

	Troubleshooting Guide: E1 Error/No Belt Movement	
Prepared by: Regina Templeton	Date Prepared: 4/26/2016	Models Affected: Treadmills

PROBLEM

Use this guide to troubleshoot E1 errors and/or no treadmill belt movement.

SOLUTION

If you experience a problem with powered belt movement and/or an E1 error, first perform a check of the treadmill with the power off.

1. Use one foot to accelerate the belt by pushing it in the normal direction. Determine if it moves freely without any grinding, rubbing, or other abnormal noises. If it does not move freely, the problem must be identified and corrected before the treadmill is powered on.
2. Check the motor shaft/flywheel rotation for binding or grinding.
3. Check the belt alignment and tension.
4. Check the rotation of the front and rear rollers.
5. Check the running belt for binding, pinching, obstructions, etc.
6. Verify that the running belt/deck has adequate/appropriate lubrication.

If the issue persists after the unit is powered on, go to the appropriate section for further troubleshooting steps:

- [No Belt Movement at Start-Up and/or E1 Error at Start-Up](#)
 - [Commutator Appearance](#)
 - [Stoning the Commutator](#)
 - [Troubleshooting the Optic Speed Sensor](#)
- [Belt Stops with E1 Error within 10 Seconds after Start-Up](#)
 - [Troubleshooting the Optic Speed Sensor](#)
- [Belt Stops with E1 Error During Workout](#)

No Belt Movement at Start-Up and/or E1 Error at Start-Up

Test the treadmill after each step and proceed to the next step only if the issue is not resolved.

1. Make sure the unit has a dedicated circuit (20 amps is ideal) and that the wall outlet voltage is 120 VAC. Make sure the machine is not connected to an extension cord, surge protector, or GFCI outlet.
2. If the treadmill has no belt movement *and* no incline, replace the console cable. Otherwise, check the console cable continuity and replace the cable if necessary.
3. Inspect the MCB. Make sure there are no burnt components and no moisture on the MCB. Replace the MCB if necessary.
4. Start the treadmill with no load.
 - If the belt does not move, verify that all wires that connect to the motor control board are securely plugged in and are not burnt, pinched, or cut. Replace the wires if necessary.
 - If the belt still does not move, replace the MCB.
5. Inspect the commutator inside the drive motor by removing the black button and looking inside. The commutator should be a copper color. (See [Commutator Appearance](#).) If it is dirty, replace the drive motor.
6. Follow the directions in [Troubleshooting the Optic Speed Sensor](#).

Return to:

- [Page 1](#)
- [No Belt Movement at Start-Up and/or E1 Error at Start-Up](#)
- [Belt Stops with E1 Error within 10 Seconds after Start-Up](#)
- [Belt Stops with E1 Error During Workout](#)

Belt Stops with E1 Error within 10 Seconds after Start-Up

Test the treadmill after each step and proceed to the next step only if the issue is not resolved.

1. Verify that the unit is on a 20 amp dedicated circuit. If it is sharing power, it can cause the unit to run erratically.
2. Software programming will shut down the unit with an E1 error within 10 seconds after start-up if it does not detect a speed sensor signal. To test this, start the treadmill again without a load and if it shuts down the same way, check the speed sensor wire connection at the MCB and check that the wire is not pinched or cut.
 - If the unit has an optic/digital speed sensor, follow the directions in [Troubleshooting the Optic Speed Sensor](#).
 - If the unit has an analog sensor, check the position of the sensor:
 - a. The wire coming from the sensor should point toward the front of the machine.
 - b. The sensor should be as close to the front roller as possible without touching it.
 - c. The sensor bracket should be at a 90-degree angle and otherwise not bent.

Verify that the speed sensor is reading properly by running mode ENG1. The speed should fluctuate .01-.02 mph while the treadmill is running. Replace the speed sensor if necessary.

3. Unplug the console cable from the upper board and the MCB and examine the pins on the connectors to make sure they are not damaged. Examine the length of the cable to make sure there is no damage and that all cable connection points are secure. Make sure there are no crimps where the console cable exits the mast and connects to the console. Check the console cable continuity. Replace the console cable if necessary.
4. Replace the MCB.
5. If the problem persists, replace the speed sensor and console cable.

