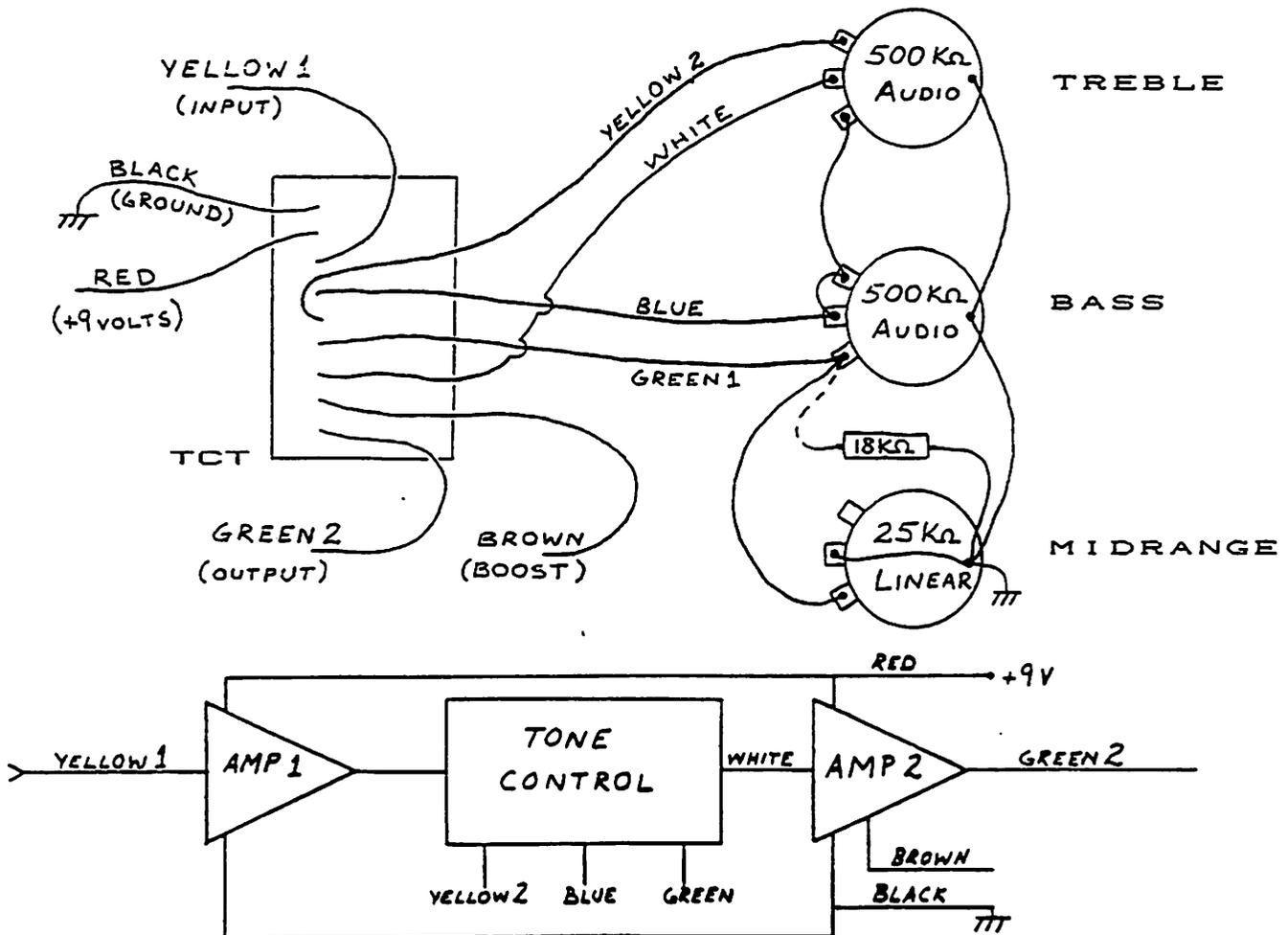


bartolini PICKUPS AND ELECTRONICS

TCT - Bass-Mid-Treble Tone Control

The TCT is a tone control module designed for electric guitars, basses and other electronic musical instruments. It yields a very wide range of boost or attenuation of the Bass, Midrange and Treble regions of the musical instrument spectrum. Its tonal range is equal to that of the older Fender preamps with Bass, Treble and Presence (low midrange) controls.

The TCT is designed for the input levels expectable from most passive magnetic pickups. It is internally shielded for very low hum and noise levels and uses a single 9V battery with very low battery drain. Battery life is more than 2 months continuous use for most alkaline batteries. The TCT tone control module consists of an input amplifier stage followed by the tone control section and an output amplifier stage. The overall gain of the TCT can be boosted with very simple additions to the circuit. This boost can occur over the entire musical spectrum or it can be used to enhance just the midrange and treble regions.



