

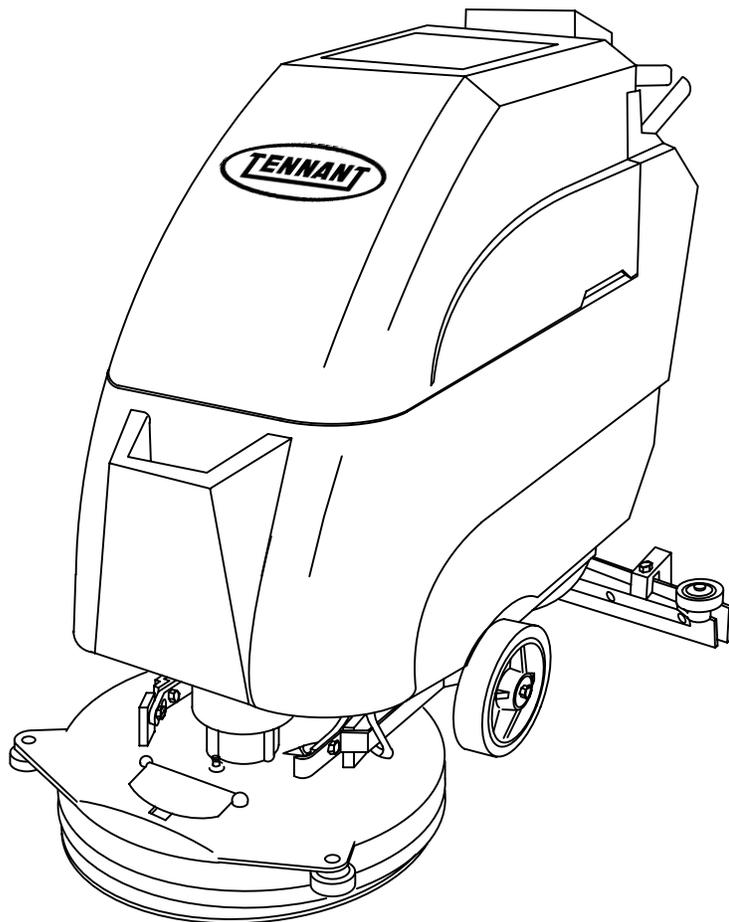


5300

Automatic Scrubber

Model No.:
300000PAC
300000
603053

Operator and Parts Manual



TENNANT COMPANY
Commercial Products
12875 RANSOM STREET
HOLLAND MI 49424 U.S.A.

FAX: 1-800-678-4240
CUSTOMER SERVICE: 1-800-982-7658

173420
Rev. 06 (02-02)

This manual is furnished with each new model. It provides necessary operation, maintenance instructions and parts list.

Read this manual completely and understand the machine before operating or servicing.

When ordering replacement parts use the parts lists section in this manual. Before ordering parts or supplies, be sure to have your machine model number and serial number handy. Parts and supplies may be ordered by phone or mail from any authorized service center or distributor.

This machine will provide excellent service. However, the best results will be obtained at minimum costs if:

- The machine is operated with reasonable care.
- The machine is maintained regularly - per the machine maintenance instructions provided.
- The machine is maintained with manufacturer supplied or equivalent parts.

MACHINE DATA

Please fill out at time of installation for future reference.

Model No.- _____

Install. Date - _____

Serial No.- _____

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Specifications and parts are subject to change without notice.

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SAFETY PRECAUTIONS

This machine is intended for industrial and commercial use. It is suited to scrub hard floors in an indoor environment and is not constructed for any other use. Use only recommended pads, brushes and cleaning detergents.

All operators must read, understand and practice the following safety precautions.

The following safety alert symbols are used throughout this manual as indicated in their description.

 **WARNING:** To warn of hazards or unsafe practices which could result in severe personal injury or death.

FOR SAFETY: To identify actions which must be followed for safe operation of equipment.

The following information signals potentially dangerous conditions to the operator or equipment:

FOR SAFETY:

1. **Do not operate machine:**
 - Unless trained and authorized.
 - Unless operation manual is read and understood.
 - In flammable or explosive areas unless designed for use in those areas.
2. **Before starting machine:**
 - Make sure all safety devices are in place and operate properly.
3. **When using machine:**
 - Go slow on inclines and slippery surfaces.
 - Use care when reversing machine.
 - Always follow safety and traffic rules.
 - Report machine damage or faulty operation immediately.
4. **Before leaving or servicing machine:**
 - Stop on level surface.
 - Turn off machine.
5. **When servicing machine:**
 - Avoid moving parts. Do not wear loose jackets, shirts, or sleeves.
 - Block machine tires before jacking machine up.
 - Use hoist or jack of adequate capacity to lift machine.
 - Disconnect battery connections before working on machine.
 - Wear protective gloves when handling batteries or battery cables.
 - Avoid contact with battery acid.

- Use manufacturer supplied or approved replacement parts.

 **WARNING:** Batteries emit hydrogen gas. Explosion or fire can result. Keep sparks and open flame away. Keep battery compartment open when charging.

 **WARNING:** Flammable materials can cause an explosion or fire. Do not use flammable materials in tank(s).

 **WARNING:** Flammable materials or reactive metals can cause explosion or fire. Do not pick up.

 **WARNING:** Moving parts. Turn off power before working on machine.

NOTICE TO OWNERS:

The foam filled tire option must be installed in place of the solid tires when the machine is used consistently on grouted tile floors to prevent tile damage and excessive machine component wear. Foam filled tires should also be used on soft surfaces such as sports floors to reduce wheel marking of surface.

ATTENTION: Usage of solid tires in the above conditions will void the warranty on drive system components.

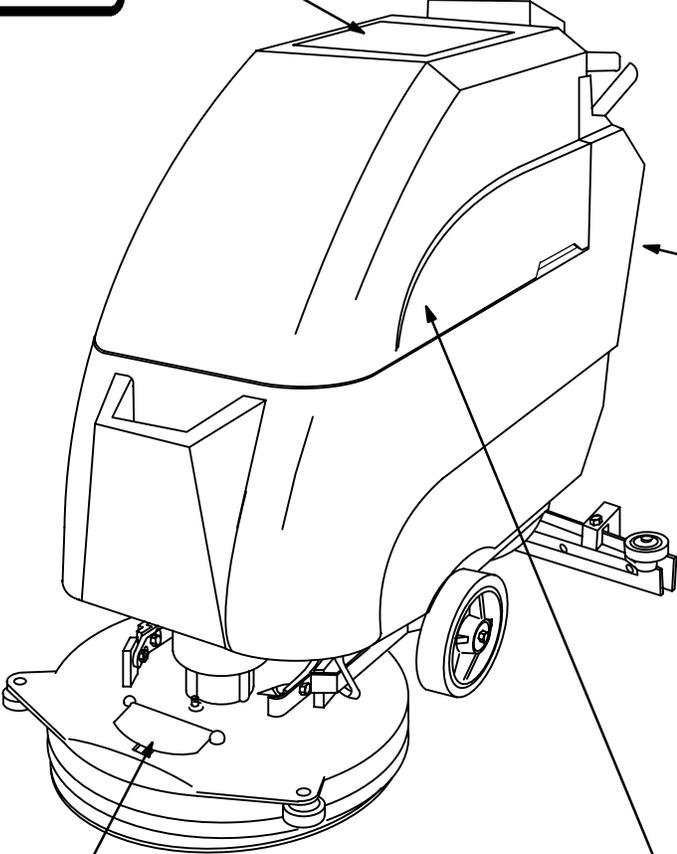
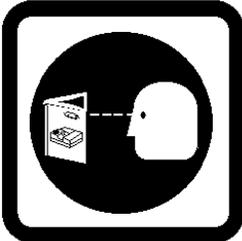
SAFETY PRECAUTIONS

The following safety labels are mounted on the machine in the locations indicated. If these or any label becomes damaged or illegible, install a new label in its place.

FLAMMABLE MATERIALS LABEL – LOCATED ON THE RECOVERY TANK COVER.



FOR SAFETY LABEL – LOCATED ON THE GAUGE/SWITCH PANEL.



BATTERY CHARGING LABEL – LOCATED NEAR CHARGING PLUG.



MOVING PARTS LABEL – LOCATED ON THE SCRUB HEAD ACCESS DOOR.

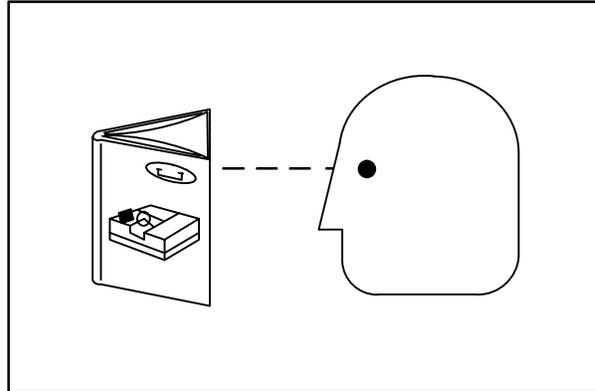


FLAMMABLE MATERIALS LABEL – LOCATED ON THE UNDERSIDE OF THE RECOVERY TANK.

OPERATOR RESPONSIBILITY

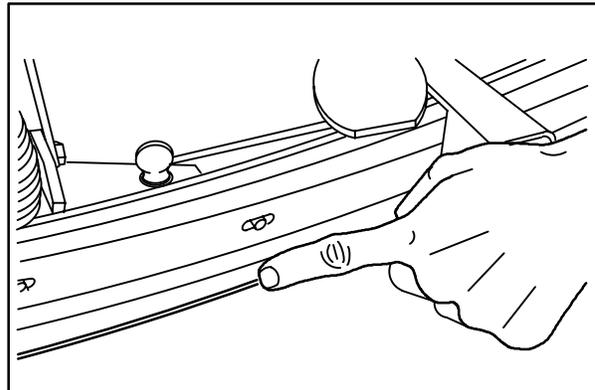
- The operator's responsibility is to take care of the daily maintenance and checkups of the machine to keep it in good working condition. The operator must inform the service mechanic or supervisor when the maintenance intervals are required as stated in the MAINTENANCE section of this manual.
- Read this manual carefully before operating this machine.

FOR SAFETY: Do not operate machine unless operation manual is read and understood.



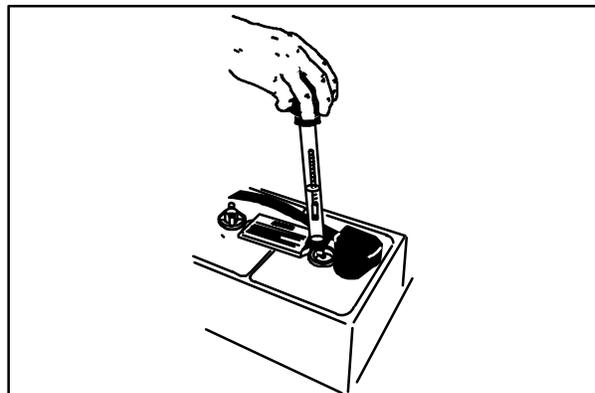
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- After the first 50 hours of operation the following procedures are recommended:
 - Check the squeegee deflection.



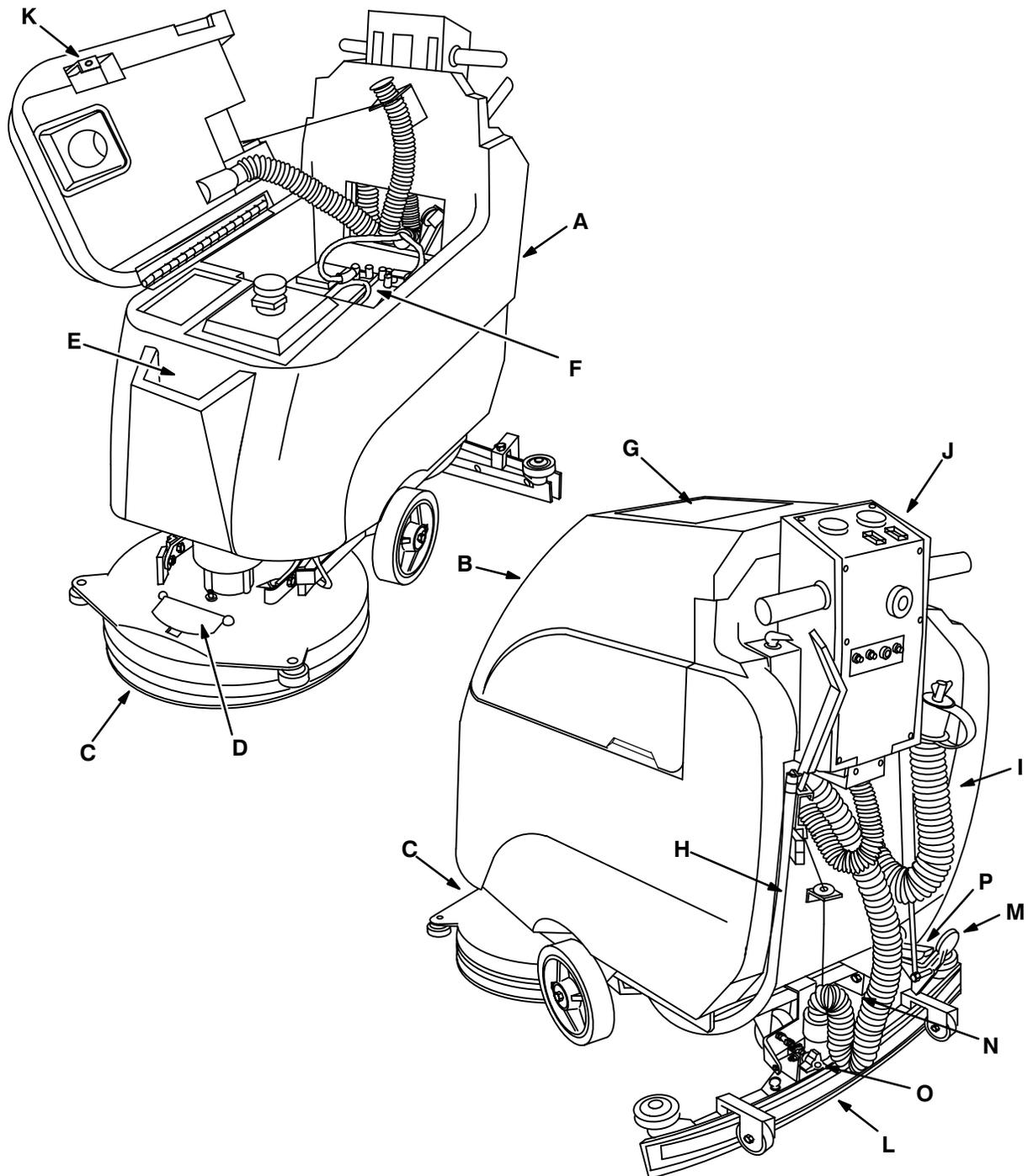
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- Check the electrolyte level.
- Check the battery cable connections.



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MACHINE COMPONENTS



- | | |
|--------------------------------------|---------------------------------------|
| A. Solution Tank | I. Recovery Tank Drain Hose |
| B. Recovery Tank | J. Console Panel |
| C. Scrub Head | K. Stop Arm |
| D. Scrub Head Access Cover | L. Squeegee |
| E. Solution Tank Fill Opening | M. Scrub Head Lift Pedal |
| F. Batteries | N. Squeegee Down Pressure Knob |
| G. Recovery Tank Cover | O. Squeegee Leveling Knob |
| H. Solution Tank Hose | P. Scrub Head Release Pedal |

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09181

CONTROL PANEL SYMBOLS

These symbols are used to identify controls and displays on the machine:



Slow



Fast



Battery Charge



Light Brush Pressure



Heavy Brush Pressure



Machine Power



Solution Flow



Hourmeter



ES™ (Extended Scrub)



Power Wand or Vacuum Wand



Recovery Tank Full



Key Switch



Propelling Circuit Breaker



Scrub Brush Circuit Breaker

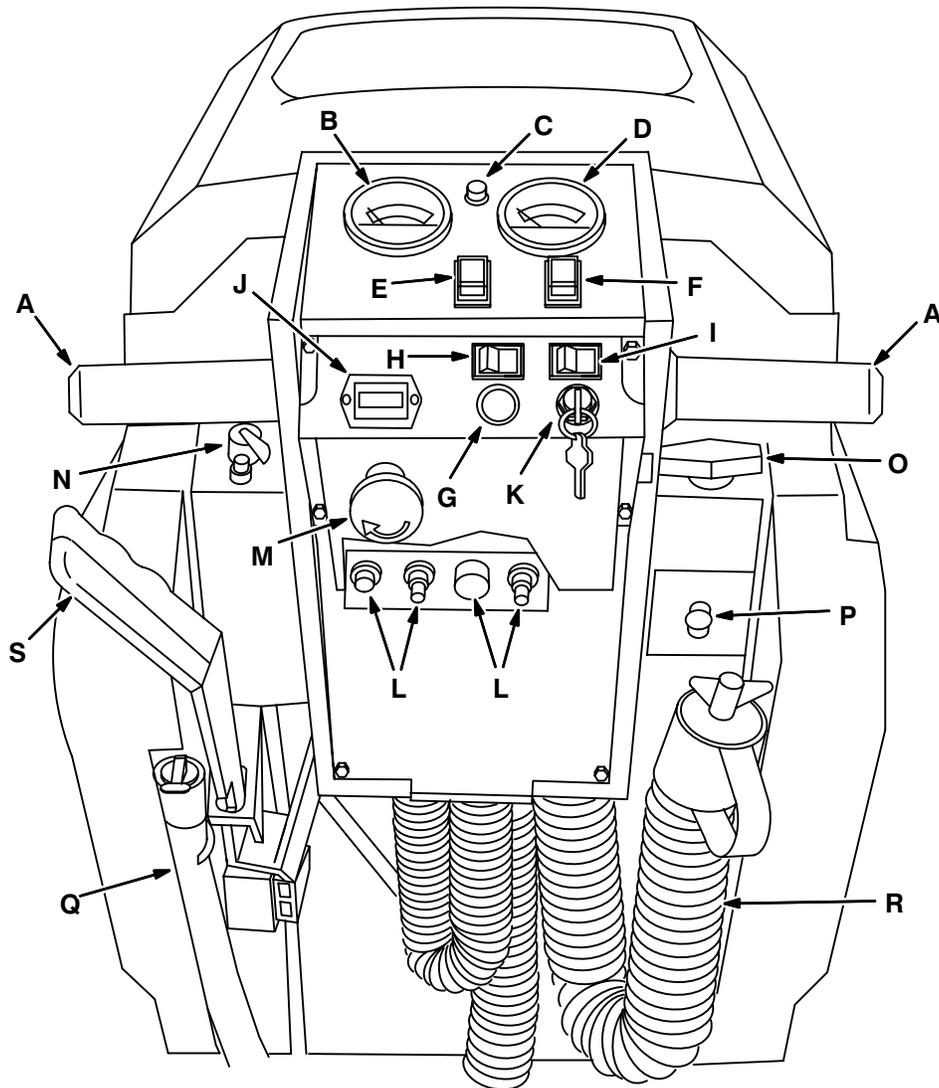


Machine Power Circuit Breaker



Vacuum Fan Circuit Breaker

CONTROLS AND INSTRUMENTS



- A. Steering Handles/Brush and Solution On Switch
- B. Battery Discharge Indicator
- C. Speed Switch
- D. Brush Pressure Gauge
- E. Machine Power Switch
- F. Solution Switch
- G. Pump On Light (Option)
- H. ES™ Switch (Option)
- I. Power Wand Switch (Option)
- J. Hourmeter (Option)
- K. On-off Key Switch (Option)
- L. Circuit Breakers
- M. Power Kill Switch (Option)
- N. Solution Flow Knob
- O. Brush Pressure Knob
- P. Brush Pressure Indicator
- Q. Solution Tank Hose
- R. Recovery Tank Drain Hose
- S. Squeegee Lever

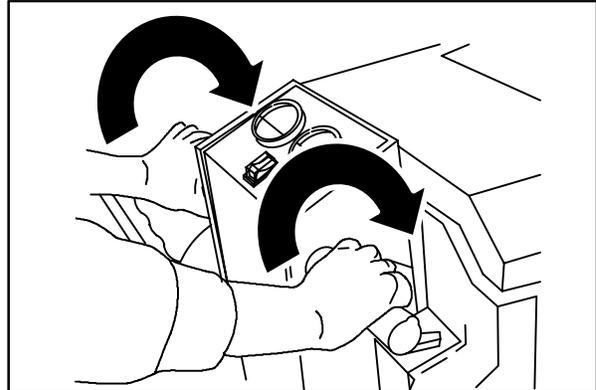
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OPERATION

STEERING HANDLES/BRUSH AND SOLUTION ON SWITCH

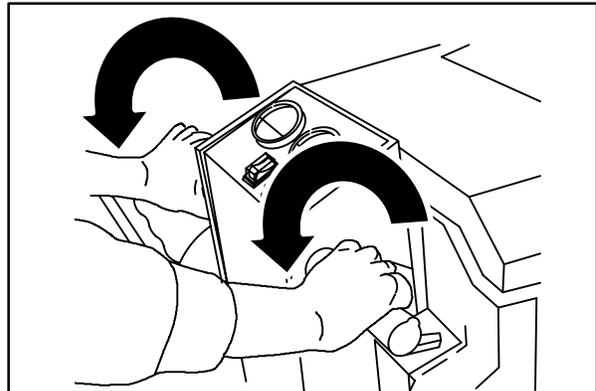
The steering handles control the machine direction, and the brush and solution flow is operated by twisting the steering handles.

Forward/Brush and Solution On: Twist the handles forward.



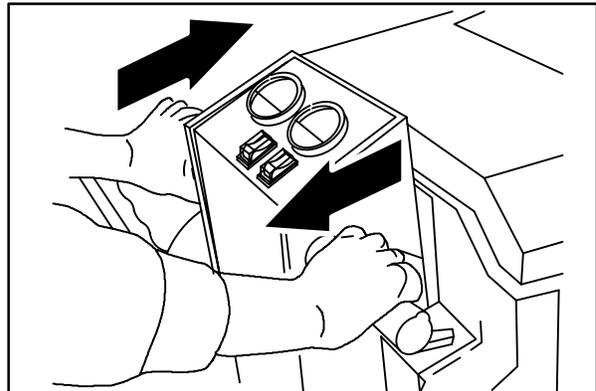
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Backward/Brush and Solution On: Twist the handles toward you.



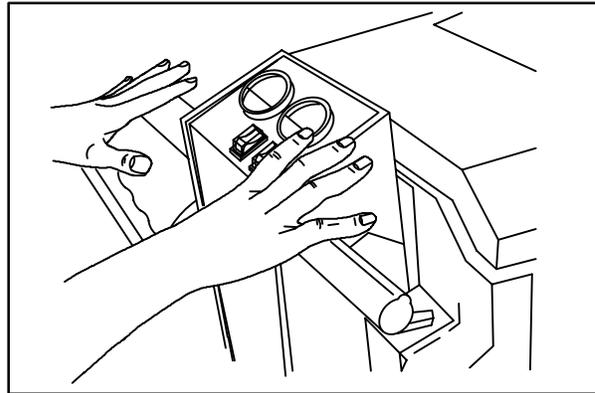
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Turning: Push the machine in the direction of the turn with the steering handles. The machine will turn on the swivel casters.



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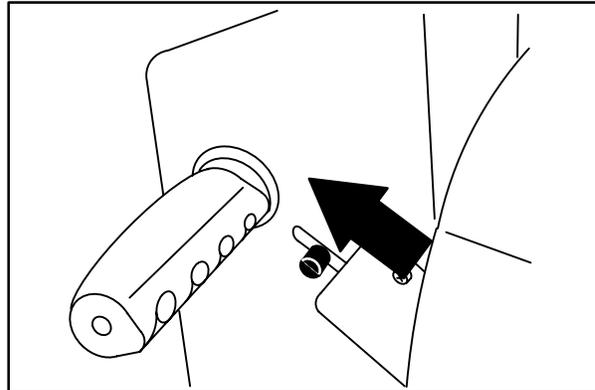
Stopping/Brush and Solution Off: Release the handles.



09518

The steering handles and console height is adjustable.

Adjust: Pull up on the height adjustment lever, move the console up or down, then release the lever.



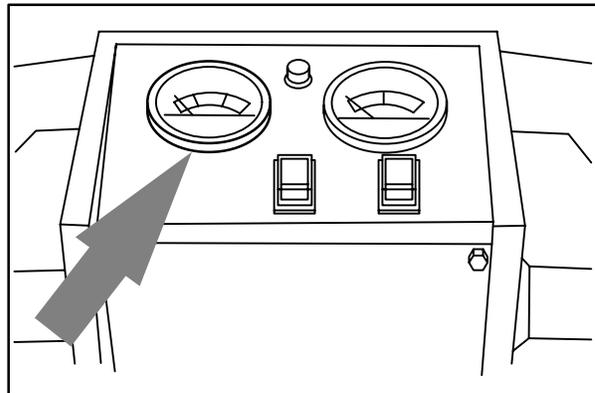
09467

BATTERY DISCHARGE INDICATOR

The battery discharge indicator shows the charge level of the batteries. The meter's needle should be at the top of the **green** zone when the batteries are fully charged. As the batteries discharge, the needle will move into the bottom **red** zone. Recharge the batteries when the needle remains in the bottom **red** zone.

If the needle remains in the top red zone, the batteries have been overcharged.

NOTE: The reading on the battery discharge indicator is not accurate when the machine is first powered on. Operate the machine a few minutes before reading the charge level of the batteries.



09743

OPERATION

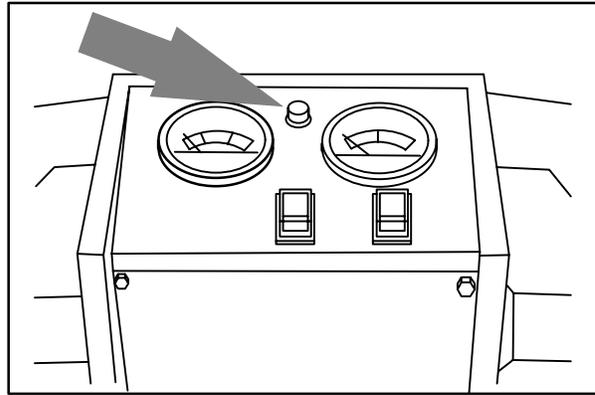
SPEED SWITCH

The speed switch allows variable forward speed of the machine.

Slow: Turn the switch knob counterclockwise



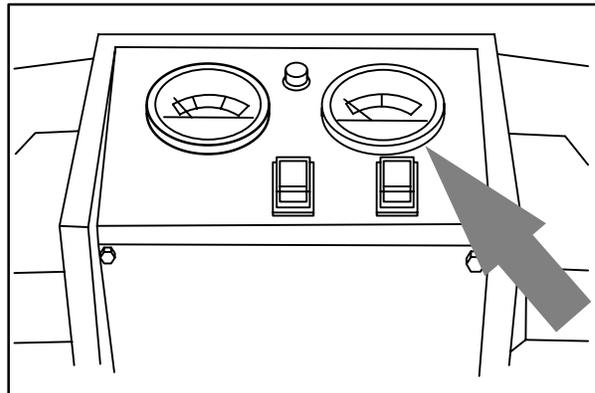
Fast: Turn the switch knob clockwise .



09742

BRUSH PRESSURE GAUGE

The brush pressure gauge shows how hard the scrub brush motor is working. The brush pressure should be operated in the **green** zone. Operating in the **red** zone indicates excessive brush pressure, and will cause the scrub brush circuit breaker to trip.



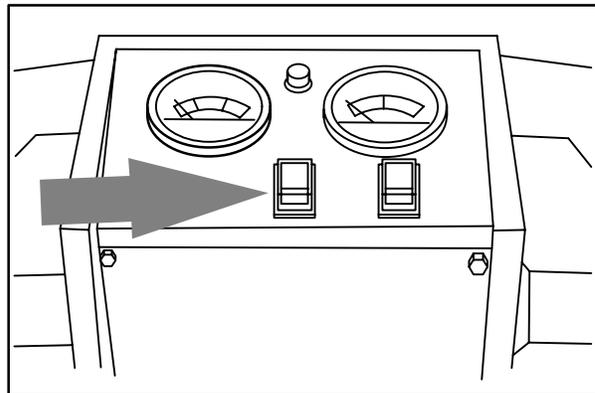
09744

MACHINE POWER SWITCH

The machine power switch turns on and off the machine power.

On: Press the top of the machine power switch. The switch will light up.

Off: Press the bottom of the machine power switch.



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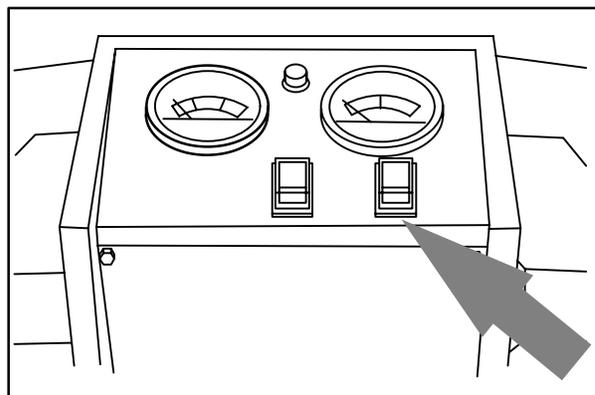
SOLUTION SWITCH

The solution switch starts and stops the solution flow.

Start: Press the top of the solution switch. The switch will light up.

NOTE: Stop the solution flow just before turning a corner. Then start the solution flow once around the corner.

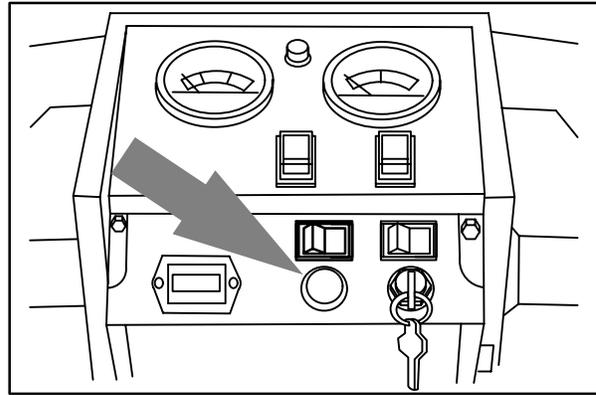
Stop: Press the bottom of the solution switch.



09746

PUMP ON LIGHT (OPTION)

The pump on light will come on when the ES™ solution pump starts.



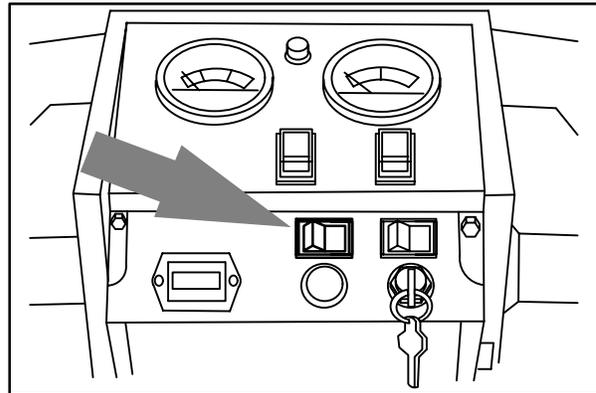
09747

ES™ SWITCH (OPTION)

The ES™ switch turns on and off the solution recycling system.

On: Press the right side of the ES™ switch. The switch will light up.

Off: Press the left side of the ES™ switch.



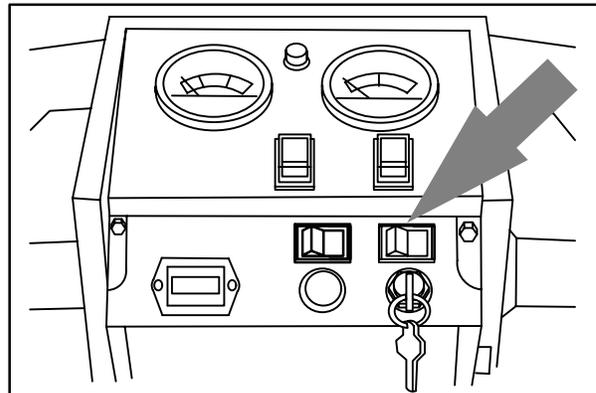
09748

POWER WAND SWITCH (OPTION)

The power wand switch turns on and off the power wand solution system.

On: Press the right side of the power wand switch. The switch will light up.

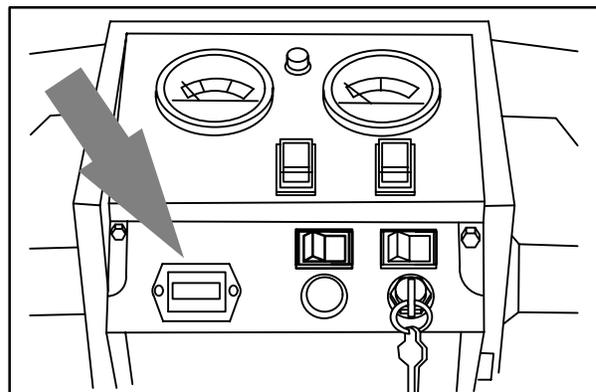
Off: Press the left side of the power wand switch.



09749

HOURMETER (OPTION)

The hourmeter  records the number of hours the machine has been powered on. This information is useful when servicing the machine.



09750

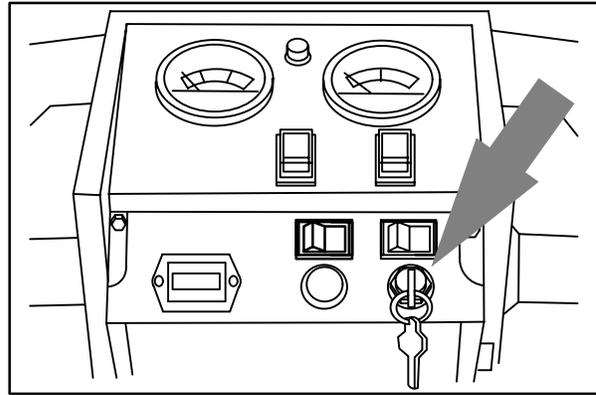
OPERATION

ON-OFF KEY SWITCH (OPTION)

The on-off key switch controls machine power with a key. The machine power switch has to be on for the key switch to turn on the machine power.

On: Turn the key to the right.

Off: Turn the key to the left.



09751

CIRCUIT BREAKERS

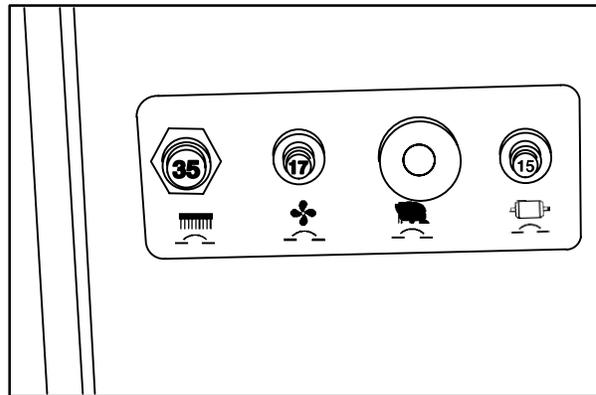
The circuit breakers are resettable electrical circuit protection devices. They are designed to stop the flow of current in the event of a circuit overload. Once a circuit breaker is tripped, reset manually by pressing the reset button after the breaker has cooled down.

If the overload that caused the circuit breaker to trip is still there, the circuit breaker will continue to stop current flow until the problem is corrected.

The circuit breakers are located below the operator console.

The chart shows the circuit breakers and the electrical components they protect.

Circuit Breaker	Rating	Circuit Protected
	35 A	Scrub brush
	17 A	Vacuum fan
	7 A	Machine power
	15 A	Machine propel



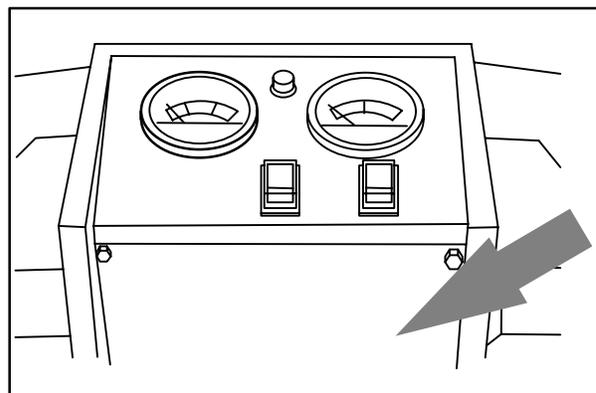
09581

FUSE

Fuses are a one-time protection device designed to stop the flow of current in the event of a circuit overload. Never substitute higher value fuses than specified.

The fuse is located inside the instrument panel.

