Roll, Gr2, 1/4 x 2
10.	07-0387	2	Chain, 3/16, 26 Links
11.	07-1125	2	Screw, HHC, Tap, Gr5, 1/2-13 x 2
12.	07-1698	8	Screw, HHC, Gr8, 5/16-18 x 2
13.	07-1714	8	Screw, HHC, Gr8, 5/16-18 x 1
14.	07-1717	4	Bolt, Carriage, Gr5, 3/8-16 x 1 1/4
15.	07-1718	12	Washer, Lock, Split, Medium, 3/8
16.	07-1764	4	Nut, Hex, Gr8, 1/2-13
17.	07-1784	1	Screw, HHC, Gr8, 5/16-18 x 2 1/2
18.	07-1810	8	Nut, Hex, Lock, 5/16-18, Gr8
19.	07-1973	12	Screw, HHC, Gr8, 5/16-18 x 1 1/4
20.	07-3112	2	Fitting, Zerk, 1/4-28, Self Tap
21.	07-3273	20	Washer, Lock, Split, Medium, 5/16
22.	07-3275	28	Washer, Flat, Gr8, 5/16
23.	07-3279	4	Washer, Flat, Gr8, 3/8
24.	07-3654	4	Nut, Hex, Gr8, 3/8-16
25.	07-4961	2	Pin, Cotter, Gr2, 1/8 x 2
26.	07-5054	2	Link, Quick, 3/16
27.	07-6358	2	Pin, Clevis, 3/4 x 3 1/2, 3 17/64 Grip Length
28.	09-0156	4	Flange, Bearing, Nylon
29.	13-0374	2	Weld, Plate, Gutterbroom
30.	13-12291	2	Washer, Flat, 2.375 x 1.625 x .134
31.	13-2264	2	Weld, Arm, Gutterbroom
32.	13-2265	2	Plate, Mounting, Motor
33.	13-50075	2	Plate, Adjustment, Gutterbroom
34.	13-50076	2	Plate, Attachment, Gutterbroom
35.	13-50088	2	Weld, Mounting, Gutterbroom
36.	13-50093	2	Rod, Pivot, Pin
37.	13-50096	2	Weld, Pivot, Arm
38.	50-0775	4	Label, Warning, Crush Hazard
39.	RHW8614	1	Cover, Plate
40.	RHW8616	1	Hose, Cradle
41.	RHW8642	12	Nut, Rivet, 5/16-18, .15-.312 Grip Range

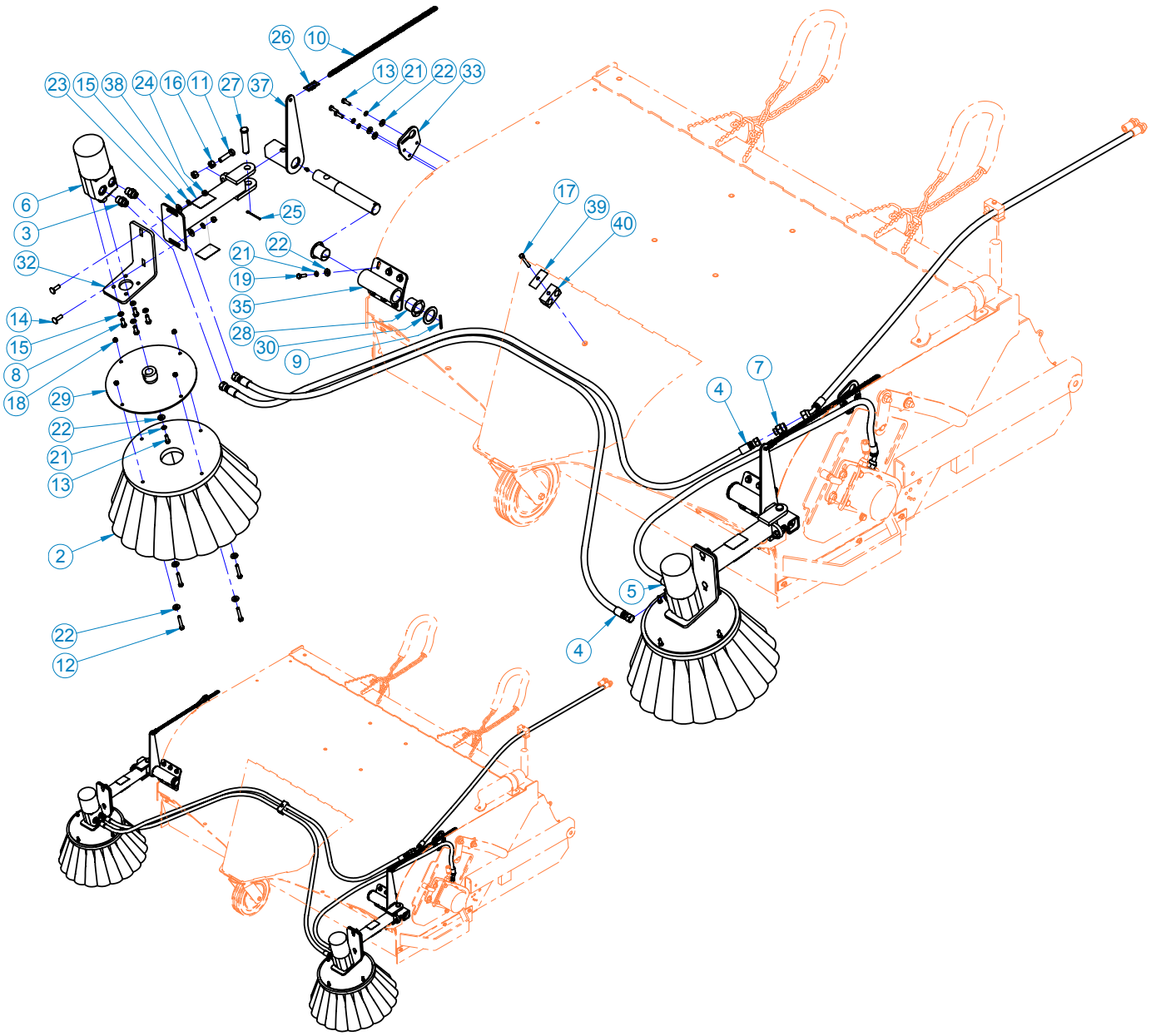
Replacement Part for 03-5611 :

