

## R-390 Reflector January '04 Edited

From SP600historian@aol.com Thu Jan 1 00:30:25 2004  
Subject: [R-390] SKN

writes: No, I will not be on for SKN. I'm not even sure where my straight key is Happy New Year

Jim Nothing beats the sound of an experienced fist sending on a vibroplex at about 50 wpm! Pure music. Happy New Year to all! Les Locklear SP-600 Historian <http://www.hammarlund.info/>

From dcsfree@worldnet.att.net Thu Jan 1 03:05:44 2004  
Subject: [R-390] R-390A off tuning

Hello All, I have a EAC r-390 like brand new it was working perfect and I don't know what I did but now it tunes on all bands exactly 50 kc off! For example 10 mc www tunes in on 9950! All I did was take off the bottom cover remove some cobwebs and turn it back and this is what I found. Any ideas? can it be adjusted back somehow? Dan

From eldim@worldnet.att.net Thu Jan 1 01:52:08 2004  
Subject: [R-390] R-390A off tuning

Hello Dan, Just to be certain, Tune to your center calibration point and tighten 'ZERO ADJ' Knob, ZERO BEAT Receiver and 'unlock Zero Adj Knob'. Tune in WWV and check Zero Beat. Oh, by the way, make sure the BFO is set to ZERO. I'm doing this from memory as I haven't had my receivers on in ten years :~(, and I would surely follow the procedure outlined in the Operation Manual. HAPPY NEW YEAR TO ALL, 73, Glen Galati, KA7BOJ

From cbscott@ingr.com Thu Jan 1 03:11:27 2004  
Subject: [R-390] SKN

Sure wish I had a good straight key. I could send pretty good (or so I thought -- at least I could read what I was sending...) Happy New Year to the list from me too! Barry(III) - N4BUQ

From w7itc@hotmail.com Thu Jan 1 18:57:03 2004  
Subject: [R-390] Straight keys

The best source for keys, straight and other wise I know of is here: <http://www.mtechnologies.com/>

From ToddRoberts2001@aol.com Thu Jan 1 19:14:06 2004  
Subject: [R-390] Straight keys

Did anyone hear KPH on 426 or 500 KHz New Years Eve? I couldn't hear a thing here on the East Coast. 426 KHz would be a bad choice as there are several airport beacons already on or near that frequency as heard on the East Coast that dominate that frequency at night. Happy New Year - Todd Roberts WD4NGG.

From sparks@codepoets.com Thu Jan 1 19:28:43 2004  
Subject: [R-390] Straight keys

Todd, same story here in Northern VA, did copy their press broadcast on 12MHz, QSA 3. Tried to work K6KPH on 40CW but the op was definitely NOT a real KPH op, he could not handle the pile-up and went off the air about 0445Z. Anyone that ever stood watch on the merchant marine channels could handle the small pileup that they had last night. I spent many 12 hour watches at NMR listening to 3 MM channels on 12 or 16MHz scanning between them on a 4th using Collins 651S1's and running QRY lists up to 10 deep during WX OBS windows. Happy New Year all - Tom Chirhart K4NCG ex-op NBA, NMG, NMR, NMA...

From keng@moscow.com Fri Jan 2 01:42:40 2004  
Subject: [R-390] Straight keys...KPH...R-389...

> Did anyone hear KPH on 426 or 500 KHz New Years Eve?

Yes. They were QSA 5 on 426 Kc. here in Idaho on the R-389. I didn't fire up the RBL-4, but I could have copied them on that too....or the RAK-8...or the SRR-11...or the RBA. I didn't listen for them on 12 Mhz.

426 KHz would be a bad choice as there are several > airport beacons already on or near that frequency as heard on the East Coast > that dominate that frequency at night. Happy New Year - Todd Roberts WD4NGG.

Yes. I thought that was a bad choice myself. But maybe next year.

I managed to work them on 40 meters before the OP got tired. I worked them on 80 (3545 Khz) also; the OP had a very nice fist and the signal was 599 here. Ken W7EKB

From k3pid@comcast.net Sat Jan 3 21:21:07 2004  
Subject: [R-390] Sidetone question

The sidetone output of the T-368 is taken through a cap from the wiper of the 500 Ohm cathode resistor of the cathode follower. Is it normally connected across the "output" side of the 600 Ohm audio output of the R-390? If so then the level of the sidetone is controlled by the cathode resistor independ from the R-390? K3PID - Ron H.

From dmetz@ntelos.net Sun Jan 4 17:44:58 2004  
Subject: [R-390] FS: Test Equipment

I am not sure this made it the other day if it is a repeat, I'm sorry.

The following are excess to my needs and I really need the space. I do not want to ship but could bring them to the Frostfest in Feb. Priority given to someone who will take all three. Pickup is in Staunton, VA. Also, I would consider a package deal if someone is interested in a pickup situation

TS497 signal generator 2-400 mhz with manual. Open the cover and it doesn't look like it's ever been used. As near as I can tell, works fine. \$50

HP 200 CDR rack mount wide range oscillator a bit flaky but seems to work \$10.

Texscan/Jerrold sweep generator 9500T 1-300 mhz. Bought this off the auction site as working (he had great feedback so I assume it works) but not tested though it powers up. \$25 . Not exactly a boatanchor but not light either! 73's dave

From paul@pdq.com Sun Jan 4 23:50:47 2004  
Subject: [R-390] R-392 PTO output level?

What is the output level of the R-392 PTO supposed to be, and is it about the same as the R-390/391/390-A PTO? I'm aligning a 392, and found that the PTO is drifting, so when I put a scope on the output, the signal looks noisy and weak (<10mv or so). Thanks, Paul

From stevehobensack@hotmail.com Thu Jan 1 14:31:03 2004  
Subject: [R-390] R-390A off tuning

Dan, sounds like the oldham coupler has jumped 180 degrees. The coupler joins the shafts between the kc change knob and the pto canister. The shafts could be loose, but I think the square keeper rod has fallen out and you have lost the snugging spring. You can salvage another spring from a ball point pen. Hope this helps. 73.....Steve ...KJ8L

From roy.morgan@nist.gov Mon Jan 5 16:27:01 2004  
**Subject: [R-390] R-392 PTO output level?**

**wrote: >What is the output level of the R-392 PTO supposed to be, and is it about the same as the R-390/391/390-A PTO?**

**Paul, Data I have indicate 1.5 to 2.2 volts. (I assume this is RMS RF voltage.)**

**>I'm aligning a 392, and found that the PTO is drifting, so when I put a >scope on the output, the signal looks noisy and weak (<10mv or so).**

**Way too low. You have something to fix and you know where to start. Roy**

From stevehobensack@hotmail.com Tue Jan 6 02:17:05 2004  
Subject: [R-390] R-392 PTO output level?

Paul, I had that problem once. It was a bad screen bypass cap on the osc tube. ....Steve....KJ8L

From g4gjl@btopenworld.com Tue Jan 6 14:56:53 2004  
Subject: [R-390] R-392 PTO output level?

Try the tube first. The fail or go low with monotonour regularity in that spot! (from experience) 73 Pete G4GJL

From Michael Melland, W9WIS" <w9wis@charter.net Tue Jan 6 16:27:45 2004  
**Subject: [R-390] R-390A and USAFSS**

I stumbled across this guy's web page this morning. Thought you guys familiar with the old USAFSS would find it interesting..... a few R-390 and R-390A pics here too as well as the Elephant Cage in the PI near Clark AFB. Mostly people and various bar scenes <grin>...

**<http://members.tripod.com/~samsonr/> Mike, W9WIS**

From tetrode@comcast.net Tue Jan 6 19:06:11 2004  
Subject: [R-390] R-390A and USAFSS - Crash!

"The Tripod page you are trying to reach has exceeded its bandwidth limit. It will be available again in a few hours." Well that didn't take long! John

From richardlo@admin.athabasca.ca Tue Jan 6 19:12:52 2004  
Subject: [R-390] R-390A and USAFSS - Crash!

wrote: > "The Tripod page you are trying to reach has exceeded its bandwidth limit. It > will be available again in a few hours." >> Well that didn't take long!

And the sysadmins will think it is a porn site and shut him down. :) Richard Loken

From Michael Melland, W9WIS" <w9wis@charter.net Tue Jan 6 19:23:49 2004  
Subject: [R-390] R-390A and USAFSS - Crash!

I thought that Tripod only limited downloads.... not views. That or maybe it was all that "classified" material regarding "The Little Brown Jug" <grin>. Mike, W9WIS

From mahlonhaunschild@cox.net Fri Jan 9 02:27:19 2004  
Subject: [R-390] I just HATE it when this happens...

Hi. Well... umm... OK, here's the story:

Colleague of mine accosts me four/five months ago, asks "You do something with R-390s, don't you?" I cautiously assent that I have been known from time to time to dabble in old tube radios, and one of them was indeed the R-390A (over the years I've learned not to admit too much in such conversations, you see). Colleague owns up that he has an R-390 that's been in the attic for ten years, would I be interested in it? I allow as how I wouldn't mind taking a look at it. What next? So, he's got me thinking about this, and time passes, and I think he's forgotten about me, and I meet up with him again, and remind him, and, well, it takes him until today to get the receiver to me to take a look at. Finally got it home & stripped the covers off of it this evening.

Get this: it's all Collins, from the '55 contract. Correct silk-screened front panel in nice shape, considering it's almost forty years old. Original Simpson meters. Interior is surprisingly clean except for the crud that filtered through the slots in the top cover onto the IF and crystal oscillator decks.

Incredibly, both electrolytics test OK on my capacitor checker (they are Spragues, which seem to last longer than others I've seen). Looks like some conscientious maintenance activity has applied most of the field changes, including replacing the rectifier tubes with s/s rectifiers. Dymo tape on top cover (yes, has all three covers) leads me to believe that it has the 7/74 HR product detector mod (haven't pulled the IF strip yet, so don't know for sure).

Now for the bad news: the gear train is super-clean, but bone dry. No grease, no oil. That's bad, because just about every split gear spring and the Oldham coupler spring is corroded rotten. Where can I get some of these? Also, because of its vintage, it needs a cap kit to replace all of the BBsOD. I can't imagine that they all survived ten years in a Florida attic without some major "life changes", if you know what I mean.

So, the question I'm faced with tonight is: do I buy it? As if I need another one of these (I've already got two, after all). MOMMY! HELP ME! I'M SO CONFUSED!!!! :) regards, Mahlon - K4OQ

From mahlonhaunschild@cox.net Fri Jan 9 02:40:04 2004  
Subject: [R-390] Need antenna relay(s)

Hello, list. I need at least one antenna relay (two, if I decide to keep the aforementioned Collins receiver). Two of mine have bugged-up connectors. Anyone got any they want to part with? I'll take ones with burned-out coils or other defects so long as the connectors are FB and I can swap them with the dead soldiers on my relays. Please contact me off-list. regards, Mahlon - K4OQ

From k4kwm@hotmail.com Fri Jan 9 03:09:24 2004  
Subject: [R-390] I just HATE it when this happens...

BUY IT. You will hate yourself in the morning if you dont. Then if your concious bothers you for having too many of them, I will take it. John John Page

From n1vbn@bit-net.com Fri Jan 9 03:24:31 2004  
Subject: [R-390] I just HATE it when this happens...

Mahlon - K4OQ, Whatever you do with the offer DON'T LET HIM SEE YOU SMILE!!!!

If you don't buy it I hereby offer the use of my size 13's if you later feel the need for some "DOH!!" kicks. ALL COLLINS??? mumble mumble mumble ARRGGHHHHH!!!!!! -)

If you do acquire it would you be so kind as to post somewhere on a website photos please? This one I think might be a good candidate to document photo wise, finds like this just don't walk up to you and say HI!!! Oh yeah I guess yours did -(. Enjoy it and remember " HE WHO DIES WITH THE MOST TOYS.WINS!!! James Shanks

From roy.morgan@nist.gov Fri Jan 9 15:36:29 2004  
Subject: [R-390] I just HATE it when this happens...

wrote: >Hi. Well... umm... OK, here's the story: >

Mahlon, Of course you buy it. Just don't pay \$650!!

The springs you can likely get from Small Parts, Inc., though I have not run down the correct size, length or other details for those springs.

<http://www.smallparts.com/>

This page describes Beryllium Copper coil springs..the smallest is .073" OD and .37" long. Someone should measure the springs we are looking for and post the measurements, diameter and free length. The number of coils may matter some what. These things seem to be around \$2 each, and I am sure we can find sources for much less.

<http://www.smallparts.com/products/descriptions/cs.cfm>

On the other hand, if you extract the springs you have, treat them with rust remover (I have has some success with "CLR", Corrosion, Lime, Rust Remover) you may find that they work just fine. Roy

From schluensen@freenet.de Thu Jan 8 23:28:31 2004  
Subject: [R-390] R-390A/URR

Want to buy an ufb R-390A/URR in Germany dk1lx@vfdb.net Frank

From David Hallam <dhallam@rapidsys.com> Fri Jan 9 19:59:09 2004  
Subject: [R-390] R-390 Info

Is there any way to determine any information about my R-390, date of manufacture, etc.? The original front panel tag was missing when I got it and that was 30 years ago. The modules all seem to be Motorola except for the VFO, which is Collins. David C. Hallam KC2JD

From R390rcvr@aol.com Fri Jan 9 20:27:30 2004  
Message-ID: <9c.3a0e4f9a.2d3068b2@aol.com>

David: The 1st thing to check in your case is the number of fuses on the back panel. 1 or 3? The 54 contract, one fuse. The 56 contract had one fuse until # 2683, then 3. All the 58 contract had 3.

You can sometimes get dates off installed components, such as the line filters, etc. Obviously, may have been changed, but not often. The filter caps often are changed and are dated but less reliable.

Lots of other tips if you are interested in further refinement of your dating. As many others will tell you, often they have been through the depot refurb process, where everything is shuffled around, and you end up with a mongrel, aka depot dog. Still good radios, but more mutt like. Hard to tell who the parents were! Randy

From tetrode@comcast.net Fri Jan 9 21:14:33 2004  
Subject: [R-390] R-390 Info

Dave, just to confirm, do you mean R-390 (the non-A) or the R-390A? John

From vk2abn@batemansbay.com Fri Jan 9 11:50:17 2004  
Subject: [R-390] Re: R-390 digest, Vol 1 #950 - 5 msgs

About the problem with corroded springs ect Fair Radio in LIMA OHIO have the RF deck and Gear ass. for around 40\$ , I have 3 of these rx's in australia and I prefer them to the 51s1 which I also have ,In crowded bands for ssb there is nothing to compare with the 2Khz filter for skirt selectivity and the dynamic range is far better also I have both the double triode prod det. and the 6be6 pentagrid unit in 2 units and one is unconverted my units are Teledyne and caphart & Stewart warner also through my collection I have had Collins ,Imperial and others and apart from some front panels not being engraved there is nothing to chose between them I always get rid of the black tubular caps with the colored bands they are usually leaky and getting rid of them improves the noise floor , and the audio module I just pull out the octal caps and solder the new ones under chassis modern caps are much smaller and fit no problem regards to everyone Bernie nicholson

From courir26@yahoo.com Sat Jan 10 01:02:53 2004  
Subject: [R-390] R-390 Date Info

A good way is to check the date on the crystals. The calibration xtal is the easiest to check (but it may have gotten changed). The xtals in the xtal deck are not so easy to check, but a reliable way of dating at least that module. Also see the bathtub cap neat the PTO for an estimate of frame age. 73 Tom

From mahlonhaunschild@cox.net Sat Jan 10 03:28:27 2004  
Subject: [R-390] Re: R-390 digest, Vol 1 #950 - 5 msgs

I shot some pics of the Collins R-390A I griped about yesterday. Write to me off-list if you want to see them. Better have a broadband connection or be patient... regards, Mahlon - K4OQ

From alexx@techunix.technion.ac.il Sun Jan 11 11:43:55 2004  
Subject: [R-390] help

Hello to all, I am looking for service manuals and or schematics of: HP 8656B signal generator 0.1-999 Mhz MICROTEL SG 811 signal generator 0.01-40 Ghz WILTRON 6407 RF analyzer 1-1000 Mhz anybody can help? thanks, alex alexx@tx.technion.ac.il

From stevehobensack@hotmail.com Mon Jan 12 00:11:18 2004  
Subject: [R-390] help

Alex, w7fg has the Wiltron manual for a price. <http://www.w7fg.com/manual.txt> I struck out on the HP & Microtel . I tried A G Tannenbaum, BAMA , Hi Manuals, ManualMan. Maybe there are others. 73.....Steve...KJ8L

From keng@moscow.com Mon Jan 12 00:30:14 2004  
Subject: [R-390] help...manuals...

Try "Manuals Plus" on the web out of Salt Lake City, Utah. I have found manuals for everything I

needed in the test gear line from them. You might want to call the lady there. She is most helpful and VERY patient. Ken Gordon W7EKB

From r390a@bellsouth.net Mon Jan 12 22:21:56 2004  
Subject: [R-390] Going price for R-1051's?

A while back I was able to acquire a couple of R-1051's, one is an A and one is a G model. Both seem to work well but I just don't like the decade tuning. I'd like to get rid of them, but am not sure just what to ask. Physically both are about an 8. I also have 2 new in the box shock mounts that I will NOT sell separately. Thanks for any help Tom KA4RKT

From w5or@comcast.net Tue Jan 13 03:26:14 2004  
Subject: [R-390] R-390A in Amarillo TX

A lady has contacted me who has inherited an EAC R-390A and wants to sell it. But it needs to be a local sale (no shipping). Is anyone in the Amarillo area interested? I've already advised her of a generic market price, based on the pictures she sent me. Contact me off list for details.  
mailto:w5or@comcast.net

From fwbray@mminet.com Wed Jan 14 05:41:18 2004  
Subject: [R-390] R-390 / 390A Prices

Hi All, I am new to this group and have a number of older HF receivers, but no 390 yet. What is a reasonable price to pay for a 390 or 390A in working condition? I've looked at the Fair Radio Sales prices, but don't know whether those are reasonable. Many thanks. Fred  
KE6CD

From cbscott@ingr.com Wed Jan 14 23:02:56 2004  
Subject: [R-390] OT: Need Type 'S' octal socket

Does anyone know where I can get a type "S" octal socket? Antique Electronic Supply doesn't have them anymore. Thanks, Barry(III) - N4BUQ

From eldim@worldnet.att.net Thu Jan 15 02:53:36 2004  
From: eldim@worldnet.att.net (Glen Galati)  
References: <697750C28DC0474ABF279ECB3979E37306970167@hq4.pcmail.ingr.com>

Hello Barry, Exactly, what does the S Octal Socket look like? A picture be worth a thousand words. 73,  
Glen Galati, KA7BOJ Tacoma, WA

From hbreuer@debitel.net Thu Jan 15 01:19:19 2004  
Subject: [R-390] OT: Need Type 'S' octal socket

Is this the round socket without any mounting ears which is instead mounted with a spring ring? 73  
Heinz DH2FA, KM5VT



From glennmaillist@bellsouth.net Thu Jan 15 02:11:32 2004  
Subject: [R-390] OT: Need Type 'S' octal socket

From a google search, this appears to be a socket without the mounting saddle so that it can be mounted on the end of a cable with a hood. Triode Electronics Online ( a Yahoo store) has them for \$4.95, part number 78S8. This hit was a result of the Google search. 73 Glenn WB4UIV

From hankarn@pacbell.net Thu Jan 15 01:28:53 2004  
Subject: [R-390] OT: Need Type 'S' octal socket

And that ring is called a WAVE ring. FYI Hank KN6DI

From cbscott@ingr.com Thu Jan 15 14:00:31 2004  
Subject: [R-390] OT: Need Type 'S' octal socket

Glenn, Yes, I had found their website. They have a \$10 minimum order and I don't think I need anything else from them. I was hoping maybe someone on the list might have one laying around they might sell me.

By the way, yes, this is the kind of socket that uses a "wavy" ring to lock it in place. It also has an orientation notch to keep it from spinning in the hole. It fits the adapter shown here:

[www.tubesandmore.com](http://www.tubesandmore.com) and search for part number P-SH12-1-31.

I have a Zenith Transoceanic that I'm replacing the filter cap and I'm planning on using an octal socket in place of the twist-lock cap. I think I can make it look very nice this way. I plan to use an octal plug to hold the new caps and glue the old paper sleeve over the plug. From the top, it should be barely noticeable it isn't original equipment.

Thanks for all the responses both on the list and privately. If any of you guys do have one of these sockets (and an octal plug would be handy as well), please let me know. Thanks! Barry(III) - N4BUQ

From cbscott@ingr.com Thu Jan 15 16:26:28 2004  
Subject: [R-390] OT: Need Type 'S' octal socket

List, I have had a few offers for sockets so it looks like I'll be able to get one.

If you have volunteered to send me one, though, please don't just yet. I haven't fully decided if I'm going to replace the old twistlock mount with an octal socket just yet. Although it will probably be the least painful method, I may still opt to find a NOS twistlock cap, gut it, and restuff it with the new caps. This would certainly look the most original but will be the hardest method.

Thanks so much for all the offers!! This list is the best (just too quiet lately!).

Oh, one other thing: I don't want a freebie! While I don't want to pay a high minimum order from some company, I do want to reimburse whoever I get a socket from. There are too many of you guys who want to just send me a free one! I have had guys send me things for free and won't give me an amount to reimburse them. It is very much appreciated, but it is a bit disconcerting to not pay the person back!

