

N-20



INTRODUCTION

This manual is furnished with each new model.

It provides necessary operation and maintenance instructions.



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

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 maintenance instructions provided.
- The machine is maintained with manufacturer supplied or equivalent parts

INTENDED USE

N-20 The automatic floor scrubber is intended for commercial use, for example in hotels, schools, hospitals, factories, shops, offices and rental businesses. It is designed to scrub hard floor surfaces (concrete, tile, stone, synthetic, etc.) in an indoor environment. Do not use this machine on carpeted surfaces. Use only recommended pads/brushes and commercially available floor cleaning detergents. Do not use this machine other than described in this Operator Manual.



PROTECT THE ENVIRONMENT

Please dispose of packaging materials and used machine components such as batteries in an environmentally safe way according to your local waste disposal regulations.



Always remember to recycle.

Please fill out at time of installation for future reference.

Model No. - _____

Serial No. - _____

Installation Date - _____

IMPORTANT SAFTY INSTRUCTIONS

The following warning precautions 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. Know when these conditions can exist. Locate all safety devices on the machine. Report machine damage or faulty operation immediately.



WARNING: :

To Reduce the Risk of Fire, Explosion, Electric Shock or Injury:

- Read manual before operating machine.
- Do not use or pick up flammable materials

Do not use near flammable liquids, vapors or combustible dusts.

This machine is not equipped with an explosion proof motor. The electric motor will spark upon start up and during operation which could cause a flash fire or explosion if machine is used in an area where flammable

vapors/liquids or combustible dusts are present

- Batteries emit hydrogen gas. Explosion or fire can result. Keep sparks and open flame away when charging.

- Disconnect battery cables and charger cord before cleaning and servicing machine.

- Do not charge batteries with damaged cord. Do not modify plug.

If the charger supply cord is damaged or broken, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.

- Do not use outdoors. Store indoors.

- Spinning pad/brush, keep hands away.



WARNING: Magnetic Field

Hazard. Magnetic pad driver/brush can be harmful to pacemaker wearers or medical implants.

FOR SAFETY:

1.Do not operate machine:

- Unless trained and authorized.
- Unless operator manual is read and understood.
- Unless mentally and physically capable of following machine instructions.

- Under the influence of alcohol or drugs.
- While using a cell phone or other types of electronic devices.
- If not in proper operating condition.
- In outdoor areas. This machine is for indoor use only.
- In areas where flammable vapors/liquids or combustible dusts are present.
- With pads or accessories not supplied or approved by cwz. The use of other pads may impair safety.
- In areas with possible falling objects.
- In areas that are too dark to safely see the controls or operate machine.

2 ,Before operating machine:

- Check machine for fluid leaks.
- Make sure all safety devices are in place and operate properly.

3When operating machine:

- Use only as described in this manual.
- Report machine damage or faulty operation immediately.
- Wear closed- toe, non- slip work shoes.
- Reduce speed when turning.
- Go slowly on inclines and slippery surfaces.
- Do not scrub on inclines that exceed 9%
- grade or transport on inclines that exceed 21% grade.
- Follow site safety guidelines concerning wet floors.
- Follow mixing, handling and disposal instructions on chemical containers.
- Do not carry passengers on

machine.

- Use care when reversing machine.
- Keep children and unauthorized persons away from machine.
- Do not allow machine to be used as a toy.

4.Before leaving or servicing machine:

- Stop on level surface.
- Turn off machine and remove key.

5.When servicing machine:

- Disconnect battery connection and charger cord before working on machine.
- All work must be done with sufficient lighting and visibility.
- All repairs must be performed by trained personnel.
- Use Tennant supplied or approved replacement parts.
- Do not modify the machine from its original design.
- Do not jack up machine.
- Avoid moving parts. Do not wear loose clothing or jewelry and secure long hair.
- Do not disconnect the off- board charger's DC cord from the machine's receptacle when the charger is operating. Arcing may result. If the charger must be interrupted during charging cycle, disconnect the AC power supply cord first.
- Do not use incompatible battery chargers as this may damage battery packs and potentially cause a fire hazard.
- Inspect charger cord regularly for damage.
- Keep work area well ventilated.

- Avoid contact with battery acid.
- Keep all metal objects off batteries.
- Do not power spray or hose off machine.
- Use a hoist or adequate assistance when lifting batteries.
- Battery installation must be done by trained personnel.
- Wear personal protection equipment as needed and where recommended in this manual.



For Safety: wear protective gloves.



For Safety: wear eye protection.

6. When loading/unloading machine onto/off truck or trailer:

- Drain tanks before loading machine.
- Use a ramp, truck or trailer that can support the machine weight and operator.
- Do not operate the machine on a ramp incline that exceeds a 21% grade level.
- Use a winch if ramp incline exceeds a 21% grade level.
- Lower the scrub head and squeegee before tying down machine.
- Turn machine off and remove key.
- Set parking brake (if equipped).
- Block machine wheels.
- Use tie- down straps to secure machine.

SAFETY LABELS

The safety labels appear on the machine in the locations indicated.

Replace labels if they are missing or become damaged or illegible.



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

Located near control console.



Located on control console and bottom side of recovery tank.

