ProRecord and ProScan Installation Procedure for Grand Pianos

With Troubleshooting Guide
Revision 6 - 2019

NOTE: If the ProRecord/ProScan is combined with the iQ player system is must be a HD system.

What is the difference between the ProRecord and ProScan?

The difference is that the ProRecord has a sound module with more controls for this purpose and the ProScan does not have a sound module.

Installation Procedure:

NOTE: The installation procedure is the same for ProRecord and ProScan. It is the setup that will be slightly different.

1. **Disassemble the piano**
   - Remove the action from the piano.
   - Remove the stack and keys from the keyframe.
   - Place the key upside down on a bench supported by two long pieces of wood to level the bottom of the keys. (See Ill. 2)
2. **Placing reflective tape on keys 1 and 88**

NOTE: The following procedure is the same whether a grand or vertical.

- Locate the reflective tape and paper jig in the kit.
- Starting with key 1 and 88, place the template on the front/bottom of the key and attach the reflective tape. Do this on both keys.(See Ill. 1)

NOTE: Because keys 1 & 88 are wider than other white keys, the reflective tape is place on inner side of the key to line up with the optical sensor. (See Ill. 1 and the template)

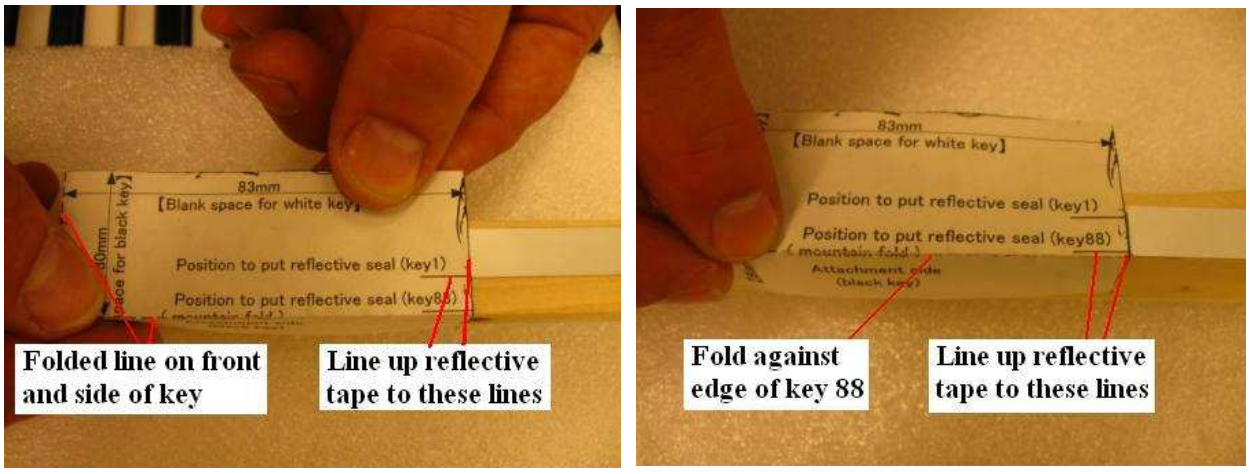
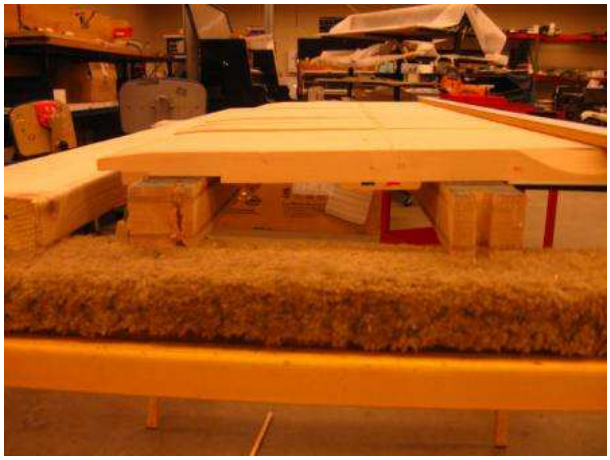


Illustration 1 – Locating reflective tape on keys 1 and 88

3. Marking all keys for reflective tape position

- Place the keys up side down on two pieces of wood to level out the keys. (See Ill. 2)
- Place a straight edge across the end of all keys to simulate how the keys will be in the piano. (See Ill. 3)
- Place the ruler across the bottom of the keys, at the front of the reflective tape, and draw a line across all keys. (See Ill. 4)
- Now place the reflective tape on all keys at the line just established.



Ill. 2 – Supporting keys

Ill. 3 – Line up keys

Ill. 4 – Marking line from Key 1 to 88

4. **Install the optical sensor strip in the keyframe**

- Place the optical sensor strip on the keyframe near the front rail.
- Place black keys at each mounting location. (See Ill. 5)

NOTE: Look at all the sensors positions on each of black keys and determine the side-to-side placement of the key sensor rail. The sensors must be under each key.

- Locate the "Sensor jig tool" in the kit.
- Place the sensor jig between the optical sensor of a sharp note.

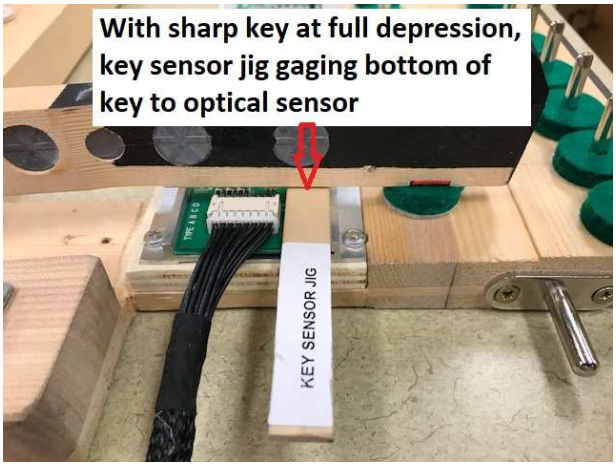
NOTE: The sensor jig is 4mm thick; the range between the low profile optical sensor and the key is 3-5mm.

- Depress the key and check for proper clearance between the bottom of the key and the optical sensor. (see Ill. 6)
- Use the 4 mm key sensor gauge provided as a spacer to set the clearance between the sensor and the bottom of the sharp key. The acceptable clearance is 3 – 5 mm (4 mm is ideal). Front punchings can be used as a final adjustment.

NOTE: Always use a sharp key to measure clearance as the key dip is closer on sharp notes.

