YAMAHA

PORTATONE

PSR-4500

Owner's Guide

YAMAHA

Congratulations!

You are the proud owner of a Yamaha PortaTone. Your PortaTone is a high-quality musical instrument that incorporates advanced Yamaha digital technology and many versatile features. In particular, the X4500 features Yamaha's innovative DASS (Dual Architectural Synthesis System) for unprecedented sound quality. In order to obtain maximum performance and enjoyment from your PortaTone, we urge you to read this Owner's Guide thoroughly while trying out the various features described. Keep the Owner's Guide in a safe place for later reference.

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1. BEFORE YOU BEGIN

Power Supply

Your X4500 will run either from batteries or the optional power adapter. Follow the instructions below according to the power source you intend to use.

Using Batteries

Six 1.5V SUM-1, "D" size, R-20 or equivalent alkaline batteries (sold separately) must first be installed in the X4500 battery compartment.

1. Open the battery compartment cover located on the instrument's bottom panel.

2. Insert the six batteries, being careful to follow the polarity markings on the inside of the compartment.

3. Replace the compartment cover, making sure that it locks firmly in place.

   Caution:
   1. *When the batteries run down, replace them with a complete set of six new batteries. NEVER mix old and new batteries.*
   2. *To prevent possible damage due to battery leakage, remove the batteries from the instrument if it is not to be used for an extended period of time.*

Using the PA-5 Power Adapter

Plug the DC output cable from the PA-5 Power Adapter into the DC IN (9–12V) jack on the rear panel of the X4500, then plug the PA-5 into a convenient wall AC power socket.

Use **ONLY** the optional Yamaha PA-5 Power Adapter to power your instrument from the AC mains.

Setting Up the Music Stand

Insert the two pegs protruding from the bottom edge of the music stand into the two holes located at the top of the X4500 control panel.
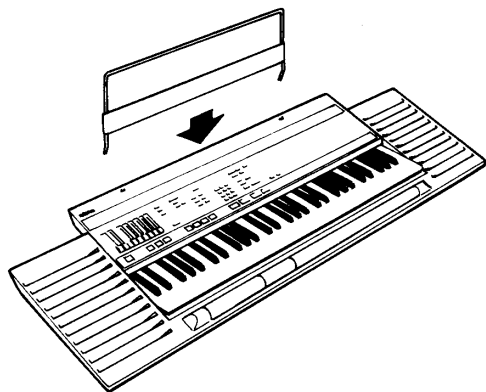
Taking Care of Your PortaTone

Your PortaTone will give you years of playing pleasure if you follow the simple rules given below:

1. Avoid placing the PortaTone in areas that are subject to excessive humidity or heat. Do not leave the instrument near heaters or in a car exposed to direct sunlight, for example.

2. Avoid locations in which the instrument is likely to be exposed to excessive dust or moisture.

3. Connections between the PortaTone and any other device must be made with both pieces of equipment turned OFF.

4. Unplug the Portatone from the AC power outlet when it is not being used.

5. Do not subject the instrument to strong physical shocks, and avoid placing heavy objects on it.

6. Use a soft cloth, dry or slightly damp, for cleaning. Never use chemicals such as benzine or thinner.

7. Since the PortaTone contains digital circuitry, it may cause interference if placed to close to radio or television receivers. If this occurs, move the instrument further away from the affected equipment.

ACCOMPANIMENT STYLE LIST

|									
00 DISCO 1	10 BRASS ROCK	20 FUSION 1	30 RHYTHM & BLUES 1	40 SWING PIANO	50 DIXIELAND COMBO	60 REGGAE 1	70 FLAMENCO	80 BOSSA NOVA 1	90 VIENNESE WALTZ
01 DISCO 2	11 CHRISTMAS ROCK	21 FUSION 2	31 RHYTHM & BLUES 2	41 16BEAT BOUNCE	51 DIXIELAND BANJO	61 REGGAE 2	71 ARGENTINE FOLKLORE	81 BOSSA NOVA 2	91 BIG BAND (WALTZ)
02 POP ROCK 1	12 ORIENTAL ROCK	22 FUNK 1	32 SLOW BLUES	42 SLOW ROCK	52 COUNTRY	62 SALSA 1	72 ISLAND FOLKLORE	82 HAWAIIAN	92 BAROQUE (WALTZ)
03 POP ROCK 2	13 ROCK BAROQUE	23 FUNK 2	33 BIG BAND 1	43 POP BALLAD	53 COUNTRY PIANO	63 SALSA 2	73 SON AFRO	83 CHANSON	93 JAZZ WALTZ
04 8BEAT 1	14 TECHNO ROCK 1	24 FUNK 3	34 BIG BAND 2	44 BAROQUE	54 COUNTRY STEEL GUITAR	64 CALYPSO	74 BEGUINE	84 ONDO	94 LULLABY
05 8BEAT 2	15 TECHNO ROCK 2	25 RAP	35 MODERN JAZZ	45 RAGTIME PIANO	55 RAGTIME PIANO	65 CONGA	75 RHUMBA	85 ENKA	95 CLASSICAL GUITAR
06 16BEAT 1	16 HARD ROCK	26 ROCK SHUFFLE	36 5/4 SWING	46 BOOGIE WOOGIE PIANO 1	56 BLUEGRASS	66 CUBAN	76 MAMBO	86 MARCH 1	96 STREET ORGAN
07 16BEAT 2	17 HEAVY METAL	27 EURO BEAT 1	37 JAZZ BALLAD	47 BOOGIE WOOGIE PIANO 2	57 MERINGUE	67 CHA-CHA-CHA	77 MAMBO 2	87 MARCH 2	97 MANDOLIN BAND
08 ROCK'N'ROLL 1	18 SPEED METAL	28 EURO BEAT 2	38 JAZZ BAROQUE	48 BOOGIE BIG BAND 1	58 TANGO	68 MARIACHI	78 SAMBA 1	88 POLKA	98 STRING QUARTET
09 ROCK'N'ROLL 2	19 CONTEMPORARY SOUL	29 GOSPEL	39 SWING GUITAR	49 BOOGIE BIG BAND 2	59 HABANERA	69 BOLERO	79 SAMBA 2	89 FANFARE	99 BARBERSHOP QUARTET

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Rear Panel Connectors

41. **DC IN (9 – 12V) Jack**

The DC output cord from the supplied Yamaha PA-5 Power Adapter should be plugged in here when the X4500 is to be powered from the AC mains supply (refer to "Power Supply" on page 1 for more details).

42. **HEADPHONES Jack**

A standard pair of stereo headphones can be plugged in here for private practice or late-night playing. The internal speaker system is automatically shut off when a pair of headphones is plugged into the HEADPHONE jack.
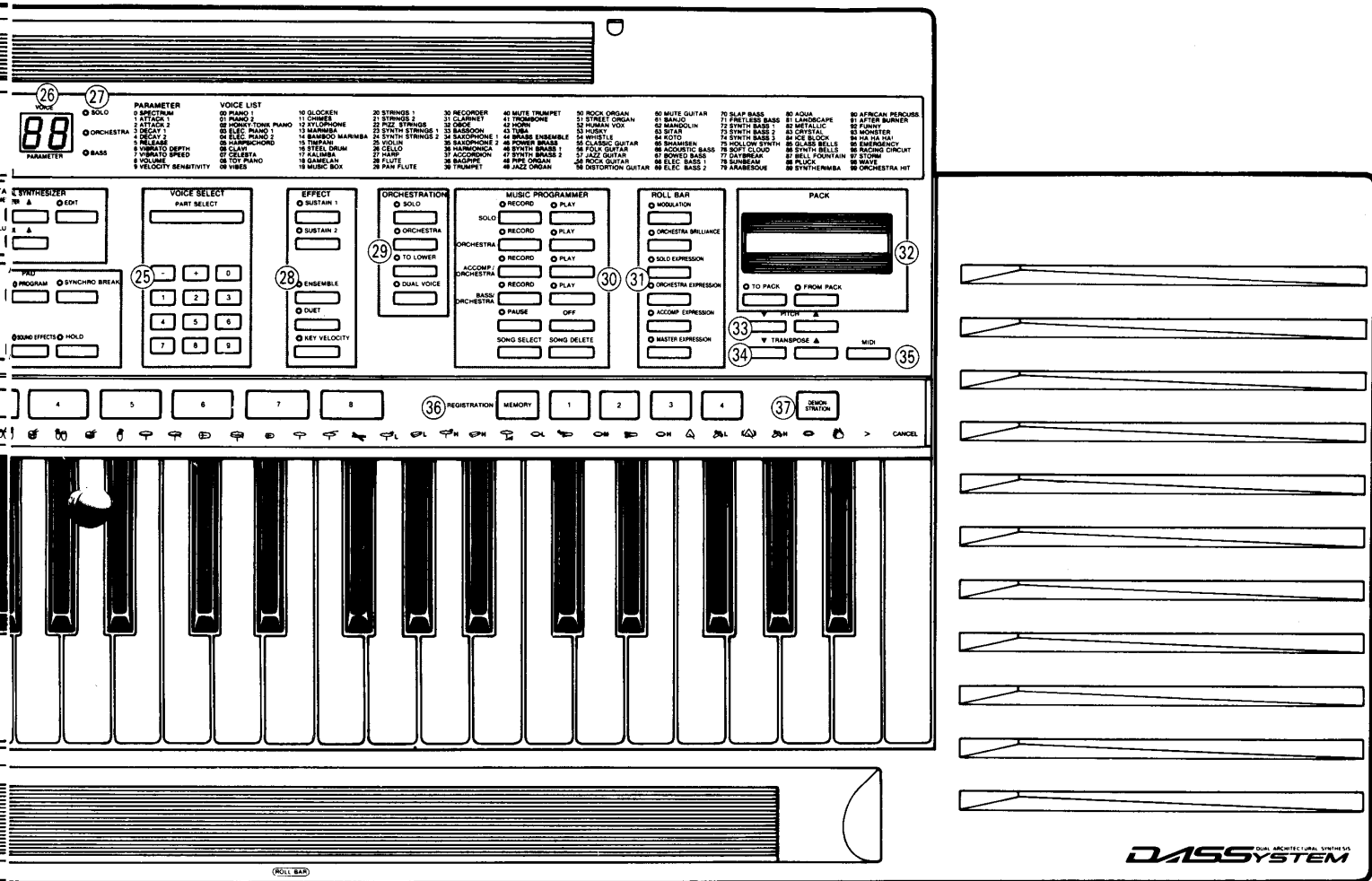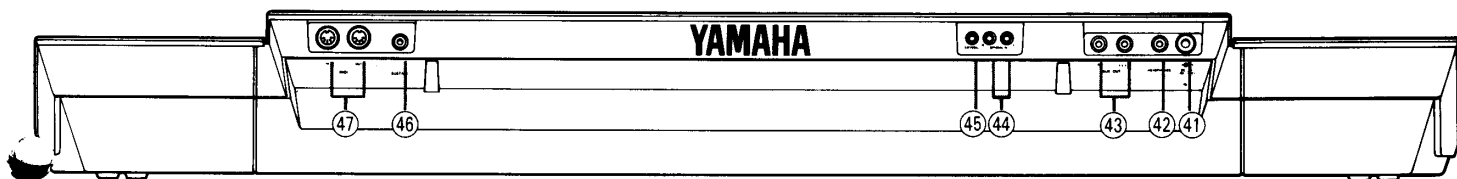
㊸ AUX. OUT L/L + R and R Jacks

These jacks can be used to deliver the output of the X4500 to a keyboard amplifier, stereo sound system, mixing console or tape recorder. When plugs are inserted into both jacks, the left-channel sound is delivered via the L/L + R jack and the right-channel sound is delivered via the R jack. If a plug is inserted into the L/L + R jack only, the left- and right-channel sound is mixed and delivered via that jack. The L/L + R jack should be used when the X4500 is to be connected to a mono sound system (i.e. a keyboard amplifier, etc.)

