

R-390 Reflector September '02 Edited

From w7itc@hotmail.com Sun Sep 1 02:26:46 02
Subject: [R-390] Electronic question

A question, I smoked four resistors in My TS5-SE. My fault, I did an idiot job tuning it. The resistors are on a circuit board controlling the grids, plates and modulation of the 6146B finals. no real harm, just have to dig through the resistor stash and install another set. The resistors in question are all 4000 ohms 1/4 watt carbons. The four are installed in parallel sets, the rule as I understand it is resistors in parallel are always half the lowest resistance, in this case it should be about 1000 ohms. Why do it this way. Why not just use a single 1000 ohm resistor. The only reason I can think of is it is a size thing. The area where this circuit board is located is on the bottom below the finals and there isn't much room. What say you out there oh great Guru's of the Order of St Videcon. Ken

From jbrannig@optonline.net Sun Sep 1 02:47:46 02
Subject: [R-390] Electronic question

Ken, I'm not clear on the function of the resistors. They may be in parallel for heat dissipation or inductance considerations. In any event, it is always better to follow the original design when replacing components, particularly in power RF circuits. Jim

From ham@cq.nu Sun Sep 1 15:03:51 02
Subject: [R-390] Electronic question

Hi,

This gets into the "strange but true" section of electronic components. Carbon comp resistors behave in an odd way at RF. You would expect them to get inductive or capacitive as frequency goes up but they don't. Oddly enough they simply get lower in value as frequency rises up to a couple hundred MHz. The data I have seen was from the 1940's and applied to values above a couple of hundred ohms.

It's been about 30 years since I read the paper but as I recall the drop off was at a different rate for different sized resistors. The net effect - replace carbon comps with carbon comps if there is RF on them. If it's a DC circuit then go for something that is less humidity sensitive. Take Care! Bob Camp KB8TQ

From DJED1@aol.com Sun Sep 1 15:54:21 02
Subject: [R-390] R-390 PTO calibration

The recent mail on adjusting end points reminded me of the specifications I've got, which give some insight into how the radio should perform: The original specs (for the R-390 circa August 1950) called for a readout accuracy of 500 cycles over the whole tuning range, and 0 cps after calibration at the nearest 100 Kc point. This was astounding for that day, and apparently too ambitious. A later spec, presumably done after they had built a few radios, called for 300 cps accuracy after calibration at the nearest 100 Kc point. Interestingly, the end points were allowed to be -1400 cps or +0 cps at the top of the readout, after setting the bottom at zero. Also, a separate tolerance for band change (4 Kc) was included. So if you're getting linearity of a few hundred cps across the entire range, you're doing good.

I don't know how well the units with the calibrator stacks hold up. I did adjust one of the Cosmos units to be good to 300 cps over the entire range. I recall I had to allow the end points to be off in order to get no more than 300 cps error over all 42 measurements at 25 Kc spacing. Ed

From DCrespy@aol.com Sun Sep 1 15:55:19 02
Subject: [R-390] Low IF gain problem

Phil and gang,

The Lankford mod does make the AGC more "aggressive". That is it takes less signal to get the same AGC action. Very strong signals are reduced more than they were before the mod. Dallas noted this in one of his HSN articles. It is a fairly obvious side effect.

I have done three radios with the mod, and have not experienced the problem you describe, however. The S-meter readings did not change significantly, so I do not think it is the mod. Unless... My mods have always been done with 1N4148 switching diodes. I suspect that rectifier diodes and some older general purpose diodes may be a problem. I have run into this on similar AGC mods on the R-388. Something to check? 73 Harry KG5LO:

From w7itc@hotmail.com Sun Sep 1 18:53:07 02
Subject: [R-390] Electronic question

Re: Carbon comp resistors and RF

This gets into why I find technological history so interesting. In this case it's the reason why something was designed in a particular way. A good example is the receivers of Hammerlund and Collins. Two engineering teams designing a device to do the same thing, and their solutions to get the job done; Fascinating! Kenneth W7ITC

From scott" <polaraligned@earthlink.net Sun Sep 1 19:59:06 02
Subject: [R-390] The 390 archives

> has spent several THOUSAND...(per lick) on brand new > tube based gear for Hi Fi.. and pays upwards of \$150 > for what he calls "Vinyl" (and I call a record...)

And these are the guys who are making the price of tubes and testers go through the roof. I bought a 539C tester a year and a half ago and overpaid \$500 for it. Now one in the same condition is going for \$1000. Crazy isn't it. All the audio nuts are buying this stuff up like mad. Scott

From TVComlGuy@aol.com Sun Sep 1 :53:03 02
Subject: [R-390] FS R-389

I have an excellent condition R-389 with all covers and original manual for sale for \$2500 plus packing and shipping.

Ron

From root@al.tirevold.name Sun Sep 1 23:41:39 02
Subject: [R-390] Shelby Hamfest Report

The pictures are posted at: <http://www.r-390a.net/Shelby02/> Enjoy!

From scott" <polaraligned@earthlink.net Mon Sep 2 00:51:16 02
Subject: [R-390] Shelby Hamfest Report

Boy it looks like you had a heck of a lot of fun Al!!! Did you bring home anything? Tell us about it.
Scott

From root@al.tirevold.name Mon Sep 2 01:32:51 02
Subject: [R-390] Shelby Hamfest Report

I had a hankering for a nice R-388, but none materialized.....after all I only have ONE of those.....

I did find a guy selling surplus stainless hardware and stocked up on all the sizes for the R-390A for about a buck a pound. I also scored black stainless rack screws for \$1/~100.

Saw Mike's very well-done recapping job on his R-390A IF deck and chatted with Al Parker and a few others. Mike's dinky-copper-tubing trick in a tight corner sure looks to me like a winning technique for getting a replacement cap into a niche! I wish it had not been raining and the light had been better - I'd have taken a few pics for the Y2K-R3 manual!

We R-390-types need to get better organized about meeting and chatting.... I heard that I missed seeing quite a few folks.

All my stuff is out in the garage drying out assisted by a dehumidifier. The cardboard boxes are still soggy and limp. I tried to wear my sandals this afternoon and left little red mud clods all over the garage. The Shriner's homemade biscuits and ham were spectacular as usual. Al

From redmenaced@yahoo.com Mon Sep 2 01:56:23 02
Subject: [R-390] The 390 archives

QUIT YER WHINING!! You just STOLE that T-368!! Joe

From tkinney@klinktech.net Mon Sep 2 01:51:31 02
Subject: [R-390] r-390a for sale

Stewart - Warner R-390a Mish rebuild, Manuals, Inrush protector, spare Fair Radio covers and tube shields, includes NOS 3tf7 (2) , 26z5w (4) tubes, Military Speaker and bracket from Fair, never unpacked, ug565A/U connector, in military wrap, ug971/U connector in military wrap, received back from Mish on 6/10/02, Will ship, can E-mail photos on request, \$800.00 for all plus shipping of your choice. My personal rig medical crisis forces sale, get this before it goes on Ebay. Tom KE9UE Tom Kinney

From rbethman@comcast.net Mon Sep 2 04:41:57 02

Subject: [R-390] Shelby Hamfest Report

I have to admit, the R-390A with the old Heathkit knobs is kind of intriguing! Bob - N0DGN

From chacuff@cableone.net Mon Sep 2 04:53:23 02

Subject: [R-390] Shelby Hamfest Report

I'll bet that MC change knob was a real bear to turn!

From Jim Shorney" < Mon Sep 2 05:21:21 02

Subject: [R-390] Shelby Hamfest Report

wrote: >The pictures are posted at: <http://www.r-390a.net/Shelby02/>

One of the bits in the Project-to-be pic looks like the RF deck in my Polarad spectrum analyzer... Jim Shorney

From jbrannig@optonline.net Mon Sep 2 11:29:24 02

Subject: [R-390] Shelby Hamfest Report

Thats it! I couldn't place the knobs.....

Impressive pick'ins. Much better than the collection of CB radios, Very old computer parts and Motrac radios that are the staple of local Hamfests. Jim

From scott" <polaralined@earthlink.net Mon Sep 2 12:13:10 02

Subject: [R-390] T-368E Transmitter

Hey Joe, like the lottery, you gotta be in it to win it! For all that don't know, I just picked up a nice Bendix T-368E on e-bay for \$611. It was a Fair Radio "checked" unit that the guy bought 8 years ago and never used. (I wonder what these went for 8 years ago at Fair Radio)

This is one purchase that my wife actually likes and was excited about winning, because I told her we will stop and stay at Hershey Park PA on the way to get the transmitter. Ya see, you just have to purchase something along the driving path of a place the significant other wants to go, make a stop there, and she loves you for making the purchase. I am getting good at this marriage thing. :-) Scott

From mahlonhaunschild@cox.net Mon Sep 2 12:23:02 02

Subject: [R-390] Re: Shelby Hamfest Report

Hey, Al, looks like you spotted the Heathkit "Indians" in the back of my pickup truck in the tailgate area, so we must have been within handshaking distance at one point. Wish I had known you were there; would have liked to chat for a bit & compliment you and the team on the Y2K manual.

By the way... I thought I had done a pretty thorough job of "casing the joint" and I don't recall but three of the pictures you have... did we go to the same hamfest? regards, Mahlon - K4OQ

From bipi@att.net Mon Sep 2 15:58:10 02
Subject: [R-390] T-368E Transmitter

Ya, but you better leave her in Hershey Park, PA when you go get the T-368E and load it in the truck! If she sees it before you load it, she will tell you to leave it there, get back in the damn truck and drive....I think you need a little more planning on this one! Great buy...way to go! 73 de Mike K7PI

From wf2u@starband.net Mon Sep 2 16:30:42 02
Subject: [R-390] T-368E Transmitter

I also bought my B&W T-368E (overhauled at Pirmasens Depot) about 8-9 years ago from Fair Radio for \$550. I think \$611 is an excellent price for a T-3! Good luck, 73, Meir WF2U
Landrum, SC

From w5or@comcast.net Mon Sep 2 17:38:46 02
Subject: [R-390] List Stats

R-390 List Membership Protocol Reminder

1. Stay on topic. The primary subject of this list is as stated in the membership home page, and was probably the very reason you joined the list. If you can't figure out what is non topic and on topic then you need to unsubscribe. An oblique reference to the R-390 will not qualify. Computer virus discussions are off topic.
 2. Be civil and courteous. Don't post messages to this list you wouldn't want your kids or spouse to read, or that you wouldn't say face to face. Edit your replies to a previous post to be concise - don't just blindly repeat everything. That wastes bandwidth and annoys most folks. Practice "net etiquette". Here is one of many references: <<http://www.albion.com/netiquette/corerules.html>>
 3. Understand the penalty box. If you misbehave, off to the penalty box you'll go, for read only access to the list, for a finite time, the length of which depends on the list admin's workload, travel schedule, the phase of the moon, your promises of atonement, and other factors. What is misbehaving? See 1 and 2.
- r-390-admin@mailman.qth.net

From roy.morgan@nist.gov Mon Sep 2 17:51:26 02
Subject: [R-390] Manual copies: HP 0CD and the older HP 0C

wrote: wrote: >>HP manuals are serial number specific. Please look at the first page for the >>numbers included, and post them.

HP 0 CD manual wanters: The manual I have says: Serials Prefixed: 960- Appendic C, Manual Backdating Changes, adapts this manual to serial no's: 960-77304 and below.

I will be copying the manuals for folks who have asked for them. Roy

From redmenaced@yahoo.com Mon Sep 2 18:39:39 02
Subject: [R-390] T-368E Transmitter

That's what I paid for mine, too. Another on E-bay went for \$900+, that's still cheap for what you get.
Joe

From redmenaced@yahoo.com Mon Sep 2 18:42:29 02
Subject: [R-390] T-368E Transmitter

BUT, If she helps load it,..... ya got a keeper!! Joe

From Mon Sep 2 19:47:55 02
Subject: [R-390] R-390A RF Intermod?

Hello all. After running my recapped R-390A for a couple days I have noticed that it has high IMD on the BCB band when tuned close to my two local stations, 1480 KYOS and 1580. In other words I can also hear them when I tune to KFBK 1530 and other stations in the same frequency area etc. I don't remember EVER having this problem with other R-390A's. This is the same set that "seems" to have somewhat lower gain in the IF section, though that may be my imagination. I'll know more when I get Don's radio done.

I have done a "preliminary" alignment on the receiver and usually follow that up with a very thorough "nit picking" alignment a week or two after I put them in service. The alignment seemed to go smoothly with no slugs noticeably out of line with the other slugs in the same rack. 73 de Phil KO6BB

From Mon Sep 2 19:40:58 02
Subject: [R-390] 6AQ5 Mod??

Hello All. Working on the 2nd R-390A (Dons machine). It has one dead and one very very weak 6AK6 in the audio section (explains why the Line audio didn't work.

I remember last time I rebuilt a R-390A I subbed 6AQ5's for the audio output stages. If I recall correctly all it entailed was changing the wiring on a couple tube pins (which I can figure out from the tube manual). Checking around I no longer seem to see this mod on the web.

If I recall correctly, the advantage was increased audio output. Downside was somewhat higher filament current which I think the Xformer can probably handle ok. What I DON'T remember is if the cathode resistor needed a change in value???

As I have some 6AQ5's and no longer any receiver that used them I thought I could save my limited stock of 6AK6's for the IF section. Thoughts? 73 de Phil KO6BB

From roy.morgan@nist.gov Mon Sep 2 19:59:40 02
Subject: [R-390] R-390A RF Intermod?

wrote: > high IMD on the BCB band when tuned close to my two local stations, ... This is the same

>set that "seems" to have somewhat lower gain in the IF section,

Low gain in the IF would mean that the AGC has got the front end at higher gain..even maybe well up toward wide open. This would certainly lead to more intermod. Having proper "gain distribution" in this radio (any, for that matter) is the key to getting best performance in such areas as intermodulation.

There are two very quick ways to spoil this:

- 1) Put a "HOT" tube in the front end (or other places).
- 2) Mess up the IF gain by setting it too high or too low.

It might be interesting to compare the AGC voltage in this radio with others on the same station and antenna. If you find the AGC voltage is lower, it's a clue that your front end is at a higher than needed gain setting. An interesting problem.. :-) Roy

From roy.morgan@nist.gov Mon Sep 2 :05:56 02
Subject: [R-390] 6AQ5 Mod??

wrote: >Working on the 2nd R-390A (Dons machine). It has one dead and one very >very weak 6AK6 in the audio section (explains why the Line audio didn't >work. > >I remember last time I rebuilt a R-390A I subbed 6AQ5's for the audio >output stages. If I recall correctly all it entailed was changing the >wiring on a couple tube pins (which I can figure out from the tube >>manual). Checking around I no longer seem to see this mod on the web.

Here are my notes from WB2ADT: I also have his schematics and other stuff.. Got this from some web page.

Introduction

The audio section in most receivers seems to be at best an after thought in the overall aspect of radio design. The R-390a is certainly not the worst of the bunch but can stand an improvement. Its definitely better than today's \$00.00 rigs with there three inch squeakers. Also having dual audio amps is one aspect of these receivers I've always liked. The line level section with its VU meter is perfect as is for driving sound cards, tape recorders, and such. This section was left as is.

So why bother with widening the bandwidth and reducing distortion? AKA improving fidelity. Some have the opinion that it should be left as is since the R-390a is after all a communications receiver and such things should have that touch to it.

My opinion is otherwise. We're so used to listening to crummy sounding output that it's become some type of a de-facto standard.

In receiver design its been pretty much a case of the guys designing the bullet proof frontends, highly selective IF stages, and signal processing circuits that get all the glory. The audio design is relegated to a novice engineer whose been instructed to use an existing, off the shelve module or IC and see what he can do with it.

So what can we expect from your new modified audio stage?

- Listening pleasure, high distortion and narrow bandwidths produce listening fatigue. Reducing it will keep you listening longer and enjoying it more.

- Honest signal reports, ever notice that the "sound" of all the signals seem to be about the same? Opening up the audio can produce some interesting results; e.g. Biff in Northern NJ has a pretty lousy sounding signal. Freddy down in Jonas, PA ssb signal seems about the same. Well, after the modification Biff's signal is worse than thought and Freddy should get an award for having a really ~~quality goes for commercial~~ quality goes for commercial and shortwave stations. Some could use some work and others have a clean signal. There's some really high quality programs produced on shortwave. Take advantage of it.

So on with the modification! Firstly a rundown of my self-inflicted rules.

- Any changes should be 100% reversible.
- Any new components must be affordable and easily obtainable.
- No new spares to be stocked.

The last I wasn't too lucky with. You're going to have to put an extra tube on the parts shelf.

Following is a rundown, stage by stage, of the changes. All the changes have some sort of reasoning behind them. Some look like madness and I really at times can't explain what I was thinking, everything does work well though. Here they are.

1st AF Amp (V601a)

A 5814/12AU7A wouldn't be my choice as an audio tube. Right out of the box its distortion is high. Things can be done to get it to an acceptable level, say 1-2%

The existing feedback loop was removed, this would be C601, R602. C612 can be removed if you have it in your audio deck. This was a mod in later receivers. If there its to boost the treble. Interesting, seems someone was trying to get a little extra out of this amp. C609 is taken out. It's just a hindrance for better bass, as is C602 which is replaced with a .1 uf 250 volt polystyrene capacitor. The bias on this tube depends on your actual voltages produced by the power supply in the receiver. Some sets have been solid-stated, some aren't and powerline voltages are all over the place. That's where the beauty of self-biasing comes in. But we're looking for less distortion. If one runs a 12AU7 at about -4 volts on the grid its a pretty clean sounding tube. So to hold it there I opted for fixed bias. How to get it? Easy. Put two LED's in series and use them to replace R604. Result is there's always -3.9 to 4 volts on the grid. The LED idea was someone else's bad dream, not mine. Works great!

AF cathode follower (V601b)

Didn't find anything to improve. No changes here. Just gives the other half of V601 something to do. I would have left this whole stage out, then again I didn't do the original design.

Local AF Amplifier (V602b)

I found the design of this stage to be rather interesting. A very high value plate resistor is used, along with a rather large amount of negative feedback. Also a small amount of regenerative feedback is employed also. I had to ponder about this setup for awhile before I remembered that some amplifiers used positive feedback to cancel out distortion by working one tube curve against the other. Not a bad idea, except in practice, between parts variation and aging, it never quit worked out to well. This technique was rediscovered several years ago by a tube amplifier designer, but has been around for 50-60 years, just not used to much. Anyhow R611 was replaced with a 56K resistor, R612 was removed, so was R615, and a jumper put in its place. Two LED's in series was used again for fixed bias on the cathode, eliminating R610. A 1.0 uf capacitor was substituted C605, which completes this stage.

Local AF Output (V603)

Here's where we ran into a sticky wicket. Replacing the transformer was one of the first changes I did. It was a better quality unit that matched my favorite 8 ohm speaker. It had a wider bandwidth. Boy, did the old 390a sound bad. This was before any other changes had been thought up. Opening up the fidelity brought up the old audio amp adage, high distortion, narrow the bandwidth. It works. In the original setup. After going over the output stage and even breadboarding it I couldn't get the distortion lower than 12%. Finally, after putting out a call on the 390a list I got my hands on the tube curves and some additional specs on the 6ak6. 16% distortion is the norm for this tube, about 10% with some feedback. As much as I tried I just couldn't get it down to where the audio was listenable. I even tried a single ended setup driving a push-pull transformer. This requires operating on the transformer using one primary winding on the plate and the other primary winding on the cathode. Interesting way of setting up an amp but it didn't do a thing for it. I also went against one of my rules of keeping it simple. Splitting a primary winding is no piece of cake. So I went on search for a better output tube. After much deliberation I choose the 6aq5. Wiring it as a triode keeps the distortion down, about 2 watts output is plenty for most listening, no opening up the chassis for a nine-pin socket. It's still plentiful and cheap. Need an extra spare though. Oh well, nothing's perfect. Ok, so basically we rewire the socket to accommodate the 6aq5. Remove the screen voltage wire from pin 6, insulate, and tuck into a safe spot in the harness. Clip the wire going from pin 2 to pin 7. Move the remaining wire on pin 7 to pin 2. Move the wire from pin 1 to pin 7. Add a 100 ohm 1/2 watt resistor from pin 5 to pin 6. Remove the 6ak6 if you haven't done so already and replace with a 6aq5. Remove R614 on terminal board and put a 15 volt zener diode in its place. That's about it for the output stage.

Transformer

My final selection was one out of my Junque box/room. You might have something around, if not the transformer in the parts list should be OK. Mounting was done by breaking off the left-hand tab looking at the primary. It was then bolted in diagonally and then wired up into the harness.

Speakers

I've tried several so far. If it sounds good on your Hi-Fi it will do OK with this audio change. Although 2 watts doesn't sound like a lot I've driven a small bookshelf speaker system that is a 2-way using a 6 1/2 inch woofer to plenty of volume. I also have a 12 inch full range speaker mounted on a 2 x 4 foot baffle. My favorite one is a Radio Shack 4 inch full range that's mounted in a 5x7x4 inch sealed box. This is one good sounding setup.

From W2ZR@aol.com Mon Sep 2 12:38 02
Subject: [R-390] T-368E

<<That's what I paid for mine, too. Another on E-bay went for \$900+, that's still cheap for what you get.>>

Cheap? I'll say! T-368's are extraordinary bargains for what you get. The smaller vacuum variable costs over \$800 new today and I don't even want to think about all the transformers? 73, Steve W2ZR

From jonandvalerieoldenburg@worldnet.att.net Mon Sep 2 21:15:04 02
Subject: [R-390] Pentium 4 Motherboard w/ Sovtec 6922 audio Tube

It's not a joke but just try and locate a dealer that has it, I must of spent a couple of hours with no luck.

Jon

From ai2q@adelphia.net Mon Sep 2 21:50:07 02
Subject: [R-390] Positive ground (slightly off topic)

Hello all:

Given the pool of technical knowledge on this list, I wonder if anyone can suggest a way to feed a typical HF mobile whip antenna (center loaded, with low-Z feedpoint) in an installation where the car's electrical system uses a positive ground.

I tried feeding a Hustler whip through a homemade toroidal coupling transformer in order to achieve DC isolation, but my transformer seems inadequate to achieve adequate coupling. I'm not interested in reversing the vintage car's system polarity. The transceiver is an Atlas-210X. Any thoughts? Vy 73, AI2Q, Alex

From billsmith@ispwest.com Mon Sep 2 22:19: 02
Subject: [R-390] Positive ground (slightly off topic)

How about coupling with large value capacitors (0.005, 0.01 mfd)? Transmit Mica caps should do the trick. You should also "ground" your rig with similar caps. I am assuming your rig is insulated from the automobile chassis due to reverse polarity (positive ground). 73 de Bill, AB6MT
billsmith@ispwest.com

From jbrannig@optonline.net Mon Sep 2 22:34:11 02
Subject: [R-390] Positive ground (slightly off topic)

Bill has a good idea, but perhaps you should re-think the installation. One stray wire and there goes the radio and perhaps some of the auto electrics. Jim

From redmenaced@yahoo.com Mon Sep 2 22:43:40 02
Subject: [R-390] sri for previous version

You'll pay almost that for a spare set of new tubes for it! Joe

From JamesMiller@worldnet.att.net Mon Sep 2 22:54:30 02
Subject: [R-390] Positive ground (slightly off topic)

Trade in that car for a real automobile with a negative ground! Then enjoy!

From anchor@ec.rr.com Tue Sep 3 01:48:24 02
Subject: [R-390] Shelby Hamfest Report

said: The pictures are posted at: <<http://www.r-390a.net/Shelby02/>> and then later listed some of his finds, etc.

