Electronic Player Pianos

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11/21/2016

Omar has been quite involved in electronic players. The first players came off on a cassette deck with long solonoids. They were loud and clunky, but at the time a lot of people wanted them.

Mirant sold their patent to Yamaha because they no longer wanted to make them. Two guys in California – the Birgett Brothers – came out with a new system. Their first system was like a pianocorder off a floppy disc instead of a cassette deck, which was a bit more reliable. These also were clunky, noisy, clicky, but they still sold a few of them. Their solution for the clicking was to spray a can of lithium grease and to spray it all over the solenoid. Don't do that now.

Then they came out with a solenoid with a spring so there was constant contact with the bottom of the keys, and prevented the flapping. People would push these in and out, which bent the push rods. Then they came out with pusher with a soft spring, which avoided the flapping. Three or four years ago they came out with a solenoid with a non-spring. There is a little lost motion and the tips are soft.

When removing the action, move the springs over the top of the solenoid. When replacing an action with no springs, place the action on the ecdge of the key bed, push the key slip on both the white and the black keys and also push the damper pedal; holding these down, push the action the rest of the way in.

Some pianos are equipped with a mute bar that comes down rotates and prevents the hammers from hitting the strings so that if there is a record strip and a sound module so that you can hear the sound with headphones without having the hammers striking.

The QRF system has a standard solenoid. These have a rubber tip on the end that used to slap. Now they have one with a piece of felt to hit the bottom of the keys. For the last twenty years, the only change was this tip. These slide in like normal without pushing anything down. Some installers put blocks on the very end to prevent the action from sliding in too far since the dags must be cut off. Omar makes guide marks.

For servicing, if you don't have all the right parts you might not be able to fix it, since you nearly need an electronics shop. To prevent the slapping sound, you might remove the key tips and put on a new rubber tip. If you don't have a rubber tip, you could take the tip from note 88. If you put a tip on the old onw it must be in the right place; if it is too high or too low it will effect the key. If it's too high, you can take a wire cutter and cut the tip off. The other way would be to take everything out and lower the whole thing down, which is a lot of work.

The initial way to adjust the plungerssd and to get the proper height of the rail is to screw the nuts on the key bed up and down, leaving just a little bit of play so the key doesn't drag over the top. Omar has some replacement tips for old plungers. New tips can be ordered. QRS must have the whole thing adjusted up or down for the proper key dip. There is a cap on the bottom for

adjusting it up so it is barely below the key to avoid the slap noise. Don't make it right on the key or you will tear the felt right off the top. Without the felt it will be really loud. Omar can adjust the height of all the keys with a little wrench in about 15-20 minutes.

Sometimes the solenoid will freeze in one position and the key will be stuck down. Work some ProTek with your finger up and down on the plunger and it will work again. They might gum up in dusty conditions. Don't use oils, silicone or anything else: just ProTek. One time Omar cleaned some rusty strings and all the rust fell down into the solonoids and clogged them.

When solonoids over-heat, they distort the inside of the coil, making oblong which makes it bind. There is a tool to reach down in there to remove some of the plastic. Sometimes ProTek is enough. Yamaha recommends that sometimes swapping plungers will make a better fit, loosening or tightening them as needed. Plastic-wrapped solonoids may burn out. When they get melted, they are hard to get out and need to be replaced. This will also blow a fuse on six of the solonoids. There is a little green fuse for every bank of solonoids.

If you do come across a piano system and you want to see how it works, the old system has a base set in the back panel. Press the test button and all the notes should fire. Most of the time if notihing happens, it's a bad power supply. The newer system also has a test button to fire all the notes. QSF does not have a test button, so you have to go into the controller with your iPhone.

The new Piano Disc wanted to keep up with the times and came out with a low-profile system that is screwed to the bottom of the key-bed. To make the plungers closer to the key, screw the rubber part up or down on the metal rods. These devices are nearly inconspicuous.

Check the solenoid before checking the fuse. Sometimes if solonoids get stuck they short out. If you see it is charred, replace the board. Put felt under the solenoid to adjust the plunger height close enough to the key and to quiet the impact.

Pedal Adjustments

To adjust the pedals, eliminate almost all of the play, leaving maybe a $1/16^{th}$ of an inch, because the more that comes down the more slap you'll get. Adjust the pedal so the dampers don't lift more than ¼" to avoid extra noise. With the foot we can control this, but mechanically we have to set the screws. When there is a lot of play in the pedal, the best place to adjust it is to adjust the vertical pitman rod. Clamp onto the rod with vice grips and turn the nut with a wrench or pliers. The nuts on the top of this rod have a nylon center to keep the nut from wandering. The kit comes with a bigger nut for the sostenuto pedal, and the smaller nut for the damper pedal. The damper pedal is a number 8 thread.

