KAWAI
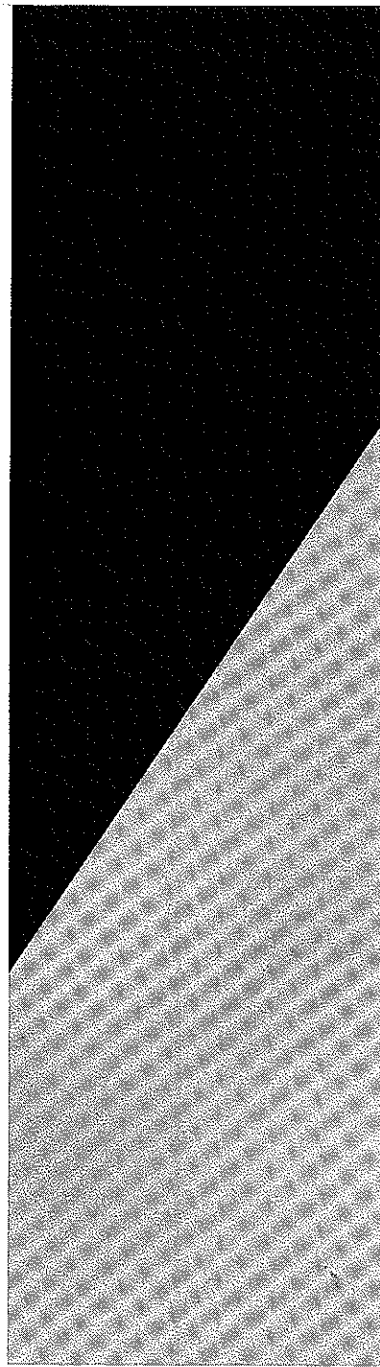
DIGITAL PIANO
P351

Owner's Manual

Thank you for purchasing a Kawai Digital Piano!

The Kawai digital piano P351 is a revolutionary new keyboard instrument that combines the latest in electronic advances with traditional craftsmanship inherited from Kawai's many years of experience in building fine pianos. Its wooden keys provide the touch response and full dynamic range required for a superb performance on the piano, harpsichord, organ, and other instrument presets. Industry-Standard MIDI (Musical Instrument Digital Interface) jacks are included which allow you to play other electronic instruments at the same time — opening a whole new world of musical possibilities.

This Owner's Manual contains valuable information that will help you make full use of this instrument's many capabilities. Read it carefully and keep it handy for future reference.

IMPORTANT NOTES

● **Power Supply**

Use only the voltage appearing on the plate next to the power cord (Rear Panel). Incorrect voltage presents a shock hazard and will also damage the instrument's delicate electronic circuitry.
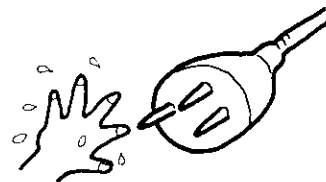
● **Electrical Noise**

Keep the instrument away from electrical motors, neon signs, fluorescent light fixtures, and other sources of electrical noise.
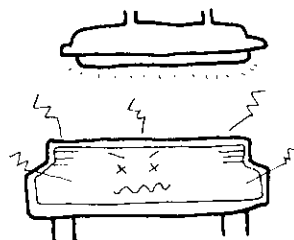

● **Power Cord**

Do not touch the power plug with wet hands. There is a risk of electrical shock.
Treat the power cord with care as well. Stepping on or tripping over it can break or short-circuit the wire inside.

