

OPERATION MANUAL  
**WRANGLER 26**

**IMPORTANT SAFETY INSTRUCTIONS**



**WARNING:** Failure to observe these instructions can cause personal injury to machine operator or bystanders



**WARNING:** Fire or explosion hazard.  
**NEVER** operate this machine in an explosive atmosphere (grain dust, flammable liquids or fumes, etc.).



**WARNING:** Fire or explosion hazard.  
**NEVER** attempt to pick up flammable or combustible materials or use such materials in tank.

**INTENDED USE**

This machine is designed for scrubbing floors in an indoor environment. NSS does not recommend using this machine for any other purpose.

**FOR SAFETY:**

- **ALWAYS** read and understand all instructions before operating or servicing machine.
- **ALWAYS** use this machine **ONLY** as described in this manual.
- **NEVER** attempt to operate this machine unless you have been trained in its operation.
- **NEVER** allow an untrained person to operate this machine.
- **NEVER** attempt to operate this machine if it is not working properly or has been damaged in any manner.
- **NEVER** disconnect or modify any switches or safety devices (circuit breaker).
- **NEVER** drop or insert any object into any machine opening.
- **NEVER** operate this machine with any air opening blocked. Keep all air openings free of dust, lint, hair, etc.
- **NEVER** pick up anything that is burning or smoking, such as cigarettes, matches or hot ashes.
- **NEVER** spray this machine with water or any liquids.
- **NEVER** allow the vacuum motor or battery charging plug to get wet or a short may occur.
- **NEVER** operate this machine when the battery charger is plugged in.
- **NEVER** operate this machine with the side skirt removed.
- **NEVER** allow this machine to be used as a toy. Close attention is necessary when used by or near children.

- **ALWAYS** wear clean tennis shoes or “non-slip” shoes. Leather soled shoes will become extremely slippery when wet.
- **ALWAYS** keep face, fingers, hair or any other body part or loose clothing away from any machine opening or moving part (revolving brush, pad driver, or vacuum motor).
- **ALWAYS** turn the machine off when attaching pads or brushes.
- **ALWAYS** remove keys when this machine is left unattended.
- **ALWAYS** be sure that the ramp is secured to the vehicle before attempting to load/unload.
- **ALWAYS** use extreme caution when operating the machine on a ramp or loading/unloading this machine into or out of a truck/trailer. Use extreme caution if the ramp is wet, oily, or covered with cleaning chemicals.
- **NEVER** stop or turn the machine on a ramp or incline.
- **NEVER** attempt to climb a grade or operate this machine on a ramp or incline of more than 8 degrees.
- **NEVER** park or store the machine near a dock, on ramps, near a furnace, boiler, open flame, or other high heat source.
- **NEVER** allow this machine to freeze.
- **NEVER** expose the machine to rain, snow, or extreme temperatures.
- **NEVER** store any items on this machine.
- **ALWAYS** store this machine indoors in a dry, cool area.

**ALL REPAIR SERVICE MUST BE PERFORMED BY AN NSS AUTHORIZED DISTRIBUTOR/ SERVICE STATION USING ONLY NSS ORIGINAL EQUIPMENT PARTS.**

**SAVE THESE INSTRUCTIONS**

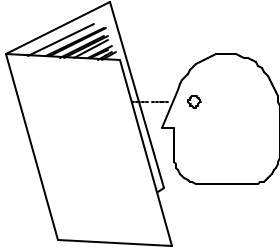


# IMPORTANT SAFETY INSTRUCTIONS

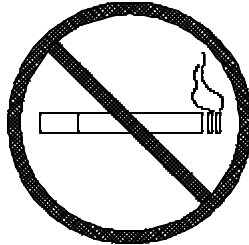
## BATTERY POWERED EQUIPMENT



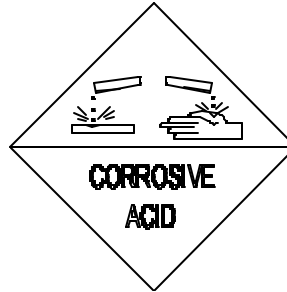
**WARNING:** Failure to observe these instructions can cause personal injury to machine operator or bystanders



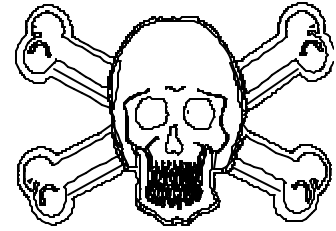
Read and understand all instructions before installing or charging batteries.



