Subject: Pull pin...
Posted by PakProtector on Mon, 14 Feb 2005 10:50:22 GMT
View Forum Message <> Reply to Message

throw Grenade...How would you folks quantify the differences between SE and PP sound. I'll make a few assumptions that both are well done and otherwise sound good. The basic assumtion is that *something* is different.So, what is this "something"?regards,Douglas

Subject: Re: Pull pin...
Posted by Manualblock on Mon, 14 Feb 2005 12:19:18 GMT
View Forum Message <> Reply to Message

Trick Question?I like the detail and sense of control of PP. I like the smooth and woody tone from SE.Are you considering experimenting on the dark side?

Subject: nope...
Posted by PakProtector on Mon, 14 Feb 2005 14:14:23 GMT
View Forum Message <> Reply to Message

it is not a trick question. My intro was a dry sort of atempt to recognize that it could get turned into an enthusiastic discussion.I have heard a fairly distinct difference. It is subtle, and requires a good amp and system to pick out quickly. I have heard other things which I'd attribute to circuit design and execution(from both topologies).SE gets the 'that's quite different' reaction. It is often just such a difference which can be pointed to as reason to say, "better". I have seen it the other way, listening to a bunch of SE and then plugging my PP amp. Usually it is a combo of things like power and (IMO) putting in a better amp in. Clean headroom is not to be sneezed at. A SE design with 3-4 watts is going to be running too close to the edge on a lot ov the peaks...I am not considerig SE for power just now. Been messing about with phono stage design...and of course the Amp project for Group Build. good news there BTW, some 20W Peerless 20-20 models are on the way to me(and then on to the Winder).regards,Douglas

Subject: Re: Pull pin...
Posted by akhilesh on Mon, 14 Feb 2005 15:17:53 GMT
View Forum Message <> Reply to Message

PPs have much less distortion..>SETs have much more esp even order, hence they sound richer or fatter. -akhilesh

Subject: Re: nope...
Posted by Manualblock on Mon, 14 Feb 2005 15:34:21 GMT
View Forum Message <> Reply to Message

Allright; tirelessly persueing the best. The SE PP question; too many variables vis-a-vis speaker;amp; source interface. Like the old Blind Faith song"Do What You LIke".

Subject: Re: Pull pin...
Posted by TC on Mon, 14 Feb 2005 16:08:18 GMT
View Forum Message <> Reply to Message

>>PPs have much less distortion..>SETs have much more esp even order, hence they sound richer or fatter. Akilesh, do some study before saying stuff like that. Sorry, you were baited.Thers plenty of really really bad Pp out there too. Try not to generalize.TC

Subject: Re: nope...
Posted by TC on Mon, 14 Feb 2005 16:24:37 GMT
View Forum Message <> Reply to Message

Bee eye en-gee-o, Bee eye en-gee-o, Bee eye en-gee-o N Bingo was his name-O.TC

Subject: A topology too far.....
Posted by TC on Mon, 14 Feb 2005 17:54:08 GMT
View Forum Message <> Reply to Message

>>throw Grenade... Music reproduction should not be a battlefield.TC

Subject: Re: Pull pin...
Posted by akhilesh on Mon, 14 Feb 2005 18:48:51 GMT
View Forum Message <> Reply to Message

TC,Thank you for your advice on further study. We could ALL do with more study, especially the

less technical amongst us who have no idea about engineering of any sort. For your benefit, please read the statement below:"Amp designs with push-pull or balanced topologies can achieve lower overall levels of distortion than single ended amps. On the other hand, they achieve this overall distortion reduction chiefly by canceling out even order (2nd, 4th, etc.) distortion byproducts, which leaves behind a disproportionate share of odd order (3rd, 5th, etc.) distortion byproducts. "Taken from:http://www.iar-80.com/page2.htmlHope this helps you. My advice would be to read that entire page, it would be well worth your while. thanx-akhilesh
http://www.iar-80.com/page2.html

Subject: Re: nope...
Posted by Manualblock on Mon, 14 Feb 2005 19:15:20 GMT
View Forum Message <> Reply to Message

Say T; you know this subject of course becomes strident at times hence the short replies. Thinking about your post today I realise maybe you were more serious than first appeared. Before offering an opinion I think maybe we should have asked what the application would be. I know you have much experience with amplifiers so for you to ask that must mean something other than the usual personal agenda promo.Is there a phono stage that seems preferable using a SE circuit? I think lots of headroom is a good thing, but I notice those amps seem to lack a musical presentation once they grow to big wattage.So; why would that be?Although I have heard the big Mac 2100 and that sounded pretty good on JBL's.I have always thought this would be an important part of design theory except that the debate gets too silly with people re-stating the obvious ad nauseum. Or defending their point of veiw or their equipment like there was something at stake that reflects on them as people instead of just helping to advance the cause of better sound for the home stereo.Or they have some odd or difficult to drive speakers that only sound good with one type of tube or something equally silly.So when someone is genuinely interested in the musically relevant distinctions between the two circuit types it is side-tracked with all that nonsense.Just an observation why there can't seem to be a rational dialogue.

