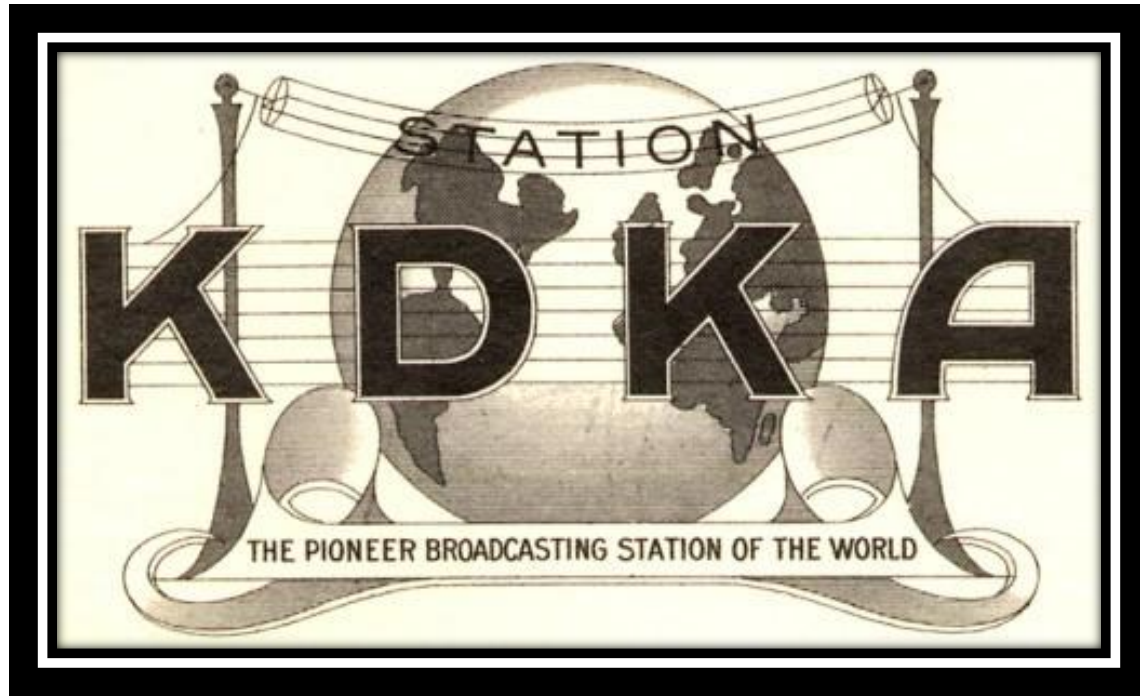


NOISE II: AM NOISE AND WAYS TO CONTROL YOUR RADIO PROGRAM FORMAT



ONE HUNDRED YEARS OF BROADCASTING

NOISE II (AM)

STATUS

Current Situation

Evidence of things to come

Noise Floor

Interference

Causes of Noise(Examples)

CONTENT

AM Radio Stations

Programming

Make your own content

Injection direct or BT

Transmission

PREVENTION

ACTIONS for prevention

Minimize Noise

Maximize Signal Strength

Interference and fidelity have been the bane of AM radio broadcasters and listeners since the medium was developed in the early 1900s. In fact, what drove Edwin Armstrong to invent FM radio was that he hated the sound of AM, which he also helped develop.

Over the years, technical improvements have helped make AM sound better, but the erosion of listeners from the band has continued. One potential solution was digital HD radio, but the hybrid HD system introduced its own problems by increasing overall interference on the band, leading many stations to abandon it.

The idea is not unprecedented. Indeed, there were few radios available at the genesis of AM itself in 1922, and FM stations languished for years due to a lack of receivers.

Likewise, the payoffs are huge. For a station that is already losing money, it begs the question – why not take the chance? Of course, one could say that regarding programming itself, so there are multiple ways to take risks that might pay off big in the future.

. Likewise, interference between stations is reduced, as the signal is centered more tightly on the assigned frequency; hybrid mode puts the digital stream on the sides of the analog signal.

Obviously, digital is not for everyone, and programming trumps sound quality ... it makes no difference what you sound like if no one wants to hear what you broadcast. While a station like KFI (640 AM) has too much to lose as one of the top-rated stations in town, a station like KABC (790 AM) might well consider it. There are rumblings that KMZT (1260 AM) will try testing all-digital at least temporarily at certain times of the day, and I think it would be a great idea. I'd like to know just how far the all-digital signal can travel, and if it can do so at night. It could indeed be a game-changer.

Kolesar agrees, telling Radio World that all-digital is something every AM broadcaster needs to move toward, sooner rather than later. “Analog AM listenership is declining, and we need to stop worrying about obsoleting analog-only radios ... because fewer people are even bothering to turn them on.”



THE
MEDIA
ISSUE

For decades, AM radio has felt as commonplace as a utility, such a basic fact of life that it's taken for granted. But that's changing: Across America, AM radio stations are dwindling in number and profitability, as better-sounding FM signals become cheaper to broadcast and would-be listeners turn to the internet for entertainment,

Yet even in decline, it has a strength that politicians and media insiders who want to understand America would do well to heed. In 2019, thousands of AM stations remain on the air, many of them thriving—in part because they serve unique sets of people whose voices aren't always heard loudly. For generations, it was considerably cheaper to buy or start an AM station than any other form of mass media, making ownership more accessible to people of color, immigrants, non-English speakers and those with political views outside the mainstream. Without the line-of-sight restrictions of FM radio, AM radio can also cover vast geographic areas, and so remains a staple of rural media. Even now, if you tune into the right frequency on a clear summer night, you can hear a broadcast from half a continent away—listening in on the kinds of conversations that shape identity and politics far outside the Beltway.

For devotees eager to preserve the format, AM has a would-be savior in Washington: Federal Communications Commission Chairman Ajit Pai. Better known as a free-market “net neutrality” deregulator, Pai launched an effort to revitalize AM several years ago, shortly after becoming an FCC commissioner. Growing up in Parsons, Kansas, in the 1970s and '80s, Pai has said he listened to AM radio with his parents, who had come to the United States from India with “little more than \$10 in their pockets and a radio.” But purists are concerned that in his efforts to save AM radio, Pai might be inadvertently killing off what makes it unique, potentially curtailing long-distance AM broadcasters and moving more of its broadcasts to FM.

Now, as the FCC undertakes its important Quadrennial Review, I would again implore Chairman Pai and the Commissioners to walk away from the past, lay AM radio to rest, and move all the AM stations to an all-digital, expanded FM band in the television channels' 5 and 6 spectrum. And, in addition, implement a "date certain" plan, sooner rather than later, to move the incumbent FM band, at 88 to 108 MHz, to all-digital. We already required the move, years ago, of broadcast TV from analog to digital. There is no rational reason for not mandating the same of broadcast radio. In fact, digital broadcast television is already evolving to its next, forward-looking advancement: ATSC 3.0. But we're still vainly rendering life support to AM radio.

4728 AM STATIONS

535-1605 (106 CHANNELS OR SLOTS), @ 10KHz spacing

**Extended 540-1700 (1990 ITU)
116 CHANNELS**

**Simultaneous cast DIGITAL
(IBOC) In Dallas on AM band:**

KTNO 620-1 Spanish

KRLD 1080-1 News Talk

KFLC 1270-1 Spanish

KKIf 1700-1 Spanish

1920 FIRST BROADCAST: 8MK (Detroit, MI) KDKA (Pittsburg, PA)

Number of AM/FM Radio Stations In the US: 15,330

(4728 AM STATIONS)

In 1970 50% Radio Listeners on AM, Today 15%

MOST POPULAR FORMAT—COUNTRY

Young: Rhythmic

57% STREAM ON LINE, streaming, BROADCAST LISTENING

Leading on line: Pandora

AVERAGE Listening: 106 minutes per day listening (commute)

Most Popular in US: WROD Daytona Beach, Florida

KOMO Seattle, Washington

WCCO Minneapolis, Minnesota

KDKA Pittsburg, PA

Technology: FCC Asked to Allow All Digital Transmissions on AM Band

According to *Radio World*, a prominent advocate for the Standard Broadcast Band (AM band) has petitioned the FCC to allow stations to use all-digital transmissions in the US. In March, Bryan Broadcasting Corporation asked the Commission to initiate a proceeding to authorize the MA3 primary all-digital service mode for any AM station that chooses to do so. Bryan is the licensee of four AM and five FM stations (and six FM translators) in central Texas.

All HD Radio receivers in the market that have AM functionality would be able to receive such all-digital signals, the article explains, but legacy AM receivers would not.



Since last summer, WWFD in Frederick, Maryland, has had special temporary authority to broadcast in all-digital. The Bryan petition appears to be the first to seek all-digital authority. The petition said the broadcast industry's experimentation with an all-digital approach "could be accelerated by actually allowing stations to fully switch to MA3; actual experiential knowledge by stations that elect to switch will provide economic proof-of-concept for stations that delay in order to see how others fare."

The petition also noted discussions that the AM band has "become so overwhelmed by interference and impulse noise that the resultant audio product is rendered unacceptable to modern listeners." The petition said the noise floor generated by unlicensed devices and affecting the AM band "has been noticeable -- and increasing -- for years." According to the petition, Bryan has tried to quantify the noise floor increase, but that studies have not been undertaken in the US. The petition said experience in other countries suggests a rise from anywhere between 10 dB and 40 dB between the 1970s and the early 2000s."

PROGRAM CONTENT

AM Radio Stations

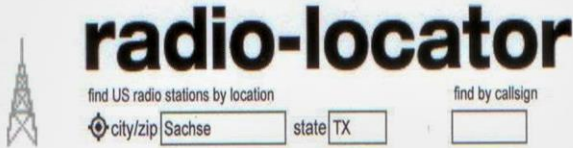
Programming

CHOOSE your own content

Injection: direct or BT

Transmission

AM STATIONS WITHIN THE DALLAS-FT WORTH LISTENING AREA INCLUDING FRINGE



find US radio stations by location

find by call sign

city/zip state

Easily Customized & Scaled

▶ Top Vendor Of Mobile Surveillance Video Products In North America. #1 in North America. Safety Vision®

OPEN

There are 88 radio stations that may be within distant listening range of Sachse, Texas. (32° 58' 35" N, 96° 35' 10" W)

Info: Click to get more information about a station or to submit a change.
 Bitcaster: Indicates that the station broadcasts its audio on the Internet.
 Distances show the distance between the station and your location in Sachse, Texas.