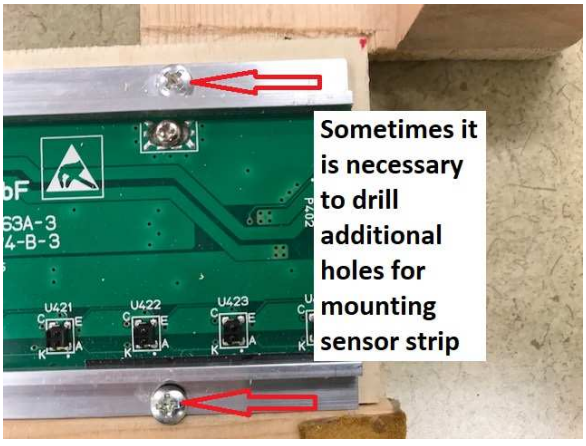
- Check the clearance at all mounting locations. (See Ill. 5)

Ill. 5 – Setting sensor strip height



Ill. 6 – Setting height with gage

- Secure the sensor strip to the keyframe with the screws provided. It may be necessary to drill some additional mounting holes in the sensor strip to line up to the keyframe slates. (See Ill.7)

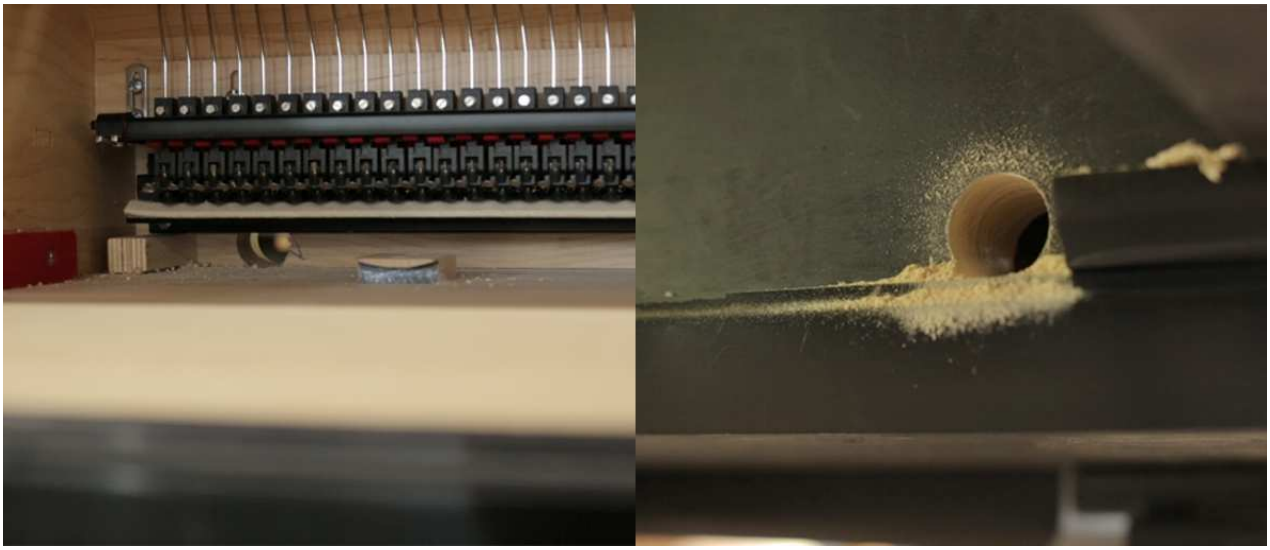


Ill. 7 – Additional holes drilled to secure strip

- Install the keys back on the keyframe checking the alignment of the reflective tape to the optical sensors. The sensors must be under the reflective tape.

5. **Drilling an access hole for the harness cable**

   - Drill an access hole for the harness cable thru the belly rail in the bass area. Place the 1" (25.4mm) hole close to the rim and be careful not to drill into a keybed mounting screw or alignment dowel. (see Ill. 8)
   - The main harness should be attached to the inside left rim at the bass area and route thru the hole drilled in ill. 8.
   - Route the pedal wire neatly to the pedal sensors and the control box harness plug to the control box. Tie cables up neatly.



Ill. 8 – Boring a access hole thru the belly rail

6. **Pedal Sensor Installation**

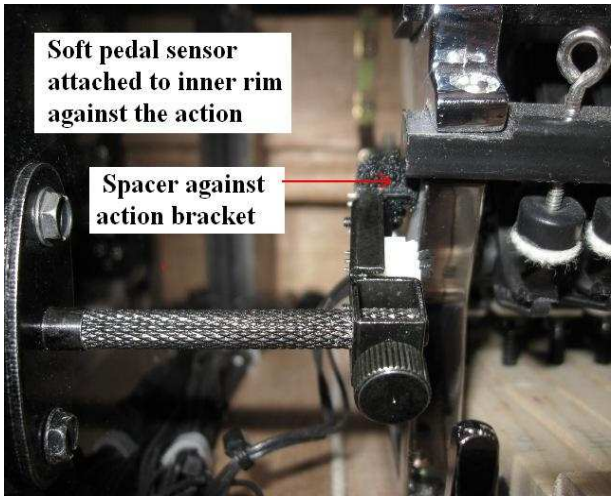
   The pedal sensors are optical also and sense all three pedals. (See Ill. 9, 10, 11 and 12)

   - Locate the pedal sensors in the kit.
   - Find the best location for the sensors on each pedal lever that is out of sight and best place for the least amount of damage.

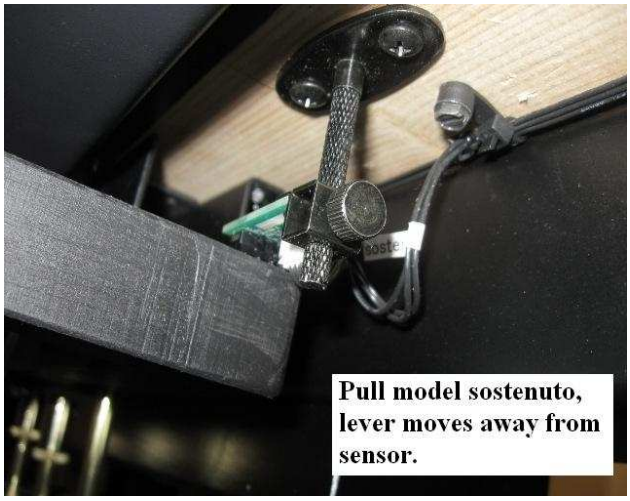
   NOTE: The soft pedal sensor should normally be placed at the lyre location but in some pianos it is not possible to access the shift lever because it is recessed into the keybed as in Petrof and Sauter pianos. In this case we suggest placing the sensor on the inside the piano mounting to the rim. (See Ill. 9)

   - Mount each sensor with 2 screws.
   - Place a piece of reflective tape under each sensor.
   - Adjust the sensor so the spacer tab just clears the lever.
   - Note that the pedal sensors need to be place so the lever **moves away** from the sensor.
   - Note that Ill. 9 shows a soft shift sensor that was mounted inside the action cavity. This was done because there was no room to mount on the underside of the keybed.

   NOTE: Each pedal sensor cable has a paper ID attached to the plug indicating which pedal sensor to connect to.

