Oberheim

A Division of ECC Development Corporation

Stretch Installation Instructions

1. Remove the left endbell from the DX and save (figure 1).

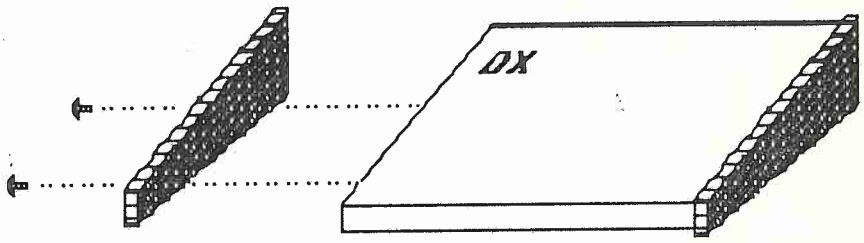
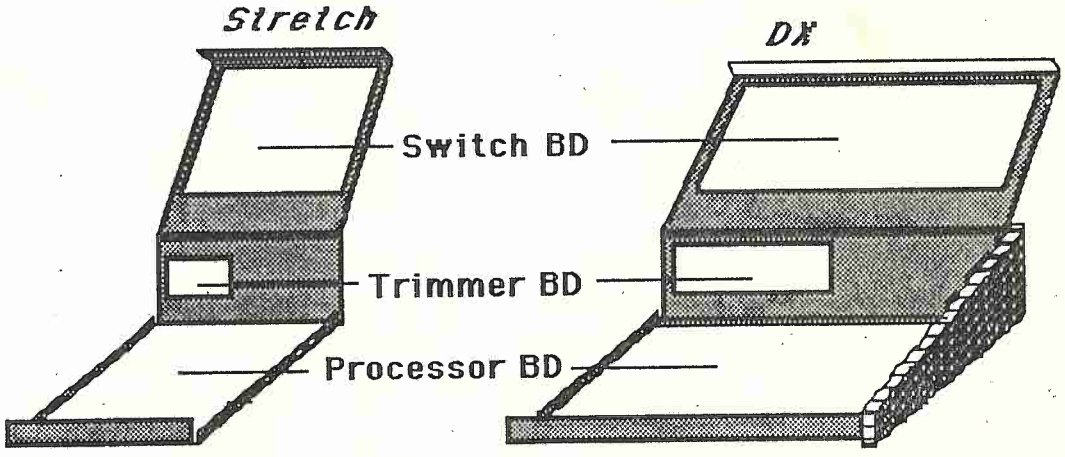


fig. 1

2. The Processor board of the Stretch unit needs to be removed to allow access to the screws that will secure Stretch to the DX. (See figure 2 for locations of P.C. boards inside Stretch and DX). Carefully remove the four corner screws from the Stretch Processor board and put aside for later use. Lift the front edge of the board and pull out of the chassis away from the rear of the unit. Set the board aside in a CLEAN place. Be sure to avoid little bits of solder and lead clippings etc.



Open units showing P.C. Board locations

fig. 2

3. The Stretch chassis may now be fastened on to the DX chassis using two flatheaded screws (see **figure 3**).
- Fasten DX endbell onto the Stretch as shown in **figure 3**.

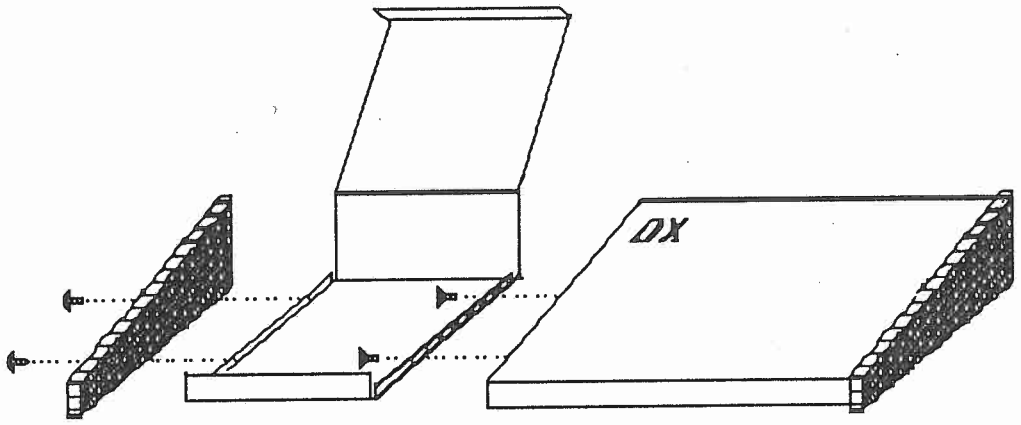


fig. 3

4. Next, temporarily remove left hinge nut on the DX chassis bottom and the right hinge nut on the Stretch chassis bottom. Position the rectangular metal BRACE as shown in figure 4 and re-fasten nuts into place.

