APPROACHES TO THE DEAD RECEIVER

Date: Fri, 24 Sep 1999 11:00:25 -0400
From: "Corbeille, Richard E" <Richard.Corbeille@PHL.Boeing.com>
Subject: [R-390] wiring harness follow-up

Two weeks ago I requested assistance from the list on my dead SW R390A. I want to express my sincere thanks to all that offered advice and encouragement. Surprisingly, every one of the tips contributed to finding the problem. Before I give the solution I think it is interesting to summarize the advice and the eventual finding.

1. check B+. I had 150 volts so figured I was good to go, wrong!

2. green screw on RF too long. yep, had that

3. pinched wires on front panel had evidence of that too

4. debugging procedure, output to input very helpful, saved time

5. encouragement. thanks!

6. utilize test points on RF deck. this produced a signal eventually..

The upper green screw on the RF deck was a little too long and did contact the wire bundle but fortunately caused no damage. Two wires leading to the BFO switch are long are did get pinched between front panel and deck plate. Besides getting flattened, no apparent damage but definitely an area to note when re-attaching the front panel. I had been checking every pin on the upper modules because the receiver was upright and it was convenient. After advice to begin at the output I flipped her over and began at the terminal block for local output. Everything was fine until I got to pin 2 on P119, one of the connectors on the AF deck. It connects to the on-off switch. There was about 23M ohm present.

Closer inspection of the schematic revealed fuse 103 in phantom. It had been added in the circuit. Wow! Checked the fuse and sure enough it was 23M ohm. The fine wire was covered with a white powder. I just couldn't believe that I was such a dummy to be caught with a bad fuse but I was excited anyway. Inserted a new fuse and powered up. This time there were signs of life. The BFO worked, the CAL worked and there was some noise from the speaker but no signal. Not to make excuses, but I guess I was accustomed to only one fuse and if it blew the equipment was dead. So I had lost partial B+. To wrap up this long winded and perhaps sophomoric post, I do get a broadcast station by inserting a test lead in test point E108 on the RF deck. It appears that the problem must now be the antenna relay and, if not that, I must remove the RF deck one more time (ugh) and check the shielded lead from the relay. Correct? Again, sincere thanks for the assistance.

Date: Sun, 02 Apr 2000 15:17:46 -0400
From: "Charles A. Taylor" <calltaylor@prodigy.net>

Subject: Re: [R-390] DEAD RADIO!

>I hope I can get some help with this.
>Turned on my 390 today to find- nothing! Audible static that varies with the
>line level (good af stages) but no reception and no bfo squeal. Worked super
>prior to this! Any help on where to start looking?- Roger

After running your R-390 for about five minutes, feel the tubes in the IF section to see if one is cold. When you energize the BFO, and operating the BFO frequency control, can you hear the swish of the BFO oscillator? Does operating the bandwidth control change the pitch of the background noise, if any?

Date: Sun, 2 Apr 2000 13:23:03 -0700 (PDT)
From: Joe Foley <redmenaced@yahoo.com>
Subject: Re: [R-390] DEAD RADIO!

Time to invoke the standard rules of troubleshooting.

1.) Check the most common problems first, plugs all seated? Fuses good?

2.) Get the tube tester out, check the tubes.

3.) Do a close visual inspection looking for obvious problems, heat damage, loose or damaged components or parts.

4.) Power to all switches, plugs, cords?

5.) DON'T FORGET SAFETY!! You've got a problem, it could be anything, it may be that a hot wire has come loose and is resting on the chassis, or the cover that you'll be removing. When you take that cover off it WON'T be grounded but the wire will follow it. How's your ground?

Date: Sun, 2 Apr 2000 17:38:35 -0400 (EDT)
From: Norman Ryan <nryan@duke.edu>
Subject: Re: [R-390] DEAD RADIO!

If Charlie's suggestions check out OK, trouble may lie in the RF deck, but first work all connectors and plugs to see if the trouble clears. If no joy, try tapping T-208 (Is your set an R-390A?) or wiggling it. I had a similar failure that was traceable to this part. I took the RF deck out, fiddled around T-208 looking for open circuit, but the trouble disappeared never to be detected, thus problem not definitively resolved. But, heck, the rig has been working fine since. Hope you find the problem. Do you have the depot maintenance manual?

Date: Sun, 2 Apr 2000 17:06:52 -0700
From: "dave faria" <dave_faria@hotmail.com>
Subject: Re: [R-390] DEAD RADIO!

Check to see if the 6BA6 in the vfo is lit. If 390a chk the tube on the crystal deck. If

390 chk I think 6AJ5 in crystal deck. Does not sound like loose connections but chk appropriate BNC connections. Does not sound like a serious death resurrection possible.

Date: Mon, 03 Apr 2000 08:06:42 -0700
From: Dick Carroll <dixie@townsqr.com>
Subject: Re: [R-390] DEAD RADIO!

I once had a National NCX3 transciever that failed at 18 years age. I traced the trouble to an open IF can. On a hunch, I reheated all four of the connections, melted the solder, adding a little new solder, then tried it. It worked perfectly, and never gave any more trouble. Evidently one of the solder joints went "cold" after all those years. That isn't a unique situation, I'm sure. To me, its nothing short of miraculous that any unrestored R390X still works after all these years, given all the plugs, sockets and contacts that must reliably make for it to happen. It is a testimony of the quality of those plugs sockets and connectors, but time, grime and corrosion will take their toll. The failure could be in any number of places.

Date: Mon, 3 Apr 2000 10:16:56 -0400
From: km1h@juno.com
Subject: Re: [R-390] DEAD RADIO!

Open ballast tube on the IF deck? That controls the series wired filament voltage to the VFO and BFO tubes. About 25 Ohms @ 4W in socket pins 2 and 7 should get it up and running. I used a pair of 51 Ohm 2W carbon that were on hand and they fit the socket perfectly. There are more elaborate fixes if you need regulated voltage.

Date: Mon, 3 Apr 2000 11:56:15 -0400 (EDT)
From: Norman Ryan <nryan@duke.edu>
Subject: Re: [R-390] DEAD RADIO!

<snip>……..I think I ended up resoldering the connections to T208 instead.

Date: Mon, 3 Apr 2000 12:30:14 -0500
From: "Jon & Valerie Oldenburg" <jonandvalerieoldenburg@worldnet.att.net>
Subject: Re: [R-390] DEAD RADIO!

I had the same thing happen on the R-390a last year when the 3TF7 went open. Ironicaly my Collins R-390/URR has developed the same symptons on saturday night. I have checked all tubes in the RF & IF decks, all are ok(all @ 80% or beter spec). Replaced V-401 in the oscilator (whick tested shorted) but still no audio.