No smoking, open flames, or sparks while working with batteries.



Contains acid. Avoid contact.



Poison. Causes severe burns. Avoid contact.



**WARNING:** Batteries emit hydrogen, which can cause fire or explosion. **NEVER** smoke, light a match, or cause a spark during operation or charging. **ALWAYS** charge in a well-ventilated area away from open flame.

### GENERAL

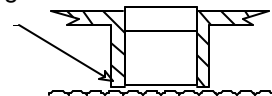
- **ALWAYS** read and understand all instructions before installing or charging batteries.
- **NEVER** attempt to install or charge batteries unless you have been trained to do so.
- **NEVER** allow an untrained person to install or charge batteries.
- **ALWAYS** remove all jewelry when working on or near the batteries.
- **ALWAYS** turn off all switches during installation and service.
- **ALWAYS** disconnect the battery leads before performing any service or repair.
- **ALWAYS** wear eye protection and protective clothing to avoid contact with battery acid.
- **NEVER** lay anything on top of batteries as arcing may occur.
- **IF CONTACT WITH BATTERY ACID OCCURS**, follow these instructions:
  - SKIN – rinse area with water.
  - EYES – Flush with water for 15 minutes.
  - INTERNAL – Drink water or milk. Follow with Milk of Magnesia, beaten egg or vegetable oil. Call a physician immediately.

### BATTERY INSTALLATION

- **ALWAYS** use two people to install, as batteries are heavy.
- **ALWAYS** turn off all machine switches.
- **ALWAYS** position batteries as shown on the machine installation decal to maintain machine balance.
- **ALWAYS** connect batteries as shown on the machine installation decal to avoid shorting out the batteries and the electrical system.

### BATTERY CHARGING

- **ALWAYS** read instructions on charger carefully.
- **ALWAYS** use the NSS supplied charger with proper voltage rating.
- **ALWAYS** check to ensure the battery water level covers the battery plates before charging.
- **ALWAYS** check water level after charging and add water if necessary to bring level to the bottom of the fill hole.
- **NEVER** overfill batteries as battery and machine damage may result.
- **ALWAYS** wipe any acid from the top of batteries using a soap solution.



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**SAVE THESE INSTRUCTIONS**



## MACHINE INSPECTION

- Carefully unpack the Wrangler 26 and recycle all packing materials.
- Inspect machine for damage or missing components. If damage is found, contact the local freight company to file a freight claim.

## MACHINE COMPONENTS

### Solution Tank

The solution tank is the lower part of the machine body. It has a capacity of **25 gallons (95 liters)**.

- The tank is filled by pouring the water and cleaning the chemicals through the opening and filter at the front of the tank.
- The amount of water in the tank is measured by the solution gage in the clear plastic tube at the right rear corner of the tank.
- The solution tank is emptied through the clear plastic tube at the right rear corner of the tank.

### Recovery Tank

The recovery tank is the upper part of the machine body. It has a capacity of **27 gallons (102 liters)**.

- The recovery tank is closed by a round, clearview lid assembly.
- The recovery tank has a foam sensitive float shut-off assembly. As the water level rises, the float ball will rise into the tube and shut off the airflow of the vacuum.
- The float shut-off assembly does not shut off the vacuum motor.
- The recovery tank is emptied through a large rubber hose at the front of the machine. Remove the plug and drain the liquids according to your local EPA regulations.

### Operator Control Panel

The operator control panel is located at the upper rear area of the machine. This panel has components that control various machine functions.