If the midrange control is not wanted on the face of the instrument, it can be replaced by a miniature trim potentiometer of the same value within the control cavity. To leave the midrange control out of the circuit connect the 18K-ohm resistor provided from the green 1 lug of the Bass control to ground. This leaves the midrange set at maximum.

Gain Boost - A capacitor and a resistor connected from the Brown lead to ground boosts the gain of the second amplifier stage. Capacitor values

greater than 10 mfd will increase the gain of the TCT over the entire musical range. Values of 1 mfd or less will limit the boost to the midrange and treble regions. Very low capacitor values will enhance only the upper treble frequencies. Resistor values of 1.5K-ohm to 2K-ohm will give an increase in gain of approximately 12 dB (twice the loudness). To increase the amplifier gain to its maximum value connect the capacitor directly to ground. When the brown lead is not used it should be covered with tape or shrink tubing to prevent grounding.

Tone control settings given as
Bass - Mid - Treble

Maximum input level
600 millivolts rms

Input levels above this limit will not harm the TCT but will cause distortion in the output signal.

Maximum output level
2.5 Volts rms

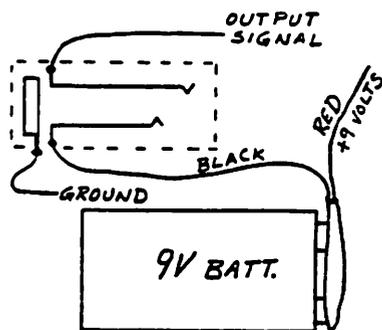
Input impedance 320 K-ohms

Output impedance 60 K-ohms

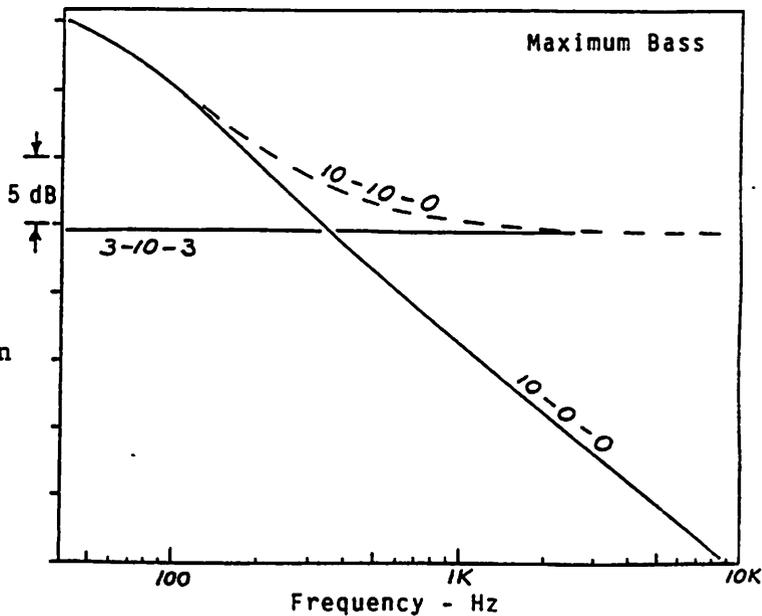
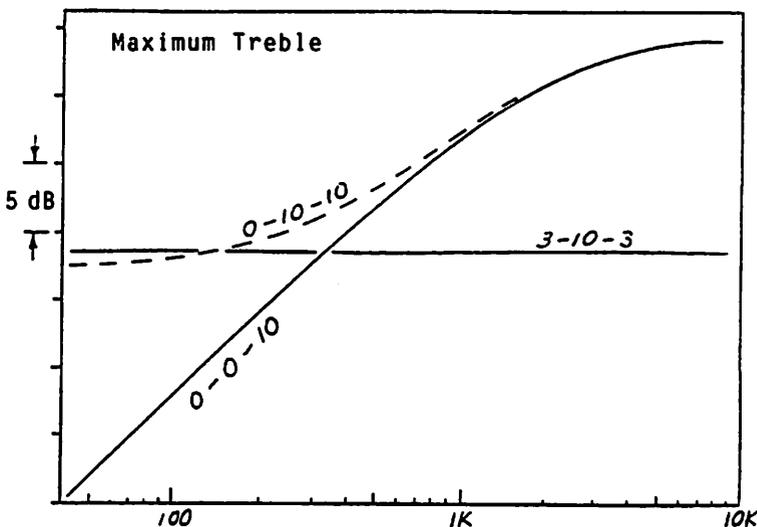
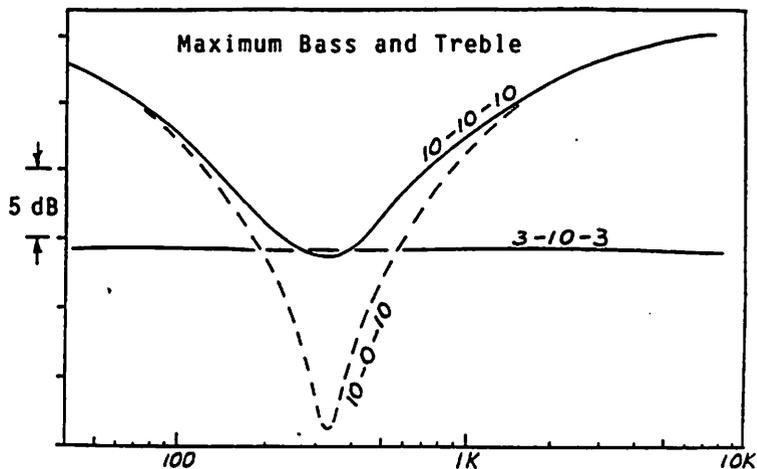
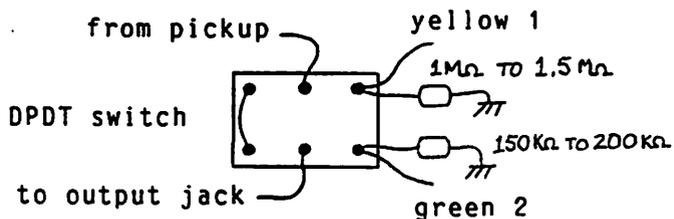
Battery drain 330 microamperes
(single 9 Volt battery)