Find unused frequencies in Sachse, Texas.

Site Navigation:

















- [home page](#)
- [city search](#)
- [format search](#)
- [u.s. state search](#)
- [canadian search](#)
- [international search](#)
- [advanced search](#)
- [vacant frequencies](#)

| Call Sign | Freq. | Dist./Signal | City | School | Format |
|----------------------|--------|--------------|-----------------------------------|--------|-------------------|
| KDFT | 540 AM | 32.0 mi. | Ferris, TX | | Spanish Christian |
| KLJF | 570 AM | 20.6 mi. | Dallas, TX | | News/Talk |
| KTBB | 600 AM | 93.8 mi. | Tyler, TX | | News/Talk |
| KTNO | 620 AM | 18.6 mi. | Plano, TX | | Spanish Christian |
| KWPN | 640 AM | 168.0 mi. | Moore, OK | | Sports |
| KSKY | 660 AM | 21.4 mi. | Balch Springs, TX | | Talk |
| KHSE | 700 AM | 17.1 mi. | Wylie, TX | | Asian |
| KKDA | 730 AM | 27.7 mi. | Grand Prairie, TX | | Asian |
| KSEO | 750 AM | 73.8 mi. | Durant, OK | | Oldies |
| KAAM | 770 AM | 3.9 mi. | Garland, TX | | Religious |
| WBAP | 820 AM | 42.1 mi. | Fort Worth, TX | | News/Talk |
| KJON | 850 AM | 24.9 mi. | Carrollton, TX | | Spanish Christian |
| KFJZ | 870 AM | 46.7 mi. | Fort Worth, TX | | Business News |
| KATH | 910 AM | 24.5 mi. | Frisco, TX | | Religious |
| KHVN | 970 AM | 42.9 mi. | Fort Worth, TX | | Gospel Music |

| | | | | | |
|-----------------------|---------|----------|-------------------------------------|--|--------------------|
| KFCD | 990 AM | 20.2 mi. | Farmersville, TX | | Spanish Christian |
| KGGR | 1040 AM | 16.0 mi. | Dallas, TX | | Gospel Music |
| KRLD | 1080 AM | 6.9 mi. | Dallas, TX | | News |
| KVTI | 1110 AM | 70.8 mi. | Mineral Wells, TX | | Asian |
| KHFX | 1140 AM | 67.9 mi. | Cleburne, TX | | Spanish Christian |
| KBDT | 1160 AM | 64.6 mi. | Highland Park, TX | | Talk |
| KFXR | 1190 AM | 24.9 mi. | Dallas, TX | | Talk |
| KZEE | 1220 AM | 71.1 mi. | Weatherford, TX | | Asian |
| KSST | 1230 AM | 58.8 mi. | Sulphur Springs, TX | | Oldies |
| KFLC | 1270 AM | 39.1 mi. | Benbrook, TX | | Spanish Sports |
| KTCK | 1310 AM | 20.6 mi. | Dallas, TX | | Sports |
| KAND | 1340 AM | 59.9 mi. | Corsicana, TX | | Country |
| KMNY | 1360 AM | 26.0 mi. | Hurst, TX | | Spanish |
| KGVL | 1400 AM | 31.1 mi. | Greenville, TX | | Classic Hits |
| KFYN | 1420 AM | 48.1 mi. | Bonham, TX | | Country |
| KEXB | 1440 AM | 17.5 mi. | University Park, TX | | Religious |
| KCLE | 1460 AM | 48.8 mi. | Burleson, TX | | Asian |
| KNGO | 1480 AM | 22.1 mi. | Dallas, TX | | Asian |
| KJUN | 1500 AM | 49.4 mi. | Sherman, TX | | Nostalgia |
| KZMP | 1540 AM | 27.0 mi. | University Park, TX | | Spanish Sports |
| KPYK | 1570 AM | 25.3 mi. | Terrell, TX | | Nostalgia |
| KGAF | 1580 AM | 54.1 mi. | Gainesville, TX | | Adult Contemporary |
| KRVA | 1600 AM | 17.9 mi. | Cockrell Hill, TX | | Asian |
| KKGMM | 1630 AM | 33.2 mi. | Fort Worth, TX | | Gospel Music |
| KKLF | 1700 AM | 10.0 mi. | Richardson, TX | | Tejano |

very strong signal strong signal moderate signal weak signal very weak signal

50,000 WATTS **<300 WATTS**

| | Call Sign | Freq. | Dist./Signal | City | School | Format |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------|----------------------------------------------------------------------------------------------|-------------------------------------|--------|-------------------|
|   | KDFT | 540 AM | 34.5 mi.  | Ferris, TX | | Spanish Christian |
|   | KLIF | 570 AM | 19.6 mi.  | Dallas, TX | | News/Talk |
|   | KTNO | 620 AM | 50.1 mi.  | Plano, TX | | Spanish Christian |
|   | KSKY | 660 AM | 25.3 mi.  | Balch Springs, TX | | Talk |
|   | KHSE | 700 AM | 52.9 mi.  | Wylie, TX | | Asian |
|  | KKDA | 730 AM | 8.7 mi.  | Grand Prairie, TX | | Asian |
|   | KAAM | 770 AM | 39.0 mi.  | Garland, TX | | Religious |
|   | WBAP | 820 AM | 7.0 mi.  | Fort Worth, TX | | News/Talk |
|   | KJON | 850 AM | 43.3 mi.  | Carrollton, TX | | Spanish Christian |
|  | KFJZ | 870 AM | 10.6 mi.  | Fort Worth, TX | | Spanish Christian |
|   | KTXV | 890 AM | 72.7 mi.  | Mabank, TX | | Asian |
|   | KHVN | 970 AM | 11.9 mi.  | Fort Worth, TX | | News |
|  | KFCD | 990 AM | 56.5 mi.  | Farmersville, TX | | Spanish Christian |
|   | KGGR | 1040 AM | 23.3 mi.  | Dallas, TX | | Gospel Music |
|   | KRLD | 1080 AM | 30.5 mi.  | Dallas, TX | | News/Talk |
|  | KVTT | 1110 AM | 55.9 mi.  | Mineral Wells, TX | | Asian |
|  | KHFX | 1140 AM | 33.7 mi.  | Cleburne, TX | | Spanish Christian |
|  | KBDT | 1160 AM | 45.7 mi.  | Highland Park, TX | | Asian |
|   | KFXR | 1190 AM | 11.5 mi.  | Dallas, TX | | Talk |
|  | KZEE | 1220 AM | 39.3 mi.  | Weatherford, TX | | Asian |
|  | KFLC | 1270 AM | 4.3 mi.  | Benbrook, TX | | Spanish Sports |
|   | KTCK | 1310 AM | 19.6 mi.  | Dallas, TX | | Sports |
|  | KMNY | 1360 AM | 10.4 mi.  | Hurst, TX | | Spanish Christian |
|  | KBEC | 1390 AM | 25.8 mi.  | Waxahachie, TX | | Classic Country |
|   | KEXB | 1440 AM | 23.4 mi.  | University Park, TX | | Religious |
|   | KNGO | 1480 AM | 27.2 mi.  | Dallas, TX | | Asian |
|  | KAMM | 1540 AM | 10.0 mi.  | University Park, TX | | Alternative |
|  | KRVA | 1600 AM | 24.0 mi.  | Cockrell Hill, TX | | Asian |
|   | KKGm | 1630 AM | 7.2 mi.  | Fort Worth, TX | | News |
| | KKLF | 1700 AM | 42.5 mi. | Richardson, TX | | Tejano |

30 Stations with Strong signal To Arlington, Texas

**FORMATS FOR THE 30 STATIONS IN DFW LISTENING AREA
(strong stations not in fringe reception area, Arlington)**

| | |
|--------------------|-------------|
| FOREIGN | 17 |
| NEWS/talk | 7 |
| RELIGIOUS | 3(8) |
| COUNTRY | 1 |
| ALTERNATIVE | 1 |
| SPORTS | 1 |
| NOSTALGIA | 0 |
| TOTAL | 30 |

SOME OTHER SOURCES OF PROGRAM MATERIAL

CELL PHONE , APPS, ie. iHeart, play lists, direct stream, etc

RECORDED CONTENT

CD recordings

Vinyl records

cassettes

computer

play lists (cell phone)

FM tuner

INTERNET (computer, tablet, smart phone)

Sirius

Pandora

POSSIBLE
PROGRAM
SOURCES





Grace digital Mondo Elite WiFi Internet Radio. Bluetooth, iHeart Radio, Pandora, NPR, Audacy.



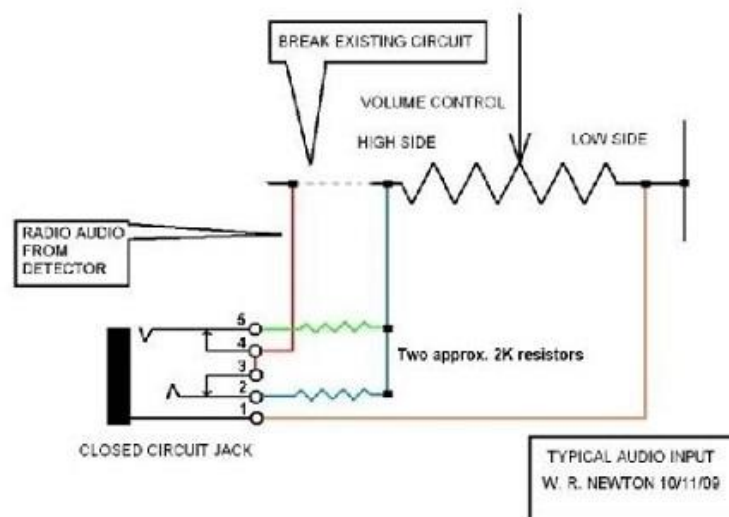
Listen to more than 25,000+ Internet radio stations categorized by location, genre and most popular. Available thousands of free rock, jazz, news, oldies '40s, 50s, 60s, talk and Nostalgia programs.

