

# *ProRecord and ProScan Installation Procedure for Vertical Pianos*

With Troubleshooting Guide

Revision 06-2019

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

## **Features of the ProRecord and ProScan control box**

- Bluetooth ready
- USB port on the front panel of control box
- Low profile optical key sensors
- Re-designed harness cable
- Control box has a tilt feature for better visibility.

## **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:**

### **1. Disassemble the piano**

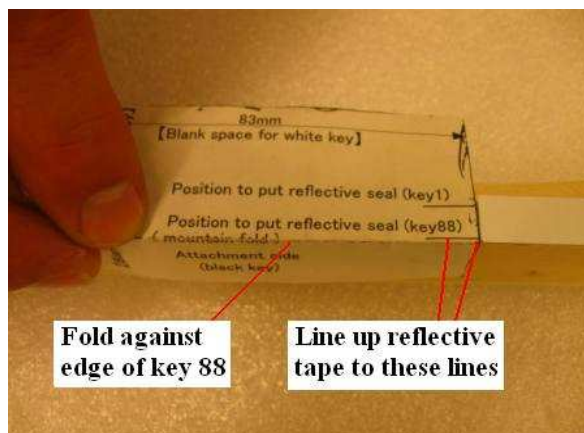
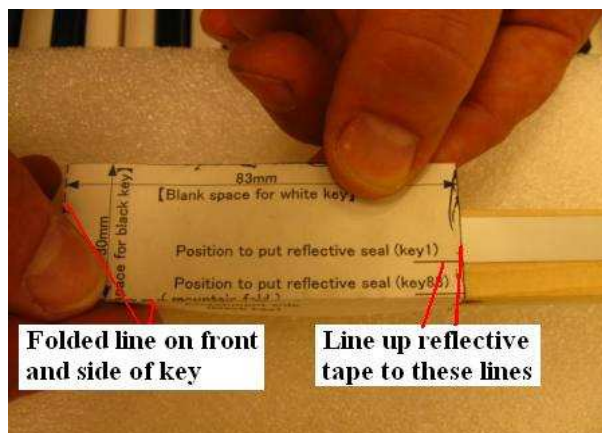
- Remove the cabinet parts from the piano.
- Remove the action and keys from the piano.
- Place the keys upside down on a bench supported by two long pieces of wood to level the bottom of the keys.

### **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 according to the paper jig instructions. 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)

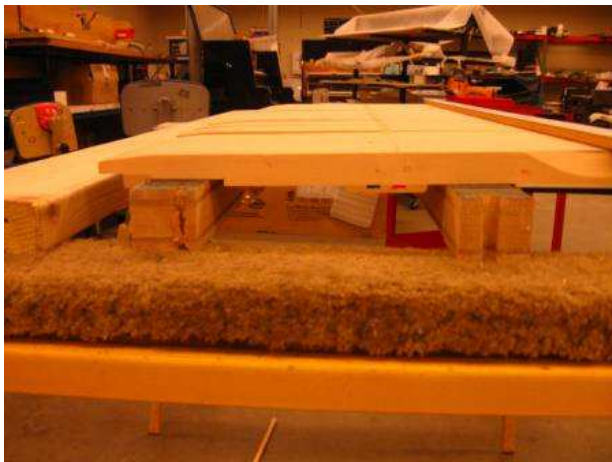


## Illustration 1 – Locating reflective tape on keys 1 and 88

### 3. Marking all keys for reflective tape position

**NOTE: Pictures below are of a grand but the installation of the sensor tape is the same on vertical pianos.**

- Place the keys upside down on two pieces of wood to level out keys. (See Ill. 2)
- Place a straight edge across the end of all keys to simulate how they 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

### 3. Install the sensor strip on the keyframe

- Locate the sensor strip hardware mounting bag in the kit.

**NOTE: On most vertical pianos, spacers and springs will be used because there is plenty of clearance beneath the keys. With the springs, it makes adjusting height very easy.**

- Place the sensor strip on the keyframe as close to the front rail without touching.
- Place keys # 2 and 86 on the keyframe (1<sup>st</sup> & last black key).

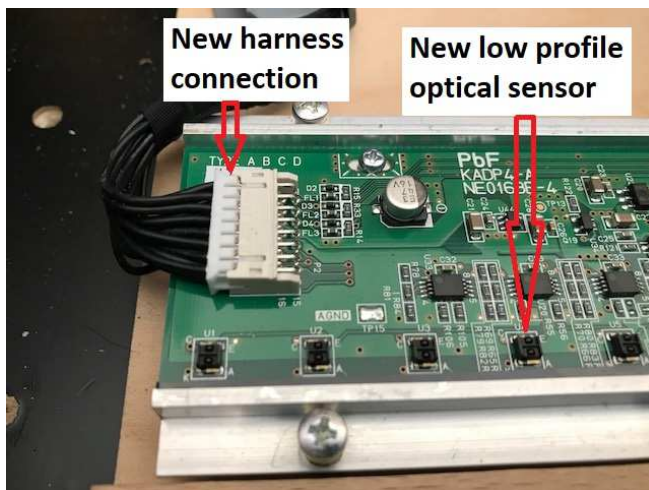
**NOTE: The black keys are used clearance because they travel deeper than a white key.**

