http://marantzhallo-fi.blogspot.com/2018/01/kj-bleus-marantz-2325-receiver.html

http://marantzhallo-fi.blogspot.com/2018/01/kj-bleus-marantz-2325-receiver.html#comment-form

VINTAGE AUDIO
RESTORATIONS & ANALYSIS
(303)-444-4210
(EMAIL) SCHUMNOAH@GMAIL.COM

Tuesday, January 31, 2018

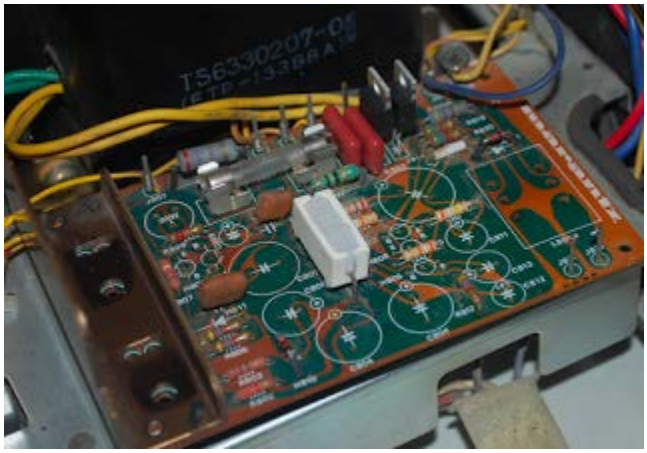
KJ Bleus' Marantz 2325 Receiver

Marantz 2325 Receiver w/ BA312 Upgrade Modules

The Marantz 2325 is one of the most popular Marantz receivers, and has remained so for decades. This longevity was achieved thru its superior build quality, pre-amp stage and reliable nature. I often recommend the 2325 and 2275 series as they feature a similar and unique quality in the latter 22/23XX series. This particular 2325 in for restoration also received our proprietary BA312 upgrade in the PE01 pre-amp stage!

P800

The 2325 P800 assembly regulated power supply establishes the single-ended 14 and 35V supply rails via a Full-Wave rectification array, a Full-Wave rectified supply also enables a onboard protection circuit responsible for DC deviation and over-current protection of the output stage. The 60V rails are established via a Full-Wave Bridge array and two 15Kmfd filter capacitors. The PCB must be cleaned extensively as old glue can oxidize component legs, causing failures. Below is this PCB after removing all the old glue;



All of the electrolytic capacitors were replaced with a high temp (105C) low impedance Nichicon PW with an increase in operating voltages, the initial decoupling and remaining application capacitors were increased to 1000, 330 and 22MFD capacitors for better dc filtering. Common cathode diodes were replaced with Ultra-Fast, Soft Recovery MUR type TO-220 devices, bypass films were upgrade to a ECW type polypropylene Panasonic.

BEFORE

AFTER

TO-220 regulators were updated to a modern, more robust TO-220 type TIP devices with new synthetic performance Wakefield compound applied. Remaining TO-92 devices were replaced with modern low noise Fairchild TO-92L devices with better dissipation. A precision Bourns adjustment potentiometer installed and a new Omron DC24V relay installed.

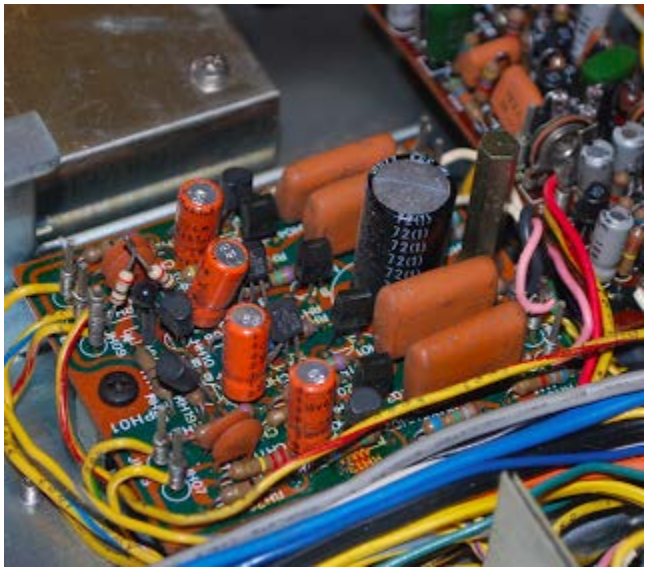
35V Regulated Supply Confirmation

Both 15,000MFD filter capacitors were increased to 18,000MFD computer-grade Nippon Chem-Con capacitors for better filtering/PS reserve.

PH01—>PE01
The PH01 buffer assembly essentially processes input via the function and converted to a low output impedance source.

The electrolytic on this assembly were replaced with low impedance Nichicon PW and audio-grade KT capacitors with an increase in operating voltages. The films in this stage were updated to a high-grade WIMA polypropylene film capacitors. The varistor was updated to modern 4148 type diodes in series and all remaining small-signal devices were updated to low noise Fairchild TO-92 and TO-92L type devices. A resistor was replaced as well, as some technician prior has simply put two in series for the correct value...lazy

