

ACOUSTAT MK-121 SERIES "C" MODIFICATION

The "C", or "Red Label" version of the MK-121 series interface changes the configuration of the input circuit to the high-frequency transformer. The new circuit reduces the possibility of HF transformer saturation, yielding a smoother top-end response and reduced high frequency distortion. Note that this modification can be applied to any MK-121 interface, even if it does not have the Medallion Transformers. This modification *does not* apply to any of the Spectra models.

This modification requires basic electronic hand tools, and the ability to relate schematics to physical component layout. Included are schematics of the "before" and "after" HF transformer input circuit. Details are provided on the various ways resistors can be used, which depend on your preferences, and which MK-121 you have. You'll need to do some planning on how to re-wire the interface, and mount the new components. This will be determined by the style of interface to be modified, and the particular components chosen (some of them vary quite a bit in size, especially the polypropylene capacitors).

Using original 6-ohm variable resistor

This method re-uses the original 6-ohm variable resistor to allow the HF balance to be varied. This original 6-ohm can be either the early-series rotary type, or the later-series slider type resistor. A 10-ohm resistor (25 watts minimum) is added to make up the 16-ohms. *This is the preferred and easiest method of accomplishing the modification.*

Factory modified 16-ohm variable

This method was used by the factory to manufacture new "C" versions, or to modify interfaces with the slider type of HF Balance Control. This used a single, special slider type resistor, with an upper variable section of 3-ohms, and a lower fixed section of 13-ohms. This was a custom made part, although they might be found on eBay from seller "Soundvalves". *This method is shown for reference only, to identify factory modified units.*

Using Fixed Resistors

This method uses two individual fixed resistors, providing a fixed amount of HF balance. The upper resistor can vary from zero-ohms (maximum HF content), to as high as 6-ohms (minimum HF content). The lower resistor can vary from 10-ohms to 16-ohms, (*never less than 10-ohms!*) but should be set so that the total of the two resistors equals 16-ohms. Each resistor should be rated for at least 25-watts. *This method should be used only if you are certain of the desired HF balance setting.*

Capacitors

The capacitor must be changed in value, from 220-uF to 47-uF (or 50-uF). The factory modification used a non-polar electrolytic, but a polypropylene would be a better choice. Interfaces with the original "C" mod would also benefit from upgrading this capacitor to polypropylene.

Note that there are two other capacitors in parallel with the main capacitor. These may not be present on very early interfaces, but should be added as part of the modification. The 10-uF should be polypropylene, and the 0.01-uF should be polystyrene or polypropylene. These two capacitors improve the very high frequency character. All capacitors should be rated for at least 50-volts. A higher voltage rating is okay but not necessary.

Parts Required (for one pair of interfaces, re-using original 6-ohm variable)

- 2 10-ohm, 25-watt resistors
- 2 47-uF, 50-volt capacitor
- 2 10-uF, 50-volt capacitor (if not present on original)
- 2 0.01-uF, 50-volt capacitor (if not present on original)

Parts Sources

All of the required components are commonly available from electronic distributors or specialty audio parts dealers. Below are some suggested sources, but many others are available. Note that there is a wide range of prices for the capacitors.

Notes:

Part numbers are from distributor websites as of June 2003.

Manufacturer name is given for reference only: order by distributor part number.

Digi-Key: www.digikey.com

Newark Electronics: www.newark.com

Parts Express: www.partsexpress.com

10-ohm, 25-watt tubular resistor

| <u>Manufacturer</u> | <u>Distributor</u> | <u>Distributor P/N</u> |
|---------------------|--------------------|------------------------|
| Huntington | Digi-Key | FVT25-10-ND |
| Ohmite | Digi-Key | L25J10R-ND |

An alternate to the tubular resistor is an aluminum-body resistor. This type may be easier to mount to the chassis than the tubular style. Since these types are smaller in size, a 50-watter is shown:

10-ohm, 50-watt aluminum-body resistor (alternate choice)

| <u>Manufacturer</u> | <u>Distributor</u> | <u>Distributor P/N</u> |
|---------------------|--------------------|------------------------|
| Vishay | Newark | 01F9911 |

47-uF, 50-volt (minimum) polypropylene

| <u>Manufacturer</u> | <u>Distributor</u> | <u>Distributor P/N</u> |
|---------------------|--------------------|------------------------|
| Solen | PartsExp | 027-600 |

10-uF, 50-volt (minimum) polypropylene (if required)

| <u>Manufacturer</u> | <u>Distributor</u> | <u>Distributor P/N</u> |
|---------------------|--------------------|------------------------|
| Dayton | PartsExp | 027-428 |
| Solen | PartsExp | 027-568 |
| Vishay | Newark | 81F3480 |
| Theta AudioCap | PartsExp | 027-740 |

0.01-uF, 50-volt (minimum) polypropylene (if required)

