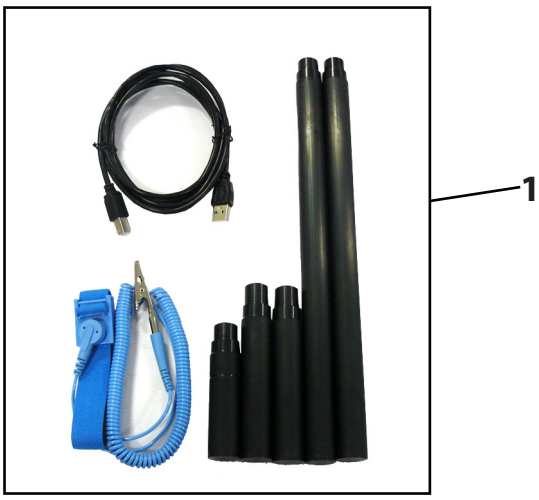
SERVICE SOFTWARE MANUAL

Robotmower: Sirius - Orion

Emak®

our **power**, your **passion**

Accessories required



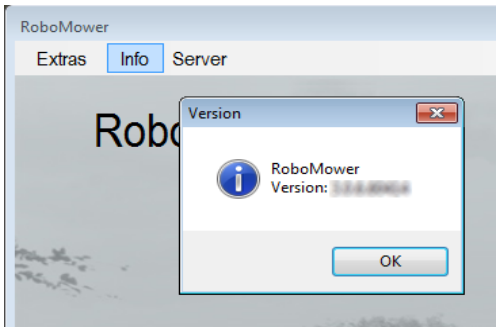
1 - Special tools kit code 67010020: indispensable for all the checks detailed below.

Service Software (Version 3.0.8.60728)
The Service Software is used for complete servicing of the Robotmower:

- it enables you to read and save technical data and production data;
- you can perform tests to check operation of all the hardware components;
- you can calibrate the robotmower hull, as required whenever it is removed and then refitted;
- you can save text files containing the robot data and results of all tests performed;
- you can read, save, edit and upload the settings, mowing program, and entry points of the robot, and to check for possible faults.

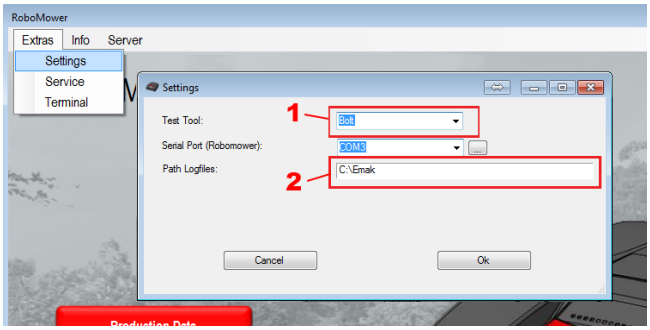
Note: Before you start using the software:

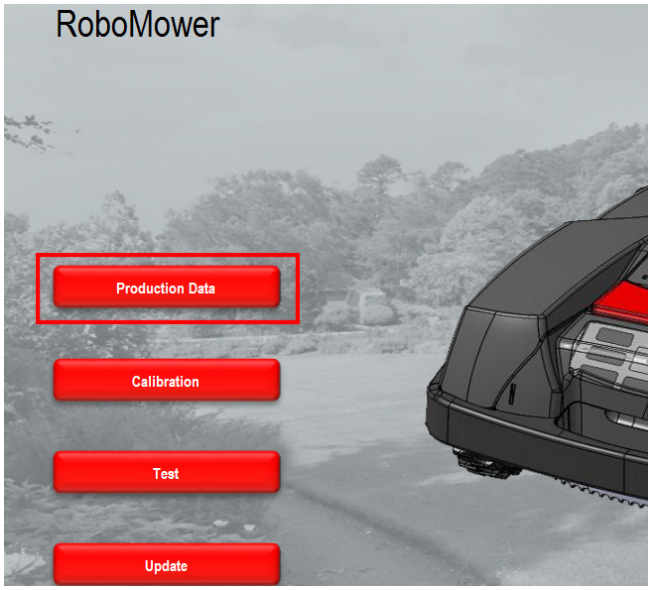
1. Check the software version: click the Info tab;



2. Select "Bold" (1) setting for "Test Tool".

3. Set the path for the reports on executed tests: click the Extras tab followed by Setting.
   Choose the Logfile path from the menu (default C:\EMAK) (2).



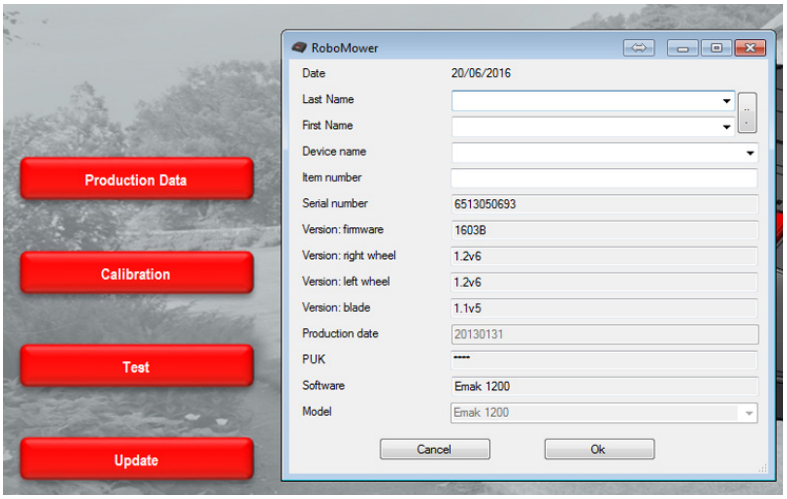


Main menu:

- **Production data;**
- **Calibration;**
- **Test;**
- **Update.**

Production data

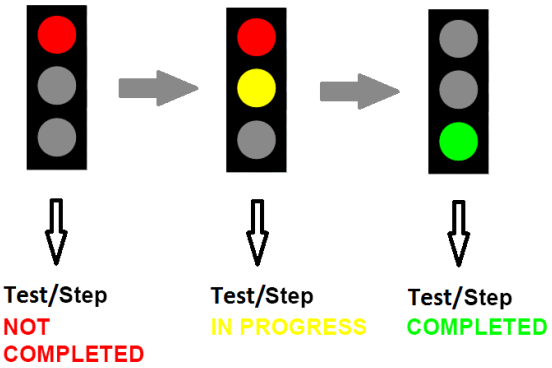
Click 'Production data' to display the robotmower technical and production data:

