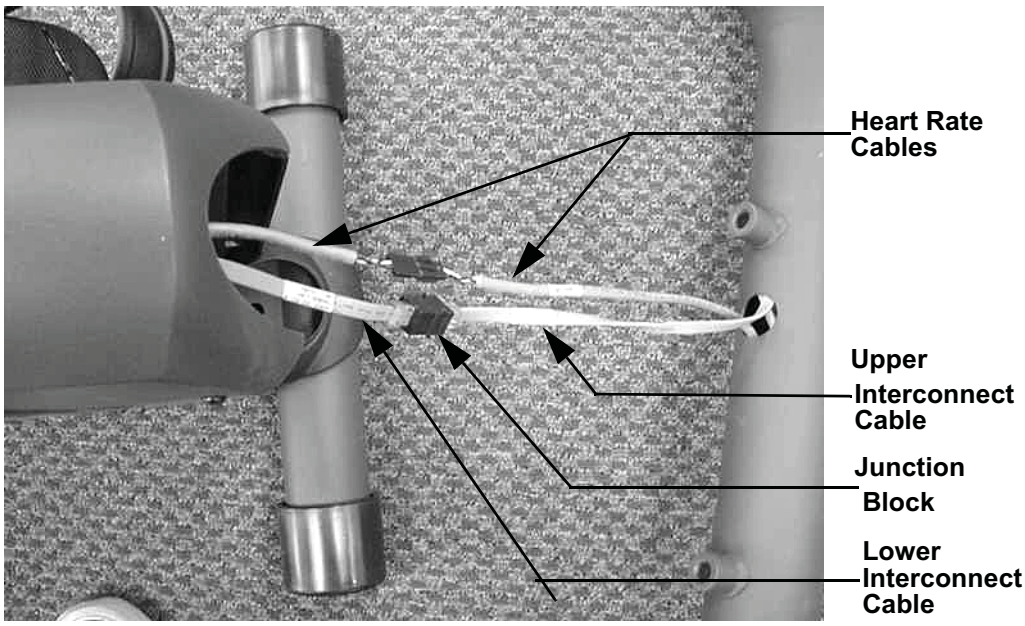
Procedure 6.1 - Troubleshooting the Interconnect Cables

Troubleshooting the upper interconnect cable

1. Remove the display housing per Procedure 7.13. Disconnect the upper interconnect cable from the upper PCA.

2. Disconnect the upper interconnect cable from the junction block between the column and the main frame.

.Diagram 6.1 - Interconnect Cables, C842i, C846i



3. Connect the by-pass interconnect cable to the upper PCA and the junction block.

4. Check the operation of the cycle as described in Section Four.

5. If the problem is still present re-connect the original upper interconnect cable and proceed with step 25.

Troubleshooting the Lower Interconnect cable

6. Disconnect the lower interconnect cable from the lower PCA and the junction block.

7. Connect the by-pass cable to the junction block and the lower PCA.

8. Check the operation of the cycle as described in Section Four.

9. If the problem is still present, troubleshoot junction block

Troubleshooting the Junction Block

10. Remove the display housing per Procedure 7.13. Disconnect the upper interconnect cable from the upper PCA.

11. Disconnect the lower interconnect cable from the junction block. Connect the lower interconnect cable to the upper PCA.

12. If you have performed all of the previous tests and have not been able to locate the trouble, call Precor customer support.

13. Check the operation of the cycle as described in Section Four.

Procedure 6.2 - Troubleshooting the Keypad

If the function keys on the electronic console are unresponsive, the problem may be either the upper PCA or keypad. This troubleshooting procedure gives you the information you need to determine which of these components is malfunctioning.

Procedure

WARNING
Before continuing with this procedure, review the Warning and Caution statements listed in Section One.

1. If an error 5 is being displayed, continue with step 3. If one or more keys do not function, skip to step 8.

2. Remove the screws that secure the upper display assembly to the upper handrail. Carefully, pull some excess interconnect cable out from the targa upright. Rotate the display housing, so that the rear of the upper PCA is facing upward, and set the display housing on the upper handrail.

