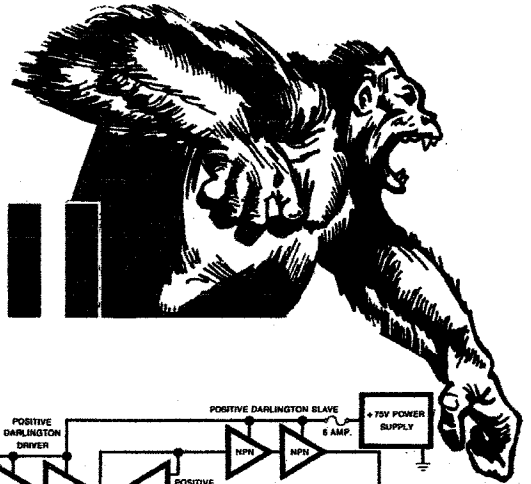


NOW!!

AMPZILLA II

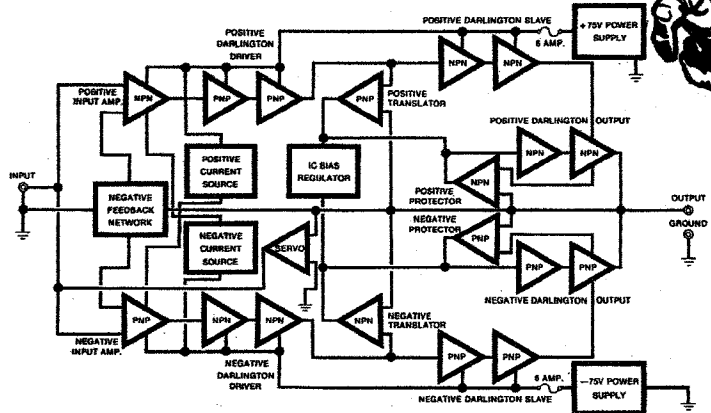


Authorities worldwide have already given Ampzilla its well-earned reputation as a classic amplifier design capable of sound reproduction exceeding its contemporaries.

With a desire for even better results, Great American Sound Co. designers have now created Ampzilla II. Some of its improvements include:

1. DC servo control of the full-complementary circuit design.
2. Expanded driver transistor circuitry which extends low-impedance load capabilities and improves high-frequency performance.
3. L.E.D. (light-emitting diode) stereo peak-overload indicators.
4. Further extension of duty cycle with massive extruded heat-skin fins.
5. Structural improvements for easier serviceability and greater durability during shipping.

Compare the specs below or better yet, *hear* Ampzilla at one of GAS Co's many dealers (listed on pg. 4).



AMPZILLA BLOCK DIAGRAM
(1 CHANNEL ONLY)

POWER OUTPUT

4 OHMS	Minimum 350 Watts per channel, both channels driven, 20 Hz to 20 KHz
8 OHMS	Minimum 200 Watts per channel, both channels driven, 20 Hz to 20 KHz
16 OHMS	Minimum 125 Watts per channel, both channels driven, 20 Hz to 20 KHz

TOTAL HARMONIC DISTORTION & I.M. DISTORTION

4 OHMS	Less than .15% at any frequency or combination of frequencies, and at any power level to clipping.
8 & 16 OHMS	Less than .05% at any frequency or combination of frequencies at any power level to clipping.



INPUT SENSITIVITY:	1.6 Volts RMS for 200 Watts into 8 Ohms.
INPUT IMPEDANCE:	75K Ohms
CROSSOVER NOTCH:	Non-existent
FREQUENCY RESPONSE (Power Bandwidth) at rated power or any level less than rated power:	4 OHMS Better than ± 0.2 dB, 20 Hz to 20 KHz Better than ± 2 dB, 1 Hz to 100 KHz 8 & 16 OHMS Better than ± 0.1 dB, 20 Hz to 20 KHz Better than ± 1 dB, 1 Hz to 100 KHz
RISE TIME AT 8 OHMS:	Better than 2 μ seconds. AT FULL POWER AT 20 KHz. Slew rate equal to 40 Volts per μ second.
HEAT DISSIPATION SYSTEM:	Low noise integral fan operating over 1200 sq. in. total fin area.
DUTY CYCLE:	Continuous operation at ambient temperatures up to 125° F.
STABILITY:	100% stable into any load angle 0° to 90°, capacitive or inductive, regardless of waveshape — sine, square, or triangular. No oscillations or modulation noise evident.
DAMPING FACTOR:	150 at 20 Hz to 1 KHz
OVERLOAD PROTECTION & FUSING:	Transistorized dynamic short-circuit protection. Thermal breaker also protects against overheating. 4 B+, B- power supply fuses, 1 AC slow-blow power fuse.
NOISE:	Better than 100 dB below full power (unweighted, wide band), 112 dB below full power (wide band with R.F. filter).
SIZE:	Std.: 17 1/2" (W) x 7" (H) x 9" (D). Rack Mount: 19" (W) x 7" (H) x 9" (D).
SHIPPING WEIGHT:	50 lbs.
MODEL 102	\$899.00 (DENVER & WEST) \$909.00 (EAST OF DENVER)

Reprint courtesy of

STEREOPUS

volume 1 number 4

Stereopus is published five times annually, in the form of two full sized issues and three newsletters, at P.O. Box 509, Shalimar, Florida 32579. Thomas J. Norton, Editor.

SON OF AMPZILLA

Power Amplifier. Manufacturer: Great American Sound Company, Inc. 20940 Lassen Street, Chatsworth, California 91311. Price: \$399.00 (East coast).

The latest "ape" in the Bongiorno family is advertised by G.A.S. as "Ampzilla's baby." This is, in fact, somewhat true because Son of Ampzilla is basically an Ampzilla in a scaled down version. Since the circuit design is very similar, I wasn't surprised to discover that Son sounds very similar to his mother (or father, or whatever). In fact, in a direct comparison with a late Ampzilla, I was unable to hear any difference whatsoever on Dahlquist DQ-10's as long as Son was kept within his power limitations. In fact, there are far more differences between generations of Ampzillae than there are between the latest Ampzilla and Son. My own Ampzilla (a very early SN100210) is somewhat smoother at the top than Son and later generations of Ampzilla, but I suspect that I was just lucky enough to get a really hot unit.

