SYNTHESIZER

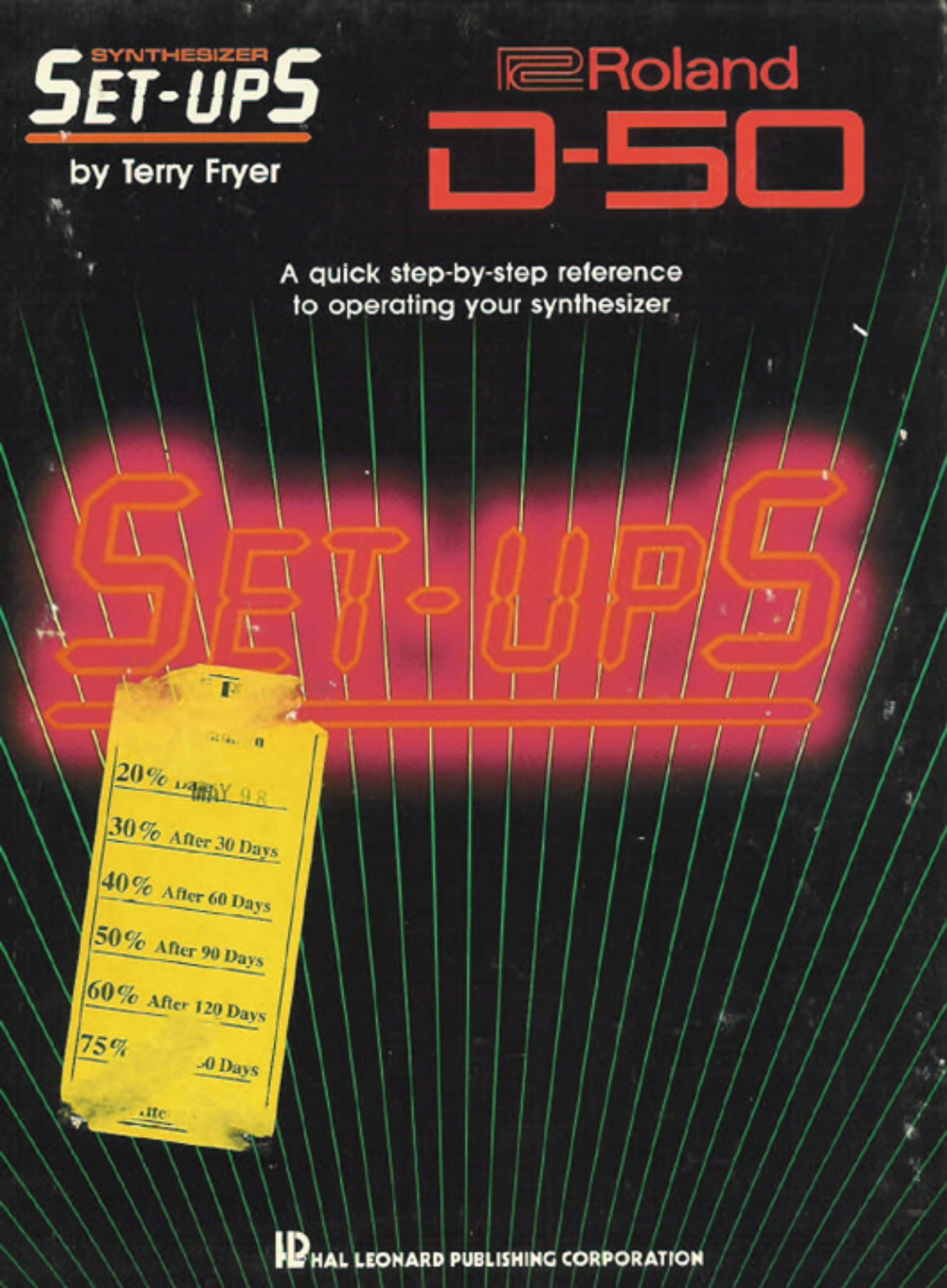
SET-UPS

by Terry Fryer

Roland

D-50

A quick step-by-step reference
to operating your synthesizer



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CONTENTS

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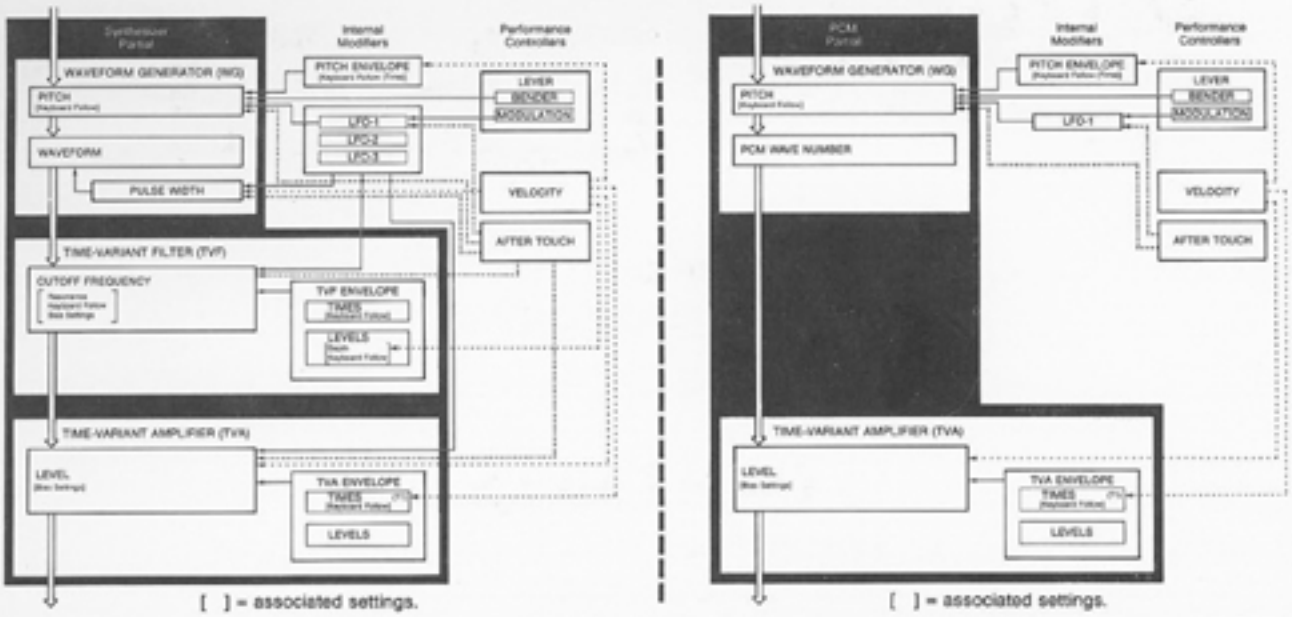
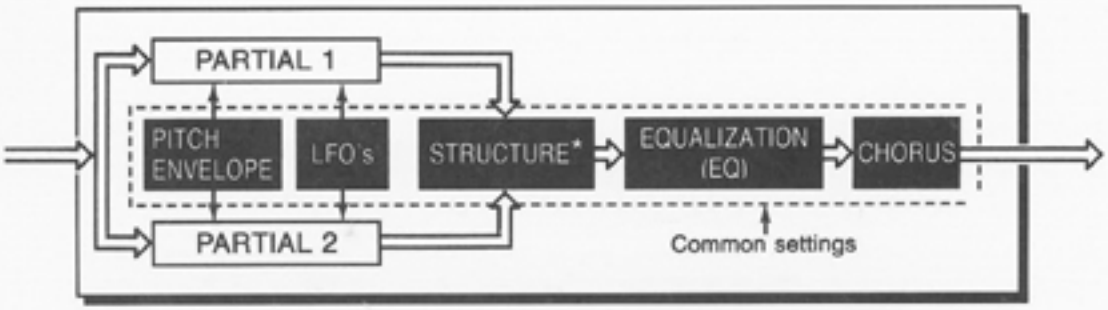
PARTIAL