Sorry to ramble. Barry(III) - N4BUQ

From mike46@shaw.ca Fri Jan 16 01:43:21 2004  
Subject: [R-390] Question, Replacement of Coax "Jumpers"

The module to module coax cables in my project R-390A are broken and cracked. Does anyone have information on the type of coax used and the removal/re-connection of the end connectors? Mike VE7MMH

From wa4zlk@acer-access.com Tue Jan 20 08:07:24 2004  
Subject: [R-390] R-392 microswitch

Gentlemen;

I'm trying bring this recently acquired R-392 back to life. It would work long enough to tell it's in decent shape (although the dial seems to read 10 kHz high - I may have questions about that later). But it keeps dying - dial lights and all, which I traced to the microswitch activated by a cam on the main function switch. I've got the beast extracted, and it acts like it might be fixable if I can get into it and clean the contact. I've pried the seam with an X-acto pretty firmly but no luck yet.

Was just wondering if there's a secret method, or do I just need to pry harder. Don't want to get in a hurry and trash it with no spare in sight. It seems somewhat free all the way around the seam. Is this the same switch that sticks ON on the R-390A? (Don't have one of those yet.) I'll take it to work tomorrow and look at it better under a microscope. Yikes.. it's already tomorrow... 73, Bruce WA4ZLK

From mike46@shaw.ca Tue Jan 20 16:35:40 2004  
Subject: [R-390] WTB: Bristol Set Screws

Does anyone know of a source for replacement set screws for the R-390A knobs? Mike VE7MMH

From hankarn@pacbell.net Tue Jan 20 17:06:16 2004  
Subject: [R-390] WTB: Bristol Set Screws

McMaster-Carr has all sizes and types. In their catalog as spline wrenches. Hank KN6DI

You order off of the web site. [www.mcmaster.com](http://www.mcmaster.com) email [la.sales@mcmaster](mailto:la.sales@mcmaster) Catalog #109 page 2652.

From wa4zlk@acer-access.com Tue Jan 20 20:51:05 2004  
Subject: [R-390] R-392 microswitch

Under a microscope the little pins (about .040 in. dia.) holding the lid on became obvious. They are flush with the body so easily missed, especially late at night with tired eyes. I pushed them further in with a sharp tool and it came right apart. The contacts looked nasty but cleaned right up. Contact resistance now reads about 10 milliohms consistently instead of many ohms.

Now I just have to decide the best way to close it back up since the little pins are pushed into the body forever. And should I leave the contacts dry or maybe add a dab of Deoxit? Thanks, Bruce

From sdman@cableone.net Tue Jan 20 17:56:39 2004  
Subject: [R-390] R390A Alignment tools

Can anyone recommend a good alignment (tool)s set for the R390A Thanks in advance, Sam

From roy.morgan@nist.gov Tue Jan 20 18:00:40 2004  
Subject: [R-390] WTB: Bristol Set Screws

wrote: >Does anyone know of a source for replacement set screws for the R-390A >knobs?

NOTE:::!!!! R-390 knob setscrews are 8-36 (UNF size) Eight-Thirty SIX. (NOT 8-32)

Have you tried McMaster-Carr: <http://www.mcmaster.com/> (I can't find any spline type set screws in their catalog.)

Or: the Bristol Wrench Company: (Apparently now part of the Bristol Tool Company)  
<http://www.bristolwrench.com/> Send them an email.

Or see their drivers offered at: <http://www.mgs4u.com/bristol.htm> This place may be able to supply the setscrews)

Phone: -9655  
Fax: 503-371-9662  
Mail:  
Bristol Wrench Company  
PO Box 4317  
Salem OR 97302  
email: [info@bristolwrench.com](mailto:info@bristolwrench.com)

Small Parts in FL may have them: <http://www.smallparts.com/>  
But I can't find them in their on-line catalog

Here is a reported source, but I cannot find the spline screws in their catalog pages.

From hankarn@pacbell.net Tue Jan 20 18:33:09 2004  
Subject: [R-390] WTB: Bristol Set Screws

I have several thousand set screws. Hank KN6DI

From vculver@verizon.net Wed Jan 21 22:24:22 2004  
Subject: [R-390] What have I got here???

Just brought home (Saturday last) an R-390/URR given to me by an old friend. The label says it is by Collins Radio Co. and the Serial Number is 103. The ID plate has an order number (14214-PH-51-93). A friend has had the radio for many years and the radio seems to be in very good condition -- all controls have very positive action, no slop, and the tuning controls are smooth and without any

indication of problems. The front panel is in pretty good condition with all of the engraving intact, meters, and etc. My friend is quite unavailable and so I can't talk with him about it right now, but I will try to get in touch (he has moved out of town to a resident care facility) and see what further information I can get. I have an immediate set-back in my plan to get it 'lit up' -- the power plug (J104) is a four pin, keyed, plug with a place to lock it down (?) with some kind of screw arrangement in the center. I've not seen any connector like this. Is there any way of getting one (I'd like to avoid surgery if possible)? There is an adapter on the antenna connector (which is a two pin connector of some type, again unknown to me) and it is labeled "Balanced 125 Ohm." There is a second connector looking much like a large BNC connector which is labeled "unbalanced whip." Are these standard impedances for R-390 antennae? OH, yeah -- the back panel has three fuse holders at the bottom left with a square metal attachment for storing extra fuses on the opposite side of the rear bottom panel. I don't have any docs for the R-390 but I do have for the R-390A -- how far off will I be looking through those for information about my radio? I guess that's quite enough for now. Many thanks for any replies anyone is willing to make -- either on-list or off-list as seems appropriate. Vic W4VIC

From polaraligned@optonline.net Wed Jan 21 22:39:46 2004  
Subject: [R-390] What have I got here???

The cord with this connector is often available on e-bay. Someone seems to have some NOS ones they are selling off. Keep looking and one probably will come up. \$32.92 for buy it now price. Sounds like you have a really good radio. It is just the high quality predecessor to the 390A. It's biggest difference is that it uses LC filters instead of mechanical ones in the IF. Do a Google search. There is plenty of info on these units including downloadable manuals, etc... Good luck, Scott

From r390a@rcn.com Wed Jan 21 23:44:36 2004  
Subject: [R-390] Re: r-864 questions

Hi Don, Thanks for asking about the R-864. I took a few better quality shots of the interior for your examination: <http://users.rcn.com/r390a/hobby/R-864/>

As you see, the PTO is a 70E-30 which is the next in sequence in 70E series according to your list.

Every few months I get an inquiry, but as far as I know, only one example exists. The serial number is 2 so maybe #1 is out there?

I wrote to Warren Bruene recently and he was nice enough to send a 2-page letter with his speculation on it's origin. I've posted it along with the photos. 73, /dave N9ZC

From Barry Hauser <barry@hausernet.com> Thu Jan 22 00:07:49 2004  
Subject: [R-390] What have I got here???

Hi Vic. Nice gift! That was the original, expensive model. First stop for orientation -- Dave Medley's web site <http://www.davemed.com/> You can download manuals from several sites. One is at <http://www.jamminpower.com/main/r390.jsp> James Moorers's site.

Be careful to choose those that are for the R-390, not R-390A. There are a number of other sites that have downloadable manuals and you can buy reprints from various sources if you want hard copy and

don't have a laser printer or access to one. (slow going and expensive on an inkjet.)

The power connector is highly available. Only three of the four pins get connected -- AC hot and neutral and ground. I don't know the hookups offhand. You can adapt push-on terminals (the cylindrical kind) to make contact, then secure the line cord with a plastic wire clamp, but it's better to get the right connector. (A couple sold on that online auction site recently already wired with line cords.)

The balanced connector mates up to a standard Twinax, also used for older computer networks. An adapter is available that goes from Twinax to C which grounds one of the two pins. The unbalanced one is a C-connector. A little harder to find, but findable. (You can stick the end of a wire in the connector center for a temporary "tryout" antenna.)

You can try Fair Radio -- <http://www.fairradio.com> . I believe William Perry also has the power and C-connectors. (don't have his email address) Dave Medley may also have some.

One good clue as to its readiness would be when it was last powered up. Also a good idea to test all the tubes before doing so -- at least to check for shorts. Good luck. Barry

From w5or@comcast.net Thu Jan 22 01:52:09 2004  
Subject: [R-390] What have I got here???

Barry, thanks for the memory jog to post this, with William Perry Company permission.  
<http://militaryradio.com/Images/WilliamPerryCompany.jpg> > William Perry also has the power and C-connectors. (don't have his > email address) Don

From r390a@rcn.com Thu Jan 22 01:59:56 2004  
Subject: [R-390] What have I got here???

Bill was set up a few weeks ago at the WARAC Swapfest in Waukesha, WI and I chatted with him a bit. He made a point of saying that he seldom reads his e-mail so it's much better to call.

From ToddRoberts2001@aol.com Thu Jan 22 03:44:33 2004  
Subject: [R-390] What have I got here???

Vic, there is currently an R-390 Receiver power cord up for auction on the E-place, ending date 01/26/04. Another source for the R-390 power cords is Mark Olson KE9PQ. His address for list of items for sale is : <http://www.auctionworks.com/store/default.asp?sfoke9pq> Go down his list to 'Powercords' and he has the cord with R-390 connector listed for \$35.50 each. 73 Todd Roberts WD4NGG.

From rdavis24@carolina.rr.com Thu Jan 22 04:53:33 2004  
Subject: [R-390] Help with R-392

Hello again,

Well I ended up with a good condition R-392. Has a couple problems that I will have to work out before im happy. One is the coupler disk that changes the filters is missing. Does anyone know where I can get the little coupler? Looks about like the VFO coupler on the R-390A but a lot smaller. Right now its in

the 8 kc position but I would like to be able to change it. Also, rig is powering up fine but have not heard any stations yet? Just a static, going to clean the contacts on all the tubes and see if that helps. It is alot tighter in the R-392 than it is in the old R-390A. So if I do any cap replacements in this thing it will be a real job hi. Anyone know of a good cheap PS to run the R-392 on? My PS is struggling to provide the 28 volts at 3 amps. Anyone that can help with the R-392 please do, and I will sure appreciate it. Oh yea, the second R-390A is getting a Recap kit from Walter now. So I have two radios on the bench at the same time. Thanks Ronnie

From alexx@techunix.technion.ac.il Thu Jan 22 11:53:25 2004  
Subject: [R-390] schematics

Hello to all, I am looking for schematics of the SR-209 VHF/UHF receiver. including units SDU-102AP panoramic display and SH-203P-1, SH204P-1 tuning units. thanks, Alex alexx@tx.technion.ac.il

From paul@pdq.com Thu Jan 22 18:16:16 2004  
Subject: [R-390] Help with R-392

wrote: > Well I ended up with a good condition R-392. Has a couple problems that I > will have to work out before im happy. time.

I'd suggest replacing caps only as needed when shorted. It is too tight to do a good job in there, and more importantly, at 28V B+, the caps aren't stressed very hard (most are 200V, if I recall). The inside of the cabinet certainly gets a little toasty, but I haven't really noticed heat or age related problems like the audio deck of the R-390 or R-391.

I get lambda power supplies from ebay - if you watch for awhile, you should be able to get one for a winning bid of \$15-\$25 no problem.

There is a slight chance the coupler is in rattling around in the case somewhere - might be worth a look. I dunno where to get a new oldham coupler that size.

See if you can hear the crystal calibrator? Static means the audio stuff is probably working and that you don't have any serious B+ shorts, so the likely culprit is closer to the antenna.

**I've lost more PTO tubes than about anything else**, but at any rate, testing all the tubes is worthwhile. I brought a scrappy 392 back to life recently just by testing and replacing the tubes (I think I had to replace 3 or 4). If no tube tester, get spare tubes that are believed to be good, and start swapping them around. Paul

From roy.morgan@nist.gov Thu Jan 22 21:46:51 2004  
Subject: [R-390] What have I got here???

wrote: He made a point >of saying that he seldom reads his e-mail so it's much better >to call.

Info for the Wm Perry company:

William Perry Company  
>92 Beechwood Rd. (Rear)  
>Louisville, KY 40207

>502-893-8724

No web site that I know of.

Email reported 7/03: wmperry@covad.net

You call him or send him a note. Then you wait a few days and in your mail box will show up the right connectors. Then you send him a check.. Simple.

From James A. (Andy) Moorer" <jamminpower@earthlink.net Thu Jan 22 22:59:24 2004

Subject: [R-390] What have I got here???

What do we ask him for to get the power connector? Anybody know the part number? James A. (Andy) Moorer

From k1kq@motorhomesusa.com Fri Jan 23 02:06:17 2004

Subject: [R-390] Intial Power up ofa R30A Radio

I am now ready to fire up and check reception of a R390A radio that is in great condition, but has been stored for many years. I have physically inspected the radio and there are no visual reasons I can see to not plug it in. I have tested all tubes to be good and in there proper positions.

I have heard that I should check the 2 capacitor cans and verify they are good & functional due to the possibility they could be dried out or shorted which can lead to damaging the Collins mechanical filters for the band the radio is set to when powered up. It has also been recommended that I obtain a line voltage meter to apply the 110v AC gradually to the receiver. I do not want to cause any problems that do not already exist by powering it up before recommended checks and procedures are completed.

Your comments on or off line are appreciated. I did search for a document that would contain this type of information online, but could not locate anything that provided a step by step procedure of checks to be made before actual testing what appears to be a good receiver.

Any suggestions or help is greatly appreciated, Roger Agnew K1KQ - Austin - Texas 888-536-5500

From k1kq@motorhomesusa.com Fri Jan 23 02:11:34 2004

Subject: [R-390] Follow Up to My R390A Post

I forget to mention that extensive pictures and information on the radio may be seen at: [www.k1kq.com](http://www.k1kq.com)  
Thanks to the Group, Roger Agnew K1KQ - Austin - Texas 888-536-5500

From jfd@warwick.net Fri Jan 23 02:22:33 2004

**Subject: [R-390] For Sale: R-390A in Cabinet w/SSB Mod.**

Hi All:

I have a Collins-made R-390A S/N 756 from the very first contract (14214-PH-51). I also have the military cabinet to go with it.

**The radio was modified to add SSB capability. The BFO switch was changed from "Off-On" to "LO-UP-AM-BFO" and the dial lock was removed and replaced with a "VFO Vernier" control.**

**The mod was very nicely done and works well, with screened lettering on the front panel, and there are no immediately obvious circuit additions from looking at the top of the chassis. I don't know exactly what type of mod was done, but it's certainly not a typical hack job normally associated with military radio conversions by amateurs. You can search the list archives for a thread I started on the subject of the SSB conversion back in July 2003.**

Electrically the radio works very well. There are two issues, however. First, the on/off switch doesn't work; it's stuck in the "ON" position, so you have to unplug the radio to shut it off. Second, the radio operates well on all bands, but the xtal calibrator won't calibrate the radio on the 80 Meter band: the calibrate signal is outside the mechanical travel limits when the "Zero Adj" knob is locked. Calibration is fine on 40 Meters. I'm not sure about the calibrate adjustment on the other bands; I used this radio only on 80 and 40. I never tried to align the radio, because it worked well enough for me when I got it. I replaced the "seven deadly caps" as a preventative measure. I also added a cap and a resistor to the diode load output for use with an external audio amp. The stock audio stages work fine, though.

Mechanically and cosmetically the radio is in very good shape. The chassis is dirty, but it doesn't affect the operation. Also, I've never cleaned or lubed the gear train; it works smoothly and I never got around to doing it. It probably needs cleaning and adjustment because often when you lock the Zero Adj knob, the clutch doesn't release and you have to fiddle with it to calibrate the radio.

The radio doesn't have the top or bottom covers. The cabinet has no dents or damage, but it's been around the block a few times and could use a new paint job.

Here are links to photos of the radio without the cabinet; I'll take photos of the cabinet tomorrow and post them as well. <http://webusers.warwick.net/~u1016524/r390afont.JPG>  
<http://webusers.warwick.net/~u1016524/r390atop.JPG>  
<http://webusers.warwick.net/~u1016524/r390abottom.JPG>  
<http://webusers.warwick.net/~u1016524/r390arear.JPG>  
<http://webusers.warwick.net/~u1016524/r390assbadapt.JPG>  
I'm open to offers. Thanx & 73, Jim WA2MER

From wa4zlk@acer-access.com Fri Jan 23 05:27:51 2004  
Subject: [R-390] Help with R-392

Ronnie,

For what it's worth, 3 amps sounds like about the right current draw. Both of mine draw about 2.6 amps; one fluctuates between 2.6 and 3 as the calibrator crystal oven cycles (I assume). So you must not have any bad shorts or opens in the power string. We'll keep hoping for just a bad tube or dirty contact. Oh-check the ant. relay just behind the front panel for good contacts. With the contacts open, as when it's energized on standby, I can barely hear the local 50KW bc station at 680kHz. Nice sheilding... And I gave up on AC power supplies after trying three. They all radiated RF noise, mostly below 8 Mhz, so I got a couple of big gel cells at a hamfest and a "wheelchair battery charger" through the internet. Good luck, Bruce

From ToddRoberts2001@aol.com Fri Jan 23 04:08:42 2004  
Subject: [R-390] Intial Power up ofa R30A Radio

writes: I am now ready to fire up and check reception of a R390A radio that is in great condition,



Hi Roger,

from the pictures you posted the radio appears to be missing many tubes. Were they just removed for testing when you took the pictures? It looks like all the botom deck tubes are missing and many topside tubes including the ballast tube are not there? How did you check the ballast tube? 73 Todd Roberts WD4NGG.

From ToddRoberts2001@aol.com Fri Jan 23 06:58:55 2004  
Subject: [R-390] Intial Power up ofa R30A Radio

writes: 15 of the tubes were out and in plastic bags, I checked them and then removed the other tubes in the radio and checked them, all were good. The 2 ballast tubes I was told can not be checked, (is that correct?) and will either light if good or not if there bad.

I am mostly concerned about this caps thing taking out the filter.

Hi Roger, OK on having all the proper tubes in the R-390A plus 2 of the ballast tubes. You can check the ballast tubes by checking for continuity between pins 2 and 7. If there is continuity then the tube is good. There have been articles written about a certain capacitor inside the I.F. sub-chassis that can 'take out' the mechanical filters if it goes bad. I have seen over 100 R-390A receivers over the years and I have never seen one where this capacitor has gone bad. It certainly wouldn't hurt to replace this capacitor if someone wants to. If you want to be extremely careful It is best to use a variac with a built-in AC ammeter for initial power-up. If something is shorted across the receiver power supply it will show up as abnormally high current while using the variac to bring up the voltage gradually for initial testing. That way you can immediately shut things down before any real damage occurs. Ordinarily the electrolytic metal-can power-supply filter capacitors located on the audio sub-chassis seldom give any trouble. If these capacitors are bad (open) you will either hear a very loud hum in the audio or else the metal cans will suddenly get hot (shorted) and short out the power supply. 73 Todd Roberts WD4NGG.

From jfd@warwick.net Fri Jan 23 18:54:50 2004  
Subject: [R-390] UPDATED For Sale: R-390A in Cabinet w/SSB Mod. - Additional Photos

Hi All: I have posted links below to five additional photos that show the CY-979/URR shockmount cabinet. I've reposted my original message here in its entirety, so viewers could have everything in one place. Thanx! Jim

From djmerz@3-cities.com Fri Jan 23 18:53:28 2004  
Subject: [R-390] Help with R-392

Ronnie,

I bought a 392 years ago at a hamfest and my 392 guide led me to build a power supply using a big transformer (I think it's 21 vac output) and a 5400mfd/30volt computer grade capacitor from the junk being sold at the same hamfest. This has worked well for many years, a very simple power supply initially. I did add a relay/resistor to the circuit to reduce the initial surge to charge the capacitor when first turning on - otherwise I had to use a variac to bring it up or it would blow the appropriate fuse that I put in the power supply. I believe it is as quiet as I need. I can provide more details if you're interested in

this approach but you can probably find one already assembled - I think I may have bought a regulated one since making mine but never used it. I think mine puts out about 24 volts under load - my mentor at the time thought that was plenty - though I've read that the radio performs better with full 28 volts, Dan

From bill@iaxs.net Fri Jan 23 19:34:03 2004  
Subject: [R-390] Modification Work Orders

Barry,

Went to James Moorer's site to look at the manuals, while I was at a meeting that had corporate high speed access. One of the listings was for a manual scan that had three of four MWOs, missing #3. It was only 180 MB so I tried it. An hour and 200 MB later I had a scan of TM11-856A. On Moorer's page, both the link to the R-390 with MWOs and the R-390A point to the same place, the 390A manual. Guess I will order the CD.

Can I get a copy of the MWOs without downloading 200 MB? Regards, Bill Hawkins

P.S. Interesting to see the reference to the Engineering Report "floating" around the net. I'm probably the guy that OCR'd the report and turned it loose maybe 10 years ago. Sent a copy to Al Tirevold, too. Amazing how the net loses attribution, no? Maybe it's just as well ...

From James A. (Andy) Moorer" <jamminpower@earthlink.net Fri Jan 23 19:46:00 2004  
Subject: [R-390] Modification Work Orders

Hmm. Did I botch one of the links? I'll check it out. I did upload both the 390 and the 390A manuals, both in the "old" versions and the "new" versions, but I may have been asleep when I put the links into the web page. It seems to happen a lot these days.

If anybody has MWO #3 that I could borrow and scan, please let me know.

