VOLUME III
NUMBER 5 MAY

S/1 NEWS

Let me thank those of you who are taking the time to write me concerning CX7 series problems .. you can bet someone will find your information useful. Keep it coming, please. If you have received a CX11 recently, let me know your comments on this new rig. I want to start covering the CX11 in S/1 NEWS.

From W7GVA: On the old power supply board, the screen voltage is run on the circuit board which is designed for low voltage. Dirt and other contaminants cause a short between this screen voltage and the +15 volt regulator line (foil to foil short) and therefore cause major power supply problems. The fix for this problem is to remove the foil from the screen voltage off the printed circuit board and solder the screen voltage lead directly to the load resistor. (Do this before a short occurs ... it took W7GVA quite a while to repair his power supply board after this happened... ed.)

PROBLEM (reported by W8FYP): Low output on some bands as indicated by the meter on the CX7. Rig seemed fine in other respects.

SOLUTION: The SRW bridge in the CX7 was out of calibration and was reading much too low as noted when output was read on a good quality power meter. The bridge was recalibrated.

PROBLEM (reported by W7IV): I.F. Board oscillation (See S/1 NEWS, Volume III, No. 1).

SOLUTION: Lower I.F. gain by connecting a 100-ohm resistor between terminal 459 on the I.F. board and ground.

The following subscriptions are due: K2GI, W6MAR, WB4JQP, W8PRM.

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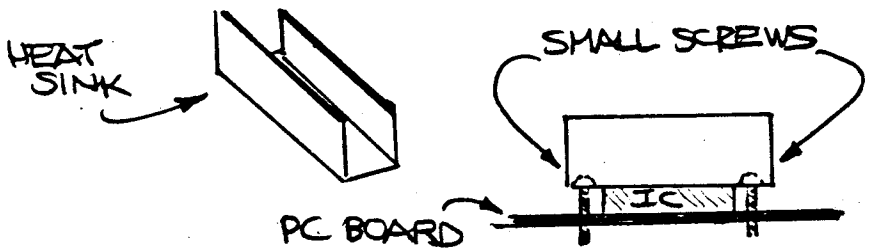
INFORMATION AND HINTS FROM W6HX...

1. If the RF gain is adjusted and there is no indication on the S-meter, the problem is usually Q5 on te AGC board, A9.

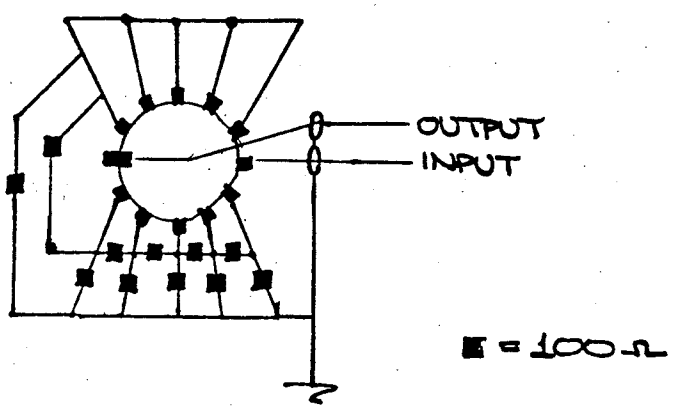
2. It is a good idea to use sockets as much as possible when replacing transistors, etc. For the IC's on various boards use type DP5178-B by Nugent. For transistors; 3-pin, LP18 and 4-pin, LP18174. These are available from R.P.S. Electronics, 1501 South Hill Street, Los Angeles, CA., 90015.

3. To improve reliability, replace all the 2N5183's with 2N2222A's. Change Q16 and Q17 on the audio board, A6, to 2N2219A's which are the same as 2N2222A's but higher ratings.

4. When using a LM380N for the audio output, it is suggested a small heat sink be used mounted on top of the IC. A small "U" shaped piece of copper 1" high x 1-1/4" long x 5/8" wide will do nicely. Use small screws directly into the PC board and heat sink compound between the copper and IC.



5. A receive attenuator may be constructed using a Mallory 3226J switch and 1/4-watt/100-ohm resistors in the following manner. This will give 10db steps up to 50db max. Install the switch in place of the FSK control. Use miniature coax for connections.



PROBLEM (Reported by WB2MPZ): After initial turn-on, the rig would key on and off at a rate determined by the keyer speed control!

SOLUTION: The cause of the problem was traced to a sawtooth appearing on the +5 volt line to the counter. Removing the inductor located inside the counter cage in series with the +5 volts would stop the problem..but only for two hours or so. After that period of warmup, the rig would start to key on and off again. The problem was finally cured by replacing the 7805 regulator with a LM309. (I don't know if the problem could have been cured by adding a .1 or .2 disc from the input or output of the regulator to ground .. the 78XX series tend to oscillate in strange ways .. ed.

