

SC900 ST

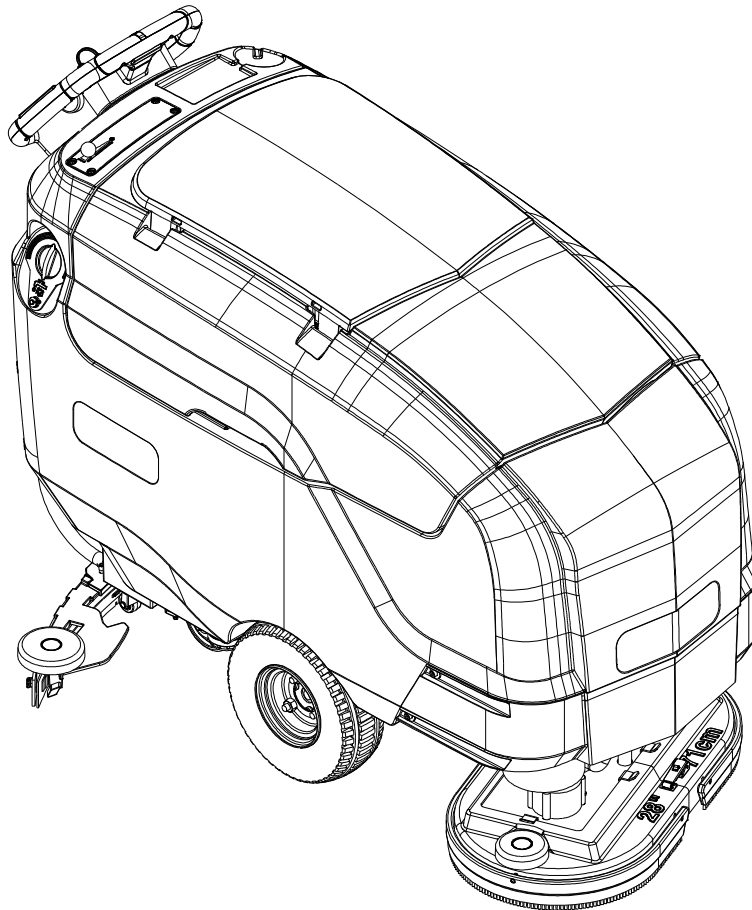
Instructions for use

Instructions for Use
Original Instructions
Instrucciones de uso
Mode d'emploi

11/2015 revised 5/2017 REV C
Form no. 56091183



A-English
B-Español
C-Français



Advance Models:
56115201 (SC900 ST-28D)
56115202 (SC900 ST-34D)
56115203 (SC900 ST-32C)



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INTRODUCTION

This manual will help you get the most from your **Advance™** automatic scrubber/dryer. Read it thoroughly before operating the machine.

Note: Bold numbers in parentheses indicate an item illustrated on pages A-6 – A-7 unless otherwise noted.

This product is intended for commercial use only.

PARTS AND SERVICE

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

Call Advance 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 Nilfisk Inc. Unapproved modifications will void the machine warranty and make the customer liable for any resulting accidents.

NAMEPLATE

The Model Number (also known as Part Number) and Serial Number of your machine are shown on the Nameplate in the battery compartment. This information is needed when ordering repair parts for the machine. Use the space below to note the Part Number and Serial Number of your machine for future reference.

PART NO. _____

SERIAL NO. _____

UNPACKING 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 Advance 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.

WARNING!

The Products sold with this Manual contain or may contain chemicals that are known to certain governments (such as the State of California, as identified in its Proposition 65 Regulatory Warning Law) to cause cancer, birth defects or other reproductive harm. In certain locations (including the State of California) purchasers of these Products that place them in service at an employment job site or a publicly accessible space are required by regulation to make certain notices, warnings or disclosures regarding the chemicals that are or may be contained in the Products at or about such work sites. It is the purchaser's responsibility to know the content of, and to comply with, any laws and regulations relating to the use of these Products in such environments. The Manufacturer disclaims any responsibility to advise purchasers of any specific requirements that may be applicable to the use of the Products in such environments.

CAUTIONS AND WARNINGS

SYMBOLS

Advance uses the symbols below to signal potentially dangerous conditions. 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 offices other than normal residential housekeeping purposes.

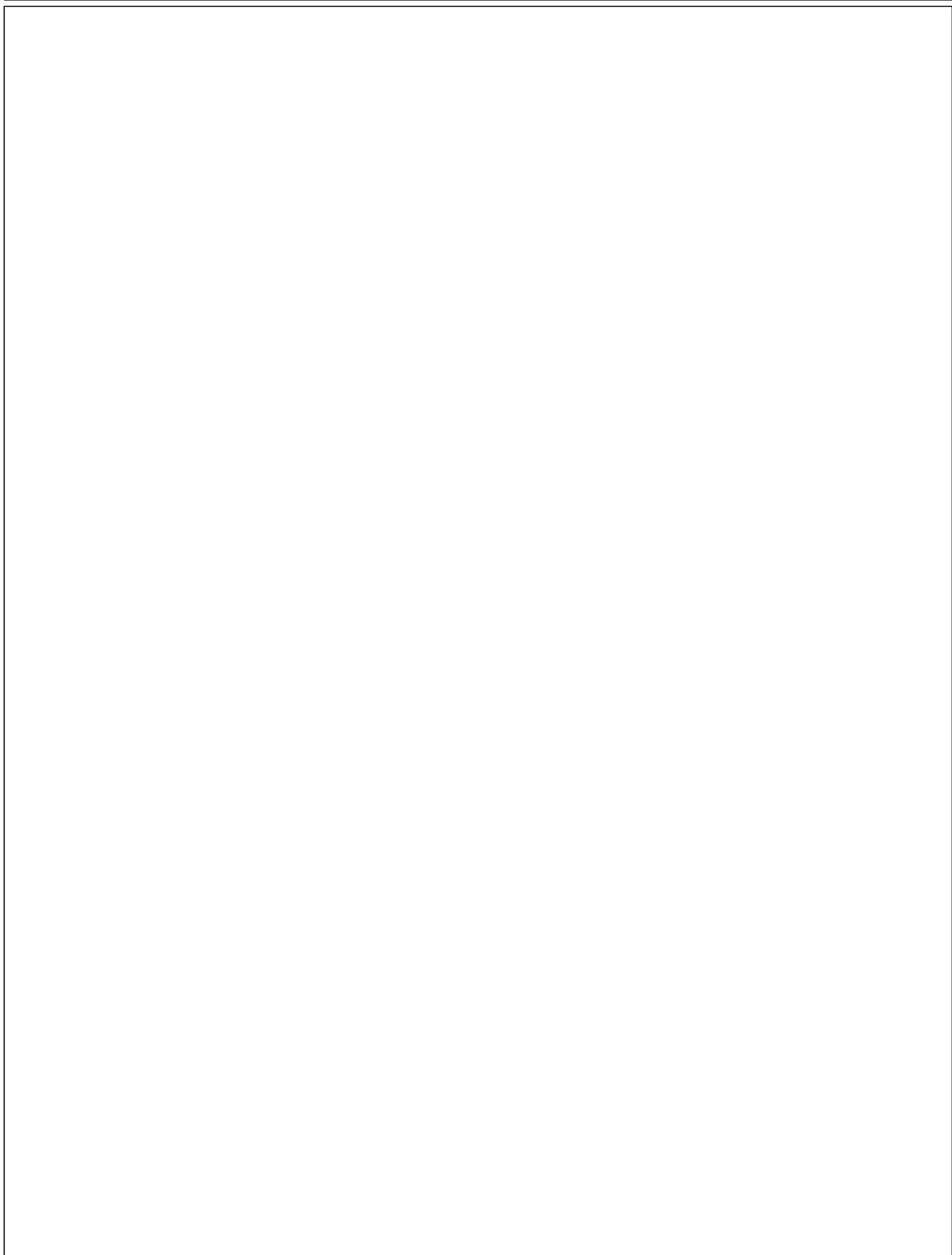
WARNING!

- This machine should only be used 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, unless they have been given supervision or instruction concerning use of the machine by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the machine.
- Close attention is necessary when used near children.
- While on ramps or inclines, avoid sudden stops. Avoid abrupt sharp turns. Use low speed down ramps.
- Keep sparks, flame 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 flame. 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 flammable cleaning agents, operate the machine on or near these agents, or operate in areas where flammable liquids exist.
- Do not clean this machine with a pressure washer.
- Only use the brushes provided with the appliance or those specified 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.
- Use care when using scarifier discs and grinding stones. Advance will not be held responsible for any damage to floor surfaces caused by scarifiers or grinding stones.
- 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 first turning the key switch off (O), removing the key and securing the machine.
- 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 fittings. Flush with windshield washer fluid.
- 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.
- Refer to the battery charger OEM product manual for additional specific battery charger warnings.

