

KORG



WAVEDRUM

Dynamic Percussion Synthesizer
Synthétiseur Dynamique de Percussion

Global Edition

Parameter Guide

SONDIUS-XG

Contents

Parameter list	3	48 Snare (Wood) 14"x7.5"	18
Edit 1 (ε d i)	3	49 Snare (Wood) 12"x6"	18
Edit 2 (ε d 2)	5	50 Piccolo Snare (Brass) 13"x4"	18
Global (G L b)	6	Algorithm type 3	19
Single-size algorithm	8	33 Cajon 1	19
01 Udu	8	34 Djembe	19
02 Temple	8	35 Bass Drum+Snare Drum 1	19
03 WoodDrum	8	36 Bass Drum+Snare Drum 2	19
04 Analog	9	57 Cajon 2	19
05 Arimbao	9	58 Bass Drum+Snare Drum 3	19
06 Sawari-A	9	59 Bass Drum+Snare Drum 4	19
07 WindDrum	10	60 Bass Drum+Snare Drum 5	19
08 Triangle	10	Algorithm type 4	19
09 Water	10	37 Darabuka	19
10 BigHand	11	38 Darabuka ensemble	19
11 Steel ST	11	39 Darabuka Turkish	19
12 Mo'Daiko	11	40 Tar	19
13 Sawari-B	12	41 Daf	19
14 Tabla	12	42 Doyra	19
15 Gong1	13	54 Djembe (Fiber)	19
16 Wah Harp	13	55 Djembe (CowSkin Hi)	19
17 TalkDrum	14	56 Djembe (CowSkin Lo)	19
18 Jingle	14	Algorithm type 5	19
19 Bonga	14	43 Req	19
20 Koto	15	Algorithm type 6	20
21 Bamboo	15	44 Daf Iranian	20
22 JingDrum	15	45 Bendir	20
23 Don-Hya	16	Appendix	21
24 Mariko	16	Replacing the drum head	21
25 Upo	17	Tuning the drum head	21
26 1812	17	Calibration	22
Double-size algorithms	18	Error messages	23
Algorithm type 1	18		
27 Conga (Fiber)	18		
28 Bongo	18		
51 Quinto (Wood)	18		
52 Conga (Wood)	18		
53 Tumba (Wood)	18		
Algorithm type 2	18		
29 Snare Drum 1	18		
30 Snare Drum 2	18		
31 Snare Drum 3	18		
32 Timbales	18		
46 Snare (Z) 14"x6.5"	18		
47 Snare (Acrylic) 14"x6.5"	18		

Abbreviations for the manuals

In the documentation, references to the manuals are abbreviated as follows.

QS: Quick Start Guide

PG: Parameter Guide

Parameter list

Edit 1 (E d 1)

For more details on how to access parameters, refer to “Basic editing procedure” (See *QS page 8*).

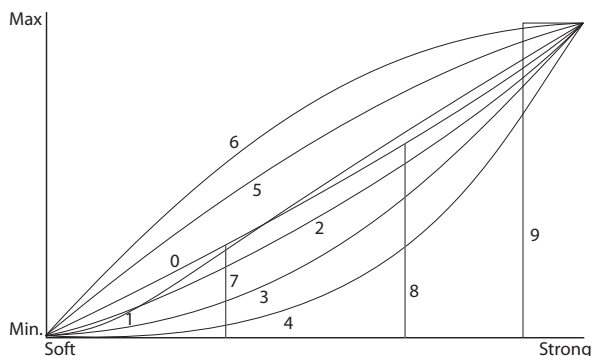
* In the list below, “**S**” and “**D**” indicate explanations for single-size and double-size algorithms respectively.

The available parameters will differ depending on whether Edit 1 mode 5. Algorithm Select (ALG) is set to a single-size algorithm 01...26 or a double-size algorithm 27...60. With the exception of 10. Reverb (REV) and 11. Delay (DLY), the items of Button 2–4 are shown as “- - -” and cannot be edited.

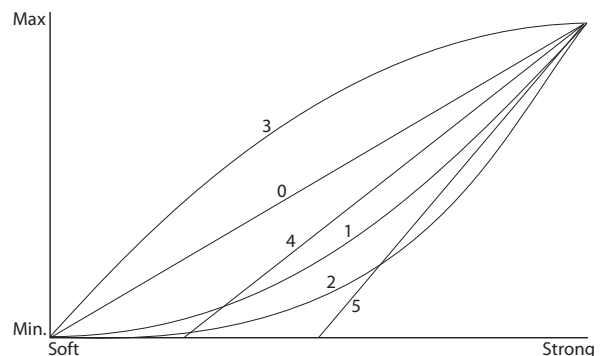
Page#. Parameter	Button 1	Button 2*	Button 3*	Button 4*
1. Tune (TUR)	hd.R 000...100 S *: Specifies the pitch of the head algorithm. D *: Specifies the pitch of the algorithm. (See <i>QS page 9</i>)	hd.P -24...24 S *: Specifies the pitch of the head PCM instrument in semitones (100 cents). The range is 4 octaves up or down. D *: ---	rn.R 000...100 S *: Specifies the pitch of the rim algorithm. (See <i>QS page 9</i>) D *: ---	rn.P -24...24 S *: Specifies the pitch of the rim PCM instrument in semitones (100 cents). The range is 4 octaves up or down. D *: ---
2. Decay (dcY)	hd.R 000...100 S *: Specifies the decay time for the sound of the head algorithm. D *: Specifies the decay time for the sound of the algorithm. (See <i>QS page 9</i>)	hd.P -99...99 S *: Specifies the decay time for the sound of the head PCM instrument. D *: ---	rn.R 000...100 S *: Specifies the decay time for the sound of the rim algorithm. (See <i>QS page 9</i>) D *: ---	rn.P -99...99 S *: Specifies the decay time for the sound of the rim PCM instrument. D *: ---
3. Level (LEU)	hd.R 000...100 S *: Specifies the volume of the head algorithm. D *: Specifies the volume of the algorithm.	hd.P 000...100 S *: Specifies the volume of the head PCM instrument. D *: ---	rn.R 000...100 S *: Specifies the volume of the rim algorithm. D *: ---	rn.P 000...100 S *: Specifies the volume of the rim PCM instrument. D *: ---
4. Pan (PDR)	hd.R L50...r50 S *: Specifies the pan of the head algorithm. L values place the sound to the left, r values to the right, and 00 places the sound in the center. D *: Specifies the pan of the algorithm.	hd.P L50...r50 S *: Specifies the pan of the head PCM instrument. D *: ---	rn.R L50...r50 S *: Specifies the pan of the rim algorithm. D *: ---	rn.P L50...r50 S *: Specifies the pan of the rim PCM instrument. D *: ---
5. Algorithm Select (ALG)	hd.R 01...60 Selects the algorithm. (See <i>PG pages 8, 18</i>) 01...26: Single-size algorithm for the head. 27...60: Double-size algorithm.	hd.P 001...200 S *: Selects the head PCM instrument. (See <i>QS page i</i>) D *: ---	rn.R 01...25 S *: Selects a single-size algorithm for the rim (See <i>PG page 8</i>). However 25 1812 cannot be selected. This can be selected only if a single-size algorithm is selected for the hd.R parameter at left. D *: ---	rn.P 001...200 S *: Selects the rim PCM instrument. (See <i>QS page i</i>) D *: ---
6. Velocity Curve (V. CR)	---	hd.P 0...9 S *: Selects a curve that determines how the volume or tone of the head PCM instrument will be affected by how strongly you strike the head. (See <i>diagram below</i> .) D *: ---	---	rn.P 0...9 S *: Selects a curve that determines how the volume or tone of the head PCM instrument will be affected by how strongly you strike the rim. (See <i>diagram below</i> .) D *: ---

Page#. Parameter	Button 1	Button 2*	Button 3*	Button 4*
7. Pressure Curve (P. [r)	h d. R 0...5 Selects a curve that determines how the volume or tone of the algorithm will be affected by pressure applied to the head. (See diagram below.)	h d. P 0...5 S*: Selects a curve that determines how the volume or tone of the head PCM instrument will be affected by pressure applied to the head. (See diagram below.) D*: ---	---	r n. P 0...5 S*: Selects a curve that determines how the volume or tone of the rim PCM instrument will be affected by pressure applied to the head. (See diagram below.) D*: ---
8. Pressure Tune (P. t n)	---	h d. P - 12...12 S*: Specifies how the pitch of the head PCM instrument will be affected by pressure applied to the head. This setting specifies the number of semitones (up to +/-1 octave) by which the pitch will change when the maximum pressure is applied. D*: ---	---	r n. P - 12...12 S*: Specifies how the pitch of the rim PCM instrument will be affected by pressure applied to the head. This setting specifies the number of semitones (up to +/-1 octave) by which the pitch will change when the maximum pressure is applied. D*: ---
9. Pressure Decay (P. d c)	---	h d. P - 50... 50 S*: Specifies how the decay time of the head PCM instrument will be affected by pressure applied to the head. This setting specifies the change produced when the maximum pressure is applied. D*: ---	---	r n. P - 50... 50 S*: Specifies how the decay time of the rim PCM instrument will be affected by pressure applied to the head. This setting specifies the change produced when the maximum pressure is applied. D*: ---
10. Reverb (r E b)	t y P 00...10 Selects the type of reverb. 00: Off, 01: Slap, 02: Spring1, 03: Spring2, 04: Plate, 05: Garage, 06: Chamber, 07: Canyon, 08: Room, 09: Studio, 10: Hall	b d L 000...100 Specifies the effect level.	d E P 00... 90 Specifies the reverb decay time.	H d P 000...100 Specifies the amount of high-frequency damping.
11. Delay (d L y)	t n 000... 200 Specifies the delay time in 0.01 second units, up to a maximum of 2 seconds.	b d L 000...100 Specifies the effect level.	F b 00... 99 Specifies the amount of feedback.	H d P 000...100 Specifies the amount of high-frequency damping.

6. Velocity curve diagram



7. Pressure curve diagram




Edit 2 (E d 2)

For more details on how to access parameters, refer to “Basic editing procedure” (See QS page 8).

