R-390 Reflector May '05 Edited

From chejmw at acsu.buffalo.edu Sun May 1 00:10:15 2005
Subject: [R-390] Variacs and solas: last thoughts.

Well before the thread goes away, FWIW. I use variacs in the shack, for various rigs and as test devices. I also on occasion repair them at the University, where they are used in abundance. A while back I got a bunch of info about the PROPER use of the devices and also some safety info.

I have big rigs that run on 115 VAC and draw close to 30 amps in some cases, less in others. Things I have noted is that you need to maintain the proper wiring per NEC and there is usually not a problem with them. One problem most folks miss is the neutral and hot lines in power distribution, and whether or not there is a ground to the variac from the main circuit breaker. It matters, and can present safety problems, along with voltage instability.

Ken I bet if you check your line back to the breaker box you find the Hot (black) lead is reversed to your variac, that pops the breaker. I never assume that the lines in a house are correct, I always check that the lines go where they should, I have seen as mush as 60 VAC chassis to chassis in units that had the hot and neutral lines reversed to the units. That was with the units turned off, and is NOT a good thing.

I also have a broadcast transmitter that uses 220 VAC and a homebrew KW that uses 230 VAC (refurbed pole pig) for the ac input, I run them each on a separate 0 - 240 VAC variac, they have a 40 amp rating at 240 VAC. I haven't had any heating problems or circuit breaker problems ever. As for fusing, I put circuit breakers two pole type to the input of the big variacs and fuses in the input to the 10 amp variety, for 20 amps and larger I use the fuse cartridge type FN those are about 2 inches long and 3/8 inch in diameter. The units that have a built-in variac also have a metering socket that measures the output volts of the variac. The others all have verified ac voltmeters across the output with a socket for checking accuracy.
Variacs are ok for use as long as they are used properly, they work well and save a lot of headaches later on. Just my 2 centavos! Jim WB2FCN

From dave_faria at hotmail.com Sun May 1 10:44:48 2005
Subject: [R-390] R-392 Transistor Audio Output Module for trade

Need an original meter for my 392. The module does work. Thanks List

From chacuff at cableone.net Sun May 1 11:33:40 2005
Subject: [R-390] SAFETY

Group....

The problem with that statement is that today you don't have to know much about the Volt, Ampere or the Ohm to get an Amateur license....nor the Dit and the Dah. (another soap box) And some of the newly minted Hams are collecting vintage gear such as the Collins stuff that was spoken of and our beloved R-390 series. Picking up a variac at a local hamfest because it was a recommended item to have if one is working on Boatanchors and taking it home and just plugging it into the wall and plugging the newly acquired vintage radio into it appears to be all that is necessary to the uninitiated. Wrong answer as was pointed out by Roy. If you have been following his topics recently, you'll also know he was

invited by the list Admin to post them...in detail....here!

This thread is related to safety and the use of a variac complicates the assurance of a safe environment to operate and test these radio's. Though not necessary for the operation of a boatanchor once you have confidence in it, I would state it to be a necessary item on the bench where newly acquired equipment should go first and any repaired items should be fully tested.

No topic related to safety, yours or the equipments, is a waste of bandwidth. If you feel you are all knowing and the safety topic doesn't apply to you use the DELETE key, that's what it's for!

If it saves one list member from having a bad experience or keeps one radio from being inadvertently damaged it was worth the bandwidth....period!

These radio's are inherently dangerous to work on and the newly graduated trade school students and/or newly minted Hams are not adequately trained to work on them safely.....but that doesn't keep them from buying them and trying.(a good thing!) We should not only be sharing info on how to work on them properly but how to survive the experience as well! Respectfully.... Cecil Acuff WB5VCE

From barry at hausernet.com Sun May 1 13:27:23 2005
Subject: [R-390] Variacs and solas: additional thoughts.

Hi Roy –

Many thanks for all the detail. Despite Ohms Law and various other well established principles, there seems to be remaining variance in opinions about the appropriate, safe and effective use of variacs.

Very often, some list members tire easily of certain threads, even when substantive. Oddly, it seems the complainants are those who rarely, if ever, contribute anything. Even among the "regular crew" it has become customary to trot out the dead horse lamentations.

One of the reasons Seabiscut & friends get dug up and dragged to the paddock again and again, is that, despite the length of the thread, there is something short of a final resolution of a question sometime before it peters out. Archives are difficult to search -- one of the reasons W. Li created and periodically updates his "Pearls of Wisdom". Further, it's difficult to come up with totally new material, and, if that were a requirement (avoidus oderiferous moribund equinus), we might as well shut down this list because the only new news would be the latest provocation on the e-place.

Another phenomenon: Even the most experienced vary in opinions on a number of things. Often, this is due to differences in input or assumptions. Given a complete and common baseline, there would be a good deal more agreement, and less ambiguity facing the modern pilgrim.

Anyway, persuant to the foregoing ....

Here's some more <insert groan here> on variacs, AKA autotransformers ... as followup to the questions Roy posed:

wrote: > Here are some questions to investigate: >
> Variacs:
> 1) What particular makes and models of "variacs" are set up for > overvoltage as made?

I have quite a few, both "plug 'n play" in enclosures, plus raw ones. Most all of them I've found are set up with the "extra taps" -- at least one, but usually two -- even if they aren't brought out to a switch arrangement. At minimum the taps, at about 10 and 2 o'clock, usually at least are brought out to the terminal board on the variac. I've got Staco's, GenRad Variacs, Powerstats, etc. All pretty similar. If the enclosed type has a "140" volt switch position, it's easy to defeat it for safety purposes if you're sure you'll never want to step up.

> 2) Do small variacs behave differently than bigger ones? (I doubt it.)

Don't know for sure but also doubt it.

> 3) Are fuses or circuit breakers normally in the input as made?

Most I've noticed are on one side of the input. I have some variac's that are part of multipurpose power supplies and may have additional fusing.

Possibly relevant: Autotransformers are not isolated. They are similar to a wirewound pot, except the core is an iron doughnut which provides the electrical characteristics of the creature. (Someone else can explain the theory.) It is not the same as a true transformer with isolated primary and secondary windings. Not sure, but I think the AC and/or DC resistance is pretty low. So, there might not be much additional protection from a fuse added to the load side. I haven't thought it through, but there might be some hazard to a load side fuse blowing while a supply side one remained intact under certain circumstances.
> 4) What errors are found in the dial readings due to line voltages being > higher than the unit was made for?

I, for one, never pay much attention to the dial readings as they amost all read low. My AC runs about 126 volts most of the time, except during Summer, exceeding the nominal 115-120 assumed by those dials. (Older ones may have assumed 110 VAC). In addition, the rotor may not have been calibrated right on if it's mounted with a set screw that allows for rotating it relative to the shaft. The carbon wiper can wear in such a way to cause changes. Always use an accurate AC voltmeter with them.

> 5) Are the voltmeters found on variacs at all accurate?

Some are, but should be checked against a known good voltmeter. If it tracks accurately around the critical ranges, then you can rely on the internal voltmeter. Assume nothing.

I've posted on this before, but some more on safety: If you acquire a used variac, or even an NOS one, open it up and examine it carefully. If there is a buildup of carbon/graphite fallout from the wiper, clean it up thoroughly. (NOS variacs may have been played with/twiddled). The buildup may be confined to a small portion of the "race" due to tweaking over a limited range. It doesn't take many bridged windings to start a meltdown. Use a nylon detailing brush or old toothbrush - -no solvent and no abrasives. The contacts are made up of the edges of the windings which have been ground down, flattened and often thinly plated. If the carbon fallout fills too many gaps it can cause dramatic failure -- with plenty of smoke to go with it. The wiper normally straddles 2 or 3 windings - to avoid intermittents when you adjust it. That's OK. However, if the wiper seems to be crumbling or leaving a heavy track right after you cleaned it up, time for a new wiper.

Check for prior damage -- prior overheating or burnout. There will ususally be a blackened stripe around the doughnut. This may be partially hidden by the terminal board. Not to be confused with the black potting that most have partway up the doughnut, near the wiper edge.

As I mentioned above, despite all the dead horse thrashings, there is remaining disagreement on the appropriate use of variacs. I suspect if all the operating assumptions were pulled together in one place, there wouldn't be much disagreement at all. Here are some factoids from personal experience, but mainly gleaned from this list over the years:

1. "Bringing it up slowly on a variac" may often be false security. If a tube rectifier is involved, B+ won't start up until about 90 volts or whatever and suddenly. You can temporarily sub out tube rectifiers with silicon rectifiers to do this. If so, ideally B+ should be monitored.

2. Same -- "bringing up slowly" means different things -- over what time frame. Some will say very slowly, as in hours or even days. This may be questionable. Even if you take care of the rectifier situation, the operation of the filaments possibly heating up things at partial voltage while the B+ is too low may be a bad thing -- much the same as using the standby switch on the R-390's. I don't recall exactly, but there were posts on this -- possible damage to some tubes - -I don't recall.

3. Not particularly effective as a way to reform electrolytics in place, even if the rectifier aspect is dealt with. Not a good way to detect bad electrolytics. Whether to reform or replace is arguable, however, reforming is best done with a separate power supply or capacitor tester. Disconnect the electrolytics and go about the test procedure with the cap checker --one that tests caps at operating voltages. However, start the leakage test at a lower voltage -- e.g. 50, switch to monitor leakage and make sure it's going down, then step up, allow some time, re-check leakage which should drop down to negligible/acceptable level if you're going to try to use them. Some will say this has little merit and it's best to replace them outright, and that makes sense, but, let's face it, the realities are that many of us can't resist the impetus to go forward and fire 'em up. Even if the caps are "acceptable", it's best to reform/precharge them to avoid excessive stress on transformers after a "long sleep". Further, if the leakage is bad enough, you will know not to proceed.

But using a variac to somehow avoid transformer failure and cap explosions, etc. is false security. In that sense, I agree with Les. If that's what you're going to do, don't get one.

4. You can use a variac to bring up a transformerless AC/DC unit (like a 5-tube table radio or tube Transoceanic) if they have selenium rectifiers, "as is", I would think -- but be aware that variacs provide no isolation whatsoever. Use an isolation transformer in combination -- in front of the variac. There may be some value in a slow start to long-unused/unknown solid state equipment. With these, the old cap checkers don't have a voltage setting low enough.

5. Variacs are useful for checking regulation of B+ and short term for dropping line voltage down to 110-115. Long term, permanent installation would be better handled with a bucking transformer. (Unless your voltage varies seasonally.) You can also check if the overvoltage condition you have seems critical or not by comparing voltages at various test points at full line voltage (eg. 127) vs dropped to 115/120 to determine if there really is a need for a bucking transformer -- I suppose.

6. If you feel more comfortable with the idea, by all means, add a load fuse. I usually plug a good surge suppressor or outlet strip into the variac, plug the equipment under test into it along with a hookup (line cord with banana plugs) into a DVM. Of course, the circuit breakers in those things are typically set to trip at 15 Amps, so probably not that much of a help, if any. Best to add a fuse at a lower rating if you feel the need. Again, I'm not so sure it makes a difference with variacs which may be why they typically have fuses or breakers on the input side only.

7. There is the notion that stepping the voltage up slowly may give one the opportunity to pull the plug

sooner if some crackling, arcing or smoke occurs partway up the scale. This sounds like it makes some sense and might help, depending on the exact circumstances and might limit "collateral damage". However, it presumes that you are watching closely full time and have the chassis situated so that you can hear and see any developments immediately and you're quick on the trigger finger. To me, that would require removal from any cabinet and up-ending the chassis so you can see, smell, hear as quickly as possible. And then, there's always the quintessential question ... "Do you feel lucky?".

After reading Roy's info on Sola constant voltage transformers, I have some questions and concerns about them. I've got a 20 amp unit supplying a circuit with computer equipment on it. It runs hot and noisy even heavily loaded. No apparentl problems in 8 years, but I seriously wonder whether it was worth the bother. However, I'll pursue that off list with Roy.

Anyhow, that's my story and I'm stickin' to it -- until further notice. Barry

From chacuff at cableone.net Sun May 1 13:47:28 2005
Subject: [R-390] Variacs and solas: additional thoughts.

I agree with what you have said Barry...Good stuff!

The only thing I will add and only because it has not been mentioned is the biggest benefit I have experienced when using a variac is in conjunction with some method of monitoring the current being drawn by the unit under test. The best variac I used years ago had a front panel voltmeter and amp meter. You would know right away if there was a problem with the load by watching the amp meter while bringing up the power. Another more inexpensive way of achieving this is to put a 60 watt 120V light bulb on a ceramic socket in series with the load. The lamp will light brightly on power up but should drop to just barely visible if all is well. If it stays bright chances are something is wrong and the nice thing...the bulb limited the current to limit the damage!

That's a neat old trick that many of the newer techs probably hadn't heard of .....

From ToddRoberts2001 at aol.com Sun May 1 14:00:45 2005
Subject: [R-390] Variacs and solas: additional thoughts.

One thing that hasn't been mentioned in this thread about variacs is - can using a variac possibly extend the life of the 3TF7 ballast tube? I notice in many cases when first turning on an R-390A that the ballast tube will glow much more brightly for a few seconds due to the current surge of the cold low-resistance BFO and PTO tube filaments in series with the ballast. If one were to bring up the line voltage slowly using a variac, then this might cushion the initial voltage/current surge into the venerable 3TF7. After all, no thread beating a dead horse is complete without mentioning the 3TF7 ballast tube!

From brookbank at triad.rr.com Sun May 1 14:07:04 2005
Subject: [R-390] Variacs and solas: additional thoughts.

If you have a variac without a good voltmeter on its output, throw away the variac. Pat

From Llgpt at aol.com Sun May 1 14:08:21 2005
Subject: [R-390] Variacs and solas: additional thoughts.

Just one minute buddy! That's my line and I'm stciking to it! Here is another one for you to steal..... Les Locklear

From Llgpt at aol.com Sun May 1 14:12:09 2005
Subject: [R-390] Variacs and solas: additional thoughts.

Accccckkkkkk, Grrrrrrrrrrrrr, oh well, I was going to make a "smart" reply, but drank another glass of fine imported wine from my 55 gallon drum direct from the vineyards and stayed quiet! Les Locklear

42.7% of all statistics are made up on the spot. Steven Wright (Go ahead Barry, steal this one too!)

In a message dated 5/1/2005 1:01:20 PM Central Daylight Time,
ToddRoberts2001@aol.com writes:

After all, no thread beating a dead horse is complete without mentioning the 3TF7 ballast tube!

From djmerz at 3-cities.com Sun May 1 14:14:11 2005
Subject: [R-390] Safety

Hi, there's another aspect to safety. Even the most knowledgeable and savvy make mistakes for some reason. I think that's why more enlightened employers have safety meetings, to reduce the incidence by heightening awareness. One of the really practical, experienced and knowledgeable guys that I worked with was badly burned because he made a mistake, defying common sense in what he was doing. Fortunately, he was only burned across his hand by an electrical event. The point is, even he could have used more reminding in this area. I thank Roy for pointing out the hazard of double fused line plugs a while back and also encouraging me to properly fuse the variac that I had used for years as a two wire, ungrounded source for various projects. I welcome hearing about these things again occasionally.
Dan.

From barry at hausernet.com Sun May 1 14:24:18 2005
Subject: [R-390] Variacs and solas: additional thoughts.

Hi Cecil

I agree -- monitoring current is a good idea. My favorite variac "ac supply" is a Staco I picked up a few years ago. I was told it was working and maybe it was. I fired it up and it smoked. That's how I learned about fouled winding contacts -- the hard way.

This was rated for 4.5 amps, though it had a standard 5 amp Staco autotransformer in it -- cabinet about 12 inches wide with ammeter and voltmeter. Has a shunt for the ammeter. I managed to match up the correct raw autotransformer to get it going again. Both meters are pretty accurate and the switching setup makes it very convenient.

Yup -- the ol' lightbulb trick. The first I came across that was part of the initial testing instructions for a 3-tube Lafayette KT-135 regenerative radio kit many years ago. They also advised using a neon bulb tester to manually polarize the ac plug so the front panel wouldn't be hot with full AC. Wonder what the

body count was on those -- they were very popular and the cabinet was extra. ;-) Barry

From barry at hausernet.com Sun May 1 15:04:36 2005
Subject: [R-390] Variacs and solas: additional thoughts.

As I wrote, Les, it depends on the circumstances -- standard "baseline".

Of course, if one has a 55 gal drum (steel?) of fine imported wine, in the overall perspective of things, a variac is not required. But, this is getting into yet broader OT subject matter -- taking time to smell the roses, meaning of life on Earth, etc.

Truth be told, if I have any reliable indication that the previous owner recently fired up something I just got, I'll often skip the prenuptuals and go for broke, livin' large, fast 'n loose, etc. Get's back to the circumstances, which include "state of mind at the time" which comes full 'round, bearing on considerations such as supply of fine vintage, etc.

Can't really nail me with stealin' as most was pre-stole. As for Steven Wright, I'm fond of his other one & two liners -- "Last night, somone broke into my apartment and replaced everything with an exact duplicate ... When I pointed this out to my roommate he said 'Do I know you?"

Here's another few:

"You never know what you had until it's gone. I wanted to know what I had, so I got rid of everything." This has special relevance for those afflicted with boatanchor collection syndrome as does:

"You can't have everything. Where would you put it?"

"Staying at an old hotel -- they sent a wakeup letter."

"Curiosity killed the cat, but for a while, I was a suspect." Reminds me -- anybody heard from Nolan?

"When I die, I'm going to leave my body to science ... fiction."

"I bought some batteries, but they weren't included."

"It's a small world, but I wouldn't want to paint it." (nor every B/A I've got that could use a touch-up)

Finally .. . "There's a fine line between fishing and standing by the shore like an idiot." (no add'l comment -- but doesn't apply to you, Les, if'n you catch my drift)

OK one more for the road "It doesn't make a difference what temperature the room is, it's always room temperature." (poss. relevant to certain highly exacting measurements.)

These quotes were all freshly stolen -- or maybe they're exact duplicates? No 55 gal drum here, that half a quart will have to do... Barry

From r390a at bellsouth.net Sun May 1 16:31:58 2005
Subject: [R-390] '390A Function Switch + Needed

I need a function switch and a limiter pot for a 390A. I know Fair has them, thought I'd check the list first. Thanks in advance Tom NU4G

From dathegene at hotmail.com Sun May 1 16:44:09 2005
Subject: [R-390] Variacs and solas: additional thoughts

Nice thread. It's great to read the tug-of-war on various issues; there ain't nothing that you can't find guys on opposite ends of the rope... A guy learns not to take the word of the first "expert" he reads, 'cause the next fellow may have a different take... which is why I like this list!

I want to drop my household voltage down to 115 to run the R390A continuously. Where can I get a good bucking transformer? Any circuit suggestions? Thanks in advance, Gene NA0G

From kgordon at moscow.com Sun May 1 16:51:18 2005
Subject: [R-390] Bucking transformer

wrote: > I want to drop my household voltage down to 115 to run the R390A continuously. Where can I get a good bucking transformer? Any circuit suggestions?

Go here: http://www.mines.uidaho.edu/~glowbugs/receivers.htm then go to 8) Line voltage adjustment. down on the page. Ken W7EKB

From r390a at bellsouth.net Sun May 1 17:06:35 2005
Subject: [R-390] SAFETY

Now it's Tom's time to rant about safety

>>Cecil sez -- >>No topic related to safety, yours or the equipments, is a waste of bandwidth.

Indeed Cecil. From before my early teens on, since I first started to play with electronics and radios, all my "elmers" have told me "Always assume that piece of gear in front of you will kill you" Similar words anyway. They still teach such things regularly in the labs where I have worked. Doesn't matter what the equipment is, ALWAYS assume the gear is dangerous. Battery powered gear is no exception -- a battery powered Megger or strobe or what have you can give you enough of a jolt to knock it off a bench, scrape or cut your arm as you yank it away, or jerk you arm into a powered-up piece of equipment. The latter is more common than you'd think.

Ask me about the tale of the powered-up 400Hz inverter that was knocked into my lap from the next bench over. (actually DON'T ask.. hehe)

At the very least, always practice the "one hand in the pocket" method when servicing gear. If one hand is in your pocket, you have less chance for current to flow across your chest and stop you heart.

When it comes to safety *NEVER EVER EVER ASSUME ANYTHING ANY EQUIPMENT IS SAFE* This counts for both repair and normal day to day use. Always check grounds, always check AC cordage, always double check EVERYTHING. Always make sure gear is not over-fused. If the equipment calls for a 1/2 amp fuse, replace it with a 1/2 amp fuse.

I think the power cordage issue was hashed out pretty well the other day, so I'll not fuss about it here.

As for the variac, there *are* isolated variacs out there, such as the Standard "Adjust a Volt" supplies, but unless you know it's REALLY isolated, ALWAYS use an isolation transformer with any variac. 73 Tom NU4G

From CRIPS01 at MSN.COM Sun May 1 17:24:39 2005
Date: Sun May 1 17:30:58 2005

I remember the first time I fired up my Heathkit SB-200 amp. I had the feeling I had a bomb sitting on the desk waiting to blow up in my face. It sure was a cool feeling when it cranked up to 600 watts into a cantenna. What was interesting was how the SB-200 would not work well with a Yaesu FL-101 transmitter. With an Kenwood TS 520 it is a match made in heaven. Ken

From levyfiles at att.net Sun May 1 18:09:29 2005
Subject: [R-390] SAFETY

Cecil,

I agree, one pilot to another, safety is always paramount, and student pilot or new ham there is no difference when danger can harm or kill. Beat safety to death first, last and always, Bill N2WL 252BM

From djmerz at 3-cities.com Sun May 1 18:10:05 2005
Subject: [R-390] Bucking transformer

Hi , another source for the circuit, http://www.r-390a.net/ click on Compensation for High Line Voltage. I used a 2 amp 12.5 v center-tapped transformer that I got from RS and put a switch in so I could choose from two levels of reduction by using either the full winding or half the winding in the bucking circuit on the output side. Dan

From CRIPS01 at MSN.COM Sun May 1 18:47:55 2005
Subject: [R-390] Bucking transformer

I have a small device call and "The Up and Down" model LB2 -voltage booster manufactured by Service Instruments Co. of Chigago. It switches the voltage up or down by 10 volts. The input is 100 to 130 volts the output is either 110 or 120 volts at 3 amp's. It is, of course, a service device what exactly is was used for I don't know. Ken

Date: Sun May 1 19:20:54 2005
Subject: [R-390] ColdHeat

I purchased one of those Cold Heat soldering pencils. I isn't a bad device if used correctly. It is just the ticket for soldering small connectors like a BNC's, SMA's, RCA jacks and connectors of similar size. It isn't much good for anything else. The one big draw back is the carbon tip, each one is good for a fair number of joints. it wears quite fast and before you start using one one you had better have a good

supply of the tips. Radio Shack is carrying them but they do not stock the tips yet. They tell me they will in the near future.

From barry at hausernet.com Sun May 1 19:39:02 2005
Subject: [R-390] ColdHeat

I bought one of those at RS after being indoctrinated with the infomercials. Haven't been able to make a single joint with it and I assumed it was only good for really small stuff, so it's not as though I tried to sweat-solder a corroded car radiator.

Maybe it calls for solder with a really low melting point, like 98.2 degrees, with proper windage -- zero and don't breathe on it. Looks like it would be good for blowing sensitive IC's though.

Anyone else have any success? Probably eats batteries too, even though it seems to be equivalent of 2 watts or something. They must have cheated when filming that infomercial. Barry

From Tarheel6 at msn.com Sun May 1 19:44:18 2005
Subject: [R-390] ColdHeat

I bought one too. Same bad experience. Tried to solder a few wires and such with absolutely no success. Put device back in package, placed it on my workbench shelf, muttered a few words not repeatable here, and decided I wouldn't try to use it again. YMMV.... 73's, -tom

From: mikobrien at yahoo.com (Michael OBrien)
Subject: [R-390] ColdHeat

Hi
I bought one of the RS cold heats and did not like it. I had also bought one of the weller butane soldering irons for portable work. The weller works well but you have to be careful as it does get hot. Mike

From ham at cq.nu Sun May 1 21:23:41 2005
Subject: [R-390] Variacs and solas: additional thoughts

Hi,

For a whopping $10 Radio Shack will sell you a three amp 12 volt center tapped filament transformer. The nice thing about the center tap is that it will give you both a 5% and a 10% adjustment off of a nominal 120 volt line. Three amps is enough to run any radio in the R390 size range.

Given that the radio works better off of a high line voltage it's not real clear weather you should spend the $10 or not. As mentioned in the previous thread using a fuse or two is probably a good idea. Take Care Bob Camp KB8TQ

From N4BUQ at aol.com Sun May 1 21:39:53 2005

I was thinking the amperage rating of the bucking transformer was proportional to the total voltage. In

other words, a 3-amp. 12V bucking transformer would be good for approximately 30A total load at 120V. Is that incorrect? Barry - N4BUQ

From ham at cq.nu Sun May 1 21:42:21 2005
Subject: [R-390] Variacs and solas: additional thoughts

Hi,

A three amp filament transformer will give you a three amp buck or boost transformer.

The confusion comes from the fact that the three amp transformer is a 36 VA part. A three amp 120 volt transformer would likely be a 360 VA part. Enjoy! Bob Camp KB8TQ

From chacuff at cableone.net Sun May 1 22:56:27 2005
Subject: [R-390] Tube shields

Hey Folks,

Found something interesting this evening while working on an R-390 restoration. Found two ELCO tube shields...the silver twist lock kind with the IERC finger style contacts between the shell and the spring. I thought at first some wise guy had shoved it up in there to make a somewhat hybrid IERC tube shield. Upon closer investigation it appears to be factory. There are two folded indentations in the shell that catch the bottom of the finger contact piece to keep it from sliding out when the shield is pulled off the tube.
Interesting....

Is this a new find or are these shields pretty common? First I have seen! Not sure they are any better than the silver variety as far as dissipation. Cecil....

From ham at cq.nu Mon May 2 07:20:37 2005
Subject: [R-390] Variacs and solas: additional thoughts

Hi,

Here's a little better explanation than my last one.

The filament transformer runs 0.3 amps on the primary when it is running 3 amps on the secondary. A Variac would be running 3 amps the way most of them are metered.

There are also more than just the 10% and 5% settings. Five percent comes when you use the center tap of the transformer and the primary is on the incoming line. Ten percent shows up when you use the full secondary and the primary is on the incoming line. To get a few more variations you can hook the primary of the transformer on the output line side. It's a little early for heavy lifting math but I think that would give you a 6% and 11% setting (or 4% and 9% depending on the connection).

If you are going to set up something like this an external box is probably the best way to go. A "splice in an extension cord" approach is not a bad idea. More or less you would have a R390 with a wall wart. The transformer and fuses need to mount in a metal box. If you are setting up a metal box I would put a

couple of surge suppressor MOV's in there as well. For the deluxe version you could add one of the current limiter thermistor.

The MOV's are an overlooked aspect of protecting an R390. As amazing as it sounds your normal line voltage can spike to levels that will damage an R390. The RFI filter on the back panel of the radio will take care of a lot of spikes. The problem is that a lot of radios have filters that are a bit over the hill. Enjoy! Bob Camp KB8TQ

From odyslim at comcast.net Mon May 2 07:45:50 2005
Subject: [R-390] Tube shields

I have a radio that is loaded with them. It is a Collins R390-A from the first run, #43. Scott

From barry at hausernet.com Mon May 2 08:22:08 2005
Subject: [R-390] Tube shields

I've seen quite a few shiny shields with the accordion pleat type of beryllium copper insert in them. Not sure if they were retro-fit or not. Same for the flat, hex-type. I don't recall seeing any with the fingerstock style of insert. The retrofitted ones usually reveal theselves when you remove them and the insert stays on the tube. Of course, there could have been an arbor jig where they made those indentations after the fact.
My take is that the "silver" shields with the inserts -- preferably finger or accordion - -should be fairly close to full IERC shields in dissipation. However, other factors -- the stock shields have a rather large flange which can block the air channels and generally impede airflow -- and the IERC shield are made of aluminum or some similar alloy which may have better heatsinking characteristics than plated steel. But, I think the insert is most of the benefit and they also provide the black/nonreflective surface, nearly the same as the inside of an IERC shield in that respect. BTW - even the IERC's vary in terms of inserts and flange size. Some have no lip on the top at all -- just a piece of rolled up aluminum.

We may be overdue to dig up the ol' tube shield pony and start whippin' it again. Been a while. Keeps 'em from spoilin'. Barry

From roy.morgan at nist.gov Mon May 2 11:23:32 2005
Subject: [R-390] Variacs and solas: additional thoughts.

wrote: >... - can using a variac possibly extend the life of the 3TF7 ballast tube?

Todd, I would think so, depending on how you use the variac.

>... the ballast tube will glow much more brightly for a few seconds due to >the current surge of the cold low-resistance BFO and PTO tube filaments in >series with the ballast.

Yes. Closely watching the ballast at turn-on may frighten you a bit. Back when they were $8 each, no problem. Note: receiving tubes of certain manufacturers (e.g. 12AX7's from Europe) show a very bright, momentary light from the filament upon startup. These tubes apparently were designed to do that repeatedly and not fail, but it can be alarming.

>If one were to bring up the line voltage slowly using a variac, then this >might cushion the initial

voltage/current surge into the venerable 3TF7.

It may well do that. But what about a more or less fail safe slow-bring-up device you can install and forget: the inrush current limiter? That sounds like an ideal solution to the whole thing. Roy

From n4buq at aol.com Mon May 2 11:44:16 2005
Subject: [R-390] Variacs and solas: additional thoughts.

I have an ICL installed and the 3TF7 still glows noticeably brighter at startup. While I'm sure the ICL is softening things at startup, the tube still has to come up to speed over a greater time than the ICL takes to warm up. Barry - N4BUQ

From roy.morgan at nist.gov Mon May 2 12:01:12 2005
Subject: [R-390] Variacs and solas: additional thoughts

wrote: >Nice thread. It's great to read the tug-of-war on various issues;

Gene, Yup. that's one reason I'm still here, (after all these years).

>I want to drop my household voltage down to 115 to run the R390A >continuously. Where can I get a good bucking transformer?

That depends on your the depth of your junque boxe (or that of your friends'), and whether you want to build or not. For continuous operation, I suggest a line bucking transformer with a current rating about twice what the radio draws. That will be quite small: the R-390A draws an amp plus some.. so a 2 amp transformer will be enough if you run the radio only on it.

> Any circuit suggestions?

Yes: http://www.r-390a.net/ (read the whole site.) but for the bucking transformer setup in particular, see "Technical" then "<http://209.35.120.129/faq-HiVolt.htm>Compensating for High Line Voltage" or: <http://209.35.120.129/faq-HiVolt.htm>

Also, "Voltage Reducer For BoatAnchor Gear" from Ed Richards, K6UUZ:
http://bama.sbc.edu/voltagereducer.htm

This page has parts list, instructions and drawings. For a transformer, It suggests "the 120 VAC primary, 12 VAC ct secondary at 3 amperes, Radio Shack #273-1511 or equivalent." This is just fine if your load is going to be 2 amps or less (Radio Shack transformers are known to go into saturation at rated load!) and if the reduction you want to make in the line voltage is either 6 or 12 volts. (You could add a switch to select the voltage change.)

The added drawing at the bottom of that page is both left to right reversed and has the connections crossing over each other all up-side-down-like. But it will work. It calls for a 10 amp transformer which is fine if you have one and have need for 10 amps of load current. "Holy Amperes, Batman, we can run the whole shack on that!"

The astute and curious worker may note that if the transformer at hand is rated at 115 volts, it can be arranged to be powered by the OUTput of the system, with the low voltage winding reducing the line

voltage before the transformer. The Phase would be arranged backwards from the arrangements shown on the websites above.

If you want to buy something and plug it in, see: http://www.toddsystems.com/newindex.html You may need to sit down before finding out the prices on these.

(There are likely many other sources, too.)

A rather elegant solution to this situation is the General Radio Automatic Line Voltage Regulator, which will actively correct line voltage changes for loads up to 60 amperes. However, this thing is both very, very heavy and hard to find since they have not been made for a long time now. It has a few tubes inside, a voltage sensing system, and a small motor that is driven to move a center-tapped variac which runs a boost-buck transformer to correct the output, all within a part of a second. It's pretty quiet, too. "... And the music goes round and round.. and comes out here.." Roy

From djmerz at 3-cities.com Mon May 2 13:39:40 2005
Subject: [R-390] R390 progress 6AK5/6AJ5

Hi, I decided to get into the non-a 1st/2nd oscill crystal box and see if jiggling/cleaning the xtal pins would clear up the problem I've been having getting the 7-8 Mhz band working.

The task was easier than I thought because Collins must have anticipated my skill. I took the oscillator chassis out, removed the box that covers the oven/xtal array on the end away from the two tubes and got down to my previous point of trying to get the heater box off. It was relatively simple, the four standoff posts unscrew and then the oven can be slipped off without even disconnecting the heater wires. I removed each crystal, put a tiny amount of deox on each pin and reinserted them. I put the unit back in place with the oven slipped back on but without replacing the oven cover to see if anything was improved. It wasn't !!

Some background: I had noticed before all this disassembly that the screen voltage on the 2nd oscill (the one that was giving a bad 10/20 Mhz waveform for the 7-8 band was about 90 volts instead of the 60 volts specified. The plate voltage was close to the specified 160 volt value. The 1st oscillator, which has nearly identical circuit, had more or less the correct voltages on screen and plate. I am using 6AK5's instead of the specified 6AJ5's. Switching the 6AK5's in the two oscillators did not change the voltages so I ruled out an individual tube effect. Putting a 6AJ5 into the 2nd oscill did bring the screen down to 70 volts, closer to the spec. value. This is a bit of a puzzle. I still haven't figured out if I should be concerned about the 90 volts on the screen using the 6AK5 in the 2nd oscillator. If both oscillators showed this, I'd shrug it off as 6AK5 vs 6AJ5. But the 1st oscill seems to operate to spec with the 6AK5.
Now after the xtal disassembly, with no improvement, I decided to tweak T402 the output transformer in the plate circuit since this is one of the items that is adjusted in a complete alignment of the oscillator circuit. I was hesitant to mess with this initially because most of the bands seemed to work ok. But turning this produced a big effect on the waveform of the 10/20 Mhz output and I was able to get it looking like I thought it should with a nice 20 Mhz harmonic without the distorted form I saw before. I now suspect, even though most of the bands were "working ok" , this transformer was not adjusted correctly when I got the set. I note in the manual that T402 is adjusted only once on band 31 and the procedure is somewhat cryptic. It is adjusted so that the trimmer for band 31 can produce only one peak on a VTVM over the trimmers whole range. I interpret this to mean that the inductance of T402 is reduced to the point so that only one set of overtone harmonics are produced using the trimmer, and presumably this is the correct overtone for band 31. My question is: when using a VTVM to monitor

this adjustment, does production of an overtone produce a peak in reading? It seems to make sense to me that it would. The waveform in seeking out overtones, as the trimmer is adjusted, goes from complete waves where the average pp would be high through regions where the peaks are not reached then to the next overtone where the peaks are again completely formed. Am I interpreting this correctly?

