Colorado Radio Collectors Antique Radio Club

The FLASH!

Dedicated to the Preservation and Education of Wireless, Radio, Television and Associated Equipment

Volume 29, Issue 1 | The January 14th meeting is at the Bemis Library in Littleton | Jan/February. 2018

Need an 01A replacement? Try the 6 volt 6A4/LA

Submitted by Steve Touzalin, CRC member

I recently found myself in a predicament many of you have probably also been in. I wanted to fire up an early battery set for the first time while using a newly built power supply, and unsure if the set or the power supply would work as intended, I was hesitant to risk frying the 01A tubes in the set. I set out to find a feasible replacement for the 01A tubes. I considered using 30's with reduced filament voltage, but decided to keep looking. I remembered reading sometime ago that a 6 volt tube could be used in place of an 01A tube. [1] I am referring to the 6A4/LA, a 6 volt five-pin power tetrode used in 1931 Motorola car radios. By changing from a five-pin to a four-pin base and triode-connecting the tube, the 6A4 becomes a good replacement for the 01A as it should operate well on just 5 volts and the bulb is an ST type.

An adapter that went from five-pins to four-pins may work in a lot of cases, but the set I was going to use the tubes inside of had very little overhead room above the tubes, so I was going to have to re-base the 6A4's to a four-pin base. I decided to make sure that I had all the needed information and that I could obtain the parts I would need to re-base the 6A4 tubes. I found the pin-outs for both the 01A and the 6A4. [2] I was also able to determine how to connect the 6A4 as a triode.[3] I located the 6A4 tubes on-line priced anywhere from $12 to $4 each. I also found the four-pin base priced at $2 each, and later on eBay even cheaper. [4] I ordered the 6A4's and the four-pin bases and prepared to begin my first attempt at re-basing vacuum tubes.

My first attempts did not go well as I actually ruined the first two 6A4 tubes I tried to disassemble. I finally found a way to successively disassemble the 6A4 tubes. I began by placing the 6A4 in a small glass jar upside-down with the pins facing up and then used steel wool between the jar and the 6A4 to hold it firmly in place. Using a soldering iron and a solder-sucker I removed as much of the solder from the top of each individual pin as possible. Then taking a piece of rigid wire, 18 to 20 gauge in size, and I heated the end of the wire with the soldering iron and placed it on the center of the pin to force the wires of the 6A4 down into socket pins, one at a time. I unfolded and used a large paper clip for this. All the wires from the 6A4 should now be loose inside the socket pins. The final step of disassembly requires another small jar, place the 6A4 in the jar with the tube pins down. Add enough pure denatured alcohol (91% rubbing alcohol would probably work just as well) to the jar to cover the top of the 6A4 socket by at least 3/4 of an inch. The alcohol will loosen the glue holding the glass bulb to the socket. A large plastic cup placed over the tube and jar will greatly slow down any evaporation of the alcohol. After about 30 minutes remove the 6A4 and try to twist the socket loose from the base, being careful not to twist too far as to break the wires inside. Several soakings in the alcohol may be needed. I had one tube that I had to let sit in the alcohol overnight before it would twist loose. Once the socket is slightly loose, continue to gently twist back and forth and gently pull the glass bulb from the socket, re-soaking in the alcohol for a couple of minutes if needed. Once the glass bulb is free you should have the glass part of the tube with five unmarked wires protruding from the bottom in one hand and the 5-pin socket in the other. You may want to save the 5-pin socket for different future adapters.

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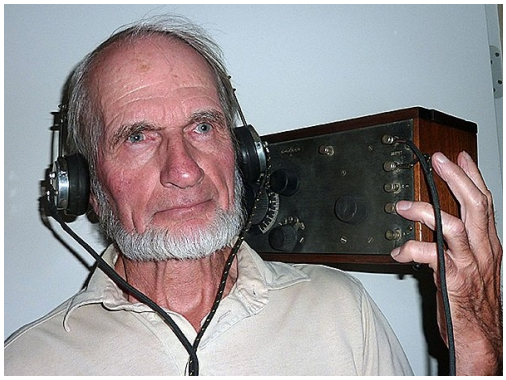
COLORADO RADIO COLLECTORS ANTIQUE RADIO CLUB
Founded October 1988

Message from the President

Wayne Russert



Well, the holidays are over (Yaay or Awww, depending on your age). The next few months are a great time to work on all the projects you bought last summer at yard sales. Also, your antenna (lightning trap) won't get fried and reception on a cold Colorado night is way better.

