Modifications for the Kenwood TS-450

19-07-1998 add a comment

KAM-PLUS Problems!! with TS-450 & 850

Hello All,,

A common problem when using a KAM-Plus multimode with the Kenwood TS-850 or TS-450 occurs when the KAM-Plus is coupled to the Accessory-2 socket on the back of the transceiver, producing noticable distortion of the transmitted audio when using the microphone in SSB mode..

The problem is easy to cure by disconnecting the Accessory-2 plug from the back of the tranceiver, but this meant moving the transceiver around every time one wished to operate on SSB..

The problem is caused by the input sensitivity of the rear Accessory-2 socket being set to high, so that it picks up very low level noise from the KAM-Plus and associated computer wiring, this mixes with the microphone signal, to produce the distortion.

The cure is to reduce the input sensitivity of the radio, thus reducing the chance of distortion, also it goes without saying that the output from the KAM-Plus must be increased to compensate for this.

With both the TS-450 and TS-850, adjusting the input sensitivity is straight forward and the transceiver manuals show you the appropriate control and its location.. This is in both cases VR18 to be found on the main board of the radio,(refer to manual) in practice I found that it was best to adjust this control fully counterclockwise..

Then we need to adjust the output from the KAM-Plus by varying potentiometer R28 and setting removable link (K9), this link is factory set on one post only, (in the open position)!! this should be connected shorting the two posts, thus putting the KAM-Plus into the high output position, and then potentiometer R-28 is adjusted to give full power out from your HF radio with very little ALC deflection, when the MIC gain is in the normal operating position..

Then I am sure you will find that your problem is over, you can now simply change from digital modes to SSB.. Remember if you have your Beacon activated to turn it OFF or it could cause a few comments when operating SSB..

This modification is read 1720 times. top of page
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19-07-1998 add a comment

General coverage transmisson modification for the TS-450 and TS-690

1. Remove all screws of top and bottom case.
2. Remove two screws of front panel (left and right top sie),and loosen two srews of front panel (left and right bottom side).
3. Remove all screws of digital unit (X46-312X-XX).
4. Cut the chip diode D27 (RL73) on digital unit rear side.

