KAWAI

POP SYNTH MODULE

PHm

Owner's Manual

WARNING: This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, it can cause interference to radio communications. The rules with which it must comply afford reasonable protection against interference when used in most locations. However, there can be no guarantee that such interference will not occur in a particular installation. If this equipment does cause interference to radio or related equipment off and on, the user is encouraged to try correct the interference by one or more of the following measures:

— reorient the receiving antenna.
— move the receiver away from the instrument.
— plug the instrument into a different outlet so that it and receiver are on different branch circuits.
— consult the dealer or a qualified service personnel.

"This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications."

"Le présent appareil numérique n'émet pas de bluits radioeléctriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada."

FEATURES

- **Wide variety of tones**
  The PHm offers a choice of 250 tones: 200 single sounds plus 50 combinations. Together, they cover a wide range from piano and bass to percussion and special effects — all recorded with the same high-quality PCM sound.
- **Five-part sequencing**
  The PHm simultaneously supports up to five parts: a combination of up to four tones selected from the 200 available single sounds plus a separate PCM drum section which contains 16 instruments of drum and percussion. The PHm's VARIABLE MULTI TIMBRE functions automatically allocate the use of the 16 voices available for the five parts for maximum effect.
- **Preprogrammed rhythms**
  The PHm offers a choice of 30 built-in rhythm patterns — everything from '50s rock through rap — that are instantly available to enhance your keyboard performance.
- **Compact, half-rack size**
  The PHm's compact, lightweight (1.2 kg) design makes it easy to carry and small enough to place on top of a synthesizer or digital piano. An optional adaptor enables it for rack mounting.

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■ CARE AND MAINTENANCE

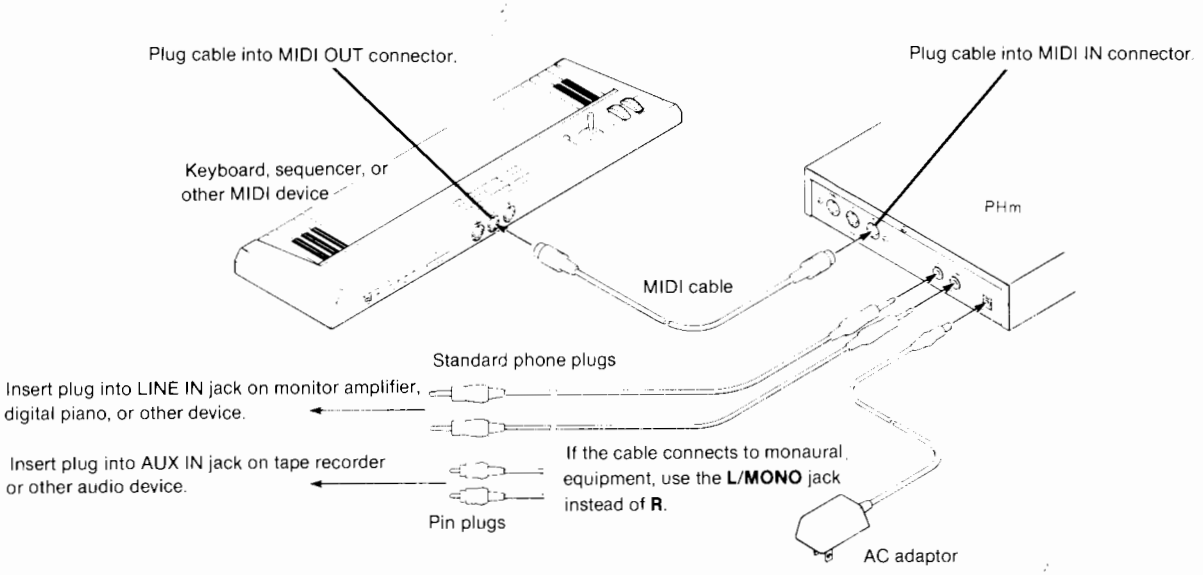
- Never attempt to disassemble, service, or otherwise modify the internal components. Such willful tampering not only invalidates your warranty, but also entails the risk of a short circuit.
- Wipe with a clean, dry cloth. Under no circumstances use benzene, paint thinner, or any other organic solvents.
- The PHm contains a lithium battery that maintains memory contents even after the main power supply is removed. This battery normally lasts for five years. Connect your nearest authorized Kawai dealer for a replacement promptly after the your years have elapsed.
- Never take the PHm apart, as you could receive an electric shock and also damage the instrument. Contact the store where you purchased the PHm if you want it adjusted or serviced.

■ POWER SUPPLY

The PHm can be plugged into ordinary household power outlets. Use the AC adaptor included with your PHm, for connecting this instrument to household power outlets.

■ BASIC CONNECTIONS

Connect the PHm to a keyboard, sequencer, or other MIDI device with a standard MIDI cable. (For further details, see p. 11.)