He now has a group pic of 9 of us who made the traditional trip to the Shelby Fish Camp on Fri. The waitress used 3 different cameras we supplied, she must have only ckd focus on Tom Bridger's, mine was pretty fuzzy.

Here's my report: I got a beautiful SX-101A on Fri. Wasn't specifically looking for another one, but haven't had one for a cupla yrs, so couldn't pass it up at the price - was even able to pwr it up b4 buying - it works as geat as it looks. It would make a nice stn with the Viking Invader 00 that I also got. Only other find brought home was a nice Wandel-Goltermann selective voltmeter that heard m ssb sigs on abt 3ft of wire ystdy PM. Can use it as a selectable sideband adapter by feeding a rcvr's IF into it - nice for SP-600's, R-390's, etc., and hopefully will find other good uses for it.

Does anyone have a manual for the W&G AT-463 sel. VM? they were used in qty by ATT Long-Lines people abt -25 yrs ago for maintaining signal levels.

I sold my R-390A & HQ-170 after I had loaded them back in the van at abt noon Sat. (I left at 1PM). Sold Drake A-twins Fri., & delivered an HQ-180A on my way on Thurs. Also sold a little of the e-debris I had. 73, A1, W8UT

From multerj@bytehead.com Tue Sep 3 02:25:06 02
Subject: [R-390] Tubes

There is an interesting artcle on tubes in the latest issue of Invention and Technology magazine. There is discussion of why audiophiles like tube equipment. Also mention of tube receivers being used in Desert Storm.

From kurt.brandstetter@teleweb.at Tue Sep 3 07:04:11 02
Subject: [R-390] A bit off topic but - Shelby Hamfest Screensaver

Hello from Vienna !

If someone is interested. I made a screensaver from the pictures from the Shelby Hamfest 02 which where posted from Al T. You can download the zipped install file from:
<http://www.swl.net/oe1002419/Files/Shelby.zip> (about 2 MB).

Unpack it and click on the file. The installation does not write any file on your harddisk, it only copies a file named Shelby Hamfest 02 into your Windows directory. As with every screensaver you can change in the setup the size etc. of the screensaver. Its checked with todays update of AVP scanner and its sure its clean.

Perhaps you like it for a little time, than you can simple delete the file from the Windows directory. It was hard for me to see this nice equipment sold there. It would be worth a trip to the States, HI. Nothing like this here in Austria :-(((All the best and enjoy the toy ! Kurt -

From bill@iaxs.net Tue Sep 3 06:39:48 02
Subject: [R-390] Positive ground (slightly off topic)

These days, it is easier to isolate the DC. You could even do 6 volts in and 12 volts out, if the "vintage" goes back that far. Then you can ground the radio the way it was intended to be grounded.

Don't think a DC-DC converter is going to make much noise next to a vintage electrical system.
Regards, Bill Hawkins Sure is dry here on the list ...

From ai2q@adelphia.net Tue Sep 3 14:50:15 02
Subject: [R-390] Positive ground (slightly off topic)

Thanks for your idea Bill. I have been toying with something similar to what you suggest, insulating the base of the antenna (normally grounded), and using coupling caps. However, I want to use this as a multi-band set-up, and using caps may preclude that due to the different values of capacitive reactance on each band.

My other thought is to use an auxiliary battery, with a DPDT switch. In "normal" use, the second battery could be across the car's main battery, and get charged from the vintage car's generator. Then, when I throw the DPDT switch, I could ground the negative terminal of the secondary battery, and feed the positive voltage to the rig. I may wind up doing that. Vy 73, AI2Q, Alex

From ai2q@adelphia.net Tue Sep 3 14:52:53 02
Subject: [R-390] Positive ground (slightly off topic)

Hi Joe! I didn't want to get too far out (far off the topic), so I skirted mentioning the car. It's a 1960 Austin-Healey 3000 roadster. My Collins KWM-1 would really be appropriate in it, but the little Atlas 210-X seems like a more practical choice. Vy 73, AI2Q, Alex

From ai2q@adelphia.net Tue Sep 3 14:54:06 02
Subject: [R-390] Positive ground (slightly off topic)

Ya done good Steve. It's a 1960 Austin-Healey 3000 roadster. Vy 73, AI2Q, Alex

From wf2u@starband.net Tue Sep 3 15:43:13 02
Subject: [R-390] Positive ground (slightly off topic)

You can use high quality high voltage transmitting-type capacitors, high enough in value that they present a negligible impedance in the lowest RF frequency you're going to use. A good 5000-10000 pf cap would work fine (or a few lower capacitance ones in parallel - this would reduce the inductive reactance of the capacitors even further). 73, Meir WF2U Landrum, SC

From tbigelow@pop.state.vt.us Tue Sep 3 16:12:55 02
Subject: [R-390] Shelby Hamfest Report

Al - Thanks! Sure is nice to see all those beautiful rigs sitting there for sale on tables. Gives us all hope!
73 de Todd/'Boomer' KA1KAQ

From jlap1939@yahoo.com Tue Sep 3 16:16:04 02
Subject: [R-390] Audio "Nuts" and Langford AGC. Mod.

Hello Friends, Wanted to comment on the audio craze, and its' implications. Several commented on this in the reflector, and I had a few personal comments as well.

It seems to me that my receiver mon. is ideal, and that the sound is great for its' purpose. The point in good communications is highly readable content, and Hi Fi has little purpose in voice and code communications. My unit passes from about 150 or so, to a few thousand, and it sounds GREAT. At the present, it is on the SP 600, and I can read most anything, including hard to hear pirates..(But not as good as the 390, make no mistake....)

Non the less, it is nice to have a "big" sound, and I know many are seeking this, as well as the "warm" sound achieved with real high quality tube gear including new items. In checking material in various "archives" you will find a lot of suggestions, and I believe it remains a personal choice. These range from the professional additions to build it yourself efforts. Much has been written about Sennheiser, Sherwood, Koss ESP, Studio grade whatever; AND some that improve the response over TIME..like the Langford (and Mish) AGC setups, and the Sherwood unit, which are, it seems, highly regarded. (There are many other systems as well) I only mention a few I was reading about last night...(archives)... The improving for personal hearing and reading of the SIGNAL would seem to me to be the best way to go...

My concern is on the radio and the range of freq. that it actually passes. (Many even use the term, "recoverable" audio, which leaves a lot to be desired in terminology). The fact is that you cannot "recover" freq. that are not there in the first place, and the known specs. of the r-390 series would suggest that the range of freq. passed is very small...(Anyone know correctly, that range?) I do know that a nice "hi fi" system seems to make the sound "nicer" but could it be the result of either more "smoothness" in loud areas or just "bigness" of sound? I simply don't see how you can get freq. resp. that was never there to begin with..(Maybe it is also the result in some cases, of "adding to" the sound...)

On the other hand, if you can really obtain a "syncro" method, then you are helping the signal, as is the case with really nice and correctly designed AGC systems, some of which are quite elaborate. (Yet I have never really complained in my own mind, about either the 390 or 390a). Both are great TO ME, in AGC action.. The 390 in particular due in part to the improved sound with the center response position available...

Sorry (really), that this is so long, so I will end by asking for comment, and saying that for me being able to read well, any material I hear, is my main hope when I listen. When I want "big" sound, I go and listen to my (expensive, for solid state) stereo.. Regards, John

From tbigelow@pop.state.vt.us Tue Sep 3 16:16:21 02
Subject: [R-390] The 390 archives

Yeah, if I'd been in a better place financially....too many new toys lately, though. No complaints here, just the usual envy... Boomer KA1KAQ (o:

From cbscott@ingr.com Tue Sep 3 16:36:25 02
Subject: [R-390] RE: Shelby Hamfest Report

Saaayyy, is that an 8-track player advertised for sale?!?! <http://www.r-390a.net/Shelby02/02-nc-183.gif>
Barry(III?) - N4BUQ

From Tue Sep 3 :54:18 02
Subject: [R-390] RF IMD Problem SOLVED!

Hello all. Well, today I decided that I was going to "solve" the IMD problem that I was experiencing, come H#! or high water (and that's not swearing)!

So, I pulled it out of the listening position and put it back on the repair table, no easy thing since I "nearly" pulled my back out on Dons unit yesterday.

First thing I noticed is that I only had the IMD problem when using the sloper 60 foot long sloper antenna (with 2 loading coils), not on the vertical. IF a receiver has ANY IMD problem at all it will show up on this antenna as it is resonant at 1550 and I have two strong local stations on 1480 & 1580kHz, so that didn't surprise me any.

First thing I did was check the RF gain control action. While it lowered the gain of the receiver it had no affect on the IMD at all, things were still a jumble at the high end of the BCB. So, I figured, AHA! It is being generated BEFORE the first RF amplifier tube. I disassembled the relay, cleaned it and it's connectors with De-Oxit D5, No affect. Cleaned the tube socket pins of the RF amplifier and first Mixer, no affect. ALL wafer switches, coil socket pins and tube sockets had been previously cleaned and Caiged while the RF deck was out.

NEXT, out of desperation I changed the RF amplifier, 6DC6 tube with one borrowed from Dons Receiver. EUREKA!!! IMD totally gone AND the S meter moved from 80dB to fully pegged on my local station (as other R-390A's have done in the past)

What I DON'T understand is this. These two tubes checked IDENTICALLY in the B& K emission tester, both checked IDENTICALLY for gain in my receiver at 21MHz. Neither test shorted or gassy! RF GAIN CONTROL had no affect on the IMD. What really messed up my thinking was that since the RF gain control didn't affect the IMD the RF amplifier must NOT be the culprit.

YOUR THOUGHTS ???

So anyway, while I have it out on the table I'm going to go ahead and do the critical "Nit Picking" alignment that I usually don't do until a set has been in operation a week or more. That'll save pulling it out again. 73 de Phil KO6BB

From David_Wise@Phoenix.com Tue Sep 3 21:09:03 02
Subject: [R-390] RF IMD Problem SOLVED!

> From: Philip B Atchley [mailto:]

I have no diagnosis for you, Phil, but I hope you keep that tube around so others on the list can play with it. I'd love to know what it's doing. 73, Dave Wise

From Lester.Veenstra@lmco.com Tue Sep 3 21:10:37 02
Subject: [R-390] RF IMD Problem SOLVED!

Yes, I have long maintained that the only valid tube tester is the receiver (R-390 or R-1230) it's self.

Swapping around a set of "good spares" frequently shows which are critical in one location, and in another location, there is no difference in function between any of them.

Another phenomenon of such a swapping exercise is that pulling the in-service tube out and swapping in from the "good spares" set will show improvement, and then double checking with the original tube will show the same improvement. At that point it is time to reach for the De-Oxit. Les (K1YCM/3)

From pbigelow@us.ibm.com Tue Sep 3 21:16:07 02
Subject: [R-390] RF IMD Problem SOLVED!

Hello, Goes to show that the best "tube checker" is the actual circuit! Best regards, Paul Bigelow

From billsmith@ispwest.com Tue Sep 3 22:05:00 02
Subject: [R-390] RF IMD Problem SOLVED!

My guess is the "bad" tube is oscillating. Might be interesting to put it back in and test with a GDO, a field strength meter or another receiver.

Good hint, though, as I still have a lurking IM problem with my receiver, or did at last check. 73 de Bill, AB6MT billsmith@ispwest.com

From Walter Wilson" <walter@r-390a.us Tue Sep 3 22:16:55 02
Subject: [R-390] REF: Solid State R-390

Check out <http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item1378073548> for a solid state R-390A. I notice he makes no large claims about the performance of this beast, suggest someone might use it as a conversation piece or a parts rig, but does state "the radio does play." It looks like all tubes and HV and LV supplies are gone, and it runs on 12 VDC. If someone on the list gets this radio, I'd sure love to know how it measures up. I wouldn't expect much, but perhaps I'd be surprised. Walter Wilson - KK4DF

From Barry Hauser <barry@hausernet.com> Tue Sep 3 22:43:08 02
Subject: [R-390] RF IMD Problem SOLVED!

I'm no thermionic emission engineer, but I can tell you there are toobs and there are tooobs. They have various mechanical characteristics and foibles -- not to mention a few nuances thrown in. I don't know if a mutual transconductance tester would have shown this up -- probably not. But I have a hunch.

Put the IMD 6DC6 back in and let things warm up. Tune around the subject frequencies and gently tap the tube. There's some chance that this tube has also gone microphonic, or you may find some fluctuation in the IMD action. Most of the military tube tester manuals have a version of YMMV disclaimers -- "the only true test is in the actual equipment" or words to that effect and offer the suggestion to try another tube if a circuit is suspect.

If this "works" or sheds any light on the situation, credit for tube swapping goes to the tube jockeys of yesteryear -- the ones who made house calls with tube caddies. If the tap test works, credit goes to early Neanderthal "technicians" who developed the "if in doubt, hit it with a stick" repair and diagnostic method. (Hey, it worked with fire ;-) Barry

From redmenaced@yahoo.com Wed Sep 4 00:22:17 02
Subject: [R-390] RF IMD Problem SOLVED!

> NEXT, out of desperation I changed the RF amplifier, > 6DC6 tube with one >

Do you have a tube tester that has headphone jacks on either side of the SHORTS light? Like a TV-7 or TV-10?

I'd sure like to know if that tube SOUNDS like it has problems, especially when tapped with your finger at each SHORTS setting. Where's one of those little rubber hammers when you need one? How did it perform under the LIFE test?

We have to find a way to make that problem show up on a tester. Joe

From wwarren1@nc.rr.com Wed Sep 4 02:52:38 02
Subject: [R-390] Input impedance of R390A

Has anyone actually measured the input impedance at the balanced feedline connector of the R390A? Yes, I know they specify 125 ohms as the working impedance for the antenna/feedline, but that doesn't mean that the actual input impedance looking into that port is 125 ohms. I'm pretty sure they don't specify a conjugate match (then meaning that the input impedance is 125 ohms). So the question stands, has anyone measured the input impedance at a number (even one) frequencies. Curiosity still gets to this cat!! Tom, W4PG

From tkinney@klinktech.net Wed Sep 4 02:18:08 02
Subject: [R-390] R-390A for sale

Last Chance at bottom price before it goes into storage. 100% Stewart Warner, \$400.00 Mish rebuild done 6/02, NOS spare tubes, Speaker, Manuals, Inrush protector, RF connectors, etc. Digital photo available \$700.00 plus shipping. Tom ke9ue

From roy.morgan@nist.gov Wed Sep 4 03:38:59 02
Subject: [R-390] Input impedance of R390A

wrote: >Has anyone actually measured the input impedance at the balanced feedline connector of the R390A?

Yes. Dallas Lankford (I think) told me not long ago that he had done such measurements. The values varied from band to band and across each band. The numbers were roughly from 80 ohms to 350 ohms. I don't remember if he did reactance measurements ($R + jX$) or not.

My suspicion (not having done it ... yet) is that the input impedance will vary according to the way the input circuit is tuned and according to the mechanical alignment. So a set of measurements would not hold after you did an alignment on the front end. Roy

From keng@moscow.com Wed Sep 4 04:55:19 02
Subject: [R-390] WTB: Collins-built IF module for R-390 (non-A)...

Anyone have one of the above they would be willing to part with? I need it to restore Collins-built R-390 serial number 22.

Any help would be greatly appreciated. I tried Fair Radio Sales. Phil told me that as far as he knew, they didn't have any complete ones, but he is checking. Ken Gordon W7EKB

From keng@moscow.com Wed Sep 4 04:58:19 02
Subject: [R-390] INFO: Rancourt's address or telephone number...

Does anyone know if George (?) Rancourt still has any R-390 parts for sale? Is he still around? I haven't heard from/of him for a couple of years. I think he lived in Massachusetts. Ken Gordon W7EKB

From jamminpower@earthlink.net Wed Sep 4 05:11:34 02
Subject: [R-390] Input impedance of R390A

I posted on my website (with permission) Dallas Lankford's dissertation on noise and sensitivity of the R-390A which includes an excellent discussion on the input impedance of the receiver. Tune your browser to here: <http://www.jamminpower.com/jam/main/noise.jsp> and scroll down to the bottom half of the page. Enjoy! -- www.jamminpower.com James A. (Andy) Moorer

From drewmaster813@hotmail.com Wed Sep 4 17:42:12 02
Subject: [R-390] Re: IMD

Phil,

The B&K emission tube tester will only catch gross defects: shorts, gas, poor cathode emission. It will not, as some testers will, test transconductance, the ability of the tube to amplify. Many of the transconductance testers only test a pentode such as the 6DC6 in triode-connected mode. The only "tester" which will truly simulate the conditions found in an R-390a is an R-390a. The shorts function of the emission tester will allow you to disqualify from further testing those tubes which could damage your real tester-the equipment that the tube will be used in.

Parasitic oscillation in the 6DC6 can be caused by a defective C227, that stud-mounted small can next to the 6DC6. There also was a production mod which added a 68 pf cap right at the tube socket, in parallel with C227 thus ensuring good cathode bypassing. I had trouble with C227 in my '67 EAC causing intermittent oscillation as the antenna trimmer knob was turned. Not all 6DC6's tried would oscillate. I also noticed lower gain on the lower bands. Replacing C227 (difficult because of tight space) cured the problems. Drew

From Wed Sep 4 19:18:52 02
Subject: [R-390] Cosmos PTO question

Hello all.

Well, I still have Dons R-390A on the test bench being worked on. This is the receiver that has the Cosmos PTO. As it turns out this sucker has the endpoint out by about 11kHz, and I thought the 6kHz on my Collins PTO was terrible before I corrected it!

Anyway, I read through the Cosmos setup that I downloaded and it looks like a REAL pain in the rump to align. I 'thought' that there might be an endpoint adjustment separate from the linearity adjustments and so removed the cap screw. Apparently this is NOT the case. But I'll ask anyway.

QUESTION: Is there a way to set up the endpoints separate from the linearity adjustments? 73 de Phil KO6BB

From Walter Wilson" <walter@r-390a.us Wed Sep 4 22:11 02
Subject: [R-390] Cosmos PTO question

Phil,

Yes, there is a single linearity adjust screw to the right of the big screw that covers the linearity screws. It's more behind the can than in the Collins PTO. You'll probably only get about 3 to 5 KC adjustment out of the endpoint adjustment screw. Cosmos PTOs usually require removing one turn from the endpoint adjust coil, which requires taking the cover off the PTO to get inside and CAREFULLY making removing one turn from this coil. One turn is usually good for about 10 KC adjustment. I have had one Cosmos PTO where removing a whole turn was too much, but it sounds like yours needs about one whole turn removed.

Of course after you've gone to all this trouble, you'll probably also want to tweak the linearity screws.

I personally love having a Cosmos PTO in my own rigs, but they do require more effort. But once set, the linearity is better than any other, because of the ease (relatively speaking) of the linearity adjustments. Walter Wilson - KK4DF

From roy.morgan@nist.gov Wed Sep 4 22:33:38 02
Subject: [R-390] Cosmos PTO question

wrote: > Cosmos PTO. >QUESTION: Is there a way to set up the endpoints separate from the >linearity adjustments?

Below is an earlier post from Tom Marcotte which indicates that changing the turns on the corrector inductor, or making a new inductor is the thing to do. I suspect that getting the thing out of the case and locating some wire the right size is the hardest part of this procedure. (Apparently the corrector disk runs the slug of the corrector inductor in and out as the thing goes through its range.)

Tom may well have a response.

If you are loathe to take the thing apart, email me. I might be talked into working on it for you. Roy Who recently got an unused Cosmos.

From courir26@yahoo.com Wed Sep 4 22:39:06 02
Subject: [R-390] Cosmos PTO question

Phil: Yes, the Cosmos has two caps, one for linearity and one for endpoint. When looking at the front of the PTO, the cap to the left gives access to linearity.

Behind the transformer you'll find the cap on the right. Under this cap will be a screw that adjusts endpoint. You do this one first, however 11 kcs will require removal of a turn from the endpoint adjustment coil.

This will require opening of the PTO to get at the coil.

Last time I did this I just made a new coil with one less turn and replaced the old one with the new.

After removing a turn, the PTO should have new life and you'll be able to get 1000 kcs in ten turns.

The thing will drift in a predictable direction (I'll avoid the use of words like "long" and "short" because this list has long and short word police, equally rabid about "their word" :-)

What I do is give the thing about 1000.5 to 1001 kcs in ten turns to avoid having to go back in there within the next 12 months. One extra kcs should last you a few years, after which the thing should be right on the money (like a stopped watch I guess!).

Linearity adjustment is a whole nother project. You can pull down some instructions from Chuck Rippel's website. Cheers Tom N5OFF

From jlogin@mindspring.com Wed Sep 4 18:32:53 02
Subject: [R-390] AGC..Z503 stuck slug

Hi, Working on a 390A with low agc voltage. As 455kc signal is increased the agc voltage goes from positive 1v to negative but take plenty of signal. Checked everything in both rf & if decks. All components looked ok. So tried to peak Z503 and seemed to work but slug seemed stuck after a few turns. Put some WD on threads and tried again with plastic tool...it broke off...really feel bad about that! Any suggestions....or someone out there willing to part with a replacement? Thanks & 73 Bob, AA8A

From jlogin@mindspring.com Wed Sep 4 16:18:10 02
Subject: [R-390] AGC..Z503 stuck slug

Hi, Working on a 390A with low agc voltage. As 455kc signal is increased the agc voltage goes from positive 1v to negative but take plenty of signal. Checked everything in both rf & if decks. All components looked ok. So tried to peak Z503 and seemed to work but slug seemed stuck after a few turns. Put some WD on threads and tried again with plastic tool...it broke off...really feel bad about that! Any suggestions....or someone out there willing to part with a replacement? Thanks & 73 Bob, AA8A

From billsmith@ispwest.com Wed Sep 4 23:47 02
Subject: [R-390] AGC..Z503 stuck slug

If you can get the pieces out, carefully put them back together again with super-glue. Don't use much glue, and make sure they fit together as tightly as possible. Properly repaired, the slug will be as good as new. 73 de Bill, AB6MT

From djmerz@3-cities.com Thu Sep 5 00:12:37 02
Subject: [R-390] Cosmos PTO question

Phil, I did the "remove a turn" thing on my Cosmos pto per the description by Tom. Getting into the unit was pretty straightforward after looking at the nice pics that were posted by Jim Miller N4BE of the innards. I removed 1 turn and brought a 10 khz error down to within 1 or 2 khz, which was good enough for me. I haven't had any problems with the pto, though I haven't really checked it carefully since, Dan.

From Thu Sep 5 01:59:44 02
Subject: [R-390] Thanks all (Cosmos PTO).

A big thank you to all who had suggestions for the Cosmos setup. There is a lot of knowledge on this list. 73 de Phil KO6BB

From jonandvalerieoldenburg@worldnet.att.net Wed Sep 4 17:56:59 02
Subject: [R-390] RE: Shelby Hamfest Report

HEE HEE - You'd think so.... You should have heard the guys wife when she called me the day after the poker game you think it had cost a fortune (it was 2 days old). The guy called "pot" in a game of "between the sheets". He had a 5 & a queen showing against a pot of \$1, we made him put up collateral as he onley has \$30 cash, he offered the recorder (we wher at his home, his wife was at work) . He drew a 3 ! I won the next hand calling pot with a 7- King showing. We folded the game and I left with the money and the recorder. ! 73's Jon AB9AH

From Thu Sep 5 01:57:23 02
Subject: [R-390] I'm a lucky fellow! (Cosmos PTO)

Hello all. Earlier I posted a question about a Cosmos PTO that is in a receiver I'm fixing up for another ham (couldn't find the end point screw).

Any-hoo.... After posting the question and before any answers came in I did finally find a reference to said adjustment. These old eyes aren't what they used to be and I missed it when I examined the PTO (and the cap screw was missing too).

This PTO was over 11kHz "wide" and general consensus was that I'd probably have to remove a turn of wire.

