R-390 Reflector January '03 Edited

From jbrannig@optonline.net Wed Jan 1 00:32:01 2003
Subject: [R-390] Finally!!!

With a few of those "varnishes" under your belt, it might be better to stay below deck.....

Ya' all are wearing me down on the total capacitor replacement...If I don't replace them and the radio has a problem, I'm gonna' get 500 e-mails telling me "We told you so".....actually the Aerovox's look OK, but the disc ceramics look beat...

The GREEN wire is now connected to the cover stud..... I'm off with the XYL to a party... Happy New Year to all..... Jim

From n8blb@hotmail.com Wed Jan 1 00:46:47 2003
Subject: [R-390] Manna from Heaven

I am feeling very ill. Please forward name of doctor so I can make an appointment. John John Page K4KWM

From anchor@ec.rr.com Wed Jan 1 00:59:32 2003
Subject: [R-390] Manna from Heaven

just say"g'nite nurse"al

From theprof@texoma.net Wed Jan 1 01:06:04 2003
Subject: [R-390] RE: R-390A Calibrator

American Trans-Coil shows still having the "Calibrator Y201-17.0MC,Y203-200KC" in stock for $13.00. I bought one from them and it had both crystals as well.http://www.atc-us.com/ATCSHOP/73 de Richard, W5SRB

From keng@moscow.com Wed Jan 1 01:14:03 2003
Subject: [R-390] Finally!!! Re-capping...

> Ya' all are wearing me down on the total capacitor replacement...

Gee...with all this effort on our part I certainly hope so! ;-)

>If I don't> replace them and the radio has a problem, I'm gonna' get 500 e-mails telling me> "We told you so".....actually the Aerovox's look OK, but the disc ceramics look> beat...IMHO, replace them all. You will be mighty glad you did.Ken Gordon W7EKB

From ba.williams@charter.net Wed Jan 1 01:48:31 2003
Subject: [R-390] Finally!!!

> No, "Varnish" is made from 1/3 Rum, 1/3 Brandy and 1/3 Kaluha..it is ised> when the wind is blowing 30+ knots and you have at least 1 reef in the> mainsail.....Arrrh Matey!> > Les

Wimpy sounding to me. We called that stuff "breakfast" when I was in theArmy. (g) Barry

From ham@cq.nu Wed Jan 1 02:34:24 2003
Subject: [R-390] R-390A Calibrator

Hi, The 200 KHz crystal used in the calibrator is an odd cut of crystal. All the rest of the crystals in the radio are AT cut crystals. The calibrator crystal is below the low frequency end of the range for an AT cut.
Translated more or less in to English - tough to find anything other than anAT cut these days. Tough even to find anybody who knows how to set up a sawto cut the odd cuts.I'd go for a replacement from Fair Radio or ATC. Take Care Bob Camp KB8TQ

From Jim Shorney" <jshorney@inebraska.com Wed Jan 1 02:36:13 2003
Subject: [R-390] Finally!!!

Joe Foley wrote:>Neutral is WHITE and goes to one of the power terminals, NOT the one that goes to the fuse or the switch!

Taught to me by an electrician years ago: 'White won't bite'. Neutral, being (theoretically) at ground potential, won't shock. Neutral is always white, 'hot' is black.

>Ground is GREEN! And goes to the chassis.

Green because grass grows on the ground? Funny people, theseelectricians.My 390a appears to have an original 3-wire cord. How common it this?

From keng@moscow.com Wed Jan 1 03:21:20 2003
Subject: [R-390] 6082 tubes...

I have never owned an R-390-A (although I hope to someday), but I have owned an R-390 and I presently have an R-389. Both of the latter have a pair of 6082s in them as shunt regulators. Does the R-390-A have the 6082s, or did Collins eliminate those in the interests of economy? Ken Gordon W7EKB

From redmenaced@yahoo.com Wed Jan 1 03:40:17 2003
Subject: [R-390] Finally!!! NOT!

Neutral is> always white, 'hot' is black.+++++++

Aw, geez! You CAN get a nasty shock from the neutral IF, I said "IF", the neutral is broken and YOU are between the LOAD and the PANEL!!

If you lose your neutral on your house service you will get 240 a crossed ALL of your 120 volt circuits. The appliances will form voltage dividers with the 240 volts divided according to the appliances'

impedance. How this usually happens is that the covering on the service entrance cable going down the side of the house deteriorates then the aluminum wires wrapped around the two hot wires corrode to powder,..... later when the fire trucks leave a smoldering hole,.....Oh, well,..... you get the picture.

Checked YOUR neutral lately? Do you know what to look for? Have a Happy and SAFE New Year! Joe

From ham@cq.nu Wed Jan 1 04:16:38 2003
Subject: [R-390] 6082 tubes...

Hi, They dropped the 6082's from the 390A radios. The only regulation on the B+comes from a normal VR tube arrangement. This took a major amount of heatout of the radio.As far as anybody can tell this does not create a problem when run off ofnormal line voltage. Take Care! Bob Camp KB8TQ

From Jim Shorney" <jshorney@inebraska.com Wed Jan 1 04:24:56 2003
Subject: [R-390] Finally!!! NOT!

Joe Foley wrote:>Aw, geez!>>You CAN get a nasty shock from the neutral IF, I said>"IF", the neutral is broken and YOU are between the>LOAD and the PANEL!!

Aw, geez. I did say 'theoretically'.

The rhyme was intended as a guide to proper wire color coding, not as astatement of safety. You are correct, an open neutral can cause lotsof nasty things besides a nasty shock to happen.My neutral is neutral, thank you. Happy 2003.

From ham@cq.nu Wed Jan 1 14:45:23 2003
Subject: [R-390] Finally!!! NOT!

Hi, Not to beat a dead horse to bad but ....

Back quite a while I had a neutral lift off in the brand new house I was living in. It's a fairly spectacular event even if it does happen fairly slowly. Over the next year most of the neighbors also had the same exciting experience. In almost all cases it was aluminum lead in wire and bad torque on the clamp bolts. In most cases it was on the power companies end of the circuit.

Once it was all done there was a *lot* less RFI in the neighborhood. I have always wondered if complaining about the RFI more *might* have gotten the problems spotted earlier and saved a whole lot of aggravation. It also would have saved CP&L coming out at 2 AM in the morning to find the problem. Take Care! Bob Camp KB8TQ

From bill@iaxs.net Wed Jan 1 15:54:19 2003
Subject: [R-390] The ground round

While we are talking about power near ground ...

My son bought a 55 foot power boat for fishing parties in Ocean City, MD. The wiring needed some

work, and I learned some new stuff about power and grounds.

A common ground point is used to control noise fed to radio and navigation (autopilot, GPS, LORAN) electronics. Wired to it are the engine blocks (and battery negative), a 'quiet' battery negative for the electronics, battery charger negative, ship's AC generator green, shore power AC green, a copper tape from the SSB and a copper tape from the other electronics.

When the ship is at sea, it is 'grounded' to seawater by a couple of porous bronze plates. This is mostly for the benefit of the 200 watt SSB transmitter and its quarter wave whip and antenna tuner. The SSB also has 100 square feet of copper screen for a counterpoise, which reduces the amount the autopilot changes course while transmitting.

When the ship is in a marina, the bronze plates are still there, but shore power adds a green wire for ground to the mix. There are two interesting things about shore power. First, the white wire isn't always neutral - sometimes it is hot and black is neutral. So the shore power breaker has to break both wires. Second, the green wire could be carrying electrolysis (corrosion) current, perhaps from another boat.

So you can't just tie the shore green to boat ground. Worst case, the electrolysis current is strong enough to evaporate one of your through-hull fittings in a day, leaving a hole for seawater to enter the boat. Or weaken it enough so that it breaks at sea and finally turns on the high water alarm.

The fix is called a "Galvanic Isolator" in the green wire. Two diodes in series begin serious conduction at about 1.2 VDC. That's high enough to prevent most seawater electrolysis. You need 4 diodes, two in each direction, big enough to pop the shore power breaker if there is a fault from hot to ground, perhaps from the block heaters or battery charger. And then there's the problem of lightning, but that's another long story. The Coast Guard building code for boats does not allow any kind of aluminum wire or terminal in a power circuit. My son's boat does not have an R-390. He already has an anchor. Happy new year, Bill Hawkins.

From jonandvalerieoldenburg@worldnet.att.net Wed Jan 1 17:25:54 2003
Subject: [R-390] Finally!!!

There was a thread on this in about early 2000, I believe Dr. Jerry had a formulation which included white gas, Stoddard solevent and one or two other items including the propane which is a comon propellant in paints and other petroleum spray bombs. It does resemble varnish after a while though! Jon AB9AH

From jonandvalerieoldenburg@worldnet.att.net Wed Jan 1 17:42:56 2003
Subject: [R-390] Finally!!!

The National Electric Code states that the neutral shall always be white or "natural gray" (the deletion of natural is being considered as no one remembers its origin) In the normal polarized household outlet the neutral is on the larger of the two power sockets, it should never show voltage if tested between it and the equipment grounding socket on the receptacle. Many home owner repairs may overlook the polarity of the neutral , if the lamp lights when plugged in they believed all was well.. Can result in some nasty situations with energized chassis on appliances. On teh staement in another thread on this subject, if a marina has tthe neutral reversed I'd certainly bring it to the owners attention! Happy New Year Jon AB9AH :

From ham@cq.nu Wed Jan 1 17:55:01 2003
Subject: [R-390] The ground round

Hi, Surprisingly this does get back to the R-390. The world is an odd place :)

One thing that is fairly common is for the bypass capacitors in the line filter to go out. Generally they get leaky. I don't think I have ever bothered to check the bypass cap on the neutral side of the line filter for leakage. If it's leaky and your neutral starts bouncing around odd things might happen. This would be especially true if somebody got the black and white wires mixed up on your wall plug. Truth in advertising - I have actually seen such a plug :)

Checking the line filter thing is easy. Just plug in the radio and un ground it. Then check for 60 volts AC on the chassis. If you get 0 volts or 120 volts then one or the other of the bypass capacitors is shot. Probably something I need to start doing. Might be a good idea to go wire that wall plug the right way as well ..... Take Care! Bob Camp KB8TQ

From Scott Seickel" <polaraligned@earthlink.net Wed Jan 1 17:55:01 2003
Subject: [R-390] 6082 tubes...

look here: http://www.r-390a.net/faq-refs.htm for a document in PDF format which describes all the cost reduction changes. It is a Collins document. Interesting reading if you want more info on the changes from 390 to 390a Scott

From rodney_bunt@yahoo.com Thu Jan 2 01:22:21 2003
Subject: [R-390] 6082 tubes...Are used as series regulators

Kenneth, The 6082s are a series regulator for the B+, the typical VR regulator is a shunt regulator. Rodney VK2KYZ

From ToddRoberts2001@aol.com Thu Jan 2 05:54:12 2003
Subject: [R-390] in rush current limiters

<PRE>Let's see - the item on eBay - take a dual outlet (69cents) a plastic outlet box (69cents) a small 3-wire line cord (99cents) two current inrush limiters $2, a small circuit breaker (99cents) - put the thing together for $5-$6 bucks and sell it for $30 bucks on eBay. Sounds like a nice profit margin! One thing I am not fully sure about current inrush limiters is - don't they run "hot" in normal use? And do they fully return to zero resistance when they are at operating temperature? - Todd Roberts WD4NGG.

From Walter Wilson" <walter@r-390a.us Thu Jan 2 11:33:58 2003
Subject: [R-390] in rush current limiters

Todd, Inrush current limiters do indeed get and stay hot when in use. Also, they must be properly sized for the equipment. That's one of the problems with the ePay version: depending on the current limiter selected, it is optimally sized for a certain load. These things also have max current ratings.

For instance, the CL-80 (commonly used in the R-390A), is rated at 47 ohms when cold, max current of 3 amps, and resistance drops to about 0.5 ohms at max current. If you were really pulling the max 3

amps through the limiter, you would expect a voltage drop of about 6 volts (current/resistance). Used in the R-390A with the ovens OFF, the drop across a CL-80 current limiter is between 2.5 and 3 volts. So if incoming line power is 120 VAC, the radio will only see 117 VAC after the 3 volt drop across the limiter. This is not a bad thing, since the receiver was designed to run of 115 VAC.

But it is apparent from these observations that a "one size fits all" solution is not really valid here. If you have one of these ePay solutions, just don't go plugging your power bar into it to feed the whole station. Walter Wilson - KK4DF

From wwarren1@nc.rr.com Thu Jan 2 12:12:10 2003
Subject: [R-390] Field Change No. 7, R390A

Anybody got clues to the intended and non-intended effects of Field Change No. 7 to the R390A? This is the change where R702 (screen resistor on the PTO) and R210 (screen resistor on the 1st crystal oscillator) are changed from 56K to 220K, presumably to reduce radiation to the outside world (so the enemy can't listen for your PTO freq or your 1st oscillator freq and then bomb in that direction). My guess is that the first consequence is to reduce the output level of each of those oscillators. Secondly, there may be some harmonic reduction from each of those oscillators. However, what else happens? That is, is the sensitivity of the receiver or the intermod performance reduced by the modifications? Also is the birdy response affected by the modifications (e.g., less harmonic output from those oscillators leads to fewer internal mixer products). Any other effects that folks have definitely found?

My reason for asking is that I'm working on a Motorola PTO with the 56K screen resistor and a later Cosmos PTO with the 220K screen resistor and wondering if I ought not to "re-convert" the Cosmos PTO to have a 56K screen resistor. R701, R702, and R703 are out of spec on the Cosmos anyhow, so I will probably change them out, but if a better choice for R702 is 56K considering that I'm not worried about the enemy direction finding on my oscillator outputs, then maybe that's what I ought to do.

For Tom Bridgers and Al Parker, yes, the Motorola PTO is from the Charlie Taylor (hello Charlie, if you're out there) 390A. AND I'VE GOT THE CHARLIE 390A MOSTLY WORKING. HOORAY AFTER ABOUT TWO YEARS. Tom, W4PG

From hbreuer@debitel.net Thu Jan 2 12:15:47 2003
Subject: [R-390] in rush current limiters

Walter Wilson wrote:> For instance, the CL-80 (commonly used in the R-390A), is rated at 47 ohms when cold, max current of 3 amps, and resistance drops to about 0.5 ohms at max current. If you were really pulling the max 3 amps through the limiter, you would expect a voltage drop of about 6 volts (current/resistance).

Not exactly! Last time I checked Ohm's law was still U = I * R not U = I/R 73 Heinz DH2FA, KM5VT

From classicmotorcycleclub@hotmail.com Thu Jan 2 13:27:10 2003
Subject: [R-390] Happy New Year!

Happy New Year to all members! Would like to begin 2003 asking the R390 experts: Can I repair the R390 RF module with all cables connected? All Tubes were checked, but I could not find any faulty component with the supply disconnected. Can I tune to a specified frequency, say 10 MHz and try to

find the reason for a very weak reception? Many thanks for your help! Kurt Schnabel

From ham@cq.nu Thu Jan 2 14:40:20 2003
Subject: [R-390] RF Deck Problem

Hi, The following applies to a R-390A and may not work with a R-390 not an A. I don't have a not an A handy to check it on. However I'd be glad to give a warm and loving home to any strays out there :)

There is a way to hook up the RF deck, but it's a *major* pain. The IF deck, the audio deck, the PTO, and even the power supply all do just fine that way but not the RF. You have to more or less flip it up over the back of the radio. Imagine the radio sitting normally with and the RF deck sort of sitting straight up in the air. The issue is that both the radio and the deck are pretty big and need to be supported properly so you don't destroy the harness. It is a classic need at least four hands and a bunch of 2x4's sort of job to get it all positioned properly.

The easiest way to do the same thing would be to get a wiring harness from a defunct radio and hook it up that way. The second easiest way probably is clip leads.

You may have already tried the following - if so I apologize for bringing it up ....

Normally here's how it is done:

1) Figure as best you can if the problem is at all frequency dependant. Even if it's not that narrows things down.
2) Grab your supply of tube socket extenders or make a set if you don't already have any. They also show up on the auction sites fairly regularly.
3) Get a copy of almost any of the R-390 or R-390A repair TM's from the usual download sites.
4) Check the DC voltages on the module.
5) Check the AC voltages on the module.

At that point you should be able to ask - "what's wrong in the first mixer stage?". Needless to say that's a *lot* easier than going after the whole assembly. Just about everything you can get at under the module is available on one tube socket pin or another. The key to the process is the extenders. The only thing to be careful about is plugging them in to a live radio. Something about B+ on the clip on pins and your hand completing the circuit ..... (yes that is the voice of experience speaking).Take Care! Bob Camp KB8TQ

From jamesmiller20@worldnet.att.net Thu Jan 2 15:26:39 2003
Subject: [R-390] Field Change No. 7, R390A

I installed the mod. to my R-390a last year to see what would happen. I found that it decreased the sensitivity noticeably. By that I mean that a 40 dB test signal now read 30 dB on the carrier meter. Not an exact test but it was enough to convince me to remove the mod. I did not look at the more esoteric effects such as harmonics or spurs. I like a "hot" receiver. If it were me, I would remove the mod and go back to the original values. Jim N4BE

From ham@cq.nu Thu Jan 2 16:39:46 2003
From: ham@cq.nu (Bob Camp)

Hi, Did you try adjusting the IF gain after you put in the mod ? On most 390's the IF gain adjust has far more range than you would ever need. The most sensitive point on the IF gain is not the full gain position on the pot. It took me quite a while to prove that to myself .... Take Care! Bob Camp KB8TQ

From roy.morgan@nist.gov Thu Jan 2 17:33:05 2003
Subject: [R-390] RF Deck Problem

Bob Camp wrote: >There is a way to hook up the RF deck, (and service it in place) but it's >a *major* pain. ...Can I repair the R390 RF > > module with all cables connected? ... to find the reason for a very weak > > reception?

Kurt, I assume that the RF deck on the non-A has test points in the same way that the R-390A one does. These are installed for just this problem. Insert test signals at the various test points to determine which stage is giving you the low gain. Search the manual for a chart that has the approximate signal levels at each stage under test conditions. You should be able to isolate which stage is not working right. The frequencies will not be the same as the dial frequency after the first mixer. You will come to understand the mixing scheme a bit during this exercise.

Good luck, and report any success. Roy Who has a fine EAC-67 with a dead RF deck.

From David_Wise@Phoenix.com Thu Jan 2 17:49:19 2003
Subject: [R-390] Field Change No. 7, R390A

I also installed FC7, and like Jim found that it decreased the sensitivity, even after adjustment of the IF gain for maximum S/N. I removed it. If I acquired a radio or module that had it, I would remove it.

We've never found the original documentation explaining the reason for FC7. After some thought about the target ("radios in supplemental spaces"), I believe it was meant for less-important R-390As so they wouldn't interfere with more-important ones. It obviously does not apply :-) 73, Dave Wise

From anchor@ec.rr.com Thu Jan 2 18:13:07 2003
Subject: [R-390] Field Change No. 7, R390A

Hi Tom's (W & B), and all, Well, I'm glad it's "mostly working." I know you've been at it for a long time. My Motorola 390A is also mostly working, sitting up on end on the bench, being listened to some, awaiting aome real attention. I guess, being Motorola, the PTO probably doesn't have FC7, a good thing, from others' comments. Will be waiting for some more pix of yours, completed, at Shelby. I've been working on SP-600's lately, just finished one for a friend, got another for myself in payment. 73, Al, W8UT

From David_Wise@Phoenix.com Thu Jan 2 18:24:06 2003
Subject: [R-390] 6082 tubes...

In the R-390, they took the brute-force approach and regulated all B+. During the Cost Reduction project, they found that the only really sensitive spots are the conversion oscillator screen grids. In the R-390A, that's all that is regulated. It's feasible to regulate this small load current with a VR tube. With proper selection of circuit constants, this was found to be Good Enough. They didn't even have to

regulate the BFO screen. The Final Engineering Report (available on the FAQ page) goes into some detail on this, and it's a fascinating read anyway. 73, Dave Wise

From David_Wise@Phoenix.com Thu Jan 2 19:01:59 2003
Subject: [R-390] 6082 tubes...

Sorry, I gave the wrong doc name. I meant the Cost Reduction Report. The Final Engineering Report documents the design choices leading up to the R-389 and R-390. In my opinion, both are riveting must-reads. Check out how many tries it took to get the R-389 frequency-changer topology. 73, Dave Wise

From jamesmiller20@worldnet.att.net Thu Jan 2 19:46:30 2003
Subject: [R-390] Field Change No. 7, R390A

"Radios in supplementaal spaces" is probably spook-speak for classified listening posts. They (whoever "they" are) would want to reduce any local oscillator or PTO signal emissions that could be intercepted by an enemy in order to deduce the frequencies being monitored. I suspect the screen resistor changes helped reduce oscillator output. Alternatively, it was to reduce their output to prevent interference with other receivers.

From drewmaster813@hotmail.com Thu Jan 2 21:05:45 2003
Subject: [R-390] 6082's and regulators

Hello All, I've always found the R-390 non-A / 6082 regulator topic to be very interesting. Some have installed MOSFET pass elements to replace the 6082's, saving filament heat production. Some have advocated moving a solid state regulator outboard to remove even more heat. Others have tossed the solid state idea overboard. Subbing the easier to find 6080 for the 6082 has been discussed, complete with schemes to reduce heater voltage to 6.3v to operate 6080. Attendant has been a free-for-all in the spirit of the BallasTube thread.

A few have run the R-390A on completely regulated B+ (from an external supply) and report a "different feel" when tuning. Maybe the "different feel" was due to a different AGC effect with regulated B+ not varying with AGC-induced power supply loading changes. Maybe it was a different soreness in the wrist caused by tuning drag variation with different heating of those gummed-up geartrain lubricants. I wonder if anyone has found any real measurable differences when operating an R-390A from a regulated B+ supply. Drew

From Scott Seickel" <polaraligned@earthlink.net Thu Jan 2 22:14:18 2003
Subject: [R-390] Happy New Year!

Kurt, get yourself some tube test adaptors so you can check all the voltages on the tubes with the set together. These are almost a must for working on one of these radios. Scott

From ham@cq.nu Thu Jan 2 22:35:16 2003
Subject: [R-390] Field Change No. 7, R390A

Hi, On the last go around on this one the "supplemental spaces" came out to = operating next to VHF / UHF radios. Apparently the R-390's would take off and nock out the WSC-3's or some such thing. Take Care! Bob Camp KB8TQ

From ham@cq.nu Thu Jan 2 22:45:58 2003
Subject: [R-390] 6082's and regulators

Hi, I guess the first question to ask is: Can you even measure a change in the supply voltage as you tune a signal and if so how much? I've never even looked to see. Enjoy! Bob Camp KB8TQ

From r.tetrault@attbi.com Thu Jan 2 22:52:30 2003
Subject: [R-390] 6082's and regulators

Sounds to me like the "cases" where some audiopile (sp!!) thought they could hear the difference between "oxygen free" copper speaker wires and otherwise... Bob

From rickmurphy1001@earthlink.net Thu Jan 2 23:30:19 2003
Subject: [R-390] Those pesky trimmer caps

Hi Group, Does anyone know where I can purchase the trimmer caps that are in the second osc? I have two that are bad but am looking to replace them all. I might have to resort to soldering substitutes under the deck. Gone are the days when one could walk into the local electronics parts establishment and get this kind of stuff. No where to be found here in Chas. SC. Thanks Richard

From jamesmiller20@worldnet.att.net Thu Jan 2 23:43:29 2003
Subject: [R-390] Those pesky trimmer caps

If these are the ones in the xtal oscillator, American Trans Coil sells pulls from old 390-a's. They're on the web.

From stevehobensack@hotmail.com Thu Jan 2 23:52:35 2003
Subject: [R-390] bfo problems

My r-390a has a slight hum when the bfo is on. Cw and ssb signals have a slight "vibrato" sound. Cw notes are not clean and crisp with any setting of the mgc level. I suspected one of the filter caps, but they are ok. The decoupling cap on the bfo 150v b+ is ok , there is no cathode to filiment short. I turned off the bfo switch, and injected a 455 khz carrier from my urm-26d signal generator to pin 5 (plate)of the tube socket. I still had the hum with the signal generator acting as the bfo. The radio sounds fine listening to a m broadcast. Any ideas ??? Thanks .....Steve.....KJ8L

From jbrannig@optonline.net Fri Jan 3 00:01:40 2003
Subject: [R-390] bfo problems

I had a similar problem with a 75S-3B. It drove me crazy trying to find it..... It turned out to be a bad tube in the PTO.....

From Llgpt@aol.com Fri Jan 3 00:29:32 2003
Subject: [R-390] Those pesky trimmer caps

rickmurphy1001@earthlink.net writes: << Hi Group Does anyone know where I can purchase the trimmer caps that are in the second osc? Check with Chuck Rippel, at one time, he had a large supply of the trimmers..... http://www.r390a.com/ Les

From ham@cq.nu Fri Jan 3 00:50:02 2003
Subject: [R-390] bfo problems

Hi, My bet would be AC modulation of one of the oscillators. Most oscillators will FM before they AM so low level modulation would only be apparent with the BFO on. Going *way* out on a limb - check the PTO first. Take Care! Bob Camp KB8TQ

From Walter Wilson" <walter@r-390a.us Fri Jan 3 01:27:47 2003
Subject: [R-390] bfo problems

Steve, As Jim said, check the PTO tube. But while you're in there, make sure the metal L-shaped grounding strap that contacts the PTO shaft is making good contact. This is the electrical ground for the PTO shaft, and should NOT have any lubrication applied. If any is there, remove it. If the PTO shaft is not grounded properly, the oscillator will warble. Walter Wilson - KK4DF

From RDavis24@carolina.rr.com Fri Jan 3 02:59:52 2003
Subject: [R-390] 3 R-390A's, 1 R-392, URM25, 465M scope for sale or trade?

Hello, I have three R-390A's, one R-392, a URM25 checked signal generator from Fair Radio, Tek 465M 100 mhz Scope and a nice cabinet that will hold one R-390A. I have several parts, tubes, tube checker, RF Deck, front panels, handles, knobs and other misc items. I am wanting to try to sell/trade the whole package to someone in the NC/SC area? I am willing to travel up to a couple hrs drive to save on shipping. Will bring the whole lot to the Charlotte NC Hamfest in March if not sold/traded by then. Will consider interesting trades on ham radio equipment, old VW Beetles or Ghias and will consider any offer for trading. I have just not had time to restore the radios, and do not need the testing equipment if I sell the radios. All four radios work, but need the general alignments and other things done to be very nice rigs. I have top and bottom covers for all three, two radios are 1967 EAC's and one is a Capehart. The R-392 is in really good shape, but the tag is off the front, so im not sure of the maker? All have original meters installed also. Radios are not from Fair Radio, one came from a list member, and the other two came from a local friend. I think I jumped into the tube type radios too fast hi, cause I really do not know what I need to know to restore them correctly. I appreciate the help everyone has given me in the past, but with all the things I have going on right now, I just can not afford to have the radios setting around. Please email direct if interested. I can provide pics and more information if needed. You can always try to convince me to keep the radios hi, really hate to part with the lot, but im not a rich man, and need to recover my investment. I may have lost my mind, cause it was a lot of work to collect all of this hi. Thanks Ronnie KE4VPN

From courir26@yahoo.com Fri Jan 3 03:17:11 2003

Subject: [R-390] Updated Contracts List

Allan Lurie, W9KCB, sent in a new hi s.n for the 1959 Stewart Warner contract. The update has been reflected here: http://www.geocities.com/courir26/390a_makers.htm 73 Tom N5OFF

From keng@moscow.com Fri Jan 3 05:03:07 2003
Subject: [R-390] bfo problems

> My r-390a has a slight hum when the bfo is on. Cw and ssb signals have > a slight "vibrato" sound.