Subject: Re: Pull pin...
Posted by TC on Mon, 14 Feb 2005 19:42:32 GMT
View Forum Message <> Reply to Message

>>For your benefit, please read the statement below: "Amp designs with push-pull or balanced topologies can achieve lower overall levels of distortion than single ended amps. ==The author (?) throw in balanced, but I don't understand how that benefits the distortion argument. The author jumps around a bit and creates as much confusion as he tries to clear. Further....>>On the other hand, they achieve this overall distortion reduction chiefly by canceling out even order (2nd, 4th, etc.) distortion byproducts, which leaves behind a disproportionate share of odd order (3rd, 5th, etc.) distortion byproducts. " ==I don't see how this makes a case for either topology. I read the entire page and it's fairly rudimentary as far as describing various topologies. About the most

meaningful statement is this,"There are many schools of thought about distortion byproducts, with various psychoacoustic theories to support each"and this..."There are only a few exceptions, and these single ended amps deserve special praise for bringing overall distortion problems down to acceptable levels (though still detectable, and still higher than push-pull or balanced designs)".>>In reality it makes no sense to me to argue topology. Fine examples of all kinds are out there. I am lucky to own several excellent kinds of every type of amp including SS and hybrids, otl and SE as well as arguably the worlds finest Pp-otl, the Berning 270. I also have a fine SE in the electronluv, I do prefer odd order distortions BTW. I have heard Lynn Olsens Aurora on my speakers and Paul Weitzels new SS amp, the Firstwatt, and my old Bogen PP. I really liked them all. But when it comes to my money of course SE wins, ultimately. It just sounds better, on my system/room.To me it makes alot more sense to raise points about tangibles, like craftsmanship, implementations, parts quality and overall design. And what about overall system tuning and synergy between components like manualblock suggests???? Throwing an argumentive bomb to a forum is audio delinquency. Manualblock makes sense with this regarding various topology debate:====I have always thought this would be an important part of design theory except that the debate gets too silly with people re-stating the obvious ad nauseum. Or defending their point of veiw or their equipment like there was something at stake that reflects on them as people instead of just helping to advance the cause of better sound for the home stereo.Or they have some odd or difficult to drive speakers that only sound good with one type of tube or something equally silly.So when someone is genuinely interested in the musically relevant distinctions between the two circuit types it is side-tracked with all that nonsense.Just an observation why there can't seem to be a rational dialogue.>>Well said.TC

Subject: Re: Pull pin...
Posted by akhilesh on Mon, 14 Feb 2005 19:50:14 GMT
View Forum Message <> Reply to Message

I agree with you: a well executed amp ofeithertype is better tto listen to than a badly executed one. The same can be said for solid state versus tube: a well executed solid state is better to listen to than a badly executed tube. In fact, one can say that about any two design philosophies for any two components (single driver versus multi driver, etc etc) thereby making this entire debate (and in fact most discussions in audio land) moot.-akhilesh

---

Subject: Still a bit of a generalization, but...
Posted by Wayne Parham on Mon, 14 Feb 2005 20:01:37 GMT
View Forum Message <> Reply to Message

I tend to agree. I've heard some really nice SET amps, but one thing I've started to realize is that they aren't cheap. The entry level SET kits I've heard had very little power and flabby bass or no bass at all. But if budget allows bigger tubes and iron, then I think SET becomes an attractive option.I think you can make a much nicer sounding push-pull amp for a few hundred dollars than a

SET amp, so I think entry level systems might be better off running push-pull. The trouble for DIY is that SET is simple to build but requires more expensive components for good sound quality. A good quality push-pull amp can be made with cheaper components, but it's more difficult to build, and maybe that discourages DIY builders.I guess I've come to the conclusion that if you have the budget, give SET a go. There are some great SET amps in the >$2K range. Less than that, I'm thinking go push-pull.BTW, I wanted to let you know that Akhilesh has a PhD and is a professor at Tulsa University, so he's a pretty quick study.

Subject: Re: Pull pin...
Posted by Manualblock on Mon, 14 Feb 2005 20:24:44 GMT
View Forum Message <> Reply to Message

Well AK; Moot is a strong word. I think there is validity in discussing these things as long as people refrain from attaching their own self worth to the outcome. With an open mind there is plenty to learn from each other.And holding an opinion should be required by everyone who participates in any hobby. Thats why we do it.

Subject: sometimes....
Posted by PakProtector on Mon, 14 Feb 2005 20:33:16 GMT
View Forum Message <> Reply to Message

things are as simple and straightforward as they appear.The phono stage application has a very small input voltage and comparatively(to power valve grid) small output. This leaves it swinging a small proportion of its maximum. this looks to me to make the general topology a bit less important. Picture a traditional SE 2A3 ampllifier with a few tens of mV on the power stage grid. I think the distortion spectrum (and overall amount as well) would be of some characteristic shape fpr a properly loaded and driven 2A3.On the 'SE Sound', I have heard a difference and was curious about moving towards quantifying it. I know my Class A PP amps don't have it...Its why I made reference to battle, if that is brought to the front, perhaps thinking along those lines would help keep folks from typing frirst and thinking later. A few have made reference to that sort of thing, and there has been no unpleasantness as of this time(that I have read so far).more like looking for interesting and passionate discussion.regards,Douglas

---

Subject: No, absolutely not!
Posted by PakProtector on Mon, 14 Feb 2005 20:40:26 GMT
View Forum Message <> Reply to Message

From TC: Throwing an argumentive bomb to a forum is audio delinquency. It is not. Throwing a

bomb into a pack of type-first/think later boneheads is only providing the catalyst to set them off. That they would explode is certain, and the when of it being the only unknown.Suggesting that level headed grown-ups cannot discuss *ANY* topic under the Sun is an insult to those folks.It's not like I wanted to know if somebody attended the 8:30 Service or the 10:30 one...or if it was on Saturday or Sunday.regards,Douglas

---

Subject: Good question
Posted by colinhester on Mon, 14 Feb 2005 21:10:37 GMT
View Forum Message <> Reply to Message

My main listening integrated is a Cayin TA-30. This can be run in either PP (30W) or SE (3.5W) just by pulling two tubes and re-biasing. Here we have a basis for EQUAL comparison. EQUAL source, parts, tolpogy, craftsmanship, etc. But let's think for a second outside the box (geez, I hate that phrase, but what the heck.) At equal volume levels (we all compare at equal levels, right?) what is the difference? I turn the volume knob up. Is there something going on in the gain stage that is being attribued to the amp itself? Does the preamp section sound different at higher gain than lower?Even if all things are not equal, at equal volume levels, the SE is working MUCH harder, in relative terms, to push out the same loudness level. Is the SE being pushed into a more non-linear response, thus producing a differnt (better or worse) sound....Colin

