

PianoDisc HD/Prodigy Troubleshooting Guide

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When troubleshooting this system I try to do the easiest and obvious things first. At the end of this guide there is instruction how to make a simple data test cable. This is a great tool for checking for the 12 VDC power.

1. System will not power up.

1. Check to see if CPU light is on.
2. Check the power switch on plug strip.
3. Check power cord is plugged into wall socket.
4. Check voltage at the wall socket or if it is a switched plug socket.
5. Check the large and small power supplies for DC voltage
 - The large power supply should have about 48 VDC. (See pic)
 - The small power supply should have about 12 VDC. (See pic)
6. Check all plug connections.



Checking large power supply



Checking small power supply

2. Driver board lights are flashing

This problem can be a bad data cable (RJ-45), poor plug connection or bad driver board. The process is to replace data cables one at a time until you find the bad cable. The problem also can be a bad driver board which can cause the two other boards to flash also.

1. Turn off power. (Replace data cables one at a time.)
2. Replace data cable (RJ-45) from CPU to bass driver board.
3. Then replace data cables between each of the driver boards.
4. If the lights are still flashing, then unplug data cable from bass board and plug into the middle board, if the middle and treble boards test ok, then the bass board is bad. Basically you are checking each board position. All driver boards are the same and automatically switch for that position and this could be the problem.

3. System powers up but will not play (driver board lights on and not flashing)

1. Press the test button on the CPU.
 - If it plays then it is probably a wireless communication problem. Go to step 7.
2. Check the small power supply voltage, unplug power cable at the CPU, it should read 12 VDC. (See picture on previous page)
 - If the power supply read 8 volt or less the system will not play and the power supply is bad. The best way to check is under a load using the data test cable on the treble driver board. (See picture below)
3. Check the large power supply voltage at the power supply, it should read a about 48 VDC. While playing the piano the voltage will range between 39-42 VDC.
4. Use a data test cable and check voltage out of the CPU, should have about 12 VDC.
5. Using the data test cable, plug into the end of the treble driver board and check voltage, should have 10-11 VDC, there is always some line loss. If the voltage is 8 volts or below, check the voltage at the tenor driver board and the bass board if still low. The problem is one of the driver boards can have a internal grounding problem which causes nothing to play. Replace the bad driver board.



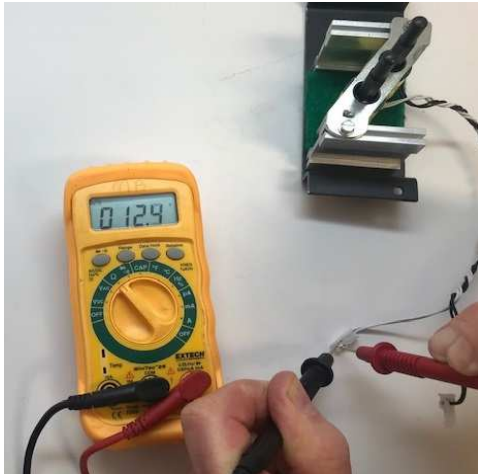
Checking voltage out of CPU



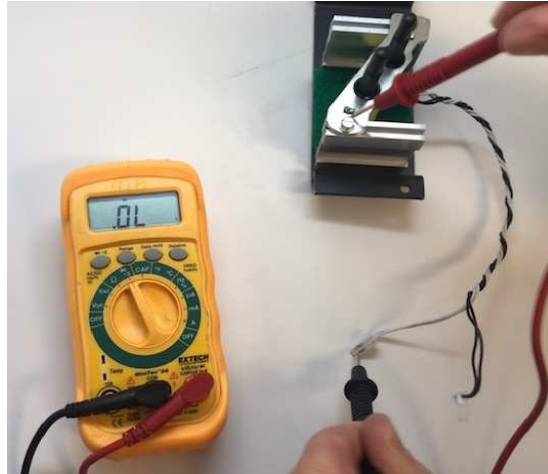
Checking power out of key driver board

4. Six key solenoids will not play

1. Check all 6 key solenoids for grounding and ohm resistance. The ohm resistance is 12 (+/- 1 ohm), so the range is 11-13 ohms. Replace key solenoids if grounded or out of the ohm range. (see pictures below)
2. Replace the key driver board as one or more grounded solenoids damaged the driver board.