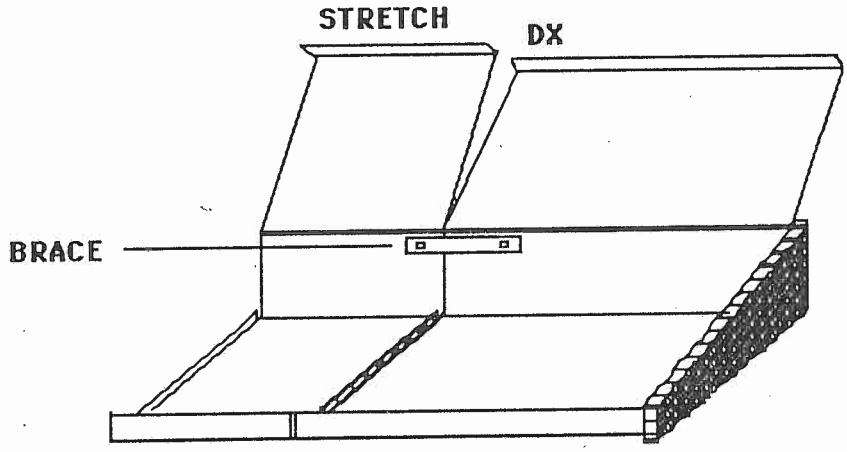


fig. 4

5. Put the Stretch Processor Board back into the Stretch chassis bottom securing with four pan head screws in the corner standoffs.

6. Cable #2 is the ribbon cable that is soldered to the Stretch Switch board. (Refer to figure 5 for cable numbers and locations). Plug the free end of Cable 2 into the socket labled 'B' in the upper right hand corner of the Stretch Processor board (as shown in figure 5).

Open Stretch Unit showing Cable numbering

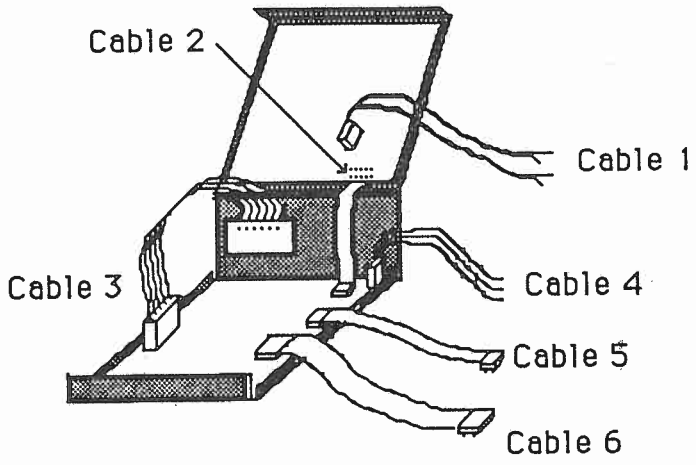


fig. 5

7. Connect the Molex cable coming from the Trimmer board (Cable #3 in figure 5) to the Molex connector labled 'A' on the Processor board.

THE INSTRUCTIONS FOR CONNECTING THE REMAINING CABLES (NUMBERED 1,4,5 & 6) DIFFER DEPENDING ON THE SERIAL NUMBER OF THE DX YOU ARE WORKING ON:

EARLIER DX'S HAVE SERIAL NUMBERS STARTING WITH THE LETTER 'D'. INSTRUCTIONS FOR EARLIER DX'S ARE NUMBERED 8 THROUGH 16.

LATER DX'S HAVE SERIAL NUMBERS STARTING WITH THE LETTER 'H' (115 VOLT UNITS), OR 'J'(220 VOLT UNITS). INSTRUCTIONS FOR LATER MODEL DX'S ARE NUMBERED 17 THROUGH 24.

INSTRUCTIONS FOR COMPLETING INSTALLATION ONTO EARLY MODEL DX. (SERIAL NUMBERS STARTING WITH 'D').

8. Carefully remove the 24-pin memory I.C. in location U715 of the DX Processor board and place it into location U405 on the Stretch Processor board, making sure not to bend any pins.