---

Subject: Re: Still a bit of a generalization, but...
Posted by Damir on Mon, 14 Feb 2005 21:18:30 GMT
View Forum Message <> Reply to Message

Hmm... When I try to compare "proper" (by my "standards", anyway:-)) way for making PP or SE amp, PP is more expensive...:-).Yes, one can use 1N4007 bridge, 220uF electrolytic cap for the B+ (and say, another RC filter for the driver), with goal "everything cancels in OPT"... Then use simple (or low/medium quality) OPT, class AB, common pentode/beam tetrode (say EL34, KT88, or so), UL connection, NFB "loop" of 15 db or more... Then "ordinary" LTP phase splitter based on, say 12AT7 or so with 12AU7 "input" tube, etc.But, if we use similar principles like in SE building - careful selection of linear tubes for the driver and output (DHT), class A operating point with carefully chosen high-quality OPT, LC-style PS with HQ oversized PT(s) (plus maybe additional heater/filaments transformers), MKP (non-electrolitic PS caps), no NFB loop, say - monobloc construction, phase splitter with real balance (CCS), etc. - we can really spend more for PP amp...but, I`m sure that the results will be worth it...

Subject: Re: No, absolutely not!
Posted by TC on Mon, 14 Feb 2005 21:32:33 GMT

View Forum Message <> Reply to Message

Suggesting that level headed grown-ups cannot discuss *ANY* topic under the Sun is an insult to those folks.Sorry, wrong choice of words. Apologies to those folks.TC

Subject: Re: Still a bit of a generalization, but...
Posted by Wayne Parham on Mon, 14 Feb 2005 22:10:41 GMT
View Forum Message <> Reply to Message

I agree with that too. Push-pull designs have more parts, so if all of them are expensive then that will be double the cost of a SET amp using the same parts. You've got a pair of output tubes and a splitter, more stuff. But some of the parts in a push-pull amp can be made smaller for the same power level as a comparible SET amplifier. Single-ended tube amps need bigger tubes and output transformers to get the same power.I am confident that if you remove budget constraints, you can make any of the popular topologies sound good. But if you make price/performance the goal, I think SET starts losing ground.That may be why the budget models are probably better off push-pull. Whatever the case, the low end SET stuff just doesn't appeal to me. More expensive SET amps sure do though.

Subject: Check this out
Posted by Wayne Parham on Mon, 14 Feb 2005 23:46:35 GMT
View Forum Message <> Reply to Message

Hey Terry, check out the little Stoetkit. It's really great, especially for the price! I listened to the a demo unit last summer and loved it. Bought one and did a write-up of the process of building it. So I thought you might want to give it a listen.I want to check out Heart's Kit 2 and Heartbeat amps sometime soon. I hear 6moons or someone is reviewing one of them soon. I kinda like forming my own opinions though.
Heart Audio

Subject: Re: Good question
Posted by Manualblock on Mon, 14 Feb 2005 23:58:22 GMT
View Forum Message <> Reply to Message

Yep; no way around that. Whats the eff. of your speaks?

Subject: Re: Still a bit of a generalization, but...
Posted by Manualblock on Mon, 14 Feb 2005 23:59:20 GMT
View Forum Message <> Reply to Message

I agree.

Subject: Re: sometimes....
Posted by Manualblock on Tue, 15 Feb 2005 00:07:30 GMT
View Forum Message <> Reply to Message

Well; looks like you have it so far.My question is; what is the one amp regardless of how or when or what equipment it was used with; but which amp stopped you in your tracks?Example, big 211 triode SE did do that to me once.It had a lush, room filling quality that caught me.The Fisher amp with the EL-34's and the twin rec. tubes also had a different sound to me. Thats PP.

Subject: that's a good one...
Posted by PakProtector on Tue, 15 Feb 2005 01:19:01 GMT
View Forum Message <> Reply to Message

I got pretty good with my first pair of monoblocks. PP KT90's and big L-C PS. Dynaco A441 outputs rigged for CFB. Ran through a bunch of front ends and really liked them. ~35 W. Swapped OPT to A431 and put an E-Linear pair of 12BY7A out front and found it an improvement.The current DH Tetrode amps(beam tetrode/Pentode more accurately) really do it. They have the Peerless 20-20 copies with a few mods for E-Linear operation and cascode Diff amps in front. I knew I was on to somethig when the chassis ran PP 1619 and didn't glow so well as the Thoriated Tungsten finals I am using now. I can't imagine doing w/o it.I am going to do a tweak on the front end soon, I have learned a few more things and wish to try them...regards,Douglas

Subject: Reference music?
Posted by colinhester on Tue, 15 Feb 2005 02:36:31 GMT
View Forum Message <> Reply to Message

What recordings (label, reference number) do you use to judge your system and modifications? Also, can you please describe your system (source, speakers)....Thanks, Colin

Subject: Re: Reference music?
Posted by PakProtector on Tue, 15 Feb 2005 02:58:04 GMT
View Forum Message <> Reply to Message

Hey-Hey!!!,The source is a Pioneer DV-563A. It's stock and sounds OK. The speakers are 3-ways. JBL 4560 loaded with EVM-15L EV's. Mids are 18" long 30-degree included angle horns. 2" throat and loaded with FE-107's. The top is an old pair of Radio Shack compression driver horns. I like to play what I like to listen to. Live Grateful Dead, Pink Floyd, Bela Fleck, and some Allison Kraus get the most time. Led Zeplin, CCR, Iron Maiden, AC/DC and The Who...If I like listening to it while doing the dishes or folding laundry, it is aceptable test material. Some do stand out, Bela Fleck's album Uncommon Ritual is a nice string piece. From Cosmic Hippo, 'The Flight of the Cosmic Hippo' is always a fav, as is the live cut from Live Art. Little Worlds has a sweet version of 'The Ballad of Jed Clampett'. The SACD of Dark Side has a few favs too. 'Money' and the piece before 'Time'...the H-E speakers mean I can't stand much noise, either hum or dirt from no place in particular. It is aceptable on a poor man's budget. Heaven helpme if I had to buy it retail...regards,Douglas

