

MATRIX	Troubleshooting Guide: Quick Keys	
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DESCRIPTION

Use this guide for help troubleshooting when the incline, resistance, and/or speed keypad toggles on the hand grips (ascent trainers, bikes, or ellipticals) or console base set (treadmills) do not make the correct adjustments (no response, increases instead of decrease, resistance changes when incline buttons pressed, etc.).

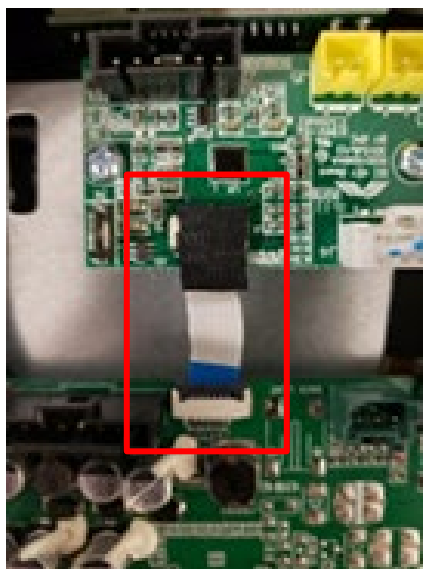
See the appropriate section for help:

- ❖ [Both keypads respond incorrectly](#)
- ❖ [Only one keypad responds incorrectly](#)

SOLUTION

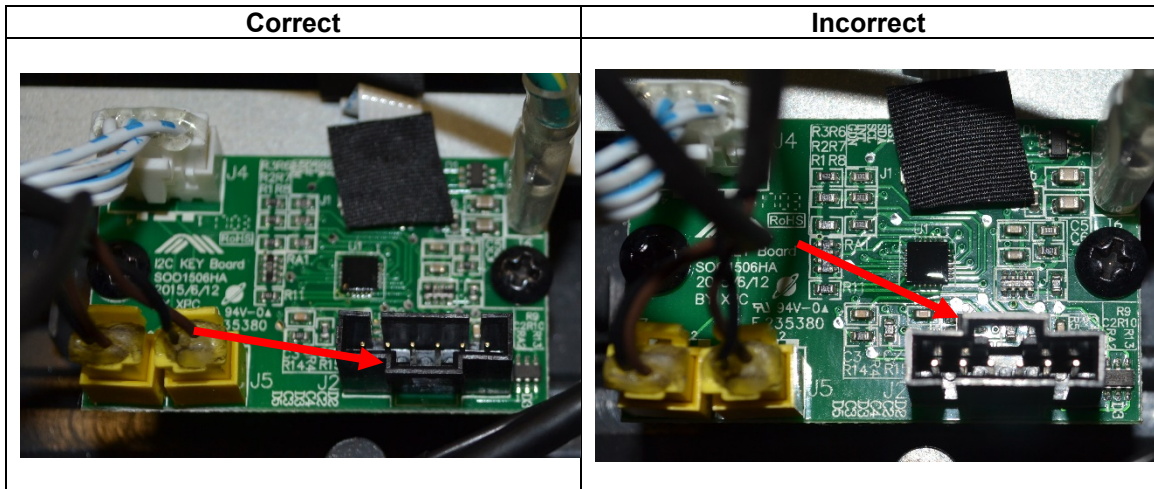
If **both** keypads respond incorrectly:

1. XER and XIR consoles only – If the heart rate grips work but the quick key toggles do not respond, check the ribbon that connects the exchange board to the UCB.
 - Make sure that both connections are snug and seated correctly.
 - Reseat the ribbon as necessary. If the tape that secures the cable to the exchange board is missing or loses its adhesive properties, use a small pieces of Mylar tape to replace it.

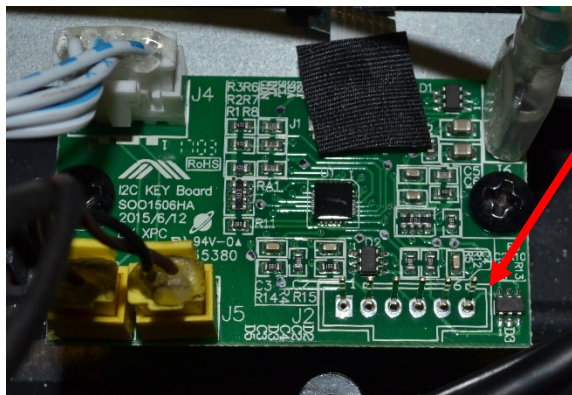


2. XER and XIR consoles only – Look at the exchange board. Verify that the header for the grip wire is attached in the right direction.

