

WRANGLER 1708CE/2008CE

IMPORTANT SAFETY INSTRUCTIONS



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



WARNING: Shock or electrocution hazard. **ALWAYS** unplug machine before performing any maintenance or service.



WARNING: Shock or electrocution hazard. **NEVER** connect this machine to an electrical outlet that is not properly grounded.



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.



WARNING: Orange Oil (D-limonene) is not compatible with the plastics used in NSS automatic scrubbers and the Sidekick Chemical Metering System. Use of D-limonene may result in damage to the machine.



WARNING: This product contains a chemical known to the state of California to cause cancer and birth defects or other reproductive harm.

INTENDED USE

This machine is intended for commercial use, 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** leave the machine plugged in to the electrical outlet when not in use.
- **NEVER** unplug the machine from an electrical outlet until after the machine is turned off.
- **NEVER** operate this machine if the cord and/or plug has been damaged, broken, cut, abraded or taped.
- **NEVER** handle the machine, cord or plug with wet hands.
- **ALWAYS** replace the entire cord when the cord or plug is damaged in any way.
- **NEVER** pull machine by the cord.
- **NEVER** operate this machine with any air opening blocked. Keep all air openings free of dust, lint, hair, etc.
- **NEVER** drop or insert any object into any machine opening.
- **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 to get wet.
- **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 sole shoes will be extremely slippery.
- **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** unplug the machine when attaching pads or brushes.
- **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

GROUNDING OF ELECTRICAL EQUIPMENT



WARNING: Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the machine – if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

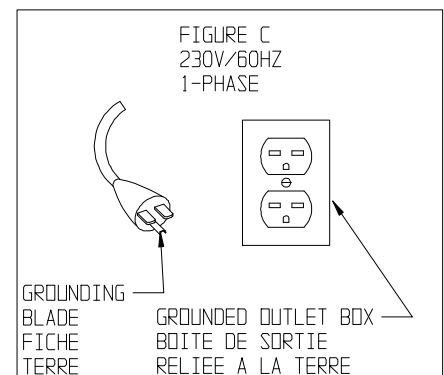
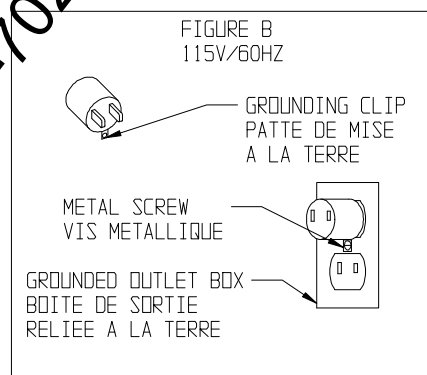
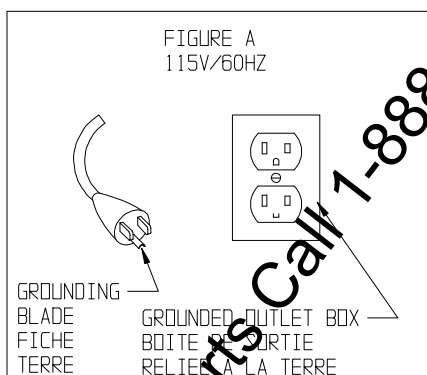
Always use a properly grounded 3-wire extension cord which has male and female plugs. If 25 foot extension cords are used, the electrical carrying capacity should be no less than 14-3 ST. For 50' foot extension cords no less than 12-3 ST.

GROUNDING INSTRUCTIONS

This machine shall be grounded while in use to protect the operator from electric shock. The machine is provided with a three-conductor cord and a three-contact grounding type attachment plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances. The green conductor in the cord is the ground wire. Never connect this wire to anything other than the grounding pin of the attachment plug.

Check nameplate on the machine to be sure voltage and cycle stated is the same as the electrical outlet. Do not attempt to plug a 120 volt machine into a 240 volt outlet or a 240 volt machine into a 120 volt outlet. If the machine is provided with an attachment plug as shown in Figure A below, it is intended for use on a nominal 120 volt circuit. If a properly grounded receptacle as shown in Figure A is not available, an adapter may be installed as shown in Figure B if the outlet box that houses the receptacle is grounded. Be sure to fasten the grounding tab (the green colored rigid ear, lug or the like extending from the adapter) with a metal faceplate screw.

If the machine is provided with an attachment plug as shown in Figure C, it is intended for use on a nominal 240 volt circuit. No adapter is available for this plug.



