



Big Muff Pi Circuit Guide ^{V3}

A general guide to some of the component functions in a Big Muff. NOTE - Circuit sections are highly interactive. Changing the value in one area will affect the way another area functions. The circuit is actually very complex, so simple change-this-to-do-that mods may not have the desired effect.

INPUT STAGE - Simple amplifier and input impedance set. Sustain pot

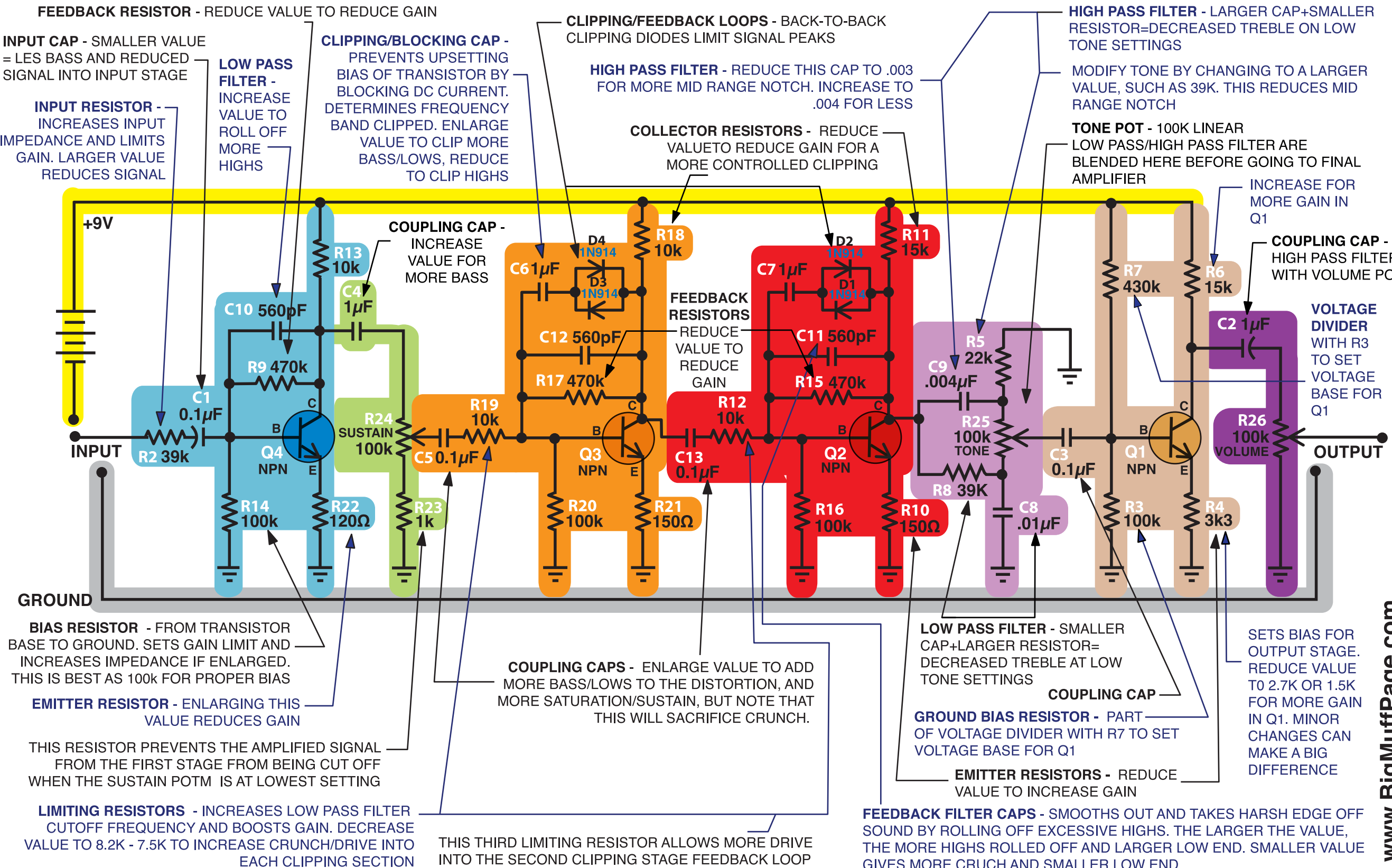
FIRST CLIPPING STAGE - Gain / distortion and signal clipping

SECOND CLIPPING STAGE - Same as first clipping stage, but clips an already distorted signal