Son is rated at 80 watts per channel into 8 ohms and 150 watts per channel into 4 ohms (FTC with NO fan) but where he really comes into his own is into 2 ohm loads where rated power increases to 250 watts per channel for all versions - NOT just the rack mounted model. For an 80 watt amplifier, \$400 is an average deal, but \$400 for 250 watts per channel is a STEAL, especially when that \$400 pays for sound quality which closely approaches true state-of-the-art. Of course, if you only have one pair of true 8 ohm low efficiency speakers you may find Son a bit short on power, but if you have 4 ohm speakers for if your 8 ohm speakers actually measure 4 or 5 ohms over most of the audio band and you have 2 pairs to drive, then the true value and potential of the Son can be realized. Such is the case with double Dahlquists, so Son was compared to Ampzilla on these. Since the average impedance of double DQ-10's is about 3 ohms, Ampzilla still had the edge in power (into 2 ohms, Son's power surpasses Ampzilla's) but the Son definitely gave much tighter bass and a cleaner top end. Son's high current capability makes it really like low impedance loads and its huge heat sinks and increased stability (over Ampzilla) make it nearly indestructible. As a joke, we drove it into 30 pairs of speakers in parallel at gross clipping, but weren't even able to blow power supply fuses. Clipping into this short produced merely a thickening and smearing of the sound - never any clicks or pops. Incidentally, if you do plan to drive 2 or 3 ohm loads, be sure to keep speaker

leads short and use 12 or 14 gauge wire or you'll have virtually no amplifier damping.

Son of Ampzilla has few negative characteristics; I will mention two things I didn't like. First of all, it has no power switch and draws quite a jolt upon initial turn-on, so your preamp had best have a healthy switch if you plan to control the amp with it. Second, Son's meters are calibrated to read sine wave power in watts and no sensitivity switch is included. What this amounts to, is that these meters will never reach 0 VU on music without gross distortion due to the inherent lag in the meters. G.A.S. refuses to calibrate the meters for music, arguing that it can't be done accurately, so I brought out my scope and re-calibrated them myself. I found that increasing the sensitivity of the meters by 9 db on sine waves (with the pots inside next to the meters) gave a 0 VU reading just as peaks were beginning to clip on the scope with music containing transients. This might not be completely accurate on all music, but at least it makes the meters usable. As supplied from the factory, the meters will barely leave the left corner at anything less than full power, and since everybody knows that meters are to be pushed into the red, there is quite a potential for frying tweeters, especially if the kids play the stereo. If you're pushing low impedance loads, it may be necessary to increase the meters more than 9db since they operate on voltage, which will decrease as load impedance decreases. The best procedure to use is: Play your favorite recording at full power into your speakers while observing a scope connected to the amp outputs. Adjust the volume so that clipping is just barely visible on the scope and then increase the meter pot until the meter reads about 0 VU on loudest peaks. Next feed a sine wave into this channel and adjust the input so that the VU meter reads 0. Inject the same sine wave into the other channel and adjust its meter for an identical 0 VU reading. Double check your setting by observing the scope with several kinds of music and see that the meters correspond.

As for the competition, I feel that the new Audire amplifier (100 watts) is slightly smoother on top and slightly more neutral, but the Audire does not like low impedance loads, has no meters and costs the same as Son. For 8 ohm loads I would prefer the Audire, but for loads of less than 4 ohms Son wins hands down. The Phase Linear 200 (also about 100 watts per channel) was not quite in the same league sonically as the Son and the Audire (although it was clean) and had some overheating problems.

One final comment on the sound quality of Son of Ampzilla (and first rate transistor amps in general) is still due, as I had the opportunity to compare one with a carefully overhauled and matched pair of Marantz 7 tube amps on electrostatic headphones. By comparison, the Marantz amps slightly softened transients. This might be fine for electrostatic tweeters, but there was no question in my mind that the solid state amp was the more accurate and the more detailed. And it didn't sound hard!

Overall, I am impressed with Bongiorno's little amp. Finally there is some true value in the modern audio market.

RT

Son is indeed an excellent amplifier. My sample did not sound identical to my Ampzilla - the latter was slightly brighter at the very top a subtle silkiness which was rather more seductive than the almost tube-like sweetness of Son. Ampzilla's pride and joy performed flawlessly with every speaker I tried it with from the 4 ohm Koss¹ to the little IFFried 0. It runs quite warm (it is said to operate Class A at low power levels) but has plenty of heat sinking to accommodate this. There's not much more that needs to be said.

TJN

G.A.S.

Editor:

As far as the review on Son is concerned, there's not much to add. However, I would like to say that I find it rather hard to believe that you consider the Audire (Old Quatre) to be even in the league of today's more advanced and sophisticated designs. Even the original designer (Dan Meyer—Universal Tiger, Popular Electronics 1970) doesn't consider the circuit to be acceptable anymore.

In regards to your continuing saga on our preamp, I feel that if you are finding such large differences between ours and the Levinson, surely something is amiss. I have evaluated 4 different JC-2's and in ALL cases I find that it is extremely difficult to tell them apart when everything is perfectly balanced. The only differences that we were able to detect were a lack of impact in the bass (which you noted) and a very subtle brightness

in the highs (due to RIAA errors). We could find virtually no other sonic differences except a slight loss of depth after extensive listening (in the JC-2).

Readers will however, have to make their own choice as at this stage it is purely a selection of vanilla, chocolate, or strawberry. In closing, I'm reminded of an amusing story that was told to me that I think is appropriate:

Two women were viewing some works of art in a museum. They were shaking their heads and hissing at how awful they thought the works were. A guard walked up to them and said, "Ladies, you're making a mistake. It's not you who are doing the judging. It is you who are being judged."

James Bongiorno
President

Editor's Comment:

I have not compared Audire with Son, so

cannot comment on RT's remarks in the review, but the reader should be cautious about the 'newer is better' syndrome. That does not mean that Son is not superior to most earlier solid state designs of equivalent power (it is), but it does mean that just because a design is newer, it is not necessarily superior in every respect to all earlier designs.

I am sure that if the reader will read the reviews of Thaedra carefully, he or she will see that we talked about small differences between it and the JC-2, not large ones. In any event an update is scheduled soon.

The story of the ladies in the museum is interesting, but one cannot pass judgement on their judgement unless one has an absolute measure of that which they are evaluating—in this case works of 'art'. Who provides that absolute measure? The artist who created the works? The museum curator? The guard?

