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REPLACE AND DELETE THE DOCUMENT RC0703 REV00 ISSUED 26/07/2006-MZ



READ THE USE AND MAINTENANCE HANDBOOK

PROGRAMMING with the console

Service of the console

The console allows to:

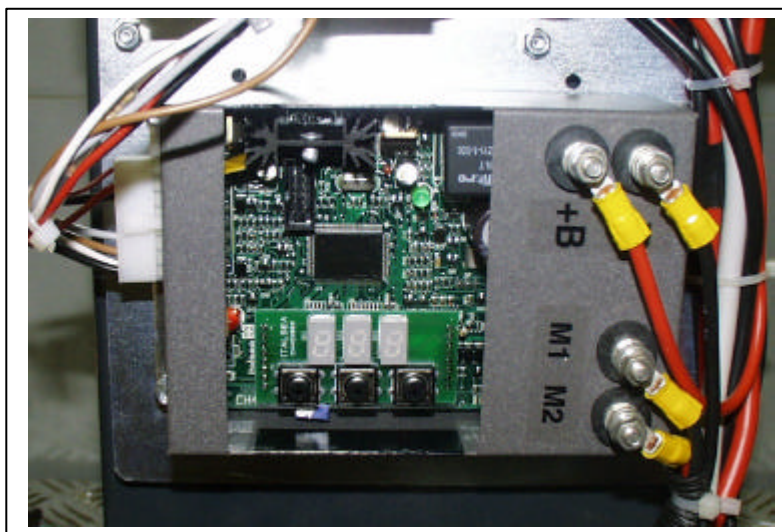
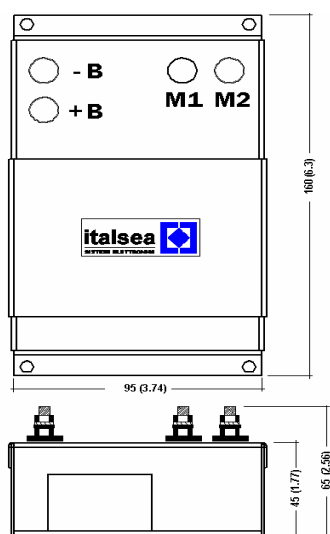
- set the chopper card for a personalized behaviour of the traction motor;
- test the different electric values and the state of the electric circuit relative to the traction;
- read the type of the alarm for a correct and easy trouble shooting.

Use of the console

The sequence to follow always for the connection of the console is:

1. **SWITCH OFF THE GENERAL KEY** of the machine;
2. Connect the console in the correct connector (as shown in the picture);
3. Switch on the general key of the machine and work with the console;
4. Quit from all the programs (main menu of the ignition) and **SWITCH OFF THE GENERAL KEY** of the machine;
5. Disconnect the console.

THE WRONG OPERATION SEQUENCE CAN EASILY COMPROMISE THE FUNCTIONALITY OF THE CHOPPER CARD OR OF THE CONSOLE



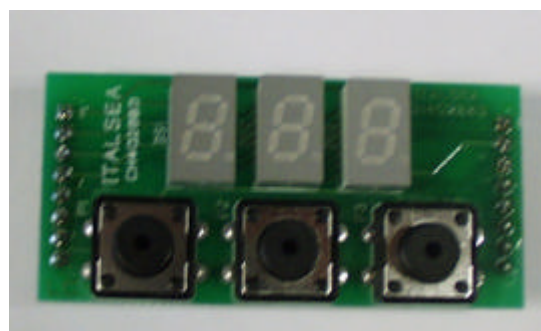
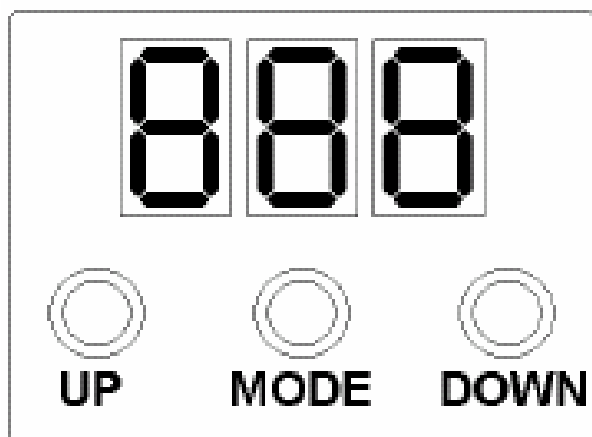
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DIAGNOSIS LIST ALARMS

Alarms or wrong functioning cause the block of the machine and the correspondent alarm appears on the console's display, and the number of blinking on the instrument board control.