* In the list below, “S” and “D” indicate explanations for single-size and double-size algorithms respectively. The

available parameters will differ depending on whether Edit 1 mode 5. Algorithm Select (ALG) is set to a single-size algorithm 01...26 or a double-size algorithm 27...60. Since the parameters differ depending on the algorithm, the range of available values will also differ. For details on the parameters and their ranges, please refer to the explanation of each algorithm.

Page#. Parameter	Button 1	Button 2	Button 3	Button 4
1. Pre EQ (E 9)	ε 9 P H - H... S - n	---	---	---
	<p>This lets you specify whether you’re using your hand or a stick to play the WAVEDRUM. For the rim, you can choose settings that are appropriate for performing by rubbing the notches. This setting uses the head EQ and rim amp to control the amount of input that is sent to the algorithm. Choose one of the following five combinations according to how you’re playing the WAVEDRUM. H - H : You’re using your hand to play both the head and the rim. H - S : You’re using your hand to play the head, and a stick to play the rim. S - S : You’re using a stick to play both the head and the rim. H - n : You’re using your hand to play the head, and the notches to play the rim. S - n : You’re using a stick to play the head, and the notches to play the rim.</p> <p> Be aware that if H - H is selected, striking the rim with a stick will produce a high volume.</p>			
2. Head Algorithm1 (H. 1 4)	h d 1 *	h d 2 *	h d 3 *	h d 4 *
	<p>S*: Edit parameters 1–4 of the head single-size algorithm. (See PG page 8) D*: Edit parameters 1–4 of the double-size algorithm. (See PG page 18)</p>			
3. Head Algorithm2 (H. 5 8)	h d 5 *	h d 6 *	h d 7 *	h d 8 *
	<p>S*: Edit parameters 5–8 of the head single-size algorithm. (See PG page 8) D*: Edit parameters 5–8 of the double-size algorithm. (See PG page 18)</p>			
4. Rim Algorithm1 (r. 1 4)	r n 1 *	r n 2 *	r n 3 *	r n 4 *
	<p>S*: Edit parameters 1–4 of the rim single-size algorithm. (See PG page 8) D*: ---</p>			
5. Rim Algorithm2 (r. 5 8)	r n 5 *	r n 6 *	r n 7 *	r n 8 *
	<p>S*: Edit parameters 5–8 of the rim single-size algorithm. (See PG page 8) D*: ---</p>			

Global (G L b)

For more details on how to access parameters, refer to “Basic editing procedure” (See QS page 8).

Page#. Parameter	Button 1	Button 2*	Button 3*	Button 4*
1. Common (C o n)	P a n L 50...r 50 Specifies the pan following the delay effect. L values place the sound to the left, r values to the right, and 00 places the sound in the center. (Default Value: 0)	A. I n 000...100 Specifies the AUX IN mix level. (Default Value: 0) (See PG page 7)	L o P 00 1...140 Selects the loop phrase that will be played. (Default Value: 117) (See PG page 7)	P L Y, o F F / 000...100 Plays the loop phrase. Play/off will alternate each time you press button 4. While playing, you can use the VALUE knob to adjust the volume. (Default Value: off/38) (See QS page i)
2. Head Calibration (H. c a)	L o 000...100 The input signal from the head is lowered in volume when it falls below a specified level. This parameter specifies the threshold level below which this will occur. (Default Value: 7) (See PG page 22).	S e n 000...100 Specifies the sensitivity of how your striking force on the head will affect the head PCM instrument or the PCM instrument of a double-size algorithm. (Default Value: 20)	---	---
3. Rim Calibration (r. c a)	L o 000...100 The input signal from the rim is lowered in volume when it falls below a specified level. This parameter specifies the threshold level below which this will occur. (Default Value: 7) (See PG page 22).	S e n 000...100 Specifies the sensitivity of how your striking force on the rim will affect the rim PCM instrument. (Default Value: 20)	---	---
4. Pressure Calibration (P. c a)	V a L 000...100 Indicates the current value of the pressure sensor. Apply pressure on the head, note the minimum and maximum readings, and adjust the P. L o and P. H. i settings if necessary. (See PG page 22).	P. L o 00...99 Specifies the minimum value that is detected as pressure applied to the head. (Default Value: 5)	P. H. i 00 1...100 Specifies the maximum value that is detected as pressure applied to the head. (Default Value: 100)	---
5. Option (O P t)	A. o F E n a / d, 5 Specifies the auto power-off setting. Enable (E n a) will enable auto power-off. The power will automatically turn off when no user input has been performed for four hours. Disable (d, 5) will disable auto power-off. (Default Value: Ena)	H. S e 000... 100 Adjusts the input sensitivity of the head. (Default Value: 50)	r. S e 000... 100 Adjusts the input sensitivity of the rim. (Default Value: 50)	O u L 000... 100 Adjusts the overall output level. (Default Value: 50)

Adjusting the volume of a device connected to the AUX IN connector

1. As described in the “Connecting audio devices” and “Turning the power on” sections (*See QS page 6*), connect your audio device to the WAVEDRUM’s AUX IN jack and turn on the power.
2. Hold down the BANK/MODE button and press button 4 to enter Global mode.
3. Press the BANK/MODE button (several times). The display will indicate C 0 n̄ (Common).
4. Press button 2 to make the display indicate R, ! n̄ and the value.
5. Use the controls of the connected audio device and the WAVEDRUM’s mix level to adjust the volume. Turn the VALUE knob to adjust the WAVEDRUM’s mix level.

note: We recommend that you raise the mix level of the AUX IN jack only when you’re using it. However if you are using it all the time, and would like to leave the mix level raised, you can save this setting. Press the WRITE button twice to save the setting. For more details on saving, refer to *QS page 9*.

Playing back a loop phrase

1. Hold down the BANK/MODE button and press button 4 to enter Global mode.
2. Press the BANK/MODE button (several times). The display will indicate C 0 n̄ (Common).
3. Press button 4. The loop phrase will sound. Each time you press the button, the status will alternate between start (P L Y) and stop (O F F).
4. To adjust the volume, turn the VALUE knob when button 4 is selected.
5. To switch the loop phrase, press button 3 to make the display indicate L 0 P, and turn the VALUE knob (*See Voice Name List*).
6. If you want to use a different program, hold down the BANK/MODE button and press button 1 to enter Live mode, and then switch the program. To stop playback, hold down the BANK/MODE button and press button 4 to enter Global mode, then press button 4 in the C 0 n̄ (Common) page.

note: You can’t change the playback speed of the loop phrase.

Single-size algorithm

Algorithm # Name
Tune (Default Value), Decay (Default Value)
Parameter#: Parameter Name Value Min...Max (Default Value)

01 Udu

This algorithm creates the sound of a ceramic pot being struck. When you strike near the center of the head, the sound will be as if you struck the mouth of the pot. The length of the resonance is controlled by the setting of Decay, and by the length of time your hand is in contact with the head. The pitch of the sound of the mouth being struck can be set by Tune, but if you press down on the head with a certain amount of pressure, it will sound as though the mouth of the pot has been closed, and the pitch will be one octave lower than the setting. By increasing and decreasing the pressure you apply, you can create vibrato-like effects. **Tune (18), Decay (76)**

hd1/rm1: Clang Pitch 000...100 (78)

This parameter adjusts the pitch of the “clang” produced by striking the side of a ceramic pot.

hd2/rm2: Clang Decay 000...100 (80)

This parameter adjusts the decay time of the sound produced by striking the side of the pot.

hd3/rm3: Clang Color 000...100 (87)

Higher settings of this parameter will result in a longer resonance after the side of the pot is struck, and also a more metallic sound with more overtones.

hd4/rm4: Clang Height 000...100 (13)

Increasing this value will increase the height of the pot.

hd5/rm5: Clang Width 000...100 (33)

Increasing this value will increase the diameter of the mouth of the pot.

hd6/rm6: Clang Level 000...100 (35)

This parameter adjusts the volume of the sound when struck.

hd7/rm7: Boom Level 000...100 (100)

This parameter adjusts the volume of the sound when the mouth of the pot is struck.

hd8/rm8: Clang Type 000...100 (80)

Increasing this value will increase the number of overtones, producing a more complex resonance. The amount of change will depend on the Clang Pitch value.

02 Temple

This algorithm produces the sound of a temple bell, but also allows you to create continuous changes in pitch by pressing the head. When you press even harder, you will hear a metallic noise. The pitch and decay of the overall sound can be adjusted using Tune and Decay, but the other parameters allow you to make detailed adjustments to the bell’s tone, the direction of pitch change (whether the pitch will rise or fall when you apply pressure). The parameters in this algorithm have an important and complex effect on each other. This means that modify-

ing the value of one parameter will change the way that the other parameters affect the sound. **Tune (50), Decay (97)**

hd1/rm1: Bell Color 000...100 (60)

As this value is increased the sound will become brighter, and as it is decreased the sound will become darker.

hd2/rm2: Harmonic Shift -50...50 (0)

This parameter makes the overtones change. Depending on the settings of Bell Color and Bell Type, the results of adjusting this parameter may differ greatly, from simple pitch changes to complex changes where the timbre itself changes dramatically.

hd3/rm3: Bell Type 000...100 (100)

As this value is increased, the pitch and overtones of the bell will change, resulting in a rougher sound. Depending on the settings of Bell Color and Harmonic Shift, it is also possible to create sounds similar to a bass guitar.

hd4/rm4: Bend Range 000...100 (74)

This parameter adjusts the amount and direction that the pitch will change when you press the head. Positive (+) settings of this parameter will cause the pitch to rise when you press the head. Negative (-) settings will cause the pitch to fall when you press the head.

hd5/rm5: Pressure Level 000...100 (55)

This parameter adjusts the level of the continuous noise that is heard when you press the head.

hd6/rm6: Bell Height 000...100 (20)

Increasing this value will change the height of the bell.

hd7/rm7: Bell Width 000...100 (32)

Increasing this value will change the diameter of the bell.

hd8/rm8: Bell Thickness 000...100 (75)

Increasing this value will increase the thickness of the bell.