- In the middle of the panel are two (2) rubber twist grips. These grips rotate forward and backward to control the direction and speed of the machine. The farther the grips are rotated, the faster the machine will move. These twist grips have a “dead man” feature that returns the machine to the neutral position when the handles are released.
- The first *toggle* switch on the left turns on and off the brush motor.
- The next *toggle* switch turns on and off the vacuum motor.
- The square red button in the center is the master power switch and it controls the power to all components. *Power ON is indicated by the green light.*

### Battery Meter

The battery meter is located on the right side of the operator control panel and shows the state of charge of batteries during operation and recharge.

- Work Range - This is the green area in the middle of the meter. It shows the approximate amount of “power” available in the batteries. Observe this reading when operating the Wrangler.
- Recharge Range - This is the red area on the left of the meter. It shows when the batteries need to be recharged. Continued machine operation in this area will cause battery damage and potential machine damage.
- Charge Range - This is the red area on the right of the meter. It shows the approximate amount of recharging the batteries have received. To observe this reading - turn on the master switch, observe the meter, turn off the master switch.

### Solution Control (Valve) Lever

The solution control lever is located in front of the right hand twist grip. This lever controls the solution valve and the amount of liquids put on the floor when cleaning.

- **Pull up** on the handle to **open** the valve.
- **Push down** on the handle to **close** the valve.

### Circuit Breaker and Lift Arm Panel

This is the vertical metal panel located at the rear of the machine.

- The left circuit breaker is for the drive motor and is rated at 25 amps.
- The next circuit breaker is for the vacuum motor and is rated at 20 amps.
- The two circuit breakers on the right are for the brush motors and each is rated at 25 amps. The **right** lift arm is used to raise and lower the brush motor assembly.
- **The left** lift arm is used to raise and lower the squeegee assembly.

### Battery Charging Plug

This plug is located below the left twist grip near the upper left corner of the circuit breaker and lift arm panel.

- The battery charger plug is inserted into the charging plug to recharge the batteries.
- This plug is **red on 24-volt** machines. See charging instructions for more details.

### Battery Compartment Drain Hose

This hose is located below the battery charging plug and behind the squeegee lift arm. The hose uses a pinch clamp to hold the hose closed. This hose collects any spilled liquids from the battery compartment area.

- Inspect hose for liquid level on a weekly basis.
- Dispose of liquids according to local your EPA regulations.

### **Solution Filter Assembly**

Attached to the intake of the solution valve is a filter assembly design to stop debris from *entering the solution valve*.

*If the water and chemical stops flowing:*

- There is a metal filter screen *inside the plastic fitting of the solution hose* - open the fitting (by hand), remove and clean the screen.
- Replace the screen and close fitting (by hand). Check for any liquid leaks.

### **Drive Motor**

This machine is powered forward and reverse by a 24-volt drive motor.

- The speed is electronically controlled for smooth increase and decrease of speed.
- The motor moves the drive wheels through a gearbox and transaxle system.
- This motor has carbon brushes that must be serviced on a regular basis. The carbon brushes have an expected life of 2,000 operating hours. Refer to the maintenance section later in this book.

### **Brush Gear Motor**

This machine has two (2) 24-volt brush motors located at the front of the machine. The motors are attached to a gearbox to turn the pad drivers or brushes.

- The left motor rotates *clockwise*.
- The right motor rotates *counterclockwise*.
- These motors have carbon brushes that must be serviced on a regular basis. The carbon brushes have an expected life of 2,000 operating hours. Refer to the maintenance section later in this book.

### **Vacuum Motor**

This machine has a 24-volt vacuum motor.

- The vacuum motor is enclosed in the body of the control panel behind the metal plate.
- This motor has carbon brushes that must be serviced on a regular basis. The carbon brushes have a maximum expected life of 700 operating hours. Refer to the maintenance section later in this book.

### **Squeegee Assembly**

The squeegee assembly may use a dual (2) urethane blade system to recover liquids from the floor.

- The squeegee assembly has a wide, flat frame to help prevent damage, two (2) mounting knobs and two (2) small wheels to prevent "rollover" in reverse.
- The squeegee assembly mounts to a metal "U" shaped bracket at the bottom center of the machine.

