



CS Series

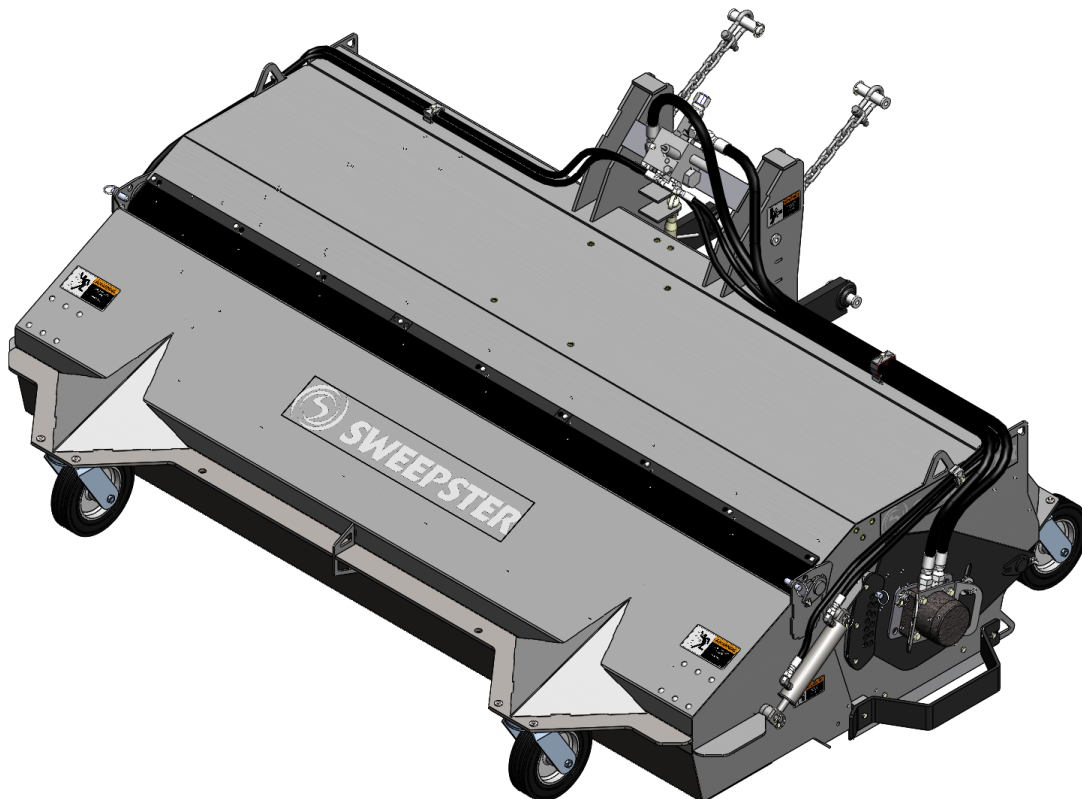
Model 203/204
Container Sweeper



PALADIN
LIGHT CONSTRUCTION GROUP



The Power of Combined Excellence



Sweepster Serial Number _____

Manual Number: 51-4034
Release Date: November, 2012
Serial Number 0733001 and Up

NOTES

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INTRODUCTION

Purpose of Sweeper

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

Contacting Sweepster

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

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

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

WARNING!



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

CAUTION!



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

NOTICE!

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



THIS SYMBOL BY ITSELF OR USED WITH A SAFETY SIGNAL 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!



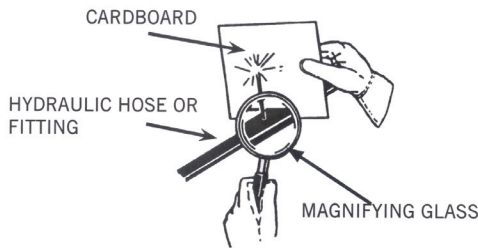
USE CARE WITH HYDRAULIC FLUID PRESSURE

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.

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.

SAFETY SIGNS & LABELS



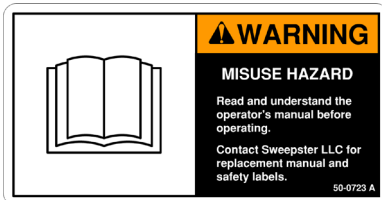
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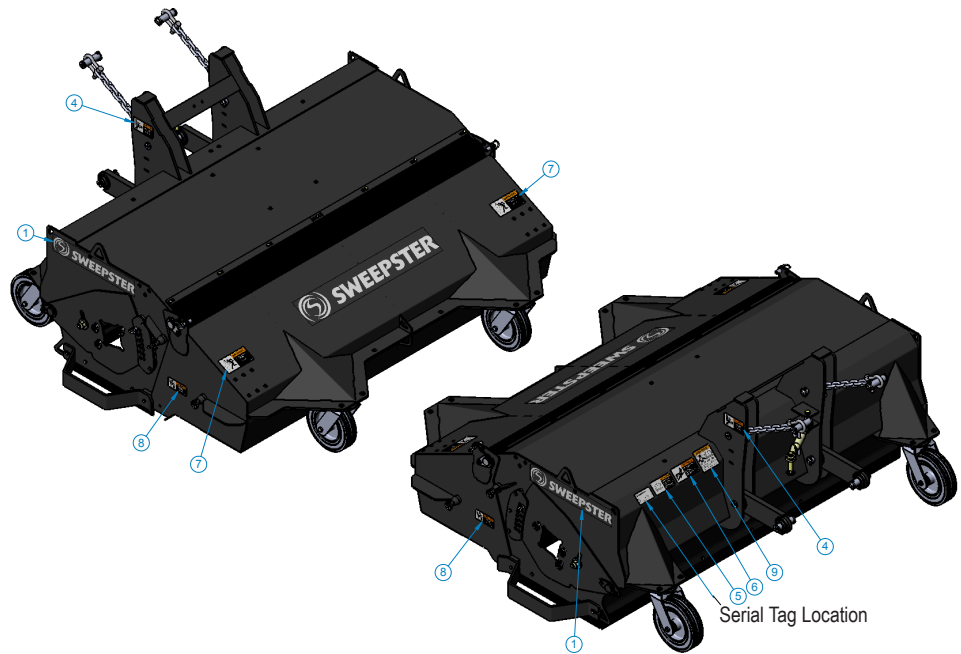
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50-0725



41043



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.

Item	Part	Qty	Description
1.	50-0185	2	Label, Logo, Sweepster, Medium
2.	50-0252	1	Label, Logo, Sweepster, Large
4.	50-0644	2	Label, Warning, Pinch Area
5.	50-0723	1	Label, Warning, Misuse Hazard
6.	50-0725	2	Label, Warning, High Pressure Fluid
7.	50-0727	2	Label, Warning, Flying Objects
8.	50-0737	2	Label, Warning, Pinch Point Hazard
9.	41043	1	Decal, Warning, Hazardous Dust

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.

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.

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.
- 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.

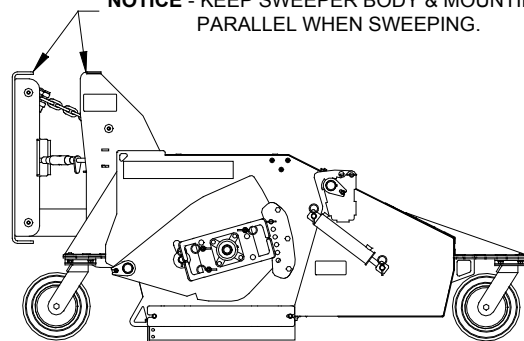
WARNING!



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

- Carry the sweeper low to the ground for good visibility and stability. Avoid any sudden movements from one side to the other when you carry a sweeper.
- Avoid excessive downward pressure on the brush sections to prevent excessive wear. A two to four inch wide pattern is sufficient for most applications. Ensure that the motor and bearing plates are equally adjusted in order to prevent an uneven wear pattern.

NOTICE - KEEP SWEEPER BODY & MOUNTING PARALLEL WHEN SWEEPING.



NOTICE!

AVOID SWEEPER DAMAGE. Do not operate broom with prime mover loader arms in float. This broom is not designed to carry the weight of the prime mover loader arms.

NOTICE!

When disconnecting unit from sweeper be sure to disengage locking mechanism.

To Sweep:

Pressurize “P” port on manifold. This will activate the broom for dust pan style sweeping when traveling forward. This broom is unidirectional.

To Dump Hopper:

Pressurize “T” port (reverse flow) this will stop the brush and activate dump cylinders to open hopper. Casters must be at least 6” above ground to avoid damage.

STORAGE

To Close Hopper:

Pressurize "P" port, broom will start and dump cylinders will retract closing hopper. Casters must be 6" above ground to prevent damage.

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.

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.

NOTICE!

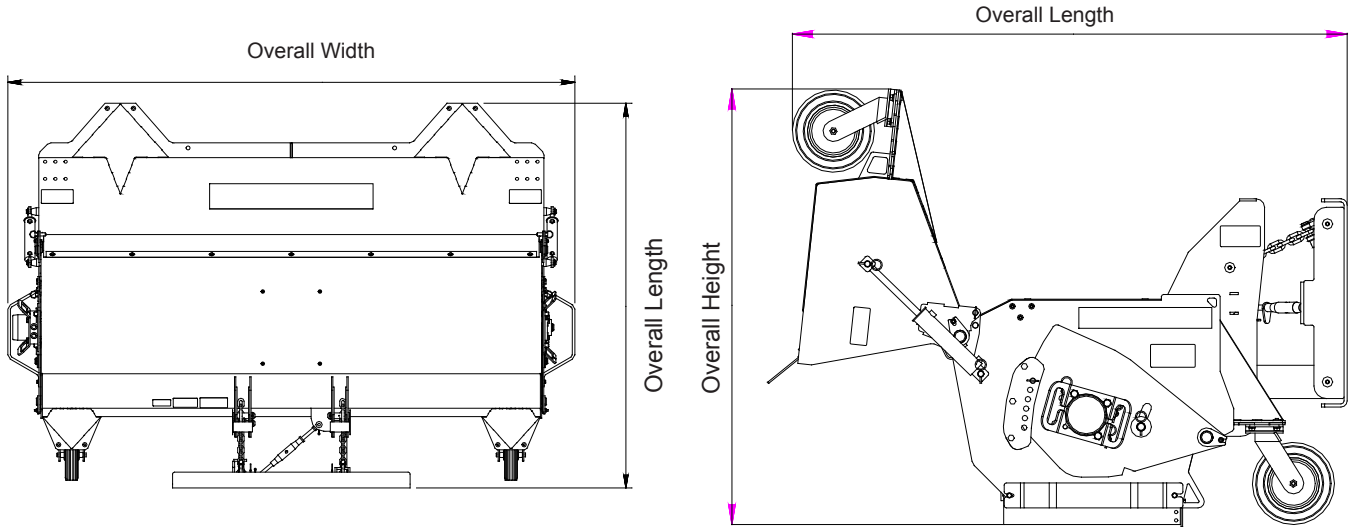
Do not store the sweeper with weight on the brush. Weight will deform the bristles, destroying the sweeping effectiveness.

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.

