

Procedure 6.6 - Troubleshooting Hand Held Heart Rate

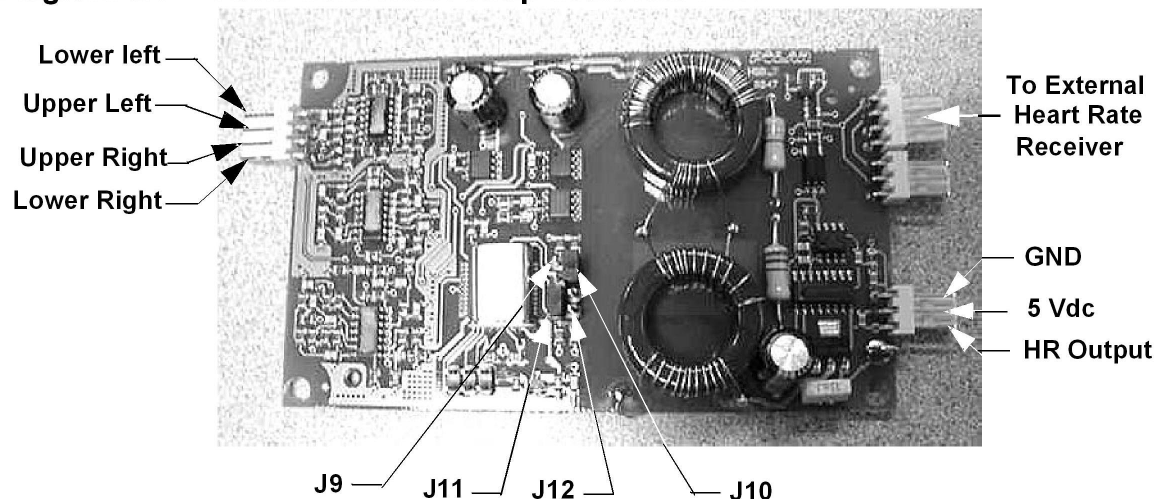
Circuit Description

The hand held heart rate system is actually a dual system, that is, it can accept a Polar heart rate signal from either the hand held heart rate contacts on the unit's handlebar or from a heart rate chest strap transmitter. Refer to Diagram 6.4 and verify the J9, J10, J11 and J12 jumper settings. J10 and J11 should be jumpered. J9 and J12 should be open (as shown in Diagram 6.4). This jumper configuration sets the PCA for hand held priority. That is, if both a hand held and chest strap 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. This system uses a wireless (chest strap) receiver that is external of the heart rate PCA.

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; constant or intermittent readings when neither hand held or chest strap are in use.

Diagram 6.4 - Hand held/chest strap heart rate PCA



Normal hand held reading - No chest strap reading

1. Set the on/off switch in the *off* position. Remove the upper display housing. Temporarily remove the jumper from J10. This changes the system to chest strap priority.
2. Set the on/off switch in the *on* position and access the diagnostic program (Procedure 2.2). Advance to the heart rate display portion of the diagnostic program. Verify that a chest strap signal is not being accepted with either a heart rate test transmitter or a chest strap transmitter.

3. if a hand held signal is being accepted and a chest strap signal is not being accepted, verify that the chest strap is good by testing it with a heart rate test receiver. If the chest strap is good, replace the external chest strap receiver. If the heart rate test receiver does not accept a signal from the chest strap, replace the chest strap.
4. Replace the jumper on J10 (removed in step 1).

No hand held reading - Normal chest strap reading

5. Set the on/off switch in the **on** position and access the diagnostic program (Procedure 2.2). 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.
6. If a hand held heart rate signal was not received in step 5, grasp 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 8.
7. If a hand held signal was accepted in step 6, the hand held contact wiring (in the handlebar) 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 5.
8. Set the on/off switch in the **off** position. Refer to Diagram 6.4 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

9. Set the on/off switch in the **on** position and access the diagnostic program (Procedure 2.2). 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.
10. Check the plug/connector connections on both the heart rate PCA (J2), and upper PCA (J5).
11. If neither a chest strap signal or a hand held signal is being accepted, measure between the

ground and 5 Vdc pins on J2 for 5 Vdc. If 5 Vdc is present, replace the heart rate PCA.

12. If 5 Vdc is not present, remove the connector from J2 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

13. Verify that a ferrite core is clamped around the heart rate PCA to upper PCA cable.
14. 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.
15. Temporarily, disconnect the external heart rate receiver from the heart rate PCA. Set the on/off switch in the on position and repeat the procedure in step 5.
16. If the hand held signal is now being accepted, something in the near vicinity is radiating RF energy that is being received by the chest strap portion of the heart rate PCA. Disabling the chest strap signal proves that it is radiated energy that is causing the problem.
17. The source of the radiated energy must be determined and relocated so that it no longer affects the heart rate PCA. Televisions, cell phones, Cardio-theatre receivers, etc. are possible sources of radiated energy.
18. Set the on/off switch in the off position, and replace the external heart rate receiver to the heart rate PCA. Re-locate all potential sources of radiation. Set the on/off switch in the on position and repeat the procedure in step 5.