Gain (with controls set for flat response, brown lead not used) +2dB

Battery switching using stereo output jack (mono plug grounds the negative terminal of the battery)

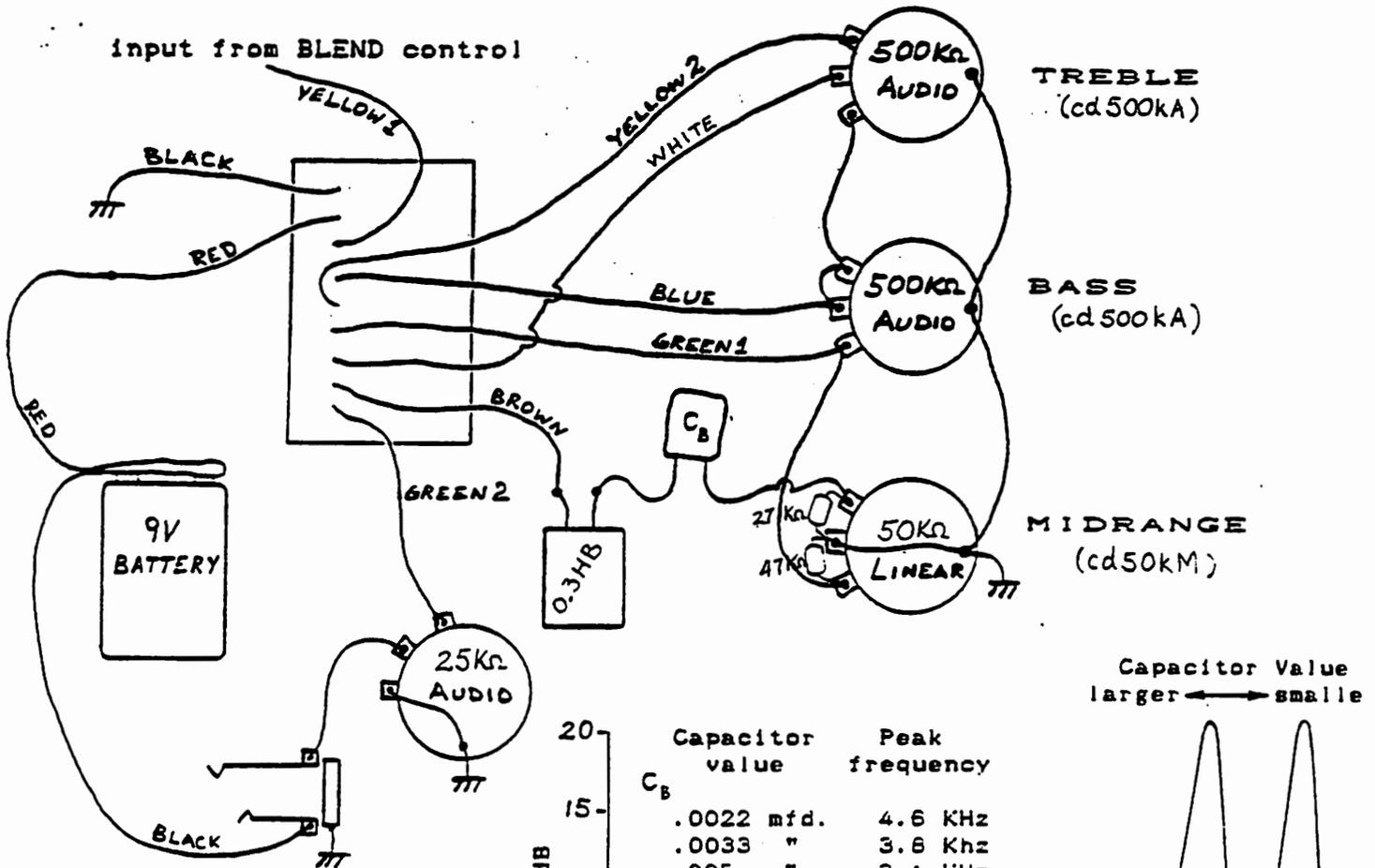


Active - Passive Switch - DPDT on-on



bartolini PICKUPS AND ELECTRONICS

TCT - Bass-Mid-Treble Tone Control



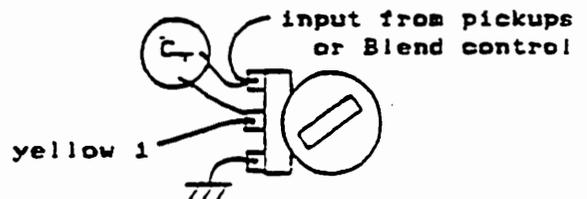
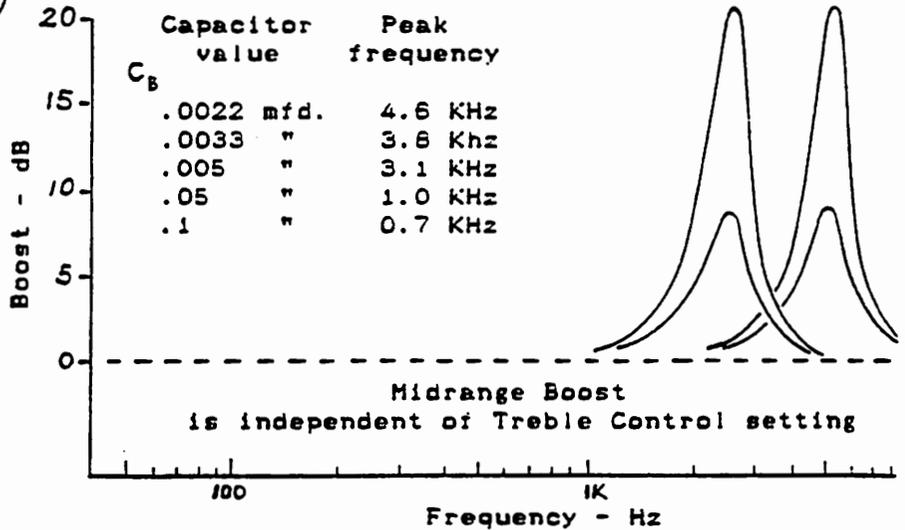
NARROW BAND BOOST

