OWNER'S MANUAL

OB-8

OB-8
POLYPHONIC SYNTHESIZER

OWNERS MANUAL

by
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OBERHEIM ELECTRONICS, INC.
2250 So. Barrington Ave.
Los Angeles, CA 90046 USA

CONGRATULATIONS!!!

And welcome to the OB-8. You have just purchased a state-of-the-art electronic music device. The OB-8 is easy to use, yet contains many features that allow for very precise sound synthesis.

A refinement and evolution of Oberheim's OB-X and OB-Xa, the OB-8 contains more features and better performance, with fewer parts, which means more reliability.

The most important functions on the OB-8 are available simply by pressing the desired button or turning the proper knob; yet there are many other less used functions that can be accessed indirectly, allowing control over many functions without the need for more knobs and buttons.

The OB-8 interfaces with the Oberheim DSX Digital Polyphonic Sequencer, which adds greatly to the OB-8's capability by recording and playing notes as well as patch changes.

As with any piece of equipment, the more that you know about it, the better you will be able to use it. So read this instruction manual often, to familiarise yourself with the capability of this instrument.

And experiment! You won't discover all of the OB-8's capability unless you do.

Good luck!

OB-8

PAGE 1 FUNCTIONS

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

2) Apply power and plug into your sound system;

3) Press "AUTO" to tune all of the oscillators;

4) Select a programmed sound by pressing a GROUP (A thru D, or any
    combination) and a PROGRAM (1 thru 8);

5) Set the MASTER VOLUME control to an appropriate level.

6) Play!

MASTER VOLUME

You can adjust the output volume of the OB-8 with the MASTER
VOLUME control in the upper left hand corner. This control
simultaneously controls both the stereo outputs and the mono
output.

MASTER TUNE

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.

TUNING

The AUTO button activates the Autotune program. This program
tunes the initial frequency and volts/octave (tracking) of the
oscillators one at a time, and the PROGRAM lights will flash one
after the other, to indicate which voice is currently being tuned.

While the Autotune program is running, the outputs and all
controls are disabled. The Autotune program also calibrates the
pitch bend lever for zero bend and the vibrato lever for zero
vibrato. It is important that the levers be left alone during
Autotune, so that the Autotune program can set the zero points
accurately.

If a particular voice cannot be tuned by the Auto-tune program,
the PROGRAM light representing that voice will flash for two
seconds, and the computer will automatically disable the out-of-
tune voice.

PAN POTS

The OB-8 comes from the factory with Voices 1-4 panned all the way
to the left and Voices 5-8 panned all the way to the right. Each
of the voices can be panned anywhere in the stereo outputs by
setting the pan pots located on the right side of the unit.

5
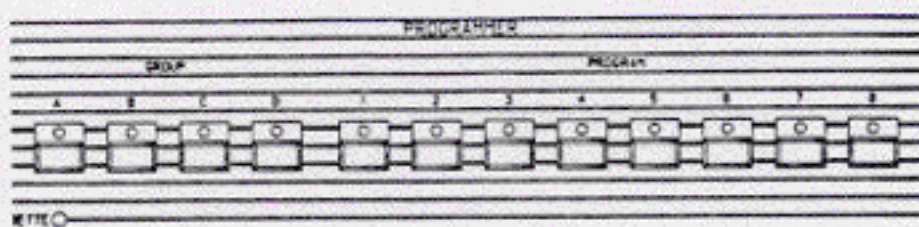
There are two types of programs stored in the OB-8's memory:

PATCH PROGRAMS that store sounds.
SPLIT/DOUBLE PROGRAMS that store combinations of Patch
Programs.

The OB-8 comes from the factory pre-programmed with 104 Patch
Programs, 12 Split Programs, and 12 Double Programs. These
include a great variety of sounds which will quickly acquaint you
with the capabilities of your instrument. The OB-8 Programmed
Patches book details these factory programs.

RECALLING PATCH PROGRAMS
The Patch Programs on the OB-8 are divided into 15 GROUPS of 8
PROGRAMS each. The 15 GROUPS are selected by pressing the four
GROUP buttons ("A", "B", "C", & "D") individually OR in any
combination ("AB", "AC", "BC", "ABC", "ABCD", etc.). The PROGRAM
within the selected GROUP is then selected by pressing one of the
eight PROGRAM buttons.

MODIFYING PATCH PROGRAMS
Any sound recalled by the programmer can be modified (edited) by
changing the controls on the front panel.

The controls add to, or subtract from, the settings stored in the
computer program. For example, the release time of the LOUDNESS
ENVELOPE can be made longer than programmed simply by turning up
the RELEASE control on the LOUDNESS ENVELOPE. This feature allows
quick yet smooth modifications of existing programs. If it is
desired to further increase or decrease a control setting, and the
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.

Modifying the program does not change the program stored in the
OB-8's memory, and the original, unmodified sound program can be
recalled by pressing the appropriate PROGRAM button again.

For more information, see the sections titled "SOUND PROGRAMMING
CONTROLS" and "PAGE 2 CONTROLS".

The OB-8 can be used to create completely new sounds, rather than
alter existing sounds as described above, by using the MANUAL
MODE. In MANUAL, the sound of the instrument will reflect the
actual physical settings of the controls.

NOTE: The MANUAL MODE cannot be used while in SPLIT or DOUBLE
modes, and the 2ND PAGE of controls have no effect (except for
VOICE ENABLES -- see "PAGE 2")

WRITING PROGRAMS

New, modified, or even existing programs can be written into the
OB-8's memory. This is done with the following procedure:

1) Press and hold WRITE until the WRITE light comes on;

2) Select a GROUP (A thru D, or any combination)

3) Select a PROGRAM (1 thru 8).

The write operation actually occurs when the PROGRAM switch is
pressed, with the WRITE light on.

NOTE: Before any programs can be written, the MEMORY PROTECT
SWITCH on the rear panel must be OFF.

MOVING PROGRAMS

It is possible to move a 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.

The OB-8's normal configuration is that of a single 8 voice
synthesizer. In Split or Double modes however, the OB-8 is divided into two
separately programmable 4 voice synthesizers, called Lower and Upper. Any
of the 120 Patch Programs can be recalled for the Lower or Upper
synthesizers, or a combination "Split Program" or "Double Program" can be
recalled.

SPLIT AND DOUBLE FUNCTIONS
     The KEYBOARD SECTION controls operate individually and in
     combination with each other to produce eleven different functions
     with just four buttons:
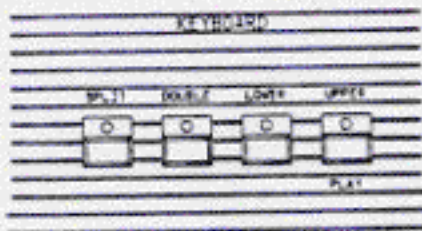
FUNCTION:	PRESS:	DESCRIPTION:
Enter Split Mode	SPLIT	When this button is pressed, the OB-8 enters the SPLIT mode. Pressing it again without any keys held down causes the OB-8 to exit the SPLIT mode.
Enter Double Mode	DOUBLE	When this switch is pressed the OB-8 enters the DOUBLE mode. Pressing the switch again causes the OB-8 to exit the DOUBLE mode.
Change Split Point	SPLIT (hold down) KEY (on the keyboard)	The key depressed is now the lowest note of the UPPER keyboard. This new SPLIT LOCATION will be remembered until a new split is entered, or a split is recalled from memory.
Display Lower Program	LOWER	The Lower Program can be edited or changed without affecting the Upper Program.
Display Upper Program	UPPER	The Upper Program can be edited or changed without affecting the Lower Program. NOTE: The MANUAL mode cannot be used when in SPLIT or DOUBLE.

FUNCTION:	PRESS:	DESCRIPTION:
Change Lower Transposition	SPLIT or DOUBLE (hold) LOWER (hold) KEY (on the keyboard)	The Lower Voices are referenced to the lowest "C" on the keyboard (C0). Transpositions may be made to any key. Pressing the "G" above the lowest "C" will transpose the Lower Voices up a fifth. Transpositions may be made in SPLIT or DOUBLE.
Change Upper Transposition	SPLIT or DOUBLE (hold) UPPER (hold) KEY (on the keyboard)	The Upper Voices are referenced to middle "C" on the keyboard (C2). Transpositions may be made to any key. Pressing the "C" below middle "C" will transpose the Upper voices down an octave.
Recalling Split Programs	SPLIT (hold) GROUP (A-D) or PROGRAM (1-8)	There are twelve SPLIT PROGRAMS which can be programmed and recalled. (see "SPLIT AND DOUBLE PROGRAMS", below).
Recalling Double Programs	DOUBLE (hold) GROUP (A-D) or PROGRAM (1-8)	There are twelve DOUBLE PROGRAMS which can be programmed and recalled. (see "SPLIT AND DOUBLE PROGRAMS", below).
Resetting Split Point & Transpositions	SPLIT or DOUBLE (hold) MANUAL	The SPLIT Location and Transpositions are reset to "normal" (Split Location at middle C, no transpositions). Balance and Lower Voices Detune are also reset.
Change Lower Voices Tuning	LOWER (hold) (turn:) OSC 2 DETUNE	The Lower voices can be detuned sharp or flat from the Upper voices. The LED above the OSC 2 DETUNE control will turn on when the Lower voices are detuned (only while holding the LOWER button).

