

KENWOOD 2019 Dayton Hamvention Kenwood Forum



Kenwood Forum Committee

Mark Gilger – WB0IQK

Jan Servaites – N8CBX

Peter Shilton– VE7PS

Terry Wagoner – K9TW

Jeff Covelli – WA8SAJ

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- Agenda:

- Suggestions for topics.
- Questions to the Audience.
- Hybrid Saturday & Sunday Net Statistics.
- Hybrid Registry - dates & serial number
- Help with Parts, Documentation & Services
- Rescuing a TS-599A from the Landfill
 - Adding VHF Converters to the R599A Receiver
- Common Equipment Problems
- T599D/R599D Cabinet Powder Coating
- Case painting
- Questions and Answers

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Kenwood Trio Twins TX-310



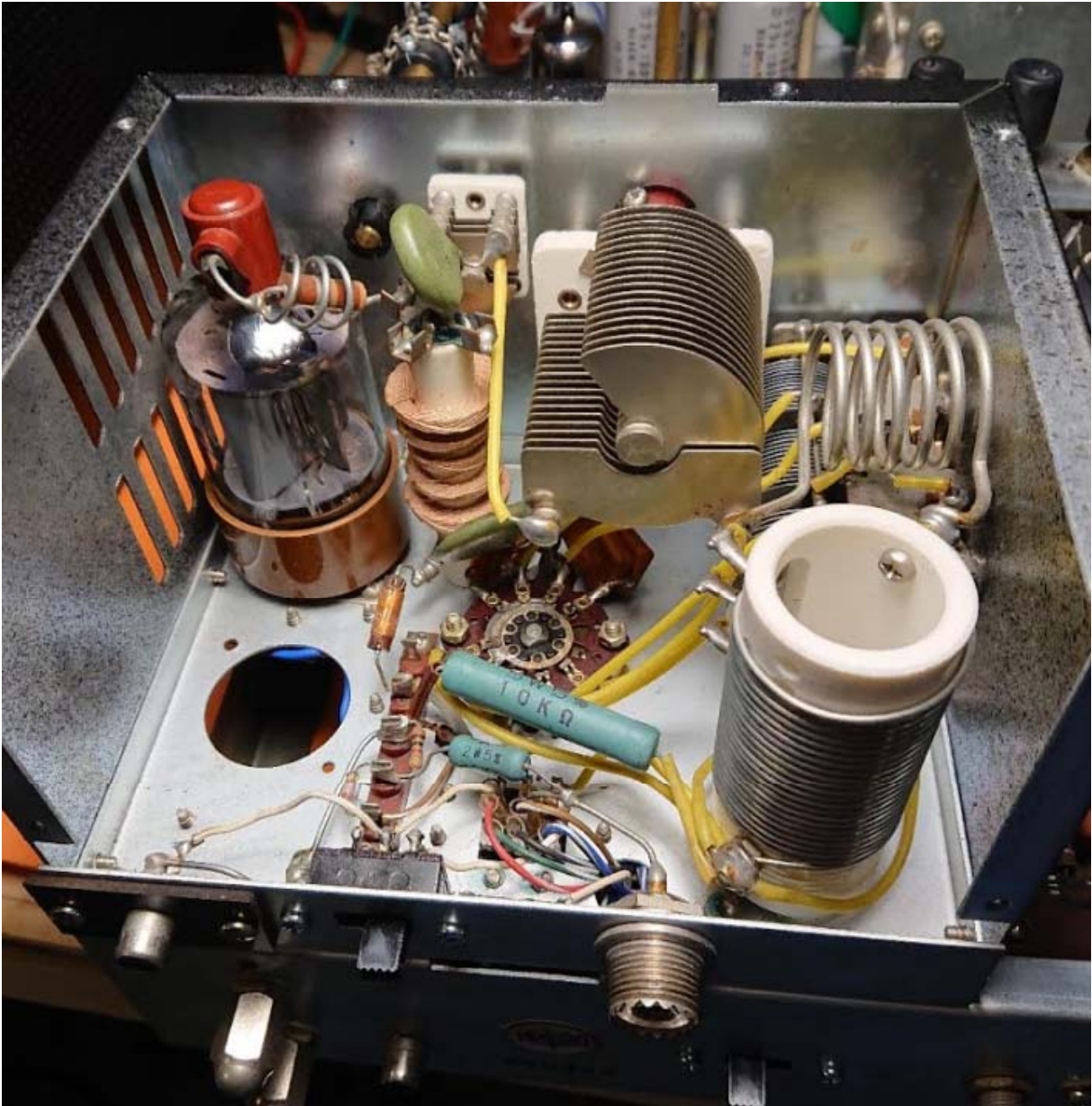
The Trio TX-310 uses a single Japanese S-2001 final. It does cover 80 through 6 meters and is all mode. Control is either via external VFO or internal crystal oscillator . The matching receiver covers JJY/WWV in addition to 80 thru 6 meters. It is dual conversion with a choice of wide or narrow filtering in the 455 Khz. 2'nd IF. The VFO is typically Kenwood light with a very nice tuning feel.

KENWOOD TS-511X (QRP Version) – AB9MQ Masa



KENWOOD TS-511XN (QRP With Noise Blanker) – AB9MQ Masa





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TS-511DN (100 watts with Noise Blanker)



I'm looking for Serial Numbers,
Original Purchase dates and
where purchased.



Serial Number Data Base

| CALL | MODEL | | S/N | DATE | Full Date | Purchased From: |
|--------|---------|--|---------|------|-----------|---------------------------------|
| | SM-220 | | 4120085 | 1984 | 10/2/84 | |
| N0BCZ | SM-220 | | 8010013 | 1987 | 4/24/87 | Delaware Amateur Supply |
| WF4B | VFO-820 | | 640497 | 1979 | | |
| KK4JPF | VFO-820 | | 730375 | 1973 | | |
| WF4B | SP-820 | | 661413 | 1979 | | |
| WF4B | AT-230 | | 3010185 | 1980 | | |
| | AT-230 | | 4120018 | 1984 | 10/2/84 | |
| | | | | | | |
| WA9NJR | TS-520 | | 231093 | 1975 | 9/1/75 | Electronic Center |
| WA2GTT | TS-520 | | 260563 | 1975 | 12/31/75 | |
| WB2KNR | TS-520 | | 520720 | 1977 | 3/12/77 | Hamtronics |
| K3MYK | TS-520 | | 520762 | 1977 | 3/20/77 | Hamtronics |
| | | | | | | |
| | TS-520S | | 560574 | 1977 | 7/23/77 | Henry Radio, Butler MO |
| K8YXB | TS-520S | | 620269 | 1977 | 10/1/77 | |
| KI5PM | TS-520S | | 732175 | 1978 | 6/13/78 | Webster Radio |
| WA3GPU | TS-520S | | 730328 | 1978 | | |
| | | | | | | |
| N9JR | TS-530S | | 1110561 | 1981 | 11/28/81 | Ham Radio Center, St. Louis, MO |
| W3VVV | TS-530S | | 2020774 | 1982 | 7/1/82 | Long's Electronics |
| KOPSA | TS-530S | | 2040084 | 1982 | | |
| W2AQY | TS-530S | | 2010330 | 1982 | 2/10/82 | |
| KK3H | TS-530S | | 3080401 | 1983 | 9/1/83 | |
| K7TGL | TS-530S | | 4030123 | 1984 | 1/1/84 | Ros Electronics |



Serial Number Data Base

| | | | | | | |
|--------|---------|------|---------|------|----------|-----------------------------------|
| KK4JPF | TS-820 | | 730718 | 1973 | | |
| WA6YOU | TS-820D | | 411101 | 1976 | 10/15/76 | |
| WF4B | TS-820 | | 641383 | 1978 | | |
| VA7ZR | TS-820 | | 650993 | 1978 | 3/18/78 | Glenwood Trading Co. |
| K4DTR | TS-820S | | 822347 | 1979 | 6/20/79 | Henry Radio Center, St. Louis, MO |
| | | | | | | |
| WD8OSJ | TS-830S | | 1110554 | 1980 | | |
| KD8TNF | TS-830S | | 1050440 | 1981 | 1/16/81 | Universal Radio |
| | TS-830S | | 1092083 | 1981 | 4/28/81 | Omar Electronics |
| | TS-830S | | 1092168 | 1981 | 4/15/81 | |
| KA2SJH | TS-830S | | 2010433 | 1981 | | Adirondack Radio |
| W8RMV | TS-830S | | 2020522 | 1981 | 8/21/81 | RSE Electronics |
| | TS-830S | Gold | 2050066 | 1981 | 2/5/81 | |
| | TS-830S | | 2080386 | 1981 | | |
| K4LXY | TS-830S | | 2050741 | 1982 | 11/27/82 | AES |
| K9SID | TS-830S | | 2050774 | 1982 | 2/12/82 | Hoosier Electronics |
| W0NTA | TS-830S | Gold | 2050832 | 1982 | 1/15/82 | |
| | TS-830S | | 3010323 | 1982 | 9/19/82 | R&L Electronics |
| WA3GPU | TS-830S | | 3010827 | 1982 | 9/4/82 | |
| | TS-830S | | 3040122 | 1982 | | |
| WD8OSJ | TS-830S | | 3080247 | 1982 | | |
| KA4AQM | TS-830S | | 3080084 | 1983 | 5/3/83 | HAM RADIO CENTER |
| KK3H | TS-830S | | 3110099 | 1983 | | |
| WD8OSJ | TS-830S | | 4020054 | 1983 | | |
| KC3CIP | TS-830S | | 4020154 | 1983 | 10/12/83 | HRO |
| WC2C | TS-830S | | 4030220 | 1983 | 3/23/85 | Harrison Electronics |

Request for information...

1. Suggestions for future Forum subjects.
2. Future Forum presenters needed.

Send information to WB0IQK@ARRL.NET

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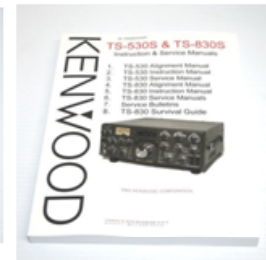
HYBRID SERVICE & PARTS

Manual Compilation Series:

Last Updated: 3/4/2019

WB0IQK – Mark – Email: wb0iqk@gmail.com Web: <https://wb0iqk.webs.com/>

This bound book is a compendium collection of Kenwood technical data covering the older series of radio's. Mainly the 520-830, although some items on the other older radio's and amplifiers are included. The information documented here was derived from Kenwood - Net activities (website information, reflector information and over the air discussions), Kenwood manuals and Service Bulletins. This Volume 1, Rev 1 is 367 pages in length covering 58 subjects. The binding binds the pages just like a typical paper back book. The book is made up using 20# white bond paper with a glossy front and rear cover.



Kenwood service and technical support:

N9HE – Steve, AZ, Email: n9he@quarked.com

WB2KNN – Steve, AZ, Email: wb2knn@quarked.com

AK4AA – David Lyndon (Old Ham Dave), NC, Email: ak4aa36@gmail.com Web: <http://oldhamdave.com/>

W0NTA – Dick, Greeley, CO, Phone: (970)381-6768 Email: dick@w0nta.com Web: <http://www.w0nta.com>

K9TW – Terry, MI, Phone: (269)663-8943 Email: waqstw46@aol.com Web: <http://www.k9tw.com>

WA8SAJ – Jeff, OH - Phone: (440)951-6406, EMAIL: wa8saj@ncweb.com Web: <http://wb4hfn.com/Services/WA8SAJ/SAJ-Repair.htm>

HamRepair.com - Cal Fisher – TX, Phone: 214.476.5107, E-Mail: info@HamRepair.com Web: <http://hamrepair.com/>

N0BXE, Affordable Radio Repair, Mike Alexander, Florence, CO, E-Mail: mike@affordableadiorepair.com Web: <http://www.affordableadiorepair.com/>

KA5IPF, Cliff Holland, Aavid, Mabank, TX 75147 Phone: 214-850-0973 Email: cliff@avvid.com Web: <http://www.avvid.com/> * (Suspended Repairs - Retired)

K6ARU, Turner Radio, Lancaster, Calif., 616-945-9097 Email: k6aru@cwo.com

Midwest Technical Services, Watertown, SD, Phone: 605-882-1706, Email: tcmooes@yahoo.com Web Page: <http://www.midwest-technical.com/>

AK4AA, Dave Lyndon, Hot Springs, NC, Phone: 828-622-0115, email: ak4aa36@gmail.com Web: www.oldhamdave.com * (Also TS-940)

KC9INK, Walley, Indianapolis, IN, Does local repair work only, Phone 317 823 9380, E Mail wallyvdoc@yahoo.com, * (Also TS-940)

K7ZS – Kevin Lahaja, Hillsboro, OR, Email: kevin@k7zs.com * (Also TS-940's)

Burghardt Radio Repair, Watertown, SD, Phone: (605) 886-7314, Email: service@burghardt-radiorepair.com Web: <http://www.burghardt-amateur.com/> * (Also TS-940's)

Aavid Electronics, 322VZ County Road 2714, Mabank, TX 75147, Phone: 214-850-0973, Email: cliff@avvid.com Web: www.avvid.com/ (Only later radio's, no hybrids)

WB0CJB, Paul Kemp, Columbia, TN, Email: pckemp4@hotmail.com (Works on most Hybrid Kenwoods, Drakes, Kenwood, etc.)

KD7DNY, Mesa, AZ, Walter Dilley, Email: walter.dilley@gmail.com web: <https://kd7dny.com>

Kenwood Parts:

K4EAA – KEN - EMAIL: ken@k4eaa.com Web: www.k4eaa.com

Kenwood Hybrid Restoration & Repair, KE7OAY, Jim Showker, Oregon Email: jim@hybridrestore.com Web: <http://www.hybridrestore.com/>

KD7DNY – Walter Dilley, Email: walterdilley@gmail.com Web: <https://kd7dny.com/> (Bought all of Bob Mansker, KE5TTF inventory)

East Coast – Phone: (800)632-3323, Web: <http://www.kenwoodparts.com/parts/index.php>

Radio Boatanchor Parts: TEL: 207-942-5745 xfmrs@roadrunner.com Web: http://tubes_tubes_tubes.tripod.com/index.html

PacParts Inc., Phone: 800-421-5080, Web: <http://www.pacparts.com/>

Nationwide Radio & Eq. Sales LLC, Mark Olson "President", 1490 Norfield Rd, Suamico, WI, 54173, Email: ke9pg@new.rr.com Phone: (920) 434-8097 Web: <http://marketplaceadviser.channeladvisor.com/StoreFrontProfiles/default.aspx?sfid=86409>

Parts Description:

Band Switch Coupler:

1. K4EAA – KEN - EMAIL: ken@k4eaa.com Web: www.k4eaa.com
2. Kenwood Hybrid Restoration & Repair, Email: jim@hybridrestore.com Web: <http://www.hybridrestore.com/>
3. East Coast P/N: D22-0409-05 - (L5) NYLON COUPLER R-5000 TS-830S TS-820S R-1000 www.eastcoasttransistor.com



TS-520, TS-820, TS-530, TS-830 Flat Pack RL1:

1. K4EAA – KEN - EMAIL: ken@k4eaa.com Web: www.k4eaa.com
2. Kenwood Hybrid Restoration & Repair, Email: jim@hybridrestore.com Web: <http://www.hybridrestore.com/>
3. Online Components, Web: <http://www.onlinecomponents.com/keywordsearch.aspx?text=nf4eb-12v>



TS-520, TS-820 Antenna Relay:

1. Kens Electronics, Web: <http://www.kenselectronics.com/> P/N: 401013-S term 12VDC replace MH4P-12VDC in T599D, TS520S, TS820
2. Kenwood Hybrid Restoration & Repair, Email: jim@hybridrestore.com Web: <http://www.hybridrestore.com/>



Parts Description:

Band Switch Coupler:

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3. East Coast P/N: D22-0409-05 - (L5) NYLON COUPLER R-5000 TS-830S TS-820S R-1000 www.eastcoasttransistor.com



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2. Kenwood Hybrid Restoration & Repair, Email: jim@hybridrestore.com Web: <http://www.hybridrestore.com/>
3. Online Components, Web: <http://www.onlinecomponents.com/keywordsearch.aspx?text=nf4eb-12v>



TS-520, TS-820 Antenna Relay:

1. Kens Electronics, Web: <http://www.kenselectronics.com/> P/N: 401013-S term 12VDC replace MH4P-12VDC in T599D, TS520S, TS820
2. Kenwood Hybrid Restoration & Repair, Email: jim@hybridrestore.com Web: <http://www.hybridrestore.com/>



HYBRID High Voltage Capacitor replacement kits: (These are Nichicon 150uF @500VDC caps.)