NOTE: In Canada, the use of a temporary adaptor is not permitted by Canadian electrical code.

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NOISE AND VIBRATION

NOISE

Sound pressure level at Operator position 74dB(A)

VIBRATION

Weighted RMS acceleration value (ISO 5349) .367 m/s²

MACHINE INSPECTION

- Now that the machine is unpacked remember to recycle all packing materials.
- Inspect machine for damage or missing components. If damage is found, contact the local freight company and file a freight claim.

MACHINE COMPONENTS

Solution Tank

The solution tank is the lower part of the machine body. It has a capacity of **8 gallons (30 liters)**.

- The amount of water in the tank is measured by the sight hose, (clear plastic tube), at the rear of the machine.

Recovery Tank

The recovery tank is the upper part of the machine body. It has a capacity of **10 gallons (38 liters)**.

- A rectangular, clearview lid assembly closes the recovery tank.
- The recovery tank has a foam-sensitive float shut-off assembly. As the water or foam level rises, the float ball will rise and shut off the air-flow of the vacuum motor to the squeegee. It does **not** shut off the vacuum motor.

Control Panel

- The operator control panel is located at the rear area of the machine. This panel has components that control various machine functions.
- Starting from the *left* side:
- The circuit breaker is for both the brush motor and the vacuum motor.
- The first switch turns the brush motor on and off.
- The next switch turns the vacuum motor on and off.
- The red switch is the master power switch; it controls the power to all components

Squeegee Assembly

The squeegee assembly has a wide, flat frame to help prevent damage, two mounting knobs, and two (2) small wheels to prevent "rollover" in reverse.

Brush Gear Motor

This machine has **one (1) 24-volt brush motor** located at the front of the machine. The motor is attached to a gearbox to turn the pad drivers or brushes.

- 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.

Vacuum Motor

This machine has a 24-volt vacuum motor.

- The vacuum motor is attached to the underside of the solution tank behind the rubber flap.
- 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.

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PREPARING THE MACHINE

- **Preparing the Solution and Recovery Tanks:**
- **Never** use water over $140^{\circ}F$ ($60^{\circ}C$) degrees.
- Excessively hot water may damage components such as the tanks.
- Put 1 to 2 gallons of clean water into the solution tank first to help dilute the chemicals and prevent excess sudsing. Dilute the cleaning chemicals according to the manufacturer's instructions.
- Fill the tank by pouring the water and cleaning chemicals through the mesh filter that covers the opening at the front of the solution tank.
- Make sure the recovery tank drain hose is tight on the plug.
- **Always** use a defoamer to protect the vac motor.
- Consult your local distributor for complete chemical advice.

Install a Pad Driver and Pad:

- There is a wide range of pads or brushes available for the many cleaning applications. Consult your NSS authorized distributor for recommendations.
- Turn off all switches and empty all liquids from the recovery and solution tank.
- Raise the brush motor into the "up" position. The foot pedal is at the rear left of the machine. Step on the pedal and slide it to the right into the notch.
- Step on the foot pedal latch at the front of the machine chassis.
- Lift the machine body by the opening for the solution tank. Tilt the machine body backward until the handles rest on the floor.
- Remove pad driver assembly from drive casting on end of brush motor shaft by turning the driver counter-clockwise.
- Turn the pad drivers upside down on the floor and remove the pad holding cup.
- Remove the center cutout of the 17" (43cm) or 20" (51cm) pad if present and place 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.
- Align the notches of the pad driver with the lugs of the drive casting.
- Turn the pad driver clockwise to lock onto the drive casting.
- Turn the pad driver counter-clockwise to remove.

Install a Brush:

- Align the notches of the brush with the lugs of the drive casting.
- Turn the brush clockwise to lock onto the drive casting.
- Turn the brush counter-clockwise to remove.
- **Install the Squeegee Assembly:**
- Place the squeegee lift arm in the storage (up) position.
- The squeegee assembly mounts to a metal bracket at the bottom center of the machine, using two (2) mounting knobs. Loosen the mounting knobs and slide the squeegee assembly onto the mounting plate.
- The squeegee assembly has two (2) small wheels to prevent "rollover" while in reverse. 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.
- **Do not** add any weights or other pressure to the squeegee mechanism. This will not improve the performance and will shorten the life of the blades.