The balance between the Upper and Lower voices can be adjusted by turning the VOL/BAL control in the MASTER SECTION of the front panel.

All settings, including Patch Programs, Split Point, Transpositions, Balance, and Lower Voices Detune are remembered until the settings are changed, either by hand or by a Split or Double Program. When you exit the Split or Double modes, the DB-8 retains all of these settings; so that when you re-enter Split or Double, all of the settings will be recalled as they were when you were last in SPLIT or DOUBLE, even if the synthesizer was turned off.

In Split and Double there are two patches recalled: One for Lower,
and one for Upper. Either patch can be modified or changed by
displaying the desired patch (with the LOWER or UPPER button) and
then changing the controls on the front panel.

SETTING THE SPLIT POINT

Press and hold the SPLIT button, and while holding the SPLIT
button, press any key on the keyboard. This key becomes the
bottom note of the Upper synthesizer. The keyboard can be split
anywhere, and is remembered until changed.

SETTING LOWER AND UPPER TRANSPOSTIONS

Either half of the synthesizer can be transposed by any amount.

The Lower half can only transpose up. To transpose the Lower
half, press and hold the current mode (either SPLIT or DOUBLE) and
LOWER. While holding both LOWER and SPLIT or DOUBLE press a key
on the keyboard. The interval between this key and the lowest
note on the keyboard (C0) becomes the transposition for the Lower
synthesizer.

The Upper half can transpose up or down. To transpose the Upper
half, press and hold the current mode (either SPLIT or DOUBLE) and
UPPER. While holding both UPPER and SPLIT or DOUBLE press a key
on the keyboard. The interval between this key and Middle C (C3)
becomes the transposition for the Upper synthesizer.

SETTING THE BALANCE BETWEEN LOWER AND UPPER

The control labelled PROGRAM VOL/BAL adjusts the balance between
the Upper and Lower voices.

The Programmed Volume of each patch program is ignored when in
SPLIT or DOUBLE.

DETUNING THE LOWER VOICES

The Lower voices can be detuned up or down from the Upper voices
by pressing the LOWER button, and while holding it, turning the
control labelled OSC 2 DETUNE. The LED above the control will
turn on when the Lower Voices are detuned from the Upper voices.

SPLIT AND DOUBLE RESET

All of the functions unique to Split and Double (Transpositions,
Split Point, Lower Voices Detune, Balance) can be reset by
pressing and hold the current mode (SPLIT or DOUBLE) and while
holding SPLIT or DOUBLE, pressing MANUAL. These functions will be
reset to the following values:

FUNCTION:	RESET TO:
Split Location	Middle C (C3)
Lower Transposition	Low C (C0)--no transposition
Upper Transposition	Middle C (C3)--no transposition
Balance	12 O'Clock--equal balance

The OB-8 is capable of storing 12 Split Programs, each of which
will remember the following:

> Lower Patch Program Number
> Upper Patch Program Number
> Split Location
> Lower Transposition
> Upper Transposition
> Balance
> Lower Voices Detune

These settings are stored using the SPLIT button and any one of
the 4 GROUP buttons or 8 PROGRAM buttons.

The OB-8 is also capable of storing 12 Double Programs. These
settings are stored using the DOUBLE button and any one of the 4
GROUP buttons or 8 PROGRAM buttons.

The storage of Split and Double Programs are independent of the
Patch Programs.

Split and Double Programs remember Patch Program Numbers
(e.g.,"AB1") and not the Patch itself. If a Split Programs
utilizes Patch Program "A1" and "A1" is changed, the Split sound
will change as well.
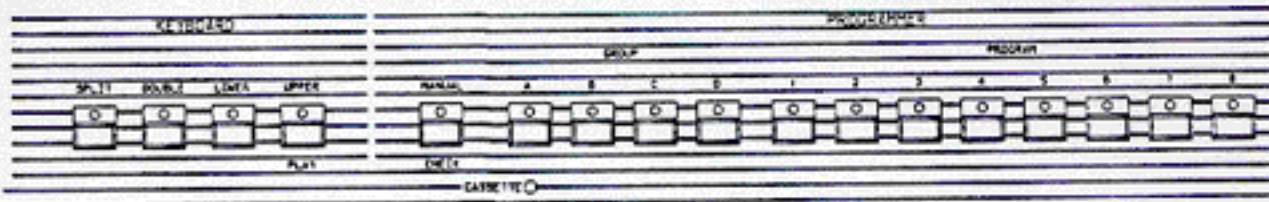
RECALLING SPLIT AND DOUBLE PROGRAMS
> To recall a Split Program, hold SPLIT, and while holding SPLIT,
> press a GROUP or PROGRAM button. Make sure to release the SPLIT
> button last. The Lower Patch Program recalled as part of the
> Split Program is displayed on the GROUP and PROGRAM buttons.
>
> To recall a Double Program, the proceedure is the same: hold
> DOUBLE, and while holding DOUBLE, press a GROUP or PROGRAM button.

11

In Split and Double there are two patches recalled: one for Lower,
and one for Upper. To display the Lower patch, press LOWER; to
display the Upper patch, press UPPER. Either patch can be
modifyed by displaying the desired patch and then changing the
controls on the front panel.

NOTE:The MANUAL mode cannot be used while in SPLIT or DOUBLE.

In addition, all of the Split and Double parameters (Split Point,
Balance, etc.) that are recalled as part of a Split or Double
Program can be modified as described above.

WRITING SPLIT AND DOUBLE PROGRAMS
        To write a Split Program:

        1)   Press and hold the WRITE button until the WRITE light comes
        on;

        2)   Hold SPLIT and press a GROUP or PROGRAM button.

        Whatever Patches, Transpositions, Split Point, Balance, and Lower
        Voices Detune being used at that time are now stored into the
        selected Split Program. The selected Split Program will not
        light, instead the Lower Patch Program will be displayed.

        To write a Double Program follow the same proceedure except Press
        and hold DOUBLE instead of SPLIT.

        NOTE: Edited Patch Programs will not be remembered, only the Patch
        Program as previously stored.

These controls are used while playing the OB-8. The settings of these controls are not stored with a program, but remain in the OB-8's memory until changed.

MODULATION PANEL
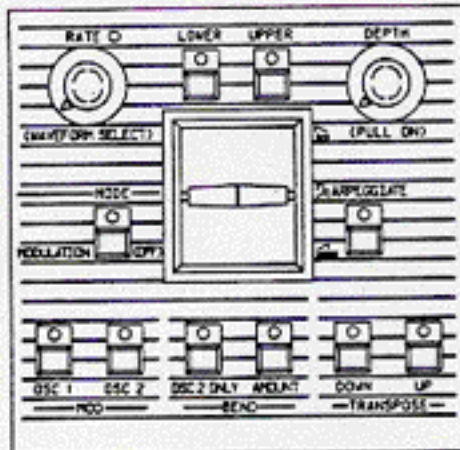
TRANSPOSE   These switches allow you to transpose the entire keyboard up
DOWN & UP   or down one octave from the normal range. When neither of
                  the two buttons are on, the keyboard is in the normal range.
                  Pressing the DOWN button transposes the keyboard one octave
                  below normal. Pressing the UP button transposes the keyboard
                  one octave above normal.

MODE   The MODULATION/PITCH BEND and the ARPEGGIATOR share the same
                  controls on the Modulation Panel. With the MODE switch off,
                  the MODULATION and PITCH BEND controls of the Modulation
                  Panel are displayed. With the MODE switch on, the
                  ARPEGGIATOR controls are displayed.

                  The MODULATION/PITCH BEND and the ARPEGGIATOR both operate at
                  all times. The MODE button simply changes the functions of
                  the buttons.

13

MODULATION
LEVER

This lever controls the amount of modulation from the LFO to the assigned Oscillators. Pulling this control towards the front of the unit will add modulation. If the DEPTH control is on, this lever will add more modulation to the amount set by the DEPTH control. It has no effect when pushed toward the rear.

