

## R-390 Reflector December '02 Edited

From w5or@comcast.net Mon Dec 2 15:18:42 2002  
Subject: [R-390] November 2002 Stats

Stats for Mailman list: R-390

Admin Page: <http://mailman.qth.net/mailman/admin/R-390>  
Home Page: <http://mailman.qth.net/mailman/listinfo/R-390>  
List Owner: w5or@comcast.net  
Membership: 586

Starting: Nov 01 00:00:01  
Ending: Nov 30 23:58:02

Total posts: 193  
Total SUCCESSFUL posts: 193  
Total bytes 346012

Top 10 posters:

10 r.tetrault@attbi.NOcom,  
10 courir26@yahoo.NOcom,  
9 hankarn@pacbell.ONet,  
8 chacuff@cableone.ONet,  
7 llgpt@aol.NOcom,  
7 djmerz@3-cities.NOcom,  
6 kellerfamily01@charter.ONet,  
5 tbigelow@pop.state.vt.NOus,  
5 jordana@nucleus.NOcom,  
5 jonandvalerieoldenburg@worldnet.att.ONet,

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

R-390 Mailing List Rules:

1. Stay on topic
  2. Be civil and courteous
  3. Happy Holidays!
- 

Date: Mon, 2 Dec 2002 07:23:25 -0800  
Subject: [R-390] November 2002 Stats

It's a slow month when someone like me gets top billing... Bob

From redmenaced@yahoo.com Mon Dec 2 19:15:19 2002  
Subject: [R-390] Re: [R390 Non-Abridged] The week off.....

I'd put a Cobra gunship into a hot LZ, if only to raise the temperature a little!

I was working at a small factory near here last week, putting up some lights outside. There was a wasp nest near where one of the lights was supposed to go.

HONEST I had no idea there were any wasps in it!

I swatted it down and took it inside to show the other guys,..... about an hour later it warmed up and the wasps started coming out,..... there were hundreds of them,..... They got them all killed before they caused any problems, but it was touchy for a while. I don't know why I do these things,..... I relly don't. JOe

From WardSRehkopf@eaton.com Mon Dec 2 19:14:35 2002  
Subject: [R-390] Wanted R390 parts

Still looking for an antenna relay and tube straightners for my R390. Any help would be appreciated.  
thanks K8FD

From plmills@attglobal.net Mon Dec 2 20:14:45 2002  
Subject: [R-390] FS Misc R-390A hardware

Hello, I was just going through my R-390A stuff looking for some pin straighteners to satisfy someone's post and realised how much "stuff" I have. If you are in need of any rack handles, oldham couplers, gears, clamps, screws, etc., please e-mail me as I may be able to help. For gears, you need to give me a number based on the diagram in the manual for a positive identification. thanks, Phil

From barry@hausernet.com Mon Dec 2 20:05:53 2002  
Subject: [R-390] Re: [R390 Non-Abridged] The week off.....

OK, letsee now ... In addition to Chief Pot Stirrer and Beehive Kicker, you are now also official Waspnest Wacker, I guess.... Barry

BTW -- this summer I had a problem with wasps and hornets trying to make a nest out of the fender mirrors on my truck. These are the inside adjustable kind, so there is space in the shells behind the actual mirrors. I could swear one or two of the bugs were commuting with me. Had I known, I would have called you down here, but those mirrors ain't cheap.

From Richard.McClung@Dielectric.spx.com Tue Dec 3 17:01:58 2002  
Subject: [R-390] Surplus Equipment

FYI, I just got off the phone with a DLA Investigator. He wants to see a piece of equipment that I have that was purchased thru DRMO. It is an HP 105A Frequency Standard. The reason is it is on the DEMIL Q list and can not be shipped overseas without a release. So you see it's not just state of the art electronics they control but even this older stuff. So Thursday he will come over and look at it. RICH WA6KNW

From r.tetrault@attbi.com Tue Dec 3 17:27:26 2002  
Subject: [R-390] Surplus Equipment  
In-Reply-To: <OF6BBB7F38.345A35DD-ON85256C84.005D880B@spx.com>

Better ship it to me before he gets there...

From flood@Krohne.com Tue Dec 3 18:00:46 2002  
Subject: [R-390] Surplus Equipment

If you see him walking up with a large hammer, lock all of the doors and windows. :) John Flood

From cthulhu@fhtagn.org Tue Dec 3 18:06:06 2002  
Subject: [R-390] R-1247 Stuff ( was: modified R390A, etc )

I have the boxen that goes with Todd's setup. Unfortunately it is packed in the storage building. I could get dome pics sometime if anyone is interested. The outboard gear consists of an oscillator for KC, one for MC, and a two input SSB convertor. The only thing missing is the osc signal from the matching TX, the freq which I don't remember.

One of the BA members an R-1247 to hook all this together, and I was going to swap either my minty 54 Collins or 67 EAC. :-) One of these days I may get a round tuit if his RX is still available.

If anyone has an R-1247 and wants the rest of the setup, drop me an email. ( preferably at r390a@bellsouth.net ) 73 Tom KA4RKT

From rnharsh@attbi.com Tue Dec 3 21:33:31 2002  
Subject: [R-390] Surplus Equipment

I guess I am really out of the loop! What the heck is the DLA, DRMO and the DEMIL Q list? Sorry!  
K3PID

From redmenaced@yahoo.com Tue Dec 3 21:55:41 2002  
Subject: [R-390] Surplus Equipment

Wow, You are out of the loop.

The DRMO was the department that was responsible for processing our radios when they were surplused out of the military. It stands for Defense Re-utilisation and Marketing Operations.

The Demil Q list is to keep track of items that can be sold to US citizens but they like to keep track of where it goes after that. It also establishes a list of countries that these items CAN'T be sold to.

DLA, I'm not sure of but is probably related. Joe

From jordana@nucleus.com Tue Dec 3 22:02:43 2002  
Subject: [R-390] TMC Multicoupler help....

Hi.. I am looking for specs, a manual , and and spare parts for a TMC Multi-coupler... this unit is all solid state and bears the Tag ID of TMC 6808 Mulit-Coupler.. it is very similiar to the AN-21C (?)...I have pics if they are of any help... 73 de Jordan...

From David\_Wise@Phoenix.com Tue Dec 3 22:06:26 2002  
Subject: [R-390] Surplus Equipment

Defense Logistics Agency

From Richard.McClung@Dielectric.spx.com Tue Dec 3 22:06:49 2002  
Subject: [R-390] Surplus Equipment

DLA - Defense Logistics Agency  
DRMO - Defense Reutilization and Marketing Offices  
DEMIL - Demilitarization  
Q List - one of many lists for different classes of materials and how they are to be disposed of.....

#### CODE DESCRIPTION

A Non-MLI/Non-SLI -- Demilitarization not required

B MLI (Non-Significant Military Equipment - Non-SME) -- Demilitarization not required. Trade Security Controls (TSCs) required at disposition.

C MLI(SME). Remove and/or demilitarize installed key point(s) as prescribed in DOD 4160.21-M-1. Defense Demilitarization Manual, or lethal parts, components and accessories.

D MLI(SME). Total destruction of item and components so as to preclude restoration or repair to a usable condition by melting, cutting, tearing, scratching, crushing, breaking, punching, neutralizing, etc. (As an alternate, burial or deep water dumping may be used when coordinated with the DOD Demilitarization Program Office.)

E MLI(NON-SME). Additional critical items/material determined to require demilitarization, either key point or total destruction. Demilitarization instructions to be furnished by the DOD Demilitarization Program Office.

F MLI (SME) -- Demilitarization instructions to be furnished by the Item/Technical Manager.

G MLI(SMIE). Demilitarization required AEDA. Demilitarization, and if required, declassification and/or removal of sensitive markings or information will be accomplished prior to physical transfer to a DRMO. This code will be used for all AEDA items, including those which also require declassification and/or removal of sensitive markings or information.

P MLI(SME). Security Classified Item Declassification and any additional demilitarization and removal of any sensitive markings or information will be accomplished prior to accountability or physical transfer to a DRMO. This code will not be assigned to AEDA items.

Q CCLI. Commerce Control List Item Demilitarization not required. CCLI are dual-use (military, commercial, and other strategic uses) items under the jurisdiction of the Bureau of Export Administration, U.S. Department of Commerce, through the Export Administration Regulations. The types of items under the Commerce Control List (CCL) are commodities (i.e., equipment, materials, electronics, propulsion systems, etc.), software, and technology. The CCL does not include those items

exclusively controlled by another department or agency of the U.S. Government.

RICH @B> }

From Llgpt@aol.com Tue Dec 3 22:07:07 2002  
Subject: [R-390] Surplus Equipment

DLA stands for Defense Logistics Agency, a fancy name for Supply. Les

From jordana@nucleus.com Tue Dec 3 22:17:46 2002  
Subject: [R-390] Re: TMC Multicoupler help....

Sorry.. that should read AMC-21 Multicoupler... 73 de Jordan...

From szachara@gulftel.com Wed Dec 4 00:33:50 2002  
Subject: [R-390] Surplus Equipment

DRMO -- Defense Reutilization and Marketing Office

Demil Q List -- A list of items that must be "demilitarized" (read smashed or destroyed) before being sold to the public

DLA -- Defense Logistics Agency Regards, Walt

From BRingwoo@csir.co.za Wed Dec 4 06:57:46 2002  
Subject: [R-390] Interesting Finding... R-390A

Hi, Look at the multivibrator following the calibrator oscillator. My 390A does this too on occasion (the odd harmonics sometimes disappear altogether) - I have to kick it to make it work. I'll fix it next time I pull the RF deck. - Bryce

From tbigelow@pop.state.vt.us Wed Dec 4 17:38:11 2002  
Subject: [R-390] Surplus Equipment

Richard.McClung@Dielectric.spx.com wrote:

> FYI > I just got off the phone with a DLA Investigator.

What happens if you traded it, sold it at a flea market, or trashed it? Will they check the recycled material content? Go door to door? Threaten you with a tax audit?

I think it's a good program or, at least - good idea or intent, but pretty lame implementation. But is is run by the gov't, afterall. Those hi-tech M-1s and R-390As should not be allowed to fall into the hands of our enemies, what with being so easy to conceal and all. God only knows what they'd do with the HP frequency standard.... Good luck! Boomer, KA1KAQ (covering his tracks as he backs away)

Date: Wed, 04 Dec 2002 13:41:31 -0500  
Subject: [R-390] Re: Surplus Equipment

Rich, Mabe you want to do a quick, superficial (and reversible) "de-mil" before Mr. DLA comes over. He would then see that all is well and the world has been kept safe for democracy (and hopefully won't impose his own de-mil). Drew

From barry@hausernet.com Wed Dec 4 20:29:12 2002  
Subject: [R-390] Re: Surplus Equipment

> Mabe you want to do a quick, superficial (and reversible) "de-mil" before > Mr. DLA comes over. He would then see that all is well and the world has > been kept safe for democracy (and hopefully won't impose his own de-mil). Good idea, Drew ... Rich -- suggest you uninstall the meter and get some blue and yellow (waterbase) paint. ;-)

To be on the safe side, also paint your face blue and when he arrives, just explain that you are of Scotch extraction. ( a kilt would help) He won't stay long, especially if he saw that Mel Gibson movie .... and you offer him a side of haggis. Barry

From redmenaced@yahoo.com Thu Dec 5 03:31:52 2002  
Subject: [R-390] Listening event, audio test!

Many of these stations will be using retired broadcast rigs, they sound excellent! Joe

Posted by KD0HG on December 04, 19102 at 10:46:06:

The 3rd Annual Heavy Metal Rally will commence the evening of Saturday, December 28th and the party continues all night.

Everyone is encouraged to participate, but the goal is to have as many AM Tall Ships participate. Bring your broadcast iron, military, homebrew, T-368s and KW1s to the party!

This year's rules are: You get one base point per QSO. One additional point if the station you work is running a rig weighing at least 250 pounds. One additional point for rigs with a minimum carrier power output of 250 watts. One point for each different state. One point for each different type of transmitter.

So if you work someone running an RCA BTA-1 1KW broadcast rig, that's three points right off the bat, one for making the contact, two more for 250 pounds AND 250 watts; add a point for states and different rigs as appropriate.

Suggested operating frequencies are:  
1885 KC Eastern USA, 1900 KC Western USA,  
3870-3890 KC on 75 meters.  
7290 KC on 40 meters.

Contest logs should be mailed to my home c/o QRZ address or sent to me by email.  
heavymetalrally@earthlink.net

ER will be issuing certificates to all participants returning logs.

Like last year, a trophy will be offered to the Tall Ship AM station that shows up in the most returned contest logs. To qualify, the trophy winner MUST be running a transmitter that qualifies as 250 watts and/or 250 pounds.

The ER Magazine website will have details on all upcoming operating events. 73 -Bill

From jordana@nucleus.com Thu Dec 5 16:39:36 2002  
Subject: [R-390] Brian Jeffrey e-mail address..?

Hi does anyone have the e-mail address for Brian Jeffrey..? 73 de Jordan...

From jordana@nucleus.com Thu Dec 5 19:47:00 2002  
Subject: [R-390] TMC Multi-coupler help...

I'm looking for docs and or a manual for a TMC , or even someone who could verify a few component values for a TMC Solid State HF Receiver Multi-coupler...

The unit I have is Labelled as a TMC 6808 Multi-coupler, but that is probably not the "Official" ID....

This unit uses a JFET RF device in the pre-amp board, a 2N3823, followed by a pair of unmarked ( unreadable ) transistors, and finally a 2N2368 ( Buffer?) on the preamp board before the signal goes to the individual dual BNC output boards....

I have pictures of the unit , and the board in question if that is of any help...73 de Jordan  
<http://www.ermag.com/index.cfm>

Let's cut to the chase:

What I thought I had was an HP 105A Quartz Oscillator described as: 6625-00-480-8675; Calibrator, Frequency; Unit Price: \$2,259.87; CECOM, Stock funded, Repairable item, DLA/GSA managed item that cannot be identified to any specific Army weapons system/end item. FSC 6625 Is TMDE Testing, Measuring and Diagnostic Equipment

What they have it identified as: 4931-01-020-4514; Generator, Signal; Unit Price: \$7,146.00; AMCOM (Missiles, missile material), Telecommunications equipment, repairable item, Calibration. FSC 4931 is Fire Control Maintenance and Repair Shop Specialized Equipment. DEMIL B (requires DOD release to sell overseas). DEMIL Q (requires DOS release to sell overseas).

I'm the third hand party. The original purchaser bought a pallet of assorted electronic components, with no detailed list of items, for \$45.00 from DRMO at Hill AFB, UT. The second party bought it from him for \$50.00. I traded some electronic items for it. The only reason he could find me is because the three of us know each other and knew the chain of custody. If the chain was broken the last possessor would have to make a sworn statement as to the disposition of the instrument.

The HP 105A is an HP 105A. No special components or ruggedized case. One agency spends 2.2K\$ for

it and another spends 7.1K\$ for the exact same thing. The government sells it for less than \$45.00 and then spends thousands of dollars to make sure an item that can be bought from most any surplus electronic dealer in the W O R L D isn't sold overseas without DOD/DOS release.

I showed him print outs from WWW sites of dealers in the US and Germany that had HP 105A's for sale.

Oh yeah, He parted by saying that the events of 9/11 has caused more interest in the monitoring of DRMO sales and that he would be contacting me in three months to see if I still have the SIGNAL GENERATOR.... RICH @B> }

From kellerfamily01@charter.net Fri Dec 6 18:00:49 2002  
Subject: [R-390] R-390A Meters

Everyone, I have a set of replacement meters for the R-390A that are surplus to my needs. These are not original type meters. They are the exact same meters that Fair Radio will provide for you for \$55.00 extra if you buy one of their "Checked" R-390As for \$495.00. They are black with a black face and white lettering. If you go to the Fair Radio website, you can see what they look like on the radio. These meters are in good shape - they are not beat-up or scuffed up at all. Since I am not trying to make a profit on these meters, I will make them available - first come, first served - to whomever wants them for \$55.00, and I will pay the postage to send them anywhere in the continental U.S.A. Send me an email if you are interested. Bill Keller

From kellerfamily01@charter.net Fri Dec 6 22:09:57 2002  
Subject: [R-390] R-390A Meters

Everyone, the meters were spoken for within minutes of posting. Sorry I did not have enough to go around. Bill WB5KXO

From wohlsson@comcast.net Mon Dec 9 01:47:23 2002  
Subject: [R-390] F102 FUSE BLOWING

Hi guys, Just picked up a r-390a from the estate of a silent key...I wanted one because I loved them when I was in the navy. Figures that I would have problems right from the start. The F102 1/4 amp fuse blows. I need some direction on where to start and who is a good source for parts to replace all the bad ones that your going to tell me I need. I'm not a real expert when it comes to repairing radio's, but I'm will to give it a shot. Especially don't really want to ship this for repair, just to have it destroyed en route. Thanks and 73'S.....Bill Ohlsson....WA8BDA

From Walter Wilson" <walter@r-390a.us Mon Dec 9 03:06:11 2002  
Subject: [R-390] F102 FUSE BLOWING

Bill, Congratulations on getting your first R-390A. I hope you have fond memories of these fine receivers from your Navy days. Your problem could be one of the filter capacitors, more likely C606. The last one I worked on that blew fuses had a bad C606 electrolytic. You can either rebuild the existing aluminum cans, or wire new caps underneath the AF deck. My website shows how I rebuild the aluminum caps if that's the way you decide to go. Good luck. Walter Wilson - KK4DF <http://r-390a.us>



From tarheel6@msn.com Mon Dec 9 03:33:31 2002

Subject: [R-390] Dick Walser passes away -- was remanufacturer of R-390A's in the 70's and 80's

I just learned that Dick Walser passed away on November 2. He was 85 years old. Dick was mentioned often in the HollowState Newsletter back in the 1980's and early 1990's...

What is not as well known is that Dick co-founded Airborne Electronics, a firm that remanufactured R-390A's in the 1970's and 1980's. In addition to rebuilding nearly 1,000 radios for companies such as Columbia Electronics, agencies of the US government and defense agencies of various South American countries, his company also designed a switch selected USB/LSB module (that sat on an L-shaped bracket behind the front panel), complete with a "new" front panel relettered to be consistent with the USB/LSB switch.

Dick was one of the nicest gentlemen I've ever met. His knowledge of R-390A's and R-390's (and electronics in general) was enormous, and he would readily and enthusiastically answer technical questions from anyone who called. I'll miss Dick Walser very much ... as I'm sure all of us will who ever had any contact with him. Dick leaves a legacy of a pioneering spirit, sterling character, devotion to family and lovely wife DeeDee of 60 years, and an unselfish willingness to helping others that are the hallmarks of a well-respected elder statesman. --tom

From rbethman@comcast.net Mon Dec 9 03:34:47 2002

Subject: [R-390] F102 FUSE BLOWING

Bill, Walter gave you very GOOD advice. I would like to add to it.

Check the tubes in the Audio deck also. I had mine blow the same fuse. Look on the board underneath the Audio Deck. Look for overheated and possibly discolored resistors - especially the first one, a 2 watt job. That's what I found, and the cause proved to be an audio tube shorted. These are lot's of fun to use and work on. Good Luck! And keep us posted on your efforts. Between the lot of us, we'll get you back up and running. Bob Bethman - N0DGN

From rbethman@comcast.net Mon Dec 9 03:42:12 2002

Subject: [R-390] F102 FUSE BLOWING

Bill, In fact, here is my quote on the find in mine: "The module isolation found two crisped resistors. Replaced same, recapped module. Popped fuse again, FINALLY tested tubes. One each 6AK6 in AF module shorted. Now back up and running just great!" Bob Bethman - N0DGN

From wohlsson@comcast.net Sun Dec 8 15:59:55 2002

Subject: [R-390] F102 PROBLEM --THANKS

Thanks to all you guys for the quick response. Have the af deck out on the bench now and will let you know what I find. by the way, this one is a collins ser#1834 and looks pretty clean. Thanks again and 73's to all.... Bill.....wa8bda

From Walter Wilson" <walter@r-390a.us Mon Dec 9 11:27:29 2002

**Subject: [R-390] F102 FUSE BLOWING**

**In addition, there is an excellent section in the TM 11-856A, p. 102, section 90, regarding how to check for B+ shorts. Unplug the AC power cord from the outlet, set the MC knob below 8MC, remove rectifier tube XV801, and connect an ohmmeter between pin 3 (or 8) and ground. You should have greater than 15000 ohms. Check with the BFO switch both on and off, and with the function switch in all power-on positions. If the reading is below 15000 ohms, remove the power connectors from the decks in the following order: AF deck (P199 and P120) IF deck (P112) RF deck (P108) VFO (P109) Crystal Osc deck (P110) Power Supply (P111)**

**If removal causes the ohmmeter reading to suddenly jump when disconnected (and it started below 15000 ohms), thoroughly check this deck for problems. In the aforementioned manual, paragraph 119 gives DC resistance checks for each subchassis. You'll need to check tubes for shorts, and then bypass capacitors for shorts.**

**If the short persists after all power connections are removed (prior to P111), the short may exist in the chassis wiring harness (if no problem found in the power supply subchassis).**

**There are further details in the manual for those cases when the B+ short only exists intermittently or when B+ voltage is present. I did not find a similar troubleshooting section in the R-390A Y2K manual, but someone else on the list may be able to find it and point to it there as well. Walter Wilson - KK4DF**

From woodrat@citynet.net Mon Dec 9 14:26:34 2002  
Subject: [R-390] Fuses and Parts

I have checked the "usual suspects" without result.....where does one find the 1/8th amp B+ plate fuse?

On an unrelated subject. Did anyone notice the R 390A pieces on Ebay last evening? Seemed as tho the gentleman has disassembled a 390A and sold it as pieces.....it certainly brought more than a complete receiver would be worth. Sad there is one less 390A in the world, and more sad that the prices fetched make most of the "extras" that I would like to have way beyond my modest resources. The meters went off at \$129.50. Seems depressing. Larry Cogan

From tadashi@a3.cktkv.ne.jp Mon Dec 9 15:22:55 2002  
Subject: [R-390] F102 PROBLEM --THANKS

Bill,

A couple of month ago, I had a same problem on my 390. At last, I found a defected Choke Coil(L603) in AF module. There are three Choke Coils in AF Deck. Please check the conductance between each terminal post of the Choke Coil(L601,L602, L603) and chassis. The conductance will be zero ohm, if the coil touches to their 'Hermetically-Sealed Case'. Good Luck! Taddy / JK1VXE  
<http://www3.cktkv.ne.jp/~tadashi/>

From bg1@firststep.net Mon Dec 9 21:03:46 2002  
Subject: [R-390] 14 MHz band position on R-390A

My R-390A has decided to stop working on the 14 MHz band only. All the other band positions are fine. I am somewhat lacking in trouble shooting expertise and have no idea as to where to start. Any constructive comments to get me started on this would be extremely welcome. Thanks in advance, Bill Haselmire WX8S bg1@firststep.net

From woodrat@citynet.net Mon Dec 9 18:34:15 2002  
Subject: [R-390] 14 MHz band position on R-390A

Bill

The 17 MHz crystal controls the 14 MHz and the 31 MHz band.....check to see if it is also dead. If so, you will need to replace the crystal. You should be able to get one from Fair Radio. Larry

From woodrat@citynet.net Mon Dec 9 18:48:21 2002  
Subject: [R-390] 14 MHz band position on R-390A  
Message-ID: <00af01c29fb3\$8cd61d40\$cd4c953f@ibmcustomer>

Bill: PS.....look on the bright side.....there's nothing but annoying Hams on the band you lost.....not like losing something serious like 5, 6, 9 or 15.....that would be unbearable! Regards, Larry

From Scott Seickel" <polaraligned@earthlink.net Mon Dec 9 21:02:02 2002  
Subject: [R-390] Fuses and Parts

> On an unrelated subject. Did anyone notice the R 390A pieces on Ebay last evening? Seemed as tho the gentleman has disassembled a 390A and sold it as pieces.....

I have been looking for a Hallicrafters SX-28 and prices seem to have gone through the roof. About \$200 more than a year ago. The recession certainly has not softened up the prices of vintage equipment. Seems an awful lot of the stuff is being won by overseas bidders and leaving our shores. Maybe with the currency exchange rates the stuff is a bargain. I don't know. Atwater Kent cathedrals that I paid \$400 for 6 or 7 years ago are selling for \$800. Just crazy. The audiophiles are sending tube prices through the roof also. I paid \$500 for a Hickok 539C 2 years ago and now they are selling for \$1000 and more. I can go on and on.....when will it stop? I won't sell anything right now because it is so crazy. The front panel that just sold on e-pay caught my eye but for once I used my brain and did not bid.....I realized that it was silk screened and not worth very much. The other stuff went for good money. You probably can buy a bunch of 390a's from Fair Radio and sell them on e-pay as the prices realized there are quite a bit more than fair radios current prices. Or just part them out and sell the parts. Scott

From osamu.hazawa@tel.co.jp Tue Dec 10 06:13:18 2002  
Subject: [R-390] Black Lettering

Recently, I acquired an R390A from Fair Radio (repairable/less meter). However, I felt something strange when I opened the package. Yes, there was an ugly "blue stripe" as usual (?) but I found all the lettering on the panel is black, not white! Is it normal? Or a rare case? Regards, - Osamu "Sam" Hazawa

From tadashi@a3.ctktv.ne.jp Tue Dec 10 07:41:05 2002

Subject: [R-390] F102 PROBLEM --THANKS

Hi Joe, I don't know reason why. I guess it broke by specular change. When I slam the angle of my desk with defective Choke Coil, the conductance returned to normal value. But, I don't want to get this Choke Coil back to the AF module again. :-) Taddy

From ham@cq.nu Tue Dec 10 12:11:34 2002

Subject: [R-390] Fuses and Parts

Hi, Well the prices that get paid for some stuff are pretty amazing. That said I can't see any big problem with selling a gizmo as parts compared to selling it as a whole unit. The objective is functioning radios. If a set gets parted out and the pieces bring good prices the people who bought the parts probably needed them pretty bad. Generally that would tell me they are going into a radio that is almost but not quite working. The net result of parting one radio \*hopefully\* would be five working radios. I'd say that compares very well with the practice of buying two to get one working. Just a thought .Bob Camp KB8TQ

From courir26@yahoo.com Tue Dec 10 12:37:09 2002

Subject: [R-390] Black Lettering

Sounds like a rare case from a re-do in the military. The drawings clearly call for white lettering so this was not done originally. 73 Tom

From pha@pdq.com Tue Dec 10 13:46:48 2002

Subject: [R-390] Fuses and Parts

I didn't see the person selling any of the decks, just the stuff you'd get off a frame. The knob set and meters at least go towards making two other possibly incomplete radios complete again. Paul

From wa1qhq@yahoo.com Tue Dec 10 14:04:35 2002

Subject: [R-390] Black Lettering

One of my R390As from the St. Juliens Creek massacre has black lettering on a panel that is much lighter in color than your typical R390A so the black lettering would show up better in this case. The receiver was a Navy unit. Is possible that this is a paint scheme specified by the Navy? I do think that the black lettering is rather common. Mark WA1QHQ

From owens@atd.ucar.edu Tue Dec 10 15:23:26 2002

Subject: [R-390] Z-503 replacement & R-542 value

Some archive info on the value of R-542 suggests 470 ohms instead of the original 2.2K-ohm value. I'm curious about this. How does decreasing the value of a de-coupling resistor improve performance? The archive info is a couple years old. What is the current thinking on the value of R-542? And what performance improvement is achieved by decreasing it to 470 ohms?

I'm replacing Z-503 (the hard way) and since I'm in that part of the IF chassis I thought I'd replace any

out-of-spec component at the same time. Chip, NW00

From courir26@yahoo.com Tue Dec 10 19:07:10 2002  
Subject: Panel Paint: was RE: [R-390] Black Lettering

This is what the specs say about the paint and lettering. Tom.

### 3.7 Marking.-

3.7.1 General.- Marking shall conform to Specification MIL-M-13231. (See 4.4). Front panel marking shall be Group I as described in that specification. 3.9 Finish, protective.- The equipment shall be given protective finish in accordance with Specification MIL-F-14072. This includes finish of hardware, such as handles, screws, etc., and necessary touch-up after mounting. The final paint film on type I surfaces shall be final film E, semigloss, lightgray enamel, conforming to Specification MIL-F-14072.

From frledda@attbi.com Tue Dec 10 19:09:49 2002  
Subject: Panel Paint: was RE: [R-390] Black Lettering specification.

THANKS!

From mark.richards@massmicro.com Tue Dec 10 19:18:11 2002  
Subject: FW: Panel Paint: was RE: [R-390] Black Lettering

I've read that various service units often would repaint their R390's to match other gear. Black, if my feeble memory is correct, was Air Force. -m-

From AB3L1@aol.com Wed Dec 11 20:03:00 2002  
Subject: [R-390] ID of 390 Manufacturer

Hello, I am the new owner of a R-390. It has no S/N tag on it but the PTO is Collins. Does this make it Collins built or did others just use the parts to build theirs? Are repro S/N plates available? It seems very complete from an inexperienced look. The first job was to put the Oldham coupler back together at the oscillator box. The prior owner had ordered the middle insert and never installed it. Was stuck on 20 M for a few years. Thanks, Bob

From oldradio@tin.it Wed Dec 11 20:46:44 2002  
Subject: [R-390] ID of 390 Manufacturer

Bob, good sign. It can be a real Collins. Regards Claudio <http://www.i-t-corp.com/claudio/>

From jordana@nucleus.com Wed Dec 11 20:53:22 2002  
Subject: [R-390] Re: TMC Multi-coupler help...

Ok.. well I am well into the repair of this unit... This unit appears to be somewhat unique in that it uses a FET front end device, and it operates on -26VDC from the internal power supply... It also uses common Drain circuitry due the negative voltage operation... I would think it uses a 26 Vdc potential for an

increased dynamic range...The FET device , a 2N3823, Subs to an NTE-459 , and I managed to find two of these in the entire city....it feeds a pair of non-original ECG106 transistors which appear to be obsolete devices, but the recommended sub is an ECG/NTE-159... these feed the 2N2368 buffer....

Can anyone provide hints as to what the value of the -26Vdc source dropping resistor might be..? The replacement resistor is totally open, and the only bands left appear to be a red first band, a second band that could be either red,orange or brown... I think it may be red, as red/orange/x would be an odd value....

