



Bob Moog Tribute Edition 1.03 OS Update



Welcome!

Welcome to the Little Phatty Tribute Edition OS update! The Little Phatty OS 1.03 is now the official version of the LP firmware. The OS 1.03 firmware update adds many important new functions and features to the Tribute Edition hardware, including:

- Two new modulation sources
- Individual pitch up and pitch down parameters for the Pitch Wheel
- Pot Mapping
- Auto Calibration
- Auto Tuning
- "Advanced" settings for individual presets
- A restructured, easy-to-navigate Master menu

This document explains how to perform the update, and provides detailed information about all of the new functions and features.

Before You Begin

All Little Phatty users can update to version 1.03 from any previous version. Updating to the new version requires the Little Phatty, the OS Update file, and a computer with a MIDI interface and MIDI software that can send large SysEx files (for the PC try "MIDI-OX" [www.midiox.com] or for the Macintosh try "SysEx Librarian" [www.snoize.com]). For MIDI-OX users, please see note below.

If you are new to upgrading firmware via MIDI, take some time before proceeding to become familiar with the details of your MIDI interface and your MIDI software with regard to sending SysEx files. If your MIDI interface sends "Active Sensing" messages, be sure to turn this feature off before attempting this upgrade.



NOTE We recommend that you backup your presets before performing this update. Refer to SYSEX Menu section in the LP User's Manual for details on backing up your data.

Updating the Little Phatty Operating System

Follow these steps to update the Little Phatty Operating System:

1. Connect your computer interface to the LP's MIDI In and Out jacks.
2. Power up the Little Phatty and your computer, and confirm that the computer is sending MIDI data to the Little Phatty.
3. Start the MIDI SysEx software program on your computer.
4. In the MIDI SysEx software, select and send the file called "LP_T_103b.syx" to the Little Phatty while observing LP's display. The message "RX FIRMWARE" will appear on the top line of the display, and the messages "STAGE 1" and then "STAGE 2" will appear on the bottom line. Allow the update to complete without interruption. When the update is finished, the LP will reboot and the new version number will be displayed on the LP's startup screen.



CAUTION: It is important to only use the Tribute Edition file (LP_T_103b.syx) for this update. Do not attempt to use the Stage Edition firmware with the Tribute Edition. Doing so may render the instrument inoperable.

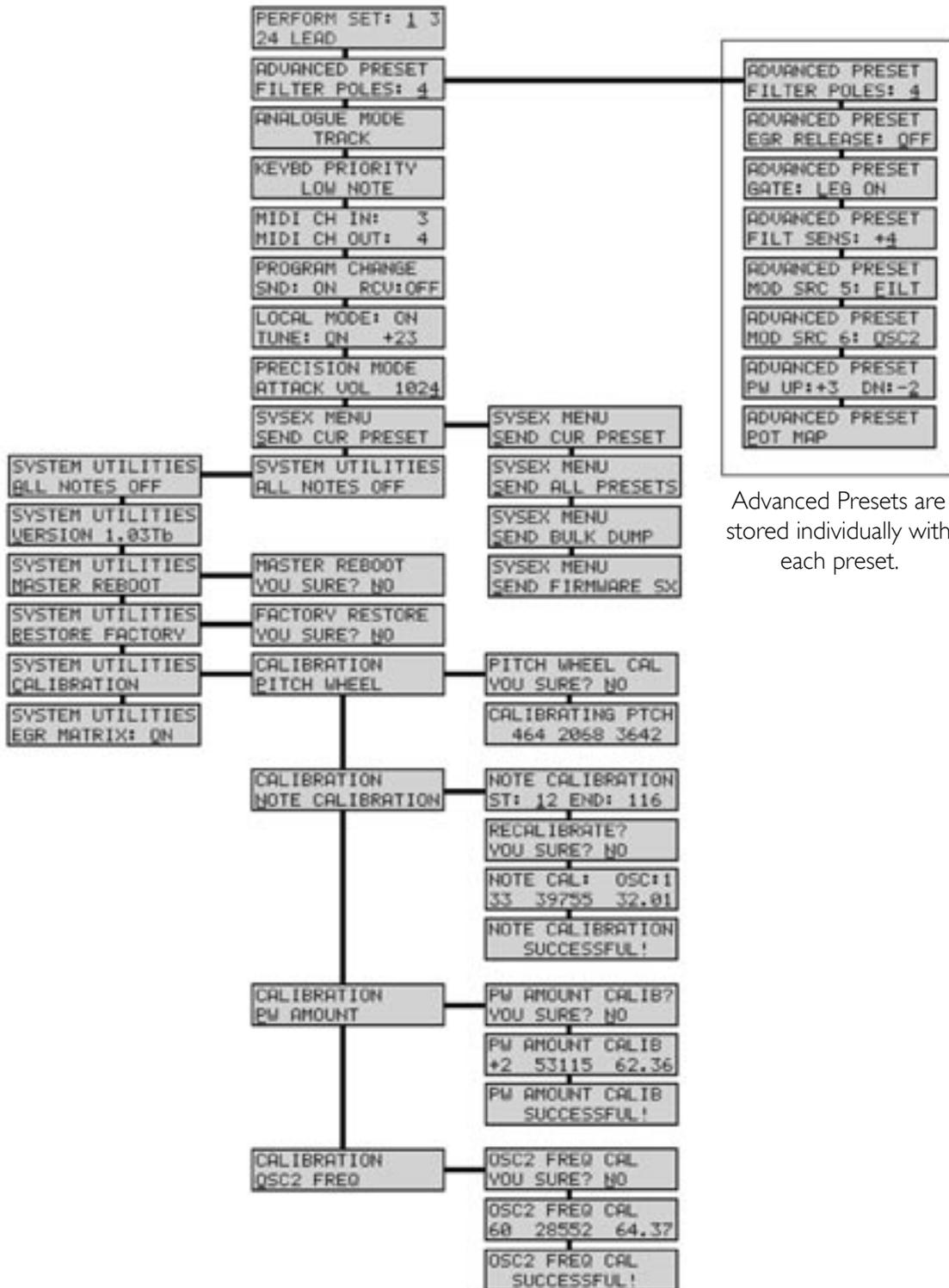
5. In the LP's Master Menu, navigate to the System Utilities page. Press the CURSOR to enter into the System Utilities menu and scroll to the 'Restore Factory' option (for more on the Restore Factory option, see page 16). Press ENTER and choose 'YES' when you see the 'You Sure?' prompt.
6. Your LP firmware update is complete! You can now reload your presets and explore the functions and features that the new OS offers! For a quick overview of the new menu structure, see the Master Menu Structure Chart on the next page. For complete details on all of the new features, keep reading...