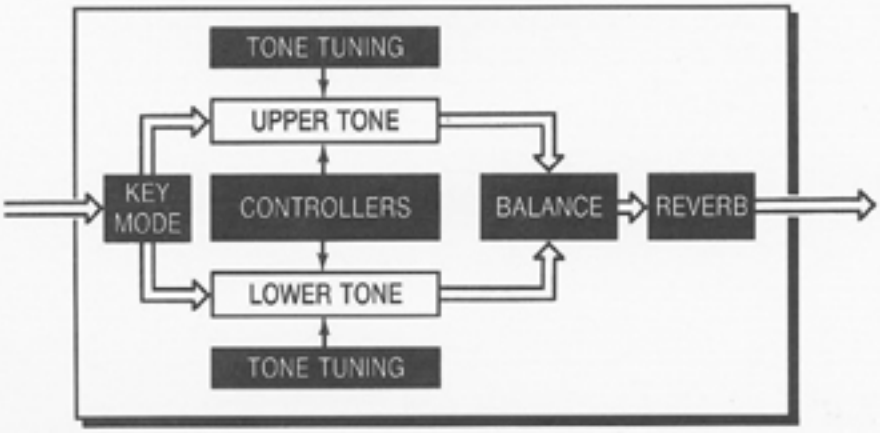


TONE



*See the right end of the D-50 panel for diagrams of the seven Structures.

PATCH



INTRODUCTION

The Roland D-50 Linear Synthesizer is best understood as a combination of four separate synthesizers—each synth known as a *partial*. The partial is the basic building block of the D-50 and can be used as a discrete sound (i.e., as used in a four-way split) or as part of a complex sound that includes several partials.

A pair of partials is combined to form a *tone*, and two tones (called Upper and Lower) can be combined to form a *patch*, for a total of four partials in all.

The interaction of the partials within a tone is defined by the *structure* of the tone. Three basic structures define whether a tone will consist of two synth (synthesizer) partials (a digital re-creation of "analog" subtractive synthesis), two PCM (Pulse Code Modulation) partials (digitally sampled sounds), or a synth partial and a PCM partial. Additional structures apply a ring modulator to the previous combinations of partials.

The D-50 also incorporates on-board signal-processing, in the form of chorus and equalization (programmable for each tone), and reverb (programmable for each patch).

HOW TO USE THIS GUIDE

When you first turn the D-50 on, the instrument is in *play mode*. It is in this mode that patches are selected for playing.

In play mode, a few settings ("parameters") can be accessed and changed. These are shown in the bottom line of the liquid-crystal display, or LCD. The procedure for setting a value that is used here applies to all values in the D-50:

- Select the value to be changed by pressing the button immediately below it.
- Change the value by using the INCREMENT and DECREMENT buttons, or the joystick, or, in some cases, the ten-key pad (entering the numbers and pressing the ENTER button).

Aside from these few values accessed in play mode, all other values are accessed from *edit mode*. You enter edit mode by pressing the proper button(s) to reach the menu (display) that contains the value(s) you wish to alter—this guide shows you which buttons to press. Once you arrive at the menu you desire, select and alter the value as described above.

Where you see an instruction in this form: "Select NAME"—press the button below the place in the display where "NAME" appears.

To return to play mode from any menu in edit mode, hold down the SHIFT button (in the lower left-hand corner of the ten-key pad) and press the EXIT button. Unless otherwise noted, the instructions for each operation in this guide begin in play mode.

PLAY MODE

To Play an Internal Patch

DISPLAY

Press INTERNAL

```
I-XX XXXXXXXXXXXXXXXXX     U: XXXXXXXXXX
 XXXXXX  SP XXX  BalXXX    L: XXXXXXXXXX
```

Select a bank by pressing PATCH BANK buttons 1-8

Select a patch by pressing PATCH NUMBER buttons 1-8

There are 8 banks, each consisting of 8 patches, in internal memory, for a total of 64 patches.

To Play a Memory Card Patch

Insert a memory card

Press CARD

```
C-XX XXXXXXXXXXXXXXXXX     U: XXXXXXXXXX
 XXXXXX  SP XXX  BalXXX    L: XXXXXXXXXX
```

Select a bank by pressing PATCH BANK buttons 1-8

Select a patch by pressing PATCH NUMBER buttons 1-8

To Transpose the Keyboard

Hold KEY TRANSPOSE

```
Key Transpose =±XX
```

Press a key on the keyboard or use the joystick to transpose (range is –12-+12 semitones).

To Set Global Settings

Press TUNE/ FUNCTION

```
Master Tune      Protect PedalSW ExtCont
  XXXHz            XXX    XXXXX   XXXXX
```

TO TUNE THE INSTRUMENT

Select `Master Tune`

Change using the joystick or the INCREMENT and DECREMENT buttons. Each press of the latter alters the pitch by approximately 0.25 Hertz.

TO ASSIGN THE FUNCTION OF THE PEDAL SWITCH

Select `PedalSW`

Change using the joystick or the INCREMENT and DECREMENT buttons.Choices are:

P-SFT	Patch Shift	CHASE	Chase Play On/Off
PORTA	Portamento On/Off	OFF	No Effect

TO ASSIGN THE FUNCTION OF THE EXTERNAL CONTROL

Select `ExtCont`

Change using the joystick or the INCREMENT and DECREMENT buttons.Choices are:

BAL	Tone Balance	MOD	Modulation
AFTER	After Touch	OFF	No Effect

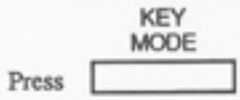
To Turn Chase Play On and Off

In Chase Play, the Upper and Lower tones sound in succession rather than simultaneously. When the LED in the CHASE button is illuminated, Chase Play is on; when the LED is not illuminated, Chase Play is off.

To Turn Portamento On and Off

When the LED in the PORTAMENTO button is illuminated, Portamento is on; when the LED is not illuminated, Portamento is off.

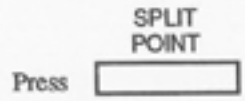
To Set the Key Mode of the Current Patch



Change using the joystick or the INCREMENT and DECREMENT buttons.

Valid Key Modes are: WHOLE, DUAL, SPLIT, SEP (Separate), WHOL-S (Whole Solo), DUAL-S (Dual Solo), SPL-US (Split with Upper Solo), SPL-LS (Split with Lower Solo), and SEP-S (Separate Solo). See page 26 for more information on the Separate modes.

