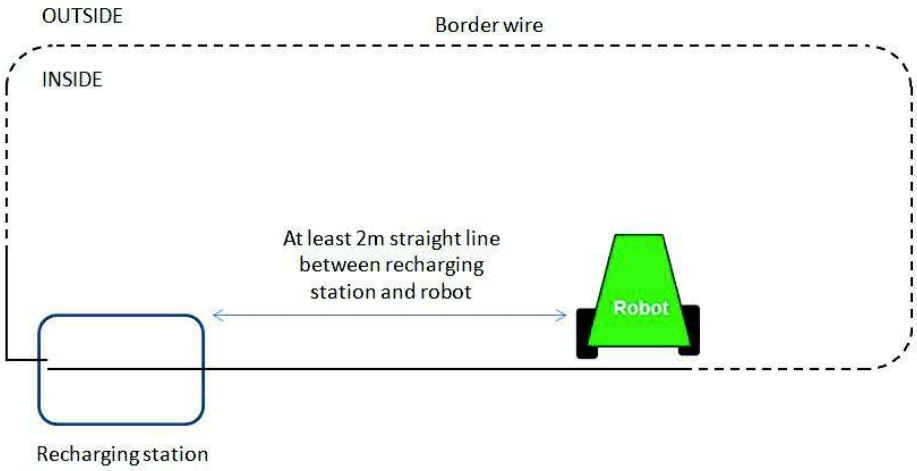
2.3.23 Autocheck

Thanks to Autocheck function, it is possible to perform a complete check-up of the robot thanks to a step-by-step procedure.

In order to carry out the procedure, it is important to establish the following test set-up:

1. Robot shall be inside a perimeter powered by a transmitter set on the same channel as the robot
2. Robot shall be located on flat and horizontal surface
3. Robot shall have the possibility to drive in "follow-wire" mode for at least 1m before entering the docking station



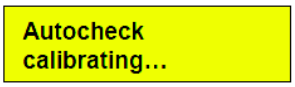
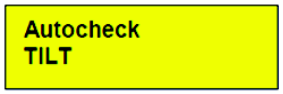
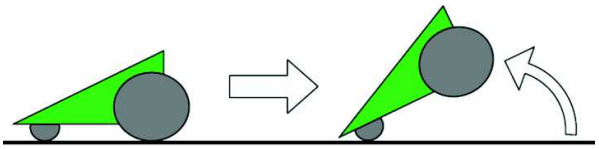
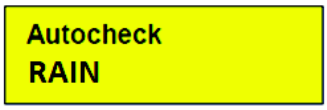
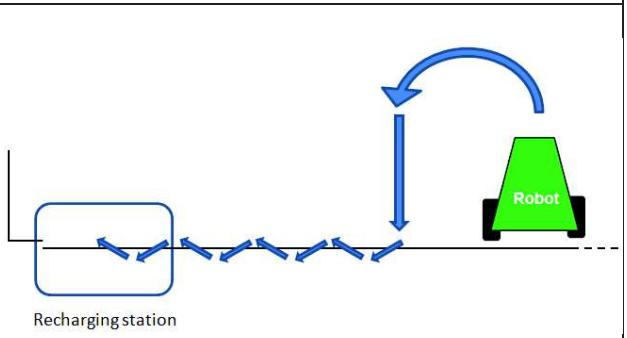
Picture 42 - Autocheck set-up

4. L200, L200R, L300 robot has to be tested without the cover

Autocheck procedure:

In case of error messages shown during Autocheck execution, please refer to paragraph 0.

ID	Step description	
1	Enter the Autocheck menu	
2	If the robot shows a date on the screen, push + button. That is the date of the last successful run of Autocheck procedure. Autocheck procedure is performed for the first time on a new robot at the end of assembly by the manufacturer.	**Autocheck** **24/10/2014**
3	When the robot shows the message "HOME TO START" on the display, push the HOME/WORK button to start the robot	**Autocheck** **HOME TO START**
4	ONLY FOR L30 ROBOT: The message "CLOSE THE ROBOT" will be shown on the display. Be sure that the robot cover is properly closed. Push ENTER to start	**Autocheck** **CLOSE THE ROBOT**

ID	Step description	
	the test	
5	Robot will automatically perform the calibration of the tilt sensor while showing the "Calibrating" message. Don't touch the robot.	
6	Only when the robot shows the TILT message, tilt the robot in pitch direction (see picture) more than 30°. Robot will emit a *beep* if the test is passed	 
7	Locate the robot on horizontal and flat surface again	
8	The robot will show the message RAIN. Put some water on the rain sensor. Use of a metal item or finger to establish a shortcut between the two probes of the rain sensor may cause a false-positive result (test passed but rain sensor will not properly operate on the field) Robot will emit a *beep* if the test is passed	
9	ONLY FOR L200, L200R, L300 robot: Robot will show in sequence the messages BUMP LEFT, BUMO RIGHT, BUMP CENTRAL. Activate one by one the referenced bump sensor. Robot will emit a *beep* if each test is passed.	
10	Robot will enter PAUSE status automatically	
11	Push the PAUSE button	
12	The robot will make a curve to the left and will turn the blade ON and start following the wire until it enters the recharging station. During this phase, the robot checks for correct functioning of wheel motors, blade motor, signal receiver, coil(s) and safety lift sensors (only for L200, L200R and L300).	
13	As soon as the robot enters the recharging station, it will stop the wheel and blade	