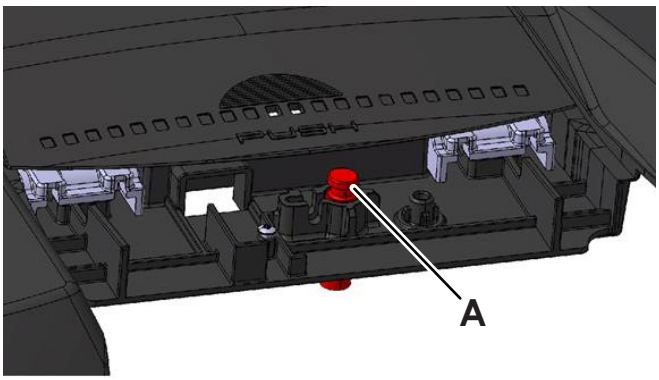


- ***Date:*** current date;
- ***Last name:*** penter a surname for the service technician or customer;
- ***First name:*** you can enter a name for the service technician or customer;
- ***Device name:*** generic machine name;
- ***Item number:*** you can enter the machine code here;
- ***Serial number:*** robotmower serial number;
- ***Version firmware:*** firmware version installed on the motherboard;
- ***Version right wheel version:*** firmware version installed in the drive feeding the right wheel motor;
- ***Version left wheel:*** firmware version installed in the drive feeding the left wheel motor;
- ***Version Blade:*** firmware version installed in the drive feeding the blade motor;
- ***Production date:*** robotmower production date;
- ***PUK:*** robotmower PUK code stored on the motherboard (concealed by 4 asterisks representing the 4 code digits);
- ***Software:*** software version installed in the motherboard;
- ***Model:*** model of the machine.

Calibration

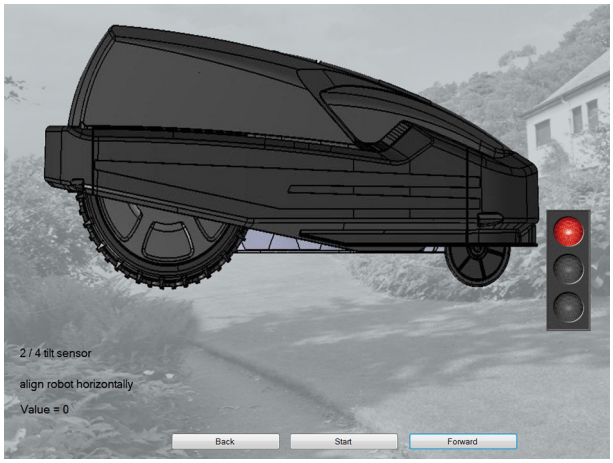
Click 'Calibration' to check correct assembly and calibration of the robotmower hull.
All the operations are guided by a traffic light:

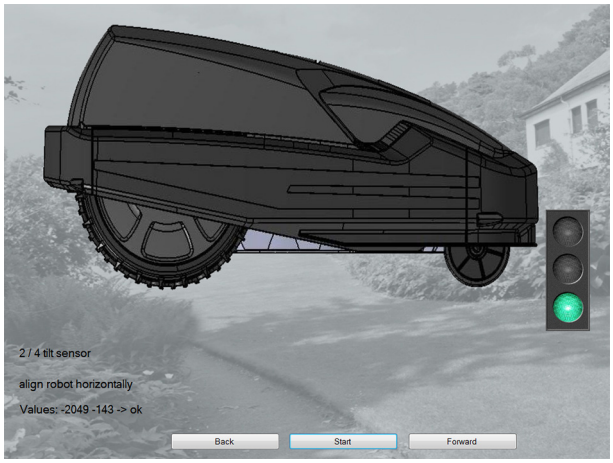




1. ***Lift sensor (1/4)***
   Place the robot on a level surface. Check the starting position (red and yellow traffic light) and raised position of the front part (green traffic light). If the traffic light is green in the starting position, move magnet (A) downward; if the traffic light is red in the raised position of the front part, move magnet (A) upward. Once the correct position of the magnet has been found, tighten the screw and raise the front two or three times to check that the magnet is functioning correctly. Raise the front of the robot again and click "Forward".

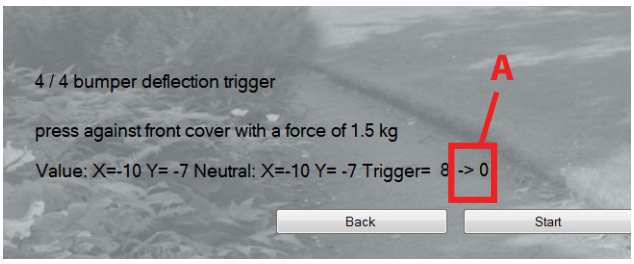
2. ***Tilt sensor (2/4)***
   Calibrate the tilt sensor zero point: place the robotmower on a level surface and click "Start". As soon as the traffic light switches to green, click "Forward".