1. K4EAA – KEN - Web: www.k4eaa.com
2. Kenwood Hybrid Restoration & Repair, Web: <http://www.hybridrestore.com/>
3. Mouser number is 647-LGN2H151MELC25. Web: <https://www.mouser.com/>
4. Allied number is 70249746. Web: <https://www.alliedelec.com/>



Misc. Items:

TS-830 Rectifier board relay – Source unknown at this time...

TS-940 Relay Omron G6E134P-ST-US-DC12 , Digkey Panasonic part # 255-1473-ND

TS-520, 820, 530, 830 Drive Sprockets, email: NR6C@roadrunner.com , Web: <http://nr6c.com/sprocket.htm>

TS-520/820 Paddle Switch Handles, KF7QGU, eBay user: [id_dude](https://www.ebay.com/str/id_dude). Search for "Kenwood Paddle Switch Handles"

TL-922 upgrades, Kessler Engineering LLC, Ph: 937-458-3173, email: don@KesslerEngineeringLLC.com, Web: www.KesslerEngineeringLLC.com

TS-830&530 Remote VFO Cable Kit, Kenwood Hybrid Restoration & Repair, Web: <http://www.hybridrestore.com/>

HYBRID High Voltage Capacitor replacement kits, K4EAA – KEN - Web: www.k4eaa.com and Kenwood Hybrid Restoration & Repair, Web: <http://www.hybridrestore.com/>

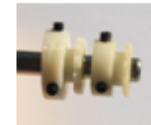
HYBRID Power Cords, Kenwood Hybrid Restoration & Repair, Web: <http://www.hybridrestore.com/>

HYBRID Cabinet Screw Kits, K4EAA – KEN - Web: www.k4eaa.com and Kenwood Hybrid Restoration & Repair, Web: <http://www.hybridrestore.com/>

HYBRID Final Cage Repair Kits, K4EAA – KEN - Web: www.k4eaa.com and Kenwood Hybrid Restoration & Repair, Web: <http://www.hybridrestore.com/>

HYBRID Cabinet Feet, Kenwood Hybrid Restoration & Repair, Web: <http://www.hybridrestore.com/>

HYBRID SK Fets and Transistors, Phone: 800-543-3568 –Web: <http://www.ceitron.com/>



Cabinet Paint - ACE Hardware, Rust Stop, Machine & Implement, Ford Gray Gloss, Item# 082901171393

VFO STABILIZER:

1. Cumbria XLOCK – **No longer in business.**
2. K4DPK VFO Stabilizer - PHILLIP W CHAMBLEY, 28 E CAMELIA RD NE, ROME, GA 30161



KENWOOD My Web Site at: www.wb4hfn.com

[WB4HFN Home Page](#)

Kenwood Net Home Page

Brochures and Flyers
Articles & Information
Equipment Manuals
Designed QSL Cards
Magazine Advertisements
Dayton Hamvention Forum

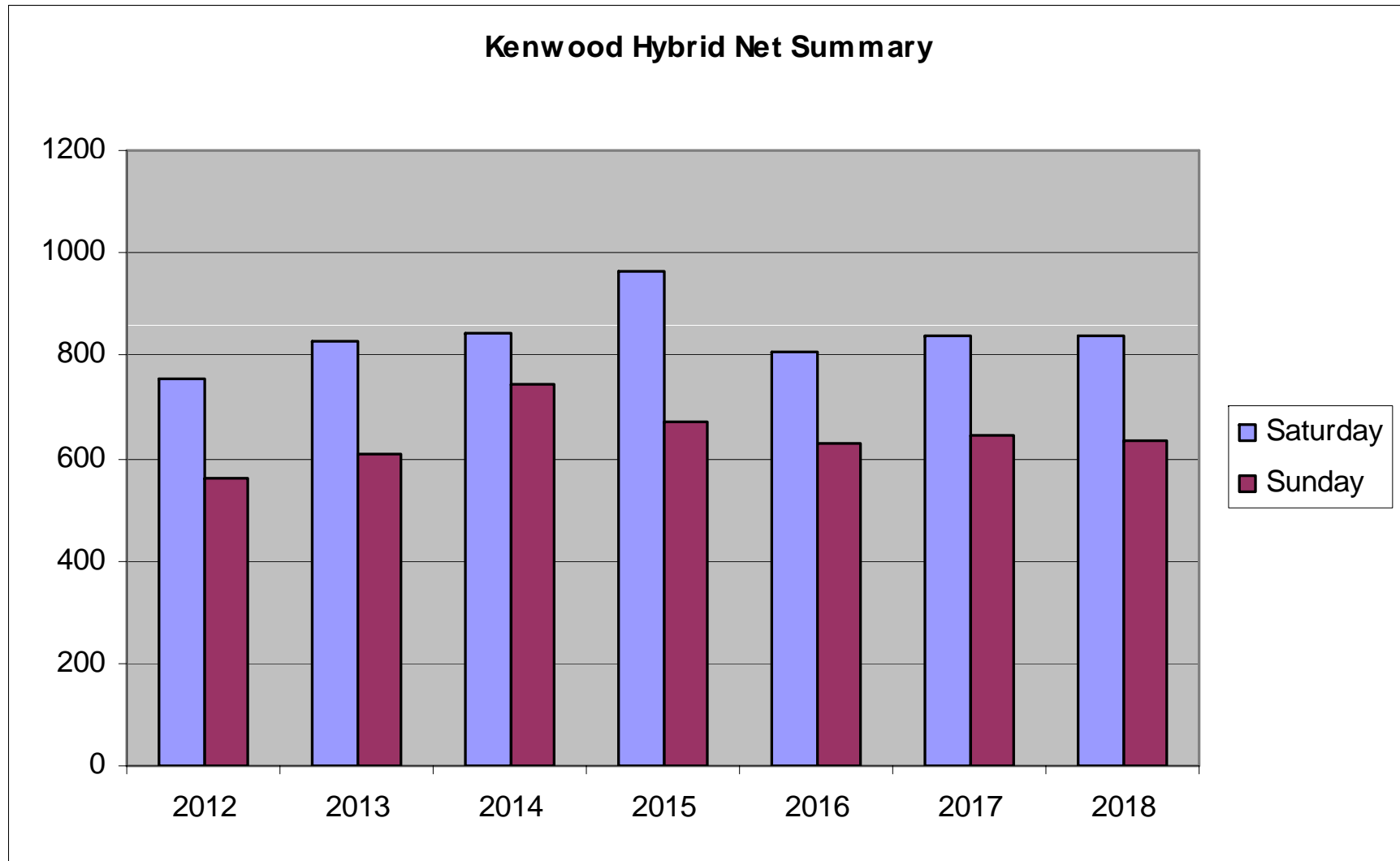
Kenwood Hybrid Radio Nets:

Saturday - 7.235 MHz @ 3:30 EST/EDT

Sunday - 14.316 MHz @ 18:00 GMT

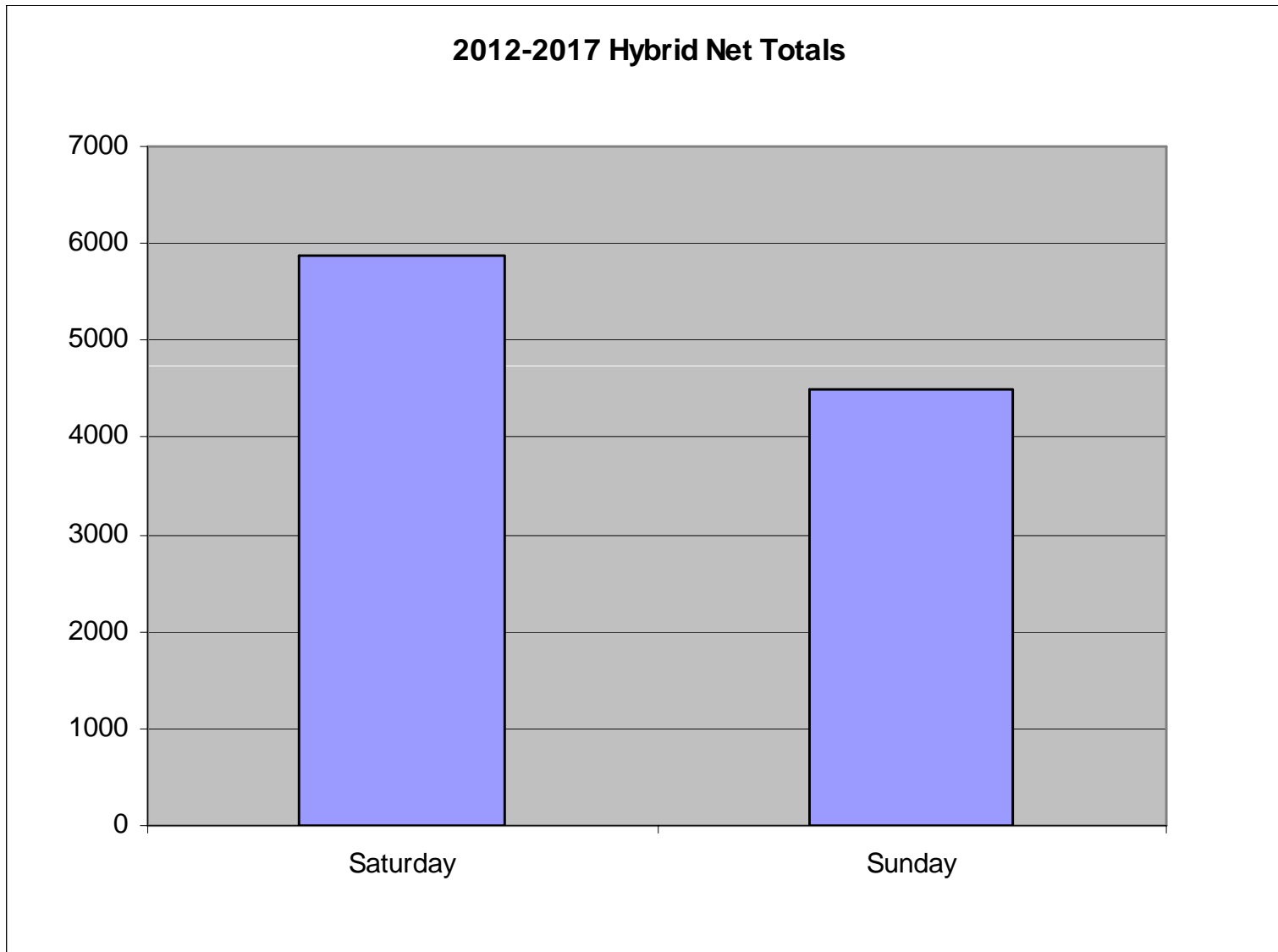


- Kenwood Hybrid Legacy Radio Nets
 - Saturday, 7.230 – 7.235mhz @ 3:30 pm Eastern
 - Sunday, 14.316 mhz @ 18:00 z
 - Yahoo Kenwood Group
- Hybrid Net Web Site:
 - www.wb4hfn.com
- Yahoo Kenwood Group
 - https://groups.yahoo.com/neo/groups/TS-520_820_530_830/info

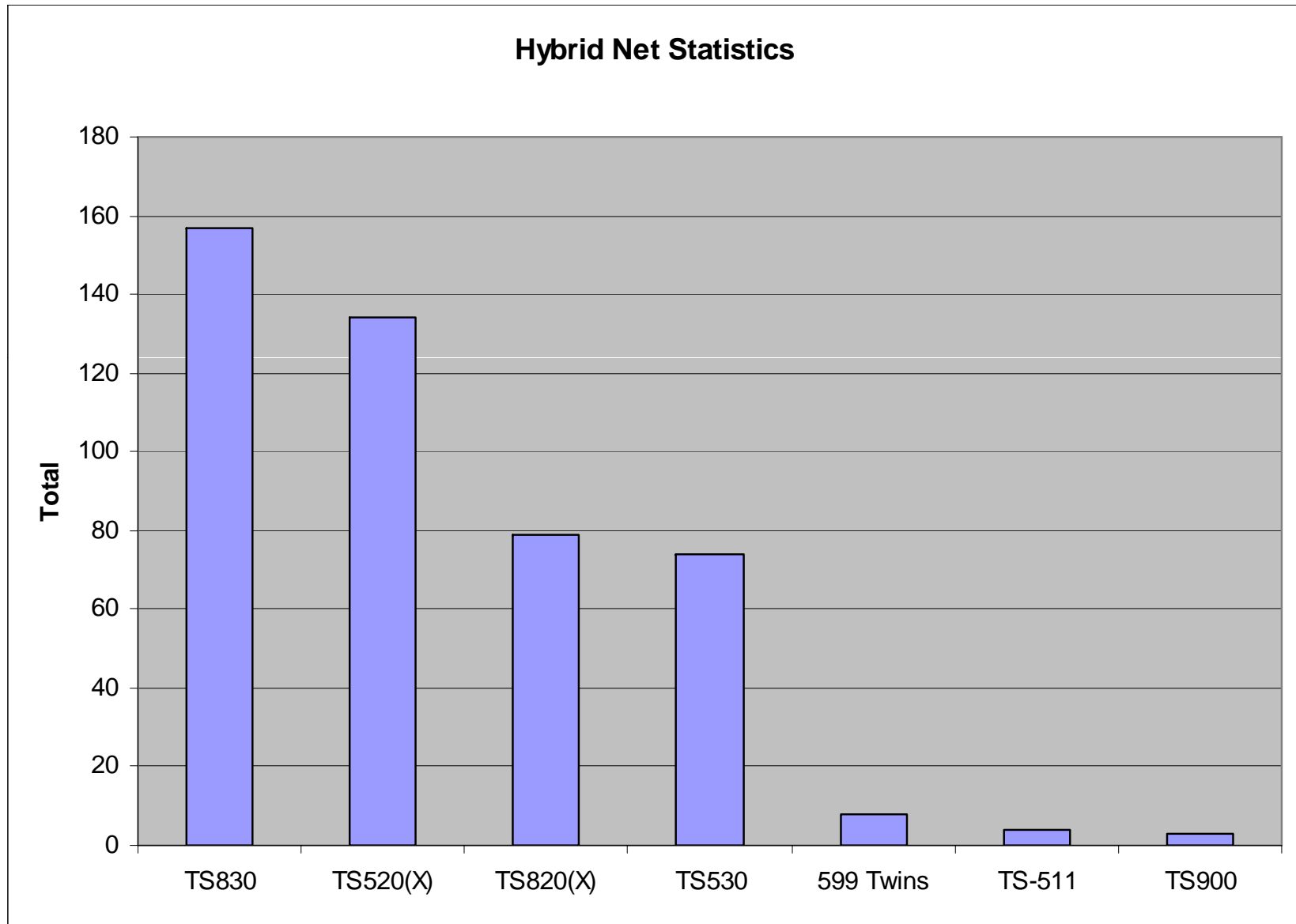




Kenwood Hybrid Net Totals



Hybrid Net Check-in By Radio Statistics



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Rescuing a Kenwood T599A Transmitter from the Landfill