The drain is bias above ground ( or below actually ), by a 1 K resistor... there is also a slight bias applied to the gate through a 1.2M and 120K to ground divider , in series with a 50K ohm 10 turn pot.... Looking at the circuit, I can't think of a reason for it to cook so severely without damaging other components, and it is located right next to the 1K drain resistor which has been replaced as well, but there is no sign of the board being burned... The unit was tried and found to be functioning very poorly, and that may be due to the open resistor alone, or the FET device may be shorted, although FET VOM testing does not show any shorts....any ideas...??? 73 de Jordan....

From DAVEINBHAM@aol.com Wed Dec 11 21:46:35 2002  
Subject: [R-390] ReCap Kits

I have been doing the recap kit for the R-390A for just over 2 years now. Average sales have been about 2 1/2 kits a month. However, sales have slacked off to 2 in the last 2 months. Does that mean everyone who wants a recap kit has one ?

If I am to keep on doing the recap kit I need orders. I have 19 kits in stock right now, 4 in-the-can kits & 15 under-the-chassis kits ready for same day shipment. If you guys want me to keep on doing the recap kits, please tell me---- better yet, order a couple of the kits. Your radio will thank you. Why not give your R-390A a ReCap kit under the Holiday Tree this year ? Regards, Dave

R390A capacitor kit.

I have put together a ReCap kit for the R390A .It consists of:

(13) 0.1 ufd, 600V

C256, C309, C504, C505, C517, C521, C528, C531, C536, C538, C543, C547, C548

(7) 0,033 ufd, 600V

C275, C529, C533, C534, C541, C545, C602

(7) 0.01 ufd, 600V

C549, C553, C601, C604, C605, C607, C608

( The above are Orange Drops or equivelent. )

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

(2) 47 ufd 300 v electrolytic C606A, C606B

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

Finally, one each of :

0.047 ufd 100v C227  
8 ufd 30v tantalum electrolytic C609  
50 ufd 50 v electrolytic C103  
0.22 ufd 100 v C101

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

so, I will include a very high quality poly cap. I have installed one of these in one of my R390A's and I can say I cannot hear any difference. They work great. This is the AGC capacitor.

The price for this recap kit is \$80.00 US funds. Price includes UPS or US post delivery. Canada and Mexico US\$85. Western Europe, South America and Pacific rim US\$90, rest of world US\$93. All sent airmail if possible. ALABAMA RESIDENTS MUST ADD US\$3 STATE SALES TAX. PayPal payments will be acceptable through the end of this month only as they have proved to be a monumental pain in the ass. PLEASE ADD US\$3 TO ABOVE AMOUNT IF YOU WANT TO PAY BY PAYPAL. MY PAYPAL ACCOUNT FOR RECAP KITS IS : biologicalinst . Please DO NOT use DAVEINBHAMS Send orders to:

Dave Holder  
Biological Instruments, Inc.  
820 South 29 th. Street  
Birmingham, Alabama 35205-1004  
USA

Payment may be check or US currency. ( If you send cash put it in an envelope inside the envelope you mail. AND IT IS ENTIRELY AT YOUR RISK) Sorry, no credit card orders.

Before anyone starts to bitch about the price, please bear in mind, my gross profit will be about \$3.12 per order. That should earn me something less than minimum wage..... before corporate and personal taxes. I reserve the right to withdraw this offer if it gets to be a pain in the butt. Dave

----

From courir26@yahoo.com Wed Dec 11 22:03:48 2002  
Subject: [R-390] ID of 390 Manufacturer

Repro tags are available from Fair Radio. Make sure you measure the holes where the tag goes. The longer tags were on the early Collins and Motorola. You can usually tell who made the RF deck (tends to stay with the frame) of the radio by looking at the dial counter. It will likely say "Veedor Root" and one other maker on it (this is not foolproof, however). Some makers stamped the back of their frames (Motorola, Stewart Warner, EAC) while others did not (Collins). Keep digging and more info will surface. Look at all the modules. 73 Tom

From jordana@nucleus.com Wed Dec 11 22:42:41 2002  
Subject: [R-390] Re: TMC Multi-coupler help...

From AB3L1@aol.com Thu Dec 12 02:16:24 2002

Subject: [R-390] R-390 Followup and Thanks

First of all, thanks to the many replies I've gotten so far on my 390 inquiry. Too many to continue thanking individually. Per suggestion I checked the modules for the serial numbers. Things marked Collins were: the readout, PTO; S/N 2963, the power supply; S/N 68, and the RF deck cans. So I take it from all of this that we are talking Collins made. I have the serial numbers from the other modules. Would any of these direct me to a serial number for the radio? I did not see any chassis stamp elsewhere Bob

From jordana@nucleus.com Thu Dec 12 21:43:56 2002  
Subject: [R-390] TMC Multi-coupler help...Update..

Ok.. I have replaced the FET device with the NTE452, and it works much better...

I removed the ECG-106 transistors, and replaced them with a pair of ECG-159 transistors, but this caused more problems than it solved.. Apparently the ECG-106 devices are a low to moderate gain device, and the ECG/NTE-159 are a medium to high gain device...They got much hotter and only added to the IMD... The measured HFe of the ECG-106's are around 50, and the ECG-159's measured at around 110....one of the two 106's actually measured very low, at around 20, and is probably on it's last legs... this device was the one with the large heatsink...

The unit is a godsend on 50-500 Khz with the BCB reject filter inline, and actually adds about 5-10 db of usable gain on the lower frequencies...cleans the BCB crud up to where it's non-existent....

I'm not quite finished, but I cannot find any ECG-106 or NTE-106 devices in stock anywhere in Canada, and with the Holiday mail crush being what it is, I will probably have to wait until after the holidays to order some from a U.S. Distributor....

I would also like to add a couple more of the output boards, but they might be pretty tough to locate... I would like to have 10 outputs working, and currently have 3 boards giving me 6 outputs... I have 4 R-390A's and would like to feed both the balanced and unbalanced inputs individually , and have a couple of spare outputs for "spare" receivers, or for receiver comparisons.... 73 de Jordan....  
Jordan wrote:

From pwokoun@hotmail.com Thu Dec 12 22:00:45 2002  
Subject: [R-390] R390A line level meters

Hi all: I have several line-level meters for the R390A receiver. These are reconditioned, removed-from-service ones in good condition.

They originally had black on white meter scales. However, I took my R390A meter apart and scanned its meter scale. New meter scales were then fitted to these meters with the original white lettering on black background. Each meter was verified calibrated at the 0 dB point to 0 dBm. With graphics enhancements these meters look \*better\* than my faded original.

I don't have a digital camera but can send you a scan of the face from one of them. I'm offering them to this group first. Asking \$55 which includes shipping to US addresses. Happy Holidays, pete

From djmerz@3-cities.com Thu Dec 12 23:35:49 2002



Subject: [R-390] UTC 68819 xfmr?

Hi, does anyone happen to know the prim/sec impedance of a UTC 68819 transformer, Army #2Z9986-2; the box is marked ?50-ohm to 75,000 ohm but not legible enough to make out the primary. It's small unit about 3 inch high, thanks, Dan.

From pwokoun@hotmail.com Fri Dec 13 15:44:42 2002

Subject: [R-390] R390A line level meters

Hi all: The line level meters have all been spoken for. Wish I had a lot more for the others! pete

From drewmaster813@hotmail.com Fri Dec 13 18:11:56 2002

Subject: [R-390] Re: UTC 68819 xfmr

Dan, You can easily determine the unknown impedance from voltage measurements. Apply an AC signal of appropriate frequency to the known winding (110 VAC 60 Hz works well for a typical high impedance audio transformer winding). Measure AC voltage on secondary. Divide this by primary voltage and square the result. This gives you the impedance ratio from which you calculate the secondary impedance. I have used 6.3 VAC on a low impedance winding and measured the resultant on the high impedance winding. Don't apply high voltage to a low impedance winding or you'll let the smoke out. Drew

From dsmaples@comcast.net Sat Dec 14 01:13:22 2002

Subject: [R-390] Re: UTC 68819 xfmr

Drew: That's an excellent technique. I think in this case I'd be inclined to apply 6 VAC to the 75,000 ohm winding, and measure the other winding. That way the resultant will be in the millivolt range, and the transformer won't pull any serious current... Dave WB4FUR

From djmerz@3-cities.com Sat Dec 14 02:08:39 2002

Subject: [R-390] Re: UTC 68819 xfmr

Hi all, thanks for the suggestions on the transformer. It was id'd by one member as 150/75000 ohms, a transformer used in RC 47a & c (probably from the 40's or late 30's) same as UTC 46779. After first suggestion to do so, I measured it as 187 ohm /75000 ohm so am satisfied I know what it is to the degree I need to know (still curious why the voltage ratio didn't give the exact impedance ratio though). Since my first query, I dug out three more of these in my pile plus some other interesting input transformers including some WE transformers and some signal corp small xfmr's so I have a number to experiment with and explore. thanks to all for providing what I needed. Dan

From davemed@davemed.com Fri Dec 13 23:04:27 2002

Subject: [R-390] R-390 site is down

My R-390 site is down, hopefully temporarily due to a serious disagreement I had with the web host resulting in me telling him to get lost!! I have a plan in hand and will let you know when things change for the better. Dave .

From davemed@davemed.com Fri Dec 13 23:31:11 2002  
Subject: [R-390] New Email address.

Please note my new email address davemed@davemed.com Dave

From mparkinson1@socal.rr.com Sat Dec 14 04:07:27 2002  
Subject: [R-390] FOR SALE 3TF7'S BALLAST TUBES

Ok here we go I have many many 3TF7's ballast tubes for sale. These are new old stock in the boxes all will be checked before I send them out. Price 35.00+5.00 shipping priority mail . Matt Parkinson KE6OUS . Or email me at mparkinson1@socal.rr.com Thanks.

From mparkinson1@socal.rr.com Sat Dec 14 07:10:53 2002  
Subject: [R-390] 3TF7's ballast tubes

I forgot to state that this is one only per customer . And we will see how it goes.35.00+5.00 shipping. Email me either here or my address If you send mail order it will be shipped right away personal checks will be held till they clear. Thanks Matt Parkinson KE6UOS

From redmenaced@yahoo.com Sat Dec 14 22:19:59 2002  
Subject: [R-390] Military Manuals,.... again.

I can't get into the Logsa site and I lost my link to the NIST, or NTSI site. HELP! Joe

From barry@hausernet.com Sat Dec 14 23:28:17 2002  
Subject: [R-390] Military Manuals,.... again.

Joe I had no problem just now testing some downloads. However, when I just did the first one, I got a warning message that the certificate didn't agree, but clicked to accept it. Maybe your browser isn't prompting for that. Or ....

What browser are you using. I've only had good results with Netscape. I generally use IE, but have to use Netscape on LOGSA and BAMA.

What's the N??? -- I think NTIS site you mean. I thought you could only look up manual reference numbers to order hard copy. Are there downloads on that also? Barry

From roy.morgan@nist.gov Sun Dec 15 01:32:32 2002  
Subject: [R-390] Military Manuals,.... again.

At 02:19 PM 12/14/2002 -0800, you wrote: >I can't get into the Logsa site and I lost my link to >the NIST, or NTSI site.

Joe,

My links to the Logsa place are not on this computer. I sent that link a while ago to Brad Thompson (copy to him) - maybe he can dig it out and let us know what it is.

NIST National Institute of Standards and Technology, one part (the major part) of The Technology Administration of the U.S. Department of Commerce (about 3500 people) <[www.nist.gov](http://www.nist.gov)>

NTSI National Traffic Safety Institute (appears to be part of the U.S. Department of Transportation, though the web site says nothing about that.)

NTIS National Technical Information Service, \*also\* a part of The Technology Administration of the U.S. Department of Commerce (about 150 people). <<http://www.ntis.gov/>>

Roy NIST employee

From w9wis@charter.net Sun Dec 15 02:00:31 2002  
Subject: [R-390] Military Manuals,.... again.

LOGSA link below..... [http://www.logsa.army.mil/etms/find\\_etm.cfm](http://www.logsa.army.mil/etms/find_etm.cfm) Mike, W9WIS

"At what point shall we expect the approach of danger? By what means shall we fortify against it?-- Shall we expect some transatlantic military giant, to step the Ocean, and crush us at a blow? Never!--All the armies of Europe, Asia and Africa combined, with all the treasure of the earth (our own excepted) in their military chest; with a Bonaparte for a commander, could not by force, take a drink from the Ohio, or make a track on the Blue Ridge, in a trial of a thousand years."

"At what point then is the approach of danger to be expected? I answer, if it ever reach us, it must spring up amongst us. It cannot come from abroad. If destruction be our lot, we must ourselves be its author and finisher. As a nation of freemen, we must live through all time, or die by suicide." January 27, 1838  
- A. Lincoln

From redmenaced@yahoo.com Sun Dec 15 03:12:45 2002  
Subject: [R-390] Military Manuals,.... again.

I GOT IT!! It didn't work AT ALL with MSIE 6.0

Had to use Nutscape, even then it crashed several times. Not much of a way to tell if its done downloading. Thanks for the help, Joe

From redmenaced@yahoo.com Sun Dec 15 03:16:35 2002  
Subject: [R-390] Military Manuals,.... again.

I didn't have to log in, only one manual came back as needing a password, that was one manual for the AN/URM-127, for some reason!

I didn't try any commercial stuff, oh, well, back to logsa, I need some more manuals. Joe

From Miguel Bravo" <mbravoc@wanadoo.es Sun Dec 15 10:13:41 2002  
Subject: [R-390] Military Manuals,.... again.

My trick with LOGSA and microploff 6.

If you, in the search result page, try to download with right click and "save as", will not get the manual don't wonder how many times tries to do. You must open any of them with double-left click. Then the security message appear, say yes and then cancel the opening of the pdf in the browser. Now you can download all what you need from the A directory with the save as (right click) button.

It work like a champ. Regards Miguel Bravo Cartagena - Spain

From w7itc@hotmail.com Sun Dec 15 23:20:20 2002  
Subject: [R-390] government addresses

I don't post here very often so I keep forgetting how this mail client handles replies. Sorry Roy I meant to send this to the group

<http://bp.fed.gov/>

this is the master phone book for the US Government. There are web addresses listed here as well.  
Kenneth A. Crips W7ITC

From jordana@nucleus.com Mon Dec 16 16:38:35 2002  
Subject: [R-390] IF Filter testing...

Hi.. is there a simple method of testing IF filters for throughput and resonant frequency..?? Specifically mechanical filters, ceramic filters etc..?? Anyone out there familiar with out of circuit testing of these...? Please any advice would be greatly appreciated... 73 de Jordan...

From drewmaster813@hotmail.com Mon Dec 16 18:20:39 2002  
Subject: [R-390] Re: R-390 digest, Vol 1 #496 - 8 msgs

Hello,

The 187 ohm vs 150 ohm discrepancy that you report could be due to measurement errors. Yes, the higher voltages must be used with discretion. I like to see meter readings in the multiple volt region where my instruments give better accuracy. Drew

From asolway@sympatico.ca Mon Dec 16 18:44:46 2002  
Subject: [R-390] Soldering Fine Gauge Wire

To All,

Some time ago there was a request on how to remove the the insulation on fine gauge wire as used in IF Transformers. One of the responses was to use an aspirin to remove the insulation. My question is,

what is the procedure. Any other techniques would also be appreciated.

The wire from L52, part of T1 in my SP-600, was broken. The remaining useable length is about 0.5 inch to short to reach the terminal it goes to. A splice is needed. I tried solder with only a flux and the iron without success. The insulation is a high temp type and will not melt with the soldering iron. The broken wire was most likely the original fault in the SP-600. I found it by accident while replacing the BBODs. Thanks and have a good day.

From vze2gmp4@verizon.net Mon Dec 16 07:17:24 2002  
Subject: [R-390] Soldering Fine Gauge Wire

I've so-so luck with the aspirin technique, best bet seems to use a cheap aspirin with no coating.

What I've been doing of late to tin small gauge wire on coils and toroids is to puddle a blob of solder on the end of an iron and then run the wire through the blob which burns off the insulation and tins it nicely after a quick wipe with a rag. -Helm.

From r.tetrault@attbi.com Mon Dec 16 19:37:02 2002  
Subject: [R-390] Soldering Fine Gauge Wire

I've been doing the solder blob as Helmut describes for years. Bob

From David\_Wise@Phoenix.com Mon Dec 16 20:40:36 2002  
Subject: [R-390] Military Manuals,.... again.

> From: >> It didn't work AT ALL with MSIE 6.0

Works ok here with IE5.5 128-bit. I was holding off on upgrading. Joe's comment might make that permanent :-)

OTOH, I can't download much of anything from BAMA with IE5.5 . I use LeapFTP instead. 73, Dave Wise

From keng@moscow.com Mon Dec 16 21:41:55 2002  
Subject: [R-390] Military Manuals,.... again.

> Works ok here with IE5.5 128-bit. I was > holding off on upgrading. Joe's comment > might make that permanent :-)> > OTOH, I can't download much of anything from > BAMA with IE5.5 . I use LeapFTP instead.

IE 6.0 works fine for me. However, on BAMA, when moving to the directory containing the file I want, I have to click "Refresh" at least once to see the files. After that, it works fine. Ken Gordon W7EKB

From rnharsh@attbi.com Mon Dec 16 22:25:13 2002  
Subject: [R-390] Experiences\Opinions Please

I see that Fair Radio offers several versions on the R-390. Can anyone offer insight on the condition of

equipment purchased from Fair Radio Sales? Ron H - K3PID

Remember - The world is run by those who show up!

From djmerz@3-cities.com Mon Dec 16 22:34:14 2002  
Subject: [R-390] Soldering Fine Gauge Wire

Al, I've done a few repairs similar to your task . I never liked the "heat it in solder until" technique - some coatings just are very resistant. I've gone down to about #44 wire size - and I scrape the wire by holding a flat piece of metal on one side and lightly scrape with a scalpel or xacto knife. You have to work different sides of the wire so it takes a little time - it helps to have a magnifier. Then when I've seen enough copper, I fashion a splice with small bare copper wire wrapped on the two ends you want to join, #38 or smaller, and solder the two joints. Fine tweezer help here. I've had very good success with this, especially on transformer windings and rf coils. Dan.

From mark.richards@massmicro.com Mon Dec 16 22:56:22 2002  
Subject: [R-390] Military Manuals,.... again.

I just went through a series of e-mails with LOGSA's help desk regarding access, as in order to download manuals, I needed a "mil" e-mail address. It seems that this is not available to us civilians. This system must be extremely insecure. -m-

From djmerz@3-cities.com Mon Dec 16 23:10:26 2002  
Subject: [R-390] BNC to MB adapter?

Hi, I need an adapter to take one end of a BNC jumper cable to type MB,( the small bayonet connector in a 390a). I believe this adapter is an Amphenol 47200 connector, like the i.f. output connector on the back of a 390a. I am going from the BNC connectors on a 390 i.f. chassis (male bayonet/female pin) to the corresponding two MB (female bayonet/female pin) cables on a 390a. I need two of these adapters. Does anyone have a couple of these to spare, know where I could find them, or know of another type of connector that will do the job without altering the connectors on the 390a? thanks, Dan.

From David\_Wise@Phoenix.com Mon Dec 16 23:13:43 2002  
Subject: [R-390] Military Manuals,.... again.

Note that some manuals are restricted. I tried it here on a couple of public files; worked fine. 73,  
Dave Wise

From Barockteer@aol.com Mon Dec 16 17:47:32 2002  
Subject: [R-390] Re: [Boatanchors] IF Filter testing...

Testing filters (and IF transformers) isn't that difficult, assuming you have access to a calibrated RF generator and means of measuring low level RF signals. This could be done with a modern general coverage HF receiver, assuming it covers the passband of interest. (Getting down to 50 KC might be a bit tough, but most rigs go down to 100 KC). The receiver S-meter can be calibrated using a step attenuator. Or, you can use a substitution method to achieve the necessary measurement accuracy.

The hardest part is the requirement that the source and load impedance of the filter needs to be terminated in the proper impedance for the filter to perform nominally. Often, the source and load impedances are not know, such as for older Collins mechanical filters. Also, some filters rely on external reactances (capacitors) to tune them.

If you can test them 'in situ', in the equipment where they are used, then signal injection/measurement techniques can be used and the termination issue is taken care of by the rig itself.

The easiest way to do it is with a \$20,000 network analyzer. However, it can be done with the kind of gear found in most ham shacks (once the termination impedance issue is addressed).

If there is interest, I would be willing to write up a sample testing procedure... 73, Tony, K1KP

From artu3@ecenet.com Tue Dec 17 02:00:26 2002  
Subject: [R-390] T-203

Folks: --

Have a Stewart Warner R-390A that in the past someone juiced with rf in the 75 meter position I believe. When I have an antenna connected and change the bands all have background noise "except" the 2 to 4 mc one.. This makes me suspect someone nailed the coupling cap in the unbalanced input of T-203.. I have the RF assy out but can't get the can to budge...even tho I've removed the phillips head screw I found down in the coil form...Can anyone help me out here ?? tnx in advance 73 Art W0EIZ

From buzz@softcom.net Tue Dec 17 04:19:46 2002  
Subject: [R-390] Soldering Fine Gauge Wire

I have a small bottle of paint remover on my workbench. I just dip the end of the wire in, wait a few seconds, then wipe the insulation off. Buzz

From cbscott@ingr.com Tue Dec 17 13:36:05 2002  
Subject: [R-390] T-203

Not sure, but if T203 is one of the cans that are all grouped together under the slug racks, there are two tabs that protrude through two slots in the can. Press the tabs through the slots and the can will slide off. You might look at ATC's website to see the innards of these forms. HTH,

From davemed@davemed.com Tue Dec 17 22:24:25 2002  
Subject: [R-390] [r390] R390 site is up again

Through the courtesy of Mark Richards the R390 site is available again at: <http://www.massmicro/r390>

Note the r390 is case sensitive. This is a temporary arrangement to insure this info is available to anyone interested. A more permanent arrangement will be made early in the New Year. The Compliments of the Season to one and all Dave

From mark.richards@massmicro.com Tue Dec 17 22:32:37 2002  
Subject: FW: [R-390] [r390] R390 site is up again

That should read: <http://www.massmicro.com/r390> -m-

From w5kp@direcway.com Wed Dec 18 01:40:09 2002  
Subject: [R-390] Line Level Meter Death

I am sad to report the demise of the line level meter in my #2 390A, which happens to be a '63 Imperial. Has anybody ever successfully fixed one of these things, or is it just a lost cause? Assuming it's the latter, is anyone willing to let go of one of their OEM backups they've got squirreled away? I'd only be interested in an original, I'll leave the dead meter in there forever before I'll install one of those cheesy looking plastic substitutes. 73, Jerry W5KP

From mark.richards@massmicro.com Thu Dec 19 05:15:55 2002  
Subject: [R-390] MHZ gear clamp busted

Hello to the R-390 group. I am so pleased that there are still enthusiasts of this fine radio active. May I draw on the knowledge herein?

I have stolen an hour from our demanding new twins :) (5 weeks old) and, while my wife and the children were snoozing, managed to begin some work to replace the MHZ Gear Clamp on my R390a. The MHZ knob never worked since I acquired this radio years ago. I never used it seriously and planned to rebuild it someday. Someday has arrived. Besides, my life has to consist of more than changing diapers and burping babies!

Through the good auspices of David Medley, I've secured a gear clamp. Now I need some good advice before I get myself into a deeper pickle.

It appears that it is impossible to replace the MHZ Gear Clamp without actually disassembling the entire shaft. I began this work by removing (actually breaking) the snap-ring on the end of the MHZ shaft and then tried to pull the shaft out, using the MHZ knob. Hopefully this is a common ring that I can get at the local auto parts store :) Anyhow, this method failed as it appears that a component of (the very novel) mechanical turns limiter is fastened to the shaft. I cannot determine how it's fastened, but it's definitely on there. Perhaps there is a pin driven to hold it in place? It does not appear possible to remove it with simple tools.

Therefore it appears my only option is to remove the front panel of the radio and then disassemble the front portion of the gear mechanism (the Veeder-Root counter assembly). Perhaps then I will have access so that I can slip on the new clamp?

I want to remove the front panel anyway and perform some of the cleaning steps you recommend but first wanted to make sure the unit was electrically sound before I messed up the mechanics.

Would any of you experienced folks be able to offer me some sound advice?

Oh, I did manage to power up the radio and found it to be actually in fairly good working order. It does appear that the sensitivity drops off dramatically below 7 MHz, however. I did not make measurements - these were simply done with a signal generator attached to a wire - yet the differences were dramatic



enough to suggest that there is a problem below 7 MHz.

I have a capacitor rebuild kit so once I get the MHZ gear back in service, I will strip the radio down, clean it up and replace the pesky capacitors.

One more question - regarding the actual MHZ gear. It is assembled, as you all know, as two thin gears, independent of each other but connected by a small spring. I understand this is an "anti-backlash" mechanism. When I reassemble things should BOTH of the MHZ gears be engaged with the gear they connect to or just one? How does the anti-backlash mechanism actually work?

So in summary my questions are (1) how to replace the MHZ gear clamp and (2) how should the MHZ gearing be engaged and (3) how does the anti-backlash work. Thanks for your kind help, Mark Richards K1MGY

From Walter Wilson" <walter@r-390a.us Thu Dec 19 10:58:13 2002  
Subject: [R-390] MHZ gear clamp busted

> So in summary my questions are (1) how to replace the MHZ gear clamp and > (2) how should the MHZ gearing be engaged and (3) how does the > anti-backlash work.

Mark,

You will have to remove the front panel. No real difficult steps here. First, set the KC setting at +000 (that's one KC above 999), and the MC at 7MC. Just remember to loosen the 1/4 shaft nut around the dial lock, and rotate the dial lock about 1/4 turn to disengage it from the KC disc. Shine a flashlight down in there, and you'll see what you need to do. Then loosen the 13 screws that secure the front panel and remove the knobs, and you're ready to go. Oh, and you'll have to loosen the clamps the secure the Bandwidth and BFO shafts to their respective shafts on the IF deck. Now pull the front panel loose from the MC and KC and AGC shafts, and tilt forward. It helps if the R-390A is sitting on a platform about 2 inches higher than your workbench or table, so that when the panel lays forward, its handles will rest straight against the working surface.

Now you have a more challenging task. If you set your frequency at 7+000, then all your camshaft marks should be aligned with the points of the camshafts. This was done just in case you move something during these next steps. You'll have to remove the veeder root counter, and all the gears in front of the front gear plate. Then you will be able to loosen the screws on the front plate and "gently" remove the plate. You should now have access to the MC gear clamp. After replacement and reassembly, check to see that the cams are still aligned, which will be the case if nothing bad happened while the front plate was off.

The MC gearing engages both of the split gears to the other wider gear, with about two gear-teeth of rotation to stretch the spring. Both teeth engage in the middle of the wider gear, and the spring is stretch if you get it back on correctly. The spring tension works in a fashion to pull the two gears to fill the entire width of the space between the gears of the wider brass gear. It essentially gives this split gear a variable width tooth, that stretches to fill any gap that might otherwise exist. IF the gear train moves smoothly, then this amount of spring tension is enough to overcome any gear friction. If the gear train has a lot of gear friction somewhere, then the anti-backlash features are basically defeated by the friction (that is stronger than the spring tension of the split gear).

**Your 7MC problem is very often due to C327, which is a 100pF capacitor. Your capacitor kit should contain a 100pF capacitor to replace it with. While it's not always a problem, I'd personally never go to the trouble to remove the RF deck without replacing this capacitor, the**

**three paper capacitors, and checking all the resistors underneath (there are several resistors that seem to be persistent problems). Walter Wilson - KK4DF**

From mark.richards@massmicro.com Thu Dec 19 12:02:53 2002  
Subject: [R-390] MHZ gear clamp busted

Walter and Matt - many thanks for your excellent advice! I suppose that, given I must at least partially disassemble the gears, it's not a bad idea to clean and re-lubricate everything, correct? I have read somewhere that once this is done the performance of the tuning can be quite smooth.

The pictorial for disassembly seems straightforward enough. We'll have at it! -m-

From Dave\_Faria@hotmail.com Thu Dec 19 14:31:22 2002  
Subject: [R-390] MHZ gear clamp busted

Hi Mark. It sounds like u r very new to these radios. I strongly suggest finding a friend near by with a 390a that u can use to "GO BY" for reassembly. The other option I like if u plan on keeping the radio is order a junker 390a RF deck from Fair Radio for future parts specifying that the gear train needs to be in tack. The gear trains usually r but, just to be sure. Using the 2nd deck u have a "GO BY" If u get lost and spare clamps if needed. I think Fair still sells the 390a deck for \$40 + shipping. Tightening the clamps I just use two fingers. I have rebuilt more than one deck where the builder was a little to aggressive and snapped the clamp by over tightening. The bristol wrenches can be gotten at most electronic suppliers. Fry's electronics has em if u have one near by.

If u don't have a manual I think the list has one u can down load from the net. There r alignment marks for positioning the cams which raise and lower the tuning slugs decribed in the manual. One hint - Always when installing clamps always aim the head of the clamp screw either up or down so that its accessible after the gear train is assembled. U will know what I mean after ur 1st deck. Dave Faria

From polaraligned@earthlink.net Thu Dec 19 12:12:54 2002  
Subject: [R-390] MHZ gear clamp busted

Why not rebuild the whole geartrain? You will be happier if you do. I have a complete rebuild and alignment instructions with many high quality pictures at: <http://www.r-390a.net/faq-refs.htm>

Just scroll down to tutorials and you will see the file there. It is a PDF file that you can download and print out. If you have any specific trouble I will be happy to help you.

5 week old twins Yikes!!! I have a 18 month old and a 5 year old and time is really in short supply around here. They are a whole lot of fun (and headaches!!). Enjoy them!!!! Scott

From Scott Seickel" <polaraligned@earthlink.net Thu Dec 19 12:22:09 2002  
Subject: [R-390] MHZ gear clamp busted

> Tightening the clamps I just use two fingers. I have rebuilt more than one deck where the builder was a little to aggressive and snapped the clamp by over tightening.