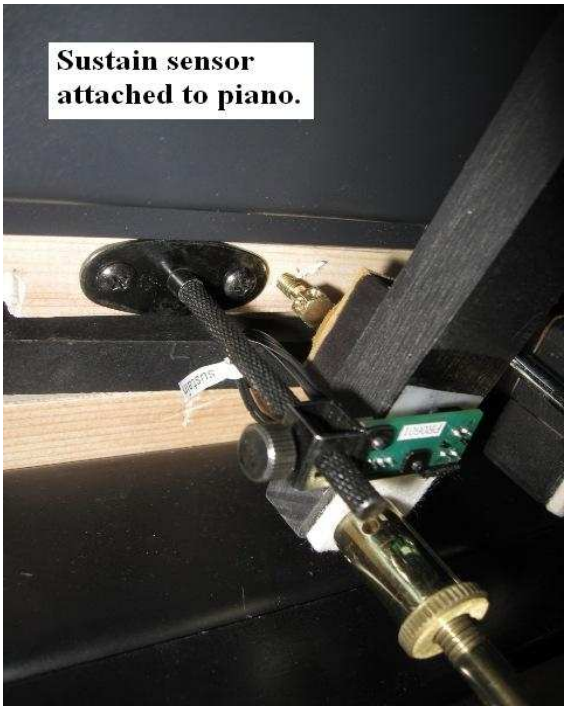


Ill. 9 – Soft shift sensor



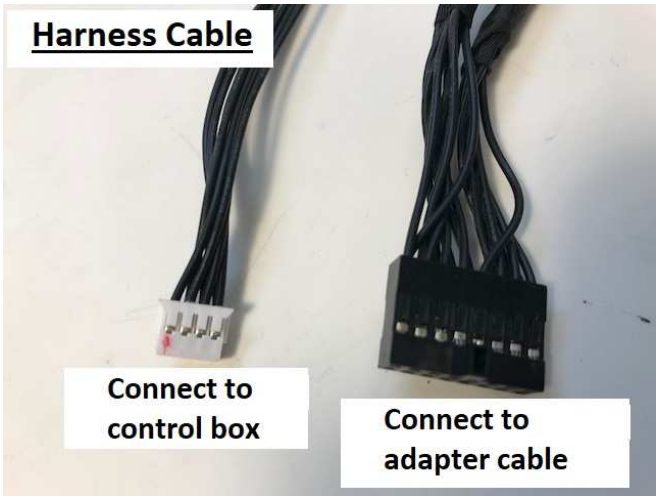
Ill. 10 – Sostenuto pedal sensor

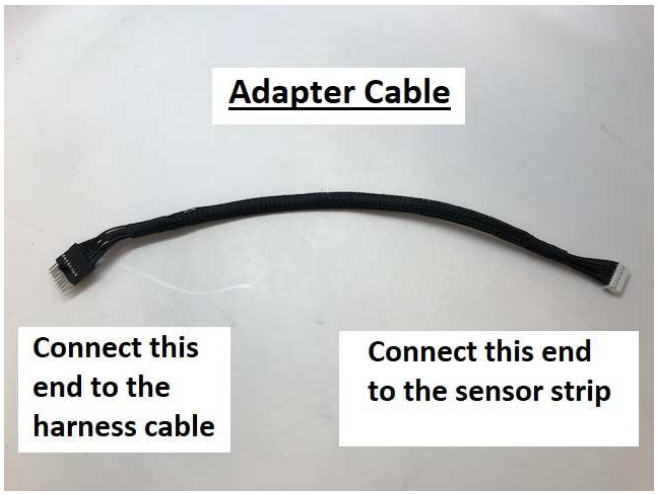
Ill. 11 – Soft Pedal Sensor
(Standard location)

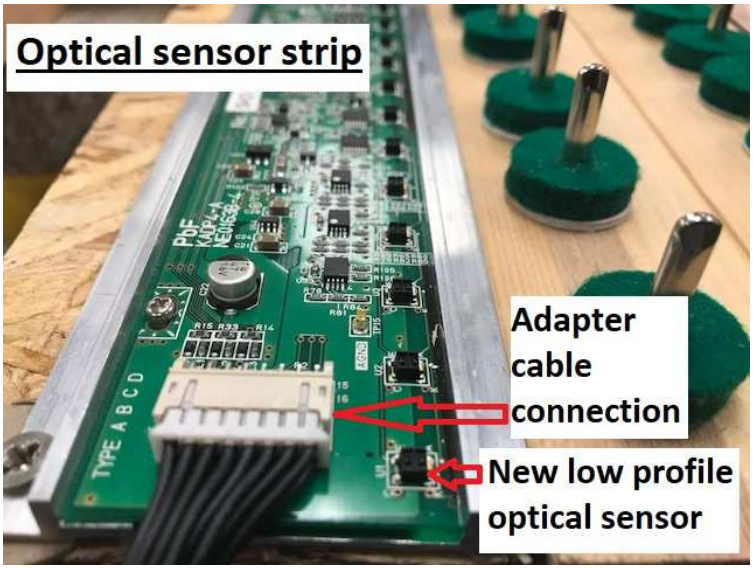


Ill. 12 - Sustain pedal sensor

7. **Cable ID and connections**







8. **Mounting the Control Unit**

NOTE: The control unit can be mounted on either side of the piano but the left side is recommended since the sensor strip connection is at the bass end.

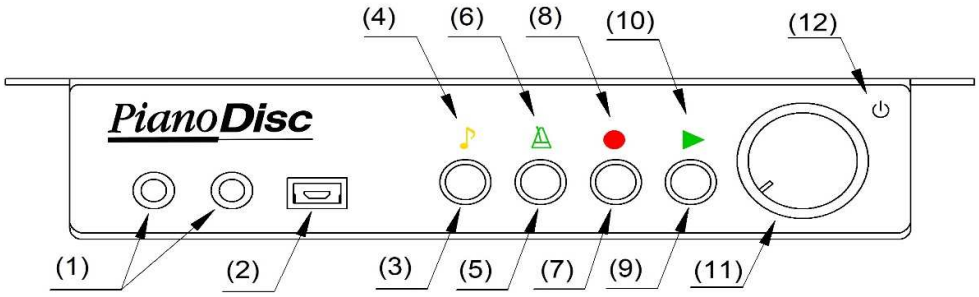
- Locate the control unit mounting screws in the kit assy. bag.
- Place the control unit at the selected location slightly recessed from the edge of the keybed.
- Mount the control unit to the keybed.

NOTE: The control unit now has a "tilt" feature that allows a better view of the display.

- If a PianoDisc player system is installed, use the RJ45 cable (part # 1700-20037) connected between the Record port of the PianoDisc Prodigy unit and to the EXT port of the ProRecord unit. The EXT port is located on the right side of the ProRecord/ProScan control unit (see right side drawing on the next page).
- If the PianoDisc system is an older iQ system, use an RJ45 to Record Adapter cable (part # 1700-30009) between the TFT record port of the CPU and the EXT port of the ProRecord unit.
- If a PianoDisc is NOT installed, use the 9VAC adapter on the back of the control unit (see rear drawing below).
- Secure all wires with the ties and clamps supplied in the assy. bag.