03-5643 Seal Kit

07-7719 Replacement Key

VRS DUAL GUTTERBROOM

Assembly 28-10324



VRS DUST SUPPRESSION KIT

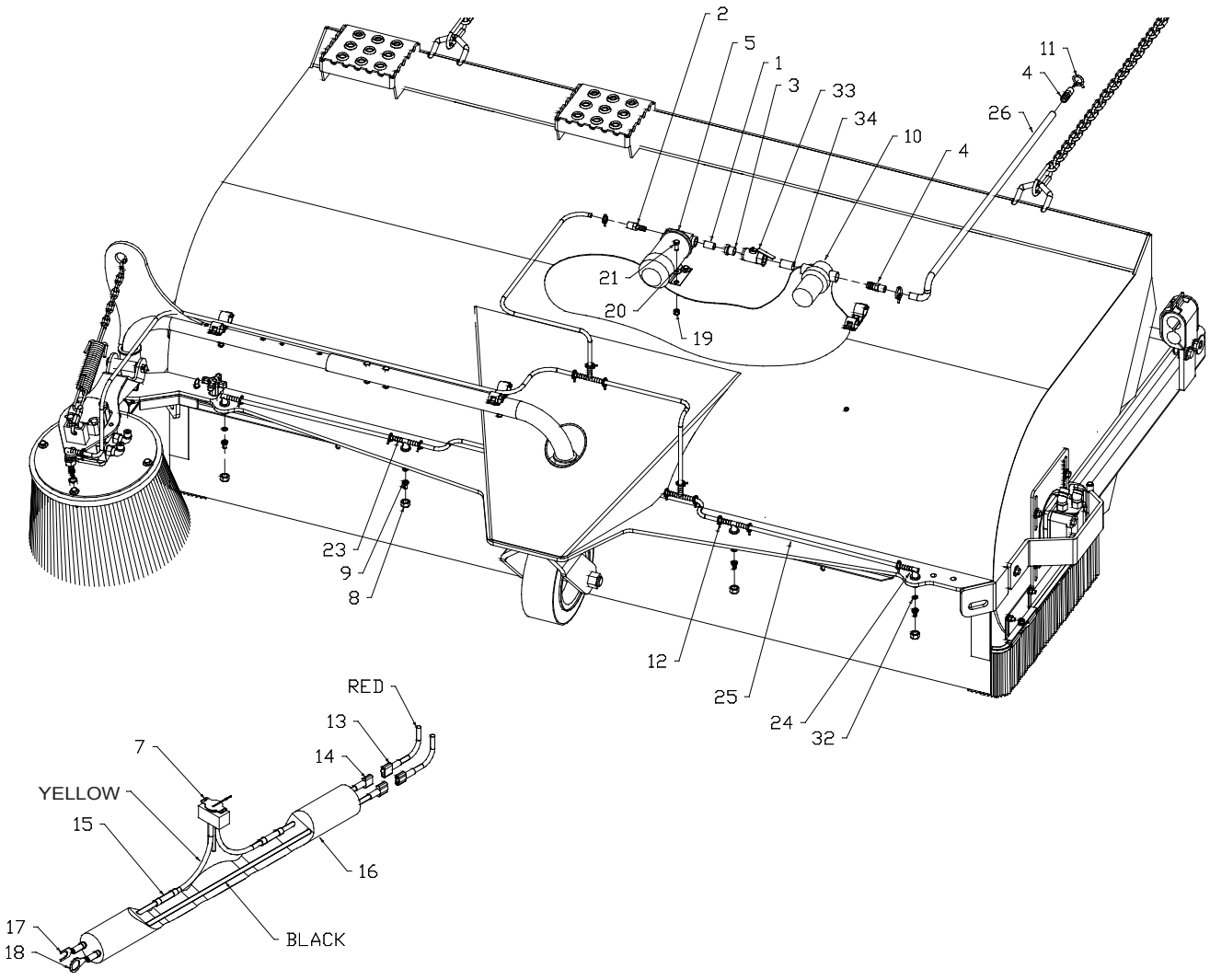
Item	Part	Qty	Description
1.	03-0076	1	Fitting, Nipple, BP, Close, 3/8
2.	03-0457	1	Fitting, Barb, Nylon, 3/8, 3/8MP
3.	03-0819	1	Fitting, Reducerbushing, HP, 1/2, 3/8
4.	03-1226	2	Fitting, Barb, HP, 5/8, 1/2MP
5.	03-1326	1	Pump, Water, 2.1gpm, 12 Volt, 7amp, 35psi
7.	07-0343	1	Switch, Toggle, 2 Positions
8.	07-0413	5	Nozzle, Cap, Nylon
9.	07-0414	5	Nozzle, Tip, Brass, 1.5
10.	07-0532	1	Strainer, Water
11.	07-0547	2	Clamp, Spring, 7/8 Hose
12.	07-0549	14	Clamp, Spring, 5/8 Hose
13.	07-0812	2	Terminal, Connector, 1/4 Female, 16-14
14.	07-0813	2	Terminal, Connector, 1/4 Male, 16-14
15.	07-0867	2	Terminal, Butt, 16-14
16.	07-0917	15ft	Wire, 16ga
17.	07-0926	1	Terminal, Spade, 6, 16-14
18.	07-0927	1	Terminal, Ring, 1/4, 16-14
19.	07-3270	4	Nut, Hex, Nylock, 5/16-18, Gr8
20.	07-3275	4	Washer, Flat, Gr8, 5/16
21.	07-3436	4	Screw, HHC, Gr8, 5/16-18 x 3/4
22.	07-3869	2	Fitting, Barb, Tee, Nylon, 3/8
23.	07-4861	2	Nozzle, Tee, without Clamp
24.	07-4862	3	Nozzle, Elbow, without Clamp
25.	07-5127	25ft	Hose, Clear, Vinyl, 3/8
26.	09-0028	10ft	Hose, Heater, 5/8
32.	03-3537	5	O-Ring, #8 Face seal
33.	03-1392	1	Valve, Shut-Off, Ball, 1/2
34.	03-0152	1	Fitting, Nipple, BP, Close, 1/2

