R-390 Reflector December ‘04 Edited

From r390a at bellsouth.net Wed Dec 1 19:44:46 2004
Subject: [R-390] Ebay R-390 non-A in Gulfport

Who has this up for sale? Says that both Les and Cecil can vouch for it and that Hank Arney made the shipping box. Just figured it might be a list member. It looks really nice, and if I had $1200 I'd do a Buy It Now... Tom

From dhallam at rapidsys.com Fri Dec 3 15:02:58 2004
Subject: [R-390] Ballist Tubes

I recently acquired a Boonton 250A RX meter. While it seems to be working properly, I have found a problem with the 6.3 V heater line. Boonton used a 6H-6 ballast tube to regulate the heaters in the bridge oscillator tubes and the mixer tube. The spec calls for 6.3 +/- 0.3 volts. I am measuring 8.3 V with two different AC voltmeters. AC line spec is 105-125 V so I am OK there.

Can ballast tube fail in such a manner that it will still pass current but fail to regulate? David C. Hallam KC2JD

From roy.morgan at nist.gov Fri Dec 3 17:02:11 2004
Subject: [R-390] Ballist Tubes

wrote: >I recently acquired a Boonton 250A RX meter.

David,

Good for you. It's a neat gadget. (I have at least one of them here.) You can see for yourself now whether or not carbon film resistors are inductive enough to matter. (Please let us know what you decide.. maybe you'll start another long, long thread on the topic.)

BAMA has a manual for that thing. It is in dejavue format. See:
<http://bama.edebris.com/manuals/boonton/250a>

> Boonton used a 6H-6 ballast tube

Make sure it really is a 6H-6 ballast tube (Glass with fine wire filament strung between the mica wafers), not a 6H6 duo diode tube (likely metal and short).

> The spec calls for 6.3 +/- 0.3 volts. I am measuring 8.3 V

Make sure BOTH of the tubes being regulated are lighted up. With one or more not present or filament open, the rest will get too much current.

>Can ballast tube fail in such a manner that it will still pass current but >fail to regulate?

Probably. There are some things you can do:

1) Note that R-407 and R-401 are in parallel with the load. I strongly suspect these have risen high in value and are no longer doing their job. They get warm at lease, hot likely, were too small to begin with, and were carbon composition types most likely. They are in parallel with the regulated filaments to help the situation when one of the tubes is removed or opens, making sure that the ballast tube is dropping the amount of voltage within it's range, or at least not too far out of it's range.

2) If the ballast is operating past it's normal range, for example at too high a voltage drop, then add a resistor in series with it to bring the voltage drop down to the lower end of the range. You will note that there already is R-508 (0.55 ohms?) in series with the thing.. do check the value on that one.. Feel free to raise that value as high as you need to in order to get the regulated tube voltage correct.

3) Try different tubes in the regulated spots - some industrial tubes draw more or less than the normal equivalents. The tubes specified are two 5718's. I was going to suggest that someone substituted normal tubes in their place, but these are subminiature ones and I was not able to locate easily any substitutes other than a CV number. It's not likely that you have a box of spares.. Make sure both tubes are being heated up. (If the meter is working, then both oscillators are working.)

4) Put a 6SK7 (300 ma) in the ballast socket and see what happens. Actually, a duodiode 6H6 would do the same thing. Measure the actual transformer winding output.. the schematic says 13.5 volts. Here IS a good use for a variac. Lower the line voltage till you do get 13.5 at the transformer winding/input to the ballast and see what is going on.

5) Put a big resistor in there instead of the ballast. (13.5-6.3)/.300 = 24 ohms. Measure the actual transformer output to see what resistor you need. It will dissipate 2.4 watts or more, so use a 5 watt unit or bigger. If your instrument measurements wander due to changing line voltage (that's why they used a ballast), get a voltage regulating transformer.

6) Get another ballast tube and try it out. This is listed last because you may have trouble finding spares. But ... Playthings of the Past has them for about $10 http://www.oldradioparts.com/2a2fl.txt

See http://www.amperite.com/Uploads/Ballasts.pdf for a description on how they work. Do not be encouraged when you find 6H-6 in the list of still-available tubes.. they want over a hundred dollars each for other types that are also listed (the 3TF7, for instance, according to R-390 list postings of the past.) Happy RX measuring. Roy

From wabate at dandy.net Thu Dec 9 11:38:26 2004
From: wabate at dandy.net (Bill Abate)

After multiple tests I determined that my 4 KHZ filter was shot. With nothing to loose I decided to open it up and I think I found a cause for the failure. The input and output terminals a shunted with a 20 pf mica and a 200K resistor. They were fine. What wasn't fine was the filter itself. It had separated into two pieces between the resonating discs and another one of the spot welds was half broken.

Collins had originally put a brown foam type substance in the body to provide a shock mount. The foam had all but disintegrated into a goo. The filter was free to rattle around inside like a ping pong ball in a coffee can! Somewhere in its life it must have been shocked, dropped, etc. and died. If this failure is not peculiar to my filter the future could hold time bombs. To correct this situation would take a lot more patience than I have.

If I wanted to test the rest of my filters (?) I would remove the filters and gently turn it upside down to

see if I can feel any movement (without causing a failure). If the filter needed new foam I would open the filter, remove the old stuff and put in new, reseal the filter and hope it still worked (connections are about #40 wire that is hard to see, let alone solder). Definitely not something I would want to try or recommend. Anybody have additional experience? 73, Bill, K3PGB

From buzz at softcom.net Thu Dec 9 12:35:55 2004
Subject: [R-390] Re: [Collins] R-390A Filters

Here's a postmortem on one of my filters. http://webs.lanset.com/buzz/misc/filter/390Afilter.html Buzz

From tetrode at comcast.net Thu Dec 9 13:56:54 2004
Subject: [R-390] Re: [Collins] R-390A Filters

I beleive you are right Bill, this is a not uncommon failure, and as the decades progress so will the deterioration of the foam mounts. It's almost certain that at some future time the mechanical filter failures will approach the frequency of molded capacitor failures, and the very thorough R-390A restorer will then be faced with re-filtering in addition to re-capping :^(

> If I wanted to test the rest of my filters (?) I would remove the > filters and gently turn it upside down to see if I can feel any movement > (without causing a failure). If the filter needed new foam I would open > the filter, remove the old stuff and put in new, reseal the filter and > hope it still worked (connections are about #40 wire that is hard to > see, let alone solder). Definitely not something I would want to try or > recommend.

Too bad these filters weren't plug-in, then the above efforts might be worthwhile.

>From my experience the filter loss starts to increase rapidly just before failure. One R-390A that I brought home from a flea worked quite well when I got it, but as it was worked on and it got moved around and over on the workbench I noticed that it was loosing sensitivity only in the 4 KC bandwidth. first a few db, then a few more, then 20 dB, then dead. The filter was replaced but I haven't done a post mortem on it.
So I'd say that the state of the filter innards in any 390A is indeed a crap shoot, even in the multi-kilobuck "'museum quality" radios that pop up now and then for sale. The only thing I do different now is to try minimize any mechanical shocks or vibration when moving or transporting a 390A, for example putting it on a cushy mat or blanket when transporting one in the back of a car or truck, not for the sake of the tubes but for the filters. It's ironic that although the R-390 is a much older beast than the average R-390A it is not as fragile in this respect. 73, John

From JMILLER1706 at cfl.rr.com Thu Dec 9 16:58:29 2004
Subject: [R-390] Re: [Collins] R-390A Filters

Is that because the older 390 (non A) did not use mechanical filters like te ones in the 390a? I have experienced a similar failure in an 8 khz filter but it was heat related... the filter worked fine until the box warmed up and then would fail. Some have talked about opening them up with blow torch or solder iron, then replacing the innards with a "new" Collins mechanical filter module, similar to what has been done with 75A4 filters by **Curry Longwave. Curry also sells "modernized" filters for the 390a... see: http://www.r390a.com/html/Curry.html** Mike Andrews

From r390a at bellsouth.net Thu Dec 9 18:37:45 2004
Subject: [R-390] Impedance of R-390A filters?

On the subject of filters, what is the impedance of the mechanical filters used in the 390A?

Tom NU4G

From: wabate at dandy.net (Bill Abate)
Subject: [R-390] AGC problem

My 390A is almost finished its restoration. Looks pretty good and works well. Well, except for SSB reception. If I try to tune in a ssb signal I get a lot of distortion in the audio and the signal can't be tuned in properly. If I try the old method of max audio gain and reduced RF gain, all is well. Of course this is not the way other R-390A's work. BTW, AM reception is pretty good but has some distortion in the audio.
I figured that the AGC was not working properly so I ran the AGC test in the manual. I adjusted the ,local audio for 1.7V of audio with 5 microvolts of RF. I then increased the RF sig gen to 1000 microvolts and the audio output went to 20 volts. Its supposed to increase to 3 volts, so I found the problem.
The problem is I can't seem to find the cause. I have AGC voltage on pin 2 of v506 (AGC line). I got these AGC voltages with my sig gen:

5 mv -> .04VDC
50mv -> -.2 VDC
500mv -> -3.8 VDC
5000mv -> -7.1 VDC
50000mv -> -9.6 VDC

I also found the AGC voltage on all the tube grids it was supposed to control. The only thing I can conclude is that the AGC voltage is insufficient but the manual does not say what the voltage should be with varying inputs. At least I could not find it. I also tried slow, med and fast AGC and the results were the same. Anybody have data on the AGC line? Any ideas as to the cause?? Thanks, Bill, K3PGB

From bill at iaxs.net Fri Dec 10 03:42:30 2004
Subject: [R-390] AGC problem

Don't have voltages for you, but here are a few ideas:

Do you have the right tubes? No sharp cutoff where they should be remote cutoff.

Does the S meter read correctly?

Do the resistors in the AGC circuit have the correct measured values? How about the cathode resistors of the controlled tubes? They should be within 20% of the schematic value.

