

Procedure 6.4 - Troubleshooting the Generator

The generator performs three functions in the C100i. First, by controlling the amount of electrical load applied to the generator, the user's pedalling resistance is controlled. Second, the generator is used to charge the C100i's internal battery. Lastly, one of the generator's six phase output windings is monitored to determine when the unit is in use and when it is idle. This system also determines the stride rate by determining the operating speed (output frequency) of the monitored generator winding.

Warning

Because this is a self-powered unit, it will either be necessary to either equip the unit with the optional external power supply or have an assistant pedal on the unit while voltage measurements are being taken. Because of the danger of working on the unit while it is in motion using the optional external power supply is strongly recommended.

1. Perform the generator resistance test per Procedure 5.1. If any of the resistance measurements are significantly high or significantly low, replace the generator.
2. The following voltage reading must be taken while the unit is in motion. Extreme care must be taken to keep meter wires, hands, etc. clear of all moving parts. Using an AC voltmeter, measure the voltage between red and black, red and white and black and white wires at **3 Phase Gen In** of the lower PCA. AC voltage readings will vary depending on the unit's stride rate at the time the measurement is taken. At a stride rate of 50 strides per minute, all three voltage readings will be approximately 40 VAC - 45 VAC.
3. If any of the readings in step 2 are significantly low, replace the generator.
4. If you have performed all of the above tests and are unable to resolve the problem, contact Precor customer support.

Procedure 6.5 - Troubleshooting Hand Held Heart Rate

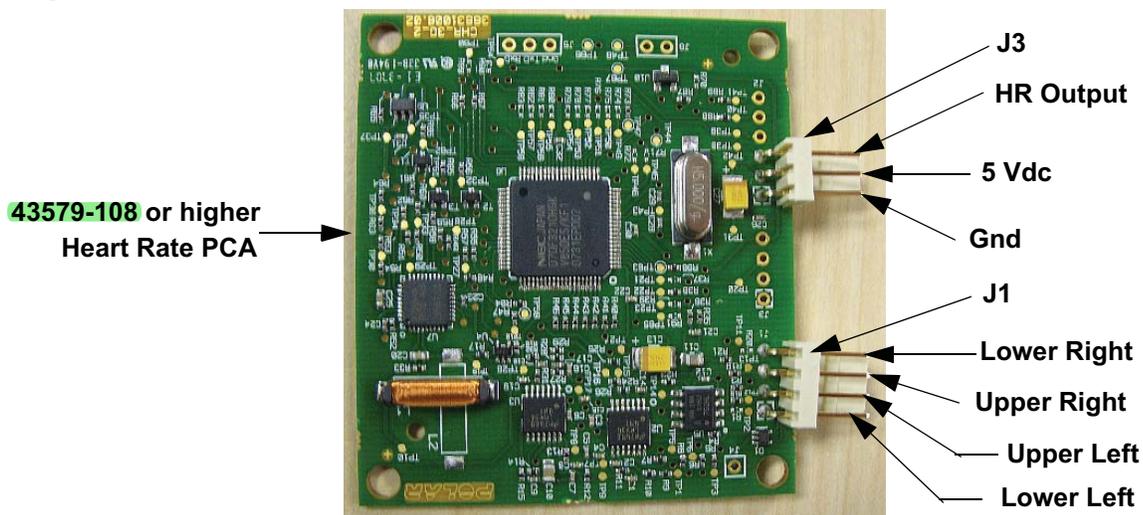
Circuit Description

The hand held heart rate system is actually a dual system, that is, it can accept a heart rate signal from either the hand held heart rate contacts on the unit's handlebar or from a Polar heart rate chest strap transmitter. The PCA is configured for hand held priority. That is, if both a chest strap and hand heart rate signal are being received, the system will accept the hand held signal and ignore the chest strap signal. If a hand held signal is not being received, the system will accept the chest strap signal.

Note:

There are four typical failure modes for the hand held/chest strap heart rate system. They are: hand held is normal - no chest strap reading; no hand held reading - chest strap normal; no hand held or chest strap reading or constant or intermittent readings when neither hand held or chest strap are in use.