- It is a luxury to have an excellent audio source separate from your cell phone...
- Low cost, much less expensive than a year of satellite radio and no monthly fee
- Presets: First 10 using the remote buttons, 100+ in sequence list.

- You can go to Skytune.net, click on the "Radio" header to be sure they carry your favorite station or host
- You can add your own favorite stations by submitting a valid URL to Skytune.net

PROVIDING YOUR OWN PROGRAM MATERIAL TO YOUR AM RADIO

- **DIRECT INJECTING**
- **BLUETOOTH INJECTING**
- **TRANSMITTING (AM BROADCASTING)**
 - **OR BOTH**



Radio Shack 1/8" stereo headphone jack....item # 274-0246

the schematic that I posted is also on the back of the packaging of the jack.

its small and black with a clear bottom to see the internals.

The 2k resistors don't seem to choke any quality out of the input. They

are used to change the input to mono (to match the output of the

radio) instead of stereo (the input of the source) and they provide some resistance to

back cycling with power surges and the like.

When it is unplugged the radio plays as it should, when it is plugged in it automatically cuts off the radio sound source and inputs the external sound source.. you dont even need to tune the radio to a 'dead spot' in the dial.

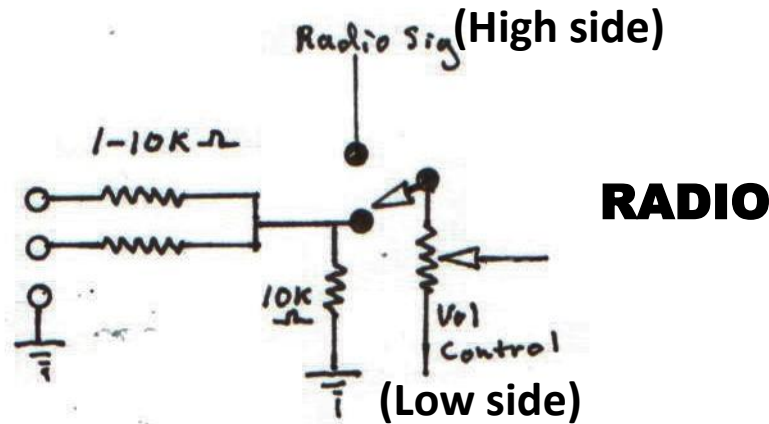
Be sure to run your iPod, Mp3, portable (low power) CD player or

whatever at max volume then use the volume of the radio for the up and down.

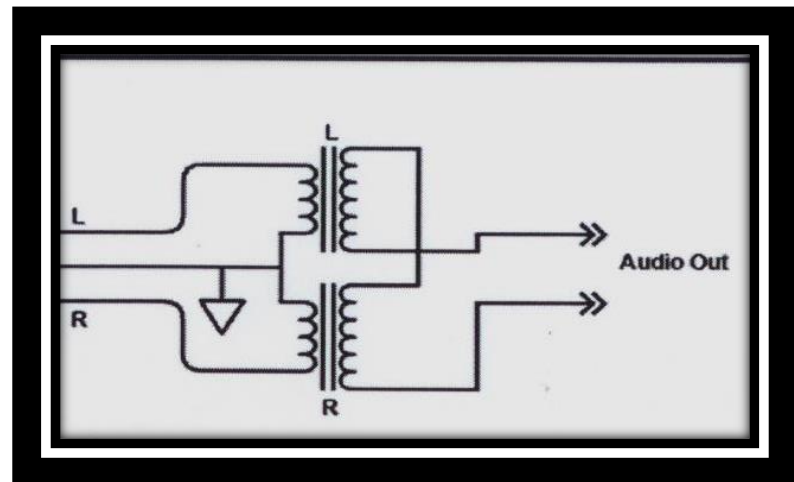
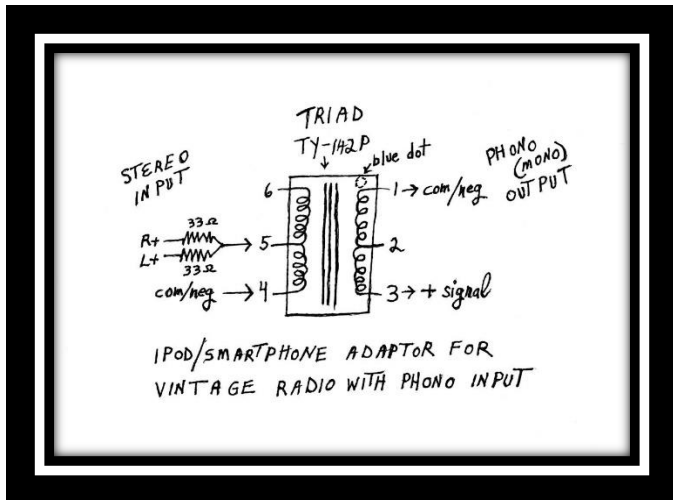
SIGNAL INJECTION(protecting the source)