9. Insert the free end of Cable #6 (see **figure 5** for cable numbering) into location U715 on the DX Processor board making sure pin 1 of the cable is lined up with pin 1 of the socket. When inserted correctly, the ribbon cable will be coming out the side of the socket that is nearest to the front of the chassis. See **figure 6.**

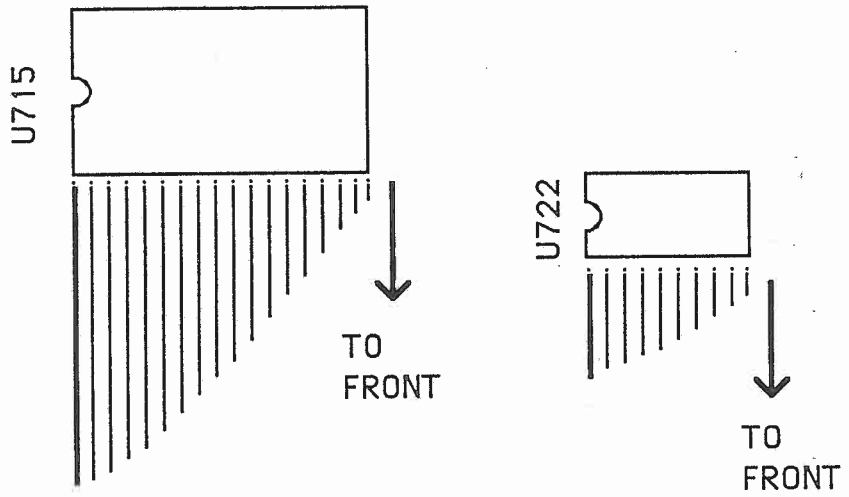


figure 6

10. Remove remove the 74LS32 from location U722 on the DX processor board and insert it into the Stretch Processor board into location U407.

11. Insert the free end of Cable #5 into location U722 on the DX Processor board making sure pin 1 of the cable is lined up with pin 1 of the socket. When inserted correctly, the ribbon cable will be coming out the side of the socket that is nearest to the front of the chassis. See **figure 6.**

12. Cable #4 is the power supply for the Stretch Processor board. It is the Molex cable with 3 colored wires coming out of it. (Connector 'C' on the upper right hand side of the Stretch Processor board). The ends of the wires must be soldered to the DX Processor board on the locations shown in **figure 7.**
- The Brown wire (pin 1) is to be soldered to the test pad labeled -12 (near C601).
- The Orange wire (pin 3) is to be soldered to the (-) side of C701 (the ground side) . See **figure 7.**
- The Yellow wire (pin 4) is to be soldered to the +12 test pad near C602 also shown in **figure 7.**