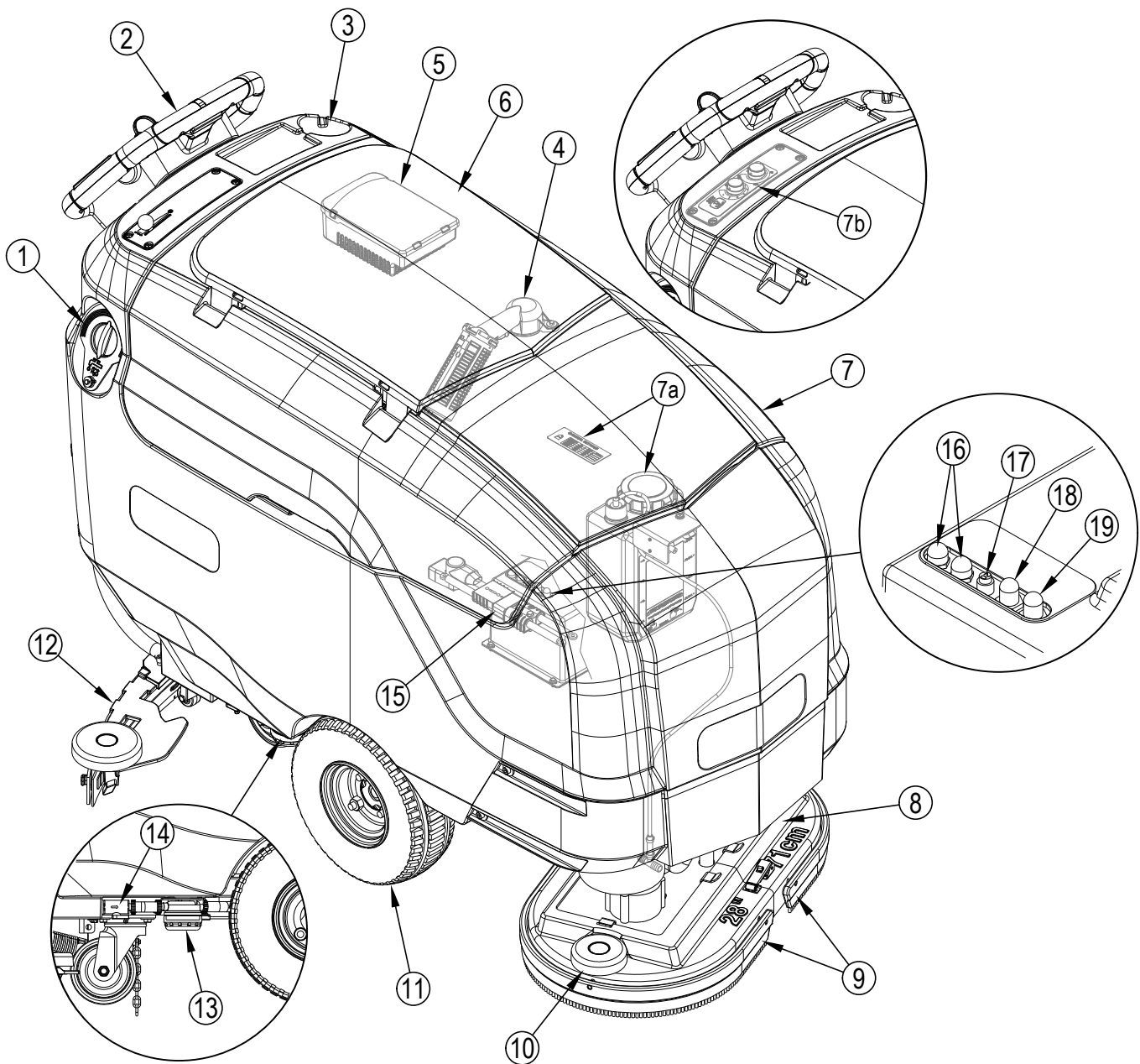
SAVE THESE INSTRUCTIONS



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.

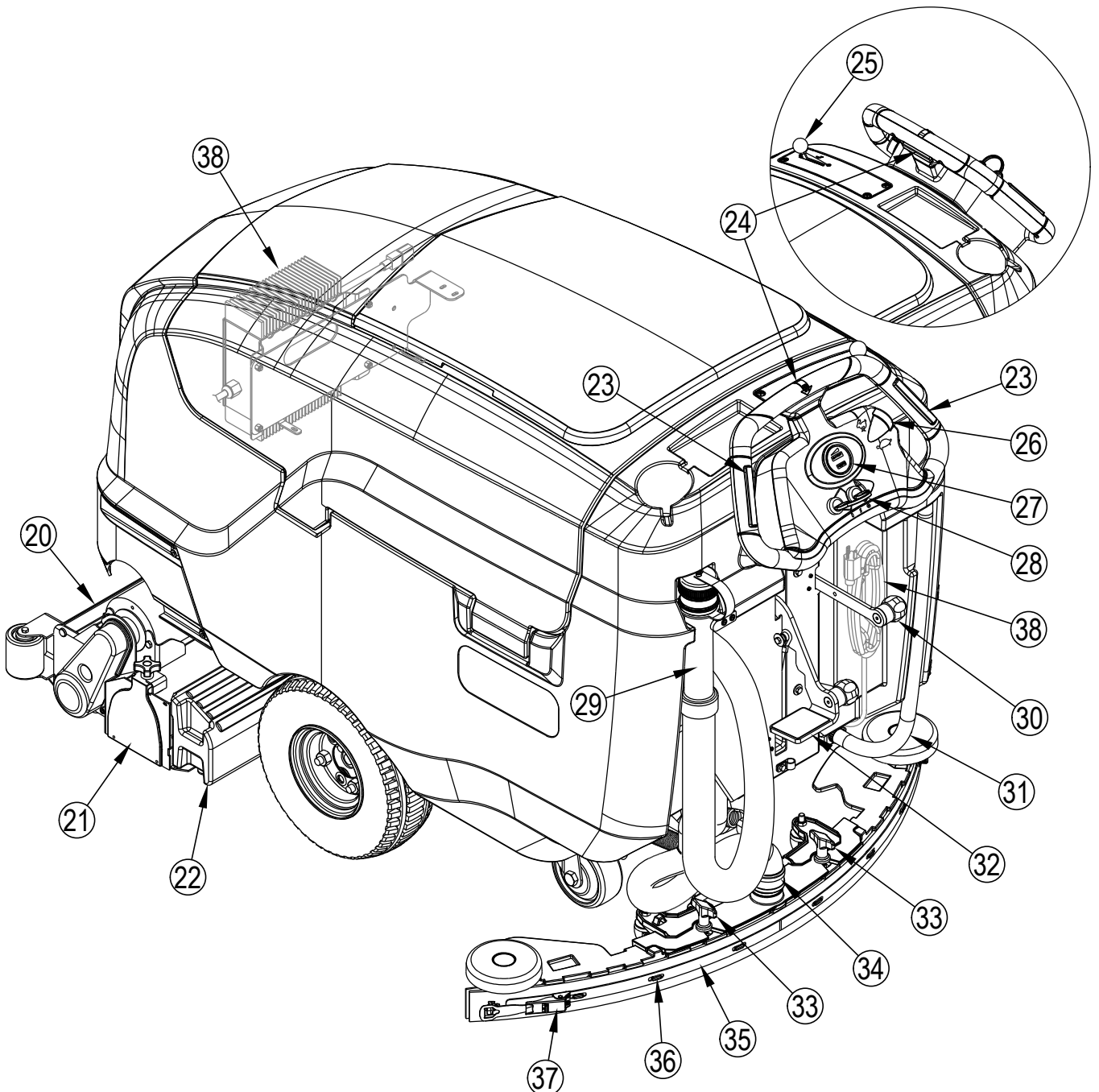
- | | |
|---|---|
| 1 Solution Tank Fill | 10 Scrub Deck Bumper Wheel |
| 2 Operator Control Handle | 11 Drive Wheel |
| 3 Bottle Holder / Squeegee hanger location | 12 Squeegee Assembly |
| 4 Vacuum Motor Shutoff Float | 13 Solution Filter |
| 5 Debris Tray | 14 Solution Shut-off Valve |
| 6 Recovery Tank Lid | 15 Battery Pack Connector |
| 7 Recovery Tank (Detergent Cartridge Access Cover) | 16 Brush Motor Circuit Breakers (25 Amp) |
| 7a Detergent Cartridge (EcoFlex models only) | 17 Vacuum Fan Circuit Breaker (20 Amp) |
| 7b Detergent Module (EcoFlex models only) | 18 Wheel Drive Circuit Breaker (30 Amp) |
| 8 Scrub Deck (Disc models) | 19 Key Switch Circuit Breaker (2.5 Amp) |
| 9 Brush Housings (include Bristle Skirt) | |



KNOW YOUR MACHINE

- 20 Solution Manifold (Cylindrical Models Only)
- 21 Idler Assembly (Cylindrical Models Only)
- 22 Debris Hopper (Cylindrical Models Only)
- 23 Palm Drive Buttons
- 24 Reverse Button
- 25 Solution Control
- 26 Speed Limit Control Knob
- 27 Battery Hour Gauge
- 28 Water proof Key Switch
- 29 Recovery Tank Drain Hose

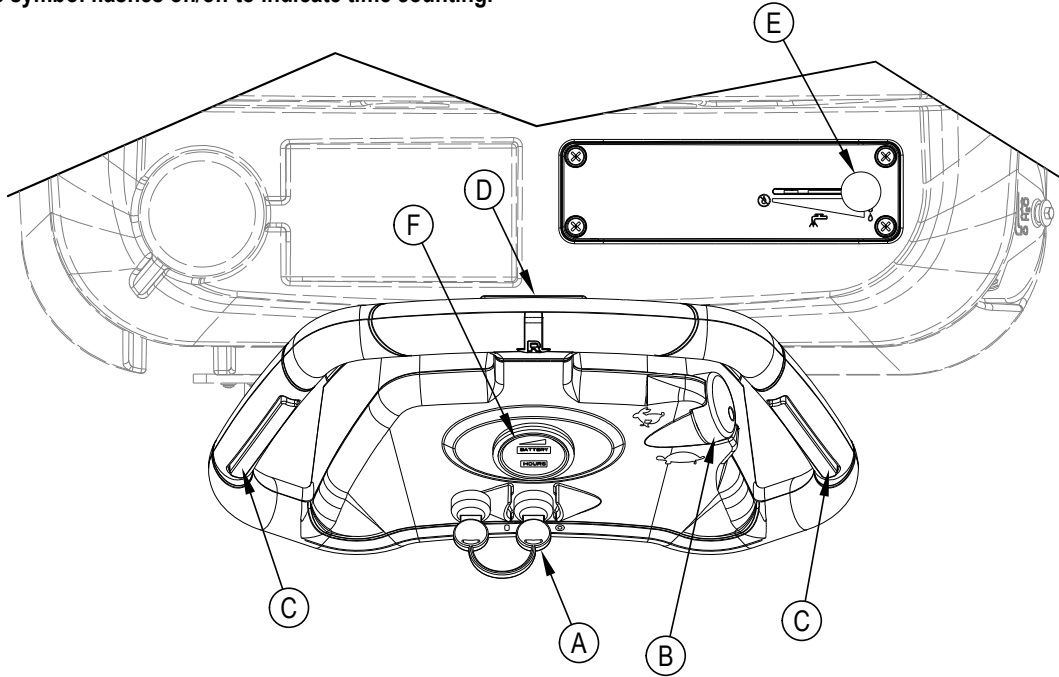
- 30 Squeegee Raise / Lower Lever
- 31 Solution Drain Hose / Level Indicator
- 32 Scrub Deck Raise / Lower Lever
- 33 Squeegee Mount Thumb Nut
- 34 Recovery Hose
- 35 Squeegee Blade Tension Strap
- 36 Squeegee Blade Alignment Pins
- 37 Squeegee Blade Latch
- 38 Onboard Battery Charger (Not found on all models)