The Wrangler 26 may be equipped with an optional "curved" heavy-duty squeegee assembly. This system has gum rubber rear and neoprene front blades.

### **Side Skirt Assemblies**

The machine is equipped with left and right side skirt assemblies.

- The side skirt assemblies are designed to contain the liquids in the cleaning area *under the machine* and channel them toward the squeegee, and prevent splashing *outside of the machine*.
- The side skirt assemblies attach to the front of the machine *with retaining pins* and are secured with a *retaining latch*.

### **Battery Package**

The Wrangler 26 is a 24 volt system and is available with one battery package:

- Four (4) 6 volt, 225 Amp Hour Batteries. Consult your local NSS authorized distributor for application recommendations.

### **To install the batteries:**

- Turn off all switches and tilt open the recovery tank to expose battery compartment.
- Batteries are heavy - use two people to install.
- Refer to wiring diagram inside the battery compartment. Align batteries in compartment as shown on diagram.
- Install battery cables as shown on wiring diagram.
- Tighten bolts and hex nuts with a wrench.
- **Caution:** Do not touch two terminals with a wrench.
- Loose or improper battery connections will cause battery or machine damage and possible personal injury.

# MACHINE OPERATION

## General Information

The Wrangler 26 is very maneuverable and is designed to scrub floors as you operate the machine from behind.

**Always** dust mop the floor before scrubbing. You may also need to **preclean** some types of spills or stains before scrubbing. Plan your work so that you make long, straight paths with the fewest amount of turns possible. Remove as many obstacles as possible from the area to be scrubbed. Consult your local NSS distributor for more complete procedures and chemical advice.

## Preparing the machine for use

### Prepare the solution tank:

- **Never** use water over  $140^{\circ}F$  ( $60^{\circ}C$ ) degrees. Excessively hot water may damage components such as the tanks.
- Pour all liquids through the round mesh filter at the front of the solution tank.
- Put 1 to 2 gallons of clean water into the solution tank first to help dilute the chemicals and prevent excess sudsing.
- Consult your local distributor for complete chemical advice. Dilute the cleaning chemicals according to the manufacturer's instructions.
- Add the cleaning chemicals to the solution tank and fill with water as needed.

### Prepare the recovery tank:

- Make sure the drain plug of the recovery tank is closed tightly and in its holding clip.
- **Always** use a defoamer to protect the vacuum motor. **Every time** you empty the recovery tank, we recommend that you add at least 4 to 6 ounces of defoamer chemical into the recovery tank before resuming work. Vacuum the defoamer into the empty recovery tank through the squeegee vac hose.

### To install a pad driver and pad:

- There are a wide range of pads or brushes available for the many cleaning applications of this machine. Consult your local NSS authorized distributor for application recommendations.
- Turn the pad drivers upside down on the floor and remove the pad holding cup.
- Remove the center cutout of the 13" (33 cm.) pad. Place the pad on the face of the pad driver.
- The pad must be centered on the driver to prevent wobbling or bouncing.
- Install and secure the pad holding cup to the pad driver. Turn the pad driver over so that the pad faces the floor.
- Raise the brush motors into the transport position.
- Align the lugs of the pad driver with the slots of the drive casting.

- Turn the lug of the pad driver toward the latch, close the latch around the lug to lock onto the drive casting.

### To install a brush:

- Raise the brush motors into the transport position.
- Align the lugs of the brush with the slots on the drive casting.
- Turn the lugs of the brush toward the latch, close the latch around the lug to lock onto the drive casting.

### To install the squeegee assembly:

- Place the squeegee lift arm in the storage (up) position.
- Loosen the two mounting knobs and slide the squeegee assembly onto the mounting plate.
- The roller wheels must face the operator. Hand tighten the mounting knobs. Do not use pliers to tighten knobs as this will defeat the "break-away" design.

### To adjust the squeegee assembly:

As the machine is used, the squeegee blades will wear or need to be replaced due to damage. Some adjustment may be needed.

