digitech

Vocalist II

Owner's Manual

H A Harman International Company

FEATURES & SPECIFICATIONS

Features

- 5-part intelligent scalic (diatonic) and chordal harmonies
- Natural sounding harmonies
- 2-line x 16-character high-contrast backlit LCD display
- Vocoder mode
- Full MIDI implementation
- Recognizes chords played on MIDI keyboard
- Extensive, editable harmony library
- Chorus, portamento, DJ voice special effects
- Programmable vibrato – speed, depth and attack
- Programmable harmony volume, pitch randomization and +/- fixed pitch detune on each harmony
- XLR microphone input with built-in preamp
- Stereo headphone output
- Unit will memorize key/chord changes and they can be stepped through using the footswitch, a MIDI sequencer, or a MIDI drum machine
- No delay time when making Program changes

Specifications

S/N	>88 dB (A weighted)
THD	<.03% (unweighted)
Sampling	16-bit linear at 31.25 kHz
Bandwidth	30 Hz to 12 kHz (+0 dB -3 dB)
Dry Bandwidth	30 Hz to 30 kHz (+0 dB -3 dB)
Max. Input	+12 dBm
Max. Output	+8 dBm (5 part harmony)
Mic input	XLR 2.2 kohm input impedance, balanced
Line input	¼" jack 24 kohm input impedance, unbalanced
Connections	Mic in, Line in, Line out, Harmony out Left (or mono), Harmony out Right, Headphone out, Footswitch in, MIDI in, MIDI out, MIDI thru, Power in
Indicators	Input level, Program number, Signal Lock indicator, 32 character LCD display for editing, Bypass LED

TABLE OF CONTENTS

VOCALIST II FRONT PANEL

Signal Strength LEDs: Set Input Level so that the Green LEDs are on most of the time, and the Red LED only occasionally flashes.

Program Button: Selects Programs by incrementing or decrementing the Program number. Hold down to scroll at high speed.

Bypass Button: Cancels the Harmony effect, and allows only the input signal to pass through to the Right and Left Outputs.

Headphone Jack: Use only 1/4" stereo headphone plug.

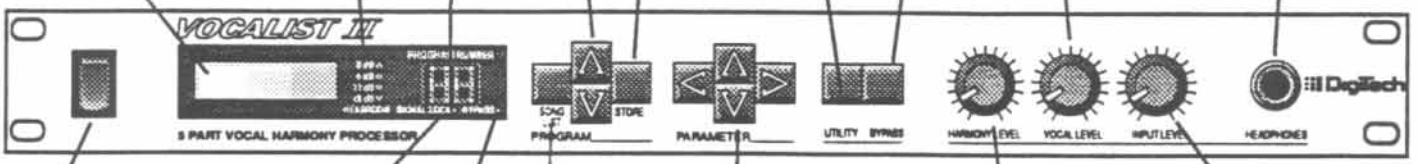
LCD Panel: Displays the Program Name, Key and Chord Type. Displays the various menu screens while programming the *Vocalist II*.

LED Panel: Displays the current Program number.

Store Button: Stores edits to programs and Song Edit lists.

Utility Button: Accesses Utility Menu and displays it on LCD

Vocal Output Level: Controls the output volume of the original input (your voice) for the Right and Left Outputs and the Headphone Output. Does not affect the Line Out.



Power Switch

Song List Button: Access the 50 possible "songs" or combinations of Programs.

Harmony Level: Controls the output volume of the Harmony voices for Right and Left Outputs and the Headphone Output.

Input Level control: Adjusts the level of the input signal from your mic. Adjust this control so that, while singing, the red 0dB Signal Level LED flashes only occasionally.

Signal Lock LED: When you sing a steady note, the Signal Lock LED should shine steadily. If it flickers, the signal from the mic is too weak and you should sing closer to the mic or improve the strength of the input signal.

Bypass LED: Lit when the *Vocalist II* harmonies are bypassed.

Parameter Button: Left and Right arrows move between menu screens while editing. Up and Down either increment and decrement parameter values, or enter and exit sub-menus.

VOCALIST II REAR PANEL

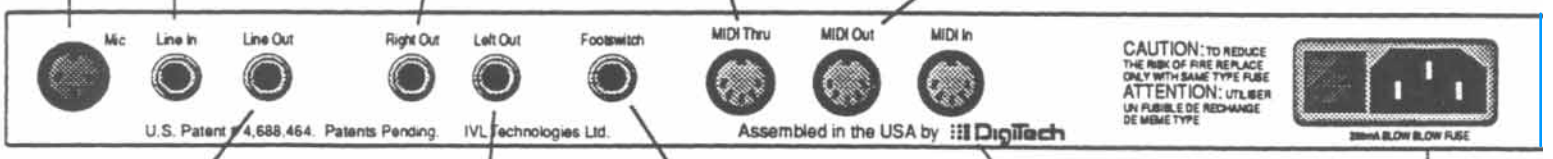
Mic In:
Balanced input for microphone.

Line In:
Mono 1/4" input jack for line level signals.

Right Out:
Mono 1/4" jack: Line level output of Input, Harmony 3 and Harmony 4 signals. Relative levels of Input and Harmonies are controllable by the front panel knobs.

MIDI Thru:
Passes along all information that arrives at the MIDI In jack.

MIDI Out:
Transmits program and key changes from the *Vocalist II* to other MIDI devices; also used to send the *Vocalist II*'s programs to a MIDI storage device.



Line Out:
Mono 1/4" jack: Line level output of the "dry" signal coming into the Line In or Mic In jacks only.

Left Out:
Mono 1/4" jack: Line level output of Input, Harmony 1 and Harmony 2 signals. Relative levels of Input and Harmonies are controllable by the front panel knobs.

Mono:
Use this Output for mono operation: if there is no jack in the Right Output, then all Harmonies plus the Input signal will appear at the Left Output.

Footswitch:
Stereo 1/4" phone jack for the *DigiTech FS300* footswitch ONLY. Allows footswitch control of Program Up, Program Down, Song List Up, Song list Down and Bypass.

MIDI In:
For MIDI control of the *Vocalist II* from external keyboards, sequencers or drum machines.

AC Power Cord and Fuse:

INTRODUCTION

Congratulations, and thank you for your purchase of the *Vocalist II* - DigiTech's revolutionary vocal harmony processor. DigiTech has long been known for cutting-edge technology and performance at sensible prices, and, like the original Vocalist VHM-5, the *Vocalist II* is no exception. The *Vocalist II* uses an innovative new pitch-shifting technology that delivers natural-sounding harmonies even when shifting through large intervals, up to an octave. DigiTech is also the only manufacturer of harmony processors to offer a solution to the Darth Vader/Chipmunk syndrome, incorporating 16-bit sampling and 24-bit processing to give you sparkling, human-sounding harmonies.

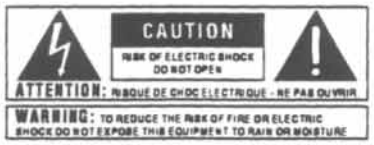
We have gone to great lengths to incorporate all the features that working musicians need, while making these features easy enough for the beginning user to understand. Because of this advanced user interface, in-depth understanding of harmony and music theory are not required to use this product.

Like the other DigiTech harmony machines, the *Vocalist II* is capable of generating intelligent harmonies. Simply tell the *Vocalist II* the key in which you want to sing or what type of chord (major, minor, etc.) you want to use, and it will automatically create up to four harmonies that are correct over that scale or chord.

Another powerful feature of the *Vocalist II* is the ability to pre-program chord changes into the memory of the unit. This allows you to rehearse a song and decide which harmonies you want throughout, and store them for later use. When you get to the stage, just call up the song number from memory and step through the pre-programmed chord progressions using the included footswitch, a MIDI sequencer, or a drum machine. The *Vocalist II* can also read chords played on a MIDI keyboard and automatically select appropriate harmonies.

This owner's manual is your key to unlock the power of five-part vocal harmony. Read it carefully. It contains all the information you need to use this product to its full potential. For any questions not covered in this manual, feel free to write DigiTech at:

Att'n Technical Support
DigiTech
5639 South Riley Lane
Salt Lake City, Utah 84107



The symbols shown at left are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash with arrowpoint in an equilateral triangle means that there are dangerous voltages present within the unit. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the owner's manual.

These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the TSR-24 wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the equipment during storms to prevent damage.

CAUTION!
This product contains a lithium battery. There is danger of explosion if battery is incorrectly replaced. Replace only with an Eveready CR 2032 or equivalent. Make sure the battery is installed with the correct polarity. Discard used batteries according to manufacturer's instructions.
ADVARSEL!
Lithiumbatteri - Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.
ADVARSEL!
Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri av samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.
VAROITUS!
Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.
VARNING!
Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

WHAT IT DOES

Scalic Harmony Choose any key, one of four different scale types (major, minor, wholetone or diminished), and any interval. The *Vocalist II* will produce diatonically correct harmonies for each note you sing.

Chordal Harmony Choose a chord and one of twenty-five different voicings. Then when you sing any note, the *Vocalist II* will give you perfect harmony in up to five parts.

Chord Recognition Connect your keyboard via MIDI to the *Vocalist II*, play chordal accompaniment for your song and the *Vocalist II* will continually look at the keyboard, analyze the chords and generate harmony that sounds right over each chord.

Portamento and Vibrato Introduce portamento and vibrato into the *Vocalist II*-generated accompaniment. Speed, depth and delay may be altered to your preference.

Detune Add color and depth to your sound by detuning the harmonies a fraction of a semi-tone from the input note.

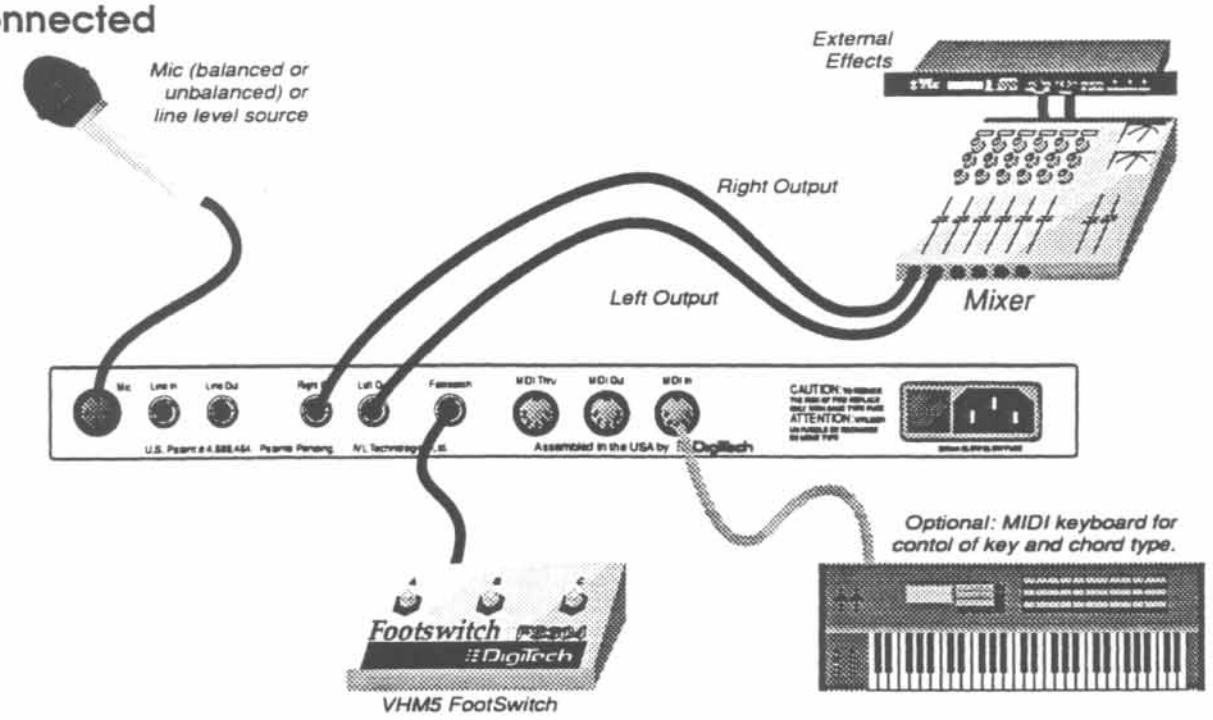
Song List Memory Chord changes for up to 50 different songs may be stored as a sequence in the *Vocalist II*'s memory. As you work through a song, each of these can be selected in order by using the footswitch, a sequencer or a drum machine. Each song may contain up to 100 chord changes, and may be arranged in a variety of sections

Vocoder Play a four note chord on a MIDI keyboard and your voice will be sampled and pitch shifted to these four notes.

Special Effects For example, shifting the pitch of your voice down an octave creates deep gravelly voice effects.

Pitch Correction The singer's voice can be corrected to any pitch by playing the desired note on a MIDI keyboard.

Getting connected



If you have a **mono** amplifier, or only one mixer input, use the **Left Output** only. You can also plug **Right** and **Left Outputs** into Tape In, Aux. In or CD In of a home stereo for practicing.

Adjusting the levels

To begin, turn all levels off by turning the controls down. Now slowly increase each level in the following order.

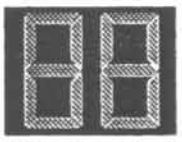
Input Level — Adjust this knob so the signal from your microphone lights the green LEDs most of the time with only occasional peaks in the red LED (0 dB).

Vocal Level — This knob varies the output volume of the unprocessed (dry) signal of your voice.

Harmony Level — This knob varies the volume of both right and left channels of the *Vocalist II*'s Harmony parts. The balance between right and left may be adjusted by using the Harmony Volume menu *(see page 22)*

The Vocal and Harmony Level knobs control volume for the headphone jack as well as the main outputs.

Providing a good signal



When singing be sure that the microphone is as close to your mouth as possible. This is important since any external noise entering the *Vocalist II* will also be harmonized and that is definitely undesirable. Watch the **Signal Lock** LED. If it is intermittent or unsteady, then the signal from your microphone is too weak. Check your cables and readjust the **input level** and sing close to the mic.

Selecting a program

Press the **Program Up** or **Down** button to increase or decrease the Program number. The liquid crystal display (or LCD) shows the program name. Pressing and holding the **Program Up** or **Down** button will cause the *Vocalist II* to scroll quickly through the programs.

The included Vocalist Footswitch gives you another way to select Program number. The default Footswitch Use mode makes the **Left** and **Middle Footswitch** buttons correspond to the Program Up and Down buttons on the front panel. The Footswitch Use mode can also be set for other functions (see Pages 20 and 29).

Understanding the menu system

In order to alter the programs and settings of the *Vocalist II*, you will use the menu system. The diagrams on the inside back cover of the manual show the complete layout of the *Vocalist II* menus. Move through the menus using the **Parameter** buttons.

Parameter right/left buttons

Pressing the **Right** and **Left Parameter** buttons selects the parameter to be changed. Flashing characters on the display indicate the parameter being edited.