CONTROL PANEL

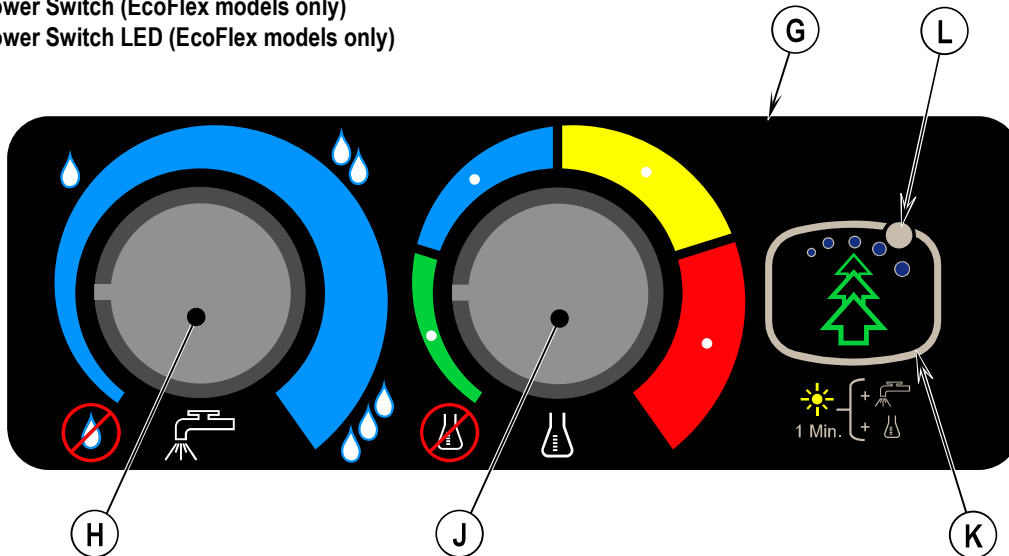
- A Key Switch (Main Power)
- B Speed Control Knob
- C Palm Drive Buttons
- D Reverse Button
- E Solution Control (ST Models)
- F Battery / Hour Gauge

The non-resettable Hour Gauge displays the running total of hours accumulated on the scrub motors up to 99,999 hours. The hour glass symbol flashes on/off to indicate time counting.



CONTROL PANEL – ECOFLEX

- G Detergent Module (EcoFlex models only)
- H Solution Flow Control Knob (EcoFlex models only)
- J Detergent System Control Knob (EcoFlex models only)
- K Burst of Power Switch (EcoFlex models only)
- L Burst of Power Switch LED (EcoFlex models only)



BATTERIES

If your machine shipped with batteries installed do the following:

- Check that the batteries are connected to the machine **(15)**. Turn ON the Key Switch **(A)** and check the Battery / Hour Gauge **(F)**. Battery Charge capacity is indicated using a 10 segment LED bar graph display from full (right LED segment lit) to empty (left LED segment lit). LED Flash Alert™ flashes the 2nd LED from the left as a warning that the battery has discharged 70%. At 80% discharge, LED Flash Alert™ alternately flashes the left 2 LEDs to indicate very low capacity is remaining. At this level the scrub systems are disabled to protect the battery. The vacuum system will continue to operate to allow recovery of any solution remaining on floor.
- **IMPORTANT!: BATTERIES SHOULD BE FULLY CHARGED BEFORE EACH 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 Advance dealer for recommended batteries.
- Install the batteries by following the instructions below.
- **DO NOT install three 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.**



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 the batteries through openings in the battery caps. This gas can be ignited by any electrical arc, spark or flame. Do not install any lead-acid battery in a sealed container or enclosure. Hydrogen gas from overcharging must be allowed to escape.

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!

Electrical components in this machine can be severely damaged if the batteries are not installed and connected properly. Advance, a qualified electrician, or the battery manufacturer should install batteries.

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

BATTERIES (CONTINUED)

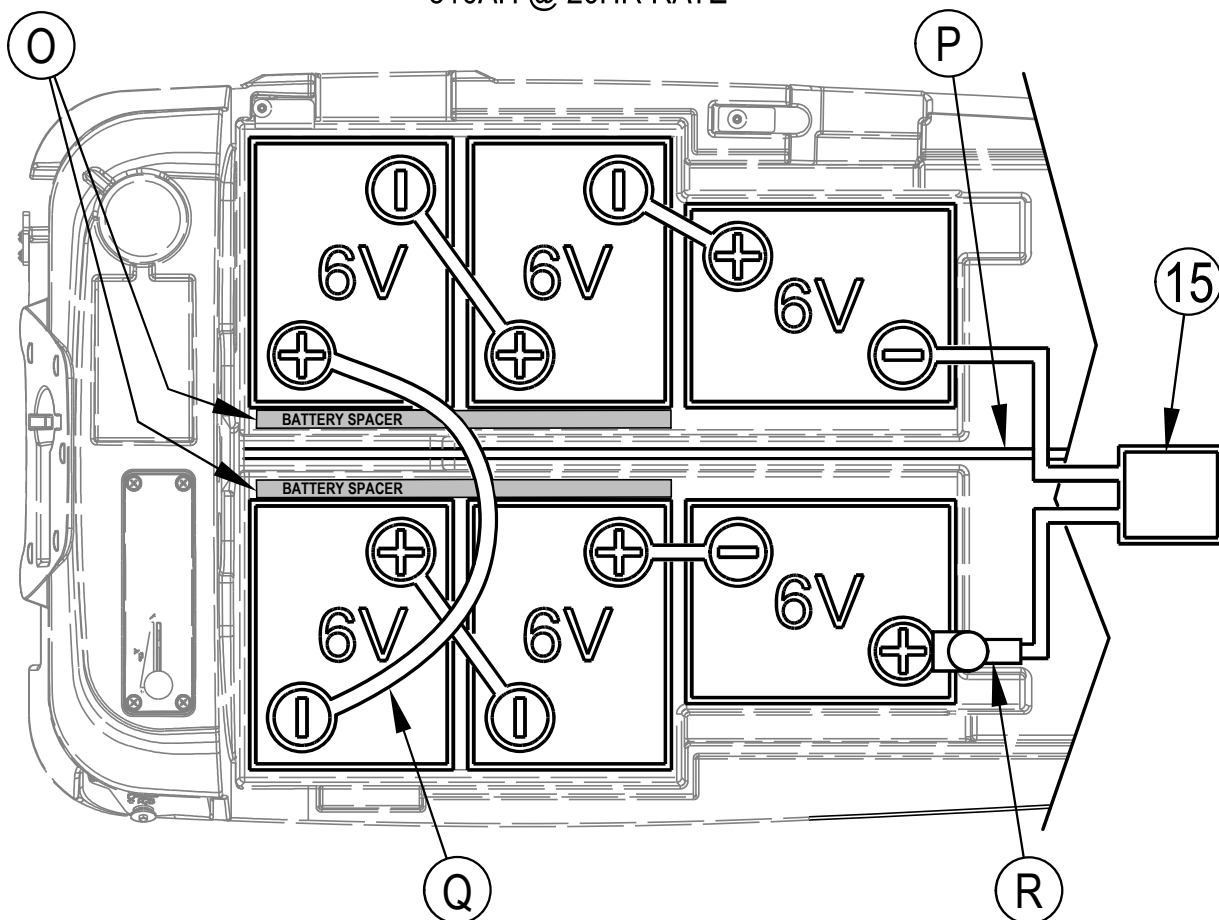
- 1 Remove the batteries from their shipping crate and carefully inspect them for cracks or other damage. If damage is evident, contact the carrier that delivered them or the battery manufacturer to file a damage claim.
- 2 Turn the Master Key Switch **(A)** OFF and remove the key.
- 3 Tip the recovery tank to the side, locked position. Remove the battery cables from inside the battery compartment.
- 4 Your machine comes from the factory with enough battery cables to install six 6 volt batteries. Carefully lift the batteries into the battery compartment and arrange them exactly as shown in **Figure 1**. Secure the batteries as close to the back of the machine as possible.
NOTE: Battery spacers **(O)** need to be installed between the bottom of the batteries and the short wall on the bottom of the tank to create more space between the batteries and prevent the Deck Lever Arm **(P)** from hitting the batteries.
- 5 Install the battery cables as shown. Position the cables so the battery caps can be easily removed for battery service. To prevent interference, route the cable **(Q)** over the top of the Deck Lever Arm **(P)** as shown in **Figure 1**.

IMPORTANT! The protective caps supplied with the batteries need to be left on or re-used to completely cover the portion of the battery terminals that are not being protected by the battery cable terminal cover boots supplied with the battery cables. This also applies to the inline fuse holder boot.

- 6 Carefully tighten the nut in each battery terminal until the terminal will not turn. Do not over-tighten the terminals, or they will be very difficult to remove for future service.
- 7 Coat the terminals with spray-on battery terminal coating (available at most auto parts stores).
- 8 Put one of the rubber terminal cover boots over each of the terminals and connect the Battery Pack Connector **(15)**.
- 9 Make sure the Fuse Holder Boot **(R)** is covering the fuse holder, the cable end of the Battery Pack Connector **(15)**, and as much of the battery terminal as possible. Leave the protective caps supplied with the batteries in place or re-use to cover the terminal areas not protected by the terminal cover boots.