Adding VHF Converters to the R599A Receiver

Presenter - Mr Jan Servaites (N8CBX)

Topics:

1. Shipping damage...now what?
2. Should it be repaired?...Yes
3. Freshen it up with new caps
4. Some tips & hints
5. VHF converters for the R599
6. Panadapter addition to the R599



Hamvention Forums 2019

Session: Kenwood Hybrid Radio Legacy

Location: Room 5, 10:30 am – 11:30 am

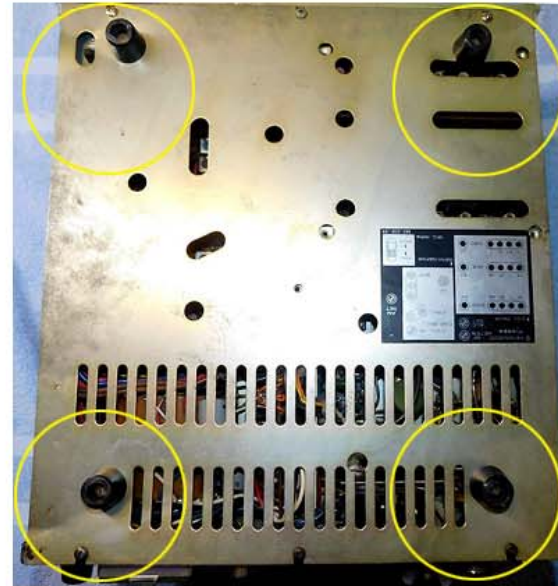
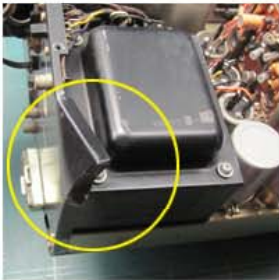
Date: Saturday, May 18 2019

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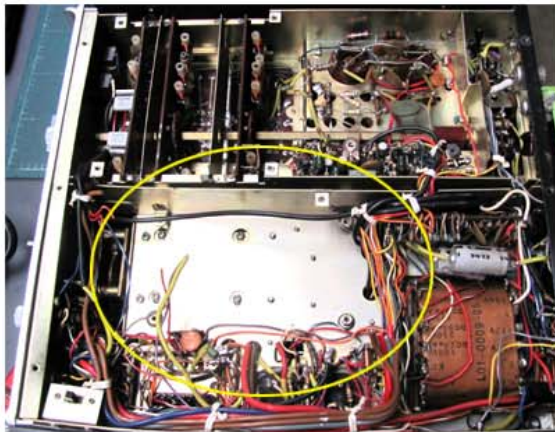
A typical flea market purchase started out like this...

I was looking to buy a T599A for my R599A receiver and found one for about \$50 that had some shipping damage and was clean, but.....Well, the pictures tell the rest of the story:

Shipping damage to chassis



OH..NO! Generator Board is missing



**Someone harvested the board???!
(They thought it was beyond repair?)**

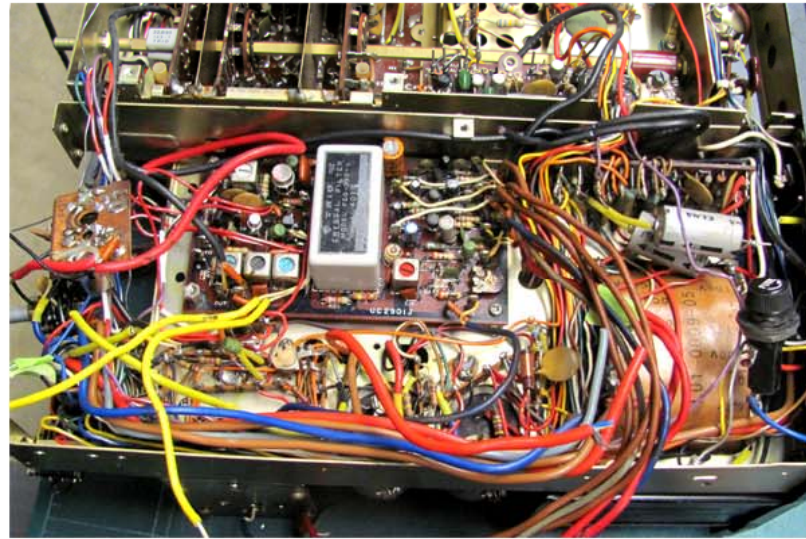
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Now What...Repair?...or...Part-out?...or...Landfill?

Should it be repaired?....Yes

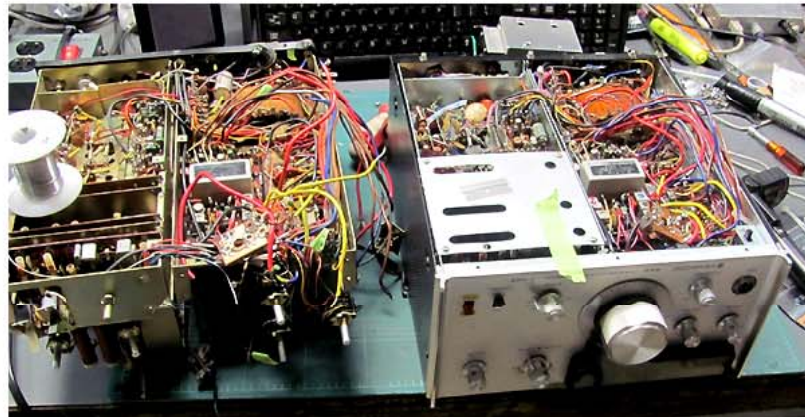


All sheet metal straightened



Walter Dilley KD7DNY provided the missing board

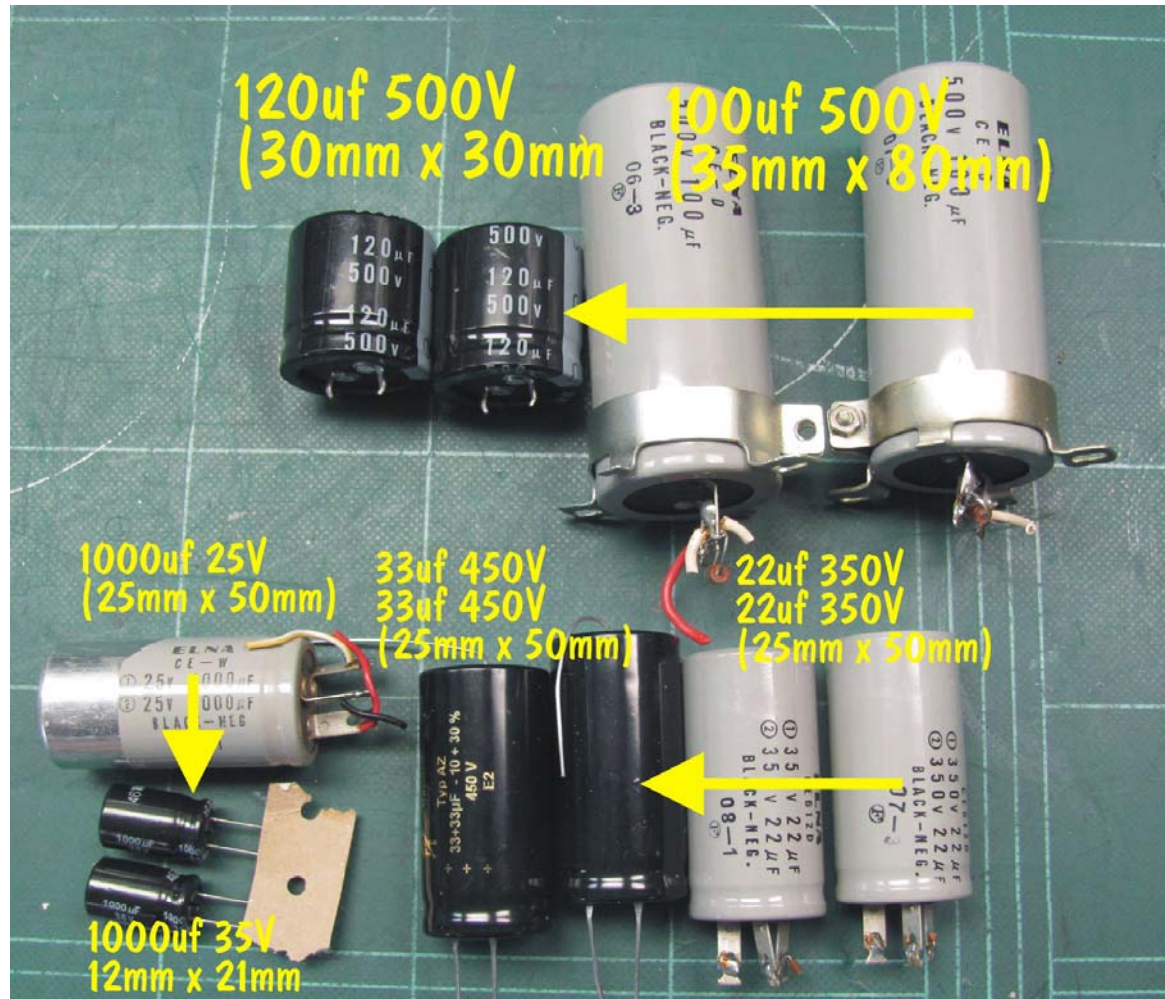
It helps to have a second T599 to locate where all the wires go...This was the most difficult task in this effort



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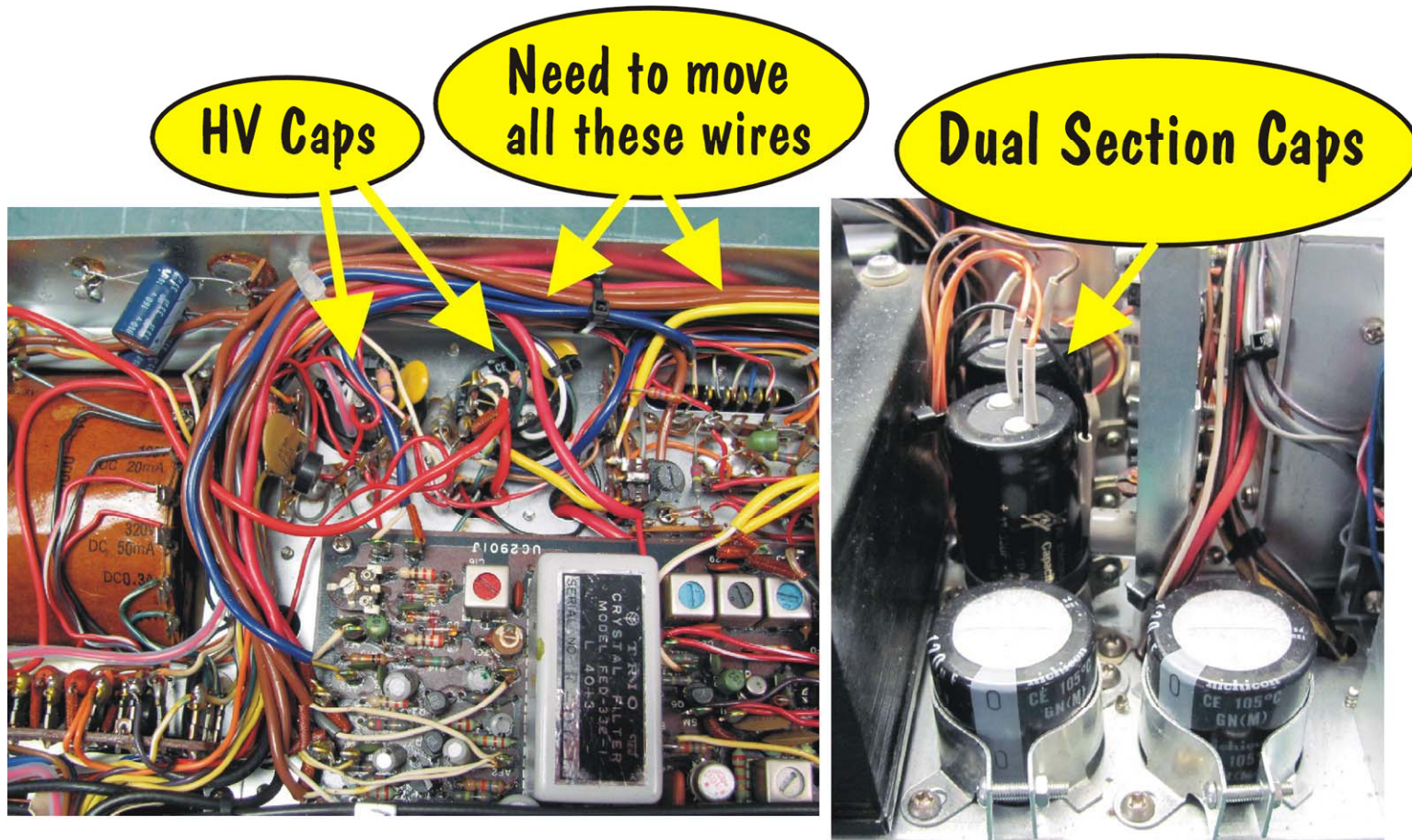
With those repairs done, let's replace the filter capacitors too

(Dual Section, Screen Capacitor: 33/33 μF @ 450 VDC Antique Electric Supply, p/n 001536, \$9.95)