● **Repairs and Alterations**

Never attempt to remove or modify the piano's circuitry. There is a significant shock hazard and there are no user servicable parts. If you think something is broken, consult your nearest authorized Kawai dealer.
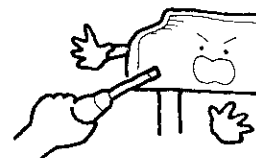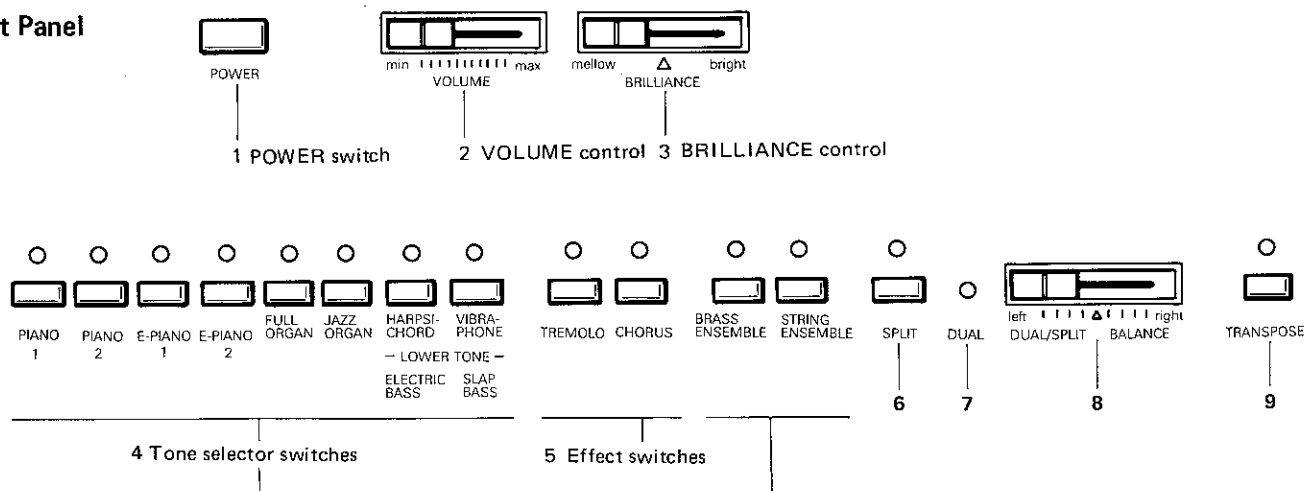

● **After Use**

Always turn the power off when the instrument is not in use. Leaving the piano on for extended periods can lead to serious problems.

Table of Contents

■Basic Controls

■ Front Panel

POWER

min ⎢⎢⎢⎢⎢⎢⎢⎢⎢⎢ max
VOLUME

mellow △ bright
BRILLIANCE

1 POWER switch 2 VOLUME control 3 BRILLIANCE control

PIANO 1 | PIANO 2 | E-PIANO 1 | E-PIANO 2 | FULL ORGAN | JAZZ ORGAN | HARPSI-CHORD / ELECTRIC BASS | VIBRA-PHONE / SLAP BASS

— LOWER TONE —

TREMOLO | CHORUS

BRASS ENSEMBLE | STRING ENSEMBLE

SPLIT | DUAL

left ⎢⎢⎢⎢△⎢⎢⎢⎢ right
DUAL/SPLIT BALANCE

TRANSPOSE

6 7 8 9

4 Tone selector switches

5 Effect switches

1 POWER

2 VOLUME

Move the volume slider to the right to increase the instrument's volume. Move the slider to the left to decrease the volume.

3 BRILLIANCE control

This slider controls the brilliance, or clarity, of the sound. Shifting it to the left produces a rich, mellow sound; shifting it to the right, a bright, clear sound. The center position corresponds to the instrument's normal tone.

4 TONE SELECTORS

Select the desired instrument by pressing the appropriate switch.

5 EFFECTS

These functions cause the output to become more animated (CHORUS) or fluctuate (TREMOLO).

6 SPLIT switch

Pressing this switch splits the keyboard into an upper and lower half, each with different tone colors. When the function is first activated, the keyboard is split at the point marked with a triangle on the front panel, but this point is changeable. For the procedure, see "Changing the SPLIT point".

7 DUAL LED

Simultaneously pressing two tone selector switches lights this DUAL LED and activates the DUAL mode of operation, in which the piano simultaneously uses two tones instead of just one. Press a single tone selector switch to cancel.

8 DUAL/SPLIT BALANCE control

This slider controls the relative loudness of the two voices used in the SPLIT and DUAL modes. Shifting it to the right in the SPLIT mode makes the UPPER keyboard louder. For the DUAL mode, it is the rightmost preset of the pair that becomes louder.
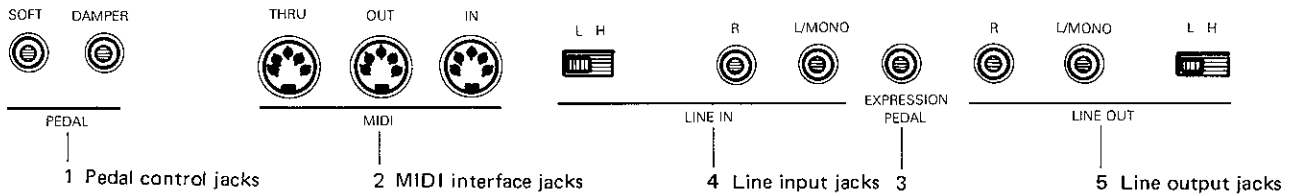
■ Example

The PIANO 1 selector is to the left of VIBRAPHONE. If they are being used together in the DUAL mode, shifting the slider to the left makes the PIANO 1 tone louder. Shifting it to the right makes the VIBRAPHONE tone louder.