BEFORE

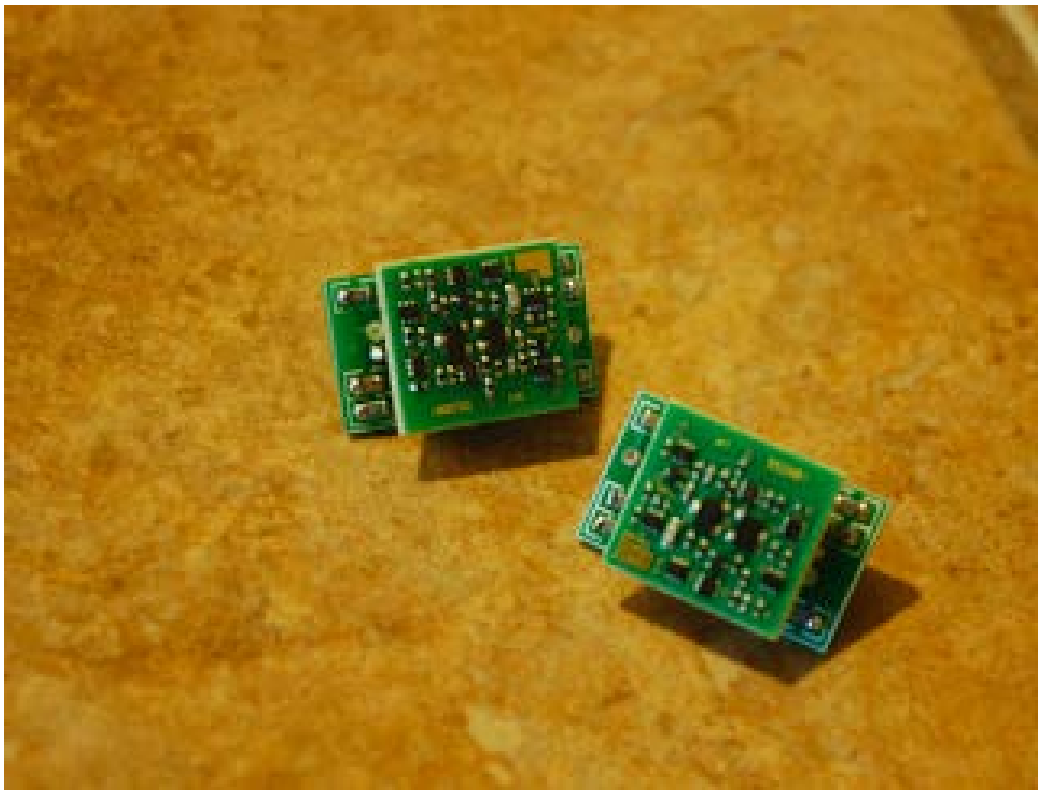


AFTER

PE01 W/ BA312 AE UPGRADE

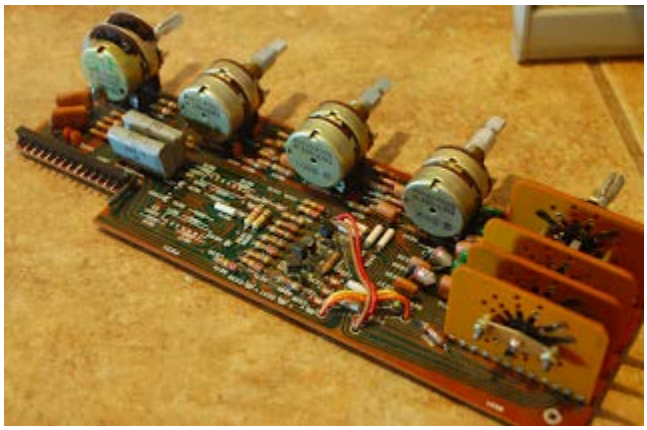
The original BA312 integrated-circuit (IC) is a old, early pre-amplifier IC device used as a gain stage in many of the PE01 pre-amp designs including Sansui variants. With great advances in today's high-end operational-amplifier (OP-Amps) we were able to design a circuit that allows for integration of a op-amp into the original BA312 location with no cutting or hacking…and no messy/noisy extra PS rails.

For additional information on the BA312 upgrade please visit the Analog Esoteric website @ www.analogesoteric.com

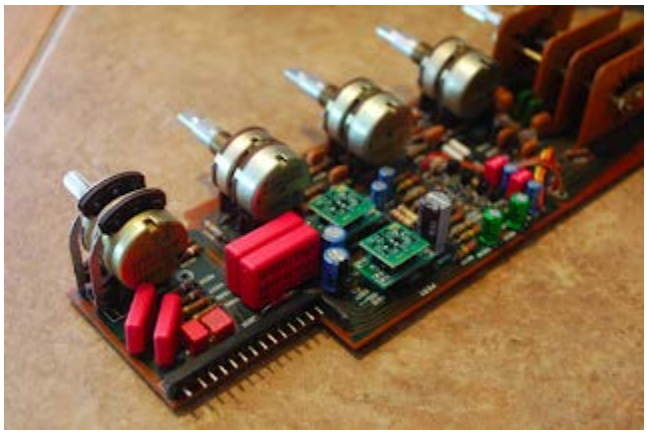


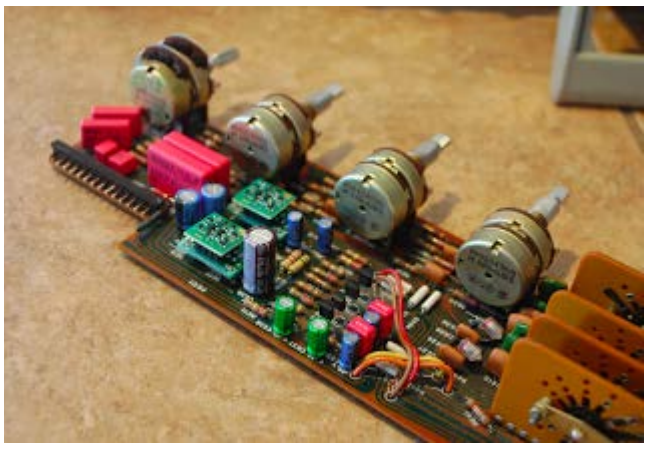
All of the electrolytic capacitors here were replaced with a audio-grade Nichicon KT/KA type, the decoupling capacitor was increased to a 470MFD low impedance PW for better dc filtering, all with an increase in operating voltages. The output bipolar were replaced with a audio-grade Nichicon MUSE BiPolar type. Input and all coupling films including electrolytic at 1<MFD were all replaced with a high-grade WIMA polypropylene type film capacitors. Lastly the original BA312 IC's were both removed and replaced per instructions with the Analog Esoteric BA312 Upgrade Module pairs.