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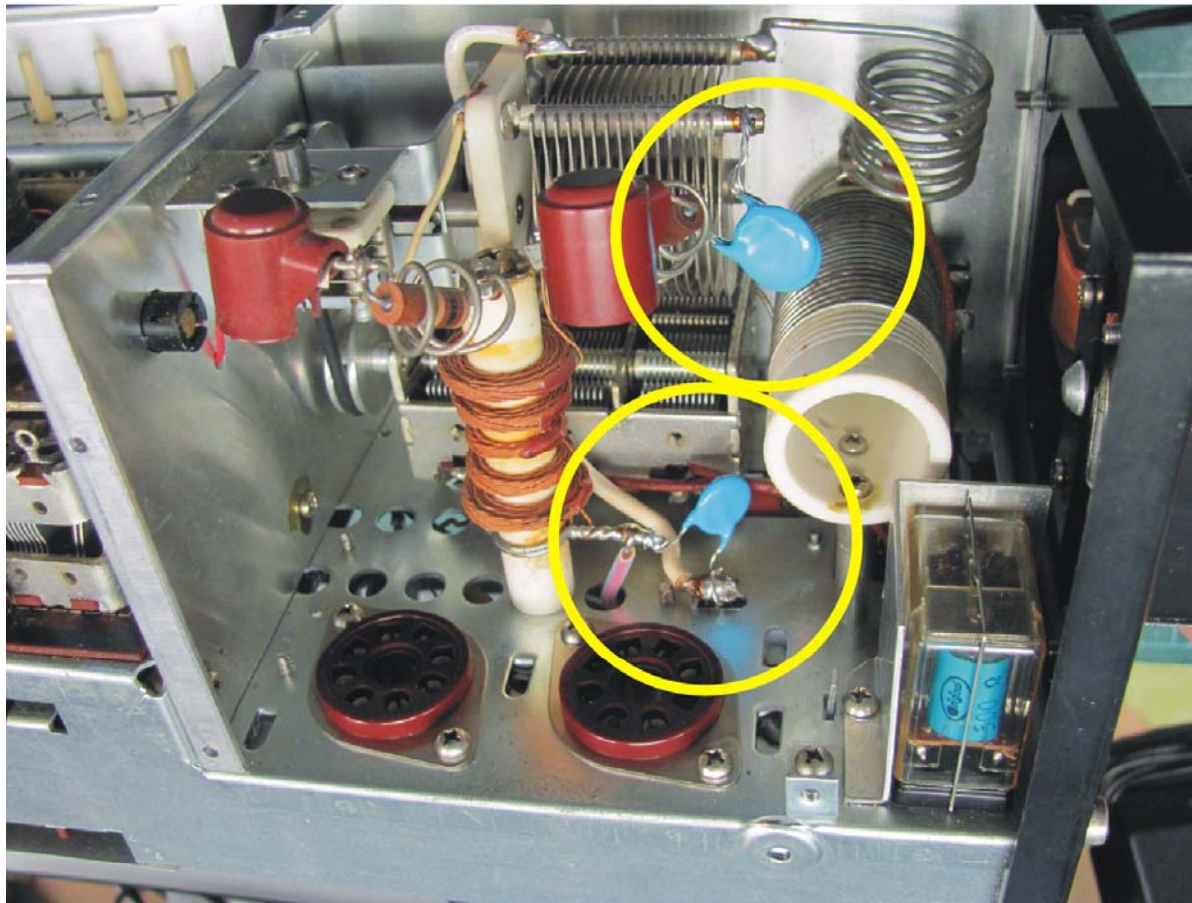
HVPS & LVPS, screen & grid capacitor replacement



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Final PA capacitor replacement

K4EAA's Final Cage Repair Kit - FR-100

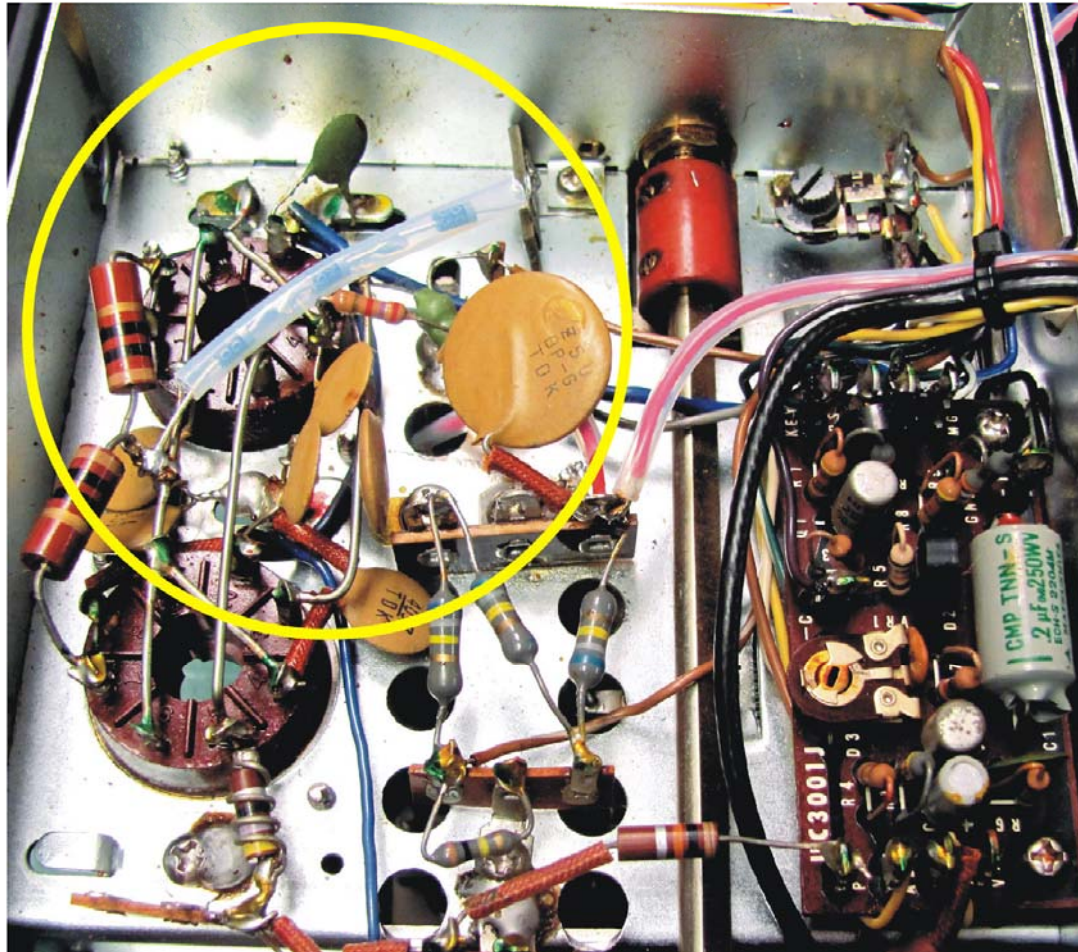


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Tips & Hints

Cathode Resistor Protection Diodes

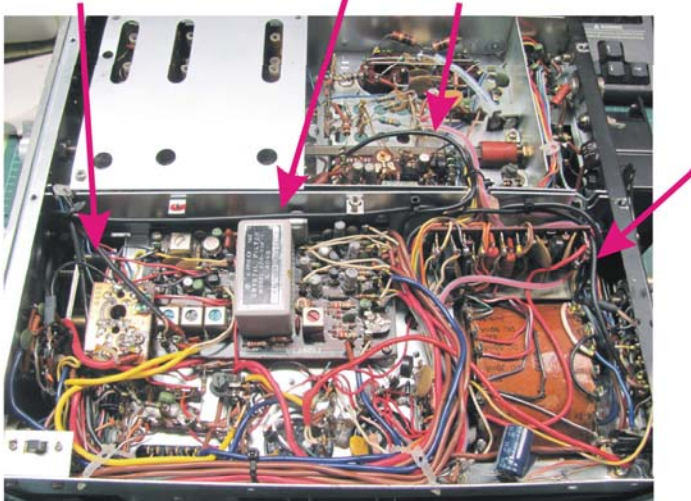
Three each, 1N4007 diodes; Diode's band to ground



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Tips & Hints

Original coax was fragile and broken; All replaced with RG-174



Some more tips:

- Original coax is 75 ohm; 50 ohm seems to work fine
- It's beneficial to replace the bias pot, VR5 50k. Mouser has them for under \$5.
- Follow the sequence 3.5, 28.5, 21, 14, 7 (bands) when tuning the coil packs. They interact together.
- When Transvertor SW is **ON**: Screen voltage is **OFF**

T599A back in service again

A working T599A and it's twin R599A...Yahoo!



Another one saved from the landfill

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VHF Converters

Optional accessories for the R599, R599A, R599D: 2M & 6M VHF converters

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CC-29A

2m CRYSTAL
CONTROLLED CONVERTER
R-599A INSTALLATION
INSTRUCTIONS

Manufactured by
TRIO ELECTRONICS, INC., TOKYO, JAPAN

1. INSTALLATION

Prior to installation, check whether the package contains the following accessories:
SO-239 coax receptacle 1
Resistor (1 k Ω , 1/4W) 1
Screws (3 X 6) 6
Nuts 2
Hexagonal bushings 4
Mount the printed board of the 144 MHz crystal converter in position on the top of the R-599A receiver chassis. This can be done by merely opening the top lid of the cabinet, but work will be easier if this cabinet is dismantled in advance. Then remove the blanking plate of the 144 MHz ANTENNA hole on the rear panel. Insert the SO-239 coax receptacle in this hole. A coaxial cable is connected to terminals 1 and 2 of the printed board. Connect the other end of this cable with the receptacle by soldering. Installation is finished when the MT7 pin plug has been inserted in J1 of the fixed channel unit (X50-1140-10).



Fig. 1 External View of CC-29A

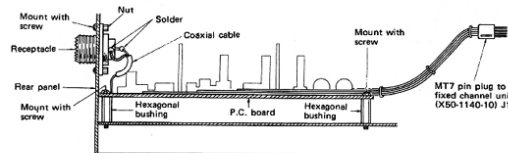


Fig. 2 Mounting of P.C. Board & Receptacle

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CC-69A

6m CRYSTAL
CONTROLLED CONVERTER
R-599A INSTALLATION
INSTRUCTIONS

Manufactured by
TRIO ELECTRONICS, INC., TOKYO, JAPAN

1. INSTALLATION

Prior to installation, check whether the package contains the following accessories:
SO-239 coax receptacle 1
Resistor (1 k Ω , 1/4W) 1
Screws (3 X 6) 6
Nuts 2
Hexagonal bushings 4
Mount the printed board of the 50 MHz crystal converter in position on the top of the R-599A receiver chassis. This can be done by merely opening the top lid of the cabinet, but work will be easier if this cabinet is dismantled in advance. Then remove the blanking plate of the 50 MHz ANTENNA hole on the rear panel. Insert the SO-239 coax receptacle in this hole. A coaxial cable is connected to terminals 1 and 2 of the printed board. Connect the other end of this cable with the receptacle by soldering. Installation is finished when the MT7 pin plug has been inserted in J2 of the fixed channel unit (X50-1140-10).



Fig. 1 External View of CC-69A

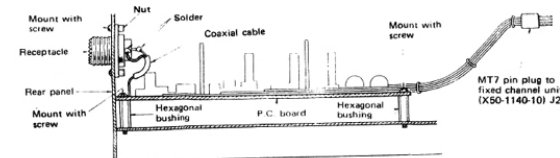
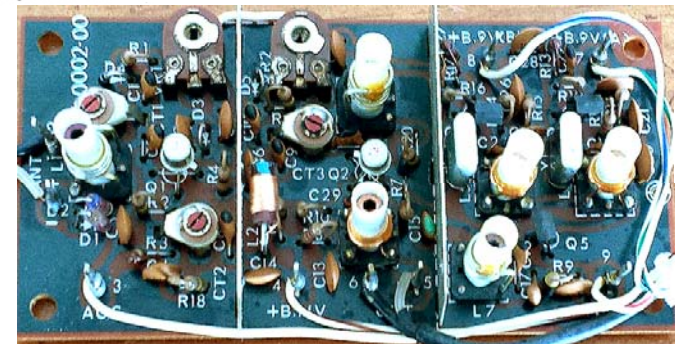


Fig. 2 Mounting of P.C. Board & Receptacle



R599A/D used a convenient 7-pin plug. (Plugs not available anymore. They are NOT the same as the VFO plug)

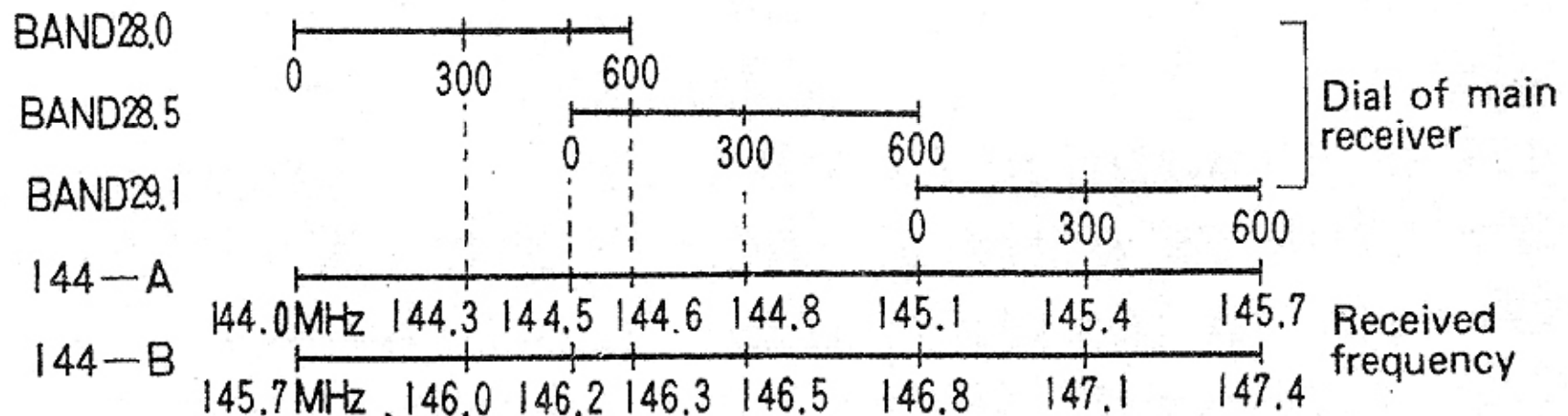
R599 used soldered in wires



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Here is how the converters operate in the R599/A/D receivers

Using the three 10M band selections and two independent LO channels "A" and "B" are necessary to cover the entire VHF band of 2M & 6M. An AGC circuit is used to prevent overload under high input signals (It is also possible to receive without the AGC function)



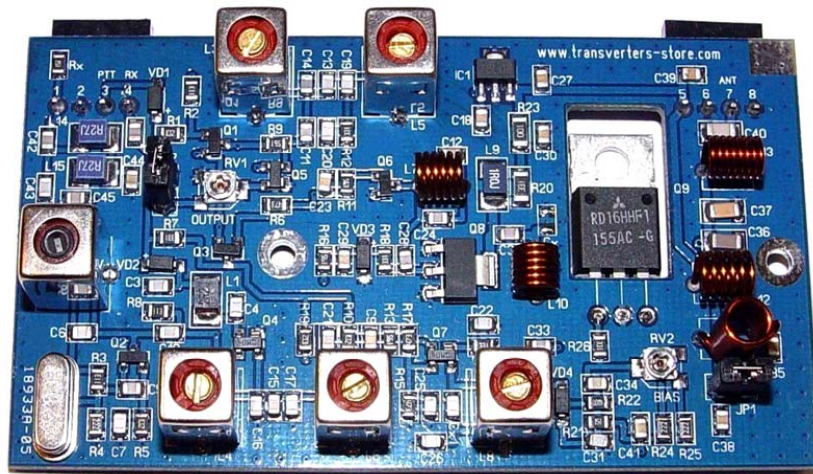
Relation of Received & Local Frequencies

| Channel | Received freq. (MHz) | Converted output (MHz) | Local OSC freq. (MHz) | Remarks |
|----------|----------------------|------------------------|-----------------------|---------------------------|
| 144MHz—A | 144.0~145.7 | 28.0~29.7 | 116.0 | 38.666 MHz (Tripllicated) |
| 144MHz—B | 145.7~147.4 | 28.0~29.7 | 117.7 | 39.233 MHz (Tripllicated) |

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It is hard to find these Kenwood converters and they are expensive... **What to do?**

Russian made “Transverters” from
<http://transverters-store.com> or Ebay
 \$37 shipped



However, it has just one LO, so only Band “A” is used (only ½ of the VHF band is useable).