ProRecord control unit mounted to piano

ProRecord Control Unit Panel ID



Control Unit - front view

(1) Headphone Jacks – Connections for up to two stereo headphones.

Note: A headphone connected to the left jack mutes the line out jacks on the back of the control unit.

(2) USB Mini B Jack – Used for connection to a computer or other USB device.

(3) Tone Select Button – Selects the 8 main instruments as follows: Piano, Bright Piano, Mellow Piano, FM Electric Piano, Church Organ, Warm Organ, Percussive Organ

(4) Tone LED – Flashes when an instrument is selected. Flashes when a key or pedal is played. Flashes at the set tempo of the metronome when selected.

(5) Metronome – Controls metronome functions; Start/Stop, set-up.

(6) Metronome LED – Indicates that the Metronome is in use.

(7) Record Button – Controls Start/Stop of record function.

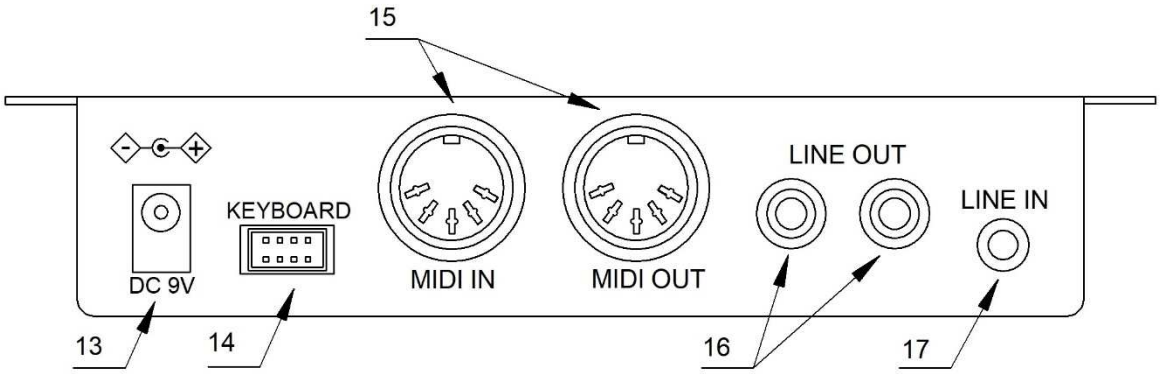
(8) Record LED – Indicates when system is recording.

(9) Play Button – Controls Start/Stop. of playback function.

(10) Playback LED – Indicates when system is in playback mode.

(11) Power/Volume control – Push to turn power on or off. Rotate to control volume of headphones and line out.

(12) Power Indicator LED – Indicates when power is turned on. Flashes when connected to a Bluetooth device. (iPad or iPhone)



Control Unit – Rear view

(13) DC9V – For DC power adapter

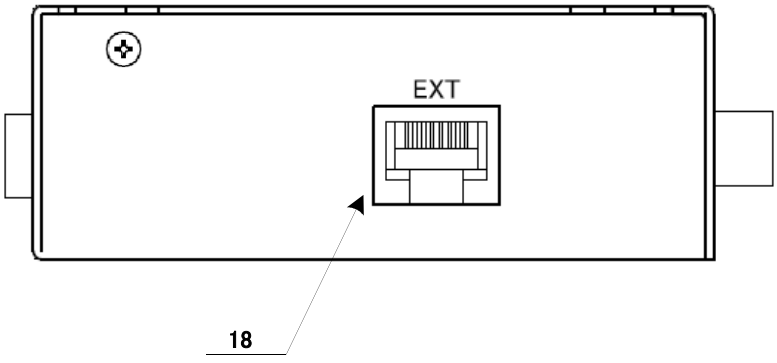
Caution: To avoid damage to the unit, use only power adapters of the proper voltage (9VDC out).
Note: If power is supplied from the EXT connector (on side panel), do not use a DC adapter.

(14) Keyboard – For connecting the key sensors to the control box

(15) MIDI IN / **MIDI OUT –** For connecting to an external MIDI device or computer.

(16) Line Out – RCA - For connecting to an external stereo system.

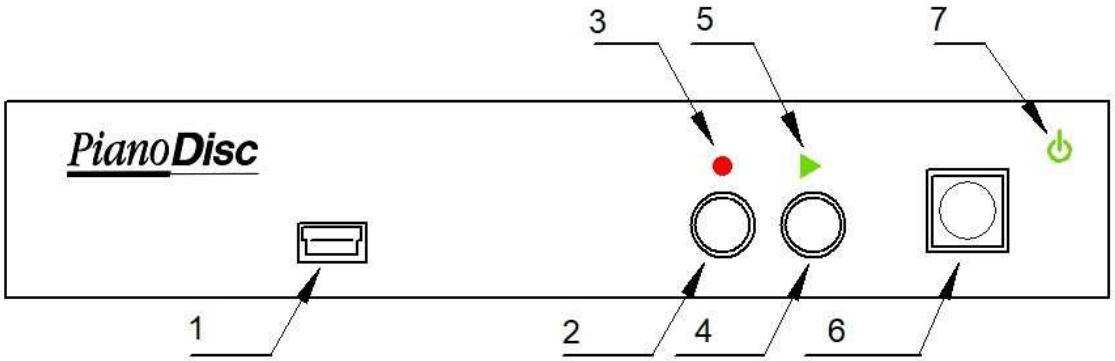
(17) Line In – For mixing sound produced by an external audio device.



Right side of control

(18) EXT – (Right side) For connecting to a PianoDisc player system for power and communication.

ProScan Control box panel ID



ProScan Front Panel

(1) - USB Mini B Jack – Used for connection to a computer or other USB device.

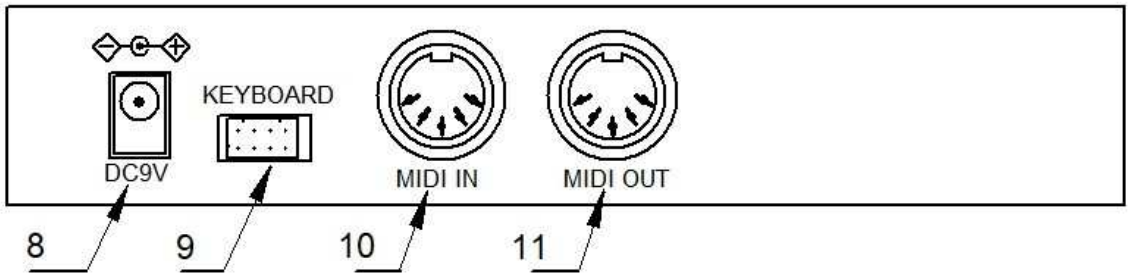
(2) - Record Button – Controls Start/Stop of record function.

