

Operator manual-



A-2 / ENGLISH

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INTRODUCTION

This manual will help you get the most from your Nil sk Rider Scrubber. Read it thoroughly before operating the machine.

Note: Bold numbers in parentheses indicate an item illustrated on pages A-4 – A-6.

This product is intended for commercial use only.

PARTS AND SERVICE

Repairs, when required, should be performed by your Authorized Nil sk Service Center, who employs factory trained service personnel, and maintains an inventory of Nil sk original replacement parts and accessories.

Call the NILFISK DEALER named below for repair parts or service. Please specify the Model and Serial Number when discussing your machine.

MODIFICATIONS

Modifications and additions to the cleaning machine which affect capacity and safe operation shall not be performed by the customer or user without prior written approval from Nil sk A/S. Unapproved modifications will void the machine warranty and make the customer liable for any resulting accidents.

NAME PLATE

The Model Number and Serial Number of your machine are shown on the Nameplate on the machine. This information is needed when ordering repair parts for the machine. Use the space below to note the Model Number and Serial Number of your machine for future reference.

MODEL NUMBER _____

SERIAL NUMBER _____

UNCRATE THE MACHINE

When the machine is delivered, carefully inspect the shipping packaging and the machine for damage. If damage is evident, save the shipping carton (if applicable) so that it can be inspected. Contact the Nil sk Customer Service Department immediately to file a freight damage claim. Refer to the unpacking instruction sheet included with the machine to remove the machine from the pallet.

CAUTIONS AND WARNINGS

SYMBOLS

Nil sk uses the symbols below to signal potentially dangerous conditions. Always read this information carefully and take the necessary steps to protect personnel and property.

DANGER!

Is used to warn of immediate hazards that will cause severe personal injury or death.

WARNING!

Is used to call attention to a situation that could cause severe personal injury.

CAUTION!

Is used to call attention to a situation that could cause minor personal injury or damage to the machine or other property.



Read all instructions before using.

GENERAL SAFETY INSTRUCTIONS

Specific Cautions and Warnings are included to warn you of potential danger of machine damage or bodily harm. This machine is for commercial use, for example in hotels, schools, hospitals, factories, shops and of ces other than normal residential housekeeping purposes.

WARNING!

- * This machine shall be used only by properly trained and authorized persons.
- * This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.
- * While on ramps or inclines, avoid sudden stops. Avoid abrupt sharp turns. Use low speed down ramps.
- * Keep sparks, ame and smoking materials away from batteries. Explosive gases are vented during normal operation.
- * Charging the batteries produces highly explosive hydrogen gas. Charge batteries only in well-ventilated areas, away from open ame. Do not smoke while charging the batteries.
- * Remove all jewelry when working near electrical components.
- * Turn the key switch off (O) and disconnect the batteries before servicing electrical components.
- * Never work under a machine without safety blocks or stands to support the machine.
- * Do not dispense ammable cleaning agents, operate the machine on or near these agents, or operate in areas where ammable liquids exist.
- * Do not clean this machine with a pressure washer.
- * Only use the brushes provided with the appliance or those speci ed in the instruction manual. The use of other brushes may impair safety.
- * Observe the Gross Vehicle Weight, GVW, of the machine when loading, driving, lifting or supporting the machine.

CAUTION!

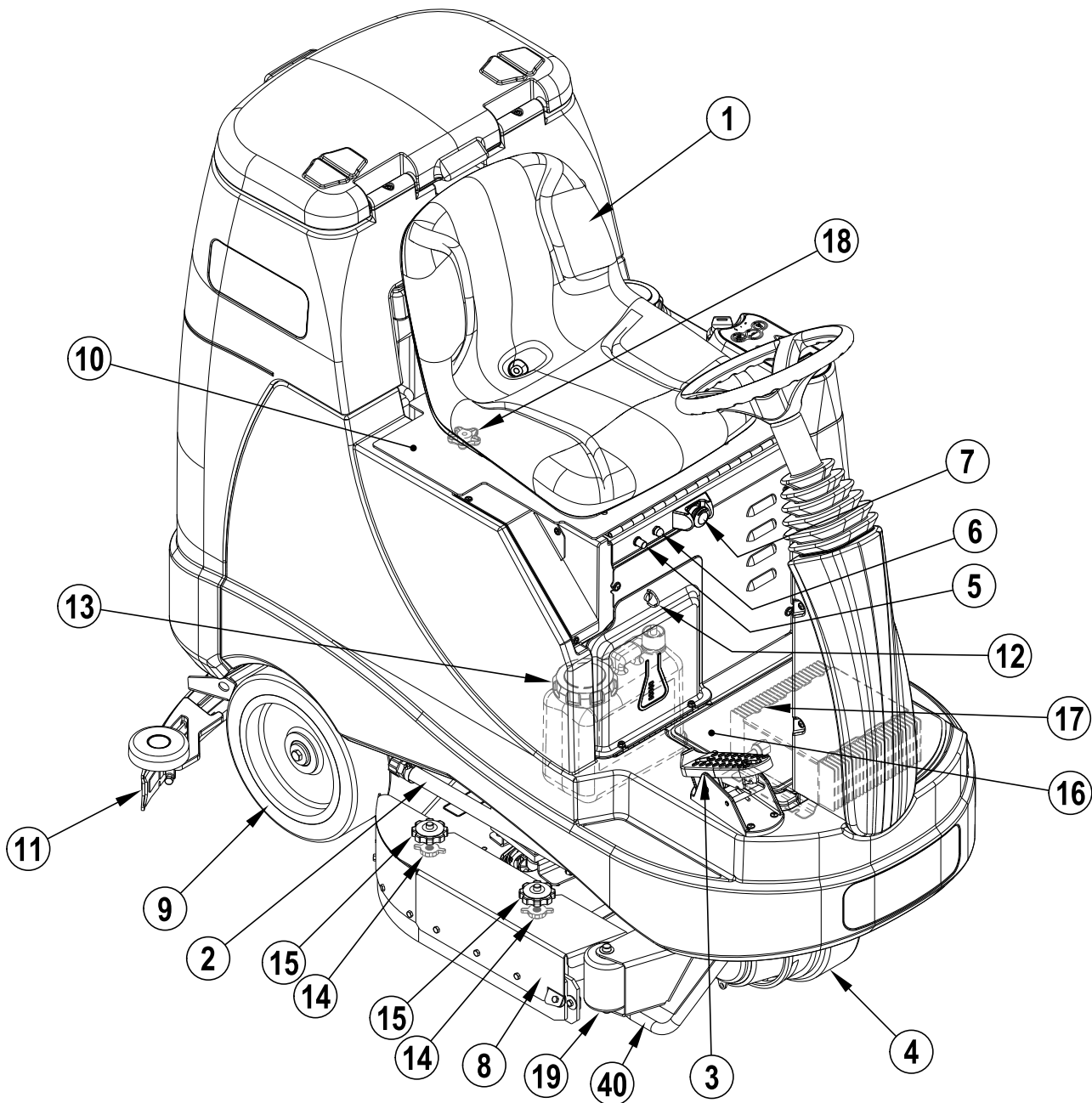
- * This machine is not approved for use on public paths or roads.
- * This machine is not suitable for picking up hazardous dust.
- * Do not use scari er discs and grinding stones. Nil sk will not be held responsible for any damage to oor surfaces caused by scari ers or grinding stones (can also cause damage to the brush drive system).
- * When operating this machine, ensure that third parties, particularly children, are not endangered.
- * Before performing any service function, carefully read all instructions pertaining to that function.
- * Do not leave the machine unattended without rst turning the key switch off (O), removing the key and applying the parking brake.
- * Turn the key switch off (O) and remove the key, before changing the brushes, and before opening any access panels.
- * Take precautions to prevent hair, jewelry, or loose clothing from becoming caught in moving parts.
- * Use caution when moving this machine in below freezing temperature conditions. Any water in the solution, recovery or detergent tanks or in the hose lines could freeze, causing damage to valves and ttings. Flush with windshield washer uid.
- * The batteries must be removed from the machine before the machine is scrapped. The disposal of the batteries should be safely done in accordance with your local environmental regulations.
- * Do not use on surfaces having a gradient exceeding that marked on the machine.
- * All doors and covers are to be positioned as indicated in the instruction manual before using the machine.
- * This machine should only be used and stored indoors.