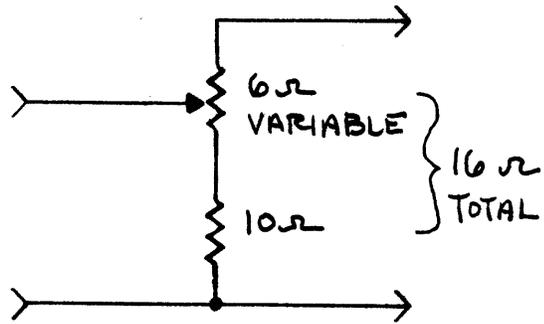
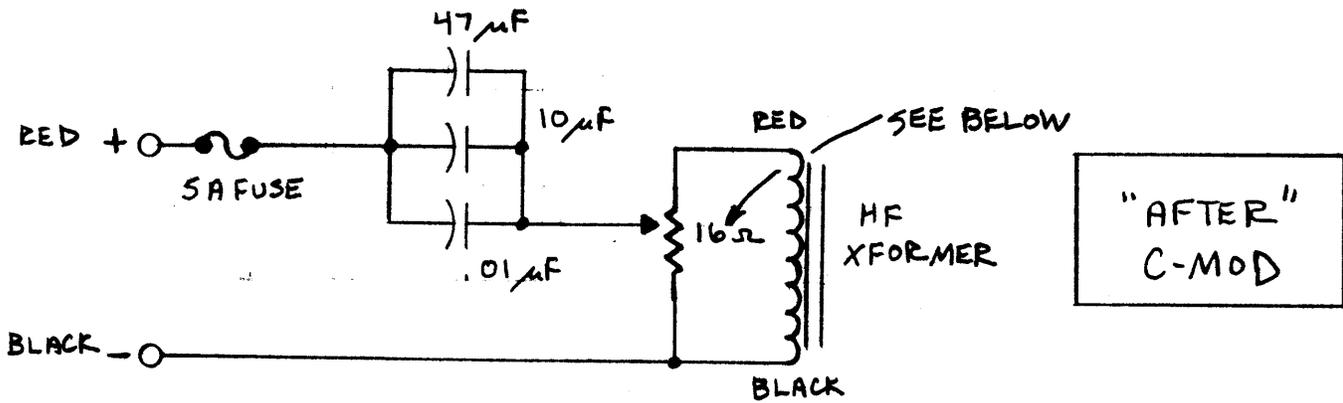
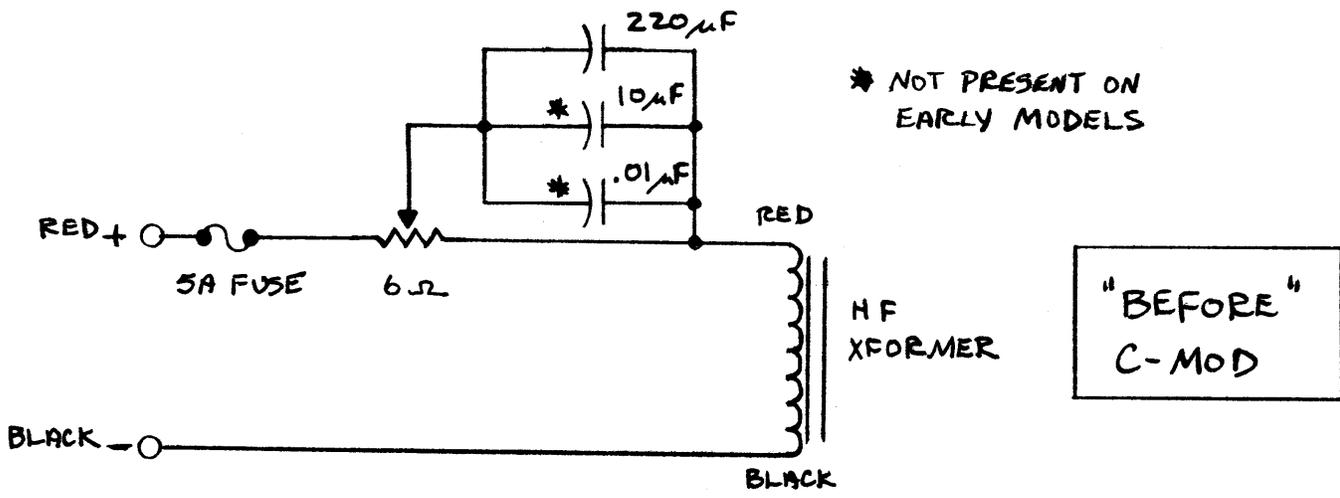
| <u>Manufacturer</u> | <u>Distributor</u> | <u>Distributor P/N</u> |
|---------------------|--------------------|------------------------|
| Dayton | PartsExp | 027-450 |
| Theta AudioCap | PartsExp | 027-700 |

Additional Resource

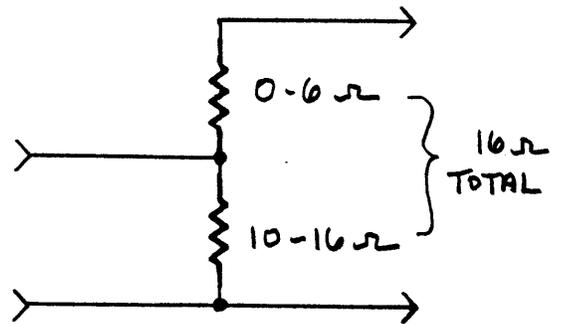
A set of instructions for the complete Medallion Transformer plus C-Modification is available. These instructions also cover the replacement of the transformers. Although these instructions were written specifically for the MK-121-2(A) style of interface (with the rotary HF Balance Control), the information provided will help with modifications to any of the interface styles.

Please feel free to post any questions you have about this modification.

-Andy Szabo
June 2003
Revised Oct 2010



USING ORIGINAL 6Ω VARIABLE



USING FIXED RESISTORS

