



South Valley Vintage Amps

Email: info@svvintageamps.com

Website: www.svvintageamps.com

Test Results: Groove Tubes GT-928-PR vs THD YJSD Yellow Jackets

Purpose

Provide quantitative test measurements and subjective listening data, comparing the Groove Tubes GT-928-PR Power Reducers and THD YJSD Yellow Jackets “as shipped” from the manufacturers.



Picture #1: Test Setup

Test Setup & Equipment (Refer to Picture #1)

- Amp: Vintage 1967 Fender Bassman, with NOS RCA 7025 & 12AX7 preamp and phase inverter tubes and NOS RCA 6L6GC output tubes. This amp has had the bias and output sections modified, it is a bit of a “hot-rod”. All tests were performed using channel #1 / jack #1, with the Treble/Bass knobs set to 3.
- Test Scenarios:
 - #1 1967 Bassman w/ NOS RCA 6L6GC Tubes (establish baseline) matched to within 1mA plate / 2% Gm on Maxi-Matcher
 - #2 1967 Bassman w/ THD YJSD Yellow Jackets & JJ EL84 Tubes matched to within <1mA plate / 1.5% Gm on Maxi-Matcher



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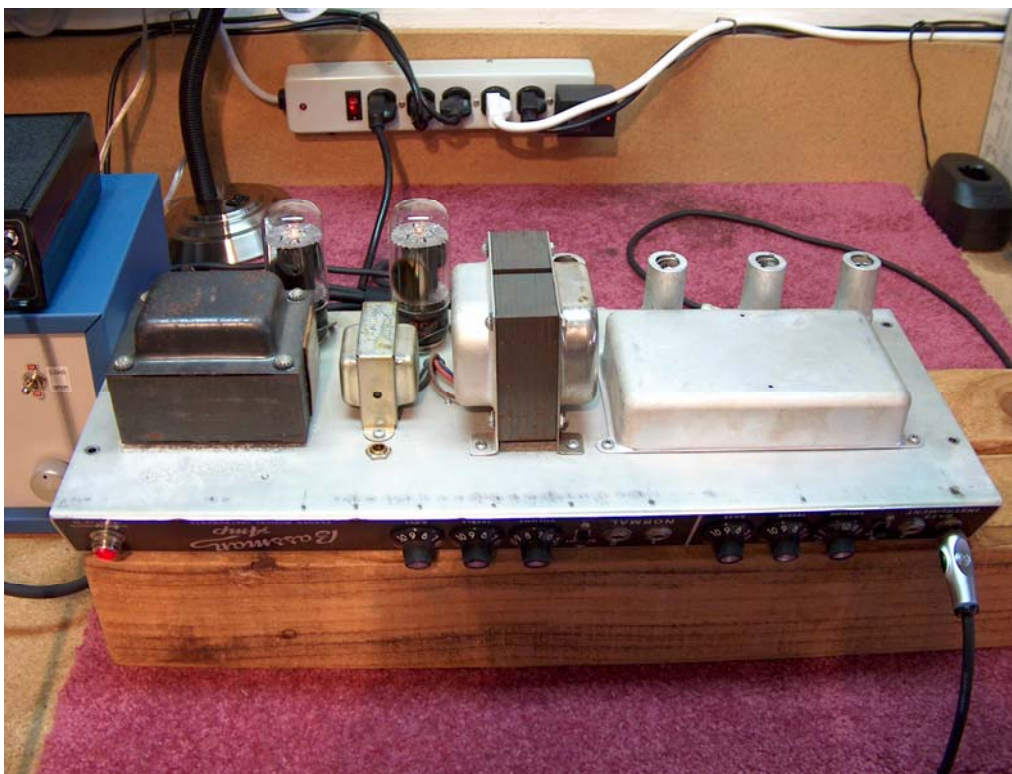
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- #3 1967 Bassman w/ GT-928-PR Power Reducers & GT-EL84-S Tubes matched to within <1mA plate / <1% Gm on Maxi-Matcher
(Note: the GT-EL84-S Tubes are also just re-labeled JJ EL84 Tubes)
- Speakers: 2x12 open back cabinet, loaded with two original 1968 Jensen C12N's
- Guitar: PRS Brazilian Rosewood McCarty, with Vol/Tone knobs set to 10
- Loftech TS2 Audio Signal Generator (audio oscillator), dB Meter and Frequency Meter. Calibrated 12/15/2003. Tests conducted using a 1KHz / 0.0dB input audio signal.
- Amp Test Ctr: Dummy Load and Wattage Meter. Note, while I believe the wattage meter is accurate, it has not been calibrated. Also, the wattage meter is not digital, it is a dial type. Therefore, there is some interpretation required for readings between the "tick marks". I did manually mark the dial (added more granular tick marks) to ensure interpretations were as consistent as possible between the three test scenarios
- Tektronix 464 Oscilloscope, calibrated 11/6/2003.