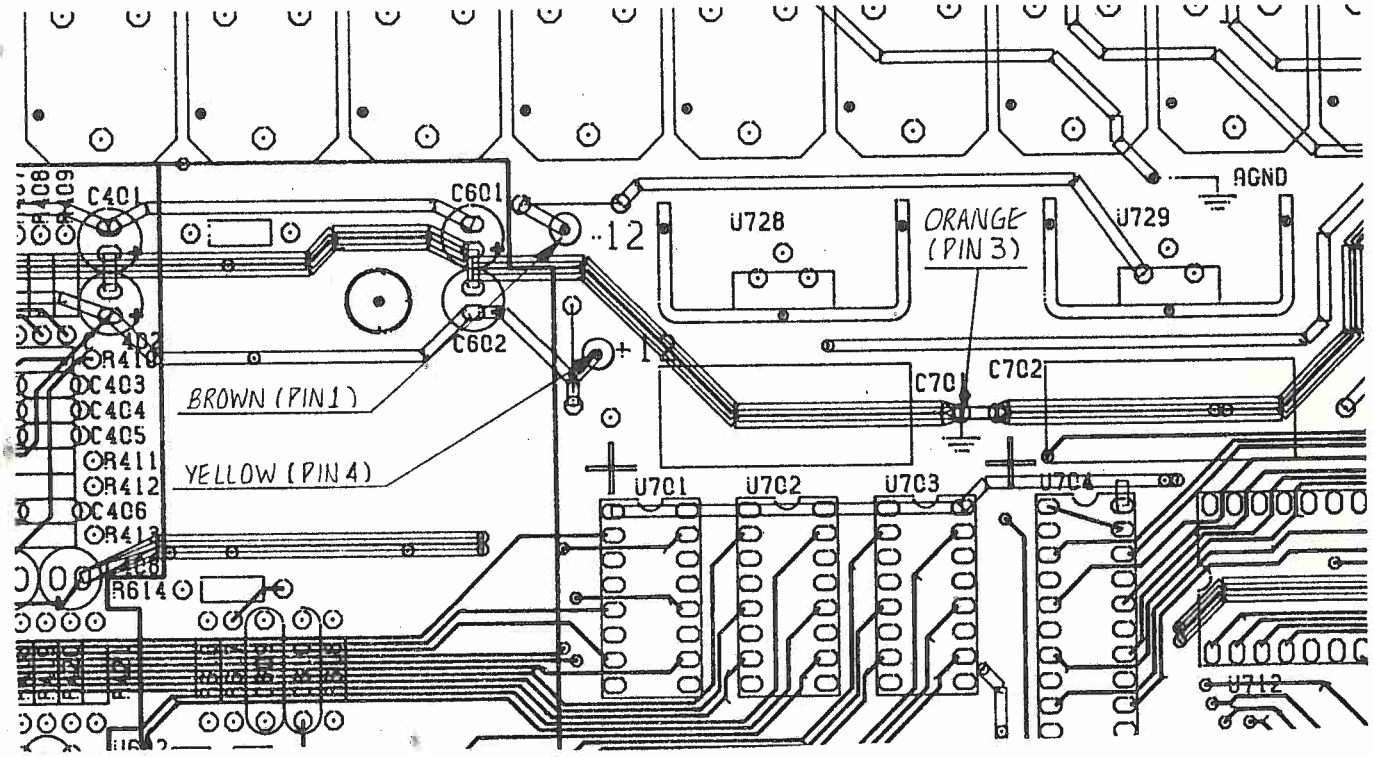


figure7

13. Cable #1 is the cable for audio that runs from the Switch board of Stretch to the Switch board of DX. There are two shielded cables one connected to pin 1 and one connected to pin 4. Pin 2 is the key.
- Solder the two copper colored braided shields to AGND (see the photo in **figure 8**). You may solder to the resistor lead as shown, or scrape away the solder mask on the AGND test pad and solder to that.
- Solder the signal wire coming from pin 1 to the upper end of R34 on the DX Switch board, as shown in **figure 8**. R34 is the 27K resistor farthest from the TL084 (U2).
- Solder the signal wire coming from pin 4 to the upper end of R33 on the DX Switch board, as shown in **figure 8**. R33 is the 27K resistor closest to the TL084 (U2).

14. The Operating System software of earlier DX's needs to be changed to allow operation of Stretch. The new software has a number of 1.5 or above. Remove the Eprom in location U713 and replace it with the new Eprom labeled with the software rev. no. and the letter 'A' . (For example: '1.5A'). Remove the Eprom in location U714

and replace it with the new Eprom labeled with software no. and the letter 'B'. Please return old Eproms to Oberheim.

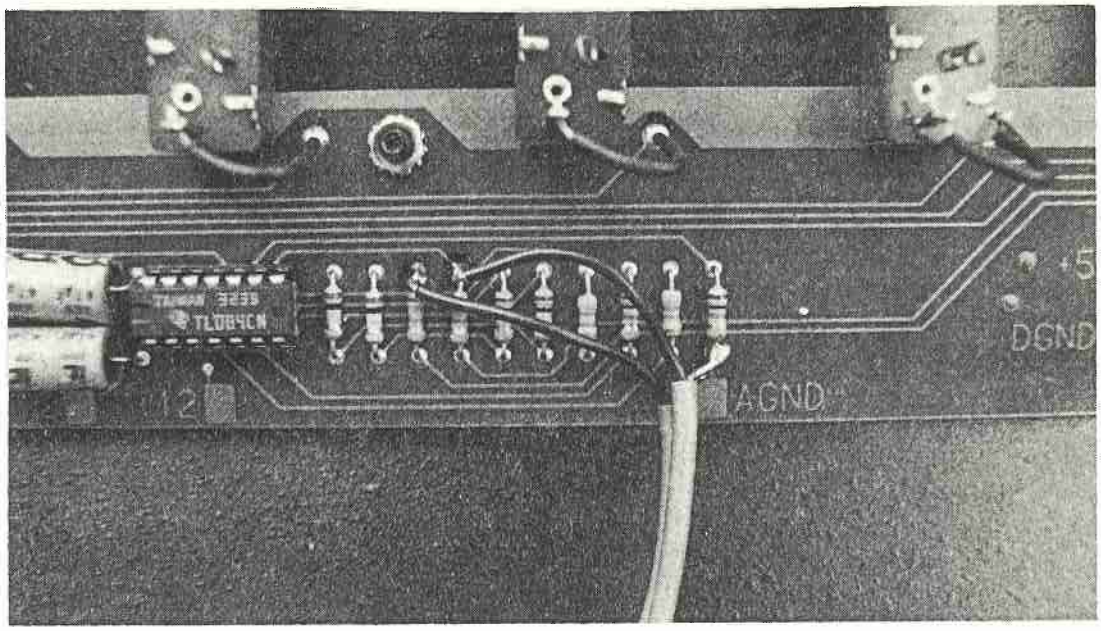


figure 8

15. On the Stretch Processor board, there are two little jumpers near U408. The right jumper must be connected if Stretch is connected to an earlier model DX. There must be no jumper in the left two feed-throughs. See **figure 9** .

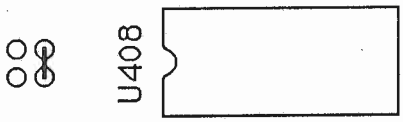


figure 9

16. If the customer is not asking to have sound chips installed at this time, the following sounds may be borrowed temporarily from the DX in order to test installation of Stretch: (See Page 11 for detailed instructions on changing sound chips).