Substitue the HF oscillator tube and/or any heterodyne/conversion oscillator tube. I have an HQ-110-C which did the same thing. BOTH the HF (tunable) oscillator tube and the 2nd conversion (crystal) oscillator tubes had high cathode to filament leakage. My TV-2 said they were both all right. Cured it by substituting new tubes. Afterwards, I found a service bulletin from Hammarlund that explained the problem, which was apparently not uncommon. Ken Gordon W7EKB

From jbrannig@optonline.net Fri Jan 3 15:56:12 2003
Subject: [R-390] Dial Lamps

Is there a source for the R-390A dial lamps? Jim

From cbscott@ingr.com Fri Jan 3 16:00:00 2003
Subject: [R-390] Dial Lamps

Mouser, for one, has them, but I believe they're readily available from several other sources as they are a rather common lamp. www.mouser.com Barry - N4BUQ

From roy.morgan@nist.gov Fri Jan 3 16:14:41 2003
Subject: [R-390] Dial Lamps

Scott, Barry (Clyde B) wrote: >Mouser, for one, has them, If you want to pay a bit more for them contact Bulb Direct: <http://www.bulbdirect.com/Original/home.shtm> Roy

From roy.morgan@nist.gov Fri Jan 3 16:29:34 2003
Subject: [R-390] Dial Lamps

Here is a bit more info from my files: MicroLamp <http://www.microlamp.com/> lists the following 328 series bulbs: Unfortunately, there's no prices nor are there any specs save the bulb type - T13/4, volts - 6.0 and amps - .20. I cannot find any listings on their web site today. You are invited to email them.. (click the light bulb if you see one.. gawd their site is useless!)

Here are variants of the lamps in the R-390 A
---
328 Original bulb

328AS10 A longer life (different filament materiel same volts same amps.)
328AS15 A longer life (another filament materiel same volts same amps.)
328R The rugged one. less light same volts same amps.

In the past Al Solway <beral@videotron.ca> has offered some 328's for sale, I don't know if he has any left. Bulb Direct <http://www.bulbdirect.com/Original/home.shtm> lists only the 328 at $1.05

From cbscott@ingr.com Fri Jan 3 16:33:14 2003
Subject: [R-390] Dial Lamps

Did anyone ever try the LED direct replacements? I remember a thread a few years ago about this. Rather expensive I think, but cool. Barry - N4BUQ

From w5kp@direcway.com Fri Jan 3 16:43:58 2003
Subject: [R-390] Dial Lamps

Funny this should come up. Just yesterday I walked into a local bulb emporium in Oklahoma City, asked for #381 lamps (supposed to be the long-life version of #328) and lo and behold they had both 328's and 381's in stock. I bought out their stock (10) of 381's at 62 cents each, don't know how many 328's they had. Check with specialty light bulb specialty suppliers. These bulbs don't seem to be all that rare. BTW, Newark has them for around $7.00 per 10-pack on their website, don't know if they were actually in stock. I hope the 381's are what I think they are, which is a 6.3v (instead of 6.0v) long-life non-ruggedized 328. Guess I'll find out this weekend when I plug them in. 73, Jerry W5KP

From jbrannig@optonline.net Fri Jan 3 16:51:28 2003
Subject: [R-390] Dial Lamps

Thanks all, I found them in the Mouser catalog. Will just have to wait until I have a few things to order.... Jim

From roy.morgan@nist.gov Fri Jan 3 16:53:56 2003
Subject: [R-390] Dial Lamps

Jerry Kincade wrote: > I bought out their stock (10) of 381's at 62 cents each, ... I hope > the 381's are what I think they are, which is a 6.3v (instead of 6.0v) > long-life non-ruggedized 328.

Al Solway reported earlier: "...the 381 lamp which is the high MTBF (20,000 hrs) version of the 328 lamp (1000 hrs MTBF)...The 381 is not quite as bright as the 328. This is only apparent when they are side by side." Roy

From w5kp@direcway.com Fri Jan 3 16:52:13 2003
Subject: [R-390] Dial Lamps

Amen, Barry - I'd also love to have some specifics from somebody who has adapted the display illumination to use either green (or even better orange) diffused-lens LED's. I'll bet a coat of flat white paint on the inside of the dial cover would reflect a nice, even-colored glow on those white dial

numbers, and they would show up great on their flat black background. How cool would that be? For the coup de grace, add a tiny little pot (inside, of course) to control the LED brightness! :-) 73, Jerry W5KP

From ham@cq.nu Fri Jan 3 17:14:03 2003
Subject: [R-390] Dial Lamps

Hi, The LED's work and they aren't all that expensive these days. Digikey has some *very* bright ones for a couple of bucks each. Compared to say a R-1051 there's a lot of room in a R-390A to mount a couple of them and a dropping resistor.

The main issue is the same one we keep chasing all over the place here. They are DC parts so you have the possibility of RFI when you put them in. Running two back to back still gives you a non linear load. Anything non linear and you get crud. Take Care! Bob Camp KB8TQ

From cbscott@ingr.com Fri Jan 3 17:23:27 2003
Subject: [R-390] Dial Lamps

At the rate I've been using my R390A (or any radio gear for that matter) these days, my 328's will potentially last forever so I don't really need to worry about this...sigh... Aside from the RFI issue, I was thinking someone made direct replacements; the dropping resistor is built into the unit. Was I mistaken? Perhaps not the 328? Barry - N4BUQ

From buzz@softcom.net Fri Jan 3 18:39:45 2003
Subject: [R-390] Dial Lamps

Listers, I've got a limited quantity of new 328 bulbs .25 ea. or 5 for a buck, plus another buck for the puffer pack envelope and postage. Regards, Buzz

From ham@cq.nu Fri Jan 3 19:43:37 2003
Subject: [R-390] Dial Lamps

Hi, There was a thread a while back about taking a dead light apart. You then installed a dropping resistor and a small LED in the base. The net result was a half wave rectifier and a test for the reverse breakdown of the LED being > 10 volts. The main problem mentioned was that the LED used was a narrow beam type and it didn't light up the window as well as a pilot light.Take Care! Bob Camp KB8TQ

From David_Wise@Phoenix.com Fri Jan 3 20:19:46 2003
Subject: [R-390] 6082's and regulators

> From: Bob Camp [mailto:ham@cq.nu] > I guess the first question to ask is: > Can you even measure a change in the supply voltage as you > tune a signal and > if so how much?

I'm sure you can. As signal strength varies, so does the AGC and consequently the RF amp, mixer, and IF amp cathode currents, which make up a respectable fraction of the unregulated B+ load.

<Anecdote> While working on the 3DW7, I spent many evenings listening to the beat note of an SE-3

external BFO against my HP8640B crystal-locked signal generator. As I ran the attenuator up and down, the beat note changed by about a whole-note IIRC. </Anecdote>

I'll report back with hard data.

This isn't the only source of frequency variance. AGC on the mixers causes small changes in their dynamic interelectrode capacitances, which reflect back to their respective oscillators. I didn't say these are large effects, just that they exist. There's a fascinating section on this phenomenon in the Radiotron Designers Handbook. 73, Dave Wise

From DAVEINBHAM@aol.com Fri Jan 3 20:59:49 2003
Subject: [R-390] bfo problems

Back when I was in the Air Force 40+ years ago, they taught us that if the tube tester says it's bad, the tube is bad. But if the tube tester says it's a good tube, it ain't necessarily so. The " best" way to test a tubes is to temporarily replace it with " a known good tube." Regards, Dave

From Llgpt@aol.com Fri Jan 3 21:06:26 2003
Subject: [R-390] bfo problems

Well put Dave!! Tube testers are a useful tool when utilized properly. many is the tube that tested good, but didn't work in a particular circuit, but did well in another. Les

From ToddRoberts2001@aol.com Fri Jan 3 21:34:19 2003
Subject: [R-390] Dial Lamps

Mendelson Electronics have several interesting T 1-3/4 lamp based high-intensity multi-chip LED's @ 40 cents each. They are rated 6VDC @ 35ma and come in RED, AMBER or GREEN colors. They come already mounted in a T 1-3/4 midget flange base for drop-in replacement. Don't know if they would operate from 6.3VAC but would be fun to experiment with! Go to www.meci.com and click on their LED Listings. 73 Todd Roberts WD4NGG.

From jbrannig@optonline.net Fri Jan 3 22:24:43 2003
Subject: [R-390] Some progress

So far.... I cleaned the front panel and knobs... Did a partial re-cap of the IF and audio decks... De-oxit all tube sockets, switches and connectors. tracked and graphed the PTO. It is off 6.5 KC end-to-end, but pretty linear at the 100kc points. (I'll set the end points later) Pulled the front panel. I had a can of Radio Shack degreaser(the one with the tube and brush at the end). It made short work of the gunk on the gears. The bad news is that RS no longer stocks the stuff and in three store visits I could only find one more can. Pulled the RF deck.... More to come Jim

From jbrannig@optonline.net Sat Jan 4 18:08:55 2003
Subject: [R-390] 3rd mixer

While working on the RF deck I noticed that V204 (3rd mixer) is a 6BE6, not a 6C4. Connected to

pin 1, the grid on the 6BE6 is a length of RG-174, that leads to an added rear panel BNC labeled SM output. Any ideas? Jim

From ham@cq.nu Sat Jan 4 18:43:19 2003
Subject: [R-390] 3rd mixer

Hi, How is the rest of the socket wired? Obviously somebody has moved the plate connection off of pin one .... With a pentagrid converter in there all sorts of odd things are possible. Assuming it looks like amateur work my vote would be to document it and then switch it back to stock. The 6BE6 is not going to be as good a mixer as the 6C4. Take Care! Bob Camp KB8TQ

From jbrannig@optonline.net Sat Jan 4 19:47:07 2003
Subject: [R-390] 3rd mixer

Good question.....I was interrupted while working on the RF deck. I wanted to sketch out the wiring..... When I returned to the work shop, I replaced the RF deck and am now listening to WWV on 15 Mcs... ..never did document the mixer.... chalk it up to another senior moment or CRS...Grrrrr Jim

From djmerz@3-cities.com Sat Jan 4 23:28:18 2003
Subject: [R-390] kilocycle/megacycle movement

Hi, just a word on what I did so far. I tried Joe's approach, being a little strapped for bench space at the moment, and fashioned a wire hook and moved the two cams that were obviously at the wrong spot. The screw/nuts on the two gears involved were verrrry tight and I soaked the screws a bit with penetrating oil overnight before putting some real force on them. After bringing the cams to a better position, the set tuned much better on the 3 to 4 mhz range where I first noticed a problem. Once I get the bench cleared, I'll do a better standard alignment since this has been on my agenda since I got the set. I keep thinking I'll come up with a URM 25 s.g. in my wanderings but so far still have only a Heathkit "lab grade" generator that I've always used, not very well shielded. But I suppose it might still do a reasonable job?

Again just looking into a 390a is a pleasure so pulling it out of its cabinet has its own reward. After all the backlash talk, I did a little reading in the spec. documents available online and see that the only backlash specification had to do with the tuning knob, pto and dial readout, at max of 100 cps. My radio behaves itself well in this regard. No mention that I could find of the amount allowed for the rest of the gear train going to the coil racks, etc. I suppose this is indirectly covered by the requirements on uniformity of output over the bands. I wonder if one can get a rough idea of how insensitive (or sensitive) tuning would be to this kind of backlash by rocking the Mhz knob a bit off the notch and noting whether the signal level drops. Since I don't really know how well my set is aligned, I can't go any farther with this idea yet. Maybe someone with a carefully aligned set could describe what happens. Thanks again for all the suggestions, Dan. Dan Merz wrote:

From hankarn@pacbell.net Sat Jan 4 23:57:03 2003
Subject: [R-390] WTD: Info on German military radio

I am trying to locate information on a looks like Pre-WW-II German Military radio. Either Telefunken or possibly Siemans Model number SE469A has 10 tubes all tubes are like pre war and some are covered with foil and just glass with tube number and all have the German Swastika on them, except one

from Sweden made in 48 and was a replacement for a missing tube. Would like any schematic, manual or history of the unit. Value, year made any help appreciated. Not the size or weight of a R-390. Thanks es Happy New Year to all Hank KN6DI

From ham@cq.nu Sun Jan 5 00:05:46 2003
Subject: [R-390] kilocycle/megacycle movement

Hi, There is nothing particularly magic about the URM-25 generator. Obviously it's the one in the TM's and that is a nice thing. Other than that there are other generators both tube and solid state that will do the job very well. Several of the HP tube type generators come available on a regular basis at a price below what you usually see URM-25 going for. For that matter the radio will wind up working every bit as well set up properly with your Heathkit as it will with a URM-25. Now, an analog VTVM is something that you can't easily replace ... Take Care! Bob Camp KB8TQ

From k6fsb@juno.com Fri Jan 3 06:26:27 2003
Subject: [R-390] bfo problems

I had a very similar problem tracked it down to a filament to cathode short on the AGC rect tube V509. So look for a tube. substitution is the fastest way to track it down. Ron
R390A Collins S#122 contract 375-P-54

_____
From w5kp@direcway.com Sun Jan 5 00:41:07 2003
Subject: [R-390] IF deck caps

I know the failure rate of Black and Brown Beauties, but do the yellow Aerovox jobs suffer a high failure rate too? I ask because I just (groan) looked at the nearly 20 of them packed into the underside of this Teledyne IF deck that will require replacement if ALL the paper caps must be changed out. Some of them are pretty well buried. My other 390A, which was gone over prior to my purchase by a fairly well known rebuilder, had only C-553 and the BBOD's replaced, all the original yellow Aerovox's were left in. Was this a bad move on the restorer's part? That particular radio has worked like a champ for 3 years now. Jerry W5KP

From rnharsh@attbi.com Sun Jan 5 01:09:55 2003
Subject: [R-390] WTD: Info on German military radio

A picture IS worth a thousand words! Any Name plates (even in German is OK)? Is there a chassis number either stamped on the metal chassis or on a label which is stuck to it? Ron H.

From jbrannig@optonline.net Sun Jan 5 01:20:52 2003
Subject: [R-390] IF deck caps

Jerry, I'm in the middle of doing some TLC to my '67 EAC. So far I have only replaced the "Rippel" suggested Caps. I'm hearing some "popcorn" noises and am far more concerned about the .005 1KV coupling caps. Jim

From jlkolb@cts.com Sun Jan 5 02:54:19 2003
Subject: [R-390] kilocycle/megacycle movement

Dan Merz wrote: I'll come up with a URM 25 s.g. in my wanderings but so far still have only a > Heathkit "lab grade" generator that I've always used, not very well shielded. But > I suppose it might still do a reasonable job?

Not well shielded? Yes you might say that :) I used to measure a 0.1 uV S+N/N on one of my receivers, with the Heathkit on the other side of the room, and without a cable connecting the generator to the rx :) However for alignment where you are just adjusting things for peak reading, the absolute level doesn't matter, and most receivers can be aligned using their own xtal calibrator to provide signals to peak on.

For medium output levels, using 50 or 100 uV to set an S-meter to exactly S9, for example, the leakage wouldn't be high enough to affect accuracy on a well constructed Heathkit - a poorly constructed lab generator could be horrible.

From ba.williams@charter.net Sun Jan 5 03:09:45 2003
Subject: [R-390] IF deck caps

> I know the failure rate of Black and Brown Beauties, but do the yellow > Aerovox jobs suffer a high failure rate too?

Jerry, Are you talking about wax covered paper caps? If so, these have to go. They leak badly. These are good candidates for reforming as you bring a variac up slowly, but you will probably find a high number of them out of tolerance. These get pinhole leaks in the foil innards. You reform them by bring up the voltage slowly and the holes get filled again. But, you can guess the probability of failures soon with that many of them in there.

Pull those wax covered paper caps out carefully and put them up for sale on ebay. Advertise them as excellent dummy caps for the *L@@K* crowd who cover modern caps with the shells of old ones to make it look *ORIGINAL*. Don't laugh, a lot of people do this. I was just reading an old article about a guy who forms his own square molds for the old type resistor look. Barry

From redmenaced@yahoo.com Sun Jan 5 03:33:50 2003
Subject: [R-390] IF deck caps

Nah, he's talking about the yellow plastic ones in the '67 EAC's, they're good caps, as caps go, just don't get too close with the soldering iron! Joe

From ham@cq.nu Sun Jan 5 03:55:34 2003
Subject: [R-390] IF deck caps

I suspect you might also want to keep away from them with the end of your cigar :) Take Care! Bob Camp KB8TQ

From w5kp@direcway.com Sun Jan 5 06:09:23 2003
Subject: [R-390] IF deck caps

The decision is made, the original yellow jacket Aerovox's stay in. Thanks for all the friendly advice. Now on to the audio deck, and trying to find a 560 ohm 2W carbon Rippel resistor! 73, Jerry W5KP

From billsmith@ispwest.com Sun Jan 5 06:54:20 2003
Subject: [R-390] IF deck caps

This is true of electrolytics, but not of paper caps. The latter may initially operate ok in a set that has been on the shelf for a long time, but will begin to leak badly in only a few hours of operation. You can hear a set "tighten up" if you place a set with bad caps in operation. Whistles will appear, audio becomes distorted, AVC doesn't work, and the AF gain control has to be turned up well beyond the first 20 or so degrees where it usually operates.

I have found a simple test with a VOM works well. Disconnect on end of a suspect cap, and measure the resistance with the highest ohms scale. If any residual resistance shows on the scale, the cap is leaky. Disconnect the probe, then reattach. If the cap shows a "kick" on the meter each time the probe is attached, it can't hold the charge of the vom battery, and is leaky.

Many, but not all, electrolytics will self-heal, if allowed to reform as described above. Not so with papers, they will just get worse. They also have a tendency to open or exhibit a poor power-factor over time. 73 de Bill, AB6MT billsmith@ispwest.com

From ham@cq.nu Sun Jan 5 15:42:08 2003
Subject: [R-390] kilocycle/megacycle movement

Hi, The FET vom will do fairly well but if you are going to work on old tube stuff you really need a VTVM. A lot of the readings are affected by the loading the voltmeter puts on the circuit. A ME-26 or it's HP equivalent is a good one to get. They are dirt cheap. Ebay is a good place to find them.

The 465 with DVM option is an interesting gizmo. I have one sitting here. Like all digital volt meters it has it's limitations. A lot of the alignment procedures are "tune for peak" or "tune for null" stuff. That's a real pain with a digital display.

The military version of the 465 should have a manual on the same site as the 390 stuff. It's not the same as the one you and I have but it might be a help. Take Care! Bob Camp KB8TQ

From ham@cq.nu Sun Jan 5 15:43:32 2003
Subject: [R-390] IF deck caps

From polaraligned" <polaraligned@earthlink.net Sun Jan 5 16:05:58 2003
Subject: [R-390] Some progress

I think it is a good idea also to address all the ground connections while you are servicing each module. The chassis, being make of aluminum, oxidizes and makes poor connections. I loosen up the ground and clean the connection point then use Ox-guard- or other aluminum electrical connection compound. Use of a compound for aluminum electrical wiring is a must, and aluminum house wiring has a very high failure rate because of the oxidation of the wiring. Scott

From jbrannig@optonline.net Sun Jan 5 16:55:16 2003
Subject: [R-390] Some progress

I agree, and I tighten all screws on the chassis, particularly the tube socket screws. This causes the washers to bite into the aluminum. There is no aluminum wiring in my house. Many a homeowner has gone through an expensive rewiring to correct the problems with aluminum. The Canadians like aluminum wiring. I have a friend in Toronto who claims zero problems with aluminum. I don't know what they are doing up there, but it seems to work for them. Jim

From polaraligned" <polaraligned@earthlink.net Sun Jan 5 17:06:03 2003
Subject: [R-390] Some progress

Well, maybe Joe can expand on this, but I believe aluminum wiring is OK if done right. That means using devices designed for aluminum wiring and using the right compound on the connections. I think most electrical services use an aluminum feed from the pole to the panel. The busses in the panels on many services are aluminum. And the electrical inspector will want to see a proper compound on the service connections. Scott

From ham@cq.nu Sun Jan 5 17:17:56 2003
Subject: [R-390] Some progress

Hi, There are several answers about what they are doing with aluminum wire.

1) The connector has to be designed for aluminum wire. Most of what we used down here wasn't.
2) You have to use goop on the wire with some of the connectors. Again something we forgot.
3) Avoid salt air and moisture in general. How they handle this I have no idea.

On a 390 the aluminum chassis connections are another good reason to avoid the dunk and wash approach to cleaning. It is pretty common to tear a R-390 module apart and find white stuff caked up between steel and aluminum. If the rot gets too bad the aluminum is pitted. The only answer seems to be to keep them dry. I suspect that if you find the white stuff piled up on the module mounts it would be a *very* good idea to do a screw re-tighten job on the whole module. Take Care! Bob Camp KB8TQ

----- Original Message -----
From: "Jim Brannigan" <jbrannig@optonline.net>
To: "polaraligned" <polaraligned@earthlink.net>; "R-390 list"
<>
Sent: Sunday, January 05, 2003 11:55 AM
Subject: Re: [R-390] Some progress

From Jim Shorney" <jshorney@inebraska.com Sun Jan 5 17:22:38 2003
Subject: [R-390] Some progress

 polaraligned wrote: >I think most electrical >services use >an aluminum feed from the pole to the panel.

Yep. I've got a chunk of this very cable as the earth ground for my <Drake> transmitter. Multi-strand aluminum clear through.

From mark.richards@massmicro.com Sun Jan 5 17:50:48 2003
Subject: [R-390] Gear Clamp - stripped screw?

Has anyone ever encountered a gear clamp cap screw that appears to be stripped such that the spline wrench does not grip properly? This is in a particularly difficult area to get at - this is the large gear that to the right of the turns counter and the clamp is in a very tight space between the gear and the next panel. I am considering blasting - but would like to get some opinions and suggestions before I do something drastic. Anyone have any suggestions?? Is it possible to chisel away the nut?

For the group's information, I just received a beautiful set of spline wrenches made by Xcelite (ordered through Techni-Tool (www.techni-tool.com). The part number is 99Ps60. Also, found a set made by GC #5028 Hex and Spline Wrench kit - that has the exact size for the R390. The Xcelite kit is professional grade. The GC is cheaper and are only small right-angle steel tools.

From terryo@wort-fm.terracom.net Sun Jan 5 18:02:16 2003
Subject: [R-390] Free Ham Radio magazines

I have a huge box of Ham Radio magazines, free for the pickup in Madison, Wisconsin. They start somewhere in early '72 and end in mid '88, almost two decades worth. I think the collection is essentially complete but it has been years since I checked. They are in good condition with the original mailing covers on many years. Free, but pick up in Madison, Wisconsin only! 73 Terry O' WB9GVB

From w7itc@hotmail.com Sun Jan 5 18:23:02 2003
Subject: [R-390] Some progress

The problems we had with Aluminium wiring was not so much the fault of the aluminium but the alloy and how it was installed. It was always considered a cheap replacement for copper wire and there in was the problem if aluminium is installed correctly with a proper service box, wall plugs and switchs it's ok. If done properly it isn't cheaper then copper.

From redmenaced@yahoo.com Sun Jan 5 18:26:06 2003
Subject: [R-390] Some progress

Aluminum isn't good for a ground, the NEC doesn't allow it within 18" of the dirt because it deteriorates so quickly. Joe

From redmenaced@yahoo.com Sun Jan 5 18:38:04 2003
Subject: [R-390] Some progress

wrote: And the electrical inspector > will want to see a > proper > compound on the service connections.
++++++++
Yes, all the way through.

Still aluminum isn't as good as copper, mostly because of the connections. Aluminum is softer than copper and the connections should be tightened regularly as they come loose due to vibration, even in a house, also from heat cycling, whether from using the circuit or just winter/summer variations. The outlet nearest the main entrance is the one most prone to having the screws come loose because of the wall being vibrated by slamming the door! The kitchen counter will be the next worst, repeated plugging and un-plugging and high current draws from the appliances.

Then this for owners of BIG radios, or lots of radio equipment: I posted this to the T-368/BC-610 list: House service neutral? Happy New Year everyone!

During the discussions of the size circuit needed to run a transmitter such as a T-368/BC-610 one important item was overlooked. That is the condition of the neutral wire going from the panel out to the pole. Many times this is allowed to deteriorate to the point where it is no longer safe to carry such a large 120 volt load. In an overhead service the neutral is the group of wires wrapped around the two hot wires inside the service entrance cable. If the covering of this cable has disappeared, for whatever reason, those wires are open to corrosion damage which may not take long to cause them to disappear altogether! This is often not considered by the average homeowner. What will happen if this fails is that 240 volts will be across all of the 120 volt circuits with the appliances making a voltage divider. What voltage each appliance sees will be determined by its impedance. Some will go POOF, some will just get hot enough to burn the house down.

A 21 amp load being cycled on and off repeatedly will certainly stress an already weak neutral.

ALL newer houses, I mean 30 years old, have aluminum service entrance cables! They haven't made copper service entrance cable in 40 years! How long has it been since the bolts in your panel and meter socket were tightened? Are they tight enough to pass enough current to trip the breaker? Got any "blue" terminals? Melted plastic? Smoke trails up the siding?

If its not moving, GROUND IT!!,..... does your service actually HAVE a ground? Joe

From polaraligned" <polaraligned@earthlink.net Sun Jan 5 18:39:12 2003
Subject: [R-390] Gear Clamp - stripped screw?

I had one like that. Try using regular hex wrenches. Try US and metric sizes. See if you can get one to fit. Tap the wrench into socket head. I found a size that caught enough meat to get the screw out. If not, a long drill bit and drill the screw out. I think I would avoid chiseling, but if you must (eeeek!), the aluminum clamp is probably easier to crack than the screw. Scott

From redmenaced@yahoo.com Sun Jan 5 18:59:04 2003
Subject: [R-390] kilocycle/megacycle movement

--- Bob Camp <ham@cq.nu> wrote: > Hi, They are dirt cheap. Ebay is a > good place to find them.
++++++++++
"Appropriate" test gear has been going cheap on E-bay recently, I got a TS-505 for under $20, a TS-352 for $10, both are the Phaostron "A" models from the '52 contract, too. A TS-585 for under $20, these things must have been designed by a lunatic! If battleships were built like this they'd SINK! The ZM-11 was expensive at $60, interesting shipping damage, the tuning cap was just barely shorted, in only one place on its rotation, SMOKE, had to replace a resistor. Audio signal generators, AN/URM-127's, are going for $10 if they get a bid at all! 1971, its the newest piece of test equipment I own!

So far it all works, it was all very dirty, but it all works. That's where all my money went! Joe

From myoung76@bellsouth.net Sun Jan 5 19:01:58 2003
Subject: [R-390] Some progress

Yeap....here a mile back from the Atlantic Ocean in Satellite Beach, FL we have had that problem with the outside service entrance/meter box. Heard a frying noise one day coming from the meter box, called the power company who came and cut the service wires....with big choppers. Then I had to call an electrician and our code enforcement official (who lives across the street). Electrician came and put a new entrance box (Aluminum!) and conduit (Aluminum!). Power company came back and hooked power back up using Aluminum(!) sleeves to crimp the wires back. I asked about the black goop they used (De-ox or whatever) and he said the company no longer used it (!). He thought the policy was a bunch of BS so he had some and used it anyway. As it was, that entrance cable and box lasted close to 30 yrs before trouble showed up. Everything from the service panel inside the house is copper (yay!). Mike

From jbrannig@optonline.net Sun Jan 5 19:22:27 2003
Subject: [R-390] Some progress

I buried about 900 ft. of aluminum fence wire as ground radials for a 40-80M vertical. About 10 years after installation the area was dug up for a sprinkler system. All the aluminum wire was brittle and badly deteriorated. Jim

From barry@hausernet.com Sun Jan 5 19:25:55 2003
Subject: [R-390] Some progress

wrote ... > How long has it been since the bolts in your > panel and meter socket were tightened?

Is this a job for an electrician -- or the power co.? There are two front-end power cutoffs I'm aware of -- The kind of meter that pulls out where the power co. technically has to come to break and replace the seal (to avoid stolen electrons). The other is the main breaker or cartridge fuses, depending. But it sounds like the tightening of some of this stuff is ahead of all that and best left to a pro, or the power co., especially the "up the pole" part of it.

Of course, you 'lectricians are fond of replacing outlets and switches without flipping the breaker 'cause you're immune or something. (Does your carrier meter peg with the '390A off when you walk by?)

So ... I guess the question is: What do we say to the power co. to get them to come over and check it out? At home, as far as I know, the last time this was done was when we upgraded the service -- in '86. At the office, it was done last year when we had the main fusebox (three-phase) replaced -- because one of the contacts burnt up -- probable due to looseness. It's on the same wall where the 18-wheelers pass by on their way to camp overnight or make a U-turn. Also not far from where the dumpster guy likes to set the thing down hard. Not to mention the LIRR commuter trains barreling by at 70 mph. rattling things enough to loosen the fluorescent tubes. Arghh.

