

READ THE USE AND MAINTENANCE MANUAL

CONSOLE CONFIGURATIONS AND SETTINGS

Console Services

The console allows you to:

- Program the chopper card to ensure the correct behaviour of the machine;
- Test the electric components and circuit regarding the traction system.
- Read the alarms to identify the error code easily.

Console use

The correct sequence to connect the console is:

1. **TURN OFF** the machine by turning the main key.
2. Connect the console to the chopper card via the connector on the board.
3. Turn on the machine and operate with the console.
4. When finish **TURN OFF** the machine.
5. Disconnect the console from the machine.

A BAD SEQUENCE IN CONNECTING AND UNCONNECTING THE CONSOLE CAN EASILY DAMAGE THE CARD OR THE CONSOLE.



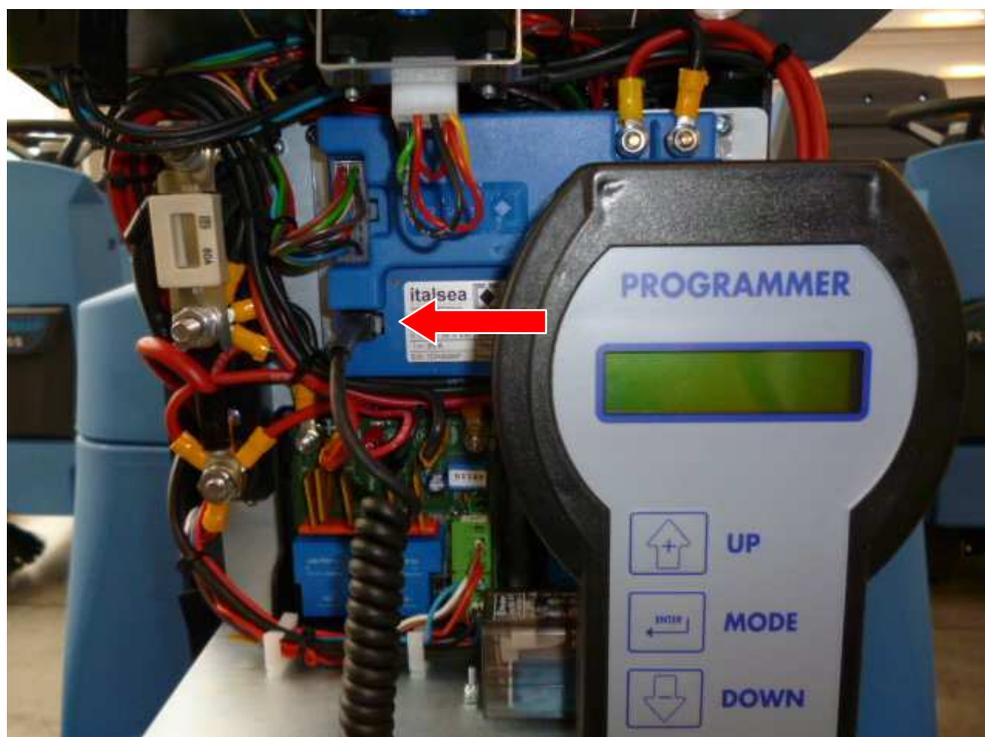
	<p style="text-align: center;">ADJUSTMENTS AND TESTING</p>	<p style="text-align: center;">FS700 B – FS800 B</p>	<p>Doc. 10032657 Issued 04/2013 Ver. AB Pag. 2 di 14</p>
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ALARM TABLE