Sorry for the slow download speed, but I can't stand those crappy low-res scans where you can't read the fine print and the half-tone images are all black. Maybe we'll all have T3 lines someday (and I'll have to upgrade my server!). James A. (Andy) Moorer [www.jamminpower.com](http://www.jamminpower.com)

From David\_Wise@Phoenix.com Fri Jan 23 20:56:25 2004  
Subject: [R-390] Modification Work Orders

> P.S. Interesting to see the reference to the Engineering Report "floating" around the net. I'm probably the guy that OCR'd the report and turned it loose maybe 10 years ago. Sent a copy to Al Tirevold, too. Amazing how the net loses attribution, no? Maybe it's just as well ...

Thank You Bill!!!!!! Dave Wise

From djmerz@3-cities.com Fri Jan 23 21:56:19 2004  
Subject: [R-390] Help with R-392

Ronnie, correct that capacitor to 54,000 mfd/30volt not 5400 mfd. It's a big one !!, about 3 inch diam by 6 inches long. Dan.

From richardlo@admin.athabasca.ca Fri Jan 23 22:21:56 2004  
Subject: [R-390] Help with R-392

wrote: > Ronnie, correct that capacitor to 54,000 mfd/30volt not 5400 mfd. It's a big > one !!, about 3 inch diam by 6 inches long. Dan.

And that might start to explain why you have to bring it up slowly or the fuse will blow! Richard Loken VE6BSV

From jbrannig@optonline.net Fri Jan 23 22:33:31 2004  
Subject: [R-390] Help with R-392

Wow, for a constant load, that capacitor is way too big. 2,000 Mfd. should be more than enough.... Jim

From drewmaster813@hotmail.com Fri Jan 23 23:48:59 2004  
Subject: [R-390] RE: Intial Power up ofa R30A Radio

wrote: " I have heard that I should check the 2 capacitor cans and verify they are good & functional due to the possibility they could be dried out or shorted which can lead to damaging the Collins mechanical filters for the band the radio is set to when powered up. "

Roger, The capacitor whose failure can damage the mechanical filters is C-553. It is located under the IF module and has one end connected to the bandwidth switch. A friend of mine toasted a couple of his filters when that cap failed.

The mechanical filters are expensive and hard to find; replacing C-553 is cheap insurance.

The 2 can caps may need to be reformed by current-limited application of voltage. They are especially prone to failure if branded General Instrument. I had one fail and take out a resistor in the audio module, badly scorching the under chassis circuit board.

Check out Wei-i Li's comprehensive compilation of postings from this forum. Go to r-390a.net, references, Pearls of wisdom. Simply Enthralling! Drew "Vicariously repairing and modifying R-390x via advice to others"

From drewmaster813@hotmail.com Sat Jan 24 00:34:24 2004  
Subject: [R-390] Help with R-392

wrote: >For what it's worth, 3 amps sounds like about the right current draw. Both >of mine draw about 2.6 amps; one fluctuates between 2.6 and 3 as the >calibrator crystal oven cycles (I assume).

Reduction of internal temperature is of benefit to extend the components' lifetime. If 3 amps continuous there is nearly 90 watts in the (sealed) box.

It sounds like the calibrator crystal oven draws about 400 mA. Additionally, the audio output tube heater adds about 15 watts of heat with its 625 mA heater current drain.

Elimination of these loads would reduce total receiver consumption to 2 amps (easier on the power supply) and eliminate 15 to 28 watts of internal heat.

With the 6.3v calibrator crystal oven disconnected, my R-390A has no problem with calibrator frequency stability. That may also apply to the R-392. The constant (high) temperature provided by the oven is of use when operating the radio in Antarctica-hardly the type of service most of our radios see.

The filament heat of the audio output tube can be eliminated by a solid state replacement (blasphemy). Rovero's R-392 website shows a couple of different schemes.

For the modification-averse, output tube could be removed and audio taken from one of the grids (the one driven by the cathode of the phase splitter) to be fed to an external audio amp/speaker.

Simplest heat reduction would be to slide the radio out of the case a bit.

>And I gave up on AC power supplies after trying three. They all radiated RF >noise, mostly below 8 Mhz, so I got a couple of big gel cells at a hamfest >and a "wheelchair battery charger" through the internet.

Most abundant are switch mode power supplies. They are noted for compactness, high efficiency, light weight, low cost and high levels of RF noise. What one needs is a linear power supply. The attributes are the opposite of those listed above for SMPS's. A simple unregulated transformer-rectifier-filter type supply might suffice if it has huge filter caps for low enough ripple. Drew "Vicariously repairing and modifying R-390x via advice to others"

From djmerz@3-cities.com Sat Jan 24 00:50:40 2004  
Subject: [R-390] Help with R-392

Jim, you figured it out but you forgot that the voltage will drop about 10% in going from 54000 to 2000 mfd with 3 amp load so I'd get 22 volts instead of 24. Of course I could use a higher voltage transformer but I went with what I could find at the time, couple of bucks for the transformer and a dollar for the capacitor. I bought one spare capacitor. I was a little surprised that the guy advising me knew just what voltage I was going to end up with since he sort of casually picked the parts for me. He was a military equipment collector from Canada that I still run into at swapmeets here in WA state, Dan.

From k3pid@comcast.net Sat Jan 24 01:46:44 2004  
Subject: [R-390] Antenna Input Modifications

On my R-390 someone removed the twinaxial socket on the balanced input and replaced it with an SO-239. The center conductor of the new connector passes thru to the high side of the transformer while the other side is now grounded. Was this a common mod? why wouldn't you just replace the connector on the unbalanced input with the SO-239?

Comments? Issues? K3PID Ron H.

From wa4zlk@acer-access.com Sat Jan 24 07:03:40 2004  
Subject: [R-390] Help with R-392

Drew,

Good reminder about the crystal oven. I'll disconnect it soon to save those watts. I'm sure I'll never be bothered by calibrator crystal drift. As for the audio output power hog, at least the designers addressed that issue later with the solid state module shown in the manual. I wonder if these ever show up in later radios or as spares? Mine is rarely on more than 2 or 3 hours at a time, so heat isn't much of an issue. I have left it on overnight before and the case does get a bit toasty... Bruce WA4ZLK

From BENZONR@ntsb.gov Sat Jan 24 14:19:10 2004  
Subject: [R-390] Kilocycle Change Knob Collar

Gentlemen:

The kilocycle change internal knob retention collar with the set screw on my early Motorola R-390A has broken. This makes it impossible to tune the radio, obviously. Does anyone know of a quick fix for this? I thought of using or modifying a drill bit stop collar or something similar. Barring that, are the knob retention collars available out there somewhere? Hate to have to obtain an entire knob assembly, but would like to find one as a final alternative. Thanks, in advance, for the help. Bob Benzon

From k3pid@comcast.net Sun Jan 25 17:02:35 2004  
Subject: [R-390] HELLO! Does anyone actually READ this list?

Well so far this year I've submitted two legitimate (I think) R-390 questions to this reflector and with the exception of one email asking me if I received any answers the response has been zero, zip, nada, goose egg!!! Has anyone seen my questions? Does anyone really read these emails? Maybe I am only getting as far as the local Comcast server!!!? K3PID Ron H.

From James A. (Andy) Moorer" <jamminpower@earthlink.net Sun Jan 25 18:14:18 2004  
Subject: [R-390] Modification Work Orders

OK - I fixed up the links and I also posted a copy of just the change orders, and their one illustration. It is about 10 Mb. Enjoy! James A. (Andy) Moorer

From ToddRoberts2001@aol.com Sun Jan 25 18:23:32 2004  
Subject: [R-390] Kilocycle Change Knob Collar

**writes: The kilocycle change internal knob retention collar with the set screw on my early Motorola R-390A has broken.**

**Bob, a close match for a replacement knob retention collar for the large KC/MC knobs for the R-390A is available from Stock Drive Products online. Catalog number S3701Y-C112. It is known as a Split-Hub Gear Clamp, I.D. 0.438", thickness 0.250", set-screw size #6-32. Single price \$8.34. You can see their product line at [www.sdp-si.com](http://www.sdp-si.com) . I think someone has been selling R-390A knob clamps on the e-place from time to time also. A small size hose clamp might work in a pinch but I would go with the proper style split-hub clamp. 73 Todd Roberts WD4NGG.**

From r.tetrault@comcast.net Sun Jan 25 21:12:30 2004  
Subject: [R-390] HELLO! Does anyone actually READ this list?

I hear you... What were your original postings? Bob T Portland, OR

From k1kq@motorhomesusa.com Sun Jan 25 22:52:55 2004  
Subject: [R-390] Bristol Spline Tool

Hello Group! Are the Bristol Spline #6, #8, #10 the same as a Torx. I suspect not, but they sure do look the same. If not, where is a good source for a set of Bristol Spline drivers. Roger Agnew - K1KQ - Austin, TX - 888-536-5500

From k3pid@comcast.net Mon Jan 26 00:42:33 2004  
Subject: [R-390] That's more like it!!!

Well I guess I am getting through...:>). Anyway the two questions were as follows:

First. ( I now realize that this may not have come across as a question. I was looking for confirmation of my assumptions)

SIDETONE QUESTION 1/3/2004

The sidetone output of the T-368 is taken through a cap from the wiper of the 500 Ohm cathode resistor of the cathode follower. Is it normally connected across the "output" side of the 600 Ohm audio output of the R-390? If so then the level of the sidetone is controlled by the cathode resistor independ from the R-390?

Second. ANTENNA INPUT MODIFICATIONS 1/23/2004

On my R-390 someone removed the twinaxial socket on the balanced input and replaced it with an SO-239. The center conductor of the new connector passes thru to the high side of the transformer while the other side is now grounded. Was this a common mod? why wouldn't you just replace the connector on the unbalanced input with the SO-239?

Thanks and sorry if I shouted!! In the past I've gotten great answers from the group but it seemed like no one was listening... You know how it is when you have the rig open on the bench and you're waiting for info... K3PID

From wf2u@starband.net Mon Jan 26 01:27:20 2004  
Subject: [R-390] That's more like it!!!

All the audio and control functions (including the sidetone feed, keying in CW, etc) between the T-368 and the R-390's (2) in the original AN/GRC-26D system is done through the C-1123/GRC-26D interface box. between the T-368 and the R-390's. These control boxes are usually available from Fair radio.

My T-368E and pair of R-390A's are all interconnected through a C-1123 as shown in the schematics in the GRC-26D manual. Without digging out the manual now, I remember making up a cable between the T-368 control/audio connector and the control box, and connected the 600 ohm lines from the receivers to the corresponding connectors on the C-1123 and the sidetone will there at the audio output taken from

the control box. The sidetone level is set by the pot in the T-368. 73, Meir WF2U Gowensville, SC.

From Barry Hauser <barry@hausernet.com> Mon Jan 26 05:38:48 2004  
Subject: [R-390] That's more like it!!!

I see that Meir answered your first question as he posted his reply to the list. I don't see a reply to your second question. It appears that the general activity level of the list has diminished. Part of this may be due to the practice of replying off-list -- perhaps to conserve bandwidth, keep a low profile, or, I dunno -- maybe solar flares wiping out the band? Anyway, there is the tendency to think -- well maybe the guy got his answer, or I have an idea, but someone else out there is more expert or whatever. As for the first question -- I, for one, did not know the answer. As for the second (about why some guy swapped out the balanced connector for an SO-239 instead of the balanced one), that sounded like the courtroom scene in the movies where one of the sides yells out "Objection! Calls for a conclusion!" or conjecture, etc. Anyway, here goes nothin':

I can't say with any assurance as to why the anonymous modder chose to replace the balanced connector instead of the unbalanced with an SO-239, however: It is/was procedure to ground one side of the balanced connector when connecting an unbalanced line to the balanced connector, even when using a twinax connector on it. Also, there are adaptors around that convert from twinax to C-connector (like the unbalanced). One side of the twinax is grounded inside the adaptor. Most (maybe all?) of these adapters are right angle/elbow shaped. There may be variants that go to something other than a C-connector -- perhaps an SO-239 or an N-connector?

So, it may have been a common mod in the functional sense, but doubtful that many changed out the connector altogether. If a made-up adapter is difficult to find, it's an easy matter to make up a twinax to SO-239 cable, or a longer coax going from a twinax plug (with one side grounded inside) to a PL-259 plug.

I can offer two theories as to why the Unknown One chose to replace the balanced connector: A. The unbalanced one looked more "normal" and thus likely to be found one day, and/or B. Rumor or conventional wisdom had it that the balanced connection was better. This may really have depended on which was used during alignment. However, any inherent superiority may have been undone by grounding one side. Twinax connectors are now commonplace and cheap as they were used for computer network cabling. This may not have been the case or known to the modder at the time.

Of course, this is all conjecture and further pursuit may get us into the areas of Boatanchor Archeology, Boatanchor Anthropology and even, yes .. Boatanchor Forensics. These are rather unusual fields of endeavor. (generally recommended that one keep his or her day job ;-) On the other hand, perhaps someone will unearth an article entitled "Replace that Weird Balanced Connector with a Good Ol' SO-239" among some crumbling scrolls or musty magazines which would shed further light on the motivations at play at the time. In the Day's of Yore it was customary and fashionable to perform what are now considered abominations upon vintage and historical objects and there were numerous heretical tracts in circulation. The pendulum has swung back in the direction of orthodoxy, such that authenticity is prized over practicality, to the extent that artifacts such as original knobs, tags, and even dynamotors are much sought after.

If you wish to restore your R-390 (non-A?), you may be able to fit a standard twinax panel connector, or, if not, get another antenna relay assembly. I have a supply of R-390A type available, plus some odd ones that include a gas discharge tube. I forget now what the difference is between the R-390 and R-390A versions. However, on an electrical/functional basis, what you have there is a fairly standard setup. Barry

From David Hallam <dhallam@rapidsys.com> Mon Jan 26 14:09:12 2004  
Subject: [R-390] Collins 75S-3

In this distinguished group, I assume there are any number of you who are knowledgeable about Collins ham receivers. I have recently acquired a 75S-3 receiver. In going through the manual, I wonder if there is an error concerning the location of auxiliary crystals, Table 2-1.

According to the manual, band-switch position 1E - 28A is furnished with a 15.8275 MHz crystal that covers 28.5 to 28.7 MHz. However, it also states that in this position crystal socket 2E is connected. Going through the schematic, it appears that crystal socket 1E is connected in position 28A, which I would assume is correct. Table 2-1 in the manual does not make any mention of socket 1E. Is this an error? And is socket 1E actually connected in band-switch position 28A as the schematic indicates?

If I put in additional 10 meter crystals, does it make any difference whether I put them in 1E, 2E, or 3E?  
David C. Hallam KC2JD

From jbrannig@optonline.net Mon Jan 26 14:35:37 2004  
Subject: [R-390] Collins 75S-3

There must be an error in your manual. Table 2-1 shows 1E-28A, 2E-28B, 3E-28C. It does not matter which socket you use for 10M. From an ergonomic standpoint I use 28A for CW, 28B for mid fone and 28E for high fone. With three 10M crystals you will only have 600kc. of coverage on 10M, so pick them carefully. Jim

From wa9vrh@mtco.com Mon Jan 26 16:03:44 2004  
Subject: [R-390] FS SP-600JX video by Chuck Ripple

For Sale Hammurland SP-600JX video by Chuck Ripple 4 hours of servicing, repairs, restoration, and modifications. Viewed only a few times. New \$89.95 Like new \$50.00 plus shipping from 61559 postal money order only please Thanks Larry WA9VRH

From chacuff@cableone.net Mon Jan 26 20:37:39 2004  
Subject: [R-390] That's more like it!!!

Well one things for sure....The Ole List.....She ain't what she used to be! Kinda miss the Ole days...lot of good info got passed around. Lot of good humor as well! Probably a lot easier to manage this group though... Cecil...

From g4gjl@btopenworld.com Mon Jan 26 20:44:43 2004  
Subject: [R-390] Bristol Spline Tool

They are very different and you should not attempt to use mismatched drivers as they will fatally damage the screw sockets. (Either way round)

The best Bristol drivers commonly available are Xcelite (Pronounced zi-light) ...Get them from Mouser,



Digikey or local equivalent tool store.

You will need a handle type 99-1 and at least a driver type 99-66 for most 390 stuff. There are other drivers which will be useful for the smaller and larger Bristol sizes, but I have found this is the most common size. Pete G4GJL

From roy.morgan@nist.gov Mon Jan 26 21:09:21 2004  
Subject: [R-390] Covers & Cabinet

wrote: >When the R-390/URR is installed in the cabinet does it normally have the >top and bottom covers attached?

Ron, I read your post that you get no/few replies..here is one: The covers should be removed when installing the receiver in a cabinet, especially in the military desktop cabinet.

> Is there a cooling issue with both?

Yes. AND. the radio will not fit into the military cabinet with the covers in place.

(Question about sidetone with the T-368.) I have no idea about the T-369/R-390A installation. I suggest you join the T-368\_BC-610 list below and ask those guys who have them. It is a Yahoo group and you need to be a member of Yahoo to get it:

>Yahoo! Groups Links>To visit your group on the web, go to: > [http://groups.yahoo.com/group/T-368\\_BC-610/](http://groups.yahoo.com/group/T-368_BC-610/)

>On my R-390 someone removed the twinaxial socket on the balanced input and >replaced it with an SO-239. The center conductor of the new connector passes >thru to the high side of the transformer while the other side is now >grounded. Was this a common mod?

Somewhat common, but it means removing or butchering the antenna relay. This mod was probably not done by the military or other government agency. The twinax connector is part of the antenna relay. It is not clear from your post whether or not the antenna relay is present in your radio.

>why wouldn't you just replace the connector >on the unbalanced input with the SO-239?

Because \*\*\* without the field change that re-arranges the coax connections to the antenna relay\*\*\*, the unbalanced input goes to a spot in the circuit AFTER the antenna coils and results in reduced selectivity of the front end, and also reduced sensitivity.

>Comments? Issues?

Comments: The field change involving re-connecting the coax connections is detailed on Chuck Rippel's site, (and possibly in the Y2K manual). The circuit connections of the antenna relay and the points in the circuit at which the two antenna connectors are connected to are shown in the radio schematic.

Issues: Use of the UN-balanced antenna connector without re-configuring the relay's connections will reduce both front end selectivity and receiver sensitivity. (This assumes the antenna relay is present.) If the field change is accomplished, these things are not true. The normal unbalanced antenna coax connector requires an adapter to use normal connectors (BNC or "UHF"), or a mating coax connector.

Both are available at RF Connections ([www.therfc.com](http://www.therfc.com)) among many other places. Roy

From g4gjl@btopenworld.com Mon Jan 26 21:12:55 2004  
Subject: [R-390] That's more like it!!!

I cannot answer your first question as I (sadly) have no T-368 experience! Any one wishing to rectify this situation by donating a T-368 to me is most welcome!!

However, the mod antenna relay you described is part official and part homebrew, it seems to me.

True, there will be an impedance mismatch at the 50 -ohm SO-239, but in reality this is of little significance to most people.

The relay unit might be one from another similar application in another type of receiver else has been locally modified. I think some of the R-390 (no A) relays use removable coax connectors. All the 390-A versions I have seen have the body of the relay assembly and the coax connectors and an integral casting.

The electrical mod of grounding one side of the RF input transformer was first specified by the Navy, as one of their numbered modifications. A web search will most probably uncover a copy of the official document. Pete G4GJL

From drewmaster813@hotmail.com Mon Jan 26 21:35:19 2004  
Subject: [R-390] Antenna Input Modifications

wrote: >On my R-390 someone removed the twinaxial socket on the balanced input and >replaced it with an SO-239. The center conductor of the new connector

The unbalanced antenna input is connected to the grid side of the RF input transformer and hence is high impedance. That was intended for use with a short whip antenna.

The balanced input is low impedance but many of us do not use balanced feedline. Grounding one side lets one use the other side as an unbalanced low impedance input. There was a Navy "modification" which consisted of juggling the 3 internal BNC's (or MBNC's) to use the unbalanced input connector as low impedance in the aforementioned fashion. Drew "Vicariously repairing and modifying R-390x via advice to others"

From drewmaster813@hotmail.com Mon Jan 26 22:05:37 2004  
Subject: [R-390] RE: Help with R-392

wrote: >Wow, for a constant load, that capacitor is waay too big. 2,000 Mfd. >should >be more than enough....

With a 3 amp load and 2000 uF filter cap you'd have about 8 or 10 volts of ripple (Hummmmmmmmmmmmm).

If I recall correctly, the R-392 has 2 input pins for the 28 volt source; one supplies the heaters and t'other supplies B+. (If I recall incorrectly, maybe it could be made so with minimum modification).

Some have reported improved performance by upping B+ to 35v or so while leaving filaments at 24v. If one were to go that dual power supply route, a low quality 24v supply (maybe even AC?) could heat the filaments and a well filtered supply at higher voltage could provide B+.

The better filtered B+ supply would need less filter capacitance because the '392's B+ current requirement is miniscule compared to its heater current. Drew "Vicariously repairing and modifying R-390x via advice to others"

From James A. (Andy) Moorer" <jamminpower@earthlink.net Tue Jan 27 00:21:30 2004  
Subject: [R-390] RE: Help with R-392

> If I recall correctly, the R-392 has 2 input pins for the 28 volt source; > one supplies the heaters and  
'other supplies B+. (If I recall

The filament current is about 1.5 A and the plate current is about .5 A. They don't need to be regulated, but any 60 Hz hum will go right into the audio. At startup, the filaments will pull up to 5A or so for a few tens of milliseconds - long enough to blow any normal fuse.

I fiddled around with separating the filament and plate voltages. My conclusion is that you really shouldn't set the plate voltage over about 32 volts. It starts sounding rough and distorted above that. I pretty much ended up setting it at 30 volts and leaving it.