(3) - Record LED – Indicates when system is recording.

(4) - Play Button – Controls Start/Stop. of playback function.

(5) - Playback LED – Indicates when system is in playback mode.

(6) - Power – Push to turn power on or off.



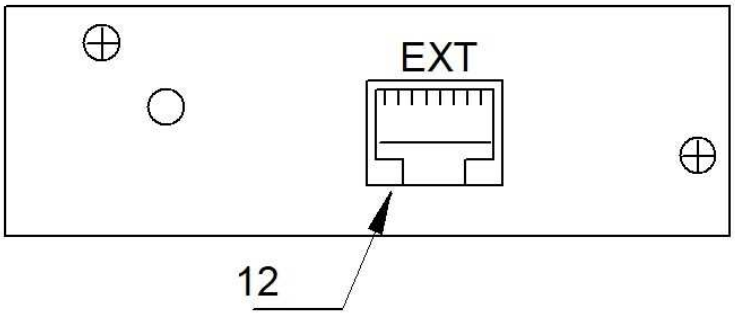
ProScan Rear Panel

(8) - For DC power adapter

(9) - Keyboard – For connecting the key sensors to the control box.

(10) - MIDI IN - For connecting to an external MIDI device or computer.

(11) - MIDI OUT – For connecting to an external MIDI device or computer.

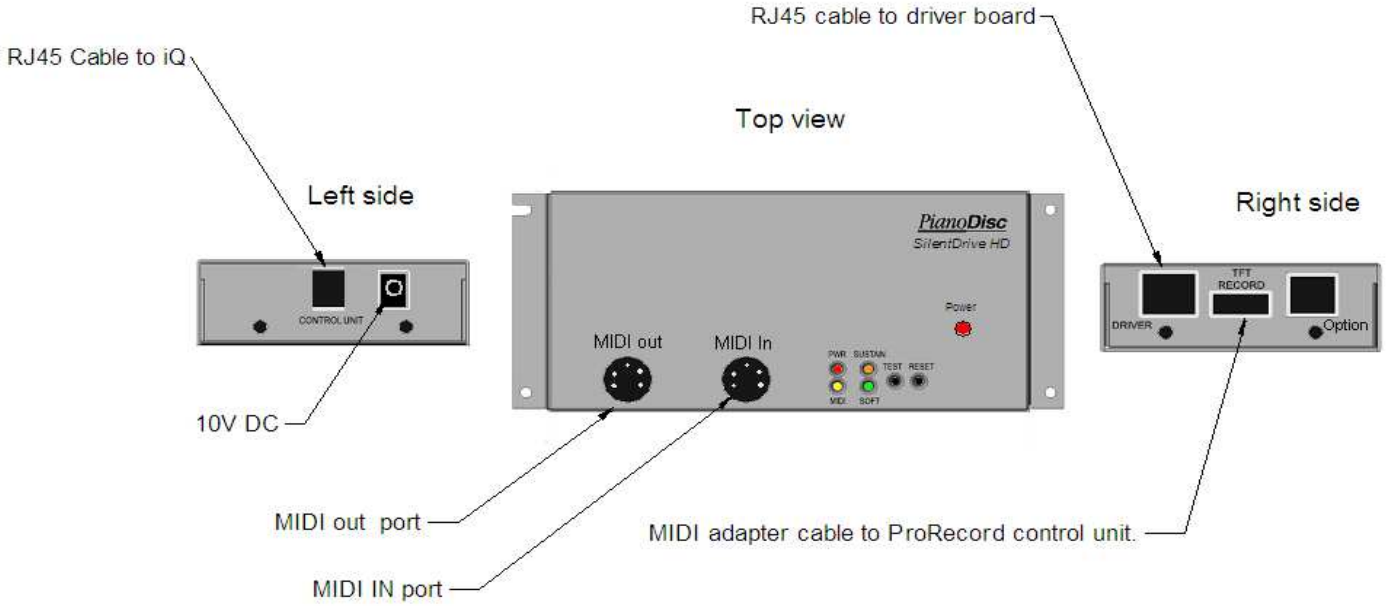


ProScan Right Panel

(12) - EXT – (Right side) For connecting to PianoDisc player system for power and communication.

PianoDisc iQ CPU unit – port ID

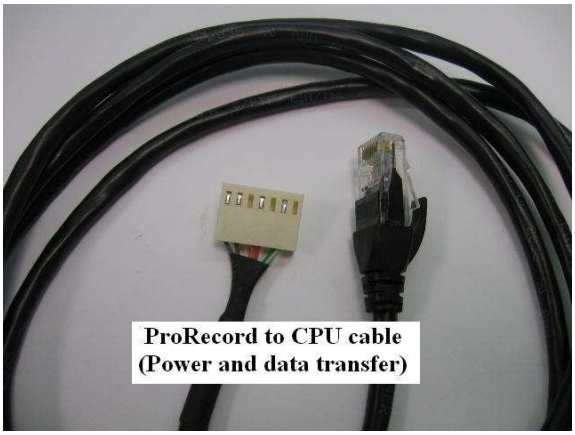
NOTE: This CPU was discontinued in July 2018 and replaced with the Prodigy CPU.



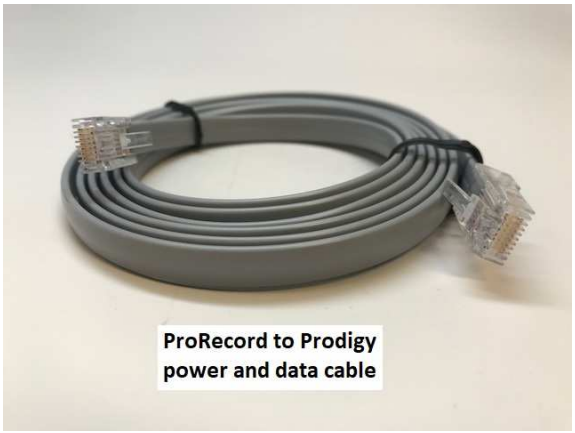
PianoDisc Prodigy unit

A. Analog Audio Input
B. Analog Audio Output (to speakers)
C. Record Output (for optional PianoDisc analog data recording)
D. iQ Status (green = good signal)
E. MIDI In
F. MIDI Out
G. Soft and Sustain Pedal Status
H. Test (push to play all keys and pedals)
I. Reset (push to reset CPU)

J. Power Indicator
K. DC 10V Power Input
L. Key Driver Port
M. Record (connect to ProRecord/ProScan)
N. Option (Unused)
O. USB MIDI (connect to computer or mobile device)
P. Audio Input Selector
Q. Bluetooth Antenna



For PianoDisc iQ
PN: 1700-30009



For PianoDisc Prodigy
PN: 1700-20037

9. **ProRecord - Initial Set-up**

NOTE: If the piano has only 2 pedals, disconnect the cable that is connected to the "Sostenuto" pedal sensors. Do this before powering up the control box.

