Alesis QS Synthesizers

UNOFFICIAL REPAIR GUIDE

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BOTTOM LINE: IF YOU DON'T KNOW HOW TO USE A SOLDER IRON, QUIT READING THIS DOCUMENT AND CONTACT ALESIS AUTHORIZED REPAIR CENTER. ;^)

REPAIR A BROKEN PITCH BEND WHEEL

So you've been using your pitch bend wheel for vibrato too much and now it doesn't return to it's center position? Here is a quick fix.

Before I go into these instructions I must inform you that I am not an authorized tech so take all your precautions before you attempt this repair.

Tools required:

- Wire cutter
- Big safety pin
- Screw driver Slotted or Phillips

What size the safety pin should you use? Very large safety pins will have more resistance and it will return to it's center position faster, I suggest avoiding small types. This is the size I used this time.



I guess I should explain how to open a QS synth before i continue. No biggy actually, no pics necessary. You need to remove 5 screws from the back and 4 (one in each corner) from the bottom side, there are a few more lined up but don't touch these as they are holding the keybed. Make sure to put the screws in a safe place, they are all the same size so don't worry about mixing them up. Now once you've removed these last 4 screws very carefully turn over the keyboard. Now this is the tricky part, (the keys should be are facing towards you) grab the side panels and lift the whole front panel until you feel a bump, now pull towards you and you should see the front metal lip that holds the panel with the bottom, once it has cleared the keys you can move the whole panel away from you like a car hood, but not too far, be careful with the cables running from under the front panel to the motherboard.

Now you should see something like this...

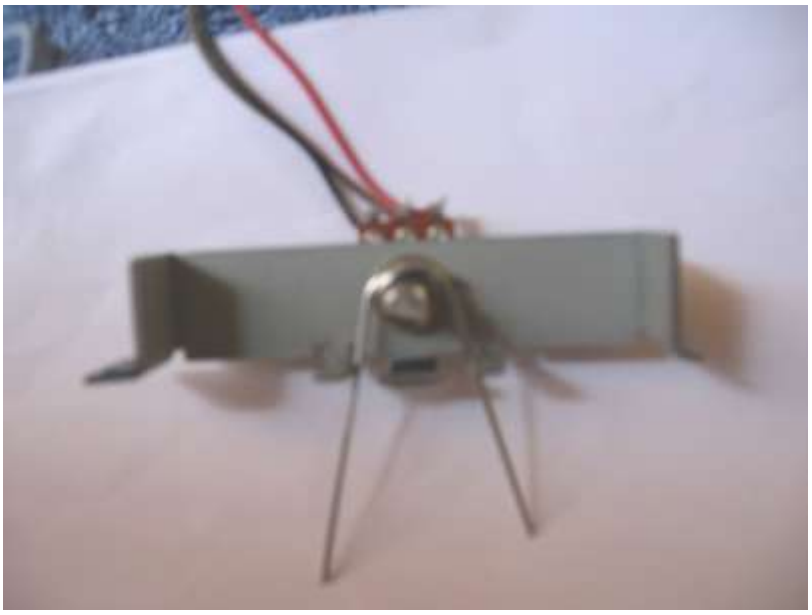


This is what we are looking for (the wheels), there are 3 screws, you only need to remove the left one which is the one holding the pitchbend wheel.

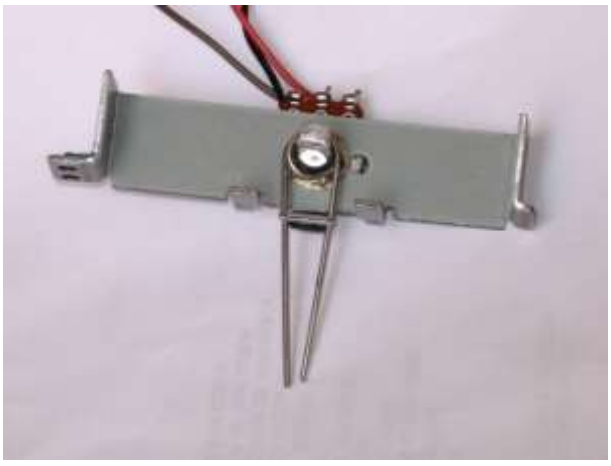


Once you removed it you need to separate the rubber wheel from the pot, just carefully pull it away and again careful with the wires. You should see the broken spring, remove it and keep the rubber sleeves. The safety pin loop should be wide enough to fit over the pot, you can use a screw driver for this.