Use 'TOMS' in location U104 of Stretch Processor board.
Use 'Snare 64' in location U204 of Stretch Processor board.
Use 'Shake 2' in location U304 of Stretch Processor board.
Use 'Long Ride 3' in location U507 of Stretch Processor board. (To test this slot the way it is configured at the factory, a 27256 must be used. Older model DX's do not have a chip this size to borrow.)

-Close the Stretch and verify audio by playing the drum switches on the Stretch and listening to output of DX.
-Carefully return the DX sound chips to their original positions inside DX and verify proper installation by listening to DX.
-Close the Stretch and the DX and secure the lids with four thumbscrews.

INSTRUCTIONS FOR COMPLETING INSTALLATION ONTO LATER MODEL DX. (SERIAL NUMBERS STARTING WITH 'H' OR 'J').

17. Carefully remove the 24-pin memory I.C. in location U725 of the DX Processor board and place it into location U405 on the Stretch Processor board, making sure not to bend any pins.

18. Insert the free end of Cable #6 into location U725 on the DX Processor board making sure pin 1 of the cable is lined up with pin 1 of the socket. When inserted correctly, the ribbon cable will be coming out the side of the socket that is nearest to the front of the chassis. See **figure 10.**

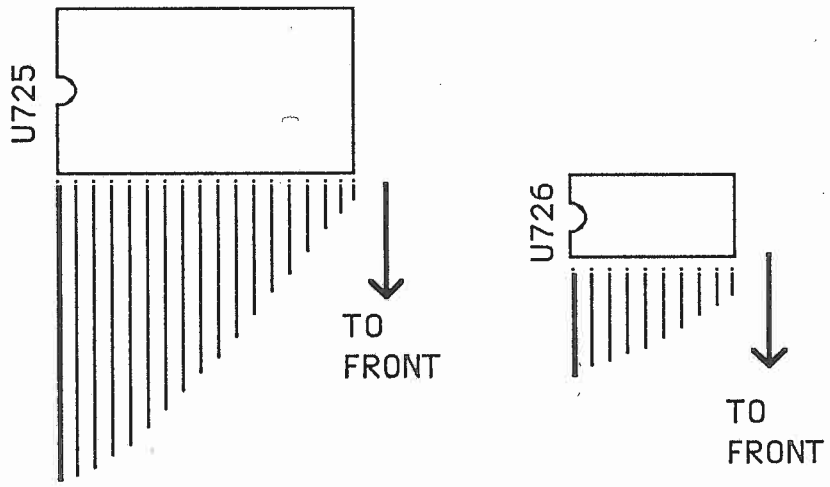


figure10

19. Remove the 74LS32 from location U726 on the DX processor board and insert it into the Stretch Processor board into location U407.
NOTE: If the 74LS32 is soldered in, it will be necessary to perform **ECO 702** . I.E. remove the I.C. and put a socket in it's place. ECO 702 is included in this Service Center Kit.

20. Insert the free end of Cable #5 into location U726 on the DX Processor board making sure pin 1 of the cable is lined up with pin 1 of the socket. When inserted correctly, the ribbon cable will be coming out the side of the socket that is nearest to the front of the chassis. See **figure 10** above.

21. Cable #4 is the power supply for Stretch. It is the Molex cable with 3 colored wires coming out of it. (Connector 'C' on the upper right hand side of the Stretch Processor board). The ends of the wires must be soldered to the DX Processor board to the locations shown in **figure 11** on page 8.
- The Brown wire (pin 1 of connector) is to be soldered to the -12 trace coming from U709. Scrape away some of the solder mask around the feed-through and solder the end of the wire to the exposed surface. See **figure11** .
- The Orange wire (pin 3 of connector) is to be soldered to the ground trace coming from center pin of U708 . See **figure 11.** Scrape away some of the solder mask around the feed-through as shown in the figure , and solder to the exposed trace.
- The Yellow wire (pin 4) is to be soldered to the +12 trace coming from left pin of U708

and the + side of C602. Once again, scrape away some of the solder mask around the feed-through and solder the end of the wire to the exposed surface. See **figure 11.**

