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June/July 2003

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Jungson JA-100 Power Amps China's answer to Krell?



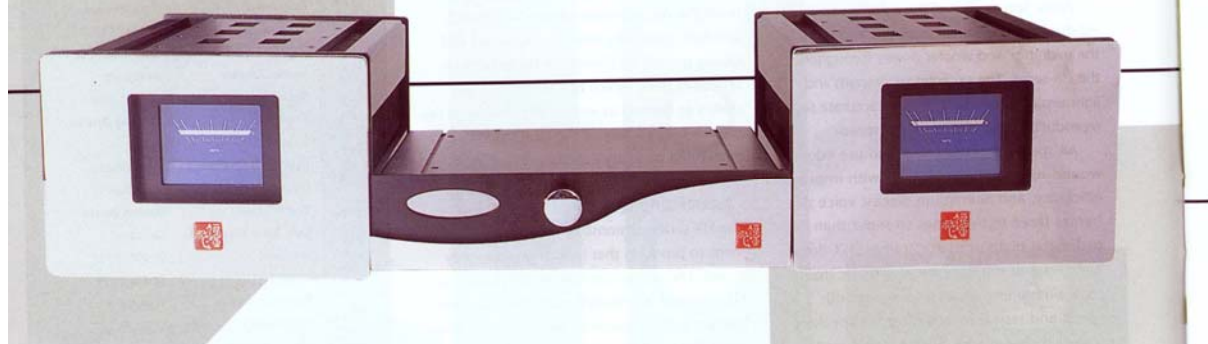
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Marantz: 50 Years On



JUNGSON

JA-2 PREAMPLIFIER/JA-100 POWER AMPLIFIERS

For many audiophiles, the concept of a Chinese high-end high-fidelity industry is a contradiction. Because China has been closed to the Western World for so long (and to a large extent is still closed, with tourism tightly controlled by the Chinese government) most people in Australia have the idea that living standards in China are poor and that the average Chinese citizen is not particularly well off, and therefore imagine that such people would not be able to afford high-end audio equipment and that there would, therefore, be no high-end audio industry in China. Nothing could be further from the truth.

It's all to do with numbers. Yes, the average Chinese citizen is not as well off as the average Australian citizen, but those Chinese lucky enough to be in well-paid jobs, or running their own businesses, are far, far better off (in financial terms) than most Australians and what's more, in general enjoy a far higher standard of living. Indeed the richest 21 million Chinese citizens each earn far more per year than the average

Australian wage—considerably more. And, of course, if it comes down to absolute wealth, there are more Chinese millionaires living in China than there are Australian millionaires living in Australia!

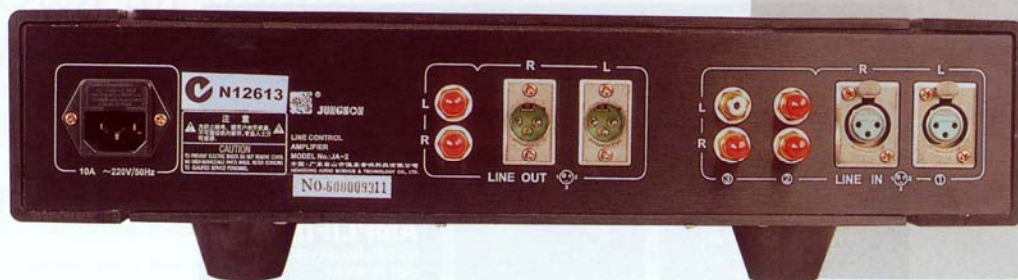
If that seems like a curious way to start a review of hi-fi equipment, I apologise, but I feel that it's necessary in order to explain that China's very large and very vibrant high-end hi-fi industry was originally established to cater specifically for the local Chinese demand for high-quality sound reproduction equipment.

It is only very recently that companies such as Heng Dong (the manufacturer of Jungson) have ventured into the export business, and in many cases, they have done so only because ex-patriot Chinese citizens have discovered upon arriving in their new country that the hi-fi equipment available in that country was inferior to what they were using in China. The result was that they simply phoned home and ordered the same components they were using in China.

That's pretty much the way it happened with Dr Minjie Lin, of MFL Import Export, which is responsible for the distribution of Jungson products in Australia, except that in his case, so many people in Australia admired his hi-fi system that he decided it would be good business to import them commercially, so he did...which is pretty much the way most hi-fi importers get their start!