TJN



GROWS AND GROWS

	MODEL NO.	DENVER & WEST	EAST OF DENVER*
AMPZILLA II WITH PEAK INDICATORS	102	\$899.00	\$909.00
AMPZILLA II INDUSTRIAL RACK MOUNT	112R	\$999.00	\$1,009.00
THAEDRA BLACK	301B	\$899.00	\$909.00
THAEDRA WHITE	301W	\$909.00	\$919.00
THAEDRA RACK	301R	\$934.00	\$944.00
SON OF AMPZILLA WITH FRONT PANEL	401P	\$414.00	\$424.00
SON OF AMPZILLA RACK MOUNT	401R	\$424.00	\$434.00
SON OF AMPZILLA INDUSTRIAL RACK MOUNT	411R	\$524.00	\$534.00
THOEBE STD. FRONT PANEL	501P	\$499.00	\$509.00
THOEBE RACK PANEL w/HANDLES	501R	\$534.00	\$544.00
GOLIATH PRE PREAMP	601	\$149.00	\$149.00

[A] Ampzilla II Power Amplifier
with LED (light emitting diode) peak indicators.
Power Output 8 Ohms: 200 Watts/ch.
20 to 20KHz at .05% distortion
Power Output 4 Ohms: 350 Watts/ch.
20 to 20KHz at .15% distortion
Model 102 with white end panels.
Size: 17½"W x 7"H x 9"D

Model 112R (illustrated) industrialized,
w/blk. mtg. panels. Size: 19"W x 7"H x 9"D

[B] Thaedra Preamplifier
with all servo-controlled circuitry.
70dB head-amp. gain for use
with moving coil cartridges.
Model 301B with black front panel.
17"W x 5¼"H x 18¼"D

Model 301R (illustrated) w/blk. rack mtg. panel.
19"W x 5¼"H x 18¼"D

Model 301W (illustrated D)
same as Model 301B but white enamel panel.

[C] Son of Ampzilla Power Amplifier
Power Output 8 Ohms: 80 Watts/ch.
20 to 20KHz at .05% distortion
Power Output 4 Ohms: 150 Watts/ch.
20 to 20KHz at .05% distortion
Model 401P with black front panel
17"W x 5¼"H x 9"D

Model 401R (illustrated) w/rack mtg. panel.
19"W x 5¼"H x 9"D

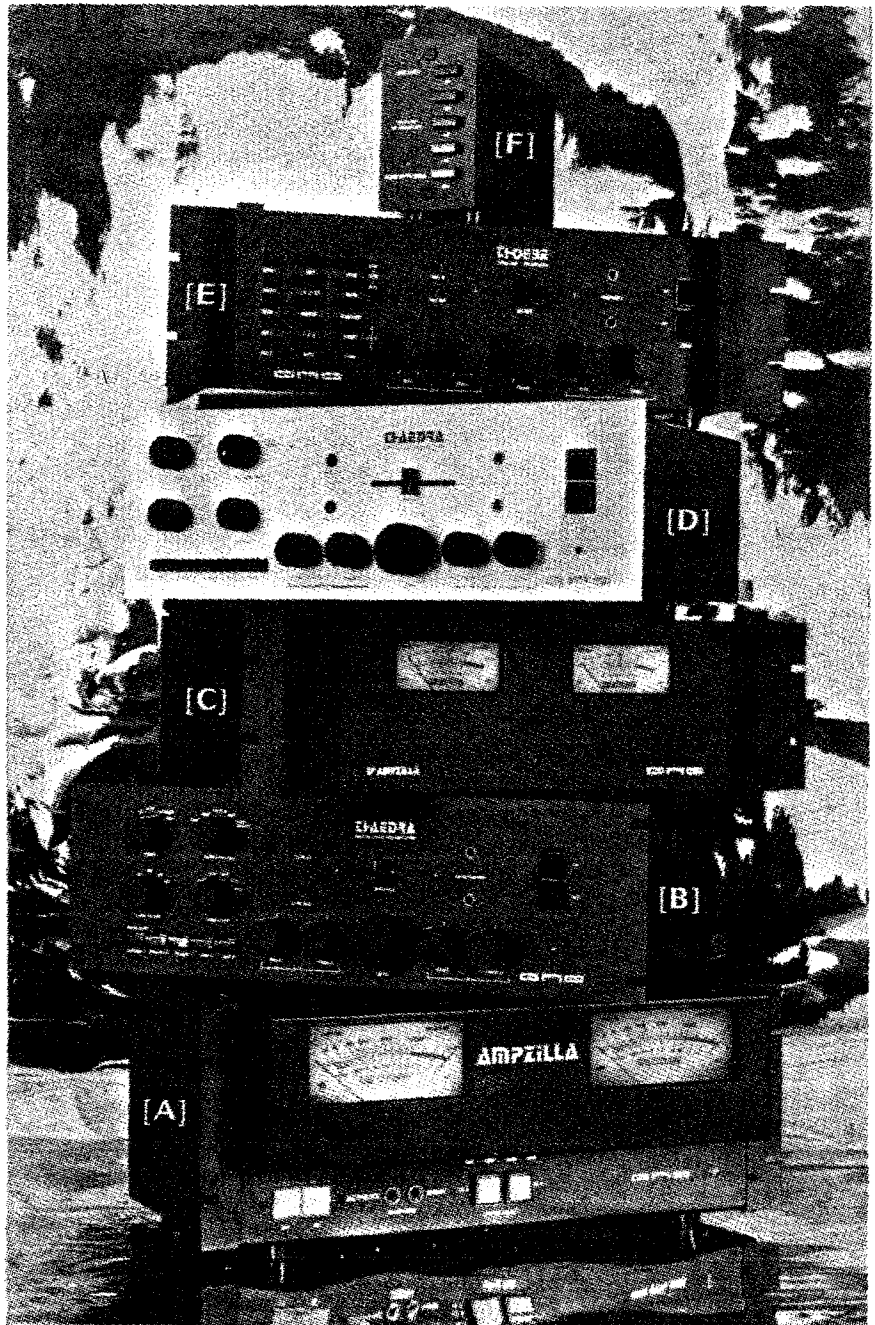
Model 411R same as 401R except industrialized.