Is the resistance to ground of the AGC line greater than 100 meg if you isolate the line? Can you measure the resistance with something that applies 20-30 volts to the line? Or just apply voltage to the line with three 9 volt batteries and see if it propagates down the line correctly. Regards, Bill Hawkins

From jmiller1706 at cfl.rr.com Fri Dec 10 09:34:26 2004
Subject: [R-390] AGC problem

AGC voltage for the front end RF Amp tube exists on the tuning shaft for the antenna trimmer ... if there is oil or grease on the fiber coupler and washers associated with the antenna trimmer, the oil could show as a path to ground for the AGC voltage at this stage. This can reduce AGC effectiveness for the front end. Spray with a non-oil based degreaser cleaner such as Big Bath. I have also found that sometimes the .005 bypass capacitors at the AGC points tthroughout the radio can go bad and pull down the line. I have had to lierally replace all of them in one radio. Finally, AGC is developed in the IF Module ... there is a tuning coil there that looks like an IF can Z-something, I forget the number) that you have to tweak to get the right AGC action.

From roy.morgan at nist.gov Fri Dec 10 11:49:41 2004
Subject: [R-390] AGC problem

wrote: >I figured that the AGC was not working properly so I ran the AGC test in >the manual. ... so I found the problem. > >The problem is I can't seem to find the cause.

Bill, Have you set the IF Gain setting?

See: http://www.r390a.com/ and in particular: http://www.r390a.com/html/gain.html Roy

From JMILLER1706 at cfl.rr.com Fri Dec 10 12:42:13 2004
Subject: [R-390] AGC problem

I read your original post again, where you said "this is not the way others work..." I have one 390a (a SW mfgr) that handles SSB pretty well at high gain. I have a Collins 390a that doesn't do well at high gain, on SSB, but works well otherwise. But I think the 390a that handles SSB without distortion is not the norm. Your receiver may be just fine and working normally, since you say it is OK when the RF gain is reduced. There are some AGC mods on the web that can help, one simple one uses a couple of diodes in the IF deck. But in general I think that a 390a that distorts on SSB at high gain is normal. Just my opinion..

From w5kp at direcway.com Fri Dec 10 13:33:42 2004
Subject: [R-390] AGC problem

I second that. I'd guess your 390A is probably working just fine. Both of my 390A's ('63 Teledyne/Imperial, '67 EAC) copy SSB wonderfully well with the BFO set correctly and the RF gain at about 7 or so. Crank the gain all the way up and it's distort city. So what? If I wanted a hands-off SSB receiver I would look to Japan or Tennessee for it. It also wouldn't weigh 85 pounds, wouldn't have anywhere near the mechanical/electrical "cool factor", and if it broke I'd have to pay a small fortune to mail it to the manufacturer to get it fixed. Where's the fun in that? :-) 73, Jerry W5KP

From DJED1 at aol.com Fri Dec 10 14:11:29 2004
Subject: [R-390] AGC problem

My TM 11-856A has a graph of AVC voltage versus signal level which you can compare with measured results. It shows about -2V at 10 microvolts in, -3.5V at 100, -6.5 at 1000, and -9V at 10,000. This depends on having set the receiver IF gain per the manual. I haven't seen any data on how flat the AVC response is, but I know my receiver audio output increases several dB as I increase the RF input by 40 or 60 dB. Let us know what you find. I'm going to make some measurements and see how well my AVC works. Ed WB2LHI

From chacuff at cableone.net Fri Dec 10 14:34:30 2004
Subject: [R-390] AGC problem

Well I figured it would come up so I'll go ahead and bring it up...is that 10uv at 50 ohms input or 120 ohms. I'm guessing 120 but our generators are nearer 50. Where's Bob Camp... Pot stirrer in hand... Cecil...

From redmenaced at yahoo.com Fri Dec 10 18:55:11 2004
Subject: [R-390] AGC problem

Don't look at me I was reading this new website: **http://webpages.atlanticbb.net/~w3np/**

From wabate at dandy.net Sat Dec 11 00:55:56 2004
Subject: [R-390] AGC problem

OK guys, thanks for the info. First off I have the gain pot a little on the low side for a better s/n ratio. If anything that should help. My sensitivity is between 0.6 and 1.1 microvolts for 10 db s+n/N. All the tubes are correct and have been tested in a Hickok before aligning the rig. It really is perking quite well. I have that darn linearity adjustment to do for the Cosmos PTO, but I got sidetracked on this SSB thing.

I pulled the IF deck and played around with it for most of the day. I replaced a few resistors and caps but not because they were that bad. Same results.

I got one more piece of data that makes no sense. The suppressor grid of V504 and V508 (pin 2) has +6 V on it instead of the -2.5 that should be there according to my manual. The voltage does not change with AGC or MGC selected with the function switch so I conclude that it is coming from V509 and not the AGC bus itself. Now the no signal voltage on pin 1 or 2 of V509 is -.5 V and should be -1.9 V. Maybe that is why I am not getting the AGC voltages that Ed, WB2LHI, said his manual indicates.

One thing that I think has helped is to lower the B+. The military put diodes in the place of the 26Z5's and the voltage was 255 which is a little high. I inserted a 10W 40 V zener and got the voltage down to 215. The distortion is not that bad now. I can copy some stations with full RF gain but it still does not have good fidelity. Maybe I moved the overall gain of the rig to where the AGE has more of an effect? I am still blaming the AGC voltage. Z503 has been peaked but maybe there is something wrong with it?

Not ready to give up yet. Thanks again, Bill, K3PGB

From JMILLER1706 at cfl.rr.com Sat Dec 11 03:05:27 2004
Subject: [R-390] AGC problem

> **One thing that I think has helped is to lower the B+. The military put diodes in the place of the**

26Z5's and the voltage was 255 which is a little high. I inserted a 10W 40 V zener and got the voltage down to 215. The distortion is not that bad now. I can copy some stations with full RF gain but it still does not have good fidelity. Maybe I moved the overall gain of the rig to where the AGE has more of an effect? I am still blaming the AGC voltage. Z503 has been peaked but maybe there is something wrong with it?

Get the ohmmeter and check the values of all resistors, replace any out of spec. ones. Start with the IF module. The old carbon resistors tend to drift higher as they age. Especially check cathode, plate and screen resistors (they tend to change from being in the line of power flow). The resistor aging problem is more common than you would think. They can "look" good cosmetically and still be very bad. JM

From JMILLER1706 at cfl.rr.com Sat Dec 11 03:09:15 2004
Subject: [R-390] AGC problem

One more suggestion: Tighten all the hardware, screws, nuts, etc. especially those that hold the tube sockets and ground lugs down. Again, they loosen with age due to heating/cooling cycles. And don't discount a few cold solder joints or even joints where the mfgr forgot to solder and QC. I had an IF deck by Clavier once where at least 5 pins had absolutely no solder on them at all. Anything can happen.

From ka4prf at us-it.net Sat Dec 11 07:21:55 2004
Subject: [R-390] off topic slightly

Hi all,

I use my R-390A mainly for broadcast listening. It has a better quality of audio just from the receiver. I have to run my NRD545 thru a stereo amp to get almost the same quality.

Anyway, if you are a broadcast listener and have a computer, you might be interested in down loading my Free "real" database of the B04 schedules. It's found on my web page at: http://www.orchidcitysoftware.com/IMAGE38.HTML

Once you have the ZIP file on your computer, unzip it in a folder called c:\ORCHIDCITY then activate the EXE file listed there. Tnx Chuck

From chacuff at cableone.net Sat Dec 11 10:36:44 2004
Subject: [R-390] AGC problem

Bill you are trying to make a SSB radio out of one that was never designed to be one. I have never seen an unmodified R-390A that would copy SSB with the RF gain full up...it wasn't designed to do so. Most require that the RF gain be reduced several notches to get any kind of decent demodulation of a SSB signal. That's why all the modification information over the years such as the "Langford AGC" mod etc..... It's an age old problem. It sounds like your radio is working properly....with some voltage readings that are out a bit. What are you using to measure them? Needs to be an old not so high tech analog style meter. One that loads the circuit a bit. That is what was used when the readings were documented. Something like an old Simpson 260 would be in order I would think. Other can comment on that as well... My 2Cents worth... Cecil...

Oh, by the way, Al Waller, needs donations to maintain and upgrade the qth.net servers and bandwidth. That's the service we use here voluntarily, without subscription fee, and have been using for years.

Don Reaves w5or@comcast.net R-390 list manager

From DJED1 at aol.com Sat Dec 11 21:01:13 2004
Subject: [R-390] AGC problem

I made a few measurements on my receiver to see what the AVC characteristic was. I got the following curve, which shows pretty good AVC action:

microvolts in	AVC volts	audio level
5	-1.0	-5 dB
50	-4.0	-3 dB
500	-7.0	-2 dB
5,000	-9.4	-2 dB
50,000	-12.3	-3 dB

I was also curious about the input impedance match to the generator, so I put my MFJ antenna analyzer on the receiver input. Interestingly, all readings at center frequency were in the range of 25 to 50 ohms, with the reactance being tuned out by the antenna trimmer. I suspect I may have a bad measurement because the signal level is so high. Has anyone done a similar measurement? Is the receiver input really 100 ohms or so, or have we been worrying about generator mismatch for nought? Ed WB2LHI Tacoma, WA

From jpl15 at panix.com Sun Dec 12 14:01:41 2004
Subject: [R-390] Want R-388 (51-J Front panel

I have an Collins R-388 / 51J (sn 235) that is a pretty nice radio - had it for many years.

It's only problem is that, sometime in it's life, miscreant or miscreants unknown refinished it's panel in a kind of pinkish-biege color and then applied transfer lettering for all the controls... ;{}.

I'd like to find a 'proper' front panel for it, rather than having this one stripped and re-painted and re-etched.

I'd be happy to include the existing panel as part trade for a 'real' one.

Would also consider a [cheap] junker R-388 or 51J, if the panel was good or 'fixable'.

Cheers John KB6SCO
> >
> Contact this gentleman. He can supply you with an exchange front panel that > looks beautiful! Silkscreened and in the proper St. James Gray wrinkle finish. Howard Mills _W3HM@nfis.com_ (mailto:W3HM@nfis.com)

From wabate at dandy.net Sun Dec 12 16:56:49 2004
Subject: [R-390] AGC problem

Ed,

My AVC voltage at 5 and 10 mv does not agree with yours. Its less. 10mv shows -0.25. Can't figure anything to increase it. The high end is OK. Resistors and caps have been replaced.