MESSAGE	ALARM	TO DO
A1	FORWARD GEAR TURNED ON DURING SWITCHING	CONTROL THE MICRO FORWARD GEAR
A2	REVERSE GEAR TURNED ON DURING SWITCHING	CONTROL THE MICRO REVERSE GEAR
A3	TEAR POTENTIOMETER	CONTROL THE CABLES OF THE POTENTIOMETER
A4	POTENZIOMETRO NON AZZERATO ALL'ACCENSIONE/SETTARE	THE POSITION OF REST OF THE POTENTIOMETER
A5	THERMIC PROTECTION (it clicks with temperature over 90°, make stopping the machine, until the temperature doesn't arrive under the planning limits – control the value of temperature with the parameter F14=4))	CONTROL THE ABSORPTION OF THE MOTOR – INCREASE THE DISSIPATION
A6	SHORT MOS DURING THE SWITCHING	SWITCH OFF, VERIFY AND SWITCH ON AGAIN. CONNECTIONS. IF IT PERSISTS CHANGE THE OPERATION.
A7	OVERCURRENT LINE 1	CONTROL THE MOTOR OR – DECREASE THE MAX. CURRENT
A8	OVERCURRENT LINE 2	CONTROL THE MOTOR OR – DECREASE THE MAX. CURRENT
A9	UNDER TENSION	TENSION < 18V CONTROL THE CONNECTIONS AND THE SECTION OF THE CABLES OF POWER
A10	OVER TENSION	TENSION > 45 V
A11	AMMETER PROTECTION	CONTROL THE CURRENT OF THE MOTOR
A12	DISABLE	CONTROL THE CONNECTION OF THE PIN 6,
A13	ALARM SWITCHING OFF	CONTROL THE KEY AND THE CORRESPONDENT CONNECTION
A14	ALARM EEPROM	SWITCH OFF AND SWITCH ON AGAIN

PROGRAMMING CHOPPER



To enter into the programming functions, push “MODE”.

It will appear the writing referred to the first parameter (“F0”); pushing “UP” and “DOWN” to select the required parameter.

Push “MODE” to enter into the modalities of change and push “UP” and “DOWN” to obtain the required value; when it’s selected, confirm another time the new value with “MODE”.

PARAMETERS:

Name	Default	Min	Max	Description
F 0	0	0	2	Parameters of default (F0=2), switch off and switch on again
F 1 *	50	0	999	IGSL
F 2 *	200	0	999	PGSL
F 3 *	70	0	999	IGCL
F 4 *	600	0	999	PGCL
F 5	20	5	50 Rampa	Acceleration (10=1s)
F 6	7	5	50 Rampa	Deceleration when reversing (10=1s)
F 7	8	5	50	Deceleration ramp when stopping (10=1s)
F 8	50	0	40	Limit of current [A] - I _{max}
F 9	60	0	100	Decrease re verse gear [%]
F 10	2	0	2	Refer of speed 0=potentiometer 0-max. with 2 micro of gear 1=potentiometer wig-wag with micro of gear 2=potentiometer wig-wag without micro of gear

Name	Default	Min	Max	Description
F 11 *	----	----	----	LPOT
F 12 *	----	----	----	CPOT
F 13 *	----	----	----	HPOT
F 14	2	0	99	Message on the display: 0=absent 1=current motor [1=1A] 2=tension motor [10=1V] 3=tension potentiometer [10=1V] 4=temperature spendthrift [°C] 5=tension battery [10=1V] 9=version software
F 15	5	0	100	Late of release electric brake (10=1s)
F 16	0	0	20	Minimal speed (% respect of the max speed)
F 17	15	0	20	Nominal current of the motor – I_n
F 18	15	0	60	Time ammeter [s] with max current – t
F 19	20	5	50	Dead strip potentiometer (10=0,1V)
F 20	0	0	1	Qualification calibration potentiometer 0=no qualified / 1 = qualified
F 21	0	0	100	Time duration anticrushing (0,1 s)
F 22	100	0	100	Max. speed with forward gear [%]
F 23	0	0	2	Entrance Multimode: 0=inhibited entrance 1=reduction of speed with mando Multimode, 2=reduction of current with mando Multimode
F 24	50	0	100	Max. speed in Multimode [%]
F 25	15	0	40	Max current in Multimode [A]
F 26	0	0	100	RxI [100=10% a 120 A (60 A)]
F 27	0	0	100	Speed in anticrushing [%of speed max] F27=0 DISABLES ANTICRUSHING
F 28	0	0	1	Tension battery [0 = 24V ; 1 = 36V] SWITCH OFF AND SWITCH ON AGAIN TO CONFIRM
F 29 *	---	---	---	I_TAR
F 30	0	0	1	Entrance key to parameters (*)
F 31	1	0	1	Entrance logic disable [0=N.A. ; 1=N.C.]