We have been contacted by a fellow who has 8 vintage tubes and would like to know their condition. I've asked him to bring them to the Jan. meeting and one of our experts will conduct a mini-seminar on proper tube testing etiquette. If you have any tips or tricks to pass along, please jot them down and share them with the club. For example: how can you test a 01A or 201A if your tester doesn't go back that far? Seriously - I need to know!

So please scrounge up a few items for the raffle table and bring something interesting for show and tell. Hint - It doesn't always have to be a radio. Most club members have probably seen www.americanradiohistory.com/ but if you haven't visited that site its worth a bit of time. Six million pages of AM FM & TV broadcasting history online.

And lastly, a few words to live by.

The surest sign of intelligent life in the universe is that they haven't attempted to contact us.

- Bill Watterson

I have not failed. I've just found 10,000 ways that won't work.

-Thomas Edison

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NOTE: at = @ in email addresses

Upcoming Events

1/14, 1PM	Meeting
3/11, 1PM	Meeting
3/25, 10AM	Show
5/20, 1PM	Meeting

CRC MEETINGS

Meetings are held on the 2nd Sunday of every other month starting in January (except May is 3rd Sunday) at 1:00 pm. The meetings consist of business, "show & tell", raffles, auctions, swap meets, technical discussions and other subjects of interest

CRC MEMBERSHIP

Annual membership in the CRC runs from July to June. Dues entitle members to attend meetings, "The Flash!" our newsletter, discount book prices, participation in our spring show and Fall auction. Current annual dues are $20. New memberships will be prorated to the following June.

(Continued from page 1)

The next step is to identify the five wires at the base of the 6A4. Using an ohm meter locate and mark the two filament wires. These are the only two wires that will give you a reading, approximately 8.3 ohms. It doesn't matter which is which as they are interchangeable. Next we will locate the grid wire, pin 3 on the pin-out. Using a capacitance meter, mine is a cheap one - made in China, measure the capacitance from the remaining 3 wires to one of the filament wires, either one will work, one at a time. The wire with the lowest capacitance, should be 7 or 8 pf, is the grid wire and should be marked as such. It doesn't matter which of the other two wires is the screen or the plate as they will be tied together anyway. The readings and values can be checked on a good 6A4 tube before it is disassembled. Using 24 AWG solid bus wire and a small ".050" inch hex-wrench as a form I handmade four wire-extenders to attach to the wire leads and used heat-shrink tubing at the top of the wires to prevent any shorts. Different colors for the different pins help with the assembly to the base. Both pin-outs shown are "Bottom view". The chart below should help with the assembly, or can used to wire a 5-pin to 4-pin adapter.

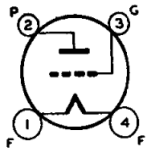
6A4/LA Base	01A Socket
Pin 1 Filament	Pin 1 Filament
Pin 5 Filament	Pin 4 Filament
Pin 3 Grid	Pin 3 Grid
Pins 2&4, Plate and Screen tied together	Pin 2 Plate

I found that a small piece of plastic tubing temporarily placed on the plate pin of the four-pin base helped me keep track of the proper pin locations during the assembly of the socket. The newly installed wire-extenders were placed into the proper pins of the four prong base and pulled tightly to seat the glass bulb in the top of the socket. Once the desired results are obtained, gently pull the glass bulb back a little, apply some adhesive and re seat the bulb into the socket while tightening the protruding wires. I used E6000 adhesive but a 2 part epoxy or Super Glue could probably be used. Once the glue is dry the wires can be soldered and trimmed. The new 01A can now be tested in a tube tester as an 01A before use in a radio.

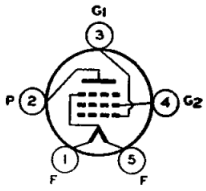
Five of these new "01A's" were installed inside a Pfanstiehl Model 7 "OverTone", a 3-dial set, with the power supply and antennae hooked up, the power supply was turned on. Once the tubes warmed up and I figured out how to tune a 3-dial set, the radio came to life. It sounded great! The re-purposed 6A4's did work very well on just 5 volts for the filaments. The power supply was turned off and 5 "real" 01A's were placed in the set. The power was turned on and after warming up I could NOT tell any difference in the performance of the set. The only difference I could find was that I could see the filaments light up on the 01A's while I could not see the filaments light up on the 6A4's. The re-purposed 6A4's will prove very useful in the future powering up sets for the first time, or just for regular use in a radio set in place of 01A tubes.

