

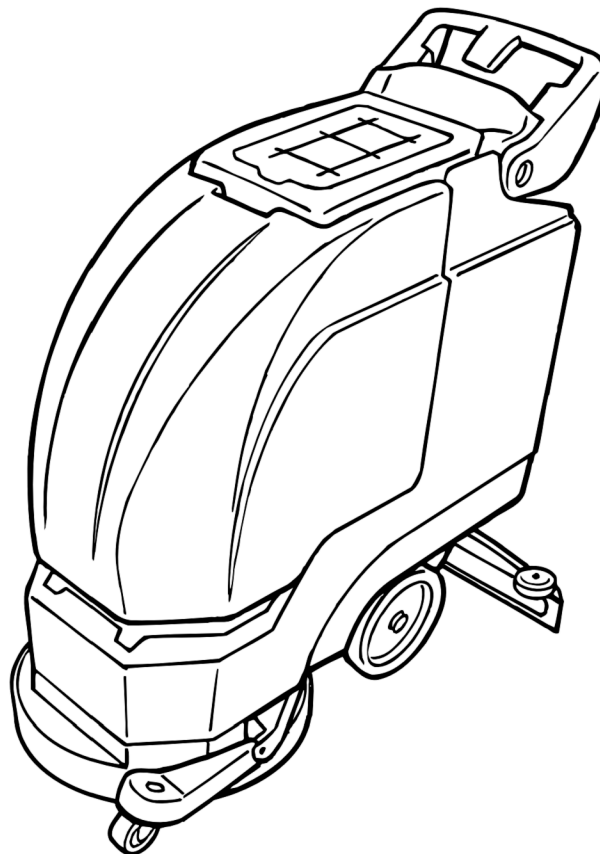


5100

Automatic Electric Scrubber

Model No.:
609454 – 230V
609677 – 240V EMC

Operator and Parts Manual



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OPERATION

This manual is furnished with each new model. It provides necessary operation, maintenance instructions and an illustrated 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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SAFETY PRECAUTIONS

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

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 operator manual is read and understood.
 - In flammable or explosive areas unless designed for use in those areas.
 - With damaged cord or plug.
 - If not in proper operating condition.
 - In outdoor areas.
 - In standing water.
 - With the use of additional extension cords. Only use manufacturer's extension cord equipped with machine which has proper capacity and is grounded.
2. Before operating machine:
 - Make sure all safety devices are in place and operating properly.
3. When using machine:
 - Do not run machine over cord.
 - Do not pull machine by plug or cord.
 - Do not pull cord around sharp edges or corners.
 - Do not unplug by pulling on cord.
 - Do not stretch cord.
 - Do not handle plug with wet hands.
 - Keep cord away from heated surfaces.
 - 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.
 - Do not carry riders on machine.

- Follow mixing and handling instructions on chemical containers.

4. Before leaving or servicing machine:

- Stop on level surface.
- Turn off machine.
- Unplug cord from wall outlet.

5. When servicing machine:

- Unplug cord from wall outlet.
- Avoid moving parts. Do not wear loose jackets, shirts, or sleeves.
- Block machine tires before jacking up.
- Use hoist or jack of adequate capacity to lift machine.
- Use manufacturer supplied or approved replacement parts.

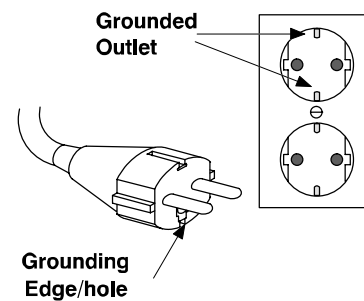
⚠ WARNING: Hazardous Voltage. Shock or electrocution can result. Unplug machine before servicing.

⚠ 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 an explosion or fire. Do not pick up.

