Procedure 6.6 - Troubleshooting the LIft Motor

The lift motor is a 12 Vdc motor with an internally driven 1 KΩ potentiometer used to track ramp position. Because the lift motor is a DC motor, lift motor direction is controlled by the polarity of the DC voltage applied to the lift motor. When a positive voltage is applied to the lift motor, the lift motor will move upward. When a negative voltage is applied to the lift motor, the lift motor will move downward. As the lift motor moves the 1 KΩ potentiometer is rotated via an internal gear drive system. The potentiometerís changing resistance is fed to the lift control system and converted to and A/D (analog to digital) reading that is used in the diagnostics system to indicate ramp position.
The ramp operating system has a battery monitoring system. If the battery voltage falls below 11 Vdc when ramp movement is initiated or the battery voltage falls below 10 Vdc after ramp movement has been initiated, ramp movement will be stopped and the message ì**NO RAMP LOW VOLTAGEî** will be displayed. Ramp motion will not be enabled until such time as the battery voltage exceeds the above limits. The battery voltage must be raised to correct this condition either by battery charging or battery replacement. This is strictly a battery problem and not a lift system or lift motor problem.

1. If an Error 40 (no lift movement) is being displayed continue with step 2. If an Error 42 is being displayed (lift out of range) skip to step 12.

2. If the lift moves briefly and then displays an Error 40, skip to step 12. If the lift does not move prior to displaying the Error 40 continue with step 3.

3. Remove the rear cover. Remove the F1 fuse (6.3 amps) from the lower PCA. See Diagram 6.4. Check the fuses resistance using an ohmmeter. The fuse should read 1 Ω or less. If the reading is significantly high, replace the fuse. If the fuse is good or replacing the fuse does not correct the problem, continue with step 4.

4. Enter the diagnostic program per Procedure 3.2. Using the diagnostic program allows you to test the lift system without continuously pedalling the unit. Connect a DC volt meter to the J3 connector on the lower PCA as follows: voltmeter common lead to terminal 2 (white wire) and voltmeter ìhotî lead to terminal 3 (red wire). Using the **CROSSRAMP** ▼,▲ keys operate the lift. The voltmeter should read +12 Vdc when the lift is instructed to move upward and -12 Vdc when the lift is instructed to move downward.

5. If when the **CROSSRAMP** keys are pressed, the display does not indicate that the lift should be moving, troubleshoot the upper PCA and keypad per Procedure 6.2.

6. If the voltage measurements in step 4 are correct continue with step 7. If the either voltage measurement in step 4 is significantly low, replace the lower PCA.

7. Verify that all of the wires in the intermediate lift cable (the cable inserted in to J3 of the lower PCA) are securely inserted into the connector housing and providing a good electrical connection.

8. Remove both front covers. Enter the diagnostic program, if necessary, per Procedure 3.2. Using the diagnostic program allows to test the lift system without continuously pedalling the unit. Connect a DC volt meter to the lift motor cable as follows: voltmeter common lead to terminal 2 (brown wire) and voltmeter ìhotî lead to terminal 3 (red wire). Using the **CROSSRAMP** ▼,▲ keys operate the lift. The voltmeter should read +12 Vdc when the lift is instructed to move upward and -12 Vdc when the lift is instructed to move downward.

9. If the voltage measurements in step 8 are correct replace the lift motor. If the either voltage measurement in step 4 is significantly low, continue with step 10.

10. Verify that all of the wires in the intermediate lift cable (the cable inserted in to J3 of the lower PCA) are securely inserted into the connector housing and providing a good electrical connection.

11. If you have performed all of the above tests and are unable to resolve the problem, contact Precor customer support

12. Enter the diagnostic program per Procedure 3.2 and advance to the **Lift Test**. If the A/D reading is either 0 or 255, skip to step 15.

13. Using the **CROSSRAMP** ▼,▲ keys operate the lift. If the A/D reading tracks the lift movement smoothly without skips, calibrate the lift motor per Procedure 5.3 and re-test lift functions in a normal operating mode.

14. If the A/D reading was erratic and did not smoothly follow lift motion, visually check the connections between the lift intermediate cable and the J3 connector on the lower PCA and between the lift intermediate cable lift motor cable.

15. Exit the diagnostics program, and leave the unit idle long enough for it to ìshut offî. Disconnect the red battery lead from terminal M6 of the lower PCA. Remove the lift intermediate cable from the J3 connector of the lower PCA. Using an ohmmeter, test between terminal 4 (green wire) and terminal 6 (brown wire) of the lift intermediate cable. The ohmmeter should read approximately 1000Ω.

16. Test between terminal 4 (green wire) and terminal 5 (black wire) of the lift intermediate cable and between terminal 5 (black wire) and terminal 6 (brown wire) of the lift intermediate cable. These two readings should total approximately 1000Ω.

17. If the readings in steps 15 and 16 are correct, skip to step 19. If either reading is significantly high or low, continue with step 18.

18. Disconnect the lift intermediate cable from the lift motor cable. Using an ohmmeter read each of the six wires in the lift intermediate cable from end to end. Each of the wires in the lift intermediate cable should read less than 1Ω. If any of the readings are significantly high, replace the lift intermediate cable. If all of the readings are correct, continue with step 19.

19. Replace the lift motor. Calibrate the lift motor per Procedure 5.3.