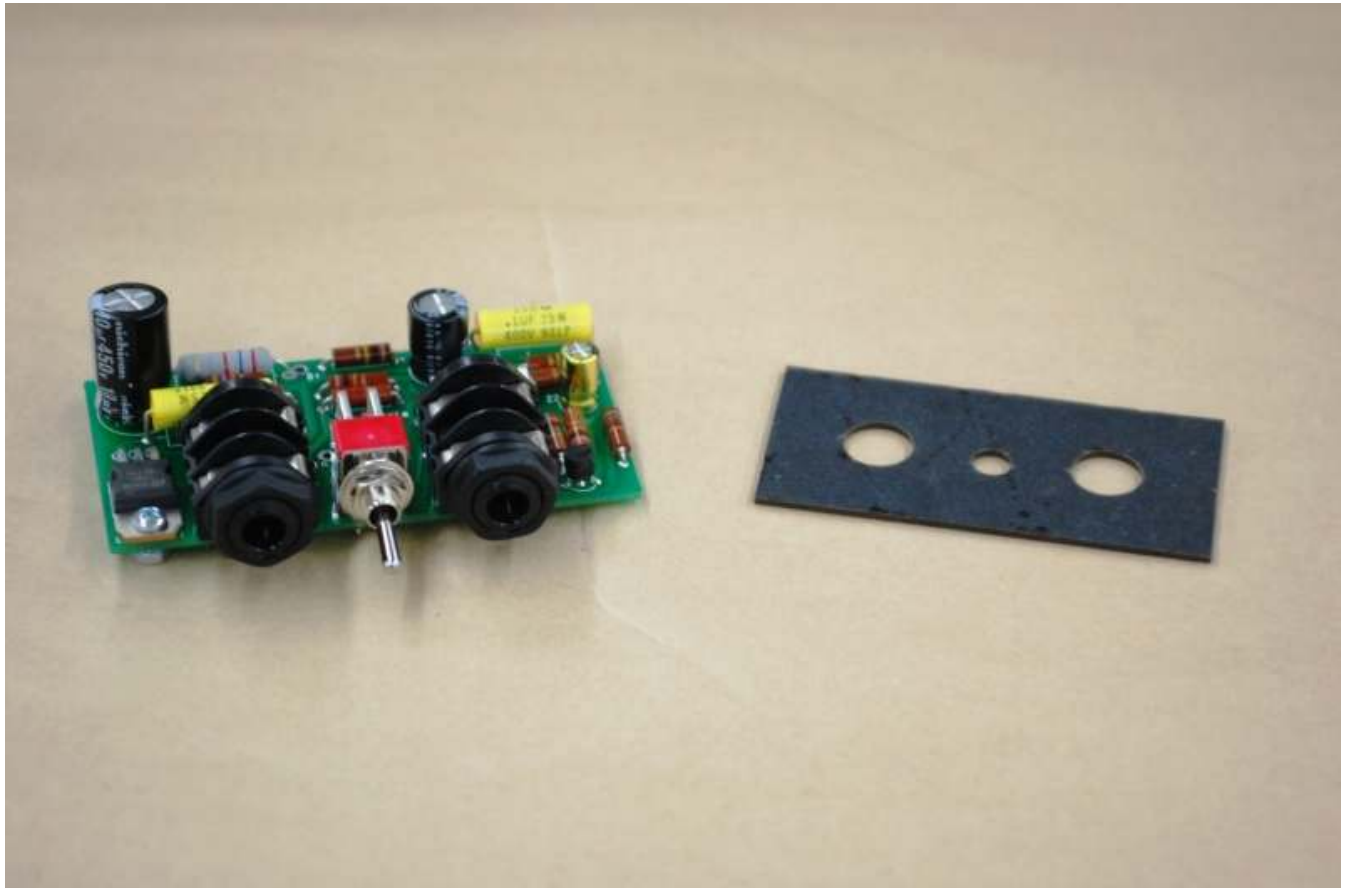


# THE MOJOTONE FX LOOP

User Manual and Installation Guide



## The Mojo FX Loop Custom Faceplate

Not included is the FX Loop custom faceplate. It is an optional plate cut from 1/16" plexi material which mounts on the outside of the amplifier's chassis. It serves to designate the Send and Return jacks and the True Bypass Switch. It can be produced in a number of different color schemes. If interested, please contact [johnm@mojotone.com](mailto:johnm@mojotone.com)