Fuse	Rating	Circuit Protected
FU-1	1 A	Directional potentiometer



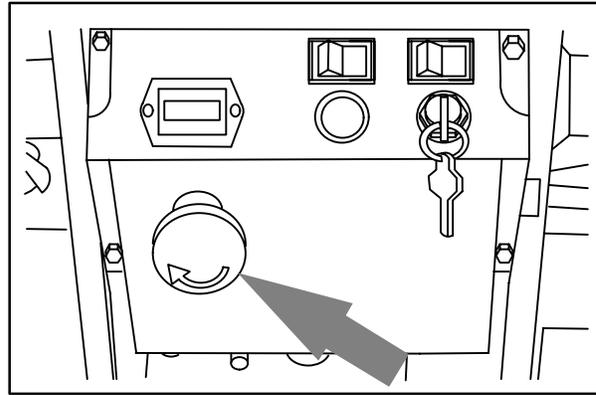
09754

POWER KILL SWITCH (OPTION)

The power kill switch halts all power to the machine.

Halt: Hit the power kill switch.

Restart: Turn the power kill switch to the right to release the switch. Turn off the machine power, then turn on the machine power.



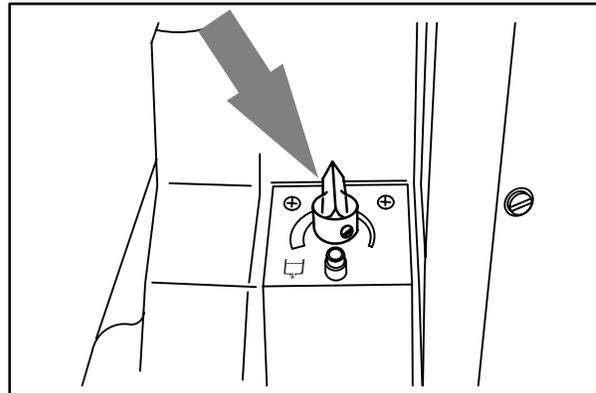
09477

SOLUTION FLOW KNOB

The solution flow knob  controls the amount of solution flow to the floor.

Increase: Turn the solution knob counter-clockwise. The more you turn the knob, the more you increase the solution flow to the floor.

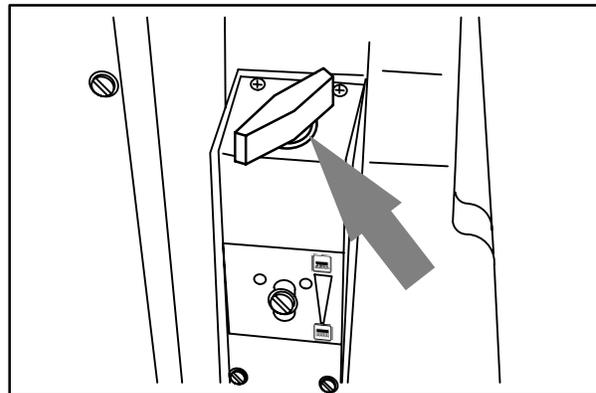
Decrease: Turn the solution knob clockwise.



09479

BRUSH PRESSURE KNOB

The brush pressure knob adjusts the amount of brush pressure to the floor. The indicator below the knob shows if the brush pressure is increasing or decreasing.

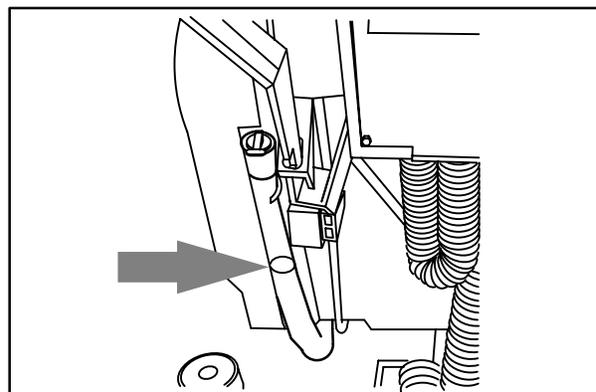


09480

SOLUTION TANK HOSE

The clear solution tank hose shows the solution level in the solution tank.

The hose is used to drain the solution tank. The drain hose plug is removed by flipping up the plug latch and pulling the plug out of the drain hose. The drain hose is plugged by placing the hose plug in the end of the hose and flipping the plug latch down.

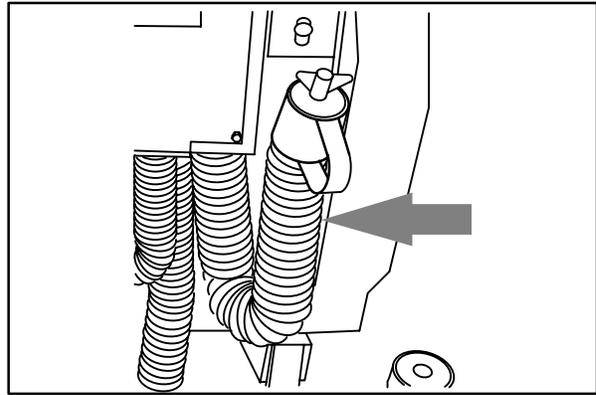


09481

OPERATION

RECOVERY TANK DRAIN HOSE

The recovery tank drain hose is used to drain the recovery tank. The drain hose plug is removed by turning the plug latch to loosen the plug and pulling the plug out of the drain hose. The drain hose is plugged by placing the hose plug in the end of the hose and turning the plug latch to tighten the plug.

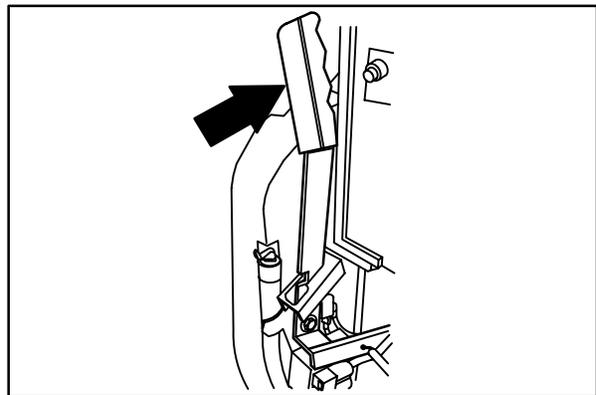


09482

SQUEEGEE LEVER

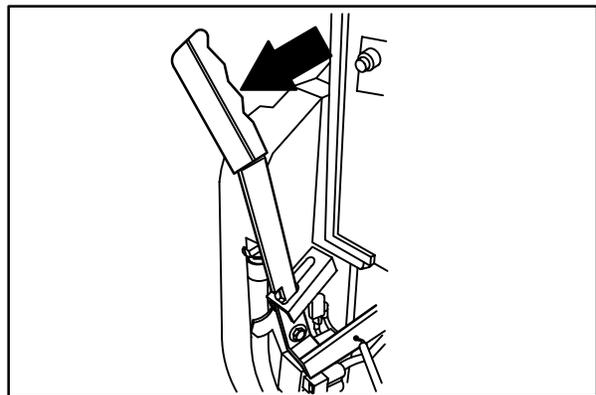
The squeegee lever controls the squeegee and the vacuum system.

Lower Squeegee and Start Vacuum: Move the squeegee lever to the left to unlock it, then move the lever all the way forward.



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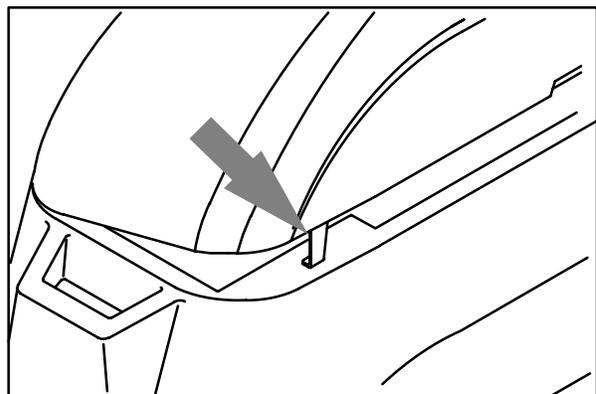
Raise Squeegee and Stop Vacuum: Pull the lever towards you, and move it to the right to lock the lever in the up position.



09484

STOP ARM

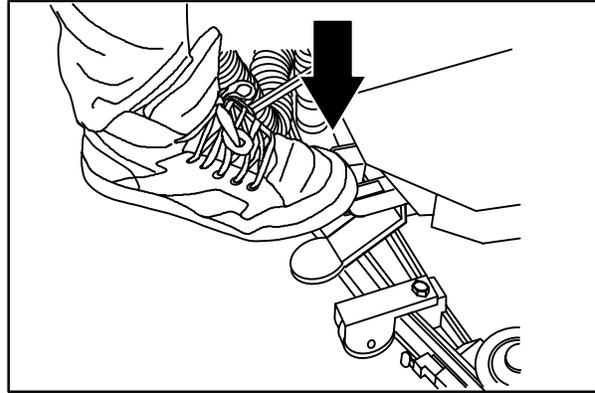
The stop arm prevents the recovery tank from pinching fingers when the tank is lowered. Rotate the arm up to lower the recovery tank completely.



SCRUB HEAD PEDALS

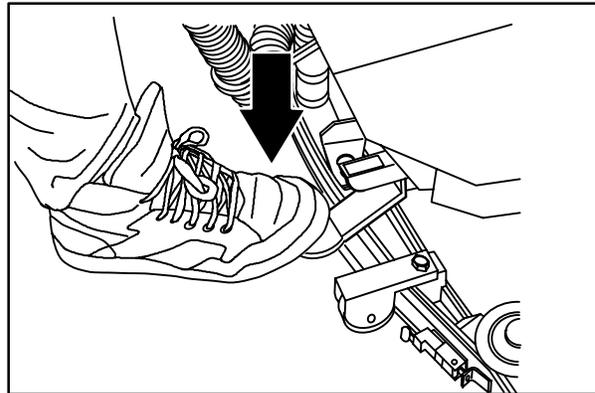
The scrub head pedals raise and lower the scrub head. The scrub brush starts when the scrub head is lowered and the steering handles are twisted forward or backward.

Lower and Start: Step on the release pedal with your foot.



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Raise and Stop: Step on the lift pedal with your foot.



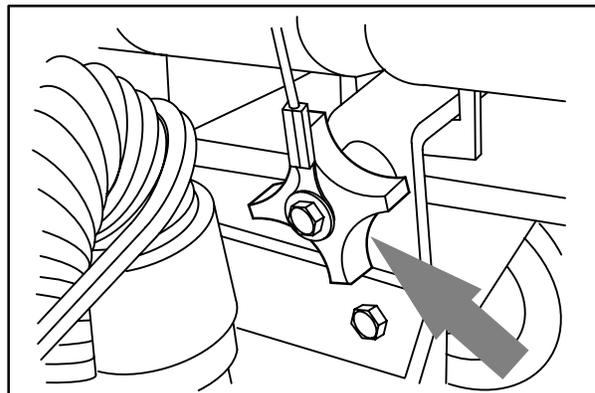
09486

SQUEEGEE DOWN PRESSURE KNOB

The squeegee down pressure knob adjusts the squeegee deflection along the entire length of the squeegee.

Increase: Turn the squeegee down pressure knob clockwise.

Decrease: Turn the squeegee down pressure knob counter-clockwise.



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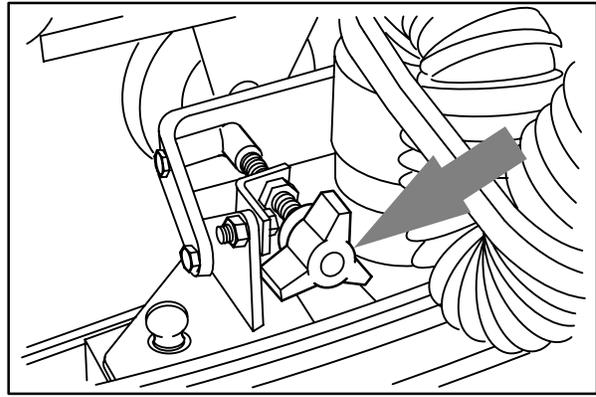
OPERATION

SQUEEGEE LEVELING KNOB

The squeegee leveling knob adjusts the deflection at the ends of the squeegee.

Increase: Turn the squeegee leveling knob counter-clockwise to increase the deflection at the end of the squeegees.

Decrease: Turn the squeegee leveling knob clockwise to decrease the deflection at the end of the squeegees.



09488

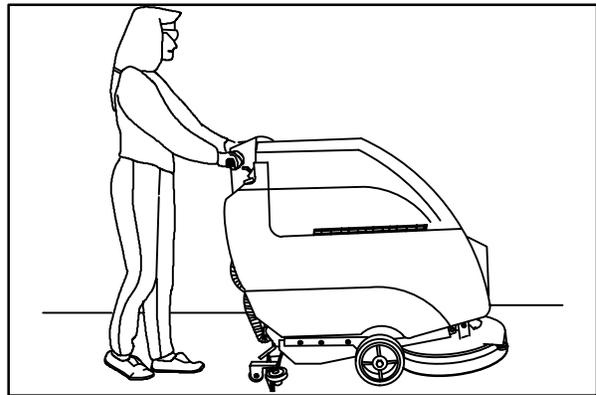
HOW THE MACHINE WORKS

The scrub components of the machine are a solution tank, a scrub brush, a squeegee, a vacuum fan, and a recovery tank.

Water and detergent from the solution tank flows to the floor through a solution valve to the scrub brush. The brush scrubs the floor. As the machine is moved forward the squeegee wipes the dirty solution off the floor, which is then picked up and drawn into the recovery tank.

The steering handles control the direction of the machine in forward or reverse. By twisting the steering handles forward, the machine propels forward. By twisting the handles towards you the machine propels backward. The speed switch controls the forward speed of the machine.

When using the ES™ mode, the dirty solution in the recovery tank is filtered and returned to the solution tank to be reused.

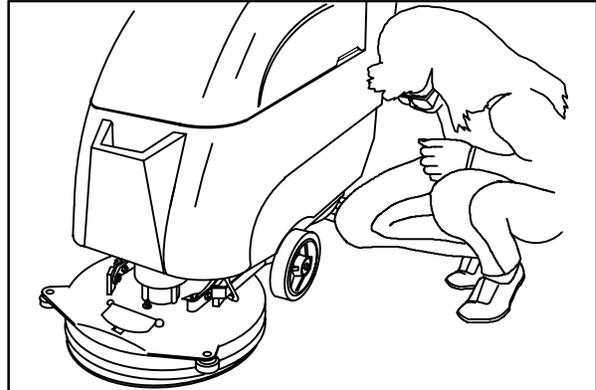


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PRE-OPERATION CHECKLIST

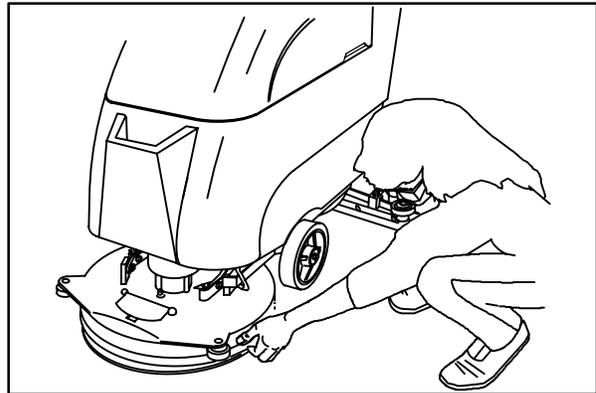
Check over this list of items before operating the machine:

- Check under the machine for leaks.



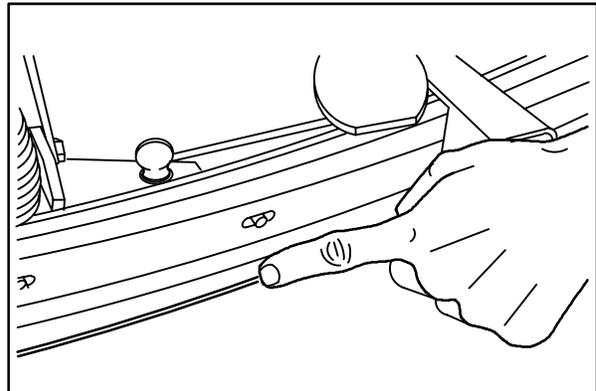
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- Check and make sure the scrub head skirt touches the floor all the way around the scrub head.



09522

- Check the squeegee for proper deflection. Check the squeegee blade for wear, rounded edges, nicks, or cuts.

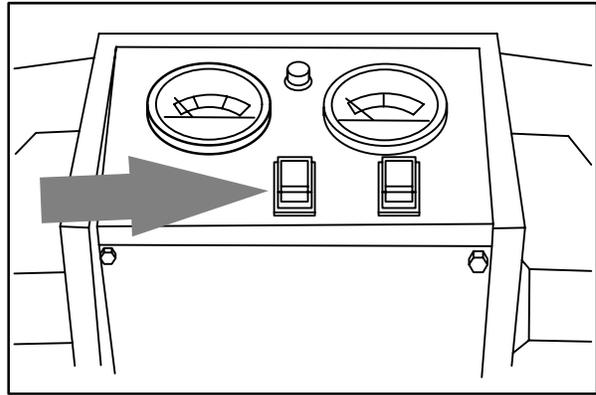


09462

OPERATION

STARTING THE MACHINE

1. Turn the machine power on.



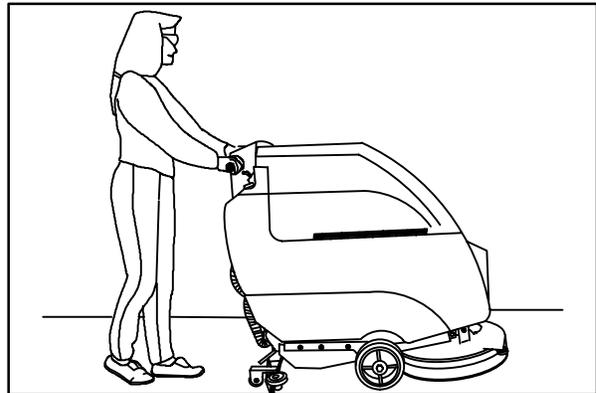
09745

2. Release the machine parking brake, if your machine has this option.

FILLING THE TANKS

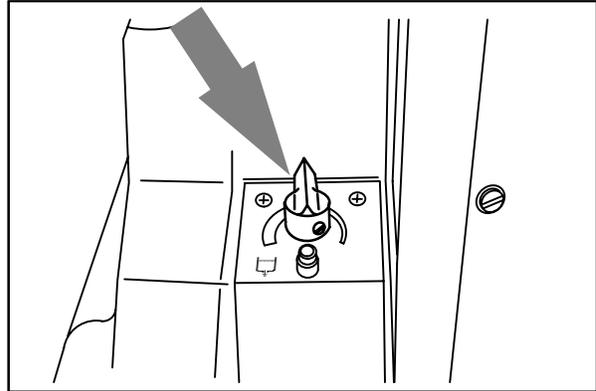
1. Start the machine.
2. Drive the machine to the filling site.

FOR SAFETY: Before leaving or servicing machine, stop on level surface and turn off machine.



09185

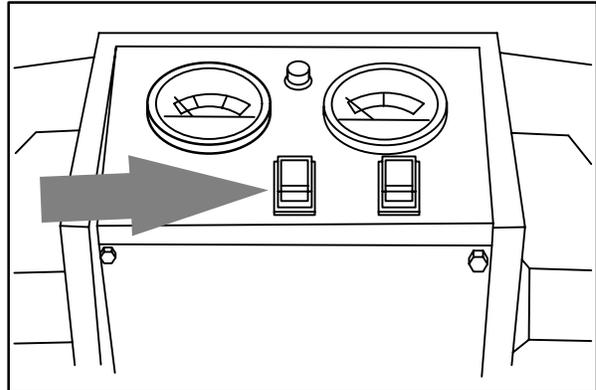
3. Stop the solution flow.



09479

4. Turn the machine power off.

FOR SAFETY: Before leaving or servicing machine, stop on level surface and turn off machine.

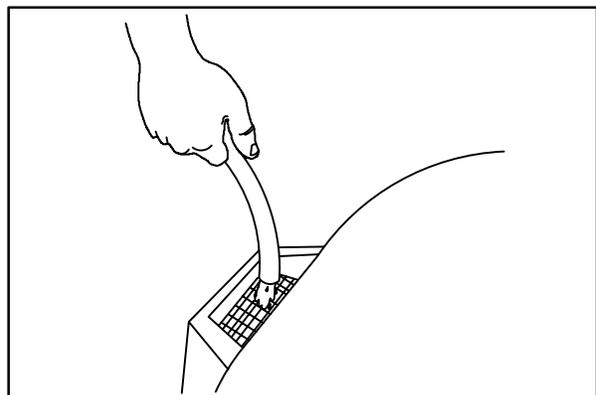


09745

5. Pour the required amount of detergent into the solution tank fill opening. Fill the solution tank to fill opening screen.

*NOTE: The water must **not be** hotter than 55° C (130° F) or tank damage may occur.*

NOTE: Floor conditions, water condition, amount of soilage, type of soilage, brush action all play an important role in determining the type and concentration of detergent used. For specific recommendations, contact your representative.



09492

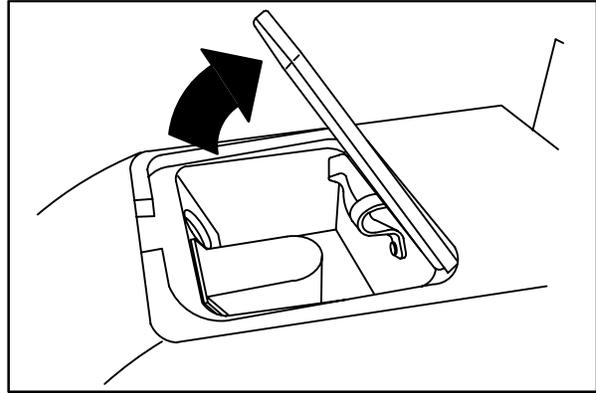
⚠ WARNING: Flammable materials can cause an explosion or fire. Do not use flammable materials in tank(s).

OPERATION

6. ES™ mode: Open the recovery tank cover.

NOTE: If you are going to scrub in the ES™ mode, the recovery tank can be partially filled to extend scrub time. Make sure the ES™ switch is in the top position, turning the ES™ system on.

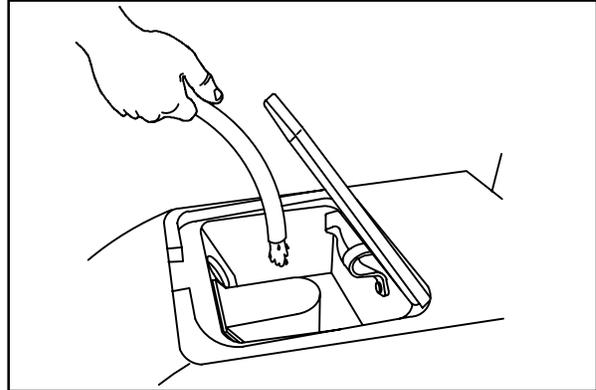
*If you **do not** want to use the ES™ system, press the bottom of the ES™ switch. DO NOT fill the recovery tank.*



09493

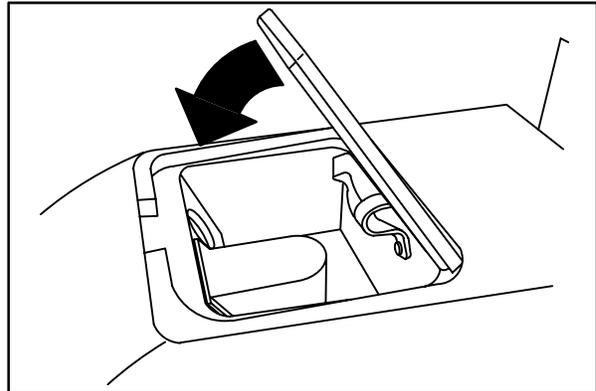
7. ES™ mode: Fill the recovery tank with no more than 23 L (6 gal) of water.

*NOTE: The water must **not be** hotter than 55° C (130° F) or tank damage may occur.*



09503

8. ES™ mode: Close the recovery tank cover.



09494

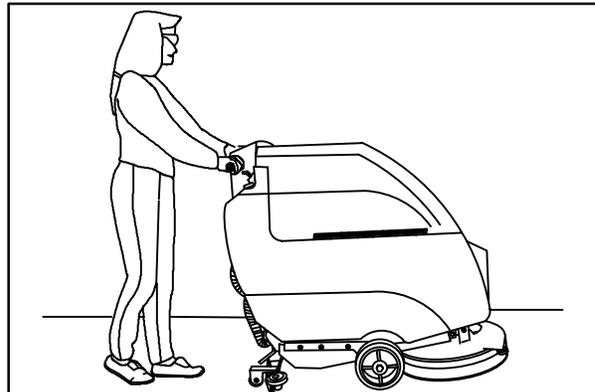
NORMAL SCRUBBING

- Pick up oversized debris before scrubbing. Pick up pieces of wire, string, twine, etc., which could become wrapped around the scrub brush.
- Plan the scrubbing in advance. Try to arrange long runs with minimum stopping and starting. Do an entire floor or section at one time.
- Try to scrub as straight a path as possible. Avoid bumping into posts or scraping the sides of the machine. When scrubbing dead end aisles, start at the closed end of the aisle and scrub your way out. Overlap the scrub paths by a few centimeters (inches).
- When you see poor scrubbing performance, stop scrubbing and refer to *MACHINE TROUBLESHOOTING*.



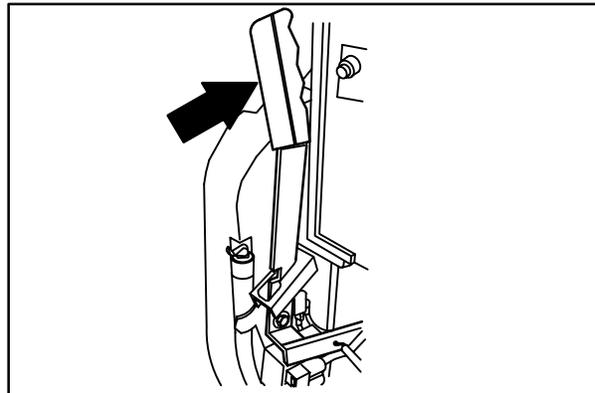
07218

1. Start the machine.
2. Drive the machine to the area to be scrubbed.



09185

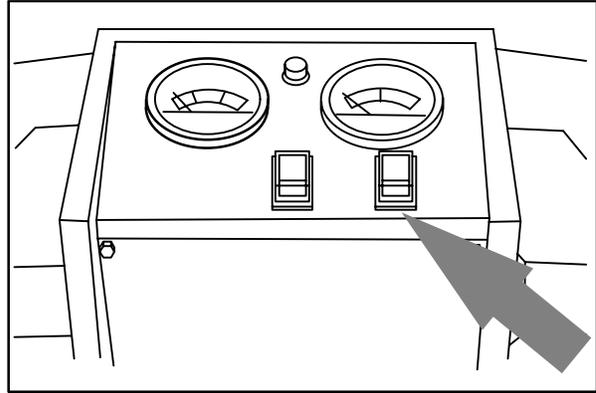
3. Lower the squeegee to the floor with the squeegee lever.



09483

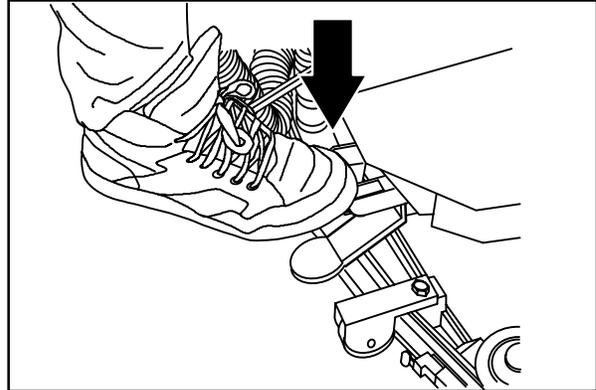
OPERATION

4. Start the solution flow with the solution switch.



09746

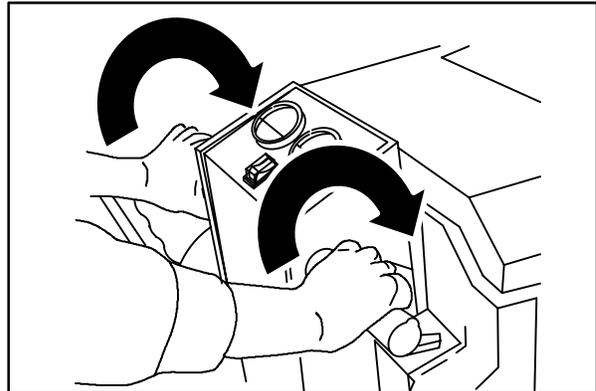
5. Start and lower the scrub brush with the scrub head release pedal.



09485

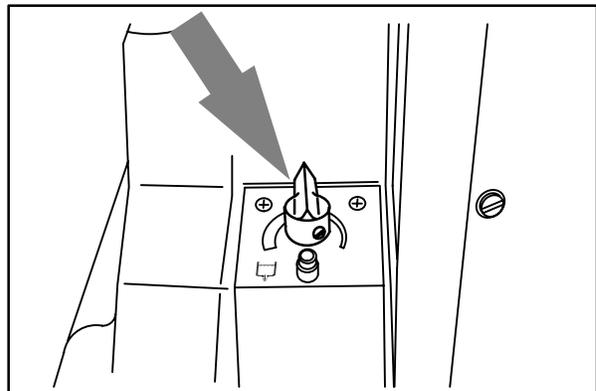
6. Drive the machine forward and scrub as required.

! **WARNING: Flammable materials or reactive metals can cause explosion or fire. Do not pick up.**



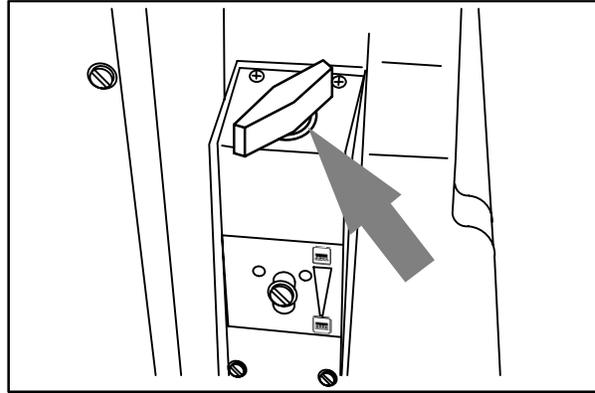
09740

7. Adjust the solution flow to the floor as needed.

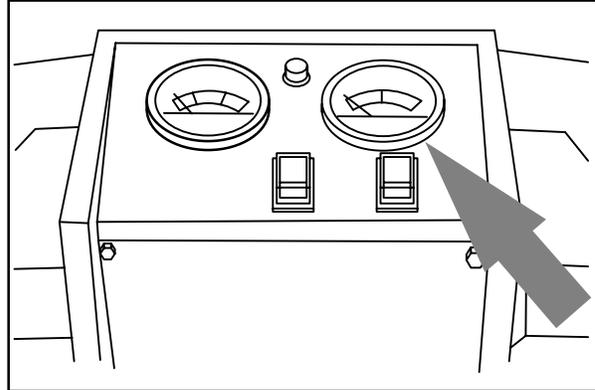


09479

- Adjust brush pressure for cleaning application.



09480



09744

DOUBLE SCRUBBING

Double scrubbing is a method for removing heavy floor accumulations. This is done by making two passes over the area to be cleaned with the machine.

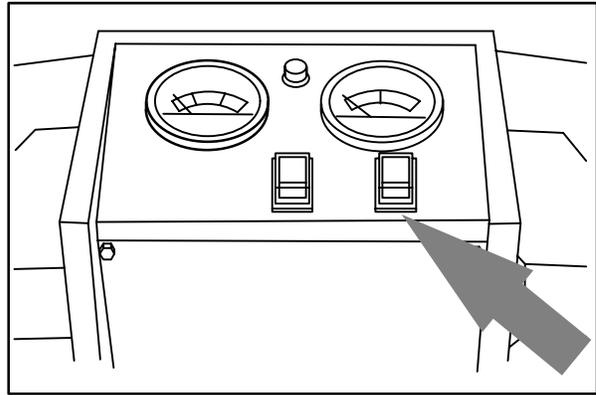
First, make a pass over the area scrubbing with the squeegee up. This dispenses solution over the area allowing the solution to soak on the floor. Let the solution remain on the floor for 3 to 5 minutes. Then make a second pass scrubbing with the squeegee down.

FOR SAFETY: When using machine, go slow on inclines and slippery surfaces.

OPERATION

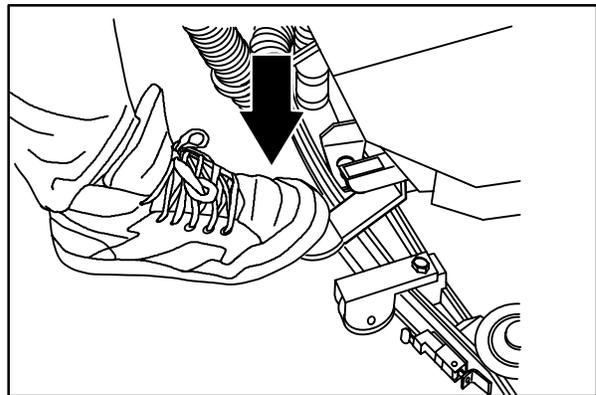
STOP SCRUBBING

1. Release the steering handles and stop the solution flow with solution switch.



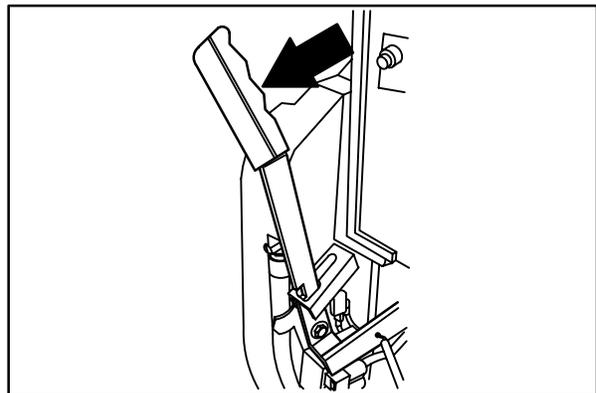
09746

2. Raise the scrub brush with the scrub head lift pedal.



09486

3. Raise the squeegee with the squeegee lever.



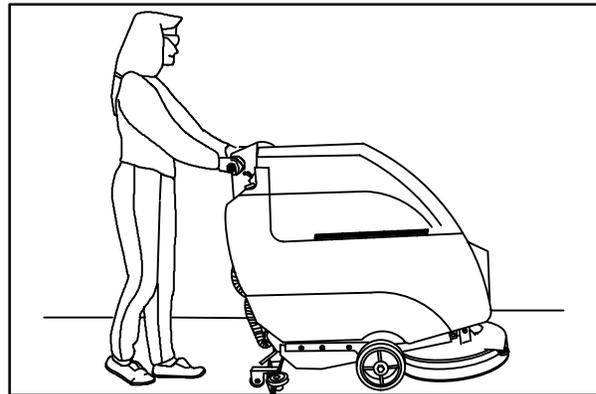
09484

DRAINING AND CLEANING THE TANKS

When you are finished scrubbing, or you hear the a change in the vacuum fan sound, and the machine starts trailing water, the recovery tank should be drained and cleaned. The solution tank then can be filled again for additional scrubbing.

If you used the machine in ES™ mode, the solution tank should also be drained and cleaned when you are finished scrubbing.

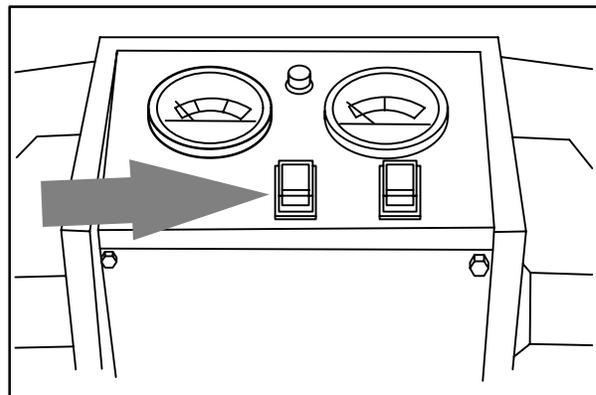
1. Stop scrubbing.
2. Drive the machine next to a floor drain or sink.