03 WoodDrum

This algorithm creates a conga-like sound. Open shots will produce a ringing resonance, and slap shots or mutes can also be used to in the same way as on a conga drum. You can create effects similar to adjusting the resonance on an analog filter. Depending on the settings, you can create continuous oscillating sounds similar to an analog synthesizer that change in pitch when you press the head. **Tune (85), Decay (70)**

hd1/rm1: Wood Type 000...100 (48)

As this value is increased, the sound will have more overtones, a longer resonance, and a more metallic timbre. The result is similar to striking a PVC pipe.

hd2/rm2: Shell Decay 000...100 (76)

This parameter adjusts the time over which the shell body resonance will decay.

hd3/rm3: Shell Pitch 000...100 (95)

This parameter adjusts the pitch at which the shell resonates.

hd4/rm4: Shell Level 000...100 (62)

This parameter adjusts the volume level of the shell resonates.

hd5/rm5: Mute Cutoff 000...100 (2)

This parameter adjusts the center frequency of the resonance filter that is controlled by muting.

hd6/rm6: Mute Resonance 000...100 (9)

This parameter adjusts the amount of resonance of the filter that's used when you press the head. Depending on the settings of other parameters, you can create a continuous oscillation sound that changes pitch according to how the head is pressed.

hd7/rm7: Mute Pitch 000...100 (25)

This parameter adjusts the amount of change in the cutoff frequency of the filter that's used when you press the head. This parameter also affects the way that the pitch will change for the oscillation sound that occurs when you raise the *Mute Resonance* setting.

hd8/rm8: Velocity Curve 000...100 (0)

As this value is increased, you will have to play harder to make the drum sound. This parameter doesn't change the effect that occurs when you press the drumhead.

04 Analog

This algorithm creates a continuous sound similar to an analog synthesizer with two oscillators. The force used to strike the drum will affect the pitch difference between the two oscillators, or affect the cutoff frequency of the filter. The filter cutoff can also be changed by applying pressure to the head. **Tune (2), Decay (97)**

hd1/rm1: Filter Cutoff 000...100 (15)

This parameter adjusts the cutoff frequency of the low pass filter.

hd2/rm2: Resonance 000...100 (0)

This parameter adjusts the amount of resonance for the filter. Higher settings will produce a continuous oscillating tone.

hd3/rm3: Pitch EG Depth 000...100 (0)

This parameter adjusts the amount of pitch difference that will occur between the two oscillators each time you strike the drum. Higher settings will produce a chorus-type effect that adds depth each time you play.

hd4/rm4: Filter EG Depth 000...100 (100)

Adjust the amount of filter cutoff frequency change that occurs each time you strike the drum.

hd5/rm5: Pressure Resonance -50...50 (-25)

This parameter adjusts the range of change for the resonance filter that is affected by pressure applied to the head.

hd6/rm6: Filter EG Decay 000...100 (22)

This parameter adjusts how long it will take for the filter cutoff frequency to return to its original state after the initial attack that occurs each time that you strike the drum.

hd7/rm7: Mute Depth 000...100 (1)

This parameter adjusts the depth of the muting that occurs when you press the head.

hd8/rm8: Effects Level 000...100 (30)

As this value is increased, there will be a more pronounced stereo effect and the sound will become richer.

05 Arimbao

This algorithm produces the sound of a large double-headed drum. The sound consists of several different sounds; a clear marimba-like sound, the sound of two skins (front and rear) vibrating, and the sound of the drum body. The marimba-like sound will change in pitch depending on how hard the drum is struck. You can also create smooth changes in overall pitch by pressing the head. You can adjust the volume and tone for each of the component sounds. **Tune (70), Decay (61)**

hd1/rm1: Tone Pitch 000...100 (55)

This parameter adjusts the pitch of the marimba-like sound.

hd2/rm2: Tension Balance 000...100 (0)

Increasing this value will make the skin more unevenly tensioned.

hd3/rm3: Tone Level 000...100 (87)

This parameter adjusts the volume level of the marimba-like sound.

hd4/rm4: Drum Type 000...100 (26)

This parameter adjusts the overtones of the sound of the vibrating skin. As this value is increased, the pitch will fall and the timbre will become rougher.

hd5/rm5: Damping 000...100 (50)

As this value is decreased, the decay will become shorter, the overtones will change, and the result will sound like a drum being played while pressing the skin to mute it.

hd6/rm6: Bark Level 000...100 (12)

This parameter adjusts the level of the low body resonance.

hd7/rm7: Pitch Interval 000...100 (74)

This parameter adjusts the difference in pitch between the two skins (the striking head and the rear head).

hd8/rm8: Dry Level 000...100 (35)

This parameter adjusts the level of the direct sound of the head (or the rim) being struck.

06 Sawari-A

When the WAVEDRUM is struck normally, this algorithm produces the sound of an Indian drum, but if you press the head as you strike, a pair of *Tambura* drones will be added, positioned at stereo left and right. You can adjust various parameters (balance and tone etc.) of the drum and tambura. **Tune (50), Decay (56)**

hd1/rm1: Buzz Intensity 000...100 (21)

This parameter adjusts the intensity of the drone sound. Higher settings of this parameter result in a metallic sound with a short decay, and lower settings result in a duller sound with a long decay.

hd2/rm2: L-R Delay 000...100 (10)

This parameter adjusts the difference in time between when the two drone strings (pitched at the unison and the fifth) begin sounding. Increasing this value will delay the start of the fifth relative to the start of the unison.

hd3/rm3: Drone Pitch -50...50 (0)

This parameter adjusts the pitch of the drones in relation to the drum sound. With a setting of 0, the pitch of the drum and the left string will be identical, and the right string will be pitched a fifth above this. As the value of this parameter is increased in the positive (+) direction, the pitch of the left and right drones will rise. As the value is increased in the negative (-) direction, the pitch will fall.

hd4/rm4: Drone Decay 000...100 (100)

This parameter adjusts the decay time of the drones.

hd5/rm5: Drone Balance -50...50 (2)

This parameter adjusts the volume balance between the two drone strings. Positive (+) settings will make the unison-pitched string louder, and negative (-) settings will make the fifth louder.

hd6/rm6: Brightness 000...100 (37)

This parameter adjusts the tone of the drum. Higher settings will result in a metallic sound with a long decay, and lower settings will result in a darker sound with a short decay.

hd7/rm7: Drone Level 000...100 (76)

This parameter adjusts the volume level of the drones.

hd8/rm8: Drum Level 000...100 (100)

This parameter adjusts the volume level of the drum.

07 WindDrum

This algorithm produces a pitched sound similar to a *Baraphone* (an ethnic marimba of Africa) with the addition of a percussive noise sound. Each time you hit the instrument, a note of the scale is played at random. The level and timbre of the noise sound will change dramatically in response to the strength of your hits.

Tune will adjust the basic pitch in chromatic steps over the range of 39–70. With a setting of 50 the pitch will be C.

You can adjust the balance of the component sounds and select the scale to be used. **Tune (53), Decay (93)**

hd1/rm1: Fine Tuning 000...100 (50)

This parameter allows you to make fine adjustments over a range of a whole tone to the pitch set by ‘Tune’. When this parameter is defined to a value of 50, the pitch will be as set by the ‘Tune’ parameter.

hd2/rm2: Scale Select 0...7 (3)

This parameter allows you to select the scale to be played from eight types of scale 0–7. For details on the scales available, refer to “About the preset scales”.

(See PG page 17)

hd3/rm3: Balance -50...50 (30)

This parameter allows you to adjust the volume balance between the pitched sound and the noise sound. Positive (+) settings will make the pitched sound louder, and negative (-) settings will make the noise sound louder.

hd4/rm4: Tone Decay 000...100 (70)

This parameter adjusts the decay time for the pitched sound.

hd5/rm5: Interval 000...100 (10)

This parameter adjusts the pitch difference between the two pitched sounds.

hd6/rm6: Noise Filter 000...100 (10)

Adjust the amount of change for the resonance filter that is applied to the noise sound according to how hard you strike.

hd7/rm7: Noise Decay 000...100 (53)

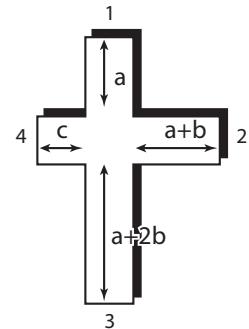
This parameter adjusts the decay time of the noise sound.

hd8/rm8: Noise Color 000...100 (46)

This parameter makes dramatic changes in the tonal character of the noise sound.

08 Triangle

This algorithm produces the sounds of small metal percussion; cowbells, agogo bells, triangles, etc. This algorithm uses the DSP to create a physical model of a cross-shaped metal vibrating body as shown in the following diagram.



You can adjust the length of the four arms (projections) and their thickness to create a variety of metallic sounds.

Tune (76), Decay (98)

hd1/rm1: Brightness 000...100 (99)

As this value is decreased, the resonance will become shorter and the pitch will become lower. The result will be similar to muting a triangle by holding it in your hand.

hd2/rm2: Pitch 1 000...100 (90)

In the physical model of the diagram above, this parameter sets the value of length a (the length of arm 1).

hd3/rm3: Pitch 2 000...100 (90)

In the physical model of the diagram above, this parameter sets the value of length b.

hd4/rm4: Pitch 3 000...100 (90)

This parameter sets the value of length c (the length of arm 4).

hd5/rm5: Metal Type 1 000...100 (8)

This parameter sets the thickness of arm 1.

hd6/rm6: Metal Type 2 000...100 (18)

This parameter sets the thickness of arm 2.

hd7/rm7: Metal Type 3 000...100 (24)

This parameter sets the thickness of arm 3.

hd8/rm8: Metal Type 4 000...100 (13)

This parameter sets the thickness of arm 4.

09 Water

This algorithm produces a drum sound where the pitch changes in a complex way like that of a talking drum, together with the sound of flowing water when you apply pressure to the head.

You can make adjustments to the pitch and timbre for each of the component sounds. **Tune (58), Decay (82)**

hd1/rm1: Pitch Change 000...100 (99)

This parameter adjusts the amount that the drum’s pitch will change.

hd2/rm2: Brightness 000...100 (32)

As this value is increased, the high frequencies of the drum sound will be emphasized, resulting in a more metallic sound.

hd3/rm3: Drum Type 1 000...100 (42)

This models a drum where the top and bottom diameters differ, like a djembe. Increasing this value will change the top diameter of the drum.

hd4/rm4: Drum Type 2 000...100 (82)

Increasing this value will change the bottom diameter of the drum.

hd5/rm5: Portamento 000...100 (80)

This parameter adjusts the amount of portamento that smoothly connects changes in the drum's pitch.

hd6/rm6: Pressure = Level 000...100 (90)

This parameter adjusts the volume of the water sound that is produced when you apply pressure to the head.

hd7/rm7: Water Pitch 000...100 (28)

This parameter adjusts the pitch of the sound of the water flowing inside the drum.

hd8/rm8: Water Strength 000...100 (63)

This parameter adjusts the force of the water flowing inside the drum.

