

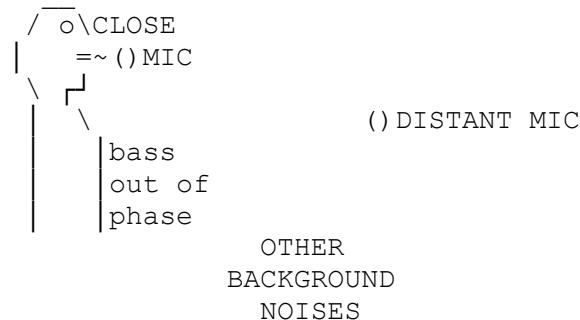
Mic DJ Preamp

By G8MNY

(Updated Dec 12)

(8 Bit ASCII graphics use code page 437 or 850, Terminal Font)

Here is a preamp from Mic to high line level with gain control, designed for an unbalanced close in Mic, with top lift and bass cut controls. As it is for close in Mic so very low noise it not needed, but a good bass roll off is. The bass cut reduced the woolly sound of close in Mics and the extra treble boost available also improves clarity if needed.



A close in Mic right in front of the mouth hears the loudest voice from the mouth and nose, hence other background noises (including PA feedback) are greatly reduced by the simple square law. E.g. voice is 6dB quieter for each doubling in distance.

The distant Mic hears both the noise and voice, but also the large amount of out of phase "bass" off of the speaker chest, which is how you generally hear a voice. So a close in Mic sounds very unnaturally bassy, even "woolly".

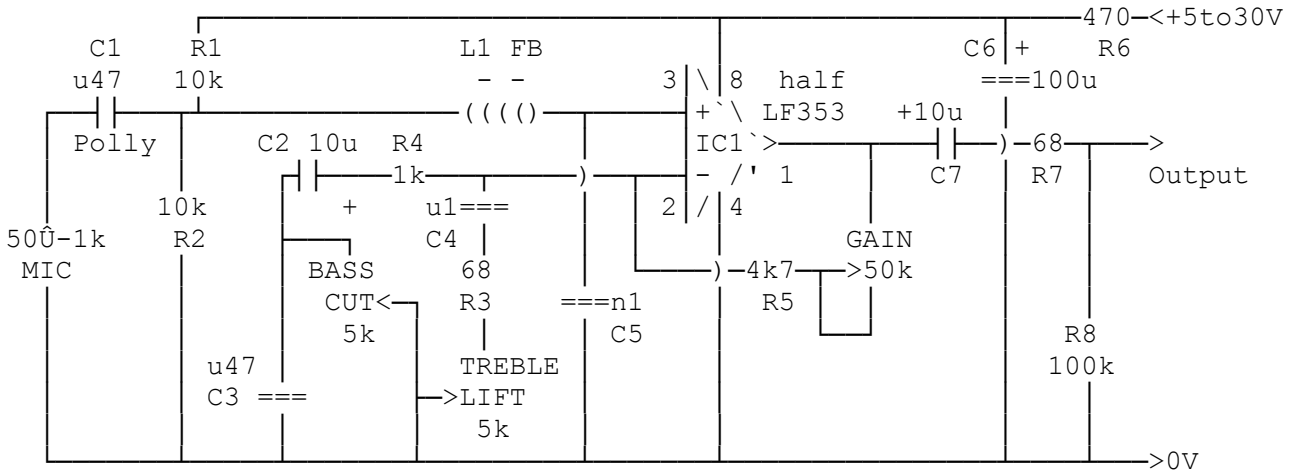
Cutting the bass, is the method usually used to gain all the advantages of the close in Mic without it sounding "woolly". But to make it sound really natural adjustable bass cut and treble lift (and sometimes middle) are needed depending on the voice characteristics, Mic proximity, and even ones body shape.

Lip Mics as used by broadcast commentators in noisy locations, is an extreme example of these principles in use, where the mic is designed to be at a fixed location to the face by a lip bar, and the nose shield helps reduce nose bass. The moving coil insert also has built in bass cut using a stiff diaphragm.

PREAMP SPECIFICATION

- GAIN..... 5 to 50 times. 14 to 24dB
- TREBLE LIFT @ 15kHz 0dB to +15dB
- BASS CUT @ 100Hz -3dB to -15dB
- INPUT Z 5kΩ suitable for any low Z mic.
- NOISE... Very low for 1/2 of a simple low noise op amp.
- POWERING +8V to +36V DC powering @ 3 - 5mA (C6 voltage!)
- RFI OK for reasonable levels, e.g. Cellphones/VHF/HF radio.