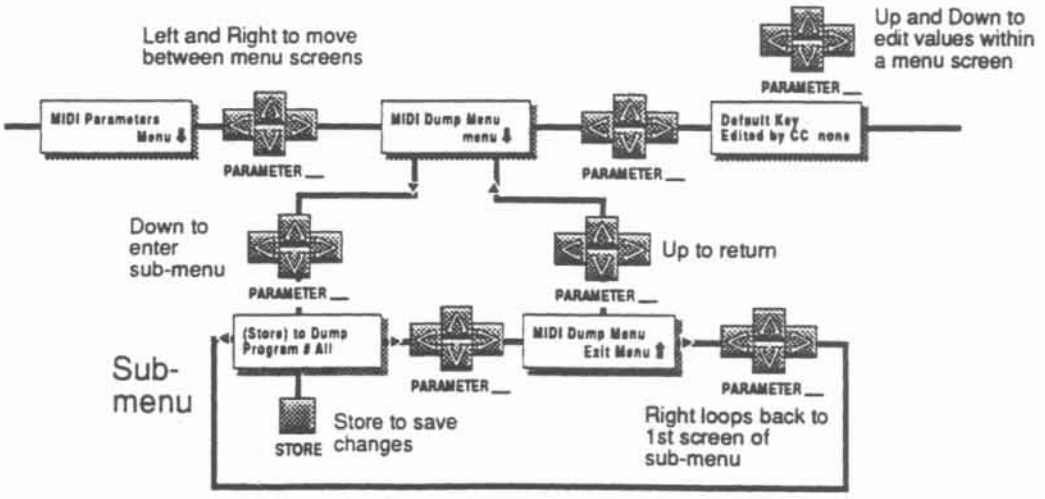
Each menu can be thought of as a continuous loop. When you get to the right-most window in the menu, continuing to the right will select the left-most window. Also, pressing **Left** in the leftmost window will take you to the last (right-hand) screen in the menu.

Parameter up/down buttons

1. After choosing a parameter to edit, change its value with the **Parameter Up** and **Down** buttons.

2. Some parameters have sub-menus (such as Vibrato). When prompted by an up or down arrow, the **Parameter Up** and **Down** buttons will allow you to enter or exit these sub-menus. Exit sub-menus by going to the right-most menu, then up.

Menu & Sub-menu Operation



A "FIRST IMPRESSION" OF *VOCALIST II* HARMONIES

The following pages contain five familiar songs which you can sing into the *Vocalist II* to get a taste of how easy the unit is to operate, and how great the harmonies sound.

HOW TO OPERATE THE VOCALIST DEMONSTRATIONS

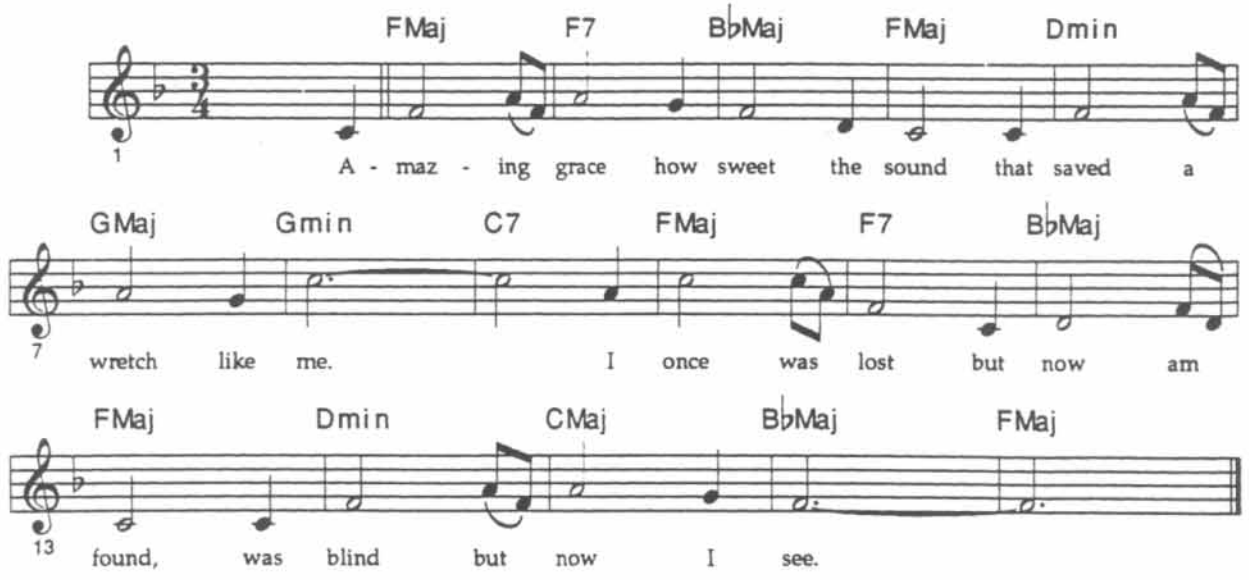
To begin with, make sure that the power to the *Vocalist II* is on. Put headphones on and sing into the microphone. Set the **Input Level** knob so that when you sing, all three green **Signal Strength** LEDs light, and the **Signal Lock** LED lights. Plug in the **Footswitch**, which you'll be able to use to advance through the song steps. If the Footswitch doesn't advance the chords, or steps, check that the Footswitch Use mode is set to **Step ⇑ Step⇓ Byp** (see Page 20).

Choose a song from the following list. Press the **Song List** button, then use the **Program Up/Down** buttons to select the songs from the Song List:

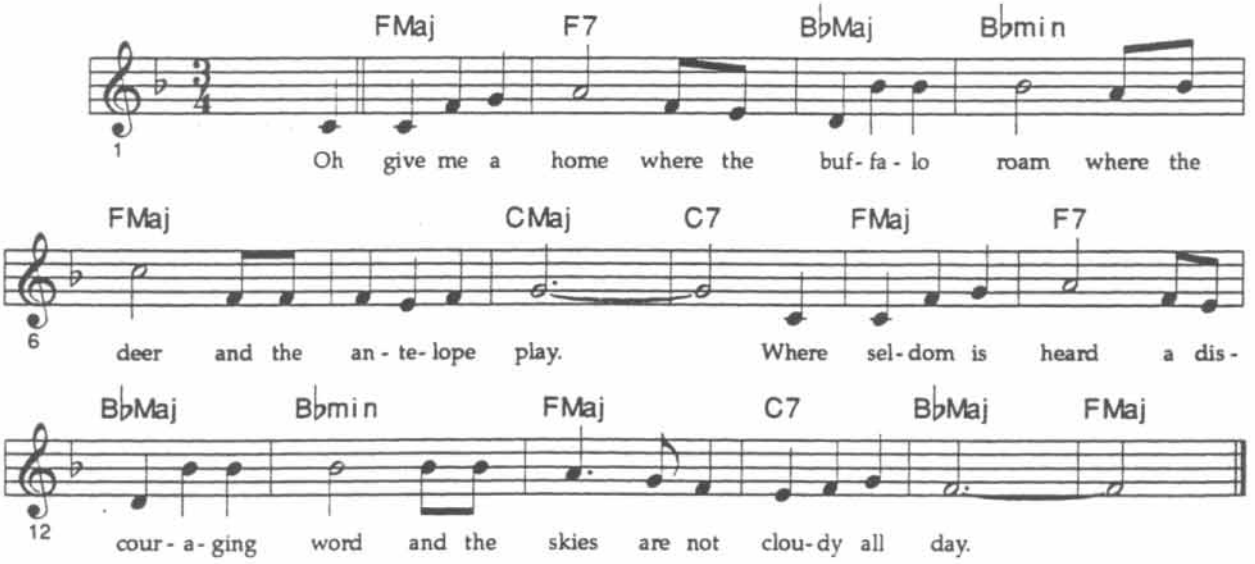
1. Amazing Grace
2. Home on the Range
3. Happy Birthday
4. What Child Is This (Greensleeves)
5. Bohemian Rhapsody Intro (Advanced)

At each chord change in the songs below, press the **Parameter Up** button or the **Left Footswitch**. For example: "Amazing Grace" begins in the key of F major. When the word "grace" is reached, press **Parameter Up** or **Left Footswitch** to change the chord to an F7. When you reach "sweet" press the **Parameter Up** button or **Left Footswitch** again, and the *Vocalist II* will change to a BbMaj. After trying these songs, you may want to set the Footswitch back to **Prog ⇑ Prog ⇓ Byp** (see Page 20).

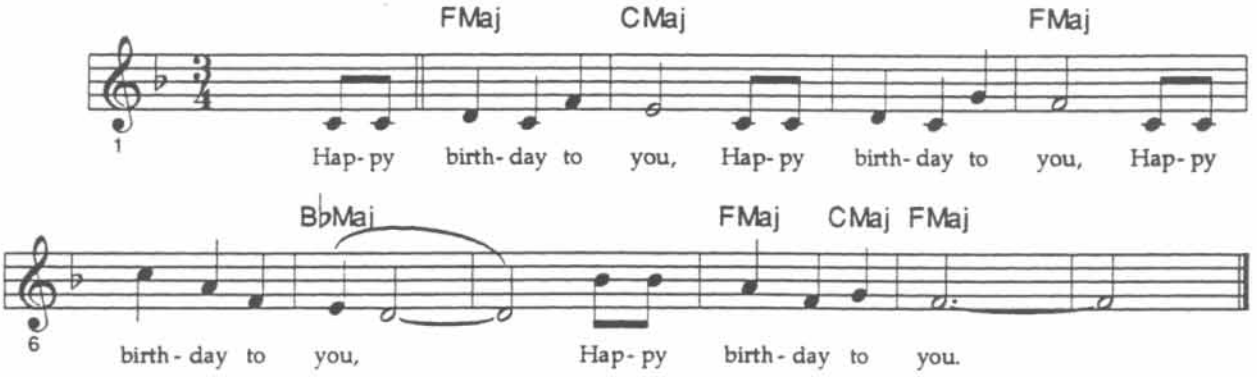
Amazing Grace – Song List # 1



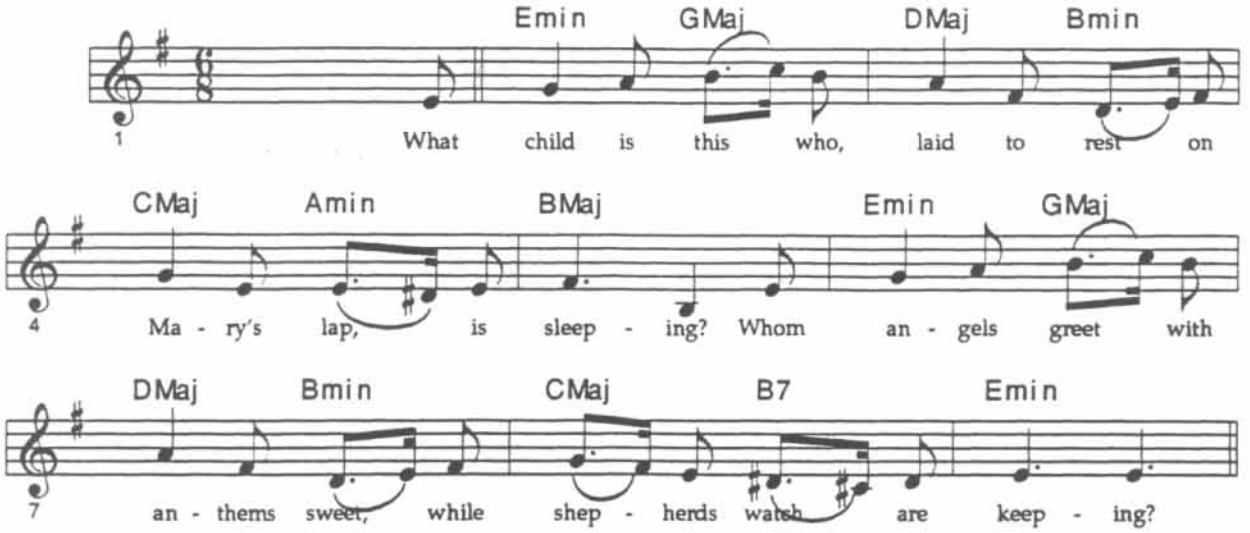
Home on the Range – Song List # 2



Happy Birthday – Song List # 3



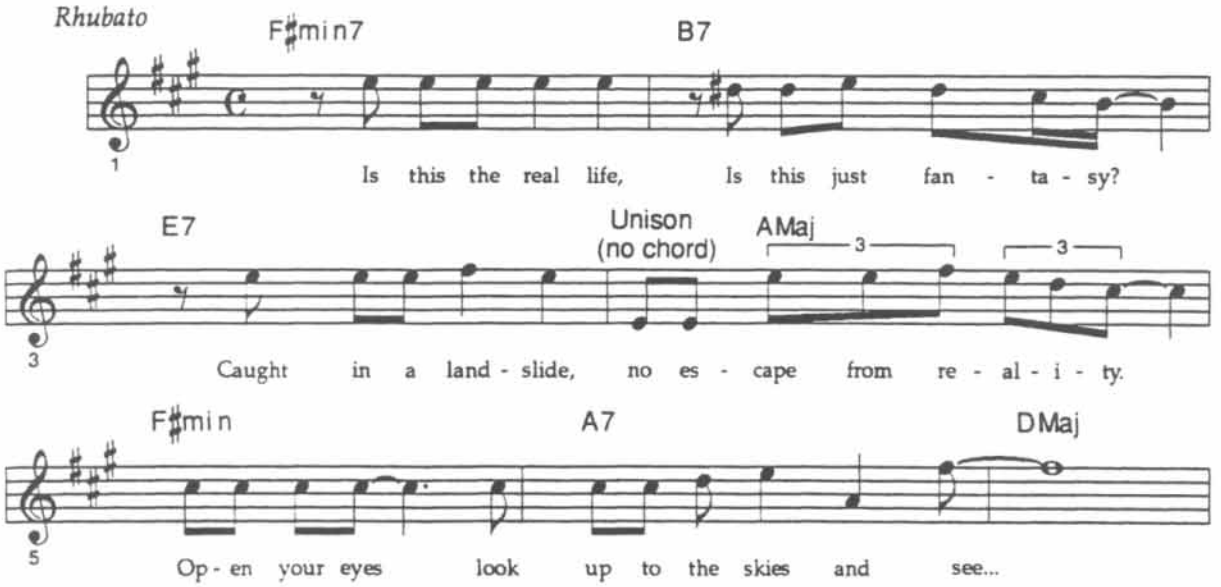
What Child Is This (Greensleeves) – Song List # 4



Bohemian Rhapsody intro – Song List # 5

The following melody is only one of the many parts that Freddie Mercury sings on the original record. Since the *Vocalist II* Song List allows different voicings to be used on each chord, we have chosen a melody which demonstrates this feature. Here are the voicings that we have used:

Bar 1	Program 18	2 above, & 1 below
Bar 3	Program 19	1 above & 2 below
Bar 4 / 1st beat	Program 6	Unison (no chord)
Bar 4 / beat 2	Program 19	1 above & 2 below
Bar 7	Program 20	3 below



VOCALIST II PROGRAM LIST

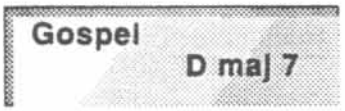
1	Gospel
2	Full Harmony
3	Barber Shop
4	Jazz Harmony
5	Folk Harmony
6	Vocal Unisons
7	Choral Unisons
8	DJ Voices
9	Gregorian Chant
10	4 Voice Vocoder
11	2 Voice Vocoder
12	1 Voice Vocoder
13	Chord 2 above
14	Chord 1abv1bel C
15	Chord 2 below
16	Chord 1abv1bel O
17	Chord 3 above
18	Chord 2abv 1bel
19	Chord 1abv 2bel
20	Chord 3 below
21	Chord 3abv 1bel
22	Chord 2abv 2bel
23	Chord 1abv 3bel
24	2 above and Bass
25	1abv 1bel Bass C
26	2 below and Bass
27	1abv 1bel Bass O
28	1abv 2bel n Bass
29	Carpenters
30	Beach Boys
31	1940s
32	Mancini 5 part
33	Freshmen
34	Supremes
35	Diatonic 1-3-5
36	Diatonic 5-1-3
37	Diatonic 3-5-1
38	Diatonic 1-3-6
39	Diatonic 6-1-3
40	Diatonic 3-6-1
41	Diatonic 5-1-4
42	Diatonic 1-4-6
43	Diatonic 6-1-4
44	Diatonic 4-6-1
45	Diatonic 4-1-6
46	Diatonic 2-4-1
47	Diat 2-6-1-3-5
48	Diat 2-5-1-3-6
49	Diat 2-5-1-3-7
50	Pitch Correct
51	Gospel
52	Full Harmony
53	Barber Shop
54	Jazz Harmony
55	Folk Harmony
56	Vocal Unisons
57	Choral Unisons
58	DJ Voices
59	Gregorian Chant
60	4 Voice Vocoder
61	2 Voice Vocoder
62	1 Voice Vocoder
63	Chord 2 above
64	Chord 1abv1bel C
65	Chord 2 below
66	Chord 1abv1bel O
67	Chord 3 above
68	Chord 2abv 1bel
69	Chord 1abv 2bel
70	Chord 3 below
71	Chord 3abv 1bel
72	Chord 2abv 2bel
73	Chord 1abv 3bel
74	2 above and Bass
75	1abv 1bel Bass C
76	2 below and Bass
77	1abv 1bel Bass O
78	1abv 2bel n Bass
79	Carpenters
80	Beach Boys
81	1940s
82	Mancini 5 part
83	Freshmen
84	Supremes
85	Diatonic 1-3-5
86	Diatonic 5-1-3
87	Diatonic 3-5-1
88	Diatonic 1-3-6
89	Diatonic 6-1-3
90	Diatonic 3-6-1
91	Diatonic 5-1-4
92	Diatonic 1-4-6
93	Diatonic 6-1-4
94	Diatonic 4-6-1
95	Diatonic 4-1-6
96	Diatonic 2-4-1
97	Diat 2-6-1-3-5
98	Diat 2-5-1-3-6
99	Diat 2-5-1-3-7
—	Bypass

Program list

The preceding is a list of the *Vocalist II* factory Programs. Initially Programs 1–50 are exact copies of Programs 51–100. All programs may be changed or edited, but factory Programs may be re-loaded singly or as a group from the Restore Factory Programs menu. After changing a program be sure to save your work by pressing **Store**.