I'm embarking on doing the complete alignment of this oscillator, Dan.

From David_Wise at Phoenix.com Mon May 2 13:49:00 2005
Subject: [R-390] ColdHeat

Get a refund if possible, Tom. Right now, from RS's point of view you were a successful sale. If the product is crap, they shouldn't win so easily. Dave Wise

From n4buq at aol.com Mon May 2 14:25:05 2005
Subject: [R-390] Powder-coating update

Gents,

A while ago, I mentioned I was getting the front panels for a couple of R390As powder-coated. I thought I'd report a few things.

First, one of the panels came out just great. I've finished filling the lettering with lacquer and it really looks good. Nice, clear, distinct letters.

The first time they did the knobs, they got very globby with the powder and it filled in the grooves to the point that a lot of them were indistinct. They removed the coating, recoated a thinner coat, and they look good now. Meter covers and escutcheons look good too. I wish they hadn't coated where the lamps go, but I was able to sand that back to metal so the bulbs would make contact.

The unfortunate victim in all this is the second panel. Try as they might, they could not lay a thin enough coating on to make the lettering distinct.

I thought they were pretty much the same, but perhaps the first panel had deeper, sharper lettering. The first try looked terrible. You could tell the engravings were there, but to try to fill them in would have been a disaster. They removed the coating and tried again with a thinner coat. This time, some of the lettering would have worked, but other letters would be just too indistinct.

They're going to strip it back to metal and I'm going to resort to lightly spray painting this one. I guess I just wanted to warn anyone else that unless the engravings are nicely defined and the coaters can keep the finish very thin, powder-coating has its drawbacks.

At any rate, I do have one very, very nice front panel now. The second one will be nice too, and the knobs and escutcheon will be powder-coated, but it will just have to be a painted version. Barry - N4BUQ

From jsullivan10512000 at yahoo.com Mon May 2 14:45:25 2005
Subject: [R-390] Question to post

My Collins R390 (not "A" version), on I.F. deck, has two top chassis mounted OIL FILLED

condensors, side by side, 1 mf-400 volts each, hooked in parallel, giving 2 mf 400 volts. They are a coupling to AGC circuit. Why in the world did Collins design two such condensors to be wired in parallel, rather than just installing one 2 mf-400 v. condensor, was it, perhaps because a larger 2 mf. wouldn't fit in spot on chassis top, or could it have been that they just didn't have available to them at time 2 mf cond. needed? Best, Jack

From sdaitch at ibb.gov Mon May 2 15:01:15 2005
Subject: [R-390] Question to post

A few non-electronic guesses,

1 - two 1 mfd caps were cheaper than a 2 mfd?
2 - a shelf full of 1 mfd caps on hand?
3 - the two parallel caps had a lower impedance? (oops, that was an electronics answer!) 73 Sheldon WA4MZZ

From roy.morgan at nist.gov Mon May 2 15:16:50 2005
Subject: [R-390] R390 progress 6AK5/6AJ5

wrote: >Hi, I decided to get into the non-a 1st/2nd oscill crystal box ... >The task was easier than I thought because Collins must have anticipated my >skill.

Dan,

Collins anticipated the skill and time available with the military folks who kept these things running. I'm confident that you are now far ahead of some of the repair people of back then!

>.... I decided to tweak T402 the output transformer in the plate circuit >...in the manual that T402 is adjusted only once on band 31 and the >procedure is somewhat cryptic.

Hah.. not the first time we have found cryptic alignment instructions (the HQ-170A manual has some, too.)

>It is adjusted so that the trimmer for band 31 can produce only one peak on >a VTVM over the trimmers whole range. I interpret this to mean that the >inductance of T402 is reduced to the point so that only one set of overtone >harmonics are produced using the trimmer,

Generally, the term "overtone" is used with crystals that are oscillating at a multiple of what would be their normal, fundamental, frequency. Some crystals are made to operate this way, where the frequency of oscillation is three or five times what it would be in a normal circuit.

My guess is that T402 is being resonated with the trimmer on band 31 so that the inductance of it will be right for the other bands, which all have separate trimmers. Note that most of the trimmers have a fixed capacitor in parallel. This sets the range of capacitance that will resonate the primary of T402 to the desired frequency.

>... My question is: when using a VTVM to monitor >this adjustment, does production of an overtone produce a peak in reading?

We could say it this way: tuning of the T402 and band 31 trimmer is done so the crystal's second harmonic is peaked by noticing the DC voltage at the (mixer ?) grid.

>... The waveform in seeking out overtones, as the trimmer is >adjusted, goes from complete waves where the average pp would be high >through regions where the peaks are not reached then to the next overtone >where the peaks are again completely formed. Am I interpreting this correctly?

I think what you are seeing with your scope is the result of tuning the circuit to the fundamental or to the harmonic of the crystal frequency.

Very likely the range of a trimmer is not enough to tune both the fundamental and twice the crystal's frequency. Or, if it is, then the band 31 procedure is intended to set the T402 inductance to make sure you can get only the fundamental or the double of it as you tune the trimmer for each band. Note that the majority of the crystals are used on two bands (at least one is not.)

The manual may mention this, but if you find after setting T402 and the band 31 trimmer, you cannot get a good peak on some other band(s), you may be able to tune T402 differently and still get the peak on band 31, but then be able to get the needed peak on the other band(s). Is there a picture of the trimmer positions that correspond to max and min capacitance (there is in the Collins S-line manuals.) If so, think through where the band 31 trimmer setting is in it's range, and the resulting T-402 inductance, and what that might mean to the alignment on another band when you get there.

A couple of notes:
1) make sure as you measure the DC voltage at an oscillator or mixer grid that you have a high impedance probe - that is the probe of an old time VTVM that has a one meg resistor in it, or if you are using a DMM, put a 100 K to 1 meg resistor on the end of the probe. This is all to prevent loading the RF in the circuit or adding extra capacitance.

2) If you are using a scope on a high impedance circuit or on a tuned circuit, make sure you have a 10:1 probe for the same reason.

>I'm embarking on doing the complete alignment of this oscillator,

It sounds like a fine idea! Roy

From k4kwm at hotmail.com Mon May 2 16:38:01 2005
Subject: [R-390] Powder-coating update

I wonder what one would look like in St. James Gray? John John Page K4KWM

From djmerz at 3-cities.com Mon May 2 17:33:03 2005
Subject: [R-390] R390 progress 6AK5/6AJ5

Roy, much thanks for the comments. I concluded from your comments that the multiple peaks that might occur with T402 adjusted with too much inductance are due to occurrence of various harmonics as the trimmer on 31 is swept. The goal is to have only the right harmonic there and low enough inductance that the others can't be produced, and only one (at least according to the manual procedure). I'll go with that interpretation and see what falls out when I start alignment. The VTVM measurement in the manual is made on the grid of the mixer tube - the oscillator signal is injected to the cathode. The

Engineering Report on the 390 says about 10 to 15% of the injection shows up on the grid so I guessed that's what was being measured at the test point specified. However, in rethinking this, the VTVM measurement is a dc measurement of negative voltage on the grid so probably reflects how the bias on the grid peaks as the various harmonics are produced by the trimmer sweep and not really an integration of the rf voltage that I had in mind. I've been measuring at the cathode with the scope so far and using the 10x probe on the scope. I don't have a vacuum tube VTVM, but do have a 1 gigohm input impedance "electrometer" that I built for looking at grid voltages. It should work fine as long as we're talking about dc voltages. More later, Dan.

From dmetz at ntelos.net Mon May 2 17:52:53 2005
Subject: [R-390] Question to post

Jack,

Not sure but here's my thought. These caps are non polarity and even today, non-polarized caps seem a bit big compared to their brethren electrolytics. Trying to think about 1950 manufacturing gives me pause that Collins couldn't get a 2mf cap either easily or as cheap as two 1mf caps as you suggest. I had one go bad and replaced both of them with about 1.5mf total and it works great. 73's dave

From barry at hausernet.com Mon May 2 18:14:46 2005
Subject: [R-390] Question to post

The Scott RCH receivers have four stud-mount oil filled 4 mfd 400v capacitors right in a row on the chassis. They're metal cans but the can is isolated from the stud so not (necessarily) grounded. They have two contacts on their bases -- non-polarized. Not easy to find equivalent tubulars so have to be replaced with multiple caps in parallel, I guess. These caps last a long long time, but they have insulator material between the body and the stud and if struck or "leaned on", can break and leak their mojo bug juice. (Probably PCB-laden oil) I've got one which was broken as delivered and one of the other four hanging by a thread.

I've seen Orange Drops listed as high as 2 mfd. but not often. I believe you can put electrolytics in series to make a non-polarized combo - or buy non-polarized electrolytics used in speaker crossovers, but wouldn't assume they have the right parameters or available in high enough voltage ratings. Barry

From tetrode at comcast.net Mon May 2 18:28:26 2005
Subject: [R-390] Powder-coating update

Barry,

I've got a couple panels out to Howard Mills W3HM for painting and he told me that he does not use the powder coat process anymore on the engraved panels for the exactly the reasons you described. The engraving can vary a lot, I've seen from normal to light to very heavy lettering depths and widths. John

From jsullivan10512000 at yahoo.com Mon May 2 19:10:01 2005
Subject: [R-390] Post to list

On R-390 (not "A" version), I am about to replace most all paper condensors (we now call them

capacitors, of course), probably with polyprop. orange drops. I see that these types of condensors in this set are metal covered, and look to be of very high quality (military spec., I am sure, is reason for that). Are these metal covered, numerous ones are .01, .1, .22, 1. mf, really paper caps, as I suspect? I have replaced a gazillion paper caps in civilian radios, but have no experience with military radios/electronics, and have never seen metal covered ones like this before. Anyone know much about the quality of these metal covered condensors, how smart it is to replace them, etc.? I will replace, too, any electrolytics that I find not testing well (the 50 mf., 50 volt unit will be first to replace, as it is shot, for sure, as tested), while two 10 mf are in great shape, and I will leave them in place. Best, Jack
<P> </P>

From Llgpt at aol.com Mon May 2 19:24:50 2005
Subject: [R-390] Post to list

On a R-390/URR. there isn't a capacitor problem as there is in the cost reduced R-390A/URR. (See how simple that is for the "NON A ") challenged???????

Unless you have aprticular problem with capacitors "actually" leaking on a R-390/URR, leave them alone. YMMV and may the force be with you. Les Locklear Resident Curmudgeon

From stevehobensack at hotmail.com Mon May 2 19:46:47 2005
Subject: [R-390] Variacs and solas: additional thoughts

One can parallel the secondary to make a 6 amp 6 volt transformer, thus a 6 amp 6 volt buck. I have peeled back the yellow plastic tape at the center tap and discovered the center of the winding had been brought out to the solder tab, revealing two copper wires. Test the polarity before the final soldering! ....Steve...N8YE

From ham at cq.nu Mon May 2 19:49:07 2005
Subject: [R-390] Post to list

Hi
I seem to be the poster child for changing capacitors around here. The only parts I have seen with a problem are epoxy coated parts. I have not seen problems with the metal jacketed parts or with the yellow mylar covered parts. It's easy enough to check one or two capacitors for leakage resistance and see if they are in specification or not.

A simple test is to put about 50 or 100 volts on the capacitor and see how much current it pulls at DC. The specification on most of these parts is in the several hundred mega ohm region. A leakage current in the sub micro amp region would indicate a capacitor that is in specification. Changing out parts that are working ok is not a necessary thing.

One thing to be careful of is dirty parts. A part with a bunch of crud on it will leak weather it's a capacitor or not. Take Care Bob Camp KB8TQ

From djmerz at 3-cities.com Mon May 2 20:05:22 2005
Subject: [R-390] R390 progress 6AK5/6AJ5

Roy, I'm going the right direction now. Things are looking better. I did the 31 band exercise to start the 2nd oscill alignment using the scope (wasn't able to see much voltage on the grid, low mv range so just kept going using the scope). Then I went down to 14 and 7 bands and both tuned to very nice waveforms using the trimmer caps and 20 meters really came alive. I'll redo all this and the other bands when I get the oscillator reassembled and the crystal switch hooked back up to the gear train. I'm still looking at the high voltage on the screen grid of osc #2 and think I may have that cause figured out. The grid leak resistor has aged to about 60 kohms in both oscillators (orig. 47Kohms) and is about the same in both oscillators so that doesn't account for the difference between the two oscillators. I'll probably replace these anyway. However the screen resistor in #2 is 58Kohm (68K orig) and this would tend to make the screen voltage higher than spec. In osc #2 the screen resistor has aged to 158 Kohm (82 Kohm orig.) and this would tend to make the voltage lower. I put the 6AJ5 in osc #1 and it lowered the screen there compared to the 6AK5W. The conclusion is, the 6AJ5 I have shows lower screen voltage than the 6AK5W's. I expect this difference will persist even after I replace the aged resistors which I think are the cause of the different screen voltages of the two oscillators. The 6AJ5 tube I'm using may be a poor example in making a general comparison of the two tube types since it didn't test as good as the new 6AK5W's that I'm using. Dan

From kgordon at moscow.com Mon May 2 20:35:32 2005
Subject: [R-390] Post to list

The metal covered capacitors with the glass ends are practically indestructible. Leave those alone. You may be able to read Sprague on some of them.

From chacuff at cableone.net Mon May 2 21:08:45 2005
Subject: [R-390] Post to list

Jack and List,

My experience, though limited, with the R-390 and the info I have heard from others is that cap replacement is not usually needed nor recommended. The failure rate of the caps in the R-390 is orders of magnitude lower than that of the R-390A. Even the filter caps don't seem to fail. (because they're of a different design) I have tested those filters and various electrolytic type caps and found them to be well within specs in the last two I have had through the shop...one on the bench now. I would suggest you do a spot check of several that are easy to get to and make your judgment from there. Make sure you check them at their rated voltage.

You will find it very difficult fitting Orange Drops into the places they have put the high quality bypass and coupling caps...many in snap in stainless steel brackets...

I would be more concerned about out of spec resistors...especially under the regulators, rectifiers and in various places in the audio deck. Beyond that they don't require much! Cecil.....

From chacuff at cableone.net Mon May 2 21:14:09 2005
Subject: [R-390] R390 progress 6AK5/6AJ5

I tested the 6AJ5's in an R-390 that's on the bench as part of testing all the tubes and they all three tested low...not sure they are really bad since they all tested the same....My sub book does not indicate the 6AK5 to be a substitute for the AJ...they look a lot alike though! Cecil...

From Flowertime01 at wmconnect.com Mon May 2 21:35:35 2005
Subject: [R-390] R390 progress 6AK5/6AJ5

Dan Merz, Sounds like you are making progress.

Start hanging a DC volt meter on the diode load. You are looking for -7 volts. every place the procedure says tweak and measure some point, just tweak for maximum signal on the diode load.

Put the scope away.
Hang a DC meter on the diode load.
Hang a 600 ohm 1 watt resistor on the audio output and an AC volt meter with a DB scale across the audio output and resistor.

When the BFO is on read the AC volt meter for 1/2 watt of power. The DC volt meter will peg off the DC scale with over -30 volts.

When the BFO is off read around -7 volts on the DC load.

If you have more than -7 volts (with the BFO off) back the signal drive down of reduce the DC gain in the IF deck.

Just do all you adjustments for maximum signal on the DC load. The goal is signal you can hear. The DC load is where you can hear it.

Set the receiver to CAL and the BFO off. Pick a 100 KC dial setting. Start at 31 so you can adjust the transformer and the cap for maximum signal and a single peak.

On each band roll the KC knob around for a maximum cal signal and tweak the OCS trim cap for Max peak. Just monitor the DC load and peak them out.

You need to get a signal generator on the antenna and start looking at your signal to noise. Until you see how close to the minimum 10:1 you are. How close you are to the 20:1 you should have. And how close to the 30:1 you can get, you just have no idea if the problem is a real problem or not.
How old is the receiver?
How exact is your line voltage?
How exact was the TM reference?
How exact is your meter?
How does your meter load your circuit?
How does your scope load your circuit?

Just to many questions to mix in.

Go to the bottom line. DC load voltage and Signal to noise ratio. Then anything you try either makes an improvement, makes no difference, or makes the situation worse.

Use the same test for every thing so you can at least compare the results. You will wonder for ever about voltages on grids and is the TM correct.

At least your down to the 7Mhz band. And it sounds like your narrowing in the problem. Sounds as if their are some side benefits coming out of the effort as improved performance on other bands. Roger KC6TRU

From Flowertime01 at wmconnect.com Mon May 2 21:47:03 2005
Subject: [R-390] Variacs and solas: additional thoughts

Todd Roberts asks, can using a variac possibly extend the life of the 3TF7 ballast tube?

No not likely. The best thing you can do for the 3TF7 in the circuit is to leave the receiver on forever. (Well, 24 x 7 for six months at a time.) Next best thing is to buy a spare to replace the item when it reaches the end of its useful life.

Then there are alternate life styles,
A. use 2 12BA6's. One in the BFO and one in VFO with a jumper in 3TF7.
B. Use a resistor for 3TF7
C. Use a 12 volt .3 amp tube for a 3TF7. (12BH7, 12BV7, 12BY7, 12DQ7)

Spend more time listening to the radio and less time wondering if you can afford to listen to the radio.
Cheers Roger KC6TRU

From Flowertime01 at wmconnect.com Mon May 2 21:59:33 2005
Subject: [R-390] R390 progress 6AK5/6AJ5

Cecil,

I do not even find the 6AJ5 in my RCA tube book. There could be enough difference so that in the actual R390 circuit they may not operate as well. Then again the could perform even better.

I try not to bank to much on my tube tester.

1. Put one in the R390 measure your signal to noise.
2. Swap the tube and repeat the measurement.
3. Find the best one for signal to noise and put them in the other sockets.
4. Swap the exchanged tubes into the same socket and measure them.
5. Run the best ones you find of any given tube type.

Do not bank that some tube number does not work as well as another tube number. Your small set of tubes may come from one manufacture, all be old, all be noisy all be really hot and you will never get some like them again.

From djmerz at 3-cities.com Tue May 3 02:43:51 2005
Subject: [R-390] R390 progress 6AK5/6AJ5

Roger, I like your approach. But I like to examine circuits within the radio. It helps me understand some of the whys and hows for the adjustments. I'm just about at the point to do what you are suggesting. I replaced four resistors in the two oscillator circuits, two were probably not that far out but since I had it open I replaced them and one was definitely well aged and about twice its original value.

Pretty tight quarters in those little compartments. With a couple more checks on things, I'll put it all back together and hook the switch shaft back into its coupler.

The waveforms are definitely cleaner looking now, probably mostly due to starting the alignment at 31 and going from there. I've only done 80 meters, 40 meters and 20 meters as a quick check on what I'm doing and seeing that it works ok before putting the oscill chassis back in. I'll start over once I get it all reassembled and pull out the tube extenders that I have in now. I think most of the problem I was originally having with 40 meter band was due to bad positioning of the t402 output transformer on oscill #2. I was fooled because so many of the bands seemed to be working ok. The switches in the oscillator chassis are so buried that it's hard to deox them so I didn't try. I really haven't seen any indication that these switches are dirty or are not making good contact.

The Engineering Report for the 390/389 says 6AJ5's were used in the oscillators because of their lower power requirements but the biggest discussion of the tube was the justification for using it in the 1st rf, based on other criteria for cross mod, overload and agc characteristics. I suppose there was some thinking that reducing the number of tube types might be important but I didn't see that mentioned. In the 390a, the design went to 6ak5w's for the oscillators so either the low power consideration went out the window with the demise of the 6aj5 1st rf or the 6ak5 was deemed better for other reasons. I didn't have the heart to change the resistors to match the 6ak5 design of the 390a. I'll probably look for more 6aj5's down the road. Because I just re-read this stuff, I mention it - I imagine most of you already know it. That's a pretty interesting archived report Dan.

From wa9vrh at mtco.com Tue May 3 06:55:17 2005
Subject: [R-390] CCA First Wednesday AM Night May 4th!

!!! Please note NEW TIMES for the Eastern and Central Time Zones!!!

FIRST WEDNESDAY AM NIGHT!!! Sponsored by the Collins Collectors Association.

Wednesday May 4th on 3880 kcs at 7:00 PM local East Coast time marks the start of the latest chapter of First Wednesday AM Night, drawing hundreds of vintage stations from across the country.

The event is anchored by a "tall ship" AM station in each time zone. The East Coast and Central sections will now run for 90 minutes in response to the tremendous participation in those time zones. The remaining time zones will be an hour. We encourage stations to check-in on AM using Collins and other AM transmitters, new and old. It's an opportunity to revel in this nostalgic mode, enjoy giving vintage equipment a "run," and sharing some storytelling about classic vacuum tube homebrew and commercial designs. Typically more than a hundred stations take part in the evening's coast-to-coast AM event; by the time it concludes at 10:00 PM Local PST.

LISTEN for the following anchors and stop by to say hello, won't you? You don't have to be running Collins or vintage gear to be welcomed into the group.

7:00 PM-8:30 PM Local East Coast Time Anchor: Bob W0YVA !!! Starts 30 minutes earlier for 90 minutes

7:30 PM-9:00 PM Local Central Time Anchor: Jim W0NKL !!! Starts 30 minutes earlier for 90 minutes
8:00 PM-9:00 PM Local Mountain Time Anchor: Jim WA0LSB
8:00 PM-9:00 PM Local West Coast Time Anchor: Bill N6PY comments please to wa9vrh@mtco.com

From roy.morgan at nist.gov Tue May 3 10:10:43 2005
Subject: [R-390] Post to list: Metal cased caps.

you wrote: >... I see that these types of condensors in this set are metal >covered, and look to be of very high quality (military >spec., I am sure, is reason for that).

Jack,

Do not replace them (unless one of them is actually bad). Those are metal cased, glass insulated, foil with paper and oil dielectric caps and normally last forever. (No doubt some folks on the list will tell about how they found leaky ones.)

If you do replace them, send them to me. I'll put them back into my R-390's where I take out the real troublemakers!

> Are these metal covered, numerous ones are .01, .1, .22, 1. mf, >really paper caps, as I suspect?

Yes, they are paper-foil-oil caps. One brand you may have heard of is "Vitamin Q" from Sprague. Sometimes they have a clear plastic tube over them, or a yellow covering. The giveaway is the metal case, sealed with solder, and the glass insulating end piece.

> I have replaced a >gazillion paper caps in civilian radios,

That's good. they needed it.

>Anyone know much about the quality of these metal >covered condensors,

The quality is superb.

>how smart it is to replace them,

Not smart at all. Don't do it. Roy

From roy.morgan at nist.gov Tue May 3 10:45:41 2005
Subject: [R-390] R390 progress 6AK5/6AJ5

wrote:
>Start hanging a DC volt meter on the diode load. You are looking for -7 >volts....
>Hang a 600 ohm 1 watt resistor on the audio output and an AC volt meter with >a DB scale across the audio output and resistor....
>If you have more than -7 volts (with the BFO off) back the signal drive down >or reduce the DC gain in the IF deck.

Above is a very succinct "how-to" for quick and useful results. You can't go far wrong with that, and this point may be very important: >or reduce the DC gain in the IF deck.

I suggest you set the IF gain with the procedure on Chuck's site, "Setting IF Gain for Optimum Performance":
http://www.r390a.com/index_1.htm

and specifically at:
http://www.r390a.com/html/gain.html

Two things may have been done to your radio by some dumbhead to "make it hotter":
- crank up the IF gain
- put high gain tubes in the thing instead of what should be there.

Undo them both.

Notice again Rogers suggestions on how to know what's going on in side your radio:

>Start hanging a DC volt meter on the diode load. You are looking for -7 >volts....
>Hang a 600 ohm 1 watt resistor on the audio output and an AC volt meter with >a DB scale across the audio output and resistor....

These two functions could be built into a small box: two panel meters, one for diode load voltage and one for audio output. In a well stocked junque boxe you can unearth a couple of meters of just the right scale markings and a nice slope-fronted box to mount them in. Label the thing "R-390 Series Receiver Test Boxe" Add a nice long shielded cable with spade tips on it and you can wrestle the radio around all over the bench and not knock over your meters.

(Note to self: Follow own advice. Head for Junque Boxe asap.) Roy

From n4buq at aol.com Tue May 3 11:13:07 2005
Subject: [R-390] R390 progress 6AK5/6AJ5

I have a nice, large meter from a old piece of HP test equipment (don't recall the model) that reads dB @ 600 ohms. I connected it across the line output with a diode and it reads very closely to the reading on the Line Level meter. I might have to make just such a test box. Barry - N4BUQ

From djmerz at 3-cities.com Tue May 3 12:09:07 2005
Subject: [R-390] 390 oscill. oven removal

Hi, I better correct something I mentioned about removing the oven over the 1st/2nd oscillator crystals in the 390. I think I saw what I wanted to see and ignored the facts. The oven is not held on by any screws or the standoff posts once the chassis is removed from the radio. The oven can be slipped off by just sliding it off and is held by the friction of some thin flat spring shims under the oven edge. The four stand-off posts that butt against the radio sidewall stay with the oven when it's removed and don't hold it on, as I mistakenly reported. It was quite snug and I was so sure that it was held by these posts that I didn't notice that the studs went right along with the oven when I removed it !!! Later when I "secured" it back on and then noticed it was loose when I was working on the circuitry, I realized that the posts had nothing to do with securing it out of the radio. When installed in the radio the phenolic posts do keep the oven from moving. One more example of how preconceived ideas have a life of their own, at least in my case, Dan.

From Flowertime01 at wmconnect.com Tue May 3 19:11:35 2005
Subject: [R-390] R390 progress 6AK5/6AJ5

Dan,

Your talking about the 6AK5 vs the 6AJ5. There are so many differences between the R390 and the R390/A. As we look back on the history of the receivers we wonder what was driving the design. We do speculate and have created a few dead horses along the way.

Sure is nice to hear you are making progress. Mostly you are doing what you want to do and enjoying it. That what's supposed to happen. Keep the solder flowing. Roger KC6TRU

From odyslim at comcast.net Tue May 3 19:22:49 2005
Subject: [R-390] Wanted to Trade

I am in need of about 50 IERC 6020-B black tube shields. My radios either have the chrome ones or none at all. I could also use 5020-B's and 6025-B's.

I have thousands and thousands of NOS tubes. All for Collins gear. Anyone willing to make a swap?? Scott W3CV

From DCrespy at aol.com Tue May 3 21:33:07 2005
Subject: [R-390] Meters and Radium-226

Not too far off topic, I hope. From the AVweb web site. (Wonder if they have any R-390/390A meters?) Harry KG5LO Saline MI

Hazardous Instruments Keep Pilots From Planes

At least 12 aircraft owners at Chino Airport in California have been unable to get to their airplanes for more than a month because of their neighbor's hobby of collecting luminescent dialed instruments. San Bernardino County officials say there are enough old airplane instruments painted with radium-226 inside two hangars occupied by Preservation Aviation Inc. to create a radiation hazard. Since March 10, authorities have barred access to neighboring hangars. Airport manager James Jenkins told the Daily Bulletin that the neighboring aircraft are not contaminated but the area around them is off-limits. The county estimates it will cost more than $200,000 to collect all the instruments and dispose of them safely. Because the county owns one of the hangars and the land under the other, it will undertake the cleanup but will be looking to get the money back from Preservation Aviation owner Jeff Pearson, who wasn't available to comment. This is the second time the company has been at the center of a radiation scare. The Chino investigation stemmed from the Environmental Protection Agency's 2004 probe of a North Hollywood warehouse in which Preservation Aviation stored thousands of radium-containing instruments. Radiation levels in that warehouse were 100 times greater than normal. The Los Angeles Daily News reported at the time that the cost of that cleanup was $7 million.

From djmerz at 3-cities.com Wed May 4 01:44:25 2005
Subject: [R-390] R390 progress

Roger, others, thanks for all the ongoing help/suggestions. I finally put the oscillator chassis back together and back in the set. It didn't take long to tweak the various bands with the trimmers and all bands are working. I've had the radio on for about 8 hours and still going strong - very stable beast. It survived being around all the dead horses and seemed to like it.

I think it has better audio than the 390a before I put the audio chassis mod in. 20/40 and 80 meters were pretty busy at various times today. I even heard one guy on 160 mention my home town, Wasco, CA which doesn't get much press outside of the Central Valley. So it's a good radio. I see what Roy meant about the heat out the side where the 6082's reside. It's probably around 100 to 120 F judging by the touch. I have it setting on some narrow sticks of wood with about a 1 inch gap underneath right now. I'll take a look at Roy's fan arrangement and consider that. I haven't replaced a single cap in it but I noticed earlier that some of the caps in the audio chassis had been previously replaced. I didn't look at the circuitry close enough to tell if other changes had been made but the tube line-up is original types, except for the sub of 12BW4's for the 25Z5's and 12BH7 for the ballast tube, which I did. I'll listen to it for a while before tweaking it more.

One of the annoying features of the manual I downloaded from Logsa was the overall schematic which I have trouble printing into a good size. It's ok using it on the computer but that's not always the handiest way. I mostly worked with the individual sections and printed these out. I noted that there was a 185 Mb file TM-11-856 archived that claimed to have all the schematics on a site called jamminpower. I could get that when I visit my son-in-law with his high speed connection if it's worth the effort. Does anyone have a favorite/good method to obtain and print out the r390 non-a schematic? Dan

From roy.morgan at nist.gov Wed May 4 10:05:04 2005
Subject: [R-390] R390 progress

wrote: >I'll take a look at Roy's fan arrangement and consider that.

Dan, I plan to post some pictures of the thing later today. Stay tuned, so to speak. heheh Roy

From mbalaw at optonline.net Wed May 4 09:01:57 2005
Subject: [R-390] R-390 Progress - Schematic

Re: Your problem in printing a large schematic.

LOGSA uses the Adobe Acrobat (*.PDF) file format, Download the latest version of Acrobat Reader (7.0) from the Adobe website -- free.

Go to the page with the schematic.
Click the "select" button on the toolbar (camera icon).
Press the left mouse button and use the cursor to draw a box around a part of the schematic.

Open the "File" "Print" dialog box.
In the "Print Range" check "Selected Graphic."
For "Page Scaling" select "Fit to printer margins"
In "Page Handling" select "Auto rotate and center"
Then press OK in the print dialog box.

The result will be to enlarge the selected part of the schematic.

Repeat the process for the rest of the schematic and poaste the pages together. Miles Anderson, K2CBY Sag Harbor, NY

From wak9 at cornell.edu Wed May 4 12:31:16 2005
Subject: [R-390] R390a IF Alignment

What preference do some of you folks have on stagger-tuned IF vs all tuned for 455 kc? I've done it both ways, and my latest run through the unit was 455kc all the way. Seems like I get more interference from strong adjacent stations when tuned this way. I can still go to 2kc filter and tune one side or the other for better audio, depending on which side the interfering station is. I'm just wondering what other folks have found from their experience. Thanks, Bill

From roy.morgan at nist.gov Wed May 4 12:48:32 2005
Subject: [R-390] R-390/URR FanPlate

wrote: >>I'll take a look at Roy's fan arrangement and consider that.

R-390/URR owners, I have posted a little web page showing the aluminum fan plate I use on my R-390/URR (the "non-A"). The link is: <http://home.comcast.net/~roysmorgan/ba/FanPlate.html> Cooler radios to you all! Roy

From chacuff at cableone.net Wed May 4 08:23:10 2005
Subject: [R-390] Meters and Radium-226

What's so expensive about boxing them up while wearing a protective suit and dumping them in the ocean. That's what was done with the R-390A meters as I understand it...and I'll bet the military guys didn't have the suits. Cecil..

From rbethman at comcast.net Wed May 4 13:31:24 2005
Subject: [R-390] Meters and Radium-226

Simple. NOW, EPA has much "stricter" rules and regulation. California has their "own" set of environmental rules and regulations that ADD to the Federal ones.

When "Uncle" did "their" thing, times WERE different. A whole lot of things were deep sixed.

Uncle STILL deep sixes things today, BUT not those of obvious environmental sensitivity.

My T-213, a depot re-done BC-610 in 1959, was destined to go aboard a ship and be tossed over board. This was in lieu of putting into DRMO for sale as surplus. The base was closing, and these were found in a warehouse. "Times they are a changin' ". Bob - N0DGN

From rbethman at comcast.net Wed May 4 13:36:56 2005
Subject: [R-390] R-390/URR FanPlate

Roy and the group,

I agree with putting a "sand" resistor in series with the power lead to the fan. I've done "similar" installations with other tube radios. The slower speed does not reduce the cooling effects. It DOES make things less noisy and reduces the vibration aspects. Good on ya Roy!

A good suggestion for ANY old BA! Bob - N0DGN

From roy.morgan at nist.gov Wed May 4 13:54:46 2005
Subject: [R-390] HP 524 Counter: Anyone using one?

Anchorites,

Is anyone still using an HP 524 frequency counter? that's the cubical shaped monster with nixie's or neon lamps for each digit.

I recently got a few counter/divider modules I am pretty sure came from one of these (no tubes) and I'd like to find someone who is actually still using one. I have one of these things back in New England at the homestead, but I expect to never use it again. Roy

From n4buq at aol.com Wed May 4 13:58:32 2005
Subject: [R-390] Meters and Radium-226

It isn't the cleanup; it's the paperwork. Barry - N4BUQ

From dmetz at ntelos.net Wed May 4 14:01:46 2005
Subject: [R-390] R-390/URR FanPlate

Great idea, I used a 220v muffin fan and run it on 115v and you cannot hear it but it still keeps thing cool! No resistors or caps that way and it's been running for years with no problem. dave

From muelleram at harbornet.com Wed May 4 15:39:22 2005
Subject: [R-390] R-390 cooling

Hello Roy, With your fan for 6082's in 390 : do you blow cool air on tubes or extract hot air from them? Monte

From djmerz at 3-cities.com Wed May 4 16:17:00 2005
Subject: [R-390] R-390 Progress - Schematic

Hi, I am using A.A. I wasn't familiar with the technique of putting a box around the area that I wanted to print and using "selected graphic", thanks for pointing this out to me. When selecting different parts sequentially and printing, how to you get the scale to come out the same on all the print jobs if you're fitting it to the page? I'll give it a try, maybe it's obvious. Thanks, Dan.