3. Attach the wrist strap to your arm, then connect the ground lead of the wrist strap to an earth ground.

4. With the power off (not pedalling), disconnect the keyboard cable from the upper PCA.

5. Start pedalling, if the error 5 is no longer present, the key board is bad. If the error 5 is still present, the upper PCA is bad. Replace either the keyboard (display housing) or the upper PCA as appropriate.

6. Substitute a known good keyboard (display housing) to determine if the keyboard is defective. If the keys not function normally, replace the original keyboard (display housing). If the same key(s) still do not function, replace the upper PCA.

7. If you have performed all of the previous tests and have not been able to locate the trouble, call Precor customer support.

8. The only means of determining if a non-functioning key is caused by the keypad or the upper PCA is by substituting a known good part. The keypad is the more likely cause, try substituting the display with keypad before the upper PCA.

9. If you have performed all of the previous tests and have not been able to locate the trouble, call Precor customer support

Procedure 6.3 - Display does not Illuminate

Note:
In order to conserve battery power when the cycle is not in use, a time out feature is incorporated in the cycles software. If the cycle is not used (motion not detected by the speed sensor), when in the program mode, approximately 15 seconds later, the cycle will “power down” The bike will “power up” again when pedaling is resumed (motion detected by the speed sensor). In order to measure voltages in the unit it is necessary to keep the unit powered up. This can be accomplished either by pedaling on the unit or by installing the optional external power adapter.

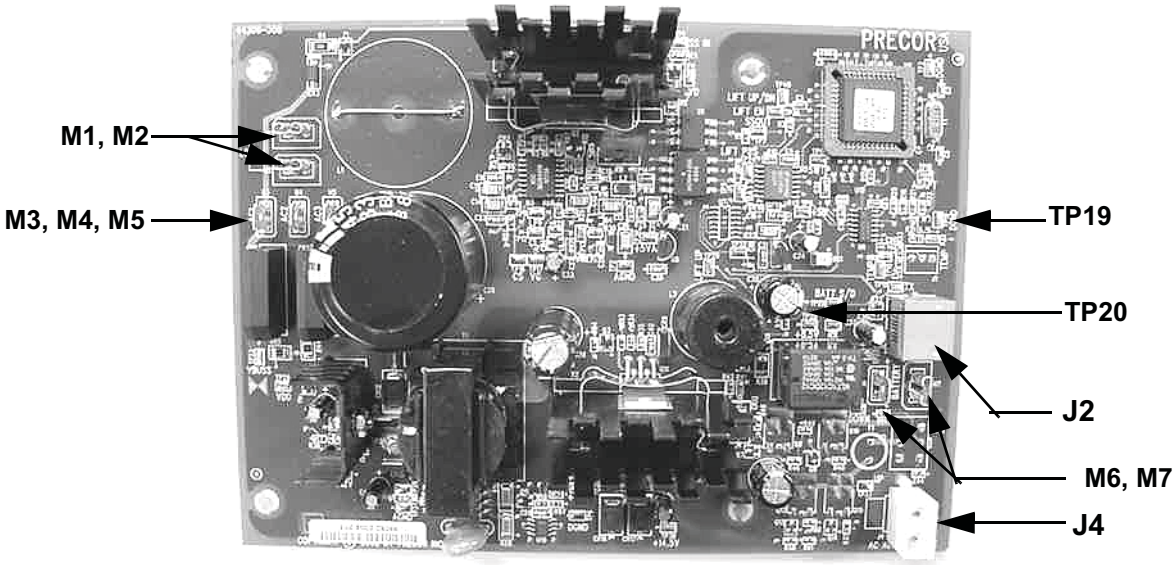
1. Pedal on the cycle for a minimum of 5 seconds. The system monitors one of the three phase generator windings for AC zero cross. The monitoring system notes every time the generator AC voltage passes through zero volts. By counting the zero cross rate, the system knows how fast the generator is turning. The system calculates the user RPM from the generator speed. If the system does not see a zero cross rate, it assumes the bike is not being used and the display will not illuminate when the bike is pedaled.