[D] See [B]

[E] Thoebe Preamplifier
with servo-controlled circuitry,
21-position tone controls, and 22-position level
control with ±1dB channel match. Has power
outlet for Goliath.
Model 501P with blk. front panel.
17"W x 5¼"H x 8"D

Model 501R (illustrated) rk. mtg. panel
w/handles, as above but 19"W.

[F] Goliath Pre-preamplifier
for use with Thoebe.
Pushbuttons select up to 29dB gain
for use with moving coil cartridge.
Model 601. Size: 5¼"H x 2¼"W x 8"D



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Thaedra

Manufacturer: The Great American Sound Company, Inc., 20940 Lassen Street, Chatsworth, California 91311. **Price:** \$909. **Unit evaluated:** Serial No. 251A (but see below). **Source:** Manufacturer's loan.

The caveat given above, "but see below," occurs not infrequently in these pages: It generally means that the unit being evaluated has had incorporated in some design changes which more or less significantly affect its performance. Such changes are seldom noted in reviews published by the "mass market" audio magazines, but are conscientiously noted in The Absolute Sound, suggests that at least one major difference between you and us: "They" are in the business of selling magazines for themselves and profit for manufacturers, while "we"

usually reviewed clearly sounds unlike the product as received, lest our readers assume that our comments apply equally to every sample of that product. Manufacturers' consternation would be understandable if design changes resulted in performance or durability compromises: But in most of the equipment with which TAS is concerned, the change usually is for the better. Rather than consternation, therefore, I suggest that manufacturers should feel something more akin to pride in accomplishment, and their consumers a sense of gratitude that manufacturers are not content simply to introduce a product and watch the orders roll in. Ah, but doesn't the manufacturer owe something to the buyer of the original "unimproved" product? Yes, but let us look more closely at the nature of that debt.

tent with his purchase (unless it flagrantly malfunctions) and not feel abused if a conscientious manufacturer subsequently discovers ways to improve the product. I assert with equal vigor, however, that the manufacturer should be expected to make such improvements available to earlier purchasers, whenever technically possible.

In the case of Thaedra, for example, the unit as received might well have satisfied some buyers; to my ears, however, its sound (as received) was muddy, poorly defined, and thoroughly unsatisfactory for a really good audio system. Several weeks later, however, Jim Bongiorno arrived on the scene with modifications and information. The modifications consisted of complete replacement of the two power supply boards and the head amp board. The information was that my Thaedra, as received, was one of the last of the original production run of 250 or so units, and that subsequent runs would incorporate the modifications made on my unit. I submit that Mr. Bongiorno and Co. owe nothing to purchasers of the original units save modification at a reasonable price. That "reasonable price" would include costs of developing, manufacturing, and installing the new modifications, as well as a reasonable profit to the manufacturer for these activities. Audio design, in other words, is an art: Those who wish to apply this year's artistry to last year's technology should be willing to pay for the endeavour. This has long been the policy of such firms as Dynaco and Audio Research, and I would hope that other manufacturers might follow their example.

As it stands right now, Thaedra is a very respectable piece of work. It is, among things, sturdy (only the Yamaha C-1 at double the price, weighs more among preamps of my acquaintance). Its control knobs are massive to the touch, and silky-smooth in feel and in quietness of operation. Control function, moreover, is exemplary, and Thaedra's versatility, particularly in light of its built-in head amp, may be counted as unusual.

As I suggested before, Thaedra as received was at best a mediocre preamp; as modified, it is pretty damned good. Its slight defects, as modified, are twofold: First, there is a warmth to its bass which verges upon fatness. Second, there is a bit of brightness in the upper mid-range and highs—more than one would hear in a live symphonic performance. In this respect it seems to exhibit some "transistor" coloration. At the same, how-

ever, so to speak, Thaedra is a real contender. For musicality, however, I'll still take JC-2, and for "musicality", in this context, read "less showy, more un-fatiguing in the long listening session."

With respect to the matter of head amp vs. non-head amp phono inputs, Thaedra stands up equally well in both areas. Which is to say, the head amp is clean, and subject to pretty much the same sonic description as noted above; with the Ortofone SL-15 Mk II it was superior in overall clarity and in dynamic range to the same pickup with its matching transformer driving Thaedra's conventional magnetic phono input. Moreover, if the regular phono input has gain enough to drive just about any amp/speaker combination (which it does), then the head amp has enough to drive a Sherman tank, while still having very low audible noise and hum. (Jim Bongiorno, by the way, makes much fuss over his head amp's involving only a single stage of amplification, while other folk's head amps are simply a pre-preamp stage intended to drive a regular magnetic phono input. I point this out only to coopt what would undoubtedly be a major point in his Manufacturer's Comment.)

In sum, I am able to muster considerable enthusiasm over Thaedra as it now stands despite some trepidation over two related points. The first point is that my sample sounded frankly mediocre upon receipt and continued to do so until modified (an impression bolstered by expressions of disappointment from some of Thaedra's earlier purchasers hereabouts, whom I hesitate to label either fools or sycophants because most of them generally have good ears). The second point relates to the fact that the original circuit boards, once replaced, were immediately whisked back to wherever old circuit boards go, so I was unable to perform my usual back-and-forth comparisons. Overall, however, I am so sure that GAS has improved the product that I urge owners of the first 500 or so units to correspond forthwith with the factory about obtaining modifications. Do not expect those modifications to be cheap: The three boards involved are large and chock full of goodies, and substantial labor is involved in their replacement. But even if it involved a hundred or two dollars, the improvement would be worth it.

—JWC

Manufacturer's Comment:

your unit was not correctly adjusted and therefore was shy in its performance. These situations arise occasionally although not very often. Water seeks its own level and if the unit is right, everyone is happy; if a unit arrives defective, we hear about it—and try to improve. This is further proof of my steadfast rule: No reviewer shall ever receive a tweaked unit. When I assign a unit to a reviewer, it is pulled from boxed stock and shipped—period.

To indicate that the first 250 customers are experiencing sonic nightmares (my phrase) is an injustice. These customers have not been calling us complaining, which means that they are at least reasonably satisfied. To imply that they are experiencing inferior sound quality is misleading.

It is not our desire to become a member of the modification-of-the-month club, however, I feel I should put this matter to rest once and for all. Most manufacturers are forced to try to improve their products by the sheer economics of competition. Some are forced to redesign because of poor design in the first place. (This may be electrical, mechanical, sonic or otherwise). Some of us redesign merely for the simple reason of trying to improve the state of the art. I suggest at the very most, these improvements are very small each time, as there are virtually no giant steps.

