Owner's Manual

OB-X

Polyphonic Synthesizer

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WARNING-

TO PREVENT FIRE AND SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CONGRATULATIONS!

- on the purchase of a new Oberheim OB-X Polyphonic Synthesizer. We believe that you will find this instrument to be an outstanding combination of value, versatility and reliability.

The OB-X was developed using an unique combination of Oberheim circuitry, proven by use in hundreds of polyphonic synthesizers, and the latest in microprocessor circuitry, resulting in a product capable of producing a myriad of polyphonic sounds with unheard of ease.

FEATURES

* Totally Programmable with Storage for 32 Programs
* Automatic Tuning
* A-440 Pitch Reference
* Edit Mode
* Cassette Interface Built-In
* Five Octave Keyboard
* Polyphonic Portamento and Polyphonic Sample/Hold
* Unique Transposable "Unison Chord" Feature
* Two Oscillators per Voice
* Two Full ADSR Envelope Generators per Voice
* Pitch and Modulation Levers
* Five Foot Control Inputs: Volume, Filter, Vibrato, Sustain, Program Advance
* Voice Hold
* Noise Generator
* 115/230 Volt Power Switch

To get started with your OB-X, do the following:

1) First, make sure the 115/230 switch on the rear panel is set for the local AC power;

2) Apply power and plug into your sound system;

3) Make sure the Cassette ENABLE switch is in the position toward the audio output jacks;

4) Press "AUTO" to tune all oscillators;

5) Select a programmed sound by pressing a GROUP (A thru D) and a PROGRAM (1 thru 8);

6) Play!

The unit comes from the factory pre-programmed with 32 sounds. These include a great variety of sounds which will quickly acquaint you with the capabilities of your instrument.

You can adjust the output volume of the OB-X with the VOLUME control in the upper left hand corner. This control simultaneously controls both the stereo outputs and the mono output. The MASTER TUNE control allows the instrument to be fine-tuned to other instruments. When this control is within the "dead-zone" near the top center, the instrument is tuned to standard A-440 pitch.

---IMPORTANT NOTE---

If a mono amplifier is plugged into either stereo output, a low volume will most likely be experienced on certain voices due to the factory setting of the Pan Pots. If only a mono amplifier is available, be sure to plug it into the mono output.

SETTING THE PAN POTS

If the positions of the Pan Pots are not to your liking, they can be changed by the following procedure:

1) Remove the top two screws on each end bell and lift the cover;

2) If the unit has an extra voices tray, disconnect the cable connecting the two mother boards, remove the three screws holding down the extra voices tray, and tilt it into a vertical position;

3) Determine the sequencing positions of the Voices by alternately pressing single keys on the keyboard while simultaneously turning back and forth the Pan Pot for Voice 1; (when a change in volume is heard while a given Pan Pot is being turned, you have located the Voice associated with that Pan Pot)

4) Set Voice 1 Pan Pot as desired, sequence to Voice 2 and set its Pan Pot, and repeat for Voices 3 and 4;

5) Return the extra voice tray to its normal position, secure with the screws and set the remaining Pan Pots as described above;

6) Close the cover and replace the end bell screws.

After you have tried the pre-programmed sounds supplied with the OB-X, you may want to modify them or create a completely new sound. This can be done by using either MANUAL mode or EDIT mode. It is important to understand the difference between these two modes of operation.

MANUAL MODE

You may have noticed that when a program is selected, most of the front panel controls are inoperative. However, these controls again become operative after entering the MANUAL mode or EDIT mode. When you press the MANUAL button, the OB-X circuitry responds to the absolute settings of the controls. For instance, if the OSC 1 FREQUENCY control is set at around 11 o'clock, upon entering MANUAL mode the pitch of this oscillator will be one octave above its base pitch. In general, when one enters the MANUAL mode from one of the programs, the sound of the instrument will change to reflect the actual physical settings of the controls. The various on-off states of the switches will be those that existed the last time the OB-X was in the MANUAL mode.

EDIT MODE

The EDIT mode also makes the front panel controls operate, but allows for incremental changes of these controls from a programmed setting. That is, when you enter EDIT mode, there is no change of the sound of the instrument. But if any control is altered, the sound then changes to reflect this alteration. For instance, if a sound has originally been programmed with a FILTER FREQUENCY setting around 12 o'clock, but later EDIT mode is entered from this program with the above control set at 9 o'clock, the sound will be the same as if the instrument was in MANUAL mode with the FILTER FREQUENCY control set at 12 o'clock. If a modification of the sound is desired, the controls operate incrementally from their present physical positions. If it is desired to further increase or decrease a control setting, and that control is already at its maximum or minimum position, simply rotate the control all the way in the opposite direction and then make your desired setting.

PROTECT SWITCH

Contained inside the OB-X, on the printed circuit board which holds the microprocessor and the memories, is a switch which, when set properly, prevents a user from writing into Program Memory. This allows one to protect programs from accidental erasure. To set this switch, follow this procedure:

1) Remove the top two screws on each end bell;

2) Raise the OB-X cover;

3) Locate the PROTECT switch on the processor board;

4) To protect programs, position the switch toward the front of the OB-X;

5) To allow program changes, position the switch away from the front of the OB-X.

