



Electronic Service Manuals

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Serving the Cleaning Industry Since 1922

ScrubMaster 20B & 20BT

Single Disc Automatic Scrubbers

INTRODUCTION

OPERATING & MAINTENANCE INSTRUCTIONS

READ THIS BOOK

This operator's book has important information for the use and safe operation of this machine. **Read this book carefully before starting the machine.** Keep this book and tell all operators to read the book. If you do not follow the instructions, you can cause an injury or damage equipment, furniture or buildings.

For new books write to:

Pacific
2259 S. Sheridan
Muskegon, MI 49442-6252

Carefully inspect all components to ensure that there is no concealed freight damage. If such damage is discovered, file a "CONCEALED DAMAGE REPORT" immediately with the delivering carrier.

The contents of this manual are based on the latest product information available at the time of publication. Pacific Steamex reserves the right to make changes or improvements to its machines without notice.

**FOR YOUR CONVENIENCE, RECORD THE
FOLLOWING IMPORTANT INFORMATION:**

MODEL _____

SERIAL NUMBER _____

PART NUMBER _____

DATE PURCHASED _____

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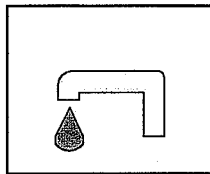
IMPORTANT SAFETY INSTRUCTIONS

READ AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS BEFORE OPERATING THIS MACHINE!

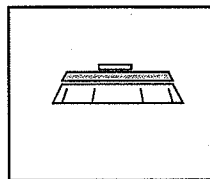
 **WARNING: To reduce the risk of fire, electric shock or injury:**

1. You must have training in the operation of the machine before using it. **READ THE INSTRUCTION BOOK.** If you do not understand any instruction, ask your supervisor.
2. Make sure all labels, decals, warnings, cautions and instructions are fastened to the machine.
3. Read the labels carefully on the machine. Do not cover them for any reason and replace them if damaged.
4. Do not operate this machine unless it is completely assembled, inspect the machine carefully before operation.
5. Pay close attention to other people and especially children while operating this machine.
6. Be a careful driver, do not strike shelving or scaffolding, especially where there is a danger of falling objects.
7. Machines can cause an explosion when operated near flammable materials and vapors. Do not use this machine with or near fuels, grain dust, solvents, thinners, or other flammable materials.
8. In case of fire, use a powder extinguisher. Do not use water.
9. Do not use this machine as a means of transport.
10. Do not use acid solutions that could damage the machine.
11. Adjust your speed to the conditions of the floor.
12. Do not turn the machine on a ramp. Do not stop and leave the machine on a ramp or incline.
13. When the machine is parked, take out the key and set the parking brake.
14. During any maintenance operation disconnect the power supply from the machine.
15. Lead acid batteries generate gases that can cause an explosion. Read the instruction manual supplied with the battery charger. Keep sparks and flames away from batteries.
NO SMOKING. Charge the batteries only in an area with good ventilation.
16. Do not use a charger if the power cord is damaged.
17. Always wear eye protection and protective clothing when working near batteries. Remove all jewelry. Do not put tools or other metal across the battery terminals, or the tops of the batteries.
18. Check the level of the electrolyte every time you charge the batteries. If the level is low, add distilled water only.
19. Maintenance and repairs must be performed by authorized Service Centers only. Make adjustments according to the specifications given in the service manual for this machine.
20. Keep the electrical parts of the machine dry. Do not wash the machine with direct water jets or high pressure, nor with corrosive material. For storage, keep the machine in a dry building.
21. Water solutions or cleaning materials used with this type of machine can leave wet areas on the floor surface. These areas can cause a dangerous condition for the operator or other persons. Always put **CAUTION** signs near the area you are cleaning.
22. Do not reach under shrouds with fingers, hands, or toes when machine is running.