SAVE THESE INSTRUCTIONS

KNOW YOUR MACHINE

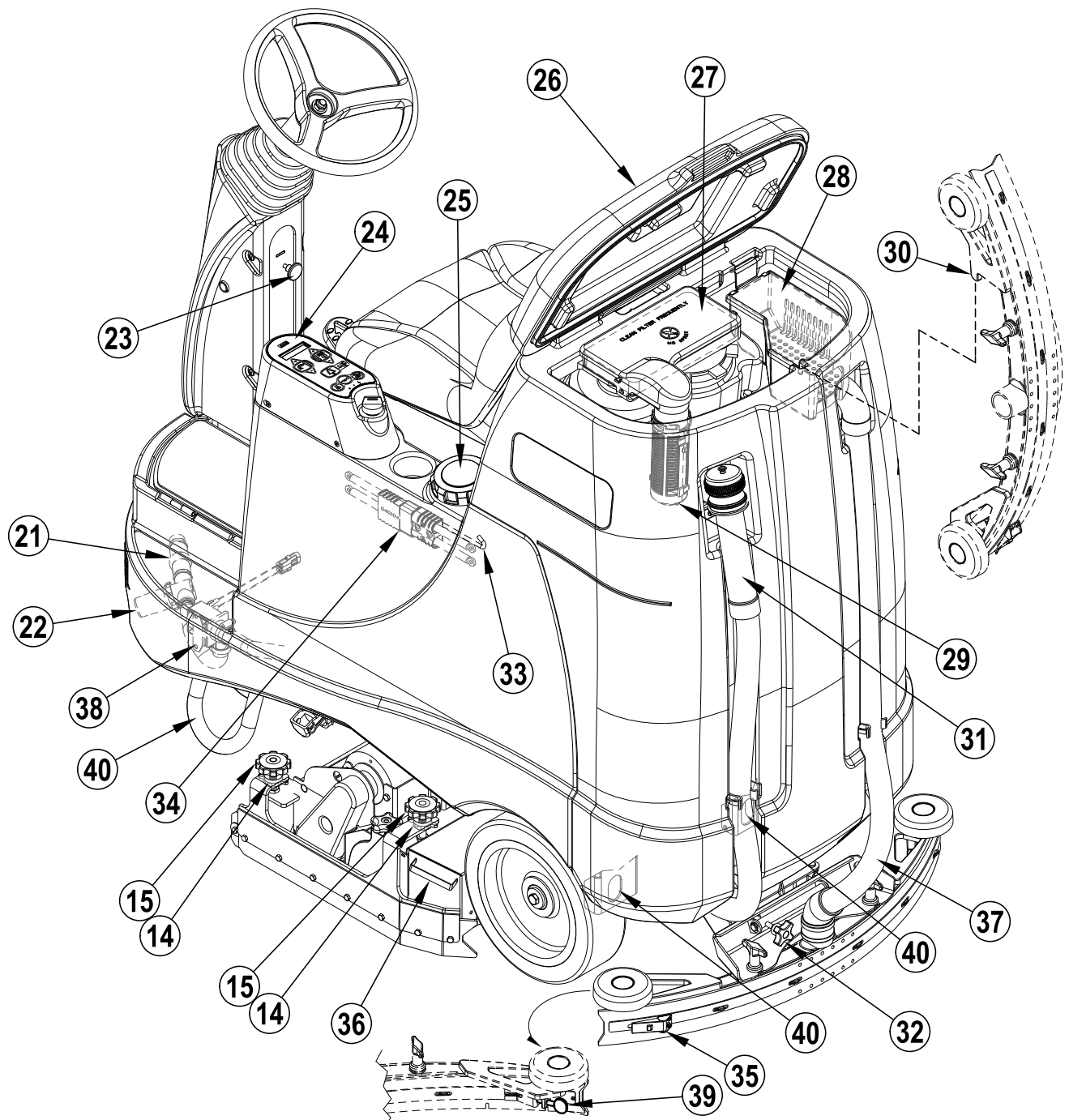
As you read this manual, you will occasionally run across a bold number or letter in parentheses - example: **(2)**. These numbers refer to an item shown on these pages unless otherwise noted. Refer back to these pages whenever necessary to pinpoint the location of an item mentioned in the text. **NOTE:** Refer to the service manual for detailed explanations of each item illustrated on the next 3 pages.

- | | |
|--|---|
| 1 Operator's Seat | 10 Battery Compartment (under seat) |
| 2 Solution Tank Drain Hose | 11 Squeegee Assembly |
| 3 Drive Pedal, Directional/Speed | 12 Detergent Cartridge Access Cover (EcoFlex models only) |
| 4 Drive Wheel | 13 Detergent Cartridge (EcoFlex models only) |
| 5 Drive Wheel Circuit Breaker (70 Amp) | 14 Deck Skirt Height Adjustment Knob |
| 6 Control Circuit Circuit Breaker (10 Amp) | 15 Deck Skirt Removal Knobs |
| 7 Emergency Stop | 16 Battery Charger Access Door |
| 8 Scrub Deck | 17 Battery Charger (optional) |
| 9 Rear Wheel | 18 Seat Adjustment Knob |
| | 19 Front Roller Bumper |



KNOW YOUR MACHINE

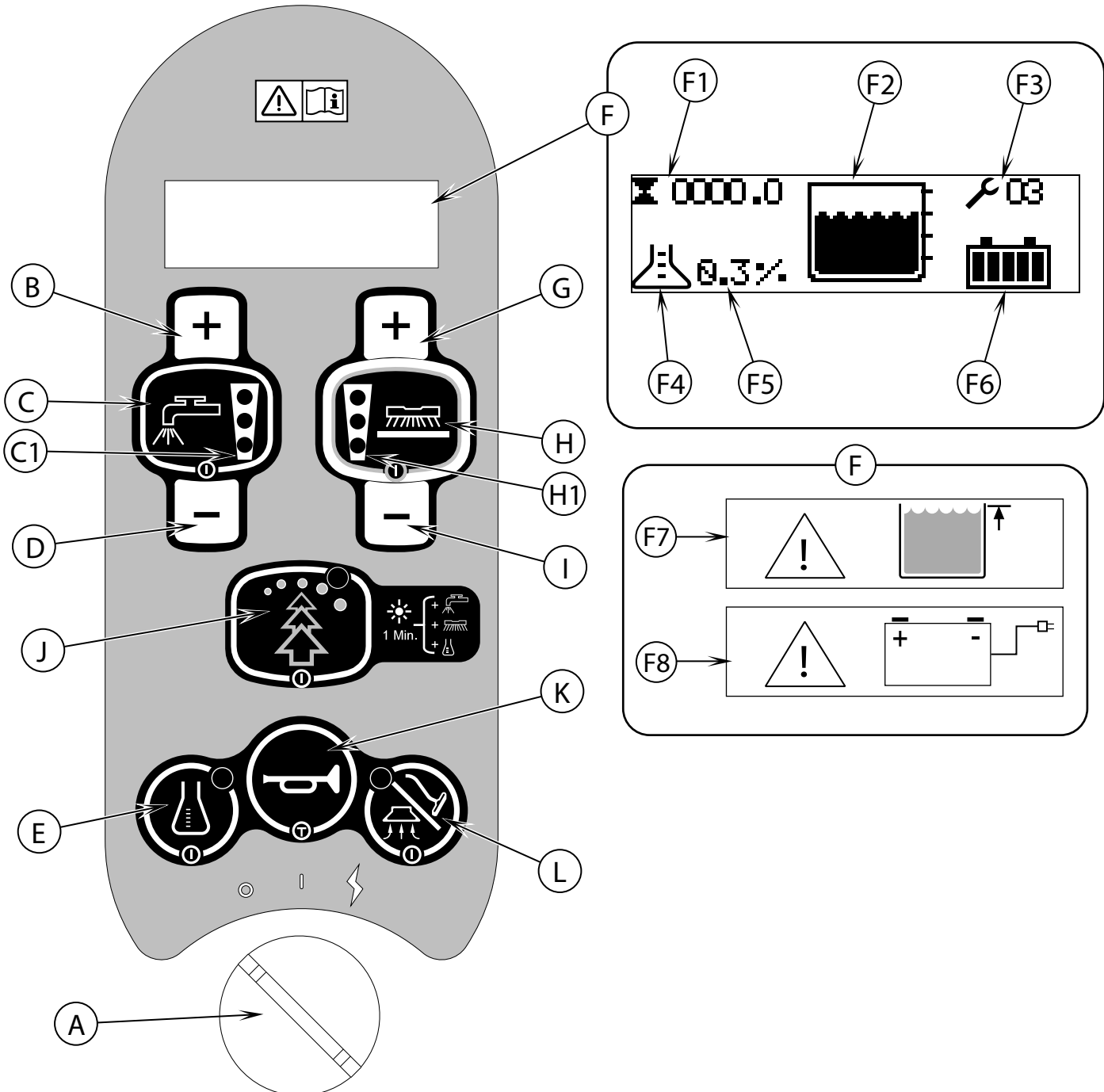
- | | | | |
|----|---------------------------------|----|--|
| 21 | Solution Shutoff Valve | 31 | Recovery Tank Drain Hose |
| 22 | Solution Filter | 32 | Squeegee Tilt Adjustment Knob |
| 23 | Steering Wheel Tilt Adjust Knob | 33 | Seat Prop-Rod |
| 24 | Control Panel | 34 | Machine Battery Connector |
| 25 | Solution Tank Fill Cover | 35 | Rear Squeegee Blade Removal Latch |
| 26 | Recovery Tank Cover | 36 | Hopper (Cylindrical models only) |
| 27 | Vacuum Motor Filter Housing | 37 | Recovery Hose |
| 28 | Strainer Basket | 38 | Solution Solenoid Valve |
| 29 | Recovery Tank Shutoff Float | 39 | Front Squeegee Blade Removal Thumb Nut |
| 30 | Squeegee Storage Hook | 40 | Tie Down Locations |



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CONTROL PANEL

- A Key Switch
- B Solution Increase Switch
- C Solution ON/OFF Switch
- C1 Solution Flow Indicators (Normal, Heavy & Extreme)
- D Solution Decrease Switch
- E Detergent ON/OFF Switch
- F Display
- F1 Hour Meter
- F2 Solution Tank Level Indicator
- F3 Fault Codes
- F4 Detergent Indicator (if so equipped)
- F5 Detergent Percentage Indicator
- F6 Battery Indicator
- F7 Recovery Tank FULL Indicator
- F8 Battery Low Indicator
- G Scrub Pressure Increase Switch
- H Scrub ON/OFF Switch
- H1 Scrub Pressure Indicators (Normal, Heavy and Extreme)
- I Scrub Pressure Decrease Switch
- J EcoFlex Switch
- K Horn Switch
- L Vacuum/Wand Switch



BATTERIES

If your machine shipped with batteries installed do the following:

- Check that the batteries are connected to the machine (34).
- Turn ON the Key Switch (A) and check the Battery Indicator (F6). If the gauge is completely filled, the batteries are ready for use. If the gauge is less than full, the batteries should be charged before use. See the "Charging The Batteries" section.
- **IMPORTANT!: IF YOUR MACHINE HAS AN ONBOARD BATTERY CHARGER REFER TO THE OEM PRODUCT MANUAL FOR INSTRUCTIONS REGARDING SETTING THE CHARGER FOR BATTERY TYPE.**

If your machine shipped without batteries installed do the following:

- Consult your Authorized Nilisk dealer for recommended batteries.
- Install the batteries by following the instructions below.
- **DO NOT install two 12 volt batteries in your machine. This affects the stability of the machine.**
- **IMPORTANT!: IF YOUR MACHINE HAS AN ONBOARD BATTERY CHARGER REFER TO THE OEM PRODUCT MANUAL FOR INSTRUCTIONS REGARDING SETTING THE CHARGER FOR BATTERY TYPE.**

INSTALL THE BATTERIES

⚠ WARNING !

