Expat Audio Cavendish

All-discrete (API-style) signal path upgrade for the GSSL Compressor

Introduction

The Expat Audio Cavendish is an add on modification for the popular GSSL Audio Compressor. It takes place of the NE5534 differential input stage, and the NE5532 operational amplifiers used to drive the output, and drives the signals through discrete operational amplifiers (such as API2520, Jensen/John Hardy 990 or their clones) and onwards into output transformers.

Revision Control & Edits

Expat Audio PCB's are typically designed using a X.Y versioning system Please look on your PCB to see the version number. The silkscreen will either read "version X.Y" or PG X.Y

Cavendish is currently at PG1.0 and working well.

Owing to a discrepancies in the GSSL schematic versus the board layout, where the 5532 output stages are shown reversed on the schematic, version PG1.0 requires that the 'jumper' cables for the 5532 stages have three pairs of pins swapped:

Pin 1 must be swapped with pin 7
Pin 2 must be swapped with pin 6
Pin 3 must be swapped with pin 5

Assembling the board

Building and installing the Cavendish board is very simple. Two output transformers are needed for the output. EA2503 are what we used. They are available from Classic API.

4 discrete operational amplifiers are needed. Clones, (available at great places like Classic API or Whistle Rock Audio) can be used too.

Please follow users guides for those discrete operational amplifiers for details on how to build them. The transformers are really easy to install. Simply follow the color coding details on the PCB itself.

The large capacitors on board provide DC blocking protection for the transformers. Make these as large as possible, to reduce any high pass filtering effects, or if you're certain that you have near-zero DC offset, you could link these out. –Since the API designs we love use a DC-blocking capacitor we included the part, but the option is there for you.

The output trim pots allow the gain to be trimmed to match both outputs. This can be calibrated by setting the compressor to bypass and sending the same signal to LIN and RIN in the GSSL, then comparing the outputs. The GSSL uses 7.5KOhm resistors for this

purpose. We recommend removing the 7,5K's on the main GSSL board and replacing with the 5K resistor and 5K trim pot on Cavendish.

Connecting them to the main PCB is done by replacing the output opamps on the GSSL mainboard with 8 pin ribbon cable, terminated with a DIP "IC" style header. This essentially "extends" the opamp from the original GSSL over to the Cavendish board. Also, Ground should be connected on a single wire from the Canvendish to a point as close to the GSSL Opamps as possible.

Simple ☺
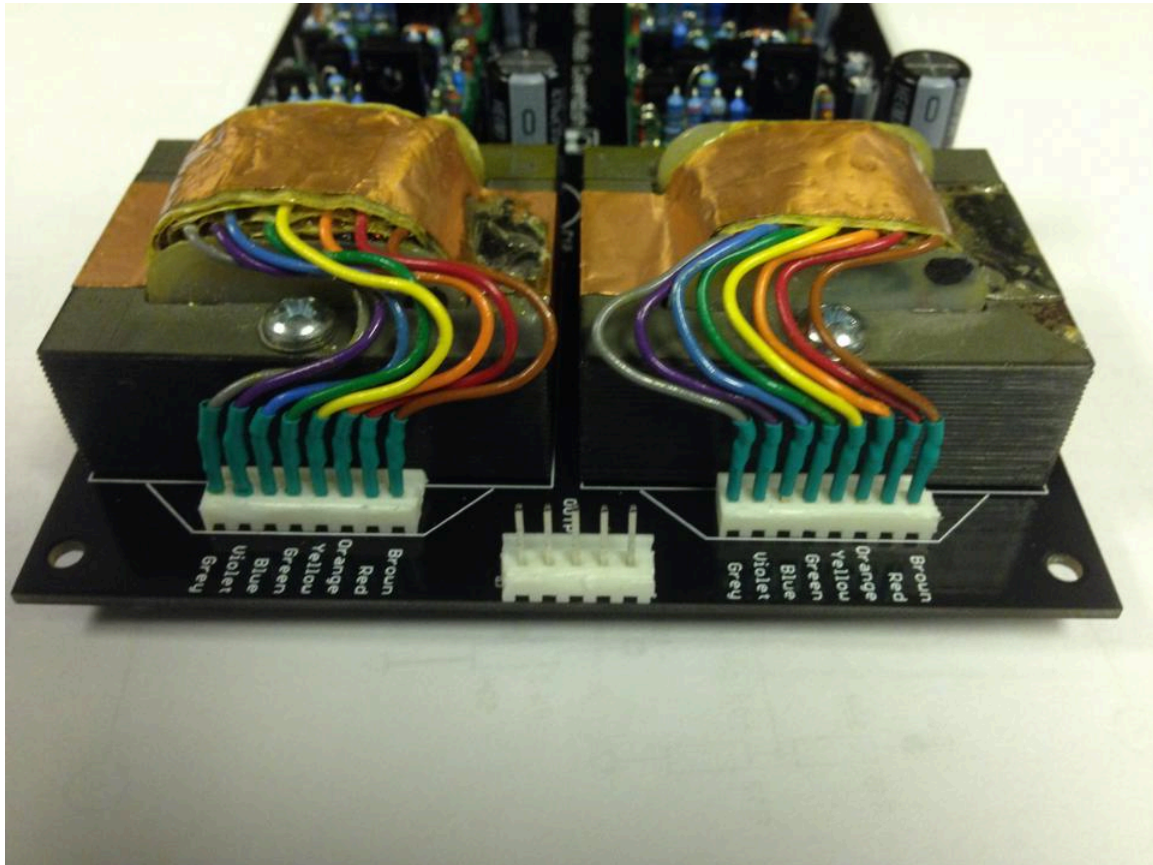
The output header can be connected directly to the XLR's.
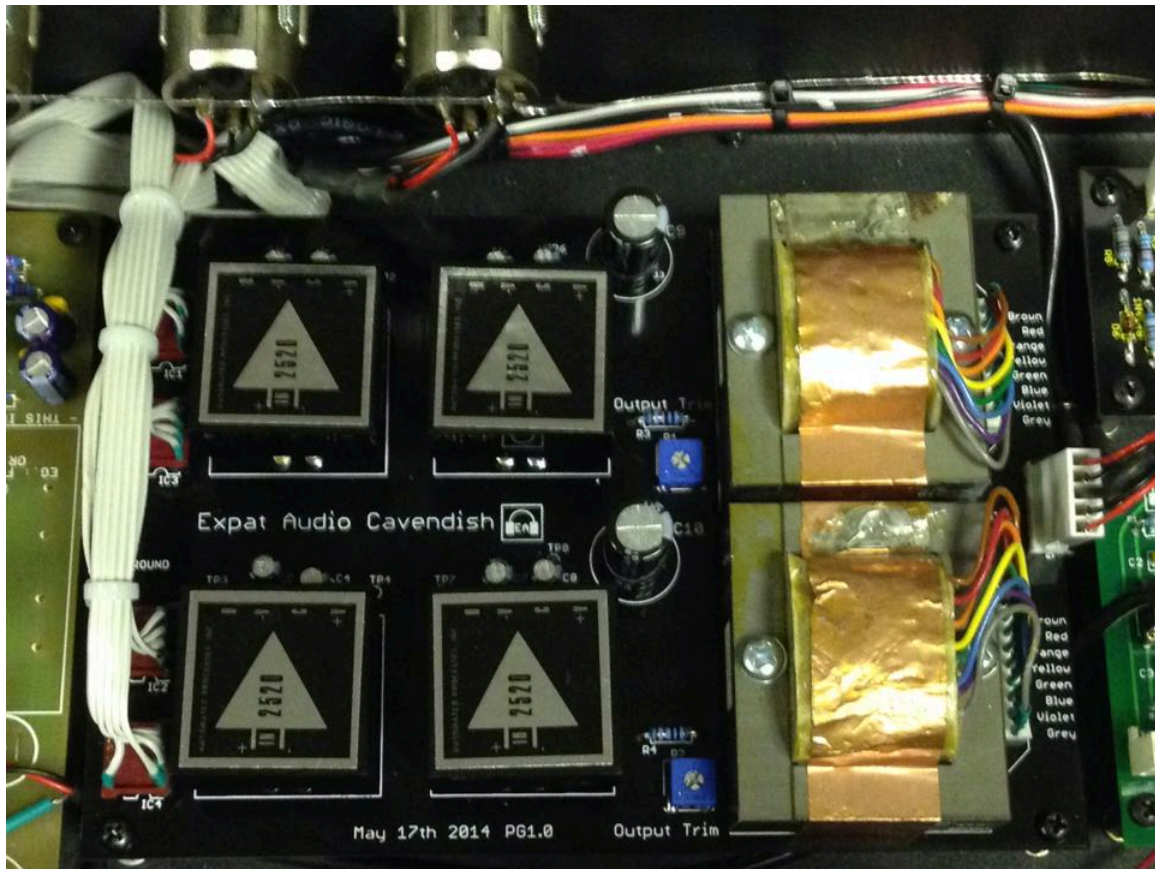
Bill of Materials

Qty	Value	Device	Parts	Supplier	Supplier PN
1	Cavendish PCB			Expat Audio	
4	DOA Socket Set		DOA-Socket-Set	Classic API	DOA-Socket-Set
8	>22uF @ 20V+	CPOL-EUE2.5-6	C1, C2, C3, C4, C5, C6, C7, C8	Mouser	
2	>47uF @ 20V+	CPOL-EUE5-13	C9, C10	Mouser	
1	5pin 0.1" header	FE05-1	OUTPUT	Mouser	
2	**5KOhm**	R-EU_0207/10	R3, R4	Mouser	
2	**5KOhm**	TRIM_EU-CA6V	R1, R2	Mouser	
4	2520	2520	DOA1, DOA2, DOA3, DOA4	Classic API	GAR2520 Bundle
2	EA2503	EA2503	U$1, U$2	Classic API	EA2503
8		Jumper pin Header	8-Pin header		
length	8-way ribbon cable				