Subject: Re: Still a bit of a generalization, but...
Posted by John Chleapas on Tue, 15 Feb 2005 05:22:18 GMT
View Forum Message <> Reply to Message

>I tend to agree. I've heard some really nice SET amps, but one thing I've started to realize is that they aren't cheap. The entry level SET kits I've heard had very little power and flabby bass or no bass at all. But if budget allows bigger tubes and iron, then I think SET becomes an attractive option.> Wow. My two SET amps both make thumping bass. I have a 300b Welborne DRD and a 45 DRD Welborne. Both are mono blocks. The 300b is SS rectified and the 45 is tube rectified. I use JBL 4648A-8 twin 15" bass bins that are 100dB efficient. Just a casual observation that many who listen to SET for the first time may not have speakers efficient enough. This does not apply to you Wayne as your Pi speakers are eficient enough for SET. These Welborne amps will play on for a good 10 seconds after I switch them off so maybe their power supplies are also stouter? I have a small stereo 11 wpc 6V6 amp and that has much less bass to my ears than the 300b and 45 SET amps. This amp is used at my apartment on less efficient 93dB@1W JBL L300 speakers. These speakers can exhibit mucho bass with my highly modified 19wpc strapped in triode Dynaco ST-70.>I think you can make a much nicer sounding push-pull amp for a few hundred dollars than a SET amp, so I think entry level systems might be better off running push-pull. The trouble for DIY is that SET is simple to build but requires more expensive components for good sound quality. A good quality push-pull amp can be made with cheaper components, but it's more difficult to build, and maybe that discourages DIY builders.> I think you get what you pay for. Cheap iron is not a great start for any DIY project. See the Derek Walton site for plans for the inexpensive version of the JE Labs 300b. The inexpensive angela universal power transformer is actually pretty good. Again with better iron I think anyone will be happier with the results no matter if they are building SET or PP. As for parts count it is a fact that SET usually has a lower parts count. I would love to build the Gordon Rankin designed Baby O' some day. But the silver wound output transformers are about $800 each. Still these amps really look very well designed, and they have

low parts count. Low parts count means easier building for dummies like me with a soldering iron.>I guess I've come to the conclusion that if you have the budget, give SET a go. There are some great SET amps in the $2K range. Less than that, I'm thinking go push-pull.> There are also some great PP amps in the 1K range like the used Klimo Kent 35 wpc EL34 mono blocks. I paid the princely sum of $995 for my pair on Agon last Fall. Ron Welborne sells some nice SET kits starting at under $1500. He sells built units that use the very good quality ElectraPrint output transformers for a little more loot. Both the kits and the built amps use Electraprint iron. I own 45 SET, 300b SET, EL34 PP, KT88 PP mono block amplifiers. I own a few stereo amps in my HK Citation 11, and two Dynaco ST-70 amps. I listen to both SET and push pull. Both modalities do things that I like. As long as it has tubes and is not made brand new in China I will listen to it. No, some higher end Chinese new gear is rated nicely. I cringe at the folks buying the lowest end Chinese tube gear that just might not stand the test of time. All audio is very subjective at its best. None more so than tube amplifiers and horn speakers. I am a believer in buying vintage tube gear and enjoying it. For example I bought a 20 year old Conrad Johnson Premier 4 that uses 8 Mullard EL34 tubes and makes 100 wpc. Three years later I sold it on Agon to a doctor in MD who loves it for what I paid for it. Same with my HK amp and other higher quality names that tend to hold value. Some like my Fisher FM-1000 tube tuner, and other collectible tube ones can even go up in value. The smart reason for buying better quality used tube amps is you can usually recover your investment if you do not like them. LOL, that is only true if you do not spend to much when you buy it, if it is worth less than you paid for it. Make any sense? Hey, as long as it glows listen to it! Have fun as this is a very short journey we are on in life. I really like the 2-way horns I got for my Dad. The horns are 31" x 31" JBL 2360A. The drivers in them are TAD td-4001. The bass bins are JBL twin 15" woofer 4648A-8. The horns are powered with the 45 mono blocks. The bass bins are still having a/b testing with the 300b SET and the Klimo EL34 push pull. The crossover is a marchand xm-126. It is a lot of fun to listen to vinyl and CD's on his stereo. His speakers at 6' tall are very SET friendely speakers with the 100dB efficiency. I powered both speakers with only 1.8 wpc and it made great sounding music. John C.

Subject: Re: Still a bit of a generalization, but...
Posted by Wayne Parham on Tue, 15 Feb 2005 05:42:01 GMT
View Forum Message <> Reply to Message

I'm talking about entry level stuff here, under a thousand bucks. You've mentioned some very fine products, and I wouldn't consider any of it to be entry level.I've heard some really great SET amps in the ~$2K price range, some even hovering closer to $1000 or $1500. But once you get good tubes in the those thousand dollar amps, you're getting closer to the two grand mark. Gently used gear is another option to get the price down.But what I'm talking about here are entry level tube amps and kits that sell for a few hundred bucks. The low-buck SET's are fun, but not really my cup of tea.

Subject: Re: that's a good one...
Posted by Manualblock on Tue, 15 Feb 2005 12:23:21 GMT

View Forum Message <> Reply to Message

I have an old copy of Valve Magazine from the early 90's that has a pre-amp design in it from Eric Barbour where he insists that Thoriated Triodes even though they are very microphonic make the best pre-amp tubes. He uses a Svetlana 572 with the filaments driven by computor switching power supplies. Lot of info in that article.Allison Kraus; what a voice on that girl.