9 TRANSPOSE switch

The TRANSPOSE function automatically transposes the entire keyboard to a different key. For example, after changing the transposition to the key of E, playing a C scale would actually sound as an E scale. Changing keys is as easy as holding down this switch and selecting the key from the 1-octave range marked on the front panel. The LED next to the switch remains lit for all keys except C, the standard.

Note: Pressing and then releasing the TRANSPOSE key returns the piano to the key of C (No transposition).

■ Rear Panel

SOFT   DAMPER   THRU   OUT   IN   L H   R   L/MONO   R   L/MONO   L H

PEDAL   MIDI   LINE IN   EXPRESSION   LINE OUT
                                                                                  PEDAL

1 Pedal control jacks   2 MIDI interface jacks   4 Line input jacks 3   5 Line output jacks

---

1 PEDAL
These jacks are used to connect the damper and soft pedals.

2 MIDI
These jacks allow communication with other gear equipped with MIDI.

IN   Accepts MIDI data from other instruments.

OUT   Transmits MIDI data to other instruments.

THRU   Retransmits all MIDI data coming into the MIDI IN jack (for use in a chain of MIDI devices).

3 EXPRESSION pedal
This jack is for connecting an expression pedal. The piano also adds this effect to the signal received through the LINE IN jack.

4 LINE IN
These jacks connect two channels of output from other electronic instruments to the piano's speaker. Use the L/MONO jack when using only one input.

Note: This input bypasses the piano's VOLUME control. To adjust the balance, you must use the output volume controls on the individual instruments.

The two-position switch adjusts the LINE IN jack sensitivity to match the source: Low for strong inputs and High for weak ones.

5 LINE OUT
These jacks provide stereo output to amplifiers, stereo systems, tape recorders, or similar equipment. The two-position switch to the right allows you to adjust the output level to High (H) or Low (L) to match the input impedance of the other equipment. Use the L/MONO jack when using only one output.

■Basic Operation

1. Basic Operation

① Turn on the power.

When the power is first applied, the LED next to the PIANO 1 switch in the tone selector section lights.

POWER

② Adjust the volume.

Sound a note on the keyboard and adjust the volume. (Moving the slider to the right raises the volume; moving it to the left lowers it).

min ⋅⋅⋅⋅⋅⋅⋅⋅⋅⋅⋅ max
VOLUME

③ Choose a tone color

Pressing a tone selector switch automatically changes the tone of the piano. The LED next to it lights to indicate which tone is currently in effect.

DUAL operation

■ **Procedure**

Simultaneously press two tone selector switches to achieve two tone colors at once and light the DUAL LED.

Notes: • Pressing such a combination also halves the number of simultaneous voices available to eight.
  • Pressing another pair changes the combination.
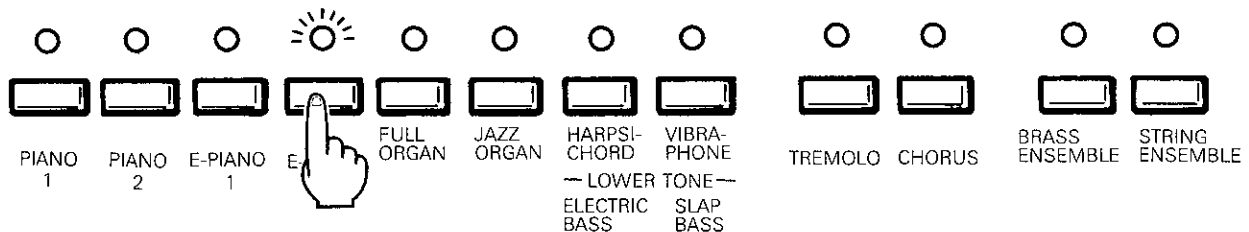 • To cancel and return to normal operation, press a single tone selector switch.

SPLIT operation

This operation splits the keyboard into an upper and lower half with different tone colors. The LED for the UPPER keyboard tone color glows continuously; the one for the LOWER keyboard flashes.

■ **Procedure**

Press the SPLIT switch so that the LED next to it lights.
Press a tone selector to change the UPPER tone color.
Hold down the SPLIT switch and press a tone selector to change the LOWER tone color.
Adjust the relative loudness of the two tone colors with the DUAL/SPLIT BALANCE control.