Checking ohm resistance

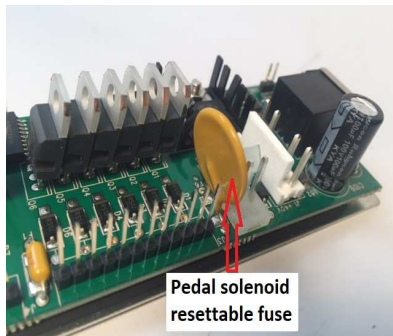


Checking solenoid for grounding

5. Pedal Solenoid does not work

1. Unplug the pedal solenoid and check for grounding and ohm resistance. The ohm resistance is 6.5(+/- 1/2 ohm), so the range is 6-7 ohms. Replace if out of range.
 - To check for grounding, touch one lead to the connector and the other to the body of the solenoid. If you get continuity or a beep the solenoid is bad.
 - System 2017 and older the key driver board will need to be replaced if the pedal solenoid is grounded out.

NOTE: A “resettable” fuse has been used since 2018 which protects the pedal components on the driver board (diode and transistor) in most all cases.



Pedal solenoid resettable fuse



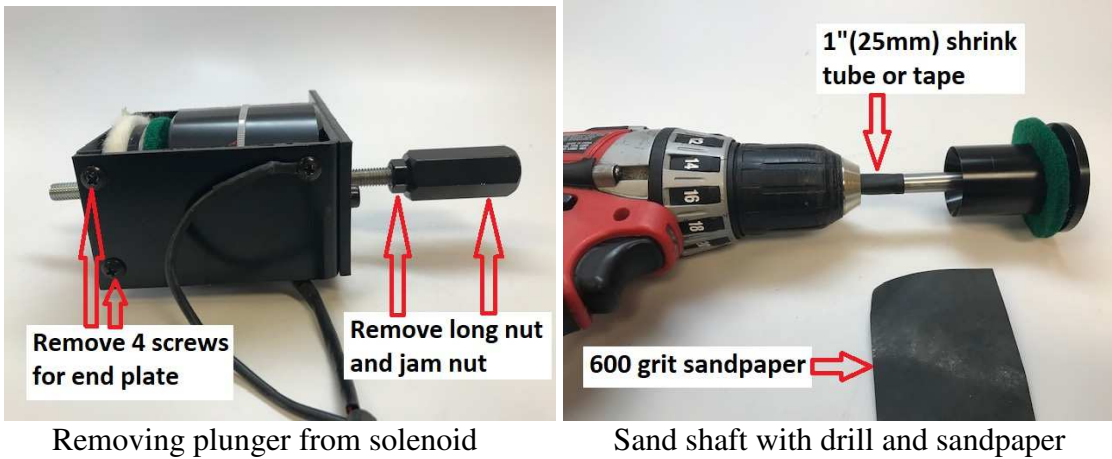
Testing ohm resistance



Checking for grounding

6. Pedal solenoid is binding

1. Check the ohm resistance of the pedal solenoid, if it is in spec (6.5 ohms +/- .5) continue, but is out of spec, then replace it and send old one back.
2. Remove the plunger from the pedal solenoid.
 - Remove the 4 mounting screws. (see picture below)
 - Remove the long nut and jam nut.
 - Remove the plunger from solenoid housing.
 - Use 1" shrink tube or masking tape to protect the threads.
 - Place the plunger shaft into a drill and sand shank with 600 grit sandpaper. (see picture below)
 - Use a small amount of synthetic grease on the shaft upon assembly.



7. Can not connect wirelessly to piano (HD-iQ system)

1. Check plug connections from Airport Express to iQ box.
2. Replace stereo mini cable from Airport Express to iQ box.
3. Re-configure Airport Express. Here are two links, Apple or Windows.
 - https://support.apple.com/kb/DL1664?locale=en_US for Mac
 - https://support.apple.com/kb/DL1547?locale=en_US for windows
4. To verify that system is functioning properly, connect the iPad (headphone jack) directly to the iQ box with a stereo mini cable and then test the system.

Prodigy Trouble Shooting

Cannot connect with Bluetooth

NOTE: There are two Bluetooth wireless connections, “Bluetooth Audio” and “Bluetooth MIDI”. Normally Bluetooth Audio will be used for playing music. Bluetooth MIDI is only used for calibration and ProMode.