For the most part, the changes (not modifications) we incorporated in Series 2 were for production and reliability reasons. As you well know, Thaedra is at least one of the most complicated and sophisticated preamps ever made. As a result, the sonic performance was slightly improved. We are now into Series 3 (series #500700 and up) in which further layout changes have been made resulting in no sonic improvement. With one exception. The phono card and power supply card have been redesigned with more sophisticated servos and are sonically improved (one of each is enclosed for your continuing evaluation).

Your preamp had three cards replaced which are the head amp, line amp, and power supply. The phono card was not changed in Series 2. As you were aware, the entire preamp was practically dismantled to change the cards due to parts layout interference and it is not a simple job.

Owners of Series 1 units may elect to have an overhaul, BUT, it is expensive as all the electronic circuits of the entire preamp are on the four (4) cards. Also, the aforementioned "surgery" plus "burn

Series 2 need **only** the wer supply cards changed. and line amp cards rest of this is \$225.00. As to l cards go, they get used nd/or eaten as they are less. Many will feel that ageous price for improve- er, rest assured that the an entirely new preamp ed. Didn't Audio Research 0 to upgrade from a D76 ne must bear in mind that 'retrofit is like trying to look ball, yet somehow we are l. (By **The Absolute Sound**

the sonic expect, review- an extremely difficult job and likewise, manufactur- even more difficult job. I suggest that where engi- off, a truly higher level of flavor begins. It is not my rite a novel here, however, rmous number of pitfalls uninformed and unknow- r, reviewer, and engineer. ate there are not enough in our field who have risen o educate the industry to (drawbacks) concerning ction (also production). If am going off on a tangent, am not. I am merely trying insight into helping our a future.

a, the simple fact that any tio component will sound antly in every **different** onment suggests a defi- here. Obviously, the loud- is the biggest offender in as it will cause interaction sociated components. In amp "A" us, preamp "B", an error in its RIAA curve oupled with cartridge "X" may be termed a "correct d quality". Yet, cartridge e an **opposite** error which he error in preamp "A".

"B" is substituted, "B" rrect RIAA curve, but since has an error, this shows ough preamp "B" is more ts blamed for not having d quality in this area. Un- cumstances, it seems to viewer owes a "debt" to r and the audiophile to ure the whole cartridge- ination with an accurate **verify** the correctness of ee in order to arrive at

the case of the JC-2, I suggest that the JC-2 is not all what it is touted up to be in all areas.

These are but a few of the shortcomings, therefore, I will not comment further on sound quality. I suggest, however, that potential customers audition all three preamps, the Thaedra, the JC-2, and the SP3a-1, lest he suffer being burned at the sonic stake.

A further comment is necessary concerning our head amp. Make no bones about it: Thaedra has the only single stage moving coil electronics in the world, which is unique. The JC-2 uses a combination of the JC-1AC circuit card **cascaded** through the regular phono electronics with a new equalization card substituted. It is **not** the optimum way to do things. Concerning moving coils, I do hope that someday you treat yourself to the pleasure of auditioning the EMT. (Through Thaedra of course: in the -12dB setup, something you **cannot** do with the JC-2).

One final note: Music is and should be an enriching part of one's life. You admit to being a hobbyist advising readers—hopefully accomplishing worthwhile endeavors. I submit that under **some** circumstances there is a higher level of scientific justice that must enter the picture, as the distinction between objective and subjective cannot be that far separated. I am an ardent music lover (and a professional pianist for 15 years with a 90 year old Steinway concert grand in my living room) and also a professional scientist, and I have devoted my entire life to the endeavor of trying to enrich my life and others through music. This is not a haphazard situation, and being what it is, true scientific research and development is at all prescription. As such, a line of distinction must be drawn between those who sole intention is that of making money, and those whose sole intention is that of improving the state of the art.

James Bongiorno
President
G.A.S. Company

PHD Comments:

I have listened twice to Thaedras borrowed from Vickers audio in Chapel Hill. I agree point for point with JWC.

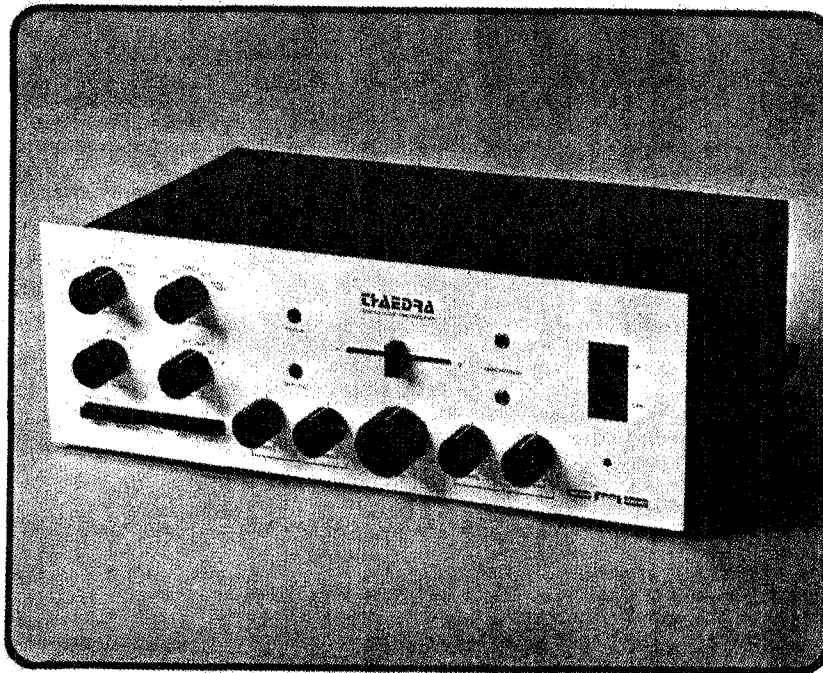
JWC's Last Word:

Mr. Bongiorno's thoughtful and detailed comment is well-taken by this

ogize for mistaking one of the boards changed by Mr. Bongiorno for part of the power supply).