(Note – If you use the 146 MHz board, you get Band “B”)

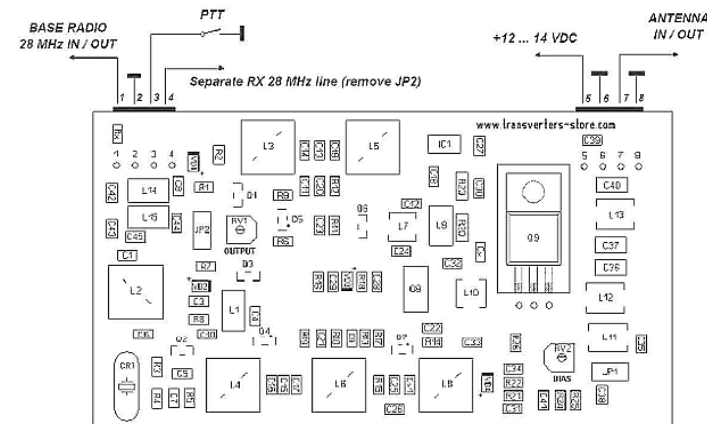
**Other frequency boards are available too:
 40, 50, 58, 70, 144, 146, 222, and 432 MHz**

144/28 MHz TRANSVERTER BOARD

With this Transverter board you can work on 2 meter band using any type of the HF radio that has 10 meter band. It would work the whole 2 meter band at 144 to 148 MHz if your base radio has the 28 to 32 MHz band. Most HF radios have 28 to 30 MHz band so in this case it means you would have the 144 to 146 MHz band. It works any modes such SSB, CW or FM if its available in your radio.

Technical specifications

- RF range - 144 ... 148 MHz
- IF range - 28 ... 32 MHz
- IF input power - 1 ... 50 mW (0.05 W max.) or 0 ... 17 dBm
- LO frequency - 116 MHz
- Output power - 10 W
- RX gain - typ. 20 dB
- Noise figure - typ. 1.0 dB
- Image rejection - typ. 70 dB
- PTT control - Contact closure to the ground
- Supply voltage - +13.8 VDC (+12 ... 14 VDC)
- Current consumption - typ. 1.3 A (TX)



Pinout of the connectors:

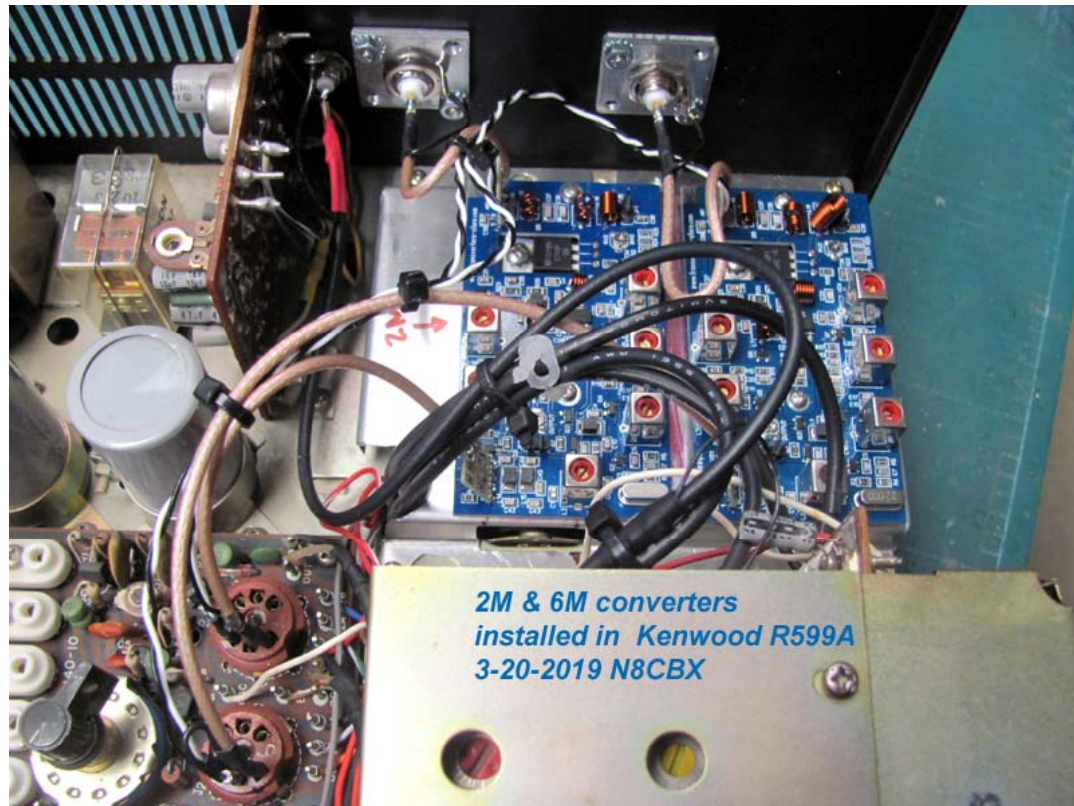
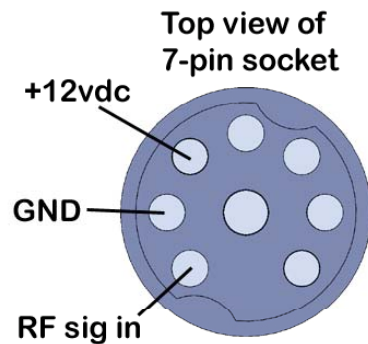
1. IF 28 MHz transverter input/output line
2. Ground
3. PTT line (ground it to switch the Transverter to the TX mode)
4. Separate RX 28 MHz line (remove JP2)
5. +12 V
6. Ground
7. Antenna 144 MHz
8. Ground

KENWOOD

They work great in my Kenwood R599A receiver

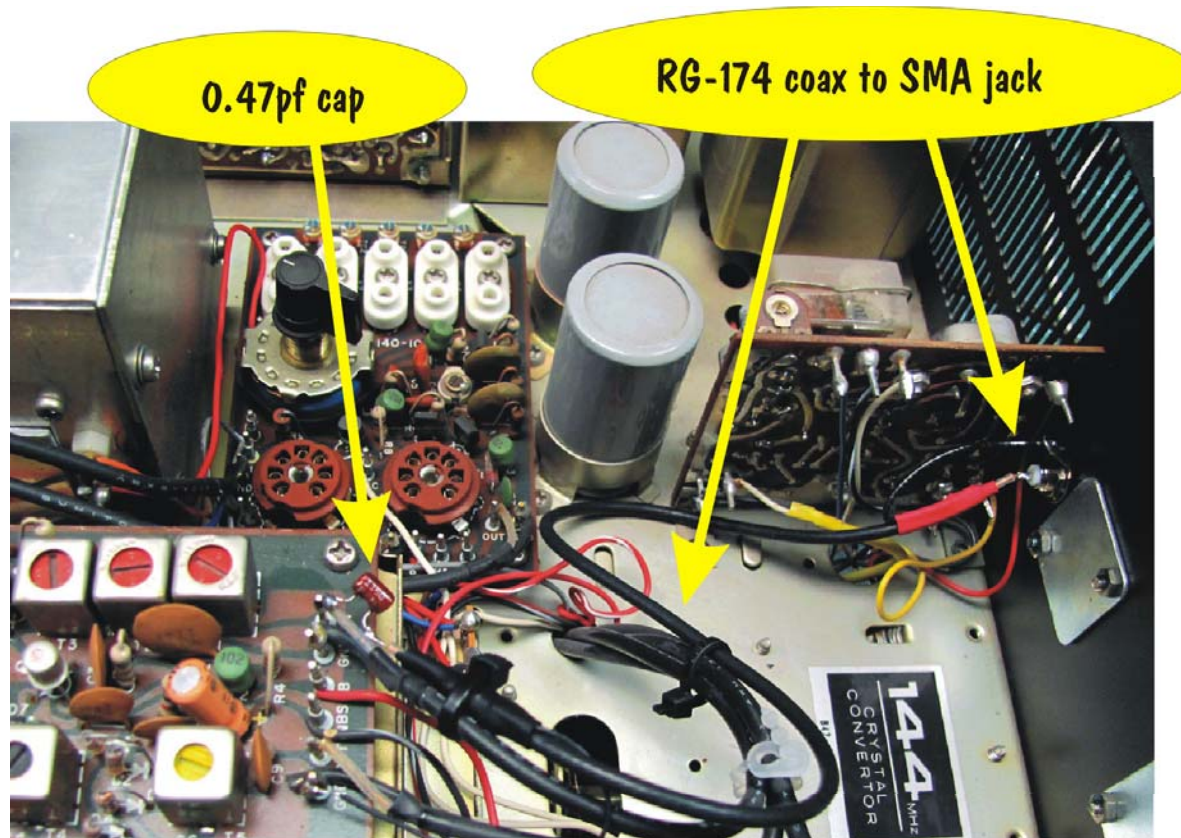
I used some Cannon, gold plated male connector pins (0.180" dia.) to insert into the 7-pin socket for the 28MHz IF signal and for power (+12vdc & GND).

A mounting plate, made of 0.032" aluminum sheet metal, is need to mount the boards to the R599 chassis.



KENWOOD

Add a panadapter display, signal jack



Details on installing are found in SM-220 manual

*Thank You!....73 from **N8CBX***

KENWOOD

- The following material was provided by Terry Wagoner, K9TW and myself, WB0IQK.
- <http://www.k9tw.com/>
- Terry has been servicing Kenwood Hybrid radios for just over 13 years.
- Many problems can be fixed by performing a good visual inspection.