AUX.OUT
L/L + R   R

X4500

LINE IN R   L

STEREO AMPLIFIER

SPEAKER   SPEAKER
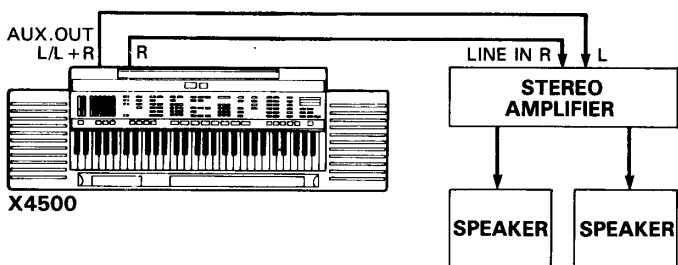
- *Use a relatively low MASTER VOLUME control setting when connecting the X4500 to a stereo sound system. Use the stereo system's volume control to adjust volume.*

㊹ OPTIONAL IN L and R Jacks

These jacks are intended primarily for use with Yamaha EM-series Expander Modules such as the EMT-1 FM Sound Box, EMT-10 AWM Sound Box and EMR-1 Drum Box. Refer to the EM-series Expander Module device owner's manual for connection details.

CAUTION: *The AUX OUT jack signal must never be returned to the OPTIONAL IN jacks, either directly or through external equipment.*

㊺ EXP. PEDAL Jack

An optional Yamaha EP-1 Expression Pedal can be connected to this jack to allow foot expression (swell) control.

㊻ SUSTAIN Jack

An optional Yamaha FC-5 footswitch can be connected here for foot sustain control. The footswitch functions like the damper pedal on a piano—press for sustain, release for normal sound.

㊼ MIDI IN and OUT Connectors

The MIDI IN connector receives MIDI data from an external MIDI device which can be used to control the X4500. The MIDI OUT connector transmits MIDI data generated by the X4500 (e.g. note and velocity data produced by playing the keyboard). More details on MIDI are given in "MIDI FUNCTIONS" on page 23.

3 ENJOY THE DEMONSTRATION

To give you an idea of the X4500's sophisticated capabilities, it is programmed with a demonstration sequence which plays automatically while demonstrating a number of the instrument's voices.
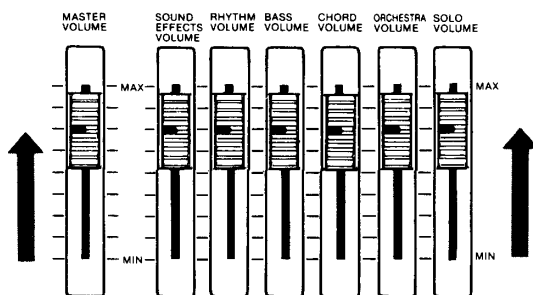
1. Switch ON

Slide the POWER switch to the ON position. The VOICE and ACCOMPANIMENT STYLE displays will light when the power is ON.

POWER

ON—
OFF—
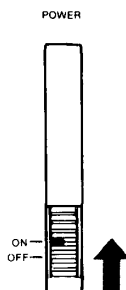
2. Set an Initial Volume Level

Slide the X4500 MASTER VOLUME control to a position about three quarters of the way to the "MAX" setting. You can set the MASTER VOLUME control for the most comfortable volume level after playback begins.

MASTER SOUND RHYTHM BASS CHORD ORCHESTRA SOLO
VOLUME EFFECTS VOLUME VOLUME VOLUME VOLUME VOLUME
VOLUME

3. Press the DEMONSTRATION Button

The demonstration music will begin playing as soon as you press the DEMONSTRATION button.
The demonstration will play continuously, providing samples of different voices and accompaniment styles, until the DEMONSTRATION button is pressed a second time.

DEMON-
STRATION

4 SELECTING AND PLAYING TRANSPOSITION & TUNING

In the X4500, the term "orchestra voice" refers to the voice that you normally play on the keyboard. "Solo" and "bass" voices can also be selected, but these functions will be described later in appropriate parts of this Owner's Guide. Before you attempt to select an orchestra voice as described below, check to make sure than the ORCHESTRA voice part indicator (to the right of the VOICE display) is lit. If any other indicator is lit, use the VOICE SELECT PART SELECT button to select the ORCHESTRA part.
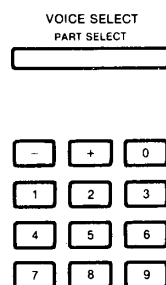
VOICE SELECT
PART SELECT

VOICE   ○ SOLO
          ○ ORCHESTRA
PARAMETER ○ BASS

Selecting an ORCHESTRA Voice

The X4500 provides two methods of selecting any of its 100 voices:

1) Choose one of the 100 voices—numbered "00" through "99"—shown on the VOICE LIST then enter its number using the numbered VOICE SELECT buttons. To select XYLOPHONE (number 12), for example, first press "1" and then "2." The number "12" should then be displayed on the VOICE display.

2) The + and − buttons in the VOICE SELECT group can be used to increment (increase by one) or decrement (decrease by one) the current voice number. Press the + button briefly to select the voice one number higher than the current voice, or the − button to select the voice one number lower than the current voice. If you hold the + or − button down, the voice number will increment or decrement continuously—simply release the button when the desired voice number has been reached.

The selected voice can now be played on the instrument's keyboard.

VOICE SELECT
PART SELECT

- + 0
1 2 3
4 5 6
7 8 9

- ● *When the power is initially turned ON, the PIANO 1 voice is automatically selected and its number ("00") is shown on the VOICE display.*

- ● *The X4500 has "8-note polyphony." This means that up to 8 notes can be produced simultaneously. When the SOLO voice, AUTO BASS CHORD, or DUAL VOICE function is not used, up to 8 notes can be played simultaneously using the selected ORCHESTRA voice. The functions listed above and some others use some of the available notes, thus reducing the total number of voices that can be played via the keyboard.*

- ● *The X4500 also offers keyboard touch response (when the KEY VELOCITY button indicator is lit), so the volume and timbre of notes played can be controlled according to how "hard" you play the keys. The amount and type of variation available depends on the selected voice.*

Adjusting the Volume

Adjust the MASTER VOLUME control while playing to set the desired overall volume level.

The other volume controls—SOUND EFFECTS, RHYTHM, BASS, CHORD, ORCHESTRA and SOLO—allow the volume of the corresponding parts to be adjusted in relation to each other. The ORCHESTRA VOLUME control, for example, can be used to adjust the volume of the selected ORCHESTRA voice. The other volume controls will be described in the appropriate sections of this Owner's Guide.
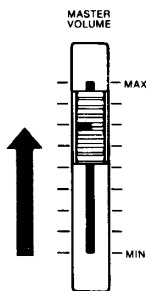
Transposition: Shifting Pitch in Semitone Steps

The X4500 TRANSPOSE function makes it possible to shift the pitch of the entire keyboard up or down in semitone intervals up to a maximum of six semitones. "Transposing" the pitch of the X4500 keyboard makes it easier to play in difficult key signatures, and you can simply match the pitch of the keyboard to the range of a singer or other instrumentalist.

The TRANSPOSE ▲ and ▼ buttons are used for transposition. Press the ▲ button to increase the pitch of the keyboard, or the ▼ button to lower the pitch. The selected degree of transposition will be displayed on the ACCOMPANIMENT STYLE display while the TRANSPOSE ▲ or ▼ button is pressed, and for approximately 3 seconds after either TRANSPOSE button is released.

The transposition range is from − 06 to 06, with − 06 corresponding to downward transposition by 6 semitones, and 06 corresponding to upward transposition by 6 semitones (see chart below). 00 is the "normal" keyboard pitch value. The normal transpose value (00) can be recalled at any time by pressing both the TRANSPOSE ▲ and ▼ buttons at the same time (the transpose value is automatically set to 00 whenever the power switch is turned ON).

| Display	Transposition	Display	Transposition
− 06	− 6 semitones	01	+ 1 semitone
− 05	− 5 semitones	02	+ 2 semitones
− 04	− 4 semitones	03	+ 3 semitones
− 03	− 3 semitones	04	+ 4 semitones
− 02	− 2 semitones	05	+ 5 semitones
− 01	− 1 semitone	06	+ 6 semitones

Tuning: Fine Pitch Control

Pitch control makes it possible to tune the X4500 over a ± 50-cent range in approximately 3-cent intervals. A hundred "cents" equals one semitone, so the tuning range provided allows fine tuning of overall pitch over a range of approximately a semitone. Pitch control is useful for tuning the X4500 to match other instruments or recorded music.

Press the PITCH ▲ button to tune up, or the PITCH ▼ button to tune down. The selected degree of tuning will be displayed on the ACCOMPANIMENT STYLE display while the PITCH ▲ or ▼ button is pressed, and for approximately 3 seconds after either PITCH button is released.

The transposition range is from − 16 to 16, with − 16 corresponding to downward tuning by approximately 50 cents (one quarter tone), and 16 corresponding to upward transposition by approximately 50 cents. 0 is the "normal" pitch value, at which the A₃ key (the A above middle C) produces "concert pitch": 440 Hertz. The normal pitch value (0) can be recalled at any time by pressing both the PITCH ▲ and ▼ buttons at the same time (the pitch value is automatically set to 0 whenever the power switch is turned ON).

5
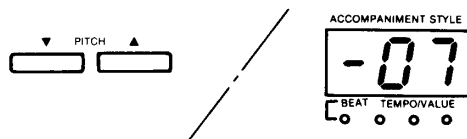
# 5 USING A SOLO VOICE/ SPLIT KEYBOARD OPERATION

In addition to an ORCHESTRA voice (described in the previous section), the X4500 makes it possible to select a SOLO voice which can be played alone, together with the ORCHESTRA voice, or on the upper (right-hand) section of the keyboard while the ORCHESTRA voice is played on the lower (left-hand) section of the keyboard (split keyboard). The SOLO voice is a "monophonic" voice, meaning that only one note can be played at a time. The SOLO voice is therefore ideal for playing single-note melody lines.

Selecting a SOLO Voice

To select a SOLO voice, first use the VOICE SELECT PART SELECT button to select SOLO voice (the SOLO indicator to the right of the VOICE display should light). When this is done, the number of the current SOLO voice will be displayed on the VOICE display (PIANO 1 is selected automatically when the power is initially turned ON).

Then choose the desired voice from the VOICE LIST and select it in the same way as described in "Selecting an ORCHESTRA Voice" on page 4—i.e. use the VOICE SELECT number or +/− buttons.
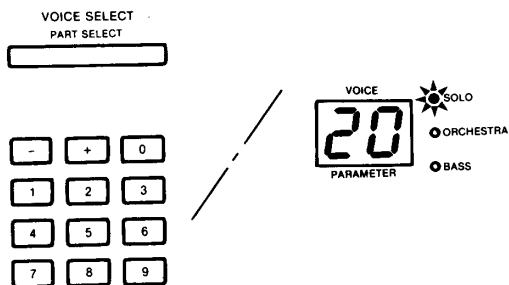
Orchestration: How the ORCHESTRA and SOLO Voices are Combined

Using the ORCHESTRATION buttons* it is possible to combine and use the selected ORCHESTRA and SOLO voices in a number of ways.

* *The ORCHESTRATION button group includes the DUAL VOICE button which, although it is an "orchestration feature," has been described under "EFFECTS" on page 7 since it applies only to the ORCHESTRA voice.*
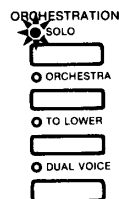
ORCHESTRA Voice Only

When the SOLO, ORCHESTRA and TO LOWER button indicators are off, or when only the ORCHESTRA button indicator is lit, only the selected ORCHESTRA voice will sound. In this case, the ORCHESTRA voice can be played across the entire X4500 keyboard (assuming that the AUTO BASS CHORD feature is off). The indicators are turned on or off alternately by pressing the corresponding button.
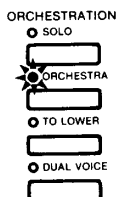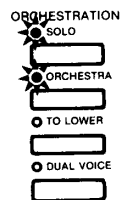
SOLO Voice Only

When only the SOLO button indicator is lit, only the selected SOLO voice will sound. In this case, the SOLO voice can be played across the entire X4500 keyboard (assuming that the AUTO BASS CHORD feature is off). The SOLO voice is monophonic, so only a single note can be played at a time.