WRITING A PROGRAM

A program existing in the front panel controls, in either MANUAL or EDIT mode, may be saved by writing it into the memory. This is done by using the following procedure:

1) Press and hold WRITE and wait for the WRITE light to come on;

2) Continue to hold WRITE and select a GROUP (A thru D);

3) Continue to hold WRITE and select a PROGRAM (1 thru 8).

The write operation actually occurs when both the WRITE switch is being pressed at the same time a PROGRAM switch is pressed, with the WRITE light on. Take note that a write operation cannot be performed if the PROTECT switch inside the unit is on.

MOVING PROGRAMS

Occasionally it may be desireable to move a complete program from one program memory location to another. To do this, simply select the program you wish to move, and then write into the desired new program location, as described above.

CREATING A NEW PROGRAM FROM AN EXISTING PROGRAM

One of the most commonly used methods of creating a program, especially for users just learning the OB-X, is to use an existing program as the basis for a new program and then incorporating the Edit feature. This is accomplished with the following procedure:

1) Select the program which will be the basis for your new program;

2) Enter the EDIT mode;

3) Make changes to the present program as necessary to create the new program;

4) Write this new program into memory using the procedure described above.

The controls in the MANUAL section are NOT programmable.

VOLUME

This control affects the output volume of the OB-X simultaneously from the LEFT, MONO, and RIGHT outputs. It actually produces a non-programmable control voltage which drives the voltage-controlled output amplifiers, but this parameter cannot be input into the programmer. The voltage control feature allows for automatic shut-off of the instrument output signal during AUTO TUNE, as well as the provision for a VOLUME pedal input without an increase in hum or noise.

AUTO

When this button is pressed, the microprocessor automatically tunes all OB-X oscillators. While this process is occurring, the output amplifier is shut-off. All controls affecting pitch are disabled during AUTO TUNE except the PITCH BEND lever. Therefore, if this lever is moved while the tuning process is taking place, the oscillators will end up out of tune.

HOLD

This button is used to produce a sustained note or chord. To use, press the HOLD button and simultaneously press one or more notes, and then release the HOLD button. The note or notes played will now be sustained indefinitely. If it is desired to hold several notes, they may be played either one at a time or simultaneously, while holding down the HOLD button. To cancel the hold function, press HOLD a second time, but be sure not to hold down any keys.

CHORD

The HOLD and RESET switches can be used together to produce a very useful "UNISON CHORD" effect. First, select a desired chord by using the HOLD function as described above. Then, press the RESET switch. The held chord will cease sounding until a note on the keyboard is played. When this is done, the chord previously held will sound, transposed by the amount that the played note is above the lowest note on the keyboard. To exit the CHORD mode, simply press the HOLD switch.

MASTER TUNE

When this control is moved left or right of "center", all oscillators are tuned down or up. This allows the OB-X to be tuned to another instrument. A "dead-zone" exists near the center of this control's travel. When it is set in this dead zone, the instrument will be tuned to standard A-440 pitch, providing auto-tune has been performed.

The controls in the CONTROL section are all programmable.

PORTAMENTO

This control determines the rate of portamento or "glide" of each voice as that voice's pitch is changed. Note that the portamento of the OB-X is polyphonic, so each voice will portamento from note to note independently of all other notes. Portamento also functions in UNISON mode.

UNISON

When switched on, causes all voices to be sounded by one key depression. In UNISON mode, the OB-X keyboard operates with low note rule, which means that the lowest note played on the keyboard will always have priority.

UNISON with HOLD

If it is desired to hold all voices in unison, use the following procedure:

1) Press UNISON;

2) Press and hold HOLD;

3) Press and release desired key;

4) Release HOLD.

To cancel the UNISON/HOLD function, simply press any key on the keyboard.

OSC 2 DETUNE

This control allows Oscillator 2 to be tuned either flat or sharp with respect to Oscillator 1. Turning the control to the left makes Oscillator 2 go flat and to the right makes it go sharp. The associated LED turns on whenever the second oscillator is being detuned.

The controls in the MODULATION section are all programmable and are of 2 basic types. The control and switches in the first column, labeled "LFO", are used to select the low frequency oscillator characteristics. The controls and switches in the other two columns, labeled "FREQUENCY" and "PULSE WIDTH", are used to select amounts and destinations of the modulations.

---LFO---

RATE — This control determines how fast the LOW FREQUENCY OSCILLATOR (LFO) oscillates. Its range is from approximately 1/10 oscillation per second to 20 oscillations per second.

SINE — When switched on, selects sine wave modulation from the LFO. This effects a smooth rising and falling of pitch during frequency modulation or smooth changing of the pulse width during pulse width modulation.

SQUARE — When switched on, selects square wave modulation from the LFO. This produces a discrete downward interval during frequency modulation or a discrete pulse width change during pulse width modulation.

S/H — When switched on, selects a random output from the LFO. This produces a sequence of random pitches during frequency modulation or a sequence of random pulse widths during pulse width modulation.

---FREQUENCY---

DEPTH — This control determines the amount of selected LFO waveform to be sent to modulate the frequency of Oscillator 1, Oscillator 2 or the Filter, as controlled by the destination switches below it.

OSC 1 — When on, this switch selects Oscillator 1 as a destination for frequency modulation. The amount of modulation by the selected LFO waveform is determined by the DEPTH control.