SSB reception is still distorted but not as bad as when I was running 255 VDC B+. My friends 390A receives SSB at full RF gain and sounds good. Maybe I can swap radios when he isn't looking! :)

I won't bother you guys further with this as I think this is as good as I'm going to get it. At least I was able to get the radio to meet the AVC spec in the manual so something was accomplished. I may experiment with the gain adjustment pot to see if that helps. I believe it is IF gain causing the problem and not RF gain. Next year's problem. On to the Cosmos PTO! 73, Bill, K3PGB

From r390a at bellsouth.net Sun Dec 12 19:22:08 2004
Subject: [R-390] Knob needed

(knob kneeded?? LOL) I'm looking for a teardrop shaped "Raytheon" knob, quarter inch shaft. Pic is here -- http://www.fernblatt.net/miscpics/teardrop.gif They used to be all over the place until I needed one. Thanks Tom NU4G

Check the older Allied catalog, 2002, maybe. I think they still make them. I'll look in my pile though. I think they made different sizes for the 1/4" shaft, too. Joe

From roy.morgan at nist.gov Mon Dec 13 16:33:51 2004
Subject: [R-390] Want R-388 (51-J Front panel

John, et al.

There is only one problem. When you get the newly refinished and lettered panel from Howard, it will look SOOO GOOOD that it will put the rest of the radio to shame. The rest of all your equipment, actually. They really do look better than new. Roy

From ham at cq.nu Tue Dec 14 19:17:09 2004
Subject: [R-390] AGC problem

Hi

Sorry to be late on this one.... I think the AGC side of this has been pretty well worked over. There is another side to this though.

The distortion on SSB detection is related to the way the BFO works as a detector. It distorts when the RF signal gets to high for the way it's set up. One of the things that directly affects this is the level of the BFO voltage injected into the detector. Since the AM detector diode gets used as a mixer when the BFO is running it's characteristics also get into the act. Some 390's have been modified to increase the BFO

injection and some have some detector tubes in them that have gotten a bit soft. In this case a soft tube *might* work better than one that's up to spec.

I would also agree that most R-390's do not work very well on SSB with the RF gain turned all the way up. If I was going to look for something odd I would take a look at the radio that picks up SSB fine rather than the one that has problems. Take Care! Bob Camp KB8TQ

From drewmaster813 at hotmail.com Wed Dec 15 15:42:22 2004
Subject: [R-390] ACG problem

wrote: >SSB reception is still distorted but not as bad as when I was running >255 VDC B+. My friends 390A receives SSB at full RF gain and sounds >good. Maybe I can swap radios when he isn't looking! :)
Perhaps you and your friend could swap IF (or other) modules for test purposes- that would certainly help pinpoint the location of any circuit fault. You could take voltage measurements at various points on the substitute module and compare with those taken from your module. Maybe your IF module would provide the desired SSB reception in his radio, telling you that the problem lies elsewhere in your radio.

On the same topic Bob Camp wrote: (excerpted) >Some 390's have been modified to increase the BFO injection and some have >some detector tubes in them that have gotten a bit soft. In this case a >soft tube *might* work better than one that's up to spec.

>I would also agree that most R-390's do not work very well on SSB with the >RF gain turned all the way up. If I was going to look for something odd I >would take a look at the radio that picks up SSB fine rather than the one >that has problems.

Bob brings up some very good points. Again, module swapping or even tube swapping (from the other radio) could provide clues.

About B+ voltage: Bill's 255v seems a bit high even for a radio with 120VAC power and no B+ reducing devices. Where was the B+ measured? At the rectifier cathodes is not a good place because the large ripple voltage there would confuse many DC meters, giving inconsistent/inaccurate readings. A better place would be at the filter caps (remember, the filter is choke input). The screen of the audio output stage (either Line or Local) is convenient-yank the 6AK6, wrap a wire around the appropriate pin and plug back in. The wire can be left in place to provide a convenient B+ shock hazard :)

I measure 180 volts B+ at the 6AK6 screen with 120VAC power supply input and 200 ohms in series with the rectifier common cathode lead (solid state diodes). Drew

From tangerame at earthlink.net Fri Dec 17 01:24:07 2004
Subject: [R-390] Re: R-390 Digest, Vol 8, Issue 11

Let's not forget about the "Dallas lankford" ssb agc mod. It consists of adding a voltage doubler (Two Diodes) to the agc line. The faster action (attack) of the solid state devices and the increased agc voltage allow one to operate with the rf gain all the way up. I use it with an outboard selective rf voltmeter which has a product detector for excellent ssb. He also had a way to increase bfo injection to make the diode detector more acceptable. I think the old timers must be tired of responding with this answer so offically being old myself I took up the yoke. Tony WA6LZH

From: r-390-request@mailman.qth.net
Sent: Dec 15, 2004 1:01 AM

Send R-390 mailing list submissions to r-390@mailman.qth.net

To subscribe or unsubscribe via the World Wide Web, visit http://mailman.qth.net/mailman/listinfo/r-390 or, via email, send a message with subject or body 'help' to r-390-request@mailman.qth.net

You can reach the person managing the list at r-390-owner@mailman.qth.net

When replying, please edit your Subject line so it is more specific than "Re: Contents of R-390 digest..."

From joe.fallon at philips.com Fri Dec 17 08:15:08 2004
Subject: [R-390] Comsos PTO

Hi Everyone,

I have been trying to do an end point adjustment on my R390a 's Comsos PTO. Turning the endpoint adjustment screw has no effect on the PTO's output frequency although the adjustment screw appears to be moving in and out . Anyone got an idea as to what may be going on? I was thinking off removing the cover but the PTO's power cable splits into two with one half going though a access hole in the cover. It looks like I will have to undo the connections to the Cinch connector and split the cable harness so that cover can be removed..... Thanks in advance for any comments or suggestions, Joe WA1IWQ

From w5kp at direcway.com Fri Dec 17 08:48:24 2004
Subject: [R-390] Comsos PTO

http://www.r390a.com/html/n5off_pto.html should be a good starting point, Joe. A google on "cosmos pto" will turn up a ton of helpful info. Jerry W5KP Thanks in advance for any comments or suggestions,

From vk2abn at batemansbay.com Sat Dec 18 04:56:05 2004
Subject: [R-390] 4KHz filters

There have been many instances of failure of the 4 KHZ filters I have personally seen 4 If strips where this has happened but I was suprised to find that these filters are available on Fair radios site they are the exact part no 526 9160 009 and are 65$ US I ordered 2 the other day and they seem to have a gud supply The date code is 1967 they were probablly produced for the EAC contract, Go to fair Radio and look for MECH Filters .Regards To Everyone Bernie N

From Llgpt at aol.com Sat Dec 18 05:34:54 2004
Subject: [R-390] 4KHz filters

The 4 kc mechanical filter in the R-390a was the most used filter by the military and will fail long before

the other filters do. Most have reached the end of their life cycle by now and will continue to fail at a rapid rate. The mechanical filter will only resonate a given number of of times before it's life cycle is reached. Merry Christmas, Les Locklear

From doorbar61 at tiscali.co.uk Sun Dec 19 06:44:55 2004
Subject: [R-390] atf4 ballast tube

hello to everyone happy xmas. have just fitted atf4 ballast tube in 390a and it seems to be working fine.it glows a little more than a atf7. can anyone tell me will this give me any problems. many thanks brian

From gkaufman at the-planet.org Sun Dec 19 19:47:05 2004
Subject: [R-390] R390A For Trade

I recently aquired another R390A as a part of a larger deal, and really don't need (or have space for) a 5th radio!

What I'd most like, is to trade this radio a good quality tube tester, especially TV2, TV7D/U or Hickok Cardmatic 118B or KS-15874 tube tester. I'd also consider trades for good sized lots of tubes.

I have not powered up the radio, as the pair of 26Z5's are missing and diode mod has not been performed. The radio looks quite clean, and I believe it was in recent use.

Chassis is EAC '67, Nameplate is Imperial '63, but no serial number Power supply is Teledyne, Audio Deck is Capehart, PTO is Cosmos. I can't easily get to markings on the other two decks to see who made them.

Quite clean, reasonably nice cosmetics.

Defects noted:

Missing main covers, but "Utah" cover is present
Oldham coupler is present, but spring is missing.
Missing tube shield on PTO, remainder of tube shields are present.
All tubes including 3TF7 are present except 26Z5's as noted above.
Meters appear to be replacements, but nicely done.

Some Pics...
Top view http://www.the-planet.org/r390a/Top.jpg
Bottom view http://www.the-planet.org/r390a/Bottom.jpg
Front view http://www.the-planet.org/r390a/Front.jpg
Backview http://www.the-planet.org/r390a/Back.jpg
Nameplate http://www.the-planet.org/r390a/Nameplate.jpg
Line Meter http://www.the-planet.org/r390a/Line.jpg
Carrier Meter http://www.the-planet.org/r390a/Carrier.jpg

Thanks for the bandwith. '73 Gary KB1FBI

From bill at iaxs.net Mon Dec 20 01:50:15 2004

Subject: [R-390] Yosemite Sam on 3700 KC

The Glowbugs list has discovered Yosemite Sam saying "... varmint. I'm gonna blowww your head off!" on 3700 KC AM. It's audible across the country and has been going on for two days now. Theories abound.

Sam says a fraction of a line from a Bugs Bunny cartoon about every 20 seconds. I heard him in Minneapolis on a 390/A with 50' of wire in the attic, but my untrained ear could barely pull him out of the local noise. Others report clear reception.

Just thought I'd throw that over the fence ... Bill Hawkins

From roy.morgan at nist.gov Mon Dec 20 11:18:37 2004
Subject: [R-390] atf4 ballast tube

wrote: >hello to everyone happy xmas. have just fitted atf4 ballast tube in 390a >and it seems to be working fine.it glows a little more than a atf7. can >anyone tell me will this give me any problems. many thanks brian

Brian,

The current delivered to the regulated tubes is likely to be wrong. Do test the voltage at the output of the ballast tube to find out. The ballast tube is likely to not last very long. It is being operated way above it's current design range. That's why it "glows a little more". You would be better off with a fixed resistor. Roy
Roy, Just out of interest what size resistor do the boys put into place of th ATF7? Bill N2WL

>anyone tell me will this give me any problems. many thanks brian

I believe you are referring to type 3TF4 and 3TF7 ballastubes.