- Move the sensor strip side to side finding the best location for sensor to key alignment.
- Draw a line at each end of the sensor strip on the key frame to index the side to side position.
- With a pencil, place a mark at each mounting location thru the screw holes.
- Remove the sensor strip.
- At each mounting location, drill a ¼” (6.32mm) clearance hole for the springs to recess into the key frame. (See Ill. 6)

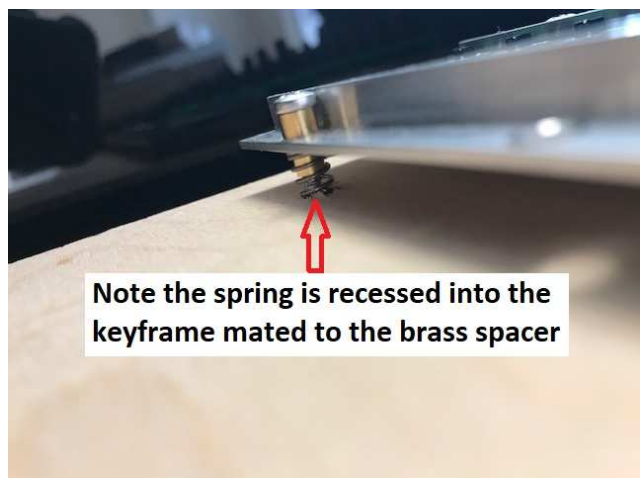
**NOTE: Only drill thru the keyframe and NOT into the keybed.**

- Place the brass spacers into mounting holes of the sensor strip (from the top) and place the spring onto each spacer (from the bottom). (See Ill. 6)

**NOTE: Place the springs on the spacers with a clockwise rotation.**

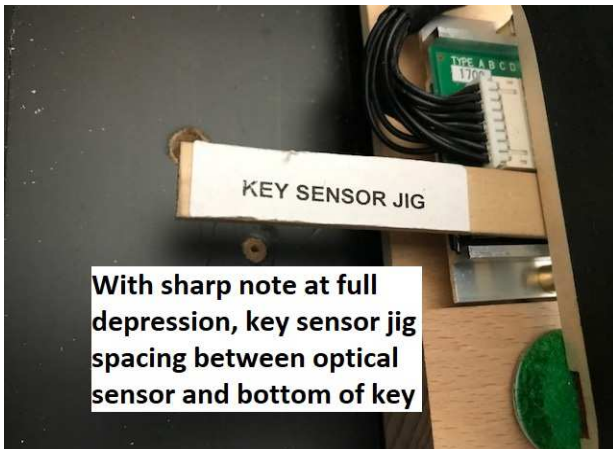


Ill. 5 – new harness and low profile sensors

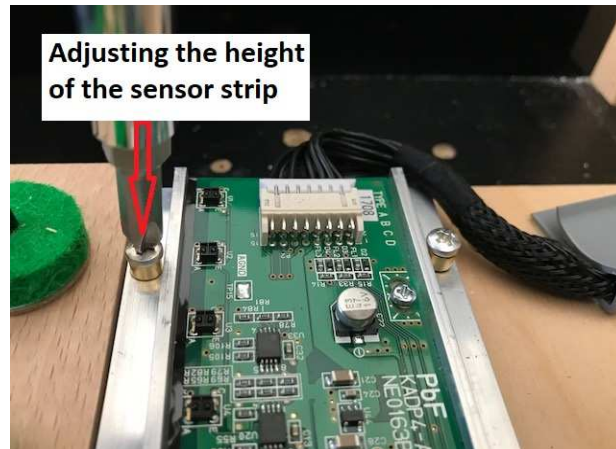


Ill. 6 – Screw mounting assy.

The above picture illustration is a Mason & Hamlin Model 50 with a plywood panel connecting the front rail to the balance rail.