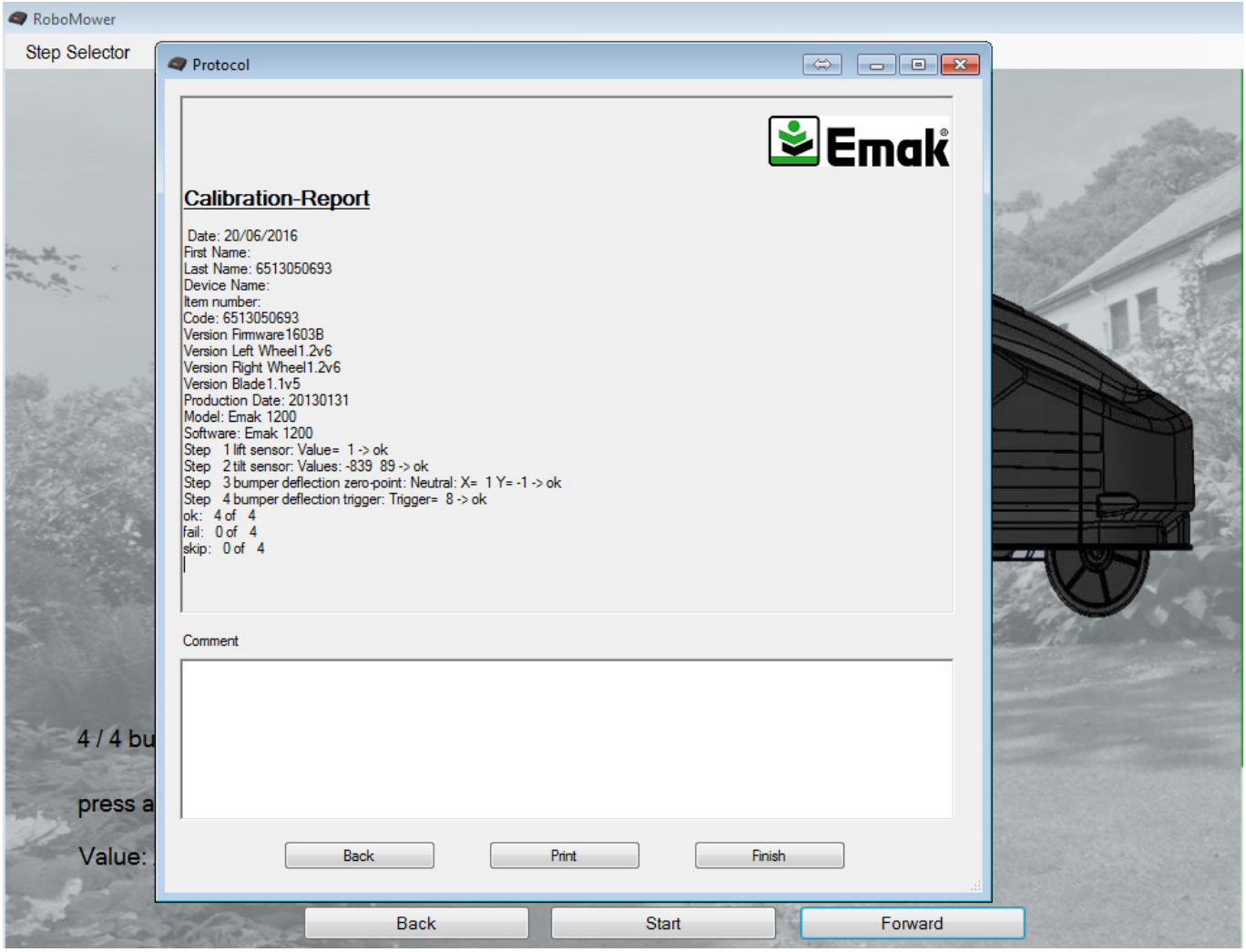


3. ***Cover displacement zero (3/4)***
   Calibrate the sensor zero point: place the robotmower on a level surface and click "Start". As soon as the traffic light switches to green, click "Forward".

4. ***Cover displacement trigger (4/4)***
   Calibrate the impact sensor: Place the robot on a level surface. Exercise a force of approximately 1.5 kg (pressure value 12 (A)) on the front of the hull/cover and click "Forward".

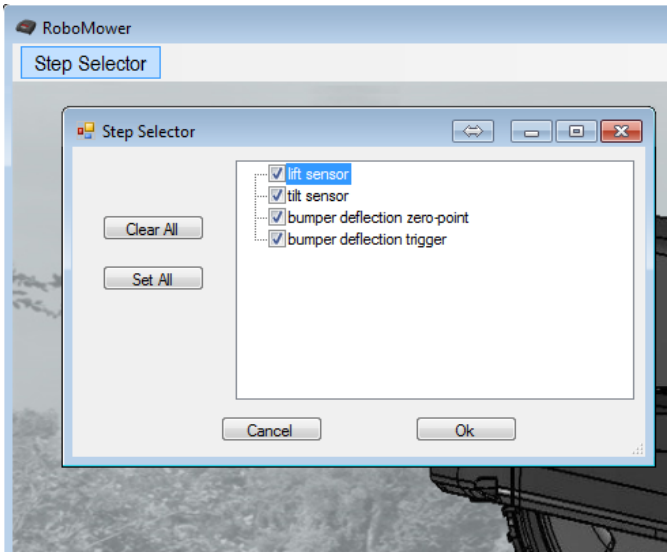


Having finished step 4/4 the software displays a "Protocol" window containing all the information concerning the Calibration procedure that has just been performed.



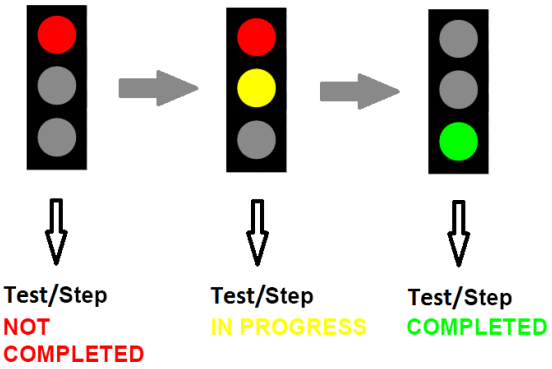
Click "Forward" to save the data in a text file to PC. The text file is saved in the directory selected in the "Path Logfile" option, will be named as follows: 'Serial number'_Cal.txt.

You can perform just one operation or a series of operations selected from a list. To do this, click on "Step selector" before you start calibrating the robotmower.
Flag the required operations and click on OK. The program will perform only the flagged calibration operations



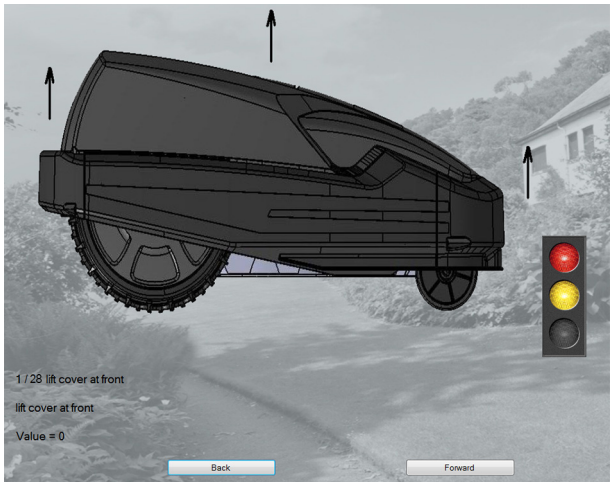
Test

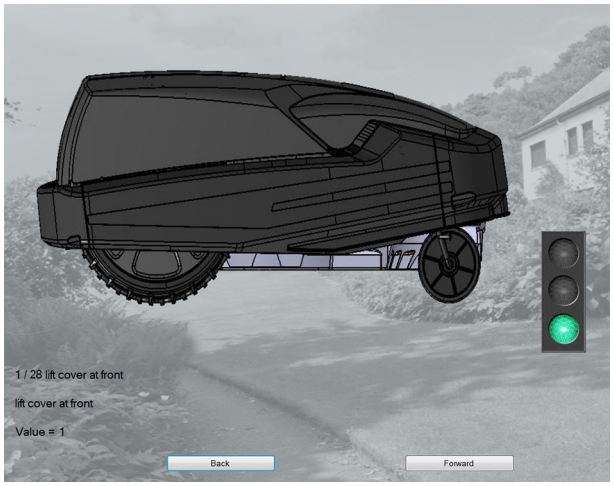
Click "Test" to perform functional checks of all hardware components on the machine.
The procedure is composed of 28 operations guided by a traffic light:



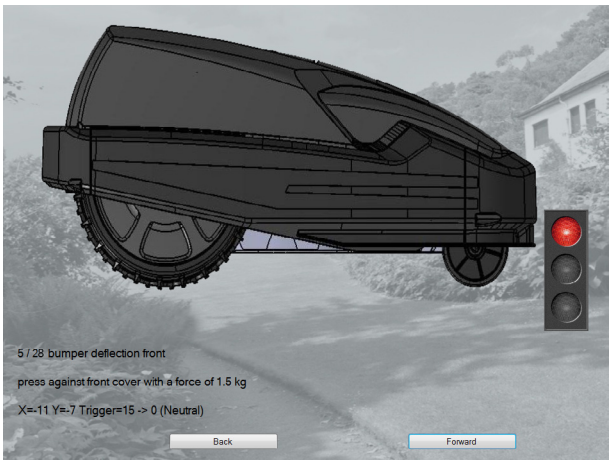
Compile the "Production data" tab and click "OK" to start the Test procedure.

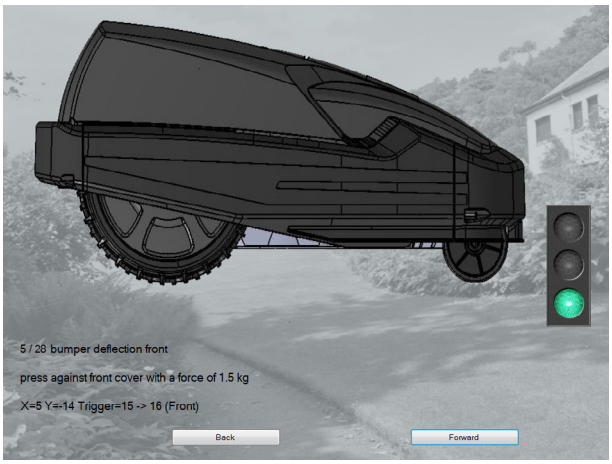
1. ***Lift cover front (1/28):*** Place the robot on a level surface and raise the front part of the hull/cover until the traffic light switches to green. As soon as the traffic light switches to green, click "Forward".



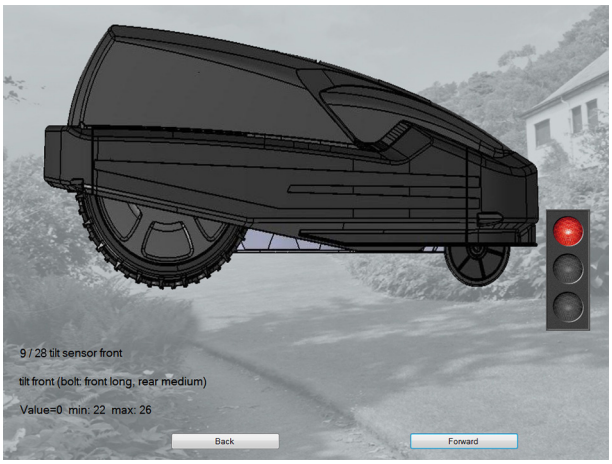


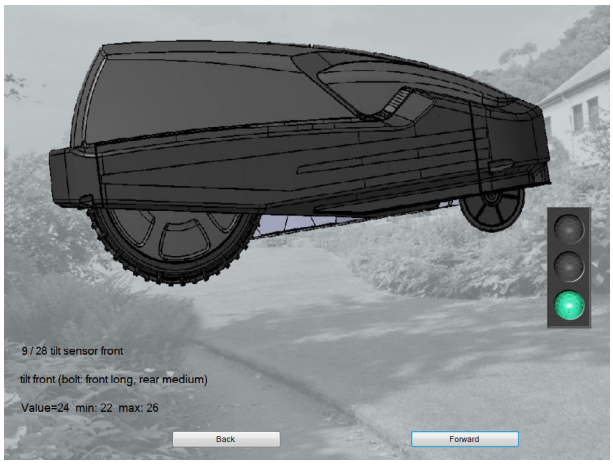
2. ***Lift cover behind (2/28):*** Place the robot on a level surface and raise the rear part of the hull/cover until the traffic light switches to green. As soon as the traffic light switches to green, click "Forward".
3. ***Lift cover right (3/28):*** Place the robot on a level surface and raise the right-hand side part until the traffic light switches to green. As soon as the traffic light switches to green, click "Forward".
4. ***Lift cover left (4/28):*** Place the robot on a level surface and raise the left-hand side part until the traffic light switches to green. As soon as the traffic light switches to green, click "Forward".
5. ***Bumper deflection front (5/28):*** Place the robotmower on a level surface and apply a load of approximately 1.5 kg on the front of the hull/cover. To adjust the force monitor the numerical values shown on the screen. As soon as the traffic light switches to green, click "Forward".



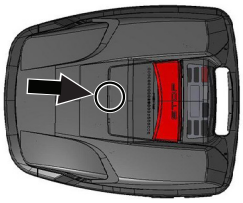


6. ***Bumper deflection right (6/28):*** Place the robotmower on a level surface and apply a load of approximately 1.5 kg on the front right-hand side of the hull/cover. To adjust the force, monitor the numerical values shown on the screen. As soon as the traffic light switches to green, click "Forward".
7. ***Bumper deflection left (7/28):*** Place the robotmower on a level surface and apply a load of approximately 1.5 kg on the front left-hand side of the hull/cover. To adjust the force, monitor the numerical values shown on the screen. As soon as the traffic light switches to green, click "Forward".
8. ***Bumper deflection back (8/28):*** APlace the robotmower on a level surface and apply a load of approximately 1.5 kg on the rear of the hull/cover. To adjust the force, monitor the numerical values shown on the screen. As soon as the traffic light switches to green, click "Forward".
9. ***Tilt sensor front (9/28):***Place the robot on the indicated supports or place it on a level surface and raise the front until the traffic light switches to green (See Figure). As soon as the traffic light switches to green, click "Forward".