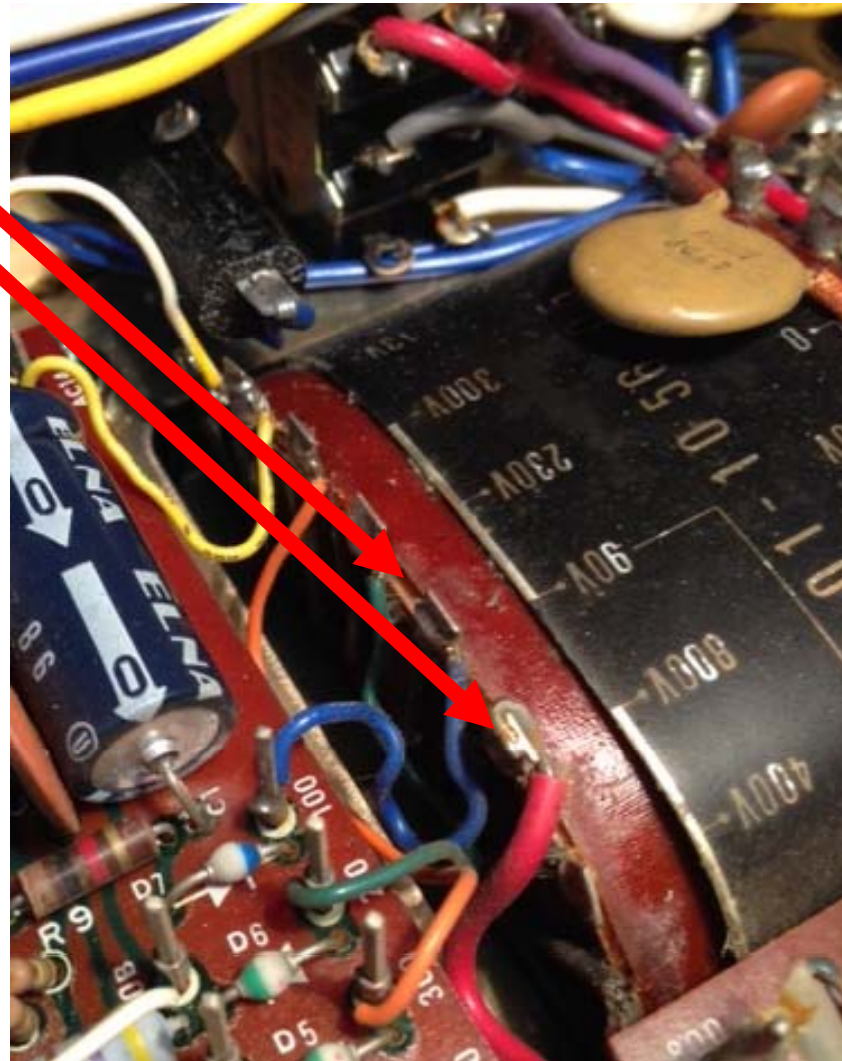
KENWOOD A GOOD QUALITY MAGNIFYING DESK LAMP



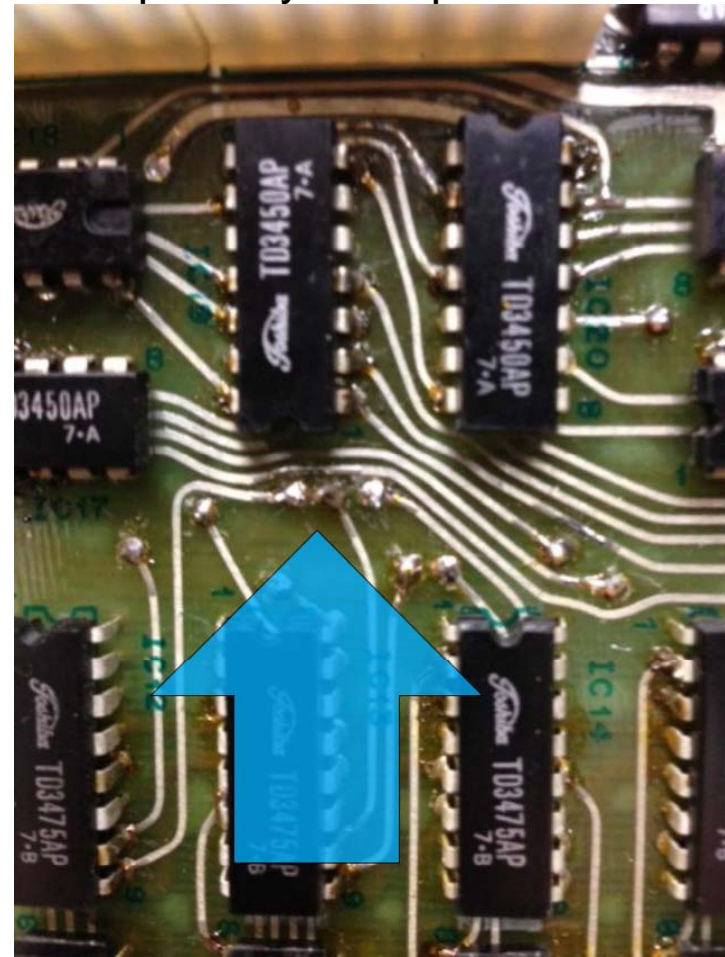
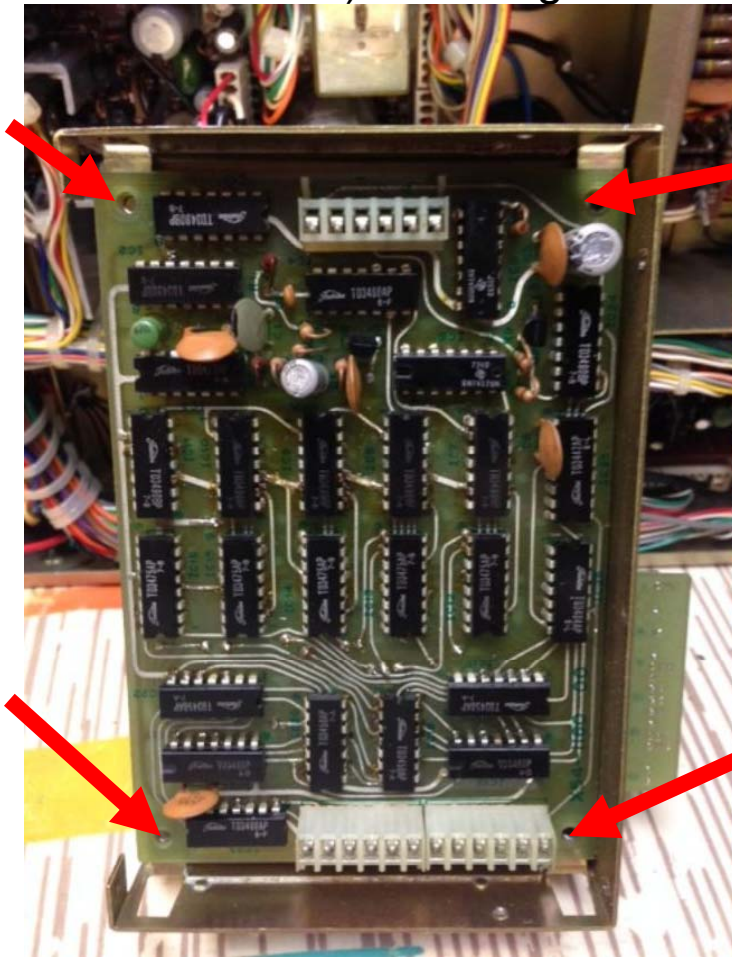
KENWOOD

OBSERVING THINGS THAT SHOULD
HAVE BEEN SOLDERED BUT NEVER
WERE.

I FOUND THE
800V & 90V
WIRES ON A
TS820S THAT
WERE
NEVER, EVER
SOLDERED.
NOT A BIT OF
SOLDER ON
THE WIRES
OR LUG



TS-820S DG-1 Digital Display. Previous work poorly performed. Missing pc board hold down screws. Very poor solder reflow of the vias (plated thru holes) including cold solder joints and partially lifted pads.



KENWOOD

Factory Mistake

- TS-830S VBT 8375 carrier oscillator choke L14 poor as built. Resulting in intermittent Oscillator operation. Vari-cap diode D26 was bent over preventing the full insertion of L14 choke lead thru its pin pad. Had to remove and replace D26 with longer leads to allow L14 to fully seat flush on the board prior to soldering.



KENWOOD

Loss of Bias Damage

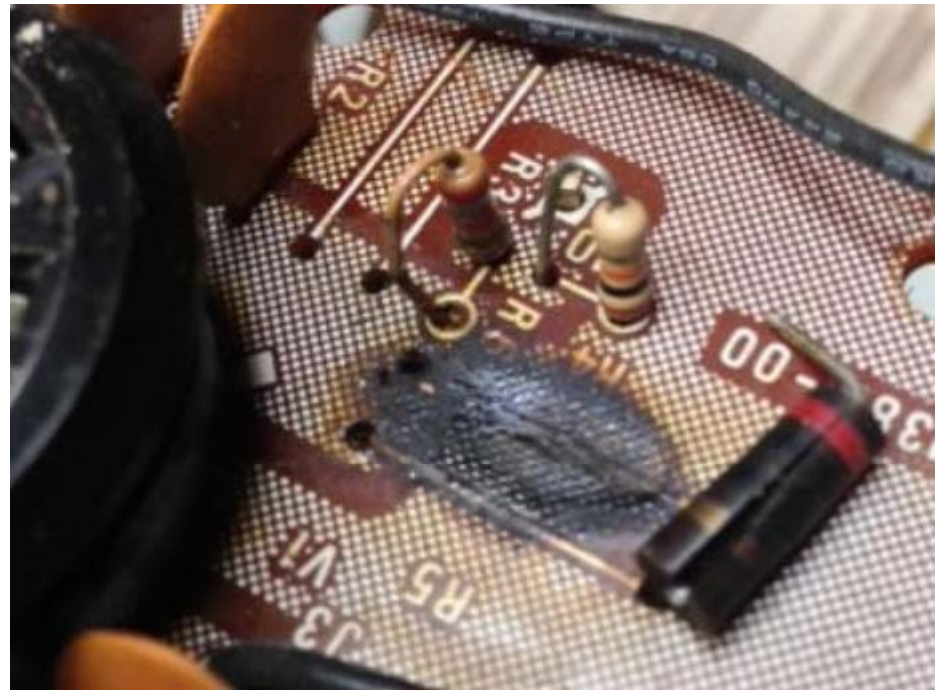
- TS830S loss of operating bias voltage. Final tubes draw very heavy plate current, glow bright orange, melt hole in anode surface, soften glass envelope and suck in, and cathode resistors destroyed and pc board substrate with deep carbon track. Must replace the Final board. Loss of operating bias due to dirty/bad rear panel bias voltage adjustment pot.



KENWOOD

Final Cage Damage

- Bad Cathode resistor caused pcb board damage





Shipping Damage

- Poorly packed TS520S results in badly damaged VFO from impact blow to the VFO knob. This blow is transferred to the VFO input shaft and the reduction gear train and bends the frame.
- Need to have adequate crush zone on all 6 sides of the radio with energy absorbing materials to decelerate the radio and to cushion it when it is oriented with the front panel facing down with entire weight of the radio resting on the VFO knob.
- Solid Styrofoam sheets (very commonly used) make the card board sides of the shipping carton more resistant to missile penetration, but do nothing to decelerate the radio. Would you like your face to hit the air bag in your car or a 2 inch thick Styrofoam sheet?
- Kind of like placing an egg in a box made of 1/4 inch steel plate and dropping it 3 feet and expecting egg to survive. Now repeat test and wrap egg in couple of inches of large cell bubble wrap and place in same steel box and drop again. This time egg will survive. People argue with me all the time. I frequently hear "I have been packing and shipping things for years". So you buy a Hybrid off Ebay for \$350.00 and then spend additional \$400.00 to \$500.00 to have it serviced and you wont spend \$40 for proper packing materials!

KENWOOD

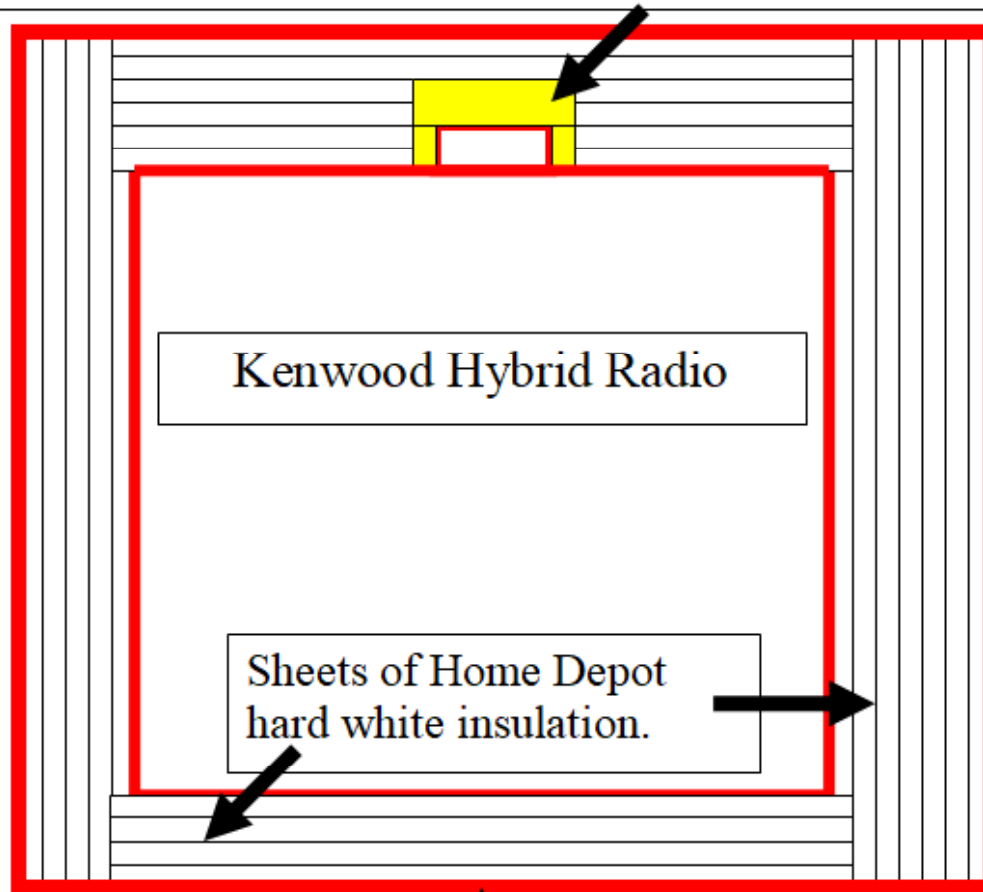
Shipping damage



KENWOOD

Proper Shipping Method

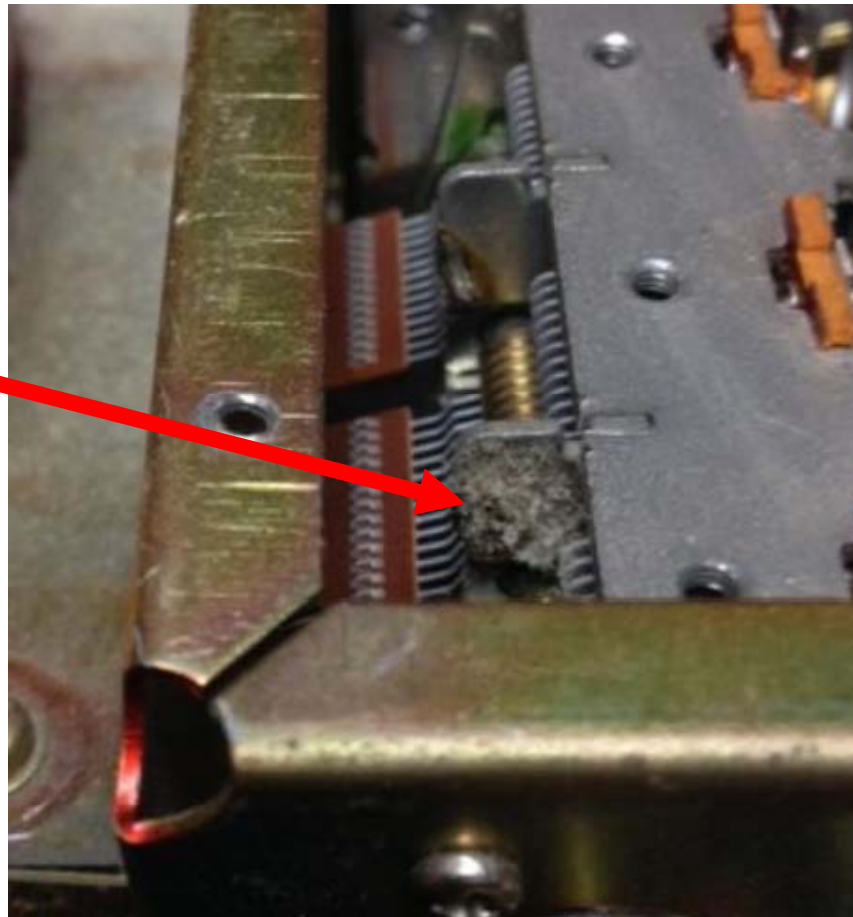
Recessed Area Stuffed with foam shipping pellets



Federal Express Box :23 x 17 x 12

- Wasp nest/egg casing bridging Plate Load capacitor plates of TS-830S

5 minute
inspection
would have
corrected.



KENWOOD

Dust & Dirt

- TS-830S PA Cage dirt, dust, animal hairs, cob webs. Real good way to have Plate Tank and Plate Load cap arc overs!

5 minute
inspection
would have
corrected.



- TS-820S VFO with hard obstruction encountered when turning the VFO knob. Anti-back lash spring not properly installed when gear train was dis-assembled to change analog dial lamp. Spring is inserted in small holes drilled in two gear faces and gears turned to introduce spring tension and then gears mated with pinion gear and secured in place. No need to remove this assembly to change analog dial lamp.



KENWOOD

Incorrect Packing Material

- TS830S 12BY7A Driver tube ejected during shipping. Little to no energy absorbing materials on all 6 sides of this radio. Crushed news print is worthless. Up Arrow Signs and Fragile signs on the carton are meaningless.



KENWOOD

Bad Factory Assembly

- TS-820S Poor as-built. Molex connectors not fully seated prior to soldering at factory. Ultimately will end up presenting intermittent condition. TS-820S is worst for all kinds of molex connector problems including what you see here, bad crimps on lead wire connectors, weak spring temper on taper wedge crimp connectors, broken off taper wedge floating inside the molex connector body etc.