10 BigHand

This algorithm produces a sound with an aggressive attack and a lingering resonance, similar to striking a metal oil drum. Hits on the edge of the head will produce a sharp and noisy slap sound.

You can get results similar to an analog filter being driven into an oscillator. Filter settings can be made to produce analog synthesizer-type oscillation sounds.

Tune (46), Decay (86)

hd1/rm1: Drum Type 000...100 (66)

This parameter creates complex changes in pitch and overtone structure.

hd2/rm2: Bass Tone Level 000...100 (98)

This parameter adjusts the level of the body resonance. As this value is increased, the low and long resonance will become louder.

hd3/rm3: Slap Level 000...100 (40)

This parameter adjusts the volume level of the slap sound.

hd4/rm4: Slap Decay 000...100 (80)

This parameter adjusts the time over which the slap sound will decay.

hd5/rm5: Slap Color 000...100 (37)

This parameter adjusts the tone color of the slap sound. As this value is increased, the sound will become more defined and similar to a snare drum.

hd6/rm6: Slap Filter 000...100 (86)

This parameter adjusts the cutoff frequency of the filter applied to the slap sound.

hd7/rm7: Slap Resonance 000...100 (55)

As this value is increased, an oscillation sound will be added to the slap sound that passes through the filter. The pitch of the oscillation is determined by the *Slap Filter* parameter.

hd8/rm8: Threshold 000...100 (25)

This parameter adjusts the point where stronger hits on the edge of the head will begin to produce a noisy slap sound.

11 Steel ST

This algorithm produces the sound of the *Berimbau*, a Brazilian instrument that consists of a hunting bow with a small gourd attached as a resonator, and played by tapping the bowstring with a stick. The pitch of the *Berimbau* can be varied by touching a stone to the string, and the tone can be varied by moving the opening of the gourd closer to or farther from the body of the musician. In this algorithm, these effects are produced by pressing the head.

You can adjust the amount that the pitch and tone will change, and set the force of pressure on the head for which the sound will change. **Tune (40), Decay (94)**

hd1/rm1: Brightness 000...100 (75)

As this value is increased, the sound will become more metallic with a longer resonance. As this value is decreased, the sound will have a shorter resonance, becoming similar to a muted string.

hd2/rm2: Pressure Pitch 000...100 (21)

This parameter adjusts the degree of how pressing the head will raise the pitch.

hd3/rm3: Pressure Color 000...100 (6)

As this value is increased, the sound will become lighter and brighter. As this value is decreased, the sound will become deeper and darker. This parameter acts like changing the size of the resonator (gourd).

hd4/rm4: Pressure Range -50...50 (15)

This parameter adjusts the direction and width of the frequency range where the filter will sweep.

hd5/rm5: Threshold 000...100 (50)

This parameter adjusts the force of pressure on the head where the pitch will begin to rise.

hd6/rm6: Balance -50...50 (10)

This parameter adjusts the balance between the wah sound from the filter and the unfiltered sound. Positive (+) settings will make the wah sound louder, and negative (-) settings will make the unfiltered sound louder.

hd7/rm7: Wah Depth 000...100 (59)

This parameter adjusts the depth of the wah effect that occurs when you press the head. As this value is lowered, the wah will be applied stronger.

hd8/rm8: Gauge 000...100 (82)

This parameter adjusts the thickness of the string.

12 Mo'Daiko

This algorithm produces the sound of a taiko drum with vibrato applied. Applying pressure to the head will vary the drum's pitch and decay.

You can adjust the speed and depth of the drum's vibrato, and adjust the degree of pitch change. **Tune (80), Decay (87)**

hd1/rm1: Drum Type 000...100 (94)

As this value is increased, the pitch of the drum sound will fall, and deeper vibrato will be applied.

hd2/rm2: Pitch EG Depth 000...100 (18)

This parameter adjusts the amount of how the drum's pitch will be affected by the force of your strike each time you strike drum. Values of 000–010 will make the pitch fall, and values of 011–100 will make the pitch rise.

hd3/rm3: LFO Rate 000...100 (12)

This parameter adjusts the speed of the vibrato applied to the drum sound.

hd4/rm4: LFO Depth 000...100 (25)

This parameter adjusts the depth of the vibrato applied to the drum sound.

hd5/rm5: Damping 000...100 (52)

Decreasing this value will produce a shorter resonance with a muffled feel.

hd6/rm6: Pressure Pitch 000...100 (100)

This parameter adjusts how the amount of pressure that's the amount by which pressure applied to the head will change the pitch.

hd7/rm7: Resonance Sweep 000...100 (10)

This parameter adjusts how much the resonance will be swept according to how hard you strike.

hd8/rm8: Mute Depth 000...100 (100)

This parameter adjusts how much muting will occur when you apply pressure to the head.

13 Sawari–B

This algorithm produces the sounds of two string instruments used in Indian music: the *Sitar* and the *Tambura*. The sitar is a melodic instrument with many sympathetic strings. The tambura on the other hand plays a drone with an unchanging pitch. Both instruments are designed so that the vibrating string comes in contact with a rounded bridge, adding a characteristic buzz to the sound.

When the WAVEDRUM is played normally, only the tambura will sound, and when you press the head the sitar will be heard as well. By pressing harder, you can smoothly control the pitch of the sitar. By applying additional pressure you can vary the sitar's pitch either smoothly or within a specified scale.

You can adjust the amount of buzz, and adjust the tone color of the sitar and tambura, etc. **Tune (50), Decay (96)**

hd1/rm1: Bend Range 000...100 (48)

This parameter adjusts how much the pitch of the sitar will change when you press the head. This parameter is valid if the Bend/Scale Select setting is 0.

hd2/rm2: Decay Balance –50...50 (0)

This parameter adjusts the balance of the length of time that the sitar and tambura will sustain. Negative (-) settings will cause the sitar to have a longer decay, and positive (+) settings will cause the tambura to have a longer decay.

hd3/rm3: Level Balance –50...50 (0)

This parameter adjusts the volume balance of the sitar and tambura. Negative (-) settings will cause the sitar to be louder, and positive (+) settings will cause the tambura to be louder.

hd4/rm4: Top Color 000...100 (89)

This parameter adjusts the tone color of the sitar. Higher settings will produce a longer-sustaining and brighter sound.

hd5/rm5: Drone Color 000...100 (89)

This parameter adjusts the tone color of the tambura. Higher settings will produce a longer-sustaining and brighter sound.

hd6/rm6: Buzz Intensity 000...100 (20)

This parameter adjusts the intensity of the buzz.

hd7/rm7: Scale Select 0...6 (3)

If you're varying the sitar's pitch within a scale, this specifies one of seven scales (0–6) where the pitch will change in response to pressure on the head. This parameter is valid if the Bend/Scale Select setting is 1. For details on each scale, please refer to the "About the pre-set scales" section. (See PG page 17)

hd8/rm8: Bend/Scale Select 0...1 (1)

This parameter allows you to select whether the sitar's pitch will change continuously or within a specified scale when you apply pressure to the head. The pitch change will occur continuously if this is set to 0, or within a scale if this is set to 1.

14 Tabla

This algorithm produces the sounds of two drums used in Indian music; the *Tabla* and the *Baya*. The tabla is a cylindrical drum made of wood, and the baya is pot-shaped or nearly spherical and made of copper or brass. Both instruments have heads covered with two layers of goatskin, and are played in pairs. Performance techniques can create a diverse range of sounds, but the various types of sounds are called by different names in different schools or systems of music.

The characteristic sound of the tabla is produced by using the fingers to mute one area of the skin as the head is struck, so that the two layers of skin vibrate and buzz against each other, producing a unique pitched sound that is neither like a human voice nor a string instrument. This sound is called *na* (or other names).

The characteristic sound of the baya is produced by using the wrist to press the skin while the fingertips strike the skin. Complex changes in the pitch of the resonant decay can be created by moving the wrist to vary the pressure on the skin. This sound is called *ge* (or other names).

In this algorithm, the outer part of the head plays *na* and the center of the head plays *ge*. **Tune (47), Decay (89)**

hd1/rm1: Baya Pitch 000...100 (66)

This parameter adjusts the pitch of the *ge* sound.

hd2/rm2: Baya Level 000...100 (100)

This parameter adjusts the volume of the *ge* sound.

hd3/rm3: Baya Decay 000...100 (61)

This parameter adjusts the decay time of the *ge* sound.

hd4/rm4: Bend Curve 000...100 (58)

This parameter adjusts the way that the pitch of the ge sound will change when you apply pressure to the head. Increasing this value will allow the pitch to change in response to minimal pressure.

hd5/rm5: Damping 000...100 (46)

Decreasing this value will produce a shorter resonance with a muffled feel.

hd6/rm6: Shell Pitch 000...100 (37)

This parameter adjusts the pitch of the short and light sound (close to the tabla sound known as *te*) that is produced when you strike the outer part of the head while pressing the head strongly to mute it.

hd7/rm7: Shell Damping 000...100 (56)

This parameter adjusts the tone color of the *te* sound. As this value is decreased, the sound will become lighter and more metallic.

hd8/rm8: Shell Decay 000...100 (44)

Increasing this value will lengthen the decay of the body resonance.

15 Gong1

This algorithm creates various types of metal percussion sounds such as gongs, that have relatively slow attacks and sometimes produce rough low tones accompanied by oscillation. Pressing on the head will mute the resonant decay.

These sounds are created by passing a source sound through several virtual resonators simulated by the DSP, thus creating a sound with a complex overtone structure. This sound is then sent through a filter controlled by an LFO to create beating effects.

The sound can be controlled in a wide variety of ways, and you can create bells or even various metallic creaks or scraping sounds.