First Impressions

Programs # 1 – 7



This group of programs is an assortment of the various types of harmonies and effects performed by the *Vocalist II*. They are grouped here to give you a quick first impression of what the *Vocalist II* can do.

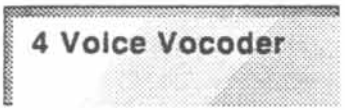
Special Effects

Programs # 8 - 9

The *Vocalist II* also does chorus, detune, and pitch shift special effects. Try them out, and create some of your own special effects.

Vocoder

Programs # 10 - 12

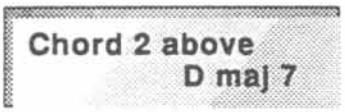


This group of programs derives its name from an effects device called a Vocoder which sounds similar to this mode of the *Vocalist II*. The *Vocalist II* shifts the sung note to produce a maximum of a four note chord being played on a MIDI keyboard.

Chordal Harmonies

Programs #13 - 28

Voicings



These harmonies sound correct over the indicated chord regardless of the note sung.

Included in the name of the program is a phrase such as **"2 abv 1 bel"**. This indicates that two notes appear above and one note appears below the sung note. The voicings used for the factory chordal harmonies are as follows;

3-Voice harmony	4-Voice harmony	5-Voice harmony
2 above	3 above	3 above 1 below
1 abv 1 bel close	2 above 1 below	3 above + bass
2 below	2 above + bass	2 abv 1 bel + bass
1 abv 1 bel open	1 above 2 below	2 above 2 below
	1 abv 1 bel + bass	1 abv 2 bel + bass
	1 abv 1 bel open + bass	1 above 3 below
	2 below + bass	3 bel + bass
	3 below	Fixed chord + bass
		Fixed chord

"Close" and **"Open"** refer to the spacing of the notes in a chord voicing; for example, **C maj 1 above 1 below close** on the input note C, plays G (below) - C - E (above). The **open** version of this voicing is E (below) -C - G(above). The voicings with **"+ bass"** include the root of the chord on the lowest harmony note.

Chord Type

There are ten Chord Types available for Chordal Programs:

maj	Major	**min**	Minor
maj7	Major seventh	**min7**	Minor seventh
dom7	Dominant seventh	**m7b5**	Minor seventh flat five
dim	Diminished	**aug**	Augmented
sus	Suspended	**7sus**	Suspended seventh

(See Page 40, Understanding Chordal Harmony for more detail)

Scalic Harmonies

Programs #29 – 49

Carpenters
C Maj

Diatonic 5-1-3
C# Maj

With **Scalic** Programs, the *Vocalist II* will generate harmonies which sound correct over the chosen scale type and key.

The first programs in this group of programs use scalic harmonies to emulate the harmonies used by some well known performers.

The rest of the programs in this group are an assortment of the most useful intervals. The naming convention for these diatonic harmonies uses a "1" to indicate the position of the sung note. Numbers to the left of the "1" indicate harmonies positioned in the octave below the sung note; numbers to the right indicate harmonies positioned in the octave above the sung note. For example, **"5-1-3"** indicates one harmony on the fifth in the octave below the sung note and a third in the octave above the sung note.

Each Scalic (or diatonic) program has four different scale types available; **Major, Minor, Wholetone and Diminished.** The names of scales for Scalic programs always start with a capital letter. For example:

C Maj C Major **scale**

Cmaj C major **chord**

UTILITY MENU

The Utility menu gives you access to settings common to all programs.

Tuning

420 Hz to **460 Hz**.
This function allows you to adjust the basic tuning reference, which is normally set to A = 440 Hz.

Voice Edit

Enabled or **Disabled.**
When you are editing a harmony using the Harmony Edit menu, it is sometimes convenient to be able to **sing** in the note that generates those harmonies. Set this parameter to **Enabled** if you wish to use this feature.

LCD Contrast

1 to **3**
The LCD contrast can be adjusted for optimum visibility. The range of contrast adjustment is 0 (low) to 3 (high).

Software Version

Displays the version number of the *Vocalist II* software.

MIDI Parameters

Press **Parameter Down** to enter the MIDI Parameter sub-menu. *(For an in-depth discussion see MIDI Applications Page 45)*

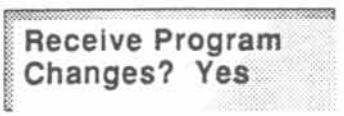
Basic MIDI Channel

1 to **16, omni, off**.
This is the MIDI channel which the *Vocalist II* will use for sending and receiving all MIDI messages except Key Change (see Key Change MIDI Channel below). Selecting omni will cause the *Vocalist II* to respond to MIDI messages on all MIDI channels.

Transmit Program Change

Yes or **No**.
The *Vocalist II* can be set to send a MIDI program number to other MIDI devices each time a program is changed.

Receive Program Change



Yes or **No**.
The *Vocalist II* can be set to change programs when another MIDI controller sends a it program change number.

Transmit Key Change

Yes or No.
The *Vocalist II* can be set to send a MIDI program change or MIDI note message each time the **Key** or **chord** is changed. It will send program change messages if **Key change from MIDI Program Change** is selected as described below. It will send MIDI note messages if Key change from MIDI notes or Key change from MIDI chords is selected.

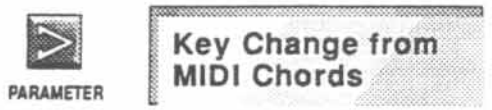
Receive Key Changes

Yes or **No**.
The *Vocalist II* can be set to receive key or chord changes from a MIDI keyboard, controller, or sequencer.
For a more in-depth discussion on MIDI chord recognition, see the section **MIDI Applications**.

Key Change MIDI Channel

1 to **16**.
This sets the channel for transmitting and receiving MIDI Key Changes.

Key Change from:



MIDI Program Change, **MIDI Chords**, or **MIDI Notes**.
If MIDI Program Change is selected, the chord and key can be selected by sending a MIDI Program Change from a MIDI keyboard, sequencer or controller. If **MIDI Chords** is selected the *Vocalist II* will monitor the chords you play on a MIDI keyboard and select a matching chord, key or root. If **MIDI Notes** is selected a single MIDI note will cause a change to a particular chord and key. *(See MIDI Applications section, page 47).*

MIDI Keyboard Split

ignore ⇑ (above) [C0 to G10], ignore ⇓ (below) [C0 to G10].
This specifies the lowest or highest note when using Key change from MIDI Notes or Key change from MIDI Chords. Selecting the split above middle C (C5), for example, allows changes to be made with the right hand while the left hand can continue below C5 without affecting the changes.

MIDI Program *x* is *y* in *Vocalist II*

This allows re-mapping of the program change library for both incoming and outgoing messages. This is useful in setting up songs with MIDI program changes that are coordinated between your *Vocalist II* and your other MIDI effects and keyboards, where the programs for a particular song aren't the same number on each device.

MIDI Song Select

off, on
This function allows you to choose whether the *Vocalist II* will use MIDI Song Select messages from your drum machine or sequencer to select the *Vocalist II* Song number.
Press **Parameter Up** to return to the Main Utility Menu.

MIDI Dump

MIDI Dump menu⇓

You can dump your custom programs from one *Vocalist II* to another *Vocalist II* or *VHM5 Vocalist*, or save your programs to a MIDI sequencer or MIDI data filer. Connect the MIDI Out of the *Vocalist II* to the MIDI In of the device you wish to dump to.

Dump Vocalist II

Dump *Vocalist II* Program ⇓

Program, PGM to VHM5, or **Song List**

Press Parameter Right to choose between dumping Programs to another *Vocalist II*, Programs to a *VHM5 Vocalist*, or Song List to another *Vocalist II*. If you wish to exit any of the menus without dumping by pressing **Parameter Right** at the Dump screen and **Parameter Up** to exit.

Program

[Store] to Dump Program # All

All, # [1 - 99]

Use this function to dump one or all programs from one *Vocalist II* to another *Vocalist II*. Choose **All** for all 99 programs or use the **Parameter** buttons to select an individual Program number you wish to load. The Program will be saved to the same Program number on the destination *Vocalist II*.

Press **Store** and the selected program(s) will be automatically loaded into the destination *Vocalist II*.

PGM to VHM5

[Store] Voc II # 1 to VHM5 # 1

All, *Vocalist II* Program # [1 - 99], to *VHM5* Program # [1 - 128]

Use this function to dump one or all programs from the *Vocalist II* to a *VHM5 Vocalist*. Choose **All** for all 99 programs, or use the **Parameter** buttons to select an individual *Vocalist II* Program number and a destination *VHM5* Program number.

Press **Store** and the *Vocalist II* program(s) will be automatically loaded into the selected program number(s) of the *VHM5 Vocalist*.

Song List

[Store] to Dump All Songs

All Songs, [Song Title] (Amazing Grace, Bohemian Rhapsody etc.)

Use this function to dump one or all of the songs in your *Vocalist II* Song List to another *Vocalist II*. Choose **All Songs** or use the **Parameter** buttons to select the song title you wish to load.

Press **Store** and the selected Song(s) will be automatically saved to the Song List of the destination *Vocalist II*, with the same Song numbers.

Continuous Controller (CC) Assignments

CC Assignments menu⇓

Harmony 1 Detune edited by CC 15

You can use MIDI **Continuous Controllers** to control some of the parameters of the *Vocalist II*. You could, for example, assign the mod wheel on your synth to control the Vibrato Depth, or use a MIDI volume pedal to control the Harmony Volume. Use this menu to assign *Vocalist II* parameters to a MIDI continuous controller. Some of the common MIDI controller numbers you might use are listed below (check your keyboard's manual for which CC's it transmits):

Controller	*Controller #*
Mod Wheel	**1**
Data Entry	**6**
MIDI Volume	**7**

The parameters in the *Vocalist II* that can be controlled by MIDI continuous controllers are:

Harmony Detune (for each harmony voice)

Vibrato Delay, Vibrato Speed (left and right) and **Vibrato Depth** (left and right)

Harmony Volume (left and right)

Pitch Randomize, and

Portamento Speed (for each harmony voice)

"ess" Sensitivity adjust

"ess" Sensitivity Adjust menu⇓

Before adjusting read manual ⇓

"ess" Sensitivity 10

1 to 10.

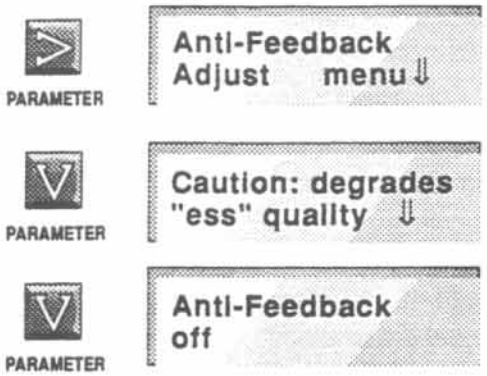
CAUTION: Incorrect adjustment of this parameter can severely degrade harmony quality. If in doubt set the "ess" sensitivity to 1.

Normally this parameter can remain at the factory default setting of 1. It should **only** be adjusted upward if the *Vocalist II* is being used for **spoken voice** or if the sibilant sounds in the sung voice (i.e. 'ss','sh','ch') sound unnatural.

While this parameter can improve the *Vocalist II*'s ability to harmonize sibilant sounds, if the sensitivity is set too high, high pitched 'breathy' vocals may no longer be harmonized correctly. A change of microphone or a change of singer may require readjustment of this parameter.

To choose the best setting sing the sound 'sss' into the microphone and increase the sensitivity just up to the point where the **Signal Lock** LED remains off. To ensure that the sensitivity is not too high, sing a high 'breathy' note and check to see that the signal lock LED remains on for the note. If a high 'breathy' note causes the signal lock LED to flicker then reduce the sensitivity until the signal lock LED remains solid during the note.

Anti-Feedback



off, low, medium, high

The *Vocalist II* contains an anti-feedback feature which can be employed to help reduce feedback if required. Generally **Anti-Feedback** should be turned **off** since it will degrade the quality of sibilant sounds; it is better to try changing the placement of speaker cabinets, re-orienting microphones or adjusting overall system volume levels to eliminate feedback.

If feedback problems persist, then the anti-feedback feature can be used.

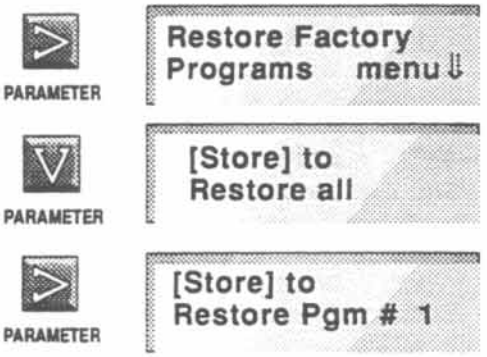
The four possible settings for Anti-Feedback are off (default), low, medium, and high. Find the lowest possible setting of the anti-feedback. This will ensure minimal degradation of sibilant ("ess") sounds.

Harmony Gate threshold

1 to **10.**

When you are not singing, your microphone may pick up background sounds. If these sounds are harmonized the effect can be quite annoying. The *Vocalist II* has a mechanism to turn off (gate) the harmonies when the input level drops below a certain threshold. Increase this threshold until the softest passages are harmonized correctly.

Restore Factory Programs



Press **Parameter Down** to enter this sub-menu

This function returns all editable programs (1 - 99) to original factory settings.

CAUTION: All your editing changes will be erased if you use this function.

By pressing **Parameter Right** at the [Store] screen, you have the option to restore factory Programs individually; use **Parameter Up** or **Down** to select the one that you wish to restore. Press the **Store** button to restore the Factory Program(s).

