



LawnBott Instructions to Enter Service Menu and Test Motors

If you have gotten the E03 Blade Motor error or the E01 Wheel Motor error, either brushes failed inside a motor, the motor itself has failed or the motor driver on the motherboard has failed.

Try to start your robot multiple times. If it works sometimes, then most likely the failure mode is not the motherboard and it is not necessary to perform the motherboard test. Run the motor test(s) as described below.

If the robot moves slowly and the error message is E01 Wheel Motor, then most likely the brushes need to be changed in the wheel motors (it's a very inexpensive fix). Run the wheel motor test as described below.

Sometimes a slow moving Lawnbott can also be a faulty blade motor. Running the tests can determine this.

There are two types of blade motors. *If you have a Fise blade motor, changing the brush may fix it. If you have Transtechno, the replacement brush may or may not be available. Contact us for details.*

Enter the Service Menu

1. Turn Lawnbott off.
2. Blade motor problem: Carefully try to spin the blade. Note whether it spins freely, is frozen in place, or spins in a non-smooth way. Then, take the blade off .
3. Wheel motor problem: Carefully try to spin each wheel motor with your hand. Note whether it spins with normal gear resistance, whether one wheel motor seems to resist more than the other, whether the resistance is not smooth or whether one of the wheel motors is frozen in place.
2. Turn Lawnbott on. Make sure the Lawnbott menu says Paused
3. Prop the handlebar on something that takes the wheels off the ground
4. Press Charge, then "+" then "-"
5. You should see something like "Service Statistics", if not, do 1-3 again.
6. Press "+", this advances the service menu. Stop when you see "Test Motors", should be the first or second item
7. Press "Enter", this enters the motor test

WARNING: Do not change any service menu settings. Perform the tests and exit the service menu. You can really mess up your Lawnbott if you change the settings.

Test Wheel Motors

- Press "+" multiple times, the speed of the wheel motors should increase. Take a look at the number on the display. Does it increase as you increase the speed? The highest number can be up to around 30 for older models or 38-50 for LB75. Does it go to the correct speed number or more? Is there a big difference between the two speed numbers?

- Press "-" multiple times to stop the motors. . Take a look at the number on the display. Does it decrease as you decrease the speed? The lowest number is around 0. Does it go back to 0?

- If you press "Enter" again, the blade motor test will run.

LB75 Test Motors: Speed should read 38-42, but if the brushes show wear, it could be higher, such as 45-50.

Note if there are different/unusual sounds or behavior. If one of the wheel motor does absolutely nothing, there is a possibility the motherboard has failed. Note whether it is the left or right wheel motor and please do the motherboard test. If the wheel motor speed indicator stays at zero, the motor has failed.

Proceed to the next page of these instructions for the blade motor and/or motherboard tests.

IMPORTANT: Exit the service menu by pressing "Start".



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Test Blade Motor

The first test in the motor test menu is the wheel motor test. You can test the wheel motors by pressing +/- (varies the motor speed), as described above.

To test the blade motor, you advance the test by pressing enter. If you skip the wheel motor test, you press "Enter" twice and you should hear the blade motor start up. The display changes from "B: OFF" to "B: ON" (upper right corner). **BRUSHED MODEL:** The blade should turn on and the number 31 (or something close to that) should show up on the display. Note if there are different/unusual sounds or behavior. **BRUSHLESS MODEL:** The blade should turn on and the number 47 (or something close to that) should show up on the display. Note if there are different/unusual sounds or behavior.

If you just hear a click and there is no sound of the blade motor starting when it says "B: ON" in the upper right corner, then proceed to the Motherboard test.

IMPORTANT: Exit the service menu by pressing "Start".

Note if there are different sounds or behavior when running each motor test.

Motherboard Test, Wheel Motor Problem

Only perform this test if one of the wheel motors does absolutely nothing when you run the wheel motor test.