From roy.morgan at nist.gov Wed May 4 16:31:24 2005
Subject: [R-390] R-390 Progress - Schematic

wrote: >... When selecting different parts sequentially >and printing, how to you get the scale to come out the same on all the >print jobs if you're fitting it to the page?

Dan, In the step 'For "Page Scaling" select "Fit to printer margins"' you may have a choice something like "Original size" or some such..

> I'll give it a try, maybe >it's obvious.

Not necessarily obvious heheh

I have just extracted the schematics only from TM_11-5820-357-35 into a separate PDF file.. it's jus under a megabyte. I can email it to you, or post it on my (small) website for you to download.
Roy

From roy.morgan at nist.gov Wed May 4 16:49:22 2005
Subject: [R-390] R-390 Progress - Schematic

wrote: >...how to you get the scale to come out the same on all the >print jobs if you're fitting it to the page?

Dan and others:

I've just put the schematics only from the manual found on the Andy Moorer's web site (jaminpower...) on my web site: http://home.comcast.net/~roysmorgan/

Go have a look and see if these pages work for you. .each page is 8-1/2 by 11 and should print more or less to match lines up. Roy

From jsullivan10512000 at yahoo.com Wed May 4 17:25:11 2005
Subject: [R-390] Post to List

For R-390 (non "A"), I just saw old original data sheet from MARS, showing, among other things, changing to ham type antenna connectors, suggesting removing the break-in relay at the back of the antenna connedector box. This relay, when set is on break, grounds all three of the antenna teminals. I think it best to keep this relay, so terminals are grounded during break times when transmitting. Am I wrong, and is the relay really needed for ham use?

From ghayward at uoguelph.ca Wed May 4 17:41:12 2005
Subject: [R-390] R-390/URR FanPlate

>I agree with putting a "sand" resistor in series with the power lead to the fan. I've done "similar" installations with other tube radios. The slower speed does not reduce the cooling effects. It DOES make things less noisy and reduces the vibration aspects.

I used a capacitor (a few uF at lots of volts) in place of the resistor. Worked well and didn't get hot (imaginary "Wattless" power and all that stuff). Now I just use 240 volt fans and get the same result.
Cheers, Gord, VE3EOS

From tetrode at comcast.net Wed May 4 18:39:54 2005
Subject: [R-390] Post to List

Hi Jack, that must be the "R390 Cookbook" in the FAQ site your referring to.

That thing pisses me off, it should be renamed "How to Butcher An R390" as it has some bad mods in there. All he was doing was eviscerating the ant relay box so that SO-239 connectors could be installed in place of the original antenna input connectors which he didn't like.

There's nothing official at all about that document except for the fact that it was typed on MARS stationary. Fortunately the R-390s I've seen come from MARS had none of those mods.

I like the fact that the RX input gets disconnected from the ANT contacts during Standby or break-in; it protects the input coils from mishaps and prevents the AGC from getting clobbered by the loud TX signal which it would then need to recover from when switching back to receive.

BTW, when posting to this list you don't need to put Post to List in the subject line, the posting happens automatically when you send the email, so just use whatever subject you want. 73, John

From mjmurphy45 at comcast.net Wed May 4 19:20:26 2005
Subject: [R-390] R-390/URR FanPlate

Another way to slow down the fan is to put a ballast tube in series with it. We know a lot about them. Mike WB2UID

From W1RC at Verizon.net Wed May 4 21:09:39 2005
Subject: [R-390] FS: R-390A RF Deck, Complete w/tubes, etc.

Hi Gang:

I am thinning out the garage because there's far too much stuff in there. I can't move around so here's another treasure I've been hanging onto in case I needed it but didn't.

It is a very nice R-390A RF Deck, made by Stewart Warner. It is complete with tubes, the crystal, etc except for the digital frequency readout and I believe the tube shields which are missing. The coaxial cables have the connectors, etc. so if you need a spare to replace an inoperative deck while you service it this one should do fine. I never tested it but the fellow I got it from told me he removed it from a working radio he was parting out because he wanted the mechanical filters. (That was a long time ago; no one parts out R-390As anymore).

The gear action is very smooth and everything looks to be in order. I am asking $110.00 plus shipping for it. If interested please reply by e-mail. 73, Michael, W1RC

From djmerz at 3-cities.com Wed May 4 21:43:52 2005
Subject: [R-390] R-390 Progress - Schematic

Roy, the problem with original size with the pdf I downloaded is it's too small to see anything in detail when printing to original size, like read a number. I think I'm working with the same pdf file you have if

you got it from logsa. I'll take a look at what you put on the website and see if that helps, Dan.

From djmerz at 3-cities.com Wed May 4 22:00:36 2005
Subject: [R-390] R-390 Progress - Schematic

Roy, worked like a charm. I printed two pages and they looked to match up ok. This was the scale that I was trying to reach on the version that I had but couldn't figure out how to do it easily. I'll put the file on a disk and print the whole thing on wife's laser printer, which is quicker and a little better than my vintage inkjet. Then I can make a wall mural out of it, hi. Thanks, Dan.

From djmerz at 3-cities.com Wed May 4 22:04:13 2005
Subject: [R-390] R-390/URR FanPlate

Hi, will a 3tf7 work or should I use a 12BH7? If this is a dead horse with fans then this group has discussed a lot more than I thought possible. Waiting with a deaf ear, Dan

From Flowertime01 at wmconnect.com Wed May 4 23:08:10 2005
Subject: [R-390] Wanted to Trade

Scott, You may not need that many shields. Recommendations were to shield the RF, 1st, 2nd, 3rd mixers, VFO, BFO. Just the RF mixers and Osc need shields. Recommendations were to uncover every thing else.

We know the good shields will run cooler than the plain cans. I do not know if the good shields will actually get you a cooler glass bulb temperature than no shield with ventilation being the same. So it still may be best to run most of the tubes naked.

Just because we used those crummy old shields is not reason to continue. We put in better caps today, so why not better shields. Round up as many as you can. One never has enough spare parts.
Roger KC6TRU

From barry at hausernet.com Wed May 4 23:08:46 2005
Subject: [R-390] R-390/URR FanPlate

Either one -- take your pick. Simply drill a small hole in the glass, fill with lead beads or sand, depending on state restrictions.

Bend 3 of the pins on the ballast into loops and attach fishing line appropriate boy scout slip knots, then wind 3 1/2 turns around the hub of the fan. Tie off free end of the line to a newly installed stainless steel boat cleat fastened to the wall with a suitable lag bolts at least 6 inches long to allow for threads to clear wall in next room for the nuts. Allow ballast to hang approx. 2 ft below level of receiver but at least 18 inches from the floor. (Use a pulley if necessary to clear any obstructions.) The friction should slow the fan down sufficiently. If too slow, use some neatsfoot oil or talc. If too fast, increase number of windings.
That'll do it. yup .. Or you could use a baseball or playing card and a clothespin. Of course, that doesn't exactly reduce the noise, I guess. OK, then whatcha do is get a 220 volt fan and .... Barry

From N4BUQ at aol.com Wed May 4 23:28:30 2005
Subject: [R-390] R-390/URR FanPlate

Not only will the ballast tube slow it down, but it will keep it at a constant speed and with a constant draft, the oscillators will be more stable. Makes perfect sense. Barry - N4BUQ

From Flowertime01 at wmconnect.com Wed May 4 23:28:24 2005
Subject: [R-390] Meters and Radium-226

You can still send via unmarked UPS, mail or Fed Ex any glowing meters you have to me here in South Carolina.

I am a well trained (by Federal Government) former defense contractor employee who knows how to collect and store these meters without them becoming a hazardous site. So many bureaucrats wasting our tax dollars and miss reading there own regulations.

If you are worried about your glow in the dark meters, and wish to have them properly disposed of for only your shipping cost, send me a E-mail. Roger KC6TRU

From djmerz at 3-cities.com Wed May 4 23:33:43 2005
Subject: [R-390] R-390 Progress - Schematic

Roy, I must have something better to do ! I printed it out, taped it together. It's 76 inches wide but the two halves shown as separate schematics in the manual don't mate so well, so it's really only 36 inches wide and two high. It's what I was looking for, much thanks. Dan.

From brumac at juno.com Wed May 4 23:32:38 2005
Subject: [R-390] R-390/URR FanPlate

Barry, That is the old tried and true method! I found that 36 lb test Berkley monofilament works the best for me. What is your experience with the fishing line? Bruce

From Flowertime01 at wmconnect.com Thu May 5 00:08:00 2005
Subject: [R-390] Post to List (Antenna Relay)

I think it best to keep this relay, so terminals are grounded during break times when transmitting. Am I wrong, and is the relay really needed for ham use? jsullivan

Most fellows using R390 or R390/A for Ham use are also running a transmitter. The relay gets used for break-in operation.

Some fellows have TR switches, but these can bleed RF through, so having the antenna get grounded is good. Some of the TR switches just swap the antenna via relay between trans and receive. Some just cut the receiver signal off by driving a tube or transistor into cut off. Some TR switches actually ground the break-in circuit on the R390's and use the antenna relay to ground the receiver input. Of course in these circuits you cannot also feed the whole transmitter output into the R390 input, some other

switching action has to occur.

The receivers offer a single ended coax for input. The better balance input is just a Twinax IBM network type cable. The connectors and coax are very available. The Receivers also were operated with an adapter from twinax to grounded one side and single center conductor coax feed. Any of these work real good. Just Chuck Ripple's R390 Page. http://www.r390a.com/html/history.htm

As Les keeps it going.

Chuck did a how to hook any wire to the input of an R390. Its been working for fellows for a long time. No need to hack the antenna input on any receiver. Roger KC6TRU

From Flowertime01 at wmconnect.com Thu May 5 00:16:55 2005
Subject: [R-390] R-390 Progress - Schematic

Then I can make a wall mural out of it, hi. Thanks, Dan. Like cool dude. Roger KC6TRU

From Flowertime01 at wmconnect.com Thu May 5 00:24:28 2005
Subject: [R-390] R-390/URR FanPlate

Hi, will a 3tf7 work or should I use a 12BH7?

Dan, If you have a 3FT7 just laying around, offer it up here to a needing soul. Use the proceeds to buy some resistive sand.

There are ways to reduce fan speed without generating more heat. AC fans can use triacs. However you need to watch out for switching noise. DC fans can use pulse width modulated power.

Resistors do work OK. A 3FT7 as a fan resistor would not be cool. (Pun Intended)

From djmerz at 3-cities.com Thu May 5 02:04:49 2005
Subject: [R-390] Email transit time/slow electrons?

Hi, I'm sure there's a reason - is it that some electrons are slower than others? I sent mail post at 7:01 pm and it was posted and back to me at 9:29 pm. I sent mail post at 8:34 pm and it was posted and back to me at 8:34 pm within the minute. Is this somewhat random depending on pathway and some kind of blockage? This is first time I've noticed this reversal of times happen. I never looked into the protocol or process for email going from point A to point B - I know it involves phone lines and at least one storage event on the receiving end. Was my delayed message just going around and around or was it more likely just waiting on traffic somewhere? Multiple skip until it hit the right port? R390, Dan.

From rbethman at comcast.net Thu May 5 04:14:25 2005
Subject: [R-390] Email transit time/slow electrons?

Dan,

It is a very convoluted traffic path.

YOUR ISPs mail server has delays inherent as to the traffic as the moment, the path to the next server is dependent on traffic load, AND the overall network connections are dependent on the current traffic load.
There is NO way to predict what the loads are at a given time.

I used to work at the funny Five-Sided building, located in VA, with a snail mail address of DC. For three years we saw the same issues that you do. We could never figure out the delays either.

There are times when you can predict traffic load to some extent.

1) When folks first come to work - They check and reply/forward Emails.

2) Lunch time - Folks have a spike in the load.

3) the last hour of the day - There is another spike in the load.

4) when folks get home - another LONGER spike in the load.

Now add the time zones into this and you can SORT of get an idea how traffic will be impacted and flow or not.

BTW - That five-sided building has at LEAST 70,000 email accounts that the "Backbone" servers handle. Bob - N0DGN

From rbethman at comcast.net Thu May 5 04:24:10 2005
Subject: [R-390] Post to List (Antenna Relay)

KEEP THE ANTENNA RELAY PACKAGE!

I use a Johnson T/T SW, the R-390A is sensitive enough to pick up what is neing transmitted.

Lord, I've had it on the bench with the antenna disconected, and had a HAM a half mile away key up and come booming through the audio output! You WILL get reception on the RCVR IF you don't use the break-in! Bob - N0DGN

From ham at cq.nu Thu May 5 07:31:51 2005
Subject: [R-390] Wanted to Trade

Hi, You could always liquid cool the tubes. That would keep the glass and seals at a nice constant temperature.

There is reason to believe that reducing the temperature of the glass to metal seals at the base of the tube has an affect on the long term performance of the seals. If you have tubes mainly failing due to gas then this is something to be concerned about. The tube socket probably heat sinks this end of the tube pretty well.

At the temperatures you find in a receiving tube the temperature of the glass envelope by it's self doesn't have much of an affect. If you get the temperature up a lot higher the envelope will have some problems.

If we start to see tubes collapsing in use then this is one to worry about. I have seen pictures of transmitting tubes that have failed this way.

The real question is what makes receiving tubes fail. Transmitting tubes have been studied quite a bit. Audio power tubes and rectifiers have been studied to a lesser extent. Low power / small signal tubes have only been studied in a fairly cursory way. You can look at it as tubes are tubes, but we don't stress them all the same way. Plates and grids in receiving tubes simply do not heat up the same way they do in power tubes. Filament power is the main source of heat in a normal receiving tube.

Cooling tubes down helps reduce the temperature of things like plates and grids. Cooling also helps seals. I doubt that external cooling has any big affect on the filament. Most receiving tubes I have seen go bad die from filament related issues. Some simply do the light bulb thing and stop glowing. Others get to the point that cathode emission drops below the level needed to keep working. Certainly things like shorted grids do occur, but they are not very common.

If what I swap out here is any indication emission is the main (> 80%) issue for dead receiving tubes. Open filaments make up almost all of the rest. I can probably count the number of receiving tubes I have seen fail for other issues without taking off my shoes.

Black tube shields look cool. That alone is a good reason to use them. They definitely cool down the tube (though the radio is just as hot). Cooler is always better. They sometimes are easier to get on and off - never a bad thing. Given the way we use the radios these days I would not put them in the same category as the capacitors. They are a nice thing to swap out, and the radio is better with black shields. I don't think the radios are enough better with black shields to run out and spend hundreds of dollars re-shielding all our radios to make them work better. Take Care Bob Camp KB8TQ

From odyslim at comcast.net Thu May 5 07:51:56 2005
Subject: [R-390] Wanted to Trade

Good Point Bob,

Now I wonder which should have black shields. I have noticed some tubes in the radio get hotter than others. I do know for a fact the 26Z5's need them. The 3TF7 needs one. I have touched some in the IF that could cook an egg. I also know if tubes cool off to quickly they will fail. Scott W3CV

From barry at hausernet.com Thu May 5 08:52:52 2005
Subject: [R-390] Email transit time/slow electrons?

Appears sometimes to be more of a case of sticky electrons. Yesterday, my colleague in Chicago sent me (NY area) an email with a small attachment and marked it "priority". Ordinarily, that has nothing to do anything -- just puts a mark alongside the header listing so it stands out. Didn't come through. Called him -- he re-sent it 10 mins. later without the priority marker and it came through immediately. The original showed up about 3 hours later. At another point in the day he sent several test emails with and without the priority mark and with various subject lines. All came through almost instantly.

I guess it's like the postal system when a piece of mail gets lost for a while. But we had a paranoid moment there -- thinking the priority marker was like putting "Fragile!" on a package -- begging to be bashed by those of evil intent.

Actually, it's more analogous to a hanging slug rack in an R-390A. Sometimes it may work fine, sometimes it gets stuck for bit and then drops down. That's what it is -- some internet servers have hanging slug racks!

Y'see -- everything can be explained in terms of 390 technology. Barry

From roy.morgan at nist.gov Thu May 5 09:43:45 2005
Subject: [R-390] R-390 Progress - Schematic

wrote: >Then I can make a wall mural out of it, hi. Thanks, Dan.

Dan reports that the wall mural is 76 incehs wide. This indicates the breadth of his expertise in the radio. He must be very smart. Now, where is my scotch tape... Roy

From n4buq at aol.com Thu May 5 10:14:13 2005
Subject: [R-390] Should this work?

Working on the "new" R390A. I have it mostly back together (at least enough to run some tests). I tested everything except the RF deck by substituting the modules into my working radio and everything I tested checked out functional.

When I powered up the radio, I got nothing on the audio except a small hum when the volume is turned up to 100%. I didn't figure on hearing anything in the way or radio signals since the RF deck is in complete need of an alignment, but I did expect to hear some noise.

I injected the audio signal generator into pin 7 of the plug that connects the IF deck (P112) and was able to get good audio on both line and local.

I then decided to take the IF output from the working radio's RF deck (with the radio tuned to a good strong station) and plug it into the input of the IF deck on the radio under test. Since I had checked the IF deck by substituting it into the working radio and it does work there, I figured I should get some signals that way. Still nothing.

Is this a valid thing to try? I realize the IF deck still needs a touchup for alignment, but it should be close enough to hear something through the chain. It worked when I substituted it into the working radio a few weeks ago so I assume it should still be working. Unless something has broken since then (and I'll try substituting it again to make sure), I would think this should produce some signals. No?
Thanks, Barry - N4BUQ

From roy.morgan at nist.gov Thu May 5 10:42:43 2005
Subject: [R-390] Should this work?

wrote: >I then decided to take the IF output from the working radio's RF deck (with >the radio tuned to a good strong station) and plug it into the input of the >IF deck on the radio under test.

Barry, Good idea. Does the non-working radio show any RF signal level on the meter? Probably not. It sounds like your RF deck is not putting out any signal(s),

Have you put some 455 kc signal into the INput of the IF deck? Try that next.

Then run some signals into the test points on the RF deck. Start just before the last mixer and work forwards toward the antenna. (use a capacitor to couple the signal in, there are likely dc grid voltages at some points.)

I wish I had a little table of frequencies to share but I have not made one up yet. We need a troubleshooting aid like this: frequencies and normal voltages all along the RF and IF chain, by receive band and frequency. The manual IF gain setting procedure gives you a number for the IF input voltage.

You may have a broken wire in the cable feeding B+ to the RF deck or some other place.. test for B+ at a plate pin of both if deck and rf deck.

>Is this a valid thing to try?

Yes, you did good. First see if the input of the IF deck gives you signals.. 455 kc in (at maybe 200 mv ?) Then, move towards the input of the radio with test signals.

I have at least two radios with dead RF decks. A likely culpret is a shorted screen bypass cap, or open screen resistor. Roy

From n4buq at aol.com Thu May 5 11:01:45 2005
Subject: [R-390] Should this work?

> >I then decided to take the IF output from the working radio's RF deck (with > >the radio tuned to a good strong station) and plug it into the input of the > >IF deck on the radio under test.

> Good idea. Does the non-working radio show any RF signal level on the > meter? Probably not. It sounds like your RF deck is not putting out any > signal(s),

The meters aren't installed. I'm still refinishing those. ("Meters? We don't need no steeenkin' meters!")

> Have you put some 455 kc signal into the INput of the IF deck? Try that next.

That's what I was trying to do with the cable from the working RF deck. Perhaps I need to try it using a signal generator?

> Then run some signals into the test points on the RF deck. Start just before the last mixer and work forwards toward the antenna. (use a capacitor to couple the signal in, there are likely dc grid voltages at some points.)

I figure if I'm not getting signals through the IF deck by injecting a signal into the input, going further up the RF chain won't help, will it?

> I wish I had a little table of frequencies to share but I have not made one > up yet. We need a troubleshooting aid like this: frequencies and normal > voltages all along the RF and IF chain, by receive band and frequency. The > manual IF gain setting procedure gives you a number for the IF input voltage.
> You may have a broken wire in the cable feeding B+ to the RF deck or some > other place.. test for B+ at a plate pin of both if deck and rf deck.

I'm wondering if I have a broken wire in the harness. Given the tests I've performed, that seems the logical thing to look for.

> >Is this a valid thing to try?

> Yes, you did good. First see if the input of the IF deck gives you signals.. 455 kc in (at maybe 200 mv ?) Then, move towards the input of the radio with test signals.
>
> I have at least two radios with dead RF decks. A likely culpret is a > shorted screen bypass cap, or open screen resistor. > > Roy

Thanks, Barry - N4BUQ

From n4buq at aol.com Thu May 5 11:30:48 2005
Subject: [R-390] Should this work?

By the way, I am getting 151v at the official 150v test point on the IF deck. Barry - N4BUQ

From tetrode at comcast.net Thu May 5 11:57:40 2005
Subject: [R-390] Should this work?

Yeah, you should of heard something. Even with no input to the IF deck I think you can still hear the noise spectrum change when the IF bandwidth is changed around.

Since that IF module tested OK it sounds like a wiring problem. The audio path is somewhat twisted - out to the Diode Load (is the jumper there?) - back into and out of the Noise limiter circuit and front panel control - and then to the audio deck. John

From n4buq at aol.com Thu May 5 12:14:54 2005
Subject: [R-390] Should this work?

Hmmm. I just realized something. Without the meters in place, C101 isn't grounded (limiter circuit). Perhaps that's why the thing isn't working? I'll have to ground that tonight and see if it makes a difference. Barry - N4BUQ

From David_Wise at Phoenix.com Thu May 5 12:57:45 2005
Subject: [R-390] Wanted to Trade

IERC and similar shields will take the bulb temperature well below naked. FWIW, Dave Wise

From JMILLER1706 at cfl.rr.com Thu May 5 13:21:44 2005
Subject: [R-390] Should this work?

Is the diode load jumper missing in the back? Getting voltage there? Bad gain pot? JM

From David_Wise at Phoenix.com Thu May 5 13:29:43 2005
Subject: [R-390] Should this work?

(Three-fuse versions only) F103 burnt out will kill most of the RF-IF B+ while keeping the 0A2 alight. Dave Wise

From n4buq at aol.com Thu May 5 14:23:50 2005
Subject: [R-390] Should this work?

I think you may have the answer. I grounded the point I was talking about earlier and that didn't help. It grounds more than just the capacitor, but it still didn't help.

I put a tube extender on V509 and checked plate voltage at pin 6. There should be185V there and I'm getting a small negative voltage (< 1v). Probably either a blown fuse or a bad wire in the harness. Didn't have time to explore any further on my lunch break, but I assume I'll find this pretty quickly tonight. Thanks, guys! Barry - N4BUQ

From tetrode at comcast.net Thu May 5 14:26:53 2005
Subject: [R-390] Should this work?

Doubtful, that circuit is usually grounded anyway through the shielded cable connections to the limiter control. John

From redmenaced at yahoo.com Thu May 5 20:39:17 2005
Subject: [R-390] Post to List (Antenna Relay)

wrote: > KEEP THE ANTENNA RELAY PACKAGE!
>
> I use a Johnson T/T SW, the R-390A is sensitive > enough to pick up what is neing transmitted.
+++++++++
Even if you DO use the break-in feature you should turn the RF gain down, I still show a half-scale signal on mine when transmitting with the T-368. Joe

From Flowertime01 at wmconnect.com Thu May 5 22:05:26 2005
Subject: [R-390] Wanted to Trade

ERC and similar shields will take the bulb temperature well below naked. FWIW, Dave Wise
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That being the case, Lets get all these fire bottles dressed properly. Cool is good. Roger KC6TRU

From Flowertime01 at wmconnect.com Thu May 5 22:32:47 2005
Subject: [R-390] Post to List (Antenna Relay)

Even if you DO use the break-in feature you should turn the RF gain down, I still show a half-scale signal on mine when transmitting with the T-368. Joe

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Joe, You must be doing something right. The power that escapes from the finals of a T-368 lights neon lamps at a 1/2 mile. If you only have a 1/2 scale reading, you must have a very well behaved transmitter. Roger KC6TRU

From N4BUQ at aol.com Thu May 5 23:19:21 2005
Subject: [R-390] Should this work? YESSSS!

The B+ fuse was blown. I thought I had checked it, but maybe not. I didn't have a 1/8A fuse, so I put the trusty amp meter across it set to the 120mA scale and brought it up on the variac in the standby position. It drew about 5 to 10 mA in standby and about 70 to 80 mA in AGC position. Yeah, I know that when I switched from standby to AGC, there was a chance of it suddenly drawing a lot of current through the meter, but I took my chances. My Motorola is a 1-fuser, so I guess I wasn't too particularly worried.

I then took the IF output of the working receiver's RF deck and fed it to the IF input of the "new" radio. It worked great! Even with my "golden screwdriver" action on the IF deck, it still is aligned close enough to get a good, clear audio path through it. (Yes, I plan to align it too, but not quite ready yet).

Next, I switched to the CAL position and ran the PTO down to the nearest 100kc position (I don't have the Oldham coupler installed yet), and I was able to hear a weak calibration signal! I was kind of surprised to hear anything because I played "musical slugs and slug racks" when I rebuilt the RF deck. Granted, it hears nothing in the way of a signal all the way through the RF chain, but that's expected.

A little more mechanical stuff to assemble and I'll be ready for a full alignment. The weekend is coming up and I don't have much of anything else on the schedule so I know I'm going to enjoy it. This is just too much FUN! Barry - N4BUQ

From llgpt at aol.com Thu May 5 23:56:02 2005
Subject: [R-390] Post to List (Antenna Relay)

Well, Joe does glow from time to time..... Les

From fev at ciudad.com.ar Fri May 6 06:30:28 2005
Subject: [R-390] FS: R-390A RF Deck, Complete w/tubes, etc.

Hi Michael, I am interested in your RF deck. I could not send you a email direct I dont know why. Please if you have still the rf deck try to send me a email. Thanks, francisco

From n4buq at aol.com Fri May 6 09:36:32 2005
Subject: [R-390] Filter cap temperature

While tinkering with the "new" R390A last night, I noticed that C603 is getting slightly warm. The other cap is cold. Is this possible an indication of low ESR? Do these old caps generally leak a bit or should I be concerned? I hadn't planned on replacing them as they seem to be working, but if they're going to blow, then I'd rather go ahead and replace/rebuild them. Thanks, Barry - N4BUQ

From chacuff at cableone.net Fri May 6 10:29:18 2005
Subject: [R-390] Filter cap temperature

I think a rebuild is a standard thing with the "A". I have several in the shop and everyone I have checked had excessive leakage.

I would do the rebuild. There are several ways to go...caps under the chassis, caps in octal socketed square relay housings or the traditional cap overhaul where you cut the things open and replace the guts. I am about half way through that process with a pair of mine but have had to put it on the back burner for a few weeks while I finish another project up! Cecil...

From n4buq at aol.com Fri May 6 10:56:18 2005
Subject: [R-390] Filter cap temperature

I did "caps in an octal socket" for my Motorola. It works nicely, but I don't really see that much advantage to having them "plug-n-play". I'm thinking of doing what I saw someone else do. Using axial-lead caps, run the positive lead through the appropriate hole in the socket and solder underneath. Gather the negative leads together, solder them to a ground lug and attach the ground lug to the standoff where the original cap clamp attached. I thought that was a pretty neat solution. Digging out ukkumpucky gets old. Barry - N4BUQ

From levyfiles at att.net Fri May 6 11:23:45 2005
Subject: [R-390] Filter cap temperature

The difference between men and woman, as those of us with wives will attest, is that we like to make it work and they like to make it pretty. I believe in throwing away the can and hanging new caps anyway that works. I am not taking this "dog" to the "dog show" nor trying to impress anyone about how cool I am. The bottom line is the noise floor and the sensitivity of the beast not how pretty it looks! my 2 cents. Bill N2WL

From roy.morgan at nist.gov Fri May 6 11:32:27 2005
Subject: [R-390] Filter cap temperature

wrote: >While tinkering with the "new" R390A last night, I noticed that C603 is >getting slightly warm. The other cap is cold. Is this possible an >indication of low ESR?

Barry, Most likely that cap is leaking more than it should.

"ESR" stands for Effective Series Resistance. A capacitor behaves as if it has an ideal capacitor in series with a resistance. I good cap will have low ESR. A cap designed for switching power supply duty where the ac current through the cap is very high, will have an even lower ESR.

If C603 is the first one after the rectifiers, then it will have experienced higher ac ripple all it's life and may be tired by now.

> Do these old caps generally leak a bit or should I >be concerned?

Many of them leak. If they are leaking, you should be concerned.

> I hadn't planned on replacing them as they seem to be >working, but if they're going to blow, then I'd rather go ahead and >replace/rebuild them.

Try rebuilding the one that gets hot first. Measure the leakage on it first. Roy

From tetrode at comcast.net Fri May 6 11:43:30 2005
Subject: [R-390] Filter cap temperature

There's hot audio output tubes running right next to it. The 2 uF AGC cap in the IF deck runs warm too for same reason, it's surrounded by tubes. If you want to be thorough then rebuild them, it's good messy fun. I found an open crimp connection in the last pair I did. Congrats on fixing the B+ problem! John

From eldim at att.net Fri May 6 12:53:09 2005
Subject: [R-390] Filter cap temperature

Hello Barry & Crew,

MY thoughts on the R-390 Power Supply Filter Electrolytics located on the AF Deck are:
1. If you have a Octal Tube Socket Adapter, you can remove the suspect cap and insert the adapter in between to facilitate making measurement with your VOM, VTVM, or for OScope observations. It same the trouble of removing the deck. I normallly take a AC Ripple Reading after making the Voltage Measurement. A scope will give you a nice picture of the ripple. I don't have the figures handy, but we all know that you want minimum AC Ripple on your DC buses. Good Luck. 73, Glen Galati, KA7BOJ

From chacuff at cableone.net Fri May 6 12:56:45 2005
Subject: [R-390] Filter cap temperature

Just a comment on the black goo. Maybe I got lucky but I did no digging at all. I did find if you pull on them before they are heated enough on the outside you will leave a bunch of the stuff up in there to have to get out. I took a propane torch and heated the shell while the base was locked in a soft jawed vice. Once it started smoking a bit from inside I grabbed the outer shell with something that kept me from getting burnt but allowed decent grip and snatched the thing off. All I was left with was a thin film of the goo in the inside of the shell. I wiped it out with a piece of cloth wet with flux remover or lacquer thinner. Worked great. I rushed the next one and ended up with the top half of the goo to get out. More heat and a screwdriver and it popped right out. It's not too hard. It just requires more heat than most expect! A heat shrink gun didn't get it! Cecil...

From jsullivan10512000 at yahoo.com Fri May 6 14:02:45 2005
Subject: [R-390] Capacitors in R390 (non "A") vs those in R390A

I have noted the type/brand of condensors (we now call them capacitors) in R390 and in R390A, and I have been reading original data from manufacturers of those condensors, mostly from Spraque,that was in MA at the time. Clearly, a huge difference in caps between original R390 and later cheapened up "A" version (I will probably hear nasty words from you "A" lovers, but "A" version was indeed cheapened up, for that was objective of the revamp). However, some improvements were made in "A" version, as you probably already know. Anyway, the caps used in the original R390 were about the best available at

the time, many of them being Vitamin Q type, with insulation resistance of 200,000 to 300,000 megs. Too bad that they didn't keep using those vastly superior caps in "A" version. Now, after 50 years, leakage is common with most paper caps, but the super caps in original R390 seem to still be doing well, based on my tests anyway. Even the oil filled electrolytics in R390 are in great shape, if my set is any indication. However, I did find the 50 mf, 50 volt small elect. one to be bad, but that is no problem to replace. Nice to put new one in old case, so it all looks as it originally did. Hope this all doesn't sound like I know it all. I am just trying to share what I have been testing and reading, regarding caps in R390/R390A. <P> </P>

From anchor at ec.rr.com Fri May 6 14:16:22 2005
Subject: [R-390] Re: R-390 Digest, Vol 13, Issue 17

Hi Guys,

I'll second Cecil on can opening heat & minimal ukumpucky. I've done the process on SP-600, R-388, and other smaller caps, it's relatively easy. I haven't done an R-390A yet, but it's closeby and oughta be abt the same. It's not hard to do, and whatever your "male vs female" view on radios is, why not keep it right if it's easy or not costly.

I've been taking pix and will, one of these days when I get a round tuit, post all the info on a webpage for all to learn from. For a preview, I've had a small one for a Drake rcvr avaliable for viewing for a yr or 2 at: http://www.thecompendium.net/radio/filtercap.htm I've been toying with the idea of offering the service for hire. 73, Al, W8UT

From jsullivan10512000 at yahoo.com Fri May 6 14:46:07 2005
Subject: [R-390] Pulling apart old electrolytic cans, for putting in new caps and resealing, to retain original appearance

For years, I have done this, essentially the same as many of you have described on this site, removing "guts" of electrolytics for inserting new caps inside "can." Some of the oldest ones have black tar interior. On those, I have tried about everything, getting inside foil/paper/tar out, by removing it without heat, with a lot of cold from freezer (it makes tar hard and it breaks easier), heating with small torch, etc., (works but is a mess and often a pain). One day, while working on one of these radio electrolytics, I had wood burning stove heated up, so I thought why not set cap on stove, and try, periodically, to pull it apart, as it heated up, trying to not get it so hot that the tar burns (smokes a lot), but hot enough to pull apart with ease. IT WORKED VERY WELL, SO I NOW DO IT THAT WAY. Works better than torch, as torch often burns tar causing smoke signals all over house. Jack

From chacuff at cableone.net Fri May 6 15:02:14 2005
Subject: [R-390] Capacitors in R390 (non "A") vs those in R390A

I agree with you Jack....after working on both the "A" is very notably a cost reduced version....a great radio but not built using the quality of components found in the R-390 for sure. Cecil...

From odyslim at comcast.net Fri May 6 15:02:38 2005
Subject: [R-390] Pulling apart old electrolytic cans, for putting in new caps and resealing, to retain original appearance

DH Distributors will make them up for you if you supply the octal base from your old caps. Price $18.00. Seems like a lot but it is worth it. Zero Time & Zero Effort. The perfect option for the person that does not have a lot of time. They will also put them in FP cans for $14.00. They look great. 1-316-684-0050. Usual Disclamers... Scott W3CV

From redmenaced at yahoo.com Fri May 6 21:05:59 2005
Subject: [R-390] Filter cap temperature

wrote: > The difference between men and woman, as those of us > with wives will attest, > is that we like to make it work and they like to > make it pretty. I believe > in throwing away the can and hanging new caps anyway > that works. I am not > taking this "dog" to the "dog show" nor trying to > impress anyone about how > cool I am. > > The bottom line is the noise floor and the > sensitivity of the beast not how > pretty it looks!
+++++++
But if you DO want to look cool, use a 40mm grenade casing for a can! Oh, BTW, do we HAVE to let this happen: http://news.yahoo.com/s/ap/mom_s_call_suspension Joe

From N4BUQ at aol.com Sat May 7 19:08:52 2005
Subject: [R-390] Alignment questions

I've started aligning my "new" R390A. When I got to the point of being able to hear AM broadcast stations, I used my frequency counter, tuned the PTO to the desired frequency (3.455 - 0.770) for a strong local station on 770kc and set the BFO to 455kc. At this point, the heterodyne theoretically should have been zero; however, I was hearing a very high-pitched heterodyne.