Having to "remove" the PTO to get to the end point adjustment with anything that I had (Jewelers screwdriver) I decided to give it a shot anyway. I turned the screw 3/4 turn anticlockwise (same direction I had to turn the one on my Collins PTO). That made things worse, so I pulled the PTO, gave the screw about 2 3/4 turns clockwise, slapped the unit in and it's GOOD TO GO!! Yes, linearity could be a little better but "what the hey"? Here are the readings I got when I "Zeroed" the PTO at 10000 kHz.

10000.0
10099.4
100.5

10300.0
10400.0
10500.2
10600.4
10700.5
10800.4
10900.5
10000.4

Needless to say I didn't pull it out again. As I said, I'M A LUCKY FELLOW 8^) 73 de Phil KO6BB

From jim_laning@usa.net Thu Sep 5 04:27:26 02
Subject: [R-390] REF: Solid State R-390

Now that the auction has ended, it's interesting to note that the free market forces have spoken..... Not a single bid was received!!!!!! (even with a starting bid of \$25) Ain't capitalism grand? ;)

From terryo@wort-fm.terracom.net Thu Sep 5 05:09:23 02
Subject: [R-390] REF: Solid State R-390

The free market was silenced. The seller ended early the auction early. He was probably threatened by hoards of irate fire bottle fetishists. Terry O'

From scott" <polaraligned@earthlink.net Thu Sep 5 11:51:31 02
Subject: [R-390] REF: Solid State R-390

The bidding was up to \$105 when I last checked. Seller has since terminated the listing early. The parts left in it are probably barely worth \$105 Scott

Date: Thu, 5 Sep 02 06:05:34 -0700 (PDT)

Anyone out there have a manual for a Tektronics 475 Oscilloscope ? Or better still, a link to site that has a pdf document etc....(Government released document) I have a dead power supply.... Rodney VK2KTZ

From terryo@wort-fm.terracom.net Thu Sep 5 14:27 02
Subject: [R-390] Solid-State R-390 on eBay

>Subject: Re: Question from eBay Member >Terry > After getting the radio out and playing around with it after several >years, I fell in love with it again and decided to keep it for a while >longer. I didn't realize people felt so strongly about someone >making a solid state conversion of an old favorite, but I do now. > Thanks for your interest-----Carl KO4DW

From tbigelow@pop.state.vt.us Thu Sep 5 15:39:47 02
Subject: [R-390] REF: Solid State R-390

wrote: > Now that the auction has ended, it's interesting to note that the free > market forces have spoken.....

Goes to show what can happen to a nice old radio when someone decides to make it 'their' project. He didn't even have his notes and schematics with it. Reminds me of dissecting frogs in biology class. Cut 'em open, take out the parts, toss 'em away. No wonder there are fewer frogs today!

> Not a single bid was received!!!!!! (even with a starting bid of \$25)

I think the ad was pretty accurate where it said 'could be used for parts', to restore it correctly would involve another complete unit. It looked like every module had been drilled for the conversion - not to mention a lot of \$\$ in tubes missing! Probably would be better off buying another rig for more since shipping this one might cost more than the sum of the good parts. > Ain't capitalism grand? ;) Love it. (o: de Todd/'Boomer' KA1KAQ

From r390a@enteract.com Thu Sep 5 16:14:22 02
Subject: [R-390] Manual for Tek 475 Scope ?

Rodney,
Go to http://www.logsa.army.mil/etms/find_etm.cfm and download TM 11-6625-2735-14-1 OSCILLOSCOPE OS-261B(V)1/U (TEKTRONIX MODEL 475 WITH OPTION 04). There are schematics in this document.

From jlap1939@yahoo.com Thu Sep 5 16:03 02
Subject: [R-390] Straight Stuff

Friends... The Straight stuff...Please forgive me for general comments to ind. on this posting...

Thanks to Andy, who sent me a few 6ak6...Now have AF amp...But STILL no radio. (*&^%\$).Appears there was more than one thing wrong at the same time...

Heard slight arc again... Followed dir. of a few...Did calibrate...It is there...about one third normal...no other rf...Do you care to make sug..?(Maybe its one of the RF tubes....)(Note..I believe I am hearing the AF and then the IF's coming up when I switch on, so must be RF??)(Note: Cal is not strong enough to move meter...)

Am buying repl set of some tubes...will re-check all.. at present am sick..(sorry...) Very sick...Those that I am sending something to, please give me a few weeks...I assure you I won't forget..As to more checking on mine...will wait 'till I can pick it up again, I think...I know its' no walkman..but its on the floor and I am too weak to get down there with it, unless I just collapse, (which might not be too bad an idea for that matter...)

Will send check for the tubes today if I can get to P.O. Can you let me know if you get the part I sent...

Many thanks to all the fine people on the list. Can't believe how helpful most of you are..!! Will try to be back on Sat or first of wk... My Very Best Regards, John

From hbreuer@debitel.net Thu Sep 5 16:29:29 02

Subject: [R-390] REF: Solid State R-390

No that ain't correct. I contacted the seller and he wrote me that he ended the auction early after only a few hours because he enjoyed playing with and listening to the radio after he got it out of storage. He had it stored away for several years and decided to keep it (at least for a while). It might be offered for sale again later. 73 Heinz DH2FA, KM5VT

From pha@pdq.com Thu Sep 5 17:40:30 02
Subject: [R-390] R-390 restoration and modifications

Folks have written strongly negative postings about modifying R-390's, especially with solid state changes to the tube circuits.

I think it is a shame to come down hard on people who want to modify them or have done so in the past.

The reason I say that is that the best way to learn about something is to take it apart, work on it, fix it, modify it, and so on. I do this with cars, and no one screams about me putting a 302 roller motor shortblock into my 1966 Mustang (underneath the CA emissions heads, smog gear, and so on).

Sure, there are fewer R-390 and R-390A's than Mustangs. Some R-390's certainly deserve to be saved in as original condition as possible - those that are rare and unique - R-389's, pristine R-390's, and so on.

But come on - there are a lot of R-390A's out there that would have been dumpster fodder 10 years ago. Some on the list feel that St Julien Creek radios aren't worth bothering with, with good justification (their condition isn't worth the time needed to repair them properly). Other people, like me, feel the St Julien Creek radios have enough potential to be worth the time, on average. Certainly some will be lemons, but I suspect most clean up to be perfectly adequate radios.

What's wrong with someone experimenting? Alex wanted to do solid state replacements for some hard to find R-392 tubes (26C6) - plug in, sure, but what's wrong with some other guy taking a ratty R-390A and experimenting with the circuits, trying different approaches to things for the purpose of learning, not to mention fun?

I see a lot of conflicting views on this list - "the radio is perfect, don't modify it", "the radio has poor AGC, do this mod", "tubes are glorious, don't replace them", "let's build a solid state 6082", "diodes vs 26Z5W's", and on and on. What's the line between solid state being good versus bad? Military obviously used them in the power supplies (and probably preferred them). Heat and power reductions are good - having options for when rare tubes are no longer available is good, too. But a little experimenting should be ok, too.

Take the eBay auction for the transistorized R-390A. They guy said he did it long ago - maybe he dug it out of a dumpster recovery missing half its parts with broken wiring to boot. I admire him for having the knowledge to fully understand the R-390A well enough to go through and solid state everything, and still have it play at the end! Is it better? Is it faster? Prettier? I don't know and I don't care. He had the balls to do something different, enjoyed the result, and shouldn't be persecuted for it.

It was pretty painful awhile back seeing many dozens of very hostile messages about the person asking about solid stating their R-390A. It is just a radio, and just a hobby. The museums have as many as they need, they last a long time, and there are still plenty to go around. In the long run, we're all gonna be dead, and the radios are probably going into dumpsters anyway.

If you're gonna scream about someone solid stating an R-390A (theirs, not yours), where's all the hue and cry about parting out radios? Should every R-390A be saved, no matter what the cost? What about the folks with 5 radios (like me, oops) - are they all playing 100% perfect, 100% pristine original restored examples, or are they just collecting dust on the shelves?

I think it is perfectly appropriate to question if a particular radio warrants special preservation or not. But if it is just a below average condition, garden variety R-390A from a garden variety contract, then what's the big deal?

Just as there are Mustangs (6 cylinder drivers), and then there are _Mustangs_ (boss 429, boss 302, 428 CJ, plus dozens of variants of rare combinations), there are R-390's (bottom of the barn scavenging trip recoveries, meterless St Julien Creek wonders), and there are _R-390's_ (about any R-389, a Rick Mish restoration of a NIB R-390, or a low serial # 67 contract EAC or many others).

I personally draw the line at drilling holes in a piece of metal that is original unmodified. Many other changes on an R-390 series are hard for me to justify for my radios for my purposes. Other people naturally differ.

I think the R-390 restoration hobby has room for both modified radios and unmodified. It would be great to see some more tolerance and acceptance of both ends of the hobby. Thanks for reading, Paul Anderson

From richardlo@devax.admin.athabasca.ca Thu Sep 5 18:00:56 02
Subject: [R-390] R-390 restoration, modifications, and solid state

Gee, I once thought about getting an R390 chassis and making a transmitter out of it to match my receiver (I also dream about getting a Porsche 911 and sleeping with Sally Fields). Good thing I never mentioned this, I would have had to move to Chile for my own safety. --- Richard Loken VE6BSV,

From djmerz@3-cities.com Thu Sep 5 18:15:58 02
Subject: [R-390] R-390 restoration and modifications

wrote: > Folks have written strongly negative postings about modifying R-390's, > especially with solid state changes to the tube circuits.

Paul, I agree, thanks for posting this perspective, Dan.

From kembring@epix.net Thu Sep 5 18:59:08 02
Subject: [R-390] R-390 restoration and modifications

Paul... I did enjoy your comments and perspective. I agree wholeheartedly.

I bought two SJC's (Blue Stripers) from a junk yard here in Pennsylvania a while back for \$100 each hoping to make one good one from them and ended up with both working for very little effort. Some Ham friends went along with me and between us we bought 6 or 8 of them that day and to the best of my knowledge, all of them are now working. I didn't mind the elbow grease for that kind of money and value, not to mention the fun and education. 73, Chuck Kembring WB3LGG

From tbigelow@pop.state.vt.us Thu Sep 5 19:07:01 02

Subject: [R-390] R-390 restoration and modifications

wrote: > Folks have written strongly negative postings about modifying R-390's, > especially with solid state changes to the tube circuits. <snip>

Paul -

I don't think I came down hard with my remarks, just stated the obvious (to me). I'm not against modifications if they improve or extend the life of a piece of gear, I'm just not in agreement with chopping, drilling, and otherwise irreversibly changing a piece of historic gear regardless of how plentiful it may be now. Just take a look at ARC 5 gear - I'm still trying to obtain a few items needed to complete a full station, but the stuff isn't around. At least, not in the condition or numbers it was years ago, and surely not the price. I'd bet they made more of them than R-390s, too.

There is no argument with me about someone's freedom to do with their property as they see fit - I support that completely. I may not agree with it, I may tell them that they shouldn't and explain why, but I'd never say 'no, you cannot'. That is up to the person paying the bill. I fail to see the need or even desire to do such a thing, but it's not written anywhere that I need to understand or approve.

Personally, I'm glad the guy decided to keep it and enjoy it, since he went through all of the work to change it into something it wasn't meant to be. Only he can have a true appreciation for the time, thought, and labor involved. Seems fitting that he should enjoy the fruits of his labors. I found it ironic that the description mentioned buying it as a conversation piece or for parts, which combined with the pictures of the work seemed accurate to me. After modifying your Mustang, would you consider it worthy of being a conversation piece or parts source? If so, why would you do it in the first place? It just seemed like the missing words at the end of his statement might have been ...'because after what I did to it, that's about all it's good for.' Again, I'm glad he decided to keep it.

Lest anyone think I have no appreciation of the arguments involved, I once modified a clean BC-455-B to work from 115VAC. Drilled holes, rewired circuits, etc. Never gave it much of a thought since the things were *everywhere* for a dollar, maybe \$5 NIB back in the late 70s/early 80s. The good thing to come from it wasn't any well-honed skills in the field of converting vintage gear, but rather an appreciation for the radio and design as it existed, as well as the desire I still have to find, restore, preserve and enjoy these and other old rigs today. The '455 sits on the desk in my office at home, tuned to WBCQ or whatever else I may come across during a free moment. If I tried to sell it, I'd be lucky to get \$5. To me, it is priceless not only as a nostalgic artifact, but for the lessons it taught me. They were just very different lessons than one might expect.

You're right, though - I've seen some interesting contradictions on here, especially recently. A post condemning someone for trying to improve on Collins' design, followed later with comments about their converted Jaguar, or complaints about someone listing items for sale with high prices, after the same poster had complained that people were too cheap when it came to the prices of his items. We probably all have our own personal conflicting views, no doubt part of being human.

Perhaps the question is....with the R-390 series being as good as it is, why would you want to try to make it into something it isn't? Other than the obvious 'because I want to and can' arguments, I mean. Maybe this was indeed a pristine example 10 years ago, who is to know or decide? If you think it's okay to do so, then it's okay for R-389s, too - why not convert them to general coverage or solid state? Now THAT would be a challenge.

Wait a minute...I'll bet this radio was in great shape and this all came about because of a bad ballast

tube! That's it, I've had it! Gimme the Sawzall!!! 73, Todd/'Boomer' KA1KAQ

From dave_faria@hotmail.com Thu Sep 5 21:38:45 02
Subject: [R-390] Hard Luck Story

I bought a HP 608C with Tek scope stand off EBAy for \$1.25. I made a token bid just so I could watch and see how much it would bring. I won the bid and it cost \$50 to ship from LA to Austin, Tx. I've already passed on the 608 and stand(I think) and will recoup most of my money. But, whats was kind of neat is in the scope stand drawer was a mil set of power jumpers and RF cables for testing the 390a IF deck. I think my \$1.25 was well spent. I think today I will buy a lottery ticket. Later Dave Faria It was probably part of an estate

From tbigelow@pop.state.vt.us Thu Sep 5 19:44:47 02
Subject: [R-390] Hard Luck Story

wrote: > I bought a HP 608C with Tek scope stand off EBAy for \$1.25. I made a token bid just so I could watch and see how much it would bring.

Great story, Dave! Congrats! It's almost like looking in the boxes on the ground at a hamfest while everyone else drools over the shiney rig sitting on the table above. You just never know.....
73, Boomer KA1KAQ

From courir26@yahoo.com Thu Sep 5 :05:42 02
Subject: [R-390] REF: Solid State R-390

Man, I'd hate to see the reaction over my classic Yugo Limo conversion! Tom

From jim_laning@usa.net Thu Sep 5 :08:44 02
Subject: [R-390] R-390 restoration and modifications

I think that the best we can accomplish at this point is to agree to disagree and leave it at that!

Maybe we out to discuss something more interesting like Tantalum vs. Poly or the correct spelling of Ukkumpucky and what would it's plural form be. (He asked ending in a preposition) (stir, stir, stir)
;) Jim

From tbigelow@pop.state.vt.us Thu Sep 5 :51:28 02
Subject: [R-390] REF: Solid State R-390

wrote: > Man, I'd hate to see the reaction over my classic Yugo Limo conversion!

Limo, my arse - you just stretched it so you could fit more R-390s and other goodies in it at the 'fests. We've got your number.... ~Boomer, KA1KAQ

From andywilliams@pobox.com Thu Sep 5 21:15:31 02

Subject: [R-390] regulated B+ update

If anyone is interested, I fixed the problem with the regulated B+ in my R390. As you may recall, the B+ in this receiver was 190 volts rather than 180 volts. The solution was rather easy, it turned out to be a pair of mismatched 5651 voltage reference tubes. One was a 5651A, the other a 5651. I replaced both with NOS 5651As and brought the B+ down to 182 volts.

If anyone is interested, Murray Pasternak is selling used 5651s and 5651As for \$0.35 each, or \$2.50 for 10. His email is w6krc@arrl.net Andy

From Thu Sep 5 23:08:52 02

Subject: [R-390] The R-390A, a GREAT LF rig!

Hello all. Well, here we go again, "I'm trying to stir the pot".

I'm an avid Longwave Beacon chaser (NDB'S). It's no mean feat to copy a 25 watt Longwave beacon at 00+ miles or a obscure beacon in Brazil at 6500+ miles (I've done both). It does put GREAT demands on both receiver and antennas, especially if you live in a 2 by 4 lot in a mobile home park with all kinds of computers, dish receivers and other RFI generating trash from China.

Lately I've been using a homebrewed longwave converter with internal low pass filter, antenna tuner/40dB pre-amp with a Hallicrafters SX-71A receiver. In times past I've used IF filters as narrow as 125Hz and audio filters as narrow as 12.5Hz (modified DSP). At this game selectivity and frequency stability is EVERYTHING (Some NDB's with duplicate ID's are within hundreds of Hz or less of each other). Unfortunately the Halli does NOT have good frequency resolution, even with calibration charts.

After I put the R-390A in the listening position and used it the past couple of nights I figured that it would make a GREAT receiver for my purposes, the limiting factor was now my homebrewed LF converter which used a NE602 mixer, known for poor dynamic range.

So, I dug up the Longwave modification for the R-390A, put it on a small perf board and stuck it alongside the 1st mixer tube. I installed a solder type BNC jack in place of the IF output jack for the longwave antenna. This entire thing is a no holes drilled, no solder into the set modification, and I'm pleased to say it works very, very well. As it couples into the cathode of the first mixer it doesn't appear to affect operation above 530kHz at all.

When I connected my 60 foot loaded sloper antenna (the one I use for longwave) to the LF antenna jack I was able to copy many of the daytime NDB's, though gain was obviously way down do to no RF amplifier.

I then modified my Longwave converter, pulling the NE602 out of it's socket (good reason for using IC sockets). I added one more BNC jack to the two already on it and connected that to the output of the converters pre-amp section (this is a Tunable pre-amp with sharp selectivity itself). The unit was set up top ground the HF antenna jack of the R-390A when the pre-amp is on. This in effect switches the antenna between the LF and HF antenna jacks of the receiver when the LF pre-amp is turned on.

Does it work??? I'LL SAY IT DOES! I have a better signal/noise ratio on longwave than I ever had through the converter itself. The 40dB gain of the pre-amp more than makes up for the lack of an RF pre-amp in the R-390A on longwave. Signals are strong and clear. If the RF gain is wide open FCH-344 in Fresno (65 miles) pegs the R-390A RF meter, yet there doesn't appear to be any IMD at all (due to the selectivity of the pre-amp). With the converter I used to hear a "ghost" of FCH-344 behind MO-

367 and a couple other places. They are no longer there!

AND, for the "purist" the best part of it is the fact that the modification can be removed in about 5 minutes, putting the original IF output jack back in and pulling the wire out of the tube socket. 73 de Phil KO6BB

From billsmith@ispwest.com Fri Sep 6 01:44:54 02
Subject: [R-390] R-390 restoration and modifications

> Folks have written strongly negative postings about modifying R-390's, > especially with solid state changes to the tube circuits.

What's wrong with home brew?

> I think it is a shame to come down hard on people who want to modify them > or have done so in the past. > > The reason I say that is that the best way to learn about something is to > take it apart, work on it, fix it, modify it, and so on. I do this with > cars, and no one screams about me putting a 302 roller motor shortblock > into my 1966 Mustang (underneath the CA emissions heads, smog gear, and > so on).

I've attempted to make a silk purse out of a sow's ear on several occasions. I have ended up spending a silk purse on the project, and have frittered away lots of time only to end up with a worthless sow's ear. My advise is to obtain a silk purse to begin with if that is what you are looking for. It is based on very expensive experience, the kind that should be learned from others, not re-invented.

> Sure, there are fewer R-390 and R-390A's than Mustangs. Some R-390's > certainly deserve to be saved in as original condition as possible - those > that are rare and unique - R-389's, pristine R-390's, and so on.

There are a lot of Hallicrafter's S-38's too. That doesn't justify destroying them just because there are so many of them. If you want to make something, why don't you start from scratch? It will provide you with the freedom to design it correctly and the pride of your own creation. Why fiddle with someone elses?

> But come on - there are a lot of R-390A's out there that would have been > dumpster fodder 10 years ago.

They aren't today, guess why?

I think I'll take my R-390 apart because there is more value dealing in the parts. Think of how many R-390's can be fixed up with the parts. Bill

From hankarn@pacbell.net Fri Sep 6 02:14:11 02
Subject: [R-390] REF: STATUS of Green Gear

The Green gears are now masked and at the powder coating shop to get a dose of John Deere Green. Envelopes are addressed and all funds are now in my bank for all orders received. Hope to get them in the mail on Monday with luck.

I still have some left for \$47.00 mailed for the late orders. Thanks, Hank KN6DI

From scott" <polaraligned@earthlink.net Thu Sep 5 22:58:47 02

Subject: [R-390] R-390 restoration and modifications

Awww....C'mon Paul....We're just trying to have a little fun. The solid state guys need some thicker skin. Scott

From Jim Shorney" < Fri Sep 6 05:03:03 02
Subject: [R-390] REF: Solid State R-390

wrote: >Man, I'd hate to see the reaction over my classic Yugo Limo conversion!

I'm going to redo my 390a with galena slabs, catwhiskers, and spark devices.

From hankarn@pacbell.net Fri Sep 6 11:14:39 02
Subject: [R-390] REF: FS Oldham Coupler Disc

Oldham coupler disc new production. \$12.00 mailed

All details on milsurplus, baswaplist, collins qth, boatanchors the porch. Not able to post the info here for some unknown reason. Have no problem posting to any other other QTH list. Hank KN6DI

From rjb@lynden.com Fri Sep 6 14:22:27 02
Subject: [R-390] The R-390A, a GREAT LF rig!

Hi Phil

I have been away from this list for several years, so i am curious about your LF converter. Is it classified info :), or could i find a schematic for this somewhere? I am currently in process of making a double-tuned LW loop with a view to doing some LW listening this winter, mainly looking for Russian Far East stuff (yeah... weird... i know... but i gotta do *something* to stay sane in the pacific NW during the "big mud") Was planning to use an R-71 as the receiver, but it would be cool to use a 390A, with a converter.

thanks for any advice Bob Bennett, Maple Vly, WA

From Fri Sep 6 16:42:43 02
Subject: [R-390] Why 6DC6?

Hello all.

No, this is not to try to "second guess" Art Collins or degrade our beloved R-390A receivers. I wouldn't dare do that, especially on this list 8^)

But I have a question. I had a very severe IMD problem that generated nothing but a hash of stations at the top end of the BCB band, where we have two locals at 1480 & 1580kHz. Replacing the 6DC6 RF amplifier eliminated this severe IMD. However, I have noticed that the receiver does still have what is apparently 'some' IMD as I can hear some "mixing" of one of the above local stations with a couple stations lower in frequency. Not bad like it was before, but it is there.

When I first started designing and building some of my own receivers (some quite elaborate) I was "taught" from various sources that for AGC controlled stages you definitely want to use remote cutoff or (possibly) semi-remote cutoff Pentodes for those stages. A sharp cutoff pentode tends to go into a nonlinear region much faster with increasing bias.

Yet here, in the R-390A we see a "Sharp cutoff" tube used in the RF amplifier stage and it has AGC applied. It seems to me that something like a 6BZ6 etc would have been a better choice. Again, I'm not criticizing "Arts" design, but inquiring minds want to know. Perhaps others on the list might also be curious.

Yes, I do have some 6BZ6 tubes here and two separate identical Marconi signal generators but I really don't have all the test fixtures and additional equipment to run a total analysis comparing both tubes against each other for IMD, gain etc. Hence I'm leaving the 6DC6 in at this time. Especially as to get optimum results one would have to adjust the cathode bias, screen resistors etc to get a fair comparison of tubes and I don't feel like cutting into my R-390A (that would be blasphemy). 73 de Phil
KO6BB

From rjb@lynden.com Fri Sep 6 16:58:57 02
Subject: [R-390] Why 6DC6?