- 1) Open up your Lawnbott cover(s). Please see the next page if you are unfamiliar with how to do this.
- 2) Unplug the black wire(s) on the battery(ies).
- 3) Trace the wheel motor wires. They go to two green connectors at the top of the motherboard. Note, if you have the LB35XX Lawnbott with the large black battery along the back, you will need to lift it out to reach the motherboard.
- 4) Switch the left and right wheel motor connectors.
- 5) Plug the black battery wire(s) back in.
- 6) Run the wheel motor test, above.
- 7) Has the problem stayed on the same side or has it moved to the other side?
- 8) Start your Lawnbott in normal mode. Has the error changed from Left to Right or vice versa?

If the error has switched sides, you know the problem is due to a failure in the motor. If the error stayed on the same side after switching the connectors, you know the problem is due to the motherboard. Switch the connectors back the way they were.



Motherboard Test, Blade Motor Problem

Only perform this test if the blade motor does absolutely nothing when you run the blade motor test.

- 1) Open up your Lawnbott cover(s). Please see the next page if you are unfamiliar with how to do this.
- 2) Unplug the black wire(s) on the battery(ies).
- 3) Trace the wheel and blade motor wires. They go to three green connectors at the top of the motherboard.
Note, if you have the LB35XX Lawnbott with the large black battery along the back, you will need to lift it out to reach the motherboard.
- 4) Switch the blade motor connector with one of the wheel motor connectors.
- 5) Plug the black battery wire(s) back in.
- 6) Run the wheel motor test, above.
- 7) Does the blade motor start when you increase the wheel motor speed by pressing "+"?
- 8) Press "+" multiple times to convince yourself the motor is working fine.

If the blade motor starts and works fine, you know the problem is due to a failure in the motherboard. If the motor does not start at all, then for sure the problem is due to the motor. Switch the connectors back the way they were.



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How to Open and Close your Lawnbott

Opening:

Models: Evolution, Deluxe, Professional, LB3200, LB3210, LB2150, LB2110, LB2000

- 1) Remove the recharging dome-shaped nuts.
- 2) Make note of the black donut-shaped gaskets on the nuts or on the housing because you do not want to lose them.
- 3) Lift the cover up over the screw terminals and pull it toward the front.
- 4) Make note of the spongy pads under the bump switch arms. They need to stay in place.
- 5) Take the screws off of the clear cover. Pull the clear cover forward. This exposes the battery(ies).
- 6) Remove one of the black wires from each battery. This disconnects it from the motherboard.
- 7) Get a hex-type screwdriver and take the screws off the control panel. Lift it out carefully. This exposes the motherboard.

By the way, if you see any corrosion on the motherboard, you may clean it off with rubbing alcohol and an old toothbrush. It is a good idea to clean corrosion annually.

Models: LB3500, LB3510, LB3550

- 1) Feel under the hood near the front for the hood knobs.
- 2) Unscrew them fully.
- 3) Lift up the hood.
- 4) Trace the black battery wire to the motherboard. Unplug it carefully: do not pull on the wire, only pull on the connector to unplug it. Use a tool if needed.
- 5) Do not unplug the red wire so you will know where to plug the black wire back in later.
- 6) The motherboard slides up on rails. Slide it up, if needed.

By the way, if you see any corrosion on the motherboard, you may clean it off with rubbing alcohol and an old toothbrush. It is a good idea to clean corrosion annually.

Closing:

Models: Evolution, Deluxe, Professional, LB3200, LB3210, LB2150, LB2110, LB2000

Reverse the opening steps, noting that the spongy foam pads must be in place. When replacing the outer shell, note there is a circular grommet on it that must slide into the metal rail on the top of the clear cover. If the pads are not in place or if the grommet is not slid into the rail, the Lawnbott will have problems detecting objects in the yard (i.e. bumping).

Models: LB3500, LB3510, LB3550

Reverse the opening steps. The only tricky thing about closing is to be careful not to turn the hood screws too much because you may strip the receptacle.