Investigating this, I found the 17mc oscillator is 16.997mc. This (along with any inacurracy in the second crystal oscillator frequency) is the cause of the non-zero beat.

When I originally set the PTO, I tuned it to 3.455 (by frequency counter), set the counter to x.000 and clamped it together. If the other oscillators are dead-on, this would be valid; however that's not the case.

My first question is this: Using one of the crystal deck frequencies that is the closest, should the PTO be set to accomodate the off-frequency of the 17mc oscillator? In other words, it won't always track between 3.455 and 2.455 exactly. To do this, I can loosen the clamp from the Oldham coupler to the front-panel shaft, dial in a known frequency (say my 770kc station), set the BFO to 455kc, and while holding the dial at 0.770kc, rotate the PTO shaft to zero-beat and retighten the clamp. Is this a good method?
One more question: For aligning the second IF, the manual states to set the signal generator to 18.750mc and the R390A to 7.250mc. I think this should either be 18.250 & 7.250 or 18.750 & 7.750. Is this a known issue with the documentation? If so, which frequency is correct? Thanks for reading! Barry - N4BUQ
From ham at cq.nu Sat May 7 20:01:12 2005
Subject: [R-390] Alignment questions

Hi

Since the crystals in the crystal deck can not be tuned you pretty much have to put up with what ever you have or swap them out. Back in the days when the radio was new getting crystals for them was

fairly easy. Today it's not quite as simple.

More or less:

1) Run through the range of the radio and figure out the highest and lowest band in terms of frequency error. Hopefully this will be a few hundred cycles and not a few KHz.

2) The PTO runs through a slip drive to correct for the error. The idea is to center up the PTO between the high and low band with extra room on each end.

3) You slip the drive on the counter to get everything to center up once you have range for the high and low bands.

The net result is that the PTO is running at who knows what frequency most of the time. It will be within a few hundred cycles most of the time.

The Y2K manual is probably the best thing to refer to when the manual you have does not make sense. On page 6-20 it talks about the alignment procedure for the first variable IF using the generator at 18.25 MHz and the radio at 7.200 and 7.250 MHz. Enjoy! Bob Camp KB8TQ

From Flowertime01 at wmconnect.com Sat May 7 21:46:10 2005
Subject: [R-390] Alignment questions

Barry,

You are thinking to hard. I hope the following diatribe is helpful. If something just does not make sense, post some more questions. I retired because my senior moments were becoming problematic. Retirement did not cure the problem. I just am not making statements in retirement that impact peoples lives. I may be screwing your hobby up, but you will have time to recover.

Should the PTO be set to accommodate the off-frequency of the 17mc oscillator?

Answer NO.

PTO won't always track between 3.455 and 2.455 exactly, what do We do? Answer Set Zero adjust to center Set dial to 500, Set PTO to 2,955,000. Lock the clamps.

Is this a good method?
To do this, I can loosen the clamp from the Oldham coupler to the front-panel shaft, dial in a known frequency (say my 770kc station), set the BFO to 455kc, and while holding the dial at 0.770kc, rotate the PTO shaft to zero-beat and retighten the clamp.

Answer NO.

Set the PTO for 3.455 or 2.455 Smack in the middle of the zero adjust. Use the frequency counter. Remember you want it to work with some 20 crystals and their harmonics. You may never get the PTO to exactly 1 Mhz in ten turns. Just do the best you can. Then have it spread both ways from

center by setting it up at 500Khz rather than at either end point.

When using a broadcast signal (good idea because we know what the frequency is), during alignment process. Set the zero adjust to calibrate on the nearest 100 KC.
####
This operation dials in the crystal offsets.
Set the bandwidth to .1Khz (to get into the center of the filters)
Set the BFO to zero (in the center of the IF deck filters)
The 100Khz crystal has a 320 plus harmonic that is close at 31.000+
The PTO is then beat with all the mixers to get into the middle of the band pass.
The act of doing a cal zero at the closest Khz marker dials all these offsets in for you.
##########

Roll the receiver counter to the same frequency as the signal is on. Now rock the Khz knob for the best peak output you can get.

This will get you around the offset of the fixed crystals on any Mhz. Believe this is close, remember it has worked for Army tech for the last 40 plus years. Now tweak the thing to be peaked at the frequency you are on.

Skip trying to inject frequencies any where except the antenna input. If you are aligning the first and second mixers second IF's. Use 10 uv or less of RF at the receiver dial reading into the antenna input. Use the frequency setting in the TM for the dial read outs. Adjust the item you need to adjust.
For the Second variable IF Para 75 page 116. it says.
Set the receiver to 1.900
set the signal gen to 2.1
Inject the signal at E210.
Adjust the 3 slugs in Z216 cans

Really do the following
Set the receiver to 1.900
Do the receiver Cal at 1.900 (a calibration point)
Set the signal gen to 1.900
inject the signal into the antenna input.
Rock the receiver to max signal or rock the signal generator.
Adjust the 3 slugs in Z216 cans

Remember symmetry. If you are doing an alignment 250 off one end, then you want to be 250 off the other end for the matching alignment. (off the other end is likely 750, because its below the end)
The TM says find the nearest 100KHZ and zero adjust. Then it says rock the AN/URM25 to exact frequency. You are not going to rock the AM station, so you need to rock the receiver dial to peak.

Investigating this, I found the 17mc oscillator is 16.997mc.

Buy doing a calibration zero at 100Khz closest to the alignment frequency before injecting a signal and doing alignment, you factor this variation into the receivers alignment.

Trying to peak all the RF deck over a 3,000 cycle crystal shift is not going to make a performance

difference in the receiver. We know these crystals are not super exact, which is why you want to inject everything at the antenna. Do the calibration zero beat against the BFO into the middle of the .1Khz 455 Khz IF before each tweak. Then set the dial where it belongs and then peak the innards to perform.

Then when a signal comes in the antenna and we peak it max, the dial should read the exact frequency we expect it to see.

I watches a lot of guys try a lot of thing over several years. Tried a bunch my self. The approach above works the best. You can get some frequency to Max out buy playing around. But it will cost some where else. We had 4 or 5 guys working 2 receivers per 8 hour shift. three shifts a day 365 days a year. We had time to try all kinds of stuff. Any and every variation was talked about. Some real tech wizards though about this stuff. I had techs with math degrees drafted to be receiver repair guys. We had some other guys who were detailed to clean dust out of fans, some more that were just allowed to push a pencil. Every one was not equal in creativity. But over the years some real sharp guys with lot of time on their hands considered what was going on.

The TM procedure is pretty good.
The mid point alignment procedures are really needed if you have a dead receiver or a marginal problem and you are trying to decide if you need to re replacing, cans, slugs, caps, or other nasty subtle problem. So the TM is the over kill cover every thing approach.

For a good receiver just needing a good alignment, there are ways that get better results with less work. You try to do a real PM on your receiver in 4 hours. You are humping it. This is why we did them two at a time. Once you were dusting you dusted 4 or six, while your buddy shoved a bunch of tubes through the tester. You would be cleaning away and some guy would walk up and pop your 3 6C4's out and walk away. Soon he would bring you back 3 tubes plug them in and pop out some other tubes. If you were doing tubes you would grab all the 6C4 and test them all. The best would go back and you tried to put all the new tubes into one receiver. That receiver was noted on it PM record. In the next monthly you knew it would need alignment. The other 3 or 5 receivers would be OK in the monthly with well broke in tubes. Coming out of cleaning, someone would do the Calibration zero, BFO and PTO with the frequency counter. The rest of the alignment was done against the BFO, PTO and cal or the receiver. You could do 2 receiver by your self in 8 hours, go to lunch and do a couple trouble calls.

One more question: For aligning the second IF, the manual states to set the signal generator to 18.750mc and the R390A to 7.250mc.

I think this should be 18.250 & 7.250.
Is this a known issue with the documentation? NO.

Remember you are doing a difference in this mixer. you are 250 off the ends. One way is 250 the other way is -250 = 750.

What you really want to do is:
Do the calibration zero adjust at 7.200 or 7.300
Then just insert 7.250 into the antenna input.
Let the mixers mix it with all the small offsets.
Tweak the proper item to get the best peak you can get.

Trying to re-zero, insert things in the middle, compensate for some item just drives you to distraction.

You want the receiver to perform the best it can on all frequencies. All frequencies may not perform equally well. But not because the receiver is not properly aligned.

Get each setting as good as you can.
Repeating the whole process 3 or more times will bring improvement on each pass.

Realignment after changing a tube, may or may not bring an improvement. The old and replacement tube may be very equal in distributed capacitance and gain. The first 100 tube you try may all peak exactly the same. Then boom the next time you stuff a tube in, it will need a different alignment.

Let the receiver run 24 x 7 and do a realignment of the RF deck. You likely will not need to do the BFO and PTO settings. Things seem to change with a little burn in time. We use to re-align the receivers the first monthly TM after a semi annual PM and see some improvements. Enough to make it worth doing.

I used my frequency counter, tuned the PTO to the desired frequency (3.455 - 0.770) for a strong local station on 770kc and set the BFO to 455kc. At this point, the heterodyne theoretically should have been zero; however, I was hearing a very high-pitched heterodyne.

Investigating this, I found the 17mc oscillator is 16.997mc. This (along with any inaccuracy in the second crystal oscillator frequency) is the cause of the non-zero beat.

This is why you do a calibration at the nearest 100Khz and move the zero adjust where ever it is needed to get a zero beat in the middle of the IF band pass.

This is why you rock the AN/URM 25 to zero. The TM suggest the problem is the signal generator. You are not rocking an AM station to zero, so rock the receiver dial to zero.

The alignment points in the TM are not set in stone. They are some good point on the band width slug rack position to give good performance. Just get close to the frequency and peak every thing up. The TM says rock the generator. You can rock the receiver much easier and get just as good an alignment.
Good Luck with this Barry, Roger KC6TRU

From Flowertime01 at wmconnect.com Sat May 7 21:51:32 2005
Subject: [R-390] Alignment questions

writes: The net result is that the PTO is running at who knows what frequency most of the time. It will be within a few hundred cycles most of the time.

Barry, Bob, nailed it pretty good. Roger KC6TRU

From RLucch2098 at aol.com Sun May 8 10:33:42 2005
Subject: [R-390] Need info on speaker.

Hi All;

Whilst up in NH this weekend, I found what looks like that speaker for the R-390A that the guys were talking about a few weeks ago. The one that looks like it has 2 square grills in front. Anyone have links that I can visit to see pics, any info, etc! Tnx ahead of time. 73..Rich WA2RQY

From vk4ns599 at optusnet.com.au Sun May 8 22:33:41 2005
Subject: [R-390] R390 Front Panel Information

To The Group I have a R390 with the following information on the ident plate

RADIO RECEIVER R-390/URR
SIGNAL CORPS US ARMY
SERIAL NO 2306 ORDER NO.14214-PH-51-93
COLLINS RADIO COMPANY
500KC TO 32 MHZ

Stencilled above the ID Plate is the following in white paint

MWO-11-5820-294-35/1
MWO-11-5820-294-35/2

Does anyone know if this is of any significance???? Lionel L Sharp, VK4NS

From glennmaillist at bellsouth.net Mon May 9 00:19:02 2005
Subject: [R-390] R390 Front Panel Information

These should be Modification Work Orders that are completed on this receiver. IIRC TM11-5830-294-35 is the reference maintenance manual for the MWO and these would have been the first two modifications to the receiver.

I do not know what these mods did. 73 Glenn WB4UIV

From ham at cq.nu Mon May 9 07:30:27 2005
Subject: [R-390] R390 Front Panel Information

Hi, This is a clear indication that the radio should be disposed of immediately. The only way to do this correctly is to forward the radio to me for appropriate disposal .... (let's see, 120 pounds over night air shipped from Oz comes to ...).

At least from the front panel what you have is a Collins radio manufactured on the 1951 contract. Two of the field mods have been done on the radio. My guess would be that all of the field mods have been done and that only two of them have been noted on the front panel.

Collins and Motorola were the two contractors on these radios. Of the two I would say that Collins is the preferred "flavor". That's not because they work any better, the name is just cooler. Of course the modules in the radio may be a mix and match by now.

No matter who made it, they are great radios. In many ways they are a better radio than the R390A. Parts are a bit harder to find than for the 390A, but they still are around. They *definitely* are worth restoring. Enjoy yours ! Take Care Bob Camp KB8TQ

From jsullivan10512000 at yahoo.com Mon May 9 14:31:00 2005
Subject: [R-390] Anyone know what our military now uses for receivers, not that R390A, drake, W-Johnson HF1000 are now out of date

Don't know how appropriate this is for a question on this site, but I would like to know what our military/government now uses, with the R390, the Drake R8B, the W.Johnson HF-1000 almost a thing of the past?

From jsullivan10512000 at yahoo.com Mon May 9 14:34:11 2005
Subject: [R-390] The R390/R390A front end, is there any other receiver with anything similar?

Does anyone know if any other receiver has ever been built, that had such a profound front end, with 2 or even 3 R.F. stages, three I.F. frequencies, two of them variably tuned, that helps give profound performance.

From chacuff at cableone.net Mon May 9 14:36:40 2005
Subject: [R-390] Beware RF deck coils.

Greetings Folks,

While going through an R-390 RF deck as part of a restoration it was discovered that one of the coil forms had come loose from the glue joints to the end plates. This allowed the coil to move vertically about 1/8th of an inch and to also rotate. The rotation was only limited by the length of the excess coil wires. (not a good thing) Very little effort was required for the coil form and coil to move vertically...probably the dragging of the core would have easily moved it causing problems with proper/reliable tuning of the coil resulting in sensitivity problems. I re-glued the coil form to the end plates with some Duco bond cement and all should be ok. I have only found that one so far but am only half way through the cleaning and visual inspection of the coils.

Just a heads up...if you are going through one of these things...or an "A" it pays to check each and every coil as part of the process. I found many spider nests in the coil housings as well. Cecil....

From jamminpower at earthlink.net Mon May 9 15:33:44 2005
Subject: [R-390] The R390/R390A front end, is there any other receiver with anything similar?

I believe the Hallicrafters SX-88 has three RF amplifier stages and 3 IF amplifier stages. James A. (Andy) Moorer

From Lester.Veenstra at intelsatgeneral.com Mon May 9 16:05:39 2005
Subject: [R-390] Anyone know what our military now uses for receivers, not that R390A, drake, W-Johnson HF1000 are now out of date

From n4buq at aol.com Mon May 9 16:24:13 2005
Subject: [R-390] Alignment questions

Roger,

Thanks so much for the details. I'm still mulling over it, but I think I understand what you are saying. Since the 17mc oscillator is running 3kc below where it should be, then the clutch will be running at some point other than midrange to account for it. Granted there will still be +/- from that point for inaccuracies in the other oscillators, but basically, it will not be centered, right?

This effect is most likely not noticeable since there is plenty of adjustment in the clutch, but theoretically, it isn't running "centered". The end effect, though, is that the PTO still won't be running from 3.455 to 2.455, but from 3.458 to 2.458 -- it's just the clutch is the mechanism that is letting me adjust it to accommodate the difference in the 17mc oscillator, right?

Thanks again. I really love to hear from someone who has so much "been there, done that" experience!73,Barry - N4BUQ

From Llgpt at aol.com Mon May 9 16:30:23 2005
Subject: [R-390] Anyone know what our military now uses for receivers, not that R3...

Well, I know they are using the Ten Tec RX-331 which is a black box receiver. The RX-340 is the same receiver with a front panel etc. Les Locklear

From Llgpt at aol.com Mon May 9 16:31:33 2005
Subject: [R-390] The R390/R390A front end, is there any other receiver with anythi...

Well, the Hammarlund SP-600 has two rf stages and four if stages. I'm sure there are others. Les Locklear

From ca.urso2 at verizon.net Mon May 9 17:13:15 2005
Subject: [R-390] R-390/URR MWO's

Change 4 of TM 11-856, TO 31R1-2URR-154, dated 22 Dec 1958, indicated that:
" In receivers modified by MWO 11-5820-294-35/1, the wires connected to B+ 3/8A Fuse F102 are removed and tied together, and the ground connection on transformer T801 is removed. There is no connection between the DC 20A Fuse F103 and P118-15 (not applicable to Fig 53 of TM), and Terminal 6 of T801 is connected through the contacts of J818-15 and P118-15 and B+ 3/8A Fuse F102 to ground. The B+ 3/8A Fuse is called the HV 3/8A Fuse.

Power Supplies PP-621/URR modified in accordance with MWO 11-5820-294-35/1 are NOT interchangeable with power supplies that are not so marked because of wiring changes in the B+ 3/8A Fuse F102 circuit.

R-390/URR Receivers modified by MWO -35/1 above have the former B+ 3/8A Fuse F102 in the ground lead of power transformer T801 and the name of the fuse is changed to HV 3/8A. The MWO -

35/1 supersedes MWO SIG 191 dated 20 July 1955 and contractor changes on Power Supplies PP-621/URR identified as MOD 1 and above. These changes restore interchangeability between Power Supplies PP-621/URR and permit their being used in all Radio Receivers R-389/URR, R-390/URR, and R-391/URR so modified.

In receivers modified by MWO -35/1 above the B+ 3/8A Fuse F102 is NOT connected between P120-5 and +300V Unregulated.

In power supplies modified by MWO -35/1 above there is NO connection between Terminals 10 (Ten) and 6 (Six) of T801; There is a wire connected between Terminal 6 of T801 and Terminal 15 of J818.

On Receiver Main Frames modified by MWO -35/1 above, (TM Fig.106) Station 35 Wire 1-33 is 7-40, Wire 5-41 is 15-41 and B+ is HV . At Station 37 there is NO Wire 15-41. At Station 41 there is a wire added between the cable and Terminal 1 of C101 labeled 5-41, change Wire 35-1 to 42-2, and Wire 37-2 to 35-1. At Station 40, add a wire between Terminal 7 and the cable labeled 35-2."

Perhaps some other group member might bring up details for other R-390/URR MWO's, such as: 11-5820-294-35/2, 11-5820-294-35/3, 32-5820-134/2, 32-5820-134/3 and any other pertinent MWO's. 73, GL DE KD6EU Ed Alves USA

From sparks at codepoets.com Mon May 9 18:15:28 2005
Subject: [R-390] Anyone know what our military now uses for receivers, not that R3...

The Coast Guard migrated from the Collins 651S1 to the Racal 2368 around 1988-89 and they remain in service. We pulled about 30 651S1's from service from the Coast Guard Communications Station in Miami/NMA during that time and piled them up for survey and took them to DRMO at Homestead AFB. The last ones I pulled from service was in Alexandria VA in 1994/95, they also went to DRMO, at Ft. Belvoir, VA. A few of them still had the nixie tubes but most were converted to LED. We did have a few 51S1's that were installed in the TCC's Transportable Communications Centers for monitoring guard channels on HF Air-Ground or operating frequencies. The TCC's were upgraded around 1995 and the older TCC trailers were stripped and most of the gear went to DRMO, some went to DRMO at Ft. Belvoir VA after being stripped out at Alexandria, VA. 73 Tom K4NCG

From r390a at bellsouth.net Mon May 9 18:36:59 2005
Subject: [R-390] Anyone know what our military now uses for receivers, not that R3...

The USAF uses quite a bit of Harris equipment of various kinds. Tom

From ham at cq.nu Mon May 9 18:38:26 2005
Subject: [R-390] Anyone know what our military now uses for receivers, not that R390A, drake,

Hi,

There are a lot of people out there who are making HF radios or who did make HF radios. Taking only the military / government end of things and starting from the R390A:

The R390 was partially replaced in Navy service by the R1051 The Harris RF550 and Racal 6790 GM replaced some of the R390's and a slew of other radios.

The "official" replacement for the R390 was the Harris RF590 and 590A, they pretty much flushed out the 550's and some of the 6790's. Some of the 590's got replaced by the RF350K (*very* strange but true). The RF350's are being replaced by Falcon's.

That is only one of the many family trees out there. It's admittedly a bit Harris centric. There is another equally valid route that gets you to a bunch of Collins gear like the HF-80 and now all the black box radios. It also ignores a bunch of Racal radios.

These days an awful lot of what was once done with R390's is done with digital "sample the entire band" radios with no knobs on them at all. The claimed advantage is that you can get a lot of information all at once. They also are quite a bit better at following stuff like spread spectrum HF. There's not a lot of straight analog voice communications on military HF anymore.

For straight analog intercept work people like Icom and Racal still make specialty radios with knobs on them.

Typical prices on this stuff start at $10K and go on up from there. The black box systems can easily get you to a major chunk of a million dollars. That's not as crazy as it sounds. A R390 would cost quite a bit if you translated the original $2K cost into inflation adjusted current dollars .... Take Care! Bob Camp KB8TQ

From kgordon at moscow.com Mon May 9 20:54:54 2005
Subject: [R-390] The R390/R390A front end, anything similar?

wrote: > Does anyone know if any other receiver has ever been built, that had such a profound front end, with 2 or even 3 R.F. stages, three I.F. frequencies, two of them variably tuned, that helps give profound performance.

BC-779 and its cousins all had 2 RF amp stages and at least 3 IF amp stages: Also National HRO-50-1. "If you want to hear them, get a National: if you want to know where they are, get a Collins." or another variation at the time was, "If you want a RECEIVER, get a National: if you want a frequency meter, get a Collins.".

I added a triode product detector to a BC-779 once. It was the quietest, most sensitive receiver I had ever used up to that time. In its original condition, it was spec-ed at 1 microvolt or less sensitivity. In addition to having a wide-range crystal filter of good design, it also had a mechanically variable IF coupling system.
In any case, it isn't the 2 (or more) RF amp stages, and the 3 (or more) IF stages that makes a receiver: it is far more than that. Gain distribution is one factor. Besides, the older receivers had 2 RF amp stages mainly to improve the image response at frequencies above 20 Mhz.

The three IF FREQUENCIES of the R-390 series had to be very carefully thought out to prevent weird mixer products. Ken Gordon W7EKB

From Flowertime01 at wmconnect.com Mon May 9 22:10:02 2005
Subject: [R-390] R-390/URR MWO's Thanks

Thank you, Ed Alves KD6EU USA For putting up the R390 MWO data. Roger KC6TRU

From chacuff at cableone.net Mon May 9 22:11:29 2005
Subject: [R-390] Panel engravings

Hey Folks,

I need to hear from veterans of panel refinishing. I am having a very difficult time getting all the paint out of the panel engravings. Probably 90% is out but there is some stubborn stuff left at the ends of dead end engravings and hugging the inside of curves and such. I have tried everything except burning the darned thing. I have tried two types of paint stripper...with hour long soaks. Tooth picks, brass brushes, lacquer thinner, flux remover etc....

What other tricks are there guys? I can't move forward with painting this thing until the letters are all clean or I will be doing the whole thing again.

I'm thinking about hitting it with my 1800 PSI pressure washer and see if that helps.... Thanks... Cecil...

From ToddRoberts2001 at aol.com Mon May 9 23:06:32 2005
Subject: [R-390] The R390/R390A front end, is there any other receiver with anythi...

writes: Does anyone know if any other receiver has ever been built, that had such a profound front end, with 2 or even 3 R.F. stages, three I.F. frequencies, two of them variably tuned, that helps give profound performance.

I think the R-390/R-390A receivers are pretty much in a class by themselves having triple-tuned tracking front ends plus up to 2 triple-tuned variable tracking IF's and a third fixed IF. Collins made other receivers that were similar design like the R-388/51J-4, R-648/ARR-41 but they were simplified versions and had only one variable tracking IF that I am aware of. I think the R-392 had 2 variable triple-tuned IF's so that is the only other one I am aware of that had as complicated a design with 2 variable tracking triple-tuned IF's. 73 Todd WD4NGG

From hwlight at sbcglobal.net Tue May 10 01:08:37 2005
Subject: [R-390] RE: What the Military now uses in place of the 390A

I have a friend that is a ham and captain aboard a Nuke Sub. I asked him this same question (What receiver does the military now use) and,of course, he said it was "classified". But added..."It would blow your socks off." Wayne K7NCE

From w5or at comcast.net Tue May 10 01:26:53 2005
Subject: [R-390] Stuff at Dayton

Stuff I'm hauling to Dayton next week in search of new homes:

Good Mot. R-390non, orig meters, has broken clamp.
another good R-390non, orig meters.
URM-25D, nearly complete accessories in lid.
HP-606, has only been used to align R-390s. :-)

BC-610-I project. Rusty cab., guts look good, no tubes.
Viking AM transmitter - needs LV XMFR and tubes.
Ranger transmitter - basket case, another DIY kit.
TT-4C Klienschmidt machine, nice, missing transit cover. (wonder if these were ever used with R-390 setups?).
Other stuff as the packing begins in earnest. Asking prices upon request, some pix available.

TwinAx Connectors, free to list members if you need one. Spaces 938-940, Thursday - Sunday. RV parked in space. List members, stop by and say hi. Who is attending? Don Reaves W5OR

From kc8opp at yahoo.com Tue May 10 05:54:51 2005
Subject: [R-390] Panel engravings

Cecil,

Been there.....done that. I finally used a lighted magnifier and some sharp object. The best I found was the frog sticker from the kids chemistry set. Small plastic handle with a sharp point on the end of about 2" stainless pin. Went over entire panel carefully inspecting each letter and digging out the chips.

Not much fun, but that is how it was done here. Good Luck! 73's Roger KC8OPP

From wb6orz at pacbell.net Tue May 10 06:16:23 2005
Subject: [R-390] Panel engravings

Dental pick. Next time in the chair, say: "Say, could I ask a favor? When you're done with the cleaning, could you possibly spare an old pick? I need to clean out the engravings on the 390-A." Most likely the reply will be, "Sure, I do retire old tools. And do you know where I can source some test cables to extend modules outside the radio?" Seriously, my old pick has been very useful on the bench. Les

From n4buq at aol.com Tue May 10 10:43:56 2005
Subject: [R-390] Power Supply?

Gents,

I happened across this power supply: http://www.bpbsurplus.com/items/item999.html Is this suitable for the R392? Are those connectors the correct type? Barry - N4BUQ

From n4buq at aol.com Tue May 10 10:53:05 2005
Subject: [R-390] Re: Power Supply? - A bit off topic

For you guys with multiple radios, this might be nice to have too:
http://www.bpbsurplus.com/items/item374.html And isn't this rather inexpensive for one of these? http://www.bpbsurplus.com/items/item1037.html I don't have any interest in the above company or the stuff they're selling. I just know some of you guys might have a use for some of this stuff. Barry - N4BUQ

From chacuff at cableone.net Tue May 10 10:56:05 2005

Subject: [R-390] Panel Engravings

Greetings, Thanks to all who have submitted suggestions for the removal of the paint from the engravings of my panel.

Top suggestions....

1) Use of dental tools....using some old ones now. (I have a friend that is a dentist)

2) More powerful stripper....(Tim the Tool Man would be proud!)

3) Brake Fluid and sharp instruments....That's a thought....Paint adhesion a problem afterwards?

4) Bead blasting.....am experimenting with that, but it has its own problems. Erosion and panel warpage.

Thanks to all who responded....Looks like I was on the right track....just wondered if there was an easier way I had not thought of....

My dental tools are not very sharp....fairly blount. May try to pick up some newer ones. Looks like a few hours at the bench with the visor on...some decent light and a sharp dental tool will be the ticket...after softening it up a bit more with some better chemistry! Thanks Guys...Cecil...

From n4buq at aol.com Tue May 10 11:05:31 2005
Subject: [R-390] Panel Engravings

Cecil,

Another useful tool is a carbide-tipped scribe, the type used in sheet-metal and machine-shops to layout patterns, etc. You can apply a lot more pressure with one of those without breaking it and I seem to have a bit better control keeping the tip in the engraving. A dental pick tends to "sproing" out of the engraving and scratch the front panel pretty easily. Barry - N4BUQ

From LairdThomasN at JohnDeere.com Tue May 10 11:06:07 2005
Subject: [R-390] RE: Panel Engravings and bead blasting

4) Bead blasting.....am experimenting with that, but it has its own problems. Erosion and panel warpage.

Glass bead blastng isn't as aggressive as sand, therefore less heat and warpage. The 390 panels are thick enough to withstand blasting the engravings without warpage. I've done three with no problems. YMMV. Tom Laird WC9M Moline, IL.

From w5or at comcast.net Tue May 10 11:38:21 2005
Subject: [R-390] Re: Power Supply? - A bit off topic

Hey, that's Barry P. Bobes near Orlando. I wondered what happened to him. Got a pair of NASA R-390As from him several years ago, along with a KWT-6 (URC-32). It was about all I could stuff into a Plymouth mini-van. Good guy. Interesting surplus cache he had, rented a lot of stuff to movie makers.

> http://www.bpbsurplus.com/items/item374.html

The R-392 DC power connector you need is a nine-contact center screw locking plug with gaskets and O-rings. Amphenol type 164-4FS

From RLucch2098 at aol.com Tue May 10 11:52:39 2005
Subject: [R-390] Pics of my LS-206A/U Speaker Find in NH.

Hi All;
First, I want to thank the fellas that gave me some info on this speaker. I bought this spkr from a fellow at the Horsetraders fest in Concord this past friday. I gave it a quick wipe with some fluid that I use on everything. It could still use a bit of cleaner wax. It is somewhat different the the one on Rick Mishes web site, diffent manufacturer also. Maybe this is an early one as suggested. Here are the pictures, usual copy & paste applies, enjoy:
http://www.myradioroom.com/r390aspkr1.jpg
http://www.myradioroom.com/r390aspkr2.jpg
http://www.myradioroom.com/r390aspkr3.jpg Tnx & 73...Rich WA2RQY

From hankarn at pacbell.net Tue May 10 11:52:17 2005
Subject: [R-390] RE: Panel Engravings and bead blasting

Well I use a Professional Stripper. Have had no problems getting the panel clean. Hank KN6DI

From chacuff at cableone.net Tue May 10 12:10:26 2005
Subject: [R-390] RE: Panel Engravings and bead blasting

I hadn't thought about hiring one of those! Cecil...

From chacuff at cableone.net Tue May 10 12:13:47 2005
Subject: [R-390] RE: Panel Engravings and bead blasting

I guess the trick is to hire a really ugly one and catch the paint when it runs... (Just a little humor guys...If I didn't laugh...I'd have to cry!) Cecil...

From saglek at videotron.ca Tue May 10 13:42:37 2005
Subject: [R-390] Panel Engravings

All,

My couple of cents worth. (in Canadian funds) I done an R-390 a few years ago and had the same problem. What I finally done, at the recommendation of a friend who said that, "the main active ingredient in most paint strippers evaporates very fast and especially on a hot day". What to do. If possible, strip on a cool day outside. Put the panel in a plastic bag. Pour the stripper inside the bag and over the panel. Close the bag and press the bag against the panel and let out as much air as possible. Seal the bag and let soak like this for about twenty minutes or more. Then use a brass brush and scrub vigorously. I Cut the bristles down to about 1/4 inch. This gives a stiffer bristle and seems to be more

effective. Inspect each letter for paint residue and use your favorite type of pick to remove any residue.

Done a Fair Radio R-390A Bluestriper about 4 years ago and did not have the same problem. The primer on the R-390A was, if I remember correctly, the conventional yellow color. On the R-390 it was a dark gray color. Don't know if this significant or not. And that's my 2 cents worth. Al

From fosterp at wizard.com Tue May 10 14:01:03 2005
Subject: [R-390] RE: Panel Engravings and bead blasting

Hot Dam - now we are getting somewhere ! Foster Pahrump

From jim_cott at earthlink.net Tue May 10 21:28:10 2005
Subject: [R-390] Diode Load Tap for Audio

Hmmm..Interesting. I soldered up the Diode Load tap for audio as per Chuck Rippel's web page instructions and get no audio out!!! The R-390A I have works great if I use headphones..but alas, not an peep from the output of the phono plug through a 10uF NP capacitor and 470K resistor connected to the Diode Load jumper..Anyone have any idea why? Jim

From ham at cq.nu Tue May 10 21:38:52 2005
From: ham at cq.nu (Bob Camp)

Hi,

What are you feeding it in to? Enjoy Bob Camp KB8TQ

From w5or at comcast.net Tue May 10 21:43:48 2005
Subject: [R-390] Pics of my LS-206A/U Speaker Find in NH.

Rich, I have one exactly like yours except the manufacturer is Barker and Williamson. It's an excellent accessory for two military grade 600 ohm line out receivers. Don

From Flowertime01 at wmconnect.com Tue May 10 21:57:55 2005
Subject: [R-390] Diode Load Tap for Audio

Jim,
A. The diode die of heat when soldered.
B. Diode is in backwards.
C. Cold solder Joint.

Been to the circuit and done it. It does work as advertised, so you do have a hardware problem. Remember the diode load is a minus voltage. Roger KC6TRU

From Flowertime01 at wmconnect.com Tue May 10 22:05:23 2005
Subject: [R-390] Diode Load Tap for Audio

Jim, Opps, sorry last post was bad. 470K resistor and cap do work. Been to the circuit and done it. It does work as advertised, so you do have a hardware problem.

Some times you have to use a value other than 470K because of the load you are working into for your amplifier. As you have no audio, try a 47K or even a 4.7K. The amplifier input you are trying to drive may be a lot lower impedance than you expect. Watch out that you are not trying to drive a dynamic mic input that has a DC voltage associated with it. That will put a charge on the cap and cut the signal off also. Roger KC6TRU

From dmetz at ntelos.net Tue May 10 22:26:51 2005
Subject: [R-390] panel cleaning

Just a wonder here. A long time ago, I used a dunk tank of sodium hydroxide to soak fenders from a car. Put it in a tank for a couple of days and wash off the paint. Can you still buy sodium hydroxide as a dry pellets? My guess is that it has gone the way of carbon tetrachloride. Too dangerous for idiots. As a strong base solution, it didn't etch the bottom metal but sure got rid of the paint. Thanks 73's dave

From djmerz at 3-cities.com Wed May 11 01:33:48 2005
Subject: [R-390] panel cleaning

Hi, you can buy sodium hydroxide at your local market as "Lye" . The last brand I bought was Red Devil, used for drain cleaner. But put an aluminum panel in enough of this stuff and it may be gone overnight. Sodium hydroxide dissolves aluminum. I used it to clean up aluminum shields/panel for old radios. If you warm it up a bit, it really goes to work. It leaves a frosted surface. **I also used it to make metal tags for radios using laser printer transfers on aluminum as "resist".** It is very corrosive and poisonous. In the lab, I used NaOH to dissolve large amounts of aluminum from uranium shaped charge cones. It only attacks certain metals aggressively and uranium isn't one of them, Dan.