- **Power On** - Turn the power on.
- A chime will be heard and the "PLAY" and "REC" lamps will flash alternately indicating that the system is in "Initial Setup Mode"
- Play each note of the keyboard with equal force, making sure each key goes to full depth. When each note is released, the note will sound slightly delayed indicating that each key was calibrated.
- Press each pedal with equal force and full depth. A chime will sound after each pedal is pressed indicating that the pedal was calibrated. The chime for each pedal will sound at a different pitch.
- Push the "PLAY" button. If the calibration of all keys and pedals was successful, a chime will be heard and the "PLAY" and "REC" lamps will stop flashing.

ProScan – Initial Set-up

The ProScan initial setup is the same as the ProRecord except you need to access a sound source to verify that the ProScan is functioning properly.

- There are many apps to access for a sound source but an easy one is "iGrand" and it can be downloaded from the Apple Store. It is a free app. and must be used on an iPad.
- Go to your settings and turn on the Bluetooth and select the ProRecord.
- Then go to the Apple Store again and download "iGrand".
- Once connected, you should be able to play the piano and hear the sounds thru the app.

10. **ProRecord App.**

The ProRecord App is a free app from the Apple store. It is a very useful app for setup and also for the end user as it has features like sample sounds, record/playback, sound effects. And other useful tools.

Notes:

- **It is very important to connect the Bluetooth thru the ProRecord App.**
- If the system is powered off before the "PLAY" button is pressed, the calibration procedure will not be completed and must be done again.
- Make sure to press one note at a time with consistent pressure during calibration.
- After finishing calibration, record all notes/pedals and play back to verify that all sensors work correctly.
- The ProScan control box does not have a sound generator, so no sounds will be heard when pressing the keys or pedals. Set up verification should be done using a MIDI device or computer. We suggest iGrand app or similar apps.

11. Sensor Re-calibration

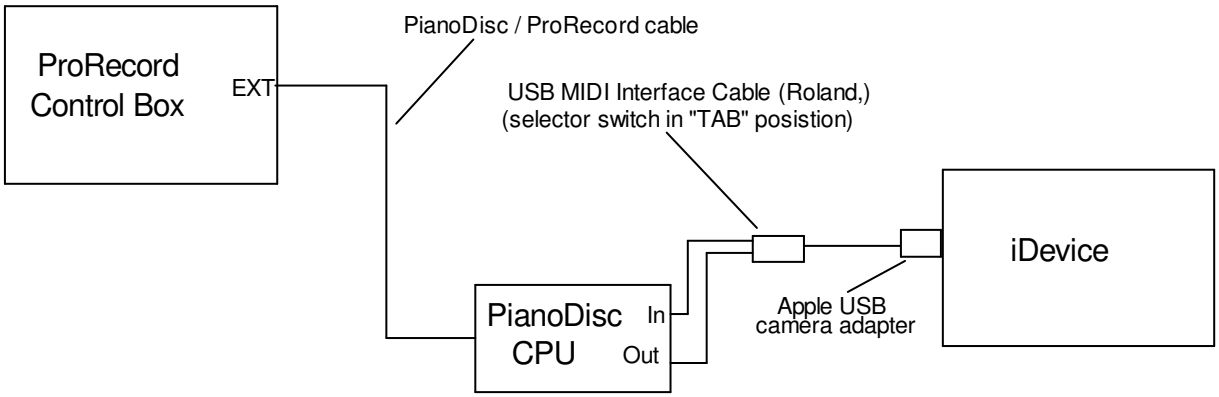
The sensitivity of the keyboard and pedal sensors can change with time and/or temperature. Periodic adjustments are required to keep your system operating at its optimum performance.

- To Re-Calibrate the system, press “PLAY” and “REC” while turning the power on.
- A chime will be heard and the “PLAY’ and “REC” lamps will flash alternately indicating that the system is in set-up mode.
- Press any keys or pedals that need to be re-calibrated. It may not be necessary to play every key and pedal., only those that need calibration.
- Press the “PLAY” button. If calibration was successful, a chime will be heard and the “PLAY” and “REC” lamps will stop flashing.

12. Devices to Record to – Wiring Diagrams

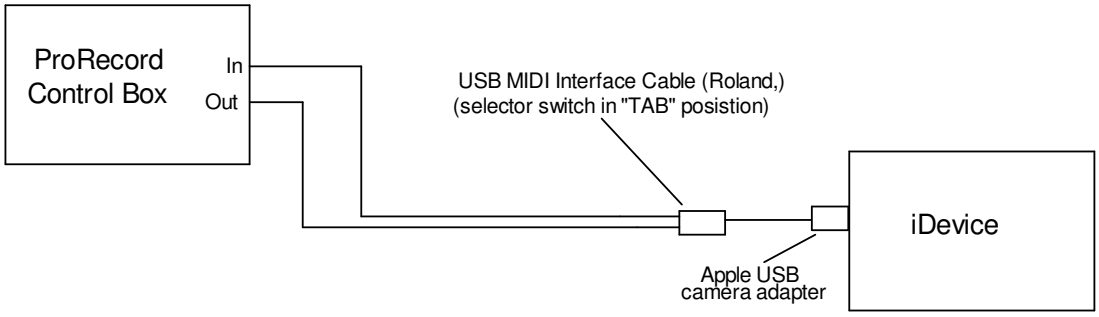
- The following diagram is using the Roland MIDI Interface device (UM-ONE)
- Use the following wiring diagram for iDevices with PianoDisc.
- A lightning adapter may be needed depending on the “i” device version.

iDevice wiring diagram with PianoDisc
(For record and playback)



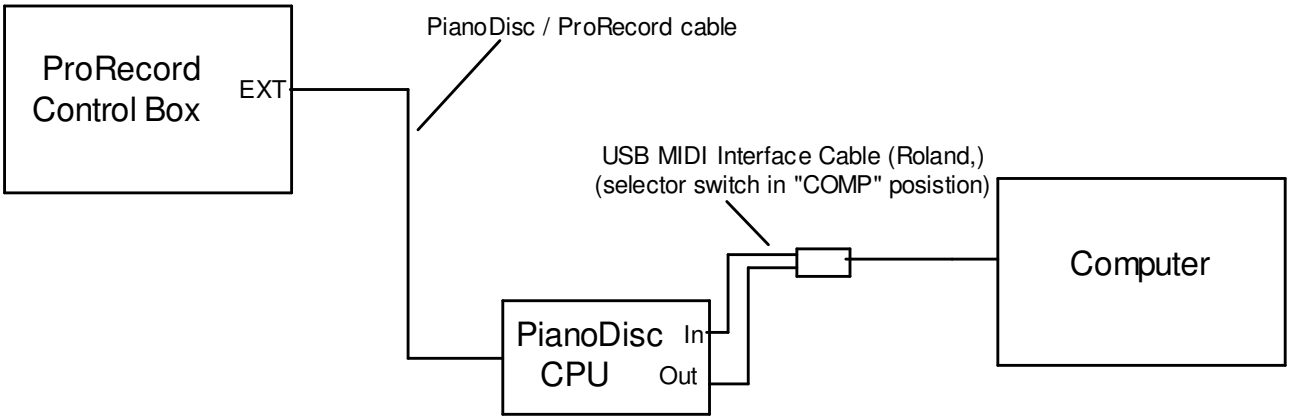
- Use the following wiring diagram for iDevices without PianoDisc.
- A lightning to 30 pin adapter may be needed depending on the “i” device version.