Message	Alarm	What to do
ALARM A1 FW Switch ON	Forward micro-switch on in turning on.	Put the potentiometer in idle position and verify that the forward micro-switch is open.
ALARM A2 BW Switch ON	Backward micro-switch on in turning on.	Let the pedal stay in idle position and open the backward micro-switch.
ALARM A3 Pot. FAULT	Potentiometer error	Check the potentiometer harness.
ALARM A4 Ref OUT Neutral	Potentiometer not correctly positioned	Put the potentiometer in the idle position or if it already is in the right position, make the potentiometer programming.
ALARM A5 Over temperature	Thermal protection	Wait for 5 minutes and then verify the traction motor absorption rate.
ALARM A6 POWER STAGE	Damaged power stage	Replace the chopper card.
ALARM A7 OVERCURRENT	Overcurrent	Check the motor cables: If connections are regular and repeat the alarm, replace the chopper card.
ALARM A8 POWER FUSE/RELAY	Power fuse or internal contactor damaged	Check the fuse on the + battery and wiring, replace the chopper card if it persists (General relay damaged).
ALARM A9 UNDERVOLTAGE	Undervoltage	Check the batteries for poor voltage.
ALARM A10 OVERVOLTAGE	Overvoltage	Battery voltage greater than 45V: check battery status
ALARM A11 Overload Current	Current protection	Check the motor current and possibly trim the electronic current control
ALARM A12 DISABLE ON	Disabling active	Check the status of the disabled.
ALARM A13 KEY-OFF	Turn off sequence active	Check the wiring on the ignition power key.
ALARM A14 EEPROM FAIL	E2prom data reading failed	Check the settings: if the alarm is repeated, replace the chopper card.

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CHOPPER CARD CONFIGURATION



Console code: **431320**

To enter the parameter list:

1. Press the "**MODE**" button.
2. The first parameter description will appear, pressing **up** or **down** it is possible to scroll the parameter list.
3. Once on the parameter you want to change, press the "**MODE**" button to enter into the parameter to modify the configuration (in modification condition the parameter description will blink).
4. Change the value using the "**UP**" and "**DOWN**" buttons. Once configured correctly confirm the changes by pressing the "**MODE**" button, this will confirm the changes.

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PARAMETERS:

PARAMETER	DEFAULT	FS700-800
RESET TO DEFAULT	DISABLE	DISABLE
ACCELERATION RAMP	3	3
REVERSE RAMP	1,5	1,5
NEUTRAL RAMP	1	1
FORWARD SPEED	100	100
BACKWARD SPEED	60	60
MINIMUM SPEED	0	0
BATTERY VOLTAGE	24	24
SPEED REFERENCE	single-ended	wig wag1
REF. DEADBAND	0,2	200V
BRAKE DELAY	2	0,5
MULTIMODE SPEED	50	50
MULTIMODE CURRENT	25	45
BW SAFETY TIME	0	0
BW SAFETY SPEED	0	0
LOW BATTERY	19	19
TIMEOUT RUN AWAIT	0	60
RUN-AWAY	0	14
CURRENT LIMIT	45	90
RATED CURRENT	15	25
OVERLOAD TIME	60	60
5-J1 HW CONFIG	N.C. switch	N.O. switch
6-J1 HW CONFIG	N.O. switch	N.C. switch
11-J1 HW CONFIG	N.O. switch	N.O. switch
ENABLE ALARM 1	ENABLE	ENABLE
ENABLE ALARM 2	ENABLE	ENABLE
ENABLE ALARM 3	ENABLE	ENABLE
ENABLE ALARM 4	ENABLE	ENABLE
ENABLE ALARM 12	ENABLE	DISABLE
PASSWORD	0	0

POTENTIOMETER SETTINGS

(Resister Settings)

- 1) Ensure the machine is **TURNED OFF**.
- 2) Connect the console to the machine.
- 3) Turn on the machine.
- 4) Enter into the parameter list using the **"MODE"** button.
- 5) Scroll down the list until you reach the parameter **"Speed reference appears"**