Date: Mon, 03 Apr 2000 14:03:34 -0400
From: "Charles A. Taylor" <calltaylor@prodigy.net>
Subject: Re: [R-390] DEAD RADIO!

The ballast tube will glow visibly at turn-on, but may not glow while the set is in normal operation....perhaps only a very dull red glow.

Date: Mon, 03 Apr 2000 14:00:07 -0400
From: "Charles A. Taylor" <calltaylor@prodigy.net>
Subject: Re: [R-390] DEAD RADIO!

The ballast tube regulates CURRENT through the series string of the BFO and PTO heaters!

From: "Chuck Rippel" <R390A@R390A.com>
Date: Wed, 9 Jan 2002 12:52:32 -0400
Subject: [R-390] Dead R390A

Check and see if the ballast tube is getting warm, V505 on the IF deck and the PTO tube filaments are lighting up. If not, the ballast tube is open and it is time to replace it with solid state like I did Les' radio. If not, take a scope an start by checking the outputs of the various oscillators. They should all beat at least 2V p-p.

Date: Sat, 21 Dec 2002 13:04:07 -0500 (EST)
From: "Paul H. Anderson" <pha@pdq.com>
Subject: Re: [R-390] Dead R-390A

>Well, I am about to begin my R-390A school. I have had my R390A for
>about 2 years now and it has always worked great. Left it on the other day
>by mistake. It was on maybe 4 days straight. Well now all I get is a faint

Leaving it on (not standby, but regular ON) is fine - year around, in fact as long as it stays reasonably cool. I think in the military, they were assumed to be left on continuously with tube changes every six months. Folks on this list have carefully rebuilt theirs and left them on for more than a year with no troubles. A few days is no big deal. Helps it dry out anyway!

> hum from the speaker. Man I dread pulling that thing out of its cabinet.
> Have worked on a lot of Collins 75A types but this is going to really be
> new. Does this receiver have a time delay relay? It has always been dead for over a minute and then I hear a click and it comes to life. Now no click and of course, no signal. It seemed as though an antenna relay was pulling in.

There is an antenna relay - it should click immediately when you go from standby to on. It should turn off when you go to calibrate. There should be no delay unless by some chance someone added something to accomplish that, but I have no idea why they would. I'd lean more towards a sticky or underpowered antenna relay.

> Guess I better go find a manual and see what I can learn. Wish me luck
> and all help welcomed. John

Make sure you get the Y2K R-390A manual - that will be a great place to start. Search the archives in qth.net for Y2K and you should find it rapidly.

Date: Sat, 21 Dec 2002 13:44:32 -0500
From: "Jim M." <jamesmiller20@worldnet.att.net>

Subject: Re: [R-390] Dead R-390A

Check the ballast tube (3TF7 I believe) on the IF module. It regulates the filaments to the BFO and PTO tubes. If it burned out, you would get no signal. Also the little rectifier tubes on the power supply seem to be prone to failure (at least mine are).

From: "John Page" <k4kwm@hotmail.com>
Subject: Re: [R-390] Dead R-390A
Date: Sat, 21 Dec 2002 23:16:49 +0000

Man, do I feel dumb. The dead R-390A was just a fuse. It has 3 fuses and looking from the rear, it was the one on the right. Labeled B+. Must me another source for audio B+ cause I definitely had audio hum from the speaker. Still have the situation where I turn it on and it comes up and I get audio (can hear it hum in speaker). Not AC hum but just, well you know what I mean. Then in about 45 sec I hear a click and instant signals. A least it works now. Just wonder what the delay could be????? Thanks to all who responded with ideas. Glad all it was just a fuse. But it do make you go "duh". John

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Date: Fri, 30 Jan 2004 06:43:42 -0500
From: K2CBY@aol.com
Subject: [R-390] New Guy

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

If I were you, I'd go a little slower. Recapping an R-390A is not a job to be undertaken lightly -- especially in the IF subchassis where there isn't much elbow room. What's more, I've never been convinced that wholesale recapping is strictly necessary. The greatest danger of working on everything at once is the risk of making an error. If the receiver was working to begin with, a mistake during overhaul merely creates a troubleshooting problem. That is difficult enough when you are dealing with a "patient" whose idiosyncrasies you don't know, but that's the easy case. Now suppose there was a pre-existing fault that prevented the receiver from working "out of the box." Add a second error during overhaul, and you've got real trouble. Now you have two troubleshooting problems, and you've got to solve BOTH of them before the receiver utters a peep. That is a real nightmare unless you have "known good" modules on the bench to swap. R-390As are pretty hardy beasts. In more than 20 years of owning one, the only times I have had a completely "dead box" are the result of tube failure, plus one instance of a mechanical filter with one side of the coil shorted to ground (only the 4 kHz bandwidth didn't work.) and an open selenium rectifier in the antenna relay circuit. That's not to say that I haven't been inside the receiver on countless occasions and given it one "from the ground up" overhaul. But that was to optimize performance, not to restore life to a corpse. I think the first order of business ought to be to see whether you have a working receiver. If so, concentrate on one module at a time. Clean it up; get it going; and be sure it works before going on to the next module. If confronted with an R-390A of unknown condition, I would proceed as follows:

(1) Be sure the receiver has all its tubes in the right sockets. You don't necessarily

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

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

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

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

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

(6) Check the fuse(s) on the rear panel. The AC line fuse F1 should be 3 amps and is present in all models. Later models also have two B+ fuses. F102 should be 1/4 ampere and F103 should be 1/8 ampere. These can be a troubleshooting aid. If F103 is blown, a component in one of the subchassis B+ circuits is drawing too much current. If F103 is OK and F102 is blown C606 is probably bad. If both F102 and F103 are OK and F101 is blown, suspect a short in the power transformer, rectifiers, chassis wiring, filament circuits or oven heaters.

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

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

(9) Inspect the AC line cord for shorts.

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

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

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

(13) Plug in.

(14) Power on.

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

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

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

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

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

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

Miles Anderson, K2CBY

Subject: Re: [R-390] Dead R-390A Update

After you do a thorough visual inspection, then check for proper voltages out of the power supply, after that check to see that the local oscillator is running. Next I usually start pulling or wiggling audio tubes while listening for any noise from the

speaker then work my way up the tube line up.