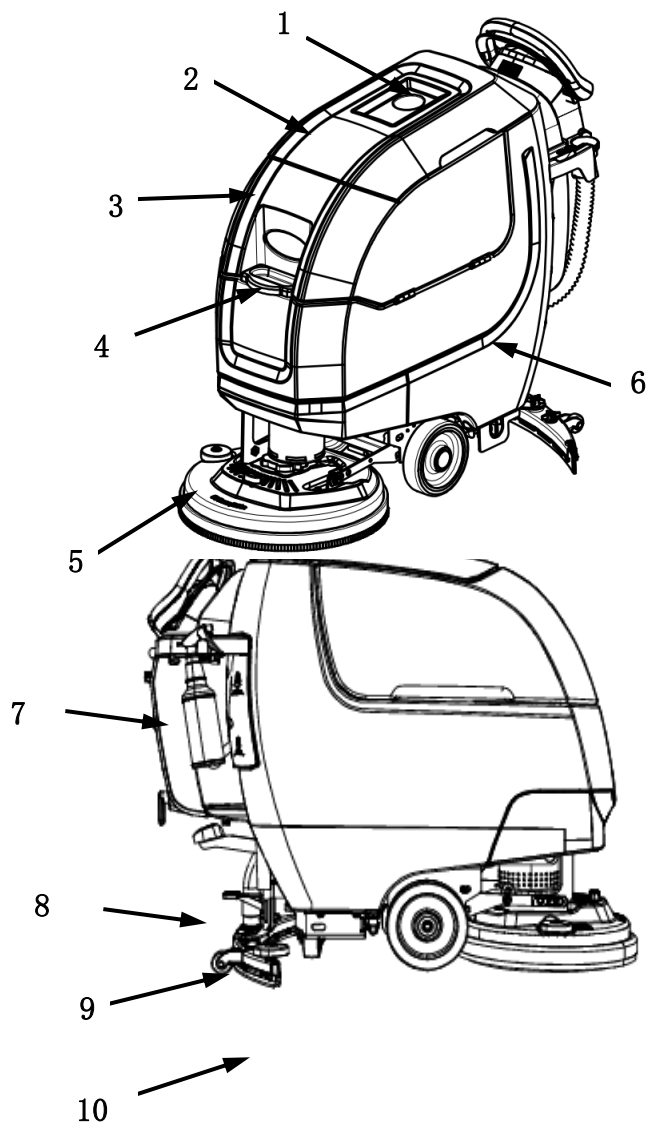
WARNING LABEL -
Batteries emit hydrogen gas. Explosion or fire can result. Keep sparks and open flame away when charging.



WARNING LABEL -
Magnetic field hazard. Magnetic pad driver/brush can be harmful to

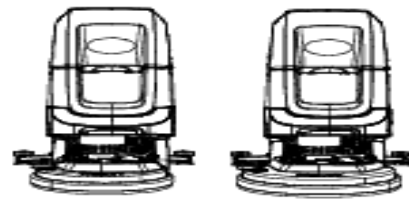
OPERATION

MACHINE COMPONENTS



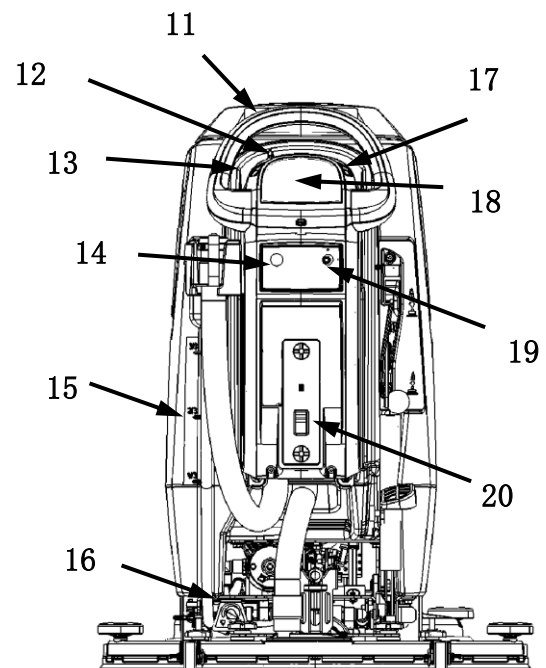
- 1.Cup holder/tray
- 2.Recovery tank lid
- 3.Recovery tank
- 4.Solution tank fill-port
- 5.Scrub head
- 6.Solution tank
- 7. Accessory rail(s)
- 8.Scrub head lift pedal
- 9.Squeegee foot pad
- 10.Squeegee assembly
- 11.Control handle
- 12.Control handle start bail

SCRUB HEAD TYPES



DISK

MAGNETIC



- 13.Speed control knob (drive model)
- 14. Emergency stop button(drive model)
- 15. Recovery tank drain hose
- 16. Solution flow control knob
- 17. Forward/Reverse lever(drive model)
- 18. Control panel display
- 19. Key switch

INSTALLING BATTERIES



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

BATTERY SPECIFICATIONS

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, remove key and set parking brake if equipped.

1 Lift the recovery tank to access the battery compartment (Figure 1).



2、 With adequate assistance, carefully install the batteries into the battery compartment. Arrange the batteries as



shown

FOR SAFETY: When servicing machine, use a hoist or adequate assistance when lifting batteries.

3, Using the supplied battery post boots, connect the cables to the battery posts as shown (Figure 2). Connect the machine's black (-) battery cable last. Use insulated tools when working near batteries.

HOW THE MACHINE WORKS

Conventional scrubbing:

When using the conventional scrubbing mode, water and detergent mixture from the solution tank flows to the floor and the rotating brush(es)/pad(s) scrub the floor clean. As the machine moves forward, the squeegee with vacuum suction picks up the dirty solution from the floor into the recovery tank.

BRUSH AND PAD INFORMATION

For best cleaning results use the appropriate brush or pad for your cleaning application. Listed below are brushes and pads and the applications for which each is best suited.