Both are specified to regulate current to 300 mA plus or minus a few tens of milliamps.

The 3TF7 regulates with a voltage drop of from 8.6 to 16.6 volts.
The 3TF4 regulates with a voltage drop of from 4.3 to 8.3 volts.

In the R-390x application the supply voltage for the PTO and BFO tubes is nominally 25.2 VAC. The two 6BA6 heaters fed with 300 mA drop 12.6 volts and the 3TF7 drops nominally 12.6 volts, operating somewhere in the center of its voltage range.

When installed in the R390x the 3TF4 would operate outside of its specified voltage range; it would pass more than 300 mA and its life and the life of the PTO and BFO tubes would be reduced.

I assume you are using the 3TF4 for lack of a 3TF7. Many other ballast substitution schemes abound. One entails jumpering the ballastube socket (a short piece of wire inserted into pin contacts 2 and 7) and then using 12BA6's to replace the PTO and BFO 6BA6's. Another is to replace the ballastube with a resistor of about 42 ohms, 5 watts.

The possibilities are myriad. Wei-i Li helps all of us by distilling the information coursing through this forum into his highly enjoyable work, "Pearls of Wisdom". To receive these Pearls from Heaven, goto r-

390a.net Click on "References", "Pearls of Wisdom", "Ballast Tube". Be amazed, be very amazed. I love the smell of Dead Horse in the Morning! It smells like.....Victory! Drew

From r390a at bellsouth.net Mon Dec 20 21:21:12 2004
Subject: [R-390] Seeking Ballast Help

Not R-390 ballast help.

Does anyone on the list know the value of a 6TF4 ballast? This particular ballast is in a WRR-2 receiver.

And speaking of WRR-2's, does anyone on the list know where I can get an manual for a NON-A model. Mine is unsuffixed, the manuals out there seem to all be for the A and B models of WRR-2/FRR-59. Not a lot of differences, but some - such as this ballast. Tom NU4G

From stevehobensack at hotmail.com Tue Dec 21 07:59:12 2004
Subject: [R-390] 6tf4 Ballast

Tom, a rule of thumb for ballast tube nomenclature: The first number usually means the current in milliamps the ballast tube will hold. The number at the end usually indicates the "head voltage" required for regulation. As in the 6tf4 , it will hold 600 mills of current and you need at least 4 volts over and beyond the tube voltage for minimum holding of current. 4 volts is at the edge of hold , ideal voltage would be a few more volts above 4 volts more than tube filament voltage. This may be explained at the amperite web page. I don't know the web address offhand. 73....Steve...n8ye

http://www.amperite.com/Uploads/Ballasts.pdf

Note: do not be enthused if you find your favorite number in their list of ballast tubes still available. Some time ago a quote from them about the 3TF7 was in the order of $115.00 each with a minimum order of 50 or a hundred. Roy

From k0ire at yahoo.it Wed Dec 22 11:59:52 2004
Subject: [R-390] Sale 3TF7

Sale new Tubes 3TF7 and other Tubes , for info send e-email k0ire@yahoo.it

From dmetz at ntelos.net Thu Dec 23 21:30:42 2004
Subject: [R-390] FS: Navy Books

While not exactly R390, the time frame is right of 1965 and 1972. Two books, $15+ UPS from 24401

1: ELECTRONICS INSTALLATION AND MAINTENANCE BOOK, ELECTRONIC CIRCUITS 1965 ((approximately 2" thick, with binder

2: ELECTRONICS INSTALLATION AND MAINTENANCE BOOK, REFERENCE DATA 1972 (approx 1" thick with binder.)

I hate to part with these but I must thin the place down a bit and hopefully someone on the list might

have a reason to collect them. thanks 73's dave

From odyslim at comcast.net Sat Dec 25 16:26:49 2004
Subject: [R-390] 30 & 45uf caps

Oooops, I meant the caps for the AF not the RF section. C603 & C606

Scott W3CV

From ToddRoberts2001 at aol.com Sat Dec 25 20:57:14 2004
Subject: [R-390] 30 & 45uf caps

Offhand I don't know of anybody selling them outright. If you have the original pair Chuck Rippel can rebuild the pair for $75 or if you are handy you can buy a new set of electrolytics and solder them into the AF Chassis yourself or you could make up a new set of plug-in caps if you have some 8-pin Octal plugs and some ingenuity. You can also keep an eye on eBay and see if something turns up there or keep advertising for a pair like you are doing here. Happy Holidays 73 Todd Roberts WD4NGG

From saglek at videotron.ca Sun Dec 26 10:11:07 2004
Subject: [R-390] 30 & 45uf caps

Scott,

Have a look at this site, http://r-390a.us/filter_capacitors.htm Walter provides details on rebuilding C603 and C606. I have used his procedure with a few minor changes. I drill and tap for a 2-56 screw. I use stainless screws rather than brass to mount a solder lug to the original aluminum post. The caps are soldered to the lug. Works fine for me. I have used variations of Walters procedure on other radio restorations. Al

From barry at hausernet.com Sun Dec 26 18:18:52 2004
Subject: [R-390] 390() vs 390(A)

Hi John & list

As we approach the new year, it is only appropriate that we, once again, contemplate the differences of the R-390A and the original version, the R-390, referred to in certain circles as the "non-A" for clarity's sake. However, this appelation tends to offend some on the basis of logic, and possibly some deep existential sensibilities.

Further influencing the situation -- the two receivers are very similar -- but very different -- simultaneously.

To tell the difference (given no tag or "nomenclature plate") the easiest thing to spot is the position of the antenna trimmer. If it's top dead center of the panel -- it's an "A". If not, not. There are some differences on the back panel -- the "A" has two terminals for the power cord with a metal cover if it isn't missing. The R-390 has a round, four-pin connector for a removeable cable.

There are a number of other outside differences. While the conversion scheme is basically the same, there is not a single module which is directly interchangeable. While some tubes are in common -- like twin 26Z5W's for rectifiers, the famous 3TF7 ballast (if not subbed out), much of the tube lineup is different and the overall tube count is higher, including a pair of 6082 regulators in the R-390.

One of the differences of primary interest to most -- The R-390 has L/C filtering, no mechanical filters. The R-390A has four mechanical filters. In the past, that has made the "A" version more popular -- and the fact that several times more "A"s were manufactured over the years from the early fifties, through the late 60's and a few in the 80's. R-390's were made in the early 50's, ending in '53, as I recall. There is a hybrid variant -- R-725? -- basically an "A" with a non-A IF deck.

There is also the R-391, which is basically the same as an R-390 with an electromechanical autotune mechanism added. There is an extra 8-channel knob, little window showing the current channel and special MC and KC knobs with locking keys. So ... which do you have? What are the other three? Happy Chrismas and Merry New Year to all. (think about it ;-) Barry

From richardmay at hotmail.com Sun Dec 26 19:15:13 2004
Subject: [R-390] AF Caps

Here is another ways to do it. Carefully peel back the crimp on the bottom of the can. Clip the wires and remove the tar and old caps. The best way I have found is after removing the base, boil the cap in water. You will have to dig out the mess. Once the can is clean, drive the old pins out, working from the bottom of the socket. . A wood board with a hole drilled in it makes it easy. Lay the socket on the board so that the pin will go into the hole as you dirve it out. Replace the pins with number 10 copper wire, leaving the ground pin just long enough so that when the can is replaced, the wire will not short to the can., This wire is the "piller" on which to mount the other caps. The other pins can be shorter. Once you have the new pins in place use epoxy glue on the cap side so that they will stay in place. Solder the new caps in place vertically. Replace the can and carefully bend the crimp back into place.

Sprague has available replacement axial lead caps that will fit in either the 45 or 60 mfd can. I don't remember the part number but I know that Newark Electronics and probably other major suppliers sell them.

A word of caution. DON'T plug the can into the AF deck with uncured glue. I did this and found out too late that the new copper pins slid up into the can. The second set I rebuilt, I made the pins a little long and clipped them to size once the glue was set. Good luck, I't not as hard as it sounds.

Richard May, W8FCW

From paul at pdq.com Mon Dec 27 13:46:11 2004
Subject: [R-390] 390() vs 390(A)

wrote: > There is also the R-391, which is basically the same as an R-390 with an > electromechanical autotune mechanism added. There is an extra 8-channel > knob, little window showing the current channel and special MC and KC > knobs with locking keys.

Don't forget the R-389, which is about as much alike as it is different. The frame is very similar to the R-390 frame (maybe the same, I haven't looked real closely yet), and uses the same IF, AF and PS. Early

R-389's used a PS with different output B+ wiring. Supposedly these were retrofitted so that PS's were compatible across the R-389/R-390 and R-391 (MOD-1, I think).

The VFO and RF decks of the R-389 are very different, and there is a rectifier stack for producing DC for the R-389 tuning motor. Oddly, the R-391, which also has a DC motor for tuning, doesn't have the rectifier stack. There probably wasn't room, if I had to guess. Paul

From roy.morgan at nist.gov Mon Dec 27 14:29:10 2004
Subject: [R-390] 390() vs 390(A)

>Don't forget the R-389, > >The VFO and RF decks of the R-389 are very different,

An understatement!

>and there is a >rectifier stack for producing DC for the R-389 tuning motor. Oddly, the >R-391, which also has a DC motor for tuning, doesn't have the rectifier >stack. There probably wasn't room, if I had to guess.

The auto tuning motors in the R-391 take MUCH more current than the tuning motor in the R-389. In the R-391, both the KC and MC setting mechanisms are moved by (separate) Motors and associated position setting mechanisms. The DC supply for that is external to the radio, and if I remember correctly, is about the same size as the radio itself. In the R-389, only the single tuning knob is moved, so the mechanical work (torque times rotations per minute) is much less. There is no presetting of frequencies in the R-389. The motor is there to assist the operator in moving the many many turns (up to 50) from one spot in the frequency range to another. Roy

From barry at hausernet.com Mon Dec 27 17:46:34 2004
Subject: [R-390] 390() vs 390(A)

wrote: > The auto tuning motors in the R-391 take MUCH more current than the tuning > motor in the R-389. In the R-391, both the KC and MC setting mechanisms > are moved by (separate) Motors and associated position setting > mechanisms.