Tune (39), Decay (95)

hd1/rm1: Gong Color 000...100 (41)

This parameter adjusts the tone color of the original sound that is distributed to the virtual resonator.

hd2/rm2: LFO Depth -50...50 (-5)

This parameter adjusts the depth of change that is applied to the filter by the LFO.

hd3/rm3: LFO Rate 000...100 (4)

This parameter adjusts the speed of the LFO that creates the beating effect.

hd4/rm4: Damping 000...100 (4)

As this value is increased, the sound will become tighter and have a shorter decay.

hd5/rm5: Gong Type 000...100 (7)

As this value is increased, the sound will become noisier and sharper, with more high frequency clashing.

hd6/rm6: Harmonic Shift 000...100 (90)

This parameter adjusts the pitch differences between the various resonating bodies. As this value is increased, the pitch and overtone structure will change in complex ways.

hd7/rm7: Thickness 000...100 (7)

As this value is increased, the sound will become lighter with a more pronounced high range. As this value is decreased, the sound will become heavier and have more emphasis in the low range. The effect is similar to changing the thickness of a gong.

hd8/rm8: Model Select 0...7 (0)

This parameter allows you to select one of eight types (0–7) of gong as the source for the sound.

16 Wah Harp

This algorithm produces the sound of mouth harps such as the Jew's Harp, the Brummeisen of Austria, or the Mukkuri of the Ainu people of Japan. The wah effect created by the filter produces unique tones with dramatic changes in overtone structure. Pressing the head with your hand will produce large and dynamic wah effects.

This effect is especially suitable when applied to the sound of the struck rim, which is rich in overtones. While striking the rim or scraping the notches on the edge of the rim, apply pressure to the head to produce dramatic sounds.

You can adjust the wah effect's strength and frequency width.

Tune (54), Decay (90)

hd1/rm1: Damping 000...100 (68)

This parameter adjusts the sound of the muted string. Decreasing this value will produce a more muted sound.

hd2/rm2: Wah Color 000...100 (16)

This parameter adjusts the center frequency of the filter that moves when the wah effect is applied.

hd3/rm3: String Character 000...100 (27)

This parameter adjusts the character of the string sound. Decreasing this value will make the string sound more muffled.

hd4/rm4: Wah Balance 000...100 (50)

This parameter adjusts the amount of wah effect that is applied. Increasing this value will produce a wah effect.

hd5/rm5: LoDamp 000...100 (72)

Increasing this value will cut the low-frequency component of the string.

hd6/rm6: Attack Level 000...100 (30)

Increasing this value will increase the sound of the attack.

hd7/rm7: Attack LoDamp 000...100 (78)

Increasing this value will cut the low-frequency component of the attack sound.

hd8/rm8: Bend Range -50...50 (25)

This parameter adjusts how the pitch will change in response to the strength of the strike.

17 TalkDrum

This algorithm produces the sound of an African ethnic instrument; the *Talking Drum*. By pressing the head lacing strings on this drum to change the tension of the skin, dramatic pitch bending effects can be achieved.

In this algorithm, pressure on the head will produce similar pitch bending effects. You can independently adjust the tone color of the sounds when the head is pressed and when not pressed, and adjust the level of the rim sound.

Tune (26), Decay (78)

hd1/rm1: Bend Range 000...100 (68)

This parameter adjusts the amount that the pitch will rise when the head is pressed.

hd2/rm2: Brightness 1 000...100 (15)

This parameter adjusts the tone color of the sound when the head is not pressed. As this value is increased, the sound will be rougher and have more overtones.

hd3/rm3: Brightness 2 000...100 (45)

This parameter adjusts the tone color of the sound when the head is pressed. As this value is increased, the sound will be rougher and have more overtones.

hd4/rm4: Decay Interval 000...100 (40)

This parameter adjusts the difference in decay time between the sound when the head is pressed and the sound when the head is not pressed. For high settings of this value, the decay will be shorter when the head is not pressed.

hd5/rm5: Tension 000...100 (80)

As this value is decreased, the sound will change as if the skin of the drum were looser. This parameter produces the effect of reducing the tension.

hd6/rm6: Drum Type 000...100 (90)

This parameter modifies the pitch and overtones in a complex way.

hd7/rm7: Attack 000...100 (51)

Increasing this value will emphasize the attack sound.

hd8/rm8: Pressure Filter 000...100 (20)

Adjust the way in which pressure applied to the head will open the filter.

18 Jingle

This algorithm produces the sound of an instrument with many small bells (jingles), such as a rattle or turkish crescent. The pitch of the jingles can be raised or lowered by pressing the head.

Decay adjusts the time length that the jingles are shaken. You can make various adjustments such as the tone color of the jingles, etc.

Tune (55), Decay (20)

hd1/rm1: Jingle Type 000...100 (99)

Lower settings of this parameter will produce the sound of two or three small bells jingling freely. Higher settings will produce the sound of a large number of small bells packed more tightly against each other to dampen the decay.

hd2/rm2: Jingle Size -50...50 (-2)

This parameter allows major adjustments in the size of the jingle sound. Negative (-) settings will result in a muffled sound as if the bell was muted by being grasped

in the hand. Positive (+) settings will let the sound expand, changing to a sound similar to a wall clock striking the hour.

hd3/rm3: Repeat 000...100 (89)

This parameter allows you to set the length of time that the jingle will sound.

hd4/rm4: Bell Decay 000...100 (83)

This parameter adjusts the overall decay time of the individual bells. When this value is increased, each bell will have a longer decay time, and the result will be a continuous sound like high notes on an organ.

hd5/rm5: Brightness 000...100 (100)

When this value is reduced, the metallic resonance will disappear from the bells, resulting in a sound like a shaker or cabasa.

hd6/rm6: Pressure Decay -50...50 (32)

This parameter adjusts the degree to which pressure applied to the head will affect the decay of the jingle.

hd7/rm7: Pressure Pitch -50...50 (0)

This parameter adjusts how the amount of pressure that's applied to the head will raise the pitch of the jingle.

hd8/rm8: Model Select 0...2 (0)

This parameter allows you to set the material of the jingle to one of three (0-2) types.

19 Bonga

This algorithm creates the sound of a barrel-shaped or tub-shaped drum, such as a bongo or conga. You can use the same playing techniques (open shots, slap shots, mutes, etc.) as on a conga.

You can make detailed adjustments to the tone color etc. of the mute sound and slap sound.

Tune (73), Decay (43)

hd1/rm1: Shell Size 000...100 (16)

This parameter adjusts the pitch of the body resonance heard during the attack.

hd2/rm2: Shell Damp 000...100 (41)

This parameter adjusts the overtone components of the body resonance heard during the attack.

hd3/rm3: Sub Harmonics 000...100 (2)

This parameter adjusts the low frequency range of the sound. As this value is increased, the sound will become lighter and harder, with less low frequency sound.

hd4/rm4: Brightness 000...100 (45)

As this value is increased, the high frequencies will be extended and the sound will become more piercing.

hd5/rm5: Drum Size 000...100 (66)

As this value is increased, the pitch will become lower and the sound will become rougher. The effect is similar to changing the size of the drum.

hd6/rm6: Slap Level 000...100 (80)

This parameter adjusts the level of the buzzing sound added to slap shots.

hd7/rm7: Slap Decay 000...100 (1)

This parameter adjusts the decay time of the slap sound.

hd8/rm8: Slap Color 000...100 (21)

This parameter adjusts the tone color of the slap sound. As this value is increased, the buzzing will be emphasized, and the sound will become sharper.

20 Koto

This algorithm produces the sound of the Japanese Koto. Each time you strike, a random note of a Japanese scale will sound. By pressing the head, you can simulate the upward pitch bends produced by pressing the string.

Tune will adjust the basic pitch in chromatic steps over a range of 45–62. With a setting of 50, the pitch will be *C*.

You can adjust the location of the pluck, and specify the range of strings that will be used. **Tune (50), Decay (78)**

hd1/rm1: Fine Tune -50...50 (0)

Make fine adjustments in a whole-tone range to the pitch set by *Tune*. When this value is 50, the pitch will be the value set by *Tune*.

hd2/rm2: Pluck Position -50...50 (47)

This parameter specifies the location on the string where the pluck will occur. When this value is 0, the pluck will occur at 1/2 of the vibrating length of the string; i.e., in the middle. Negative (-) settings will move the pluck toward the movable bridge. Positive (+) settings will move the pluck toward the fixed bridge. Moving the pluck all the way toward either end will cause the sound to resemble the bridge on that side.

hd3/rm3: Damping 000...100 (25)

As this value is increased, the decay will become shorter, and the tone color will also change, producing a muted effect.

hd4/rm4: String Type 1 000...100 (22)

This parameter modifies the overtones of the string between the fixed bridge and the movable bridge on the side where the string is plucked. As this value is increased, the sound will become more metallic, approaching the sound of a square wave on a synthesizer.

hd5/rm5: String Type 2 000...100 (0)

This parameter modifies the overtones of the string between the fixed bridge and the movable bridge on the side where the string is note plucked. The effect is the same as *String Type 1*.

hd6/rm6: Plucked Noise 000...100 (30)

This parameter adjusts the level of noise that occurs when the string is plucked.

hd7/rm7: Bottom String 0...12 (3)

This parameter specifies the lowest of the 13 strings that will be used, counting from the lowest upward. With a setting of 00, strings are available for use all the way down to the lowest string. With a setting of 12 only the highest string will be available.

hd8/rm8: String Range 0...12 (7)

Specify the number of strings that will be used, starting with the specified Bottom String.

21 Bamboo

This algorithm produces a bamboo percussion sound that can be used like a marimba. When you strike with a certain range of force, differences in striking force within that range will play different notes within an octave of the selected scale, allowing you to play phrases.

Tune adjusts the basic pitch in chromatic steps over a range of 26–69. With a setting of 50, the pitch will be *C*.