KENWOOD

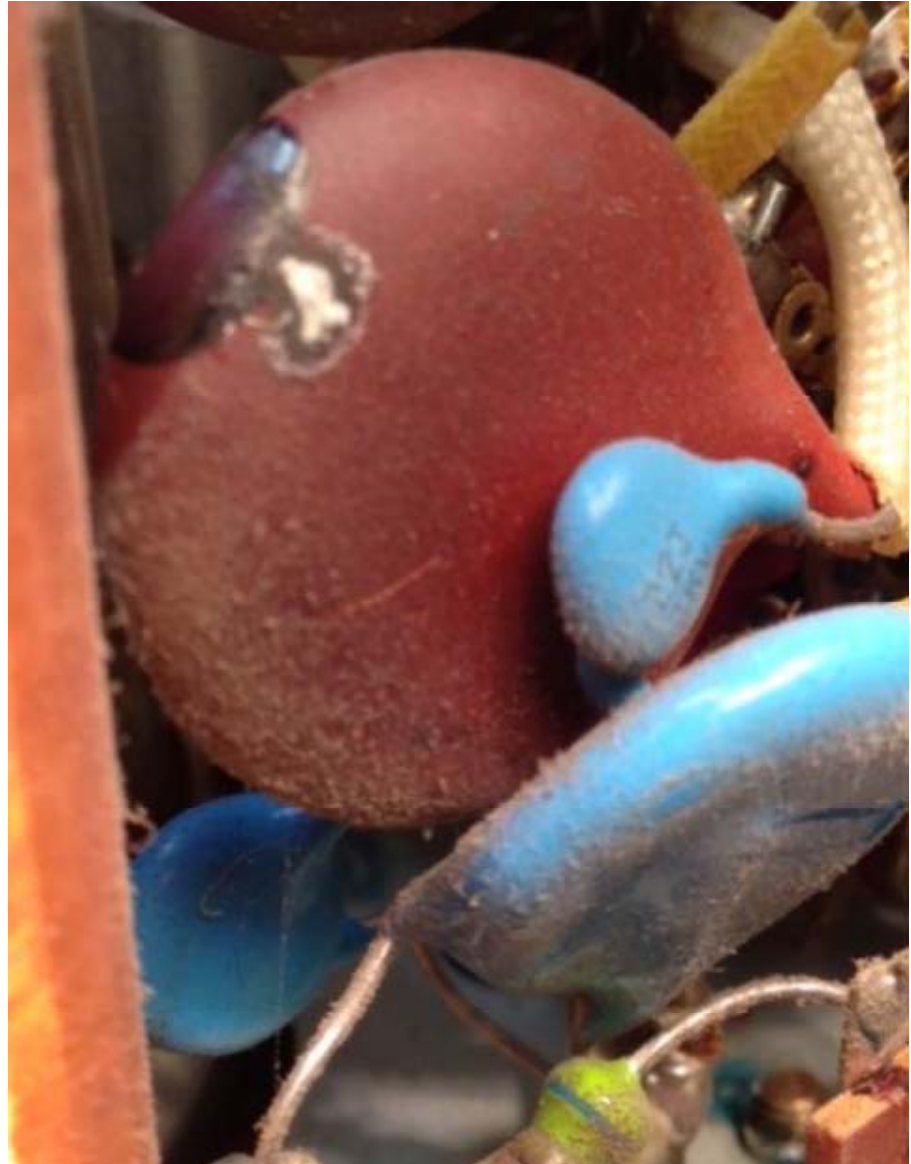
Bad As Built Molex connector not flush on board
before soldering



KENWOOD

Final Cage Damaged Cap

- Bad Padder Cap



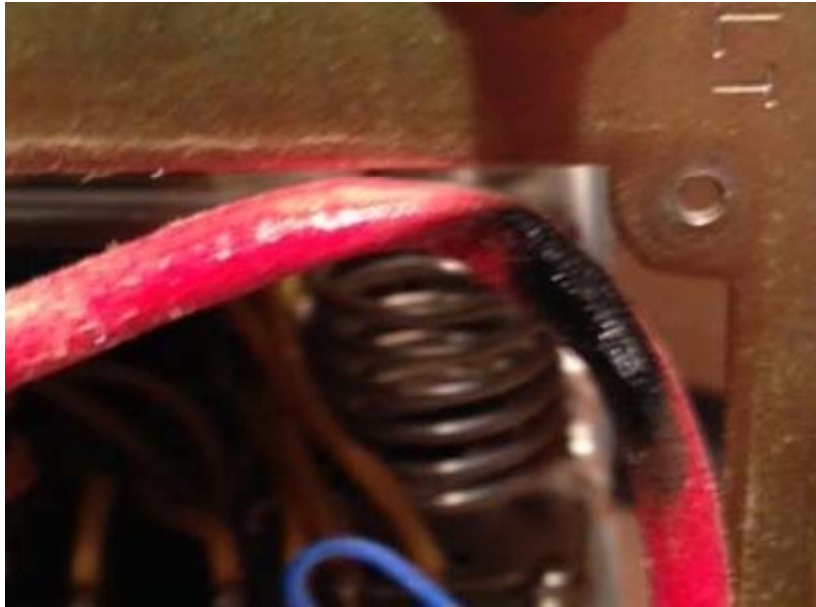
KENWOOD

BAD VHF CHOKE



KENWOOD

Final Cage Cooling Fan Motor Leads



KENWOOD

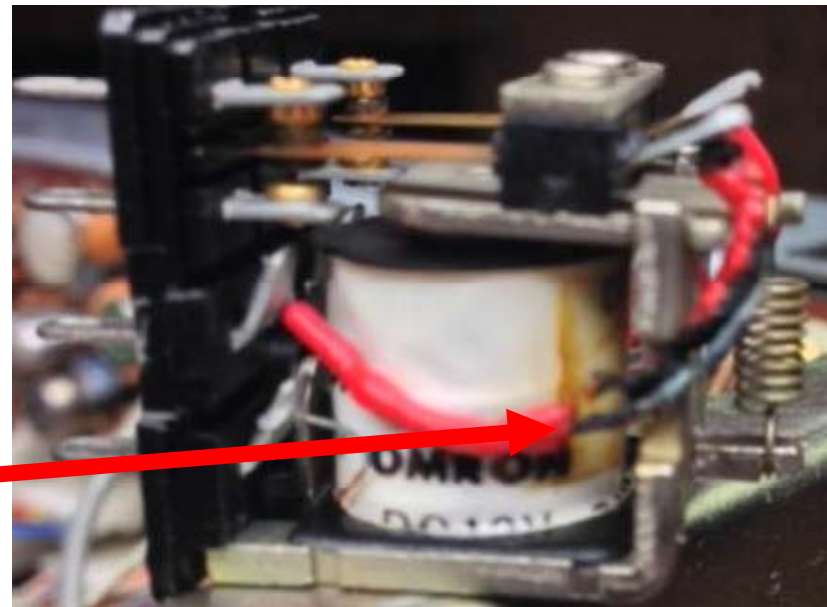
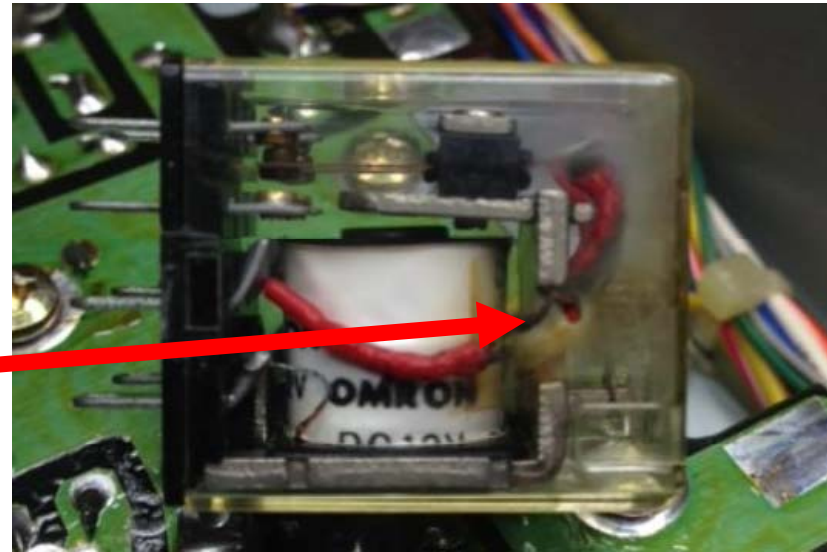
Damaged 80/40 meter band switch
padder capacitor



KENWOOD

Excess RF Feed into Antenna Connector

- Heres what happens when you bring home that hamfest linear and hook it up on bench and accidentally back feed your TS830S SO-239 antenna connector. The Omron MX-2P Ant TR relay wont like it not to mention your L41 Ant step up transformer



KENWOOD

Pi-network Plate Block Cap

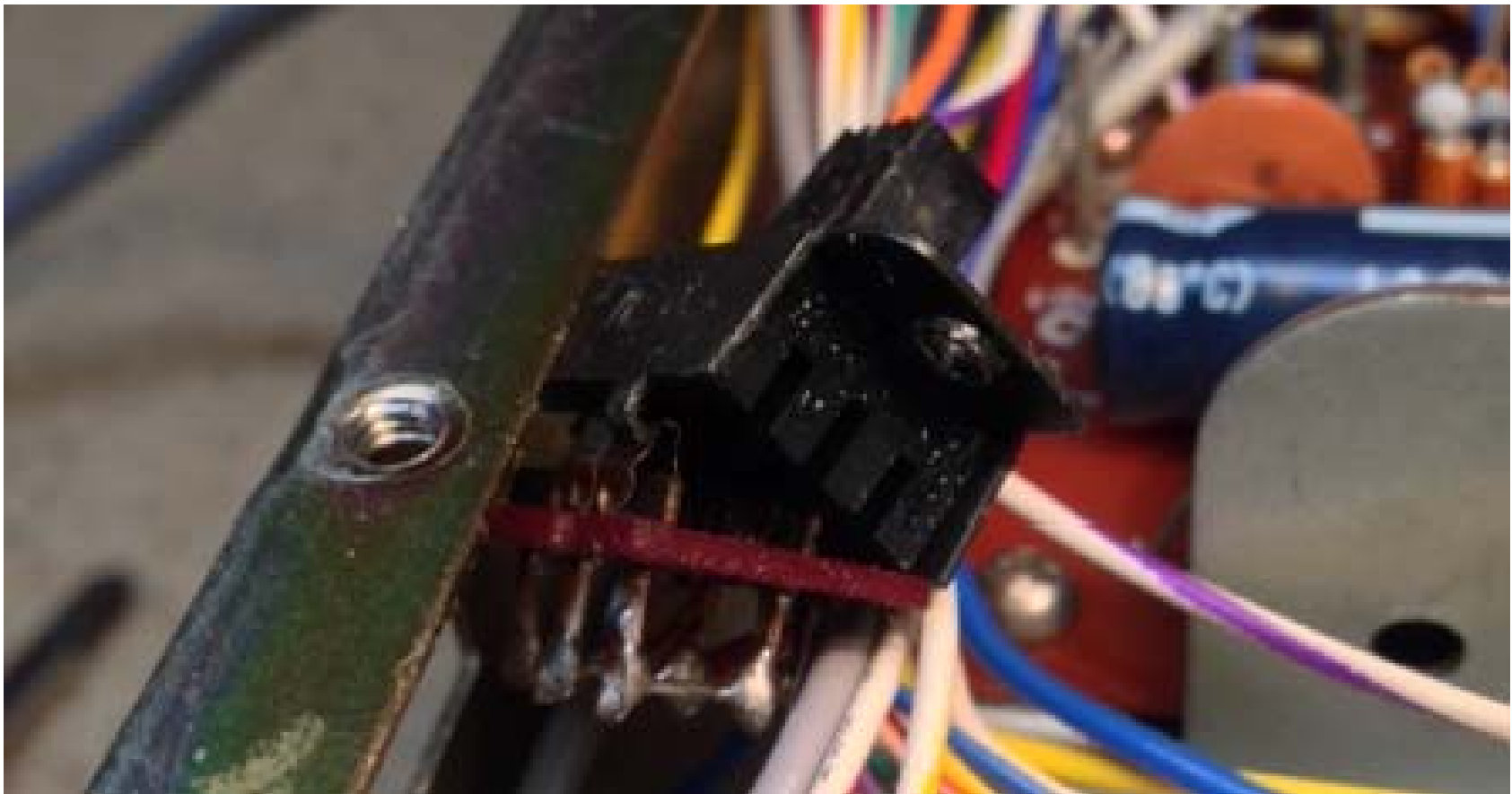
- Here is what happens when the Pi-network Plate Block Capacitor fails shorted and supplies 900vdc to your SO-239 connector. Better the "Safety Choke" than you fingers or heart screwing on the antenna coax PL-259. That would be a real nasty surprise. Question is what size fuse did owner have?



KENWOOD

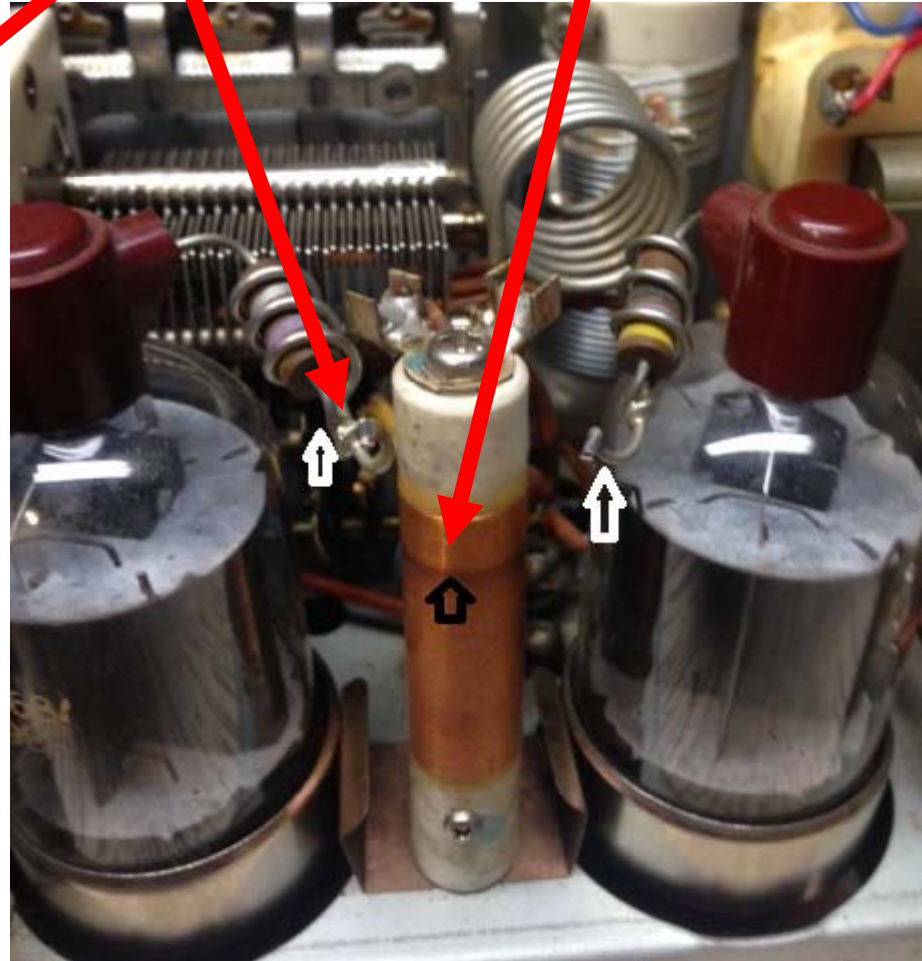
Broke SG Switch

- How do you drop your radio and hit the screen grid switch slide actuator?