Bypass Action

The **Bypass** switch on the footswitch can be made to operate in three different ways.

1) Latching:
Harmonies remain on or off after footswitch is depressed.

2) Momentary off:
Bypass is off (harmonies are on) only when footswitch is depressed.

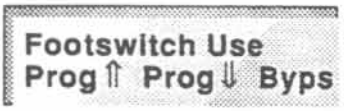
3) Momentary on:
Bypass is on (harmonies are off) only when footswitch is depressed.

You can also Bypass the Harmonies by sending a MIDI Program Change message to the *Vocalist II* to change to Program #100.

Footswitch Use

This refers to different assignments of the three switches on the Footswitch. **NOTE: The Footswitch action depends on the current Song Control mode** *(see Page 29)*. A list of the corresponding footswitch functions and song control modes is given below:

When Song Control mode is set to "Footswitch Step", Footswitch Use is as follows:



Prog ⇑ Prog ⇓ Byps
Programs will be advanced when the **left switch** is depressed and decreased when the **center switch** is depressed. The **right switch** turns the harmonies on or off (Bypass).

Step ⇑ Step ⇓ Byps
Steps will advance when the **left switch** is depressed and reverse when the **center switch** is depressed. The **right switch** turns the harmonies on or off.

Step ⇑ Song ⇑ Byps
The Program will advance when the **left switch** is depressed and the Song List will advance when the **center switch** is depressed. Each tap will increase the value once. The **right switch** turns the harmonies on or off.

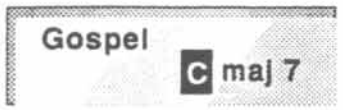
When Song Control mode is set to "MIDI - Full Auto", Footswitch Use is as follows:

Prog ⇑ Prog ⇓ Byps
Programs will be advanced when the **left switch** is depressed and decreased when the **center switch** is depressed. When held down, the respective switches cause the *Vocalist II* to scroll through programs quickly. The **right switch** turns the harmonies on or off.

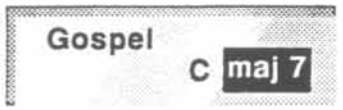
Song ⇑ Song ⇓ Byps
Songs will be advanced when the **left switch** is depressed and decreased when the **center switch** is depressed. The **right switch** turns the harmonies on or off.

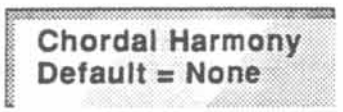
When Song Control mode is set to "MIDI - Foot Sync" Footswitch Use is as follows:

Sync ⇑ Song ⇓ Byps
The **left switch** is used to synchronize (sync) the *Vocalist II* to a drum machine; for more information on syncing your *Vocalist II* with a drum machine, refer to Page 35. Songs are advanced when the **center switch** is depressed. The **right switch** turns the Harmonies on or off.



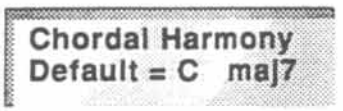
When you select a Scalic or Chordal Program, the Key is immediately able to be changed by using **Parameter Up** and **Down**. Press **Parameter Right** and the Chord Type or Scale can be edited with **Parameter Up** and **Down**.





Press **Parameter Right** again, (or for the first time from the main Program window on Chromatic, Pitch Correct and Vocoder Programs), and you will be editing that Program.

Default Chord or Key



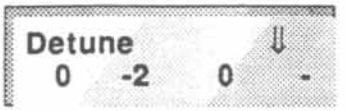
C to **B, None.**

The Startup Key window includes a description of the harmony of that Programon the top line of the LCD display. The Default Key is the chord type and root (or key) that the *Vocalist II* will automatically switch to when you select this program. If the Default Chord is set to "none", the *Vocalist II* will stay in the same key as the previous Program when a new Program is selected.

Harmony Mute

Used to turn the individual Harmonies (or voices) on or off for the current Program. If fewer than four Harmonies are in use, turning on an additional part will double one of the existing harmonies. Press **Parameter Down**, then **Parameter Right** to cycle through the four settings. Edit settings with **Parameter Up** and **Down**.

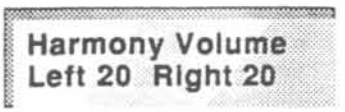
Detune



-25 cents to **+25 cents**

This allows subtle changes in the pitch of each harmony to create a chorus effect. Press **Parameter Down**, then **Parameter Right** to select the four settings in turn. Change values with **Parameter Up** and **Down**.

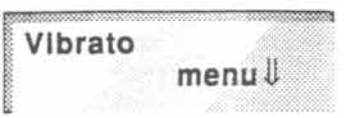
Harmony Volumes



Left [1 to 20] and **Right [1 to 20]**

Harmonies 1 & 2 are output on the left channel, and Harmonies 3 & 4 are output on the right channel. Overall volume of both is controlled by the **Harmony Level** control on the front panel.

Vibrato

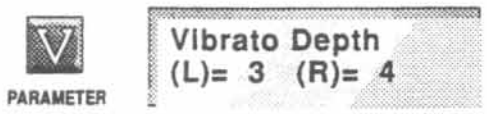


This feature allows the addition of vibrato to each stereo channel. The vibrato effect will be different from that of the sung note. Depending on the Program type, **Speed, Depth** and/or **Delay** of onset of vibrato may be set as follows:

Speed **1** to **10**. (1 provides a slow vibrato effect, 10 fast)

Depth **Off, 1** to **10**. (1 provides a small vibrato effect, 10 large)

Delay **Off, 1** to **10**.



This controls the time it takes for the harmony vibrato to start after you begin a new note. When set to "Off" there will be no delay, 1 provides a short interval before the vibrato commences, 10 a long delay.

Pitch Randomize

Off, low, medium, high.

One characteristic of human voices is that they are never perfectly in tune. This parameter gives your harmonies a slight random out-of-tuneness which makes them sound more human.

Portamento

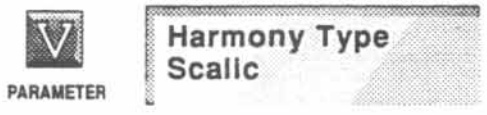
Off, fast, medium, slow.

As you slide from one note to another, your harmonies can follow you at different speeds. Try this feature and decide on your own preference. Press **Parameter Down**, then **Parameter Right** to cycle through the four settings. Edit with **Parameter Up** and **Down**.

Load New Harmony

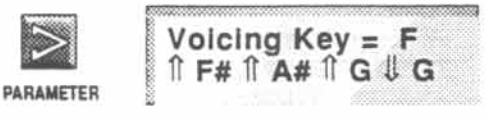
The easiest way to create a new program is to load a factory harmony that is close to what you want. After selecting a new Harmony, you may wish to **Store** the Program with a new name in Program #1 -99.

Harmony Type **CHROMATIC, SCALIC, CHORDAL, VOCODER, PITCH CORRECT**



CHROMATIC Chromatic harmony generates four fixed notes to be selected as Harmonies. These notes will follow the sung note in a "parallel" type of harmony, with the intervals remaining the same for each of the 12 notes of the chromatic scale. Since harmony notes are based on the chromatic scale, there is no "Key" and the harmonies will not change according to key changes.

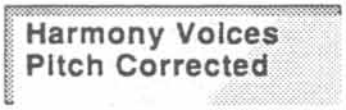
Voicing This allows you to define the four Harmony notes that will be output. Use the **Parameter Up/Down** buttons to select an input note (Voicing Key) that you are using as a reference, then use **Parameter Right** to select the Harmonies, and use **Parameter Up/Down** to select the desired note for each Harmony in turn.



SCALIC Scalic harmonies will be generated to fit the chosen key and scale for every sung note.

Harmony Voices **Pitch Corrected, Not Corrected**

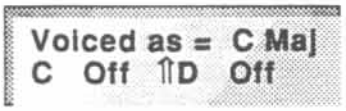

PARAMETER



With Pitch Corrected Harmonies,if you bend your input note, all Harmonies will stay on Scale tones without bending until your voice reaches the next Scale tone. In Not Corrected mode, Harmonies will bend or glissando along with your voice. Pitch Corrected Harmonies are suggested when you are playing with other instruments.

Voicing **Key, Scale Type**, and for each of the four Harmonies: **Off**, or **[a note in the scale]**.


PARAMETER



You can select the Root of the Scale and the Scale Type by pressing Parameter Up / Down, and pressing Parameter Right / Left to move between the settings on the LCD display. You specify a Scalic voicing by entering a harmony note for each of the four harmony outputs relative to the root or first note of the scale. The display shows the output note for each of the four harmony parts when that note is sung. Use the **Parameter Right** or **Left** buttons to select which note you wish to change, and use the **Parameter Up** and **Down** buttons to enter the new note. You can only specify notes that fall in the scale selected, so for example, you can't select C# in a C major scale. These Harmony notes can be chosen anywhere from two octaves below to one octave above the root.

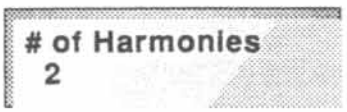
A Scalic Harmony can be one of four Scale Types: **Major, Minor, Wholetone, Diminished**, and can be set to a particular key, C to B. *(See Understanding Scalic Harmony, Page 37)*

CHORDAL Chordal harmonies will automatically adjust to fit the chosen chord, regardless of the sung note.


PARAMETER

Number of harmonies **1** to **4**.

This number refers to the number of harmony parts generated by the *Vocalist II*.



Voicing There are a variety of Voicing options for each number of Harmonies selected:

2 voice harmony	1 above close
(sung note plus 1 Vocalist II Harmony)	1 below close
	1 above open
	1 below open
3 voice harmony	2 above
(sung note plus 2 Vocalist II Harmonies)	1 abv 1 bel close
	2 below
	1 abv 1 bel open

4 voice harmony *(sung note plus 3 Vocalist II Harmonies)*	3 above 2 above 1 below 2 above + bass 1 above 2 below 1 abv 1 bel + bass 1 abv 1 bel open + bass 2 below + bass 3 below
5 voice harmony *(sung note plus 4 Vocalist II Harmonies)*	3 above 1 below 3 above + bass 2 abv 1 bel + bass 2 above 2 below 1 abv 2 bel + bass 1 above 3 below 3 below + bass Fixed chord Fixed chord + bass

Chord Type

There are ten Chord Types that can be selected for Chordal Programs:

maj	Major	**min**	Minor
maj7	Major seventh	**min7**	Minor seventh
dom7	Dominant seventh	**m7b5**	Minor seventh flat five
dim	Diminished	**aug**	Augmented
sus	Suspended	**7sus**	Suspended seventh

VOCODER

In **Vocoder** mode the pitch of the harmony parts is determined by notes played on a MIDI keyboard. If no notes are played, no harmony parts will be heard. Check the MIDI Parameter settings in the Utility menu, (*Page 16*).

Mode

Mono - Only one *Vocalist II* note will be generated. All four harmony outputs will output the same note. Detune and vibrato effects can be added to each output.

Doubled - Two keyboard notes will produce two *Vocalist II* notes, each of which is doubled.

Normal - Four keyboard notes will produce four *Vocalist II* notes. If more than four notes are played, the most recent four will be used.

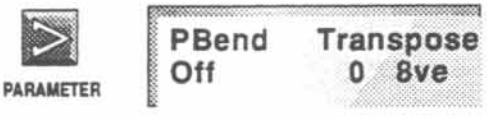
Pitch bend

off, 1 [**semi**tone] to **12** [**semi**tone].

This enables a MIDI pitch bend controller to bend the vocal pitches. Specify the maximum number of semitones of pitch bend you desire.

Transpose

-3 8ve [octave] to **+3 8ve** [octave], **Auto**.



This function selects the octave, relative to the notes played on the MIDI keyboard, where the harmony note will be placed (up to 3 octaves above or below). In Auto mode the octave closest to your voice is selected.

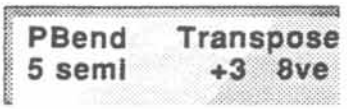
MIDI Keyboard Split — **ignore ⇑ [C0 to G10], ignore ⇓ [C0 to G10].**

(C5 = middle C) You might wish to use only part of your MIDI keyboard to control the harmonies. Decide which hand you will use to control the harmonies and set the split point accordingly. For example, to control the harmonies with your left hand you might want to set the split to **ignore above C5.**

PITCH CORRECT

This is similar to the Vocoder, except that it is always mono phonic (single note only), and the voice is always heard. Playing a note on a MIDI keyboard will cause the harmony part to move to that pitch.

Pitch Bend — **Off, 1 [semitone] to 12 [semitone].**



This enables a MIDI Pitch Bend controller to bend the vocal pitches. Specify the maximum number of semitones of pitch bend that you desire.

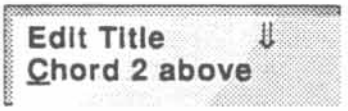
Transpose — **-3 8ve** [octave] to **+3 8ve** [octave], **Auto**

This function selects the number of octaves through which to transpose the pitch corrected voic e (up to three octaves up or down). In Auto mode the octave closest to your voice is selected.

MIDI Keyboard Split — **ignore ⇑ [C0 to G10], ignore ⇓ [C0 to G10]**

(C5 = Middle C) You might wish to use only part of your MIDI keyboard to control the pitch corrected voice. Decide which hand (which range on the keyboard) you will use to control the pitch correction, and set the split point accordingly.

Edit Titles — Program Title Edit



Parameter Right/Left buttons will move the cursor to each character on the screen. The **Up/Down** buttons will change the selected letter or number. You can use 16 characters for naming Programs

HARMONY EDIT

Note: The Harmony Edit menu does not appear when the Harmony Type is Vocoder or Pitch Correct.
This menu allows you to change each of the Harmonies for any input note for Scalic, Chromatic and Chordal Programs.


PARAMETER

Harmony Edit
menu⇓


PARAMETER

Reference Key=C
Edit Scale Maj

Use the **Parameter Up/Down** buttons to select a Key (for a Scalic Program) or the Root (for a Chordal Program).


PARAMETER

Reference Key= C
Edit Scale Maj

Press **Parameter Right**.

Use the **Parameter Up** and **Down** buttons to select the Scale or Chord Type.


PARAMETER

C Maj Input = C
⇓G ⇓B Off⇑F

Press **Parameter Right.**

Now use the **Parameter Right / Left** buttons to choose the input and Harmony notes in turn. Use the **Parameter Up** and **Down** buttons to select notes in the available octaves and both **n/c** (no change) or **slur**. *(See chapters on Understanding Scalic and Chordal Harmony)*. Arrows show the harmony's octave relative to the input note (for example ⇑⇑ means in the second octave above).


STORE

[Store] to save
Program 23

Press **Store** to save your changes to either your current Program number, or use **Program Up** or **Down** to select a new Program number to save to.


STORE

SONG LIST

The **Song List** menu of the *Vocalist II* enables you to preset the program and chord changes you require for a song, and then step through them during your performance using a footswitch, a drum machine or a sequencer. We suggest that you read this section and immediately proceed to the Tutorial on Page 29.

What is a Song List?

There are 50 song lists available to you on the *Vocalist II*; each song list is a list of the program, chord and key changes you will need the *Vocalist II* to go through during a performance of the song.

Each song list is made up of *sections*. The Section List of a song can be thought of as its arrangement; a typical song arrangement might be as follows:

> Intro, Verse, Chorus, Verse, Chorus, Solo, Chorus, Chorus, End

To program this arrangement into a Song on the *Vocalist II*, you might designate the Intro as **section A**, the Verse as **section B**, the Chorus as **section C**, the Solo as **section D**, and the End as **section E**. To the *Vocalist II*, this arrangement would then be described by the following Section List:

> ABCBCDCCE

So organizing your songs into sections is simple and intuitive; creating song lists saves you time when entering chord changes into the *Vocalist II*.