Use extreme caution when working with batteries. Sulfuric acid in batteries can cause severe injury if allowed to contact the skin or eyes. Explosive hydrogen gas is vented from inside the batteries through openings in the battery caps. This gas can be ignited by any electrical arc, spark or flame.

When Servicing Batteries...

- * Remove all jewelry.
- * Do not smoke.
- * Wear safety glasses, a rubber apron and rubber gloves.
- * Work in a well-ventilated area.
- * Do not allow tools to touch more than one battery terminal at a time.
- * ALWAYS disconnect the negative (ground) cable first when replacing batteries to prevent sparks.
- * ALWAYS connect the negative cable last when installing batteries.

⚠ CAUTION !

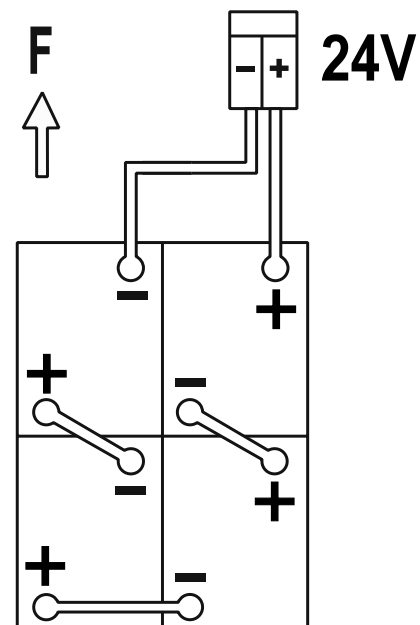
Electrical components in this machine can be severely damaged if the batteries are not installed and connected properly. Batteries should be installed by Nilisk or by a qualified electrician.

- 1 Turn the Key Switch (A) off (O) and remove the key. Then swing open the Battery Compartment Cover (10) and set the Prop-Rod (33).
- 2 Using (2) people and an appropriate lifting strap, carefully lift the batteries into the compartment tray exactly as shown. Refer to decal 56601416 battery cable layout.
- 3 **See Figure 1.** Install battery cables as shown and tighten the nuts on the battery terminals.
- 4 Install the battery boots and secure tightly to the battery cables with the supplied tie straps.
- 5 Connect the battery pack connector to the machine connector (34) and close the battery compartment cover.

When changing batteries or the charger, please contact your local authorized service center for correct battery, charger and machine settings to prevent battery damage.

FIGURE 1

420 Ah, 20 Hr. Rate



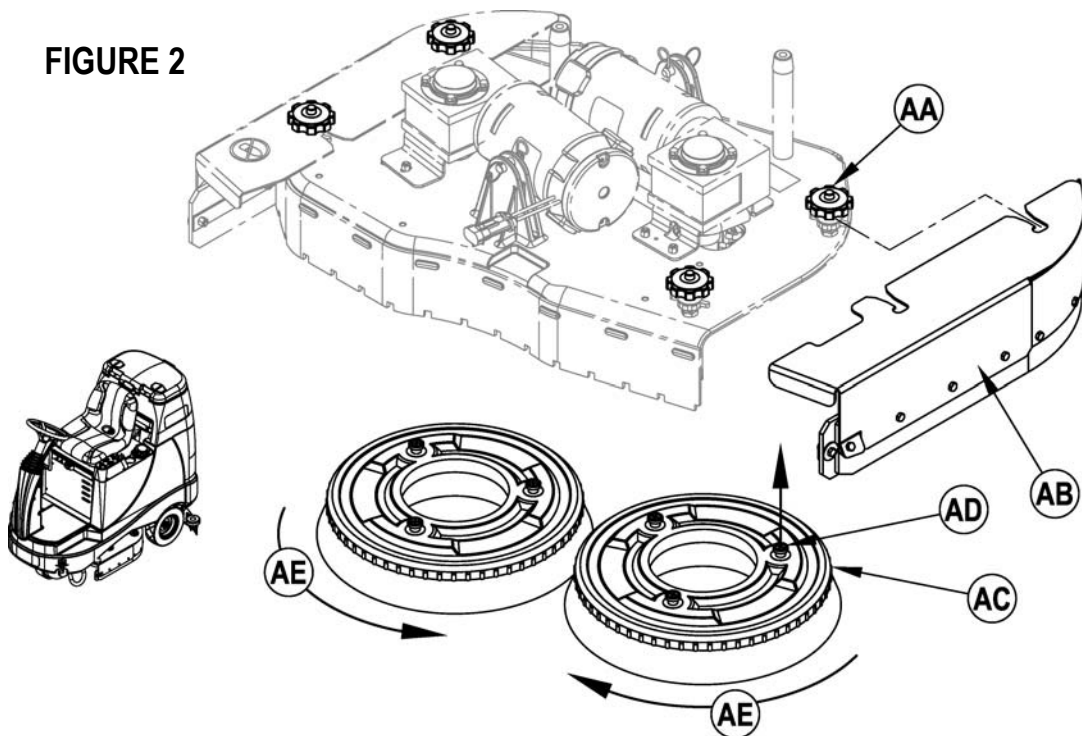
INSTALL THE BRUSHES (DISC SYSTEM)

⚠ CAUTION !

Turn the key switch off (O) and remove the key, before changing the brushes, and before opening any access panels.

- 1 Make sure the Scrub Deck is in the RAISED position. Make sure the Key Switch (A) is off (O).
- 2 See Figure 2. Remove both side skirt assemblies. **NOTE:** The skirts are held in place by two large Knobs (AA). Loosen these knobs and slide the Skirt Assemblies (AB) slightly forward and then off of the Scrub Deck.
- 3 To mount the Brushes (AC) (or pad holders) align the Lugs (AD) on the brush with the holes on the mounting plate and turn to lock in place (turn the outside edge of brush towards the front of machine as shown (AE)).

FIGURE 2



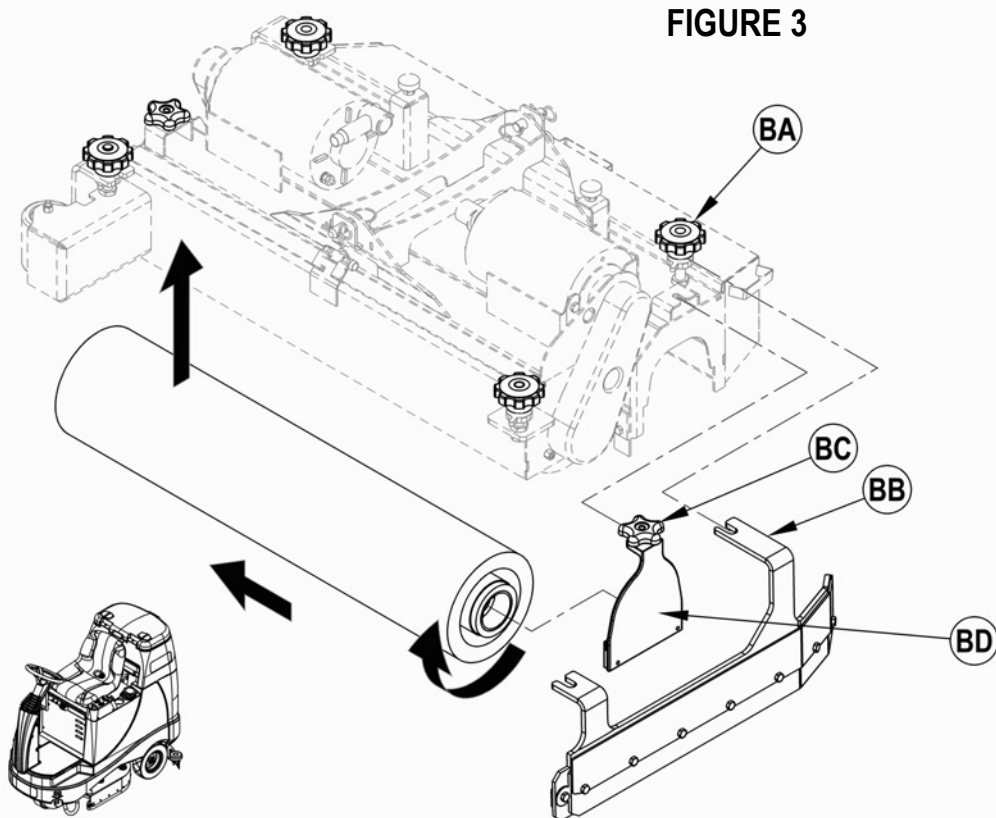
INSTALL THE BRUSHES (CYLINDRICAL SYSTEM)

⚠ CAUTION !