MIDI-OX USERS: The default buffer settings in MIDI-OX may be insufficient for the large size of the LP OS update file. If this is a problem, it will cause transfer errors [a "Stage 1 Error" will be displayed on LP's LCD] and the update will not be successful. If you experience transfer errors, go to the MIDI-OX OPTIONS menu, select "Configure Buffers" and set Size = 1024 bytes, Num(ber of buffers) = 128, for both input and output.

The Master Mode Menu Structure

This chart displays the new Master Mode menu structure. With the exception of the Advanced Preset parameters, which are individually stored with each preset, all Master Mode menu parameters effect the LP globally.

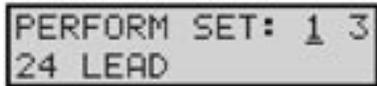


Advanced Presets are stored individually with each preset.

Master Mode Menus

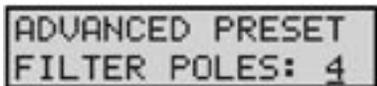
Master Mode is used to access the global settings and Advanced Preset settings for the Little Phatty, as well as the routines for sending and receiving MIDI data, and calibrating the LP's electronics. In OS 1.03, the Master Menu has been restructured to accommodate the new functions and features. A complete list of the new menu organization and menu descriptions is shown below.

PERFORMANCE SETS:



Performance Sets are collections of preset sounds, pre-arranged for convenient access. There are four banks of Performance Sets containing 8 presets each (32 presets total). You select a bank (1-4) and then set up a sequence of 8 presets in each bank. This allows you to easily switch between these assigned presets in the order they are set up. Once you have your performance bank set up, you can step sequentially through the bank by pressing the **VALUE** switch, or use the **CURSOR** button to highlight the bank or preset, then use the **VALUE** knob to make the change.

ADVANCED PRESET:



Advanced Presets is a set of menus that allows you to access additional parameters for each preset. These parameters are stored individually for each preset. There are eight Advanced Preset menus available:

- Filter Poles (1-4)
- EGR Release
- Trigger Options
- Filter Sensitivity
- Additional LFO Modulation Sources (2 sources)
- Pitch Bend options
- Pot Mapping

For more information, see the Advanced Preset menu section (page 10).

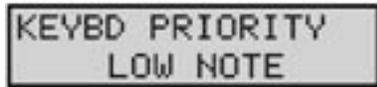
ANALOGUE MODE:



Analogue mode controls the way the analog edit controls work. In SNAP mode, the parameter will 'snap' instantaneously to the current potentiometer setting. In PASS-THRU mode, the parameter value stays constant until the potentiometer passes through the current value. In TRACK mode, the parameter value moves in the same direction as the knob is rotated (left or right) until the value and knob position are identical. To change modes, use the **CURSOR** button to highlight the parameter, then use the **VALUE** knob to set the new parameter value.

Values: PASS-THRU, SNAP, TRACK; the default value is Track

KEYBOARD PRIORITY:

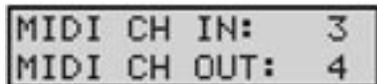


KEYBD PRIORITY
LOW NOTE

The Keyboard Priority menu allows you to select from 3 different types of keyboard priority. Keyboard priority for a monophonic instrument determines what happens when more than one key is pressed. A setting of LOW NOTE causes the lowest key pressed to sound, a setting of HIGH NOTE causes the highest key pressed to sound, and a setting of LAST NOTE causes the most recent key pressed to sound. To change the keyboard priority, use the CURSOR button to highlight the parameter, then use the VALUE knob to set the new parameter value.

Values: LOW NOTE, HIGH NOTE, LAST NOTE;
the default is LAST NOTE

MIDI CHANNELS IN AND OUT:

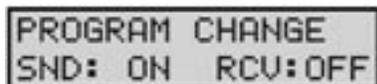


MIDI CH IN: 3
MIDI CH OUT: 4

This menu is used to select the LP's MIDI In and Out channels. The LP can only send and receive on one channel at a time, but each channel can be set independently. To change the MIDI channel, use the CURSOR button to highlight the desired parameter, then use the VALUE knob to select the new parameter value.