What is a Section?

You can program up to 6 sections for each of your song lists. Each section in a song is a list of the preset and chord changes the *Vocalist II* is to perform, and the bar and beat at which the change is to occur. Each section can have up to 30 bars in 4/4 time, or 40 bars in 3/4 time. With 16 sections available per song, there is virtually no limit to song length.

Song List Display

The song list display of the *Vocalist II* shows you the following information:

When in the song list display menu item use the **Program Up/Down** buttons to select the different songs and the **Parameter Up/Down** buttons or the FS300 footswitch can be used to step through the Chords of the song.

Section List

The section list display shows you the section list of the current song. You may program up to 16 steps in this list; each step tells the *Vocalist II* to go to that section and run through its sequence of events once.

SECTION MENUS

There is a section menu for each of the 6 sections available in the current song; their individual displays are explained as follows:

Beats Per Bar

This display requires you to choose either 3/4 or 4/4 timing for the section. A 6/8 time signature is obtained by choosing 3/4 timing and then treating the display which reads "1 + 2 + 3 +" as if it were "1 2 3 4 5 6".

Section Editing Display

This display is where you enter and edit the chord and program changes you want the *Vocalist II* to execute during the current section. The display shows one bar of the section divided into eighth note steps (a bar of 4/4 appears as "1 + 2 + 3 + 4 +"; this would be counted as "1 and 2 and 3 and 4 and") and the event associated with the step you are currently editing. One of the numbers or "+" signs will flash to show you which step you are on. If you press the right arrow key, you will advance to the next step of the current bar; to quickly move from bar to bar in the song press the **Program Up/ Down** buttons.

Once you have selected a step to edit, you can select the *Vocalist II* program and chord you want for that step using the **Parameter Up/Down** buttons. Pressing the **Bypass** button will insert a bypass event into the list at that point so no harmonies occur. When you have reached the end of the section, you must tell the *Vocalist II* that the section ends there; this requires advancing to the next step and choosing **Section End** as the event for the that beat of that bar. If a section is to end at the end of bar 12, go to bar 13 beat 1 and select it as the section end.

Intro

The intro display allows you to program up to 256 eighth-note count-in beats for the intro of the current song. Having this capability for long count-ins can be especially useful in situations where, for example, the song has an extended instrumental introduction before the vocals begin.

Title Edit

The title edit display allows you edit the title of the current song. Song titles can be up to 16 characters in length.

Selected by MIDI

The song may be selected by MIDI song select commands from your drum machine or sequencer. Each song can be assigned a MIDI Song number which will be used to select that song. For this to work you also have to enable MIDI Song Select, this is the last parameter in the MIDI Parameters item of the Utility menus.

Song Control

You can control the **Song list** feature of the *Vocalist II* in one of three different ways:

Footswitch Step Mode — allows you to advance through the steps of the current song using a DigiTech FS300 footswitch.

MIDI-Full Auto Mode — the *Vocalist II* runs through the steps of the current song by synchronizing itself with the MIDI clock signals from your drum machine or sequencer. The *Vocalist II* begins stepping when you press **play** on your drum machine or sequencer.

MIDI-Footswitch Sync Mode — the same as MIDI-Full Auto Mode, except the *Vocalist II* will not start the song until the *sync* button is depressed on the FS300 footswitch. For more information about Footswitch modes, refer to the **Utility Menu** section.

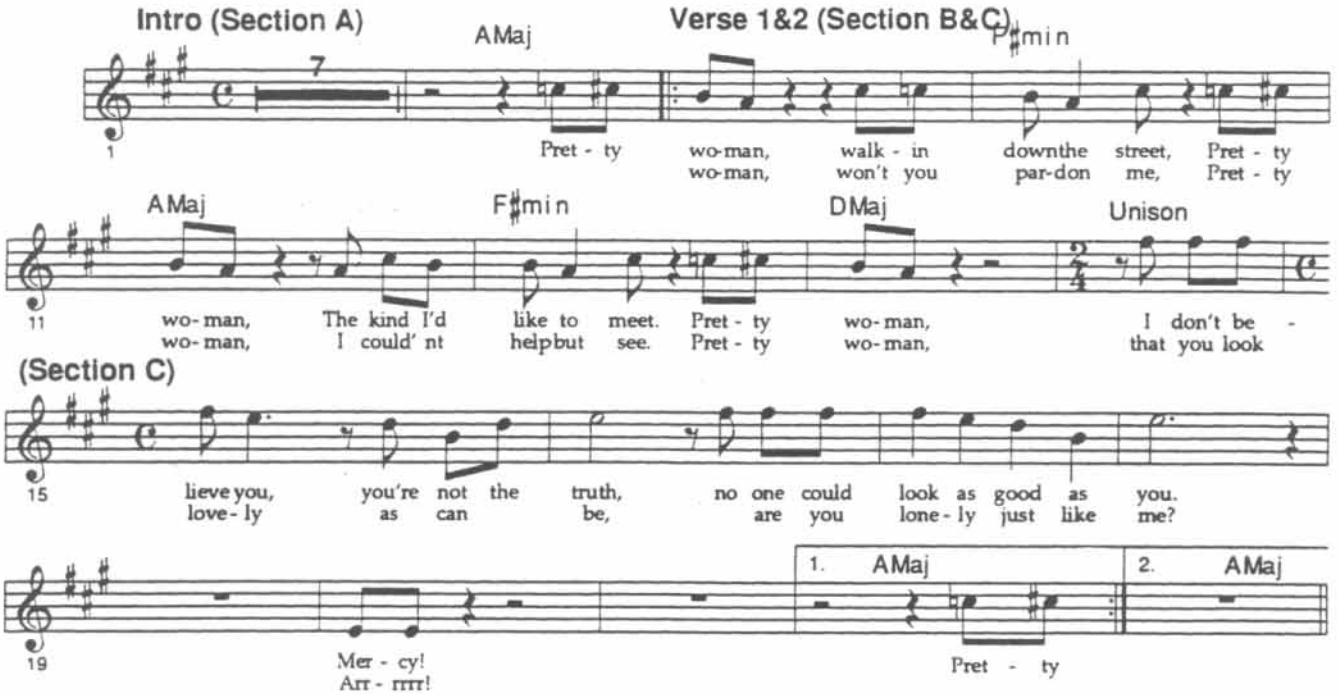
SONG LIST TUTORIAL

This tutorial provides step by step instructions to set up a song list for Roy Orbison's *Pretty Woman*; a well known song with a fair number of chord changes. By following this tutorial you will learn some of the ins and outs of song list programming, and end up with a playable song to add to your repertoire as well

Entering the song

Entering the section list — The first step in entering a song into the *Vocalist II* is to look at the arrangement of the song and decide how to fit it into the *Vocalist II's* song structure. *Pretty Woman* goes like this:

Pretty Woman



Chorus (Section D)

D min	G maj	C maj	A min
Pretty woman	stop a while,	Pretty woman	talk a while,
D min	G maj	C maj	
Pretty woman	give your smile to	me._____.	
D min	G maj	C maj	A min
Pretty woman	yeah yeah yeah,	Pretty woman	look my way,
D min	G maj	C maj	A maj
Pretty woman	say you'll stay with me._____.		

Bridge (Section E)

F#min	D min	E dom7	A maj
'Cause I	need you, I'll treat you		right. Come to me
F#min	D min	E dom7	
baby,	be mine	tonight._____.	

Verse 3. (Section B)

A maj	F#min	A maj	F#min
Pretty woman,	don't walk on by.	Pretty woman,	don't make me cry.
D maj	Unison		
Pretty woman,	don't...		

Ending (Section F)

...walk away.	Okay,	if that's the	way it must be,
Okay.	I guess I'll	go on home	it's late. There'll be
tomorrow night,	but wait,	what do I	see? Is she
walkin back	to me?	Yeah, she's	walkin back to
	A Major (scale)		
me!	Oh	oh,	Pretty woman!

The song has the following structure:

SECTION	STRUCTURE
Intro	8 bars of 4/4
Verse 1	5 bars of 4/4 + 1 bar of 2/4 + 8 bars of 4/4
Verse 2	5 bars of 4/4 + 1 bar of 2/4 + 8 bars of 4/4
Chorus	16 bars of 4/4
Bridge	10 bars of 4/4
Verse 3	5 bars of 4/4 + 1 bar of 2/4 + 4 bars of 4/4
Ending	19 bars of 4/4

Ideally, each section of your song's arrangement will correspond to a section in the *Vocalist II*'s song list; this can't happen with *Pretty Woman*, since each verse contains a bar that has a different time signature than the rest of the verse (1 bar of 2/4 instead of 4/4). We'll accommodate this by defining the verse with 2 song list sections: the first section will be five and a half measures long, and the second will be eight bars long. Here's the way our actual Section List works out:

SECTION	Vocalist SECTION (all are in 4/4)
Intro	A: 8 bars
Verse 1	B: 5.5 bars
	C: 8 bars
Verse 2	B: 5.5 bars
	C: 8 bars
Chorus	D: 16 bars
Bridge	E: 10 bars
Verse 2	B: 5.5 bars
& Ending	F: 23 bars

By using the section list we only have to enter the chord changes for the verse once and we can use the section for all three verses. To program this arrangement of sections, press the **Song List button** to enter the song list menu, use **Program Up/Down** to select an empty song, press **Parameter right** then **Parameter down** to enter the **Section List** menu and enter the following list:

ABCBCDEBF

Use the **Parameter right** button to step to the **Section List Exit Menu** item and use the **Parameter Up** button to exit the menu.

Defining the program and chord changes for each section

Now that you have told the *Vocalist II* the order in which the sections of *Pretty Woman* are to be played, you must enter the program and chord changes that take place during those sections. When you are in the section menus of your *Vocalist II*, the LCD screen shows you one bar of music with the bar number within that section shown in the top left corner of the screen. The other numbers along the top of the screen (either "1 + 2 + 3 + " for bars of 3/4 or "1 + 2 + 3 + 4 +" for bars of 4/4) show you the beats (quarter note steps) of the current bar as numbers, and the eighth notes as "+" symbols between the beat numbers.

A: The Intro

Go to the **Section A menu** and choose 4/4 time signature for the section. The first word of Verse 1 is sung over the last beat of the last bar, so you will want your *Vocalist II* to be bypassed until the last beat of the section. In table form, this is how the changes look:

Bar:Beat	*Program*	*Chord*
1:1	—	Bypass
8:3	14	Amaj
9:1		Section End

To enter this list into the *Vocalist II* make sure you are in the song menus and use the **Parameter Right** button to go to Section A menu. **Parameter Down** will put you into the Section A menu for editing. Use **Parameter Up** to select 4/4 timing and **Parameter Right** to take you to the first bar of the section. The number 1 for the first beat of the bar will be flashing indicating that you are ready to enter the action to occur on the first beat of the song. In this case we want a bypass so press the **Bypass** button. Bypass has been entered as the first step in the song.

Use the **Program Up** button to quickly advance to the 8th bar of the section. Now use the **Parameter Right** button to step to the 3rd beat of the bar, the number 3 will flash. Use **Parameter Up** to select A as the chord root. Use **Parameter Right** to select the chord type for editing and use the **Parameter Up/Down** buttons to select major chord.

Now use the **Parameter Right** button to step to the 1st beat of the next bar; use the **Parameter Up** button to select "Section End". Parameter left will cause an up arrow to appear on the screen (you have one opportunity each bar to exit the Section Menu), press **Parameter Up** to exit the Section A menu. Now that Section A is defined, it would be a good idea to save the changes by pressing the **Store** button twice.

Repeat the above procedure and enter the chord changes for Sections B to F using the tables shown below.

B: Verse (part 1) This section makes use of the *Vocalist II's* ability to end the section in the middle of a bar, thereby creating a custom time signature:

Bar:Beat	*Program*	*Chord*
2:1	14	F#min
3:1	14	Amaj
4:1	14	F#min
5:1	14	Dmaj
6:2	6	Unison
6:3		Section End

C: Verse (part 2) This section finishes the Verse we began in section B:

Bar:Beat	*Program*	*Chord*
8:3	14	Amaj
9:1		Section End

D: Chorus

Bar:Beat	*Program*	*Chord*
1:1	18	Dmin
2:1	18	Gmaj
3:1	18	Cmaj
4:1	18	Amin
5:1	18	Dmin
6:1	18	Gmaj
7:1	18	Cmaj
9:1	18	Dmin
10:1	18	Gmaj
11:1	18	Cmaj
12:1	18	Amaj
13:1	18	Dmin
14:1	18	Gmaj
15:1	18	Cmaj
16:1	18	Amaj
17:1	—	Section End

E: Bridge

Bar:Beat	*Program*	*Chord*
1:1	18	F#min
2:1	18	Dmin
3:1	18	Edom7
4:1	18	Amaj
5:1	18	F#min
6:1	18	Dmin
7:1	18	Edom7
10:3	14	Amaj
11:1	—	Section End

F: Ending This section contains the last half of the third verse and the ending.

Bar:Beat	*Program*	*Chord*
21:1	14	Edom7
23:3	14	Amaj
24:1		Section End

Entering the Song Title

The final step in setting up *Pretty Woman* is to enter the title of the song into the *Vocalist II*. From the song list menu press **Parameter Right** until you reach the Title Edit screen. Press **Parameter Down** and then use the **Parameter Up/Down** buttons to enter each letter of the title. **Parameter Right** will take you over to the Title Edit exit menu item and the **Parameter Up** button will get you out of the title edit menu. Press **Store** twice to save the song. You are now ready to try using the song.

Playing the song in Footswitch Step mode

The simplest way to use the song list is in **Footswitch Step** mode. While still in the song menu, step to the **Song control** menu item and make sure the display shows "**Footswitch step**". Plug the FS300 footswitch into the footswitch jack on the rear of the unit. Leave song menu by pressing the **Song List** button and press the **Utility** button. Step one menu item to the left and make sure the **Footswitch use** parameter is set to "Step ⇑ Step ⇓ Byp". Press **Utility** to leave the Utility menu and press the **Song List** button again and make sure *Pretty Woman* is selected. By pressing the left button on the FS300, the *Vocalist II* will step forward through the song, and by pressing the middle button you step backwards through the song. Sing the lyrics provided at the beginning of this tutorial and step on the footswitch where ever a chord change is indicated. The *Vocalist II* will change the harmonies for you.

Playing the song in MIDI foot-sync mode

The reason we paid so much attention to bars and beats when we programmed the song was to enable the *Vocalist II* to step through songs automatically when it is connected to a drum machine. Here's the payoff!

The MIDI foot-sync feature is designed for users who have a drum machine at the center of their performing system and select drum patterns manually during a live performance rather than using pre-programmed song arrangements. MIDI foot-sync allows the user to start up the drum machine pattern, get oriented, and then press the first button on the FS300 footswitch to start the song list going in sync with the drum machine.

To set this up your drum machine will need to be connected to your *Vocalist II* with a MIDI cable (MIDI Out on drum machine to connects to MIDI In on the *Vocalist II*). Make sure the drum machine is set to the same MIDI channel as your *Vocalist II*. Also, make sure that if you have the *Vocalist II* set to receive key changes through MIDI that the Key Change MIDI channel is different than the drum machine's.

Select a pattern on your drum machine. Because of the change of time signature in the verses, choose a simple pattern that is the symmetrical on the 1st and 3rd beat of the bar. Press the

Song list button, step one menu item to the left and set the **Song control** parameter to **MIDI foot-sync** mode. Now start the drum machine. Return to the song select screen and make sure *Pretty Woman* is selected. When you are ready to start the song press the left button on your FS300 at the beginning of a bar in the drum machine pattern. The *Vocalist II* will lock to the drum machine and sequence through the chord and program changes at the correct time.