Turn the key switch off (O) and remove the key, before changing the brushes, and before opening any access panels.

- 1 Make sure the Scrub Deck is in the RAISED position. Make sure the Key Switch (A) is off (O).
- 2 See Figure 3. Remove both side skirt assemblies. **NOTE:** The skirts are held in place by two large Knobs (BA). Loosen these knobs and then slide the Skirt Assemblies (BB) off of the Scrub Deck.
- 3 Loosen the Black Knobs (BC) on top of the Idler Assemblies (BD) and remove the assembly
- 4 Slide the brush into the housing, lift slightly, push and turn until it seats. Re-install the Idler Assemblies (BD) and Skirt Assemblies (BB).

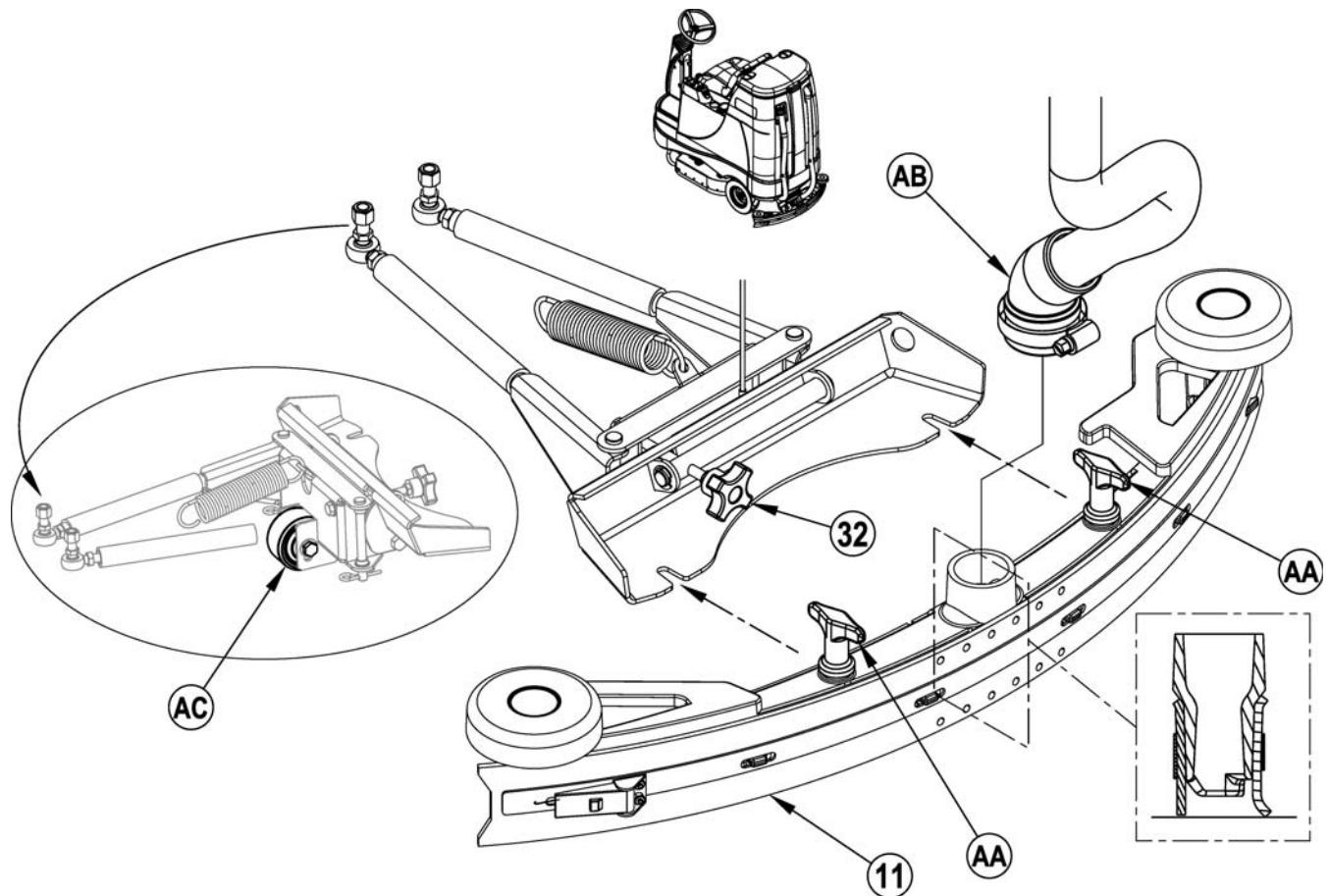
FIGURE 3



INSTALL THE SQUEEGEE

- 1 See Figure 4. Slide the Squeegee Assembly (11) onto the squeegee mount bracket and tighten the Squeegee Mount Thumb Nuts (AA).
- 2 Connect the Recovery Hose (AB) to the squeegee inlet.
- 3 Lower the squeegee, move the machine ahead slightly and adjust the squeegee tilt and height using the Squeegee Tilt Adjust Knob (32) and Squeegee Height Wheel (AC) so that the rear squeegee blade touches the floor evenly across its entire width and is bent over slightly as shown in the squeegee cross section.

FIGURE 4



FILL THE SOLUTION TANK

Read the cleaning chemical label and calculate the proper amount of chemical to mix for a tank that holds 28 US gallons (110 liters).

Open the Solution Tank Cover (2), then fill the tank 1/3 full of water, add the cleaning chemical, then fill up the tank the remainder of the way. **NOTE:** EcoFlex machines can either be used conventionally with detergent mixed in the tank or the detergent system can be used. When using the detergent dispensing do not mix detergent in the tank, plain water should be used.

CAUTION !

Use only low-foaming, non-ammable liquid detergents intended for automatic scrubber machine applications. Water temperature should not exceed 130 degrees Fahrenheit (54.4 degrees Celsius).

DETERGENT SYSTEM PREPARATION AND USE (ECOFLEX MODELS ONLY)

COMMON INSTRUCTIONS:

Pressing and releasing the Detergent Switch (E) while the solution system is active will cause the detergent system to alternately turn on and off. The system should be purged of previous detergent when switching to a different detergent. **SERVICE NOTE:** Move machine over floor drain before purging because a small amount of detergent will be dispensed in the process.

To Purge When Changing Chemicals:

- 1 Disconnect and remove the detergent cartridge.
- 2 Turn the Key Switch (A) ON. Press and hold the Solution Switch (C) and the Detergent Switch (E) down for 3 seconds. **NOTE:** Once activated the purge process takes 20 seconds. See illustration on next page for Detergent System indicators. Normally one purge cycle is adequate to purge the system.

To Purge Weekly:

- 1 Disconnect and remove the detergent cartridge. Install and connect a Cartridge filled with clean water.
- 2 Turn the Key Switch (A) ON. Press and hold the Solution Switch (C) and the Detergent Switch (E) down for 3 seconds. **NOTE:** Once activated the purge process takes 20 seconds. See illustration on next page for Detergent System indicators. Normally one purge cycle is adequate to purge the system.

When the Detergent Cartridge is almost empty a Display Panel (F4) indicator will come on. The "Low Detergent" indicator will remain on until you reset the system. Once this indicator comes on you should be able to simply pour an entire gallon bottle of detergent into the Cartridge to refill without worrying about measuring. **NOTE:** Only reset the system when the cartridge is full. When switching cartridges, the "Low Detergent" indicator is only accurate if the replacement cartridge is at the same level as the cartridge being replaced.

To Reset:

- 1 Turn the Key Switch (A) ON. Press and hold the Solution Increase Switch (B) and the Solution Decrease Switch (D) down for 3 seconds. See illustration on next page for Detergent System indicators.

Detergent Percentage:

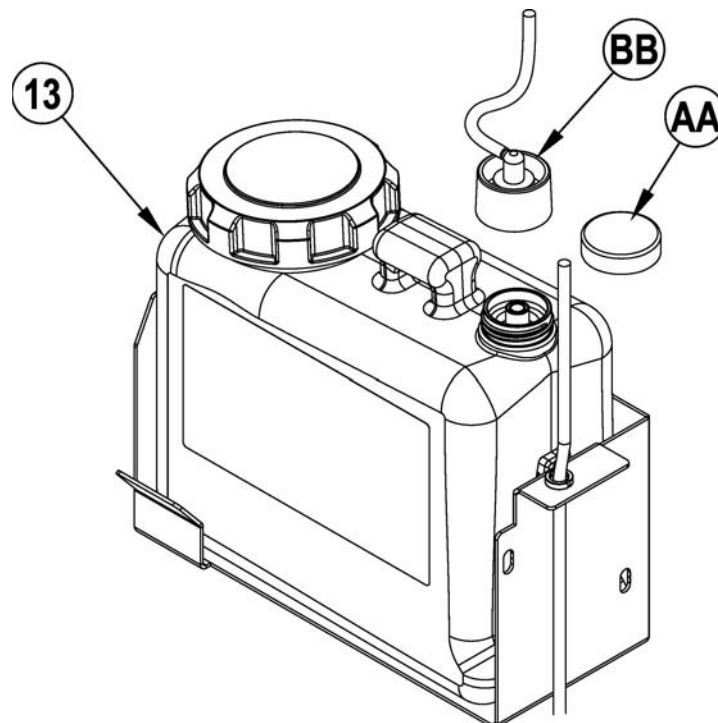
- 1 The detergent percentage default is 0.25%. To change the percentage, the detergent system must be OFF, then press and hold the Detergent ON/OFF Switch (E) for 2 seconds. The detergent indicator will flash and each press of the switch will cycle through the available percentages (3%, 2%, 1.5%, 1%, 0.8%, 0.66%, 0.5%, 0.4%, 0.3%, 0.25%). Once the desired percentage is displayed on the screen (F5), stop and it will lock in after 5 seconds.