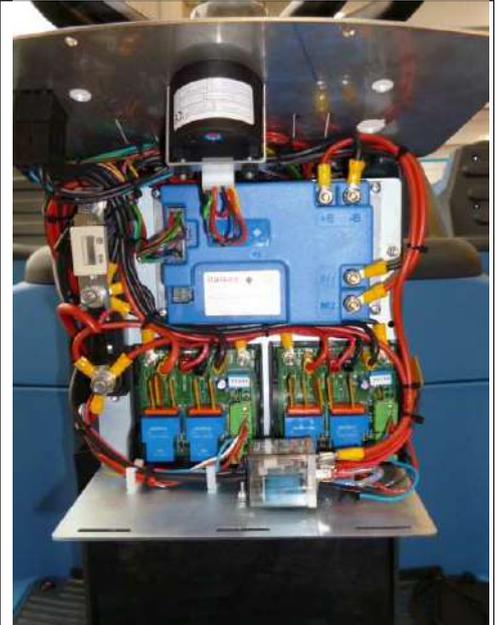
<p>SPEED REFERENCE</p>	<p>Press "MODE" button to select which kind of potentiometer is installed on the machine</p>
<p>SPEED REFERENCE Wig wag 1</p>	<p>Press "UP" or "DOWN" to select the potentiometer "wig wag 1" and press "MODE" button to confirm it.</p>
<p>CALIBRATION Max bw</p>	<p>Select "max BW" and lift the pedal until its end. (ref. 1), in the same time press "MODE" button to confirm it.</p>
<p>CALIBRATION Max fw</p>	<p>Select "max FW" and press down completely the pedal (ref. 2). And in the same time, press "MODE" button to confirm it.</p>



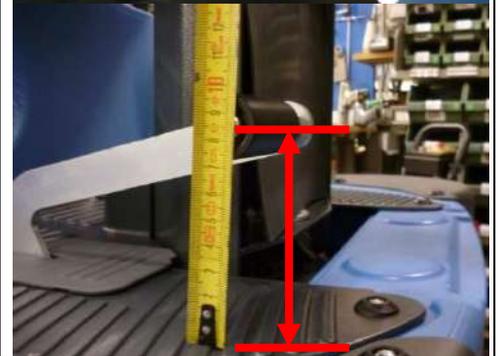
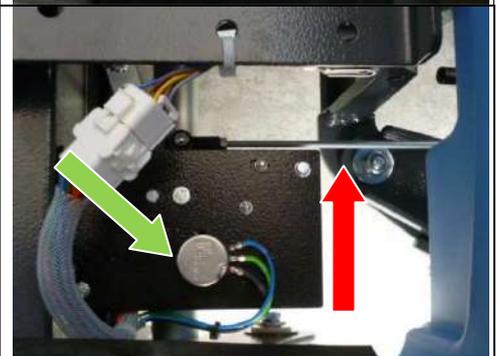
- 6) Turn off the Machine.
- 7) Disconnect the console.
- 8) Turn on the machine and perform a functional test to verify the adjustment

ELECTRIC INSTALLATION TEST

1. Disconnect battery cable.
2. Check cleanliness and the tightness of the cables connecting the batteries.
3. Check cleanliness and the tightness of the power cables: relay, fuse, motor etc.
4. Connect the battery cable.



1. Check the functionality and the **potentiometer** conditions and the conditions of the direction and working micro-switches. (Central brush and lateral brush). The micro switches are installed into the black box over the battery compartment.
2. Check the correct adjustment of the acceleration rod. In neutral position, you have to find, **7/7,5 cm**, between the middle of the acceleration level and the frame of the machine. If not, adjust the **acceleration rod** with the correct measurement.

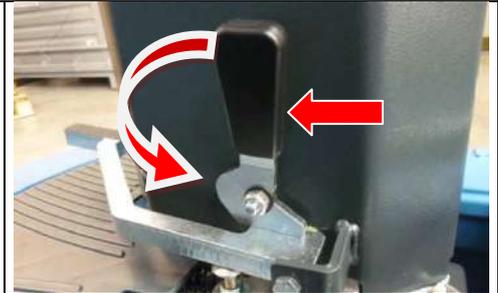


3. Check the functionality of:
 - Safety seat switch;
 - Hourmeter;
 - Horn and key;
 - Safety lamp;
 - micro switch of vacuum and shaker.
4. Check driving movement.

