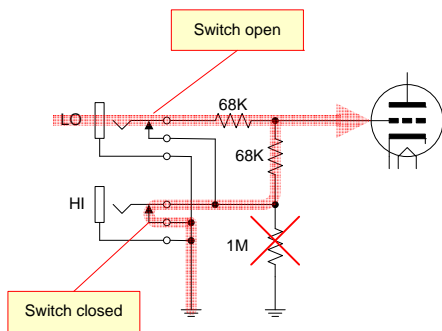


Understanding Hi/Lo Input Jack Switching

Hi/Lo Input jack switching is often misunderstood. The operation is usually straightforward, but the actual circuit drawing is often confusing, especially to the casual observer. Hopefully the following illustrations will demystify the circuit operation.

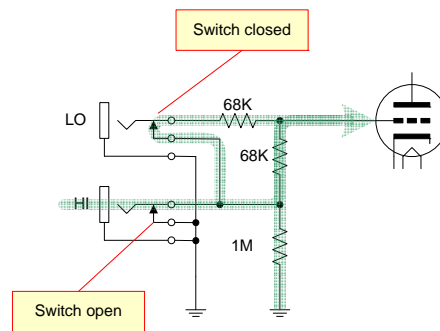
These first two circuits represent the typical Hi/Lo jacks found in most Fender and Marshall amps. Many other amp manufacturers use this circuit as well.

Using the Lo Input



The LO jack delivers the signal to a 2:1 voltage divider made up of the two 68K resistors. The 1meg is shorted out by the switch contacts on the HI jack. The signal taps off the junction of the two 68Ks. Half the signal is dropped across each 68K, therefore only 50% of the signal is applied to the tube.

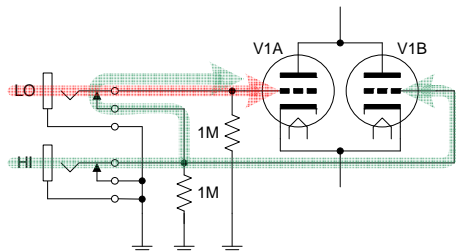
Using the Hi Input



The HI jack delivers ALL the signal to the tube. The signal enters the HI jack and first sees a 1 Meg resistor to ground. Since the LO jack switch is closed, the two 68Ks are parallel for an effective resistance of 34K and the signal travels through the paralleled 68Ks to the tube. There is no voltage divider so 100% of the signal arrives at the tube.

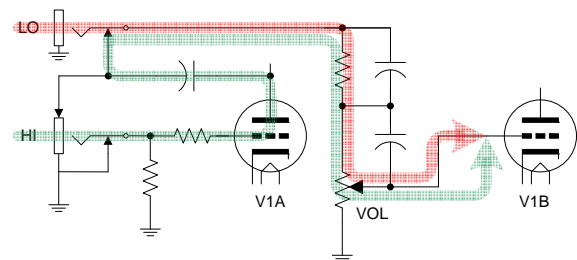
The following circuits represent special case switching. The first shows the Marshall 18 Watt parallel tube switching circuit and the other shows a Marshall JCM-800 high gain cascade switching circuit.

Marshall 18 Watt Normal Channel Inputs



The LO jack delivers the signal to V1A only. The HI jack delivers the signal directly to V1B and also to V1A through the closed switch of the LO jack. The parallel tubes give a fatter sound with a slight gain increase.

Marshall JCM-800 2204 Channel Inputs



The LO jack delivers the signal directly to V1B for a single gain stage. The HI jack delivers the signal to V1A and then to V1B through the closed switch of the LO jack. The cascaded tubes give a high gain sound.