## How to Install the Mojo Fx Loop to Your Amplifier's Chassis

**Note:** *The following steps should be performed with the amplifier's power cable unplugged. Follow all electrical safety guidelines including discharging the amplifier's capacitors. If you do not feel confident to perform the following installation steps, let a qualified technician complete the work.*

### Step 1

Start by placing the template or faceplate on the amplifier chassis where the FX Loop will mount. Ideally, since the signal will be sent through it, the FX Loop should be placed as far away from the output as possible. As a test, place the FX Loop in the location where it will be installed, and make sure it does not interfere with any other part of the amplifier.

Trace the insides of the holes on the template or faceplate onto the amplifier's chassis using a marker, pen, or pencil.

### Step 2

Drill the holes with either a step bit or a regular metal cutting bit. Holes for the Send and Return should be  $7/16''$  in diameter. The hole for the Bypass should be  $3/16''$  in diameter.

### Step 3

Depending on the thickness of the amplifier chassis and use of the FX Loop faceplate, you may not be able to use these parts to mount the FX Loop. In any case, they are not necessary for installation.



Insure that the FX Loop fits into the holes and sits flush against the amplifier chassis. Again, make sure the FX Loop's components are clear of obstruction from any other part of the amplifier.



Use the supplied nuts to secure the FX Loop to the amplifier chassis. Here is an example of mounting the FX Loop without the optional faceplate. In this case, there is enough room to use the nut for the Bypass switch.



Here is an example utilizing the optional faceplate. Note that mounting the FX Loop component side up will position the Send jack on the left and the Return jack on the right. The opposite will result if the FX Loop is mounted component side down.



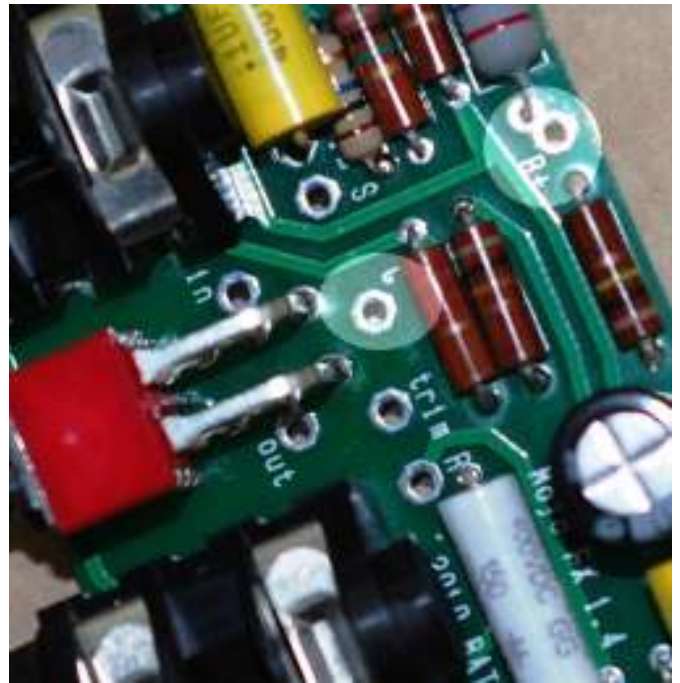
## Wiring the Mojo FX Loop into Your Amplifier

### Step 1

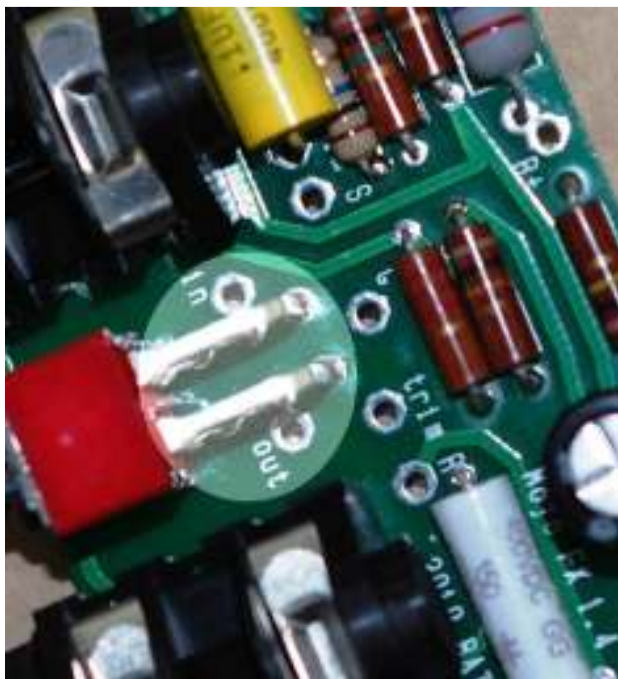
Locate on the FX Loop component board the pads for the:

- Power Supply (B+)
- Ground (G)
- Signal In (in)
- Signal Out (out)
- Send Trimpot (trim S)
- Return Trimpot (trim R)

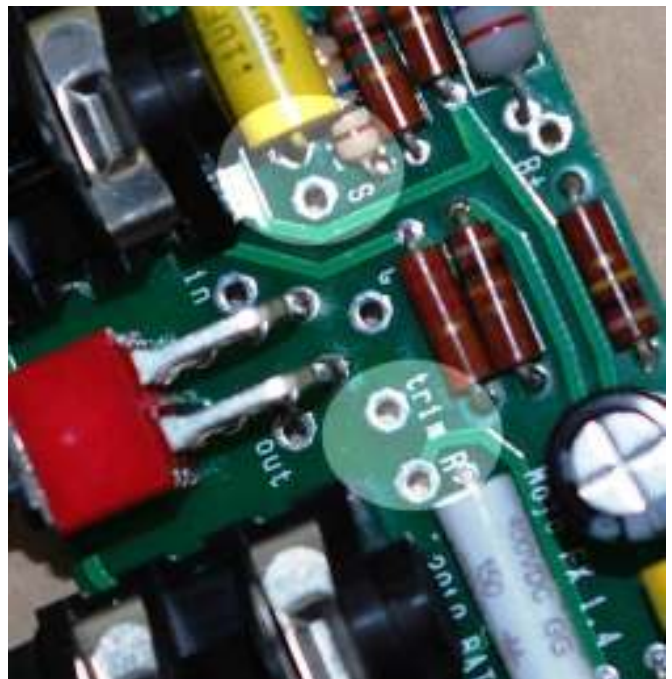
Notice that there are two pads each for the Send and Return trimpots. These will be used to wire a trimpot, panel mount pot, resistor, or a wire jumper in line with the signal path.



B+ and Ground Terminals



In and Out Terminals



Trim S and Trim R Terminals

## Step 2

Solder a jumper wire from the low-power side of the amplifier's power supply line, which is usually after the final filtering capacitor and drop resistor, to the B+ pad on the FX Loop component board. This voltage should not be under 150V or over 350V.

Solder a wire from the Ground (G) pad on the FX Loop component board to a ground that produces the least amount of hum noise. This will usually be the cathode ground for the stage before or after the insertion location of the FX Loop.

Choose a point in the signal path to break and insert the FX Loop. The circuit is optimized for a point just before the driver or phase inverter stage. In our JCM800 test circuit, the FX Loop either goes between the treble and the master potentiometers, or just before the coupling

capacitor into the driver or phase inverter stage (see the schematic on Page 7).

Solder wires to the Signal In (in) and Signal Out (out) pads on the FX Loop board, and run them to the area of the preamp where signal path will be broken. If this is on a PCB of which you do not want to cut traces, pull the coupling capacitor from the board, and use the remaining holes for the installation.

Remember, however, to place the capacitor in line with the return lead of the FX Loop.

If there are no DC considerations where you are adding the FX Loop in the board, then it can be added without capacitors. If you experience any sort of failure on install with the board, it is likely there was a bias consideration that is being changed by the installation, and the circuit will need to be isolated with capacitors.



#### Step 4

Decide how you want your FX Loop to function with respect to input/output level control using trim or chassis mount pots or a basic install by jumping the *trim S* and *trim R* pads.