ORCHESTRA and SOLO Voices Simultaneously

If both the SOLO and ORCHESTRA button indicators are turned on, the SOLO and ORCHESTRA voices can be played simultaneously across the entire keyboard (assuming that AUTO BASS CHORD feature is off). If no functions which use some of the available notes are being used (e.g. AUTO BASS CHORD, or DUAL VOICE), up to 7 ORCHESTRA voice notes can be played simultaneously. The SOLO voice will sound together with the highest note played on the keyboard.

Split Keyboard: ORCHESTRA On Lower and SOLO On Upper Keyboard

When the TO LOWER button is pressed (causing its indicator to light), the ORCHESTRA voice is assigned to the "lower" keyboard while the SOLO voice is assigned to the "upper" keyboard. This means that the ORCHESTRA voice can be played with the left hand, while a single-note SOLO-voice melody line can be played with the right hand. The lower and upper board sections are separated by the "split point" which is selected as described in the following section.
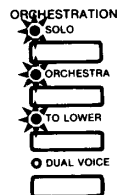
● *When the TO LOWER indicator is on, the keyboard is split (ORCHESTRA on lower keyboard and SOLO on upper keyboard) regardless of the settings of the ORCHESTRA and SOLO buttons.*

Selecting the Split Point

Four "preset" split points are provided: between the F#2 and G2 keys, G#2 and A2 keys, B3 and C3 keys, and between the E3 and F3 keys. These split points can be selected in sequence by pressing the KEY SPLIT button. The selected split point is indicated by a "▼" symbol immediately above the keyboard (the F#2/G2 split point is marked by a printed "▼" symbol while the remaining three have indication lamps).
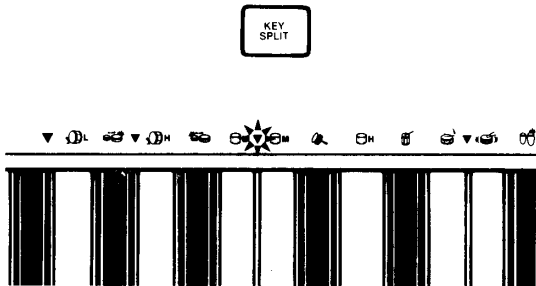
In addition to the four preset split points, the split point can be set anywhere between the lowest note on the keyboard and E3 by pressing the KEY SPLIT button while holding the key which is to be the highest key of the lower keyboard section. When a split point is selected in this way, all split position lamps will go out.

SOLO Voice Volume Control

The volume of the SOLO voice can be adjusted in relation to the ORCHESTRA voice and other parts (to be described later) by using the SOLO VOLUME control.
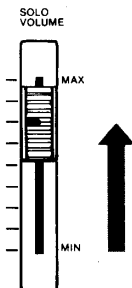
EFFECTS

Sustain

The X4500 offers two sustain effects—SUSTAIN 1 and SUSTAIN 2. Press the SUSTAIN 1 or SUSTAIN 2 button once (the corresponding indicator will light) and notes played on the keyboard will decay gradually after you lift your fingers from the keys. Press the SUSTAIN 1 or SUSTAIN 2 button a second time (it's indicator will go out) to turn the sustain effect off. The SUSTAIN 2 button produces a longer sustain effect than the SUSTAIN 1 button, although the actual length of the SUSTAIN 1 and SUSTAIN 2 effects varies from voice to voice.

- *The SUSTAIN effect can also be switched ON or OFF using an optional FC-5 footswitch connected to the rear-panel SUSTAIN jack.*
- *SUSTAIN 1 and SUSTAIN 2 cannot be selected simultaneously.*
- *The SUSTAIN effects cannot be applied to accompaniment or rhythm.*

Ensemble

The ensemble effect produces a "thick" multi-instrument sound. Press the ENSEMBLE button once (it's indicator will light) to turn the ensemble effect ON, and a second time (the ENSEMBLE indicator will go out) to turn the ensemble effect OFF.

- *The actual sound of the ENSEMBLE effect varies according to the selected voice.*
- *The ENSEMBLE effect cannot be applied to accompaniment or rhythm.*

Duet

This effect only functions while AUTO BASS CHORD FINGERED or SINGLE FINGER accompaniment is running (see "Auto Bass Chord Accompaniment" on page 11). The DUET effect automatically adds harmony notes to notes you play on the keyboard, producing a "duet" type sound. The harmony notes are automatically selected according to the chord currently being played by the AUTO BASS CHORD feature. Press the DUET button once (it's indicator will light) to turn the duet effect ON, and a second time (the DUET indicator will go out) to turn the duet effect OFF.

Key Velocity

The KEY VELOCITY button makes it possible to turn the X4500's keyboard touch response on or off as required. Pressing the KEY VELOCITY alternately turns touch sensitivity ON (indicator lit) and OFF (indicator not lit). When ON, the loudness and in some cases the timbre of notes can be controlled by how hard (fast, actually) you play the keys—just like the response of an acoustic keyboard instrument. It is useful to turn KEY VELOCITY OFF when playing voices of instruments that do not normally have touch response—organ, for example.


7

Dual Voice

This effect is actually included in the ORCHESTRATION button group, but we'll include here for convenience. The DUAL VOICE feature makes it possible to select and play two different voices simultaneously. To activate the DUAL VOICE feature press the DUAL VOICE button (the DUAL VOICE button indicator will light). When the DUAL VOICE feature is ON, the last two voices selected will sound simultaneously. For example, if you selected PIANO 1 and then HARP, the PIANO 1 and HARP voices will be combined. If you then select the VIBES voice, HARP and VIBES will be combined, and so on. Of course, if you turn the DUAL VOICE feature OFF (by pressing the DUAL VOICE button a second time), only the last selected voice will sound.

○ DUAL VOICE

- *DUAL VOICE cannot be applied to accompaniment or rhythm.*
- *When DUAL VOICE is ON, the number of notes that can be played simultaneously is reduced by half.*

DIGITAL REVERB

The DIGITAL REVERB buttons provide a number of digital effects that you can use for extra depth and expressive power. Simply press the DIGITAL REVERB button corresponding to the effect you want (the appropriate indicator will light).

DIGITAL REVERB
○ ROOM
○ HALL
○ ECHO
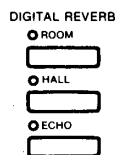
Room

This setting adds a reverb effect to the sound that is similar to the type of acoustic reverberation you would hear in a medium-size room.

Hall

For a more spacious reverb sound, use the HALL setting. This effect simulates the natural reverberation of a medium-size concert hall.

Echo

This is an echo effect in which the sound seems to "bounce" around in the stereo sound field.
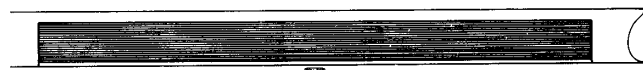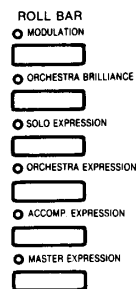
CONTROLLERS

Pitch Bend

The PITCH BEND roller located to the lower left of the keyboard offers extra expressive control by allowing you to manually "bend" (raise or lower) the pitch of the selected performance voice. Rotating the PITCH BEND wheel away from you raises pitch, while moving it toward you lowers pitch. When released, the PITCH BEND wheel automatically returns to the center (normal pitch) position. The total pitch bend range is ±200 cents (100 cents = one semitone).

Bend Up

Bend Down
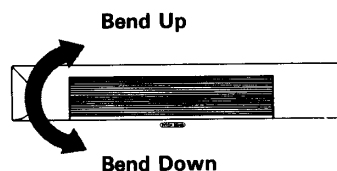
- *The PITCH BEND effect cannot be applied to accompaniment or rhythm, or the lower voice in the MANUAL BASS mode (see page 13).*

Roll Bar

The "ROLL BAR" located below the keyboard can be used for a range of expression control functions, selected by the ROLL BAR buttons to the right of the control panel:

ROLL BAR
○ MODULATION
○ ORCHESTRA BRILLIANCE
○ SOLO EXPRESSION
○ ORCHESTRA EXPRESSION
○ ACCOMP EXPRESSION
○ MASTER EXPRESSION

MODULATION	... The ROLL BAR controls modulation (vibrato) depth. Roll the bar away from you for greater modulation depth.
ORCHESTRA BRILLIANCE	... The ROLL BAR controls the brilliance of the orchestra voice. Roll the bar away from you for greater brilliance.
SOLO EXPRESSION	... The ROLL BAR controls the volume of the SOLO voice. Roll the bar away from you for higher volume.
ORCHESTRA EXPRESSION	... The ROLL BAR controls the volume of the ORCHESTRA voice. Roll the bar away from you for higher volume.
ACCOMP. EXPRESSION	... The ROLL BAR controls the volume of the accompaniment sound. Roll the bar away from you for higher volume.
MASTER EXPRESSION	... The ROLL BAR controls overall volume. Roll the bar away from you for higher volume.

- *When an expression function is selected, the minimum ROLL BAR position does not turn the sound all the way off. Expression can be controlled over a limited portion of the upper volume range.*
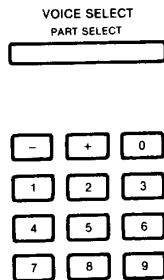
7 EDITING VOICES WITH THE DIGITAL SYNTHESIZER

This innovative feature lets you "edit" the sound of each orchestra voice to match your mood and musical style.
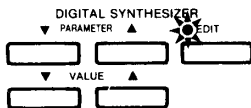
1. Select the Orchestra Voice you Wish to Edit

Select the desired ORCHESTRA voice using the normal voice selection procedure.

VOICE SELECT
PART SELECT

Activate the DIGITAL SYNTHESIZER EDIT Mode

Press the DIGITAL SYNTHESIZER EDIT button (its indicator will light).

DIGITAL SYNTHESIZER
▼ PARAMETER ▲   EDIT
▼ VALUE ▲

3. Select the Parameter You Wish to Edit

The X4500 DIGITAL SYNTHESIZER function allows you to edit 10 different voice parameters:

0 SPECTRUM	... The timbre of the voice.
1 ATTACK 1	... Attack timbre variation.
2 ATTACK 2	... Attack speed.
3 DECAY 1	... Decay timbre variation.
4 DECAY 2	... Decay speed.
5 RELEASE	... Release speed.
6 VIBRATO DEPTH	... The depth of the vibrato effect.
7 VIBRATO SPEED	... The speed of vibrato variation.
8 VOLUME	... The volume of the voice.
9 VELOCITY SENSITIVITY	... Keyboard touch sensitivity.

(See "WHAT THE PARAMETERS MEAN," below, for a more complete description)

Use the PARAMETER ▲ and ▼ buttons to select the number of the desired parameter—the number of the selected parameter will appear on the VOICE/PARAMETER display.

▼ PARAMETER ▲

VOICE
P0
PARAMETER
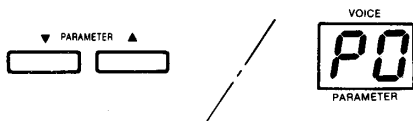
4. Edit the Selected Parameter

Use the VALUE ▲ and ▼ buttons to change the value of the selected parameter to create the desired effect. The selected value will appear on the ACCOMPANIMENT STYLE/BEAT/ TEMPO/VALUE display. See "WHAT THE PARAMETERS MEAN," below, for more details. The actual range of values available for each parameter depends on the voice being edited. Certain parameters can not be edited at all in some voices. Also, value changes may be more noticeable on some voices than on others.

▼ VALUE ▲

ACCOMPANIMENT STYLE
-6
BEAT TEMPO/VALUE

- *The preset VALUE can be recalled instantly by pressing both the VALUE ▲ and ▼ buttons simultaneously.*
- *The displays will revert to the normal ACCOMPANIMENT STYLE and VOICE numbers about 5 seconds after the PARAMETER or VALUE buttons are operated.*
- *The sound you create by editing each voice is memorized and can be recalled at any time by pressing the EDIT button when the corresponding orchestra voice is selected.*

WHAT THE PARAMETERS MEAN

0 SPECTRUM
Changes the harmonic structure of the sound, thereby changing its timbre. Higher values generally produce a brighter sound.