09185

3. Turn the machine power off.

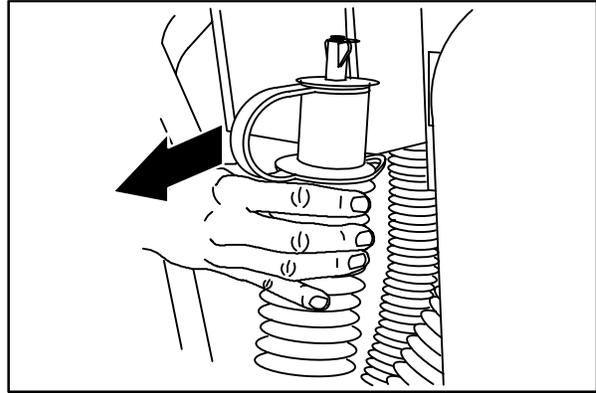
FOR SAFETY: Before leaving or servicing machine, stop on level surface and turn off machine.



09745

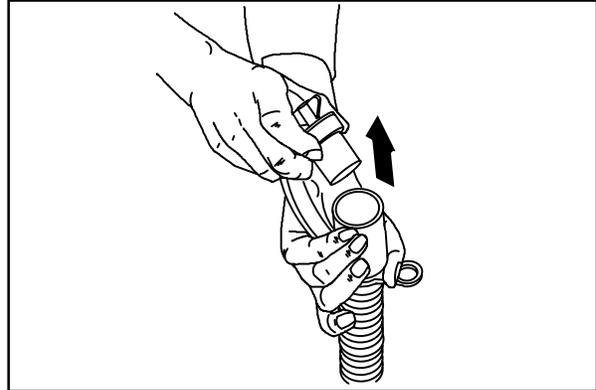
OPERATION

4. Remove the recovery tank drain hose from the mounting clip.



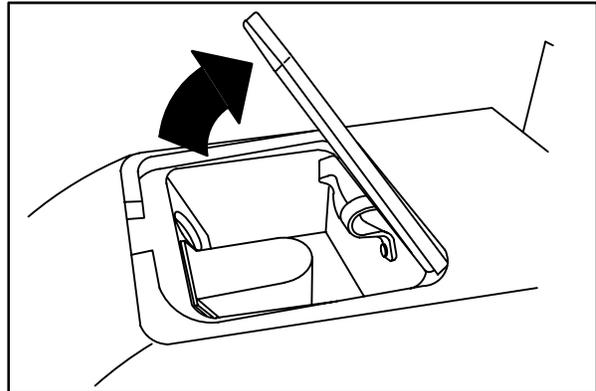
09495

5. Remove the drain hose plug while holding the hose up, then slowly lower the drain hose to the floor drain or sink.



09497

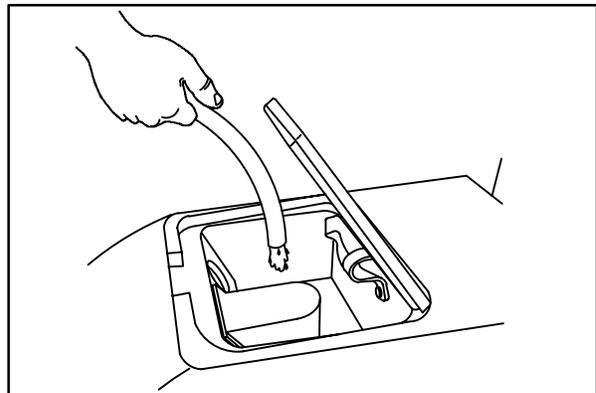
6. Open the recovery tank cover.



09493

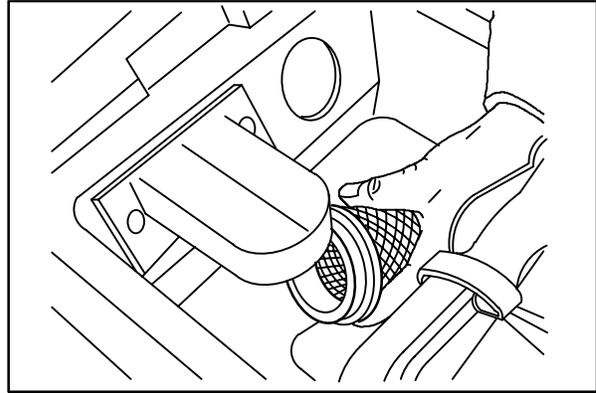
7. Flush out the inside of the recovery tank with clean water.

NOTE: The water must not be hotter than 55° C (130° F), or tank damage may occur. Do not use steam to clean the tank.



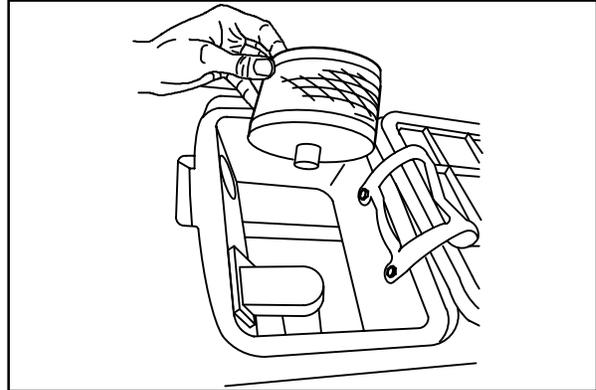
09503

8. Rinse the float screen. Remove and clean the screen if it is still dirty. Put the screen back in the tank.



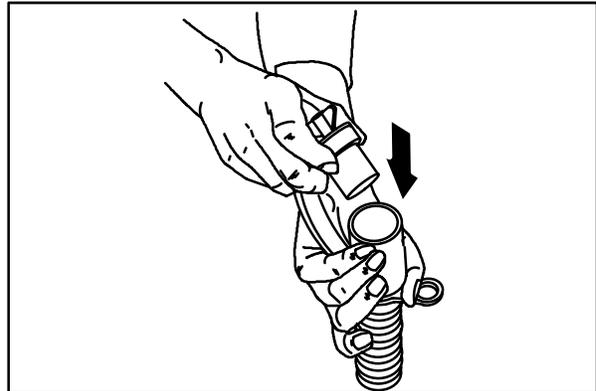
09505

9. ES™ mode: Rinse the ES™ filter. Remove and clean the filter if it is still dirty. Put the filter back in the tank.



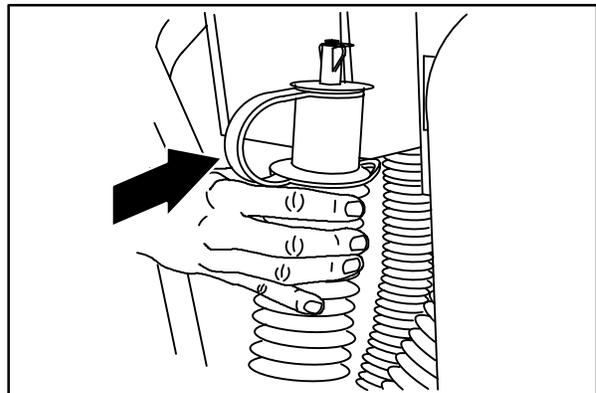
09506

10. When the tank has completely drained, replace the drain hose plug in the recovery tank drain hose.



09498

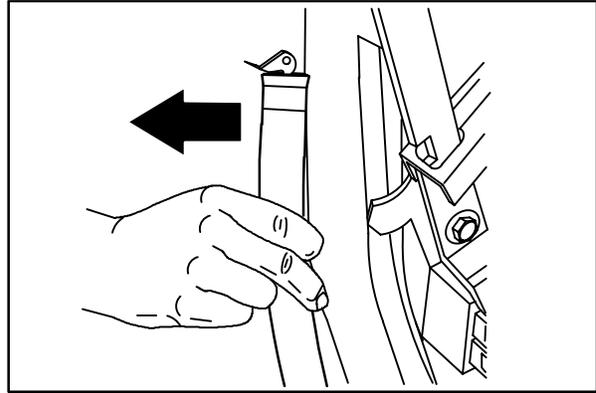
11. Place the recovery tank drain hose back onto the mounting clip on the machine.



09496

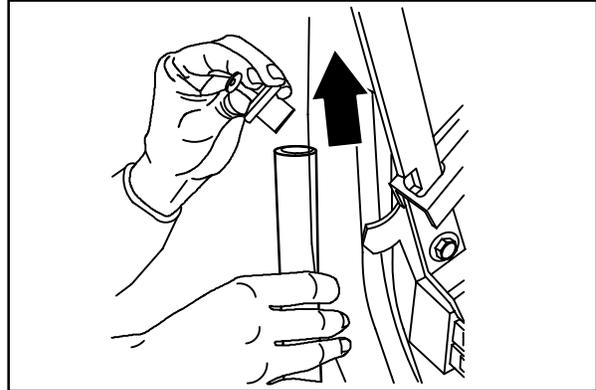
OPERATION

12. ES™ mode: Remove the solution tank drain hose from the mounting clip.



09499

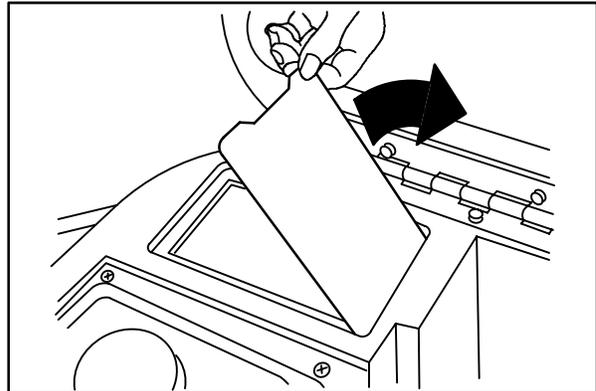
13. ES™ mode: Remove the drain hose plug while holding the hose up, then slowly lower the drain hose to the floor drain.



09502

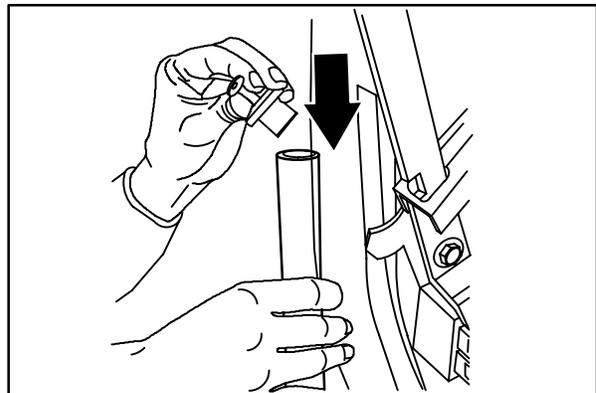
14. ES™ mode: Lift the recovery tank to reach the solution tank. Lift the solution tank cover and flush out the solution tank with clean water. Rinse the filter at the bottom of the solution tank.

NOTE: The water must not be hotter than 55° C (130° F), or tank damage may occur. Do not use steam to clean the tank.



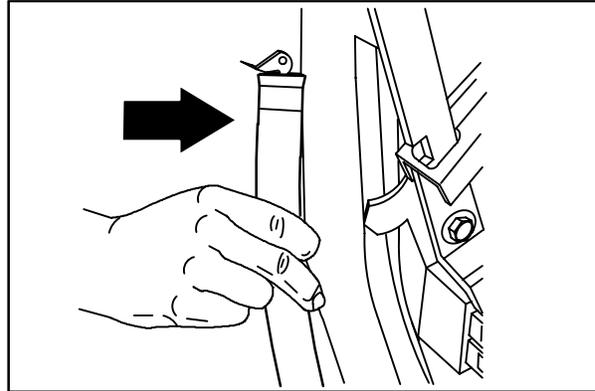
09508

15. ES™ mode: When the solution tank has completely drained, replace the drain hose plug in the solution tank drain hose.



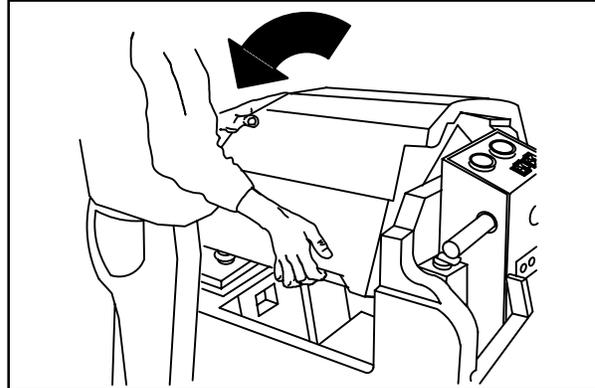
09501

16. ES™ mode: Place the solution tank drain hose back into the mounting clip.



09500

17. Close the solution tank cover, and lower the recovery tank. Rotate the stop arm out of the way to allow the recovery tank to close completely.

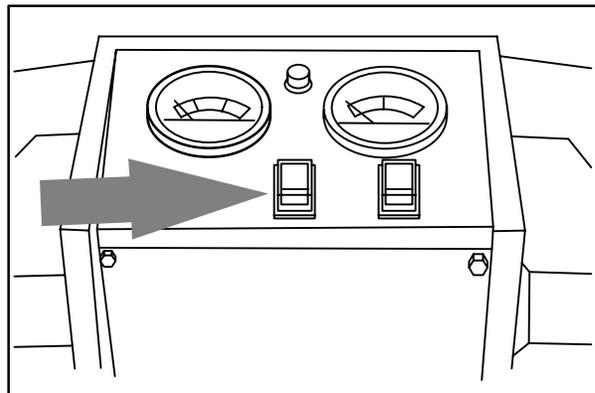


09510

STOP THE MACHINE

1. Stop scrubbing.
2. Turn the machine power off.

FOR SAFETY: Before leaving or servicing machine, stop on level surface and turn off machine.



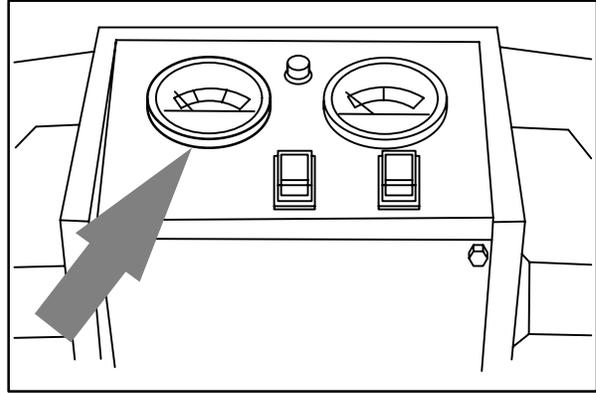
09745

POST-OPERATION CHECKLIST

Check over this list of items after you have finished scrubbing with the machine with the machine powered on:

- Check the battery charge level.

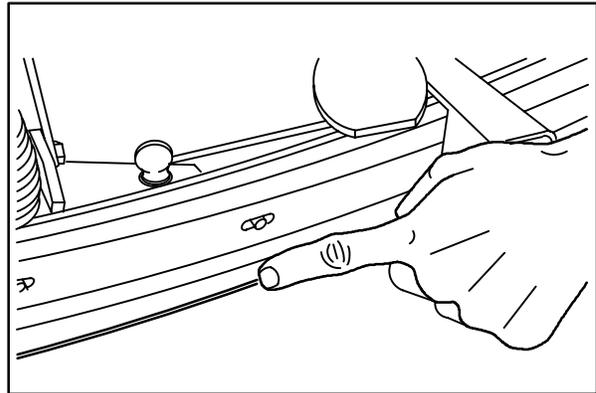
NOTE: The reading on the battery discharge indicator is not accurate when the machine is first powered on. Operate the machine a few minutes before reading the charge level of the batteries.



09743

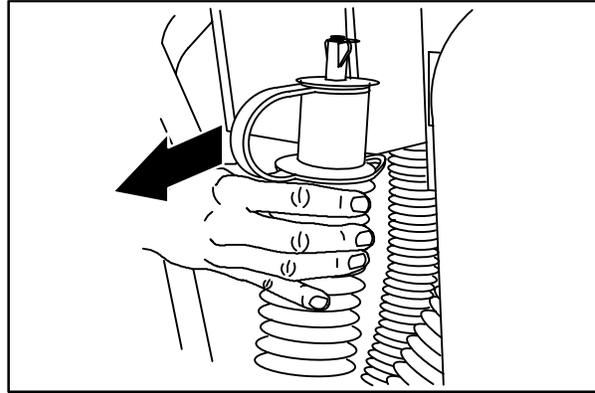
Check over this list of items with the machine is powered off:

- Check for wire, string, or twine wrapped around the scrub brush.
- Check the squeegee for wear or damage.



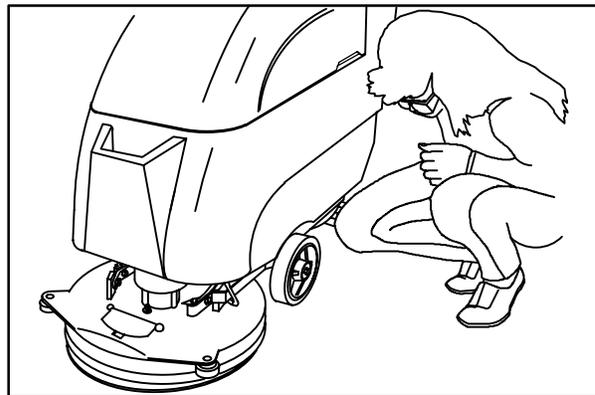
09462

- Drain and clean the recovery tank.



09495

- ES™ machines: Drain and clean the solution tank.
- Check the vacuum hoses for obstructions.
- Check for any machine leaks.
- Check the service records to determine service requirements.



09186

OPERATION ON INCLINES

Drive the machine slowly on inclines.

FOR SAFETY: When using machine, go slow on inclines and slippery surfaces.

OPERATION

MACHINE TROUBLESHOOTING

Problem	Cause	Remedy	
Trailing water – poor or no water pickup	Worn squeegee blades	Rotate or replace squeegee blades	
	Squeegee out of adjustment	Adjust squeegee	
	Vacuum hose clogged	Flush vacuum hoses	
	Recovery tank full	Drain recovery tank	
	Vacuum fan will not turn on		Drain recovery tank
			Reset vacuum fan circuit breaker
	Debris caught on squeegee	Remove debris	
	Foam filling recovery tank	Empty recovery tank; use less or change detergent	
	Vacuum hose to squeegee or recovery tank disconnected or damaged	Reconnect or replace vacuum hose	
	Recovery tank float screen clogged	Clean screen	
Recovery tank cover not closed completely	Close cover		
Little or no solution flow to the floor	Solution tank empty	Fill solution tank	
	Solution switch off	Turn switch on	
	Solution control cable broken or out of adjustment	Replace and/or adjust cable	
	Solution flow knob turn off	Turn solution flow knob on	
	Solution supply lines plugged	Flush solution supply lines	
	Solution solenoid clogged or stuck	Clean or replace	
	ES™ mode: ES™ switch off	Turn ES™ switch on	
Poor scrubbing performance	Debris caught on scrub brushes	Remove debris	
	Improper detergent, brush, or pad used	Check with representative for advice	
	Worn scrub brush or pad	Replace scrub brush or pad	
	Scrub brush motor circuit breaker tripped		Reset circuit breaker
			Adjust scrub brush down pressure, check with representative for advice
	Low battery charge	Charge batteries	
	Low scrub brush down pressure	Adjust scrub brush down pressure, check with representative for advice	

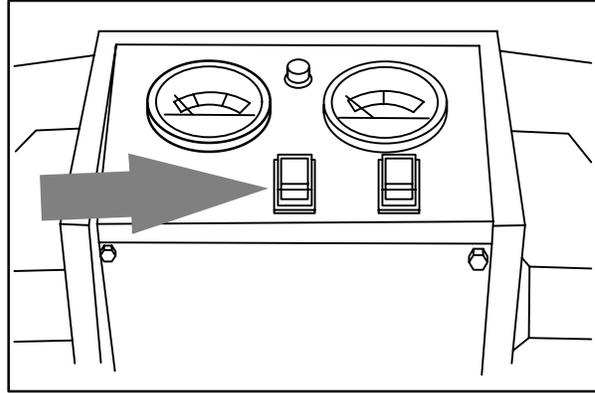
OPTIONS

VACUUM WAND

The vacuum wand uses the machine's vacuum system. The vacuum hose allows pick-up of spills that are out of reach of the machine.

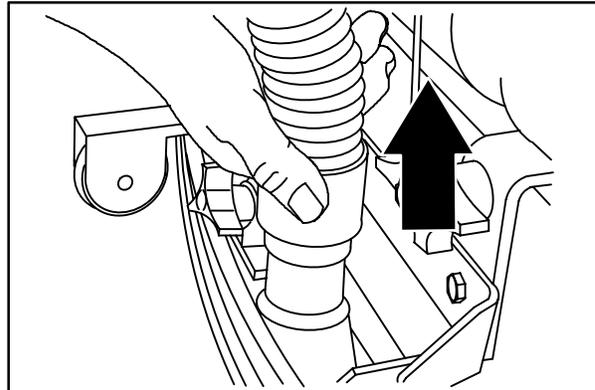
1. Turn the machine power off.

FOR SAFETY: Before leaving or servicing machine, stop on level surface and turn off machine.



09745

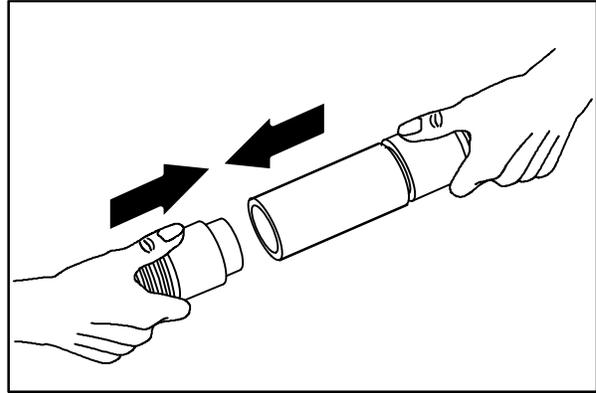
2. Remove the squeegee suction hose from the top of the squeegee.
3. Put together the wand and the wand hose.



09512

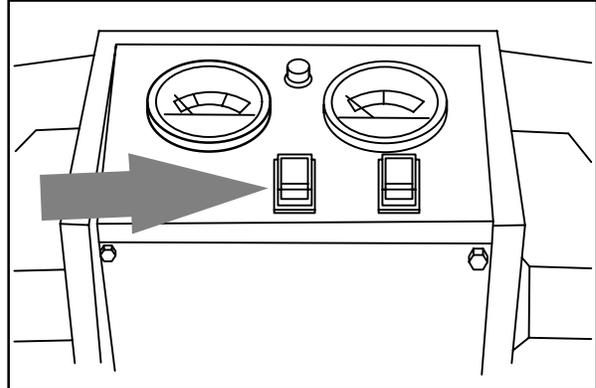
OPERATION

4. Connect the vacuum wand hose and the squeegee suction hose with the adapter.



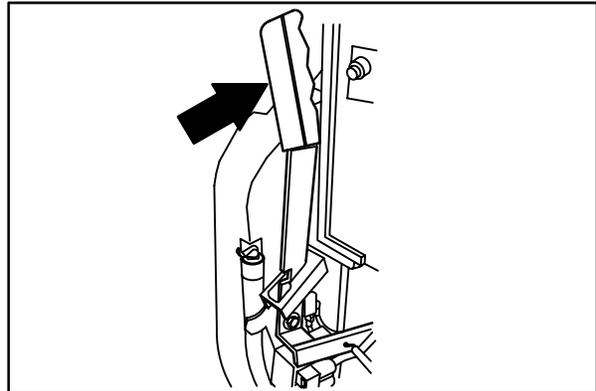
09539

5. Turn the machine power on.



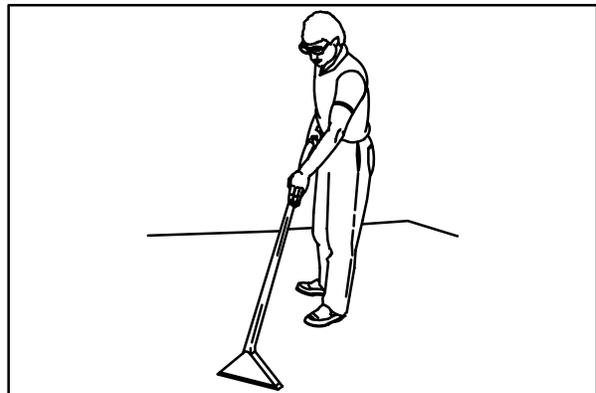
09745

6. Lower the squeegee with the squeegee lever to turn the vacuum system on.



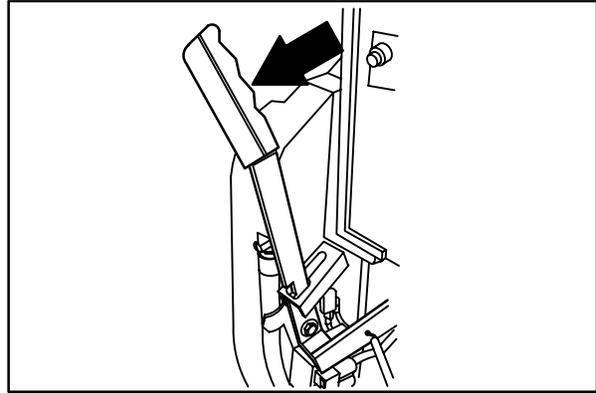
09483

7. Vacuum the floor.



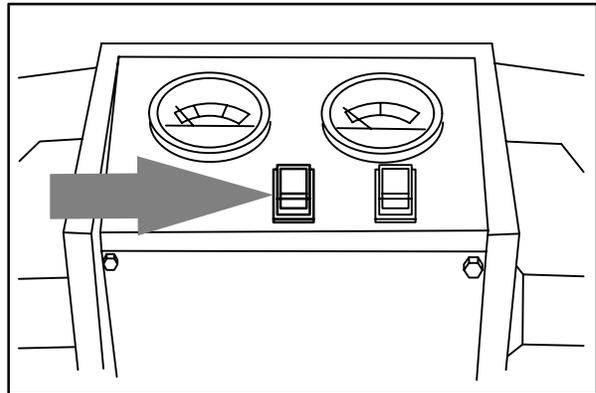
06599

8. When finished, raise the squeegee to shut off the vacuum.



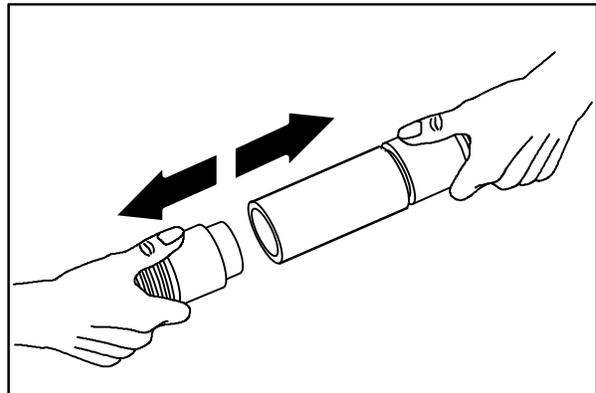
09484

9. Turn the machine power off.



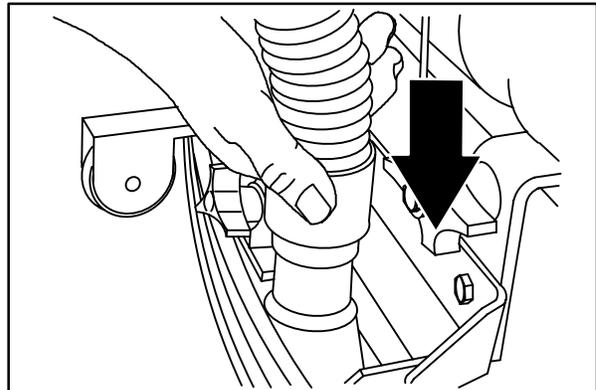
09470

10. Remove the vacuum hose from the squeegee suction hose.



09514

11. Reconnect the squeegee suction hose to the top of the squeegee.



09513

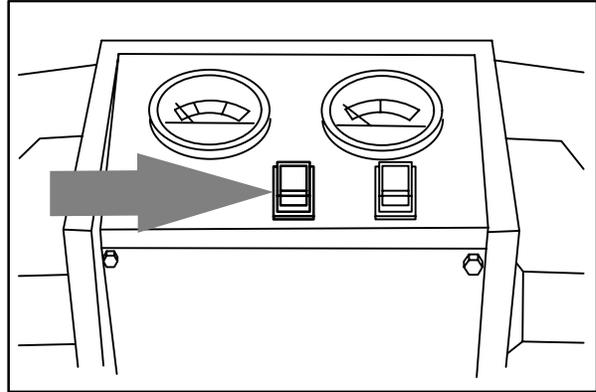
OPERATION

POWER WAND

The power wand uses the machine's vacuum and solution systems. The power wand allows scrubbing of floors that are out of reach of the machine.

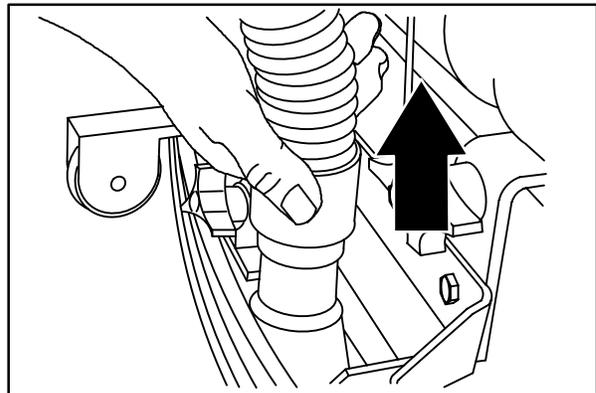
1. Turn the machine power off.

FOR SAFETY: Before leaving or servicing machine, stop on level surface and turn off machine.



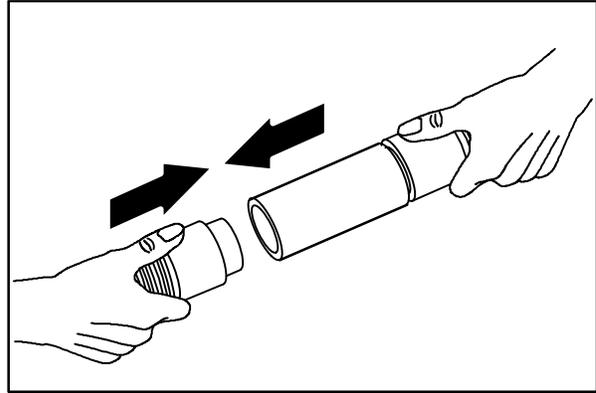
09470

2. Remove the squeegee suction hose from the top of the squeegee.



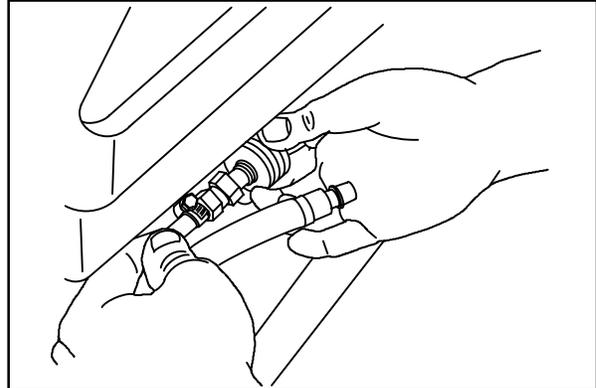
09512

3. Connect the vacuum wand hose and the squeegee suction hose with the adapter.



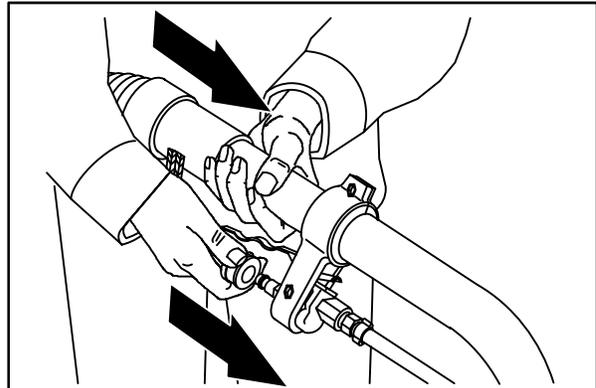
09539

4. Attach the end of solution hose to the quick-disconnect. Push the connector in until it stops. Pull on the hose to make sure it is connected.



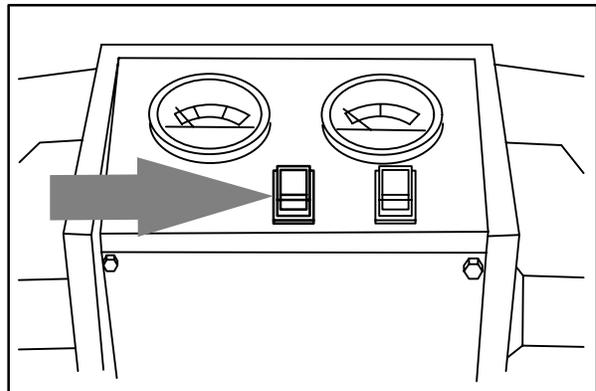
06596

5. Attach the other ends of the solution and vacuum hoses to the power wand.



07320

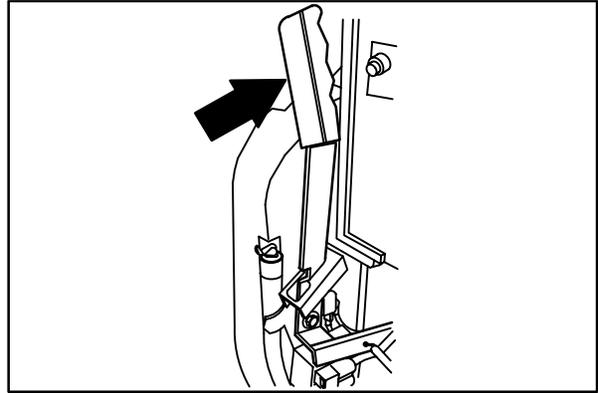
6. Turn the machine power on.



09470

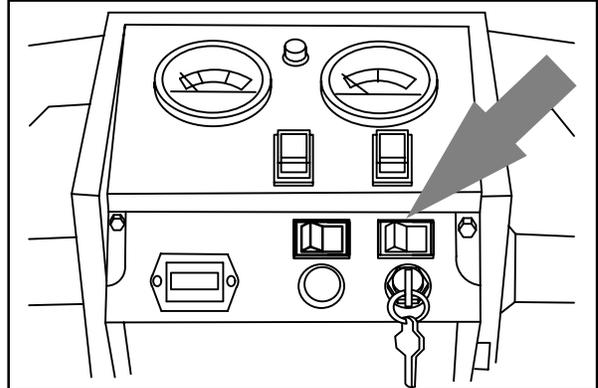
OPERATION

7. Lower the squeegee with the squeegee lever to turn the vacuum system on.



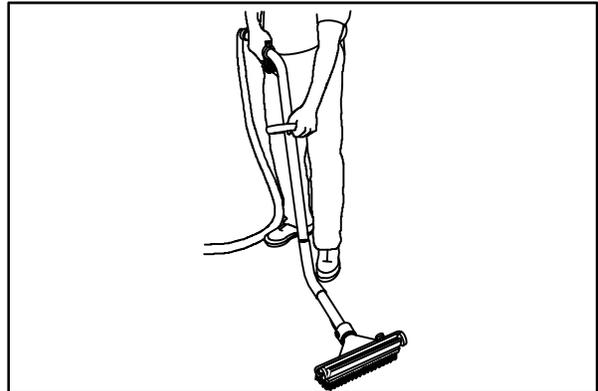
09483

8. Switch the power wand on.



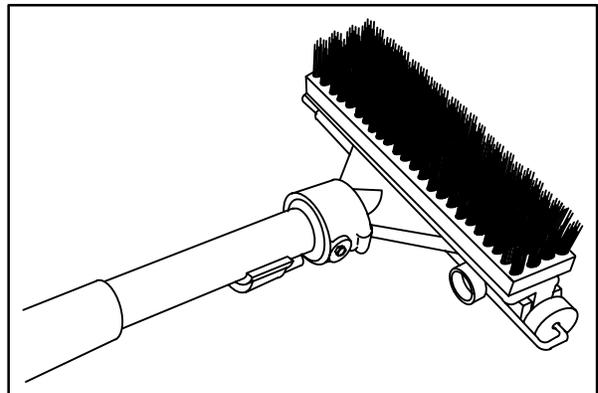
09749

9. Squeeze the solution lever on the power wand to spray solution on the floor. Scrub the floor with the brush side of the cleaning tool.



06603

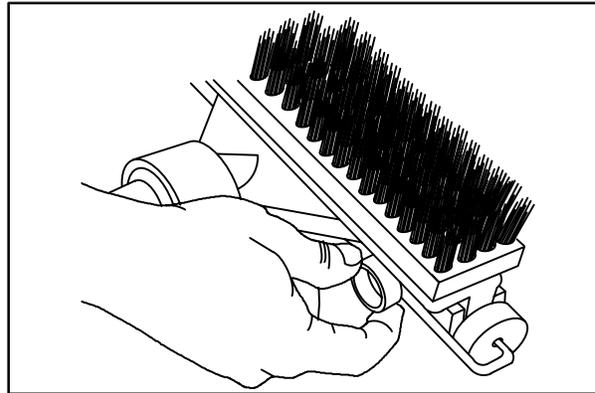
10. Vacuum up the solution by turning over the cleaning tool so the squeegee side is down.