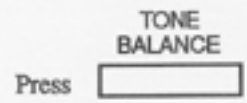
To Set the Split Point of the Current Patch



Change using the joystick or the INCREMENT and DECREMENT buttons.

Split range is C2-C7 (C4 = middle C).

To Set the Tone Balance of the Current Patch



Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Tone Balance range is 0-100. At 0, only the Lower Tone is audible; at 100, only the Upper Tone is audible.

To Set the Partial Balance of the Current Patch

Press the UPPER PARTIAL BALANCE button to balance the partials of the Upper Tone

Press the LOWER PARTIAL BALANCE button to balance the partials of the Lower Tone

Change using the joystick.

The X (horizontal) axis of the joystick controls Partial Balance.

The Y (vertical) axis of the joystick controls Tone Balance.

NOTE: Partial Balance is the only parameter of the D-50 that is not displayed in the LCD of the instrument.

PATCH SETTINGS

TONE DETUNE

DISPLAY

TONE
DETUNE

Press

```
1-XX XXXXXXXXXXXXXXXXX Tone Tune
LKey±XX UKey±XX LTun±XX UTun±XX
```

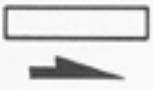
Select LKey or UKey and use the joystick or INCREMENT and DECREMENT buttons to tune the Lower or Upper Tone by ±24 semitones.

Select LTun or UTun and use the joystick or INCREMENT and DECREMENT buttons to tune the Lower or Upper Tone by ±50 cents.

CONTROL

DISPLAY

PATCH
EDIT



Press

```
1-XX XXXXXXXXXXXXXXXXX Patch Edit Menu
(P-Name)(Control)(Output)(Chase) (MIDI)
```

Select (Control)

```
1-XX XXXXXXXXXXXXXXXXX Control Edit
Bend XX AfPB±XX PortXXX Port XX Hold XX
```

To Set the Bender Range

From the Control Edit menu, select Bend

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Bender range is 0-12 semitones.

To Set the Aftertouch Pitchbend Range

From the Control Edit menu, select AfPB

Change using the joystick or the INCREMENT and DECREMENT buttons.

Aftertouch pitchbend range is –12 to +12 semitones.

To Set the Portamento Time

From the Control Edit menu, select the first Port

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Portamento Time range is 0-100.

To Set the Portamento Mode

From the Control Edit menu, select the second `Port`

Change using the joystick or the INCREMENT and DECREMENT buttons.

Valid Portamento modes are U (Upper), L (Lower), and UL (Upper and Lower).

To Set the Hold Mode

From the Control Edit menu, select `Hold`

Change using the joystick or the INCREMENT and DECREMENT buttons.

Valid Hold modes are U, L, and UL.

OUTPUT

DISPLAY


```
I-XX XXXXXXXXXXXXXXXXX Patch Edit Menu
(P-Name)(Control)(Output)(Chase) (MIDI)
```

Select `(Output)`

```
I-XX XXXXXXXXXXXXXXXXX Output Mode Edit
Mode XX  Rev XX RbalXXX  VolXXX
```

To Set the Output Mode

From the Output Mode Edit menu, select `Mode`

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Output Modes are 1, 2, 3, and 4.

To Set the Reverb Type

From the Output Mode Edit menu, select `Rev`

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Reverb Types Are:

1 Small Hall
2 Medium Hall
3 Large Hall
4 Chapel
5 Box
6 Small Metal Room
7 Small Room
8 Medium Room
9 Medium Large Room
10 Large Room
11 Single Delay (102 ms)
12 Cross Delay (180 ms)
13 Cross Delay (224 ms)
14 Cross Delay (148 and 296 ms)
15 Short Gate (200 ms)
16 Long Gate (480 ms)

Reverb types 1-16 are fixed programs stored in the D-50. Reverb types 17-32 are alterable.

Although the reverb type has no user-editable parameters, alternate reverb programs can be loaded via MIDI Systems Exclusive data or a Memory Card.

To Set the Reverb Balance

From the Output Mode Edit menu, select Rbal

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Reverb Balance range is 0-100.

To Set the Total Patch Volume

From the Output Mode Edit menu, select Vol

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Volume range is 0-100.

CHASE

DISPLAY

Press

```
I-XX XXXXXXXXXXXXXXXXX Patch Edit Menu
(P-Name)(Control)(Output)(Chase) (MIDI)
```

Select (Chase)

```
I-XX XXXXXXXXXXXXXXXXX Chase Edit
ModeXXX LevlXXX TimeXXX
```

To Set the Chase Mode

From the Chase Edit menu, select Mode

Change using the joystick or the INCREMENT and DECREMENT buttons.

Valid Chase Modes are UL, ULL, and ULU.

To Set the Chase Level

From the Chase Edit menu, select Levl

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Chase Level range is 0-100.

To Set the Chase Time

From the Chase Edit menu, select Time

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Chase Time range is 0-100.

TONE SETTINGS

The settings that are common to both of the partials in a tone are accessed from The Common Menu.

To Access the Common Menu

DISPLAY

Press U-TONE EDIT

```
I-XX U: XXXXXXXXXX      U-Tone Edit Menu
(T-Name)(Common)(Part-1)(Part-2)(T-Copy)
```

or L-TONE EDIT

```
I-XX L: XXXXXXXXXX      L-Tone Edit Menu
(T-Name)(Common)(Part-1)(Part-2)(T-Copy)
```

Select (Common)

```
I-XX X: XXXXXXXXXX      Common Menu
(Struct) (P-ENV) (LFO)   (EQ)   (Chorus)
```

STRUCTURE

DISPLAY

From the Common Menu,

select (Struct)

```
I-XX X: XXXXXXXXXX      Structure
 Str XX
```

Select Str

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Structures are:

1 Synth + Synth
2 Synth + Synth with Ring Modulation
3 PCM + Synth
4 PCM + Synth with Ring Modulation
5 Synth + PCM with Ring Modulation
6 PCM + PCM
7 PCM + PCM with Ring Modulation

PITCH ENVELOPE

DISPLAY

A diagram of the Pitch Envelope appears on the right side of the D-50 panel.

To Set Times

From the Common Menu,

select (P-ENV)

```
1-XX X: XXXXXXXXXX      P-ENV Edit
  T1 XX   T2 XX   T3 XX   T4 XX
```

Select T1, T2, T3, or T4

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Time values are 0-50.

To Set Levels

From the Common Menu, select (P-ENV)

PATCH EDIT

Press ▬ once

```
1-XX X: XXXXXXXXXX      P-ENV Edit
  L0±XX   L1±XX   L2±XX SusL±XX EndL±XX
```

Select L0, L1, L2, SUSL, or ENDL

Change using the joystick or the INCREMENT and DECREMENT buttons.

Level values are –50-+50.

To Set Velocity Sensitivity or Key Follow of Times

From the Common Menu, select (P-ENV)

TONE DETUNE

Press ▬ once

```
1-XX X: XXXXXXXXXX      P-ENV Edit
Velo XX  TKF XX
```

TO SET VELOCITY SENSITIVITY

Select Velo

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Velocity values are 0-2.