Return to:

- [Page 1](#)
- [No Belt Movement at Start-Up and/or E1 Error at Start-Up](#)
- [Belt Stops with E1 Error within 10 Seconds after Start-Up](#)
- [Belt Stops with E1 Error During Workout](#)

Belt Stops with E1 Error During Workout

Software programming will shut down the unit with an E1 error 3 seconds after losing a speed sensor signal during a workout. This could be due to faulty speed sensor detection, faulty MCB motor drive function, intermittent cable connections (including console cable), a defective belt or drive motor, or something that is causing too great of a load (too much belt rotation resistance) on the MCB.

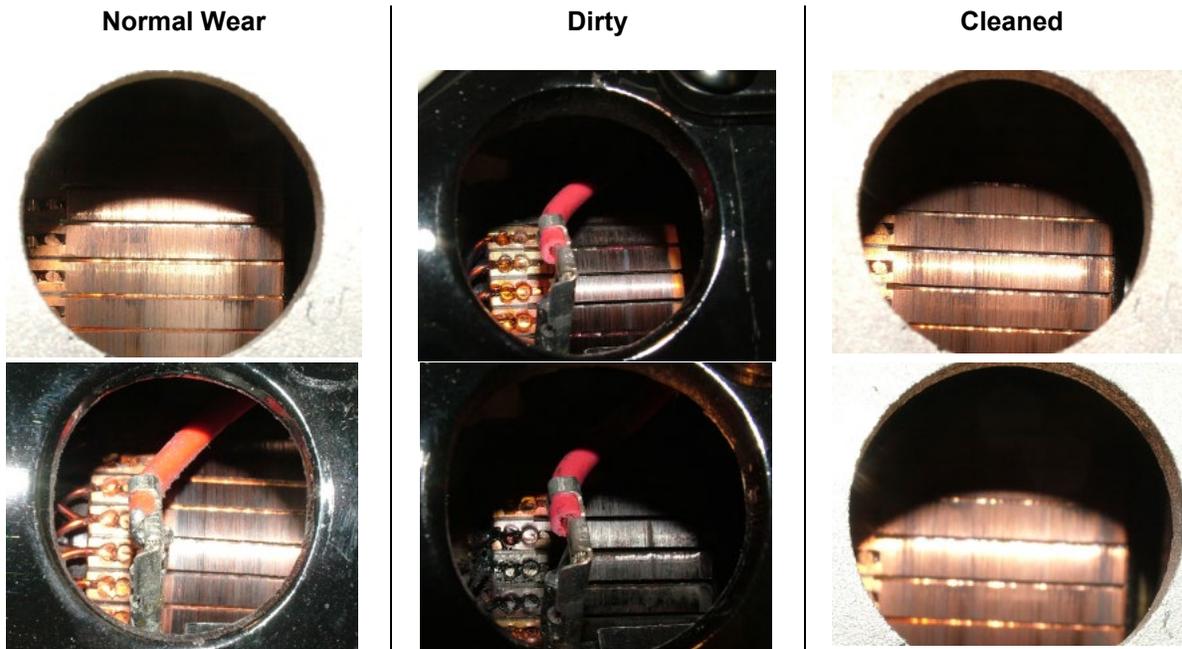
Test the treadmill after each step and proceed to the next step only if the issue is not resolved.

