

# Firestorm Kit #1 (5-way switch)

Please Read All Instructions Before Beginning.

## Tools you will need:

- Soldering Iron (35 watt preferably)
- Solder
- Wet Sponge
- Wire Clippers
- 3/8 Drill Bit
- 1/4 Drill Bit
- Variable Speed Dremel Rotary Tool
- Fine surfaced, Cone Shaped Rotary Stone bit. **NOTE: a variable speed Drill and step drill bit can be used in place of the Rotary Tool and Stone bit.**
- Phillips Screwdriver
- Pliers
- Cloth (an old T-shirt will work fine)
- 1/2 wrench
- Electrical or masking tape
- Small bowl to hold screws and knobs

**ATTENTION:** At the very least basic soldering skills are needed to install this kit. If you do not have these skills or are not confident enough in your skills to install this kit than please take it to someone who does, such as a certified guitar technician.

## Soldering tips:

Remember to clean the tip of your soldering iron before soldering each connection, a dirty or bad solder joint can add excessive noise into your guitar, especially when using distortion. Be sure to apply a small amount of solder to your iron before trying to heat a connection, this will help your iron transfer heat better and the solder will flow faster

## Removing Current Wiring:

**Step 1.** Place your guitar face down on a firm yet soft surface (a couple of bath towels will do) to keep the face of your guitar from getting scratched.

**Step 2.** With the Phillips screwdriver remove cavity cover on the back of your guitar and place the screws in a small bowl so they will not get lost.

**Step 3.** Identify the wires coming into the control cavity and mark them so they will not get confused while wiring your new kit. There should be a hot and ground wire for the neck pickup, a hot and ground wire for the bridge pickup and a ground wire from the tremolo or bridge.

**Step 4.** With the wire clippers, clip the wires where they connect to the pots and the switch or heat the connections with the soldering iron and remove the wires.

**Step 5.** With the screwdriver remove the output jack plate from the body of the guitar.

**Step 6.** With the wire clippers, clip the wires soldered to the output jack and set the jack aside.

**Step 7.** Now remove the knobs from the volume and tone controls. If they are set with a small screw in the side of the knob, loosen the screw and then remove the knob. If the knobs are just push on then use the cloth to remove the knobs. Work the cloth under knob and then wrap it completely around the base of the knob and pull up. (see fig. 1)

**Step 8.** You should now be able to remove the old wire assembly from the control cavity (see fig. 11).

### **Modifications before Installation**

Some modifications may need to be done so your new kit will fit. Take your time making these modifications to avoid any mistakes.

**Step 9.** Some First you may need to make the pot holes larger. The pots on your new kit are 3/8" in diameter so you will need to make sure your pot holes are large enough to fit and if they are not then follow these steps. An Epiphone Les Paul was used in these photos but the procedure remains the same for any guitar.

Remove 1 of the washers from one of the pots on your new wire assembly. This will be your guide and your safety net while modifying these holes without damaging your finish. Center the washer over one of the pot holes, then take your electrical tape and tape it securely to the body of your guitar (see fig. 2).

Now take your Rotary tool and carefully widen the face of the hole. BE CAREFUL AND TAKE YOUR TIME or you will chip your finish. We prefer the fine stone bit and rotary tool because it makes a smooth cut and is less likely to grab and chip the finish. As you widen the hole you will hear it start to hit the washer and you will know that you have gone far enough. You are only trying to open up enough to get past the finish, do not attempt to go all the way through with the stone bit. If you are using a drill and step bit do not tape the washer to the guitar because the bit may grab the washer and scratch your finish. Use the drill free hand but be slow and careful, taking 5 to 15 minutes to do this step right will save you many days of disgust for your impatience and lots of money to repair your finish (see fig. 3).

Now take a 3/8 drill bit and turn it by hand to finish widening the hole all the way through. I do this instead of using a drill motor to keep the inside of the cavity from chipping (see fig. 4).

Repeat this step to the other 3 holes. Once again take your time so you do not damage your finish and it should come out looking fine (see fig. 5).

**Step 10.** Now remove the output jack from the jack plate, this should need a 1/2 wrench or nut driver. Once you have removed the jack you may find that the hole is odd shaped or not large enough for your new output jack. This hole needs to be 3/8" for the new jack to fit through it. If the jack plate is plastic then turn the drill bit by hand to open it up, if it is metal then you will need to place the plate in a vice and use a drill motor to drill it out.

You can use the cutting edge of the drill bit to clean up the burrs on the cut edges of the plastic. Hold the face of the bit at an angle against the cut edge lightly and slowly move the bit along the edge and it will remove the burrs and leave a much smoother edge. If you try this with a sharp knife or razor blade it may cut to deep into the plastic and leave a bad edge.