A note on RTTY operation by Tony, WB2MPZ: It is possible to run RTTY with the function switch in LSB and selecting VFO B. Be careful since the mike will pick up shack noise .. unplug the mike to cure this problem. When using VFO B and in FSK the mike is still active. So again, unplug the mike for RTTY operation.

Woody, W8QCX, recommends connecting the MFJ ~~CW~~ SSB filter between the AGC receive audio output and the audio board input rather than described in an earlier issue of S/1 NEWS. In this manner, the CW sidetone is not affected. done

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Barry, W8FYP, indicates that the Henry 4K (not the Ultra) works very well with the CX7 and will provide the legal limit at a cost far less than the 4k Ultra or Alpha 77 if you can pick one up used. The only disadvantage is a replacement 5CX1500A is very expensive!

Barry, W8FYP, also reports problems with his Autech Filter with regard to R.F. His final fix was to mount a small 12 VDC relay in the Autech case, pick up 12 volts from the Autech power supply, and key this relay with VOX control (or PTT). The relay is used to open the audio output during transmit periods. The system is fine for SSB. (This solution would not be applicable for those interested in break-in CW work...ed).

CX7 Readership: I would again like to make a plea for information that can be used as material for the newsletter. ANYTHING is of interest ... please take a moment to write of your troubleshooting experiences; replacement semiconductors, or what have you. We're doing our best to keep S/1 NEWS going but your help is required. Thanks much ... Bob Sullivan, WØYVA/4.

CX7 Crystals: International Crystal will supply crystals for CX7's. Specify you need a crystal for some frequency and indicate it is for use in a SIGNAL/ONE; CX7. Be sure to specify wire leads if you are replacing an existing crystal (which is soldered in). If you are buying a crystal for spare positions A, B, or C the crystal as normally supplied will plug directly into the socket provided on the CX7 PC board.

International Crystal Mfg. Co., Inc.
10 North Lee
Oklahoma City, Olkahoma 73102
(405) 236-3741

KEYER REPLACEMENT

The CX7 keyer leaves a bit to be desired. The following (by W8CXS) is a step by step procedure for installing the popular WB4VVF keyer into the CX7. The modification utilizes the PC board currently available for the WB4VVF keyer.

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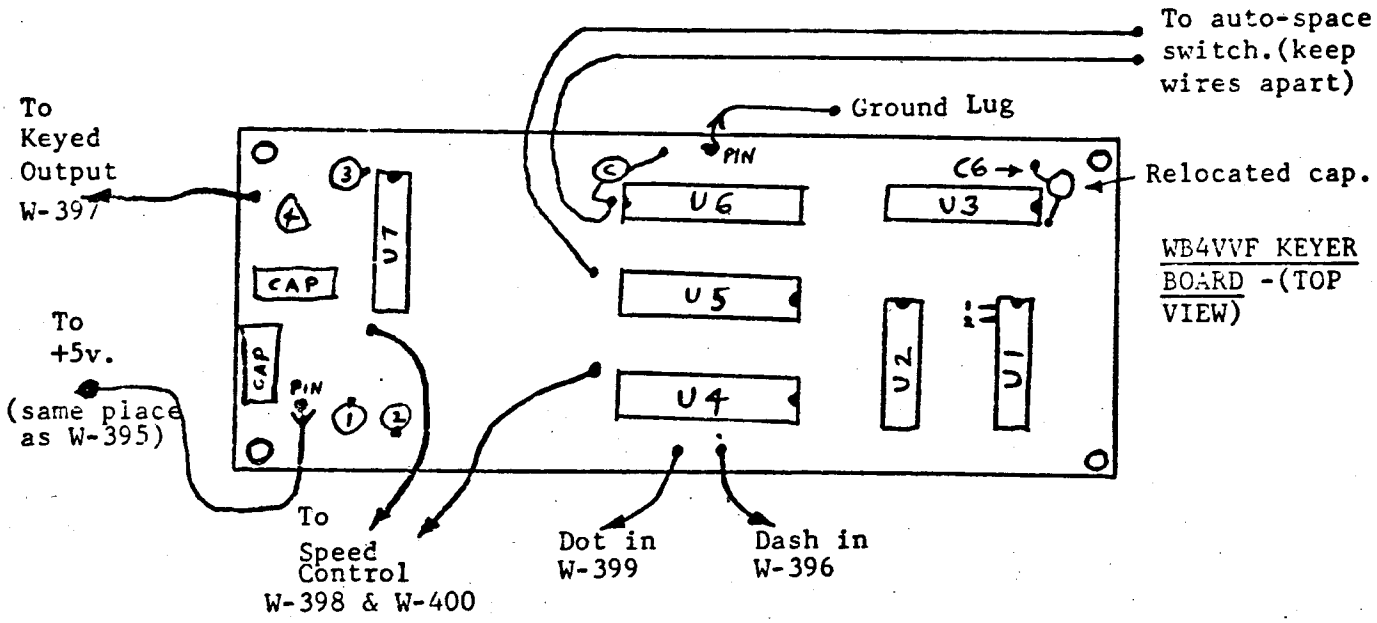
1. Circuit diagram pg. 364 of ARRL Handbook, 1975. (CR2 & 2000 uF cap not part of board)
2. Move .001 cap C6. One lead to new hole near "W" in WB4VVF foil etching. Complete step 3 before re-installing capacitor.
3. File down short sides of board to 3 5/8". Leave some edge foil in place.
4. Remove VR-1 , 5 volt zener. Remove R13, 27 ohm. Install jumper wire across R13 loc.
5. Remove lead wire for manual key.
6. Remove lead wires +5 v. input & ground. Enlarge holes & install Male term pin.
7. Cut 2 wires for Auto-space to 5" and tin ends, 1/4 ".
8. Cut 5 wires: Output, Dot, Dash, Speed, Speed 4" past board edge & install Female term pins. Cover with 2" long sleeving.
9. Solder new new 6" long brown wire to +5 v term inside counter compartment (has brown wire & electro cap). Install Female term pin on free end.
10. Solder new 6" black wire to ground lug & install Female term pin on free end.
11. Mount board on 3/16" spacers with #4 hardware on inside of counter cover. Board should almost touch both sides of cover and will be centered so that the components will fit into the open area of the counter board when the cover is in place.
12. Mount 1/4" toggle switch for auto-space at rear, side, of cover toward 3 board stack. Do not twist wires together from board to switch. Solder switch wires.
13. Connect term pins to those removed from counter board & cover with sleeving. Conn new +5v and Gnd leads to board. Dress leads away from Nixies and keep keyed output lead away from the Dot-Dash input leads.
14. Operation of CX-7 Mode switch between CW1 & USB will cause keyer to send a Dash due to induced voltage in the common wiring harness. Replace wires #162 & #163 with shielded pair between rear terminals of counter cage and the keyer jack. Ground shield at the jack end only. The .01 uF jack bypass caps may be .005 uF. Route shielded pair over top side of chassis to hole near keyer jack.