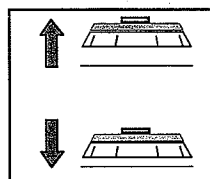
Symbols Used on the Machine



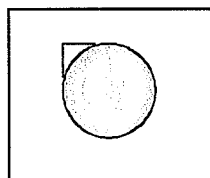
Symbol for the **water valve**:
It is used to indicate the solenoid valve switch.



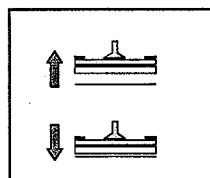
Symbol for the **brush or pad**:
It is used to indicate the brush motor switch.



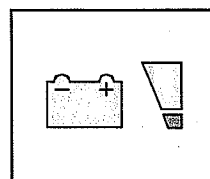
Symbol indicating the raised or lowered position of the **brush base**:
It indicates the lever for lifting the brush base.



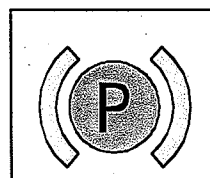
Symbol for the **vacuum motor**:
It is used to indicate the vacuum motor switch.



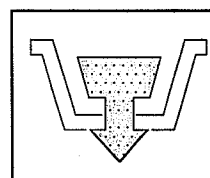
Symbol indicating the raised or lowered position of the **squeegee**:
It indicates the squeegee lever position.



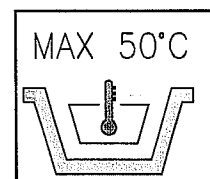
Symbol indicating the charge level of the **batteries**:
It is necessary to recharge the batteries when the green light begins to blink.



The symbol denoting the **brake**.
It is used on top of the emergency and parking brake lever, and used to indicate the signal light of the hand brake.

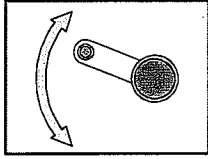


Indicates the **drain pipe** of the recovery tank.

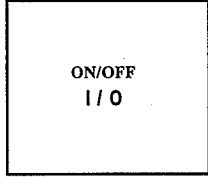


Indicates the maximum recommended **temperature** for the solution detergent (50°C or 122°F).
It is located near the fill hole of the solution tank.

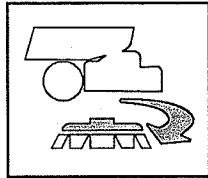
Symbols Used on the Machine



Symbol indicating the adjustment lever for the **handle bar** height.



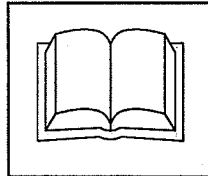
Symbol for the **key switch**.



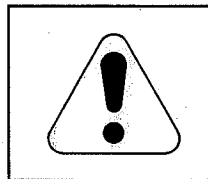
Symbol indicating the push button for the **brush release**.



Symbol for the **coupling** that shows the anchor points and the load direction.



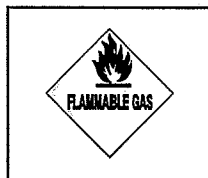
This symbol serves as a reminder for the operator to read the **manual**.



Warning Symbol-Read these sections carefully for the safety of the operator and the machine.



Indicates the danger of gas exhalations and emission of corrosive liquids.

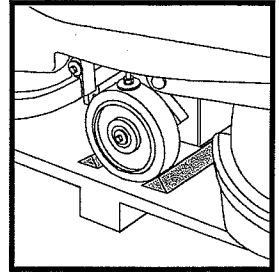


Indicates a fire hazard.
Do not approach with open flames.

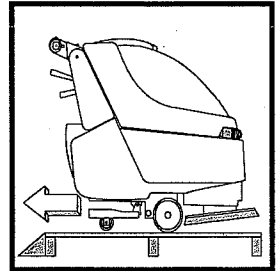
MACHINE PREPARATION

1. UNPACKING THE MACHINE

1. Use a fork truck to move the machine when packaged.
2. Take off the outer package.
3. The machine is fixed on the pallet with wooden wedges that block the wheels.
4. Take the wedges off.