Playing the song in Full-Auto mode

The final and most impressive song list control mode of your *Vocalist II* is **MIDI full-auto**: This mode allows you to select and start the song on your *Vocalist II* automatically when you start your drum machine.

For this demo you will have to program the song's arrangement on your drum machine. First define the following 3 simple patterns:

Pattern 1 (4/4)

	1+	2+	3+	4 +
kik	X	X	X	X
snr	X	X	X	X

Pattern 2 (4/4)

	1+	2+	3+	4+
kik	X		X	
snr		X	X	

Pattern 3 (6/4)

	1+	2+	3+	4+	5+	6+
kik	X	X	X	X	X	X
snr	X	X	X	X	X	X

Pattern 1 is the straight beat of the Intro, Verses and ending

Pattern 2 is the beat of the Chorus and Bridge

Pattern 3 is the 5th bar of every Verse.

If you find these patterns over-simplified, feel free to elaborate on them: just don't change their time signatures (they won't match up with the song list anymore)! Once you have defined the patterns, create a song in the drum machine with the following structure:

SECTION	PATTERN STRUCTURE
Intro	8 bars of pattern 1
Verse 1	4 bars pattern 1, 1 bar pattern 3, 8 bars pattern 1
Verse 2	4 bars pattern 1, 1 bar pattern 3, 8 bars pattern 1
Chorus	16 bars pattern 2
Bridge	6 bars pattern 2, 4 bars pattern 1
Verse 3	4 bars pattern 1, 1 bar pattern 3, 8 bars pattern 1
Ending	26 bars pattern 1

Once you have prepared the rhythm track on your drum machine, press the **Song list** button and set the **Song control** parameter is set to **MIDI full-auto** mode. Return to the song select screen and make sure *Pretty Woman* is selected. On your drum machine, enter song play mode and press the "start" (or "play") button when you are ready to begin the song. The *Vocalist II* will start automatically and play through the song changes while the drum machine plays through its patterns.

UNDERSTANDING SCALIC HARMONY

The *Vocalist II* detects the pitch of each note sung and generates diatonic harmonies that are correct for the scale and key. The *Vocalist II* allows you to create harmony by choosing notes which will be automatically adjusted to remain in specific scales or keys. The following is an introduction to some basic harmony concepts and terms.

What is a scale and key?

To the *Vocalist II*, a **Scale** is one of five traditional scale types; Chromatic, Major, Minor, Wholetone, and Diminished. Each scale can be used as a basis for constructing harmony.

The **Key** derives its name from the first note in the scale (i.e. C Major). There are twelve keys in total. Therefore, when using Scalic harmony, you must make two decisions, the Key (C, C#, D, etc.), and the Scale type (Chromatic, Major, Minor, etc.).

Understanding which harmonic situations are best suited to the various scale types is quite important for good harmonization. A **Chromatic** scale, for example, consists of 12 semitones (or halftones) and regardless of **Key** you always use the same notes. This means that harmony over a Chromatic scale will be strictly parallel and a **Voicing**, or a group of notes, generated by singing one note will have the same intervals, and therefore sound identical, as a voicing generated by any other note. Since this differs quite dramatically from harmony on other types of scales, The ***Vocalist II*** considers Chromatic harmony as a completely separate harmony type. When loading new harmony programs, choose **Chromatic** if you want parallel harmony and **Scalic** if you want harmony on **Major, Minor, Wholetone,** or **Diminished** scales.

Most of today's music is written primarily in a specific Major or Minor key, but often during the piece there will be a momentarily change to another key. The ***Vocalist II*** allows you to make these changes without changing programs (see Using MIDI to Change Scale Type and Key, page...).

To decide which scale and key to use, look for chords which utilize the same notes as one of the scales. Since there are 12 versions or keys of each scale type, a few 'pointers' may be helpful.

1. The order of chord types is the same for all keys (i.e.. Major scales: I maj, II min, III min, IV maj, V 7, etc.).

2. A 'dominant 7' chord (i.e.. G7) is built on the fifth note (V) of either a Major or a Minor scale.

3. A 'II' chord, or chord built on the second note, in a Major key is a 'minor 7' but in a Minor key is a 'minor 7b5' chord.

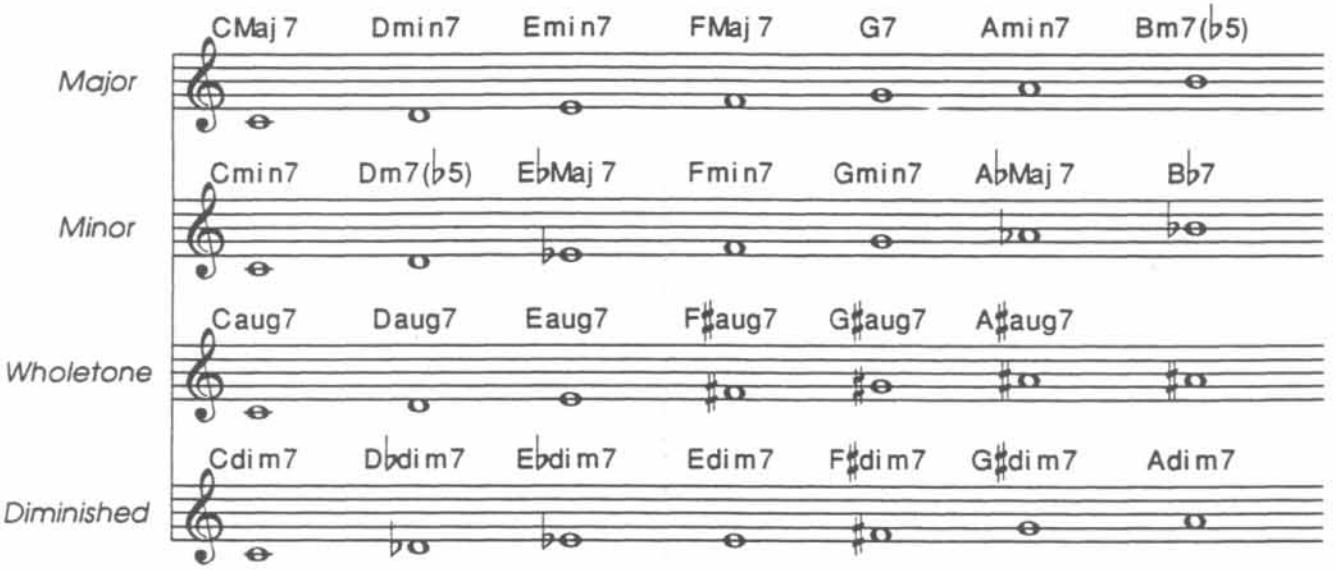
This is often the most obvious difference between Major and Minor keys.

4. Both Wholetone and Diminished scales have been altered to allow a smooth translation of voicings to and from the other scale types.

The following chart shows typical harmony in the key of 'C' over the four possible scale types. It also shows which notes will be used for voicings on these scales.

Scale Chart

Chord symbols show 1-3-5-7 harmony in key of 'C'



What is a Voicing in Scalic Harmony?

Before loading a new Scalic harmony, it is a good idea to find a program with the same number of harmonies as one you would like to load. Then select a **Key** and **Scale** type with which you are comfortable choosing harmony notes.

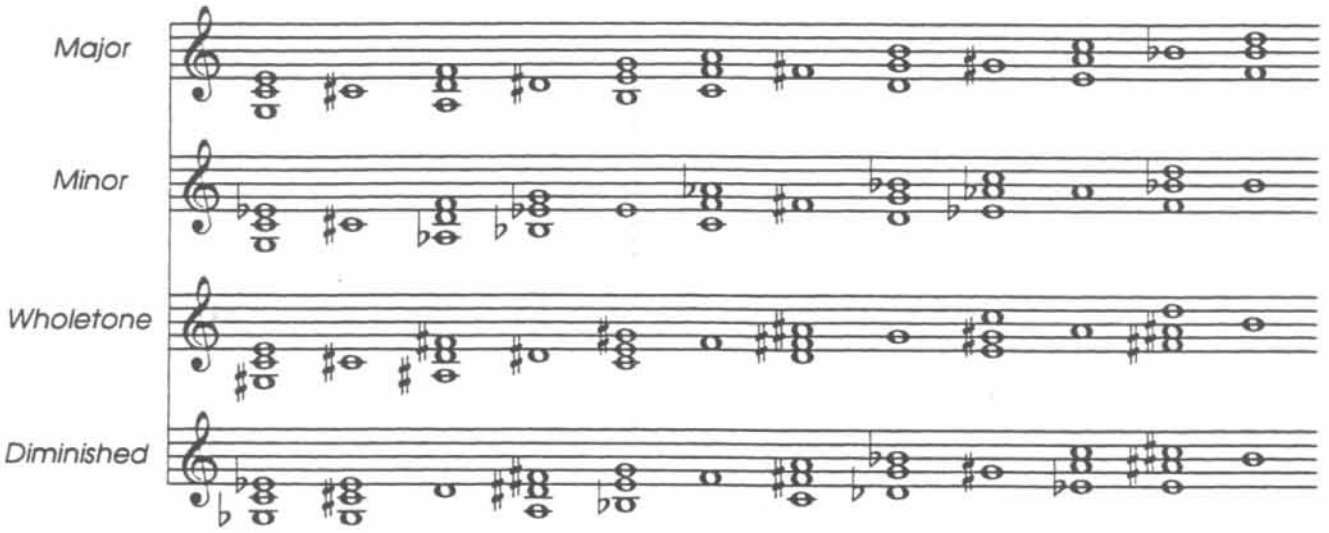
Now you are ready to go to the **Load New Harmony** menu, select **Scalic** harmony, and choose a **Voicing**. This Voicing will consist of up to four notes in that key, either above or below the root. These notes represent the intervals above or below your voice which get automatically adjusted to remain within any selected key or scale type. The Key you choose when Loading a New Harmony is only for your convenience and need not relate to the Key used when singing.

Many of the *Vocalist II* programs use names which describe Scalic Voicings (i.e. #36 Diatonic 5-1-3). This indicates the 5th in the octave below and the 3rd in the octave above. When Loading this voicing in the Key of 'C Major' the harmony parts would be indicated by "⇓G ⇑E ⇓G ⇑E".

The following chart shows how this voicing would sound if you sing from 'C' to 'C' over the various Scale types. Notes without harmony may have 'slurs' (Harmony Voices "Not Corrected") which cause the harmony notes from the previous scale tone to slide evenly to the harmony notes of the next scale tone. Alternately, they may have no changes ("Pitch Corrected"), which means the Harmony notes only change when your voice moves to another Scale tone.

5-1-3 Scalic Voicings in Key of 'C'

Notes without Harmony have 'slurs'



How the *Vocalist II* selects Key from a MIDI keyboard accompaniment

MIDI Chords

The *Vocalist II* can recognize the chords being played on a MIDI keyboard and choose a Key and Scale Type (major, minor, etc.) so that the harmony notes fit over that chord. The following shows the scales which would be chosen for the ten different chord types.

Chord Played	First Choice: Scale and Key selected		Chord Played	First Choice: Scale and Key selected	
C maj	C Major	(I in Major)	C min7b5	Bb Minor	(II in Minor)
C maj7	C Major	(I in Major)	C dim	C Diminished	
C min	C Minor	(I in Minor)	C aug7	C Wholetone	
C min7	Bb Major	(II in Major)	C sus	G major	
C dom7	F Major	(V in Major)	C7 sus	G major	

MIDI Notes

Another way to select Harmony from a MIDI keyboard involves playing a single note in one of ten different octaves, which correspond to the ten chord types, or if a scalic harmony is selected, a single note in one of 4 octaves selects one of four scale types. *(See page 46 - Using 'MIDI Notes')*

UNDERSTANDING CHORDAL HARMONY

The *Vocalist II* also incorporates a harmony system which is designed to fit over individual **chords**. For any note you sing, the *Vocalist II* will select Harmony notes to produce good sounding harmony relative to the selected chord.

The factory chordal programs include harmonies which change on some input tones and remain fixed (n/c) on others.

What is a Chord?

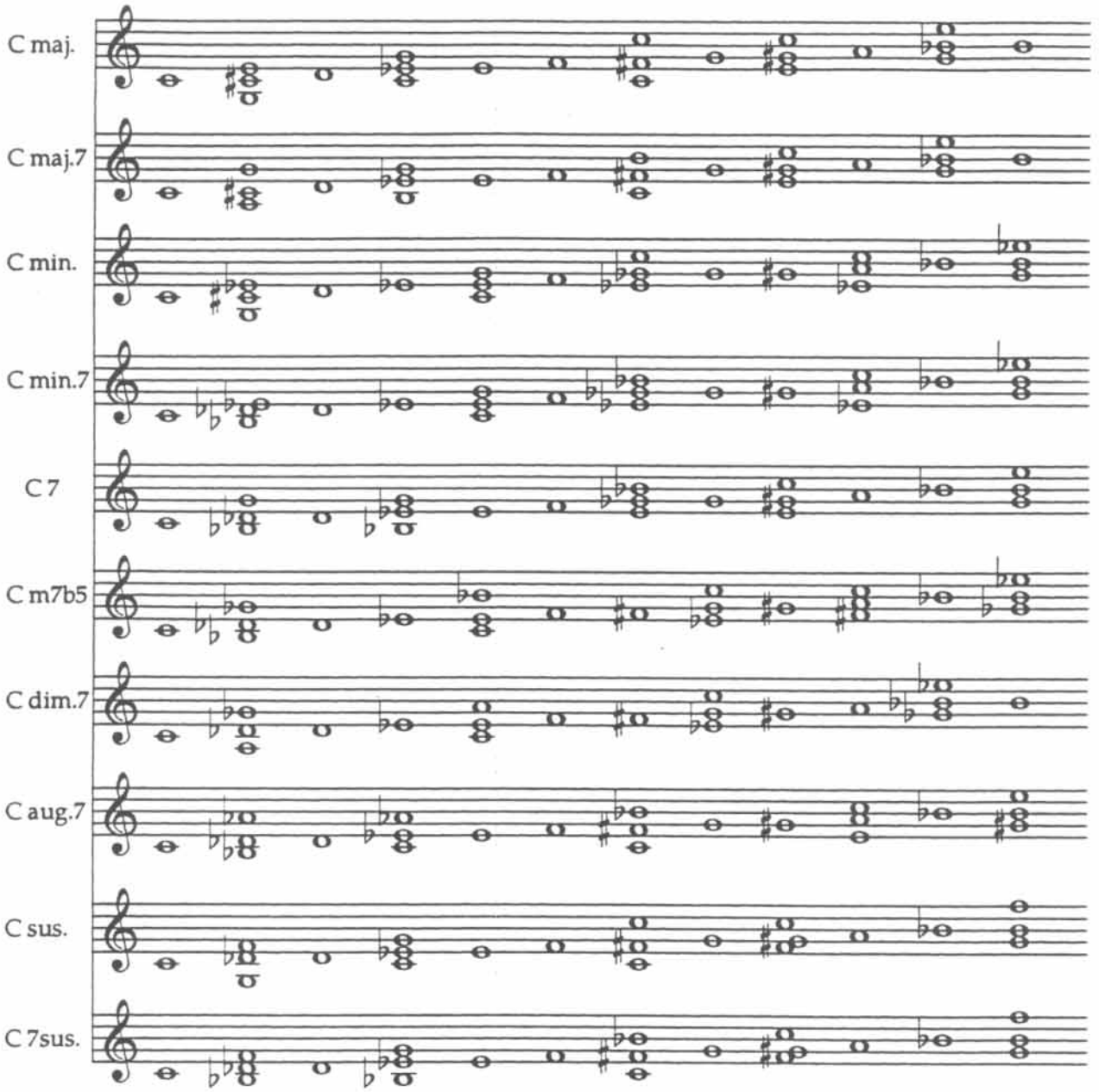
To the *Vocalist II*, a chord is one of ten common **chord types (major, major 7, minor, minor 7, dominant 7, minor 7b5, diminished, augmented, suspended** and **suspended 7th**). Chordal harmony notes primarily consist of the 1st, 3rd, 5th, and (except for 'maj' and 'min') the 7th. In 4-part and 5-part harmonies the 6th, 9th, and 11th are also occasionally used.