From wli98122 at yahoo.com Wed May 11 01:48:49 2005
Subject: [R-390] Re: unable to get past 29MC

Have just started to look critically at my Capehart R-390A. First thing I noticed was that the MC dial does not go past 29MC! I hit a stop just before the Veeder-Root comes to 29... weird. The gear train looks OK, dial lock and zero adjust are free, and the unit works OK and is approx on freq in all bands below 28... What am I missing? It's got to be mechanical.

Oh yes, checked all the tube pin resistances to ground, and was surprised to find that all were within 20% of the Y2K manual... that has got to be a first..... Electrically, it needs an alignment, but that's for later. W. Li Mercer Island

From djmerz at 3-cities.com Wed May 11 02:02:12 2005
Subject: [R-390] Diode Load Tap for Audio

Jim, I assume you connected the amp ground to the radio ground via the shielded wire, as prescribed by Rippel. I have this circuit in a small box and used it today on the 390 and it worked fine. Boy, what great sound with an external amplifier. The sparks are visible when you make the ground connection on the 390 and no sound until you do that because, in my case, the amp has a two wire power plug and the

chassis on the amp doesn't necessarily have ground in common with the 390 (I should fix that, shouldn't I). Maybe your problem has something to do with an inadequate ground connection on the phono cable at one end or the other. Dan.

From ham at cq.nu Wed May 11 07:21:01 2005
Subject: [R-390] Re: unable to get past 29MC

Hi,

The gizmo that stops the MC knob at the top and bottom end is attached down by the main vertical internal bulkhead in the radio. The setup uses a series of stamped metal fingers that mesh together. When you get to one end or the other of the range the "stack" of fingers locks. The easy way to find the stack is to look at the bottom of the radio and follow the MC shaft through the bulkhead.

You may have two fingers glued together with some old lube (not unusual) and need to squirt them with WD40. If the MC shaft goes below 0.0 (500KC to 1 MHz range) then the finger stack simply needs to be reset. A very bizarre situation would be that a finger is missing from the stack. If so I'm sure a number of us have some sitting around for replacements.

There are a couple of other crazy things that could happen. If it's not one of the things above let us know and somebody here will have an idea.

Either way you are correct, it's a mechanical problem and should be fairly easy to fix. My bet would be on the gunk gluing two fingers together. Take Care Bob Camp KB8TQ

From courir26 at yahoo.com Wed May 11 08:19:39 2005
Subject: [R-390] Re: unable to get past 29MC

Have you checked the multiturn stop on the MCS knob? It may be misaligned. I've never seen your problem, but that would be the most obvious (and easiest) place to start. 73 Tom N5OFF

From DJED1 at aol.com Wed May 11 08:50:17 2005
Subject: [R-390] Stuff at Dayton

I'll be there- first time at Dayton. Presently sitting in the RV on a hilltop in Ohio, online via wifi in the campground. Plenty of room in the rig for more boatanchors. Anyone else going? Ed

From wli98122 at yahoo.com Wed May 11 17:55:48 2005
Subject: [R-390] Re: unable to get past 29MC problem solved

Many thanks for all who responded so quickly to my dilemma. The problem was indeed mechanical.

As it turned out, the "ten-turn-stop" was maladjusted. I loosened the clamp on the MC tuning shaft, carefully turned the gear train by hand on the first large planetary gear to read 32MC on the Veeder-Root... and retightened the MC shaft's clamp at that position.

Now I can move the MC control thru all 32 stops from 00 to 32 with no undue resistance.

All the stamped metal fingers moved freely and are free of gunk or dried grease. You guys are great! W. Li Mercer Island

From dsmaples at comcast.net Wed May 11 20:37:39 2005
Subject: [R-390] RE: Panel Engravings and bead blasting

All: I'm curious about the bead blasting; I've read references to it but don't really know anything about it. Is this something you guys set up to do at home, or do you hire it done, or ???

Sorry for the ignorance, but I don't guess I'll learn if I don't stick my neck out there... Thanks, Dave WB4FUR

From RLucch2098 at aol.com Wed May 11 22:28:56 2005
Subject: [R-390] FS: Similar R-390A Meters w/pics

Hi All;
I have these 2 meters which will fit into an R-390A. They do not have the correct face plate but the one on the left is a GE with what appears to be "Glow Stuff" on the pointer & numbers. The pointer moves when touched by the VOM test, nice condx. Brand-New package of screws & nuts were in the box! The one on the right is a DeJur, nice shape but I get no movement or Resistance reading. Good for parts/repair? Both shipped for $35ppd, shipped Priority! Pics:
http://www.myradioroom.com/r390similarmeter1.jpg
http://www.myradioroom.com/r390similarmeter2.jpg
http://www.myradioroom.com/r390similarmeter3.jpg Tnx & 73.. Rich WA2RQY

From djmerz at 3-cities.com Thu May 12 01:49:53 2005
Subject: [R-390] RE: Panel Engravings and bead blasting

Dave, the term "bead blasting" probably originated when glass beads were used as the propelled agent rather than sand or other more angular abrasive grits. I think the term is used more loosely nowadays. In the process, the media is propelled by compressed gas, typically air, onto the surface being treated, to remove paint, oxide, or other material on the surface or to smooth or etch the surface. I've never had such equipment at home but see you can buy somewhat inexpensive equipment to do this, for instance a glove box to contain the particles during blasting as well as the gun/hopper. I would guess some of the guys here have the equipment, or have access to it. The lab where I worked had bead blasters to clean and treat surfaces used in vacuum processes and to remove errant deposited metal from reusable shields We had a small pencil shaped blaster that could be used for more intricate application of the beads to small areas. This gadget would be the ticket to clean paint out of panel lettering but I never tried it and don't have access to it. I suspect if you live near an industrial area, you could find shops that would do bead blasting or blasting with abrasives. I think plating shops or enameling shops might have abrasive blasting equipment to prepare surfaces. A related technology is used to "etch" designs on glass. A more advanced technology called water jet cutting uses high pressure water to propel an abrasive such as garnet to do actual cutting of metals, rock, wood, concrete and various materials. This equipment is out of the price range of most hobbyists. Dan.

From r390a at bellsouth.net Thu May 12 20:28:28 2005

Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

Got this heads-up from a local ham. What store? HRO maybe? Tom

From odyslim at comcast.net Thu May 12 21:03:40 2005
Subject: [R-390] need Z503

I am in desperate need of Z503 and the innards, L514 & C563. Will pay cash or trade. Thanks, Scott

From w5kp at direcway.com Thu May 12 21:14:53 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

This would be soooooo cool if it actually happens. It would be interesting to see somebody try to text message on a cell phone at 45+ wpm. Heh, heh... Jerry W5KP

From wli98122 at yahoo.com Thu May 12 21:43:09 2005
Subject: [R-390] Re: little things

Over the years, I have made some little additions to my trio of R-390A's that may be of use to you guys. Most are obvious and simple (about my speed nowadays). Most are not original with me, but have been mentioned in earlier posts through the years.

Antenna input
I used Chuck Rippel's suggestions for the balanced input. What I did was house his circuitry into a small aluminum box that bolts onto two existing rear panel screws. Has both a SO-239 and a BNC socket with a 0.01uf blocking cap. Makes a neat and tidy installation. An Asante coax transceiver case is about the right size.

F101 and old two conductor pwr cord
Got rid of both, and filed the rear circular opening a bit to accept a new Corcom EMI power receptacle... grounding it to the chassis, and hooking up the hot lead to the fuse F101. You do have to drill two small holes in the rear panel to secure the Corcom. Any computer grade power cord may now be used.

TB-103
Jumpered 6 and 8 to bypass R101 (6800 ohm) to increase output. Works.

I-177 5814A accessory
Those of us with I-177 tube testers know that you can not check 9 pin miniature tubes without the MX-949U accessory. Of course, you can make up your own with all the jacks and leads...but all I wanted today was to check 5814A's, so I made up a simple plug-in for socket E using the octal male plug with its metal mounting plate scrounged from a surplus octal relay case, a Bud minibox with a standard 9-pin tube socket at the other end, and a 6-pole-two-position non-shorting wafer to switch the plate-grid-cathode leads between the two triode sections... all built out of junk-box parts in an hour. Works swell to rapidly screen through those one dollar hamfest 5814A's before I actually test them in a receiver. Parenthetically though, I think that tubes are best evaluated in a real circuit.

C603 and C-606
To reform these capacitors I used Roy's circuit, but rather than have everything exposed and take the

chance of getting zapped: i dived into my junk box and rescued a 2.5A Variac, TV pwr transformer, 0-500v voltmeter and multirange-milliammeter, and a 1A fuse. Stuck it all into a enclosed case that's grounded and painted it Navy grey. A 3PDT toggle either powers the Variac up or discharges the electrolytic thru a 1000 ohm bleeder. I have a lot of larger BA electrolytics, so this little project saved a lot of 'haywires'. Two General Instruments and one Pyramid electrolytic falied, but the Sangamo's & Cornell-Dubliers reformed nicely with only 0.3mA leakage at 250v.

Audio deck
Nolan had an idea to mount four washers as a "mini-stand-off" under this subchassis to allow some heat to leak out when it is mounted into the frame. This may or may not make thermal sense, but it doesn't hurt.
220VAC muffin fans running at 110
One of these days I plan to mount these fans outside the sides to blow air into the frame over the AF deck and out the top. They sold for next to nothing at Radar Electronics in Seattle. W. Li Mercer Island, WA

From w9ran at oneradio.net Thu May 12 23:17:40 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

Here's a little more information on how this unfolded.

Keith W9KGY was contacted by the producer last Wednesday, and referred him to to Ken Miller K6CTW, who is a Morse Telegraph Club member in the Los Angeles area . They were to videotape him doing a CW demonstration in Fullerton over the weekend, and he was later notified that the demnstration would have to be taped this coming Friday morning.

According to W9KGY "Since we had no time to get telegraphers lined up, Ken worked it out with another ham to work with him and they were going to use CW and that Yaesu is supplying the radios, FT-817D's. I still feel bad that we didn't have time to line up two top telegraphers. It was do it Friday or else! It is supposed to be a one minute segment. I'll have to record the show because that is past my bedtime."
So that's how it happened, and obviously explains the Yaesu connection.73, Bob W9RAN

From N4BUQ at aol.com Thu May 12 23:33:33 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

There was an article on cnn.com a few weeks ago about some British gentlemen who did this. Old-timers as I recall (maybe 90 years old?). They did beat the text-messaging folks! Barry - N4BUQ

From roy.morgan at nist.gov Fri May 13 10:27:52 2005
Subject: [R-390] Re: little things

wrote: >Over the years, I have made some little additions to >my trio of R-390A's that may be of use to you guys.

Bravo!
This is the kind of post that helps both the new folks and the experienced-encrusted graybeards. Thanks for the summary of Tips.

> Antenna input >I used Chuck Rippel's suggestions

I plan to experiment with little toroid baluns - small enough to fit inside the Twinax connector. A reducer of some sort and a piece of coax fitted with a female BNC cable mount connector will finish the job.
> F101 and old two conductor pwr cord >... a new Corcom EMI power receptacle...

This is a fine mod. The EMI situations we have are far less demanding than the miltary had. Most modern EMI filters don't trip ground fault interruptors. The three wire grounded line cord is a VERY good idea.
>TB-103 >Jumpered 6 and 8 to bypass R101 (6800 ohm) to increase output. Works.

For those like me who don't remember the details: TB-103-6 is local audio out (600 ohms), TB-103-7 is ground, TB-103-8 is phones out, in parallel with the front panel phones jack. So this mod changes the output impedance of the phones jack and rear terminal from about 7.4k to 600 ohms.

>I-177 5814A accessory (to test 5814's)

Of course one remedy is to acquire some more tube testers.. heheh

>C603 and C-606
>To reform these capacitors I used Roy's circuit, (B+ supply with vairac): >... an enclosed case... 3PDT toggle either powers the >Variac up or discharges the electrolytic thru a 1000 >ohm bleeder.

This is a fine test fixture.. very handy. Embellishments could be:
- An octal socket for the plug-in caps,
- Series current limiter resistors for each section
- On-discharge switches for each section
- External cap connections
- A panel voltmeter, or terminals to hook up your VTVM or DMM
- A switch to select which cap is being measured.

>...the Sangamo's & Cornell-Dubliers reformed >nicely with only 0.3mA leakage at 250v.

I use a 100 k series resistor and set the variable supply so it drops about 100 volts. This gives a reforming current of one millamp. If the variable supply is able to reach 550 volts, you can reform most any electrolytic to 1 to 5 ma with little danger to anything.

>Audio deck >Nolan... four washers as a "mini-stand-off"...some >heat to leak out

Cooler is better, for sure.

>220VAC muffin fans running at 110 >One of these days I plan to mount these fans outside >the sides

Again, my crude fan plate for the R-390/URR is shown at:
<http://home.comcast.net/~roysmorgan/ba/FanPlate.html> Some changes may be needed for the R-390A. Roy

From wli98122 at yahoo.com Fri May 13 13:34:11 2005

Subject: [R-390] Re: little things

Roy: Thanks for your kind comments!

1) TB103
I'll wager that most folks do not know that the native R390A has a 7.4K phone jack impedance, so that ALL of our receivers ought to have this mod installed. For myself, I mounted my 600ohm->8ohm transformer in a ext. small cabinet that houses a 6" spkr so that it can be used with any 600 ohm mil recvr. A slide switch can allow direct connect to the 8ohm spkr if required.

2) C603-C606
My unit has a panel mounted voltmeter across the test capacitor, as well as a panel mounted milliammeter. The only ext connections are to the test cap, and you just have to take care not to grab the live connections. ;.)

The case is, of course, grounded thu its own 3-wire cord. It would be reasonable to add an isolation transformer before the Variac. The Variac output is fused. Should have mentioned that the same toggle that powers the unit down, also completes the condenser bleed circuit (which is, of course, opened when you power up).

3) 220v muffin fans
I erred: mine are not muffins, but German-made 6" case fans in a cage. Any flattish form factor will work. **Directron.com** has a huge selection of new fans by the way. They only sell to geeks though.
W. Li Mercer Island, WA

From ham at cq.nu Fri May 13 22:58:06 2005
Subject: [R-390] R390 Baluns

Hi

The use of baluns with R390's is a topic that comes up fairly often. The first implicit assumption is that it is necessary to match the input impedance of the reciever to the antenna in order to get optimum performance. The second implicit assumption is that the balun will handle the real impedances of the radio and antenna.

A lot of what we learn about antennas comes from working with transmitters. They don't really work the way we think but the math works out anyway. In order to make a transmitter work properly you do need to supply it with the load impedance that it was designed to operate with. If we get to far away from that impedance bad things will happen. The issue is that the output stage in the transmitter has voltage and current ratings. If you exceed them smoke comes out.

Balun's are a bit like transmitters. You design them to work with specific resistive impedances on both side of the device. In a transmitter application loss in the balun equals heat in the core. If things get hot enough they explode. Balun explosions sound sound like a joke but they have killed some pretty famous people. The difference between 0.1 db and 0.3 db in a transmit balun can be a big deal.

So far all of this stuff is pretty well understood. It's also pretty important to understand so we spend a lot of time teaching it. A lot of people learn it as "gospel" without fully understanding that it applies

specifically to transmitters.

Receivers are different than transmitters. One clue to this is when we rate them the units are microvolts and not something watts. Another more subtle clue is when we check the specifications on a well documented receiver (like the R390) the input impedance is given as a range rather than as a specific number. One way to look at this is that you get more voltage out of a given source if you run it into a high impedance load rather than a matched load. If volts are what counts then that's the way to get volts.

Receive antennas are different than transmit antennas. We rarely have the room to put up great big broadband antennas (like a rhombic). The antennas we work with are generally end feed or some kind of dipole. In either case we can't afford to cut one for each band we operate on. Since these antennas are commonly used there is a lot of data on what their impedance looks like over frequency. The data is available from a number of sources ranging from modeling programs to data on the web. The short version of the story is that these antennas are a lot more likely to be high impedance than low.

So far hopefully so good. This is all stuff That pretty much makes sense or can be quickly checked out.

Here's the first part that gets bizarre. When you match a source you cut the voltage available in half. That gets you 6 db of loss. When you do the match you cut the impedance in half. That ideally drops the noise figure by 3 db. The net result is that the signal to noise varies by about 3 db or so as we match or don't match the antenna. A 0.1 db to 0.3 db variation in loss is not a big issue on a receiver.

One other way to look at this is that a 10 or 20 db signal to noise is needed for reasonable reception. With the detectors in an R390 the output signal to noise is approximately the input signal to noise. The difference between a 10 and a 10.2 db signal to noise is not going to be a big issue.

Transmit baluns have a tendency to saturate the core. When they do this you get some extra harmonics. A harmonic 40 or 60 db down is a problem. With a receiver a distortion product 120 or 140 db down can be a major issue.

So what's this all mean.

Receiving baluns are different than transmit baluns.

1) You would think that they could be pretty small. The distortion requirements make this less so than you would think. Big cores are a good idea.

2) The transmit formulas give you a required inductance. In a receive application the optimum inductance (and impedance) on a typical receive application is actually higher than for the transmit application (like two or three times higher). This is especially true since the inductance impact is greatest at the lowest frequency. That's also where the antenna impedance is highest.

3) With a R390 balance is an important part of the front end design. It also needs to be part of the balun design. This likely will drive you to a dual core design. The same impedance boost requirements apply to both cores.

4) Evaluating a transmit balun is fairly easy, run it and see if it gets hot. Since our ear responds to loud rather than good evaluating a receive balun with a real antenna is not so easy.

5) Multi wire magnet wire works pretty well for low impedance baluns and for transmit baluns. Twisted teflon insulated small diameter hook up wire works better for receive applications.

That's the easy part.Now you need a non-integer transform .... Take Care! Bob Camp KB8TQ

From N4BUQ at aol.com Fri May 13 23:04:38 2005
Subject: [R-390] Slug Rack Lube?

What are some of you guys using to lubricate the slug racks? I have a very squeaky 0.5 - 1.0 rack. It is not the cam followers, but the rack sides against the frame. I had thought about some kind of silicone coating (spray?) but didn't know. It seems MobilOne is too thin in this area, but maybe not. Thoughts? Thanks, Barry - N4BUQ

From ham at cq.nu Fri May 13 23:01:00 2005
Subject: [R-390] Slug Rack Lube?

Hi, The MobileOne gear lube seems to work just fine. It's sort of like a 90 weight oil. Enjoy Bob Camp KB8TQ

From N4BUQ at aol.com Fri May 13 23:23:02 2005
Subject: [R-390] Slug Rack Lube?

That's what I'd heard before. Perhaps I can find a small amount somewhere. I just hate to get a whole quart for a thimbleful. Thanks!Barry - N4BUQ

From jmiller1706 at cfl.rr.com Fri May 13 23:37:53 2005
Subject: [R-390] Slug Rack Lube?

Your squeak may not be metal moving parts. If the slugs are tight inside the coil forms, they might squeak too. Slugs get tight if the coil form has expanded (may have gotten wet). I take some very fine sandpaper and roll it up like a cigarette so it fits inside the coil forms and gently smooth down the insides of the coil forms. Your mileage may vary, N4BE

From N4BUQ at aol.com Sat May 14 00:05:49 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

Just watched this a few minutes ago. The look on the guy's face when the Morse Code receiver held up his hand to signify "finished" was priceless! Barry - N4BUQ

From wa4jqs at mikrotec.com Sat May 14 00:03:18 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

wrote: >Just watched this a few minutes ago. The look on the guy's face when the >Morse Code receiver held up his hand to signify "finished" was priceless!

AMEN ! the kid could not believe he got beat ! ZUT de wa4jqs

From barry at hausernet.com Sat May 14 00:09:38 2005

Subject: [R-390] Slug Rack Lube?

I've used molybdenum ("moly") paste with good results on the slug rack ends and the inside surfaces of that part of the RF deck. You apply it as if you were simonizing/polishing. Fills in the pits in the metal and leaves a slick surface. You can add a film of oil or not. You could try polishing the rubbing surfaces, but the moly stuff works by filling in rather than removing material. Barry

From barry at hausernet.com Sat May 14 00:38:17 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

wrote > Just watched this a few minutes ago. The look on the guy's face when the > Morse Code receiver held up his hand to signify "finished" was priceless!

I made a point of watching it -- beat by 170 year old technology. May well be that some kids will consider it "kewelll!" Watch -- Nextel will spam me with the latest greatest -- Bluetooth Blackberry with 9 Megapixel Camera and ... built in code-key! Barry

From dwade at pacbell.net Sat May 14 00:45:25 2005
Subject: [R-390] Slug Rack Lube?

I used Woods Waterproof Bicycle grease since I have alot of it around (my other avocation). Works great, and you can dunk your `390 and have the grease stay put. :) Dennis

From kgordon at moscow.com Sat May 14 01:00:28 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

> Just watched this a few minutes ago. The look on the guy's face when the Morse Code receiver held up his hand to signify "finished" was priceless!

We don't get the Tonight Show here. I wonder if it could be found on the internet somewhere? Or did anyone happen to record it? I would pay for a copy... I would LOVE to have it to show to my kids, especially the smart-assed computer-idiot one. Ken Gordon W7EKB

From ham at cq.nu Sat May 14 07:26:52 2005
Subject: [R-390] Slug Rack Lube?

Hi The other advantage of using the Woods stuff is that it adds a nice green touch to the radio. Take Care! Bob Camp KB8TQ

From N4BUQ at aol.com Sat May 14 09:39:27 2005
Subject: [R-390] Slug Rack Lube?

Ding ding ding!

I removed the slug rack, removed the transformers, replaced the slug rack and no squeak. Must be in the coils. Replaced everything. I then rotated the KC to mid point (X.500) where the slugs for the 0.5 - 1.0

rack are all the way down in their respective cans. I loosened the slug holder thingees and let the core spring center itself in all three cans. Squeak gone! Thanks! Barry - N4BUQ

From mjmurphy45 at comcast.net Sat May 14 13:09:22 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

I liked how the Tonight Show dressed both of the hams in old time telegrapher outfits for added effect. Nice job. Mike WB2UID

From tetrode at comcast.net Sat May 14 14:07:34 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th! - link

Here's a link to a wmv vid of the event, do a right click and save it to the HD, and THEN play it.

It was pretty cool but I'm really glad one of the hams spoke up and blurted that it was Ham Radio that he was involved with, other wise there was no mention. Personally I thought the old time telegraphers outfits were kind of dorky, I think when the public sees this it reinforces the image of us being very eccentric. Oh well! http://www.kkn.net/~n6tv/ 73, John

From w9ran at oneradio.net Sat May 14 15:41:26 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th! - link

wrote: > Personally I thought the old time telegraphers outfits were kind of dorky, I think when the public sees this it reinforces the image of us being very eccentric. Oh well!

The original idea was to use MORSE telegraphers, which is why the producer first contacted the Morse Telegraph Club, but they weren't able to muster a partner for Ken in time, so they switched to CW instead. While the demonstration was terrific, it would have been even more impressive had they whipped the young-uns copying Morse from a 150 year old sounder (with Prince Albert can resonator)! 73, Bob W9RAN

From N4BUQ at aol.com Sat May 14 15:50:13 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

Kind of wish he had used a straight key. It seems a bit like cheating to use the keyer. If the guy with the cell phone had a standard keyboard interface, then he could have won. Picky I guess... Barry - N4BUQ

From tetrode at comcast.net Sat May 14 16:39:31 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

Yeah,

Robert was correct, they were putting the emphasis on the old Morse not modern CW but of course the pooblic wouldn't know the difference.

But from what I've read straight keys went out from Morse as soon as the Vibroplex and other bugs

became available around 1904 (see QST Jan 2003). Many a top op had his career prematurely ended by the dreaded "glass arm" which today is recognized as a repetitive motion injury aka carpal tunnel. Anybody know how fast that CW was? It was a tad fast for me but after I knew the message I could verify it when listening to it. John

From n4buq at aol.com Sat May 14 16:51:02 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

Sounded about 15 wpm, but not sure. I tried to copy, but too much QRM. Barry - N4BUQ

From n4buq at aol.com Sat May 14 17:00:54 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

Hmmm, gave the file a listen again today. I think that's more like 20 wpm(?). Barry - N4BUQ

From kgordon at moscow.com Sat May 14 17:44:57 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

wrote:> Hmmm, gave the file a listen again today. I think that's more like 20 > wpm(?).

That's around the speed I figured it at. The guy on the keyer was obviously a bit nervous (as I would have been). I caught a couple of mistakes made in sending, "...my car..." was sent as "...cy car...", and there were a couple of places where his spacing between words was too fast, but it really didn't matter much, since he kept going and the receiver obviously made sense of it.

I thoroughly enjoyed the demonstration. I especially enjoyed it when I showed it, more than once, to my smart-assed computer-idiot son. Ken W7EKB

From w9ran at oneradio.net Sat May 14 21:33:11 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

wrote:>Hmmm, gave the file a listen again today. I think that's more like 20>wpm(?).

Agree. I count 39 characters in about 22 seconds, so using the FCC rule of 5 characters per word, that's right at 22 wpm. (In other words, the CW ops could have REALLY stomped them if we wanted to!) 73, Bob W9RAN

From mikea at mikea.ath.cx Sat May 14 21:44:38 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

wrote: > Hmmm, gave the file a listen again today. I think that's more like 20> wpm(?).

I'd have said 20, maybe up to 25 in spots; certainly nowhere near as fast as some of the QSOs I hear (but can't copy) on the ham bands. Some of the OTs just _blaze_ along. I _did_ manage to get "I j", but after that it was just didahs. Mike Andrews W5EGO

From: dmetz at ntelos.net (Dave or Debbie Metz) Date: Sat May 14 22:05:27 2005
Subject: [R-390] FS 390A

I thought I had this unit sold to a list member but it did not work out.

Works great, excellent cosmetics, spotlessly clean gears, new painted knobs, original meters, generic tag, a pair of Hank's covers a pair of tube pullers and nice smooth KCS action. It has the Dallas Lankford AGC mod which is obviously easily reversible if someone wanted to do so, 12BA6's for the PTO and BFO to eliminate the ballast tube, solid state rectifiers per the military--not me. The power input filter is included, but not in the radio, (too leaky). Also included is a 98% complete 2nd generation or so copy of the manual but is very useable. My reason for selling this is that there is too much heavy iron around this house that never seems to see juice to the plug Price:$575 plus shipping @100lbs from STaunton Va. 24401. At the risk of irritating Fair Radio if they subscribe, this is way more than their used checked units for the same price and you get original meters to boot. If you are close or coming this way , pickup is fine too-- with no rush. I am along I-81 in the Shenandoah Valley about 3 hours SW of Washington DC. Add power, antenna, speaker and enjoy! Thanks dave

From kgordon at moscow.com Sat May 14 22:11:32 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

wrote:> Agree. I count 39 characters in about 22 seconds, so using the FCC rule > of 5 characters per word, that's right at 22 wpm. (In other words, the > CW ops could have REALLY stomped them if we wanted to!)

Right on! > 73, Bob W9RAN

I had guessed between 20 and 25 wpm. I managed to copy all of it, but it would have REALLY frosted those young whipper-snappers if they had done it with a sounder and hand key. Personally, I thought the telegrapher's outfits were MOST appropriate. I thoroughly enjoyed it. I downloaded a copy and have played it about a dozen times...so far. Ken W7EKB

From N4BUQ at aol.com Sat May 14 23:47:01 2005
Subject: [R-390] Clutch!

So, this is what it's like to have a clutch that works properly! I rebuilt the clutch mechanisms in both my R309A's. The Motorola has always been sticky. Disengage the clutch and the VeederRoot still moves a bit until I rock the KC knob a bit. On the "new" one (Teledyne), disengage the clutch (and I can really tell that it disengages) and the VeederRoot counter stays very still and I can adjust zero very easily. So much fun...Barry - N4BUQ

From mikea at mikea.ath.cx Sun May 15 00:08:22 2005
Subject: [R-390] Clutch!

wrote: > So, this is what it's like to have a clutch that works properly! I rebuilt > the clutch mechanisms in both my R309A's. The Motorola has always been > sticky. Disengage the clutch and the VeederRoot still moves a bit until I > rock the KC knob a bit. On the "new" one (Teledyne), disengage the clutch > (and I can really tell that it disengages) and the VeederRoot counter stays > very still and I can adjust zero very easily. > > So much fun...

Now that you have a good one, you can see what to do to fix the bad one in the Motorola, too. Mike Andrews, W5EGO

From N4BUQ at aol.com Sun May 15 00:51:16 2005
Subject: [R-390] Clutch!

Perhaps. I disassembled and reassembled the first one several times with the same results. I'm thinking of doing a geartrain rebuild on it so I'll dig into it one more time then. Barry - N4BUQ (R309A ??)

From minmar at 2z.net Sun May 15 01:29:44 2005
Subject: [R-390] RE: What Came After The R-390

Good evening gentlemen.

Can anyone tell me what kind of receivers were in use by the military & civilian agencies after the R390's were phased out. In other words which radios are we going to collect and refurbish next? This question may be answered in the archives but I couldn't find it. Regards
Orrin Bentz

From CRIPS01 at MSN.COM Sun May 15 04:05:39 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th! - link

Just download the clip; oh my God this is priceless!!!!!!!!!!! the smug look on text message geeks face, and then change to the look of what just happened here. Then the sender rubbing and blowing on his fingers to pour salt on the wounds. great stuff.
Ken

From CRIPS01 at MSN.COM Sun May 15 04:47:13 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th! - link

My Grandfather was a Western Union telegrapher back about 1915 or so. He used a bug, it is to bad they couldn't have used one of those. Ken

From courir26 at yahoo.com Sun May 15 08:28:30 2005
Subject: [R-390] RE: What Came After The R-390

I guess the R1051 came after the 390A. There were many versions.

Here is some info.
1051
General Dynamics, cost $25,250
NObsr 93015 hi s.n. C731
NObsr 83368 hi s.n. B929

1051B
Bendix (Allied Signal Inc), cost $25,250

NObsr 93204 hi s.n. A7980

1051C
General Dynamics, Black face
AF19(628)-4860 hi s.n. 25

1051D
GDE Systems Inc (General Dynamics), cost $16,830
N00039-68-C-1585 hi s.n. A898

1051E
Bendix (Allied Signal Inc), cost $25,250
None

1051F
Stewart Warner Corp., cost $21,210
N00039-76-C-0297 hi s.n. A55
N00039-89-C-0298 hi s.n. C$
N00039-70-C-0559 A88

1051G
Stewart Warner Corp, cost $21,210
N00039-79-C-0109 hi s.n. A586
N00039-89-C-0298 SER# C3

1051H
Stewart Warner Corp, cost $50,490
N00039-83-C-0292 hi s.n. A176
N00039-87-C-0164 hi s.n. B442

After that the main receiver is the RF-590 series or R-2368 by Harris.Tom

From ham at cq.nu Sun May 15 11:01:59 2005
Subject: [R-390] RE: What Came After The R-390

Hi, We just went through a fairly detailed thread on this about three weeks ago. It should be fairly easy to find in the archives.

The R390 radios are fairly unique. They were "front line" radios for a long time. Unlike a lot of military gear they were used by all of the services and many agencies. There are *very* few pieces of gear of any type that have been as widely accepted. The .45 Colt pistol is about the only item that comes to my mind.
The R390 is fundamentally a fixed location radio rather than a portable or strap it on a jeep mobile radio. The 390's were made in enormous numbers considering the type of radio they are. No other radio of this type has ever hit nearly the same production numbers. No other radio of this type has been made by as many people for as many years. Again it's a unique radio.

Up to the point that the 390's came out each of the services came up with their own radios. After the R390 to a great extent they went back to the same pattern. There is a series of radios used by the Marine Corps that is different than those used by the Navy. Navy radios came from different suppliers and were

designed differently than Army radios. The Army and Air Force shared some gear but generally issued different sets for the same basic missions.

The agencies radio usage is even more obscure and complex than usage by the services. The services could afford to design radios from scratch. The agencies for the most part simply did not have a big enough budget to do that sort of thing. Radios were designed targeted at agency type requirements, but from the ground up for a given agency.

The 390's were used in various missions from the early 1950's through the early 1990's. For all we know they are still deployed somewhere in the world by the US. Certainly the bulk of the usage was in the late 1950's and 1960's. The 390A radios began to show up as common items on the surplus market by the early 1970's. In the late 1980s the government was worried enough about them to buy a ton of spare tubes to keep them going.

One technically correct answer to your question is the Harris RF-590. It was designed from the ground up as a replacement for the R390. The similarity of the numbers between the two radios is deliberate. They were sold into a number of systems where they directly replaced the
R390's both in service and agency service.
Another fundamentally correct answer to the question is the R1051. This is a Navy only radio rather than a multi service / multi agency radio. It is essentially a return to the previous pattern of radios designed for the specific needs of a single service. The 1051's definitely dropped into racks that R390's came out of and did so starting in the 1960's while the bulk of the R390's were being built. The R1051 was designed specifically to overcome limitations of the R390 in Navy usage. They are also still in service in the Navy.
In another respect just about any HF radio that was made in quantity by Collins, Racal, Watkins Johnson or Harris did replace the R390 in some application with either the services or agencies. Certainly the Racal 6790GM and the Harris RF550 are in this category.

The final way to look at it is that there really was no replacement for the R390. Communications requirements have changed over the years. The biggest role of the R390 was in backbone communications for the DOD. The full deployment of satellite based communications in the 1970's took HF out of the backbone role. We can debate the intelligence of this move, but it is what was done. In this sense the replacement for the R390 is a radio that doesn't even cover HF at all.

Fortunately this is a hobby and not a court of law. We each get to decide what to do with our own collections. Just about any set of radios can be described as forming a reasonable "evolution" of radio systems. As you may have guessed by now I have a few of radios that came after the R390 in my collection. I make no claim that I have an exhaustive set, or even a representative set.

No matter which way you go there is some cost involved. None of these radios are 100% reliable. Parts for all of them are hard to come by. Simply buying one of each is not a reasonable way to have a working set of radios. Either you will spend a lot of time and money shipping radios out for repair or you will maintain a stock of parts yourself. As the radios get newer they get more expensive. A rack full of RF590A's will set you back just a little.

