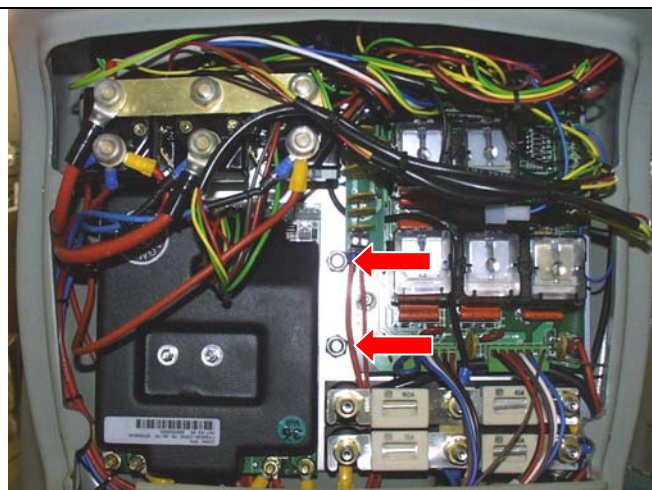




Before proceeding with the following operations be sure that the machine is turned off and that the battery connector is unplugged.

1. Unscrew the 4 screws that fix the front cover of the machine and remove the front cover.

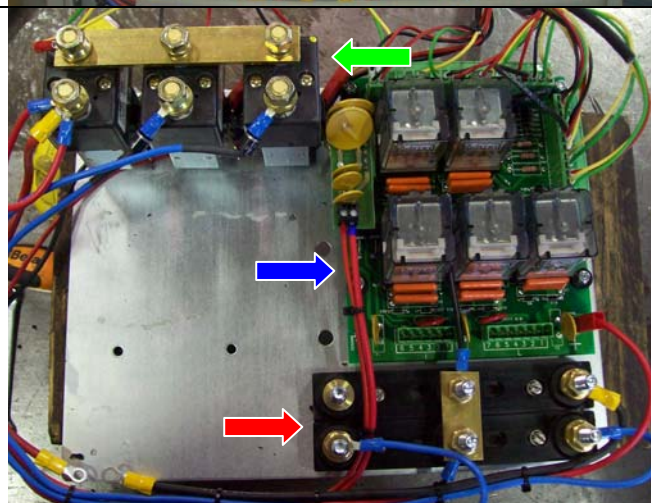
2. Remove the **M10 nuts** that fix the electric panel to the steering column to let the electric panel be moved outside the front part of the machine.



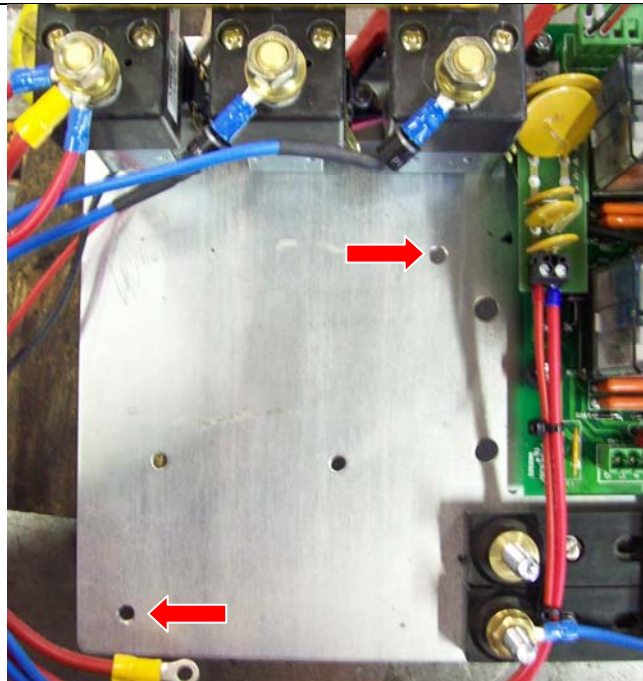
3. Remove the MX chopper and left on the electric panel the **fuses holder**, **the contactors** and the **control card**.