Test #1: RCA 6L6GC (Refer to Picture #2)



Picture #2: 1967 Bassman w/ RCA 6L6GC Output Tubes



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Test Measurements

- In circuit 6L6GC tubes matched to within 1mA; B+ = 442V / 442V

Output Wattage Measurements @ 1KHz / 0.0dB audio signal

Volume Dial =	1	2	3	4	5	6	7	8	9	10
Watts =	<0.01	<0.01	3	10	40	49	49	49	49	49

- Maximum output (49-watts) at 6.5 on Vol Dial
- Light Clipping at 5 on Vol Dial (Refer to example Picture #5 at end of document)
- Medium Clipping at 6 on Vol Dial
- Severe Clipping at 8+ on Vol Dial (Refer to example Picture #6 at end of document)

Listening Tests

- Vol Dial = 3: clean, low sustain
- Vol Dial = 4: clean, significant increase in volume, increased sustain
- Vol Dial = 5: early smooth breakup, warm, much louder, increased sustain
- Vol Dial = 7: increased smooth breakup = really warm and nice, increased sustain
- Vol Dial = 8: overdriven breakup = nice crunchy/bluesy sound, increased sustain, sustain peaked
- Vol Dial = 10: severe overdrive & breakup = very aggressive crunchy/bluesy sound, usable but possibly “over-the-top”, no increase to sustain



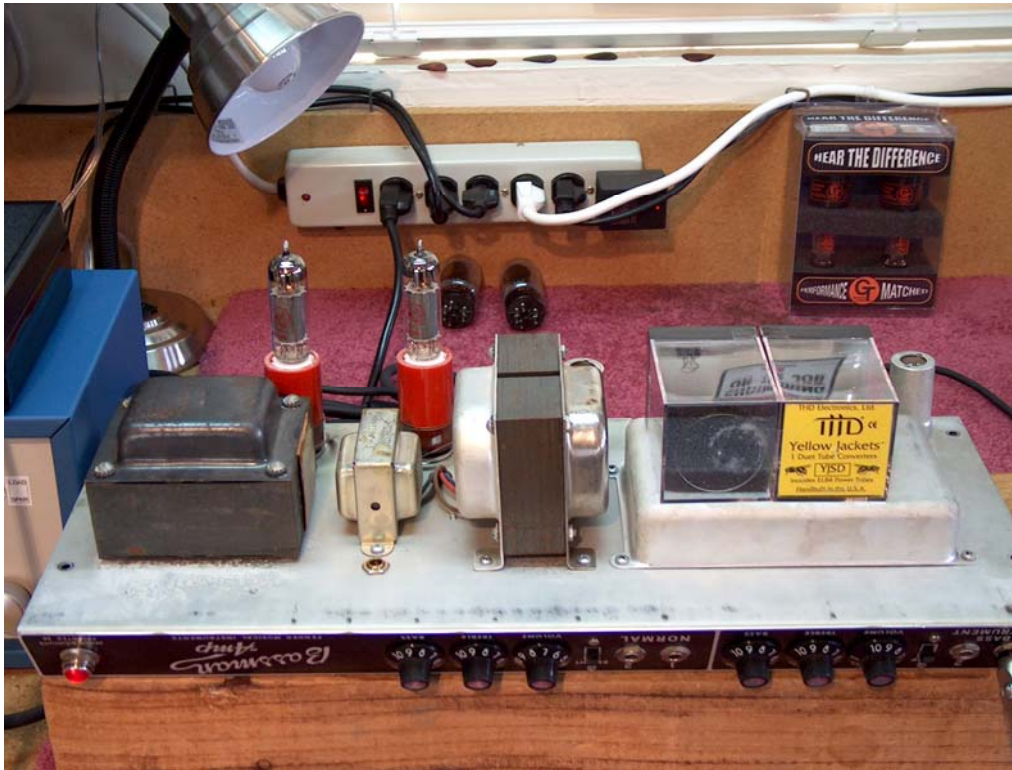
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Test #2: THD YJSD Yellow Jackets (Refer to Picture #3)