Phil

This question came up on this list several years ago. I do not have the specifics (perhaps others can help here) but the gist of it was that the 6BZ6 was considered in the original design, but the 6DC6 was chosen instead, for reasons relating to better gain distribution and less vulnerability to front-end overload. If i recall correctly, someone had a reference to a Collins internal document discussing this issue - wish i had more, but others may be able to help.

FWIW, i have an HQ-180 with bad cross-mod problems below about 3MHz, thanks to an extended-band rap music station a couple miles from my QTH - i tried a 6DC6 in place of its 6BZ6 - no difference. In this case the interference is probably blasting right into the IF strip. Bob

From roy.morgan@nist.gov Fri Sep 6 17:09:02 02
Subject: [R-390] Why 6DC6?

wrote: >Yes, I do have some 6BZ6 tubes here and two separate identical Marconi >signal generators but I really don't have all the test fixtures and >additional equipment to run a total analysis comparing both tubes

Phil,

The ARRL handbook tells how to build a "hybrid signal combiner". It appears pretty simple (one toroid, a few resistors, connectors and a box.) I plan to build one when I can.

> to get optimum results one would have to adjust the >cathode bias, screen resistors etc to get a fair comparison of tubes and >I don't feel like cutting into my R-390A (that would be blasphemy).

I have an RF deck from a "junkie" radio that I expect to do such experimenting with. HSN carried an article or series of them using frame-grid tubes in the first RF and some mixer stages. Changes to the

circuits were involved. Greatly improved intermodulation and "overload" performance, and much lower noise were claimed. Others have since reported that the improvements were not worth the effort.

PS: Who can explain in simple terms what "third order intercept" means?? Roy

From jordana@nucleus.com Fri Sep 6 17:03 02
Subject: [R-390] Why 6DC6?

Howdy Roy et al.... being home with a 102F fever, gives a little light headedness and some time to search for something to distract my attention.... try this:

<http://www.downeastmicrowave.com/PDF/IP3.PDF>

wrote: > Who can explain in simple terms what "third order intercept" means??

While not exactly in simple terms, the visuals help to understand what the measurement means.... 73 de Jordan....

From Richard.McClung@Dielectric.spx.com Fri Sep 6 18:10:59 02
Subject: [R-390] Why 6DC6?

Try looking at this..... It is one of Joe Carr's Tech Notes.

NOTE 6 Dealing With AM Broadcast Band Interference to Your Receiver 10 Pages

While it's not tube data it does strike the subject of BCB Interference.....

Noted author, Joseph J. Carr, has created a series of short articles on topics of interest to the shortwave listener. <<http://www.dxing.com/tnotes/tnote06.pdf>> RICH WA6KNW

From David_Wise@Phoenix.com Fri Sep 6 19:44:30 02
Subject: [R-390] Done to death, delete at will: 6DC6 surrogates

I picked the word "surrogate" with care. These are not substitutes. They are enough to keep you on the air while you look for a 6DC6.

For reference: 6DC6 (5500, 12.5V 3D50umho)

RC-29 is inconsistent about cutoff ratings, some are at various currents, others at various transconductances.

A couple of these are from memory. Others don't have any cutoff data. Except for the 6AS6, I didn't check max ratings. Remember, it's temporary and who cares if you burn it up. A lot of these are TV tubes, so if you have a box of pulls, odds are you have a few. Some of these didn't exist in 1952; I bet they'd have picked the 6GM6 or 6DE6 for example.

Out of the list below, I tried a very weak 6BZ6, a 6EW6, and a 6HZ6. All worked, but of course not as well as the real thing. I didn't check sensitivity, IP3, cross-modulation, or what-have-you.

Don't expect the same carrier readings in any case, because the AGC is different.

I worried about oscillation with the 6EW6, but I didn't see any. 7CM pinout (same as 6DC6):

**6AS6 (way over max ratings)
6BH6 (low gm, too sharp)
6BJ6 (low gm, too remote)
6BZ6 (8000, 19V 3D50umho. Runner-up to 6DC6 in Cost Reduction Report.)
6CB6 (8000, 6.5V3DuA)
6CF6 same as 6CB6
6DE6 (8000, 9V3DuA)
6DK6 (9800, 6.5V3DuA. Used in large numbers in Tek 500-series scopes.)
8136 same as 6DK6
6EW6 (14000, 3.5V 3DuA)
6GM6 (13000, 15V 3D60umho)
6JH6 (8000, 19V 3D50umho)
6JK6 (15000)**

7EN pinout (same except internal shield connected to cathode instead of G3):

**6DT6
6GX6
6GY6
6HZ6**

These tubes are designed so G3 can be used as a second control grid. All have lower gm than the 6DC6. I didn't write down their cutoffs. I think they're all sharp.

Some RF decks have pins 2 and 7 wired together. These decks can also use a slew of tubes with the 7BK pinout, which includes 6AH6, 6AG5, 6BA6, and 6BC5, and another pinout I forget which, which is like 7BK but with K and G3 swapped. 73, Dave Wise

From _bobs@pacbell.net Fri Sep 6 21:25:13 02
Subject: [R-390] Regarding modifications to R-390 receivers

This may be considered an off-topic post, but as far back as I can remember, amateur radio operators have always "tinkered" and modified existing equipment hoping to improve performance. Some modifications were successful - others were not. That is all part of the hobby which all of us love.

In light of this time honored tradition of tinkering and building "home brews". it seems somehow incongruous to chide a person for making modifications to his own equipment.

Enuf said. Hope I didn't offend anybody :-))

My receiver is an R-390A/URR made by Capehart SN: 1070 Bob Simpson (an amateur radio operator wannabee)

From jordana@nucleus.com Fri Sep 6 22:07:34 02
Subject: [R-390] Done to death, delete at will: 6DC6 surrogates

Seeing as the 390 was 'stealth' type equipment, was there not something in the archives about EMP ratings for this tube...??? I know there is a document that details the developement of this tube specifically for the 390A... 73 de Jordan..

From dmartin@visuallink.com Fri Sep 6 22:15:39 02
Subject: [R-390] Why 6DC6?

I think Ten Tec now offers a nice little signal combiner for just this purpose, if I'm not mistaken. Not much to build, I reckon, but one exists off-the-shelf, for those so inclined. Don't know the price. Dan WB4GRA

From Richard.McClung@Dielectric.spx.com Fri Sep 6 22:40:00 02
Subject: [R-390] RE: 6DC6

GOTO: <<http://www.r-390a.net/faq-collins-cost.pdf>>

Scroll to document page 9. Report PAGE 5 PARAGRAPH 2.3.15 PART 15 - RF UNIT Read the answer to your question..... RICH WA6KNW

From hankarn@pacbell.net Fri Sep 6 23:52:16 02
Subject: [R-390] REF: INFO onGreen Gear and Oldham coupler

I am getting a lot of email as to what is a green gear and old coupler.

Green gear is NOT used the R-390-A only used on the R-390 non A and 391 that I am aware of. It is only used during maintenance on the RF deck when removed to keep the gear train in sync. When not in use it is attached to the sub panel. for storage. They were made without legs, it appears that the gears learned how to walk away in most cases. Hi.

The Oldham coupler disc is to act as universal between the PTO and gear train matching parts with springs crossed over in two places to help reduce backlash in the tuning. It is in about all series of radios using PTO's.

The name is a standard in industry for all types and sizes of couplings that need transitional alignment for smooth application of adjustment or power.

Whew what a mouthful. This should start a thread and a half . Air conditioned, triple layer nomex fire suit on with ear plugs installed. Hank KN6DI

From djmerz@3-cities.com Sat Sep 7 00:46:35 02
Subject: [R-390] Why 6DC6?

Hi all, I took a look at the Carr article and felt good about the Mackay 3010 B I've been restoring; I don't think it's reached the 390a sensitivity yet (just got it working) but the front end design is predicated on the use of attenuation and a high pass filter for hf work to reduce cross modulation. A bc band 0.6 to 1.6 Mhz high pass filter can be switched in to suppress strong bc stations and it works well; the attenuator

additionally tames overload.

This receiver uses a sharp cutoff 7788 rf tube (gm about 50,000 mmhos !!!) and has tremendous front end gain. Mackay sold other front end filters to handle specific strong station problems for this set. Several years ago I made a bc band high pass filter from the 1982 ARRL radio handbook, 8-59 that uses toroids and I tried this in substitution for the Mackay filter - works about the same as far as I could tell. It's a 50 ohm filter but could be changed to other impedances by scaling the inductors and caps. I suspect it would work ok with the R-390a but haven't tried it. Dan

From ody@radicus.net Sat Sep 7 02:31:44 02
Subject: [R-390] Fixer upper?

Anyone going to the Howard County hamfest with the intention of selling a restorable R390-A? If so, I would like to buy it. Thanks, Scott W3CV

From ham@cq.nu Sat Sep 7 14:37:00 02
Subject: [R-390] Input impedance of R390A

Hi,

This gets a little weird but here it goes: Let's say you have two systems set up -

System one - a 50 ohm generator running into a 50 ohm matched radio input

System two - a 50 ohm generator running into a high impedance radio input

In both cases the generator is set to the same *indicated* signal level. In the first case since you are matched half the voltage out of the generator is dumped by the divider action of the source and the load. In the second case you do not dump half of the voltage. The result is that you have twice as much voltage on the input of the radio in system two.

Since signal generators measure a high level voltage (at the input to a big attenuator) even though the second system has twice the voltage on it the signal generator meter reads the same both times. Seems a bit odd. The reason it's odd is that most antenna's work the same way. As a matter of fact any 50 ohm source works this way provided it's a matched output.

Still with me so far I hope.

Now for the fun - noise in a resistor is a constant power function. The voltage goes up as the square root of the resistance. The noise voltage on the second system is 3 db higher than the noise voltage on the first system. Since the signal voltage is 6 db higher (twice the voltage) the best case signal to noise ratio is 3 db better on the second system. Of course the actual signal to noise depends on a lot of things, but the best you can do is still 3 db better on system 2.

What does this all mean about radios ? If you have a really hot receiver the input impedance may not be anything like 50 or 125 ohms. If your antenna does not behave like a matched source who knows what will happen when you hook antenna A up to system B.

End of strange but true tale Enjoy! Bob Camp KB8TQ

From terryo@wort-fm.terracom.net Sat Sep 7 15:44:40 02
Subject: [R-390] The Tube is Dead. Long Live the Tube

There is great story on vacuum tubes in the latest issue of "Invention and Technology" (Fall 02). The anecdote from a Jean Shepherd radio show about why transistors will never replace vacuum tubes is terrific. Terry O'

From DJED1@aol.com Sat Sep 7 18:48:17 02
Subject: [R-390] Input impedance of R390A

Sorry, but you're not quite right. The best power transfer is always when you have a conjugate impedance match. You might get twice the voltage with a much larger Rx impedance, but the power delivered to the Rx is voltage squared over R, where R is the Rx input resistance. R must be much greater than 50 ohms to double the voltage. Try a few examples. The noise power from the antenna scales the same as the signal power from the antenna, so no benefit to S/N. Sometime you can get a better NF by mismatching the antenna, but this depends on the details of the Rx first stage. Ed

From wwarren1@nc.rr.com Sat Sep 7 19:19:02 02
Subject: [R-390] Input impedance of R390A

Ah, in the great spirit of stirring the pot on this reflector and putting in my \$0.02 worth, here goes. (Disclaimer -- I haven't done any RF engineering for about 37 years and though I have too many EE degrees, I'm still learning about these 390 beasts and trying to remember things that are supposed to be at my finger tips. Dr. Jerry, where are you when we need you????)

1. Bob, I think you're right on about your statement "If your antenna > does not behave like a matched source who knows what will happen when you > hook antenna A up to system B.

because there will be some impedance combination looking into the receiver that results in the lowest noise figure (noise factor) and when looking back to the generator (antenna or not) should result in the highest SNR. I remember seeing curves of noise figure (noise factor) versus driving impedance (generator or antenna) for transistors, but I don't think I've ever seen the same thing for tubes. Could be that the physics are so simple and weren't taught when I came along and the bottom line answer is that if you're running Class A (which an RF stage ought to be), then the optimum impedance for lowest noise figure is an infinite resistance (when then corresponds to placing the grid at the top of a parallel tuned tank circuit).

2. Conjugate matching (i.e., making the driving impedance the conjugate of the load impedance) is much over touted in my mind. First off, the guarantee is that half the power is lost in the driving impedance -- not what you want, as an example, in a power grid or for an audio amplifier (oh, I can hear the EE gods clammering to straighten me out -- genuinely I ask that you do so!!). Secondly, conjugate matching into the front end of a 390A, IMHO, doesn't mean squat in terms of best SNR. (So ~~there~~, EE gods!!!)

3. (from a private note I sent Roy this morning) "Actually, I believe the technique on pp. 134-135 of TM 11-58-358-35 is a pretty robust technique of comparing the 390A receiver to a standard where the technique yields good comparison results to a receiver set up properly in a lab environment yet the technique can be applied readily in the field. What I mean by that is using the 50 ohm to 125 ohm pad

gives a pretty good impedance match to the URM-25D (depending on the input impedance of the actual receiver at the frequency in question, but the pad ameliorates those variations as seen by the signal generator). The receiver is definitely seeing a 125 ohm driving resistance (note that I didn't say impedance) looking through the pad back to the signal generator. Using the 16 kHz bandwidth has two implications: 1. these receivers were actually used in the 16 kHz bandwidth for multi-channel RTTY, so that's one good reason to measure with that BW, and 2. in the 16 Khz BW mode, measurements are easier in that with the other filters, at least I fuss with tuning to recover maximum audio (thus SNR) and since the 16 kHz filter is broad and very flat compared to the other filters, one doesn't have to fuss with the tuning much if at all (which is my experience). Thus the technique is robust (although it gives "bad" numbers like 4 microvolts up to 14 mHz and then 5 microvolts after that) because it's hard for some young E-2 through E-5 to mess the technique up, yet it yields a valid comparison to the measurements made back in the lab where they really knew what they were doing."

So there, EE gods, let the fun begin. Dr. Tom, W4PG

From wa9vrh@ocslink.com Sat Sep 7 23:45:34 02
Subject: [R-390] Collins Collectors Association "Event" @ Peoria's Superfest

The Collins Collectors Association will be sponsoring an "Event" at the Peoria Illinois Superfest which is September 13,14,15th. The "Event" will be on Friday the 13th from 6:00PM until 9:00PM + or - rain or shine. We will be serving BBQ pork sandwiches and chips. Please bring a chair and drink.

Admission is free but you Must purchase a ticket to the hamfest to gain access to the CCA "Event".

The "Event" is open to all CCA members and anyone else interested in AM, Boatanchors, Vintage Radios, Military radios etc. Bring your stories, gear to swap, or latest project to show off. For more information on Peoria's Superfest and directions please check out :

<http://www.w9uvi.org/Superfest/Superfest.htm> for information
<http://www.w9uvi.org/Superfest/Hotels%&%Attractions.html> for hotel and restaurants
<http://www.w9uvi.org/Superfest/MAPS.html> for directions See you on the 13th! 73's Larry WA9VRH

From Sun Sep 8 03:52:41 02
Subject: [R-390] Shelby Hamfest picture

Hello all.

Today I installed the Shelby screensaver and I have a question about one of the pictures. It is a grey Boatanchor receiver (aren't they all 8^). The front panel edges are rounded back and it has chrome or stainless "latching" handles on either side. Two meters on the right and a frequency "window" labeled in Megacycles on the left. If I remember correctly, it displayed the frequency on a small screen by shining a light through a "digital display" of sorts.

What is it? I had one like it back in 1972 that I went through and completely cleaned up/overhauled. If I recall correctly it used solder in "pencil" tubes and was a very good playing set. Can't remember who made it but it seems like it was a Bendix or Packard Bell or similar. Would sure like to get another but doubt that I'll ever be able to! 73 de Phil KO6BB

From Llgpt@aol.com Sun Sep 8 04:03:49 02

Subject: [R-390] Shelby Hamfest picture

writes: << What is it? I had one like it back in 1972 that I went through and completely cleaned up/overhauled. If I recall correctly it used solder in "pencil" tubes and was a very good playing set. Can't remember who made it but it seems like it was a Bendix or Packard Bell or similar. Would sure like to get another but doubt that I'll ever be able to! 73 de Phil KO6BB

AN/SRR-13 Les

From chejmw@acsu.buffalo.edu Mon Sep 9 00:09:43 02
Subject: [R-390] ANDREW HJ8-50B 3 inch heliax

Hello,
I have available a 1052 foot roll of ANDREW HJ8-50B 3 inch heliax. New unused, asking price is 15.00 per foot. Serious interested parties only thanks. Email for photo of cable in shipping container. Shipping weight 2,160 pounds Tare weight. Thanks for reading. Jim WB2FCN

From _bobs@pacbell.net Mon Sep 9 02:49:02 02
Subject: [R-390] Lubricant for R-390A/URR

I have recently taken my receiver out of storage and took it thru a very slow power-up using a variable transformer - watching very closely for smoke. All went well and simply touching a short piece of wire to the antenna brought in WWV at 10 mhz quite clearly. It had been in storage for about 8 years - in a heated and air-conditioned environment.

I noticed, however, that the KHZ operated smoothly but made a squeaking sound. Past unpleasant experience with commonly found household lubricants left a messy varnish-like residue which was very difficult to remove. Any ideas on what might be a good lubricant? The cams are dry.

Also, the gears themselves had a white grease on them when my receiver was initially obtained. Is there a special lubricant for this? Where can it be obtained? Is there an alternative? Thanks

My receiver: R-390A/URR made by Capehart SN: 1070 (mostly). It has been thru the Depot Maintenance System so the set isn't "pure". Bob Simpson (an amateur radio operator wannabee)

From ham@cq.nu Mon Sep 9 02:54:39 02
Subject: [R-390] Input impedance of R390A

Hi, Ahhhh, but that's the whole point.

One system has a 25 ohm impedance at the input to the radio the other has a 50 ohm impedance.

The first system has half the voltage on it as the second, not due to power but due the the way the setup is defined. In other words it's not a constant power question at all.

The noise voltage in the 25 ohm resistance is 0.707 times the noise voltage in the 50 ohm resistance. Again not constant power as much as that's just the way the formula works.

The ratio of signal voltage to signal noise is better in the second case.

Of course that says *nothing* about the radio you could or could not build and how it would perform. All it really says is that you can get good signal to noise without matching the input of the radio to the source. Enjoy! Bob

From bill@iaxs.net Mon Sep 9 03:17: 02
Subject: [R-390] ANDREW HJ8-50B 3 inch heliax

Ah, what kind of R-390 takes 3 inch heliax? Is this relevant? Bill Hawkins

From bill@iaxs.net Mon Sep 9 03:17:18 02
Subject: [R-390] Lubricant for R-390A/URR

>All went well and simply touching a short piece of wire to the >antenna brought in WWV at 10 mhz quite clearly.

Just a note from the impedance police: The R-390A was meant for 50 ohms +/- 5 ohms impedance at the antenna. Please refrain from using non-standard impedances to report results.

Besides, what is quantitative about "quite clearly"? What was the signal level? What was the intermodulation distortion? This is a serious list that has no room for fuzzy reports. Kind regards, Bill Hawkins

From jonandvalerieoldenburg@worldnet.att.net Mon Sep 9 04:31:09 02
Subject: [R-390] ANDREW HJ8-50B 3 inch heliax

> Ah, what kind of R-390 takes 3 inch heliax? >> Is this relevant? >> Bill Hawkins

Anyone with a source for short scrap lengths of 1 5/8 heliax- need 6 pieces about 5 foot in length for a 6-meter duplexer project. As far as the R-390 content- I use 1/2 & 3/8 heliax here for antenna feeds, with the cell phone movement a lot of it hits the surplus & hamfest markets 73 Jon AB9AH

From chejmw@acsu.buffalo.edu Mon Sep 9 11:16:24 02
Subject: [R-390] Is this relevant?

Well Gee,

Time to put on the "THINKING CAP", let's see, a pair of full size 160 meter Rhombic Antennas, with 600 ohm switching networks for directional control of each, thus giving 360 degree coverage. The 600 ohm feed/ switching system goes to an Antenna Coupling house, where the impedance is matched perfectly to translate to 50 ohms. Humm, the 50 ohm line is 3 inch Heliax, which is pressurized and runs back to an AMATEUR radio installation, which just happens to have an "R390" receiver in it, which MIGHT even work. That of course assumes that the operator actually uses it for 160 meter reception, and not just as "ENTRY INTO" the "SNOBS ARE US" club! What kind of comment is that?

Jim WB2FCN And yes I own 2 R-390A receivers, sadly I use them, as "an unused receiver is a useless receiver".

From roy.morgan@nist.gov Mon Sep 9 16:27:15 02
Subject: [R-390] RE: 6DC6

wrote: >GOTO: <<http://www.r-390a.net/faq-collins-cost.pdf>> >Scroll to document page 9. Report
PAGE 5 PARAGRAPH 2.3.15 PART 15 - >RF UNIT

Which says (for the record): 2.3.15 Part 15 - RF Unit

Tests were made to determine how much the 2nd RF stage with its coils was contributing to the performance of the receiver. Its advantages were that it afforded additional AGC control ahead of the mixers, and better image rejection above 8 mc. But because of the considerable saving resulting from the removal of this stage with its associated coils, SCEL representatives agreed it was worthwhile. In an attempt to regain some of the lost AGC control, the mixers were put on the AGC line. Attempts were made to restore some of the lost image rejection by improving coil Q and tracking, and by using better switch materials. Better antenna trimmer action on the 16-32 mc band was accomplished by mounting the trimmer closer to the high band antenna coil. This reduces stray C allowing the trimmer to be coupled tighter to the coil.

Field tests by SCEL engineers on current R-390 receivers revealed that cross modulation is a problem in the presence of strong interfering signals. Extensive tests were made on all available miniature RF pentodes to find a tube which best combined the characteristics of low noise and low cross modulation. Late in the investigation tube types 6DC6 and 6BZ6 became available. These had the most desirable characteristics of any tube tested. Because the 6DC6 affords slightly better AGC control, it was the one selected for use as the RF amplifier. Cross modulation tests were also run on various mixers, and the 6C4 proved to be very good in this respect, actually improving slightly in performance as the bias was increased up to about 14 volts. On this basis, it was deemed safe to use AGC on the mixers. Late tests show that cross modulation is largely confined to the first IF tube at medium high levels (.05-.2 volts input) and the RF amplifier at levels above this. Investigation carried out by E. Read on the R-392 receiver showed a substantial improvement in cross modulation at signal levels exceeding the normal operating bias of the 1st RF tube when a short-time constant circuit was placed in the 1st RF grid. Subsequent experimentation on the "A" model R-391 showed a small improvement particularly at antenna levels exceeding 2 volts. The results are not nearly as spectacular as on the R-392, however.
Roy

From Richard.McClung@Dielectric.spx.com Mon Sep 9 16:48:27 02
Subject: [R-390] ANDREW HJ8-50B 3 inch heliax

Well you could run the 3" heliax from the antenna entrance panel [That serves your R-390(*)'s] out to the 2-30MHz, dual-mode, omnidirectional antenna that you use to listen to the world of HF. It would deliver more signal than that lossy 50 year-old, sun baked, RG-58 that you're using now. RICH @B> }

From redmenaced@yahoo.com Mon Sep 9 23:33:47 02
Subject: [R-390] Lubricant for R-390A/URR

It sounds to me like the dial lock plate is rubbing on the lock mechanism.