Values: OFF, 1 – 16;
the default values are 1 for both MIDI In and MIDI Out

PROGRAM CHANGE SEND/RECEIVE:



PROGRAM CHANGE
SND: ON RCV: OFF

This menu item is used to enable or disable the LP's transmission (SND) and reception (RCV) of MIDI program changes. To change the status of either parameter use the CURSOR button to highlight the parameter, then use the VALUE knob to set the new parameter value.

Values: ON, OFF;
the default values are ON for both SND and RCV

LOCAL CONTROL/FINETUNE:



Local Control is used to turn control of the synth engine ON or OFF locally, i.e. the keyboard, wheels, and any front panel controls that can also receive MIDI. It does not disable any MIDI transmitting or receiving. A setting of OFF will prevent double triggering in the event you are using a MIDI sequencer and have both IN and OUT connected, and the sequencer passes the IN through to the OUT.

The Tune parameter is used to enable or disable the **FINE TUNE** panel control (ON/OFF), or enable the AutoTune function (AUTO).

When the Tune parameter is set to ON, the **FINE TUNE** panel control works normally to tune the LP. In this mode, you can use the **VALUE** knob get very precise tuning control by moving the display cursor over to the numerical value and rotating the **VALUE** knob (the adjustment value is from -2048 to +2047, representing roughly +/- a third).

When the Tune parameter is set to OFF, the position of the **FINE TUNE** panel control is stored and the control itself is disabled. This feature prevents accidental bumping of the **FINE TUNE** panel control during performance.



NOTE: You can still adjust the tuning of the instrument using the **VALUE** knob in **TUNE: OFF** mode.



When the Tune parameter is set to AUTO, the AutoTune function is engaged and the display changes as shown. AutoTune works to keep the LP in tune by automatically making fine adjustments to the Fine Tuning CV.

When AutoTune is enabled, the display shows the actual value of the last note played is displayed in MIDI Note Number Cents (in the example shown here, '60.12' indicates MIDI note 60, and the actual measured value is 12 cents sharp). In AUTO mode, the LP will continually tune to this value. To adjust the note that you are tuning to, cursor over to the Note value in the display and use the **VALUE** knob for precise adjustments. Hitting another note on the keyboard will set that note as the new target for tuning. You can exit out this menu by hitting the **MASTER** or **PRESET** buttons, and the LP will remain in the AutoTune mode, maintaining the current tuning.

Values: Local Control - ON, OFF; the default is ON
Tune - ON, OFF, AUTO; the default is ON

LOCAL CONTROL/FINETUNE (con't):



NOTE: While you are in this menu with AutoTune enabled, the output of the LP will be muted (the **Output ON/OFF** button status will not change, however). The reason for muting the output is that AutoTune uses a special Calibration Preset tone which isn't very musical. The LP's output will remain muted as long as you stay in this menu, or until you disable AutoTune. If AutoTune is active when you leave the menu, it will remain active but will automatically unmute the output and disengage when you start playing. AutoTune has a special 'timeout' feature that waits about 30 seconds after you stop playing before engaging the AutoTune function in the background. If the AutoTune menu is displayed during this time, you will see it change:

AUTO ...

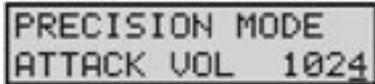
until the timeout is finished, at which point, the target note will reappear on the display:

AUTO 60.12

The LP will continue to autotune while you are playing until you disable it in the menu or switch off the power.

For more on the special Calibration Preset and a list of parameter values, see page 22.

PRECISION MODE:



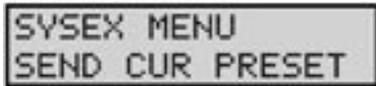
Precision Mode is a feature that allows precision editing of LP parameters using the **VALUE** knob. Each LP parameter stored has a value from zero to 4095. In Precision Mode that value is displayed on the second line on the screen.

To edit a parameter in Precision Mode, press the corresponding parameter button on the front panel (for example, Filter Cutoff). You will see that parameter name along with its value on the display. To edit with the **VALUE** knob, press the **CURSOR** button and rotate the **VALUE** knob. Each click of the **VALUE** knob results in a change of one value. Pressing the **VALUE** knob while simultaneously rotating it will change the value in increments of 10, allowing for faster editing.

Changes made to a preset in Precision Mode are part of the current Panel Active edited sound. To make these changes permanent, the preset must be stored. To exit Precision Mode, press the **MASTER** or **PANEL** button. The last edited parameter in Precision Mode will be remembered until it is changed in Precision Mode or the unit is powered down.

Values: The default parameter is Volume Attack

SYSEX MENU:



SYSEX (System Exclusive) is a set of commands to transmit and receive selected presets, bulk dumps and firmware transfers. For more information, see the SYSEX menu section (page 13).

SYSTEM UTILITIES:

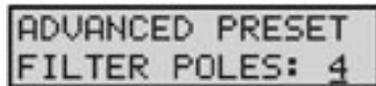


System Utilities is a set of commands used to issue an 'ALL NOTES OFF' system exclusive message, perform a system reboot, restore factory default values or perform various system calibrations on the instrument. For more information, see the System Utilities menus section (page 15).