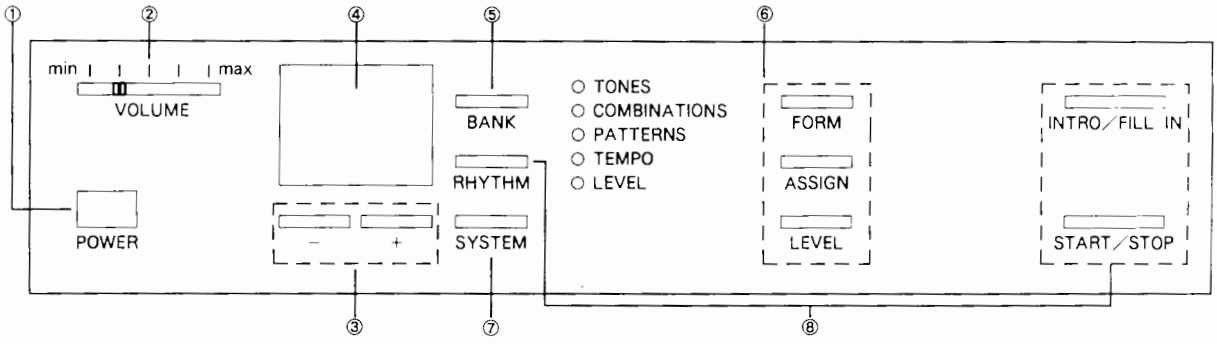


Always turn all power switches off — or at least set all volume controls to their minimum levels — before connecting or disconnecting equipment.

> The letters MIDI stand for the Musical Instrument Digital Interface, an international standard for connecting synthesizers, drum machines, and other electric/electronic musical instruments so that they can exchange keyboard and program data.

1. NAMES OF PARTS AND BASIC OPERATION

■ Front Panel



① POWER switch
Switches the power on and off.

② VOLUME
Adjusts the volume louder or softer.

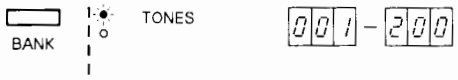
③ +, − keys
Used when changing any of the values or numbers of the modes.

+ : Values will change in increments of 1.
- : Values will change in decrements of 1.

When the key is held down the values will continue to change. In the ON/OFF mode, pressing ⊕ selects ON, and pressing ⊖ selects OFF.

④ LED display
Displays numbers of tones, rhythms, combinations, tempo settings, and other system information.

⑤ BANK switch
Used to switch between TONE selection and COMBINATION selection. The BANK switch moves the LED on the right between TONES and COMBINATIONS.
When the TONES LED is lit, PHm is in the TONE select mode, and the LED display indicates the TONE numbers (001-200).



When the COMBINATIONS LED is lit, PHm is in the COMBINATION select mode, and the LED display indicates the COMBINATION numbers (001-050).



For changing the tones or combinations, the +, - keys enable you to select any number you want.

⑥ COMBINATION EDIT section
Used when editing COMBINATIONs. There are three COMBINATION switches:

- **FORM**
  Used to select the FORM that determines the combination of tones. PHm offers 30 types of FORMs (including splits, layers, and multi-timbral mode).
- **ASSIGN**
  Used to select the tones to be combined. Up to four tones can be combined depending on the FORM you select.
- **LEVEL**
  Used to change the volume level of the tones selected.

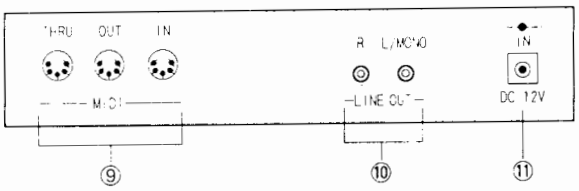
⑦ SYSTEM switch
Used when deciding the TUNE, TRANSPOSE and MIDI functions. The following functions can be set with this switch:

- **TUNE**
  Enables fine tuning and is used when matching the pitch to other instruments.
- **TRANSPOSE**
  Changes the pitch in half-tones. This function is handy for changing keys during performance.
- **MIDI transmit channel**
  Sets the MIDI transmit channel.
- **MIDI receive channel**
  Sets the MIDI receive channel.

— Omni mode: Toggles omni mode on/off.
— Program change: Sets the range for tone change.
— Pressure
— Pitch bender
— Modulation
— Volume
— Hold pedal
— Velocity
(These functions toggle MIDI receive on and off.)

* For details of these functions, see the section on "SYSTEM".

■ Rear Panel

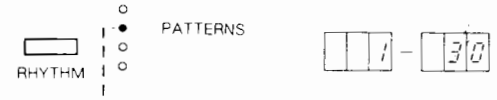


⑧ RHYTHM section

• RHYTHM switch

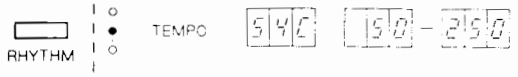
Used for selecting rhythm pattern and adjusting tempo and level.

Each time the RHYTHM switch is pressed, the LED on its right changes from PATTERNS to TEMPO to LEVEL. When the PATTERNS LED is lit, PHm is in the rhythm PATTERN select mode and the LED display indicates the PATTERN numbers (1-30).



When the TEMPO LED is lit, PHm is in the TEMPO set mode, and the LED display indicates the TEMPO (♩ = 50-250).

If a value smaller than 50 is set, the display indicates "SYC", and the rhythm function synchronizes with external MIDI information. When this happens, START/STOP and TEMPO setting are disabled, so care should be taken when setting the tempo value.



When the LEVEL LED is lit, PHm is in the mode for adjusting the rhythm volume, and the LED display indicates the LEVEL value (0-100).



For changing the numbers and values, the +, - keys enable you to select any number you desire.

This LEVEL setting is effective for both built-in rhythm pattern and drum section.

• START/STOP switch

Press to start or stop the rhythm pattern.