Dr Lin told me that the literal translation of the word Jungson is 'The spirit of the gong', the gong in question being a copper gong that is more than 4,000 years old which is famous throughout China. 'The Chinese people believe there's a musical god that makes the sound from this particular gong unique' Lin told me.

The company that manufactures Jungson equipment, the Hengdong Audio Technology Company Ltd, was founded in 1993 and is located in Taishan, a city in Guangdong, near the Chinese coast. The company is privately owned, and for three years running, its products have been voted 'Number One' by



Chinese audiophiles, according to Lin. Chinese audio critics have also given Jungson equipment a vote of confidence, by bestowing China's prestigious 'Experts Agree' award. Dr Lin told me this is the highest audio award in China, because in order to win it, the voting from the members of the committee that runs China's bi-annual National Hi-Fi Show must be unanimous—a product can't win the award simply by majority vote.

Dr Lin insisted on delivering these Jungson amplifiers personally, and when he arrived I discovered the reason. Instead of coming in standard cardboard cartons, the amplifiers ship in three enormous wooden shipping crates, each one of which has two key-operated locks. Open the crates and inside you'll find sheet polystyrene foam packing, then beneath this, a thin foam film. Finally, the front faceplates of the amplifiers are protected by velvet cloth covers with elastic sides. As with most Chinese-made high-end components, Jungson provides pairs of white cotton gloves so you don't transfer oil from your hands to the metal finish on the amplifiers. I discovered that wearing the gloves is very important when handling the JA-2 and JA-100s, because the triple-chromed front panels are so smooth and brilliantly polished that they will show even the slightest speck of dust or film of oil.

It also helps if you have two people on hand when unpacking the JA-100 power amplifiers, because each one weighs pretty close to 85 kilograms and there are no carrying

handles. While it may be tempting to pick up the amplifier by the front panel plate and the (absolutely huge!) gold-plated speaker terminals, you should not do this. When I checked out the construction of the JA-100s, it wasn't hard to see why they're so heavy. Whereas most manufacturers content themselves with chassis just a few millimetres thick, and many make their chassis from aluminium, Jungson uses very high-grade, fine-grained steel plate that's a full 9mm thick. Not only this, but the JA-100 has a second (additional) faceplate, made from even-thicker steel (11-mm).

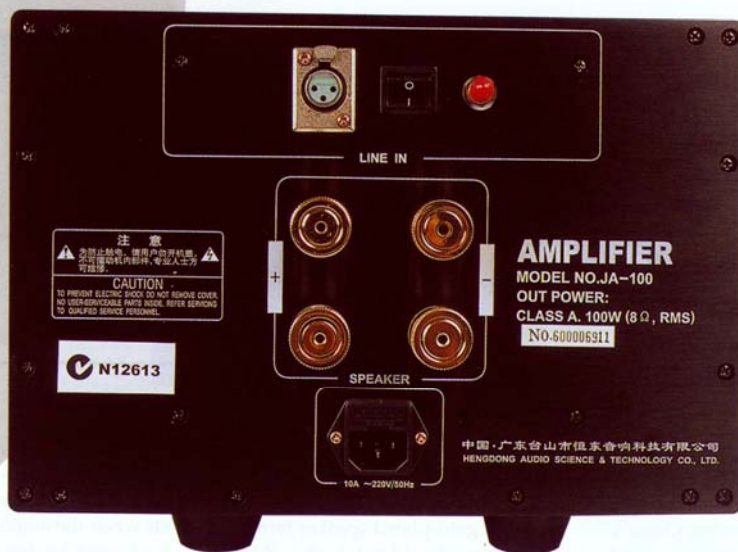
As you can see from the photographs, the outermost of the two faceplates has a rectangular cut-out that reveals an old-fashioned power output meter that, when the amplifier is switched on, shines a brilliantly deep blue colour. The amplifier has no written calibration marks to show actual power output in watts (or dBW, or any other scale), which I guessed was simply to allow Jungson to take advantage of the economies of scale and use the same meter in other amplifiers, with different power output ratings, such as the 50-watt Jungson JA-50. Given that the JA-100 is hardly inexpensive, and the cost of the meters would be trifling in the greater scheme of things, I'd prefer to see the meters 'calibrated' so they at least give an indication of output (in watts) into an eight-ohm load. (I say this fully aware that such meters are not strictly accurate, and that I have in the past railed against them for exactly this reason!) I'd also like to

see Jungson fit some type of up-scaling circuit because the needles barely even flicker at normal listening levels when the amplifier is connected to efficient loudspeakers. It would be so much more satisfying if there were a 'x 10' button and perhaps an LED to indicate clipping.