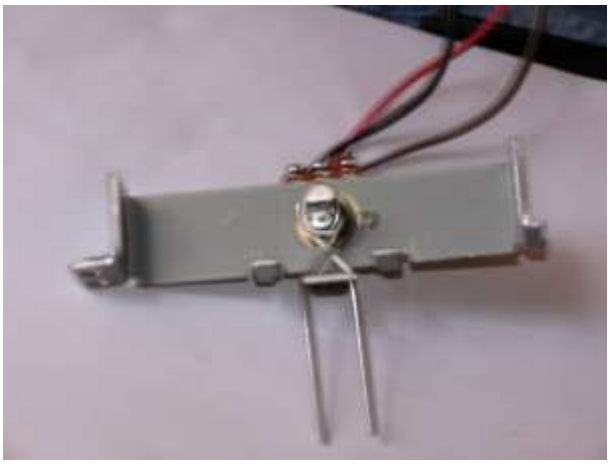
Make sure the pin is NOT wide open, avoid anything like this:



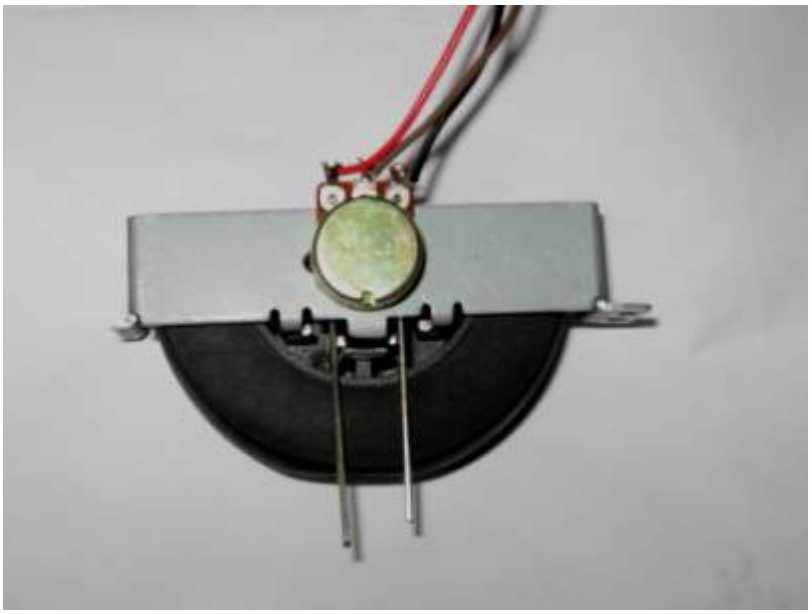
This is the way to go,
it should be as close as possible:



If you prefer you can use
something like a criss-cross:



Now, how long should the spring wires be? Use the original to measure or place back the rubber wheel and see:



Now mark the size or cut it as needed. Make sure to insert the little rubber sleeves. Try out the wheel and make sure it centers correctly, if it doesn't, remove the spring and close it a bit more or you might need a larger safety pin.

Now make sure all wires are connected and nothing looks loose, and don't forget anything inside. Replace all screws (I wrap them with teflon tape to tighten them up as they become loose from time to time) and you are done.

Hope this helps, any comments or questions are welcome. The images are a little fuzzy because I never photographed small objects but i guess they serve their purpose.