TO SET KEY FOLLOW OF TIMES

Select TKF

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Key Follow values are 0-4.

EQUALIZER (EQU)

DISPLAY

From the Common Menu,

select (EQ)

```
1-XX X: XXXXXXXXXX      EQ Edit
 Lf XXX  Lg ±XX  Hf XXX  HQ X.X  Hg ±XX
```

To Set the Low Frequency

Select Lf

Change using the joystick or the INCREMENT and DECREMENT buttons.

Low frequency is expressed in 16 values from 63 Hz to 840 Hz.

To Set the Low-Frequency Gain

Select Lg

Change using the joystick or the INCREMENT and DECREMENT buttons.

Low-requency gain is expressed in 25 1-dBsteps from –12 to +12 dB. Negative values decrease (cut) the specified low frequency; positive values increase (boost) the specified low frequency. A value of 0 indicates no low-frequency boost or cut.

To Set the High Frequency

Select Hf

Change using the joystick or the INCREMENT and DECREMENT buttons.

High frequency is expressed in 22 values from 250 Hz to 9.5 KHz

To Set the High-Frequency Q

Select HQ

Change using the joystick or the INCREMENT and DECREMENT buttons.

High-frequency Q is expressed in 9 values from 0.3 to 6.0. Larger values narrow the frequency band; smaller values widen the frequency band.

To Set the High-Frequency Gain

Select Hg

Change using the joystick or the INCREMENT and DECREMENT buttons.

Change using the joystick or the INCREMENT and DECREMENT buttons.

High-requency gain is expressed in 25 1-dBsteps from –12 to +12 dB.

CHORUS

DISPLAY

From the Common Menu,

select (Chorus)

```
I-XX X: XXXXXXXXXX      Chorus Edit
Type XX RateXXX DpthXXX  BalXXX
```

To Set the Chorus Type

From the Chorus Edit menu, select Type

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Chorus types are:

1 Chorus 1
2 Chorus 2
3 Flanger 1
4 Flanger 2
5 Feedback Chorus
6 Tremolo
7 Chorused Tremolo
8 Dimension Chorus

To Set the Chorus Rate

From the Chorus Edit menu, select Rate

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Chorus Rate range is 0-100.

To Set the Chorus Depth

From the Chorus Edit menu, select Dpth

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Chorus Depth range is 0-100.

To Set the Chorus Balance

From the Chorus Edit menu, select Bal

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Balance range is 0-100. A value of 0 indicates normal (dry) signal only. A value of 100 indicates chorused signal only.

PARTIAL SETTINGS

Partial settings are selected from the *Partial Edit* menus and their sub-menus.

To Access a Partial Edit Menu

DISPLAY

Press U-TONE EDIT

```
I-XX U: XXXXXXXXXX      U-Tone Edit Menu
(T-Name)(Common)(Part-1)(Part-2)(T-Copy)
```

or L-TONE EDIT

```
I-XX L: XXXXXXXXXX      L-Tone Edit Menu
(T-Name)(Common)(Part-1)(Part-2)(T-Copy)
```

Select (Part-1)

```
I-XX X: StrXX XXXX      Part-1  Menu
(Pitch)  (Form)  (TVF)   (TVA)  * Init *
```

or (Part-2)

```
I-XX X: StrXX XXXX      Part-2  Menu
(Pitch)  (Form)  (TVF)   (TVA)  * Init *
```

To Mute a Partial

While in a Partial Edit menu or sub-menu, press PATCH NUMBER button 1, 2, 3, or 4. (These buttons are also labeled as PARTIAL MUTE LOWER 1 and 2 and UPPER 1 and 2, respectively.)

The status of the partials is shown in the upper line of the display. For example:

```
I-XX X: StrXX 1010      Part-X  Menu
(Pitch)  (Form)  (TVF)   (TVA)  * Init *
```

In the example above, "1010" indicates that Partials Lower 2 and Upper 2 are muted (turned off).

Pressing a PARTIAL MUTE button a second time will unmute that Partial.

To Select a Partial

While in a Partial Edit menu or sub-menu, PATCH BANK button 1, 2, 3, or 4. (These buttons are also labeled as PARTIAL SELECT LOWER 1 and 2 and UPPER 1 and 2, respectively.)

The active partial is indicated in the upper line of the display—"U:" or "L:" indicates the tone, and "Part-1" or "Part-2" indicates the partial.

To Tune a Partial

Press U-TONE EDIT or L-TONE EDIT

Select (Part-1)

or (Part-2)

```
1-XX X: StrXX XXXX      Part-X  Menu
(Pitch)  (Form)  (TUF)   (TVA)  * Init *
```

Select (Pitch)

```
1-XX X: StrXX XXXX      Part-X  WG Pitch
CorsXXX Fine±XX  KF XXX
```

TO SET COARSE TUNING

Select Cors

Change using the joystick or the INCREMENT and DECREMENT buttons.

This setting is base pitch for middle C.

TO SET FINE TUNING

Select Fine

Change using the joystick or the INCREMENT and DECREMENT buttons.

The Fine range is ±50 cents.

TO SET KEY FOLLOW

Select KF

Change using the joystick or the INCREMENT and DECREMENT buttons.

This setting determines how the pitch corresponds to the keyboard. Key Follow settings are:

-1	Retrograde standard tuning (high key on keyboard produces a low note, low key on keyboard produces a high note)
-/2	Retrograde tuning with 24 parts to the octave
-/4	Retrograde tuning with 48 parts to the octave
0	Null tuning (partial plays the same note regardless of which key on the keyboard is pressed)
1/8	96 parts to the octave
1/4	48 parts to the octave
3/8	32 parts to the octave
1/2	24 parts to the octave (quarter-tone scale)
5/8	19 parts to the octave
3/4	16 parts to the octave
7/8	14 parts to the octave
1	12 parts to the octave (standard tuning)
5/4	$9\frac{1}{2}$ parts to the octave
3/2	8 parts to the octave
2	6 parts to the octave (whole-tone scale)
s1	Stretched tuning (each octave is 1 cent wider than standard tuning)
s2	Stretched tuning (each octave is 5 cents wider than standard tuning)

Press [U-TONE EDIT] or [L-TONE EDIT]

Select (Part-1)

or (Part-2)

```
1-XX X: StrXX XXXX        Part-X  Menu
(Pitch)  (Form)  (TVF)    (TVA)  * Init *
```

Select (Form)

```
1-XX X: StrXX XXXX        Part-X  WG Form
WaveXXX  PCMXXX:XXXXXX
```

TO SET SYNTHESIZER WAVEFORM (SYNTH PARTIAL ONLY)

Select Wave

Change using the joystick or the INCREMENT and DECREMENT buttons.

Waveforms available are SQUare and SAWtooth. Other waveforms are obtained by filtering one of these.

TO SET PCM SAMPLE (PCM PARTIAL ONLY)

Select PCM

Change using the joystick or the INCREMENT and DECREMENT buttons.

