

If your unit has these symptoms; SCREEN TEARING, LOSS OF HORIZ. SYNC. ON WARM-UP, UNIT GOES DEAD, OR KEEPS RESETING AFTER WARM-UP, the following modifications will correct them. If your unit went completely dead following these symptoms, these modifications will probably repair it.

NECESSARY MODIFICATIONS

1. Replace 74LS74 (U-16, Clock) with a 74S74.
2. Replace Driver 75361 (U-32, 8 pin, clock) with Kludge board assembly. NOTE: Be sure to heat pins enough to cause solder to flow around to double sided foils, as there is no way to see if there is a good connection once the board is in place. Remove crystal - extend leads - cover w/spaghetti or heat shrink tubing - Place suitable insulating material over board to prevent Xtal from shorting points on top of the board - Lay Xtal flat back over top of Kludge board. CAUTION! Use extreme care when removing 75361 driver. If plated through holes are pulled out during removal; repair by pushing thin wire thru bottom of board, bend over and solder to top foil. Then install and solder Kludge assembly. Cut off excess wire on bottom.
3. Remove resistor and capacitor (see diagram),\* and place a jumper in where the capacitor was.
4. Jump 27- $\Omega$  resistor R-1 (10v. supply, lw.) with a 47- $\Omega$  resistor  $\frac{1}{2}$  watt or more.
5. If you have a grey colored data chip, this is the old style which can cause further problems with clock, DM81LS95, ~~74LS161~~, and (or) memory. It should be replaced with a new version (black color) and properly heat sunk, after cutting hole in top shield.
6. Replace 82- $\Omega$  resistors in clock (R-12 & 13) with 47- $\Omega$  resistors.

OTHER MODIFICATIONS REQUIRED BY MIDWAY BUT

NOT ABSOLUTELY NECESSARY

1. Put in a jumper wire from cathode of CR-3 to "+" end of C-6.
2. If C-19 (I.O.) is glass, orange and black, replace.
3. Check front edge of key pad and file off protruding leads.
4. If line filter is hi-resistance type (no tape, or not toroid) replace with new style, low-resistance.
5. Put hot melt wax on base of key pad.
6. Replace CR-3 > 6 w/schottkies 1N 5817 or equivalent.

- - PRECAUTIONS - -

1. Do not wear nylon clothes. Work in a static free environment, preferably grounded.
2. If unit is operated out of case, short across C-6 before further handling. Inadvertant shorting to other points on board could blow components. (Stays charged)
3. Check to be sure metal bushings in bottom shield pan do not short across any foils. (Many different style boards and shields) (insulate any stinkers) (throw away fish paper and foil) (use something else)
4. Check on-off switch for center lead that extends beyond board edge (shorts to shield pan)
5. Check 5v. Heat Sink for good mechanical contact and check clearance of spring clip and board foils.