CARTRIDGE INSTRUCTIONS:

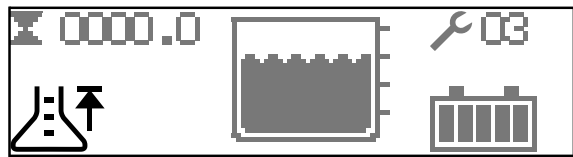
The Detergent Cartridge (13) is located behind the Detergent Cartridge Access Door (12) in the operator's compartment. Fill the detergent cartridge with a maximum of 1.25 gallons (4.73 Liters) of detergent. **SERVICE NOTE:** Remove the detergent cartridge from the detergent box prior to filling to avoid spilling detergent on the machine.

It is recommended that a separate cartridge be used for each detergent you plan to use. The detergent cartridges have a white decal on them so you can write the detergent name on each cartridge to avoid mixing them up. When installing a new cartridge, remove the Cap (AA) and place the cartridge in the detergent box. Install the Dry Break Cap (BB) and detergent hose as shown.

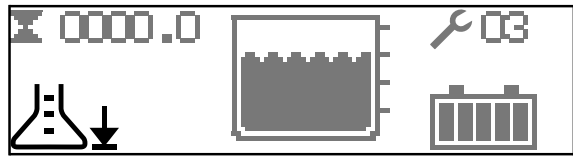
FIGURE 5



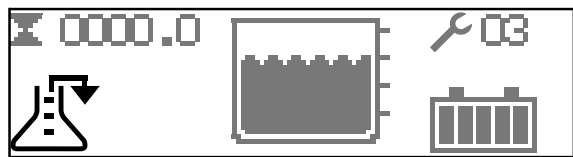
DETERGENT SYSTEM PREPARATION AND USE (ECOFLEX MODELS ONLY)



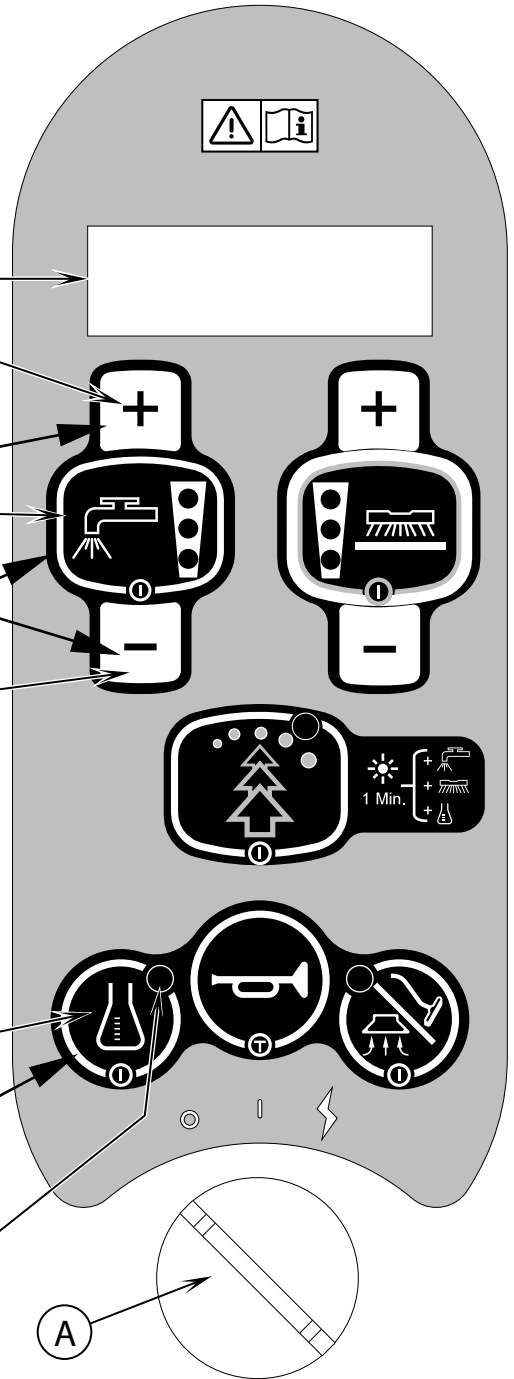
FULL (RESET)



LOW DETERGENT



PURGE



Detergent system is ON when indicator is ON.

OPERATING THE MACHINE

WARNING!

Be sure you understand the operator controls and their functions.

While on ramps or inclines, avoid sudden stops when loaded. Avoid abrupt sharp turns. Use low speed down hills. Clean only while ascending (driving up) the ramp.

To Scrub...

Follow the instructions in "preparing the machine for use" section of this manual.

- 1 **See Figure 6.** While seated on the machine, adjust the steering wheel to a comfortable position using the Steering Wheel Tilt Adjust Knob (23). The seat can be adjusted if necessary by tipping up the seat and using the adjustment knob (18).
- 2 Turn the Master Key Switch (A) ON (I). This will display the control panel indicator lights. Reference the Battery Condition Indicator (F6) and Hour Meter (F1) before proceeding.
- 3 To transport the machine to the work area, apply even pressure with your foot on the front of the Drive Pedal (3) to go forward or the rear of the pedal for reverse. Vary the pressure on the foot pedal to obtain the desired speed.
- 4 Press and hold the Solution Switch (C) to pre-wet the floor, solution will be dispensed while the switch is held. **NOTE:** This will help prevent scarring of the floor surface when starting to scrub with dry brushes. This must be done prior to pressing the Scrub ON Switch (H).
- 5 Press the Scrub ON/OFF Switch (H), the scrub deck and squeegee will automatically be lowered to the floor. The scrub, vacuum, solution and detergent (EcoFlex models) systems all start when the Drive Pedal (3) is activated.
The scrub pressure will default to Normal (one scrub pressure indicator lit). Use the Scrub Pressure Increase Switch (G) and Scrub Pressure Decrease Switch (I) to change between Normal, Heavy and Extreme Scrub modes. The solution flow rate will automatically adjust to coincide with the scrub pressure.
NOTE: The solution flow rate can be changed independently of the scrub pressure by pressing the Solution Increase Switch (B) or Solution Decrease Switch (D). Any subsequent scrub pressure adjustments will reset the solution flow rate to correspond with the scrub pressure.
NOTE: The scrub, solution, vacuum and detergent (EcoFlex models) systems are automatically enabled when the Scrub ON/OFF Switch (H) is pressed. Any individual system can be turned OFF or back ON by simply pressing its switch at any time during scrubbing.
NOTE: When operating the machine in reverse the squeegee automatically raises.
- 6 Begin scrubbing by driving the machine forward in a straight line at a normal walking speed and overlap each path by 2-3 inches (50-75 mm). Adjust the machine speed and solution flow when necessary according to the condition of the floor.

CAUTION!

To avoid damaging the floor, keep the machine moving while the brushes are turning.

- 7 When scrubbing, check behind the machine occasionally to see that all of the waste water is being picked up. If there is water trailing the machine, you may be dispensing too much solution, the recovery tank may be full, or the squeegee tool may require adjustment.
- 8 The machine defaults to the EcoFlex cleaning mode (EcoFlex Switch Indicator is lit GREEN) conserving solution and detergent. Press the EcoFlex Switch (J) to override the EcoFlex cleaning mode and temporarily increase scrub pressure, solution flow and the detergent percentage. This will cause the indicator to flash yellow for one minute, solution flow rate will increase to the next level, scrub pressure will increase to the next level and the detergent percentage will increase to the next larger percentage. **NOTE:** For machines that do not have detergent installed, pressing the EcoFlex switch will temporarily increase scrub pressure and solution flow.
NOTE: Pressing and holding the EcoFlex Switch (J) for 2 seconds disables the EcoFlex system. The only way to re-enable is to push the EcoFlex Switch (J) again. Cycling the Key Switch (A) does not re-enable the system. The EcoFlex system will only function if the Scrub System (H) has been enabled.
- 9 For extremely dirty floors, a one-pass scrubbing operation may not be satisfactory and a "double-scrub" operation may be required. This operation is the same as a one-pass scrubbing except on the first pass the squeegee is in the up position (press the Vacuum/Wand Switch (L) to raise the squeegee). This allows the cleaning solution to remain on the floor to work longer. The final pass is made over the same area, with the squeegee lowered to pick up the accumulated solution.
- 10 The recovery tank has a shut-off float (29) that causes ALL systems to turn OFF except the drive system when the recovery tank is full. When this float is activated, the recovery tank must be emptied. The machine will not pick up water or scrub with the float activated.
NOTE: All other indicators vanish and a "Recovery Tank FULL" Indicator (F7) appears on the Display Panel when the float is activated.
- 11 When the operator wants to stop scrubbing or the recovery tank is full, press the Scrub ON/OFF Switch (H) once. This will automatically stop the scrub brushes and solution flow and the scrub deck will raise up. The squeegee will raise up after a brief delay and the vacuum will stop after a brief delay (this is to allow any remaining water to be picked up without turning the vacuum back on).
- 12 Drive the machine to a designated waste water "DISPOSAL SITE" and empty the recovery tank. To empty, pull the Drain Hose (31) from its rear storage area, then unscrew the cap (hold the end of the hose above the water level in the tank to avoid sudden, uncontrolled flow of waste water). Re fill the solution tank and continue scrubbing.
NOTE: Make sure the Recovery Tank Cover (26) and the Recovery Tank Drain Hose (31) cap are properly seated or the machine will not pick-up water correctly.