Advanced Preset Menus

The Advanced Preset menu provides a set of additional programming parameters for each preset. These parameters are stored individually for each preset.

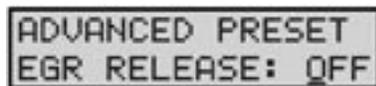
FILTER POLES:



This menu allows you choose the number of Filter Poles for the preset. The number of Filter Poles specifies the filter response, from a gentle 6db/octave (1 pole) to a steep 24db/octave (4 poles). To select the number of Filter Poles, use the **CURSOR** button to highlight the parameter; then use the **VALUE** knob to set the new parameter value.

Values: 1, 2, 3, 4

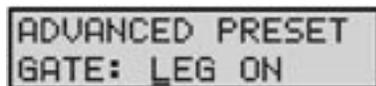
EGR RELEASE:



This menu allows you to turn the EGR Release parameter ON and OFF. EGR Release is used to enable or disable the Release segment of both the filter and volume envelopes. To change the status, use the **CURSOR** button to highlight the parameter; then use the **VALUE** knob to set the new parameter value.

Values: ON, OFF

GATE:



The Gate menu allows you to select how the envelopes are triggered when more than one key is pressed on the keyboard. A setting of LEGATO ON means that the envelopes aren't retriggered until the key is fully released. A setting of LEGATO OFF will retrigger the envelope on a new note from the current EGR level. A setting of EGR RESET will force the envelope generators to start from 0 volts each time a note is triggered. To change the Gate mode, use the **CURSOR** button to highlight the parameter; then use the **VALUE** knob to set the new parameter value.

Values: LEGATO ON, LEGATO OFF, EGR RESET

FILTER SENSITIVITY (FILT. SENS):

A screenshot of a digital display showing the text "ADVANCED PRESET" on the top line and "FILT SENS: +4" on the bottom line. The text is in a monospaced font and is centered within a rectangular frame.

The Filter Sensitivity menu allows you to select how the keyboard velocity will affect the filter cutoff frequency. Positive values increase the velocity sensitivity. This will raise the filter cutoff as the keys are struck harder, mimicking the properties of acoustic instruments. Negative values will have the opposite effect, lowering the filter cutoff frequency as the keys are struck harder. To change the parameter, use the **CURSOR** button to highlight the parameter, then use the **VALUE** knob to set the new parameter value.

Values: -8... 0... +8

MOD SOURCE 5 (MOD SRC 5):

A screenshot of a digital display showing the text "ADVANCED PRESET" on the top line and "MOD SRC 5: FILT" on the bottom line. The text is in a monospaced font and is centered within a rectangular frame.

This menu allows you to select one of two modulation options that will be used when the FILT ENV source is selected on the front panel (Modulation Source 5). The Filter Envelope (FILT) is the default source, but Sample & Hold (S-H) can be chosen as an alternate. To change the parameter, use the **CURSOR** button to highlight the parameter, then use the **VALUE** knob to set the new parameter value.

Values: FILT, S-H

MOD SOURCE 6 (MOD SRC 6):

A screenshot of a digital display showing the text "ADVANCED PRESET" on the top line and "MOD SRC 6: OSC2" on the bottom line. The text is in a monospaced font and is centered within a rectangular frame.

This menu allows you to select one of two modulation options that will be used when the OSC2 source is selected on the front panel (Modulation Source 6). Oscillator 2 (OSC2) is the default source, but Noise can be chosen as an alternate. To change the parameter, use the **CURSOR** button to highlight the parameter, then use the **VALUE** knob to set the new parameter value.

Values: OSC2, NOISE

PITCH WHEEL (PW):

A screenshot of a digital display showing the text "ADVANCED PRESET" on the top line and "PW UP: +3 DN: -2" on the bottom line. The text is in a monospaced font and is centered within a rectangular frame.

The Pitch Wheel menu allows you to individually set the positive and negative ranges for the Pitch Wheel. The settings are specified in semitones. To change either parameter, use the **CURSOR** button to highlight the parameter, then use the **VALUE** knob to select the new parameter value.

Values: UP: 0, +2, +3, +4, +5, +7, +12

DN: 0, -2, -3, -4, -5, -7, -12

POT MAPPING:



The Pot Mapping menu allows you to make arbitrary MIDI Continuous Controller (CC) assignments to each of the four Analog Edit knobs on the front panel (MOD, OSC, FILT, and EGR). Additionally, the four knobs can be individually programmed to provide internal, external, or combined MIDI control. Among its many possibilities, Pot Mapping allows you to 'reprogram' the four panel knobs to control any of the LP functions. For example, through Pot Mapping, you could reprogram the four panel knobs to simultaneously control four filter parameters such as Cutoff, Resonance, Overload and EG Amount.



To set up Pot Mapping, press the **CURSOR** button and use the **VALUE** knob to select the desired control knob (MOD, OSC, FILT, or EGR).



Press the **CURSOR** button again to move to the next field and select the desired MIDI CC parameter.



Press the **CURSOR** button once more to select whether the assignment applies to internal only (INT), external only (EXT) or BOTH. Pressing the **CURSOR** button again will return you back to the beginning.