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[     [    [      [  [         [           [       ->I- D27 (RL73) CUT THIS
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_________________________________________________________
DIGITAL JNIT (X46-312X-XX)      Component side view
```

Best 73 Eric St-Pascal Kam. Qc. VE2MEL

Date: 24-04-2002	**User comment**	**From:** EA4DCK
Subject: extend TX below 1620 khz.		
How to extend TX. below 1620 Khz. on TS-450-AT.? If you have the system ...Send to me an E-mail and Thanks!		

This modification is read 2459 times. top of page
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19-07-1998 add a comment

TS-450S Intermittent receive fixed

After making a careful mobile installation, WB0BQV found his TS450S to have intermittent receive. He removed the screw that was going through the coax in his car and made a second installation in his truck. More intermittent. With some careful diagnosis he found that moving the coax connector up and down caused the change in signal. With the radio opened up, I found that moving the coax connector was breaking the contact between the wire from the center conductor and the board (W1 in the schematic). To save on pulling the filter board, I used a short piece of very flexible test prod wire to connect from the center of the UHF connector to W6 on the top of the PC board. W6 jumps over the contacts of a relay used only in the TS-690S. For added security, I also added another wire of the same material from the ground lug on the UHF connector to the end of D11 away from the coax connector. So now if the flexible back panel breaks the other wire too, it won't have so much effect. The coax connector is mounted on a 1/32" plated steel panel so is excessively flexible in mounting. Ideally that connector should be mounted far more stiffly for those that use real RG-8 coax.

This modification is read 1749 times. top of page
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19-07-1998 add a comment

TS-450,TS-850 feedback,ACC-2 Conn

Hi if you are using the ACC-2 connector to interface with your multi-mode controller, you may have had a problem with your transmitted audio signal being distorted, to eliminate this see bellow.

1. Set your meter on the radio to read ALC
2. PK232 OWNERS: if alsso using a VHF tranceiver, adjust the AFSK level for proper VHF operation as expalained in chapter 3 of the operating manual.If not adjust for proper SSB operation.

   DSP - 1232 / DSP - 2232 Owners: Adjust the appropriate AFSK level control for proper SSB operation as expalined in chapter 3 of the operating manual.
3. Place the TNC in calibrate mode and press K to key the radio.
4. Adjust VR-13 on the TS-450 or VR-18 on the TS-850 so that the meter "Just comes off the peg" as described in the section titled "SSB Tranciever Final Adjustments" (in the TNC operating manual).
5. Press Q to quit the CALIBRATE mode

This modification should not affect any of the other normal operations of the radio..
Copy of service bulletin from AEA

This modification is read 1581 times. top of page
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19-07-1998 add a comment

TS-450 hidden functions

As users of the Kenwood TS-450S already known it is possible to configure the set to personel needs by hold down some buttons during Power on.
There are three buttons listed in the manual.

The menu of Power ON + LSB/USB is listed on page 54 from the manual
The menu of Power ON + M.IN is listed on page 55
The menu of Power ON + ENT is listed on page 83

As often usual in microprocessor controled equipment there are hidden keyboard combinations who make it possible to configure more functions then is listed in the manual.

At Power on + CLR + ENT a reset to factory defaults is taken place.
All memory programming is lost !
All filters are available (also these who are not fitted)

But there is something more!!

The receiver is able to receive from 30 kHz to 40 MHz

Transmitting is possible on

1620 kHz to 2000 kHz
3500 kHz to 4000 kHz
7000 kHz to 7500 kHz
10.0 MHz to 10.5 MHz
14.0 MHz to 14.5 MHz
18.0 MHz to 19.0 MHZ
21.0 MHz to 21.5 MHz
24.5 MHz to 25.0 MHz
28.0 MHz to 30.0 MHz

Unfortunately after power off and switching on the programming is returnd to the most of the old values, but the 100 memory places are still empty.
So one advice before start of experimenting note the contens of the memory places and configuration on a piece of paper, and read the "F" manual .

Until now I do not have a method to program the expanded receiving and transmitting frequencys into the TS-450S.
If someone knows how to do this plaese let me know.

This modification is read 2557 times. top of page
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19-07-1998 add a comment

TS-450S and KAM Plus info

Hi just found out a KINK in hooking up the TS450S to a KAM Plus for AMTOR op.

You have to turn ur Delay and CAR control to 0 to get it to work mode A.

Neither control should be active when running AMTOR LSB but they are, TRUST ME.

This modification is read 1532 times. top of page
add a comment

20-02-1999 add a comment

Micro-input RFI modification TS450-TS690 Kenwood

By Pedro M.J. Wyns, RF- and biomedical-engineer.

History:
After buying a ts690 I got considerable trouble with the vox circuitry.
The Vox gain was always too high due to an excessive feedback resistance in the vox amplfier. Apparently a PCB-mounting failure as the schematic carried the right value. After correcting this problem I still got RF problems with nearby antennas, blocking the transmitter in TX.

Problem:
lack of decent RF-filtering on the micro-input circuitry.

Solution:
adding ferromagnetic cores and adjusting rc-filters on the IF-board.

Action:
remove the connectors on the right hand side of the IF board (underside transceiver front towards you). Unscrew the board and fold over to the left. Add 22 nF parallel to R282 1k on t he micro entry close to Connector 6. Add 1nF parallel to C177 close to the IC-15 input. Add 1nF parall el to C217 close to the vox amplifier.
Remove te micro in and ground from the number 6 connector. Feed the white micro wire through a two hole ferrite core. Feed the inner conductor through a small ferrite core as well Reconnect...

If you might be using an MFJ (=major fucking junk) voice keyer, disconnect the shit-unshielded micro cable and replace by high quality twin balanced micro cable. Only use PTT, Mic and GND.

This concludes the mod. Don't even think of doing this without the service man ual and some smd-practice.

Good Luck

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This modification is read 1654 times. top of page
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21-04-2000 add a comment

TS-450/690 Calibration cable change

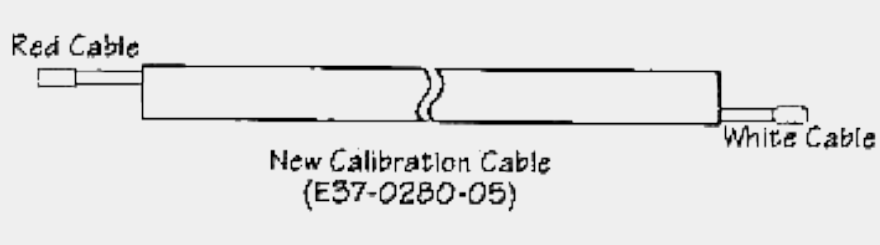
Author: *Kenwood Communication, inc.*

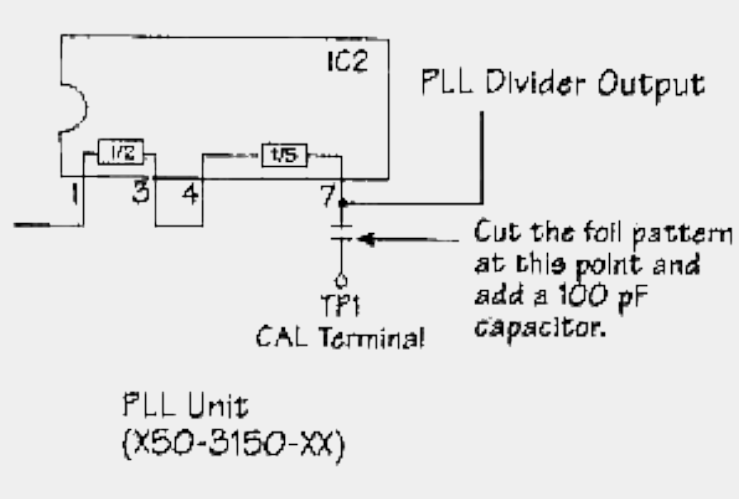
Service Bulletin no. 995 (11 May 1992)

The TS-450/690 may not calibrate properly against WWW (JJY) when using the calibration cable that is supplied with early versions of these sets, (serial numbers below 311xxxx) and when an antenna that is shorted for DC is used. A dipole with a balun is a prime example of a DC shorted wire. A minor circuit modification that adds a 100 pF isolation capacitor should also be performed. Please refer to the diagrams below for modification notes.

Parts required:

```
E37-0280-05      Calibration cable assembly         1 Ea.
CK73FCH1H101J    100 pF capacitor                   1 Ea.
```





Time required for this modification is 30 minutes.

This modification is read 1593 times. top of page
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22-04-2000 add a comment

TS-450/690 Distorted TX w/TNC

Author: *Kenwood Communication, inc.*

Service Bulletin no. 1002 (18 November 1992)

Note: This bulletin supercedes bulletin ASB-994, dated 10 April, 1992.

We have received several reports of distorted transmitter audio when using a TNC controller such as the AEA PK-232 or Kantronic KAM, etc. The symptom will generally disappear if the transceiver and TNC units are powered from different sources.

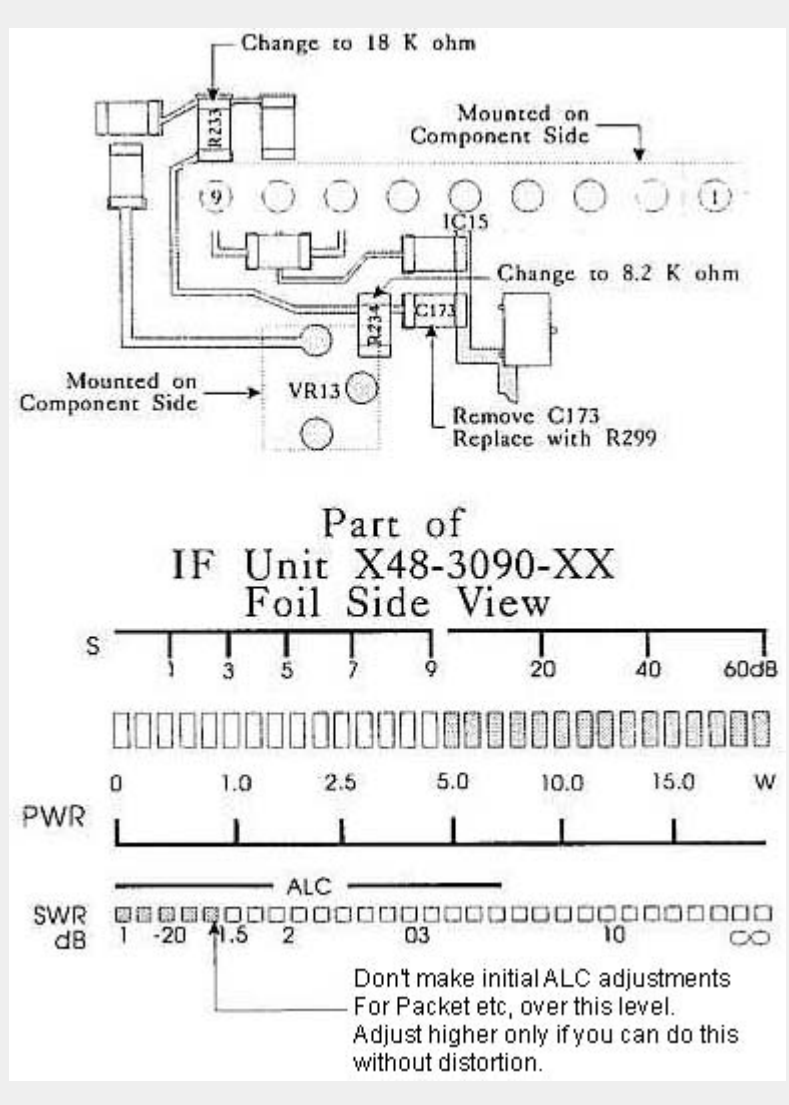
Cause:
The audio output level form the TNC is generally too high and causes overload of the microphone amplifier circuit. In previous models such as the TS-440S the incoming TNC audio was inserted after the microphone amplifier. With the TS-850S it is inserted before the microphone amplifier. Just moving the insertion point to the output of the circuit is satisfactory since the drive level for FM packet is higher then that required for SSB.

Procedure:

1. Add a 10 dB attenuator to the PKD line on the IF unit (X48-3090-XX). This will prevent overmodulation of the microphone input circuit.
   a. Change chip resistor R233 from 10 Kohm to 18 Kohm (RK73FB2A183J)
   b. Change chip resistor R234 from 1 Kohm to 8.2 Kohm (RK73FB2A822J).
   c. Delete chip capacitor C173 (100 pF) and add chip resistor R299, 1.5 Kohm (RK73FB2A152J).
2. Add the following note to page 35 and 37 of the Instruction manual.
3. When adjusting for proper ALC levels with an AFSK RTTY terminal or Packet TNC terminal you should adjust VR-13 on the IF Unit for a reading similar to the one shown in the accompanying diagram.

   Note: The transceiver and RTTY or TNC terminal should use separate power supplies, in order to prevent RFI (Radio Frequency Interference).

Caution: This modification requires soldering equipment rated for CMOS type circuits. It also requires familiarity with surface mount soldering techniques. If you do not have the proper equipment or knowledge do not attempt this modification yourself. Seek qualified assistance.



Time required for this modification is ½ hour or less.

This modification is read 1518 times. top of page
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22-04-2000 add a comment

TS-450S TX frequency response