Other points of this comment raise substantial issues. Over one in particular I find myself siding with Bongiorno: Namely, whether a particular make/model of any one component can be identified as "the best" in isolation, connected to no other component. H.P. would hold, as I understand it, that if (say) a particular preamp sounded better than any other preamp with perhaps one or two cartridges which he held in particularly high esteem, then that preamp might be judged the best of its class.' Bongiorno and I on the other hand would hold that since no individual compo-

sounds under a given set of conditions? We at **The Absolute Sound** have long since given up on the notion that classical parameters (such as T.H.D., I.M., S/N ratio, frequency response, power ratings) will help us forecast the sound of a component, except in perhaps a very gross way. It appears that some audio scientists agree with us: Witness the fairly recent development of such concepts as "trackability" (Shure), "transient intermodulation distortion" (Marshall Leach), or **High Fidelity's** newborn attempt to distinguish noise from "true" distortion. I personally wish all these people the best: If increasingly meaningful parameters result, then all of us will have gained. In the meantime, it seems



nent can by itself produce any sound at all, every component must always be judged in the context of its associated equipment. All us reviewers should ideally evaluate every preamp with every possible cartridge (and amp and speaker, for that matter):² That being impossible, let the reader be aware that there are certain divergences of opinion among our staff over exactly how we go about this exotic business of ours.

With regard to the "scientific" aspects of sound recording and reproduction, Mr. Bongiorno alludes to the knottiest of all

that just plain hard critical listening will be needed to separate the sheep from the goats, and high fidelity sound will continue to be a science in much the same way that medicine is a science.

Mr. Bongiorno makes much of his personal experience as a musician. My own professional experience (as a meagerly paid church chorister) extends back over most of the past twenty years. In the last seven years, moreover, I have sung in over 100 performances in chorus with a full symphony orchestra (and listened to at least 150 other live sym-

as heard from his thoroughly stoned thirtieth row console.

But seriously, folks, let me reinforce the positive aspects of my original review: Thaedra, with the three-card update is a most respectable performer. It is indeed very detailed and clean, and on further reflection (and comparison of notes with H.P.) I believe it has significantly greater spatial depth than the JC-2. In a telephone conversation with Bongiorno I suggested that this depth perspective, together with that romantic bass, suggested some of the sound qualities (on orchestral recordings) of the classic old European and American concert halls, which pleased him immensely.

On one point, however, I will not capitulate. My original Thaedra was precisely similar in sound to two other units from that early production run (units bought by other audiophiles in my vicinity, and brought to my house for auditioning). I cannot therefore agree with the hypothesis that my unit as originally supplied was substandard. I can only congratulate Bongiorno again for his persistence in applying his best ideas to improving his product.

Finally, the "newest" Thaedra. The new power supply and magnetic phono boards were received as promised, but a gross technical fumble on my own part necessitated returning the whole unit to the factory, where it was speedily set right and returned to me. The outcome: There is absolutely no doubt that Thaedra the Third (if I may) is a formidable apparatus. It is far superior to my reference JC-2 in depth, detail, and overall sense of "air." It remains withal a bit on the bright side, and the low end still magnifies reality somewhat. If I have a cavil (and I do) it is with a slight roughness of high-frequency partials, which suggests that some small sacrifice to the solid-state syndrome has been accommodated. But make no mistake: This Thaedra will sound quite superb with the right associated equipment. Use your ears.

In closing, let me add one comment about Thaedra's head amp. While auditioning this latest version, I had an opportunity to hear through it a Fidelity Research cartridge mounted in a Grace 707 arm. This sound was more delicate though less solidly-imaged than my Sonus Blue Vestigal reference; but harshness there wasn't. Very listenable.

—JWC

Although manufacturers sometimes express consternation, it seems to me both appropriate and necessary that our own reviews point out instances, such as the one at hand, where the product fi-

least some kind of improvement on what he already has (which means that magazines like us should always be taken as guides, not authorities). It therefore follows that the audio buyer should be con-

preamp standard, the Levinson JC-2, it seems just a hair less clean, more ex-verted in sonic detail, with warmer (but not more accurate) bass and more vivid spatial depth. In terms of theatri-

early series and the new (up to and including serial #500341), they are definitely not in the magnanimous quantities that you described. It is possible (and I suspect this is the case) that

run back through our total pre-conditions for verification of pre. After all, this is akin to taking auto back to the dealer and him to make it into a 1976 m-

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Winter (4)

1975/76

For the High-Fidelity Stereo Perfectionist

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G.A.S. Thaedra Preamp

Solid state, AC-powered, built-in head amp for low-output cartridges, Serial #500108, reported 6-15-76, \$995. Great American Sound Co., Inc., 20940 Lassen St., Chatsworth, CA 91311.

Our first sample of this was returned to the manufacturer before we had completed our tests on it, and was replaced with the latest version (ours is Serial #500108). Enough time elapsed between the time we shipped back the first sample and the time we got around to auditioning the second that we are unable to report on any sonic differences between the two. We are prepared to report that the present one is the most deeply satisfying of any solid-state preamplifier we have tried to date (as of May 22).*

Admittedly, it is not the virtuoso of versatility that is, for example, the Yamaha C-1 (which can do practically anything short of dispensing draft beer), and it is not one of the prettier preamps—striking but hardly pretty! But it does all the things that one normally expects a preamp/control unit to do, and does them in exemplary fashion.

For example, most serious audiophiles now recognize that one of the worst drawbacks of the currently-popular (we are tempted to say

“faddish,” but we won’t) moving-coil cartridges is that they require a bootstrap input booster of some kind in order to drive adequately a standard phono-cartridge preamp stage, which means either a transformer (which introduces harmonic, phase, and frequency distortion) or an outrigger “head amplifier” in that part of the system where distortion is most conspicuously audible: Ahead of the phono stage. The fact that some other recent preamp designs have included a built-in head amp does not change the fact that there is still that additional stage of amplification—and of distortion, no matter how slight—ahead of the regular phono preamp stage. Well, GAS does it differently.

Thaedra has a “head amp” input, but instead of being located ahead of the main phono preamp section, it is itself a completely separate extra-high-gain phono preamp. Under the circumstances, it was not too much of a surprise to us to find that every moving-coil cartridge we tried with Thaedra sounded better in every respect than it ever has before. (The fact that an optimized Shure V-15-IIIG spherical can sound as good as any high-priced moving coil we have tested will probably not impress readers who are already convinced that moving coils are the only way to go.)