In addition to the chord type, the performer must also select the **chord root**. The chord root is similar to the key in Scalic harmony. It is the foundation note upon which the chord is built and is used to identify the 12 possible versions of each chord type.

Here are the harmonies of factory Programs #14 (1 above and 1 below/close). As you can see, there is one harmony voice above and one harmony voice below the input or sung note. Sung notes without harmonies are '**No Change**' (see below for a description of 'No Change').

Three Voice Chordal;
one above & one below/close

Notes without harmonies are 'No Change' (n/c)



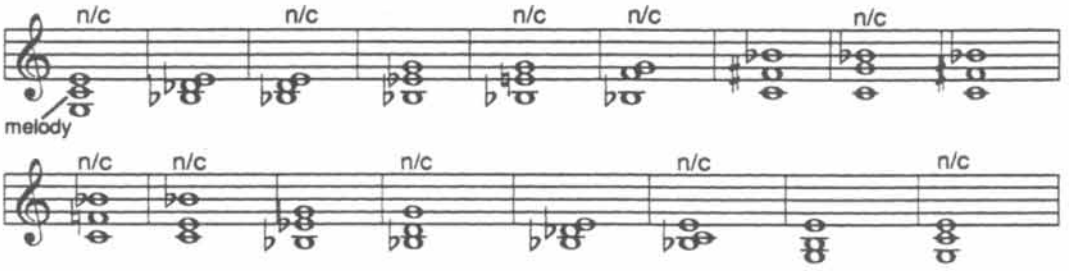
'No Change' (n/c) and its use in Chordal harmony

An important quality in the human voice is its extreme flexibility in pitch. The *Vocalist II* allows a singer to maintain this flexibility without exaggerating the harmonic accompaniment.

This is achieved by the '**No Change**' function. Designating '**n/c**' instead of assigning notes, keeps the harmonies from moving, while allowing the voice freedom to bend until it reaches a new set of harmonies. In other words, on a '**n/c**', the *Vocalist R* will stay on the harmonies generated by the **last note** sung - either the one above or the one below - until you bend all the way past to another note. This means that there are two possibilities for the harmonies generated by the '**n/c**' note, depending on whether you approach it from **above** or **below**.

This has proven to be very successful in creating just the right degree of flexibility. To hear this, choose factory program #14, select C dom7, and sing a glissando from C up to G, back down to B, and return to C. The following is what you should hear.

Chordal Harmony over C7 Chord,
Program 14 (1 above, 1 below close)



The exact placement of these 'no changes' is crucial to smooth chordal harmonization.

UNDERSTANDING THE USEFULNESS OF VIBRATO AND PORTAMENTO

Most singers utilize both Vibrato (oscillation of pitch) and Portamento (sliding between pitches) in their natural style. In some situations it is advantageous to add these characteristics uniformly to all harmony parts, but often a more natural result is obtained by giving each harmony part its own individual style. This more accurately resembles different people singing the harmonies.

Vibrato Depth The width of the oscillations between sharp and flat can be assigned independently to Right and Left outputs with a value from 1 to 10.

Vibrato Speed The quickness of the oscillations can be assigned independently to Right and Left outputs with a value from 1 to 10.

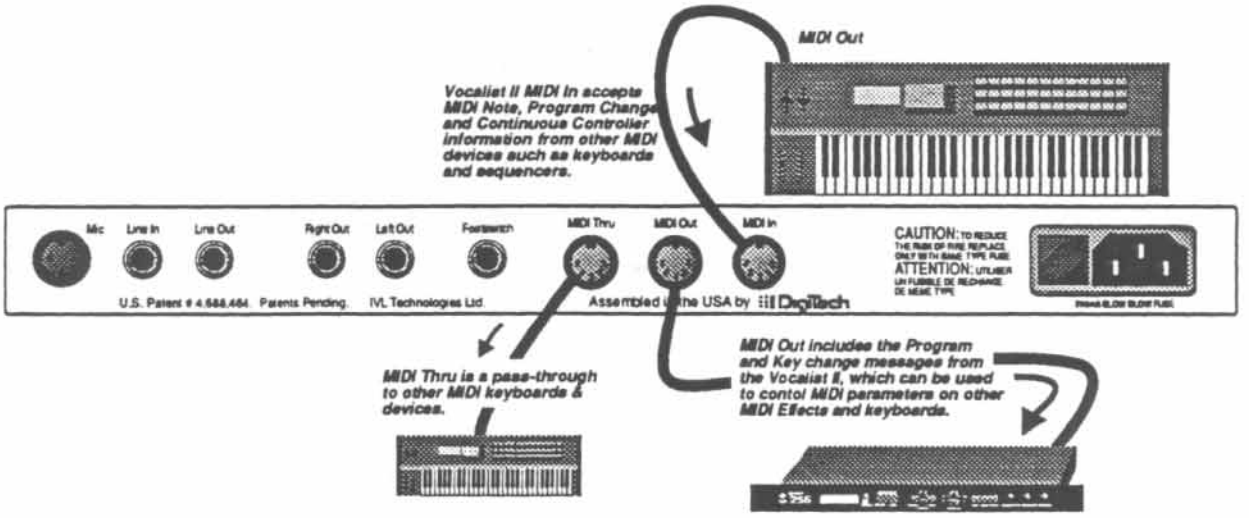
Vibrato Delay The delay time from the onset of the note until the vibrato starts is assigned a value from 1 to 10. All harmonies have the same value.

Portamento Portamento may be assigned independently to each Program. Changing the speed of the Portamento from fast to slow varies the time that the harmony note takes to slide from one pitch to the next. If set to Off, the harmony will simply jump from one pitch to another.

Different Portamento settings on your various harmonies will provide an interesting "looseness", which helps the *Vocalist II* to sound less machine-like and automatic.

Connecting MIDI Devices

To connect a MIDI keyboard, connect the MIDI Out from the keyboard to the MIDI In of the *Vocalist II*. This will allow you to control the harmonies on the *Vocalist II* from the notes being played on the keyboard. If your keyboard is used to control other synth modules, connect the MIDI Thru to the MIDI In of the first synth module.



Changing programs via MIDI

You can use a keyboard, sequencer or other MIDI controller to select Programs on the *Vocalist II*. Access the MIDI Parameters menu by pressing the Utility button and then pressing the Parameter Right button three times and Parameter Down once. Confirm the following settings:

Basic MIDI Channel = same as your keyboard
Receive Program Changes = Yes

Normally the *Vocalist II* will select its Program 1 when it receives MIDI Program Number 1. You can change this so a particular MIDI message will call up a *Vocalist II* program of a different number. This re-mapping is accomplished in the '**MIDI Program __ is __ on** *Vocalist II*' menu item of the MIDI Parameters menu.

Controlling other effects from the *Vocalist II*

You can also have the *Vocalist II* send **Program Change** messages to other MIDI devices. You might wish to do this if, for example, you had a MIDI-controlled reverb and you wanted a reverb preset to be called up every time you selected a *Vocalist II* program. To set this up, make the following setting in the MIDI Parameters menu:

Basic MIDI Channel = same as the controlled device
Transmit Program Changes = Yes

As explained above, you can re-map the MIDI Program Number messages so that, for example, selecting *Vocalist II* Program 3 might cause a MIDI Program Number 12 message to be sent.

Using MIDI Program Change to select Chord and Key

When you set '**Key Change from MIDI = Program Change**' in the MIDI Parameters menu, the chord and key can be selected by having a MIDI keyboard, sequencer or controller send a Program Change message.

First confirm these settings in the MIDI Parameters menu:

Receive Key Change: Yes
Key Change MIDI Channel: same as keyboard
Key change from: Program Change

Program Change messages will select chords and Keys as follows for Chordal presets:

Pgm	Chord/Key	Pgm	Chord/Key	Pgm	Chord/Key	Pgm	Chord/Key	Pgm	Chord/Key
1	maj C	25	min C	49	dom7 C	73	dim C	97	sus C
2	maj C#	26	min C#	50	dom7 C#	74	dim C#	98	sus C#
3	maj D	27	min D	51	dom7 D	75	dim D	99	sus D
4	maj D#	28	min D#	52	dom7 D#	76	dim D#	100	sus D#
5	maj E	29	min E	53	dom7 E	77	dim E	101	sus E
6	maj F	30	min F	54	dom7 F	78	dim F	102	sus F
7	maj F#	31	min F#	55	dom7 F#	79	dim F#	103	sus F#
8	maj G	32	min G	56	dom7 G	80	dim G	104	sus G
9	maj G#	33	min G#	57	dom7 G#	81	dim G#	105	sus G#
10	maj A	34	min A	58	dom7 A	82	dim A	106	sus A
11	maj A#	35	min A#	59	dom7 A#	83	dim A#	107	sus A#
12	maj B	36	min B	60	dom7 B	84	dim B	108	sus B
13	maj7 C	37	min7 C	61	m7b5 C	85	aug7 C	109	7sus C
14	maj7 C#	38	min7 C#	62	m7b5 C#	86	aug7 C#	110	7sus C#
15	maj7 D	39	min7 D	63	m7b5 D	87	aug7 D	111	7sus D
16	maj7 D#	40	min7 D#	64	m7b5 D#	88	aug7 D#	112	7sus D#
17	maj7 E	41	min7 E	65	m7b5 E	89	aug7 E	113	7sus E
18	maj7 F	42	min7 F	66	m7b5 F	90	aug7 F	114	7sus F
19	maj7 F#	43	min7 F#	67	m7b5 F#	91	aug7 F#	115	7sus F#
20	maj7 G	44	min7 G	68	m7b5 G	92	aug7 G	116	7sus G
21	maj7 G#	45	min7 G#	69	m7b5 G#	93	aug7 G#	117	7sus G#
22	maj7 A	46	min7 A	70	m7b5 A	94	aug7 A	118	7sus A
23	maj7 A#	47	min7 A#	71	m7b5 A#	95	aug7 A#	119	7sus A#
24	maj7 B	48	min7 B	72	m7b5 B	96	aug7 B	120	7sus B

For Scalic Presets, Program Change messages will select Keys and Scale Types as follows:

Pgm	Scale/Key	Pgm	Scale/Key	Pgm	Scale/Key	Pgm	Scale/Key
1	Major C	13	Minor C	25	Wholetone C	37	Diminished C
2	Major C#	14	Minor C#	26	Wholetone C#	38	Diminished C#
3	Major D	15	Minor D	27	Wholetone D	39	Diminished D
4	Major D#	16	Minor D#	28	Wholetone D#	40	Diminished D#
5	Major E	17	Minor E	29	Wholetone E	41	Diminished E
6	Major F	18	Minor F	30	Wholetone F	42	Diminished F
7	Major F#	19	Minor F#	31	Wholetone F#	43	Diminished F#
8	Major G	20	Minor G	32	Wholetone G	44	Diminished G
9	Major G#	21	Minor G#	33	Wholetone G#	45	Diminished G#
10	Major A	22	Minor A	34	Wholetone A	46	Diminished A
11	Major A#	23	Minor A#	35	Wholetone A#	47	Diminished A#
12	Major B	24	Minor B	36	Wholetone B	48	Diminished B

Using 'MIDI Notes' to select Chord and Key

When you set **'Key Change from MIDI Notes'** in the MIDI Parameters menu, a single MIDI Note can be made to change both Chord and Key. The Chord and Key that the *Vocalist II* will change to is determined by the MIDI Note Number of the note. This is useful if you have only one MIDI channel left free on your sequencer and you want to control both program changes and key changes.

First confirm these settings in the MIDI Parameters menu:

Receive Key Change:	**Yes**
Key Change MIDI Channel:	**same as keyboard**
Key change from:	**MIDI Notes**

For Scalic Programs, he notes will generate changes according to the following table. *Note: C5 is middle C.*

Note #	Scale/Key	Note #	Scale/Key	Note #	Scale/Key	Note #	Scale/Key
1 C0	Major C	13 C1	Minor C	25 C2	Wholetone C	37 C3	Diminished C
2 C#0	Major C#	14 C#1	Minor C#	26 C#2	Wholetone C#	38 C#3	Diminished C#
3 D0	Major D	15 D1	Minor D	27 D2	Wholetone D	39 D3	Diminished D
4 D#0	Major D#	16 D#1	Minor D#	28 D#2	Wholetone D#	40 D#3	Diminished D#
5 E0	Major E	17 E1	Minor E	29 E2	Wholetone E	41 E3	Diminished E
6 F0	Major F	18 F1	Minor F	30 F2	Wholetone F	42 F3	Diminished F
7 F#0	Major F#	19 F#1	Minor F#	31 F#2	Wholetone F#	43 F#3	Diminished F#
8 G0	Major G	20 G1	Minor G	32 G2	Wholetone G	44 G3	Diminished G
9 G#0	Major G#	21 G#1	Minor G#	33 G#2	Wholetone G#	45 G#3	Diminished G#
10 A0	Major A	22 A1	Minor A	34 A2	Wholetone A	46 A3	Diminished A
11 A#0	Major A#	23 A#1	Minor A#	35 A#2	Wholetone A#	47 A#3	Diminished A#
12 B0	Major B	24 B1	Minor B	36 B2	Wholetone B	48 B3	Diminished B

For Chordal Programs, MIDI notes will select Chord and Key as follows:

Note MIDI#	Chord/Key	Note MIDI#	Chord/Key	Note MIDI#	Chord/Key	Note MIDI#	Chord/Key	Note MIDI#	Chord/Key
C0 1	maj C	C2 25	min C	C4 49	dom7 C	C6 73	dim C	C8 97	sus C
C#0 2	maj C#	C#2 26	min C#	C#4 50	dom7 C#	C#6 74	dim C#	C#8 98	sus C#
D0 3	maj D	D2 27	min D	D4 51	dom7 D	D6 75	dim D	D8 99	sus D
D#0 4	maj D#	D#2 28	min D#	D#4 52	dom7 D#	D#6 76	dim D#	D#8 100	sus D#
E0 5	maj E	E2 29	min E	E4 53	dom7 E	E6 77	dim E	E8 101	sus E
F0 6	maj F	F2 30	min F	F4 54	dom7 F	F6 78	dim F	F8 102	sus F
F#0 7	maj F#	F#2 31	min F#	F#4 55	dom7 F#	F#6 79	dim F#	F#8 103	sus F#
G0 8	maj G	G2 32	min G	G4 56	dom7 G	G6 80	dim G	G8 104	sus G
G#0 9	maj G#	G#2 33	min G#	G#4 57	dom7 G#	G#6 81	dim G#	G#8 105	sus G#
A0 10	maj A	A2 34	min A	A4 58	dom7 A	A6 82	dim A	A8 106	sus A
A#0 11	maj A#	A#2 35	min A#	A#4 59	dom7 A#	A#6 83	dim A#	A#8 107	sus A#
B0 12	maj B	B2 36	min B	B4 60	dom7 B	B6 84	dim B	B8 108	sus B
C1 13	maj7 C	C3 37	min7 C	C5 61	m7b5 C	C7 85	aug7 C	C9 109	7sus C
C#1 14	maj7 C#	C#3 38	min7 C#	C#5 62	m7b5 C#	C#7 86	aug7 C#	C#9 110	7sus C#
D1 15	maj7 D	D3 39	min7 D	D5 63	m7b5 D	D7 87	aug7 D	D9 111	7sus D
D#1 16	maj7 D#	D#3 40	min7 D#	D#5 64	m7b5 D#	D#7 88	aug7 D#	D#9 112	7sus D#
E1 17	maj7 E	E3 41	min7 E	E5 65	m7b5 E	E7 89	aug7 E	E9 113	7sus E
F1 18	maj7 F	F3 42	min7 F	F5 66	m7b5 F	F7 90	aug7 F	F9 114	7sus F
F#1 19	maj7 F#	F#3 43	min7 F#	F#5 67	m7b5 F#	F#7 91	aug7 F#	F#9 115	7sus F#
G1 20	maj7 G	G3 44	min7 G	G5 68	m7b5 G	G7 92	aug7 G	G9 116	7sus G
G#1 21	maj7 G#	G#3 45	min7 G#	G#5 69	m7b5 G#	G#7 93	aug7 G#	G#9 117	7sus G#
A1 22	maj7 A	A3 46	min7 A	A5 70	m7b5 A	A7 94	aug7 A	A9 118	7sus A
A#1 23	maj7 A#	A#3 47	min7 A#	A#5 71	m7b5 A#	A#7 95	aug7 A#	A#9 119	7sus A#
B1 24	maj7 B	B3 48	min7 B	B5 72	m7b5 B	B7 96	aug7 B	B9 120	7sus B

Using 'MIDI Chords' to select Harmony and Root

The *Vocalist II* has the ability to listen to a MIDI keyboard, decipher the chords being played, and choose the correct harmony chord or scale which best fits the MIDI chord. This function allows a keyboard player to sing harmony over different chords without taking his hands off the keyboard.