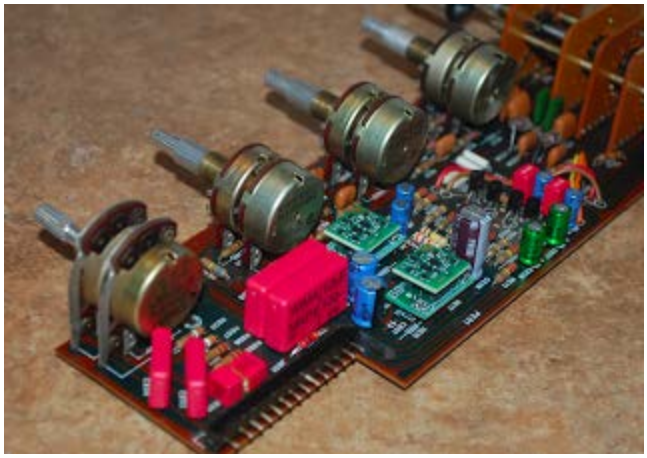
BEFORE



AFTER



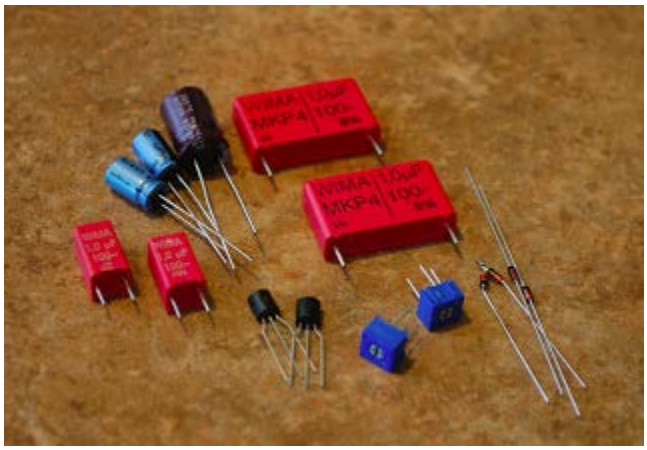




P400 RIAA EQ

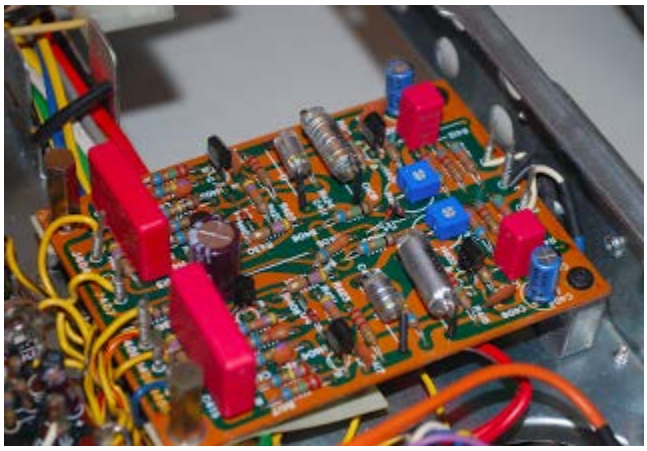
Like the PE01 pre-amp stage the P400 phono stage is another very popular design used in many of the 22/23XX series receiver. The P400, with our proper upgrades has a very linear and accurate RIAA Curve response.

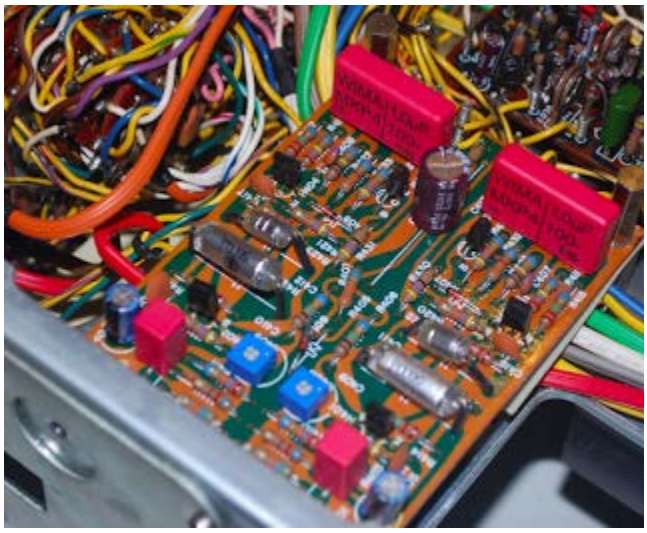
The decoupling 220MFD filter capacitor was increase to a 330MFD in a more reliable radial package designed, low impedance Nichicon PW, remaining electrolytic were replaced with a audio-grade Nichicon KT all with an increase in operating voltages. The original tantalum was replaced, along with the inputs to high-grade WIMA polypropylene films. The varistor and associated diodes were replaced with modern fairchild 4148 type, the failure prone 2SC458 and remaining small signal devices were replaced with low noise Fairchild TO-92 devices. Both clipping adjustments were replaced to precision Bourns potentiometers.