Date: Mon, 21 Feb 2005 10:15:38 -0500Date: Sat, 19 Feb 2005 21:24:51 -0600
From: "Bill Keller" <kellerfamily01@charter.net>
Subject: [R-390] More on Dead R-390A

Many thanks to all the people who have given me advice. The 3TF7 checked out fine But something else has changed since I first reported the problem. At first, I was getting no signal period on any band under any conditions or control settings. Now, all of a sudden, I have started getting very weak signals on all bands that I have checked so far, but only with the BFO on and both gain controls turned all the way up. With BFO off, I still get nothing. Before this radio went dead, I was running it 24/7, because if I didn't, reception would get very weak or disappear altogether on bands below 8mc. I wonder if that problem and this one are related? Bill K.

Date: Sun, 20 Feb 2005 00:16:30 -0500
From: Bob Camp <ham@cq.nu>
Subject: Re: [R-390] More on Dead R-390A

It sounds like you have multiple problems on the radio. That always makes troubleshooting things a bit tough. The "everything below 8 MHz dead" problem is normally the 17 MHz oscillator not firing up. It won't kill the whole radio though.

I would strongly recommend starting out with what ever test gear you have and doing some basic checks. Even a cheap radio shack VOM and a downloaded copy of the Y2K manual will get you on the way to isolating what's going on. There are some reasonable voltage charts in chapter 5 (I think ...) of the manual that should be of help in figuring out where to start.

This is a tube radio and running it 24/7 will *eventualy* break it ....

Of course they also are 100% repairable by normal non-rocket scientist beer drinking humans. Time to dive in!

Date: Sun, 20 Feb 2005 08:00:11 -0500
From: "Steve Hobensack" <stevehobensack@hotmail.com>
Subject: [R-390] Re: R-390A auction

Don't forget that the little missing plug-in holds the vital 17 mhz conversion osc xtal along with the 200 khz calibrator xtal. The radio will not operate without the plug-in.

Date: Sun, 20 Feb 2005 17:05:55 -0600
From: "Bill Keller" <kellerfamily01@charter.net>
Subject: [R-390] Dead R-390A Update

The situation with this radio is getting more confusing. I went through it and checked every tube substituting one tube at a time and found nothing - ended up leaving the old tubes in. I also checked all connections and replaced the can holding Y201 & Y203 - didn't help, so left original can and crystals in. So, nothing

was actually replaced, but somewhere during the time I was doing the checking, the radio gradually went from totally dead to barely working. The strongest signals will now come in barely audible with the gain all the way up but still not strong enough to copy. If I turn the limiter on, they get slightly stronger. And if I turn on the BFO, they get even a little bit stronger, but still not strong enough to even hear unless the gain is turned all the way up. I can barely tell that signals are there, and that includes nearby broadcast stations. Nothing, of course, is anywhere near strong enough to even budge the S meter. This radio was totally restored by Miltronics a few years back and is exceptionally clean, so I know that it's well worth fixing if I ever get smart enough to figure out what's wrong with it. And if I have the time and space to take it apart to work on it. Bill K.

Date: Sun, 20 Feb 2005 15:17:48 -0800 (PST)
From: Joe Foley <redmenaced@yahoo.com>
Subject: Re: [R-390] Dead R-390A Update

Sounds like a loose connection somewhere, check plugs, wiggle things.

Date: Sun, 20 Feb 2005 15:31:34 -0800
From: "Dennis L. Wade" <dwade@pacbell.net>
Subject: Re: [R-390] Dead R-390A Update

Have a good look at the mechanical section of the RF deck....wonder if a gear clamp gave way all of a sudden. Watch and make sure all the slug racks move when you turn the Mc/s and Kc/s knobs.

Date: Sun, 20 Feb 2005 21:57:37 -0800
From: Buzz <buzz@softcom.net>

From: Bob Camp <ham@cq.nu>
Subject: Re: [R-390] Dead R-390A Update

The R-390- either one was built in the era of the VTVM. Most of the voltage checks on the radio are based on a high impedance measuring device. A VOM will give you different readings on *some* of the test points. VTVM's are not a real popular item any more. You see them come up on the auction sites or at flea markets for less than the price of a family lunch at Burger King. They also do not take up a lot of room in storage while you are not using them. If you don't already have one I think it might be a good idea to get one. They make the process you are diving into a whole lot easier.

On a lighter note - this is a perfect excuse to buy a second working radio. Then you could swap modules back and forth to find the problem. The purchase of the $500 radio would save you the $10 or $15 on the VTVM.

Of course once you found the problem module in the radio, you would need a replacement. Now you need to buy a parts radio to swap in the module from. Now with three radios the investment in a signal generator makes sense. So does stocking a full set of tubes.

Date: Thu, 28 Dec 2006 14:32:22 -0200
From: "Kurt Schnabel" <classicmotorcycleclub@hotmail.com>
Subject: [R-390] R390A not working at all

Some years ago I had bought a defective R390 A receiver, all tubes were checked but it does not receive any signal. All voltages seemed to be ok too. The problem is probably in the front end, which I had already dissasembled and check some resistors and capacitors. Does anyone had a procedure to verify the trouble with the front end of the radio out?

Date: Thu, 28 Dec 2006 10:49:19 -0600
From: "Barry" <n4buq@knology.net>
Subject: Re: [R-390] R390A not working at all

Do you have access to any of the technical manuals or the Y2K manual. These have troubleshooting guides that can step you through some procedures to help determine the stage(s) that are having problems.

Date: Thu, 28 Dec 2006 11:46:34 -0500
From: "Tim Shoppa" <tshoppa@wmata.com>
Subject: Re: [R-390] R390A not working at all

The Y2K has an official diagnostic procedure. Signal generator of any kind (even just the ones that make a raspy square wave all over the spectrum) will put you far far ahead of where you are now. Start injecting at the audio stage and work your way back until you don't hear the hash anymore. If your signal generator happens to do IF frequencies (e.g. 455kc) in partcular, even better. Lacking a signal generator, knowing what noise from different stages (audio, 455kc IF, other IF's) sounds like would help you. "Completely dead" as you describe it (no hum, no nosie anywhere) would have you starting at the audio stage, not the RF amp. If you are getting some noise, starting at the AF and pulling/re-inserting tubes will help you find where things are stopping. A simple coil on the end of a scope probe will help you determine that the oscillators and bandswitch are doing their stuff. You should see the PTO freq, the 17 Mc freq in the back corner going on/off at 8Mc on the Mc tuning knob, the correct frequencies for the 32 band at the main crystal oscillator bank, as you move the sniffer around. Checking the 17Mc oscillator going on/off at 8Mc is a very quick sanity check for massive misalignment of bandswitch. (But not a complete check.) Turning the bandwidth knob with a failed mech filter coupling capacitor will wreck all your mech filters instead of just one, BTW :-(.