First confirm these settings in the MIDI Parameters menu.

Receive Key Change: **Yes**
Key Change MIDI Channel: **(same as keyboard)**
Key change from: **MIDI Chords**
MIDI Keyboard Split: **(as desired, see below)**

The *Vocalist II* will identify ten chord types. The following types are recognized.

major & major 7
minor & minor 7
dominant 7 & augmented 7
minor 7 flat 5 & diminished
suspended & suspended 7th

Some of the rules used by the *Vocalist II* to analyze the keyboard accompaniment are as follows:

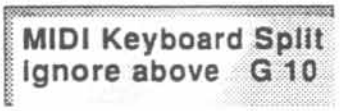
If two MIDI chords are played at the same time, the Vocalist II will combine them and make a decision based on all the notes.

If multiple notes are being held, those most recently played will assume priority.

If one note is played, the chord root will change, but the chord type will stay the same.

Diminished 7 chords and augmented triads will always be interpreted in root position.

Splitting the MIDI keyboard



When using chords played on a MIDI keyboard to select the harmony, it is often useful to have the *Vocalist II* look at notes only in a particular region of the keyboard. The *Vocalist II* can be set to read the chords being played on one hand only. To set this up use the **'MIDI Keyboard Split'** menu item in the MIDI Parameters menu. You can specify the lowest or highest note the *Vocalist II* will consider. Selecting the split above middle C (C5), for example, allows changes to be made with the right hand while the left hand can continue below C5 without affecting the changes.

GLOSSARY

Bypass This function, operated either by a button on the *Vocalist II* front panel, or by the Footswitch, turns **off** all harmonies. The unprocessed microphone sound is not affected.

Chord Root The first or foundation note of a chord (i.e. C is the root of C maj7 which has the notes C-E-G-B). When using a Chordal program, press the *Vocalist II* **Parameter** buttons to select or change the chord root.

Chord Type The *Vocalist II* recognizes and utilizes 10 different chord types. If 'C' is the root then here are the names, abbreviations, and notes.

major	C maj	C-E-G
major seven	C maj7	C-E-G-B
minor	C min	C-Eb-G
minor seven	C min7	C-Eb-G-Bb
dominant seven	C dom7 (or C7)	C-E-G-Bb
minor seven flat five	C m7b5	C-Eb-Gb-Bb
diminished	C dim	C-Eb-Gb-A
augmented seven	C aug	C-E-G#-Bb
suspended	C sus	C-F-G
suspended seven	C7 sus	C-F-G-Bb

When using a Chordal program, the **Parameter** buttons may be used to select the Chord Type and Root. You may also use a variety of MIDI messages to change Chord Type and Root (See Page 37).

Chordal Harmony This is harmony which is designed to fit over a chord. Any note may be sung and appropriate harmony notes are automatically chosen to fit the chord tones. The factory programs include a system of 'no change' harmonies which gives both stability and independence to the harmony notes.

'Voicing' names describe the position and number of harmonies relative to the input or sung note (i.e. 2 abv 1 bel). There are also 'open' and 'close' versions of the two and three voice harmonies.

Chromatic Harmony a Scale Type which utilizes all 12 semitones. Since harmony on this scale will produce purely parallel motion, and differs dramatically in its sound from the other scale types, the *Vocalist II* treats Chromatic as a distinct harmony type.

Detune Each harmony note may be adjusted sharp or flat by a quarter tone (25 cents). This has a chorusing effect, giving a fuller and more human sound.

Diatonic Any melody or group of chords which conforms to a single scale or key (i.e. C Major) is said to be 'Diatonic'. The term 'Scalic' is also used to describe this situation but in addition, describes harmony over uncommon scales such as Diminished and Wholetone .

Harmony This refers to multiple notes sounding at the same time. In the *Vocalist II* we use the term to describe the *Vocalist II* generated (or effect) output note(s). This is not to be confused with the vocal output note which is the untouched signal from the microphone.

Harmony Mute This function is reached by pushing the **Parameter Right** button twice, and allows each individual harmony to be independently turned on or off.

Key (see Scale Key)

LCD 'Liquid Crystal Display' is the term used to describe the *Vocalist II* display (light green background with black letters).

LED 'Light Emitting Diode' is the term used to describe the small **lights** used to indicate Signal Strength, Signal Lock and Bypass , and the Program Number Window (red numbers).

Menu This term refers to the arrangement of instructions used for changing all parameters and operations of the *Vocalist II*. This system involves accessing the various topics (i.e. Detune, Vibrato, Portamento, etc.) **horizontally** and selecting the appropriate values in a **vertical** manner.

Some topics have several variables (i.e. Vibrato Depth, Vibrato Speed, Vibrato Delay) and these are also arranged horizontally. These arrangements of topics within topics are referred to as **sub-menus** (see Page 22).

MIDI 'Musical Instrument Digital Interface' is the technical name for the communicating language of all modern electronic music devices (i.e. keyboard instruments, sequencers, computer programs, etc.). The *Vocalist II* allows these devices to act as alternate controllers and is also able to control them. The most common use will be to change *Vocalist II* harmonies from a MIDI keyboard or sequencer.

Changes to any aspect of the MIDI parameters are made in the **Utility** menu and are global to all programs.

MIDI Keyboard Split This function is used when controlling harmonies from a MIDI keyboard. It allows the keyboard to be split so only a part of its range is used to control the *Vocalist II*.

Mono Mode (see Vocoder)

No Change (n/c) When two adjacent input notes (i.e. C, C#) produce different harmony notes (i.e. C-E-G, C#-E-B), the results can be very unsteady since the voice is often 'close' but not exactly 'on' pitch. An **'n/c'** in place of one of the harmonies cures this unsteadiness as it keeps the harmonies from changing pitch as the input changes.

Octave In the system of music which is most common in North America and Europe, **12** consecutive **semitones** comprise an octave (which technically is the distance in pitch from the fundamental to the first partial in a standard harmonic series). These semitones can be arranged into groups of ones, twos, and threes, which result in the common scales which are so much a part of music.

The *Vocalist II* refers to '**middle C**' as '**C5**'. An octave higher is 'C6' and an octave lower is 'C4'. Notes within the octave take their number from the 'C' below, so 'F' above 'C5' is 'F5'.

Parameter This term refers to the various elements of the Programs and Utilities. The four buttons labelled **Parameter** (Right Left, Up and Down arrows) access horizontally and vertically the menus and values which dictate these elements.

Pitch Bend The pitch of a note may be changed (or bent) using an external controller such as a Pitch Bend Wheel on a keyboard. When using the *Vocalist II* **Vocoder**, harmonies may be shifted up to an octave above or below with a Pitch Bend controller MIDI message from another MIDI device.

Pitch Correct The *Vocalist II* can alter the pitch of a sung note to any pitch desired. The desired pitches may be selected by playing notes on an external MIDI keyboard or sequencer. When the keyboard note is released, the harmony returns to unison with the voice. In this mode **Portamento** has two extra parameters, **Attack** and **Release**.

Portamento **(Speed, Attack, Release)**

When harmony notes change pitch they can jump like a piano or slide like a trombone. Another word for slide is **Portamento**. The human voice tends to slide between pitches so it's not a bad idea to let your harmonies do this as well.

'**Speed**' describes how quickly harmony notes slide and may be assigned independently to each note. '**Attack**' and '**Release**' are only used with Pitch Correct and describe the time it takes to leave and return to the vocal unison.

Program This a *Vocalist II* term used to describe the **99** harmony settings or Programs. All are fully editable and may be stored to internal memory. Each Program may include any one of the following 5 types of harmonization: **Scalic, Chordal, Chromatic, Vocoder** or **Pitch Correct**

Progression This is a musical term used to describe a series of chords (i.e. "chord progression").

Root (see Chord Root)

Scale Key The first and fundamental note of a scale. When a melody or series of chords primarily uses the notes of a particular scale, it is said to be in that key. If notes of another scale are introduced, and you are using the *Vocalist II*, you will need to change **keys** by pressing the *Vocalist II* **Parameter** buttons or by sending a MIDI message.

'**Startup Key**' is a predefined Key which is automatically selected when that Program is first selected.

Scale Tone & Non-scale Tone

Scale tones are the notes of the scale (i.e. Scale tones for C Major are C, D, E, F, G, A, & B.) Non-scale tones are the notes not contained in the scale (i.e. Non-scale tones for C Major are C#, D#, F#, G#, & A#).

When constructing or simply understanding harmonies, it is important to keep in mind which input notes are scale tones and which are not. Often each will be treated differently.

Scale Type The *Vocalist II* enables 4 different types of scales to be used for Scalic harmonization. Each type is a combination of 12 semitones. The following is a list of the scale types with the number of semitones between each note.

Major	2, 2, 1, 2, 2, 2, 1
Minor	2, 1, 2, 2, 1, 2, 2
(the Vocalist II uses Natural Minor)	
Wholetone	2, 2, 2, 2, 2, 2
Diminished	1, 2, 1, 2, 1, 2, 1, 2

When loading a new scalic harmony, you need to choose a '**Voicing**' based on the first note or root of the scale. This voicing will likely result in a particular chord, but due to the nature of these different scale types, the chord will change depending on which note generates it. For a complete discussion on using different scale types see the chapter entitled "**Understanding Scalic Harmony**".

Scalic (see Diatonic)

Signal Lock This is a LED located underneath the Program Number LED, which glows when the signal from the microphone is producing clear enough notes for the *Vocalist II* to harmonize. Sometimes a problem can occur with either the microphone or the cable, which causes a strong but garbled and unclear signal. The **Signal Lock** LED is also used when adjusting the **"ess" Sensitivity**.

Slur When a singer sings two notes without stopping the sound, there is a distinct slide or glissando between the pitches. "Slur" is the *Vocalist II* function which assigns to a particular input note, a **slide of the harmonies** from the previous input note to the harmonies of the next input note.

Store After editing any Parameter in a Program, you need to press the **Store** button if you wish to save the changes to memory. After pressing **Store** you may choose a new Program number. The Factory Programs #1 to #50 are repeated in Program # 51 to 100 but any Program may be edited and stored. See **Restore Factory Program** in **Utility Menu**.

Sub-menu (see Menu)

Transpose (with Vocoder) "Transposing" a note means moving it up or down a specified number of semitones. When using the Vocoder mode, harmonies may be shifted up or down by a specified number of octaves (12 semitones).

Utility Pressing the **Utility** button gives immediate access to the global parameters which affect all Programs. Changes made in any of these menus are automatically Stored. Press **Utility** or **Program** again to return to the original window.

Vocalist II DigiTech's second 5-voice Vocal Harmony Machine, named the *Vocalist II*.

Vibrato **(Delay, Depth, & Speed)**

Vibrato is technically defined as a controlled oscillation of **pitch** and **volume**. The *Vocalist II* allows harmonies on either right or left outputs to have their own independent vibrato which is a combination of both pitch and volume. The vibrato may start after a predetermined time lag (**Delay**), it may be very wide or narrow (**Depth**), or it may oscillate at various tempos (**Speed**).

Vocoder This is a type of harmony which allows either a sequencer or a MIDI keyboard to control which harmony notes are produced. With the Vocal output turned off, singing will produce no sound until MIDI notes are received. From one to four notes may be produced in three different configurations; **Mono** (1 voice), **Doubled** (2 voices), **Normal** (4 voices).

The Vocoder allows **MIDI Pitch Bend** to shift the notes up or down, an automatic **Transpose** function which shifts the harmony to other octaves, and the standard **MIDI Keyboard Split** feature which isolates part of the keyboard for Vocoder control.

Voicing This term is used to describe the relative position of harmony notes to the input or sung note. When loading either a new scalic or chordal harmony, the *Vocalist II* needs to be given a Voicing.

For **Scalic** harmony this involves choosing notes up to an octave above or 2 octaves below the root of a scale. These notes will be automatically adjusted to stay within the scale but the diatonic intervals will remain consistent.

For **Chordal** harmony you must choose one of the following Factory Voicings.

2 voice harmony	1 above
	1 below
	1 above open
	1 below open
3 voice harmony	2 above
	1 above 1 below close
	1 above 1 below open
	2 below
4 voice harmony	3 above
	2 above 1 below
	2 above + bass
	1 above 2 below
	1 abv 1 bel + bass
	1 abv 1 bel open + bass
	2 below + bass
	3 below
5 voice harmony	3 above 1 below
	3 above + bass
	2 abv 1 bel + bass
	2 above 2 below
	1 abv 2 bel + bass
	1 above 3 below
	2 below + bass
	Fixed Chord
	Fixed Chord + bass

With these Voicings the harmony parts will always retain their relative positions but the intervals change quite dramatically to conform to the various chords.

VOCALIST II MIDI IMPLEMENTATION CHART

DigiTech *Vocalist II* Digital Sound Processor

Date: June 1991
Version: 1.0

Function		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1 - 16 1 - 16	1 - 16 1 - 16	Memorized
Mode	Default Messages Altered	Mode 3 x	Mode 3 x	Omni Off
Note Number	True Voice	o	o	May be used to select Key and Chord
Velocity	Note on Note off	x x	x x	
After Touch	Keys Channels	x x	x x	
Pitch Bender		x	o	
Control Change		x	o	
Program Change	True #	0 -255	0 - 255 1 - 256	Internally mappable
System Exclusive		o	o	
System Common	Song Position Song Select Tune	x x x	x x x	
System Real-Time	Clock Commands	x x	x x	
Auxiliary Messages	Local ON/OFF All Notes OFF Active Sense Reset	x x x x	x x x x	

Mode 1: Omni On, Poly Mode 2: Omni On, Mono o = Yes
Mode 3: Omni Off, Poly Mode 4: Omni Off, Mono x = No

8760 Sandy Parkway
Sandy, UT 84070

Telephone (801) 566-8800
FAX (801) 566-7005

International Distribution
FAX (603) 672-4246

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