One thing I haven't seen discussed much is the filament voltage. The radio ran on 28 volts, but most of the tubes are rated for 26 volts. They also have two 12.6V tubes in series for 25.2V. I think 28V is too high. I set the filament voltage down to 26 volts on mine. I don't notice any difference in performance. Enjoy! James A. (Andy) Moorer [www.jamminpower.com](http://www.jamminpower.com)

From ba.williams@charter.net Tue Jan 27 15:59:52 2004  
Subject: [R-390] That's more like it!!!

Cecil, I hear you loud and clear! Compared to previous years, this list seems pretty empty. You see this all the time if you look at the stats of other lists. You know, you look at the message volume by month and it shows less than 1 message day, or something similar. You see that it is a list with barely any life at all. It is a shame to see what was the best list on the Internet get neutered down to nothing. We used to have tons of members saying all kinds of neat things around here. Hell, we even had laughs all the time. Most old timers are probably hesitant to post anything, or they found other lists. Kinda odd, but I've noticed that the small pack of whiners who started the original belly aching (and the eventual demolition of this list) have all gone silent too. Maybe they joined other lists and are imposing their "you're-having-too-much-fun" gripes on those guys now.

Yeah, I guess I'm complaining but it is really more like missing the good ol' days and wishing they would somehow come back..... the other other Barry

From gregorymengell@comcast.net Tue Jan 27 16:59:01 2004  
Subject: [R-390] That's more like it!!!

You are certainly right about the Days of Yore and the seeming decline on the list. I wonder if we were to contact those we know who have left if we could persuade them to return? There still would seem to

be a lot of expertise here but a reluctance to post to all .While I am out of my Lurking mode I would like to ask if anyone has a Singer Panadaptor for sale to be used with one of my modified R 390A rx?

Gregory

From djmerz@3-cities.com Tue Jan 27 17:32:24 2004

Subject: [R-390] HSR-2 vs 390a

Hi, now I'm a relatively new guy on this reflector but I've gotten a lot of good information out of the questions I've put on here - and I've seen a lot of good information in the archives. And I find the R390a I have is the receiver I use most often, pretty much standard except for an audio improvement and substituting the 390 (non-a) i.f. chassis. So I'm putting a somewhat general query out based on a recent article I read in Electric Radio, Jan 2004 issue having to do with performance of an apparently pretty simple homebrew receiver vs. R-390a. Just for information here, the receiver consisted of 6be6 mxr, followed by 3 i.f. 6ba6 stages and 6bj6 det. etc. with no rf tube in front of the mxr, just a couple of tuned circuits. The full circuit is to come in a future article. What caught my attention was the statement - "Comparison to my very well working 390a was dramatic, I could CLEARLY hear signals that were well under the hash level of the 390a, but very comfortable copy on the homebrew receiver." As best as I can tell, the radio is being used on 40 meters and frequencies below that and primarily on AM. I have in the past been made aware that rf stages in front of the first mixer are not so necessary below 20 meters, probably first brought to my attention by the Squires-Sanders receivers and then later by advanced transistor receivers in QST. But what I'm wondering about, are there other factors that would make the 390a inferior in certain cases to a simple receiver as expounded in this article? Dan.

From k1kq@motorhomesusa.com Tue Jan 27 17:40:24 2004

Subject: [R-390] That's more like it!!!

Gregory: Funny you should post this message, 2 things... 1.) - I have not posted it but I sent the following directly to; Cecil Acuff & The other other Barry:

Nothing wrong with remembering the better days of the list, that is certainly not complaining. I'm new to the group and I receive this remailer and the CCA groups re-mailer. If you old timers know of any others that are more active and helpful, I would like to know or better yet how can we get this group back to the good old days... What do we need to do?

I did not post this to the remailer, but if you guys think its appropriate, just forward it on.

2.) Gregory I have a friend that is desperately looking for, " Dead or Alive, anybody that has a Nems-Clarke or Defense Electronics Panadapters with the 5" CRT's." Gregory, Let me know what you come up with on any extra Singer's I will ask him if those will do. 73's, Roger Agnew - K1KQ - Austin, TX - 888-536-5500

From vculver@verizon.net Tue Jan 27 17:42:26 2004

Subject: [R-390] HSR-2 vs 390a

Interesting question, Dan. I've noted similar differences in the VHF spectrum, going from my PRO-2006 to the Icom R-7000 -- the 2006 seems to hear BETTER than the R-7000 and I'm a little put off when that happens. One would suspect that the R-7000 would (perhaps?) run circles around the PRO-2006 but it certainly doesn't in all cases (but the 2006 DOES scan better!). My guess would have to be that the

390/390A would hear better than the simpler homebrew -- especially since I KNOW what my sensitivity figures are (on MY 390-A, done by Chuckles himself!), and they're pretty tough to beat. Hummmmmmm. I'm looking forward to some 'speculation' on this issue. Vic

Date: Tue, 27 Jan 2004 12:43:18 -0500  
Subject: [R-390] That's more like it!!!

You overlook the obvious problem. With the generous help of this reflector, all the R-390's and R-390A's from 2 -3 years ago have been fixed, aligned and refurbished. Until a new guy shows up or something breaks there is not much else to do. Unless you want to follow the other reflectors and start a thread on wiring headphone/microphone plugs. Jim

From roy.morgan@nist.gov Tue Jan 27 17:51:31 2004  
Subject: [R-390] HSR-2 vs 390a

wrote: > ... Electric Radio, Jan 2004 issue having to do with performance of >an apparently pretty simple homebrew receiver vs. R-390a.

Dan, Almost certainly his IF gain is set too high, and/or his first rf amplifier tube is noisy. The noise contributed by the front end of a properly working R-390A is very likely way below the QRM and QRN of the 40 meter band. If his home brewed radio gives him less noise than the R-390A, then the R-390A needs attention. Roy

From chacuff@cableone.net Tue Jan 27 18:18:56 2004  
Subject: [R-390] HSR-2 vs 390a

My guess is that his R390A is not as healthy as he thought it was. Properly set up the 390A is a very sensitive receiver...from what I have heard...right down to near the theoretical noise floor. I can't imagine there being that dramatic a difference and there not being a problem in the 390A in question. Just my 2c worth! Cecil...

From kw0d@netexpress.net Tue Jan 27 18:27:54 2004  
Subject: [R-390] That's more like it!!!

Hi All!

wrote: >You overlook the obvious problem. With the generous help of this reflector, >all the R-390's and R-390A's from 2 -3 years ago have been fixed...

Yes, this is true... Or, consider that many hit the 'reply' button, and it goes directly to the poster, rather than back to the reflector.

I know there've been volleys over the subject before, as well as accidentally-publicised 'posts' that were intended to be private.

On most reflectors I've been on, replies are returned to the reflector for all-to-see... like being in a 75m group chat. Some folks don't like that (understandable) but some people don't like silent reflectors, either

(also understandable). In all cases, the list moderator gets harrassed by everybody to change something, so it doesn't take long for one to grow tired of this 'job' (understandable), and when folks don't get their way, they either unsubscribe (understandable) or start a flame-war and get blacklisted by the moderator (understandable).

The one point-of-it that never seems to come up, is the unknown part about reflectors nowadays... With the facist fury of SPAM and other InterTrash, most everybody's mail goes through some sort of crap-abatement (and bandwidth-preservation) filter. Mine goes through an outfit (which I didn't choose) called Postini. It's a good idea to use filtration, 'cause it catches a whole lotta junk, but SPAM filters are oftentimes like separating sand from grain through a perforated dumpster... some grain falls out, some sand falls out, but lots of both gets trapped inside. Spammers are getting both more brutal, AND more sophisticated- they're dumping more volume, and employing all sorts of tactics to defeat abadement systems.

If I go look at my inbox, I'll see a dozen or so legitimate messages, and about half of 'em will be junk. If I look at Postini's website, I'll invariably find 2,000 pieces of mail, wherin all but mebbie 20 of 'em are really junk...

...and most of them will be messages from HAMs. Dunno why, but apparently the filters think that something from an address as random as WA2RKJ@HOTMAIL.COM must be trash.

Fortunately, places like Postini allow you to have a 'blacklist', where you can totally block all mail coming from one mail address, or one domain. You can also insert addresses into a "white list", where certain addresses or domains can be allowed to pass without scrutiny. UNfortunately, there's a limit to how many you can plug in... and I exceeded that long ago.

Abatement systems also use a technique called 'blacklist sharing'... where if you're put on a blacklist at one place, it will 'tattle' that to many others, so that if you're ever 'blacklisted' as a spammer, you'll effectively be shut out everywhere. That's a great idea, until your machine gets hit with a worm and unbeknownst to you, becomes a relay site for spam... OR, someone who once got a message that had YOUR address in it... gets the KLEZ worm, and starts sending out mail with YOUR address as the FROM.... so now you get blacklisted because of something that someone else's machine (unknowingly) did. I'm regularly suprised by clients who call me, asking if I ever got their Email... and how often I find it buried within the 2,000 spams in Postini's system. Unfortunately, I can't possibly keep up, sorting through all that trash, just to find a few messages.

The fortunate part is, if the spam-abatement system supports whitelisting (like Postini does), and the mail is actually being sent by a reflector (with the reflector as "FROM", one can insert the address of the reflector, and ALL POSTS then make it through.

I've found that a suprising number of my legitimate responses never make it to their intended recipients. Aggrivating as it is, it's understandable...

Of course, if I were to ever identify and locate an individual who is in some way directly responsible for spamming, I will personally see to it that everything they know about everything will be evenly distributed across the back corner of my farm...

Life was so much nicer before SPAM, Malware, and Spyware. DK :- ) 73's from KW0D Dave in LeClaire, Iowa

From chacuff@cableone.net Tue Jan 27 18:45:32 2004  
Subject: [R-390] That's more like it!!!

Hi Jim, Barry and Group, Well that may be the case....but...those guys that were so knowledgeable and very prolific posters are nowhere to be found now...even when someone needs a hand.

This list used to be full of general discussions about the history of the 390 series, members experiences while serving in the military using or maintaining the 390 series. It was also a defacto second home for the Hammarlund SP-600 series (I know there is a group for that) which seems to be for the most part left out of the Hammarlund reflector posts. They seem to post more about the 170/180 series with and occasional HQ-150 thrown in for good measure.

Most R-390x owners were also most naturally SP-600 owners so a lot of questions and comparisons were fielded. They also shared a SSB adapter quite easily...one of Hammarlund manufacture. Most all of the expertise was already gathered up here...

All that is gone...(or lurking)

Sure it's a lot quieter and you don't put near as much wear and tear on the delete key but this group used to have a life of it's own. A great Fellowship!

But...all things change I guess!

That's not to say there is not still a great pool of knowledge here...I think there is...

We have just lost the spirit!

Anyway...off the soap box...

I am in the process of putting back together a "Blue Striper" that I disassembled 5 years ago for cleaning and recapping.(went off on an R-1051 tare) So I am sure the groups knowledge base will be put to the test. When that is through I have another Motorola to go through and 2 SP-600's to go through...not to mention the Halli's and an old National 183D. Cecil...

From sdman@cableone.net Tue Jan 27 18:29:27 2004  
Subject: [R-390] That's more like it!!!

| This is probably the most helpful and friendliest forum that I have been on. | Compared to other forums it | is a breath of fresh air. On this forum I'm not afraid to ask a dumb | question in fear of being "Flamed" by some "Smartass" remark back. I've | noticed lulls for days and then all of a sudden there is a flurry of replies | to a question asked by a member. | I agree it is hard to keep up the interest and vitality of a forum after it | ages a few years but I find this true of most of the other | forums. As a whole I find the members, informative and professional. I Guess | in the end that it is the responsibility of us | members to keep it interesting and vital. I have been a member of this forum | for over two months | | Thanks, | | Sam.

From wf2u@starband.net Tue Jan 27 19:18:41 2004  
Subject: [R-390] That's more like it!!!

Hi All, I mostly lurk, as I (knock on wood...) have no problems with my pair of R-390A's I've owned for

the last 15 years or so... They still work as on the day I got them, original with their meters and covers...

As Cecil mentioned about the SP-600, I have a good specimen of these as well. In fact, being a receiver freak as I am, I managed to collect the whole gamut of professional tube receivers, as if I was determined to collect every one of the receivers mentioned in the Osterman book... In fact, I have a few which are not even in his book!

I don't get into hair splitting as to what brand and what color cap I should put in as a replacement... I just "listen" and I'd put in my 2 cents' worth when I really have something to say to help someone out.

Don't worry guys, I'm sure there are many others out there in the listening mode. Many others probably are members of other lists as well, and if one has multiple interests, it may be a full time job to chime in to all when someone else posted an input already. Besides, most of us have a lot of "toys" and playing with them takes you away from the computer ;-)

Also, don't forget that there is another R-390 list out there, unmoderated and maybe some fellows feel more comfortable there. There, here is my 2 cents' worth... 73, Meir WF2U Gowensville, SC

From roy.morgan@nist.gov Tue Jan 27 19:54:52 2004  
Subject: [R-390] HSR-2 vs 390a

wrote: >Interesting question, Dan. ... I'm looking forward to some 'speculation' on

Vic, et al: Here is my reply to Dan:

Almost certainly his IF gain is set too high, and/or his first rf amplifier tube is noisy. The noise contributed by the front end of a properly working R-390A is very likely way below the QRM and QRN of the 40 meter band.

If his home brewed radio gives him more signal and less noise than the R-390A on the same received signal, then the R-390A needs attention.

With respect to measured sensitivity in the R-390A:

My belief is that there are some discrepancies in the methods used in the R-390A manuals to measure sensitivity. They will tend to produce over-optimistic results. Briefly, they involve receiver input matching and generator load and attenuator performance. The sensitivity measurement methods in the manuals are perfectly fine for system performance testing and were good for the military maintenance and checking processes. They did not result in accurate measurement of receiver sensitivity.

Nevertheless, I would be most interested in any manual-based measurement of the R-390A mentioned in the ER article. Roy

From roy.morgan@nist.gov Tue Jan 27 19:59:03 2004  
Subject: [R-390] That's more like it!!!

wrote: >I am in the process of putting back together a "Blue Striper" that I >disassembled 5 years ago ....

Are you talking about MY shack? heheh I have a very similar set of radios here waiting for my attention,



though my blue striper is still in one piece.. happy boatanchoring! 73, Roy

From k3pid@comcast.net Tue Jan 27 21:16:15 2004  
subject: [R-390] That's more like it!!!

I find Meir's comment about brand and color of cap to use interesting. I hadn't thought about it but with that comment it occurs to me that the use of "Orange Drop" caps might be frowned upon by the purist of the group. My R-390 is working pretty well (except as noted in other posts) but I expect that soon I will have to re-cap and do a general realignment etc. So! What is the accepted "Brand" and "Color" of cap for use in an R-390 (non)?? 73 & Tnx K3PID Ron H. PS: Thanks fer the good follow-up on the antenna & sidetone questions!

From roy.morgan@nist.gov Tue Jan 27 21:31:35 2004  
Subject: [R-390] That's more like it!!!

wrote: >So! What is the accepted "Brand" and "Color" of cap for use in an R-390 >(non)??

My opinion is that any, repeat any, modern film cap of appropriate ratings and value is fine for the R-390 A or non-A. In some spots you may need to find a cap that fits the space - some caps may be too big for the tight quarters.

Voltage ratings way above the original are not needed.

Use any electrolytic that fits the space in the audio module to replace the tantalum that's in there.

Anyone who worries about metal film resistors having inductance is wasting their energy on trivia. Roy

From jbrannig@optonline.net Tue Jan 27 22:08:43 2004  
Subject: [R-390] That's more like it!!!

I agree, use the parts that make the radio work. The new parts are much better than the originals. However, I could not resist the challenge of re-building the power supply capacitors in their original cans. It was a lot of unnecessary work, but I'm glad I did it.

I ordered the "Experimenters" kit of 1% metal film resistors from Mouser. To my dismay, they use a completely different color code scheme and the colors are not as vibrant as on the old resistors, they to be inspected carefully so the right value is selected. Jim

From mikea@mikea.ath.cx Tue Jan 27 22:13:47 2004  
Subject: [R-390] That's more like it!!!

wrote: [snip] > I ordered the "Experimenters" kit of 1% metal film resistors from Mouser. > To my dismay, they use a completely different color code scheme and the > colors are not as vibrant as on the old resistors, they to be inspected > carefully so the right value is selected.

I tend to do my inspection of resistors with an ohmmeter. Small labels with the value written on get wrapped around one lead. Very much more difficult to do with SMDs, but I avoid them anyway, in

favor of stuff where I can read values without a magnifier. -- Mike Andrews

From jbrannig@optonline.net Tue Jan 27 22:26:07 2004  
Subject: [R-390] That's more like it!!!

I finally learned to check all components before using them. As I get older the round lighted magnifier lamp has become my best friend.

BTW, I have been dumping my old "junke Boxe" parts and replacing them with new stock from Mouser, Allied, etc. I don't know how long these places stay be in the retail, small quantity business and if I am going to put all the effort into replacing components, it seems reasonable to use new parts instead of the 30 year old dregs from the junke boxe. Jim

From drewmaster813@hotmail.com Tue Jan 27 23:13:39 2004  
Subject: [R-390] RE: HSR-2 vs 390a

wrote: >"Comparison to my very well working 390a was dramatic, I could CLEARLY >hear signals that were well under the hash level of the 390a, but very >comfortable copy on the homebrew receiver."

(snipped) But what I'm wondering >about, are there other factors that would make the 390a inferior in >certain cases to a simple receiver as expounded in this article?

The aforementioned statement regarding HASH level of the R-390A could have some basis even for a well-functioning R-390A.

The R-390A's mechanical filter response has extremely sharp skirts; wonderful in crowded ham band conditions but not so good in impulse noise situations.

Hash as we sometimes define it is a form of impulse noise. Those filters will ping and ring, "smearing" out the pulses and making interference worse. One listening to a high quality AM signal with the R-390A can hear a slight raspiness to the audio; the filters ring on transient modulation peaks.

The R-390 non-A has LC filtering (the IF cans) which has a more gradual skirt characteristic largely devoid of ringing and hence does far better in the presence of impulse noise. That also accounts for the superior audio quality of the non-A.

I have an el cheapo Hallicrafters S-120 which is a low entry level general coverage receiver. Tube lineup is the All-American Five minus the 35W4 (selenium instead). Normally in side by side comparisons a signal that is not even detectable on the Halli will be armchair copy on my R-390A. But enter strong 60 Hz power line hash and on moderate strength signals the great '390A is humbled by the lowly Halli.

Rolling your own R-725 by stuffing the non-A IF module into an R-390A has its merits. However, that module can be hard to come by.

Here are some ideas (possibly without merit) I've been pondering for R-390A IF module modification.

(Forum Tranquility Preservation Statement: Performing the following modifications would constitute heresy! Shame upon he who would attempt them!)

1. Replace one or more of the "mechanism a philharmonic" (mechanical filters) with a filter comprising cascaded LC sections. These could be modern miniature IF cans with added impedance matching in and out. Modern ceramic filters plus impedance matching schemes could also be used.

2. Bypass 16 KHz filter entirely, add attenuation to match losses in the remaining filters. Change values of or remove the Q spoiler resistors in the R-390A's IF cans. Realign with less (or even no) frequency staggering. Fiddle with cathode resistors to reduce the gain which was raised by can mods. The IF cans so adjusted would then define bandwidth in the switch position labeled "16 Kc". That would be the high fidelity, impulse noise resistant mode.

Using the narrower bandwidth positions would then provide mechanical filtration at the original bandwidths (provided the filter in use had a narrower bandwidth than newly defined by IF cans). Original function (and susceptibility to impulse noise) in the narrower positions would be preserved.

These modifications might be attractive to one whose IF module has a defunct 16 KHz filter, if not for the fact that the 4KHz filter fails most frequently.

3. Keep the Philharmonic Quartet (16, 8, 4, 2 KHz) intact but add relay switching to put the Quartet on hold and swap in LC or ceramic filtration as desired.

4. Add that panadaptor output jack you've been thinking about and use it to feed an external IF/detector/audio unit.

A better "modification" might be to acquire the R-390 non-A. Drew "Vicariously repairing and defiling R-390x via advice to others"

From chacuff@cableone.net Tue Jan 27 23:26:07 2004  
Subject: [R-390] That's more like it!!!

Hi Roy, I am glad to have so much in front of me but I wish I could get some of it behind me....finding time is the hardest part! I thought as I got older I would have more but it seems to be the other way around...Maybe in a few years when the kids are off to college I'll find more time! There are a few more I would like to have some day.... Does it ever end? Ha.... Cecil....

From chacuff@cableone.net Tue Jan 27 23:30:01 2004  
Subject: [R-390] That's more like it!!!

Hi Guys, I don't know that there is any one "Accepted" cap specified by this group of believers but I think the Orange Drops are probably the most used...but certainly not the only cure for what ails these radios. I have heard of many caps of similar design being used. I for one would prefer one with the leads coming out the ends like the originals....they would be easier to mount.

From chacuff@cableone.net Tue Jan 27 23:35:23 2004  
Subject: [R-390] That's more like it!!!

Yea it's a shame the small mom and pop electronics stores have all but gone out of business. Everytime I go into RS I ask myself why I came back in....especially when looking for components. Maybe in the larger cities they have a better standard stock but around here it's a waste of time.

I have gotten where I have to use one of those Jewelers visors with two levels of magnification to see the small stuff. It does make it nice to see again and be able to get some work done. Cecil...