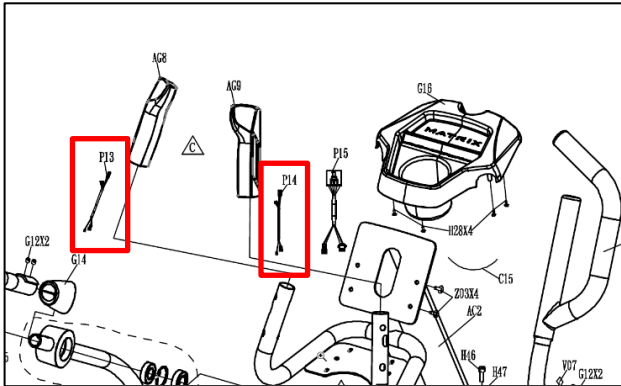
Note: Due to an issue from January 2017, some A50, E50, TF50, and T50 units with XER and XIR consoles shipped with the grip wire header attached upside down. The symptoms of this issue vary by the model type. If this occurs on an A50 unit, when a resistance arrow is pressed, incline increases instead, and vice versa (on some frames, the controls may not change).



Tip: A screen-printed outline on the exchange board indicates the correct orientation of the grip wire header.

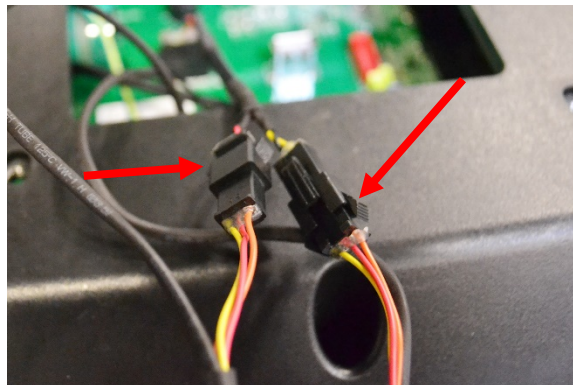


3. Bikes, ellipticals, and ascent trainers only – If the quick key connecting wires have been replaced, verify that each wire has been routed to the correct grip. If the wires are swapped, the commands will be reversed: For example, when a key for resistance is pressed, incline will change. The wires are labeled “L” (User’s Left) and “R” (User’s Right) to indicate the correct grip.



Above: A50 diagram, E30 photo

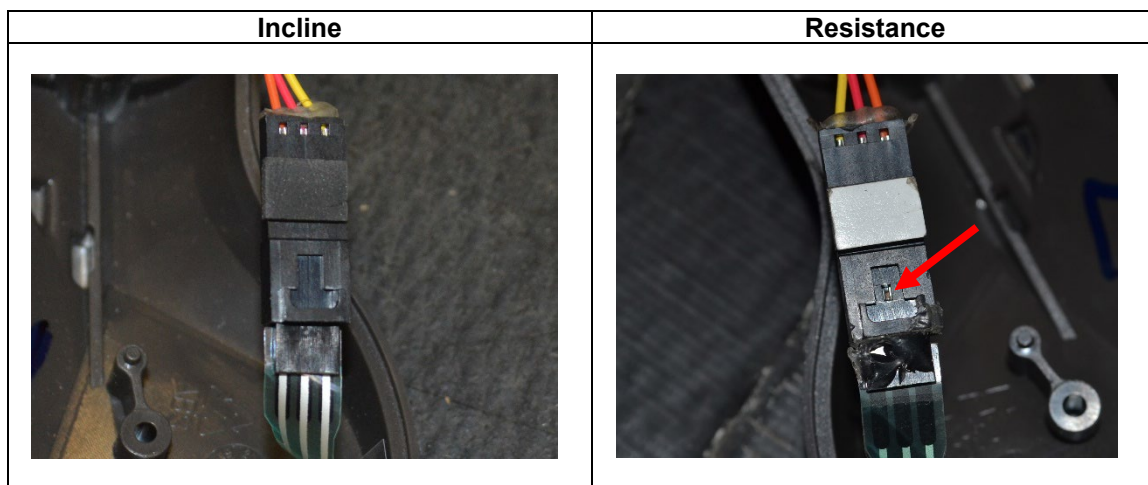
Note: It is possible to route these wires to the wrong grip, but it is NOT possible to swap the connections at the wire that connects to the console upper board (P15 in the diagram above). As shown below, one side has a male connector, and the other has a female connector:



If **only one** keypad responds incorrectly:

1. Remove the grip and verify that the keypad ribbon is plugged into the connecting wire securely and correctly:

Ascent trainers – Each ribbon connector has one side with three visible metal pins. The incline keypad ribbon plugs into the connector with the metal pin side DOWN, but the resistance keypad ribbon plugs into the connector with the metal pin side UP (one pin will be visible once the resistance ribbon is plugged in). See photos below:



Bikes and ellipticals – The ribbon cable can be plugged into the connecting wire in either direction.