NOTE: The amount and type of soilage play an important role in determining the type of brush or pad to use. Contact a Tennant representative for specific recommendations.

Soft nylon bristle scrub brush

(White) - Recommended for cleaning coated floors without removing finish. Cleans without scuffing.

Polypropylene bristle scrub brush (Black) -

This general purpose polypropylene bristle scrub brush is used for scrubbing lightly compacted soilage. This brush works well for maintaining concrete, wood and grouted tile floors.

Super abrasive bristle scrub brush (Gray)

- Nylon fiber impregnated with abrasive grit to remove stains and soilage. Strong action on any surface. Performs well on buildup, grease, or tire marks.

Polishing pad (White) -

Used to maintain highly polished or burnished floors.

Buffing pad (Red) - Used for light duty scrubbing without removing floor finish.

Scrubbing pad (Blue) - Used for medium to heavy-duty scrubbing. Removes dirt, spills, and scuffs and leaves surface clean ready for recoating.

Stripping pad (Brown) - Used for stripping of floor finish to prepare the floor for recoating.

Heavy duty stripping pad (Black) -

Used for aggressive stripping of heavy finishes/sealers, or very heavy duty scrubbing.

Surface preparation pad (Maroon)

- Used for very aggressive chemical free removal of floor finish to prepare the floor for re-coating

MACHINE SETUP

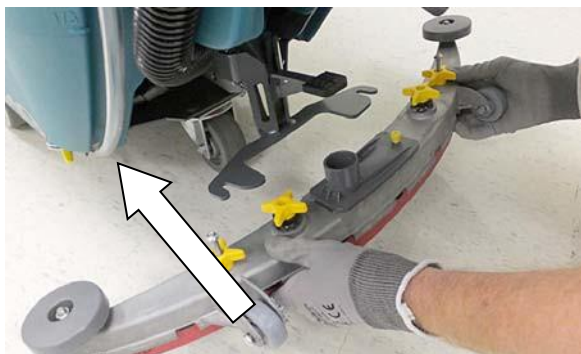
ATTACHING SQUEEGEE ASSEMBLY

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, remove key and set parking brake if equipped.

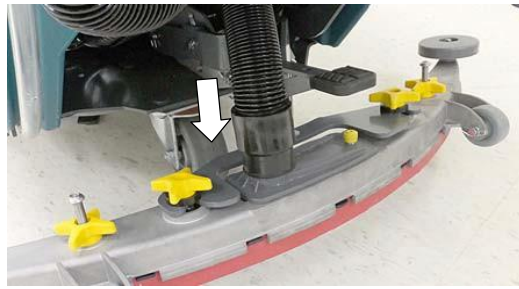
1. Lift the squeegee mount bracket to the raised position. Place toe under pedal to lift



2. Mount the squeegee assembly to the squeegee mount bracket. Tighten knobs to secure squeegee assembly to bracket.



3. Connect the vacuum hose to the squeegee assembly



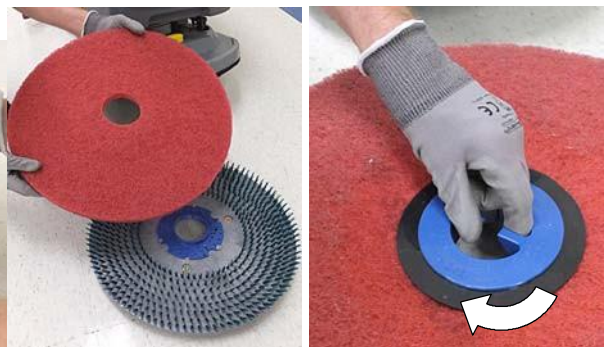
INSTALLING BRUSH/PAD

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, remove key and set parking brake if equipped.

1. Step down on the scrub head lift pedal to raise the scrub head off the floor.



2. Attach the pad to the pad driver before installing the disk. Secure pad with centerlock.



FOR SAFETY: Do not operate machine with pads or accessories not supplied or approved by us. The use of other pads may impair safety.

3. Single disk model - Position the

three lugs into the motor hub slots and give the pad driver/brush a quick counter-clockwise turn to engage hub (Figure 10). View through the scrub head window to align lugs.



2、 Attach the pad to the pad driver before installing the driver (Figure 15). Secure pad with centerlock.

4. Single disk model - To remove the pad driver/brush, press down on the plunger and turn the pad driver/brush clockwise



FOR SAFETY: Do not operate machine with pads or accessories not supplied or approved by us. The use of other pads may impair safety.

INSTALLING BRUSH/PAD - Insta-Click Magnetic Disk



WARNING: Magnetic Field Hazard.

Magnetic pad driver/brush can be harmful to pacemaker wearers or medical implants.

1.Step down on the scrub head lift pedal to raise the scrub head off the floor

3、 Place the pad driver/brush under the scrub head and lift into position. The Insta-Click pad driver/brush will automatically click into position



- 4、 To remove the pad driver(s)/brush(es), raise the scrub head and press the yellow plunger button with foot or hand (Figure 17). Pad will drop to floor.



FILLING SOLUTION TANK

Remove the solution tank lid and fill the solution tank. Stop filling tank when the level reaches the “3/3” mark on the solution tank drain hose indicator



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

ATTENTION: For Conventional Scrubbing, only use commercially approved cleaning detergents. Machine damage due to improper detergent usage will void the manufacturer's warranty.