• INTRO/FILL IN switch

Used to insert an introduction or fill in. When this switch is pressed while the rhythm function is stopped, the rhythm section will start in after the intro pattern. When this switch is pressed during performance, a fill in (variation on the rhythm) is inserted.

⑨ MIDI

Used for connecting to other MIDI instrument or a personal computer.

- **IN** Input terminal for external MIDI information
- **OUT** Output terminal for this instrument's MIDI information
- **THRU** Passes the data received on to another instrument.

⑩ LINE OUT

Used for sending the PHm sound to audio equipment, amplifiers, or tape recorders.

⑪ DC IN

Used to connect the plug from the 9-12V AC adaptors.

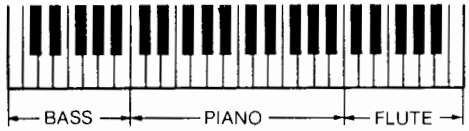
2. COMBINATION

Up to four tones can be combined easily with the COMBINATION function. Before explaining how this works, we shall take a look at some basic examples of combining tones. The principle methods are as follows:

Listen to a number of COMBINATIONs while looking at the COMBINATION and FORM lists. That is the quickest way to gain an understanding of this powerful capability.

(1) SPLIT

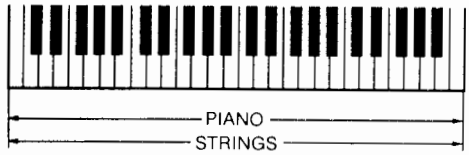
SPLIT literally splits the keyboard up into sound zones, so that different tones can be played depending on the zone.



Look over the Form list on page 9. You will see that Form 9 is a 2-zone split, while Forms 21 and 22 are 4-zone splits.

(2) DUAL

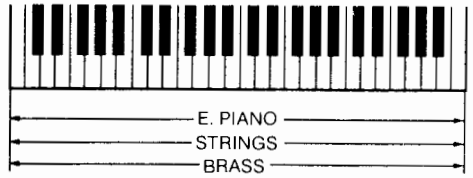
DUAL layers one tone onto another one, across the whole keyboard. By making the pitch of these tones slightly different and playing them together, you can thicken the sound.



Forms 1 through 8 are DUAL forms which assign two tones to the whole keyboard. The form list describes how each of these DUAL forms differ.

(3) LAYER

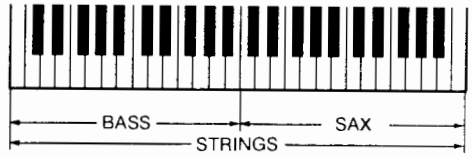
This is the same kind of combination as DUAL, but is called LAYER when three or more tones are used.



Form 12 is a 3-part layer. Forms 19 and 20 are 4-part layers.

(4) MIX

MIX combines the functions of SPLIT and LAYER. Forms 11 and 15-18 are mix forms.



By using the above combinations you can create new sounds and surprising effects that are impossible to obtain with single tones.

The PHm's combinations have been preset so that anyone can enjoy combining sounds effortlessly. Selected to give you optimum flexibility for casual playing or live performance, these 30 preset combinations require only that you choose the tones. These predetermined groupings of zones are called FORMS.

You can assign up to four tones to a FORM (the number of assignable tones varies depending on the FORM). The location on the keyboard where the respective tones can be assigned are called PARTs. In addition to the zones, the FORM enables different values of DETUNE and TRANSPOSE to be set for each PART. (See the FORM list.)

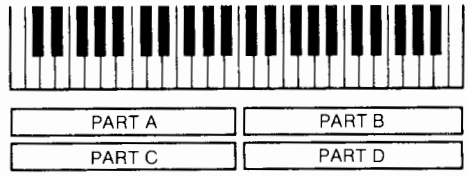
- **Example 1: FORM 9**

FORM 9 is the basic SPLIT type.



- **Example 2: FORM 26**

FORM 26 is a MIX type of SPLIT and DUAL. PARTs A and C have been transposed into a minor key and PARTs B and D have been transposed into a major key.



You can adjust LEVEL (the volume) for each tone when you are assigning the tone for each section. This lets you balance the volume between tones to suit each piece of music you perform.

(5) LINK

Another convenient use of combination is the LINK which allows you to change only your favorite Tones rapidly. In this case, you should use Form 30.

- **Example: Form 30**

Assigning tones 1, 151, 76, and 200 to combinations 1-4 and starting with combination 1 allows you to change tones instantly with a single stroke of the "+" key.

1 → 151 → 76 → 200

■ LINKING COMBINATIONS (BY PART)

To LINK the tone of a particular part within a combination (such as the tone of Part A in a combination consisting of Parts A, B, C, and D), follow these steps:
First, we will assign combinations 1, 2, and 3 as shown below (use Forms 19 to 29 for this operation).

	Part A	Part B	Part C	Part D
COMBINATION 1 (Original combination)	10	20	30	40
COMBINATION 2	10	20	30	41
COMBINATION 3	10	20	30	120

Select combination 1, and then use the "+" switch to advance the combination step-by-step (1 → 2 → 3). This will leave the tones of Parts A, B, and C unchanged, while the tone of Part D alone will be LINKed to 40, 41, and 120.
Since each part is assigned to different MIDI channels in Forms 27 through 29, within these Forms you can change the tone of an individual part by receiving program change data sent out from external devices.