Replacement Parts for 03-1326 :

07-6565 Fan Shroud
07-6566 Grommet Set (Qty 4)
07-6567 Mounting Kit

VRS DUST SUPPRESSION KIT

Assembly 28-9140, No Tank



VRS DUST SUPPRESSION KIT

Item	Part	Qty	Description
1.	03-0076	1	Fitting, Nipple, BP, Close, 3/8
2.	03-0152	1	Fitting, Nipple, BP, Close, 1/2
3.	03-0457	1	Fitting, Barb, Nylon, 3/8, 3/8MP
4.	03-0819	1	Fitting, Reducerbushing, HP, 1/2, 3/8
5.	03-1226	2	Fitting, Barb, HP, 5/8, 1/2MP
6.	03-1326	1	Pump, Water, 2.1gpm, 12 Volt, 7 amp, 35psi
	03-2558	1	Pump, Water, 2.1gpm, 24 Volt, 3.5amp, 60psi
7.	03-1392	1	Valve, Shut-Off
8.	03-3537	5	O-Ring, #8 Face Seal
9.	07-0140	4	Washer, Lock, Gr2, #10
10.	07-0413	5	Nozzle, Cap, Nylon
11.	07-0414	5	Nozzle, Tip, Brass, 1.5
12.	07-0532	1	Strainer, Water
13.	07-0547	2	Clamp, Spring, 7/8 Hose
14.	07-0549	14	Clamp, Spring, 5/8 Hose
15.	07-1430	4	Washer, Flat, #10
16.	07-1973	8	Screw, HHC, Gr8, 5/16-18 x 1 1/4
17.	07-3150	1	Assembly, Tank, Water, 25 Gallon
18.	07-3273	8	Washer, Lock, Split, Medium, 5/16
19.	07-3275	8	Washer, Flat, Gr8, 5/16
20.	07-3869	2	Fitting, Barb, Tee, Nylon, 3/8
21.	07-4831	4	Screw, BHC, 10-24UNC, 2B x 3/4
23.	07-4862	3	Nozzle, Elbow, without Clamp
24.	07-5127	25ft	Hose, Clear, Vinyl, 3/8
25.	09-0028	5ft	Hose, Heater, 5/8
26.	LAF2826	1	Bracket, Nozzle
27.	LAF8316	1	Wire Harness, with Box
28.	LAF8320	1	Wire Assembly x 11 ft
29.	LAF8376	4	Sprinkler, Tank Mount
30.	RHW2135	4	Screw, Socket Head, Flat, Gr5, 5/16-18 x 3/4

Replacement Parts for 03-1326 and 03-2558 :

07-6565 Fan Shroud
07-6566 Grommet Set (Qty 4)
07-6567 Mounting Kit

Replacement Part for 07-3150 :