RATE

This controls the rate of the LFO. The rate can be adjusted from about .06 Hz to 50 Hz.

Waveform
Selection

The various waveforms of the LFO are shown in the following table:

DESIRED WAVEFORM	RATE KNOB SHOULD BE:	WHILE BEND LEVER IS:
TRIANGLE	Pushed Down	Straight
SQUARE	Pulled Up	Straight
UP SAWTOOTH	Pulled Up	UP (towards the front of the unit)
DOWN SAWTOOTH	Pulled Up	DOWN (towards the rear of the unit)
NOISE	Pushed Down	UP (towards the front of the unit)
SAMPLE/HOLD	Pushed Down	DOWN (towards the rear of the unit)

DEPTH

This control allows you to control the depth of the LFO without using the MODULATION LEVER. Turning the knob determines the modulation depth, and pulling up on the knob puts this control into effect.

The amount of depth set by this control is added to the depth controlled by the MODULATION LEVER or the external MODULATION PEDAL.

OSC 1 & OSC 2 These switches determine the destination of the LFO.

PITCH BEND
LEVER

This lever is used to bend the pitches of notes being
played. Pulling it towards the front of the unit causes the
pitch to go up, and pushing it towards the rear causes the
pitch to go down. Its range is determined by the AMOUNT
switch.

AMOUNT

This switch determines the range of the PITCH BEND LEVER.
When this switch is off, the PITCH BEND LEVER has a range of
up or down one whole step (e.g. "C" could move up to a "D" or
down to a "Bb").

Programming
Bend Amount

When the AMOUNT switch is on, the PITCH BEND LEVER can be
programmed to bend an amount between a quarter-tone and an
octave up or down. To program the amount of pitch bend,
press and hold the AMOUNT button, and while holding it, press
any key in the lowest octave of the keyboard. The interval
bewteen the lowest C and the key pressed becomes the maximum
range of the bend lever. For example, holding the AMOUNT
button and pressing the lowest Eb on the keyboard (Eb0) will
program a maximum bend range of a minor third up or down.
The amount of pitch bend with the AMOUNT light on will remain
at this same programmed value until changed, even if the
power is turned off.

OSC 2 ONLY

When this switch is on, the PITCH BEND lever bends only
Oscillator 2 of each voice. When this switch is off, the
BEND LEVER bends both Oscillators.

Bending only Oscillator 2 has an interesting, timbral effect
on programs in which Oscillator 2 is in SYNC.

LOWER &
UPPER

These buttons are used to assign all of the functions of the
MODULATION and PITCH BEND controls, to either half of the
keyboard when in the SPLIT or DOUBLE mode. The LOWER and
UPPER switches have separate functions for the ARPEGGIATOR,
so that the arpeggiator and modulation can be assigned to
Upper or Lower independently.

The LOWER and UPPER switches will both come on when not in
the SPLIT or DOUBLE modes, and will revert to their previous
settings upon re-entering Split or Double.

15
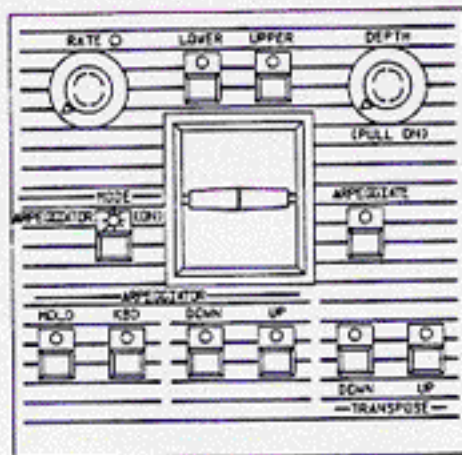
MODE   The ARPEGGIATOR shares the same controls on the Modulation
                    Panel with the MODULATION and PITCH BEND. With the MODE
                    switch on, the ARPEGGIATOR controls are displayed.

ARPEGGIATE   This button turns the arpeggiator on and off. The ARPEGGIATE
                    button operates while either arpeggiator or modulation is
                    displayed (whether the MODE switch is on or off).   .

KBD   When this button is on, notes played on the keyboard will
                    arpeggiate.

HOLD   When this button is on, held notes or a held chord will
                    arpeggiate. The operations for holding and transposing an
                    arpeggio is the same as for holding and transposing a chord
                    (see,"HOLD AND CHORD FUNCTIONS, BELOW).

                    Either the KBD or the HOLD button (or both) can be selected
                    at one time.

UP & DOWN   These buttons work together to create four arpeggiator modes:

If the UP button is on, the notes will arpeggiate in the order played.

If the DOWN button is on, the notes will arpeggiate in the reverse order in which they were played.

If BOTH the UP and DOWN buttons are on, the notes will arpeggiate first in order, and then in reverse order.

If NEITHER the UP nor the DOWN buttons are on, the notes will arpeggiate in random order. The random sequence is weighted so that the first note played will sound more often than the others, and that a note will not sound twice in a row.

LOWER & UPPER These buttons are used to assign the ARPEGGIATOR to either or both halves of the keyboard when in SPLIT or DOUBLE. In SPLIT, the arpeggiator will first arpeggiate the LOWER half of the keyboard and then the UPPER half regardless of the order in which the notes were played (except in reverse "DOWN" mode in which case the UPPER half will play first).

Either the LOWER or the UPPER button (or both) can be selected when in Split or Double. They will both come on when not in the SPLIT or DOUBLE modes, and revert to their previous settings upon re-entering SPLIT or DOUBLE.

17

The OB-8's arpeggiator can transpose arpeggiating notes by up
to five programmable intervals. The six buttons at the front
of the MODULATION PANEL become the six transpose buttons
(five plus no transposition) only while the MODE button is
pressed.
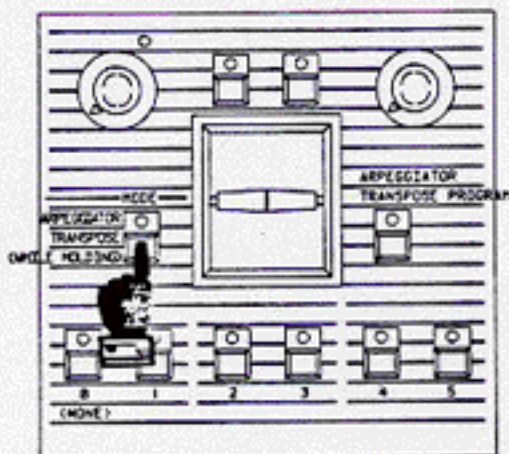
The left button (labelled HOLD and OSC 1) selects no
transposition. With no transposition, the notes will
arpeggiate as played (or held).

The other five buttons select the five transpositions. Each
transposition adds to the previous transpositions, i.e.
pressing the right-most button (labelled TRANSPOSE UP) will
arpeggiate the notes played (or held), and then transpose the
arpeggiation by the first interval, then by the second,
third, fourth, and finally the fifth, before starting over at
the bottom.

When shipped from the factory, the transpositions are
programmed to be successive octaves, but any of the
transposition can be programmed to be any interval. See
"PROGRAMMING ARPEGGIATOR TRANSPOSITIONS", below.

In the ARPEGGIATE UP mode, the notes played (or held) will
first arpeggiate as played, then by each transposition as
selected.

In ARPEGGIATOR DOWN mode, the arpeggiator action is the
reverse: the notes played (or held) will first arpeggiate in
reverse played order, transposed by the last interval
selected, then by the previous interval, etc., until reaching
the actual notes played.

In RANDOM mode (neither UP nor DOWN pressed), both the notes
played as well as the transpositions will be random.

PROGRAMMING ARPEGGIATOR TRANSPOSTIONS

Press and Hold BOTH the ARPEGGIATOR MODE button, and the
ARPEGGIATE button. While holding BOTH buttons, play five
keys on the keyboard, one at a time. These five keys become
transpositions 1, 2, 3, 4, and 5 in the order in which they
are played. The arpeggiator will now transpose played or
held notes by these intervals, after arpeggiating the notes
as played.

HINT: To avoid turning the Arpeggiator on or off while programming
transpositions, press the MODE button before pressing the
ARPEGGIATE button.

HOLD

This button is used to produce a sustained note or chord.
To use, press the HOLD button and simultaneously play one or
more notes, and then release the HOLD button. The note or
notes played will now be sustained indefinitely. You can
play notes one at a time or all at once, 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.

The HOLD button and the HOLD FOOTSWITCH operate the same and
can be used interchangeably.