When the batteries require recharging the Battery LOW Indicator (F8) will come on. Then the scrub brushes and solution flow will stop and the scrub deck will raise up. The squeegee will raise up after a brief delay and the vacuum will stop after a brief delay. Transport the machine to a service area and recharge the batteries according to the instructions in the Battery section of this manual.

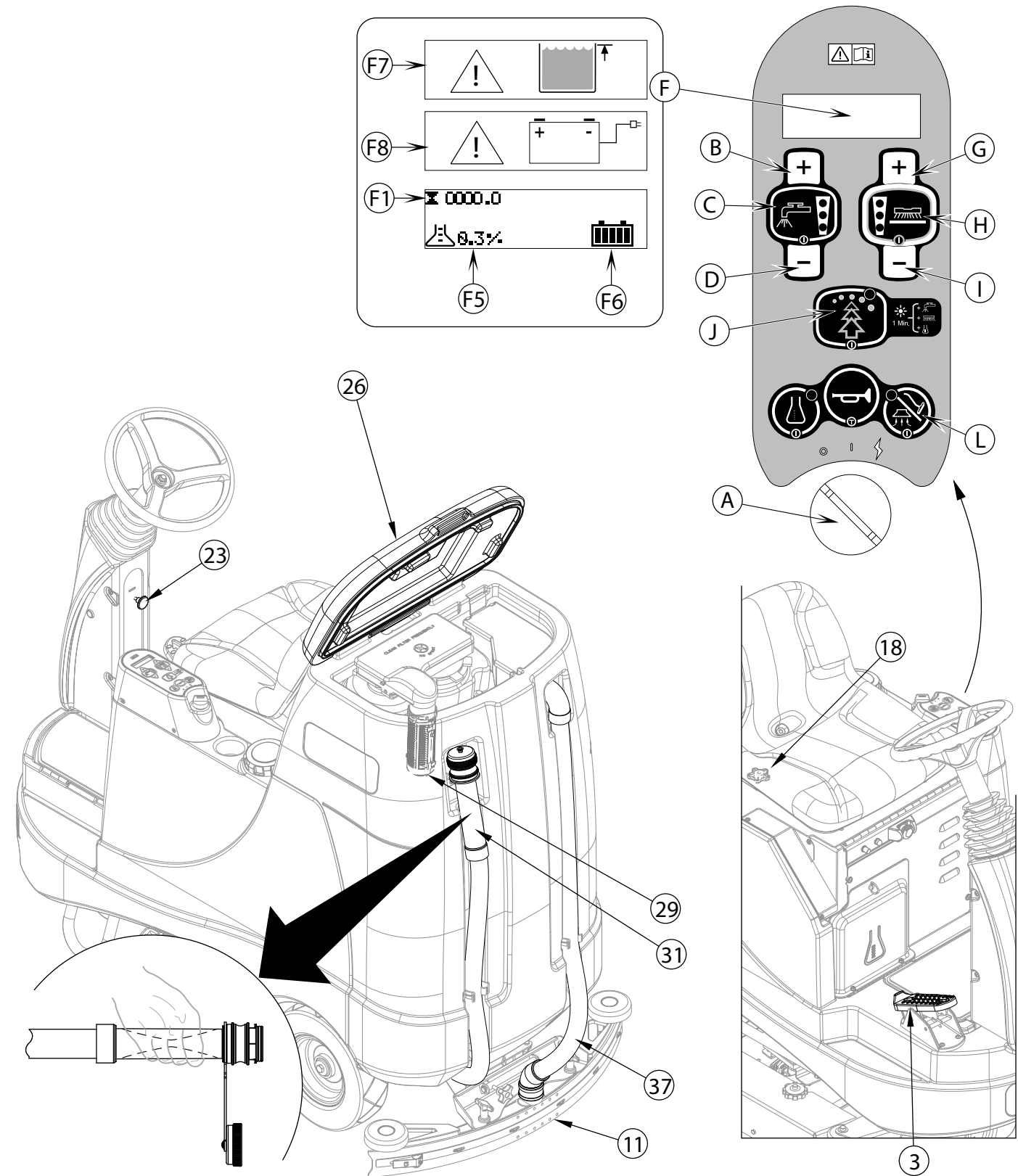
WET VACUUMING

Steps to follow in fitting the machine with optional attachments for wet vacuuming.

- 1 Disconnect the Recovery Hose (37) from the Squeegee (11). Connect the coupler and hose from the wand kit to the recovery hose.
- 2 Attach suitable wet pick-up tools to the hose. (An optional Wand Kit PN56601087 is available from Nil sk).
- 3 Turn the Master Key Switch (A) ON and press the Wand Switch (L). **NOTE:** The operator cannot be in the seat for the vacuum motor to run. The vacuum motor will run continuously until the switch is pressed again to turn it OFF. **NOTE:** The "Recovery Tank FULL" indicator is disabled when the wand mode is activated. The float will stop the flow into the recovery tank.

SERVICE NOTE: Refer to the service manual for detailed functional descriptions of all controls and optional programmability.

FIGURE 6



AFTER USE

- 1 When finished scrubbing, press the Scrub ON/OFF Switch (H), this will automatically raise, retract and stop all the machine systems (brush, squeegee, vacuum, solution and detergent (EcoFlex models)). Then drive the machine to a service area for daily maintenance and review of other needed service up keep.
- 2 To empty the solution tank, remove the Solution Drain Hose (2) from its storage clamp. Direct the hose to a designated "DISPOSAL SITE" and remove the plug. Rinse the tank with clean water.
- 3 To empty the recovery tank, pull the Recovery Tank Drain Hose (31) from its storage area. Direct the hose to a designated "DISPOSAL SITE" and unscrew the plug (hold the end of the hose above the water level in the tank to avoid sudden, uncontrolled flow of waste water). Rinse the tank with clean water.
- 4 Remove the brushes or pad holders. Rinse the brushes or pads in warm water and hang up to dry.
- 5 Remove the squeegee and rinse it with warm water. Open the Recovery tank cover and hang the squeegee from the recovery tank using the Squeegee Storage Hook (30).
- 6 Remove the hopper on cylindrical systems and clean thoroughly. Remove from either side of the machine by removing the skirt and tilting the hopper up and away from housing, then pull out.
- 7 Check the maintenance schedule below and perform any required maintenance before storage.

MAINTENANCE SCHEDULE

MAINTENANCE ITEM	Daily	Weekly	Monthly	Yearly
Charge Batteries	X			
Check/Clean Tanks & Hoses	X			
Check/Clean/Rotate the Brushes/Pads	X			
Check/Clean the Squeegee	X			
Check/Clean Vacuum Shut-Off Float	X			
Check/Clean the vacuum motor foam filter(s)	X			
Empty/Clean Strainer Basket in Recovery Tank	X			
Clean Hopper on Cylindrical System	X			
Check Each Battery Cell(s) Water Level		X		
Inspect Scrub Housing Skirts		X		
Inspect and clean Solution Filter		X		
Clean Solution Trough on Cylindrical System		X		
Purge Detergent System (EcoFlex models only)		X		
Lubrication of Machine			X	
* Check Carbon Brushes				X

* Have Nil sk check the vacuum motor carbon motor brushes once a year or after 300 operating hours. The brush and drive motor carbon brushes check every 500 hours or once a year.

NOTE: Refer to the Service Manual for more detail on maintenance and service repairs.

- 8 Store the machine indoors in a clean dry place. Keep from freezing. Leave the tanks open to air them out.
- 9 Turn the Master Key Switch (A) OFF (O) and remove the key.

LUBRICATING THE MACHINE

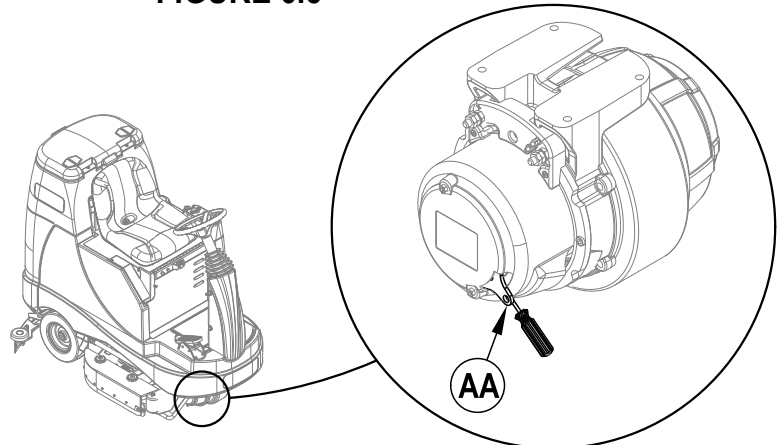
Once a month, apply light machine oil to lubricate the:

- Steering Chain
- General Pivot Points For the Squeegee and Scrub Deck Linkage
- Side Skirt Height Adjustment Knobs
- Steering Wheel Shaft Universal joint
- Front Roller Bumper

ELECTROMAGNETIC BRAKE

See Figure 6.5. The Drive / Steer Wheel Assembly (4) has a built in electromagnetic brake that is engaged whenever the Master Key Switch (A) is OFF or the FWD / REV Drive Pedal (3) is in the neutral position. This brake can be manually overridden if necessary by inserting a medium to large screwdriver behind the Yoke (AA) as shown. This should only be done in the event you need to push or pull the unit.

FIGURE 6.5



CHARGING WET BATTERIES

Charge the batteries each time the machine is used or when the Battery Indicator (F6) is reading less than full.

WARNING!

Do not fill the batteries before charging.