As you've probably guessed from the foregoing remarks, the JA-100 is rated at 100-watts continuous average power. What's more, Jungson claims the JA-100 is a 'Pure Class-A' amplifier. This, of course, raises the question of what constitutes a 'Pure

JUNGSON

Brand: Jungson
Model: JA-2/JA-100
Category: Pre/Power Amplifiers
Suggested Price: \$2,590 (JA-2), \$9,360 (JA-100/pair)
Warranty Period: One/Three Years (Full/Parts)
Distributor: MFL Import & Export Company
Address:
 12 Francine Avenue
 Elernmore Vale
 NSW 2287
Tel: (02) 4951 6063
Fax: (02) 4921 6899
E-mail: minjielin@mfl-importexport.com.au
Web: www.mfl-importexport.com.au
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Class-A' device. Purists (of which there are many in the audiophile community) would say that a Pure Class-A amplifier can have only a single output device and would therefore (self-evidently) operate in Class-A mode. Since the Jungson uses multiple output devices, it would not satisfy such people that it's 'Pure Class-A'. However, if we take the dictionary definition of a Class-A device, which allows multiple output devices that are operated 'in such a way that collector current flows throughout the amplitude range of the applied signal', the Jungson JA-100 certainly qualifies as a Class-A amplifier. In addition to having a Class-A output stage, the JA-100 also uses minimal negative feedback and is completely balanced, from input to output (though there is an unbalanced input fitted).

The JA-100s also have the very obvious and self-evident advantage that because they're monoblocs, the two channels are completely physically separate, so there's no way for audio signals to leak from one channel to the other. Channel separate is therefore—literally—infinite. Also, of course, because there are two completely separate power supplies, power delivery to the loudspeakers is also improved. In a normal amplifier, where a single mains transformer supplies voltage for both left and right channels, heavy demands on one channel can starve

the other channel of power. The two separate power supplies of the JA-100 pair ensures continuous full-power operation.

Finding an equipment rack large and strong enough to safely support this trio could be tricky. I started off by just placing them on the floor of my listening room, safe in the knowledge that if anyone accidentally stumbled into them, it wouldn't be the amplifiers that suffered the damage! After a few hours, however, I began to feel guilty about leaving ten grand's worth of electronics on the floor and got some help to load everything onto a Lush equipment stand which, thanks to its own solid-steel construction and excellent design, didn't even creak under the weight.

Listening Sessions

One of the first things I do with any pre/power combination is connect a pair of efficient loudspeakers and a CD player, then with the CD player switched on, but no CD playing, crank the volume control of the pre-amplifier up to maximum. The idea is that if there's any mains hum from the power amplifier, or the system is poorly shielded, so it picks up induced hum, it will be immediately obvious. When I tried this with the JA-2/JA-100, the speakers were so quiet that I thought the system might not be working! At my listening

position, I couldn't hear any sound at all from the speakers...nothing.

I then got up and listened from directly in front of the speakers, whereupon I finally heard the tiniest amount of hiss from the tweeters, and an even-tinier background hum from the woofers and midrange. This is exceptionally good performance, so good I pulled out my trusty sound pressure level meter (SLM). At just one centimetre from the tweeter, I measured 54dB SPL 'A'-weighted and at one centimetre from the woofer, 40dB SPL 'A'-weighted (this from speakers that are measured 91dB SPL efficient). In other words, the Jungson amplifiers are vanishingly quiet.

After that, it was back to the sweet spot to spin up a CD on the Moon Audio Eclipse. No sooner had the first notes thundered from the speakers that I knew not only that I was in for a treat, but also that I had the volume turned up 'way too high! Having left the remote in the box, I reached for the volume control on the JA-2, only to discover that if I span it around quickly, it didn't work at all. It appears that it must have some type of optical encoder system, and if you spin it too fast, the circuit can't register the pulses. I then rotated the control slowly and discovered that when I did, 'clicks' were clearly audible through the loudspeakers. Rather puzzled by

this, I switched off the CD player, then experimented with the volume control. I found that each step increase or decrease in volume resulted in an audible 'click' through the loudspeakers at levels above 20 (as indicated on the digital display of the JA-2) which slowly increased to become disconcerting 'cracks' at the

displays on the JA-2 display), which only goes to prove that reading the manual is a good idea, even if you're reviewing a pre/power amplifier combo! Reading further in the manual I found that the 'Mute' key on the remote also does double-duty—it will turn off the JA-2's on-screen display.