The aluminum used for the 390A clamps is cast is is very brittle. It is not hard to break these. On the

other hand, the 390 clamps appear to be extruded aluminum and I have not had one of these break yet. I think this change in the clamps was another cost saving step, and just another reason why the 390 is a better built radio. But yes, be very careful with the clamps and get 390 clamps if you can. Scott

From jbrannig@optonline.net Thu Dec 19 12:55:47 2002  
Subject: [R-390] NY Times

See today's NY Times "Circuits" section. "Rediscovering a secret of 60's sound: Vacuum Tubes" While the article is devoted to Audiophiles, it is still interesting. on why tubes have become popular

"The enthusiasm may be driver largely by baby boomers, who, with retirement in sight are casting about for a hobby. Not only do tube sets give a blast of nostalgic sound, they also give the owners something to do. Tubes degrade over time, and audio sets often have a bias control that can be adjusted to compensate for changes in the tubes. It requires just enough care to keep it interesting" " Tubes have another quality that transistors don't: they heat up and glow" Gee, this all sounds familiar..... Jim

From cbscott@ingr.com Thu Dec 19 16:23:34 2002  
Subject: [R-390] OT: Antenna question

Will these work properly in the northern hemisphere? <http://www.fairradio.com/023473.htm> Barry - N4BUQ

From r.tetrault@attbi.com Thu Dec 19 16:54:13 2002  
Subject: [R-390] OT: Antenna question

Now THAT is a good question. Who would volunteer to travel back and forth across the equator to settle this issue? And how far from the equator would be sufficient? Would it suffice to merely shift weight from one leg to the other; left hand to right hand? These are questions to try men's, uh, soles?  
Bob

From wb3akd@arrl.net Thu Dec 19 17:05:35 2002  
Subject: [R-390] OT: Antenna question

It depends on which hemisphere the sending station is in.

From Richard.McClung@Dielectric.spx.com Thu Dec 19 18:25:30 2002  
Subject: [R-390] OT: Antenna question

The Polarization of Ionospheric Waves is a Function of Magnetic Latitude.

A wave entering the ionosphere typically separates into two waves because of the interaction of the free electrons in the ionosphere and the earth's magnetic field. The two waves are called the ordinary (o-) and the extraordinary (x-) waves. When the direction of propagation is along or parallel to the earth's magnetic field, the two waves are circularly polarized, in opposite senses. When the direction of propagation is transverse to the earth's magnetic field, the electric field of the o- wave is polarized parallel to the earth's magnetic field and the electric field of the x- wave is polarized perpendicular to the earth's magnetic field. In the splitting of the two waves the MOF of the x- wave is typically higher

than the MOF of the o- wave. In general the o- wave is the dominate wave having less attenuation through the ionosphere compared to the x- wave.

In the Northern Magnetic Latitude the o- wave travels up from the transmitter in a right hand elliptical polarization (REP) mode and arrives down to the receiver in a left hand elliptical polarization (LEP) mode and is typically the strongest wave. The x- wave travels up from the transmitter in the LEP mode and arrives down to the receiver in the REP mode.

At the Magnetic Equator the o- wave is linearly polarized along the magnetic NS for a wave travelling up or down (transmit or receive). The linear polarization for the x- wave is along the magnetic EW for a wave travelling up or down (transmit or receive).

In the Southern Magnetic Latitude the o- wave travels up from the transmitter in the LEP mode and arrives down to the receiver in the REP mode and again is typically the strongest wave. The x- wave travels up from the transmitter in the REP mode and arrives down to the receiver in the LEP mode.

RICH @B> }

From r.tetrault@attbi.com Thu Dec 19 18:36:59 2002  
Subject: [R-390] OT: Antenna question

Hey. We didn't want a serious answer. But the truth is stranger than fiction. It would only get better if you did the engineer's hand waving dance to illustrate. Can you give us the equivalent in ASCII?

From w7itc@hotmail.com Thu Dec 19 20:47:35 2002  
Subject: [R-390] Military Manuals,.... again.

The answer to the BAMA problem is easy. Just download Netscape. Read the BAMA home page and you will see there are instructions as to how to download the files listed, and there are a couple of plug-ins for IE to enable the download. But it is easier to just download netscape. This is just about the only reason why I have Netscape in this machine. I have not tried a dwon load with Mozilla but I suspect it would work with this kissing cousin of Netscape. Kenneth A. Crips W7ITC

From r390a@enteract.com Thu Dec 19 21:15:03 2002  
Subject: [R-390] Military Manuals,.... again.

You can also use your favorite ftp client as documented in the BAMA FAQ. 73.../dave N9ZC

From dlwade@pacbell.net Thu Dec 19 22:01:31 2002  
Subject: [R-390] Military Manuals,.... again.

And just to second Dave's comment, an FTP client is a whole lot less overhead than installing Netscape for getting manuals off the BAMA site.

My recommendation is WS\_FTP. The lite version is freeware, it works great and doesn't take over your computer. Get it at : <http://www.ipswitch.com> Dennis

From Miguel Bravo" <mbravoc@wanadoo.es Thu Dec 19 22:25:21 2002

Subject: [R-390] Military Manuals,.... again.

I have been playing a lot and arrived to a very complicated trick. And then come Kennet and kiss it. It work. Wait till the "can't show the page" show up in the browser and then click refresh. Thanks Kennet. A Christmas gift. Miguel

From Jim Shorney" < Thu Dec 19 23:22:25 2002

Subject: [R-390] NY Times

wrote: >" Tubes have another quality that transistors don't: they heat up and glow"

Transistors do too heat up and glow. But it's not a good thing. Jim Shorney

From k4kwm@hotmail.com Fri Dec 20 00:57:26 2002

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

Well, I am about to begin my R-390A school. I have had my R390A for about 2 years now and it has always worked great. Left it on the other day by mistake. It was on maybe 4 days straight. Well now all I get is a faint hum from the speaker. Man I dread pulling that thing out of its cabinet. Have worked on a lot of Collins 75A types but this is going to really be new.

Does this receiver have a time delay relay? It has always been dead for over a minute and then I hear a click and it comes to life. Now no click and of course, no signal. It seemed as though an antenna relay was pulling in.

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

From eldim@worldnet.att.net Fri Dec 20 01:10:47 2002

Subject: [R-390] OT: Antenna question & BALLAST RESISTOR Question.

Holy Cow! Now that is what I call a "CHRISTMAS TREE ORNAMENT" that would look "COOL" on the top of the tree. LOOKS LIKE A RIBBON FOIL WRAPPED AROUND A CONE. 4-18 GHz? Just a little above the range of the R-390's capability. Of course you could mix it down. I wonder if you had a dozen of there antennas in parallel, could you treat these like 'Resistors in Parallel', and get the frequency down?

On a Serious note, and getting off the subject of Antennas and onto the "BOATANCHOR EXPRESS", does anyone have a AMPERITE CATALOG of Ballast Current limiting Resistors?

I would like to know if there is a 4HTF4 Ballast or if someone has a radio set that uses this ballast.

I believe that it may go into a TMC Transmitter or maybe a TMC Receive, but I'm not sure. Any info will be appreciated. 73, Glen Galati, KA7BOJ eldim@att.net Tacoma, WA

From tgrieco@optonline.net Fri Dec 20 01:34:13 2002

Subject: [R-390] Fw: Central Electronics model A&B sideband slicer

> I have a near perfect unit by Central Electronics model A&B sideband slicer here which looks like new. I really need to know > the current value if anyone out there can be of help as I will be looking to > sell it very soon, but could use some honest direction. Includes manual. Sorry for off topic, but where else will I get a response? > also. > Tnx, > Tim

From mark.richards@massmicro.com Fri Dec 20 05:15:25 2002  
Subject: [R-390] MHZ gear clamp busted

Walter,  
When you say 7 +000 do you mean 8.000 MHZ? (7.999+1?). I have seen this mentioned elsewhere and it seems confusing\* -m- \* to me, the feeble-minded one :)

From cbscott@ingr.com Fri Dec 20 14:33:11 2002  
Subject: [R-390] OT: Antenna question

Uhh, a simple "yes" or "now" would have been okay :)

BTW, thanks for the serious reply to the silly question. That's some pretty interesting "ciphering". Merry Christmas and Happy Holidays to all. Barry - N4BUQ

From bg1@firststep.net Fri Dec 20 20:18:22 2002  
Subject: [R-390] (no subject)

I have tried to open the site at: <http://www.massmicro/r390>

I keep getting a message "can't find page" Do I have some problem here? Bill Haselmire WX8S

From courir26@yahoo.com Fri Dec 20 20:46:21 2002  
Subject: [R-390] R-390, Low AGC Voltage

Group,  
I have a 390 with a low AGC voltage, runs about half of what my 390A deck runs.

The 503 coil works, AGC amp (V509) amplifies, rectifier rectifies, I've changed numerous suspect caps, volts look OK, tubes are OK, and yet I still have low AGC voltage. When I impose a negative DC voltage on the 3-4 terminals on the back, the gain goes way down, so I know the controlled tubes are being controlled.

The radio plays OK except AGC action is not as good as expected. It loses control on very loud stations such as BBC 5975.

I'm thinking of running a SS full wave bridge rectifier ahead of the tube rectifier to boost the rectified voltage, i.e. send only negative volts to the 12AU7 rectifier instead of the AC from the AGC amp output.

Has anyone ever tried this, or otherwise have suggestions about 390 AGC low level? 73 Tom

From mark.richards@massmicro.com Sat Dec 21 05:41:50 2002  
Subject: [R-390] More - MHZ gear clamp busted - removing gears

Walter, and others.

As many of you are very experienced with the R-390, I hope you will not mind my asking stupid questions. However I really want to avoid making mistakes, particularly with the complex mechanics of this receiver.

I am in the midst of a breakdown (not nervous, although this is also approaching) of the geartrain. I began this because the MHZ gear clamp is snapped. In order to get to it, I've first removed the front panel (taking all the steps outlined by others on this great e-mail list). Next, I removed the veeder root counter. Now I have two large gears staring at me, begging for removal. A photo of them is here: <http://www.massmicro.com/boatanchors/DSCN9065.jpg>

The gear in question is the one pointed out. I can determine how to remove the other one (there's a clamp). How in the world is the other gear removed? I am very concerned that I will break something in the process of trying to get it off. Also, it seems impossible to remove either of these without winding the KHZ settings slightly. Thanks for your help! Mark Richards K1MGY

From bgant@bellsouth.net Sat Dec 21 11:59:20 2002  
Subject: [R-390] trouble shooting the 390A

Hi all,

My 390A was working just fine when I took it out of service about ..... 15 yrs ago. I placed it on the back porch and there it sat untill last week. Brought it in the house, plugged it up and no signal. It has plenty of white noise. I can raise and lower the volume with either the RF or AF gain control, just no signal. I am guessing one of the I.F. stages is missing an osc. freq. but since I don't have proper test gear I can't be sure.

Will someone please hazzard a guess as to what the problem may be? Possibly someone else has experienced the exact same problem. TIA for any helpful brainstorming.

BTW, I do have a RF signal generator on the way. I also have a VTVM so I am hoping with these two pieces of equip. I can get my beloved rcvr working again. Giles.

From mark.richards@massmicro.com Sat Dec 21 15:42:20 2002  
Subject: [R-390] More - MHZ gear clamp busted - removing gears

Walter, and others.

As many of you are very experienced with the R-390, I hope you will not mind my asking stupid questions. However I really want to avoid making mistakes, particularly with the complex mechanics of this receiver.

I am in the midst of a breakdown (not nervous, although this is also approaching) of the geartrain. I began this because the MHZ gear clamp is snapped. In order to get to it, I've first removed the front panel (taking all the steps outlined by others on this great e-mail list). Next, I removed the veeder root counter. Now I have two large gears staring at me, begging for removal. A photo of them is here: <http://www.massmicro.com/boatanchors/DSCN9065.jpg>

The gear in question is the one pointed out. I can determine how to remove the other one (there's a clamp). How in the world is the other gear removed? I am very concerned that I will break something in the process of trying to get it off. Also, it seems impossible to remove either of these without winding the KHZ settings slightly. Thanks for your help! Mark Richards  
K1MGY

From mark.richards@massmicro.com Sat Dec 21 16:07:45 2002  
Subject: [R-390] (no subject)

The reference was not published properly. It is <http://www.massmicro.com/r390>

Hope this helps. Mark K1MGY

From pha@pdq.com Sat Dec 21 18:04:07 2002  
Subject: [R-390] Dead R-390A

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

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

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

There is an antenna relay - it should click immediately when you go from standby to on. It should turn off when you go to calibrate.

There should be no delay unless by some chance someone added something to accomplish that, but I have no idea why they would. I'd lean more towards a sticky or underpowered antenna relay.

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

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

From jamesmiller20@worldnet.att.net Sat Dec 21 18:44:32 2002  
Subject: [R-390] Dead R-390A

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



From redmenaced@yahoo.com Sat Dec 21 21:04:29 2002  
Subject: [R-390] More - MHZ gear clamp busted - removing gears

wrote:

> Walter, and others. > As many of you are very experienced with the R-390, > I hope you will not >  
mind my asking stupid questions.

+++++

HA! Go ahead and ask, we all started somewhere and that was the same place you are now at!

However I really > want to avoid making > mistakes, particularly with the complex mechanics of this  
receiver.

+++++

In order to avoid this you MUST download THE manual!

> I am in the midst of a breakdown (not nervous, > although this is also > approaching) of the geartrain.  
I began this because > the MHZ gear clamp > is snapped. In order to get to it, I've first > removed the  
front panel > (taking all the steps outlined by others on this > great e-mail list). > Next, I removed the  
veeder root counter. Now I have > two large gears > staring at me, begging for removal. A photo of  
them > is here: > <http://www.massmicro.com/boatanchors/DSCN9065.jpg>

+++++

Confucius say: First of all we must call everything by its proper name.

That is the "Zero adjust clutch". Associate it with its knob on the front panel. At this point you can  
determine how it works.

IF you should happen to dis-assemble it be sure to DRAW A PICTURE of it as it comes apart, there is  
nothing in the manual about this. Also, don't assume that the last owner put it together right.

> The gear in question is the one pointed out. I can > determine how to > remove the other one (there's  
a clamp).

+++++

At this point you may want to check the run-out on this shaft, its the KC CHANGE knob, being in the  
center of the front panel it is a good target for a shot to the side, it is often bent slightly.

How in the > world is the other > gear removed? I am very concerned that I will break > something in  
the > process of trying to get it off. Also, it seems > impossible to remove > either of these without  
winding the KHZ settings > slightly.

+++++

Don't worry about that, you'll do a mechanical alignment as you put it together, probably needs to be  
done anyway. It'll be good experience for you, too. You can clean and lube the gear train while you're  
in there. This is the best time to look for other problems, too.

Take the double gear sets apart and check the mating surfaces for burrs, remove them with a honing  
stone, this will let them slide against each other.

Get a set of dental picks to use when setting the cams in relation to the gear timing marks.

Can you juggle? It'll come in handy later. Joe

From ad5dh@amaonline.com Sat Dec 21 22:53:07 2002  
Subject: [R-390] Packing ans shipping for the R-390A

To all:

Job situation being what it is, or lack of, I will be selling my EAC R-390A in the near future. If I have to ship, I'm concerned about the packing and shipping of such a heavy piece of equipment. Any advise would be very helpful. Thanks for your time.

From k4kwm@hotmail.com Sat Dec 21 23:16:49 2002  
Subject: [R-390] Dead R-390A

Man, do I feel dumb. The dead R-390A was just a fuse. It has 3 fuses and looking from the rear, it was the one on the right. Labeled B+. Must me another source for audio B+ cause I definitely had audio hum from the speaker.

Still have the situation where I turn it on and it comes up and I get audio ( can hear it hum in speaker). Not AC hum but just, well you know what I mean. Then in about 45 sec I hear a click and instant signals. A least it works now. Just wonder what the delay could be????? Thanks to all who responded with ideas. Glad all it was just a fuse. But it do make you go "duh". John

From jbrannig@optonline.net Sat Dec 21 23:28:38 2002  
Subject: [R-390] More - MHZ gear clamp busted - removing gears

> Get a set of dental picks to use when setting the cams > in relation to the gear timing marks.

Dental picks? Jim

From redmenaced@yahoo.com Sat Dec 21 23:47:15 2002  
Subject: [R-390] More - MHZ gear clamp busted - removing gears

Yeah, to hook into the hole to pull the cam to where you need it and hold it while you tighten the clamp.  
Joe

From jbrannig@optonline.net Sat Dec 21 23:58:41 2002  
Subject: [R-390] More - MHZ gear clamp busted - removing gears

Good idea, thanks Jim

From odyslim@comcast.net Sun Dec 22 00:40:46 2002  
Subject: [R-390] in rush current limiters

I have seen the mod for a soft start for the 390-A and thought about doing it. While browsing on ebay, I noticed an external in rush current limiter that can be used. I wonder if anybody has used one of these before. It can be seen on Ebay, item # 1945055954. I am thinking of buying this item and wonder if anybody might have some input or experience with such an item. Thanks, Scott

Subject: [R-390] More - MHZ gear clamp busted - removing gears

> The gear in question is the one pointed out. I can determine how to > remove the other one (there's a clamp). How in the world is the other > gear removed? I am very concerned that I will break something in the > process of trying to get it off. Also, it seems impossible to remove > either of these without winding the KHZ settings slightly.

The clamp is in the "rear". Look under the alum plate. Follow the shaft the gear is on. The clamp is behind the gear and under the plate!!!! Don't worry about changing the settings slightly. If you download the PDF file of the rebuild as I previously pointed you to, then realignment should be simple if your settings change. Scott

From Scott Seickel" <polaraligned@earthlink.net Sun Dec 22 01:33:07 2002  
Subject: [R-390] in rush current limiters

Well Scott, that e-bay item would be the expensive way to do it. I purchased an excellent rebuild kit from Walter Wilson and it included the Keystone CL-80 inrush current limiter. You just solder it in-line with your AC power supply. If you do not need a complete rebuild, you can purchase the Keystone Current limiter from Mouser electronics for \$2.17. The web page in their catalog is:  
[http://www.mouser.com/index.cfm?handler=productsearch.\\_listproductsearch&searchtype=starts+with&criteria=cl-80&searchby=PartNumber](http://www.mouser.com/index.cfm?handler=productsearch._listproductsearch&searchtype=starts+with&criteria=cl-80&searchby=PartNumber) Scott

From Jim Shorney" < Sun Dec 22 04:11:32 2002  
Subject: [R-390] in rush current limiters

wrote: >Well Scott, that e-bay item would be the expensive way >to do it. I purchased an excellent rebuild kit from Walter >Wilson and it included the Keystone CL-80 inrush current >limiter.

Man, this is brilliant. This guy on eBay takes a couple of current limiters like you describe and a PTC for fusing, mounts it all in an electrical box with an outlet, writes some flowery text about it, and sells it for 30 bucks. I gotta order some of those from Mouser and get in on this deal... Jim Shorney

From cthulhu@fhtagn.org Sun Dec 22 04:31:14 2002  
Subject: [R-390] in rush current limiters

The ebay solution is \*convenient\* though. It is also portable. Could use it with several receivers.

On the subject of convenience versus price, does anyone have a good schematic for a solid state ballast similar to what Chuck Rippel sells for \$50. Yes, converse to what I say above about being convenient, I have several 390A's that I would like to fit with some sort of similar item. I may end up just buying them from Chuck, his are stable and RF-quiet. Tom Norris KA4RKT

From mark.richards@massmicro.com Sun Dec 22 05:23:00 2002  
Subject: [R-390] More - MHZ gear clamp busted - removing gears

Thanks to all for the great suggestions and help. I believe that I am on the right track now.

I intend to write all this up so that others may learn from my experiences too. There's a lot to these great radios. Happy holidays everybody. Mark Richards K1MGY

From DCrespy@aol.com Sun Dec 22 13:13:52 2002  
Subject: [R-390] Packing ans shipping for the R-390A

GT,

I have heard, and it makes real sense, that shipping it in 3 boxes really makes it easy to insure it reaches the destination intact. The radio's weight is its biggest enemy. It makes it more likely to be dropped. When it falls, because of its weight it will be more likely to be damaged. The trick is to ship the power supply module and the audio module in separate boxes. The radio itself will be amazingly light at that point.

Now from direct experience: double box everything with heavy duty boxes. Protect the front panel from direct contact between the packaging and the knobs, bezels and meters. I use foam insulation board from Home Depot, several layers deep, with cutouts for these areas (not each individual item, just the area where they reside.) Use foam board around the rest of the radio, about 1 inch thick, in the inner box. The outer can be similarly packaged, but the foam board is only needed on the corners and edges. Just be sure and put it in so it cannot move away from these locations (tape or glue). I have shipped a lot of radios this way without damage. Finally I never try to ship one as heavy as an R-390, unless I can divide it up as I suggested above. I have passed on opportunities to sell because of that. The heavy ones are "meet me or pick-up only" Good Luck, and 73 Harry KG5LO Saline MI:

From hankarn@pacbell.net Sun Dec 22 13:42:16 2002  
Subject: [R-390] Packing ans shipping for the R-390A

I make a 500# DW stapled box with custom cut polyethylene to fit all of the radios shipped complete. The boxes ship as UPS oversize 1, meaning they are charged as 30 # empty, Weight is about 15#. The RSC is a 24x22x15 which gets it under oversize 2 charges. They are \$60.00 plus UPS. I have one box that has had 6 trips out and back with no damage to R-390, 391 and several 390-A's.

I also make custom fit boxes for the S-line or whatever, just need the Dims. and weight.

The big problem is most hams want a Rolls Royce on a Echo/beatle budget. But never want to pay the price. The ones on the reflectors that have paid the price have no complaints.

NEVER USE PEANUT FOAM FOR BA'S. WADDED NEWSPAPER IS FAR SUPERIOR FOR FILLING AND AS DUNNAGE.

Been there done it for 22 years in the packing shipping business. Hank KN6DI

From rickmurphy1001@earthlink.net Sun Dec 22 14:28:17 2002  
Subject: [R-390] C-551

GM Has anyone found a replacement for C-551 - the oil filled AGC cap? Thanks for your time Richard

From DJED1@aol.com Sun Dec 22 17:32:01 2002  
Subject: [R-390] in rush current limiters

You can pay a lot or do it another way. Speaking of the current regulator- I replaced my dead 3TF7 with a resistor 20 years ago -didn't know where to get a replacement.. I cut off the tube top, wound enough nichrome wire on the tube envelope to get the correct voltage drop, and fastened the nichrome to the tube elements. Cost= 0, and still going strong. Unless you've got widely varying supply voltages, you'll never see the difference. I suggest you spend the \$50 on a 3TF7 and put it away for when you want to sell the radio- "L@@@K- R-390A with RARE! ballast tube". Ed

From Llgpt@aol.com Sun Dec 22 18:17:06 2002  
Subject: [R-390] in rush current limiters

Laughing.....just in time for the holidays, the never ending ballast tube thread!!

Your cure parallels the ones I've used over the years Ed. It sure as hell won't affect anything one way or another. Merry Christmas to everyone!! Les

From Walter Wilson" <walter@r-390a.us Sun Dec 22 19:09:50 2002  
Subject: [R-390] in rush current limiters

So many choices, and it doesn't seem to really matter which one you choose. They all work. I still like putting jumpers between pins 2 and 4, and between pins 5 and 7, and inserting a 12BH7. It's a tube of the same size as the 3TF7. With a tube shield on, you can't tell the difference. Walter Wilson - KK4DF

From w7itc@hotmail.com Sun Dec 22 21:18:06 2002  
Date: Sun, 22 Dec 2002 14:18:06 -0700

While we are on the subject of ballast tubes. I have another radio with one of these pesky tubes, a Zenith Transoceanic, and the infamous 50A1. I wonder why I couldn't replace this turkey with a resistor. Has anyone done this? I would love to have a ballast tube free hamshack. Kenneth A. Crips W7ITC

From liber.fab@iol.it Sat Dec 21 18:01:37 2002  
Subject: [R-390] Packing and shipping for the R-390A

Hello, just my "5 cents worth" message, hoping it can be useful...

I have sent and received several 390s, 32V (heavy !!) rigs using "FastPack" boxes, they are not cheap but re-usable many times, no needs to remove power supplies, just packed and shipped, never had any damage.

Our colleague Hank (hankarn@pacbell.net ) has them and will help anybody, he's a very kind person. 73 and MERRY CHRISTMAS to you all !! Fabio, IOLBE

From vze2gmp4@verizon.net Sun Dec 22 22:38:56 2002  
Subject: [R-390] in rush current limiters

Interesting that you happened to bring up the Transoceanic and its ballast tube. The general fix in the Zenith world if you don't have the bucks for a 50A1 is to replace the ballast tube with a 50A1 replacement which is actually a diode. Of course the TO boys then start worrying that there radio is going to lose it's tube sound!

In my 390a I've been using a diode. I've tried other ways except using a 12 volt tube, which I think is a real cludge, and the \$50.00 regulator which is overkill. Haven't been able to find a manufacturer that makes a constant current diode with a high enough rating yet, which would be a nice replacement for the 3TF7. -Helm. WB2ADT

From Jim Shorney" < Sun Dec 22 23:33:13 2002  
Subject: [R-390] in rush current limiters

wrote: >Haven't been able to find a manufacturer that >makes a constant current diode with a high enough rating yet, which would >be a nice replacement for the 3TF7.

Question, then: what is the regulating current of this curious tube? Three-terminal regulators can be configured as constant-current devices. Jim Shorney

From billsmith@ispwest.com Mon Dec 23 00:03:01 2002  
Subject: [R-390] in rush current limiters

The current is 300 ma. AC. It is simply the filament current of two 6-volt miniature tubes (v508-6BA6/5749, V701-6BA6/5749) in series. The source voltage is about 25 volts. 12 volts is taken by the two tubes in series, and the ballast and decoupling inductors drop the other 13 volts.

The idea is to build a 9-pin miniature tube plug-in replacement with no modification to the R-390A. Only two wires are fed to the ballast socket. Ground is not available unless obtained by a tertiary wire or the socket shield. Heat dissipation might be the biggest challenge in a plug-in solid-state replacement.

A very simple modification is to simply jumper the ballast pins 2 and 7 with a simple plug-in wire jumper and replace the 6-volt tubes with their 12-volt equivalents. The receiver remains very stable even when the filaments are not current regulated by the ballast tube.

Funny thing, think I put a 12AU6 in the PTO in the receiver here. Will have to check. It is working, but have always wanted to make an endpoint adjustment. Perhaps a 12BA6 will save the need for this adjustment.

As mentioned, another way is to solder-jumper 2&4 and 5&7 and plug in a 12BH7. The 12-volt filament of the 12BH7 drops the voltage in a somewhat similar amount as the ballast tube. Merry Christmas and Happy Holidays! 73 de Bill, AB6MT

From vze2gmp4@verizon.net Mon Dec 23 00:47:34 2002  
Subject: [R-390] in rush current limiters

> Question, then: what is the regulating current of this curious tube?

It's not a tube, it's basically a FET diode. They come in different values but not as high as .3 amps which is what is needed.

> Three-terminal regulators can be configured as constant-current > devices.

I know and what it's being used for is overkill. Why reconfigure a voltage regulator, three-terminal current regulators are also around. -Helm.

From AB3L1@aol.com Mon Dec 23 00:58:50 2002  
Subject: [R-390] METERS What To Do?

Hello,

I have been removing the knobs, counter cover and meter covers on my 390 for a redo. I'm looking at those meters and thinking that I want to open them up and give the glass a good cleaning. They work now. I would like them to be that way after I take them apart! Should I leave 'em be or is it an easy process to break whatever seal there is to get them apart?

I would imagine that the face markings would not make it thru any type of liquid cleaning. Correct?  
Thanks, Bob

From vze2gmp4@verizon.net Mon Dec 23 01:38:24 2002  
Subject: [R-390] in rush current limiters

> The idea is to build a 9-pin miniature tube plug-in replacement with no modification to the R-390A. Only two wires are fed to the ballast socket. Ground is not available unless obtained by a tertiary wire or the socket shield. Heat dissipation might be the biggest challenge in a plug-in solid-state replacement.

Put a diode (1N4007 will do) between pins 2 and 7. No muss, no fuss, no heat. YOU now have 12 vac for the two 6 volt tubes to fight over.

> A very simple modification is to simply jumper the ballast pins 2 and 7 with a simple plug-in wire jumper and replace the 6-volt tubes with their 12-volt equivalents. The receiver remains very stable even when the filaments are not current regulated by the ballast tube.

This was the first thing I tried when my first 3TF7 went bye-bye. One thing I noticed was one tube was brighter than the other. Second thing was my freq calibration was off over 2 khz. Measuring the voltage drop on the tubes one was sitting at 7 volts and the other at the other at 18. I went though a pile of 12ba6's before I got two of them to drop 12 volts a piece. Similar thing happens with using a resistor and 6ba6's. If you want good performance out of your receiver the correct filament voltages are mandatory. 5.7-6.9 vac for 6.3 volt tubes.

> As mentioned, another way is to solder-jumper 2&4 and 5&7 and plug in a > 12BH7. The 12-volt filament of the 12BH7 drops the voltage in a somewhat > similar amount as the ballast tube.

And as I mentioned, it's a useless cludge, extra work and some people actually think that a 12BH7 has to be used. Any 12 volt tube will do. While one rewiring the socket, put in a 12au7 and set it up as an internal product detector (one of those things I,m going to try when I get a round tuit). At least it does some thing besides producing heat and a rewired socket. It's attribute as having a controlled warm up filament is lost since the other two tubes are not.

My conclusion is that the best thing to put in the 3TF7 socket is a 3TF7. I think some people should also check the voltage drop across there tubes. Yeah, I know they all work. But at the expense of other problems. Unfortunately my 390a seems to go though one every 2months or so and it's a bit expensive. One can buy alot of good German lager for \$45.00. -Helm.

From Jim Shorney" < Mon Dec 23 01:42:20 2002  
Subject: [R-390] in rush current limiters

wrote: >> Question, then: what is the regulating current of this curious tube? >It's not a tube, it's basically a FET diode. They come in differant >values but not as high as .3 amps which is what is needed.

I was referring to the original ballast tube, not a solid-state replacement.

>> Three-terminal regulators can be configured as constant-current >> devices. >I know and what it's being used for is overkill. Why reconfigure a >voltage regulator, three- terminal current regulators are also around.