Ill. 7 – Checking sensor strip height



Ill. 8 – Setting sensor strip height

#### 4. Mounting the sensor strip

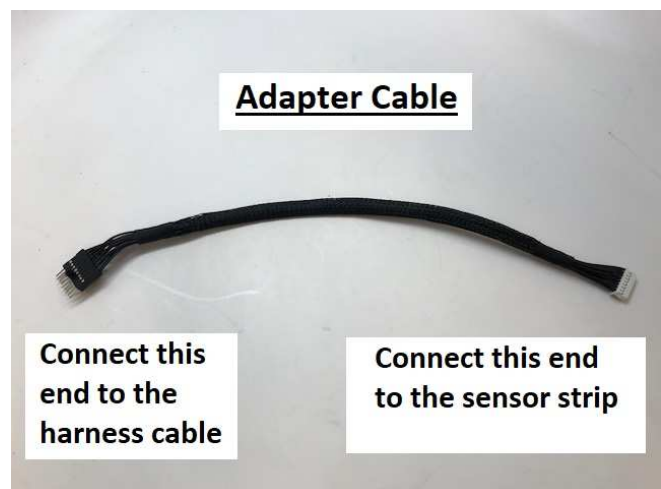
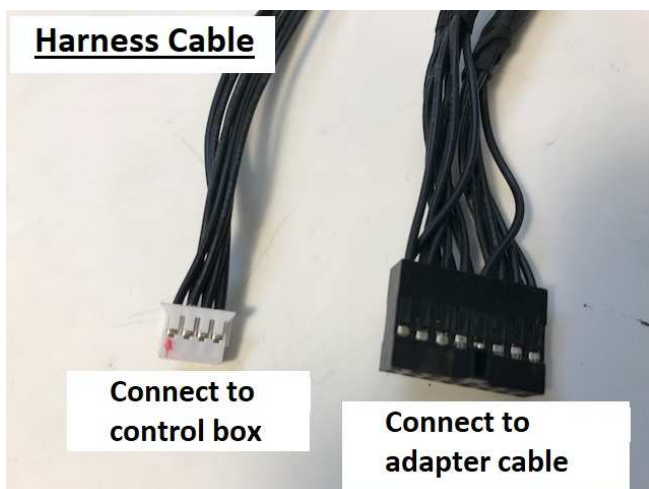
- Place the sensor strip on the keyframe and install the mounting screws.
- Place a black keys on the keyframe at each of the mounting locations and adjust the height with the sensor jig provide in the kit. (See Ill. 7 & 8). The acceptable clearance between the optical sensor and the bottom of the key is 3 – 5 mm (4 mm is ideal).
- Place the 4 mm gage over the sensor and depress the sharp key. Adjust the rail so the gage can slide out freely, do this at all mounting locations.

**NOTE: Adjust both front and back screws the same amount to keep sensor strip level.**

- Install all keys checking the alignment of the reflective tape to the optical sensors.

**NOTE: Plug in the adapter cable into the sensor strip before installing keys 1 & 2.**

#### Cable Connections





## 5. Pedal Sensor Installation

The pedal sensors are optical also and sense all three pedals. (See Ill. 7, 8, and 9)

- Locate the 3 pedal sensors in the kit.
- Find the best location for the sensors on each pedal. A minimum of ¼" (6mm) of travel is needed. (See Ill. 9)
- Mount each sensor post with 2 screws.
- Place a piece of reflective tape under each sensor.
- Adjust the sensor so the spacer tab is about .040" (1mm) touch the lever.

**NOTE: The pedal sensors need to be placed so the lever moves away from the sensor. The sensor can be placed below the pedal lever just as long as the lever moves away from sensor.**

- Plug in the correct cable to each sensor; each sensor is labeled.
- Tie up and route the pedal cables to the key sensor strip.