BEFORE

AFTER

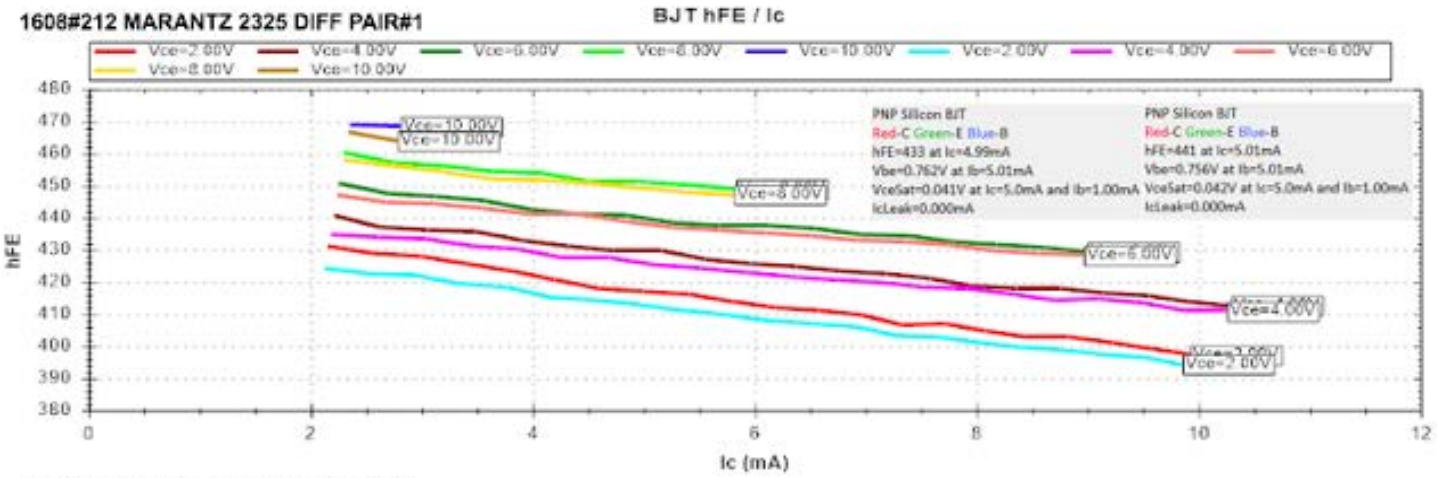


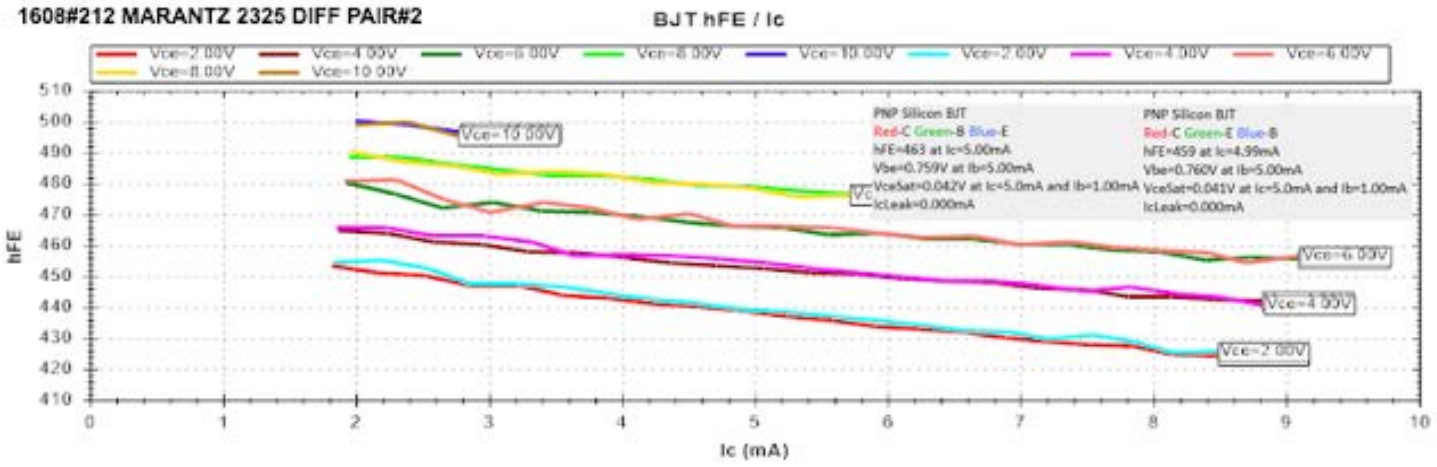


P700 Drivers
The 2325 uses a differential gain stage and current stage which drives the eventual pre-drivers, the drivers are tied to the dynamic bias circuit.

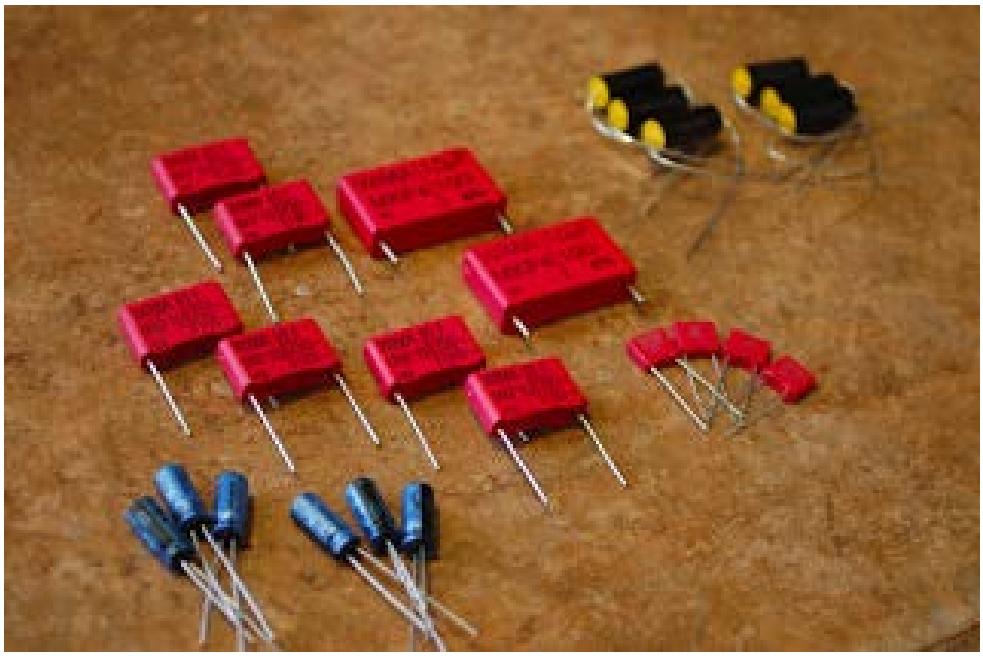
The differential pairs were matched with 2% and thermally coupled together with beta mapping notated below for confirmation. Remaining devices to pre-driver were updated with modern Fairchild TO-92 and TO-92L type devices. As I've mentioned these type of pots before on Marantz I recommend cleaning them versus replacement and ensure tracking. The diode service bulletin addressed as well.