PRODUCT INFORMATION

Specifications and Model Views

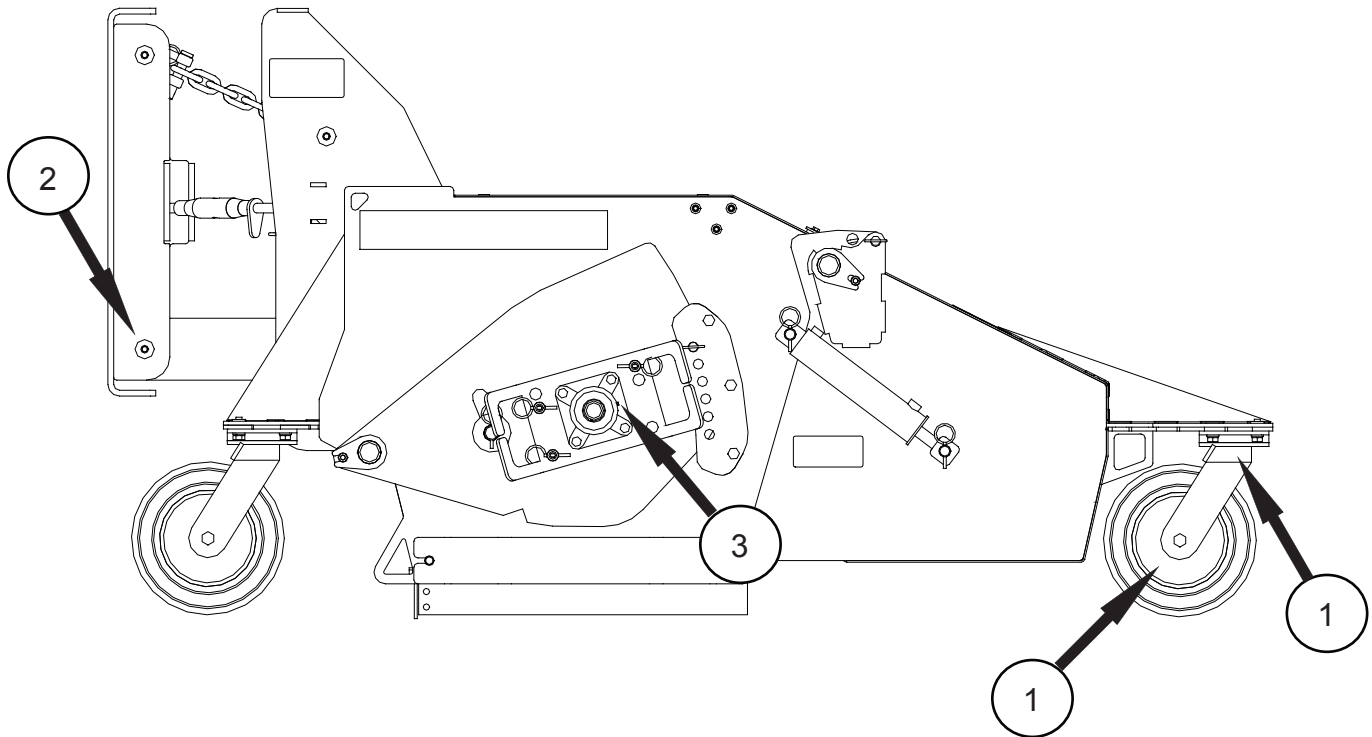


	CS26 (203)		CS32 (204)	
Weight Without Quick Attach	1080 lb	6 ft	-----	-----
	1260 lb	7ft	1705 lb	8 ft
	1440 lb	8ft	1918 lb	9 ft
Sweeping Width	72 in	6 ft	-----	-----
	84 in	7ft	96 in	8 ft
	96 in	8ft	108 in	9 ft
Overall Width	87 in	6 ft	-----	-----
	99 in	7ft	111 in	8 ft
	111 in	8ft	123 in	9 ft
Overall Length	75.5 inches		80.5 inches	
Maximum Length Open	67 inches		73 inches	
Maximum Height Open	52.5 inches		60.5 inches	
Maximum Hydraulic Oil Flow	50 gpm		50 gpm	
Maximum Hydraulic Oil Pressure	3500 psi		3500 psi	

LUBRICATION POINTS

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

1. Caster (2 fittings each)
2. Parallel Link Pins (4 Fittings)
3. Outside Bearing (1 Fitting)
Inside Bearing (1 Fitting)



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 quick pin and move it up one notch. Repeat on the opposite side.
 - b. If the brush pattern is too narrow, pull the quick pin and move it down one notch. Repeat on the opposite side.
6. Repeat steps # 1 through #5 until the brush pattern is 2-4 inches wide.

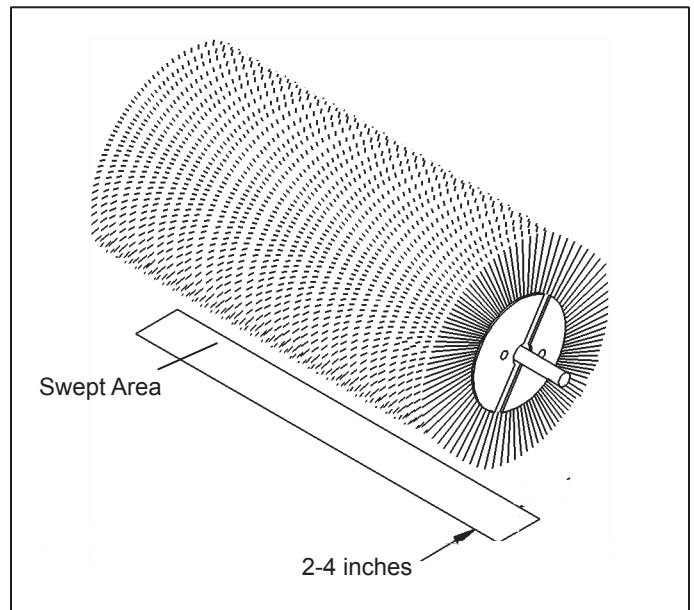
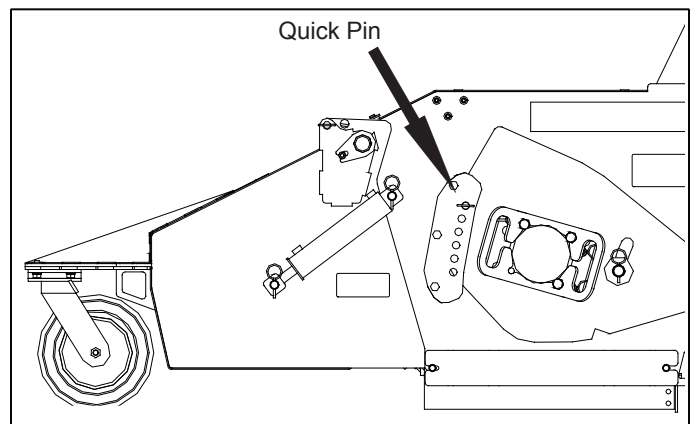


figure 1



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. Open hopper and install hopper lockout pin.
2. Remove three lock pins for motor mount(s). Retain hardware for reinstallation. Remove motor mount(s).
3. Remove three lock pins for bearing mount(s). Retain hardware for reinstallation. Remove bearing mount(s).
4. Roll core from sweeper body.
5. Remove the core hat plate. Retain hardware for reinstallation.
6. Remove old sections.
7. Install new sections by doing the following:
For 8" x 26" sections:
 - 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 each 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 each 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.
8. Re-attach the core hat plate.
9. Lay core on ground and roll back into sweeper body.
10. Re-attach the bearing plate(s) with previously removed hardware.
11. Attach motor mount(s) with hardware removed in step one.

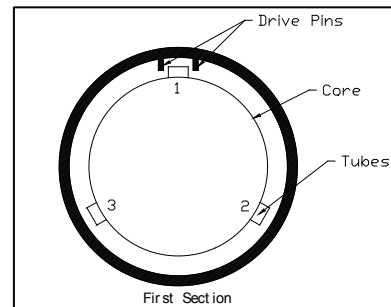


figure 1

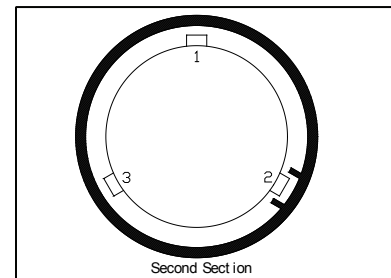


figure 2

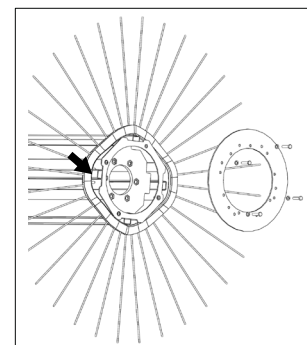


figure 3

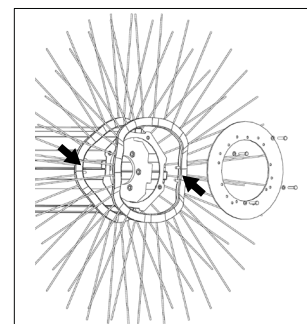


figure 4

For 10" x 32" sections:

- a. Slide the first section onto the core with the drive pins on each side of a tube. Make sure that the drive pins angle up (figure 3).
- b. Install a second section with drive pins rotated 180° from those on the first section (figure 4).
- c. Continue installing sections, rotating each section 180° until the core is full.

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. Sweepster recommends that the fluid used in its hydraulic components be maintained at 20/18/13 per ISO cleanliness code 4406.*