HOLD may be used in Split and Double to sustain different
sounds at once, and with the Arpeggiator to arpeggiate a
sequence of notes without having to hold them down. (see
"ARPEGGIATOR")

CHORD
Chord Hold

The HOLD and CHORD buttons can be used together to play
chords with one key. First, select the desired notes by
using the HOLD function as described above. Then, press the
CHORD switch. The held chord will cease sounding. By
playing low C (C0) on the keyboard, the held chord will be
reproduced as previously played. Playing notes above C0 will
transpose the chord up by a corresponding interval. If the G
above lowest C (G0) is played, the chord will sound
transposed up a fifth; if the C two octaves above the lowest
C (C2) is played, the chord will sound transposed up by two
octaves. The actual note being played will not sound.

Transpose
Limit

The transposing effect can be limited to a part of the
keyboard. Press the CHORD button, and while holding it press
a key on the keyboard. This key becomes the Transpose Limit.
A held chord will not be transposed above this key. Above
the Transpose Limit, the remaining voices will play normally.
The Transpose Limit remains stored in memory until changed.

NOTE:The Transpose Limit can only be changed while a chord is
being held.

The chord will always be transposed by the lowest note on the
keyboard below the Transpose Limit, even in split. However,
individual notes can be played above the note transposing the
chord as well as above the Transpose Limit. To exit the
CHORD mode, simply press the HOLD switch.

Chord Latch

A held chord can be latched so it will remain gated on.
Press and hold the CHORD button, and then press the HOLD
button (be sure to release the HOLD button before releasing
the CHORD button). A held chord will now stay on (be latched
on). To turn off the chord latch, repeat the above
proceedure.

The arpeggiator will continually cycle through a latched
chord, and will not restart when the transposition is
changed.

The chord latch is off when the OB-8 is first turned on.

    The Foot Switch inputs are designed for use with the Model S-OBX Foot
Switch. The S-OBX contains a momentary, normally open switch.

SUSTAIN   Pressing the Sustain Switch causes the RELEASE on all
                    Envelope Generators to be set to the amount programmed in
                    each Patch (on PAGE 2). The PEDAL SUSTAIN time has the same
                    range as the front panel RELEASE TIME of the envelope
                    generators. In SPLIT or DOUBLE, the two patches will each
                    die out according to their own programmed PEDAL SUSTAIN time.

PROGRAM   Pressing the Program Advance Switch advances the programmer
ADVANCE   to the next program. For example, if program A6 is presently
                    selected and this switch is pressed, the Programmer moves on
                    to program A7.

                    As the footswitch is depressed, the programs cycle as
                    follows:

GROUP NO.	LIGHTS A	B	C	D
1	•			
2		•		
3	•	•		
4			•	
5	•		•	
6		•	•	
7	•	•	•	
8				•
9	•			•
10		•		•
11	•	•		•
12			•	•
13	•		•	•
14		•	•	•
15	•	•	•	•

HOLD   The Hold switch functions exactly like the HOLD button on the
                    front panel, and will cause the HOLD light to light when in
                    use.

The Pedal inputs are designed for use with the Model P-OBX Foot Pedal. They are also designed to respond to Control Voltages, from the DSX Sequencer or other sources.

VOLUME   The Volume Pedal varies the volume of the OB-8 from zero to the MASTER VOLUME setting on the front panel.

                The VOLUME jack also can be used as a Control Voltage output that will vary depending upon the setting of the MASTER VOLUME control on the front panel.

VIBRATO   The Vibrato Pedal functions like the Vibrato Lever on the MODULATION PANEL. It allows the user to add vibrato from the LFO in the MODULATION PANEL to whatever oscillators are assigned to it.

FILTER   This pedal controls the FILTER FREQUENCY of all voices. The range of the pedal is from a slightly lower frequency than when the pedal is not connected, to a significantly higher frequency.

The controls described on the next few pages are used control the sound
of the OB-8. It is the settings of these controls that is actually stored
in the OB-8's program memory.

Any sound recalled by the programmer can be modified (edited) by
changing these Sound Programming Controls. The controls add to, or subtract
from, the settings stored in the computer program. For example, the release
time of the LOUDNESS ENVELOPE can be made longer than programmed simply by
turning up the RELEASE control on the LOUDNESS ENVELOPE. This feature
allows quick yet smooth modifications of existing programs.

When selecting a program, the front panel settings do not affect the
sound of the instrument. For instance, if a sound had originally been
programmed with a FILTER FREQUENCY setting at 12 o'clock, but later the
program is recalled with the FILTER FREQUENCY control set at 9 o'clock, the
program sound will be the same as if the FILTER FREQUENCY control was set at
12 o'clock. If it is desired to further increase or decrease a control
setting, and the 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.
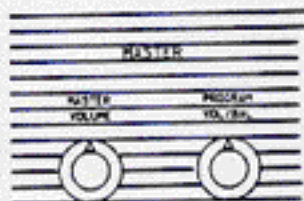
PROGRAM
VOL/BAL

This control sets the volume of each patch program.

NOTE: In SPLIT or DOUBLE, the PROGRAM VOLUME of each patch is
disregarded in favor of the PROGRAM BALANCE of the Split or
Double Program.
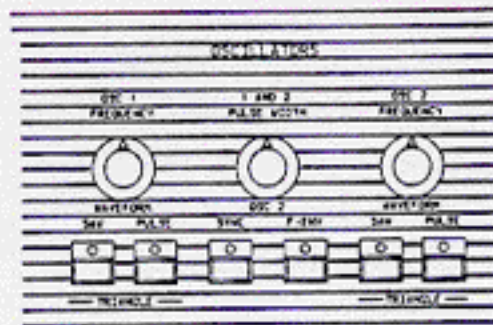
OSCILLATORS

1 FREQUENCY This control determines the initial frequency of Oscillator 1. It operates in half steps within a four octave range.

WAVEFORM (SAW/PULSE) These switches choose the waveform of Oscillator 1.

If the SAW switch is on, a sawtooth wave is selected. A Sawtooth wave contains all of the harmonic overtones.

If the PULSE switch is on, a pulse wave is selected. Compared to a sawtooth wave, a pulse wave is missing some of the harmonics (the harmonic spectrum of the pulse wave is controlled by the PULSE WIDTH control), and the sound is thinner as a result.

If BOTH the SAW and the PULSE switches are on, then both sawtooth and pulse waves are selected. This combination creates and extremely fat sound. The PULSE WIDTH control and the PULSE WIDTH MODULATION from the LFO will still affect the pulse wave in this mode.

If NEITHER switch is on, a triangle wave is selected. The triangle wave has the harmonics of the sawtooth wave, only they are much softer in volume relative to the fundamental, and the resulting sound is closer to the pure tone of a sine wave.

PULSE WIDTH   This control sets the initial pulse width of both
                  oscillators. When it is set fully counter-clockwise a square
                  wave (50 % duty cycle) is selected. Turning this control
                  clockwise makes the sound progressively thinner and more
                  nasal.

Individual   The PULSE WIDTH control is also used to set the pulse width
Pulse Widths   of each oscillator independently. Press the PULSE button of
                  the desired OSCILLATOR, and while holding the PULSE button,
                  turn the PULSE WIDTH control. Turning the PULSE WIDTH
                  control all the way clockwise or counter-clockwise will reset
                  the individual pulse width setting of the oscillators.

SYNC   Pressing this switch causes Oscillator 2 to lock onto a
                  harmonic of Oscillator 1. Since Oscillator 2 is syncing to
                  Oscillator 1, changing the frequency of Oscillator 2 will
                  cause a timbral change rather than a pitch change.

F-ENV   This switch allows the FILTER ENVELOPE to modulate the
                  frequency of OSC 2. The amount is controlled by the
                  MODULATION control in the FILTER section. With this control
                  at its maximum setting, and the FILTER ENVELOPE SUSTAIN level
                  at maximum, OSC 2 will increase in pitch one octave.

2 FREQUENCY   This control determines the initial frequency of Oscillator
                  2. It operates in half steps within a four octave range.

WAVEFORM   These switches choose the waveform of Oscillator 2.
(SAW/PULSE)
   If the SAW switch is on, a sawtooth wave is selected. A
                  Sawtooth wave contains all of the harmonic overtones.

                  If the PULSE switch is on, a pulse wave is selected.
                  Compared to a sawtooth wave, a pulse wave is missing some of
                  the harmonics (the harmonic spectrum of the pulse wave is
                  controlled by the PULSE WIDTH control), and the sound is not
                  as "fat" as a result.