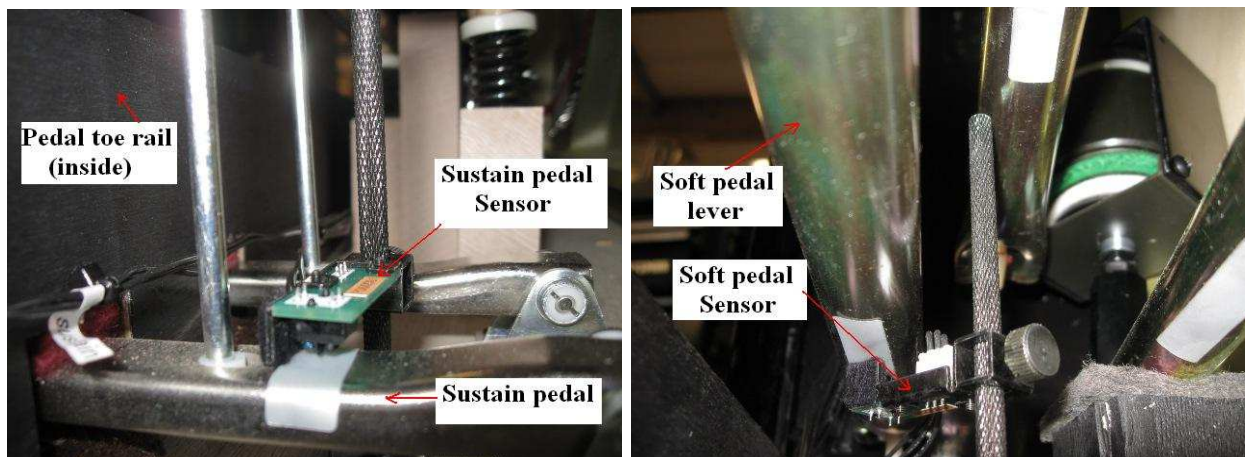


Illustration 9 – Sustain and soft pedal sensor

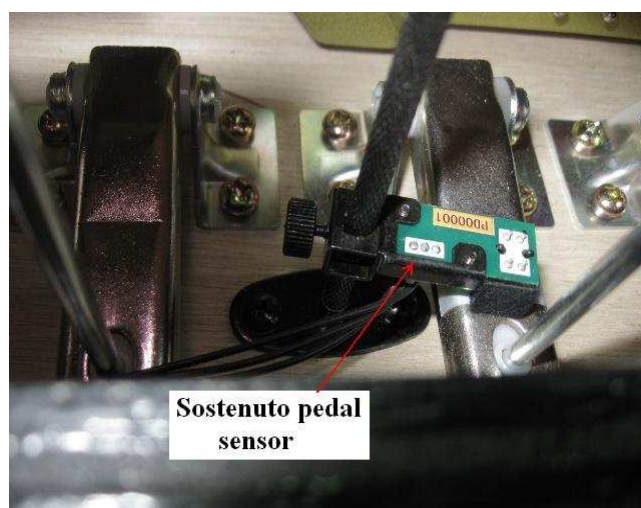


Illustration 10 – Sostenuto sensor (if equipped)

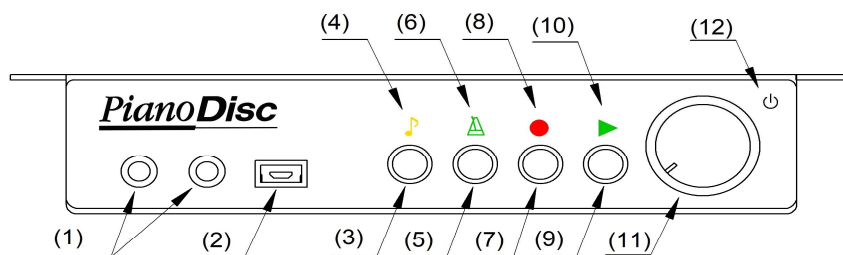
## 6. Mounting the Control Unit

**NOTE: The control unit can be mounted on either side of the piano but the left side is recommended since it is closer to the connector on the key sensor strip.**

- 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 front 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 the EXT port of the ProRecord unit. The EXT port is located on the right side of the ProRecord 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.



Front of the Control Unit

**(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.

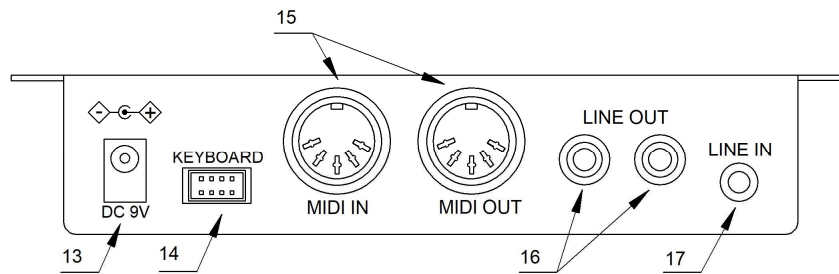
**(8) Record LED** – Indicates when system is recording.

**(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)



Rear of the Control Unit

**(13) DC9V** – For DC power adapter

**Caution:** To avoid damage to the unit, use only power adapters of the proper voltage (9VDC out).

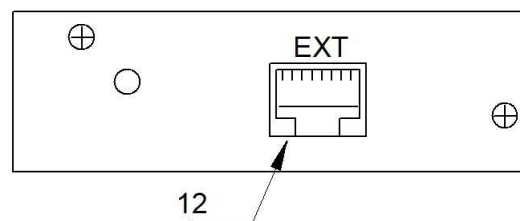
**Note:** If power is supplied from the EXT connector (on side panel), do not use a DC adapter.

**(14) Keyboard** – For connecting the key sensors to the control unit.

**(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.

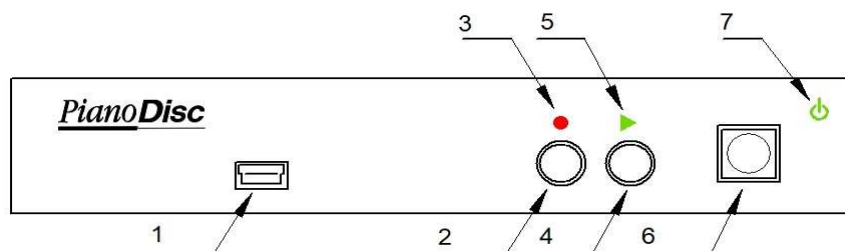
**(17) Line In** – For mixing sound produced by an external audio device.



Right Side of Control Unit

- Ext. port - For connecting to iQ player system for power and communication. ProRecord and ProScan are the same.