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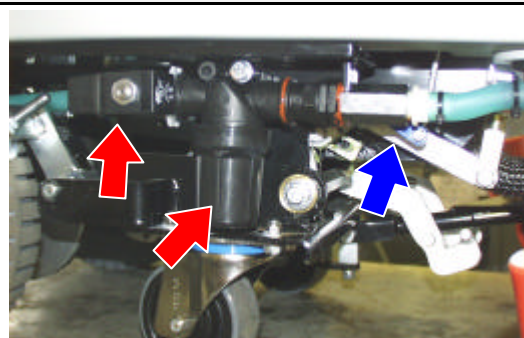
POTENTIOMETER CALIBRATION (zero central)

1. Connect to the card the console of programming;
2. Set the parameter F20 = 1 to enter to the calibration;
3. Set the parameter F10= 2;
4. Keep pushed the buttons “UP” and “DOWN” for some seconds;
5. The central indicator segment and the tension value of the potentiometer appear;
6. Turn the potentiometer until the position of required rest (reading display = 25) and confirm through “MODE”;
7. The low indicator segment and the tension value of the potentiometer appear;
8. Turn the potentiometer to the max. position for the reverse gear (reading display < 25) and confirm with “MODE”;
9. The high segment and the tension value of potentiometer appear;
10. Turn the potentiometer to the max. position for the forward gear (reading display > 25) and confirm with “MODE” to finish the calibration;
11. Set F20 = 0 to confirm the calibration;
12. Switch off and switch on again the machine.

Inspection of the electrical circuit	
1. Take off the battery connector. 2. Check the cleanliness and the closing of the battery bridge cables. 3. Check the connection and the closing of the power cables: remote control switches, fuses, motors... 4. Connect again the battery connector. 5. Check the functionality of the electrical circuit : ✍ Control switch light and brushes motor; ✍ Control switch light and solenoid valve; ✍ Control switch light and suction motor; ✍ Control the functionality of the hour meter; ✍ Control brake indicator.	

Inspection water supply

1. Check the cleanliness of the **solution filter and the solenoid valve.**
2. Fill the solution tank completely with water.
3. Check the tightness of the hoses and the regulation of the **water cock.**
4. Check, that the solution arrives continuously on both brushes.



Inspection suction

1. Check the cleanliness and the functioning of the **float filter.**
2. Check the air tightness of the cover on the recovery tank.
3. Check the connections and the tightness of the suction tubes and the squeegee tube.
4. Check the tightness of the exhaust pipe and plug.

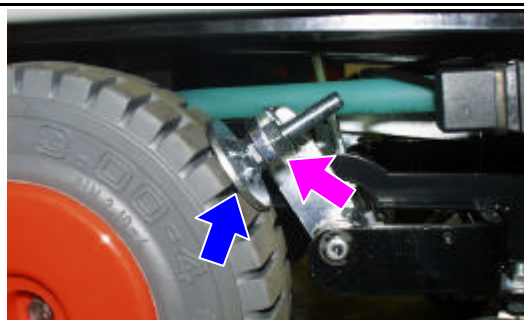


Brake adjustment

1. Adjustment hand and working brake: check if the **lever** does not snap more than 3 times. If necessary restore the right execution adjusting the **adjuster nut on the sheath** of the cable on the back frame, under the panel or beneath the lower frame. Check that the red control light switches on at the first snap.