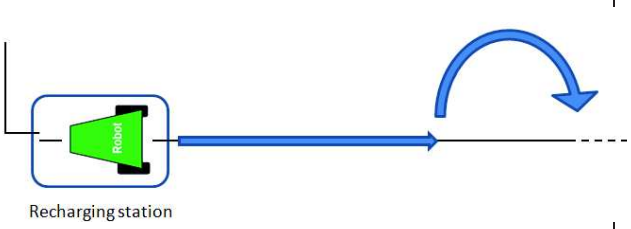
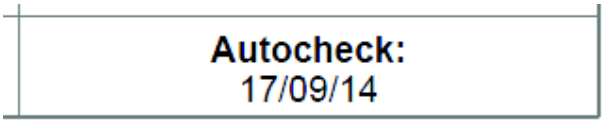
ID	Step description	
	motors. Then: • L30 robot: it will show the message ENTER TO START • L200, L200R, L300 robot: it will show the DONE message, meaning that the Autocheck has been successfully completed	
14	ONLY FOR L30 ROBOT: Push ENTER	
15	ONLY FOR L30 ROBOT: Robot will exit the recharging station and will test the lift sensors by driving in backward direction for about 1m and making a right direction curve. Robot will emit a *beep* if the test is passed	
16	ONLY FOR L30 ROBOT: Robot will show the message PRESS EMERGENCY STOP BUTTON. Push the EMERGENCY STOP BUTTON to shut the robot OFF	

Table 20 - Autocheck procedure

2.3.23.1Autocheck records and error messages

The Autocheck is successfully completed only if all the above steps are completed without error messages shown on robot display.
If the Autocheck has been properly completed, the actual data is stored in the robot memory.

If you extract a robot report from the programming client, you can read the data of the last successfully completed Autocheck procedure.



Picture 43 - Autocheck information on robot report

In addition, start date / time and complete date / time are stored in the Error log

Error Log

Date/Time	Error
24/10/204 16:06	AUTOCHECK START
24/10/204 16:10	AUTOCHECK COMPLETE

Picture 44 - Autocheck report POSITIVE

If the Autocheck procedure is stopped because of robot malfunction, a corresponding error message is shown on robot display and saved on Robot Report that can be downloaded from the programming client.

Error Log

Date/Time	Error
24/10/204 16:06	AUTOCHECK START
24/10/204 16:08	BLADE MOTOR ERROR RPM

Picture 45 - Autocheck report NEGATIVE

In case of errors arising during the Autocheck procedure execution, an error message appears on robot display.
Error message could be a specific error message for the Autocheck procedure, listed on the following tables, or a generic error message as described in the "MD-CT-RO-53 Troubleshooting" document.

Autocheck Error message	Description

DATE ERROR	Date set on User Menu is antecedent than 2014. Properly set the date, turn robot OFF and back ON, then restart the test. If the error is showed again, the backup battery on motherboard would be defective.
BATTERY ERROR / LOW BATTERY	Battery has too low voltage level. Recharge the battery and restart the test or check that the voltage reading from the robot is congruent with real battery voltage (measure on battery with a multimeter).
TILT ERROR	Robot is tilted before the TILT message appears on robot display or the tilt sensor is not properly working. Restart the test being sure that the robot is closed, located over an horizontal surface and is not moved before the TILT message appears on the display.
RAIN ERROR	Rain sensor contacts have been put in short-circuit before the RAIN message appears on the display or the keyboard or the display or the motherboard are faulty. Restart the test to properly check. Inspect according to “MD-CT-RO-53 Troubleshooting” document.
LIFT ERROR	Safety lift function test failed. Check that the robot is running on horizontal, flat and not slippery surface and repeat the test. If the error appears again, inspect for Safety Lift system proper functioning according to the “MD-CT-RO-53 Troubleshooting” document.
BLADE ERROR	Robot is not able to start the blade. Inspect according to the “MD-CT-RO-53 Troubleshooting” document.
COILS ERROR	ONLY L30: The right and left coils are swapped (right coil is installed in place of the left and viceversa).
BUMP ERROR	One of the bump groups is activated before the message (AUTOCHECK BUMP xxxx) appears on the display of the robot or it is faulty. Perform troubleshooting according to the “MD-CT-RO-53 Troubleshooting” document.

Table 21 - Autocheck error messages

Autocheck Error message	Description
COVER ERROR	On L200/L200R/L300 only. Remove the cover and restart the test.
NO BLUETOOTH	Robot is not equipped with Bluetooth module or it is not working.
LIFT OFF	Safety lift function is disabled and will not be tested during the Autocheck.
EMERGENCY OFF	Emergency stop button function is disabled and will not be tested during the Autocheck.

Table 22 - Autocheck warnings