Sources:

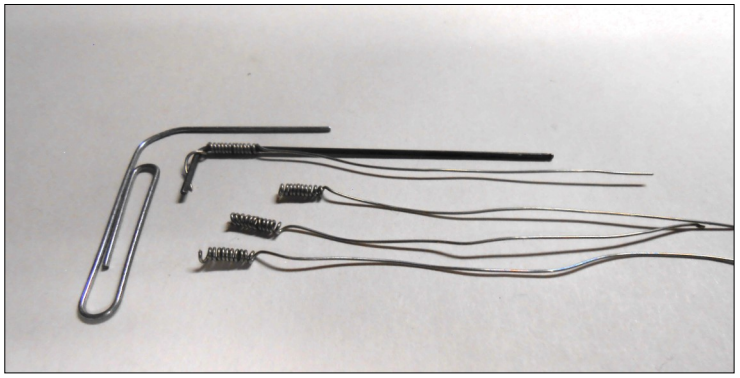
1. Tube Lore by Ludwell Sibley, p. 173
2. RCA Receiving Tube Manual, RC-14
3. Radio Engineers' Handbook by Frederick Emmons Terman, 1943
4. http://www.thetubecenter.com
   http://www.vacuumtubesinc.com
   http://www.oldradioparts.com



01A Pinout



6A4 Pinout



Wire Extenders and tools

Photos from the CRC November 12th Meeting.

Holiday raffle table

More raffle items

Dr. Jeff "Radar" Keeler presenting his work

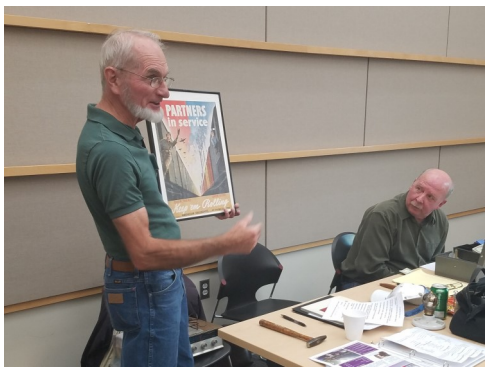
Barney's portable tube display

Tube display close-up

Cliff's Powder Coating experiment

Merrill's Philco 38-10 and Zenith

Display tubes on sale



Wayne's symbolism-filled rail poster

The Open Trunk

Member submitted advertisements

REPAIR SERVICE:
Radio repairs for club members. Reasonable rates. Good references.
Call David Boyle
303-681-3258 11/09

For Sale: by Dave Boyle
Most of the following instruments have been completely refurbished, repaired as needed, and calibrated. Most have manuals and test leads.
Prices are negotiable...please make offer.

1) Eico 5 inch oscilloscope. Model 425. Perfect for old radio repair work. Completely electronically rebuilt with **new CRT**! $68.00
2) Eico "Professional" VTVM, 6 inch meter $40.00

Radio Chassis For Sale:
1) RCA Radiola Model, 80, 82, 86 complete dual chassis and mounted speaker. VG condition, with tubes including 2ea VG 45 tubes. Make offer.
2) Philco Model 91. Complete *working chassis* with 12" good speaker. Working tuning meter too! Make offer.
3) Philco Model 37-610 complete chassis with tubes, good condition complete with bezel and glass.
Make offer.

Call David Boyle,
303-681-3258 09/15

Wanted: 1920's Wooden Horn Speakers and a Crosley Musicone Speaker.

Also 1920's battery sets, especially Neutrodyne sets, Pre 1930 AC Radios and a Crosley Widget Console Radio
Michael O'Leary 602-354-7011
moleary9@cox.net.

Wanted: To buy: 1948 Motorola 5A9B portable radio, Maroon color. Good condition only.
Dewey Reinhard 719-596-5516
deweyfly30@gmail.com

WANTED: Broadcast or recording mics, especially from 20's to 1950's.
Crosley Pup Info
NBC chimes, all eras.
Tom Keeton **303-797-8073**

I have collected radios of all types for 30 years and now it is time to let them go to new homes.

Please call me for an appointment to see if any of them would fit in your collection.

