

Procedure 6.4 - Troubleshooting the Speed Sensor

Circuit Description

The speed sensor is a hall effect sensor. A magnet is mounted on the right hand crankarm and passes the hall effect sensor once per revolution. The output from the speed sensor is a 5 Vdc square wave, the frequency of which indicates the operating speed. When a square wave output is not being generated by the speed sensor the system assumes the unit is not in use and removes resistance from the eddy current magnet system.

WARNING

Before continuing with this procedure, review the Warning and Caution statements listed in Section One, Things You Should Know.

Procedure

1. Remove the rear cover. Plug the unit into a wall outlet and set the on/off switch in the on position. Set the unit in the manual program and operate the unit. If a stride rate is not displayed, the speed sensor is not operative. We shall use the presence of a stride rate to determine when the speed sensor is functioning normally.
2. A magnet must be installed in the crankarm that passes the speed sensor with its south pole facing the speed sensor. If the stride rate is not being displayed in step 1, verify that a magnet is installed in the crankarm associated with the speed sensor and that the south pole faces outward. The magnet polarity may be checked with another magnet with known poles or a compass. The north pole of the test magnet or the south facing needle should be attracted to the speed sensor magnet.
3. Using a DC voltmeter, measure the voltage between terminal 1 (red wire) and terminal 5 (black wire) on the speed sensor connector. The measurement should be approximately 5 Vdc. If the voltage is correct, skip to step 5. If the voltage is missing or significantly low, disconnect the speed sensor connector from the speed sensor and repeat the measurement on the connector. If the voltage is now correct, replace the speed sensor. If the voltage is still missing or significantly low, continue with step 4.
4. Repeat the measurements in step 3 at terminals 1 and 5 of J8 on the lower PCA. If the voltage is missing or significantly low, replace the lower PCA. If the voltage is now correct, replace the speed sensor assembly.
5. Using a DC voltmeter, measure the voltage between terminal 1 (red wire) and terminal 2 (blue/white wire) on the speed sensor connector. Slowly rotate the flywheel as you monitor the voltage. The measurement should switch between approximately 0.5 Vdc and approximately 4.25 Vdc. If the voltage is correct, skip to step 6. If the voltage does not switch (the voltage is constantly low or high as the flywheel is slowly rotated), replace the speed sensor. If the voltage switches correctly, but the stride rate is still not displayed when the unit is operated, replace the lower PCA.

6. Repeat the measurement in step 5 at terminals 1 and 2 of J8 on the lower PCA. If the voltage is missing or significantly low, replace the speed sensor assembly.
7. If you have performed all of the above tests and the stride rate is not displayed when the unit is operated, there are three parts that could cause the problem. There are not any good tests to check these parts other than substituting a known good part. They are lower PCA, ribbon cable and upper PCA. Replace only one part at a time. If the new part does not correct the problem, replace the original part.
8. If you have performed all of the above tests and the speed sensor is still not functioning, call Precor Technical Support.