PCM range is 1-100:

ATTACK SOUNDS:

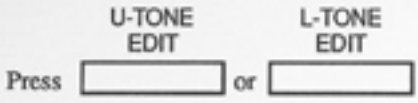
1 Marimba
2 Vibes
3 Xylophone 1
4 Xylophone 2
5 Log Bass
6 Hammer
7 Japanese Drum
8 Kalimba
9 Pluck 1
10 Chink
11 Agogo
12 Triangle
13 Bells
14 Nail File
15 Pick
16 Low Piano
17 Mid Piano
18 High Piano
19 Harpsichord
20 Harp
21 Organ Percussion
22 Steel String
23 Nylon String
24 Elec. Guitar 1
25 Elec. Guitar 2
26 Dirty Guitar
27 Pick Bass
28 Pop Bass
29 Thumb Bass
30 Upright Bass
31 Clarinet
32 Breath
33 Steam
34 High Flute
35 Low Flute
36 Guiro
37 Indian Flute
38 Flute Harmonic
39 Lips 1
40 Lips 2
41 Trumpet
42 Trombone
43 Contrabass
44 Cello
45 Violin Bow
46 Violins
47 Pizzicato

LOOPED (SUSTAINED) SOUNDS:

48 Drawbar Organ
49 High Organ
50 Low Organ
51 Elec. Piano 1
52 Elec. Piano 2
53 Clav
54 Harpsichord
55 Elec. Bass 1
56 Acoustic Bass
57 Elec. Bass 2
58 Elec. Bass 3
59 Elec. Guitar
60 Cello
61 Violin
62 Reed
63 Sax 1
64 Sax 2
65 Aah
66 Ooh
67 Male 1
68 Spectrum 1
69 Spectrum 2
70 Spectrum 3
71 Spectrum 4
72 Spectrum 5
73 Spectrum 6
74 Spectrum 7
75 Male 2
76 Noise

LOOPED COMBINATIONS OF 1-76:

77-100



Select (Part-1)

or (Part-2)

```
I-XX X: StrXX XXXX      Part-X  Menu
(Pitch)  (Form)  (TUF)   (TVA)  * Init *
```

Select (Form)

```
I-XX X: StrXX XXXX      Part-X  WG Form
WaveXXX  PCMXXX:XXXXXX
```


```
I-XX X: StrXX XXXX      Part-X  WG PW
  PWXXX Velo±XX Aftr±XX  LFO ±X LFODXXX
```

Select PW

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Range is 0-100 (= 50-97% pulse width).

TO SET VELOCITY CONTROL OVER PULSE WIDTH

Select Velo

Change using the joystick or the INCREMENT and DECREMENT buttons.

Range is –7-+7. With "–" values, pulse width becomes narrower as keys are played harder; with "+" values, pulse width becomes wider as keys are played harder.

TO SET AFTER TOUCH CONTROL OVER PULSE WIDTH

Select Aftr

Change using the joystick or the INCREMENT and DECREMENT buttons.

Range is –7-+7. With "–" values, pulse width becomes narrower with after touch; with "+" values, pulse width becomes wider with after touch.

TO SELECT LFO TO CONTROL PULSE WIDTH

Select LFO

Change using the joystick or the INCREMENT and DECREMENT buttons.

Choices are ±1, 2, or 3. The number determines which of the three LFO's for the present tone is selected to control the pulse width; the "+" or "–" selects the phase of the LFO.

NOTE: For further instructions regarding LFO's, see page 22.

TO SET DEPTH OF LFO CONTROL OVER PULSE WIDTH

Select LFOD

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Range is 0-100. The higher the number, the more the LFO changes the pulse width.

TIME-VARIANT FILTER (TVF)

DISPLAY

The TVF applies to synth partials only.

To Set Basic TVF Settings

Press U-TONE EDIT or L-TONE EDIT

Select (Part-1)

or (Part-2)

```
I-XX X: StrXX XXXX        Part-X  Menu
(Pitch)  (Form)  (TVF)    (TVA)  * Init *
```

Select (TVF)

```
I-XX X: StrXX XXXX        Part-X  TVF
FreqXXX Reso XX  KF XXX BP XXXX Blvl±XX
```

TO SET THE CUTOFF FREQUENCY

Select Freq

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Frequency range is 0-100. The higher the number, the more high frequencies are heard.

TO SET THE RESONANCE

Select Reso

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Resonance range is 0-30. The higher the number, the greater the accentuation of frequencies near the cutoff frequency.

TO SET THE KEY FOLLOW OF THE CUTOFF FREQUENCY

Select KF

Change using the joystick or the INCREMENT and DECREMENT buttons.

Key Follow determines how the cutoff frequency "tracks" the keyboard. This is similar to the key follow of pitch covered on page 14. Available settings are: –1, –/2, –/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, and 2.

TO SET THE BIAS POINT AND DIRECTION

Select BP

Change using the joystick or the INCREMENT and DECREMENT buttons.

Bias Point may be set from A1 to C7. ">" indicates the Bias Level is valid above the Bias Point. "<" indicates the Bias Level is valid below the Bias Point.

TO SET THE BIAS LEVEL

Select Blvl

Change using the joystick or the INCREMENT and DECREMENT buttons.

Bias Level range is –7-+7. Positive values raise the curve; negative values lower the curve.

DISPLAY

Press U-TONE EDIT or L-TONE EDIT

Select (Part-1)

or (Part-2)

```
1-XX X: StrXX XXXX      Part-X  Menu
(Pitch)  (Form)  (TVF)   (TVA)  * Init *
```

Select (TVF)

Press PATCH EDIT

```
1-XX X: StrXX XXXX      Part-X  TVF ENV
DpthXXX VeloXXX  DKF XX  TKF XX
```

TO SET THE DEPTH OF THE ENVELOPE

Select Dpth

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Depth range is 0-100. The higher the number, the greater the effect the TVF envelope has on the cutoff frequency.

TO SET THE VELOCITY SENSITIVITY OF THE ENVELOPE

Select Velo

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Velocity range is 0-100. The higher the number, the greater the velocity sensitivity of the TVF envelope.

TO SET THE KEY FOLLOW OF ENVELOPE DEPTH

Select DKF

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Depth range is 0-4. The higher the number, the less the envelope depth the higher you play on the keyboard.

TO SET THE KEY FOLLOW OF ENVELOPE TIMES

Select TKF

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Velocity range is 0-4. The higher the number, the greater the change in envelope times as you move outward from middle C: faster as you go higher, slower as you go lower.

TO SET TVF TIMES **DISPLAY**

(A diagram of the TVF/TVA Envelope appears on the right side of the D-50 panel.)


```
I-XX X: StrXX XXXX      Part-X  TVF ENV
 T1XXX   T2XXX   T3XXX   T4XXX   T5XXX
```

Select T1, T2, T3, T4, or T5.

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Valid range is 0-100.

TO SET TVF LEVELS

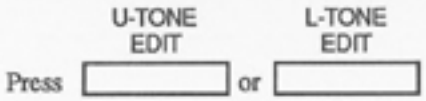

```
I-XX X: StrXX XXXX      Part-X  TVF ENV
 L1XXX   L2XXX   L3XXX SusLXXX EndLXXX
```

Select L1, L2, L3, SusL, or EndL.

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Valid range is 0-100 (valid End Level values are 0 and 100).