5. Using a ramp, pull the machine down from the pallet, pushing it in reverse motion. Avoid violent blows to the base.



2. BATTERY INSTALLATION

The two 12 volt 145 A/H batteries fit in the compartment under the recovery tank.

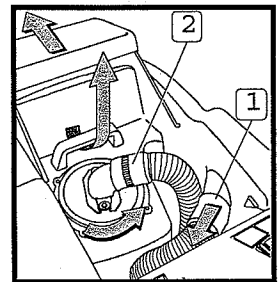
Recommended Batteries: Crown Battery Manufacturing Company Part #711
Trojan Battery Company Part #30XHS
East Penn Manufacturing Company Part #8KFS



For battery maintenance and charging, follow the instructions provided by the battery supplier.

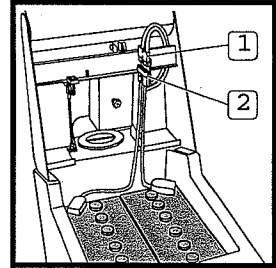
Installation Instructions:

1. Lift the recovery tank forward.
2. Detach the squeegee hose (1) from the recovery tank.
3. Take off the vacuum plug (2) by rotating it counterclockwise.
4. Take the recovery tank off.



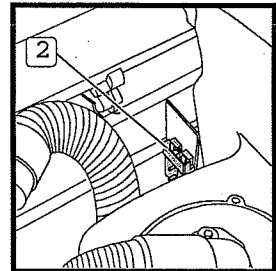
MACHINE PREPARATION

5. Place the batteries in their compartment.
6. Connect the batteries' connector (2) to the machine's connector (1).
7. Reassemble the recovery tank, vacuum plug and squeegee hose.




3. CONNECTING THE BATTERY CHARGER


The battery charger's connector fits into the battery connector (2) located under the recovery tank.





4. CHARGING THE BATTERIES

NEVER ALLOW THE BATTERIES TO RUN COMPLETELY DOWN, recharge them within a few minutes after the battery indicator starts blinking. **Never leave the batteries completely discharged,** even if the machine is not being used.

 **WARNING!** When charging the batteries, follow all the instructions provided with this manual and the battery charger. Trained staff must carry out the installation and maintenance operations.

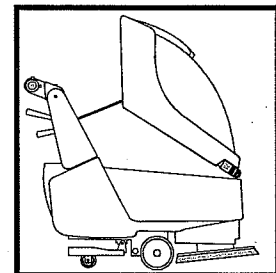
 **WARNING! Fire Danger:** Lead acid batteries generate gases that can cause an explosion. Keep sparks and flames away from batteries. **NO SMOKING!**

 **WARNING!** To prevent an explosion, charge the batteries only in an area with good ventilation.

 **WARNING!** Always wear eye protection and protective clothing when working near batteries.

When charging the batteries, take the recovery tank off. If the machine is equipped with a hinge, keep it lifted by supporting the prop as shown in the figure.

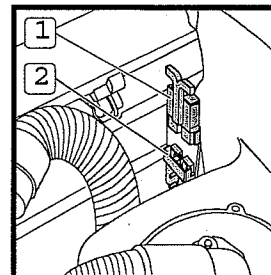
Turn the key to the OFF position. Connect the DC connector on the charger to the DC battery connector. Connect the AC charger plug to a receptacle that has the correct voltage and frequency for your charger. Make sure the receptacle is connected to the electrical ground.



MACHINE PREPARATION

5. CONNECTING THE BATTERY CONNECTOR

After charging the batteries, reconnect the battery connector (2) to the connector of the machine (1).

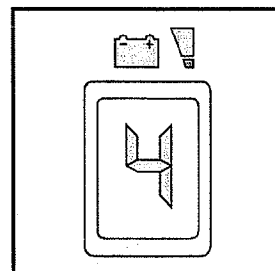


6. BATTERY CHARGE LEVEL INDICATOR (machines with traction)

The batteries' indicator is digital with 4 fixed positions and a blinking one. The numbers, which appear on the display, show the approximate charge level.