1 ATTACK 1
This parameter determines how rapidly the timbre at the very beginning (attack) of each not changes. Lower values produce a slower timbre change at the beginning of each note.

2 ATTACK 2
Determines the speed of the actual attack of each note (i.e. how quickly the sound level rises to maximum). Lower values produce a slower attack.

3 DECAY 1
After the attack of a note, the sound begins to decay (with the exception of organ and similar voices that continue at the same level as long as the key is held). This parameter determines how quickly the timbre of the sound changes during the decay. Lower values produce a slower timbre change.

4 DECAY 2
Determines the speed of the level decay of each note. Lower values produce a slower decay.

5 RELEASE
Determines how long it takes for a note to decay to silence after the key is released. Lower values produce a longer release.

6 VIBRATO DEPTH
Sets the depth (degree) of the vibrato effect. Higher values produce a deeper (stronger) vibrato effect.

7 VIBRATO SPEED
Vibrato is a periodic variation pitch. This parameter determines the speed of the variation. Higher values produce a faster vibrato effect.

8 VOLUME
Use this parameter to adjust the volume of the selected voice to meet your specific musical requirements.

9 VELOCITY SENSITIVITY
Sets the velocity or "touch" sensitivity of the keyboard. The minimum value produces no touch response—i.e. notes are produced at the same volume no matter how hard you play the keys. Higher values produce correspondingly higher velocity sensitivity.
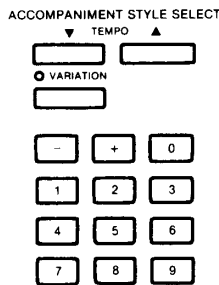
8 USING THE ACCOMPANIMENT SECTION

Rhythm Accompaniment

Selecting an Accompaniment Style

The X4500 provides two methods of selecting any of its 100 accompaniment styles:

1) Choose one of the 100 accompaniment styles—numbered "00" through "99"—shown on the ACCOMPANIMENT STYLE LIST then enter its number using the numbered ACCOMPANIMENT STYLE SELECT buttons. To select GOSPEL (number 29), for example, first press "2" and then "9." The number "29" should then be displayed on the ACCOMPANIMENT STYLE display.

2) The + and − buttons in the ACCOMPANIMENT STYLE SELECT group can be used to increment (increase by one) or decrement (decrease by one) the current accompaniment style number. Press the + button briefly to select the accompaniment style one number higher than the current accompaniment style, or the − button to select the accompaniment style one number lower than the current accompaniment style. If you hold the + or − button down, the accompaniment style number will increment or decrement continuously—simply release the button when the desired accompaniment style number has been reached.

Each rhythm pattern also has a variation which can be selected by pressing the VARIATION button. When the VARIATION button LED is off, the standard rhythm pattern will play, and when the VARIATION LED is on, the variation will play.

ACCOMPANIMENT STYLE SELECT

- Selecting VARIATION produces a change in the chord and bass patterns, but not in the rhythm.
- When the power is initially turned ON, the DISCO 1 accompaniment style is automatically selected and its number ("00") is shown on the ACCOMPANIMENT STYLE display.
- Only one accompaniment style can be selected at a time.
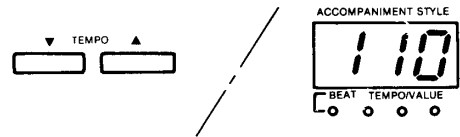
Adjusting the Accompaniment Volume

Although the MASTER VOLUME control can be used to set the overall volume level, the RHYTHM VOLUME control can be used to adjust the volume of the selected accompaniment rhythm in relation to the ORCHESTRA and/or SOLO voices, and other parts to be described later.

Setting the Tempo

Press the TEMPO ▲ button to increase the tempo, or the TEMPO ▼ button to decrease the tempo. The selected tempo will be displayed on the ACCOMPANIMENT STYLE/BEAT/TEMPO/VALUE display (in quarter-note beats per minute) while the TEMPO ▲ or ▼ button is pressed, and for approximately 3 seconds after either TEMPO button is released.

The available tempo range is from 40 to 280 beats per minute. Each accompaniment style has a different "normal" tempo which can be recalled at any time by pressing both the TEMPO ▲ and ▼ buttons at the same time (the tempo is automatically set to the normal value for the DISCO 1 style—110—whenever the power switch is turned ON).
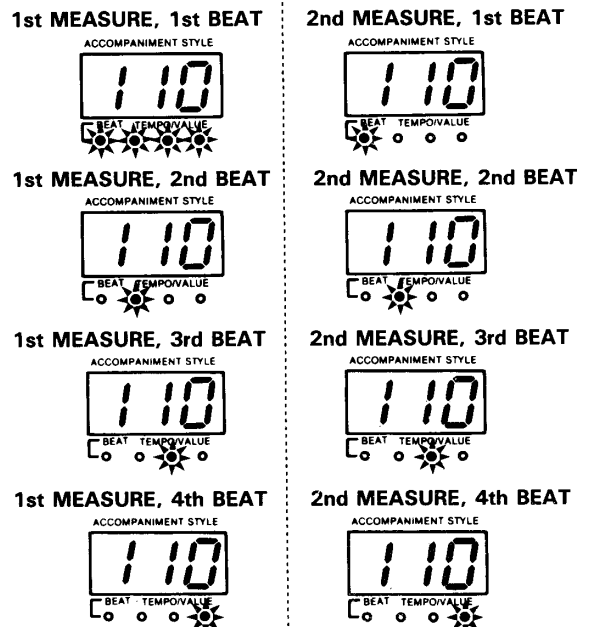
- It is also possible to adjust the tempo after starting playback of the accompaniment. This allows you to set the optimum tempo by ear.

Starting the Accompaniment

Press the START button to start the selected accompaniment immediately, or press the SYNCHRO START button if you want the accompaniment to start when you play the first note on the keyboard. If you press the SYNCHRO START button, the leftmost (red) dot in the ACCOMPANIMENT STYLE/BEAT/TEMPO/VALUE display will flash at the selected tempo.

- The four LED dots at the bottom of the ACCOMPANIMENT STYLE/BEAT/TEMPO/VALUE display provide a visual indication of the selected tempo as follows:

1st MEASURE, 1st BEAT

2nd MEASURE, 1st BEAT

1st MEASURE, 2nd BEAT

2nd MEASURE, 2nd BEAT

1st MEASURE, 3rd BEAT

2nd MEASURE, 3rd BEAT

1st MEASURE, 4th BEAT

2nd MEASURE, 4th BEAT

The above 8 beats (two 4/4 measures) repeat.

- *If the AUTO BASS CHORD selector is set to OFF, the accompaniment will consist only of rhythm (drums & percussion) sounds. Operation of the AUTO BASS CHORD SINGLE FINGER and FINGERED modes is described on pages 11 and 12.*
- *A different accompaniment style can be selected at any time while the accompaniment is playing.*

Starting the Accompaniment with an Introduction

Any of the X4500 accompaniment patterns can be started with a 1-measure introductory pattern by pressing either the INTRO./ FILL IN 1, INTRO./FILL IN 2 or INTRO./FILL IN 3 button before pressing the START or SYNCHRO START button. The INTRO./ENDING button produces a 2-measure introduction.

Adding Fill-ins

To add a fill-in (rhythm variation) at any time while the accompaniment is playing, press the INTRO./FILL IN 1, INTRO./ FILL IN 2 or INTRO./FILL IN 3 button. The fill-ins have a maximum length of one measure, but the actual length depends on precisely when in the current measure you press a FILL IN button (i.e. the fill-in lasts from the point at which the button is pressed until the end of the current measure). You can stop a fill-in pattern before the end of the current measure by pressing the FILL IN button a second time. If you hold one of the FILL IN buttons, the fill-in pattern will repeat until the button is released.

Stopping the Accompaniment

An accompaniment in progress can be stopped immediately by pressing the STOP button, or it can be stopped with a two-measure ending by pressing the INTRO./ENDING button. If the INTRO./ENDING button is used, the ending will start from the current measure if the button is pressed during the first half of the measure, or from the beginning of the next measure if the button is pressed during the second half of the current measure.

Auto Bass Chord Accompaniment

The X4500 includes a sophisticated Auto Bass Chord accompaniment system that can provide automated bass and chordal backing in a number of ways.
- *The maximum number of notes that can be played simultaneously on the X4500 keyboard is reduced when the Auto Bass Chord feature is used.*

SINGLE FINGER ACCOMPANIMENT

SINGLE FINGER accompaniment makes it simple to produce beautifully orchestrated accompaniment using major, seventh, minor and minor-seventh chords by pressing a minimum number of keys on the lower section of the keyboard (i.e. below the selected split point, see "Selecting the Split Point" on page 7). The bass and chord accompaniment produced is perfectly matched to the currently selected accompaniment style.

1. **Select the SINGLE FINGER Mode**
   Press the AUTO BASS CHORD SINGLE FINGER button (its indicator should light).
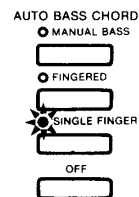
2. **Select an Accompaniment Style**
   Select the desired accompaniment style or its variation in the normal way. Although you can select the melody (upper keyboard) voice you intend to use, the X4500 automatically determines the voices to be used for the accompaniment bass and chords according to the accompaniment style you select.
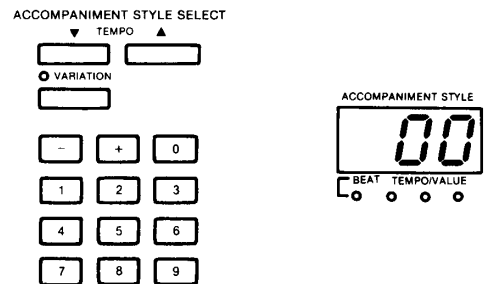
3. **Start the Accompaniment**
   Press the START button, SYNCHRO START button or one of the INTRO buttons to determine how the accompaniment will be started. If you press the START button, the rhythm will begin playing immediately without chordal accompaniment.
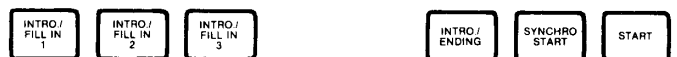
4. **Press a Key on the Lower Keyboard**
   Pressing any key below the selected split point will cause the automatic chord and bass accompaniment to begin. If you press a "C" key, for example, a C-major accompaniment will be played. Press another key in the Auto Bass Chord Keys section to select a new chord. The key you press will always determine the "root" of the chord played (i.e. "C" for a C chord).
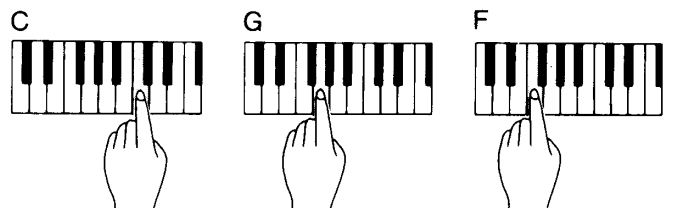
Playing Minor, Seventh, and Minor-seventh Chords in the Single-finger Mode

■ For a minor chord, press the root key and the first black key to its left.

Cm

■ For a seventh chord, press the root key and the next white key to its left.

C₇

■ For a minor-seventh chord, press the root key and both the next white and black keys to its left.

Cm₇

● *The automatic accompaniment will continue playing even if you lift your fingers from the Auto Bass Chord keys. You only need to press the Auto Bass Chord keys when changing chords.*

5. Stop the Auto Accompaniment

Press the STOP button or INTRO/ENDING button to stop the Accompaniment. The AUTO BASS CHORD mode can be turned off if desired by pressing the AUTO BASS CHORD OFF button.

● *The FILL IN buttons can be used in the Auto Bass Chord mode to create pattern variations in exactly the same way that they are used with rhythm accompaniment patterns (refer to the "Adding Fill-ins" section on page 11 for details).*

Setting the Accompaniment Volume

The RHYTHM, BASS and CHORD volume controls can be used to set the best balance between the volume of the respective accompaniment parts, and the optimum volume of the accompaniment parts in relation to the ORCHESTRA and/or SOLO voices. Use the MASTER VOLUME control for overall volume adjustment.