1. Check “Audio In” selector switch on the side of the CPU for the “Bluetooth” setting. (Fig. 1)
2. Make sure that only one device is connected.
3. Check the iPad settings that “Bluetooth” is on and select “PD SilentDrive BT audio”.
 - Sometimes it is necessary to “forget” the device and re-connect.
4. Press the test button on the CPU to verify the system in playing.
5. When in the PD Calibration App., make sure that “Bluetooth MIDI” is turned on; check the icon in the upper right corner of the iPad is green. If not, then touch the Bluetooth icon in the upper right corner of the iPad and connect to Bluetooth MIDI. Once the Bluetooth MIDI is connected, then all the numbers will show up in the “SilentDrive” area of PD calibration App.
6. Sometimes it is necessary to “forget” this device and re-connect. When in the iPad settings, there is a blue circle at the right, touch this and you can forget that device and then re-connect. (See figure 2)



Figure 1 – Left side of Prodigy CPU



Fig. 2 – Press this to “forget” this device

Music plays erratic and/or bad volume control

1. Make sure to shut off “Bluetooth MIDI” when playing Bluetooth Audio only.
 - There are only two ways to shut off Bluetooth MIDI and this is in the PianoDisc Calibration app or the PianoDisc iQ app.
 - **PianoDisc Calibration App.** – With the calibration app page displayed, touch the “Bluetooth” icon in the upper right hand corner and a drop down box will appear, touch the word “connected” and this will change to “disconnected”.
 - **PianoDisc iQ App** – In the PD iQ app, go to “settings” then look for “MIDI Devices” and touch “connect to Bluetooth MIDI”, a box titled, “Bluetooth MIDI Devices” will appear, then just touch “PD SilentDrive BT MIDI” and it will change to “Not Connected”.

NOTE: During PianoDisc Calibration the “SilentDrive” part needs to be done first and then the iQ. While setting the “iQ” portion of the PD Calibration App., “Bluetooth Audio” is playing the piano/symphony and the “Bluetooth MIDI” is used to make the calibration changes. **Don’t forget to shut-off Bluetooth MIDI when finished with calibration!**

Piano will not play, only symphony

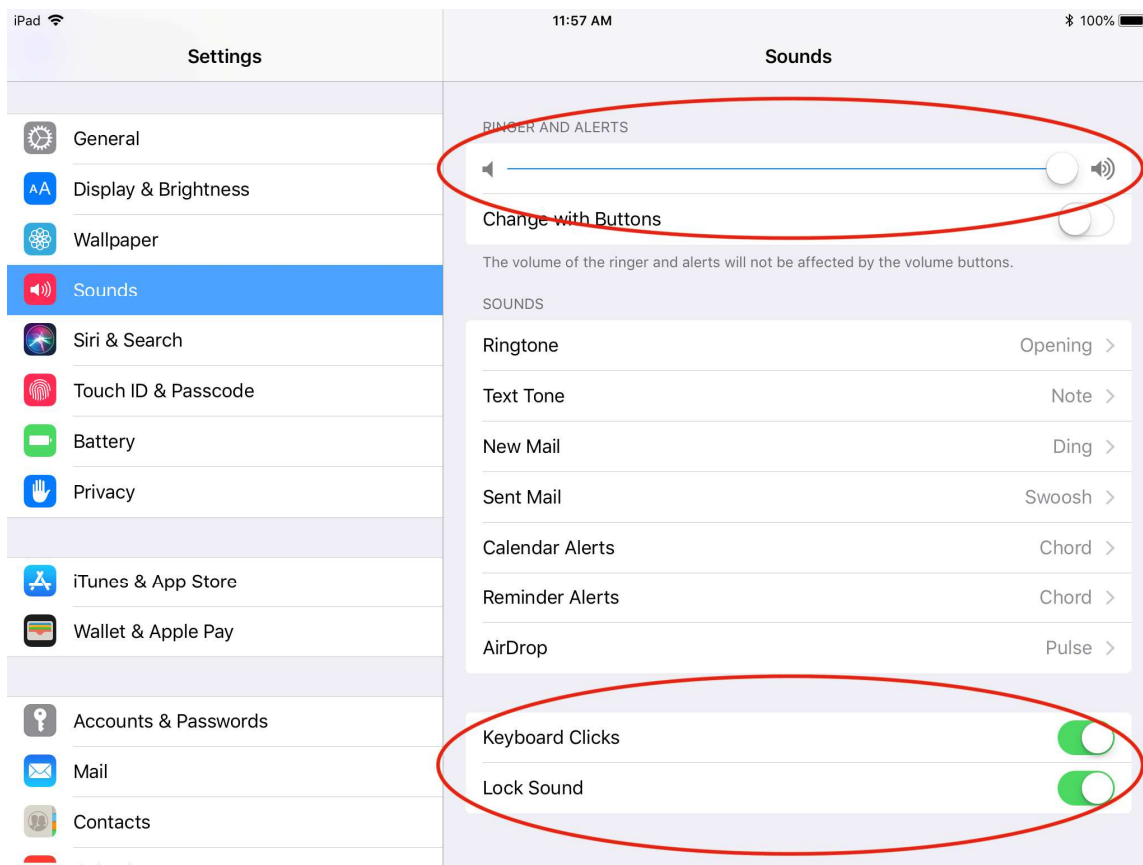
1. Check the balance between piano and symphony in the iQ app.
2. Press the test button on the CPU to verify piano plays.
 - If the piano will not play then go to Trouble Shooting steps 1, 2 and 3.
3. Check the iPad balance.
 - Go to “Settings” on the iPad
 - Select “General”
 - Select “Accessibility”
 - Scroll down to “Hearing”
 - Check the “Balance” for center position.

iPad settings for Prodigy

Note: Within the iPad settings there are some settings that can affect the Prodigy playback. Note that the following settings should be changed as follows.