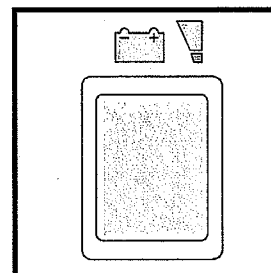
4 = maximum charge, 3 = charge 3/4, 2 = charge 2/4, 1 = charge 1/4, 0 = (blinking) discharged batteries)

NOTE: The brush motor automatically switches off a few seconds after the battery indicator light begins to blink. By restarting the machine, you will be allowed to turn on the vacuum motor and finish drying any wet areas.



7. BATTERY CHARGE INDICATOR (machines without traction)

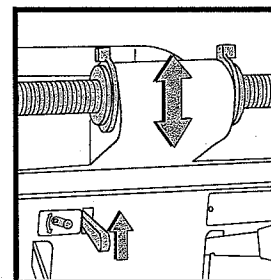
The battery indicator is a green signal light; it is constantly on when the batteries are sufficiently charged. The signal light will blink when it is necessary to recharge the batteries.



8. HANDLE BAR HEIGHT

The handle bar is adjustable in three different positions, to adjust:

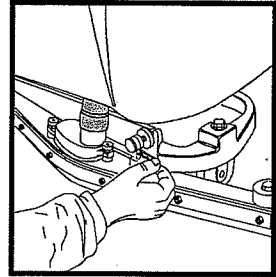
1. Release the lever.
2. Put the handle bar at the desired height.
3. Release the lever and the handle bar will lock into place.



MACHINE PREPARATION

9. SQUEEGEE ASSEMBLY

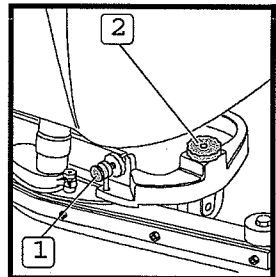
The squeegee is assembled as shown in the figure. The squeegee lever should be in its up position. Insert the holding pin into the squeegee stud bolt to secure the squeegee in place. Then fit the squeegee hose into its coupling; the hose should be located to the right of the lifting cable.



10. ADJUSTING THE SQUEEGEE HEIGHT

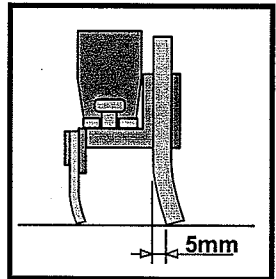
The height from the floor to the squeegee should be adjusted based on the blade's wear. Rotate the knob (2) counter-clockwise to lift the squeegee and clockwise to lower it.

Note: Adjust the right and left knobs the same amount; the squeegee should be positioned parallel to the floor.



11. ADJUSTING THE SQUEEGEE INCLINATION

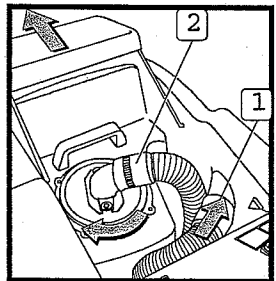
During operation, the rear squeegee blade is most efficient when tilted back about 3/16 inch (5mm) along its whole length. To increase the blade bending in the central part, tilt the squeegee body backward by turning the adjuster (1) counter-clockwise. Subsequently, turn the adjuster clockwise to increase the bending at the sides of the squeegee blade.



12. RECOVERY TANK

Open the lid and confirm the following connections are secure:

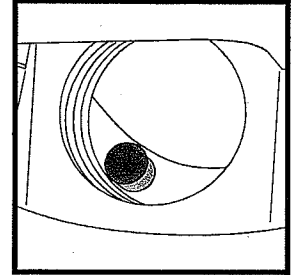
1. The vacuum plug (2) is securely attached: line up the notches and rotate the plug clockwise to close. The vacuum motor hose must also be attached.
2. Confirm the squeegee hose (1) is properly connected.
3. Make sure the drain plug, which is located on the front of the machine is also closed.