Why? Because they're cheap and common as dirt (I've got a ton of them in my junque box, including a couple of odd voltages, adjustable, and LDO); and because their behaviour is well documented and understood, including the need for adequate bypassing. One resistor of the proper value is all you need to make it a CC source. How it behaves with half-wave rectified AC is another question, however...

Jim Shorney

From billsmith@ispwest.com Mon Dec 23 01:48:35 2002  
Subject: [R-390] in rush current limiters

> A three-terminal regulator configured as a constant current source would not need a ground connection. Just a heatsink.

Is this practical in an AC circuit? Perhaps two circuits could be configured for each half-cycle and diode isolated. Think it is a bit of overkill, though. The oscillators don't appear to be that sensitive to typical changes in filament voltage. Fun to think about, though. Bill

From billsmith@ispwest.com Mon Dec 23 01:56:39 2002  
Subject: [R-390] in rush current limiters

> This was the first thing I tried when my first 3TF7 went bye-bye. One thing I noticed was one tube was brighter than the other.

A ballast tube won't help that problem, the two tubes in series will always draw the same current.

> Second thing > was my freq calibration was off over 2 kHz.

This is something I wish to examine in my receiver. Bill

From chacuff@cableone.net Mon Dec 23 02:18:26 2002



Subject: [R-390] in rush current limiters

Greetings,

The issue, as I understand it, with the three terminal voltage regulators is that they are noisy. They generate hash as they do their jobs that adds to the receivers internal noise level. I think you will agree, any mod that detracts from the performance of the radio is not an acceptable mod!

Talk with Chuck Ripple....he has been down this road...that is how he came to develop the device he offers. Cecil Acuff

From ToddRoberts2001@aol.com Mon Dec 23 03:17:28 2002

Subject: [R-390] in rush current limiters

<PRE>Some interesting points were brought up about unequal voltages occurring across two tubes with their filaments wired in series, either 2 - 12BA6's or 2 - 6BA6's when used in the R-390A BFO and PTO circuits. Unless the tube filaments have exactly the same cold resistance and the same hot resistance when running this unequal heating can occur - using a ballast tube or even a voltage or current regulator will not correct this problem of two tube filaments wired in series. I wonder if anyone else has tried the modification for the R-390A where the filament wiring for each of the BFO and PTO tubes is re-routed in parallel to the 6.3VAC filament buss used in the rest of the IF strip? It is not complicated to do and only involves unsoldering, re-routing and re-soldering a few leads in the underside of the IF strip. No extra wiring leads are needed. I have done this mod. on an R-390A to eliminate the need for the 3TF7. The 3TF7 socket is left empty and is non-functional after this mod. The receiver works fine and this insures the exact same 6.3VAC across the BFO and PTO tubes and retains the original 6BA6's for both. I confirmed the receiver stability by varying the line voltage + and - several volts with a variac. When tuned in to an AM broadcast station with the BFO turned on I could not detect any change in pitch when varying the line voltage several volts up and down to simulate line-voltage fluctuations. 73 Todd Roberts WD4NKG.

From Jim Shorney" < Mon Dec 23 03:31:28 2002

Subject: [R-390] in rush current limiters

wrote: >Put a diode (1N4007 will do) between pins 2 and 7. No muss, no fuss, no >heat. YOu now have 12 vac for the two 6 volt tubes to fight over.

Oh, I get it now. Half-wave rectify the filament voltage to accomplish a reduction in the average voltage. Average value of a half-wave output is .318 of peak, according to my reference. Doing the math, 25 VAC RMS into the rectifier would give 11.21 volts. Close enough.

What about rectifier hash? Jim Shorney

From Jim Shorney" < Mon Dec 23 03:33:09 2002

Subject: [R-390] in rush current limiters

wrote: >> A three-terminal regulator configured as a constant current source would not need a ground connection. Just a heatsink. > >Is this practical in an AC circuit? Perhaps two circuits could be configured for each half-cycle and diode isolated.

My question exactly.

>Think it is a bit of overkill, though. The oscillators don't appear to be that sensitive to typical changes in filament voltage.

Isn't the whole design of the radio overkill? :-) Jim Shorney

From Jim Shorney" < Mon Dec 23 03:38:51 2002  
Subject: [R-390] in rush current limiters

wrote: > The issue, as I understand it, with the three terminal voltage >regulators is that they are noisy. They generate hash as they do their jobs >that adds to the receivers internal noise level. I think you will agree, >any mod that detracts from the performance of the radio is not an acceptable >mod!

Agreed. That subject has been discussed in several circles involving sand-state radios, and anecdotal evidence exists claiming that proper bypassing can resolve this. I've seen lots of commercial designs (not just in radios) where the manufacturer ignores the bypassing recommendations provided by the device manufacturer. The way I figger it, they put that stuff in the databooks for a reason.

>Talk with Chuck Ripple....he has been down this road...that is how he came >to develop the device he offers.

I wouldn't expect Chuck to reveal his trade secrets to us... :-) Frankly, I'm leaning towards the guys who say to get rid of the dern thing entirely and run the tubes from 6.3v. And I haven't even begun working on my 390a yet... Jim Shorney

From jonandvalerieoldenburg@worldnet.att.net Mon Dec 23 04:22:19 2002  
Subject: [R-390] METERS What To Do?

> I'm looking at those meters and thinking that I want to open them up and give the glass a good cleaning.

Your treading into a potential dangerous area here. Most of the meters where marked with radium on their faces. Even if they no longer glow, they will still be "hot". Maybe the best route is to just leave them as is rather than risk inhaling any radium loaded dust. Jon AB9AH

From vze2gmp4@verizon.net Mon Dec 23 04:40:18 2002  
Subject: [R-390] in rush current limiters

wrote: wrote: > >Put a diode (1N4007 will do) between pins 2 and 7. No muss, no fuss, no > >heat. YOU now have 12 vac for the two 6 volt tubes to fight over.

>

> Oh, I get it now. Half-wave rectify the filament voltage to accomplish > a reduction in the average voltage. Average value of a half-wave > output is .318 of peak, according to my reference. Doing the math, 25 > VAC RMS into the rectifier would give 11.21 volts. Close enough. > > What about rectifier hash? Don't hear any. Is that good? -Helm. > > > Jim Shorney

From Jim Shorney" < Mon Dec 23 04:48:21 2002  
Subject: [R-390] in rush current limiters

wrote: >> What about rectifier hash? >Don't hear any. Is that good?

Well, I think so.... Jim Shorney

From ToddRoberts2001@aol.com Mon Dec 23 05:57:36 2002  
Subject: [R-390] in rush current limiters

writes: > If tubes are connected in series and equal voltage drops are required for > tube performance then shunt series regulation is called for. That's why the ballast tube is there, it's not just there to drop 12 volts, or because the navy had crummy generators on board ship. Same can be accomplished with a current regulator or constant current source. It's good design practice. The better receiver's of the past that had some tubes in series have ballast tubes going back to the 1930's. Try it. Measure the voltage drop on a 390a with it's ballast tube in place and you'll find they're quite equal. If the above statement you made came from a book, throw it away and get a >good one.

The last time I looked at ohms law,  $E=IxR$ . Unless the hot resistance of each filament in series is exactly the same, unequal heating can occur. I guess some people don't remember ohms law. 73 Todd Roberts WD4NGG.

From ham@cq.nu Mon Dec 23 15:08:14 2002  
Subject: [R-390] T-203

Hi,

This is a *\*very\** common problem with R-390's. The military blew out a lot of the 4 MHz coils. They had a problem with their setup that made this fairly common.

Apparently in the AN/SRA-xx antenna coupler when you set the receiver to "idle" it winds up tuned to 4 MHz. As soon as they fire up the transmitter on that band the transmitter power routes to the receiver input. The result is what you observe on the transformer. I know that doesn't help at all but at least it's noting you did to the set. On the ones I have had replacing the transformer is the only option. Take Care Bob Camp KB8TQ

From roy.morgan@nist.gov Mon Dec 23 15:20:13 2002  
Subject: [R-390] METERS What To Do?

wrote: ...even if they no longer glow, they will >still be "hot". Maybe the best route is to just leave them as is rather than >risk inhaling any radium loaded dust. Jon AB9AH >. I'm looking at those meters and thinking that I want to open them up >> and give the glass a good cleaning.

I concur. The radioactive stuff is *\*some\** (not all) meters is harmless if left in the meter. If you injest it, you are at risk for cancer.

Morgan's rule for Glowing Meters and voltage regulator tubes with radioactive stuff: DON'T BREAK THEM OPEN AND EAT THE INSIDES.

(Or the functional equivalent of trying to clean the inside of the glass) Roy

From tbigelow@pop.state.vt.us Mon Dec 23 15:20:22 2002  
Subject: [R-390] METERS What To Do?

wrote: > Your treading into a potential dangerous area here. Most of the meters where > marked with radium on their faces. Even if they no longer glow, they will > still be "hot". Maybe the best route is to just leave them as is rather than > risk inhaling any radium loaded dust. Jon AB9AH

Interesting that this subject has just come up. I'd always wondered about the meters in my R-390A and older R-390. Last night I'd been doing a little work in the radio room with lights on, then left for a while. I thought to take a small flashlight and go back in (thinking I'd need to charge the radium again) for a look. Well, the room was dark and the meters were glowing well enough that I could see the scale separations. The A model is a Teledyne, so I'm guessing early 60s for it. The R-390 is a Collins, probably early 50s?

Whatever the case, the radium is still very active. Don't think I'd care to dig into them for the sake of glass-cleaning, either. ~Boomer, KA1KAQ

From tbigelow@pop.state.vt.us Mon Dec 23 15:23:16 2002  
Subject: [R-390] in rush current limiters

wrote: > While we are on the subject of ballast tubes. I have another radio with one > of these pesky tubes, a Zenith Transoceanic, and the > infamous 50A1. I wonder why I couldn't replace this turkey with a > resistor. Has anyone done this? I would love the have a ballast tube free > hamshack.

I thought they had a little phenolic plug that inserted into the socket when the tube wasn't used? I would guess it has the correct pins jumpered? I'll take a look in mine over the Christmas holiday and see what it says. Seemed to me the 50A1 was an optional thing only needed where current wasn't stable? It's in the manual I think. ~Boomer, KA1KAQ

From Barry Hauser" <barry@hausernet.com Mon Dec 23 16:05:36 2002  
Subject: [R-390] METERS What To Do?

wrote > Whatever the case, the radium is still very active. Don't think I'd care to dig > into them for the sake of glass-cleaning, either.

The radium will be good to go for a few thousand more years, whether or not the phosphorescent paint loses its mojo and fails to glow. I think the deal is this -- the phosphor paint they use now on watch dials, etc. is "charged" with light. In the good old days, the glow-in-the-dark stuff was energized with the mystical atomic rays from the radium that was mixed in with the paint. (Look, Ma ... no batteries!) This way, it would glow 24/7 without need for light exposure.

Reminds me ... like that auto commercial with the cars of the future, according to all those magazines like Popular Science in the 50's. We were also supposed to be unhooked from the power co's by now -- and no need for gas or fuel oil. Yup, down in your basement shoulda' been by now a very small nuclear (not "nucular", dammit) reactor about the size of a toaster providing all the 'lectric and heat you'll need. Only needs to be recharged with more uranium or plutonium every few millennia. You should also have a fallout shelter fully stocked -- just in case something goes wrong with your reactor (or the neighbor's)

Sumpin's wrong .. I still have an oil burner down there.

Back to the meters -- if you open them and let the genie out, your hair and teeth won't fall out and you won't develop cataracts -- not immediately. Depending on your age and future plans, you might want to don your lead-lined jocky shorts, or stop by the dentist and ask to borrow that thing they put on you when they blast your head with X-rays -- which I suspect promote tooth decay, gum trouble and hair & teeth falling out, etc. Barry Runnin' -- duckin' & coverin'

From Jim Shorney" < Mon Dec 23 01:32:59 2002  
Subject: [R-390] in rush current limiters

wrote: >The current is 300 ma. AC. It is simply the filament current of two 6-volt >miniature tubes (v508-6BA6/5749, V701-6BA6/5749) in series. The source >voltage is about 25 volts. 12 volts is taken by the two tubes in series, >and the ballast and decoupling inductors >drop the other 13 volts.

Thanks for the info. This makes the comment about using a diode somewhat puzzling. ISTM that a diode is going to half-wave rectify the AC filament voltage and change the whole game about what exactly '300 mA' is. Which would start another never-ending thread, no doubt.

>The idea is to build a 9-pin miniature tube plug-in replacement with no >modification to the R-390A. Only two wires are fed to the ballast socket. >Ground is not available unless obtained by a tertiary wire or the socket >shield.

A three-terminal regulator configured as a constant current source would not need a ground connection. Just a heatsink. Jim Shorney

From Barry Hauser" <barry@hausernet.com Mon Dec 23 16:19:31 2002  
Subject: [R-390] in rush current limiters

> I thought they had a little phenolic plug that inserted into the socket when the tube wasn't > used? I would guess it has the correct pins jumpered? I'll take a look in mine over the > Christmas holiday and see what it says. Seemed to me the 50A1 was an optional thing only > needed where current wasn't stable? It's in the manual I think. >> ~Boomer, KA1KAQ Boomer & gang ..

I don't think so on that -- I've got a bunch of T/O's -- various series. All the 600 series I have or have seen came with the 50A1 -- which started with the very late 500 series and the military version of the 500 -- R-520. All the 600 series had it. (500 was last of the round dial, 600 was the sliderule dial). That phenolic plug may be an aftermarket replacement or someone's homebrew thing.

Check out Padgett's TO pages ... <http://www2.gdi.net/~padgett/tubedto.htm>

There's also something there about the selenium rectifier and ballast tube replaced by a silicon rectifier, etc. Barry

From tbigelow@pop.state.vt.us Mon Dec 23 16:29:25 2002  
Subject: [R-390] in rush current limiters

wrote: > I don't think so on that -- I've got a bunch of T/O's -- various series. All the 600 series I have or

have seen came with the 50A1 -- which started with the very late 500 series and the military version of the 500 -- R-520. All the 600 series had it. (500 was last of the round dial, 600 was the sliderule dial). That phenolic plug may be an aftermarket replacement or someone's homebrew thing. Check out Padgett's TO pages ... <http://www2.gdi.net/~padgett/tubedto.htm>

That makes sense - I don't have a 600 (yet), only a couple 500s and one with a sailboat on the grill. In the 500 it was optional I \*think\*, or it was an afterthought. In fact, either one of the rigs I have or one I passed on didn't even have a place cut in the chassis for a socket - it was just that purty gold hammertone paint. [-:

Seems they also had some kinda plug-in unit for using different voltages? Again, this is only on the 500. Many differing variations here, some included the nifty tube clips in the back, other didn't, etc. They're sure not in the R-390 class, but I'm still amazed at how well they can suck in the signals!

BTW, I've got a couple of parts units here and (amazingly!) one of them had a R-390 meter mounted in the front panel above the airplane dial. You just never know! ~Boomer, KA1KAQ

From Barry Hauser" <barry@hausernet.com Mon Dec 23 16:58:10 2002  
Subject: [R-390] in rush current limiters

wrote: > That makes sense - I don't have a 600 (yet), only a couple 500s and one with a > sailboat on the grill.

Sailboat on the grill!!! That's way prior to the 500 -- the 7G605 - pre-WWII. That's worth some bux. Loktal tubes I think. I have some 8G series -- Loktal Toob Technology also. Some of them have as many as 8 tubes.

In the 500 it was optional I \*think\*, or it was an > afterthought. In fact, either one of the rigs I have or one I passed on didn't > even have a place cut in the chassis for a socket - it was just that purty gold > hammertone paint. [-:

> Seems they also had some kinda plug-in unit for using different voltages? > Again, this is only on the 500. Many differing variations here, some included > the nifty tube clips in the back, other didn't, etc.

There was a plug-in adaptor for 220 volts that came standard with the mil version, optional on 500 (and I think 600 series).

They're sure not in the > R-390 class, but I'm still amazed at how well they can suck in the signals!

You can simulate toob TO performance by using a very good speaker in a wooden cabinet and opening up the bandwidth to 16 khz. Interference from an adjacent signal -- easy, listen to something else.

Yes. The tube TO's are very listenable radios. I suspect a good deal of it is due to the speaker and cabinet construction. They're also rather quiet between signals as you tune, which has sometimes thrown me a bit -- thought the radio was dead.

One of these days, I'd like to put a gimmick jack in the back of one and use it as a speaker for an R-390x. I think some have a phono input -- maybe could be driven from the diode load? That would be cute, eh?

> BTW, I've got a couple of parts units here and (amazingly!) one of them had a > R-390 meter mounted in the front panel above the airplane dial. You just never > know!

WOW, that sounds really @RARE@. Of course, to a collector, it's an abomination to be abhorred.  
Barry

From jonandvalerieoldenburg@worldnet.att.net Mon Dec 23 17:51:11 2002  
Subject: [R-390] METERS What To Do?

The "hottest" ( in terms of "glow-output") radio that I own is a AN/GRR-5 I have here. The lettering on the face really has a nice bright output after you turn the shop lights out. Have to get me a Geiger counter and check out its emission sometimes. On of the R-392's still has a faint glow to it. I sometimes think I should seal the radium paint with a coat of satin finish clear paint, but the on the other hand I remember all the old Westclock alarm clocks I dismantled as a kid in the early 60's and the toy spacecraft and a fairly large globe of the moon that was painted with those glowing paints and figure I have had plenty of exposure already! Jon AB9AH

From bgant@bellsouth.net Mon Dec 23 22:03:12 2002  
Subject: [R-390] re: trouble shooting the 390A

Hello to everyone,  
I wish to thank all you guys who have responded to this thread. A number of the responses, in fact most, were via e-mail.

So I am happy to report the receiver now has a signal passing thru all stages and seems to be working ok. I know it needs some touching up but at least I have something to work with now.

What did I find. Well... I did quite a few things, per all your suggestions, so I am not sure what thing or things did the trick. I am thinking that going thru and removing-replacing each tube one at a time may have been what cleared the original trouble. Now I have discovered the mechanical tuning had become stiff, so when I began tuning some of the cams slipped. You all know what that did. So I think (read hope) we have a hand on it now.

I will probably be asking some more questions but thanks a million for all the help. Giles  
(bgant@bellsouth.net)

From drewmaster813@hotmail.com Mon Dec 23 22:37:02 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

Hello Gentlemen,

I see that the old BallasTube Thread is alive and well. If you want to read the lively and animated discussion of this topic from several years ago, go to r-390a.net. Click on References, Pearls of Wisdom, Ballast Tube.

There is a problem with substituting a diode for the ballastube.

wrote: >>Put a diode (1N4007 will do) between pins 2 and 7. No muss, no fuss, no >>heat. YYou now have 12 vac for the two 6 volt tubes to fight over. >Oh, I get it now. Half-wave rectify the filament voltage to accomplish >a reduction in the average voltage. Average value of a half-wave >output is .318 of peak, according to my reference. Doing the math, 25 >VAC RMS into the rectifier would give 11.21

volts. Close enough.

RMS voltage and current are what define heating power in a waveform (DC "waveform" included). Since what we are doing here is heating cathodes, peak or average current and voltage values do not apply (when peaks are within reason and waveform's period is much less than cathode's thermal time constant). RMS is what counts.

One of my references lists RMS value of a half wave rectified sinewave to be half the PEAK value. Peak voltage of the 25.2 VRMS winding powering the series ballast, PTO, and BFO tubes :  $(25.2)(1.414)=35.6\text{v}$  peak. The half wave rectified RMS value:  $(35.6)(.5)=17.8\text{ VRMS}$ . Hence, with diode in place of ballast tube, each 6BA6 tube heater receives 8.9 volts instead of the 6.3 volts it was designed for. The single diode modification will work, but the life of the PTO and BFO tubes will be reduced. I read of one List Member using this modification for 20 years! The amount of abuse these tubes will take is amazing.

(Helm's comments regarding adding jumpers to 3TF7 socket so that 12BH7 can be substituted...)

>> And as I mentioned, it's a useless cludge, extra work and some people >> actually think that a 12BH7 has to be used. Any 12 volt tube will do. >> While one rewiring the socket, put in a 12au7 and set it up as an >internal >> product detector (one of those things I,m going to try when I get a >round >> tuit). At least it does some thing besides producing heat and a rewired >> socket. It's attribute as having a controlled warm up filament is lost >> since the other two tubes are not. >>>> My conclusion is that the best thing to put in the 3TF7 socket is a >3TF7. >> I think some people should also check the voltage drop across there >tubes. >> Yeah, I know they all work. But at the expense of other problems. >> Unfortunately my 390a seems to go though one every 2months or so and >it's >> a bit expensive. One can buy alot of good German lager for \$45.00. >>>> -Helm.

A number of tubes can be used instead of 12BH7...the 12BY7 comes to mind. The tube needs to have a 12V heater at 300 mA. A 12AU7 will not work as it draws 150 mA when configured for 12 volts. The 12BH7 could also be used for a product detector.

Yes, if it's current regulation you're after, that 3TF7 is hard to beat. In the aforementioned "Pearls of Wisdom" reference Nolan Lee quoted information from Amperite, the 3TF7's manufacturer, showing +/- 1% current regulation over a fairly wide voltage range.

MMMMM....German Lager!! The major brand American "beers" cannot hold a candle to what Germany has to offer. Some American microbrews are pretty good though.

The BallasTube can also be replaced by a power resistor. Under IF deck mounting would be a poor choice because of heat buildup, but above deck mounting looks ugly (to some). The calculated value is 43 ohms. A 47 ohm, 5 or 10 watt unit works well.

wrote: >A very simple modification is to simply jumper the ballast pins 2 and 7 >with >a simple plug-in wire jumper and replace the 6-volt tubes with their >12-volt >equivalents. The receiver remains very stable even when the filaments are >not current regulated by the ballast tube.

I like this ballast solution. It involves no rewiring and heat generation in the R-390A is reduced by about 4 watts (not much, but eva' li'l bit he'ps). 12BA6's are cheap and easy to find. Use a piece of paperclip for jumpering.

wrote: >>..... I wonder if anyone else has tried the modification >for the R-390A where the filament



wiring for each of the BFO and PTO tubes is re-routed in parallel to the 6.3VAC filament buss used in the rest of the IF strip? It is not complicated to do and only involves unsoldering, re-routing and re-soldering a few leads in the underside of the IF strip. No extra wiring leads are needed. I have done this mod. on an R-390A to eliminate the need for the 3TF7. The 3TF7 socket is left empty and is non-functional after this mod. The receiver works fine and this insures the exact same 6.3VAC across the BFO and PTO tubes and retains the original 6BA6's for both. I confirmed the receiver stability by varying the line voltage + and - several volts with a variac. When tuned in to an AM broadcast station with the BFO turned on I could not detect any change in pitch when varying the line voltage several volts up and down to simulate line-voltage fluctuations. 73  
Todd Roberts WD4NGG.

I have read positive things about this modification. It will also reduce heat generation. Todd's good experience with frequency stability vs line voltage fluctuation reinforces the contention of some that current regulation provided by the ballast tube is not really necessary. Moving those few wires around (in my opinion an insignificantly minor mod) may make some of the purists cringe.

Replacing the Ballast Tube with solid state current regulator has also been discussed. A while back Dr. Jerry designed an AC current regulator using a full wave bridge wrapped around an LM317 configured as a DC current regulator, providing a clipped sine wave. I did a computer analysis of his circuit showing a +1.5%, -2.5% variation in its 300 mA RMS current over a +/- 15% line variation.

As far as regulator-induced noise is concerned, filtering would help but I am not sure that this is necessary. First in line after the 3TF7 is the BFO tube. The regulator's noise contribution here would probably be small compared to the fairly high signal level. Second in line is the PTO tube and the already present brute force filtering in PTO tube heater supply line would eliminate any noise at this point. Chuck Rippel's regulator-based ballast replacement module's noise filtering certainly doesn't hurt ~~though~~ this is a very thorough sort who likes to have all the bases covered (his excellent R-390A restoration workmanship reflects this).

Another solid state regulator approach is to half wave rectify the 25.2VAC, filter and apply to a 3 terminal regulator configured as a 300 mA DC regulator. PTO and BFO tube heaters then operate on DC. Dr. Jerry was not in favor of this method as it places an unbalanced load on power transformer and in his opinion increases core saturation and heating.

I believe that the imbalance is small compared to the total transformer load and probably wouldn't make much difference. The high current peaks (which cause core saturation) caused by charging the filter cap on each positive peak could be reduced by adding a resistor in series with the rectifier diode. This also would reduce filter cap voltage and dissipation in the regulator. By rough calculation I figure somewhere between 6 and 10 ohms with 1000 uF for a filter.

A few weeks back Francesco from Italy posted a message about his non-operational R-390A. I corresponded privately with him and he found the problem to be the Ballast Tube. I mentioned various options to him and this set me to thinking about these aforementioned aspects. For me, resurrection of this intriguing (previously) "dead horse" thread could not have come at a better time!

Have a happy holiday and may Santa bring each of you a sleighload of 3TF7's! Drew

From David\_Wise@Phoenix.com Mon Dec 23 22:40:22 2002  
Subject: [R-390] 3DW7: A 3TF7 Tubester

For the past six months I have been working on a solid-state ballast the size of a 3TF7, and I think I've

done it. It's a two-terminal device; plug it in and go, no modifications whatsoever. It runs cool and regulates great. If ten people promise to buy them, I'll lay out the PC board and build them. 73, Dave Wise

From craigm@pacbell.net Mon Dec 23 23:05:25 2002  
Subject: [R-390] 3DW7: A 3TF7 Tubester

Dave,  
Your idea is very attractive. It would help in making a decision to buy if the approximate cost were known. Craig

From David\_Wise@Phoenix.com Mon Dec 23 23:38:16 2002  
Subject: [R-390] 3DW7: A 3TF7 Tubester

This started out as a private reply to Richard McClung, and then also to Craig McCartney. To avoid the feeling that I'm sending N copies of a form letter, I decided to just post my reply. If you're not following this thread, delete it and go on.

\* \* \*

I wanted to wait until I had a prototype instead of a breadboard, but the recrudescence of the ballast tube thread seemed like a call.

I'm proud of my work. AFAIK, nobody else has tried this, and I feel I have achieved some real innovations. I will never recoup more than a tiny fraction of the engineering time; it was a labor of love. But I still want token compensation. I also don't want to undercut Chuck Rippel. He sells a unit for IIRC around \$100. I'd like \$150.

Think it over and get back to me. To minimize expenses, I will not lay out a circuit board until I have a bunch of confirmed sales. I arbitrarily picked ten. For now, I have a breadboard, and a hand-wired actual-size prototype of an earlier, all-analog design. Take your time, I'm still waiting for a couple of critical components that will let me do a full-scale test. Right now I'm using substitutes which can't take the full voltage range.

My VFO changes 5Hz from 17VAC to 26VAC. I haven't measured it, but I believe this is less than B+ or AGC-induced variations.

I've never made a product on my own before, this is scary. I hope I can make it look as good as it works. Regards, Dave Wise

From Jim Shorney" < Tue Dec 24 02:30:56 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

wrote: >RMS voltage and current are what define heating power in a waveform (DC >"waveform" included).

That's what I thought, but all the references I could find searching last night only talked about average.

>One of my references lists RMS value of a half wave rectified sinewave to be >half the PEAK value.

I finally found a reference that agrees with this.

>The half >wave rectified RMS value:  $(35.6)(.5)=17.8$  VRMS.

I knew there was a reason this idea still bothered me....

>A 12AU7 will not work as it >draws 150 mA when configured for 12 volts.

Thought so, but I was focused in on the other area.

>Replacing the Ballast Tube with solid state current regulator has also been >discussed. A while back Dr. Jerry designed an AC current regulator using a >full wave bridge wrapped around an LM317 configured as a DC current >regulator, providing a clipped sine wave

This is exactly one of the ideas I was kicking around, since I have a drawer full of 317Ts.

>As far as regulator-induced noise is concerned, filtering would help but I >am not sure that this is necessary.

Manufacturer's recommended filter/bypass caps are always necessary, IMHO. I remember the time a CBer brought me a home-built 12v power supply that would spike to >18 volts when he unkeyed his radio. The solution was to get out the data book and install the caps for the 317T that National Semi said should be there for stability and transient response. There was also the blurb in QST years ago from the ham who tossed a bunch of bypass caps at the regulators and zeners in, IIRC, a TR7 and IC551 and saw a noticeable improvement in the noise floor.

>Another solid state regulator approach is to half wave rectify the 25.2VAC, >filter and apply to a 3 terminal regulator configured as a 300 mA DC >regulator.

The same without filtering should give a clipped half-sine wave as above. Since we start out with an RMS of 17.8 volts, there should be enough headroom. Another variation I've been thinking about.

>I believe that the imbalance is small compared to the total transformer load >and probably wouldn't make much difference.

I tend to agree.

>Have a happy holiday and may Santa bring each of you a sleighload of 3TF7's!

Maybe I should shut up until I actually get my radio up and running. Or at least find out if my 3TF7 is good... God rest ye merry, gentlemen. Jim Shorney

From richardlo@admin.athabasca.ca Mon Dec 23 19:27:26 2002  
Subject: [R-390] METERS What To Do?

wrote: > The "hottest" ( in terms of "glow-output") radio that I own is a AN/GRR-5 I > have here. The lettering on the face really has a nice bright output after > you turn the shop lights out. Have to get me a Geiger counter and check out > its emission sometimes. One of the R-392's still has a faint glow to it. I

The radium is used to activate the luminous paint, if you need a flashlight to make it glow then the pain

is NOT radioactive. I repeat, the radium is used to activate the luminous paint - radium is not luminous and luminous paint is not radioactive. Richard Loken VE6BSV

From bryanste@yahoo.com Tue Dec 24 03:18:09 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

All,

I am offering NOS 3TF7s for \$25/ea+ship (limit 1 pls), and NOS 26Z5Ws for \$16/ea+ship (limit 2 pls). Other JAN tubes and BA-related items available. Respond to me directly if interested. Thanks. Bryan Stephens - KG4UPR bryanste@yahoo.com

From mparkinson1@socal.rr.com Tue Dec 24 04:55:20 2002  
Subject: [R-390] R-390 ballast tube

Well we are selling 3TF7s for 35.00+5.00 shipping . Why would you want to pay 100.00 or even up to 200.00 for a solid state device when you can have the original part for a lot less in fact you can Buy at least three or more and still be cheaper in the long run and will take of your needs longer than your life. If you are really having trouble blowing them out then stick a inrush limiter in your ac line to hold your AC voltage down till warm up. I have 15 R-390a and 2 of them I have had over 10 years without a failure of this ballast tube while the other are not running all the time. This tube has not left the planet like so many have been brain washed into believing there are a lot of these ballast tubes around and I have Been offering these to the list not ebay as of yet. So keep your receivers original like it was intended in the first place. Your R-390 will like it and so will your R-391 and 390a receivers. Matt

From AB3L1@aol.com Tue Dec 24 06:20:40 2002  
Subject: [R-390] METERS

Did I say that I was going to take these apart? No way. Those babies look fine as they are and considering the age are beautiful. I'll have to make sure my eight year old doesn't get near them. We need to keep the family name going. I better keep this thing in the garage high up on a shelf.