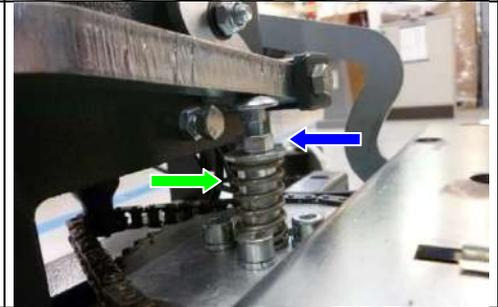


TRACTION AND BRAKES ADJUSTMENT

1. Move the **brake level** to put it in parking position.

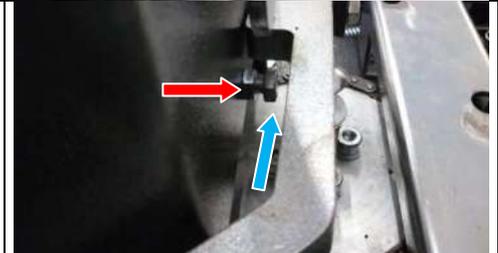


2. Loosen the **locking nut** and unscrew the **screw** until the traction wheel is secure. Once you have reached the right adjustment adjust the **locking nut**.
3. Check that when the lever is in standard position (brake off) the wheel is free to move.



4. Check the steering chain. If necessary, adjust as per the following instruction:

- Loosen the **locking nut**;
- Loosen the two **locking nuts** of the steering support.
- Adjust the **screw** until the chain is tighten correctly;
- Lock the two **locking nuts**;
- Lock the **locking nut**.

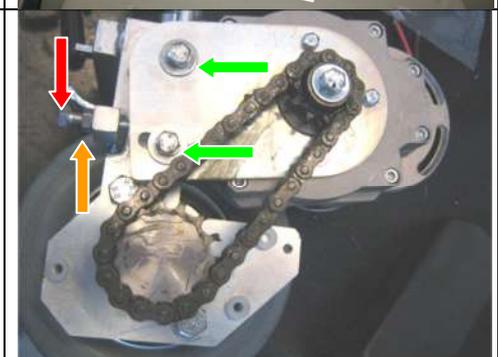


5. To proceed to the chain tensioning adjustment act as follow:

- Remove the plastic cover;
- Loose the **nuts** that fix the plate to the traction wheel.
- Loose the **locking nut**;
- Screw or unscrew the **screw** to tension or loose the chain;
- Once reached the correct adjustment lock the **locking nut** to fix the adjustment.
- Lock the locking **nut** to fix the plate and refit the plastic cover.

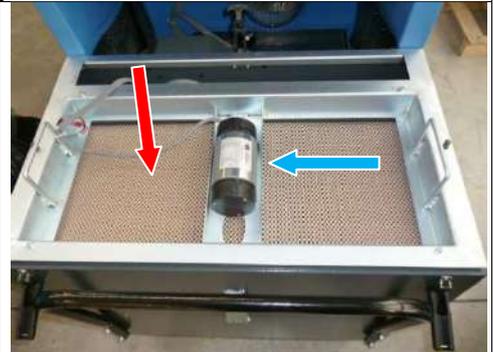


6. If necessary, add some grease into the **bearing support** of the traction wheel.



VACUUM ADJUSTMENT (FS700 B Basic – FS800 B Basic)

1. Check cleanliness and functionality of **filter**.
2. Check functionality of **shaker motor**.



3. Check cleanliness and functionality of the **gaskets** of cover and frame.



4. Check cleanliness and functionality of the **gasket** of the recovery tank.
5. Check the correct movement of recovery tank. If necessary, adjust the **hook** in order to have a perfect closure.



6. Check cleanliness and functionality of the rubber into the rear and lateral flaps.
7. If necessary, it is possible to adjust the rubbers with the **screws**

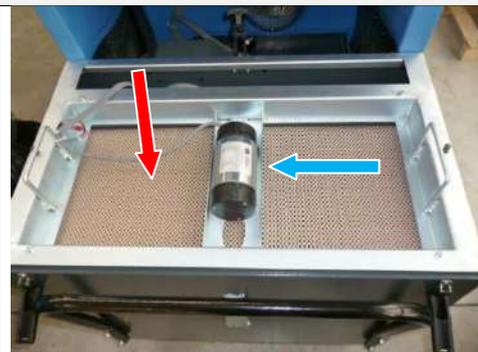


8. If it is necessary to adjust the front flap rubber, use the **adjusting screw**, which is placed under the frame close to the **lever to lift up the central brush**.