PROGRAM SOURCE

STEREO JACK

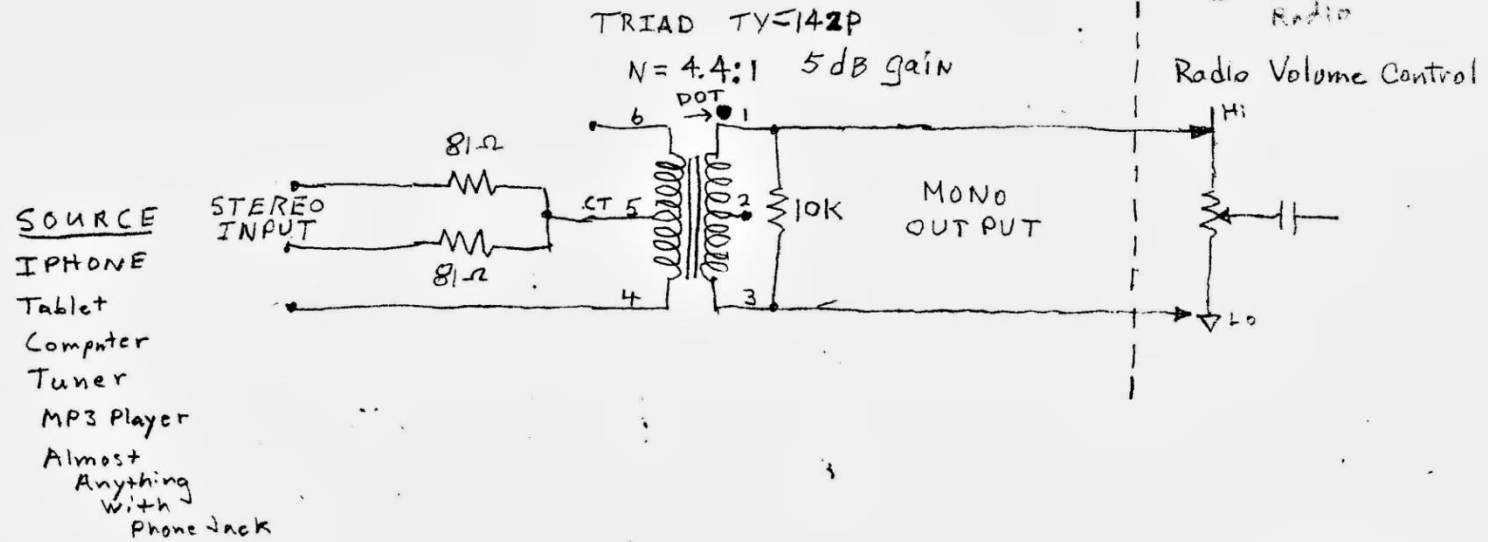


CONVERTS STEREO SOURCE TO MONO FOR INJECTION

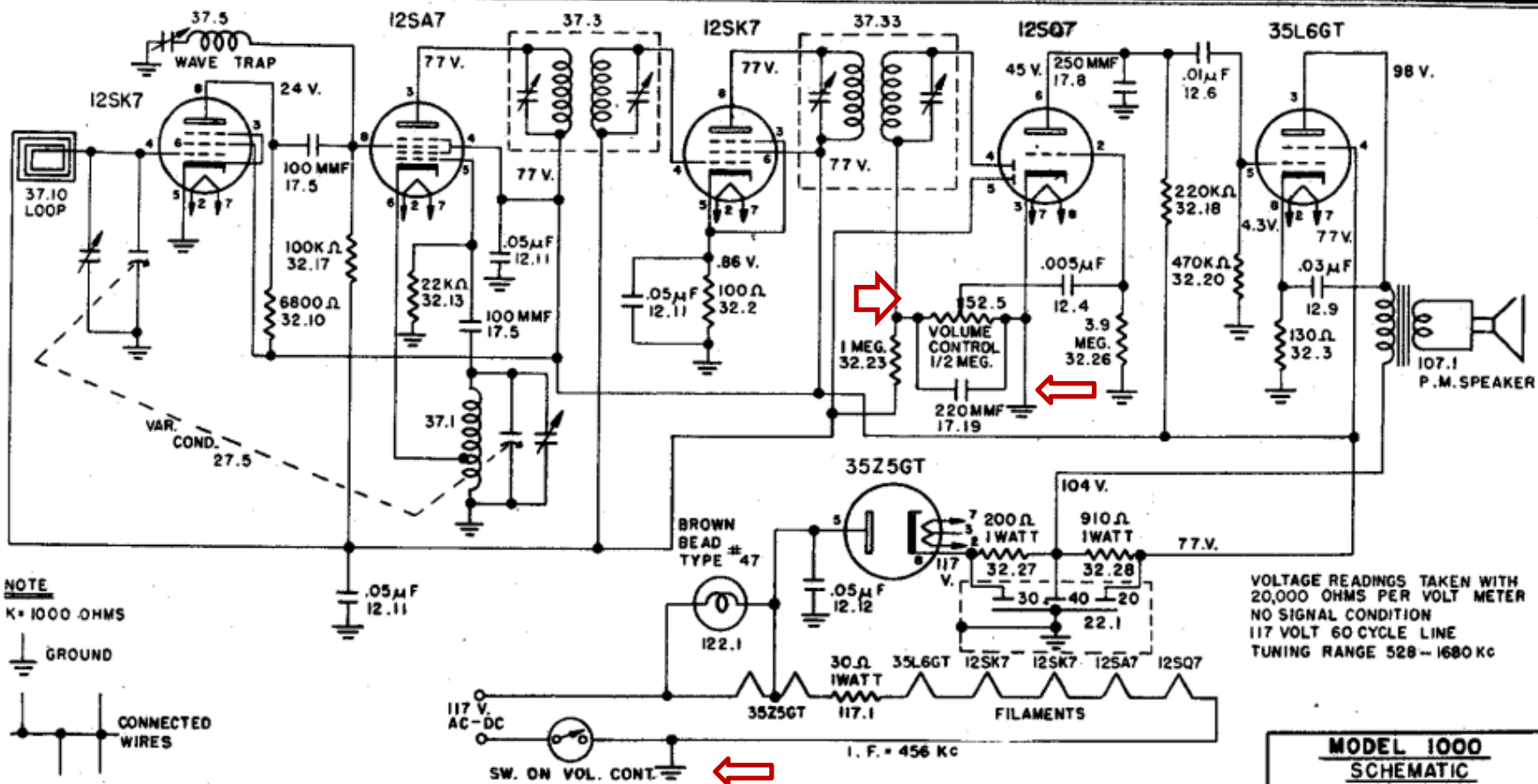


STEREO TO MONO
SETUP with TRANSFORMER

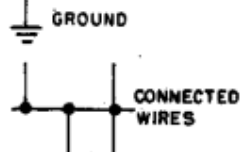
RADIO



2/21/2020
DJS



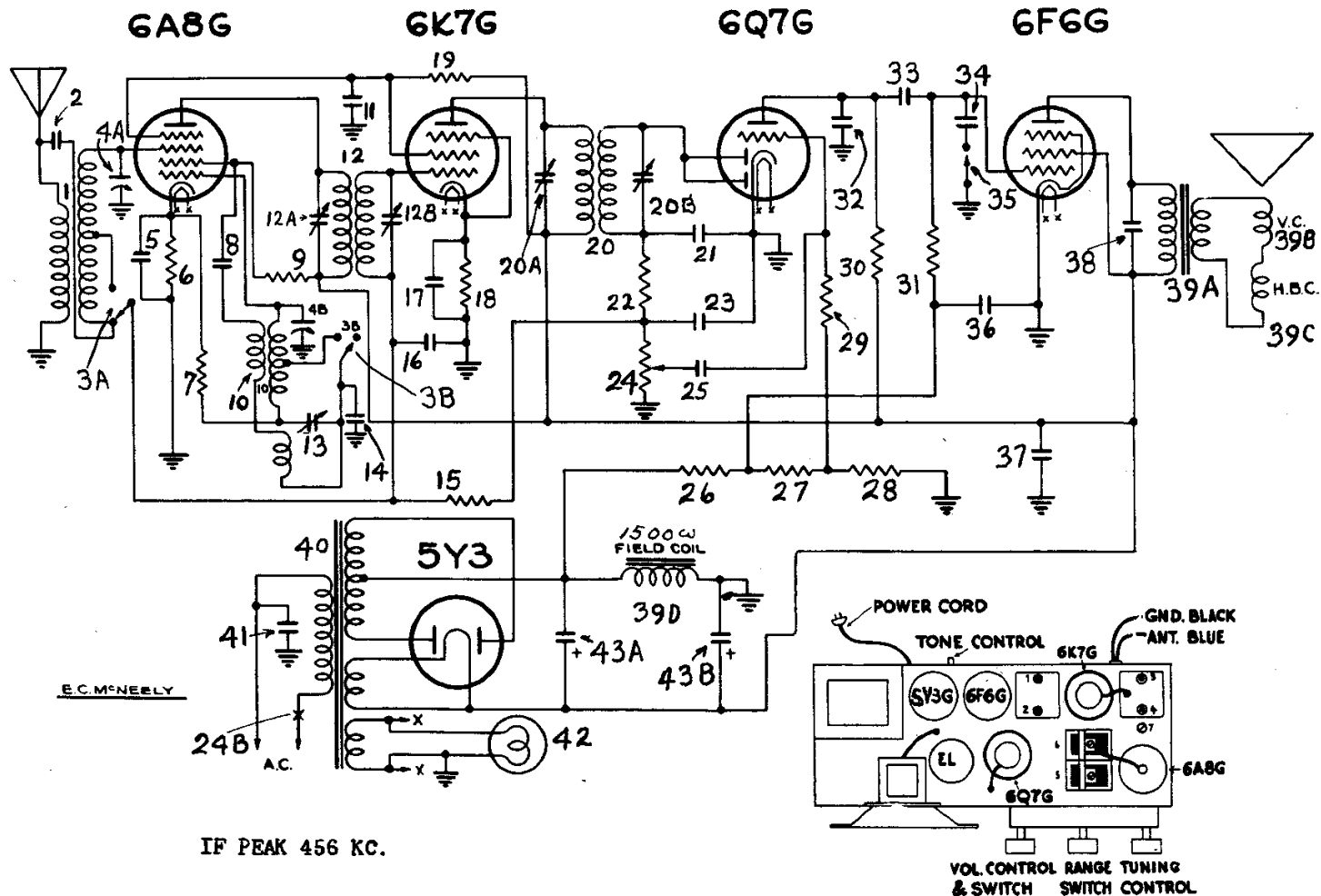
NOTE
K = 1000 OHMS



VOLTAGE READINGS TAKEN WITH
20,000 OHMS PER VOLT METER
NO SIGNAL CONDITION
117 VOLT 60 CYCLE LINE
TUNING RANGE 528 - 1680 KC

MODEL 1000
SCHEMATIC
FADA RADIO & ELECTRIC CO., INC.
LONG ISLAND CITY, N.Y., U.S.A.

FADA RADIO & ELEC. CO. INC.



FAIRBANKS, MORSE & CO.

MODEL 5B
Schematic, Socket
Trimmers

TOP VIEW OF CHASSIS SHOWING LOCATION OF TRIMMERS AND TUBES AS WELL AS OTHER COMPONENT PARTS



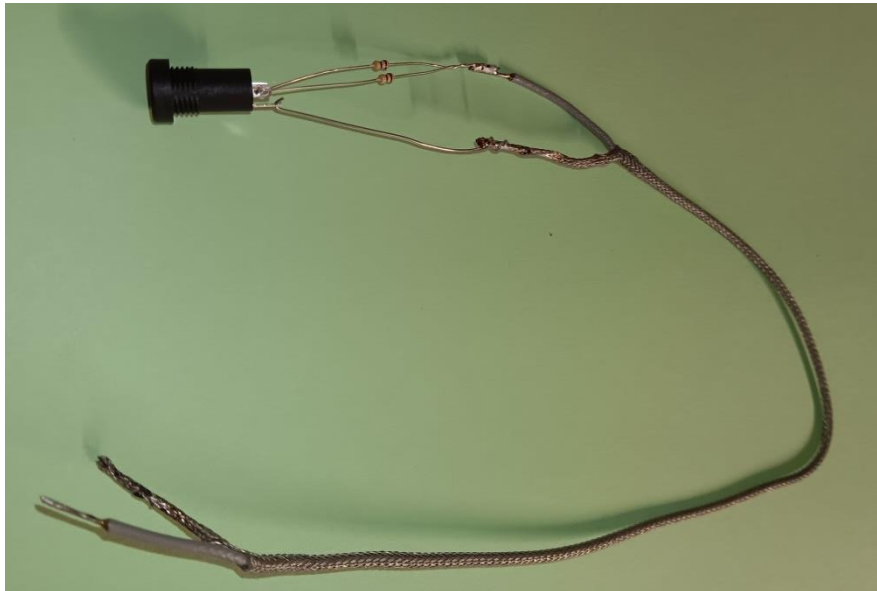
3.5mm Stereo 3-Pole(3-pin)Audio Jack socket
Panel Mount Jack. Ground isolation.