Once programmed, Pot Mapping is enabled in a section by selecting the active parameter in that section. For example, suppose Pot Mapping is already setup for the Modulation knob to send MIDI CC#10. To activate Pot Mapping, you would press the button that is currently active (i.e. lit) in the Modulation section. The button will turn off (now no button in the Modulation group will be illuminated), and the Modulation knob will now send MIDI CC#10 information when it is rotated. To disable Pot Mapping in the Modulation section, simply press one of the buttons in that section, and the Modulation knob will return to its normal function.

Values: MIDI CC assignments: OFF, 0-127
Destination: INT, EXT, BOTH

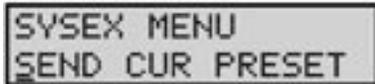


NOTE: When Pot Mapping is enabled for a given panel section, the mapping assignment overrides the normal CC assignments in that section. For example, in the Modulation section, the LFO Rate is transmitted as CC#03, and the Amount transmitted as CC #06. If you set up Pot Mapping in the Modulation section to send MIDI CC#10, the Modulation knob will exclusively transmit CC#10 when Pot Mapping is enabled, and not CC#03 or #06. When Pot Mapping is disabled, the Modulation knob will revert to sending the normal MIDI CC's #03 and #06.

C. SYSEX (System Exclusive) menus

SysEx menus are a set of commands to transmit and receive selected presets, bulk dumps and firmware dumps. To enable a SysEx menu, press the **CURSOR** button. This will highlight the menu options shown on the second line of the display. Once highlighted, use the **VALUE** knob to scroll through the menus. To activate a command, press the **ENTER** button.

SEND CURRENT PRESET:



A rectangular LCD display with a black border. The top line shows "SYSEX MENU" and the bottom line shows "SEND CUR PRESET".

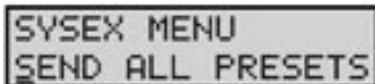
This option allows you to send the current preset (system exclusive data format) for archiving a preset in the LP's memory. This requires another LP or computer with a MIDI interface and a program that can accept a SysEx dump. You must enable the device that is to receive the SysEx data. Once the remote device is enabled, press **ENTER** to start the data transfer:



A rectangular LCD display with a black border. The top line shows "SENDING" and the bottom line shows "CUR PRESET".

When **ENTER** is pressed, the LCD will briefly display the 'SENDING CUR PRESET' message shown. When the operation is complete, the display will return to the SYSEX menu.

SEND ALL PRESETS:



A rectangular LCD display with a black border. The top line shows "SYSEX MENU" and the bottom line shows "SEND ALL PRESETS".

This option allows you to send the system exclusive data for archiving the complete bank of presets in the LP's memory. To complete this command, enable the device that is to receive the SysEx data. Once the remote SysEx device is enabled, press **ENTER** to start the data transfer:



A rectangular LCD display with a black border. The top line shows "SENDING" and the bottom line shows "ALL PRESETS".

When **ENTER** is pressed, the LCD will briefly display the 'SENDING ALL PRESETS' message shown and the **ENTER** button will stay lit until the data transfer is complete. When the operation has finished, the display will return to the SYSEX menu.

BULK DUMP:



A rectangular LCD display with a black border. The top line shows "SYSEX MENU" and the bottom line shows "SEND BULK DUMP".

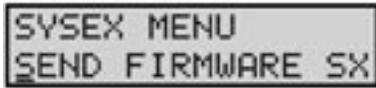
This option allows you to save the entire state of the LP (including all global data, performance set data and preset data) for later recovery. To execute a bulk dump, enable the device that is to receive the SysEx data. Once your remote SysEx device is enabled, press **ENTER** to start the data transfer:



A rectangular LCD display with a black border. The top line shows "SENDING" and the bottom line shows "BULK DUMP_".

When **ENTER** is pressed, the LCD will briefly display the 'SENDING BULK DATA' message shown and the **ENTER** button will stay lit until the data transfer is complete. When the operation has finished, the display will return to the SYSEX menu.

FIRMWARE DUMP



This option allows you to backup the operating system via SysEx data. To execute this command, enable the device that is to receive the SysEx data. Once you have enabled your remote SysEx device, press **ENTER** to start the data transfer.



When **ENTER** is pressed, the LCD will display the 'SENDING FIRMWARE SYSEX' message shown, and the **ENTER** button will stay lit until the SysEx transfer is complete. When the operation has finished, the display will return to the SYSEX menu.

Receiving SysEx Data

The LP is able to receive System Exclusive data at any time without any special prior setup. SysEx files are recognized and received automatically when a SysEx data transfer is initiated. The Little Phatty's LCD screen will display the status of SysEx data transfers as follows:

SINGLE PRESETS:



The LP will briefly display a 'RECEIVING SINGLE PRESET' message whenever a single preset is transmitted via SysEx. The preset will automatically be stored at the current preset location. For example, if the current preset location is 31 when the SysEx is received, the new preset data will be written into location 31.

ALL PRESETS:



The LP will display a 'RECEIVING ALL PRESETS' message when a bank of presets is transmitted. The transmitted bank will replace the current bank.

BULK DUMP:



The LP will display a 'RECEIVING BULK DUMP' message when a bulk dump is transmitted.

FIRMWARE UPDATES:



The LP will display a 'RX FIRMWARE' message when a firmware update is transmitted. Additional status messages may appear on the second line of the display as the transmission executes. After the firmware update is completed, the LP will automatically reset.