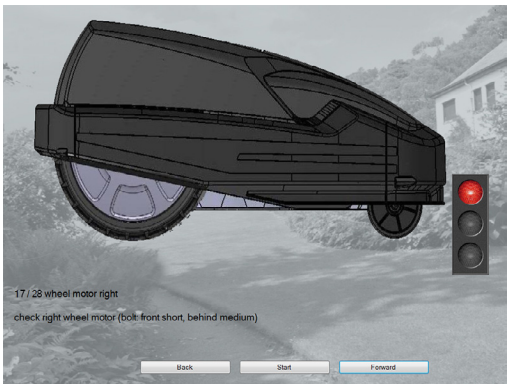


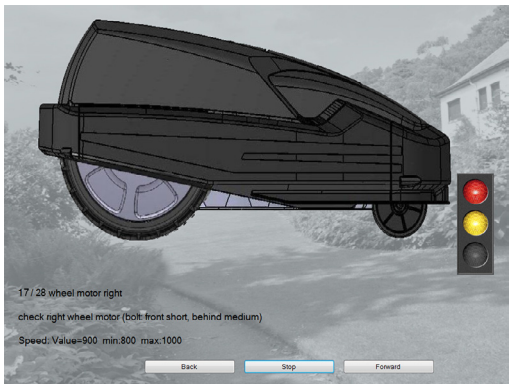
10. ***Tilt sensor behind (10/28):*** Place the robot on the indicated supports or place it on a level surface and raise the rear until the traffic light switches to green (See Figure). As soon as the traffic light switches to green, click "Forward".
11. ***Tilt sensor right (11/28):*** Place the robot on the indicated supports or place it on a level surface and raise the right hand side until the traffic light switches to green (See Figure). As soon as the traffic light switches to green, click "Forward".
12. ***Tilt sensor left (12/28):*** Place the robot on the indicated supports or place it on a level surface and raise the left hand side until the traffic light switches to green (See Figure). As soon as the traffic light switches to green, click "Forward".
13. ***Rain sensor (13/28):*** Wet the rain sensor with water and make sure the traffic light switches to green. As soon as the traffic light switches to green, click "Forward".

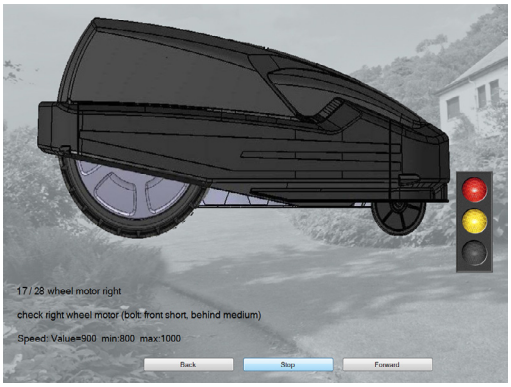


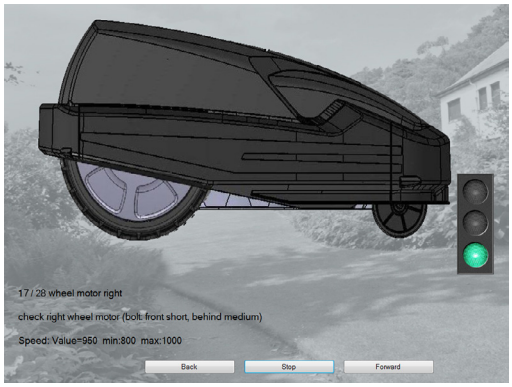
14. ***STOP button (14/28):*** Press the STOP button and make sure the traffic light switches to green. As soon as the traffic light switches to green, click "Forward".
15. ***Acoustic signal (15/28):*** Check the beeper sound. If beeper is working click "Ok" (green traffic light), otherwise click "Fail". Then click "Forward".

16. ***Horn (16/28):*** Check the horn. If horn is working click "Ok" (green traffic light), otherwise click "Fail". Then click "Forward".
17. ***Wheel motor right (17/28):*** Position robot on indicated supports and click "Start". As soon as the traffic light switches to green, click "Forward".



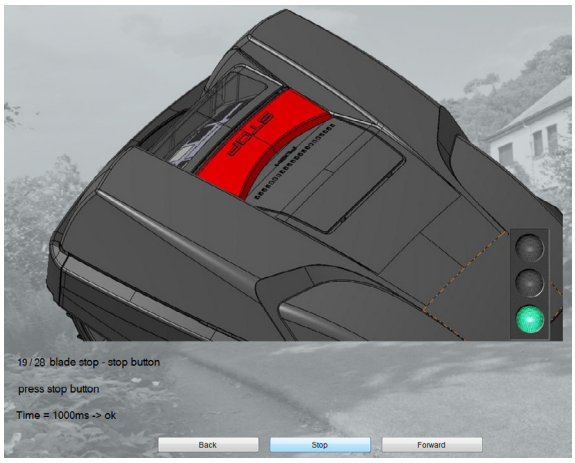






18. ***Wheel motor left (18/28):*** Position robot on indicated supports and click "Start". As soon as the traffic light switches to green, click "Forward".

19. ***Blade stop – stop button (19/28):*** click "Start" to start blade rotation. When prompted, press robotmower "stop" button to check blade stopping time. Then click "Forward".

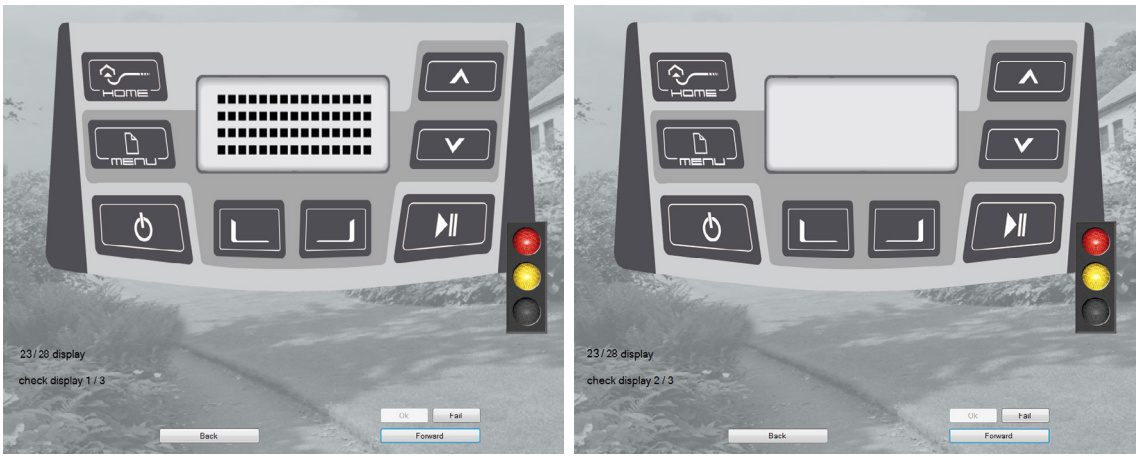


20. ***Blade stop - lift cover behind (20/28):*** click "Start" to start blade rotation. When prompted, raise rear of robotmower to check blade stopping time. Then click "Forward".

