

Procedure 5.4 - Troubleshooting the Speed Sensor

Note:

The speed sensor is a hall effect sensor that emits a pulse when a flywheel lobe passes it. The speed control circuit processes the pulse train emitted by the speed sensor. The speed sensor signal is a real time representation of the operating speed of the treadmill. The speed control circuit compares the real time speed (speed sensor output) with the speed that it expects the treadmill to be operating at and acts accordingly to control treadmill speed or initiate an error code sequence, if necessary. Typically, if a problem exists with the speed sensor the drive motor will operate (perhaps only briefly) before a speed related error occurs (errors 20-26).

Note:

Some speed sensors have red, black and white wires and some have red, black and green wires. The following procedures will assume red, black and white wires. If the speed sensor on the unit under test has red, black and green wires, perform your test procedures using the green wire instead of the white wire. The white and green wires serve the same function.

1. Set the treadmill circuit breaker in the **on** position. Using a DC voltmeter, measure the voltage between terminal 1 of J5 (red wire) and terminal 3 of J5 (white wire) on the lower PCA. Slowly, rotate the drive motor flywheel. The voltage should read approximately 5 Vdc as a flywheel lobe passes the speed sensor and approximately 0 Vdc when a flywheel lobe is not in front of the speed sensor.
2. If the voltage in step 1 is correct, go to step 5. If the voltage in step 1 is 0 Vdc or significantly low when a flywheel lobe passes the speed sensor, continue with step 3.
3. Measure the voltage between terminal 1 of J5 (red wire) and terminal 4 of J5 (black wire) on the lower PCA. The voltage should read approximately 5 Vdc.
4. If the voltage is missing or significantly low, disconnect the speed sensor plug from the lower PCA. Measure the voltage between pins 1 & 4 of the J5 plug on the lower PCA. If the voltage is approximately 5 Vdc, replace the speed sensor. If the voltage is missing or significantly low, replace the lower PCA.
5. At this point the speed sensor output is good, but speed error occurs. There are three potential causes for this condition. They are ribbon cable, upper PCA or lower PCA. There are no good means of troubleshooting these components other than substituting known good components. Replace only one component at a time. If the component that you replaced does not correct the problem, replace the original component. Try substituting the ribbon cable first, the upper PCA second and the lower PCA third.
6. If you have performed all of the above procedures and have been unable to correct the problem, call Precor Customer Support.