ACCESSORY RAILS

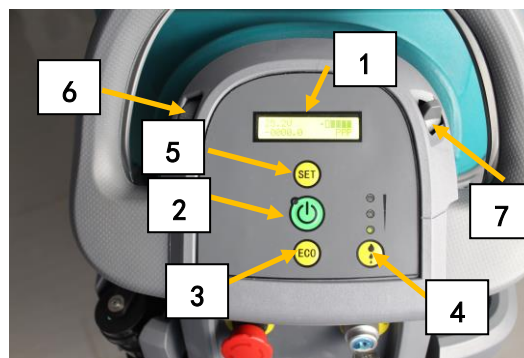
The machine is equipped with one or two accessory rails which straddle the control

console. The left side rail also serves as the recovery tank and solution tank drain hose holder.



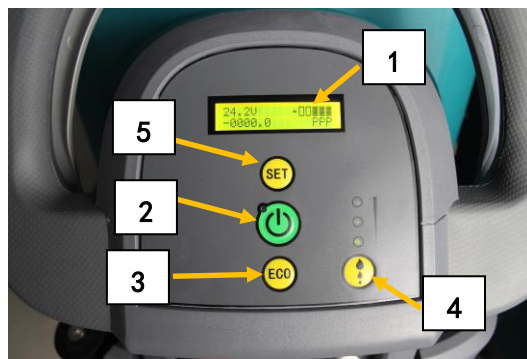
Control panel operation

FD50 panel



- 1、 Panel
- 2、 power
- 3、 EOC
- 4、 Water adjust
- 5、 Set up
- 6、 Speed control switch
- 7、 Forward and back switch

F50 panel



- 1、Panel
- 2、Power
- 3、EOC
- 4、Water adjust
- 5、Set up

MACHINE OPERATION

OPERATION CHECK LIST

- 1、Sweep area and remove any obstructions.
- 2、Check the battery gauge
- 3、Check whether the power supply of the model is connected correctly.
- 4、Check brushes/pads for wear and damage.
- 5、Check squeegee blades for wear and damage.
- 6、Confirm recovery tank empty and screen and debris tray is clean.
- 7、Check scrub head skirt for wear and damage.

OPERATING MACHINE

Turn the key



Drive

Without drive

- 1、Press the power button



- 2、Lower the scrub head to the floor by stepping on the scrub head lift pedal as shown.



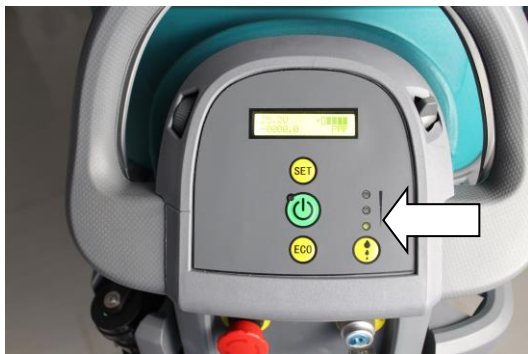
- 3. Lower the squeegee assembly to floor by stepping on foot pad as shown (Figure 67). To raise squeegee assembly, place toe under foot pad and lift. The vacuum motor will start when squeegee assembly is lowered.



5、 To begin scrubbing, pull the startbail



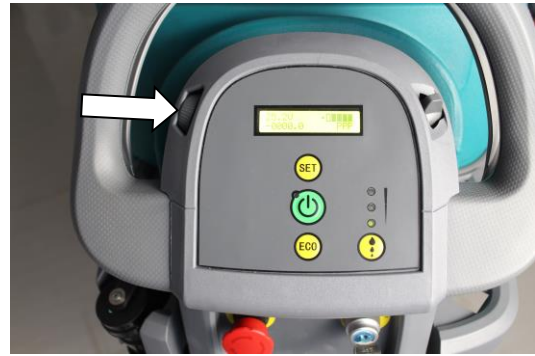
6、 water adjust



7、 Drive models - push the directional lever to the forward position to go forward



8、 Drive models - Adjust the scrubbing speed by turning the speed dial to the desired speed



WHILE OPERATING MACHINE



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

- 1.Overlap each scrub path by 2 inches (5 cm).
- 2.Keep machine moving to prevent damage to floor finish.
3. Wipe squeegee blades with a cloth if blades leave streaks.
4. Avoid bumping the machine into posts and walls.
5. When draining and refilling machine, always top off the optional Severe Environment tank with detergent.

FOR SAFETY: When operating machine, do not scrub on inclines that exceed 9% grade or transport on inclines that exceed 21% grade.

6. Pour a recommended foam control solution into the recovery tank if excessive foam appears.

ATTENTION: Foam buildup will not activate the float shut-off screen, vacuum motor damage will result.

- 7 、 When leaving the machine unattended, remove the key and set the parking brake, if equipped.

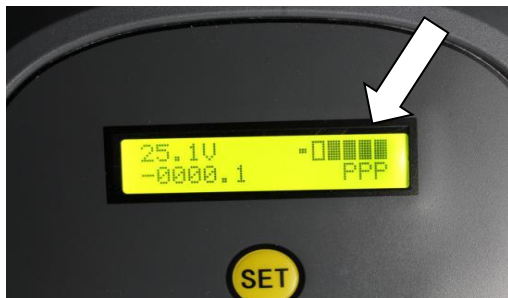
8、 Do not operate machine in areas where the ambient temperature is above 110· F/43· C or below freezing 32· F/0· C.

EMERGENCY SHUT-OFF BUTTON (Drive models)

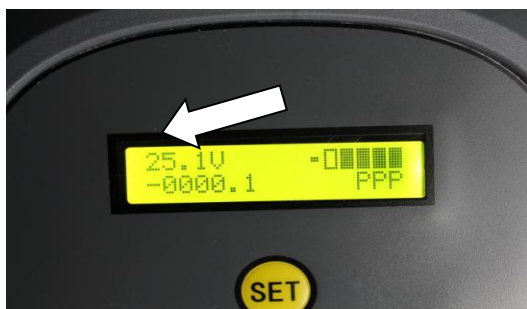
Push the emergency shut-off button in the event of an emergency This red button shuts off all power to machine. To regain power, turn the button clockwise and restart the key.