Treadmills – The connector on the keypad wire will only fit into the connecting wire plug in the correct direction.

2. Troubleshoot each quick key wire.

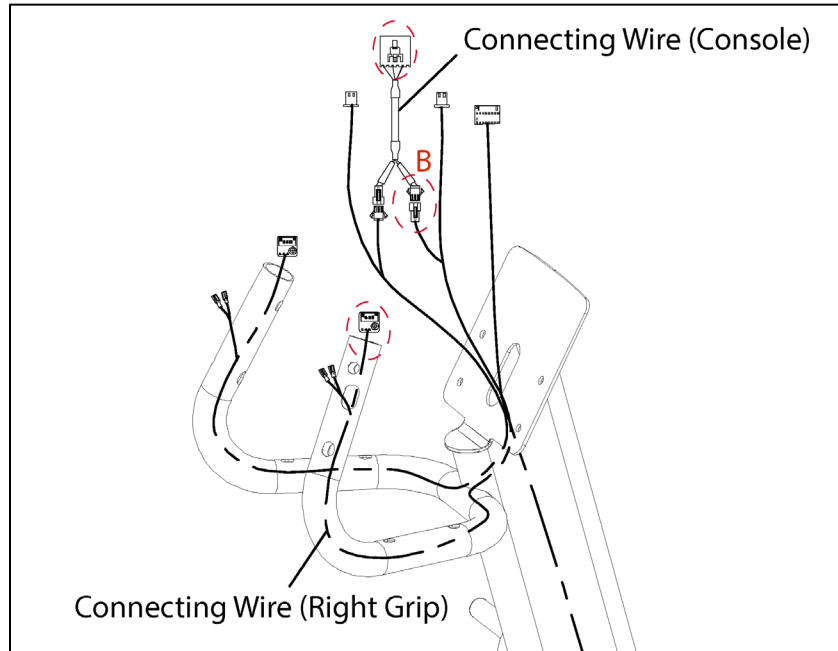
Option 1 - Use a multi-meter or volt meter. Begin by testing the keypad, and then test each wire along the path to the console. Replace any faulty wires.

Option 2 – Use a small, conductive piece of metal (for example, a paper clip or a segment of wire) to test each wire along the path to the console.

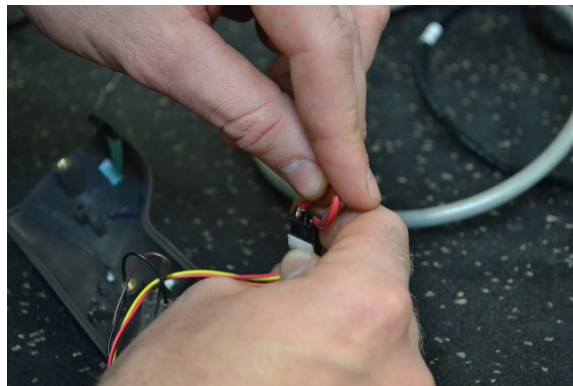


The instructions below explain how to troubleshoot using Option 2 on an elliptical with an XR console. The wiring path varies by model – check the Wiring Diagram to confirm your model's setup. Always begin by testing the wire closest to the grip. Work backwards, making sure to test each wire along the path to the console.

E30 Wiring Path (Right Side):

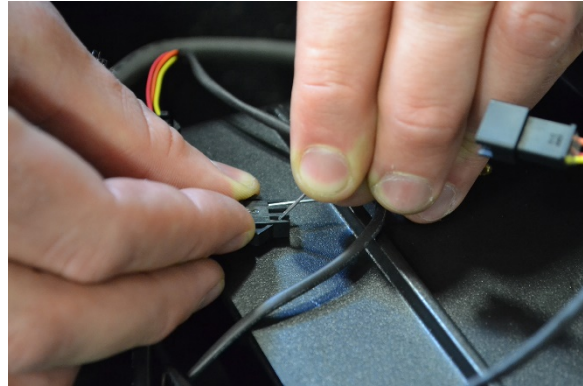
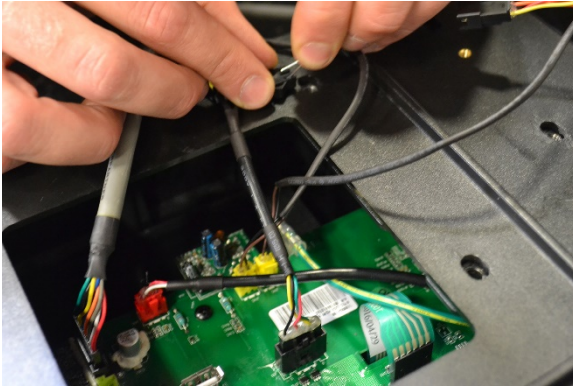


- a. Unplug the keypad wire (on the grip) from the Connecting Wire (Right Grip). Use the piece of metal to touch the two outer pins on the connecting wire's connector (the middle pin is a ground wire)



- If the console beeps and resistance increases or decreases by one level, you have isolated the issue to the keypad. Replace the grip set.
- If the console does **not** beep and resistance does **not** change, continue troubleshooting.