06202

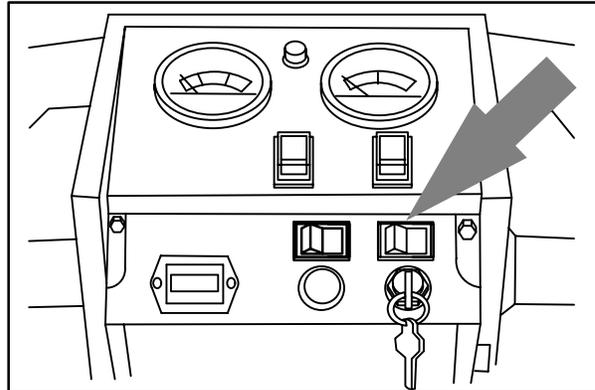
If the cleaning tool is hard to push, or is not picking up the solution very well, adjust the roller wheels on the tool by turning the black adjustment knob.

NOTE: The wheels are properly adjusted when the squeegee blades deflect slightly while the tool is pushed back and forth.



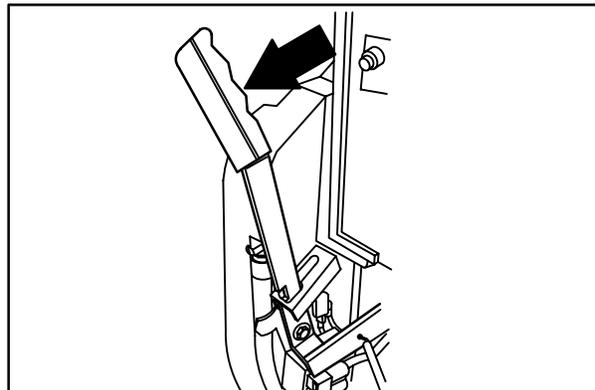
06604

11. When finished, switch the power wand off.



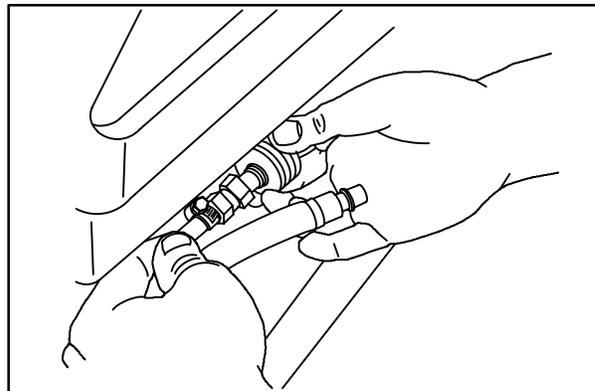
09749

12. When finished, raise the squeegee to shut off the vacuum.



09484

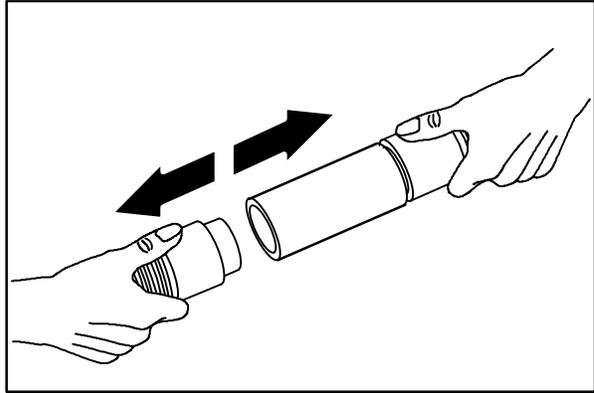
13. Disconnect the solution hose from the machine.



06596

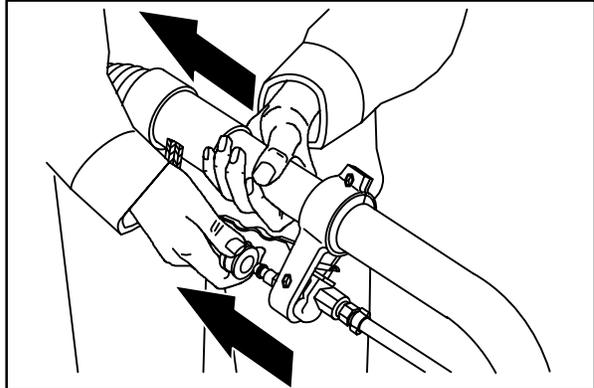
OPERATION

14. Remove the vacuum hose from the squeegee suction hose.



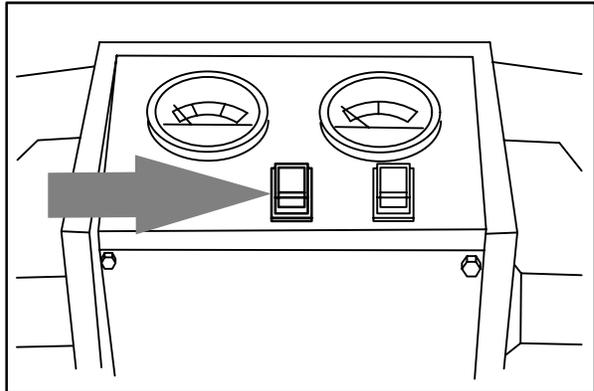
09514

15. Disconnect the other ends of the solution and vacuum hoses from the power wand.



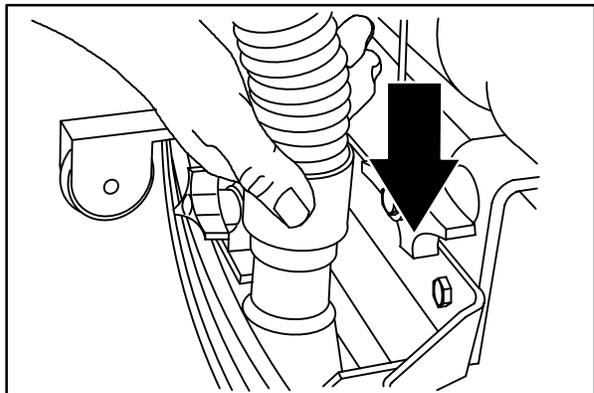
07321

16. Turn the machine power off.



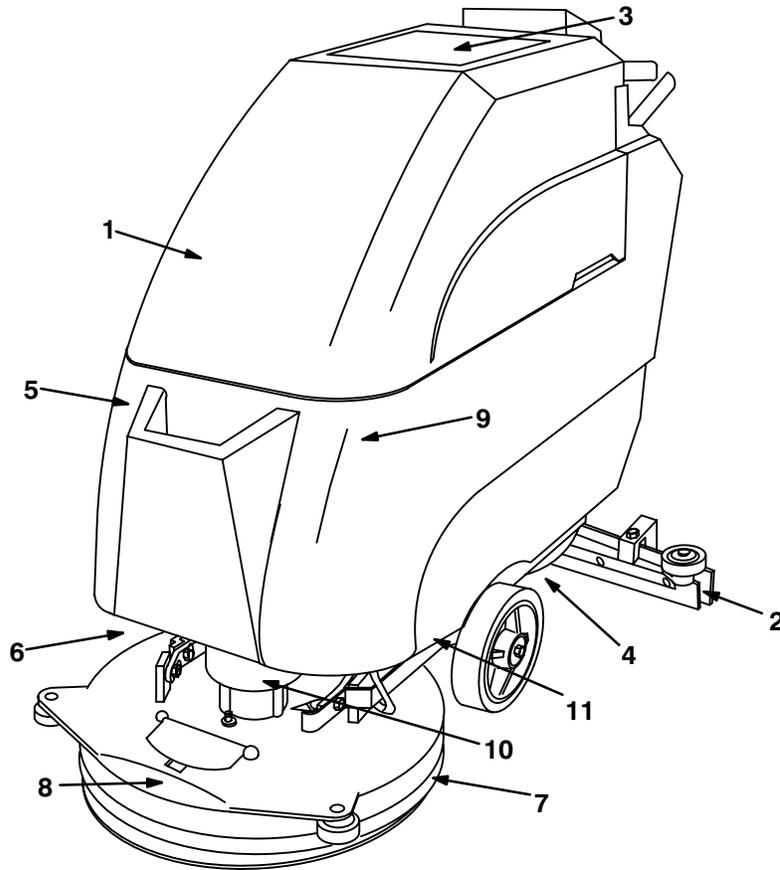
09470

17. Reconnect the squeegee suction hose to the squeegee.



09513

MAINTENANCE



MAINTENANCE CHART

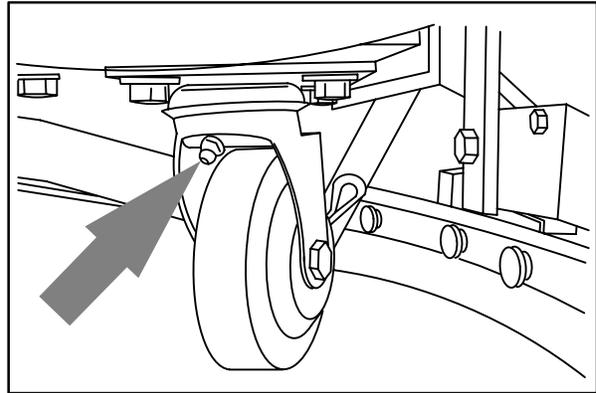
Interval	Key	Description	Procedure	Lubricant	No. of Service Points
Daily	2	Squeegee	Check for damage and wear	–	1
			Check deflection	–	1
	8	Scrub brush or pad	Check for damage and wear	–	1
	1	Recovery tank	Clean	–	1
	1	Recovery tank, ES™ mode	Clean ES™ filter	–	1
	3	Recovery tank float screen	Clean	–	1
	5	Solution tank, ES™ mode	Clean	–	1
	6	Machine	Check for leaks	–	1
	7	Scrub head skirt	Check adjustment	–	1
		Check for damage and wear	–	1	
100 Hours	4	Rear caster	Lubricate	SPL	1
	2	Squeegee	Check leveling	–	1
400 Hours	9	Vacuum fan motor	Check motor brushes	–	1
	10	Scrub brush motor	Check motor brushes	–	1
	11	Propelling motor	Check motor brushes	–	1

SPL – Special lubricant, Lubriplate EMB grease

LUBRICATION

REAR CASTER

The rear caster has one grease fitting on the caster swivel. Lubricate the caster with a grease gun containing Lubriplate EMB grease every 100 hours of machine operation.



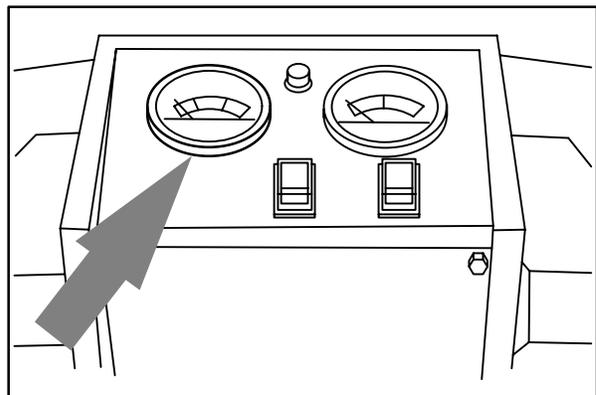
09519

BATTERIES

The batteries are unique in that they hold their power for long periods of time. The lifetime of the batteries is limited by the number of charges the batteries receive. To get the most life from the batteries, charge them when the battery discharge indicator needle remains in the **red** zone of the indicator.

Periodically clean the top surface of the batteries and the terminals, and check for loose connections. Use a strong solution of baking soda and water. Brush the solution sparingly over the battery tops, terminals, and cable clamps. Do not allow any baking soda solution to enter the batteries. Use a wire brush to clean the terminal posts and the cable connectors. After cleaning, apply a coating of clear battery post protectant to the terminals and the cable connectors. Keep the tops of the batteries clean and dry.

Keep all metallic objects off the top of the batteries, which may cause a short circuit. Replace any worn or damaged wires.

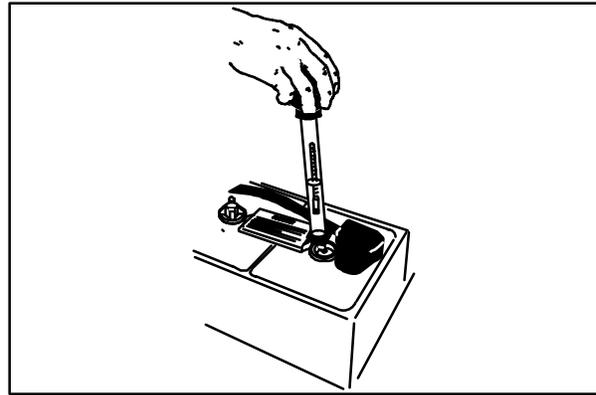


09743

Never add acid to the batteries, only distilled water. Always keep the battery caps on, except when adding water or taking hydrometer readings.

Measuring the specific gravity using a hydrometer is a way to determine the charge level, and condition of the batteries. If one or more of the battery cells test lower than the other battery cells (0.050 or more), the cell is damaged, shorted, or is about to fail.

NOTE: Do not take readings immediately after adding distilled water. If the water and acid are not thoroughly mixed, the readings may not be accurate. Check the hydrometer readings against the following chart to determine the remaining battery charge level:



04380

SPECIFIC GRAVITY at 27° C (80° F)	BATTERY CHARGE
1.265	100% Charged
1.223	75% Charged
1.185	50% Charged
1.148	25% Charged
1.110	Discharged

NOTE: If the readings are taken when the battery electrolyte is any temperature other than 27° C (80° F), the reading must be temperature corrected. Add or subtract to the specific gravity reading 0.004, 4 points, for each 6° C (10° F) above or below 27° C (80° F).

CHARGING THE BATTERIES

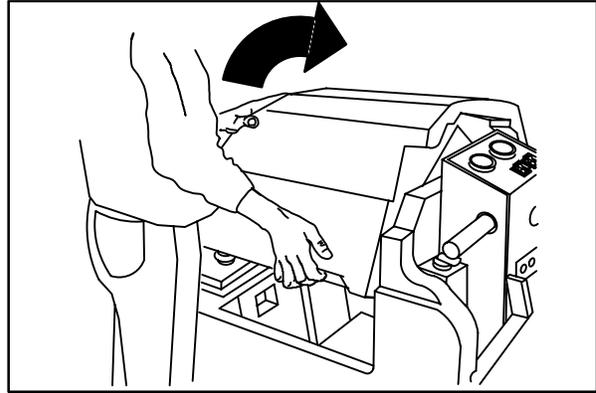
1. Drive the machine to a flat, dry surface in a well-ventilated area.
2. Turn the machine power off and set the parking brake if your machine has this option.

FOR SAFETY: Before leaving or servicing machine, stop on level surface and turn off machine.

MAINTENANCE

3. Lift up the recovery tank to get access to the batteries.

NOTE: The recovery tank must be empty.

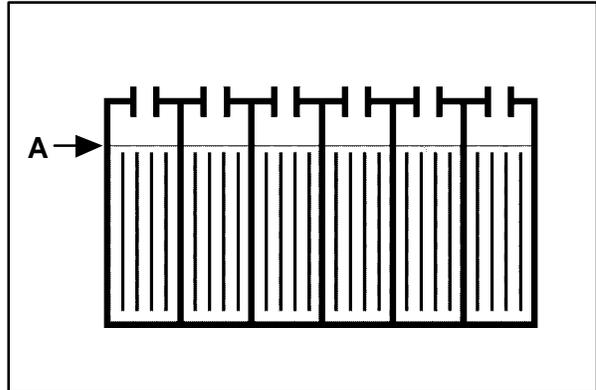


09510

4. Before charging batteries, check the electrolyte level in all the battery cells. If the level is low, add just enough distilled water to cover the plates, level (A). Never add acid to batteries. **DO NOT OVERFILL.** The batteries can overflow during charging due to expansion. Do not charge batteries unless fluid is slightly above battery plates (A).

NOTE: Make sure the battery caps are in place while charging.

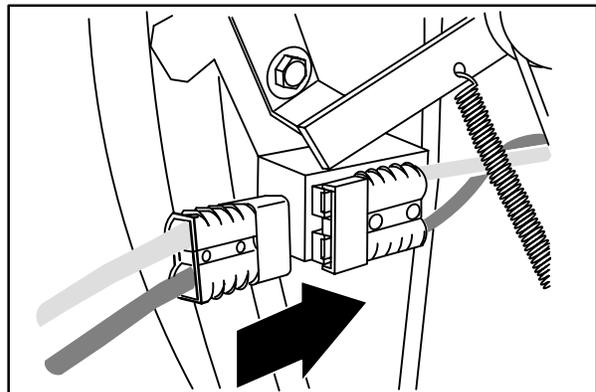
FOR SAFETY: When servicing machine, avoid contact with battery acid.



5. Plug the charger connector into the battery connector.

! WARNING: Batteries emit hydrogen gas. Explosion or fire can result. Keep sparks and open flame away. Keep covers open when charging.

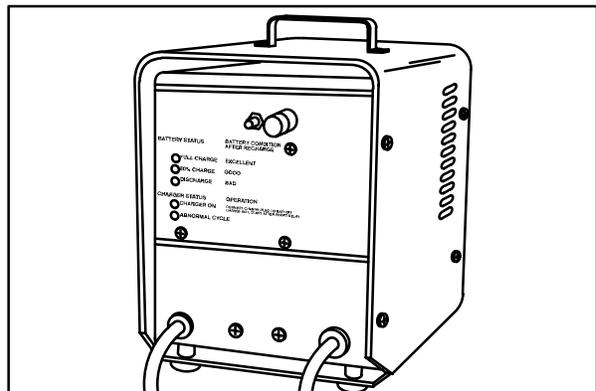
6. Plug the battery charger into the wall outlet.



09520

NOTE: If the red "ABNORMAL CYCLE" lamp lights when charger is plugged into a wall outlet, the charger can not charge the battery, and there is something wrong with the battery.

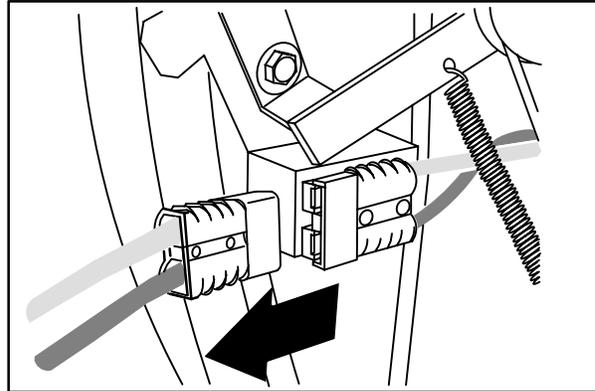
7. The charger will start automatically. When the batteries are fully charged, the charger will automatically turn off.



07224

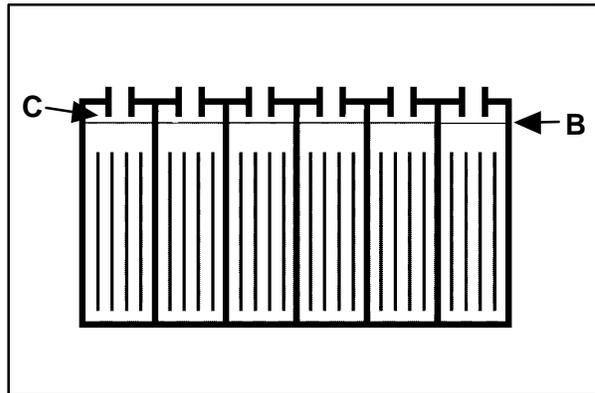
8. After the charger has turned off, unplug the charger from the wall outlet.
9. Unplug the charger connector from the battery connector on the machine.

FOR SAFETY: When servicing machine, avoid contact with battery acid.



09521

10. After charging batteries, check the electrolyte level (B) in each battery cell. Add just enough distilled water to bring the electrolyte level (B) up to 1cm (0.38 in.) from bottom of the fill rings (C).
11. Lower the recovery tank.
12. Rotate the stop arm out of the way to allow the recovery tank to close completely.



SCRUB HEAD

The scrub head encloses the scrub brush and a solution dispensing system. The scrub head skirt controls over-spray from the scrub brush. Make sure the scrub head skirt touches the floor all the way around when the scrub head is lowered.

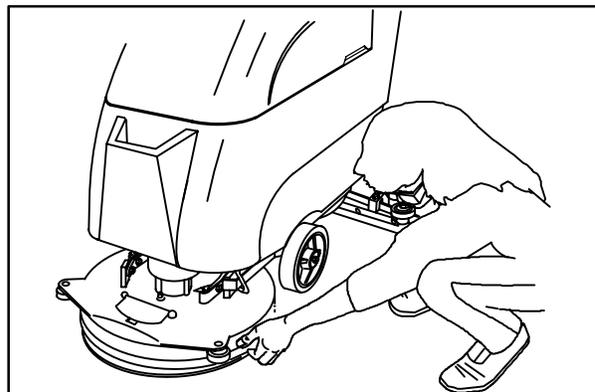
Check the skirt for damage or wear daily.

ADJUSTING THE SCRUB HEAD SKIRT

1. Turn the machine power off.

FOR SAFETY: Before leaving or servicing machine, stop on level surface and turn off machine.

2. Lower the scrub head.
3. Check to see if the scrub head skirt touches the floor all the way around the scrub head.



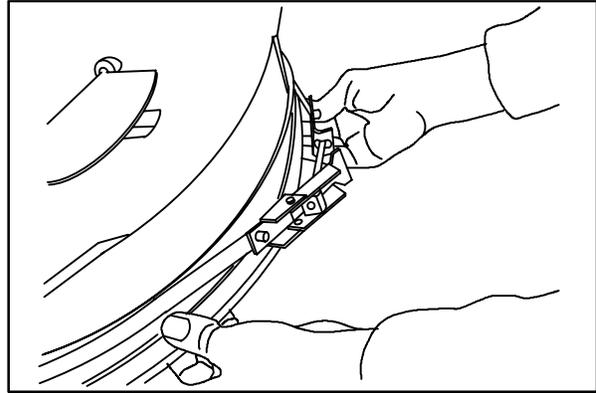
09522

MAINTENANCE

4. If the skirt needs to be adjusted, loosen the skirt band clamp and move the skirt up or down to touch the floor.

NOTE: Replace the scrub head skirt when it is damaged or no longer is able to touch the floor.

5. Tighten the skirt band clamp.
6. Raise the scrub head.



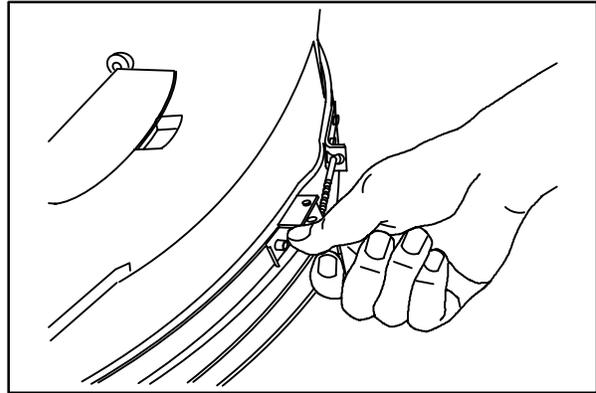
09523

REPLACING THE SCRUB HEAD SKIRT

1. Turn the machine power off.

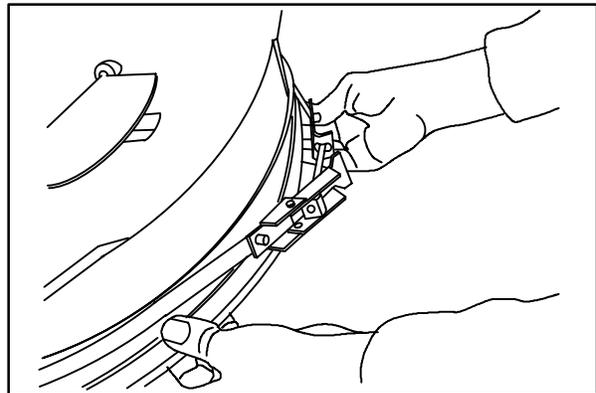
FOR SAFETY: Before leaving or servicing machine, stop on level surface and turn off machine.

2. Raise the scrub head.
3. Loosen the skirt band clamp.



09524

4. Pull the old skirt and band off the scrub head.
5. Put the new skirt on the scrub head. **Make sure** the holes in the skirt are facing the rear of the machine.
6. Place the skirt band over the new skirt and tighten the skirt band clamp.
7. Adjust the skirt as stated in *ADJUSTING THE SCRUB HEAD SKIRT*.



09523

SCRUB BRUSH

The scrub brush should be checked daily for wire or string tangled around the brush or brush drive hub. The brush should also be checked for any damage and wear.

The scrub brush should be replaced if large amounts of bristles are missing, or if the remaining bristles' length is less than 10 mm (0.38 in).

Cleaning pads must be placed on pad drives before they are ready to use. The cleaning pad is held in place by a pad holder.

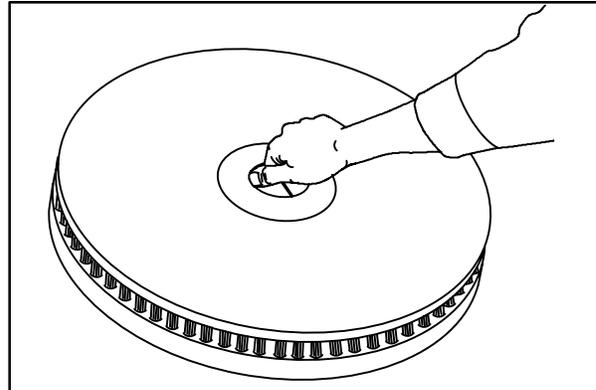
Cleaning pads need to be cleaned with soap and water after every use.

REPLACING THE SCRUB BRUSH

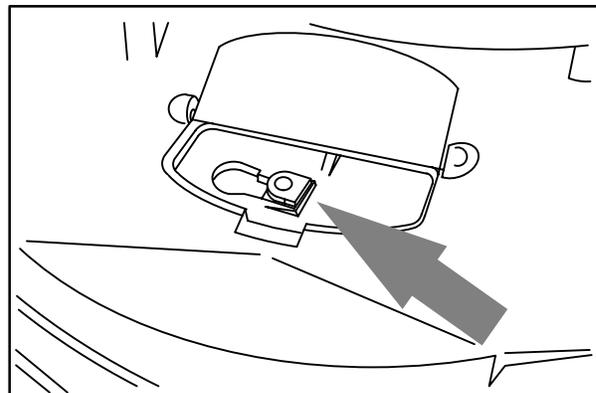
1. Turn the machine power off and set the parking brake if your machine has this option.

FOR SAFETY: Before leaving or servicing machine, stop on level surface and turn off machine.

2. Raise the scrub head with the scrub head lever.
3. Open the access cover on the front of the scrub head.
4. Turn the brush until you can see the brush drive pin.



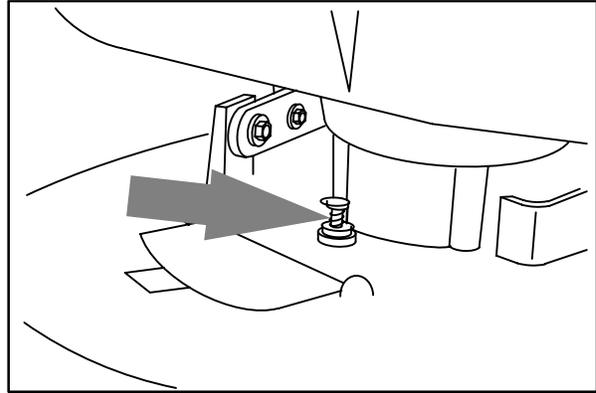
07326



09525

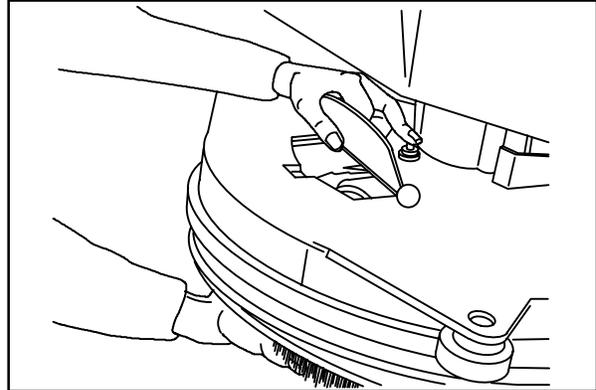
MAINTENANCE

5. Press down on the brush lock pin.



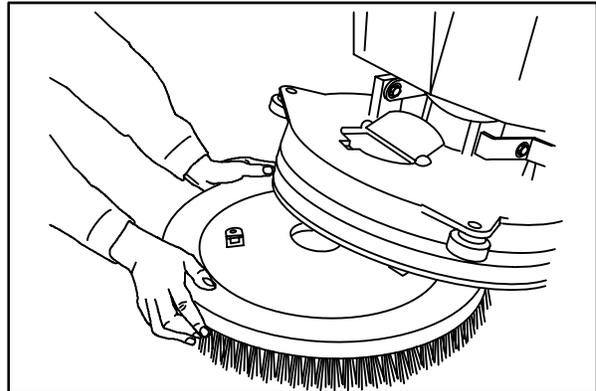
09526

6. Turn the brush clockwise. The brush will drop off the brush drive hub.
7. Pull the brush out from under the scrub head.



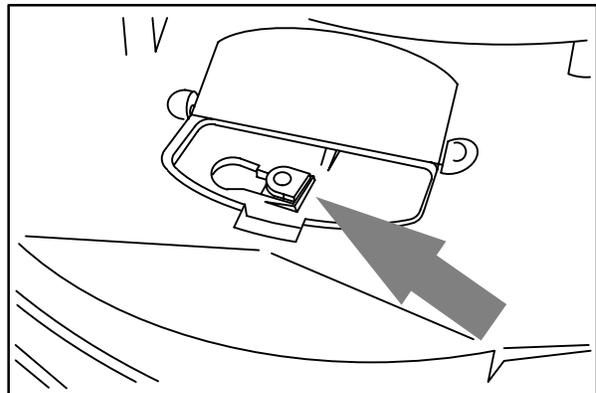
09527

8. Place the scrub brush on the floor in front of the scrub head. Make sure one of the brush drive pins is facing front. Push the brush under the scrub head.
9. Make sure one of the drive pin slots can be seen through the access opening.



09528

10. Line up the brush drive pin on the brush, with the drive pin slot on the drive plate.
11. Lift the scrub brush from underneath onto the brush drive hub. Turn the brush counter-clockwise to engage the drive pins into the drive slots.
12. Check the brush to make sure it is securely mounted on the brush drive hub.
13. Close the scrub head access cover.



09525

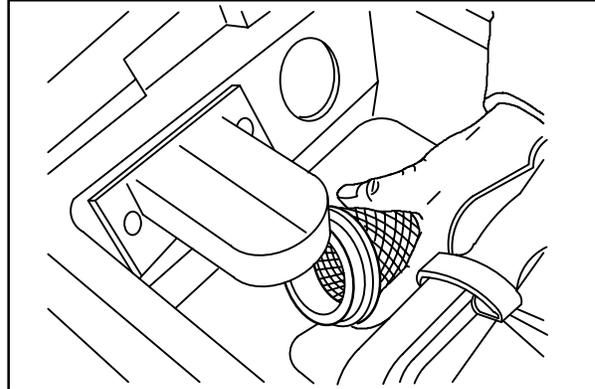
SOLUTION SYSTEM

RECOVERY TANK

The recovery tank stores recovered solution. The recovery tank should be drained and cleaned daily.

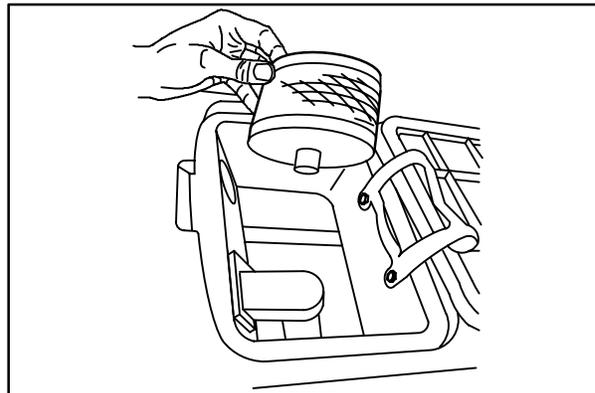
*NOTE: The water must not be hotter than 55° C (130° F), or tank damage may occur. **Do not** use steam to clean the tank.*

The recovery tank float screen should be cleaned daily.



09505

ES™ Option: The ES™ filter should be cleaned daily.



09506

SOLUTION TANK

The solution tank contains the cleaning solution.

The solution tank does not require regular maintenance. If deposits form on the bottom of the tank, rinse the tank with a strong blast of warm water.

*NOTE: The water must not be hotter than 55° C (130° F), or tank damage may occur. **Do not** use steam to clean the tank.*

ES™ Option: The solution tank should be drained and cleaned daily.

SQUEEGEE

The squeegee channels water into the vacuum fan suction. The front blade channels the water, and the rear blade wipes the floor.

Check the squeegee blades for damage and wear daily. Rotate or replace either of the squeegee blades if the leading edge is torn or worn half-way through the thickness of the blade.

The squeegee can be adjusted for leveling and deflection. The deflection of the squeegee blades should be checked daily, or when scrubbing a different type of floor. The leveling of the squeegee should be checked every 100 hours of machine operation.

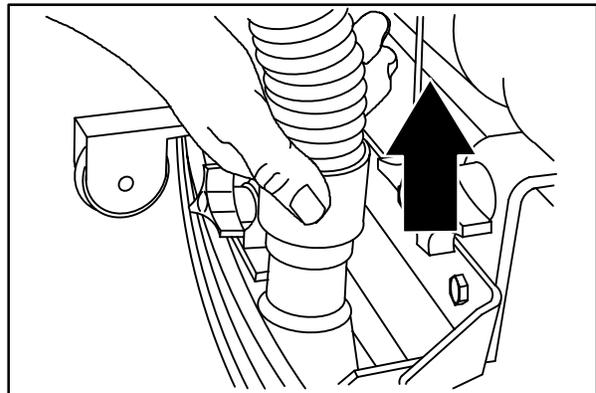
The squeegee can be removed from the squeegee pivot so the squeegee will not be damaged during transport of the machine.

REMOVING THE SQUEEGEE

1. Turn the machine power off and set the parking brake if your machine has this option.

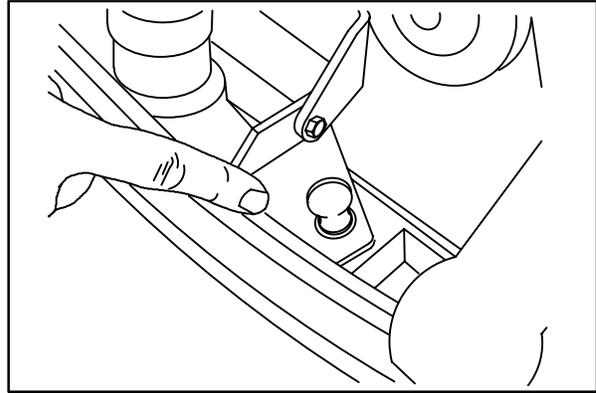
FOR SAFETY: Before leaving or servicing machine, stop on level surface and turn off machine.

2. Raise the squeegee.
3. Remove the squeegee suction hose from the squeegee.



09512

4. Loosen the two mounting thumbscrews.
5. Pull the squeegee off the machine.



09533

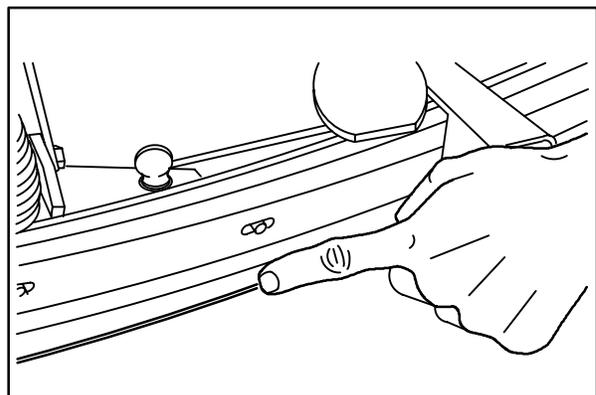
INSTALLING THE SQUEEGEE

1. Make sure the squeegee is raised.
2. Place the squeegee under the squeegee pivot.
3. Line up the mounting studs on the squeegee, with the mounting slots on the squeegee pivot.
4. Mount the squeegee to the squeegee pivot with the mounting thumbscrews.
5. Replace the squeegee suction hose on the squeegee.