DAVID CARRILLO

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AUDIO OUT NOISE REPAIR

SYMPTOM

- Low signal level, noisy or humming main audio outputs. Both or only one (left or right) can be affected.
- Phone output working fine.

CAUSE

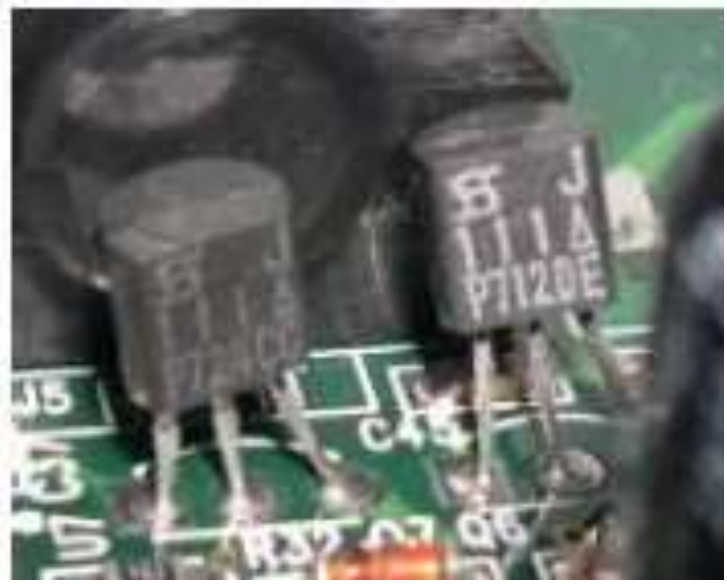
Malfunctioning FET transistor in the mute circuit. These transistors (one for each output) are responsible for muting the sound during power on transition thus avoiding short high level transients that could damage follow on equipment, e.g., mixer, signal processor or amp.

SOLUTION

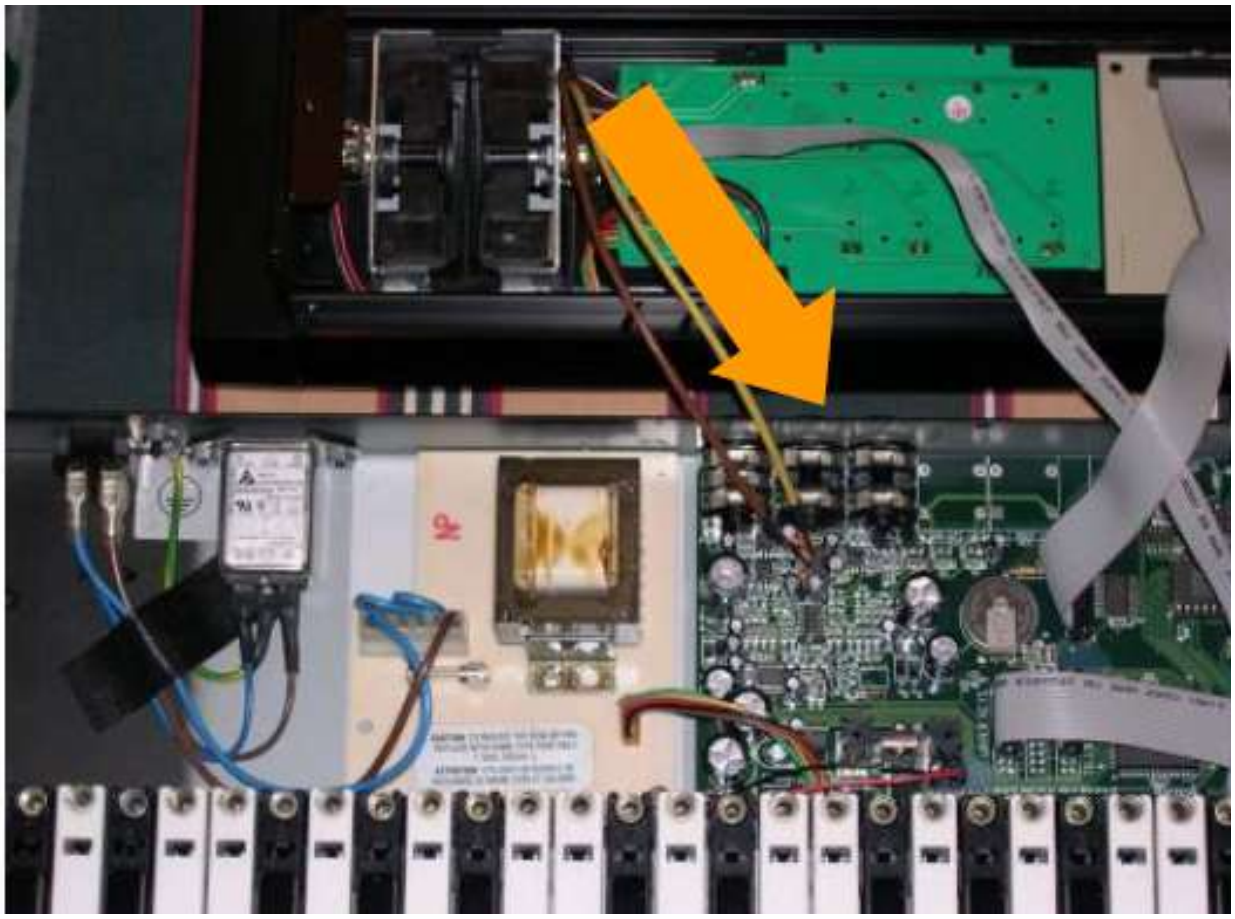
Transistor replacement:

1) Go to the closest electronic components shop and buy one FET model J111 for each bad output. If left and right are damaged you will need two transistors.

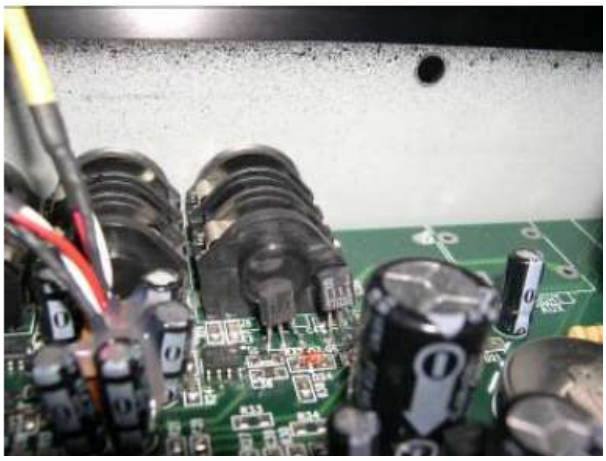
2) To open the unit remove the two screws that are close to each side and the other four in the back panel. Lift the front panel with sides carefully, some wires are short and can be broken. *Note: take care not to remove the screws that fix the keybed, keybed will not be removed…*

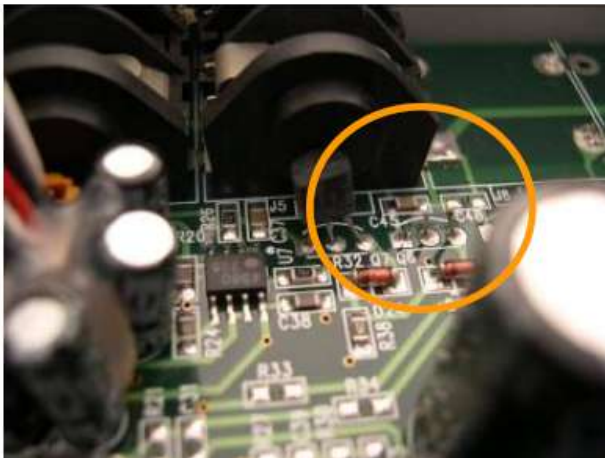


3) With the QS open it is easy to find the power supply board and lying by its side, the main board, with the audio output connectors. It is not necessary to remove this board; the repair can be done from over the board.