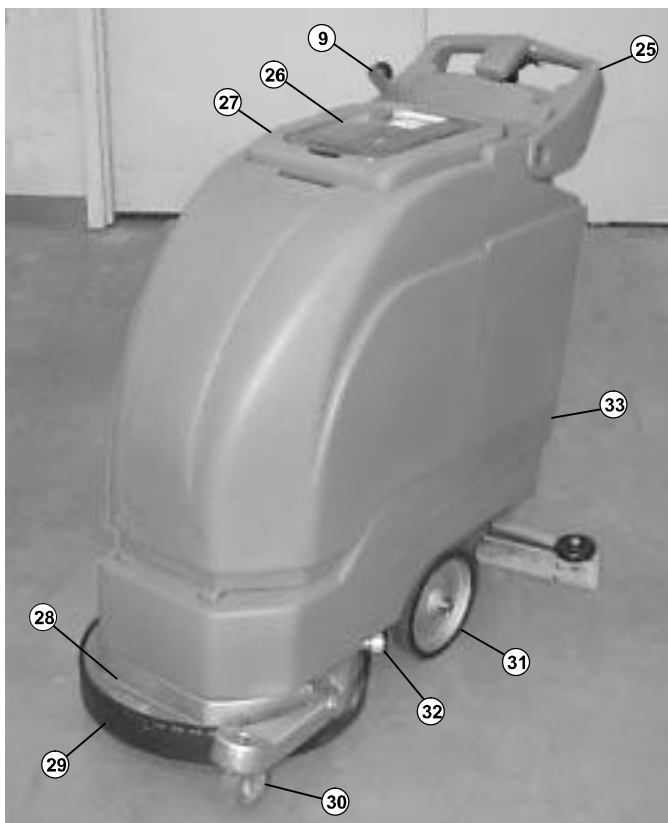
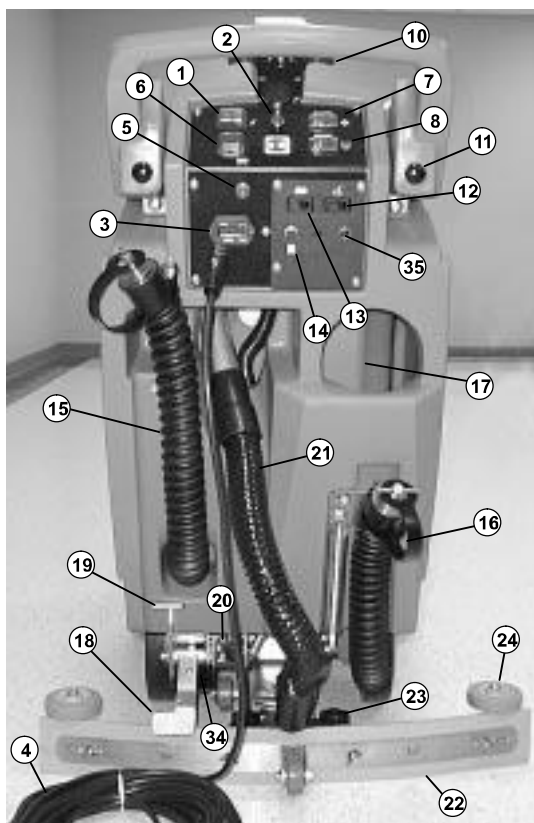
GROUNDING INSTRUCTIONS

Machine must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electrical current to reduce the risk of electrical shock. This machine is equipped with a cord having an equipment-grounding conductor and grounding plug. The plug must be plugged into an appropriate outlet that is properly installed in accordance with all local codes and ordinances. Do not remove ground pin; if missing, replace plug before use.



OPERATION

MACHINE COMPONENTS



- | | | |
|--|-------------------------------------|---|
| 1. Power ON/OFF switch | 12. Wand Kit ON/OFF Switch (Option) | 25. Control Handle |
| 2. Power ON/OFF Indicator Light | 13. ES™ Kit ON/OFF Switch (Option) | 26. Recovery Tank Lid |
| 3. Hour Meter (Option) | 14. ES™ Pump Light (Option) | 27. Recovery Tank |
| 4. Power Cord | 15. Recovery Tank Drain Hose | 28. Scrub Head |
| 5. Brush Circuit Breaker | 16. Solution Tank Drain Hose | 29. Scrub Head Skirt |
| 6. Brush Release Button | 17. Solution Fill Port | 30. Transport Caster |
| 7. Vacuum ON/OFF Switch | 18. Scrub Head Lift Pedal | 31. Main Wheels |
| 8. Solution ON/OFF Switch | 19. Scrub Head Release Lift Pedal | 32. Wand Kit Solution Hose Coupler (Option) |
| 9. Squeegee Lift Knob | 20. Solution Flow Adjustment Knob | 33. Solution Tank |
| 10. Brush Trigger | 21. Squeegee Vacuum Hose | 34. Pad Pressure Adjustment Knob |
| 11. Control Handle Height Adjustment Knobs | 22. Squeegee Assembly | 35. ES™, Wand Circuit Breaker (Option) |
| | 23. Squeegee Thumb Knobs | |
| | 24. Wall Rollers | |