Thanks to all who took time to reply once again to my inquiry. Hope you all enjoy the Holiday Season.  
Bob

From ba.williams@charter.net Tue Dec 24 16:55:45 2002  
Subject: [R-390] R-390 ballast tube

> Well we are selling 3TF7s for 35.00+500 shipping . Why would you want to pay 100.00 or even up to 200.00 for a solid state > device when you can have the original part for a lot less in fact you can > Buy at least three or more and still be cheaper in the long run and will > take of your needs longer than your life.

A jumper wire across pins 2 and 7 is much cheaper than \$40 for one of those tubes, or the lifetime supply being suggested. 12BA6s are probably the most common tube ever made, and are about \$2 new. Been running this for 9 years now on the original 12BA6s.

\$40 for a tube that isn't really needed is a perfect example of artificial inflation. I'll pass on the idea of spending \$120 for a lifetime supply of 3TF7 tubes, and spend \$6 on the 12BA6s instead. That should

save me \$114 per radio. I've got 2 R390As already, so I'm saving \$228. If I buy 2 more radios, I'll probably save enough on 3TF7s to get the 5th radio for free!

Hey, I'm on to something good here! Buy 4 R390As and get the 5th radio for free. My wife would relate to this.

From drewmaster813@hotmail.com Tue Dec 24 19:42:01 2002  
Subject: [R-390] Re: Replacement C-551

Richard,

There does not seem to be an exact fit new component (C-551) available. If you desire exact fit, you might try Fair Radio Sales for a used part.

You can keep a semblance of original appearance (topside anyway) by disconnecting C-551 and leaving it mounted in original position. A compact modern replacement component can then be installed under chassis. The SBE Orange Drop series capacitor seems to be preferred by many on this list, but other caps will certainly work. I prefer the Cornell-Dubilier (CDE) DME series (available from Mouser Electronics) because its small size simplifies installation. I have cut the leads on these to about 1/8" and secured the part to the C-551 side of the underchassis partition, leads facing out, using RTV. The leads removed from original C-551 are then wrapped and soldered to the 1/8" stubs on replacement C-551. While you're at it, the .1 uF cap going from one side of C-551 to ground can be replaced with a modern 400V (or better) rated unit.

The true hardcore purists have gutted C-551 cans and installed replacements inside. This requires a torch, patience, and a liking for the smell of burning carcinogenic PCB-laden oil.

This would be a good time to also install the Dallas Lankford 2-diode AGC mod. This simple and easily reversible modification makes a night-and-day difference for reception of SSB signals. Most of the improvement comes from installing just the diodes; it works very well without the rest of the procedure. Check out r-390a.net, click on References, Pearls of Wisdom, SSB Conversion. Drew

From drewmaster813@hotmail.com Tue Dec 24 20:01:48 2002  
Subject: [R-390] 3DW7: A 3TF7 Tubester

Hello David,

Runs cool and regulates great? Sounds like the ultimate ballastube replacement! I am envisioning a switching regulator or phase control type of arrangement possibly with controlled rise and fall times to minimize noise generation. All of this sophistication in a 3TF7-sized package-now that's an accomplishment! Drew

From chacuff@cableone.net Tue Dec 24 03:58:34 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

Greetings all, Here is how I remember it from my school days....RMS Peak V X .707

An AC waveform is a Peak to Peak waveform. Moving equal amounts above and below Zero. (in this case)

You arrived at peak value by half wave rectifying the Peak to Peak sine wave. You now multiply that value by .707 to get the RMS value. To go from RMS back to Peak you multiply by 1.414 and then double that to get Peak to Peak values.

I verified that in a radio engineering handbook. (it's been a while since I used this stuff too) Cecil Acuff

From drewmaster813@hotmail.com Tue Dec 24 21:03:58 2002  
Subject: [R-390] Re: BallasTubes (was inrush current limiters)

>>As far as regulator-induced noise is concerned, filtering would help but >I am not sure that this is necessary.

wrote: >Manufacturer's recommended filter/bypass caps are always necessary, >IMHO. I remember the time a CBer brought me a home-built 12v power >supply that would spike to >18 volts when he unkeyed his radio. The >solution was to get out the data book and install the caps for the 317T >that National Semi said should be there for stability and transient >response. There was also the blurb in QST years ago from the ham who >tossed a bunch of bypass caps at the regulators and zeners in, IIRC, a >TR7 and IC551 and saw a noticeable improvement in the noise floor.

The manufacturer-recommended filter/bypass caps go without saying! Three terminal regulators can make good oscillators without them. For LM317 certain values of output capacitance will cause excessive ringing: a too-close cousin of oscillation. I believe the evil values lie within 500-5000pF. This range is swamped out by the recommended value. Additional filtering beyond that needed for stability may not be necessary, but wouldn't hurt.

>

>>Another solid state regulator approach is to half wave rectify the >25.2VAC, >>filter and apply to a 3 terminal regulator configured as a 300 mA DC >>regulator. >>>The same without filtering should give a clipped half-sine wave as >above. Since we start out with an RMS of 17.8 volts, there should be >enough headroom. Another variation I've been thinking about.

Interesting method I hadn't thought of. Dr. Jerry's clipped sinewave circuit regulates on only part of the waveform; when instantaneous value drops low enough, regulator saturates. This requires a peak current of about 360 mA to achieve 300 mA RMS. Dr. Jerry verified this value with a fair amount of effort, and my computer simulation agreed. With the clipped half-sine wave circuit, that peak would have to be somewhat greater for the same RMS, so more fiddling about with true RMS current measurement techniques (can sometimes be a real pain) would be required for verification. This would make for another interesting computer simulation.

These circuits would generate considerable heat; the advent of the coveted cool-running 3DW7 Tubester makes all of our regulator musings sound trivial (sigh). Merry Christmas to all; and to all a 3DW7 Tubester in the stocking! Drew

From Jim Shorney" < Tue Dec 24 21:06:57 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

wrote: >You arrived at peak value by half wave rectifying the Peak to Peak sine >wave. You now multiply that value by .707 to get the RMS value. To go from >RMS back to Peak you multiply by

1.414 and then double that to get Peak to  $\sqrt{2}$ Peak values.

That doesn't apply to the output of a half-wave rectifier. It only applies to a pure sine wave or full-wave rectified sine wave (allowing for diode voltage drop if you're dealing with low voltages). As Drew pointed out, the RMS value of a half-wave rectified sine wave is  $.5 \times \text{peak}$ . Jim Shorney

From David\_Wise@Phoenix.com Tue Dec 24 21:25:06 2002  
Subject: [R-390] 3DW7: A 3TF7 Tubester

If it isn't the ultimate, it's certainly as far as I can take it. For me, it's a tour de force.

As soon as I considered the "tubester" form factor, I knew that DC regulation was out. With a grounded supply and load, half-wave rectification is necessary, doubling the required reservoir capacitance. You also need a ground. While it would be possible to contact the shield's bayonet base, I found this distasteful. The DC choices are (1) linear, and (2) high-frequency switching. In either case, the reservoir cap eats up 75% of the available space, leaving not enough for the brains and RF filter (switching) or the heat sink (linear).

If the input to your pass device is other than DC, you must measure true-RMS. Those "clipped sine wave" designs won't work without it. Another idea is a saturable reactor. It's simple but way too big.

My first try used a forward phase-controlled triac, with a light bulb and photocell as RMS sensor. I synchronized the control to the sine wave, using an exponential ramp circuit of my own invention. (At least, I haven't seen it anywhere else.) This was marginally usable, but the light bulb kept drifting. Eventually I gave up on it and found an RMS converter IC. This worked great, but my suspicions about RF noise were confirmed. I changed to reverse phase control with controlled fall time. This doesn't put any detectable noise into the receiver, but the parts count is high. Even so, I was able to squeeze! it into the available circuit board space to confirm it could be done. That was months ago, when I first considered announcing the 3DW7. At that point it would have been an analog design.

Dissatisfied with the density, I took the digital leap and breadboarded up a microcontroller. After months of "interesting" evenings debugging, I got the program working really well. It uses power mosfets switched at zero-cross to stay quiet, adjusts to voltage changes in one half-cycle without overshoot, and (like its analog predecessor) powers itself when not conducting, making it a two-terminal device. It factors its own power usage into the computed load current. It senses overloads and short-circuits, so quickly that no fusing is required. I don't have the facilities to test it, but I think it will regulate ugly-shaped, frequency-varying waveforms like what you get from a generator or inverter.

It needs neither ground nor shield. The main heat source is the current sense resistor. It has recessed Up and Down buttons on top for calibrating between 270mA and 320mA, and stores the setting in eeprom. I'm figuring on a transparent plastic envelope. No I will not blow glass :-). And sorry, it doesn't glow, takes too much power.

This design could be adapted to a variety of voltages and currents. Regards, Dave Wise

From David\_Wise@Phoenix.com Tue Dec 24 21:28:13 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

The problem with using a '317 to clip the sine wave is that the only part of the wave that's regulated is the

clipped region. The "shoulders" are not regulated. BTDT. If you regulate anything other than DC, you must regulate RMS, not average, not peak.

The optimum 317 design requires a ground, not for the regulator but for the filter cap. Half-wave rectify, filter, and current-regulate the resulting DC. A series resistor softens the inrush and takes on some of the 317's heat burden. This is the minimum parts-count regulated solution and it's an excellent, quiet regulator, but it puts out a heck of a lot of heat, more in fact than the 3TF7. 73, Dave Wise

From jbkking@bellsouth.net Tue Dec 24 21:18:31 2002  
Subject: [R-390] R-390 ballast tube

I can buy NOS 3TF7 tubes for \$20.00 as I did at Shelby Hamfest from a tube dealer who was there. Why would anyone want to pay \$40.00???? 73, John, K5PGW

From drewmaster813@hotmail.com Tue Dec 24 21:37:23 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

wrote: <snip> >An AC waveform is a Peak to Peak waveform. Moving equal amounts above and >below Zero. (in this case) >>You arrived at peak value by half wave rectifying the Peak to Peak sine >wave.

Half wave will possess the same (neglecting diode drop) peak value as the symmetrical sinewave whence it came, but a half sinewave is not the same waveform as a full sinewave.

>You now multiply that value by .707 to get the RMS value. To go from >RMS back to Peak you multiply by 1.414 and then double that to get Peak to >Peak values.

This applies to a full sine wave, but not a half sine wave. Yes, the RMS value of a sine wave is .707 times its peak value. However, the RMS value of a half sinewave is .5 times its peak value. Drew

From billsmith@ispwest.com Tue Dec 24 21:55:22 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

Haven't tried it yet, but seems simple enough:

Why not made a 300ma current source (zenner, two resistors, transistor, or your improvement) and hook it up to the +/- terminals of a bridge rectifier. Hook the AC terminals of the bridge rectifier to pins 2 and 7 of the ballast.

The current source always sees DC, and the circuit works in the AC line of the filament string. Merry Christmas and Happy Holidays! 73 de Bill, AB6MT

From David\_Wise@Phoenix.com Tue Dec 24 22:31:50 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

Please forgive me, I'm still at work, and irritable.



Some of you have not been convinced by arguments. One demonstration is worth a thousand speculations. It's a simple circuit. Please, just put it together and try it. Report the FAILURE back to us so we can drive a stake through it. Thank you! Merry Christmas to all and to all a good night,  
Dave Wise

From hbreuer@debitel.net Tue Dec 24 22:36:37 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

Hi,

could somebody please give me the mathematical expression for a half sinewave. I don't get it that the RMS value of a half sinewave should be 0.5 of the peak value. As I understand it we use a diode to cut off one halfwave (i.e. the negative). So all we have is a positive halfwave in the first half period and nothing in the second half period. At 60 Hz that is a positive halfwave in the first 8.33 ms and nothing at all in the second 8.33 ms. To get a RMS value of 0.5 the waveform must be a squarewave and not a sinus. Take a piece of paper and draw it up. What I am missing here? Merry Christmas Heinz DH2FA, KM5VT

From drewmaster813@hotmail.com Tue Dec 24 22:46:51 2002  
Subject: [R-390] BallasTubes (was inrush current limiters)

Hello David,

Thank you for the intriguing synopsis on the operation and iterations of the 3DW7. Putting in the microcontroller and writing the program is certainly a labor of love! My respect goes out to all of those intrepid souls who painstakingly unsnarl software.

By his own admission, Dr. Jerry's design (bridge rectumfier wrapped around LM317) does not have as good current regulation as its parent regulator chip and my computer simulation confirmed this. My simulation showed a +1.5%, -2.5% variation in RMS current output over a +-15% line voltage change. This is still better than non-regulated schemes and may be good enough for some uses. It appears that the varying unregulated "shoulders" of the clipped current waveform are traversed in a reasonably (it seems) short time and contribute only a small portion of the total current. Under the conditions of a nice sinusoidal input voltage confined to the aforementioned range, and the constant load of tube heaters, clipping the current peaks might be considered a workable approximation of true RMS current regulation.

Dr. Jerry's description of his trials and tribulations mention extensive testing using a variety of RMS current measuring methods, some of which actually agreed with one another.

Your 3DW7Tubester makes all this seem academic. How about including an orange LED in the 3DW7 to simulate that warm filament glow :-)  
Drew

From Llgpt@aol.com Tue Dec 24 23:15:25 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

writes:<< Please forgive me, I'm still at work, and irritable. Some of you have not been convinced by arguments. One demonstration is worth a thousand speculations. It's a simple circuit.

I've been imbibing of the Christmas spirit and should probably keep my mouth shut, but here we

go.....

This is the deadest horse that has ever been beat.....it makes not one whit if you use a resistor, diode, 12BA6, 12BH7A, 12BY7, or Chuck Rippels solid state regulator. You will still be able to hear that damn hetrodyne from Pitcairn Island!! Merry Christmas to all!!!! Les Locklear

From barry@hausernet.com Tue Dec 24 23:14:57 2002  
Subject: [R-390] BallasTubes (was inrush current limiters)

wrote .. <snipped> > ... How about including an > orange LED in the 3DW7 to simulate that warm filament glow :-)

How about an orange Xmas tree bulb altogether? What's the DC resistance of a 7 watt unit? OK, maybe it won't work, but they are in season. (and real cheap day after tomorrow) Ho! Ho! Ho! Barry

From Jim Shorney" < Tue Dec 24 23:57:13 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

wrote: >Why not made a 300ma current source (zenner, two resistors, transistor, or >your improvement) and hook it up to the +/- terminals of a bridge rectifier. >Hook the AC terminals of the bridge rectifier to pins 2 and 7 of the >ballast.

That's along the line I was thinking. As wonderful as Dave's little gizmo sounds, and I \*do\* wish him the best of luck with it, I don't plan on buying one. I'm just brainstorming for ideas that I can brew up with parts on hand in the event my ballast tube is bad and my buddy Steve doesn't give me a spare for free... :-) Yeah, I'm a tightwad, and I'm not one of those purists who has to have everything look original; I don't mind wiring something in if it is a good solution.

I'm sorry if this made anyone irritable, I've enjoyed the discussion and learned a thing or two. So what if it's a dead horse? At least I'm having fun! I hope the rest of you are, too. God rest ye merry, gentlemen. Jim

From plmills@attglobal.net Wed Dec 25 00:23:32 2002  
Subject: [R-390] R-390 ballast tube

Okay guys, knock it off..... someone on the list has kindly offered to provide some hard to find items. If you don't like the price, vote with your feet and do not buy but there is no reason to berate the person who offered the items. I'm glad to know that you own four or five R-390A's.....fits well with your 2 ears and nothing in between to disturb the fidelity of the sound. 73, Phil W5BVB

From jonandvalerieoldenburg@worldnet.att.net Wed Dec 25 00:59:11 2002  
Subject: [R-390] BallasTubes (was inrush current limiters)

The 3TF7 only glows for a second as it warms up ( and barely perceptible at that) Orange diodes are overkill. ( Sorry' I couldn't resist. This thread has always been an interesting one though!) Merry Christmas Jon AB9AH

From Barry Hauser" <barry@hausernet.com Wed Dec 25 01:32:29 2002  
Subject: [R-390] BallasTubes & Xmax bulb problem

wrote > The 3TF7 only glows for a second as it warms up ( and barely perceptible at > that) Orange diodes are overkill. ( Sorry' I couldn't resist. This thread > has always been an interesting one though!) Merry > Christmas Jon AB9AH

Yeah -y'know -- we really should get more glow for the money.

Meanwhile, I tested my Xmas bulb idea. Problem -- now my '390 is intermittent -- the bulb blinks and the radio goes on and off, on and off, on and off.

To top it off, now the lights on my tree don't blink, though the ballast tube does look pretty hanging on it. Is it OK to run 'em upside down? Here's three more for the road -- Ho! Ho! Ho! Barry

From jonandvalerieoldenburg@worldnet.att.net Wed Dec 25 01:37:34 2002  
Subject: [R-390] BallasTubes & Xmax bulb problem

> Yeah -y'know -- we really should get more glow for the money. > Meanwhile, I tested my Xmas bulb idea. Problem -- now my '390 is > intermittent -- the bulb blinks and the radio goes on and off, on and off, > on and off. Hum, never did care for blinker bulbs..... > To top it off, now the lights on my tree don't blink, though the ballast > tube does look pretty hanging on it. Is it OK to run 'em upside down? <snip>

Better watch out, if you run the thing inverted the excess electrons being held back by the regulating action of the 3TF7 can not drain out and will result in standing waves forming in the power line of the light set. You may have to poke a hole in the power line to let them run out! (Whoops - adapted from a joke we made on a below average CB-er, who actually did poke a hole in his coax to try and lower his SWR!) Jon

From chacuff@cableone.net Wed Dec 25 01:43:32 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

Greetings all,

I agree with you Drew.....a half wave rectified sine wave has the same peak value as a the original sine wave....but not the same peak to peak value. The peak value of a sine wave is half it's peak to peak value. You ended up with the peak value by stripping off the top half of the wave form with the half wave rectifier. So you have satisfied the first part of the formula...you divided by 2. Now you multiply by .707 and you have RMS.

The formula in my books say to arrive at the RMS value of a sine wave you divide it's Peak to Peak value by 2 to arrive at Peak value then multiply that Peak value by .707 and you have RMS. I agree the .5 value is probably for a square wave. Go to google and search on Root Mean Squared....go to the last link listed if I remember correctly and it covers it pretty well. Cecil...

From Jim Shorney" < Wed Dec 25 01:53:04 2002  
Subject: [R-390] BallasTubes & Xmax bulb problem

wrote: >(Whoops - adapted >from a joke we made on a below average CB-er, who actually did poke a hole >in his coax to try and lower his SWR!)

Reminds me of the radio shop that used to sell 'coax wax'. Jim Shorney

From chacuff@cableone.net Wed Dec 25 01:56:31 2002  
Subject: [R-390] Ballastubes & Xmax bulb problem

Barry, You should have used a bubble light....it has better regulation....thermal mass of the liquid and all. Makes a little more noise though. Merry Christmas to all! Cecil...

From Jim Shorney" < Wed Dec 25 02:05:53 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

wrote: > I agree with you Drew.....a half wave rectified sine wave has the >same peak value as a the original sine wave....but not the same peak to peak >value. The peak value of a sine wave is half it's peak to peak value. You >ended up with the peak value by stripping off the top half of the wave form >with the half wave rectifier. So you have satisfied the first part of the >formula...you divided by 2. Now you multiply by .707 and you have RMS.

The output of a half-wave rectifier is not a sine wave - it is a pulse waveform with a peak-to-peak value of .5 (one half) the peak-to-peak value of the input sine wave. The .707 formula does not apply to pulse waveforms, or any harmonically distorted sine wave for that matter. See:  
[http://www.wodonga.tafe.edu.au/eemo/ne178/tut2\\_3.htm](http://www.wodonga.tafe.edu.au/eemo/ne178/tut2_3.htm)

About the middle of the page you will see the graphic for half-wave. RMS of a half-wave pulse is .5, average is .318, of peak.

>The formula in my books say to arrive at the RMS value of a sine wave you >divide it's Peak to Peak value by 2 to arrive at Peak value then multiply >that Peak value by .707 and you have RMS.

This is only true if you are talking about a pure sine wave with no harmonic distortion or modulation. It does not apply to square, triangle, pulse, audio, modulated RF or baseband, or any combination of the above. When thinking of the output of a half-wave rectifier, we are definitely not thinking of anything close to a pure sine wave. I'm with Drew on this one. Jim Shorney

From chacuff@cableone.net Wed Dec 25 02:32:01 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

Ok Guys, I agree with you....not that that ever really mattered! Good site Jim!

I guess I was trying to get you the correct RMS value before you rectified it wasn't I!

I was also simplifying things by thinking dividing by 2 in the formula and rectifying the sinewave was the same...but the .707 formula doesn't ignore the energy in the other half of the sinewave just because we divided the full sinewave by 2.

All this aside, we still didn't solve the ballast tube problem did we! I think the bottom line is that you

should use what works best for you! If you don't mind buying the original 3TF7..it's probably the best solution. If not there are several good alternate solutions! Which is great because we can keep these great radio's going into the future.

I guess in 50 years the focus might be on trying to find a "cheap" fix for those darned \$50 PTO tubes or such! Life is good! Merry Christmas to all! Cecil Acuff

From tarheel6@msn.com Wed Dec 25 02:41:18 2002  
Subject: [R-390] . Re: Ballastubes (was inrush current limiters)

So.... is it now agreed that using a diode in a half-wave circuit yields the necessary nominal 12 volts needed for the 6BA6 VFO and BFO filaments in series?

That seems to be the conclusion from Cecil's posting and his formula's: Diode half-wave circuit ((25 volts input x 1.404 peak)/2)x.707 12.4 volts with 25 volts input -tom

From hankarn@pacbell.net Wed Dec 25 02:41:59 2002  
Subject: FW: [R-390] R-390 ballast tube

Well, Cecil, blw and others.

The last I checked this was a free country (Thank GOD and all of the ones that have given their lives to maintain this status) the right to offer for sale at a price to get a fair return on the investment. Matt and I bought these tubes due to the fact that there is a demand from owners of these classic radios that are willing to pay to maintain them without being typical cheapo hams P & Moaning because you did not give it to them for .00001 on the dollar.

Matt and I have plenty of Very satisfied customers for the radios that we restore and all of the parts that I have made that are no longer available. We are happy for the support from in my case over 1000 hams from all over the world.

Yes we if lucky make a small percentage of profit from the radios and parts. When was the last time you went out and acquired or made dies, silk screen films and screens on the come, made parts and oh yes when did you put up \$2000.00 up front for needed tubes and then check them out, even though they are NIBOS then deal with selling them, waiting for the money, packing, address them, doing the customs forms, going to the post office and standing in line this past week for me to mail 20 of the tubes over 3 hours a total of 3 trips.

So get off of your couch potato butt and do something to benefit the continued long life of all of these fine radios.

To all of our valued and future happy customers We wish you Happy Holidays and to all of the el cheapo, P--ing and moaning whiners, all I can say is BAH HUMBUG to you and Happy Holidays to your XYL and rugrats as they must live in cheap hell. Hank KN6DI

I put out fires at work all day every day and No I am not a fireman. BUT I have great NOMEX suits so flame away and Buzz off.

From Jim Shorney" < Wed Dec 25 04:08:00 2002

Subject: [R-390] . Re: Ballastubes (was inrush current limiters)

wrote: >So.... is it now agreed that using a diode in a half-wave circuit yields the >necessary nominal 12 volts needed for the 6BA6 VFO and BFO filaments in >series? >>That seems to be the conclusion from Cecil's posting and his formula's: >>Diode half-wave circuit ((25 volts input x 1.404 peak)/2)x.707 12.4 >volts >with 25 volts input

No. The correct formula is  $(25 \times 1.414) \times .5 = 17.675$  Jim Shorney

From Jim Shorney" < Wed Dec 25 04:14:08 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

wrote: >All this aside, we still didn't solve the ballast tube problem did we! I >think the bottom line is that you should use what works best for you! If >you don't mind buying the original 3TF7..it's probably the best solution. >If not there are several good alternate solutions! Which is great because >we can keep these great radio's going into the future.

Agreed. Since it looks like some folks got all wound up over this, I'll say again that I've just been brainstorming and kicking around ideas. The fact that I probably have a local source for the tube for free or swapsies (from a friend who I do lots of swapping with) notwithstanding, I think Dan's price is pretty fair and if I needed one, I would buy it. By the same token, if I was looking for a turnkey SS solution, I would look at both Chuck's and Dave's solutions. All have merit and should fit well with different buyers, and I wish everyone the best of luck in thier endeavours.

Now, I gotta get back to reconfigging this vintage IBM server.... God rest ye merry, gentlemen. Jim

From ba.williams@charter.net Wed Dec 25 04:34:50 2002  
Subject: [R-390] R-390 ballast tube

> Okay guys, knock it off..... someone on the list has > kindly offered to provide some hard to find items. > If you don't like the price, vote with your feet and > do not buy but there is no reason to berate the person > who offered the items. I'm glad to know that you own > four or five R-390A"s.....fits well with your 2 ears and > nothing in between to disturb the fidelity of the sound. >

Phil,

You sound like someone who would get physically ill if you saw the shacks of some of my friends. To think of all those boatanchors sitting there in just one house and owned by just one person! There oughta be a law. I'm probably ruining your day talking about all of this.

I offered an opinion and some banter. Gee, this sure doesn't sound like the same America I woke up in this morning.

We have always had the right to raze someone if they sounded too 'ebay-ish' on this list. Hank took a lot of jabs at one time when he provided us a decent service. Now Hank is a good hearted champ with all that stuff we slung his way...and he took it like a man too. That was back when we were allowed to have a bit of humor, so you may not recall those times. Too much stuff between your ears to have a smile or  
hangry?

From jonandvalerieoldenburg@worldnet.att.net Wed Dec 25 04:51:12 2002  
Subject: [R-390] Hammarlund HX-500 Help Needed

With the new H.F. antenna completed ( Hygain HT-18 HyTower 54' vertical) and performing well, today it was time to start getting my Hammarlund station on the air. The work on the HX-500 Transmitter went very well today, test the tubes, resolder a few areas of old repairs & mods, a slow start up on a VARIAC and all is well, good sounding rig putting out a solid 100 watts key down in CW, the SSB sounds very good also. I have a HQ-170 to match up with it, but here's the clincher. The rear panel of the HX-500 has a 14 pin ( well blade actually) socket for the cable to interconnect the station. The plug measures 2 3/16 w x 3/4h , there are 7 horizontal lugs over 7 vertical lugs. I have a copy of the manual (and the factory mods bulittens) for the rig but they don't list a part number. Anyone have a spare, or a source for this? Thanks in advance Jon AB9AH

From Miguel Bravo" <mbravoc@wanadoo.es Wed Dec 25 11:32:53 2002  
Subject: [R-390] 3DW7: A 3TF7 Tubester

Oh!, and thought they had done it before with just an iron wire. At least I can understand the way the iron wire work. Merry Christmas / Happy holidays Miguel

From courir26@yahoo.com Wed Dec 25 13:17:41 2002  
Subject: [R-390] Old Bowl System vs BCS, (was Ballast Tube)

Gentlemen? Can we change the subject to something that would be easier to decide? Merry Christmas!  
Tom

From chacuff@cableone.net Wed Dec 25 15:38:05 2002  
Subject: FW: [R-390] R-390 ballast tube

Dan and Matt, I think if you will check the thread on your 3TF7 and solid state alternative postings I have never commented on either!

I support free enterprise. If you can get what you are asking I think that's great...if your price is high the market will let you know that by not supporting you!

I repair/restore R1051's as a small business (and I would like to think a service to the enthusiast). I've made the investment of time and finances (read DEBT) you speak of as if you are the only guy who has done that sort of thing! Some folks don't mind paying for what it costs to go through one...others feel like it's too expensive. That's OK! I stay plenty busy!

I do enjoy reading the info in these lists and posting occasionally when I think I might have something to add or learn! I do try to limit my commercial use of the lists. I feel if the folks know from subtle information availability, such as including a web address and through word of mouth of my work, they will seek me out when needed for work. It's easy to give the impression that you view the lists as a captive audience to market your products or services to. Especially if that is the only drum you beat!

My comments were limited to trying to clarify (and better understand) the formulas being used to arrive at RMS volts. I take issue with you targeting me (among others) in your note, and comments about how our families might live is certainly none of your business. Happy Holidays to all! Cecil Acuff

WB5VCE

From w5or@comcast.net Wed Dec 25 15:55:19 2002  
Subject: [R-390] Gentlemen ??

Let me remind you all of the zero tolerance for ugliness here. Remember, this is a technical forum, where technical ideas are bandied about. Leave the mud-slinging elsewhere. Happy holidays!