Date: Thu, 28 Dec 2006 14:40:05 -0800 (PST)
From: Joe Foley <redmenaced@yahoo.com>
Subject: Re: [R-390] R390A not working at all

Does it have any jumpers on the terminal strips on the back panel?

Date: Fri, 29 Dec 2006 11:49:44 EST
From: Flowertime01@wmconnect.com

Subject: Re: [R-390] R390A not working at all

While waiting for your copy of the Y2K manual to down load so you have some schematics to work with you can start with the eye balls.

The old school house mantra was that receiver worked yesterday. Today it does not work there for it has one and only one problem. Method one is eyeball the problem to one stage and fix it. Method two was listen to it and isolate it to one stage and fix it. You eyeballed a dead receiver first because most days a tube had died. Next was a loose subassembly connector or a broken wire some where on the front panel. 50 years later here we have added failed capacitors to the short list. (pun there intended). Eyeballing got you past the tubes not being lit.

Moving the receiver around dropped the ballast tube filament the VFO and BFO filaments are not lit. Or the receiver did die back when the ballast tube failed and a replacement could not be found. Replacements still are hard to find.

Fix one is a jumper across the ballast tube socket and two new 12 volt 12BA6 in the receiver one in the VFO socket and one in the BFO socket. The original filament string was 24 volts. at 6, 6, 12. Where 12 was dropped by the ballast tube to regulate the filament voltage of the two oscillator tubes which were 6 volts. The new string is 2 12's and a jumper. No trouble you are not on military power some where in the war world. Good old USA power is plenty steady for the receiver without a ballast tube. Read the Y2K manual for other ways to deal with a ballast tube. A resistor will work. You can rewire the IF deck to feed 6 volts from the other filament voltage source to power the VFO and BFO.

While every tube may check good you can have a socket or wire problem. Look at every tube one at a time Are the filaments glowing? Is the voltage regulator tube glowing? If these things are not true then you need the schematic to start getting very local and specific.

R390/A have had / have theses plastic capacitors. About 3/8 dia and 1 1/2 long. Most are brown but are called black beauties of death. They crack and go shorted. They are mostly in the IF deck. A couple in the RF deck. Pull your IF deck and take a look.If your IF deck still has these old capacitors in them you will need to do some testing and replacement. Some Fellows just do every and get it over with. However with a dead receiver it is best to find and fix the problem before you shotgun a bunch of new ones into the receiver. This is just an aside from the eyeball inspection.

If all the tubes are lit then you can start listening to the receiver. In school, repairmen were taught to listen to a receiver. You can front panel a receiver down to a stage or two before you even pulled it out of the rack. I would first look in the back of a rack to eye ball the tubes. I liked the dark space because I could see the blue glow of the gassy tubes in the dark. Once I had the receiver back on the bench in the shop and it had been off and cooled down the gassy tubes did not always glow or have enough color to be seen in the shop even when shaded. Look at your receiver with the lights off. Set it up on one end so you can see the top and bottom

in the dark and not be moving things around in the dark. <snip>
Roger L. Ruszkowski AI4NI

Date: Fri, 29 Dec 2006 14:49:40 EST
From: Flowertime01@wmconnect.com
Subject: Re: [R-390] R390A not working at all Eyes Open

Eye ball four jumpers on the back terminal boards
RF gain TB102 pins 1-2.
Diode load TB103 pins 14 -15
AGC TB102 pins 3-4

These things exist to allow the receiver to be operated in tandem with paired receivers.

Line audio TB103 pins 11-12. This one may be missing and the audio deck modified. This is not a showstopper. If one of the other is missing just strap a wire across the terminals.

Short TB103 pin 9 to ground with a wire to a chassis screw.
Do a nice job you will want to leave this jumper on your receiver.
Switch the break-in switch off and on

You should hear the antenna relay click.
You should hear the audio noise mute.
The break in relay pulls the audio at V601 to ground.
You should just hear the hum from V604.
Set the break-in switch off.

If the break-in is not working, check you have a good jumper on the terminal board pin. Leave this problem for later. That poor relay likely has not been powered on for years.

Set the function switch to cal and mgc. You should hear the antenna relay click as you go from MGC to CAL. If not then you do need to work on that problem. Passive off of the antenna relay is signal through the relay. A lighting strike may have fused the relay contacts. Again let this problem go until you at least have calibration tones on ever 100 KHz.

Set the dial to 7 +000 and look at the mechanical cam alignment.
Read the Y2K to see if your mechanical alignment is good.
Once you know you remember.

Next check the band switch operation.

This is under the RF deck: it switched the six racks of RF transformers.
I call then octaves. One slug rack and three slugs in three cans per octave.
The bands switch at .5 - 1.0 band switch at 2.-3, 4-7, 8-15, 16, 32

As you change the MC knob you should see the band switch gears change. Both going up the dial and down the dial.

Often a clamp will get loose, crack on a gear and drop the alignment.

There are several gears and clamps between the MC knob and the band switch.

NO FEAR you can change any clamps and reset any gear with out pulling the gear train apart.

The original TM says you can even set the band switch in the RF deck without pulling the RF Deck. DO NOT DO THIS. If you need to set your band switch then pull the RF deck and do it by eyeball.

Several of the switch segments carry B+. You want the very best mesh and maximum switch contact on each wafer section and contact on each band setting. DO NOT try to adjust a wafer location of contact. You are just going to adjust for the best you can get. It's an average of everything from end to end. You want to eyeball that not pick a continuity check blind with a meter reading as detailed in the military TM's.

As you dial across the KC band from 00 500 to 00 900 you watch slug rack 1 on the left go from bottom to top. As you dial the KC band from 01 000 to 01 999 you watch slug rack 2 from the left go from bottom to the top. As you dial the KC band from 02 000 to 02 999 you watch the slug rack 3 go from bottom to 1/2 way up. As you dial the KC band from 03 000 to 03 999 you watch the slug rack 3 go from 1/2 way up to the top The 04 to 07 999 takes four passes to make the travel from of slug rack 5 go from bottom to top. Slug rack 5 needs 8 passes from 08 000 to 15 999 to make it travel its range. Slug rack 6 needs 16 passes from 16 000 to 31 999 to make it travel its range.

Z216 travels bottom to top with each 000 to 999 KC ten turn of the KC knob pass.

Z213 bumps around with MC changes and moves a bit with the KC knob. There is a pattern to its behavior.

All you are looking for is to see everything moving like it should. You are just looking to see if a clamp come loose or a gear has slipped out of mesh.

This will get every thing out of sync in the RF deck.
It will not hurt anything the receiver just will not work.