Are there some magic words like "I think I hear crackling noises!" Somehow I suspect if I just tell 'em some electrician I know told me to have it checked won't be enough Then -- how to sneak up on 'em to find out if your ground is really a ground? This is Lawn Guy-Land, east of Brooklyn. Just insisting won't

work -- you need a good story here to get around the phone reps. Needs to be motivating enough to get the power co. guy without attracting the volunteer fire guys with swinging axes. Barry

From keng@moscow.com Sun Jan 5 19:41:25 2003
Subject: [R-390] Re: Electrical panels and grounds...

This thread reminds me of a short story Roberta Barmore told us on the Glowbugs list a while back. She is Chief Engineer at a big combined AM/FM/TV station in the midwest somewhere, and a ham. She was walking by the main three phase panel which fed power to the entire transmitter site and noticed that it seemed to be somewhat warm. Then a few evenings later, she thought she saw a slight reddish glow, so she called an electrician. He showed up the next day, and after putting down some thick rubber mats, and removing the panel, crawled back in under the panel and looked up.

Her words were, "...then he said a very bad word and backed out slowly..."

Apparently the center one of the very large copper buss bars was glowing red hot. When the panel was assembled at the factory, the assembler had misaligned the center buss bar when drilling the mounting holes in it and had offset it to one side or the other by quite a distance. There was a very small gap between it and one next to it. Further, the bolt holes were damaged in such a way that the bolts couldn't properly clamp the buss bar to its mount, so the current carrying capability of the buss bar was signifcantly lessened. So much so that it heated up with the current load and loosened the bolts, making it hotter yet, and so on. They had to cut the station power WAY back to keep the panel from burning up while waiting for the replacement panel. Ken Gordon W7EKB

From Jim Shorney" <jshorney@inebraska.com Sun Jan 5 20:10:25 2003
Subject: [R-390] Some progress

wrote: >Aluminum isn't good for a ground, the NEC doesn't >allow it within 18" of the dirt because it >deteriorates so quickly.

Well, it's just temporary, and the outside connection is well sealed. Thanks for the heads-up.

From r.tetrault@attbi.com Sun Jan 5 20:12:06 2003
Subject: [R-390] Re: Electrical panels and grounds...

Interesting way to illustrate I squared R...

Like compound interest, exponentials are the eighth wonder of the world. All the others may be lost in antiquity, but that eighth one keeps rearing its beautiful head... Bob

From gwmoore@moorefelines.com Sun Jan 5 20:48:38 2003
Subject: [R-390] Re: Electrical panels and grounds...

This story reminds me of an incident which happened during the early '80's. I had a friend who used to bother me for all his electronic/electrical repair needs, with absolutely no thought of time or compensation. At any rate, he was calling me after an unsuccessful bout with the cable tv company about reception in his house. I don't know exactly why I said I would go over and "take a look" (I

believe the XYL kind of insisted that I go, as she was friends with HIS XYL, still is, as a matter of fact) but I did, and I probably saved his house by so doing.

When I got there, I noticed that indeed, the cable was messed up, in fact, it was just about nonexistant. I decided to take a look in his basement where the cable entered the house, and found what the cable company euphamistically referred to as a "ground block" virtually MELTED, and the cable leading from this melted object, out of the house, with the outer cover actually MELTING in some spots, and the whole thing extremely hot. On doing some checking around the various "grounds" I found that they were, in most cases "hot" anywhere up to line volts. I started looking around, and found , (it was raining at the time) that this idijit was using a pump to drain his swimming pool, the pump had an exposed motor, and the whole mess was soaked, hot (both temperature and voltage). I figured I should check why the neutral and grounds should be so "hot", and found that, for some reason, the neutral had come loose inside of the service entrance panel, the panel was grounded to a water pipe (note, the pipe was PLASTIC, a fact which nobody was willing to take credit for, and the whole mess was, because the cable was grounded to the same clamp, along with the telephone (that still worked, amazingly) the entire system was grounded through the shield of RG-59 coax.

Carefully pulling that stupid pump off line, I proceeded to pull the main fuses, and reconnected the neutral to the buss bar. I also went and purchased an 8' ground rod, proper ground wire, and some Greenfield to protect the wire, as I didn't trust this idjit not to destroy it with carelessness, went through the exertion of pounding that sucker into the dirt under the basement floor, and grounded everything properly. I also moved the bonding clamps off the plastic on to the copper, but stopped short of doing a whole bonding check, since at that time, everything was OK groundwise. I also highly recommended the services of a plumber SAP to get rid of that stupid plastic pipe (That was the ONLY piece of plastic in the whole system, and why someone would have installed it, let alone put bonding clamps on it is a total mystery to me) . Called the cable company, told them what had occurred, and that this idjit was going to need an entirely new coax, and the tap at the pole was probably trashed as well, got the usual "you're probably trying to steal cable service" response, which seems to be the standard cable company knee jerk answer to any intelligent discourse with cable tv service, not that I cared, and the incident was over. NO I didn't get reimbursed for either the rod, my time, nor my knowlege, but I probably saved his house-- My XYL was (and still is) happy that I got involved, so everything was as it should be --hi hi--. I have a hearty respect for grounds, I always had, but this was proof positive of a failure mode which I had not previously seen.
I do enjoy the "glowing ground buss" and "...then he said a very bad word and backed out slowly..." Sounds like an exciting day indeed, and much more impressive than the story above--hi-- 73 de Greg Moore WA3IVX

From ham@cq.nu Sun Jan 5 20:54:56 2003
Subject: [R-390] Some progress

Hi, In addition to reacting with oxygen aluminum is very reactive with chlorine. Since there's salt (sodium chloride) all over the place this can be a problem. The oxide layer on aluminum will only go just so deep in a reasonable period of time. As far as I can tell there is no limit to how far the chloride layer will go. I have always wondered about cleaners with chlorine in them and aluminum chassis radios .... Take Care! Bob Camp KB8TQ

From chacuff@cableone.net Sun Jan 5 22:12:26 2003
Subject: [R-390] Some progress

Hi Barry and Group, Tell them that your blender in the kitchen won't run unless you turn on the lamp in the living room....which won't light unless the blender is running, and that sometimes the vacuum cleaner won't run unless the TV's on. This actually happened at my inlaws house...they had lost the neutral at the meter can.

I work for a power company...usually you can get in touch with an engineer in the division that serves your geographic area. They usually get pretty serious if they think they might have to pay for equipment damaged by lost phases and such. (not much chance of damage in a single phase environment) Cecil Acuff

From polaraligned" <polaraligned@earthlink.net Sun Jan 5 22:59:06 2003
Subject: [R-390] Some progress

> Aluminum isn't good for a ground, the NEC doesn't > allow it within 18" of the dirt because it > deteriorates so quickly. > > Joe

Crap. Does that mean that expensive aluminum fence I just put up will fall over in 10 years. The company said it will last forever. Scott

From redmenaced@yahoo.com Sun Jan 5 23:40:08 2003
Subject: [R-390] Some progress

You're lucky it lasted that long, I've seen it disappear in 8 months!! And that was #4! Joe

From keng@moscow.com Mon Jan 6 00:05:44 2003
Subject: [R-390] Re: Electrical panels and grounds...

> They had to cut the station power WAY back to keep the panel from burning up while waiting for the replacement panel. > ++++++++
> To be BUILT!

Right you are! In fact, Bobbi mentioned the fact that it had to be built. I forgot to include that.

You didn't mention just how BIG this panel is, I can > guess. You won't go to the local supplier and buy one > that day! If he put mats down it was probably a HV > panel, too, probably 12 KV.

Yes, I forget the exact voltage, but it was quite high. There are several hundred KW involved in the (multiple) TRANSMITTERs outputs.

And people just don't understand why I won't do this > job for $7/hr.

Right. What a bunch of simpletons people are sometimes. Gee... Ken Gordon W7EKB

From ham@cq.nu Mon Jan 6 00:08:59 2003
Subject: [R-390] Some progress
References: <20030105182606.26509.qmail@web14005.mail.yahoo.com>

Hi, Make sure the fence is coated with something. That's why they have the funny gold colored stuff on a 390 chassis. Take Care Bob Camp KB8TQ

From plmills@attglobal.net Mon Jan 6 11:31:13 2003
Subject: [R-390] Looking for Jorge Gomes

Hello, I've lost the e-mail address of Jorge Gomes. If anyone has it, please pass it along to me. thanks, Phil

From David_Wise@Phoenix.com Mon Jan 6 18:22:09 2003
Subject: [R-390] kilocycle/megacycle movement

> From: Bob Camp [mailto:ham@cq.nu] [snip] > the > radio will wind up working every bit as well set up properly with your > Heathkit as it will with a URM-25.

Agreed. If you have the radio's internal crystal calibrator tuned to WWV, you don't actually need a signal generator for alignment except to confirm you're in the right 100kHz "bin". 73, Dave Wise

From r.tetrault@attbi.com Mon Jan 6 18:25:47 2003
Subject: [R-390] Some progress

I think there must be some regional error here Joe, as all of my service entrances from the pole have been copper, even as late as 96. California and Oregon Bob

From chacuff@cableone.net Mon Jan 6 19:05:23 2003
Subject: [R-390] Some progress

Greetings group, I work for Southern Company...the largest Public Electric Utility in the US and to my knowledge all of our service entrance cables are Aluminum "Tri-Plex" which consists of two insulated conductors and one bare...all twisted together. I can't speak for what is installed in higher current 3 phase installations. Can't say I have seen any copper cables at all in our warehouses besides direct burial control cables used in substations and generating plants.

Most folks don't know it but all of the lines you see overhead including the large 100KV and 500KV transmission lines are built with Aluminum (bare) conductors. Copper is no doubt better from a conductivity standpoint but it's way too expensive to use for transmitting and distributing electricity. I will tell you that the Aluminum that is used is not the soft, flexible aluminum you might think of...it's some alloy that is like Hard Drawn copper is to standard copper. You can't hardly bend the stuff. Must have better corrosion properties as well...I have looked at conductors that have been in the air for years and show little corrosion or pitting, a good report for the area I live in....Gulf Coast. (read salt air) Cecil Acuff

From courir26@yahoo.com Mon Jan 6 20:08:28 2003
Subject: [R-390] 100Khz calibrator and alignment

I disagree with that, Dave. A 50 ohm signal generator gives better results than the internal calibrator. I'm not smart enough to figure this out on my own, Chuck Rippel turned me onto it. I tried it and it was in fact true. I avoid the calibrator alignment now. 73 Tom

From David_Wise@Phoenix.com Mon Jan 6 20:14:02 2003
Subject: [R-390] 100Khz calibrator and alignment

We're in "violent agreement". A good generator outdoes the calibrator. If you don't have a generator handy, or it's a really bad one, the calibrator is the better bet for all except the antenna coils. 73, Dave Wise

From vze2gmp4@verizon.net Mon Jan 6 20:31:05 2003
Subject: [R-390] Some progress

Guess I'll stick my two electrical cents in here. NYC electrical codes are still all copper, along with no Romex wiring, just BX. No permit variances are allowed. Nassau and Suffolk Counties next door on Long Island allowed aluminium wire back in the seventies and several fires in new homes were attributed to it. It's not allowed any more with existing aluminium wiring requiring a copper splice before any hookup. The thing to remember about aluminium is it's not a metal. Regards, Helm. WB2ADT

From keng@moscow.com Mon Jan 6 21:16:50 2003
Subject: [R-390] RE:

> Guess I'll stick my two electrical cents in here. NYC electrical codes > are still all copper, along with no Romex wiring, just BX.

BX? It was known as "Donkey Dick" by electricians. I certainly hope it has been improved since I had to deal with it. What used to happen is that the spirals would get corroded and then one could get a short circuit to the spiral at both ends. Then the spiral would heat up like a heating element and burn the place down. We were forbidden to use BX. We either used Romex in homes or conduit in commercial buildings. We would use conduit in homes if they wanted to afford it. Properly installed Romex was safer than BX. BX was used by amateurs, or those who couldn't bend conduit. Ken Gordon W7EKB

From vze2gmp4@verizon.net Mon Jan 6 21:28:37 2003
Subject: [R-390] RE:

well, you have your electric building codes out there and we have our's here. Yes It's a pain to work with, but if you do any rewiring in a home or buiding in NYC with Romex you'll never get passed on inspection and nowadays get kicked out of Local 3 if you're doing it on the sly. Never heard of any fires caused by BX. You guy's must have been installing it incorrectly. Just like aluminium "problem", incorrectly installed. Maybe you should look up why it's used.

From barry@hausernet.com Mon Jan 6 21:49:07 2003
Subject: [R-390] RE:

Helmut & folks: Here in Nassau County, BX is required for commercial installations. However, I believe the code varies within the county. When we had the construction work at my office, code required BX -- but only 2-wire BX -- no green ground wire, and that's what the landlord had installed. The armor jacket is the ground -- or is it? Plenty of metal, but what kind? What's the resistance per 100 ft? Not to mention that it depends on a daisy chain of gem box clamps.

Actually though, I think a '390 would look impressive with a six foot hank of BX 3 wire coming out of it with one of those glompus plugs on the end. (Feeble attempt to get back on topic.) Barry

From cbscott@ingr.com Mon Jan 6 21:57:47 2003
Subject: [R-390] Wire stories

One time, I was installing some drywall anchors and drilled into our service that runs from the meterbase to the breaker box. When the drillbit shorted the outer jacket to one of the inner conductors, it vaporized the drillbit and kind of exploded in my face. Anyway, what were we talking about...? Barry - N4BUQ

From keng@moscow.com Mon Jan 6 21:58:13 2003
Subject: [R-390] RE:

> well, you have your electric building codes out there and we have our's here. Yes It's a pain to work with,
It's not really much of a pain to work with. It is much easier to use than either Romex (properly installed) or conduit. BX is unsafe.

> but if you do any rewiring in a home > or buiding in NYC with Romex you'll never get passed on inspection and > nowadays get kicked out of Local 3 if you're doing it on the sly. Never > heard of any fires caused by BX.

How old are you? BX caused fires back in the 1960s and 1970s. Well documented.

> You guy's must have been installing it > incorrectly.

Interesting assumption. Are you an electrician?

> Just like aluminium "problem", incorrectly installed. > Maybe you should look up why it's used.

It's used because the "electricians" who install it don't know how to install conduit. In any case, I don't need to look up why it is used, since I intend to never use it. I have installed "Seal Tight" flexible conduit for motors and other places where it is appropriate, but that is a different material and is not BX. Ken Gordon W7EKB

From kherron@voyager.net Mon Jan 6 22:26:22 2003
Subject: [R-390] RE:

Hey Ken, >I have installed "Seal Tight" flexible conduit for motors and other >places where it is appropriate, but that is a different material and is >not BX.

Isn't this also made with a grounding conductor? The flexible covering is not intended to be a grounding/bonding conductor? As far as power drops are concerned, Consumers, here in MI is still using aluminum tri-plex for aerial drops, but anything underground is copper. I think that we tend to forget that the local inspection authority is the final say and every state is different. Every time I talk to an electrician from a different part of the state, they have different things that are spec'd by the local authority. Gets FUN! >Ken Gordon W7EKB >

> >
> Thanks!! Kim Herron W8ZV 1-616-677-3706

From polaraligned" <polaraligned@earthlink.net Mon Jan 6 22:49:03 2003
Subject: [R-390] RE:

How old are you? BX caused fires back in the 1960s and 1970s. > Well documented. > > > Ken Gordon W7EKB

My question ken is that if fires caused by BX are well documented then why are so many commercial buildings required to use it? Why do whole citys require it? Was it an installation problem that caused the fires? What was the mechanism by which the fires were caused? What is different now that it does not cause fires? Just trying to learn, Scott

From jbrannig@optonline.net Mon Jan 6 22:59:51 2003
Subject: [R-390] Caps?

I may need to replace some of the .05 1000V disc ceramics. The cupboard is bare and could not find them at Mouser, Allied or Antique Radio. Any sources? Jim

From jbrannig@optonline.net Mon Jan 6 23:05:32 2003
Subject: [R-390] RE:

As I understand it, BX is required under the NYC code in order to prevent rats from eating the insulation and causing fires. In Nassau County (Long Island) BX is not required in residential installations, PVC is allowed and is rapidly replacing conduit. Jim

From cbscott@ingr.com Mon Jan 6 23:08:11 2003
Subject: [R-390] Caps?

Aren't these what you want? <http://www.mouser.com/index.cfm?handler=fra_pdfset&pdffile=296>
Barry - N4BUQ

From polaraligned" <polaraligned@earthlink.net Mon Jan 6 23:03:20 2003
Subject: [R-390] RE:

> As I understand it, BX is required under the NYC code in order to prevent > rats from eating the insulation and causing fires. > > Jim >

I can see that as the rats in NYC are as big as cats. Scott

From kherron@voyager.net Mon Jan 6 23:19:02 2003
Subject: [R-390] Caps?

Hi Group, >I may need to replace some of the .05 1000V disc ceramics. The cupboard is >bare and could not find them at Mouser, Allied or Antique Radio.

> Mouser Electronics. Latest Catalog, Page 296 Part number 75-10HKS50, @ $1.48 ea in single lot. Thanks!! Kim Herron W8ZV 1-616-677-3706

From redmenaced@yahoo.com Mon Jan 6 23:22:32 2003
Subject: [R-390] RE:

Whoa, whoa, whoa, guys! What we have here is a failure,..... oops!

Um, what I mean is: BX is an old term, its NOT used anymore. It WAS two conductors with PAPER insulation/filler inside of a "corrugated" metal jacket. What REPLACED it and has taken on the same name/identifier is, the PROPER name escapes me now because I've gotten inthe habit of calling it BX, TOO!

It is three THHN insulated wires, hot, neutral, and GROUND inside the same type of metal jacket. This is a much better product. Be sure to use the little red anti-short bushings that come with it. It can also be bought with two hot wires, one black, one red for three-way switches, two circuits sharing the same neutral, or 240 volt applications. Hire an EXPERIENCED electrician! Understand: New York State has NO requirement for licensing electricians, if you don't believe me call the Governor's office,..... hehehehehe Can you say BIG BEEHIVE?????? Joe

From barry@hausernet.com Mon Jan 6 23:27:27 2003
Subject: [R-390] Caps?

Hi Jim et. al. **Try http://www.justradios.com/orderform.html** Scroll down and look at the right side. Has .047 @ 1600V $0.99 US. Barry

From redmenaced@yahoo.com Mon Jan 6 23:34:09 2003
Subject: [R-390] RE:zzzzzzzzt, POOF!

--- polaraligned <polaraligned@earthlink.net> wrote: > > How old are you? BX caused fires back in the 1960s > and 1970s. > > Well documented. > > > > > > Ken Gordon W7EKB
> My question ken is that if fires caused by BX are > well documented > then why are so many commercial buildings required > to use it?
+++++++
See my post regarding the newer style "BX".

> Why do whole citys require it?
+++++++
Easier/cheaper/faster remodeling. The average office space is remodeled every TWO years!

> Was it an installation problem that caused the > fires?
+++++++
YES, with the older style BX there was NO ground except the outer covering which wasn't always tied to the box or panel, which meant there was NO ground. This was mostly on stuff installed in the '40's or '50's that was still in use. Loose connections kept the fuse/breaker from tripping because they couldn't pass enough current to trip/blow, enough to heat things up though. That from Dr. Jerry! But with no ground path there was nothing to trip anyway unless there was a solid short from hot to neutral. But this also happened with wire run in conduit, too. The problem with BX might have been the sharp edge at

the end of the metal jacket cutting through the insulation, that's why you have to be sure to use the little red anti-short bushings. zzzzzzzzzzt! POOF! Joe

From hankarn@pacbell.net Mon Jan 6 23:38:35 2003
Subject: [R-390] RE:

I have never seen any BX or ROMEX in any R-39XXX Hank KN6DI

From keng@moscow.com Mon Jan 6 23:39:44 2003
Subject: [R-390] RE: Wiring...

> > How old are you? BX caused fires back in the 1960s and 1970s. Well documented. Ken Gordon W7EKB
> >
> > My question ken is that if fires caused by BX are well documented then why are so many commercial buildings required to use it?

I'll have to check my code book, but don't you mean that commercial buildings are NOW required to use it WHEN NOT USING CONDUIT, either EMT or rigid? I.e., don't use Romex, but use BX instead?

> Why do whole > citys require it?

Looks like Jim Brannigan answered that one.

> Was it an installation problem that caused the > fires?

At the time I did commercial wiring, back in the early 1960s, there were enough instances of fires being caused by BX cable that we were forbidden to use it. My understanding and memory is that although the fibre bushings were used on either end, and although the electricians who installed it had cut the BX properly and installed the bushings properly (FIBRE as I said), eventually the fiber bushings would fail, the spiral armored cable would corrode so that the various turns of armor would no longer make contact with adjacent turns, turning the entire length into a spiral heating element if shorts occurred at BOTH ends.

I remember one place I was called in to repair in which the holes drilled through the joists and studs were charred from the BX.

> What was the mechanism by which the fires were caused?

See above.

> What is > different now that it does not cause fires?

Perhaps different insulation around the wires (ours was tarred paper), different materials, probably hard plastic, for bushings at each end (ours were fibre...compressed paper with glue, I recall), better insulation around the wires, better plating on the armor. etc. I dunno. I haven't seen any new BX cable lately, so I can't compare.

And Montana doesn't have rats....at least not in houses...

>
> Just trying to learn, > Scott

Sure. Me too. Ken W7EKB

From woodrat@citynet.net Mon Jan 6 23:48:09 2003
Subject: [R-390] Installing replacement PTO

I have just acquired a replacement Cosmos PTO. I have no real information about it, other than it "was removed from a working receiver". Is there a mechanical way to determine if it is set at (or near) 2455 khz? The oldham coupler on the PTO was "unrestrained", i.e., not taped to prevent rotation, etc. Thanks, Larry

From Richard.McClung@Dielectric.spx.com Tue Jan 7 00:06:51 2003
Subject: [R-390] RE:zzzzzzzzt, POOF!

Ahhh..... I long for the old cotton covered wire and porcelain china insulators. That makes it easier to make temporary clandestine antennas to receive instructions from control on my R-390(*) that is hidden in the 'whine' cellar. I've still got plenty of the old real copper pennies to use for fuses too..... RICH @B> }

From polaraligned" <polaraligned@earthlink.net Tue Jan 7 00:06:07 2003
Subject: [R-390] Installing replacement PTO

Forget it. You are going to have to put it in the radio and set it. Even if I set my PTO at a certain value and shipped it to you it would not be aligned to your set. It is very easy to do with a frequency counter, but in a bind you can set the PTO by shooting for maximum output when tuned to a local station. See the Y2K manual for setup instructions. Scott

From courir26@yahoo.com Tue Jan 7 00:15:54 2003
Subject: [R-390] Installing replacement PTO

Larry, You are wise to be cautious. The PTO can be damaged if it installed improperly. The PTO has a end to end range of about 16 turns if I recall. The "ten turn" stop has a range of 10.7 turns. So as long as you set the PTO up reasonably close to the logical starting point, +/- one turn you will be safe.

If you have another receiver you can listen for the PTO signal.

Hookup the electrical connector and turn on your 390A. Set your second receiver to 3455 kcs (BFO ON) and listen for your PTO signal as you turn the PTO dial a little left or right. 3455 will be about three turns clockwise from the counterclockwise stop (don't be too rough with the stops). 3455 corresponds to the low end of the range, 2455 is the high end (it goes down as you tune up, in other words).

Tune around and listen and you should hear the signal. If you don't hear it you can rig a "transmit antenna" onto the MB connector on the PTO for more signal.

Of course you could read it with a freq counter if you have one.

Once you have the PTO set to 3455, set the 390A dial to 000 (i.e. the low end) and hook up your PTO as best the coupler allows you to.

You can then tune to a local AM station of known frequency and check to make sure it is set up properly. If you don't want to mess with the second receiver, you can use the local AM station but you'd need to be reasonably close in the initial setup so that the RF deck is cooperating with the PTO. Again, set it up about three turns from the counterclockwise stop (so when you tune up you know you won't be hitting a stop in the PTO), install it in the 390A with the dial at 000, and then check it all against a local AMer. Cheers Tom N5OFF

From bill.riches@verizon.net Tue Jan 7 00:17:07 2003
Subject: [R-390] RE:

> > As I understand it, BX is required under the NYC code in order to > prevent > > rats from eating the insulation and causing fires. > > > > Jim
> >
> Interesting - I have some romex feeds to cable tv equipment in outside wooden boxes at a local campground. As long at the boxes are squirrel tight - no problems - when there is a hole that a squirrel can squeeze through and make a home inside the box she will eat the insulation and leave the bare conductors showing. No fires or blown fuses or circuit breakers but interestingly no blown up squirrels either! Regards, Bill Riches dB Electronics Cape May, NJ

From Llgpt@aol.com Tue Jan 7 00:29:45 2003
Subject: [R-390] RE:zzzzzzzzt, POOF!

Answer the question Joe.....How "OLD" are you????? hehehehehehehehe Les

From redmenaced@yahoo.com Tue Jan 7 00:32:19 2003
Subject: [R-390] Some progress

Same up here, Cec,

I still use copper for industrial, especially where heat or big loads may be a problem, but all overhead stuff is aluminum, also factor in the weight, 750 copper being VERY heavy.

Now, the West Coast may have different problems due to the almost constant west winds off the sea, this may be a concern several miles inland, too. The same not considered on the East Coast, maybe not on the "South" Coast either. North Coast, of course, more problems with ICE loading! Joe

From ham@cq.nu Tue Jan 7 00:58:35 2003
Subject: [R-390] Caps?

Hi, Digikey (www.digikey.com) has some parts that will work ok Bob Camp KB8TQ

From wwarren1@nc.rr.com Tue Jan 7 02:04:54 2003
Subject: [R-390] R390A tapes, Rohn tower

FS: Chuch Rippel's R390A Video tapes, Parts 1-4, plus the R390A Addendum Videos, Parts 1-2, plus the Collins Amateur Radio Equipment Video Spotter's Guide, $110 shipped PP within the US. Rohn 45G fold over tower, 67 feet plus extra 10 foot section, small prop pitch motor rotator, many extras, $2,500, NC pickup, write for list and details Tom, W4PG wtw@rti.org

From r.tetrault@attbi.com Tue Jan 7 02:32:10 2003
Subject: [R-390] RE:zzzzzzzzt, POOF!

Yeah, I go to a summer house in Greensboro, Vermont that has every kind of wiring known to man. Knob and tube and screw-in pennies, er fuses, right up to rigid conduit and breakers. Like an industrial museum. Drinking water out of the lake. No TV, no insulation, heck, no walls to speak of, just framing and siding. See it all. One non-family renter rented it for a week and stayed one night, complaining of fire hazard. Musta scared 'em to look at them kanobs & toobs and fabric covered whar. Cost 'em $700 for one night. Bob

From redmenaced@yahoo.com Tue Jan 7 02:35:49 2003
Subject: [R-390] Some progress

--- Helmut Usbeck <vze2gmp4@verizon.net> wrote: > Sorry, Joe. Aluminium is a metaloid. It doesn't > possess the > chemical or electrical properties of a metal, e.g. > iron, copper, tin, > mercury. Bowled me over when I found out. Machined > this stuff for years > and didn't know. I had my hands on some pure > aluminium ingot years ago. > Very grainy like iron and will crumble in your hands > when squeezed. > Strange stuff without a little copper added. > Explains some of it's > different properties.
++++++++
ARGH!~ No, you are wrong. Someone has read the Table of the Elephants incorrectly! The dividing line at that point is almost diagonal, separating Al, Sn (tin), and Pb (lead), from such things as Boron, Carbon, Phosphorous, Arsenic, and Chlorine.

Where's Barry,..... no, not that one,..... no, the other one,..... Dr. Ornitz to the chatroom, Dr. Ornitz? Joe

From gwmoore@moorefelines.com Tue Jan 7 02:44:24 2003
Subject: [R-390] RE:

It's called "armored cable", OR, if you just want the outside, Greenfield conduit. Leastways I have been calling it that these many years, BX went through some changes. First it was the form described by Joe, with the Paper insulation/filler. It went through some permutations of cloth, and other stuff before it wound up with the THHN. The original "Ground" was the jacket. Then, it was a miniscule (20 or more ga) aluminum wire, or a tinned copper wire. None of these "bonds" were terminated at the main junction box, they usually were (as were the original romex grounds) wrapped around the metal jacket and stuffed into the fitting, or like romex of the time, doubled back over and grounded to the clamp screw. Of course, the panel itself morphed, from no ground other than the service neutral, to a water pipe bond, to having the neutral and bonds on the same bus bar, to (now) having the grounding bonds on a separate bus bar. There was, in the late '70's a weird period that I would just as soon forget, when some codes wanted you to bring all the bonds back out of the panel, (yes, it was ok to bend romex bonds back over, and bx bonds the same way, wind them together, and terminate them all in either a bug, to a ground cable, leading to the rods, or a huge lug. It was really unsafe, as there was no way that one could

guarantee that they all were, indeed, grounded, or any way to service this mess easily. I was glad to see that go away, but there are still huge amounts of trash wiring out there.