From stevehobensack@hotmail.com Wed Dec 25 16:21:59 2002  
Subject: [R-390] 3tf7

I took two 6ba6 tubes, ac milliamp meter, rheostat, 25vac power supply and hooked it all in a series on my test bench. I adjusted the current to 0.3 amp. I made up another set-up with a diode in place of the rheostat. Both set-ups were operating at the same time. The set-up with the diode resulted in brighter filaments than the set-up limited to 0.3 amp. Merry Christmas .....Steve...KJ8L

From ronhunsi@ptd.net Wed Dec 25 20:45:07 2002  
Subject: [R-390] WWVB and Automatic Clocks

All, I hope that you are enjoying the holidays ! I received an MFJ radio controlled clock for a present. It keys on WWVB and adjusts the clock time to that signal daily. Upon setting it up, it didn't seem to be able to "find" WWVB. Any thoughts about reception of WWVB in eastern Pennsylvania? Ron Hunsicker

From wb5hak@prodigy.net Wed Dec 25 20:57:38 2002  
Subject: [R-390] WWVB and Automatic Clocks

Ron,  
I have a similar clock, different manufacturer, but it doesn't normally see WWVB well (even here in Oklahoma) till nightfall. Best is right after midnight. I think my instructions hinted that it might not even search till then, don't remember for sure. I have to keep mine by a window to do well with WWVB. Works fine when it receives the signal though!! 73 and Merry Christmas, Don, WB5HAK

From myyoung76@bellsouth.net Wed Dec 25 20:57:35 2002  
Subject: [R-390] WWVB receiver

Ron, I have a friend who bought one of those. It took about 2 days for it to lock up here in sunny east central Florida. Mike

From jonandvalerieoldenburg@worldnet.att.net Wed Dec 25 21:02:19 2002  
Subject: [R-390] Hammarlund HX-500 Help Needed

Hi John: I just finished the basic antenna installation on 12/23, having started 10/31 (been real busy). The kit is well made, good instructions, nice quality materials etc. At this point I don't have the radials in, the ground froze here a couple of weeks early this year. I left a tail of wire at each ground rod though, and will be using that as a ground ring. The plan is to run 36 radials cut for 80 meter phone as described



in the manual which will be silver soldered to the ground ring. I have installed the band switch , static protection & lighting protection as described @ <http://www.webbworks.com/crstrode/18ht/18-ht.htm> The site also has great info on installing radials. The band switch is only necessary for the 160 coil which I will add next month. The antenna is performing as advertised, no tuner needed on 80,40, & 20. I need to add a small amount of load capacitance on a tuner to keep SWR under 1.8/1, but I haven't went and adjusted the stubs for those bands yet, so it should be a no tuner required antenna. Have had good solid reports on signal ( running a TEN TEC Delta 580 barefoot @ 100 watts). The antenna seems to be well worth the effort, and besides it is an awesome appearing antenna to boot! 73'Jon

From w5kp@direcway.com Wed Dec 25 21:09:19 2002  
Subject: [R-390] WWVB and Automatic Clocks

Second that, Don. I'm also out in the wilds of central Oklahoma, had to finally put the antenna on mine over on the window sill to make it work. For those with a fulltime internet connection, you might also check out a slick little freeware Windows taskbar clock program called TclockEX (see <http://users.iafrica.com/d/da/dalen/> ) which I now use on both WinXP machines and my W2000Pro laptop. It works like a champ with no grief or conflicts. 73, Jerry W5KP

From w7itc@hotmail.com Wed Dec 25 21:43:56 2002  
Subject: [R-390] WWVB and Automatic Clocks

If you go to <http://www.downloads.com> there are numerous automatic clock setting programs there. I have used "rocket time" for years it works very well and doesn't get in the way while doing it. Kenneth A. Crips W7ITC

From ronhunsi@ptd.net Wed Dec 25 22:34:47 2002  
Subject: [R-390] Thanks to replies to WWVB and Automatic Clocks

Thanks, all. I will be patient and check it out tomorrow morning. Ron Hunsicker

From Jim Shorney" < Wed Dec 25 22:43:35 2002  
Subject: [R-390] WWVB and Automatic Clocks

wrote: >Any thoughts about reception of WWVB in eastern Pennsylvania?

I've got two of these things. One from Rad Shack, and one from the local Menard's. The one from Menard's seems to be a lot less picky with antenna orientation than the one from Rad Shack. I can't put the Rad Shack clock near a computer monitor or large metal object, and it also seems sensitive to the time of day and the weather outside. The Menard's clock has never shown a 'no signal' indicator that I've noticed since I got it. YMMV, the signals should be quite a bit stronger here in eastern Nebraska than where you are. In the RadShack clock's defense, it \*did\* get a signal in my friend's basement hamshack on Sweepstakes weekend. Try changing the location or orientation of the clock. Jim Shorney

From w7itc@hotmail.com Wed Dec 25 22:56:22 2002  
Subject: [R-390] WWVB and Automatic Clocks

Go here and most all question concerning "Atomic Clocks" will answered  
<http://www.boulder.nist.gov/timefreq/stations/radioclocks.htm> very interesting! Kenneth A. Crips  
W7ITC

From Jim Shorney" < Wed Dec 25 23:27:09 2002  
Subject: [R-390] WWVB and Automatic Clocks

wrote: >Go here and most all question concerning "Atomic Clocks" will answered  
><http://www.boulder.nist.gov/timefreq/stations/radioclocks.htm> >very interesting!

Cool! Thanks, Ken! The RadShack clock I have is the one pictured in the lower right corner. The other one is a wall clock. Jim Shorney

From dsmapes@comcast.net Thu Dec 26 00:06:59 2002  
Subject: [R-390] Gentlemen ??

Don: Thanks for the gentle reminder. I never met a ballast tube, or anything else for that matter, that justified being insulting to someone.

I'm perfectly willing to consider alternatives to a ballast tube, and if someone wants to develop a complicated solid-state version of one (or, worse yet, one that is DSP-based, with an 802.11b Ethernet connection for Web monitoring of its vital functions), then have at it. Mind you, I'll probably shop around for a replacement ballast (or go the power resistor route) or something else, but this is a HOBBY, and if someone wants to enjoy themselves by building a ballast-tube replacement, well and good. I probably won't be interested in purchasing one, but I'll certainly enjoy discussing the circuit design with him.

I'm just grateful for the folks on this list who know something about these wonderful receivers...mine works better than it ever has thanks to the suggestions made here. Dave Maples, WB4FUR

From John Warren" <k5qx@earthlink.net Thu Dec 26 03:52:20 2002  
Subject: [R-390] KC and MC knobs

I would like to know if the set screws on the MC and KC knobs are normally very hard to break loose. I had my R-390a on the bench since a bias resistor in the BFO circuit opened and after replacing it and re-capping the IF deck, I decided to remove all the front panel knobs to clean the front panel up as I had not done this since I bought the radio this summer. I only have a Bristol allen wrench and was not able to budge either one using moderate effort. Do these knobs really need a bristol screw driver like the OEM one normally provided with the radio to get them off?

By the way, I also did the SSB AGC mod while I was in the IF deck and I am amazed at the difference in the AGC operation on both SSB as well as CW. Thanks to Dallas Lankford for coming up with this and to those who have it included on the their web sites. I am really glad I found the thread on it in the archives that are posted on the web. 73, and thanks for any suggestions, John K5QX

From hankarn@pacbell.net Thu Dec 26 05:00:54 2002  
Subject: [R-390] KC and MC knobs

John, Take a toothpick and dip it in some penetrating oil and get a few to run down the bristol wrench while is seated in the head so the oil goes on the threads. let it set for a while, the tap the top of the bristol lightly while applying force to turn it out. No I did not say WD-40. Hank KN6DI

From k5qx@earthlink.net Thu Dec 26 13:30:59 2002  
Subject: [R-390] KC and MC knobs

Thanks for the good info Tom and Dan. That is just what I needed to get me pointed in the right direction. John

From ronhuns@ptd.net Thu Dec 26 15:09:12 2002  
Subject: [R-390] More on WWVB and Automatic Clocks

Folks,  
Patience is the key: The MFJ radio controlled clock synchronized overnight (What is galling is that my wife's "Be more patient! Be more patient!" was the right answer again...).

By the way, it synchronized in the basement, just above and behind my computer's monitor. This area (in an 80-year-old house) is a rat's nest of wires, dead and alive, with big chunks of metal nearby (A rack-mount cabinet for my R-388 and R-390A). Sounds like the perfect place for synchronization to fail, but there is the antenna symbol on the LCD display.

For old time's sake, though, I think that I'll keep my Pennwood Numechron in it place of honor...  
Ron Hunsicker

From bill@iaxs.net Thu Dec 26 21:46:58 2002  
Subject: [R-390] More on WWVB and Automatic Clocks

Well, it might take more than patience.

WWVB is at 60 KHz. Ever tried listening to anything down there? Even with a big antenna, it's a challenge. The HP receiver for WWVB used a loop antenna with a 60 KHz sharp mechanical filter. Now people use computers to extract signal from all the noise. If your clock didn't cost \$5000 then it probably doesn't have good noise rejection.

I bought the large "radio controlled" clock from RS in Ocean City MD. It was the last one, so I got the demo still running. The antenna symbol had 2 waves, which meant it could hear something but not enough to sync. Back at my son's house, it locked in at 9 PM with no trouble. The box said it only tried to lock a few times a day, and 9 PM was one of them.

But the clock didn't show seconds, so no telling how well it synced to WWVB. Season's greetings, Bill Hawkins

From jamesmiller20@worldnet.att.net Fri Dec 27 03:27:00 2002  
Subject: [R-390] Adjusting Linearity Stack Collins PTO

I am looking for instructions for adjusting the linearity stack in a Collins PTO. I have the PTO in an external jog now with a frequency counter and a calibrated scale and have the end points pretty close,

but there is still 1-2 khz error midpoint. I suspect the stack needs adjusting. It seems to be connected to a large screw that is accessible from the rear of the PTO (after opening it. Any info out there?

From drewmaster813@hotmail.com Fri Dec 27 05:18:38 2002  
Subject: [R-390] KC and MC knobs

John,

Sometimes those KC/MC knob clamp screws need quite a bit of torque to break them loose. With that Bristol "Allen" wrench you are obviously getting a long reach into knob by inserting the long arm. You then get poor leverage because all you have left to grab is the short arm. You can slip a small box end (ignition) wrench over the short arm for more torque. You can also turn the short arm with pliers. Make sure that end of bristol wrench which engages screw socket is in good condition - grind a little off end if necessary. Use a needle to clean out screw socket. You want maximum engagement of good splines here. Bristol screw sockets can take a lot of torque this way. If Bristol wrench slips and you strip out the socket's spline you will have a whole new set of problems.

Dan's suggestion of using penetrating oil is a good one. You may need to apply a fair amount so that it runs down over the knob's shaft clamp and actually reaches screw threads. An aerosol can of penetrating oil with small red applicator pipe works really well. No, I didn't say WD-40 either. Drew

From w5or@comcast.net Fri Dec 27 05:32:09 2002  
Subject: [R-390] KC and MC knobs

Old timer trick: Try tightening the screw a bit before loosening. Sometimes tightening it breaks the screw loose from it's perch. It was last persuaded by its former owner to go in that direction anyway. Don

From w5or@comcast.net Fri Dec 27 05:43:03 2002  
Subject: [R-390] RE: [R-390]Automatic Clocks

If you get one of the surplus HP-Z3801A GPS time receivers as advertised in QST and elsewhere, you can have accurate time, and a precision 10MHZ frequency standard as well. Just the thing for calibrating your bench test equipment.

See [http://www.realhamradio.com/GPS\\_Frequency\\_Standard.htm](http://www.realhamradio.com/GPS_Frequency_Standard.htm) for a thorough treatment. Don W5OR

From drewmaster813@hotmail.com Fri Dec 27 06:50:54 2002  
Subject: [R-390] RMS power and voltage (was BallasTubes...)

Hello Heinz,

RMS POWER in a square wave is directly proportional to duty cycle and proportional to the square of peak voltage or current.

RMS VOLTAGE (or current) in a zero-referenced square wave of peak voltage  $V_p$  (or  $I_p$  as applicable) and duty cycle  $d$  is given by:  $V_{RMS} = ((V_p^2) * d)^{.5}$  (math formulas can be cumbersome in ASCII). Thus, a 50% duty cycle square wave would have an RMS voltage of .707 times  $V_p$  and an RMS current of .707 time  $I_p$ .

A half wave rectified sine wave has an RMS voltage value of half its peak voltage.

A half wave rectified sine wave has an RMS POWER value of .5 times RMS power of the whole sine wave.

Resistance of 2 seriesed 6BA6 heaters is 12.6V/300mA or 42 ohms

With a whole sine wave of 12.6 VRMS applied to a 42-ohm load, RMS power= $(12.6^2) / 42$  or 3.78 watts.

With a whole sine wave of 25.2 VRMS applied to a 42-ohm load, RMS power= $(25.2^2) / 42$  or 15.12 watts.

Half wave rectify the 25.2 VRMS, apply it to a 42 ohm load, RMS power= $.5 * 15.12$  or 7.56 watts.

Double the voltage, power goes up 4 times. Half wave rectify, the power goes down to half. 4 times one half equals twice the original power.

Those 6BA6 heaters glow brighter for a reason! In actuality, as they get brighter, their resistance increases so the power increase is less than 2 times, but power is still higher than when they were powered by 12.6 VRMS.

Yes, your R-390A will still hear faint flea flatulence from Fiji, but life of those 2 6BA6's will be reduced. In past postings I should have been more specific that the RMS values to which I was referring were for voltage or current, as opposed to power. Sorry for any confusion I caused. Have a happy new year, Drew

From w5kp@direcway.com Fri Dec 27 12:16:22 2002  
Subject: [R-390] Adjusting Linearity Stack Collins PTO

Start here <http://www.r390a.com/> and branch out from there. More info than most brains can absorb is available on this subject, including in the list archives. 73, Jerry W5KP

From jamesmiller20@worldnet.att.net Fri Dec 27 14:04:05 2002  
Subject: [R-390] Adjusting Linearity Stack Collins PTO

Thanks...I found this link, and also some references to Electric Radio articles, doing a Google.com search (an amazing thig). Note: The PTO alignment discussions on the r390a.com page appear to discuss only the Cosmos manufactured PTO. The linearity adjustment for Collins mfgd PTOs is considerably different. <http://groups.yahoo.com/group/r-390/message/4718>

From jamesmiller20@worldnet.att.net Fri Dec 27 14:14:32 2002  
Subject: [R-390] Dave Medley Webpage?

Anyone have the (new?) address for Dave Medley's R390 page? Has it moved? Thanks. Jim N4BE

From Walter Wilson" <walter@r-390a.us Fri Dec 27 15:00:32 2002  
Subject: [R-390] Dave Medley Webpage?

It moved: <http://massmicro.com/r390/> Walter Wilson - KK4DF

From David\_Wise@Phoenix.com Fri Dec 27 20:09:46 2002  
Subject: [R-390] Adjusting Linearity Stack Collins PTO

I've done one. Start by taking data points, expected vs actual every 25kHz. If you have enough visual acuity (or a good lighted magnifier), pick a starting point that puts the rider exactly on top of one stack element (I call them "chips"). Turn these data points into a graph of actual freq divided by expected freq. If you have the endpoints set, the graph will intersect 1.0 at each end. Ideally, it will be a horizontal line. It won't be!

However, if it's a smooth curve, you may be able to avoid the tedium of adjusting the stack. Trimming the shunt capacitors will bow the curve up or down. Sorry, I can't remember which is which, just try it both ways. Each time, you'll have to redo the endpoints, but for the first few tries the only other data you need will be at midpoint. When it's close to 1.0, do a full run to see the residual error. If it's small enough, smile! Then get ready to fix up the temperature coefficient you changed when you added or subtracted capacitance. By the way, the originals may not be all that good today even if they were spot-on in 1954. It's possible to calculate the required tempco based on the percent change in capacitance you've perpetrated, but I found that it doesn't match experimental results very well. Cut and try. Don't forget that low VFO tempco isn't the goal, it's low overall tempco. Your crystals have tempcos too. All this doesn't matter much if you're one of those hardheads who run 24x7, but if you aren't, warmup drift is just another annoyance you can do something about. I wound up removing the small caps entirely and substituting a pair of trimmers, one NPO, the other N750. By adjusting them suitably, you can get any capacitance at any tempco. (Within physical possibility, of course. Darn language lawyers!) To check system tempco, I focused a tv camera on a frequency meter, and fed the video to a VCR with a six-hour tape. After the run, I'd fast-forward through the tape writing down readings. Frequent readings at the beginning, spacing further and further apart as the radio stabilized. I got it down to around 100Hz total (down from around 800Hz), but I suspect that this could only be maintained if you ran the radio on a schedule. If you leave it for a week or so, it's off until it's been run a few times again.

Assuming you've read this far :- ) the actual stack adjustment is simple in concept but IMHO one of those skills you have to apprentice for. The nuances can't be described. The basic motion is to loosen the hold-down screw which compresses the stack. With the pressure released, the chips can be slid up and down. You move the appropriate chips what you think are the appropriate amounts, close her up, and take your 40 data points again. Adjacent chips interact, and there's a mechanical limit to the amount of change possible between them. If you set a couple on a steep slope or try to move one without moving the others, you'll see what I mean. It reminds me a lot of adjusting the delay line on a 53x-54x series Tektronix oscilloscope. 73, Dave Wise

From asolway@sympatico.ca Fri Dec 27 21:04:15 2002  
Subject: [R-390] Soldering Fine Wire

To All Who Responded,  
Thank you all who responded to my fine wire soldering problem. There were many. I will attempt to explain the original problem again. Then my adaptation of your suggestions which resulted in a successful repair.

I am sorry for not getting back sooner. I got an email from Greg yesterday asking if I got any responses or any info on the aspirin method question I posted.. This woke me up and I realized that if you ask questions and get responses then you should share this info with everybody.

I am in the process of restoring an SP-600-J-3. I was replacing one of the BBODs in T1. A fine wire going from L52 to a terminal was broken. There was not enough wire remaining to reach the terminal. I attempted to splice the fine wire to length of solid lead wire. This was not successful because the insulation on the fine wire inhibited soldering of the wire. Attempts to melt the insulation with a soldering iron did not work. It resulted in burning the wire and more wire being destroyed. I tried the aspirin method but this resulted in a plastic like material being deposited on the wire. The amount of wire remaining was sufficient for one more attempt at a splice. Another failure would result in replacing the entire T1 transformer. Availability would certainly be a problem. This was when I decided to ask for help.

Several responded with variations of the same technique that were specific to a particular problem. The main point that was made was that only uncoated aspirin should be used. I used a COATED aspirin. This was the cause of the plastic like coating that was deposited on the wire. USE UNCOATED aspirin only.

My procedure for the above problem is only a variation of the suggested techniques. The transformer fine wire used in L52 mentioned above was approximately 40 AWG with a nonsolderable insulation. The remaining L52 lead was too short to reach the terminal that it was originally attached to. A length of solid bare tinned wire about 0.020 in diameter was attached to the terminal and soldered in place. The bare tinned wire was used as a splice for the fine 40 AWG. Tweezers were used to wrap the fine wire 4 turns around the bare wire. An uncoated aspirin was broken in two. Using tweezers the aspirin was held under the wire to be soldered. A soldering iron with solder applied to the tip was held in contact with the wire above the aspirin. The soldering iron was moved back and forth two three times. The residue from the aspirin soldered area was cleaned by scrapping lightly with an Xacto blade. The area was cleaned with Isopropyl alcohol (IPA). The aspirin soldering/cleaning operation was repeated a second time. A light coating of solder flux was then applied to the area and then resoldered. The result was a good and well wetted solder joint. I dissolved some baking soda in water and rinsed the splice with this solution. The splice was then cleaned thoroughly with IPA.

Bill Smith indicates that the acid in the aspirin may eventually attack the wire. This a valid comment. Rinsing the splice with the baking soda to neutralizes the acid. This is not my idea but one that I found on the internet at the the following site. I downloaded their Wire Info Software. Lots of good info on magnet wire including soldering of nonsolderable fine wire insulation.

<http://www.wiretron.com/magnet.html>

BTW Google is a very effective search engine. There is all kinds of info on magnet wire out there. The SP-600 T1 is now fully repaired and looks good. Will finish the recapping and the other necessary repairs in a month or so. A Happy New Year to All. AI VE2TAS

From David\_Wise@Phoenix.com Fri Dec 27 22:45:57 2002  
Subject: [R-390] Ballastubes (was inrush current limiters)

Here's IMO the simplest regulator that's also really good.

Parts list:

5ohm 10W resistor.  
10ohm 10W resistor.  
2.2K 1/4W resistor.  
2.7K 1/4W resistor.  
1K pot.

3000uF/50V cap.  
Silicon rectifier.  
LM317 on heat sink.

Vin goes to 5ohm resistor.  
5ohm resistor goes to anode of rectifier.  
Cathode of rectifier goes to cap and LM317 IN terminal.  
Other end of cap goes to ground.  
LM317 OUT terminal goes to 10ohm resistor and 2.2K resistor.  
2.2K resistor goes to LM317 ADJ terminal and 2.7K resistor.  
2.7K resistor goes to 1K variable resistor.  
1K variable resistor and 10ohm resistor go to Vout.

This will adjust from 280mA to 335mA. It has four big components, three of which are also hot, and it requires a ground. This was my first step on the road to the 3DW7.

How's it work? The rectifier and cap give you DC. The 5ohm resistor softens the charging peak and takes on some of the heat load.

The LM317 will do anything in its power to maintain 1.25V from OUT to ADJ. This puts 1.25V across 2.2K for 0.57mA, which also flows through the 2.7K resistor. (The LM317's current out the ADJ pin is negligible.)  $0.57\text{mA} * (2.2\text{K} + 2.7\text{K})$  3D is 2.78V. The LM317 will do anything to make that 2.78V happen. In this case it punches 278mA through the 10ohm resistor. If you increase the 2.7K resistor to 3.7K, the voltage is 3.35V instead of 2.78V for 335mA out. I can't remember what range of AC input voltage this will work over, but it's at least 25.2 +/- 5%. 73, Dave Wise

From David\_Wise@Phoenix.com Fri Dec 27 22:49:38 2002  
Subject: [R-390] BallasTubes (was inrush current limiters)

Does not! It glows all the time. If yours does not, then it is not a 3TF7. The iron wire is strung up and down in vertical segments arrayed around the periphery of the imaginary cylinder formed by two mica washers. Some segments will glow, others not. How many, depends on the voltage. As it rises, more will glow. If it's all dark, it's out of regulation on the low side. If it's all lit, it's out of regulation on the high side. 73, Dave Wise

From metzd@intelos.net Fri Dec 27 23:00:45 2002  
Subject: [R-390] Adjusting Linearity Stack Collins PTO

wrote: >Thanks...I found this link, and also some references to Electric Radio >articles, doing a Google.com search (an amazing thig). Note: The PTO >alignment discussions on the r390a.com page appear to discuss only the >Cosmos manufactured PTO. The linearity adjustment for Collins mfgd PTOs >is considerably different. > ><http://groups.yahoo.com/group/r-390/message/4718>

Jim, Right you are on the difference between collins and Cosmos.

A long time ago, I tried it and had limited success on a PTO that was out 6-8 kc with a procedure that went something like this:

Take a junker PTO and cut a slit in the inner can above the camstack about a 1/4" wide to allow you to



insert a piece of insulated something to push on the cam stack just above the roller. Then, adjust the tightening screw so that you can move the stack. First, you need to find the worst offset from end to end such that you are only going to push the stack down to either increase or decrease the freq. ( could never quite figure out the way to pull the stack up to go the opposite direction in frequency.) Then, mount the pto into the receiver with only the inner slotted can and push down at each 25khz increment to either raise (or lower, I cannot remember). the freq to the desired freq. I only used the inner can with the slit. This creates a bit of a problem because you have no rear mount so you have to brace it somehow. You should "T" in a counter to measure the freq with a counter. Remembering the PTO goes from 2.455--3.455 inversely as the freq is ascending you need to set up a chart to know what is the desired PTO freq @ each 25khz indicated.

I am sorry for the lack of detail but it's been a few years and I forgot the details. I am sure there must be a better way. However, I was not able to figure a way to adjust the camstack short of pulling the PTO hundreds of times with a trial and error method. I seriously doubt that Collins did anything trial and error. I am so in awe of the engineering of this setup. What a sophisticated way to linearize a very delicate oscillator.

I know that there has been a lot of talk about the PTO manufacturers here on the list but a long time ago I had a conversation with Paul Zechinno at Mil Spec Communications, (Not Rick Mish) and he was less than complimentary on Cosmos compared to the Collins PTO's. He had years of experience with these and felt that the Cosmos was probably fine when it left the factory but would not weather the years like the Collins units in the non A 390's.

However, bottom line: Don't do it! If you have a PTO within one or two KC, you have NO problem. It never was perfect and I doubt seriously that you can achieve anything better. 73's dave

From David\_Wise@Phoenix.com Fri Dec 27 23:09:50 2002  
Subject: [R-390] Gentlemen ??

> I'm perfectly willing to consider alternatives to a ballast > tube, and if > someone wants to develop a complicated solid-state version of >one

LOL!

I know it's overkill, but it took on a life of its own, and I couldn't stop until I "ran out of road". You know, there probably IS a microcontroller out there with an 802.11b core. NO! NO! :- ) 73, Dave Wise

From David\_Wise@Phoenix.com Fri Dec 27 23:18:29 2002  
Subject: [R-390] Adjusting Linearity Stack Collins PTO

I forgot to mention part of my procedure. I didn't cut any holes. I took off the outer can and the oven.

Warm it up a few hours.  
Take data.  
Power down.  
Remove.  
Disassemble.  
Adjust.  
Reassemble.

Replace.  
Power up.

Repeat until you're sick of it :-) I got mine to about 100Hz, but that's down in the noise compared to endpoint drift, and I doubt it's still that good.

I got a Cosmos unit at a swap meet last summer. I'm looking forward to getting into it sometime. It'll be a breeze compared to the Collins. 73, Dave Wise

From djmerz@3-cities.com Fri Dec 27 23:21:14 2002  
Subject: [R-390] Removing 390 non-a varnish

Hi, sure this has been discussed before - on a 390 non-a i.f. chassis, there's what appears to be varnish on many of the solder joints (not all, none on selectivity switch). I am doing considerable connection modification to convert the filaments to the 390a 6 volt hookup. Is there an easy way to clean this stuff off prior to applying the iron? I have some solvents such as acetone, laquer thinner and alcohol. This stuff appears to be selectively applied to various connections and not sprayed over the entire chassis though I can't be sure, Dan.

From David\_Wise@Phoenix.com Fri Dec 27 23:22:43 2002  
Subject: [R-390] Adjusting Linearity Stack Collins PTO

Shoot, I forgot another thing. If you let your thumbnails grow out a bit, if you hold the open PTO a certain way, you can push individual chips from side to side very precisely between them. 73, Dave Wise

From w5kp@direcway.com Fri Dec 27 23:59:40 2002  
Subject: [R-390] knobs

Anybody know the composition of the pot metal used in 390A knobs? Too heavy to be aluminum, also seems heavier than most of the pot metals I'm used to seeing. Just curious, plus it might make a difference in what I use for finishing. 73, Jerry W5KP

From djmerz@3-cities.com Sat Dec 28 00:45:54 2002  
Subject: [R-390] Removing 390 non-a varnish

Hi again, looking around a bit in the archives, I suppose this varnish is the MFP stuff. Was this used on all 390 non-a's? Evidently some types contain mercury with some potential hazard if overly consumed or inhaled. I'm not worried yet !! None on the switch solder joints so I guess they sprayed it before assembling the switches so the contacts wouldn't be coated - clever fellows that they were. Anyway, I gathered that this stuff is probably best just flaked off where heavy deposits lie if I'm going to solder there and make as many connections as possible without messing with the original coated soldered connections. I'm open to other methods if there is some experience that would simplify this task, thanks, Dan.

From djmerz@3-cities.com Sat Dec 28 01:00:11 2002  
Subject: [R-390] Removing 390 non-a varnish

Hi again, I noticed that a half-scratched away "MFP" was painted on the side of the i.f. chassis, so that answers part of my question - though I wonder whether the "contains mercury" is a known fact or a rumor, not that it's going to matter much to me since I try to minimize inhalation of any fumes from any unknown thing that I vaporize, Dan.

From jamesmiller20@worldnet.att.net Sat Dec 28 04:05:11 2002  
Subject: [R-390] Adjusting Linearity Stack Collins PTO

Thanks much to all for the discussion of corrector stack adjustment on the Collins PTO. It sounds formidable, but worth a try. I wonder what would be the effect of just leaving the can off the PTO during adjustment. Does the proximity of the can change the adjustment enough to worry about? I have linearized a Cosmos PTO quite nicely before...it's adjustment concept is a good one, it can all be done with the unit sealed, and it comes out very linear indeed. Cosmos seems to have taken a bad rap, but it does work well in my opinion. This Collins PTO looks like a chore, but I want to keep my latest "Collins" 390a "all Collins", so I will go for it and see what happens! 73 Jim N4BE

From richy2@mindspring.com Sat Dec 28 16:25:29 2002  
Subject: [R-390] carrier level meter

Happy holidays to everone, I just rebuilt a 390A and it works great except for an over active cxr meter, it reads full scale on average signals, AGC action is good and have tried all tubes associated with this ckt to no avail, voltage measurments are good and reciever plays very good other the the meter pegging on average sigs, anyone had this problem before??? tnx Joe W2DBO

From Walter Wilson" <walter@r-390a.us Sat Dec 28 16:34:31 2002  
Subject: [R-390] carrier level meter

Joe,  
Check the resistor from pin 3 to ground on V506. It should be 27 ohms. Fair Radio changes out this resistor to give their substitute meters enough drive. It's possible your IF deck has had this resistor swapped out in its past life. Walter Wilson - KK4DF

From billsmith@ispwest.com Sat Dec 28 20:09:31 2002  
Subject: [R-390] Adjusting Linearity Stack Collins PTO

Has anyone tried this?

1. Set up a spread sheet with a list of frequency entries every 50 kHz. (nominal) from 3.455-2.455 MHz
2. Rotate the PTO from one frequency end to the other. At mechanical 50 kHz intervals, using a counter, document the measured PTO frequency.
3. Remove the cover.
4. Repeat step 2, above with the cover off.
5. Subtract the frequency differences steps 2 and 4 for each measurement in the list. The result should

be the error due to capacitance contributed by the cover if this scheme is to have any merit.

6. Add (subtract) each result obtained in step 5 to each frequency in step 1. This list becomes the calibration standard for the PTO.

7. Calibrate (adjust) the PTO at each mechanical 50kHz stop to the frequencies obtained in step 6. This is a predicted error + frequency so that when the cover is replaced, the error will be compensated by the cover.

8. Replace the cover. If the calculated error values are correct, the PTO should now be linear. Hopefully you won't have to go through a second calibration cycle. 73 de Bill, AB6MT

From ham@cq.nu Sat Dec 28 21:00:28 2002  
Subject: [R-390] Adjusting Linearity Stack Collins PTO

Hi,  
Having spent most of the last 20 years doing this sort of thing there is one other item to worry about.