From chacuff@cableone.net Tue Jan 27 23:40:15 2004  
Subject: [R-390] RE: HSR-2 vs 390a

Those sound like some good ideas to check out...I had thought about the IF deck mod to replace the Mechanicals with some LC filtering or ceramics. I know many new radio's now days can be ordered with the Collins mechanicals or ceramic filters so there must be some level of interchangeability. Good thoughts... Cecil...

From wb5hak@sirinet.net Tue Jan 27 23:43:31 2004  
Subject: [R-390] That's more like it!!!

"Experts" stand by!! I also have a shelf full to begin on soon (two "non A's", one R-390A, two SP-600's, among other stuff), so will be asking more as I go. May take retirement this summer to spur the work on, but questions will come, I am sure! 73 all, Don, WB5HAK

From wf2u@starband.net Wed Jan 28 00:05:02 2004  
Subject: [R-390] That's more like it!!!

What I said was: "I don't get into hair splitting as to what brand and what color cap I should put in as a replacement...". All these discussions about whether to "orange drop" it or whatever, seem to be completely ridiculous. Any ham who's attempting to do repairs on equipment, should be at least familiar with basic components and their application, i.e. the types of capacitors and resistors available, and the application by type and voltage ratings. This is basic! It looks like sometimes someone uses a certain brand or type and then others follow it blindly and that brand/color becomes "fashionable", without the correct design procedure and part selection behind it.

BTW I'm an Electrical Engineer by education and in my professional career I specialized in the design of high-power, wide-band amplifiers (typically between 10 KHz and 220 MHz, up to 10 KW), and HF tube and solid-state linear amplifiers for communication systems... Seriously, one doesn't have to be an engineer to select parts wisely.... 73, Meir WF2U Gowensville, SC

From pulsarxp@earthlink.net Tue Jan 27 18:31:39 2004  
Subject: [R-390] New Guy

Well, I'm here! I have a R390A that I bought at a hamfest a year ago and need to get it working! I don't have a clue what needs to be done with it as I have not fooled with it as yet. It does not look beat up and the front panel looks good. Without going into it, I see no corrosion. Been into boat anchors a long time, but this thing frankly does intimidate me! As you know, this is a LOT of radio. I know nothing about working on a R390A. It was made by the Electronic Assistance Corp and has a serial number on it of 4002. Fortunately, it has the meters and top and bottom covers. I have dug into a lot of radios, but this one does scare me. Sure wish there was a mentor in Houston for encouragement. I have never needed one for other radios. It would be great to have it running. (I did use one when I was in the Army back in 1957). I guess I need to find a maintenance manual somewhere. (I have a Variac, scope, RF

generator, analog volt/ohm meters, digital meters, tube testor, solder irons and some rosin core solder, but no guts)! signed, Trembling in His Boots in Houston Lee, w0vt

From mikea@mikea.ath.cx Wed Jan 28 00:54:48 2004  
Subject: [R-390] New Guy

wrote: > Well, I'm here! I have a R390A

The Y2K Guide to the R-390A is Absolutely Wonderful, and Absolutely Free. And the manuals also are available on the web. This group is the best place in the world for advice, hints, and kinks. Just be a bit careful about grabbing the B+. I don't work without a safety observer, but YMMV.

<heresy>

There are better receivers, but not many, and the the sand-state better receivers are a bit fragile around the front-end.

</heresy>

You list just about everything you need, except for sidecutters and Bristol screwdrivers.

Bits and pieces are available from Fair Radio and other sources, so you can replace most anything you fsock up, and it's nice to have spares -- but it's not all that hard to work on, either, and it's pick-up-one-end-and-drop-it-and-the-CW-tone-stays-constant stable. Think of it as the Nikon F of radio receivers. So: Amen! Dig In! Mike Andrews

From James A. (Andy) Moorer" <jamminpower@earthlink.net Wed Jan 28 01:14:51 2004  
Subject: [R-390] New Guy

> I guess I need to find a maintenance manual somewhere.

You can download them (slowly!) from my web site. The particular page is:  
<http://www.jamminpower.com/main/r390.jsp> Hmm. I just noticed that my server is down again. Sorry. Should be back soon. James A. (Andy) Moorer

From chacuff@cableone.net Wed Jan 28 01:39:06 2004  
Subject: [R-390] New Guy

Great news Lee, You are in the right place. Have you powered it up? If so what did it do....did all the tubes light...including the ballast tube....it starts out bright and dims down when working properly.

You need the manual...may as well download the New and Improved one that's out there....the Y2K guide. It's a work (masterpiece) in progress. Check [www.r-390a.net](http://www.r-390a.net) it's a wealth of information. You'll be up and running in no time! Cecil...

From ba.williams@charter.net Wed Jan 28 02:06:39 2004  
Subject: [R-390] That's more like it!!!

I'm after 2 panadapters myself, so post the news if you find one and get it working. Barry non-Hauser

From ba.williams@charter.net Wed Jan 28 02:26:11 2004  
Subject: [R-390] That's more like it!!!

Jim, I see your point but I have to disagree. We are all working on the radios or just using them. This list had a certain character and spirit that made it the best list anywhere. We had the fun taken out of it all and the list hasn't recovered. I feel sort of sorry for the new members who didn't get to enjoy a great bunch of fun loving people. Like Cecil said, you could venture into SP-600 talk all the time. The running joke was that a R-390A/nonA owner had to have an SP too, and most did. That brings up another point- jokes. Well, we were basically told (read threatened) that jokes were not to be tolerated any more, so the humor and humorous members are either not here or definately not posting anymore. Hell, we can talk about color coding caps, but we can't talk about how we use our radios or what we like to listen to. This used to be a list of adults enjoying being around the same sorts of people...and that means the inevitable joking around, some banter, and just good old fun that didn't harm anyone. If you were the type to gush over Westley Clark's photo on the cover of that gay magazine you could understandably take a few HEAT rounds up the wazoo. Believe me, there was never a shortage of topics on this list a year ago! the other other Barry

From ba.williams@charter.net Wed Jan 28 02:43:22 2004  
Subject: [R-390] That's more like it!!!

Hi Cecil, Agreed. I have a 67 EAC that needs complete overhauling...one day soon. Barry non Hauser

From ba.williams@charter.net Wed Jan 28 03:09:33 2004  
Subject: [R-390] Off topic and a bootable offense...L@@@K RARE!

<http://cgi.ebay.com/ebaymotors/ws/eBayISAPI.dll?ViewItem&item2454839870&cat%3E%20egory26432&sspageNameSTRK%3AMEBWA%3AIT%3E%3E%3E%3E%3E>

From sid@leben.com Wed Jan 28 03:09:08 2004  
Subject: [R-390] R390 anticipation

Well guys, I am glad you're all here.. (even the lurkers!) I am eagerly awaiting the shipment of an R390. After lusting for this receiver, I finally have made the plunge. It will fit nicely next to the KWM2 & 30L1.

Please add the humor back to the group, sorry that I missed it! I will try to add a "new guy" attitude with I hope not too embarrassing questions. I intend to use a rotatable loop antenna for MW BC listening. Sid KC2EE Spring, TX

From d.a.deaton@adelphia.net Wed Jan 28 03:52:51 2004  
Subject: [R-390] New Guy

I've been lurking in the weeds and reading everybody's mail. Bad habit, I guess. I've got an R-390A from the first contract (14214-PH-51, SN433). I was in the first grade when this thing was built! Its in dire need of a good cleaning and overhaul. I'm afraid to light it off -- Variac or not -- until I get into it

and replace a few caps. I need a new top cover for the unit, if anyone has a spare. I will shortly have a new antenna up and then I can get on the air. So, Lee. Don't get discouraged. We can do our receivers together. I know that with the help of all the great people on this list, we can get them up and running real good. After that, I can tackle my KWM-2A and 30L-1. Until then, all I've got is a rice-burner. Dennis Deaton, WA6ACC, first licensed as WV6TQG in 1959. Redlands, CA

From Barry Hauser" <barry@hausernet.com Wed Jan 28 04:02:31 2004  
Subject: [R-390] Off topic and a bootable offense...L@@K RARE!

Namesake-san: I have no problem with the OT-ness, but fear you are wandering far way off-course into dire straits in that Devil's Triangle they call the Bay of E. You're supposed to keep your eye peeled for boatanchors, not the boats.

Besides, it's tough enough to get just the right gray finish on a panel that's barely 2 sq. ft. and I'm sure that runabout is overdue for a paint job, not to mention all the white lettering -- and not engraved to boot.

On the other hand, it's a good deal cheaper than R-390's -- on a dollar per pound basis. Unfortunately, the thing has been de-milled, though I don't see any blue and yellow stripes in the photos. Barry non-Williams

From bill@iaxs.net Wed Jan 28 04:03:55 2004  
Subject: [R-390] That's more like it!!!

Group, This topic certainly has sparked some activity here, once it got off of the original subject. I subscribe to R-390, Glowbugs, Boatanchors and Vintage Solid State lists. I archived them all on the first of July last year. Now the Outlook message count stands at:

R-390 1266  
GB 7039  
BA 1709  
VSS 31

GB is not a moderated list, although there have been calls to keep the noise down. But it almost never drifts into politics, religion or antenna magic. They are true experimenters.

R-390 and BA are semi-moderated lists. BA has a penalty box that suspends posting privileges for off-topic posts. Computer problems, spam and viruses are off-topic. R-390 is not so restrictive, but cuts you off if you talk about sheep (alas, poor Nolan. A man of infinite jest, southern style).

VSS has no moderator and has no instigators. The listowner once threatened to close it down and got 20 responses.

In the heyday of R-390 we were mostly new to the game and hung on the words of Chuck Ripple, Dr. Jerry, and others. So we learned and fixed our sets. Then Al Tirevold, Erols, and now Andy Moorer put up excellent web sites along with pros like Ripple and Medley. Anyone willing to do some research found the answers to their questions before asking the list. Used to be, we'd have a long thread about grounding brought on by someone who asked why the GFI kept tripping. Now we seem to be well grounded in that subject.

That leaves us with the occasional newcomer who does not know where to do the research. Some of us

are not quick to answer someone who could have looked up the answer. People who become known as experts then become tired of people plucking at their sleeve with the same questions. And so, the willingness to answer has dropped off some.

Seems like we ought to increase the chatter on how we use the radios, unless there is some bandwidth or storage problem. The moderator could take a one-month vacation from moderating and see what happens. Maybe if we stayed away from the audiophile topic we wouldn't offend those with no sense of humor, if there are any left.

I see by the clock on the wall that this has become overly long. Time to let it go to compete with the other bandwidth hogs. Regards, Bill Hawkins

From chacuff@cableone.net Wed Jan 28 04:17:56 2004  
Subject: [R-390] R390 anticipation

Welcome, You'll find plenty of help here! Enjoy.... Cecil...

From chacuff@cableone.net Wed Jan 28 04:22:48 2004  
Subject: [R-390] That's more like it!!!

Good post Bill....bout covered it all! Cecil..

From bill@iaxs.net Wed Jan 28 04:57:48 2004  
Subject: [R-390] That's more like it!!!

A thousand pardons to those that I did not mention in a brief history of the R-390 list. We might not exist without Don Reaves. Barry Hauser is a fine and knowing wordsmith. David Wise showed up as a new person with some interesting questions and became a resource for the list. Hank Arney knows shipping and machining and how to sort pepper from fly specs. Roy Morgan is always willing to help.

Dallas Lankford is one of the experts, known for many articles in the Hollow State Newsletter and others. Rich McClung knows more about the use and fixin' of R-390 class sets than most of us. Joe Foley knows the sets and could be counted on to kick over a beehive now and then. Les Locklear could beat a dead horse, or was it point out how dead the horse had become.

John Kolb is an expert, no, the expert on mechanical filters. Tom Norris knows a lot of things besides the serial number ranges for our radios.

And the list goes on. It's like the Oscar nominations. A lot of very good people didn't get mentioned.

Dunno why I did this. Must be the snow and the cold here in Minneapolis, and the cold medicine ... Best regards, Bill Hawkins

From gregorymengell@comcast.net Wed Jan 28 06:42:41 2004  
Subject: [R-390] That's more like it!!!

Late night question for the List. Who knows the history of the R388 /51J4 or 51J3. Strengths and



shortcomings? It seems they kind of overlapped for a brief period of time with the R 390 rx. The R390 replaced them in the GRC 26D. I realize the R 390 family is a more sophisticated rx ,What is the list opinion on the other R 390 cousin? 73 Gregory

From BRingwoo@csir.co.za Wed Jan 28 09:59:37 2004  
Subject: [R-390] RE: HSR-2 vs 390a

Hi all, This is strange. I have a fair selection of radios with LC filters and 6BE6 or worse mixer tubes. As far as sensitivity goes and AM listenability, the R-390A is as good or better than most. Did the ER article have any measured comparisons, or was it subjective ? Could it be that the HSR-2 was happy with the antenna set up and the 390 wasn't ? Anyhow, I'm not about to modify the 390a IF strip in a hurry. I look forward to hearing about the subsequent articles. - Bryce

From ba.williams@charter.net Wed Jan 28 14:06:39 2004  
Subject: [R-390] That's more like it!!!

Jerry (Dr. Jerry) left because he was mad at Carl. I heard from Jerry a while back and he is still interested. Carl wrote about a year ago. His head is healed up.

Some of us are going to rebuild soon, so we will be asking for this and that. One member is very experienced and he may be asking or telling.

Most of the 'spirit' that we remember has nothing to do with experience levels or boredom. This was just a great place to hang out. If those spirited members left in disgust it is probably too late to entice them to return. It takes a long time to collect good members for a list that does not have a bad reputation. I guess we will have to wait a while longer for a resuscitation.....

I don't remember Nolan ever being cut off with his 'southern style' of humor. However, being from the South I am partial to 'southern style' humor. Nolan was a very popular part of the list. He contributed a lot of knowledge, lore, and fun. This is probably the lightning rod test on the whole censorship thread. The fact is that Nolan Lee probably tops the list of missed members.

This list has a penalty box too. It has been used. Messages are also held and screened before posting in some instances.

I have no problems with audiophile topics. You never know what you may learn or unlearn. Laughing at the stupid notions didn't harm anyone. Laughing is good medicine. Why restrict it? Radios are nearly useless without ears and speakers. AF deck upgrades are always interesting topics. R390As sound better with output routed thru tube amps over solid state amps. Let the chatter continue.

My vote is to not be concerned with humor sensitivities...unless someone is getting too personal. We always handled that well without chastisement. We saw what would happen if we based content on humor approval or the topic censorship. In case anyone missed the scuffle, a few new members decided to 'get vocal' against our chatter habits on this list. They complained loudly about us. Nevermind that we had a good thing going. Some decisions were made to enforce the wishes of the new members, aka whiners, and suddenly we had a barrage of restrictions, threats, etc. We also had a dead list on our hands, and the chest-thumping whiners vanished without a trace.

Maybe this became the NFL....the No Fun List.....I dunno. I'm only on my first cup of coffee this

morning..... the other other Barry

From ToddRoberts2001@aol.com Wed Jan 28 14:14:26 2004  
Subject: [R-390] RE: HSR-2 vs 390a

We all know the R-390A is a superb receiver. I am always suspicious when someone claims another receiver "runs rings" around the R-390A. I have never found that to be the case whenever another receiver is carefully tested side-by-side with a properly-aligned and properly-functioning R-390A. Visit Robert Sherwood's website for comparisons of the R-390A with other receivers under careful test conditions. 73 Todd Roberts WD4NGG.

From dsmaples@comcast.net Wed Jan 28 14:40:58 2004  
Subject: [R-390] That's more like it!!!

I'm with you on the antenna connector. That's what someone did to this R-390A. BTW the unbalanced connector is a Type C, I believe, so an adapter can be obtained pretty easily if you don't want to remove the connector. Dave WB4FUR

From k1kq@motorhomesusa.com Wed Jan 28 15:09:10 2004  
Subject: [R-390] OOPS! C-553 not C533

My post should have read C-553 not C-533... Damn that spellpecker.

>> "I have decided to take the conservative approach with respect to C533 and replace it" << Roger Agnew - K1KQ - Austin, TX - 888-536-5500

From k1kq@motorhomesusa.com Wed Jan 28 15:17:05 2004  
Subject: [R-390] I sense a little SPARK! is back

Well, Well... I'm a newbie, but I sense that the posts from a couple of "Old Timers" (OT's) has put a little spark! back in the group. Great! to see, and a little humor too.

OK, now a question to the "Underpaid Research Group" (URG). I have decided to take the conservative approach with respect to C533 and replace it on my newly acquired '55 Collins R390A that has been in an attic for 15 years. Mouser did not have any of the Orange drop 600v caps, so they sent me some 0.01ufd 400v & 800v Vishay/Sprague Orange drops, which should I put in? I also read somewhere a recommendation that as long as you are at it you might consider putting 2 in parallel for back up. Comments suggestion from the OT's & URG appreciated. Thanks, Roger Agnew - K1KQ - Austin, TX 888-536-5500

From wf2u@starband.net Wed Jan 28 15:24:02 2004  
Subject: [R-390] RE: HSR-2 vs 390a

I can list off-hand 3 receivers of the same vintage which run rings around the R-390A noise floor and sensitivity-wise - this according to the product specifications, lab tests and actual side-by-side on the air comparison - with at least equivalent if not better stability and more filter options:

1. Rohde & Schwartz EK 07
2. Telefunken E 104
3. Siemens E 311

On the down side, both the EK 07 and the E 104 are bigger (about 1.5 times the volume) and heavier than the R-390A (they were more expensive as well in their heyday), and much more complex and difficult to maintain. In a fixed, controlled environment, for weak signal reception and band cruising the EK 07 and E 104 are clear winners.

The E311 is smaller and lighter than the R-390A but it's complex and not easy to align. It is however more rugged, but the mechanical-digital kHz display - like in the R-390A - doesn't make it a band cruiser (the MHz dial is analog however).

Overall, the advantage of the R-390A is that except for the mechanical complexity, electrically it's simpler and would take fewer man-hours to repair/maintain. It is also more rugged under field conditions.

Purely by performance data, the 3 receivers mentioned above are better than the R-390A. For overall utility and value for the given package (size and maintainability, the R-390A is the winner.

I own and enjoy all of the above.

One caveat: I'm talking about standard, as-issued, off the shelf receivers, and not specially tweaked, massaged, hand-selected tube packed specimens. 73, Meir WF2U

From cbscott@ingr.com Wed Jan 28 15:21:49 2004  
Subject: [R-390] I sense a little SPARK! is back

Roger, I seem to recall only putting in a 400V OD here. Whatever Dave (a guy on the list that offers(offered?) capacitor kits) included in his rebuild kit is what is in my radio. Barry(III) - N4BUQ

From sdaitch@ibb.gov Wed Jan 28 16:03:03 2004  
Subject: [R-390] RE: HSR-2 vs 390a

I think the real key is what makes up the "ring?"

I will not say the R-390 family is not a suburb receiver, but there are/were other receivers designed for specific applications that could be considered better, in some respects, than an R-390 series receiver, but they also cost more. 73 Sheldon WA4MZZ

From sdaitch@ibb.gov Wed Jan 28 16:04:47 2004  
Subject: [Fwd: Re: [R-390] RE: HSR-2 vs 390a]

(corrects "superb")

I think the real key is what makes up the "ring?"

I will not say the R-390 family is not a superb receiver, but there are/were other receivers designed for

specific applications that could be considered better, in some respects, than an R-390 series receiver, but they also cost more. 73 Sheldon WA4MZZ

From wa7kbr@curtiss.net Wed Jan 28 16:27:15 2004

Subject: [R-390] R-391/URR (MOD) - Direction Finder Set AN/FRA-44 --- Receiving Set AN/FLR-7

Hi, I'm new to the list and looking for some advice on an R-391 (S/N 145) that I have. It was an original 1951 Collins unit (contract 14214-PH-51-93) and was modified by RCA for the Navy and has an additional 3"x2" metal tag on the front panel below the function switch. It reads as follows:

R-391/URR (MOD)  
RECEIVER, RADIO

-----  
A UNIT OF DIRECTION FINDER SET AN/FRA-44 (XN-1) COUNTER MEASURES RECEIVING SET AN/FLR-7 (XN-1)  
-----

MODIFIED FOR NAVY DEPARTMENT - BUREAU OF SHIPS BY CONTRACTOR RADIO CORPORATION OF AMERICA CAMDEN, NJ CONTRACT NObsr 81315 US

I've searched this list's archives, but find no mention of it. I tried google and came up with a reference to Antenna AN/FLR-7 on www.r-390a.net in the FAQ as follows:

This Wullenweber antenna, also known as a Circularly Disposed Antenna Array (CDAA), consisted of a large number of 200 foot towers arranged into a ring more than 1300 feet in diameter. An inner ring of shorter towers completed the array. The antenna reportedly operated from VLF well into the VHF frequency range. It provided direction finding accuracy to within two or three degrees, according to some reports.

When I first got it, it worked but always had ringing in the audio. I suppose it could have been modified to have a very narrow IF bandpass.

Does anyone have any info on how this R-391 was modified by RCA? I suspect that there weren't very many of these made, and I don't know if it is rare enough or interesting enough for anyone to care about. Would it be best to leave a unit like this in it's current configuration, or to try to convert it back to a stock R-391 again? Thanks for any and all help. Clay WA7KBR

From bill@iaxs.net Wed Jan 28 16:54:39 2004

Subject: [R-390] History of R-388

Gregory, I've changed the subject for you.