TIME-VARIANT AMPLIFIER (TVA) DISPLAY



Select (Part-1)

or (Part-2)

```
I-XX X: StrXX XXXX      Part-X  Menu
(Pitch)  (Form)  (TVF)   (TVA)  * Init *
```

Select (TVA)

```
I-XX X: StrXX XXXX      Part-X  TVA
LevlXXX Velo±XX         BP XXXX Blvl-XX
```

TO SET THE VOLUME LEVEL

Select Levl

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Level range is 0-100.

TO SET THE VELOCITY SENSITIVITY

Select Velo

Change using the joystick or the INCREMENT and DECREMENT buttons.

Velocity range is –50-+50. Negative values lower the volume with increased velocity; positive values raise the volume.

TO SET THE BIAS POINT AND DIRECTION **DISPLAY**

Select BP

Change using the joystick or the INCREMENT and DECREMENT buttons.

Bias Point may be set from A1 to C7. ">" indicates the Bias Level is valid above the Bias Point. "<" indicates the Bias Level is valid below the Bias Point.

TO SET THE BIAS LEVEL

Select BIvl

Change using the joystick or the INCREMENT and DECREMENT buttons.

Bias Level range is –12-0. The greater the negative value, the sharper the decrease in volume from the bias point.

TO SET TVA ENVELOPE TIMES

(A diagram of the TVF/TVA Envelope appears on the right side of the D-50 panel.)

PATCH
EDIT

Press

```
1-XX X: StrXX XXXX      Part-X  TVA ENV
  T1XXX   T2XXX   T3XXX   T4XXX   T5XXX
```

Select T1, T2, T3, T4, or T5.

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Valid range is 0-100.

TO SET TVA ENVELOPE LEVELS

PATCH
EDIT

Press again

```
1-XX X: StrXX XXXX      Part-X  TVA ENV
  L1XXX   L2XXX   L3XXX SusLXXX EndLXXX
```

Select L1, L2, L3, SusL, or EndL.

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Valid range is 0-100 (valid End Level values are 0 and 100).

TO SET VELOCITY SENSITIVITY OF T1 (ATTACK TIME)

PATCH
EDIT

Press again

```
1-XX X: StrXX XXXX      Part-X  TVA ENV
Velo XX  TKF XX
```

Select Velo

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Valid range is 0-4. Higher numbers shorten T1 (AttackTime) with increased velocity.

TO SET THE KEY FOLLOW OF ENVELOPE TIMES

Select TKF

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Velocity range is 0-4. The higher the number, the greater the change in envelope times as you move outward from middle C: faster as you go higher, slower as you go lower.

MODULATION

Amplitude and pitch can be modulated by four primary sources: pitch bender and modulation controller, one of three LFOs (low-frequency oscillators; pitch is "hard-wired" to LFO 1), aftertouch, or an external continuous controller. In addition, the filter cutoff frequency can by modulated by an LFO, aftertouch, or an external controller. The three LFOs are virtually identical in operation—each providing settings for Rate, Delay, Sync, and four waveforms (triangle, sawtooth, square, and random); but LFO 1 has an added Sync mode, Key, which begins generating a new LFO waveform each time a new key is pressed.

PITCH MODULATION (TONE)

DISPLAY

Press U-TONE EDIT

or L-TONE EDIT

```
1-XX X: XXXXXXXXXX      X-Tone Edit Menu
(T-Name)(Common)(Part-1)(Part-2)(T-Copy)
```

Select (Common)

```
1-XX X: XXXXXXXXXX      Common Menu
(Struct) (P-ENV) (LFO)   (EQ)   (Chorus)
```

Select (LFO)

```
1-XX X: XXXXXXXXXX      LFO-1 Edit
WaveXXX RateXXX DelyXXX SyncXXX
```

Press TONE DETUNE

```
1-XX X: XXXXXXXXXX      Pitch Mod Edit
LFODXXX          LevrXXX AftrXXX
```

TO SET LFO 1 CONTROL OF VIBRATO DEPTH

Select LFOD

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Depth range is 0-100.

TO SET MODULATION LEVER CONTROL OF VIBRATO DEPTH

Select Levr

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Lever range is 0-100.

TO SET AFTER TOUCH CONTROL OF VIBRATO DEPTH

Select Aftr

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

After Touch range is 0-100.

DISPLAY

Press U-TONE EDIT

or L-TONE EDIT

```
I-XX X: XXXXXXXXXX      X-Tone Edit Menu
(T-Name)(Common)(Part-1)(Part-2)(T-Copy)
```

Select (Common)

```
I-XX X: XXXXXXXXXX      Common Menu
(Struct) (P-ENV) (LFO)   (EQ)   (Chorus)
```

Select (LFO)

```
I-XX X: XXXXXXXXXX      LFO-1 Edit
WaveXXX RateXXX DelyXXX SyncXXX
```

LFO 1 is selected for editing.

Press TONE DETUNE to select LFO 2

Press TONE DETUNE again to select LFO 3

TO SET LFO WAVEFORM

Select Wave

Change using the joystick or the INCREMENT and DECREMENT buttons.

Waveform choices are: TRIangle, SAWtooth, SQUare, and RaNDom.

TO SET LFO RATE

Select Rate

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Rate range is 0-100.

TO SET LFO DELAY

Select Dely

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Delay range is 0-100.

TO SET LFO SYNC MODE

Select Sync

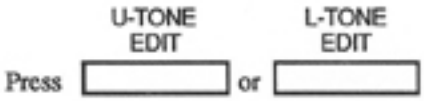
Change using the joystick or the INCREMENT and DECREMENT buttons.

Sync choices are: OFF, ON, and KEY (LFO 1 only).

WG MODULATION (PARTIAL)

DISPLAY

WG modulation is pitch modulation.



Select (Part-1)

or (Part-2)

```
I-XX X: StrXX XXXX      Part-X  Menu
(Pitch)  (Form)  (TVF)   (TVA)  * Init *
```

Select (Pitch)

```
I-XX X: StrXX XXXX      Part-X  WG Pitch
CorsXXX Fine±XX  KF XXX
```


```
I-XX X: StrXX XXXX      Part-X  WG Mod
LFO XXX ENV XXX BendXXX
```

TO SET LFO 1 CONTROL OVER VIBRATO

Select LFO

Change using the joystick or the INCREMENT and DECREMENT buttons.

LFO modes are:

OFF	No vibrato
(+)	Vibrato ON with positive phase
(–)	Vibrato ON with negative phase
A&L	Vibrato controlled by Aftertouch and Modulation Lever only.

TO SET PITCH ENVELOPE CONTROL OVER PITCH

Select ENV

Change using the joystick or the INCREMENT and DECREMENT buttons.

Pitch Envelope modes are:

OFF	Pitch Envelope does not affect the partial
(+)	Pitch changes according to Pitch Envelope settings
(–)	Pitch changes according to inverse Pitch Envelope settings

TO SET BENDER LEVER CONTROL OVER PITCH

Select Bend

Change using the joystick or the INCREMENT and DECREMENT buttons.