MACHINE PREPARATION


13. SOLUTION TANK

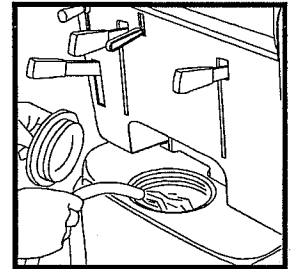
Unscrew the water inlet plug and confirm the solution filter, which is located on the bottom left side, is properly assembled.



14. SOLUTION WATER


Fill the solution tank with clean water at a temperature not more than 50°C/122°F. Add the proper concentration of liquid detergent by following the manufacturer instructions. Excess foam in the recovery tank can damage the vacuum motor, so use only the minimum amount of detergent necessary. Reassemble the cover.

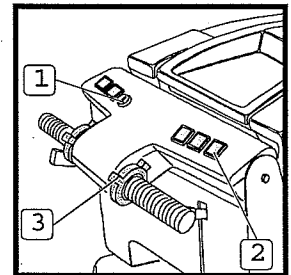
 **WARNING!** Always use low foaming detergent. Adding antifoam liquid into the recovery tank before cleaning will also help prevent foaming. **NEVER USE PURE ACID.**



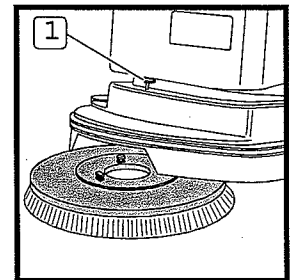
15. BRUSH ASSEMBLY

1. Lift the brush base, line up the lugs with the holes in the brush plate.
2. Lower the brush base, turn the key (1) to the ON position, press the brush switch (2), then push the lever (3) on the handle bar. At this point the brush is locked in place.

 **WARNING!** No objects or people should be close to the brush during this operation.



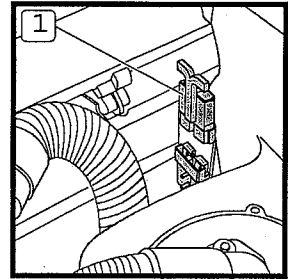
3. Adjust the height of the splash guard so it doesn't touch the floor by turning the knob (1). This adjustment has to be repeated regularly as the brush wears.



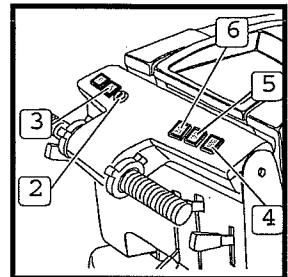
OPERATION

OPERATING

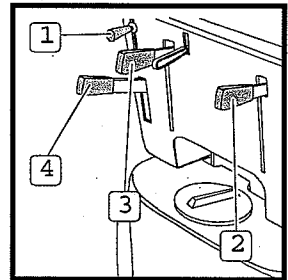
1. Connect the machine connector (1) to the battery connector.



2. Turn the key (2) clockwise to ON. The signal light will come on (3), indicating the batteries are charged. Note: If the battery indicator is blinking, the batteries need to be charged.
3. Press the solenoid valve switch (4).
4. Press the vacuum motor switch (5).
5. Press the brush motor switch (6).



6. Adjust the amount of cleaning solution through the lever (1). There should be enough solution to wet the floor uniformly, but not so much that it gets past the splash guard. Remember that the correct solution quantity depends on the type of floor, the dirt and the speed.
7. Release the lever (2) and lower the brush base.
8. Lower the squeegee using lever (3).
9. Make sure the parking brake (4) is released.
10. The machine will move by pushing the lever on the handle bar forward as described in the next section. During the first few yards of operation, confirm the amount of cleaning solution is sufficient and that the squeegee dries the floor surface.

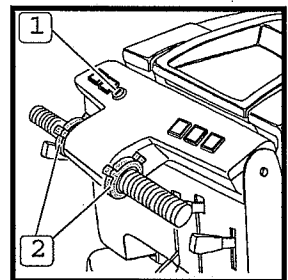


MOVEMENT (machines without traction)

The traction of this machine is obtained through the brush, which is slightly inclined to help drag the machine forward. To move the machine, turn the key (1) ON, wait for 3 seconds and then push the lever (2) on the handle bar forward.