Operating the Machine

The Wrangler 1708/2008 is very maneuverable and is designed for light to medium scrubbing as you operate the machine from behind. Follow these steps to prepare the machine for daily operation.

- 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.
- 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 amounts of turns as possible, overlapping each cleaning path about 2 in. (5cm) to prevent streaking and dirty areas.
- Remove as many obstacles as possible from the area to be scrubbed.
- Do not put strip solution in solution tank. Apply with mop and bucket and rinse with clean water in solution tank.

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.

Adjusting 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.

- Squeegee blades should lie over slightly (like a window squeegee) when the machine is moving forward or in reverse.
- Adjust the blade angle by turning the wing nut on the pivot arm clockwise/counterclockwise.

Daily Maintenance

Solution and Recovery Tanks

- Drain the solution tank through the solution valve or the sight hose at the rear of the machine.
- The recovery tank is emptied through the black hose at the rear of the machine. Remove the plug and drain the liquids according to your local EPA regulations.
- **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.
- At the end of the day empty all liquids from both solution and recovery tanks. Rinse both tanks with clean water to prevent chemical residue build-up. Allow to air - dry to prevent odors.
- Leave lid off recovery tank to prevent moisture from building up.
- Remove any residue from screen and float ball to ensure proper operation. Replace float assembly in recovery tank.
- Check clear lid for airtight seal.
- Check the drain hose for damage and / or restriction, to access the hose remove the clean out cap from inside the Recovery tank, replace the cap before using the machine.

Pad Drivers or Brushes

- Remove either pad drivers or brushes from machine after use.
- Rinse with clean water to prevent chemical residue build-up.
- Allow to air-dry, on a peg or upside down on a shelf.
- Inspect for wear or damage. Repair or replace as needed.

Squeegee Assembly

- Remove squeegee assembly from machine.
- Rinse with clean water to prevent chemical residue build-up.
- Allow to air dry, it can be stored on top of the machine for drying.
- Inspect the squeegee assembly, linkage and vacuum hose, for wear, damage or obstruction. Repair or replace as needed.
- Remove debris from squeegee hose and entrance to recovery tank.

Weekly Maintenance (25 Hours)

- Verify all daily maintenance has been performed. Check solution flow to pad drivers / brushes. 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 (100 Hours)

- Verify all daily and weekly maintenance has been performed.
- Lubricate the axle bearings of the two large 8" (203mm) wheels. Use high-grade water-resistant grease.
- Lubricate the caster with moisture resistant foaming-type spray.

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.

Failure to perform this procedure may result in poor machine performance, machine component damage and failure. This procedure should be performed by an authorized NSS distributor or 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.

After every **450-500 hours** of operation you must inspect vacuum motor carbon brushes for wear. Replace the vacuum motor carbon brushes when they are 7/16in. (11mm) in length.

After every **650-700 hours** of operation you must inspect brush motor carbon brushes for wear. Replace the brush motor carbon brushes when they are 1/2in. (13mm) in length

TROUBLE-SHOOTING

PROBLEM	CAUSE	SOLUTION
No Solution Flow.	<ul style="list-style-type: none"> Solution tank is empty. Clogged filter. The solution valve is closed. Obstruction in the solution hose. Solution valve or linkage damaged. Solution hose kinked. 	<ul style="list-style-type: none"> Fill the tank. Clean filter. Open the solution valve. Remove the obstruction. Repair / replace the valve linkage. Check for kinks and remove.
Solution Flow Does Not Stop.	<ul style="list-style-type: none"> The solution valve is open. Solution valve or linkage damage. The solution valve is dirty. Damaged seat and washer in valve. The valve stem is dirty. Hose disconnected or damaged between solution tank and valve. 	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> Squeegee is up. Squeegee hose is off or plugged. 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. 	<ul style="list-style-type: none"> Lower squeegee. Reinstall hose. Remove cap inside the recovery tank to clean hose restriction. 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.	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Clean squeegee. Reverse / replace squeegee blade. Remove obstruction / repair damage. Adjust angle. Repair / replace vac motor. Repair / replace recovery drain hose.
Cleaning Is Not Even.	<ul style="list-style-type: none"> Brush / pad is worn. Damage to brush assembly; casters or solution valve. 	<ul style="list-style-type: none"> Replace brush / pads. Have an authorized serviceman repair.
Machine does not run.	<ul style="list-style-type: none"> Circuit breaker tripped. 	<ul style="list-style-type: none"> Reset circuit breaker.

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

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NOTES:

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