4. Remove the nuts that fix the MX screws on the electric panel using two spana.

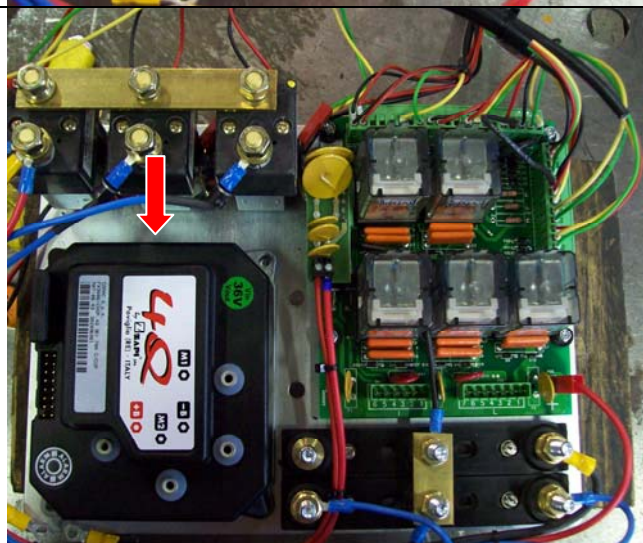
5. Remove the screws that fix the MX chopper.



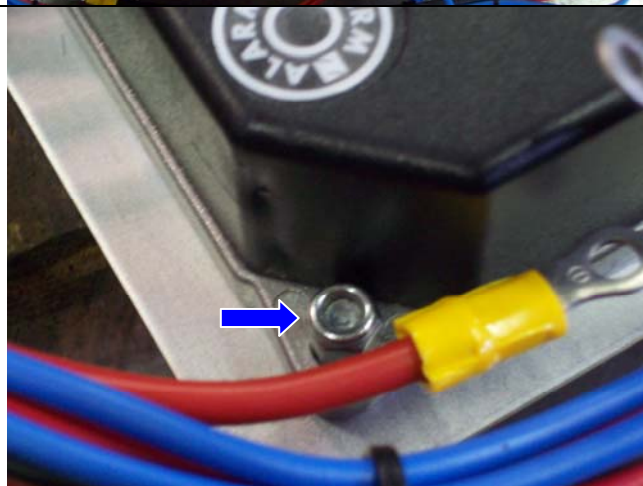
6. Using a drill of 5,5mm of diameter increase the dimensions of the **two holes** already present on the panel.



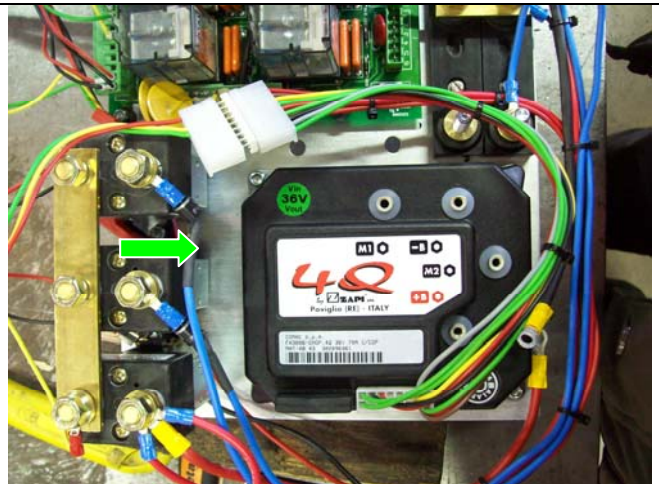
7. Position the **4Q chopper** like the picture shows.