LEVELING THE SQUEEGEE

Leveling of the squeegee assures even contact the length of the squeegee blade with the surface being scrubbed. Make sure this adjustment is done on an even, level floor.

1. Turn the machine power on.
2. Lower the squeegee.
3. Drive the machine forward, then turn the machine power off.
4. Look at the deflection of the squeegee blade, over the full length of the squeegee blade.



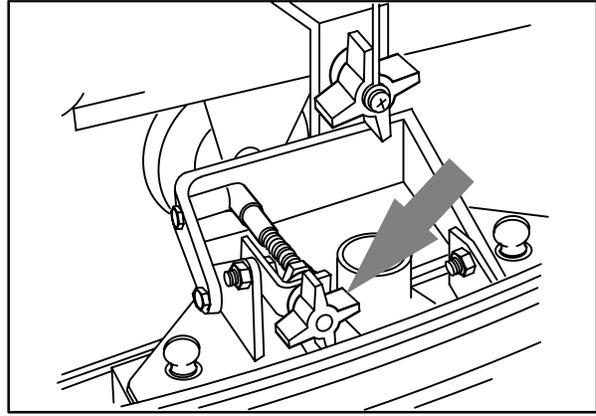
09462

MAINTENANCE

5. If the deflection is not the same over the full length of the blade, turn the squeegee leveling knob counter-clockwise to decrease the deflection at the ends of the squeegee.

Turn the squeegee leveling knob clockwise to increase the deflection at the ends of the squeegee blade.

6. Push the machine forward again to check the squeegee blade deflection.
7. Readjust the squeegee blade deflection if necessary.

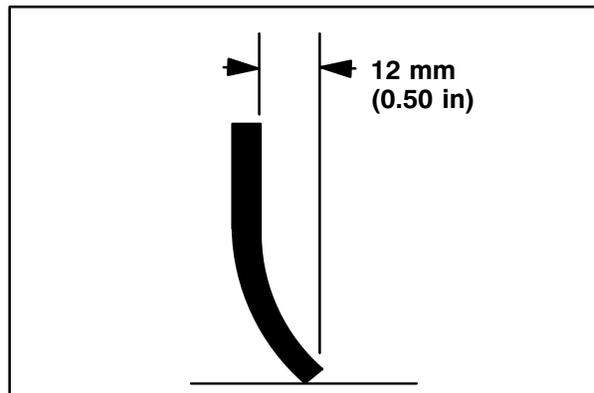


09488

ADJUSTING SQUEEGEE BLADE DEFLECTION

Deflection is the amount of curl the squeegee blade has when the machine moves forward with the squeegee lowered to the floor. The best deflection is when the squeegee wipes the floor just dry with a minimum amount of deflection.

1. Turn the machine power on.
2. Lower the squeegee.
3. Drive the machine forward, and look at the deflection of the squeegee blade. The correct amount of deflection is 12 mm (0.50 in) for scrubbing smooth floors and 15 mm (0.62 in) for rough floors.

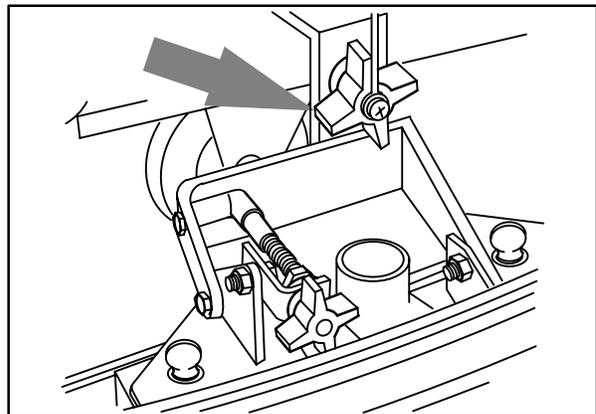


03719

4. Turn the machine power off.
5. To adjust the amount of deflection, turn the squeegee deflection knob counter-clockwise to decrease the blade deflection.

Turn the squeegee deflection knob clockwise to increase blade deflection.

6. Push the machine forward again to check the squeegee blade deflection.
7. Readjust the squeegee blade deflection if necessary.



09488

SQUEEGEE BLADES

The squeegee has two squeegee blades. The front blade has two wiping edges. To use both of them, rotate the blade end-for-end.

The rear blade has four wiping edges. To use them all, start with one wiping edge. To use the next wiping edge, rotate the blade end-for-end. To use the next wiping edge, rotate the top edges down, bottom edges up. To use the last edge, rotate the blade end-for-end.

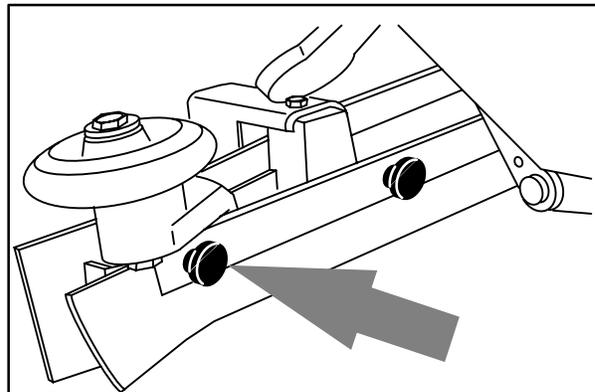
Replace any worn or damaged squeegee blades.

REPLACING OR ROTATING THE FRONT SQUEEGEE BLADE

1. Turn the machine power off and set the parking brake if your machine has this option.

FOR SAFETY: Before leaving or servicing machine, stop on level surface and turn off machine.

2. Make sure the squeegee is raised off the floor.
3. Remove the six thumbscrews holding the retainer and squeegee blade to the squeegee frame.
4. Pull the squeegee blade off the squeegee frame.
5. Rotate the squeegee blade end for end to allow a new edge to face the front of the machine.
6. Line up the squeegee blade and the retainer to the squeegee frame
7. Secure the blade and retainer to the squeegee frame with the six thumbscrews.



09532

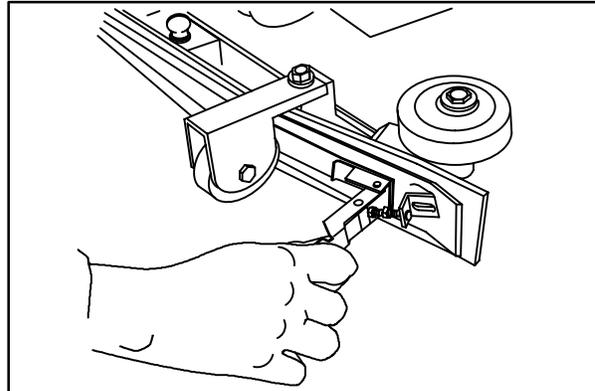
MAINTENANCE

REPLACING OR ROTATING THE REAR SQUEEGEE BLADE

1. Turn the machine power off and set the parking brake if your machine has this option.

FOR SAFETY: Before leaving or servicing machine, stop on level surface and turn off machine.

2. Make sure the squeegee is raised off the floor.
3. Loosen the retainer clamp and remove the retainer from the squeegee frame.
4. Remove the backup strip the squeegee blade from the squeegee frame.
5. Replace or rotate the squeegee blade to allow a new edge to face the front of the machine.
6. Place the squeegee blade and backup strip on the squeegee frame
7. Secure the squeegee blade and backup strip with the retainer. Tighten the retainer clamp.
8. Adjust the squeegee blade leveling and deflection as stated in *LEVELING THE SQUEEGEE* and *ADJUSTING SQUEEGEE BLADE DEFLECTION*.



09531

ELECTRIC MOTORS

The carbon brushes on the vacuum fan motor, scrub brush motor, and propelling motor should be inspected after every 400 hours of machine operation.

STORAGE INFORMATION

The following steps should be taken when storing the machine for extended periods of time.

1. Drain and clean the solution and recovery tanks.
2. Park the machine in a cool, dry area.
3. Remove the batteries, or charge them after every three months.

SPECIFICATIONS

GENERAL MACHINE DIMENSIONS/CAPACITIES

Item	Dimension/capacity
Length	1181 mm (46.5 in)
Width (less squeegee)	546 mm (21.5 in)
Height	984 mm (38.75 in)
Scrub brush diameter	508 mm (20 in)
Squeegee width	724 mm (28.5 in)
Scrubbing path width	510 mm (20 in)
Solution tank capacity	45 L (12 gal)
Recovery tank capacity	49 L (13 gal)
Net weight, less batteries	104 kg (225 lb)

GENERAL MACHINE PERFORMANCE

Item	Measure
Aisle turnaround width	1525 mm (60 in)
Turning radius	735 mm (29 in)
Maximum trailer loading clearance angle	5°

POWER TYPE

Type	Quantity	Volts	Ah Rating	Weight
Batteries	2	12	180 @ 20 hr rate	54 kg (117 lb) each

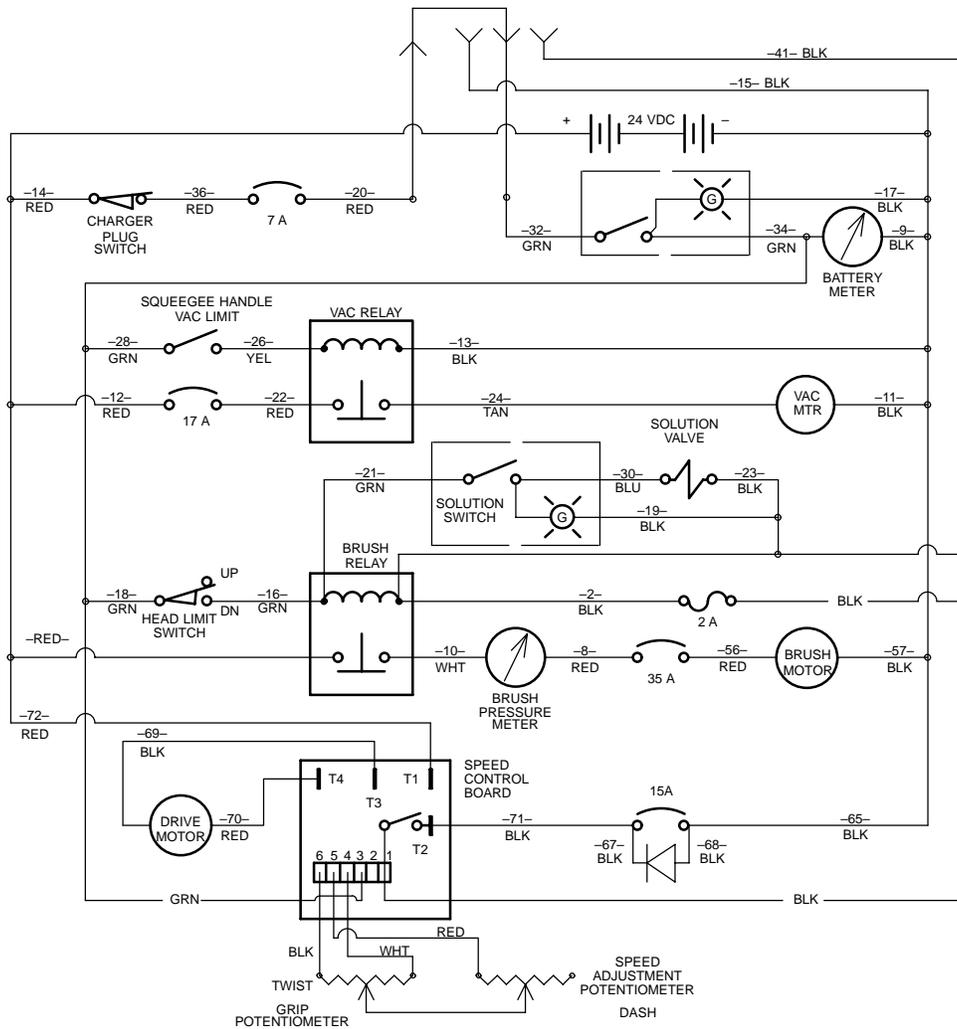
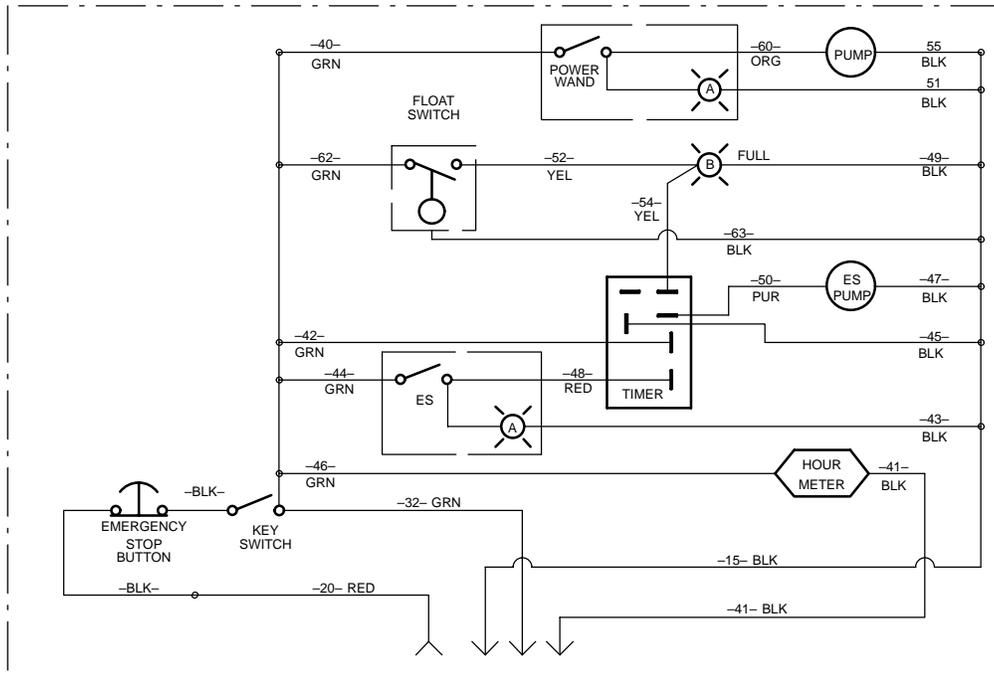
Type	Use	VDC	Kw (hp)
Electric Motors	Scrub brush	24	0.56 (0.75)
	Vacuum fan	24	0.56 (0.75)
	Propelling	24	0.15 (0.20)

Type	VDC	amp	Hz	Phase	VAC
Chargers	24	20	60	1	115

TIRES

Location	Type	Size
Front (2)	Wheels Solid, non-marking	8 x 2 in
Rear (1)	Casters Solid, non-marking	4 x 1.38 in

Fig. 1 – Ladder Diagram



HOW TO ORDER PARTS

PLACING AN ORDER

The components used in this machine have been carefully selected for performance and safety. Use only manufacturer's specified or equivalent parts.

When ordering parts, please furnish all of the following information:

1. Machine serial number - shown on the machine data plate.
2. Company name.
3. Shipping address.
4. Billing address.
5. Name, first and last, of person ordering parts.
6. Telephone number.
7. Purchase order number.
8. Part number, description, and quantity of each item on the order.

Do not order parts by key number or the figure number of the illustrated parts. Indented items indicate parts of assemblies. Standard hardware is furnished only when part of a purchased assembly. Please get hardware from a local hardware supplier.

If the old part cannot be identified, send it to us with the quantity needed specified on the order.

Any claim for loss or damage to a shipment in transit should be filed promptly against the transportation company making the delivery. Shipments will be complete unless the packing list or order acknowledgment indicates items back ordered.

If parts received are suspected to be incorrect or defective, please write, fax, or phone the representative from whom you ordered the part. They will give authorization for return and/or handle replacement shipments when required.

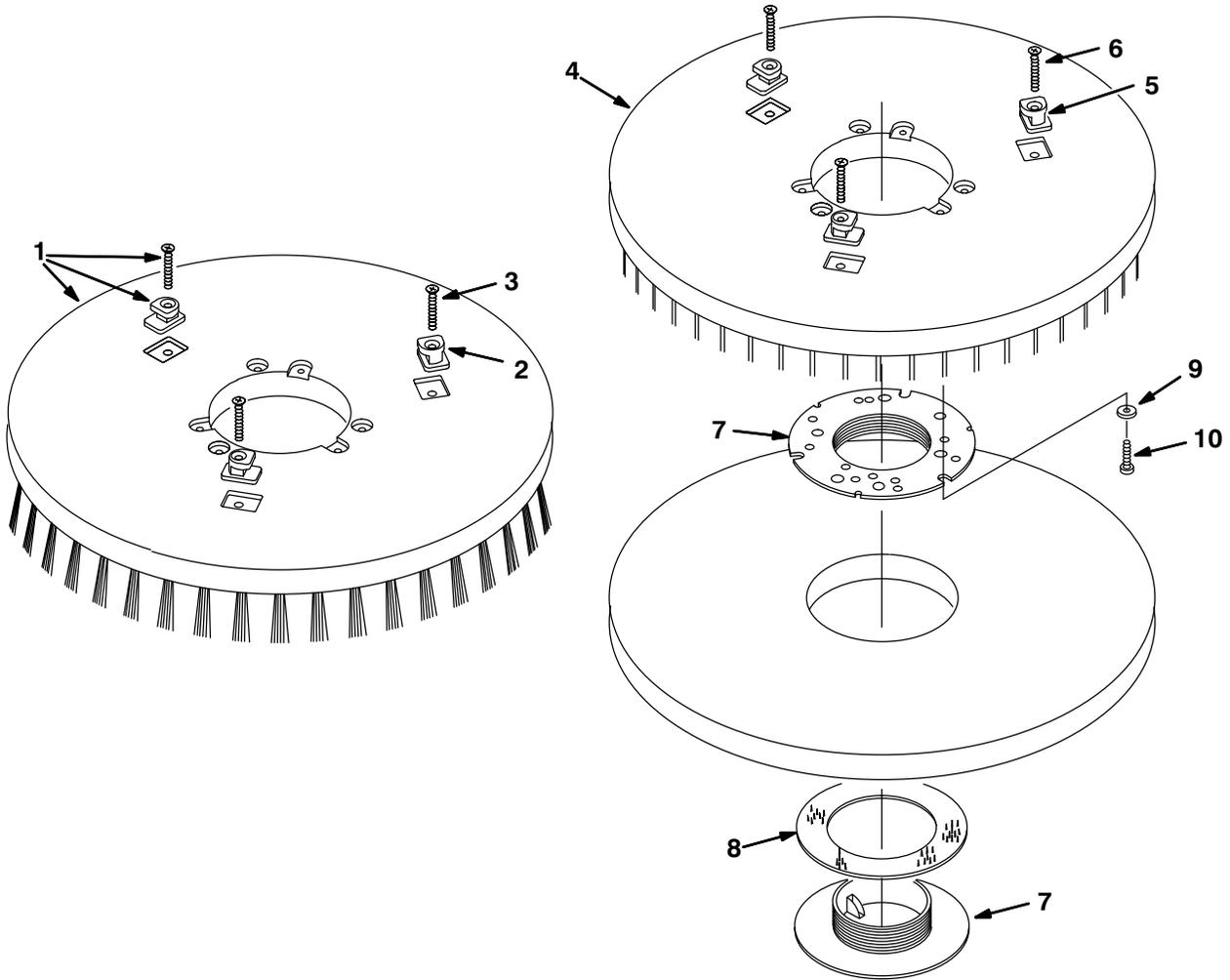
RECOMMENDED STOCK ITEMS

Refer to the Parts List section for recommended stock items. Stock Items are clearly identified with a bullet preceding the parts description. See example below:



Ref.	Part No.	Description
1	701103	ASM.,STANDPIPE
2	180613	●FLOAT, SHUTOFF
3	230187	NIPPLE
4	101714	●GASKET
5	210240	NUT, FLANGED

REPLACEMENT BRUSHES AND PAD DRIVER GROUP



REF	PART #	DESCRIPTION	QTY.
▽ 1	222301	BRUSH ASM, 20" NYLON	1
▲ 2	630214	●STUD, 20" BRUSH/PAD DRIVER	3
▲ 3	140193	SCREW, M6X1.0X40	3
▽ 1	222300	BRUSH ASM, 20" POLY	1
▲ 2	630214	●STUD, 20" BRUSH/PAD DRIVER	3
▲ 3	140193	SCREW, M6X1.0X40	3
▽ 1	222302	BRUSH ASM, 20" GRIT	1
▲ 2	630214	●STUD, 20" BRUSH/PAD DRIVER	3
▲ 3	140193	SCREW, M6X1.0X40	3

REF	PART #	DESCRIPTION	QTY.
▽ 4	222303	●PAD DRIVER ASM, 20" PLAS BACK	1
▲ 5	630214	●STUD, 20" BRUSH/PAD DRIVER	3
▲ 6	140193	SCREW, M6X1.0X40	3
▲ 7	630473	●CENTER LOCK, PAD RETAINER	1
▲ 8	630472	WASHER, BRUSH PAD RETAINER	1
▲ 9	140007	WASHER, #8 FLAT	3
▲ 10	200070351	SCREW, M4X25	3

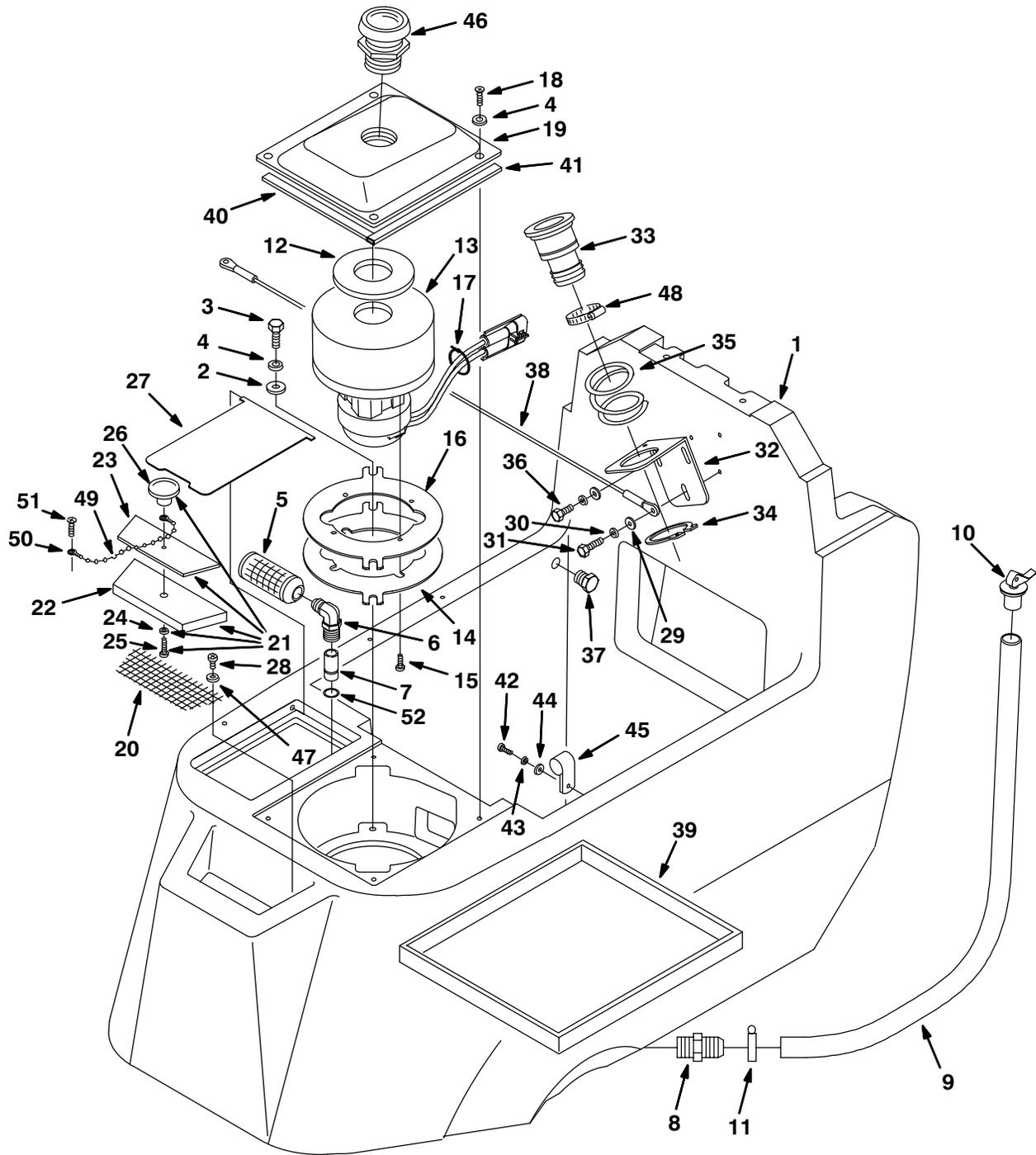
▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

● RECOMMENDED STOCK ITEMS

PARTS LIST

SOLUTION TANK AND VACUUM MOTOR GROUP



SOLUTION TANK AND VACUUM MOTOR GROUP

REF	PART #	DESCRIPTION	QTY.
1	602698	TANK, SOLUTION, TEAL	1
2	14880.5	WASHER, 5/16 FLAT	2
3	200031488	SCREW, M8X1.25X20	2
4	200370019	WASHER, M8.4 LOCK	6
5	630024	●FILTER, SCREEN	1
6	630371	FITTING, 1/2MX5/8H ELBOW	1
7	601105	SPACER, .50X.62X1.62	1
8	612146000	FITTING, 3/4M X 3/4H STRT	1
9	630018	HOSE, 3/4ID X 33"	1
10	630019	●PLUG, EXPANSION, 3/4"ID	1
11	630369	CLAMP, HOSE .50-1.1"	1
12	102557	●GASKET, VAC MOTOR SEAL	1
13	607003	●MOTOR, VAC 5.7 2-STAGE 24V	1
	190163	●BRUSH, CARBON 2/PK	2
14	630013	GASKET, VAC MOTOR BRACKET	1
15	140340	SCREW, #10X5/8	4
16	630014	BRACKET, VAC MOTOR 20"	1
17	130040	WIRE TIE, 6"X.12	1
18	608322	SCREW, M6X1.0X16	4
19	630015	COVER, VAC MOTOR 20"	1
20	630006	FILTER SCREEN	1
∇ 21	630602	KIT, FILL COVER ASM	1
▲ 22	630338	COVER, SOLUTION FILL	1
▲ 23	630341	STIFFENER, SOL FILL COVER	1
▲ 24	140018	WASHER, #10 INT	1
▲ 25	578201000	SCREW, 10-32X.5	1
▲ 26	578301	KNOB, FILL-COVER	1

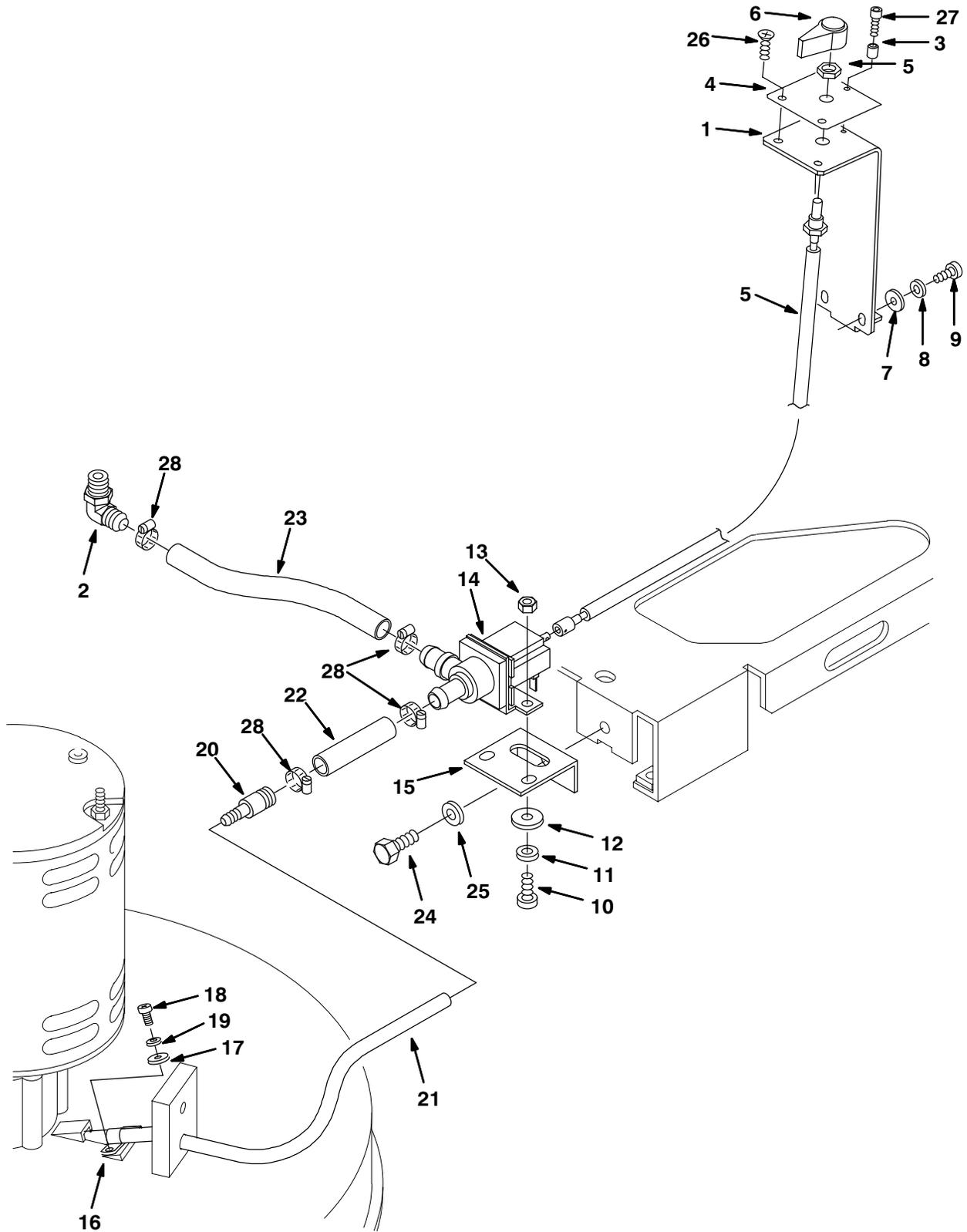
∇ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

● RECOMMENDED STOCK ITEMS

REF	PART #	DESCRIPTION	QTY.
27	630007	DOOR, SOL TANK ACCESS	1
28	140872	SCREW, #6X3/8	2
29	579210	WASHER, M6.4X18X1.5 FLAT	7
30	578244000	WASHER, M6.4X10 LOCK	7
31	200609438	SCREW, M6X20	1
32	630012	BRACKET, VAC TRANS MOUNT	1
33	630011	TUBE, VAC TRANS, FLANGE & BARB	1
34	630016	RING, RETAINING 1.82" DIA EXT	1
35	630267	SPRING, COMP 2.12X2.00	1
36	200031436	SCREW, M6X1.0X16	2
37	630146	FITTING, 3/8M PLUG	1
38	630021	CABLE ASM, TANK SUPPORT	1
39	601991	TRAY, BATTERY	1
40	630380	GASKET, 119MM VAC MTR COVER	2
41	630381	GASKET, 223MM VAC MTR	2
42	200070340	SCREW, M4X.7X8	2
43	140023	WASHER, #8 INT	2
44	200301014	WASHER, M4.3X10.1X1 FLAT	2
45	630343	CLAMP, CABLE 7/8ID	2
46	630017	FILTER, SCREEN VAC FAN	1
47	140032	WASHER, #6 FLAT	2
48	140308	CLAMP, HOSE 1-5/16 TO 2-1/4	1
49	575537	CHAIN, BALL #10	.12m
50	575536	CHAIN, COUPLING END	2
51	140826	SCREW, #6X3/4	1
52	630508	O-RING, 9.2 ID X 12.7 OD	1

SOLUTION CONTROL GROUP



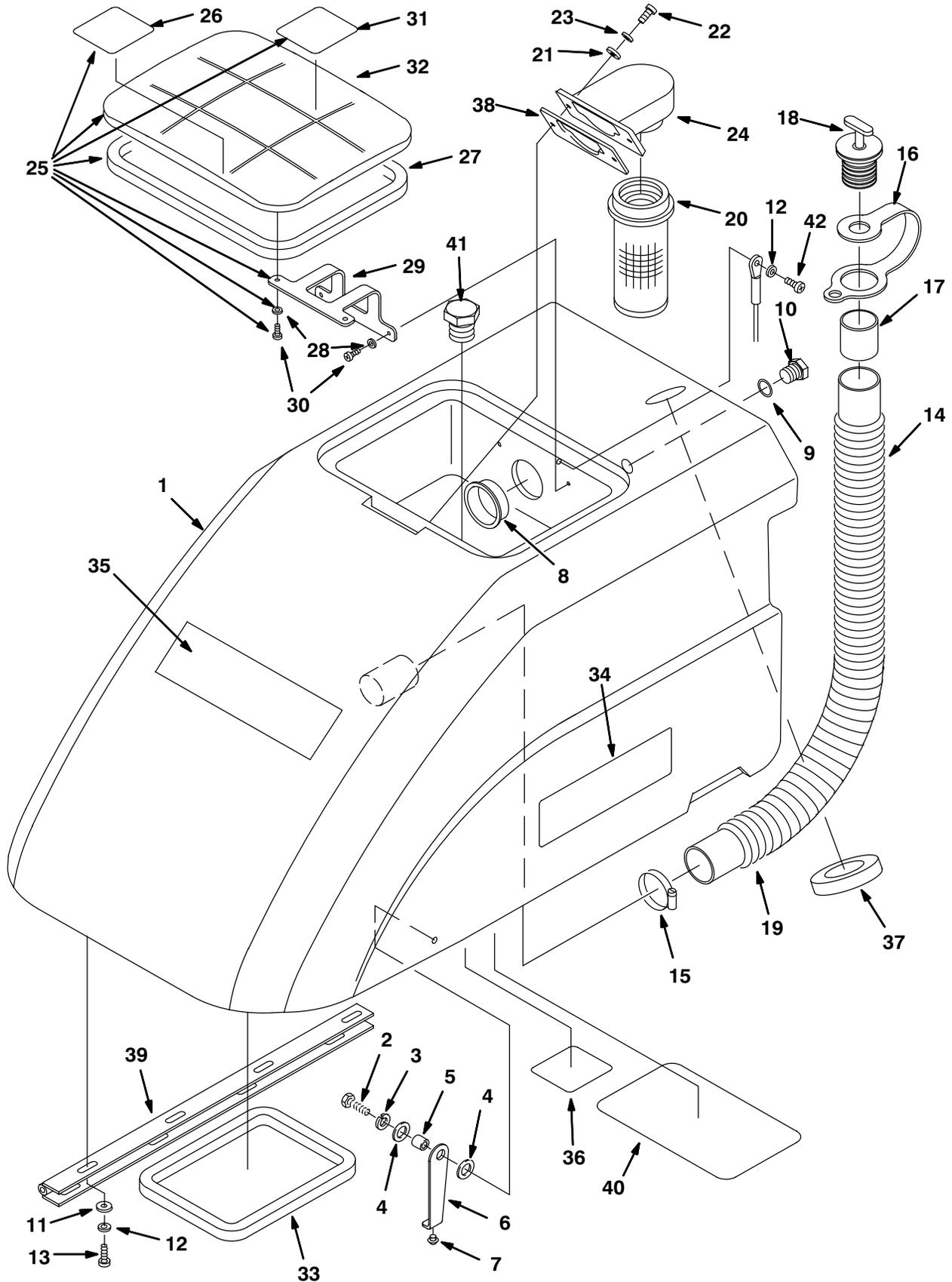
SOLUTION CONTROL GROUP

REF	PART #	DESCRIPTION	QTY.
1	630057	BRACKET, SOL. ADJ. KNOB	1
2	601104000	FITTING-E90, .50" HOSE, .50" NPT	1
3	630452	SPACER, 4.3MM, 8.0MM NY- LON	1
4	630233	DECAL, FLOW CONTROL	1
5	630117	CABLE, CONT. WATER FLOW	1
6	630116	KNOB, ADJ, VALVE	1
7	200315016	WASHER, FLAT, 5.3MM, 15.0, 1.6	2
8	140018	WASHER LOC INT #10	2
9	575569000	SCREW, M5X16	2
10	608322	SCREW, M6X1.0X16	2
11	578244000	WASHER, LOC INT M6	2
12	140012	WASHER, PLAIN, 3/16"	2
13	579029	NUT-HX STD M6X1.0	2
14	630022	●VALVE, SOLENOID, 24VDC	1