System Utilities menus

System Utilities provides a set of useful commands, including commands to send an “All Notes Off” message, perform an operating system reboot, restore factory default values and presets, and execute calibration of the LP’s electronics. To enable a System Utilities menu, press the **CURSOR** button. This will highlight the menu options shown on the second line of the display. Once highlighted, use the **VALUE** knob to scroll through the menus. To activate a command, press the **ENTER** button.

ALL NOTES OFF:

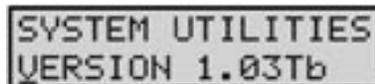


The first System Utilities option is 'ALL NOTES OFF'. This command issues an 'All Notes Off' message to the MIDI Output, shutting off all active notes and controllers. This command is the equivalent of a 'panic button' used to silence stuck notes or errant controllers. To issue this command, simply press the **ENTER** button. You do not have to enable the menu using the **CURSOR** button.



The LCD will briefly display an 'ALL NOTES OFF' message while the data command is transmitted. When complete, the screen will return to the System Utilities menu. To select other System Utilities options, press the **CURSOR** button, and then use the **VALUE** knob to scroll through the menus.

VERSION:

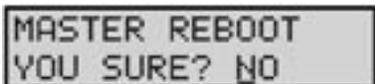


This menu displays the current operating system version.

MASTER REBOOT/RESET:



This menu allows you to perform a master reboot of the LP, similar to turning the power OFF and ON. To perform this action, press **ENTER**.



You will be asked to confirm this operation (Yes/No). If you are unsure, select NO and press **ENTER** to return to the System Utilities menu without any action. If you are sure, use the **VALUE** knob to change from NO to YES and press **ENTER**. This will reboot the system.

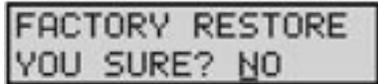
RESTORE FACTORY:



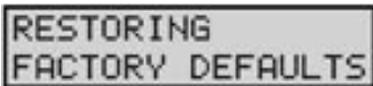
This menu allows you to restore the global default values, performance sets and all factory presets. When you are ready to execute this operation, press **ENTER** to activate.



NOTE: You should back up any presets you wish to save prior to performing this action.



You will be asked to confirm this operation (Yes/No). If you are unsure, select **NO** and press **ENTER** to return to the System Utilities menu without any action. If you are sure, use the **VALUE** knob to change from **NO** to **YES** and press **ENTER**. This will restore the factory default global values, performance presets and factory presets.



While the restore process is taking place, the LCD will briefly display a 'RESTORING FACTORY DEFAULTS' message. When complete, the screen will return to the System Utilities menu.



NOTE: After performing the Factory Restore operation you may wish to reload your presets. If the presets are from an earlier OS version (prior to v1.03), all of the new advanced preset parameters (some of which were formally global parameters) will be set to the following default values:

| | |
|--------------------------|--------------------|
| Filter Poles: | 4 |
| EGR Release: | ON |
| Gate (formerly Trigger): | LEGATO ON |
| Filter Sensitivity: | 0 |
| Modulation Source 5: | FILT |
| Modulation Source 6: | OSC2 |
| Pitch Wheel: | UP +2 DN -2 |
| Pot Mapping: | OFF (all channels) |

CALIBRATION:



In the past, calibration of analog synthesizers had to be performed manually by experienced service personnel. The LP's built-in calibration utilities now allow you to perform many of these procedures yourself, without the expense and hassle of shipping the LP back to the factory for calibration. The LP's calibration utilities allow you to perform individual calibrations on the pitch wheel, oscillators and note range. For example, the Note Calibration operation individually tunes each note exactly for each oscillator and octave setting. This tuning information is stored in the LP's EEPROM and referenced when playing a note to guarantee that the LP's oscillators will be in tune. Other calibrations ensure that variable controls such as the Pitch Wheel and Oscillator 2 tuning operate predictably and precisely.

To access the calibration options, press **ENTER**, then use the **VALUE** knob to select the desired calibration.



NOTE: All calibration procedures should be thoroughly reviewed before proceeding. Observe the following precautions and recommendations before attempting any calibration operation.

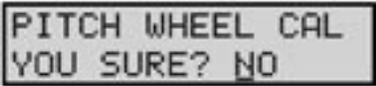
- a. The LP must be at a stable and constant temperature during calibration. You should allow the LP to warm up 30 minutes before beginning any calibrations.
- b. The Note Calibration procedure takes about two hours to cover the full MIDI note range. If you are performing this calibration, allow sufficient time for the calibration process to complete.
- c. The LP is calibrated at the factory. The Note Calibration operation is not necessary unless the LP goes out of tune. The Note Calibration overwrites the current calibration lookup table (LUT). Performing a Factory Restore operation will not cause the LUT to revert to the factory calibration.
- d. You should verify that the Pitch Wheel calibration (see page 18) is accurate prior to performing a Note Calibration. If the Pitch Wheel calibration is incorrect, the Note Calibration will be incorrect.
- e. You can exit out of a calibration at any time by pressing the MASTER button. For the Note Calibration operation, only those notes that have already been calibrated will be saved. The remaining notes will revert to their previous calibration values. Interrupting the Note Calibration operation in this manner may result in inaccurate tuning.
- f. Note Calibration is not meant for overall tuning drifts, such as if the LP is 10 cents sharp. Small tuning drifts are best taken care of using the AutoTune function (see the Local Mode/Tune menu, page 8).
- g. If you perform a Note Calibration, it is highly recommended that you also perform the Oscillator 2 Frequency Calibration to ensure accurate frequency tracking with the new LUT.