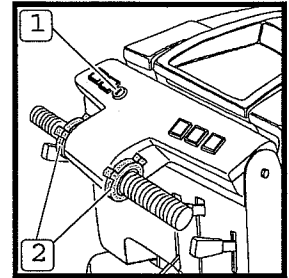
WARNING! Lift the squeegee when moving backward.




OPERATION

MOVEMENT (machines with traction)


These machines are equipped with electronically controlled traction, with two speeds forward and one backwards. To move the machine, turn the key (1) ON, wait for 3 seconds and then rotate the lever (2) on the handle bar - rotate forward to move forward or backward to move in reverse. The first forward speed is obtained by pushing the lever only a few millimeters. The second and faster speed is obtained by pushing the lever all the way forward.

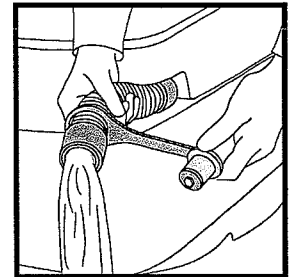


 **WARNING!** Lift the squeegee when moving backward.

DEVICE TOO FULL

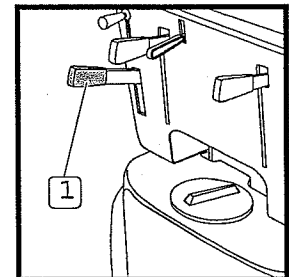
The machine is equipped with a float that stops the vacuum when the recovery tank is full. When this occurs, empty the recovery tank by removing the plug on the drain hose.

 **WARNING!** Use gloves for protection from contact with dangerous solutions.



BRAKE (machines without traction)

The machine is equipped with a braking system controlled through the left lever (1), which is used as both a parking and an emergency brake.



BRAKE (machines with traction)

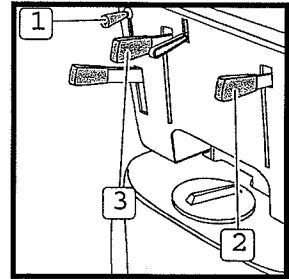
The machine is equipped with an electronic braking system. To brake in normal working conditions, just release the lever on the handle bar.

However, in case of an emergency, push down on the mechanical lever (1), as shown above.

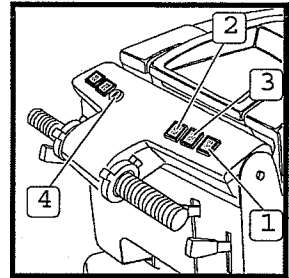
UPON COMPLETION OF THE WORK

After finishing your work and before any type of maintenance is done, it is necessary to do the following:

1. Close the water valve through lever (1).
2. Raise the brush base with lever (2).
3. Lift the squeegee with lever (3). Note: The squeegee blades can be damaged if the squeegee is not raised during storage or transport.



4. Switch off the solenoid valve switch (1).
5. Switch off the brush switch (2).
6. Switch off the vacuum motor switch (3).
7. Transport the machine to the location where the recovery tank should be emptied.
8. Turn the key (4) OFF.
9. Set the parking brake.

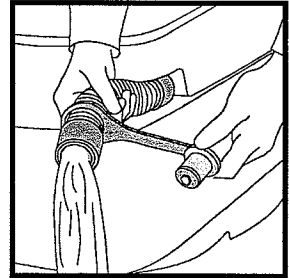


10. Pull out the hose on the front part of the recovery tank.
11. Unscrew the drain plug and empty the recovery tank.



WARNING! Use gloves for protection from contact with dangerous solutions.