Now, I did my whole basement in conduit. It looks neat, protects forever, and is easily serviced. Besides, my shack is there, and I have a 60A load center feeding that separately, which can be shut off, of course, by a safety switch outside the shack, or with a breaker at the main panel. 73 de Greg WA3IVX

From ham@cq.nu Tue Jan 7 03:13:26 2003
Subject: [R-390] Some progress

Hmmmm, A technobabble question from the R-390 list I could check out with:
a) My wife the chemist
b) My sister the chemical engineer
c) My brother in law(s) (no not that one, the other couple over there) the chemical engineer(s) or I could just go out in the back yard and beat my head against a nice snowy tree.

Hmmm, which sounds like more fun ..... have to think on that

Yes aluminum is a metal just like copper and iron and lead. In it's pure form it is a nice silver color and a bit softer than most of the aluminum alloys you see used. It bends and forms just like any other metal. Like most metals to make it stronger you mix it up with other metals like zinc, copper, magnesium, and the like.
Long time ago aluminum was a bit more expensive than gold. Anything made from a solid chunk of it was *rare*. If they had eBay back in the 1800's aluminum scams would have been a prime auction item. A guy with the odd name of Napoleon III had a plate made out of aluminum. He would have been the guy that bid up the all the eBay aluminum auctions (trust me on this).

Then things changed. Seems a while back the Army had a need to build the largest Air Force (or was it an Air Corps ..) that the world has ever seen. Made most all of it out of aluminum. Did it in a big hurry. Set up more darn aluminum smelters than you can imagine. Once we changed our minds about needing a great big Air Force we chopped it all up and turned it in to fry pans. Didn't do much for the price of aluminum. Sure made a B-26 a lot harder to find NOS.

Net result was that we suddenly had a very cheap material to make neat stuff out of. There was a ton of scrap on the market and all those smelters still running full bore. Aluminum went into everything. They even started using it in things like R-390's. Ever see a R-390 (not the 391 mind you) in a application that required it be very light weight? They used the aluminum because it was cheap and strong. Probably was a P-47 before it was a R-390 ....

Odd thing - we weren't the only ones going aluminum crazy. Seems Joe Stalin had a thing for aluminum. He had a few other problems as well. They set up quotas on just exactly how many pounds of aluminum they would make and a nice cozy place for you to rest up if you didn't make that many pounds. Lots of snow covered trees to bang your head against ... Any way - since the quota was only on the pounds and not on the purity they started to cut corners. If you stop the smelting process a bit early you get a chunk of stuff that is mostly aluminum. The other part of it is crud. The crud makes it flake apart in your hands. So there we have it - we have a commie aluminum ingot fondler in our midst !!!!! Take Care! Bob Camp KB8TQ

From w5or@comcast.net Tue Jan 7 03:43:15 2003
Subject: [R-390] Reminder

Don Reaves R-390 list administrator <mailto:r-390-admin@mailman.qth.net>
Rules:
1. Stay on topic
2. Be civil and courteous

From jbrannig@optonline.net Tue Jan 7 03:50:22 2003
Subject: [R-390] Caps?

Yup, Thank you. I checked on-line and in a catalogue. The closest I could find was .01 @ 1KV

I did not look hard enuf..... and thanks to all the others.....I am "making a list" for Mouser, so will add these to it and keep the other sources on file. Jim

From djmerz@3-cities.com Tue Jan 7 04:17:57 2003
Subject: [R-390] Some progress

Hi, aluminum, it's a metal, possesses free electrons like all metals which accounts for its very high electrical conductivity - and why it's attractive for wiring in the first place. Too bad it forms a coherent non-conducting oxide so easily - bad for junction contact - good protection for keeping it looking nice when anodized (nice oxide coating). If only it formed a conducting oxide like silver does - then you'd have something. Metalloids are elements that act as metals and non-metals chemically, not necessarily having the usual metallic luster associated with metals, and can form compounds with both metals and non-metals. Maybe US Steel scientists called it a metalloid. Like most metals, except the noble ones, it started out as dirt and wants to get back there. It makes great chassis material for 390a and non-a 's. Dan.

From polaraligned" <polaraligned@earthlink.net Tue Jan 7 12:11:52 2003
Subject: [R-390] Some progress

> attractive for wiring in the first place. Too bad it forms a coherent > non-conducting oxide so easily - bad for junction contact > Dan.

I am suprised they did not use thin stainless for a "no holds barred" receiver. I'll bet the aluminum has caused a lot of strange problems in the past such as ground loops, etc because of the formation of aluminum oxide. That is why I treated all my grounds. The best built radio I ever worked on was a Atwater Kent 55c which was built in 1929. It had a stainless chassis and was made like a work of art. The chassis cleaned up to almost a chrome plate look. Too bad the radio is not a performer....It is just a TRF unit in the days before commercial heterodyne radios. Scott

From ham@cq.nu Tue Jan 7 12:30:00 2003
Subject: [R-390] Some progress

Hi, The common agreement against steel in a chassis is conductivity at RF. It turns out that the magnetic properties of steel force the RF current in to a very thin section of the surface. That added to the resistance of the material make for a problem. About the only way around that is a non magnetic steel alloy. That gets darn expensive. Take Care! Bob Camp KB8TQ

From jbrannig@optonline.net Tue Jan 7 13:09:40 2003
Subject: [R-390] PTO endpoints

My COSMOS PTO endpoints were long by 6.5 Kc. I attempted to reset them "by the book". It quickly became an exercise in futility. Trying to thread a tuning tool through the gears and into the hole behind the coil can was not going to work.... Finally, I pulled the PTO, set up a quick jig and connected it to a frequency counter. Many iterations later I got the endpoints down to 1.5 Kc. long. I may have to live with the 1.5 Kc. for a while. The top of the core seems to be broken. (I really can't get a good look at it through the front) The "junke box" has some cores that may fit the coil, but they are of unknown permeability. Has anyone else run into this problem? Jim

From K2CBY@aol.com Tue Jan 7 14:14:57 2003
Subject: [R-390] [R390] Field Change No. 7, R390A

In the process of overhauling and re-capping my R-390A I decided to change R702 from 56k to 220k per the Field Change 7 instructions. Following the overhaul, the sensitivity and S+N/N went west. To troubleshoot the problem, I consulted Chuck Rippel's notes of 12/24/2001 and measured the oscillator injection voltages at the cathodes of the respective 6C4 mixer stages. All was well until I got to the 3rd Mixer (pin 7 of V204) where the injection voltage as measured on my scope was only 1.5 v p-p rather than the 6 v p-p that Chuck called for in his note. I restored the 56k screen resistor and Presto! the injection voltage was back up to where it should be. The sensitivity went up and the noise dropped. Further research showed that with R702 = 220k the VFO screen voltage drops to about 30 volts while with 56k in the circuit it is nearly 70. A 6BA6 -- even one with robust gm -- a has difficulty oscillating under these conditions because the grid coupling capacitor is only 15 pf. By the way, the output waveform from the VFO was clean as a whistle viewed on a 75 MHz scope, so I doubt very much that the Field Change 7 mod was intended to eliminate harmonics. Miles, K2CBY

From bill.riches@verizon.net Tue Jan 7 14:31:59 2003
Subject: [R-390] PTO endpoints

> I may have to live with the 1.5 Kc. for a while. The top of the core > seems to be broken. (I really can't get a good look at it through the > front)
>
Hi Jim - If you are adventurous you can remove one turn or less from the coil - (the small one!!!) that will reduce the tuning range. I believe the procedure is on Chuck's website. 73, Bill WA2DVU

From jamesmiller20@worldnet.att.net Tue Jan 7 15:19:26 2003
Subject: [R-390] PTO endpoints

I just repaired a end point adj coil with similar broken screw slot. Opeen the PTO and remove the coil (help to the front by two screws). Use a Dremmel with the smallest cutoff disc available to cut a new "slot" in the end of the tuning shaft, then clip off the remaining old burr. At the same time you can remove a turn if you need to. Chances are someone tried to crank the coil all the way in, but couldn't get enough adjustment range, and broke the screwdriver slot. Jim N4BE

From djmerz@3-cities.com Tue Jan 7 16:05:32 2003

Subject: [R-390] PTO endpoints

Jim, I did about the same things you've done when I got my 390a and Cosmos. I ended up opening the pto and taking a turn off the coil - mine was about 8 khz long before I opened it. I don't know if I would have done it for 1.5 khz. George Rancourt convinced me to go ahead and dig into the pto and I never regretted doing it. This gadget is worth exploring if that's your cup of tea. There were detailed photos online of the insides of the unit which were very helpful. It's worked well for me since, Dan.

From djmerz@3-cities.com Tue Jan 7 15:59:07 2003
Subject: [R-390] Some progress

Scott, stainless steel is a very poor electrical conductor and heat conductor, on a scale of 1 to 10 for metals, its probably about as bad as a metal gets. If you want something to get hot, put a strip of stainless steel as a heat barrier between it and the heat sink. The AK 55 had an ordinary low carbon steel chassis with a good finish, probably enhanced by their drawing and cleanup procedures. I've seen examples that are badly rusted and pitted with time. Mine is in original condition with a dull, satin look that could be made bright with some aggressive cleaning. And it is a true marvel of metal working and fabrication, like the 390a very pleasing to see. Offhand, I can't think of a radio that used stainless steel for components or the chassis; it would have been expensive and difficult to form compared to ordinary steel and aluminum, and has poorer electrical and heat properties. Dan.

From jbrannig@optonline.net Tue Jan 7 16:12:34 2003
Subject: [R-390] PTO endpoints

Interesting idea. I just hope that the slug isn't fractured Thanks, Jim

From David_Wise@Phoenix.com Tue Jan 7 18:11:04 2003
Subject: [R-390] Some progress

> From: Cecil Acuff [mailto:chacuff@cableone.net] > and to my knowledge all of our service entrance cables are Aluminum > "Tri-Plex" which consists of two insulated conductors and one > bare...all [snip] > Cecil Acuff > > > ----- Original Message ----- > From: Bob Tetrault <r.tetrault@attbi.com> > > > I think there must be some regional error here Joe, as all > of my service > > entrances from the pole have been copper, even as late as 96. > > > > California and Oregon > > > > Bob

1959 house in Portland Oregon with overhead drop, and separate meter and panel.

I don't know about the conductors going from the drop cable to the meter, but the drop is Tri-Plex. It looks no different than any other overhead drop around here. The cable between meter and panel is aluminum, looks like giant Romex on the outside.

The drop hot wires are definitely aluminum. I had a loose hot a few years back and watched it being repaired. I don't know what the neutral is, but it's definitely not copper. I thought it was steel because it's load-bearing, but maybe it's that hard aluminum alloy Cecil mentions. 73, Dave Wise

From redmenaced@yahoo.com Tue Jan 7 18:16:20 2003
Subject: [R-390] Some progress

Yup, everything was copper plated before that. Joe

From drewmaster813@hotmail.com Tue Jan 7 18:37:00 2003
Subject: [R-390] Re: R-390 digest, Vol 1 #536 - 5 msgs

Bill Smith wrote: <snipped> >I have found a simple test with a VOM works well. Disconnect on end of a >suspect cap, and measure the resistance with the highest ohms scale. If >any >residual resistance shows on the scale, the cap is leaky. Disconnect the >probe, then reattach. If the cap shows a "kick" on the meter each time the >probe is attached, it can't hold the charge of the vom battery, and is >leaky. <snip>
That test will often work, but sometimes capacitors do not show appreciable leakage (or breakdown) unless tested at higher voltage. A more sensitive test is to use your VTVM or DVM set to the volts scale, in series with cap under test and a power supply of appropriate voltage (preferably the cap's rated voltage). The meter serves as a sensitive microammeter with a built-in current limiting resistance. To calculate a cap's leakage tested in this way, divide meter reading by meter's input resistance (typically 11 meg). A typical BBOD might show 100v reading with a 300v power supply. This works out to 9 uA leakage (with 200v across cap), and this cap would be removed post haste and sold on E-Pay to the highest bidding audiophool. If you want to get really picky, adjust the supply voltage so that the difference between it and the metereading equals cap's rated voltage. Heat the capacitor slightly (hairdryer) and watch leakage go through the roof! Shows what happens as the radio gets hot.

Modern plastic dielectric caps such as the higly esteemed Orange Drop will show no discernible reading, just a fluctuation of a few tenths of a volt positive and negative (power supply noise). Drew

From David_Wise@Phoenix.com Tue Jan 7 18:51:22 2003
Subject: [R-390] RE:

We should probably anchor this to the National Electric Code, if anyone has a recent copy. Mine is 1990.
Although I must confess I haven't cracked it open for at least five years, I remember that it makes a distinction between flexible conduit you populate with your own wires, and the premanufactured assembly that you cut to length and strip (aka BX). I believe the former is called Flexible Metal Conduit and the latter Armored Cable. FMC is permitted to function as the Equipment Grounding Conductor, but I think you can use a wire too if you want. I've seen AC on the shelf at the local big home improvement place but have never used it. For a given number and size of wires, it's much smaller than FMC, since you don't thread wires through it. As others have alluded, FMC or AC is required in some spots, such as going to a motor or other assembly that might vibrate, or be taken off its moorings for service. I used FMC+THHN from a box to my furnace. It passed inspection. 73, Dave Wise

From David_Wise@Phoenix.com Tue Jan 7 20:58:07 2003
Subject: [R-390] PTO endpoints

Since it's the endpoint coil and not the main one, linearity isn't important. You can use any slug that fits, and add or subtract turns to get the right adjustment range. You might even get away with this on the compensator coil, if it were damaged. 73, Dave Wise

From David_Wise@Phoenix.com Tue Jan 7 21:45:15 2003

Subject: [R-390] 6082's and regulators

Question: How stable is the R-390A?

Test setup: R-390A with ultra-regulated VFO filament, powered by external regulated B+ supply via the main B+ fuseholder, with SE-3 external BFO. Receiver driven by HP 608D at 20MHz. (Too much work to extricate the 8640B from the bench it's on.)

608D frequency set for a few hundred Hz beat note on its calibrator heterodyne output. SE-3 BFO set for almost the same note; actually a Hz or two off. SE-3 BFO set to the same "side" as the 608D calibrator, so generator drift affected both notes equally. Listening to 608D on one side of stereo headphones, SE-3 on the other. With one note in each ear, they beat together in my brain. I counted beats against a clock second hand while cranking the signal up and down, then the B+.

I could have run the two heterodynes into a scope in "add" mode and timed the envelope peaks and valleys against the graticule, but I didn't think of it until just now.

Signal from 3.5uV to 350mV (100dB). Result: About 5Hz.

B+ from 210V to 220V. Result: About 1Hz.

So the tuning is affected more by AGC than B+.

I did not measure the oscillators independently; this is a system result based on the combined effects of the 2nd and 3rd oscillators. They might both be drifting; if so, they drift almost exactly the same amount.
I did not check the first oscillator or the BFO. The BFO is undoubtedly more sensitive than any of the conversion oscillators, since its screen voltage changes. No R-390As were harmed in the course of this experiment. 73, Dave Wise

From jbrannig@optonline.net Tue Jan 7 22:10:46 2003
Subject: [R-390] RE: PTO endpoints

Thanks Roy, The notes will be helpful. I've repaired S-line PTO's, so I'm over the nervous part.

Dave Wise's note on the slug is good news.

The PTO will go on the back burner for now. The 3rd mixer on my deck was changed to a 6BE6, I'm going to put the 6C4 back in. Jim

From K2CBY@aol.com Tue Jan 7 23:04:48 2003
Subject: [R-390] PTO endpoints

I agree that adjusting the PTO endpoint trimmer coil is a pain in the neck using the manual procedure. There is an easier way to make the adjustment with the VFO in place and without removing the receiver front panel.
(1) Remove the VFO subchassis.
(2) Remove the screw cap covering the end point adjustment.
(3) Reinstall the VFO subchassis.

(4) With the entire receiver upside down on the bench, rest your longest, thinnest screwdriver against the outer edge of the gearbox plate and poke it through the access port from which you removed the screw. (Don't even try to thread it through the holes cut in the gearbox plates for this purpose.) It should just make it to the end of the slug screw.
(5) Make the endpoint adjustment.
(6) Remove the VFO subchassis.
(7) Replace the cap covering the end point adjustment access.
(8) Replace the VFO subassembly in the receiver. In making the adjustment I use a 3/32" screwdriver 8" long sold by True Value Hardware under the Master Mechanic label bearing stock nos 127-399 TS322. (If you have exceptional dexterity -- or luck -- and some means of holding the plug onto the end of the screwdriver, it may be possible to remove and replace the cover plug while leaving the VFO subchassis in situ, thus eliminating steps 1, 3 6 and 8 above.) Miles, K2CBY

From K2CBY@aol.com Tue Jan 7 23:10:06 2003
Subject: [R-390] [R390] PTO Endpoints

There is an error in my last note, the spec on the screwdriver is 3/32 x 8 inches NOT 3/16 x 8 inches. Miles, K2CBY

From jbrannig@optonline.net Tue Jan 7 23:46:57 2003
Subject: [R-390] PTO endpoints

It was a lot easier to pull the VFO, and attach a frequency counter. I put pencil marks on the oldham coupler and PTO body as reference points. wrote down the low frequency, counted ten turns, wrote down the high frequency, count down ten turns, set to marks, adjust coil. Repeat and adjust as necessary. When I was done, I set the counter dial to the calculated PTO frequency and reassembled. Final calibration can be done with the "ZERO SET" Jim

From DCrespy@aol.com Tue Jan 7 23:55:52 2003
Subject: [R-390] Reminder

Don, Thank you. I'd add a #3, or maybe a corollary to #2: -Avoid overquoting. Bandwidth and courtesy to digest users 73 Harry KG5LO:

From r.tetrault@attbi.com Wed Jan 8 00:14:55 2003
Subject: [R-390] 6082's and regulators

Excellent methodology, Dave. And, BTW, your 3DW7 was an elegant and powerful solution that truly saved a lot of BTU's.

From David_Wise@Phoenix.com Wed Jan 8 00:23:38 2003
Subject: [R-390] PTO endpoints

I can do the endpoints in situ, using a *very* short screwdriver which is actually the broken-off end of an old metal-tipped diddle stick. It was about two inches long and 1/4 inch diameter. The length has to be just right. Too long and you can't get it into position, too short and you can't grip

it to turn. There's not much leverage, so it's important that it has good grip and you have squeaky-clean, average- or small-sized fingers.
1. Tip the receiver onto its back.
2. Maneuver the screwdriver through the holes.
3. Loosen the cover screw. Use pliers on the screwdriver for leverage if necessary. You can also come in at an angle with a small, long, skinny screwdriver, but again, torque is limited.
4. Finagle it out of the way using another small, skinny screwdriver.
5. Adjust.
6. Fiddle the cover screw back into position.
7. Tighten. Yer done. 73, Dave Wise

From ham@cq.nu Wed Jan 8 01:03:18 2003
Subject: [R-390] 6082's and regulators

Hi, Hey, good data !!! Here's what I *think* is going on.

1) signal changes, drives AGC
2) AGC goes to the mixer tubes
3) Gain of the mixer tube changes
4) Input impedance of the mixer tube goes up as the gain drops
5) Oscillator load pulls

If that's the case then the next question would be which oscillator pulls the worst. I would bet on the PTO being the one that moves the most but that may only be crystal oscillator chauvinism (alarm alarm - day job creeping in to hobby echo - alarm alarm). Take Care! Bob Camp KB8TQ

From w5or@comcast.net Wed Jan 8 00:51:28 2003
Subject: [R-390] Reminder

Harry brings up a good point. Blind quotes of the message you are replying to isn't necessary. That is a holdover from ancient Internet days when responses to an email were far and few between and it was difficult or impossible to see the source post. It now annoys the heck out of the digest readers. So please put this request under the 'be courteous' heading. Use quoting like you would use DeOxit - sparingly. Sending one line replies to hundred line quotes is certainly going to attract attention from the floggers.

From Jim Shorney" <jshorney@inebraska.com Wed Jan 8 03:01:09 2003
Subject: [R-390] Reminder

Don Reaves W5OR wrote: >Use >quoting like you would use DeOxit - sparingly. Quoting etiquette from the world of usenet: http://web.presby.edu/%7ennqadmin/nnq/nquote.html

From davemed@davemed.com Wed Jan 8 03:15:16 2003
Subject: [r-390] Web Pageack up

Guys you will find the R-390 page now at: <http://davemed.com> Could not be simpler? Check it out and advise me of any problems Dave

From jamminpower@earthlink.net Wed Jan 8 15:20:53 2003
Subject: [R-390] OT: TMC FFR-3/FFR-35 Receivers

Anybody know where to find manuals/schematics for the TMC (Technical Materials Corporation) Navy receivers models FFR-3 or FFR-35? These are also known as the R-5007. Thanks in advance. Sorry for being off-topic. -- www.jamminpower.com James A. (Andy) Moorer

From tbigelow@pop.state.vt.us Wed Jan 8 16:10:41 2003
Subject: [R-390] RE:zzzzzzzzt, POOF!

Bob Tetrault wrote: > Yeah, I go to a summer house in Greensboro, Vermont that has every kind of > wiring known to man. Knob and tube and screw-in pennies, er fuses, right up > to rigid conduit and breakers..

Sounds a lot like my place when I bought it in '94, Bob! Well, except for the lake water part. My house did have breakers, yes - humungous things, 4 total. Too few? Well, when you consider the house had a whopping 7 outlets for 19 rooms, it's okay. And yes - it was almost all k-nob and tube, too. Electrician buddy (also a radiohead) rewired the place for me but we retained the nice exposed wiring in a couple places, both of which were wood paneled with matched lumber walls and ceilings. Summer kitchen area is one place, and the other is the carriage house (which is just a fancy name for garage and storage area). Sure looks nice, the original installer did an excellent job of it. I plan to rewire the basement of the carriage house and add more outlets throughout, but I'll leave the knob and tube on a separate breaker just because it's cool looking. House has a 200 amp service now, split into a 100 amp panel for the house and another for the radio room where the R-390 family lives. The only screw-in fuses here are in a couple of Collins transmitters I have, and I don't DARE stick a penny in them!

Electro-wizard friend told me that knob and tube is really quite safe as it requires a kamikaze mouse to chew through the insulation on one conductor, then chew through the other, them lay himself across the wires (screaming 'Banzai!'?). Apparently the problems arose when people added onto the wiring and didn't make good, solid contacts which resulted in loose connections that heated up. Then they started using that blown-in insulation too, which got damp and.....zzzzzt! Sure is purty stuff, though. Fires caused by woodstoves are what's in vogue up here though, so the renter would've been safe.

$700 for one night, huh? Must've been a transplant renting the place out. Most of us Vermonters aren't that err...clever. (-; Wonder how much I could get per night for an R-390-equipped room?? Roy can vouch for the fact that there is indeed plenty of R-390 and other radio content within. Stop by next time you come up through, Bob. I'm south of Greensboro a ways. Boomer, KA1KAQ

From David_Wise@Phoenix.com Wed Jan 8 17:14:55 2003
Subject: [R-390] 6082's and regulators

The short answer (to which I alluded in the final quote paragraph below) is that when a tube is operating, its interelectrode capacitances depend partly on the density of the electron stream. It gets really complicated for pentagrid converters: in some cases the capacitance is negative. Some radios (the Zenith Transoceanic is an example) deliberately introduce a small capacitive coupling between oscillator and mixer electrodes to neutralize it.

What continues to amaze me is how stable Collins managed to get it. Some serious design horsepower

there. 73, Dave Wise

From Miguel Bravo" <mbravoc@wanadoo.es Wed Jan 8 20:45:04 2003
Subject: [R-390] Recognition Slide kit 3

Hello all. I have found a smashed box with the following inscription: Department of the Navy. Office of Naval Research USN Special Devices Center Recognition Slide kit 3 ... Manufactured by Unet Color Labs. Inc.

After diving in the metal pile (believe it, I put myself in danger in such unstable place) I could recover up about 900 Restricted b/w 2x2 (1x1,5) slides (the box is numbered up to 1400). Each slide has, in the paper frame so it is not showed out, a number and a legend explaining the kind of ship, plane or u-boat.

justifying---Surely there are R-390() on board of some of those ships--:-)

All are just post WWII. I know it because some of the Russian ships are declared as Ex-German. The slides have a thin paper frame, laying between two crystal and kept together with black tape all around.

Can I get a list of those slides by number?. I would do one by myself but it is a long work. Regards Miguel Bravo Cartagena - Spain

From roy.morgan@nist.gov Wed Jan 8 20:56:34 2003
Subject: [R-390] Recognition Slide kit 3

Miguel Bravo wrote: >Hello all. > >I have found a smashed box with the following inscription: > >Department of the Navy. Office of Naval Research >USN Special Devices Center >Recognition Slide kit 3
Miguel Search the following web site and send someone there an email. They most likely have the set of slides you have a copy of, and may have the documentation that came with it, if any. Sets of slides such as yours were used in training ships personnel and aviators to recognize ships, aircraft and submarines of other nations.

Photographic Section

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805 KIDDER BREESE SE -- WASHINGTON NAVY YARD
WASHINGTON DC 20374-5060

<http://www.history.navy.mil/branches/nhcorg11.htm> Roy

From jamesmiller20@worldnet.att.net Wed Jan 8 22:37:10 2003
Subject: [R-390] Recognition Slide kit 3

Those would make good material for a terrific web site!!!!

From bob@cq.nu Thu Jan 9 01:13:27 2003
Subject: [R-390] Cleaning

Hi, Is on topic judged in relation to one's most recent posts ..... in that case I guess this is on topic.

We seem to spend a lot of time trying to figure out how to clean off gear trains. I just came across an official US Navy process from back in 1947. It *looks* like all the stuff is still available. You use:

Naphtha (70 to 72 degrees Baume)
99% Isopropyl Alcohol
Distilled water
Cleaning solution a mix of:
  30 liters distilled water (gulp)
  300 grams Oxalic acid tech grade
  3 liters Isopropyl Alcohol
  800 cc ammonium hydroxide
  200 cc alkamine (alkyl sulphate)
Rinse solution:
  2400 cc distilled water
  48 grams Orvus flakes (alkyl sulphate)

The process:
  two minutes in naphtha
  One minute in alcohol
  two minutes in cleaning solution
  one minute in rinse solution
  two minutes in distilled water
  one minute in fresh alcohol
  one minute in even fresher alcohol
  finally dry it with a hot air blower

Except for alkyl sulphate stuff it all sounds like pretty common stuff. I suspect it will clean the guck off of gear trains pretty well. It's even older than an R-390 so it's gotta be good !!! Also note - no I"m not going to ask for any more chemestry help from the associated hangers on around the house here. You are on your own for the alkyl stuff. Take Care! Bob Camp KB8TQ

From ToddRoberts2001@aol.com Thu Jan 9 05:17:32 2003
Subject: [R-390] Cleaning

I have had good luck cleaning a grungy R-390A RF Deck geartrain by soaking the whole works + counter dial in a large plastic tub of Kerosene for a few days, after removing the RF Transformers and slug racks. Do not allow Kerosene to come in contact with the small ceramic RF Trimmer caps in the RF Transformers - it can cause the rubber-like gasket material between the rotor and stator to swell up. I found that out the hard way! Best to keep the RF Transformers dry! Otherwise the Kerosene seems to be safe for all the other components in the RF Deck. The Kerosene removed the worst kind of dried-up grease and dirt+sand between the gears. I would periodically brush the gears and shafts and all the nooks and crannies with a stiff paint brush while the assembly was submerged in the Kerosene. After about 2 or 3 days of this I would remove the assembly and place it in another tub with a 32:1 mixture of Kerosene and Pennzoil SAE 75W-90 Synthetic gear lube. I would let it soak in this tub for another day then remove the assembly and place it on a clean towel in front of a dehumidifier for about a day. After the Kerosene evaporates there is a thin film of the synthetic oil left soaked into all the gears and bearings and all the works. The RF Deck looks brand new. Some people say not to use Kerosene as a solvent but it

is relatively safe to handle, is non-conductive, does not harm components (except the rubber gaskets in those small ceramic RF Trimmer Caps) and evaporates completely leaving no residue and all the parts looking shiny and new. Does this method sound OK? I wonder if anyone has used one of those automotive-type parts washers that recirculates a cleaning solvent? 73 Todd Roberts WD4NGG.