You can select the type of scale and specify the range of striking force that corresponds to the octave of notes in the scale. **Tune (50), Decay (90)**

hd1/rm1: Fine Tune -50...50 (0)

This parameter allows you to make fine adjustments to the pitch specified by *Tune*, within the range of one whole tone. When this value is set to 50, the pitch will be as set by the *Tune*.

hd2/rm2: Accent Level 000...100 (35)

This parameter adjusts the volume level of the unpitched accent.

hd3/rm3: Velocity Range 000...100 (15)

This parameter adjusts the striking force that will produce the note assigned to the strongest strike. (This will be the highest note when *Sequence Type* = 0, and the lowest note when *Sequence Type* = 1.)

hd4/rm4: 2nd Pitch -50...50 (0)

This parameter adjusts the pitch of the second partial within a range of +/- one fifth.

hd5/rm5: Pressure Pitch -50...50 (0)

This parameter adjusts the amount of pitch change that occurs when you apply pressure to the head.

hd6/rm6: Pressure Range -50...50 (24)

This parameter adjusts the degree of force that will be used to apply muting when the head is pressed.

hd7/rm7: Scale Select 0...7 (4)

This parameter allows you to select one of the eight types of scale (0–7). For details on the available scales, refer to the “About the preset scales” section. (See PG page 17)

hd8/rm8: Sequence Type 0...2 (0)

This parameter allows you to specify how changes in striking force will correspond to notes in the scale. 0: Stronger strikes will play higher notes. 1: Stronger strikes will play lower notes. 2: Striking force will have no effect on note pitch. (Notes in the scale will be played randomly.)

22 JingDrum

This algorithm produces the sound of a drum with jingling bells attached. When you strike the head, the jingling bells will sound together with the drum. Pressing the head will raise the pitch of the drum.

Both *Tune* and *Decay* affect only the drum sound.

You can make major changes in the pitch and tone color of the drum and bells. **Tune (74), Decay (74)**

hd1/rm1: Jingle Level 000...100 (42)

This parameter adjusts the volume level of the jingle.

hd2/rm2: Drum Level 000...100 (100)

This parameter adjusts the volume level of the drum sound.

hd3/rm3: Brightness 1 000...100 (34)

This parameter allows you to modify the tone color of the drum sound. As this value is increased, the sound will become more metallic with more sustain, like a guitar.

hd4/rm4: Drum Width 000...100 (90)

As this value is increased the pitch of the drum sound will become lower and the overtones will also change, producing a rougher sound. The effect is similar to greatly loosening the skin of the drum.

hd5/rm5: Pressure Decay -50...50 (50)

This parameter adjusts the decay time according to the amount of pressure that is applied to the head.

hd6/rm6: Jingle Pitch 000...100 (39)

This parameter adjusts the pitch of the bell sound.

hd7/rm7: Jingle Decay 000...100 (47)

This parameter adjusts the decay time of the bell sound.

hd8/rm8: Brightness 2 000...100 (100)

As this value is increased, the metallic resonance will disappear from the bell sound, resulting in a sound like a shaker or cabasa.

23 Don-Hya

Each time you strike, four drum notes will sound in succession. Soft strikes will produce four notes of the same pitch, but stronger strikes will cause the pitch of each note to change, and since the pitch of each note is smoothly connected by portamento, the result will be a complex, undulating phrase. In addition, you can press the head to produce a sustaining noisy sound that smoothly changes in pitch and tone color.

Tune affects only the drum sound.

You can specify the rhythm pattern, and make various adjustments to the tone color of the drum sound and metallic sound. **Tune (70), Decay (84)**

hd1/rm1: Seq. Note Volume 000...100 (50)

This parameter adjusts the volume level of the muted notes in the pattern selected by 'Motif Select'.

hd2/rm2: Motif Select 0...7 (7)

Of the four consecutive drum notes, you can select one of eight (0-7) types of muting patterns for the three notes following the initial strike. Since the Seq. Note Volume parameter allows you to set the volume of muted notes, you can create rhythm patterns by making the muted notes softer than unmuted notes. Select one of the following patterns of muted notes. (A dot indicates a muted note, and an x indicates no mute.)

0 =  1 =  2 = 

3 =  4 =  5 = 

6 =  7 = 

hd3/rm3: Delay Time 000...100 (20)

This parameter adjusts the delay time (tempo) of the three delayed notes.

hd4/rm4: Portamento 000...100 (69)

This parameter adjusts the amount of portamento that connects each drum note.

hd5/rm5: Brightness 000...100 (38)

This parameter adjusts the tone color of the drum sound. As this value is increased the sound will become more metallic and have a longer resonance.

hd6/rm6: Noise-Color 000...100 (40)

This parameter adjusts the color of the noise that is heard when you apply pressure to the head. Increasing this value will produce an aggressive sound with a boosted high-frequency range.

hd7/rm7: Noise-Level 000...100 (62)

This parameter adjusts the volume of noise that is heard when you apply pressure to the head.

hd8/rm8: Pitch Interval 000...100 (100)

This parameter adjusts how much the drum sound's pitch will change randomly.

24 Mariko

This algorithm produces a normal tom-type drum sound. In addition, striking the outer area of the head will produce marimba-like wood percussion sounds that will have different pitches in response to the force of your strike. In addition to this, striking the rim will produce a high sound with a short decay, similar to a xylophone or glass percussion.

Tune adjusts the pitch of the drum sound. You can adjust the pitch and volume of the marimba sound, etc.

Tune (53), Decay (78)

hd1/rm1: Tone Pitch 000...100 (14)

This parameter adjusts the standard pitch of the marimba sound that plays when you strike the outer area of the head.

hd2/rm2: Pitch Response 000...100 (100)

This parameter adjusts how much the force of your strike will change the pitch.

hd3/rm3: Pressure Pitch 000...100 (40)

This parameter adjusts how much the amount of pressure that's applied to the head will raise the pitch.

hd4/rm4: Tone Level 000...100 (100)

This parameter adjusts the volume level of the marimba sound.

hd5/rm5: Resonance Balance 000...100 (70)

This parameter adjusts how much the marimba sound resonates with the drum shell.

hd6/rm6: Brightness 000...100 (19)

When this value is increased, the sound will become brighter with an overall boost in the high range.

hd7/rm7: Drum Type1 000...100 (86)

When this value is increased, the drum sound will become lower in pitch and have a rougher tone. The effect of this parameter changes greatly depending on the settings of the other parameters.

hd8/rm8: Drum Type2 000...100 (44)

This parameter adjusts the tone of the drum sound.

25 Upo

When struck normally, this algorithm produces a normal tom-type drum sound. However if you continue pressing the head after you strike, and then release it, a popping sound will be heard the instant you release the head. The volume and pitch of the pop will depend on the force of the initial strike and the force with which you press.

Tune and Decay adjust the pitch and decay of the drum sound. **Tune (63), Decay (71)**

hd1/rm1: Pitch EG Depth 000...100 (36)

This parameter adjusts how much the force of your strike will affect the pitch of the drum sound at the instant you strike.

hd2/rm2: Harmonics 000...100 (43)

This parameter modifies the overtones of the drum sound.

hd3/rm3: HiDamp 000...100 (28)

This parameter adjusts the decay of the overtones of the drum sound.

hd4/rm4: Filter Level 000...100 (25)

This parameter adjusts the level of the drum sound that will remain even when muted. Increasing this value will produce a more distinctive sound.

hd5/rm5: Filter Cutoff 000...100 (9)

This parameter adjusts the pitch of the drum sound that will remain even when muted.

hd6/rm6: Pop Level 000...100 (100)

This parameter adjusts the volume of the pop sound.

hd7/rm7: Pop Pitch 000...100 (13)

This parameter adjusts the reference pitch of the pop sound.

hd8/rm8: Pop Random 000...100 (23)

This parameter will randomly change the pitch of the pop sound.

26 1812

This algorithm produces an ensemble of five snare drums. Open rim shots produce the sound of a cannon shot.

Tune and Decay apply only to the snare drum sound. **Tune (86), Decay (32)**

note: This algorithm can be used only for the head.

hd1: Pressure Pitch 000...100 (30)

This parameter adjusts how the amount of pressure that's applied to the head will affect the pitch or tonal character.

hd2: Brightness 000...100 (8)

This parameter will radically adjust the tonal character of the snare drum. Increasing this value will produce extended overtones that sound like a guitar or piano.

hd3: Ensemble Size 000...100 (58)

This parameter adjusts the *de-synchronization* of the five snares. As this value is further, the snares will play increasingly out of synchronization, resulting in a thicker sound and more of an ensemble effect.

hd4: Delay Control 000...100 (50)

Increasing this value will adjust the coherence of the five snare drums when you strike the WAVEDRUM strongly.

hd5: Snare Level 000...100 (50)

This parameter adjusts the volume level of the snare buzz.

hd6: LoDamp 000...100 (12)

Increasing this value will cut the low-frequency portion of the snare wires.

hd7: HiDamp 000...100 (100)

Decreasing this value will cut the high-frequency portion of the snare wires.

hd8: Resonance 000...100 (50)

This parameter adjusts the amount of change in the LoDamp/HiDamp resonance filter.

About the preset scales

Some of the algorithms in the WAVEDRUM allow you to play phrases in a particular scale. For some phrases, notes in the selected scale will sound randomly each time you play. For others, the note of the scale that is sounded will depend on how strongly you play.

You can choose one of the following eight types of scale. For some algorithms, not all scales are available. For details, refer to the page on each algorithm.

Scale Select is available in the following algorithms.

“07 WindDrum” (See *QS page 10*)

“13 Sawari-B” (See *QS page 12*)

“21 Bamboo” (See *QS page 15*)

0 Pentatonic



1 Ryukyu (Okinawan) scale



2 Gaman-type scale



3 Indian-type scale



4 Whole tone



5 Major



6 Combination diminished



7 Tonic only... each note will sound at the pitch specified by the Tune parameter.

Double-size algorithms

Double-size algorithms are organized into six algorithm types, with several algorithms provided for each type. Algorithms of the same type have the same parameters.

Controlling the sound when playing a double-size algorithm

Programs that use a double-size algorithm allow you to control the PCM sound source (PCM instrument) not only by velocity (striking force) as on a conventional PCM sound module, but also by the tone of your strike on the head. Since the force and tone of your strike will affect the sound, you'll be able to perform with feeling that's closer to that of an acoustic instrument.

This sound control allows you to differentiate between playing mellow (thick) tones and hard (thin) tones.

Here are three specific examples.

- Control by the striking position
Strike near the center of the head (soft sound), or near the edge of the head (hard sound).
- Control by the striking object
Strike with a soft object, or with a hard object.
- Control by the striking method
Strike as when using hand percussion such as a conga or djembe, using open (soft sound) or slap (hard sound).