12. Remove the brush and clean it with water (refer to the section "Disassembly of the Brush").



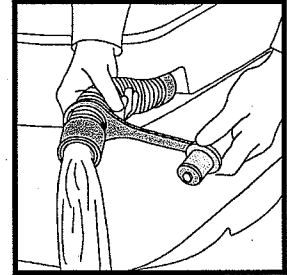
DAILY MAINTENANCE

CLEANING THE RECOVERY TANK

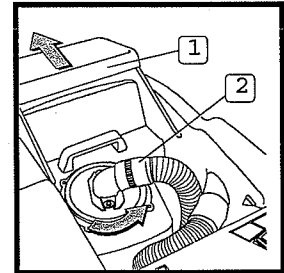
1. Empty the recovery tank by removing the drain plug from the drain hose.
2. Unscrew the drain plug and empty the recovery tank.



Use gloves for protection from contact with dangerous solutions.

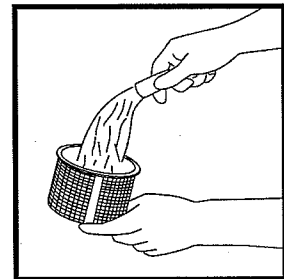


3. Lift the recovery tank.
4. Take off the vacuum plug (2) by rotating it counter-clockwise.
5. Remove the filter and its housing.
6. Rinse the tank with water.



CLEANING THE VACUUM FILTER

1. Lift the recovery tank.
2. Take off the vacuum plug by rotating it counter-clockwise.
3. Remove the filter and its housing.
4. Use water to clean the walls and the bottom of the filter.
5. If necessary, loosen the screws which lock the filter to the housing.
6. Rotate the filter counterclockwise until it is released.
7. Wash all components thoroughly.
8. Reassemble repeating the above operations inversely.

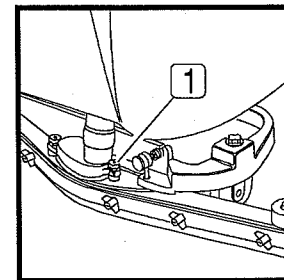


CLEANING THE SQUEEGEE

To obtain the best drying results, keep the squeegee clean.

To clean the squeegee it is necessary to:

1. Remove the hose from the squeegee.
2. Loosen the knobs (1).
3. Clean the inside of the squeegee thoroughly.
4. Clean the squeegee blades thoroughly.
5. Reassemble.



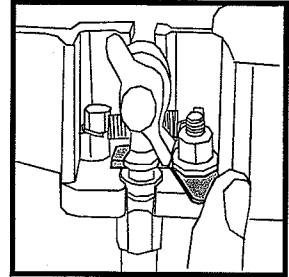
DAILY MAINTENANCE

REPLACING THE SQUEEGEE BLADES

Check the squeegee blades for wear and if necessary, change them.

To replace the squeegee blades:

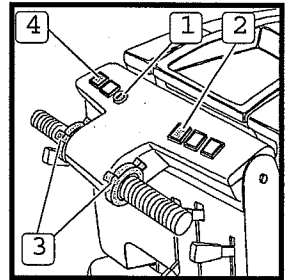
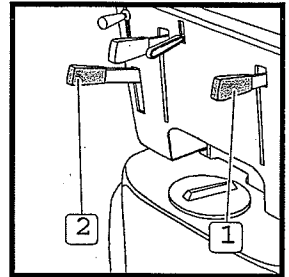
1. Remove the squeegee hose from its coupling.
2. Push on the rocker arm and loosen the stud bolt.
3. Remove the squeegee from its support.
4. Loosen the wing nuts (1) that lock the rubber blades and take them off.
5. Replace the blades.
6. To reassemble the squeegee, repeat the above operations inversely.



DISASSEMBLY OF THE BRUSH

The machine is equipped with an automatic brush release system.

1. Lift the brush base with lever (1).
2. Set the brake lever (2).
3. Turn the key (1) ON and press the brush switch (2) while keeping the release button (4) pressed. Then push and release the lever on the handle bar (3). The brush will loosen and then fall under the cover.