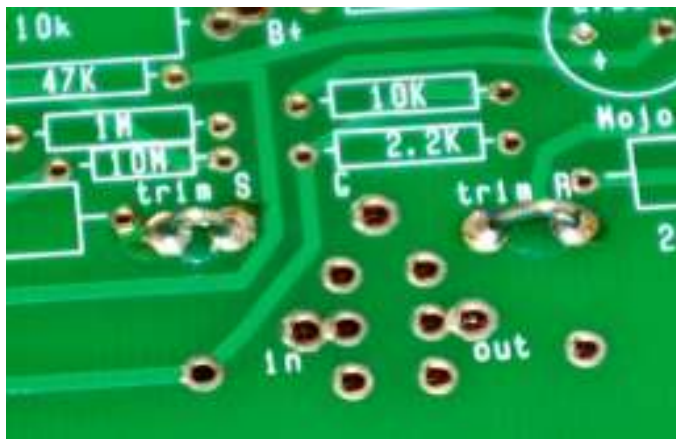
For a basic install, solder a wire jumper from one of the *trim S* pads to the other. Do the same for the *trim R* pads. This will complete the FX Loop circuit.

For input/output level control, solder the wiper of a 1M Ohm audio taper trimpot or an equivalent panel mount potentiometer to the *trim S* pad furthest away from the switch, and solder any of the outside pins of the potentiometer to the other *trim S* pad. Solder the final pin of the potentiometer to ground. This will complete the FX Loop circuit. Do the same for *trim R*.

Resistors can also be soldered into the *trim S* and *trim R* pads if a fixed control of the send or return is desired.

With stock components, installing the FX Loop in active mode will reduce your signal 10dB after the buffer stage of the circuit. On return, the signal will go through a gain stage that brings it back up 16dB. Therefore, the FX Loop will deliver a signal that is 6dB hotter. This can be trimmed by using the *trim R* output control, with the output potentiometer on your effects rack if you have one, or with your master volume. A signal flow is shown below. The FX Loop board can be re-configured for other level considerations by adjusting the voltage dividers shown. To permanently adjust the send to a higher level, simply increase the 470 Ohm resistor after the send buffer. To permanently adjust the return gain up or down, just reduce

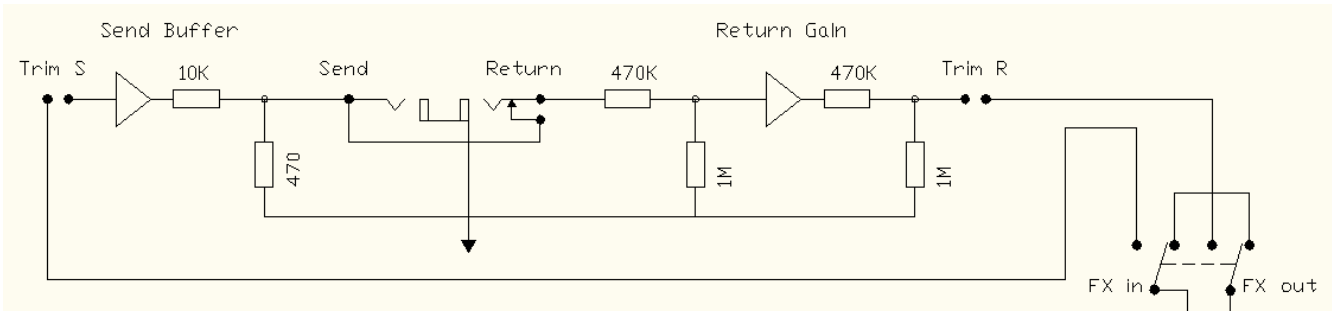
or increase the 470k Ohm resistors before and after the return gain.