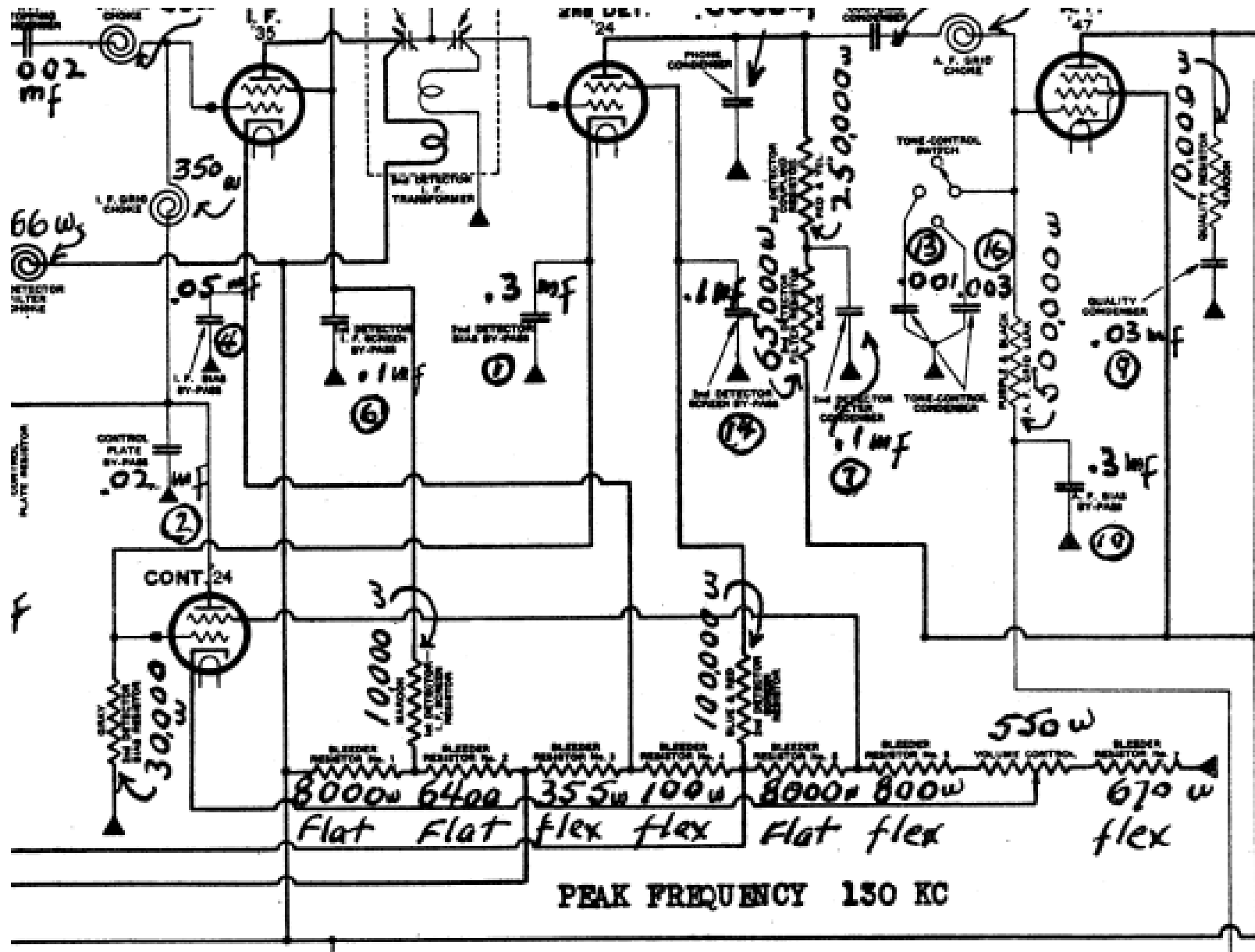


3.5mm Stereo 3-Pole (3-Pin)
Audio TRS Plug Jack Socket.
Panel Mount Jack. Jacket
ground (non-isolation).



3.5mm Mono TS
Female Jack Socket
with Switch Panel
Mount

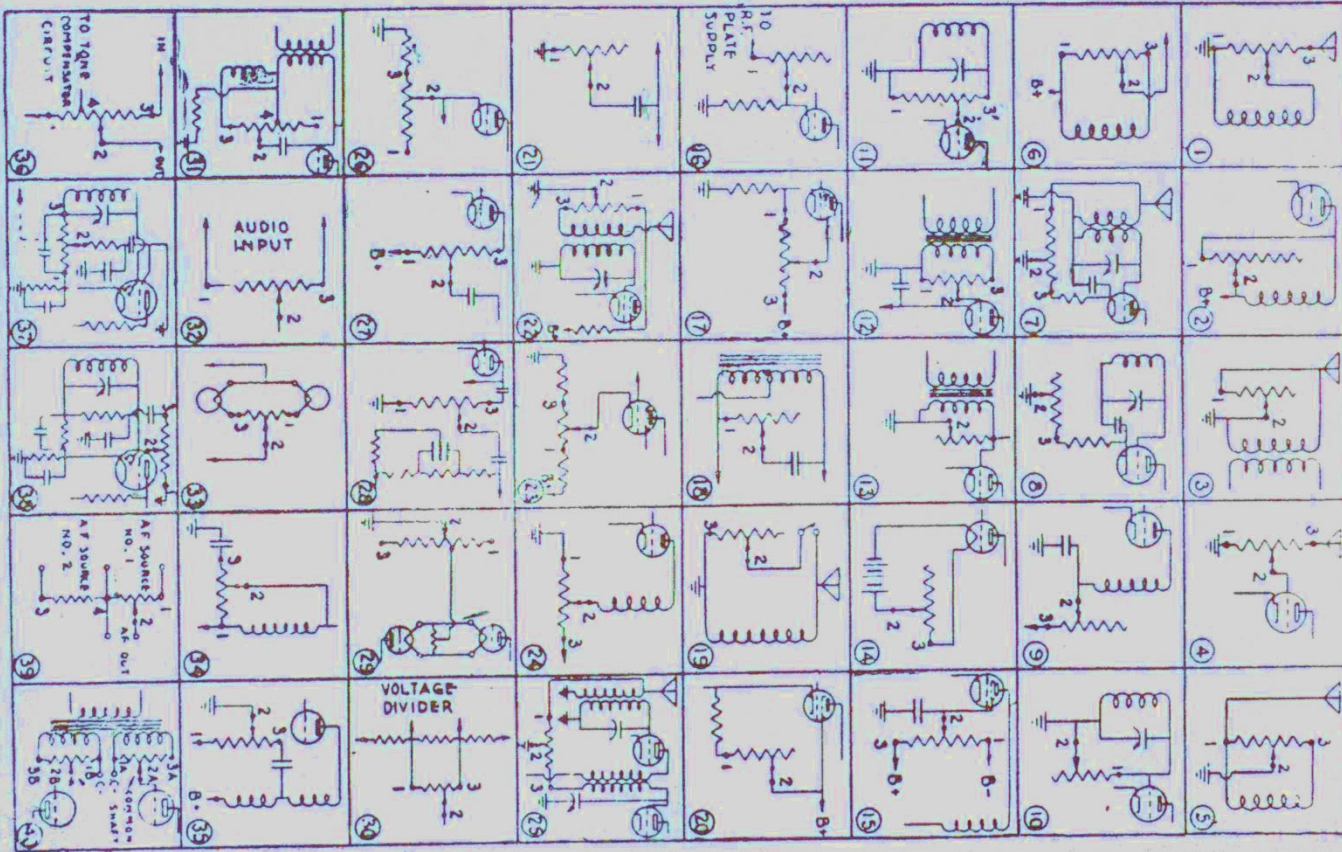




ATWATER KENT MODEL 82

TYPICAL VOLUME CONTROLS

Typical Volume Control Circuits in Radio Sets



**TYPICAL OUTPUT VOLTAGES FROM
VARIOUS SOURCES**

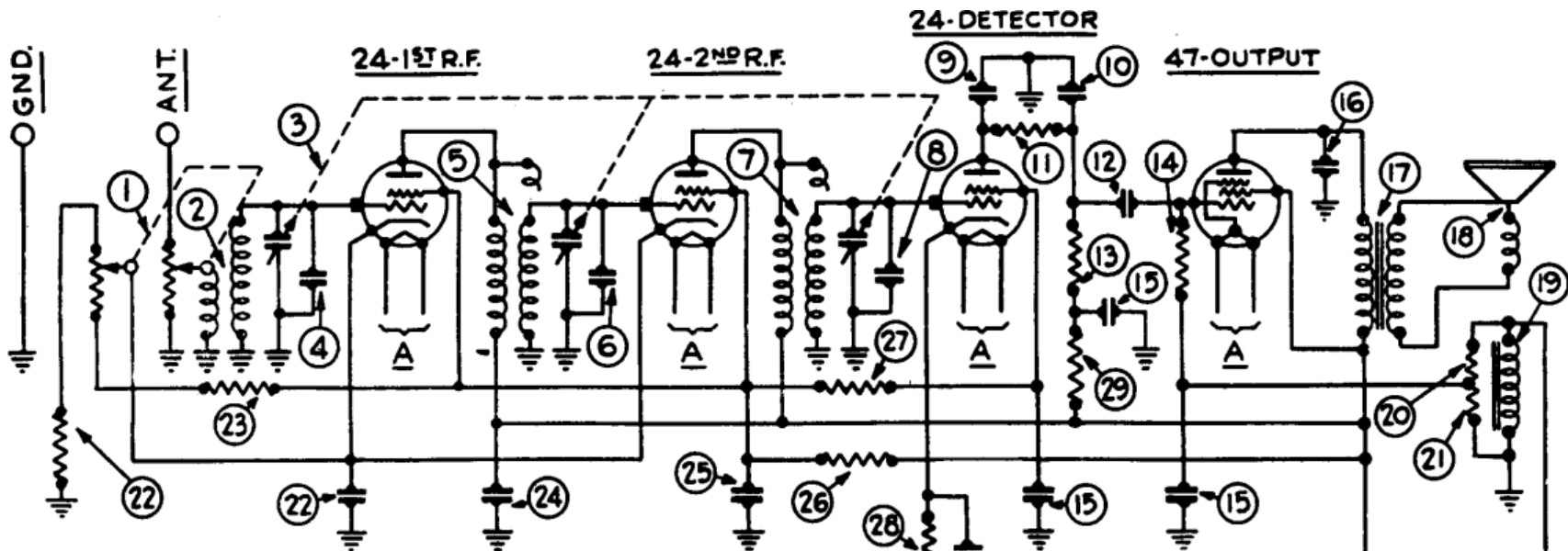
CELL PHONE ----- .2-1v
CD PLAYER----- .5-2v
FM TUNER----- .3-1v
RECORD PLAYER----- .2-1v
CRANE INTERNET----- .3-1.5v
AUDIO SIGNAL GENERATOR(ref)---1-11v

TUBE GRID BIAS DRIVER VOLTAGE
DRIVER AUDIO POWER OUTPUT

| | | | |
|--------------|------------|-------------|------------|
| 24 | 3v | 47 | 31v |
| 26 | 14v | 71A | 40v |
| 27 | 21v | 45 | 56v |
| 6Q7 | 3v | 6F6 | 20v |
| 6J5 | 8v | 6V6 | 13v |
| 12SQ7 | 2v | 50L6 | 7v |
| 12AV6 | 1v | 50C5 | 8v |