8. Use **two screws M5x20, two washers M5x8 and two selflocking M5 nuts** to block the card on the electric panel.



9. Connect the **green** cable included in the kit to the chopper card and to the cable coming from the machine harness to let the new chopper card be suitable with the old machine harness.



Connect to finish the machine wires as follow:

- **red** number 10 to the pin **M1** of the chopper card
- **black** number 9 to the pin **M2** of the chopper card
- **red** number 12 to the pin **+B** of the chopper card
- **black** number 11 to the pin **-B** of the chopper card
- **azur** number 26 to the pin **3G** of the control card.



Before proceeding with the following instruction lift up from the floor at least one traction wheel.

Parameter list, program the chopper parameter as the following list:

PARAMETER	VALUE
1. Acc. Delay	9
2. Acc with Brush	5
3. Dec Delay	5
4. Release Braking	5
5. Inv Braking	5
6. CutBack speed 1	6
7. CutBack speed 2	9
8. Max Speed Forward	9
9. Max Speed Back	5
10. Traction I _{max}	9
11. Creep Speed	1
12. Aux Time	5
13. Hydro Time	5

PEDAL POTENTIOMETER PROGRAMMATION:

1. Scroll using the ROL UP button from "PROGRAM" to "PROGRAM VACC".	* SELECT MENU * 6 PROGRAM VACC	
2. "PROGRAM VACC" appear on the consolle		
3. Press ENTER to enter in the "PROGRAM VACC" menu.		
4. The actual values appear.	MIN 0	MAX 5
5. Press ENTER to reset the values.		
6. Now the potentiometer is ready for the potentiometer excursion reading.	MIN 0.0	MAX 0.0
7. Put the direction switch in forward switch and press the pedal, being careful to press the pedal slowly especially in the first part of the movement (DURING THE PEDAL PROGRAMMATION THE MOCHINE DOES NOT MOVE).		
8. Repeat the same operation for the reverse direction.		
9. On the display the new MIN and MAX values will appear.	MIN 0.5	MAX 4,9
10. Press ENTER.		
11. Will appear the confirm request the new values will appear. Press ENTER to confirm.	ARE YOU SURE?	

Alarms

The chopper card shows the errors using two different ways:

1. Using a red LED (you can see it throw a little window on the chopper plastic cover) that blinks a definite number of times depending on the error occurred;
2. Using a message on the console card display that say exactly which is the error occurred.

The following table shows the operations to perform for each error.

ALARMS TABLE

(for the table understanding refer also to the electric diagrams of the machine)

Blinks number	MESSAGE	NOTE
1	POWER FAILURE #1	<u>Possible causes</u> - Short circuit on the main contactor. <u>Actions</u> - Replace the chopper card
1	EEPROM KO	<u>Actions</u> - Turn off and turn on the machine, if the problem is still present replace the card otherwise the hour counter and the parameters are at the default value.
1	WATCH DOG	<u>Possible causes</u> - Logic stage damaged. <u>Actions</u> - Restart the chopper card, if the error is still there replace the card.

Numero Lampeggi	MESSAGGIO	NOTE
2	INCORRECT START	Incorrect starting sequence <u>Possible causes</u> - Error in the sequence made by the operator - The pedal microswitch and/or drive-selection microswitch are sticking - Wiring not correct <u>Actions</u> - Verify the start sequence: switch on with the key – trip the microswitch - Verify, if the gear microswitch and the gear manipulator do not have sticking contacts and work exactly - Verify the continuity of the electrical circuit which connects the pedal microswitch, the manipulator and the chopper
2	FORW + BACK	Permanent test: double gear request <u>Possible causes</u> - a contact of the gear manipulator is interrupted or sticks - damaged cable connection <u>Actions</u> - verify the contacts of the gear manipulator - verify the connections of the cables - if the error persist replace the chopper
3	VMN NOT OK	<u>Possible causes</u> - Wiring of the motor not correct - Current leakage because of insulation to the casing - Chopper damaged <u>Actions</u> - Replace the chopper, if the wiring and the motor are in good conditions
3	CAPACITOR CHARGE	<u>Possible causes</u> - Chopper Power stage damaged - Logic stage damaged <u>Actions</u> - Replace the chopper card