Picture #3: 1967 Bassman w/ THD YJSD Yellow Jackets & JJ EL84 Tubes

Test Measurements

- In circuit EL-84 tubes matched to within 4mA; B+ = 445V / 445V

Output Wattage Measurements @ 1KHz / 0.0dB audio signal

Volume Dial =	1	2	3	4	5	6	7	8	9	10
Watts =	<0.01	0.01	5	15	30	32	32	32	32	32

- Maximum output (32-watts) at 6 on Vol Dial
- Light Clipping at 5 on Vol Dial
- Medium Clipping at 6.5 on Vol Dial
- Severe Clipping at 7+ on Vol Dial

Listening Tests

- Vol Dial = 3: clean, low sustain



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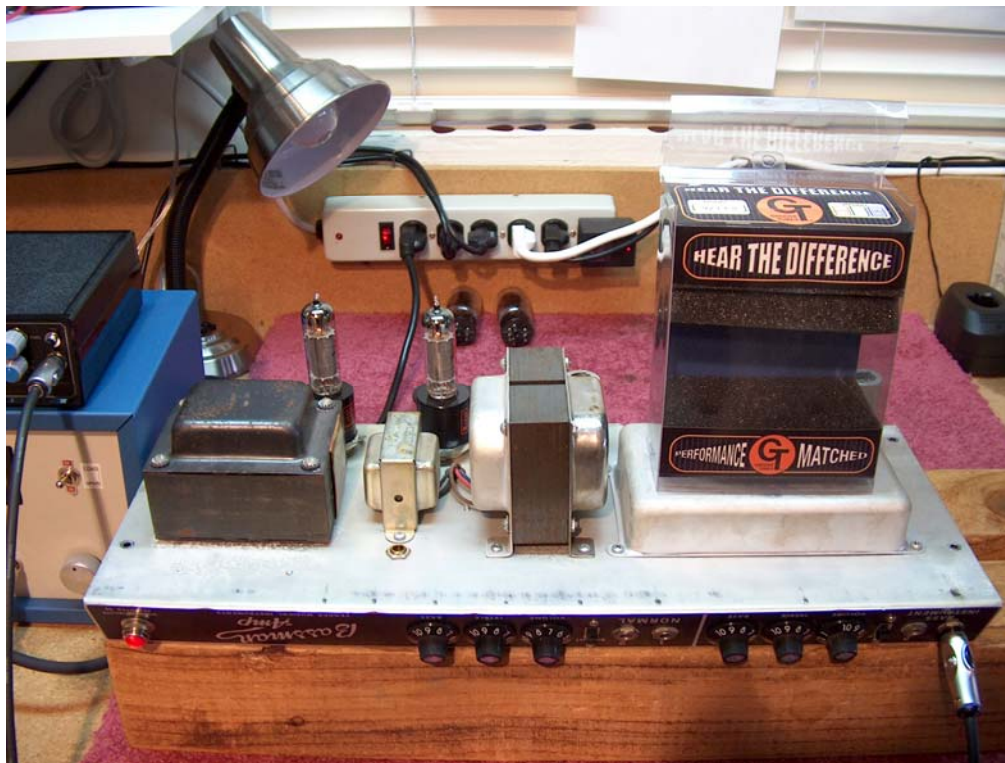
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- Vol Dial = 4: clean, slight increase in volume, increased sustain, sustain peaked
- Vol Dial = 5: early less-smooth breakup, significant increase in volume, warm, no increase to sustain
- Vol Dial = 7: severe breakup = brittle, almost muddy, no increase to sustain,
- Vol Dial = 8: severe overdriven breakup = more brittle/muddy, not a good sound, no increase to sustain
- Vol Dial = 10: severe overdriven breakup = brittle/muddy, not a good sound, no increase to sustain