CONTROL PANEL SYMBOLS



Main Power



Solution Switch



Read Manual Before Operating



Extended Scrub Switch (Option)



Vacuum Switch



Brush Motor 4.5A Circuit Breaker



Wand Switch (Option)



Extended Scrub Pump Light (Option)

MACHINE INSTALLATION

UNCRATING MACHINE

Carefully check carton for signs of damage. Report any damage at once to carrier.

To uncrate your machine, remove shipping straps and carefully lift or make a ramp to remove machine from pallet.

Raise scrub head to transport position before maneuvering machine. Step down firmly on scrub head lift pedal to raise (Figure 1).

NOTE: To prevent scrub head skirt damage, always keep machine in transport position when pad driver is not installed.



FIG. 1

ATTENTION: Do not roll machine off pallet, damage may occur.

Squeegee assembly is packaged with machine.

Brushes, pad driver and pads must be purchased separately. Consult an authorized distributor for specific pads and brushes.

ATTENTION: The use of supplies other than those recommended by manufacturer may cause damage.

MACHINE SETUP

ATTACHING SQUEEGEE ASSEMBLY

1. Raise squeegee mount bracket by moving squeegee lift knob to the left (Figure 2).



FIG. 2

2. Loosen two thumb knobs on squeegee assembly and slide squeegee into slots on squeegee mount bracket (Figure 3).



FIG. 3

3. Tighten thumb knobs securely.
4. Connect vacuum hose from machine to squeegee assembly (Figure 4).



FIG. 4

OPERATION

INSTALLING PAD DRIVER OR BRUSH

1. Raise scrub head to transport position. Step down firmly on scrub head lift pedal to raise (Figure 5).

NOTE: To prevent scrub head skirt damage, keep machine in transport position when pad driver or brush is not installed.



FIG. 5

2. Select recommended pad or brush that best meets your cleaning needs.

IMPORTANT: Consult an authorized distributor to assist you in choosing the correct pad or brush for your specific cleaning need.

3. Attach pad to pad driver before mounting driver to motor hub. Secure pad with plastic centerlock ring (Figure 6).



FIG. 6

4. Plug power cord into a grounded wall outlet (Figure 7).

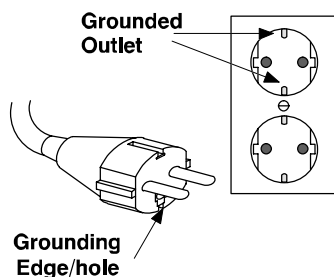


FIG. 7

FOR SAFETY: Do not operate machine unless cord is properly grounded.

5. Turn on main power switch (Figure 8).



FIG. 8

6. Place pad driver or brush on floor in front of machine. While tilting the machine backwards, center the scrub head down over the pad driver (Figure 9).



FIG. 9

7. Release the brush lift pedal from transport position while holding scrub head off pad driver (Figure 10).



FIG. 10

8. Gradually lower scrub head down on pad driver or brush, you will feel motor hub fall into position. Pull the brush triggers until motor hub engages the driver/brush. If pad driver/brush doesn't engage within a few seconds, realign scrub head down over pad/brush and try again (Figure 11).

NOTE: Pad driver/brush will not engage motor hub with machine in transport position.



FIG. 11

NOTE: Before installing pad driver or brush make sure mounting surface is clean. A clean surface will ease pad driver removal later.

REMOVING PAD DRIVER OR BRUSH

1. Raise scrub head to transport position. Step down firmly on scrub head lift pedal to raise (Figure 12).



FIG. 12

2. Turn on main power switch.
3. Tilt machine backwards.
4. While pressing the "brush release button", pull and release the brush trigger quickly. The pad driver/brush will automatically spin off motor hub. If it doesn't release, repeat step (Figure 13).