                  If BOTH the SAW and the PULSE switches are on, then both
                  sawtooth and pulse waves are selected. This combination
                  creates and extremely fat sound. The PULSE WIDTH control and
                  the PULSE WIDTH MODULATION from the LFO will still affect the
                  pulse wave in this mode.

                  If NEITHER switch is on, a triangle wave is selected. The
                  triangle wave has the harmonics of the sawtooth wave, only
                  they are much softer in volume relative to the fundamental,
                  and the resulting sound is closer to the pure tone of a sine
                  wave.

26
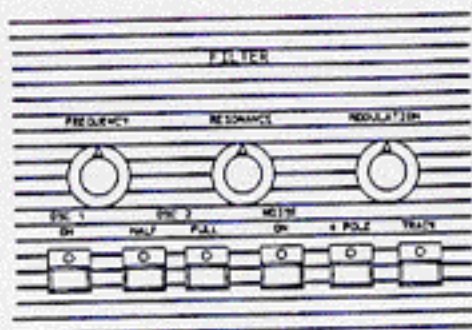
FILTER

The Voltage Controlled Low Pass Filter (VCF) are used to control the brightness of the sound, filtering out the higher frequencies (the "buzz") in a very controllable manner. The Filter is arguably the most important component in a synthesizer, because it is the primary control of the timbre, or tone color of the sound. Because of this, the filter on each voice of the OB-8 can be set to two modes: 2-Pole and a 4-Pole. In the OB-8, the Filter Section also selects the sound sources (Oscillators and Noise) that are used in the patch.

FREQUENCY   This control sets the initial cut-off frequency of the Filter.

RESONANCE   This control determines the amount of resonance ("Q" or "emphasis") of the Filter. The RESONANCE emphasizes the cut-off frequency of the Filter. As the RESONANCE is increased, the overall volume of the sound will increase in the 2-POLE mode and decrease in the 4-POLE mode.

MODULATION   This control determines the amount of Filter Envelope which modulates the Filter. Modulation of the Filter by the Envelope is a critical element in the synthesis of brass sounds as well as creating percussion in organ sounds, to name just a few uses. The MODULATION control also determines how much Filter Envelope will modulate OSC 2 when the F-ENV switch is on. The LFO can also modulate the Filter. See "MODULATION SECTION"

OSC 1
ON

When this switch is on, Oscillator 1 is routed into the
Filter.

OSC 2
HALF/FULL

When either of these switches are on, Oscillator 2 is routed
into the Filter. The FULL switch selects the full output of
the oscillator and the HALF switch selects a signal level
approximately 5 db below full output.

NOISE
ON

When this switch is on the Noise Generator is routed into the
Filter.

4-POLE

Turning this switch on selects the 4-POLE filter mode. When
this switch is off the 2-POLE filter mode is selected. The
effect of this switch is to change the sharpness of the
filtering effect. The 4-POLE mode has a 24db/octave slope
(sharper), which results in a fuller sound. The 2-POLE mode
has a 12db/octave slope (more gradual), which results in a
brighter sound.

TRACK

This switch adds the control voltage from the keyboard to
control the Filter Frequency. When on, the Filter in each
voice will track the keyboard, and "open up" as higher notes
are played. The TRANSPOSE and MASTER TUNE controls will also
control the Filter when TRACK is switched on.

28
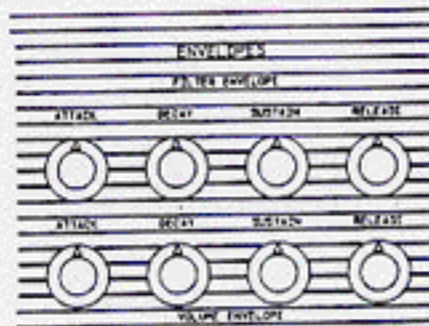
ENVELOPES

The Envelope Generators control the timing of the sound. It is the Envelopes that make a long sound long, and a short sound short. For example, the difference between a cresting ocean wave, and an explosion. There are two envelopes on each voice of the OB-8; one that controls the Filter (VCF) for timbral control, and one that controls the Amplifier (VCA) for volume control.

---FILTER ENVELOPE---

ATTACK   The Attack section of the envelope operates as soon as a key is pressed on the keyboard. This control sets the time the Filter takes to get to its maximum effect, as determined by the MODULATION control in the FILTER SECTION. The shortest time is selected by setting the ATTACK control fully counter-clockwise.

DECAY   The Decay section of the envelope comes into operation as soon as the envelope has reached its maximum level (as soon as the Attack is completed). This control sets the time the Filter takes to reach the sustain level, as set by the SUSTAIN control, while a key on the keyboard is being held down.

SUSTAIN   This control sets the level the Filter Envelope goes to following its initial decay, as set by the DECAY control. The Envelope will stay at the Sustain Level as long as the key on the keyboard is held down.

RELEASE   Once the key is released, the Envelope moves to the Release section, and completes its cycle. The RELEASE control sets the time the Filter takes to go from the Sustain level, to the off level. If the SUSTAIN control is set to minimum, the Release section will have no effect on the sound if the key is pressed and held down. If the key is pressed and immediately let go (in less time than the combined Attack and Decay time), then the Release Section will still have an effect.

29

Envelope
Reset

The Release of Envelope can be cut short by pressing the
WRITE button.

Modulating
OSC 2
With The
Filter
Envelope

When the F-ENV switch is on, the Filter Envelope modulates
OSC 2 as well as the FILTER. The pitch of OSC 2 will
directly correspond to the shape of this Envelope. The ATTACK
determines how fast OSC 2's pitch will rise, the DECAY
determines how fast OSC 2 will decrease in pitch to the level
set by the SUSTAIN control, and the RELEASE determines how
fast OSC 2 will decrease in pitch after a note has been
released. The MODULATION control in the Filter Section will
control the range of the effect of the Filter Envelope on
both the Filter as well as Oscillator 2.

---VOLUME ENVELOPE---

ATTACK

The Attack section of the envelope operates as soon as a key
is pressed on the keyboard. This control sets the time the
sound takes to get to its maximum volume. The shortest time
is selected by setting the ATTACK control fully counter-
clockwise.

DECAY

The Decay section of the envelope comes into operation as
soon as the envelope has reached its maximum level (as soon
as the Attack is completed). This control sets the time that
the VCA (that controls volume) takes to reach the sustain
level, as set by the SUSTAIN control, while a key on the
keyboard is being held down.

SUSTAIN

This control sets the level the Volume Envelope goes to
following its initial decay, as set by the DECAY control.
The Envelope will stay at the Sustain Level as long as the
key on the keyboard is held down.

RELEASE

Once the key is released, the Envelope moves to the Release
section, and completes its cycle. The RELEASE control sets
the time the sound takes to go from the Sustain level, to
the minimum level. If the SUSTAIN control is set to
minimum, the Release section will have no effect on the
sound if the key is pressed and held down. If the key is
pressed and immediately let go (in less time than the
combined Attack and Decay time), then the Release Section
will still have an effect.

Envelope
Reset

The Release of Envelope can be cut short by pressing the
WRITE button.
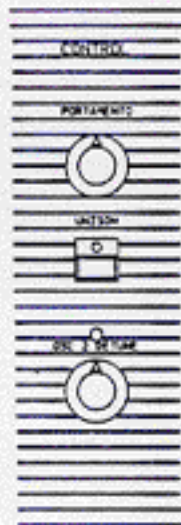
CONTROLS

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-8 is polyphonic, so each voice will glide from note to note independently of all other notes. Portamento also functions in UNISON mode. There are several Portamento Modes. For more information, see "PORTAMENTO MODES".

UNISON   When switched on, causes all voices to be sounded by one key depression. In UNISON, the OB-8 keyboard operates with low note rule, which means that the lowest note played on the keyboard will always have priority. When in SPLIT, the UNISON mode is independent for the two halves of the keyboard, so if the upper half is in UNISON, then only the lowest note of the upper half of the keyboard will affect it.

OSC 2 DETUNE   This control allows Oscillator 2 to be tuned either flat or sharp relative to Oscillator 1. Turning the control to the left makes Oscillator 2 go flat and to the right makes it go sharp. The LED above the OSC 2 DETUNE control turns on when the Oscillator 2 is detuned from Oscillator 1.

