Brunswick

SERVICE BULLETIN

Capital Equipment Division

Subject: I/O PCB "No Trouble Found" Date: 11/15/99

Distribution: All Worldwide Frameworx Customers, International Distributors, and Sales and Service Personnel

Letter No. CEB99-9

When a circuit board is exchanged with the Brunswick Electronic Repair Center, it is thoroughly tested for reported and suspected failures. The repair/exchange price covers the cost of this testing and repairing any type of repair necessary. Occasionally, we find that returned assemblies actually have "no problem." The cost to test these assemblies is the same as if it had failed. The result is the repair/exchange charges will appear on your billing whether or not the assembly is defective.

In an effort to reduce your costs, we are advising you to follow all recommended troubleshooting procedures that are shown in the various service manuals. The basic assembly troubleshooting process is as follows:

1. Gather information about the nature of the malfunction.
2. Determine the assembly most likely responsible as the cause of failure. Look for obvious problems.
3. Exchange the suspect assembly with a working unit from another lane.
4. If the problem moves with the assembly, you can assume the assembly moved is the cause.
5. If the problem stays in the original unit, you must continue troubleshooting other assemblies.
6. Once you have isolated the failed assembly, replace it with a known good spare or replacement assembly.
7. Verify proper operation.
8. Return the defective assembly for repair along with a written description of the problem (use the Traveler).

Additional Information Regarding Frameworx Scorer:

When troubleshooting the Frameworx scorer (or any other computer), remember that software plays an important role. Changing hardware assemblies does not always solve a problem, or even confirm it. Remember to "reboot" computers to make sure basic software functions are restored. In the case of the Frameworx scorer, it may be necessary to perform the "Clear Nonvolatile Memory" function under the maintenance menu. Frequent returns of hard disk drives and I/O PCB assemblies that have no problem might be a result of not clearing the RAM during the troubleshooting process.

The I/O PCB can be further examined by manually resetting the nonvolatile memory. Two models of the I/O PCB have this feature. Before examining this PCB, turn the scorer console power OFF. One model of the I/O PCB allows you to remove the battery. This may be done if the battery (BAT1) is mounted in a battery holder.

WARNING: DO NOT REMOVE OR SHORT BATTERIES THAT ARE SOLDERED TO THE PCB!

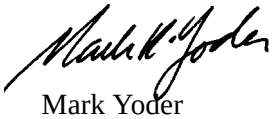
Another model of the I/O PCB has a small jumper that disconnects the battery's power. In these assemblies, remove JPR7, wait 20 seconds, and replace the jumper. I/O PCB assemblies without either option must be returned for repair.

In summary:

1. Perform all steps listed above in the troubleshooting process.
2. Reboot the scorer console.
3. Perform the "Clear Nonvolatile Memory" function in the maintenance menu.
4. If provided, remove the battery power from the I/O PCB.
5. Replace the I/O PCB with your spare and confirm proper operation.

When changing a hard drive or CPU/Motherboard, remember to use the CMOS board from your spare parts kit.

If you have any questions concerning troubleshooting, remember to first look at your service manual(s). If you are still unable to determine the cause of the problem, call the Brunswick Customer Response Center at 800.323.8141. Outside the United States, call your local distributor.



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