The QRS system has a cantilever system. To adjust for lost motion, adjust the little screw in the middle. There should be no more than a quarter inch lift on the dampers. The QRS is all operated from an Adnroid, an iPhone, or a computer. Both systems have a striking force and a hold force. When you fire it up and it stays there for 4-5 seconds, then it's good. If it sags, you have to pump it up. The control box has buttons and lights.

When the solenoid gets hot, boost it up. Hold down the "learn" button. You can adjust how loudly or softly each note plays. When done calibrating, press "hold it" and it locks the setting.

For the pedal adjustment, go to Learn until the green light comes on and then the sustain will lift; the pedals remain the same.

For quite pianos, take the springs off. The more springs, the louder the piano plays. The more weight of the damper tray. Take a spring, cut it off and make it short. Flip it on the top of the back of the pedal, from the bottom of the lyer, if they are complaining it's too loud. For a little more work, take the bottom of the pedal off and put themore spring in. Kawai will put a collar on the vertical rod, then put the spring on it so it sits agains the horizontal cross barr on the trap. Then the collar can be adjust .

The old QRS pedals needed an alignment box,. Now all the adjustments are on your Android phone. A wireless router is plugged into the back of the controller. Hit Apple's Air-Play button, and then the system works wirelessly from the phone. All the music is stored with a central processor. Go into your phone, find the QRS wireless router, click on it, type in the address to see all the music. These don't have to be downloaded onto the phone at all. This makes it easier to get into the phone. The problem with QRS is that they have connectivity problems. Sometimes the page won't load and will keep spinning. Sometimes unplugging and re-plugging will re-boot it. PianoMation has corrected a lot of these problems.

Piano Disc has a midi out for recording. Plug in a record strip, then plug it into another control box with eight-tracks and you can recorde. The old ones would record into a floppy disc. Older systems can be used by plugging in midi in and out and then using your iphone. With QRS it is slicker than before because when you buy the whole package, everything is there. Push record or play on your phone and it's all much simpler. PiantDisc used to be better, but now with QRS using a central processor it is now the easier of the two.

These units can be installed in grand pianos, uprights, and even spinets. Installing a $7000 system in an Acrosonic is a bit over-kill, but customers love them. Omar works on players every week, including pneumatic players. He also upgrades older pianos and older electronic systems to newer ones. The electronics have not really changed that much in the last twenty years.

Piano Disc change the electronic to a faster unit. In 1998 they came out with a silent drive, and since then with an HD Silent Drive, which is even better.

Some pianos with a record system have a circuit board mountain on the action stack, with a long flat power strip. To remove the action, disconnect the wire from the strip. Make sure you notice which side the strip is connected to – treble or bass.

Several manufacturers are installing systems: PianoDisc, Yamaha, Kawai, QRS. Schimmel has changed their action to accommodate electronic installations, including an outline on the key bed where to make the initial cut. Bosendorfer years ago made their own player unit, designed similar to the old PianMation. Wayne Stenke was the guru on players. It worked off an old XP computer with a floppy disc and hung way below the key bed. They only made 30 or 40. Now they install Disklaviers.

Pianodisk hardware is a bit more solid than that of QRS, particularly the pedals. However, QRS has the best software. The PianoDisk now has the best record strip out there. One problem with it is that it is too tall and requires reaming out some of the key frame to make it fit. The QRS record strips are ultra-thin and sometimes need to be shimmed up. Another company is called PianoForce, and is very similar to QRS. Their circuitry is a bit different, with a calibration system that uses a mic signal. The automatic calibration can get stuck and won't let you go on or do it manually.

Electronic Piano Systems
Disklavier
Pianomation
PianoForce
Live Piano
Spirio
QRS

Turn the piano on its side. To cut the holes in the keybed, use a circular saw. Use a saber saw to connet the other parts. One guy flips the piano completely upside down and cuts it from above. Piano Disk recommends removing the key bed if it can be removed. Steinway key beds cannot be removed. Because it is easier on it's side, time is saved by not removing the key bed. Before removing a key bed, drill holes on each end, pound in line-up pins, and then use those as locators when replacing the key bed.

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