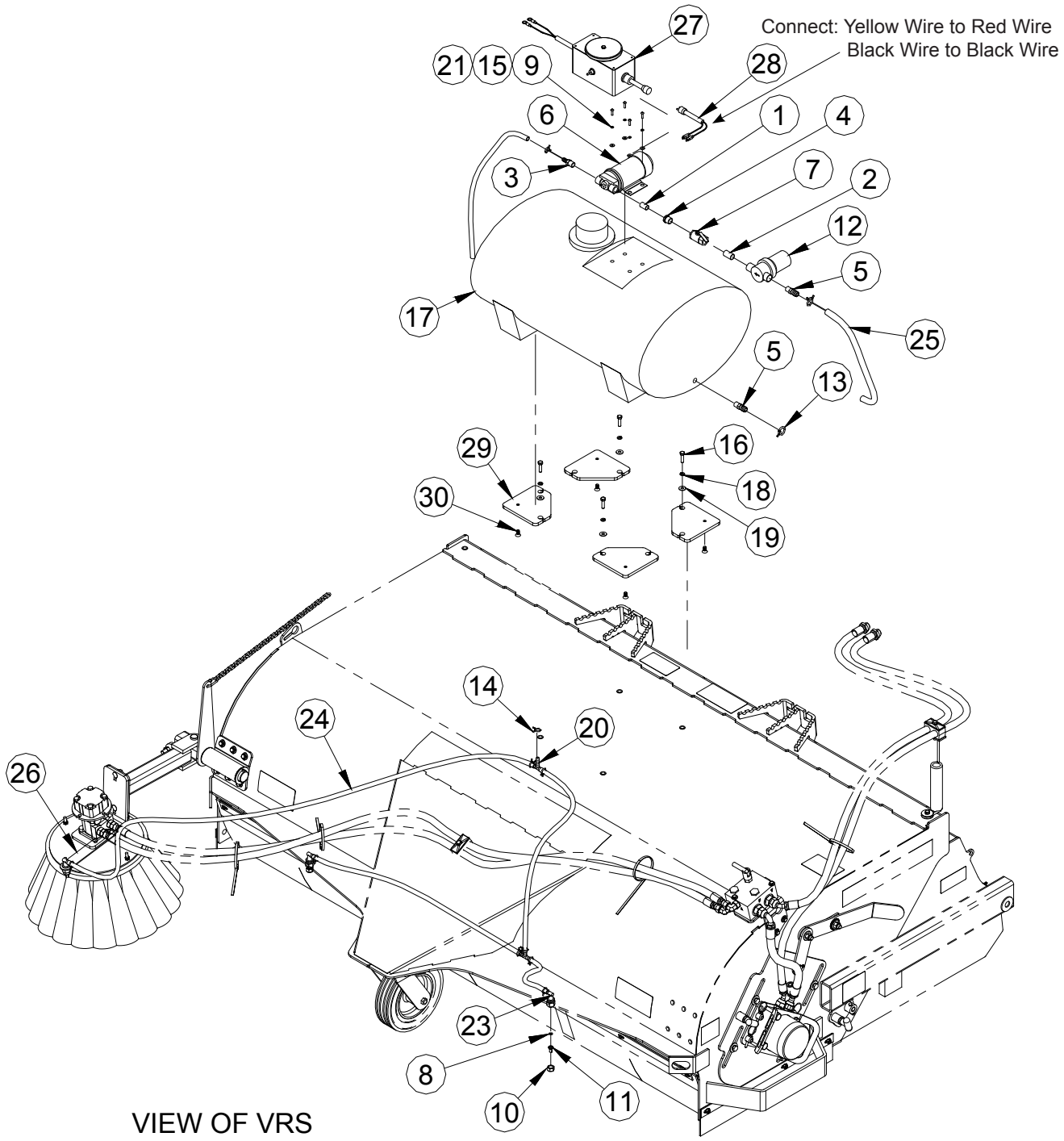
07-3417 Cap

Replacement Parts for LAF8316 :

07-4942 Switch
07-1824 Rubber Boot
07-3152 Circuit Breaker

VRS DUST SUPPRESSION KIT

Assembly 28-9139 12 Volt
Assembly 28-9193 24 Volt



VIEW OF VRS

VS BODY ASSEMBLY

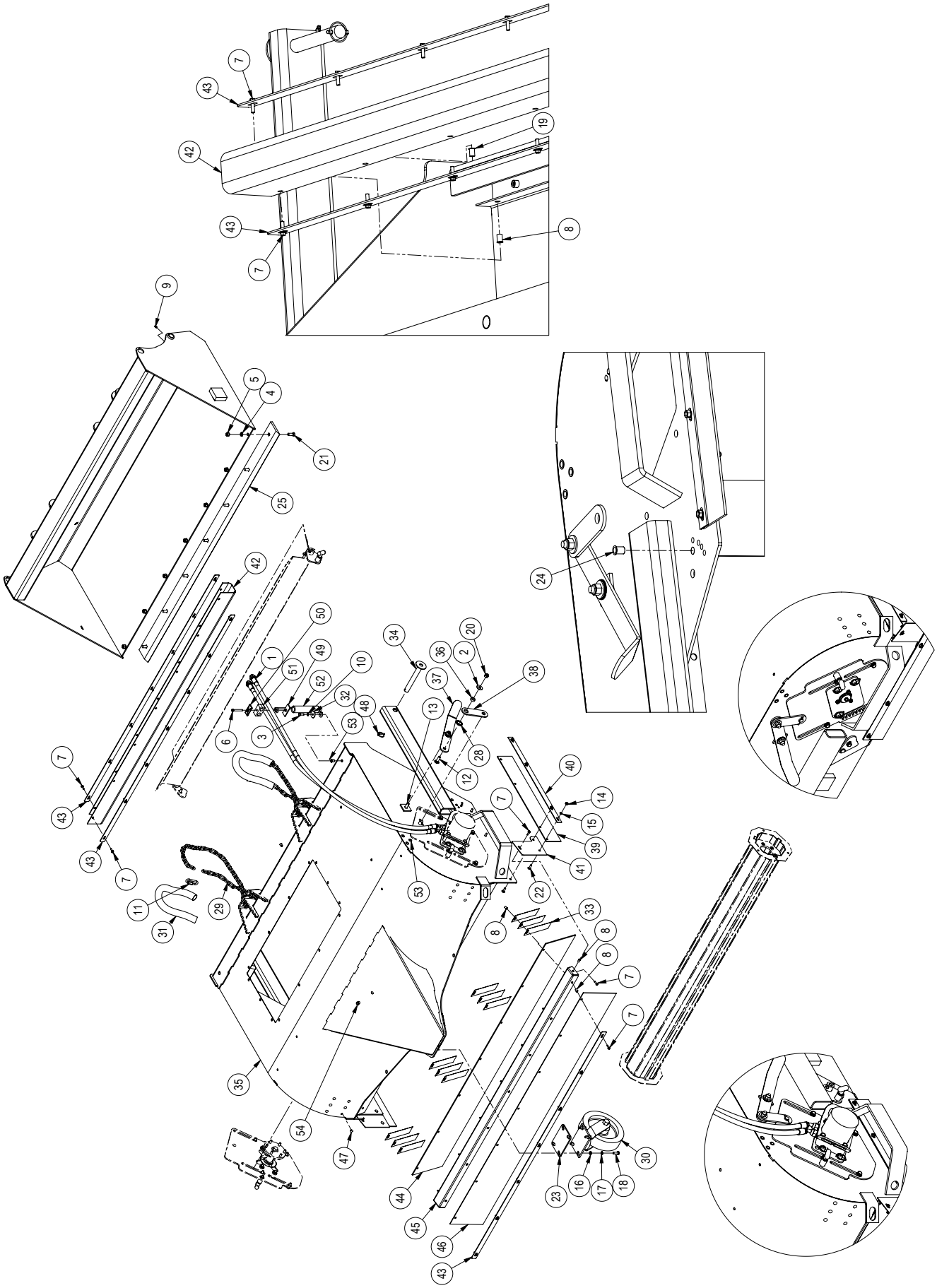
Item	Part	Qty	Description
1.	03-5224	2	Hose, .5 x 96, 10FF45-12MB, 3.5K
2.	07-0156	4	Washer, Flat, Gr8, 1/2
3.	07-1714	1	Screw, HHC, Gr8, 5/16-18 x 1
4.	07-1762	6	Washer, Lock, Split, Medium, 1/2, 5ft
	07-1762	7	Washer, Lock, Split, Medium, 1/2, 6ft
	07-1762	8	Washer, Lock, Split, Medium, 1/2, 7ft
5.	07-1764	6	Nut, Hex, Gr8, 1/2-13, 5ft
	07-1764	7	Nut, Hex, Gr8, 1/2-13, 6ft
	07-1764	8	Nut, Hex, Gr8, 1/2-13, 7ft
6.	07-1784	1	Screw, HHC, Gr8, 5/16-18 x 2 1/2
7.	07-2952	26	Screw, HFH, CL10.9, M6-1 x 20, 5ft
	07-2952	34	Screw, HFH, CL10.9, M6-1 x 20, 6ft
	07-2952	34	Screw, HFH, CL10.9, M6-1 x 20, 7ft
8.	07-2956	20	Nut, Insert, M6 x 1, Grip .027-.165, 5ft
	07-2956	23	Nut, Insert, M6 x 1, Grip .027-.165, 6ft
	07-2956	26	Nut, Insert, M6 x 1, Grip .027-.165, 7ft
9.	07-3112	2	Fitting, Zerk, 1/4-28, Self-Tap
10.	07-3273	1	Washer, Lock, Split, Medium, 5/16
11.	07-3311	2	Link, Quick, 5/16
12.	07-3708	2	Bolt, Carriage, Gr5, 1/2-13 x 1 1/2
13.	07-3709	2	Bolt, Carriage, Gr5, 1/2-13 x 1 3/4
14.	07-3737	8	Nut, Hex, CL10, M8-1.25
15.	07-3738	8	Washer, Lock, Split, Medium, M8
16.	07-3745	4	Washer, Flat, CL8.8, M10
17.	07-3747	4	Washer, Lock, Split, Medium, M10
18.	07-3749	4	Screw, HHC, CL10.9, M10-1.5 x 30mm
19.	07-3922	6	Nut, Insert, M6 x 1, Grip, .165-.251, 5ft
	07-3922	7	Nut, Insert, M6 x 1, Grip, .165-.251, 6ft
	07-3922	8	Nut, Insert, M6 x 1, Grip, .165-.251, 7ft
20.	07-4037	4	Nut, Hex, Nylock, Gr8, 1/2-13
21.	07-4454	6	Bolt, Plow, Gr8, 1/2 x 1 1/2, 5ft
	07-4454	7	Bolt, Plow, Gr8, 1/2 x 1 1/2, 6ft
	07-4454	8	Bolt, Plow, Gr8, 1/2 x 1 1/2, 7ft
22.	07-5933	8	Bolt, Carriage, CL8.8, M8-1.25 x 25mm
23.	07-6521	1	Plate, Shim, 1/4
24.	07-6682	1	Nut, Insert, M10-1.5, 3.8-7.9
30.	07-7739	1	Caster, Assembly, 10 x 2.75 (1110001 & Up)
	07-6798	1	Caster, Assembly, 10 x 2.75 (1109199 & Down)
25.	07-6974	1	Edge, Cut, 1/2 x 4 x 60.5, 6 Bolt, 5ft
	07-6975	1	Edge, Cut, 1/2 x 4 x 72.5, 7 Bolt, 6ft
	07-6976	1	Edge, Cut, 1/2 x 4 x 84.5, 8 Bolt, 7ft