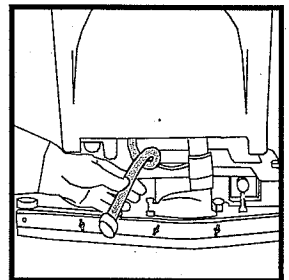
WARNING! No objects or people should be close to the brush during this operation.

CLEANING THE BATTERY COMPARTMENT

Use the hose under the solution tank, which is accessible from the rear of the machine to empty any liquids from the battery compartment.



WARNING! Use gloves for protection from contact with dangerous solutions. Danger of emission of corrosive liquids!
Fire Danger: Do not approach with open flames!

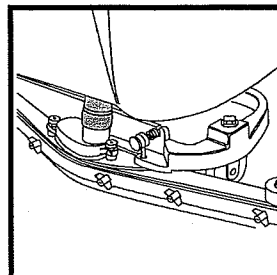


WEEKLY MAINTENANCE

CLEANING THE SQUEEGEE HOSE

Weekly or whenever the suction is insufficient, make sure the squeegee hose is not obstructed. To clean:

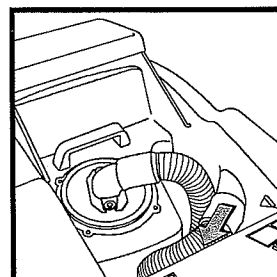
1. Take off the hose from its coupling on the squeegee.
2. Take off the other end from the recovery tank.



3. Wash the inner part of the hose with a water jet from the tank side.
4. Reassemble.



WARNING! Do not wash the hose that goes from the vacuum motor to the vacuum plug.

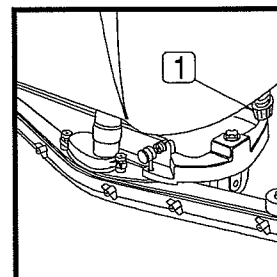


SOLUTION TANK CLEANING

1. Remove the cap from the solution tank.
2. Rinse with water.
3. Remove the drain plug (1) and empty the tank.

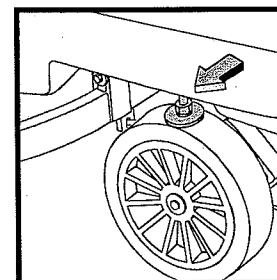


WARNING! Use gloves for protection from contact with dangerous solutions.



CHECK BRAKE

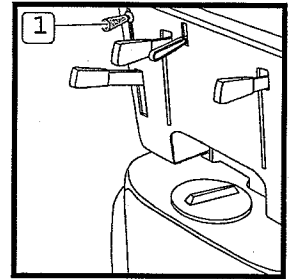
Check the distance between the brake pads and wheels weekly. Adjust to about 1/8 inch (3mm) by adjusting the nuts shown in the picture.



TROUBLE SHOOTING GUIDE

INSUFFICIENT WATER ONTO THE BRUSH

1. Make sure the water valve is open (lever 1).
2. Confirm there is water in the solution tank.
3. Make sure the solenoid valve switch is on.



THE MACHINE DOES NOT CLEAN SATISFACTORILY

Check the condition of the brush and replace it if necessary. The brush should be replaced when the bristles reach about 5/8 inch (15mm).

THE SQUEEGEE DOES NOT DRY THE FLOOR WELL

1. Check that the squeegee blades are clean.
2. Adjust the inclination of the squeegee (see "MACHINE PREPARATION").
3. Confirm the vacuum hose is correctly fitted in its housing on the recovery tank.
4. Take off the entire vacuum assembly and clean it.
5. Replace the blades if worn.
6. Check that the vacuum motor switch is on.
7. Check the squeegee height adjustment (see "MACHINE PREPARATION").

EXCESSIVE FOAM PRODUCTION

Check that a low foam detergent has been used. If required, add a small quantity of antifoam liquid into the recovery tank.

Remember that more foam is generated when the floor is not very dirty. Use less detergent if this is the case.

REFER TO THE PARTS & SERVICE MANUAL FOR ELECTRICAL SCHEMATICS