Test #3: GT-928-PR (Refer to Picture #4)



Picture #4: 1967 Bassman w/ GT-928-PR Power Reducers & GT-EL84-S Tubes

Test Measurements

- In circuit GT-EL84-S tubes matched to within <1mA; B+ = 440V / 440V

Output Wattage Measurements @ 1KHz / 0.0dB audio signal

Volume Dial =	1	2	3	4	5	6	7	8	9	10
Watts =	<0.01	<0.01	1	5	15	25	25	25	25	25



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- Maximum output (25-watts) at 6 on Vol Dial
- Light Clipping at 5 on Vol Dial
- Medium Clipping at 6 on Vol Dial
- Severe Clipping at 7+ on Vol Dial

Listening Tests

- Vol Dial = 3: clean, low sustain
- Vol Dial = 4: clean, warmer, slight increase in volume, increased sustain
- Vol Dial = 5: early smooth breakup = nice warm bluesy tone, significant increase in volume, increased sustain
- Vol Dial = 7: medium smooth breakup = slightly more aggressive nice warm bluesy sound, significant increase in volume, increased sustain,
- Vol Dial = 8: overdriven breakup = nice aggressive bluesy tone, increased sustain, sustain peaked
- Vol Dial = 10: severe overdriven breakup = but still a nice really aggressive warm bluesy sound, no increase to sustain

Observations & Conclusions

- NOTE: the GT-EL84-S is just a tested and re-labeled JJ EL84. Therefore, both sets of adaptors used the same brand JJ EL84 output tubes with similar plate and matching characteristics.
- At low volumes all three test cases, RCA 6L6GC, THD YJSD and GT-928-PR, provided a clear, clean sound; with reasonably equivalent lower sustain levels.
- At mid volumes, I liked the RCA 6L6GC's and GT-928-PR's the best. Both provided a nice, warm bluesy sound, with better sustain. The THD YJSD's still sounded okay at this point, but sustain was slightly less than the other two and the breakup was a bit more brittle sounding.
- At high volumes, both the RCA 6L6GC's and GT-928-PR's performed well. Nice overdriven smoother breakup and increased sustain were offered up with increased gain. At volume 10, the 6L6GC's were a little over the top, but still usable. The GT-928-PR's performed really well at 10. The THD YJSD's were brittle and muddy sounding at volumes of 7+ and did not keep up with the other two in sustain.



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- All three test cases measured maximum wattage at mid-volume levels and pretty much just provided increased breakup, gain and sustain as they moved into high volume settings.
- Maximum wattage and volume levels were reduced with the YJSD's and even more so with the GT-928-PR's.
- From a construction standpoint, the GT-928-PR's appear to be built more solidly than the YJSD's. The GT-928-PR's have a metal base and really nice solid composite housing. YJSD's housing was composite, no metal base. While I don't believe this will have any negative effect on heat dissipation or performance, the GT-928-PR just looked like a better built product.
- The bottom line, if I was going to put power adaptors and EL-84 tubes in my Bassman, it would be the GT-928-PR's.
- To be fair, I have had good results with the THD Yellow Jackets, as well as the GT-928-PR's, that I have installed in customer amps. Possibly, my "hot-rod" Bassman was not the best choice for this test. I chose to use the Bassman because it is one of my primary players and therefore, I am very familiar with its tone and behavior. The up side is, because of this familiarity, I was more "in tune" to hear even subtle changes. On the down side, due to the fact that the output and bias sections have been hot-rodded, it might not have been the best choice for this test. I hope to get the time to re-perform this test, using my stock (no modifications) 1964 Fender Super Reverb, at some point in the future.

I hope this information has been useful!