Subject: Thoriated W
Posted by PakProtector on Tue, 15 Feb 2005 12:49:57 GMT
View Forum Message <> Reply to Message

Hey-Hey!!!,There is another who likes the Thoriated Tungsten filaments. Josh of ElectronLuv. I linked his site, I only had a single chance to hear one of his linestages, done with a DHTriode. It had some smoke leak out and did not function.I have a slightly different idea about loading and output stages, and believe it will be better. It will not look like a chopped, early 50's lead sled...regards,Douglas
http://www.electronluv.com/

Subject: Re: Pull pin...
Posted by akhilesh on Tue, 15 Feb 2005 13:34:31 GMT
View Forum Message <> Reply to Message

HI John,I agree: there are two issues here. The first is that any well executed imlpementation will beat any poorly implemeneted one, almost by definition. THe second issue is that different designs have INHERENT weakenesses (tradeoffs) that need to be addressed in the implementation. For example, in general, SETs have higher distortion INHERENTLY, and push-pulls eliminate even order distortion, by their design. To cut to the chase, it makes total sense to talk about and understand he limitations of each design. There is no need to keep falling back ion the poor versus good implementation argument, since that is a given. So I think we are all on the same page. -akhilesh

Subject: Re: Thoriated W
Posted by Manualblock on Tue, 15 Feb 2005 16:11:54 GMT
View Forum Message <> Reply to Message

Early 50's lead sled. Boy; I thought I heard them all. Thats a new one.How about a '49 Merc?

Subject: Re: Thoriated W
Posted by PakProtector on Tue, 15 Feb 2005 18:35:57 GMT
View Forum Message <> Reply to Message

49 Merc? too common. How about a Chrysler Imperial Hampton Coupe? New Yorker St.Regis?Cram in the '57 or '58 dual-quad, solid-cammed 392 Hemi.Josh's amps are certainly different from what you'd find at BestBye...regards,Douglas

Subject: "Budget" SET
Posted by Damir on Tue, 15 Feb 2005 18:44:21 GMT
View Forum Message <> Reply to Message

Well, I`ll try (in GrupBuild forum) 2A3/6B4G SET amp project, it won`t be very soon, lot of experimentations are in order:-).I`ll try several versions of PS, from really "budget" to say, LCLC with various rectifiers, but nothing complicated like regulated PS or so. Driver would be probably one-tube, CCS, maybe even choke load, I`d try various tubes, again - nothing complicated. OPT - I think that $125 LL1664 is the "top".I`m really interested in finding simple, but good quality/good sounding SE amp... Then, 300B is in order:-). Stay tuned:-).

Subject: Re: "Budget" SET
Posted by Wayne Parham on Tue, 15 Feb 2005 21:25:15 GMT
View Forum Message <> Reply to Message

I think a 300B will be nice. Less power is available from 2A3's, but they have that cool blue glow. I think probably the main thing is to use good iron, and not cut corners there.

Subject: Re: Thoriated W
Posted by Manualblock on Tue, 15 Feb 2005 21:46:04 GMT
View Forum Message <> Reply to Message

I had crammed a 392 hemi chrysler into a 69 chevy II. We got a deal on the motor from the junkie. Odd pairing but it ran pretty good until we came across a wreck with a 396 with the 375 hp factory stock set-up. That went in and the hemi was sold. Long time ago.The New Yorker; my friend had one only because it had the biggest back seat.

Subject: "Budget" SET=Milatary Intelligence
Posted by PakProtector on Wed, 16 Feb 2005 00:01:30 GMT
View Forum Message <> Reply to Message

existing only on paper...SET is not like PP in a few ways. One is the means of dealing with the idle current. The 45, 2A3 and 300B can all run on a plate load of 4k. Idle current differs by a factor of two. Minimum primary L requirement at power is still the same, yet one will have to deal with twice the DC. With PP, if the a-a load is right, and you don't overheat things with too much idle DC, you'll be fine if you can keep the two halves balanced.regards,Douglas

Subject: Re: Pull pin...
Posted by Manualblock on Wed, 16 Feb 2005 00:25:16 GMT
View Forum Message <> Reply to Message

I think both of your opening statements are mutually conclusive. By definition the trade-offs are addressed; why would anyone design an amp to not address them? The problem is I believe there is more to the story concerning distortion and perception. Read Hiraga's test results in last summers AudioeXpress. He does extensive abx testing isolating odd and even distortion levels in different amplifiers extending upwards of multiple distortion factors. As usual there is more to the story than one would expect from the usual 2nd and 3rd order explanations.

Subject: Re: "Budget" SET=Military Intelligence
Posted by Wayne Parham on Wed, 16 Feb 2005 04:03:51 GMT
View Forum Message <> Reply to Message

I tend to agree. I mean, the little low-budget SET kits are fun, and they have a certain appeal. It's not that they sound bad, and I don't mean to say that they do. But it's kind of like having a crystal radio kit. You can do stuff with it, but it always leaves you wanting more.