FIGURE 1

310AH @ 20HR RATE



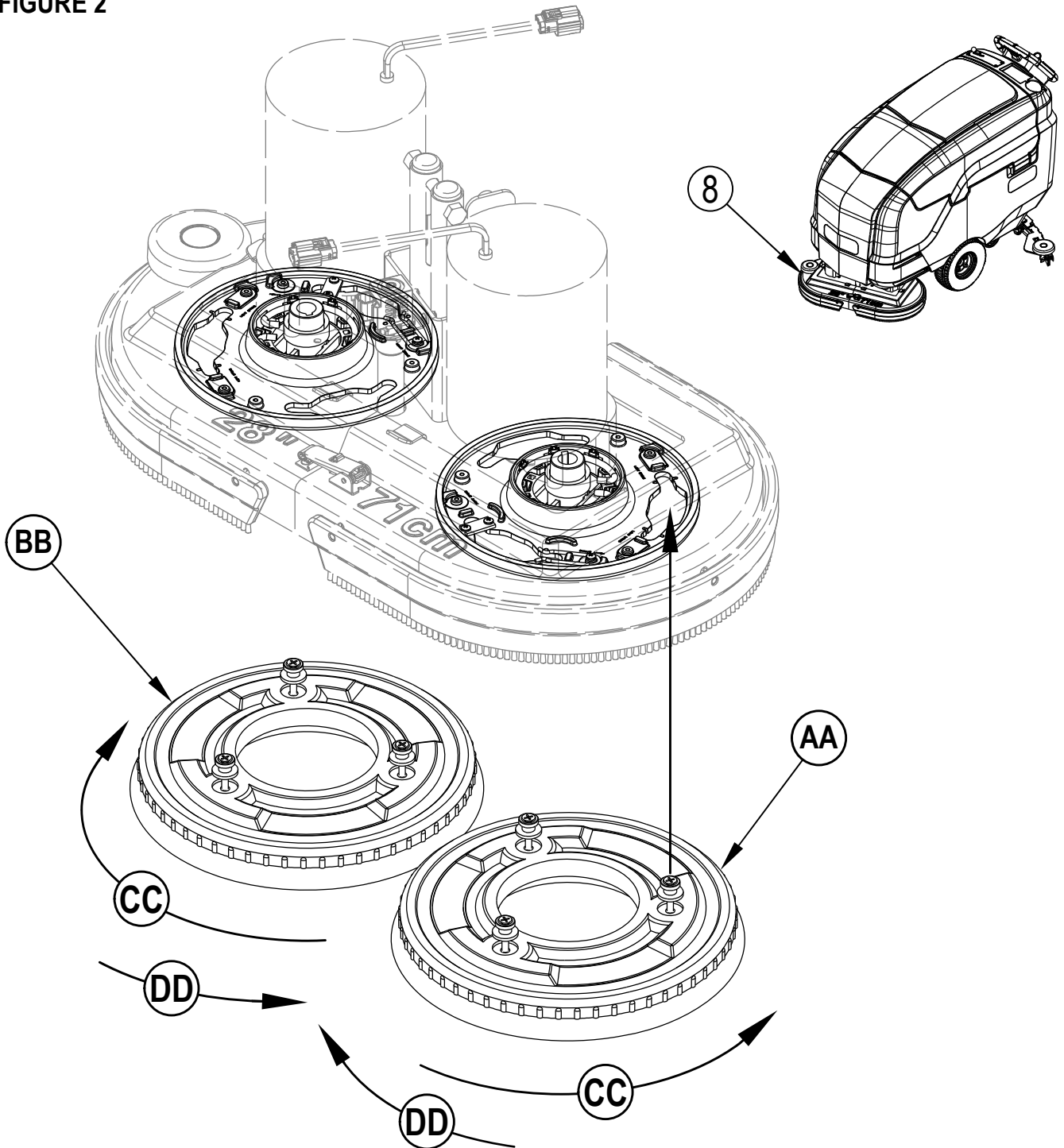
INSTALLING THE BRUSHES (DISC SYSTEM)

⚠ 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 (8) is in the RAISED position. Make sure the Key Switch (A) is off (O).
- 2 If using pads, install the pads on the pad holders.
- 3 **See Figure 2.** To mount the Brushes (AA) (or pad holders) align the Lugs (BB) on the brush with the holes on the mounting plate and turn to lock in place (turn the outside edge of brush towards the rear of machine as shown (CC)). **NOTE:** During operation the brushes should rotate in direction (DD).

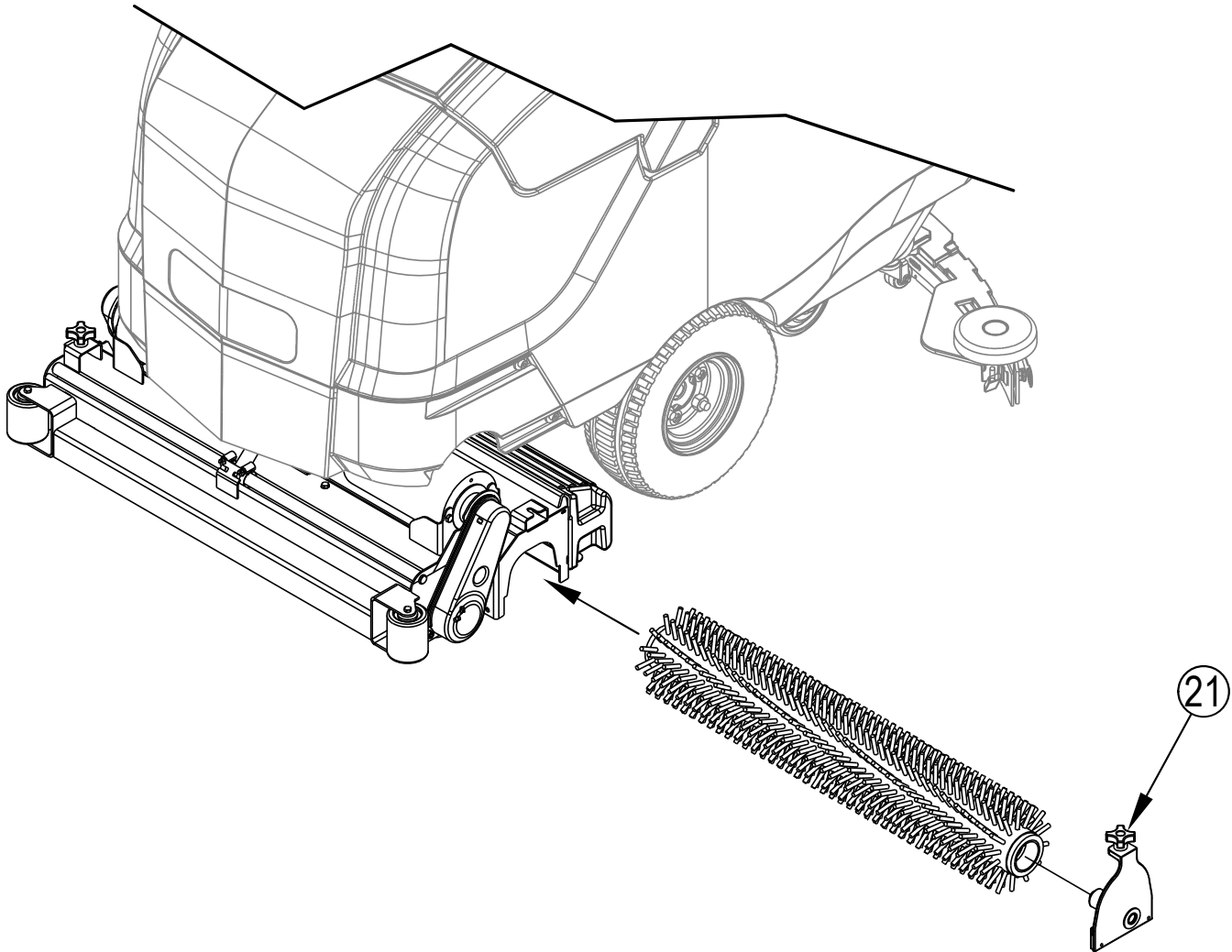
FIGURE 2



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 Brush Deck is in the RAISED position. Make sure the Key Switch (A) is off (O).
- 2 **See Figure 3.** To access the brushes loosen the black knobs (one on each side) on top of the idler assemblies (21) and remove the idler assemblies. Slide the brush into the housing, lift slightly, push and turn until it seats. Re-install the idler assemblies.

FIGURE 3

FILLING THE SOLUTION TANK

Fill the solution tank with a maximum of 30 gallons (113.5 Liters) of cleaning solution. Do not fill the solution tank above 7.5 cm (3 inches) from the bottom of the Solution Fill (1). The solution should be a mixture of water and the proper cleaning chemical for the job. Always follow the dilution instructions on the chemical container label. **NOTE:** EcoFlex machines can either be used conventionally with detergent mixed in the tank or the detergent dispensing system can be used.

⚠ CAUTION!

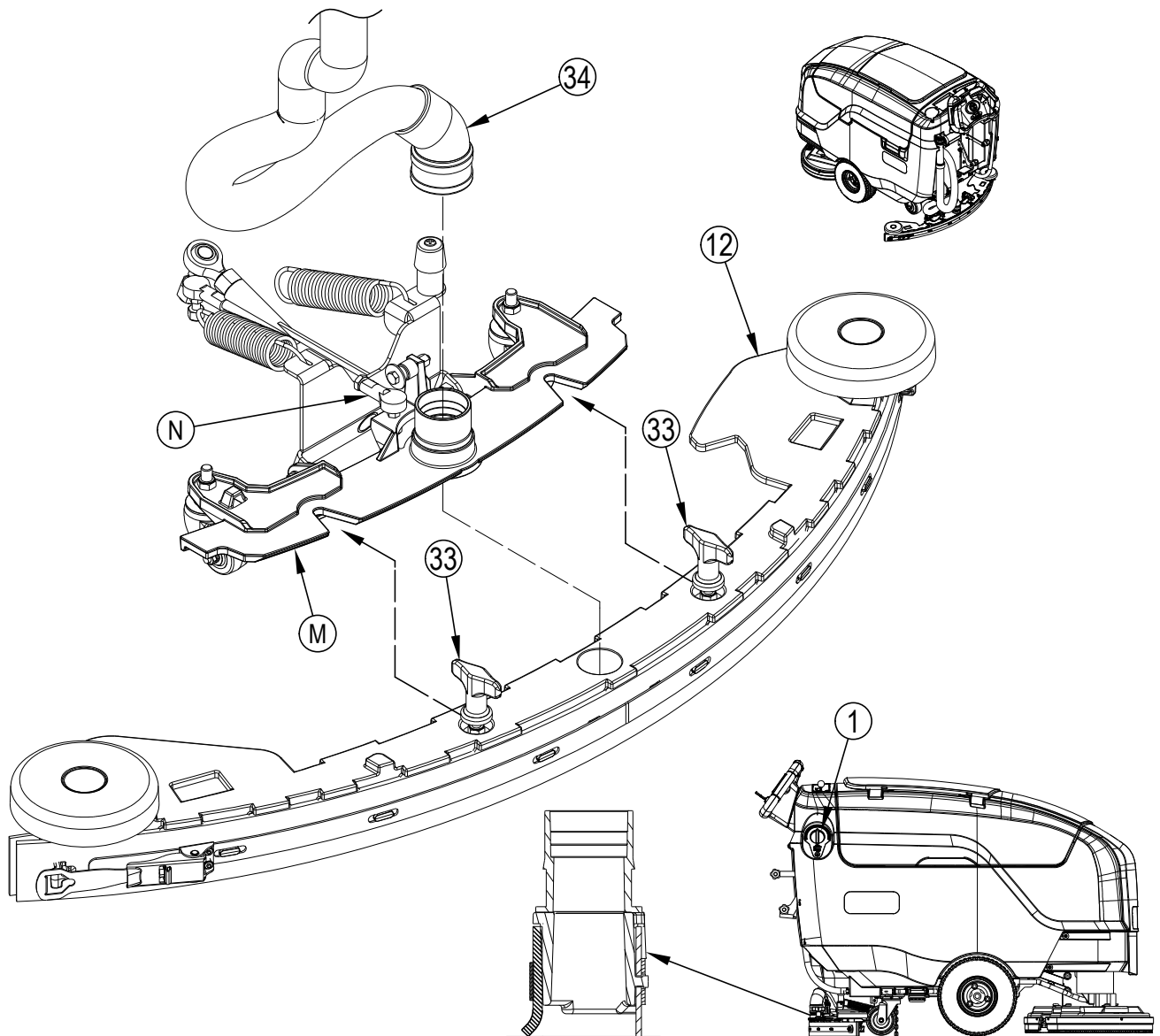
Use only low-foaming, non-flammable liquid detergents intended for machine application. Water temperature should not exceed 130 degrees Fahrenheit (54.4 degrees Celsius)