Charge batteries in a well-ventilated area.

Do not smoke while servicing the batteries.

When Servicing Batteries...

- * Remove all jewelry
- * Do not smoke
- * Wear safety glasses, rubber gloves and a rubber apron
- * Work in a well-ventilated area
- * Do not allow tools to touch more than one battery terminal at a time
- * ALWAYS disconnect the negative (ground) cable first when replacing batteries to prevent sparks.
- * ALWAYS connect the negative cable last when installing batteries.

If your machine shipped **with** an onboard battery charger do the following:

Turn the Key Switch (A) OFF. Open the Battery Compartment (10) and the Battery Charger Access Door (16) for proper ventilation. Unwind the electrical cord from the side of the onboard charger and plug it into a properly grounded outlet. Refer to the OEM product manual for more detailed operating instructions.

If your machine shipped **without** an onboard battery charger do the following:

Open the Battery Compartment (10) and set the Prop-Rod (33). Disconnect the batteries from the machine and push the connector from the charger into the Battery Pack Connector (34). Follow the instructions on the battery charger. **SERVICE NOTE:** Make sure you plug the battery charger into the connector that attaches to the batteries.

CAUTION!

To avoid damage to floor surfaces, wipe water and acid from the top of the batteries after charging.

CHECKING THE BATTERY WATER LEVEL

Check the water level of the batteries at least once a week.

After charging the batteries, remove the vent caps and check the water level in each battery cell. Use distilled or demineralized water in a battery filling dispenser (available at most auto parts stores) to fill each cell to the level indicator (or to 10 mm over the top of the separators). DO NOT over-fill the batteries!

CAUTION!

Acid can spill onto the floor if the batteries are overfilled.

Tighten the vent caps. Wash the tops of the batteries with a solution of baking soda and water (2 tablespoons of baking soda to 1 liter of water).

CHARGING GEL (VRLA) BATTERIES

Charge the batteries each time the machine is used or when the Battery Indicator (F6) is reading less than full.

WARNING!

Charge batteries in a well-ventilated area.

Do not smoke while servicing the batteries.

When Servicing Batteries...

- * Remove all jewelry
- * Do not smoke
- * Wear safety glasses, rubber gloves and a rubber apron
- * Work in a well-ventilated area
- * Do not allow tools to touch more than one battery terminal at a time
- * ALWAYS disconnect the negative (ground) cable first when replacing batteries to prevent sparks.
- * ALWAYS connect the negative cable last when installing batteries.

CAUTION!

Your voltage regulated lead acid (VRLA) battery will deliver superior performance and life ONLY IF IT IS RECHARGED PROPERLY!

Under or overcharging will shorten battery life and limit performance. Be sure to FOLLOW PROPER CHARGING INSTRUCTIONS!

DO NOT ATTEMPT TO OPEN THIS BATTERY! If a VRLA battery is opened, it loses its pressure and the plates become oxygen contaminated. THE WARRANTY WILL BE VOIDED IF THE BATTERY IS OPENED.

If your machine shipped **with** an onboard battery charger do the following:

Turn the Key Switch (A) OFF. Open the Battery Compartment (10) and the Battery Charger Access Door (16) for proper ventilation. Unwind the electrical cord from the side of the onboard charger and plug it into a properly grounded outlet. Refer to the OEM product manual for more detailed operating instructions.

If your machine shipped **without** an onboard battery charger do the following:

Open the Battery Compartment (10) and set the Prop-Rod (33). Disconnect the batteries from the machine and push the connector from the charger into the Battery Pack Connector (34). Follow the instructions on the battery charger. **SERVICE NOTE:** Make sure you plug the battery charger into the connector that attaches to the batteries.

IMPORTANT: Make sure you have an appropriate charger for use on Gel cell batteries. Use only "voltage-regulated" or "voltage-limited" chargers.

Standard constant current or taper current chargers MUST NOT be used. A temperature-sensing charger is recommended, as manual adjustments are never accurate and will damage any VRLA battery.

SQUEEGEE MAINTENANCE

If the squeegee leaves narrow streaks or water, the blades may be dirty or damaged. Remove the squeegee, rinse it under warm water and inspect the blades. Reverse or replace the blades if they are cut, torn, wavy or worn.

To Reverse or Replace the Rear Squeegee Wiping Blade...

- 1 See Figure 7. Raise the squeegee tool off the floor, then unsnap the Rear Squeegee Blade Removal Latch (35) on the squeegee tool.
- 2 Remove the Tension Strap (AA).
- 3 Slip the rear blade off the alignment pins.
- 4 The squeegee blade has 4 working edges. Turn the blade so a clean, undamaged edge points toward the front of the machine. Replace the blade if all 4 edges are nicked, torn or worn to a large radius.
- 5 Install the blade, following the steps in reverse order and adjust the squeegee tilt.

To Reverse or Replace the Front Squeegee Blade...

- 1 Raise the squeegee tool off the floor, then loosen the (2) Thumb Nuts (AB) on top of the squeegee and remove the squeegee tool from the mount.
- 2 Loosen the Front Squeegee Blade Removal Thumb Nut (39), then remove Tension Strap (AC) and blade.
- 3 The squeegee blade has 4 working edges. Turn the blade so a clean, undamaged edge points toward the front of the machine. Replace the blade if all 4 edges are nicked, torn or worn to a large radius.
- 4 Install the blade, following the steps in reverse order and adjust the squeegee tilt.

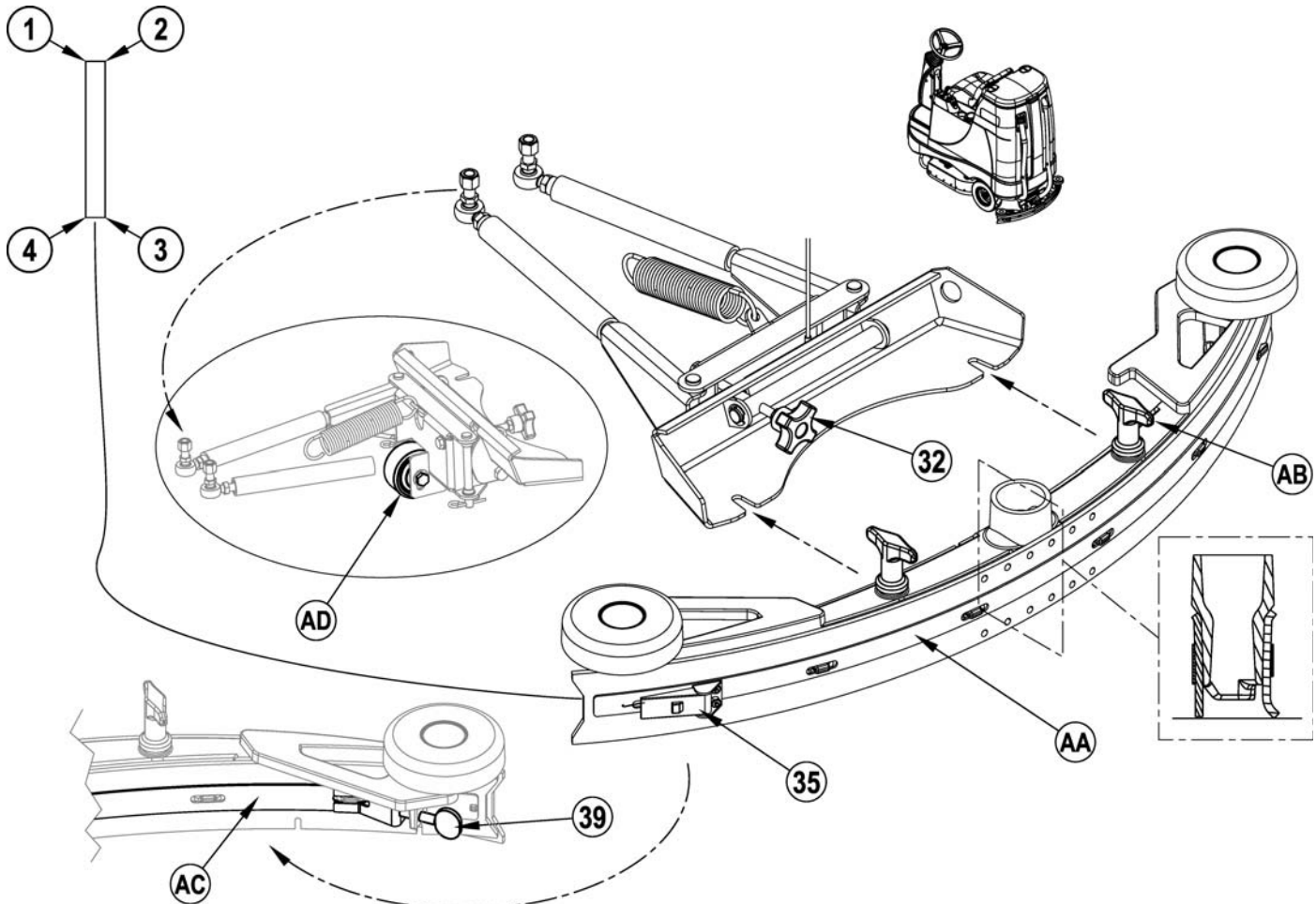
SQUEEGEE ADJUSTMENT

There are two squeegee tool adjustments possible, angle and height.

Adjust the squeegee angle whenever a blade is reversed or replaced, or if the squeegee is not wiping the floor dry.

- 1 Park the machine on a flat, even surface and lower the squeegee. Then drive the machine forward enough to have the squeegee blades fold over to the rear.
- 2 Adjust the squeegee tilt and height using the Squeegee Tilt Adjust Knob (32) and Squeegee Height Wheel (AD) so that the rear squeegee blade touches the floor evenly across its entire width and is bent over slightly as shown in the squeegee cross section.