● RECOMMENDED STOCK ITEMS

REF	PART #	DESCRIPTION	QTY.
15	630059	BRACKET, VALVE	1
16	140328	CLAMP, 3/8" NYLON	1
17	200301014	WASHER, FLAT 4.3MM, 10.1, 1.0	1
18	579259	SCREW, M4X12MM	1
19	140023	WASHER, #8 INT	1
20	630164	FITTING, STR, .50HOSE X .25HOSE	1
21	630366	HOSE, .25IDX.345MM	1
22	630370	HOSE, 40MM SOLENOID/ REDUCER	1
23	630379	HOSE, 210MM TANK/ SOLENOID	1
24	200031488	SCREW, M8X1.25X20	1
25	200370019	WASHER LOC INT M8	1
26	069764140	SCREW, M5X16MM	2
27	200001343	SCREW, M4X12MM	1
28	140310	CLAMP, HOSE	4

RECOVERY TANK GROUP



RECOVERY TANK GROUP

REF	PART #	DESCRIPTION	QTY.
▽	610936	KIT, RECOVERY TANK, TEAL (FOR MACHINES MANUFACTURED BEFORE 11-00)	1
▲ 1	610935	TANK, RECOVERY, TEAL	1
▲ 2	200031486	SCREW, M8X1.25X16T	1
▲ 3	140015	WASHER, 5/16 SPLITLOCK	1
▲ 4	140027	WASHER, 5/16 FLAT	2
▲ 5	611418	BUSHING, .31X.44X.14	1
▲ 6	606527	SUPPORT, RECOVERY TANK	1
▲ 7	069760189	BUMPER, RUBBER	1
▲ 8	610979	PLUG	1
9	630134	O-RING, 16MM OD X 3.5MM	1
10	630139	FITTING, PLUG HEX 3/8"	1
11	140012	WASHER, 3/16 FLAT	8
12	578244000	WASHER, M6.4X10 LOCK	9
13	608322	SCREW, M6X1.0X16	8
▽ 14	603217	●DRAIN HOSE ASM	1
▲ 15	140308	CLAMP, HOSE	1
▲ 16	578441	STRAP, DRAIN HOSE	1
▲ 17	630394	SLEEVE, DRAIN HOSE 1.5"ID	1
▲ 18	621324	PLUG, EXPANSION	1
▲ 19	630068	HOSE, DRAIN 38.1MM ID	1
20	630052	●FLOAT, SHUT-OFF (2)BALL	1

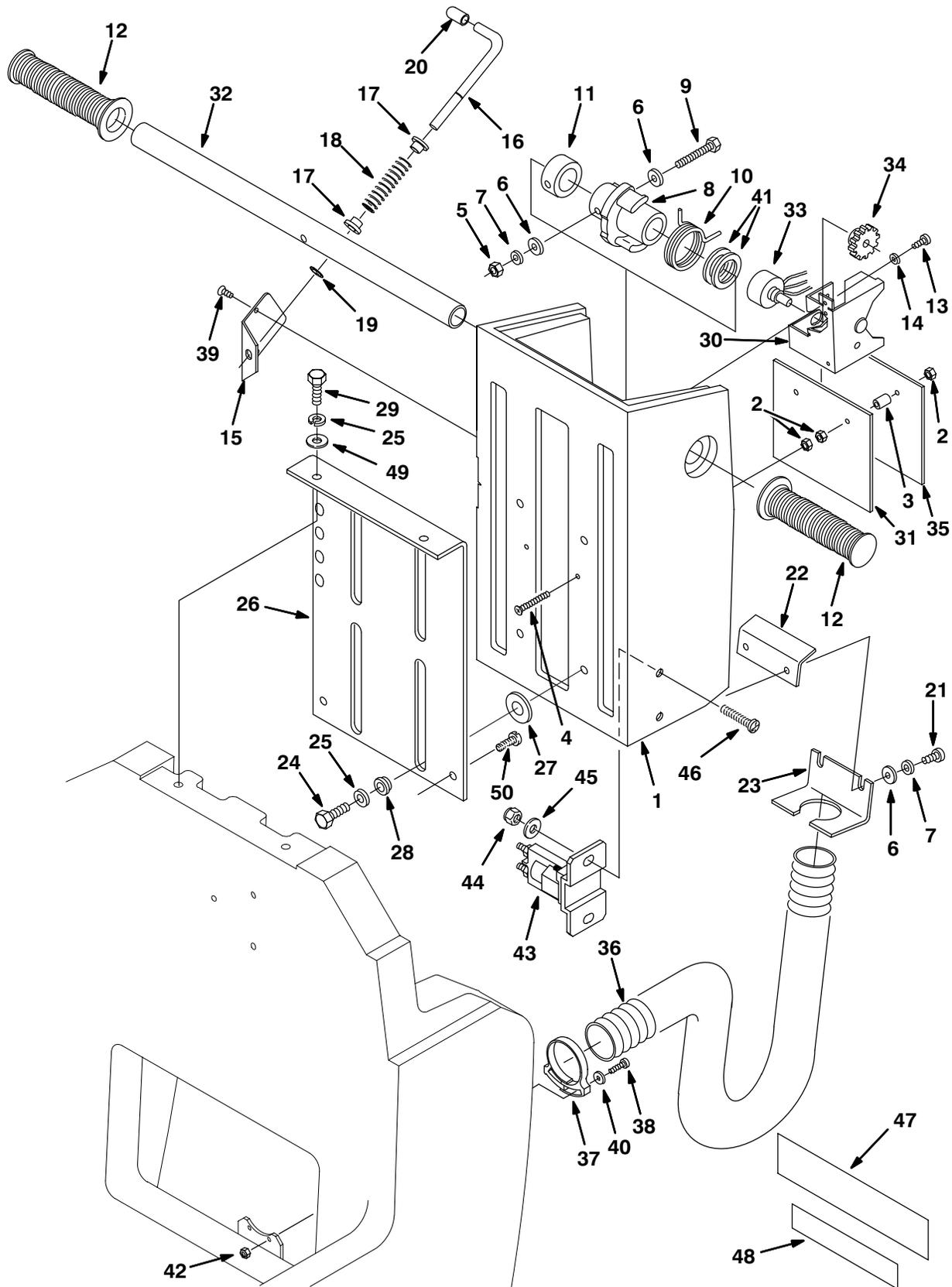
REF	PART #	DESCRIPTION	QTY.
21	059650283	WASHER, M6.4X18X1.6 FLAT	2
22	600385	SCREW, M6X1.0X20	2
23	578244000	WASHER, M6.4X10 LOCK	2
24	630053	MOUNT, FLOAT-CAGE	1
▽ 25	630601	KIT, REC. TANK COVER	1
▲ 26	630420	LABEL, FLAMMABLE MATL	1
▲ 27	630367	●GASKET, REC. TANK COVER	1
▲ 28	630390	WASHER, .15X.56X.04 FLAT	4
▲ 29	630056	STRAP, TANK COVER RET.	1
▲ 30	140872	SCREW, #6X3/8	4
▲ 31	606105	DECAL, DO NOT SPRAY	1
▲ 32	630055	COVER, TANK	1
33	630368	●GASKET, 650MM	1
34	608139	DECAL, 5300	2
35	630229	DECAL, TENNANT	1
36	630420	DECAL, FLAMMABLE MATL	1
37	630010	●GASKET, 70OD,43ID,12.7THK	1
38	630255	GASKET, FLOAT MOUNT	1
39	630048	HINGE, 17.9"	1
40	630231	DECAL, WIRING W/OPTIONS	1
41	630147	PLUG, .75NPT	1
42	200031436	SCREW, M6X1.0X16	1

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

● RECOMMENDED STOCK ITEMS

CONSOLE GROUP



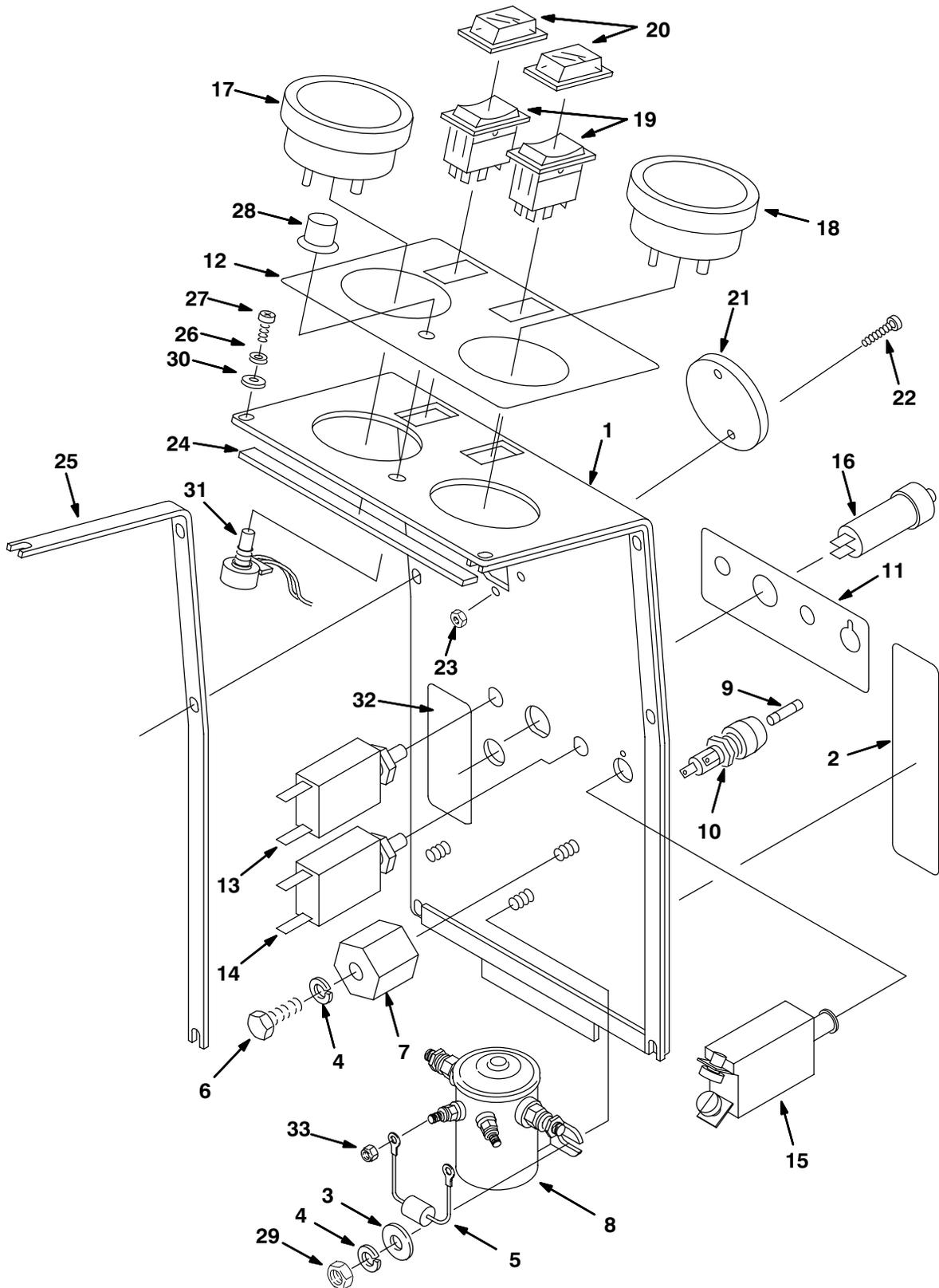
CONSOLE GROUP

REF	PART #	DESCRIPTION	QTY.
▽	610923	KIT, CONSOLE, TEAL (FOR MACHINES MANUFACTURED BEFORE 11-00)	1
▲ 1	610922	CONSOLE (TEAL)	1
▲ 2	200160014	NUT, HEX LOCK, M4	6
▲ 3	610943	SPACER, .217ID, .315OD, .375L	2
▲ 4	611895	SCREW, M4X40MM	2
5	579029	NUT, M6X1.0	1
6	579210	WASHER, FLAT, 6.4MM	4
7	578244000	WASHER, LOC INT M6	3
8	630109	GEAR & HUB ASSY, 22.4ID,20"SCR	1
9	630431	SCREW, M6X40MM	1
10	630088	SPRING, CENTERING	1
11	630217	COLLAR, .88"ID 1.38OD .63 LG	1
12	200823	GRIP, HANDLE	2
13	200070340	SCREW, M4X8MM	2
14	140023	WASHER, LOCK, INT #8	2
15	630087	PLATE, RETAINER – LATCH	1
16	630081	LEVER, LATCH, CONSOLE ADJUST	1
17	630083	BUSHING, LATCH	2
18	630082	SPRING, COMP .42" 1.75 .035	1
19	630084	RING, RETAINING, EXT	1
20	630094	GRIP, LEVER-CONSOLE ADJUST	1
21	608322	SCREW, M6X1.0X16	2
22	630086	PLATE, STRAIN RELIEF	1
23	630108	BRACKET, MTG, CONDUIT	1
24	200031486	SCREW, M8X16MM	4
25	200370019	WASHER LOC INT M8	6

● RECOMMENDED STOCK ITEMS

REF	PART #	DESCRIPTION	QTY.
26	582078	PLATE, CONSOLE SLIDE, 20" SCRUB	1
27	630447	WASHER, NYLON, 12.7, 25.4, 0.8	4
28	630095	BEARING, FLNG .38" .50" .25"LG	4
29	200031488	SCREW, M8X20MM	2
30	630079	BRACKET, MTG, LIMIT SWITCH	1
31	630128	PLATE, PMC, HEAT SINK	1
32	630093	HANDLEBAR, .88OD 15.5LG	1
33	603372	●ASSEMBLY, POT. W/DECAL	1
34	630099	GEAR, 28T, 24P	1
35	630104	SPEED CONTROL, PMC BOARD, 55 AMP	1
36	630113	CONDUIT, CONVOLUTED	1
37	140322	CLAMP, VAC HOSE	1
38	578403000	SCREW, M3X20MM	2
39	630114	SCREW, M4X8MM	2
40	200301012	WASHER, FLAT, 3.2MM	2
41	069760582	WASHER, NYLON, 23 ID, 34 OD	2
42	579211	NUT, M3	2
43	603008	●CONTACTOR, 24VDC, 100A	1
44	140552	NUT, 10-24 NYLOCK	2
45	069762056	WASHER, PLAIN #10	2
46	15858.12	SCREW, 10-24X3/4	2
47	601085000	DECAL, PMC CONNECTION	1
48	611440	DECAL, FUSE SPEC	1
49	140027	WASHER, FLAT 5/16	2
50	630306	SCREW, M8X16MM	2

CONSOLE PANEL GROUP



CONSOLE PANEL GROUP

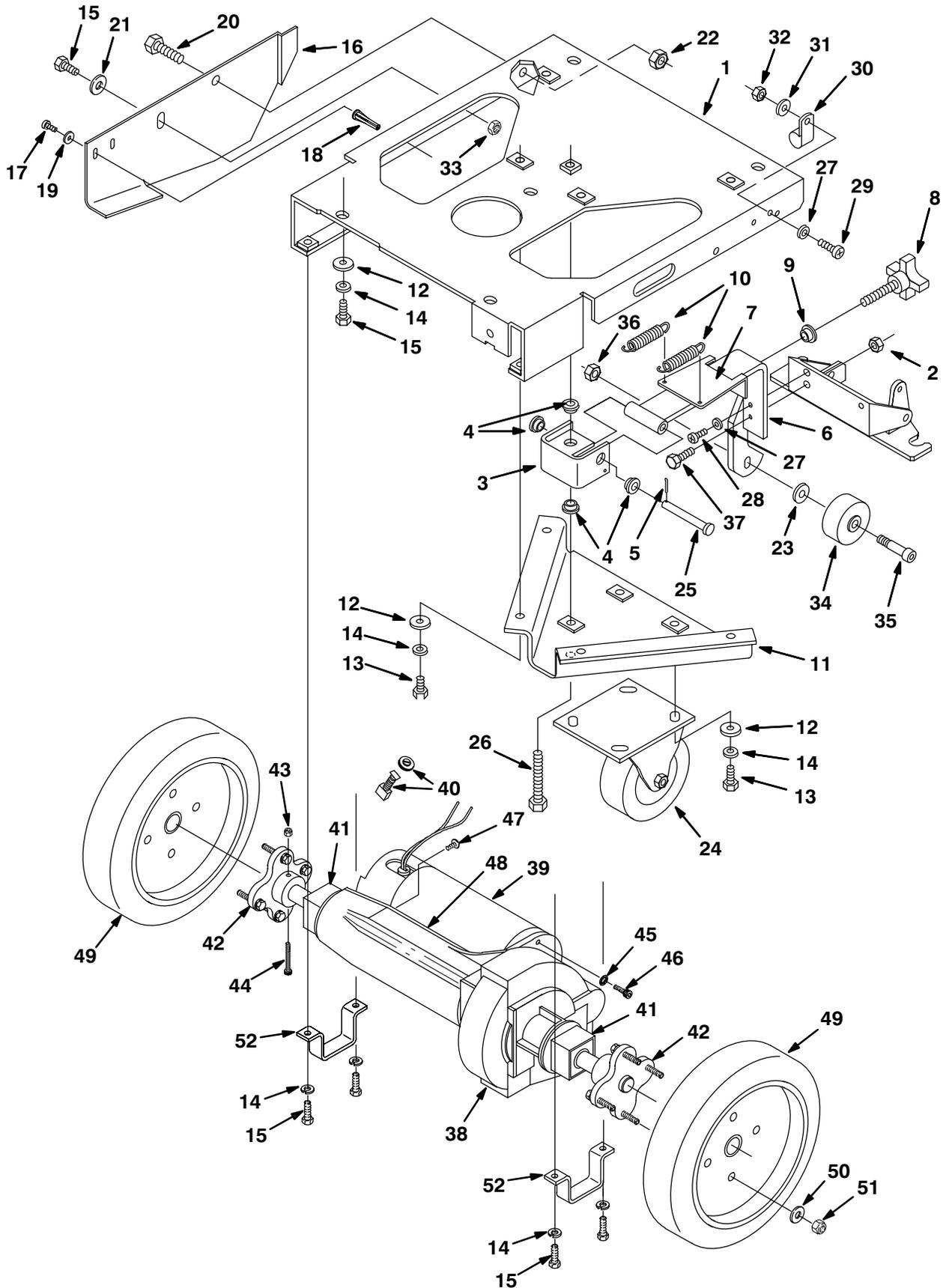
REF	PART #	DESCRIPTION	QTY.
1	602477	PLATE, SWITCH	1
2	630422	DECAL, BATT CHARGE	1
3	140000	WASHER, FLAT 1/4"	2
4	578244000	WASHER, LOC INT. M6	3
5	606404	●ASM, DIODE W/RING TERMINALS	1
6	069762115	SCREW, 1/4-20X1/2	1
7	578427	STANDOFF, TERMINAL	1
8	605905	●SOLENOID, 24V	1
9	601091	●FUSE, 2AMP 3AG FAST BLOW	1
10	578418	HOLDER, FUSE	1
11	630241	DECAL, CIRCUIT BREAKERS	1
12	630243	DECAL, GAUGE/SWITCH PANEL	1
13	20361	●CIRCUIT BREAKER, 15A	1
14	605201	●CIRCUIT BREAKER, 17A	1
15	130756	●CIRCUIT BREAKER, 35A DC	1
16	630102	●CIRCUIT BREAKER, 7A	1
17	630090	●GAUGE, BRUSH PRESSURE	1

REF	PART #	DESCRIPTION	QTY.
18	630091	●METER, BATTERY, 24VDC	1
19	630419	●SWITCH, ROCKER, SPST, 24VDC, GREEN	2
20	578720	●SPLASH GUARD, ROCKER SWITCH	2
21	607002	PLATE, COVER	1
22	200070340	SCREW, M4X.7X8	2
23	200160014	NUT, M4	2
24	630453	GASKET, CONSOLE 143MM	2
25	630119	GASKET, CONSOLE 3.1 X 8.0 X 420	2
26	140023	WASHER, #8 INT	8
27	200070340	SCREW, PAN HD, M4X8, ZP	8
28	630265	KNOB, SPEED LIMIT	1
29	14501	NUT, 1/4-20	2
30	200301014	WASHER, FLAT, 4.3,10.0, 1.0	8
31	630133	●RESISTOR, 0-20K, SPEED CONTROL	1
32	611440	DECAL, FUSE SPEC.	1
33	575380	NUT, #10-32	2
N/S	607789	HARNESS, MAIN W/WATERPROOF	1

● RECOMMENDED STOCK ITEMS

N/S = NOT SHOWN

MAIN FRAME GROUP



MAIN FRAME GROUP

REF	PART #	DESCRIPTION	QTY.
1	630131	FRAME, 20"	1
2	200160017	NUT, M8	1
3	630045	BRACKET, LIFT, SQUEEGEE	1
4	630095	BEARING, FLANGE	4
5	140630	PIN, COTTER, 3/32X3/4	1
6	630044	ARM, PIVOT, SQUEEGEE	1
7	630043	BRACKET, SPRING SLIDE	1
8	630046	KNOB, .38-24X2" LG STUD	1
9	630292	BEARING, KNOB, SQ. ARM	1
10	630042	SPRING, EXT	2
11	630003	FRAME, MTG, CASTER	1
12	14880.5	WASHER, FLAT 5/16"	17
13	200031486	SCREW, M8X1.25X16	12
14	200370019	WASHER, LOC INT M8	19
15	200031488	SCREW, M8X20MM	12
16	630307	BRACKET, SAFETY & LIMIT	1
17	590137	SCREW, #6-32X.38"	2
18	578329000	SCREW, ANCHOR	2
19	140032	WASHER, FLAT, #6	2
20	140277	SCREW, M10X1.5X20	1
21	200303019	WASHER, M8 FLAT	1
22	200160018	NUT, HXLOC NYLN M10X1.5	1
23	200651019	WASHER, FLAT 8.4MM	1
24	630002	●CASTER, 4" DIA.	1
25	630047	PIN, CLEVIS .38 X 2.75	1
26	630345	BOLT, SHLDR .375 X 2.00	1
27	578244000	WASHER, LOC INT M6	2
28	578187000	SCREW, M6X12MM	1
29	608322	SCREW, M6X1.0X16	1
30	630428	CLAMP, CABLE	1
31	579210	WASHER, M6.4X18X1.5	1
32	579029	NUT, HEX STD, M6	1
33	200160017	NUT, M8 HXLCK	1

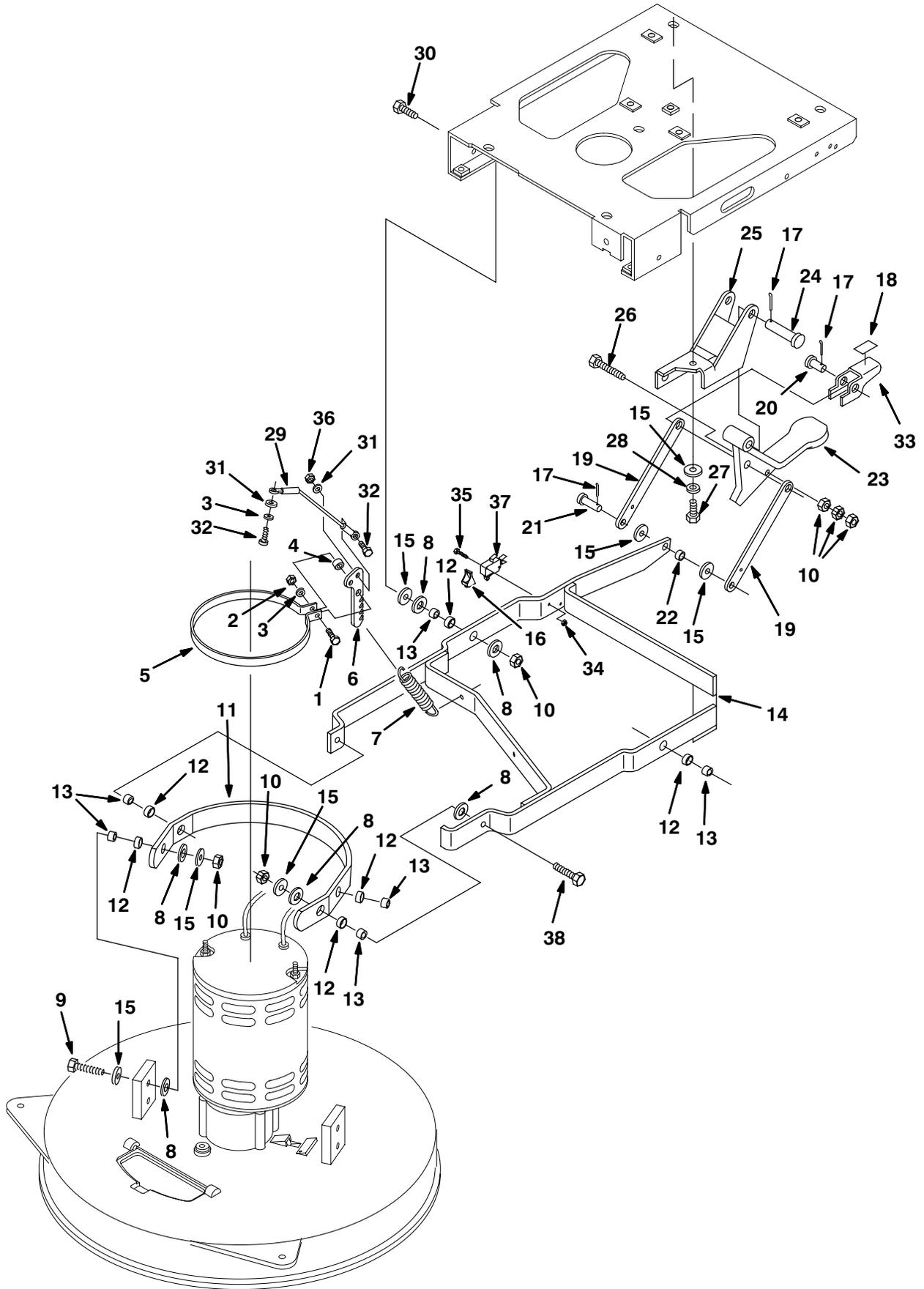
REF	PART #	DESCRIPTION	QTY.
34	630477	WHEEL, SQUEEGEE SUPPORT	1
35	630478	SCREW, 3/8"X1.0	1
36	601108000	NUT, HEX LOCK, .31"-18	1
37	200031488	SCREW, M8X20MM	1
▽ 38	612844	TRANSAXLE, 24V 72RPM	1
▲	612873	BODY, TRANSAXLE ONLY	1
▲	612874	COUPLING, NYLON TRANS-AXLE	1
▲	612875	KEY, TRANSAXLE	1
▲ 39	612877	MOTOR, TRANSAXLE	1
▲ 40	612883	●BRUSH, CARBON KIT BRUSHES W/CAPS (2/PK)	1
▲ 41	612880	SLEEVE, TRANSAXLE	2
▲ 42	612879	HUB, WHEEL TRANSAXLE	2
▲ 43	140552	NUT, 10-24 NYLOCK	2
▲ 44	31249	BOLT, SHOULDER .25X1.25	2
▲ 45	32982	WASHER, INT. LOCK	2
▲ 46	140868	SCREW, SCKT 1/4-20X5/8	2
▲ 47	577031000	SCREW, 8X1/2 PANPHL	2
▲ 48	613082	COVER, TRANSAXLE	1
49	640013	●WHEEL, NEOPRENE SOLID	2
	630215	●WHEEL, AIR FILLED	2
	600352	●WHEEL, FOAM FILLED	2
	606754	●KIT, WHEELS, NEOPRENE SOLID	1
	604357	●KIT, WHEELS, AIR FILLED	1
	604259	●KIT, WHEELS, FOAM FILLED	1
50	140000	WASHER, FLAT	8
51	140501	NUT, 1/4-20 NYLOCK	8
52	630127	BRACKET, TRANSAXLE MT.	2
N/S	613094	HARNESS, DRIVE WIRE	1

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

● RECOMMENDED STOCK ITEMS

SCRUB HEAD LIFT GROUP



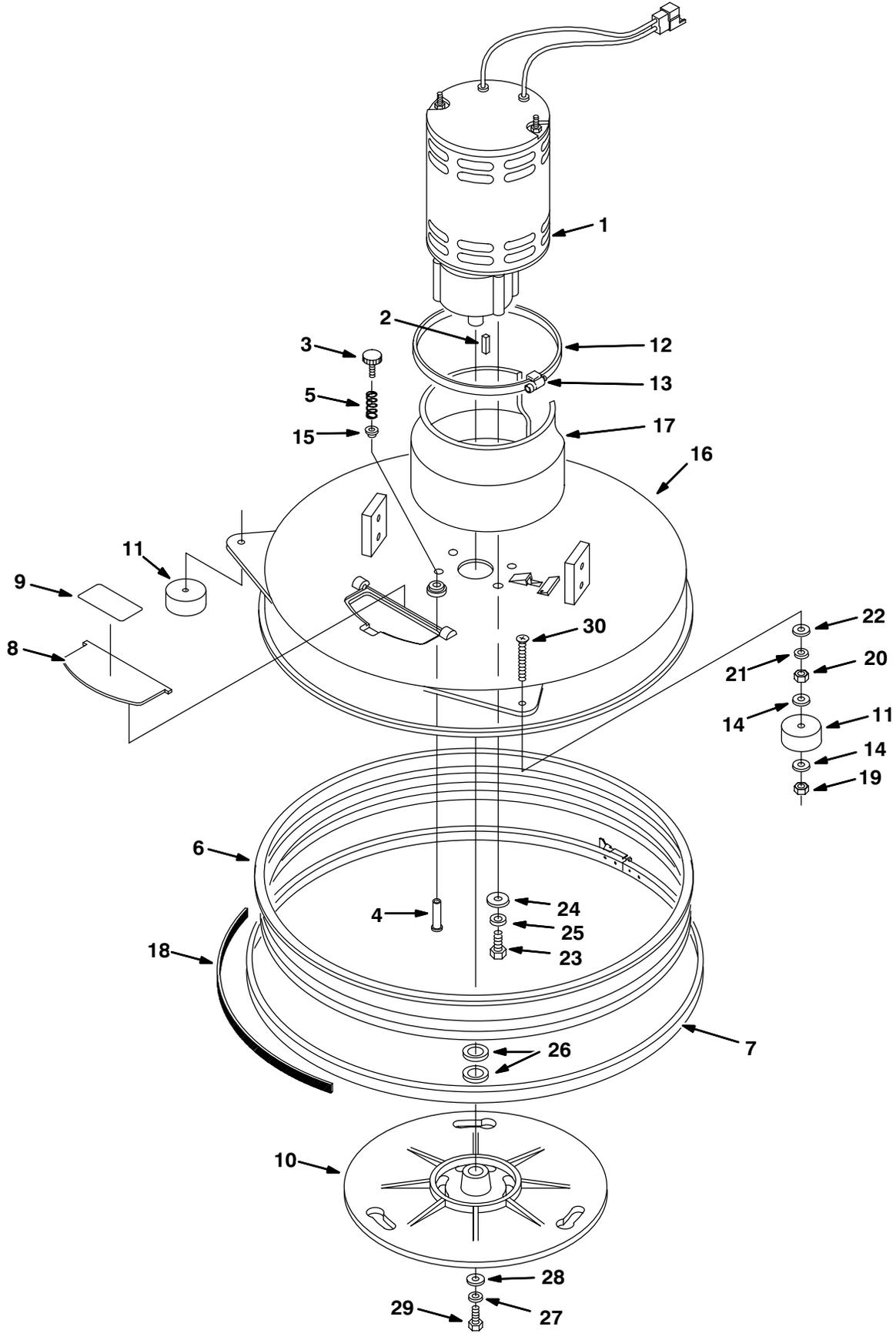
SCRUB HEAD LIFT GROUP

REF	PART #	DESCRIPTION	QTY.
1	200031444	SCREW, M6X1.0X30	1
2	579029	NUT, M6X1.0	1
3	578244000	WASHER, M6.4X10 LOCK	2
4	140154	SPACER, .25X.38X.31	1
5	630050	BAND, MOTOR SPRING MOUNT	1
6	630377	BRACKET, SCRUB HEAD LEVEL	1
7	630208	SPRING, MOTOR CNTR TORQUE	1
8	630447	WASHER, M12.7X25.4X.8 NYLON	12
9	200031496	SCREW, M8X1.25X35	2
10	200160017	NUT, M8 HEXLOCK	9
11	630177	BRACKET, MOTOR PIVOT	1
12	630188	BEARING .50"IDX.25LG JOURNAL	6
13	630189	SLEEVE, BRG 12.7ODX8.7ID 08	6
14	630176	HEAD LIFT, TRANSAXLE	1
15	14880.5	WASHER, 5/16 FLAT	11
16	600372	BOOT, SWITCH	1
17	578421	PIN, COTTER 1/8X1"	3
18	600721	PAD, NON SLIP SURFACING	1
19	630182	ARM, LINK, HEADLIFT	2

REF	PART #	DESCRIPTION	QTY.
20	600720	PIN, CLEVIS 1/2DIAX1-19/64	1
21	630258	PIN, CLEVIS 3/8DIAX1"	1
22	630259	BEARING, 9.5ID,12.7OD,6.4LG	1
23	630181	PEDAL, FOOT HEADLIFT	1
24	630448	PIN, CLEVIS 1/2DIAX2-1/4	1
25	630206	BRACKET, HEADLIFT ASM	1
26	200032503	SCREW, M8X1.25X60	1
27	200031488	SCREW, M8X1.25X20	1
28	200370019	WASHER, M8.4 LOCK	1
29	630384	CABLE, HEAD LIFT	1
30	200607491	SCREW, M8X1.25X25	2
31	140012	WASHER, 3/16 FLAT	2
32	200031436	SCREW, M6X1.0X16	2
33	600719	LATCH, HEAD RELEASE	1
34	579211	NUT, M3 HEXLOCK	2
35	579213	SCREW, M3X.5X20	2
36	579028	NUT, M6 HEXLOCK	1
37	611006	●KIT, SWITCH REPLACEMENT	1
38	200031494	SCREW, M8X1.25X30	2

● RECOMMENDED STOCK ITEMS

SCRUB BRUSH DRIVE GROUP



SCRUB BRUSH DRIVE GROUP

REF	PART #	DESCRIPTION	QTY.
∇ 1	605054	●MOTOR, ELE, 24VDC .75HP 270RPM (FOR BREAKDOWN SEE PAGE 97)	1
▲ 2	630454	KEY, SQUARE .25X1.12 LG	1
3	603012	KNOB, HUB LOCK	1
4	630308	PIN, HEAD STOP	1
5	630310	SPRING, HEAD STOP	1
6	630027	●SKIRT, SCRBR HEAD (STD)	1
	630506	●SKIRT, SCRBR HEAD, HEAVY DUTY (OPT)	1
7	630049	BAND ASSY, SKIRT STD.	1
	602045000	BAND, SKIRT HEAVY DUTY	1.6m
	602044000	FASTENER, ADJUSTING	1
∇ 8	630603	KIT, BRUSH DOOR W/DECAL	1
▲ 9	578769	DECAL, MOVING PARTS	1
10	630039	HUB, DRIVE, BRUSH, 20", MACHND	1
11	579184	WHEEL, RUBBER, D 51X2W	2
12	606883	BAND, SS	1
13	602044000	FASTENER, ADJUSTING	1