Item	Part	Qty	Description
28.	07-7024	4	Washer, 1.063 x 1.496
29.	07-7157	2	Chain, 1/4 x 66 Links, Gr43
31.	09-0066	2	Hose, 1 Fiber Braid, 2 ft Long
32.	105840	1	Washer, Fender
33.	13-10060	12	Finger, Apron
34.	13-11734	2	Weld, Pin, 1 x 8, with Hole
35.	13-15218-5V	1	Weld, Body, VS, 5ft
	13-15218-6V	1	Weld, Body, VS, 6ft
	13-15218-7V	1	Weld, Body, VS, 7ft
36.	13-15223	4	Tube, Round, 1 x .562 x .36
37.	13-15246	2	Plate, Handle
38.	13-15262	2	Plate, Link
39.	13-15266	2	Flap, Side
40.	13-15268	2	Plate, 1/8 x 1 1/4 x 27, 4 Slot
41.	13-15269	2	Plate, Side, Mounting, Flap, Front
42.	13-15273	1	Flap, 1/8 x 9 x 61.5, 12 Hole, 5ft
	13-15274	1	Flap, 1/8 x 9 x 73.5, 14 Hole, 6ft
	13-15275	1	Flap, 1/8 x 9 x 85.5, 16 Hole, 7ft
43.	13-15276	3	Plate, 1/8 x 1 1/4 x 60, 6 Slot, 5ft
	13-15277	3	Plate, 1/8 x 1 1/4 x 72, 7 Slot, 6ft
	13-15278	3	Plate, 1/8 x 1 1/4 x 84, 8 Slot, 7ft
44.	13-15279	1	Flap, 3/16 x 10 x 61.5, 6 Hole, 5ft
	13-15280	1	Flap, 3/16 x 10 x 73.5, 7 Hole, 6ft
	13-15281	1	Flap, 3/16 x 10 x 85.5, 8 Hole, 7ft
47.	LAF9853	12	Plug, .375, Black Plastic
49.	RHW8613	1	Weld, Plate
50.	RHW8614	1	Cover, Plate
51.	RHW8616	1	Hose Cradle
52.	RHW8618	1	Hose, Spring
53.	RHW8642	8	Nut, Rivet, 5/16-18, Grip .15-.312
54.	RHW8645	1	Nut, Rivet, 5/16-18, Grip .027-.15

Replacement Parts for 07-6798 :

07-6520	Caster, Rig, with Axle and Nut
07-6522	Spanner, Bushing, for 3/4 Roller Bearing
07-6523	Spacer
07-6524	Bolt , 1/2 x 5 1/2
07-6525	Nut, Lock, Axle, 3/4
07-6792	Washer, Flat, Axle, 3/4
07-6799	Wheel, 10 x 2.75, 3/4 Roller Bearing