From osamu.hazawa@tel.co.jp Thu Jan 9 05:52:31 2003
Subject: [R-390] Meter Help!

Hello All, Does anybody have a pair of meters that could be parted with? I acquired an R390A, less meter, from Fair Radio. And I ordered the meters to SSN. But unfortunatelly, I was said the meter is sold out, in spite the meter is still on their web! I should have bought the meters first!!!!!! My R390A is on its restoring way but it won't have its eyes for ever! Any help or advice would be appreciated. ---------- Osamu "Sam" Hazawa

From jbrannig@optonline.net Wed Jan 8 23:02:41 2003
Subject: [R-390] More progress....

I pulled the RF deck (again) to look at the 6BE6 third mixer MOD. It took a while to work up a schematic as the area is very crowded with components. The rear panel "SM output" was off the grid of the 6BE6, so the take-off was at the second mixer output. The circuit is a standard mixer design. All the original parts remain and additional parts are there to power the screen grids of the 6BE6. I can't figure out the rational for changing the mixer. The circuit will be restored to the original 6C4 mixer..... More to follow.. Jim

From ham@cq.nu Thu Jan 9 11:08:17 2003
Subject: [R-390] Cleaning

Hi, I totally agree that kerosene is a good solvent. It seems to be a reasonable way to go for the gear clean process.

My only argument (this being the R-390 list after all ...) is with the thin film of stuff you seem to get after the cleaning process. Even if you don't put oil in the mix kerosene seems to leave a film.

The film acts as a dirt magnet. We shut off the class 100 clean room here at the West Redding R-390 palace a while back. The net result is a radio that I have to go back and touch up again in a year or two.

How about a kerosene and lube soak / clean followed by a quick alcohol dunk ? The alcohol should take off the film but not have enough time to soak into the split gears and take out the lube. Just a thought. Take Care! Bob Camp KB8TQ

From hankarn@pacbell.net Thu Jan 9 13:08:41 2003
Subject: [R-390] [Fwd: REF: FS R-388 Cover sets]

The R-388 top and bottom cover sets are now ready to ship. The top cover will have YOUR choice of the 388 J-3 or the 388A J-4 schematic on the underside. This has been silk screened onto adhesive

backing material along with a clear plastic overlay so you can mark and erase when working on the receiver. The covers do not have the tools or the tool holders. The holes are punched for the holders, if you can find them.

The covers have a very solid Gold alodine surface finish. I have orders from Barry, Jim, Tom and Rodney. I have 8 sets left.

First come first sold. The time to send money is "NOW" !! The set is $80.00 packed and shipped Domestic. International orders postage to be determined. Payment: Cash, Postal money order, Personal checks from known customers OK others to clear, Paypal, Bidpay.

Please specify desired schematic. J-3 or J-4 I also have extra schematics to apply to your covers at $17.50 each mailed. Peel off the backing and apply to any clean smooth surface. Spray surface with windex, apply schematic and then use a squeegee to smooth out the overlay and get the windex out from under. IT WILL STICK. Thanks, Hank KN6DI
Dan Arney c/o Global Pack & Mail 21315-R Saticoy St. Canoga Park, CA 91304-5685

From w5kp@direcway.com Thu Jan 9 12:41:22 2003
Subject: [R-390] Cleaning

Being a Navy formula, it was probably intended for shipboard use, although I think the naptha thing would be frowned on by the Damage Control Officer responsible for fire prevention. With a couple of minor exceptions (exterior saltwater washdown system, etc.) ALL water aboard a Navy ship is distilled as part of the steam plant operating process. Oil fired steam boilers require pure distilled water to operate, so a large capacity fresh water distilling plant is built into the system. Some of this water is saved aside for crew use, where it is carefully managed and restricted in its applications (thus the old term "Navy shower", which means a quick wet-down, turn off water, soap down, quick rinse, turn off water). Newer gas-turbine driven ships have a seperate fresh water distilling system for the same purpose. "Water Hours" is a dreaded term used aboard ship to describe water restrictions which allow use of distilled fresh water only during certain hours of the day. If you had the watch and missed your shower, tough bananas. Also, you don't dare cut it too close at the end of the advertised Water Hours time frame - if you are soaped down and ready to rinse, some fiendish and diabolical snipe might turn the water off just at that moment. The same snipe would sometimes cross up some valves and dump a little flavoring agent (fuel oil) into the fresh water tanks, making for a couple of weeks of nasty smelling and tasting water, thereby making himself a temporary outcast among his shipmates. OTOH, it still beat the hell out of taking a bath in a muddy foxhole using a helmet liner for a bathtub. :-) You can buy distilled water for about a dollar a gallon today, and I wouldn't be surprised if it cost dang near that much to produce it aboard ship if all the costs were figured in. Subject tie-in: we had six R-390A's and a dozen CV-591A's up in the radio shack on my first ship. They almost never broke. End of Navy Lore 101. 73, Jerry W5KP USN(Ret)

From DAVEINBHAM@aol.com Fri Jan 10 02:49:05 2003
Subject: [R-390] Vaguely on topic

Fellow r-390(A) drivers, I remember years ago seeing advertised in various radio periodicals a human powered radio set. Any of you older than me oldtimers have any data on them ? Anyone out there ever pedaled one while in military service ? Did the generator set put out AC or DC ? Would it be theoritically possible to power an R-390 with such a generator ? Regards, Dave

From pwokoun@hotmail.com Fri Jan 10 05:38:13 2003
Subject: [R-390] Cleaning

Just to bring you 'old salts' up to date, they're now installing reverse osmosis systems to replace the distilling plants, both surface and subs. Of course, that old navy formula would give the current EPA/haz mat monitor fits. The only things they carry today are probably the water and alcohol. But there are no gear trains onboard that need degreasing anymore. pete, KH6GRT

From _bobs@pacbell.net Fri Jan 10 07:43:02 2003
Subject: [R-390] Vaguely on topic

Dave, Interesting question. One horsepower equals approx 745 watts and I have seen test rigs (for endurance testing) where a human riding a bicycle-type generator/alternator (don't remember which) was able to run a small television set. I would estimate that output to be around 100 to 150 watts - or around 1/6 horsepower. The subject was only able to maintain television reception for a relatively short period of time before becoming too fatigued (a matter of only a few minutes). Don't remember what my R390A draws, but believe it is more than 150 watts - too lazy to disconnect and remove from rack :-)) I believe the R390 draws more current than a R390A.

Another problem would be the varying voltage depending upon the speed of the bicycle rider which would require a voltage regulation system. Sounds like it might be an interesting experiment. Bob

From w5kp@direcway.com Fri Jan 10 12:27:27 2003
Subject: [R-390] Cleaning

I definitely qualify as an old salt, Pete - retired from the Navy 22 years ago. Heck, I've probably wrung more salt water out of my socks than most people have sailed over, as the old saying goes. EPA rules do make a difference, I guess. They stocked 1,1,1 Trichloroethane in five gallon cans on my first ship. Nobody knew any better, they thought it was a safe alternative to carbon tetrachloride as a cleaning solvent. Ha.

BTW, I fixed my Line Level meter. It was easy to open (it's not one of the glowing types). The problem was an open 1180 ohm wire wound resistor. Bridged it with a 1200 ohm 1/8 watt carbon film type, works fine now. It's probably not perfectly calibrated any more, but it probably wasn't perfect before. Besides, it's just a VU meter. Thanks for the offer of help on it. 73, Jerry W5KP ex-KH6GQC

From whertel@cox.net Fri Jan 10 13:51:23 2003
Subject: [R-390] Cleaning

As my old sea-daddy was wont to say - "Snuffy, I've gargled more salt water than you've sailed on." True! I was a dry land sailer. Wayne - ex WA0DEB

From Llgpt@aol.com Fri Jan 10 14:06:43 2003
Subject: [R-390] Cleaning

Laughing.....I had almost forgotten that saying about the socks and salt water...thanks for the memory!! Les U.S. Navy BT2 1960-1964

From wb3akd@arrl.net Fri Jan 10 14:07:15 2003
Subject: [R-390] R-390 Related Activities

Mechanical Filters: Well, finally found a cost effective 8KHz filter for the -A and swapped it out. This offered the ded one for tinkering so messed around with some graphite (all kinds of blacl dust) and came up with a crude resistance soldering setup to open up the dead filter. As was explained on this list a while back, the wires were indeed broke, and the foam was real gummy.

Took the filter out and gently cleand the majority of the gunk off it, removed the paper and remains of the foam and cleand the sticky stuff out of the tube with IPA. Lined the tube with Kapton Tape, then took some newer foam and cut then wrapped it around the filter and put the whole thing back together. Swept it with the HP3336B with initially satisfactory results (no resonating capacitors on the filter so its pretty bumpy in the pass band right now, and I am not presently presenting the right impedance). Still, positive results so far. The plan is to sweep it some more with the proper terminations and then see about sealing it up after a little baking to remove the moisture. An interesting experiment.

390 swept alignment: Probably no news for most of you here but having done the "manual" IF alignment some time ago and having the sweeper hooked up, I muscled the 390 over to the bench and swept it. I found the shapes to be unsat so went through the procedure with the sweeper: Moved the LC pass bands over to where the crystal filter was centered then tweaked the shapes up a bit. Much nicer sound now. I am now fully sold on the sweept procedure. 73 Tom WB3AKD

From cbscott@ingr.com Fri Jan 10 14:37:02 2003
Subject: [R-390] OT: HP 200AB info wanted

Anyone know where I can find pictures and/or information for an HP 200AB audio signal generator? Thanks, Barry - N4BUQ

From wb3akd@arrl.net Fri Jan 10 16:04:09 2003
Subject: [R-390] R-390 Related Activities

Tom, Well, I used the HP 3336B which was far better than I expected for this purpose. Its a sweeping synthesizer that goes up to 20.9 MHz or so. There are 3 on the "E" for under 200. I have a couple of 8601A's but haven't tried them. I like being able to program the start and stop frequencies. Only problem with the 3336B is that the output does not go below about -72 dBm which is too high if you're driving the font end of the receiver. Additional attenuation is required but that is not too big a deal.

Procedure is here : http://www.r-390a.net/ST-32-152.pdf although I just winged it for now. I'll have to try this prcedure sometime as it was where I got the idea. 73 Tom WB3AKD

From cbscott@ingr.com Fri Jan 10 16:20:37 2003
Subject: [R-390] OT: HP 200AB info wanted

I've been pointed to a source for the info I was looking for. Thanks! Barry - N4BUQ

From Miguel Bravo" <mbravoc@wanadoo.es Sat Jan 11 00:48:49 2003

Subject: [R-390] R-390 Related Activities Will be interesting to see the new foam .... baked :-) Regards Miguel

From wb3akd@arrl.net Sat Jan 11 00:58:40 2003
Subject: Fw: [R-390] R-390 Related Activities

Durn, can;t seem to keep my "from" lines straight.

From root@al.tirevold.name Sat Jan 11 00:27:33 2003
Subject: [R-390] R390 BFO

Can anyone help Bill - My references do not show the individual pins.

From eberbari@indy.rr.com Sat Jan 11 01:43:46 2003
Subject: [R-390] Vaguely on topic

Remember the Goassamer Condor of human powered flight fame? This whole area of human performace measurements has been thoroughly researched by Paul MacCready. I think he has published data on human power perfomance. If you are really interested this problem this is where I would start. Ed, W9EJB

From keng@moscow.com Sat Jan 11 03:04:11 2003
Subject: [R-390] Vaguely on topic...human powered set.

> Fellow r-390(A) drivers, I remember years ago seeing advertised in various radio periodicals a human powered radio set. Any of you older than me oldtimers have any data on them ? Anyone out there ever pedaled one while in military service ? Did the generator set put out AC or DC ?

There were various sets over the years. AN/GRC-9 was the most easily available to hams. It was both AM and CW. Put out about 10 watts. Handcranked. I used one in the military. Not fun.

Also, the AN/GRC-109 which is CW only 10 - 15 watts output.

There are/were various other military and clandestine sets. In addition to handcranked, also wood fire powered (thermocouple), steam powered, water powered, bicycle powered.

I recently built a bicycle-gen using a GN-58 fastened to a special frame I made, driven by a Sears exercise bike with flywheel and free-wheel. I used this on Field Day last year. The bicycle made it MUCH easier than hand-cranking the same generator. Still very tiring. All these I mentioned are DC generators.
> Would it be theoritically possible to power an R-390 with > such a generator ?

For a VERY short time. There are 746 watts per horsepower. Adding in losses, for ease in calculation, figure 500 watts OUTPUT per horsepower. 150 watts would be, very roughly, about 1/4 HP then. IIRC, humans in excellent physical condition can put out about 1 HP maximum for a short period, but fatigue

very quickly. I think someone here mentioned Dr. Paul MacReady. His work on the subject of human power is definitive. Ken W7EKB

From DAVEINBHAM@aol.com Sat Jan 11 03:15:11 2003
Subject: [R-390] Man Powered R-390, Vaguely on topic

_bobs@pacbell.net writes: > Sounds like it might be an interesting experiment. Bob>

Bob, Actually, I did not think of this as an experiment. I think man powered radios exhisted as far back as WWII or maybe Korea. And remember every radio had tubes in it back then, none of that wimpy sand state stuff. On the other hand, maybe the damn thing never ever performed well in the field. It, like a lot of other stuff, was never intended to really do anything other than made a good profit for the manufacturer. Still, I am a bit puzzled that as many ex military types as we have on the R-390 net. apparently, none us ever drove, er pedaled, one of 'em. Kindest regards, Dave

From jbrannig@optonline.net Sat Jan 11 17:53:42 2003
Subject: [R-390] Alignment question

Hello All, I changed the 3rd mixer back to a 6C4, checked the mechanical alignment and am now warming up the URM-25 and R-390A. For the RF alignment the manual refers to using an electrical dummy load, a DA-121/U. This is not part of the URM-25 pack. Is this necessary or should I just use a 50ohm load? If it is necessary, does anyone have the values used in the dummy load? Jim

From stevehobensack@hotmail.com Sat Jan 11 20:24:59 2003
Subject: [R-390] human power

Bicycling out 100 watts is equivalent to peddling up a slight incline. Not easy sitting in the seat. .....Steve KJ8L

From stevehobensack@hotmail.com Sat Jan 11 20:48:14 2003
Subject: [R-390] bfo problem thanks

Many thanks to Ken Gordon, Dave keng , Walter Wilson, Bob Camp, Jim Brannigan , Ronald j deeter for responding to my bfo hum problem. All is fine now , it envolved many hours of toil and needless trouble shooting. I found a 6136 (6au6)in the IF cascade. I ignored it at first, thinking it was a 6ba6. I had severe agc problems plus bfo hum. It was kind of a waisted day but a learning experience. ......Steve....KJ8L

From glittle@awod.com Sat Jan 11 22:09:50 2003
Subject: [R-390] Alignment question

A google search for DA-121/u produces only three hits. The last is a thread from this reflector that shows how to build one. It consists of a 68 and a 100 Ohm resistom and is used as an impedance transformer. 73 Glenn WB4UIV

From ham@cq.nu Sat Jan 11 23:04:54 2003

Subject: [R-390] Alignment question

Hi, More or less the answer on the dummy load on the URM-25: Most signal generators are 50 ohm devices. That unfortunately can mean two different things. Either they are designed to run into a 50 ohm load -or- they are designed to run into a 50 ohm load AND they have a 50 ohm output impedance.

A Measurements model 80 is a good example of a generator that is set up to drive 50 ohms but does not provide a 50 ohm output impedance. You have to put a pad on the output to make it have a 50 ohm output impedance.

This turns out to be important for a rather odd reason. Changing a resistor in parallel with part of a tuned circuit probably will change the resonant frequency of that circuit. This was one of the things they used to teach everybody in school. Then along came Sputnik .....

In the case of the R-390 what the dummy load is doing is providing a match between the generator and the input of the radio. It's there to ensure that the radio is set up running out of the same impedance as the antenna distribution system it is connected to.

The next question obviously is - are you running a 120 ohm balanced antenna distribution system ? If so - WOW! - you need the dummy load. If not - join the club - you need something different.

Most of us these days seem to use 50 ohm single wire coax rather than 120 ohm balanced coax to hook things up. The 120 ohm balanced stuff is great and very useful it's just not what we use anymore.

In order to properly set up a R-390 for 50 ohm coax you need to strap the input of the radio or use a matching transformer. There are threads on each back in the archives.

Once the radio is more or less set up to run 50 ohms you then use a 50 ohm output impedance generator to align the radio. If you decide to set up for 75 ohms and use cable TV stuff then you need a 50 ohm to 75 ohm pad between the generator and the radio. Chuck's good old R390 videos explain all this (except for Sputnik) a lot better than I can. Hope that makes at least some sense . Enjoy! Bob Camp KB8TQ

From wwarren1@nc.rr.com Sun Jan 12 13:52:02 2003
Subject: [R-390] R-390 Related Activities

Tom, I'd sure like to hear more about your experience with aligning the 390A with the sweep generator. Moving the LC passbands over to the the crystal filter center frequency will not make a difference as to sound quality since presumably you mean the sound quality when listening to an AM or SSB signal in the 2, 4, 8, or 16kHz bandpass mode when the cryslal filter is not being used. HOWEVER, moving the LC passband to center on (say) the 8kHz filter and then fussing with the LC passband to get better passband symmetry throughout the whole IF strip indeed should make a good bit of difference. On one of Chuck's tapes (the ones I just sold), he talks about using an audio distortion analyzer on the output of the AF deck to then tune the IF-LC filters to then minimize the distortion. Presumably he is linearizing the phase response of the IF-LC-Mech Filter bandpass as best possible and thus reducing the distortion. My very limited experience is that there's lots of ripple (no pun intended with Chuck) (like 1.5-2.5dB) over the passband of the Mech Filters and I'm terrified to think what the phase response is through the IF strip. Not good is the first answer supported by the passband amplitude ripple.

So bottom line is that I'm interested in your experience with the sweep generator method of alignment. I'm just now getting my two 390A's (my pristine EAC'67 and a depot dog, mostly Motorola) up to

electrical specification (many, many capacitor, IF can, Mech Filter, and resistor replacements later) so that maybe I can take on some of the nuances of alignment. So far alignment has yielded over 23-25dB SNR (Roger Ruszkowski likes at least 20 dB) at 4 microvolts input over the entire 32mHz frequency range (oh well, the top two bands are a bit weaker, but who the heck listens to anything there anyhow?). Best, Tom, W4PG

From wb3akd@arrl.net Sun Jan 12 14:56:35 2003
Subject: [R-390] R-390 Related Activities

Tom, I have not swept my (A) yet, as the mechanical filters pretty much define the passband. I ressurrected an R-390 last fall and have been tinkering with it on and off over the past few months and that is the one I sweep aligned as the audio was not all that hot and I had used the CW alignement technique from the Tech Order. Once I set up the sweeper to check the bad 8KHz mech filter I had opened up and fixed, I just went ahead and checked the () while the sweeper was set up.

I must have messed up the CW alignment or else the procedure is just inadequate because even the shap of the xtal filter was pretty bad. I went ahead and adjusted the .1 pass band so it was symetrical (the capacitor on the top of Z501. Now, mind you, I was monitoring the IF output jack with the scope and not the Det output tha the ASA procedure calls for. That helps to get rid of the delay effects that cause multiple humps.
Anyway, once the xtal filter looked good, I went to the 2KHz position and started squeaking the transformers over the the same center frequency as the xtal filter. This meanse that I won't have to retune the receiver too much as I decrease the BW on a weak signal during operation.

After the 2 KHz was looking good, I widened the various BW and retweaked to keep the pass band centered and to keep the humps even. I basically just messed around 'til it looked good. Sounds much better now as there is less receiver induced distortion.

As for the (A), the mech filter by itself, definitely has a bumpy passband and some experimentation yesterday suggests that the external capacitors largely just resonate the end transducer coils. Adding the capacitors increased the amplitude, but did not significantly change the passband. Bumps look to be 2 dB or so, as you said. I have not muscled the (A) over to the Lab bench for sweeping but will do that soon as I am curious how the NIB 8KHz filter I put in there looks in situ with (presumably) all the right parts. One thing I am trying to do is evaluate the quality of the repair on the old filter befor I bake it out and seal it up without actually putting it back in the receiver. My guess is that with all the high Q resonators in a mechanical filter would make the phase response squirrel-ly and that would be good for increased audio distortion, although from listening to it either it is not all that bad, or my ears are not all that good. Given that the DF system version of the R-390(A) (whatever the designation is) changed out the Mechanical filter IF strip for an LC filter IF strip, my guess is that the phase distortion is certainly measureable, if you care that much.

Since the HP 3336B generator is GPIB controlable, I'll probably make some serious attempt to make a bunch of automated measurements on the pass bands in a few months or so after I clear all the backlog of other things and have time to do the software and calibrate the setup. An interesting science project, if nothing else. I'll post the response curves or links thereto, when it happens.

Probably more discussion than you were looking for. regards, Tom

From stevehobensack@hotmail.com Sun Jan 12 15:22:14 2003

Subject: [R-390] sweep alignment

What type/brand of sweep gen would be good? What is the hook-up? How would one install markers at 447 and 463kc? Thanks .....Steve....KJ8L

From jbrannig@optonline.net Sun Jan 12 15:52:03 2003
Subject: [R-390] Alignment question

Thanks to all, Glenn, I did find the schematic for the dummy load and Bob, the radio will be used with a 50 ohm system so I put the URM-25 50 ohm load in line, strapped the input connector and tuned it up.

Over all impression.
This R-390A was last aligned over 10 years ago. It sees fairly light use. Aligning the tuned circuits amounted to a "touch-up" as they were not far off. The biggest change was in the variable IF's and this was due to restoring the 6C4 third mixer. The most noticeable difference came from changing the audio coupling caps to .033's, the audio sounds much better.

While it is on the bench I will run through the alignment again, then add the CV-591 for a final test. I am going to compare the CV-591 vs. an Eldico SBA-1 and see which one goes back into the rack. Jim

From wb3akd@arrl.net Sun Jan 12 15:52:04 2003
Subject: [R-390] sweep alignment

Steve, I'm using an HP 3336B which is a synthesized level generator. This is a fairly smart box that allows you to set start and stop frequencies and its as dead on as you would ever need at 455. Also has a sawtooth output for driving the X-axis on the scope. I;s seen the for < 200 on the big "E". Paid $50 buck for mine at a hamfest, but if I keep the top cover on, it sometimes won;t boot. Havent figured out what that's about yet.

Down sides: Weird output connector (WECO) adaptor about 15 bucks at Trompeter. Minimum output level -72 dBm which means you need additional attenuators to get the level down to run the IF at max gain. Also has no internal mod source although will amplitude and phase modulate with external audio source.

Up side: GPIB compatible (if you're into automation): coverage from audio tol 21 MHz in teensy steps. Up to 60(?) MHz output on the back with no level control.

Can specify sweep range very precisely which is a big plus for sweeping IF's and filters etc.

A pretty $#/^-Hot tool from my point of view. I once used it to verify the sampling rate on an A/D converter. Took 256000 samples of 1KHz, did an FFT (that took a while) and then looked for which BIN the peak showed up in. Worked great and shut down the weenie that was trying blow up our test procedure.

Setup: 3336B (via attenuator) drives IF input (Alternately the antenna input but better to use IF input) at low level (keep from saturation the IF when in MCG mode at Max RF gain). Sweep output from 3336B drives X-axis of Tek 475 scope. IF output from Rx drives the V-axis of the scope. Sweep time of 10 ms for wide BW but need to drop it down to .1 sec for xtal filters. My two pence. 73 Tom WB3AKD

From ham@cq.nu Sun Jan 12 16:14:38 2003
Subject: [R-390] sweep alignment

Hi, Here's the basic problem with sweep alignment on the R-390 - you have to go *slow*. A number of people have given this a try and most of us oddly enough have used the 3336 or one of it's cousins. In this case passband ripple = narrow peaks in the filter = narrow band stuff in the filter = long time delay in the filter. It's the same reason you don't normally see mechanical filters in the IF of a FM radio.

The only way to be sure you are going slow enough is to keep slowing things down until the result doesn't change. Start with a sweep of just the passband. Don't worry about the entire filter response. Try something like 30 seconds for the 2 KHz filter and see what you get. Back it off to two minutes to be sure that the result is correct. From there you can speed it up to the point is begins to look weird.

Since you can't do anything about the response of the mechanical filters some of this may not be needed. The only thing you can do anything about is the tuned coils in the IF strip. You may be able to set them adequately with a sweep speed that does not properly display the response of the IF. Take Care! Bob Camp KB8TQ

From wb3akd@arrl.net Sun Jan 12 16:22:42 2003
Subject: [R-390] sweep alignment

Bob, What are you observing the output with? 73 Tom

From w5kp@direcway.com Sun Jan 12 18:42:29 2003
Subject: [R-390] R-390 Related Activities

Since the subject of sweeping receivers and filters has come up again, and at the risk of getting my typing hands severed at the wrist for mentioning this, I put my pet HP-3325A up for sale on that awful unmentionable place yesterday. Much like the 3336B, the 3325A is an outstanding sweeper up to 20 mHz if anyone wants to get into this test methodology. 73, Jerry W5KP

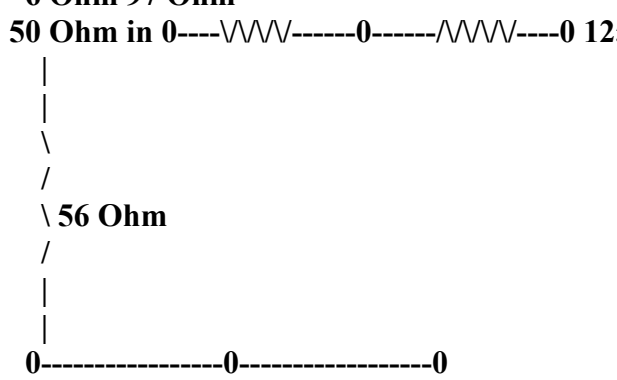
From ham@cq.nu Sun Jan 12 20:40:14 2003
Subject: [R-390] sweep alignment

Hi, When I went through this I just did it the easy way and hit it with a network analyzer. I forget the model but it's the one that goes to 11 MHz and then you switch the cables to get it to go to 22 MHz. If I remember correctly Dave Medley did it the same way. Later on I tried it with a 200 MHz network analyzer and ran into the same set of issues. Take Care! Bob Camp KB8TQ

From rodney_bunt@yahoo.com Mon Jan 13 00:58:06 2003
Subject: [R-390] Alignment question attenuator...

I built a 10:1 attenuator with 50 Ohm in an 125 Ohm out. So for any measurements just add -10db for attenuation in the "matcher".

Here is the circuit. 10 db Attenuator



Rodney VK2KTZ

From keng@moscow.com Mon Jan 13 01:29:17 2003
Subject: [R-390] sweep alignment

> Hi, > > Here's the basic problem with sweep alignment on the R-390 - you have to go > *slow*.

Rat own, as they say. I use a cheap B&K Sweep/Function generator and a Textronix 7000 series scope. I've used the sweeper method with several receivers and it is my method of choice to align them. I have not yet tried this method on a TRF, but I don't see how it can not work with that either. It will be interesting to see what I get with the TRF. As Bob says, the secret is to sweep VERY slowly. If your scope doesn't have a long persistence phosphor, set the scope brightness to as bright as you can and still have it in focus, and turn out the room lights. Use a flashlight or similar to see the adjustments. Ken Gordon W7EKB

From keng@moscow.com Mon Jan 13 01:45:23 2003
Subject: [R-390] sweep alignment

> What type/brand of sweep gen would be good? What is the hook-up? How would one > install markers at 447 and 463kc? Thanks .....Steve....KJ8L

I suppose you have had answers to this question by now, but I thought I might add my experiences with this method and make a few suggestions:

First of all, for 455 KHz IFs, I use a cheap B&K Sweep/Function generator, and an old Tektronix 7000 series scope. YMMV.