Diagram 6.3 - Hand held/chest strap heart rate PCA



Normal hand held reading - No chest strap reading

1. Access the diagnostic program (Procedure 3.2). Advance to the heart rate display portion of the diagnostic program. Verify that a chest strap signal is not being accepted with either a Polar heart rate test transmitter or a known good chest strap transmitter. If this reading is good, skip to step 3.
2. Using a known good Polar heart rate chest strap, verify that the heart rate operates with the known good chest strap. If the known good Polar chest strap does corrects the problem, replace the original chest strap transmitter.
3. If the above procedures did not correct the problem, replace the heart rate PCA.

No hand held reading - Normal chest strap reading

4. Access the diagnostic program (Procedure 3.2). Advance to the heart rate display portion of the diagnostic program. Verify that a hand held signal is not being accepted by firmly grasping both the right and left hand held contacts on the handlebars. Cover as much of the contact surface area with your hands as possible (without moving your hands), you should receive a heart rate reading within ten seconds.
5. If the hand held signal is now being accepted, something in the near vicinity is radiating RF (radio frequency) energy that is being received by the chest strap portion of the heart rate PCA.
6. If a hand held signal still not being accepted, skip to step 8.
7. Replace the heart rate PCA with a **43579-108** (or higher) heart rate PCA. **43579-108** and higher versions of heart rate PCA are less susceptible to radiated RF energy.
8. Access the diagnostic program (Procedure 3.2). Advance to the heart rate display portion of the diagnostic program. Verify that a hand held signal is not being accepted by firmly grasping both the right and left hand held contacts with the opposite hands, right hand on the left handlebar contacts and left hand on the right handlebar contacts. Cover as much of the contact surface area with your hands as possible, you should receive a heart rate reading within ten seconds. If a hand held signal is still not being accepted, skip to step 10.
9. If a hand held signal was accepted in step 11, the hand held contact wiring is reversed. The end of the wire harness that connects to the hand held contacts in the handlebar is segregated into two groups. One group has blue shrink wrap around it and the other group has black shrink wrap around it. The “blue” group must go to the right hand contacts and the “black” group must go to the left hand contacts. In both groups the black wire must go to the lower contact and the red wire must go to the upper contact. If necessary, rewire the hand held contacts as described above and test as described in step 4.
10. If the wiring is correct, refer to Diagram 6.3 for the following measurements. With an ohmmeter measure between the “lower right contact” pin on the J1 connector and the lower right hand held heart rate contact on the handlebar. The reading should be 1 Ω or less. Measure between the “upper right contact” pin on the J1 connector and the upper right hand held heart rate contact on the handlebar. The reading should be 1 Ω or less. Measure between the “upper left contact” pin on the J1 connector and the upper left hand held heart rate contact on the handlebar. The reading should be 1 Ω or less. Measure between the “lower left contact” pin on the J1 connector and the lower left hand held heart rate contact on the handlebar. The reading should be 1 Ω or less. If any of the above readings are greater than 1 Ω , replace the heart rate PCA to handlebar wire harness.

No hand held reading - No chest strap reading

11. Access the diagnostic program (Procedure 3.2). Advance to the heart rate display portion of the diagnostic program. Verify that neither a chest strap signal or a hand held signal is being accepted with either a heart rate test transmitter or a chest strap transmitter.
12. Check the plug/connector connections on both the heart rate PCA (J4), and upper PCA (J1).
13. If neither a chest strap signal or a hand held signal is being accepted, measure between the “ground” and “5 Vdc” pins on J4 for 5 Vdc. If 5 Vdc is present, replace the heart rate PCA.
14. If 5 Vdc is not present, remove the connector from J4 of the heart rate PCA. Measure between the “ground” and “5 Vdc” pins of the connector (just removed from the heart rate PCA) for 5 Vdc. If 5 Vdc is present, replace the heart rate PCA. If the 5 Vdc is not present, measure between the corresponding pins of J1 on the upper PCA (red and black wires). If 5 Vdc is not present replace the upper PCA. If 5 Vdc is present, replace the upper PCA to heart rate PCA cable.

Constant or intermittent readings when neither the hand held or chest strap is in use

15. Verify that a ferrite core is clamped around the heart rate PCA to upper PCA cable.
16. Constant or intermittent heart rate readings when neither heart rate system is in use is caused by something in the near vicinity radiating RF energy that is being received by the chest strap portion of the heart rate PCA.
17. Replace the heart rate PCA with a **43579-108** (or higher) heart rate PCA. **43579-108** and higher versions of heart rate PCA are less susceptible to radiated RF energy