15. To remove the Dash memory feature of the keyer, cut foil to pin #2 of I.C. U-1 or if in a socket, bend pin #2 out to one side and re-insert the I.C. This will not effect any other operation of the keyer.
16. The auto-space switch may be operated with a small screwdriver thru a vent hole in the cabinet . Note that the auto-space feature is active when the switch is OPEN.

PRESS-IN FASTENERS FOR CHASSIS/CABINET ASSEMBLY: Those of you who have taken the CX7 out of its cabinet more than once or twice (and who hasen't?) have, I'm sure, found that the threads in the chassis bottom strip out and the 6:32 hardware will not snug up the cabinet to the chassis. The solution here is to provide press-in fasteners suitable for installation on the chassis. S/1 NEWS has available a package of 15 press-in fasteners which will do the trick nicely. Cost is $2.25. When ordering please include a SASE. The fasteners utilize 4:40 screws. This smaller size was necessary due to space limitations in the chassis for the fasteners. 4:40 hardware is readily available. Use 4:40 x 3/8 except for the two screws holding the rear feet where 4:40 x ½ is required. Install the fasteners as follows:

1. Remove the CX7 from its cabinet.
2. Carefully drill out each screw location in the bottom of the chassis to .166-inches. Make sure none of the metal chips from drilling ends up in the cabinet internals!. (By the way a number 19 drill bit is .166 inches)
3. Install each fastener by pressing it into the hole from the bottom side of the chassis lip. The fasteners can be started by using a 4:40 screw and the job finished using a small pair of vice-grips or C-clamp.
4. Reinstall the CX7 into the cabinet. Done.

ANOTHER RF DRIVER TRANSISTOR SUBSTITUTION (K3QHY). The HEPS3005 will replace the 2N5641 as a driver transistor. These are available from MHz Electronics, 2543 N. 32nd Street, Phoenix, Az., 85008. (602) 957 0786. (Cost is $9.55 according to one of their recent advertisments .. ed.)

RF SPIKES. A reminder by Bill, K2SIL (now K1GQ): The RF spike problem mentioned several times in S/1 NEWS, can be cured by replacing Q1 on the RF driver board, A5.

TRANSISTOR REPLACEMENT. Mark, K6BE, recommends the use of military/ industrial type transistors for higher reliability. For example:

MPS3702	2N2906
2N5183	2N2221
40673	~~3N187~~ ✓
40603	3N187
40604	3N187
40468A	3N128
MPSU05	2N2219A

FOR SALE

CX7B with LED readouts. Serial 046224361. In good condition. $1395. Contact Tony Sperduti, WB2MPZ, 4740 Newton Road, Hamburg, N.Y., 14075. (716) 649 7527.

INFO WANTED. Does anyone have any thoughts concerning a direct PTO replacement using varicaps and a multiturn potentiometer or etc.? (by W6CPL)