1) I connect the output of the sweeper to the input of the 1st mixer in single-conversion sets. In the R-390, you should connect it to the input of the mixer stage which feeds the IF strip.

2) Connect the sawtooth output of the sweep generator to the external horzontal input of the scope.
3) Connect the receiver's output (usually either the detector output or the 1st audio output) to the vertical input of the scope.

4) Set the SWEEP RATE of the sweep generator to as slowly as it will go.

5) Adjust sweep generator output level, receiver output levels, and scope controls to get as clear a visual representation of the IF passband as possible.

If the scope persistence is not very long, you will probably have to set the scope brightness to a fairly high level and turn out the room lights. You can use a small spot light or goose-neck desk lamp set to shine into the receiver so you can see what to adjust.

If your sweep generator puts out a triangle wave instead of a sawtooth, you will get a double mirror image of the IF passband. MOST modern sweep generators do a pretty good sawtooth.

Lastly, for markers, you will have to build or otherwise aquire either a crystal controlled oscillator with crystals for the two marker frequencies you want above, or an extremely accurate signal generator (HP-8640-B or similar) and connect it to the input of the first mixer stage simultaneously with the sweeper.

However, since the actual IF frequency is a function of either the crystal filter crystal frequency, or the mechanical filter center frequencies, crystal markers are kinda moot. Ken Gordon W7EKB

From lester.veenstra@lmco.com Mon Jan 13 13:04:52 2003
Subject: [R-390] sweep alignment

Or use a Sorage_Normalizer such as HP-8750 which digitizes a slow sweep XY signal and displays it as a fast sweep XY out to a scope. Les K1YCM/3

From cbscott@ingr.com Mon Jan 13 14:55:23 2003
Subject: [R-390] SSB Converters

List, I know there was a CV-157, but were there other "popular" converters designed for the R390[A]s? I have one of the solid-state jobbies, but was would like one of the companions of the era. If there were others, any comments about the differences and/or advantages/disadvantages of them? Thanks, Barry - N4BUQ

From RDavis24@carolina.rr.com Mon Jan 13 19:51:27 2003
Subject: [R-390] Resistors for the R-390A and beginner help

Hello, Im getting ready to start working on one of my R-390A's and im wondering if anyone has a part number list for all the resistors? Sure would save alot of time if someone had all the mouser numbers in a excel spreadsheet for all to use. I have a recap kit coming, but what is the deal on the resistors, does everyone just replace the bad ones, or is it worth it to replace them all. This radio is going to be home use rig and I want it to be in perfect shape. Got to get my a small tv/vcr for the shop so I can watch the videos while im working on the rig, my memory is not to good anymore hi. I have a nice Hammarlund HQ-170A with Hammarlund speaker that I would trade toward a R-390A or R-392? Anyone interested? Email for pics Thanks Ronnie KE4VPN

From jbrannig@optonline.net Mon Jan 13 20:54:05 2003

Subject: [R-390] Alignment Question

I'm getting down to the end of this phase.

I was going through the BFO neutralization procedure, by the book.
I could not detect any BFO output at the IF out connector, either on a 410C or a scope. There is a substantial BFO indication at the Diode load, so I tuned the cap. for minimum. Hmmmm, as I think about this, there was NO indication at the IF output (it was working) I'll hook up a CV-591 and see if I don't have a bigger problem Jim

From federico.baldi@virgilio.it Mon Jan 13 22:01:04 2003
Subject: [R-390] SSB Converters

Hi to all, in my shack I have a SSB Converter CV-1982/TSC-26 made by KAHN RESEARCH LABORATORIES, a very complex object with many nuvistors. This co nverter works well, but in my personal opinion an R-390A/URR, proper aligned and fitted with a diode bridge on the Diode Load on the rear terminal board, don't need an SSB converter. Federico

From roy.morgan@nist.gov Mon Jan 13 22:12:18 2003
Subject: [R-390] SSB Converters

federico.baldi@virgilio.it wrote: > in my personal opinion an R-390A/URR, proper aligned and >fitted with a diode bridge on the Diode Load on the rear terminal board, >don't need an SSB converter.

Federico, Please tell us how a diode bridge on the Diode Load connector helps receive SSB signals. I have not heard of this method. Thanks, Roy

From kurt.brandstetter@teleweb.at Mon Jan 13 22:14:54 2003
Subject: [R-390] SSB Converters Diode Bridge

Hello Federico ! Can you explain how the diode bridge should look ? Never heard about this ! TIA Kurt

From tarheel6@msn.com Tue Jan 14 01:02:48 2003
Subject: [R-390] SSB Converters

Fellow 390 Enthusiasts...
The diode bridge is sold by Rick Mish, and it has been written about in ER. It is also shown on page 89 of Viappiani's book (in Italian) about the 390A. If you don't have Viappiani's book, I recommend it. It has A LOT of good stuff. Of course it IS in Italian, but most of the circuits are in English. And those that aren't, I've been able to figure out what is going on.

The heart of this SSB module is a traditional bridge circuit of 4 diodes (probably 4148's). The (+) lead goes to term. 16, the ground on the R-390A. One AC leg goes to terminal 13 of the line audio out. The other AC leg has a 600 to 10K ohm resistor (just which value is chosen I don't know) in series with it, between the AC leg and teminal 10 of the line audio out. The (-) of the bridge is connected to terminal 4 of the AGC. All terminals are those found on the back of the R-390A.

I have a couple of these "modules" and have not found them to be any improvement over just using standard settings for listening to SSB on a R-390A. I've recently acquired a CV-591A, and the one I have isn't that much better either. Of course, YMMV. 73's, -tom

From courir26@yahoo.com Tue Jan 14 01:09:26 2003
Subject: [R-390] SSB Converters Diode Bridge

All you need is a $.99 Radio Shack full wave bridge rectifier. If you've got a junker power supply lying around, there is likely a capable bridge in it ready to use.

Refer to the back of the RS package. Route your line audio to the two AC inputs of the part, ground the + pin and wire the - pin to your AGC terminal.

When copying SSB, you simply crank in a little line audio to provide additional AGC action to the set. You may also wire in a little resistance to your liking.

When listening to AM, turn your line audio to min.

Elegant. Wish I'd have thunk of it.

Back in the day, some guy was charging good money for this Cracker Jack prize, selling it as a sophisticated gadget. 73 Tom

From r.tetrault@attbi.com Tue Jan 14 01:27:19 2003
Subject: [R-390] SSB Converters Diode Bridge

Mine will be offered only to discerning listeners, those who can recognize silver soldered joints and oxygen free copper, encapsulated with low dielectric constant potting epoxy, doo-dah, doo-dah, doo-dah... Bob

From ham@cq.nu Tue Jan 14 01:55:52 2003
Subject: [R-390] Resistors for the R-390A and beginner help

Hi, One important point about the carbon composition resistors - they never were in tolerance !!!!

It turns out that in order to properly check a carbon composition resistor you have to "stabilize it's moisture content". This used to involve baking them in an oven for a while to dry them out. This would tend to increase their resistance. If you left them in the oven to long they went out of tolerance on the high side.
The radio was designed with this kind of behavior in mind. The guys at Collins didn't know everything but they certainly knew about carbon composition resistors. I just wish they had figured out PTO's about three years earlier .... another story.

Any way except for the cathode bias resistors just about every resistor in the radio will do just fine at 1.5X it's original value. A lot of the resistors will do fine at 2X the marked value. It's not worth changing them out unless there is a voltage off somewhere in the radio. Simply changing out every resistor that measures more than 10% off from marked value is a good way to ruin a radio. You will do more damage to the radio than the improvement you will get from fixing something that isn't broken. Huff, puff. Hard

to stomp and shout so much late in the evening ..... Take Care! Bob Camp KB8TQ

From ezeran@concentric.net Tue Jan 14 02:04:39 2003
Subject: [R-390] Resistors for the R-390A and beginner help

.. In my experience with the above radios, the the resitors that have tended to be > > out of tolerance have been screen resistors, resistors in the plate > circuit, > > or cathode resistors, since they are usually carrying the most power.

Yes! That has been my experience when reworking WWII mil sets. Thats why I prowl the 'junk' boxes at swapmeets looking for 1 watt and above carbon resistors. Screen reistors seem o be the hardest hit.

Also, beware of "black beauty" capacitors. (or any wax/paper condenser) > Check > > some of the various restoration pages for a list of problem capacitors > that > > should be replaced immediately, such as ithe cap. that couples to the > > mechanical filters in the IF module.

Coupling and bypass caps are cheap especially compared to a non replaceable inductor.

And tighten all hardware, especially > > screws that mound tube sockets to the chassis. Repeated heating and > cooling > > cycles will cause them to loosen resulting in poor grounding over time.

I drill out the rivets, clean the mating surface with a Dremel, use Deoxit, then use a new rivet.

Do > > not spray bandswitches with contact cleaner or deoxit...

Get some of the long wooden handled industrial 'Q' tips then shave the end thin with a razor blade. You can spray the splint with Deoxit and use it to wet the switch contact. The polishing film used for fiber optic connectors works too.

From Jim Shorney" <jshorney@inebraska.com Tue Jan 14 02:22:27 2003
Subject: [R-390] Resistors for the R-390A and beginner help

Jim Miller wrote: >Do >> not spray bandswitches with contact cleaner or deoxit...

Don't even buy the spray. I learned my lesson about sprays when I smoked an HW101 mode switch in about 1976. I got deoxit in the needle-tip applicator bottle. It's been through several radios, a couple of stereos, and has been loaned to a friend, and the bottle is still about 90% full. The 390a _might take it down to 85%. Probably not. Jim Shorney

rom federico.baldi@virgilio.it Tue Jan 14 07:56:58 2003
Subject: [R-390] SSB Converters

Hi Friends, yesterday evening (late evening) I was in wrong when I spoke of Diode Load, but Tom here describe the scheme and connections of the diode bridge very well. In my experience (I put this little circuits on both my R-390A/URR) you mus set the receiver controls as follows:

Line Meter : + 10
Line Gain : 7-8

AGC : slow or medium
Bandwidth : 2, 1, 0.1 kHz as needed
BFO Pitch : as needed -/+ 1
BFO : on
RF GAIN : 10
Function : AGC
Local Gain : for desired volume

You must tune in an SSB signal, line level meter should read 50-75 on audio peaks, you can regulate Line Gain if you put Line Gain to 0 the adapter is turned off, in other words this has the same effect as remofing the ad apter from receiver. Try, no risk, very low cost, good results (you shall judge), you don't need to regulate RF Gain thereafter. In my personal opinion th e SSB converter is a nice object but don't add anything to the results that you can get with this circuits that worth 4 USD maximum (including your time). Federico P.S. : I agree with Tom an all.

From wwarren1@nc.rr.com Tue Jan 14 12:04:56 2003
Subject: [R-390] Resistors for the R-390A and beginner help

So Bob (actually, I'm serious), how about telling us about PTOs and Collins' troubles in getting them designed. I've seen one or two things, but haven't found the articles where the Collins boys talk about the drifting permeability of the iron oxide (or is it ferrite?) cores and the shrinking coil forms. Where is this all discussed.

It'd be nice to hear a bit more discourse on why the radio can stand a wider tolerance band than is specified. Except for about 7-10 places (excluding the very few resistors in parallel with an inductor) in the entire radio, you can measure all the resistors as if they were out of circuit. Seems to me that I actually lifted only one resistor in the IF deck to accurately measure its resistance. There are those 7-10 places where resistors are in parallel with the one you want to measure, and generally it's simple to do the parallel equivalent and measure that number. It's slightly more complex, but not much. The only resistor in the entire radio I really quake at replacing is a two-watter buried under the mech filter switch and up against one of the shields. Fortunately, that one wasn't bad in both my radios. Also in tight places, you can leave part of the old component lead then use a bit of 1/16" copper (copper, not brass, as copper is easier to solder) tubing (available from many hobby stores) as a sleeve to fit over the end of the new component and the old lead. Crimp on the end of the new component and solder in. Doesn't look too bad and serves the purpose. Others will suggest wicking the old solder from the original joint of the old component and resoldering that in addition. If more detail is needed, write me, and I'll find some old e-mail correspondence. Thanks, Tom, W4PG

PS: I'm currently working on a Progressitron and a Cosmos. Among other reasons, that's why I want to know.

From n1vbn@bit-net.com Tue Jan 14 15:53:11 2003
Subject: [R-390] Vaguely on topic Human Powered Radio

I know of one gentleman whose Wife in order to get him to exercise planted the stationary exercise bike in the den with a GM 35 amp alternator attached by one v-belt with a deep cycle battery for the alternator to charge. Mounted on the handlebars is a 7 inch color TV 12 vdc powered.7 mph generates around 15 amps according to him and he has lost 38 pounds since September. He finally got over the loss of the 27 inch console as he started to lose weight. He says it's much easier to drive the M-38 without the gut touching the steering wheel. James Shanks MVPA 23128

From cbscott@ingr.com Tue Jan 14 16:25:35 2003
Subject: [R-390] SSB Converters Diode Bridge

As long as I've been participating in this list, I don't recall this "add-on" being discussed. It sure seems like a cool thing to try and I plan to. I like "elegant" mods like this one... Barry - N4BUQ

From whertel@cox.net Tue Jan 14 17:35:59 2003
Subject: [R-390] SSB Converters Diode Bridge

Food for thought: Discussion has been about using common diodes, presumably silicon. I believe these have about a 0.6 volt drop across them. Would using germanium diodes, with a 0.1 volt drop, provide more sensitive control? Sounds like a project to try. Wayne H

From cbscott@ingr.com Tue Jan 14 17:39:52 2003
Subject: [R-390] SSB Converters Diode Bridge

I thought about the same thing. I was going with germaniums. Barry - N4BUQ

From courir26@yahoo.com Tue Jan 14 20:37:49 2003
Subject: [R-390] SSB Converters Diode Bridge

I believe there is sufficient line audio to use just about any diode. Tom

From lal@metrocast.net Tue Jan 14 21:27:04 2003
Subject: [R-390] SSB w/ Diode Bridge

Scott and all.. This afternoon I tried the Bridge system on both of my R-390A units. The results were okay. It seems to be a quick way to be able to receive SSB without going into the radio. The other Mod. (adding a couple of 1N4148 diodes) works much better with no fussing around adjusting things! Just my thoughts.. Merle W1GZS

From jbrannig@optonline.net Tue Jan 14 23:06:16 2003
Subject: [R-390] R-390A & CV-591

With the '390 humming along, I pulled the CV-591, replaced the paper caps and aligned it. (then went back in and found the wire I disconnected when pulling caps.) The CV-591 is working much better, but I am getting a lot of distortion on strong SSB signal peaks (and this is with the 15ft. shop wire) backing off the RF gain takes care of this, but that shouldn't be necessary except on the strongest signals. I added the Ripple 2 diode MOD. to the R-390A AGC circuit, so the R-390A attack time should be OK. Anyhow, I can't tell if the problem is in the R-390A or the CV-591.....

I'm looking for some subjective comments from CV-591 users. How does your CV-591 "play" with the R-390A? Are you experiencing SSB peak distortion? Thanks, Jim

From rodney_bunt@yahoo.com Tue Jan 14 23:05:57 2003
Subject: [R-390] Vaguely on topic Human Powered Radio - done before !!!

James its been done before in 1928 !!! In 1928, thanks to Alfred Treagar, a reliable and accessible form of communication was introduced -the pedal radio. The pedal radio was accompanied by a typewriter which translated letters into Morse code.

Once a doctor was contacted by radio, an emergency flight was organised. Flights were made in a small, open de Havilland DH 50 flown by Arthur Affleck, who was a pilot with the small bush airline, Queensland and Northern Territory Aerial Services Ltd (QANTAS)
http://www.antiqueradio.com/traeger_pedal_07-99.html

http://www.flyingdoctors.org/about/school_projects.html

http://www.flexi.net.au/~actiong/matilda_country/html_pages/cloncurry/cloncurryjohnflynn.html

http://www.westprint.com.au/Articles%20&%20Stories/traegar.htm Regards, Rodney VK2KTZ

From rickmurphy1001@earthlink.net Tue Jan 14 23:49:40 2003
Subject: [R-390] R390a - S.S.B.

Has anyone done the W3JHR Captain John Lee modification i.e. - Changing the bfo to a product detector using a 6BE6 ? It's suppose to fix all the SSB ailments and the AGC problem is addressed by adding a 1.0 mfd cap from pin 10 to ground on the AGC switch S107. January 68 CQ magazine. Richard

From Walter Wilson" <walter@r-390a.us Wed Jan 15 00:00:38 2003
Subject: [R-390] R390a - S.S.B.

I've worked on a unit that had that modification done. The unit I worked on had problems with the relay that must be added to the IF deck to make this thing work properly. There are several versions of the Capt. Lee mod, so look for the later ones if you plan to do it. It certainly falls into the category of not-easily-reversible modifications, which I tend to avoid. Walter Wilson - KK4DF

From Jim Shorney" <jshorney@inebraska.com Wed Jan 15 01:25:15 2003
Subject: [R-390] SSB Converters Diode Bridge

whertel@cox.net wrote: >Discussion has been about using common diodes, presumably silicon. I believe these have about a 0.6 volt drop across them. Would using germanium diodes, with a 0.1 volt drop, provide more sensitive control? Sounds like a project to try.

How about Schottkey or fast-recovery rectifiers? Jim

From tarheel6@msn.com Wed Jan 15 01:29:45 2003
Subject: [R-390] Viappiani R-390/390A Handbook... review & how to buy

Several list members wanted more info on the book and information on how they might buy the book. The following is submitted, with the kind help of John Poulton, in response to those requests.
The complete review by Michael Cristohl of the Viappiani R-390/R-390A Handbook is provided below. A few paragraphs down are instructions for ordering the book from Editrice Il Rostro di Patrizio Giovene & C., the publishers in Milano, Italy.

REVIEW: R-390/URR - R-390A/URR Handbook, Paolo Viappiana, Editrice Il Rostro by Michael Cristohl

Okay - what am I doing writing a review in English of a book written in Italian? To make matters worse I don't have much knowledge of the language either!

Well, first of all I would like to state that there is enough information taken from the various US Army TM11s, charts, diagrams and figures that know no linguistic boundaries to make the Handbook worthwhile to someone who does not have access to the official documentation. Of course, some degree of familiarity with the language would be a great asset here or a friend who can help.

The fact that a writer in Italy chose to write a book about a forty year-old US military and government radio receiver really intrigued me but it only backs up the claim that these radios are extremely good for listening to the portion of the spectrum they cover - 500 KHz to 32.000 MHz, AM and CW. Add-ons and circuit modifications will also make SSB signals intelligible but since most shortwave broadcasts are AM the receiver is popular among serious hobbyists who like to tinker with their equipment.

The Handbook contains 20 Capitolos (Chapters) and covers a lot of ground; ie: technical data, modifications, history, trivia, statistics, lore and legend about this receiver. Paolo's work covers "la famiglia 390" which includes the R-389, R-390, R-390A, R-391 and R-392 and the differences between them, particularly the R-390, R-390A R-725 and R-1247. It is very convenient to have block diagrams and tube lists of both receivers in one book if you are interested in both models. One of the things it conveys very nicely is that the R_390 and R-390A receivers are VERY different.

Paolo has included a detailed chart of contract numbers, contractors, years of manufacture and estimates how many were made in each contract. I am curious how accurate those production figures are, since Tom Marcotte, compiler of the on-line list has not publically speculated in the numbers, at least that I have seen.
As far as illustrations go, Paolo has borrowed liberally from the TMs and these are, of course, in English. There are mention of some of the officially modified models, such as with LSB and SSB, Diode Load output on the front panel and a whole chapter that lists the TM11s and NAVSHIPS manuals for all models and some sources for them. Also included is mention of the Boatanchors List on theporch.com and how to subscribe. There is a ten page bibliography or articles, mostly in English, with familiar and knowledgeable names like Kleronomos, Rippel, Langford that is extremely valuable and this compilation alone is well worth the price of the book.

I looked in the mods and did not see the very important C-553 mod to change the notorious Vitamin Q plate blocking capacitor on the plate of V501 (1st IF amplifier) to a .01/600V Sprague "Orange Drop" - cheap insurance on your four Collins mechanical filters recommended by Chuck Rippel. In fairness to the author it may be in there somewhere and my ignorance of his language must be forgiven if this is the case.
The book is available directly from the publisher - write them at: Editrice Il Rostro di Patrizio Giovene & C., 20155 Milano, Via Monte Generoso 8 Italy, or Fax: 02-2133869. They will mail you a copy,

enclosing an invoice for 35.000 Italian Lire which is about $25.00 US. You must pay in Lire which you can get from a bank or currency exchange.

From ham@cq.nu Wed Jan 15 01:43:15 2003
Subject: [R-390] Resistors for the R-390A and beginner help

Hi, Well we'll save the PTO stuff for another time. Most of it has been discussed here or in the magazines.
There the *theory* on the resistors:

First you grab your handy copy of Mil-Hbk-217 and look up reliability of carbon comp resistors. The interesting little note there mentions that the entire failure rate listed is for value change. Hmmm so if I can tolerate a larger value change I don't have to count the failures of the resistors in my MTBF calculation you say. That's what it says. Official DOD handbook, the note's been there forever and ever.

Next you dig back into the lore of carbon comp's and find that the values never did stay put very well.

This all in mind we take a look at some circuits: I started to do this in detail on the front end of the radio and it quickly got far more difficult to explain than it's probably worth. Here are a couple of examples:

The resistors off the AGC line going to the grids of the tubes form an attenuator with a ratio of say 80%. In other words one resistor is 1/5 the size of the other one and you get 8 volts on the grid for every 10 volts of AGC voltage. Let's say that one resistor is 270K and the other is 1.5 meg ohm. The ratio in this case should be 1500/(270+1500) = 0.85. If both resistors go up by 50% the ratio stays the same and nothing much happens. If only one goes up by 50% you get 1500/((270*1.5)+1500) = 0.79. That's not much of a change in the attenuator. Now you get about 7% less AGC voltage on the tube. Given that you will see >20% variation between new tubes 7% isn't going to hurt anything.

Next you have de-coupling resistors. They are the first thing off of the B+ line going to the screen or to the plate. Most of them only have a couple of volts drop under normal conditions. The B+ will vary by 20% or so as the line voltage swings. In order for any of the decoupling resistors to start messing up things they would have to increase their drop by say 30 or 40 volts. That's a lot of change for a resistor that starts out with a <10 volt drop on it.

Next up are the grid bias resistors. Most of them seem to be a meg or so. Since grid current should be darn near zero ua they should have < 1 volt on them. A doubling in the resistor *might* get them up to a volt on a good day. Go down to the tube store and ask for a set of tubes matched to < 1 volt on the grid. Have your American Express card ready :)

Now for the cathode bias resistors. These do set the stage current, especially on the triode stages. Cut down the current by a factor of two and the stage gain will drop a bit. Age the tube for a couple of years and the stage gain will do the same thing. Cutting the current here isn't a good thing but it happens anyway. The function of gain to resistor value is a little complex but at least you can say that the resistor has to more than double to cut the current in half. A perfectly normal set of tubes out of the same batch will spread 1.5:1 on idle current. Trying to get things any closer than this can be a pain. The audio guys go to a lot of trouble on that sort of thing.

I realize that does not cover every resistor in every circuit in the radio. It should give you a pretty good idea what is going on though. Let me know if any of it makes any sense.Take Care! Bob Camp KB8TQ

From ham@cq.nu Wed Jan 15 01:47:26 2003
Subject: [R-390] SSB Converters Diode Bridge

Hi, Germanium would not be a good idea here. The idea is to have a diode that goes high impedance when reverse biased and low impedance when forward biased. More or less you are using it like a switch rather than a detector. A germanium diode does not go as high impedance when reverse biased as a silicon part. If you have 1N4148's they should do just fine. Last time I saw them they cost less than a dime each. Take Care! Bob Camp KB8TQ

From wwarren1@nc.rr.com Wed Jan 15 02:02:53 2003
Subject: [R-390] Resistors for the R-390A and beginner help

Bob, Makes perfect sense. Now that I see where you're going, I'll take a serious look at a bunch of the circuits there and see if I can find any holes in your analysis. I suspect there are no holes.

I've been following the other compulsive types on this net (Nolan, where are you??) who replace the resistors if they're out of their reputed tolerance band. My Motorola IF deck had about 15 resistors out of spec (along with two dead mech filters, two IF cans with stuck slugs, and the usual capacitor replacements). My pristine EAC'67 is in much better shape, having replaced fewer than a half dozen resistors plus all the usual caps.

I'm glad you brought up this point about the design brilliance of the Collins boys in that drifting resistors don't bother the performance as much as I would have thought.

I'll look up MIL-HDBK-217 also. I think it's still around somewhere. Many thanks, Tom, W4PG

From DCrespy@aol.com Wed Jan 15 03:09:02 2003
Subject: [R-390] SSB Converters Diode Bridge

I have never tried this mod (Diode Bridge), so this is not the voice of experience: But it looks like this is just a way to make the AGC's rate of gain reduction variable. ie. you can make it more aggressive in reducing overall gain, by turning up the Line Gain control. It should do basically the same thing as turning down the RF Gain??

The 2 Diode Lankford mod actually changes the AGC to "fast attack, slow decay" specifically for SSB. (I HAVE tried this one with excellent results 3 times.) Comments? 73 Harry KG5LO SAline MI

From bill@iaxs.net Wed Jan 15 04:20:21 2003
Subject: [R-390] SSB Converters Diode Bridge

Not sure it is clear to everybody that the diode bridge to AGC is NOT an SSB converter in the same sense as a product detector and BFO. What it does is use the audio level to run the AGC to get better control of the audio volume level because there is no carrier for the original AM based AGC. You still have to tune the R390 very carefully for best reception. Regards, Bill Hawkins

From keng@moscow.com Wed Jan 15 05:02:14 2003
Subject: [R-390] Re:R390(A) - S.S.B.

Years ago, for a special project at the University of Idaho where I work, I added a fairly easily removed mod to an R-390 wherein I used 1/2 of the 12AX7 (IIRC) which fed the IF out to the jack on the back, as a triode product detector. The detector circuit I used, the same circuit used in Heathkit's SB/HW transceivers, actually looks more like an "infinite impedance detector" than a true product detector as such, since it seemed to work equally well for AM as for SSB. In any case, it was much quieter than the diode detector and was pretty effective. The mod took very few parts, worked quite well, and was easily removed if you wanted to.

I didn't bother with changing the AGC time constant. I just kept the RF gain down a bit, and ran the audio gain up.

I had used the same circuit back in the 1960s in another R-390 we were using as the receiver for 'phone patching for the troops in Vietnam and Thailand when I was in AFMARS, and in a BC-779 which I used for RTTY.

I've never liked the 6BE6 for anything since it is so noisy. The only mixer tube I know of which was noisier was the 6K8/12K8, but I think there are noisier tubes than those. Rambling..... Ken Gordon W7EKB

From krk@ix.netcom.com Wed Jan 15 06:34:07 2003
Subject: [R-390] Kit site notice

Hi, This is just an fyi to let those who may not know that I built a website to present information on Kits. It covers Heathkit, Allied Knight Kits, Eico, Precise, EMC and Paco.

My intention is to document by picture and specifications all of the kits offered by these companies. I am also going to try to document as much of the history of these two companies as I can. Why? Three reasons:
1. To help fellow hobbyists understand what may be available in the used market to enhance their enjoyment of their hobbies (and keep their 390's tuned).
2. Bring a tear while you remember that kit you built and still wish you had <g>.
3. As far as I can tell, it hasn't been done.
4. I'm crazy.

I would appreciate hearing comments both good and bad. If you have any material that you would like to contribute to the site, I'd be happy to include it.

The site address is: http://www.qsl.net/kb7rgg/ Hope you find it useful, Ken kb7rgg

From BRingwoo@csir.co.za Wed Jan 15 07:34:57 2003
Subject: [R-390] Re:R390(A) - S.S.B.

Hi, Someone put a 6BE6 in my set as an SSB detector - as far as I can tell its the Captain Lee mod. It can only be reversed with some difficulty, so I wouldn't do it nowadays. The set works well on SSB without any problems other than the carrier level meter calibration being way out. (too sensitive - Which, admittedly, may be a symptom of something else wrong.) Any noise from the 6BE6 is swamped

by aerial noise. I've only used 2-diode SSB detectors on home-made sets as a comparison. Can't tell the difference. - Bryce (apologies for long CSIR disclaimer - will attempt its removal.)