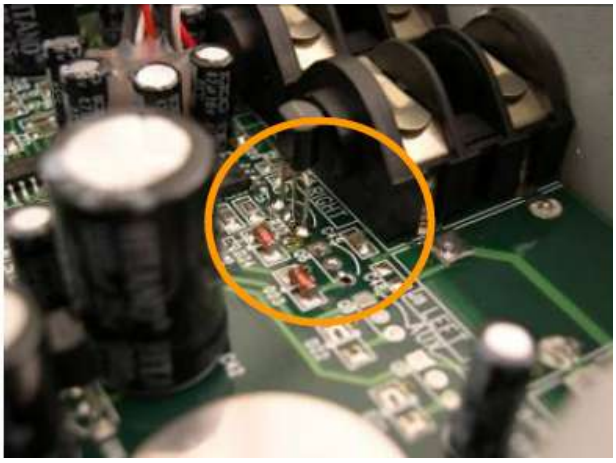


4) Notice that behind the right channel connector you will find the two J111 – right one for the right channel and left one for left channel. Remove the dead one or both if you have both outputs with problem.





5) With the solder iron, replace the transistor with the new one.



6) Close the unit, replace the screws, turn on the synth and check if you can hear its sound loud and clear. Now enjoy your QS again!

ARNALDO CORTEGA

REPAIR A BROKEN KEY

4.00 TROUBLESHOOTING AND REPAIR

With the release of the original QuadraSynth keyboard, Alesis engineers and technicians began a heavy learning curve into what works and what doesn't in keyboard design. Because of this experience, it's descendants are not only extremely stable designs but also very easy to troubleshoot and repair. Once the keyboard "clamshell" is open, the technician has instant access to all of the units essential components. The QSR of course uses all of the experience Alesis has gained over the years in making quality rack mount cases.

4.10 QS6/QS7/QS8 DISASSEMBLY/REASSEMBLY

All of the keyboards use the same "clamshell" type of casetop. The top and sides are one piece and are removed together. Figure 9 shows the only way to correctly remove the top panel. It should be noted here that extreme caution is required when opening and closing the unit due to the delicate nature of the aftertouch cable(s). Damaging these cables might easily result in having to change the entire keyboard, which can be expensive and time consuming.

Figure 10 shows the casetop and keyboard screw locations for the QS6. Figure 11 does the same for the QS7 and QS8 (while the QS8 is physically larger, it has the same screw footprint as the QS7).