The inductance of the coil will change when you put the cover on it. It doesn't change a lot but it will change enough to notice. I doubt that it will have a major affect but you will see it throw things off a bit.

The bottom line is that there is no easy way to set up a PTO. The people who built the radios still remembered that as being the worst job on the entire line 20 years after the last radio shipped ..... Enjoy!  
Bob Camp KB8TQ

From woodrat@citynet.net Sat Dec 28 21:21:25 2002  
Subject: [R-390] HRO Help

I put aside my R 390A, momentarily, I thought, (mandatory 390 content) to do an easy/quick repair on an early version HRO. It, of course, has not turned out to be quick, and damn sure not easy. Are there any HRO gurus lurking on the list.....I need some hand holding. Larry

From ham@cq.nu Sat Dec 28 21:29:59 2002  
Subject: [R-390] Fw: Off list posts

Hi, And here's another reason to grab that cup of coffe. Gotta remember to change the email from line to get past the robot .... Take Care! Bob Camp KB8TQ

----- Original Message -----

From: Bob Camp  
Subject: Off list posts

Hi,

This obviously has nothing to do with R-390's and everything to do with the mailing list. It also may just be me and nobody else has the same problem.

When I decide to reply to a post I pretty much always hit the "reply" button on the email program rather than the "reply all" button. I do it without thinking much about what I'm doing.

Since the order of the addresses in the from field is poster first and list second the result is a message to the person who posted and nothing to the list. That's fine except in 99% of the cases that's not what I wanted to do.

If I was a little more awake there would be no problem, but there is only so much coffee in the world :)

I have noticed that a lot of the replies I get to posts come directly to me and do not show up on the list. A few are of a nature that the list should not get a copy, but the vast majority are things that the list would be interested in. It always makes me wonder if the other guy has the same problem I do or if he considers the reply to be a non-list item.

A simple solution to the whole problem would be for the list robot to put the list email address first and then the address of the person who posted the message. I don't know if this is as simple as throwing a switch in the setup program or as complex as re-writing the code from scratch.

Is it worth looking in to? Take Care! Bob Camp KB8TQ

From jamesmiller20@worldnet.att.net Sat Dec 28 21:53:31 2002  
Subject: [R-390] Adjusting Linearity Stack Collins PTO

I like this spreadsheet idea! I already have an Excel spreadsheet from when I did my Cosmos PTO last year. It shows the expected frequency output at each quarter revolution. Think I will do this for the Collins, once I muster enough umph to get started. I also have a wooden test jig I made where the PTO mounts and a large calibrated wheel (a circular scale from a PDF file I downloaded from another site). This is how I know how much it is off. I will try to take some digital pics. and post them as I go. Thanks to all the replies here I think I can get started. We'll see how it goes. Stay tuned. 73 Jim N4BE

From ai2q@adelphia.net Sat Dec 28 22:23:05 2002  
Subject: [R-390] HRO Help

Hi Larry: I have an early HRO-5 that I've worked on. Maybe I can assist. Watsa? == Vy 73, AI2Q, Alex .-.-.

From courir26@yahoo.com Sat Dec 28 23:47:18 2002  
Subject: [R-390] R-390A Makers List Page

[http://www.geocities.com/courir26/390a\\_makers](http://www.geocities.com/courir26/390a_makers)

Please refer to the above link for the latest list of contract orders, sn's and other notes. I'll keep this document updated with new info as it surfaces. Myself and Les Locklear had a short article in the new ER, but unfortunatley there was a couple of typos and at least one update since then. Feel free to link this, but credit self, Les Locklear, Wally Chambers-K5OP, and all of you on the list for sending in the info. Thanks Tom N5OFF

From w7itc@hotmail.com Sun Dec 29 07:59:37 2002  
Subject: [R-390] Manna from Heaven

Well I will have at My operating position in a few hours a KWM-380 Collins. Imagine a solid state boatanchor. I have heard so much good and so much bad about this rig it will be interesting to see for myself what it's like. I wonder if it has the HF-380 board installed. I have already made an offering to the Holy Radio Gods, Anode, Grid, and Cathode. As I placed the a 6L6 on the alter before the radio wall I muttered this prayer

Oh great Gods of Hollowstate  
Take this offering in good faith  
Though I bring in solid-state gear  
You and your minions have nothing to fear  
To your 572B's I have made this clear

I must still be in shock over the KWM 380. I got a call from My brother he had been given this radio and would I like it. I was very calm until I hung up the phone. My R390A came from Through My brother from this same Doctor. I also got yet another TS-520 with the VFO-520 it looks unused. I think I have had a good Christmas. With a Big stupid grin Ken

From w9ya@amsat.org Sun Dec 29 16:58:04 2002  
Subject: [R-390] Subject: Off list posts

Simple answer ....no, don't change a thing.

Simple suggestion ....find a better email client (program), as I have no problem placing my mouse over the address(es) I chose to reply to, right clicking, and selecting reply. I can also use various ctrl key sequences too. I am sure there are many other programs that can work the same way.

Finally I notice that you are sending mime-style (HTML) email and/or sending attachments of same. (See the very bottom of this email.) There should be a setting in your email client to not be doing this. As a rule, most email reflectors (lists) do not like incoming e-mail like this. Most of us just turn that "feature" off. Bob

From ham@cq.nu Sun Dec 29 17:08:11 2002  
Subject: [R-390] Subject: Off list posts

Hi,  
Good point about the HTML. I turned it off when I spotted the tag line on the post.

The problem isn't so much the mail client. If I \*remember\* to hit the correct button it does what it should do. It's simply the fact that fairly often I don't remember to hit the reply to all button. There are a lot of off list posts that go on and I still wonder if this is a significant issue. Then again it may only be me .... Enjoy! Bob Camp KB8TQ

From dlwade@pacbell.net Sun Dec 29 18:10:22 2002  
Subject: [R-390] Subject: Off list posts

wrote, in part: > There are a lot of off list posts that go on and I still wonder if > this is a significant issue. Then again it may only be me ....

Well, for what its worth, its at least me and Bob.

I would much rather see posts mistakenly sent to the list than never see posts that would be useful to a broader audience. It should be a simple matter to change the list default reply-to field to show the list address rather than the poster's address. My sense is that the impact on list volume would be small. Happy Holidays to All! Dennis

From DCrespy@aol.com Sun Dec 29 22:42:56 2002  
Subject: [R-390] FS: Cover sets for Collins R-388, 51J-x

Gang,

I am down to just 4 cover sets from the original production run and would just as soon see these on someone's radio as filling up space in my shop. So... I have lowered the price for a set (1 top cover and 1 bottom cover) from \$75 shipped to \$55 shipped, CONUS. These are excellent reproductions of the originals, including alodine finish. Everyone who has bought a set has been pleased. They fit the R-388, 51J-3 and 51J-4. (The top covers also fit the 51J and 51J-2.) Please let me know if you are interested. If you like I can send more details separately. 73 Harry KG5LO Saline MI

From tgrieco@optonline.net Sun Dec 29 22:50:47 2002  
Subject: [R-390] Central Electroics A&B Slicer

I have a near perfect Central Electronics A&B Slicer unit here which looks like new. I really need to know the current value if anyone out there can be of help as I will be looking to sell it very soon, but could use some honest direction. Includes manual. Used years ago on Collins and other gear to improve the SSB reception using BFO's probably also R-390 as well. Not familiar with the item, but it looks as new and am sure someone out there will appreciate it. Will take offers at this time before it goes you know where. also. Tnx, Tim

From dlwade@pacbell.net Sun Dec 29 22:50:47 2002  
Subject: [R-390] Subject: Off list posts

Gary, Thanks for your thoughts, Gary. You bring up an important point and is exactly why I, and I think Bob as well, would like to see the default changed.

You wrote, in part: >...Most of the lists have archive capability so it is a simple matter to review the entire thread if you are interested. <end quote>

You are correct: most lists do archive posts and also have search engines which range from pathetic to not bad in quality. However, and this is important, they don't archive posts not sent to the list! As an example, had we been discussing some technically relevant topic, your note sent directly to me would not be available to any list member, past, present or future because, since it was not sent to the list, it would not have been archived at all. This is exactly my point and I believe Bob's as well. A forum such as this with a wide range of technical expertise has much of its value in its ability to share that information with all its members. It would seem an easy task to simply use the delete key for those posts that should not have been sent to the broad audience.

I don't know about past discussions or any consensus reached. All I know is I didn't participate in those discussions (probably because they didn't post to the list) and I did not participate in that consensus. So, I'm posting this to the list as a whole in the interest of reaching a broad consensus, even at the risk of wandering off topic. Happy Holidays! Dennis

From drewmaster813@hotmail.com Sun Dec 29 23:15:46 2002  
Subject: [R-390] Ballatube regulator simulations

Hello All,

I ran a computer simulation of a couple of different BallasTube replacement circuits. These are of the recently discussed "clipped sinewave" variety. No filter capacitors are used (beyond the small caps recommended for LM317 stability). The LM317 in each case sees raw unfiltered DC straight from the dead horse's, er, rectifier's mouth.

They are not true RMS current regulators but for some situations might provide a reasonable approximation. I found the results to be interesting and maybe you will find them to be boring.

Circuit Descriptions:

Regulator circuit #1: This circuit was designed, built, and tested by Dr. Gerald Johnson and reported on the R-390A list a while back. It consists of full wave bridge rectifier wrapped around LM317 configured as DC current regulator. Current sense resistor for LM317 may be preset for  $I=347$  mA using a quiet DC source of about 6 volts at AC terminals of bridge rectifier. Rectifier AC terminals are then disconnected from DC source and connected to BallasTube socket pins 2 and 7. This should yield RMS heater current as specified at "Line Nominal" conditions. Because LM317's reference voltage may lie between 1.2 and 1.3 volts, current sense resistor value can range from 3.46 to 3.75 ohms. Tube heaters see a clipped AC sine wave.

Regulator circuit #2: This circuit was recently proposed by Jim Shorney and as far as I know has not been tested. Circuit consists of half wave rectifier feeding LM317 configured as DC current regulator. Current sense resistor for LM317 may be preset for  $I=523$  mA using DC source as for circuit #1 above. Rectifier is fed from ballasTube socket pin 2 (Vsec) and regulated DC output fed to tube heaters at BallasTube socket pin 7. Current sense resistor for LM317 can range from 2.29 to 2.49 ohms. Tube heaters see pulsating half wave rectified DC with clipped peaks.

Simulation Conditions:

1.  $I_{htr}$  is RMS current through seriesed 6BA6 PTO and BFO tube heaters. Total resistance is assumed to be 42 ohms hot.
2. Vsec is RMS AC voltage from transformer secondary winding at BallasTube pin 2.
3. Dev is  $I_{htr}$  deviation in percent from  $I_{htr}$  specified at Line Nominal conditions.
4. Pd reg is LM317 regulator power dissipation in watts.
5. For Startup, line voltage and Vsec are as specified for Line Nominal conditions and initial heater total



resistance is assumed to be 5.4 ohms cold.

Simulation results for circuit #1:

Line Nominal: AC line=115, Vsec=25.2, I<sub>htr</sub>=300mA (adjusted), Pd reg=2.9w

Line-8.7%: AC line=105, Vsec=23.0, I<sub>htr</sub>=295mA, dev= -1.7%, Pd reg=2.3w

Line+8.7%: AC line=125, Vsec=27.4, I<sub>htr</sub>=304mA, dev= +1.3%, Pd reg=3.5w

Line-13%: AC line=100, Vsec=21.9, I<sub>htr</sub>=292mA, dev= -2.6%, Pd reg=2.0w

Line+13%: AC line=130, Vsec=28.5, I<sub>htr</sub>=306mA, dev= +2.0%, Pd reg=3.8w

Startup: I<sub>htr</sub>=330 mA

Simulation results for circuit #2:

Line Nominal: AC line=115VAC, Vsec=25.2, I<sub>htr</sub>=300mA (adjusted), Pd reg=1.2w

Line-8.7%: AC line=105, Vsec=23.0, I<sub>htr</sub>=291mA, dev= -2.9%, Pd reg=.8w

Line+8.7%: AC line=125, Vsec=27.4, I<sub>htr</sub>=307mA, dev= +2.3%, Pd reg=1.6w

Line-13%: AC line=100, Vsec=21.9, I<sub>htr</sub>=286mA, dev= -4.7%, Pd reg=.7w

Line+13%: AC line=130, Vsec=28.5, I<sub>htr</sub>=310mA, dev= +3.3%, Pd reg=1.8w

Startup: I<sub>htr</sub>=352 mA

Notes and Musings:

1. Precision regulators these ain't! The 3TF7 BallasTube does better with its specification of +-1% over a much wider line voltage range than shown in these simulations. An LM317 operated with sufficient headroom from a filtered DC source does far better still. The sophisticated 3DW7 Tubester with its microprocessor control is reputed to be excellent. However, circuits #1 and #2 do considerably better than no regulator at all.

2. Some like it hot! In order of least to most heat generation would be the cool running 3DW7, then circuit #2, 3TF7, circuit #1, filtered DC operated LM317. From a standpoint of simple regulator heatsinking, circuit #2 might be attractive.

3. It has been argued that current regulation for the PTO and BFO tube heaters is not really necessary for the type of operation that most of our R-39x see. There are several schemes which eliminate the 3TF7 current regulator and supply unregulated PTO and BFO heater power. Proponents of these schemes claim that frequency stability is still excellent. More data on frequency variation vs PTO/BFO heater current variation would help to resolve doubt in a given usage situation. If one were to classify stability with unregulated heater power as "quite good", perhaps circuit #1 or #2 could upgrade the classification to "very good" or "excellent". Schemes offering still better regulation might only provide improvements past the point of diminishing returns. For some users, however, anything less than the best obtainable would be unacceptable.

4. If you want original performance, use an original part! Put those 3TF7's to work.

5. Note that cold startup current is a bit higher than current when heaters have warmed up. Compare the values above to the 2.3 amps a cold 6BA6 would draw from a supply without current regulation. Current limiting action reduces heater inrush current and resultant heater stress. This might help prolong tube life.

6. Posting of these results helps prove that even a "dead horse" can still make a pile of manure! As such, these ramblings should be taken as just that: a product of my "fertile" imagination. Use these ideas at your own risk. My liability is limited to the saying of a requiem for deceased 6BA6's.

7. For my R-390A, I prefer and use the "Two 12BA6's and a paperclip" method for its utter simplicity and because I'm lazy. Maybe someday I'll test circuits #1 and #2 to satisfy my curiosity.

Neither 6BA6's nor electrolytic filter caps were harmed during the running of these simulations. Drew

From Llgpt@aol.com Sun Dec 29 23:17:04 2002  
Subject: [R-390] Central Electroics A&B Slicer

Tim and group,

I had one of these several years ago. Used it with a R-390, R-390A and a SP-600 with good results. It's not a CV-591A, but it's not bad either. My SWAG would be \$75-100. More complicated to interface with a receiver than a CV-591A etc. Les Locklear

From Llgpt@aol.com Sun Dec 29 23:19:35 2002  
Subject: [R-390] Subject: Off list posts

Let's leave it up to the individual guys, we don't need a mind control moderator/nazi..... We need to think for ourselves, or we might be in trouble. Les Locklear

From gharmon@idworld.net Sun Dec 29 23:36:31 2002  
Subject: [R-390] Subject: Off list posts

Dennis,

Thanks for your thoughts as well. I understand your position and I'll have to take your word on the archive postings since I've never used the capability. Personally, if I saw a thread of interest to me I'd email the sender or receiver and ask to be included in any subsequent messages.

My vote will continue to support reply to sender because of the reasons I've already offered. I apologize to the two lists for this email but since you sent to the lists I felt obligated to do likewise.

Excuse me while I go soothe my Dallas Cowboy wounds. Seasons Greetings ALL! 73, gary

From shortwave@earthlink.net Mon Dec 30 00:36:44 2002  
Subject: [R-390] Subject: Off list posts

But does not setting the list to have replies go to the list invite one to think for himself at least as much as setting it the other way?

I wrote the following earlier this afternoon, and left it in the "drafts" folder while I went out to pick up a batch of boat anchor stuff from a fellow's garage. (Unfortunately, no R390s!) Guess I'll send it now.

\*\*\*\*\*

Yes, it certainly is a significant issue. It is clear that in lists set up to reply to the sender, rather than to the list, a lot of the content that should go to the list gets lost, and the value of the list is thereby considerably diminished. If, as a list member replying to a list message, I want my reply to go only to the sender, it is my responsibility to see that that happens. If I fail to do that and am thereby embarrassed, so be it! I run several lists myself (including SWLtalk, AR7030 and VOACAP on QTH), all set up to reply to the list. Content is not lost and complaints about the setup are rare.

I subscribe to enough lists that I get several hundred emails each day from the lists, in addition to other email. Most of those lists are set to have replies go to the list. On the few that have replies go only to the sender, one can almost always find threads disappearing when clearly not finished, or becoming discontinuous when someone realizes the list has not been getting replies and adds the list back in. It just works better if a "mail reflector" really "reflects". Dan

From jamesmiller20@worldnet.att.net Mon Dec 30 01:05:28 2002  
Subject: [R-390] Subject: Off list posts

IMHO, this "off list post" topic is just one more example of when it is PREFERRED that the off topic discussions (endless debates) be conducted directly rather than involve the list. The ballast tube debate on RMS definition was the last example. These things take on a life of their own after a while. Yes I have a delete key but it will soon due for repair. N4BE

From djmerz@3-cities.com Mon Dec 30 07:12:41 2002  
Subject: [R-390] kilocycle/megacycle movement

Hi, I haven't used my 390a much over the last 2 or 3 months and I was listening on 80 meters tonight and found a problem tuning up near 4 Mhz. It seemed dead there and I could tune in stations down near 3.9 somewhat better (I started listening on another set for comparison to be sure the band wasn't dead). After awhile I noticed that the megacycle knob seemed to move off its "lock" position and was moving as I tuned the kilocycle knob. It did this sometimes and would get off the band position but not always. Is this most likely a lubrication problem? I really never was able to pick up a known signal at around 3.99 Mhz and I tried rocking the megacycle knob to improve things, or to find if something else was "hanging up". I haven't lubed the set since about 2 years ago when I did a pretty thorough job in this regard and everything seemed very free. I'll pull it open tomorrow and take a look but was curious if there was an obvious known component that causes this kind of symptom. It seemed ok on other bands but I didn't spend a lot of time checking. thanks, Dan.

From jamesmiller20@worldnet.att.net Mon Dec 30 08:18:08 2002  
Subject: [R-390] kilocycle/megacycle movement

Sometimes a coil slug will stick at a band edge causing low sensitivity. Look at the slug rack as you tune at the high end and see if any slugs stop moving prematurely. If you see one, tap on it or wiggle it by hand to see if sensitivity returns. If it is a slug that is sticking, you can usually free it up by loosening the screws that hold it to the slug rack and allow it to re-seat itself so it doesn't bind.

From Scott Seickel" <polaraligned@earthlink.net Mon Dec 30 11:49:21 2002  
Subject: [R-390] kilocycle/megacycle movement

> sure the band wasn't dead). After awhile I noticed that the megacycle > knob seemed to move off its "lock" position and was moving as I tuned > the kilocycle knob. It did this sometimes and would get off the band

The MHZ knob should have a good solid click as it falls into each detent. I have seen the detent plate get worn out from lack of lub and the knob just doesn't have a good lock at each position. But the problem probably is in the differential gear assembly. The gears could just be sticking and need a cleaning and lube. No need to disassemble the differential. Just soak the whole thing in gas for an hour or two to clean off the crud. Relube with Mobil 1 synthetic oil. If this is the problem, you might as well rebuild the whole geartrain while you are at it because there are other gears that are crudded also. Scott

From ham@cq.nu Mon Dec 30 13:03:08 2002  
Subject: [R-390] Subject: Off list posts

Hi,  
Here's the problem it puts you in though:

Off list posts are supposed to stay off list (my understanding)

I get a useful reply to something I've asked about

I decide to reply to the reply (hang in here with me ...)

The reply since it's interesting to me also should be interesting to others

Now what do I do. I \*believe\* (no proof) that roughly 75% of the stuff that goes out from me or comes in to me off list is simply a result of hitting the reply and not the reply to all button. In other words off list does not in this case mean private. However in the other 25% the off list post is intended to be private. The information is something related to a commercial product in the works or who knows what. It's not always obvious which pile the item goes in.

You can spot a number of threads over the last few years on the list that have these odd jumps in them. A conversation goes on for a while and dies. Then a week or so later up pops a message on the same thread. Attached to the message are a dozen or so posts that never made it on to the list. In a lot of cases it would have been nice to follow the conversation as it went rather than get it all in one gulp. It would also be nice to be more sure of not offending anybody with all those attachments. Not that anybody on the list \*ever\* gets offended :)

..... had to stop at this point -- I'd hit reply and not reply to all -- needed to correct the problem :)

Endless debates are the nature of the list. Debates that come up again and again are why we are here. With the exception of "who has one of these I need one" posts just about all the technical stuff has been brought up before. I don't think that changing the default behavior on the reply process will have much affect on it. When a topic comes back up people want to chat about it. It's a new group of people and they have ideas. We seem to move each topic a little further on each time we go over it. In the process almost all of the old stuff gets run through again. I would \*much\* rather have the activity we have here

(and the repetition) in stead of the dead / no traffic situation that seems to go on with so many other specialized lists. Take Care! Bob Camp KB8TQ

From Barry Hauser" <barry@hausernet.com Mon Dec 30 13:11:57 2002  
Subject: [R-390] kilocycle/megacycle movement

Hi Dan & Gang:

In addition to a worn, bent or loose detent spring/plate, check carefully for a loose or broken gear clamp. A broken clamp, or one that isn't positioned right, may snug up with the bristol wrench, giving the false impression that it's tight.

The situation sounds familiar. I got one unit in here a few months ago and noticed the MC knob creeping. One broken and one loose clamp. I don't recall which ones. You have to look carefully behind the panel as you rotate the KC knob with the MC set in various positions, including the 4 MC position. The mechanics of the gearworks is such that the backlash varies over its travel, largely due to the spring tension on the slug racks..

As suggested, gunked up gears could do this, but they'd have to be pretty bad. Check all clamps using the close eyeball inspection method. And, whatever you do, don't blink! Barry

From ham@cq.nu Mon Dec 30 13:09:50 2002  
Subject: [R-390] Subject: Off list posts

Hi, I hadn't exactly considered this to be mind control :)

If this is an issue for a significant majority of the people on the list then why should we keep it the way it is?

If it's only an issue for a few of us then by all means leave it the way it is.

The point is to make the easy thing to do the right thing to do most of the time.

I suspect it's a matter of what you are used to. I do \*far\* more email at work than I do at home. The system at work is not one I chose or can change. There the reply and not the reply to all button is the button of choice. If you want to stay employed then that's the button you automatically hit. After a while it is a cruse control decision. Take Care! Bob Camp KB8TQ

From Barry Hauser" <barry@hausernet.com Mon Dec 30 13:37:14 2002  
Subject: [R-390] Subject: Off list posts

says: > I would \*much\* rather > have the activity we have here (and the repetition) in stead of the dead / > no traffic situation that seems to go on with so many other specialized > lists.

Me too! Excessive bandwidth conservation DBS -- Dead Band Syndrome.

Here's another thing or three: Replying off-list to posts can be, in effect, inconsiderate or just plain "chicken". The inquiring pilgrim may get a lot of redundant, but uncoordinated answers that may seem

contradictory or disjointed. The individual respondents aren't aware that a particular suggestion was already given. It's also wasteful of the other listmembers' time taken to reply with an answer that's already been given privately. Finally, it's a way to conveniently avoid rebuttal, correction, clarification, alternate opinions, etc. -- hence the chicken-factor.

OK, so a few dead horses get beaten. The vet says it's good for their circulation.

So, unless there's a good reason -- like "I'll buy it!" or "Do you take Paypal? Green Stamps?" whatever, I vote for "Reply All".

Only one problem. I've got a nail stuck in my foot from this soapbox I'm standin' on. ;-) BTW -- Happy New Year Barry

From Barry Hauser" <barry@hausernet.com Mon Dec 30 14:02:51 2002  
Subject: [R-390] Subject: Off list posts

Just want to be clear -- I favor voluntarily clicking on "reply all" or the equivalent -- most of the time -- where appropriate. I'm not clamoring for changing the default configuration of the list so that simply clicking reply will post to the list. Don't care much for that. Too many private replies get posted which adds a degree of awkwardness -- and often reticence to reply at all. The attempt to automate or force participation tends to backfire. I agree with Les -- no mind control moderator/nazi .. or soup nazi, for that matter. Next thing you know, we're all forced to join a kazoo band. Barry

From DJED1@aol.com Mon Dec 30 15:18:47 2002  
Subject: [R-390] Cosmos PTO

That last thread on PTOs got me going on mine. A couple of years ago I replaced the Progressitron with a rebuilt Cosmos, and aligned the Cosmos at that time. Over the years it had been gradually shifting, to where some points were a Kc off. I pulled the radio and went through the alignment again and was very happy with the results. I haven't set up a jig for alignment, so I use a small screwdriver to adjust the 42 little screws with the PTO in place. I found this time that I could set each 25 Kc point to within 200 cycles, and that they didn't interact significantly. I set the end points, then did the fine adjustment. The result is that I got the PTO to track to 2-300 cycles over the entire range. I just need to calibrate once for each band now. The ability to "easily" align the PTO is a significant advantage for the Cosmos PTO. It took about 5 hours to do the adjustment, with most of the time being spent getting the little screwdriver into the appropriate screw slot! Ed WB2LHI

From cbscott@ingr.com Mon Dec 30 15:56:08 2002  
Subject: [R-390] in rush current limiters

I did this myself a while back. I used a mini-box, single recepticle, fuse, CL-80, and a "computer-style" socket. I have it powering an old RCA upright "curtain-burner" I rebuilt. I didn't want to modify the chassis so I just ran a new 3-wire cord out to this box. Works fine. Barry - N4BUQ

From courir26@yahoo.com Mon Dec 30 16:22:57 2002  
Subject: [R-390] Cosmos PTO

I find that the most important thing to do to avoid interaction between the points is to insure that the screw being adjusted is directly above the coil/plunger. This will not necessarily be at an even 25kcs point (unless you start from scratch and make it so with numerous iterations). Bonne chance. Tom N5OFF

From jbrannig@optonline.net Mon Dec 30 16:30:55 2002  
Subject: [R-390] Finally!!!

It wasn't the great WEB sites, threads, curiosity or fountain of knowledge available. It was the interminable "how to send e-mail" discussion that finally moved me to pull my '67 EAC out of the rack, clear the workbench and start to work on it.

The last time I had it open for an alignment was at least 10 years ago. After my back straightened out, I took off the covers and except for some dust and cobwebs, it is as clean as I remember it.

There is a COSMOS PTO, a full set of black IERC shields and the power supply, Oscillator and IF decks are EAC. I can't tell about the RF module until I pull it. Someone added a BNC jack to the rear panel. It is labeled "SM output" and RG-174 leads to the RF deck. Otherwise it is pristine.

I could probably get away with a quick re-alignment, but I am going to replace the recommended capacitors, add a three wire AC cord and clean and grease the gears. I have replacements for the filter caps, they are sitting on a power supply reforming. I will inform the group on my progress. Happy New Year, Jim

From ham@cq.nu Mon Dec 30 17:24:54 2002  
Subject: [R-390] Finally!!!

Hi, How many colors of grease are evident on the gears?

That sounds like a weird question but there is a point to it. If you have a radio that has seen little use it will have one color grease and not a lot of it. If it has been through several owners or shops it will generally have a lot of grease and several different colors.

If it's a multi color job I would recommend a fairly full strip down, clean, and mechanical alignment on the gear system. It's not a whole lot more work once you have all the modules out and are going to do an electrical alignment anyway. With a variety of grease on there you never quite know what is down inside the anti backlash gears. There is almost no way to get them properly lubricated once crud or dead grease builds up inside them.

Before you go in you might do a quick check on each band. It's always a shame to pull the whole thing apart, put it back and then find a problem. Take Care! Bob Camp KB8TQ

From redmenaced@yahoo.com Mon Dec 30 17:41:11 2002  
Subject: [R-390] kilocycle/megacycle movement

Don't forget the possibility of the split gears having burrs on them and being stuck together so that they can't take up the backlash. They should be taken apart and honed flat. Especially that little one on the right hand side that has the spring inside the two halves. Mine was stuck TIGHTLY together.

Nolan would have raised this point. Joe

From cbscott@ingr.com Mon Dec 30 17:48:17 2002  
Subject: [R-390] kilocycle/megacycle movement

While this indeed could be a problem, can the symptoms described be caused by backlash? If tuning up from 3.8 to 4.0 and the radio becomes "deader" towards 4.0, the backlash would all be in the same direction. I'm not sure how this could be the problem here. Barry - N4BUQ

From redmenaced@yahoo.com Mon Dec 30 17:54:30 2002  
Subject: [R-390] kilocycle/megacycle movement

Sounds like the MHz detent spring has a groove worn into it, it should be a positive lock-up. Nolan would suggest putting some washers under the spring to bring a newer area into contact with the notched disk.

Typical problem having the KC knob turn the MC knob, the MC detent should hold the MC in place, sounds like time to lube! Check for burrs on the split gears. Let us know what you find, Joe

From rnharsh@attbi.com Mon Dec 30 18:50:15 2002  
Subject: [R-390] Finally!!!

How about some pictures??? Nothing stirs the thought process like a good snapshot of the RF deck!  
GUD Luck! Ron H - K3PID Still looking for the right R-390

Unfortunately, the world is run by those who show up!

From barry@hausernet.com Mon Dec 30 20:06:58 2002  
Subject: [R-390] kilocycle/megacycle movement

I don't know about the split gears either -- not good if they're stuck, but probably not the cause of Dan Merz's problem.

A bit more about the slipping clamp deal -- The works can appear to rotate OK though part or most of its travel, until a certain point in the upswing of the slug racks, where the spring tension is at it's highest. Then a shaft can slip for, say 1/8 turn. Rotating in the reverse, it slips again over that range and then grabs as the remaining friction is then sufficient when the slug rack springs are relaxed. That clutching action can be very consistent. It can cause the radio to mistune or go dead through part of the band.

It's difficult to spot. You have to force yourself to look at each shaft/gear set and watch to see if the gear stalls as the shaft continues to rotate or vica versa -- through the full range of the band(s).