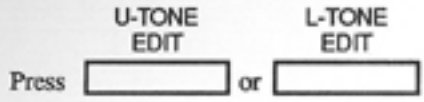
Bender Lever modes are:

OFF	Bender Leverdoes not affect the partial
NOM	Pitch changes as set by Bend range (in Control menu of Patch settings)
KEY	Pitch changes by Bend range multiplied by the Key Follow (Pitch) of the WG

TVF MODULATION (PARTIAL)

DISPLAY

TVF Modulation applies to synthesizer partials only.



Select (Part-1)

or (Part-2)

```
1-XX X: StrXX XXXX      Part-X  Menu
(Pitch)  (Form)  (TVF)   (TVA)  * Init *
```

Select (TVF)

```
1-XX X: StrXX XXXX      Part-X  TVF
FreqXXX Reso XX  KF XXX BP XXXX Blvl±XX
```


```
1-XX X: StrXX XXXX      Part-X  TVF Mod
 LFO ±X LFODXXX         Aftr±XX
```

TO SET THE LFO

Select LFO

Change using the joystick or the INCREMENT and DECREMENT buttons.

LFO range is ±1, 2, or 3. The number indicates which LFO is directed to TVF modulation; the "+" or "–" indicates the phase of the LFO.

TO SET LFO DEPTH

Select LFOD

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Depth range is 0-100. The higher the number, the greater the effect the LFO has on the cutoff frequency.

TO SET AFTER TOUCH RANGE

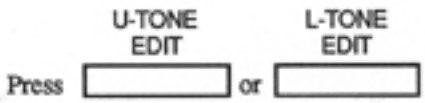
Select Aftr

Change using the joystick or the INCREMENT and DECREMENT buttons.

After Touch range is –7-+7. A negative value lowers the cutoff frequency with After Touch pressure; a positive value raises the cutoff frequency with After Touch pressure.

TVA MODULATION (PARTIAL) DISPLAY

TVA Modulation applies to synthesizer partials only.



Select (Part-1)

or (Part-2)

```
1-XX X: StrXX XXXX        Part-X  Menu
(Pitch)  (Form)  (TVF)    (TVA)  * Init *
```

Select (TVA)

```
1-XX X: StrXX XXXX        Part-X  TVA
Lev1XXX Velo±XX           BP XXXX Blvl-XX
```


```
1-XX X: StrXX XXXX        Part-X  TVA Mod
 LFO ±X LFODXXX           Aftr±XX
```

TO SET THE LFO

Select LFO

Change using the joystick or the INCREMENT and DECREMENT buttons.

LFO range is ±1, 2, or 3. The number indicates which LFO is directed to TVA modulation; the "+" or "–" indicates the phase of the LFO.

TO SET LFO DEPTH

Select LFOD

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Depth range is 0-100. The higher the number, the greater the effect the LFO has on the volume level.

TO SET AFTER TOUCH RANGE

Select Aftr

Change using the joystick or the INCREMENT and DECREMENT buttons.

After Touch range is –7-+7. A negative value lowers the volume level with After Touch pressure; a positive value raises the volume level with After Touch pressure.

MIDI

PATCH SETTINGS

DISPLAY

PATCH EDIT

Press

```
1-XX XXXXXXXXXXXXXXXXX Patch Edit Menu
(P-Name)(Control)(Output)(Chase) (MIDI)
```

Select (MIDI)

```
1-XX XXXXXXXXXXXXXXXXX MIDI Channel
TxCH XX          SepCHXXX
```

TO SET TRANSMIT CHANNEL

Select TxCH

Change using the joystick or the INCREMENT and DECREMENT buttons.

Channel range is:

B	Basic channel (changed in global MIDI settings; see below)
1-16	Any one of the 16 MIDI channels

TO SET SEPARATE CHANNEL (FOR SEPARATE KEY MODE)

Select SepCH

Change using the joystick or the INCREMENT and DECREMENT buttons.

Channel range is:

OFF	Separate channel is deactivated
1-16	Any one of the 16 MIDI channels

GLOBAL SETTINGS

DISPLAY

To Set Basic MIDI Settings

MIDI

Press

```
MIDI-1   BasicCH Control  Omni   Local
            XX  XXXXXX     XXX     XXX
```

TO SET THE BASIC CHANNEL

Select BasicCH

Change using the joystick, the INCREMENT and DECREMENT buttons, or the ten-key pad.

Channel range is 1-16.

TO SET RECEPTION OF CONTROL MESSAGES **DISPLAY**

Select Control

Change using the joystick or the INCREMENT and DECREMENT buttons.

Control range is:

B.CH	When the D-50 is in Mono mode, all Voice messages (except Note event and Pitch Bender) are received on the Basic channel.
G.CH	When the D-50 is in Mono mode, all Voice messages (except Note event and Pitch Bender) are received on the Global channel, which is one number smaller than the Basic channel.
MdeOff	The D-50 doesn't receive Mode messages; rather, it is assigned to the Key Mode that is set internally.

TO SET THE OMNI SETTING

Select Omni

Change using the joystick or the INCREMENT and DECREMENT buttons.

Omni range is:

OFF	The D-50 receives on only the channel(s) for which it is set.
ON	The D-50 receives on all channels.

TO SET THE LOCAL SETTING

Select Local

Change using the joystick or the INCREMENT and DECREMENT buttons.

Local range is:

OFF	The D-50 keyboard is disconnected from its internal sound-generating circuitry.
ON	The D-50 keyboard is connected to its internal sound-generating circuitry.

To Activate or Deactivate Transmission and Reception of a Category of MIDI Messages

Press MIDI

MIDI-1	BasicCH	Control	Omni	Local
	XX	XXXXXX	XXX	XXX

Press PATCH EDIT once

MIDI-2	After	Bender	Mod	Volume
	XXX	XXX	XXX	XXX

or twice

MIDI-3	Hold	Porta	Prog.C	Exclu
	XXX	XXX	XXX	XXX

Select the desired category of MIDI messages.

Turn ON or OFF using the joystick or the INCREMENT and DECREMENT buttons. The setting controls both transmission and reception of that category of massages. Categories are:

After	After Touch
Bender	Pitch Bender
Mod	Modulation Control
Volume	Volume Control
Hold	Hold Pedal
Porta	Portamento
Prog.C	Program Change
Exclu	System Exclusive

To Set Transmission and Reception of Controller Numbers **DISPLAY**

Press MIDI

```
MIDI-1    BasicCH Control  Omni    Local
             XX   XXXXXX     XXX      XXX
```

Press PATCH EDIT three times

```
MIDI-4 Control Change     PedalSW ExtCont
                             XX      XX
```

Select PedalSW or ExtCont

Change using the joystick or the INCREMENT and DECREMENT buttons. The ten-key pad can also be used for ExtCont.

PedalSW sets the Controller number transmitted by the Pedal Switch. The range is 64-95.

ExtCont sets the Controller number transmitted by the External Control. The range is 0-31.

The Controller numbers *transmitted* by these controllers are also the numbers *received* by them. For example, if the Pedal Switch is set to 64 (defined as Hold in the MIDI Specification), it can be used to control Hold for a slave instrument. On the other hand, if the D-50 is the slave, Controller 64 will be the number over which the master can control whatever D-50 function is assigned to the Pedal Switch in the TUNE/FUNCTION menu (see page 4), such as Patch Shift.