## 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.

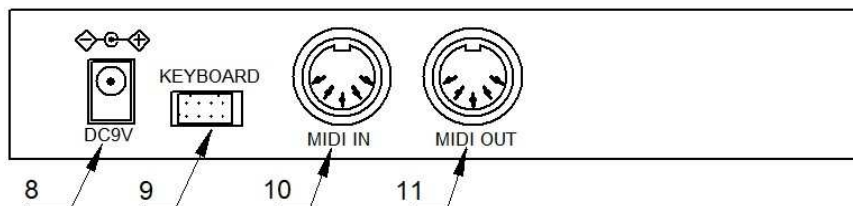
**(3) - Record LED** – Indicates when system is recording.

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

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

**(6) - Power/Volume control** – Push to turn on power.

**(7) – Power Light**



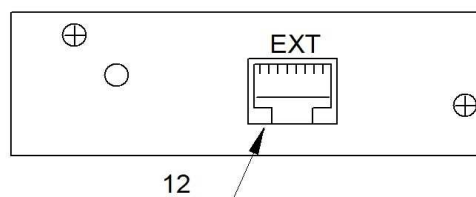
ProScan Rear Panel

**(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.



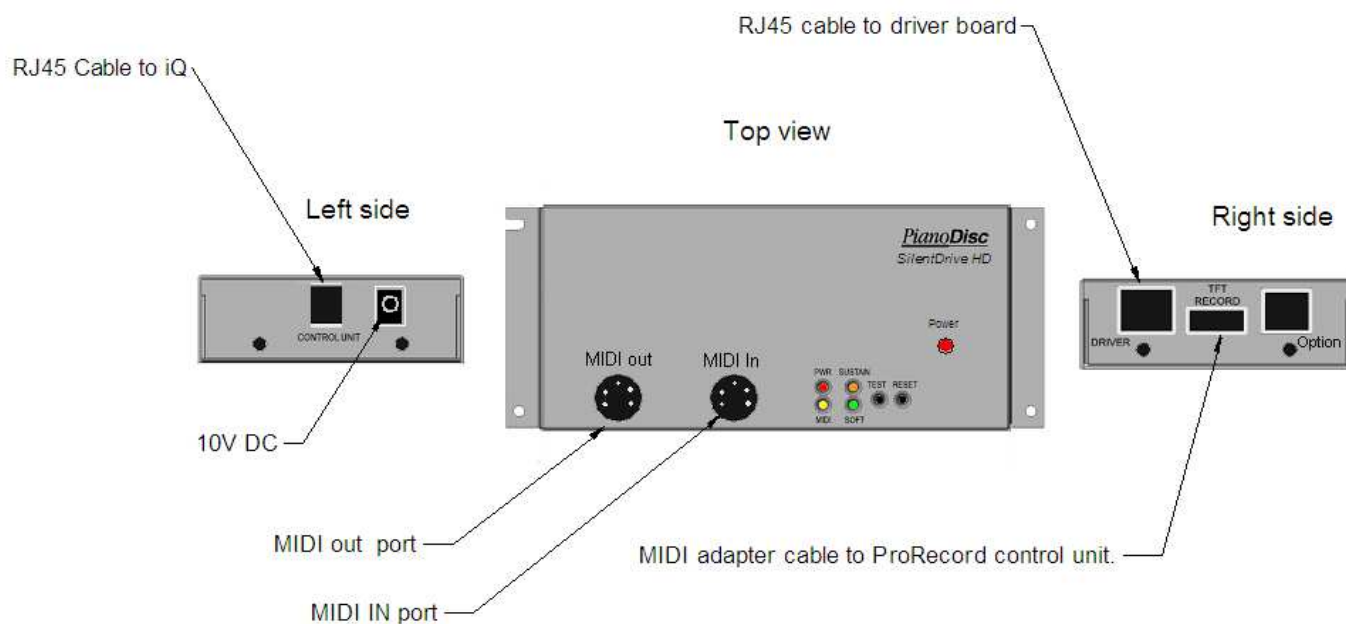
ProScan Right Panel

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



## PianoDisc iQ CPU unit

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



## PianoDisc Prodigy

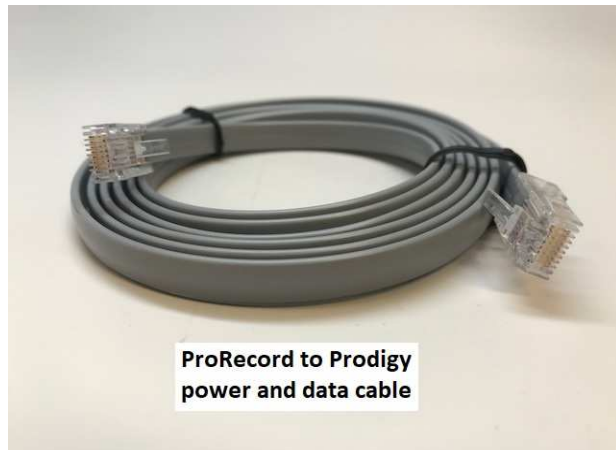


- A. Analog Audio Input
- B. Analog Audio Output (to speakers)
- C. Record Output (for optional PianoDisc analog data recording)
- D. iQ Status (green = good signal)
- E. MIDI In
- F. MIDI Out
- G. Soft and Sustain Pedal Status
- H. Test (push to play all keys and pedals)
- I. Reset (push to reset CPU)