Setting the Tempo

Use the TEMPO controls to set the desired accompaniment tempo (see "Setting the Tempo" on page 10 for details).

FINGERED ACCOMPANIMENT

The FINGERED mode is ideal if you already know how to play chords on a keyboard, since it allows you to supply your own chords for the Auto Bass Chord feature.

1. Select the FINGERED Mode

Press the AUTO BASS CHORD FINGERED button (its indicator should light).

2. Select an Accompaniment Style

Select the desired accompaniment style or its variation in the normal way. Although you can select the melody (upper keyboard) voice you intend to use, the X4500 automatically determines the voices to be used for the accompaniment bass and chords according to the accompaniment style you select.
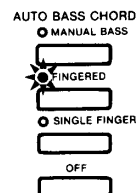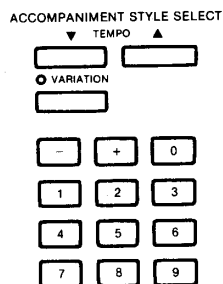

3. Start the Accompaniment

Press the START button, SYNCHRO START button or one of the INTRO buttons to determine how the accompaniment will be started. If you press the START button, the rhythm will begin playing immediately without chordal accompaniment.

4. Play a Chord on the Auto Bass Chord Keys

As soon as you play any chord that the X4500 can "recognize" in the lower section of the keyboard (see chord types listed below), the X4500 will automatically begin to play the chord along with the selected rhythm and an appropriate bass line. The accompaniment will continue playing even if you release the Auto Bass Chord keys. When changing chords, be sure to release all keys before playing a new chord.

The X4500 will accept the chord types listed below, although the resultant accompaniment pattern will be either major, minor or seventh.

C chord   G chord   F chord

Chord	Acceptable Fingering
Major	1 – 3 – 5*
Minor	1 – ♭3 – 5*
Major seventh	1 – 3 – (5) – 7*
Sixth	1 – 3 – 5 – 6
Minor sixth	1 – ♭3 – 5 – 6
Minor seventh	1 – ♭3 – (5) – ♭7
Minor seventh flat five	1 – ♭3 – ♭5 – ♭7
Seventh	1 – 3 – (5) – ♭7*
Seventh flat five	1 – 3 – ♭5 – ♭7
Seventh suspended fourth	1 – 4 – 5 – ♭7*
Minor major seventh	1 – ♭3 – (5) – 7*
Augmented	1 – 3 – ♯5
Diminished	1 – ♭3 – ♭5 – (6)

Notes in parentheses may be omitted.

* Chords marked with an asterisk (*) can be played in any inversion (i.e. the root of the chord does not have to be the lowest note played).

● *All other FINGERED mode operations are the same as in the SINGLE FINGER mode.*

MANUAL BASS

The X4500 MANUAL BASS mode provides an alternative split keyboard mode to that using the ORCHESTRA and SOLO voices described on page 6. The bass voice assigned to the lower keyboard is monophonic, while a polyphonic ORCHESTRA voice is played on the upper section of the keyboard. The bass voice can be played up to the selected split point (see "Selecting the Split Point" on page 7). You can select any of the X4500's 100 voices to play on the lower or upper section of the keyboard— of course, it's normal to choose on the available bass voices (voices 66 through 74) for the lower keyboard.

1. Select the MANUAL BASS Mode
Press the AUTO BASS CHORD MANUAL BASS button.
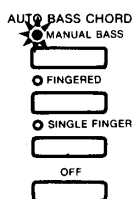
2. Select an Upper Keyboard Voice
Select the desired upper ORCHESTRA and/or SOLO voice in the normal way (the DUAL VOICE mode can be used for the upper voice if desired).

3. Select a Bass Voice
Use the VOICE SELECT PART SELECT button to select BASS voice (the BASS indicator to the right of the VOICE display should light). When this is done, the number of the current BASS voice will be displayed on the VOICE display (PIANO 1 is selected automatically when the power is initially turned ON, although it sounds an octave lower than normal when the MANUAL BASS mode is on). Then choose the desired bass voice from the VOICE LIST and select it in the same way as described in "Selecting an ORCHESTRA Voice" on page 4—i.e. use the VOICE SELECT number or + / – buttons.
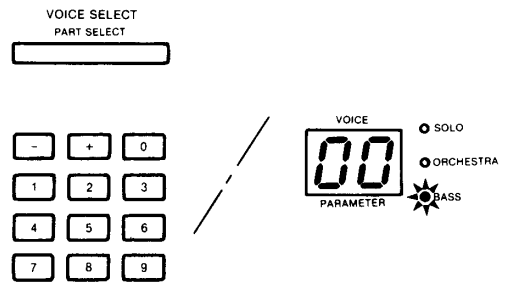
4. Select an ACCOMPANIMENT STYLE
If you intend to use the MANUAL BASS feature while a rhythm accompaniment is playing, select the desired accompaniment style.

5. Play
The selected bass voice can now be played on the lower section of the keyboard while the ORCHESTRA and/or SOLO voice can be played on the upper section of the keyboard. Use the BASS VOLUME control to adjust the volume of the bass sound as required.

SOLO STYLEPLAY

This sophisticated feature automatically adds appropriate harmony notes and effects to a melody you play on the upper keyboard according to the selected accompaniment style. For example, with the ROCK'N ROLL 2 style (STYLE 09) the SOLO STYLE-PLAY feature automatically adds harmony, counter melody and glissando to what you play. With the BIG BAND 1 style (STYLE 33), a melody you play on the upper keyboard is repeated in the next measure, creating a "round" or "call and answer" type effect.

● *Only a single note can be played at a time on the X4500 upper keyboard section when the SOLO STYLEPLAY feature is used.*

● *When SOLO STYLEPLAY is turned ON, an appropriate ORCHESTRA voice for the selected ACCOMPANIMENT STYLE is automatically selected.*

1. Turn SOLO STYLEPLAY ON
Press the SOLO STYLEPLAY button. The SOLO STYLE-PLAY LED will light indicating that the SOLO STYLEPLAY feature is ON. The AUTO BASS CHORD SINGLE FINGER mode is automatically selected when SOLO STYLEPLAY is turned ON. You can select the FINGERED mode if required.

2. Play
The SYNCHRO START mode is automatically selected when SOLO STYLEPLAY is turned ON, so all you have to do is play the required chords (SINGLE FINGER or FINGERED) on the lower keyboard while playing a single-note melody line on the upper keyboard.

3. Stop the Accompaniment
Stop the accompaniment using the STOP or INTRO./END-ING button (and turn SOLO STYLEPLAY OFF, if necessary, by pressing the SOLO STYLEPLAY button again so that its LED goes out).

9 MANUAL PERCUSSION

The Percussion Pads

The X4500's eight percussion pads let you play percussion to accompany other instruments, or add original rhythm fills and breaks to your performances. The percussion pads can also be played while one of the X4500 accompaniments is playing.

Each percussion pad can be assigned any of 40 different percussion instrument or 16 sound effects. Three different custom assignment "sets" can be created for the percussion pads using the PAD CUSTOM buttons (1 through 3). Simply select the desired custom pad set by pressing the appropriate CUSTOM button (its indicator will light).

The CUSTOM 1 through 3 pad sets are initially programmed as follows:

CUSTOM 1 PRESETS

PAD 1	Rim Shot	PAD 5	Heavy Snare Drum
PAD 2	Low Tom	PAD 6	Closed Hi-hat
PAD 3	Middle Tom	PAD 7	Open Hi-hat
PAD 4	High Tom	PAD 8	Crash Cymbal

CUSTOM 2 PRESETS

PAD 1	Bass Drum	PAD 5	Snare Drum (Gate Echo)
PAD 2	Low Synth Tom	PAD 6	Light Snare Drum
PAD 3	Middle Synth Tom	PAD 7	Tambourine
PAD 4	High Synth Tom	PAD 8	Ride Cymbal

CUSTOM 3 PRESETS

PAD 1	Low Agogo	PAD 5	High Conga
PAD 2	High Agogo	PAD 6	Cabasa
PAD 3	Low Cuica	PAD 7	Claps
PAD 4	High Cuica	PAD 8	High Samba Whistle
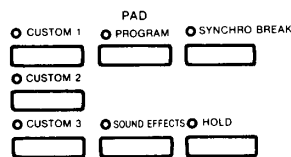
Press the PAD SOUND EFFECTS button to select the pre-programmed sound effect set (listed below). The SOUND EFFECTS set is automatically selected when the X4500 is initially turned on. When the SOUND EFFECTS set is selected, the HOLD button can be pressed (its indicator will light) causing a sound effect played on the pads to be repeated until the HOLD button is pressed again (causing its indicator to go out). The sound effect is repeated at a speed determined by the current TEMPO setting. While the HOLD function is on, any number of sound effects played simultaneously or one after the other will be repeated until the HOLD button is pressed. Use the SOUND EFFECTS VOLUME control to adjust the volume of the sound effects.
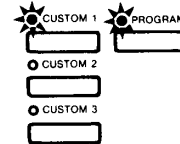
SOUND EFFECTS

PAD 1	Bird 1	PAD 5	Male Laugh
PAD 2	Bird 2	PAD 6	Male "Ha!"
PAD 3	Breaking Glass	PAD 7	Male "Yeah!"
PAD 4	Explosion	PAD 8	Applause

● *Some rhythm sounds may be cut short if the pads are played while a preset rhythm pattern is running.*

Programming Your Own CUSTOM Pad Sets

1. Activate the PROGRAM Mode

To program your own CUSTOM percussion pad sets, press the PAD PROGRAM button (its indicator will light) and then the CUSTOM button corresponding to the set (1—3) you wish to program.

● *The CUSTOM 1 set is automatically selected when you first press the PROGRAM button.*

● *While in the PROGRAM mode, you can play any of the X4500's 40 percussion instruments and 16 sound effects on the keyboard. The sound produced by each key is indicated by a graphic symbol above the key. For your convenience, the sounds associated with each key are listed below.*

2. Program the Pads

Press and hold the desired instrument or sound effect key, then press the percussion pad you wish to assign that sound to. Repeat this process to program any or all of the 8 pads in the selected CUSTOM set.
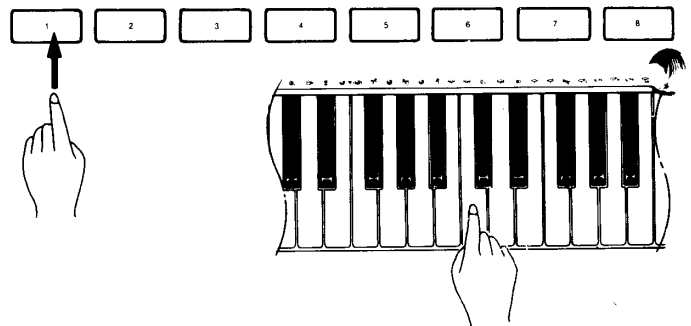
● *If the KEYBOARD VELOCITY button indicator is on, the loudness of the sounds you program can be controlled by how hard you play the keys.*

3. Select a Different CUSTOM Set or Finish Programming

Press a different CUSTOM button to select a different set for programming, or press the PROGRAM button to finish programming (its indicator will go out).

KEYBOARD PERCUSSION KEYS

Sound Effects

C1	Bird 1	A♭1	Male Laugh
D♭1	Bird 2	A1	Chipmunk Laugh
D1	Bird 3	B♭1	Female "Yeah!"
E♭1	Car Horn	B1	Male "Yeah!"
E1	Breaking Glass	C2	Male "Ha!"
F1	Explosion	D♭2	Kabuki "Wo"
F#1	Low Scratch	D2	Tsuzumi Drum
G1	High Scratch	E♭2	Applause

Percussion Instruments

G2	Low Bass Drum	E4	Ride Cymbal
A♭2	Low Timbales	F4	Ride Cup
A2	Bass Drum	F#4	Claves
B♭2	High Timbales	G4	Low Crash Cymbal
C3	Low Tom	A♭4	Low Cowbell
	Middle Tom	A4	High Crash Cymbal
D♭3	Cabasa	B♭4	High Cowbell
D3	High Tom	B4	Reverse Cymbal
E♭3	Surdo	C5	Low Synth Tom
E3	Rim Shot	D♭5	Low Agogo
F3	Snare Drum (Gate Echo)	D5	Middle Synth Tom
F#3	Low Conga	E♭5	High Agogo
G3	Heavy Snare Drum	E5	High Synth Tom
A♭3	High Conga	F5	Closed Triangle
A3	Light Snare Drum	F#5	Low Samba Whistle
B♭3	Mute Conga	G5	Open Triangle
B3	Pedal Hi-hat	A♭5	High Samba Whistle
C4	Closed Hi-hat	A5	Tambourine
D♭4	Low Cuica	B♭5	Claps
D4	Open Hi-hat	B5	ACCENT
E♭4	High Cuica	C6	CANCEL

- *The volume of the percussion pads is controlled by the RHYTHM VOLUME control.*
  Use the SOUND EFFECTS VOLUME control to adjust the sound effect volume level.