Parameter#: Parameter Name **Value Min...Max**

Algorithm type 1

27 Conga (Fiber)

28 Bongo

51 Quinto (Wood)

52 Conga (Wood)

53 Tumba (Wood)

The algorithms are appropriate for hand percussion such as conga.

hd1: Switching **000...100**

This parameter specifies the mix between the two PCM instruments that are switched according to the tone or position of your strike. With a setting of 100, the two are completely separated.

hd2: PCM Balance **-50...50**

This parameter specifies the volume balance between the two PCM instruments. With a setting of 0, they will have the same volume. Negative (-) settings make PCM1 louder, and positive (+) settings make PCM2 louder.

hd3: Alg-PCM Balance **-50...50**

This parameter adjusts the volume balance between the algorithm and the PCM instrument. With a setting of 0, they will have the same volume. Negative (-) settings make the PCM louder, and positive (+) settings make the algorithm louder.

hd4: Sub Harmonics **000...100**

This parameter adjusts the low-frequency component of the sound. Increasing this value will reduce the amount of low-frequency, producing a lighter and harder sound.

hd5: Brightness **000...100**

Increasing this value will produce a sharper sound with more high frequencies.

hd6: Slap Level **000...100**

This parameter adjusts the level of the vibrating sound that is added by a slap shot.

hd7: Slap Delay **000...100**

This parameter adjusts the decay time of the slap sound.

hd8: Slap Color **000...100**

This parameter adjusts the tone color of the slap sound. Increasing this value will produce a sharp sound with accentuated vibration.

Algorithm type 2

29 Snare Drum 1

30 Snare Drum 2

31 Snare Drum 3

32 Timbales

46 Snare (Z) 14"x6.5"

47 Snare (Acrylic) 14"x6.5"

48 Snare (Wood) 14"x7.5"

49 Snare (Wood) 12"x6"

50 Piccolo Snare (Brass) 13"x4"

These algorithms are appropriate for drums that have an attached snare and are played with a stick, such as a snare drum.

hd1: Switching **000...100**

This parameter specifies the mix between the two PCM instruments that are switched according to the tone or position of your strike. With a setting of 100, the two are completely separated.

hd2: PCM Balance **-50...50**

This parameter specifies the volume balance between the two PCM instruments. With a setting of 0, they will have the same volume. Negative (-) settings make PCM1 louder, and positive (+) settings make PCM2 louder.

hd3: Alg-PCM Balance **-50...50**

This parameter adjusts the volume balance between the algorithm and the PCM instrument. With a setting of 0, they will have the same volume. Negative (-) settings make the PCM louder, and positive (+) settings make the algorithm louder.

hd4: Curve **000...100**

This parameter adjusts the response of the shell to your strike, and the resonance of the shell.

hd5: Brightness **000...100**

Increasing this value will increase the high-frequency components of the shell sound and the snare sound.

hd6: Snare Decay **000...100**

This parameter adjusts the decay time of the snare buzz.

hd7: Snare Level **000...100**

This parameter adjusts the volume level of the snare buzz.

hd8: Shell Type **0...4**

Choose one of five types of tonal character for the shell.

Algorithm type 3

- 33 Cajon 1**
- 34 Djembe**
- 35 Bass Drum+Snare Drum 1**
- 36 Bass Drum+Snare Drum 2**
- 57 Cajon 2**
- 58 Bass Drum+Snare Drum 3**
- 59 Bass Drum+Snare Drum 4**
- 60 Bass Drum+Snare Drum 5**

These algorithms are appropriate for percussion in which a single instrument produces two sounds, such as a cajon.

hd1: Switching 000...100
 This parameter specifies the mix between the two PCM instruments that are switched according to the tone or position of your strike. With a setting of 100, the two are completely separated.

hd2: PCM Balance -50...50
 This parameter specifies the volume balance between the two PCM instruments. With a setting of 0, they will have the same volume. Negative (-) settings make PCM1 louder, and positive (+) settings make PCM2 louder.

hd3: Alg-PCM Balance -50...50
 Adjust the volume balance between the algorithm and the PCM instrument. With a setting of 0, they will have the same volume. Negative (-) settings make the PCM louder, and positive (+) settings make the algorithm louder.

hd4: Curve 000...100
 This parameter adjusts the response of the shell to your strike, and the resonance of the shell.

hd5: Brightness 000...100
 Increasing this value will increase the high-frequency components of the shell sound and the snare sound.

hd6: Snare Decay 000...100
 This parameter adjusts the decay time of the snare buzz.

hd7: Snare Level 000...100
 This parameter adjusts the volume level of the snare buzz.

hd8: Shell Type 0...4
 Choose one of five types of tonal character for the shell.

Algorithm type 4

- 37 Darabuka**
- 38 Darabuka ensemble**
- 39 Darabuka Turkish**
- 40 Tar**
- 41 Daf**
- 42 Doyra**
- 54 Djembe (Fiber)**
- 55 Djembe (CowSkin Hi)**
- 56 Djembe (CowSkin Lo)**

These algorithms are appropriate for hand percussion such as the Darabuka that has a single relatively thin

skin, producing significant tonal change between the center and the edge.

hd1: Switching 000...100
 This parameter specifies the mix between the two PCM instruments that are switched according to the tone or position of your strike. With a setting of 100, the two are completely separated.

hd2: PCM Balance -50...50
 This parameter specifies the volume balance between the two PCM instruments. With a setting of 0, they will have the same volume. Negative (-) settings make PCM1 louder, and positive (+) settings make PCM2 louder.

hd3: Alg-PCM Balance -50...50
 This parameter adjusts the volume balance between the algorithm and the PCM instrument. With a setting of 0, they will have the same volume. Negative (-) settings make the PCM louder, and positive (+) settings make the algorithm louder.

hd4: Drum Type 000...100
 This parameter varies the pitch and overtones in a complex way.

hd5: Slap Level 000...100
 This parameter adjusts the volume level of the slap sound.

hd6: Slap Decay 000...100
 This parameter adjusts the decay time of the slap sound.

hd7: Slap Color 000...100
 This parameter adjusts the tone color of the slap sound. Increasing this value will produce a strongly accented sound like a snare drum.

hd8: Sensitivity 000...100
 This parameter adjusts the input sensitivity of the striking surface. Increasing this value will make the striking surface more sensitive.

Algorithm type 5

43 Req

This algorithm is appropriate for single-skinned hand percussion with attached jingles, such as the Req (tambourine).

hd1: Switching 000...100
 This parameter specifies the mix between the two PCM instruments that are switched according to the tone or position of your strike. With a setting of 100, the two are completely separated.

hd2: PCM Balance -50...50
 This parameter specifies the volume balance between the two PCM instruments. With a setting of 0, they will have the same volume. Negative (-) settings make PCM1 louder, and positive (+) settings make PCM2 louder.

hd3: Alg-PCM Balance -50...50
 This parameter adjusts the volume balance between the algorithm and the PCM instrument. With a setting of 0, they will have the same volume. Negative (-) settings make the PCM louder, and positive (+) settings make the algorithm louder.

hd4: Drum Width 000...100

Increasing this value will lower the pitch of the drum sound, and will also modify the overtones to produce a rougher sound. This effect is similar to drastically loosening the head of the drum.

hd5: Jingle Pitch 000...100

This parameter adjusts the pitch of the algorithm jingles.

hd6: Jingle Decay 000...100

This parameter adjusts the decay time of the algorithm jingles.

hd7: Brightness 2 000...100

Decreasing this value will remove the metallic resonance from the sound of the jingles, producing a sound like a shaker or cabasa.

hd8: Sensitivity 000...100

This parameter adjusts the input sensitivity of the striking surface. Increasing this value will make the striking surface more sensitive.

Algorithm type 6

44 Daf Iranian

45 Bendir

These algorithms are appropriate for two-skinned percussion with a snare on the back of the skin, such as the Bendir.

hd1: Switching 000...100

This parameter specifies the mix between the two PCM instruments that are switched according to the tone or position of your strike. With a setting of 100, the two are completely separated.

hd2: PCM Balance -50...50

This parameter specifies the volume balance between the two PCM instruments. With a setting of 0, they will have the same volume. Negative (-) settings make PCM1 louder, and positive (+) settings make PCM2 louder.

hd3: Alg-PCM Balance -50...50

This parameter adjusts the volume balance between the algorithm and the PCM instrument. With a setting of 0, they will have the same volume. Negative (-) settings make the PCM louder, and positive (+) settings make the algorithm louder.

hd4: Curve 000...100

This parameter adjusts the way that the strike resonates in the shell and the way that the shell resonates.

hd5: Brightness 000...100

Increasing this value will give the shell and snare more high-frequency overtones.

hd6: Snare Decay 000...100

This parameter adjusts the decay time of the snare buzz.

hd7: Snare Level 000...100

This parameter adjusts the volume level of the snare buzz.

hd8: Sensitivity 000...100

This parameter adjusts the input sensitivity of the striking surface. Increasing this value will make the striking surface more sensitive.