1. Make sure the unit has a dedicated circuit (20 amps is ideal) and that the wall outlet voltage is 120 VAC. Make sure the machine is not connected to an extension cord, surge protector, or GFCI outlet.
2. Check to make sure all wires are securely plugged into the MCB.
3. If the unit has an analog sensor, check the speed sensor for secure mounting at the front roller bracket. Confirm that the sensor is aligned with the magnet in the front roller pulley as the pulley rotates. Realign or replace the sensor if necessary.
4. Unplug the console cable from the upper board and the MCB and examine the pins on the connectors to make sure they are not damaged. Examine the length of the cable to make sure there is no damage and that all cable connection points are secure. Make sure there are no crimps where the console cable exits the mast and connects to the console. Check the console cable continuity. Replace the console cable if necessary.
5. If the unit will restart but then shuts down again, check the drive motor and running belt.
 - a. Inspect the commutator inside the drive motor by removing the black button and looking inside. The commutator should be a copper color. (See [Commutator Appearance](#).) If it is dirty, replace the drive motor.
 - b. If the motor is extremely hot or smells bad, replace the drive motor.
 - c. If the running belt can still move freely after the unit shuts down, allow the unit to cool and then restart the treadmill.
 - If the belt moves after restarting, the deck and belt are likely worn. Replace the running belt and deck. (Lubricating the belt and deck may temporarily solve the problem.)
 - If the belt does not move after restarting, replace the MCB and drive motor.

Return to:

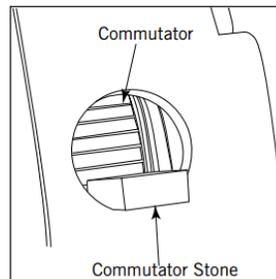
- [Page 1](#)
- [No Belt Movement at Start-Up and/or E1 Error at Start-Up](#)
- [Belt Stops with E1 Error within 10 Seconds after Start-Up](#)
- [Belt Stops with E1 Error During Workout](#)

Commutator Appearance



Stoning the Commutator

1. Unplug the unit from the wall outlet.
2. Remove the cap and brush covers from the motor and insert a commutator stone perpendicular to the commutator. (See diagram below.)
3. Manually spin the flywheel to remove carbon deposits from the commutator.
4. Use compressed air to blow the deposits out of the motor.
5. Replace the brush and cap and run the treadmill for 15 minutes at 3-5 mph.
6. Inspect the commutator again and repeat the stoning process if necessary.



Return to:

- [Page 1](#)
- [No Belt Movement at Start-Up and/or E1 Error at Start-Up](#)
- [Belt Stops with E1 Error within 10 Seconds after Start-Up](#)
- [Belt Stops with E1 Error During Workout](#)

Troubleshooting the Optic Speed Sensor

- 1) Unplug the treadmill power cord from the wall socket.
- 2) Use a Phillips screwdriver to remove the screws holding the motor cover to the frame and remove the motor cover (Figures A & B).



Figure A



Figure B

- 3) Locate the optic speed sensor mounted to the motor (Figure C).
- 4) Verify that the speed sensor is plugged into the lower control board (Figure D). If it is not, plug the speed sensor into the board and re-test the treadmill.

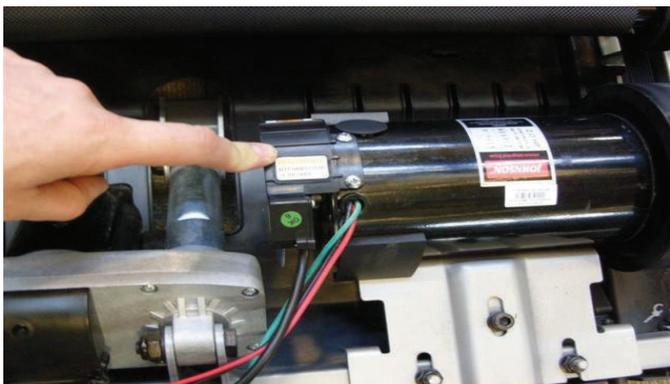


Figure C

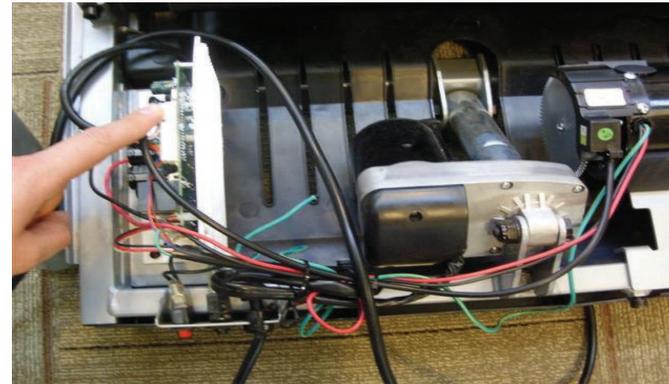


Figure D

- 5) Unplug the speed sensor from the lower control board (Figure E) and use a small cutting pliers or knife to cut any wire ties holding the speed sensor wire in place.