Not so .. only one motor in the R-391. I have two of the beasts. Each one has a single motor made by Hamilton Beach -- and when they're running, it sure sounds like a Mixmaster run amok. (OK, Mixmaster is Sunbeam or whatever.)

The motor is located behind the panel at the lower left and drives a single shaft with three worm gears on it that runs horizontal across nearly the entire lower front. There are five major components -- The MC and KC positioners, the control module , a sealed relay, the single motor and an essential but not so major channel switch. The MC and KC positioners are identical except that the MC one has a detent on it. The Control Module includes a couple of wafer/rotary switches (some other stuff) and the indicator wheel with "1" through "8" on it which shows through the hole in the panel. There is a rather involved description in the manual of the logical steps. The whole cycle is triggered when the setting of the channel switch is changed from equal to the control module indicator to not equal. There are mating worm gears for the two positioners and the control module. The positioners consist of a stack of disks with indentations and mating spring-loaded pawls -- look like the guts of some kind of combination lock -- or maybe an old mechanical adding machine.

Basically, there are 7 "memories" and one extra. When you manually tune the receiver (keys must be loosened/unlocked), you are changing the MC and KC settings for the channel that's showing in the window. One rule is to never operate the autotune with the locking keys unlocked.

There is no electrical connection between the autotune system and the radio. The whole business meshes up to a standard R-390 RF deck. The aluminum casting behind the panel is special to provide mounts for the autotune components, motor gearing, plus protrusions in the casting with sintered bronze bearings ("oilite") for the worm drive shaft. In an R-390, there's mostly open space there. Originally, they hired Rube Goldberg to design the thing, but he couldn't work in such a small space. No room for the sliding pond, bass drum, pulley system -- let alone the chicken. ;-)

The R-391's have the same round 4-pin power connector on the back panel as the R-390. Two are the AC, one ground, and the fourth one is for 24 vdc for the autotune motor. As I recall, it needs 3 Amps continous, but surges to something like 5, so a heavier supply is needed, and 7 or so isn't a bad idea -- maybe necessary. It may need more current if the disks and pawls are gummed up, the contacts in the sealed relay are sticking, and the thing tries to tune past the 10-turn stops and wreck the RF deck. It's possible that the original power supply was rated higher to provide DC to more than one R-391, or an R-391 and a DC malted mixer. Anyway ... one motor -- whole bunch of other stuff, but just one motor. Barry

From barry at hausernet.com Mon Dec 27 19:06:47 2004
Date: Mon Dec 27 19:08:49 2004
Subject: [R-390] 390() vs 390(A)

Hi Roy & gang

Well, if you get one, YMMV. Odds are the autotune doesn't work -- and it's not a good idea to try it before overhauling the thing, no matter how tempting. Most owners of '391's use them like 390's and have never powered up the autotune. So, they've been sitting for ages. The switch contacts in the control unit are probably oxidized, and the stack of pawls -- they're like a sandwich -- are all glued together by the petrified lube that is needed to be super-slippery for the thing to have snowball's chance to work in the first place. Also, the thing probably needs to be re-synched -- after it's overhauled. It is impossible to walk this gizmo through manually in steps, though you can put a bristol wrench in the synch adjuster, lock the knobs down and rotate it. However, it's not a complete simulation as the relay and control unit aren't doing their things. It's all hard-wired together -- including the relay -- no socket.

So, having one offers no assurance of comprehending how it's supposed to work, let alone mastery. You have to walk through the manual explanation, and that's lacking. Actually, the equivalent manual section for the R-105 (ARR-15?) does a better job. The mechanisms are similar.

The best procedure is to open up whatever you can, degrease, clean contacts, re-lube, see if things move, set the synch. Then, make darn sure that the channel selector is set to the same number as shows in the window. Lock the locking keys down tight. Then apply 24 vdc to the 4th pin -- use an outlet strip to cut the supply if there isn't a handy switch. Then change channels --which will start the show. Even if it's working, you'll be startled at the noise and the gnashing of gears, slamming and banging. It is a wild experience the first time you see a '390's knobs turning by themselves. Both turn, then one stops, then the other turns. If it was past the point, it rewinds. After what seems like a few minutes (or hours), it will stop at some frequency. If it runs amok and tries to modify/remachine the 10-turn stop (to infinity), cut the DC.
The thing's a puzzle -- what's that saying? -- an enigma, wrapped in a paradox -- never could get that right, either. There was supposed to be an R-391A, but there wasn't. I suspect it was partly because by

the time they got around to it, there was some field experience with the first one. Also, it needs the beefier geartrain of the original item.

It's a good idea to take an 83 mg. aspirin about an hour before you start -- or a couple a' good snorts. It's scary. After we spend all the time cleaning, lubing, replacing broken clamps, synching, aligning, recapping, meditating over the ballast tube considerations, refinishing panels, re-stuffing plugins, etc. we have a tendency to treat these things with some delicacy and respect. The autotune mechanism doesn't know from that. If it isn't working right or not synched up, it may well try to tune your '391 into the '389 range -- or to 2.4 ghz -- or maybe even 5.8 to listen into the new cordless phones. Yup, it'll wreck yer deck -- if the vibration doesn't kill half your tubes. (Make sure the filament in your ballast tube is nice and flexible before powering up.)

Poll -- how many of you guys have R-391's with working autotuners? How many with non-working ones? How many unknowns? Actually, I think it was Paul who rebuilt his '391, right? Barry

From paul at pdq.com Mon Dec 27 21:40:13 2004
Subject: [R-390] 390() vs 390(A)

wrote: > Hi Roy & gang > > Well, if you get one, YMMV. Odds are the autotune doesn't work -- and it's > not a good idea to try it before overhauling the thing, no matter how > tempting. I agree!

> the knobs down and rotate it. However, it's not a complete simulation as > the relay and control unit aren't doing their things. It's all hard-wired > together -- including the relay -- no socket.

Fortunately, the two mechanical tuning mechanisms and the control relay in the center are three independent units. You can drop the front panel, remove the KC and MC mechanical tuning units and just work on the control relay alone until it and the motor appear to be working properly.

The KC and MC units are nearly identical, but one is tapped for another screw, if I recall - I forget, but I think it is for the MC indent lever.

> So, having one offers no assurance of comprehending how it's supposed to > work, let alone mastery. You have to walk through the manual explanation, > and that's lacking. Actually, the equivalent manual section for the R-105 > (ARR-15?) does a better job. The mechanisms are similar.

It isn't too horribly bad, as long as you understand the failure modes (some of which you mention here).

> The best procedure is to open up whatever you can, degrease, clean contacts, > re-lube, see if things move, set the synch. Then, make darn sure that the > channel selector is set to the same number as shows in the window.

Personally, I'd suggest starting with the motor and relay first. You don't need to pull any wires. Just drop the front panel, pull the two tuning units from the KC and MC side, then see if you can use the channel changing to do something (anything) reasonable with the motor, relay and channel indicator.

Put the tuning mechanisms back in only after ensuring that the slip clutch in it is free. From memory, I don't recall if you can do that easily. But making sure you've cleaned the whole mechanism of all crusty grease is a good step. I soaked mine for a week each in kerosene.

If the slip clutch does not slip, then you will discover a failure mode of the 391, which is that either the

gear driving the long cross shaft will strip (if the oilite bearings are loose enough), or you will start breaking things in the RF deck or both.

If the slip clutch does slip, then you're a whole sight safer, because the unit is designed to slip to a) prevent damage, and b) allow for the tuning to work (it tunes both KC and MC down to the low end 10 turn stop, and the slip clutch starts slipping in each tuner unit - that happens in association with the control relay to "reset" the tuning to a known spot - at the low end of the 10 turns).

> new cordless phones. Yup, it'll wreck yer deck -- if the vibration doesn't > kill half your tubes. (Make sure the filament in your ballast tube is nice > and flexible before powering up.)

I can't recall exactly which cam it is, but if the KC 10 turn stops aren't aligned, then the mechanical tuning can drive the cam to a point where the clamp may break. I believe if the stops are correctly set for both the KC and MC mechanism, that there isn't anything the autotune can damage in the RF deck.

> Poll -- how many of you guys have R-391's with working autotuners? How many > with non-working ones? How many unknowns? Actually, I think it was Paul > who rebuilt his '391, right?

Yup - got mine working - am working on another one.

Basically, if your RF deck 10 turn stops are in alignment, and if the slip clutches are free, you can't easily damage your 391 autotune. You'll know for sure if your slip clutches aren't free by the horrible gear grinding noise as the motor gear tries to strip the long shaft gear. Paul

From jetemp at insightbb.com Mon Dec 27 21:44:28 2004
Subject: [R-390] 390() vs 390(A)

Hello all,

I have a beautiful R-391, s/n 379, which I believe is one of the last made. It has the RF deck cans that are of the smaller dia slugs in the lowest bank that the later R-390's have. Since I obtained this unit, I have only tested it for power and have not got into restoring it yet. Any comments or advice about the autotune mech will be greatly appreciated. Looking forward to seeing more scoop about the autotune mechanism. Sincerely, Jim Temple Louisville, KY.

From mjmurphy45 at comcast.net Sun Dec 26 22:50:35 2004
Subject: [R-390] 390() vs 390(A)

Before we leave autotunes: I have owned an ARR-15 /R-105 RX and an ARC-2 XCVR and they both had very nice (and similar) autotunes and tube lineups for that matter. My guess is that they were sisters; contemporary mid 40's designs. The late 1930's autotune in the ART-13 takes the cake though. When I set that thing loose, it is a wonder to behold. I have a converted SCR-522 aircraft rig which had autotune, but I ripped it out in favor of local controls. Anybody ever fired up one of those VHF autotunes with the 832's and butterfly capacitors spinning up?? Mike Murphy WB2UID

From crips01 at msn.com Tue Dec 21 03:54:27 2004
Subject: [R-390] ballast tubes

I notice according to Amperite website's section on Amperite Ballast tubes<http://www.amperite.com/Uploads/Ballasts.pdf> (PDF) they still have the following ballast tubes in stock. 3TF7, 3TF7A, 3TF7B, 3TF7H. There was another site I have not re discovered which is devoted to the restoration of tube type guitar amp's. Many of these amp's used ballast tubes. One of the sites had the calculations for a substitution using an small incandescent light bulb and a resister for the a ballast tube. I am still looking..... Ken

From flash at skybird.biz Tue Dec 28 02:13:11 2004
Subject: [R-390] me radio ist bloken

I have an R390 that I got from the lengendary K1MAN. THe radio started developing an interment where the audio level would drop way down in volume, and a quick shake of the rack cabinet brought it back.
Now there is no Sig Meter, no audio, and nobody hear qualified to work on this.