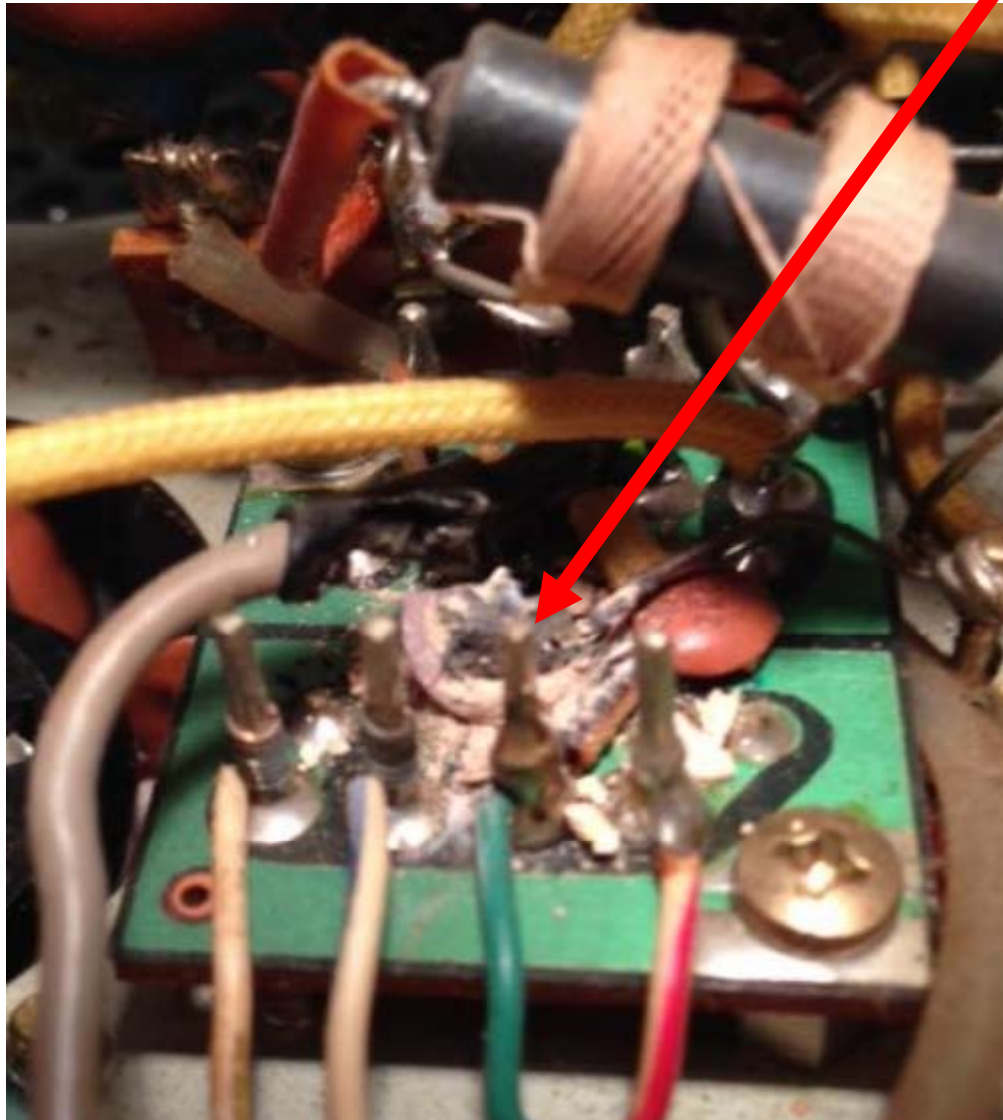
KENWOOD PART NOT SOLDERED

BAD RF CHOKE



KENWOOD

TS530S with blown RF bypass cap on the Ant TR relay PCB



KENWOOD

A Transformer Failure, The Ultimate Failure



KENWOOD

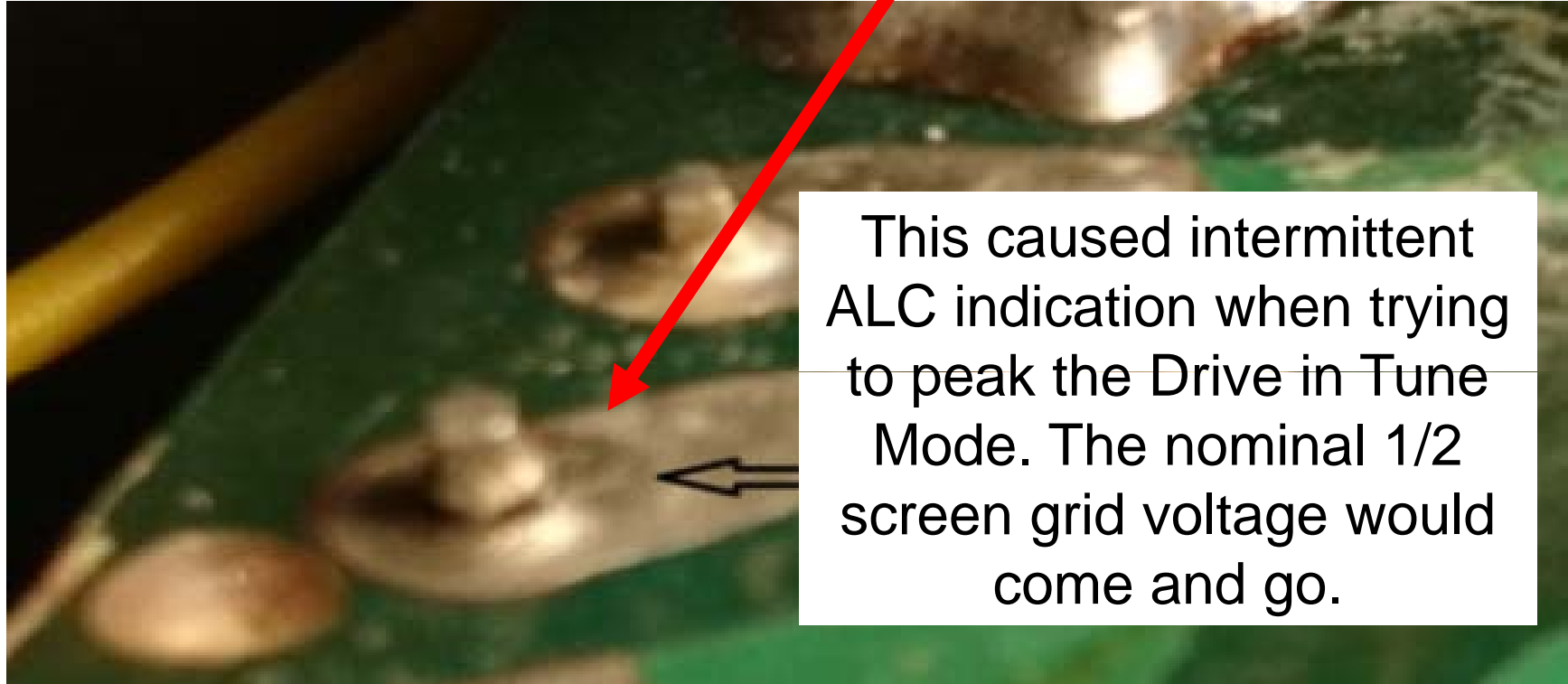
A Transformer Failure, The Ultimate Failure

Save your
money.
Don't bother
sending this
out for
repair.



KENWOOD

Cracked solder on the TUNE post on a TS830S



This caused intermittent ALC indication when trying to peak the Drive in Tune Mode. The nominal 1/2 screen grid voltage would come and go.

With radio unplugged and caps discharged grasp each wire wrap terminal post with fingers and gently try to rock back and forth. Should be no movement. If there is movement have to roll board over and best to remove old solder and apply new.

KENWOOD



Here is "Hill Billy" HV capacitor replacement! Generous use of black plastic electrical tape and Styrofoam shim. A real KW tech would have used duct tape!

KENWOOD

KENWOOD CABINET POWDER COATING – VE7PS

- An alternate re-painting option for the Kenwood 599 Twins.
- If you are into “original match”, this is not for you!
- Been using this on Drake gear with excellent results for several years.
- Powder Coat Paint is **AkzoNobel Textra Black Sand, # 31-7091**, and is commonly used in the USA.
- Find a shop that already uses it – avoids “setup charges” (about US \$300).

KENWOOD

CABINET POWDER COATING – VE7PS

**599D Twins -
1st Set –
ZERO
preparation!**



KENWOOD

CABINET POWDER COATING – VE7PS



KENWOOD

CABINET POWDER COATING – VE7PS

599D twins set #1



KENWOOD

CABINET POWDER COATING – VE7PS

**599D Twins 2nd Set – ZERO
Prep – not so lucky this time!**



- Not sure why some bubble up – moisture related? Seepage through original paint during prep at shop not fully drying?
- Some, but not all, that have bubbled have shown evidence of rust under the paint after stripping.
- 100% success rate when cabinet stripped to bare metal and sanded.
- Drake 4-line gear has been about a 70% success without stripping the cabinet.
- YMMV!!!

KENWOOD

CABINET POWDER COATING – VE7PS

**R-4C is the
original paint.
MS-4 & T-4XC
are powder
coated.**

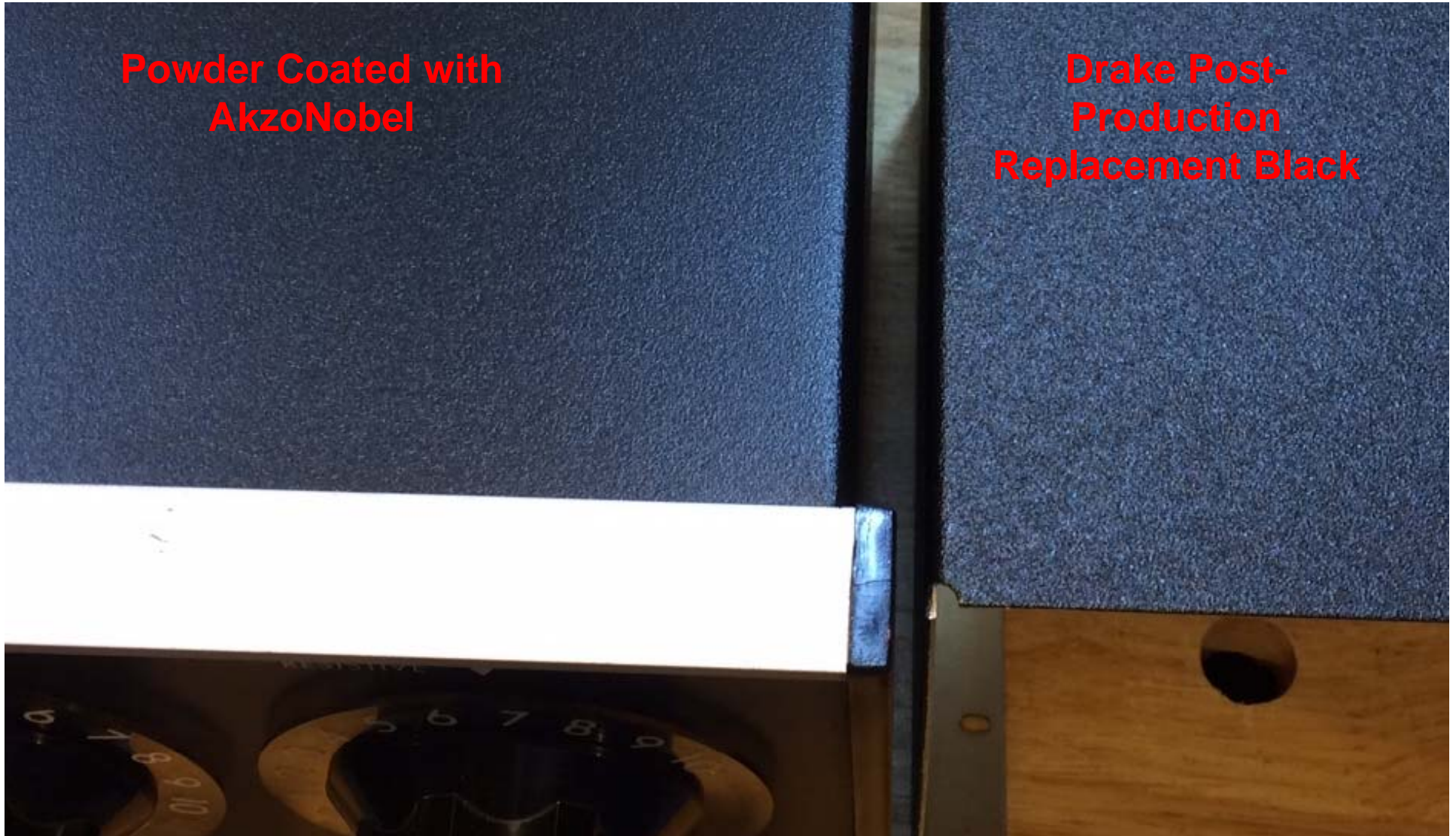


KENWOOD

CABINET POWDER COATING – VE7PS

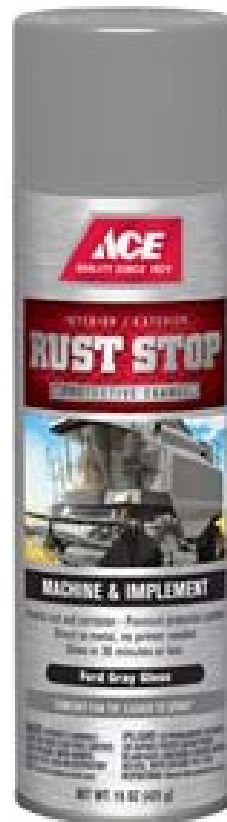
**Powder Coated with
AkzoNobel**

**Drake Post-
Production
Replacement Black**



KENWOOD

Case Paint



May 2017M.V.G. May 2017

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Sherwin Williams – Quart Can



May 2017M.V.G. May 2017

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CABINET PAINT – Dick Housden – WONTA

SHERWIN-WILLIAMS 7435 02/25/19
970-353-0947 Order# 0181658

INT/EXT ARCHITECTURAL
ALL SURFACE ENAMEL
SATIN IFC 8112NP

GR181658 RADIO CASE
CUSTOM MANUAL MATCH

| CCE*COLORANT | 0Z | 32 | 64 | 128 |
|--------------|----|----|----|-----|
| W1-White | - | 11 | - | - |
| B1-Black | - | 17 | - | 1 |
| R2-Maroon | - | 1 | - | - |
| Y3-Deep Gold | - | 9 | - | 1 |
| G2-New Green | - | - | 1 | - |

QUART DEEP
A41W01353 650902729

KENWOOD

PAINT ROLLER



<https://www.amazon.com/>

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May 2017M.V.G. May 2017

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Original Bottom – Repainted Top



May 2017M.V.G. May 2017

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Questions & Answers