Notes: • When the function is first activated, the keyboard is split at the point marked with a triangle on the front panel, and the LOWER keyboard assumes the STRING ENSEMBLE tone color.
  • The HARPSICHORD and VIBRAPHONE cannot be selected as lower tone colors. Conversely, the ELECTRIC BASS and SLAP BASS cannot be selected as upper tone colors.
  • The LOWER tone color specification remains in effect until the power is removed or the tone color is changed.
  • Switching from DUAL operation to SPLIT operation makes the UPPER keyboard assume the right tone color and the LOWER assume the STRING ENSEMBLE or the tone you chose for the LOWER tone color.
  • You must turn the SPLIT operation off before you can return to DUAL operation.
  • To change the SPLIT point, see "Changing the SPLIT Point".

```
  O    O    O    ⋆O⋆    O    O    O    O         O    O         O    O

                          FULL   JAZZ   HARPSI-  VIBRA-
                          ORGAN  ORGAN  CHORD    PHONE     TREMOLO CHORUS   BRASS     STRING
 PIANO  PIANO  E-PIANO  E-                                                  ENSEMBLE  ENSEMBLE
   1      2      1                      — LOWER TONE—
                                        ELECTRIC  SLAP
                                        BASS      BASS
```

④ Play

Experiment with the various tone colors to acquaint yourself with the sounds that are available.

⑤ (Optional) Add an effect!

Press an effect switch to add a special effect (CHORUS or TREMOLO).

2 The NEXT Function

Pressing a tone selector switch does not necessarily produce an immediate change. If you are pressing any keys on the keyboard or holding down the damper pedal, the LED next to the switch will start flashing to indicate that the piano is ready to change. When you release all keys and the damper pedal, the tone color will instantly change and the LED will light steadily. This allows you to make a smooth, natural transition without removing your hands from the keyboard.
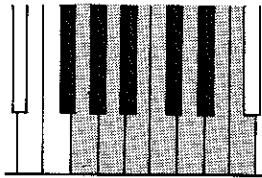
Note: This function applies to the DUAL and SPLIT modes of operation as well.

3 TRANSPOSE
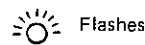
ENGAGE

☼ Flashes
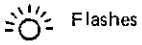
TRANSPOSE

(1) Hold down.

(2) Select any key but C in the octave indicated on the panel.

Remains lit to indicate that transposition is in effect.

○
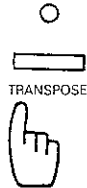
TRANSPOSE
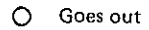
(3) Release

DISENGAGE

☼ Flashes
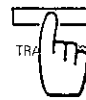
TRANSPOSE

(1) Hold down a second time.

○ Goes out

TRANSPOSE

(2) Simply releasing the switch is sufficient to return the keyboard to C (No transposition).

# ■Advanced Features

1) MIDI Interface

1 Introduction

The letters MIDI stand for Musical Instrument Digital Interface, an international standard for connecting synthersizers, drum machines, and other electronic musical instruments so that they can exchange performance data. The P351 features three MIDI jacks — IN, OUT, and THRU — that allow it to both send and receive these kinds of data.

Note: The sending and receiving instruments must be assigned the same channel number before they can communicate.

2 Typical Applications

2.1 Ensemble playing with another keyboard instrument

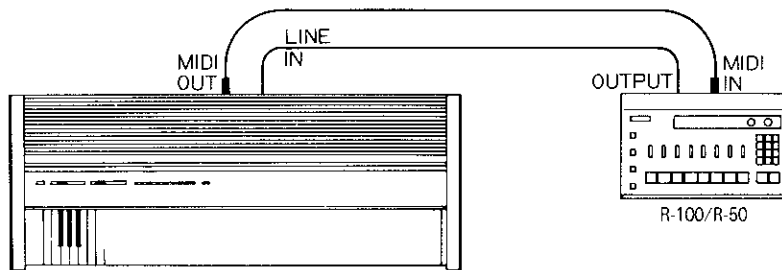**Example:** a Kawai K3 digital synthesizer

K3
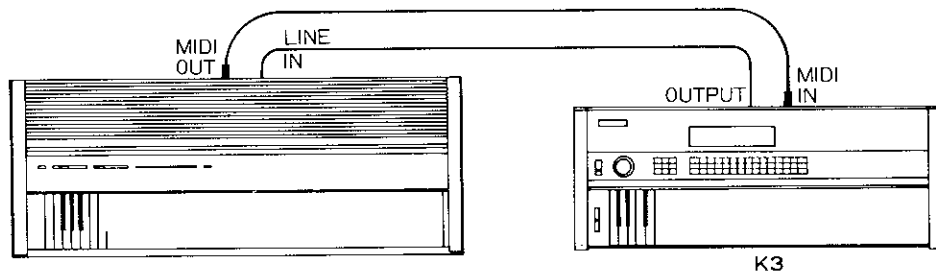
If you connect the MIDI OUT jack on your electronic piano to the MIDI IN jack on the synthesizer and the synthesizer's LINE OUTPUT jack to the piano's LINE IN jack, you will be able to play both instruments simultaneously from the piano keyboard. The interface transmits both the keys played and the strength with which you played them, so the synthesizer output is exactly the same as it would be if you were playing the keyboard directly. The only differences is that the synthesizer uses a different tone color, which blends with the digital piano's to create an ensemble effect. You can, for example, add the synthesizer's strings to your piano solo to give it more depth.