BATTERY DISCHARGE INDICATOR



Voltageindicator



Time indicator



DRAINING TANKS

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, remove key and set parking brake if equipped.

DRAINING RECOVERY TANK

Drain and clean the recovery tank daily and between solution tank refills.

- 1、 Transport the machine to drain area
- 2.For models equipped with drain hose caps, hold the hose upward, remove cap then slowly lower hose to drain.



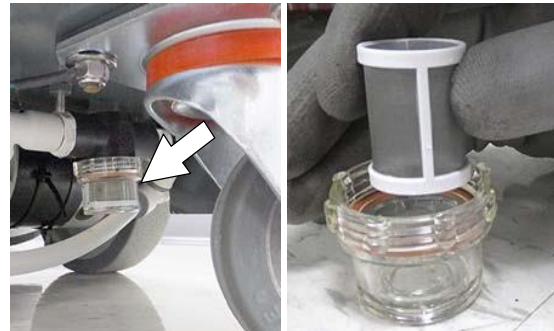
NOTE: When using a bucket to drain the machine, do not use the same bucket to fill the solution tank.

3、 Remove and clean the float shut-off screen。



3、 Rinse out solution tank with clean water

4、 Remove the solution tank filter and clean screen after every 50 hours of use (Figure 85).
Solution filter is located under machine at rear.
Drain solution tank before removing filter.



4、 Remove the debris tray and empty。



5、 Rinse out the recovery tank with clean water and wipe clean of any soil residue

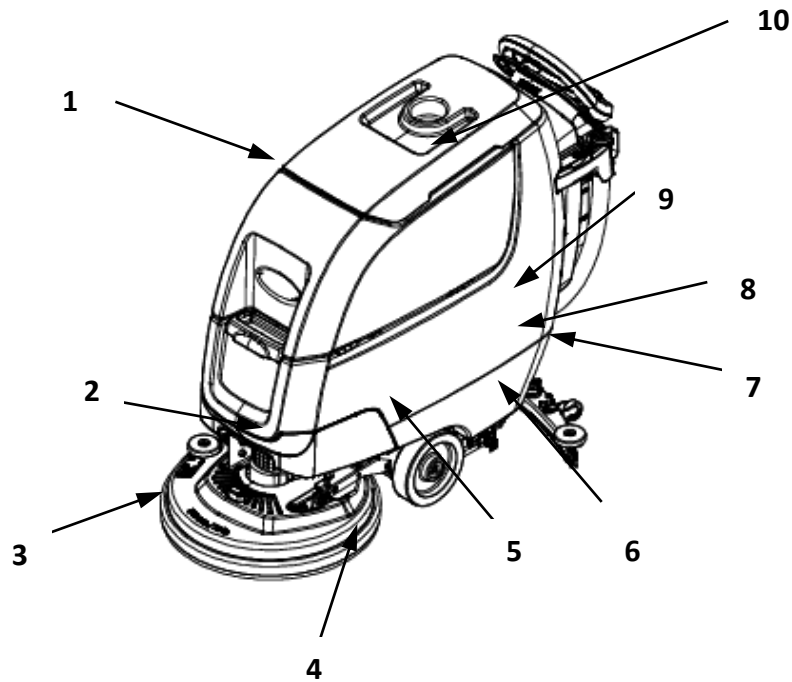
DRAINING SOLUTION TANK

Drain the solution tank daily.

- 1、 Transport the machine to drain area.
2. To drain remaining water from solution tank, pull the solution hose from the accessory rail



SERVICE INDICATOR CODES



Interval	Person	key	Description	Procedure
Daily	0	3	Pad(s)	Check, flip or replace
Daily	0	3	Brush(es)	Check, clean
Daily	0	1	Recovery tank	Drain, rinse, clean float shut-off screen and debris tray if equipped
Daily	0	9	Solution tank	Drain, rinse
Daily	0	7	Squeegee	Clean, check for damage and wear
Daily	0	8	Batteries	Charge if necessary
Daily	0	4	Scrub head skirt	Check for damage and wear
Daily	0	7	Squeegee assembly drip trap reservoir	Check, clean
50 Hours	0	10	Recovery tank lid seal	Check for wear.
50 Hours	0	6	Solution tank filter	Clean
100 Hours	0	8	Batteries, terminals and cables	Check and clean
750 Hours	T	1	Vacuum motor	Replace carbon brushes
1250 Hours	T	5	Drive motor	Replace carbon brushes
1250 Hours	T	2	Brush motor	Replace carbon brushes

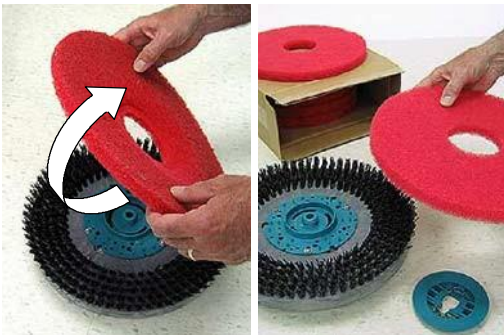
MACHINE MAINTENANCE



FOR SAFETY: When servicing machine wear personal protection equipment as needed. All repairs must be performed by trained personnel

AFTER DAILY USE

- 1、 Drain and rinse out the recovery tank
- 2、 Remove the debris tray and empty
- 3、 Disk scrub head - Turn pad over or replace when worn



- 4、 Insta-Click pad driver/brushes - clean any debris buildup from hub connection area



- 5、 Wipe the squeegee blades clean. Inspect blades for wear and damage Rotate blade if worn. See SQUEEGEE BLADE REPLACEMENT.