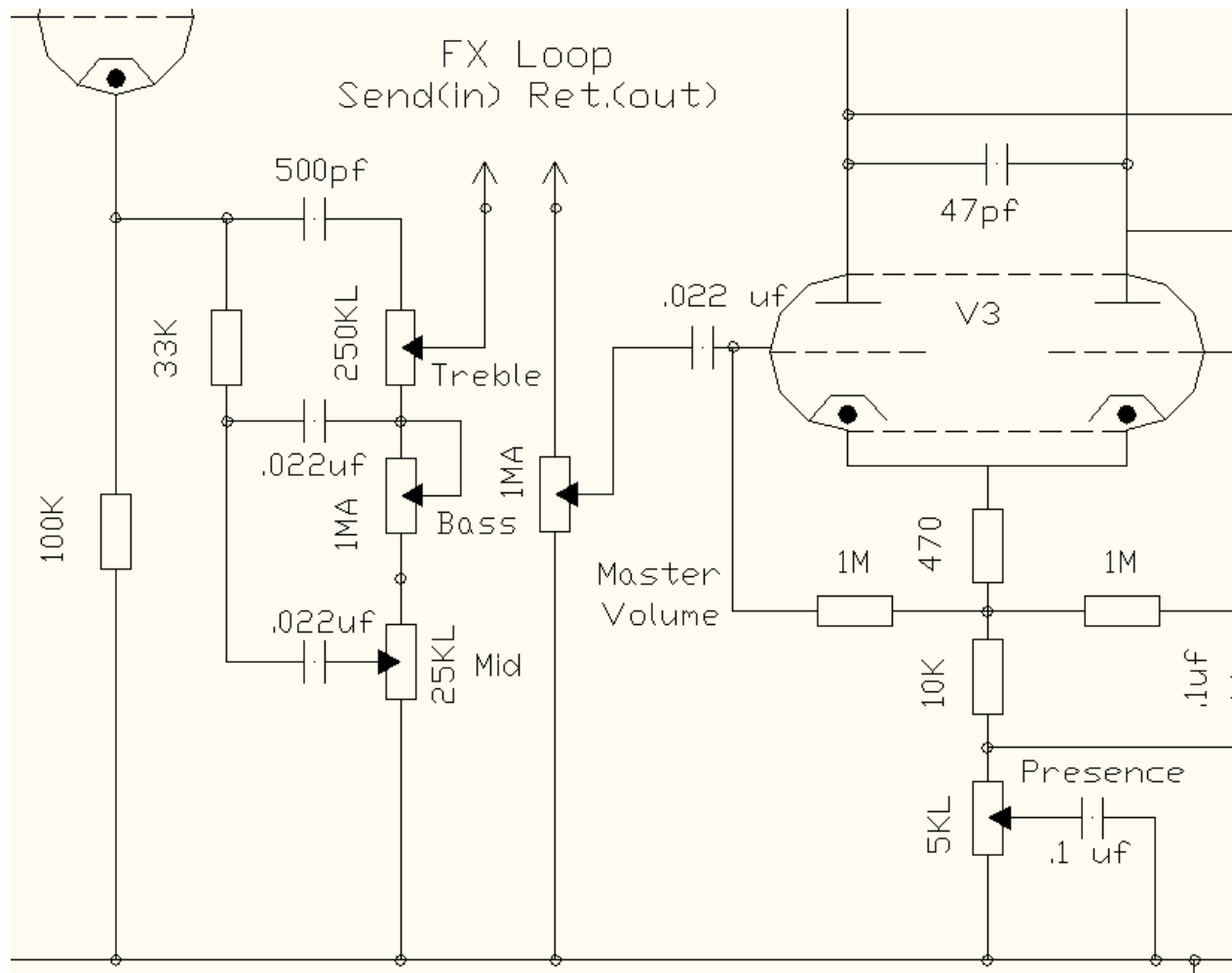
An empty board with trim S and trim R jumped with wire

With regard to coupling capacitors, the FX Loop buffer input capacitor must be retained in all cases since it blocks DC present at the input of the buffer. Assuming any gear you have in the effects chain has a capacitor on the input, we did not utilize a coupling capacitor on the input of the FX Loop. There should not be any DC on the input of the return stage. The output of the return gain stage has a coupling capacitor which must be there to block high voltage into your amplifier and across the voltage divider used to set the level out of the FX Loop.