TROUBLESHOOTING

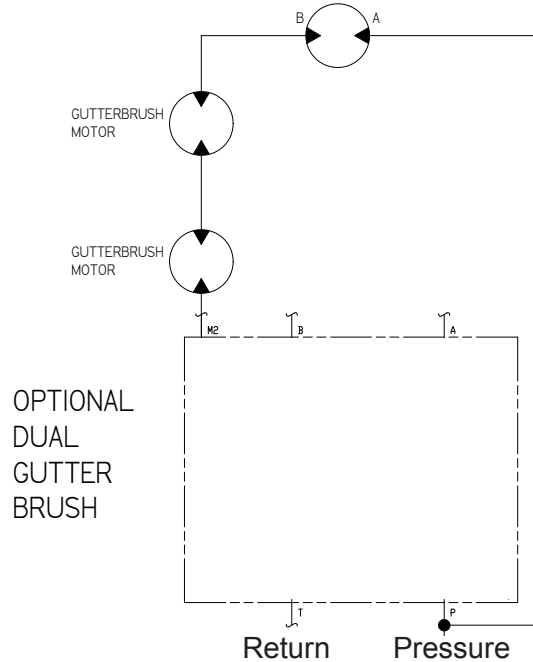
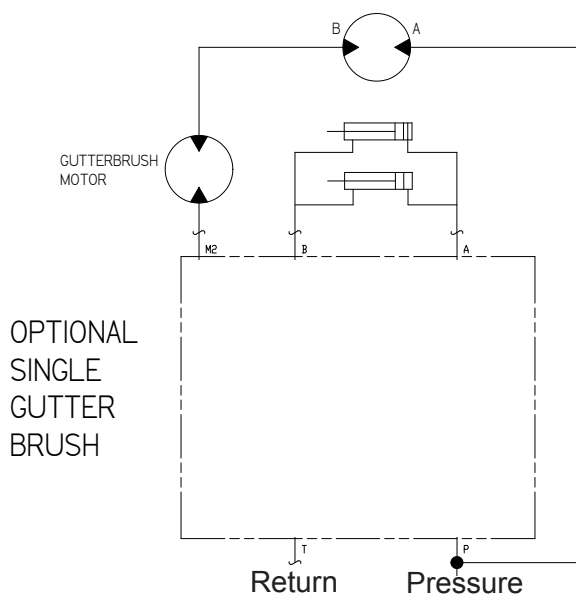
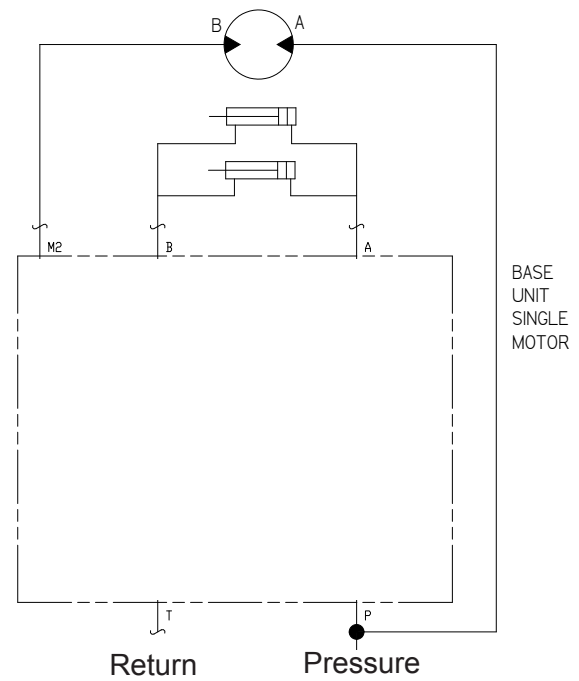
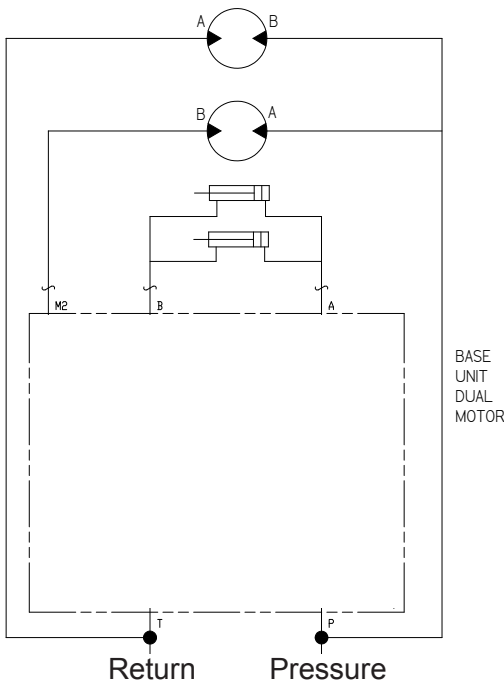
Brush Head Assembly

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
	Relief Valve is not adjusted correctly or has failed.
Brush wears very quickly	Brush pattern is too wide

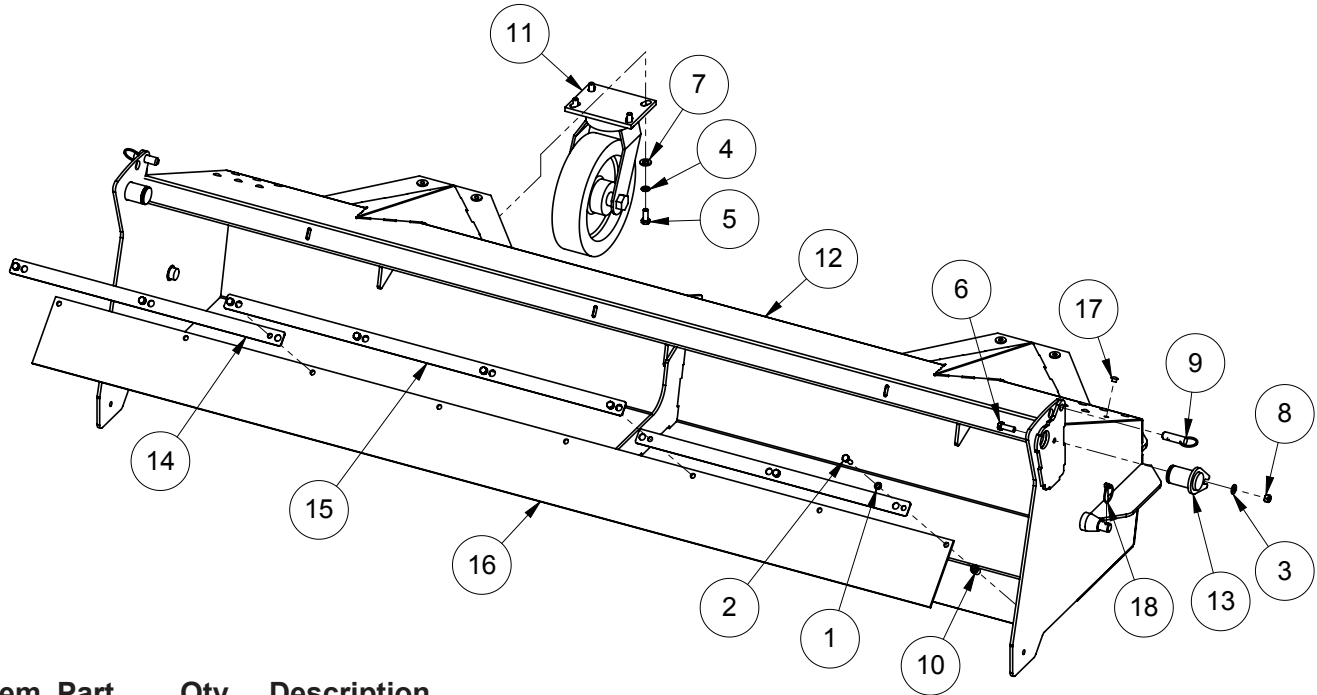
TROUBLESHOOTING

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



HOPPER ASSEMBLY



Item Part Qty Description

1.	07-3738	7	Washer, Lock, Split, Medium, M8 (6')
	07-3738	8	Washer, Lock, Split, Medium, M8 (7')
	07-3738	9	Washer, Lock, Split, Medium, M8 (8')
	07-3738	10	Washer, Lock, Split, Medium, M8 (9')
2.	07-3740	7	Screw, CL10.9, M8-1.25 x 30mm (6')
	07-3740	8	Screw, CL10.9, M8-1.25 x 30mm (7')
	07-3740	9	Screw, CL10.9, M8-1.25 x 30mm (8')
	07-3740	10	Screw, CL10.9, M8-1.25 x 30mm (9')
3.	07-3745	2	Washer, Flat, CL8.8, M10
4.	07-3747	8	Washer, Lock, Split, Medium, M10
5.	07-3748	8	Screw, HHC, CL10.9, M10-1.5 x 25mm
6.	07-3749	2	Screw, CL10.9, M10-1.5 x 30mm
7.	07-3754	8	Washer, Flat, CL8.8, M12
8.	07-4622	2	Nut, Hex, Lock, CL10.9, M10-1.5
9.	07-6708	2	Pin, Quick, Release, Grip 5/8 x 1
10.	07-7115	7	Nut, Insert, M8-1.25, Grip .70-.8mm (6')
	07-7115	8	Nut, Insert, M8-1.25, Grip .70-.8mm (7')
	07-7115	9	Nut, Insert, M8-1.25, Grip .70-.8mm (8')
	07-7115	10	Nut, Insert, M8-1.25, Grip .70-.8mm (9')
11.	07-7739	2	Caster, Assy, 10 x 2.75, 12.25 (CS26) (4/11/11 & Up)
	07-6798	2	Caster, Assy, 10 x 2.75, 12.25 (CS26) (4/10/11 & Down)
	07-3516	2	Caster, Assy, Ply, Kingpinless CS32)
12.	13-15618-6	1	Weld, Hopper, (6') (CS26)
	13-15618-7	1	Weld, Hopper, (7') (CS26)
	13-15618-8	1	Weld, Hopper, (8') (CS26)
	13-15874-8	1	Weld, Hopper, (8') (CS32)
	13-15874-9	1	Weld, Hopper, (9') (CS32)
13.	13-15640	2	Weld, Pin

Item Part Qty Description

14.	13-15648-2	0	Plate, Retainer, Flap, (6') (CS26)
	13-15648-2	2	Plate, Retainer, Flap, (7') (CS26)
	13-15648-2	1	Plate, Retainer, Flap, (8') (CS26/32)
	13-15648-2	0	Plate, Retainer, Flap, (9') (CS32)
15.	13-15648-3	2	Plate, Retainer, Flap, (6') (CS26)
	13-15648-3	1	Plate, Retainer, Flap, (7') (CS26)
	13-15648-3	2	Plate, Retainer, Flap, (8') (CS26/32)
	13-15648-3	3	Plate, Retainer, Flap, (9') (CS32)
16.	13-15743-6	1	Flap, Hopper, (6') (CS26)
	13-15743-7	1	Flap, Hopper, (7') (CS26)
	13-15743-8	1	Flap, Hopper, (8') (CS26/32)
	13-15743-9	1	Flap, Hopper, (9') (CS32)
17.	LAF9853	12	Plug, .375, Plastic, Black
18.	RHW8068	2	Pin, Lynch, 1/4

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, 1/2
07-6792	Washer, Flat, Axle, 3/4
07-6799	Wheel, 10 x 2.75, 3/4 Roller Bearing

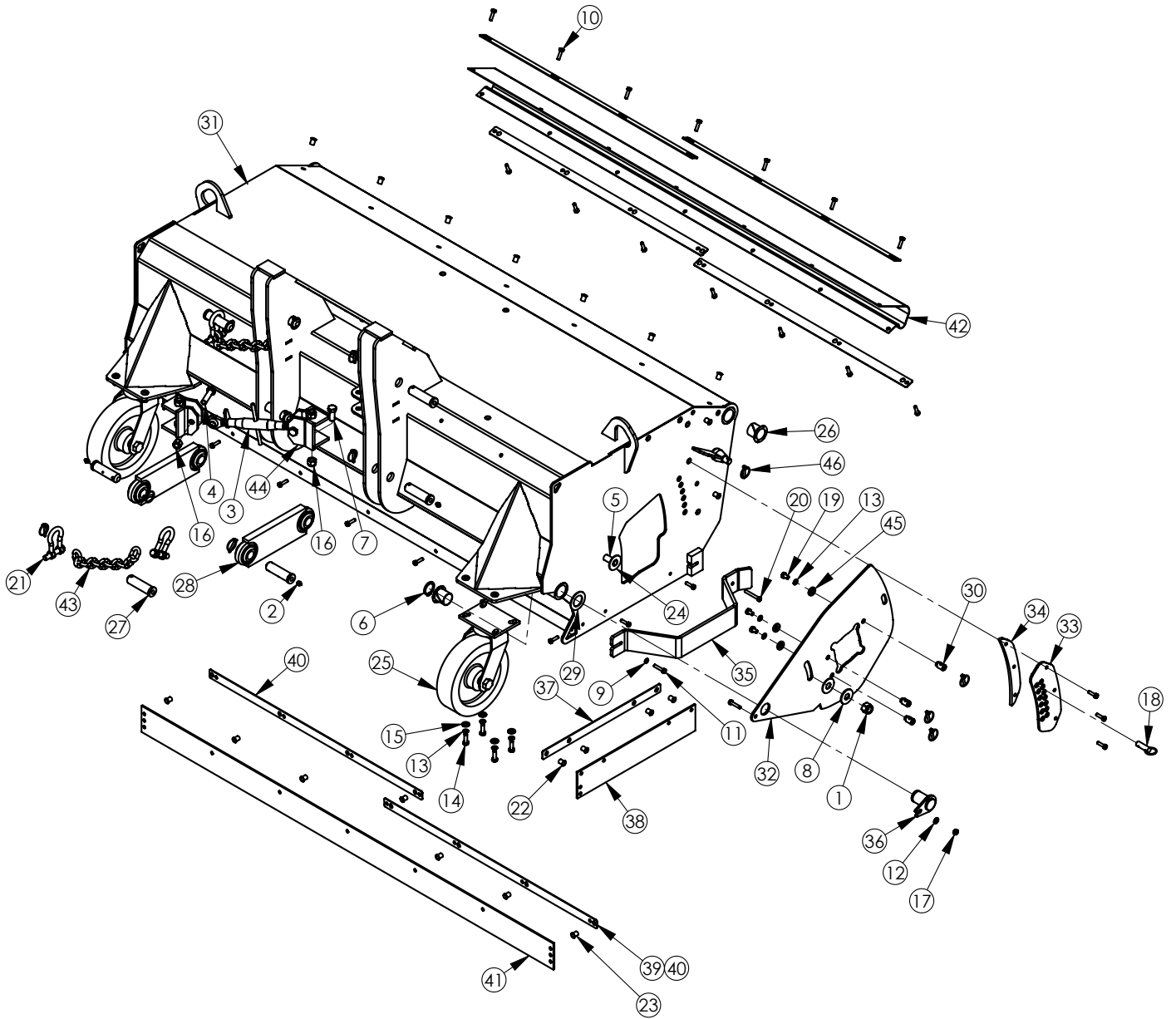
Replacement Parts for 07-3516 :