Subject: Re: Push/Pull pin...
Posted by ChrisL on Wed, 16 Feb 2005 15:26:55 GMT
View Forum Message <> Reply to Message

Gosh, I hang out over at the tubes fourum while the really hot discussions are here! Glad I checked this out.I've been building two amps for the last seven years, one SE and one PP. As I develop one to the point where it surpasses the other I remove the older amp from my main system put it on the work bench.I believe the ultimate potential for either topology far exceeds the

abilities of %99.9 of the amateur and professional amp buliders out there (and I most certainly include myself in those ranks.)The primary disadvantage of the SE topolgy is the SE ouput transformer. The comprimise needed to balance DC power handling and good primary inductance is painful. The parafeed connection (and thus no air gap) helps a lot - but it introduces the problems of (some would say the evils of) large coupling caps.The primary disadvantage of PP amps is that real, honest to god, dynamic tube "matching" is very rare, and possibly fleeting, as the tubes age. CCS's help a lot, but they have their own issues and colorations and complexities.The good news is that either one can sound great, and that it's a heck of a lot of fun building tube amps! It's fun, because for maybe $300 to $600 you can buid an amp (PP or SE) that, soundwise, kicks the doody out the huge majority of commercial offerings any price.The amp at the link below has morphed from a simple little 6SL7 SRPP driver to 6N1P (parallel sections) parafeed transformer coupled driver, parafeed output. It sounds fantastic, but it can't match the bandwidth (bass and treble) and drive/punch I'm getting out of my PP amp. The PP amp pretty much matches the midrange.Fun times, man!TC
My Original SE AMP

Subject: expansions
Posted by PakProtector on Wed, 16 Feb 2005 16:09:18 GMT
View Forum Message <> Reply to Message

HEy-Hey!!!,You have touched on an issue which has a simple sol'n: builder capability.I have gotten an imense help from input gathered at litening meets. Both my own observations and from other participants. Discussion face to face with a shared listening experience is not available anywhere else.Actually seeing how another circuit sounds is another bit of input. Seperating the small details from gross circuit changes is difficult. If it were easy, everybody would be doing it.On large coupling caps, how big are they to cause you 'problems'? I like to use big ones in between stages. Moror-run Oilers of 1-2 uF. The current fav is a 1.5 uF MKV rated at 660vac. I got them on ebay for 30 cents each, delivered.regards,Douglas

---

Subject: Re: expansions
Posted by ChrisL on Wed, 16 Feb 2005 18:44:11 GMT
View Forum Message <> Reply to Message

Douglas you're absolutely right about shared experience and observation being very useful and educational - but that can't replace direct experience and experimentation.I only brought up the "big caps" problem because it's a common prejudice among DIY folks, along with "transformers are bad," or "pentodes are bad" or whatever. I only agree with part of one of these: electrolytics sound bad in a power supply and the sound horrible in the direct signal chain. And the PS is almost always in the signal chain.I use a lot of motor run caps, too, and I think they sound great with a good healthy signal. In a wimpy RC circuit (say 12ax7 or 6SL7 @ 1 or 2 m.a.) not so good.Craft

---

Subject: Nice!
Posted by Wayne Parham on Thu, 17 Feb 2005 00:45:39 GMT
View Forum Message <> Reply to Message

That is one great looking amp!

Subject: Re: Push/Pull pin...
Posted by akhilesh on Thu, 17 Feb 2005 14:57:19 GMT
View Forum Message <> Reply to Message

Nice post, and nice pics! thanx-akhilesh

Subject: Re: Pull pin...
Posted by DRCope on Mon, 21 Feb 2005 19:44:26 GMT
View Forum Message <> Reply to Message

>>PPs have much less distortion..Much less THD, with no regard to odd vs. even order and the different degrees to which people tend to be bothered by them. To say nothing of the fact that gobs of feedback are frequently applied to achieve silly low numbers at the expense of sound quality. Anybody still cherishing a Japanese receiver from the late '70s?>>SETs have much more esp even order, hence they sound richer or fatter. There's nothing rich or fat about a properly executed SET design driving a pair of suitable loudspeakers. I don't think gross and misleading generalizations do much to advance our collective state of enlightenment regarding the audio arts. . . .

Subject: Re: Pull pin...
Posted by akhilesh on Mon, 21 Feb 2005 21:03:46 GMT
View Forum Message <> Reply to Message

I meant that SETs as a design have higher percentage of even order distortion in the THD, as an inherent design than PPs. A higher even order distortion causes a tone to sound "fatter" or "richer". This is commonly used terminology by mnay guitar players. It is also found at teh rec.audio FAQ, which is referenced below. http://www.faqs.org/faqs/AudioFAQ/part2/A fat tone is pleasant. I think you yourself said that in the post above. I agree with you...gross and misleading generalizations are gross.... I am sorry you think that describing a design characteristic is a generalization. I don't want to get into a feedback debate since I am not an electrical engineer and not really interested in debating anyone on this forum. However, if you are really interested, I can

point you to some refereed articles in JAES on the subject. -akhilesh
REc Dot Audio FAQ describing terms used to describe sounds

Subject: Also
Posted by akhilesh on Mon, 21 Feb 2005 21:17:18 GMT
View Forum Message <> Reply to Message

I take from your post DR Cope that you are a SET lover. You may not know this, but I do own 3 SET amps, and regularly listen to them. I LIKE the way they tailor the sound....hi fidelity they are not...but I like what they do. So i actually meant it as a compliment when i said they make the tone sound fatter or richer. Just to make sure you understand I am not attacking SETs in any way..in fact I quite like the little things!-akhilesh

---

Subject: Hence the discussion...
Posted by PakProtector on Tue, 22 Feb 2005 21:18:05 GMT
View Forum Message <> Reply to Message

I think a good discussion about any given subject is useful. Especially with such things where personal opinion are so highly valued.While I don't think I'llfind a SE amp I'd rather live with, there remains that possibility. I am quite interested in trying to figure out a means of quantifying what it is I like and dislike about *ANY* given topology.Just because a subject happens to be something the participants are passionate about, does not exclude them from participating in a gentlemanly fashion(whilst not PC to use such sexist nomencalture, the meaning is not quite conveyed with any other I could think of).regards,Douglas

---

Subject: Is Fat a compliment, etc . . . .
Posted by DRCope on Wed, 23 Feb 2005 23:51:32 GMT
View Forum Message <> Reply to Message