If your receiver passes all this eyeball then its time to put on the head phones and listen to it.

More to follow. Roger AI4NI

Date: Fri, 29 Dec 2006 14:53:21 EST
From: Flowertime01@wmconnect.com

Subject: Re: [R-390] R390A not working at all Head Phones on

Head phones on
Line meter switch to -10
Band pass switch too wide.
Line gain knob to max.
Local gain to max.
Switch the limiter switch off
BFO band width to 16
BFO switch on
BFO pitch to + or - 1 but not at zero.
Dial lock free
Zero adjust off
MC above 8
KC to 400 500 or 600
Function switch to mgc
RF gain max
Break-in off

Run line gain up and down and see if line meter wiggles
If that meter needle gets off the peg V603 is OK.
Leave the local line gain at max

On with the headsets.
Run the local gain up and down.
At max gain you should have some power hum in the headsets.
Leave the local gain at max.

Flip the wide sharp switch
If the noise changes then V602 and V604 are good.
Leave the switch in wide setting

If the local gain changes the noise level the V601 is good.

Power supply is good you have V605 lit from visual inspection
So you have 150 volts.
You checked the B+ fuses so you think you have B+.
You have some noise in the audio tubes so you think you have some B+
You eyeballed the filaments so you think you have 6.3
You eyeballed the connectors so you think the wire harness connectors are seated.
You eyeballed the BFO tube in the IF deck (V505) so you think the ballast tube RT510 is good.

The Audio deck is good you have noise from all the audio deck tubes.

Switch the limiter switch on and off.
You should hear a pop in the headsets and the line meter should twitch with the noise.

As you turn the limiter up the noise should decrease. V507 is OK
Leave the limiter switch off.

Set the function switch to AGC
Play with the AGC fast slow and medium.
Changing the switch causes the caps to discharge and pegs the carrier meter.

If the audio noise dies when the meter pegs, you are good to back somewhere in the IF chain.
V506 is OK

Short the diode load to ground.
This is like -7 volts DC on a good day.
You should hear the pop of the DC circuit making and breaking as you short the back panel jumper to ground.

With the jumper shorted you should have a drop in noise.
No pop is a problem between the diode load and the ears.
No noise drop is a problem before the diode load not passing noise to get shorted to ground.

Hand a DC meter on the diode load.
Turn the BFO off. Load should be less than -10 volts.
Turn the BFO on.
The Diode Load should go over -20 volts.
No increase in negative voltage from the BFO on the diode load is a BFO problem.

The BFO should be on.
Swing the BFO pitch from end to end.
Do not force it.

The shaft clamp comes loose. The shaft turns the inductor one way but not the other way. Over time this winds the inductor over to one end or the other. This is another problem. Just do not break some thing else trying to fix the first problem.

You should hear a change in noise as you change the BFO pitch.
No change in noise. See V506, V504, V505 and RT510.

Turn the BFO off, noise should drop.
No change in noise level is likely no BFO operating. (V505)

If the diode load changes voltage with the BFO switch on and off and you do not hear it in the headphones the problem is between the diode load and the headphones.

Play with the bandwidth switch the noise should change as the bandwidth changes.

Open P218 and P213 on the IF deck:

a) You should get a drop in noise, as you have just unhooked the RF deck.
No change in noise leaves you working in the IF deck. (History tells us once you have all the tubes lit and just plain no signal from the receiver chances are that 8 of 10 will it'll be in the IF deck. 1 out of 10 it'll will be the RF deck, and 1 out of 10 it will be in the function switch antenna relay).

b) If the noise dropped off then it's over to the RF deck.
Set the dial to 7 +000 and look at the mechanical cam alignment.
Read the Y2K to see if your mechanical alignment is good.
Once you know you remember.
Next check the band switch operation.
This is under the Rf deck it switched the six racks of RF transformers.
I call then octaves. One slug rack and three slugs in three cans per octave.
The bands switch at 0.5 - 1.0 band switch at 2.-3, 4-7, 8-15, 16, 32
As you change the MC knob you should see the band switch gears change.
Both going up the dial and down the dial.
Often a clamp will get loose, crack on a gear and drop

If the RF deck mechanical is working OK and you can not get a CAL tone on any 100 KHz any where in the receiver its time to get out the signal generator and volt meter.

Wait until you have read the Y2K manual until you get into this level of trouble shooting.

These two passes through the eyeball and hearing test should fix most problems where it worked yesterday and now I have nothing type problems.

Once you get back to a working receiver you then begin to work on having a very good receiver by doing alignment and replacing bad tubes. Alone with that work you get to replace some old resistors and capacitors that have reached the end of their useful life. For your lifetime these are a do once project. The caps you place in a receiver today are likely to last another 50 years. Most of the ones in the receiver today have lasted that long. Resistors have been fried out of range by tubes being left in the receiver until the tube failed. The bad tube chars the resistor and its value changes (high). The tube got replaced and the resistor never was checked. They look OK to the eye. The receiver will meet signal to noise specification with several of these bad resistors and several bad caps in the receiver. Fixing these gets a signal to noise ratio in the receiver that exceeds specification. You do this stuff, as you want. You get motive by listening to noise in your receiver and know there are signals there you want to hear.

The real key is to read the Y2K manual and get to know your receiver from end to end. Once you get it working, keeping it working is much easier.

Do the two series of checks eyeball and hearing. When you get to a point that fails post a message to the reflector. Tell us all about the test you did and what you see of hear. We can then help you narrow it down one test at a time.

Tell us about your signal generator. Name will do nicely. You need a 455KC out put from it. If you do not have a signal generator FEAR NOT. That can be faked if you need to.

It's a McGiver thing. Do it easy if you have one. If not we can help you deal with it. We just have to DC test until we get a cal tone through the receiver. Then we use that with a DC meter on the Diode load for alignment and calibration. If you have a scope and frequency counter you are in real good shape. Again not needed but use what you got. If you just have a tuna tin transmitter and a voltmeter you can bring a R390 back to life and better its alignment.

It sould take longer to read this mail than to have performed all the checks detailed in this mail. Looking to read what you find. Roger AI4NI

Date: Sat, 30 Dec 2006 10:53:45 -0500
From: Mark Huss <mhuss1@bellatlantic.net>
Subject: Re: [R-390] R390A not working at all Eyes Open

Boy, that brings back memories. But you forgot All Zeros. Dial receiver to 00.000. You should peg the Carrier Meter. Flip the BFO on to see if you hear a tone. This checks everything back from the headphones to the First IF Mixer (you are receiving the 17 MHz LO). If you have the meter pegged, then everything from V202 on is working, at least to some extent. That leaves V201 stage and the Antenna relay.Back in the day, it was common to troubleshoot down to the stage while the receiver was still in the rack, then just drop the proper tube in and move up the PM schedule.