Try this out by following the example below:

Part A	Part B	Part C	Part D
10	20	30	40
10	20	30	41
10	20	30	120
10	20	30	40

First, assign combinations 1 and 2 as shown below. (Use Form 27, and set the MIDI's receive channel to "Channel 1" and program change to "Sec A".

	Part A	Part B	Part C	Part D
COMBINATION 1	10	20	30	40
COMBINATION 2	10	20	30	120

Start by playing combination 1.

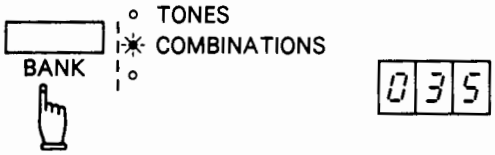
	Part A (CH1)	Part B (CH2)	Part C (CH3)	Part D (CH4)
COMBINATION 1	10	20	30	40
↓ Channel 4 receives program change "40"				
COMBINATION 1	10	20	30	[41]
↓ Channel 1 (system channel) receives program change "101"				
[COMBINATION 2]	10	20	30	120
↓ Channel 1 receives program change "100": Channel 2 receives program change "39"				
[COMBINATION 1]	10	20	30	[40]

• For information on Program Changes, see page 10, "System".

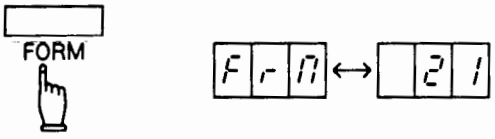
Here's the procedure for editing combinations.

■ Procedure

(1) Press the BANK switch until the COMBINATIONs LED lights. Then, use the +, - keys to select the combination you wish to edit (The 3-digit display will show combination numbers).



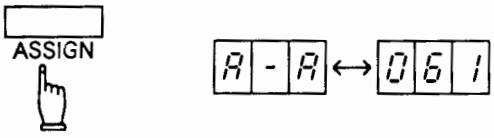
(2) First, set FORM. Press the FORM switch. The LED display alternately indicates Fr M (abbreviated display for FORM) and the FORM number.



(3) When you have decided which FORM you will use (from the FORM list), set the FORM number using the +, - keys.



(4) Next, assign the tones for each PART. Press the ASSIGN switch. The LED display alternately indicates A - A (abbreviated display for ASSIGN — PART A) and the TONE number. In this example, the display indicates that TONE 61 has been assigned to PART A. (The first letter — capital upper or lower case — tells you the PART.)

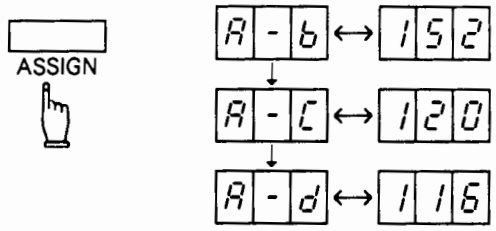


(5) When you have decided which tone to use, set its number with the +, - keys.

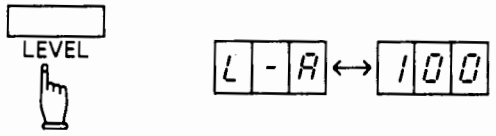


(6) Each time you press the ASSIGN switch, the PART changes. Assign the tones to the other PARTs in the same way as you did for PART A.

A - b ··· Indicates PART B.
A - C ··· Indicates PART C.
A - d ··· Indicates PART D.



(7) Next, adjust the volume LEVEL. Press the LEVEL switch. The LED display alternately indicates L - A (abbreviated display for LEVEL — PART A) and LEVEL value (0-100).

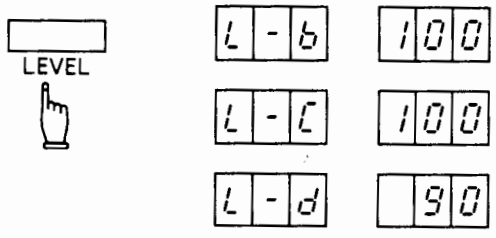


(8) Use the +, - keys to change the LEVEL value.



(9) Each time you press the LEVEL switch the PART changes. Change the other PARTs in the same way as you did for PART A.

A - b ... Indicates PART B.
A - C ... Indicates PART C.
A - d ... Indicates PART D.

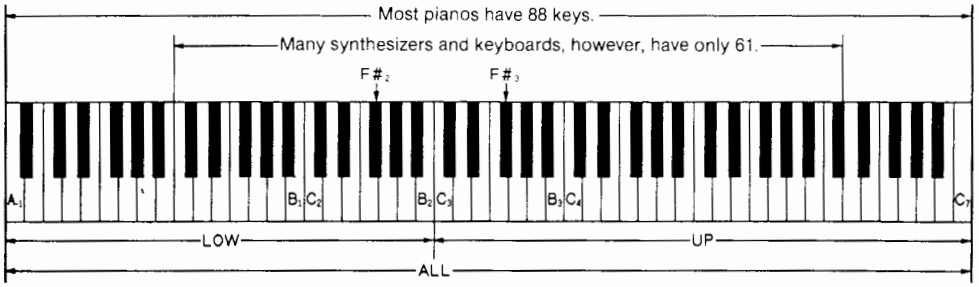


With this step the operation is completed. Press the BANK switch to return to the previous mode.

Notes:

- You can select FORM, assign tones and adjust LEVEL in any order you wish.
- To return to the factory-set COMBINATIONs, turn the POWER switch on while simultaneously pressing the LEVEL and SYSTEM switches. This resets the PHm to its original COMBINATIONs.