6. Check the scrub head skirt for wear or damage. Replace if worn or damaged.



- 7、 Clean the outside surface of the machine with an all purpose cleaner and damp cloth



- 8、 Remove the drip trap cover from the squeegee assembly and clean reservoir



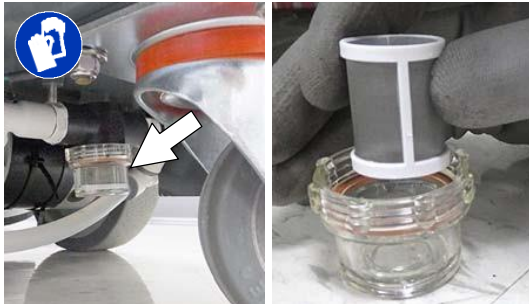
9、Charger for battery



Carbon brush	Hours
Vacuum motor	750
Propel motor (drive model)	1250
Brush motor	1250

AFTER EVERY 50 HOURS OF USE

1 Remove the solution tank filter and clean screen Turn the filter bowl counter-clockwise to remove. Make sure to drain solution tank before removing filter.



2. Inspect and clean the seal on the recovery tank lid. replace seal if damaged



Carbon Brush Replacement

Replace motor carbon brushes as indicated. Contact trained personnel for carbon brush replacement.

Battery

Maintenance-free (Sealed AGM) batteries do not require watering. Cleaning and other routine maintenance is still required.

CHECKING CONNECTIONS / CLEANING

After every 200 hours of use, check for loose battery connections and clean the surface of the batteries, including terminals and cable clamps to prevent battery corrosion. Use a scrub brush with a strong mixture of baking soda and water. Do not remove battery caps when cleaning batteries.

CHARGING BATTERIES

The charging instructions in this manual are intended for the battery charger supplied with your machine. The use of other battery chargers that are not supplied and approved by Tennant are prohibited.

If your machine is equipped with an off-board battery charger refer to the charger's owners manual for operating instructions. Contact distributor or Tennant for battery charger recommendations if machine is not equipped with charger.

FOR SAFETY: The use of incompatible battery chargers may damage battery packs and potentially cause a fire hazard.

IMPORTANT NOTICE: The battery charger is set to charge the battery type supplied with your machine. If you choose to change to a different battery type or capacity (i.e. flooded

(wet) lead-acid, maintenance-free, sealed, AGM batteries, etc.), the charger's charging profile must be changed to prevent battery damage. See BATTERY CHARGER SETTINGS.

1. Transport the machine to a well-ventilated area.

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

2. Park the machine on a flat, dry surface, turn off machine and remove key.

FOR SAFETY: When servicing batteries, stop on level surface, turn off machine, remove key and set parking brake if equipped.

3. If the machine is equipped with flooded (wet) lead- acid batteries check the battery electrolyte level weekly before charging. See FLOODED (WET) LEAD-ACID BATTERIES.



4. The charger will automatically begin charging and shut off when fully charged. The maximum charging cycle may take up to 6- 12 hours depending on battery type.

BATTERY CHARGER SETTINGS

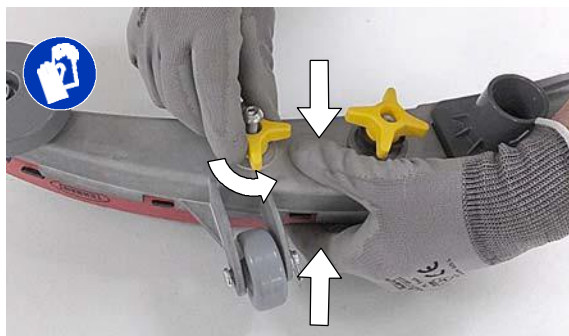
The battery charger is set to charge the battery type supplied with your machine. If you choose to change to a different battery type or capacity, the charger's charging profile must be changed to prevent battery damage.

SQUEEGEE BLADE REPLACEMENT

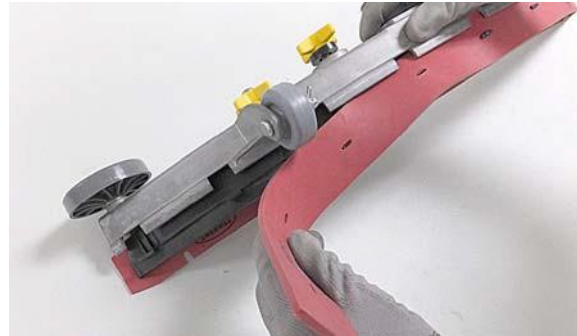
FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, remove key and set parking brake if equipped.

Each squeegee blade has four wiping edges. When the blades become worn, simply rotate the blades end-for-end or top-to-bottom for a new wiping edge. Replace blade if all four edges are worn.

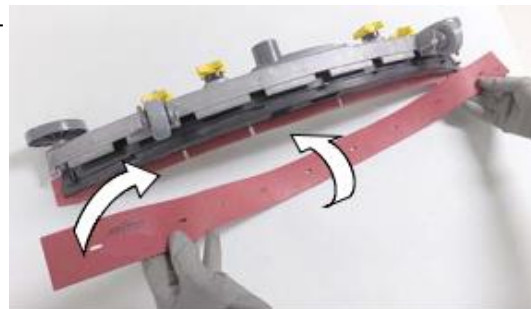
- 1、 Remove the squeegee assembly from the machine.
2. Fully loosen the two outside knobs on squeegee assembly.