This radio was fully restored by ChuCk Ripple. It always drew stares, and likely as not, the no code tech's found a machanical radio to be fasinated, and the amount of signals it got nothing less than astounding.
Such a good looking radio should NOT just be occupying a rack space, there is a duty to fill racjspace I believe Chuck is not taking on any 390a's. Is there anyone out there worthy of such a fine radio? I am open to bids And the reputation of the fikjs in this list. It seens there are a few tubes that do not seem to glow, is it a Ballast tube anomoly or anything? Gary WB8EOH I hate to ask this, but what does a milspec tube tester go for in this lifetime

From r390a at rcn.com Tue Dec 28 06:31:10 2004
Subject: [R-390] ballast tubes

Amperite lists them as available, but when you call a distributor they quote you over $100 per ballast.

>I notice according to Amperite website's section on Amperite Ballast tubes<http://www.amperite.com/Uploads/Ballasts.pdf> (PDF) they still have the following ballast tubes in stock. >3TF7, 3TF7A, 3TF7B, 3TF7H.

There was another site I have not re discovered which is devoted to the restoration of tube >type guitar amp's. Many of these amp's used ballast tubes. One of the sites had the calculations for a substitution using an small >incandescent light bulb and a resister for the a ballast tube. I am still looking.....

From rbethman at comcast.net Tue Dec 28 07:27:36 2004
Subject: [R-390] ballast tubes

Oh yes! One of the sources/distributors with a GRAND total of S-I-X (6) on hand, SAYS you can order up to 99999 of them. They are PRICED at $163.00 - - - E--A--C--H Think I'll stick with the 10W sand resistor backup when the last 3TF7 dies! Bob - N0DGN

From francesco.sartorello at virgilio.it Tue Dec 28 07:56:06 2004
Subject: [R-390] ballast tubes

It is so effective and neat to use two 12BA6 instead, that I refuse to buy a 3TF7 at 3 USD, not to

From ks1u at prodigy.net Tue Dec 28 08:26:22 2004
Subject: [R-390] me radio ist bloken

Gary:

Before shipping it off to someone it's probably worthwhile to do a few checks yourself. If Chuck completely restored it, it's unlikely to be a cap or resistor. I would pull the tubes in the audio section and make sure the pins are clean when you reinsert them. Then check all interconnecting cables in the same manner, twist and pull them off, check to see if there is any corrosion, and put them back on firmly. Depending on how many hours you've played the set since its rebuild, I'd just replace the audio tubes. Sending it off to anyone is going to cost some big change. If you don't have a tube tester, even a cheapy available at any hamfest or auction will at least give you a go/no go on the tubes. Also, a squirt of appropriate cleaner/lubrication on the switches wouldn't hurt. Good luck. George

From kgordon at moscow.com Tue Dec 28 16:18:10 2004
Subject: [R-390] me radio ist bloken

> I hate to ask this, but what does a milspec tube tester go for in this lifetime

Depends on the tester. I looked some up on that auction place a couple of days ago. A TV-2B/U was going for over $300. A TV-7 was about $150 less. A Hickock 539 was going for over $600.

Ya pays yer money and ya takes ur choice.

Personally, I like the TV-2 I have here. I also have a Triplett 3444 which I like a lot. Ken W7EKB

From tetrode at comcast.net Tue Dec 28 23:42:49 2004
Subject: [R-390] Synthesizers, was 390() vs 390(A)

Well, a communications frequency synthesizer must not only generate the desired frequency but must do it cleanly, meaning without adding noise sidebands AND reference sidebands. In a typical synthesizer the PLL bandwidth is usually made sufficiently high to knock down the VCO phase noise, but this is exactly the opposite of what is needed to attenuate the reference from frequency modulating the VCO; this would require using a loop bandwidth MUCH smaller than the reference frequency. It's the classic engineering example of conflicting requirements which in turn leads to increasing design complexity. Good modern synthesizers must use two and even three loops to achieve small tuning increments without generating all kinds of garbage off the side.

Sounds like the guys who designed the crystal synthesizer were able to make good reference frequencies, but they were probably full of mixing products and thus unusable directly. But by locking a high Q (thus low noise) LC VFO (not VCO) to them with an electro-mechanical feedback loop, it completely isolated the VFO from being modulated by the reference frequency. I bet the whole thing probably had an effective loop bandwidth of just a few hertz!

Electro-mechanical PLL's and FLL's are classic 1950's and 60's technology, just like the R-39x mechanical RF deck. Other related gear that made use of electro-mechanical tuning loops were the CV-

116 FSK converter and CV-157 SSB converter. John

From polaraligned at optonline.net Wed Dec 29 17:56:49 2004
Subject: [R-390] 390() vs 390(A)

Rick kinda suggested it would be in my-& the radio's- best > interests if I left it alone. Too many tales of R-391s eating > themselves have convinced me this is the right thing to do.-Sandy G. > C.H.(Sandy)Geiger III

If the radio is restored and properly assembled, why not fire it up? What is there that could go wrong on a properly restored Autotune? Is this just lack of confidence in one's work? Is there not risk to firing up any old radio after restoration? Do I ask too many questions? Scott

From chg111 at hotmail.com Wed Dec 29 20:20:32 2004
Subject: [R-390] 390() vs 390(A)

Well, for one thing, I don't have the-what izzit- PP-629 power supply to make the beastie run. ONLY one I ever saw went for something over $300 on You-Know-Where last fall. And yes, I guess you could make one up, but I have neither the skills or knowledge-or INCLINATION- to do so. The radio is an EXCELLENT specimen, I don't particularly want to take a chance on it's getting trashed. They only made, what, 1300 or so of them things, & sometime after I've long since taken my Eternal Dirt Nap, some radio nut who hasn't even been born yet will hopefully be enjoying this marvel of 1950s mechanical & thermionic technology. Much as we enjoy Stradivaiuses today. Sure, I'd like to see an R-391's Autotune run, just not necessarily MY R-391's Autotune.-Sandy G. C.H. (Sandy) Geiger III

From wjneill at lcc.net Wed Dec 29 21:37:50 2004
Subject: Fwd: [R-390] Synthesizers, was 390() vs 390(A)

One other proposed USN dual-diversity radio receiving set was, I think, the AN/FRR-49. It is pictured in the "radio receiving sets" section of an original nine-volume compendium of USN communication equipment dated around 1956 that I obtained from the USN Publications Distribution Center in Philadelphia about two decades ago. The set consists of two R-390( ) receivers coupled to, of all things, a AN/URA-8. Because there's a photo of the proposed set, I can only presume that someone somewhere thought this sucker would work. There's lots of other nifty things throughout the nine volumes and every piece of equipment is given a superficial description of its capabilities as well as FSN number, proponent agency (USN, DA, USAF, NSA, etc.) and appropriate TM's. Of course, where proposed equipment is depicted, there is a statement "no TM published. Bill Neill Conroe, Texas

From w2ec at attglobal.net Wed Dec 29 22:11:04 2004
Subject: [R-390] 390() vs 390(A)

Foolish enuff?? Them's fightin' words!! Actually, I must admit I don't find much use for mine in the auto-channel select mode, but what is the sense in having one if you don't use it occasionally? Pass it on to someone who will appreciate it and get a plain R-390. Here's a video of my military auto-select station (R-391 & ATC/ART-13), maybe someday I'll add audio:
"http://www.w2ec.com/Autotune.html"73, Ray W2EC

From ToddRoberts2001 at aol.com Wed Dec 29 22:20:50 2004
Subject: [R-390] 390() vs 390(A)

In a message dated 12/29/2004 8:55:54 AM Eastern Standard Time, chg111@hotmail.com writes:
Guys- I have an R-391, s/n 282, that I got from Rick Mish. Electronically, it is tweaked to the nines,as all Rick's restorations are, but I've never been brave-or foolish-enuff to fire up the Autotune. Rick kinda suggested it would be in my-& the radio's- best interests if I left it alone. Too many tales of R-391s eating themselves have convinced me this is the right thing to do.-Sandy G. C.H.(Sandy)Geiger III
Good advice Sandy. I feel the same way about the motorized tuning on the R-389. It was fun to watch it work once or twice but after seeing how fast it would spin the main tuning dial I just don't think it would be wise to use that feature day in and day out. I don't like to see that kind of possible wear and tear on the tuning mechanism if I can help it. I would imagine the same goes for the R-391 unless you absolutely positively have to see the autotune work. Just tune it manually and enjoy it for what it is - a fine example of engineering from the 50's era! 73 Todd Roberts WD4NGG

From eldim at att.net Tue Dec 28 00:21:20 2004
Subject: [R-390] 390() vs 390(A) vs 389

Hello Fellow Collectors, Operators, and Maintainers,

Just thought I'd throw this out for your comments, suggestions, etc. Since there is so little activity on the LF/VLF bands and my 389 has not been getting much exercise, I was wondering how much rework, modification, etc to bring it onto the HF Band? Has anyone attempted this challenge? In other words upgrade it to a R-390A. Hope everone had a wonderful Christmas, and a restful holiday. May the New Year bring each of you PEACE and PROSPERITY. 73, Glen Galati, KA7BOJ Tacoma, WA eldim@att.net

From mikea at mikea.ath.cx Thu Dec 30 11:12:03 2004
Subject: [R-390] 390() vs 390(A) vs 389

wrote: > Hello Fellow Collectors, Operators, and Maintainers,

Oh, my Goodness! Glen, you may just have thrown your ball at a hornet's nest. I'll _trade_ you an R-390A for your R-389, I will, rather than see you try to modify it. -- Mike Andrews

To all R-389 Owners,

The main tuning knob on this radio has a mechanical clutch built into it. Make sure that clutch is cleaned and operating properly. I have an R-389 in which the PTO is hopelessly munched (sob). I suspect it was from some hammer-fisted operator wrenching the tuning knob past the stop, or that the PTO had frozen water in it when the motor was engaged or the main tuning knob was forced.