Beta Mapping

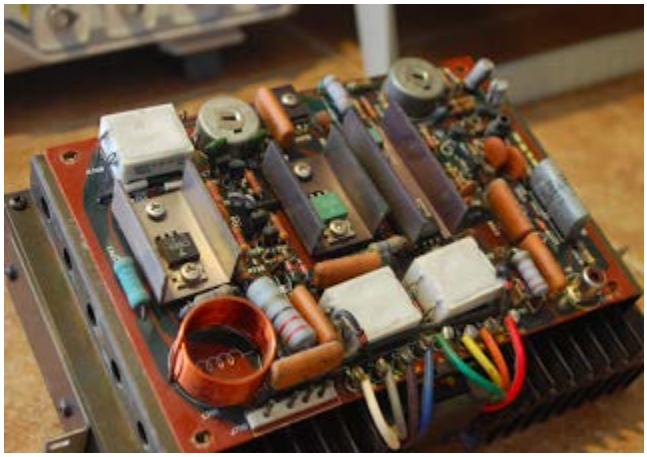




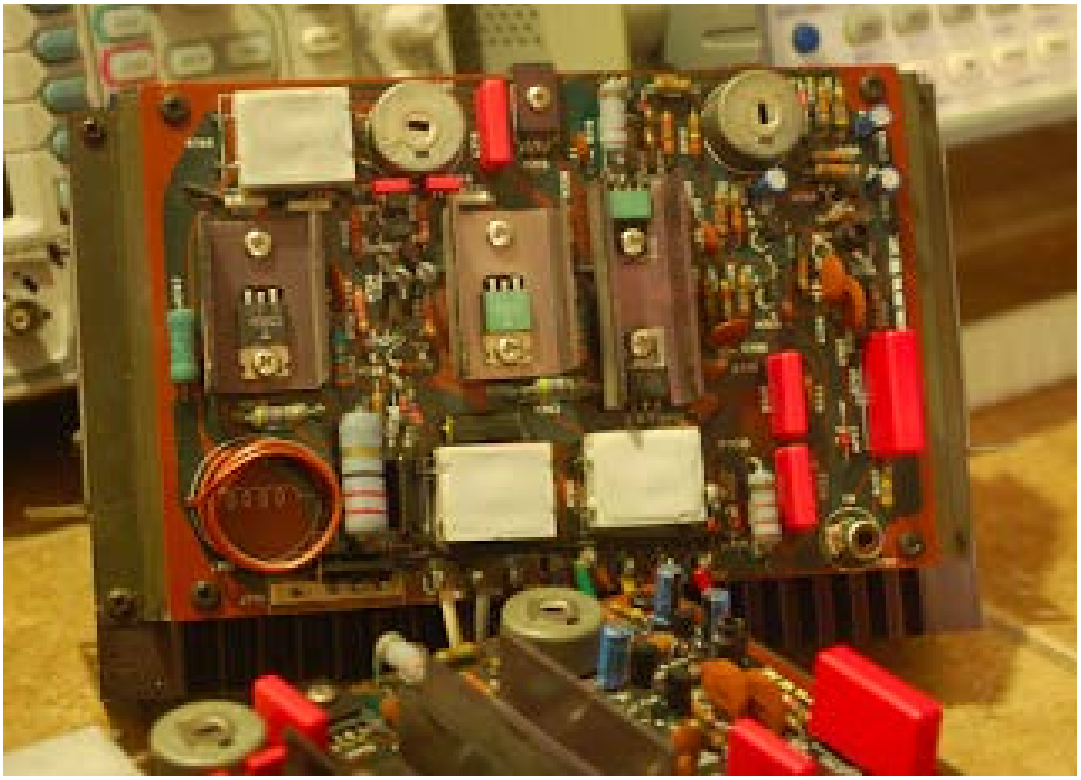
The electrolytic capacitors were replace with a audio-grade Nichicon KT including replacing the 33MFD tantalum to KT, all with an increase in operating voltages. All of the input and bypass films were upgraded to a high-grade WIMA polypropylene type film capacitors.



BEFORE



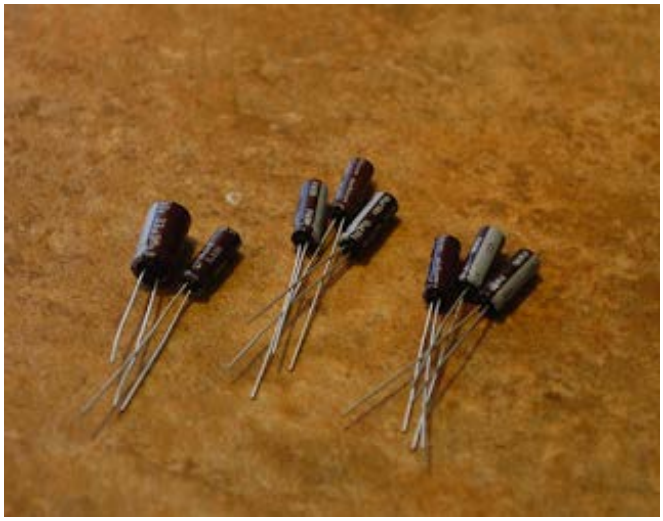
AFTER



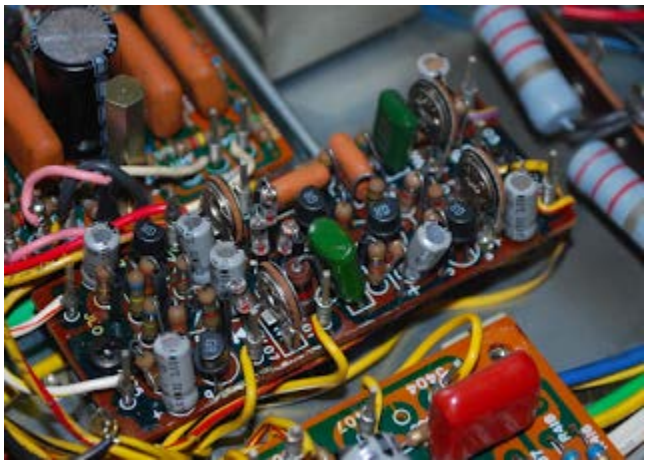
Bias Confirmation

RF

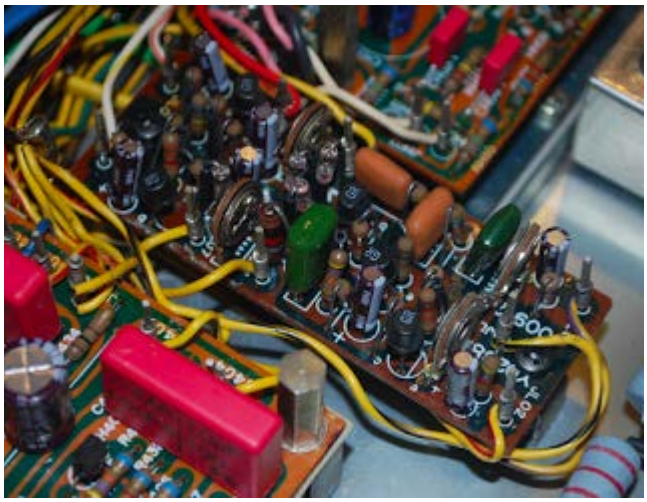
Remaining key RF stages including Dolby Noise Reduction had their respective electrolytic capacitors replaced with low impedance, high temp (105C) Nichicon PW and Panasonic FC capacitors with an increase in operating voltages.