Date: Sat, 30 Dec 2006 11:03:07 -0500
From: Mark Huss <mhuss1@bellatlantic.net>
Subject: Re: [R-390] R390A not working at all

I was digging out my old ASA Class Handout to publish the Front Panel Checkout procedure when i saw Flowertime's first post. Thanks Flowertime for saving me a LOT of typing!!! Oh, and don't forget the Microswitch Fix if you are updating the manual. If you turn the receiver off, but the dial lights stay on, use a mallet or end of a scrap piece of wood to give the front panel a tap on the FUNCTION label of the Function switch. A whack or two will almost always knock loose the microswitch contact, resulting in years of troublefree service. Once I learned that trick, we never had to replace the microswitch again.

Date: Wed, 25 Mar 2015 20:06:20 -0700
From: K7iou1 <k7iou1@gmail.com>
Subject: [R-390] Fwd: R390a Navy no receive

Hello, I'm new to the group. I bought a R390A (‘63) Imperial that doesn't receive. There is a low level motor boat sound in the speaker. Bad capacitor? With the Line Level at 0 and Switch +10 the LL meter is almost pegged. The carrier level adjustment on top of receiver is backed off almost full counter clockwise and carrier

level meter is high also and fluctuates slightly. I've checked all the tubes and replaced as necessary. I used Camoline on the PS connector as it was intermittent with no display lights.

A ham well known for his audio mods reworked the audio module and as his schematic indicates it will now accept a 4-8 ohm speaker. So today I was checking it out per the Y2K and was checking the rear connections, jumpers etc. On the back there is a bell shaped plastic filled with epoxy above the terminal strip with rigid bare leads connected to #9 and #13 and a red wire to a Dow Key relay and black wire to ground mounted on the back. Looks commercially made. If I disconnect it the carrier meter drops from indicated to 0. Anyone know what this is?

I also have a Howard Mills restored Collins and I hate to swap modules to find the culprit. I do have another audio module and could clean, fill the tube sockets and try it. His modification was done in 1981 & I picked it up from his shed. So I suspect it's been sitting 30+ years in a dry desert environment. The unit looks pretty clean and no seen corrosion. He also disconnected the diode load in front and per schematic it was to have a 500k pot to adjust tone. I temp installed a 1/2 Meg pot and it seems to work. I can turn AF up & down & hear it change. I can adjust tone pot and hear it change.

Date: Thu, 26 Mar 2015 04:06:50 +0000 (UTC)
From: Larry H <dinlarh@att.net>
Subject: Re: [R-390] Fwd: R390a Navy no receive

Welcome to the group. Since you have motorboating and pegged ll meter, I'd start with the audio module. Try disconnecting the jumper on 14 to 15. Try feeding audio into 15 or hook up audio amp to 14 and see what you get. I'd also disconnect the gadget on 9 and 13 until you understand what it is. Since it’s connected to 13, I would expect it to also be connected to 10, or there is not much point unless 10 is grounded by a mod. Because of the audio mods, it may no longer be compatible with a different audio module.

Date: Thu, 26 Mar 2015 00:11:45 -0500
From: Don Reaves <donreaves@gmail.com>
Subject: Re: [R-390] Fwd: R390a Navy no receive

Welcome to the group, David. The bell shaped device you describe on your Imperial sounds like the old potted Radio Finder SSB "enhancer" module. Here's a description from the list archives ---

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Date: Thu, 6 Nov 1997 21:19:04 -0800
From: Jim Haynes <haynes@...>
Subject: [R-390] RE: usb/lsb Tune Aid

The thing from Radiofinder is not worth much. The basic idea is a bridge rectifier connected to the audio, and that is filtered and run into the AGC. You use the line audio control to control how much audio goes into it, and listen on the local audio. So it gets you some audio dervied AGC which is a good way to get AGC for

SSB reception; and it knocks down the RF gain some so that the BFO has a chance of demodulating the SSB signal with less distortion. But it doesn't work very well; the best thing that can be said for it is that it requires no internal mods to the receiver.

Date: Fri, 7 Nov 1997 08:00:49 -0800
From: Reid Wheeler <reid@...>
Subject: [R-390] SSB adapter

The recent thread concerning the Radio Finder SSB adapter is very interesting but not new. This device, in various forms and under various labels, has been around at least since 1985 when venerable Hollow State Newsletter editor at that time, Dallas Lankford, purchased one and wrote a review - not favorable - in HSN #10. The most recent re-appearance in HSN was in #41 (Spring 1997) in an article by Reinhard Wieschoff-van Rijn who purchased one from an ad in ER. He boiled it down to dissolve the potting material and found essentially
what has been described as a full-wave bridge rectifier (AC leads connected across the line output terminals on the rear terminal board - 10 and 13) and filtered (6 microfard-600V). A schematic is included in the article. His conclusion - not very useful and could be built with junkbox parts or all new for a very few bucks.

For troubleshooting audio problems it is probably best to remove that
gadget and adjust the receiver per the manuals.

Date: Thu, 26 Mar 2015 08:15:26 -0700
From: K7iou1 <k7iou1@gmail.com>
Subject: [R-390] R-390a no receive

I removed the external SSB device & the motor boating is gone. The receiver doesn't receive. AGC & MGC carrier meter indicates 0. AGC adjust @ Zero has no affect. If I turn on Line meter +10 LL reads 9, if I got to 0 or -10 LL meter pegs. Jumpers on terminal strip seem to be correct as my other 390. AF function seems ok as I hear level raise and lower in speaker. If you saw my other email the audio module was heavily modified. Could a diode in the SSB module gone bad and taken something out?

Date: Thu, 26 Mar 2015 11:09:00 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] R-390a no receive

Have you tried to find the calibrator signal...even an indication of it on the signal meter?

Date: Thu, 26 Mar 2015 10:24:04 -0700
From: K7iou1 <k7iou1@gmail.com>
Subject: [R-390] Diode load

Previous owner did a audio mod. The jumper for diode load is out but with his mod I don't know if I can install the jumper. I posted it here on AMfone

http://amfone.net/Amforum/index.php?topic=38117.0
Schematic of mod at bottom of my last post.

Date: Thu, 26 Mar 2015 19:50:51 +0000 (UTC)
From: Larry H <dinlarh@att.net>
Subject: Re: [R-390] Diode load

Hi David, I looked at the mod schematic you posted and see no mention of changing the need for the 14-15 jumper for diode load. The audio mod looks good to me. I'd install the jumper and see. And no I don't think the audio agc gadget could hurt anything if it shorted.