It can ba a LOT of turns from one end of the R-389 tuning range to the other (up to 50), so that's why the motor-assisted main tuning in that radio. (The second motor in the R-389 switches the first IF stage automatically as you tune within either of the two tuning ranges. You can't do with out that motor that I know of.) Roy

From roy.morgan at nist.gov Thu Dec 30 12:07:34 2004
Subject: [R-390] 390() vs 390(A) vs 389

wrote: >...my 389 has > not been getting much exercise, I was wondering how much >rework, > modification, etc to bring it onto the HF Band? >Glen, you may just have thrown your ball at a hornet's nest.

Indeed. Shall we organize an attitude-adjustment posse to go visit the deranged fellow, remove the endangered treasure, and leave a nicely restored HF radio in stead?

>I'll _trade_ you an R-390A for your R-389, I will, rather than see >you try to modify it.

Of course, you *could* build a switchable converter to convert the HF bands down to the range of the R-389. Or just tune it to 455 kc and run the IF from a normal set into it.. OR! Just ship it to me. Heheh Roy

From tetrode at comcast.net Thu Dec 30 12:22:47 2004
Subject: [R-390] 390() vs 390(A) vs 389

Glen, I agree about LF it ain't like it used to be. But regarding modifying it, quite simply the radio would end up being destroyed, in a futile attempt to change a rare piece of radio gear into another piece that is commonly available. You could easily trade or sell that R-389 one for the equivalent of 2, 3, or 4 R-39xx depending on their condition. 73, John

From chacuff at cableone.net Thu Dec 30 13:10:28 2004
Subject: [R-390] 390() vs 390(A) vs 389

Glen,

I have put together the technical requirements for the R-389 upgrade to the R-390A after much evaluation of the design of both radio's.

1) The R-389 is shipped to my shop for the work.
2) The magical conversion takes place. (proprietary work of course)
3) A freshly restored R-390A and a check for $1000 is sent back to your location. (several valuable parts removed from the 389..the value of which is returned to the rightful owner of course)
4) Everyone lives happily ever after..or for 90 days whichever comes first.

That's the only way I can see it possible to do what you desire. Happy Holidays to Everyone!

Cecil Acuff
Gulfport MS...
Current home of:
8 R-1051's
6 R-390A's
2 SP-600's
1 SP-600VLF
1 SX-28A

1 Icom R-75/Kiwa & too many other Cats and Dogs to list... I'm in rehab I promise...

From barry at hausernet.com Thu Dec 30 13:39:53 2004
Subject: [R-390] 390() vs 390(A)

> It can ba a LOT of turns from one end of the R-389 tuning range to the > other (up to 50), so that's why the motor-assisted main tuning in that > radio. (The second motor in the R-389 switches the first IF stage > automatically as you tune within either of the two tuning ranges. You > can't do with out that motor that I know of.) > > Roy
>
If the tuning motor goes out, you can always use your reversable, variable speed drill. Just remove the knob, chuck up the drill on the shaft and go. Use a drill with an adjustable clutch, in case you're too slow on the trigger finger when you approach the stop.

For those suffering from '390 wristitis, a "two-gun" approach can work on your R-390 or R-390A. It will also give you some idea of what it's like to run an R-391 autotune -- on the cheap -- except for the part where it stops on one of the 8 pre-sets. But then, again, most '391's don't get that part right unless tended-to in advance. You will get a fair sample of the whine and clatter, though. Barry

From dpharr53 at swbell.net Thu Dec 30 15:12:34 2004
Subject: [R-390] Lankford SSB Mod Info

Does anyone have quick access to information on the Lankford SSB mod. I remember reading about it on some of the list archives, but I've been searching the archives all day and can't find it. I'm getting ready to pull the IF module out of my radio for some cap replacements and I thought I would go ahead and do the mod while I'm at it. Thanks, 73 de WD5JWY

From wewilson at knology.net Thu Dec 30 16:48:25 2004
Subject: [R-390] Lankford SSB Mod Info

Dennis, This may be the one you're looking for (about 1/2 way down the page). This adds two diodes underneath the IF deck, and is easily reversible. Walter - KK4DF http://www.r-390a.us

From tetrode at comcast.net Thu Dec 30 17:42:48 2004
Subject: [R-390] 390() vs 390(A), R-391

> Poll -- how many of you guys have R-391's with working autotuners? How many > with non-working ones? How many unknowns? Actually, I think it was Paul > who rebuilt his '391, right? > > Barry

Well Barry, I've got two of the 391 beasties, one has been given some attention and is working well as a 390, the other is still waiting in line. Both were missing the locking keys and the state of the autotune is TBD. On the one I worked on I did remove and open up the autotune boxes in the front - and yikes, talk about a box of complicated mechanical doodads. They of course were smothered in old dried grease so I had some fun scrubbing the mechanisms clean with WD-40 and oiling up the little oiler sponge inside. That's about as far as I got, after that I re-installed them and told myself I wouldn't attempt any further until I learned a lot more about how they work.

I also thought the MC detent in the 391 was very well done; it is a much better engineered mechanism than the little spring steel weenie that wears out in the 390 and 390A . Too bad they didn't use that design in all the radios.

Without a functioning autotune I would say a R-391 is definitely second to a R-390 in desirability due to the fact that the autotune mechanisms add a lot of extra drag to the KC tuning. It gives you about 1/4 turn of easy turning before it kicks in, and then the drag is much more noticeable.

Another item lacking here is a good 28 VDC power supply with enough oomph to drive the motor. Ideally what I'd like to get or build is a fully metered regulated supply with adjustable current limiting, that way I'd set the current limit to just above what the motor normally draws and the power supply would go into current limit if something went wrong with the autotune control and the motor hit a stop. It'd probably need at least 10,000 uF on the supply output to take care of the motor start-up surge current too.
Since I needed locking keys I bought a set from Hank Arney and they look real sweet. I tried inserting them into the knobs and into the innards of the autotune and they thread in nice and smooth to a point but then appear to bind up before the locking handle makes it down to flush with the knob face. Is this normal or do they really need to be screwed in very hard all the way down? Since I don't have any experience with using the autotune section I'm taking it real cautious here, don't want to beak anything! I'd appreciate some advice on this. thanks, John

From bipi at comcast.net Thu Dec 30 17:42:42 2004
Subject: [R-390] R-390A Video Subject Listing

Hi Gang,

Has anyone on the list made a subject listing of each of the 4 regular and 2 addendum R-390A videos? Everytime I go to find a specific piece of info after a period of time I can't remember which tape and how far in to look.

If anyone has done this, I would sure love to get a copy, preferrably by e-mail. If not, I will probably put one together at some point in the not too distant future. Thanks and Happy New Years to All! 73 de Mike K7PI

From roy.morgan at nist.gov Thu Dec 16 17:26:28 2004
Subject: [R-390] 390() vs 390(A), R-391

wrote: >Since I needed locking keys I bought a set from Hank Arney and they look >real sweet.
...appear to bind up before the locking handle makes it down >to flush with the knob face. John,

That means they are locked. Don't force it.

>Is this normal or do they really need to be screwed in very hard all >the way down?

Yes, it's normal. the end of the shaft pushes against some thing inside, it does not clamp the front of the knob to anything. Sounds just fine to me! Roy

From barry at hausernet.com Thu Dec 30 18:52:24 2004

Subject: [R-390] 390() vs 390(A), R-391

wrote: > Without a functioning autotune I would say a R-391 is definitely second to a > R-390 in desirability due to the fact that the autotune mechanisms add a lot > of extra drag to the KC tuning. It gives you about 1/4 turn of easy turning > before it kicks in, and then the drag is much more noticeable.

I've never noticed that. Hmmmm. KC positioner may need cleaning and more super-slippery lube.

> Another item lacking here is a good 28 VDC power supply with enough oomph to > drive the motor. Ideally what I'd like to get or build is a fully metered > regulated supply with adjustable current limiting, that way I'd set the > current limit to just above what the motor normally draws and the power > supply would go into current limit if something went wrong with the autotune > control and the motor hit a stop. It'd probably need at least 10,000 uF on > the supply output to take care of the motor start-up surge current too.

I believe there's quite bit of surge current. If I recall, when I used a metered supply, it was something like a peak of 7amps and down to 3 amp when spun up. A simple supply should suffice. You could even use a couple of 12 v. gel cells in series. A current regulated supply would probably not be a great idea as you'd have to set it either too low whereby it would interfere with operation -- e.g. stall at higher mechanical resistance points -- and afford no real protection set high enough for it to work right in the first place.
> Since I needed locking keys I bought a set from Hank Arney and they look > real sweet. I tried inserting them into the knobs and into the innards of > the autotune and they thread in nice and smooth to a point but then appear > to bind up before the locking handle makes it down to flush with the knob > face. Is this normal or do they really need to be screwed in very hard all > the way down? Since I don't have any experience with using the autotune > section I'm taking it real cautious here, don't want to beak anything! I'd > appreciate some advice on this.

As Roy already posted, no they should stop short of the knob. I'd guess between 1/4 and 1/8 inch. The clutch is engaged when the rounted tip of the key presses against the works inside. You tighten them very firmly and test by trying to turn the KC and MC knobs. When sufficiently tight, it shouldn't be possible to turn them. You don't want them slipping when the autotuner is running. Good luck! Barry

From drewmaster813 at hotmail.com Thu Dec 30 19:06:29 2004
Subject: [R-390] 390() vs 390(A), clattering away

Barry Hauser wrote: >If the tuning motor goes out, you can always use your reversable, variable >speed drill. Just remove the knob, chuck up the drill on the shaft and go. >Use a drill with an adjustable clutch, in case you're too slow on the >trigger finger when you approach the stop.

>For those suffering from '390 wristitis, a "two-gun" approach can work on >your R-390 or R-390A. It will also give you some idea of what it's like to >run an R-391 autotune -- on the cheap -- except for the part where it stops >on one of the 8 pre-sets. But then, again, most '391's don't get that part >right unless tended-to in advance. You will get a fair sample of the whine >and clatter, though.