31
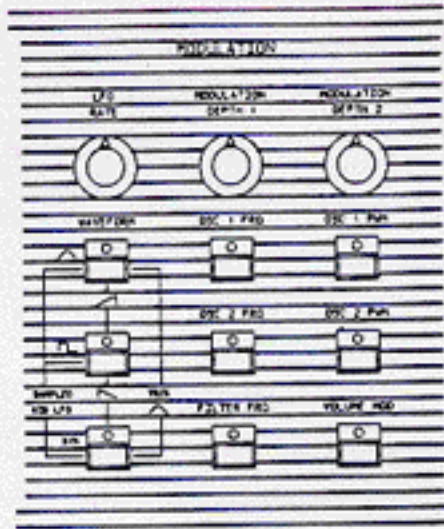
MODULATION

THE LOW FREQUENCY OSCILLATORS (LFOS) are used for modulation at low frequencies --that is, frequencies near or below the range of hearing. If you were to listen to an LFO directly, you would not hear anything; however by controlling the frequency or pulse width of an oscillator or filter, the effect of an LFO becomes apparent.

The OB-8 contains three LFOs: two are controlled from the Modulation Section on the front panel and are discussed here; the third is controlled from the Modulation Panel to the left of the keyboard (see "PERFORMACE CONTROLS").

-- MODULATION SOURCE --

RATE   This control determines the SPEED of modulation. The range
        is from approximately 1/15 oscillation per second to 50
        oscillations per second.

WAVEFORM   The WAVEFORM switches select the modulation source according
            to the following table:

Sine   1

Square   2

Sample/Hold   3

Up Sawtooth   1,2

Down Sawtooth   2,3

Trig Waveform   1,3   In this mode, the LFO resets each
                            time a key is pressed (There are
                            several options for this mode that
                            are available on PAGE 2--see "PAGE 2
                            CONTROLS").

Sampled Vibrato
LFO   1,2,3   This mode is something like
                            SAMPLE/HOLD, except that while
                            SAMPLE/HOLD samples noise, this
                            mode samples the LFO in the
                            Modulation Panel, which can be set
                            to several different waveforms and
                            speeds itself (see "PERFORMANCE
                            CONTROLS").

-- MODULATION DESTINATIONS --

MODULATION 1

DEPTH 1   This control determines the AMOUNT of
                 modulation sent to the destination switches
                 below.

OSC 1 FRQ   Pressing this switch routes frequency
                 modulation to Oscillator 1. Small amounts of
                 frequency modulation are frequently used to
                 create vibrato effects; larger amounts can be
                 used for special effects.

OSC 2 FRQ   Pressing this switch routes frequency
                 modulation to Oscillator 2.

FILTER FRQ   Pressing this switch routes frequency
                 modulation to the Filter. Modulating the
                 frequency of the filter creates a "wah-wah"
                 effect.

MODULATION 2

DEPTH 2   This control determines the AMOUNT of
                 modulation sent to the destination switches
                 below.

OSC 1 PWM   Pressing this switch routes modulation to the
                 pulse width of Oscillator 1. Pulse width
                 modulation does not alter the pitch of the
                 oscillators but rather the shape of the pulse
                 wave, causing a change in the timbre of the
                 sound not unlike the effect of a rotating
                 speaker on an organ.

OSC 2 PWM   Pressing this switch routes modulation to the
                 pulse width of Oscillator 2.

VOLUME MOD   Pressing this switch routes modulation to
                 control the volume of the Voltage Controlled
                 Amplifier (VCA). This volume modulation (also
                 known as amplitude modulation) creates the
                 effect of tremolo, among other things.

OB-8

PAGE 2 FUNCTIONS

   Many of the OB-8's features are controlled by a "second page" of
controls; in other words, the knobs and buttons on the front panel have two
functions: for example, the control labeled LOUDNESS ENVELOPE RELEASE
becomes the SUSTAIN PEDAL RELEASE control when in PAGE 2.

   All of the Page 2 controls (with the exception of the VOICE ENABLES)
are stored with a patch program. The continuous edit features of the
controls on Page 1 apply to the controls on page 2 as well.

   When in SPLIT or DOUBLE, the LOWER and UPPER buttons select display of
PAGE 2 for the LOWER patch or UPPER patch, just as they do for page 1.

   In MANUAL mode, the Page 2 functions do not operate except for the
VOICE ENABLES.

ACCESSING PAGE 2
        To access the second page of functions, press the CHORD/PAGE 2
   button twice within 1.5 seconds. The CHORD/PAGE2 button will light, and
   voila, you will be looking at the second page of controls.

        To return to page 1, press the CHORD/PAGE 2 button once more.

   NOTE: any "held notes" will be changed into a held chord whenever the
   CHORD/PAGE 2 button is pressed.
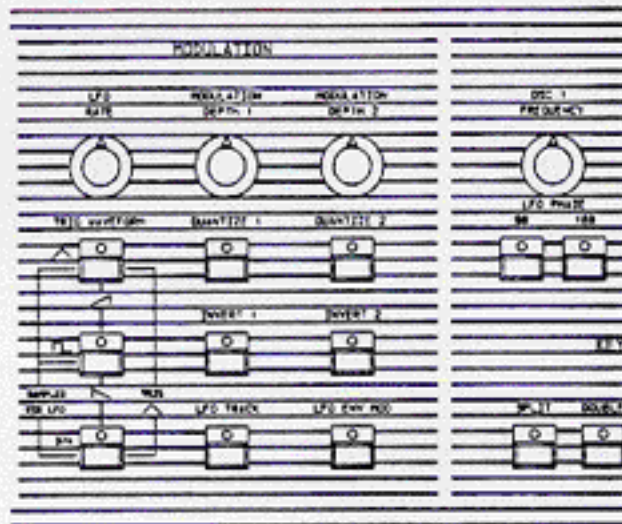
ADDITIONAL FRONT PANEL LFO CONTROLS

QUANTIZE 1   These switches quantize the sweep of the LFO into half steps.
QUANTIZE 2   QUANTIZE 1 affects OSC 1 FRQ, OSC 2 FRQ, and FILTER FRQ, and
                    QUANTIZE 2 affects OSC 1 PW, OSC 2 PW, and VOL MOD.

LFO PHASE   These switches change the phase of the LFO. With both
90°   switches off, the LFOs of all voices are in phase. The
180°   buttons offset the LFO phase of Voices 5-8 by 90° or 180°
                    relative to Voices 1-4.

                    The LFO PHASE control has no effect when LFO TRACK or LFO ENV
                    MOD are on or when using a TRIG WAVEFORM.

TRIG WAVEFORM   Any of the waveforms of the front panel LFO can be selected
                    as the TRIG waveform by selecting TRIG as the waveform on
                    page 1 and then selecting the desired waveform on page 2.
                    For example, if TRIG is selected on page 1 and UP SAWTOOTH is
                    selected on page 2, the result will be an UP SAWTOOTH that is
                    reset every time a new key is pressed.

TRIG POINT   The TRIG waveform can be set to retrigger at any point in its
                    cycle by turning the TRIG POINT control on page 2.

LFO ENVELOPES

Besides the FILTER ENVELOPE and VOLUME ENVELOPE, there are two simple
envelope generators for the LFO, one for DEPTH 1 (OSC 1 FRQ, OSC 2 FRQ, and
FILTER FRQ) and another for DEPTH 2 (OSC 1 PW, OSC 2 PW, and VOL MOD). The
LFO envelope generators enable changes in modulation depth as a note plays,
just as the FILTER ENVELOPE and VOLUME ENVELOPE enable changes in the filter
and volume levels as note plays.
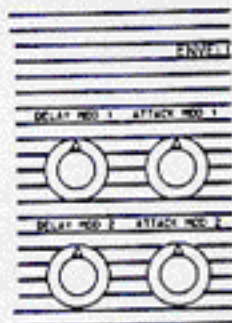
DELAY MOD 1	These controls set the time delay of the LFO's envelope
DELAY MOD 2	generators. The delay ranges from a minimum of zero to a
	maximum of 3.5 seconds. The delay is reset each time a new
	note is played. MOD 1 affects OSC 1 FRQ, OSC 2 FRQ, and
	FILTER FRQ, and MOD 2 affects OSC 1 PW, OSC 2 PW, and VOL
	MOD.

ATTACK MOD 1	These controls set the attack time of the LFO's envelope
ATTACK MOD 2	generators. The attack time ranges from a minimum of zero to
	a maximum of 3.5 seconds. The attack time is reset each time
	a new note is played. MOD 1 affects OSC 1 FRQ, OSC 2 FRQ,
	and FILTER FRQ, and MOD 2 affects OSC 1 PW, OSC 2 PW, and VOL
	MOD.

38
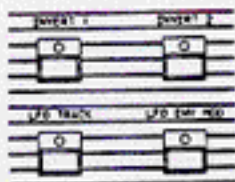
INVERT 1
INVERT 2

These switches invert the LFO envelope generators. INVERT 1 affects OSC 1 FRQ, OSC 2 FRQ, and FILTER FRQ, and INVERT 2 affects OSC 1 PW, OSC 2 PW, and VOL MOD.

