

# reQuest Crossover capacitor upgrade

by James Carroll – December 11, 2003

## Overview

Based on my previous experience upgrading the crossover capacitors of several other speakers, I decided that it would be a good project to pursue on the Martin Logan Requests I purchased recently. However, the Requests do not have a simple crossover, so I needed to evaluate what could be upgraded. The link below is to a PDF version of the schematic of the Requests.

[\(link removed - schematic can be found on the last page of this document\)](#)

Looking at this setup, the simplest and most cost effective upgrade is a simple capacitor upgrade on the high-pass (stat) circuit. I could examine better resistors and inductors, but given the size and complexity of this crossover, I figured best not to play it too much, plus, it's a pretty darn good speaker as is. Plus, the only practical upgrade, that I figure would have the biggest bang for the buck are the 3 smaller capacitors. Primarily the 10mfd and 15mfd that are directly in the signal path, but while I was at it I figured I'd do the 5mfd cap as well. Several options: Jensen, Arui, Hovland, etc... Decided based on past experience that Auri's are reasonably priced, and offer sound every bit as good as the Hovlands (some might disagree, this is just my experience) and as a nice perk, are physically about half the size of the Hovlands and Jensens. The total price for both speakers ran about \$160. The capacitors are available directly from Audience at: [www.audience-av.com](http://www.audience-av.com)

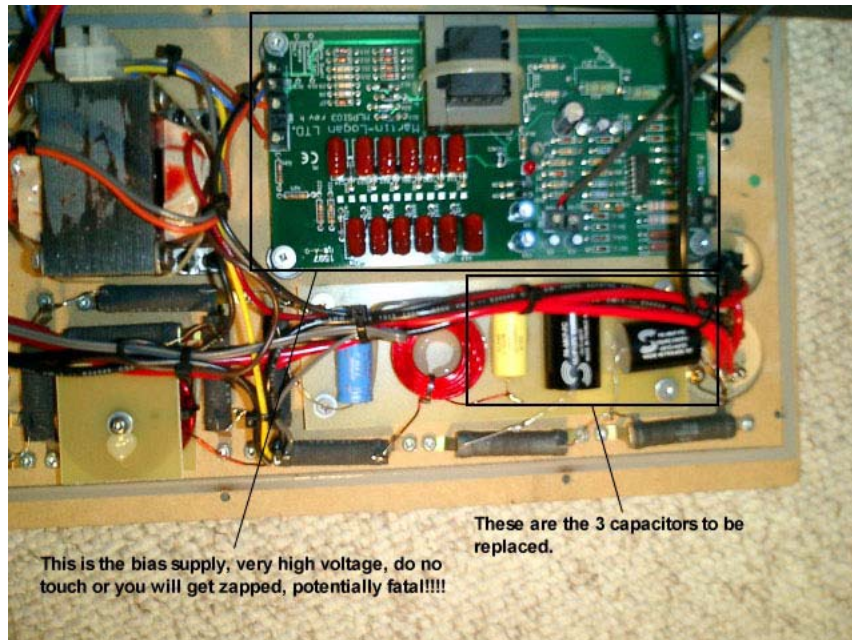
The upgrade itself is simple, snip the old capacitors out, and solder the new ones in. Keep in mind, that all stat speakers use a bias voltage supply to raise the voltage on the stators, so you have MUCH higher voltages going on inside there so **be very careful**. I unplugged the speakers long before opening them up, and made sure they were discharged by trying to play them without power, you'll still hear a little coming from the stat panels, but it is very significantly reduced, barely audible.