Many years ago I added a spinner to the Kc (not kilohertz!) knob on my '67 EAC. That was way back before any of the '390x clan had become sacred objects, so I am hereby granted absolution. I used a Torrington needle bearing cam follower in a hole spotfaced and tapped near the knob's edge and it works quite well, perhaps a little too well. When rapidly cranking to QSY I get at least the clatter portion of that "fair sample" alluded to by Barry, so much so that I am afraid to crank very fast.

The Veeder-Root counter seems to be the source of most of the clatter. Drew

From bipi at comcast.net Thu Dec 30 19:20:21 2004
Subject: [R-390] OK - Help PTO Freq @ 8 mhz

Finishing up a RF deck rebuild and want to sync the PTO and dial calibration. Can't find it on the tape. Is it 2455 htz at a dial reading of 8 mhz (7+000)? Thanks 73 de Mike K7PI

From drewmaster813 at hotmail.com Thu Dec 30 19:38:00 2004
Subject: [R-390] Autotuners

Hello, Sandy Geiger expressed misgivings about firing up the autotune on his Mish-restored R-391:

>Guys- I have an R-391, s/n 282, that I got from Rick Mish. >Electronically, it is tweaked to the nines, as all Rick's restorations >are, but I've never been brave-or foolish-enuff to fire up the >Autotune. Rick kinda suggested it would be in my-& the radio's- best >interests if I left it alone. Too many tales of R-391s eating >themselves have convinced me this is the right thing to do.-Sandy G.

He cited Barry's observations: >It is impossible to walk this gizmo through manually in steps, though you >can put a bristol wrench in the synch >adjuster, lock the knobs down and >rotate it. However, it's not a complete simulation as the relay and >control unit >aren't doing their things. It's all hard-wired together -- including the >relay -- no socket.

I was able to manually operate the autotune and exercise the electrical portion of an ART-13 by mechanically disconnecting the motor from the rest of the autotune. With power applied and channel selected, the motor would run until I had turned the shaft (many turns!) to operate the limit sensing switch, whereupon the relay would pull in and the motor would reverse; running until I had turned the shaft enough(the other direction) to operate the channel position sensing switch (too lazy to go get the manual and see what they call those switches).

Yes, the slip clutches were frozen with gummed-up lubricant and I did not force the movement. Who knows what damage would have resulted had I tested under motor power. Disassembly, soaking in lacquer thinner, relubrication and reassembly corrected the problem.

I don't think I used a synthetic lubricant; the process will therefore have to be repeated in another 20 years or so.

There is a special tool for turning the ART-13 autotune line shaft; I did not have the tool but it was a simple matter to make one up.

It would be a simple matter to lower voltage to the motor to reduce the torque for testing purposes (for the R-391, back on topic, whew!).

I used an old Telco power supply salvaged from the junkheap for the 24VDC - no construction required there. Drew

From wjneill at lcc.net Thu Dec 30 19:38:10 2004

Subject: [R-390] 390() vs 390(A), R-391

I have 3 R-391's and one R-389 with working autotunes. I also have caged squirrels on amphetamines

From hbreuer at debitel.net Thu Dec 30 19:40:48 2004
Subject: [R-390] Dallas Lankford's articles

Hi, I stumbled across a couple of Dallas Langford's articles on the R-390A at a Norwegian website. Don't panic the files are in English.

http://www.kongsfjord.no Click onto "Dallas files"

Happy new year vy 73 Heinz DH2FA, KM5VT

From hankarn at pacbell.net Thu Dec 30 20:15:32 2004
Subject: [R-390] 390() vs 390(A)

My 389, both 391's and CV/286 all work fine. I am in the process of wiring my remote controller and the rest of the interface wiring to the control receiver so I can get my FRR/33 system up and running. Hank KN6DI

From: hankarn at pacbell.net (Dan Arney)
Subject: [R-390] 390() vs 390(A), R-391

RE: The locking keys. I s my understanding and seems to work fine if the skirt is about 3/16 from the panel.The pin then comes just to the face of the knob. Another way to set it is to lock the pine snugly with the knob set screw loose and the position the knob and tighten the set screws. The pins are made right to the drawing. The locking is done when the end point and threads just about bottom out. It is like a pawl/lever clutch locking system. Hank KN6DI

ARR/15 is same. ART-13 locks up slightly different with less effort but positive.

From barry at hausernet.com Fri Dec 31 11:09:04 2004
Subject: [R-390] Autotuners

Drew wrote: <snipped> > Yes, the slip clutches were frozen with gummed-up lubricant and I did not > force the movement. Who knows what damage would have resulted had I tested > under motor power. Disassembly, soaking in lacquer thinner, relubrication > and reassembly corrected the problem.

Careful checking, soaking, re-lubing. is generally in order with these things. Also, Dave Medley advises to check the motor on the '391 -- brushes, commutator, etc. I'm told there are motor repair shops that can service these still. May just require some cleanup around the commutator and brushes and lubricating the bearings. It would be good to know the correct lube to refresh those bearings - not only for '391's but for a vintage power tool, etc. Anybody know? It has to be something that soaks into the bronze without killing it.

> I don't think I used a synthetic lubricant; the process will therefore have > to be repeated in another 20

years or so.

The mechanical positioners, with sandwiches of rotating, rubbing pawls, might benefit from silcone lube, but that doesn't seem to be as popular these days. The stuff I'm thinking of was very thin and its primary attributes - super slipperyness AND does not tend to attract dust. For example, it was the lubricant of choice for those bars in line printers and selectric typewriters that the print heads traversed on. So it wasn't so much the long-lasting, non-gumming properties as minimum friction where large areas of metal were sliding and where dust could be a problem, as with paper dust and fallout from printer ribbons. The positioning units have covers, but are not sealed in a '391.

The worm drive goes through several sintered bronze Oilite bearings. These are porous bronze bushings that were permanently lubricated. But, "permanent" generally assumes for the "life of the tool" or whatever, not necessarily 50 years going on another 50. Those bearings were pre-soaked in a special lubricant -- but I don't know what. I have one '391 where a couple of bearings partially disintegrated ... with some bronze dust trails. New bearings are still made -- but there are dozens of sizes. The originals are pressed into (maybe glued?) the cast aluminum frame.

> It would be a simple matter to lower voltage to the motor to reduce the > torque for testing purposes (for the R-391, back on topic, whew!).

I doubt that it would work. The '391 needs some minimum amount of torque to actuate the contraptions or it will stall and malfunction.. However, you gave me an idea. Disconnect a motor lead. Hook up a zero center meter or DVM to the loose motor supply lead. Power it up and change channels. Use a good Bristol wrench (like an Xcelite) to manually turn the worm drive shaft in the correct direction according to the polarity of the meter reading. (There is an access hole on the right side and a spline socket in the end of the shaft for doing the synch procedure. Make sure it's a snug fit as you don't want to strip that socket.)
Offhand, I don't know which polarity corresponds to what direction, but that could be figured out from the manual. Part of the problem is that, under power, the thing moves a bit too fast to figure out what may be wrong and both KC and MC shafts may be turning at the same time. By hand cranking it, you can slow down to a crawl, look, listen and feel, at what should be the changeover or stopping points. Since the motor is not running, you can use a lower current supply -- anything strong enough to actuate the relay. The receiver itself can be turned off.

> I used an old Telco power supply salvaged from the junkheap for the 24VDC - no construction required there.

That' right -- improvise. You can also rig a separate 24 volt supply line and use it with a bench type P/S or temporarily borrow a supply from something else of adequate current rating. Chances are, even if the thing works, you'll only use the autotune on special occasions, or periodically to prevent "sticktion".

"Gentlemen ... Actuate your contraptions!" Happy New Year to all Barry

From fraserb at quasc.com Fri Dec 31 14:41:18 2004
Subject: [R-390] Tube life/replacement?

Since I'm in the midst of my annual winter AM BCB Dxing season, I had a thought about the life of the tubes in my R-390A.

How often were tubes replaced when in service with the various govt agencies? Were different tubes

replaced on certain schedules? Were tubes regulary tested or just pulled and replaced?

I use my R-390A for probably somewhat less than 200 hours a year. How long are the tubes supposed to last? How do you know when tubes are less than the minimum level required? Are there well known symptoms that indicate a certain weak tube? Lost of questions to start the new year!

From ham at cq.nu Fri Dec 31 17:30:54 2004
Subject: [R-390] Tube life/replacement?

Hi

We had a little thread going on this a while back. More or less to recap:

1) There are no "weak" tubes in the 390A design other than the rectifiers. Since most of the radios have been converted to solid state rectifiers by now this is not a big issue.

2) People seem to get amazing life out of a set of tubes in stationary service. Reports of 10 years of use in the mode you are running were not uncommon.

3) The world is awash in tubes for the 390A. Finding tubes if you have a failure is not going to be a problem. I probably have a thousand year supply sitting in storage. From what I have seen that's a small supply compared to others on this list ....

4) I seem to recall that I was going to come up with a simple tube tester for those who do not already have one. Another thing I need to get back to some day.

If you have an extra couple hundred dollars you can grab one of the military tube testers at auction. They are not a perfect way to check a tube though.

If you have a copy of any of the manuals they have a fairly complete voltage listing in them. Of course that assumes you have a voltmeter and some tube extenders. At least they are still pretty cheap to pick up.
Most of the tubes used in the 390A are used multiple times. This makes tube swapping a reasonable approach. If you have a problem, swap a likely tube and see what happens. If the problem changes you have found a bad tube.

I can see no reason to routinely swap out tubes. Any time you change a RF or IF tube you need to check the alignment. Also there is no reason to assume a new tube will be stable until you run it a while.
Take Care Bob Camp KB8TQ

From chacuff at cableone.net Fri Dec 31 17:31:53 2004
Subject: [R-390] Tube life/replacement?

Well I know many list members that leave there R-390's on 24/7. They seem to be happier that way...the radio that is. That's 8760 hours a year! At 200 hours a year for yours that would be over 43 years of equivilant use.

Now I would expect there would be a handicap for switching them on and off as you do as opposed to leaving the thing on so lets say you get 50% and round up that's 22 years. The owners that leave there

sets on 24/7 report several years of operation between failures. Looks like tubes only used 200 hours a year would theoretically last a lifetime.

Of course the thermal shock of switching them on and off may handicap the tube life way beyond 50%...maybe more like 90%.

Any additional thoughts from the group! Cecil....