FIG. 13

NOTE: To prevent scrub head skirt damage, always keep machine in transport position when pad driver or brush is not installed.

NOTE: When changing just the pad it's easiest to remove pad driver from machine.

FILLING SOLUTION TANK

1. Transport machine to filling station. Raise squeegee and scrub head when transporting.
2. Turn off main power switch.
3. Fill solution tank with 7.5 gallons (28L) of clean water (140°F/60°C max.) using a hose (Figure 14). To fill with bucket, use a bucket with a spout .



FIG. 14

NOTE: If filling with a bucket be certain that bucket is clean. This will prevent possible solution line clogs.

4. Add cleaning chemical. See proper dilution ratio instructions on chemical container.

ATTENTION: Use only recommended cleaning chemicals – DO NOT use substitutes. Consult an authorized distributor to assist you with the recommended cleaning chemicals.

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

OPERATION

5. If machine is equipped with ES™ (Extended Scrub) Option, the recovery tank can be partially filled to extend scrub time.
 - a. Remove recovery tank lid and fill tank with 3.5 gallons (13L) of clean water (140°F/ 60°C maximum temperature). Close lid.
 - b. Turn on ES™ switch when operating machine (*Figure 15*).



FIG. 15

- c. The ES™ light will glow when the ES™ pump is recycling.

ADJUSTING CONTROL HANDLE HEIGHT

The control handle has three height settings to accommodate a comfortable operating height.

1. Locate two control handle height adjustments knobs on handle (*Figure 16*).
2. Pull both knobs and raise or lower handle, release knobs to lock.



FIG. 16

MACHINE OPERATION

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

PRE-OPERATION CHECKS

- Sweep and dust mop floor to remove particles and other debris.
- Check power cord for damage. Replace immediately if damaged.
- Check condition of pad or brush.
- Check condition of squeegee blades.

SCRUBBING WITH MACHINE

1. Release brush lift pedal from transport position by stepping down on scrub head release pedal (*Figure 17*).



FIG. 17

2. Lower squeegee assembly by moving squeegee lift knob to the right (*Figure 18*).



FIG. 18

3. Turn on main power, vacuum and solution switches (*Figure 19*).



FIG. 19

NOTE: The solution flow and brush will not start until brush triggers are pulled.

4. Pull brush triggers and begin walking with machine. The brush will propel the machine forward allowing little effort maneuvering the machine (Figure 20).



FIG. 20

NOTE: On rough surfaces it may be necessary to reduce brush pressure to avoid brush circuit breaker from tripping. See ADJUSTING PAD PRESSURE.

ATTENTION: To prevent possible floor damage and brush circuit breakers from tripping, do not operate brush pressure meter in red zone.

5. To operate machine in reverse, simply pull the machine backwards while pulling triggers.
6. To stop scrubbing, release brush triggers, turn off all switches, and raise scrub head and squeegee.

OPERATING ES™ OPTION

ES™ (Extended Scrub) Option allows the operator more scrubbing time by reusing recovered water. The recovered water is filtered and recycled back into the solution tank for reuse.

1. Fill recovery tank with 3.5 gal. (13L) when filling solution tank.

2. Turn on ES™ switch. During operation the ES™ pump will automatically start recycling when the ES™ pump light turns on (Figure 21).



FIG. 21

3. When finished scrubbing, drain and rinse both tanks and clean ES™ filter (See DRAINING TANKS).

WHILE OPERATING MACHINE

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

1. Exercise the SAFETY PRECAUTIONS.
2. Work away from wall outlet and power cord to prevent cord damage.
3. Observe amount of solution flow on floor. If necessary adjust to desired flow. See MACHINE ADJUSTMENTS.
4. Periodically check for foam buildup in recovery tank (look through clear lid). If excessive foam is developing, pour a recommended foam control solution into recovery tank.

ATTENTION: Do not allow foam or water to enter ball float screen. Foam will not activate ball float. Vacuum motor damage due to foam or water is not covered by warranty.

5. Always operate with caution when scrubbing around walls or obstacles.
6. If squeegee leaves streaks, raise and wipe blades with a cloth. Pre-sweep area to prevent streaking. If squeegee adjustment is necessary, see MACHINE ADJUSTMENTS.
7. Overlap each pass by 2" (5cm).
8. Change or turn over pads when dirty.
9. Stay clear of floor obstructions, such as electrical plates or grates, they will destroy pads.
10. During brief stops, simply release triggers and the brush and solution flow will stop automatically.
11. On last scrubbing pass, turn off solution switch just prior to stopping machine.