2. Adjustment **brake pads**: check the uniform braking effect with insert brakes; check with traction that the pads are lifted about 1 mm from the wheels and check that the wheels, when releasing the handle bar, are broken in the same way and the machine will stop within 70-80 cm. If necessary regulate the **nut adjuster** of the pads. Fix the adjuster nuts.

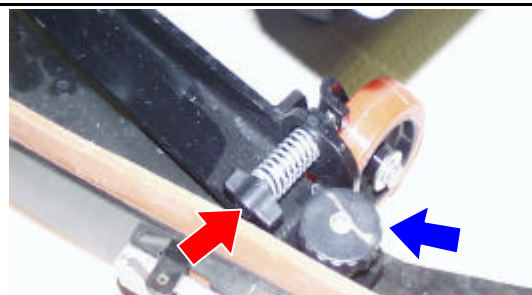


Squeegee adjustment

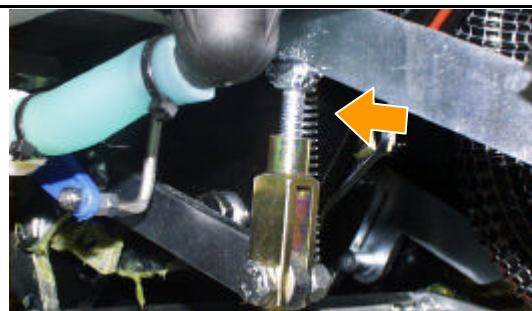
1. Unscrew the knobs completely for the regulation of the wheel height. Adjust the back inclination **adjuster**, with squeegee in working conditions, so that the inclination is the same on the whole length of the squeegee.



2. Adjust the wheel height with the corresponding **adjuster** and check that the rubber has an inclination about 30°-45° and is not pressed too strong on the floor or lifted from the floor. The rubber must be inclined on the whole length of the squeegee in the same way.
3. Screw completely the **hand wheel** without screwing too strong at the end of the thread.

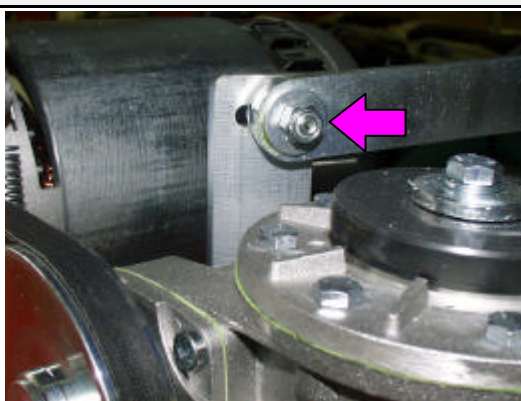


4. Check the lifting height, if necessary adjust the **fork**. Check if there are no interferences with the support and the castor wheel.

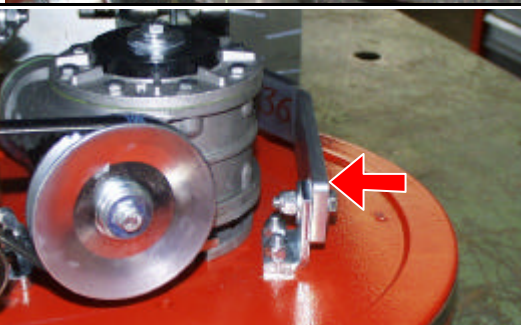


Adjustment brush base

1. Adjustment of the brush base lever : unscrew the **lock nut** and adjust the allen screw in the fork, so that the brushes base rod goes at the maximum height and the brushes holder plates are to 7-8 millimetres from the floor.

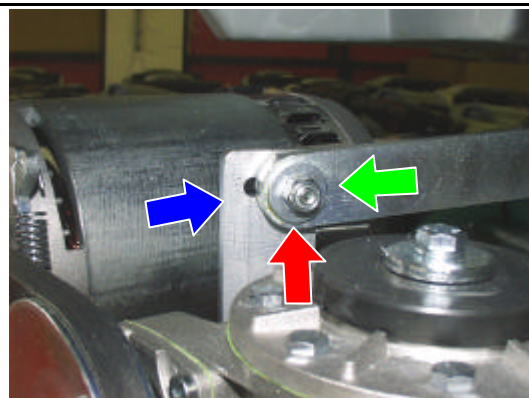


2. Adjustment of the brushes even to the floor: let down the brush base on a even floor, unscrew the **nuts** and adjust the two lifting arms right and left moving the screws in the buttonholes. Fix the nuts and control the adjustment again moving the brush base slowly up and down, check that the two brushes touch the floor at the same time.