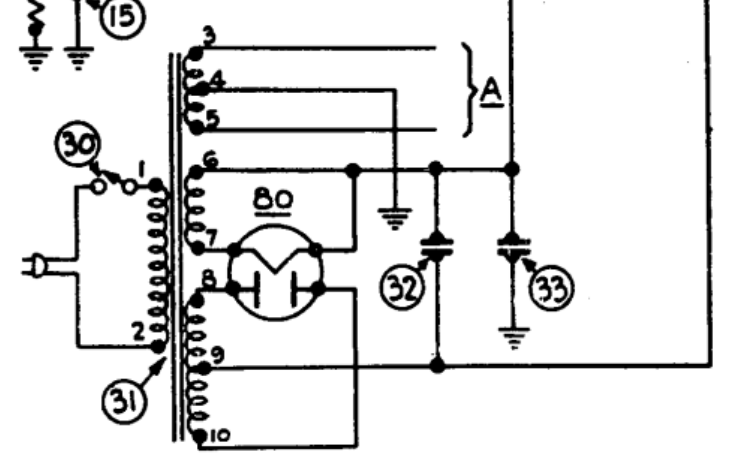
**TEST OF INPUT
TYPES**
with 1v INPUT

RESISTOR ONLY-----1v
SINGLE END TRANS-- 3.3v
DUAL TRANS-----5.8v



| | | | |
|----|-----------------------------------|----|-------------|
| 9 | .00025 | 22 | 150 and .05 |
| 12 | .01 | 11 | 10,000 |
| 13 | .05 | 12 | 15,000 |
| 14 | .05 and 150 Ohm resistor | 13 | 25,000 |
| 15 | .1, .15, .25, 2-5 (50-60 cycles) | 14 | 32,000 |
| 16 | .05, .15, .25, 2-5 (25-40 cycles) | 15 | 99,000 |
| 17 | .05 | 16 | 160,000 |
| 18 | (50 to 60 cycles) 6. | 17 | 240,000 |
| 19 | (25 to 40 cycles) 10. | 18 | 490,000 |
| 20 | | 19 | |
| 21 | | 20 | |
| 22 | | 21 | |
| 23 | | 22 | |
| 24 | | 23 | |
| 25 | | 24 | |
| 26 | | 25 | |
| 27 | | 26 | |
| 28 | | 27 | |
| 29 | | 28 | |
| 30 | | 29 | |
| 31 | | 30 | |
| 32 | | 31 | |
| 33 | | 32 | |

| Tube | Plate Volts | Screen Grid Volts | Control Grid Volts | Cathode Volts | Plate Milli-amperes |
|----------|-------------|-------------------|--------------------|---------------|---------------------|
| 1st R.F. | 245 | 90 | 2.5 | 3.0 | 4.5 |
| 2nd R.F. | 250 | 90 | 2.5 | 3.0 | 5.5 |
| Det. | 100 | 42 | 8.0 | 8.0 | 0 |
| Output | 175* | 190* | 1.0* | ... | 2.7* |



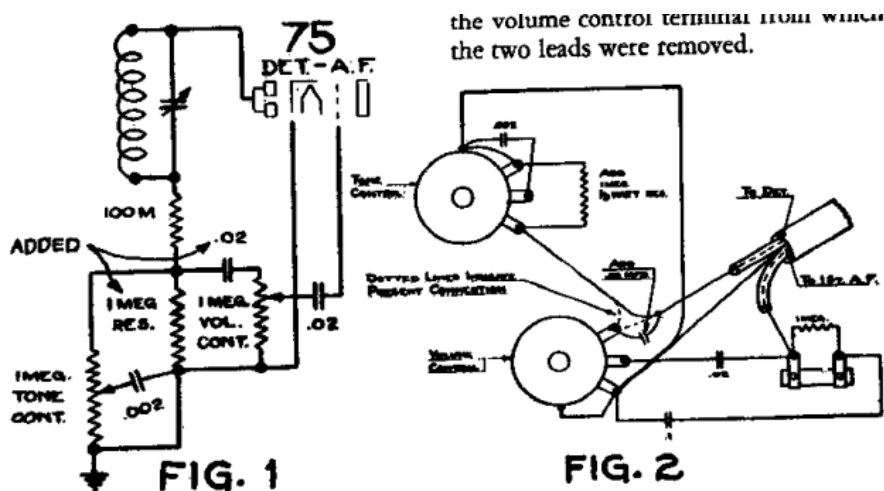
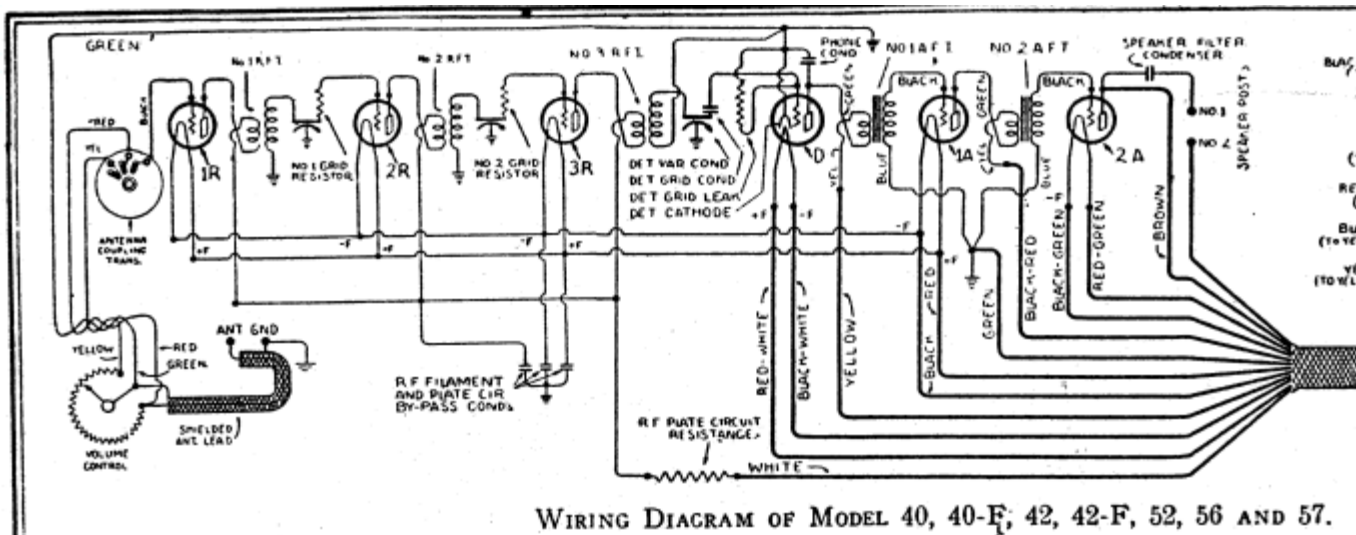
IR-F

FRONT

1931-32

PHILCO MODELS 50 AND 50-A

ATWATER KENT MODEL 40

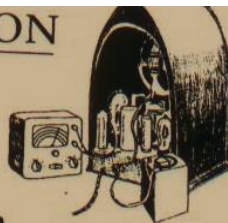


By the addition of a 1-megohm resistor and a 0.02-mf. condenser, as shown in the diagrams above, noisy volume controls are quieted in these Silvertone sets.

EQUIPMENT RESTORATION

BY DAN MERZ, 1268 WHITE BLUFFS ST., RICHLAND, WA 99352
mdmradio@frontier.com

Submit restoration tips in Word, WordPerfect or plain text files with any illustrations in separate jpeg, tif or bmp files (not embedded in document).



Using Horn Speakers with iPod, More on Bandwidth, and Restoring an Admiral Model 28-G5

Horn Speaker and an iPod

I recently surveyed some of the horn speakers I've acquired, and became curious about trying them with some more modern equipment to compare their performance. I first connected one directly to the phone jack of a transistor radio that used headphones only, as I was pretty sure that the higher impedance of a horn would not damage the transistor radio since the radio was probably designed for lower impedance headphones. It worked pretty well. I was then intrigued with the possibility of connecting an iPod that didn't have a built-in speaker to a horn speaker as these two items pretty much spanned the ages of my audio electronic equipment, and I have many music recordings on the iPod. My first experiment gave no response, so I decided that I needed to introduce a transformer between the iPod and speaker to better match their impedances. I used a stereo plug jumper cable but could get no response between any combination of the three lines into the speaker, even with a transformer. I had used a transformer I found in my stash that had about an 8:1 turns ratio which I thought might be about right with the low turns side

connected to the iPod. After doing a little online research, I decided that a resistive divider on the output of the iPod might combine the stereo output better for the monaural input to the speaker. This was achieved with a simple arrangement using an 80 ohm resistor in-line with each channel with a single output between the junction and ground (Figure 1). I placed the two resistors along the wires and covered them with shrink tubing. The output from this was fed to the leg of an interstage transformer with about 8:1 turns ratio, with the high turns side to the horn speaker. This worked well and I increased the volume a bit by going to 16:1 ratio legs on the transformer. I experimented with an ordinary 12-volt filament transformer, and it worked well using the 12-volt transformer leads on the iPod output with the 120-volt leads attached to the horn speaker driver. The center tap lead on the 12-volt side worked almost as well, so a 6-volt filament transformer would also be OK.

