ensoniq®

Service Bulletin #7

30 April 1992 - Rev C

THIS BULLETIN COVERS:
- VFX VERSION 2 UPGRADE

This bulletin is for International distributors only.

PURPOSE: This upgrade includes replacing the Operating System (O.S.) EPROMs, the Digital Oscillator Chip (OTIS), and the Ensoniq Signal Processor (ESP) chip. This upgrade will give the end user new effects, sonic enhancements and new features. **All of these components must be upgraded at the same time**

All sounds and presets must be saved before starting this procedure! (For more information on saving sounds and presets, see Section 11 of the *VFX Musician's Manual*).

The replacement instructions for the O.S. EPROMs and the OTIS chip are the same for all VFX's. However, the ESP replacement instructions may differ depending on the revision of the tower board on the VFX main board. Be sure to use the correct instructions based on the tower board revision.

Be sure to be properly grounded when handling any of these chips.

Included in this kit:

Quantity	Part	Part Number	Comments
1	1KΩ resistor	1021 0102 05	for Rev A or B tower board
1	10KΩ flat metal pot	1065 0103 01	for Rev A or B tower board
1	511Ω 1% resistor	1021 5110 05	for Rev C tower board
1	ESP chip rev 5 or 6	5510 0001 05/6	
1	OTISR2 chip (rev 2)	5505 0001 02	
1	O.S. EPROM Assembly	4095 0105 02	assembly contains 2 chips (marked UPPER and LOWER)
1	Ver 2.0 Update Sheet	9311 0023 01	to give to the end user
1	Ver 2.1 Update Sheet	9311 0025 01	to give to the end user
1	Ver 2.3 Update Sheet	9311 0043 01	to give to the end user

PART 1 REPLACING THE O.S. EPROMS

These instructions are the same for all units.

The VFX has two operating system EPROMs located in the center of the main board just above the keyboard. After replacing these EPROMs, the VFX must be reinitialized. The internal sounds are automatically replaced by the ROM sounds during reinitialization.

a) Remove all cables connected to the VFX, including the power cord.
b) Remove the four (4) screws that fasten the control panel and raise the panel.
c) Remove the keyboard (see Section C of the VFX Service Manual).
d) The two operating system EPROMs, LOWER (U11) and UPPER (U12), are located in the center of the main board. Carefully remove the two EPROMs and insert the replacement EPROMs into their respective sockets. Be sure the notch in both EPROMs is facing the same way as all the other chips on the board.

PART 2 REPLACING THE OTIS CHIP WITH THE OTISR2 CHIP

These instructions are the same for all units.

a) Note the direction of notched end of the chip. Carefully remove the revision 1 chip from the socket at location U23.
b) Install the OTISR2 chip into U23 in the same location and orientation.

PART 3 TOWER BOARD REVISIONS

These instructions are NOT the same for all units.

You will be replacing a rev 1 ESP chip with a new revision ESP chip. The part number printed on top of the chip reflects the revision level. If the unit already has a Rev 2 or higher ESP chip in it, *do not* make any changes, you are finished with the update. If the unit has a Rev 1 ESP chip, please continue.

ESP Part Number on chip	Revision	Comments
5510 0001 01	Rev 1	upgrade using the enclosed ESP
5510 0001 02	Rev 2	do not make any changes
5510 0001 05	Rev 5	do not make any changes
5510 0001 06	Rev 6	do not make any changes

There are two different revisions of tower boards. The tower board revision letter is located after the tower board part number (P/N) on the right hand side of the board.

Verify which tower board revision you have before proceeding any further!

Tower Board Part Number and Revision	Type of Pot	Location
4001 0112 01 Rev A or B	metal	R1
4001 0112 01 Rev C	blue or white plastic	Pot 1

VFXs with a Rev A or B Tower ONLY (metal pot in position R1 of the tower)
The metal ESP adjustment pot must be a 10KΩ with a 1KΩ resistor across it. This resistor may be already tack soldered underneath the tower.

If the pot has glypt (orange colored stuff) on it, replace it as follows:
Remove the pot and measure the resistance across the two holes where the pot was.

- If the resistance measures infinite, replace the pot with the 10KΩ pot with the 1KΩ resistor across it.
- If the resistance measures 1KΩ, there is a resistor under the tower. Replace the pot with the enclosed 10KΩ pot making sure that the 1KΩ resistor stays in contact.

VFXs with a Rev C Tower ONLY (blue or white plastic pot in location Pot1)
When replacing a Rev 1 ESP chip with the enclosed ESP chip, you must change R3 (located just to the right of the 8MHz oscillator pack) on the tower board from a 735Ω 1% to the 511Ω 1% resistor provided with this kit. There is no need to change the pot.

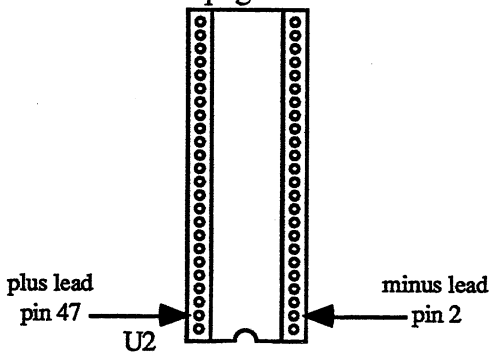
PART 4 INSTALLING THE ENCLOSED ESP CHIP AND SETTING THE ESP POT

These instructions are the same for all units.

1. **Be sure that the tower board has the correct values required for the Rev 2 ESP chip (see Part 3 above).**
2. Carefully remove the Rev 1 ESP chip from the U2 socket on the tower board.
3. Be sure that there are no audio cables plugged into the VFX. Center the ESP pot.
4. **Leave the keyboard disconnected and no chip in socket U2** (on the tower).
5. **Set the volume slider to the lowest level.**
6. Turn the VFX on. The wakeup screen will appear and then you will see the following message:

   KEYBOARD CALIBRATION FAILED
   RECALIBRATE IGNORE

   This is OK. No button presses will be recognized because there in no keyboard in place to pass them to the main board. Leave the unit on this page.
7. Set a Digital Volt Meter (DVM) to measure DC Volts. Facing front of the board, place the minus lead onto pin 2 of the U2 socket. Place the plus lead (red) onto pin 47 of the U2 socket.



8. Adjust the pot to the voltage marked on a label on the chip.

9. Turn the unit off. Carefully install the enclosed ESP chip into the U2 socket on the tower.
10. Reinstall the keyboard (see Section C of the VFX Service Manual). Make sure that the striped side of the keyboard cable is on pin 1 of the J6 connector on the main board. Remember that if the keyboard cable is mis-pinned, fuses F3 and F4 will blow.

IMPORTANT! Make sure all audio cables are unplugged BEFORE turning the unit on or reinitializing. The first time you turn on the VFX after updating the software or during reinitialization, the unit may make a loud pop.

11. Lower the front panel. Reinitialize by holding down ***Presets*** and pressing upper left soft button. Answer YES to the question.
12. Check the software version by holding down ***Presets*** and pressing ***Master***.
13. Connect audio cables to the VFX. Select and individually test the following sounds for sound quality, pops, glitches, clicks, reverb, etc. Play sustained notes of each sound.

Bank	Sound name
0	DRAWBARS-1
3	NASTY-ORGAN
7	BETTERBELLS

14. Give the end user the enclosed VFX Software Update sheets.