Late night question for the List. Who knows the history of the R388 /51J4 or 51J3. Strengths and shortcomings? It seems they kind of overlapped for a brief period of time with the R 390 rx. The R390 replaced them in the GRC 26D. I realize the R 390 family is a more sophisticated rx ,What is the list opinion on the other R 390 cousin? 73 Gregory

From djmerz@3-cities.com Wed Jan 28 18:05:03 2004

Subject: [R-390] HSR-2 vs 390a

Hi again, thanks for all the attention to my question regarding this homebrew receiver vs the 390a. I have corresponded with the author a few times and see that his appreciation of the 390a is extensive and that he would never say his homebrew "runs circles" around the 390a. But on the other hand he has raised another question in my mind regarding the proper operation of a 390a.

Keep in mind that I have a 390 i.f. chassis in my own set so my remarks concerning its operation are for that configuration at this point. Putting the original chassis back in may be relatively simple but it's not something I do casually or want to do very often, even for comparison purposes. But as I recall, the other i.f. chassis did not operate much differently with respect to what I discuss below.

So... the matter of hiss, as we call it, came up. This is the noise that occurs when the r.f gain is turned up all the way with the antenna disconnected. On my receiver (and the author's 390a which he no longer owns), with the rf gain up all the way with the antenna disconnected, there is a noticeable hiss, or background noise. The hiss is greater with the bfo on and increases in magnitude as the bandwidth is switched to wider settings. The hiss doesn't move the S meter. I took this as normal and typical of most radios. It's not so loud that I considered it a problem but maybe it is. The author thought this was the thing about the 390a that interfered with reception of weak signals. My question this time: is this a normal adjustment of the 390a and does this exist in your well-adjusted receiver? I typically do not run the rf gain wide open because of this and usually operate on ssb between 12 and 3 o'clock on the rf control. I think on strong AM stations, the set works well with the rf gain wide open and I never notice the hiss. I performed the standard alignment procedures on my set awhile back but if this hiss is unusual I may start looking for a fix. Dan.

From mahlonhaunschild@cox.net Wed Jan 28 18:40:58 2004  
Subject: [R-390] That's more like it!!!

I quite agree. As evidence, I point out that the later EAC production used the yellow axial-lead polyester capacitors, even though Orange Drops had been around for quite some time already and the incremental price increase would have been insignificant. But then, the R-390A was a "build-to-print" design and challenging the parts list under those conditions would have been risky business.

When/if I re-cap the '55 Collins I'll use the yellow polyesters (with a protective heat-shrink coat).  
regards, Mahlon - K4OQ

From David\_Wise@Phoenix.com Wed Jan 28 19:34:29 2004  
Subject: [R-390] RE: HSR-2 vs 390a

Today, rejection of interference is much more important than sensitivity. The latter is a lot easier to measure (that is, if you don't mind being wrong, see the old metrology threads), which is why you see it done so much.

There's no way a naked 6BE6 can compete with the R-390A's image- and adjacent-channel rejection. 73,  
Dave Wise

From pulsarxp@earthlink.net Wed Jan 28 20:39:57 2004  
Subject: [R-390] New Guy

I would like to thank the following members for writing me for giving good advice to me on restoring

my R-390A receiver. Mike Andrews, Randy Stout, Andy Moorer, Byron Tatum, Cecil Acuff, Joe Foley, and Dennis Deaton. Also, those with R-390 web sites, thank you too. The sites are truly amazing.

I would have responded quicker to all but I had a problem sending messages to this list. When I initially subscribed to the list I used my w0vt@arrl.net mail address. I soon found out trying to send messages to the list with my main earthlink address would not work. I think the list administrator gave me a pass on my first message so it got through manually by him. I then subscribed with my regular earthlink account and when that got going I then unsubscribed from the group with my arrl.net address.

Last night I took your good advice and downloaded the Y2KR2 manual. (Thank goodness I just purchased a new box of paper and had a new ink cartridge loaded in my printer)! I'm using dial-up here and it took some time (most of the evening) downloading and printing the manual. It sure was worth it. I am totally amazed at the effort that went into getting the manual where it is today. I need to go buy a really good three hole punch today so I can preserve the manual. Thanks everyone for getting me started.

I plan to remove modules and inspect things, clean things, and try and understand things before I start recapping the radio. I will test tubes while I am at it too. I don't plan on firing the radio up until it is recapped. I realize it would be a good base to start from if I fired it up before changing parts out, but I'm afraid if I have a short I could do some damage. I'd rather be careful and have good new parts installed at the critical, known to fail, spots in the radio. As I said earlier, as it stands the radio looks nice. It does not appear to be abused or dirty. All the meters and top and bottom covers are in place. The front panel does not look perfect but it does look very very good and so do the knobs. This is a Electronic Assistance Corp radio with serial number 4002 on it. (I was surprised to see the company was owned by Hammarlund as I have a couple of SP-600s to restore too).

I just retired at 65, and although I am building a retirement home in my "spare time", these projects will give me something to do and keep me out of the XYLs hair! I'm thinking of getting some of the Hi-Res tapes on the subject. They sure sound great. (Need to convince the XYL this would be a good thing). I'll keep everyone posted as I go along. 73, Lee Bahr, w0vt Houston

From jbrannig@optonline.net Wed Jan 28 21:25:51 2004  
Subject: [R-390] HSR-2 vs 390a

Hiss or internal receiver noise is generated by the mixers and amplifiers in the receiver. This is quite normal. The first test of a receiver is to connect an antenna to the input terminal. The ambient noise level should be louder than the internal noise of the receiver. If it is not, than the first RF stage is not amplifying properly (usually). Jim

From roy.morgan@nist.gov Wed Jan 28 21:35:02 2004  
Subject: [R-390] Receiver Sensitivity Measurements

R-390 folks, The below rant was instigated by a question from Randy Stout I hope it is at least interesting to folks on the list:

Randy asked: > Could you please give me a simple explanation of impedance matching for > connecting a 50 ohm signal generator (8640B) to the balanced connector on > the R-390A.

I can give you an outline of the factors involved. I've been wanting to write a rant on this topic for some time, so here goes:

## Signal Generator Termination:

Most modern signal generators will deliver the indicated output voltage only if the output, including any connecting cable, is terminated with 50 ohms. At low frequencies, this can be done at the output connector but at higher frequencies it must be at the end of a 50 ohm cable. "Low frequencies" means where the cable is, say, less than 5 percent of a wavelength. At 30 mc, the effect of SWR on the cable may change the voltage at the output end if the cable is of some length and is mis-matched.

## Recommendations:

- 1) Carefully read the manual for your generator to understand what conditions are needed for correct output voltage indications.
- 2) Provide the proper cable (low leakage coax) of the correct impedance (50 ohms) with correct connectors.
- 3) Use a flat load or attenuator of appropriate impedance at the termination end of the cable.

## Notes:

- 1) The GR 1001A has fairly unique output termination requirements. The source impedance is not the same for all attenuator settings. Read the manual if you are using one. As far as I know, the HP 606 and later generators all require a 50 ohm termination to indicate output voltage correctly.
- 2) The URM-25's all need 50 ohm terminations also.

## Signal Generator Leakage

All signal generators leak to some degree. This means that when you set the output attenuator and level adjustments for very low output levels, say 10 microvolts or less, signals that leak out of the generator by paths other than the output connector can be significant sources of error. One fellow reported that he measured his R-390A receiver sensitivity at about 5 microvolts. Trouble is that the Heath signal generator he was using was across the room and not connected to the receiver at all!

## Recommendations:

- 1) Do not use Heath, Eico, or similar signal generators and expect to get meaningful results at very low signal levels under any circumstances.
- 2) The GR signal generators and any by HP or other professional grade makers will likely do well if properly used.
- 3) TEST for generator leakage. Put a modest antenna on the radio, a good load on the generator at the output connector, set the generator for one microvolt, and see what you can hear. A more severe test is to use a little loop or hank of wire at the end of a coax as a moveable antenna and "sniff" around your signal generator with the receiver RF gain wide open. Then put the load at the end of the connecting cable you intend to use and sniff some more. Running a terminated cable at a generator output of a volt or so will let you estimate the shielding performance of the cable. You may need to clean and reseal grounding and shielding features of your generator to reduce any leakage you find.
- 4) Use a matched attenuator at the end of very good coax for testing. This minimizes the exposure to any

existing leakage at the input to the receiver. One path for signal leakage is: radiated signal from the generator enters a poorly shielded connecting cable and adds to the signal from the attenuator in the generator. For the R-390A, this might mean building an attenuator in a metal box that has a twinax connector on it. Do not trust any coax supplied by a popular company that used to supply electronic parts and pretty much only sells tv's and cell phones now.

### Load Presented by the Device Under Test

The load that the device under test (the rf input terminal of your R-390A) puts on the generator load or attenuator matters a lot if you want to know the actual input voltage. If the receiver is actually 50 ohms (very unlikely in the R-390A) then it can be the proper termination for the generator cable. Since it is both likely NOT 50 ohms, and you are unlikely to know what it really is, other methods must be used if you want to be reasonably assured of the actual voltage at the input terminals.

### Recommendations:

- 1) Understand the input impedance of the device under test, at least to the extent that you don't assume what it is.
- 2) Use methods to reduce the effects of variable and unknown input impedance. Specifically, use a low output impedance voltage divider at the input to the receiver. A little shielded box, two resistors and two connectors will do the job nicely (at HF frequencies.)

> I want to do reliable and comparable SN ratio measurements, so I can > track how my receiver behaves following alignment and other tweaks, such > as tube replacement, IF gain adjustment, etc.

Reliable, can mean a couple of things:

- 1) If reliable means that you can be pretty sure of the actual receiver input voltage, you need to use a low output impedance voltage divider at the receiver input, and test for generator leakage.
- 2) Reliable can mean repeatable. To get repeatability, use good equipment, careful methods, and keep good notes (and never transmit into the output of your signal generator with a transceiver!)

Comparability can mean a couple of things also.

- 1) It can mean consistent results from time to time. If you are careful in your setup and methods, you should be assured of consistency of results over time at your place.
- 2) It can mean assurance that you can compare measurements made with your set up with those made with someone else's. In order to compare your results with those of other people, you may want to use pretty much the same methods they use. In the case of the R-390A, using military manual procedures, this means grounding one side of the balanced input, using a 50-ohm load at the receiver end of the cable connecting the generator to the receiver, and accepting the errors that the variable input impedance and mismatch are introducing.

Tracking changes in receiver performance due to alignment, tweaks and tube changes can be as simple as just using the same setup for RF signal input every time. This means carefully using the same equipment in the same way, based on notes and records. You may choose to use the manual procedure, or its equivalent with the gear you have, or you may choose to make a more careful setup to be more assured of the actual receiver input voltage.



Recommendation: choose one of the below:

- 1) Use the manual procedures. If you don't have a URM-25 in good shape, use any more modern signal generator with an understanding of its termination requirements.
- 2) Use a reliable generator but use an attenuator with a low output impedance to establish a better-known receiver input voltage.
- 3) Do both, and compare results.

>I also would like to generate numbers that can be compared to other >peoples, using best principles of measurement.

Unfortunately most folks who have R-390A's don't use the best principles of measurement, depending on what we mean by "best". They use the methods specified in the manual(s). Those methods are just fine for military situations with the goals of performance checking to determine suitability for service, and are very good if we want to compare numbers from two or more different people/places. They leave something to be desired if what you want to do is accurately measure such things as receiver sensitivity.

**Recommendation:**

- 1) Carry out the methods in the military manuals as closely as you can. See if leakage is contributing to your sensitivity measurements.
- 2) If you want to compare your measurements with those of other folks, find out as exactly as you can what setup they used. Duplicate their methods as closely as possible, including any sources of error.

**Miscellaneous observations:**

- 1) Measuring rf voltage accurately is far more difficult than most folks realize. An accuracy of 5 percent is achievable with good equipment and very careful procedures. Accuracies of 3 percent or so are questionable under almost any circumstances. Accuracies of one percent are almost impossible anywhere. Careful reading of the specs of modern signal generators will give you an idea of the voltage accuracy they offer. Accuracy of rf voltage measurements is not normally an issue in receiver sensitivity. The difference between 1 microvolt sensitivity and 1.02 microvolts is seldom important. Whether we have one microvolt at the antenna terminal or one tenth of a microvolt is much more important, and in my opinion deserves looking into. Most signal generators depend on the following three assumptions (at least) for proper indication of output voltage level: a) the rf voltage is reliably measured or set at some high level, such as 2 volts b) the attenuator is working as it is supposed to: c) the attenuator and connecting cable are properly terminated. And at low output levels, the assumption is that leakage is minimized.
- 2) Measuring RF voltages directly at very low levels is nearly impossible. Calculating what we expect them to be is much easier, and is about all we can do.
- 3) Noise and interference from the environment may affect sensitivity measurements. Almost none of us have access to an RF shielded room to make measurements in.
- 4) There have been reports that re-soldering the RF path connections in an R-390A with silver bearing solder improved the sensitivity. I for one would like to hear of carefully documented experience with this.

5) If I remember correctly the R-390A receiver sensitivity measurements are made with the RF gain at maximum (and AVC off.) Thus, the setting of the IF gain adjustment may make a difference. Presumably, receiver sensitivity measurements should be made after the IF gain is properly set. If the IF gain has been cranked up to the point where the IF sections are contributing significant noise, measurements of receiver sensitivity are questionable.

6) In receivers such as the R-390A, it is the first, and possibly the second, RF amplifier that completely determines the sensitivity of a receiver if it is set up according to normal design intentions. That is, the IF section and mixers contribute very little to the noise against which the RF input is being compared.

7) One way to detect leakage in a setup is to move your hand or a metal sheet, possibly grounded, around the generator and receiver. Also, move the connecting cable(s). Any variations in measured receiver output indicate that RF is getting into the receiver by some path other than through the path from generator attenuator output to receiver input. (This method is especially useful in UHF and microwave situations.)

8) The input impedance of the R-390A is specified to fall within a range. Mil-R-13947B (which specifies the R-390 "non-A") states:

"3.13.3 Antenna input impedance.- The rated input impedance for the balanced input circuit shall be 125 ohms. In the range from 500 kc to 16 mc, the measured input impedance shall not be less than 50 ohms nor greater than 375 ohms; for the range from 16 mc to 32 mc the measured input impedance shall be not less than 100 ohms nor greater than 700 ohms."

(I don't have corresponding specs for the R-390A/URR.)

9) With the URM-25, it's very easy to get leakage. Simply connect your plastic cased counter to the "RF OUTPUT X200K" connector. With any generator made by Heath, Eico or of similar design, you get lots of leakage just the way the thing is.

10) The use of a low-output-impedance voltage divider at the receiver reduces the impact of odd receiver input impedances. Even if the receiver input impedance varies from 50 ohms to 700 ohms, a 10:1 voltage divider with an output impedance of 5 ohms will deliver an output voltage very near one tenth of the input. The 100:1 divider with an output impedance of 0.5 ohms will do even better.

Possible conditions with the R-390A:

Lets take a look at some possible scenarios when measuring the receiver sensitivity of an R-390A.

**A very bad case:**

- The signal generator in use has some leakage and the coax being used to connect the generator to the receiver is has poor shielding (or worse yet unshielded wires are used). The connectors in use are not all that good and allow for the leakage signal to enter the cable. This combination contributes a third of a microvolt of RF at the receiver end of the cable.

- The cable is connected to the receiver with a UHF-to-twinax adapter, with no terminating load on the cable other than the input impedance of the radio. - The input impedance of the radio happens to be 200 ohms at the test frequency.

- The receiver is in quite good alignment and actually has a sensitivity of about six tenths of a microvolt actual rf signal voltage at the antenna input.

Here is what is going on in this situation. The signal generator's output impedance is 50 ohms. The

generator is creating twice the indicated output voltage, with the assumption that the output is terminated in 50 ohms. The actual load of 200 ohms forms the expected voltage divider to deliver four fifths (0.8) of the voltage at the termination, not one half (0.5), thus an error of 30%. The actual voltage is 30 percent higher than indicated.

The operator makes the measurement and arrives at a signal generator setting that produces 10 db signal plus noise to noise ratio. What might the indication be? About point one nine microvolt. The leakage is contributing three tenths of a microvolt. The actual attenuator contribution to the signal is three tenths of a microvolt, but the generator indicates 0.19.

So the proud owner reports 0.19 microvolt sensitivity when it is actually 0.6. If the actual sensitivity was a little better (say 0.4 microvolt), and the generator leakage a little higher, the proud owner might report sensitivity way below that.

Another contribution to error (that may or may not have ever happened) is speaker impedance variation if the output voltage is measured across a speaker load. Many speakers have a resonance somewhere in the low audio range, and it could be close enough to the 400 cycle or 1000 cycle modulation frequency to cause trouble. Even without pronounced resonances, actual speaker impedance can vary over a range from one third to four times the nominal impedance. Increased impedance at the test audio frequency, combined with the moderate output impedance of the receiver audio output would increase the measured audio voltage at that frequency. The noise is broadband and spread over the audio spectrum and the test modulation frequency is enhanced by the resonance of the speaker load.

A bad case in the other direction:

- The signal generator has very low leakage and good coax and connectors are in use.
- The actual receiver input impedance is 25 ohms at the test frequency
- The coax in use is not terminated at the receiver and SWR on the coax is such that the voltage at the receiver is slightly less than would be expected.
- The audio load is purely resistive with no resonance errors.
- The signal generator actually modulates 25 percent not 30 percent as expected.

In this case, the signal generator will indicate a voltage higher than the actual sensitivity of the receiver. The measurement might be about 0.9 microvolts or more for a receiver that actually has 0.6 microvolt sensitivity. The voltage divider formed by the load and the generator's attenuator output impedance will deliver two thirds of the indicated voltage. RF leakage and speaker resonance contribute little to the measurement. The weak modulation level makes a higher rf level necessary to generate the needed audio signal

A case of good conditions:

- The generator has very low leakage.
- The coax in use is moderately short and has very good shielding. All connectors are good and a minimum of adapters is used.
- A 10:1 or 100:1 voltage divider is in use at the receiver antenna jack and properly terminates the cable.
- A resistive audio load is in use.
- Indicated modulation level is accurate.

In this situation, a number of good things are happening. The generator is properly terminated and well shielded coax is in use. The voltage divider at the receiver both reduces leakage into the receiver input terminals and divides any leakage into the cable by 10 or 100. We can have good confidence that the numbers arrived at are pretty good.

Here are my suggestions for things that others can carry out and report on:

- 1) Build and use a termination/divider of 10:1 or 100:1 ratio, either inside a twinax connector or in a small metal box with a well-installed twinax connector. (A 50 ohm resistor and a 0.5 ohm resistor will get you very close to 100:1.) Use high quality coax either well fastened to the box or with very good connectors on either end (Type N perhaps) and appropriate connector on the box.
- 2) Build such a termination with a toroid to match the 50 ohm cable to the nominal 125 ohm balanced input of the receiver.
- 3) Assemble a setup with a leaky generator, unshielded connecting wires, or poor coax, and compare results with a well designed setup.
- 4) Compare results at 30 mc with a long mis-matched cable and properly matched cable. Note that a quarter wavelength gives maximum impedance transformation and this length is about 8 or 9 feet at 28 mc. for foam coax.
- 5) Find a speaker with pronounced resonance at 400 or 1000 cycles and see if it causes different results compared to a resistive load. Use of a 600 ohm to voice coil transformer tuned by a capacitor at it's input might simulate this situation with little trouble.
- 6) Investigate the RF Input coil balance adjustment circuit. The input circuit of the R-390A has a fixed and a variable capacitor to establish the balance. Intentionally ground the fixed capacitor side and vary the capacitor adjustment to see if it affects the RF sensitivity measurement.
- 7) Intentionally make a set up that includes:
  - Generator leakage in the range of the receiver actual sensitivity.  
(Possibly with a URM-25 with a radiating wire attached to the high level rf output connector.)
  - A well aligned and sensitive receiver.
  - Unmatched generator load.
  - Leaky or unshielded connection from generator to receiver.
  - SWR effects in the generator to receiver coax or wire.
  - Somewhat high modulation level
  - Speaker load resonance.

It might be possible to measure a receiver sensitivity below 0.01 microvolt! Roy

From wa7kbr@curtiss.net Wed Jan 28 23:05:09 2004

Subject: [R-390] R-391/URR (MOD) - Direction Finder Set AN/FRA-44 --- Receiving Set AN/FLR-7

Hi Bob, I know very little of it's history. I acquired it from another ham 15-20 years ago. He was in the military and being transferred, so he didn't want to haul it with him. I checked and his license is still current and he's living in my area again, so I might contact him and see what he remembers, if anything, about the unit.

I have discovered a little more about the receiver itself. It was part of a NRL project called Project Boresight. It received an NRL Innovation Award in 1998 (<http://www.nrl.navy.mil/NewsRoom/images/75awards.pdf>). Here's part of the text:

During the 1950s and 1960s, NRL demonstrated technology that permitted a radical improvement in the performance of high-frequency direction finding (HFDF) networks and oversaw the deployment of this technology in Project Boresight and Project Bulls Eye.

The first of three innovations that underlay this work was retrospective direction finding. Previously, all stations in an HFDF network were required to measure characteristics of the same signal while transmission was still occurring; after-the-fact easurements were needed. Previous attempts at NRL1 and elsewhere were limited by storage bandwidth and recorder instabilities. Recording significant fractions of the HF spectrum and using a digital method for overcoming recorder instabilities enabled retrospective DF. This was the basis of the 1960 quick-reaction Project Boresight that deployed the AN/FLR-7 and AN/FRA-44 worldwide.