The SYNCHRO BREAK Function ———

This function allows you to create your own fill-ins using the percussion pads while one of the X4500 accompaniments is playing. When the SYNCHRO BREAK button is pressed and its LED is lit, playing on the percussion pads causes the accompaniment rhythm to stop playing until the end of that measure so you can create your own fill-in.

- *SYNCHRO BREAK functions with the CUSTOM 1, 2 and 3 pad assignment sets but not with the pre-programmed SOUND EFFECTS set.*

The X4500 CUSTOM ACCOMPANIMENT feature allows you to create and store up to five original accompaniments—including rhythm, bass and chords—in addition to the 100 preset accompaniment styles. Your original accompaniments can be selected and played at any time, just like the presets.

## Creating an Original Accompaniment –

1. Select a Suitable Accompaniment Style
Begin by selecting one of the preset accompaniment styles that is close to the accompaniment you want to create.

- *For example, select a WALTZ accompaniment style if you want to program a rhythm pattern in 3/4 time. You cannot program a 3/4 rhythm when a 4/4 accompaniment style is selected, and vice versa. The X4500 accompaniment styles include 4/4, 3/4, 9/8, 5/4 and 12/8 type rhythm patterns.*

2. Engage the Program Mode
Press the CUSTOM ACCOMPANIMENT PROGRAM button so that its LED indicator lights. The AUTO BASS CHORD FINGERED button indicator will light, as will the CUSTOM ACCOMPANIMENT RHYTHM button. The selected accompaniment style will begin playing, with accompaniment based on a C major chord.
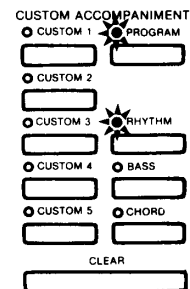
3. Set the Appropriate Tempo and Volume
To make programming as easy as possible, set up an appropriate tempo and volume levels before you begin. It might be easier to program your rhythm pattern if you set a relatively slow tempo.

4. Program the Rhythm Part
If the CUSTOM ACCOMPANIMENT RHYTHM button indicator is not already lit, press the RHYTHM button so that it lights. You can now add new notes to the rhythm by playing the keys corresponding to the X4500 sound effects (the 16 lowest keys on the keyboard) and the keys corresponding to the percussion instruments (the 40 keys from G2 upward). The sound effects or percussion instruments produced are indicated by the symbols immediately above the keys (see the "KEYBOARD PERCUSSION KEYS" chart in the previous section). If you want to create a totally new rhythm, press the CUSTOM ACCOMPANIMENT CLEAR button before beginning to program. This cancels all the instruments in the original accompaniment, leaving only a closed hi-hat metronome sound (the metronome sound will not be heard when you play back your rhythm). The rhythm pattern is two measures long, and the pattern will continue to repeat so you can add new instruments during each repeat, if necessary. You can compare the new rhythm pattern with the original rhythm pattern by pressing the RHYTHM button so that its indicator goes out. Press the RHYTHM button again to return to the new rhythm part.

- *Up to 8 percussion instruments and sound effects can be played simultaneously.*
- *Some rhythm patterns may change slightly when the PROGRAM button is turned ON.*

To Cancel A Single Instrument

Although you can cancel all instruments in a pattern by pressing the CUSTOM ACCOMPANIMENT CLEAR button, it is also possible to cancel a single instrument to eradicate a mistake or simply eliminate an unwanted instrument. While holding the CANCEL key (the highest key on the X4500 keyboard), press the percussion key corresponding to the instrument you want to cancel. The selected instrument should now be cleared from the pattern.
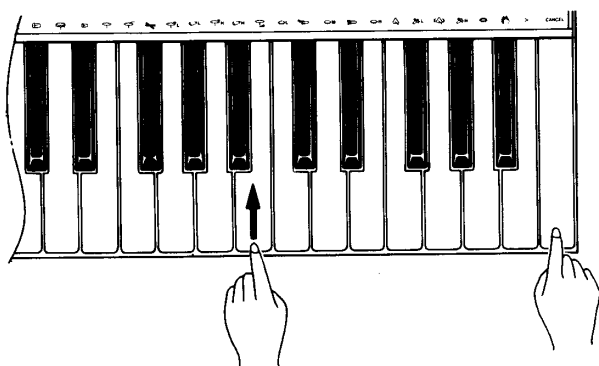
To Add Accented Beats

Specified beats of your pattern can be accented simply by pressing the accent key (the second from highest key on the X4500 keyboard—with the ">" mark above it) at the appropriate time. To accent the third beat of the first measure, for example, simply press the accent key on the third beat of the first measure. All instruments on the selected beat will be accented. Accents cannot be cancelled individually, so it is necessary to cancel the accented instrument and then enter the part again with only the desired accents.

5. Program the Bass Part

Press the CUSTOM ACCOMPANIMENT BASS button (its indicator will light) to program a new bass part. You can clear the existing bass part if desired by pressing the CLEAR button. Simply play a 2-measure bass pattern (based on a C major chord) to program the new bass part. The bass part can be played on the keyboard from C1 to F♯3. Although keyboard-velocity accents are recorded as you play them (if the KEY VELOCITY indicator is on), notes can also be accented later by pressing the accent key (>) at the appropriate timing. You can compare the new bass pattern with the original bass pattern by pressing the BASS button so that its indicator goes out. Press the BASS button again to return to the new bass part.

● *A different bass voice can be selected while programming by using the VOICE SELECT VOICE PART button to select BASS, then selecting the desired bass voice (voice number 66 through 74) using the VOICE SELECT number or +/− buttons in the normal way.*

6. Program the Chord Part

Press the CUSTOM ACCOMPANIMENT CHORD button (its indicator will light) to program a new chord part. Two different types of chord part can be programmed: "stroke" and "arpeggio." You can clear the existing chord part if desired by pressing the CLEAR button.


Arpeggio Chord Programming

When the AUTO BASS CHORD FINGERED indicator is lit (and this is the default setting), chords can be entered in arpeggio (broken chord) style. Play the notes (up to 3 at once, based on a C major chord) at the appropriate timing using the keys between C1 and C6 on the keyboard. Use this mode to create arpeggios and obbligato lines
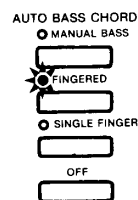
Stroke Chord Programming

When the AUTO BASS CHORD SINGLE FINGER indicator is lit (press the SINGLE FINGER button to select this mode), chords can be entered in stroke style. Press the C1 key at points where you wish to enter the chords.
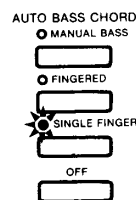
You can compare the new chord pattern with the original chord pattern by pressing the CHORD button so that its indicator goes out. Press the CHORD button again to return to the new chord part.

● *A different "stroke" chord voice can be selected while programming by using the VOICE SELECT VOICE PART button to select SOLO, then selecting the desired solo voice using the VOICE SELECT number or +/− buttons in the normal way. In the same way, a different "arpeggio" chord voice can be selected while programming by using the VOICE SELECT VOICE PART button to select ORCHESTRA, then selecting the desired in the normal way. In this case the voice numbers correspond to the following voices*

SOLO Voices for "Stroke" Chords

00	PIANO	12	JAZZ ORGAN
01	ELEC. PIANO 1	13	HUMAN VOX
02	ELEC. PIANO 2	14	CLASSIC GUITAR
03	HARPSICHORD	15	FOLK GUITAR
04	STRINGS	16	JAZZ GUITAR
05	TRUMPET	17	ROCK GUITAR
06	TROMBONE	18	DISTORTION GUITAR
07	BRASS ENSEMBLE	19	MUTE GUITAR
08	MARIMBA	20	BANJO
09	SYNTH BRASS 1	21	KOTO
10	SYNTH BRASS 2	22	VIBES
11	ROCK ORGAN		

ORCHESTRA Voices for "arpeggio" Chords

00	PIANO	13	HORN
01	ELEC. PIANO 1	14	BRASS ENSEMBLE
02	ELEC. PIANO 2	15	SYNTH BRASS
03	MARIMBA	16	ROCK ORGAN
04	VIBES	17	JAZZ ORGAN
05	STRINGS	18	FOLK GUITAR
06	VIOLIN	19	JAZZ GUITAR
07	HARP	20	ROCK GUITAR
08	FLUTE	21	BANJO
09	SAXOPHONE	22	CRYSTAL
10	ACCORDION	23	DISTORTION GUITAR
11	TRUMPET	24	HARMONICA
12	TROMBONE	25	CLAVI

7. Assign the Complete Accompaniment to a CUSTOM Button

When your custom accompaniment is complete, assign it to one of the CUSTOM ACCOMPANIMENT CUSTOM buttons (1 through 5) by pressing the appropriate CUSTOM button. "C01," "C02," "C03," "C04" or "C05" will appear on the ACCOMPANIMENT STYLE display, depending on which CUSTOM button you assigned your original accompaniment to.

8. Stop Programming

Press the PROGRAM or STOP button to stop programming.

Playing Back Your Custom Accompaniment

Once created, your original accompaniment can be selected by pressing the corresponding CUSTOM ACCOMPANIMENT CUSTOM button (1 through 5). The indicator of the selected CUSTOM button will light, and the number of the selected CUSTOM accompaniment will be shown on the ACCOMPANIMENT STYLE display preceded by a "C." The selected custom accompaniment can then be operated just like any of the preset accompaniment styles—it can be started and stopped as usual, and can be used in the FINGERED or SINGLE FINGER AUTO BASS CHORD modes.

- To select a preset accompaniment style after selecting a custom accompaniment, use the ACCOMPANIMENT STYLE SELECT number or +/− buttons in the normal way.

CUSTOM ACCOMPANIMENT PROGRAMMING SAMPLES

Try programming the following two sample accompaniment patterns using the X4500 CUSTOM ACCOMPANIMENT feature. Enter each part following the instructions given in the text above.

EXAMPLE 1.
This is a fairly orthodox 8-beat pattern. Select STYLE 03 (POP ROCK 2) as the basis for this accompaniment.

EXAMPLE 2.
This is a combo-style 4-beat pattern. Select STYLE 39 (SWING GUITAR) to start with.

17

The X4500 features a 4-track MUSIC PROGRAMMER that allows you to "record" and play back your musical creations—along with auto accompaniment if required. You can record the accompaniment, orchestra, bass and solo lines separately or at the same time. If, for example, you record the accompaniment first and then record your own performance while listening to playback of the accompaniment, you're free to use the entire keyboard for your performance rather than being limited to only the upper keyboard area. You can also play back each part independently or in any combination. For even further versatility, the X4500 MUSIC PROGRAMMER allows recording four different "SONGS" that can be separately selected and played back.

```
           MUSIC PROGRAMMER
            O RECORD   O PLAY
   SOLO  [        ]  [        ]
            O RECORD   O PLAY
ORCHESTRA [        ]  [        ]
            O RECORD   O PLAY
ACCOMP /  [        ]  [        ]
ORCHESTRA
            O RECORD   O PLAY
BASS/     [        ]  [        ]
ORCHESTRA
            O PAUSE     OFF
          [        ]  [        ]
          SONG SELECT SONG DELETE
          [        ]  [        ]
```
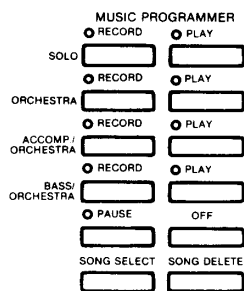
SOLO
This track can be used to record a single-note SOLO-voice melody line.