SQUEEGEE INSTALLATION

- 1 **See Figure 4.** Slide the Squeegee Assembly (12) onto the Squeegee Mount Bracket (M) and tighten the Squeegee Mount Thumb Nuts (33). **IMPORTANT!** HAND TIGHTEN THE SQUEEGEE THUMB NUTS ONLY, DO NOT USE TOOLS.
- 2 Connect the Recovery Hose (34) to the squeegee inlet.
- 3 The Squeegee Mount Bracket (M) has a factory set position so that the rear squeegee blade touches the floor evenly across its entire width and is bent over slightly as shown.

NOTE: A service technician can adjust the Turnbuckle Assembly (N) to change the squeegee angle if needed.

FIGURE 4



DETERGENT SYSTEM PREPARATION AND USE (ECOFLEX MODELS ONLY)

COMMON INSTRUCTIONS:

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 Weekly or When Changing Chemicals:

- 1 Disconnect and remove the detergent cartridge. Install and connect a cartridge filled with clean water and transport machine to a floor drain.
- 2 **See Figure 5.** Turn the Key Switch **(A)** ON. Turn the Speed Control Knob **(B)** to it's lowest setting. Turn the Solution Knob **(H)**, and Detergent Knob **(J)** to it's maximum settings. Drop the scrub deck and press the Palm Drive Button **(C)** for (1) minute to run water thru the EcoFlex system. Normally one purge cycle is adequate to purge the system.
- 3 Use visual inspection of the Detergent Cartridge **(7a)** to determine when it is empty. You should be able to simply pour an entire gallon (3,80 litres) bottle of detergent into the Cartridge to refill without worrying about measuring.

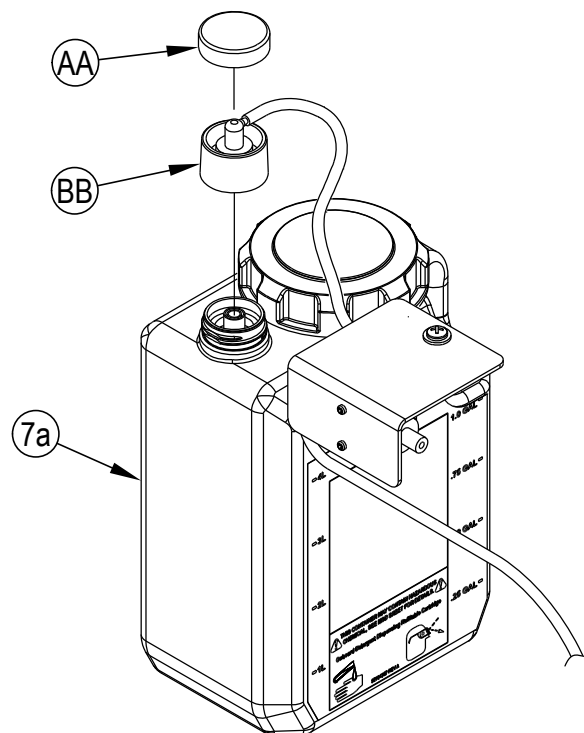
Detergent Ratio:

- 1 **See Figure 5.** The solution flow rate is controlled by manually turning Solution Knob **(H)** which varies solution flow rate from 0 to 1 gallon (3,80 litres) per minute (gpm).
- 2 The Detergent Knob **(J)** varies detergent concentration from 400:1 to 32:1. Manually select the center position of the desired ratio that is color coded on the Detergent Module **(G, 7b)** and color coded with the settings listed on the chemical settings decal. Green=1/2 oz./gallon, Blue=1 oz./gallon, Yellow=2 oz./gallon, Red=3 oz./gallon.
The detergent ratio is variable and you can run it leaner or richer from the center position of the desired ratio.
- 3 Both knobs have small dead zones at both endpoints. The lower dead zone will turn that feature "off" (solution = 0gpm, or detergent = 1:0). The upper dead zone will set that feature to max (solution = 1 gpm, or detergent = 32:1).
- 4 The Burst of Power Switch **(K)** enables and disables the Burst of Power feature. Burst of Power will increase solution flow rate by 0.33 gpm (1,25 lpm), and double the concentration of detergent for 60 seconds. Pressing the Burst of Power Switch **(K)** while the feature is enabled will disable it.
- 5 The Burst of Power Switch LED **(L)** will turn on when scrubbing. Normally the LED is continuous, but it will flash when the Burst of Power feature is "on". This flashing will increase in speed for the last 10 seconds of Burst of Power's 60 second timeout.

CARTRIDGE SPECIFIC INSTRUCTIONS:

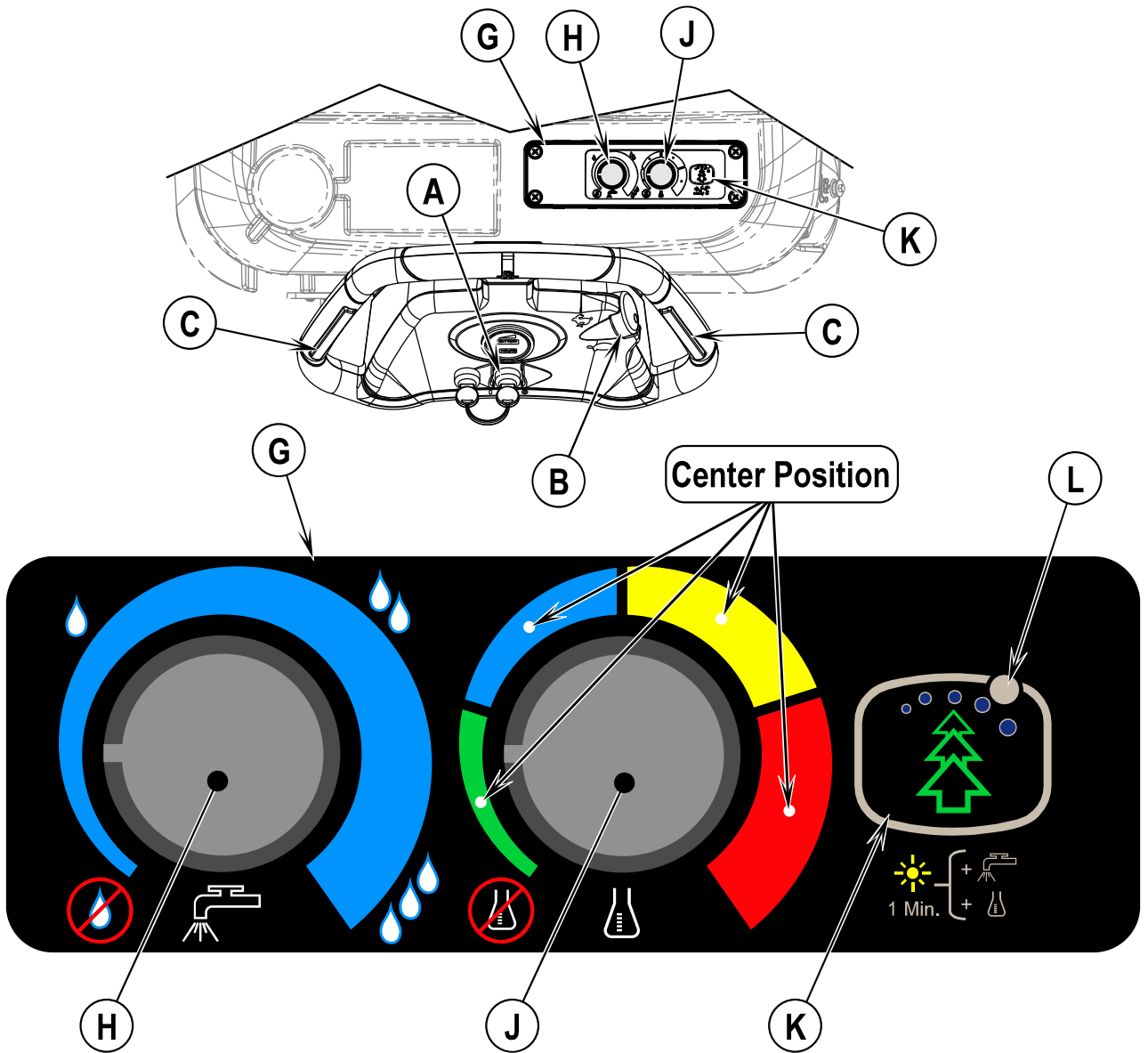
Fill the detergent cartridge **(7a)** with a maximum of 1.25 gallons (4.73 Liters) of detergent. **SERVICE NOTE:** Remove the detergent cartridge from the machine prior to filling to avoid spilling detergent on the machine.