MEMORY & HOUSEKEEPING FUNCTIONS

To Set a Patch Name **DISPLAY**

Press PATCH EDIT

```
1-XX XXXXXXXXXXXXXXXXX Patch Edit Menu
(P-Name)(Control)(Output)(Chase) (MIDI)
```

Select (P-Name)

```
1-XX XXXXXXXXXXXXXXXXX Patch Name Edit
 [ ← ]   [ → ]      => XXXXXXXXXXXXXXXXX
```

Move the blinking cursor with the KEY MODE and SPLIT POINT buttons; enter characters with the ten-key pad, the joystick, or the INCREMENT and DECREMENT buttons.

To Set a Tone Name

Press U-TONE EDIT or L-TONE EDIT

```
1-XX X: XXXXXXXXXX        X-Tone Edit Menu
(T-Name)(Common)(Part-1)(Part-2)(T-Copy)
```

Select (T-Name)

```
1-XX X: XXXXXXXXXX        Tone Name Edit
 [ ← ]   [ → ]              => XXXXXXXXXX
```

Move the blinking cursor with the KEY MODE and SPLIT POINT buttons; enter characters with the ten-key pad, the joystick, or the INCREMENT and DECREMENT buttons.

To Turn Internal Memory Protect Off **DISPLAY**

Press TUNE/FUNCTION

```
Master Tune      Protect PedalSW ExtCont
   XXXHz           XXX    XXXXX   XXXXX
```

Select Protect

Change using the joystick or the INCREMENT and DECREMENT buttons.

NOTE: The D-50 defaults to Protect ON each time the power is turned on.

To Initialize a Partial

Press U-TONE EDIT

or L-TONE EDIT

```
I-XX X: XXXXXXXXXX      X-Tone Edit Menu
(T-Name)(Common)(Part-1)(Part-2)(T-Copy)
```

Select (Part-1)

or (Part-2)

```
I-XX X: StrXX XXXX      Part-X  Menu
(Pitch)  (Form)  (TVF)   (TVA)  * Init *
```

Select * Init *

```
I-XX X: StrXX XXXX      Part-X  * Init *
     Are you sure ? ...     (Enter/Exit)
```

Press ENTER

```
                Complete .
```

To Copy Parameters within a Patch

Press COPY

```
* Copy *   From ...  To ... (Enter/Exit)
  UPPER  ALL              UPPER  ALL
```

Select the item to change, and change it using the joystick or the INCREMENT and DECREMENT buttons.

Select the first UPPER to choose the Tone FROM which to copy. Choices are:

UPPER
LOWER

Select the first ALL to choose the parameters to be copied. Choices are:

ALL
COMMON
Part-1: ALL
WG
TVF
TVA
Part-2: ALL
WG
TVF
TVA

(over)

Select the second UPPER to choose the Tone TO which to copy. Choices are:

UPPER
LOWER

Select the second ALL to choose the destination within the Tone. Choices are:

ALL
COMMON
PART-1
PART-2

Press ENTER

If no data mismatch occurs,

```
Complete
```

the display will read:

To Copy a Different Tone to the Current Tone

Press U-TONE EDIT

or L-TONE EDIT

```
I-XX X: XXXXXXXXXX      X-Tone Edit Menu
(T-Name)(Common)(Part-1)(Part-2)(T-Copy)
```

SELECT (T-Copy)

```
I-XX X: XXXXXXXXXX      Tone Copy
   Copy ...   from  I-XX  X: XXXXXXXXXX
```

Press TONE BALANCE and use the joystick or the INCREMENT and DECREMENT buttons to choose Internal (I) or Card (C) as the source of the tone.

Press L-TONE EDIT and use the joystick or the INCREMENT and DECREMENT buttons to choose the Tone itself.

NOTE: A copied Tone replaces the current Tone as soon as it is selected. To make the change permanent, however, you must follow the procedure below for writing a patch to memory.

To Write a Patch to Internal Memory or a RAM Memory Card

If storing to Internal Memory, make sure Internal Memory Protect is OFF.

If storing to Card, make sure the switch on the Card is *away* from the PROTECT position.

Call up the patch you wish to save, if it isn't the current patch.

Press WRITE

```
I-XX XXXXXXXXXXXXXXXXX Patch Write
   Write to  X-XX.  Sure ? (Enter/Exit)
```

Press INCREMENT or DECREMENT to select Internal (I) or Card (C), as you wish.

Press TONE BALANCE, followed by the PATCH BANK and PATCH NUMBER buttons for the numbered location (11-88) where you wish to store the patch.

If storing to a Card, make sure the Card is inserted.

Press ENTER

```
Complete .
```

To Write Reverb Data to a Location in Internal Memory or a RAM Memory Card

DISPLAY

If storing to Internal Memory, make sure Internal Memory Protect is OFF.

If storing to Memory Card, make sure the switch on the Card is *away* from the PROTECT position.

Call up the patch that has the Reverb program you wish to save, if it isn't the current patch.

Hold SHIFT and

Press WRITE

```
I-XX XXXXXXXXXXXXXXXXXX Reverb Write
   Write to  X-XX.  Sure ? (Enter/Exit)
```

Press INCREMENT or DECREMENT to select Internal (I) or Card (C), as you wish.

Press TONE BALANCE, followed by the PATCH BANK and PATCH NUMBER buttons for the numbered location (17-32) where you wish to store the Reverb program.

If storing to a Card, make sure the Card is inserted.

Press ENTER

```
Complete .
```

To Transfer a Complete Set of Patch and Reverb Data

Press DATA TRANSFER

```
* Data Transfer *        Select Type ...
(B.Dump)(B.Load)(Int→Crd)(Crd→Int)
```

TO TRANSFER FROM INTERNAL MEMORY TO A RAM MEMORY CARD

Insert RAM Memory Card.

Make sure the switch on the Card is *away* from the PROTECT position.

Select (Int→Crd)

```
* Data Transfer *        [ Int → Card ]
     Are you sure ? ...     (Enter/Exit)
```

Press ENTER

```
Complete .
```

TO TRANSFER FROM MEMORY CARD TO INTERNAL MEMORY

Insert Memory Card.

Make sure Internal Memory Protect is OFF.

Select (Crd→Int)

```
* Data Transfer *        [ Card → Int ]
     Are you sure ? ...     (Enter/Exit)
```

Press ENTER

```
Complete .
```

To Undo the Most Recent Change

Press [UNDO]

To Compare Edited Patch with Original

Press [COMPARE]

```
********** Compare **********
```

Press [COMPARE] again to return to edited patch.

To Exit any Menu

Press [EXIT]

To Return to Play Mode from any Menu

Hold [SHIFT] and press [EXIT]

To Alter Two Adjacent Values with the Joystick

Press [LOCAL]

To return the joystick to normal mode, press [VALUE]

To View the D-50 EPROM Version Number

Turn the power OFF.

Hold [0 SPACE] and [INCREMENT] and

Turn the power ON

```
      D-50    Ver X.XX
Thanks to Eric & Adrian.  XXXX X.XXX/X.X
```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