OPERATION

12. When solution tank runs dry, drain recovery tank.
(See DRAINING TANKS).

CIRCUIT BREAKER

The model is equipped with a circuit breaker to protect brush motor from damage.

Brush motor circuit breaker will trip due to excessive overload on pad. Reduce pad pressure or replace pad if breaker trips. Circuit breaker is located on control console (Figure 22).

If circuit breaker should trip, the breakers will not reset immediately upon tripping. Determine reason why breaker tripped, wait a few minutes and reset (See TROUBLE SHOOTING).



FIG. 22

MACHINE ADJUSTMENTS

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

ADJUSTING SOLUTION FLOW

To increase or decrease the maximum solution flow, turn adjustment knob. Adjustment knob is located near brush lift pedal (Figure 23).

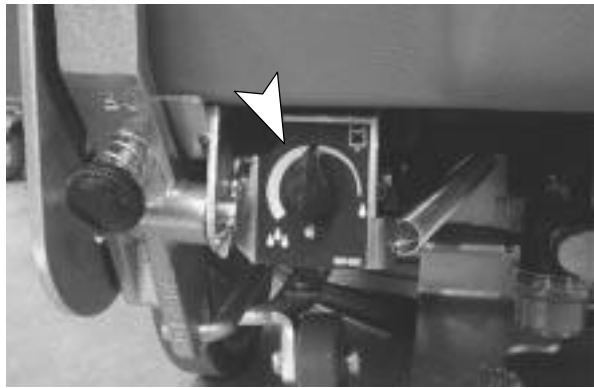


FIG. 23

ADJUSTING PAD PRESSURE

NOTE: On rough surfaces it may be necessary to reduce brush pressure.

To adjust pad pressure, turn adjustment knob counterclockwise to decrease or clockwise to increase pressure. Adjustment knob is located below brush lift pedal (Figure 24).

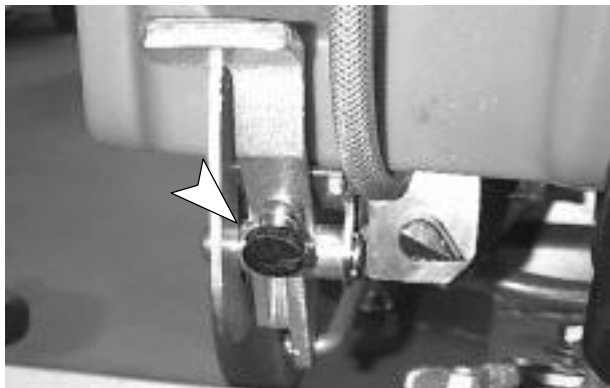


FIG. 24

ADJUSTING SQUEEGEE LIFT CABLE

To adjust squeegee lift cable, loosen lock nuts and turn adjustment stem on squeegee cable. Retighten lock nuts after adjusting (Figure 25).

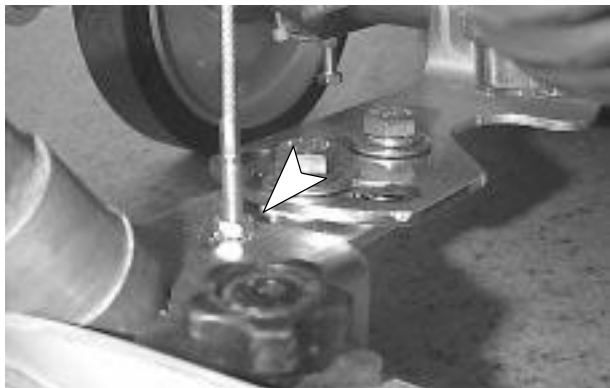


FIG. 25

DRAINING TANKS

When to drain recovery tank:

- After each use.
- Between solution tank fill ups.
- When solution flow stops during operation.
- When ball float screen is activated.
- When squeegee starts trailing water.

NOTE: If using the ES™ recycling system, be certain to drain and rinse both tanks after each use.