Numero Lampeggi	MESSAGGIO	NOTE
4	VACC NOT OK	The alarm indicates, that the voltage of the potentiometer is more than 1 volt higher than the memorised minimum value <u>Possible causes</u> - The operator has pushed the accelerator before the speed was selected through the manipulator - The seat-microswitch does not work - The potentiometer and/or chopper were replaced and the relating values between the two components must be re-programmed - A cable of the potentiometer is interrupted - The potentiometer is faulty - The PROGRAM VACC (see chapter adjustment and inspection) has not been carried out correctly <u>Actions</u> - Select the speed and push afterwards the accelerator - Verify the seat-microswitch and the continuity of the connections between microswitch and chopper - Verify the continuity of the connections between the potentiometer and the chopper - Re-program the chopper with PROGRAM VACC (see chapter adjustment and inspections) - Verify the functionality of the potentiometer with the function TESTER of the console (it could be broken) and replace it if necessary (re-programming the chopper card afterwards with PROGRAM VACC)
4	PEDAL WIRE KO	<u>Possible causes</u> - A potentiometer wire is unconnected - the potentiometer is unconnected or connected in wrong way <u>Actions</u> Verify the potentiometer connections and replace it if necessary.
5	STBY I HIGH	Test in resting conditions: control if the current is zero. <u>Possible causes</u> - Damaged current sensor inside the chopper - Damaged logic <u>Actions</u> - Replace the chopper if the problem persists

5	I = 0 EVER	The chopper checks if during the drive the current exceed a minimal value. Contrary appears this alarm and the machine will be blocked. <u>Possible causes:</u> - Wrong wiring between traction unit and chopper; - The motor resistance is to high, because of an failure on the motor; - Damaged current sensor. <u>Actions:</u> - Check the right wiring of the motor cables to the chopper (it is possible, that the rotor is connected to the holdfast +B of the chopper, instead to holdfast 1); - Replace the motor; - If the problem persists replace the chopper.
5	CURR PROTECTION	The current is higher than a threshold. <u>Possibles causes</u> - Motor damaged or motor in short circuit - The current probe inside the chopper card is damaged - The logic stage is damaged <u>Actions</u> - Verify the motor harness and connection - Replace the card
6	DRIVER SHORTED	Short circuit on the main contactor driver. <u>Possibles causes</u> - The logic stage is damaged <u>Actions</u> - Replace the chopper card
6	CINTACTOR CLOSED	Verify the functionality of the chopper card. <u>Possibles causes</u> - The logic stage is damaged - The contactor is welded <u>Actions</u> Replace the chopper card

6	CONTACTOR DRIVER	Verify that the main contactor and its driver work correctly. <u>Possible causes</u> - The main contactor is damaged - The driver contactor is damaged - The logic stage is damaged <u>Actions</u> Replace the chopper card
7	TH PROTECTION	High temperature of the chopper: above 75° the current will be reduced until it achieves "0" when the temperature raises up to 90° (with temperature working conditions -30°C + 40°C) <u>Possible causes</u> - The machine is working with activated brake or is used permanently in gradients with high field temperature - The thermic sensor is damaged <u>Actions</u> - Verify the external thermic conditions of the chopper - Control the current consumption of the motor
8	EB DRIVER KO	<u>Possible causes</u> - The driver is damaged <u>Actions</u> - Replace the chopper card
32 CONTINUO	BATTERY LOW	Battery discharged <u>Possible causes</u> - battery charge lower than 10% - connections between battery and chopper oxidised or not fixed <u>Actions</u> - verify the charge-level of the batteries - verify the connections of the cables - insert the gear; if the batteries are discharged the chopper tails the power to the traction motor at 50 %