07-4879	Caster, Frame
07-4578	Axle Assembly
07-4588	Wheel
28-9865	Bearing and Seal Kit for Wheel

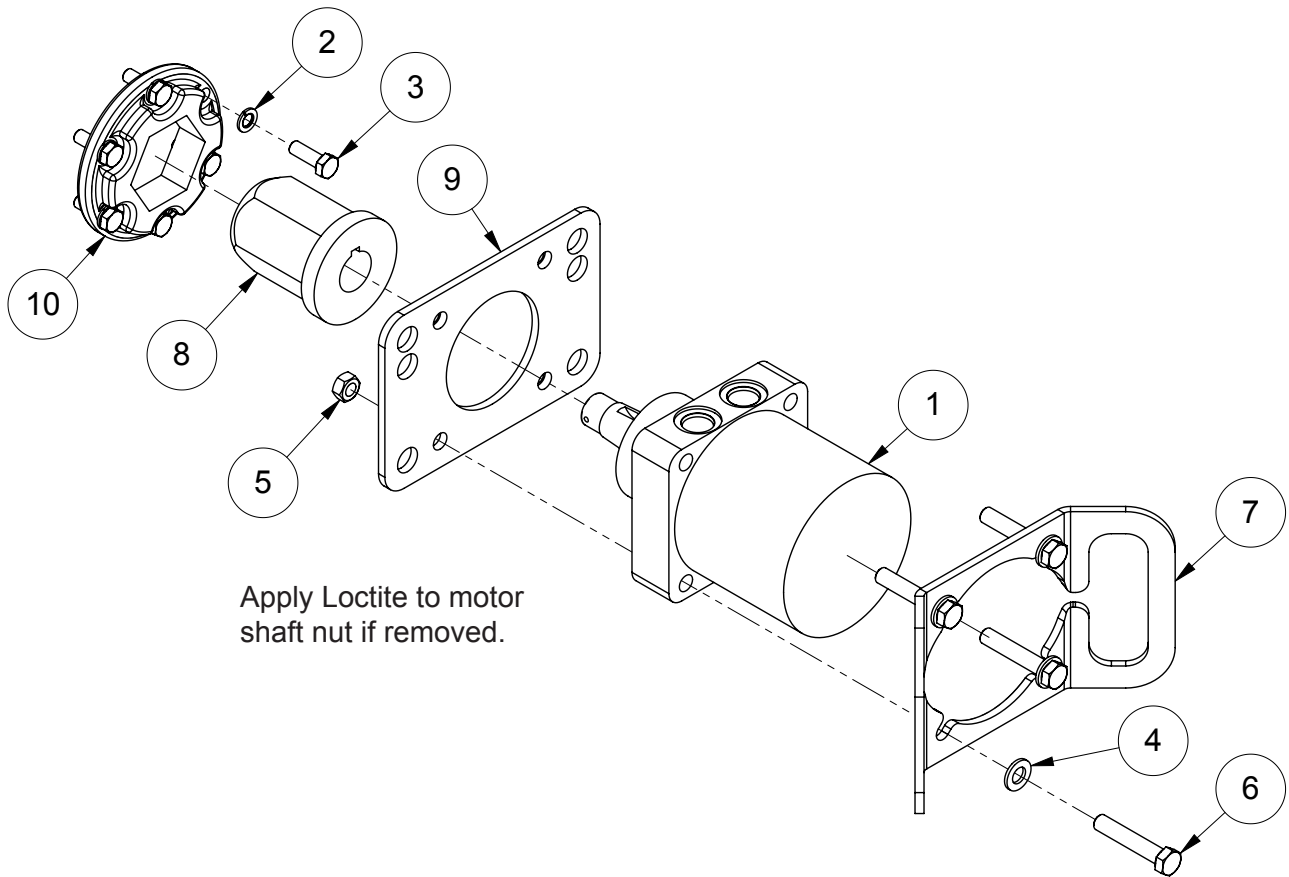
BODY ASSEMBLY

Item	Part	Qty	Description	Item	Part	Qty	Description
1.	07-0146	2	Nut, Hex, Nylock, Gr2, 3/4-10	13-15608-7V	1	Weld, Body, (7') (CS26) Vacuum Option	
2.	07-0223	4	Fitting, Zerk, Straight, 1/8NPT	13-15608-8V	1	Weld, Body, (8') (CS26) Vacuum Option	
3.	07-2484	1	Toplink, 5/8 Balls, 12 7/8C x 18 1/4E	13-15879-8V	1	Weld, Body, (8') (CS32) Vacuum Option	
4.	07-2855	2	Screw, HHC, Gr8, 5/8-11 x 2 1/2	13-15879-9V	1	Weld, Body, (9') (CS32) Vacuum Option	
5.	07-3064	2	Screw, HHC, Gr8, 3/4-10 x 2	32.	13-15633	2	Plate, Mounting, Motor (CS26)
6.	07-3268	2	Ring, Snap		13-15888	2	Plate, Mounting, Motor (CS32)
7.	07-3433	4	Screw, HHC, Gr8, 5/8-11 x 1 1/2	33.	13-15635	2	Plate, Core, Adjustment
8.	07-3684	2	Washer, Flat, Gr8, 3/4	34.	13-15636	2	Plate, Spacer, Core, Adjustment
9.	07-3736	2	Washer, Flat, CL8.8, M8	35.	13-15638	2	Plate, Guard, Side (CS26)
10.	07-3740	31	Screw, CL10.9, M8-1.25 x 30mm (6')		13-15905	2	Plate, Guard, Side (CS32)
	07-3740	34	Screw, CL10.9, M8-1.25 x 30mm (7')	36.	13-15640	2	Weld, Pin
	07-3740	37	Screw, CL10.9, M8-1.25 x 30mm (8')	37.	13-15646	2	Plate, Retainer, Flap, Side (CS26)
	07-3740	40	Screw, CL10.9, M8-1.25 x 30mm (9')		13-15904	2	Plate, Retainer, Flap, Side (CS32)
11.	07-3742	4	Screw, HHC, CL10.9, M8-1.25 x 40mm	38.	13-15647	2	Flap, Side (CS26)
12.	07-3745	2	Washer, Flat, CL8.8, M10		13-15903	2	Flap, Side (CS32)
13.	07-3747	14	Washer, Lock, Split, Medium, M10	39.	13-15648-2	0	Plate, Retainer, Flap (6') (CS26)
14.	07-3749	8	Screw, HHC, CL10.9, M10-1.5 x 30mm		13-15648-2	6	Plate, Retainer, Flap (7') (CS26)
15.	07-3754	8	Washer, Flat, CL8.8, M12		13-15648-2	3	Plate, Retainer, Flap (8') (CS26/32)
16.	07-4031	6	Nut, Hex, Nylock, Gr8, 5/8-11		13-15648-2	0	Plate, Retainer, Flap (9') (CS32)
17.	07-4622	2	Nut, Hex, Lock, CL10.9, M10-1.5	40.	13-15648-3	6	Plate, Retainer, Flap (6') (CS26)
18.	07-6708	2	Pin, Quick Release, Ring Grip		13-15648-3	3	Plate, Retainer, Flap (7') (CS26)
19.	07-6769	6	Screw, HHC, CL10.9, M10-1.5 x 16mm		13-15648-3	6	Plate, Retainer, Flap (8') (CS26/32)
20.	07-7017	2	Screw, HHC, CL10.9, M8-1.25 x 60mm		13-15648-3	9	Plate, Retainer, Flap (9') (CS32)
21.	07-7112	4	Shackle, Anchor, 7/16, 3300 lbs	41.	13-15742-6	1	Flap, Rear (6') (CS26)
22.	07-7115	26	Nut, Insert, M8-1.25, Grip .70-3.8mm (6')		13-15742-7	1	Flap, Rear (7') (CS26)
	07-7115	30	Nut, Insert, M8-1.25, Grip .70-3.8mm (7')		13-15742-8	1	Flap, Rear (8') (CS26/32)
	07-7115	32	Nut, Insert, M8-1.25, Grip .70-3.8mm (8')		13-15742-9	1	Flap, Rear (9') (CS32)
	07-7115	42	Nut, Insert, M8-1.25, Grip .70-3.8mm (9')	42.	13-15744-6	1	Flap, Seal (6') (CS26)
23.	07-7116	25	Nut, Insert, M8-1.25, Grip 3.8-7.9mm		13-15744-7	1	Flap, Seal (7') (CS26)
24.	07-7120	4	Washer, Plastic, .812 x 2 x .1		13-15744-8	1	Flap, Seal (8') (CS26/32)
25.	07-7739	2	Caster, Assembly, 2.75 x 10 x 12.25 (CS26) (1110001 & Up)		13-15744-9	1	Flap, Seal (9') (CS32)
	07-6798	2	Caster, Assembly, 10 x 2.75 x 12.25 (CS26) (1109199 & Down)	43.	13-15827	2	Chain, 3/8, 11 Links, Gr43
	07-3516	2	Caster, Assembly, Kingpinless (CS32)	44.	13-17752	2	Weld, Mounting, Toplink
26.	09-0156	4	Flange, Bearing, Nylon	45.	P852608	6	Washer, Hard, 1/2
27.	12-0292	8	Pin, Hitch, 1.122 x 4.0	46.	RHW8068	16	Pin, Linch, 1/4
28.	12-4150	2	Weld, Link, Hitch, 10.25				
29.	12-9822	2	Washer, Flat, 12ga x 2.5 x 1.516				
30.	13-14083	6	Stud, Mounting, Motor				
31.	13-15608-6	1	Weld, Body, (6') (CS26) Standard				
	13-15608-7	1	Weld, Body, (7') (CS26) Standard				
	13-15608-8	1	Weld, Body, (8') (CS26) Standard				
	13-15879-8	1	Weld, Body, (8') (CS32) Standard				
	13-15879-9	1	Weld, Body, (9') (CS32) Standard				