“sound from the Jungson has the same inveigling ‘listen to me’ character that made me sit up and take notice”

very highest volume levels. I didn't know whether to count this against the Jungson combo because the sound was not really noticeable at levels below 20 and volume settings below 20 were sufficient to result in more than adequate sound pressure levels when using efficient loudspeakers, so I thought I'd at least mention my findings, so buyers can make individual assessments with their own loudspeakers, at their own preferred listening levels. It would, however, obviously be better for everyone if the clicking sounds were not there!

This out of the way, I started up a CD again and started turning the volume control slowly, only to discover I seemed to be doing rather a lot of turning of the control with very little effect on the volume, even though the JA-2's display was incrementing appropriately. I then experimented once again with the control (once again with the CD player output muted) and discovered it took 15 complete rotations of the JA-2's front panel control to increase the output from zero to full power, a process that takes place through 99 individual steps. This slow action of the control continued to frustrate me through the listening sessions, and it was only when I finally fetched the remote control to ensure it worked correctly that I discovered that the JA-2 has a special operating mode—accessible using the 'Mode' switch on the remote—that switches the JA-2 volume control to high-speed (H

I was a little puzzled that the JA-2 has only three inputs (one balanced, two unbalanced) and no recording loop, which makes it a little inconvenient to dub your own CDs, tapes or MDs. I can only assume that in China, the people using this type of equipment connect only one or two source components and don't use it for recording purposes. I also found the action of the input selector a little unusual. When you push it in to change inputs, it cycles through inputs in the order 1-2-3-2-1 rather than the 1-2-3-1-2-3 you'd expect. What I found was that I'd sometimes reach out to adjust the volume slightly and whilst turning it, also accidentally press the control, switching it from 1 to 2, after which I'd then have to press three more times to return to my original source. If it cycled 1-2-3-1-2-3 the problem would still exist, but I'd save an extra push of the control!

Incidentally, not that you're likely to do it, but because the output of the JA-100 is fully-balanced neither of the speaker terminals are referenced to ground, so it would be best not to connect a powered subwoofer, and ordinary dynamic loudspeakers should be used in preference to electrostatic loudspeakers.

Then it was time to start listening again, and despite all the niggling operational details, it was still obvious I was in for a treat, because the sound from the Jungson has the same inveigling 'listen to me' character that made me sit up and take notice in the first place. This combination had the

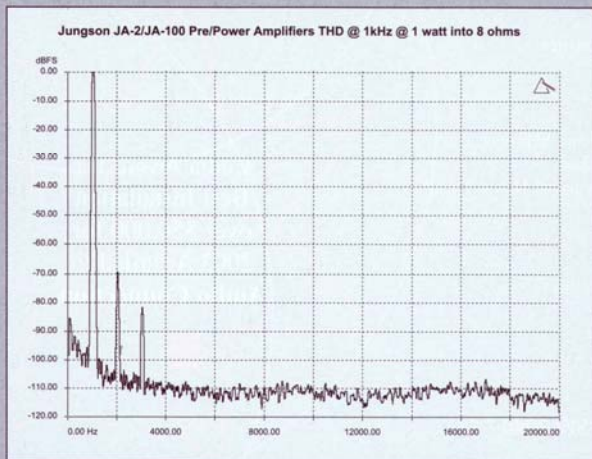
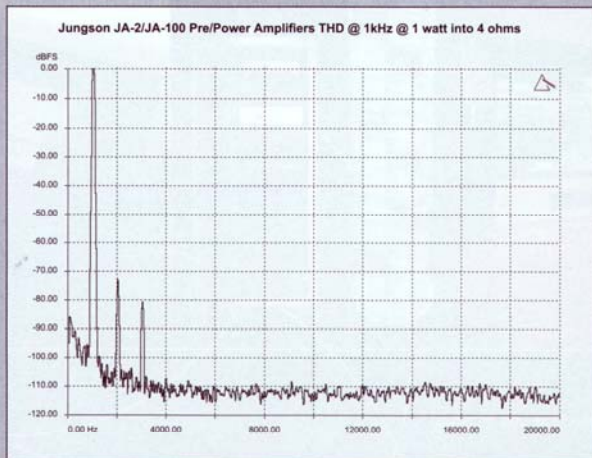
curious ability to make me imagine I was listening a little ahead of time, so there was never any sense of surprise at the next note, because I already had the sense of what it would be, even if I hadn't heard the piece of music before. The sound also had a definite sonic character at moderate to high listening levels. At high to very listening levels the sound seemed to me to acquire a tiny amount of grain, though this was a least partly noticeable because of the purity of the sound at low to ordinary listening levels, though not sufficiently neutral to be in the 'straight wire with gain' category. The 'time-shifting' ability of the JA-2/JA-100 was complemented by the fabulous soundstage they presented, in terms of both stereo imaging, which was excellent, and stage presentation clues (height and depth) that were equally good.