As an aside, I saw online a number of YouTube videos that exhibited re-invention (or re-purposing) of horn speakers for iPods that have built-in speakers. In these cases, the trend seemed to be to use the horn itself

to amplify the sound from built-in speakers as drivers, reminiscent of early speakers that used headphone drivers, but I could find no example of wiring similar to what I did using the original horn speaker driver. These additions using the device speaker are called acoustic amplifiers

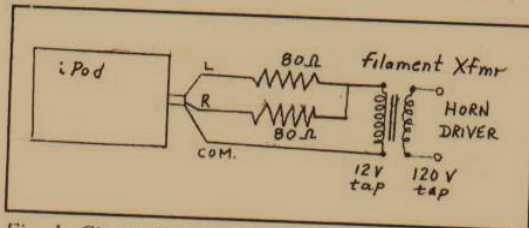
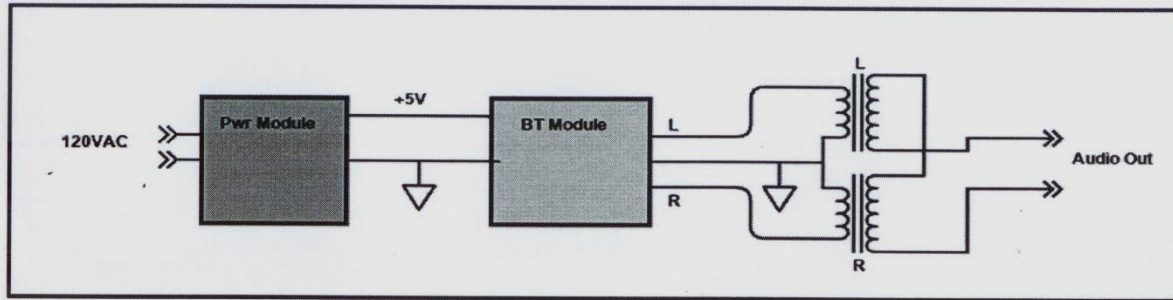


Fig. 1: Circuit for matching stereo output to monaural input to horn speaker

BLUETOOTH: receive



www.nixies.us

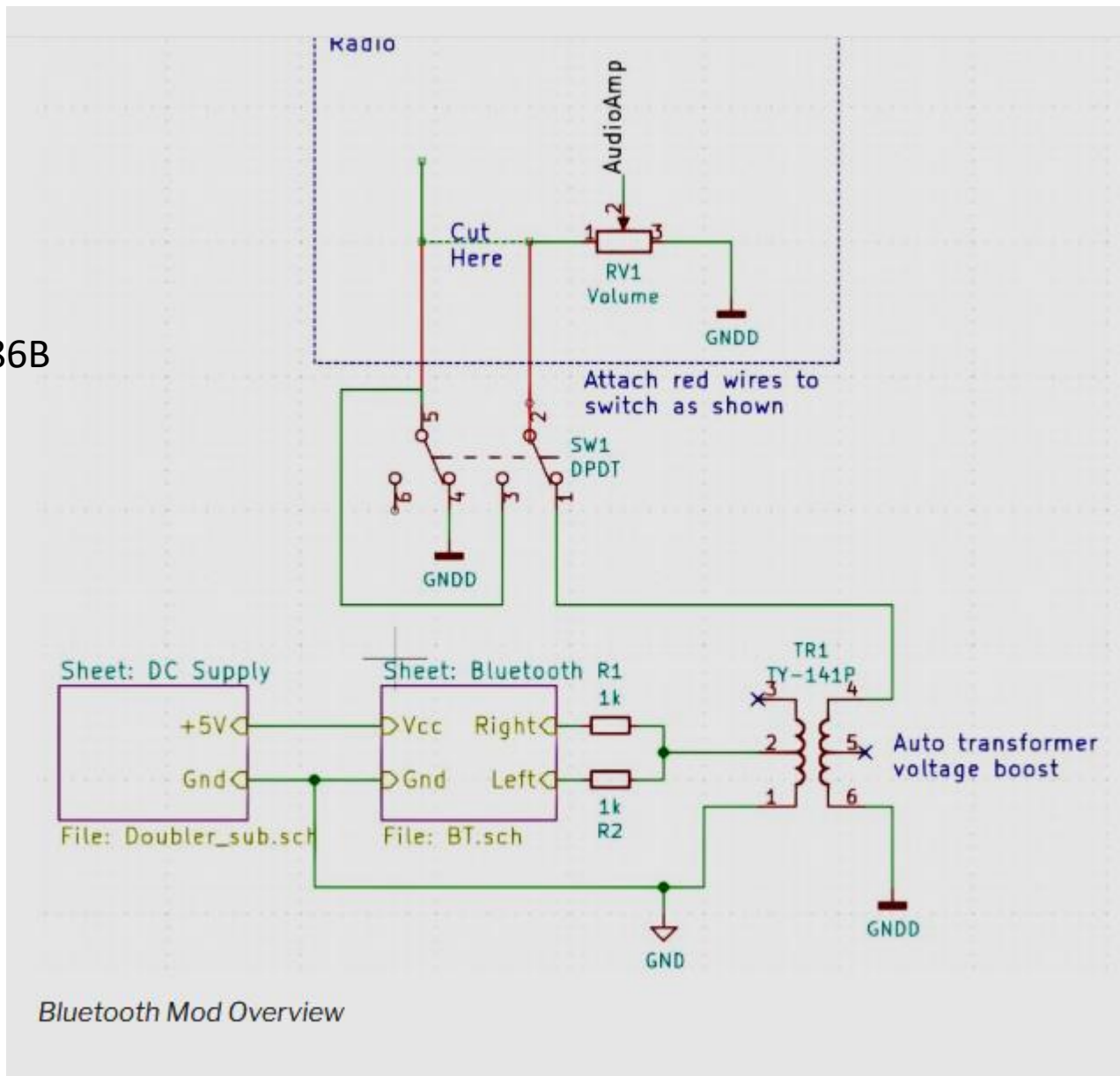
Transformer phasing is critical. Outputs must be in additive series.



BLUETOOTH: transmitter
STAND ALONE
OR PAIR WITH BLUE TOOTH
CAPABLE DEVICE, IE., CELL PHONE



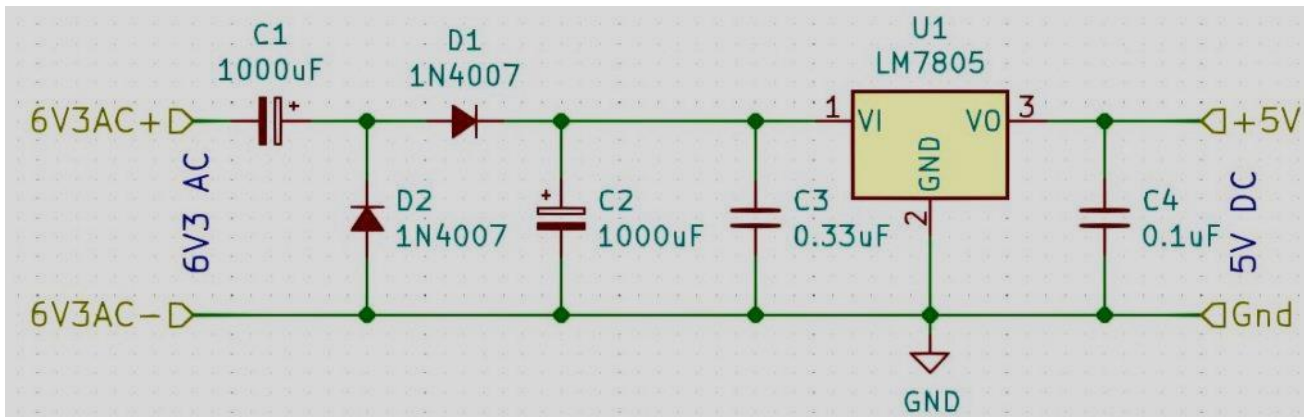
BT=KRC-86B



Bluetooth Mod Overview

The BT module needs power: 2.3-5vdc

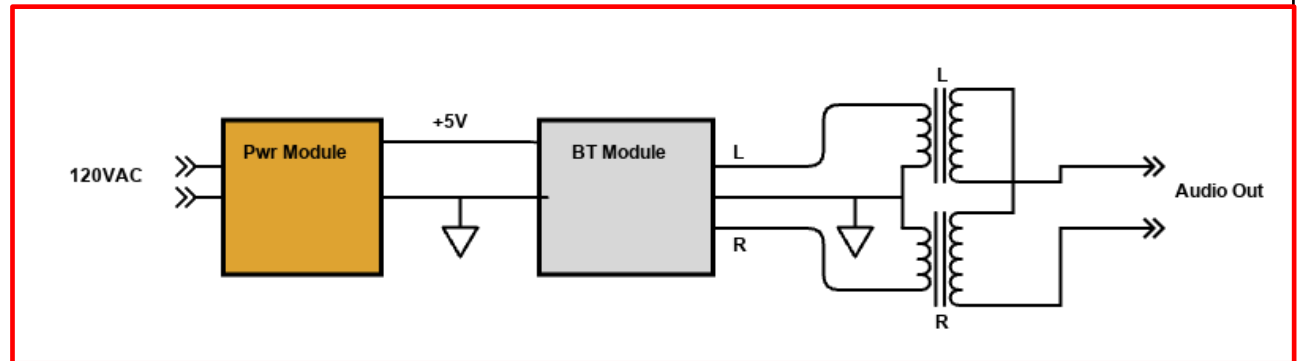
- **Battery**
- **120 v ac with PS**
- **6.3 v ac from radio(with trans) with PS**



PARTS LIST AND LINK

(LINK PROVIDED UNDER "Bluetooth Module" box)

| Bluetooth Module | |
|------------------|-----------------|
| Project Box (Lg) | \$ 1.80 |
| Project Box (Sm) | \$ 1.80 |
| Pwr Module | \$ 2.00 |
| BT Module | \$ 3.50 |
| Transformer (2) | \$ 2.80 |
| SPDT Switch | \$ 0.75 |
| DPDT Switch | |
| Mounting Pads | |
| Misc. | \$ 1.15 |
| TOTAL | \$ 12.00 |



Notes:

Transformer phasing is critical. Outputs must be in additive series.
 The switch is mounted on the radio chassis - exact wiring and single/double choice varies with each application.
 Do not use the BT Module USB port or 3.5mm output jack. Wire direct to holes/pads on the module.