BODY ASSEMBLY



MOTOR ASSEMBLY



Item	Part	Qty	Description
1.	03-6335	1	Motor, 24.7 CID, 1.25 TPR, 2.5K (Serial # 1234001 & Up)
	03-5613	1	Motor, 28.3 CID, 1.25 TPR, 3K (Serial # 1233199 & Down)
2.	07-3747	6	Washer, Lock, Split, Medium, M10
3.	07-3749	6	Screw, HHC, CL10.9, M10-1.5 x 30mm
4.	07-3754	4	Washer, Flat, CL8.8, M12
5.	07-4610	4	Nut, Hex, Lock, CL10.9, M12-1.75
6.	07-6683	4	Screw, HHC, CL10.9, M12-1.75 x 65mm
7.	13-14086	1	Plate, Handle, Motor
8.	13-15206	1	Hub, Hex, 2 1/2 x 1 1/4, Tapered Bore x 3.75
9.	13-15264	1	Plate, Mounting, Motor
10.	13-16225	1	Plate, Receiver, Hex, 2.5

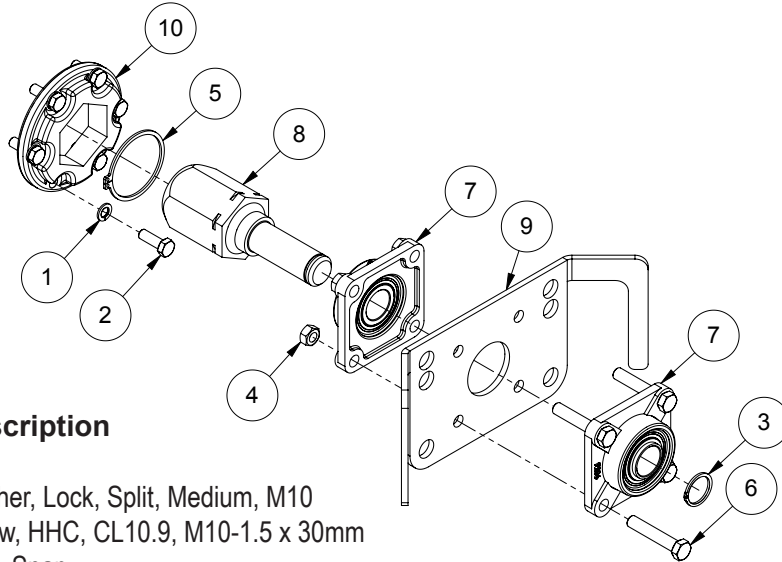
Service Parts for 03-6335 Motor

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

Service Parts for 03-5613 Motor

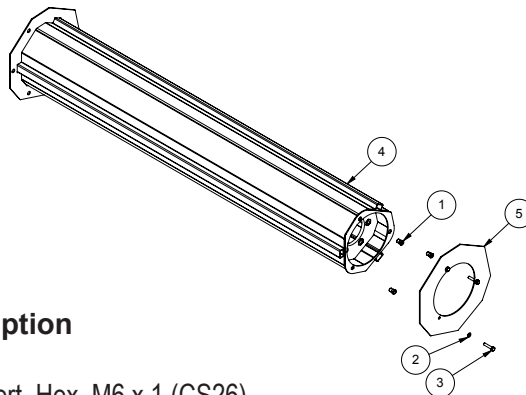
- 07-4568 Motor, Shaft, Lock, Nut
- 03-5644 Seal Kit
- 07-7286 Replacement Key

IDLER ASSEMBLY



Item	Part	Qty	Description
1.	07-3747	6	Washer, Lock, Split, Medium, M10
2.	07-3749	6	Screw, HHC, CL10.9, M10-1.5 x 30mm
3.	07-3842	1	Ring, Snap
4.	07-4610	4	Nut, Hex, Lock, CL10.9, M12-1.75
5.	07-6196	1	Ring, Retaining, 2.75
6.	07-6683	4	Screw, HHC, CL10.9, M12-1.75 x 65mm
7.	08-0067	2	Bearing, 1 1/4, 4 Bolt, Black
8.	13-14135	1	Hub, Hex, 2 1/2, Single Motor
9.	13-15812	1	Plate, Mounting, Bearing, Core
10.	13-16225	1	Plate, Receiver, Hex, 2.5

CORE ASSEMBLY

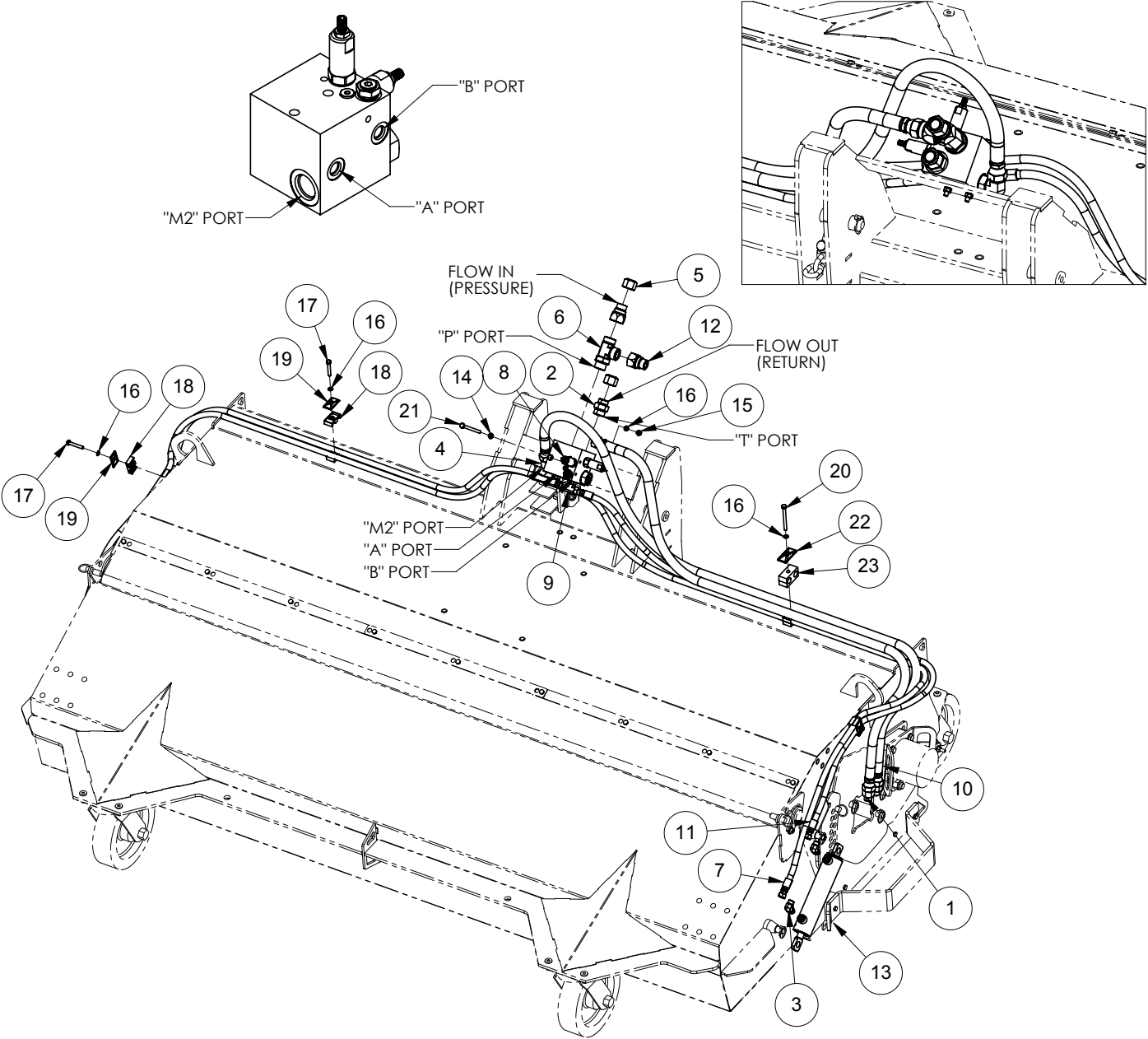


Item	Part	Qty	Description
1.	07-3617	3	Nut, Insert, Hex, M6 x 1 (CS26)
	07-3617	4	Nut, Insert, Hex, M6 x 1 (CS32)
2.	07-3730	3	Washer, Lock, Split, Medium, M6 (CS26)
	07-3730	4	Washer, Lock, Split, Medium, M6 (CS32)
3.	07-3731	3	Screw, HHC, CL10.9, M6-1 x 30mm (CS26)
	07-3731	4	Screw, HHC, CL10.9, M6-1 x 30mm (CS32)
4.	13-15657-6	1	Weld, Core, 8, (6") (CS26)
	13-15657-7	1	Weld, Core, 8, (7") (CS26)
	13-15657-8	1	Weld, Core, 8, (8") (CS26)
	13-15866-8	1	Weld, Core, 10, (8") (CS32)
	13-15866-9	1	Weld, Core, 10, (9") (CS32)
5.	13-15662	1	Plate, Section Retainer, 8 (CS26)
	13-13166	1	Plate, Section, Retainer, 10 (CS32)

Section Sets:

Section Set	Material	Length	Material
01-9371	Mixed	6 Ft	CS26
01-9370	Poly	6 Ft	CS26
01-9278	Mixed	7 Ft	CS26
01-9279	Poly	7 Ft	CS26
01-9321	Mixed	8 Ft	CS26
01-9322	Poly	8 Ft	CS26
01-0933	Mixed	8 Ft	CS32
01-0080C	Poly	8 Ft	CS32
01-9319	Mixed	9 Ft	CS32
01-0530C	Poly	9 Ft	CS32

HYDRAULIC ASSEMBLY SINGLE MOTOR



HYDRAULIC ASSEMBLY SINGLE MOTOR

Item	Part	Qty	Description
1.	03-1949	2	Fitting, 10MB, 12MF
2.	03-2035	1	Fitting, 16MB, 12MF
3.	03-2092	4	Fitting, Elbow, HP, 90°, 9/16MOR, 3/8MFS
4.	03-2177	1	Elbow, 90°, 12MB-12MF
5.	03-3410	2	Cap, 12, Female
6.	03-3677	1	Tee, 16MB, 16MF, 16MF
7.	03-4971	2	Hose, 3/8 x 84, 6FFS, 6FFS, 3000psi (CS26)
	03-5404	2	Hose, 3/8 x 94, 6FFS, 6FFS, 3000psi (CS32)
8.	03-5262	1	Manifold, Sequence, 40gpm, 3000psi
9.	03-5317	2	Fitting, Tee, HP, 6MFS, 6MOR
10.	03-5335	2	Hose, .63 x 84, 12FF, 12FF, 3K
11.	03-5369	2	Hose, 3/8 x 78, 6FFS, 6FFS, 3000psi (CS26)
	03-5403	2	Hose, 3/8 x 88, 6FFS, 6FFS, 3000psi (CS32)
12.	03-5506	2	Fitting, 16FF, 12MF
13.	03-5717	2	Cylinder, Hydraulic, 1.75 x .75 x 7, 3.5K (5/18/09 & Up)
	03-2782	2	Cylinder, Hydraulic, 1 3/4 Bore, 7 Stroke (5/17/09 & Down)
14.	07-3736	2	Washer, Flat, CL8.8, M8
15.	07-3737	2	Nut, Hex, CL10, M8-1.25
16.	07-3738	6	Washer, Lock, Split, Medium, M8
17.	07-3744	3	Screw, HHC, CL10.9, M8-1.25 x 50mm
18.	07-7089	8	Hose, Cradle, for .63 OD
19.	07-7090	3	Cover, Plate, for .63 OD
20.	07-7118	1	Screw, HHC, CL10.9, M8-1.25 x 90mm
21.	07-7119	2	Screw, HHC, CL10.9, M8-1.25 x 130mm
22.	RHW8614	1	Cover, Plate, for .88 OD
23.	RHW8616	1	Hose Cradle, for .88 OD