3. FORM LIST



No.	FORM		Zone A	Zone B	Zone C	Zone D	FORM Contents
1	DUAL		ALL	ALL	—	—	Two PARTs, A and B, layered one over the other.
2	DETUNED DUAL 1		ALL	ALL	—	—	The pitch of the two layered PARTs, A and B, differs slightly compared with No. 1 to yield a chorus effect.
3	DETUNED DUAL 2		ALL	ALL	—	—	The pitch of the two layered PARTs, A and B, differs more than for No. 2 to yield a chorus effect.
4	DETUNED DUAL 3		ALL	ALL	—	—	The pitch of the two layered PARTs, A and B, differs more than for No. 3 to yield a chorus effect.
5	HONKY TONK DUAL		ALL	ALL	—	—	The pitch of the two layered PARTs, A and B, differs more than for No. 4 to yield a detuned effect.
6	TRANSPOSED DUAL 1		ALL	ALL	—	—	PART B is layered one octave above the key for No. 1.
7	TRANSPOSED DUAL 2		ALL	ALL	—	—	PART B is layered one octave below the key for No. 1.
8	TRANSPOSED DUAL 3		ALL	ALL	—	—	PART A is layered two octaves above and PART B two octaves below the key for No. 1.
9	SPLIT		LOW	UP	—	—	SPLIT of PARTs A and B (PART A on the left, PART B on the right).
10	TRANSPOSED SPLIT		LOW	UP	—	—	SPLIT of the two TONES, A and B, as in No. 9 but with PART B one octave down.
11	MIX 1		LOW	ALL	—	—	PART A is assigned to the left half of the keyboard, and PART B generates sound across the whole keyboard.
12	LAYER 3 PARTS		ALL	ALL	ALL	—	The three PARTs, A, B and C, are layered over each other.
13	TRANSPOSED LAYER 1		ALL	ALL	ALL	—	The same as in No. 12, but PART C is one octave lower.
14	TRANSPOSED LAYER 2		ALL	ALL	ALL	—	The same as in No. 12, but PART B is one octave higher and PART C is one octave lower.
15	MIX 2		LOW	UP	ALL	—	The same as in No. 9, plus PART C extending across the whole keyboard.
16	MIX 3		LOW	UP	LOW	—	The same as No. 9, plus PART C layered over the left half of the keyboard.
17	MIX 4		LOW	UP	UP	—	The same as No. 9, plus PART C layered over the right half ot the keyboard.
18	MIX 5		LOW	UP	UP	—	The same as No. 9, plus PART C layered one octave lower on the right half of the keyboard.
19	LAYER 4 PARTS 1		ALL	ALL	ALL	ALL	PARTs A, B, C and D are layered one over the other.
20	LAYER 4 PARTS 2		ALL	ALL	ALL	ALL	The pitch of PARTs A and B of No. 19 differ slightly with the pitch of PARTs C and D.
21	MULTI SPLIT 1		~B1	C2~B2	C3~B3	C4~	The keyboard is split into four zones.
22	MULTI SPLIT 2		~B1 C4~	C2~F#2	G2~F#3	G3~B3	The keyboard is split into five zones, and PART A is generated from B1 down and from C4 up.
23	DOUBLE SPLIT		LOW	UP	LOW	UP	PART C is layered above PART A of No. 9, and PART D above PART B, and the pitch of PARTs C and D is slightly different from that of PARTs A and B.
24	TRANSPOSED DOUBLE SPLIT		LOW	UP	LOW	UP	The same as in No. 23, but PARTs B and D are one octave lower.
25	CHORD 1		~B3	~B3	~B3	C4~	A major chord can be played with one key.
26	CHORD 2		LOW	UP	LOW	UP	Minor chords can be played with the left half of the keyboard, and major chords with the right half.
27	SEQUENCER 1	MIDI receive channels	1	2	3	4	The MIDI receive channel for the tone.
28	SEQUENCER 2		5	6	7	8	
29	SEQUENCER 3		13	14	15	16	
30	LINK ASSIGN		ALL	—	—	—	See page 6 "LINK".

4. SYSTEM

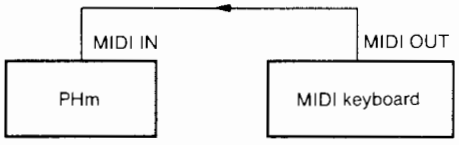
The functions related to TUNE, TRANSPOSE and MIDI all come under the heading of SYSTEM. Each of these functions is outlined in the table below.
The LED display alternately indicates the symbol for the function and the set value. Use the +, - keys to change the set values.