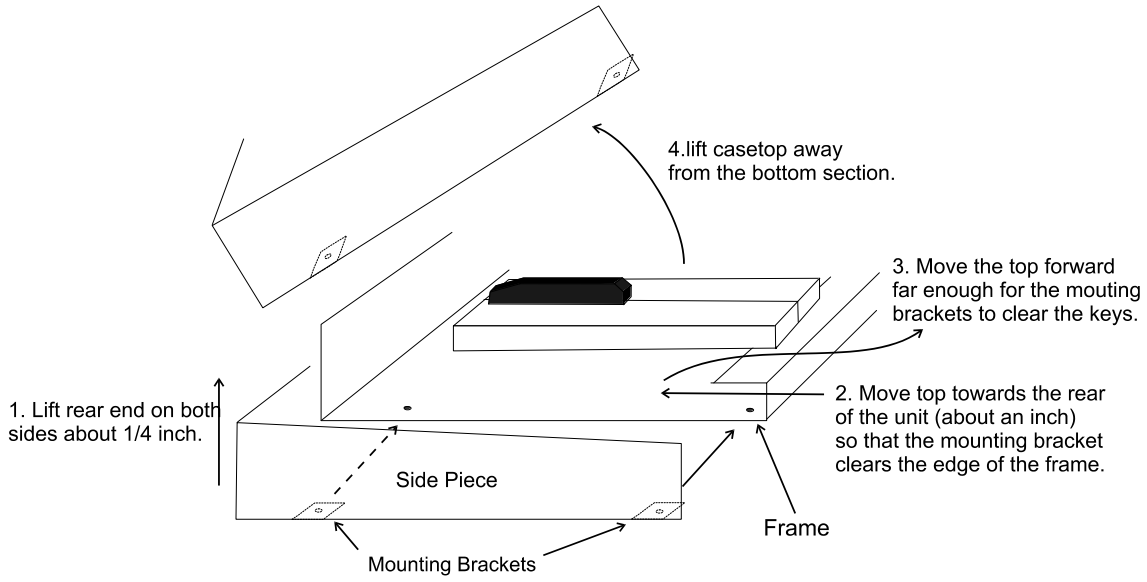


FIGURE 9 - KEYBOARD CASETOP REMOVAL

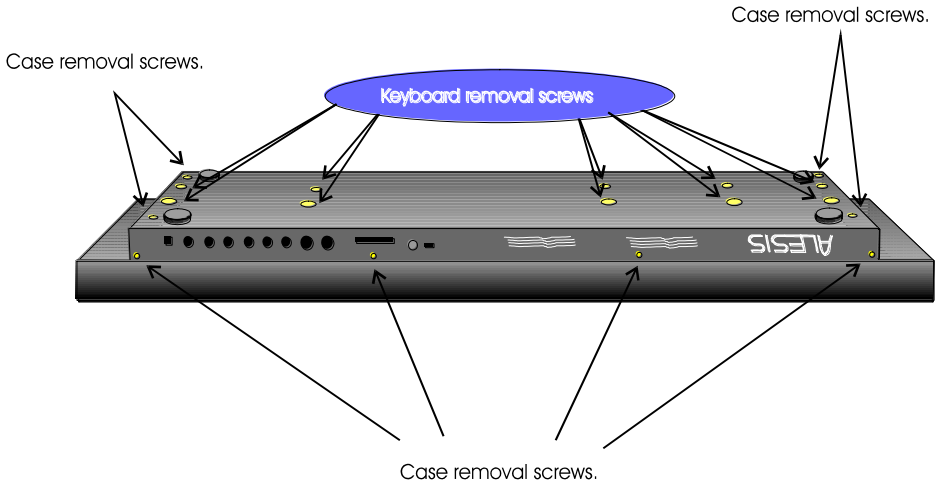


FIGURE 10 - S6 CASE SCREW LOCATIONS

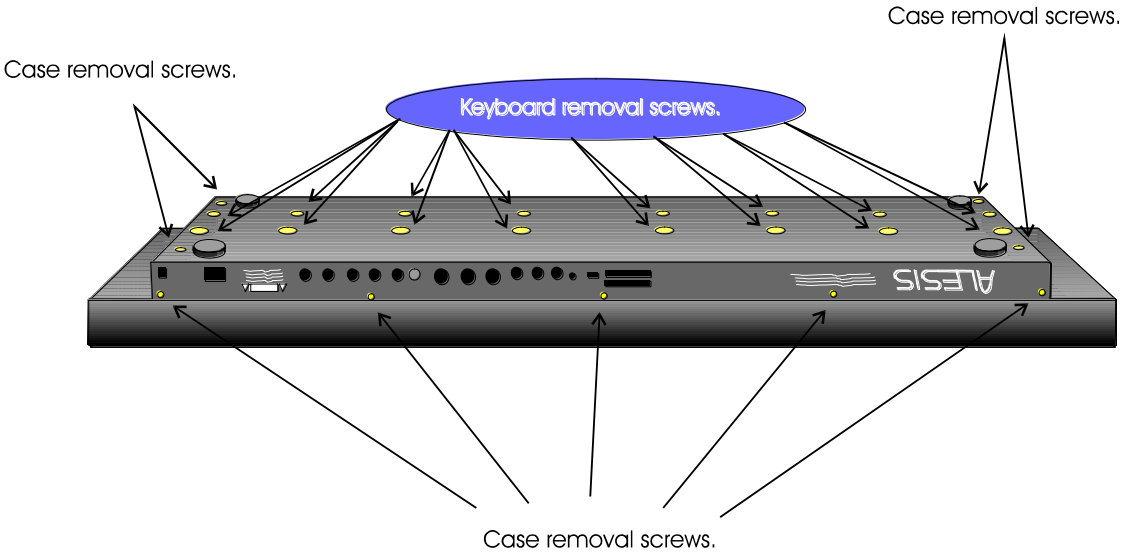


FIGURE 11 - QS7QS8 CASE SCREW LOCATIONS

4.40 REPLACING INDIVIDUAL KEYS

Broken keys are an unfortunate consequence of the tough life that most professional keyboards are required to undergo. So easy key replacement was a design requirement. Figures 13 and 14 show the location of the key clip. A flat blade screwdriver inserted into the slot in the key and then rotated will release the key. Note that it may be necessary to loosen (but not necessarily remove) the keyboard assembly from the case bottom.

4.51 REPLACING QS6 AND QS7 KEYS

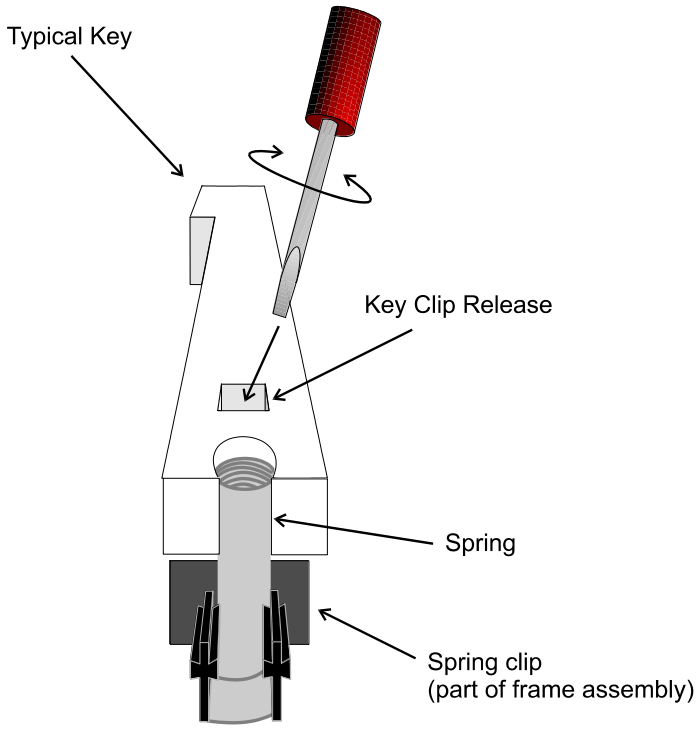


FIGURE 13 - QS6 KEY RELEASE LOCATION

Figure 13 shows the location of the spring which must be removed before removing the key itself. It also shows the location of the key clip release catch. Insert a flat blade screwdriver into the slot. While turning the screwdriver to release the catch, lift carefully at the rear of the key. **DO NOT** force the key off or it's possible to break the key clip itself, and ruining the entire keyboard. Once the back end on the key is loose, slide it towards the front on the keyboard (range of motion stops are built into the key and encircle part of the frame).

Putting the new key in is essentially the reverse process with one small exception. Instead of using a screwdriver when putting the rear end of the key back, just push the rear end of the key down until it snaps into place.