Date: Thu, 26 Mar 2015 20:24:36 +0000 (UTC)
From: Larry H <dinlarh@att.net>
Subject: [R-390] Fw: Diode load

Hi David, Good and BAD news. As for the diode load Navy mod - Make sure that the center conductor of the coax does not touch anything. It sounds like its ok now. As for the off freq, check the 17mc osc frequency - you can disconnect the mini coax j221 and feed it to rx or counter. If its very close its fine. If good, try the 2nd osc at J415. Since its been sitting for a while, you could be a victim of 'bad contacts' due to corrosion. Wiggling and /or removing and replacing tubes and crystals can sometimes resolve these issues. If you use a deoxit, be very careful in application - use a Q tip. Spraying can be a problem. Also, you should check the filter killer cap C553 asap. Regards, Larry

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From: K7iou1 <k7iou1@gmail.com>
Sent: Thursday, March 26, 2015 12:58 PM
Subject: Re: [R-390] Diode load

Yes, I did that and audio is now working but..., Slow progress, I found it receiving on 11M with audio but signals received are low.Carrier Meter adjust full clockwise, top of chassis.Gain adjust full counter clockwise, top of chassis. ?My Icom receive freq. 27.025 guy running excessive power as you could hear the transmitter grown and the ring when he PTT. Indicated receive Frequency R-390A was 28.985I then tried 40M Icom 7.293 and hit transmit while hunting for it and with BFO on I heard it ring at 8.805. With BFO off I would only heard a slight pass through.Ideas?

Date: Thu, 26 Mar 2015 20:07:15 -0400
From: Roger Ruszkowski <flowertime01@wmconnect.com>
Subject: Re: [R-390] R-390a no receive

Don pointed you in the right direction. Take that thing off your receiver for a good while. Not likely.

The SSB addy on is not like to have impacted the receiver, short of a direct lighting strike and there would be visible evidence of said lighting strike to the receiver. You just have a receiver that has sat for some time and now you get to go through it and bring it back to life.

Let your heart not be troubled. There is noting in these receivers that can not be diagnosed and repaired. It may be more parts than you expect, but the receivers are very repairable. These receivers like lots of use and regular maintenance. If switches are not moved and tubes and connectors removed and reinserted the contacts get oxidized and do not work well. Mostly a good preventive maintenance procedure and systematic troubleshooting will solve the problems. You sort of get done doing a maintenance procedure and find your self with a working receiver and report no problem found.

Date: Thu, 26 Mar 2015 20:14:18 -0400
From: Roger Ruszkowski <flowertime01@wmconnect.com>
Subject: Re: [R-390] Diode load

So inject 455 into the IF deck,
Turn the BFO on and see if you get a tone out.
Check for -7 volts on the diode load with 150 micro volts of 455 into the IF deck.

If you get no audio out touch a jumper across the diode load and see what you get. 30 seconds of audio will not hurt the rest of the receiver. What do your modification semantics show you as happening around the diode load. If the diode load is not on the changes then you have to believe nothing is changed at the diode load.

As the diode load has DC on it, use a decoupling cap and inject some audio into the diode load and see what audio you get out. A 1/2 volt or less of audio should be good going into the diode load.

Date: Thu, 26 Mar 2015 18:32:33 -0700
From: K7iou1 <k7iou1@gmail.com>
Subject: Re: [R-390] Diode load

Hi Larry, just got done checking the 1st and 2nd oscillators and both are correct. Looks like a serious alignment is needed. Someone's been in there before as the transformer covers are reversed from 1st & 2nd oscillator circuits with notes in the manual.

15 MHz is dead on.
28 MHz 400k off
7.293 MHz 8.295 1.003 MHz off
Other bands little or no receive.

I will use Cramolin, Deoxit on all tube sockets & connections. Previously used it on module harness plugs. Audio working. SSB rectifier removed.

Date: Thu, 26 Mar 2015 21:45:34 -0400
From: Bob Camp <kb8tq@n1k.org>
Subject: Re: [R-390] Diode load

Pulling off the weird mods is always a good idea. Once you get that done, think

more and do less. Wholesale "replace all of this" and "re-do ever one of those" that is rarely a good idea on day one (if ever). Work your way from the speaker towards the antenna. Verify that each part of the radio is working, but don?t go crazy getting any one part ?perfect? until the whole thing works to some degree. The bits and pieces interact with each other?.

One example is running tubes through a tube tester. It will give you good data to think about, but unless you find one that is just plain dead, it’s only food for thought. Note which one is which and how good/ bad they seem to be on the tester. If the tester *and* the circuit performance say the tube has issues, swap it out (swap out does not equal throw out ..). More thought, more analysis, more research in the manuals, less changing things around ?

Date: Fri, 27 Mar 2015 00:57:53 -0400
From: Roger Ruszkowski <flowertime01@wmconnect.com>
Subject: Re: [R-390] Diode load

Amen

Date: Thu, 26 Mar 2015 22:00:15 -0700
From: Dan Merz <mdmerz@frontier.com>
Subject: Re: [R-390] Dead except 0 to 1 Mhz R390 non-a

Thanks for ideas about my problem. I think I have it mostly resolved. There are some problems with the 1st and 2nd oscillator switching but that's gradually going away as I use the set. But the biggest problem was apparently the IF gain setting which I found by putting 150 µv in to the IF, and measuring/adjusting diode load to -7 volts. That brought the set alive. Of course I checked most of the tubes before this and couldn't find any weak or bad tubes. I'm a little puzzled why the gain had fallen off so much and the gain pot is now about a 1/4 turn more than it was before. Anyway I appreciate the suggestions and the fact that I haven't had to pull the RF deck out.

In my search I read some of the old Pearls and found some of my old correspondence with the group. This reminded me of some of the things I'd done 8 or 9 years back to get this set going. I had forgotten most of the details so was again impressed with the help I got back then. The most formidable thing I had done was pulling just the 1st/2nd oscillator box out to fix something there. I don't think I ever pulled the RF unit out. The radio is operating ok on 40 meters at the moment so at least I have it working about as well as I expected when I turned it on last week. Best regards, Dan

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Date: Sun, 24 Apr 2016 01:54:17 -0400 (EDT)
From: ALLEN MARTIN <w7apm@mtaonline.net>
Subject: [R-390] How to remove RF module?