TONE STAGE - High pass / low pass filter blend through Tone pot

OUTPUT / RECOVERY STAGE - Simple gain recovery amplifier. Volume pot

©KIT RAE



FEEDBACK RESISTOR - REDUCE VALUE TO REDUCE GAIN

INPUT CAP - SMALLER VALUE = LESS BASS AND REDUCED SIGNAL INTO INPUT STAGE

INPUT RESISTOR - INCREASES INPUT IMPEDANCE AND LIMITS GAIN. LARGER VALUE REDUCES SIGNAL

LOW PASS FILTER - INCREASE VALUE TO ROLL OFF MORE HIGHS

CLIPPING/BLOCKING CAP - PREVENTS UPSETTING BIAS OF TRANSISTOR BY BLOCKING DC CURRENT. DETERMINES FREQUENCY BAND CLIPPED. ENLARGE VALUE TO CLIP MORE BASS/LOWS, REDUCE TO CLIP HIGHS

CLIPPING/FEEDBACK LOOPS - BACK-TO-BACK CLIPPING DIODES LIMIT SIGNAL PEAKS

HIGH PASS FILTER - REDUCE THIS CAP TO .003 FOR MORE MID RANGE NOTCH. INCREASE TO .004 FOR LESS

COLLECTOR RESISTORS - REDUCE VALUE TO REDUCE GAIN FOR A MORE CONTROLLED CLIPPING

HIGH PASS FILTER - LARGER CAP+SMALLER RESISTOR=DECREASED TREBLE ON LOW TONE SETTINGS

MODIFY TONE BY CHANGING TO A LARGER VALUE, SUCH AS 39K. THIS REDUCES MID RANGE NOTCH

TONE POT - 100K LINEAR
LOW PASS/HIGH PASS FILTER ARE BLENDED HERE BEFORE GOING TO FINAL AMPLIFIER

INCREASE FOR MORE GAIN IN Q1

COUPLING CAP - HIGH PASS FILTER WITH VOLUME POT

VOLTAGE DIVIDER WITH R3 TO SET VOLTAGE BASE FOR Q1

BIAS RESISTOR - FROM TRANSISTOR BASE TO GROUND. SETS GAIN LIMIT AND INCREASES IMPEDANCE IF ENLARGED. THIS IS BEST AS 100k FOR PROPER BIAS

EMITTER RESISTOR - ENLARGING THIS VALUE REDUCES GAIN

THIS RESISTOR PREVENTS THE AMPLIFIED SIGNAL FROM THE FIRST STAGE FROM BEING CUT OFF WHEN THE SUSTAIN POTM IS AT LOWEST SETTING

LIMITING RESISTORS - INCREASES LOW PASS FILTER CUTOFF FREQUENCY AND BOOSTS GAIN. DECREASE VALUE TO 8.2K - 7.5K TO INCREASE CRUNCH/DRIVE INTO EACH CLIPPING SECTION

COUPLING CAPS - ENLARGE VALUE TO ADD MORE BASS/LOWS TO THE DISTORTION, AND MORE SATURATION/SUSTAIN, BUT NOTE THAT THIS WILL SACRIFICE CRUNCH.

THIS THIRD LIMITING RESISTOR ALLOWS MORE DRIVE INTO THE SECOND CLIPPING STAGE FEEDBACK LOOP

FEEDBACK RESISTORS - REDUCE VALUE TO REDUCE GAIN

LOW PASS FILTER - SMALLER CAP+LARGER RESISTOR=DECREASED TREBLE AT LOW TONE SETTINGS

COUPLING CAP

GROUND BIAS RESISTOR - PART OF VOLTAGE DIVIDER WITH R7 TO SET VOLTAGE BASE FOR Q1

EMITTER RESISTORS - REDUCE VALUE TO INCREASE GAIN

FEEDBACK FILTER CAPS - SMOOTHS OUT AND TAKES HARSH EDGE OFF SOUND BY ROLLING OFF EXCESSIVE HIGHS. THE LARGER THE VALUE, THE MORE HIGHS ROLLED OFF AND LARGER LOW END. SMALLER VALUE GIVES MORE CRUNCH AND SMALLER LOW END.

SETS BIAS FOR OUTPUT STAGE. REDUCE VALUE TO 2.7K OR 1.5K FOR MORE GAIN IN Q1. MINOR CHANGES CAN MAKE A BIG DIFFERENCE