Return to:

- [Page 1](#)
- [No Belt Movement at Start-Up and/or E1 Error at Start-Up](#)
- [Belt Stops with E1 Error within 10 Seconds after Start-Up](#)
- [Belt Stops with E1 Error During Workout](#)

- 6) Remove the two screws holding the speed sensor to the motor (Figure F).

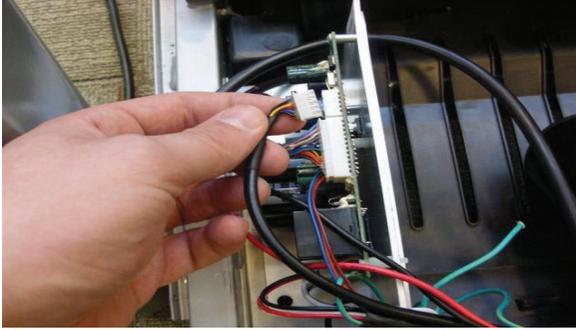


Figure E

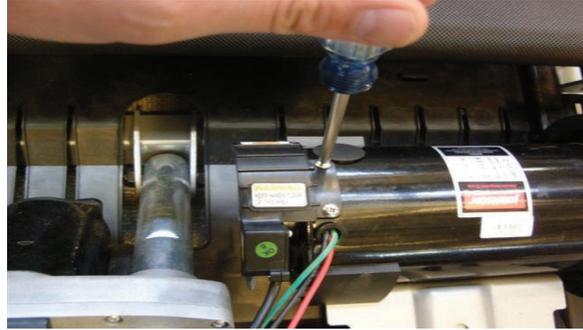


Figure F

- 7) The speed sensor can now be removed from the motor (Figure G).
8) Inspect the speed sensor for any dust or debris. Clean the optical sensor gap with a cotton swab or clean cloth to remove any dust or debris (Figure H).



Figure G

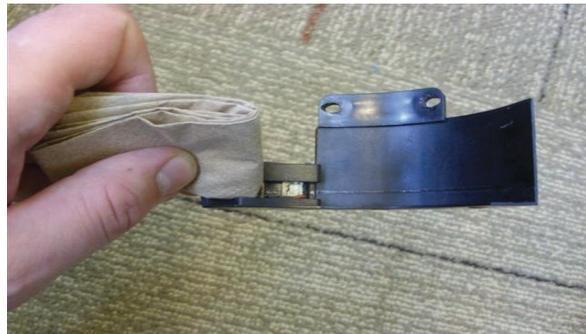


Figure H

- 9) Before re-installing the speed sensor, spin the optical disc on the motor (Figure I). Inspect the movement of the optical disc to ensure that the disc is not warped or bent.

NOTE: Be careful as the optic disc can be sharp. Replace the optic disc if needed.

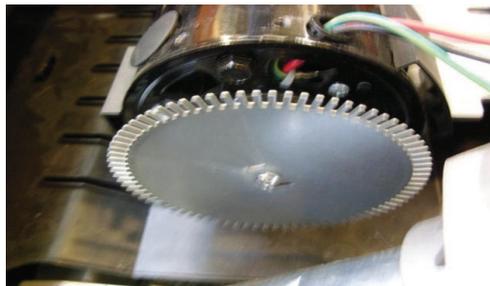


Figure I

- 10) Re-install the speed sensor to the motor and plug the speed sensor wire into the lower control board. Test the treadmill for function. If the treadmill is still having issues with the speed sensor, replace the speed sensor.

Return to:

- [Page 1](#)
- [No Belt Movement at Start-Up and/or E1 Error at Start-Up](#)
- [Belt Stops with E1 Error within 10 Seconds after Start-Up](#)
- [Belt Stops with E1 Error During Workout](#)