21. ***Blade stop - lift cover front (21/28):*** click "Start" to start blade rotation. When prompted, raise front of robotmower to check blade stopping time. Then click "Forward".

22. Keypad (22/28): The keypad test checks functionality of all the keys on the control panel. Press all keys one by one and check that the pressed key is shown in red in the service program window on the screen. Once you have pressed all the keys, the traffic light will switch to green. As soon as the traffic light switches to green, click "Forward".

23. Display (23/28): Check the robot display to ensure the following symbols appear in the service program window. If they appear click "Ok" (green traffic light), otherwise click "Fault". Then click "Forward".



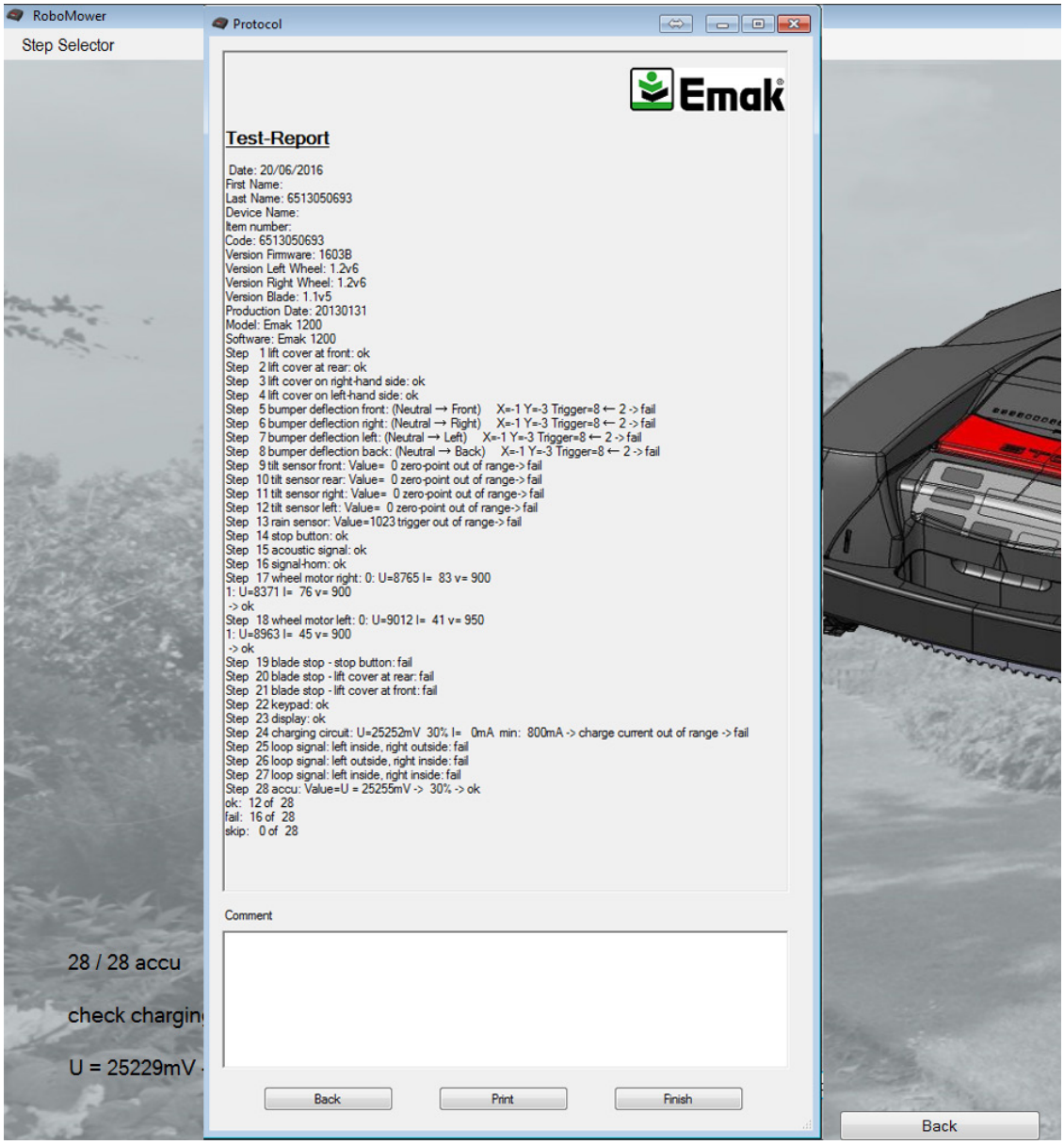
24. Charging circuit (24/28): Connect the docking station to the electrical mains by means of the transformer and connect the robot to the station by means of the docking contacts. In the service program window the charge current will be initially 0mA and will slowly increase; when the minimum threshold of 800mA is surpassed the traffic light will switch to green. As soon as the traffic light switches to green, click "Forward".

25. Loop signal (25-26-27/28): Steps 25-26-27 are utilised to check functionality of the two boundary wire management sensors located in correspondence with the robotmower front wheels. Connect the docking station to the mains supply via the transformer and connect the boundary wire to the wire terminals. Follow the instructions in the service program window and position the robot with respect to the boundary wire in such a way that the sensors in question are either inside or outside the boundary wire. As soon as the traffic light switches to green, click "Forward".