iDevice wiring diagram without PianoDisc
(For record and playback)



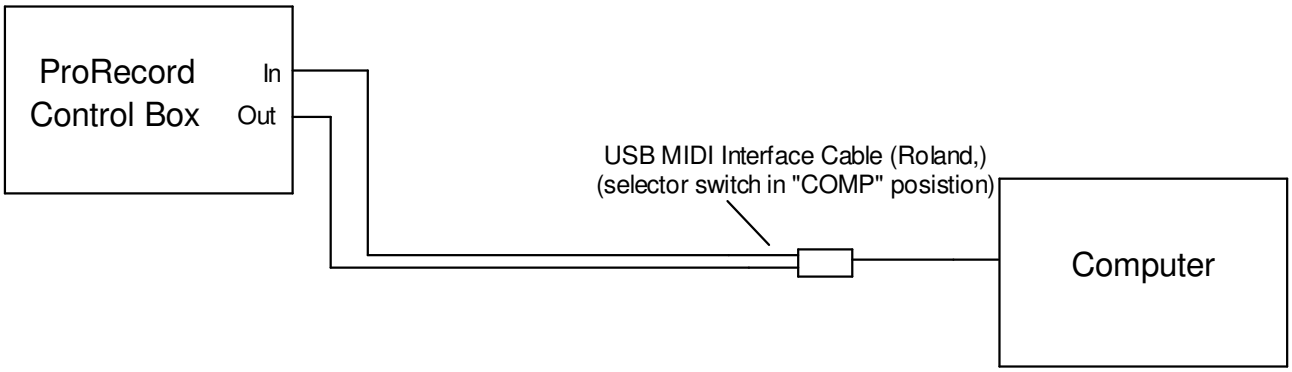
- Use the following wiring diagram for recording to a computer.

Computer wiring diagram with PianoDisc
(For record and playback)



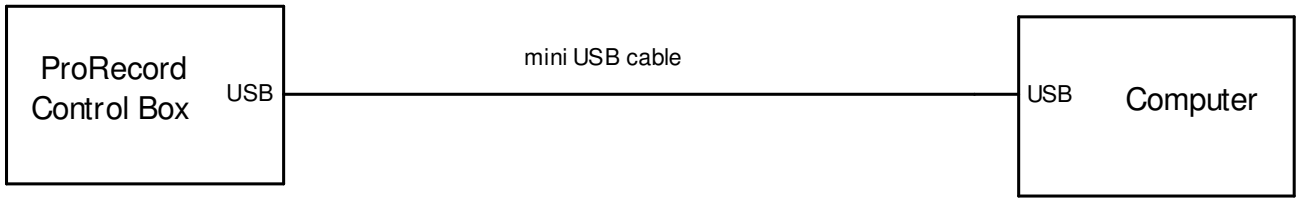
- Use the following wiring diagram to connect a Computer without PianoDisc

Computer wiring diagram without PianoDisc
(For record and playback)



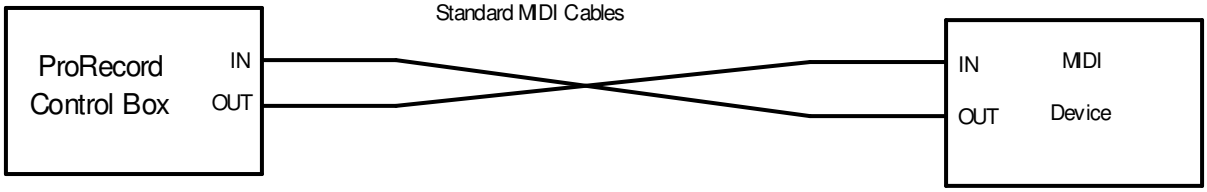
- Use the following diagram to connect to a computer for recording only.

Computer USB connection (record only)



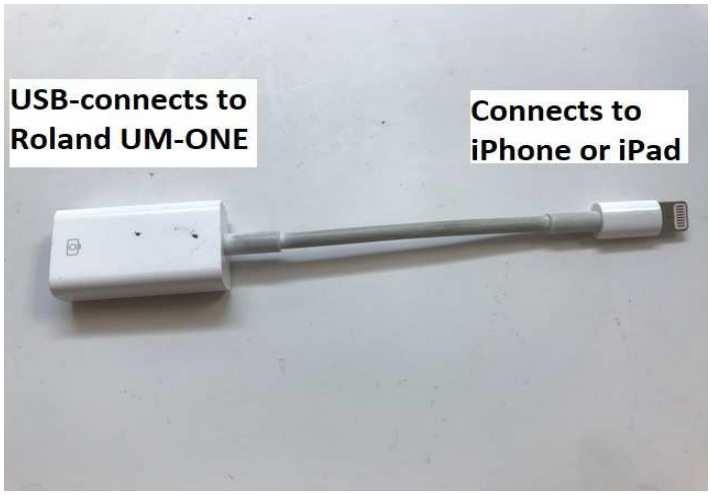
- Use the following connection to connect to a MIDI device (MIDI keyboard or sound generator)

Connecting to MIDI device



Cable Identification

Roland (UM-ONE) USB MIDI interface



Lightening Adapter

USB cable (comes with the system)

The ProRecord/ProScan has the wireless feature and it is not necessary to hardwire.
If you have an older system without the USB plug connection on the front panel then you do not have the wireless ability and it will be necessary to use a wired option. Normally the USB cable comes with the system and will be the primary cable used. In other applications it may be necessary to use the Roland cable and Lightening adapter below.

ProRecord and ProScan Trouble Shooting

Problem: No power to the complete system.

1. Check if power cord is plugged into the wall socket.
2. Check the plug connection to the back of the control unit.
3. Unplug the power cord from the control unit and check for 10 VDC.
4. Unplug the "keyboard" plug from the back of the control unit and power up the control box; this will eliminate any problems of shorting from other parts such as sensor strip, cables and adapter board.

Problem: The system will not complete the calibration.

1. Check all plug connections carefully.
2. During calibration, depress each key completely before depressing the next key. If keys overlap it will not calibrate.
3. Make sure the pedal sensors are installed correctly. The pedal lever must move away from the sensor. (See pedal installation procedure)
4. Make sure all key notes are audible thru the headphones and a chime from each pedal. This tells you that each note or pedal is sending data.
5. Check the height and alignment of the key sensor strip to the keys at each mounting location and the pedal levers to the pedal bracket.
6. Make sure only one output is plugged into the control unit. There are three "out ports" on the control unit, the "EXT" (on the side of control unit), the 5-pin out port and the "mini USB" on the front of the control unit**.**
   NOTE: If there is more then one port used then it will not finish calibration.