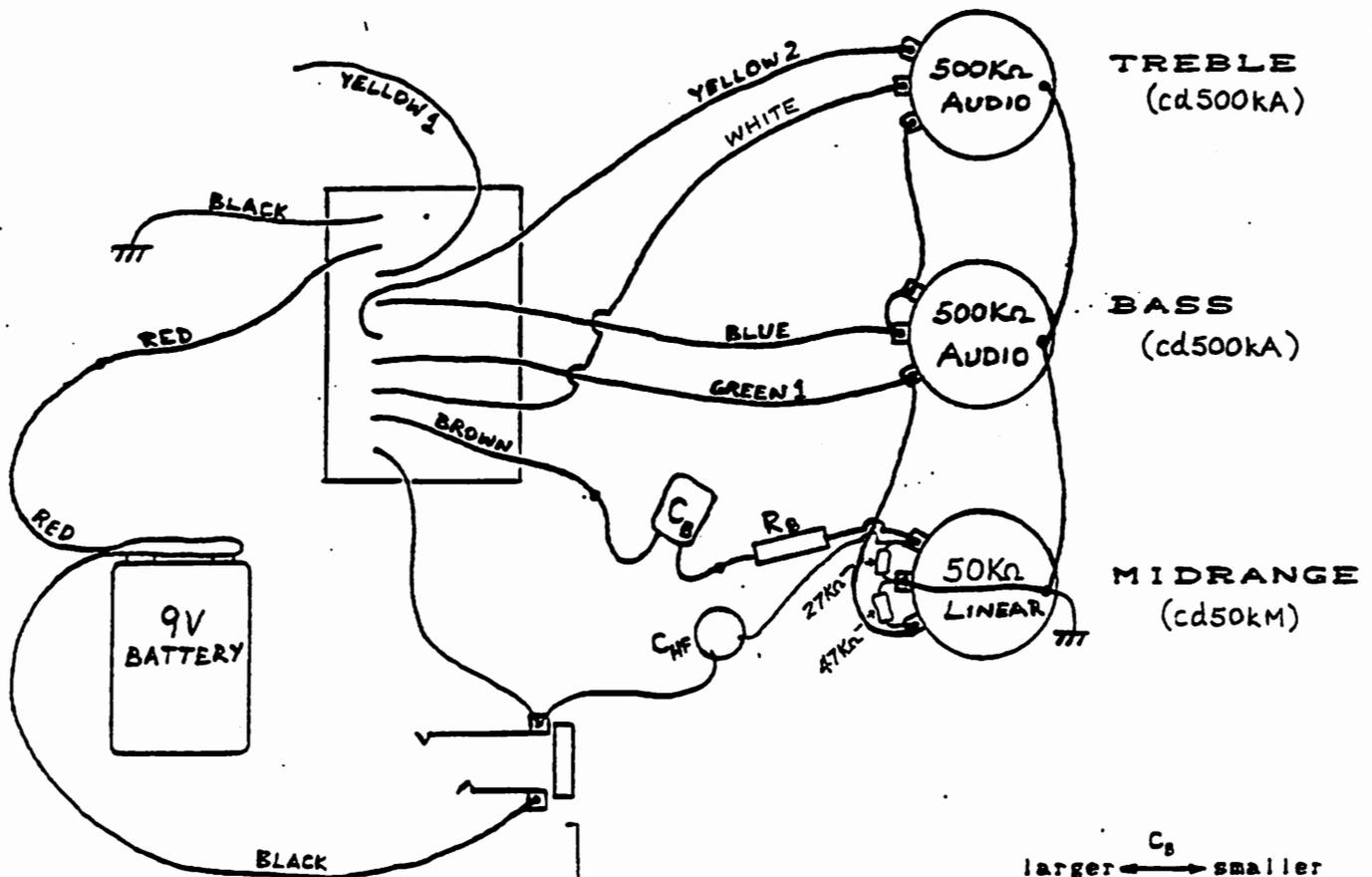
As the Midrange knob is turned clockwise, the inductor and capacitor connected to the Brown lead enhance a narrow band of frequencies.

When it is used at frequencies near 4 KHz, this narrow band boost yields a bright, "piano-wire" tone for the

highest definition from string slap bass techniques or enhanced treble brightness from guitar pickups. It is also useful at frequencies below 1KHz to bring out the lower midrange warmth of guitars and basses. The inductor is available from us (0.3HB). To limit the maximum boost connect a resistor between the Brown lead and the inductor. A resistor value of 750 ohms will decrease the maximum boost by 6 dB. If the capacitor is polarized, its (-) lead should be connected to the midrange control. If separate Volume controls are used, then Green 2 is connected directly to the output jack.

VERY HIGH OUTPUT PICKUPS can cause unwanted distortion in the TCT input stage. Attenuating the signal from these pickups with a trim potentiometer eliminates the distortion. For high impedance passive pickups, use a 500Kohm trim pot & 500pf treble bypass capacitor (C_T). For low impedance active pickups, use a 25Kohm trim pot without the treble bypass capacitor.





WIDE BAND BOOST

As the Midrange knob is turned clockwise, the resistor and capacitor connected to the Brown lead enhance a wide band of frequencies.

C_B , R_B and C_{HF} shape this boosted region. Small values of C_B boost only the treble. Larger values boost more of the mid-frequencies. R_B limits the maximum boost. C_{HF} attenuates very high frequencies and also decreases electronic noise.

For bright, "piano-wire" tone use $C_B = .022$ mfd $R_B = 1$ K-ohm $C_{HF} = 750$ pf. For a fatter tone with more upper midrange use $C_B = .047$ $R_B = 1.5$ K-ohm $C_{HF} = 750$ pf.