VS BODY ASSEMBLY



VS SINGLE GUTTERBROOM ASSEMBLY

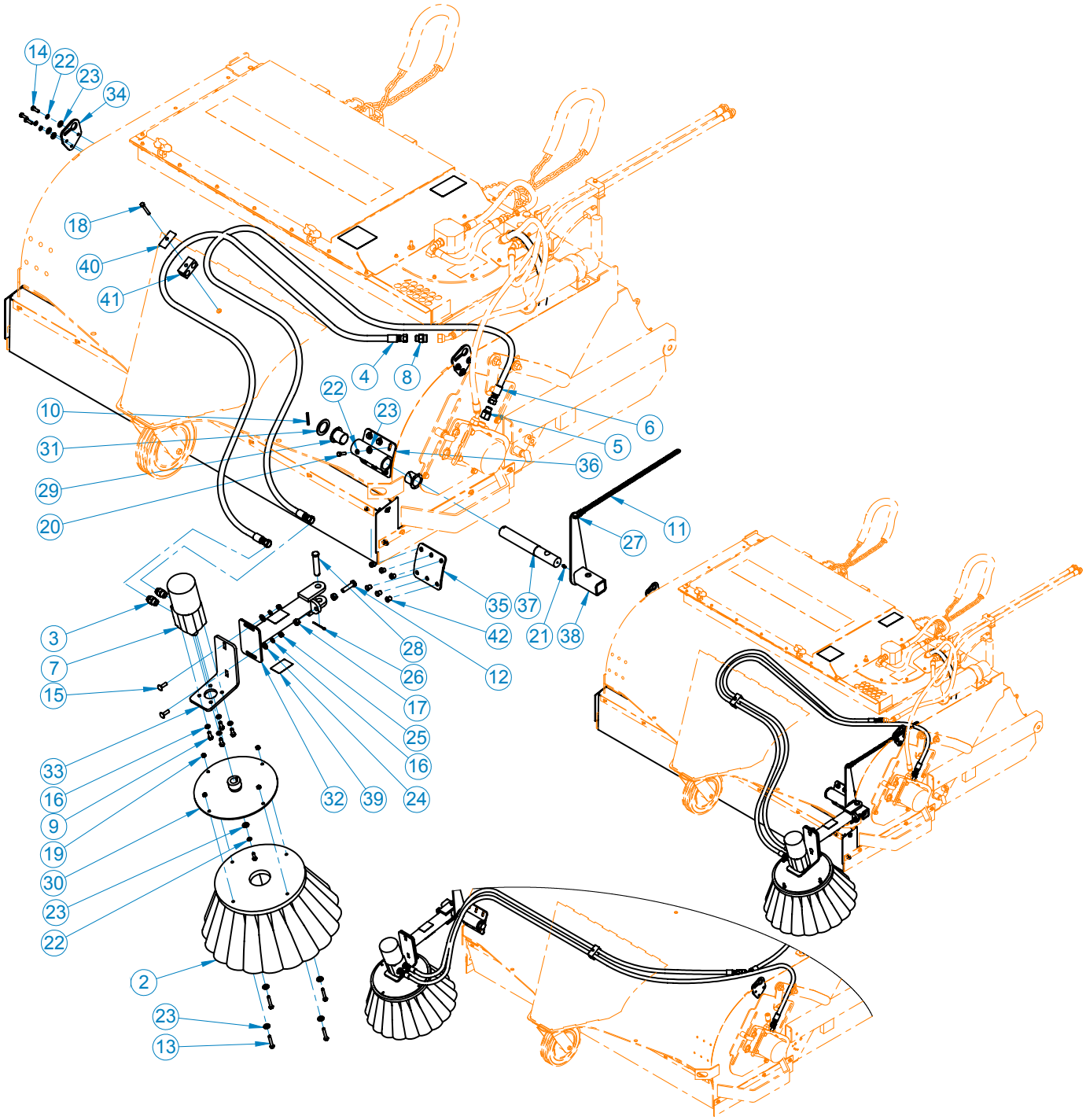
Item	Part	Qty	Description
2.	01-0704	1	Gutterbroom, Ecolo, 13, Poly
	01-0523	1	Gutterbroom, Ecolo, 13, Wire
3.	03-3481	2	Fitting, Adapter, HP, 1/2MFS, 7/8MOR
4.	03-4440	1	Hose, 1/2 x 126, TC, 1/2FFS, 1/2FFS
5.	03-4624	1	Fitting, 8MF-10FF
6.	03-5377	1	Hose, .5 x 150, 8FF-8FF, 3K
7.	03-5611	1	Motor, 24.6, CID
8.	03-5645	1	Fitting, 8MF-10MF
9.	07-0018	4	Screw, HHC, Gr8, 3/8-16 x 1
10.	07-0204	1	Pin, Roll, Gr2, 1/4 x 2
11.	07-0387	1	Chain, 3/16, 26 Links
12.	07-1125	1	Screw, HHC, Tap, Gr5, 1/2-13 x 2
13.	07-1698	4	Screw, HHC, Gr8, 5/16-18 x 2
14.	07-1714	7	Screw, HHC, Gr8, 5/16-18 x 1
15.	07-1717	2	Bolt, Carriage, Gr5, 3/8-16 x 1 1/4
16.	07-1718	6	Washer, Lock, Split, Medium, 3/8
17.	07-1764	2	Nut, Hex, Gr8, 1/2-13
18.	07-1784	1	Screw, HHC, Gr8, 5/16-18 x 2 1/2
19.	07-1810	4	Nut, Hex, Lock, 5/16-18, Gr8
20.	07-1973	6	Screw, HHC, Gr8, 5/16-18 x 1 1/4
21.	07-3112	1	Fitting, Zerk, 1/4-28, Self Tap
22.	07-3273	13	Washer, Lock, Split, Medium, 5/16
23.	07-3275	17	Washer, Flat, Gr8, 5/16
24.	07-3279	2	Washer, Flat, Gr8, 3/8
25.	07-3654	2	Nut, Hex, Gr8, 3/8-16
26.	07-4961	1	Pin, Cotter, Gr2, 1/8 x 2
27.	07-5054	1	Link, Quick, 3/16
28.	07-6358	1	Pin, Clevis, 3/4 x 3 1/2, 3 17/64 Grip Length
29.	09-0156	2	Flange, Bearing, Nylon
30.	13-0374	1	Weld, Plate, Gutterbroom
31.	13-12291	1	Washer, Flat, 2.375 x 1.625 x .134
32.	13-2264	1	Weld, Arm
33.	13-2265	1	Plate, Mounting, Motor
34.	13-50075	2	Plate, Adjustment, Gutterbroom
35.	13-50076	1	Plate, Attachment, Gutterbroom
36.	13-50088	1	Weld, Mounting, Gutterbroom
37.	13-50093	1	Rod, Pivot, Pin
38.	13-50096	1	Weld, Pivot, Arm
39.	50-0775	2	Label, Warning, Crush Hazard
40.	RHW8614	1	Cover, Plate
41.	RHW8616	1	Hose, Cradle
42.	RHW8642	6	Nut, Rivet, 5/16-18, .150-.312 Grip Range