Problem: One or more notes will not calibrate or play incorrectly.

1. Perform the individual note calibrate of the notes in question.
2. Check the alignment of the sensor strip to the keys.
3. Check the reflective tape for proper placement.
4. Check the key height of the key or keys in question.
5. Check the key clearance (with gauge) at full dip.

NOTE: It is important to check the key clearance at each sensor strip mounting locations.

6. Replace the sensor strip section; see next section, "Sensor strip repair".

Problem: ProRecord plays or records too loud.

1. With the mute rail in the "on" position, check that the hammer shank does not block the mute rail. This will cause uncontrolled volume.
2. Check which expression table the system is set on, table #4 is default for the iQ player system.

Problem: ProRecord or ProScan will not play the iQ player system.

1. Make sure the iQ player system is powered up.
2. While playing a recording on the ProRecord/ProScan see if the MIDI light is flashing on the CPU.
3. Check the plug connections and try another data cable from the ProRecord unit to the CPU.

If there is no MIDI light flashing at the CPU then the RJ-45 output is defective and an RMA will be needed to return the ProRecord/ProScan control unit for repair.

4. Check the HD CPU update; it must be 13.6 or higher. If the CPU update is below 13.6 the unit must be returned to PianoDisc for a hardware and software update. Ask Tech Support for an RMA.
   *How to check the CPU update. Press the "test" button on the CPU and note the lights flashing. The "MIDI" light should blink 5 times, (represents "15") and the "sustain" light should blink 1 time (represents "1") to indicate version "15.1". The software can be loaded by an iPhone/iPad to the CPU thru the PD Calibration App wirelessly.

Problem: Getting a double strike when playing with sustain pedal depressed.

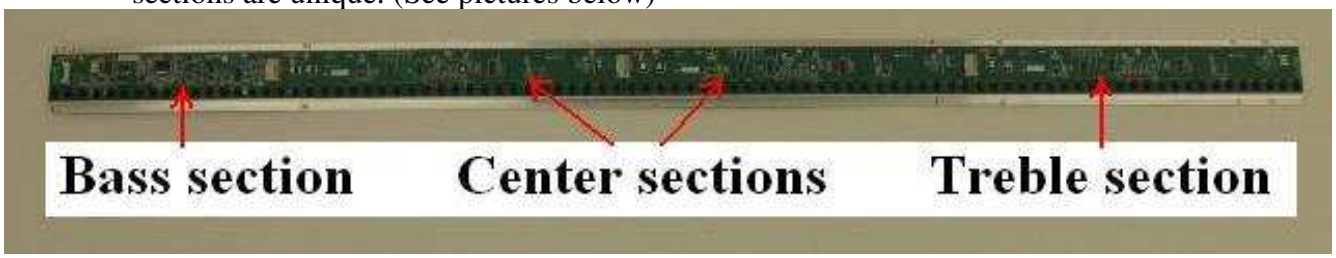
1. Check the sensor strip height.
2. Check for proper action regulation. The action regulation is very important for the correct. reproduction.
3. Try lowering the "Key on" trigger point. Normally it is on "Default" and you can try lower to 1 or 2 for a lower trigger point to see if this will help.

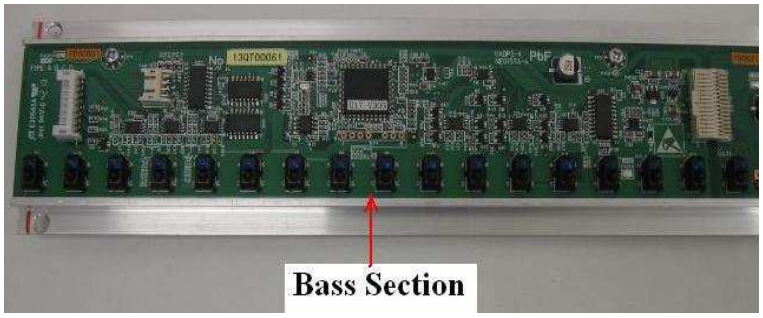
NOTE: I have found that keys with excessive lead in the front of keys may make a double bounce when the key returns without the damper weight helping the key return.

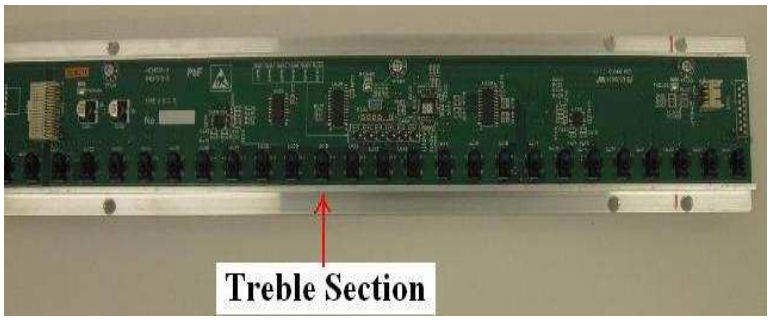
ProRecord and ProScan Sensor Strip Repair

The ProRecord and ProScan sensor strips can be repaired/replaced in the field, in most cases.

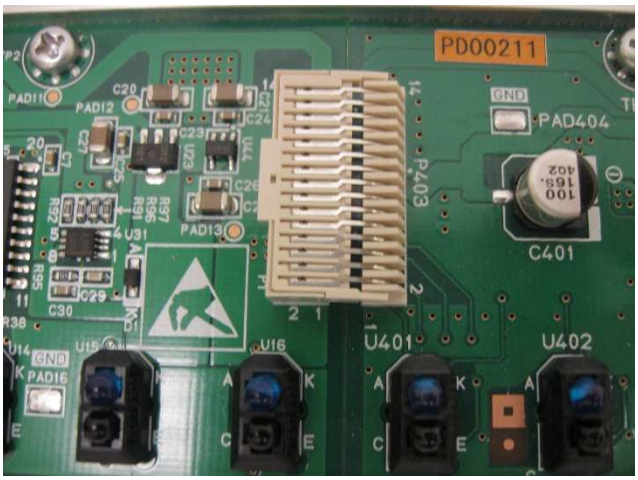
1. Damaged section
   A. A damaged section can be easily replaced by the technician instead of shipping back the complete strip. This will minimize the potential damage caused by shipping the complete strip.
   B. There are 4 sections to a sensor strip. The two center sections are identical but the two end sections are unique. (See pictures below)







C. Each section is secured with two screws. There is a plug connection that connects each board to the next. See the pictures below how the plug connection folds over to connect the neighboring board.



Record sensor connection (connected)

Record sensor connection (disconnected)