2. Disconnect the generator leads from terminals M3 (red) and M4 (black) on the lower PCA. Connect and AC voltmeter to the leads removed from terminals M3 and M4. Pedal the bike at about 60 RPM (1 rotation per second), the voltmeter should read approximately 120 Vac. If the voltage reading is absent or extremely low, replace the generator.

3. If the voltage reading in step 2 was normal, replace the lower PCA. If the lower PCA did not correct the problem, continue with step 4.

4. With the unit powered up, measure between test point 19 and test point 20 for approximately 8.5 Vdc. See Diagram 6.2. If the measurement is correct, skip to step 7.

Diagram 6.2 - Lower PCA, C842i and C846i



5. If the measurement in step 2 is significantly low or high, disconnect the interconnect cable from the J2 connector and repeat the measurement in step 4.

6. If the measurement in step 2 is still significantly low or high, replace the lower PCA. If replacing the lower PCA does correct the problem, skip to step 9.

7. Remove the upper display panel and disconnect the interconnect cable from the upper PCA. With the unit powered up, check the voltage between the outer two pins of the interconnect cable for DC volts. It should read approximately 8.5 Vdc. If the voltage is absent or significantly low, troubleshoot the interconnect cable and junction block per Procedure 6.1.

8. If the voltage measurement in step 4 is correct, replace the upper PCA.I

9. If you have performed all of the previous tests and have not been able to locate the trouble, call Precor customer support.

Procedure 6.4 - No or Incorrect Pedaling Resistance

1. If the display is not illuminated, go to Procedure 6.3.

2. Enter the “manual” program and set the work level at “level 20”. Pedal the cycle and confirm that there is no resistance or that the resistance is abnormally low.

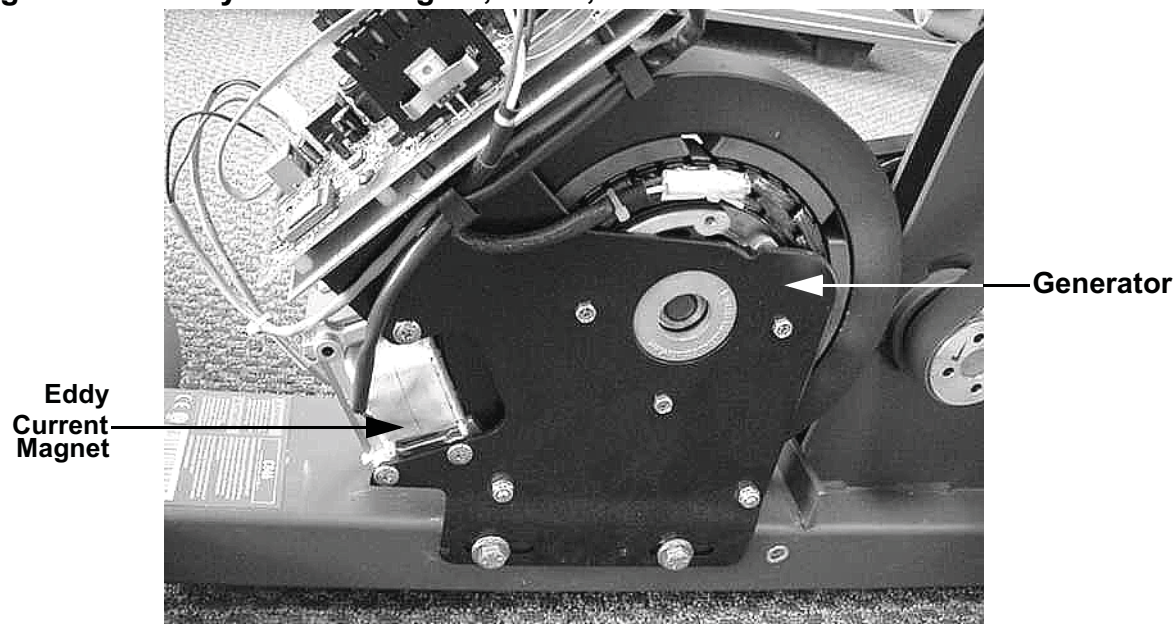
Note:
The voltage readings in this procedure will vary with the pedaling rate. Pedal the cycle at approximately 60 RPM with the work level set at “10” while taking the voltage readings in this procedure. Resistance readings must be taken with the power off and the cycle idle.