Best advice would be to pick *one* of the successor radios and focus on it. Get a reasonable setup including spares and manuals. Once you are comfortable with the stability of that part of the collection move on to the next radio. Most of us are limited in the cash we can spend on this hobby. If you have a *lot* of money to put into this then we need to talk .... Assuming you have a rational budget the best guess is that you are talking at least a couple of years per radio type. Take Care! Bob Camp KB8TQ

From barry at hausernet.com Sun May 15 11:45:23 2005
Subject: [R-390] RE: What Came After The R-390

Bob (& list) ..

What about the SRR-XX series of modular (submini tube) receivers? They're Navy only and first came out a bit after the '390s, ahead of the 1051's.

Substantial overlap in usage of all three even though the first R-390 came out in '51 and first 1051's in late 60's. SRR's came out somewhere in there in the early/mid 50's. Can anybody clarify? Barry

From djmerz at 3-cities.com Sun May 15 15:58:56 2005
Subject: [R-390] Callsign past

Hi, I'm trying to i.d. the builder of a homebrew receiver that I have. Based on the paper notes, schematics that accompanied the set, I believe his first name is John and his callsign was WN1DQX. The receiver was built in 1964. I have only a callbook from 1991. Does anyone have a callbook from around the 1964 period? Or maybe there's some other database available for old callsigns? Dan.

From chacuff at cableone.net Sun May 15 16:02:39 2005
Subject: [R-390] Slug Rack Lube?

Hi Barry and Group,

I have been working on an R-390 recently that is also exhibiting the squeaking noise on a couple of the racks. I know it's not the coming from the cam/bearing contact points because they are well lubed and all rotating. (bearings) The ends of the slug racks and the RF deck frames are not touching or loose in my radio so It's not that...so it only leaves the cores sliding in the coils. The R-390 has no adjustment that allows tensions to be removed from the cores due to slight misalignments as the "A" does. I noticed the cores are also coated with some type of shiny outer coating as well. Maybe to aid in friction reduction.

I have heard of guys using a ceramic stone and polishing those contact points. I would assume some type of lubrication would also be in order. I have used the Mobil 1 synthetic lube at those points as well with good luck. A good Teflon gun lube would also be another thought...Cecil...

From ham at cq.nu Sun May 15 17:53:50 2005
Subject: [R-390] RE: What Came After The R-390

Hi

The SRR's certainly did similar things compared to the R390's. I would call them contemporaries of rather than replacements for the R390. I certainly would bow to the knowledge of others if they know of R390's being pulled and replaced with SRR series radios. Enjoy! Bob Camp KB8TQ

From r390a at rcn.com Sun May 15 17:56:03 2005
Subject: [R-390] Ahoy! R-390A sighting aboard USS Hornet

Earlier this year we were visiting in the San Francisco and we took a tour of the USS Hornet http://www.uss-hornet.org moored at Alameda Point. Well worth your time if you are in the area.

After being a little disappointed to find that the radio room was not yet open to the public, I was surprised to find two R-390A receivers adjacent to the weather compartment. The pictures I took are here: http://img50.exs.cx/gal.php?g=img26703gj.jpg&cols=3 (select an image by clicking it - once it displays, click it again for a larger version).

They both seem to be EAC but I don't know which contract. Meters missing, perhaps removed when the ship was decommissioned? Both have the front panel diode load modification so they're likely Navy. Label added by the museum calls them 'R-390'. Dual cabinet CY-2416/U was a new one to me, never saw one before. Since the ship has gone through many refittings, perhaps the case was a leftover from earlier equipment?

Other gear spotted:

3 x Frequency Shift Converter CV-89A
2 x Frequency Shift Converter CV-172A/U
Modulator MD-168/UX
Kleinschmidt (?) Teletype
RBC Receiver

All of this gear is in somewhat rough shape - the compartment where they are housed is open on one side and the sea air is taking its toll. This is not a knock on the fine folks running the museum. They have an enormous task and not many hands to do the work.

The Hornet had been sold for scrap (primarily for the copper), but the contractor returned it to the government because they could not dismantle it economically and comply with California's environmental requirements so it wound up as a museum.

There's been a lot of discussion on the list of some of the more glamorous roles for the R-390 - intercept, tactical communications and so on - but they also served in more mundane tasks like weather FAX reception. 73, /dave N9ZC

From ham at cq.nu Sun May 15 17:57:01 2005
Subject: [R-390] Slug Rack Lube?

Hi,

Be careful with Teflon gun lubes in combination with other odd lubricants and cleaners. You can wind up with Teflon gumbo in a big hurry. Moly powder and talcum powder have both been suggested as core lubes for the R390 not an A's . Enjoy! Bob Camp KB8TQ

From ham at cq.nu Sun May 15 19:39:44 2005
Subject: [R-390] RE: What Came After The R-390 - Collectable.

Hi,

I guess this could be answered in another fashion. Many of the radios that came after the 390 probably will not be a big hit on the collectors market thirty years from now. Many of the radios that were in service at the same time as the 390A are not a big deal in collections today.

Right now my collectable in 30 years, but not a 390 guess would be:

1) Racal 6790 GM

2) Harris RF-590

Both are common enough to have a following. Both are well enough made to be here in 30 years. I have an personal bias as to which is the better radio. There are a *lot* of other candidates if you get into smaller production run radios.

My guess is that in 30 years the R390 will still be more collectable (along with the SP600 and RA 17) than any of the radios that came after them.

If Hank's around he'll toss some odd German radio into the mix and he's probably not wrong. If there's a Russian on the list they might add a R250M2 and I would not argue with that either. Pretty much all of these radios served in the same era as the 390. They all represent similar solutions to a common problem. The radios that replaced them were solutions to a different set of problems. Take Care Bob Camp KB8TQ

From mjmurphy45 at comcast.net Sun May 15 20:23:52 2005
Subject: [R-390] Ahoy! R-390A sighting aboard USS Hornet

Dave,

Nice to see the RBC too. That is a real boat anchor. There were some folks talking about radios with front end selectivity - the RBC is right up there with the other radios mentioned with fantastic shielding and two RF stages. The Navy needed a radio for the fleet that could not be RDF tracked by it's receivers local oscillators or a regenerative stages (or any other oscillators) by an enemy warship. This was a common way to find enemy ships during and after WW1. Lord Mountbatten was a radio officer in the 1930's doing RDF work in this way. Mike Murphy WB2UID

From chacuff at cableone.net Sun May 15 20:43:05 2005
Subject: [R-390] Slug Rack Lube?

OH...I was speaking of the metal to metal points on the ends of the slug racks...I would never use a lubricant in liquid form on the slugs or coils...That would be inviting big time trouble for sure.

I personally haven't used the gun lube on any of my radio's as the Mobil 1 has worked great! Cecil....

From g4gjl at btopenworld.com Mon May 16 09:22:03 2005
Subject: [R-390] Clutch!

Barry, et al., How many degrees of rotation do you need to get satisfactory disengagement?

My 390As all seem to need 270 to 360 deg. My R391 needs a lot less....maybe 90deg only. Is there a

difference in the designs here? I have not had the 391 apart to look at the mechanism closely. Pete G4GJL

From roy.morgan at nist.gov Mon May 16 10:43:28 2005
Subject: [R-390] CW/SMS Battle on Tonight Show Friday 13th!

wrote: > > Just watched this a few minutes ago. The look on the guy's face when the > > Morse Code receiver held up his hand to signify "finished" was priceless! > >We don't get the Tonight Show here. I wonder if it could be found on >the internet somewhere?

Ken: Here's just the code competition clip (8 mb): http://www.kkn.net/~n6tv/ Roy

From roy.morgan at nist.gov Mon May 16 11:13:41 2005
Subject: [R-390] Slug Rack Lube?

wrote: >... an R-390 recently that is also exhibiting the squeaking noise on a >couple of the racks.... I noticed the cores are also coated with some type >of shiny outer coating as well. Maybe to aid in friction reduction.

Cecil, It may well be that the core material turned out shiny after the manufacturing process.

I suggest you find a bit of car wax, butcher's wax, or bowling alley wax. If you garage doesn't have any car wax, look in the housewares section of the grocery store. You won't need much money. Put a little wax on a Q-tip and wax the inside of the coil form, and the outside of the slug. I'll bet the squeak goes away forever.

If you want to use the ultimate was, get Rennaisance Wax, designed and used by the curators at the Victoria and Albert Museum, London. Expensive, but archival quality. Ultra fine microcrystalline structure or some such stuff. One source is: http://www.restorationproduct.com/ (200ml (7fl. oz.): $20.00 per can) where the price is about the same as at http://www.lightimpressionsdirect.com ($19.95 for 8 oz.) The first place offers a 12 ounce quantity for less. This stuff is good for any radio, metal, painted, wood, bakelite, or whatever.

>I have heard of guys using a ceramic stone and polishing those contact >points. I would assume some type of lubrication would also be in >order. I have used the Mobil 1 synthetic lube at those points as well >with good luck.

I assume you mean the metal parts, not the coil slugs or phenolic forms. Just the smallest bit of grease of almost any kind will do the job. The wax brobably would, too. Roy

From roy.morgan at nist.gov Mon May 16 11:21:21 2005
Subject: [R-390] Ahoy! R-390A sighting aboard USS Hornet

wrote: > ...a tour of the USS Hornet http://www.uss-hornet.org moored at >Alameda Point, San Francisco. Well worth your time if you are in the area.

Dave, I'll make a point to see it next time I visit my daughter in San Francisco. Indeed, those radios are in bad shape!

>... the R-390 - ...also served in more mundane tasks like weather >FAX reception.

Is there anyone doing FAX by radio nowadays? Ham, commercial? I have a TMC frequency shift keyer that would make the signals. No FAX reader or printer, though. Roy

From bipi at comcast.net Mon May 16 12:09:48 2005
Subject: [R-390] Ahoy! R-390A sighting aboard USS Hornet

I regularly copy FAX weather maps on HF frequencies. 73 de Mike K7PI

From N4BUQ at aol.com Mon May 16 14:07:40 2005
Subject: [R-390] Clutch!

For the new one, it is about 180 to 270 degress from the point at which I can feel the disk first engage the posts to where the clutch is disengaged. When it does disengage, the geartrain is immediately freed from the PTO; not exactly so on the older (Motorola) one.

On the older one, it doesn't seem that much different, but when the clutch disengages, it isn't quite fully disengaged until I rotate the KC knob a bit. It's as if something is sticking and it takes a slight bit of rotational force to free it. Once that happens, it rotates pretty freely. I'm thinking it may have some sticky residue somewhere on the clutch disks that still needs to come off. I tried it oiled which did not work very well at all. The oil caused the plates to stick together big time. It should be dry at this point, but maybe some of the Mobil One got into it. Either that or there is something else sticking. Thanks, Barry - N4BUQ

From g4gjl at btopenworld.com Mon May 16 17:01:49 2005
Subject: [R-390] Clutch!

Thanks for that, Barry.

You have prompted me to tak a closer look at the clutch designs. I seem to recall about 90deg was all you needed on one or two sets I have played with at a local Ham's QTH..

I think you would be right to remove all / ther MAX amount of stray oil / grease etc. I dont think it would help the clutch bite at all.

Im doing a couple of St Juliens rebuilds at the moment , so I have the opportunity to get to grips with the designs at CLOSE quarters! Thanks for the comments. 73 Pete G4GJL

From n4buq at aol.com Mon May 16 20:51:24 2005
Subject: [R-390] Clutch!

Pete,

When / if you do the clutch rebuild, I'd like to know how many spring washers you find in each. I'm wondering if they Motorola may have too many spring washers thus requiring just a wee bit more disengagement pressure than might be necessary and that's what might be causing the stickiness. Just a

thought. I'm thinking this might have been something they set at the factory based on some pressure test, but not sure. Thanks! Barry - N4BUQ

From Flowertime01 at wmconnect.com Mon May 16 21:48:24 2005
Subject: [R-390] Clutch!

Fellows,

The zero adjust clutch has no "adjustment" they either work or do not work. The different production runs had different "feels" to the adjustment.

The critters did and do get dirty, mostly they were "washed" and "run dry" with a minimum of oil.

The disk on the zero adjust shaft does not have such a good shaft bearing. This has always been a point of friction in the design.

You can read the TM and take the clutch apart if you need to really get one clean (you may have to). Otherwise you hung the RF deck off the edge of the bench and sprayed liberal amounts of your favorite solvent through the gear train and followed with compressed air to blow dry. Mobil synthetic oil is now the relube of choice.

The clutches all sort of had a different feel. Some would open up and roll nice, others just felt like they dragged. We never did any thing about them in the service. The zero adjust was a go no go item. It did or did not function. when the receivers were much younger a good wash and lube got them back into a passing condition. No disassembly was required. Considering the age and where some of these receivers have been, a one time disassembly and cleaning could very well be in order.

I see some on the market trying to tell me I need to go an extra C on a receiver that has a smooth zero adjust and knobs that do not induce tunnel carpo and I may need a few minutes to pick my butt back up off the floor and stop snickering.

Real R390's needed work to operate and were part of every operators personal physical fitness program. A day cranking a R390 and you bend an elbow to get a few beers disposed of. Roger KC6TRU

From pwokoun at hotmail.com Mon May 16 21:53:50 2005
Subject: [R-390] Follow-up on CW/SMS Battle on Tonight Show Friday 13th!

This was copied from the HI Ham list:
>From the FT-817 list on yahoogroups.com

Here are a few comments from K6CTW, who was on the receiving end:

Well to answer some of the questions I have received:

1.? Ben was just getting ready to start entering the last 2 words when I was done.

2. None of us had any idea of the text we would be sending, not only for the "show" but also for the 3 rehersals (in which we smoked em every time)

3. Chip, K7JA was sending and I, Ken, K6CTW was receiving.

4. The radios were FT-817's provided by Chip's company Yaesu and HRO.? Reason for that choice was that we needed the most frequency agile radios we could get.? When I talked to the technical folks, they recommended we START at 2 meters and go up because of all of the lower frequency noise and RFI from the other TV equipment.? When I got there, we took out a spectrum analyzer and studied all of the interference possibilities.? I ended up choosing 432.200 MHz because that guaranteed no RFI from their equipment and we were high enough not to overload their front ends either.? This was then verified and it was what we were using at the FT-817's lowest setting.

5.? I already knew that 28-30 wpm would easily keep us in front of even the current world record holder, and also it is the fastest speed that I can make nice readable copy on paper with a "stick".

6. The telegrapher "costumes" were the producer's idea but it was fun for both Chip and I.

7.? In rehersal I, K6CTW had a number of lines which would have really done a nice job of plugging ham radio and telegraphy however at our last dress rehersal, they decided to cut them out to make the segment "fit". (maybe next time).

8. I decided that I would be the receiver because I'm not bothered by crowd noise etc.

If you enjoyed the segment, PLEASE email, write, etc. to let "The Tonight Show" know about it.? That way we may have a chance for a bigger segment next time. Thanks for the kind comments from all and let's keep on having fun! (It is a hobby after all). 73, Ken, K6CTW

From w6ger at uci.net Mon May 16 22:13:21 2005
Subject: [R-390] Re: Ahoy! R-390A sighting aboard USS Hornet

Ahoy Dave and the R390 Group,

The USS Hornet Amateur Radio Club has a WebSite with many pictures taken in several of the Radio Rooms. You can access the site at: http://www.qsl.net/nb6gc/

Click on the "PHOTOS" tab and you will have access to approx. 80 photos take recently aboard the "Grey Ghost".. 73 Al - W6GER

From bipi at comcast.net Mon May 16 22:15:53 2005
Subject: [R-390] Re: Ahoy! R-390A sighting aboard USS Hornet

Great photos...thanks very much! 73 de Mike K7PI

From Flowertime01 at wmconnect.com Mon May 16 22:32:52 2005
Subject: [R-390] RE: What Came After The R-390

Fellows, There are two kinds of radio receiver operation out there.

Type one is RTTY link fixed frequency. Fixed channel PRC series of transceivers work for this kind of operation. Most of the receivers I have seen in the last 20 years fall into this mode of operation. It is in

the detent and set to this frequency or you move it one detent stop and you are on the adjacent channel frequency. Nothing between the two choices.

Type two is more like Amateur operation and R390, any frequency between and across 31.5Mhz with a resolution of as fine as you are willing to work the knob to.

The intelligence agency's doing intercept work still have a use for this type of a receiver. You can drag in any signal if you work it long enough. You could put the original on tape real time and play it over and over until you get it if you wanted it. IE the commander said get it. These are the receivers we are going to want when they get surplused out. Someday they will be. R390's went out the door because the military was lobbied and congress was lobbied to have military contractors build new stuff and tax payers pay the bill. If the military needed more good receivers, they could have ask the low bidder to build another batch of R390/A.

The 45 was a good item since 1911. Someone wanted to sell something new and could not make money low bidding a new batch of 45 iron. So the lobby was in for the 9MM. The results is bla, bla, bla and BS.

Receivers changed over the years. Fixed frequency channel receivers and transmitters got cheep and easy to manufacture. Thank you CB, business band, and digital tuning. This type of receiver has been applied to every nitch it would fit into.

The small market, (Amateur, Intelligence, Science) for full tuning receivers has been put on the back burner. The "glut" of R390/A surplus has filled the market for most Amateur and science needs. So no one is building a military receiver to match the range of the R390's.

Long haul HF military has gone back to wire lines and satellite links. This has moved out of the HF range. A watt of hand held HF in a tactical battle field will get you killed. You put up a signal that can be DF'ed from 30 miles and you are going to catch so much incoming artillery you own unit will be jamming that radio where the sun never shines. So tactical battle field has also move into VHF, UHF and fixed digital channel tuning. Just because 1 watt will not go 30 miles.

While the Amateur community is facing more use on our frequency spectrum, other parts of the HF bands are getting much less use today. I can see amateur radio haveing any thing and every thing under 50Mhz. Of course we will have to live with BPL the application that finally drove every one else to spread spectrum and over 50MHz.

I was reading my copy of World Radio yesterday. The question to Krusty Kurt was "how do we get the AM off the Amateur Bands?" Just as I retire and want to get my DX100 and R90/A back on 7Mhz. CW and AM are the two low cost ways to still do it your self into Amateur radio. Why do we want to get Am off the bands? SSB has been there for 50 years plus and the comment is still SSB sounds best in the OFF mode. All of us R390 owners are still looking for a circuit that will let SSB come out of a set of phones with a sound that does not leave us hearing impaired.

Oh, you meant what receivers were manufactured after the R390/A Sorry, I missed the intent of the question. Roger KC6TRU

From ham at cq.nu Tue May 17 07:28:07 2005
Subject: [R-390] RE: What Came After The R-390

Hi,

Most of the intercept radios that are being made these days are of the "throw it all into an A/D converter" type. They are more or less black boxes that interface to a computer. The closest equivalent in ham radio would be the software defined radio.The advantage is that you can get a *lot* of channels all at once. You can also demodulate all sorts of bizarre digital signals without custom demodulator hardware. Like it or not the intercept target today is a lot more likely to be a digital chirp than an AM station. There are a bunch of people who make these radios ranging from the old time radio companies like Collins and Racal through a bunch of tiny little three guys in a garage outfits.

I doubt we will ever see the military going for another custom designed radio with knobs like the R390. Even in it's day the R390 could not be justified for intercept use. The radio was built for general purpose use and moved over to intercept duties when somebody proved it could do the job. The amazing thing about this radio is that it did so many things so well. If you talk to people who used the "competitors" to the R390 in an intercept role, none of them were as rugged, or as widely deployed. Take Care Bob Camp KB8TQ

From r390a at rcn.com Tue May 17 07:42:20 2005
Subject: [R-390] Re: Ahoy! R-390A sighting aboard USS Hornet

>The USS Hornet Amateur Radio Club has a WebSite with many pictures >taken in several of the Radio Rooms. >You can access the site at: > >http://www.qsl.net/nb6gc/

Whoa! I see what we missed - thanks Al!

From chacuff at cableone.net Tue May 17 08:31:13 2005
Subject: [R-390] RE: What Came After The R-390

Sounds like we need to face up to the facts....THESE are the good old days. Don't sound like there is much in our future to look forward to as far as newer radio's coming out of service that we'll want to spend much time on...

Last I heard the Government is not allowing any technology to be surplused anyway. Any R-1051's for example that are coming out of service are being scraped for the metals. Cecil...

From wli98122 at yahoo.com Tue May 17 10:07:14 2005
Subject: [R-390] RE: What Came After The R-390

Sad but true.... thanks W. Li Mercer Island, WA

From roy.morgan at nist.gov Tue May 17 12:34:31 2005
Subject: [R-390] Wanted (Dayton) PAL-350 or -500 Power Supply, RTTY T/U

Dayton-Goers, I'm headed for Dayton and am looking for a power supply for the TMC PAL-350 or PAL-500. Also want any usable TMC TTY terminal unit.

I'm at tailgate spot 1050/51 as first assistant to W0YVA, Bob Sullivan. See you there! Roy

From richardlo at admin.athabascau.ca Tue May 17 13:54:09 2005
Subject: [R-390] RE: What Came After The R-390

wrote: > I was reading my copy of World Radio yesterday. The question to Krusty Kurt > was "how do we get the AM off the Amateur Bands?" Just as I retire and want

And what was the answer that question?

Back in 1964, when I was an old man of 13, there was an article in the December "CQ" wherein an old fart asked Sant for a new whiz bang KW rig and matching antenna etc. While he was at it, he asked Santa to dispose of the kids, whiners, rag chewers, nets, dxers, etc because they pissed him off. Eureka! Next morning there was a new rig setup in the shack and when he tuned the bands he heard only atmospheric noise. Richard Loken VE6BSV

From jpl15 at panix.com Tue May 17 13:23:03 2005
Subject: [R-390] RE: What Came After The R-390

wrote: wrote: >> I was reading my copy of World Radio yesterday. The question to Krusty Kurt >> was "how do we get the AM off the Amateur Bands?" Just as I retire and want > And what was the answer that question?

I have a question: not having access to the article, I still wonder if the reference wasn't actually to the usual shortwave broadcasting stations that occupy portions of 40M and elsewhere?? Rather than the small segment of us who enjoy "That Sound"....

> matching antenna etc. While he was at it, he asked Santa to dispose of the > kids, whiners, rag chewers, nets, dxers, etc because they pissed him off. > Eureka! Next morning there was a new rig setup in the shack and when he > tuned the bands he heard only atmospheric noise.

Well, the modern twist on that would be "... he only heard the raucous whine of BPL at 40+ dB over S9." Cheers John KB6SCO

From peuhs at bellsouth.net Tue May 17 18:26:07 2005
Subject: [R-390] Two Radios

Friends, Have decided to sell my two radios...one, an R 390 (non a)..as re-built by David Medley 3 yrs ago. The other an orig but recapped sp600...$700 and $400...

Drop me a line for details...will deliver east of Miss River and south of Kentucky..if up front money paid. Regards, John

From chacuff at cableone.net Tue May 17 20:01:14 2005
Subject: [R-390] Stripper

Hey Folks...
Success at last. **Tried the Mar Hyde stripper in the spray can** and it worked much better than the BIX and whatever else I have used. Ran out, which I knew I would, before finishing the work. Didn't

want to invest too much before finding out if it was really any better than what I had.

The engravings still are going to need some more work under the glass and with a few picks of sorts. Hope to finish that tonight! Hope to be painting this weekend! Thanks for all who offered help! Cecil...

From ka0ofp at yahoo.com Tue May 17 22:20:11 2005
Subject: [R-390] R-390A IF Transformer Cans

Hello to the group,

I am wondering if anyone has any excess to there needs IF transformer shields for T501,502& 503. I also need the shield for Z501 and the filter shield. These are for a EAC IF deck that I picked up to repair one of my R-390A's. Thank you in advance. Jon

From roy.morgan at nist.gov Wed May 18 12:00:49 2005
Subject: [R-390] Wanted (Dayton) PAL-350 or -500 Power Supply, RTTY T/U -Corr'n

Dayton-Goers, I'm headed for Dayton and am looking for a power supply for the TMC PAL-350 or PAL-500. Also want any usable TMC TTY terminal unit.

CORRECTION: SPOT 1550/51:

I'm at tailgate spot 1550/51 as first assistant to W0YVA, Bob Sullivan. Cell: 301-928-7794 2M: 144.325 simplex K1LKY See you there! Roy

From k3pid at sbcglobal.net Wed May 18 16:56:04 2005
Subject: [R-390] Stripper

Cecil, I see that Mar Hyde has several different strippers (at least different names) which one did you have success with? Ron H. K3PID

From n4buq at aol.com Thu May 19 15:38:30 2005
Subject: [R-390] Front panel saga

After attempting to have one of the engraved front panels powder-coated two times, I decided it wasn't going to work. The first time they baked the old coating off and the second time, they chemically stripped it. Right now, it looks pretty pitiful. The front panel has visible pits and the engravings are now not very distinct, so much so that I won't be able to simply paint and fill in the lettering.

I'm figuring the engravings are a total loss at this point. I'm planning on filling them in (along with the small pitting) with JB-Weld, having it powder-coated (after all this they at least said they would do the next project free), and have it silk-screened. It's ashamed to lose the engravings, but I'm not sure I have much choice now. I'm hoping that I can get the panel smoothed out with the JB-Weld such that it is imperceptible where the old engravings were.

Who out there does a silkscreening? Since I've invested quite a bit in these panels already, I'm looking for the best price and only want the front done. This will be for a chassis with a power supply that I'm selling. I've had the panel pieces re-Alodined, the knobs and escutcheon are powder-coated, so someone

will get a pretty nice starting-point for a "new" radio. It's a shame. The first panel came out looking sooooo good. Regards, Barry - N4BUQ

From r390a at bellsouth.net Thu May 19 17:41:13 2005
Subject: [R-390] Fwd: Avoiding a bad experience

This was posted to the BA list. Seems like a good idea to me.

Tom NU4G

> Date: May 19, 2005 12:34:25 PM CDT
> Subject: Avoiding a bad experience
> Reply-To: xxxxx@mindspring.com
>
>
> Well it happened to me again, I was holding a minature, near > irreplacable, spring in the jaws of my needle nose pliers > attempting to > reinstall it back into the spring loaded split brass gears and > sproing, it > launched into space. I searched my junked up electronics shop for > hours and > finally was lucky enough to find it. > This time I tied a length of thin cotton sewing thread to it and > attempted > to install it once more. Yes it got away from me again but this > time I just > reeled in the thread and there it was. > John.

From redmenaced at yahoo.com Thu May 19 18:56:30 2005
Subject: [R-390] Fwd: Avoiding a bad experience

Are these available anywhere, or do I have to get a batch made up? Joe

From: llgpt at aol.com (llgpt@aol.com)
Subject: [R-390] Fwd: Avoiding a bad experience

Maybe we could include a tube and a zippo lighter too??? Or some of that corrosive synthetic lube, or a dead ballast tube (for decoration only) Zorro

From r390a at bellsouth.net Thu May 19 21:48:11 2005
Subject: [R-390] Fwd: Avoiding a bad experience

Les, I want some of what you and Joe are smoking... LOL Actually the smoking part fits in to how I keep track of springs - with hemostats. I've yet to find the right ballast tube to fit my curved pair of hemostats, it uses a different type than the non-curved. I hear the non-curved are worth more if it has a certain name stamped on it. Praise be to Art Tom

From llgpt at aol.com Thu May 19 22:01:52 2005
Subject: [R-390] Fwd: Avoiding a bad experience

I was referring to the zippo lighter tube rejuvenation thread of yesteryear that Nolan Lee had going:-) Les

From r390a at bellsouth.net Thu May 19 22:35:08 2005
Subject: [R-390] Fwd: Avoiding a bad experience

Ahhhh, I forgot about that! LOL I really do miss Nolan. I should at least make an occasional mention of sheep in his honor.

But I don't want to start YADHT* about folks that have been ran off. It hasn't been the alloted 6 months since the last time that was discussed into the ground.

TANSTAAFS** Tom "RTFM" *Yet Another Dead Horse Thread ** There Ain't No Such Thing As A Free Sheep.

From Flowertime01 at wmconnect.com Thu May 19 22:36:50 2005
Subject: [R-390] Front panel saga

wrote, "I'm hoping that I can get the panel smoothed out with the JB-Weld such that it is imperceptible where the old engravings were."

Barry, before you can get the panel that flat, you are going to be sanding a lot of aluminum.

Walk that panel around to a few trophy shops. Most of the shops have a pretty good size engraving machine. They often do large platters and things like that. They can set your panel up and "recut" it for you. Let them go at it free hand into the current groves. They can set up a "Reasonable" few letters and transcribe any letters that are just to flat to follow by hand. YMMV. Here they may have to work from a different "font" to follow but scribe the line to match the current stamped font.
Then you can fill the spots and maybe work a few errant scribe lines. I do not know how much you have into the receiver, but you could ask here for a different panel. There were some available once upon a time.
You could set down on the anvil with a glass, cold chisel and hammer and bang a few characters. You may have to grind some steel to make some nice corners on some of the letters. After paint some varied scribes could come up looking very good.

Does any one have a set of stamps that match the engraving?

I would not give up on the panel yet. The flip side is a lot of hours and not necessarily a large return on the time. If you are doing a fix and sell, ask for a panel here on the reflector. If this is one for your own, I would ask around a few engraving shops. The trophy guys could likely point you to a source. Roger KC6TRU

From levyfiles at att.net Thu May 19 22:38:41 2005
Subject: [R-390] Fwd: Avoiding a bad experience

There is such a thing as a free sheep.

Having been in the sheep biz for 20 years on my ranch out west and hosting many roasts I can attest that among the Greek community they always used their neighbors sheep. Their neighbors did the same so it all evened out. Sheep Ranches make good rhombic farms but once they fall down its a case of been there

done that and back to the yagi or log periodic on the tower. Life is too short otherwise. 73 All Bill N2WL

From r390a at bellsouth.net Thu May 19 23:01:50 2005
Subject: [R-390] Fwd: Avoiding a bad experience

I suppose roasted, fried or barbecued do indeed count. I think during the dreaded Kielbasa Ballast thread we also discussed damp sheep being used in place of a 3TF7 so they're doubly useful. Tom "Fleeced Again"

From N4BUQ at aol.com Fri May 20 00:08:19 2005
Subject: [R-390] Front panel saga

Roger,

Some good suggestions. I took a closer look at the panel through an eye loop. It appears a lot of the letters could still be good, but there is still a lot of old powder-coating residue in them. I don't know what will cut that stuff.

If an engraving shop could help, that might be the way to go. I'd really like to preserve the engraving if possible.

Yes. If there is a set of stamps that match the font, I could definitely punch them. A few good punches and some sanding to get the displaced material flat around the lettering again, and it could work. I think it would definitely knock the old coating loose in the grooves. If anyone has a set of lettering punches, I'd sure like to talk. Thanks, Barry - N4BUQ

From glennmaillist at bellsouth.net Fri May 20 08:16:54 2005
Subject: [R-390] Front panel saga

You might try dental burs in a Dremel tool to clear out the residue from the engravings. I get my dental burs from my dentist. They do not cost me anything. Just ask the next time you are there.

You could use the larger ball mill bur at a slow speed for the job. 73 Glenn WB4UIV

From JMILLER1706 at cfl.rr.com Fri May 20 09:48:19 2005
Subject: [R-390] Front panel saga

Wear some magnifying eye glasses (like jewelers use) to see the nooks and crannies, and a hand pick (very fine needle tipped tool) to carefully work the stuff out by hand.

From djmerz at 3-cities.com Fri May 20 11:03:41 2005
Subject: [R-390] Front panel saga

Barry, get one of those carbide-tipped scribes. It is a pencil-shaped tool with a cylinder of cabide with point inserted in one end of the aluminum pencil-like holder. Usually the other end has a magnet. This is

a true point and is durable. I've used this tool for cleaning crevices, lettering, knob dirt. The beauty is the sharp, cylindrical point. It lasts and holds its point as long as you don't drop it on something hard - the carbide is brittle, Dan.

From djmerz at 3-cities.com Fri May 20 11:15:30 2005
Subject: [R-390] Front panel saga

Barry , McMaster Carr sells the scribe for about $4 with extra tip for about $3, item 2157A11 tip is 2157A14. You might find one at a machine/tool store. The type with the magnet is about a dollar more. You can also get diamond-tipped ones but that's unnecessary for these kinds of materials. Dan.

From n4buq at aol.com Fri May 20 14:41:09 2005
Subject: [R-390] Front panel saga

Dan, Yes, I have one of those from when I worked as a machinist/toolmaker in the '70s. Great little tool, but I don't know if I have the patience to dig the goo out of that many letters..... Thanks! Barry - N4BUQ

From N4BUQ at aol.com Fri May 20 19:21:59 2005
Subject: [R-390] Stagger-tuned IF question

Guys, In the alignment instructions in my R390A manual, it states that some I/Fs should be stagger tuned while others should be straight through at 455kc, but it doesn't explain what determines this. Is there a component difference that makes this distinction or is it simply the application for which the receiver is to be used?

I'm thinking a CW-only receiver might benefit from being tuned at 455kc while a receiver that was going to do a lot of voice work might sound better stagger tuned. What's the skinny on this? Thanks, Barry - N4BUQ

From r390 at al.tirevold.name Fri May 20 20:17:03 2005
Subject: [R-390] R390A for 101st AB Museum

Ken contacted me through the R-390A.net web site. Can anyone provide him with some assistance in his quest?? Thanks, Al

From mhuss1 at bellatlantic.net Sat May 21 09:34:44 2005
Subject: [R-390] Stagger-tuned IF question

In the first run from Collins, all the I.F. cans were peaked at 455 kHz. Turned out, though, that the Q was a bit too sharp for the 16 kHz bandwidth, so all subsequent runs are stagger-tuned. This includes the first-run models as soon as they hit Maintenance. If you tune it straght, you will get higher gain and a bit less noise at the detector, but the 16 kHz position will roll off about 10-12 kHz. Then you will have to turn the GAIN pot on the I.F. deck down a bit, which will reduce noise a bit more. Don't know what you would gain by doing this, though, except a slightly lower noise floor.

From huffb at avalon.net Sun May 22 13:06:44 2005
Subject: [R-390] R-390 RF deck cover

Gentlemen, Does anyone out there have a RF deck cover for a R-390 (non A) that they would part with? Thank you in advance.-Brad

From huffb at avalon.net Mon May 23 00:20:30 2005
Subject: [R-390] Tube receivers and long wire antennas

I recently put up a long wire antenna approx 125' long and was amazed at the static buildup and arcover as I started to put a coax connector on the end of the feedline during a storm. I am told that the static during a snowstorm is amazing as well. Now to my question for the group-The arc between the center conductor and the ragged end of the just cut braid was probably a kilovolt or so during that storm, a storm that was a couple of miles away. Now I don't intend to leave the antenna hooked up to the radio when it is not in use but I'm still concerned about front end damage while I'm using it. What does one do about this? I don't know if an in line lightning arrester would do the trick or possibly a neon bulb from the center conductor to ground or both. The schematic shows a neon bulb across the unbalanced input but nothing across the balanced one. I don't think that a solid state rig would survive. I've asked a few vendors of antenna supplies about this and they don't have an answer, since I didn't invent the long wire antenna I'm sure someone has dealt with this before. Any help would be appreciated.-Brad

From ToddRoberts2001 at aol.com Mon May 23 00:44:13 2005
Subject: [R-390] Tube receivers and long wire antennas

writes: Now to my question for the group-The arc between the center conductor and the ragged end of the just cut braid was probably a kilovolt or so during that storm, a storm that was a couple of miles away. Now I don't intend to leave the antenna hooked up to the radio when it is not in use but I'm still concerned about front end damage while I'm using it. What does one do about this?