CALIBRATION (con't)

PITCH WHEEL:



This calibration option allows you to select Pitch Wheel calibration. This is a manual calibration that should only be performed if you are experiencing trouble with the pitch wheel and believe it needs recalibration. Press **ENTER** to access the Pitch Wheel calibration menu.



You will be asked if you wish to proceed. Use the **VALUE** knob to select YES or NO. If you are uncertain, or if you change your mind about performing this calibration, select NO and press **ENTER**. You will be returned to the System Utilities Calibration menu. Otherwise, select YES and press **ENTER**.



When Pitch Wheel calibration is enabled, the display appears as shown. The values displayed indicate the minimum, middle and maximum positions of the pitch wheel.

When you see this display, perform the following operations:

- 1.) Move the Pitch Wheel to the minimum position (all the way towards you). The left-hand number will go to some minimum value.
- 2.) Move the Pitch Wheel to the maximum position (all the way towards the panel). The right-hand number will go to some maximum value.
- 3.) Release the Pitch Wheel and let it snap back to the middle position. The middle number should settle around 2048 (+/-20).

This completes the Pitch Wheel calibration. To exit the calibration, press **ENTER** to return to the System Utilities Calibration menu or press **MASTER** to exit the calibration and return to the highest level of the System Utilities menu.



Note: If this calibration is done incorrectly, the Pitch Wheel will not operate normally and may not function at all. If this should this happen, try recalibrating the Pitch Wheel again using the procedure above.

CALIBRATION (con't)

NOTE CALIBRATION:

CALIBRATION
NOTE CALIBRATION

This calibration option allows you to select Note calibration. This calibrates individual notes exactly for each oscillator and octave setting. Press **ENTER** to access the Note calibration menu.

NOTE CALIBRATION
ST: 12 END: 124

The Note calibration menu will be displayed, allowing you to set the calibration range. The default note range is MIDI notes 12 - 124. For every one of these notes, the pitches are calibrated at each of the octave settings, from 16' to 2'. To change the range, use the **CURSOR** button to move to the start or end field, and use the **VALUE** knob to select the MIDI note value. Then press **ENTER**.



Note: A full calibration using the default note range (12 - 124) can take about two hours to complete. By specifying a narrower range of notes (for example, just the range of the LP keyboard without octave transpose [48-84], or with octave transpose [24-108]), you can shorten the calibration time.

RECALIBRATE?
YOU SURE? NO

You will be asked if you wish to proceed. Use the **VALUE** knob to select YES or NO. If you are uncertain or if you change your mind about performing this calibration, select NO and press **ENTER**. You will be returned to the System Utilities Calibration menu. Otherwise, select YES and press **ENTER**.

NOTE CAL: OSC:1
33 39755 32.01

Calibration will begin, and the display will appear as shown. The values displayed are the MIDI note number being calibrated, the calibration value (this is the value stored in the LP's EEPROM), and the actual measured note in MIDI Note Number Cents (in the example shown here, '32.01' indicates MIDI note 32 and the actual measured note is 01 cents sharp). Note calibration will proceed through the specified range of notes, tuning each note individually, first for oscillator 1 and then oscillator 2.



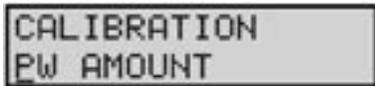
Note: You can exit out of Note calibration at any time by pressing the **MASTER** button. Only those notes that have been calibrated up to that point will be saved. The remaining notes will revert to their previous calibration values. Interrupting the Note Calibration operation in this manner may result in inaccurate tuning.

NOTE CALIBRATION
SUCCESSFUL!

When Note calibration is complete, the message 'SUCCESSFUL' will appear on the display and the new calibration values will be stored in the LP's EEPROM. To exit the calibration, press **ENTER** to return to the System Utilities Calibration menu or press **MASTER** to exit the calibration and return to the highest level of the System Utilities menu.

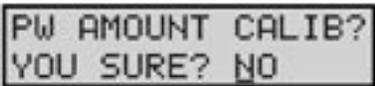
CALIBRATION (con't)

PITCH WHEEL AMOUNT:



CALIBRATION
PW AMOUNT

This option allows you to select Pitch Wheel Amount calibration. This calibrates the Pitch Wheel Amount parameter to precise semitone values (+/- 2, 3, 4, 5, 7 and 12). Press **ENTER** to access the Pitch Wheel Amount calibration menu.



PW AMOUNT CALIB?
YOU SURE? NO

You will be asked if you wish to proceed. Use the **VALUE** knob to select YES or NO, then press **ENTER**. If you are uncertain, or if you change your mind about performing this calibration, select NO and press **ENTER**. You will be returned to the System Utilities Calibration menu. Otherwise, select YES and press **ENTER**.



PW AMOUNT CALIB
+2 53115 62.36

Calibration will begin, and the display will appear as shown. The first number displayed is the amount of pitch bend being calibrated (in the example shown here, +2 means 'plus two semitones'). The second number is the calibration value (this is the value stored in the LP's EEPROM), and the third number is the actual measured note, which is displayed in MIDI Note Number Cents (in the example shown here, '62.36' indicates MIDI note 62, and the actual measured note is 36 cents sharp). All Pitch Amount calibrations are based on MIDI note 60, so for a calibration value of +2, the target note value is 62.00. As the calibration operation proceeds, the calibration values will increment first through all of the positive Pitch Wheel amounts (+2, +3, +4, +5, +7, +12) and then all of the negative Pitch Wheel amounts (-2, -3, -4, -5, -7, -12).