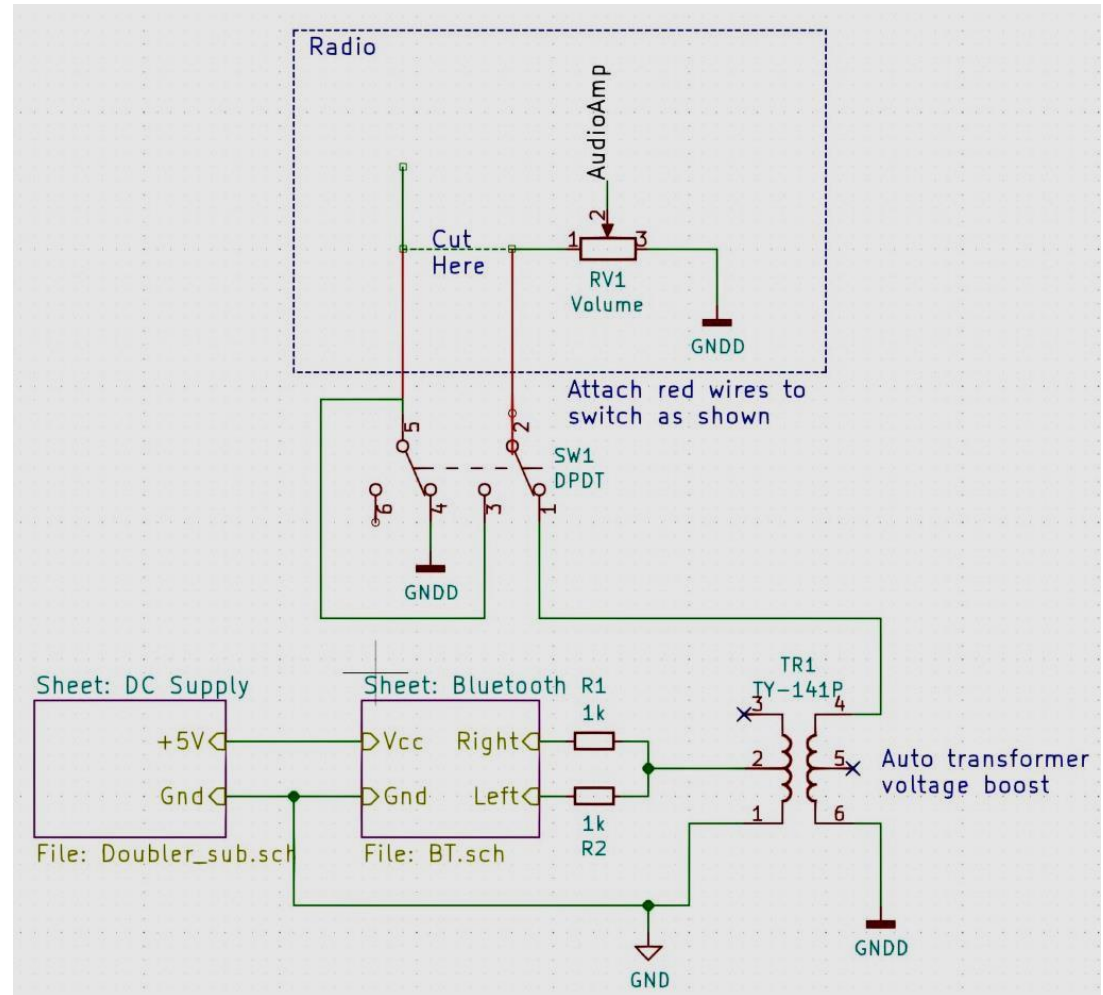
Small Box is a tight fit! Consider the larger box if there is room in the application.

- * Be sure to mount transformers away from the wall so that the lid lip fits.
- * You will need to carefully bend the transformer leads over so that the lid fits.

** In my next build I will mount the transformer to the end wall (instead of the bottom) so that the mounting pads space them away from the end and allow for more lead height since there would be no pad underneath.



Switching PS from LED lamp



TRANSMITTING TO YOUR AM RADIO

Part 15 AM Transmitters

knight-kit



RADIO BROADCASTER - AMPLIFIER



Bluetooth AM Transmitter

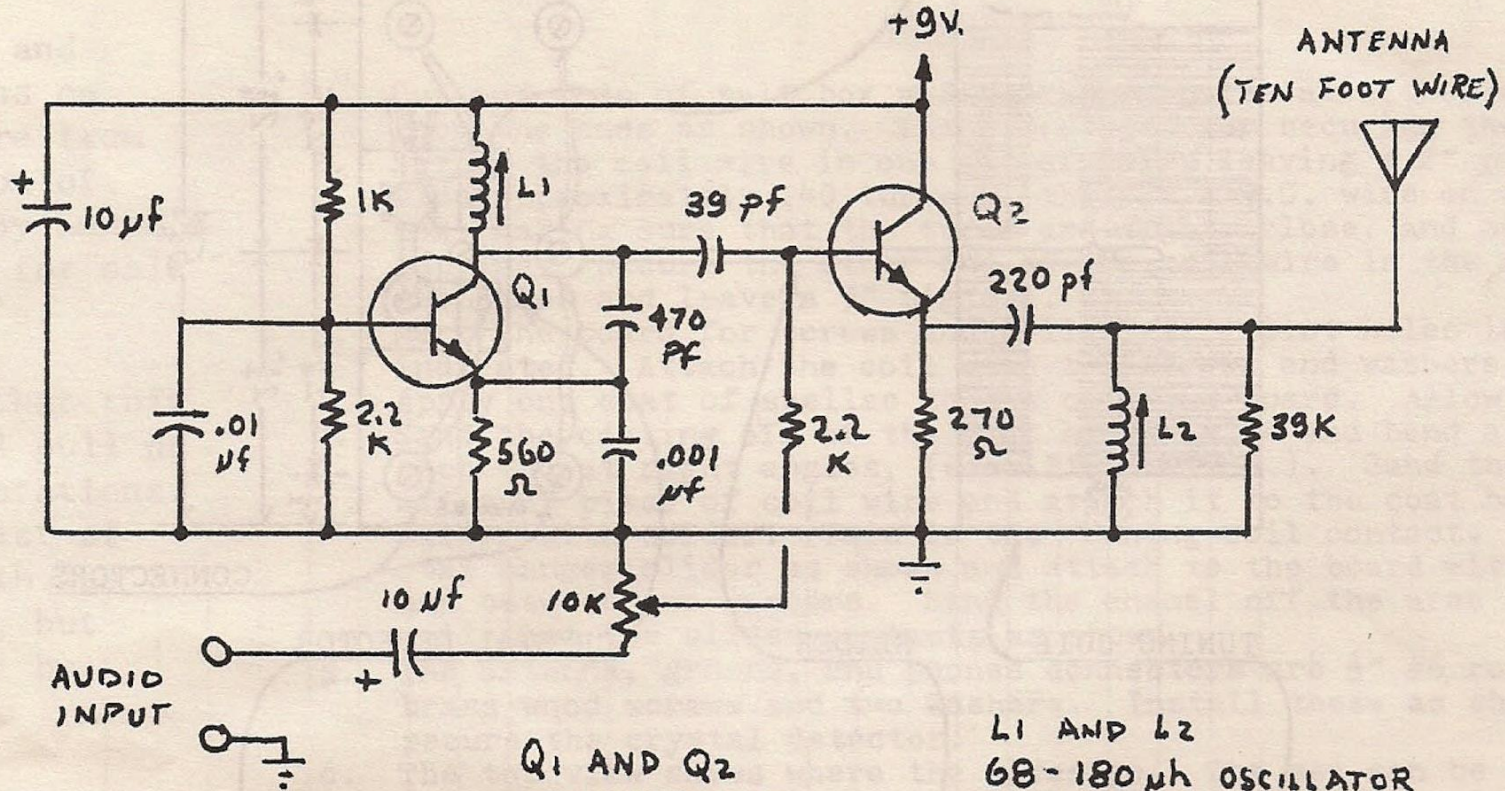
The majority of the Antique Radios manufactured in the 20s thru the 40s received only the AM Broadcast band and or Short wave band. Today Talk and Sports dominate these bands. Owning a US made Vintage radio should be more than an antique just setting in your room. It should be played. The Bluetooth AM transmitter enables both bluetooth and standard 3.5 mm music sources (mp3, ipods, CD players) to be heard on your vintage radio. The Bluetooth AM transmitter is an upgrade to the original Portable AM transmitter.



AUDIOVOX
CAR CONVERTER
fm to am

Talking House AM Radio Transmitter





Q1 AND Q2
2N2222

L1 AND L2
68-180μh OSCILLATOR
COIL MILLER 9055
OR EQUIVALENT

Code of Federal Regulations, Title 47, Part 15 (47 CFR 15) is an oft-quoted part of Federal Communications Commission (FCC) rules and regulations regarding unlicensed transmissions. It is a part of Title 47 of the Code of Federal Regulations (CFR), and regulates everything from spurious emissions to unlicensed low-power broadcasting. Nearly every electronics device sold inside the United States radiates unintentional emissions, and must be reviewed to comply with Part 15 before it can be advertised or sold in the US market.

PREVENTION OF NOISE (Sig to Noise)

LOCATE EXTERNAL SOURCES

USE BREAKER-BOX SWITCHES TO ISOLATE OFFENDERS

USE A HAND-HELD BATTERY RADIO TO LOCATE

SWITCH SUSPECTS ON/OFF, OBSERVE EFFECT

DISCONNECT UNUSED APPLIANCES

Try USING AN ISOLATION TRANSFORMER OR LINE FILTER

ALLOW YOUR RADIO TO PERFORM ITS BEST

RECAP AND REPLACE O/S RESISTORS

POLARIZE CAPS, IF POSSIBLE

ALIGNMENT TO FACTORY SPECS

USE GOOD WIRING PRACTICES, IE SHORT LEADS

USE POWER GROUNDING 3 PRONG OR POLARIZED PLUGS

IF RADIO HAS GROUND TERMINAL, USE IT(EARTH)

GIVE RADIO BEST POSSIBLE SIGNAL STRENGTH (S/N)

ORIENT RADIO ANTENNA OR USE OUTSIDE ANTENNA (MAX SIG)

FACTORS THAT AFFECT SIGNAL STRENGTH

POWER

TRANSMITTING ANTENNA LOCATION

DIRECTIONAL ANTENNA(S)

DAY OR NIGHT RECEPTION

DISTANCE TO TRANSMITTING ANTENNA

LOCATION AND HEIGHT OF RECEIVING ANTENNA

AM INTERFERENCE SOURCES

LED'S

REMOTE CONTROLS

COMPUTERS

Lap Tops

Tablets

Smart cell Phones

Alexa

Security Systems

Internet Equipment Router/Modem

Televisions

EV's

Appliances



That's all Folks!