Subject: Paper-in-oil capacitors
Posted by Wayne Parham on Thu, 31 Jul 2008 22:36:03 GMT
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I just replaced some paper-in-oil capacitors in my Audio Note amplifier. It had been blowing fuses and even took out a power transformer, so I decided to investigate. What I found was the left side power tube was biased on strongly, developing a large voltage across the cathode resistor. The first thing I checked was the coupling caps, in fact, I simply replaced them instead of lifting them to see if that would change the bias point. Looking at the schematic, I was pretty confident that was the likely canidate, and sure enough, it was.I've grown to expect old capacitors in 1940's tube radios are usually bad, so I replace them right off the bat. But I guess I kind of expected modern paper-in-oil caps would last a little longer. Is that not the case? Do they all tend to dry up and become resistors? That's what happened here, the dielectric began to break down, and the plate-to-plate resistance dropped, allowing more and more DC current to flow. Is this the case with all paper-in-oil caps? Mine only lasted five years.

Subject: Re: Paper-in-oil capacitors
Posted by Skip_Pack on Fri, 01 Aug 2008 19:27:13 GMT
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Wayne,This is from dim memory (at least a day or two old), and high on rumorquotient, but I think someone mentioned that AN labeled PIO caps were, at least some of the time from Jensen and not long-lived. Others last a long time.Skip

Subject: Re: Paper-in-oil capacitors
Posted by Wayne Parham on Sat, 02 Aug 2008 03:39:12 GMT
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I seem to recall Peter Qvortrup saying the Audio Note PIO caps used to be relabeled Jensens but a long time ago they started making their own.However, this is still good information. I'll try some new PIO caps and see how they last.

Subject: Re: Paper-in-oil capacitors
Posted by Norris Wilson on Sat, 02 Aug 2008 05:12:44 GMT
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The best way to eliminate this problem in the future is to substitute oil coupling caps with Mundorf

Supreme film.Norris

Subject: Re: Paper-in-oil capacitors
Posted by Wayne Parham on Sat, 02 Aug 2008 19:13:16 GMT
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I'll try those. I'm using Audiocaps now, and I've used probably a dozen different brands and types with varying success. But I haven't tried the Mundorf caps yet, so I'll order some next week and give 'em a try.

Subject: Re:Mundorf Supreme
Posted by Bill Epstein on Sat, 09 Aug 2008 01:36:25 GMT
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I tried a pair of .33s in my attenuation circuit; thought they sounded grainy and cold compared to the Auricaps they briefly replaced.Kimbers were an improvement over the Auricaps, slightly, and the copper case Obbligatos take home the prize.

Subject: Re:Mundorf Supreme
Posted by Wayne Parham on Mon, 11 Aug 2008 00:27:19 GMT
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I've used Kimbers in a lot of places, and I agree with you, they're good. Where do you get your Obbligato caps, Bill? I got the Mundorfs last week, so I'll give 'em a try as soon as I get a chance but I'd love to try Obbligatos too.

Subject: Re:The one, the only.....
Posted by Bill Epstein on Mon, 11 Aug 2008 04:46:46 GMT
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...Brian Cherry.
Obbligato

Subject: Re:The one, the only.....
Posted by Wayne Parham on Mon, 11 Aug 2008 16:23:06 GMT
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But of course. I should have known that. Brian's a great guy. I'll place an order and give Obbligatos a try.

Subject: Re: Paper-in-oil capacitors
Posted by footsurg on Fri, 17 Oct 2008 04:36:20 GMT
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Wayne, I have had quite a few of those Audio Note copper PIO's short out in my gear too. Peter Q over at AN has admitted that there are some issues with those caps. The film that separates the dielectric is the problem. It breaks down eventually causing the cap to short out. Peter has redesigned the copper PIO's using a mylar divider that is supposed to be good for a long long time. Peter has agreed to take back any shorted out copper PIO's and exchange them for the new mylar coppers free of charge no questions asked. I know you have coppers in that kit 2, because I put them in myself. The coppers really are what sounds best in that amp, I would take Peter up on his offer to exchange the shorted ones. The new ones will have white lettering on them. the old ones had black. Also I would check all the coupling caps and cathode bypass caps in there. You should get no more than a few volts across any of the signal caps. If you're getting high readings like in the 80+ volt range, then they are getting ready to go. Replace any that you find like that immediately. Mark

Subject: Re: Paper-in-oil capacitors
Posted by perry on Tue, 23 Jun 2009 01:01:34 GMT
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thanks for posting it here..at least i know what to do if it happens on my amplifier not really familiar on this things..and only rely on my friend to fix it..

Subject: Re: Paper-in-oil capacitors
Posted by Wayne Parham on Tue, 23 Jun 2009 01:29:18 GMT
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The poly Audiocaps are still running fine in my Audio Note amp...

Gone through a 6550 since then, but the caps are still just fine.

Subject: Re: Paper-in-oil capacitors
Posted by jim... on Tue, 23 Jun 2009 03:33:08 GMT
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Hey Wayne,
As far as the old stuff goes. Sprague Vitamin-Q should be very reliable. What values? If I have any left, I can send you some. Don't open, dioxins? toxic oils inside. I now use inexpensive Illinois Cap brand metalized film polyprops from tubesandmore.com or Sprague 716P film and foil polyprops (with copper leads). The sound is good. I've been disappointed in many expensive designer caps quite often over the last 25 years and what I use now are inexpensive and sound good "to me". No arguments wanted or needed. JMO. jim..

Subject: Re: Paper-in-oil capacitors
Posted by Wayne Parham on Tue, 23 Jun 2009 15:28:22 GMT
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Excellent, Jim, thanks for the offer. I may take you up on that. I'll look at the values I need (I think they're 0.22uF and 0.015uF) and get hold of you or just order some. Thanks for the tip!