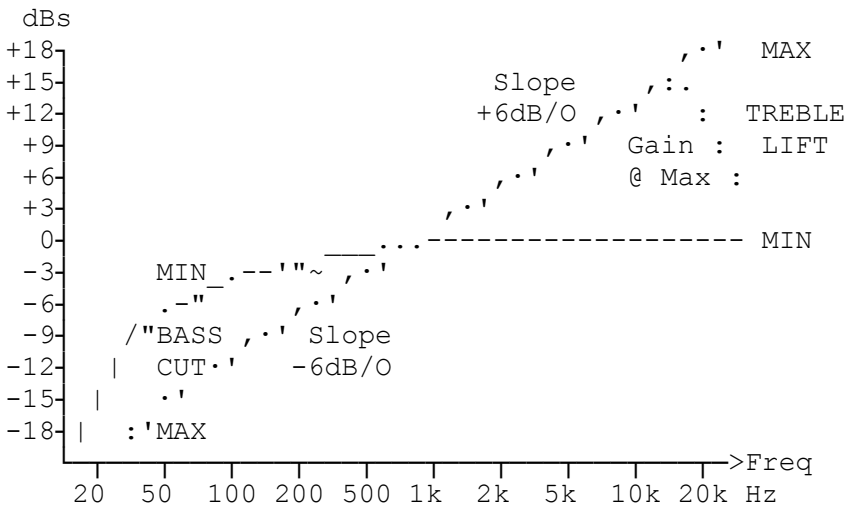
CIRCUIT



WHAT DOES WHAT

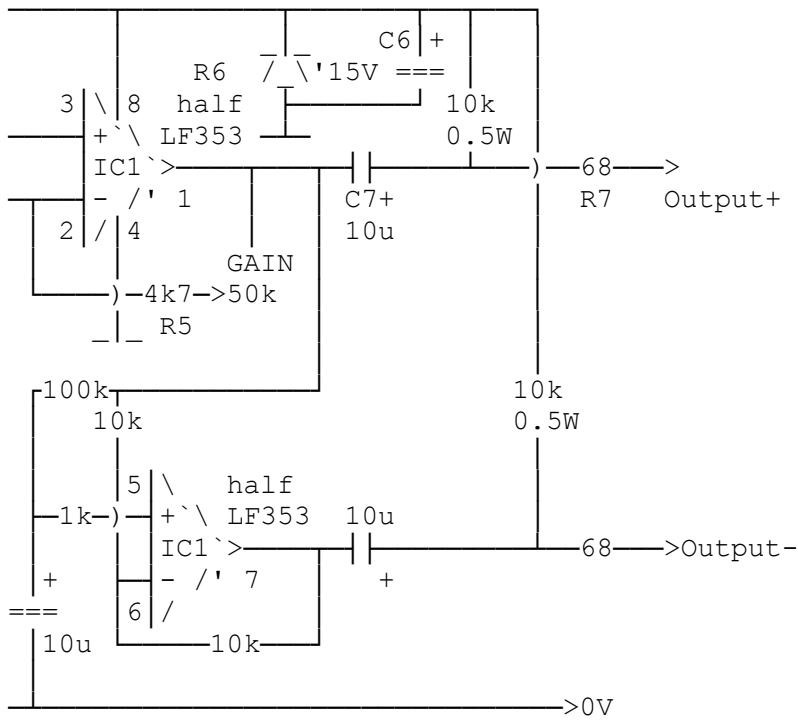
R6 and C6 decouples the supply, and makes sure it is quiet to feed into R1.  
 C1 is a low noise input capacitor, just big enough to let though 100Hz @ -3dB.  
 for flatter low bass use C1 = 5uF.  
 R1 + R2 Bias the amp to 1/2 power rail and determine the input Z.  
 L1 near IC is 10 turns on a ferrite bead, and with C5 forms a RF low pass filter.  
 IC1 is low noise, only 1/2 used here, making pins 3 and 4 ideal for C5 mounting.  
 R5 + 50k Gain with R4, set the gain 5 to 50. (50 is max if U want treble lift)  
 C2 and R4 give minimum bass roll off. (as did C1). For flatter bass use C2 = 100u  
 C3 and Bass Cut control give up to -6dB/O additional bass cut.  
 C4 and R3 + Treble Lift Control, give up to +6dB/O treble boost.  
 C7 DC decouples output.  
 R7 sets the output Z to 68Ω, and gives some static and RF protection to the IC.  
 R8 discharges C7 if needed.

TONE CONTROL GRAPHS (measured)



BALANCED PHANTOM POWERED

By using the 2nd opamp in the IC a balanced output can be made to be power from +48V phantom mixer feed.



See my bul on "Hands Free Mobile Mic".

Why Don't U send an interesting Bul?

73 De John, G8MNY @ GB7CIP