I use Marvel Mystery Oil on my transmission gears, seems to work well. Sounds like you need to clean

the hardened white grease off the gears first though. Joe

From jlap1939@yahoo.com Tue Sep 10 15:21:09 02
Subject: [R-390] (no subject)

Friends,

Thanks for the suggestions for the possible repair of my 390..will try to get to them...I will get the radio up on the table this week, and see if I can do some more checking. Thanks for expl. of how to check different probs. in the RF...

Also, a warning. Don't expect the first repair to "fix" the radio and,

If you ever had Rheumatic Fever, as a child, DO NOT LET ANYONE MESS WITH YOUR MOUTH WITHOUT AN ANTIBIOTIC. Turns out to be my prob.. Write personally if you want the sad details...

Sorry to be off sub., but too many don't know this... Have run into tens of cases since last week...
Regards, John

From dave_faria@hotmail.com Wed Sep 11 03:35:34 02
Subject: [R-390] Sweep Generator Alignment

GE List. Would there be any benefit to aligning the IF of a 390a or non "a" using a sweep generator? If so how would one be connected? I have an opportunity to pick up a 4mhz sweep/function generator.
thanks for the comments Dave Faria

From asolway@sympatico.ca Wed Sep 11 03:51:49 02
Subject: [R-390] Re: [Hammarlund] Special Wednesday Global Glow

Duane and All Our Friends South of Your Northern Border,

We will also bring our prayers and sympathy to all of you. Take care of those young ones very well. God bless and don't let the ba.....s get you down. Al VE2TAS "Duane Fischer, W8DBF" wrote:

From salmaniw@shaw.ca Wed Sep 11 04:42:37 02
Subject: [R-390] Re: Capacitor Checkers

Fellas, I attended my local hamfest last weekend and picked up a couple of capacitor checkers, to be used during my R390A rebuild. I'm almost embarassed to say that I paid \$2.00 for one and \$0.50 for the other. The first is the Eico 950B, while the other is unknown to me. It's the Cornell-Dubilier BF-90 Handicheck. Does anyone have any experience with this one. How useful is it in repairing boatanchors? This one says that capacitors may be checked while in circuit, but disconnect from the powerline before attempting to do this. Comments? By the way, I found on-line a manual for the Eico, but nothing about the BF-90. Thanks,.....Walt.

From rodney_bunt@yahoo.com Wed Sep 11 06:42:23 02

Subject: [R-390] Capacitor Checkers - useage

walter,

The in circuit tester uses the same principle as the Heath C-1 tester.

For checking "shorts" they try and get 60Hz signal (from the mains transformar) to travel through the capacitor, for small caps this won't happen so there will be no indication, for a short, there will be a big signal passing through.

Then the other test, is the "open circuit test". For this test a "high frequency signal" is impressed across the capacitor, if the cap. is open circuit there will be no signal passing through, if it is "ok" then the high frequency signal will pass normaly, and give an aproprate indication. A fuzzy edge indication on the display shows leakage, or intermittent behaviour. Rodney VK2KTZ

From jbrannig@optonline.net Wed Sep 11 10:55:46 02

Subject: [R-390] Sweep Generator Alignment

A sweep generator is used in conjunction with an oscilloscope to display amplitude vs. frequency. It will present a "picture" of the shape of a tuned circuit. The sweep generator is connected to the input of the device under test and the O-scope to the output (through a demodulator). The sweep generator is also connected to the Horizontal input of the scope.

They are commonly used to align fixed tuned circuits, like the 455kc. IF (or TV IF). I don't know how useful a 4Mhz. generator would be since the signal will have to pass through the entire receiver and this would not present a valid "picture" of the IF. If the price is right they are fun to play with. Jim

From BRingwoo@csir.co.za Wed Sep 11 11:32:42 02

Subject: [R-390] Sweep Generator Alignment

Hi

I have a Philips sweep generator operating at 4 MHZ. You have to have a signal generator operating 455kHz above or below the 4Mz as input, as well as a 50 volt sawtooth from a scope timebase. You connect the Rx detector to the vertical input of the scope and the resulting swept output from the sweep generator to the IF stages you want to align. Other sweepers may have a different configuration. Remember that the selectivity curves presented are usually to a log scale, and your display will probably be linear.

I used the setup with a Tek 549 storage 'scope on an AR88, which was rather upsetting, since all the different selectivity settings peaked at different centre frequencies when I displayed them on top of one another :(

Maybe the other listers can give an opinion on whether it would be worthwhile repeating the experiment on the 390A with its mechanical filters ? Have fun with it - Bryce

From ham@cq.nu Wed Sep 11 12:37:47 02

Subject: [R-390] Sweep Generator Alignment

Hi,

You inject the signal into the front end of the radio. Say you tune it to 600 KHz and also set the sweeper to 600 KHz. Then hook the seeper to the antenna input of the radio. You hook a scope channel to the diode load output on the back of the radio. The sweep output of the sweeper goes to another scope channel or the trigger output of the sweeper goes to the trigger input of the sweeper. A storage scope is a good idea since you will be sweeping at a rate of 10 Hz or less.

An alteranate hookup would be to unplug the IF input and inject the signal directly into the IF deck. The disadvantage of that is you will not be able to properly set up the first coil on the deck and you need a cable with one of the weird little connectors. You can get around both problems, but why

The Wavetek's are nice little sweepers. I have several various models of their stuff and use them from time to time. I generally look at them as audio gear rather than RF. I don't know why I do, that's just me. The oscillators in them are R/C based rather than L/C or crystal based. That limits the stability of the output. I would not recomend trying to set up the CW crystal filter with one :) Take Care! Bob

From Lester.Veenstra@lmco.com Wed Sep 11 13:01:11 02
Subject: [R-390] Sweep Generator Alignment

Yes if it can do a slow stable sweep and you have a useful way to see the result of that slow sweep. Inject via the grid test point of the mixer prior to the IF. Les K1YCM/3

From Lester.Veenstra@lmco.com Wed Sep 11 13:14:05 02
Subject: [R-390] Sweep Generator Alignment

To clarify, inject the nominal 455 kHz sweep via the grid test point of the mixer prior to the IF. Thiis allows the IF deck to see its correct impedance on the input for correct alignment of the mixer and the first IF stage.

If you are lucky you can use a storage display specan on the IF output to see the result, or as previous posts have suggested, the diode load voltage to an o-scope is a more universally practical method. In a dim light you should be able to see the longer persistence trace on the scope. Les K1YCM/3

From chacuff@cableone.net Wed Sep 11 14:27:31 02
Subject: [R-390] 606A

Group,

At the risk of being nailed for cross posting....there is a fellow with a nice HP-606A for sale on one of the other lists....Up in MD somewhere. He is only asking \$100 with manual I believe...pickup only!

If you have ever used one of these...they are probably the ultimate of the Boatanchor Signal Generators that cover everything that would be needed for any BA radio work. A lab quality instrument...

They do a great job on 390's.....(there that puts me on topic)... Contact me off list and I will forward the details... Cecil... chacuff@cableone.net

From cbscott@ingr.com Wed Sep 11 14:44:17 02
Subject: [R-390] 606A

I sold a frequency counter to the seller. He is a very nice fellow. I wish I lived close enough to him as I would probably buy it. I think he is in Maryland.

From Lester.Veenstra@lmco.com Wed Sep 11 14:57:23 02
Subject: [R-390] poor man's sweep generator

Agree, this works well, use a peak hold mode if available Les K1YCM

From: Helmut Usbeck
Subject: [R-390] poor man's sweep generator

I've been using a program called Spectrogram, www.visualizationsoftware.com, for a while now.

What I do is run the program, and take the output of the r-390a or any other receiver and input it to the soundcard of my computer. For a signal "injection" tune to a spot where there are no stations. Use the noise input from the ant. or a diode noise generator. One will see the bandpass of the filters displayed on your computer screen. I've used this with several receivers to compare bandpass of filters slopes of filters and also to adjust them. Yes, there is an improvement. Helm. WB2ADT

From ai2q@adelphia.net Wed Sep 11 16:24:19 02
Subject: [R-390] CU-714/SRA-22 coupler info?

Hello R-390 list folks:

Last night I was given a gift of a CU-714/SRA-22 antenna coupler. This is a motor-driven unit built by Collins, replete with Jennings USLS-465 vacuum cap and a dual-bobbin inductor.

I logged onto "LOGSA" with Netscape and searched for the above numbers, to no avail (is this a Navy item?), and was wondering if anyone can point me to a manual, or even a schematic for this unit. Thanks in advance for any assistance. AI2Q, Alex in Maine

From nryan@intrex.net Wed Sep 11 18:29:24 02
Subject: [R-390] The Tube is Dead. Long Live the Tube

Hello, all, You can read this article online here:
<<http://www.americanheritage.com/it/02/02/tube.shtml>> 73 de Norman KG4SWM

From Richard.McClung@Dielectric.spx.com Wed Sep 11 21:18:13 02
Subject: [R-390] Sweep Generator Alignment

There are two documents that describe the procedure for sweep aligning the IF strip of the R-

390(*) receivers.

-U. S. Army Security Agency Training Center Student Text, ST-32-151, Visual Alignment Procedures for the R-390 Receiver -U. S. Army Security Agency Training Center Student Text, ST-32-152, Visual Alignment Procedures for the R-390 and R-390A Receivers

There is a schematic for a test fixture to utilize in aligning the IF strip in the ST. RICH WA6KNW

**From rodney_bunt@yahoo.com Thu Sep 12 01:18:23 02
Subject: [R-390] Sweep Generator Alignment**

**R-390 gurus,
I have a HP-8601a sweep generator. It uses a voltage controlled oscillator and is quite stable. It has a "symmetric" sweep IE: it sweeps equally up and down from the center frequency.**

For Xtal Filters (or others) I find the center frequency of the crystal by putting the "peak" of the trace on the oscilloscope in the center of the sweep. Then I turn off "sweep" the resultant center frequency is the center of the Xtal bandpass, I use this frequency to tune the rest of the IF, I have found Xtals up to 5Khz off frequency. So using this method you end up with the IF and the Xtal filter in alignment, and a very usefull Xtla filter/phasing combination.

For "stager tuned" IF's you use the xtal center frequency and sweep "symetrically" and obtain the correct bandpass shape on the scope. Rodney VK2KTZ

**From ai2q@adelphia.net Thu Sep 12 00:59:28 02
Subject: [R-390] CU-714/SRA-22 ramblings**

Just a word of thanks for the many kind replies from R-390 listers on my newly acquired CU-714/SRA-22 surplus antenna tuner, part of the old URC-32 radio set. I sholuld've recognized the nomenclature of this beastie from all the work I did on the USS Albacore sub, but for some reason that thought eluded me until this afternoon.

Anyway, after studying the wiring I can see that it's an L-network, with the vacuum capacitor motor also driving a hefty switch, so it can be set up with the cap in either series or parallel with the coil.

In the original usage, whether the cap is in series or parallel can be indicated with a lamp or LED, as they bring out the switch extra contacts for that purpose.

The unit's other two motors drive (a) the coil itself, and (b) the tap on the coil. So, by using either motor I can set the inductance and where I want to tap-down on the inductance.

Also, as I see it, if I put a manual switch on the RF leads, and re-wired the RF feed and output, I could reverse them, which might add some flexibility to its use in the shack, making it more adaptable to many more kinds of end-fed antennas and verticals.

The motors are marked 115V 60 Hz, so I tested them out tonight using a variac and isolation xfmr. The capacitor-drive motor works FB as-is, and can be reversed by switching pole connections on the motor itself. The coil motor and coil-tap motor required a phase-shift capacitor to make them run. I grabbed an old 1 uFd bathtub cap, rated at 600-V, and that worked just fine. They can be reversed with switches to

reverse the phase of the applied 115 V (swap the leads with a toggle switch).

With a few switches, I should be able to make this puppy work in any config needed. Also, I haven't tested them yet, but the coil and coil-tap motor geartrains have pots hooked up to them, so with a DC power source of a few volts I should be able to drive a meter or two so that I can see how far the coil and coil tap has moved. Sort of like on some Yagi rotator boxes.

I'm thinking that this would be a good thing to tune my present top-loaded phased 80-meter vertical array. All I need is one more CU-714/SRA-22 (if I'm lucky), one for each vertical. Then I'd be able to QSY from the fone to CW portion of the band, right from the shack, without having to go outside on cold winter nights or during storms. Gotta feed the R-390, R-390A, and R-392 properly.

I hope present-day equipment is built this good, so that it works well against those SOBs Bin Laden and Saddam (Madass spelled backwards) Hussein. Vy 73, AI2Q, Alex in Maine, where the wind is howling tonight with 45 MPH gusts

From jlap1939@yahoo.com Thu Sep 12 16:09:53 02
Subject: [R-390] Broke 390 (again)

Friends,

I have it where I can get to it now, and am feeling better, so will be looking in the places you have suggested..I do still have the 600 and the 515, to listen to, (and in general get in trouble w/wife) so will not rush..(Including sending for the spare tubes ..will do that next few days)

Hope W got the knobs, and the meter made it to mars... Will do best to get other things done as well...

Had 2 ask rheu fever...Thanx, and hope info is helpful Just watch it... Sorry, will stay on subject...

Again I remark on the 2 different handles I have seen..(Some DENY that there were diff)..I had a pair that were much more "flat". That is to say..long part was CLOSER by one forth inch, to the front panel, yet from left to right, were one eighth inch or so "wider" That is to say if you measure from the middle of mounting hole...I first noticed this in mil. ser... I expect very few comments on this, but if anyone else has ever suspected this,(prob on 390 only, not the a) please let me know..I do not have those handles any more, so can tell you nothing more, except that there was also a big diff. in the "washers" that went under ends of handles...again..anyone else notice this? mine were larger...(thicker) I think this was a result of the run...and it may have been only the Collins, for ex. NO MATTER what anyone says.. I will remind you that mine was ALL ORIG. This was because it came out of ser. VERY early, and then was stored...I KNOW this to be true...so I feel the handle/knob/frt panel paint things I have spoken of in the past are correct... (paint color)

Now, thats a bunch of mess, but it is on subject, after all.. (I admit, I usually am most interested in obscure info; sorry..)... My Regards, John

From WC4G@aol.com Fri Sep 13 00:14:52 02
Subject: [R-390] Simpson 185 meter bezels

Afternoon guys, I have a need for two of the subject bezels for an R390 I am working on. If anyone has any of these thin aluminum bezels that are found on the subject meters, I could use two of them. I will offer a new R390 ballast tube as a reward. Please check your special stash. 73 Don Heywood

Charleston, SC

From larry.asp@sympatico.ca Fri Sep 13 03:04:50 02
Subject: [R-390] Help Adjusting Bandswitch Needed

My R 390A bandswitch switches nicely on all bands except it will not switch into the first position - that is 500kc - 1000kc band (lower BCB). Is there an easy way to fix this without taking the radio apart?
Thanks in advance for you help. de Larry VE3RF.

From davidmed82@msn.com Fri Sep 13 03:40: 02
Subject: [r-390] 5651 tubes

I am presently working on an early R-390 radio serial #99. This radio is in wonderfully good condition considering its age. I have replaced all the tubes with NOS and when I fired it up there was a loud tuneable hum on all stations. The problem turned out to be that I had replaced the 5651 tubes in the VR with 5651A tubes. Restoring the 5651s the radio works great. Can anyone explain this phenomena for me? Dave

From hankarn@pacbell.net Fri Sep 13 04:13:07 02
Subject: [R-390] REF:Green Gears

The people that ordered and sent money for the Green Gears, they went in the mail this afternoon. Thanks to all. I still have about left at \$47.00 each mailed in US. Thanks, Hank KN6DI

From rodney_bunt@yahoo.com Fri Sep 13 05:13:40 02
Subject: [r-390] 5651 tubes - specs....

David, I feel that I am telling you something you already know, David, but....

For 5651A
Description Vmin Vreg Imax Imin Reg
Gas Regulator 107 85.5 3.5 1.5 0.1

For 5651
Description Vmin Vreg Imax Imin Reg
Gas Regulator 107 87 3.5 1.5 0.1

So for 5651A there would be 172 v Across the two VR tubes not 174 v for the 5651.

There is a "HUM Balance" control R-614 (500k), did you check this, and adjust for minimum AC output on the 180V at J601 ??? Rodney VK2KTZ

From kjg@cmc.net Fri Sep 13 06:48:40 02
Subject: [R-390] REF:Green Gears

I will take one, check in the mail tomorrow.....TNX Dave, W7VM..proud owner of R390 and

R390A.....I hope I never need it!!!!

From scott" <polaraligned@earthlink.net Fri Sep 13 11:34:54 02
Subject: [R-390] Help Adjusting Bandswitch Needed

Are you sure it works properly on all other bands? Did you verify proper frequency on other bands? I sounds like it just needs adjustment, if not, you have a problem in the Geneva drive and need to disassemble to find out just what is going on. My rebuild pictures that I recently sent out has detailed bandswitch setting info. If you need one I can send it to you. I think Don is supposed to put them on his website. Someone has offered to put them into PDF file to make viewing and downloading easy. Maybe we can get the PDF file on a website also so all can download them if needed. Scott

From cbsscott@ingr.com Fri Sep 13 14:05:42 02
Subject: [R-390] Help Adjusting Bandswitch Needed

Are you saying it will not go to that position or does it go to that position and the radio is dead at that point? Depending on which symptom, it can mean different problems. Barry - N4BUQ

From chg111@hotmail.com Fri Sep 13 15:00:37 02
Subject: [R-390] R-274/FRR

Gents- I have an opportunity to procure a Hallicrafters R-274/FRR, the quot;sort-ofquot; Halli version of an SP-600. I wonder if any of you have experiences w/this set- good or bad, amp; about what they are worth. Fellow sez its in good shape,amp; has better audio than a 390 or 390A. Does it have any unobtainium tubes, like the 3TF7s or anything like that? I would appreciate any & all comments, suggestions, etc. -Sandy G. C.H.(Sandy)Geiger III

From wf2u@starband.net Fri Sep 13 15:19:10 02
Subject: [R-390] R-274/FRR

Sandy,

Performance is equal to that of the SP-600 (notice the SP-600 military designation is the same as the SX-73: R-274/FRR) as they're interchangeable in the military installation/usage. Halli made the SX-73 as a second-source for the Hammarlund SP-600, without copying it or infringing on any patents used in the SP-600.

No unusual tubes in either of them. Preference? Only subjective, depends on the tastes (cosmetics and ergonomics-wise) of the operator. I have both and I love them equally... 73, Meir WF2U

From chg111@hotmail.com Fri Sep 13 19:32:15 02
Subject: [R-390] Muchas Gracias !

Gents- The title says it all-Many Thanks for the replies on the Halli R-274/FRR or SX-73, if you prefer. Pretty much confirmed what I already knew- these rigs are rare and definately worth having. Unless the

guy wants an outrageous fortune for it, I'm gonna get it. Will keep the group posted. Just kinda lucked up on it, not the sort of opportunity you pass up. Again, thanks to those who replied.-Sandy G.

From David_Wise@Phoenix.com Fri Sep 13 :12:01 02
Subject: [r-390] 5651 tubes - specs....

I'm having trouble believing that a 1.1% difference is enough to mess up the operation. That's probably within the normal tolerance range.

It's possible that something else was marginal in such a way that your 6082s were barely in regulation and the reference shift pushed them out, but in that case I think you'd have gotten the same hum by just cranking your variac a few degrees.

Is it really that touchy, or is there something deeper going on with the device physics? Just curious. 73, Dave Wise

From barrie99@marsweb.com Sat Sep 14 00:59:45 02
Subject: [R-390] R-274/FRR

wrote: > Gents- I have an opportunity to procure a Hallicrafters R-274/FRR,

If the radio is in good shape, buy it. I looked for a good example for years and found one about a year ago. Side-by-side with the '390, it holds it's own! 73, Barrie, W7ALW

From bratcher@pdq.net Sat Sep 14 01:14:49 02
Subject: [R-390] R-274/FRR

wrote: > > > Gents- I have an opportunity to procure a Hallicrafters R-274/FRR,

>

>Sandy: > > If the radio is in good shape, buy it. I looked for a good example for >years and found one about a year ago.

I've had my R-274 (SX-73) for about 8 years now. Good radio but I still think my R390a outperforms it. Top frequency seems to be near 60 (or so) mhz as I can pick up local CH 2 audio (slope tuned) with it along with the video carrier. The dial marking stops at 54 mhz but the receiver tunes somewhat past that before it hits the dial stop. There isn't much on that 30 to 54mhz range to pick up except for a few pagers. Other than that the band seems dead. Maybe that low VHF band isn't used in Houston TX anymore?

From redmenaced@yahoo.com Sat Sep 14 01:33:29 02
Subject: [R-390] Help Adjusting Bandswitch Needed

It sounds to me like the pin on the Geneva drive is hitting the stop too soon, it needs an alignment. Don't turn too hard it can bend the pin!

You should be able to observe the pin while turning the MC CHANGE knob from the bottom of the radio, this would tell you for sure. Joe

From DAVEINBHAM@aol.com Sat Sep 14 02:32:22 02
Subject: [R-390] R-274/FRR

writes: << Gents- I have an opportunity to procure a Hallicrafters R-274/FRR, the "sort-of"; Halli version of an SP-600.

Sandy,

The R-274/FRR uses tubes that are much easier to obtain than does the R-390(A). I have never seen the rectifier tube in an R-274 burn out unlike the hard-to-find rectifiers in our R-390(A)'s. Incidentally, 3TF7's are difficult, but not impossible, to find. I found one this week. Regards, Dave

From Sat Sep 14 05:57:49 02
Subject: [R-390] Headphone jacks, line outputs and green dial lamps.

Hello all.

Like many of you R-390A aficionados I spend a great number of hours listening to my R-390A. Often well past the witching hour. Most of the time I'm bandscanning, chasing beacons in the noisy longwave band below 500kHz. I have found a couple of things that make it more pleasurable for me and less disturbing to my XYL.

1. When you plug headphones in, it does not disable the speaker if it is on local audio. AND, the speaker is louder than my headset was. Hence, said XYL gets to hear all the T-storm noise, heterodyne etc that cover the longwave range better than I do!

Answer: I put a separate matching transformer on the line audio output jack to feed the headphones ONLY. That way I control speaker and headphones separately. Incidentally. I didn't have a 2nd line matching transformer so I tried a 110/12VAC 1Amp transformer for the headset. I'm sure it isn't "hifi" but it sounds good to me!

2. When listening into the "wee hours" (like 3:30AM) I found that the dial was brighter than it needed to be for comfort in the dimly lit room.

Answer: I had a couple of the little green rubber boots that slip over dial lamps, who know what I robbed them from. I placed them over a pair of 328 dial lamps and gently pressed them through the hole for the dial lamps. Results? A dial that has just the faintest hint of green in it's lighting that is much easier on the eyes over the long listening hours spent bandscanning. 73 de Phil KO6BB

From jbrannig@optonline.net Sat Sep 14 18:53:48 02
Subject: [R-390] Early Sputnik

The link is to a story about some of the first US attempts to listen to Sputnik. Guess which receiver was used..... <http://www.infoage.org/sputnik3.html>

From DAVEINBHAM@aol.com Sat Sep 14 23:02:17 02
Subject: [R-390] Oldham Coupler Springs and ReCap kits

Fellow R-390 Drivers,

A little white envelope arrived in the mail today from that gentleman and scholar, Al Solway, way up there in the cold, frozen North. The envelope contained 3 dozen springs for the Oldham couplers used in our favorite radios, the R-390(A)'s. I am gonna keep 3 of 'em for my own use. The rest are up for grabs.... almost free. Send me an SASE, preferably of the padded persuasion and I will send you 3 of 'em as long as the supply holds out. When they are gone, they are gone. Thank you, Al. Send your

~~David H. Case~~ SPRINGS

8 South 29th. Street

Birmingham, Alabama 355-1004

Remember the discussion about a month back about using PayPal for ReCap kits ? You guys voted 9 to 1 for PayPal. Well, guess how many kits I have sold using PayPal ? Exactly 1 to the guy who first suggested it. Unless PayPal sales increase to at least 50% of all sales, I will discontinue using PayPal on November 1. As of today I am reducing the premium for using PayPal from \$5 to \$3.