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

DRAINING RECOVERY TANK

ATTENTION: Drain recovery tank whenever refilling solution tank. Foam or water may enter ball float screen and damage vacuum motor. Vacuum motor damage due to foam or water is not covered by warranty.

1. Turn off all switches and unplug power cord.
2. Remove left side drain hose from holder and place over floor drain or bucket.
3. Turn drain hose knob counterclockwise and pull out plug to drain (*Figure 26*).



FIG. 26

NOTE: If using a bucket to drain machine, do not use same bucket for filling, or be certain to rinse it out before refilling machine.

4. Replace drain hose plug securely when empty.
5. When done scrubbing, rinse recovery tank, ball float screen and ES™ filter if equipped. Remove screens if necessary.

DRAINING SOLUTION TANK

To drain unused cleaning solution or recycled solution from solution tank:

1. Turn off all switches and unplug power cord.
2. Remove right side drain hose from holder and place over floor drain or bucket.
3. Turn drain hose knob counterclockwise and pull out plug to drain.
4. Replace drain hose plug securely when empty.
5. When done scrubbing, rinse out solution tank and solution flow system with clean water to prevent clogging due to chemical buildup.

OPERATION

MAINTENANCE

FOR SAFETY: When servicing machine, stop on level surface, turn off machine and unplug cord from wall outlet.

ATTENTION: Contact an Authorized Service Center for machine repairs. Machine repairs performed by other than an authorized person will void your warranty.

To keep machine in good working condition, simply follow the daily, weekly and monthly maintenance procedures.

NOTE: If equipped with optional hour meter, record machine hours when service was performed.

DAILY MAINTENANCE (Every 4 Hours of Operation)

1. Remove and clean pad or brush. Never use soiled pads when cleaning. Replace pad when it becomes worn or loaded with residue.
2. Drain and rinse both tanks thoroughly.
3. Remove and clean the ball float screen. Replace screen securely (*Figure 27*).



FIG. 27

4. Remove and clean ES™ filter, if equipped. Replace filter securely.
5. Raise and wipe squeegee off with a dry cloth. Store squeegee in the up position to prevent squeegee damage.
6. Clean machine housing with a nonabrasive, nonsolvent cleaner.
7. Inspect power cord for damage. If damaged, replace power cord immediately. Coil cord neatly after each use.

WEEKLY MAINTENANCE (Every 20 Hours of Operation)

1. Flush out tanks and solution lines. Pour 24 oz. (750 mL) of an acetic acid solution with 3 gallons (11.3 Ltr.) of hot water into solution tank. Over a floor drain, activate the solution flow briefly to fill solution line. Shut off power and let machine set overnight. Rinse with clean water afterwards.
2. Remove and rinse out inline strainer filter. Before removing filter, be certain solution tank is empty. Filter is located under machine at rear (*Figure 28*).



FIG. 28

MONTHLY MAINTENANCE (Every 80 Hours of Operation)

1. Lubricate wheel grease fittings with a water resistant grease.
2. Lubricate all linkage pivot points with silicone spray then coat with a water resistant grease to maintain a smooth operation.
3. Check machine for water leaks and loose nuts and bolts.

QUARTERLY MAINTENANCE (Every 250 Hours of Operation)

Check vacuum and brush motors for carbon brush wear, replace brushes if worn to a length of 3/8" (1cm) or less.

SERVICING MACHINE

ATTENTION: Contact an Authorized Service Center for machine repairs. Machine repairs performed by other than an authorized person will void your warranty.

To access internal components for repair, remove hole plug and two screws from cover (Figure 29).



FIG. 29

NOTE: When replacing cover, be careful not to pinch any internal hoses or wiring.

TRANSPORTING MACHINE

When transporting machine by use of trailer or truck, be certain to follow tie-down procedures below:

1. Remove squeegee from machine and raise scrub head. Leave pad or brush installed.
2. Load machine using a recommended loading ramp.
3. Position front of machine up against front of trailer or truck. Once machine is positioned, lower brush head.
4. Place a block behind each rear wheel.
5. Place tie-down straps over top of machine and secure straps to floor. It may be necessary to install tie-down brackets to the floor of your trailer or truck.