Brought home a 390A a couple of days ago and after putting a few tubes in it and doing a few other things i have good audio out and can change filter widths but no signals coming through. touchings the grids of the RF amp tubes isn't doing

anything either. No signals or calibrator on any band so far. I guess I will get out my general coverage receiver and see if I can hear the crystal oscillator or the PTO. I did download the Y2K manual so have some good reference material.I don't see how the RF module comes out. I do see a couple of screws toward the back but not the others...yet.

Open to suggestions. I have another complete non working one too...

Date: Sun, 24 Apr 2016 10:31:01 +0000 (UTC)
From: Larry H <dinlarh@att.net>
Subject: Re: [R-390] How to remove RF module?

Hi Allen, There's a good description in the manual, but it is little bit of a project. I think maybe it might be worth checking the voltages first. It sounds like something major is wrong. Are the tubes lighting up? Is the main power cable connected and making contact OK? Are the small coax cables hooked up right and working correctly? Is the band switch aligned correctly?

Date: Sun, 24 Apr 2016 07:52:44 -0400
From: Bob Camp <kb8tq@n1k.org>
Subject: Re: [R-390] How to remove RF module?

Rather than pulling the RF deck (which just creates it’s own issues), inject a 455 KHz signal into the IF first. The signal does not have to be anything fancy. Your description sounds more like a dead IF than RF. If the IF is ok, you can inject signals into grids in the RF deck without pulling it.

Date: Sun, 24 Apr 2016 22:30:14 +1000
From: Pete Williams <jupete@internode.on.net>
Subject: [R-390] Check.... your newly acquired R-390A

So your latest R-390A doesn't utter a sound at turn on ....I'm indebted to an old email from way back 2007 and a long time user. Check with this initially..
Dial receiver to 00.000. You should peg the Carrier Meter. Flip the BFO on to see if you hear a tone. This checks everything back from the headphones to the First IF Mixer (you are receiving the 17MHz LO) , If you have the meter pegged, then everything from V202 on is working- at least to some extent. That leaves V201 stage and the antenna relay. At least it is a place to start to do additional troubleshooting.

Date: Sun, 24 Apr 2016 08:35:13 -0400
From: Bill <bmarx@bellsouth.net>
Subject: Re: [R-390] [Bulk] Check.... your newly acquired R-390A

8 or 600 Ohm Speaker?

Date: Sun, 24 Apr 2016 12:48:21 -0400 (EDT)
From: ALLEN MARTIN <w7apm@mtaonline.net>
Subject: Re: [R-390] Check.... your newly acquired R-390A

As I said in my original post I have good audio out and can change filter widths. The BFO works or at least seems to as I can hear the tonal change. I will try your suggestion. Tuning to 00.000 doesn't do anything. I do have lots of indication on the carrier level meter where ever I tune. but no signals. As the rf gain works well perhaps the first mixer or the 17 MHZ oscillator isn't working. I will check those out and see what I find.

Date: Sun, 24 Apr 2016 14:05:23 -0400
From: Bob Camp <kb8tq@n1k.org>
Subject: Re: [R-390] Check.... your newly acquired R-390A

One thought: have you checked to make sure the diode load, RF gain, and AGC jumpers are all in place on the back panel?

Another good thing to check is the setting of the IF gain pot.

If you get past the IF strip (455 KHz into it gives you a signal) then you need to dig a bit into the Y2K manual. Take a careful look at how the 390A does it's playing with IF frequencies. The IF approach changes as you switch to higher bands. The first crystal oscillator at 17 MHz does not operate on all bands. If the VFO or the second crystal oscillator are dead then, yes, you loose everything.

Date: Thu, 26 May 2016 15:48:45 -0400
From: TVComlGuy@aol.com
Subject: [R-390] Deaf R-390A

I recently picked up an R-390A from an antique shop that came from an estate. After changing the cap of death on the filters, I brought it up and it worked right off the bat. It started making crackling noises and I started wiggling connectors. When I got to P-112 on the I.F. deck it dropped out completely. I put some Deoxit on the pins and it started working again. Then when I touched the plug it dropped out and wouldn't come back. I switched out the I.F. deck from a good receiver and it, too, didn't work. When I put the working deck back in the working receiver it also doesn't work now!

Date: Fri, 27 May 2016 00:32:38 +0000 (UTC)
From: Larry H <dinlarh@att.net>
Subject: Re: [R-390] Deaf R-390A
Content-Type: text/plain; charset=UTF-8

Hi Ron, Sorry to hear this - it may not be good news. I hope it's not this, but check the wire P112-19 to see if it's grounded. It's the filament line between the bfo and vfo tubes. If it's shorted to ground, the 'regulator 3TF7' might have been blown. Unfortunately, its right next to a ground wire in the P112 socket, number 18. The easiest way to check is pull the 3TF7 and measure the element resistance, it should be around 15 ohms. If its below 25 ohms, it might be ok. If its open, pull the BFO tube and measure pin 3 to ground. If it's shorted (low resistance is ok), you know the drill. If it's not, wiggle the large IF deck connector and see what happens.

Since the 3TF7's are not cheap, I suggest putting a 12BH7 or 12BY7 in instead and adding the 2 jumper wires on the socket to make it work temporarily until you find the problem. Good luck.

Date: Fri, 27 May 2016 06:49:23 -0500
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: [R-390] Deaf R-390A

It definitely sounds like you have an intermittent electrical connection.
Have you checked the ground connection as well?

The problem may not be in the plug/pins maybe there is a solder joint that broke loose on a connector or turret somewhere in the cable or under the deck. It's interesting how we overlook the connectors in the wiring harness; you may need to open up the connector shell and check those bifurcated cups (that is what they are called).

You need a really brightly lit work area with a magnifying viewer (one of those big magnifying lights with the circular fluorescent bulbs is ideal) a hot, very small tipped soldering iron and a few inches of fine solder.

Look at every connection near and associated with the plug/socket. There may be one that has cracked and is now motion/vibration/position sensitive.

Sometimes it is really hard to tell just by looking, you want a smooth shiny connection from object to object. Frequently I will go through and just touch/reheat/reflow the solder joints until they are all freshly shiny and the oxidation is gone. It is amazing at how in going through that process when looking through a magnifying lens will really help you focus on what you are seeing in the deck. (it is a bit like Zen).

If you do not have fine motor control and a light touch with a soldering iron (I am an artist with hot metallic objects (a.k.a branding irons), just ask my ex boyfriend <joke>) then you might want someone else to do this for you. Do not go horsing around components as you will break things or burn insulation off of wires.

Ok, enough mental distractions; back to staring at the side of the Willis (Sears) tower across the street. I am in downtown Chicago this weekend.