■ Data recorded: • SOLO voice number • SUSTAIN 1/2 • SOLO VOLUME • PITCH BEND • KEY VELOCITY ON/OFF • ROLL BAR (when SOLO EXPRESSION, MASTER EXPRESSION or MODULATION ON)

ORCHESTRA
Records the selected ORCHESTRA voice—up to 4 notes simultaneously.

■ Data recorded: • ORCHESTRA voice number • SUSTAIN 1/2 • ORCHESTRA VOLUME • PITCH BEND • KEY VELOCITY ON/OFF • ROLL BAR (when ORCHESTRA BRILLIANCE, MODULATION, ORCHESTRA EXPRESSION or MASTER EXPRESSION ON) • DUET

ACCOMPANIMENT/ORCHESTRA
When AUTO BASS CHORD is OFF, ORCHESTRA voice material played on the keyboard is recorded. When AUTO BASS CHORD FINGERED or SINGLE FINGER mode is ON, the AUTO BASS CHORD accompaniment (chord changes, etc) is recorded.

■ Data recorded for ACCOMPANIMENT: • SINGLE FINGER/FINGERED mode • VARIATION ON/OFF • BASS VOLUME • CHORD VOLUME

■ Data recorded for ORCHESTRA: Same as for ORCHESTRA, above, except for DUET.

■ Data recorded for ACCOMPANIMENT & ORCHESTRA: • STYLE SELECT • CUSTOM 1/2/3/4/5 • INTRO./FILL IN 1/2/3 • INTRO./ENDING • RHYTHM VOLUME • SOUND EFFECTS VOLUME • SOUND EFFECTS • EDIT ON/OFF • REVERB • SYNCHRO BREAK • HOLD • PERCUSSION PAD CUSTOM 1/2/3 • PERCUSSION PAD 1/2/3/4/5/ 6/7/8 • TEMPO • ENSEMBLE ON/OFF • KEY VELOCITY ON/OFF • ROLL BAR (when ACCOMPANIMENT/ MASTER EXPRESSION ON)

BASS/ORCHESTRA
When AUTO BASS CHORD is OFF, ORCHESTRA voice material played on the keyboard is recorded. When the MANUAL BASS mode is ON, the selected bass voice is recorded over the entire keyboard range.

■ Data recorded for BASS: • BASS voice number • KEY VELOCITY ON/OFF

■ Data recorded for ORCHESTRA: Same as for ORCHESTRA, above, except for DUET.

Recording

The normal (and most logical) order in which the four tracks should be recorded is as follows:

1: Accompaniment (ACCOMP./ORCHESTRA button).
2: Bass line if necessary (BASS/ORCHESTRA button).
3: Orchestra part (ORCHESTRA button).
4: Solo part (SOLO button)

The accompaniment and bass line parts should be recorded first so that you have a solid foundation on which to build the orchestra and solo parts. The bass line (step 2) does not necessarily have to be recorded, since the accompaniment part includes a pre-programmed bass line. If you have better bass line, however, why not record it.

Recording the Accompaniment

1. Select the Desired Accompaniment Style
Pick out an accompaniment style that is appropriate for the type of music you want to record.

2. Set the Record Ready Mode
Press the ACCOMP./ORCHESTRA RECORD button, causing its indicator to light. This engages the "record ready" mode: the SINGLE FINGER mode will be selected automatically, the metronome will sound at the currently selected tempo, and recording will begin as soon as you play a note on the keyboard (the accompaniment will only begin if you play below the split point). The currently selected SONG number (the default SONG number is "1") will appear on the VOICE display.
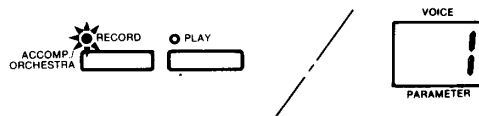
• At this point it is possible to switch to the FINGER mode if you prefer to finger your own chords. The AUTO BASS CHORD feature can be turned off prior to recording, but in this case only the normal orchestra voice will be recorded.

• When the record ready mode is engaged, the number of remaining memory "banks" is shown on the ACCOMPANIMENT STYLE display.
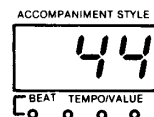
3. Set Up All Necessary Parameters
Before actually beginning to record, you should make sure that you adjust the accompaniment volume level for the appropriate balance, and adjust the tempo to match the piece you are about to record.

4. Choose an Alternative Start Mode If Necessary
If you do not perform this step, recording will begin as soon as you play a note or chord on the keyboard. At this point, however, you can choose to start recording immediately by pressing the START button, or start recording immediately with a rhythm introduction by pressing one of the INTRO buttons.

5. Start Recording

If you haven't already started recording as in step 5, above, recording will begin automatically as soon as you begin playing. While playing, you can add fill-ins, change accompaniment styles, tempo and other parameters. Such changes will be recorded and reproduced when the recording is played back. The number of measures recorded will be shown on the ACCOMPANIMENT STYLE display as you record.

6. Stop Recording

Press either the STOP button or INTRO./ENDING button to stop recording. Recording can also be stopped by pressing the currently selected RECORD button again so that its indicator goes out, the ACCOMP./ORCHESTRA PLAY button, or by pressing the MUSIC PROGRAMMER OFF button.

Recording the Bass Line (this step may be omitted)

1. Set the Accompaniment Track for Playback

Press the ACCOMP./ORCHESTRA PLAY button (its indicator will light).

2. Set the Record Ready Mode

Press the BASS/ORCHESTRA RECORD button, causing its LED indicator to light. The MANUAL BASS mode will be selected automatically. Recording will begin as soon as you play a note on the keyboard (SYNCHRO START type operation).

● *The AUTO BASS CHORD feature can be turned off prior to recording, but in this case only the normal orchestra voice will be recorded.*

3. Select the Desired Bass Voice

Use the VOICE SELECT PART SELECT button to select BASS, and select the desired bass voice in the normal way.

4. Choose an Alternative Start Mode If Necessary

If you do not perform this step, recording will begin as soon as you play a note on the keyboard. At this point, however, you can choose to start recording immediately by pressing the START button, or start recording immediately with an introduction by pressing one of the INTRO buttons. Since the accompaniment has already been recorded, however, an introduction will not be recorded even if an INTRO button is pressed.

5. Start Recording

If you haven't already started recording as in step 4, above, recording will begin automatically as soon as you begin playing. You can change voices while playing. Such changes will be recorded and reproduced when the recording is played back. The number of measures recorded will be shown on the ACCOMPANIMENT STYLE display as you record.

● *Only a single note can be played at a time when recording the bass part.*

6. Stop Recording

Recording will stop automatically when the accompaniment part finishes playing, if the accompaniment recording was stopped by pressing the INTRO./ENDING button. You can also press either the STOP button or INTRO./ENDING button to stop recording. Recording can also be stopped by pressing the currently selected RECORD button again so that its indicator goes out, the BASS/ORCHESTRA PLAY button, or by pressing the MUSIC PROGRAMMER OFF button.

Recording the Orchestra Part

1. Set the Accompaniment and Bass Tracks for Playback

Press the ACCOMP./ORCHESTRA and BASS/ORCHESTRA (if a bass line has been recorded) PLAY buttons.
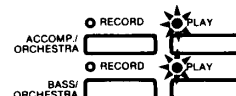
2. Set the Record Ready Mode

Press the ORCHESTRA RECORD button, causing its LED indicator to light. Recording will begin as soon as you play a note on the keyboard (SYNCHRO START type operation).

3. Select the Desired Orchestra Voice

Use the VOICE SELECT PART SELECT button to select ORCHESTRA, and select the desired orchestra voice in the normal way.

4. Choose an Alternative Start Mode If Necessary

If you do not perform this step, recording will begin as soon as you play a note on the keyboard. At this point, however, you can choose to start recording immediately by pressing the START button, or start recording immediately with an introduction by pressing one of the INTRO buttons. Since the accompaniment has already been recorded, however, an introduction will not be recorded even if an INTRO button is pressed.

5. Start Recording

If you haven't already started recording as in step 4, above, recording will begin automatically as soon as you begin playing. You can play a maximum of 4 notes simultaneously while recording the ORCHESTRA part. While playing, you can turn effects on or off or change voices. Such changes will be recorded and reproduced when the recording is played back. The number of measures recorded will be shown on the ACCOMPANIMENT STYLE display as you record.

● *If you are not simultaneously recording an accompaniment or bass part, the orchestra part can be played over the entire range of the keyboard.*

6. Stop Recording

Recording will stop automatically when the accompaniment part finishes playing, if the accompaniment recording was stopped by pressing the INTRO./ENDING button. You can also press either the STOP button or INTRO./ENDING button to stop recording. Recording can also be stopped by pressing the currently selected RECORD button again so that its indicator goes out, the ORCHESTRA PLAY button, or by pressing the MUSIC PROGRAMMER OFF button.

Recording the Solo Part

The solo part is recorded in essentially the same way as the orchestra part: Set the ACCOMP./ORCHESTRA, BASS/ORCHESTRA (if a bass track has been recorded, and ORCHESTRA tracks for playback; press the SOLO RECORD button; select the desired SOLO voice; play; and stop recording when done. Only a single note can be played at a time for the SOLO part.

- *It is also possible to record the ACCOMP./ORCHESTRA and ORCHESTRA voices simultaneously by pressing both RECORD buttons before recording. In the same way, the ACCOMP./ORCHESTRA, ORCHESTRA and SOLO parts can be recorded simultaneously. In both of the above-mentioned cases, the BASS/ORCHESTRA track may be substituted for the ACCOMP./ORCHESTRA track.*
- *If you press the SYNCHRO START button during recording, recording will stop and the record ready mode will be re-entered.*
- *Recording will stop automatically if the X4500 memory capacity is exceeded.*

Playback

1. Engage the Start Ready Mode
Press the PLAY buttons for the parts you wish to play back together.
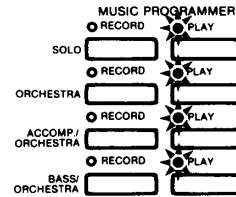
2. Start Playback
Press the START button or a key on the keyboard to begin playback. Your recording will begin with an introduction if you start playback by pressing one of the INTRO butto

3. Adjust Volume, Tempo, etc.
If necessary, adjust the overall volume using the MASTER VOLUME control, and the balance between the accompaniment and voice volumes using their respective volume controls. You can also adjust the tempo and even change accompaniment styles during playback.

- *The orchestra volume, solo volume, orchestra voice and solo voice cannot be changed during playback.*

MUSIC PROGRAMMER SAMPLE

Here's a short 4-measure musical segment you can use to familiarize yourself with the MUSIC PROGRAMMER. Program each part following the instructions given in the text above. Start with ACCOMPANIMENT (simply play style 42 SLOW ROCK for four measures). Then program the BASS, ORCHESTRA and SOLO parts—in that order.

ACCOMPANIMENT: Use style 42 (SLOW ROCK).

4. Play Along if You Like

Play along on the X4500 keyboard if you like. If the accompaniment part is being played back, the entire keyboard can be used to play a melody.

5. Stop Playback

Playback will stop automatically when the end of the recorded piece is reached. You can also stop playback at any time by pressing the STOP or INTRO./ENDING button.

● *If playback stops because the end of the piece has been reached, the MUSIC PROGRAMMER re-enters the playback ready mode. This can be exited by pressing the PLAY buttons so that none of their indicators are lit.*

● *Different tracks can be turned on or off at any time during playback by pressing the appropriate PLAY buttons.*

The PAUSE Function

The MUSIC PROGRAMMER PAUSE button makes it possible to temporarily stop recording to make panel setting changes that could not be made while playing. Simply press the PAUSE button at the point you wish to change voices, accompaniment, etc. (the metronome sounds during PAUSE), make the required changes, then press the PAUSE button again to resume recording.