VACUUM ADJUSTMENT (FS800 B)

1. Check cleanliness and functionality of **filter**.
2. Check functionality of **shaker motor**.



3. Check cleanliness and functionality of the **gaskets** of cover and frame.



4. Check functionality of the **microswitch for the consent of the rotation of the hopper**. The microswitch inhibits the rotation of the **hopper** until the **filter cash** completes its moving out from the hopper.



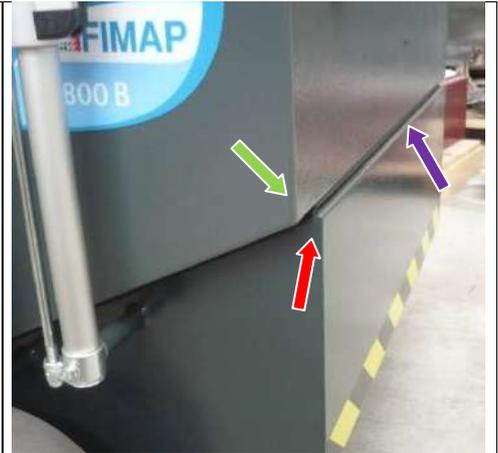
5. Check the right coupling between the **hopper** and the **filter cash** in order that at the closing of the hopper there will be a good holding of the **gasket**. Avoid an excessive pressure of the gasket between the filter cash and the hopper.

In case the matching between the hopper and the filter cash is not good act on the magnetic microswitches inside the **tipping actuator** and inside the **lifting actuator** (consider only the raising actuator near the rotation actuator).

To set the microswitches slip the **black protective sheath** and adjust with care the **microswitches** placed under the protective sheath.

5.1 Lifting actuator.

- **Return/ Descent Micro.** It governs the entrance of the hopper under the filter cash. Adjust the micro in order that the hopper does not force on the frame after its closing.
- **Exit / Rise Micro.** It governs the maximum height during the raising of the hopper. It can be set to full scale.



5.2 Tipping actuator.

- **Exit / Rise Micro.** It governs the entrance of the hopper under the filter cash. Adjust the micro in order that during the closing the **hopper is parallel to the filter cash.**
- **Return / Descent Micro.** It governs the maximum rotation of the hopper. It can be set to full scale.

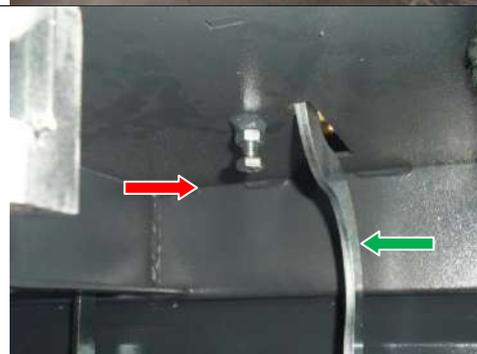


6. Check cleanliness and functionality of the rubber into the rear and lateral flaps.

7. If necessary, it is possible to adjust the rubbers with the **screws**

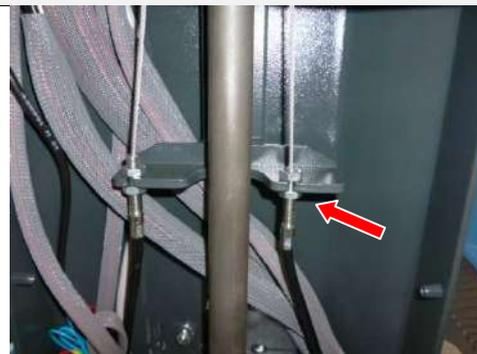


8. If it is necessary to adjust the front flap rubber, use the **adjusting screw**, which is placed under the frame close to the **lever to lift up the central brush.**