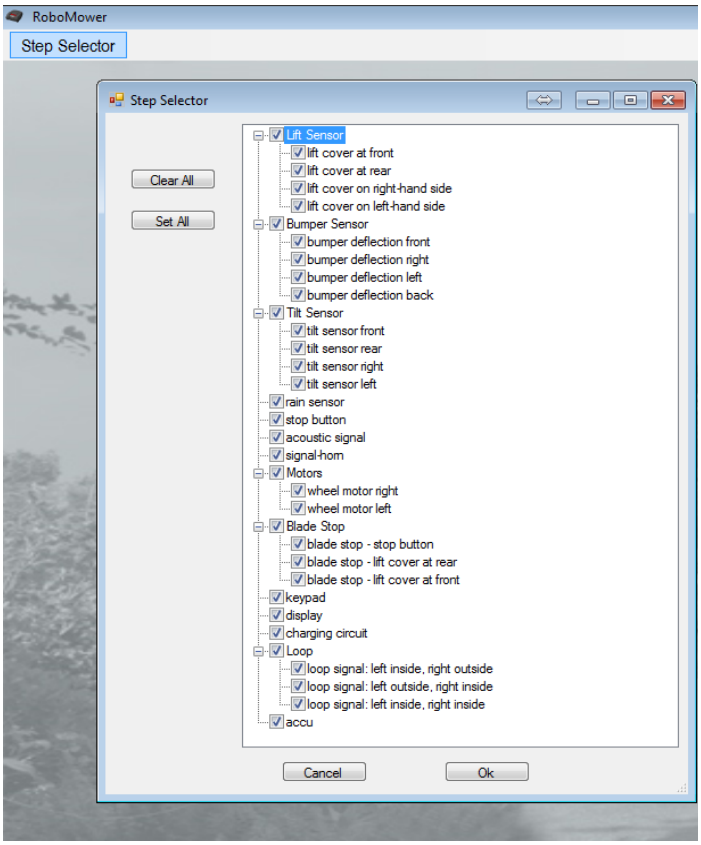
Example: as shown in the above Figure (relating to step 25/28), the robot must be positioned in such a way that the left-hand sensor is inside the boundary wire and the right-hand sensor is outside it.

26. Accu (28/28): Inspect the battery and check the charge. As soon as the traffic light switches to green, click "Forward".

Click "Forward" to save the data in a text file to PC. The text file is saved in the directory selected in the "Logfile Path" option, will be named as follows: 'Serial number'_Test.txt.

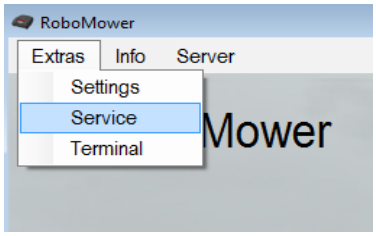


You can perform just one operation or a series of operations selected from a list. To proceed, click on "Step selector", before starting robotmower tests.
Flag the required operations and click on OK. The program will perform only the flagged test operations.



Programming

Click on "Service" to read, save, edit and upload the settings, mowing program, and entry points of the robot, and to check for possible faults.



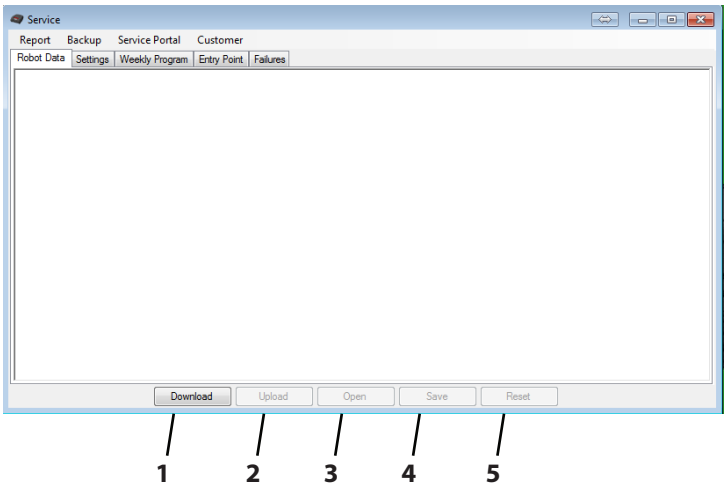
WARNING: To use this robot programming with the software service the robot must be updated with firmware version 1403A or later.

The screen is composed of:

Controls:

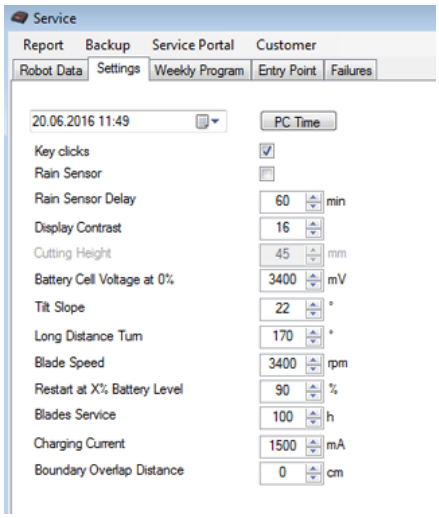
N.B.: All the controls refer exclusively to the selected screen.

1. ***Donwload:*** download and display robot data;
2. ***Upload:*** load data to robot for subsequent editing;
3. ***Open:*** open a robot settings file previously saved on the PC;
   Warning: opening a file containing data associated with a screen other than the currently active one will return an error. Check that the data to be uploaded effectively correspond to the active screen.
4. ***Save:*** save a robot settings file to the PC;
5. ***Reset:*** restore factory data in the currently active screen.



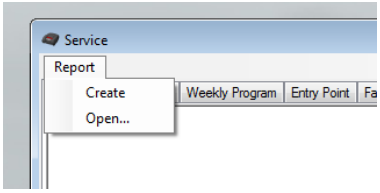
Sections:

1. ***Robot data:*** read the data currently present in the robot;
2. ***Setting:*** read, edit, and upload robot settings:
   - ***Time adjustment:*** display and change the robot time and date settings. You can also retrieve the time setting from the PC (PC Time button);
   - ***Key clicks:*** enable or disable keypad tones
   - ***Rain sensor:*** enable or disable the rain sensor;
   - ***Rain sensor dalay:*** increase or decrease the rain sensor delay time;
   - ***Display contrast:*** increase or decrease display contrast;
   - ***Cutting height:*** raise or lower the blade (only for model 2000);
   - ***Battery cell voltage at 0%:*** increase or reduce residual battery capacity for return to the docking station.
     Warning! Increasing this value reduces the power level available for mowing activities and increases the power level available for return to the docking station. Use this parameter only in the presence of problems in returning the robot to the docking station;
   - ***Tilt Slope:*** increase or decrease the robot's tipping limit;
   - ***Long distance turn:*** increase or decrease the robot's turning angle;
   - ***Blade speed:*** increase or decrease rotation speed of the blade
   - ***Restart at X% battery level:*** specify the battery charge level when robot mowing operations restart.
   - ***Blade service:*** increase or decrease working hours before inspecting the mower blade;
   - ***Charging current:*** increase or decrease robot charging time;
   - ***Boundary overlap distance:*** increase or decrease the length of mowing sub-zone boundary cable.
3. ***Weekly program:*** read, edit, and upload the robot's mowing program;
4. ***Entry point:*** read, edit, and upload the robot's starting point (only if adjustable);
5. ***Failures:*** read any robot faults.