Well, I can't say I see Recaudio as an authority on much of anything, and after reading this "definition" in their FAQ, I can't say I see fat as any more positive a descriptor than before:"Fat: See Full and Warm. Or, *spatially diffuse* - a sound is panned to one channel, delayed, and then the delayed sound is panned to the other channel. Or, *slightly distorted* with analog tape distortion or tube distortion."Guitar players value tube gear in attaining a particular kind of tone in playing, not reproducing music. That doesn't really do it, either.I don't think one needs to be an EE to hear the effects of feedback. It's necessary in non-triode amplicification, as most other devices are distinctly non-linear and need a little help. It's necessary when driving long cables. Outside of that, it's a music killer. The Audio Note M2 has switchable feedback. Choose

what you like. Without it, the music flows free, full and lifelike. With it, the life is squeezed out of the signal, and the music falls very flat. but I digress; this is about push-pull vs single-ended amplification.I guess, in the end, I don't see much point in debating this unless the participants can be in the same place listening to gear that embraces the opposing viewpoints, so I'll withdraw.

Subject: Re: Also
Posted by DRCope on Wed, 23 Feb 2005 23:55:19 GMT
View Forum Message <> Reply to Message

I don't know what SETs you own, but either they aren't very good, or they aren't partnered with suitable speakers. I don't know how else you would describe SET as "tailoring the sound" and declaring "hi-fi they are not." This is very much like saying "some of my best friends are XXXX." Insulting at best.

Subject: Re: Also
Posted by akhilesh on Thu, 24 Feb 2005 16:13:31 GMT
View Forum Message <> Reply to Message

HI DR,I apologize if you felt insulted. I am intersted in your system..could you tell me more about it? thanx-akhilesh

---

Subject: Here is a good link by a SET amp builder, scroll to the bottom
Posted by akhilesh on Thu, 24 Feb 2005 19:05:59 GMT
View Forum Message <> Reply to Message

http://www.dogstar.dantimax.dk/tubestuf/miniblk3.htmenjoy-akhilesh

---

Subject: Re: Also
Posted by DRCope on Thu, 24 Feb 2005 20:42:16 GMT
View Forum Message <> Reply to Message

Actually, I think the problem began with the question: "how would you *quantify* . . ."Given the exteme difficulty, bordering on futility, of trying to correlate what we hear with what we know how to measure so far, perhaps it would be more fruitful to ask how we would *characterize* the

differences, looking at it qualitatively, which is how we appreciate reproduced music in the first place.As to my system, not surprisingly, since I'm the US distributor for Audio Note, it's all AN. What might be surprising is that I got involved with AN professionally because of the huge effect that purchasing a few used AN pieces had on my system and listening experience.Anyway, I listen to a Voyd 'table (predecessor to the TT Three), AN 1S arm and usually an IO moving coil cartridge through an AN transformer into an M3 pre-amp. Amps are Quest Silver mono 300B's driving E/SE Silver speakers. Cabling is all AN silver of various levels. On the digital side, I'm waiting for the first of the new CDT2/II transports, which will be paired with a DAC3.1x Balanced.I'll be building an AN Preamp Kit shortly, (hopefully in time for the Spring New England Valve Fest), and will be building a one-off 2A3 amp using AN parts which will have a dual choked power supply and interstage transformers. 1/2 a 6SN7 per channel input - a stage less than usual to reduce noise as my next speakers will be AN Lexus Signatures - 98dB/w/m efficient w/outboard due to cap size) crossovers.

Subject: con permisso
Posted by PakProtector on Fri, 25 Feb 2005 11:47:14 GMT
View Forum Message <> Reply to Message

I will refer to that line "Given the exteme difficulty, bordering on futility, of trying to correlate what we hear with what we know how to measure so far, perhaps it would be more fruitful to ask how we would *characterize* the differences, looking at it qualitatively, which is how we appreciate reproduced music in the first place. ", in the future.It continues to amaze me how well the description of amp charactaristics can be described and shared with a keyboard. Since 'they' don't know what makes an amp sound good, I think we need to step up and become 'them' *AND* find a reasonable answer.This referal to this mystical 'They' who don't want to make efficient cars, or durable ones, or self maintainable ones...being one of 'Them' is OK so long as I do a better job.regards,Dogulas

---

Subject: Re: Also
Posted by akhilesh on Fri, 25 Feb 2005 14:18:26 GMT
View Forum Message <> Reply to Message

Sounds like a great system! Wish we in Tulsa could hear it sometime!-akhilesh

---

Subject: Re: Also
Posted by Wayne Parham on Fri, 25 Feb 2005 15:14:12 GMT
View Forum Message <> Reply to Message

Did you happen to see that transformer-coupled SET amplifier in the latest AudioXpress? Kinda cool, three parts only. Coupling transformer, triode and output transformer. Add B+, chill and serve.

Subject: Re: Also
Posted by DRCope on Fri, 25 Feb 2005 15:20:03 GMT
View Forum Message <> Reply to Message

Thanks!You've got closely related pieces in the area. Mark M. has E/L's and I think has acquired a pair of Conquests which will demo triode magic in contrast to the merely very good tube amp that his Kit 2 amp is. Not sure what he uses for a pre-amp.I might have to coordinate sending a transport and pre to one of your meets . . . .

Subject: Re: con permisso
Posted by Wayne Parham on Fri, 25 Feb 2005 15:23:21 GMT
View Forum Message <> Reply to Message

I'm a slide rule and scope kinda guy, and I've always found it difficult to describe what I hear with non-technical adjectives. I mean, I can put the words together and sometimes I even think I've done a good job. But I can never be sure that my description paints the proper mental image, nor can I know if what someone else is saying is giving me the right impression. So I've begun to strive to just listen, and encourage others to do the same.I know it isn't always easy to audition some of the things we discuss here, but really, I'm not sure that there is any alternative. That's why I suggest that folks just take the plunge and give things a try. The best way to know how something well something does is to experience it for yourself. I love having the sound take people's breath away, and watching a silence come over a conversation-filled room when the music starts to play.