Default Value

No.	Tune	Decay	hd1	hd2	hd3	hd4	hd5	hd6	hd7	hd8
27	50	36	30	0	0	0	54	50	48	24
28	57	29	50	0	-32	28	85	74	9	51
29	50	56	50	0	-16	14	34	64	66	2
30	50	56	50	0	-20	0	8	83	60	2
31	49	56	50	0	-20	12	34	47	62	3
32	54	60	30	0	-42	35	8	0	0	2
33	50	62	55	0	-35	27	6	55	56	1
34	53	58	46	0	-40	0	18	0	0	2
35	56	52	32	0	-34	27	16	75	30	3
36	54	38	32	0	-36	16	9	85	32	2
37	50	82	62	-4	-20	90	28	39	44	90
38	50	83	45	-11	-24	63	28	50	48	82
39	53	86	62	-3	-18	85	28	50	48	90
40	60	88	40	0	-18	86	8	50	50	90
41	40	84	40	-5	-32	79	8	50	50	90
42	50	86	40	-8	-26	83	8	50	50	90
43	59	74	36	0	-28	34	35	50	100	90
44	30	85	42	-4	-34	86	28	87	42	90
45	50	54	34	-8	-37	82	33	78	63	90
46	61	100	52	-18	-36	40	15	75	63	2
47	63	89	48	-12	-33	63	33	85	66	2
48	31	50	45	-4	-36	10	9	85	58	2
49	73	100	47	-13	-36	66	31	75	64	2
50	59	70	46	-12	-34	42	24	75	72	4
51	49	50	34	10	-34	17	28	70	34	24
52	63	50	34	10	-32	14	21	68	34	22
53	58	50	33	7	-35	10	17	65	47	19
54	64	67	58	-10	-38	86	70	72	22	2
55	62	77	58	-9	-38	89	86	70	21	2
56	54	73	55	-4	-38	98	84	82	12	6
57	56	50	58	-11	-36	16	8	82	12	2
58	50	50	88	-12	-43	78	10	62	69	3
59	50	100	85	0	-40	86	9	70	77	2
60	50	50	85	-12	-40	86	9	70	77	2

Appendix

Replacing the drum head

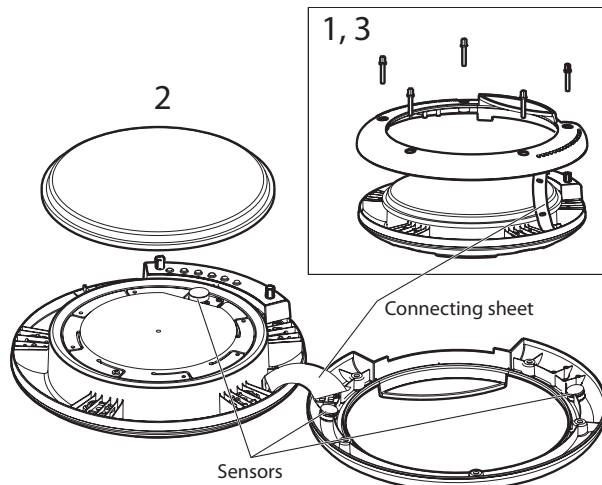
If you need to replace the head, please use 10" drum heads.

note: Please be aware that the sound of the WAVEDRUM may change depending on the type of head you install.

Drum head replacement procedure

⚠ Before you begin this procedure, you must unplug the power cable of the WAVEDRUM and any cables that connect it with other equipment. Perform the procedure on a stable and flat location.

- Using the included tuning key, sequentially loosen the five tension bolts on the rim, and remove the rim.
Place the WAVEDRUM on a flat location so that no stress is applied to the connecting sheet that is attached to the rim and the lower case.
- Remove the old head, and replace it with the new head.
When doing so, never allow your hand to touch internal components such as the sensors or the circuit board. Take care that foreign objects do not enter the WAVEDRUM.
- Once you have replaced the head, place the rim back in its original position, and tighten the tension bolts.
For details on how to tighten them, refer to the following section: "Tuning the drum head."
- After you've tuned the drum head, calibrate the head, rim, and pressure sensors, and adjust the sensitivity as desired (*See PG page 22*).



Tuning the drum head

- To tune the drum head, use the included tuning key to tighten each tension bolt, skipping one bolt each step to ensure that the head is tensioned evenly.
- ⚠** Avoid tightening the bolts excessively when tuning the head. Doing so will cause deformation and possibly malfunctions.

On conventional percussion instruments, the tension bolts must be tightened equally to apply even tension to the head. If this is not done, not only will the instrument not sound good, but the life of the instrument can also be affected. Likewise for the WAVEDRUM, uneven tuning will cause the head surface to become warped and remain in contact with the cushion and sensor, eventually causing malfunctions.

If you must use commercially-available tension bolts due to wear or loss of the original bolts, be sure to use bolts that are 1.10"–1.57" (28–40 mm) long.

Standard drum head tuning method

The standard method for tuning a drum head for the WAVEDRUM is described below. After replacing the drum head, you must tune it in the following way.

When using this tuning method, start with the tension bolts completely loosened.

- Using the included tuning key, tighten each tension bolt, skipping one bolt each step. Be sure to use only light force to turn the bolt, and stop when the bolt stops turning (i.e., at the point that strength would be required). Do this for all five bolts.
- Tighten each tension bolt one full turn, skipping one bolt each step. Do this for all five bolts.
- Tighten each tension bolt approximately 45 degrees, skipping one bolt each step. Do this for all five bolts.
- Strike the outer edge of the head to check whether the head is tensioned evenly. If necessary, make fine adjustments to the tension.

note: After tuning, calibrate the head, rim, and pressure sensors, and adjust the sensitivity as desired (*See PG page 22*).

Calibration

Calibrating the WAVEDRUM is a process of adjusting the reference values and sensitivity to ensure that it will respond accurately, given the head tension and the state of the rim.

You should perform the calibration procedure if the WAVEDRUM does not respond accurately to pressure etc., or after you've tuned or replaced the drum head. You should also perform the calibration again if sound produced by other instruments makes the WAVEDRUM resonate to cause feedback or inappropriately trigger the drum sound.

Calibrating the head sensor

Here's how to calibrate the head sensor that responds when you strike the head.

1. Hold down the BANK/MODE button and press button 4 to enter Global mode.
2. Press the BANK/MODE button (several times) to make the display indicate $H, c \partial$ (Head Calibration).
3. Press button 1 to make the display indicate $\iota \circ$ and the value.
4. Turn the VALUE knob to adjust the value so that your normal light strikes produce sound. As you raise this value, you'll need to strike harder in order to produce sound.
5. Press button 2 to make the display indicate $5 E \alpha$ and the value.
6. Turn the VALUE knob to adjust the value so that the normal dynamic range of your strikes produces the appropriate change in the sound. As you raise this value, the sensitivity will become coarser.
7. Save the setting. Press the WRITE button twice. For details on saving, refer to *QS page 9*.

Calibrating the rim sensor

Here's how to calibrate the rim sensor that responds when you strike the rim.

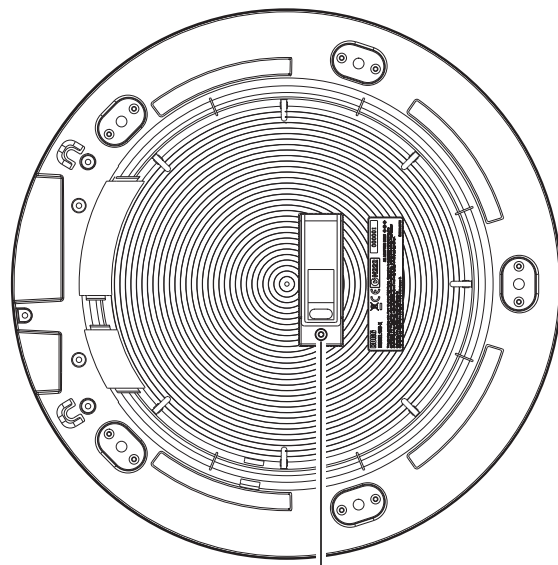
Follow the procedure above, but choose $r, c \partial$ (Rim Calibration) and adjust the sensitivity appropriately for the rim.

Calibrating the pressure sensor

Here's how to calibrate the pressure sensor that response when you apply pressure to the head.

1. Hold down the BANK/MODE button and press button 4 to enter Global mode.
2. Press the BANK/MODE button (several times) to make the display indicate $P, c \partial$ (Pressure Calibration).
3. Press button 1 to make the display indicate $\upsilon \partial \iota$ (Value) and the value.
4. Verify that the pressure sensor is set to an appropriate height. If either of the following situations apply, you must readjust the pressure sensor to an appropriate height.

- **If the sensor value indication is other than 0**, the distance between the head and the sensor is too little, so the sensor must be lowered.
 - a. Insert the included Allen wrench into the sensor height adjustment screw, position the WAVEDRUM horizontally, and while watching the display, turn the wrench slowly counter-clockwise as seen from above, until the value is 0.
 - b. After the value reaches 0, turn the wrench an additional 45 degrees.
- **If the sensor value indication is 0**, but the WAVEDRUM is not responsive to pressure, the distance between the head and the sensor is too great, so the sensor must be raised.
 - a. Insert the included Allen wrench into the sensor height adjustment screw, position the WAVEDRUM horizontally, and while watching the display, turn the wrench slowly clockwise.
 - b. When the sensor value indication is no longer 0, stop turning the wrench, and now turn the wrench in the opposite direction (counter-clockwise).
 - c. After the sensor value indication reaches 0, turn the wrench an additional 45 degrees.
- 5. With the pressure sensor adjusted to an appropriate height, apply pressure to the head, and verify that the effect produced by pressure is within the desired range (minimum and maximum values). The current value is displayed when you press the head.
- 6. Press button 2 to make the display indicate $P, \iota \circ$ and the value, and use the VALUE knob to specify the minimum value.
- 7. Press button 3 to make the display indicate $P, H \iota$ and the value, and use the VALUE knob to specify the maximum value.
- 8. Save the setting. Press the WRITE button twice. For details on saving, refer to *QS page 9*.



Sensor height adjustment screw
The WAVEDRUM's bottom

Error messages

When you turn on the power, the WAVEDRUM will automatically perform an internal check. If a problem is found, one of the following error messages is shown. Take the appropriate action listed here.

E. 00 : The pressure sensor value is invalid. Calibrate the pressure sensor so that $\bar{u}\bar{a}\bar{t}$ (Value) is 0. *See PG page 22*

E. 01 : The user data has been lost. Initialize the data as described in “Restoring the factory settings.” *See QS page 11*

E. 10 : The pressure sensor has malfunctioned. Make sure that your hand or another object is not resting on the head. If any object is resting on the head, remove it, and then turn the power off and on again. If the same indication still appears, press any one of the buttons to start up the WAVEDRUM, and then calibrate the pressure so that $\bar{u}\bar{a}\bar{t}$ (Value) is 0. If you are unable to adjust the value to 0, please contact your nearby Korg dealer. *See PG page 22*

E. 11 : A system error has occurred. Stop using the WAVEDRUM, and contact your nearby Korg dealer.

IMPORTANT NOTICE TO CONSUMERS

This product has been manufactured according to strict specifications and voltage requirements that are applicable in the country in which it is intended that this product should be used. If you have purchased this product via the internet, through mail order, and/or via a telephone sale, you must verify that this product is intended to be used in the country in which you reside.

WARNING: Use of this product in any country other than that for which it is intended could be dangerous and could invalidate the manufacturer's or distributor's warranty.

Please also retain your receipt as proof of purchase otherwise your product may be disqualified from the manufacturer's or distributor's warranty.

KORG KORG INC.

4015-2 Yanokuchi, Inagi-city, Tokyo 206-0812 Japan