We don’t normally comment on volume-control tracking unless it is unusually good or bad. We comment here because it was better than any we have encountered to date: Tracking error (channel difference) was less than

½ dB over the entire operating range of the control! The only preamp we have encountered that had comparable tracking was the Yamaha C-1, reported elsewhere in this issue. Sonically, we found Thaedra difficult to fault. What came out of it was a virtual replica of what went in, and the only imperfections we were able to observe—a subtle richening of the sound, an exceedingly subtle grayness, and a very slight loss of depth and inner detail (in comparison with no preamp at all)—were all in the nature of deficiencies rather than exaggerations and were thus found to be very easy to live with. It surpasses—not markedly but quite perceptibly—the Audio Research SP 3A-1 in every aspect of performance except inner detail, depth and liquidity. (That liquidity or crystalline transparency that we observe in the better tube stuff has been attributed by some to a consonant* form of distortion. We say Nay to this, for it is present to the same degree when there is no preamp in circuit at all.)

Our only complaints about Thaedra are in the nature of quibbles. The stepped volume control changes the level in what sound like 2-dB steps through its most-often used rotational range (12 to 3 o’clock). And although 2 dB is really a very small level change when it occurs across the spectrum (a change of ½ dB in frequency response can sometimes be perceptible), there is a certain perversity of human nature—our human nature, at least—that made us wish at times that we could adjust to a spot precisely midway between two available settings. If this is suggestive of a mild neurotic compulsion of sorts, then so be it; nobody ever pretended that audiophiles are normal.

Secondly, there is no provision for switching out or bypassing the tone controls, which provision may or may not have improved the sound perceptibly. And finally, high-level-input impedance (around 40,000 ohms) is low enough that it could cause some distortion and low-end thinning from certain tuners and tape recorders. For example, no tubed components we know of were designed for that low a load, but since tube-type tuners and tape machines are already on the verge of becoming museum pieces, we don’t really feel that to be a serious consideration.

Readers considering the purchase of Thaedra should be forewarned that, because many of its transistors are Class-A-operated, it is normal for it to get quite hot after an hour or so of use. Just make sure it is installed where there is an unobstructed flow of air to

the bottom panel and from the center of the top panel.

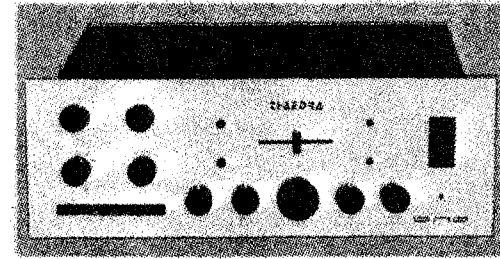
Since this is priced as direct competition for the Audio Research preamp, it has to be directly compared with it, and the fact is that (as often the case) there is no winner and no loser. Thaedra has tighter, deeper low end (What’s the matter with the SP-3A-1’s low end, anyway?), crisper attacks on sharp transients (hard percussion, etc.), an impression of somewhat more high-end airiness, and controls that are—but for the volume-control thing mentioned previously—a tactile and functional pleasure to use. Plus, of course, that superb head amp, for moving-coil freaks. The ARC is still not quite equalled for liquidity, depth, and inner detail in complex program material such as full orchestral tutti and massive choral passages. To us, the ARC also persists in having a degree of musicality—an intangible “rightness” in the reproduction of acoustical musical instruments (which are still the sole valid criterion for fidelity)—that

think you would like *The Appl* to tell you which you should won’t.

G.A.S. Thaedra

I think you are correct in s the most part, the Audio Re and Thaedra are different yet e ing. The ARC is superb and, high reputation for such a long a very stiff competitor.

As you pointed out, Thaed better in some ways, especially quencies (due to the servo) at where it exhibits more airine wider bandwidth). These are t provide a great sense of impac the lows. I believe I can ad into the sources of the other sc noted, but first, I would like t some of the features you failed



Thaedra's front p is in the eye of but flexibility is matter how you l

no other preamp we have yet encountered (or have heard of) can match. Our advice: If you don’t get to hear live acoustical instruments more than a few times a year, you will probably prefer the sound of Thaedra. If on the other hand most hi-fi reproduction you hear sounds more or less dry or astringent to you, you’ll almost certainly prefer the Audio Research.

We’ll add one observation in closing: Everyone has known that, eventually, someone would design a solid-state preamplifier that would at least equal, if not surpass, the ARC. This one, we feel, is its equal, although rather in the manner of MacIntosh apples versus Winesap apples. Whichever you feel to be the best is purely personal, and we don’t

which I feel deserve consider: The low-frequency filter w remove rumble that is present c recordings and would otherw distortion and wastage of a (better utilized for the musica It was decided that this filter r so as not to add any colorati the response of the entire prear low 1 Hz.

The construction quality other audio gear. (For exam plug-in pins and sockets are go quality of the parts used is at that of the Mark-Levinson eq about that. Mark!), although of them at lower cost. (Incide

* We should add that, as of June 25, after having auditioned all the other preamps covered in this issue, we still feel the same way.

* The opposite of dissonant.

equalization will emphasize this character, while a preamp that rolls off will not. Obviously, the preamp which is correct might come out a loser because of the imperfections in system techniques. In

date earlier Thaedra for a fair price (bear in mind that the \$400 tab includes an even more thorough job than the three-card affair I recommended. While this parenthesis prevails I will also apol-

HP wishes to emphasize that this is not his exact position, which is rather more involved—too involved, in fact, to deal with in a footnote.

*Actually closer to HP's real position.

would caution the serious audiophile not to form his tastes on specious musical happenings such as rock concerts, where the frame of reference is apt to be that of a luxuriously addelepat youth

to wait. The Thaedra I was to a (Version 3) developed a mechanical problem, emitting a sound so akin to that of an airhorn. A new at hand; see Issue 9.

is also a superb sounding preamp!)

Thaedra provides full monitoring and copying for up to three tape machines, whereas as the ARC does not. In addition, the cross-talk between any two inputs is at least -120 dB from 20 to 20k Hz when properly terminated. Since the output impedance (actual, not "source") is 60 ohms, Thaedra can drive directly virtually any low-impedance headphones such as the Koss PRO-4AA and the Yamaha HP-1. Thaedra is the only preamp in the world with totally separate, optimized pre-amp boards for conventional magnetic cartridges and low-output moving-coil types. Knowing that you are going to say that features have nothing to do with sound quality, I feel there are audiophiles who do desire features.