**Step 11.** You may need to open up the hole from the control cavity to the output jack hole (see fig. 6). Some guitars have a very small hole that only the very small (and very crummy) output jack wire goes through. This needs to be about 1/4" in diameter for your new output jack wiring to fit through. You may need to buy a long shaft drill bit from your local hardware store to drill the hole. Once again, take your time and make sure you are lined up **straight** when you open this hole up because you do not want to drill extra holes in your guitar or drill out through the finish of your guitar by mistake. Drill from the outside of the output jack hole into the control cavity, this will allow you to get as straight as possible. If you drill from the inside of the cavity out you will not be able to drill it straight and you may severely damage your guitar.

## **Installing Your New Kit:**

**Step 12.** Remove the new wire assembly from the assembly plate. Use the 1/2 wrench to remove the nuts and washers, place it against a flat, solid surface with the components and wires facing up and then push down on the board to remove the components from the board. You may need to spread the pots apart for your kit to fit your guitar, if so take each of the pots your hands and slowly move them apart until they are the right distance for installation in your guitar (See fig. 7)

**Step 13.** Place the locking washers from the pots over the pot holes on the inside of the control cavity and then place the assembly into the control cavity of the guitar. Be careful as you push the pots through the new holes so you do not chip the finish on the outside. Once the pots are in, feed the Output Jack through the end of the guitar. Now put the washers and nuts back onto the pots and tighten them down to hold the pots in place. You will need to hold the pots in place in the cavity with your fingers as you tighten the nuts so they do not change their facing position drastically. **DO NOT OVER TIGHTEN THE NUTS! You can crack your finish if you tighten the nuts too much.** Insert and tighten the screws on your switch, if your guitar body is too thick for these screws to reach through then take them to your local hardware store and find some longer screws that will work but be sure the match the threads and the diameter to the screws that came with the switch. Your guitar should now look something like fig. 8.

**Step 14.** Soldering points. You are now ready to solder your wires to their proper connection points. Please refer to Fig. 9 to see the locations of the numbers in this step.

**NOTE:** When soldering to the back of the pot first put a small bead of solder on the pot, then place the tinned wire on top of the bead of solder, and then using the tip of the iron heat both the wire and the bead of solder at the same time until the solder flows together and covers the wire. Remove the iron and hold the wire in place until the solder cools and hardens (feel free to blow on it). This will make it quick and hassle free to attach the wire to the pot. You do not want the iron on the components for too long or you will burn up the pot.

**NOTE:** Notice that the pins of the switch are covered in solder (the hot point of the output jack is covered as well). When attaching wires to these points place the tip of the wire against the soldering point, touch the soldering iron to the wire and soldering point at the same time and push gently. When the solder heats up and flows the tip of the wire will push through the hole of the soldering point, remove the soldering iron quickly and the solder will cover the pin and wire and make a solid connection. If you hold the heat too long than the solder will run down the pin and you will need to apply more solder. Once the solder is cooled and the wire is held in place make sure that the wire coming out of the pin is not touching any other connection, trim with wire clippers if necessary.

1. Connect the Bridge pickup hot wire to (1) on the 3-way switch.
2. Connect the Middle pickup hot wire to (2) on the 3-way switch.
3. Connect the Neck pickup hot wire to (3) on the 3-way switch.
4. Solder the ground wires from your pickups and the ground wire from your tremolo or bridge to (4) on the back of the volume pot.
5. Solder the white wire to the hot pin (5) of the output jack.
6. Solder the black wire to the ground pin (6) of the output jack.
7. (Optional for Ibanez style wiring) find the section of black cloth covered wire that came in the bag with your kit, solder one end to the switch pin (7) and the other end to the back of the volume pot either on or near point (4). This is the ground wire that will allow you to split the coils on your bridge and or neck humbuckers.

8. (Optional for Ibanez style wiring) solder the coil splitting wires from your 4 conductor neck pickup to pin (8) on your switch. This will split the coils of your neck humbucker when in the 4<sup>th</sup> switch position giving you the middle pickup and single coil of the neck pickup.

9. (Optional for Ibanez style wiring) solder the coil splitting wires from your 4 conductor bridge pickup to pin (9) on your switch. This will split the coils of your bridge humbucker when in the 2<sup>nd</sup> switch position giving you the middle pickup and single coil of the bridge pickup.