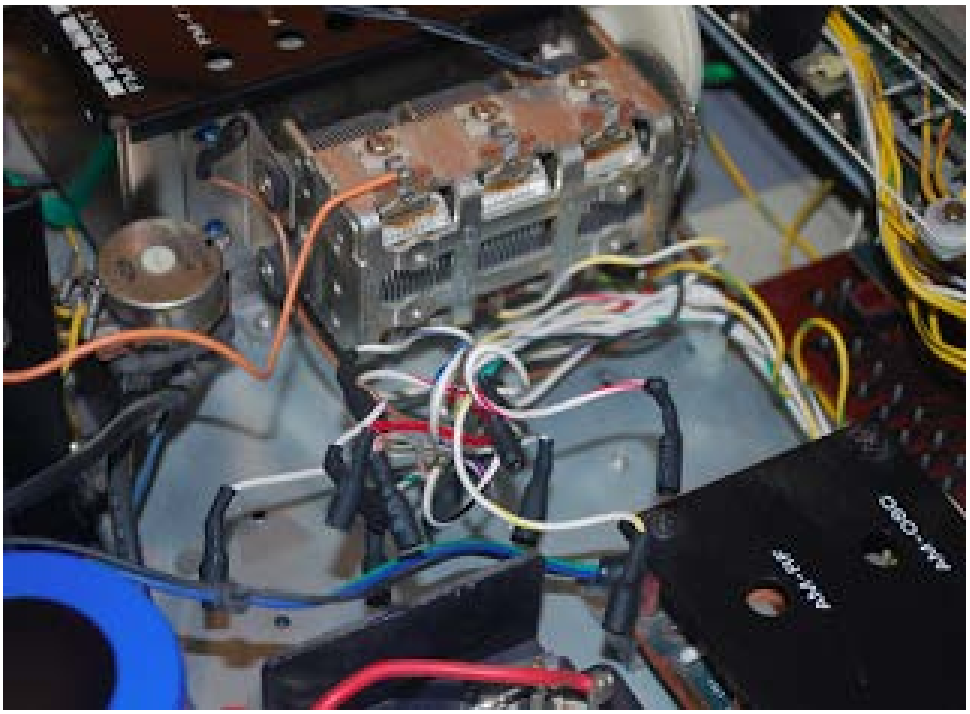
BEFORE



AFTER

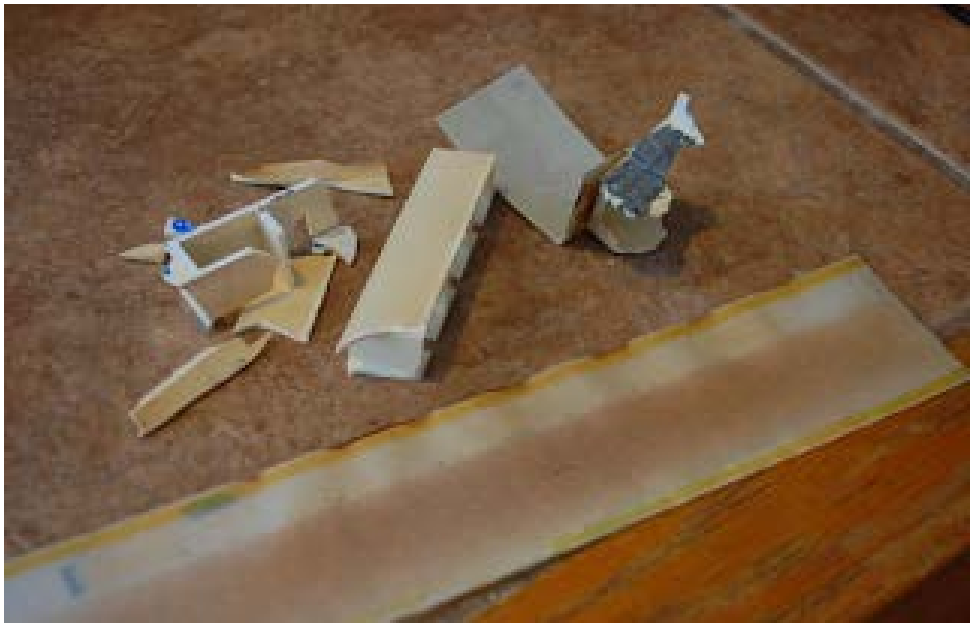


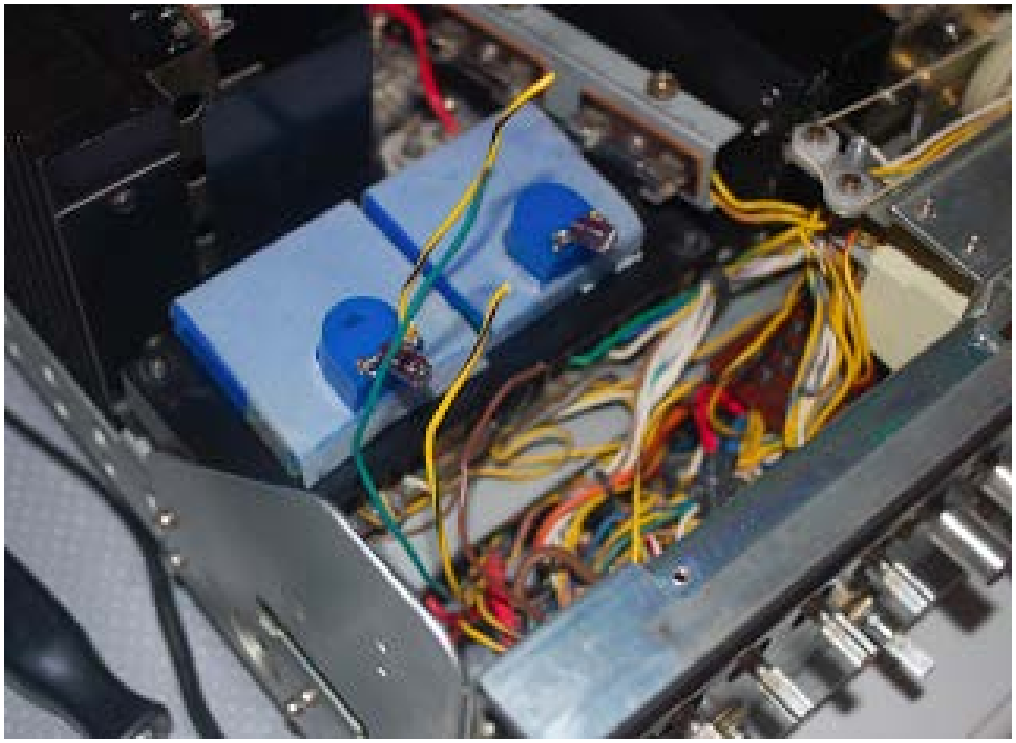
DOLBY NR

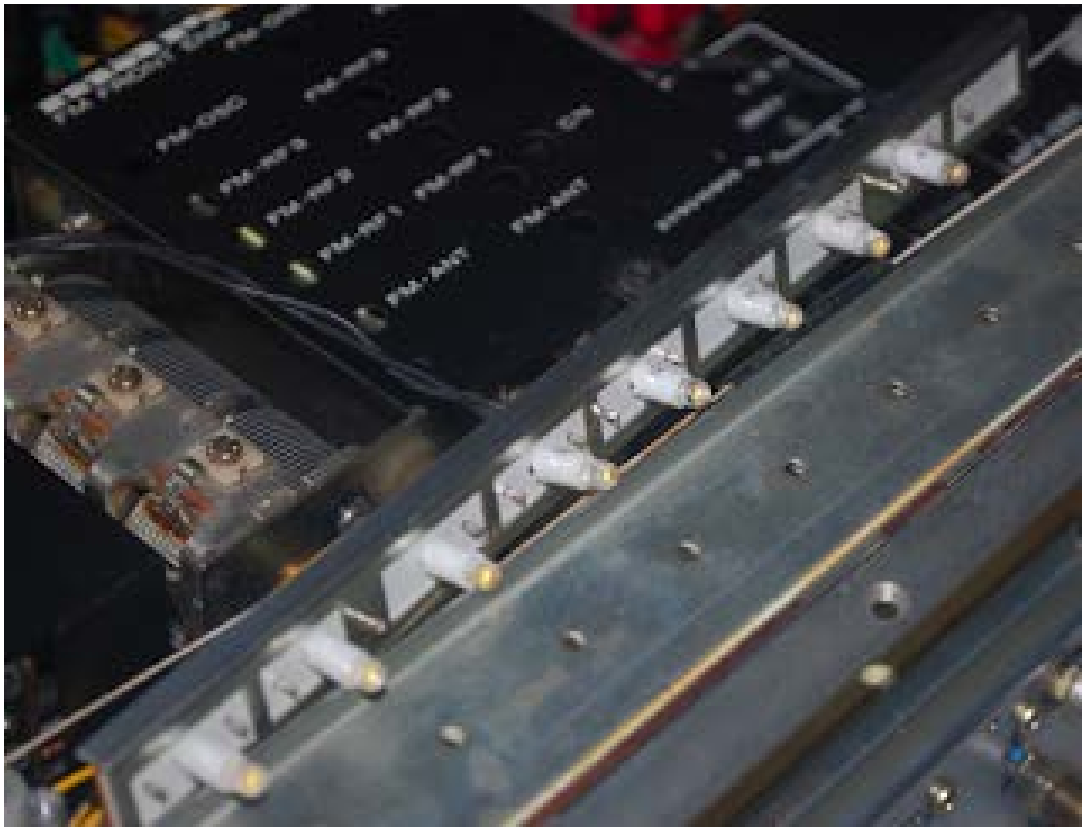


Lamps & LEDs

Like most units, this customer left us a surprise of a totally destroyed lamp housing. As we've mentioned dozens of times, you CANNOT use old incandescent type lamps in these vintage units. It utterly melts and destroys