PW AMOUNT CALIB
SUCCESSFUL!

When the calibration is complete, the message 'SUCCESSFUL' will appear on the display and the new calibration values will be stored in the LP's EEPROM. To exit the calibration, press **ENTER** to return to the System Utilities Calibration menu or press **MASTER** to exit the calibration and return to the highest level of the System Utilities menu.

CALIBRATION (con't)

OSCILLATOR 2 FREQUENCY (OSC2 FREQ):

```
CALIBRATION
OSC2 FREQ
```

This option allows you to select OSC2 Frequency Calibration. This calibrates the **OSC2_FREQ** control so that turning the editing dial all the way CCW turns OSC2 down exactly a fifth (-7 semitones) and turning all the way CW turns OSC2 up exactly a fifth (+7 semitones). Press **ENTER** to access the OSC2 Frequency Calibration menu.

```
OSC2 FREQ CAL
YOU SURE? NO
```

You will be asked if you wish to proceed. Use the **VALUE** knob to select YES or NO. If you are uncertain, or if you change your mind about performing this calibration, select NO and press **ENTER**. You will be returned to the System Utilities Calibration menu. Otherwise, select YES and press **ENTER**.

```
OSC2 FREQ CAL
60 28552 64.37
```

Calibration will begin, and the display will appear as shown. The first number that appears on the display is the base note for calibration (MIDI note 60). The second number is the calibration value (this is the value stored in the LP's EEPROM), and the third number is the actual measured note, which is displayed in MIDI Note Number Cents (in the example shown here, '64.37' indicates MIDI note 64, and the actual measured value is 37 cents sharp). When calibration starts, the LP first tunes itself to the base note. As this happens, you will see the measured note value hone in on 60.00. Then the calibration value will change as the note climbs to 67.00, at which point it has calibrated the maximum value (+7 semitones), and then the note descends to 53.00 at which point it has calibrated the minimum value (-7 semitones).

```
OSC2 FREQ CAL
SUCCESSFUL!
```

When the calibration is complete, the message 'SUCCESSFUL' will appear on the display and the new calibration values will be stored in the LP's EEPROM. To exit the calibration, press **ENTER** to return to the System Utilities Calibration menu or press **MASTER** to exit the calibration and return to the highest level of the System Utilities menu.

EGR MATRIX:

```
SYSTEM UTILITIES
EGR MATRIX: ON
```

The last System Utilities menu is the EGR Matrix menu. This feature allows you to turn off the panel switches in the EGR section. Turning off these switches improves the signal-to-noise ratio of the Little Phatty. This may be useful in some applications such as recording using presets with low filter cutoff values or low oscillator level values. By disabling the EGR switches, real time editing of the Volume or Filter EGR settings may still be performed with Pot Mapped panel controls, or MIDI CCs.

Values: ON, OFF; the default is ON. The LP does not store this value after power down.

The Calibration Preset

The LP has a specific Calibration Preset that is stored in a non-volatile memory location labeled 'CA' (this preset location appears after preset 99). The Calibration Preset is a single-oscillator squarewave tone that plays Oscillator 1 at full level. This preset is used primarily for the LP's AutoTune function, but it can also be used for tuning the LP with an external tuner. Since the CA preset can be modified like any other preset, it's also useful as a default starting point for preset development. Note that the Calibration Preset cannot be saved to the CA memory location, but it can be saved to any other preset location (00-99).

The tables below list the default values of the Calibration Preset (bold text is used to indicate Precision Mode values).

| SECTION | PARAMETER | VALUE |
|--------------------|--------------|-------------|
| Modulation | LFO RATE | 0 |
| | AMOUNT | 0 |
| | SOURCE | SQUARE |
| | DESTINATION | WAVE |
| Oscillators | OSC 1 OCTAVE | 16' |
| | WAVE | 2048 |
| | OSC 1 LEVEL | 4095 |
| | GLIDE RATE | 1726 |
| | I-2 SYNC | OFF |
| | OCTAVE | 16' |
| | OSC 2 FREQ | 2048 |
| | WAVE | 2048 |
| | OSC 2 LEVEL | 0 |
| | Filter | CUTOFF |
| RESONANCE | | 0 |
| KB AMOUNT | | 2701 |
| EG AMOUNT | | 2048 |
| OVERLOAD | | 0 |
| Envelope Generator | ATTACK | 0 |
| | DECAY | 0 |
| | SUSTAIN | 2048 |
| | RELEASE | 0 |
| | ATTACK | 0 |
| | DECAY | 0 |
| | SUSTAIN | 4095 |
| | RELEASE | 0 |

| SECTION | PARAMETER | VALUE |
|----------------------------|--------------------|-----------|
| Advanced Preset Parameters | FILTER POLES | 4 |
| | EGR RELEASE | ON |
| | GATE | LEGATO ON |
| | FILTER SENSITIVITY | 0 |
| | MOD SOURCE 5 | FILT |
| | MOD SOURCE 6 | OSC2 |
| | PB UP/DN | +2 / -2 |