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)** as shown.



DETERGENT SYSTEM PREPARATION AND USE (ECOFLEX MODELS ONLY)

FIGURE 5



CHEMICAL SETTINGS

QUANTITY	%	RATIO	COLOR
0.5 Oz/gal	0.4%	1:256	Green
1 Oz/gal	0.8%	1:128	Blue
2 Oz/gal	1.6%	1:64	Yellow
3 Oz/gal	2.3%	1:43	Red

WET SCRUBBING**⚠ 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.

- 1 Follow the instructions in the Preparing the Machine For Use section of this manual.
- 2 Turn the Master Key Switch (**A, 28**) ON (I). This will display the control panel indicator lights; reference the Battery / Hour Gauge on the Display (**F, 27**).
- 3 To transport the machine to the work area, push either of the Palm Buttons (**C, 23**) to go forward or press the Reverse Button (**D, 24**) to move the machine in reverse.
NOTE: Speed Control Knob (**B, 26**) is used to control the maximum speed in either forward or reverse.
- 4 Use Deck Lever (**32**) to lower deck, (machine is now ready to scrub when the machine begins to move). Use Deck Lever (**32**) to increase scrub pressure by locking lever into the medium or high position on the Deck Lever Support. **SEE DETAIL 1.**
Use Solution Control Lever (**E**) to regulate the amount of solution being dispensed. Solution will only dispense while scrubbing.
EcoFlex models only: Use the Detergent Module (**G, 7b**) to regulate the amount of solution and detergent being dispensed.
- 5 Lower the squeegee with the Squeegee Raise / Lower Lever (**30**). Vacuum motor will turn on when squeegee is lowered and turn off when raised.
- 6 When the Palm Buttons (**C, 23**) and Reverse Button (**D, 24**) are not being pressed and the machine is stationary the scrub, solution and detergent (EcoFlex models) systems will pause. Grip the Operator Control Handle (**2**) and press any of the Palm Buttons (**C, 23**) or the Reverse Button (**D, 24**) to resume scrubbing. For best results, move the machine at a slow walking speed.

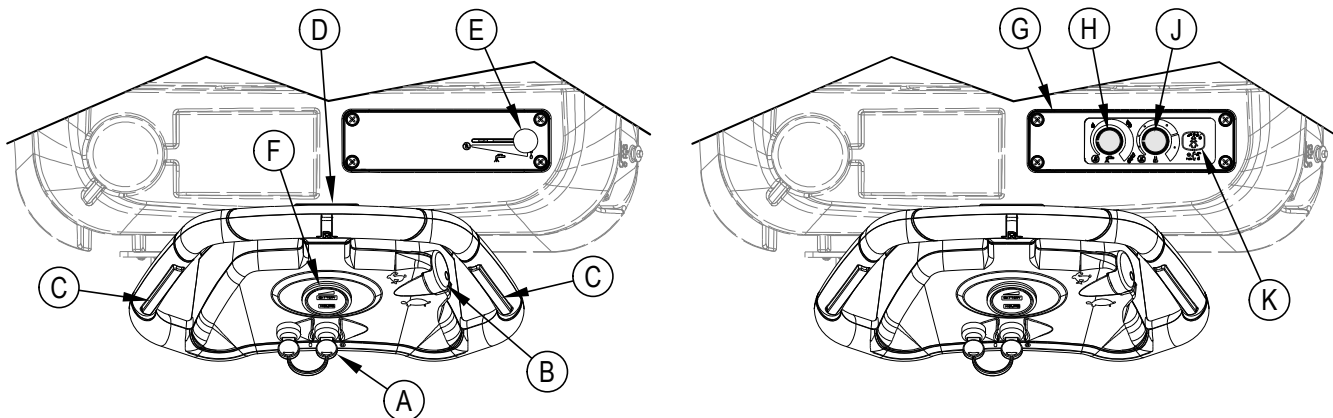
⚠ CAUTION!

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

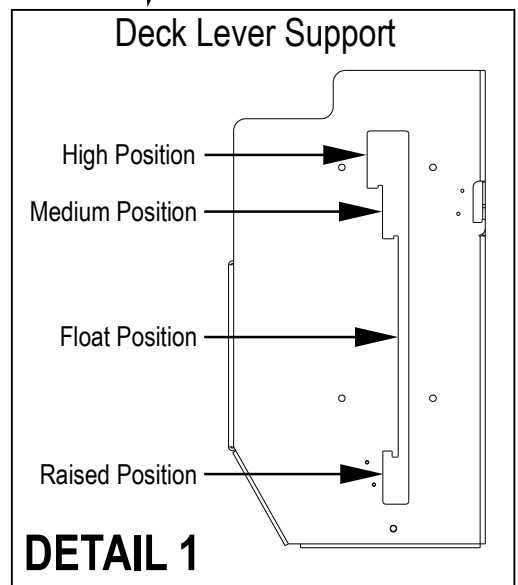
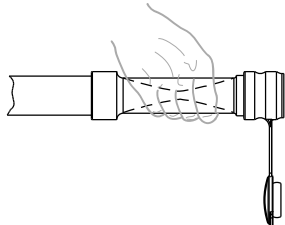
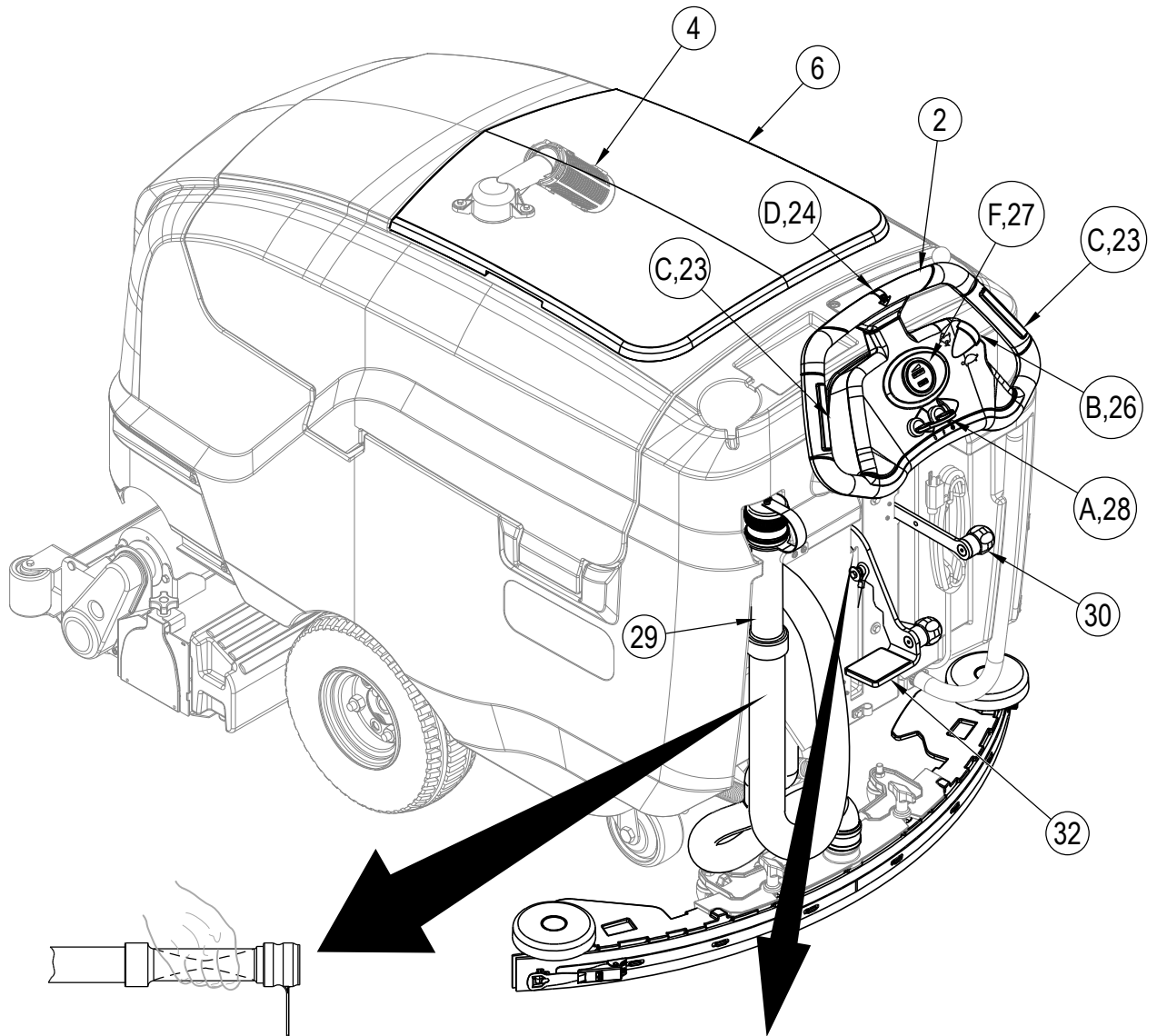
- 7 When scrubbing, check behind the machine occasionally to see that all of the waste water is being picked up. If there is water trailing the machine, you may be dispensing too much solution, the recovery tank may be full, or the squeegee tool may require adjustment.
- 8 For extremely dirty floors, 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. 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.
- 9 The recovery tank has a shut-off float (**4**) that causes a change in pitch in the vac motor. When this float is activated, the recovery tank must be emptied. The machine will not pick up water with the float activated. **NOTE:** Empty the debris catch cage every time you drain the recovery tank.
- 10 When the operator wants to stop scrubbing or the recovery tank is full;
- 11 Raise the deck and lift the squeegee when all the water has been picked up.
- 12 Drive the machine to a designated wastewater "DISPOSAL SITE" and empty the recovery tank. To empty, pull the Recovery Tank Drain Hose (**29**) from its hanger and open the cap (hold the end of the hose above the water level in the tank to avoid sudden, uncontrolled flow of waste water). The Recovery Tank Drain Hose (**29**) can be squeezed to regulate the flow. Refill the solution tank and continue scrubbing.