Is anyone confused ? If you want to use PayPal, you ADD \$3 to the regular price. ReCap kits are still available by mail ONLY at the old prices. I currently have 10 in-the-can kits and 16 under-the-chassis kits in stock for immediate shipment. Well, almost immediate 'cause I am gonna try to slip off and go fishing for a couple days next week.

Kindest regards, Dave

R390A capacitor kit.

I have put together a ReCap kit for the R390A.

It consists of:

(13) 0.1 ufd 600V C256, C309, C504, C505, C517, C521, C528, C531, C536, C538, C543, C547, C548

(7) 0.033 ufd 600V C275, C529, C533, C534, C541, C545, C602

(7) 0.01 ufd 600V C549, C553, C601, C604, C605, C607, C608

(The above are Orange Drops or equivalent.)

(3) 30 ufd 300 v electrolytic C603A, C603B, C603C

(2) 47 ufd 300 v electrolytic C606A, C606B

(The above electrolytics have axial leads. You can wire them under the chassis and leave the originals in place to retain stock appearance. Or you can order capacitors small enough to fit inside the cans of C603 & C606. Just remember you will have to deal with the Dreaded Black Ukumpucky to get the guts out of the cans of C603 & C606. If you do not specify at time of your order, the under the chassis capacitors will be shipped.)

Finally, one each of :

0.047 ufd 100v C227

8 ufd 30v tantalum electrolytic C609

50 ufd 50 v electrolytic C103

0.22 ufd 100 v C101

I cannot find a source for: 2 ufd 500v C551 oil filled paper

so, I will include a very high quality poly cap. I have installed one of these in one of my R390A's and I

can say I cannot hear any difference. They work great. This is the AGC capacitor.

The price for this recap kit is \$80.00 US funds. Price includes UPS or US post delivery. Canada and Mexico US\$85. Western Europe, South America and Pacific rim US\$90, rest of world US\$93. All sent airmail if possible. ALABAMA RESIDENTS MUST ADD US\$3 STATE SALES TAX. For your convenience, I now take PayPal. If you wish to pay with PayPal, add US\$3 to the above amount and have PayPal deposit it in my account at Biologicalinst.

Send orders to:

Dave Holder
Biological Instruments, Inc.
8 South 29 th. Street
Birmingham, Alabama 355-1004
USA

From hankarn@pacbell.net Sun Sep 15 00:04:01 02
Subject: [R-390] Oldham Coupler Springs

R-390 group,
I am the other half that Al sent springs to. Same deal as Dave, Send SASE padded. I am going to buy 0 from Al to make more available. I will include the springs with the Oldham coupler disc I am selling for \$47.00 mailed. Just for the springs, send the SASE envelope to
Dan Arney
c/o Global Pack & Mail
21315 Saticoy St. Unit R
Canoga Park, CA 91304-5685. Thanks, Hank KN6DI

From w9wis@charter.net Sun Sep 15 18:29:47 02
Subject: [R-390] OT:Help with AN/URM-223 (ME-297) Batteries ?

I just received a NIB AN/USM-223 (ME-297) FET multimeter. I know that the six original mercury batteries (BA1312NEDA1100 1.35v Eveready E1 cells) are no longer obtainable. I've been told that on later ME-297's the military switched to 2 ea 4.5v Energizer 523's after some sort of modification..... and that there is another mod to allow use of ordinary alkaline AA cells. Anyone know what I need to do to use the Energizer 523's or AA's ? Thanks, Mike

From roy.morgan@nist.gov Sun Sep 15 19:18:55 02
Subject: [R-390] OT:Help with AN/URM-223 (ME-297) Batteries ?

wrote: >I just received a NIB AN/USM-223 (ME-297) FET multimeter. > ... there is another mod to allow use of ordinary alkaline AA cells.

Mike,
The mercury cells, or whatever you substitute runs ONLY the OHMS function..there is an FET amplifier used only in that function.

The biggest trouble in using AAA cells is where to put them.

The meter is NOT a FET input multimeter. The meter movement is a high sensitivity one and so it will not load the circuit under test in the way the older 1000 ohms per volt units did.

>Anyone know what I need to do to use the Energizer 523's or AA's ?

I suggest you find a nice way to include them inside the case, and forget the problem.. Just solder them together, wrap with tape and stuff them in there.

There was a mod done to one URM-223 I have here to add a new test jack to the front panel to allow successful testing of diodes. One of the resistors inside is split into two parts and it applies a larger than normal voltage to the diode under test so silicon diodes conduct in the forward direction. Roy

From Sun Sep 15 :40:38 02

Subject: [R-390] R-390A tuning question.

Hello all.

After using the R-390A for a couple weeks to "chase beacons" I have noticed a tuning peculiarity that I'm wondering is 'normal' for the set.

First, let me explain what I'm doing. I'm chasing beacons in the 0-525kHz longwave range. I use extremely narrow filters with both the .1KC Xtal filter and Sharp audio selected, BFO offset about 800 Hz. Naturally this requires extremely slow and patient tuning to prevent overrunning a weak beacon.

The KC tuning on my receiver is very 'free', probably the best R-390A I've had in that regard. BUT, I've noticed that when tuning "up" in frequency the tuning is easier than when I tune "down". Almost like tuning up in frequency is "power assisted". Common sense would tell me that, if anything, it should be the other way around as the slug racks for the most part are going down as you tune down in frequency.

Has anyone else ever noticed this anomaly? Cause? Cure? 73 de Phil KO6BB

From Llgpt@aol.com Sun Sep 15 :55:45 02

Subject: [R-390] R-390A tuning question.

writes: << Hello all. After using the R-390A for a couple weeks to "chase beacons" I have noticed a tuning peculiarity that I'm wondering is 'normal' for the set.

Hi Phil,

You may have already done this..... "Center" the slugs in the racks by loosening the retainer screws. make sure the slugs are centered as they slide in the coils. This may be the problem you are experiencing. Les Locklear

From redmenaced@yahoo.com Sun Sep 15 21:31:10 02

Subject: [R-390] R-390A tuning question.

Its really going to depend on what part of the cams the rollers are riding on as to which direction is easier. Joe

From Llgpt@aol.com Sun Sep 15 21:39:54 02
Subject: [R-390] R-390A tuning question.

writes: << Its really going to depend on what part of the cams the rollers are riding on as to which direction is easier.

Hi Joe and group, It has never really mattered on the R-390A's I have had. Les

From roy.morgan@nist.gov Sun Sep 15 21:40:24 02
Subject: [R-390] R-390A tuning question.

writes: > ><< Its really going to depend on what part of the cams >the rollers are riding on as to which direction is >easier.

I would check the cam follower bearing for lubrication (one tiny drop of oil each) and also grease the cam slots lightly. Roy

From scott" <polaraligned@earthlink.net Sun Sep 15 23:30:07 02
Subject: [R-390] Rf Geartrain rebuild CD

I have sent out 23 rebuild CD's. Some of you have already sent me \$ for the CD's even though I have not asked for any. Thank You. Some have said they are going to send \$ to me. Please, redirect any donations to help QTH.NET. Read the following and send donations to Al. If it were not for him we would not have this wonderful forum. Thanks, Scott

As a user of the mailing lists at QTH.NET you understand the importance of good communications. We strive to have the best mailing list environment possible, no spam, no advertising and your complete privacy as a user. It is not easy doing it this way and believe me the temptation for commercials is always there. The major costs of running this system is bandwidth for access. This costs a lot of money every month. We are presently at a crisis point for funding. The events of 9/11, the stock market and the almost total lack of contributions has caused us to start spending our reserve funds. There is money left to continue QTH.NET for about another 2 months without your help.

There are few bargains left in this world but I see this as one of them. Please contribute to the funding of this site. I suggest \$15, less than an ARRL membership, less than a nice dinner out with the family but so important to our future. The choice is yours. I can't continue without your help.

If you care to contribute, please do it today. By Credit Card <https://proxy.qsl.net/donation>
PayPal <http://www.paypal.com> (account k3tkj@qsl.net)
BidPay <http://www.bidpay.com> (account k3tkj@qsl.net)

Donations by mail:
QSL.NET
34087 Old Hickory Road
Laurel, Delaware 19956

Thanks in advance.... Al

From scott" <polaraligned@earthlink.net Mon Sep 16 00:43:37 02
Subject: [R-390] R-390A tuning question.

> Has anyone else ever noticed this anomaly? Cause? Cure? > > 73 de Phil KO6BB

Should not be any noticable difference. The gearing makes the resistance of the springs insignificant. The only thing I can see is your wrist is stronger turning in one direction than the other. Ask someone else to try and see if they notice any difference. Scott

From scott" <polaraligned@earthlink.net Mon Sep 16 00:48:47 02
Subject: [R-390] 390 SURVEY

I want to take a little survey. Please reply to me privately so we don't flood the list.

THIS IS FOR THE 390 NON-A ONLY!!!!

Do you own one and if so:

- 1) Have you rebuilt it?
- 2) Do you plan on rebuilding it in the future?
- 3) Would better rebuild documentation be a factor in your rebuilding the receiver?

Thanks, Scott

From courir26@yahoo.com Mon Sep 16 01:10:19 02
Subject: [R-390] R-390A tuning question.

It means you are tuning "uphill" on one or more of the RF deck cams when it is hard, and downhill when it is easy. The springs on the cams resist the uphill travel. This is normal. 73 Tom N5OFF

From courir26@yahoo.com Mon Sep 16 01:15:48 02
Subject: [R-390] R-390A tuning question.

Gentlemen?

Phil is noticing this because his geartrain is slick and clean. If the geartrain is more "normal" then it probably is not noticeable.

This phenomenon can be demonstrated easily when the RF deck is half taken apart, and during alignment of the cams. Cam alignment is best done with the springs off as the spring tension alone is enough to cause turning in the shafts (but generally not when it is all put together). Props to Phil for having a slick system. I wish I had the same problem. 73 Tom N5OFF

From djmerz@3-cities.com Mon Sep 16 03:47:45 02
Subject: [R-390] R-390A tuning question.

Hi, this answers a question and reminds me of a gripe I had about my 390a after I cleaned it and lubed it with SouperSlick. When I let go of the kc knob, it went all the way to one end of the tuning range by itself. I added some thicker oil to prevent this !!! Friction has a legitimate purpose most of the time despite our disdain for it. Thank goodness, SouperSlick is off the market and that's one less headache to

deal with. tmsaisti. Dan.

From Mon Sep 16 04:56:17 02
Subject: [R-390] R-390A tuning question.

Barry et al...

The below is true 'IF' you wish to use it in the SSB mode. In my case I'm chasing CW signals (actually the sidebands of MCW signals. So, in this case using the .1KC selectivity position I want the signal (or calibrator) Centered in the very narrow IF passband. Since I want a 800 Hz CW note to make it through the "sharp" audio filter I 'must' have the BFO offset by 800 Hz, NOT by one half of the filter bandwidth! This will give me maximum selectivity and maximum audio for a given CW signal. 73 de Phil KO6BB

From w5or@comcast.net Mon Sep 16 16:38:34 02
Subject: [R-390] Rf Geartrain rebuild CD

Here are Scott's pictures and instructions.

For an albumatic presentation: <<http://militaryradio.com/R390A/R390RFDeck/index.html>>

For a complete file, suitable for saving and viewing off line: <<http://militaryradio.com/r390a-rfdeck-geartrain.html>>

Thanks, Scott. Don Reaves W5OR

From jbrannig@optonline.net Mon Sep 16 17:13:24 02
Subject: [R-390] Rf Geartrain rebuild CD

Wow....great pictures, Tnx Jim

From cbscott@ingr.com Mon Sep 16 19:47:37 02
Subject: [R-390] Replacement caps for HP0CD

The HP0CD I have has two "Black Cat" caps I'm going to replace. They are 0.5ufd @ 400VDC. I know the standard today is 0.47ufd, but would I be better off sticking to the original value by using two 1ufd in series? If I do, is it acceptable to use 0VDC caps? Is there any adverse effect from doing this?

I know that caps in parallel add to the total capacitance, but each cap in this case will tend to act independently at different frequencies. I don't think this is the case with series caps, but I'm not sure. Thanks, Barry - N4BUQ

From jmerritt2@capecod.net Mon Sep 16 :41:26 02
Subject: [R-390] Replacement caps for HP0CD

Just replace them with .47 / 400V units and be done with it. Given the ACTUAL capacitance of the two types (new Vs old), as well as the standard tolerance for these types of capacitors, which is %, the chances of either being exactly as marked is practically nil. Also, there are no circuits in the 0-CD that

are that critical as to cap. values. Leakage, as is probable in the old "black" units, is the real culprit that you need to address. Chuck N1LNH

From cbscott@ingr.com Mon Sep 16 :49:51 02
Subject: [R-390] Replacement caps for HP0CD

Actually, the caps in there right now were 10%. That's what got me to thinking that I might need to stick as close to 0.5ufd if possible. 0.47 is already at 6%. I agree that this circuit shouldn't be all that critical, but I just didn't know if I should worry about it or not.

Sadly, the only local place that has parts like this only had one 0.47 @400V with leads. They had some that were PC mounted, but I didn't want to try to tack leads on them. If I could get the board off, though, I could easily mount these to one hole and drill another hole with a jumper. Hmmm, that might not be all that bad an idea. Barry - N4BUQ

From tbigelow@pop.state.vt.us Mon Sep 16 21:24:18 02
Subject: [R-390] Rf Geartrain rebuild CD

Thanks for posting this, Don - I've been too busy to even view my CD, so it's wonderful to see it firsthand.

Scott, you did a fabulous job! Congrats for certain, and many thanks as well for making your rebuild process one that we all can share and benefit from. Between you, Walter, and a some of the others on here, the R-390A has come of age in high resolution via internet access. Combine these images with the Y2K updated manual and servicing your 'A' model just got a lot easier. A great way to cut your teeth too, before getting into the rebuild of an R-390. I'd sure hate to learn on one of those first. 73 de Todd/'Boomer' KA1KAQ

From courir26@yahoo.com Wed Sep 18 12:23:30 02
Subject: [R-390] attn: Gil Torbeck re: Frequency Error

Gil: Sorry the 14.0 Mcs xtal did not fix the freq problem. Please restate the problem so the group can have another crack at it. 73 Tom

From terryo@wort-fm.terracom.net Wed Sep 18 14:27:30 02
Subject: [R-390] Help locating a meter

I need a 50 microamp meter in the same package as the meters in the R-390 to help a friend restore a piece of gear. Anyone know where I can find one? Thanks, Terry O' WB9GVB

From asolway@sympatico.ca Wed Sep 18 :05:32 02
Subject: [R-390] None A P/S Current

Hi All,

I am doing initial tests on my first R-390(none A). There are no problems, as yet, other than a complete a complete alignment that is needed. The radio seems to be working. Band 0 operates. Local radio stations are heard but off frequency.

As part of an experiment with a solid state replacement for the 26Z5s and the 6082s I need to know the actual current for the +180VDC for a properly operating radio. I realize that the original design documentation indicate that the P/S was designed for 0 MA. Any help would be much appreciated. I have started initial tests on the radio with the solid state replacement. The PTO end points adjustments are going very well.

Barry H. This is the beginning of article that I committed to last winter. Al VE2TAS

From cbscott@ingr.com Wed Sep 18 :37:23 02
Subject: [R-390] Solid State rectifiers vs Tubes

List,

I was looking over the changes to the HP0CD audio signal generator and I found where they went from solid-state rectifiers to a tube rectifier. That seems rather odd to me. Why would they have decided to go back to a tube rectifier? The change notice included distortion figures. Would a power supply configuration with a tube versus solid-state diodes have lent itself to a cleaner signal? Thanks,
Barry - N4BUQ

From David_Wise@Phoenix.com Wed Sep 18 :57:25 02
Subject: [R-390] Solid State rectifiers vs Tubes

> From: > I was looking over the changes to the HP0CD audio signal > generator and I found where they went from solid-state > rectifiers to a tube rectifier.

Beats me. Are the distortion numbers better or worse than what was published before? Sometimes they find out they can't make them consistently as good as they originally said and have to back-pedal a little. The 8640B change history has several examples.

More likely the SS diodes they were using turned out to be unreliable or more expensive than the tubes. Just a guess, YMMV. Let us know the real reason if you find out. 73, Dave Wise

From David_Wise@Phoenix.com Wed Sep 18 21:01:11 02
Subject: [R-390] None A P/S Current

> From: > I am doing initial tests on my first R-390(none A).

Congratulations!

> As part of an experiment with a solid state replacement for the 26Z5s > and the 6082s I need to know the actual current for the +180VDC for a > properly operating radio. I realize that the original design > documentation indicate that the P/S was designed for 0 MA. Any help > would be much appreciated. I have started initial tests on the radio

That's all you're likely to find. Measure yours, treat it as "typical", and call it good. A few other 390 owners might get interested enough to measure theirs. Good luck on your project. 73, Dave Wise

From keng@moscow.com Wed Sep 18 22:29:44 02
Subject: [R-390] Solid State rectifiers vs Tubes

wrote: > List, > > I was looking over the changes to the HP0CD audio signal generator > and I found where they went from solid-state rectifiers to a tube > rectifier.

It certainly could have. SS rectifiers cut off so sharply that they generate a goodly amount of noise, kind of like a spark-gap. I ALWAYS bypass for RF any I install. Disk ceramic caps both "across" every diode, and sometimes, depending on the noise problems I have with them, from each end to ground.

Tube rectifiers generate inherently quieter DC...except mercury vapor types, of course, but even those can be taken care of easily.

I have had considerable problems with noise from SS rectifiers getting into my receivers.

For the R-390 or R-390-A where one has trouble getting those 26Z5s, you all might consider changing them to 12BW4s.

For details go to: <http://www.mines.uidaho.edu/~glowbugs/> and click on link # 10. Ken Gordon W7EKB

From plmills@attglobal.net Thu Sep 19 11:41:00 02
Subject: [R-390] 200 kc xtals

If anyone needs a 200 kc xtal, go to eBay item.
<http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item1380843814> I have bought from Al before and was very pleased. 73, Phil W5BVB

From Lester.Veenstra@lmco.com Thu Sep 19 16:06:36 02
Subject: [R-390] Needed: Manual HP8656A

I need a maintenance manual for the ERF signal generator I just received DOA (Only the fan turns..no lights on front panel, no outout) The unit is an HP-8656A. Suggestions of a manual source to buy or copy would be appreciated. Les Veenstra K1YCM

From Richard.McClung@Dielectric.spx.com Thu Sep 19 22:38:49 02
Subject: [R-390] Sweep Generator Alignment

Since I have received numerous requests for the below information I am sending Al Tirevold a copy of: "U. S. Army Security Agency Training Center Student Text, ST-32-152, Visual Alignment Procedures for the R-390 and R-390A Receivers" for him to post to the R-390 FAQ URL. Your Aye, RICH @B> }

From DAVEINBHAM@aol.com Fri Sep 03:34:43 02
Subject: [R-390] Springs & stuff

Hi Guys,
As of today I have shipped 4 of the 11 sets of the Oldham coupler springs . Get 'em while the getting is good `cause when they are gone, they are gone. Almost every day someone emails to ask if I have any

more ReCap kits. Yes, I have a few.

And I am gonna be gone to the beach from 29 September to 7 October if hurricane Isabell does not screw things up. I plan to blow my entire profits from the last year's sales of ReCap kits on a couple of cases of St. Paulie Girl Dark beer. I will toast the R-390 net each night at sundown. Hope you enjoy that as much as I plan to enjoy it. Kindest regards, Dave

From Fri Sep 04:31:22 02
Subject: [R-390] Adjusting BFO Neutralization

Hello all.

When I finished the Langford AGC/BFO mods I needed a way to set the BFO neutralization. Not having a scope or other way to look at an RF signal at the IF output jack, I was having difficulty doing this. I even tried making an RF probe for my DVM, using a Ge diode, not sensitive enough.

THEN, it hit me. I had that MilliVac RF MilliVoltmeter that was given to me (a real obsolete piece of gear 8^). I had to contrive a way to connect to the screw on connector since the probe tip was missing. Once that was accomplished, Eureka! It worked and I was able to set the neutralization. Even after who knows how many years since the last alignment AND the Langford mods it only needed just a slight tweak.

So, I guess that no matter how ugly (and it is an ugly greasy green rack mount unit) or obsolete a piece of gear is, it may still be of use in the home 'lab'. 73 de Phil KO6BB

From plmills@attglobal.net Fri Sep 11:14:32 02
Subject: [R-390] WTB manual Eldico SBA-1 ssb adapter

Hello,

I received an Eldico SBA-1 ssb adapter yesterday and was lucky enough to get it working with my R-390A. However, I am in need of a manual for this and if anyone has an original or copy to sell I would like to hear from them.

BTW, I was pleasantly surprised at how much this adapter improves ssb reception. thanks & 73, Phil W5BVB

From roy.morgan@nist.gov Fri Sep 16:26:34 02
Subject: [R-390] WTB manual Eldico SBA-1 ssb adapter

wrote: >I received an Eldico SBA-1 ssb adapter yesterday and >was lucky enough to get it working with my R-390A. >However, I am in need of a manual for this and if anyone >has an original or copy to sell I would like to hear from >them.

Phil,

Back in '99 there was a short exchange on the Collins list about this device. One of the folks may have a manual for you. (This archives source x-es out the email addresses so you'll need to go to the Collins list archive for them)

From DAVEINBHAM@aol.com Fri Sep :35:25 02

Subject: [R-390] All the springs are spoken for

The subject line says it all---- almost. About 1 in 5 of the nice folks who email me and ask me to reserve a ReCap kit never get around to actually sending a check (or now PayPal). Things fall through the cracks. It has even happened to me. The best laid plans of mice and men sometimes go to hell in a handbasket.

So, lets say for now they are all gone. If someone forgets to send me an SASE and I have any springs left over we can start all over after I gat back from the beach on or about 7 October. Wish me luch. May the hurricane go somewhere else than Dauphin Island. Kindest regards, Dave

From nryan@intrex.net Sat Sep 21 01:25:54 02
Subject: [R-390] Solid State rectifiers vs Tubes

Hello, Ken,
Interesting that solid state rectifiers are noisy-- never occurred to me.

What capacitance disk ceramics would you use across, say, a pair of SS rectifiers replacing the 26Z5W's? 73 de Norman KG4SWM

From nryan@intrex.net Sat Sep 21 03:28:21 02
Subject: [R-390] Solid State rectifiers vs Tubes

Hi, Kurt,
Gruss aus North Carolina! Les wrote back and says he uses .01 uF @ 1 KV disk ceramics. (That's his story and he's sticking to it.) Still waiting for other responses. 73 de Norman KG4SWM

From vze2gmp4@verizon.net Fri Sep 21:48:39 02
Subject: [R-390] Solid State rectifiers vs Tubes

I've wanted to bring up diodes in power supplies for a while now. For the most part, the usual 1n400X doesn't produce any noise that one can hear. If you put a scope on the high voltage line you might see 50 millivolts and switching spikes. Older power diodes from -30 years ago where more prone to this. I designed digital ckts for quite a few years and noise problems from power supplies where common, there was no going back to tube rectifiers. The way the noise is generated is due to a mismatch between the secondary of the transformer and the diode impedance. Papers were written about this way in the fifties. Anyhow the old "put a ceramic .01 cap across the diode" doesn't work. We also can't rewind the power xformers for 390's either, so what I've been using is either a fast recover diodes, or Hexfred diodes, both designed to be hash free.