Function	Display	Set Value	Explanation	
TUNE	tun	-50~50	Fine-tunes the overall pitch of the PHm.	
TRANSPOSE	trn	-12~12	Changes the overall pitch of the PHm in half-tone steps. The key can be changed easily for performing.	
TRANSMIT CHANNEL	tch	1~16	Sets the MIDI transmit channel.	
RECEIVE CHANNEL	rch	1~16	Sets the MIDI receive channel. * COMBINATION is set to CH1 and cannot be changed. However, COMBINATIONs using FORMs 27-29 are set to CH1-4, CH5-8 and CH13-16.	
OMNI ON/OFF	oMn	on/oFF	Sets whether or not PHm will receive all the MIDI channels simultaneously. * COMBINATION (FORM) is always set to omni off.	
PROGRAM CHANGE	PrG	oFF	PROGRAM CHANGE information is not received.	
		nrA (NORMAL A)	The PROGRAM CHANGE numbers and the corresponding TONE/COMBINATION numbers are as shown on the right.	PROGRAM CHANGE No. : TONE/COMBINATION No. 0-99 : TONEs 1-100 100-124 : COMBINATIONs 1-25 125-127 : —
		nrb (NORMAL B)		PROGRAM CHANGE No. : TONE/COMBINATION No. 0-99 : TONEs 101-200 100-124 : COMBINATIONs 26-50 125-127 : —
		SCA (SECTION A)	The PART set to the same MIDI channel as the receive data receives the PROGRAM CHANGE. The TONE/COMBINATION numbers corresponding to the PROGRAM CHANGE numbers are as shown on the right.	PROGRAM CHANGE No. : TONE/COMBINATION No. 0-99 : TONEs 1-100 100-124 : COMBINATIONs 1-25 125-127 : —
		SCb (SECTION B)		PROGRAM CHANGE No. : TONE/COMBINATION No. 0-99 : TONEs 101-200 100-124 : COMBINATIONs 26-50 125-127 : —
PRESSURE	PrS	on/oFF	Sets whether or not PHm will receive PRESSURE information.	
PITCH BEND	bnd	on/oFF	Sets whether or not PHm will receive PITCH BEND information.	
MODULATION	Mod	on/oFF	Sets whether or not PHm will receive MODULATION information.	
VOLUME	UoL	on/oFF	Sets whether or not PHm will receive VOLUME information.	
HOLD	hLd	on/oFF	Sets whether or not PHm will receive HOLD information.	
VELOCITY	UEL	on/oFF	Sets whether or not PHm will receive VELOCITY information.	

5. EXAMPLES

■ Example 1: Connecting to a keyboard

Perhaps the most typical PHm application is connecting it to a digital piano, synthesizer, or other type of MIDI keyboard to access the PHm's 16 voices, 200 tones, 50 combinations, and 30 built-in rhythm patterns from that device .



• Procedure:

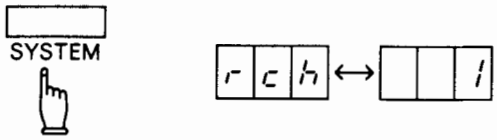
(1) Plug one end of a MIDI cable into the MIDI OUT connector on the MIDI keyboard and the other into the MIDI IN connector on the PHm.
(2) Set the keyboard's MIDI transmit channel.

Note:
A MIDI cable network carries signals on 16 different channels. To control one MIDI device from another, you must either set both to the same channel or set the receiver to OMNI ON, a special mode which receives on all channels. (See p. 10.)

Note:
Check the keyboard manual for the procedure and other details. Some keyboards, for example, transmit only on one particular channel, so you will have to set the PHm to that channel.

• Set the PHm's receive channel to the same number.

* Press the SYSTEM switch until the abbreviation for "receive channel" appears on the display alternately with the current channel setting.



* Use the "+" and "–" switches to change the channel number.



* Press the BANK switch to return to regular operation.

Note:
The above procedure applies to tones only. Combinations use FORMS, for which the channels are fixed. (See "Form List" on p. 9.) You must either change the transmitting instrument's channel number or use a different FORM.

(3) Specify which of the seven different types of MIDI data the PHm will act upon.

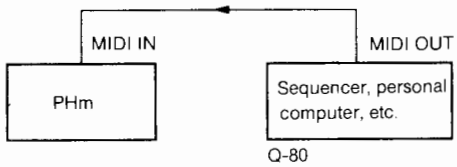
* Press the SYSTEM switch until the abbreviation for "program change" appears on the display alternately with current setting.
* Use the "+" and "–" switches to change the setting. Repeat the above two steps for all seven types of information.
* Press the BANK switch to return to regular operation.

■ Example 2: Connecting to a sequencer

A sequencer, personal computer, or similar MIDI device can use the PHm to simultaneously play five different parts (four instrumental parts plus a drum part).

• Procedure:

(1) Plug one end of a MIDI cable into the MIDI OUT connector on the sequencer and the other into the MIDI IN connector on the PHm.
(2) Set the PHm's MIDI clock to "SYC" (if you want to SYNC its tempo to a sequencer or drum machine) or to a value in the range 50-250.



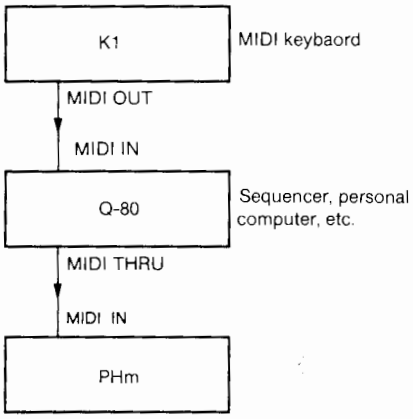
- FORM: 27
- MIDI 1ch = TONE A: Kick Bass 2
- MIDI 2ch = TONE B: Distor!
- MIDI 3ch = TONE C: Stratto
- MIDI 4ch = TONE D: Jump! PHm
- MIDI CLOCK = SYC
- Pattern = 16 FUNK 1
- MIDI 10ch = Drum section

Note:
FORMs 1-26 and 30 use channel 1 as the receive channel for all four parts (A-D). For independent four-part operation, use FORM 27, 28, or 29.