Replacement Part for 03-5611 :

03-5643	Seal Kit
07-7719	Replacement Key

VS SINGLE GUTTERBROOM ASSEMBLY

Assembly 28-10325



VS DUAL GUTTERBROOM ASSEMBLY

Item	Part	Qty	Description
2.	01-0704	2	Gutterbroom, Ecolo, 13 Woodback, Poly
	01-0523	2	Gutterbroom, Ecolo, 13 Woodback, Wire
3.	03-3481	4	Fitting, Adapter, HP, 1/2MFS, 7/8MOR
4.	03-3820	2	Hose, .50 x 110, 8FF-8FF, 3K
5.	03-5146	1	Hose, .50 x 48, 8FF-10FF45, 3K
6.	03-5611	2	Motor, 24.6, CID
7.	03-5645	1	Fitting, 8MF-10MF
8.	07-0018	8	Screw, HHC, Gr8, 3/8-16 x 1
9.	07-0204	2	Pin, Roll, Gr2, 1/4 x 2
10.	07-0387	2	Chain, 3/16, 26 Links
11.	07-1125	2	Screw, HHC, Tap, Gr5, 1/2-13 x 2
12.	07-1698	8	Screw, HHC, Gr8, 5/16-18 x 2
13.	07-1714	8	Screw, HHC, Gr8, 5/16-18 x 1
14.	07-1717	4	Bolt, Carriage, Gr5, 3/8-16 x 1 1/4
15.	07-1718	12	Washer, Lock, Split, Medium, 3/8
16.	07-1764	4	Nut, Hex, Gr8, 1/2-13
17.	07-1784	1	Screw, HHC, Gr8, 5/16-18 x 2 1/2
18.	07-1810	8	Nut, Hex, Lock, 5/16-18, Gr8
19.	07-1973	12	Screw, HHC, Gr8, 5/16-18 x 1 1/4
20.	07-3112	2	Fitting, Zerk, 1/4-28, Self Tap
21.	07-3273	20	Washer, Lock, Split, Medium, 5/16
22.	07-3275	28	Washer, Flat, Gr8, 5/16
23.	07-3279	4	Washer, Flat, Gr8, 3/8
24.	07-3654	4	Nut, Hex, Gr8, 3/8-16
25.	07-4961	2	Pin, Cotter, Gr2, 1/8 x 2
26.	07-5054	2	Link, Quick, 3/16
27.	07-6358	2	Pin, Clevis, 3/4 x 3 1/2, 3 17/64 Grip Length
28.	09-0156	4	Flange, Bearing, Nylon
29.	13-0374	2	Weld, Plate, Gutterbroom
30.	13-12291	2	Washer, Flat, 2.375 x 1.625 x .134
31.	13-2264	2	Weld, Arm, Gutterbroom
32.	13-2265	2	Plate, Mounting, Motor
33.	13-50075	2	Plate, Adjustment, Gutterbroom
34.	13-50076	2	Plate, Attachment, Gutterbroom
35.	13-50088	2	Weld, Mounting, Gutterbroom
36.	13-50093	2	Rod, Pivot, Pin
37.	13-50096	2	Weld, Pivot, Arm
38.	50-0775	4	Label, Warning, Crush Hazard
39.	RHW8614	1	Cover, Plate
40.	RHW8616	1	Hose, Cradle
41.	RHW8642	12	Nut, Rivet, 5/16-18, .15-.312 Grip Range