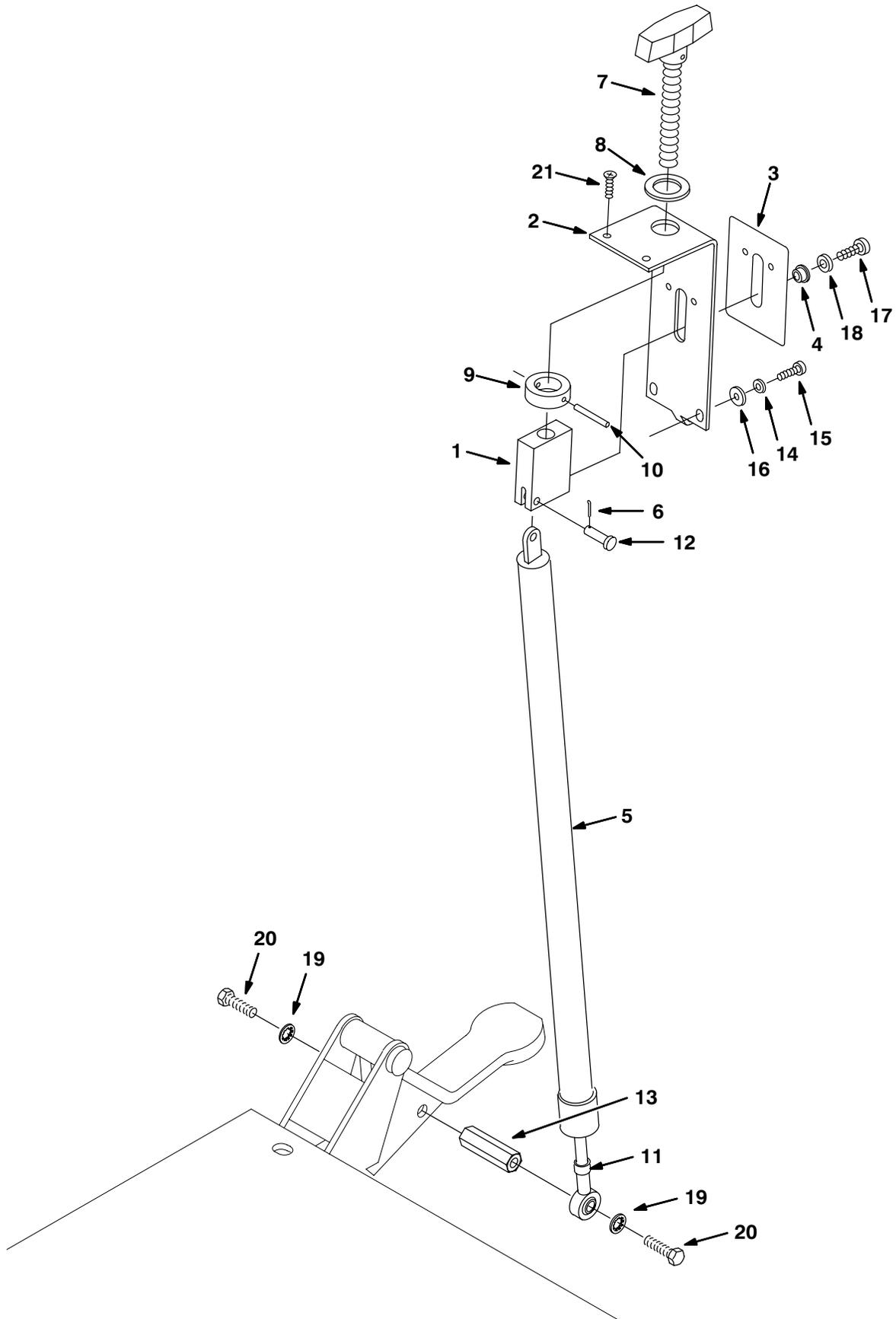
REF	PART #	DESCRIPTION	QTY.
14	630446	WASHER, NYLON, .31"	4
15	605825	SCREW HEAD STOP PIN	1
16	630026	HEAD, SCRUBBER 20"	1
17	611691	SHROUD, WATER DEFLEC- TOR	1
18	630613	SKID STRIP	1
19	200160017	NUT, M8 HEXLCK	2
20	200101017	NUT, M8X1.25 HEX JAM	2
21	200370019	WASHER, LOCK, INT., 08.4ID	2
22	14880.5	WASHER, FLAT 5/16	2
23	059650308	SCREW, 3/8-16X1.00	4
24	140028	WASHER, FLAT 3/8	4
25	140017	WASHER, SPLIT LOCK 3/8"	4
26	069760023	WASHER, FLT, .77"X1.26X.03	2
27	140015	WASHER, SPLIT LOCK 5/16"	1
28	069764631	WASHER, FLT, M8.4X25.4X4.8	1
29	140219	SCREW, 5/16-18X1	1
30	630430	SCREW, M8X1.25X50MM	2

∇ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

● RECOMMENDED STOCK ITEMS

SCRUB BRUSH DOWN PRESSURE GROUP



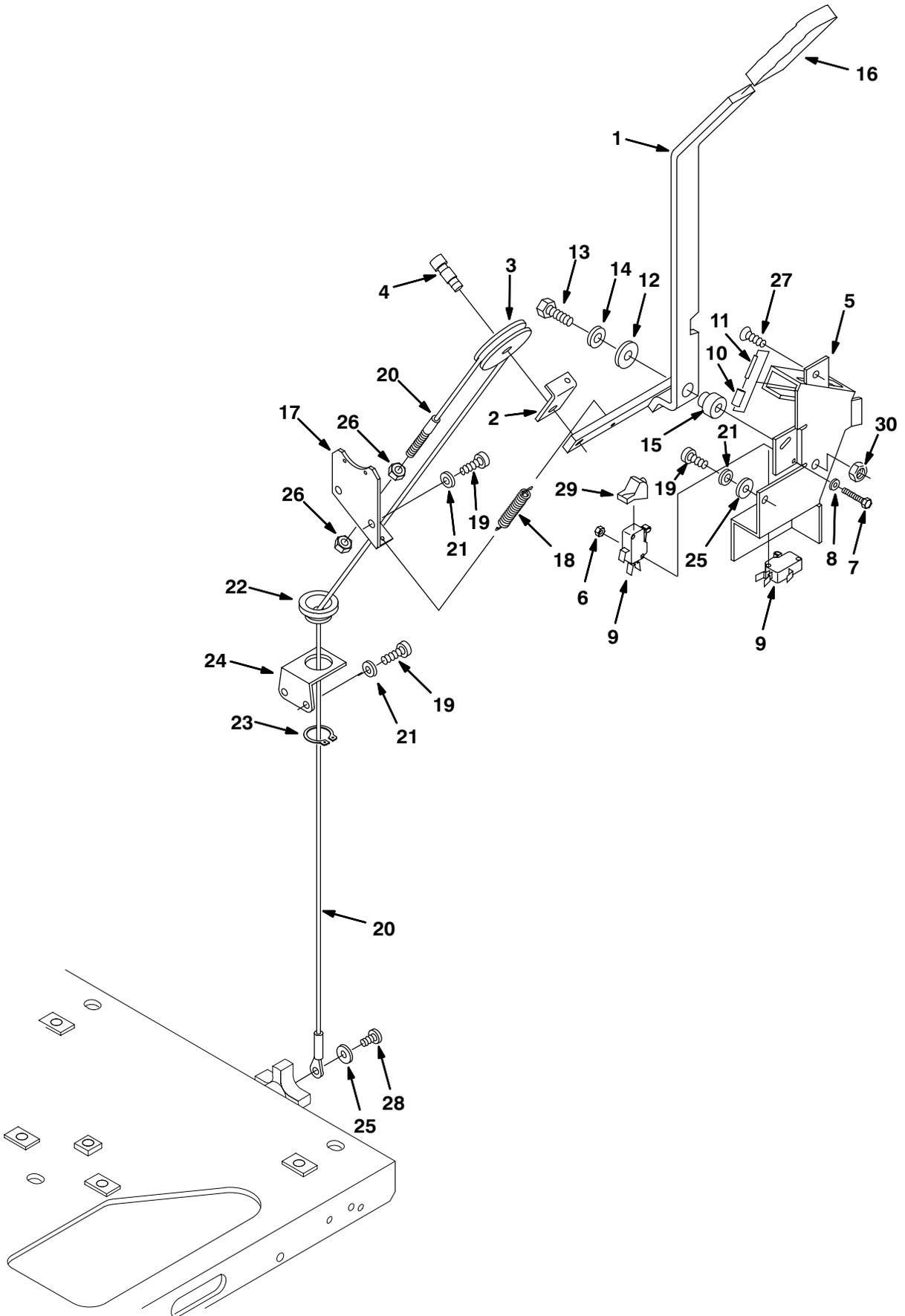
SCRUB BRUSH DOWN PRESSURE GROUP

REF	PART #	DESCRIPTION	QTY.
1	630354	COUPLER, DOWN-PRESSURE SHOCK	1
2	630197	BRACKET, DOWN PRESS.	1
3	630234	DECAL, DOWN PRESSURE	1
4	630482	BEARING, FLANGE	1
5	611293	●SHOCK, DOWN PRESSURE	1
6	140630	PIN, COTTER, 3/32X3/4	1
7	630195	KNOB, TEE, .50-13, 2-1/8"LG	1
8	630358	WASHER, NYLON .75" 1.0" .03TK	1
9	630355	COLLAR, 19.0ID 31.8OD 9.5W	1
10	630382	PIN, SPRING, .16" X 1.25"	1

REF	PART #	DESCRIPTION	QTY.
11	630353	ROD-END, SHOCK	1
12	630357	PIN, CLEVIS	1
13	611378	SPACER, SHOCK	1
14	140018	WASHER LCK INT #10	2
15	575569000	SCR, PAN HD, PHIL, M5X16	2
16	200315016	WASHER, FLAT, 5.3MM, 15.0, 1.6	2
17	578187000	SCREW, M6X12	1
18	578244000	WASHER, M6	1
19	200370019	WASHER, M8.4 LCK, ZN	2
20	200607491	SCREW, M8X1.25X25	2
21	069764140	SCREW, M5X16	2

● RECOMMENDED STOCK ITEMS

SQUEEGEE LIFT GROUP



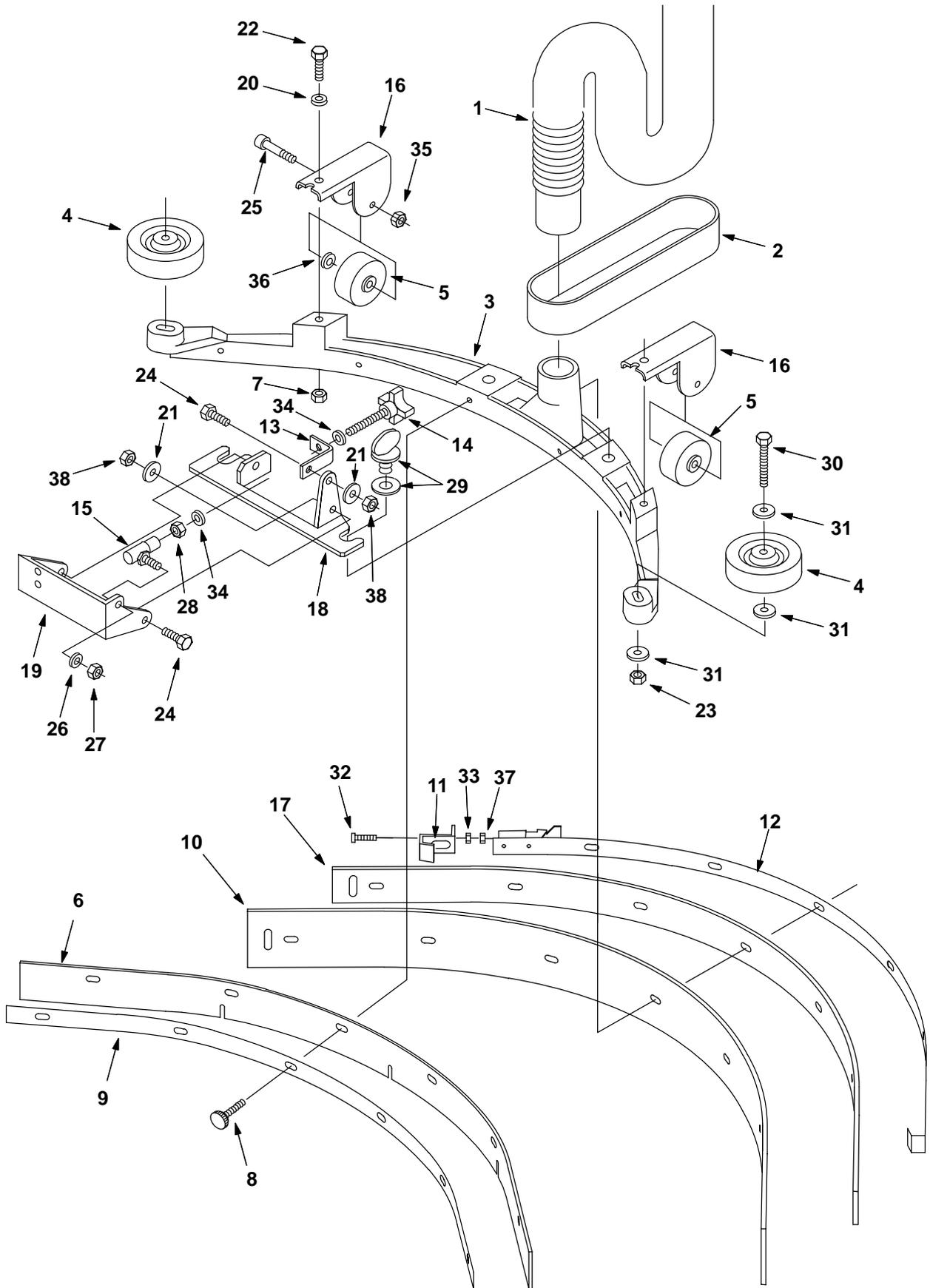
SQUEEGEE LIFT GROUP

REF	PART #	DESCRIPTION	QTY.
1	630151	ARM, LIFT, SQUEEGEE	1
2	630427	BRACKET, SQGE SHEAVE	1
3	630426	PULLEY, CABLE 2"X3/16"	1
4	630470	SCREW, 5/16X3/8X1.00	1
5	630150	BRACKET, ARM, SQGE LIFT	1
6	579211	NUT, HEX LOCK, M3	4
7	579213	SCREW, M3X20MM	4
8	601127000	WASHER, FLT 3.7MM	8
9	611006	●KIT, SWITCH REPLACEMENT	2
10	630207	BUSHING, SQUEEGEE LIFT BRACKET	1
11	630262	PIN, ROLL .09DX.75LG	1
12	069760082	WASHER FLT .25 HARD	1
13	200031496	SCREW, M8X1.25X35	1
14	200370019	WASHER LCK INT M8	1
15	630160	BUSHING, ARM, PIVOT	1

● RECOMMENDED STOCK ITEMS

REF	PART #	DESCRIPTION	QTY.
16	630209	GRIP, SQGE LIFT	1
17	630155	BRACKET, CABLE, SQGE	1
18	630158	SPRING, EXT .36 3.00 .45	1
19	608322	SCREW, M6X1.0X16	5
20	630156	CABLE, LIFT, SQGE, 28" LG	1
21	578244000	WASHER-LOC INT. M6	5
22	621235	BUSHING, CABLE	1
23	621236000	RING, RETAINING .810 DIA	1
24	630157	BRACKET, GUIDE, CABLE	1
25	140000	WASHER, FLAT 1/4"	2
26	140510	NUT, HEX, JAM, 1/4-20	2
27	069762098	SCREW, M6X16MM,	1
28	573268	SCREW, .25 20 X .75", SS	1
29	600372	BOOT, LIMIT SWITCH	1
30	200640017	NUT, M8 HEX	1

SQUEEGEE GROUP



SQUEEGEE GROUP

REF	PART #	DESCRIPTION	QTY.
▽	630806	ASSY, SQUEEGEE	1
1	630339	●HOSE ASSY, SQGE	1
2	630333	STRAP, SQGE HOSE	1
▲	630311	SQUEEGEE, CURVED	1
▲	630450	WHEEL, RUBBER	2
▲	579184	●WHEEL, HEAD, BRUSH	2
▲	630291	●BLADE, FRONT SEMI	1
	600207	●BLADE, FRONT URETHANE	1
	630288	●BLADE, FRONT LINATEX	1
▲	200640017	NUT, HEX, M8	2
▲	603012	KNOB, FRONT SQUEEGEE BLADE ASM	6
▲	630313	SQUEEGEE, BAND, FRONT CURVED	1
▲	630344	●BLADE, REAR CURVED	1
	603511	●BLADE, REAR URETHANE	1
	610150	●BLADE, REAR LINATEX	1
▲	610850	CLIP, SQUEEGEE BAND	1
▲	630350	SQUEEGEE, BAND ASSY, CURVED	1
13	630279	BRACKET, PIVOT, TIP ADJUST	1
14	630281	KNOB, TIP ADJUST, SQGE	1
15	140119	JOINT, BALL, LIFT ROD	1
▲	630314	BRACKET, SQGE BACKUP WHEEL	2
▲	630340	BACK UP STRIP, SEMI-CURVE	1

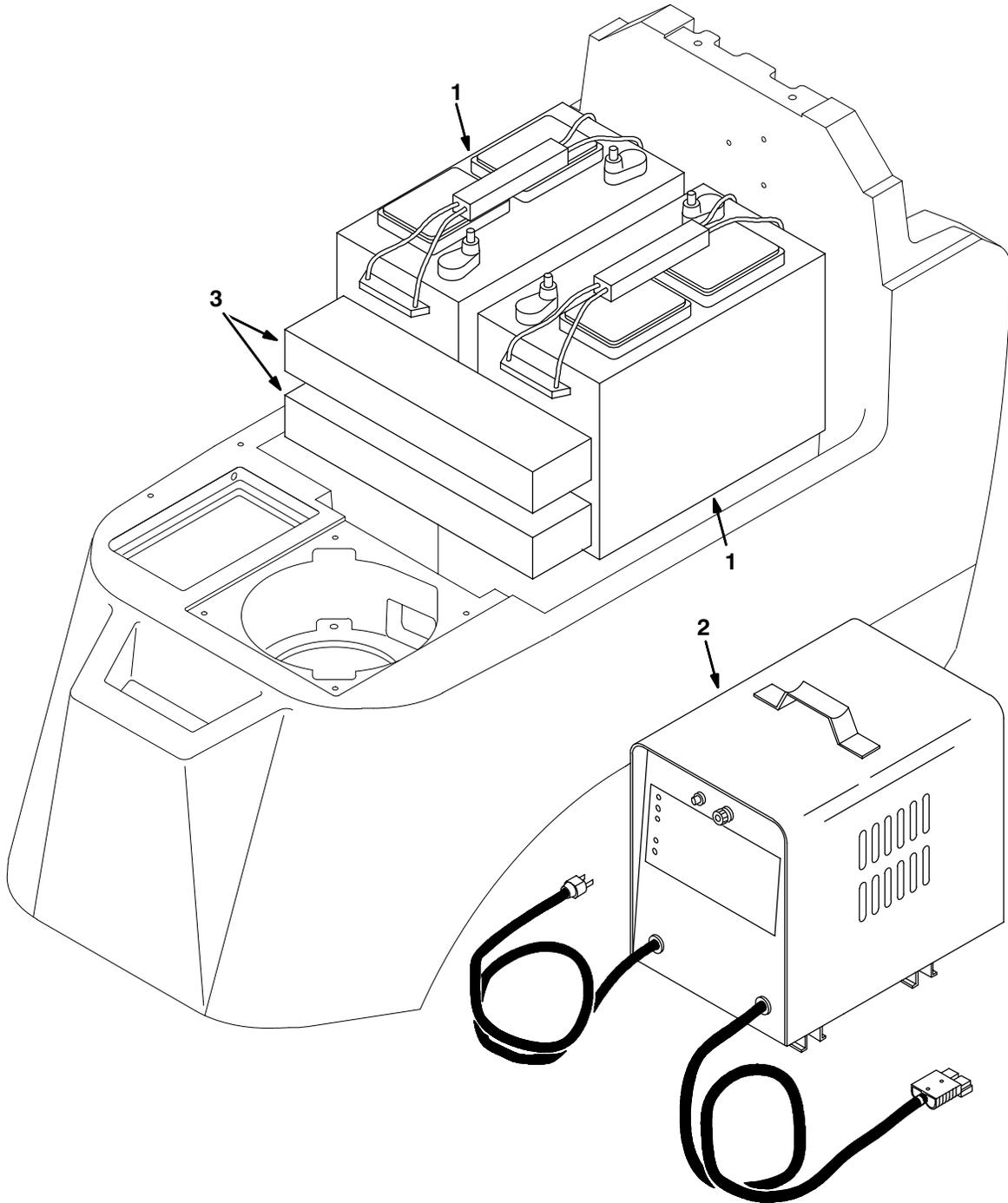
REF	PART #	DESCRIPTION	QTY.
18	630277	BRACKET, SQGE ATTACH.	1
19	630278	BRACKET, TIP ADJUST	1
▲	200370019	WASHER LCK INT M8	2
21	200303019	WASHER, FLAT, 8.4MM	5
▲	200031494	SCREW, M8X30MM	2
▲	200160017	NUT, M8X1.25	2
24	200031488	SCREW, M8X1.25X20	3
▲	630480	SCREW, SHLD., 5/16", 1-1/4"	2
26	140015	WASHER, LOCK, 5/16"	1
27	069762144	NUT, HEX, 5/16-24	1
28	630388	NUT, HEX LOCK, 5/16-24	1
▲	630393	●SCREW, THUMB & WASHER ASM	2
▲	630424	SCREW, M8X70MM	2
▲	630303	WASHER, FLT 8.4 25.4 2.0	6
▲	630389	SCREW, M5X.8X45MM	1
▲	140283	NUT, M5X.8	1
34	630446	WASHER, NYLON, .31"	2
▲	140501	NUT, HEX LOCK, .25-20 UNC	2
▲	200651019	WASHER, M8.4X17X1.6 FLAT	2
▲	140297	NUT, M5X.8	1
38	200160017	NUT, M8X1.25	3

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

● RECOMMENDED STOCK ITEMS

BATTERY AND CHARGER GROUP

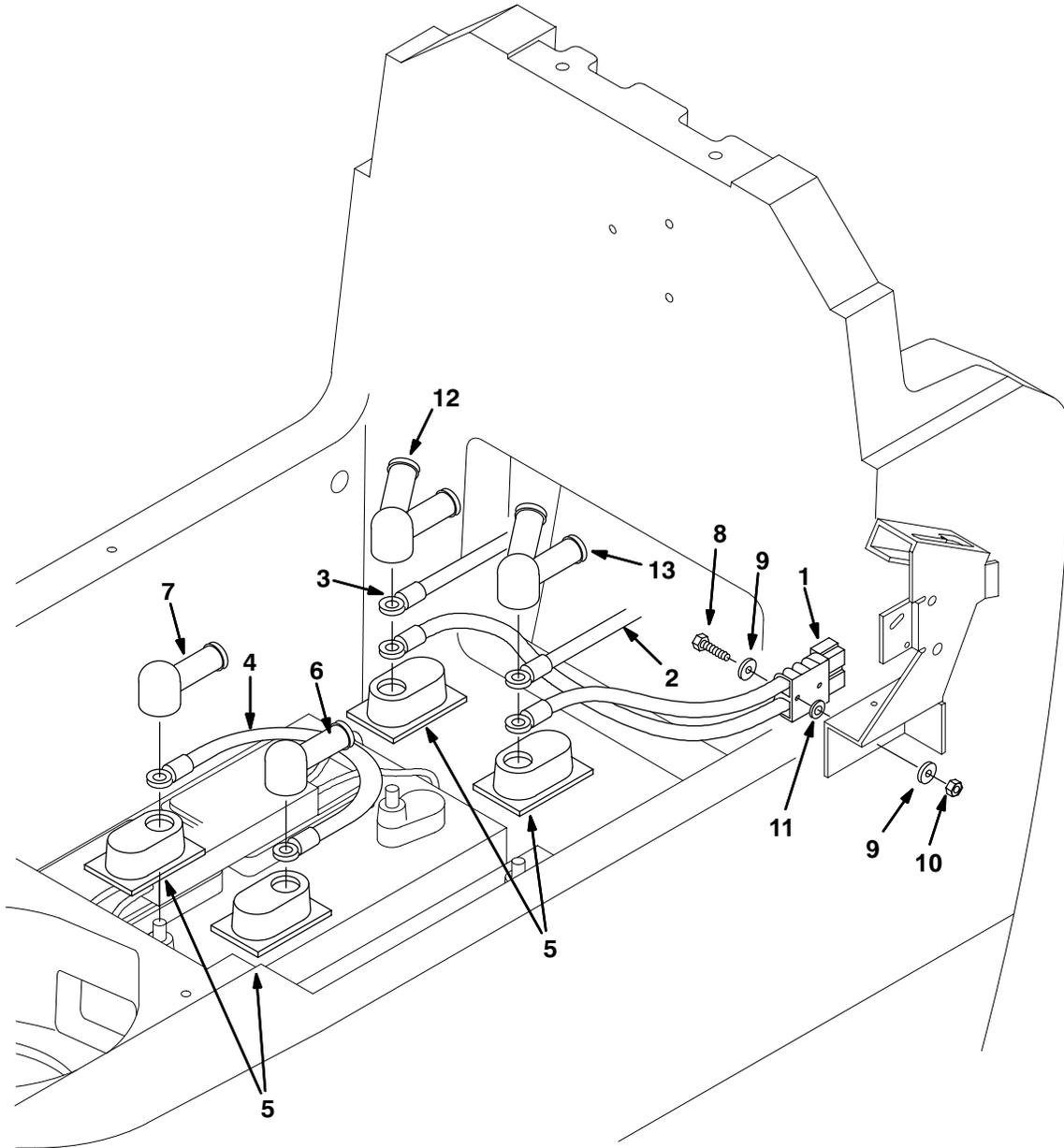


REF	PART #	DESCRIPTION	QTY.
1	130869	●BATTERY, 12V 130AH (WET)	2
	600594	BATTERY, 12V 130AH (DAMP)	2
	600394	BATTERY, 12V 215AH (WET)	2
	600595	BATTERY, 12V 215AH (DAMP)	2

REF	PART #	DESCRIPTION	QTY.
2	603553	●CHARGER 24DC/12A 120V DUALMODE (FOR 130AH BATTERIES)	1
	603235	CHARGER 24DC/20A/120AC REDPLUG (FOR 215AH BATTERIES)	1
3	630375	STOP, BATTERY INSERT	2

● RECOMMENDED STOCK ITEMS

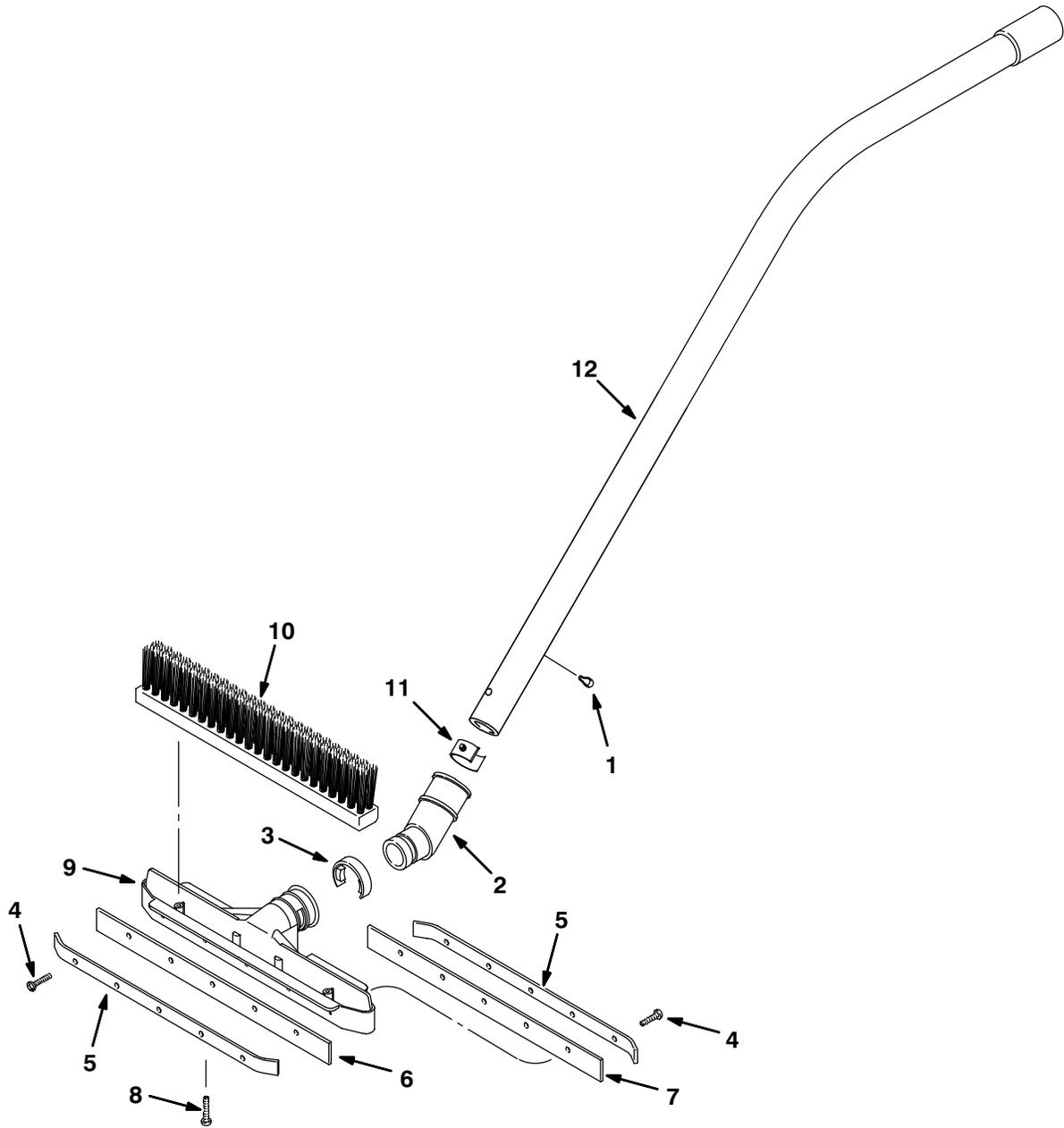
BATTERY CABLE GROUP



REF	PART #	DESCRIPTION	QTY.
1	630118	CABLE, BATTERY, W/CHARGE PLUG, RED	1
2	630110	CABLE, BATTERY, 4GA, RED	1
3	630111	CABLE, BATTERY, 4GA, BLK	1
4	603061	CABLE, BATTERY 6GA, RED	1
5	611223	COVER, TERMINAL	4
6	611221	BOOT, CABLE, BATTERY TERMINAL, BLACK	1
7	611222	BOOT, CABLE, BATTERY TERMINAL, RED	1

REF	PART #	DESCRIPTION	QTY.
8	200051274	SCREW, M3X30MM	2
9	601127000	WASHER, FLAT, 3.7 8.0, .5	4
10	579211	NUT, HEX, LOCK, M3	2
11	140019	WASHER, EXT. LOCK #6	2
12	606011	BOOT, INSULATING CABLE, RED	1
13	606010	BOOT, INSULATING CABLE, BLACK	1

NON-POWER WAND ASSEMBLY



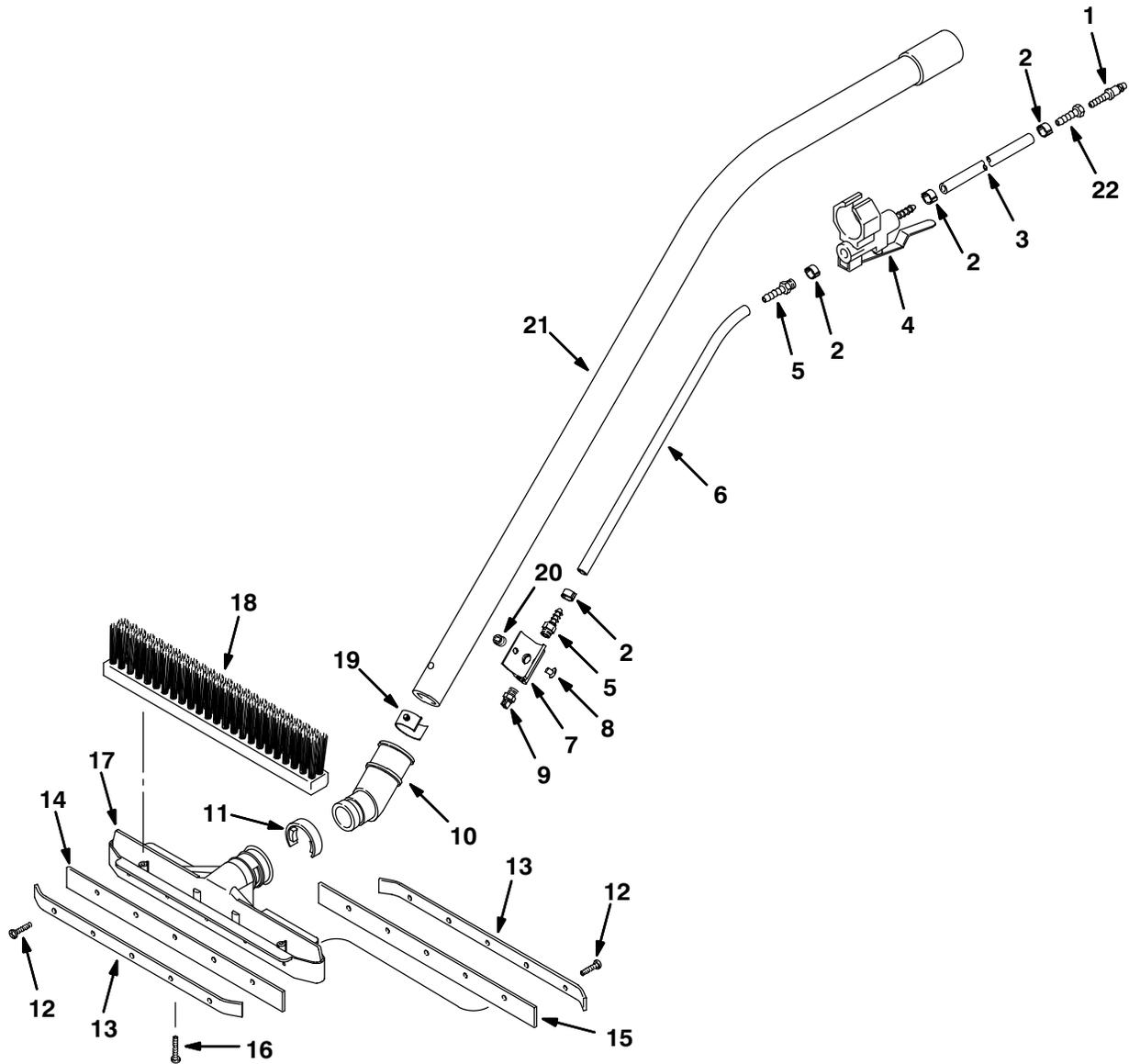
REF	PART #	DESCRIPTION	QTY.
▽	630732	WAND ASM., NON-POWER	1
▲ 1	630269	BUMPER, MUSHROOM	2
▲ 2	579113	SWIVEL, WAND ATTACHMENT	1
▲ 3	579132	RING, ATTACHMENT	1
▲ 4	579135	SCREW, SELF TD UNITED	10
▲ 5	579103	RETAINER, WAND BLADE	2

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

REF	PART #	DESCRIPTION	QTY.
▲ 6	579239	SQUEEGEE, BLADE, FRONT WAND	1
▲ 7	579230	SQUEEGEE, BLADE, REAR WAND	1
▲ 8	579147	SCREW, SELF-TAP, #6, 1.5"	2
▲ 9	579101	HEAD, WAND	1
▲ 10	579102	BRUSH, WAND (TWO ROW)	1
▲ 11	579187	CLIP, SPRING	1
▲ 12	579109	WAND, SINGLE BEND	1

POWER WAND ASSEMBLY



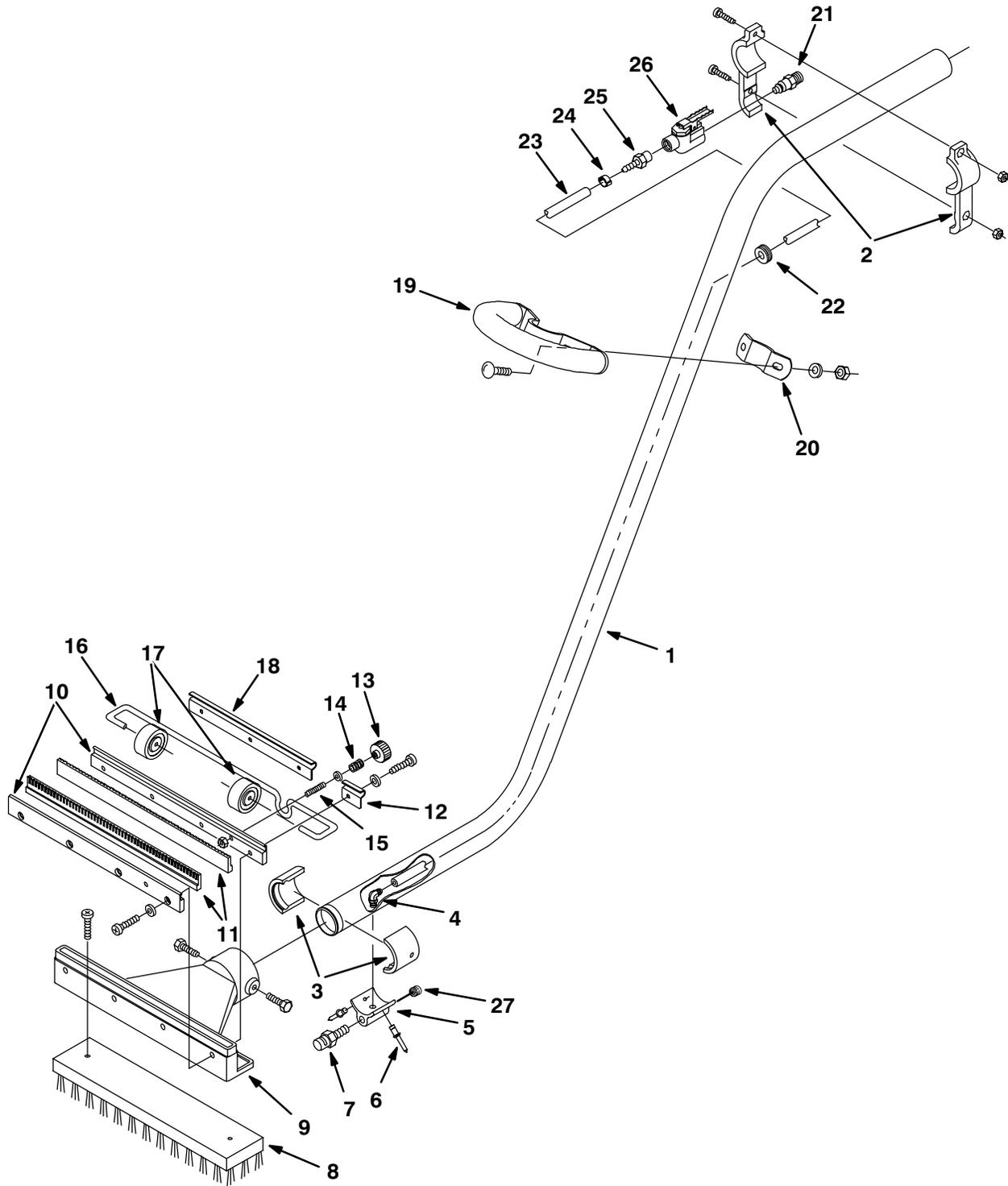
REF	PART #	DESCRIPTION	QTY.
▽	579908	WAND ASM., POWER	1
▲ 1	578091000	PLUG, QUICK CONNECT	1
▲ 2	578160000	CLAMP, HOSE	4
▲ 3	579168	HOSE, RELIEF	1
▲ 4	579107	VALVE, WATER CONT.	1
▲ 5	150525	HOSE BARB, 1/8" M X 1/4" H	2
▲ 6	579146	HOSE, WAND WATER FEED	1
▲ 7	579112	ADAPTOR, SPRAY NOZZLE	1
▲ 8	579198	RIVET, POP	2
▲ 9	579137	SPRAY NOZZLE	1
▲ 10	579113	SWIVEL, WAND ATTACHMT	1
▲ 11	579132	RING, ATTACHMENT	1