3. Measure the DC voltage at the terminals M1 and M2 of the lower PCA. See Diagram 6.9. The voltage reading should be approximately 11 Vdc. If the reading is significantly low, or significantly high, skip to step 5.

4. If the reading in step 3 was correct, the pedalling resistance should be correct, skip back to step 2.

5. Disconnect the eddy current magnet wires from terminals M1 and M2 of the lower PCA. Measure between the eddy current magnet wires with an ohmmeter. It should read approximately 10 Ω.

Diagram 6.3 - Eddy Current Magnet, C842i, C846i



6. If the measurement in step 5 was significantly high or low, replace the generator. The eddy current magnet is furnished with the generator. After replacing the generator, tension the secondary belt per Procedure 5.2.

7. If the measurement in step 5 was correct, replace the lower PCA.

8. It is highly unlikely that the RPM reading could every be present but incorrect. If this condition should occur, replace the lower PCA

Procedure 6.5 - Unit does not Mechanically Operate Freely/Quietly

1. Remove both covers per Procedure 7.1.

2. If the unit is noisy, skip to step 8. If the unit does not turn freely continue with step 4.

3. Remove the primary drive belt per Procedure 7.15.

4. Remove the secondary drive belt per procedure 7.16.

5. Turn the primary pulley, secondary pulley, idler pulley and alternator or generator by hand to determine which part is not turning freely.

6. Replace the necessary part(s) by following the appropriate procedure in Section Seven.

7. Operate the unit and listen to the noise generated. The noise will be produced by one of the following parts: primary pulley bearings, secondary pulley bearings, idler pulley, generator or alternator.

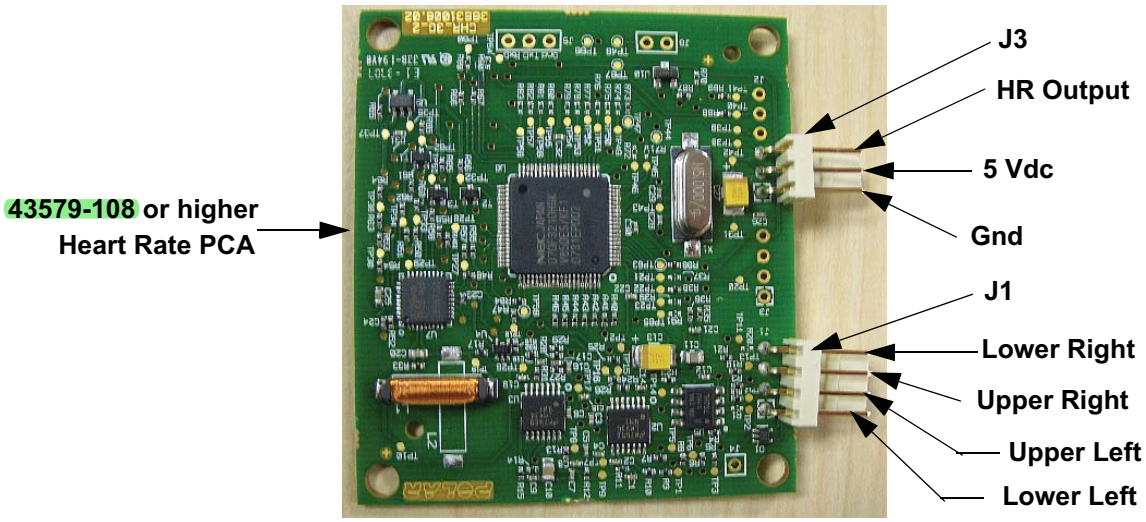
8. Replace the necessary part(s) by following the appropriate procedure in Section Seven.

Procedure 6.6 - 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