With INVERT off, the LFO will start each note at zero modulation and increase to the depth set by the appropriate DEPTH control in the time set by the DELAY and ATTACK tome controls.

With INVERT on, the LFO will start each note at the modulation depth set by the DEPTH control and decrease to zero modulation in the time set by the DELAY and ATTACK controls.

LFO TRACK

This adds 1/4 of the keyboard to the rate of the LFO. The LFO speed will double every four octaves on the keyboard (e.g.-C0 to C4).

LFO ENV MOD

This switch acts something like the F-ENV switch on page 1. Pressing this switch enables the LFO 2 envelope to control the rate of the LFO. The LFO 2 DEPTH controls the amount of modulation. DELAY 2, ATTACK 2, and INVERT 2 will all affect the rate of the LFO when this switch is on.

39

PORTAMENTO MODES

MATCH   When the MATCH switch is on, all voices will portamento at
               exactly the same rate. When the MATCH switch is off, the
               voices will portamento at slightly different rates.

QUANTIZE   This switch quantizes the sliding portamento into semitone
               steps.

PORTAMENTO   This switch causes all notes to glissando from a programable
BEND   interval above or below the note being played. The rate of
               the gliss is controlled by the PORTAMENTO control on either
               page.

Programming   Press and hold the PORTAMENTO BEND control, and play a note
Portamento   on the keyboard. The C two octaves from the bottom of the
Bend   keyboard (C2) equals zero bend, and each key away from C2 (up
               or down) equals a quarter-tone, e.g. pressing D3 will set
               notes to gliss from a perfect fifth above.

Chord and   Held Chords being transposed will not portamento if the
Arpeggiator   PORTAMENTO BEND is on. Notes being Arpeggiated operate in
Portamento   the opposite manner: they will portamento only if the
               PORTAMENTO BEND is on. So, when using portamento with Held
               Chords that are being transposed and Arpeggiated, you have a
               choice: With the PORTAMENTO BEND on, each arpeggiated note
               will portamento; with the PORTAMENTO BEND off, only the chord
               transpositions will portamento.

40

VOICE DETUNE

This control detunes the voices from each other. Some of the voices are tuned flat, some sharp, and some remain the same. The voices are detuned when the led above the control is on. Zero detune is achieved by turning the VOICE DETUNE control completely counter-clockwise.

PEDAL SUSTAIN (FOOTSWITCH RELEASE TIME)

This control sets the release time of the FILTER and VOLUME ENVELOPES when the SUSTAIN FOOTSWITCH is depressed. The PEDAL SUSTAIN can be set to any amount of time from zero to 20 seconds.

PAGE 2 RESET

All of the controls on Page 2 can be reset to minimum or off. To reset Page 2, follow this proceedure:

1) press the CHORD/PAGE 2 button twice, and hold the button the second time.

2) While holding the CHORD/PAGE 2 button, press the PAGE 2 RESET button (labelled "F-ENV") on the front panel.
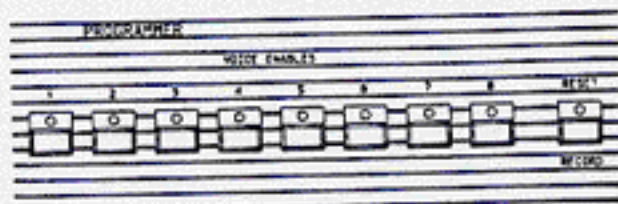
VOICE ENABLE SWITCHES

The individual voices can be enabled or disabled from the front panel using the PROGRAM 1-8 buttons on page 2. A voice is enabled when the corresponding PROGRAM light is on.

The OB-8 is equipped with a Cassette Interface which enables programs
contained in the program memory to be stored externally on an audio
cassette. All that is required to use the Cassette Interface feature is an
audio cassette recorder with reasonable frequency response and a pair of
mini-plug to mini-plug audio connecting cables.

NOTE: The cassette player must have an earphone or ext. speaker output
         (a LINE OUT will not work).

NOTE: The OB-8 Cassette Interface is not compatable with other Oberheim
         synthesizers.

TAPE RECORDER HOOKUP
         Connect the Earphone or Speaker output of your cassette recorder
         (a Line output will not work) to the jack labeled "TO OUTPUT" on
         the rear of the OB-8. Connect the "TO LINE INPUT" jack on the
         rear panel of the OB-8 to the Line or Aux input of your cassette
         recorder. If the recorder does not have one, connect the "TO MIC
         INPUT" jack on the rear panel to the Mic input of your cassette
         recorder.

NOTE: To reduce hum, the "TO LINE INPUT" and "TO MIC INPUT" jacks have
         no ground connection. For this reason, it is necessary to connect
         both the Input and the Output cables when recording data onto the
         cassette recorder.

CASSETTE INTERFACE CONTROLS

--REAR PANEL--

CASSETTE   This switch enables the cassette interface. When the
ENABLE   Cassette Interface is enabled, the CASSETTE LIGHT on the
                front panel lights up and all normal functions on the
                instrument are disabled.
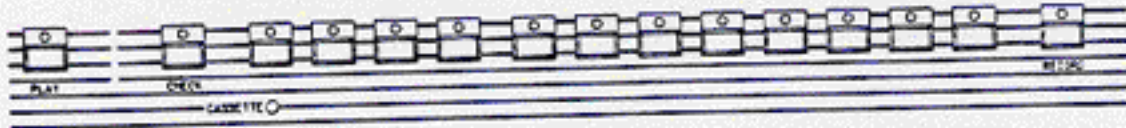
--FRONT PANEL--

RECORD   This function shares a switch with the WRITE function.
                Pressing RECORD allows you to record your programs onto tape.

PLAY   This function shares a switch with the UPPER function.
                Pressing PLAY allows you to play your programs from the tape
                into the OB-8.

CHECK   This function shares a switch with the MANUAL function.
                Pressing CHECK allows you to check your program recordings
                without writing them into the OB-8.

HOLD   This button cancels any Cassette operation at any time.

TO RECORD PROGRAMS ONTO TAPE:

1) Enable the Cassette Interface with the switch on the rear panel.

2) Press the RECORD switch on the tape recorder. You should now hear a steady tone through the main outputs of the OB-8. The MASTER VOLUME control will adjust the volume of the tone heard in the OB-8's outputs, but will not affect the level of the Cassette Interface Output.

3) Press the RECORD switch on the OB-8. After the RECORD switch is pressed, ten seconds of the steady "leader" tone will be sent out followed by sixteen seconds of the actual memory information. During these twenty-six seconds, the light on the RECORD switch will be on. The GROUP lights (A, B, C, D) come on in sequential order ("A", "B", "AB", "C", "AC", etc.) indicating that information transfer is taking place.

The RECORD function can be cancelled by pressing the HOLD button.

TO PLAY PROGRAMS FROM TAPE INTO THE OB-8:

1) Enable the Cassette Interface with the switch on the rear panel.

2) Press PLAY on the tape recorder. You will be able to monitor the tape through the main outputs of the OB-8. The MASTER VOLUME will control the volume for monitoring the tape.

3) As soon as the "leader" tone is heard, press the PLAY switch on the OB-8. At least three seconds of the "leader" tone must come between pressing PLAY and the rough sound of the memory information. The light on the PLAY switch will be lit from the time the switch is pressed until the first of the memory information is recognized. At that point, the GROUP lights (A, B, C, D) come on in sequential order ("A", "B", "AB", "C", "AC", "ABC", etc.) indicating which group is being transferred. The Splits and Doubles are transferred last.

If the MEMORY PROTECT switch on the Rear Panel of the OB-8 is set to PROTECT, the PLAY light will not operate.

4) If an error is detected, the PLAY light will flash.

The PLAY function can be cancelled by pressing the HOLD button.

TO RECORD PROGRAMS ONTO TAPE:

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1) Enable the Cassette Interface with the switch on the rear panel.

2) Press PLAY on the tape recorder. You will be able to monitor the tape through the main outputs of the OB-8. The MASTER VOLUME will control the volume for monitoring the tape.

3) As soon as the "leader" tone is heard, press the PLAY switch on the OB-8. At least three seconds of the "leader" tone must come between pressing PLAY and the rough sound of the memory information. The light on the PLAY switch will be lit from the time the switch is pressed until the first of the memory information is recognized. At that point, the GROUP lights (A, B, C, D) come on in sequential order ("A", "B", "AB", "C", "AC", "ABC", etc.) indicating which group is being transferred. The Splits and Doubles are transferred last.