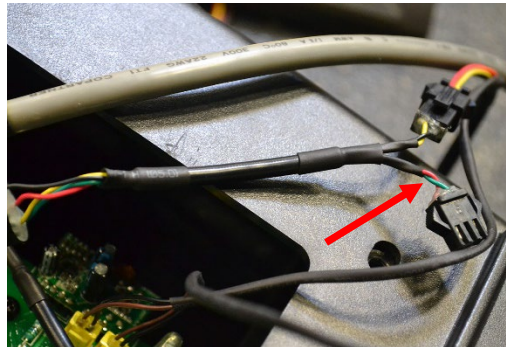
- b. Unplug the Connecting Wire (Right Grip) from the Connecting Wire (Console). Use the metal piece to touch the two pins on the Connecting Wire (Console) plug.



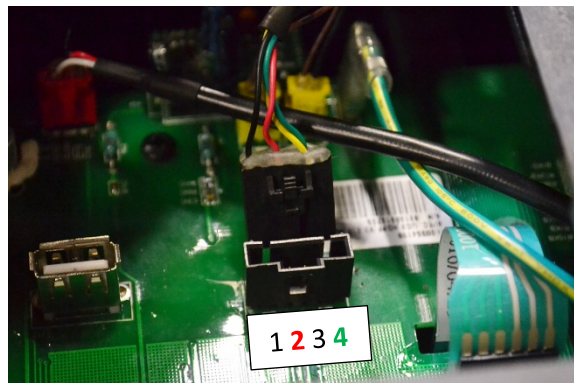
- If the console beeps and resistance increases or decreases by one level, you have isolated the issue to the Connecting Wire (Right Grip). Replace the wire.
- If the console does not beep and resistance does not change, continue troubleshooting.

- c. Unplug the Connecting Wire (Console) from the UCB.

- i. Note the color of the wires leading to the plug that attaches to the Console Wire (Right Grip). (This plug is labeled “B” in the diagram on page 4.) In the example below, the wires are red and green.



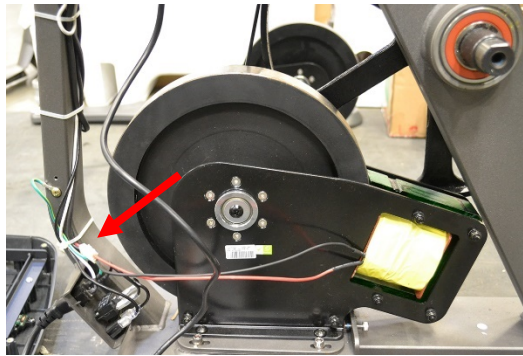
- ii. Next, note which pins the wires line up with on the board. In the example below, the red wire goes to the second pin, and the green wire goes to the fourth pin.



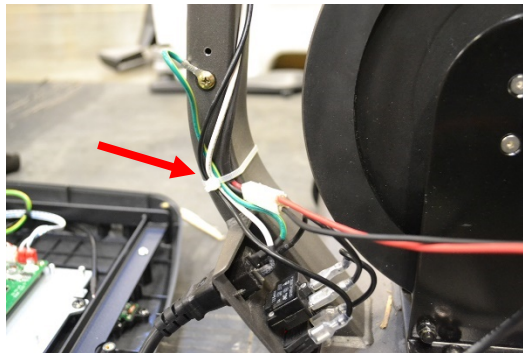
- iii. Use the metal piece to touch the two pins you identified on the board in the previous step.
 - If the console beeps and resistance increases or decreases by one level, you have isolated the issue to the Connecting Wire (Console). Replace the wire.
 - If the console does not beep and resistance does not change, replace the console.
- 3. 50 series ascent trainers only: If the resistance keypad still does not respond, remove the covers on the right side.

Note: The photos below show all side covers removed, but you can complete this troubleshooting if only the side covers on the right side are removed.

- a. Verify that the red brake wire is plugged into the connecting wire.



- b. Make sure that the connecting wire is not damaged, particularly where a zip tie secures it to the frame.



- c. Make sure that the wire is connected to the LCB.