Note: If you reverse the MIDI IN and MIDI OUT connections, you can play the piano from the synthesizer just as easily.

2.2 Drum Machines

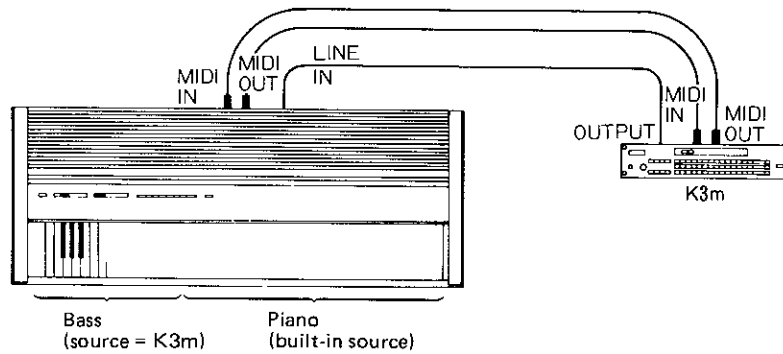**Example:** a Kawai R-100/R-50 drum machine

R-100/R-50

Connecting a drum machine allows you to add a rhythm accompaniment to your playing or create special effects by adding notes from the percussion instrument to the piano output.

2.3 Sound Generator Modules

Example: a Kawai K3m synthesizer module

Connecting your piano to a Kawai K3m allows you to play the ensembles discussed in the first example above. You can split the keyboard into two sections, each of which uses a separate sound. The illustration shows a piano-bass combination.

Note: You must set the LOCAL CONTROL parameter (described on a later page in this section) to OFF to use the split feature.

3 MIDI Implementation

The MIDI interface on your Kawai Electronic Piano allows you to:

(1) Receive and transmit keyboard data.
(2) Receive and transmit soft and damper pedal data (ON/OFF).
(3) Receive and transmit program numbers — codes for changing tone colors.
(4) Set MIDI channel numbers for sending and receiving to any number between 1 and 16.
(5) Simultaneously receive data on multiple channels (MULTI TIMBRE) and simultaneously transmit on two channels (SPLIT).
(6) Turn LOCAL CONTROL on and off — either from the keyboard or another instrument.

4 Operation

To issue commands to the MIDI interface or use the tuning capability, you must first switch the piano to a special "programming" mode.

4.1 Entering the programming mode

Hold down the CHORUS switch and simultaneously press the first three tone selector switches (PIANO 1, PIANO 2, and E PIANO 1). The LEDs next to the CHORUS and PIANO 1 switches should then start flashing to indicate that the piano is in the programming mode. In this mode, striking the keyboard produces no output.
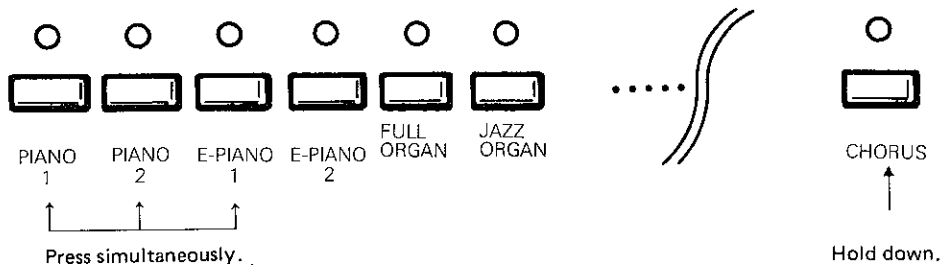