- 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



Part # 1700-30009



Part # 1700-20037

PianoDisc / ProRecord Cable – These cables will connect the ProRecord/ProScan to the iQ CPU

**NOTE:** The cable on the left is for older CPU connection and cable on the right is for Prodigy.



### 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.

## 7. 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.

#### **Notes:**

- If the system is powered off before the “PLAY” button is pressed, the calibration procedure will not be completed and must be done again.
- It may be helpful to pause a moment between each note to ensure that the note calibrates properly.
- If any key or pedal did not calibrate properly, setup cannot be completed until the keys and/or pedals have been calibrated. The system will play the MIDI note of the keys or pedals that need to be calibrated. Play the keys or pedals again and then push “PLAY”. If the problem is with one of the pedals not calibrating, the sensor may be too close to the pedal lever. Try moving the sensor further away from the pedal lever.

#### **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.**

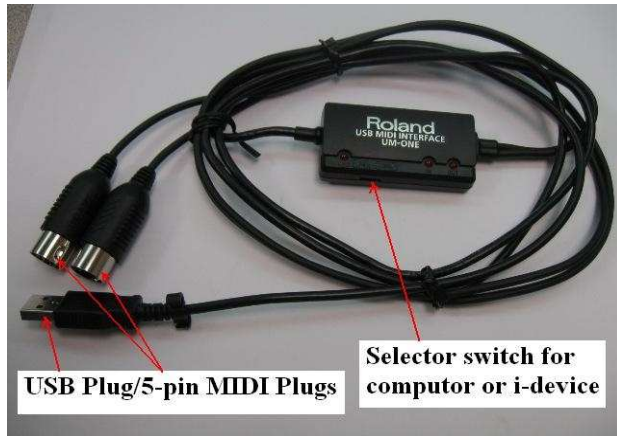
- There are many apps to access for a sound source but an easy one is “iGrand”. It can be downloaded from the Apple Store. It is a free app. and must be used on an iPad.
- Go to your settings and turn on the Bluetooth and select the ProRecord.
- Once you have finished the calibration, access the iGrand app. and verify that all notes and pedals are functioning properly.
- Connect the iPad with a USB cable and then you can record to the iGrand app and play back on the iPad confirming that the ProScan is functioning properly, the iGrand app will not transmit MIDI back to play the piano.

#### **8. Sensor Re-calibration**

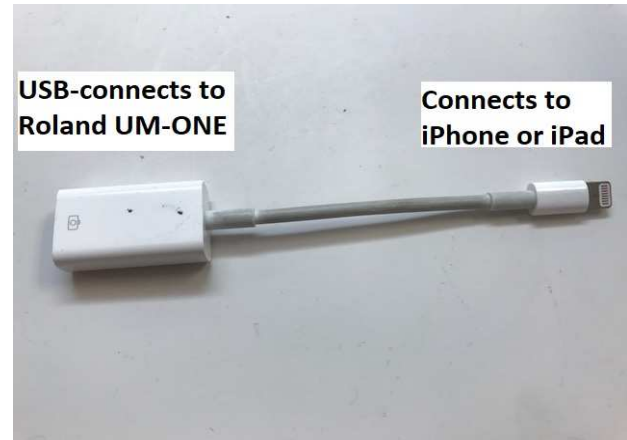
The sensitivity of the keyboard and pedal sensors can change with time and/or temperature. Periodic adjustments are required to keep your system operating at its optimum performance.

- 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 the calibration 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.

NOTE: The ProRecord/ProScan now 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 system and will be the primary cable used. In other applications it may be necessary to use the Roland cable and Lightening adapter below.