STORING MACHINE

1. Before storing machine, be certain to rinse tanks and drain machine of all water.
2. Store machine in a dry area with squeegee removed and scrub head in the raised position.
3. Remove recovery tank lid to promote air circulation.

ATTENTION: If storing machine in freezing temperatures, be certain to drain machine of all water. Damage due to freezing temperatures is not covered by warranty.

ATTENTION: Do not store outdoors and avoid getting wet.

RECOMMENDED STOCK ITEMS

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

Ref.	Part No.	Description	Qty.
1	201160	ASM, STANDPIPE	1
2	300513	•FLOW, SHUTOFF	1
3	228187	NOZZLE	1
4	301714	•GASKET	1
5	218248	NUT, FLANGED	1

TROUBLE SHOOTING

PROBLEM	CAUSE	SOLUTION
Machine does not operate.	Faulty main power switch.	Contact Service Center.
	Faulty power cord.	Contact Service Center.
	Building circuit breaker has tripped.	Reset breaker.
Brush motor does not operate.	Faulty brush trigger switch.	Contact Service Center.
	Brush triggers not pulled.	Pull brush triggers.
	Brush circuit breaker has tripped.	Clean or replace pad and reset brush circuit breaker button.
	Faulty brush motor or wiring.	Contact Service Center.
	Worn carbon brushes.	Contact Service Center.
Vacuum motor does not operate.	Faulty vacuum switch.	Contact Service Center.
	Faulty vacuum motor or wiring.	Contact Service Center.
	Worn carbon brushes.	Contact Service Center.
Little or no solution flow.	Solution switch is not activated.	Turn on solution switch.
	Solution line or solution tank filter is clogged.	Remove hose and blow compressed air through it. Flush solution tank after each use.
	Solution valve or solenoid is clogged.	Remove valve or solenoid and clean. Do not scratch inside of valve.
	Faulty solution switch or solenoid.	Contact Service Center.
	Solution flow adjustment knob needs adjusting.	Turn solution flow adjustment knob to desired setting.
	ES™ Option: ES™ filter is clogged.	Remove and clean ES™ filter.
	ES™ Option: Faulty ES™ pump.	Contact Service Center.
Poor water pick up.	Recovery tank is full and ball float has been activated.	Empty recovery tank.
	Ball float screen inside recovery tank is clogged.	Remove screen and clean.
	Clogged squeegee.	Clean squeegee.
	Worn squeegee blades.	Replace squeegee blades.
	Loose squeegee thumbscrews.	Tighten thumbscrews.
	Vacuum hose connections are loose or hose has a hole.	Push hose cuffs firmly on connections. Replace hose if damaged.
	Clogged vacuum hose.	Remove clogged debris.
	Recovery tank inlet hole is obstructed.	Empty recovery tank and tilt tank sideways to access inlet hole, remove obstruction.
	Defective tank gasket.	Replace gasket.
	Loose drain hose plug.	Tighten drain plug.
	Recovery tank lid not in place.	Properly position lid.
	Loose vacuum motor.	Contact Service Center.

SPECIFICATIONS

MODEL	Tennant 5100
LENGTH	99cm/39 inch
WIDTH	49,5cm/19.5 inch
HEIGHT	91cm/36 inch
WEIGHT	71kg/158lbs.
POWER CORD LENGTH	23m/75 ft
RECOVERY TANK CAPACITY	28,5L/7.5 Gal.
SOLUTION TANK CAPACITY	28,5L/7.5 Gal.
ES™ OPTION SOLUTION FILL CAPACITY	42.5L/11.25 Gal.
DRIVE SYSTEM	Brush driven
CLEANING RATE	1375m ² /14,800 sq. ft. per hour
CLEANING PATH WIDTH	43cm/17 inch
PAD DIAMETER	43cm/17 inch
PAD PRESSURE	Variable – 40–66lbs./18–30kg.
SQUEEGEE WIDTH	67cm/26.5 inch
TOTAL POWER COMSUMPTION	8 Amp nominal
BRUSH MOTOR	.6 h.p., 175 rpm, 230V/240V, 3.6A
VACUUM MOTOR	.66 h.p., 2–stage 5.7", 230V/240V, 2.2A, 496W
WATER LIFT	114cm/45 inch
DECIBEL RATING AT OPERATOR'S EAR, INDOORS ON TILE.	69.5dB(A)