Now to your other nit-picks. As far as looks are concerned, beauty is in the eye of the beholder (although at this price I would certainly not use plastic knobs!). You are correct in reporting that the volume control has 2-dB steps, but I do not find 2-dB steps to be bothersome. But then, nothing's perfect, is it? I am glad you noticed the tracking accuracy of the volume switch; it is not a potentiometer with detents, but rather an honest-to-goodness multi-position switch with individual precision metal-film resistors between steps. You missed one of our strong points, though: If you had checked the 20-kHz square-wave response through the high-level inputs, you would have found absolutely no rolloffs or other aberrations at any setting of the level control. The same applies to the tone controls. Since they are exactly the same type of control as the level control, they are effectively out of the circuit in the Flat position. This eliminates the need for a tone cancel switch. Since the tone-control switches are in the feedback loop of the high-level amplifier, there are no additional stages serving only the tone-control functions, as there are in most other preamps (including the ARC).

To suggest that Thaedra is unique in having many Class-A stages, some of which run very hot, is incorrect. All preamps operate in the Class-A mode (with the exception of those using ICs, most of which have Class-B output stages). The difference is in the Class-A power level. There are 4 independent power-supply regulators which dissipate approximately 12 watts. In addition, the line amp for each channel operates at a quiescent level of approximately 4 watts. So Thaedra does indeed run warm.

One of the last points I would like to make is one that I feel is of extreme importance even though somewhat ambiguous. The noise

level on phono is 7 times(!)—that is, 17 dB—lower than that of the ARC. I am surprised that you did not comment on this as you must surely have noticed. This unfortunately can sometimes be a mixed blessing. It has been shown in the past that when an "inaudible" noise field is mixed in with the signal, a quality of ambience is added to the sound, giving it a false impression of (for want of a better word) "lushness." When this masking noise field is removed, imperfections in the tape and discs become more apparent and consequently more objectionable. This might explain why the ARC supposedly sometimes sounds more musical although it is not as accurate. I have observed this effect myself, but I do not consider it important enough for me to give up accuracy. One must decide for himself which is the lesser of the two evils. I know how you feel about commercial recordings, about which I feel the same.

Finally, I am glad to see that you find some merit with moving-coil cartridges. If I did not feel they were worth it, I would not have gone to as much time and effort to design the head amp, which is specifically optimized for moving-coil cartridges. As you pointed out, the head amp is its own phono preamp stage. The JC-2 uses a combination of the JC-1 pre-amp in tandem with the regular phono preamp in order to accommodate moving coils. I am convinced of the superiority of the moving-coil principle, and I do hope you will evaluate the EMT again, this time through Thaedra. Although it is very expensive (\$330) and hard to obtain, it is the very finest cartridge available. Incidentally, it has a spherical stylus.

The retail price of Thaedra is \$899 West Coast and \$909 East Coast and, who knows, maybe soon it will be a bargain.

James Bongiorno
President,
Great American
Sound Co.

REVIEWER'S ADDENDUM: We would not have said "features have nothing to do with sound quality" if you hadn't prompted us to, but since you did, we will. Seriously though, it is Thaedra's plethora of features that contributed to our "satisfaction" in using it. We are not at all certain that Thaedra is sonically superior to, or even sonically equal to, the dB Systems preamp or the latest (as-yet untested) Mark Levinson JC-2, but in terms of versatility and flexibility, neither of those is comparable to Thaedra. And in terms of so-called cost effectiveness—the measure of substantive

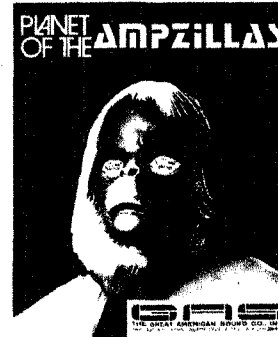
return per dollar spent—it is our opinion that Thaedra beats out both the dB and the JC-2.

We are most impressed by the extremely low noise of Thaedra's phono stage(s), and admit that we did not notice it during our tests for the simple reason that our tests were done with fairly high-output cartridges (the Decca Export and the Shure V-15-IIIG) into the regular phono inputs, and with very low-output ones (Grace, FR) into Thaedra's head amp. The low-output ones were of course completely unusable with the ARC preamp because of inadequate gain, even apart from the high hiss level. And with the high-output cartridges, hiss was totally inaudible from either preamp at any reasonable listening level (up to 105 dB). The findings you cited, which purported to prove that removing an "inaudible noise field" from the signal would reveal sonic imperfections hitherto masked by "lushness," seem directly contradictory to findings cited by Dolby Labs to the effect that removing noise appears to reduce treble response and detail. We are not convinced of the validity of either argument.

We were taken aback by your statement contrasting musicality with accuracy. We were under the impression that, since accurate reproduction of musical sounds is what high fidelity is supposed to be all about, one term automatically implied the other. And while we can grant you the point that a truly accurate reproducing system will reveal the bad as well as the good qualities of a program source, we cannot agree with those (and we do not necessarily include Mr. Bongiorno among them) who argue that the system which reproduces mistracking and subsonic interference most clearly is *per se* the most accurate reproducer of music. Even though *Stereophile* and its variegated ilk are in the business of evaluating individual components, it behooves all of us to remember that it is the musicality of the sound which reaches our ears, not the accuracy with which sonic imperfections are rendered, that determines the fidelity of the reproduction.

G.A.S. Son of Ampzilla

Surprise! The son is better than the daddy! Sweeter highs, noticeably better inner definition, and comparable low-end solidity. All it lacks in comparison with Ampzilla Sr. is the impact and ease at high listening levels—not surprising in view of their comparative power ratings. Right now, this is probably the best buy in terms of sound versus money in the solid-state power amplifier field.



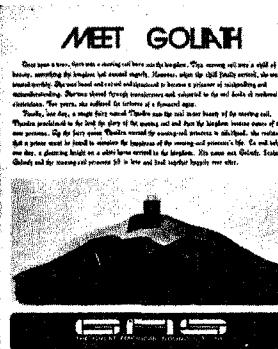
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dB	\$1,000	20dB	20Hz-20kHz	100dB	0.001%	0.001%	0.1dB	60dB	±0.1%	Yes
Thaedra	\$899	20dB	20Hz-20kHz	100dB	0.001%	0.001%	0.1dB	60dB	±0.1%	Yes

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