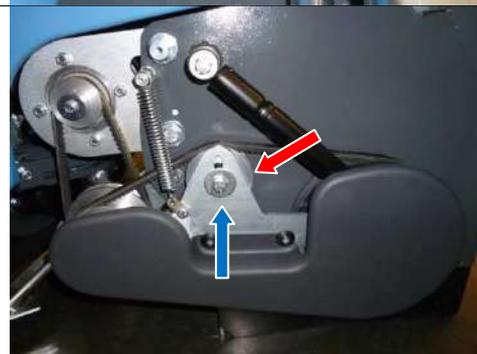


CENTRAL BRUSH ADJUSTMENT

1. Check the **cable** to lift up and down the central brush, so that, with the central brush completely up, we have a distance of 170 mm. between the middle of the brush and the floor.

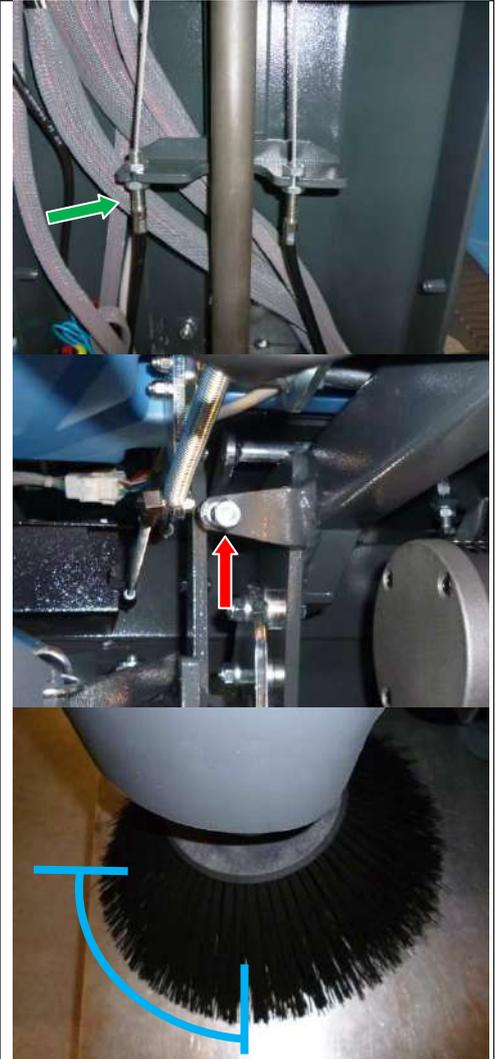


2. Adjust the tension of the central brush transmission belt: after loosened the lateral cover, loosen the **screw** in order to adjust the **tensioner pulley** .



LATERAL BRUSH ADJUSTMENT

1. Check the **cable** to lift up and down the lateral brush. With the lateral brush completely lift up, the motor must not touch against the frame.
2. Adjust the **limit down screw** and check if, during normal working, the lateral brush touch the floor only on the front part (**see picture**).



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FINAL CHECK OF THE MACHINE

Check the functionality of switches and hourmeter;
 Check the functionality of the safety seat micro switch;
 Check the functionality of the acceleration pedal;
 Check the functionality of the central brush and its motor;
 Check the functionality of the lateral brush and its motor
 Check the functionality of the suction;
 Check the functionality of the filter shaker;
 Check the functionality of the parking and pedal brake;
 Check the functionality of the steering
 Check the functionality of the batteries and cables;
 Check the functionality of the horn

FUNCTIONAL TEST OF THE MACHINE

Cehck all the electrical motors.
 Adjust the central brush and test it.
 Adjust the lateral brush and test it.
 Check the lifting and lowering of central brush.
 Check the lifting and lowering of lateral brush.
 Check the functionality of safety seat micro switch.
 Check the functionality of the suction.
 Check the functionality of the shaker.
 Check the correct functionality of the brake: brake at the maximum speed and check if the wheels will be locked completely.
 Check forward, backward and acceleration

FINAL TEST

Check all the function af the machine: sweeping, suction and drive.