I have tube radios including Tombstone, Cathedral, and Novelty etc.

I also have a large collection of transistor radios both shirt pocket and Novelty type.

Please call 303-238-1384
Thanks in advance,
Ron Smith

RADIOS4US@aol.com

WANTED to buy: 1980s Atari 520 or 1040 ST computer components (keyboard, monitor, etc.). I still need it for several specialized programs I wrote including a simulator for transistor and tube circuits. **Dave Laude dlaude1@msn.com**

FOR SALE:
- ◊ AK breadboard no. 4700 model 10C, excellent condition, operating, asking $900 with tubes OBO.
- ◊ "Wide World Broadcast Receiver", manufacturer unknown, 5-tube TRF (2-RF+gridleak detector+2-audios), good condition, nice cabinet, operating, asking $75 with tubes OBO.
- ◊ Also have 1920's battery sets, telephones, WWII field telephones/ telegraph, telegraph sets, toy electric motors,
- ◊ Toy stationary steam engines, Cretors popcorn wagon steam engine, clocks, misc. electrical/radio parts.

Come see what I have!
Don Wick
Monument, CO
719-488-9469
dowick@comcast.net

For Sale:
Fada Special
6 tube TRF
Complete and intact
$100 OBO
Don Adams
djad-ams42@gmail.com
303-776-3180

For Sale:
Full size/console TV
1950s B&W RCA 6-T-65 "Eye Witness"

Farnsworth small console radio/record player K-262

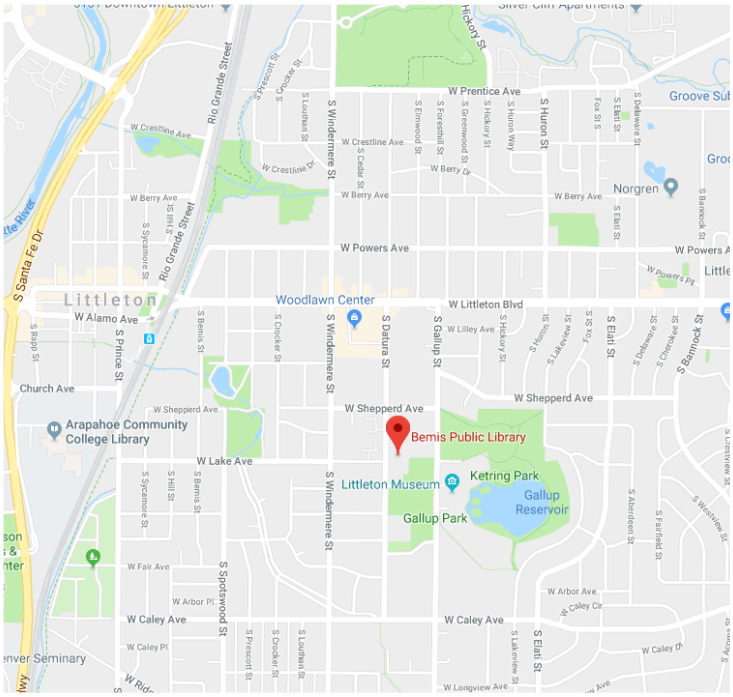
Located in Colorado Springs
Larry Steele
(719) 596-8883
larysteel@comcast.net

SUBMISSION OF ARTICLES &AND ADVERTISEMENTS

Classified Ads for The Open Trunk and articles of any radio/electronic or historical related subject to be published in the Flash are encouraged and welcomed. The article(s) should be submitted in Microsoft Word, RTF, or as text cut/paste into your email. Submit to Steve Touzalin by email at: stevetou@comcast.net or by postal mail to 417 So. Queen Circle, Lakewood CO 80226.

Formatting isn't necessary, but if you do, set the font to Times New Roman, size 10, left justified. If you have graphics (.jpg files) to be inserted, please name them and be specific about how you would like them placed. We will do our best based on space limitations.

The January 14th 1:00 meeting will be at the Bemis Library in Littleton



Directions to Bemis Library in Littleton

From Santa Fe and Bowles: Head east through downtown Littleton, continue to Littleton Blvd.

Go south (right turn if coming from downtown Littleton) on Datura St, almost 1/2 mile from Littleton Blvd

The Bemis Public Library is on the east side of the street at 6014 S. Datura St.

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417 S. Queen Cir.
Lakewood CO 80226

FIRST CLASS MAIL