Scott

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9370 Durango Lane

Gilroy, CA 95020-8120

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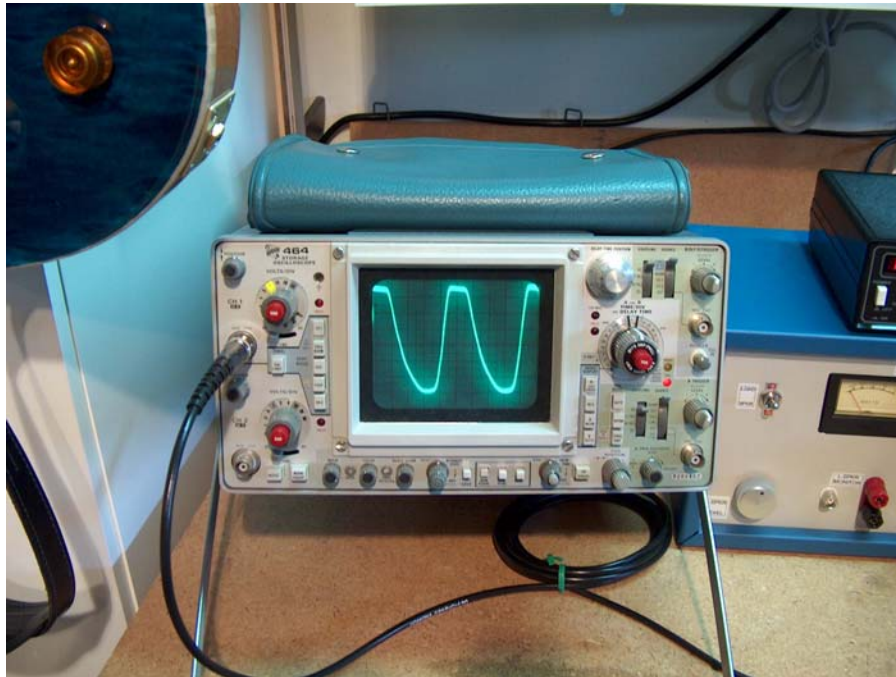


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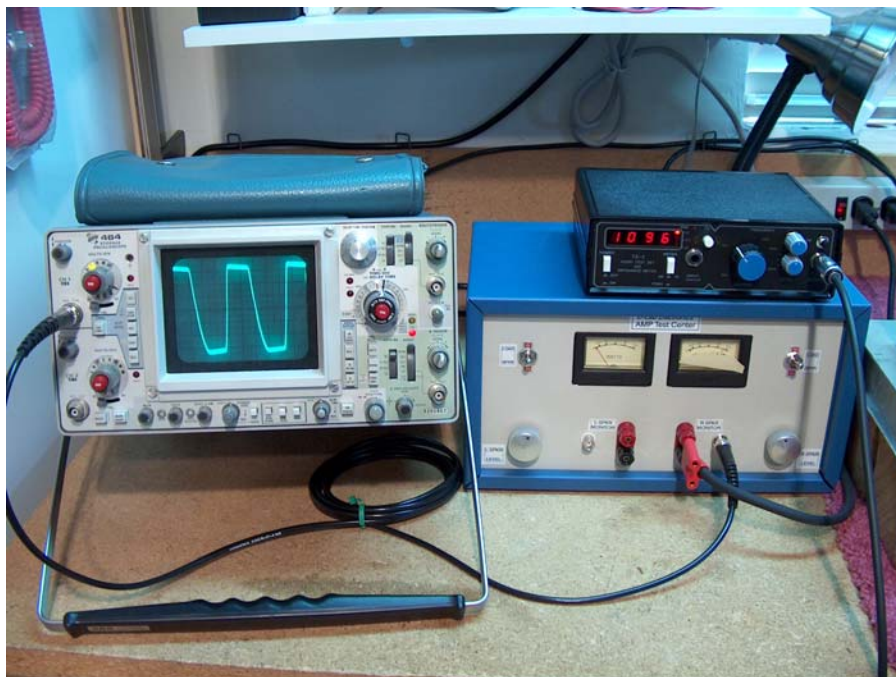
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Picture #5: Light Clipping



Picture #6: Heavy Clipping