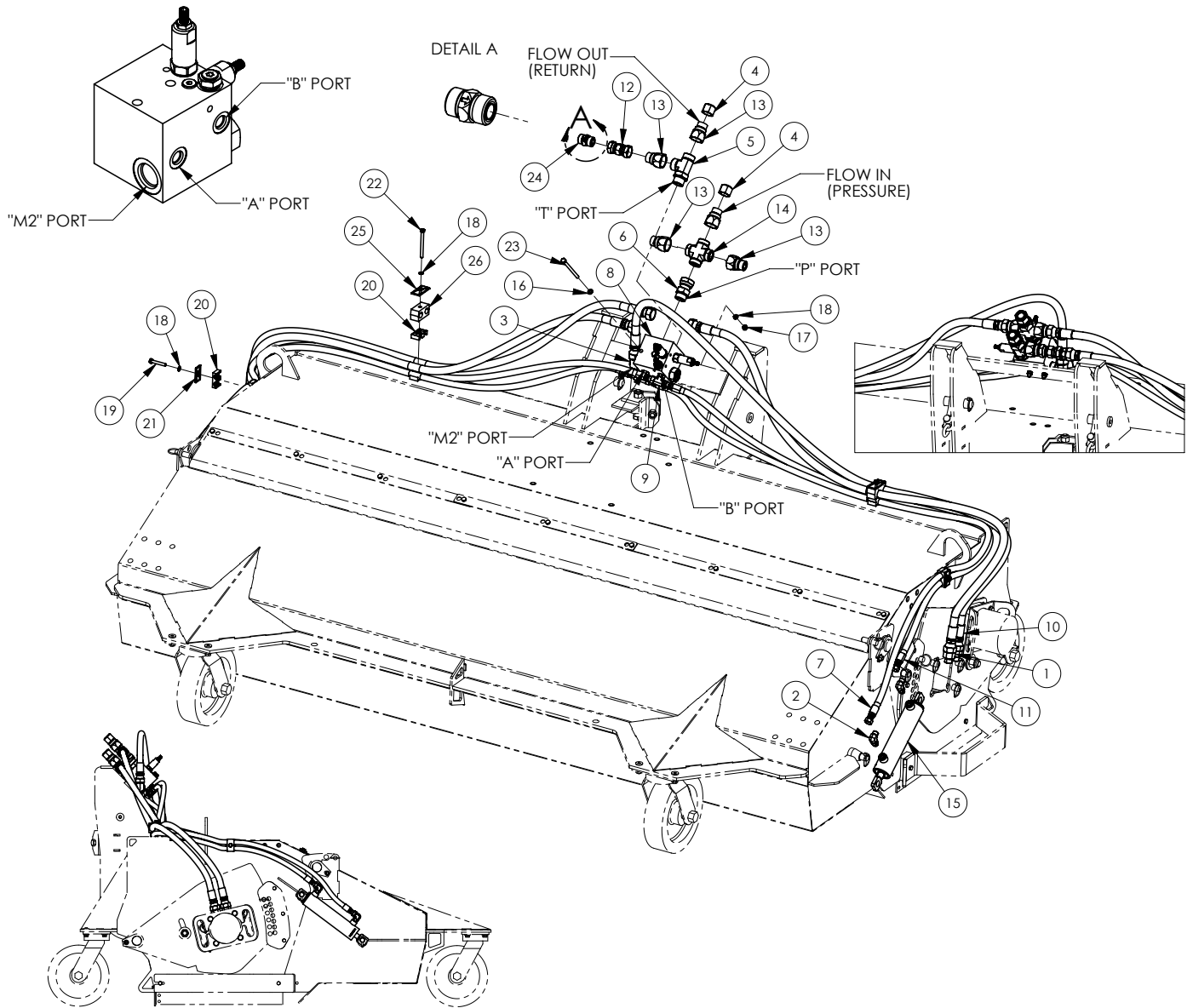
Replacement Part for 03-5717:

46072 Seal Kit

Replacement Part for 03-2782:

03-2619 Seal Kit

HYDRAULIC ASSEMBLY DUAL MOTOR



HYDRAULIC ASSEMBLY DUAL MOTOR

Item	Part	Qty	Description
1.	03-1949	4	Fitting, 10MB, 12MF
2.	03-2092	4	Fitting, Elbow, HP, 90°, 9/16MOR, 3/8MFS
3.	03-2177	1	Elbow, 90°, 12MB-12MF
4.	03-3410	2	Cap, 12, Female
5.	03-3677	1	Tee, 16MB, 16MF, 16MF
6.	03-3778	1	Fitting, 16FF, 16MB
7.	03-4971	2	Hose, 3/8 x 84, 6FFS, 6FFS, 3000psi (CS26)
	03-5404	2	Hose, 3/8 x 94, 6FFS, 6FFS, 3000psi (CS32)
8.	03-5262	1	Manifold, Sequence, 40gpm, 3000psi
9.	03-5317	2	Fitting, Tee, HP, 6MFS, 6MOR
10.	03-5335	4	Hose, .63 x 84, 12FF, 12FF, 3K (CS26)
	03-5379	4	Hose, .63 x 96 12FF-12FF, 3K (CS32)
11.	03-5369	2	Hose, 3/8 x 78, 6FFS, 6FFS, 3000psi (CS26)
	03-5403	2	Hose, 3/8 x 88, 6FFS, 6FFS, 3000psi (CS32)
12.	03-5494	1	Fitting, 12FF, 12FF
13.	03-5506	5	Fitting, 16FF, 12MF
14.	03-5507	1	Cross, 16MF
15.	03-5717	2	Cylinder, 1.75 x 375 x 7, 3.5K (5/18/09 & Up)
	03-2782	2	Cylinder, Hydraulic, 1 3/4 Bore, 7 Stroke (5/17/09 & Down)
16.	07-3736	2	Washer, Flat, CL8.8, M8
17.	07-3737	2	Nut, Hex, CL10, M8-1.25
18.	07-3738	6	Washer, Lock, Split, Medium, M8
19.	07-3744	2	Screw, HHC, CL10.9, M8-1.25 x 50mm
20.	07-7089	8	Hose, Cradle, for .63 OD
21.	07-7090	2	Cover, Plate, for .63 OD
22.	07-7118	2	Screw, HHC, CL10.9, M8-1.25 x 90mm
23.	07-7119	2	Screw, HHC, CL10.9, M8-1.25 x 130mm
24.	LAF4707	1	Valve, Check, In Line, 12MF, 12MF
25.	RHW8614	2	Cover, Plate, for .88 OD
26.	RHW8616	2	Hose Cradle, for .88 OD

Not Shown:

07-3739	2	Screw, HHC, CL10.9, M8-1.25 x 25mm (CS32)
13-16615	1	Plate, Mounting, Manifold, (CS32)

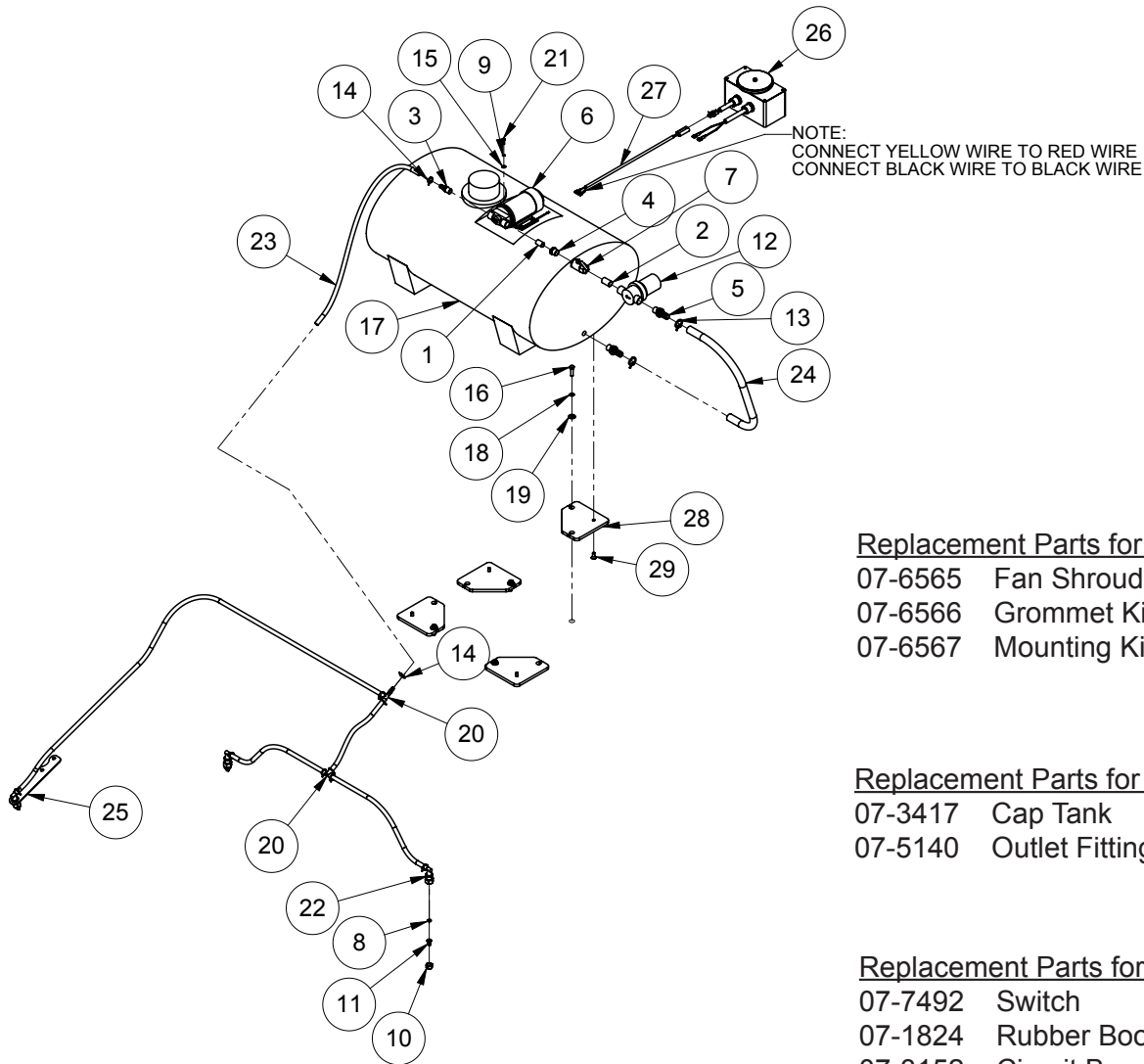
Replacement Part for 03-5717:

46072 Seal Kit

Replacement Part for 03-2782:

03-2619 Seal Kit

SPRINKLER KIT 25 GALLON



Replacement Parts for 03-1326:

- 07-6565 Fan Shroud
- 07-6566 Grommet Kit
- 07-6567 Mounting Kit

Replacement Parts for 07-3150:

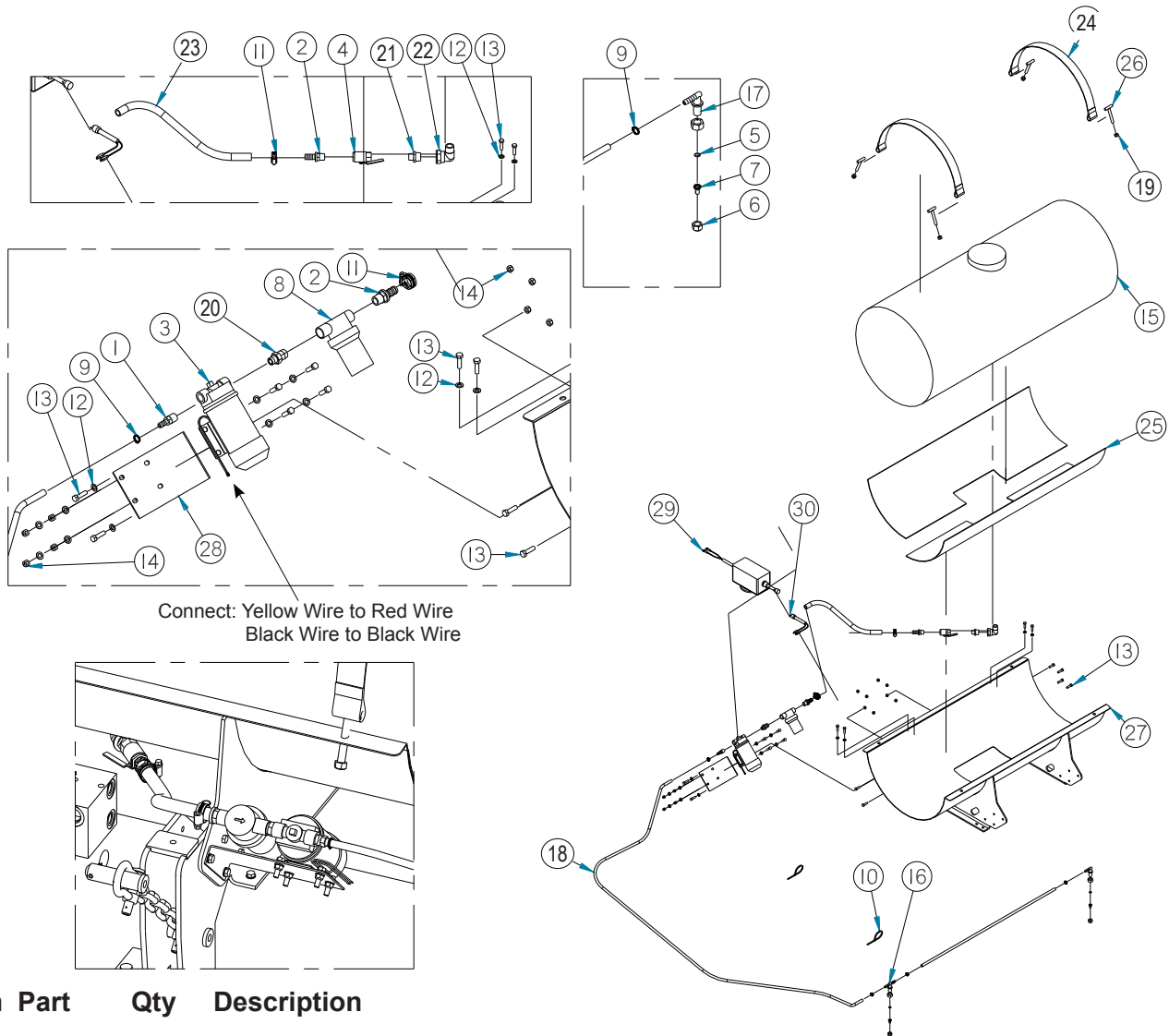
- 07-3417 Cap Tank
- 07-5140 Outlet Fitting

Replacement Parts for LAF8316:

- 07-7492 Switch
- 07-1824 Rubber Boot
- 07-3152 Circuit Breaker

Item	Part	Qty	Description	Item	Part	Qty	Description
1.	03-0076	1	Fitting, Nipple, BP, Close, 3/8	16.	07-1973	4	Screw, HHC, GR8, 5/16-18 x 1 1/4
2.	03-0152	1	Fitting, Nipple, BP, Close, 1/2	17.	07-3150	1	Assembly, Tank, Water, 25 Gallon
3.	03-0457	1	Fitting, Barb, Nylon, 3/8, 3/8MP	18.	07-3273	4	Washer, Lock, Split, Medium, 5/16
4.	03-0819	1	Fitting, Reducer Bushing, HP, 1/2, 3/8	19.	07-3275	4	Washer, Flat, Gr8, 5/16
5.	03-1226	2	Fitting, Barb, HP, 5/8, 1/2MP	20.	07-3869	2	Fitting, Barb, Tee, Nylon, 3/8
6.	03-1326	1	Pump, Water, 2.1gpm, 7amp, 35psi	21.	07-4831	4	Screw, BHC, 10-24UNC, 2B x 3/4
7.	03-1392	1	Valve, Shut off, Ball, 1/2	22.	07-4862	3	Nozzle, Elbow, without Clamp
8.	03-3537	3	O-ring, #8 Face Seal	23.	07-5127	25ft	Hose, Clear, Vinyl, 3/8
9.	07-0140	4	Washer, Lock, Gr2, #10	24.	09-0028	5ft	Hose, Heater, 5/8
10.	07-0413	3	Nozzle, Cap, Nylon	25.	LAF2826	1	Bracket, Nozzle
11.	07-0414	3	Nozzle, Tip, Brass, 1.5	26.	LAF8316	1	Wire, Harness, with Box
12.	07-0532	1	Strainer, Water	27.	LAF8320	1	Wire, Assembly, 11 Ft
13.	07-0547	2	Clamp, Spring, 7/8, Hose	28.	LAF8376	4	Sprinkler, Tank, Mount
14.	07-0549	10	Clamp, Spring, 5/8, Hose	29.	RHW2135	4	Screw, Socket Head, Gr5, 5/16-18 x 3/4
15.	07-1430	4	Washer, Flat, #10				

SPRINKLER KIT 85 GALLON



Connect: Yellow Wire to Red Wire
Black Wire to Black Wire

Item	Part	Qty	Description
1.	03-0457	1	Fitting, Barb, Nylon, 3/8, 3/8MP
2.	03-1226	2	Fitting, Barb, HP, 5/8, 1/2MP
3.	03-1326	1	Pump, Flojet, Water, 2.1gpm, 12 Volt
4.	03-1392	1	Valve, Shut-Off, Ball 1/2
5.	03-3537	2	O-Ring, #8 Face Seal
6.	07-0413	2	Nozzle, Cap, Nylon
7.	07-0414	2	Nozzle, Tip, Brass, 1.5
8.	07-0532	1	Strainer, Hypro, Water
9.	07-0538	4	Clamp, Screw, MM-4 1/4-5/8
10.	07-0678	2	Tie, Plastic, 7 1/2, Black
11.	07-1511	2	Clamp, Screw, H16 5/8-1 1/2
12.	07-3736	14	Washer, Flat, CL8.8, M8
13.	07-3740	16	Screw, HHC, CL10.9, M8-1.25 x 30mm
14.	07-4604	12	Nut, Hex, Lock, CL10.9, M8-1.25
15.	07-4682	1	Tank, Water, Poly, 85 Gallon
16.	07-4861	1	Nozzle, Tee, without Clamp
17.	07-4862	1	Nozzle, Elbow, without Clamp
18.	07-5127	20ft	Hose, Clear, Vinyl, 3/8
19.	07-6227	4	Nut, Hex, Lock, 1/2-13
20.	07-6864	1	Fitting, Nipple, 1/2 x 3/8, Nylon

Item	Part	Qty	Description
21.	07-7164	1	Fitting, 3/4MP, 1/2MP, Nylon
22.	07-7165	1	Fitting, Street Elbow, 3/4, Nylon
23.	09-0028	2	Hose, Heater, 5/8
24.	09-0202	2	Strap, Water Tank, 34 Inch
25.	13-10075	2	Rubber, Neoprene, Tank Pad
26.	13-10081	4	Weld, Bolt, Tee, 3 1/2
27.	13-16095	1	Weld, Mounting, 85 Gallon Tank Saddle
28.	13-16153	1	Plate, Mounting, Water Pump
29.	LAF8316	1	Wire, Harness, with Box for Water Pump
30.	LAF8320	1	Wire, Assembly, 11 Ft

Replacement Parts for 03-1326 :

07-6565	Fan Shroud
07-6566	Grommet Kit
07-6567	Mounting Kit

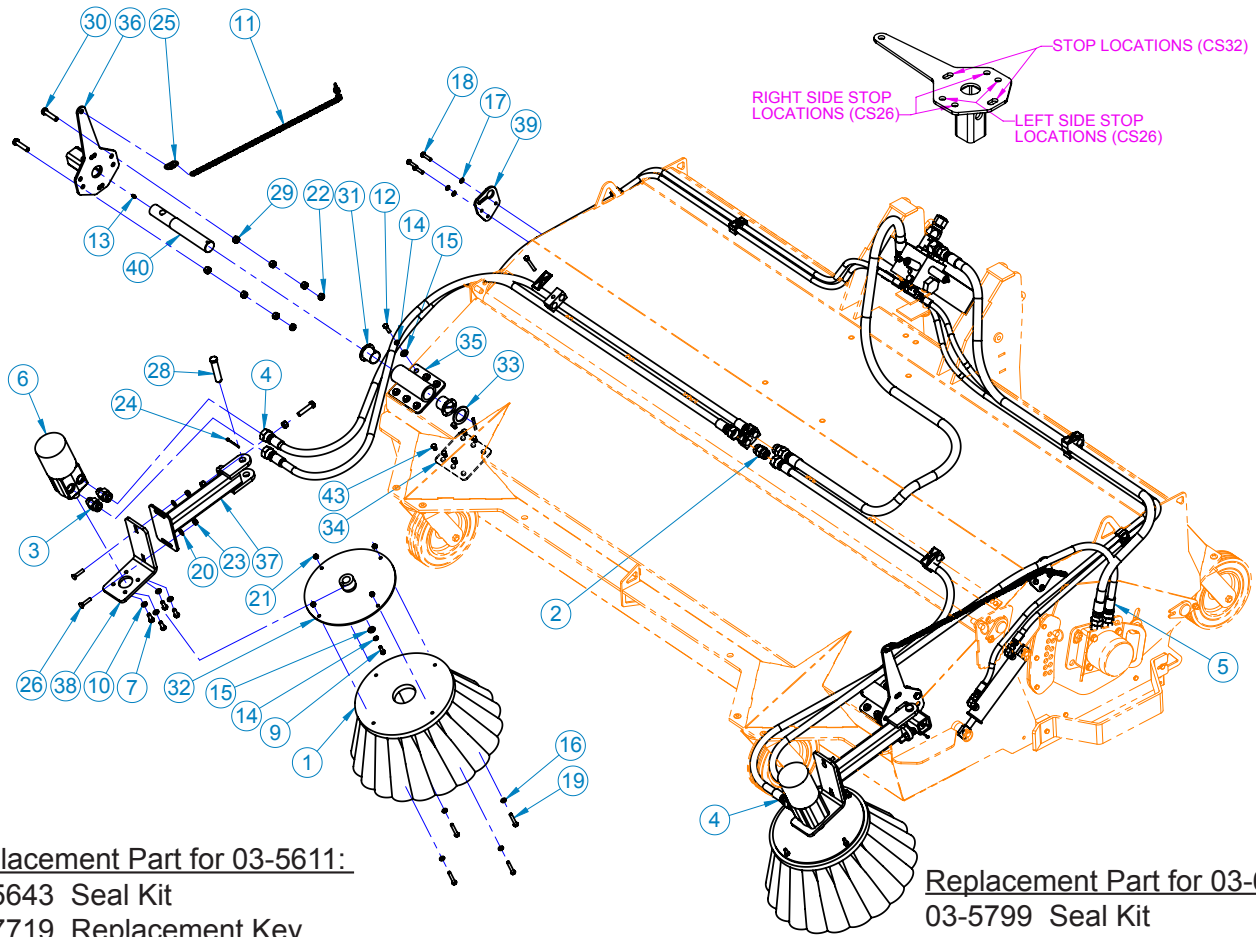
Replacement Parts for LAF8316 :