From eldim@worldnet.att.net Wed Jan 15 07:40:23 2003
Subject: [R-390] Viappiani R-390/390A Handbook... review & how to buy. Lira vs Euro?

HOLD ON! I thought Italy was on the EURO. Is the Lira still a valid currency? The book sounds "WONDERFUL"! I wonder if they have a WEB SITE? 73, Glen Galati KA7BOJ Tacoma, WA

From hbreuer@debitel.net Wed Jan 15 07:58:22 2003
Subject: [R-390] Viappiani R-390/390A Handbook... review & how to buy. Lira vs Euro?

That review appeared years ago on the list. Italy has the EURO since January 1, 2002 73 de Heinz DH2FA, KM5VT

From liber.fab@iol.it Wed Jan 15 11:15:51 2003
Subject: [R-390] Viappiani R-390/390A Handbook... review & how to buy. Lira vs Euro?

You have to pay in Euro, all the European currencies are gone... If you need further help please let me know, Fabio, I0LBE

From federico.baldi@virgilio.it Wed Jan 15 11:34:06 2003
Subject: [R-390] Viappiani R-390/390A Handbook... review & how to buy. Lira vs Euro?

Hi to all friends, all the Europe now employ EURO (?) : 1 ? =3D 1936.27 ol= d Liras more or less 1 USD. Federico

From ba.williams@charter.net Wed Jan 15 13:55:38 2003
Subject: [R-390] Viappiani R-390/390A Handbook... review & how to buy

The Lira is gone now. The cost will be something close to 25 Euros. The dollar took another nosedive a few days ago.

From lester.veenstra@lmco.com Wed Jan 15 14:26:10 2003
Subject: [R-390] SSB Converters Diode Bridge

Original Message-You still have to tune the R390 very carefully for best reception. Regards, Bill Hawkins
As you have to do in the case of any type of SSB reception that does not involve a detector that tracks or locks to an unsuppressed carrier. Les K1YCM/3

From BRingwoo@csir.co.za Wed Jan 15 14:59:29 2003
Subject: [R-390] SSB Converters Diode Bridge

Hi All, Following Lesters remarks, I was interested in the way a CV-591 tracks the SSB signal:

Many (not all) of the amateur SSB transmissions seem to have the carrier totally suppressed. Do units such as the CV-591 work well with all amateur SSB transmissions ? - I guess they must. The nearest thing I have is the sync detector on a SONY. That certainly doesn't work on SSB. Maybe a solid state CV-591 would be a great 2003 project. - Bryce

From lal@metrocast.net Wed Jan 15 15:16:00 2003
Subject: [R-390] Needed !

Hello to the list.. I am in need of a couple of items to finish up my R-390A I was unable to purchase these from either Fair Radio or American Trans Coil, if anyone on the list might have the following please let me know what you want for them and I will send along the funds ! The little cover for the terminals where the 110 volt power cord attaches The short cable that goes from the IF deck to the rear panel (about 6 inches long with the connectors on it.) Thanks for your help es 73 Merle W1GZS

From cbscott@ingr.com Wed Jan 15 15:23:19 2003
Subject: [R-390] Needed !

Check with Dave Medley for the AC power cover. He has a website, but I'm not sure what it has changed to lately. Barry - N4BUQ

From lester.veenstra@lmco.com Wed Jan 15 15:43:28 2003
Subject: [R-390] SSB Converters Diode Bridge

The answer is simple: The CV-591 does not track (With or without carrier). You have to tune the SSB with the receiver or with the CV-591 tuning.

From hankarn@pacbell.net Wed Jan 15 15:54:01 2003
Subject: [R-390] Needed !

I make the AC power covers. $7.50 Mailed. Hank KN6DI

From Richard.McClung@Dielectric.spx.com Wed Jan 15 17:25:23 2003
Subject: [R-390] SSB Converters Diode Bridge

The SSB Converter that tracks is the CV-157/U RICH @B> }

From jonandvalerieoldenburg@worldnet.att.net Wed Jan 15 17:57:58 2003
Subject: [R-390] SSB Converters Diode Bridge

The CV-157 tracks using an electro-mechanical mechcanism utizing a servomotor. There was an extensive article in either Hollowstate news, or Elctric Radio on this unit. Jon AB9AH

From drewmaster813@hotmail.com Wed Jan 15 22:23:43 2003
Subject: [R-390] Resistors, SSB

Hello all, I have found the 2 diode (Lankford) modification to be extremely effective for SSB reception on the R-390A. The addition of these diodes is not an alteration to the detector as some might suspect. Instead, diodes are used to shunt 2 AGC time constant determining resistors. The result is a short negative going time constant (fast attack) and the original positive going time constant (slow decay). Fast attack enables AGC to capture signal peaks and slow decay "remembers" (for a short time) those peaks so that gain is appropriate for future peaks. Result is a tolerable signal to BFO ratio at the detector (minimizes distortion). That time constant alteration accounts for most of the mod's effectiveness.

The Lankford modification also increases BFO coupling cap for more injection, and adds capacitance to AGC line. The mod works well without these capacitor changes.

For good AGC action on all modes using medium and slow AGC switch settings verify that the 2 uF oil filled AGC cap is not electrically leaky.

On replacing leaded caps/resistors in those crowded spaces: Trying to undo the connection from a tube socket pin or other terminal often does damage. Cutting out old component leaving a stub at the terminal and splicing in new component using small copper tubing sleeves was a good suggestion. Alternatively, the new component's leads can be coiled using a piece of the old component's lead as a form, and these coils slipped over the aforementioned stubs and soldered. This works especially well if new component has smaller diameter leads than old. Such would be the case when using 1/4 watt carbon film or metal film resistors to replace old 1/2 watt units (calculate dissipation to determine suitability of replacement).
Unless they're cooked, leave those 2.2K decoupling resistors alone. As Bob pointed out, the variation in voltage drop across these (due to drifting out of tolerance) is miniscule compared to changes brought about by line voltage variation and normal gm tolerance range of tubes. Of more importance would be screen and cathode resistor values. For IF stages after "mechanism a philharmonic" (that funky fractured translation of "mechanical filter"), resistor values become less critical. This is because that section of the IF chain has much more gain than needed and we reduce it anyway by tweaking IF gain pot for best S+N/N ratio. Drew

From egirland@tiscalinet.it Wed Jan 15 23:29:55 2003
Subject: R: [R-390] Viappiani R-390/390A Handbook... review & how to buy

The book also includes an interesting appendix by Marco Bruno (IK1ODO) reporting many performance measures of the R-390A. ciao Emanuele Girlando (IW1DHI)

From rickmurphy1001@earthlink.net Thu Jan 16 00:06:27 2003
Subject: [R-390] T- 401

What is the proper way to align T-401? I peaked mine at 22mc with a DVM between e210 and ground with the function switch in standby. Then peaked all trimmers on the module at their appropriate frequency. Richard

From ham@cq.nu Thu Jan 16 02:45:06 2003
Subject: [R-390] T- 401

Hi, That's been a debate here for as long as there has been a list. A few things people agree on:

1) Don't touch it after you have started peaking trimmers
2) If you run out of range on the trimmers moving T401 may help
3) If all the trimmers are in range (not at max or min) then there may be room to fiddle T401

At that point the best advice is to peak it for your least sensitive band *if* you can do that and still keep all the trimmers in range. Take Care! Bob Camp KB8TQ

From w5or@comcast.net Thu Jan 16 03:03:30 2003
Subject: [R-390] Viappiani R-390/390A Handbook... review & how to buy

Coincidence? There is a picture of Mr. Viappiani and some of his receivers in this month's Electric Radio. Page 33. R-389, too. Says Paolo is a professional audio engineer and longtime SWL'er. Anybody on this list speak Italian?

From BRingwoo@csir.co.za Thu Jan 16 07:59:26 2003
Subject: [R-390] SSB Converters Diode Bridge

Hi all, Thanks for all the replies and for resolving my confusion over CV-591s, 571s etc. Alas, my chances of picking up either of these units are poor plus XYL freaks if I bring large grey boxes into the house. I have a circuit for a Marconi SSB detector using servomotors, and have some small 2 phase motors so I'm tempted. I imagine the audio quality would be the same as normal AM. These days I take for ever to complete a project though...Bryce

From ba.williams@charter.net Thu Jan 16 14:03:27 2003
Subject: [R-390] Resistors, SSB

> On replacing leaded caps/resistors in those crowded spaces: Trying to undo > the connection from a tube socket pin or other terminal often does damage. > Cutting out old component leaving a stub at the terminal and splicing in new

Drew, The copper tubing sleeve idea seems interesting.

When I was recapping a Fisher receiver a few of the new parts did not have leads long enough to reach the original terminals. I have a thicker piece of wire on the bench for wrapping lead wires around. I make about 4 good coils on the ends of the new part, squeeze the coils tightly together with needle noses, and slip the coils over the original wires. Then, once the fit looks good, I crimp the coils over the original wire before soldering.

When I replaced old caps in a Bogen amp I had a few places where new caps were not long enough. I had some places where I could solder in a terminal strip to the chassis. I used those to tie in original wires to the strip and then attach the new parts. I like this approach better than splicing. Barry

From cbscott@ingr.com Thu Jan 16 15:39:27 2003
Subject: [R-390] Front panel silk-screening

Anyone know where I can get just the backside of some panels silkscreened? These are engraved panels and I plan to have them powder-coated and then the backsides silkscreened. I found one place that will do it, but they charge the same to do the back as they do to completely refinish the panel. I was hoping to find a place that would do just the back and price accordingly. Thanks, Barry - N4BUQ

From egirland@tiscalinet.it Thu Jan 16 23:03:47 2003
Subject: R: [R-390] Viappiani R-390/390A Handbook... review & how to buy

YUP! I speak italian. ..muble .. muble ... I AM ITALIAN!! I am based in Torino and I personally know Marco Bruno (IK1ODO) , one of the co-author of the book. I am not pleased to know Mr. Viappiani. Emanuele Girlando (IW1DHI) http://space.tin.it/clubnet/egirland/ mirror at http://www.qsl.net/iw1dhi/

From jbrannig@optonline.net Thu Jan 16 23:13:18 2003
Subject: [R-390] T- 401

The Rippel site says to peak all crystal trimmers, then peak T-401 at 10Mc. (as a compromise) Jim

From jbrannig@optonline.net Fri Jan 17 00:05:15 2003
Subject: [R-390] CV-591

Thanks for the comments on the CV-591 and the R-390A. The CV-591 was swapped for an SBA-1 and most of the SSB peak distortion went away. So I dug into the AGC and IF AMP. circuits on the CV-591, replaced a few components and now it is "playing" much better. There is a 10mfd. oil filled CAP in the audio circuit that might also need replacing.

This is the first time that I used the Eldico SBA-1 with the R-390A and it is interesting. The SBA-1 has crystal controlled oscillators and a crystal filter, so the R-390A must be run wide open (8 or 16MC. filter). It also has an IF gain control, notch filter, noise clipper and a BIG S-meter that is fun to watch.

The filter in the SBA-1 is better than the '591 filter, so running wide open is not a problem. I'm not sure which one I prefer. Jim

From classicmotorcycleclub@hotmail.com Fri Jan 17 18:55:40 2003
Subject: [R-390] URM 25 D Signal Generator

I am trying to repair two URM 25D Signal Generators but I need the schematics. Is there any Site which I can download it? Many thanks for any info!

From r390a@enteract.com Fri Jan 17 19:13:24 2003
Subject: [R-390] URM 25 D Signal Generator

http://bama.sbc.edu/ under 'Military Test Gear'

From roy.morgan@nist.gov Fri Jan 17 20:05:14 2003
Subject: [R-390] URM 25 D Signal Generator

r390a@enteract.com wrote: >http://bama.sbc.edu/ under 'Military Test Gear'

You also need any or all of the following, ESPECIALLY Dallas Lankford's Overhaul Notes: Hollow State Newsletter Issue 41, Spring 1997 - URM-25D Rebuild Notes Supplement (about the Terminal Board, Courtesy of Ray Mote)

HSN Issue 34 Winter 1994-95. Short Subjects: "Balky Modulation Oscillator in the URM-25, by Allan Douglas (about the R-C "T network" and padding a capacitor to make it work again)

E-mail from Nolan Lee to Roy Morgan Dec 22, 1998 advising to replace the coax cables found with URM-25's since they are often lossy, replacing the coupling cap in the "Test Lead" to prevent damage to the attenuator, and checking all cap and resistor values in the generator.

URM-25D Overhaul Notes by Dallas Lankford 11-88, revised. 1-94, with copy of HSN Supplement from Issue 41 about the "Terminal Board".

Signal Corps SSTS Operation Sheet 51038, "RF Signal Generator Set AN/URM-25D Operation and Calibration" U.S. Army Signal Center and School, Fort Monmouth, N.J. 17 pages Roy

From kc2kj@mac.com Fri Jan 17 20:10:12 2003
Subject: [R-390] URM 25 D Signal Generator

Roy, where can one find all these goodies on the URM-25D?? mike kc2kj

From drewmaster813@hotmail.com Fri Jan 17 21:30:42 2003
Subject: [R-390] Lead Lengths (was Resistors, SSB)

On Thu, 16 Jan 2003 08:03:27 Barry (BLW) wrote: <snipped> >When I replaced old caps in a Bogen amp I had a few places where new caps >were not long enough. I had some places where I could solder in a terminal >strip to the chassis. I used those to tie in original wires to the strip >and >then attach the new parts. I like this approach better than splicing.

That method works well too. When replacing caps in applications where they are already on terminal strips/standoffs, a reverse of this method can be used. On an R-390A IF deck I have put replacement caps right on tube socket pins when originals were standoff-mounted. The smaller size of modern caps makes this possible. A note about relocation can be written on chassis under original cap location. This method gives shorter lead lengths and often eliminates need for insulating sleeving (but will not appeal to purists). Drew

From drewmaster813@hotmail.com Fri Jan 17 21:44:27 2003
Subject: [R-390] Front Panel silk-screening

Scott, Barry (Clyde B) wrote: >Anyone know where I can get just the backside of some panels silkscreened? <snip> Will the hole top and center bear the legend "MIRTTNA" ? :-) Drew

From drewmaster813@hotmail.com Fri Jan 17 22:22:18 2003
Subject: [R-390] CV-591

Jim Brannigan wrote: <snipped> >This is the first time that I used the Eldico SBA-1 with the R-390A and it >is interesting. The SBA-1 has crystal controlled oscillators and a crystal >filter, so the R-390A must be run wide open (8 or 16MC. filter).

Jim, With R-390A bandwidth wide open it is possible for strong signals within R-390A passband but outside of Eldico passband to desense the R-390A via AGC action (if R-390A generated AGC is enabled) or R-390A IFoverload (if AGC is taken from Eldico and fed back to R-390A).

You could close up R-390A's banwidth and hope that Eldico crystal filter and applicable R-390A "mechanism a philharmonic" (mechanical filter) center frequencies match (in contradiction of Murphy's Law).

You could bypass Eldico's crystal filter and change detector injection frequencies (crystal swap-a pain). If Eldico has enough gain, you could tap R-390A IF ahead of filters and feed to Eldico (involves mod to R-390A). Drew

From hbreuer@debitel.net Fri Jan 17 22:23:22 2003
Subject: [R-390] Viappiani R-390/390A Handbook... review & how to buy. Lira vs Euro?

Hi, I wonder if the book is still available or if the publisher's fax number changed. A Google search didn't bring up any new info. Has anybody successfully contacted the publisher? I tried to fax my order to +39 2-2133869 but didn't get through. I finally got the info that the leading zero now has to be included but a fax to +39 02-2133869 only got me an answering machine in Italian but it doesn't even mention a name. 73 de Heinz DH2FA, KM5VT

From Richard.McClung@Dielectric.spx.com Fri Jan 17 22:34:44 2003
Subject: [R-390] Viappiani R-390/390A Handbook... review & how to buy. Lira vs Euro?

My FAX required me to go with 39 - 011 - 02 - 2133869. It looks like it hasn't gotten another FAX to answer it yet..... RICH @B> }

From wwarren1@nc.rr.com Fri Jan 17 22:48:13 2003
Subject: [R-390] CV-591

There's also another possibility. You know that the 455 kHz output of the RF deck comes as a balanced pair. Only one side of the balanced pair is used for the 2, 4, 8, and 16 kHz positions of the bandwidth switch. Thus you can take the other mini-BNC connector (P518) and feed that to the IF output jack. Then if you have that connection loaded by a high impedance input to the Eldico (if in fact the input impedance of the Eldico is high), then everything works fine. Depends on the sensitivity of the Eldico also. This technique works just fine with my Siemens D2007 Frequency Selective Voltmeter used in its high impedance mode and as a SSB IF strip and demodulator. Then you can compare the SSB performance of the R390A versus the Frequency Selective Voltmeter -- and the comparison isn't too bad. Yep, my FSV sounds better just like 30-year-later technology should, but not embarassingly better. Tom, W4PG

From jlkolb@cts.com Sat Jan 18 08:33:55 2003
Subject: R: [R-390] Viappiani R-390/390A Handbook... review & how to buy

Well, since I don't speak Italian, I'll sell my copy of Viappiani's R-390/URR-R-390A/URR Handbook for $ 25.00 including priority mail shipping. Excellent condition. John KK6IL

From egirland@tiscalinet.it Sat Jan 18 09:55:27 2003
Subject: R: [R-390] Viappiani R-390/390A Handbook...clarifications!

Some clarifications: "muble" reads "mumble" - the noise of thinking...

"I am not pleased to know.." was a raw literal translation from Italian meaning: "unfortunately I don't know him - I would be pleased to know him" - ok? I recommend the book - it is still available @ Il Rostro.
The correct references to "Editrice il Rostro" are:
Editrice Il Rostro
Via B. Buozzi, 5 - 20090 Segrate (MI)
Tel. +39-022135366 - +39-022133257
Fax +39-02-2132869
e-mail: info@ilrostro.it
http://www.ilrostro.it

Hope this helps you all! Ciao. Emanuele Girlando (IW1DHI)

From w5kp@direcway.com Sun Jan 19 19:31:52 2003
Subject: [R-390] For Sale: SG-1144/U Sig Gen (Solid state successor to the AN/URM-25 series)

Hi fellow sore-wristers, I have an HF sig gen for sale, an ex-military SG-1144/U. This is a solid state general purpose 50 KHz - 80 MHz unit with a metered and leveled output range of -127 dbm to +10 dbm in five freq bands. Puts out CW, AM (400 or 1000), and FM (0-75 KHz deviation, FM modulation available above 28 MHz only). Red LED 4-digit freq counter built in. Built in the early 80's. I believe this was the general purpose sig gen that replaced the AN/URM-25(x) series. I have used it on my bench and it is very stable after warmup and works just fine on all ranges and modes. Modulation deviation and percentages were checked against my Racal 9008 mod meter and were very accurate. The output attenuator was tested against a lab grade millivoltmeter down to -50 dbm (as low as I could test it) and is also very accurate. Standard operating method is to "T" the output to a "real" freq counter, use the sig gen's 4-digit LED freq counter to get in the ball park, then tweak the freq fine tune to home in. About 16" x 17" x 7", 31 pounds. Front panel is very good, case is decent with a beige (!) repaint job over the military grey, a few chips in the paint. $80 plus shipping will buy it, and although I can't guarantee NIST calibration, I will certainly guarantee it all works as advertised. A couple of digital photos are available to email if somebody wants to see it. 73, Jerry W5KP Mustang, OK

From r390a@enteract.com Sun Jan 19 20:27:24 2003
Subject: [R-390] For Sale: SG-1144/U Sig Gen (Solid state successor to the AN/URM-25 series)

A manual for this puppy can be found at the ETM site: http://www.logsa.army.mil/etms/find_etm.cfm

From w5kp@direcway.com Sun Jan 19 23:07:57 2003
Subject: [R-390] SG-1144/U sig gen is sold.

The sig gen is sold. Thanks for all the interest, wish I had enough of these to go around... I'm a bit surprised I haven't heard them mentioned on the list. All I hear about are AN/URM-25's, but there must be a zillion of these 1144's out there somewhere. I've used both, and IMHO this is hands down a nicer generator to work with. Maybe it's because it only has a four digit freq counter... but that's four more than the 25's have. :-) 73, Jerry W5KP

From Llgpt@aol.com Sun Jan 19 23:32:19 2003
Subject: [R-390] SG-1144/U sig gen is sold.

w5kp@direcway.com writes: << Maybe it's because it only has a four digit freq counter... but that's four more than the 25's have. :-) 73, Jerry W5KP >> Laughing.....good one jerry! Les

From djmerz@3-cities.com Mon Jan 20 06:42:57 2003
Subject: [R-390] Tightening shaft connection?

Hi, is there a good trick to tighten the bandwidth shaft coupler if the shaft coming out of the i.f. chassis seems a bit small. The shaft coupler worked ok on the 390a i.f. chassis but when I put the 390 i.f. chassis in the 390a radio, the shaft seems a bit small for the coupler even when tightened down pretty tight (gap closed). More to come on the successful conversion of the 390 non-a i.f. to go in the 390a, but I'm trying to solve this problem so I can change bandwidth without taking the i.f. chassis out - it seems awkward to have to do that. I tried putting a 2 mil shim sheet on two sides of the shaft in but that still didn't give enough purchase on the shaft. Maybe there's a gritty substance that would help? thanks, Dan.

From courir26@yahoo.com Mon Jan 20 12:22:08 2003
Subject: [R-390] Tightening shaft connection?

Dan, I found the shaft to me exactly the right size on mine. It's hard for me to appreciate the difference by email, but perhaps you could fashion a piece of thin copper plate (strip) to wrap around the shaft, and then make it the right length to allow the 390A coupler to fit. Or maybe get a shaft from a 390 or from a different radio?? I have a spare shaft assembly from a 390A panel in my junque that you could get rought with. If you'd like to try it let me know. Tom

From djmerz@3-cities.com Mon Jan 20 14:59:03 2003
Subject: [R-390] 390 non-a i.f. in R390a

Hi, I completed the conversion of a 390 non-a i.f. chassis to go in a R390a radio. This follows the article of Tom Marcotte in Electric Radio Dec 2000 describing the conversion. I found his article flawless in the detail given for point-by-point wiring changes and thank Tom for writing the article and providing me a readable schematic for the 390 non-a chassis and some other information on the R-725. I deviated slightly in a couple of cases to utilize some of the existing wiring but this was just a preference on my part and amounted to the same connections. Most of the wiring mod's involve converting the series connections for 25 v filament supply used in the 390 non-a to the 6.3 volt connections required in the

390a, plus dropping the B+ voltage a bit. This is all explained clearly in his article, along with the background for the R-725 radio which the final set emulates. No modification of other parts of the 390a radio are required other than taking the 390a i.f. chassis out. The conversion was done on a junker 390 non-a i.f. chassis sold on eBay and it worked immediately upon putting it into the EAC 390a set, which brought a feeling of relief since I had no idea what might be wrong with the junker chassis and I didn't have a 390 non-a radio to test it in. One of the bigger tasks was to make a cable adapter for BNC to mini-BNC, or MB, connectors for the two inputs from the 390a r.f. chassis. Tom used two of the 390a i.f. output adapters of the type on the rear panel of a 390a. I had trouble finding these, and I'd like to thank Roy Morgan for his assistance in trying to get the relevant connectors from The RF Connection - I opted not to use their MB female to BNC female adapter because the two critical parts would have cost $20 each plus shipping and I would have to make up two short BNC to BNC cables as well. Instead I used some chassis mount MB connectors from Fair and made a small aluminum box with the MB connectors on one side with RG 58 entering on the opposite side, with a BNC connector on the outside end of the RG 58. I can't say cheaper is better but it was a bit of fun and turned out well. If there is any interest, I'll post the details of how I did that but it's not too complicated. I'd recommend buying the RF Connection adapters unless you enjoy cutting and bending metal like I do. I'm assuming the adapters from RF C look more or less like the 390a back panel i.f. adapter.

I was quite impressed with the appearance of the 390 i.f chassis, though it's much more crowded than the 390a i.f. chassis and not the easiest thing to reach into with a soldering iron, even a small one. My first reaction on looking at what had to be done was "ughh." As Tom advised, use any trick you can think of to do the soldering. So when I finished the soldering, I felt I had done something challenging and had not destroyed the beauty and function of the unit in the process. I hope the next guy looking at it will find equal enjoyment with the unit. This project took about 2 years to complete, most of that time looking for the i.f. chassis after I read Tom's article. I got this chassis Dec 27 so it took about 3 weeks to round up the connector stuff and make the conversion after that.

I'll post my impressions once I test the set a bit more; I'm going to add the two diodes ala Lankford and increase the bfo coupling cap. Thanks to all for earlier comments regarding the connectors, Dan

From root@al.tirevold.name Mon Jan 20 15:49:28 2003
Subject: [R-390] New "Pearls" and Doc Additions

Folks,Wei Li's latest contribution of "Pearls of Wisdom" for the R-390A areavailable at http://www.r-390a.net/Pearls/

Ed Alves has contributed two missing bits of documentation, Changes T-2and T3 to NAVSHIPS 0967-063-2010. They can be found at
http://www.r-390a.net/NAVSHIPS-0967-063-2010-T2-1974Aug01.pdf and
http://www.r-390a.net/NAVSHIPS-0967-063-2010-T3-1974Aug01.pdf

Each is abbout 500K in size. They can also be found on theFAQ-references page at http://www.r-390a.net/faq-refs.htm.Enjoy!!Al, WA0HQQ

From drewmaster813@hotmail.com Mon Jan 20 17:40:36 2003
Subject: [R-390] CV-591

Tom Warren wrote:>>There's also another possibility. You know that the 455 kHz output of the>RF deck comes as a balanced pair. Only one side of the balanced pair is>used for the 2, 4, 8, and 16 kHz positions of the bandwidth switch. Thus>you can take the other mini-BNC connector (P518) and feed

that to the IF>output jack.

Tom,Good idea! Using one side of the balanced IF feed (and forsaking use of R-390A crystal filter) opens up a large number of interface possibilties, panadaptor comes to mind. Neat, clean, and no mods required.
Is the R-390A AGC stock and in good shape (oil-filled cap not leaking)? Or do you have the 2 diode time constant mod (Dallas Lankford) or the much discussed line audio into bridge rectifier into AGC line. Does the FSV have any AGC action?Drew

From courir26@yahoo.com Mon Jan 20 18:49:18 2003
Subject: [R-390] 51J transceiver in Amelia Earhart Film

Gentlemen? Anyone catch this program on the Travel Channel last night? They had some re-enacted film from the Cutter Itasca doing a DF on AE's plane. Appeared that they were talking to her on a 51J receiver, looked like a light gray variation. Anyway, later in the program they showed an effort by a group of folks from Rockwell Collins who were doing technical analysis on the signal data of the event, trying to ascertain the logical location of the plane from the DF and signal strength info from the log of Itasca. Pretty interesting stuff. Of course, lots of Collins gear in the pictures, except for one Collins employee who runs Kenwood gear. 73 N5OFF

From Scott Seickel" <polaraligned@earthlink.net Mon Jan 20 22:11:55 2003
Subject: [R-390] 390 non-a i.f. in R390a

Hi Dan, I do not receive Electric Radio and have no idea what a R-725 is. Would you be so kind as to clue me in? Did you do it for the fun of the project or is there some performance advantage that I am missing? I would imagine that it would make the radio better for SWL'ing but why not just use a 390? Thanks, Scott

From djmerz@3-cities.com Tue Jan 21 04:42:57 2003
Subject: [R-390] 390 non-a i.f. in R390a

Hi Scott, an R-725 is more or less what I now have, though built by contractors, and had the 390 non-a type i.f. in a 390a radio, and a couple of other mods, one to improve PTO stability and an added 25 volt filament supply to power the R-390 i.f. chassis. The purpose was to eliminate the non-liner phase shift caused by mechanical filters, which caused errors for direction finding equipment, and I guess to have a current production radio at the time the decision was made that was nearly the same as the 390a otherwise, in the early 50's. Approximately 300 were made according to Tom's article. I don't know more details of exactly how it was used. Yes I did it for the fun of the project and to explore and perhaps enjoy the audio characteristics of a 390 non-a i.f. , which is reported to be more pleasant to the ear. Why not just use a 390? I don't have one and decided I would rather not obtain one for now because of space and effort to get it going and the 390a I have is a clean set - one 390 type radio seems to be enough so far. They are somewhat inconvenient to casually move around from a behind-the-scenes location and use when the fancy strikes you. Who knows what the future will bring. I've been known to change my mind about such things, I have several other types of communication radios competing for shelf space where I can operate them so my decision was biased by that consideration. I am pleased by the consideration that the chassis can be easily swapped in about 15 minutes, and either will work interchangably in the 390a radio. I can't think of a reason to have this conversion if you already have a satisfying 390 non-a unless you want to see if it will perform a little better, or are just very curious and like the unusual. Marcotte wrote in an earlier ER article about the R-725 he had at the time, April 1996:

"How does it work? Quite well, just like an R-390, but with the smoothness of the fewer gears of the R-390a gear train. It is actually more sensitive than my all-Collins R-390 and R-390a, and has none of the ringing caused by the mechanical filters in the R-390a."