Conclusion

An impressive debut, to say the least! I have absolutely no doubt that if the JA-2 and JA-100 were wearing the badge of a famous British or American amplifier manufacturer, rather than that of a famous Chinese manufacturer, they'd command a price two or three times higher than MFL is asking for them. My advice is to keep your eyes on this company, because my guess is that we'll be hearing a lot more from Jungson. **ANF**
greg borrowman

LAB REPORT

Readers interested in a full technical appraisal of the performance of the Jungson JA-2/JA-100 should continue on and read the 'LABORATORY REPORT' published on the following pages. All readers should note that the results mentioned in the report, tabulated in performance charts and/or displayed using graphs and/or photographs should be construed as applying only to the specific sample tested.



Test Results

Power output from the JA-2 was 1.3dB better than specification, with the amplifier returning exactly 138-watts continuous into an 8-ohm test load no matter whether tested at with a 20Hz, 1kHz or 20kHz test signal. Solid performance indeed. Reducing the load resistance to 4-ohms didn't see the expected doubling of power output, but the JA-100 came very close, delivering 248-watts average power into the dummy loads, again measuring exactly the same at the three different test frequencies.

Frequency response is graphed both into a resistive load and a simulated loudspeaker load that's designed to represent the type of load a typical loudspeaker would present to the amplifier. As you can see, into the resistive load the Jungson's response was exceptionally flat, *Australian HI-FI Test Laboratories* measured it as being just 0.4dB down at 20kHz, so 'normalising' this into the industry-standard \pm format means the response is 20Hz-20kHz \pm 0.2dB. Response is just 1dB down at 50kHz, so it's a perfect candidate for matching with super-audio format sources, such as DVD-A or SACD. Driven into the simulated loudspeaker load, the response was not as 'flat, and rolled off rather more quickly at the top end, but the Jungson still performed very well, with the 'normalised' response coming in as 20Hz-20kHz \pm 0.4dB. In measured terms, response is just 0.8dB down at 20kHz and 1dB down at 30kHz.



Driven by a 1kHz signal into an 8-ohm resistive load, distortion at 1-watt was low, with the spectrum analysis of the result showing the distortion comprised of a second-harmonic component at -70dB (0.03%) and a third harmonic at -82dB (0.007%). The noise floor at this level is for the most part below -110dB (linear). Under the same test conditions, but with a 4-ohm load, the Jungson performed equally well, with approximately the same level of overall THD, but this time the second harmonic was slightly reduced in level, to -72dB (0.025%) and the third slightly increased, to -80dB (0.01%). The measured overall THD+N figure at one-watt was 0.006%.

The picture wasn't so rosy at rated output, with the Jungson returning high levels of both odd- and even-order harmonic distortion components, as you can see from the graphs. Into 8-ohm loads, the first four odd-order harmonic distortion components (3rd, 5th, 7th and 9th) were arrayed between -50dB (0.3%) and -60dB (0.1%). The first four even-order harmonics were at much lower levels (around -80dB , or 0.01%). Into 4-ohm loads, the odd-order distortion components increased in level again, with HDL_3 at -45dB , or 0.56%, HDL_5 at -50dB and HDL_7 at -55dB . Again, even-order components were relatively low at around -80dB . It would appear from these results that Jungson is using relatively low levels of negative feedback—presumably in order to improve transient intermodulation distortion. Overall THD+N at rated output was measured at 0.02%.

Australian HI-FI Test Laboratories measured signal-to-noise ratios with both the Jungson JA-2 and the JA-100 in circuit, so the results cannot be compared with Jungson's own specifications, which quote signal-to-noise ratios separately for each component. Measured this way, the S/N ratio at one watt was 87dB (A-weighted), improving to 101dB (A-weighted) referred to rated output. **AHF**

Steve Holding