Steps 7-9 are optional if you are looking for the Ibanez wiring found in many RG's and the JEM series. You will need 4 conductor humbuckers for coil tapping and your final wiring will be as follows;

**NOTE:** Steps 7-9 are optional if you are looking for the Ibanez wiring found in many RG's and the JEM series. You will need 4 conductor humbuckers for coil tapping and your final wiring will be as follows;

Position 1: Bridge – full humbucking

Position 2: Bridge – Split & middle pickup

Position 3: Middle pickup

Position 4: Neck – Split & middle pickup

Position 5: Neck – full humbucking

If the correct coil on the humbucker is selected, it will be in phase and hum-canceling when it is combined with the single-coil in the middle position. This is very much like the common Stratocaster wiring using three single-coils, where the middle pickup is reverse-wound and reverse polarity with the neck and bridge pickups. You may need to reverse (or turn around) your bridge pickup so that the coil closest to the middle pickup remains “on” in positions 2 and 4. This produces the most “quack”. If the humbuckers are turned around, the result is a less hollow, more Telecaster type sound. You may want to experiment with turning your humbuckers to find the sound you like the most or try a reverse wound single coil if the pickup you are already using is not reverse wound.

Now plug it in and take it for a spin. If something is not working properly go over the instructions and your connections again carefully and see if you can find the problem. If you cannot find the problem email us at [customerservice@bcsguitars.com](mailto:customerservice@bcsguitars.com) and we will get a technician to call you as soon as they are available and try to help you trouble shoot the problem.



Fig. 1 Removing the knobs.

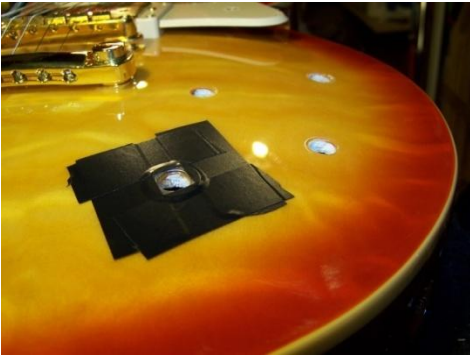


Fig. 2 Use a washer as your guide

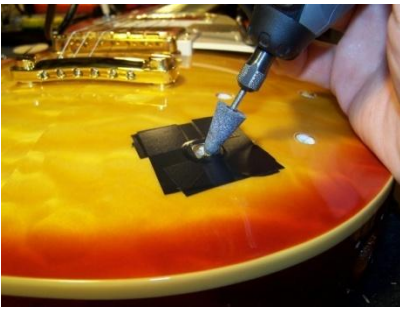


Fig. 3 Widen the top of the hole

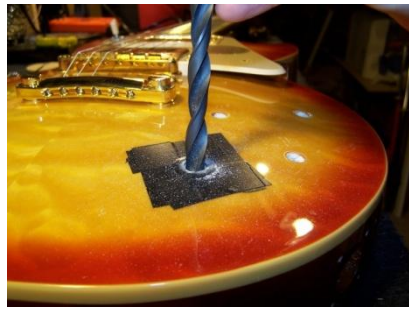


Fig. 4 3/8 drill bit by hand to finish



Fig. 5 Patience will bring good results



Fig.6 Open up the hole to the output jack so that the wires will fit through it.

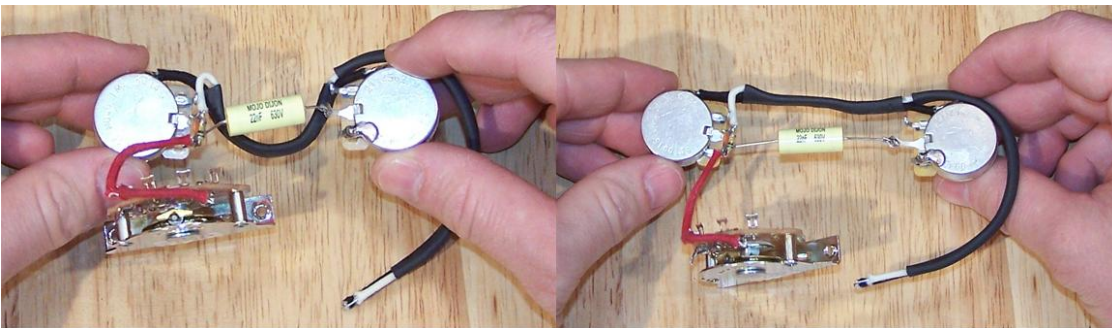


Fig. 7 Spreading the kit to fit (if necessary).