If the MEMORY PROTECT switch on the Rear Panel of the OB-8 is set to PROTECT, the PLAY light will not operate.

4) If an error is detected, the PLAY light will flash.

The PLAY function can be cancelled by pressing the HOLD button.

TO CHECK TAPES:

The CHECK function of the Cassette Interface enables verification of the data on a tape without actually transferring the data into the OB-8's memory. A TAPE SHOULD ALWAYS BE CHECKED AFTER RECORDING.

1)   Enable the Cassette Interface with the switch on the rear panel.

2)   Press PLAY on the tape recorder. You will be able to monitor the tape through the main outputs of the OB-8.

3)   As soon as the "leader" tone is heard, press the CHECK switch on the OB-8. As with the PLAY switch, at least three seconds of "leader" tone must follow pressing the switch and precede the rough sound of the memory information. The CHECK light will be on during the reception of the leader tone and the GROUP lights will sequence, just as during the PLAY operation, however no actual information transfer into memory takes place.

4)   A CHECK error is indicated if the CHECK light flashes at the end of the operation.

The CHECK function can be cancelled by pressing the HOLD button.

POSSIBLE CAUSES OF TAPE TRANSFER ERRORS

A)   There is a dropout on the tape.

B)   The playback volume is too high or too low. Some trial and error may be required. Generally the best level is as high as possible before distorion occurs (approximately 3/4 of the way up). If the playback volume is too low, the OB-8 will not acknowledge the data at all.

C)   The tone control may be set improperly. It is important that the tone control(s) be set so that neither the high nor the low frequencies are attenuated.

D)   The Batteries in the cassette machine are too weak.

The Cassette Interface is designed to work with portable cassette recorders having an "Earphone", "Speaker", or "Monitor" output. The Interface is not designed to work with tape recorders having only a line output.

PLAYING SELECTED PATCHES FROM TAPE INTO THE OB-8:
Up to eight individual patch Programs can be played from tape into the OB-8. Follow this proceedure:

1) Enable the Cassette Interface with the CASSETTE ENABLE switch on the rear panel.

2) Select the location of the desired Patch Program to be loaded from the tape by pressing the GROUP and PROGRAM buttons. This "source" location will remain lit on the GROUP and PROGRAM buttons.

3) Select the destination of this Patch Program by again pressing the GROUP and then the PROGRAM buttons. While the PROGRAM button is pressed, the "destination" location will be displayed; after the PROGRAM button is released, the GROUP and PROGRAM lights will go dark, indicating that the source and destination has been stored.

4) Up to eight individual Patch Programs can be selected to be played into the OB-8 at one time by repeating this proceedure.

5) After programming the selected Patch Sources and Destinations, start the tape recorder and press PLAY as soon as the "leader" tone starts. The entire tape will play, and the GROUP lights will sequence, but only the selected patches will actually be loaded into the OB-8's memory.

The Patch selections can be cancelled by pressing the HOLD button.

COMPUTER INTERFACE
The OB-8's Computer can be interfaced to other components such as the DSX DIGITAL POLYPHONIC SEQUENCER via the COMPUTER INTERFACE connector on the rear panel.

USING THE OB-8 WITH THE DSX
The Oberheim DSX Digital Polyphonic Sequencer can be used to play notes and change patches on the OB-8. The DSX features 10 Sequences, each of which contains 10 Tracks which can be individually recorded and played.

The OB-8 connects to the DSX with the multi-pin connector supplied with the DSX.

For more information, consult the DSX Owner's Manual.

SPECIFICATIONS

SYNTHESIZER COMPONENTS: 8 Voices; 3 Low Frequency Oscillators ,Arpeggiator,
    Polyphonic Portamento, Pink Noise Source

VOICE COMPONENTS:
    2 Voltage Controlled Oscillators
    1 Voltage Controlled Filter (2-Pole or 4-Pole low pass type,
      selectable)
    2 Envelope Generators
    1 Voltage Controlled Amplifier

LFO COMPONENTS:
    1 Voltage Controlled Low Frequency Oscillator with Triangle, Square, Up
      and Down Sawtooth waveforms
    1 Sample/Hold Generator
          Front Panel LFO's only:
          2 Envelope Generators
          90° and 180° Phase switch
          Quantizing
          Keyboard Track
          Programmable Trigger point

NUMBER OF PROGRAMS: 120 Patch Programs, 12 Split Programs, 12 Double
    Programs

KEYBOARD: 5 Octaves (C to C)

KEYBOARD MODES: FULL, SPLIT (splits OB-8 into two independent
    synthesizers), and DOUBLE (plays both independent synthesizers
    simultaneously); programmable split point and transpositions anywhere
    on the keyboard (in SPLIT or DOUBLE)

INPUTS/OUTPUTS: Stereo and Mono signal outputs (Output Level: 1 Volt peak
          to peak, 75K Ohms Impedance)

          Cassette Interface inputs and outputs
          Arpeggiator Clock Input

          Computer Interface (Parallel Interface)

FOOT CONTROLS: Footswitches: Sustain, Hold, Program Advance
          Foot Pedals: Volume, Filter, Vibrato

POWER: 90-130 or 180-240 Volts AC, 50-60 Hz, 46 Watts

DIMENSIONS: 40"(101.6cm) wide, 20"(50.8cm) deep, 6"(15.24cm) high

WEIGHT: 38 lbs. 17 (kg)

47

OB-8 FACTORY PATCHES

PROGRAM

GROUP	1	2	3	4	5	6	7	8
A	BRASS ENSEMBLE	ST. GENEVIEVE	STRING ENSEMBLE	VIBES	ACCELERATING ROTARY ORGAN	WHISTLE	REPEAT	BOUNCING BALL
B	DEN BONES	CLAVINET	HIGH STRINGS	DIGITAL PIANO	CATHEDRAL ORGAN	CHORUS	PULSE SWEEP	CALLIOPE
AB	FRENCH HORNS	BASS 1	BRIGHT STRINGS	ELECTRIC PIANO	ROTARY ORGAN	BAGPIPES	QUANTIZED LFO	RUSH REZZ
C	TRUMPET	MAGIC CLAVINET	SLOW STRINGS	RESONANCE SWEEP	COMBO ORGAN	DOUBLE REED	FARR'S FUNK	FM
AC	TRUMPET ENSEMBLE	BASS 2	FOUR POLE STRINGS	REED PIANO	CIRCUS ORGAN	SAX	HARP	DISTORTION SOLO
BC	TROPICAL HORNS	RUBBER CLAVINET	STRINGS 2	KLINK PIANO	HYMN ORGAN	RECORDER	LONG CHIMES	PERCUSSIVE SOLO
ABC	COMP HORNS	BELLS	FOUR POLE STRINGS 2	SOFT PIANO	BIRDS	VOCAL WOW	MARIMBAS	ROCK UNISON
D	DELAYED OCTAVE	TRIG PULSE WIDTH	POLYPHONIC PORTAMENTO	STEEL DRUMS	SQUARE MOD	COMP SYNTH	UNISON PORTAMENTO	DELAY MOD
AD	SWELL HORNS	SITAR	FIDDLE	SAW PIANO	PULSE WIDTH REZZ	TRIANGLE COMP	JAZZ SOLO	EARTHQUAKE
BD	S/H PORT REZZ	CONGA	STRINGS 3	FUNKY KEYS	FADING DETUNE	TREMOLO REZZ	BOX 0" PUPS	STEREO SPIN
ABD	DECELERATE	CARILLON	SOLO STRINGS	DETUNED LONG PIANO	FILTER DRONE	3 WAY	HARMONIC PERCUSSION	CHOPPER
CD	TUNED PORTAMENTO	ALIEN CRAFT	STRINGS 4	PULSE WIDTH MOD	WHIPPETS	METAL SOLO	CLAVE	JET
ACD	WATER WIGGLE	STRIPPER SAX	ROSIN STRINGS	FLANGED PIANO	SAW MOD	IMPACT	THUNDER	START ENGINES
BCD								
ABCD								
SPLITS	ORGAN / POLY PORT	DEN BONES / STRINGS	STEEL DRUMS / CONGA	ROCK UNISON / ORGAN				
DOUBLES	OCTAVE CLAVINET	DOUBLE STRINGS	BELLS IN FOURTHS	STRINGS IN HEAVEN				
SPLITS/ DOUBLES	STRINGS / BRASS	FARR'S FUNK / REPEAT	ORGAN / BASS	ST. GENE / PIANO	PIANO/STRINGS IN FIFTHS	PERCUSSIVE ORGAN	OCTAVE ORGAN	STRINGS & BRASS
	A	B	C	D SPLIT	A DOUBLE	B	C	D

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