- 3、 Remove worn blade(s) from the blade retainer



- 4、 Rotate the rear blade to a new wiping edge. makes sure to align the slots in the blade with retainer tabs



- 5、 Squeeze the squeegee frame and blade retainer together and re-tighten the two outside knobs



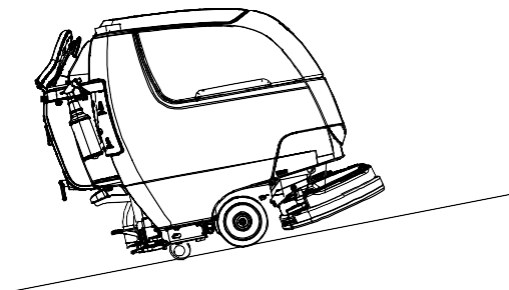
LOADING/UNLOADING MACHINE FOR TRANSPORTING

When transporting the machine by use of trailer or truck, carefully follow the loading and tie-down procedure:

1. Raise the scrub head and remove squeegee assembly.
2. Use a ramp that can support the machine weight and operator and carefully load machine. Do not operate the machine on a ramp incline that exceeds a 21% grade level (Figure 130). A winch must be used when ramp incline exceeds a 21% grade level.

FOR SAFETY: When loading/unloading machine onto/off truck or trailer, use a ramp that can support the machine weight and operator.

FOR SAFETY: Do not operate the machine on a ramp incline that exceeds a 21% grade level.



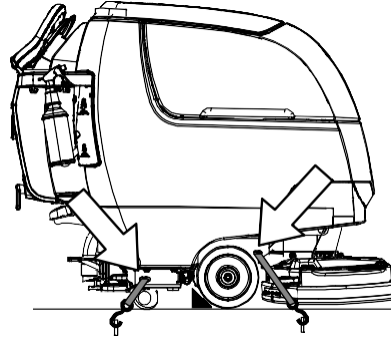
3. Once loaded, position the front of the machine up against the front of the trailer or truck. Lower the scrub head, turn key off and

set parking brake, if equipped

4. Place a block behind each wheel

5. Using tie-down straps, secure the machine using the four tie-down brackets located on the machine frame (Figure 131).

It may be necessary to install tie-down brackets to the floor of your trailer or truck.



STORING MACHINE

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

- 1 Charge the batteries before storing machine to prolong the life of the batteries. Recharge batteries every 3 months.
- 2 Drain and rinse recovery tank and solution tank.
- 3 Store the machine in a dry area with squeegee and scrub head in the up position.

ATTENTION: Do not expose machine to rain, store indoors.

- 4 Open the recovery tank lid to promote air circulation.

NOTE: To prevent potential machine damage store machine in a rodent and insect free environment.

FREEZE PROTECTION

Storing machine in freezing temperatures.

1. Completely drain solution tank and recovery tank.
- 2 Empty the water from the solution tank filter located under machine. Replace filter.
- 3 Pour 1 gallon / 4 liters of propylene glycol based recreational vehicle (RV) antifreeze into the solution tank.

Models equipped with optional Severe Environment detergent tank - Lift out the tank and empty the detergent from tank. Pour a 1/4 gallon / 1 liter of propylene glycol based recreational vehicle (RV) antifreeze into the detergent tank.

4 Turn machine on and operate the solution flow system. Turn the machine off when the antifreeze is visible on floor.

Models equipped with Severe Environment mode option - Press the Severe Environment button to cycle antifreeze through system.

5 After storing machine in freezing temperatures, drain any remaining antifreeze from the solution tank and from the optional Severe Environment detergent tank. Add clean water to solution tank and to optional detergent tank and operate the machine to flush system.