## Procedure

Lay the speaker on it's side. You can't do this with them standing up as the cords inside aren't long enough to allow you to lay the back panel down unless the speaker is on it's side. Unscrew the back panels and pull them off. They are heavy and take some coaxing to get off. Below is a picture of the panel removed. Notice, this is about as complex a crossover as you'll find (mainly because it's more than just a crossover)



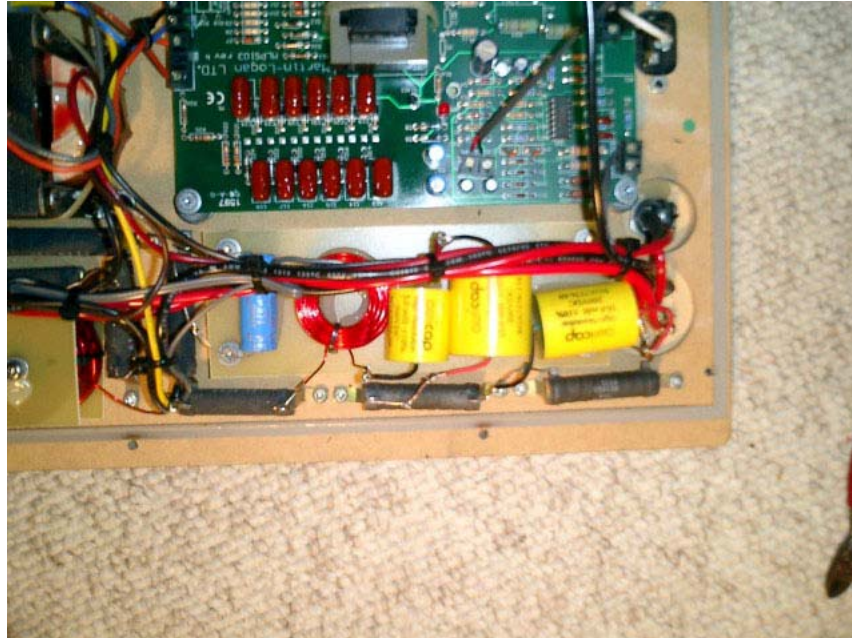
Below is a close up of what we'll be removing, the 2 Solen capacitors and one yellow one. Left to right, these are 5mfd, 15mfd, and 10mfd. They are held in place with a little bit of hot glue. You'll probably want to reglue the new caps when you install them. I just used a little ShoeGoo adhesive. So, snip these out one at a time. Follow the schematic carefully, as the Auri caps claim to be polar, and you'll want to put the red lead towards the signal input (+).



Here's a shot showing the new capacitors in place. They are each a little bit bigger than the ones they replaced, but not much and fit. Anything bigger and you'd have to get a little creative.



Here's a close up. Double check the connections, make sure the solder joints are good, and button it up, repeat on the next speaker



### **Impressions**

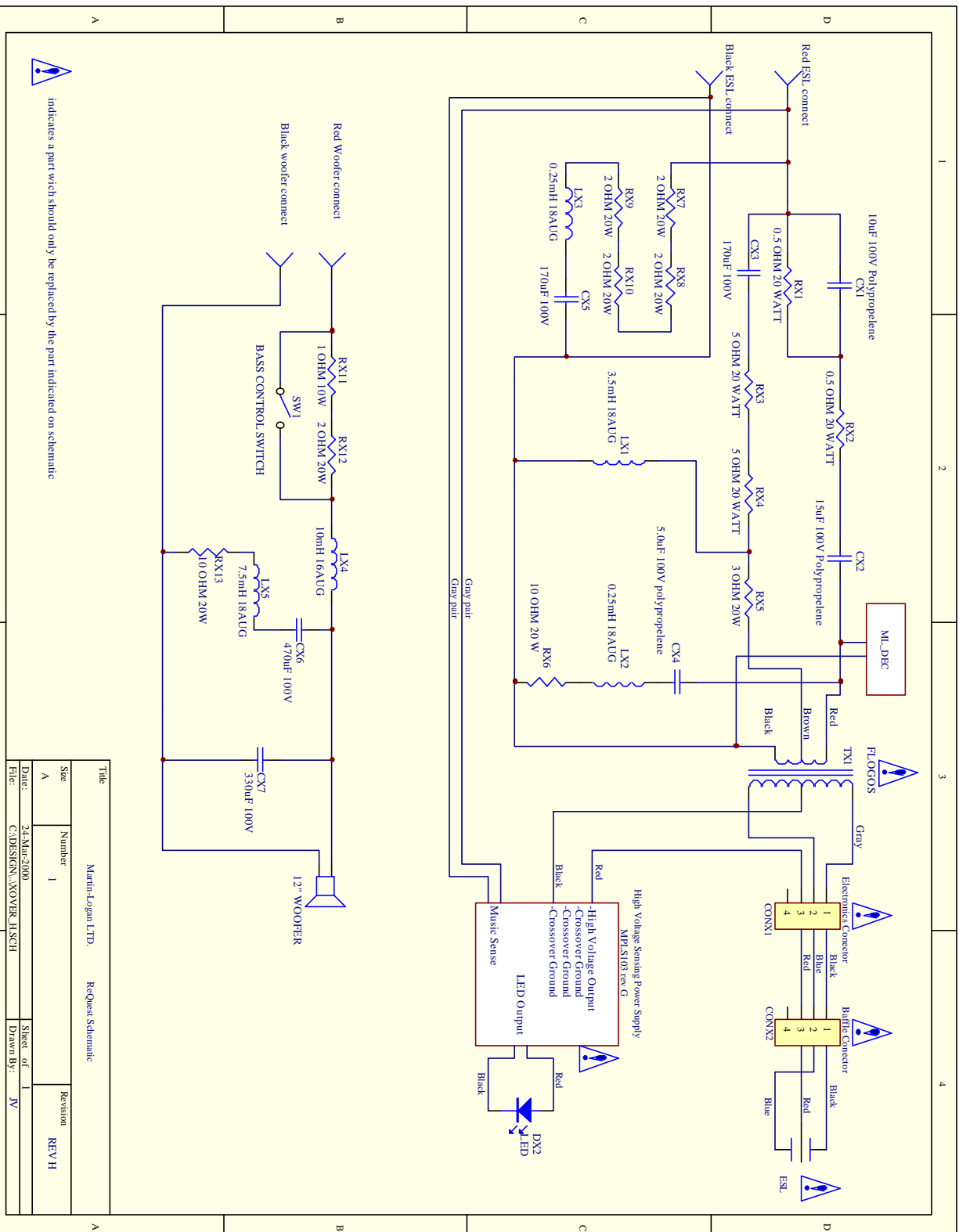
I have done this upgrade on my older Magnepan MG12's and a pair of 1.6QR's. On both of those the effects were dramatic. So far I've only been listening to the Requests for about an hour so this is initial impressions, and the caps haven't broken in yet. Overall the sound is definitely improved. Not as dramatically as the MG12's were, but due to the complexity of the crossover, I expected this. The sound is more focused, natural, and open. It's been my experience that Solens tend to sound a little harsh, and this upgrade bears that out. The Auri's definitely sound cleaner and more natural. A hint of grain appears to be gone, and each instrument is more focused and detailed. A voice or instrument that previously seemed to cover an area of about 12" in the sound field now seems like it's only 6" wide. More focused and clear. The speakers have definitely disappeared a bit more. There are definitely some subtle details that are coming out that I didn't hear before, particularly at low volumes. The harshness of the treble (not that there was much to begin with) seems gone. The treble is still there, but it's not grainy at all. Overall I highly recommend this upgrade. Granted, your experience may vary, and at \$160 it's not cheap, but compared to the price of the speakers it's a bargain.

### **Editor's Note**

*James is obviously very comfortable working with electronics. Please be VERY careful if you decide to perform this tweak to your system. Capacitors are very tricky and must be fully discharged before working with them. As he noted in one of the images, the bias voltage circuit is very dangerous as well. **BE CAREFUL!***



Indicates a part which should only be replaced by the part indicated on schematic



Title		Martin-Logan LTD.		Re-Quest Schematic	
Size	Number	1		Revision	REV H
A					
Date:	24-Mar-2000	Sheet of	1	Drawn By:	JV
File:	C:\DESIGN\...XOVER.HSC.H				

1

2

3

4