1N4937 1amp 600volt, fast recovery type
HFA08TB60 1 amp 600 volt Hexfred

Both available from Mouser, Digikey and such. Don't cost more than a buck or two.

The old .01 cap thing is for keeping RF generated by the radios oscillators and such out the power supply to prevent "hum" modulation. Transmitter power supplies usual have these.

Another way of knocking out the hash is to put a resistor of low ohmage in series with the diodes, but in order for this work correctly the impedance of the secondary and other data of the diode needs too be

had and along with some math, hash can be also gotten rid of. That resistor that one sees in some older solid state design wasn't just there just for surge protection. That's it in a nut shell. --Helm. WB2ADT

From keng@moscow.com Sat Sep 21 06:40:52 02
Subject: [R-390] Solid State rectifiers vs Tubes

> Would you be so kind to post the answer to the list ?

Hello, Kurt:

Use 0.01 MFD at 1 KV...or thereabouts. Not too critical as long as they will handle the voltage. Ken Gordon (whose Maternal Great-grandparents were from the Hartz Mountain area).

From keng@moscow.com Sat Sep 21 06:44:03 02
Subject: [R-390] Solid State rectifiers vs Tubes

> What capacitance disk ceramics would you use across, say, a pair of SS > rectifiers

I would use something around 0.01 MFD at 1 KV...at least that is what I have used for years.

Yes. You can hear un-bypassed SS rectifier noise in your receiver almost always. Sometimes it is really pretty loud. VERY annoying!!!! Ken W7EKB

From keng@moscow.com Sat Sep 21 06:59:46 02
Subject: [R-390] Solid State rectifiers vs Tubes...a reply...

> I've wanted to bring up diodes in power supplies for a while now. For the most part, the usual 1n400X doesn't produce any noise that one can hear.

Hmmm...perhaps you are correct. I have never looked at my HV line with a scope nor tried to track the noise back with a scope.

None-the-less, when I by-pass the SS diodes with a .01 MFD 1KV disk capacitor, the noise goes away. I have had this problem in several receivers: ARC-5s with built-on and separate power supplies, HW-16 (two of them), home-brew receivers (two of them).

> If you put a scope on the high voltage line you might see 50 > millivolts and switching spikes. Older power diodes from -30 years > ago were more prone to this. I designed digital ckts for quite a few > years and noise problems from power supplies were common, there was no > going back to tube rectifiers. The way the noise is generated is due > to a mismatch between the secondary of the transformer and the diode > impedance. Papers were written about this way in the fifties. Anyhow > the old "put a ceramic .01 cap across the diode" doesn't work.

I am certainly not going to argue the point with you since you obviously know more about it than I do. I arrived at my solution empirically and only guessed at its cause. Again, none-the-less, my solution worked 100% of the times I had to use it.

> We also > can't rewind the power xformers for 390's either, so what I've been > using is either a fast

recover diodes, or Hexfred diodes, both designed > to be hash free.

So the hash problem has been recognized by the industry, then, and a solution devised?

- > 1N4937 1amp 600volt, fast recovery type
- > HFA08TB60 1 amp 600 volt Hexfred
- > Both available from Mouser, Digikey and such. > Don't cost more than a buck or two.
- >
- > The old .01 cap thing is for keeping RF generated by the radios oscillators and such out the power supply to prevent "hum" modulation.

That definitely works for regenerative receivers, which are most susceptible to that problem.

> Transmitter power supplies usual have these.

Yes, but in that case, they are used primarily to keep the "switch- off" transient from blowing the diodes. Voltages in transmitters are usually higher than in receivers, and are usually switched on and off more often... My RSGB handbook addresses this issue at some length and suggests a series combination of capacitor and resistor across transformer primary and secondary and across any filter choke, in addition to by-pass capacitors across every diode.

> Another way of knocking out the hash is to put a resistor of low ohmage > in series with the diodes, but in order for this work correctly the > impedance of the secondary and other data of the diode needs too be had > and along with some math, hash can be also gotten rid of. That resistor > that one sees in some older solid state design wasn't just there just > for surge protection. > > That's it in a nut shell. >
> --Helm. WB2ADT

Thanks, Helm. Ken Gordon W7EKB

From r390a@enteract.com Sat Sep 21 :09:58 02
Subject: [R-390] FS Case for R-390x/SP-600

This case is in pretty good shape with the usual scratches from use. No significant dents, no rust or corrosion. Price is \$150 plus shipping. Usable dimensions: 10.5 high, 19 wide, 24 deep Weight: 40 lbs.

This will take and R-390x or SP-600 with depth to spare. It would be especially good with an R-390 non-A because there is plenty of room to mount fans in the back panel to increase ventilation.

Here are some pictures (with an R-390A front panel):

<http://www.enteract.com/~r390a/ForSale/Cabinet/Front.jpg>
<http://www.enteract.com/~r390a/ForSale/Cabinet/Side.jpg>
<http://www.enteract.com/~r390a/ForSale/Cabinet/Inside.jpg>
<http://www.enteract.com/~r390a/ForSale/Cabinet/Foot.jpg>

There are two adjustable mounting rails to give support so the weight of the receiver is not carried by the front panel. The rails can be easily removed, if desired.

<http://www.enteract.com/~r390a/ForSale/Cabinet/Rail.jpg>

And if all that is not enough, it has a really cool sticker:
<http://www.enteract.com/~r390a/ForSale/Cabinet/Duh!.jpg>

Shipping weight approx 60-70 lbs from ZIP 60067. I can also bring it to Radio Expo in Greyslake, IL on Sunday. 73, /dave N9ZC

From w9wis@charter.net Sun Sep 22 18:32:39 02
Subject: [R-390] Rack suggestions

What do you guys recomend for a taller rack/cabinet ? I've been steadily adding to my R-390A (you guys are right.... this IS addictive)so now besides my refurbished R-390A and new CY-979 cabinet I also have a new LS-6 speaker system and refurbished CV-591A.

It looks like I have two options here:

1. Keep R-390A in CY-979 and the CV-591A and LS-6 go in seperate cabinet or rack.
2. All three in a rack and CY-979 vacated.

All three would require no less than about 24.5 to 25" of inside rack height. The LS-6 and CV-591 option would require 14" of rack height if I'm figuring this right.

I seem to be leaning towards a seperate cabinet for the LS and CV..... any other ideas ? I don't know much about what's available for taller rack/cabinets these days.... I've checked around and found 6 ft open frame racks and 6 ft cabinet type racks but these seem pretty tall for what I want to do.

What's available out there in lets say 36" tall racks or cabinets ? Or 14 inch tall cabinets that would look good and work out for my situation ? Mike

From Walter Wilson" <walter@r-390a.us Sun Sep 22 :50:15 02
Subject: [R-390] Rack suggestions

Mike,

I have run through the same problem, and solved it moving all into a taller rack. I currently have an R-390 and an R-390A and a CV-591A and a Symetrix 528E voice processor in a 28 inch rack, with just a little bit of room to spare. I just picked up a 36 inch rack at Shelby that I will refinish, and may eventually move into if (when) I outgrow the 28 inch rack. I'm saving the CY-979 for the day that my wife lets me place an R-390A on the nightstand as a bedside radio. ;-) Walter Wilson - KK4DF

From mahlonhaunschild@cox.net Mon Sep 23 00:06:36 02
Subject: [R-390] International meter disassembly

Hello, list.

I have a pair of 1964-vintage R-390A International meters that need to have their bezels re-painted, and I'd like to remove the bezels to do this. It's not obvious to me how the bezels are removed, and I haven't pried up the rubber gaskets yet (for fear of tearing them up needlessly). Can anyone offer some advice

on this? regards, Mahlon - K4OQ

From mahlonhaunschild@cox.net Mon Sep 23 00:43:28 02
Subject: [R-390] Nice find at tailgate swap yesterday

Hello, list.

Picked up an older Heathkit IT-11 capacitor checker at a tailgate swap yesterday for \$10. I've been shopping 'round for something more sophisticated, like an old Sprague Tel-Ohm-Ike analyzer, but hey, for \$10, who cares?

Gotta tell ya, this unit is way more capable than I thought it was going to be. The leakage test can be conducted at any voltage from 3 to 600 volts, which should cover most anything we are likely to come in contact with in our R-390s. And the capacitance bridge is reasonably accurate, too. Additionally, it can be used to determine transformer turns ratios.

If you find one of these, know that apparently the older version of the IT-11 used paper capacitors in the bridge circuit, which I had to replace with polyesters before the thing would work properly. The old wax-covered paper capacitors leaked like sieves.

The IT-28 is apparently the same design, just in the newer tan-colored Heathkit paint scheme. The only drawback that I can think of is that these testers use a 6E5 eye tube, which is hard to come by.

The later version of the IT-11 and, I imagine, all of the IT-28s have a dual-voltage power transformer. Mine is 117 VAC only. regards, Mahlon - K4OQ

From johnathan_dudley@yahoo.ca Mon Sep 23 01:14:26 02
Message-ID: <0923001426.19370.qmail@web14704.mail.yahoo.com>

I am looking to purchase a R-390A, preferably all complete and in reasonable shape. I live in Toronto, Ontario area. Anyone who might have something of potential interest please let me know. Thanks, and 73, John VE3LZ

From vze2gmp4@verizon.net Mon Sep 23 03:29:26 02
Subject: [R-390] International meter disassembly

To remove the front bezel. Looking at the back of the meter there are 4 slots at the base of the bezel. I use a small screwdriver and tap at slots, top to the left. It should then unscrew easily. No need to mess with the rubber gaskets or remove terminal screws.

From scott" <polaraligned@earthlink.net Mon Sep 23 12:10:35 02
Subject: [R-390] IMPORTANT International meter disassembly

The MOST important thing that is what Helm forgot to tell you. OPENING THE METER WILL POTENTIALLY EXPOSE YOU TO RADIUM DUST WHICH CAN HAVE LONG TERM HEALTH RISKS. ONCE YOU INHALE A SPECK, IT SETTLES IN YOUR BONES AND IS THERE TO STAY. The meters can be safely disassembled but you must use common sense. Scott

From hankarn@pacbell.net Mon Sep 23 15:17:36 02
Subject: [R-390] IMPORTANT International meter disassembly

Scott, Sounds like you must have been on the De-Mil board that caused all of the meters to go away. For the record please prove that any one person has ever been hurt by what radiation that might be emitted from any of the metros.

You are exposed to more stuff everyday than the meters. Just send me all of the meters and I will keep them out of harms way for another one or two half life periods.

You could scrape them and make an omelet and eat it with no harm. Hank

From jlap1939@yahoo.com Mon Sep 23 15:34:10 02
Subject: [R-390] Loss

Dear Friends,

I have apparently lost a meter in the mail.. I sent it priority. Any comment? John

From cbscott@ingr.com Mon Sep 23 15:35:01 02
Subject: [R-390] Solid State rectifiers vs Tubes

I checked the manual's "change pages" for the SS-diode to tube modification and, sure enough, the distortion figures were changed for the better -- at least in part of the frequency ranges. IIRC, it went from 0.2% to 0.1%. Now if I just had a method to measure this. I don't have a distortion analyzer :(

Barry - N4BUQ

From jlap1939@yahoo.com Mon Sep 23 15:54:38 02
Subject: [R-390] VTVM units from Navy

Friends..

I never pass up older electronics, as some of you know..

Picked up 2 Ballentine meters..Can't remember Nom. on them but they are about 0 thru volts or so, and have a db scale, run on 6, 1 volt tubes and have mult. 1.5 and 67.5 volt dry batts...Both work at present, but one is slow in coming up so must have low batts. Pd 2/\$5...anyone want one..will send it on up.. (one has a cover..the other, no..). NO PROBES. They are no use to me..might be O.K. for at least parts to someone..(These are ex. Navy..)

Ask for more inf..will write it down if I am coming back to Lib. and can tell you mod. no.s. etc.

Forgive the following pub. use:

Tube tester on way tdy or tom.. ckng my thoughts on the Konel.. Scanner going in a few days.. will check DF and will send.. Have other junk will detail later..

Havn't got back to my 390 yet.. still "un-well".

Have to leave...out of time..(which is why I put a few things public)..Will give up on Lib. and get a comp. someday...(If people are waiting, you only have half hr at some times..) Regards, John

From r.tetrault@attbi.com Mon Sep 23 16:42:11 02
Subject: [R-390] IMPORTANT International meter disassembly

If the population of meter disassemblers were large enough there would be an increase in the incidence of radiation effects. The "for the record..." statement is exactly what the tobacco lobby said.

From jordana@nucleus.com Mon Sep 23 16:50:21 02
Subject: [R-390] IMPORTANT International meter disassembly

I would think that would depend on someones' tendency towards developing any type of cancer, bone disease, liver problems etc... We are not all the same, and hereditary tendencies can be a big part of the risk. Adding "known" factors into the equation only heightens the risk...Avoiding things that add to the count of factors can only help.

Why risk exposure to something that can increase the chance...? Perhaps the level is very low, and in 99.9% of the cases, "Harmless", but disregarding the risk should be left to the individual. Even OA2WA tubes emit radiation, but personally, I'd prefer cheese and mushrooms in my omelete.... 73 de Jordan....

From cbscott@ingr.com Mon Sep 23 16:58:34 02
Subject: [R-390] IMPORTANT International meter disassembly

I dunno...there's a lot of cholesterol in an omelet. Barry - N4BUQ

From scott" <polaraligned@earthlink.net Mon Sep 23 18:19:38 02
Subject: [R-390] IMPORTANT International meter disassembly

I would love to see you do it. Please e-mail pictures. And that is just your humble opinion because you can produce no evidence contrary. Let's get back to the point here...it is not just a short exposure....it will be decaying in your bones for the rest of your life. I am NOT against taking apart the meters, hell, I just did mine. I am for warning people of the potential for hazard. I feel that it is a responsibility we have to tell someone who may be in the blind about possible radium exposure. Let them make the decision how to proceed. Nothing wrong 'bout being a good neighbor. Scott

From Mon Sep 23 19:57:14 02
Subject: [R-390] Need T-8 & Z501

Hello all.

I'm want to put an Xtal filter in a homebrew Longwave CW receiver I have built (a Glow Bottle set of course 8^). I have the room and figure the best way would be to use an assembly from the R-390a IF somebody has the spare parts.

What I need, Transformer T-8 from the RF chassis and unit Z501 from the IF chassis which consists of Y501, C5, C524 and L503. Budget for the parts are non existant.

I HAVE TO SWAP:

Don't have a lot to swap, but I can offer two pairs of the plug-in 'lytic capacitors for the R-390A AS WELL as two 2uF oil capacitors from the IF AGC units. These came out of working radios but were replaced as a natural part of a complete recap. These all worked but the 'lytics show some leakage around the seals, probably better as 'rebuild' candidates. 73 de Phil KO6BB

From tgrieco@optonline.net Tue Sep 24 02:26:44 02
Subject: [R-390] Cables forS-LINE

Slightly off subject, but lots of info here. Can someone point me to a source for GOOD connecting cables between 32s1, 75s3c,312b4 and finally 30L1? Mine are very old and should treat her to a new set! Lets say make her more PERKY! Thank you, Tim

From mahlonhaunschild@cox.net Tue Sep 24 01:55:26 02
Subject: [R-390] Re: International meter disassembly

All,
Thanks for all of your advice on this subject.

For the record, these two International meters (date coded June 1964) were made with the four threaded bushings that screw into the bezel from behind, and they were indeed left-hand thread. regards, Mahlon - K4OQ

From tgrieco@optonline.net Tue Sep 24 03:08:14 02
Subject: [R-390] photos

Trying to reach Jonathan Dudley, but gave wrong e-mail address. All messages being returned. Message reads that yiu have no Yahoo account. Please forward proper address and then we may be able to communicate. Thank you, k1syn

From hankarn@pacbell.net Tue Sep 24 03:18:49 02
Subject: [R-390] REF: R-390-A SN & 591

FYI

Tom,
I have acquired 2 R-390a's and 2 CV/591's that were removed from the Carrier the US Bon Homme Richard when she was cut up for scrap in the LA Harbor..

1. EAC from the 67 contract with S/N 525 with the diode mod, SS PS, original meters and very clean and fully functional
2. SW contract PC-59 with S/N 595 with diode mod, SS PS and replacement meters it is functional but

could stand some tweaking and cleaning.

The CV/591's are S/N 1572 and 1069. They are marked Channel A & B for ISB operation.. Both are functional. Hank KN6DI

From DCrespy@aol.com Tue Sep 24 03:39:55 02
Subject: [R-390] Re: R-390 digest, Vol 1 #401 - 8 msgs

Mahlon,

If the gasket is the one that is square on the outside to match the meter outside dimensions and round on the inside to match the meter body, you will have to pry it out to get a look at the screws that hold the bezels on. They come off easily, especially if you use a little soap to help it slide off.

The screws are drilled through for the mounting screws, so there will be one at each mounting point. This will be clear when you get the gasket off. Some of the screws are conventional right hand thread, while some I have found are left hand thread! So, if they do not come out easily, try turning the other way!

Finally a caution, the glass and its gasket will not be real secure in the housing, and will likely come loose after the bezel is removed. If you have the radioactive meters, you have to decide how important it is to you and your health to have a perfect paint job. If you have any doubts, I'd just clean it up with windex, as it sits, then mask it precisely and paint. I hope this helps 73 Harry KG5LO Saline, MI:

From ezeran@concentric.net Tue Sep 24 04:32:34 02
Subject: [R-390] REF: R-390-A SN & 591

Well! Mr. Hank!! How be you?? Just got back from another excursion to places PacRim then sandy ~,^) Hope your nasty self is still doing ok.

From Robert Nickels" <w9ran@ONERADIO.NET Tue Sep 24 04:21:42 02
Subject: [R-390] FS: R-390-A

I'm listing this for Chuck KE9HO pops@sunstarip.com who is not a list member. p Contact HIM, not me!

For sale: R-390A receiver in good condition. Nameplate says "Amelco 35064-PC-62", serial number 1453. Complete with original meters and the turns-counting dial on the BFO control. No covers. Panel is good with minor blems and working. Asking \$500 plus shipping. Will pack and double-box securely, buyer pays actual UPS charges plus \$10 for packing materials.

Again, please contact Chuck KE9HO pops@sunstarip.com if you're interested, thanks. 73, Bob W9RAN

From rodney_bunt@yahoo.com Tue Sep 24 07:51:03 02
Subject: [R-390] Sweep Generator Alignment - posted yet ?

Richard,

Has these alignment manuals been posted yet ? on www.r-390a.net/faq-ref.htm Rodney VK2KTZ

From rbethman@comcast.net Tue Sep 24 10:42:29 02
Subject: [R-390] Bird slugs for sale or trade

I have the following Bird Slugs for sale or trade, reasonable offers, before they go to the "E" place:

1 ea 50W - .95 to 1.26 GHz

1 ea 25W - 1.7 to 2.2 GHz

1 ea 10KW - 0.45 to 2.5 MHz

All are VERY clean and in VERY good condition.

Please E-Mail Direct. Bob - N0DGN

From rbethman@comcast.net Tue Sep 24 10:52:57 02
Subject: [R-390] Restoration of 1952 Collins # 252

I'm deep into it now.

All modules are out, all are updated with new caps except for the RF deck. I'm still staring at it BEFORE I dig into the gear and timing/synchronization issue. It is WAY off.

I've not dug into this rat's nest before, so I'm reading and studying carefully.

Overall it hasn't been bad.

I'm NOT going to stagger tune this one. I wan't to personally see the difference between this and my '67 EAC. I will however, be VERY picky when alignment comes. We shall see how sensitive she can get!
Bob - N0DGN

From cbsscott@ingr.com Tue Sep 24 13:33:27 02
Subject: [R-390] Cables forS-LINE

Someone on the Collins list used to have brand new cables for sale. You might put a request there.

Barry - N4BUQ

From jbrannig@optonline.net Tue Sep 24 13:43:14 02
Subject: [R-390] Cables forS-LINE

The RF cables are made with RG-58. The lengths are critical and stipulated in the various manuals. The other cables may be any shielded audio type. I use multi-conductor shielded/audio cables to cut down on the "haywire". Someone on the Collins reflector sells sets of cables, you may want to check ~~there~~.

From Richard.McClung@Dielectric.spx.com Tue Sep 24 14:34:12 02
Subject: [R-390] Sweep Generator Alignment - posted yet ?

I've mailed the ST 32 - 151 and ST 32 - 152 to Al Tirevold via Priority Mail this AM..... RICH
@B> }

From rbethman@comcast.net Tue Sep 24 14:53:07 02
Subject: [R-390] Re: Bird slugs for sale or trade

The 1 ea 25W - 1.7 to 2.2 GHz is the only one left. Bob - N0DGN

From jlap1939@yahoo.com Tue Sep 24 15:27:35 02
Subject: [R-390] meters

Friends, A few items:

I wear a 1929 Mido wr. watch, orig. (the 25 J self w) It is ALL orig, INCLUDING complex radium dial,(which you can't make brighter by holding in light; it is always the same brightness), been worn for 25 years. Am I doomed?

Ballentine meters.. not a big deal, but here is from the nom. plate: Mod. 302C, Scale, 1-10 V, 0- db. Func. sw. is: 1mv, 10mv, 100mv, 1v, 10v, 100v, 1kv. If you didn't see prev: 6 1v tubes (I think 5 1U4 and 1 maybe 1J6 (?). About 10 lbs I believe.. They were mil. vtm units, frm Navy.. discarded, 1998..

One is promised. anyone want the other, let me know. It has no cover, and one knob is "skint" a little (don't you just love making up spellings...) Still think someone might at least get some parts.. Would like you to return shipping to me, but its no big deal...Meter is free. Best Regards to All, John

From w9wis@charter.net Tue Sep 24 17:51:52 02
Subject: [R-390] Cool old USAF radio pic

Here's a blast from the past. Check this old pic I found. Not a R-390(a) looks like a cv-591a in the rack and a SP-600 ??? <http://webpages.charter.net/w9wis/cw/sixties5.jpg> Mike

From tbigelow@pop.state.vt.us Tue Sep 24 18:00:22 02
Subject: [R-390] Cool old USAF radio pic

Looks like all TMC gear, Mike - GPR-90 X or something for the crystal feature w/'591 above it - and a lovely GPT-750 beside/behind the operator. Looks like the same EV mic used on the Collins AN/URC-32 (KWT-6) Nice shot, really crisp, too. Boomer

From Lester.Veenstra@lmco.com Tue Sep 24 18:00:58 02
Subject: [R-390] Cool old USAF radio pic

TMC exciter

From jbrannig@optonline.net Tue Sep 24 18:04:57 02
Subject: [R-390] Cool old USAF radio pic

A CV-591 with a meter! and a TMC transmitter in the background

From drewmaster813@hotmail.com Tue Sep 24 18:45:33 02
Subject: [R-390] Lost Meter

John,

I have found the Post Office to be fairly accomodating when I have filed claims for lost items sent by priority mail. Present the blue and white receipt (which you got when sending the meter) at your Post Office and they will check their computer records. I have recovered full insured value for items this way with about a 5 week wait.

Maybe you could've dragged out the ol' Pitney Bowes and sent it by Metered Mail :) Drew

From myyoung76@bellsouth.net Tue Sep 24 19:26:34 02
Subject: [R-390] Panel Labels

I know this is off topic, but would appreciate the experience of the folks on this forum. Can any of you point me to information regarding using a laser printer to make labels for electronics panels? Kinda like do your own decals or rub-ons? TNX Mike

From Llgpt@aol.com Tue Sep 24 19:35:09 02
Subject: [R-390] Cool old USAF radio pic

The receiver is a TMC GPR-90RX...Military Designation R-840/URR. Had one several years ago, a poor imitation of a Hammarlund SP-600 IMHO. Les Locklear

From polaraligned@earthlink.net Tue Sep 24 22:26:40 02
Subject: [R-390] Restoration of 1952 Collins # 252

> All modules are out, all are updated with new caps except for the RF deck.