REF	PART #	DESCRIPTION	QTY.
▲ 12	579135	SCREW, SELF TD UNITED	10
▲ 13	579103	RETAINER, WAND BLADE	2
▲ 14	579239	SQUEEGEE, BLADE, FRONT WAND	1
▲ 15	579230	SQUEEGEE, BLADE, REAR WAND	1
▲ 16	579147	SCREW, SELF-TAP, #6, 1.5"	2
▲ 17	579101	HEAD, WAND	1
▲ 18	579102	BRUSH, WAND (TWO ROW)	1
▲ 19	579187	CLIP, SPRING	1
▲ 20	150208	PLUG, SCKT HD 1/8"	1
▲ 21	579109	WAND, SINGLE BEND 31.8	1
▲ 22	150510	FITTING, 1/4F X 1/4H BARB	1

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

DELUXE POWER WAND ASSEMBLY



DELUXE POWER WAND ASSEMBLY

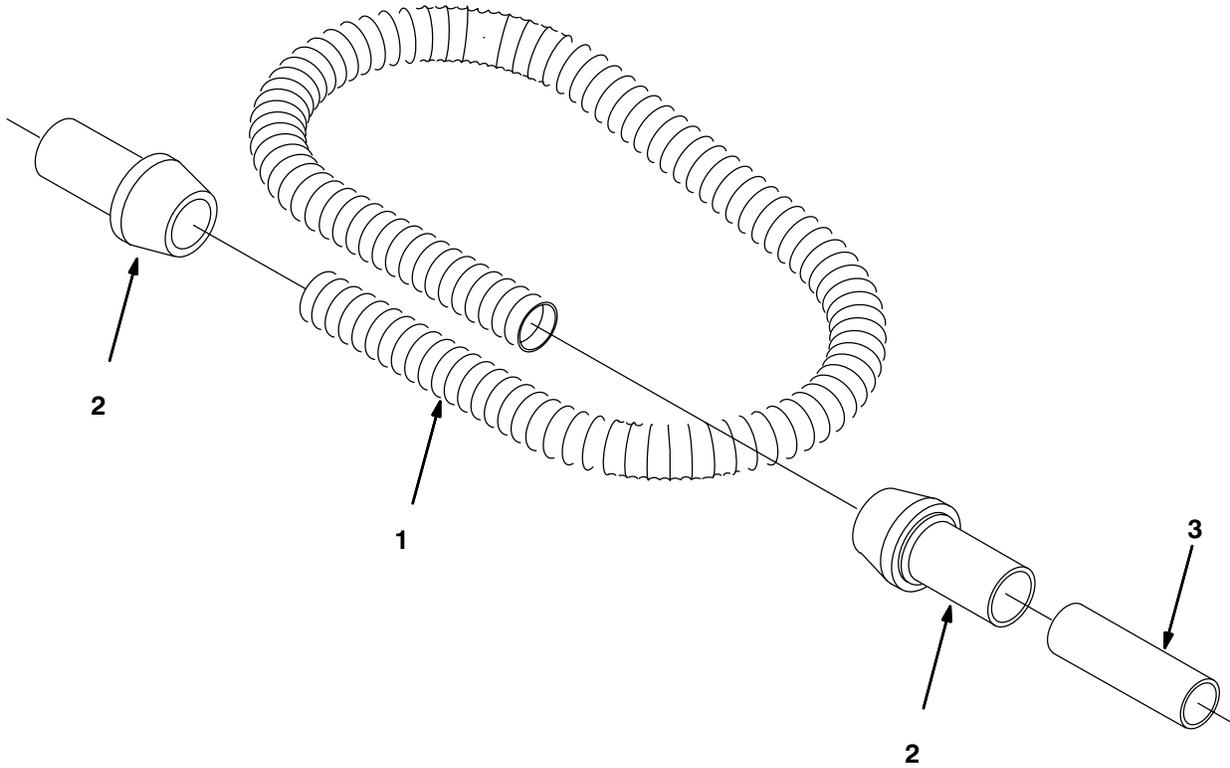
REF	PART #	DESCRIPTION	QTY.
▽	578905000	WAND ASM., DELUXE POWER	1
▲ 1	578060000	WAND, DOUBLE BEND	1
▲ 2	578077000	BRACKET, VALVE MOUNTING, WAND	1
▲ 3	578061000	ADAPTER, HEAD/WAND	2
▲ 4	578214000	FITTING, ELBOW, 0.25"HOSE, 0.12"NPT	1
▲ 5	579112	ADAPTER, SPRAY NOZZLE	1
▲ 6	579198	RIVET, POP, .156, .312, .384	2
▲ 7	578066000	SPRAY NOZZLE, .125" NPT, 75 DEG.	1
▲ 8	578073000	BRUSH, DECK, POLYPRO BLOCK	1
▲ 9	578063000	HEAD, WAND	1
▲ 10	578078000	RETAINER, SQUEEGEE WAND	2
▲ 11	578074000	BLADE, SQUEEGEE WAND	2
▲ 12	578124000	BRACKET, AXLE	1
▲ 13	578439	NUT, THUMB	1

REF	PART #	DESCRIPTION	QTY.
▲ 14	578228000	SPRING, COMPRESSION	1
▲ 15	578143000	M6, 40MM LG., ADJUST. STUD	1
▲ 16	578126000	AXLE, WAND	1
▲ 17	578125000	WHEEL, GUIDE, WAND	2
▲ 18	578123000	BRACKET, AXLE	1
▲ 19	578155000	HANDLE, WAND	1
▲ 20	578154000	BRACKET, HANDLE, WAND	1
▲ 21	578091000	PLUG, MALE QUICK-CONN	1
▲ 22	578164000	GROMMET	1
▲ 23	578821000	HOSE, SOLUTION, WAND	1
▲ 24	578161000	CLAMP, HOSE	1
▲ 25	578094000	1/4 HOSEBARB, 1/4NPT MALE PIPE	1
▲ 26	578064000	VALVE, WATER CONTROL, WAND	1
▲ 27	150208	PLUG, SCKT HD 1/8"	1

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

NON-POWER WAND HOSE ASSEMBLY



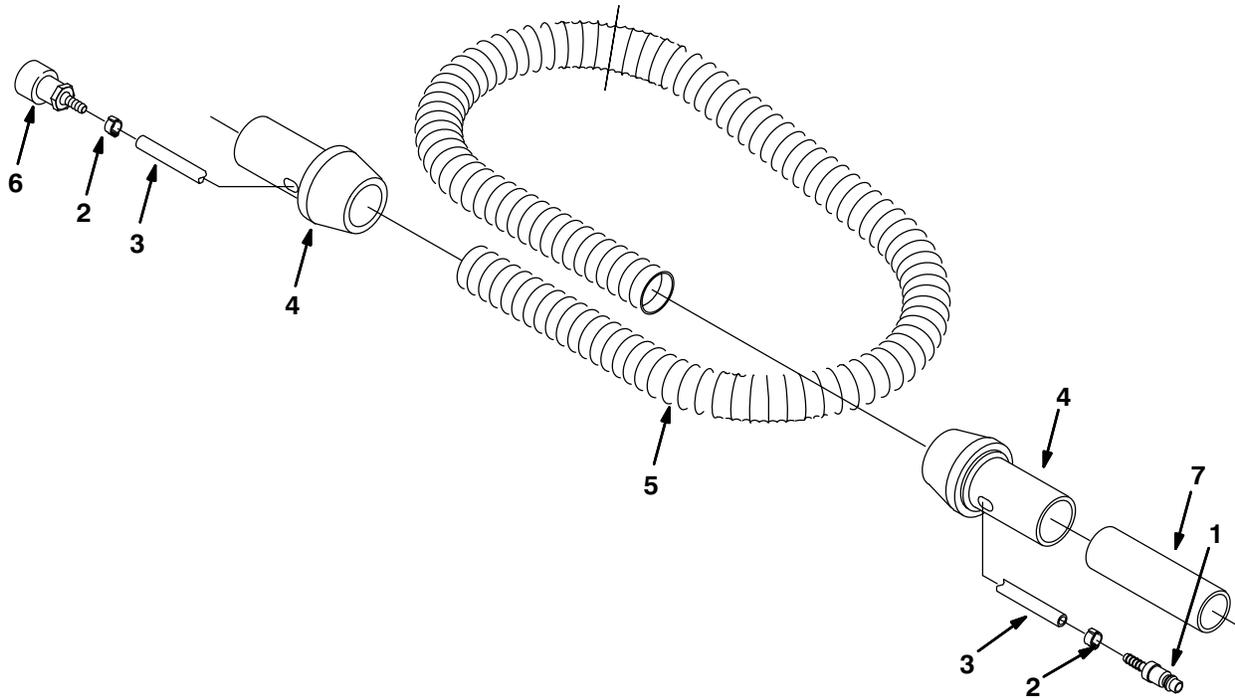
REF	PART #	DESCRIPTION	QTY.
▽	630739	HOSE ASM., NON-POWER WAND	1
▲ 1	578276000	HOSE, VACUUM 38.1DIA X 3.05M GRAY	1

REF	PART #	DESCRIPTION	QTY.
▲ 2	630449	CUFF, HOSE SOFT DIA 38.1M	2
▲ 3	231031	SLEEVE, 1-1/2DIA X 5"LG	1

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

POWER WAND HOSE ASSEMBLY



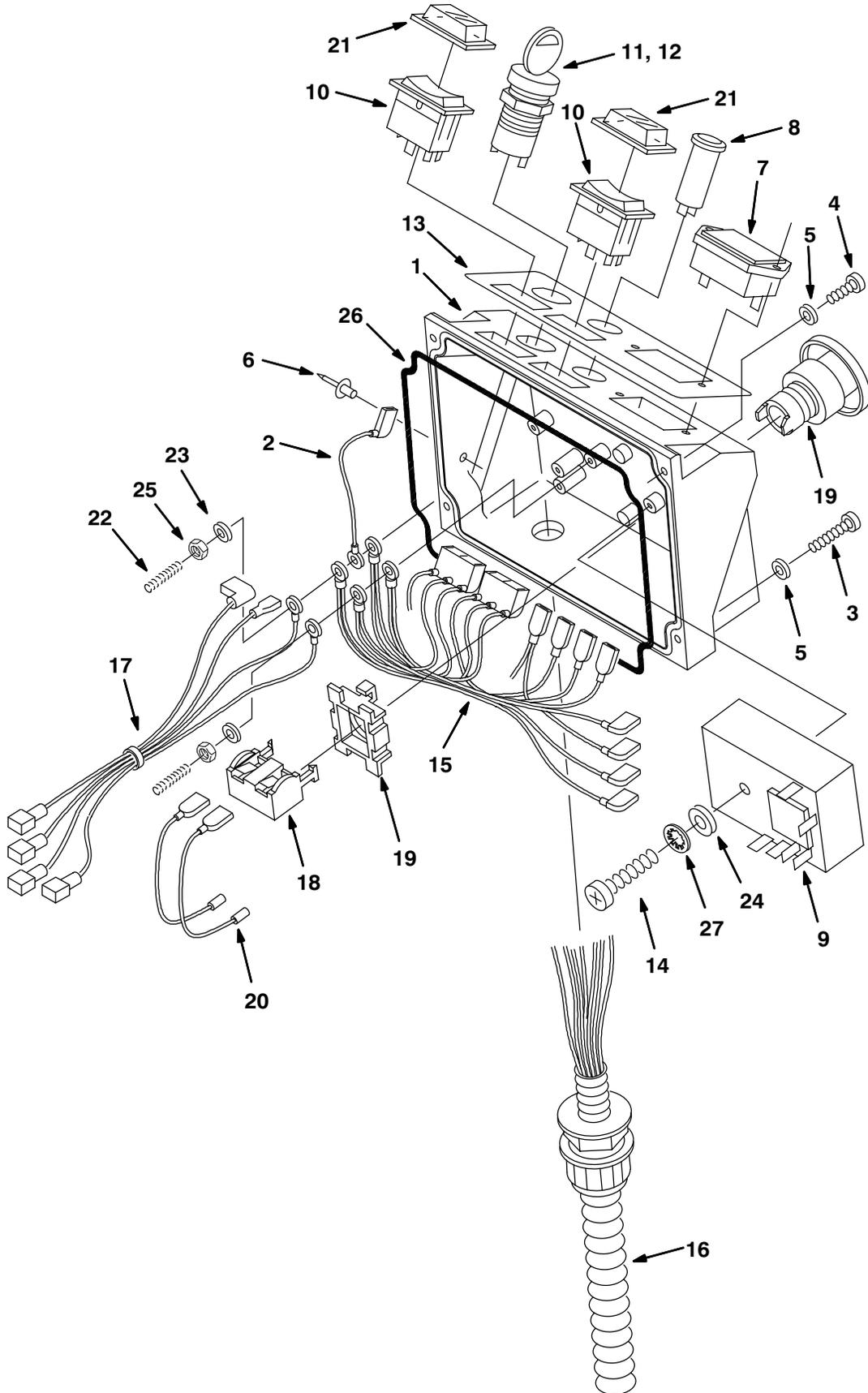
REF	PART #	DESCRIPTION	QTY.
▽	578903000	HOSE ASM., POWER WAND	1
▲ 1	578318000	FITTING, QUICK CONCT MALE	1
▲ 2	578160000	CLAMP, HOSE 11-13MM	2
▲ 3	578820000	HOSE, .25ID, .44OD, 4.0M LG	1

REF	PART #	DESCRIPTION	QTY.
▲ 4	578072000	CUFF, SWIVEL, 38.1DIA BLK	2
▲ 5	578276000	HOSE, VACUUM, 38.1DIA X 3.05M GRAY	1
▲ 6	578071000	CONNECTOR, QUICK CONCT FEMALE	1
▲ 7	231031	SLEEVE, 1-1/2"DIA X 5"LG	1

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

ACCESSORY CONSOLE GROUP

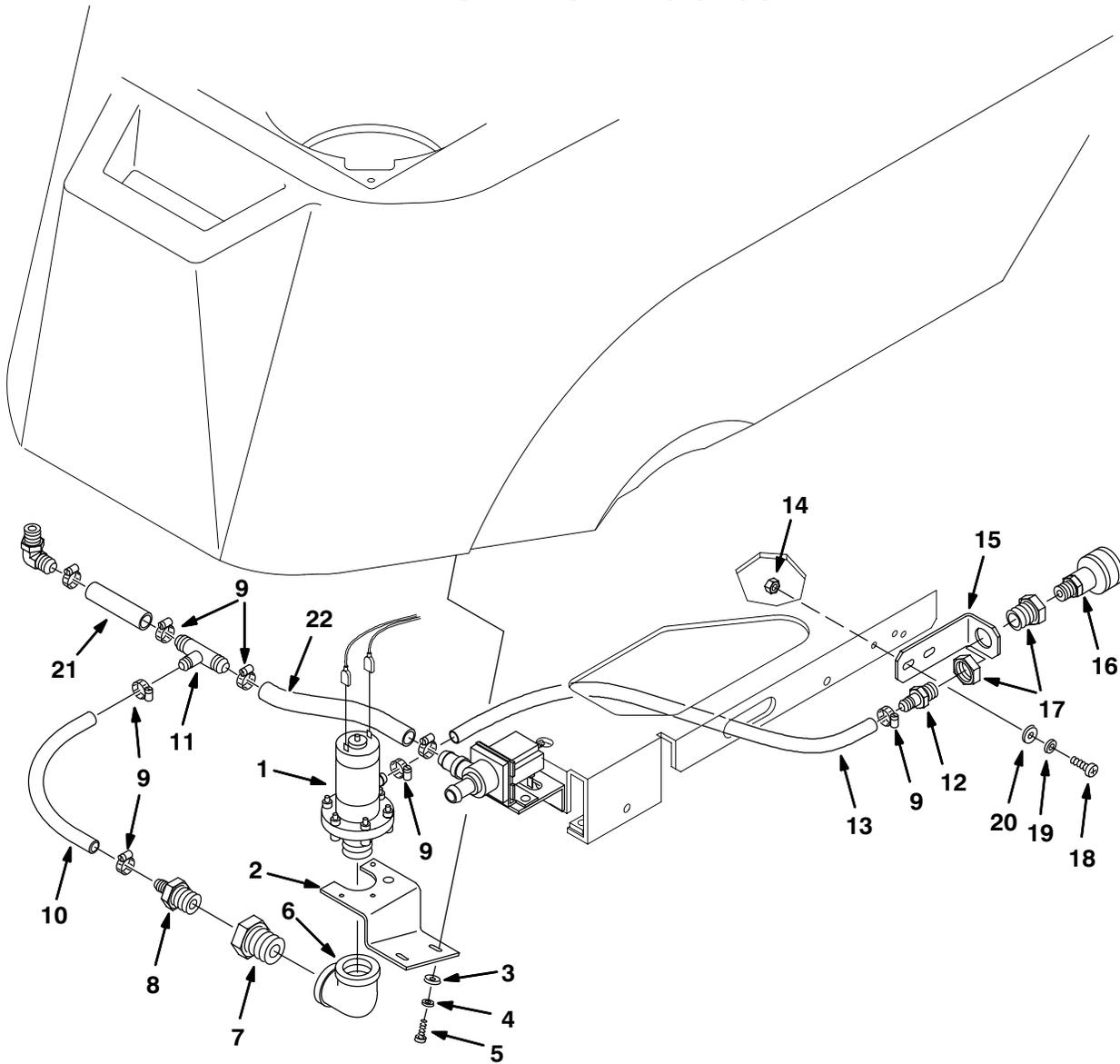


ACCESSORY CONSOLE GROUP

REF	PART #	DESCRIPTION	QTY.
	607486	KIT, KEY SWITCH/HOUR METER	1
	607487	KIT, ES [®] /KEY SWITCH/HOUR METER	1
	607488	KIT, ES [®] /KEY SWITCH/HOUR METER/WAND PUMP	1
	607489	KIT, WAND PUMP	1
	607490	KIT, KEY SWITCH/HOUR METER/WAND PUMP	1
	607491	KIT, KEY SWITCH/HOUR METER/AUTO STOP BUTTON	1
	607492	KIT, ES [®] /KEY SWITCH/HOUR METER/AUTO STOP BUTTON	1
	607493	KIT, ES [®] /WAND PUMP/KEY SWITCH/HOUR METER/AUTO STOP BUTTON	1
	607494	KIT, WAND PUMP/KEY SWITCH/HOUR METER/AUTO STOP BUTTON	1
1	630140	CONSOLE, 20" SCRUBBER	1
2	630331	WIRE ASSY, KEY SWITCH	1
3	200070354	SCREW, M4X30	2
4	140287	SCREW, M4X.7X16MM	2
5	140023	WASHER, LOC INT #8	4
6	578852	RIVET, SNAP 5.0MM	1
7	630143	METER, HOUR, 18-60VDC	1
8	630142	LIGHT, PILOT, 24V, BLUE	1
9	630145	TIMER, 24VDC, RANGE: 30SEC	1
10	630419	SWITCH, RCKR, SPST, 24VDC, GREEN	2

REF	PART #	DESCRIPTION	QTY.
11	607475	SWITCH, KEYLOCK 12-AMP	1
12	607821	KEY, REPLACEMENT, STEEL	2
13	630237	DECAL, ES/KEY/HR/LIGHT/WP (OPTION)	1
	630236	DECAL, ES/KEY/HR MTR/LIGHT (OPTION)	1
	630238	DECAL, WAND PUMP (OPTION)	1
	630239	DECAL, KEY/HR/W. PUMP (OPTION)	1
	630235	DECAL, KEY/HOUR METER (OPTION)	1
14	630334	SCREW, S-TAP, #6	1
15	606499	HARNESS, WIRE ES OPTION	1
16	630342	HARNESS, WIRE ES	1
17	606502	HARNESS, ACCESSORY	1
18	630097	SWITCH, CONTACT BLOCK	1
19	630100	SWITCH, PUSHBUTTON	1
20	630266	WIRE ASSY	1
21	578720	SPLASH GUARD, ROCKER SWITCH	2
22	601271	STUD, M4X.7X1.00	2
23	140023	WASHER, #8 INT	2
24	140026	WASHER, #6 FLAT	1
25	200102014	NUT, M4 X .7 HEX	2
26	579178	O-RING, SPONGE	1
27	140018	WASHER, #10 INT	1

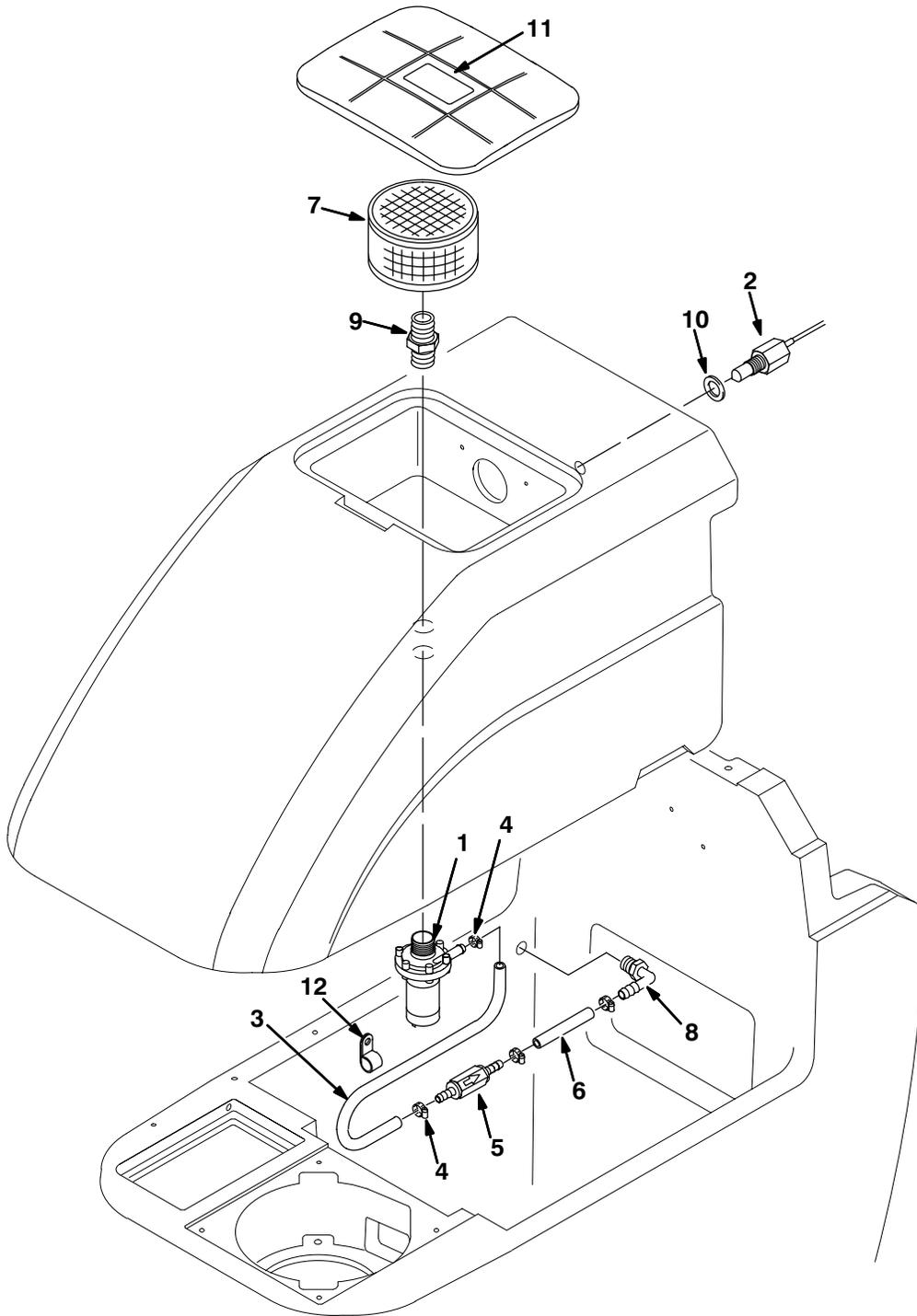
WAND PUMP PLUMBING GROUP



REF	PART #	DESCRIPTION	QTY.
1	630136	PUMP, 24VDC	1
2	630335	BRACKET, MTG, PUMP	1
3	200315016	WASHER, 5.3X15.0X1.6 FLAT	2
4	140018	WASHER, LOC INT #10	2
5	200070384	SCREW, M5X14	2
6	630251	FITTING, E90, .75 FORGED	1
7	630252	FITTING, BUSHING, 3/4MX3/8F	1
8	150538	HOSE BARB, 3/8MX3/8H	1
9	140310	CLAMP, HOSE 5/16-7/8	6
10	630417	HOSE, 165MM WAND PUMP	1
11	630372	FITTING, TEE	1

REF	PART #	DESCRIPTION	QTY.
12	150516	FITTING, BARB	1
13	630418	HOSE, 700MM	1
14	579029	NUT, M6X1.0	2
15	630256	BRACKET, MTG QUICK CON.	1
16	608292	FITTING, QUICK DISC FEMALE 3/8X1/4 NPT	1
17	150300	CONNECTOR, ANCHOR	1
18	608322	SCREW, M6X1.0X16	2
19	578244000	WASHER-LOC INT, M6	2
20	579210	WASHER, FLAT 6.L4, 18.0, 1.5	2
21	140957	HOSE, 1/2IDX2-1/2	1
22	606241	HOSE, 1/2IDX6	1

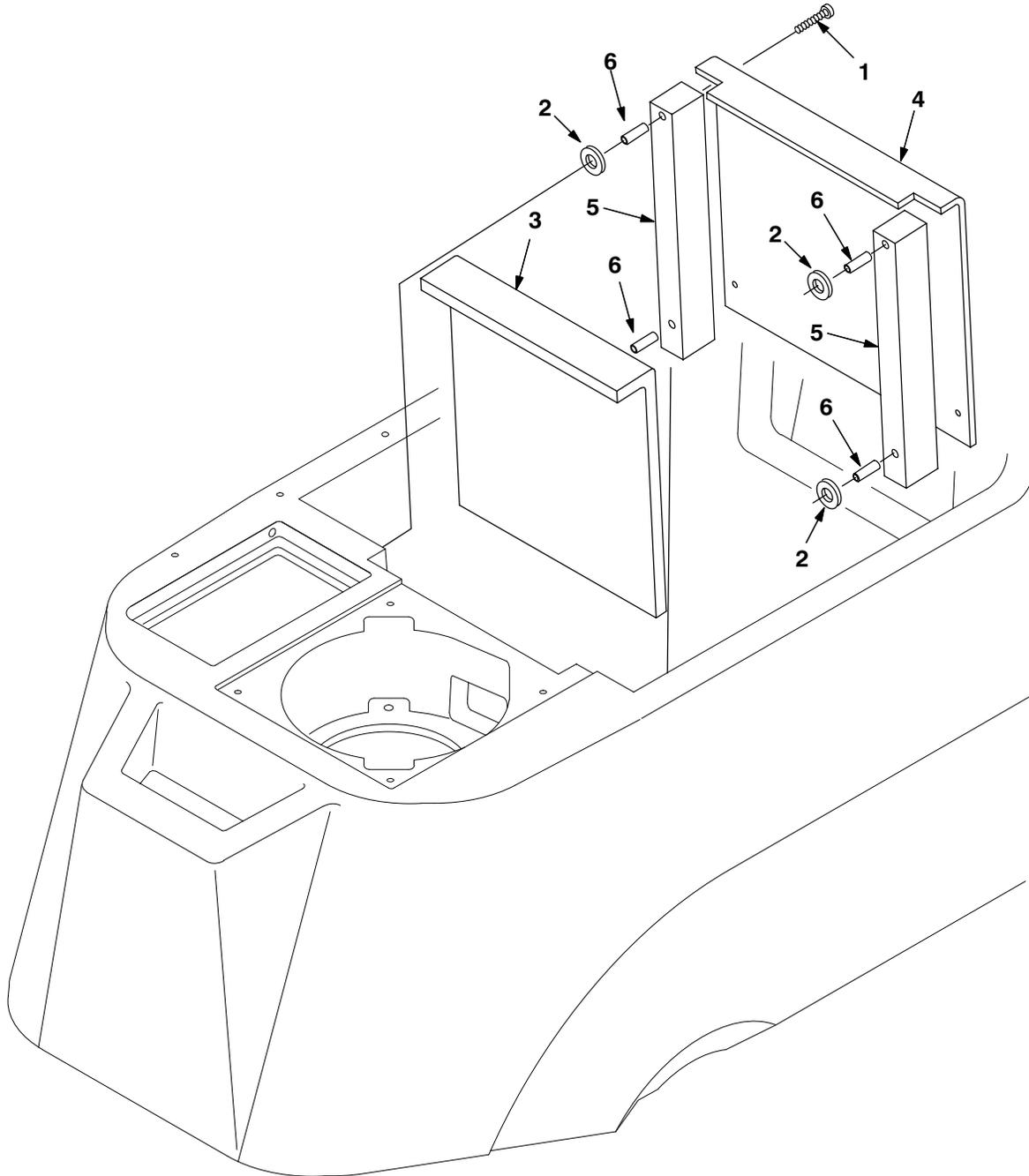
ES™ PLUMBING GROUP



REF	PART #	DESCRIPTION	QTY.
1	630136	PUMP, 24VDC	1
2	630137	SENSOR, WATER LEVEL	1
3	605282	TUBING, 5/8OD X 3/8ID X 21.75FT LG	1
4	140310	CLAMP, HOSE 5/16-7/8	4
5	210044	VALVE, CHECK	1
6	605282	TUBING, 5/8OD X 3/8ID X 5.25FT LG	1

REF	PART #	DESCRIPTION	QTY.
7	630138	FILTER, SCREEN	1
8	150412	FITTING, 3/8MX3/8H ELBOW	1
9	630385	FITTING, NIPPLE	1
10	630479	WASHER, NYLON	1
11	630440	DECAL, DO NOT REMOVE FILTER	1
12	140314	CLAMP, INSULATED	1

SOUND KIT



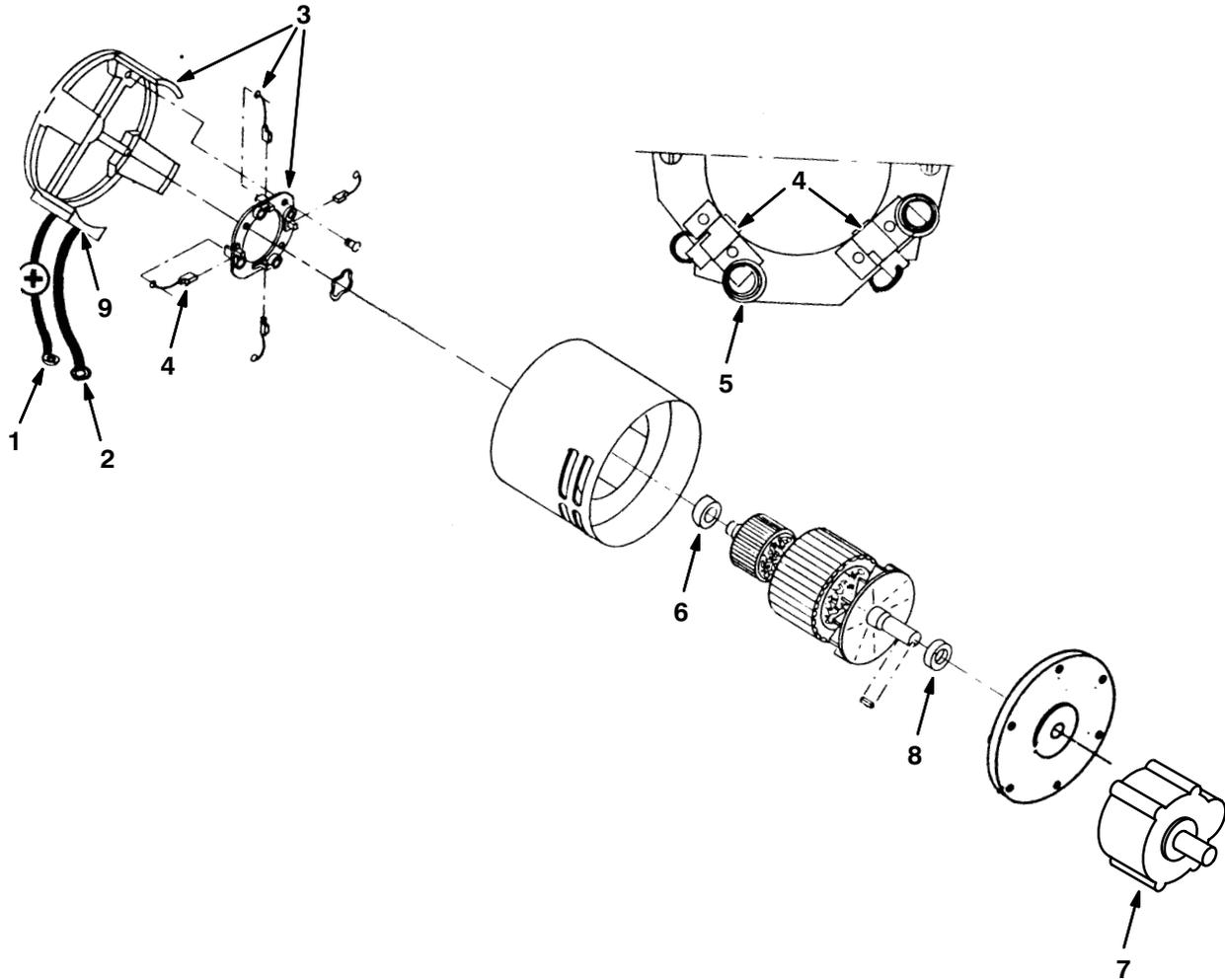
REF	PART #	DESCRIPTION	QTY.
∇	630735	KIT, SOUND LOW DB	1
▲ 1	600393	SCREW, M5 X 40MM FLTHD	4
▲ 2	200315016	WASHER, FLAT	4
▲ 3	630441	SOUND COVER, FOAM	1

REF	PART #	DESCRIPTION	QTY.
▲ 4	630395	SOUND COVER, PLATE	1
▲ 5	630397	SOUND SIDE, FOAM	2
▲ 6	630398	SPACER	4

∇ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

ELECTRIC MOTOR BREAKDOWN



REF	PART #	DESCRIPTION	QTY.
▽	605054	MOTOR, .75HP 270RPM 24VDC	1
▲1	610890	LEAD ASSEMBLY (POSITIVE) W/ MARKER	1
▲2	610891	LEAD ASSEMBLY (NEGATIVE)	1
▲▽3	630608	COMMUTATOR BRACKET ASSY (INCLUDING BRUSH BOARD ASSY)	1

REF	PART #	DESCRIPTION	QTY.
▲▲4	612410000	BRUSH ASSEMBLY	4
▲▲5	602131000	BRUSH SPRING	4
▲6	602088000	BEARING	1
▲7	630609	GEARBOX ASSEMBLY	1
▲8	630607	BEARING	1
▲9	630612	STRAIN RELIEF	2

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY