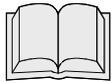


**VALIDITY**

This document has validity since the serial number n° **211009048**

**Modification comparing to the previous document**

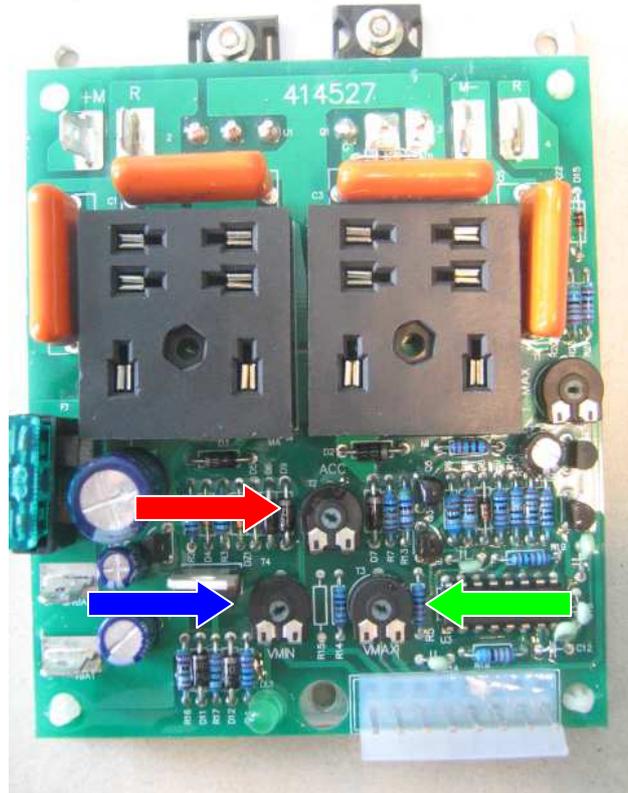
<b>Ref. Page</b>	<b>Descriptions</b>
2	Removed adjustment for machine without speed potentiometer
2	Insert new picture for electrical wiring
3	Insert new picture for electrical wiring
3	Removed adjustment for charger before sn. 452139
10	Update picture for new squeegee
11	Update picture for new squeegee



## READ THE USE AND MAINTENANCE MANUAL

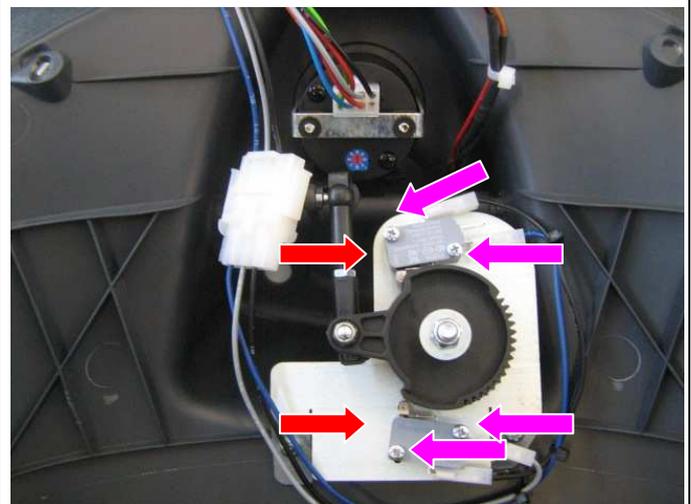
### Chopper card calibration and testing (BT machines only)

1. Check chopper function, for machines **WITH** speed control potentiometer.
2. Proceed as follows if the **chopper card** needs calibrating:
  - Remove the handlebars in order to access the chopper
  - Adjust the **ACC trimmer (acceleration)** so that it is turned clockwise until it stops.
  - Adjust the **VMAX trimmer (maximum)** so that it is turned clockwise until it stops.
  - Adjust the **VMIN trimmer (minimum)** so that it is turned anticlockwise until it stops.
3. Check the reverse gear is functioning
4. Check the motor braking (releasing the accelerator, the machine must stop within about 1 metre)

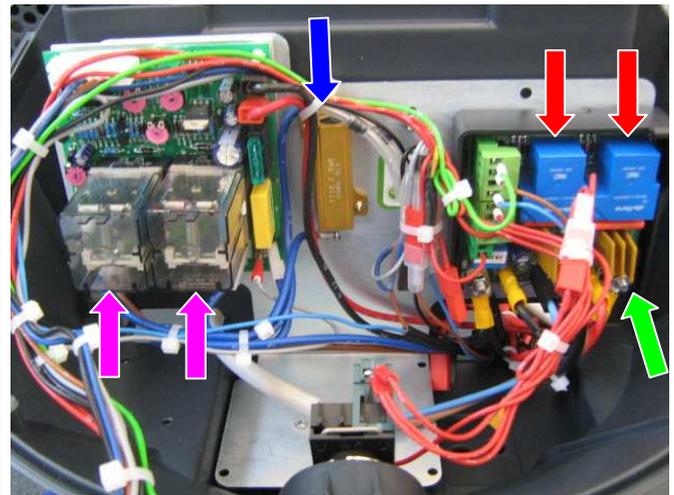


### Electric System Testing

3. Check the efficiency and regulation of the handlebar control **microswitches**.
4. Verify that the microswitches are pressed with the handlebar levers in idle and that in this condition they still have about **0.5 mm** of clearance
5. If clearance is less than 0,5 mm, adjust the microswitch by means of the two **fastening screws**.



6. Check the condition and functionality of the power contactors, the **resettable fuses** and the control card connectors;
7. (For BT only) Check the condition and functionality of the **brake resistor** and the connection of its terminals
8. (For BT only) Check the condition of the chopper card, its cleanliness and the integrity and functionality of the **direction contactors**.
9. Replace the commands card support and handlebar in the reverse order to disassembly



### Battery charger adjustment (Model with battery charger)

1. Check the set-up of the battery charger corresponds to the type of battery actually installed on the machine.



2. To adjust the battery charger, proceed as follows:
  - Use a screwdriver to remove the small **plastic cap**;
  - Set the dip switch in accordance with the following tables.
  - Close the plastic cap



The dip switches should be set as follows:

DP1	DP2	SET-UP
OFF	OFF	EXIDE SONNENSCHNEIN gel
OFF	ON	General GEL or AGM batteries
ON	OFF	Wet-cell batteries
ON	ON	TROJAN gel

**DP3:**

OFF for all the batteries (not used)

**DP4:**

OFF for all the batteries (not used)



**Carefully read the battery charger operating manual**

Battery charger alarm signals:

Flashing **YELLOW LED**: INCORRECT BATTERY - BATTERY IS NOT CONNECTED - OUTPUT SHORT CIRCUIT;

Flashing **RED LED**: SAFETY TIMER EXCEEDED - INTERNAL SHORT CIRCUIT

Initial battery charger test:

**GREEN LED** with 2 flashes: battery charger with set-up for GEL or AGM batteries

**RED LED** with 2 flashes: battery charger with set-up for wet-cell batteries

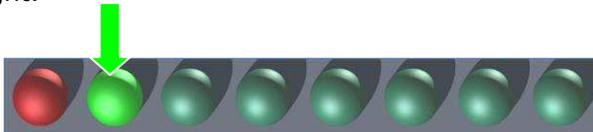


### Adjusting the battery check card

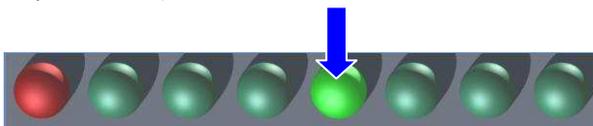
1. Make sure that the battery card has the following start sequence when switched on:

- Lighting of the LED corresponding to the adjustment (**red LED** = "0").
- Lighting of all LEDs (lights functional control)
- Lighting of the LEDs corresponding to the charge level of the battery.
- The initial setup of the battery card can be checked, by turning on the machine and checking which LED lights immediately after starting. Counting the LEDs from the left, not counting the first red LED, the LEDs equivalent to setting made will light.

Make sure that with wet cell batteries the rotating microswitch is set to **position 1**, in this case the first LED will light.

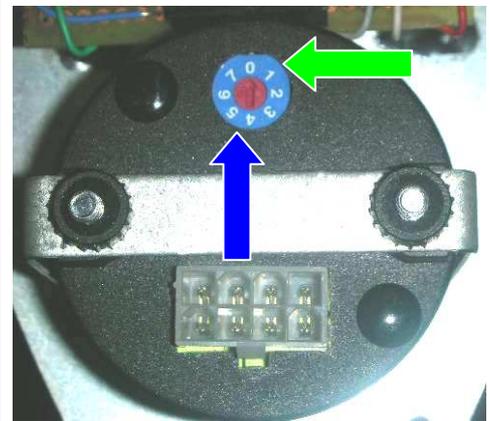


Make sure that with gel batteries the rotating microswitch is set to **position 4**, in this case the fourth LED will light.



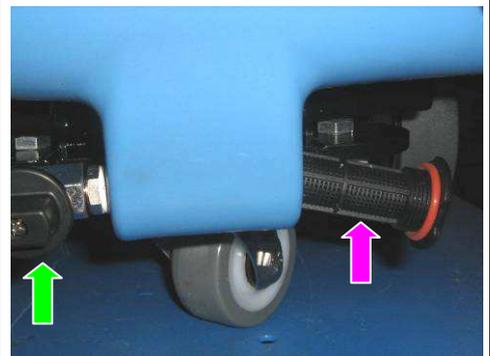
2. Check the functionality of the hour counter.

**WARNING:** An incorrect setting of the battery control card can irreversibly affect the batteries.



### Water System Testing

1. Fill the solution tank and check seal of the connections and in particular the seals on the **solution tap** and on the **discharge cap**.
2. Verify that the distribution of water on the floor under the brushes base is uniform and proportional to the opening of the solution tap.
3. Check the cleanliness of the solution tap housing and discharge plug. If cleaning is required, remove the discharge plug and remove the obstruction.



4. Check that the solution filter just underneath the solution tank cap is clean and functioning.



1. Check the **filter - float** is clean and functioning.
2. Check the air seal of the **cap** on the recovery tank.
3. Check the connections and seal of the suction tubes and the squeegee tube.
4. Check the seal of the squeegee nozzle.
5. Check the seal of the drainage tube and cap.



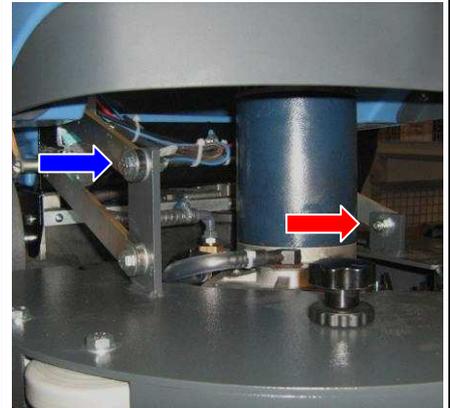
6. Suction microswitch adjustment:
  - The microswitch is located on the support bracket of the squeegee lever.
  - Adjust the microswitch so that when the lever is turned, the switch closes leaving a gap of about 0.5mm between the **roller** and the main body.
7. After adjusting, check the microswitch is functioning correctly.



### Brushes base adjustment

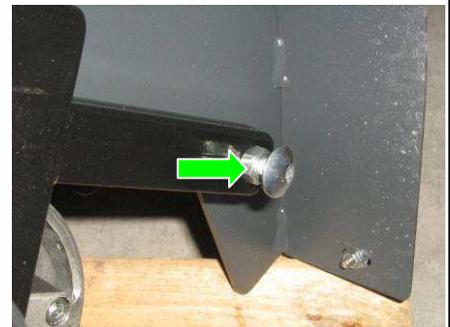
Check the correct angle of the base to the floor. Proceed as follows to adjust the base:

- Lower the base with brush onto the floor.
- **Unscrew the M8 screw and M8 nut** securing the base to the left arm.
- **Unscrew the screw and nut** securing the base to the third point arm.
- Make sure the base is properly positioned to the floor and the brush touches the floor evenly.
- **Tighten the M8 screw and nut** to secure the left arm to the base.
- Lift the front of the base so that the front is raised by about 5mm in relation to the rear.
- **Tighten the M8 screw and nut** to secure the base in position.



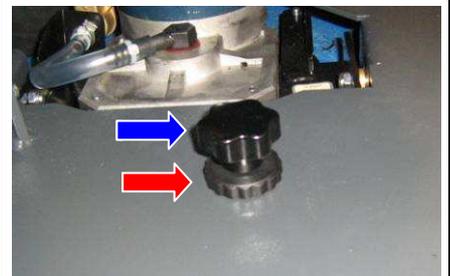
### Brush support adjustment

Check that the **round headed screw** on the back of the base, is set near the upper flat top of the brush. The distance between the head and the brush should be approx. 1-2 mm with brush blocked and base lowered.



### For machines **without** traction :

- Unscrew the **ring nut**
- Adjust the **knob** so that the brush aids the movement of the machine when operating. (**Screw** to diminish the traction **Unscrew** to increase the traction).
- Having achieved the correct adjustment, block it by tightening the **ring nut**.

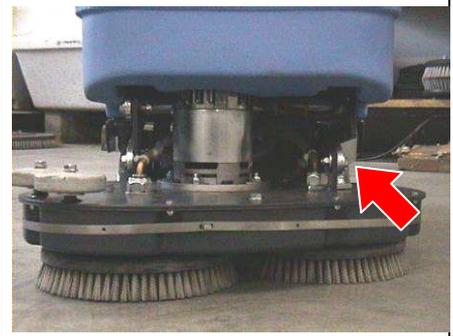


Attention: increasing the traction of the machine reduces the working width.

## Double brush base adjustment

### Machines with traction

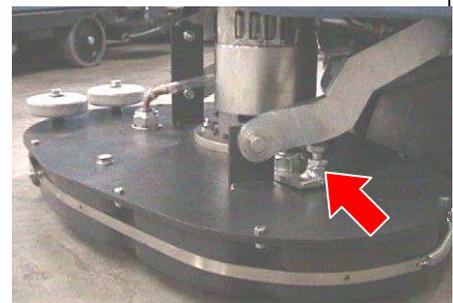
1. With the base lowered, including the appropriate brushes.
2. Unscrew the **M8 screw** that fastens the base to the left arm
3. Move the machine so that the base adapts into the floor
4. Tighten the **M8 screw** to secure the flatness adjustment of the base.



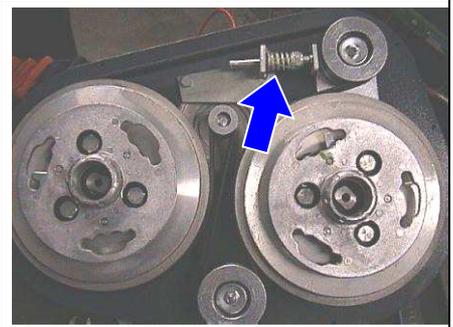
### Machines without traction

The advance movement is adjusted as follows:

1. Loosen the **M10 nut**
2. Loosen the screw to decrease the traction effect
3. Tighten the screw to increase the traction effect
4. Tighten the counter nut to secure the adjustment.

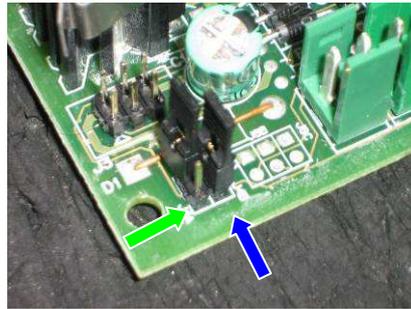


5. Check the measurement of the **belt tightener spring**
  - Disassemble the base casing to access the **belt tightener spring**
  - The measurement of the **belt tightener spring** must be approximately 27 mm in compression.



### Testing the Detergent Dosing System

1. Check the contacts and the detergent control card seat are clean. The card has positioned on the rear of the electrical panel.
2. Check the set-up of the two **jumpers (J4A and J4B)** of the detergent dosing card.
3. Check that the jumper is on the bridge **J4B** while **J4A** must be free.

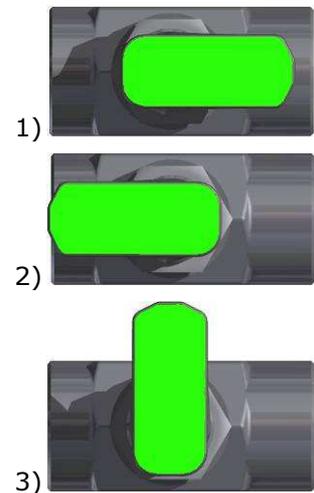


4. Check the detergent dosing system bypass is functioning correctly. The bypass system is activated by means of a **tap** on the base.

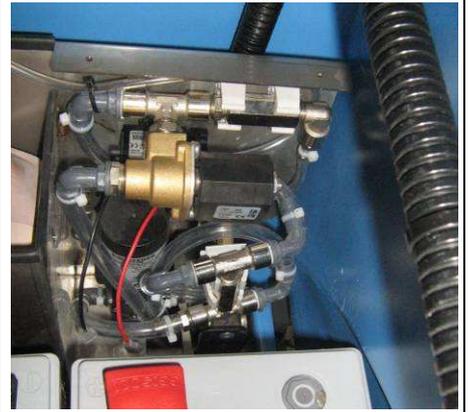


#### Single brush base:

Check that the dosing system is operative in position **1**.  
Make sure the emission of the solution is due to gravity in position **2**, and that the detergent dosing system is excluded.  
Make sure there is never the emission of solution due to gravity in position **3**.  
Consider the tap as seen from above from the operator's position.

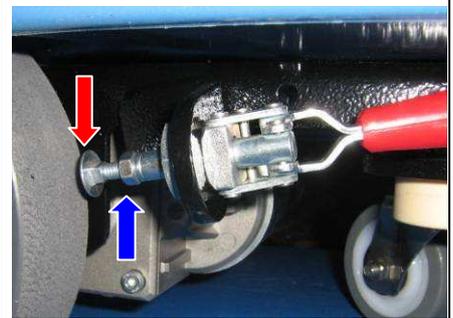


Check the functioning and connections of the water and detergent pumps. Check the solution tubes are clean and in good condition.



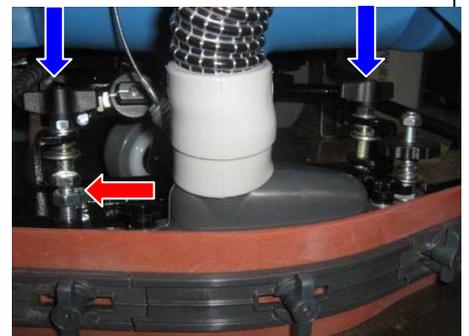
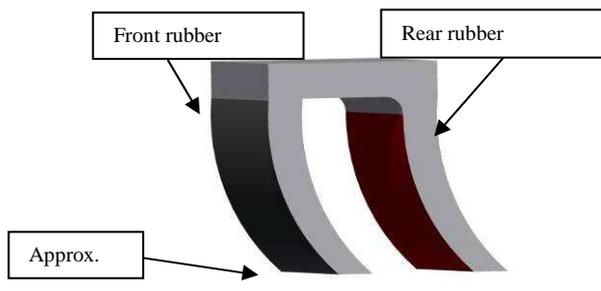
### Brake adjustment

1. Check that the brake placed on the left wheel locks the wheel when activated.
2. Otherwise, proceed as follows:
  - Unscrew the **locknut**.
  - Screw or unscrew the **stopper screw** so that there is approx. 7 mm. between the **stopper screw** and the wheel.
  - Check the adjustment with a functional test, making sure that the activation of the brakes is not too difficult, and not too soft.
  - Tighten the **locknut** to assure the adjustment.



### Adjusting the squeegee

1. Adjust the **inclination** of the rear rubber, with the suction motor ON, so it is even.
2. Use the special **handwheel** to adjust the height of the wheels, checking the rubber inclination is between 30° and 45° and is even across its entire length. With adjustment complete, the wheels must touch the floor.



Check cleanliness and tightness of the squeegee nozzle

### Testing machine operation

- Check the functioning of the switches and indicator lights.
- Check the functioning of the accelerator.
- Check the functioning of the brushes base.
- Check the functioning of the brush motor.
- Check the functioning of the solenoid valve.
- Check the functioning of the suction motor.
- Check the functioning of the parking brake.
- Check the condition of the batteries, clamps and cables.

### Machine operating tests

- Fill the tanks with water and check for any leaks.
- Check the seal of the water system and check the water falls evenly onto the two brushes.
- Adjust the inclination and wheels of the squeegee, carrying out an operating test.
- Adjust the brush pressure and base inclination, carrying out an operating test.
- Check the efficiency of the parking brake.
- Check forward movement, reverse gear, acceleration and braking.

### Final Testing

Check all the functions: washing, drying, forward movement.