■ Example 3: Monitoring sequencer recording

Inserting a sequencer, personal computer, or similar MIDI device between the PHm and the keyboard allows you to simultaneously record all data as you play.

Note:
There are two types of recording: real time and step-by-step. (Consult your sequencer manual for the relevant procedures.)



• Procedure:

(1) Connect the three devices as shown.

(2) Select a PHm combination.

Note:
This description uses the same FORM as the example on the preceding page.

(3) Set the keyboard's MIDI transmit channel to 1.

(4) Record the track for Part A. (Consult your sequencer manual for the relevant procedures.)

(5) Set the keyboard's MIDI transmit channel to 2 and repeat the previous step to record the track for Part B.

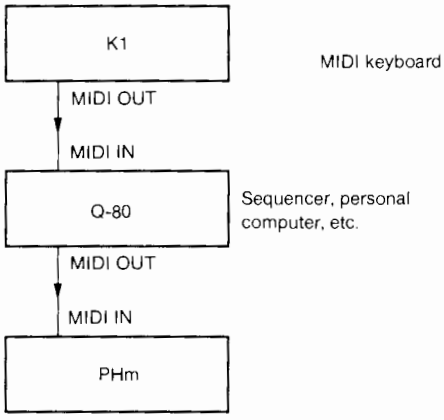
(6) Repeat the above procedure for transmit channels 3 (Part C) and 4 (Part D).

(7) Adjust the levels for the four parts and change the tones assigned to them.

■ Example 4: Overlaying tracks

The Kawai Q-80 and other equally advanced sequencers allow you to play back existing tracks as you record new ones.

Note:
The sequencer must be capable of simultaneously sending its own data to the MIDI OUT terminal along with the data coming in from the MIDI IN terminal.



• Procedure:

(1) Connect the three devices as shown.

(2) Select a PHm combination and set the keyboard's MIDI transmit channel to 1.

(3) Set the PHm's MIDI clock to "SYC" so that it synchronizes to the sequencer.

(4) Record the track for Part A.

Note:
The PHm's rhythm pattern automatically starts in time with the sequencer.

(5) Use the same procedure to record the other three tracks.

(6) Set the keyboard's MIDI transmit channel to 10 and record the drum part. (See "Percussion Instrument Assignments" p. 15 for the key assignments.)

6. COMBINATION LIST (50 combinations)

The PHm is shipped with the following combinations.

#	FORM	ASSIGN				LEVEL				Contents
		A	B	C	D	A	B	C	D	
1	1	55	185	—	—	90	100	—	—	Expansive sound effect
2	2	69	69	—	—	100	100	—	—	Bell sound with stereo effect
3	3	28	28	—	—	100	100	—	—	Thick organ
4	4	73	73	—	—	100	100	—	—	Stereo Pan Flute
5	5	3	3	—	—	90	90	—	—	Old out of tune piano
6	6	114	114	—	—	90	90	—	—	Octave Brass ensemble
7	7	67	178	—	—	100	100	—	—	Orchestra and French Horn layer
8	8	54	55	—	—	90	90	—	—	Sound Effect: keep the keys pressed for full effect
9	9	2	59	—	—	100	100	—	—	Jazz Piano and Sax split
10	10	9	2	—	—	90	100	—	—	Contrabass and Jazz Piano split
11	11	12	170	—	—	70	80	—	—	Clavinet with Bass layered in the low range
12	12	57	58	47	—	100	100	100	—	Sci-Fi Movie sound
13	13	101	34	131	—	100	100	70	—	Romantic layer
14	14	75	54	67	—	80	80	80	—	Orchestra Hit plus sound effects
15	15	101	39	34	—	100	75	85	—	Elegant European sound
16	16	133	43	13	—	70	80	70	—	Analog sound collection
17	17	39	82	4	—	70	90	90	—	Cute Pianos
18	18	32	30	33	—	100	90	100	—	Harmonious Strings
19	19	38	41	138	139	80	80	80	80	Synthesizer Solo
20	20	45	148	50	51	100	100	80	80	War movie effects
21	21	172	87	61	64	100	100	100	100	Oriental multi split
22	22	194	196	94	195	100	100	100	100	Percussion multi split
23	23	105	40	102	40	90	70	90	70	Piano and Solo split
24	24	185	185	67	67	100	100	80	80	Voice and Orchestral layer
25	25	2	2	2	2	90	90	90	90	Piano 1-finger chord with piano solo on top
26	26	20	20	20	20	90	90	90	90	Distortion chord solo
27	27	111	20	21	40	100	100	100	100	Rock sequence (MIDI channels 1-4)
28	28	72	84	36	184	100	100	100	100	Strings sequence (MIDI channels 5-8)
29	29	56	156	190	193	100	100	100	100	Rap sequence (MIDI channels 13-16)
30	30	1	—	—	—	100	—	—	—	LINK combination — see p. 6.
31	3	30	30	—	—	100	100	—	—	Expansive strings
32	3	1	1	—	—	100	100	—	—	Chorus Piano
33	3	74	74	—	—	100	100	—	—	Stereo Wine Glass
34	3	123	123	—	—	100	100	—	—	Stereo echo sound
35	3	83	83	—	—	100	100	—	—	Music Box
36	23	153	146	147	46	100	100	60	70	Sound Effect 1 (Panic!)
37	22	51	53	151	74	80	100	100	100	Sound Effect 2 (Nature)
38	12	74	81	83	—	90	80	100	—	Glasses
39	12	79	123	66	—	80	80	90	—	Spacy classical sound
40	13	72	78	77	—	100	100	90	—	Horn and Cello
41	19	179	69	87	65	70	80	80	80	Middle East
42	20	11	162	109	109	100	80	100	100	Extreme Bass
43	20	75	109	50	91	80	80	80	80	Impact Hit
44	17	45	28	28	—	100	100	100	—	Old Horror Movie
45	27	2	107	59	19	100	100	100	100	Jazz sequence (MIDI channels 1-4)
46	27	59	60	16	113	100	100	100	100	Brass sequence (MIDI channels 1-4)
47	27	84	24	19	9	100	100	100	100	Country sequence (MIDI channels 1-4)
48	27	173	173	80	168	100	100	100	100	Woodwind sequence (MIDI channels 1-4)
49	27	68	173	80	84	100	100	100	100	European ethnic sequence (MIDI channels 1-4)
50	27	41	133	73	61	100	100	100	100	Silk Road sequence (MIDI channels 1-4)