- Turn the vacuum motor ON and open the water valve slightly.
- Squeegee blades should lay over slightly (like a window squeegee) when the machine is moving forward or reverse.
- Adjust the blade angle by turning the wing nut (or knob) on the pivot arm clockwise or counterclockwise.
- Do not add any weights or other pressure to the squeegee mechanism, it will not improve the performance and will shorten service life.

### To install the side skirts:

- Position the skirts at the left/right side of the machine.
- Remove the skirt retaining pins from the mount bracket.
- Align the side skirt holes with mount bracket holes, insert and secure retaining pins. Close side skirts around machine and secure with skirt latch.

The side skirt wiper blades will naturally wear with use and require adjustment or replacement.

### To adjust side skirt wiper blades:

- Install the side skirts on the machine.
- Loosen the retaining strip screws.
- Pull down evenly on the entire length of wiper blade so that it firmly touches the floor.
- Tighten all screws and test run machine for splashing under the blades.
- **DO NOT** adjust blades too low, as it will cause damage and excessive wear to the blades.

### **To replace side skirt wiper blades:**

- Remove the side skirt assembly from the machine.
- Remove the retaining strip and screws.
- Remove the old wiper blade and replace with a new blade.
- Replace the retaining strip and screws, do not tighten.
- Pull down evenly on the entire length of wiper blade so that it firmly touches the floor.
- Tighten all screws and test run machine for liquid splashing under the blades.
- DO NOT adjust blades too low, as it will cause damage and excessive wear to the blades.

## **Operating the Machine**

The Wrangler 26 has the brush motors offset to the right side of the machine. This offset allows you to clean the edge of the floor or obstructed areas (walls or shelving) with the right side of the machine.

- Sweep and dust mop the floor to remove dirt and debris before scrubbing. Accumulations of dirt or debris on the floor will reduce cleaning performance.
- Overlap each cleaning path about 2 in. (5 cm.) to prevent streaking and dirty areas.

### **Normal Cleaning**

- Fill solution tank as directed.
- Put defoamer chemical in recovery tank.
- Install pad drivers / pads or brushes.
- Close and secure side skirts.
- Install squeegee assembly.
- Move machine to area to be cleaned.
- Sweep and dust mop area to be cleaned.
- Place warning signs "Wet Floor" in area.
- Turn on master switch.
- Turn on brush and vacuum motor switches.
- Place brush motors and squeegee assembly in operating position on floor.
- Twist handle grips forward (away from you) to move forward and backward (toward you) to move backward.
- Lift solution valve handle to start liquid flow to floor. Adjust amount of flow as needed. Close the solution valve completely 10 ft. (3m.) before you turn at the end of each cleaning path. This will reduce the amount of liquid on the floor when you make the turn. Open the solution valve when you have started your next cleaning path. Repeat this procedure on each path.
- Watch the level of liquid in the recovery tank and listen for the float shut-off to change the sound of the vacuum motor. When the vacuum airflow stops, you must turn off the vacuum motor and then empty the recovery tank.
- Take the machine to an approved disposal drain and turn off all switches.
- Raise the rubber flap at the front of the Wrangler and pull out the flexible rubber drain hose. Raise the end of the hose above the level of the recovery tank,

loosen and remove the hose drain plug. Carefully lower and direct the drain hose into the drain.

- When the recovery tank is empty, replace and tighten the drain plug. Place the drain hose back into the machine and secure the plug end in the clamp. Do not obstruct the lift mechanism or brush motors.
- Resume cleaning operation. Refill solution tank and empty recovery tank as needed.
- When cleaning is complete, return machine to storage area and perform daily maintenance.

### **Special Cleaning**

The Wrangler may be used to perform special cleaning jobs other than "normal" scrubbing.