4.2 Sending a program number (tone color code)

The P351 can send commands to other MIDI equipment to force program changes.
In the programming mode, the flashing LED next to the PIANO 1 switch indicates that the interface is ready to transmit a program number. Select the program number by pressing the corresponding pair of black keys at the lower end of the keyboard. There are a total of 128 numbers possible: the first thirteen black keys give the first and second digits ("00" – "12") of this three-digit number; the next ten, the final digit ("0" – "9").
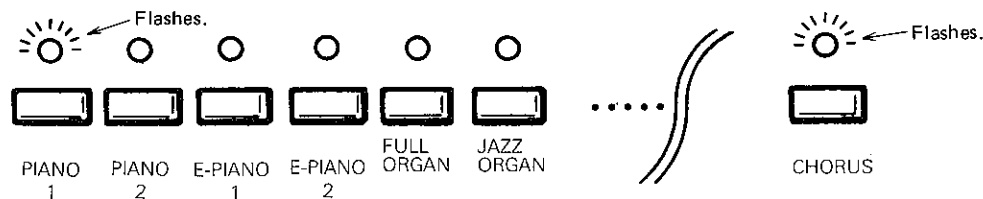
Note: You must press the two keys in order from left to right. Alternatively, you can press just the second one to change only the third digit.
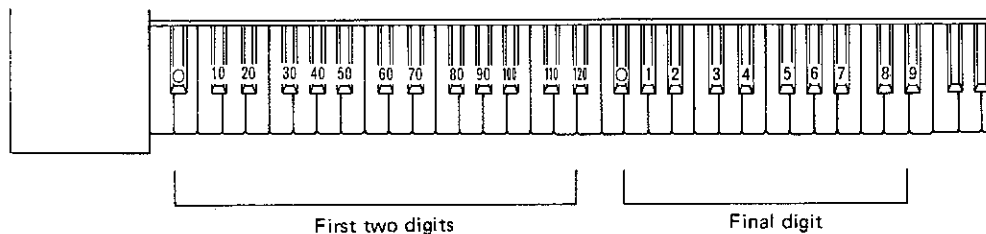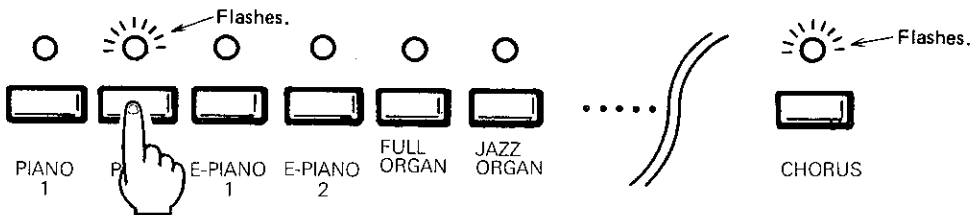
- **Examples:**

- Program No. 3

• Press the "00" key and then the "3" key.

- Program No. 20

• Press the "20" key and then the "0" key.

- Program No. 42

• Press the "40" key and then the "2" key.

4.3 Setting the channel

With the piano in the programming mode, press the PIANO 2 switch so that it flashes to indicate that the interface is waiting for a channel specification. (It is also possible to turn the MULTI TIMBRE function ON and OFF. See following section.)

Flashes.

○ -○- ○ ○ ○ ○ . . . . . -○- ← Flashes.

PIANO   P   E-PIANO E-PIANO FULL   JAZZ   CHORUS
1   1   2   ORGAN ORGAN

Select the channel by pressing the one of the first 16 white keys at the lower end of the keyboard.

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16
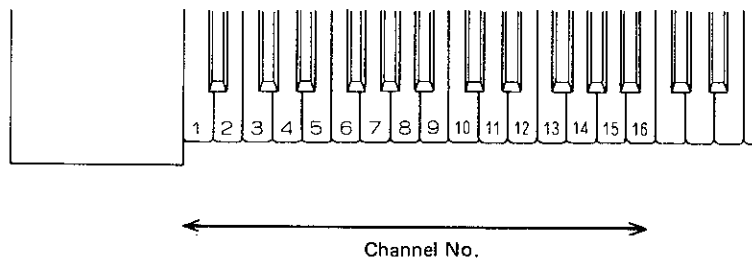
Note: You have 16 channels to choose from.

Channel No.

Pressing one of these keys automatically sets the instrument's sending and receiving channel to the number selected.

Note: When the power is first applied, the interface uses Channel 1 and has the OMNI parameter on. Changing to another channel automatically turns the OMNI parameter off. In OMNI mode, information from all channels is received.

8

4.4 Turning MULTI TIMBRE on and off

The MULTI TIMBRE function allows external MIDI instruments operating on different channels to simultaneously use up to 16 tone colors. The following chart gives the channel number assignment.

Channel 1	:	PIANO 1		
Channel 2	:	PIANO 2		

Channel 1 : PIANO 1   Channel 9 : BRASS ENSEMBLE
Channel 2 : PIANO 2   Channel 10 : STRING ENSEMBLE
Channel 3 : E. PIANO 1   Channel 11 : TUBULARBELL
Channel 4 : E. PIANO 2   Channel 12 : E. GUITAR
Channel 5 : FULL ORGAN   Channel 13 : PIPE ORGAN
Channel 6 : JAZZ ORGAN   Channel 14 : SLAP BASS
Channel 7 : HARPSICHORD   Channel 15 : ECHO BRASS
Channel 8 : VIBRAPHONE   Channel 16 : ELECTRIC BASS

■ Procedure

Follow the procedure in the preceding section to set the LED next to the PIANO 2 switch flashing.
Press the highest black key to turn the function off, the highest white one to turn it on.