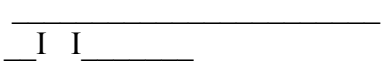
Brad - One thing you can do is wire a standard RF choke across the center conductor of the coax and the shield braid (ground). In order to work properly the shield braid must be connected to an earth ground. By standard RF choke I mean something with a value of 2.5 - 10 millihenries (not microhenries) - these were commonly used in small to medium powered tube transmitters as a safety choke across the output side of the pi-network. These chokes are still commonly available. The choke gives a DC path to ground to bleed off or short any static charges to ground and will keep the center conductor of the coax at DC ground potential but has a high impedance to RF so it will have little effect if any on the RF signal level going to your receiver antenna input. 73 Todd WD4NGG

From buzz at softcom.net Mon May 23 00:45:22 2005
Subject: [R-390] Tube receivers and long wire antennas

I had the proverbial "bolt out of the blue" hit the power line behind my house from a storm about 10 miles away. I normally disconnect my antennas and pull the line cords, but I thought that it'd be a while before the storm reached us so I hadn't disconnected anything. All of the receivers/transmitters, both tube and solid state, were fine. The computers were fine except for the modem boards. Both of them had cinders where the input resistors had been. I credit the good results to a lucky day. Buzz

From huffb at avalon.net Mon May 23 01:01:43 2005
Subject: [R-390] R390 RF deck cover

Is there someone in the group that has the fabricating tools to make a couple of these covers? I know Jack Sullivan needs one as well. I don't have one in front of me now but I did have the foresight to measure one that I saw at Dayton. These are close measurements-The basic piece is 12-1/16" X 8-3/8". Starting from the back come forward about 5/16" and then it steps up approx 1/8". Come forward about 6-13/16" then step back down approx 1/8". Come forward 1-1/4" then it has a lip that bends down an 1/8th or 3/16. Sorry to be so vague but the piece was on a radio and all I had was a crude tape measure.



I Side view. Not to exact scale but it sort of gives you an idea. Holes are then drilled where they are needed. There was no printing on the top, I am not sure about the bottom side. If someone with a R-390 could verify these measurements it would be helpful.-Brad

From CRIPS01 at MSN.COM Mon May 23 02:58:05 2005
Subject: [R-390] hello from the sticks

Well I wonder if my posting are getting rejected because I am trying to use hot links on my postings.

From mhuss1 at bellatlantic.net Mon May 23 08:27:24 2005
Subject: [R-390] Tube receivers and long wire antennas

Yep, been there, done that! first, get a TV Coax Lightning Arrester. Place it in series with the coax lead-in where it enters the house. Drive a ground rod at that point and connect with at least #12 wire. Bigger is better. Shorter is also better, since you want to short the high-frequency components if the lightning strike. This will not protect your radio, but will probibily save the house!

Second, you need to provide a way for static build-up and induced currents (from nearby strikes up to half a mile away) to drain to ground without going through your receiver. This depends on the type of receiver, whether solid state or tube. Tube receivers are rugged devices. Heck, where a Nuke will take out every solid-state receiver for hundreds of miles, a tube receiver won't even notice!

Protection for these often consists of nothing more than an NE-2 neon tube. if voltage on the antenna exceeds 82 volts, it will conduct and drain the charge off the antenna. It also makes a sobering display during thunder and snowstorms. There is usually a one-meg resistor across the neon tube which handles slower buildup.

Transistors, and espically FET's are more delicate. Normal static buildup can take out a solid state front end easily if no protection for the input is provided by the manufacturer. Sony 2010's are famous for this. RX-320's are a bit better, but I have seen it happen. Protection for these must be provided if you have an outside antenna. two 1N914 diodes wired back-to-back in parallel (cathode of D1 to anode of D2 to shield, cathode of D2 to Anode of D1 to center conductor) is a common solution.

Problem with this is local radio stations. They can cause the diodes to conduct, and you get birdies. if this is a problem, you can stack them, i.e. wire several diodes in series before wiring them in parallel. Also add a ten k resistor in parallel with the diodes to drain slow buildup of static. you also need to

replace this simple circuit annually, as a nearby strike can take out the diodes. MOV's can also be used, and are a bit more rugged, if more expensive. You will need this even if you impliment solution number three.

Solution Three, which i have put on all my antennas, is to use an isolation transformer at the point the feedline from the antenna reaches the ground. Drive another ground stake at that point. Then isolate the antenna from the feedline to the house using an isolation transformer. This provides a low impedence to ground at lower frequencies, preventing static build-up and grounding the higher power components of a lightning-induced charge. I build my own, not only because it is cheaper, but because i always use 12 to 14 gauge wire and a big torid (FT-43 material) rather than the 28-30 gauge wire commonily used for receiving isolation transformers. First, the bigger Torid reduces saturation from local AM radio stations. Second, athe larger gauge wire will handle a nearby strike without burning out. The third thing the isolation transformer does is to cut down significantly on interference generated in the house! It is worth installing just for that. Note that this does NOT replace solution number two, the diodes,. The diodes will handle the high frequency components of the strike, and also handle the leakage into the coax from the strike.

It all sounds complicated and expensive, but with an investment in a drill, a cheap Radio Shack Soldering Iron, and $20-30 for parts, you will save at least the $100 a repair WILL cost you, or trying to explain to the Insurance company why you did not have a lightning arrester on you antenna after your house is burned to the ground!

From levyfiles at att.net Mon May 23 09:26:50 2005
Subject: [R-390] Tube receivers and long wire antennas

Brad and Group,

In the period of 1973-5 I ran 700 feet of wire between two 40 foot surplus signal corp poles. I was in Africa and the big game used to walk around the guy ropes. Elephants were very respectful. The long wire was on an L network feeding an early Ten Tec and the last Hallicrafter Safari FPM300. Both solid state.
When not in use I would remove the long wire from the L network and ground it to my station ground. Nothing more complicated than that. Never had a problem, survived lots of storms. 73 all, Bill N2WL

From jonandvalerieoldenburg at att.net Mon May 23 09:45:57 2005
Subject: [R-390] R390 RF deck cover

Count me in as someone in need of one also. If no one else can provide the measurements I can pull my R-390 from the rack which has one and provide mesuements & photos. I am not sure if Hank Arney has made these in his ventures of replacement parts. I do have a R-390A "Utah" cover (NOS repro) which is now surplus to my needs (I picked up a R-390/URR at Dayton) availaible for trade for a 390/URR cover. Also am looking for a 390 "tag". Jon Oldenburg AB9AH

"Give a man a fish and he will eat for a day. Teach him how to fish, and he will sit in a boat and drink beer all day."

From paul at pdq.com Mon May 23 11:41:16 2005
Subject: [R-390] R390 RF deck cover

Hank Arney has all covers for the R-390/R-391 as well as R-390A. I've ordered a few sets, and they are perfectly fine! Paul

From Llgpt at aol.com Mon May 23 12:46:38 2005
Subject: [R-390] Front panel saga

Don't use jb weld to fill in the engravings, use auto body glazing putty or bondo, glazing putty is preferable. Les

From chacuff at cableone.net Mon May 23 12:56:44 2005
Subject: [R-390] Front panel saga

I think he's doing the more common Gray as well...

I'm going to pick up a black one in the near future though for a project I'm doing for myself....I just like the way it looks.....no other motivation than that! Cecil...

From huffb at avalon.net Mon May 23 13:28:01 2005
Subject: [R-390] R-390 "deadly components"

Is there a list of questionable components ie "The seven deadly capacitors" for the R-390? I know that higher grade components were used in this radio. Is there anything that should be changed out?-Brad

From sdaitch at ibb.gov Mon May 23 14:15:22 2005
Subject: [R-390] Tube receivers and long wire antennas

Far too many years ago, when I worked at the VOA receiver site in Greenville, we had a fair number of rhombic antennas that were used for our receiving systems.

Lightning protection for the antennas and equipment were not really exotic, but was effective.

With perhaps one or two exceptions, all of the RF feedlines from the antennas to the inner compound fence line were balanced feedlines, and at the inner compound fence line, we had a series of TMC BALUN boxes, 30 or so, with a matching transformer from the nominal 516 ohms balanced line to the 50 ohm coaxial line.

Each of the balun units had fuse clips, so the two inputs to the balun were fused, I think we used 2AMP fast blow glass fuses, and also the coaxial output was fused. Also, each of the balanced legs had a TMC plug-in spark gap unit, part number I have long since forgotten, but it was had a large brown fiber tube, with metal ends, and some type of glass insert filled with some power material. Basically, if the thing didn't rattle it was still good. Later, we were replacing these with modified units that had some discrete spark gap unit installed in the fiber tube. In the event of a hard strike to or near the antenna, sometimes the energy would shatter the glass in this spark gap unit.

After a lightning storm, we'd go out to all the balun units with a box full of 2 amp fuses, a handful of the spark gaps and replace all the defective items found. Every now and then, an extremely close strike

would open up a winding on the balun and we'd have to replace them, and finally, I suppose it was the early to mid- 1980s, no more baluns were available from TMC. We then started making our own baluns, winding the coils in the shop and fabricating new base plates. We also experiments with graphite ball spark gaps rather than the plug in spark gap units.

Also, each of the four steel towers supporting the rhombic antennas were well grounded, as well as the balun boxes at the inner compound perimeter.

I can't ever remember that we had any equipment damage inside the building from outside lightning strikes, so, between the fuses and the spark gap units, the system was effective in keeping lightning headed into the ground. 73 Sheldon WA4MZZ

From roy.morgan at nist.gov Mon May 23 17:16:56 2005
Subject: [R-390] Fwd: Avoiding a bad experience

wrote: >I was referring to the zippo lighter tube rejuvenation thread of >yesteryear that Nolan Lee had going.....:-)

For those who weren't around then: As I remember the thread, if you held your Zippo lighter against the silvered part of a tube to heat up the gettering layer inside the tube, it would improve the performance of an old, tired, and gassy tube.

Me, I never tried it.

I did make an old type 27 a bunch worse by over heating the filament for a while. That's supposed to work for thoriated tungsten filaments as found in transmitting tubes. And WD-11's. Good luck!

Oh, the string to keep the spring nearby when it goes SPROING is a nice idea. I've used it back when I worked on clocks and watches. Roy

From scott at becklawfirm.com Mon May 23 19:27:40 2005
Subject: [R-390] Connectors

Hi All, Several times in the past there have been recommendations for members to try a particular guy or outfit for hard to find connectors----who is the guy or outfit? My need is just a bit off track but it is real-----Specifically, I need one each of the following Amphenol "Blue Ribbon" series connectors: 26-159-16, 26-190-16, 26-159-24 and 26-190-24. Thanks much, 73 Scott, N6NXI

From pmills7 at houston.rr.com Mon May 23 19:31:45 2005
Subject: [R-390] Connectors
I think this is the one you need... http://militaryradio.com/Images/WilliamPerryCompany.jpg good luck, Phil

From Flowertime01 at wmconnect.com Mon May 23 20:34:51 2005
Subject: [R-390] R390 RF deck cover

Fellows,

There is nothing sacred about the deck covers.

A double sided printed circuit board works fine. A cookie sheet also works fine. You can lay out the 8x32 machine screw holes with a paper bag and pencil.

I like to mount a concrete / metal / fiber saw blade in my table saw to cut up cookie sheets and printed circuit boards for these type projects. Roger KC6TRU

From Flowertime01 at wmconnect.com Mon May 23 20:43:55 2005
Subject: [R-390] R-390 "deadly components"

Brad,

The R390 is the good receiver.
The R390/A is the cheep knock off model.

The R390 has none of the problems like the R390/A.

Having said that,
Check the tubes.
Check the 47 OHM resistors in the Audio and power supply deck.
Check the power supply filter caps in the audio deck.

You will not run into a problem until you run a tube to death. The tube that dies will likely take a resistor or more with it.

Pull your decks out, do a good visual check to ensure you are not running with a burnt resistor from some past event. Check all the tubes in a tube tester for shorts. And put every thing back together. Turn the receiver on and enjoy.

Twice a year, check all the tubes in the tester. Put the tubes back in the same socket they come out of, Or you will need to do an electrical alignment.

Signal to noise and super receivers are another topic. Roger KC6TRU

From hankarn at pacbell.net Mon May 23 21:04:12 2005
Subject: [R-390] R390 RF deck cover

Roger, I make the RF deck covers as exact repro complete with silk screening. Fits R-390 and R-391. I made the die for the drop center edges and silk screens, the aluminum is cleaned and gold alodined prior to screening. They look real sharp.

They are $25.00 plus S&H $6.50 and I am making so much money I just called my butler to have the Rolls brought around so I can run over to the airport to go to Vegas in my G II for the dinner show. HaHa as I die laughing rolling on the floor drowning in my tears. Hank KN6DI They look better than a printed circuit board to say the least.

From ba.williams at charter.net Mon May 23 21:09:54 2005
Subject: [R-390] R-390 "deadly components"

> Brad, > > The R390 is the good receiver. > The R390/A is the cheep knock off model. > The R390 has none of the problems like the R390/A.

Uh, what problems do the A's have? Maybe I should go check mine??? Barry

From chacuff at cableone.net Mon May 23 21:26:18 2005
Subject: [R-390] R-390 "deadly components"

Paper caps mostly....brown or black don't matter!

From Flowertime01 at wmconnect.com Mon May 23 21:57:45 2005
Subject: [R-390] R-390 "deadly components"

writes: > The R390 is the good receiver. The R390/A is the cheep knock off model. The R390 has none of the problems like the R390/A. Uh, what problems do the A's have? Maybe I should go check mine??? > > Barry

Brown beauties.

A cap in the mechanical filter circuit that fails and then kills the mechanical filters.

If your post is not in Jest, get over to the archives, and get the real list. Roger KC6TRU

From r390a at bellsouth.net Mon May 23 21:59:48 2005
Subject: [R-390] The Nolan Lee Memorial 390A Capacitor List

Anyone have a better list?

Nolan's R-390A/URR Master Capacitor List
Revision 0.2 BETA (5/6/99)
nlee@gs.verio.net

This list is still "BETA". As a result has NOT been checked as closely for errors as usual. Please drop me a message if I left anything out or if you spot an error and I'll correct it and re-post. Thanks, nolan

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-----Main Chassis (front and rear panel, etc.)-----

C101 0.22mf 100 WVDC 20% paper
C102 5000pf 1000 WVDC 15% ceramic
C103 50mf 50 WVDC ??% electrolytic industry # CE64C500G (1)

C104 ??? ???? WV?C ??% inside of line filter. I need the specs.
C105 ??? ???? WV?C ??% inside of line filter. I need the specs.
C106 ??? ???? WV?C ??% inside of line filter. I need the specs.
C107 ??? ???? WV?C ??% inside of line filter. I need the specs.

(1) This is the bathtub style capacitor mounted below the line filter on the rear panel. It is NOT an oil filled paper cap even though it looks like one. Watch the polarity.

-----RF Amplifier Sub-chassis-----

C201A 3-12pf 350 WVDC NPO ceramic trimmer (inside of T201)
C201B 8-50pf 350 WVDC N750 ceramic trimmer (inside of T201)
C202 7pf 500 WVDC .25pf ceramic (inside of T201)
C203 330pf 500 WVDC 2% mica (inside of T201)
C204 120pf 500 WVDC 2% mica (inside of T201)
C205A 3-12pf 350 WVDC NPO ceramic trimmer (inside of T202)
C205B 8-50pf 350 WVDC N750 ceramic trimmer (inside of T202)
C206 7pf 500 WVDC .25pf ceramic (inside of T202)
C207 120pf 500 WVDC 2% mica (inside of T202)
C208 75pf 500 WVDC 2% mica (inside of T202)
C209A 3-12pf 350 WVDC NPO ceramic trimmer (inside of T203)
C209B 8-50pf 350 WVDC N750 ceramic trimmer (inside of T203)
C210 7pf 500 WVDC .25pf ceramic (inside of T203)
C211 36pf 500 WVDC 2% mica (inside of T203)
C212 39pf 500 WVDC 2% mica (inside of T203)
C213A 3-12pf 350 WVDC NPO ceramic trimmer (inside of T204)
C213B 5-25pf 350 WVDC NPO ceramic trimmer (inside of T204)
C214 7pf 500 WVDC .25pf ceramic (inside of T204)
C215 100pf 500 WVDC 2% mica (inside of T204)
C216 24pf 500 WVDC 5% mica (inside of T204)
C217A 3-12pf 350 WVDC NPO ceramic trimmer (inside of T205)
C217B 3-12pf 350 WVDC NPO ceramic trimmer (inside of T205)
C218 7pf 500 WVDC .25pf ceramic (inside of T205)
C219 5pf 300 WVDC .5pf mica (inside of T205)
C220 12pf 500 WVDC 5% mica (inside of T205)
C221A 3-12pf 350 WVDC NPO ceramic trimmer (inside of T206)
C221B 1.5-7pf 350 WVDC NPO ceramic trimmer (inside of T206)
C222 7pf 500 WVDC .25pf ceramic (inside of T206)
C223 18pf 500 WVDC 5% mica (inside of T206)
C224 5pf 300 WVDC .5pf mica (inside of T206)
C225A 7-80pf 800 WVAC 4pf variable (front half of antenna trimmer cap)
C225B 6-26pf 800 WVAC 2pf variable (rear half of antenna trimmer cap)
C226 5000pf 1000 WVDC 15% ceramic
C227 0.047mf 100 WVDC 20% paper (4)(z)
C228 1pf 500 WVDC .25% ceramic
C229 5000pf 1000 WVDC 15% ceramic
C230-1 8-50pf 350 WVDC N750 ceramic trimmer (inside of Z201-1)(z)

C230-2 8-50pf 350 WVDC N750 ceramic trimmer (inside of Z201-2)(z)
C231-1 160pf 500 WVDC 2% mica (inside of Z201-1)(z)
C231-2 160pf 500 WVDC 2% mica (inside of Z201-2)(z)
C232-1 2400pf 300 WVDC 2% mica (inside of Z201-1)(z)
C232-2 2400pf 300 WVDC 2% mica (inside of Z201-2)(z)
C233-1 8-50pf 350 WVDC N750 ceramic trimmer (inside of Z202-1)
C233-2 8-50pf 350 WVDC N750 ceramic trimmer (inside of Z202-2)
C234-1 1800pf 500 WVDC 2% mica (inside of Z202-1)
C234-2 1800pf 500 WVDC 2% mica (inside of Z202-2)
C235-1 2400pf 300 WVDC 2% mica (inside of Z202-1)
C235-2 2400pf 300 WVDC 2% mica (inside of Z202-2)
C236-1 8-50pf 350 WVDC N750 ceramic trimmer (inside of Z203-1)
C236-2 8-50pf 350 WVDC N750 ceramic trimmer (inside of Z203-2)
C237-1 120pf 500 WVDC 2% mica (inside of Z203-1)
C237-2 120pf 500 WVDC 2% mica (inside of Z203-2)
C238-1 1500pf 300 WVDC 10% mica (inside of Z203-1)
C238-1 1500pf 300 WVDC 10% mica (inside of Z203-2)
C239-1 5-25pf 350 WVDC NPO ceramic trimmer (inside of Z204-1)
C239-2 5-25pf 350 WVDC NPO ceramic trimmer (inside of Z204-2)
C240-1 68pf 500 WVDC 2% mica (inside of Z204-1)
C240-2 68pf 500 WVDC 2% mica (inside of Z204-2)
C241-1 470pf 300 WVDC 2% mica (inside of Z204-1)
C241-2 470pf 300 WVDC 2% mica (inside of Z204-2)
C242-1 3-12pf 350 WVDC NPO ceramic trimmer (inside of Z205-1)
C242-2 3-12pf 350 WVDC NPO ceramic trimmer (inside of Z205-2)
C243-1 68pf 500 WVDC 2% mica (inside of Z205-1)
C243-2 68pf 500 WVDC 2% mica (inside of Z205-2)
C244-1 1800pf 500 WVDC 2% mica (inside of Z205-1)
C244-2 1800pf 500 WVDC 2% mica (inside of Z205-2)
C245-1 3-12pf 350 WVDC NPO ceramic trimmer (inside of Z206-1)
C245-2 3-12pf 350 WVDC NPO ceramic trimmer (inside of Z206-2)
C246-1 47pf 500 WVDC 2% mica (inside of Z206-1)
C246-2 47pf 500 WVDC 2% mica (inside of Z206-2)
C247-1 33pf 500 WVDC 2% mica (inside of Z206-1)
C247-2 33pf 500 WVDC 2% mica (inside of Z206-2)
C248 5000pf 1000 WVDC 15% ceramic
C249 .5pf 500 WVDC .25pf ceramic
C250 .75pf 500 WVDC .25pf ceramic
C251 1pf 500 WVDC .25% ceramic
C252 2pf 500 WVDC .25% ceramic
C253 4pf 500 WVDC .25pf ceramic
C254 8pf 500 WVDC .25pf ceramic
C255 33pf 500 WVDC 2% mica
C256 0.1mf 200 WVDC 10% paper (5)(z)
C257 47pf 500 WVDC 5% ceramic (z)
C273 5000pf 1000 WVDC 15% ceramic
C274 5000pf 1000 WVDC 15% ceramic
C275 0.033mf 300 WVDC 20% paper (z)
C276 15pf 500 WVDC 5% mica
C277 5000pf 1000 WVDC 15% ceramic
C278 15pf 500 WVDC 5% mica

C279 15pf 500 WVDC 5% mica
C280 5000pf 1000 WVDC 15% ceramic
C281 1.5pf 500 WVDC .25% ceramic
C282 1.5pf 500 WVDC .25% ceramic
C283-1 5-25pf 350 WVDC NPO ceramic trimmer (inside of Z213-1)
C283-2 5-25pf 350 WVDC NPO ceramic trimmer (inside of Z213-2)
C283-3 5-25pf 350 WVDC NPO ceramic trimmer (inside of Z213-3)
C284 5000pf 1000 WVDC 15% ceramic
C285 5000pf 1000 WVDC 15% ceramic
C286 100pf 500 WVDC 2% mica
C287 5000pf 1000 WVDC 15% ceramic
C288 5000pf 1000 WVDC 15% ceramic
C289 2pf 500 WVDC .25% ceramic
C290 2pf 500 WVDC .25% ceramic
C291-1 5-25pf 350 WVDC NPO ceramic trimmer (inside of Z216-1)
C291-2 5-25pf 350 WVDC NPO ceramic trimmer (inside of Z216-2)
C291-3 5-25pf 350 WVDC NPO ceramic trimmer (inside of Z216-3)
C292-1 100pf 500 WVDC 2% mica (inside of Z216-1)
C292-2 100pf 500 WVDC 2% mica (inside of Z216-2)
C292-3 100pf 500 WVDC 2% mica (inside of Z216-3)
C297 5000pf 1000 WVDC 15% ceramic
C298 5000pf 1000 WVDC 15% ceramic
C299 270pf 300 WVDC 2% mica (inside of T208)
C300 5000pf 1000 WVDC 15% ceramic
C301 5000pf 1000 WVDC 15% ceramic
C302 5000pf 1000 WVDC 15% ceramic
C303 5000pf 1000 WVDC 15% ceramic
C304 5000pf 1000 WVDC 15% ceramic
C305 5000pf 1000 WVDC 15% ceramic
C307 5000pf 1000 WVDC 15% ceramic
C308 5000pf 1000 WVDC 15% ceramic
C309 0.1mf 200 WVDC 10% paper
C310 3-60pf 850 WVAC ??? variable (calibration trimmer)
C311 1000pf 500 WVDC 2% mica
C312 150pf 500 WVDC 2% mica
C313 220pf 500 WVDC 2% mica
C314 220pf 500 WVDC 2% mica
C315 220pf 500 WVDC 2% mica
C316 15pf 500 WVDC 5% mica
C317 5000pf 1000 WVDC 15% ceramic
C318 51pf 500 WVDC 2% mica
C319 5000pf 1000 WVDC 15% ceramic
C320 1000pf 500 WVDC 2% mica
C321 12pf 500 WVDC 5% mica
C322 12pf 500 WVDC 5% mica
C323 5pf 300 WVDC .5pf mica
C324 20pf 300 WVDC 5% mica
C325 200pf 500 WVDC 1% mica
C326 5000pf 1000 WVDC 15% ceramic
C327 100pf 500 WVDC 2% mica
C328 5000pf 1000 WVDC 15% ceramic

C329 68pf 500 WVDC 2% mica
C330-1 300pf 500 WVDC 2% mica (inside of Z201-1)
C330-2 300pf 500 WVDC 2% mica (inside of Z201-2)
C331-1 68pf 500 WVDC 2% mica (inside of Z202-1)
C331-2 68pf 500 WVDC 2% mica (inside of Z202-2)
C334 51pf 500 WVDC 2% mica

(z) actual value depends on mod level, I'll add details when I have time
(4) This is the stud mounted oil filled capacitor located on the top side of the chassis next to V201, the 6DC6.
(5) Not used on early receivers. C256 is used to silence hash/static from HR202 Crystal Oven. Less expensive CDE polyester should work fine at this location.

-----Crystal Oscillator Sub-chassis-----

C401 5000pf 1000 WVDC 15% ceramic
C402 5pf 300 WVDC .5pf mica
C403 4pf 500 WVDC .25pf ceramic
C404 4pf 500 WVDC .25pf ceramic
C406 5000pf 1000 WVDC 15% ceramic
C407 5000pf 1000 WVDC 15% ceramic
C408 12pf 500 WVDC 5% ceramic
C409 150pf 500 WVDC 2% mica
C410 5000pf 1000 WVDC 15% ceramic
C411 5000pf 1000 WVDC 15% ceramic
C412 5000pf 1000 WVDC 15% ceramic
C413 5000pf 1000 WVDC 15% ceramic
C414 5000pf 1000 WVDC 15% ceramic
C415 5000pf 1000 WVDC 15% ceramic
C417 150pf 500 WVDC 2% mica
C418 120pf 500 WVDC 2% mica
C419 100pf 500 WVDC 2% mica
C420 82pf 500 WVDC 2% mica
C421 68pf 500 WVDC 2% mica
C422 56pf 500 WVDC 2% mica
C423 47pf 500 WVDC 2% mica
C424 39pf 500 WVDC 2% mica
C425 33pf 500 WVDC 2% mica
C426 18pf 500 WVDC 5% mica
C427 12pf 500 WVDC 5% mica
C428 5pf 300 WVDC .5pf mica
C429A 8-50pf 350 WVDC NPO ceramic trimmer for 9 MHz
C429B 8-50pf 350 WVDC NPO ceramic trimmer for 8 MHz
C429C 5-25pf 350 WVDC NPO ceramic trimmer for 15 MHz
C429D 5-25pf 350 WVDC NPO ceramic trimmer for 14 MHz
C429E 5-25pf 350 WVDC NPO ceramic trimmer for 4&21 MHz
C429F 5-25pf 350 WVDC NPO ceramic trimmer for 3&20 MHz

C429G 5-25pf 350 WVDC NPO ceramic trimmer for 27 MHz
C429H 5-25pf 350 WVDC NPO ceramic trimmer for 26 MHz
C430A 8-50pf 350 WVDC NPO ceramic trimmer for 11 MHz
C430B 8-50pf 350 WVDC NPO ceramic trimmer for 10 MHz
C430C 5-25pf 350 WVDC NPO ceramic trimmer for 0&17 MHz
C430D 5-25pf 350 WVDC NPO ceramic trimmer for 16 MHz
C430E 5-25pf 350 WVDC NPO ceramic trimmer for 6&23 MHz
C430F 5-25pf 350 WVDC NPO ceramic trimmer for 5&22 MHz
C430G 3-12pf 350 WVDC NPO ceramic trimmer for 29 MHz
C430H 5-25pf 350 WVDC NPO ceramic trimmer for 28 MHz
C431A 5-25pf 350 WVDC NPO ceramic trimmer for 13 MHz
C431B 5-25pf 350 WVDC NPO ceramic trimmer for 12 MHz
C431C 5-25pf 350 WVDC NPO ceramic trimmer for 2&19 MHz
C431D 5-25pf 350 WVDC NPO ceramic trimmer for 1&18 MHz
C431E 5-25pf 350 WVDC NPO ceramic trimmer for 25 MHz
C431F 5-25pf 350 WVDC NPO ceramic trimmer for 7&24 MHz
C431G 3-12pf 350 WVDC NPO ceramic trimmer for 31 MHz
C431H 3-12pf 350 WVDC NPO ceramic trimmer for 30 MHz

-----IF Amplifier Sub-chassis-----

C501 5000pf 1000 WVDC 15% ceramic
C502 5000pf 1000 WVDC 15% ceramic
C503 100pf 500 WVDC 2% mica
C504 0.1mf 200 WVDC 10% paper
C505 0.1mf 200 WVDC 10% paper
C506 5000pf 1000 WVDC 15% ceramic
C507 110pf 500 WVDC 2% mica for 16 KHz filter (x)
C508 110pf 500 WVDC 2% mica for 8 KHz filter (x)
C509 110pf 500 WVDC 2% mica for 4 KHz filter (x)
C510 110pf 500 WVDC 2% mica for 2 KHz filter (x)
C511 5000pf 1000 WVDC 15% ceramic
C512 5000pf 1000 WVDC 15% ceramic
C513 110pf 500 WVDC 2% mica for 2 KHz filter (x)
C514 110pf 500 WVDC 2% mica for 4 KHz filter (x)
C515 110pf 500 WVDC 2% mica for 8 KHz filter (x)
C516 110pf 500 WVDC 2% mica for 16 KHz filter (x)
C517 0.1mf 200 WVDC 10% paper
C518 5000pf 1000 WVDC 15% ceramic
C519 5000pf 1000 WVDC 15% ceramic
C520 3-12pf 350 WVDC NPO ceramic trimmer (inside of Z501)
C521 0.1mf 200 WVDC 10% paper
C522 5000pf 1000 WVDC 15% ceramic
C523 5000pf 1000 WVDC 15% ceramic
C524 75pf ??? WVDC ??% ceramic (inside of Z501)
C525 7-10.5pf 350 WVDC NPO ceramic trimmer (BFO neutralization)
C526 100pf 500 WVDC 2% mica

C527 5pf 300 WVDC .5pf mica
C528 0.1mf 200 WVDC 10% paper
C529 0.033mf 300 WVDC 20% paper
C530 150pf 500 WVDC 2% mica
C531 0.1mf 200 WVDC 10% paper
C532 100pf 500 WVDC 2% mica
C533 0.033mf 300 WVDC 20% paper
C534 0.033mf 300 WVDC 20% paper
C535 12pf 500 WVDC 5% mica
C536 0.1mf 100 WVDC 20% paper
C537 1800pf 500 WVDC 2% mica
C538 0.1mf 200 WVDC 10% paper
C539 1000pf 500 WVDC 2% mica
C540 5000pf 1000 WVDC 15% ceramic
C541 0.033mf 300 WVDC 20% paper
C542 47pf 500 WVDC 2% mica
C543 0.1mf 200 WVDC 10% paper
C544 5000pf 1000 WVDC 15% ceramic
C545 0.033mf 300 WVDC 20% paper
C546 220pf 500 WVDC 2% mica
C547 0.1mf 200 WVDC 10% paper
C548 0.1mf 200 WVDC 10% paper
C549 0.01mf 300 WVDC 20% paper
C551 2.0mf 500 WVDC 10% oil filled paper (2)
C552 5000pf 1000 WVDC 15% ceramic
C553 0.01mf 300 WVDC 20% paper (3)
C554 1600pf 100 WVDC 1% mica (inside of Z502 - BFO)
C555 50pf ??? WV?C ??% ??? (inside of Z502 - BFO)
C556 50pf ??? WV?C ??% ??? (inside of Z502 - BFO)
C557 ???? ??? WV?C ??% ??? (inside of T501)
C558 ???? ??? WV?C ??% ??? (inside of T501)
C559 ???? ??? WV?C ??% ??? (inside of T502)
C560 ???? ??? WV?C ??% ??? (inside of T502)
C561 ???? ??? WV?C ??% ??? (inside of T503)
C562 ???? ??? WV?C ??% ??? (inside of T503)
C563 ???? ??? WV?C ??% ??? (inside of Z501)
C564 8-50pf 350 WVDC N750 ceramic trimmer for 16 KHz filter (x)
C565 8-50pf 350 WVDC N750 ceramic trimmer for 8 KHz filter (x)
C566 8-50pf 350 WVDC N750 ceramic trimmer for 4 KHz filter (x)
C567 8-50pf 350 WVDC N750 ceramic trimmer for 2 KHz filter (x)
C568 8-50pf 350 WVDC N750 ceramic trimmer for 2 KHz filter (x)
C569 8-50pf 350 WVDC N750 ceramic trimmer for 4 KHz filter (x)
C570 8-50pf 350 WVDC N750 ceramic trimmer for 8 KHz filter (x)
C571 8-50pf 350 WVDC N750 ceramic trimmer for 16 KHz filter (x)

(x) value depends on mod level of IF deck. I'll add details later...
(2) Oil filled metal can paper capacitor mounted to top side of chassis next to chassis harness connector.
(3) Blocking cap for mechanical filters. Recommend working voltage of 600VDC or higher to help decrease the chance of frying the mechanical filters due to failure of C553. This is not a good location to use a cheap replacement capacitor.

-----Audio Frequency Amplifier Sub-chassis-----

C601 0.01 300 WVDC 20% paper
C602 0.033 300 WVDC 20% paper
C603 3X30uf 300 WVDC ??% Electrolytic (Industry # CE53C300N)
C604 0.01 300 WVDC 20% paper (6)
C605 0.01 300 WVDC 20% paper (6)
C606 2X45uf 300 WVDC ??% Electrolytic (Industry # CE52C450N)
C607 0.01 300 WVDC 20% paper
C608 0.01 300 WVDC 20% paper
C608 0.01mf 300 WVDC 20% paper
C609 8uf 30 WVDC ??% Tantalum Electrolytic (7)
C611 5000pf 1000 WVDC 15% ceramic
C612 68pf 500 WVDC 2% mica

(6) For improved audio performance, you can use .022uf caps at this location.