2.34 THE KEYSCAN ASIC

While the task of polling the keyboard may seem difficult at first (up to 88 Keys with velocity), the Keyscan ASIC takes care of this task and passes the information back to the H8 processor . The main signals of the Keyscan ASIC are:

DD0-DD7	Data Buss bits 0 to 7. Correspond to the upper 8 data bits of the H8.
A0	H8 Address Buss bit 0
RD	H8 ReaD enable
WR	H8 WRite enable
KEY	Chip select line from GAL (Mapped I/O)
KEYINT	Output to H8 interrupt line
KEYCLK	Clock input from H8
ROW0-7	Row input from keyboard switch matrix
COL0-21	Column input from keyboard switch matrix
VSS1-4	Source Supply (GND)
VDD1-4	Drain Supply (+5V)

2.34A READING VELOCITY

Velocity response is measured through the time differential between two switch closures and works like this:

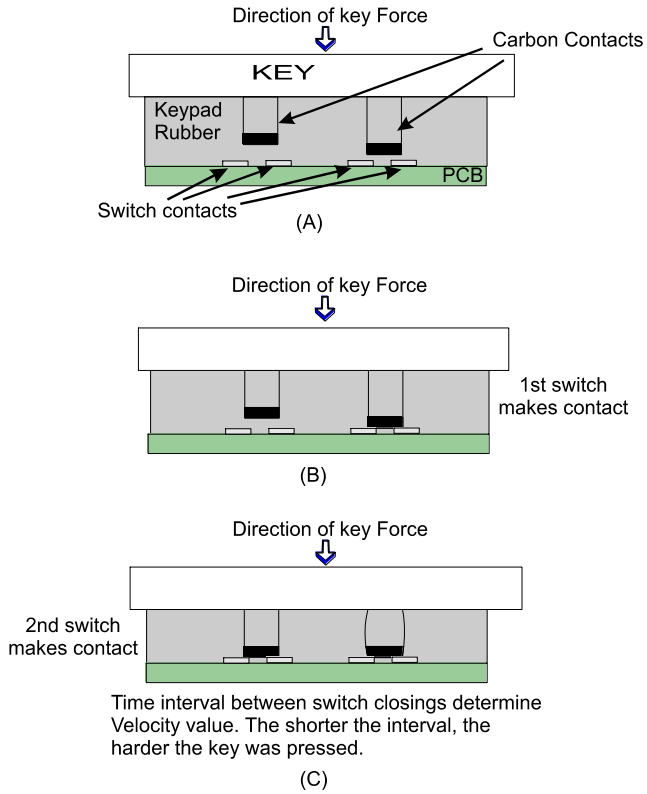


FIGURE 4 - KEYBOARD VELOCITY REPONSE

The harder a key is pressed, the faster it moves.

Since **Rate = Distance/Time** knowing the time it takes to move the key through a specific distance tells us how fast it's moving and thus the force acting on it.

This is accomplished by using 2 switch contacts mounted at different distances from each other. The rubber in the keypad acts as a spring, both absorbing the compression of switch 1, as well as pushing the carbon contacts away from the PCB contact points when the key is release.

The Keyscan ASIC counts up the time it takes between switch 1 closing and switch 2 closing. Since distance (between the switches) is preset in the design, time difference is taken as a direct measure of velocity.

REP	8-20-0087	KEY WEIGHTED 'C' LOW END WHITE S6/S9	1
REP	8-20-0088	KEY WEIGHTED 'B' WHITE S6/S9	1
REP	8-20-0089	KEY WEIGHTED 'D' WHITE S6/S9	1
REP	8-20-0090	KEY WEIGHTED 'A' WHITE S6/S9	1
REP	8-20-0091	KEY WEIGHTED 'G' WHITE S6/S9	1
REP	8-20-0092	KEY WEIGHTED 'B' WHITE S6/S9	1
REP	8-20-0093	KEY WEIGHTED 'F' WHITE S6/S9	1
REP	8-20-0094	KEY WEIGHTED BLACK S6/S9	1
REP	8-20-0095	KEY WEIGHTED 'E' HIGH END WHITE S6/S9	1
REP	8-20-0096	KEY WEIGHTED 'G' WHITE S6/S9	1

NARFMAN96