NOTE: Make sure the Recovery Tank Cover (**6**) and the Recovery Tank Drain Hose (**29**) cap is properly seated or the machine will not pick-up water correctly. When the batteries require recharging the Battery / Hour Gauge (**F, 27**) flashes the 2nd LED from the left as a warning that the battery has discharged 70%. At 80% discharge, the display alternately flashes the left 2 LEDs to indicate very low capacity is remaining. At this level the scrub systems are disabled to protect the battery. The vacuum system will continue to operate to allow recovery of any solution remaining on floor. Transport the machine to a service area and recharge the batteries according to the instructions in the Battery section of this manual.

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

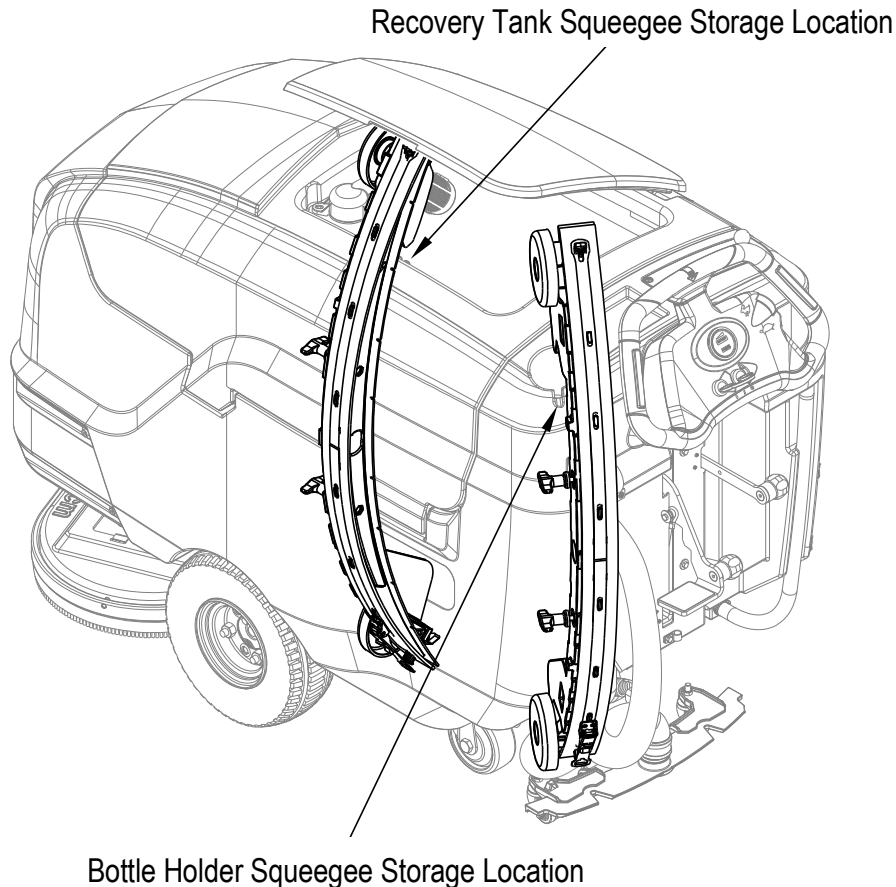


WET SCRUBBING



AFTER USE

- 1 Raise the brushes (or pads) and raise the squeegee. Move the machine to a service area.
- 2 Turn the Master Key Switch **(A)** OFF and remove the key.
- 3 To empty the solution tank, pull the Solution Drain Hose **(31)** off the upper connector. Direct the hose to a floor drain or bucket. Rinse the tank with clean water. Inspect the solution hoses; replace if kinked or damaged.
- 4 To empty the recovery tank, remove the Recovery Tank Drain Hose **(29)** from its hanger and remove the cap (hold the end of the hose above the water level in the tank to avoid sudden, uncontrolled flow of waste water). The Recovery Tank Drain Hose **(29)** can be squeezed to regulate the flow. Rinse the recovery tank and shut-off float **(4)** with clean water. Inspect the recovery and vacuum hoses; replace if kinked or damaged.
- 5 Remove the brushes or pad holders. Rinse the brushes or pads with warm water and hang up to dry. Allow buffing pads to dry completely before using again. **NOTE:** You need to remove the brushes manually for all **SC900 models**).
- 6 Remove the squeegee, rinse it with warm water and hang it up to dry.
- 7 **See Figure 6.** Use the Recovery Tank or Bottle Holder storage locations to hang the squeegee from.
- 8 Check the maintenance schedule below and perform any required maintenance before storage.
- 9 Store the machine indoors in a clean dry place. Keep from freezing. Leave the tanks open to air them out.
- 10 Turn the Key Switch **(A)** OFF (O) and remove the key.
- 11 Batteries are the most expensive replacement item on this machine. To protect your investment and to get as many cycles from the batteries as possible, remember the following:
 - When installing batteries make certain the machine and charger is programed for the correct battery type.
 - Batteries will last longer if they are kept fully charged.
 - Batteries will prematurely fail if stored in a discharged state.
 - Battery chargers will not over or undercharge the batteries.
 - Every day after use, the battery charger must be plugged in and the charger must be allowed to run through a full charging sequence to fully charge the batteries. This may take 8-12 hours depending on the battery status.
 - Always have the charger plugged into an AC outlet if the machine will not be used for a longer period of time to keep the battery(s) charged.
 - There is no benefit to discharging to low levels. Do not skip charging because the batteries haven't been fully discharged.

FIGURE 6

MAINTENANCE SCHEDULE

MAINTENANCE ITEM	Daily	Weekly	Monthly	Yearly
Charge Batteries	X			
Check/Clean Tanks & Hoses	X			
Check/Clean the Brushes/Pads	X			
Check/Clean the Squeegee	X			
Check/Clean Vacuum Shut-Off Float	X			
Empty/Clean Debris Catch Tray in Recovery Tank	X			
Check Each Battery Cell(s) Water Level		X		
Inspect Scrub Housing Skirt		X		
Inspect and clean Solution Filter		X		
Purge Detergent System		X		
Lubrication of Machine			X	
* Check Carbon Brushes				X

* Have an Authorized Advance Service Center check the vacuum motor carbon motor brushes once a year or after 300 operating hours. The brush and drive motor carbon brushes should be checked every 500 hours or once a year.

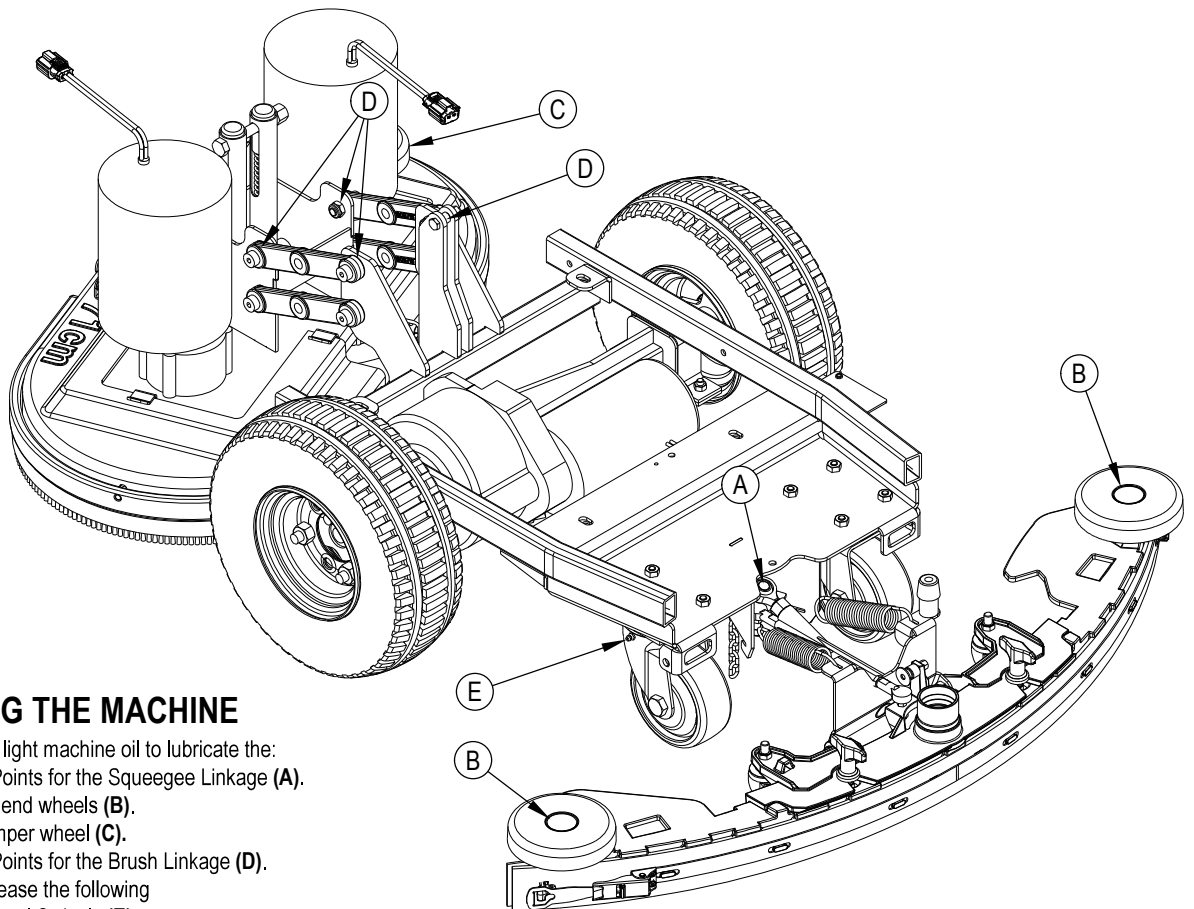
NOTE: Refer to the Service Manual for more detail on maintenance and service repairs.

SERVICING THE VACUUM MOTOR

Have your Advance Dealer check the carbon motor brushes once a year or after 300 operating hours.

IMPORTANT!

Motor damage resulting from failure to service the carbon brushes is not covered under warranty. See the Limited Warranty Statement.



LUBRICATING THE MACHINE

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

- General Pivot Points for the Squeegee Linkage (A).
- Squeegee Tool end wheels (B).
- Scrub deck bumper wheel (C).
- General Pivot Points for the Brush Linkage (D).