(7) Also known as "the capacitor that rots off". Leaks sulfuric acid when the seals fail. Watch the polarity when replacing.

-----PTO (VFO) Sub-chassis-----

C701 370pf 500 WVDC 1% ???? (inside of PTO)
C702 10pf ??? WV?C ??% ???? (inside of PTO)
C703 10pf ??? WV?C ??% ???? (inside of PTO)
C704 15pf 500 WVDC 2% ???? (inside of PTO
C705 5000pf 1000 WVDC 10% ceramic (y)
C706 1.5-8pf ??? WV?C ??% glass/silver piston trimmer (inside of Z702)
C707 5000pf 1000 WVDC 10% ceramic (y)
C708 5000pf 1000 WVDC 10% ceramic (y)
C709 510pf 300 WVDC 2% mica (inside of Z702)
C710 5000pf 1000 WVDC 15% ceramic
C711 5000pf 1000 WVDC 15% ceramic
C712 5000pf 1000 WVDC 10% ceramic (y)
C713 5000pf 1000 WVDC 10% ceramic (y)
C714 5000pf 1000 WVDC 10% ceramic (y)

(y) C705, C707, C708, C712, C713, and C714 are all constructed into one unit. Some are epoxied together, some are in plastic holders, etc.

From Flowertime01 at wmconnect.com Mon May 23 22:10:47 2005
Subject: [R-390] Re: Your message to R-390 awaits moderator approval

Moderator, Better just kill this one. I likely left a bunch of trash on the bottom end. I will repost mine. Thank you for taking care of us All. Roger L. Ruszkowski

From Flowertime01 at wmconnect.com Mon May 23 22:15:03 2005
Subject: [R-390] The Nolan Lee Memorial 390A Capacitor List

writes:> Anyone have a better list?
>
> Nolan's R-390A/URR Master Capacitor List
> Revision 0.2 BETA (5/6/99)
> nlee@gs.verio.net

SIR, No SIR This is the list, SIR. Thanks Tom, Roger KC6TRU P.S. I think we are having our chain jerked. But thank you for putting the real thing up.

From ba.williams at charter.net Mon May 23 22:57:37 2005
Subject: [R-390] R-390 "deadly components"

> Brown beauties. A cap in the mechanical filter circuit that fails and then kills the mechanical filters. If your post is not in Jest, get over to the archives, and get the real list. > > Roger KC6TRU

Are you talking to me?

The post was not in jest and I was here quite a few years before you showed up as a new guy. I don't need any archives pal. You mention a common lore thing when your first comment indicated more serious things. There's more to this list than a few archive snippets that you just brushed up on. Barry (the other other one)

Date: Mon May 23 23:10:25 2005
Subject: [R-390] The Nolan Lee Memorial 390A Capacitor List

> Nolan's R-390A/URR Master Capacitor List
> Revision 0.2 BETA (5/6/99)

There is always the 'Dave in Birmingham" list for the cap packages that he put together. I have the list somewhere and never thought to compare the two. Maybe I'll check it out and OCR it for the list if interesting. Barry

From bipi at comcast.net Mon May 23 23:04:30 2005
Subject: [R-390] R-390 "deadly components"

> The R390 is the good receiver.
> The R390/A is the cheep knock off model.

Jeez Roger, that is a little harsh! BTW, the word is cheap, even if I don't agree with your choice of words.

I rather think of the R390A as a design solution to make the radio easier and less expensive to repair, which I'm sure was an overriding design requirement. There may be some performance differences, but I like to think the "A" model is more than adequate! Just my humble opinion... 73 de Mike K7PI

From youngbob53 at msn.com Mon May 23 23:27:50 2005
Subject: [R-390] R-390 "deadly components"

I'm mostly a medium wave DXer and had been told the mechanical filters in the A were superior than the filters in the non-A at least for the BCB band that the peaks of the curves were flatter thus more intelligible in the narrow positions which you need to DX the foreign splits, what's the consensus around here (I don't have either yet) Bob Young

From n4buq at aol.com Tue May 24 00:18:49 2005
Subject: [R-390] R-390 "deadly components"

They usually suffer from loneliness forcing the owner to buy more R390A's to keep them company. Barry - N4BUQ

From drewmaster813 at hotmail.com Tue May 24 00:44:16 2005
Subject: [R-390] The Nolan Lee Memorial 390A Capacitor List

Hello All,

Nolan Lee's R-390A capacitor list is all-comprehensive, perhaps too comprehensive for those of us who wish only to replace those pesky failure-prone paper and electrolytic caps. Shortly after Nolan compiled his list , Wei-i Li released a list comprising just the paper and electrolytics.

Much more information on capacitor replacement can be found in his "Pearls of Wisdom", a distillation of postings gleaned from this forum over the years. Goto r-390a.net . Click on references, pearls of wisdom and be amazed. Be very amazed. So without further ado I present for your edification We-i's posting: Drew

[Begin old post}
Date: Thu, 5 Aug 1999 08:54:24 -0700 (PDT)
From: W Li <wli@u.washington.edu>
Subject: [R-390] Re: Recap shopping list

I had a chance to go over Nolan's R-390A cap list, and rehacked it to reflect my needs. This is only a working list, so let me know of errors. A shopping list for any recap kit would include:
- ----------
(13) 0.1 ufd C256, C309, C504, C505, C517, C521, C528, C531, C536, C538, C543, C547, C548,

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

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

(I'd go with the SBE 716P 600v OD's at the outset, seeing as how recapping is not a trivial project)

(3) 30 ufd 300 v electrolytic C603
(2) 47 ufd 300 v electrolytic C606

(Sticking new electrolytics in an empty octal relay case as Tom Norris did, worked out swell for me)

Finally, only one needed of:

0.047 ufd 100v C227
8 ufd 30v tantalum electrolytic C609
50 ufd 50 v electrolytic C103
2 ufd 500v C551 oil-filled paper
0.22 ufd 100v C101
- ----------

Obviously C553 and C549, and the AF deck electrolytics C603 and C606 take precedence in any recap project, as stressed in earlier posts. Now here is a chance for AES to make up a 37 item kit (just kidding)..... Thanks, W. Li

From ToddRoberts2001 at aol.com Tue May 24 01:05:52 2005
Subject: [R-390] The Nolan Lee Memorial 390A Capacitor List

Thanks for showing Nolan's R-390A capacitor list again! It is nice to have a listing of the silver micas used also. The silver micas are prone to trouble with age also. I have seen more than a few go bad inside the RF Deck transformers. The symptoms are reduced sensitivity across an RF band range and an inability to peak one or more of the RF transformer slugs. If a particular slug will not peak one of the RF transformers usually this is a good indicator that the silver mica inside has gone open or short. This will likely cause the sensitivity to drop quite a bit across that band range. Usually the silver micas are easy to replace once you take the cover off the RF transformer. It would be a shame to throw away a perfectly good RF Deck transformer when all it needs is a new silver mica cap inside. 73 Todd WD4NGG.

From wli98122 at yahoo.com Tue May 24 01:17:01 2005
Subject: [R-390] Re: Cap list

Are you kidding? Nolan has it nailed...W. Li

From hankarn at pacbell.net Tue May 24 01:42:42 2005
Subject: [R-390] The Nolan Lee Memorial 390A Capacitor List

I bought several kits from Dave and I think I bought 15 kits from Walter Wilson. All good kits and well worth the money. Hank KN6DI

From CRIPS01 at MSN.COM Tue May 24 01:44:56 2005
Subject: [R-390] R-390 "deadly components"

Comparing, in a negative way, high end receivers designed in the twilight of Tube radios is really stupid. I look at all such radios in my collection as books written by the electronic engineers of the time. All of

these radios do the same job, it is how they do that job fascinates me. I just got my RME-45 running this radio had it's final checks completed 8 March 1946. the Engineers at Radio Manufacturing Engineers decided to use loctale tubes, why did they chose this type of tube? The S meter is not hard wired but has a cord that plugs into a receptacle on the inside . I can just imagine and engineer who was tired of having to disconnect a bunch of wires to get a meter out. The SP-600, why in gods name did they use the band switch turret with all of the little ceramic blocks. Collins used PTO's which where more expensive then regular variable capacitors. They are superior but what caused Art Collins to go this way. I can go on and on with this. So instead of statement like the R390A/URR is a cheap copy of the R390/URR think about the reason for the engineering changes and what was on the minds of the engineers who designed those changes. With all of this said my favorite receiver is my R388/URR (militarized 51J3) Ken

From hankarn at pacbell.net Tue May 24 01:46:43 2005
Subject: [R-390] R-390 "deadly components"

Cheap knows Cheap. The military must have liked the "A" as they bought some odd 50,000 plus and their are very few radios in the world that can equal it. I will not get that thread started again. Hank KN6DI

From CRIPS01 at MSN.COM Tue May 24 01:52:53 2005
Subject: [R-390] Tube receivers and long wire antennas

for all things to do with coronal discharge voltage in wire go the Polyphaser they have written the book. their website has a tremendous amount of information on this subject. Ken

From chacuff at cableone.net Tue May 24 08:26:54 2005
Subject: [R-390] R-390 "deadly components"

Now That's a Fact! Cecil....

From ba.williams at charter.net Tue May 24 08:26:56 2005
Subject: [R-390] R-390 "deadly components"

> They usually suffer from loneliness forcing the owner to buy more R390A's to > keep them company. > Barry - N4BUQ >> Uh, what problems do the A's have? Maybe I should go check mine??? >> Barry

Yes, and at least one SP-600. Barry

From Llgpt at aol.com Tue May 24 09:11:58 2005
Subject: [R-390] R-390 "deadly components"

The R-390 didn't need as many repairs as the R-390A. It was a cost reduced version to save money. Something that seems to be foreign to todays politicians. Les Locklear

From roy.morgan at nist.gov Tue May 24 11:28:21 2005
Subject: [R-390] R-390 "deadly components"

wrote: >>The R390 is the good receiver. >>The R390/A is the cheep knock off model.
>
>Jeez Roger, that is a little harsh! BTW, the word is cheap, even if I don't agree with your choice of words.
I was just thinking:

MAYbe he did mean "cheep". There is a list of birdies for the R-390A, and I assume a different list for the R-390/URR. I might have it buried in the archive here, but a quick search does not find it. Maybe it was in "The Engineering Report...".

In Europe they call them tweets. Some folks call them "mixing products". If I remember correctly, the Racal manual I have uses the word "tweet". Quaint. Of course a higher order harmonic of a variable oscillator mixing with a fixed frequency has greater tweet-ness. A little while spent with an LM or BC-221 frequency meter will show this nicely. As someone famous said: "Britain and America - two countries divided by a common language."

Maybe I can start a cheep tweet thread. I think I need a vacation. But there's nothing wrong with me ... wrong with me ... wrong with me ... wrong with me ... Roy

From David_Wise at Phoenix.com Tue May 24 12:36:21 2005
Subject: [R-390] R-390 "deadly components"

The R-390A parts list specifies C553 as part number 96P1030354, which is the same expensive, hermetically-sealed "Vitamin Q" grade that earns justifiable praise in the R-390. Yet it's marked for immediate termination in the 'A. Rationality or religion? Replace all infidel caps, Dave Wise

From jsullivan10512000 at yahoo.com Tue May 24 14:11:16 2005
Subject: [R-390] R390A front panel to sell

I have an extra, original, R390A to sell. Anyone interested, give me an offer. Shipping is around $10.00 in U.S.A.

From jay_coward at agilent.com Tue May 24 19:38:55 2005
Subject: [R-390] It's back!

The ultra rare left handed R-390A is back in the latest Fair Radio catalog. Jay

From scott at becklawfirm.com Wed May 25 13:03:16 2005
Subject: [R-390] Fw: Amphenol Blue Ribbon Connectors

Thanks to Phil, Don and Roy------I found the Amphenol Blue Ribbon connectors that I needed at William Perry http://militaryradio.com/Images/WilliamPerryCompany.jpg and also some MS connectors that I needed for another job. The guy that I talked to sure knew his connectors and stock----- very efficient and helpful. Thanks again guys and to the group. Scott, N6NXI

From djmerz at 3-cities.com Thu May 26 14:28:35 2005

Subject: [R-390] Meter trivia

Hi, while listening and staring at the front of the 390a, I noticed that the two meters on the front panel have somewhat different shape/size. The first noticeable difference was that the line level meter window extended further down and revealed the pivot point of the meter whereas the carrier level meter on the right had a smaller window. I looked over at the 390 and noted that both meters on it were similar in shape to the 390a carrier level meter with the smaller window. The scales, etc seem to indicate these all are original meters. The 390 meters are different in one other aspect. They seem to have stamped metal housing with a sloped front transition immediately below the window whereas the 390a meters are blockier with more of a corner below the window.

Some measurements indicated that the 390a line level meter with the larger window was 1.8 inches outside, which was the same outside size as the two 390 meters. The 390a carrier level meter was larger, slightly under 1.9 inches. Is this variation in meters typical of variations over the production life of the 390a, and have others seen this variation on their radios? Dan.

From richardlo at admin.athabascau.ca Thu May 26 16:13:31 2005
Subject: [R-390] Meter trivia

Dan, as you observed, there were a number of variations in the meters that were used and making any assumptions on what was originally installed would be darn near impossible.

Were the meters identical on the individual radios when they were manufactured? Maybe, maybe not. I doubt that the builder gave a darn whether the meters matched or not and if the meters were removed or replaced for any reason in the maintenance cycle then you can bet the farm that the technician didn't attempt to match them upon reinstallation.

I don't think you can tell the difference between an R390 and an R390A meter since they have identical specifications. My R390 has two genuine mismatched meters of very uncertain parentage. Richard Loken VE6BSV

From DJED1 at aol.com Thu May 26 16:01:08 2005
Subject: [R-390] Dayton experience

I thought I'd share a couple of impressions of my first journey to Dayton. It sounds like some of the list members came away with radios- I resisted the temptation, but had a good time. Saw a handful of R-390s, including a nice black-face A, and a R-725, as well as the usual R-390s and As. Looks like most went for at or under $500, and all were in good shape including original meters. I was tempted by the black face, but the thought of lugging it all day made me move on, and it was gone when I returned.

Of equal interest, I stopped at Fair Radio to see their stash of R-390 stuff. I got a tour from Gary, who does all the restorations of "checked" radios. He showed me the stash, which consists of about 5 pallets of blue stripers, and a small number of parts chassis of the non-A. Gary said he was having trouble finding good modules now, and will probably run out of checked units in a year or so. LOTS of parts around, but definitely needing repair. I think Fair does a lot of work (including painting the front panel) on the checked radio for the extra couple of hundred they get.

The most interesting comment was that Gary has had some success with rebuilding the mechanical filters. He finds that most have a broken wire in one of the transducers, and he can repair or rewind the

transducer and then replace the filter in the housing using new foam. This may be necessary in the future as the filters start to fail more frequently.

I picked up a BFO coil that I want to use in my external SSB adapter. While Fair gave me the schematic for the current oscillator, I don't have any information on which of the three terminals is which. Can anyone identify which of the terminals is the tap, which is the grid, and which is ground. Thanks for the help. Ed

From peuhs at bellsouth.net Thu May 26 18:09:23 2005
Subject: [R-390] 390/sp600

I repeat...Anybody serious got any money to send...? $400 for the SP600 and $700 for the rebuilt by Medley 390.. If you are serious, offer to do it...I will ship it after I get the cash.. John...

From N4BUQ at aol.com Thu May 26 23:51:09 2005
Subject: [R-390] Handy MB to BNC cables for auction

See item number 5767685312 on eBay.

They aren't mine and I don't know the seller, but I do have some cables similar to these and they are very handy so I thought I'd relay the item number to the group.

Not sure if 75-ohm coax is exactly the right impedence where these would be used, but it's probably close enough.

Again, they're not mine, I don't know the seller, and have no vested interest in them. Just passing along the info. Barry - N4BUQ

From CRIPS01 at MSN.COM Fri May 27 03:35:56 2005
Subject: [R-390] Coldheat revisited

I pulled my coldheat soldering pencil out to try to get some use out of it. I was doing some point to point wiring in the RME-45. I must say I was kind of surprised as to how well this thing worked if you use it properly. I found the trick was to make sure the contact LED is lit up before you hit the connection with solder, and that isn't always easy. The solder joints are very clean with a good flow and binding. I am not going to say Coldheat is anywhere near being a replacement for a good soldering station but in a situation where you might have small number of things to solder it might be ok. The bottom line is if you have one give it a try, again, remembering the contact light. If you don't have one spend more and get a proper rechargeable soldering pencil. If you get a ColdHeat for a gift act like you have been waiting for this for hundreds of years. It doesn't take up much space in the tool box. Ken

From djmerz at 3-cities.com Fri May 27 12:52:53 2005
Subject: [R-390] Dayton experience

Ed, ok, I took a look at the bfo coil in the extra 390a i.f. chassis I have. If you point the shaft end toward your eyes with the middle pin at 12 o'clock, the terminals are numbered 1, 3, 2 in clockwise order with pin 1 at 11 o'clock, pin 3 at 12 o'clock and pin 2 at 1 o'clock. On my Artisan Electronics unit, the pins

are identified by a stamped number on the unit and these numbers correspond to the schematic Pin 1 goes to grid thru a capacitor Pin 3 goes to ground Pin 2 goes to cathode (center tap of bfo coil)

I checked the actual wiring on my unit in the chassis and the numbers stamped on my unit indeed correspond as described. Hope this helps, best regards, Dan.

From peuhs at bellsouth.net Sat May 28 11:11:43 2005
Subject: [R-390] R-390/SP600

Thanks...they have been sold... I must say, I should not have put it on here I know, BUT, a lot of persons sure wanted info, but didn't want the radios.....except on their terms??? Oh well.. no surprise. John

From hankarn at pacbell.net Sat May 28 13:14:43 2005
Subject: [R-390] R-390/SP600

John,

That is the main reason that I have not listed all of my R390A's about 50 and Sp-600 about 10 They all want EAC and virgin modules with the same S/N. Then they want them under warranty.

When you offer a completely restored one for $1100.00 they want to pay 300.00. They want them priced like Geo but in condition like a Rolls or a fine tuned race car. You get what you pay for. Hank KN6DI

From varsdale at earthlink.net Sat May 28 20:58:32 2005
Subject: [R-390] R-390/SP600

That's the free market system! You have to kiss a lot of frogs before you find your prince. ;-) Walt Van Arsdale Pygmy Wizard Computing

From hankarn at pacbell.net Sat May 28 22:04:54 2005
Subject: [R-390] R-390/SP600

TOO many FROGS out their to KISS HiHi Hank KN6DI

From CRIPS01 at MSN.COM Sat May 28 22:28:11 2005
Subject: [R-390] pulleys

I have a question. I have a number of old receivers that have string moved tuning dials. They have little plastic pulleys the string moves and there are bunch of these little pulleys that have broken off. Do these pulleys have a specific name so I can look for them, and does anyone know where I can purchase a bunch of them? Ken de W7ITC

From RLucch2098 at aol.com Sun May 29 12:01:38 2005
Subject: [R-390] I was unaware they made this cover(pics)!

Hi All;

I never seen one of these but then again I only have a few R-390A's. Someone told me that these were used to "Hide" the receive frequency in a Military receiving station where they had many receivers. Does anyone know who made these? Where they put on or made by the Military? This one is on a Collins R-390A

Pic: http://www.myradioroom.com/r390adialcover1.jpg
http://www.myradioroom.com/r390adialcover2.jpg Tnx & 73.. Rich WA2RQY

From barry at hausernet.com Sun May 29 12:23:46 2005
Subject: [R-390] I was unaware they made this cover(pics)!

Hi Rich & Crew:

They're not all that common, but not all that rare either. From time to time, Fair Radio puts individual flip-down covers on the e thing. I have one sample, not installed. No markings as to manufacturer. Not all that high-tech -- just a piece of sheet metal, stiff wire, a spring for friction to hold it in position and a piece of felt.

The urban (or rural) legend says these were used by 3-letter orgs. like NSA, CIA, to keep monitored frequencies away from the prying eyes of passers-by. However, someone posted a link recently to a photo on a website that showed an R-390A with one of these covers in a mil radio shelter.

They would also be particularly handy if monitoring the ball game.

For anyone who may be interested, I am making available a small number of a newer version for only $25 each. No need to remove any screws -- these are magnetic, business card sized. Pay no attention to the "Ajax Plumbing & Heating", "<town name> Fire Dept.", or "So and So Realtors", etc. printed on them. Just a countermeasures diversionary feature. You might already have some -- keep an eye out next time you go to the fridge. ;-) Barry

From n4buq at aol.com Sun May 29 13:50:25 2005
Subject: [R-390] I was unaware they made this cover(pics)!

... and your covers stick to aluminum?? Barry - N4BUQ

From rbethman at comcast.net Sun May 29 14:26:48 2005
Subject: [R-390] I was unaware they made this cover(pics)!

Aw, c'mon. He DIDN'T say they would work.

He just offered to sell a few. Now IF you're smart enough to KNOW they won't work, you wouldn't buy one - or would you?

From n4buq at aol.com Sun May 29 14:29:32 2005
Subject: [R-390] I was unaware they made this cover(pics)!

Well, at least not at the asking price. According to the opinion of some, I'd first have to try to buy them at 10% of his asking price and demand a money-back (+postage both ways) guarantee if they didn't work perfectly. :)

Oh, and if I bought more than one, I'd want them all from the same "supplier" and get a volume discount. Barry - N4BUQ

From glennmaillist at bellsouth.net Sun May 29 14:37:40 2005
Subject: [R-390] I was unaware they made this cover(pics)!

These could be "black out" covers. The R-390A does not have a dial light dimmer. When the radio is used in a shelter, at night, there would be a requirement for a black-out door or turning off/covering up all light producers for someone to enter or leave the shelter. Just a guess. 73 Glenn WB4UIV

From barry at hausernet.com Sun May 29 14:43:29 2005
Subject: [R-390] I was unaware they made this cover(pics)!

> ... and your covers stick to aluminum?? > Barry - N4BUQ

Come with a complimentary piece of Bazooka bubblegum, in case you have the cheap aluminum Veeder Root cover. Spit not included. Velcro is extra. Drop-forged covers available as an accessory item -- only $179.95. (No room for the bulbs -- an added security feature.)

Another trick -- tape or glue a couple of small magnets inside the counter cover -- but be sure to check magnetic polarity first or security screen will try to fly off.

I have also a disposable cover system for sale at $19.99. Self-adhesive opaque black pvc, 3/4" wide -- 10 yards. Pls. ignore "3M", "Scotch", or possibly even "Walgreens" printed inside spool as this is ... yup ... another countermeasure. regards, Barry

From rbethman at comcast.net Sun May 29 14:54:39 2005
Subject: [R-390] Ballast tube AGAIN

We never did decide whether it was raw, smoked, fried or boiled Kielbasa was the BEST at current regulation for ballast tube replacement - did we? Bob

From hankarn at pacbell.net Sun May 29 16:30:31 2005
Subject: [R-390] I was unaware they made this cover(pics)!

He also has a special magnet. Hank KN6DI

From bill at iaxs.net Sun May 29 16:50:18 2005
Subject: [R-390] I was unaware they made this cover(pics)!

Magnets will stick to aluminum if you rub the aluminum with enough steel wool. At least, that's what

people keep saying about making aluminum rusty.

Actually, the covers are there to prevent the operator from sub-consciously remembering so many numbers that his brain explodes. Bill Hawkins

From JEEPER at netins.net Mon May 30 10:59:41 2005
Subject: [R-390] R-390 POWER SUPPLY

HELLO, I HAVE A R-390 POWER SUPPLY MAKES A HUMMING SOUND-NOT AC SOUND, IS THE POWER SUPPLY REPAIRABLE WITH THIS TYPE OF PROBLEM?

From stevehobensack at hotmail.com Mon May 30 11:20:23 2005
Subject: [R-390] Ball Games

The places I have worked had intercom systems hooked to every receiver and wired directly to the watch sups desk. If caught listening to AFN, music, ball games, etc , one would get about 3 hours EMI. ..73..Steve..N8YE

From CRIPS01 at MSN.COM Mon May 30 12:02:12 2005
Subject: [R-390] R-390 POWER SUPPLY

can you be more specific, is the power supply physically noisy, a transformer humming, or is the power supply causing the radio as a whole to be noisy. Ken

From djmerz at 3-cities.com Mon May 30 12:15:49 2005
Subject: [R-390] R-390 POWER SUPPLY

Clarence, hi. Is this sound coming thru the speaker or is it a vibration coming directly from the supply transformer and apparent with the volume turned completely down? From your description, "not ac sound", I take that to mean that it's not ac line hum coming out the speaker, which is generally fixable by capacitor replacement. Are you blowing fuses? Dan.

From g4gjl at btopenworld.com Mon May 30 22:05:41 2005
Subject: [R-390] R390-A 4kc filter needed

I am renovating / rebuilding a St Juliens Creek set for my friend, Graham,G3XTZ.

I have found that the 4kc mechanical filter is faulty (and beyond repair...I have had some success in the past, opening and re-soldering the fine wires on the actuator coils). Does anyone have a spare they would sell / swap. Pete G4GJL

From Flowertime01 at wmconnect.com Mon May 30 19:57:47 2005
Subject: [R-390] I was unaware they made this cover(pics)!

Glen,

No need to guess. You are right. These could be "black out" covers. The R-390A does not have a dial light dimmer. When the radio is used in a shelter, at night, there would be a requirement for a black-out door or turning off/covering up all light producers for someone to enter or leave the shelter. Glenn WB4UIV
Our field stuff in Nam had them in 69. We hated the things because they do not stay up and you have to hold the cover up when you went to dial onto a frequency. The Vans in Korea on the DMZ had them in 70 - 71. Those were relegated to the motor pool and were just a maintenance problem to keep the stuff "hot in the depot" [parked, but not yet junked] operating.

We had a couple on some receivers in the field station at Torri Station Okinawa. Those receivers were monitoring some propagation beacons on some fixed frequencies. You could walk by the chart recorder, see where the needle on the recorder was as you went to work and knew if you were going to hear any thing. It was easy to just keep the dial covered. 90% of the station ops and maintenance folks did not even know there was a special project running over in the corner. We were just collecting data.

Mostly they were like the micro dials on the BFO. Sort of official after market bolt on accessories. They had / have a NSN and you could order them like other parts. If you were doing serious operations and needed to spin the knobs as part of the job, you hated the things. If you have one receiver on display skip it. If you get to have more than one receiver on display, buy all means add one to the shack for looks. If the paint is falling off your dial counter, you may want to run a cover over it.

Did you know you could also order red lights for the dial lights? These were allowed in the Vans for field work. Roger KC6TRU

From eldim at att.net Mon May 30 20:18:44 2005
Subject: [R-390] I was unaware they made this cover(pics)!

Did you know that there are these little opague rubber boots that slip over the #328 Dial lamps to produce a desired color hue? I've seen them in Red, Green and Yellow. I've also seen lams that are painted red. Or you can get some red fingernail polish and paint your lamps.

73, Glen Galati, KA7BOJ

From kherron at voyager.net Mon May 30 20:55:29 2005
Subject: [R-390] I was unaware they made this cover(pics)!

Hi Glen,

>Did you know that there are these little opague rubber boots that slip >over the #328 Dial lamps to produce a desired color hue? I've seen them >in Red, Green and Yellow. I've also seen lams that are painted red. Or >you can get some red fingernail polish and paint your lamps.

You say that they are available not from where or who. How 'bout a heads up! Thanks!! Kim Herron W8ZV

From dmetz at ntelos.net Mon May 30 21:01:04 2005
Subject: [R-390] FS: Jan Skirrow SSB detector Kit

I recently purchased the Jan Skirrow SSB kit for the 390A. I am positive I will never find the time to assemble this kit. He sells them for $76 plus shipping. This one, just like I got it from him: $50 shipped lower 48. see item
http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&category=4673&item=5776856552 any form of payment including paypal. thanks

From djmerz at 3-cities.com Mon May 30 21:38:53 2005
Subject: [R-390] R-390 POWER SUPPLY

Clearance, not that is of great importance at this point, but is this a 390 or a 390a? Without knowing much more, I would venture this is the transformer or one of the two chokes making this noise. Others on the reflector may have other ideas. You can buy a replacement power supply from Fair Radio for $25 (without tubes, but presumably good otherwise) for the 390a, and it could be a complete replacement or used for parts but you'd have to identify the specific part before swapping. Since your plug-in caps and tubes are presumably ok, you could just swap those into the Fair supply and see if that does the trick. Much cheaper than shipping the radio for repair and the power supply is pretty easy to swap out. I don't know of a source for the 390 power supply if that is the radio you have but Fair may have specific parts for the 390 if you can identify which one you need, maybe by feeling for the part that is vibrating. By the way if you want the general population on the reflector to see suggestions/responses from you, you should "Reply to all" rather than just "Reply", your choice. Best regards, Dan.

From Flowertime01 at wmconnect.com Mon May 30 21:39:44 2005
Subject: [R-390] R-390 POWER SUPPLY

CLARENCE LOZANO

HELLO,I HAVE A R-390 POWER SUPPLY MAKES A HUMMING SOUND-NOT AC SOUND ,IS THE POWER SUPPLY REPAIRABLE WITH THIS TYPE OF PROBLEM?

Clarence, This is an R390. Do not panic. It is repairable. We need some more information from you. Please read the other mail to you.

Is this an R390 or R390/A.
The R390 power supply is a bit more complex than the R390/A power supply. At worse you may need to simply replace the power supply deck. Likely you can fix the problem.

Check your fuses and make sure you are not running with any one over fused at this time. Make sure the oven heaters are turned off. Pull the RF and Audio decks for a visual inspection. Tell us what you find.
Do you have solid state diodes in or are you running tubes?
If tubes what type? (there are some mods away from the 26Z5's)
Do you have a transformer hum?
Do you have a hot transformer? (should at least be able to touch it as warm)
Do you have any arcing noises?
Do you blow fuses?
Do you have the 150 volt voltage regulator tube lighting up?
If it is an R390, how are the series regulator tubes doing.
Is the noise in the audio output?

The power supply also has a selenium rectifier that operates the antenna relay. These things go bad.

They will load the transformer and cause a hum. ground the standby pin on the back terminal board and switch the function switch to standby. The antenna relay should operate. Listen for a change in hum. check the fuses after this test. If you have a bad rectifier stack, it is best to replace it with a modern silicon bridge.

Unplug the IF deck, RF deck and VFO deck harness. Did the Hum quit?

If you have an R390/A unplug the Audio deck.

You cannot do this to an R390 because of the series regulators in the Audio deck. Every thing quits in the R390 when you unplug the audio. It does not hurt any thing, its just not a useful test. Take the time and test all the tubes. A shorted or bad tube will pull current and cause the RF deck to hum at strange frequencies.
If you find, unplugging a deck stops the hum, do not consider you need to move over to that deck. You may have a filament winding gone bad. When you unplug the deck, you unload the winding and the hum may stop. Grab your schematic and start to unpug tubes to find the filament winding causing problems. If you isolate the problem to a filament winding, test all the tubes on the winding for shorts.

Bad tubes will cause a power supply hum. Replacing the tubes will fix the problem.

You need to isolate the exact problem in your receiver before you consider the repair options.

The transformer is sealed into a can. Soldered but openable. Inside the can is a typical transformer with laminations. Some transformers were bolted. Some were welded some were strapped and clamped.

The winding lead were soldered to the other end of the feed through lugs on the can. Some times when soldering to the lugs, on the transformer, the solder inside over heats and moves into places it should not have. While you can replace a transformer on the deck, aggravation almost exceeds return. After meeting the cost of a transformer, the cost of a deck and the trouble saved makes it worth cleaning up a new subassembly. You start trading subassembly wiring and harness connector problems for transformer wire problems. A good straight chassis deck, green screws and some desired factory ink, may cause you to want to keep the deck you have. (Read all matching modules in the receiver.)

However, transformers have been opened and rewound. You can go the full route if you have the interest. You can open the can and do repairs. You can pull and replace the transformer. Once you find the real problem and consider the "historic value" to you of the bad part, you can select your repair solution.
OK so what goes wrong. After time the laminations come loose in the transformer and eddy currents let the lamination plates oscillated in the magnetic fields. This makes mechanical noise. So why is it not a 60 cycle hum? It may be. But the mounting hardware, mechanical mass, sealing varnish, and other (do not tell OSHA) included goop changes the resonant frequency. Power transformers have been heard with all sorts of sounds.

If its not getting hot, blowing fuses, and really annoying loud, you could live with it.

Likely its annoying loud and you would like to fix it. Also there are other things like shorted winding that lead to problems. Soon (100 hours of operation) the vibration will wear through some varnish on some windings and things will go from bad to very bad. So you should not just let the problem go. But it will let you operate the receiver long enough to isolate the problem to a bad part.

While you may have a power transformer hum, the cause may not be in the transformer.

Do some checking, let us know what you find. Watch what some of the other fellows say and ask you to check. Take your time, enjoy your puzzle.

Once you get to the problem, report it here. If you need parts ask here first. If you need some more help, warm up the keyboard and ask away. Roger KC6TRU

From drewmaster813 at hotmail.com Mon May 30 22:26:30 2005
Subject: [R-390] Re: R-390 POWER SUPPLY

wrote: >HELLO,I HAVE A R-390 POWER SUPPLY MAKES A HUMMING SOUND-NOT AC SOUND ,IS >THE >POWER SUPPLY REPAIRABLE WITH THIS TYPE OF PROBLEM?

Judging by the tone of his message the humming is pretty loud because he has to shout to be heard over it :o)

I "fixed" the transformer in my '67 EAC which had a loud mechanical hum. I loosened the 6 captive green-headed screws holding the transformer to the mainframe each a couple of turns. That reduced the acoustic coupling and provided a marked reduction in noise.

The noise was reduced further to an inaudible level when I used the radio sitting on a tabletop. With the power transformer screws loosened I shoved a piece of padding (an old leather glove) under the transformer thus supporting its weight to the table and cushioning it. It did not run hot that way. Drew

From JEEPER at netins.net Mon May 30 23:26:16 2005
Subject: [R-390] R-390 POWER SUPPLY

THANKS DAN FOR ALL THE HELP. I WILL GIVE RAIR RADIO A CALL AND SEE WHAT THEY HAVE FOR MY R-390

From dcsfree at worldnet.att.net Tue May 31 11:55:50 2005
Subject: Fw: [R-390] R-390 POWER SUPPLY

To whom it may concern this CLARENCE LOZANO that now belongs to the R-390 has placed ads on QTH for radios and has at least stole the money sent to him by at least 3 different people that I know, it could be more. Dan Cotsirilos K9DTC