the plastic shroud. In this case a old-stock replacement shroud was installed and the original broken plastic removed. New Vellum paper and New Meter Vellum paper was installed.





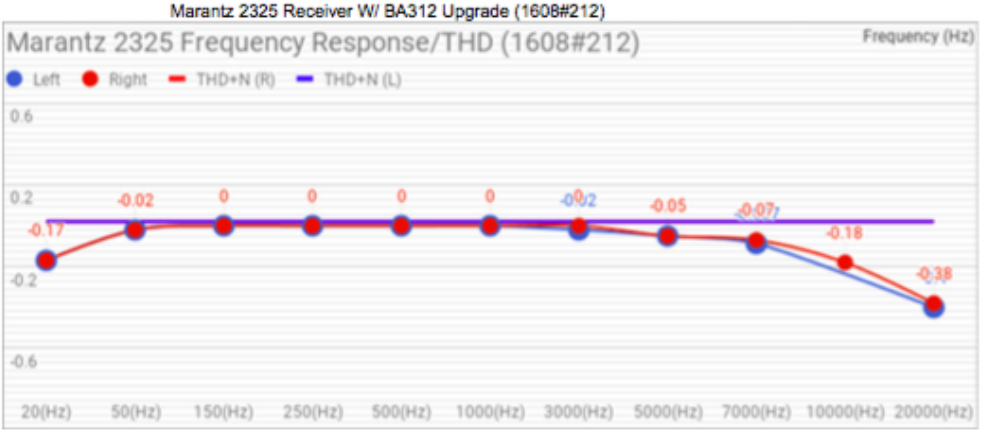



AM TUNER
AM-RF
METER
AM-IF

AUDIO NOTIZEN

Bandwidth Response Verification Report - N. Schumacher 01/2018

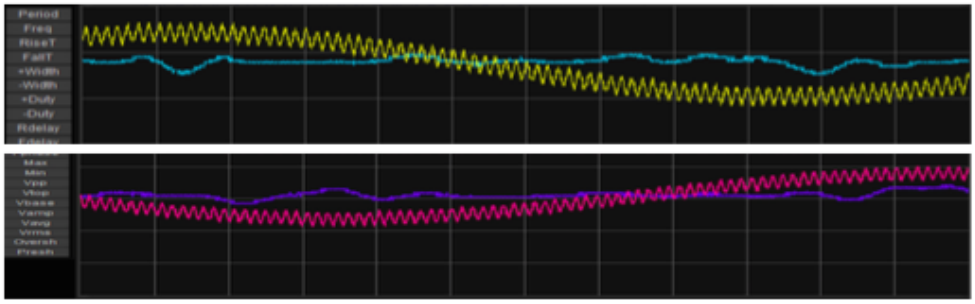
Marantz 2325 Receiver W/ BA312 Upgrade (1608#212)