Once per quarter, Grease the following

- Rear Caster Wheel Swivels (E).

CHARGING WET BATTERIES

Charge the batteries each time the machine is used or when the Battery Indicator / Hour Gauge (F) 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. 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:

Disconnect the batteries from the machine and make sure you plug the connector from the charger into the Battery Pack Connector (15). Follow the instructions on the battery charger.

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 / Hour Gauge (F) 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 valve regulated lead acid (VRLA) battery will deliver superior performance and life ONLY IF IT 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. 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:

Disconnect the batteries from the machine and make sure you plug the connector from the charger into the Battery Pack Connector (15). Follow the instructions on the battery charger.

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.

SERVICING THE SQUEEGEE

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, and then unsnap the Rear Squeegee Blade Removal Latch (37) on the squeegee tool.
- 2 Remove the Tension Strap (35).
- 3 Slip the rear blade off the Alignment Pins (36).
- 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 angle if needed.

To Reverse or Replace the Front Squeegee Blade...

- 1 Raise the squeegee tool off the floor, then loosen the (2) Thumb Nuts (33) on top of the squeegee tool. Disconnect the Recovery Hose (34) and remove the Squeegee Assembly (12) from the mount.
- 2 Loosen the Front Squeegee Blade Removal Knob (AA), and then remove Tension Strap (AB) 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 angle if needed.

ADJUSTING THE SQUEEGEE

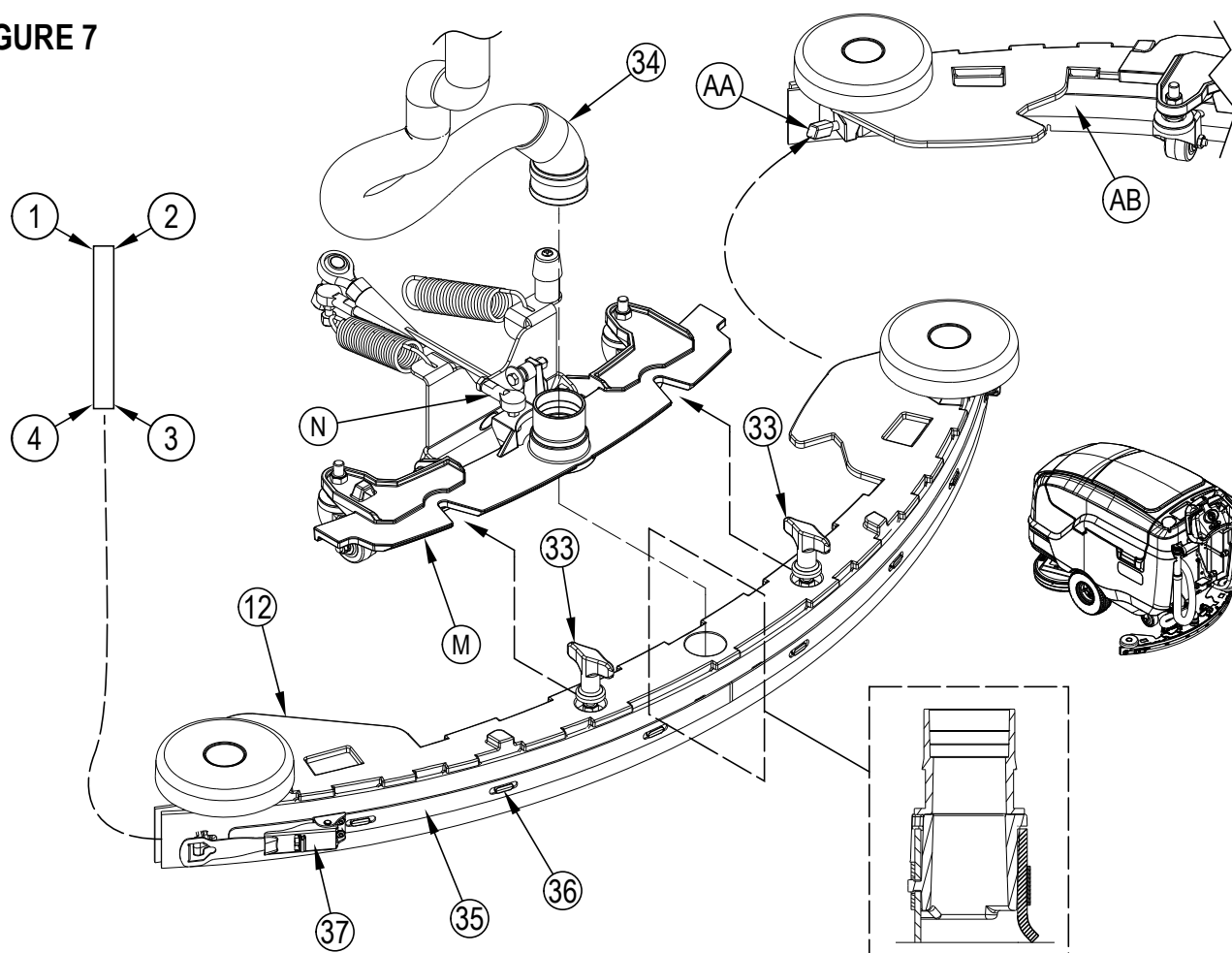
Adjust the squeegee angle whenever a blade is reversed or replaced, or if the squeegee is not wiping the floor dry.

To Adjust the Squeegee Angle...

- 1 Park the machine on a flat, even surface and lower the squeegee.
- 2 The Squeegee Mount Bracket (M) has a factory set position so that the rear squeegee blade touches the floor evenly across its entire width and is bent over slightly as shown.

NOTE: A service technician can adjust the Turnbuckle Assembly (N) to change the squeegee angle if needed.

FIGURE 7



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
Debris catch cage full	Empty debris catch cage	
Poor scrubbing performance	Worn brush or pad	Rotate or replace brushes
	Wrong brush or pad type	Consult Advance
	Wrong cleaning chemical	Consult Advance
	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
	Tripped 2.5 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 30 Amp circuit breaker	Check for drive motor overload
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		Advance SC900 ST 28D	Advance SC900 ST 34D	Advance SC900 ST 32C
Model No.		56115201	56115202	56115203
Voltage, Batteries	V	36	36	36
Battery Capacity	Ah	310	310	310
Protection Grade		IPX4	IPX4	IPX4
S P L IEC 60335-2-72: 2002 Amend. 1:2005, ISO 11201	dB(A)/20 μ Pa	68	68	69
S P L – KpA (IEC 60335-2-72, ISO 11201) Uncertainty	dB(A)	\pm 3.0	\pm 3.0	\pm 3.0
Vibrations at the Hand Controls (ISO 5349-1)	m/s ²	< 2.5	< 2.5	< 2.5
Maximum Wheel Floor Loading (right front)	psi N/mm ²	147 / 1.0	128 / 0.89	155 / 1.1
Maximum Wheel Floor Loading (left front)	psi N/mm ²	107 / 0.74	132 / 1.0	128 / 0.88
Maximum Wheel Floor Loading (right rear)	psi N/mm ²	205 / 1.4	432 / 3.0	245 / 1.7
Maximum Wheel Floor Loading (left rear)	psi N/mm ²	521 / 5.6	640 / 4.4	416 / 2.9
Machine Width (chassis)	inch / cm	30.3" / 77.0	30.3" / 77.0	30.6" / 77.7
Machine Width with Squeegee	inch / cm	41.8" / 106.2	41.8" / 106.2	41.8" / 106.2
Machine Height	inch / cm	44.8"		
Machine Length	inch / cm	65.4" / 166	67.4" / 171	63.1" 160.3
Solution Tank Capacity	Gallon / L	30 / 113.6		
Recovery Tank Capacity	Gallon / L	32 / 121		
Battery Compartment Size (approximate)				
Height (maximum)	inch / cm	15 / 38		
Width (maximum)	inch / cm	26 / 66		
Length (maximum)	inch / cm	27.5 / 70		
Scrub brush size				
Outside Scrub Brush Diameter - Cylindrical (inside core is x in / x.x cm)	inch / cm	-	-	5.5" 13,9cm
Scrub Brush Length - Cylindrical (two brushes per machine)	inch / cm	-	-	31" 78,7cm
Brush Diameter – Disc (two brushes per machine)	inch / cm	14" 35,5cm	17" 43,1cm	-
Scrub Brush Speed	RPM	250	250	900
Cleaning Path Width (scrubbing path)	inch / cm	28" 71,1cm	34" 86,3cm	31" 78,7cm
Gross Weight*	lbs/kg	1189 Lbs. 539,3kg	1205.5 Lbs. 546,8kg	1235 Lbs. 560,2kg
Vacuum Motor Size - 710 watts max	HP	0.95		
Drive Motor Size	HP	.5		
Disc Brush Motor Size	HP	0.75	0.75	-
Cylindrical Motor Size	HP	-	-	0.75
Brush Pressure	lbs/kg	90 Lbs. 41kg 145 Lbs. 65kg 200 Lbs. 90kg	90 Lbs. 41kg 145 Lbs. 65kg 200 Lbs. 90kg	75 Lbs. 34kg 100 Lbs. 45kg 125 Lbs. 56kg
Maximum Scrub Speed		3.2	3.2	3.2
Maximum Transport Speed		3.2	3.2	3.2
Transport Weight** (with squeegee and brush deck)	lbs/kg	942	979	1006
Gradeability Transport		2% (1.15 ^o)	2% (1.15 ^o)	2% (1.15 ^o)
Gradeability Cleaning		2% (1.15 ^o)	2% (1.15 ^o)	2% (1.15 ^o)

*Gross Weight: Standard machine without options, full solution tank and empty recovery tank, with removable scrub brushes and 310 AH batteries installed.

**Transportation Weight: Standard machine without options, empty solution and recovery tanks, with batteries installed and no operator.

MATERIAL COMPOSITION**Material Composition and Recyclability**

<u>Type</u>	<u>% of machine weight</u>	<u>% recyclable</u>
Aluminum	5%	100%
Electrical / motors / engines - misc	20%	25%
Ferrous metals	20%	100%
Harnesses / cables	3%	75%
Liquids	0%	0%
Plastic - non-recyclable	3%	0%
Plastic - recyclable	3%	100%
Polyethylene	39%	100%
Rubber	8%	34%