Roland USB MIDI interface cable



Lightening Adapter



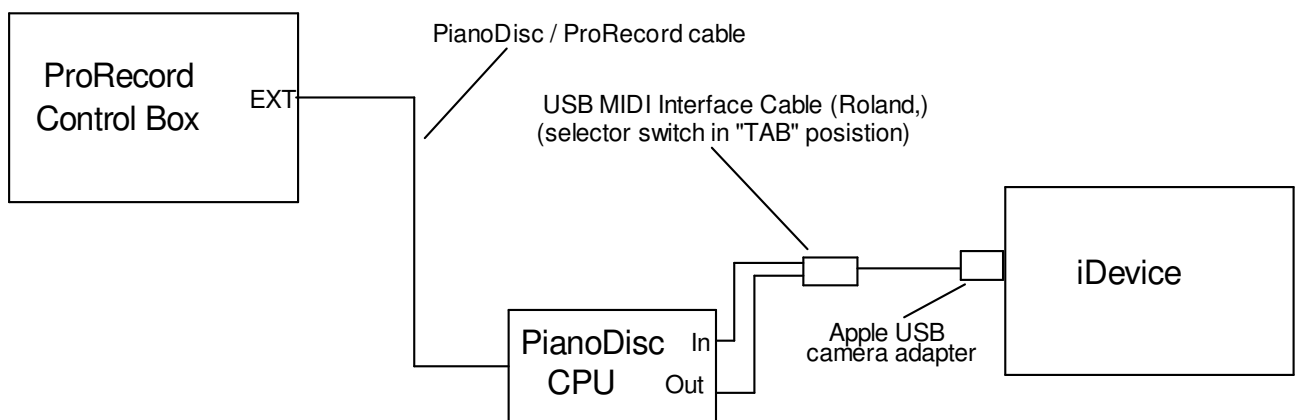
USB Cable



## 9. Devices to Record to – Wiring Diagrams

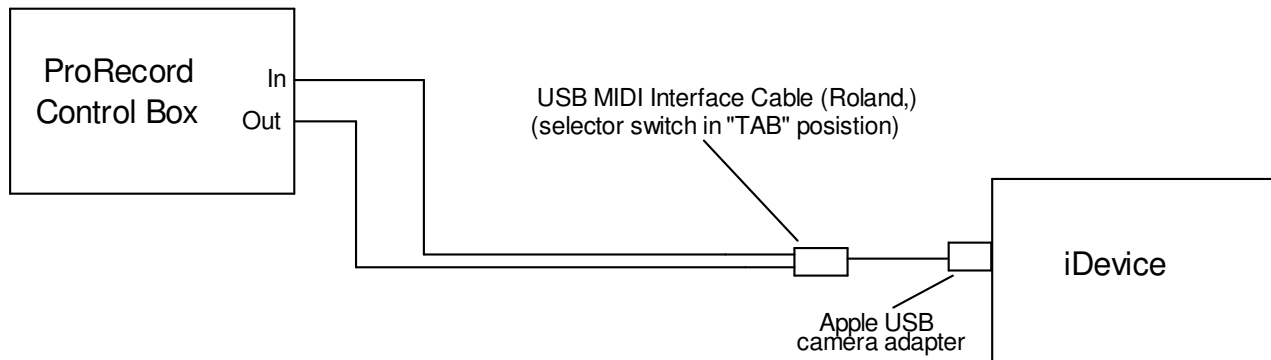
- Use the following wiring diagram for iDevices with PianoDisc.
- A lightning adapter may be needed depending on the “i” device version.

### iDevice wiring diagram with PianoDisc (For record and playback)

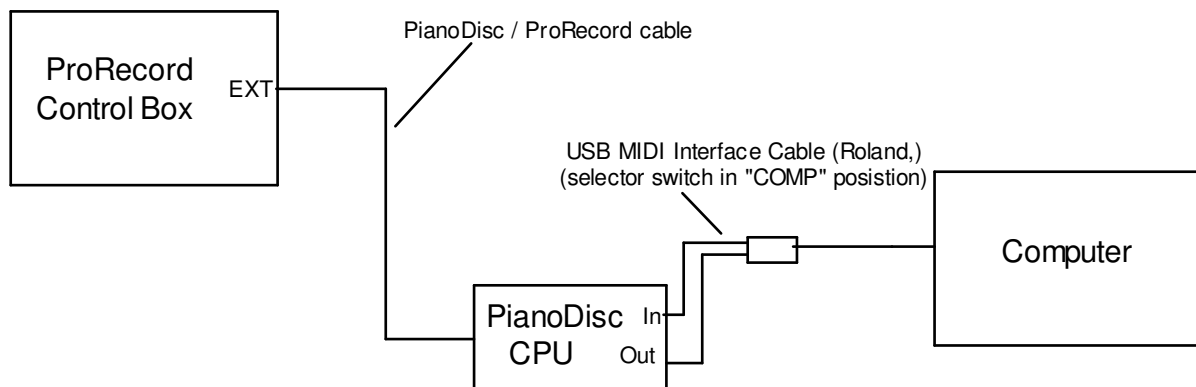


- Use the following wiring diagram for iDevices without PianoDisc.
- A lightning adapter may be needed depending on the “i” device version.
- Use the following wiring diagram for recording to a computer.