Project Boresight's crucial contribution to national defense was recognized by the awarding of the Distinguished Civilian Service Award to NRL's R.D. Misner and M.J. Sheets.

A reference is also made to the following:

Gleason, R.F. and Greene, R.M., "A Wide-Aperture HF Direction-Finder," NRL Memorandum Report 746, October 1957.

If anyone has a copy of this report, please let me know. Thanks, Clay WA7KBR

From bill@iaxs.net Thu Jan 29 00:44:04 2004  
Subject: [R-390] Moisture

Outside it is -13 degrees, dropping 1.3 degrees per hour, and the dewpoint is -19, also dropping.

Too bad you folks down south hadn't sent me your R-392s for drying out, or killing every known form of cockroach at -20. Guaranteed to turn those humidity indicators from pink to blue. Maybe next year, unless global warming sets in ... Regards, Bill Hawkins

From ba.williams@charter.net Thu Jan 29 01:16:08 2004  
Subject: [R-390] Moisture

It has been some 20 years since my meteorology classes, but I think that when the temp and dewpoint are within 6 degrees of each other you have high humidity. Within 3 degrees, depending mostly on light winds, you start to have fog. Joined temp and dewpoint is 100% humidity. It ain't that humid down here in Alabama. Barry nonHauser

From chacuff@cableone.net Thu Jan 29 01:24:14 2004  
Subject: [R-390] RE: HSR-2 vs 390a

Greetings, The article on the HSR-2 was purely subjective in my opinion...and after reading it again yesterday I realized I know the subjective. I participated on another list about Jaguar auto's with him for a year or so and bumped into him almost daily there! (I finally bailed out) In my opinion there was not enough analytical work done in any of what I read for me to be convinced...realizing fully that specifications often differ greatly from real world but they often give a clue! Cecil...

From chacuff@cableone.net Thu Jan 29 01:31:36 2004  
Subject: [R-390] I sense a little SPARK! is back

Someone may have already addressed this...but I haven't read about the backup plan...but can tell you that placing them in parallel won't get the job done....series would do it but you would need to double the capacitor value because putting them in series divides the original cap values.

Don't think it's really necessary...with the quality of today's components relative to yesteryears...the new caps will out live all of us and maybe our kids! Cecil...

From chacuff@cableone.net Thu Jan 29 01:34:51 2004  
Subject: [R-390] I sense a little SPARK! is back

Speaking of Dave....anybody know if he is still doing the cap thing....last I heard he was getting out and was having some serious health concerns in his family. I ask because I am in the process of putting together a list of caps to order to get 2 R-390A's recapped.  
Cecil....

From chacuff@cableone.net Thu Jan 29 01:48:28 2004  
Subject: [R-390] HSR-2 vs 390a

Greetings all, Again I am a little late checking my mail today and this may have already been addressed....

The issue in question here is the proper setting of the I.F. gain pot internal to the radio. Lots of folks believe that if there is a gain knob higher has got to be better. In actuality there is a setting for the I.F. gain that is lower than the manufacturer published setting that results in much improved overall sensitivity.

I have found the same to be true of other radio's...such as the R-1051 series. I have found while experimenting with the alignment settings that a decrease in I.F. gain in that radio would make the difference between a .5uv 10db over noise sensitivity and a better than 1.0uv 10db over noise measurement. The problem with the R-1051 was it's lack of audio power...reducing the I.F. gain also reduced the resulting audio level but greatly perked up the radio's sensitivity. I have thought about finding out how low results in a point of diminishing gains and just using an external amp on the line out....I'll have to try that one day.

Best I remember from the old days ( a year or so ago) many of the guys were running their R-390A's through one channel of their stereos by interfacing to the diode load connections anyway....Sounds much much better...

This IF gain decrease also resulted in a lower internal noise level with the RF gain full up.

I don't know about most of you guys but I run my RF gain full up most all the time...of course with the AGC ON.... Hope that helps a little. Cecil..

From chacuff@cableone.net Thu Jan 29 01:55:43 2004  
Subject: [R-390] New Guy

The Tapes are excellent...I have the R390A series and the SP-600...I wish there had been more detail in the SP-600 tapes but....something is better than nothing! Chuck did a great job!

From chacuff@cableone.net Thu Jan 29 02:02:38 2004  
Subject: [R-390] Moisture

Yea well talk to me in August when it's 98 degrees and 110% humidity outside here....maybe then I'll bring my boatanchors and come for a visit! Ha... Cecil in soggy Gulfport MS....

From hankarn@pacbell.net Thu Jan 29 02:17:50 2004  
Subject: [R-390] I sense a little SPARK! is back

Try Walter Wilson's kit. I think it is better overall. Hank KN6DI

From djmerz@3-cities.com Thu Jan 29 02:22:14 2004  
Subject: [R-390] HSR-2 vs 390a

Hi Cecil, thanks for input, and I'm wondering when you run it at full gain, what is the sound like, do you hear some background "hiss" or noise, particularly with the antenna disconnected, thanks, Dan.

From jmiller1706@cfl.rr.com Thu Jan 29 02:17:58 2004  
Subject: [R-390] Moisture

51 degrees here in Brevard County Florida. We got plenty of roaches to send your way.

From dsmaples@comcast.net Thu Jan 29 02:33:52 2004  
Subject: [R-390] I sense a little SPARK! is back

All: I sure hope that whatever is going on works out for him, as I am certain the rest of you do as well.  
Dave WB4FUR

From rdavis24@carolina.rr.com Thu Jan 29 03:06:00 2004  
Subject: [R-390] I sense a little SPARK! is back

Good information in the list today and good to see the list come alive again. I want the second Hank's recommendation on Walter Wilson's kits. I have used two of them now and they are just what I wanted and he is a fine gentleman to deal with. I am in the process of installing the second kit now. One happy customer here Thanks Ronnie

From jlkolb@cts.com Thu Jan 29 03:33:39 2004  
Subject: [R-390] I sense a little SPARK! is back

wrote: > OK, now a question to the "Underpaid Research Group" (URG). I have for back up.

Well, that should be two in series, not in parallel. If in series and one shorts out, the other one still prevents DC current from flowing. A single 800 V cap sounds safer than one 400V cap, but two 400V caps would be better than one 800V cap. John

From chacuff@cableone.net Thu Jan 29 03:41:42 2004  
Subject: [R-390] I sense a little SPARK! is back

I second that....I lost my Father two days after Thanksgiving after 9 months of fighting a terminal brain tumor....Sure do miss him...he was only 70 and in otherwise excellent health!

We never know how long the good Lord has allotted us on this earth...and our plans are not usually his plans.

Someone told me a few months back "It's later than you think!" He is probably right! I've felt awful old for 47 lately!

From pulsarxp@earthlink.net Thu Jan 29 03:53:50 2004  
Subject: [R-390] Cap Kits

Where do you find Walter Wilson? I guess you guys are talking about cap kits. I need to buy one right now. If he sells them, I'll order one. Lee. w0vt

From bill@iaxs.net Thu Jan 29 04:36:57 2004  
Subject: [R-390] Tunes

It occurs to my frozen brain that since we have talked about almost everything related to the r-390 class set, how about tunes to sing silently while working on sets that never fail once restored. Tunes from the era, like: Gotta have another cigarette Across the alley from the Alamo Please, Mr. Custer, I don't wanna go It's later than you think etc. Anybody got the words? Any more suggestions for songs to sing while inhaling rosin? Regards, Bill Hawkins

From pulsarxp@earthlink.net Thu Jan 29 05:16:43 2004  
Subject: [R-390] Cap Kits

Well, I got some replies to how do you find Walter Wilson so I could order a Cap kit for my R-390A. Turns out his web page is: <http://r-390a.us/> Everybody told me he is a great guy, so I ordered a cap kit as well as a screw/washer kit from him. Thanks for all the help. Lee, w0vt Houston

From r390a@bellsouth.net Thu Jan 29 05:58:58 2004  
Subject: [R-390] RE: Help with R-392

> If I recall correctly, the R-392 has 2 input pins for the 28 volt source; one supplies the heaters and t'other supplies B+. (If I recall incorrectly, maybe it could be made so with minimum modification).  
>volts. It starts sounding rough and distorted above that. I pretty much ended up setting it at 30 volts and leaving it.



I hit upon nearly the same combination of voltages as Andy. Since I had the bright idea of separating my plate and filament back in '79 or so, I have not ever had to replace a tube. I have ran my filaments at 24 volts and plate at either 30 or 32 depending on the incarnation of the power supply. Always regulated both on mine, with my filaments a little "on edge" current wise so they start up slow. Time now to get those linear power supply bricks I bought a while back into use for a R-392 power supply - will set them to the same voltage as I have been running over the years with no problem.

I tell you, though, the higher plate voltage \*works wonders\* and doesn't seem to add any odd mixing or distortion products. Darned thing acts like a full grown R-390 with around 30 volts on plate. Never saw much in the way of a penalty for running my fil low though, probably good for a nice long life. I'm pretty sure I've not changed \*any\* tubes in this Western Electric unit since I got it in '79. Came with the SS audio module too. My others I have had have given me good service too, it's just a darned good rugged little RX. 73 Tom KA4RKT

From BRingwoo@csir.co.za Thu Jan 29 06:36:58 2004  
Subject: [R-390] HSR-2 vs 390a

Hi, Also run with RF Gain full and AGC on. IF Gain set way way way lower than when I purchased the set. Noise I get is almost all aerial noise - a combination of power lines, electric fences ,TVs , hair dryers, ..... :( - Bryce

From Barry Hauser <barry@hausernet.com> Thu Jan 29 06:54:35 2004  
Subject: [R-390] Looking for Ralph Sanserino

Hi Gang

It appears that Ralph's old email address at gte.net is no longer working. If I try to go to the GTE web site, I get re-routed to a Verizon web site. Did they take over GTE? Usually when one ISP takes over another, they keep the domain and addresses intact. (e.g. had an old Netcom account that was gobbled up by Mindspring which got consumed by Earthlink, but the original email address was maintained.)

I heard from Ralph as recently as mid-October when the gte address was still good. Anybody know?  
Barry

From r390a@bellsouth.net Thu Jan 29 06:53:45 2004  
Subject: [R-390] That's more like it!!!

>John Kolb is an expert, no, the expert on mechanical filters. Tom >our radios.

The serial number expert is Tom Marcotte, me, I can just repair and align the radio in my sleep ( Using the Chuck Rippel Improved Alignment Procedure ) including resynching the geartrain. ;-) Tom Norris KA4RKT "Also a general know it all, smart\*ss and teller of sheep jokes"

From wa7kbr@curtiss.net Thu Jan 29 07:13:43 2004  
Subject: [R-390] R-391/URR (MOD) - Direction Finder Set AN/FRA-44 --- Receiving Set AN/FLR-7

Thanks! That would be great. Clay

From wa7kbr@curtiss.net Thu Jan 29 07:23:42 2004

Subject: [R-390] R-391/URR (MOD) - Direction Finder Set AN/FRA-44 --- Receiving Set AN/FLR-7

Thanks for the info. I thought I had searched the entire mailing list archive, but for some reason when I try to download it from qth.net, the download indicates that it is 23MB in size, but it always quits at about 10MB. My copy covers Dec 2001 to Aug 2002. I wonder if the file has been corrupted on the server. If anyone has a copy that they can email to me, I would appreciate it. Clay

From wa7kbr@curtiss.net Thu Jan 29 07:40:20 2004

Subject: [R-390] R-391/URR (MOD) - Direction Finder Set AN/FRA-44 --- Receiving Set AN/FLR-7

Tom, My unit still has the plate over the bandwidth switch position. Also, it doesn't have a BFO Pitch knob. The BFO Pitch shaft is recessed behind the front panel and has a slot in the shaft for screwdriver adjustment. It would appear that this R-391 must be in the original (as modified by RCA) configuration.

Now I need to decide how much time I want to invest in a receiver with such specialized application. If the IF selectivity is indeed 60kHz as suggested by Wally (K5OP), then the receiver will have limited utility for AM QSO's and SW listening. I suppose I could look for a standard IF to swap, and keep the original one for some future owner. What's the group consensus? Is this a receiver that only a hardcore collector could really appreciate, or is it of general interest to the members of this list? Comments anyone? My long term interest is to own a nicely cared for, and well functioning R-390/391 that would be used on a daily basis. Clay

From sdaitch@ibb.gov Thu Jan 29 13:38:16 2004

Subject: [R-390] Tunes

Please, Mr. Custer, Larry Verne, ERA Records, I think it was, and if I remember to look tonight, I've got an original 45 to check, I can get you the record number. 73 Sheldon WA4MZZ

From sdaitch@ibb.gov Thu Jan 29 13:44:46 2004

Subject: [R-390] Receiver Sensitivity Measurements

Roy, Nicely written on measurements. TNX 73 Sheldon WA4MZZ

From mikea@mikea.ath.cx Thu Jan 29 15:04:18 2004

Subject: [R-390] Receiver Sensitivity Measurements

wrote: > Roy, >> Nicely written on measurements.

Yes, it was -- as usual, to the usual high standards I've come to expect from people associated with NIST. Mike Andrews

From ba.williams@charter.net Thu Jan 29 15:28:21 2004

Subject: [R-390] Looking for Ralph Sanserino

Barry,

I got something from him around holiday time with his address change. I'll have to find it, and that ain't no little affair to pull off right now since changing computers, 2 operating systems, and 4 email programs that were used/tested. I'll find it later today and post it to the list. One of my enduring problems is that I was dealing with the enemy and running Microswindle Office for email during a brief lapse of sensibilities. Now, it sees my wife's version on her computer when we are both running, and it refuses to let me into mine. Barry nonHauser

From kw0d@netexpress.net Thu Jan 29 15:52:12 2004  
Date: Thu, 29 Jan 2004 09:52:12 -0600

Commander Cody and the Lost Planet Airmen: Smoke smoke smoke that cigarette Johnny Horton: Sink the Bismark 73's from KW0D Dave in LeClaire, Iowa

From djmerz@3-cities.com Thu Jan 29 17:50:56 2004  
Subject: [R-390] HSR-2 vs 390a

Bryce, if you use the Chuck Rippel check on i.f. gain what does your line meter read?

for info, the check  
disconnect antenna  
set recvr to 15.2 Mhz  
function switch to MGC  
4 kc bandwidth  
rf gain at maximum  
peak ant. trimmer for max on line level meter  
line meter switch to -10 db scale  
line gain control full clockwise  
what is the reading on the line level meter? Rippel recommends -4 to -7 db by adjusting the i.f. gain control, assuming the rest of the radio is operating right.

I did this check on my receiver and it was reading lower than this so I'm guessing that my rf stage may need attention since if I adjust the i.f. to bring it up to his recommended level, I think the noise is just going to get higher without really helping the radio receive better. As best I can recall, I used a 150 microvolt 455 khz signal to adjust the i.f. per the handbook, which according to Rippel is already too high. I also noticed that the antenna trim doesn't really peak the internal noise with the antenna disconnected so this would indicate that the rf section isn't doing its job (I think, according to Rippel). It does work in peaking a signal or band background noise.

I think this excursion into the archives answered one question that I had regarding "hiss" or noise that is there when the rf gain is turned all the way up. I think the line level meter indication is a direct measure of this level, so the -4 to -7 db is at least an indicator of what that level would be in one guy's opinion of a well-adjusted set.

From w5or@comcast.net Thu Jan 29 18:34:37 2004  
Subject: [R-390] List Administration Notes

Hello, R-390 list members. Welcome to the \*many\* new members.

Allow me to take a moment away from the topic at hand, and introduce myself to the new members. I am the R-390 mail list manager. My job is to help you with subscription problems if the automated signup/signoff process falls down, or some other email issue arises and causes problems. Sometimes it takes a hammer and a bit of detective work to unweave the mailman software.

In return for the use of this resource, the long standing members and I ask you to participate according to the published guidelines. There is a link at the bottom of every post for that information. Let's maintain the quality of this list that we maintain and enjoy in our receivers. We've had some great posts recently, including a lot of useful and new information. Thanks all.

Weird stuff is happening in the email world this week. A new virus targeted to Windows email programs (some call it Outbreak) and new spam mail snafus contribute to list mail delivery being out of order, delayed, and bouncing. I've seen hundreds of bounces from the list server the last two days. Some providers have noticeably turned up the spam and white list filters. Some of you will no doubt be automatically bounced from the list if your mail host's reject rate gets too high. You will need to re-subscribe if that happens. I don't expect these problems to go away for a few weeks until everyone adjusts.

Al Waller (owner/provider of the server where this list resides) and his crew are working behind the scenes to keep everything working. It's a Herculean task with the many free lists he supports. You can help by sending donations to Al. You get a monthly reminder. A small donation once a year helps immensely. I contribute \$25 every summer. Thanks for your attention. Carry on.

-----  
Don Reaves R-390 list administrator<mailto:r-390-admin@mailman.qth.net><mailto:w5or@comcast.net>

Rules: 1. Stay on topic 2. Be civil and courteous

From DAVEINBHAM@aol.com Thu Jan 29 19:21:09 2004  
Subject: [R-390] Return of the ReCap Kit

Fellow R-390A Drivers,

I am still getting email asking about the ReCap kits. Yes, I still have a few left. For those of you who may not have been on the list a long time, what you get is 10 little Ziplock bags inside a large Ziplock bag. Each little bag has the contents marked on it such as " (1) 50 uFd 50 V , C103 ". No searching around trying to sort out what goes where. Just get the smoldering iron hot.

I guess I will just have to keep on doing the ReCap kits as long as you guys want 'em. But next time I buy capacitors the price of the ReCap kit will have to go UP a couple or three bucks so I don't lose money on 'em. Interestingly, 4 of the last 6 ReCap Kits went out of the country. Wonder what that means. 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 Ukkumpucky 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

Send orders to:

Dave Holder

Biological Instruments, Inc.

820 South 29 th. Street

Birmingham, Alabama 35205-1004

USA

Payment may be check or US currency.

From George.Kavanagh@FMR.COM Thu Jan 29 19:50:59 2004

Subject: [R-390] ReCapping R-390A

All:

Well there are a few newbees out here (me for one), and I'm very grateful to those list members who have gone before and for their willingness to document and share their vast amount of R-390A knowledge and lore.

I obtained a Collins R-390A last month (Serial#3319 of Order#8719-P-55). It was "known good" by its previous owner, so I fired it up and delighted in its features and operation for several weeks). I've obtained the documentation (Y2K, Rev2, etc.) to which list members directed me, and have begun to digest it. Having discovered the potential of a lurking timebomb in C-553, I resolved to open up the box & see if it had ever been recapped. After purchasing a set of Bristol Spline L-wrenches (from McMaster-Carr) I removed the IF subchassis and discovered that no recapping had been done. I think. There are several "VitaminQ" caps in the IF ( C531, 533, 536, 547, 548, 549) but C-553 is not a "VitaminQ", it is marked "ASTRON" "TQFP 4982" ".01 mF 300 WVDC".

\*\* I'm sure that this C-553 should be replaced by an OD, as recommended, but am curious: was this ASTRON cap factory installed?

Also, the shaft coupler on the Bandwidth shaft was a real bear to loosen; I was afraid I would strip out my nice new spline wrench! In the end, a drop of LiquidWrench on the coupler's nut, and a touch of heat from a soldering iron on the nut did the trick. I don't think this thing has been opened up in 50 years!

\*\* All the tube shields are silver colored. I have read that Collins started using black IERC shields at some point in production - when was that?

Recent posts to the list suggest replacing all brown color-banded caps - the IF has 11 of these, several in quite inconvenient locations that would require significant disassembly to do properly.

\*\* Just how big a project is completely recapping an R-390A?

Thanks for any & all comments and suggestions George Kavanagh; KB1HFT

From brumac@juno.com Thu Jan 29 19:50:11 2004  
Subject: [R-390] Tunes

Hi Bill, How about "Paper Doll" by the Mills Brothers and Chuck Berry's "Maybellene" 73's, Bruce

From pulsarxp@earthlink.net Thu Jan 29 21:36:45 2004  
Subject: [R-390] List Administration Notes

Don:

I was going to ask you for Al Waller's mailing address but I found it by looking K3TKJ up on the "qrz.com" call sign lookup. I didn't list it here because I don't know if that would be proper. Thanks for the "heads up" info. This is a great list and group. Lee. w0vt Houston

From cbscott@ingr.com Thu Jan 29 21:49:08 2004  
Subject: [R-390] List Administration Notes

Ahhh, give us time to change your opinion... :)

Barry(III) - N4BUQ (who has to agree with Lee's opinion of the group too!)