Author: *Kenwood Communication, inc.*

Service Bulletin no. 1004 (21 December 1992)

We have received several reports concerning the transmit audio quality of this unit. Several reporters noted that the signal sounded "hard" or had a reduced bandwidth, while others noted a difference in the noise quality when switching between USB and LSB. We noticed a significant difference between the output power in LSB and USB on some of these sets.

Cause:
Improper adjustment of the 8.83 MHz tuning coils (L73, L76) on the RF unit (X44-3130-00) can cause these symptoms. The coils have two tuning points. One is reached when the tuning slug project above the surface of the coilk form. When tuned in this manner the bandwidth becomes narrow then normal and causes the symptoms noted above.

Alignment procedure:

1. Adjustment should be performed with the YK-88S1 (2.4 KHz) filter in line. If this filter is not preset you should select the THRU position for the 8.83 MHz IF.
2. Adjust L73 and L76 according to the instructions provided in the service manual (Item 6 of the Receiver adjustment). Ensure that the slug are preset well down in the coil form, then adjust for peak. You should reach this point before the top of the slug exist the coil form.
3. Next, readjust L74 and L75 (Item 8 of the Receiver adjustment).
   a. Select the 6 KHz filter for both the 8.83 MHz IF and the 455 KHz IF.
   b. Select a dial frequency of 14.100.4 MHz.
   c. Select the USB mode.
   d. Adjust L74 and L75 for maximum.
   e. Select the LSB mode.
   f. Readjust L74 and L75 for maximum.
   g. Repeat steps 3c - 3f several times until you obtain a difference of 2 dB or less in the AF output when switching between USB and LSB.
4. Check Item 14, CAR point adjustment (Transmitter section) Menu items 11 and 12, and confirm that the transmitter power is equal for USB and LSB.

Time required for this modification is 30 minutes or less.

This modification is read 1893 times. top of page
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23-04-2000 add a comment

TS-450/690 Low mic gain w/DSP-100

Author: *Kenwood Communication, inc.*

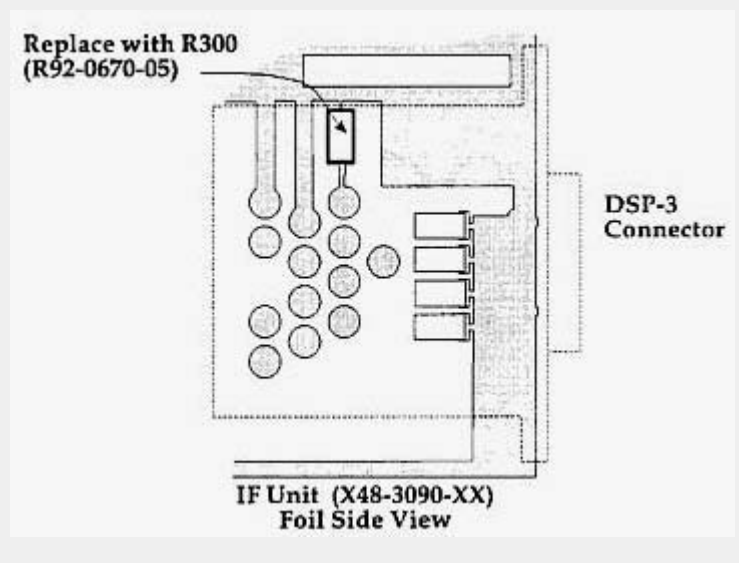
Service Bulletin no. 1032 (9 August 1993)

Symptom:
Proper microphone gain/ALC readings cannot be obtained unless the user adjusts the TX GAIN potentiometer on the rear of the DSP-100. This irregularity is caused of the DSP-100 MIC amplifier (IC-5).

Corrective action:
Remove capacitor C200 from the IF unit on the transceiver, and replace it with R300, a chip jumper wire.

Parts required:

```
Qty   Description                            Kenwood Part No.  Circuit description
 1    Chip jumper                            R92-0670-05       R300
```



Caution: *This modification requires soldering equipment rated for CMOS type circuits. It also requires familiarity with surface mount soldering techniques. If you do not have the proper equipment or knowledge do not attempt this modification yourself. Seek qualified assistance.*

Time required for this modification is 1 hour or less.

This modification is read 1581 times. top of page
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23-04-2000 add a comment

TS-450S Parts change

Author: *Kenwood Communication, inc.*

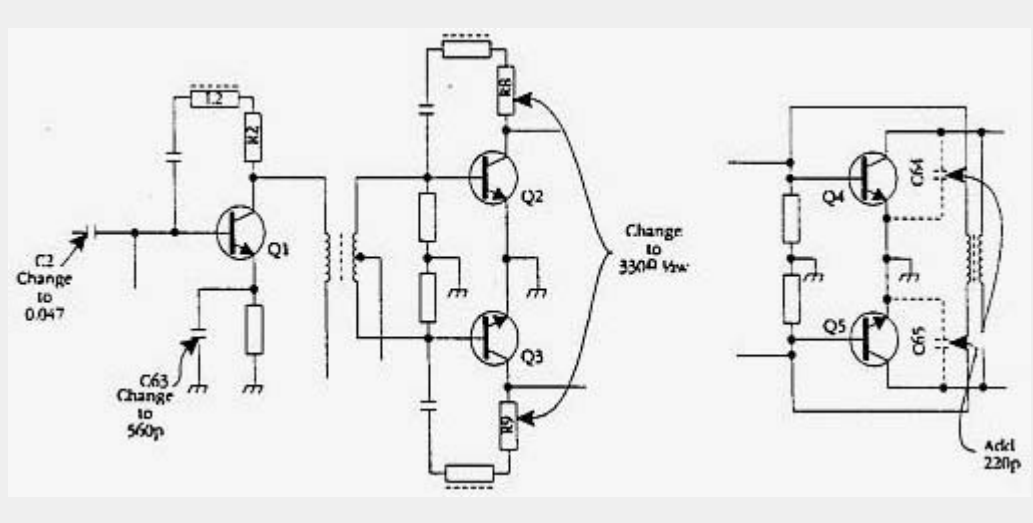
Service Bulletin no. 1036 (8 December 1993)

The 2SC2509 driver transistor are no longer available. They have been discontinued by the manufacturer. A substitute transistor (2SC3133) is available but requires some minor circuit changes. These changes are detailed below.

Parts required:

```
Qty   Description                            Kenwood Part No.  Circuit description
 2    Driver transistor                      2SC3133           Q2, Q3
 2    330 ohm 1 watt carbon resistor         RC05GF2H331J      R8, R9
 1    .047 µF ceramic capacitor              C91-0119-05       C2
 2    220 pF ceramic capacitor               CC45SL2H221J      C64, C65
 1    560 pF ceramic capacitor               CC45SL2H561J      C63
```

Note: C64 and C65 should be soldered directly to the collector and emitter pins of the final transistor Q4 and Q5.



Time required for this modification is 60 minutes or less.

This modification is read 1828 times. top of page
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23-04-2000 add a comment

TS-450S/690S Noisy encoder

Author: *Kenwood Communication, inc.*

Service Bulletin no. 1059 (7 July 1994)

Symptom:
When tuning the Main Encoder of the TS-450S/690S with bare hands you may encounter a "scratching" noise in the speaker if an antenna with a high SWR is used. If gloves are worn no problem is encountered. This occurs because the shaft of the encoder is not grounded.

Countermeasure: Replace the Main Encoder with one that has a grounded shaft.

Parts required:

```
Qty   Description                            Part No.
 1    Main encoder                           W02-1836-05
 2    Mounting screws                        N90-3006-46
```

Note: You must use the new mounting screws listed above with the replacement encoder.

Time required for this modification is 30 minutes or less.

This modification is read 1603 times. top of page
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