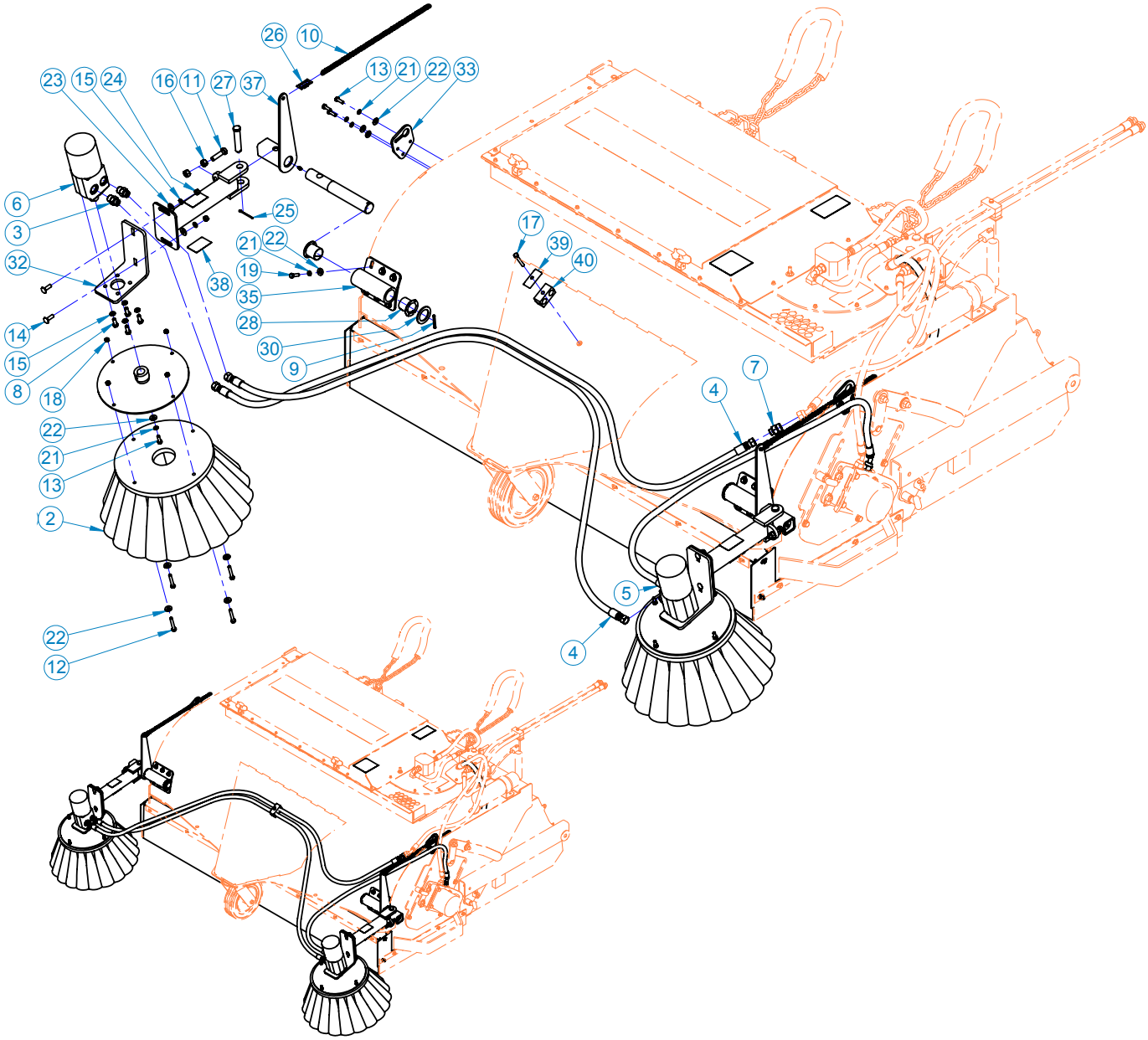
Replacement Part for 03-5611 :

03-5643 Seal Kit

07-7719 Replacement Key

VS DUAL GUTTERBROOM ASSEMBLY

Assembly 28-10326



BOLT TORQUE SPECIFICATIONS

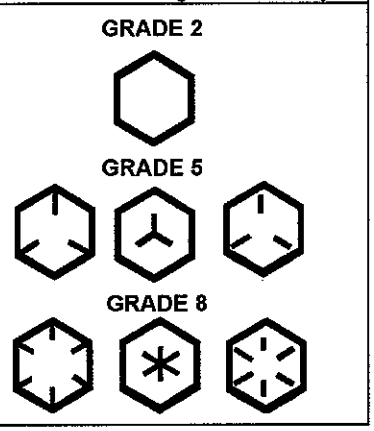
GENERAL TORQUE SPECIFICATION TABLES

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.

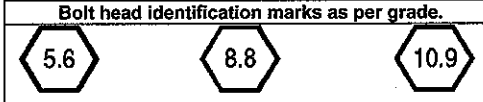
Bolt Size		SAE GRADE 5 TORQUE				SAE GRADE 8 TORQUE				Bolt head identification marks as per grade. NOTE: Manufacturing Marks Will Vary
		Pounds Feet		Newton-Meters		Pounds Feet		Newton-Meters		
Inches	Millimeters	UNC	UNF	UNC	UNF	UNC	UNF	UNC	UNF	
1/4	6.35	8	9	11	12	10	13	14	18	
5/16	7.94	14	17	19	23	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	



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.



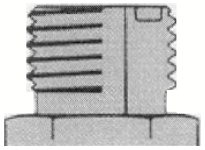
Size of Bolt	Grade No.	Pitch (mm)	Pounds Feet	Newton-Meters	Pitch (mm)	Pounds Feet	Newton-Meters
M6	5.6	1.0	3.6-5.8	4.9-7.9	-	-	-
	8.8		5.8-.4	7.9-12.7		-	-
	10.9		7.2-10	9.8-13.6		-	-
M8	5.6	1.25	7.2-14	9.8-19	1.0	12-17	16.3-23
	8.8		17-22	23-29.8		19-27	25.7-36.6
	10.9		20-26	27.1-35.2		22-31	29.8-42
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 0-ring to end of fitting if not already installed. Ensure 0-ring is fully seated and retained properly.
3. Lubricate 0-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.

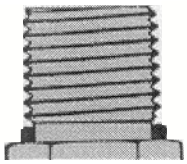
Torque Values

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

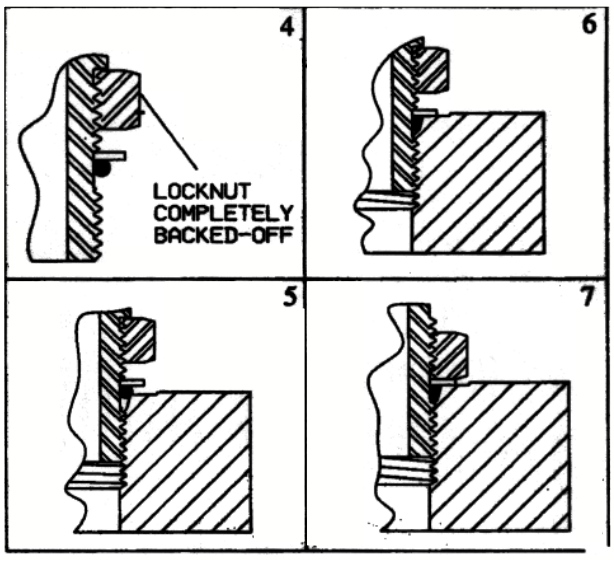


NOTE - Straight thread o-ring fittings are utilized to adapt hydraulic systems to motors, pumps, cylinders, and valves.

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.

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[1], 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.

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

February 10, 2010