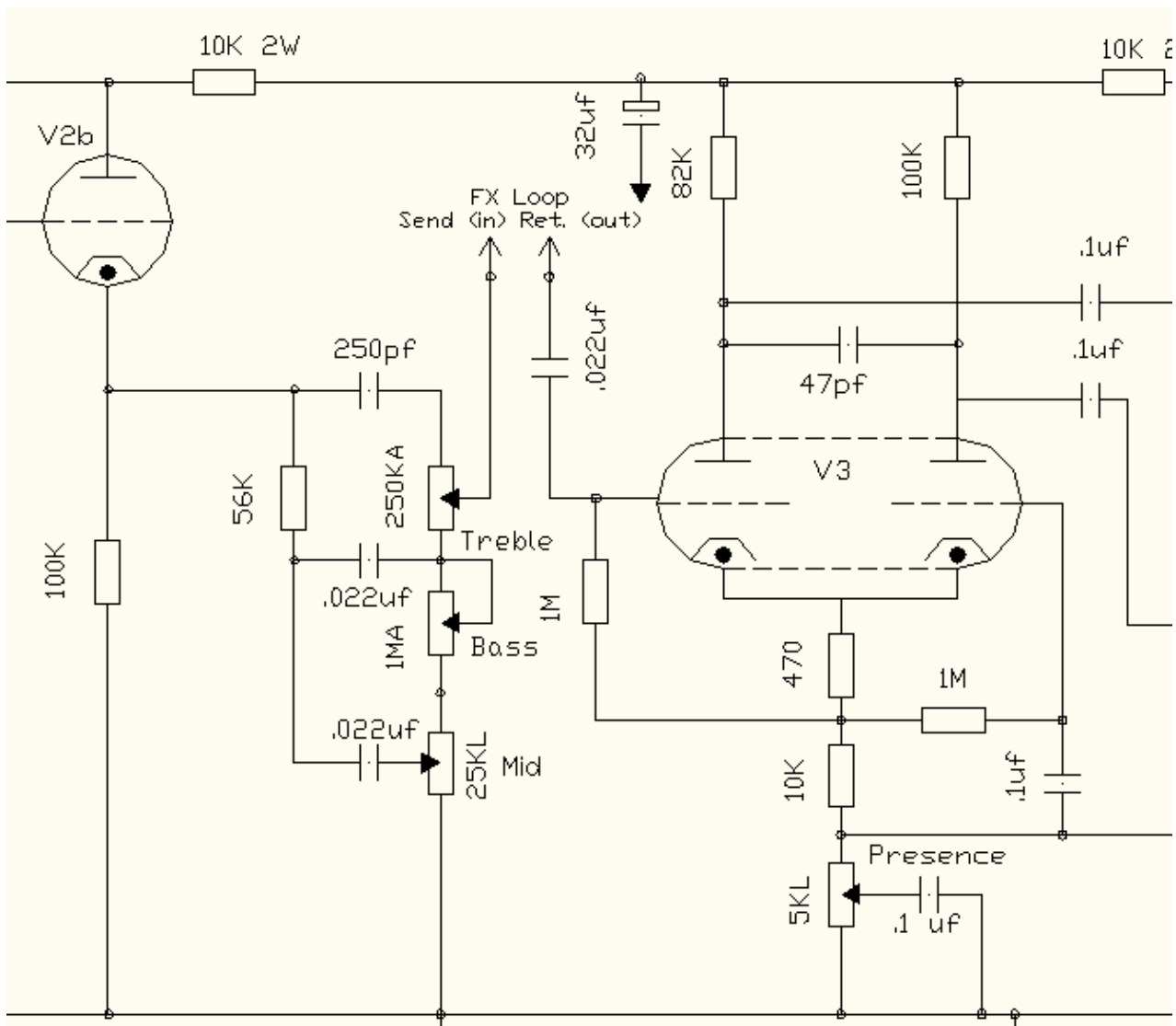
See the next page for the FX Loop Signal Flow Diagram and the example JCM800 install schematic.