Subject: Re: Also
Posted by Wayne Parham on Fri, 25 Feb 2005 15:28:16 GMT
View Forum Message <> Reply to Message

Mark's Kit 4 sure sounds nice. He has an assortment of tubes, and I believe I heard what he thought were the best set. I'm anxious to hear the Conquest too; We'll hear it either this meeting or next. There is quite a buzz on many different levels right now. Lots of people are talking about coming and bringing their equipment, some that are manufacturers or dealers representing a particular product. We may have to roll this into a spring or summer event. It's getting really cool...

Subject: Re: Also
Posted by DRCope on Fri, 25 Feb 2005 16:33:32 GMT
View Forum Message <> Reply to Message

Wow! That's very exciting!Is Mark's Kit a 6V6 completely enclosed amp or a 6550 out in the open amp? I thought he had a 6550-based beastie. . . .

Subject: Re: Also
Posted by DRCope on Fri, 25 Feb 2005 16:44:22 GMT
View Forum Message <> Reply to Message

Uh . . . . note, 'fraid not. Then again, I don't get the mag. That sure is extreme parts count reductions!

Subject: Re: Also
Posted by Wayne Parham on Fri, 25 Feb 2005 17:21:35 GMT
View Forum Message <> Reply to Message

Mark's kit has an open chassis, standard for the Audio Note Kits, I think. It has no transformer covers either; I'd add those if I were him. I see many of the Audio Note kits with chrome side pieces that really look nice.

Subject: Re: Also
Posted by DRCope on Fri, 25 Feb 2005 17:57:17 GMT
View Forum Message <> Reply to Message

Okay, that's what I thought. It's a Kit 2. Just tryin' to keep track.

Subject: Re: Also
Posted by akhilesh on Fri, 25 Feb 2005 18:26:06 GMT
View Forum Message <> Reply to Message

That would be good. I think it would be nice to a full blown AN system sometime...if you could

send something to complement what Mark has, it would be great at one onf our meets. -akhilesh

---

Subject: Re: Also
Posted by Steve on Sun, 15 May 2005 17:25:51 GMT
View Forum Message <> Reply to Message

First off I am a manufacturer. I design and build both SET and PP amps.The main problem I see is the Intermodulation Distortion (IM). It is generally 3.2 times that of Harmonic Distortion. So if an amp peaks at 3% distortion, the IM is close to 9.5%. If it is 5%, then the IM is more than 15%!An example of IM distortion: a 1k and 800 signal "mixes" to produce signals of 200hz and 1.8khz. No wonder the music might seem filled out.One can tell the quality of an amp when a "review mentions liking simple music and not complex, like orchestra. This tells me the IM distortion is very high as it really messes up the music.Another area is the drive needed for the output signal. Alot of distortion comes from the driver and even before that. This mixes to produce higher order harmonics, although lower in amplitude, that are easier to hear.Passive parts distortion also plays a major role in the sound. Using passive parts like carbon resistors is guaranteed to artificially "distort/color" the sound. So the problem with an amp is much more than HD, but IM, topology, parts distortions etc.Steve

---

Subject: Re: Pull pin...
Posted by Steve on Tue, 17 May 2005 15:48:24 GMT
View Forum Message <> Reply to Message

SETs can and do produce alot of odd harmonic distortion too. It depends on the topology, parts quality, and which tubes are used etc. There are also other major problems. I know, I design and build them.As you mentioned, PPs can have very low distortion without any feedback.I have to agree with Ash.. At 2004 CES, The Show, all I heard was fat with one or two thin sounding SETs. I visited those rooms several times, on different days listening to different selections.As you say, "I don't think gross and misleading generalizations do much to advance our collective state of enlightenment regarding the audio arts..."Steve

---

Subject: Changes in Output Z
Posted by Steve on Sat, 18 Jun 2005 14:42:37 GMT
View Forum Message <> Reply to Message

Hi Guys,I think one problem overlooked with SETs (and I make them) off the top of my head is the huge change in output Z. This can easily be an 8 to one ratio, or more. As an example, the damping factor changing from 8 to just 1 over a portion of the cycle. So the control the amp has

over the driver is constantly changing.PP can also have this problem, in a different way, though to a lesser extent.Take care.Steve

---

Subject: Re: Pull pin...
Posted by Matts_ on Tue, 09 Aug 2005 03:44:03 GMT
View Forum Message <> Reply to Message

SET is more like a musical instrument- very linear amplification (if designed and built right!), but with it's own set of harmonics, overtones, as all violins, etc. have. When they are pleasing to the listener, so much the better. PP is a fine piece of electrical equipment (again, if designed and built right).

Subject: now just wait a sec....
Posted by Thrint on Tue, 09 Aug 2005 15:01:55 GMT
View Forum Message <> Reply to Message

you can't have it both ways:SET is more like a musical instrument- very linear amplification and:but with it's own set of harmonicsJust another way of saying, " I like the distortion spectra of a SET amp".What I want is a means of measuring the sonic nuance which a good sounding amp has. And on a more personal note, good amps are not limited to the SE topology.regards,Douglas

---

Subject: Re: now just wait a sec....
Posted by Matts_ on Wed, 10 Aug 2005 00:21:04 GMT
View Forum Message <> Reply to Message

can have it both ways- good musical instrument has good mechanics & plays primary tones well and accurately, but with a beautiful voice. Good violin or acoustical guitar will drive an electronic tuner crazy with up to a dozen overtones- pleasant "distortion" if you will.Think I said PP was fine elect. eqpt if designed and built well- no reason to get personal. They amplify all the "distortion" created by musical instruments very well. I've gone to thinking the signals are too complex to quantify every single nuance, and people have to listen for good period of time to something and decided if they like it. Depends on what someone's goal is, though.