FIGURE 7



SIDE SKIRT MAINTENANCE

The side skirts' function is to channel the waste water to the squeegee, helping contain the water within the machine's cleaning path. During normal use the blades will wear in time. The operator will notice a small amount of water leaking out underneath the side skirts. A height adjustment can easily be made to lower the blades so that all the water can be picked up by the squeegee.

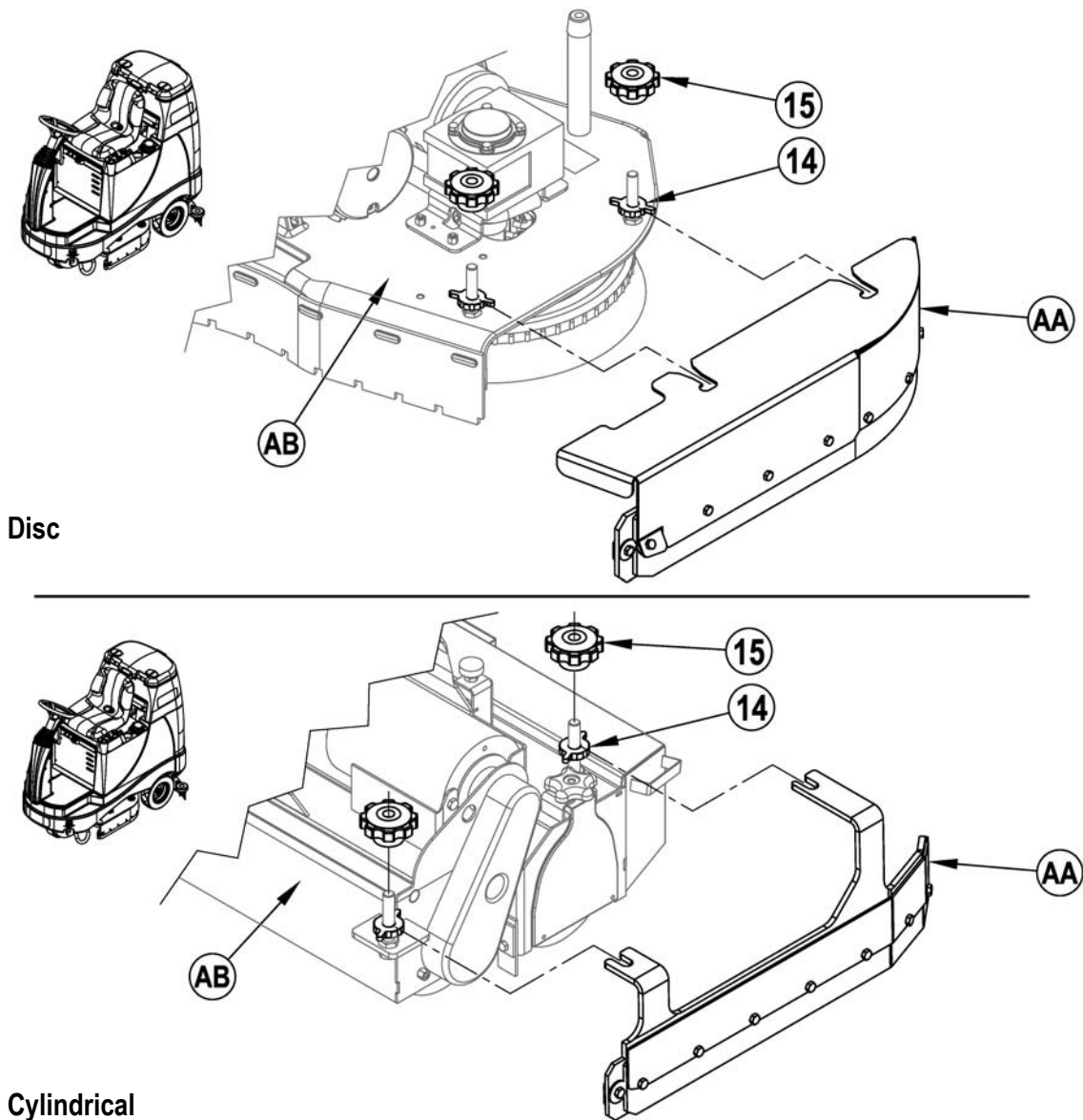
To reverse or replace the scrub system side skirt(s)...

- 1 See Figure 8. Loosen the (2) side skirt Retainer Knobs (15) (2 per side) and pull the Skirt Assemblies (AA) slightly forward (disc only) and then off from the scrub deck.
- 2 Remove all the hardware that holds the blades to the skirt housings.
- 3 Replace the blades as a set if they are nicked, torn or worn beyond their ability to be adjusted.
- 4 Reinstall the skirt housing assemblies onto the machine and adjust the blade for proper contact to the floor when the brush deck is placed in the scrub position.

SIDE SKIRT HEIGHT ADJUSTMENT

- 1 See Figure 8. The side skirt housing knob retainer screw studs have leveling Adjuster Collars (14), that are to be raised or lowered to compensate for blade wear.
- 2 To adjust, remove the Skirt Assemblies (AA) from the Scrub Deck (AB) to access the Adjuster Collars (14). Adjustment Tip: The skirts Retainer Knobs (15) can be loosened with skirts left on and the Adjuster Collars (14) rotated by reaching under the skirt housing.
- 3 Turn the Adjuster Collars (14) (Up or Down) to where the blades just fold over enough when scrubbing that all the waste water is contained inside the skirting. Note: Make small adjustments to obtain good blade wiping. Do not lower the blades too much to where they fold over excessively and cause unneeded blade wear.

FIGURE 8



GENERAL MACHINE TROUBLESHOOTING

Problem	Possible Cause	Remedy
Poor water pick-up	Worn or torn squeegee blades	Reverse or replace
	Squeegee out of adjustment	Adjust so blades touch floor evenly across entire width
	Recovery tank full	Empty recovery tank
	Recovery tank drain hose leak	Secure drain hose cap or replace
	Recovery tank cover gasket leak	Replace gasket / Seat cover properly
	Debris caught in squeegee	Clean squeegee tool
	Vacuum hose clogged	Remove debris
	Using too much solution	Adjust solution flow at control panel
	Foam filter cover not seated	Seat cover properly
Poor scrubbing performance	Worn brush or pad	Rotate or replace brushes
	Wrong brush or pad type	Consult Nilisk
	Wrong cleaning chemical	Consult Nilisk
	Moving machine too fast	Slow down
	Not using enough solution	Increase solution flow at control panel
Inadequate solution flow or no solution	Solution tank empty	Fill solution tank
	Solution lines, valves, filter or trough clogged	Flush lines, trough and clean solution filter
	Solution shutoff valve closed	Open solution shutoff valve
	Solution solenoid valve	Clean or replace valve
Machine does not run	Battery connector disconnected	Reconnect battery connectors
	Operator seat safety switch	Check for open circuit and replace
	Main system controller	Check error fault codes (see service manual)
	Tripped 10 Amp circuit breaker	Check for electrical short circuit & reset
No FWD/REV wheel drive	Drive system speed controller	Check error fault codes (see service manual)
	Tripped 70 Amp circuit breaker	Check for drive motor overload
	Emergency stop switch tripped	Reset the Emergency Stop Switch
Vacuum shuts off and display shows "Recovery Tank FULL indicator" when recovery tank is not full	Plugged squeegee hose	Clear debris
	Vacuumping large amounts of water at a high travel speed	Slow down or disable auto shut-off feature (see service manual)
Poor Sweeping Performance (Cylindrical System)	Hopper Full	Empty and clean hopper
	Brushes worn	Replace brushes
	Bristles have taken a set	Rotate brushes
No Detergent Flow (EcoFlex models only)	Empty detergent cartridge	Fill detergent cartridge
	Plugged or kinked detergent flow line	Purge system, straighten lines to remove any kinks
	Dry seal cap on detergent cartridge not sealed	Reseat dry seal cap
	Detergent pump wiring disconnected or backwards	Connect or reconnect wiring

TECHNICAL SPECIFICATIONS (as installed and tested on the unit)

Model		BR 755	BR 755C	BR 855
Model No.		56601014	56601016	56601015
Voltage, Batteries	V	24V	24V	24V
Battery Capacity	Ah	238	238	238
Protection Grade		IPX3	IPX3	IPX3
Sound Power Level (IEC 60335-2-72: 2002 Amend. 1:2005, ISO 3744)	dB(A)	63.7dB LWA, 3dB KWA	63.7dB LWA, 3dB KWA	63.7dB LWA, 3dB KWA
Gross Weight	lbs / kg	1,451/658	1,451/658	1,451/658
Maximum Wheel Floor Loading (center front)	psi / kg/cm ²	174.7 / 12.3	174.7 / 12.3	174.7 / 12.3
Maximum Wheel Floor Loading (right rear)	psi / kg/cm ²	112.7 / 7.9	112.7 / 7.9	112.7 / 7.9
Maximum Wheel Floor Loading (left rear)	psi / kg/cm ²	124.7 / 8.8	124.7 / 8.8	124.7 / 8.8
Vibrations at the Hand Controls (ISO 5349-1)	m/s ²	.26	.26	.26
Vibrations at the Seat (EN 1032)	m/s ²	0.05	0.05	0.05
Gradeability Transport		16% (9°)	16% (9°)	16% (9°)
Gradeability Cleaning		9% (5°)	9% (5°)	9% (5°)



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