- Double Scrubbing - This procedure provides deeper cleaning on heavily soiled floors. One or more cleaning passes are made before picking up the chemicals with the squeegee. Best results are achieved by placing the brush motors in the heavy scrub position.
- NOTE: The floor surface becomes extremely slippery in this operation. The Wrangler should be operated only in low to medium speed and great care should be taken when walking on this wet surface.
- Stripping - This procedure is used to remove moderate build-up of floor finish from the floor. The most aggressive pads or grit brushes are used in this procedure.
- The stripper solution is applied to the floor with a mop and then double scrubbed as above. Stripping solution should not be put into the solution tank. Clean water from the solution tank is applied to the floor to keep the chemicals and finish in a "liquid" condition. The floor surface becomes extremely slippery in this operation. The Wrangler should be operated only in low to medium speed and great care should be taken when walking on this wet surface.

## MACHINE MAINTENANCE

Routine maintenance is critical to ensure proper machine operation and cleaning performance. Perform all maintenance procedures as follows.

**Always turn OFF all machine switches before performing any maintenance.**

### Daily Maintenance

#### Battery Charging

- **The master power switch and all other switches must be turned OFF.**
- You must recharge the batteries at the end of every work shift or when the battery meter indicates the “recharge” during the work shift.
- Connect the battery charger plug (red) to the machine charging plug.
- Connect the battery charger power cord into a grounded A.C. outlet of the proper voltage.
- After a few seconds the amp meter (or light) will indicate the battery charger is operating.
- When the recharge cycle is complete, the battery charger will turn off automatically. The amp meter will register “0” or the light will be off.
- If the battery charger will not start operating, check the charging plug connections, the battery cable connections and the battery voltage.
- If the batteries have been discharged (used) too deeply, the battery charger will not start. Consult your local authorized NSS distributor or service center for assistance.

#### Battery Electrolyte (Liquid) Level

Inspect the electrolyte level of at least one cell in each battery before charging. The liquid must be visible above the internal plates. Do not charge the batteries if the liquid is below the plates.

- Add only water to the cell of a battery to adjust the liquid level. Before charging, add only enough water to cover the top of the internal plates. After charging add only enough water to bring the level to the bottom of the fill tube.
- Do Not overfill the battery liquid level, this will cause electrolyte (acid) spill. Spilled electrolyte (acid) can cause machine damage and personal injury. Clean up and dispose of all spills immediately. See the battery warning sheet for more details.

#### Solution and Recovery Tanks

- Empty all liquids from both solution and recovery tanks.
- Rinse both tanks with clean water to prevent chemical residue build-up. Empty both tanks.
- Remove any residue from screen and float ball to ensure proper operation. Replace float assembly on tube in recovery tank.
- Leave recovery tank clear lid open to allow tank to air dry and prevent odors.

#### Pad Drivers or Brushes

- Remove both pad drivers or brushes from machine.
- Rinse with clean water to prevent chemical residue build-up.
- Inspect for wear or damage. Repair or replace as needed.
- Allow to air dry on a shelf or rack.

#### Squeegee Assembly

- Remove squeegee assembly from machine.
- Rinse with clean water to prevent chemical residue build-up.
- Inspect for wear or damage. Repair or replace as needed.
- Allow to air dry on a shelf or rack.

### Weekly Maintenance

- Verify all daily maintenance has been performed.
- Inspect battery liquid level, adjust to proper level as needed.
- Check all battery terminal and cable connections. Tighten as needed.
- Clean any corrosion from battery terminals and cables.
- Check solution flow to pad drivers / brushes. Remove, inspect and clean the solution filter assembly.
- Flush clean solution tank and hoses with a mixture of 8 oz. (250ml.) white vinegar to one gallon (4 liter) warm water.
- Repair or replace any worn or damaged components as needed.

### Monthly Maintenance

- Verify all daily and weekly maintenance has been performed.
- Inspect vacuum motor filter under metal plate on top of recovery tank. Clean or replace as necessary.
- Grease the caster axle and swivel bearing. Use a hand held grease gun and a high grade of water resistant lithium base grease.
- Inspect all mechanical linkages, pivot points and ball joints for freedom of movement. Use a penetrating spray lubricant that is water resistant. Do not use WD 40 lubricant.
- Check return springs of the twist grip (deadman) handles. If they appear weak or do not return twist grips to the neutral position, replace both springs.
- Inspect all fasteners (bolts, screws, nuts) at mechanical linkages, pivot points and ball joints for tightness. Tighten as needed.
- Repair or replace any worn or damaged components.