## iDevice wiring diagram without PianoDisc (For record and playback)

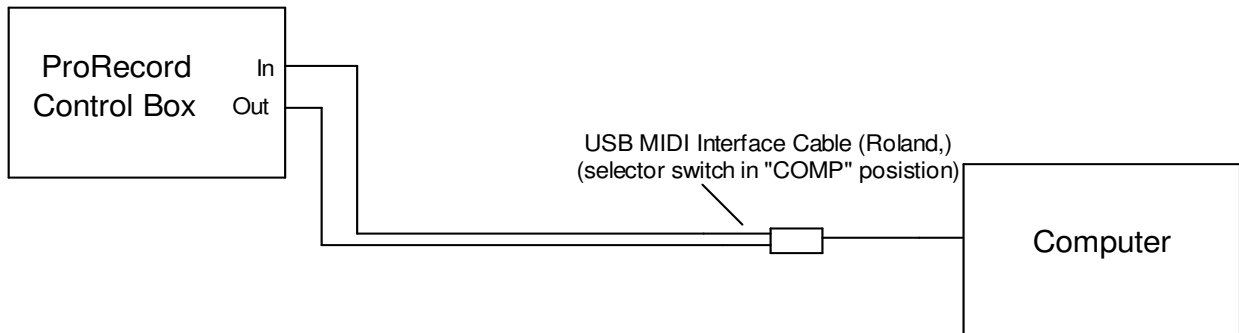


## Computer wiring diagram with PianoDisc (For record and playback)



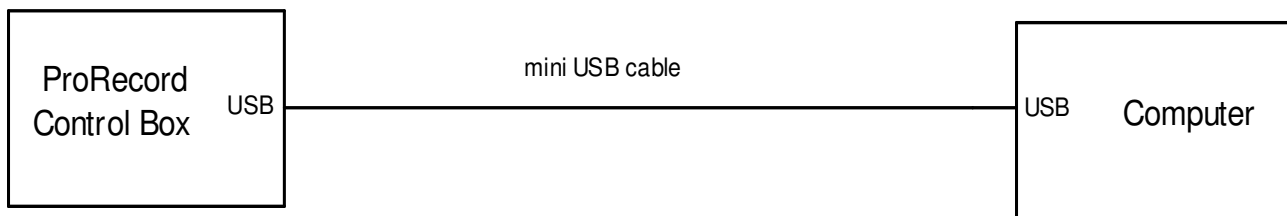
- Use the following wiring diagram to connect a Computer without PianoDisc

## 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)



# ProRecord/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 than 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/ProScan 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/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 can be updated thru the app to 13.6. To go to a higher update the CPU must be returned to PianoDisc for a hardware and software update. Ask Tech Support for an RMA the cost.

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.
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.
4. **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.**

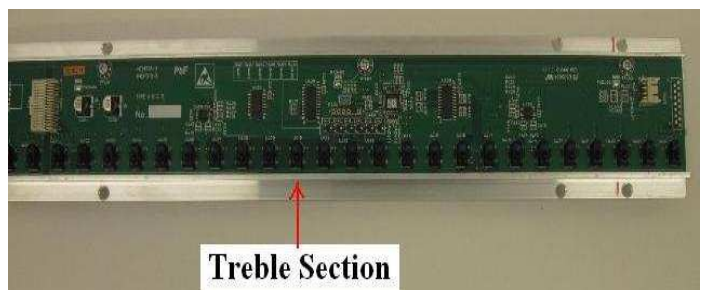
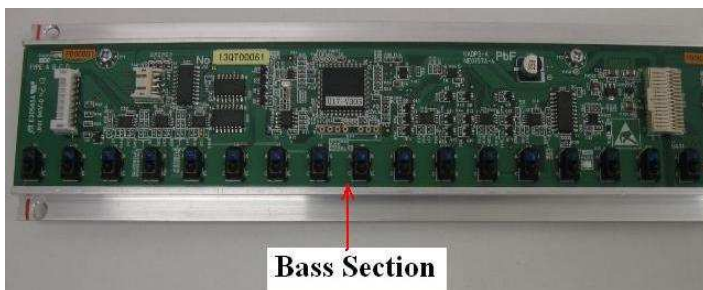
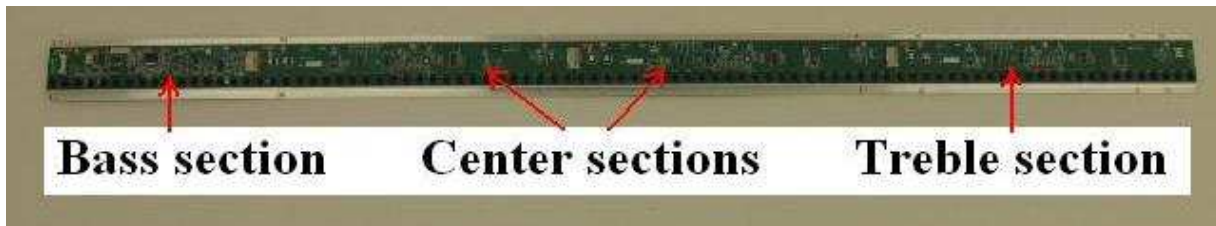


# ProRecord and ProScan Sensor Strip Repair

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 and save of shipping cost.
- 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.