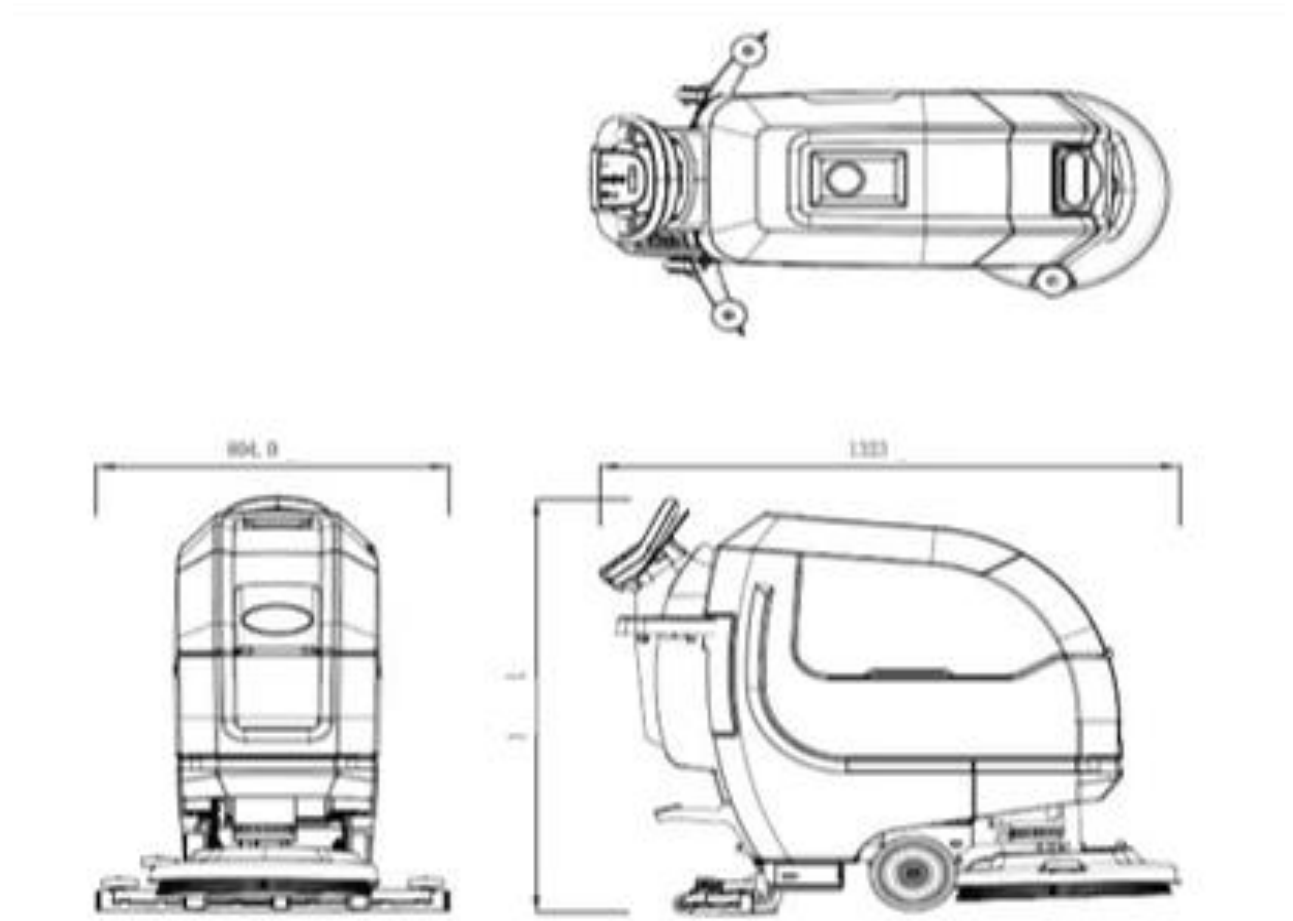
TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Machine will not operate	Emergency stop button activated	Turn button to reset
	Batteries discharged	See SERVICE INDICATOR CODES
	Loose battery cable(s)	Recharge batteries
	Faulty battery(s)	Tighten loose cables
	Faulty key switch	Replace battery(s)
	Faulty start bail switch	Contact service
	Circuit breaker tripped	Contact service
On-board battery charger will not operate	Plug not connected to power supply	Check plug connection
	Batteries over discharged	Replace batteries
	Battery charger fault detected	See SERVICE INDICATOR CODES
Machine will not propel (Drive Model)	Propel fault has been detected.	See SERVICE INDICATOR CODES
	Faulty propel motor or wiring	Contact service
	Worn carbon brushes in motor	Contact service
Brush motor will not operate	Brush motor fault has been detected.	See SERVICE INDICATOR CODES
	Faulty pad motor or wiring	Contact service
	Worn carbon brushes in motor	Contact service
Vacuum motor will not operate	Squeegee assembly is raised off floor	Lower squeegee assembly to floor
	Vacuum motor fault has been detected	See SERVICE INDICATOR CODES
	Faulty vacuum motor or wiring	Contact service
	Debris caught in brush/pad	Remove debris
	Worn brush/pad	Replace brushes/pad
	Wrong brush/pad type	Use correct brush/pad for application
	Low battery charge	Recharge batteries
Trailing water - poor or not water pickup	Full recovery tank or excessive foam buildup	Drain recovery tank
	Loose drain hose cap or flow control valve is open	Replace cap or close flow control valve on drain hose
	Worn squeegee blades	Rotate or replace squeegee blades
	Clogged drip trap (Squeegee assembly)	Remove cover and clean

	Clogged squeegee assembly	Clean squeegee assembly
	Loose vacuum hose connection	Secure vacuum hose connection
	Clogged vacuum hose	Flush vacuum hose
	Clogged vacuum hose	Flush vacuum hose
	Damaged vacuum hose	Replace vacuum hose
	Clogged float shut-off screen in recovery tank	Clean screen
	Recovery tank lid not completely closed	Check lid for obstructions
	Defective seals on recovery tank lid	Replaced seal
Little or no solution flow	Empty solution tank	Refill solution tank
	Low solution flow rate set	Increase solution flow rate
	Clogged solution tank filter	Clean filter
	Plugged solution supply line	Flush solution supply line
Short run time	Low battery charge	Charge batteries
	Batteries need maintenance	See BATTERIES
	Defective battery or end of battery life	Replace batteries
	Battery discharge indicator (BDI) programmed incorrectly	See CHARGING BATTERIES

Technical data

Technical Data	N-20	ND-20
Recovery/Solution Tank	55/50L	55/50L
Voltage DC		24VDC, 150W
Productivity rate	2200 m ² /h	2450 m ² /h
Cleaning path width	500mm	500mm
Brush pressure	23kg-41kg	23kg-41kg
Squeegee width	763mm	763mm
Brush motor	0.746KW 200rpm	0.746KW 200rpm
Vacuum motor	450W	450W
Voltage DC	24VDC	24VDC
Maintenance Fee Battery	110AH	110AH
Run Time Per Charge	2.5h-3h	2h-2.5h
Noise Level	66.5dba	66.5dba
Volume(L*W*H)	1372 × 560 × 1095mm	1372 × 560 × 1095mm
Weight	168KG	178KG



MACHINE DIMENTIONS