6. COMBINATION LIST (User)

#	FORM	ASSIGN				LEVEL				Contents
		A	B	C	D	A	B	C	D	
1										
2										
3										
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7. BUILT-IN RHYTHM PATTERNS

The PHm contains 30 built-in rhythm patterns. To change patterns, press the RHYTHM switch to display the current setting and then use the "+" and "–" switches to change the setting. The chart below lists the patterns and their numbers.

Pattern No.	Pattern
1	8 BEAT 1
2	8 BEAT 2
3	8 BEAT 3
4	SYNTH POP
5	ROCK
6	METAL 1
7	METAL 2
8	50'S ROCK
9	60'S ROCK
10	BALLAD
11	E. POP
12	E. 8 BEAT
13	16 BEAT 1
14	16 BEAT 2
15	DISCO
16	FUNK 1
17	FUNK 2
18	RAP
19	JAZZ POP
20	ECHO
21	SHUFFLE
22	SLOW ROCK
23	SWING
24	JAZZ WALTZ
25	BOUNCE
26	BOSSANOVA
27	SAMBA
28	COUNTRY
29	REGGAE
30	STREET KIDS

8. PERCUSSION INSTRUMENT ASSIGNMENTS

The PHm also allows you to create your own drum section. The chart below lists the instruments assigned to the keys C1-D#2.

Note:
The keyboard must transmit on MIDI channel 10. The drum section receives on this channel only — even when the OMNI mode is ON.

Note:
Some smaller keyboards do not support this entire range.

Instrument	MIDI Note No.
AC.BD	36
Rim	37
AC.SD	38
Finger-S	39
E.SD	40
Kick	41
HH Closed	42
Tom Lo	43
Scratch	44
Tom Hi	45
HH Open	46
Agogo	47
Cowbell	48
Crash	49
SE-SD	50
Ride	51

■ TROUBLESHOOTING

Problem: There is no sound.

- Check the power supplies. Make sure that all instruments are plugged in and turned on.
- Check the PHm's AC adaptor.
  Note:
  Use only the adaptor shipped with the PHm.
- Check the volume controls. Make sure that all instruments have their volume controls at an audible level.
- Check the MIDI cables. Make sure that the ends are firmly plugged into the proper connector, MIDI IN or MIDI OUT. (See "Basic Connections" on p. 3.)
- Check the MIDI channels. The transmitting device must use the same channel as the PHm. (See p. 11.)

Problem: The tempo of the PHm's rhythm pattern does not match that of the other instruments.

■ To make the PHm match another instrument:

- Check the PHm's tempo. Make sure that it is set to "SYC" and not a number. (See p. 11.)
- Check the transmitting equipment. Make sure that it sends a clock signal. (Consult the manual for the relevant procedures.)

■ To make other instruments match the PHm:

- Check the MIDI cable. Make sure that it connects the PHm's MIDI OUT terminal to the instrument's MIDI IN terminal.
- Check the PHm's tempo. Make sure that it is set to a number and not to "SYC". (See p. 5.)
- Check the instrument's MIDI CLOCK setting. Make sure that it is set to EXT (external). (Consult the manual for the procedure.)

Problem: The PHm playback does not match the version recorded.

- Check the tone and combination bank settings. Make sure that they are the same as they were when you recorded.
- Check the tone assignments, FORMs, and levels. Make sure that they are the same as they were when you recorded.

■ SPECIFICATIONS

Number of Voices	16 Maximum
Tone Patches	250 (200 Tones/50 Combinations)
Rhythm	30 Patterns Start/Stop, Intro/Fill In, Tempo, Rhythm Volume
Combination Edit	30 Forms Assign, Volume
System	Tune, Transpose, Transmit Channel, Receive Channel, Omni On/Off, Program Change, Pressure On/Off, Pitch Bend On/Off, Modulation On/Off, Volume On/Off, Hold On/Off, Velocity On/Off
Others	Power, Master Volume, MIDI
Jacks	L (Mono)/R, MIDI (In, Out, Thru)
Display	3 LEDs
Power Supply	Household power supply (Using AC adaptor)
Dimensions (W × D × H)	219 × 44 × 186.5 mm, 8 5/8" × 1 3/4" × 7 3/8"
Weight	1.2 kg, 2.7 lbs

KAWAI

Printed in Japan