## **Mandatory Periodic Maintenance**

It is important for you to maintain a record of the amount of machine operating hours in order to perform this machine maintenance.

It is **mandatory** that the following maintenance procedure be performed at the described interval. This procedure should be performed by an NSS authorized distributor or service center. Failure to perform this procedure may result in poor machine performance, machine component damage and failure.

After every **450-500 hours** of operation you must inspect vacuum motor carbon brushes for wear.

After every **650-700 hours** of operation you must inspect drive motor (transaxle) carbon brushes for wear

Replace the drive motor (transaxle) carbon brushes when they are 3/8in. (9mm) in length. Replace the brush drive motor carbon brushes when they are 1/2in. (13mm) in length. Replace the vacuum motor carbon brushes when they are 7/16in. (11mm) in length.

## **Authorized Repair Service**

Repair service for this machine must be performed by an NSS authorized service center. Repairs performed by an unauthorized company will void the machine warranty. If you require assistance finding an authorized service center, please contact NSS Enterprises, Inc.

## TROUBLE-SHOOTING

<u>PROBLEM</u>	<u>CAUSE</u>	<u>SOLUTION</u>
No solution flow.	Clogged filter. Low battery charge. The solution valve is closed. Obstruction in the solution hose. Solution valve or linkage damaged. Solution hose kinked. Solution tank is empty.	Clean filter. Charge the batteries. Open the solution valve. Remove the obstruction. Repair/replace the valve linkage. Check for kinks at valve and remove. Fill the tank.
Solution flow does not stop.	The solution valve is open. Solution valve or linkage damage. Solution valve is dirty. Damaged seat and washer in valve. The valve stem is dirty. Hose disconnected or damaged between sol. tank & valve.	Close the solution valve. Repair/replace the valve linkage. Clean the solution valve. Replace valve. Clean and lubricate valve stem. Reinstall or replace hose.
Will not pick up any water from floor.	Squeegee is up. Squeegee hose is off. Vac motor switch is off. Recovery tank is full. Vacuum shut-off float is stuck. Obstruction/damage in the squeegee, squeegee hose or standpipe. Leaking over gasket. Vac motor is not running. Recovery drain hose not plugged properly.	Lower squeegee. Reinstall hose. Turn vac motor switch "on". Empty tank. Open float valve/remove obstruction. Remove obstruction/repair damage.  Remove old gasket/replace. Have an authorized serviceman repair. Install drain hose plug properly.
Will not pick up all of the water from the floor.	Debris on squeegee blades. Squeegee blade is worn/damaged. Obstruction/damage in the squeegee, squeegee hose, or standpipe. Squeegee angle needs adjustment. Vacuum motor worn out. Recovery tank drain hose damaged.	Clean squeegee. Reverse/replace squeegee blade. Remove obstruction/repair damage.  Adjust angle. Repair/replace vac motor. Repair/replace recovery drain hose.
Batteries do not seem to run long enough.	Overcharging batteries (charging too frequently). Tops of batteries are dirty/wet. Battery terminals are dirty/damaged.  Electrolyte level is too low. Batteries are not fully charged. Charger is damaged. Battery is defective or worn out.	Monitor run time and adjust charging frequency accordingly. Clean/dry, charge batteries. Clean terminals and connectors, replace damaged cables. Charge. Add distilled water and charge. Charge batteries for 8 hours. Have an authorized serviceman repair. Check cell voltage while discharging.
Cleaning is not even.	Brush/pad is worn. Damage to brush assembly, casters or solution valve.	Replace brush/pads. Have an authorized serviceman repair.
Machine does not run.	Circuit breaker tripped. Loose battery connection.	Reset circuit breaker. Tighten battery connection.

**NOTE: If any problems remain after taking the above steps, contact your local authorized distributor/service station for further evaluation and repair.**

**NOTES:**

**NOTES:**



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