DATASET : Frequency Response 20Hz-20Khz -0.4/0+dB

LOAD FACTOR: LEFT 8OHM LOAD @ 1W — RIGHT 8OHM LOAD @ 1W

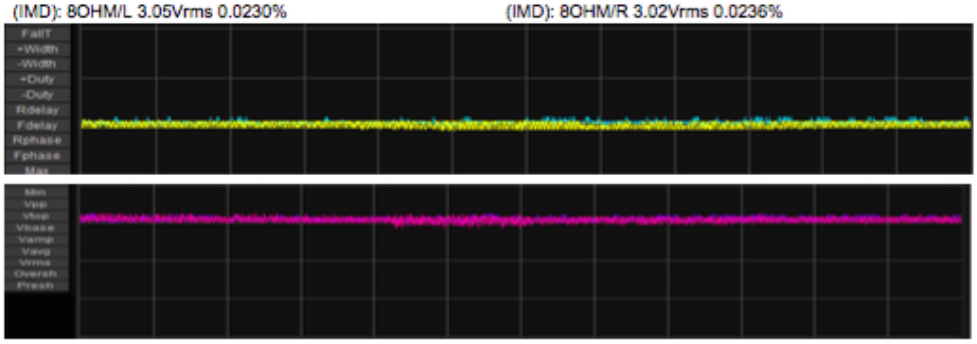
INPUT FACTOR: SINE @ .003%dB THD+N — SINE @ .003%dB THD+N



DATASET FIG4: **Intermodulation Distortion (IMD)(L)** **DATASET FIG4:** **Intermodulation Distortion (IMD)(R)**

INPUT FACTOR: **60Hz + 7Khz 4:1 (8OHM/L)** **INPUT FACTOR:** **60Hz + 7Khz 4:1 (8OHM/R)**

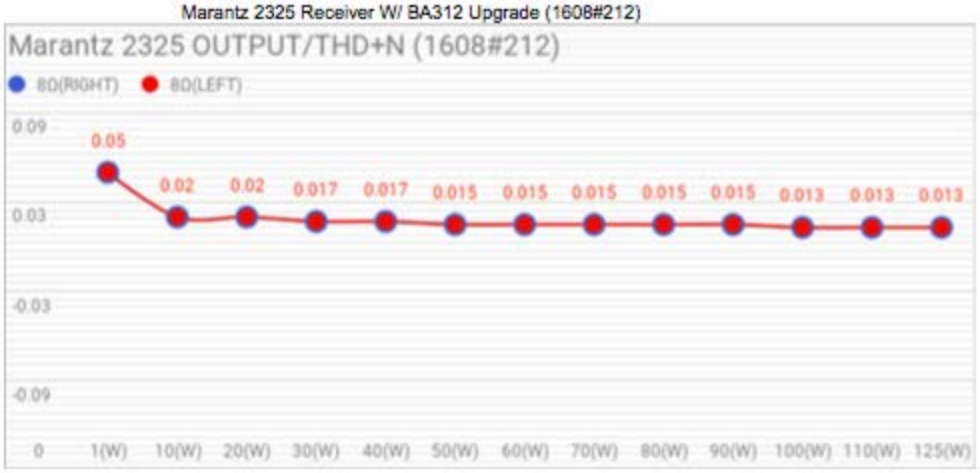
(IMD): 8OHM/L 3.05Vrms 0.0230% (IMD): 8OHM/R 3.02Vrms 0.0236%

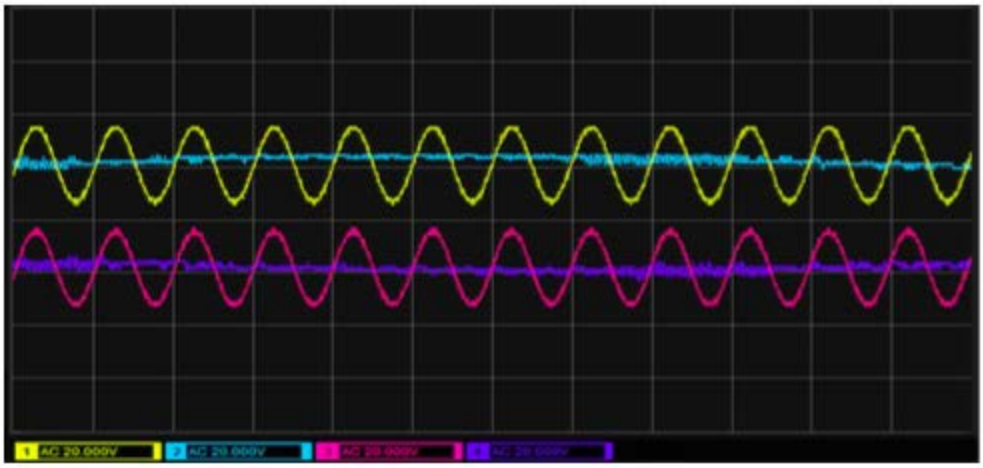


S/N Ratio (S/N) 8OHM/L: LINE/OUT -98.7dB S/N Ratio (S/N) 8OHM/R: LINE/OUT -98.4dB

Separation (L/R dB): dB (31/0.019) -64.25dB

Output Response Verification Report - N. Schumacher 01/2018
Marantz 2325 Receiver W/ BA312 Upgrade (1608#212)





LOAD FACTOR: @Rated - 8OHM/L LOAD
INPUT FACTOR: SINE @ .003%dB THD+N
LEFT 125.61W/CH (31.7Vrms) @ 0.013% dB THD+N

LOAD FACTOR: @Rated - 8OHM/R LOAD
INPUT FACTOR: SINE @ .003%dB THD+N
RIGHT 125.61W/CH (31.7Vrms) @ 0.013% dB THD+N

LOAD FACTOR: @MAX PEAK - 8OHM/L LOAD
INPUT FACTOR: SINE @ .003%dB THD+N
LEFT W/CH (Vrms) @ % dB THD+N

LOAD FACTOR: @MAX PEAK - 8OHM/R LOAD
INPUT FACTOR: SINE @ .003%dB THD+N
RIGHT LEFT W/CH (Vrms) @ % dB THD+N

AV Gain: +29.82dB

VINTAGE AUDIO
RESTORATIONS & ANALYSIS
(303)-444-4210
(EMAIL) SCHUMNOAH@GMAIL.COM

Marantz 2325 Receiver being boxed for delivery to service facility. August 6, 2016

VINTAGE AUDIO
RESTORATIONS & ANALYSIS
(303)-444-4210
(EMAIL) SCHUMNOAH@GMAIL.COM

http://marantzhallo-fi.blogspot.com/2018/01/kj-bleus-marantz-2325-receiver.html#comment-form

https://www.facebook.com/analogesoteric/

https://www.ebay.com/itm/Vintage-Marantz-BA312-PE01-KIT-Upgrade-2250-2250B-2265-2275-2285-2325-2330/182956435703?hash=item2a990da8f7:g:zHwAAOSw~RVaLLTY

http://stores.ebay.com/analogesoteric?_trksid=p2047675.l2563