Notes: ● When the power is first applied or reapplied after a short break, MULTI TIMBRE is off.
● SPLIT function transmits MIDI messages for the upper half of the keyboard on the current MIDI channel or, if no channel has been selected, channel 1. Those for the lower half go out over the next channel.

■ Example

If the current MIDI channel is 3, the upper half of the keyboard sends on channel 3 and the lower half sends on channel 4. If the current channel is 16, the lower half sends on channel 1.

4.5 Turning LOCAL CONTROL on and off

LOCAL CONTROL refers to the connection between the internal sound source and the keyboard. It is normally on. Turning it off disconnects the keyboard; the instrument sounds only when it receives keyboard data through the MIDI interface. The keyboard can still control other MIDI devices connected to the P351's MIDI OUT.
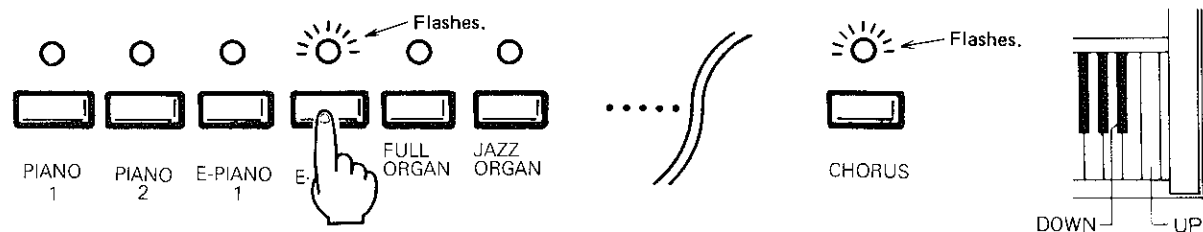
■ Procedure

With the piano in the programming mode, press the E PIANO 1 switch so that it flashes to indicate that the interface is waiting for a LOCAL CONTROL specification. Press the highest black key to turn it off, the highest white one to turn it on.
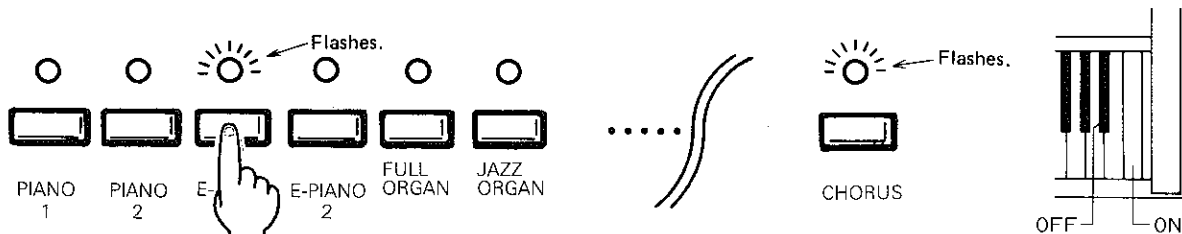
Note: Momentarily turning off the power also turns LOCAL CONTROL on.

2) Tuning

With the piano in the programming mode, press the E PIANO 2 switch so that it flashes to indicate that the piano is ready to be tuned. Unlike the other functions in the programming mode, this one produces keyboard output so that you can compare the piano's pitch with another instrument. It uses the same keys as the LOCAL CONTROL function: Press the highest black key to lower the pitch, the highest white one to raise it. It may be necessary to press these keys repeatedly to achieve proper tuning.


Note: Momentarily turning off the power restores the original pitch.

9

3) Temperaments

Your Kawai digital piano offers not only equal temperament (the modern standard), but also immediate access to those popular during the Renaissance and Baroque period.

■ Procedure

With the piano in the programming mode, press the FULL ORGAN switch so that it flashes to indicate that the piano is waiting for a temperament specification. Press one of the seven white keys at the lower end of the keyboard to select one of these corresponding temperaments.
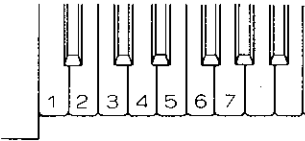
1. Equal temperament without the tuning curve
2. Mersenne pure temperament
3. Pythagorean temperament
4. Meantone temperament
5. Werckmeister III temperament
6. Kirnberger III temperament
7. Equal temperament with the tuning curve

Note: When the power is first applied or reapplied after a short break, the piano returns to the modern standard, equal temperament with the tuning curve (#7).

Key set function is also available at this point. As you know, limitless modulation of the key became available only after the inventation of Equal Temperament. When we use a temperament except Equal Temperament, we must carefully choose the key signature to play in.
To select the key signature setting, simply press one of the keys marked on the front panel. For example, if the tune you are going to play is written in D major, press D key to set the key.
Please note that this will only change the "balance" of the tuning, and the pitch of the keyboard will remain unchanged. Use the Transpose function to change the pitch of the whole keyboard.