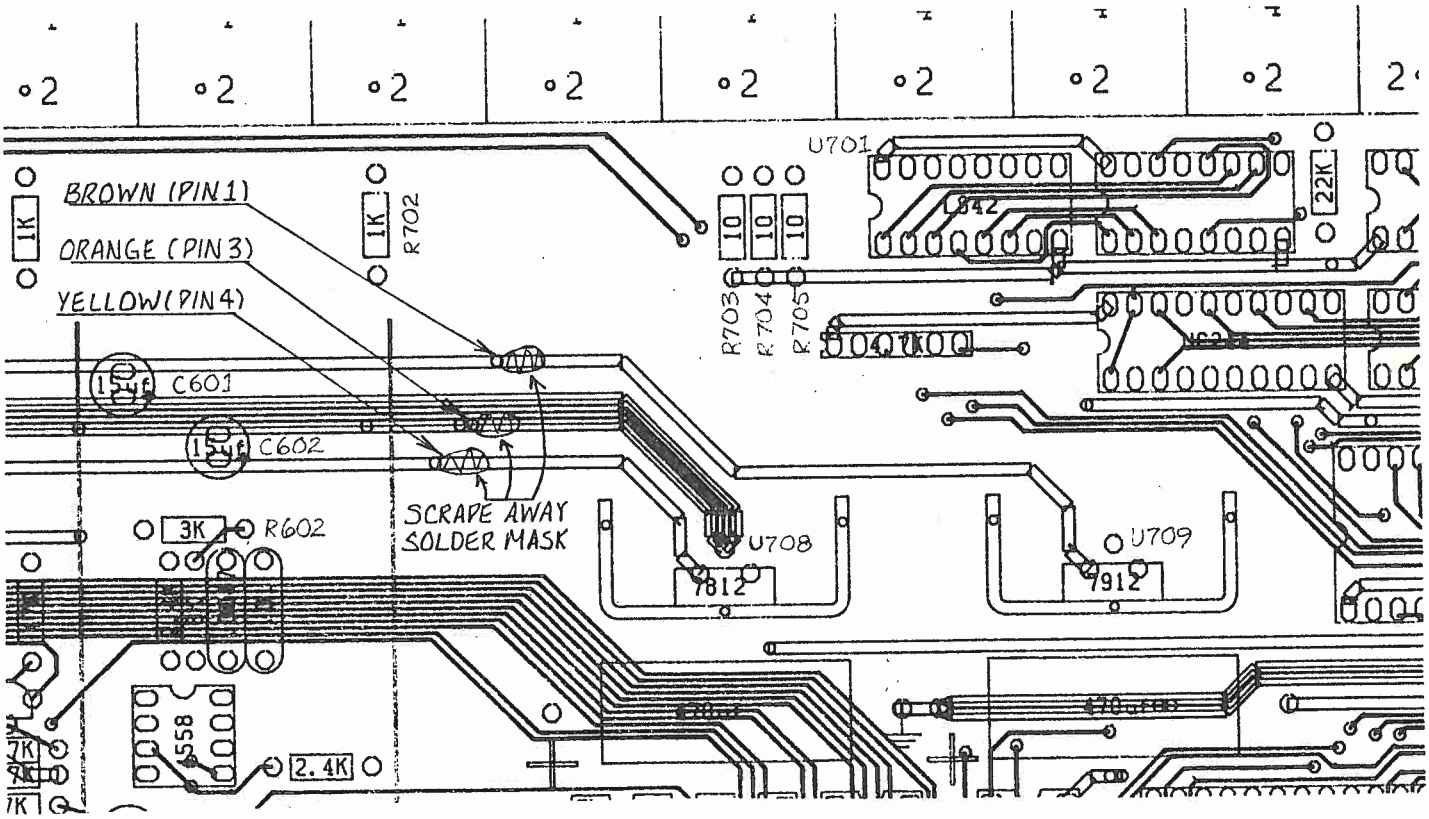


figure11

22. Cable #1 is the cable for audio that runs from the Switch board of Stretch to the Switch board of DX. There are two shielded cables one connected to pin 1 and one connected to pin 4. Pin 2 is the key.
- Solder the two copper colored braided shields to AGND located on the positive + side of C4 and the negative side of C3 (see the photo in **figure 12**).
- Solder the signal wire coming from pin 1 to the lower end of R13 on the DX Switch board, as shown in **figure 12.**
- Solder the signal wire coming from pin 4 to pin 6 of U1 on the DX Switch board, as shown in **figure 12.**