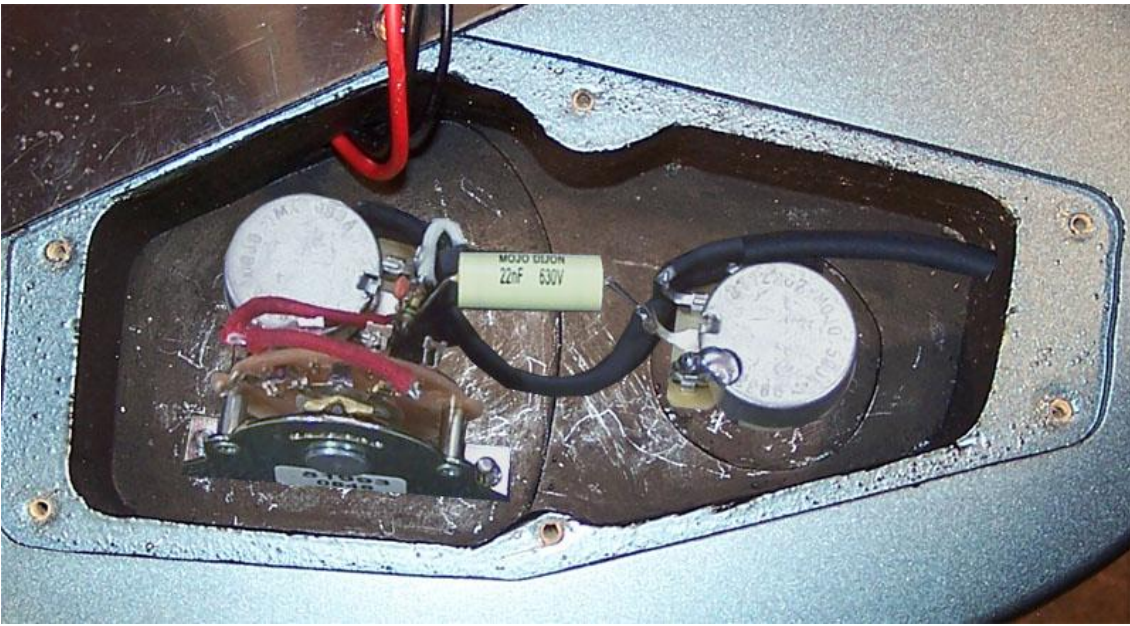


Fig.8 Kit placed in the cavity and tightened down.

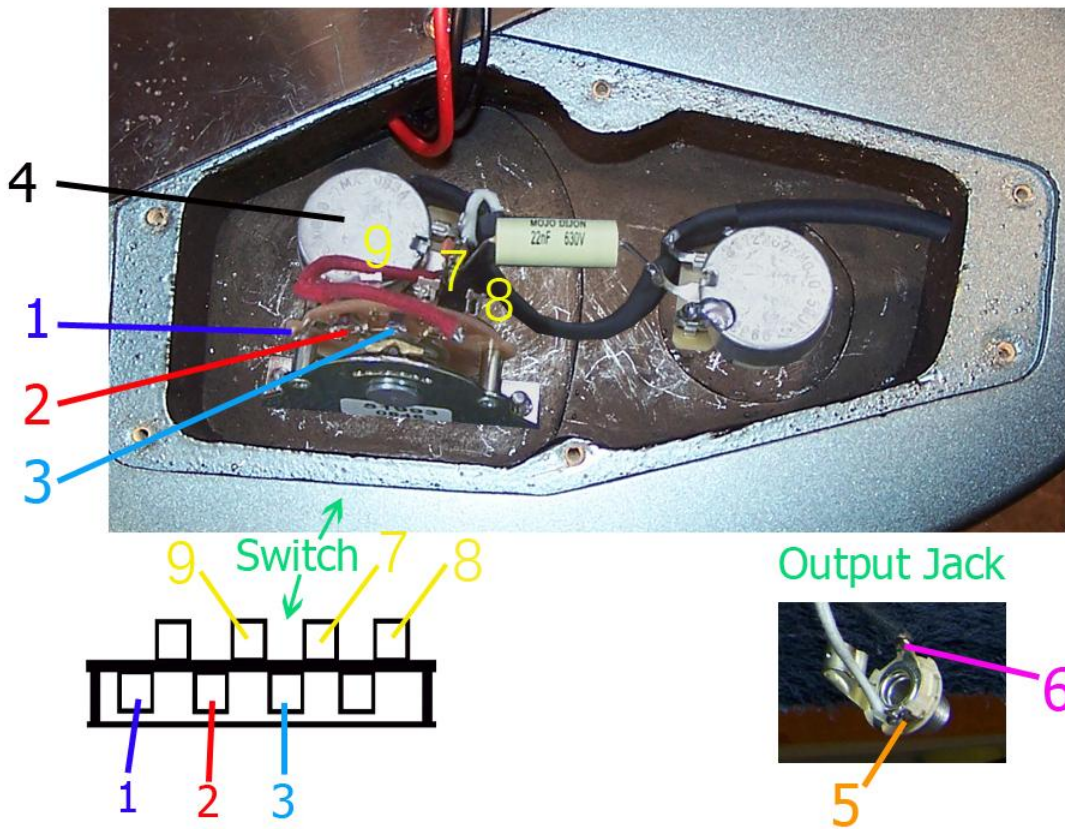


Fig. 9 Wiring layout