Notes: • The order in which the temperament and key signature are pressed does not affect the final result.
• These temperament and key signature specifications remain in effect until the power is removed.

■ Temperament Characteristics

● **Equal temperament**

This, by far the most popular piano temperament, divides the scale into twelve equal semitones and has the advantage of producing the same chords for all transpositions.

● **Mersenne pure temperament**

This temperament, which eliminates consonances for thirds and fifths, is still popular for choral music.

● **Pythagorean temperament**

This temperament, which uses mathematical ratios to eliminate consonances for fifths, has problems with chords, but produces a very beautiful melodic line.

● **Meantone temperament**

This temperament, which uses a mean between a major and minor whole tone to eliminate consonances for thirds, was devised to eliminate the lack of consonance experienced with certain fifths for the Mersenne pure temperament. It produces chords that are more beautiful than those with the equal temperament.

● **Werckmeister III temperament, Kirnberger III temperament**

For key signature with few accidentals, this temperament produces the beautiful chords of the mean tone, but, as the accidentals increase, the tension increases, and the temperament produces the beautiful melodies of the Pythagorean temperament. It is used primarily for classical music written to take advantage of these characteristics.

4) Changing the SPLIT Point

■ Procedure

With the piano in the programming mode, press the SPLIT switch so that it flashes to indicate that the piano is waiting for a SPLIT point specification. Press the key corresponding to the lowest note for the desired UPPER range. For example, pressing the lowest key on the keyboard makes UPPER the entire keyboard.

Note: This specification remains in effect until the power is removed.

■ Leaving the programming mode

To leave the programming mode, simply press the CHORUS switch. The flashing will stop, and you will return to the tone color in effect when you entered the programming mode.

■Specifications

Keyboard	88 keys (wood)
Tone Colors	[Upper] Piano 1, 2, 3, E. Piano 1, 2, Full Organ, Jazz Organ, Harpsichord, Vibraphone, Brass Ensemble, String Ensemble [Lower] Piano 1, 2, 3, E. Piano 1, 2, Full Organ, Jazz Organ, Electric Bass, Slap Bass, Brass Ensemble, String Ensemble
Effects	Tremolo, Chorus
Special Mode	Dual, Split
Temperaments	Equal, Mersenne pure Pythagorean, Meantone Werckmeister III, Kirnberger III
Controls	Volume, Brilliance, Transpose, Tune Dual/Split Balance, Split Point
Other Fittings	Headphone Jack, Pedal Jacks (Soft, Damper) Line Input Jacks (L[Mono]/R), Input Level Switch (H/L) Line Output Jacks (L[Mono]/R), Output Level Switch (H/L) Expression Pedal Jack, MIDI Jacks (IN, OUT, THRU)
Output Power	20W x 2
Speakers	16 cm x 2, 6 cm x 2
Power Consumption	90W
Finish	Dark Grey
Dimensions (including stand)	1379 (W) x 475 (D) x 779 (H) mm (54 1/4" x 18 3/4" x 30 3/8")
Weight (including stand)	49.4 kg (108.7 lbs)

[KAWAI DIGITAL PIANO]
MODEL P351

MIDI Implementation Chart

Date: Sep. 1987
Version: 1.0

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1	1	
	Changed	1-16	1-16	
Mode	Default	3	1	** The default for the OMNI mode is ON. Specifying MIDI channels automatically turns it OFF.
	Messages	X	1, 3 **	
	Altered	*************	X	
Note Number : True voice		21-108 * *************	0-127 15-113	
Velocity	Note ON	O 9nH V = 1-127	O	V = 1-127
	Note OFF	X 9nH V = 0, 8nH	X	
After Touch	Key's	X	X	
	Ch's	X	X	
Pitch Bender		X	X	
Control Change	64	O (Right pedal)	O	Damper pedal
	67	O (Left pedal)	O	Soft pedal
Prog Change : True #		O (0-127) *************	O (0-127) 0-9	8-127 = 0 10-127 = 0
System Exclusive		X	X	
System Common	: Song Pos	X	X	
	: Song Sel	X	X	
	: Tune	X	X	
System Real Time	: Clock	X	X	
	: Commands	X	X	
Aux Messages	: Local ON/OFF	X	O	
	: All Notes OFF	O	O	
	: Active Sense	O	O	
	: Reset	X	X	
Notes		* 15-113 The value depends on the TRANSPOSE setting.		

Mode 1 : OMNI ON, POLY   Mode 2 : OMNI ON, MONO   O : Y
Mode 3 : OMNI OFF, POLY   Mode 4 : OMNI OFF, MONO   X : N

KAWAI