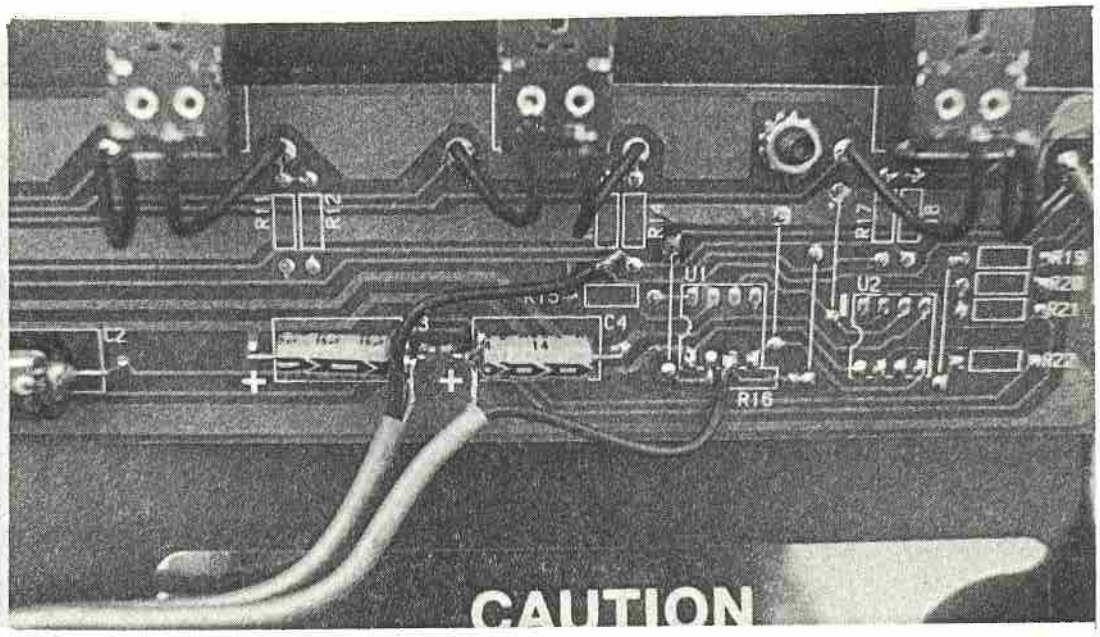


figure12

23. On the Stretch Processor board, there are two little jumper locations near U408. The left jumper must be connected and there must be no jumper in the right two feed-throughs if Stretch is connected to a later model DX. See **figure 13 .**

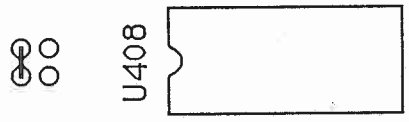


figure 13

24. If the customer is not asking to have sound chips installed at this time, the following sounds may be borrowed temporarily from the DX in order to test installation of Stretch: (See Page 11 for detailed instructions on changing sound chips).

Use 'TOMS' in location U104 of Stretch Processor board.
Use 'Snare 64' in location U204 of Stretch Processor board.
Use 'Shake 2' in location U304 of Stretch Processor board.
Use 'Long Ride 3' in location U507 of Stretch Processor board. (U506 on DX Processor Board.

-Close the Stretch and verify audio by playing the drum switches on the Stretch and listening to output of DX.
-Carefully return the DX sound chips to their original positions inside DX and verify proper installation by listening to DX.
-Close the Stretch and the DX and secure the lids with four thumbscrews.

ENGINEERING CHANGE ORDER

PRODUCT AFFECTED:	DRAWINGS AFFECTED:	ECO No.
DX'a' ASSY.720098	DX'a' PROCESSOR PARTS LAYOUT 1913A	702

AFFECTIVITY:

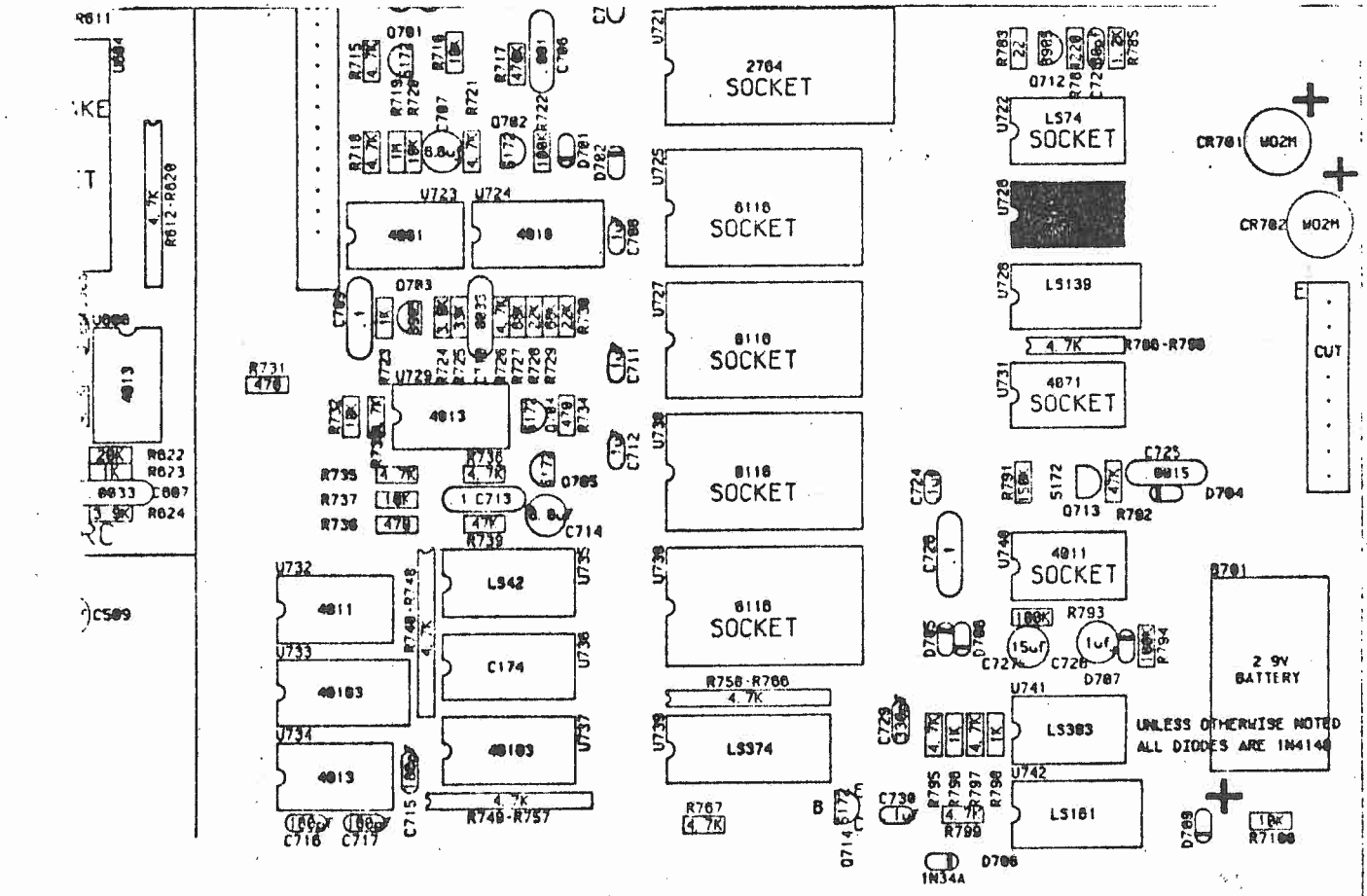
- ☐ AS REQUIRED IN TEST
- ☒ FUTURE PRODUCTION
- ☐ RETROFIT PRODUCTION & INVENTORY
- ☐ RETROFIT IN FIELD ☐ AS NEEDED
- ☐ DRAWING CORRECTION ONLY
- ☐ _____

REASON FOR CHANGE:

INSTALL SOCKET IN U726 TO ALLOW INSTALLATION OF STRETCH.

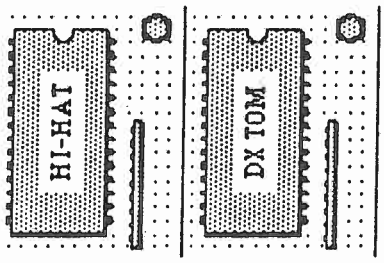
WRITTEN BY:	DATE:	APPROVED BY:	DATE:
A.G.	3-8-85		3-8-85

DESCRIPTION OF CHANGE:

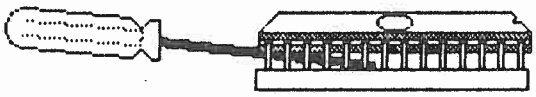


OBERHEIM

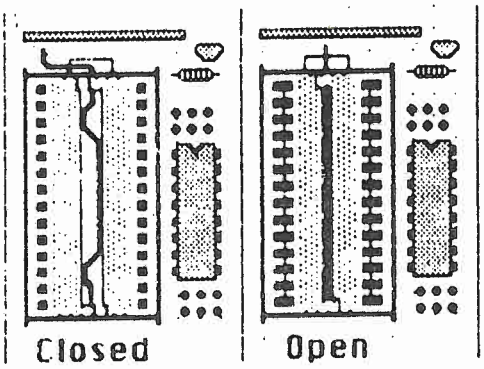
Changing Sound Chips



Locate the Sound Chip to be removed...

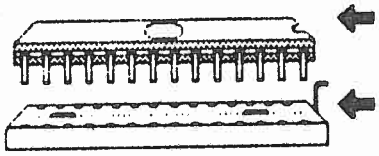


Using a small screwdriver or Chip Extractor, CAREFULLY lift the chip out of its socket, from both sides.



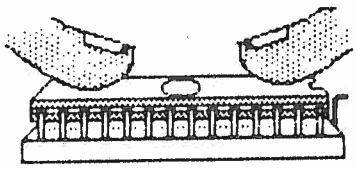
Locate the desired Sound Chip ZIF Socket...

Move the socket lever to its OPEN positon.



Line up the sound chip, making sure that the notch on the chip is on the same side as the lever on the socket.

(Chips can be destroyed by not inserting them correctly, so be careful!)



Press the chip carefully into the socket. Check to make sure that all of the pins have mated correctly.