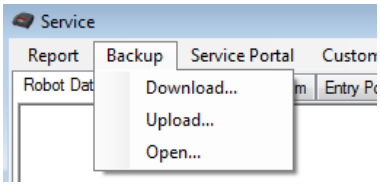
Report:

1. ***Create:*** create a summary report of the robot with all the settings, mowing programs, entry points and faults;
2. ***Open:*** open a saved report



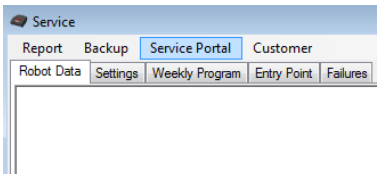
Backup:

1. ***Download:*** create a backup copy of the connected robotmower;
2. ***Upload:*** load a backup copy saved on computer;
3. ***Open:*** open a backup copy saved on computer.



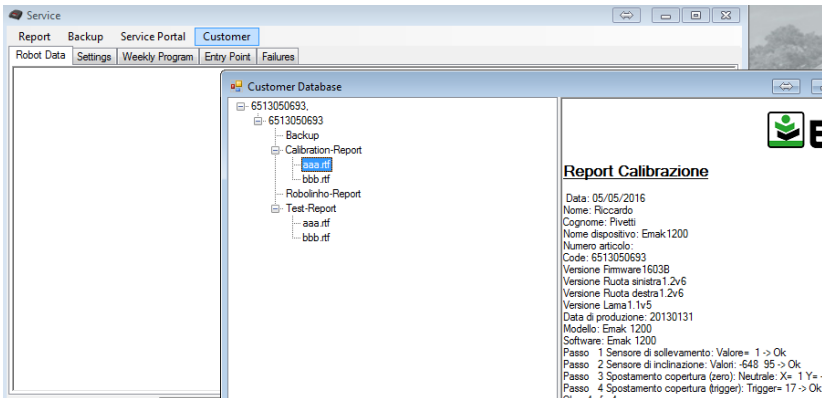
Service portal:

Open the portal to order replacement parts and to consult bulletins and workshop manuals.



Customer:

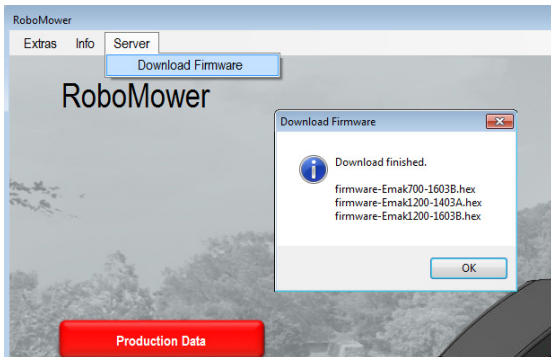
Click on "Customer" to view all saved reports for each tested and/or calibrated robotmower.



Firmware update

Use the following procedure to update the robotmower firmware:

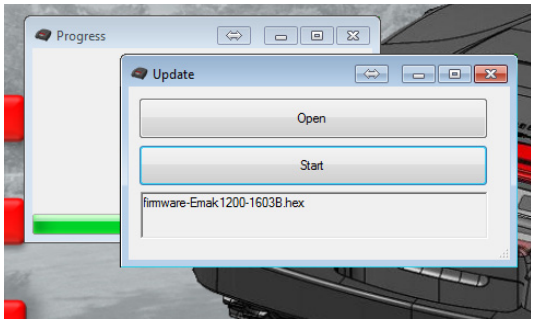
1. Click on "Server" and then on "Download firmware" to download the latest firmware updates;



2. Click on "Update" to update the firmware installed on the machine;

3. The software will check the firmware installed on the robotmower and propose the latest update downloaded.

4. Click "start" to start installing the firmware. The procedure will be performed completely automatically. The progress bar must advance to 100% twice. Once completed, the software will automatically quit the operation.



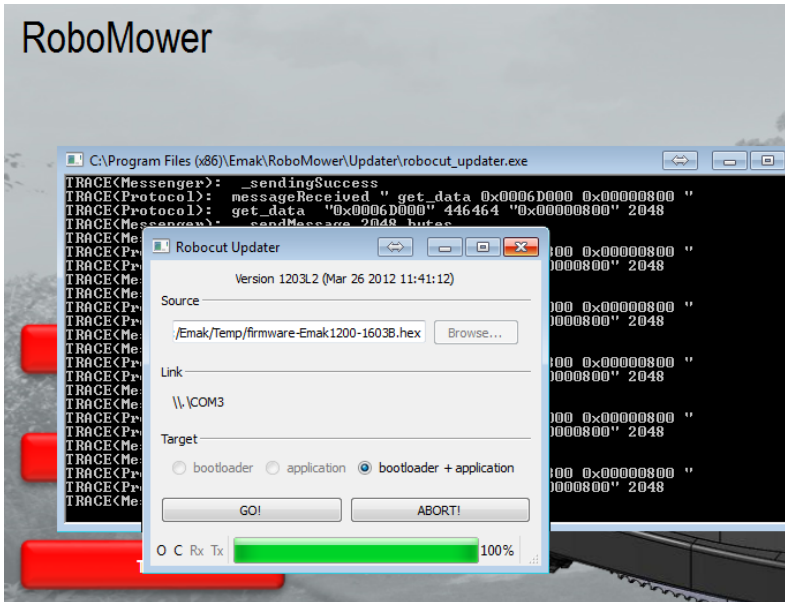
WARNING !! During installation of firmware do not disconnect the computer or close the window (adjacent images). This will cause a malfunction of the Robot.

If:

- The Robot and computer become disconnected;
- Loss of power or computer switches off during installing;
- Accidental closure of the pop up window (adjacent images).

You need to:

1. Disconnect the Robot;
2. Remove the cover of the Robot;
3. Disconnect and then re-connect the battery;
4. Re-install the firmware, following the installation instruction;
5. Re-calibrate the Robot.



our **power**, your **passion**

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