My 390's have the vitamin Q caps that are metal with glass sealed ends. I have heard some say that these never go bad. (I know...never say never...) Do you have these? and if so did you test for leakage on any of them? Scott

From rbethman@comcast.net Tue Sep 24 23:34:21 02
Subject: [R-390] Restoration of 1952 Collins # 252

The only thing even closely resembling one of these is the 2mf on the IF. It tests just fine. The AF deck caps test fine also. Bob N0DGN

From billsmith@ispwest.com Tue Sep 24 23:54:37 02
Subject: [R-390] Restoration of 1952 Collins # 252

Hi, Scott

I won't say they will never go bad, but the R-390 here has Vitamin Q caps, and I haven't found any with leakage in this set. The two AVC oil-filled are doubtless leaky, however. Also, have replaced several leaky mica caps in the front-end RF cans. 73 de Bill, AB6MT

From billsmith@ispwest.com Wed Sep 25 00:00:18 02
Subject: [R-390] Cool old USAF radio pic

Any idea where the pix was taken? Our Navy MARS club (NNN0VNV) is located at Hamilton Field in California. The floor is the same, as is the chair. Of course, both must have been duplicated in every Army Air/Air Force office across the country and world. Still, it would be fun to know what HF equipment was used when Building 549 was in active service. 73 de Bill, AB6MT

From W2ZR@aol.com Wed Sep 25 00:07:58 02
Subject: [R-390] Cool old USAF radio pic

Hi, That's not an SP-600. It's a TMC GPR-90RXD. 73, Steve W2ZR

From ba.williams@charter.net Wed Sep 25 01:26:19 02
Subject: [R-390] Panel Labels

> I know this is off topic, but would appreciate the experience of the folks > on this forum. > Can any of you point me to information regarding using a laser printer to > make labels for electronics panels? Kinda like do your own decals or > rub-ons? > TNX > Mike

Mike,

Check Hobbytown or any RC model shop. Modelers make their own decals if that is what you want to do.

Also, there was a foil type of product just for laser printers at one time. I forget the exact process now, but you can print on it while this sheet is sandwiched with a normal sheet of paper. The heat transfers the foil type of material to the paper. I guess you could substitute regular paper with clear material such as that for clear address labels. Barry

From keng@moscow.com Wed Sep 25 01:27:24 02
Subject: [R-390] Cool old USAF radio pic

> > Not a R-390(a) looks like a cv-591a in the rack and

The receiver is a TMC GPR-90. The transmitter to his right is a TMC GPT-750K.

I still drool on the pictures of those whenever I see them, even after 50+ years. Maybe I will get to caress one or the other or both sometime before I kick the bucket. Ken Gordon W7EKB

From w9wis@charter.net Wed Sep 25 01:55:40 02
Subject: [R-390] Old radio pic here....

Several guys have asked where I located the old USAF TMC radio gear picture I posted earlier today. I finally re-found the url <grin>. It's here along with some others:
<https://public.afca.scott.af.mil/>
- click image library
- then click historical
Mike

From rodney_bunt@yahoo.com Wed Sep 25 07:06:05 02
Subject: [R-390] Cool old USAF radio pic

Its a Technical Materiel Corp(TMC) GPR-91RXD See one at
<http://www.geocities.com/tmcvintage/gpr-90rx.html> Rodney VK2KTZ

From Wed Sep 25 16:21:14 02
Subject: [R-390] Need T-8 & Z501 from R-390A

Hello all.

I'm want to put an Xtal filter in a homebrew Longwave CW receiver I have built (a Glow Bottle set of course 8^). I have the room and figure the best way would be to use an assembly from the R-390a IF somebody has the spare parts.

What I need, Transformer T-8 from the RF chassis and unit Z501 from the IF chassis which consists of Y501, C5, C524 and L503. Budget for the parts are non existant.

I HAVE TO SWAP:

Don't have a lot to swap, but I can offer two pairs of the plug-in 'lytic capacitors for the R-390A AS WELL as two 2uF oil capacitors from the IF AGC units. These came out of working radios but were replaced as a natural part of a complete recap. These all worked but the 'lytics show some leakage around the seals, probably better as 'rebuild' candidates. 73 de Phil KO6BB

From ai2q@adelphia.net Wed Sep 25 17:41:55 02
Subject: [R-390] Product detector rocks

Hey listers! Any of you wishing to dupe my product detector can now apparently acquire the requisite rocks, brand new, at <http://www.qth.com/inrad/home.htm> My circuit can be found at <http://pdq.com/boatanchors/ssb/> as well as <http://fly.hiwaay.net/~wb7vbn/Download.htm> Vy 73, AI2Q, Alex in Maine

From cbscott@ingr.com Thu Sep 26 15:01:49 02
Subject: [R-390] Orange Drop question

Can someone tell me how to determine which lead is connected to the outer foil on an Orange Drop capacitor? Some of them have stripes, but the ones I got yesterday don't have a stripe. Is it the right-hand lead looking at the cap from the "front" (readable) side? Thanks,
Barry - N4BUQ

From DAVEINBHAM@aol.com Thu Sep 26 18:49:25 02
Subject: [R-390] Orange Drop question

writes:

Barry, Why don't you send the Orange Drops back to whomever you bought 'em from and demand replacements that are properly marked ? That is what I would do. Regards, Dave

From billsmith@ispwest.com Thu Sep 26 19:09:33 02
Subject: [R-390] Orange Drop question

They may be ok. The caps I use are "non-inductively wound" (don't know what that really means). At any rate, they are not supposed to have an "outside" and have no identifying stripe.

I have never tested them to verify.

Perhaps Orange Drops have adopted this construction approach. Are the caps you have marked with their capacitance value and voltage rating? Bill

From cbsscott@ingr.com Thu Sep 26 19:38:19 02
Subject: [R-390] Orange Drop question

Yes, the caps are marked with their value and rating, so following Walter's advice (and what I was pretty sure of), I can install them properly. I'm pretty sure they're okay, they just don't always mark the outer foil side on their caps. I seem to recall a discussion that this isn't as critical with ODs as some other caps (refer to the "non-inductively wound" comment), but I don't know for sure.

This is an audio application, so I'm not even sure if this is a factor. The Black Cat caps I'm replacing are definitely marked and installed as per Walter's description of coupling capacitors. It probably wouldn't make any difference in this application, but I like to be thorough. Thanks, Barry - N4BUQ

From eldim@worldnet.att.net Thu Sep 26 :51:35 02
Subject: [R-390] Orange Drop question

I think we need to have the whole batch "X-Rayed". Could they be counterfeit "offshore" parts?
HMMMMMMMM! Glen Galati, KA7BOJ eldim@att.net Tacoma, WA

From vze2gmp4@verizon.net Thu Sep 26 18:17:53 02
Subject: [R-390] Orange drops

Over the past several years I've run into orange drops with several types of markings, not in just radio equipment. Being curious I checked sbelectronics.com, one will see that there are quite a few different types of orange drops available now. Plenty of spec sheets to download. No more band. The right hand lead is still the outside foil. It goes to ground to help prevent noise and hum pickup. Yes, the outside foil positioning can be just as critical for audio as other circuits, don't understand why all of a sudden it's not.

For general use around the shack on different projects, I been using a polypropylene cap with an IC logo

and is yellow in color (Lemon drops?). They have worked quite well for me. Available from the usual places. Regards, Helm. WB2ADT

From ham@cq.nu Fri Sep 27 00:16:51 02
Subject: [R-390] Orange Drop question

Hi,

The main reason to mark the "outside" on a film capacitor is to make sure that the outer foil is at ground in something like a bypass application. This makes some sense if the value of the capacitor is small and the circuit is fairly high impedance. It also only makes sense on a wound foil rather than a stacked foil part.

If the value of the capacitor is fairly high then the couple of extra pf that you get to the outer foil probably will never be noticed. I don't think there is anyplace in an R-390(A) that would be a problem for this kind of thing. All the low value stuff is mica or ceramic. The film stuff is all large value. Take Care Bob KB8TQ

From ToddRoberts01@aol.com Fri Sep 27 00:50:43 02
Subject: [R-390] Orange Drop Question

<PRE>There is a method that can be used to determine which lead of an orange drop is the outside foil if the capacitor is not marked for this, or if it makes any difference. Take a high-gain audio amplifier and hook the capacitor across the audio input. A small Radio Shack battery-powered audio amp works good for this. It is best to make up a dedicated input lead for this with a short length of shielded cable correctly wired to a plug for the input jack - with the cable shield wired to ground side. Connect the capacitor across the input lead - one lead to the shield and the other lead to the center or "hot" conductor. Now turn up the gain a bit and grip the orange-drop capacitor with a couple of fingers. If the outer foil is connected to shield ground you should not hear any rise in hum. If the inner foil is connected to shield ground you will hear a definite rise in hum level when you grip the capacitor body because now the outer foil is "floating" above ground. Not the most scientific method for determining this but one that works! 73 Todd Roberts WD4NGG.

From root@al.tirevold.name Fri Sep 27 01:41:00 02
Subject: [R-390] ST 32-152

Rich McClung's copies of ST 32-151 and ST32-152 arrived today. They appear to be nearly identical.

I scanned in the ST 32-152 "Visual Alignment of Radio Receivers R-390/URR and R-390A/URR" and placed it on the FAQ site. The document is 9.1MB in size. The URL is:

<http://www.r-390a.net/ST-32-152.pdf>

Unless someone has an urgent need to see the -151 document, which covers only the R-390 (Non-A), I will dispense with scanning it. Contact me directly if you would like to procure a scanned .pdf file.

ALSO: If you sent me feedback from the Y2K-R2 manual or provided pictures, etc. for inclusion in the next version, please re-send them to me. I suffered a failure of both a hard drive AND the attending backup utility...(so much for store-bought code..I now have written my own). Thanks, Al

From bill@iaxs.net Fri Sep 27 01:50:35 02
Subject: [R-390] Orange Drop question

Well, I'm torn. Should I be reassuring and say that it is the right hand lead from the printed side and let those who worry about this sleep well at night, when I know that the labelling equipment could mark it either way?

Or should I use that quote about fly specks and pepper?

Consider the construction of a plastic cap. A four layer ribbon is made up of a really thin strip of plastic, a strip of rally thin aluminum offset to stick out on the north side, another strip of plastic film centered over the other one, and a strip of aluminum foil that is offset to stick out on the south side. The ribbon could be feet long for a 0.01 mfd cap or 0 feet for a 0.1 mfd bypass. Wind up the ribbon, mash leads into the foil sticking out at each end, dip it in Day-Glo orange goop, send it to the label machine, and the result is a capacitor.

Take that orange drop and wrap foil around the outside, taking care not to short it to the leads. Measure the capacity between the added foil and either lead. You will not be able to measure any difference with any practical instrument. The added foil is perhaps 0.2 feet long. It is separated from the outer foil by 10 times the thickness of the plastic film. This adds up to about 0.01% of the capacity of the thing you are using for a bypass or coupling capacitor.

Only a person who can hear the difference between silver and copper leads on a component should worry about grounding the outside foil. If one is incurably obsessive about this kind of thing, it would be best to build mu-metal shields for all of the parts. One drawback is that the chassis must also be mu-metal to establish a "ground" reference for magnetic fields as well as electric. Regards, Bill Hawkins

From r.tetrault@attbi.com Fri Sep 27 02:25:26 02
Subject: [R-390] ST 32-152

Now this is really along the level of how does one spell uckumpucky (don't start on this, fellas!), but I just noticed how the second page of this esteemed document AND its Table of Contents, as well as what a cursory inspection indicates is everywhere else in the document, with variants, spell the word "alinement" rather than what we have all been brought up to believe is the right, truthful and American way: "alignment." Whazzup wi'dat?

Anyone out there with dusty roots in tennical, techinal, tentacle language? Bob

From root@al.tirevold.name Fri Sep 27 02:42:46 02
Subject: [R-390] R-390A Gear Train Rebuild

Scott Steickel's excellent gear train rebuild photos have been used to create a .pdf document which I placed on the R-390A FAQ site.

The URL is: <http://www.r-390a.net/R-390A-Gear-Rebuild.pdf>

This tutorial is as good as they get - It is an outstanding treatise. Thanks, Al

From root@al.tirevold.name Fri Sep 27 02:46:53 02
Subject: [R-390] ST 32-152

It's spelled that way all through the -151 manual, too. At least they were consistent..... It's yet another documentation anomalie - like the legendary spelling errors in the Collins documents (i.e. "Bristo" wrenches). Al

From Fri Sep 27 05:45:44 02
Subject: [R-390] Sticking R-390A clutch plate.

Hello all.

Perhaps a month ago I had the RF deck out of this '67 EAC and very thoroughly cleaned the gear train and cam assembly. I didn't tear the gear train down as I didn't feel I wanted to go that far. The entire mechanism is very 'free' and easy tuning.

In use though, I have noticed a problem with the Zero Adj clutch. If I haven't adjusted the Zero adjust for a couple days, when I crank down the knob (to release the clutch) and then tune the KC knob the clutch sticks or drags the Veeder Root counter off Zero until it "breaks free" and then it's ok and good to go for future adjustments.

I 'suspect' that old grease and grime may still be lurking on the clutch plate and that's causing the problem. Is there a way to clean this critter WITHOUT having to remove the RF deck again and disassembling the gear train? If I have to go through that I'll probably just live with it until the next time I have cause to do a teardown (the receiver is in daily use). 73 de Phil KO6BB

From courir26@yahoo.com Fri Sep 27 15:12: 02
Subject: [R-390] Sticking R-390A clutch plate.

Phil,

What I've done in the past is to disengage the clutch as much as possible, and then squirt in some carb and choke cleaner or similar to clean off any old gunk, and then let it dry out and lube with synthetic gear oil. 73 Tom

From cbscott@ingr.com Fri Sep 27 15:30:04 02
Subject: [R-390] Sticking R-390A clutch plate.

I had a problem with my clutch and ended up disassembling it, cleaning it, and reassembling it a couple of times. You will probably find it is old grease/lube causing the problem. If I recall, I found it best to leave it dry, or just a tiny bit of oil -- not grease.

I don't think you have to pull the RF deck. You have to drop the front panel, and remove the counter and a few other odds and ends, but it's not a bad operation. Good luck, Barry - N4BUQ

From jbrannig@optonline.net Fri Sep 27 16:42:57 02
Subject: [R-390] R-390A Gear Train Rebuild

Thank you for the PDF of Scotts excellent article. Jim

From Fri Sep 27 17:41:01 02
Subject: [R-390] R-390A Gear Train Rebuild

GREAT article! Should be in every R-390A enthusiasts archives. I removed the RF deck and cleaned my gear train "in place". If I'd had this article at the time I might have had the incentive to do a teardown. 73 de Phil KO6BB

From k6fsb@juno.com Sat Sep 28 07:32:23 02
Subject: [R-390] Solid State rectifiers vs Tubes...a reply...

I've been following the thread and.....RE a conversion to SS rectification. a few things - beware of the higher B+ voltage generated by SS of tube rectifiers. Potential problems, in particular resistors on the audio board (R390A), potential for stripping the emissivity of cathodes of the tubes that have not yet come up to tempature, more heat generated by components due to higher voltage, stress/shock from immediate HV, to name a few . also remember tube rectifiers do have a voltage drop, if memory serves 22v for 26z5's. there are ways to compensate. The advantages and disadvantages must be evaluated carefully before converting. Ron, K6FSB

From jlap1939@yahoo.com Sat Sep 28 15:57:48 02
Subject: [R-390] Sig. Gen.

Friends,

Have small (I believe #3xx), Eico s.g. looks good, complete..Havn't tried it..will do so.. got this morn/G. sale..\$3...anyone want it for the 3+ship, or for free if necessary..Hated to let it set there when some newbies are often looking for such..Will pull it out of wives' car, and check and give complete info 1 of wk.. Regards, John

From tarheel6@msn.com Sat Sep 28 16:04:58 02
Subject: [R-390] RF Deck: 8-16 mHz synchronization question

Hi...

First, many thanks to Scott for the *first class* photo's and instructions on how to rebuild the RF Deck!

My question concerns a otherwise high number and excellent looking EAC that does not receive signals, except on the 28 mHz band. After checking things out, I found that in the RF deck, the 8-16 mHz cam does not line up with its associated black line when the counter is at 7 +000. It's waayyyy off. How do I align it; it does not have a clamp to loosen for alignment. Versus the other 5 racks/cams that have clamps for that purpose. (One step I tried: I loosened the clamps on the cams on either side of the 8-16 mHz cam plus another one just under the 16-32 mHz cam --- all to no avail; I could not get the 8-16 mHz cam to move.) Do I have to disassemble the entire RF deck gear train mechanism to the point where the 8-16 mHz cam is physically free of touching the other gears and then reposition it to align with the black line? Or is there another way? I hope so... thanks in advance for your help! 73's, - tom KE4RHH

From w9wis@charter.net Sat Sep 28 16:34:10 02

Subject: [R-390] Anyone Interested in R-390(A) Shirts ?

Guys.... this is pretty loosely R-390A related but here goes...

Besides our "regular" jobs my wife and I own a custom computerized embroidery company. We generally don't do retail sales.... we mostly service emergency services (police, fire, ems) and other businesses (we are the authorized provider for Elecraft, for example). Heck... we even do some amateur radio related embroidery 'cause I wanted some cool shirts for fun and wanted my wife to go to a few hamfests with me <grin> why I don't know.... hehehe

Anyway... I've been considering taking the line drawing of the R-390A from the manual and converting it to stitches (digitizing) for embroidering on shirts (probably golf shirts and jean shirts although anything is possible). Who did the art on the Y2K manual ? I'm very careful about copywrited material and think I'll need permission.

I could do several sizes although pocket size is best for "dressy" shirts and keeps the stitch count low so it's pretty cheap to do.... we can even personalize with names and other info. The most detail actually would be "jacket back" size but this would be more expensive to sew out.

Would anyone be interested in a shirt like this ? It's not inexpensive for me to set up a design digitized and set to go depending on the art work. I may be able to digitize the design myself depending on how complex I want to get. Lettering needs to be at least .25" to be very legable so small sizes the control letters would be a squiggle I suspect. Mike, W9WIS

From dave_faria@hotmail.com Sat Sep 28 22:01:53 02
Subject: [R-390] IF alignment Using Sweep Generator

Good afternoon list - just thinking abt the procedure thats going to be posted so, here's a topic. There appears to be an IF frequency unique to each filter and its not exactly 455khz. Do we align the IF for an average frequency that works for all the filters or just for the filter we are going to mainly use? Does it make any difference? Food for thought for those of us who are retired/bored and looking for when the mil. procedure is posted. And if it has been posted and I've missed it would someone please send me a copy. Thanks Dave Faria

From jbrannig@optonline.net Sat Sep 28 :04:40 02
Subject: [R-390] IF alignment Using Sweep Generator

Unless one of the filters is way off frequency, the IF bandwidth should be broad enough to accommodate the variances. Jim

From courir26@yahoo.com Sat Sep 28 21:47:39 02
Subject: [R-390] RF Deck: 8-16 mHz synchronization question

Dear Tom/KE4RHH,

My book says to set that one (8-16)first. That is because I wrote it in my book many years ago. This "feature" you discovered is not addressed in the manual.

Plan to adjust all of the cams, and simply do 8-16 Mhz first. Then do all the others independently.
Cheers! Tom N5OFF

From wwarren1@nc.rr.com Sun Sep 29 15:34:22 02
Subject: [R-390] 390A tuneup

Roger,

Latest numbers from my tuneup of a Motorola 390A IF deck (tubes selected for best SNR at 150 microvolts input at 455kHz) and Collins 390A RF deck (6DC6 and 3 6C4 mixers chosen for best SNR):

IF deck SNR at 150 microvolts, 455kHz, URM25 fed directly into IF deck per TM, 400Hz modulation at 30%

| Bandwidth | SNR |
|-----------|--|
| 16kHz | 27.8 dB SNR per TM method, 0dBm with no modulation |
| 8kHz | 27.7 dB SNR |
| 4kHz | 30.5 dB SNR |
| 2kHz | 30.2 dB SNR |

Hooking up the Collins RF deck to the above Motorola IF deck then yields:

Test conditions - URM fed directly into RF deck (no 50-1 ohm matching attenuator), 4 microvolts from the URM at 750 kHz, 400 Hz modulation at 30%

| Bandwidth | SNR |
|-----------|-------------|
| 16kHz | 23.7 dB SNR |
| 8kHz | 25.4 dB SNR |
| 4kHz | 27.4 dB SNR |
| 2kHz | 28.6 dB SNR |

Also at 2kHz bandwidth and URM feeding the 390A directly (no 50-1 matching attenuator), 400Hz modulation at 30%, I get about 0.35 microvolt for 10dB SNR

Further, when I use the 50-1 ohm matching attenuator from the URM25 into the 390A and 4 microvolt input, 750kHz carrier freq, 16kHz bandwidth, 400 Hz modulation at 30%, all per the -35 TM method, I get 14.9dB SNR.

I think I am about as "there" as I can get with my current set of tubes. I'm a little disappointed that I can't get more than just over 30 dB SNR from the IF deck. However, I am getting a reasonable amount over dB SNR for the RF deck/IF deck combination at all IF bandwidths.

Is this time to quit the fussing and start listening to the receiver for pleasure? Very best, Tom, W4PG

From anchor@ec.rr.com Mon Sep 30 21:02:37 02
Subject: [R-390] 390A tuneup

Hi Tom,

I don't know about the acceptable S/N figure, but I do know how long you've been working on this 390A, and it sure is time for you to start the listening pleasure and stop the fixing pleasure. 73, Al, W8UT

From cbscott@ingr.com Mon Sep 30 22:25:59 02
Subject: [R-390] Gassy Tube?

I have two of the same kind of tubes (6CW5) and I think one of them is gassy. I can put them in the tester and observe the cathode-to-control-grid voltages.

With the bias set to about 2 volts, when I depress the "test" button (applying HV to the plate), the grid voltage goes up to about 4 volts for one tube, but the other one goes to about 7 volts. Would gas be responsible for this difference between the two? If so, which one would be the gassy one? I *think* it would be the one with the lower voltage, but I'm not sure.

Is this a valid thing to try to check? I know that "in circuit" is the best test of a tube, but when the problem starts, I'm not sure what's causing what. Several voltage points begin to go haywire and I'm not able to isolate it. I do know that if I swap the tubes, the phenomenon seems to "swap positions" so I'm pretty sure I've isolated it to a bad tube, but I'm just curious which one.

I'm going to order two NOS tubes, but I would like to know if the above tests are conclusive of anything. Thanks, Barry - N4BUQ

From tarheel6@msn.com Mon Sep 30 23:44:08 02
Subject: [R-390] Success: synching the 8-16 mHz rack

Fellow Anchorites...

Tom Marcotte's advice solved the problem: loosen all clamps for all cams. That frees up the 8-16 mHz cam ... and so it did. Removing the 12 springs and repositioning all 6 cams to line up with their associated black line was then a breeze.

I tightened clamps from left to right ... and had no problem keeping the cams aligned. Reattached the springs, and voila, the once dead EAC presented me with faint signals on every band.

I then found that whoever had been there before me had misaligned virtually everything. After carefully realigning the crystal deck on each band and all adjustables on the RF deck by category, the radio came alive with strong signals on every band! 73's, -tom

From rlruszkowski@raytheon.com Mon Sep 30 16:34:50 02
Subject: [R-390] Re: 390A tuneup

Tom, I vote you move that receiver off the shop bench. Roger.