To change these settings, you need to go to the iPad “settings”, tap the “sounds” icon and turn down the “Ringer and Alerts”.

Now turn off “keyboard Clicks” and “Lock Sound”.



Note: Another area in iPad settings to check

1. In the iPad setting, scroll down to “music” and touch it, then touch ”EQ” and set to “off”.
2. Touch the “Volume Limit” and set to “maximum”. Then set “Sound Check” to “off”.

Non-PianoDisc apps

Non PianoDisc apps also can be a problem if not disenabled such as Garage Band or any app that transmits MIDI could be a potential problem.

Digital Sound (Squeal) on Speakers

It is not too likely but the “Mono” could be turned “on” in Settings. Follow the instructions below to check.

Check “Mono” in “Settings”.

- Go to “Settings” on the iPad
- Select “General”
- Select “Accessibility”
- Scroll down to “Hearing”
- Make sure “Mono” is “Off”

No Volume Increase

Check the “Balance” in iPad.

- Go to “Settings” on the iPad
- Select “General”
- Select “Accessibility”
- Scroll down to “Hearing”
- Check the “Balance” for center position.
- Also check “Balance” in the iQ app for center position.

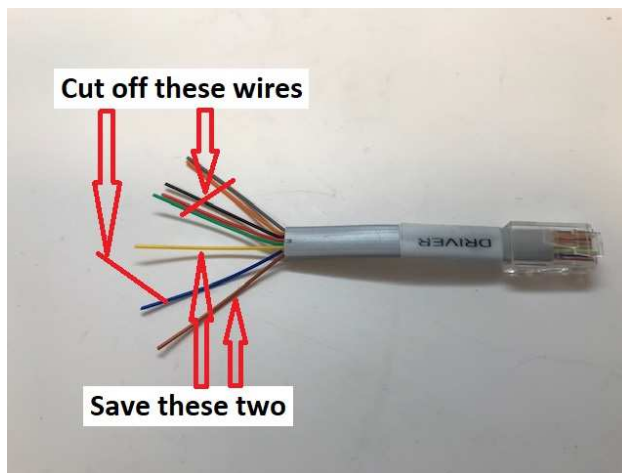
Data test cable instructions

This cable is easy to make, just follow the instructions below.

Note: You will need the following tools and parts to make this cable.

- Wire strippers/crimpers
- A razor blade
- 2- Butt splice terminals (red)
- Soldering iron (optional)

1. Clip an 8" data cable in half.
2. Remove 1.5" (38mm) gray insulation from wires.
3. Clip off all wires except the 2 in the picture.
 - Note that the lock tab of plug is facing up and the 1st and 3rd (from the left- as in picture) are the 2 wires you want to keep.

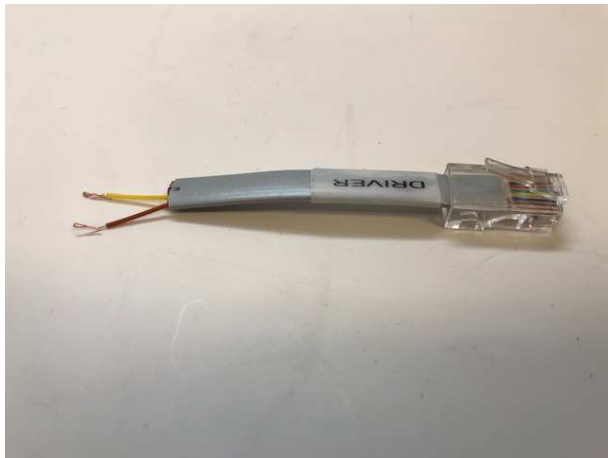


Identifying wires to cut and save



Cutting off unused wires

(Continue on next page)



Strip insulation off wires fold in half



Tin wires with solder

4. Remove $\frac{3}{4}$ " (19mm) insulation from each wire, twist wires and then fold over each wire in half to create a larger area.
5. Now, if you have a soldering iron, tin each wire.
6. Place a (red) butt splice terminal on each wire and crimp to wire. This will protect from shorting when testing. (See picture below)



Butt splice terminals installed