3. Inclination adjustment under working conditions: let down the brush base, lose the nut and move the **screw of the third support point** in the slot, so that the brushes during the downward movement touch the floor at first with the back part and remain lifted in front about 4-5 mm. In order to **increase** the inclination move the screw forward, and for **decreasing** the inclination move it backward. Fix the nut.

Warning: an excessive inclination towards the front of the brushes leads to the tendency of the machine to pull to the right and an unequal consumption of the brushes.



4. Check that the **pulleys of the reduction gear assemblies** and the **motor pulley** are parallel.

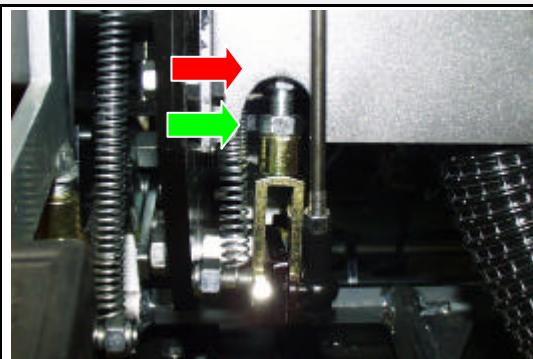


5. Check when lifting the brush base that there are no interferences between: **tank and brush cover**; if necessary operate on the socket head screw of the point 1.

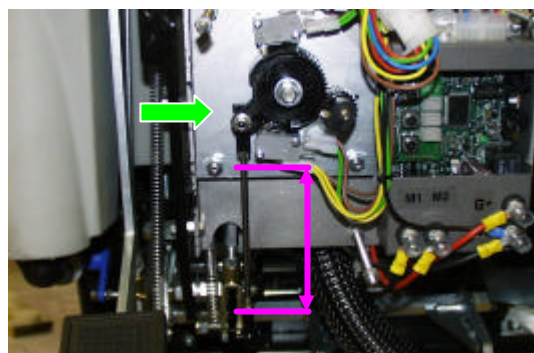


Traction adjustment

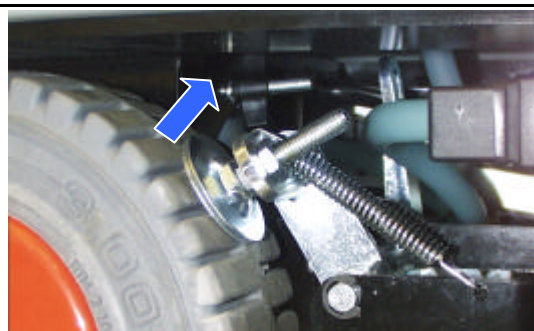
1. Adjustment **control gear rod**: loosen the **lock nut** and adjust vertical rod so that the manipulator of rest gear is in vertical position.



- Adjust the potentiometer rod with a distance between the two adjuster nuts of **118-120 mm**, verifying that with maximum rotation of the potentiometer in the two directions (clockwise and anticlockwise) the **fixing point** doesn't **touch the wheel - micros**.



- Adjust the **wing nut** of regulation of the tension of the traction belt, so that about 25-26 mm of fillet go out.

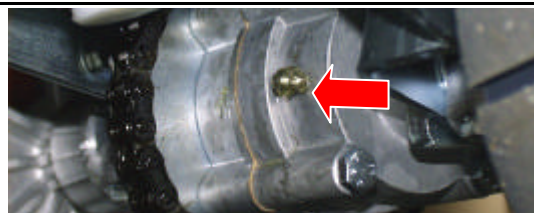


Oil reduction gear brushes – grease differential

- Oil in the brush reduction gear: the reduction gears are greased with permanent synthetical oil. Check at least one time per year the oil level in the transparent **level tap**. If necessary use SHELL Tivela SC 320.



- Differential: Check at least one time per year. If necessary add through the grease nipple SHELL Super Grease EPO or IP Bimol Grease.



Final inspection

- Check all functions: scrubbing, suction, forward and reverse gear.
- Check all movements: up and down movement brush base; up and down movement squeegee and the movement in curves.
- Emergency and parking brake.