So that's my story and I may not stick to it. If I missed some aspect that interests you, ask away, best regards, Dan.

From courir26@yahoo.com Mon Jan 20 22:31:42 2003
Subject: [R-390] 390 non-a i.f. in R390a

Scott, The R-725/URR is a modified variant of the R-390A. It has a special IF deck (95% like the R-390 IF deck except it runs on 6V instead of 24V)called the Series 500 deck, which enables the 390A frame to be used in DF applications as with the TRD-15. The R-725 also has a PTO mod to prevent hum.

Motorola, Arvin and Servo were engaged in making the new IF decks for dropping into existing R-390A's, pressing them into DF service. The new IF decks were not entirely new; some parts were salvaged from the (now junker) R-390A IF decks that were removed.

The R-725 has the nice sound provided by the tuned circuit IF, arguably better than that of the 390A with mechanical filters.

Why not use the 390? Because I don't have one. The objective of the project was to get better sound out of the R-390A, keeping the R-390A IF deck availble for hard core DX. There are no permanent mods to the 390A, which was another objective. 73! Tom N5OFF

From k0myw@att.net Mon Jan 20 22:31:28 2003
Subject: [R-390] 51J transceiver in Amelia Earhart Film

And that test bench featured a Hallicrafters SX-71 receiver and R-46 speaker through which simulated transmissions from Earhart were fed by the Collins engineers in attempting to plot signal strength reports... de Mike, KØMYW

From courir26@yahoo.com Wed Jan 22 00:02:55 2003
Subject: [R-390] R-725/URR Hum Bucking Transformer

Gentlemen? Someone asked about this. In the original article about the R-725/URR, I wrote that the extra transformer was for IF filaments. But then I got some info from Servo which stated otherwise (mea culpa!).

"A hum-bucking circuit has been added to the R-390A/URR to improve performance. This modification places a positive dc voltage on the filament of the variable frequency oscillator (vfo) (V701) in the receiver, reducing the heater-to-cathode leakage of 60 Hz into the signal."

Further on the hum thing.
"The following modifications have been made to reduce hum.
(a) Open small enclosure at end of vfo unit and lift pin 3 of V701 from ground.
(b) Connect a 0.01-uF capacitor between V701-3 and ground.
(c) Connect V701-3 to J709-C. <==(this connects new transformer. Ed.)

(d) Connect P109-C to P121-E (filament return)
(e) Disconnect and dead-end wire (with tape) from P112-8."

End of Servo info. Hope this helps! 73 N5OFF
ps The Servo info also indicated provision has been made for use of a dynamotor for DC operation (anyone seen this?).

From Llgpt@aol.com Wed Jan 22 00:31:01 2003
Subject: [R-390] R-725/URR Hum Bucking Transformer

Tom, You forgot to add the original R-725/URR receivers had a MU-Metal shield around the PTO. No mention was ever made of this in their (Servos) blurb, but obviously was placed arounf the PTO to eliminate any spurious emissions from the PTO that would/could have interfered with the DF'ing. Les Locklear

From djmerz@3-cities.com Wed Jan 22 05:43:21 2003
Subject: [R-390] Tightening shaft connection?

Tom, I might need that coupler. After making the Lankford diode additions and a 47 pf cap to the bfo output, I discovered the coupler was actually broken on the bandwidth shaft connection right near the nut so that is kaput - I guess I didn't see this before and/or possibly overtightened it to cause the break. I also noticed the coupler on the bfo shaft is broken on the side opposite the tightening screw but it will still clamp down enough to work. I remember discussion of these being susceptible to breaking. I looked at one closely and it looks like an anodized aluminum alloy - definitely non-magnetic material - so I'm assuming aluminum. Has anyone made these out of brass or a material not apt to do this. The fracture reminded me of season cracking of some brasses which is a stress corrosion problem. High strength aluminum alloys can also have this problem. I am quite curious about how these shaft couplers were fabricated - does anyone recall anything about them?..... It's tomorrow now and I decided to make my own couplers out of 6061-T651 aluminum plate that I found in my garage - hopefully these will be better than the originals - they are about half done - fortunately the hole is a standard size, 5/16 inch and aluminum is almost like wood to saw, file and shape so it's not going to take long. I expect these to be superior to the originals. Are the small size type more suscetible to breaking than the larger ones - it appears to me they would be from the shape?

Another problem as well. The bfo is not acting very nice now - if I turn it on with say a broadcast station tuned in, the gain is reduced immediately to a low level. I wanted to re zero it since I turned it some when I was working on the circuit under the bellows. I don't seem to hear the bfo like I did before when it was tuned off zero. Do I have too much bfo getting into the agc circuit with the increased capacitor (47 pf across the original 10 pf) I put in or is this the symptom of some other problem? I explored this a bit to make sure I didn't fry the coupling caps when I soldered but I don't think that's the problem. Is the adjustment of the neutralizing cap critical enough to cause such a big effect. My first reaction was to take the added cap out and see if good behavior returned. Dan.

From jbrannig@optonline.net Wed Jan 22 13:01:54 2003
Subject: [R-390] CV-591 Questions

There is a 10Mfd. bathtub capacitor in the audio driver B+ circuit. This has failed open, is this the usual failure mode of a bathtub capacitor? The variable oscillator is VERY touchy to align. Short term

stability is OK, but each time the box is turned on, the calibration is off a kc or so. (I removed the reactance tube and disconnected the coupling cap to the reactance circuit.) Any ideas? Jim

From chg111@hotmail.com Wed Jan 22 13:57:33 2003
Subject: [R-390] OT- Need power cord for Scott SLRM marine radio

Gents- Sorry about the OT post, but I recently acquired an EH Scott SLRM marine reciever, however, it came without a power cord. I figure somebody on this list could point me in the right direction. Thanks in advance, Sandy Geiger

From roy.morgan@nist.gov Wed Jan 22 15:51:15 2003
Subject: [R-390] CV-591 Questions

Jim Brannigan wrote: >There is a 10Mfd. bathtub capacitor in the audio driver B+ circuit. This >has failed open, is this the usual failure mode of a bathtub capacitor?

Jim, Usually they don't fail. hehe... leakage is more common than open I think, but whatever, yours failed open. You may be able to unsolder the case and fix an open connection.. though at that point a new cap inside is a good idea. (If you use an elecrolytic, mark the polatity!) puttng a new cap on the terminals of the old one is a fine solution though.

>The variable oscillator is VERY touchy to align. >Any ideas?

Is the thing stable on crystal control (assuming you have the crystals installed)?

Apply TINY amounts of De-Oxit or Pro Gold to the cap rotor wiping contacts. This thing is operating around 400 kc or so and should not be touchy in any way.

Check ground lugs and capacitor mounting frame studs for corrosion. Also pay attention to shields in the same way. Replace all paper caps, if you have a flaky one in a bypass function, it may be wavering in value enough to affect the oscillator frequency.

You may have a flaky trimmer cap. Be careful if you are tempted to force a ceramic trimmer that is stuck. I broke one and discovered that it is a temperature compensated one (N750 perhaps) and was not easy to replace. For our use the temp compensation may simply not be needed. Summing fixed and a variable cap is perfectly fine if you can't locate the right value.. These circuits should essentially stay tuned up forever once set.

To save a bit of heat and unnecessary tube aging, removing the reactance tube as you did is a good idea. Roy

From r.tetrault@attbi.com Wed Jan 22 17:12:51 2003
Subject: [R-390] Tightening shaft connection?

My take on the 47pF cap across the original was that there was too much BFO injection and that it did adversely affect the AGC. I couldn't neutralize the BFO. YMMV. I found that the two diode attack time mod was the most effective part. A smaller cap across the original is a reasonable cut and try affair. Bob

From jbrannig@optonline.net Wed Jan 22 21:04:15 2003
Subject: [R-390] CV-591 Questions

Roy, Thanks for your input.

Crystal control is OK and the trimmer is in circuit in only one position. I put some Deoxit on the variable shaft... Your suggestion to re-check all ground and contact points is a good one. Jim

From jbrannig@optonline.net Wed Jan 22 21:39:04 2003
Subject: [R-390] Tightening shaft connection?

Actually the problem with most AM detectors is too little BFO injection in relationship to the IF signal. Of course these detectors are not build to filter the increased BFO signal and it will get into the AGC. Jim

From drewmaster813@hotmail.com Wed Jan 22 22:15:46 2003
Subject: [R-390] R-725/URR Hum Bucking Transformer

Les Locklear wrote: >You forgot to add the original R-725/URR receivers had a MU-Metal shield

Mu metal is used for magnetic shielding and is often found encasing electrostatic deflection CRT's in oscilloscopes. There it prevents trace deflection caused by stray magnetic fields from 'scope's power transformer. Magnetic shielding for PTO in R-725 would prevent FM-ing of PTO signal due to transformer induced 60 Hz "permeability modulation". The aluminum PTO cans would not provide magnetic shielding but would provide effective RF shielding thereby minimizing the aforementioned spurious RFemissions. Drew

From djmerz@3-cities.com Wed Jan 22 22:39:28 2003
Subject: [R-390] Tightening shaft connection?

Hi, my interpetation of Bob's comment was that the 47 pf caused too much bfo into the detector for the agc - my goal in putting it in was to increase the level needed for ssb, as Jim noted. I have now taken the 47 pf out and the set behaves itself now as far as agc goes. Because I have to crank down the rf level a bit, I'm thinking it could use a little more bfo but it's workable with the just the 10 pf. It's much better than it was before I put the 2 diodes in, so I'm happy with that. For some reason (maybe I didn't want to take the bfo bellows out), I didn't put the 47 pf in my 390a i.f. chassis a year or so ago, and I was happy with the radio without it. I wanted to try it in the 390 non-a chassis since the bellows was already disconnected by the previous owner, or at least loosened easily. I'll probably forego experimenting with tweaking the bfo injection at this point (chassis removal fatigue !!) - it's easier to tweak the r.f. gain on real strong ssb stations.

I finished making the shaft coupler out of 6061 aluminum and it works very nicely. I made it 1/4 inch thick instead of 0.2 inch thick like the original because that was the thickness of my aluminum plate. All the bending in this gismo takes place at the thin section at the bottom of the hole opposite the screw so I just thinned that to 64 mils compared to 80 mils for the original, so the bending force and stiffness would be about the same. It should have less stress at the outer side as a result and may last longer. I would guess that all failures of these couplers occur either at the bottom thin section or at the root of the

square corner where the screw head or nut sets. If they failed somewhere else, I would be very suspicious of the type of material used. I'm only mildly suspicious so far. I had a failure of each kind in my two couplers. My replacement has somewhat longer ears where the screw goes to avoid the notched/thin section near the screw and the shaft hole. I'll keep my eye out for originals to put in the radio when it leaves me, not soon. Right now I'm happy to have a beefier version since I anticipate exhanging the two i.f. chassis occasionally without worrying about breaking them. thanks for the comments, Dan

From Skipsnsx@aol.com Thu Jan 23 01:49:50 2003
Subject: [R-390] Washington D.C. radio related tourist stops?

Folks: I have both the pain (it is cold) and the pleasure of being able to spend the next four days in our nation's capital. Does anyone have any radio-related must-see/do recommendations? Thanks, Skip Warren AD5HJ, Houston

From jamesmiller20@worldnet.att.net Thu Jan 23 02:02:08 2003
Subject: [R-390] Washington D.C. radio related tourist stops?

Visit the NSA Cryptology Museum (yes they really do have one open to the public). They have a loot of cool crypto stuff on display, including a rare German Enigma machine, and a display containing a very pretty R-390a.

From jamesmiller20@worldnet.att.net Thu Jan 23 09:54:19 2003
Subject: [R-390] Washington D.C. radio related tourist stops?

For the museum web site, hours of operation and directions, go to: http://www.nsa.gov/museum/

From jbrannig@optonline.net Thu Jan 23 13:19:44 2003
Subject: [R-390] Washington D.C. radio related tourist stops?

Darn, we were College shopping in DC last weekend and passed right by the site.....

The Natural History (Science) museum has a ship-board radio shack exhibit that plays CW tapes and somewhere in there is a Ham radio station. (I never found it)

The old Smithsonian has a big collection of land-line telegraph keys and sounders. In the Air and Space museum is the front end of a WWII bomber. The radioman's position has a complete ARC-5 station. We usually stay in the Marriot Suites in Bethesda. It is convenient to the Beltway, Metro and downtown. If you can find a parking spot, try the restaurants in Georgetown.

If DC is not cold enough for you, head north and visit the carrier Intrepid. There is an enigma machine on display and the radio room has RACKS of R-390A's..... Jim

From r390a@enteract.com Thu Jan 23 19:54:20 2003
Subject: [R-390] Washington D.C. radio related tourist stops?

Does anyone know if the Aircraft Radio Corp equipment Gordon White donated to the Smithsonian is on public display?

From gcarter01@triad.rr.com Thu Jan 23 23:00:42 2003
Subject: [R-390] Washington D.C. radio related tourist stops?

I can't remember if that particular radio is in the Smithsonian's "Information Age" exhibit. They still have some very nice radio, telegraph, TV, computer, etc. items in the exhibit, although when I visited it last August they had pulled the British code cracking bombe from the WWII section. Still, well worth the visit.
Not completely radio related, I highly recommend visiting the recently opened International Spy Museum. Go early, plan on spending an entire day. There are, of course, spy radios in their collection. They also have some familiar radios in the museum, such as a Hallicrafters or two and an HRO in the WWII section. I'm suprised they don't have a nice R390A, SP-600 or AR-88 in their lineup, perhaps sometime in the future. 73, Gary Carter - WA4IAM

From ezeran@concentric.net Fri Jan 24 00:08:25 2003
Subject: [ARC5] Re: [R-390] Washington D.C. radio related tourist stops?

I was there a few months ago and did not see any changes in their WWII stuff.

From k06bb@elite.net Sat Jan 25 22:14:47 2003
Subject: [R-390] Nice R-390A receiver for sale

Hi. I'm placing this ad for my friend Don, W6LRG (lazy retired guy). PLEASE contact him at either (209) 358-4217 OR w6lrg@elite.net . Please DO NOT contact me about it 8^).

Don has a very nice R-390A receiver with the following features.
1. It's a 67 EAC with all EAC modules EXCEPT the IF strip, which is a Collins unit. (Some folks say the Collins is a better strip, I feel they're all the same).
2. It is COMPLETE with original meters, ALL covers (top/bottom), all knobs etc.
3. It has been recapped and serviced with all paper and electrolytic capacitors replaced, alignment, switches/controls cleaned with DeOxit D5 and so forth.
4. Mods done. A 3 wire power cord is fitted for safety. The power supply has solid state rectifiers fitted (a Military recommended mod). The Dallas/Langford BFO/AGC mods have been done for improved SSB reception. All servicing/mods done by a professional technician (me :)
5. A fine playing receiver with no known problems.

This is your chance to own one of the finest general coverage receivers ever built. The 67EAC receivers are considered by many to be the finest of the lot as they incorporated all the military updates when manufactured. (they are about the latest of the contracts.)

THE FINE PRINT. Don is asking $500.00 for his and 'prefers' pickup in Atwater California. This is about the same as Fair Radio asks for a "checked" unit without meters/covers and which would still require an overhaul. If the purchaser wants shipment the buyer will provide suitable shipping containers and handle all expenses. We "may" be able to direct the buyer to where he can obtain a shipping container. 73 de Phil KO6BB

From mark.richards@massmicro.com Sun Jan 26 15:54:59 2003
Subject: [R-390] New photos

With many thanks to all the R-390 folks I have started work at last on = the restoration of an old unit, Stewart-Warner vintage. As an aid in re-assembly; a document of my stupid mistakes to come; and a chronology = that others may find useful, I am beginning to publish photos and anecdotes = of this work. They may be seen at http://www.massmicro.com/boatanchors Please enjoy it!

Also, I had hosted Dave Medley's web site for a while but have since removed this material. If anyone needs to see Dave's work, you can now go to http://www.davemed.com He provides excellent information on the 390 (not 390a) and he sold me some replacement gear clamps. Hang in there, Dave. I may need a few more!! Mark Richards, K1MGY Boston

From clemens@it.dk Sun Jan 26 16:30:26 2003
Subject: [R-390] PTO 70H-12 problem

Hi everyone, A "new" EAC R-390A being renovated (recapped, etc.) has turned out to have a problem preventing calibration. The PTO variation is insufficient, with the end-point adjustment screw all CCW it covers 977.13 kcs, all CW 983.55 kcs. A friend of mine, who has the sufficient skill and learning, took it apart and it proves to have been tampered with: windings off the adjustment coil and the linearity-coil also seems to have been maltreated. White salt-like deposit all over the insides, but this is perhaps not so grave. I have (large) digital pictures if anyone wants. Mechanically it seems OK and it was functional, though sometimes with a kind of slight wobbling when tuning through a heterodyne.

Here in Europe, spares are not thick on the ground, so I reckon my best chance is to ask the list if anyone has a spare PTO to sell. Payment in unmarked dollarbills, hi. Alternatively, does anyone have positive/negative experiences with PTO's from Fair Radio?

And while I am asking questions: why not put either the training manual TM-4000 or the STP called "Troubleshoot the radio receiver R390A/URR to the faulty component" on the phenomenal R390A website?

Best, (and hope to hear from you) Clemens S.Ostergaard Aarhus, Denmark R-390A's, SP-600, 51J-4, and searching..

From stevehobensack@hotmail.com Sun Jan 26 16:41:59 2003
Subject: [R-390] PTO 70H-12 problem

Hello Clemens, I had that problem a while back. I found a small solder glob shorting the turns at the terminal point on one of the compensator coils (cosmos pto). You need a magnifying glass. There were only 3 or 4 turns. Be sure they are not shorted together. Hope this helps, 73...Steve..KJ8L

From mark.richards@massmicro.com Sun Jan 26 17:12:38 2003
Subject: [R-390] New photos

Well, something happened in transmission of that last message. Here it is again for those who need spaces. -m- With many thanks to all the R-390 folks I have started work at last on = the restoration of

an old unit, Stewart-Warner vintage. As an aid in re-assembly; a document of my stupid mistakes to come; and a chronology = that others may find useful, I am beginning to publish photos and anecdotes = of this work. They may be seen at http://www.massmicro.com/boatanchors Please enjoy it! Also, I had hosted Dave Medley's web site for a while but have since = removed this material. If anyone needs to see Dave's work, you can now go to http://www.davemed.com

He provides excellent information on the 390 (not 390a) and he sold me = some replacement gear clamps. Hang in there, Dave. I may need a few more!! Mark Richards, K1MGY Boston

From mark.richards@massmicro.com Sun Jan 26 17:21:15 2003
Subject: [R-390] New photos

It seems embedding URL's in these messages mangles the text that follows! -m-

From ToddRoberts2001@aol.com Sun Jan 26 18:32:31 2003
Subject: [R-390] Honey I Shrunk the VFO (tuning range)

I have read discussions of the R-390 and other Collins VFO end-point-adjustment. I wonder if we could all settle on what happens with the tuning range? Some people say adding inductance "shrinks" the tuning range, others say it "expands" the tuning range. To be correct wouldn't adding inductance "shrink" the actual tuning range? If you have a VFO that starts out at 0000 and you have to crank it up to +0009 to get exactly 1 MHz of change, the VFO tuning range has actually "shrunk". That means with exactly 10-turns of the tuning knob, the VFO RANGE of coverage was only 991 KHz. You will have to "expand" the tuning range so that 10-turns of the VFO will cover a full 1 MHz. It sounds counter-intuitive from the numbers on the counter dial. When you turn the endpoint adjustment slug clockwise you are LOWERING the inductance - thus "expanding" the range of the VFO = it will cover more frequency range in the same 10-turns of rotation. Likewise if someone has to resort to removing 1-turn or more from the End-Point adjustment slug you are lowering the inductance = expanding the tuning range of the VFO. Hope I have this right! 73 Todd Roberts WD4NGG.

From scr-287@sbcglobal.net Sun Jan 26 19:03:15 2003
Subject: [R-390] Front panels

Hi all, I have a pair of R-390A front panels to give away. Both came installed on Fair Radio R-390As, and Fair included better panels, which I installed. These are the pulls. One has no mechanical defects, just worn paint, and an amateurish attempt(mine) at painting the panel black. It is a good candidate for stripping and repainting. The other has extra holes. Holes for diode load, another pot, another couple of holes, and the remants of the tag screws are still in place with the heads twisted off. Plus one corner is smushed about 1/4". It could be redone, but with some extra elbow grease.. They are free for postage, I figure about 15 bucks Parcel Post to US. You gotta take both. Jack Jack Antonio WA7DIA scr-287@sbcglobal.net

From stevehobensack@hotmail.com Sun Jan 26 19:29:40 2003
Subject: [R-390] Honey I Shrunk the VFO (tuning range)

Here's my way of reasoning on this; On the Cosmos pto, there are two little compensating coils. If the coil has four turns, and you remove one turn, the screwdriver adjusting slug will not have as much coil

to act upon. If you want more "action" with the iron slug, there needs to be more turns. In my case , the compensator coil had little range of adjustment. I found the solder terminal had enough solder to short out the four turns. There's very little room there and its easy for that malfunction to happen. I can see where a huge number of pto's could have been made with this weakness. 73's...Steve...KJ8L

From scr-287@sbcglobal.net Sun Jan 26 21:26:37 2003
Subject: [R-390] R-390A front panels

WOW! Lots of responses for the panels. Usually I do first come, first served, but my ISP is having email server troubles, so it is hard to tell who was first. SO, here is what I will do. I will wait till tomorrow night, and then pull the lucky winner out of a hat. Also, these panels are engraved, and the nameplate holes are drilled for the later production tags, not the longer ones of the Collins and Motorola era. Jack Jack Antonio WA7DIA scr-287@sbcglobal.net

From djmerz@3-cities.com Sun Jan 26 22:35:19 2003
Subject: [R-390] TS-213/U Sig.Gen

Hi, I spent some time at a local, Prosser WA, "Winterfest", this weekend. About 45 hams of the A.M. persuasion attended. No 390's appeared other than the one used for the station operating during the meet. It was interesting how one large lot of gear got there - shipped from the estate of a ham in Texas by a Portland group at $20 per large box to support a 10-meter group. Most of it went, and some miscell. containers of stuff were a bonus(?) offered as I considered the item I bought. I was looking for a better signal generator and ended up taking a TS-213/u home for $50, the only one there with any degree of shielding. I was looking for something better than my Heathkit to align receivers and the 390 i.f. that I just put in the 390a. No manual - does anyone know a source? It seems to work ok and looks ok inside as far as I dug but I was wondering what the output impedance is on this item in case I want to attenuate the output below the 10 microvolt range. It has BNC connections. Someone told me this was a Boonton product? I was only able to find 1 pic online with no other info. Any info would be appreciated, thanks, Dan.

From djmerz@3-cities.com Sun Jan 26 22:58:57 2003
Subject: [R-390] Correction TS-413/U (not 213/U)

Hi again, I did find one site that said this was made by Harvey Wells, Dan

From federico.baldi@virgilio.it Mon Jan 27 08:21:06 2003
Subject: [R-390] R-390/URR from Rick Mish MILTRONIX

Dear Friends some week ago I read some e-mails about troubles in shipment from Rick Mish. Now I can say only this, I'm the proud new owner of a superb R-390/URR rebuilt from Rick Mish that sent it to me in ITALY (!) without any problem. The receiver is really perfect and better than new. I suppose that problem in shipment can come from the vector (we emploied Airborne Express) and from the package, Rick suggested to buy a MILITARY REUSABLE FASTPACK and I accepted to pay and I can say that isn't cheap but is a good investment first because protect the receiver very well, second it worth less than 10% of the value of the deal and can save all the work. Thanks Rick. Federico BALDI

From djmerz@3-cities.com Tue Jan 28 17:23:24 2003

Subject: [R-390] 390/390a alignment

Hi, I noticed the generator connection points for i.f. alignment of the 390a and 390 non-a differ. The 390a puts the signal into the i.f. chassis input whereas the 390 puts the signal into the grid of the 3rd mixer. I can imagine this is because the 390a mech filters offer a degree of isolation not in the 390 but wonder if there is some other reason. Is the connector on a 390 non-a at the insertion point E210 (grid of 3rd mixer) the same type as E211 on the 390a, or is it a BNC connector? All this wondering came up as I started going thru the i.f. alignment descriptions for the two radios, and that for the R-725, to align the 390 non-a chassis I put in the 390a radio. thanks, Dan.

From brumac@juno.com Wed Jan 29 19:17:35 2003
Subject: [R-390] Test

Barry, Good question. I haven't seen anything come thru for a couple of days, up to now that is. I was just going to send out a query also. Maybe folks are busy shoveling or blowing snow away from their R 390(*) antennas. My long wire went down a month ago from snow load!! Bruce

From tbigelow@pop.state.vt.us Wed Jan 29 20:59:12 2003
References: <20030129.141737.-413457.0.brumac@juno.com>

Too cold - the 'net froze! Icicles on my R-390 and A! B-B-B-B-oo-o-o-o-m-m-mer-r-r-r-r-r (in frosty, sub-zero Vermont, where it was -25º F t'udder night)

From wwarren1@nc.rr.com Wed Jan 29 23:02:27 2003
Subject: [R-390] One-Fuser to Three-Fuser

Gentle folks, Does anyone have detailed instructions for converting a one-fuser 390A to a three-fuser? By that I mean essentially a wire-by-wire set of instructions. I can certainly read the wiring diagrams and figure it out, but hey, if someone has been here before and put out a set of directions, I will forever praise (well, at least for two weeks) his name.

I'm converting a one-fuser Motorola '56 mainframe to a three-fuser. I see that Motorola told a little white one also in that the Y2K manual says that after SN 2XXX (it's in the manual and I didn't write down the number) they all became three-fusers (that is, on the '56 contract plus all of the '58 contract). But my mainframe SN is 32XX (again number not written down) and it's about as one-fuser as it comes. My SN 32XX mainframe has other miscellaneous holes for extra coax connectors associated with the outboard frequency stabilization modifications done to this particular 390A.

I've actually disassembled the entire Motorola mainframe to its components. I have a spare three-fuser back panel, so I won't have to drill those funny D-shaped holes. I also have better side panels and other pieces than in the original Motorola mainframe. So I'm going to reassemble with the best parts I have. Many thanks for any potential help. Tom, W4PG

From lester.veenstra@lmco.com Fri Jan 31 20:47:21 2003
Subject: [R-390] 390/390a alignment

Injecting on the grid of the previous mixer isolated the Signalk Generator load impedance from

the tuning of the 455 IF input stage. The result is a better alignment of the IF. Les K1YCM/3 (CTM1)

-----Original Message From: Dan Merz [mailto:djmerz@3-cities.com] Subject: [R-390] 390/390a alignment Hi, I noticed the generator connection points for i.f. alignment of the 390a and 390 non-a differ. The 390a puts the signal into the i.f. chassis input whereas the 390 puts the signal into the grid of the 3rd mixer. I can imagine this is because the 390a mech filters offer a degree of isolation not in the 390 but wonder if there is some other reason. Is the connector on a 390 non-a at the insertion point E210 (grid of 3rd mixer) the same type as E211 on the 390a, or is it a BNC connector? All this wondering came up as I started going thru the i.f. alignment descriptions for the two radios, and that for the R-725, to align the 390 non-a chassis I put in the 390a radio. thanks, Dan.