From wa7kbr@curtiss.net Fri Jan 30 00:57:00 2004

Subject: [R-390] R-391/URR (MOD) - Direction Finder Set AN/FRA-44 --- Receiving Set AN/FLR-7

Hi Pete, The unit I have looks like standard US Navy gray. Does your R-391 have the RCA mod tag on it? I'm just curious if it was converted back or is a standard R-391. If it is a standard unit, I suspect that the mods I have were applied to whatever radios happened to be available at the time they were sent to RCA for modification. It is interesting that two units with serial numbers so close are painted different colors. Clay

From djmerz@3-cities.com Fri Jan 30 01:07:44 2004

Subject: [R-390] ReCapping R-390A

George, when I got my 390a I sort of did what you did. I took a look inside and assessed what looked bad. My basic approach is "if it ain't broke, don't fix it." But I gave in to the idea of replacing the critical cap in front of the mech. filters just because that didn't really take much work and there's nobody that says it's not going to fail eventually with serious consequences. I replaced a few others but more or less when I could tell there was a malfunction. There is one physically small, cathode bypass cap, in the audio section as I recall, that invariably seems to be bad and it's condition can be spotted and I replaced that. And I replaced the plug-in power supply caps. So far the receiver has operated pretty well. I would say completely recapping the whole receiver is a bigggg job. My 390a is one of the later EAC types so I expect it might have more life in the original parts than some of the earlier versions. I have no experience with earlier versions so that statement is based on intuition and occasional statements from others to that effect. The general consensus seems to be that the black IERC actually cool the tubes, whereas the others are more or less ineffective, if not worse than no shield as far as cooling goes. Dan

From jbischof@nycap.rr.com Fri Jan 30 01:23:03 2004

Date: Thu, 29 Jan 2004 20:23:03 -0500

I was just a thinking about the audio that comes out of a r390a. I must have had about 10, r390es in my hay day. I have never heard good audio coming out of these receivers, never. I think it is impossible if you ask me unless one takes some drastic measures. Many years ago I made a solid state if amplifier for my r390a. When I did that I got good audio. Of course I did away with the Collins mechanical filters. AS far as I am concerned they are junk. Talking about the old mechanical filters. Maybe the new ones are ok , but I have not played with a newer radio that has them. I Just felt like expressing my self to night on the subject. James

From K2CBY@aol.com Fri Jan 30 11:43:42 2004

Subject: [R-390] New Guy

"I don't plan on firing the radio up until it is recapped."

If I were you, I'd go a little slower.

Recapping an R-390A is not a job to be undertaken lightly -- especially in the IF subchassis where there isn't much elbow room. What's more, I've never been convinced that wholesale recapping is strictly necessary.

The greatest danger of working on everything at once is the risk of making an error. If the receiver was

working to begin with, a mistake during overhaul merely creates a troubleshooting problem. That is difficult enough when you are dealing with a "patient" whose idiosyncrasies you don't know, but that's the easy case.

Now suppose there was a pre-existing fault that prevented the receiver from working "out of the box." Add a second error during overhaul, and you've got real trouble. Now you have two troubleshooting problems, and you've got to solve BOTH of them before the receiver utters a peep. That is a real nightmare unless you have "known good" modules on the bench to swap.

R-390As are pretty hardy beasts. In more than 20 years of owning one, the only times I have had a completely "dead box" are the result of tube failure, plus one instance of a mechanical filter with one side of the coil shorted to ground (only the 4 kHz bandwidth didn't work.) and an open selenium rectifier in the antenna relay circuit.

That's not to say that I haven't been inside the receiver on countless occasions and given it one "from the ground up" overhaul. But that was to optimize performance, not to restore life to a corpse.

I think the first order of business ought to be to see whether you have a working receiver. If so, concentrate on one module at a time. Clean it up; get it going; and be sure it works before going on to the next module.

If confronted with an R-390A of unknown condition, I would proceed as follows:

(1) Be sure the receiver has all its tubes in the right sockets. You don't necessarily have to test the tubes - just be sure that there's really a 6AK6 in the V603 and V604 sockets, etc. Be particular to check that there is a 3TF7 in the RT510 socket on the IF subchassis. (If not, there should be a resistor wired between pins 2 and 7 of that socket.) (Alternatively there should be a short between pins 2 and 7 of RT-150 AND BOTH V505 and V701 should be 12BA6s not 6BA6s.)

(2) Take a good look at the power supply and be sure that you have two 26Z5's in the sockets, OR (more commonly) that these have been replaced with silicon diodes. Be sure the diodes are properly connected. (Arrow to pin 1 and/or 6 of the tube socket, bar to pin 3 and/or 8.)

(3) Pull both the plug-in electrolytic capacitors (C603 and C606) on the AF subchassis one at a time (so they go back in the right socket). Inspect these for deformity or physical leakage. If they look OK, measure each section with an ohmmeter. They should read at least 50k. If they are physically damaged or fail the ohmmeter test they have to be replaced before powering up. Otherwise, just stuff them back in.

(4) A word about the notorious C553 on the IF chassis. It is not especially prone to go bad but it has developed a nasty reputation because, when it is shorted, it applies B+ to the mechanical filters "killing them dead. If I were inexperienced on the R-390A I'd play the odds that mine is one of the 99.9% of all R390s in which C553 is as good as the day it was made. If I were more neurotic, it is the ONLY capacitor I would replace as a precaution before firing up the receiver. It is fairly easy to get to and should be replaced with a BRAND NEW .01uf 400 wv ceramic or mylar capacitor.

(5) Be sure all the interconnecting power and RF cables (including the devilish little mini-BNCs) are properly connected. (Note, P218 goes to J518, P213 to J513, etc. so there's some logic to it.)

(6) Check the fuse(s) on the rear panel. The AC line fuse F1 should be 3 amps and is present in all models. Later models also have two B+ fuses. F102 should be 1/4 ampere and F103 should be 1/8 ampere. These can be a troubleshooting aid. If F103 is blown, a component in one of the subchassis B+ circuits is drawing too much current. If F103 is OK and F102 is blown C606 is probably bad. If both



F102 and F103 are OK and F101 is blown, suspect a short in the power transformer, rectifiers, chassis wiring, filament circuits or oven heaters.

(7) There are two barrier strips on the rear panel. Be sure that jumpers are installed between the following terminals: 1-2, 3-4, 11-12. The receiver won't yield any output unless these are in place. A jumper is also normal between 14-15, but that affects the Line Output mode only. (See Figure 2-2 in the Y2K Manual.)

(8) While you are at the rear panel, set the OVENS switch to OFF.

(9) Inspect the AC line cord for shorts.

(10) Ground the chassis to a reliable AC ground.

(11) You are going to need a 600 ohm speaker or high impedance headphones. Connect the speaker between terminals 6 and 7 on the rear panel barrier strip. (Use of a low impedance speaker won't damage the receiver, but you aren't going to hear much audio.) The headphone connection has a series resistor of 6800 ohms, so don't expect to hear much of anything if you jack a set of 4 ohm "hi-fi" phones into the front panel.

(12) Connect an antenna to one pin of J104. Ground the other pin.

(13) Plug in.

(14) Power on.

With the RF GAIN and LOCAL GAIN (audio) wide open, the FUNCTION switch set to MVC and the LIMITER OFF, you should hear something at this point – even if it's only shot noise.

If not, check for B+. If that's good, check the audio subchassis.

If there is noise but no signals are heard: (1) rotate the bandswitch to be sure that you are getting a noise peak in the detent position – if not, the crystal oscillator switch indexing is off; (2) do the same with the BANDWIDTH SWITCH – if the wafers don't line up, the switch won't reliably "make"; (3) check the oscillator tubes first V207, V401 and V701 substitute known good tubes; (4) then check the 6C4 mixers V202, V203 and V204.

A set of tube socket adapters is invaluable for troubleshooting a dead receiver. Just remember that if you are using the kind with exposed terminals, be sure they aren't shorting against an adjacent IF can.

Once you get the receiver going and gain some familiarity with it you can tackle the big projects like recapping or overhauling the gear train. But these jobs are not for the faint of heart, nor can they be accomplished in a weekend. And don't be tempted to work when you are bleary-eyed with fatigue. That's an invitation to disaster.

Finally, you should regard the mechanical filters, the switches, the crystals and the mechanical parts as IRREPLACEABLE. Be extra careful not to damage these or you are going to have to spend a lot of time and not a little money looking for replacements unless you have charitable friends with well stock junk boxes. Miles Anderson, K2CBY

From pulsarxp@earthlink.net Fri Jan 30 17:39:15 2004

Subject: Fw: [R-390] New Guy

Miles: Thanks so much for your detailed help and info. It makes a lot of sense. I will do what you say. I did order a cap kit but will only install C553 initially. I will also initially rebuild the filter can caps if necessary. Your post will be of great help and I'll follow your procedure. This gives me a plan and some insight as to many unsuspecting initial pitfalls for a "new guy" working on a R-390A.

I am an experienced ham and have worked on a lot of boat anchors, so I am not a complete novice. That said, I have never been inside an R-390A. I will go slow and cautiously. When I rebuild a radio, I do whatever I can to do it right. I don't like cobbling up a radio and I try to duplicate original design and use original type parts as much as possible. I am aware of "black beauties" and the leaks in old design paper caps due to moisture mixing with acids in the caps old paper. I know the pitfalls of trying to use old deformed electrolytics and how old carbon resistors go up in value. I don't like cutting corners to save a nickel but I am not willing to spend big bucks for terminal strips or wire that report to give "better sound and clarity"! In short, I understand a lot about restoring things, but, the things you pointed out specific to an R-390A is of particular importance and interest to me and any other "new guy" tackling his first R-390A.

I initially was just going to reply to you direct bypassing the list, but now that there are other "new guys" on here, I decided my comments to you might be of some benefit to them as well.

Two last comments. 1. I ordered a cap replacement kit and front panel hardware package from Walter Wilson a couple of days ago and he has informed me my kit is on it's way. I think he got it out within hours of me ordering it from him. 2. I have used and have MANY of the yellow 400 and 600 volt caps sold by Mouser and Antique Electronic Supply. I've used them without hesitation rebuilding Hallicrafters and the like type equipment. I have never experienced a failure using them. That said, for some reason, I want to recap my R-390, when the day comes, with orange drops. I guess a high end rig ought to have high end capacitors. Besides, bright orange with Teflon spaghetti around the leads looks impressive! They look great next to my Y2K-R2 manual in its impressive new 3 inch blue binder sitting on the desk right next to my R-390A. (OK, maybe I can get to believe green wire gives better tone and bass response then yellow wire)! Anyway, this radio, the orange drops, and the Y2K-R2 manual next to me make me look smarter then I really am!

Thanks again, Miles, and to others who have given me good advice over these past few days. I'm going to sign off now and go read my Y2K-R2 book I downloaded the other night. (It took a full cartridge of ink and a stack of paper 3 inches tall to print it out). Lee Bahr, w0vt Houston, Tx

From: <K2CBY@aol.com> Friday, January 30, 2004 5:43 AM  
Subject: [R-390] New Guy

"I don't plan on firing the radio up until it is recapped."

If I were you, I'd go a little slower.

From Tony Angerame" <tangerame@earthlink.net Fri Jan 30 18:36:03 2004  
Subject: [R-390] Re: bad audio

James,

That's because those nasty old LIFER Staff Sergeants did not want we young cool Airmen to listen to Radio Luxembourg. We kept an SP-600 and R-390 (Non A) for that clandestine purpose. (End Flashback to the sixties) Actually I found the audio amps in the R-390a to be very flat so I agree must be those Mechanical Filters. I use the 16kc position and pipe the IF into a Rycom R-1307. Much better. Maybe picking off the IF before the filters would be even better? Having said that I still love my R-390a! Tony WA6LZH

From chacuff@cableone.net Fri Jan 30 21:08:39 2004  
Subject: [R-390] Re: bad audio

Well the trick, that is documented somewhere out there, is to take your audio off the Diode Load point on the rear of the radio. Feed it through a matching circuit and into an external HI-FI amp and quality speaker.(anybody remember that) I understand it sounds very good that way....now mind you it probably won't ever sound as good as a radio such as the R-390 or SP-600 with LC filters, on a big 12" speaker but with the increasingly crowded conditions on the bands at times the tighter mechanical filters may make the difference between being able to enjoy the signal or not.

There are also some AF deck mods that perk up the audio quality as well. Mr. Rippel has info on his page about that. Cecil...

From pomerol@mocha.ocn.ne.jp Fri Jan 30 21:21:17 2004  
Subject: [R-390] Remaking mini-BNC cable assembly

Hello to the list,

I'm going to remake so-called mini-BNC interconnect cable assemblies as they are hardened and cracked. As I could not find the impedance of the cable in The 21st Century R-390A/URR Reference (Y2K-R2) so far and the manual calls for RG-187 at "Table 5-4 - Test Cable Data", I assume the line impedance is 75 ohm. Is it correct and is RG-187 the best alternative for the stock cable? Osamu Hazawa

From cbscott@ingr.com Fri Jan 30 21:26:44 2004  
Subject: [R-390] Remaking mini-BNC cable assembly

I believe RG-179 is the correct cable. From some older posts I have, it fits in the mini-BNC connectors and the RG187 is just a bit large to fit. Barry(III) - N4BUQ

From r390a@bellsouth.net Sat Jan 31 06:27:14 2004  
Message-ID: <p06020463bc40f3aba10c@[10.0.1.2]>

Back in the 80's I got rid of all my tube gear, including R390's and other good stuff. Back about 1990 or so, thanks to our list admin I was able to get a couple R390A's back in service, and since then I have had about a dozen come through the shop, get realigned/repared all the nasty paper caps replaced and go back out to a new owner.

All this time I have been using my Nearly Perfect Like New 63 Imperial With All Matching Modules, etc thinking that at some point I had changed the caps in it. Well..... Last week I broke a gear clamp for

no reason -- the darned thing has done that since I got it, but that is another story. Went in to change the thing, and found out that of all the radios I had \*NOT\* recapped it was \*good radio\*. Grrrr. Oh well, it has worked beautifully for over ten years now even with the evil BBODs still installed. I \*did\* get a set of replacement electrolytics a while back, so they were OK.

It was fun\* taking the gear train apart, since I had not done one of them in at least a year or so, so I went ahead and completely went through it and mechanically resynched the deck and replaced the 3 paper caps I found in there. Guess I'll order a handful of Orange Drops and do the IF deck pretty soon while I have everything apart. While I'm at it, I have a box of white LED's and might get brave and replace the dial lamps with a couple so I'll never have to replace the things ever again. I plan on keeping this one forever, so the less I have to do to keep it up the better, I'm lazy.

And maybe if I'm real lucky and get the old Black Beauties out in one piece I can sell them on Ebay to the audiophiles as "seasoned vintage paper caps." Surely with 40 years of use, they have should be able to impart a "mellow experienced quality" into any audio gear they are installed... Tom KA4RKT

\*really, I actually \*enjoy\* aligning R-390A's and have a decent bench with proper test equipment to do it with. If I had more room for more than a small shop, and more time to do it in, I'd probably offer to do it on a regular basis... No "make it pretty like new" just repair and alignments. Save that fun stuff for Rippel and Mish :-)

From ToddRoberts2001@aol.com Sat Jan 31 06:59:36 2004  
Subject: [R-390] William Perry Co. To The Rescue

Recently I was needing a pair of the oddball power connectors for the R-392 receiver. As others on the list have suggested, I contacted the William Perry Co. in Louisville, Ky. about the connectors. He said he was out of them at present. He had some similar connector bodies on hand but the threaded bolt in the middle had the wrong threads. He said he would have to engineer some new center bolts that have a very unusual thread to fit the R-392 socket. About a week later he had some ready to go and needed my address. A few days later the connectors arrived and look perfect, with a receipt to send payment. What a nice way to do business. Thanks again to Bill Perry for the hard-to-find connectors and to the kind folks on the list who recommended him. 73 Todd Roberts WD4NKG.

From r390a@bellsouth.net Sat Jan 31 07:45:33 2004  
Subject: [R-390] wrong part in RF deck found

This is an addendum to my last post about poking around the RF deck of the 63 Imperial --

I found a wrong part that looked as if it were there from production. C275, originally a .005 mf, changed to .003 mf somewhere along the lines according the mod notes in the TM. In mine it was a \*.033 mf\* big old paper cap. It's just a bypass on the B+ to the first mixer, but still... That big sheep lovin' BBOD appeared to have been there since the deck was put together and not just a maintenance mistake. In fact the whole radio doesn't look like it saw much use or maintenance at all. Other than a big Navy ID tag glued on the front, along with an engraved tag that says "RCVR 1" under the KC knob, the thing looked like it just came out of its crate. It's worked fine for me the past ten years or so, so it should keep on ticking for quite a few more years. 73 Tom KA4RKT

From jmiller1706@cfl.rr.com Sat Jan 31 10:41:31 2004

Subject: [R-390] wrong part in RF deck found

It is SUPPOSED to be .033 according to common wisdom, so it was assembled correctly. Maybe the schematics are printed wrong in some cases, showing an incorrect value of .003. When you think about it, a B+ bypass should be hefty in value, like .01 to .05. The smaller value .003-.005 doesn't make sense. Put a .033 Orange drop in there. Jim

From w5kp@direcway.com Sat Jan 31 13:26:11 2004  
Subject: [R-390] Cushman CE-15 Spectrum Monitor Manuals

Lots of these excellent monitors are still out there working in shops, but I found out the hard way CE-15 manuals are extremely difficult to find. I now have a limited number of clean, sharp 1st generation photocopies, complete with all foldouts, schematics, and parts lists, 3-hole punched and assembled, ready to drop into your 3-ring binder. \$30 shipped to your door via Priority Mail anywhere in the lower 48. Please email me OFF LIST if interested. Thanks. Jerry W5KP

From w5or@comcast.net Sat Jan 31 15:31:18 2004  
In-Reply-To: <p06020464bc4109ffdc4@[10.0.1.2]>

Hmmm,

That one sounds familiar, Tom. Is there a Navy diode load mod on the the front panel? Red, yellow or white socket? If that one came from me I can help you trace its lineage a little. It came from Omaha Nebraska. I found it and two more in a tall rack, in Ladd's radio store, back in the late eighties. Mr. Ladd would only take cash for them so I had to scramble around to several Omaha banks to cash enough checks to buy them. They came home in the back of a pickup with camper shell during a blinding snowstorm from Omaha through Iowa and Missouri. 4WD and a rack full of R390 ballast makes snow driving fun.

How they got to land locked Omaha is the mystery. Perhaps they came from Elkhorn or Navy Mars. As I recall Mr. Ladd got them from a local ham. Don

From hankarn@pacbell.net Sat Jan 31 16:16:52 2004  
Subject: [R-390] William Perry Co. To The Rescue

I have found Bill Perry to be an outstanding person and a pleasure to do business with. He is very knowledgeable about connectors. He has always sent the parts along with his invoice and says send a check. He also takes Paypal. I asked him how often he runs across a deadbeat that does not pay. He says it is not a problem. Guys with that in mind when looking for R-39XX stuff just keep paying promptly. He is a great resource to all of us. 73 Hank KN6DI

From w5or@comcast.net Sat Jan 31 16:57:12 2004  
Subject: [R-390] R-391/URR (MOD) - Direction Finder Set AN/FRA-44 --- Receiving Set AN/FLR-7

Clay, after some thought about your question, this is what I would do.

First, document what you know about the unit. Apparently you've made good progress and have assembled stories and references to its origins and history. Thanks for sharing that information.

Secondly, I would take pictures of the current configuration, with extra detail of the changes from the stock configuration, and preserve those pictures along with the other documentation you've found. Its fairly simple to save web pages, documents and digital pictures to CD. Maybe even convince a list member who has a 390 page to include some of that on his site.

Third, restore the unit back to its original 'as shipped from Collins' condition. You should be able to find spare IF decks and whatever else you might need since there is so much in common with the R390. The R391 is a fine performing radio, and your stated goal of having an AM and SWL everyday working receiver is certainly reasonable and attainable. There are several members on the list who have R-391s so help is at hand.

By doing 1 and 2 above, you've documented and preserved a bit of history, however esoteric it might be, and by doing 3 you've put the receiver back to work. Otherwise, with a countermeasures type bandwidth it isn't much fun to listen to. Don

From r390a@bellsouth.net Sat Jan 31 22:59:56 2004  
Subject: [R-390] wrong part in RF deck found

If you look at the schematic of the RF deck, the rest of the bypass caps are 5000 pf . Looking physically at the deck, the rest of the caps are .005 ceramic disks. In fact, if you look through the R-390A, .005 mf is the value of the majority of the bypass caps used in the RF, Osc, mixer and IF circuits. With only a couple exceptions, that is the value used through about the 4th IF amp. The R390 non-A was apparently designed using more common wisdom, as it is chock full of more normal values like .01mf.

The pictorial in all the manuals I have shows it as a ceramic disk instead of a BBOD. It has been a couple years since I have even had an RF deck apart, so I don't remember on the if the older pre '54-55 decks had R-275 at this value or .033.

In the original schematics, this cap is marked as a 5000 pf cap, but the later manuals list the MOD note that it was changed to 3300. Online MOD notes, such as Chuck Rippel's site has posted, list this value (3300) as well. If it was a mistake, it has made it to every version of the schematic I have from the original '51 to whatever the latest revision is. The latest Army manual, change 4, 1988, does not have the value corrected to what "common wisdom" says it should be.

All that being said, I seem to remember that there was a discussion on the list years ago 'bout this very same issue. Couldn't find that thread in the archive. Maybe is really is \*supposed\* to be what was in there. Regardless, I replaced the thing with a .033 film. 73 Tom

From David Hallam <dhallam@rapidsys.com> Sat Jan 31 23:18:16 2004  
Subject: [R-390] Resistance Measurements and Trouble Shooting

Here is a question from someone who is trying to learn this trouble shooting business. After circuit resistance measurements have been made, at what point do you say that there is a problem and start checking individual components? Is it ( 5%, ( 10%, (20% of the value stated in the manual, or ? I realize that the circuit under consideration makes a difference; some obviously have to have closer tolerances than others.

The item under consideration is a Hallicrafters HT-32B transmitter. I don't think resistances in say the

audio circuit would have to be as tight as the balanced modulator, for instance. Or am I wrong? What is a good place to start? David C. Hallam KC2JD