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

Replacement Parts for 07-4682 :

07-6088	Cap
07-7168	Drain Assembly

DUAL GUTTERBROOM KIT



Replacement Part for 03-5611:

- 03-5643 Seal Kit
- 07-7719 Replacement Key

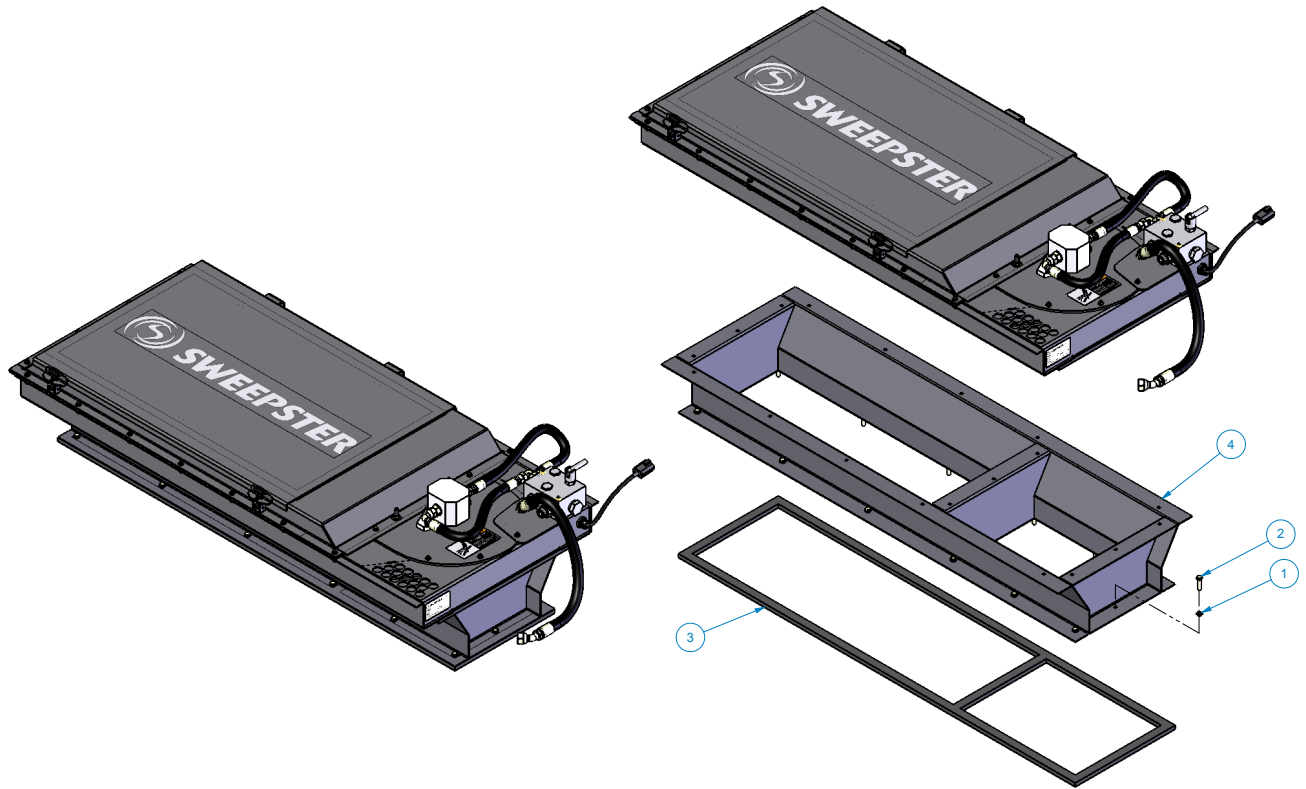
Replacement Part for 03-6443:

- 03-5799 Seal Kit
- 07-1948 Replacement Key

Item	Part	Qty	Description
1.	01-0523	2	Gutterbroom, Ecolo, 13, Wire
2.	03-1920	2	Fitting, 12MF, 12MF
3.	03-1949	4	Fitting, 10MB, 12MF
4.	03-5524	3	Hose, .63 x 102, 12FF-12FF, 3K
5.	03-5538	1	Hose, .63 x 60, 12FF-12FF, 3K
6.	03-6443	2	Motor, 24 CID (1234001 & Up)
	03-5611	2	Motor, 24.6 CID (1233199 & Down)
7.	07-0018	8	Screw, HHC, Gr8, 3/8-16 x 1
8.	07-0204	2	Pin, Roll, Gr2, 1/4 x 2
9.	07-1714	2	Screw, HHC, Gr8, 5/16-18 x 1
10.	07-1718	8	Washer, Lock, Split, Medium, 3/8
11.	07-1759	2	Chain, 3/16, 36 Links
12.	07-1973	12	Screw, HHC, Gr8, 5/16-18 x 1 1/4
13.	07-3112	2	Fitting, Zerk, 1/4-28, Self Tap
14.	07-3273	14	Washer, Lock, Split, Medium, 5/16
15.	07-3275	14	Washer, Flat, Gr8, 5/16
16.	07-3736	8	Washer, Flat, CL8.8, M8
17.	07-3738	6	Washer, Lock, Split, Medium, M8
18.	07-3741	6	Screw, HHC, CL10.9, M8-1.25 x 35mm
19.	07-3744	8	Screw, HHC, CL10.9, M8-1.25 x 50mm
20.	07-3745	4	Washer, Flat, CL8.8, M10
21.	07-4604	8	Nut, Hex, Lock, CL10.9, M8-1.25

Item	Part	Qty	Description
22.	07-4610	4	Nut, Hex, Lock, CL10.9, M12-1.75
23.	07-4622	4	Nut, Hex, Lock, CL10.9, M10-1.5
24.	07-4961	2	Pin, Cotter, Gr2, 1/8 x 2
25.	07-5054	2	Link, Quick, 3/16
26.	07-5149	4	Bolt, Carriage, CL8.8, M10-1.5 x 40mm
27.	07-5287	3	Screw, HHC, CL10.9, M8-1.25 x 65mm
28.	07-6358	2	Pin, Clevis, 3/4 x 3 1/2, 3 17/64 Grip
29.	07-6766	16	Nut, Hex, CL10.9, M12-1.75
30.	07-7127	6	Screw, HHC, CL10.9, M12-1.75 x 55mm
31.	09-0156	4	Flange, Bearing, Nylon
32.	13-0374	2	Weld, Plate, Gutterbroom
33.	13-12291	2	Washer, Flat, 2.375 x 1.625 x .134
34.	13-15807	2	Plate, Mounting, Gutterbroom
35.	13-15808	2	Weld, Mounting, Gutterbroom
36.	13-16025	2	Weld, Pivot, Arm
37.	13-2264	2	Weld, Arm
38.	13-2265	2	Plate, Mounting, Motor
39.	13-50075	2	Plate, Adjustment
40.	13-50093	2	Rod, Pivot, Pin
41.	RHW8614	3	Cover, Plate
42.	RHW8616	3	Hose Cradle
43.	RHW8642	12	Nut, Rivet, 5/16-18, .15-.312 Grip

VACUUM ADAPTER ASSEMBLY



Item	Part	Qty	Description
1.	07-3736	15	Washer, Flat, CL8.8, M8
2.	07-3741	15	Screw, HHC, CL10.9, M8-1.25 x 35mm
3.	09-0282	12.1	Rubber, Neoprene, Blend, Foam, 1/2 x 1, Adhesive Back
4.	13-16016	1	Weld, Adapter, Vacuum




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	<p style="text-align: center;">GRADE 2</p>  <p style="text-align: center;">GRADE 5</p>  <p style="text-align: center;">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.		
		

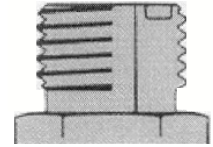
Size of Bolt	Grade No.	Pitch (mm)	Pounds Feet	Newton-Meters	Pitch (mm)	Pounds Feet	Newton-Meters
M6	5.6	1.0	3.6-5.8	4.9-7.9	-	-	-
	8.8		5.8-4	7.9-12.7		-	-
	10.9		7.2-10	9.8-13.6		-	-
M8	5.6	1.25	7.2-14	9.8-19	1.0	12-17	16.3-23
	8.8		17-22	23-29.8		19-27	25.7-36.6
	10.9		20-26	27.1-35.2		22-31	29.8-42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

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

HYDRAULIC TORQUE SPECIFICATIONS

Face Seal: Assembly, Tube to Fitting

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



Installation

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

Torque Values

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

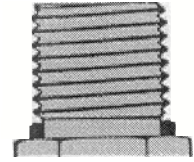
NOTE - ft-lb may be converted to Newton Meters by multiplying by 1.35582.

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

HYDRAULIC TORQUE SPECIFICATIONS

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

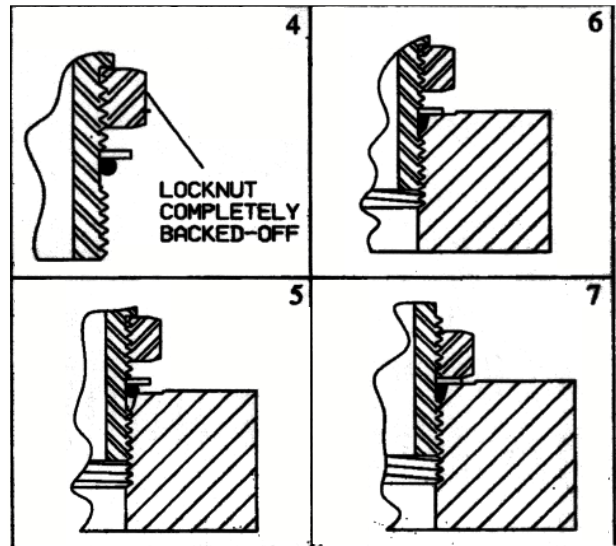
NOTE - Straight thread o-ring fittings are utilized to adapt hydraulic systems to motors, pumps, cylinders, and valves.



Installation (Adjustable Fitting)

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

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



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

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

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.

February 10, 2010