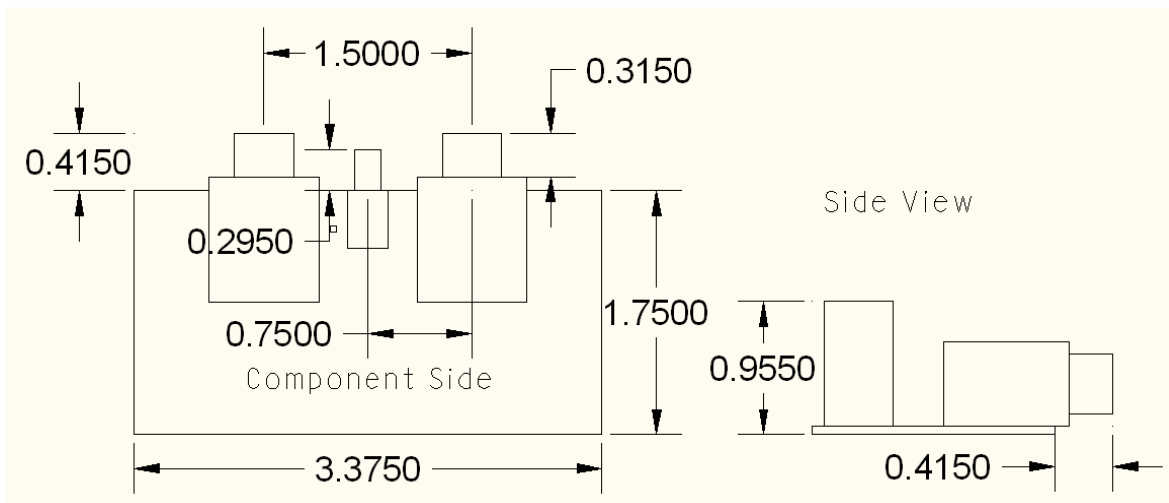
Signal Flow Diagram of the Mojo FX Loop



Schematic of the Example Install using the JCM800

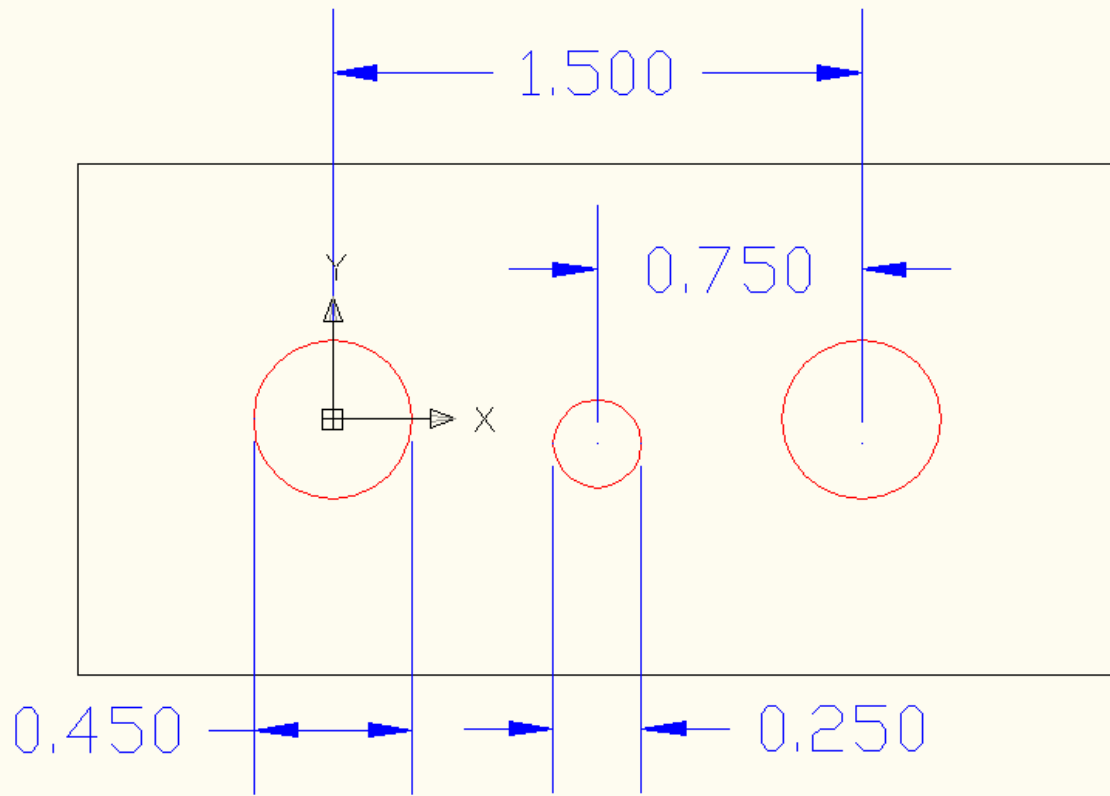


Schematic of an Example Install in a JTM-45 without a Master Volume



Dimensions in Inches





Template Dimensions in Inches