Another more basic possibility is that the mechanical synch is slightly out somewhere. And, yeah, I suppose there are other possibilities, like a hanging slugrack -- on the downswing. That will also be very consistent. Looks like the little roller bearing is following the cam (they're cam followers, aren't they?), but then the slug hangs and the bearing is really suspended a fraction of an inch over the cam, not resting on it. Might be flush in front and high in the back. As a slug rack moves down to its lowest position, gently tap on front and back to make sure it's really all the way down against the cam.



Gotta look at the thing ... in motion. Barry

From cbscott@ingr.com Mon Dec 30 20:27:37 2002  
Subject: [R-390] kilocycle/megacycle movement

I would never have to force myself to look at the gears. Barry - N4BUQ

From Scott Seickel" <polaraligned@earthlink.net Mon Dec 30 22:12:17 2002  
Subject: [R-390] Finally!!!

That's the attitude Jim!!!! Scott

From Scott Seickel" <polaraligned@earthlink.net Mon Dec 30 22:20:42 2002  
Subject: [R-390] Finally!!!

> How about some pictures???

Yeah!!! We want pictures!!!!

You guys are getting me excited. I started to do a rebuild pictorial/guide for the 390 like I did for the 390A but the problem I face now is that I purchased a peice of land a few months ago and am in the process of building a new house on it for my family. I would rather be re-building a 390!!!! And it is a s&itload cheaper!! Scott

From djmerz@3-cities.com Tue Dec 31 00:05:23 2002  
Subject: [R-390] kilocycle/megacycle movement

Hi all/Jim, I took a look inside and did some reach-in cleaning/inspection but didn't find anything obvious. And the detent spring seems to be ok though difficult to inspect. I can't see all the cam alignment marks but noticed the 4-8 mhz cam was off the mark some but was still operating on the right surfaces. The 2-4 mhz cam mark is not too visible but I noted that it didn't look right as far as how the cores were traveling at the upper end of 3 to 4 Mhz - aha , the Mc/Kc link that started the Mc knob moving occurred when near the upper end of the range around 3.92 Mhz where the core rider was actually dropping on the wrong side of the cam surface. The cam is out of proper adjustment, and the cam surface is steep enough on the "forbidden" side that it locks the cam shaft which forces the detent on the Mc knob to give way to accomodate the motion of the Kc knob as I tune within the band. Mind you, this doesn't take much force on the Kc knob, hardly different than regular tuning so there must be some gearing that is helping the detent disengagement - I didn't quite have the patience to analyze that . Intuitively, I would have thought it would be the other way around - a lot of force on the cam to hold it solidly enough to disengage the detent.

I haven't figured out where the loose connection is that got the 2-4 cam out of sync, I guess the gear on the cam shaft since that's closest. I seem to remember checking these alignments when I first got the radio a couple of years ago and I haven't loosened anything in the gear train except to put the pto oldham coupler in the right position after I worked on the pto. I think pulling the front panel is probably the best step to take next so I can see all the cam markings and alignment. Or is there an easier way?

thanks for all the suggestions, some of the split gears were checked and seemed ok. So far I haven't seen a shaft slipping in a gear but that could be happening. Dan

From jbrannig@optonline.net Tue Dec 31 00:23:31 2002  
Subject: [R-390] Finally!!!

Thanks to all for the suggestions,

I've been going over the radio and alignment procedures. Since it is very clean, I will only replace the Rippel capacitors. If some voltages are out of spec. I will check and replace components as necessary. I don't believe in wholesale component replacement.

To Bob, for the "grease" comment. The only grease on the gears is the Teflon grease I put on there years ago. I'm working indoors, what is the mildest solvent I can use?

And Horrors.....the serial number on the back panel does not agree with the serial number on the front plate.....I guess it is not quite the virgin I thot it was..... Sorry, no digital camera, no pictures..... Jim

From Llgpt@aol.com Tue Dec 31 00:29:13 2002  
Subject: [R-390] Finally!!!

writes:<< And Horrors.....the serial number on the back panel does not agree with the serial number on the front plate.....I guess it is not quite the virgin I thot it was..... Sorry, no digital camera, no pictures..... Jim >>

Horrors, a "Depot Dawg".....LMAO!! Les

From redmenaced@yahoo.com Tue Dec 31 00:36:07 2002  
Subject: [R-390] kilocycle/megacycle movement

Well, some of the cams are supposed to go "over the hill".

Use a small inspection mirror to see the alignment marks. You can re-align them without dropping the front panel, too. Use a hooked dental pick to "grab" the hole in the cam, hemostats will clamp the gears to keep them from moving if needed.

You won't be able to see or feel the burrs on the split gears until you seperate the two halves and they won't be able to move against each other while meshed to another gear. Joe

From tbigelow@pop.state.vt.us Mon Dec 30 21:31:26 2002  
Subject: [R-390] Subject: Off list posts

wrote: > Just want to be clear -- I favor voluntarily clicking on "reply all" or the > equivalent -- most of the time -- where appropriate. -- no mind control moderator/nazi .. or soup > nazi, for that matter. Next thing you know, we're all forced to join a > kazoo band.

\*whew\*

You had me scared for a second there, Barry - glad you clarified this in a clear enough way to make sense to even \*me\*. I'm with you (and prof. Locklear too?) - I think we are big enough kids to figure out if a reply should go to the list or the individual. I like having the option of deciding and not having everything I type go back to the list to bore others. The ratio for me is probably 8 to 2 for every ten messages where 8 would go back to the lists and 2 would be best sent privately as they really aren't important or even specific to the list. If anything, I hit the 'reply all' by mistake too often as it is! At least my heart is in the right place, even if my mind isn't.

Hope everyone had a great Christmas and will also enjoy a safe and happy New Year. I'm still recovering from the Heavy Metal Rally, what a night of nice signals! 73, Boomer KA1KAQ

From hankarn@pacbell.net Tue Dec 31 01:15:20 2002  
Subject: [R-390] Finally!!!

Boy dem depot dawgs are still hangin round wid all dem mismatched numbers. bark, bark, barf. Hank KN6DI VIRGIN R-390 HAHA to 10 to 100th power. Happy New Year to all.

From anchor@ec.rr.com Tue Dec 31 01:04:23 2002  
Subject: [R-390] Subject: Off list posts

Boomer, Barry, Les, Gary, & I agree on a lot of things, and this is another one of them. Leave things like they are. We can handle it. Every time this comes up on any list it gets left like it is here, now. Sometimes we've had to convince the administrator, but it's this way for a reason - we can handle it, and it makes sense (for the majority of us). Lets get back to on topic stuff. tnx, 73, Al, W8UT

From ham@cq.nu Tue Dec 31 03:59:12 2002  
Subject: [R-390] Finally!!!

Hi,

The only real way I have ever found to clean up the anti backlash gears it to pop them apart. Once you do that just about anything will clean them. I mostly use alcohol based cleaners these days. I suspect that a mixture of 75% alcohol and 25% water would do every bit as good as anything I use. The water is there to keep the fire risk down .... The obvious disadvantage is that you can get a rust problem if you do a dunk and drip wash process.

Teflon grease and silicon based oils can be a chore to get back off. Some of them are fairly immune to the normal solvents. A lot of it depends on exactly which one was used and how it has aged.

The traditional cleaners still work the best - Freon and Tri Chlor do an excellent job. Of course they also nuke the ozone and / or kill you.

The final recommendation is good old WD-40. The smell may be a bit much in doors but it is a pretty good cleaner. Don't depend on it as a lubricant though. Take Care! Bob Camp KB8TQ

From rbethman@comcast.net Tue Dec 31 02:10:11 2002  
Subject: [R-390] kilocycle/megacycle movement

Let's think about this one a little.

If the spring loading is supposed to take up slack, i.e., backlash, then even while meshed it SHOULD be possible to move one of the two spring loaded gears while meshed. Bob Bethman - N0DGN

From tetrode@worldnet.att.net Tue Dec 31 05:49:13 2002  
Subject: [R-390] kilocycle/megacycle movement

Yup, your right Bob. On a correctly working split gear you can usually see a tiny bit of movement between the adjacent teeth when the KC tuning is rocked back and forth; it helps to use a magnifier to see this. John

From bgant@bellsouth.net Tue Dec 31 09:31:24 2002  
Subject: [R-390] R-390A Calibrator

Hello all,

I attempted to calibrate the 100kc calibrator on my 390A but it just won't get there. I set up as given in the TM using WWV and 5.2 kc above is as close as the C310 trimmer will bring the oscillator.

I am thinking a bad tube but I guess it could be the xtal. Anyone had this problem. What do ya'll think?  
Thanks, Giles

From w5kp@direcway.com Tue Dec 31 01:45:39 2002  
Subject: [R-390] kilocycle/megacycle movement

I'll hazard a guess here that after a thorough disassembly, cleaning and degreasing of the gear train, most of us very carefully put that good 'ol slippery Mobil 1 30W on everthing in sight. Some of that oil will inevitably find its way onto the shafts during reassembly, just from oily fingertips if nothing else. Then we clamp down on a nicely but inadvertently oiled shaft with the old Bristol wrench instead of on a completely dry shaft, and voila! slipping clamp one of these days... Don't know how one can prevent this, unless a final degreasing of the shaft and inside of the clamp with Q-tips prior to putting on and tightening the clamps might help. It might even allow nice tight clamping without so much pressure on that poor wimpy little screw. 73, Jerry W5KP

From jbrannig@optonline.net Tue Dec 31 11:30:28 2002  
Subject: [R-390] Finally!!!

Thanks Bob,  
Gasoline or Kerosene are out since the workshop also houses the oil burner. I keep forgetting about WD-40. It is a good solvent and sure makes fast work of removing tar blobs on the car. Perhaps WD-40 to remove the gunk and alcohol to remove the residual WD-40.

I was looking at the AC cord connection. Is it accepted practice to attach the neutral (green) wire to one of the studs that is used to secure the cover over the filter input? Jim

From Llgpt@aol.com Tue Dec 31 11:39:57 2002  
Subject: [R-390] Finally!!!

Yes, that is the accepted method. Les Locklear "That's my story and I'm sticking to it"

From Scott Seickel" <polaraligned@earthlink.net Tue Dec 31 11:47:33 2002  
Subject: [R-390] Finally!!!

From: "Jim Brannigan" <jbrannig@optonline.net>  
Subject: Re: [R-390] Finally!!!

> Thanks to all for the suggestions, > > I've been going over the radio and alignment procedures. Since it is very > clean, I will only replace the Rippel capacitors. If some voltages are out > of spec. I will check and replace components as necessary. I don't believe > in wholesale component replacement.

Maybe a mistake. There is a capacitor that, if it fails, will take out your mechanical filters. And it HAS happened before!!!! I would replace this one no matter what. I would do a random check for leakage in the capacitors, especially if you have "brown beauties". I tested all of mine as I replaced them on a Sencore LC-73 analyzer and they all had BAD leakage. Nothing wrong with spending time with each module and checking all components. If in doubt, replace it. We own these radios to use them right? why not go the extra step to make it perform like the day it came out of the box? You certainly are not decreasing the value of the radio, but increasing your listening pleasure. I highly recommend Walter Wilson's rebuild kit as it replaces all problematic components and even includes a 10 turn carrier pot and a CL-80 inrush current limiter. Scott

From Scott Seickel" <polaraligned@earthlink.net Tue Dec 31 11:53:54 2002  
Subject: [R-390] kilocycle/megacycle movement

Yup. Some of the cams do go "over the hill" The 2-4 MHZ cam goes around 360 degrees The 1 to 2 MHZ cam does NOT make it over the hill. I think the Y2K manual has a good section telling where the cams "run to". Check manual. And be careful tightening clamps. They break real easy. Scott

From Scott Seickel" <polaraligned@earthlink.net Tue Dec 31 12:03:32 2002  
Subject: [R-390] kilocycle/megacycle movement

Yes, if you stick a small screw driver between the teeth and twist, you will see it moving slightly. BUT just because you can move the 2 with a screwdriver or other object does NOT mean the gears are working properly. The gears rely on the small springs to apply enough pressure to remove backlash and any burrs may be just enough to prevent this from happening. Joe is right, the only way to know if these gears are operating properly is to remove them and spin one half against the other. Then assemble with gears re-loaded. Movement alone does not assure proper operation. Scott

From jbrannig@optonline.net Tue Dec 31 12:42:40 2002  
Subject: [R-390] Finally!!!

Scott,

I will be replacing the capacitors as recommended on Chuck Rippel's site. Looking at any "brown beauties" is a good idea. This radio has always performed well electrically. Mechanically the KC tuning is a little stiff and the MC tuning a bit sloppy. I will be using your excellent pictorial to work on the

mechanical side. Jim

From kc2kj@mac.com Tue Dec 31 14:32:35 2002  
Subject: [R-390] R-390A Calibrator

Mine was about 2 kc off; fixed with a new (old) crystal from a friend. YMMV. Mike kc2kj

From ba.williams@charter.net Tue Dec 31 16:21:31 2002  
Subject: [R-390] Finally!!!

Some people like getting into the upper modules often, so maybe not replacing all of the problem capacitors is okay for them. I like tinkering with some things too. Still, there is that risk involved if you don't. Time and again someone on the list is testing the brown beauties and most of them are out of spec. I agree with being safe and replacing them. Another advantage in replacing the paper electrolytics and black/brown beauties is that you will be reheating those ancient solder points. If you have the MFP coated modules, this is a good time to make sure the grounding points are scraped clean. This has been a source of problems too. Plus, Scott has a good point where you would be doing the radio a lot of good in terms of performance. Tubes are great, but old caps ain't.

Dave in Birmingham also sells recap kits. I bought one a while back and it is a good deal. It is a good deal on prices, and I saved hours of time looking up parts. He sends them separated and labeled in bags. No fuss, no muss. Barry Williams

From rnharsh@attbi.com Tue Dec 31 17:00:39 2002  
Subject: [R-390] Meter question

Can someone please explain the whole meter thing? First off, why do they remove them? Maybe more important, can I buy "original meters" or at least remanufactured meters with the scale etc. or do I have to use the replacement meters which I understand work well but don't meet the "restored" criteria... Tnx K3PID

From David\_Wise@Phoenix.com Tue Dec 31 17:23:20 2002  
Subject: [R-390] R-390A Calibrator

wrote: >> I attempted to calibrate the 100kc calibrator on my 390A but it just won't get there. I set up as given in the TM using WWV and 5.2 kc above is as close as the C310 trimmer will bring the oscillator.

Time for a new crystal.

With the crystal's sharp resonance, the tube can't pull the frequency very far. If it's bad, it will prevent oscillation, but that's about it. 73, Dave Wise

From tbigelow@pop.state.vt.us Tue Dec 31 17:45:43 2002  
Subject: [R-390] Meter question

wrote: > Can someone please explain the whole meter thing? First off, why do they > remove them?

Maybe more important, can I buy "original meters" or at least > remanufactured meters with the scale etc. or do I have to use the > replacement meters which I understand work well but don't meet the > "restored" criteria...

Seems appropriate, almost like we were destined to go here next after the ballast tube flogging? (o:

Hi Ron -

The issue with the original meters in most all the R-390 and 'A' type radios is one of radium paint used to make the meters glow in the dark. Somewhere along they decided to remove the possibility that someone could become ill or die from exposure (Roy is the man for this explanation!), so they decided to remove them before surplusing the units. Then later they decided to just crush them all instead (radios) so a 'clever' adversary couldn't use them against us.

Anyhow, many radios ended up hitting the market meter-less for this reason, the ones that survived. As a result, original meters are less plentiful. Simple, right? Well...yes and no. As far as replacement meters, they are available. As far as original meters, they are as well. But as far as the 'restored criteria' you refer to, please bear in mind that many/most of these radios went through gov't depot maintenance throughout their lives which resulted in the internal modules being swapped out and modules from other radios (made by other manufacturers) being replaced in the unit before shipping it back out. So, depending on the criteria you use for a 'restored' unit, it likely won't matter.

Some units never went through this type of a tear-down because they were used in different areas or by specific individuals. Some were even sold to civilians \*new\*. These radios have all the original modules they were shipped with as a rule, probably having a problem module serviced and reinstalled if the unit failed. Since these radios were not in the same equipment stream as the vast majority, chances are good that they still have their original meters too, though. Probably the original paint, tag, etc. as well.

If your level of restoration is defined by this, best thing to do is have an expert on these radios find one for you. They aren't plentiful, but they do exist. If you have one that you want to restore yourself, it depends more on whether you want to use it or display it, as well as how much you want to spend. Since the radio won't likely be restorable to 'factory' condition, why not just get the aftermarket meters? They'll plug the holes and work just fine, and cost less too. If you really want it to 'look' just like it originally did, it'll take more money and perhaps patience, but you can find the meters that were originally installed. I was fortunate to get an R-390 with the meters still in place, but of the two 'A' models I have, one has no eyes!

Hope this information helps. I'm sure others will add to it as well. 73, Boomer KA1KAQ BTW Ron, your email address looks the same to me as in your instructions! What am I missing?

From ham@cq.nu Tue Dec 31 17:52:21 2002  
Subject: [R-390] Finally!!!

Hi, The three wire cord ground goes to one of the studs in the vicinity of the power connection. If you do not have a line cord cover plate I would recommend either getting one or making one. Without a cover there is a major health hazard there. Be careful with a lot of WD-40 and an open flame. I suspect the stuff is flammable. Take Care! Bob Camp KB8TQ

From ham@cq.nu Tue Dec 31 17:57:51 2002  
Subject: [R-390] R-390A Calibrator

Hi,

Check to see that the crystal oven is working properly. There are only about three states they operate in

- 1) Fine - at the right temperature and everything.
- 2) Thermostat switch shorted - smoke comes next
- 3) Thermostat switch open - runs cold and the crystals are off frequency.

Repairing the crystal oven probably isn't worth the trouble. Both the switch and the wire they used in the heater are a bit tough to find. It's easier to find a whole new oven assembly. Take Care! Bob Camp  
KB8TQ

From jbrannig@optonline.net Tue Dec 31 18:06:15 2002

Subject: [R-390] Finally!!!

Does "black/brown beauties" also refer to the yellow Aerovox capacitors? Jim

From jonandvalerieoldenburg@worldnet.att.net Tue Dec 31 18:08:22 2002

Subject: [R-390] Finally!!!

> Be careful with a lot of WD-40 and an open flame. I suspect the stuff is flammable.

It is quite flammable, main ingredients include white gas and propane as a propellant. Great stuff for home flame-throwers on those pesky critters! Jon AB9AH

From rnharsh@attbi.com Tue Dec 31 18:26:43 2002

Subject: [R-390] Meter question - reply address

Thanks for the info! I am not a purist, just thought it peculiar that most of the R-390s and R-390As that I see FS have no meters. I am no expert but I would guess that you would have to eat a few dozen meters to actually have any ill effects. I've worn a radium dial watch for most of my adult life and I don't glow in the dark yet! Maybe I better check tonight... As usual, if I want pure all it takes is money....

As for the reply address thing the signature with the note about the reply address is attached automatically but I can't post to the list unless I actually change my address to the one that I used to subscribe... I guess it keeps out the spammers... hope so anyway. Tnx agn Ron - K3PID

From r.tetrault@attbi.com Tue Dec 31 18:42:50 2002

Subject: [R-390] Meter question - reply address

Ron,

Alpha particles are stopped by the glass or plastic of your watch face. I assure you that your children would deplore your untimely loss should you eat even a portion of a meter face. Exactly when they would feel the loss is a statistical question best answered by the tobacco industry, who successfully argued for years about causality versus epidemiology... Bob

Incidentally, your RNHARSH at attbi.com (when put together "correctly") doesn't work. ??



From tgrieco@optonline.net Tue Dec 31 18:57:47 2002  
Subject: [R-390] TV7A/U

TV7A/U Military electron tube test set just acquired with all components in metal case. All looks real good and photos available if requested. Looking to sell this item. Anyone able to help on a price? Tim k1syn

From redmenaced@yahoo.com Tue Dec 31 19:07:00 2002  
Subject: [R-390] Finally!!!

Neutral is WHITE and goes to one of the power terminals, NOT the one that goes to the fuse or the switch!  
Ground is GREEN! And goes to the chassis. Please don't swap them. Joe

From cbscott@ingr.com Tue Dec 31 19:07:44 2002  
Subject: [R-390] Finally!!!

Hmmm, I thought it was made from kerosene and varnish. Barry - N4BUQ

From cbscott@ingr.com Tue Dec 31 19:11:55 2002  
Subject: [R-390] Finally!!!

Good call, Joe. When I read that, the mistake didn't register with me. Neutral and ground are terms that sometimes are not clearly defined. Thanks.

Barry - N4BUQ

From redmenaced@yahoo.com Tue Dec 31 19:19:29 2002  
Subject: [R-390] kilocycle/megacycle movement

Nah, I take mine off to see the close up stuff.

I have done this, I was surprised at how much better they worked after honing them. And I did find one gear set that was very much stuck together. Joe

From federico.baldi@virgilio.it Tue Dec 31 19:22:13 2002  
Subject: [R-390] TV7A/U

Hi Friends,

best wishes of an Happy New Year. I bought a TV-7D/U for 150 ? (same value in USD) and a TV-2C/U for 300 ? here in Italy, both in perfect order (the TV-2C/U really new). Federico

From pwokoun@hotmail.com Tue Dec 31 19:27:48 2002  
Subject: [R-390] Meter question

On the missing meter question, if both were removed at depots there should be an equal demand for both the line and carrier level meters. Is this the case in the real world?

As one who tries to recycle those little meters with the 'proper' scale added, the carrier meter is a lot harder to find and duplicate as a drop-in replacement. It's movement is a lot less resistance than your line level one and the replacements I've been able to find. Hence the increasing trend to tweek some of the resistors in the IF deck to allow others to work. pete, KH6GRT

From jmerritt2@capecod.net Tue Dec 31 19:29:15 2002  
Subject: [R-390] TV7A/U

The AU is the oldest, and therefore, least desirable of the TV-7 series. I got \$125 for one on e-Bay about a year ago, but the buyer was not in the US. Chuck N1LNH

From ham@cq.nu Tue Dec 31 19:49:00 2002  
Subject: [R-390] Finally!!!

Hi,

The yellow Aerovox capacitors have a plastic dielectric in them. They are more reliable than the paper dielectric black or brown capacitors. I have pulled a lot of the paper parts out of R-390's and have yet to find one that is in good shape. I suspect that soak up humidity over time and that's the end of them.

I have yet to see anybody come to the defense of the paper filled caps. I would replace them wholesale with plastic dielectric parts. Take Care! Bob Camp KB8TQ

From Llgpt@aol.com Tue Dec 31 21:47:23 2002  
Subject: [R-390] Finally!!!

writes:<< Hmmm, I thought it was made from kerosene and varnish.

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

From Scott Seickel" <polaraligned@earthlink.net Tue Dec 31 21:56:00 2002  
Subject: [R-390] Finally!!!

> Hi, >> The yellow Aerovox capacitors have a plastic dielectric in them. They are > more reliable than the paper dielectric black or brown capacitors. I have > pulled a lot of the paper parts out of R-390's and have yet to find one that > is in good shape. I suspect that soak up humidity over time and that's the > end of them. >> I have yet to see anybody come to the defense of the paper filled caps. I > would replace them wholesale with plastic dielectric parts.

The Aerovox are more reliable but I knew there was reason to be cautious about them also. I searched the archive and found this post from Nolan. (This should make Joe happy, read post below). The bottom line, I think, is that it is NOT unreasonable to just recap the whole radio.

An ounce of prevention is worth a pound of cure. Caps just have a high rate of failure no matter what they are made of. If you don't recap, you may have a failure that does damage to other components of your radio. The very expensive and hard to get filters are just one item that can be ruined. Scott

>>>>>>>

From: Nolan Lee <nlee@gs.verio.net> Date: Tue, 06 Oct 1998 02:31:38 -0500  
Subject: [R-390 ] R390A paper capacitors

I just removed all three of the paper/tubular capacitors from the RF deck of the EAC. This is a very low mileage "cherry" deck with the original tubes. Using a loupe, I noticed that the "brown beauty of death" had a microscopic split about a half an inch long down one side just like most of the ones I'd looked at. I threw it on the RC bridge and couldn't get a solid value. It did slightly "dip" at about 50V. Capacitor Replacement Tips page 13 0.033mf. I tried a leakage test. Almost a dead short above about 50 volts or so. I haven't found one of these style capacitors yet that was good. Maybe it's the humidity here or just bad juju. I tried the two yellow 0.1mf 200V Aerovox capacitors from under the crystal oven. Only a slight "dip" of an indication of the value on either of them. One leaked like hell at voltages about 30 volts and the other broke down totally at about 100 volts or so. Granted, one of them is only used help kill the static from the 6.3V oven cycling on and off and would have probably continued to work for decades to come, it was bad. I've been testing all of the caps that I've been replacing. Maybe 10 to 20 percent of the hermetically sealed Vitamin Q style ones won't meet spec. None of the "brown beauties of death" will even come close and about a third to half of the yellow Aerovox ones are bad. A lot of people questioned my replacing of all of the capacitors. I'll stand by my decision. These tests have reinforced my opinion that if you remove a module from an R390A, to work on it, replace all of the original paper caps in it before putting it back in the radio. If you don't want to replace them all, at least make sure that you replace the brown tubular ones. Only a couple of three dollars and you've eliminated a possible cause of flat out failure that could cause damage to something expensive and a pain in the ass to change or at the least, decreased performance.

From Scott Seickel" <polaraligned@earthlink.net Tue Dec 31 22:01:03 2002  
Subject: [R-390] Meter question - reply address

> Thanks for the info! I am not a purist, just thought it peculiar that most > of the R-390s and R-390As that I see FS have no meters. I am no expert but I > would guess that you would have to eat a few dozen meters to actually have > any ill effects. I've worn a radium dial watch for most of my adult life and > I don't glow in the dark yet! Maybe I better check tonight... As usual, if I > want pure all it takes is money.... > > Ron - K3PID

You would have to ingest the Radium where it will be promptly deposited in your bones and radiate for 1000 years. It may take a lot of radium to have harmful effects but I personally don't want to find out. All you need is one cell mutation..... Scott

From Scott Seickel" <polaraligned@earthlink.net Tue Dec 31 22:02:37 2002  
Subject: [R-390] Finally!!!

> Hmmm, I thought it was made from kerosene and varnish.

I agree. I thought a major component in WD was Kerosene. Scott

From Scott Seickel" <polaraligned@earthlink.net Tue Dec 31 22:10:35 2002

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

> > I attempted to calibrate the 100kc calibrator on my 390A but it just > > won't get there. I set up as given in the TM using WWV and 5.2 kc > > above is as close as the C310 trimmer will bring the oscillator.

Time for a new crystal.

Any idea where I can get a new crystal for mine? Like an idiot I bought a small pile of these on e-pay a while back and did not check them for 2 months. Well, turns out they were all bad. Scott

From hbreuer@debitel.net Tue Dec 31 22:20:03 2002

Subject: [R-390] was Finally!!! Where is Nolan?

Thanks for bringing up an old posting from Nolan. That reminds me that I have not seen anything from him for a long time. Where is Nolan??? I remember his funny signature lines. I hope this didn't get him into real trouble. Happy new year (only 40 minutes away over here in Germany) 73 Heinz DH2FA, KM5VT

From roy.morgan@nist.gov Tue Dec 31 22:38:52 2002

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

wrote: >Any idea where I can get a new crystal for mine?

Quoting Bob Sullivan: M.H. Electronics! Good prices and they understand "Collins."  
<http://www.mhelectronics.com> 800 643 9825

Use their "Request for Quote" page since they don't list crystals of 200 kc frequency. Roy

From keng@moscow.com Tue Dec 31 22:51:37 2002

Subject: [R-390] Re: AC connections...

> the neutral (green) wire to one of the studs that is used to secure the > cover over the filter input?

The NEUTRAL is NEVER GREEN: it is WHITE in the US and Canada. As an old time electrician, "Green is Ground, the world around."

The NEUTRAL wire must never be switched alone either. Only the "hot" side of the circuit is ever switched alone, although BOTH white wire and hot wire may be switched (together) if necessary. Ken Gordon W7EKB

From DAVEINBHAM@aol.com Tue Dec 31 23:53:57 2002

Subject: [R-390] Last Call For ReCap Kits

writes: << Dave in Birmingham also sells recap kits. I bought one a while back and it is a good deal. It is a good deal on prices, and I saved hours of time looking up parts. He sends them separated and labeled in bags. No fuss, no muss. Barry Williams

Barry, Thanks for the plug for the ReCap Kits. I Always try to sell a product packaged as I would like to get if I were the customer. So, what you get when you buy a ReCap Kit is 10 small Ziplock bags inside a big Ziplock bag and a printout of contents of the ReCap Kit. Each small bag is clearly marked as to it's contents. I have a few ReCap Kits left in stock, but when they are gone I doubt I will restock them as sales have lately been too slow to justify tying up the company money in more ReCap Kits. You guys on the list get first shot at what is still in stock. Then whatever, if any, are left at about end of January go to that Eplace.

I wish a grand, happy, and prosperous New Year to every one of you.

Kindest regards, Dave R390A capacitor kit.

I have put together a ReCap kit for the R390A. It consists of:

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

(7) 0,033 ufd, 600V C275, C529, C533, C534, C541, C545, C602

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

( The above are Orange Drops or equivelent. )

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

(2) 47 ufd 300 v electrolytic C606A, C606B

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

Finally, one each of :

0.047 ufd 100v C227

8 ufd 30v tantalum electrolytic C609

50 ufd 50 v electrolytic C103

0.22 ufd 100 v C101

I cannot find a source for:

2 ufd 500v C551 oil filled paper

so, I will include a very high quality poly cap. I have installed one of these in one of my R390A's and I can say I cannot hear any difference. They work great. This is the AGC capacitor.

The price for this recap kit is \$80.00 US funds. Price includes UPS or US post delivery. Canada and mexico US\$85. Western Europe, South America and Pacific rim US\$90, rest of world US\$93. All sent airmail if possible. ALABAMA RESIDENTS MUST ADD US\$3 STATE SALES TAX.

Send orders to:

Dave Holder

Biological Instruments, Inc.

820 South 29 th. Street  
Birmingham, Alabama 35205-1004  
USA

Payment may be check or US currency.