Song Select

The X4500 MUSIC PROGRAMMER allows you to record 4 independent "songs" which can be selected and played back as required. The default song number is "1." To select a different song number for recording or playback, press the SONG SELECT button. The selected song number is shown on the VOICE display. Each press on the SONG SELECT button advances the song number by 1: 1→2→3→4→1 etc.

● *The current song number is shown on the VOICE display during recording and playback.*

● *A different song number can not be selected during recording or playback.*

Song Delete

To delete an entire song, use the SONG SELECT button to select the desired song, then, while holding the SONG SELECT button, press the SONG DELETE button.
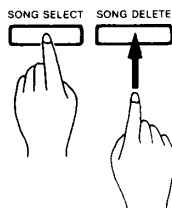
The X4500 Registration Memory feature can be used to memorize 4 complete control-panel setups that you can recall whenever needed.

Memory Store

1. Set Up the Controls as Required

Make the desired control settings. The following settings are memorized by the registration memory function:

● ORCHESTRA VOLUME ● SOLO VOLUME ● RHYTHM VOLUME ● CHORD VOLUME ● BASS VOLUME ● SOUND EFFECTS VOLUME ● AUTO BASS CHORD MODE ● ACCOMPANIMENT VARIATION ● STYLE SELECT ● SOLO STYLEPLAY ON/OFF ● CUSTOM 1/2/3/4/5 ● TEMPO ● SOLO ON/OFF ● ORCHESTRA ON/OFF ● TO LOWER ON/OFF ● SOLO VOICE SELECT ● ORCHESTRA VOICE SELECT ● BASS VOICE SELECT ● SUSTAIN 1/2 ● ENSEMBLE ON/OFF ● DUET ON/OFF ● DUAL VOICE ON/OFF ● DUAL VOICE SELECT ● KEY VELOCITY ON/OFF ● SOUND EFFECTS ON/OFF ● HOLD ON/OFF ● PERCUSSION PAD CUSTOM 1/2/3 ● SYNCHRO BREAK ● ROLL BAR MODE ● DIGITAL REVERB ● KEY SPLIT ● PART SELECT ● EDIT ON/OFF

2. Store in Memory

Press and hold the MEMORY button, then press one of the REGISTRATION buttons (1—4).

● *When a store operation is performed, any data that was previously in the selected memory is erased and replaced by the new settings.*

Recall

Simply press the desired REGISTRATION button (1—4) at any time to recall the memorized settings.

● *If a FINGERED-mode SOLO STYLEPLAY setting has been stored in the registration memory, the FINGERED mode must be selected before the registration memory is recalled.*

13 RAM PACK OPERATIONS

The X4500 features a PACK slot that accepts optional Yamaha RP-3 or RP-5 RAM packs for long-term storage of custom accompaniment, music programmer, registration, synthesizer voice, and custom percussion pad set data. Specifically, the following data can be saved on external RAM packs:

1. **The data contained in REGISTRATION MEMORY 1, 2, 3, and 4.**
2. **All Digital Synthesizer voice data.**
3. **Custom accompaniment 1, 2, 3, 4, and 5 data.**
4. **Custom percussion 1, 2, and 3 data.**
5. **All music programmer data.**

● *All the data listed above (items 1 through 5) can be stored on a single RP-5 RAM Pack, while RP-3 type RAM Packs will only store the data listed in items 1 through 4.*

Saving the Data: the TO PACK Operation

1. Make sure the MEMORY PROTECT switch of the RAM pack you intend to use is set to the OFF position. Also please note that any data previously stored in the RAM pack will be erased when new data is stored. If you do not wish to lose previously stored data, use a new RAM pack or one that contains data that you don't want to keep.
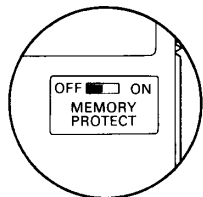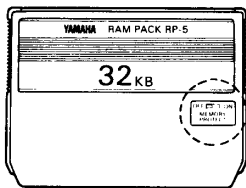
2. Insert the RAM pack into the X4500 PACK slot—firmly but gently—with the label facing upward.
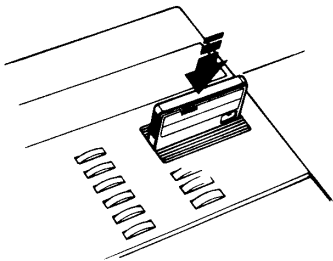
3. Press the TO PACK button. The TO PACK LED will begin to flash rapidly indicating that the X4500 is ready to store the data.

4. Press the TO PACK button a second time to begin the actual store operation. The LED will light during while the data is being stored, and will go out when the store operation has finished.

● *If the TO PACK operation is not completed successfully, the TO PACK LED will flash instead of going out after the operation. If this occurs, press the TO PACK button to turn the LED off, then try the entire store opeation again.*

● *No other X4500 functions can be used during a TO PACK operation.*

Recalling the Stored Data: the FROM PACK Operation

1. Insert the RAM pack containing the data you wish to recall into the X4500 PACK slot.

2. Press the FROM PACK button. The FROM PACK LED will begin to flash rapidly indicating that the X4500 is ready to recall the data.

3. Press the FROM PACK button a second time to begin the actual recall operation. The LED will light during while the data is being recalled, and will go out when the operation has finished.

● *A FROM PACK operation replaces all internal X4500 data with that from the RAM pack.*

● *If the FROM PACK operation is not completed successfully, the FROM PACK LED will flash slowly instead of going out after the operation. If this occurs, press the FROM PACK button to turn the LED off, then try the entire recall opeation again.*

● *No other X4500 functions can be used during a FROM PACK operation.*

* Refer to the instructions included with the RP-3 or RP-5 RAM Pack for more important information.

14 MOVING UP TO MIDI

MIDI, the Musical Instrument Digital Interface, is a world-standard communication interface that allows MIDI-compatible musical instruments and equipment to share musical information and control one another. This makes it possible to create "systems" of MIDI instruments and equipment that offer far greater versatility and control than is available with isolated instruments.
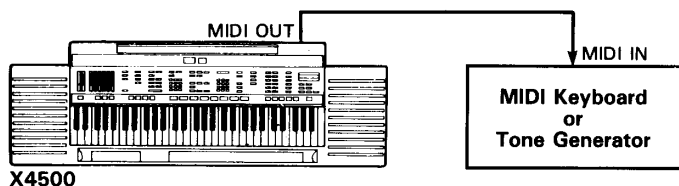
The X4500 MIDI Connectors

The X4500 MIDI IN connector receives MIDI data from an external MIDI device which can be used to control the X4500. The MIDI OUT connector transmits MIDI data generated by the X4500 (e.g. note and velocity data produced by playing the keyboard).
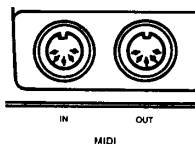

- To connect the X4500 MIDI connectors to other MIDI devices, always use high-quality MIDI cables such as the Yamaha MIDI-15 (15-meter type) or MIDI-03 (3-meter type).

Simple MIDI Control

Most MIDI keyboards (including the X4500, of course) transmit note and velocity (touch response) information via the MIDI OUT connector whenever a note is played on the keyboard. If the MIDI OUT connector is connected to the MIDI IN connector of a second keyboard (synthesizer, etc.) or a tone generator (essentially a synthesizer with no keyboard), the second keyboard or tone generator will respond precisely to notes played on the original transmitting keyboard. The result is that you can effectively play two instruments at once, providing thick multi-instrument sounds. The X4500 also transmits "program change" data when one of its voices is selected. Depending on how the receiving device is set up, the corresponding voice will be automatically selected on the receiving keyboard or tone generator whenever a voice is selected on the X4500.


The X4500 is capable of receiving the same MIDI data, so a second MIDI keyboard connected to the X4500 MIDI IN connector can be used to remotely play the X4500 and select voices as required.
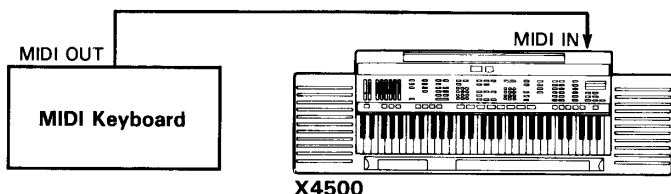
MIDI Sequence Recording

The same type of musical information transfer described above is used for MIDI sequence recording. A MIDI sequence recorder can be used to "record" MIDI data received from a X4500, for example. When the recorded data is played back, the X4500 automatically "plays" the recorded performance in precise detail.
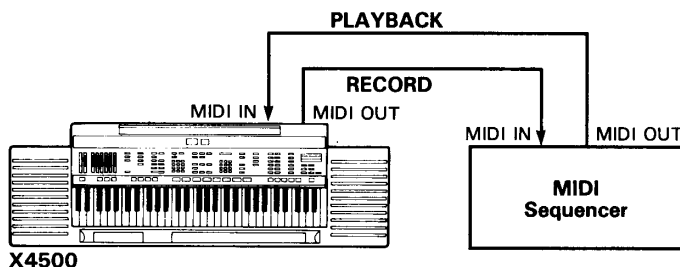
Note: Always use a high-quality MIDI cable to connect MIDI OUT to MIDI IN terminals. Never use MIDI cables longer than about 15 meters, since cables longer than this can pick up noise which can cause data errors.

X4500 MIDI Settings & Functions

Remote Control/Standard Voice Mode Selection

The Remote Control mode should be used when the X4500 is to be connected to a second keyboard or tone generator which it is to control. In this mode, the X4500 can only receive on a single MIDI channel.

The Standard Voice mode should be used when the X4500 is to be used as a tone generator, for example, receiving data from a second MIDI device (such as a sequencer). In this mode the X4500 can receive on multiple MIDI channels, each channel corresponding to a different voice.

PROCEDURE:
Pressing the VOICE SELECT number "0" button while holding the MIDI button alternately selects the remote control and standard voice modes.

DISPLAYS:
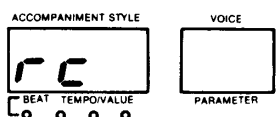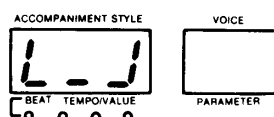
- SYSTEM REAL TIME COMMANDS can be received when the Standard Voice Mode is ON. Press the VOICE SELECT "2" button and E2 key while holding the MIDI button to engage the SYSTEM REAL TIME COMMANDS enable/disable mode, then, while holding the MIDI button, press the "+" button to enable on the "-" button to disable reception.

- *Refer to "MIDI Channel Selection" below for more information on MIDI channels.*
- *This setting has no effect when the X4500 is used for transmission only.*
- *The number of notes that can be played simultaneously via external control when the Standard Voice mode is selected: 8 melody, 7 rhythm.*

MIDI Channel Selection

The MIDI transmit and receive channels can be set independently.

PROCEDURE:
Press the VOICE SELECT number "1" button while holding the MIDI button to set the transmit channel or the VOICE SELECT number "2" button while holding the MIDI button to set the receive channel. Then, while holding the MIDI button, press one of the lowest 17 keys on the keyboard corresponding to the desired channel (see diagram below). If the standard voice mode is active, reception can be turned ON or OFF by pressing the VOICE SELECT " + " or " − " button, respectively, instead of a channel key.

OMNI OFF   OMNI ON (ALL)
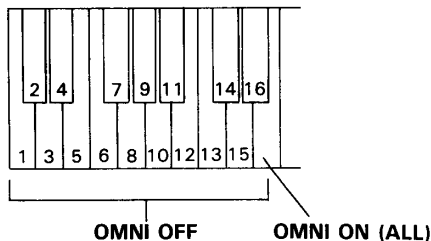
DISPLAYS:
TRANSMIT CHANNEL
CHANNEL 1   CHANNEL 16
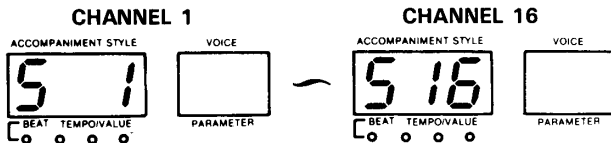
RECEIVE CHANNEL
OMNI ON + CHANNEL 1
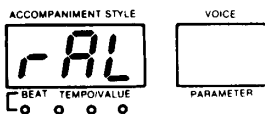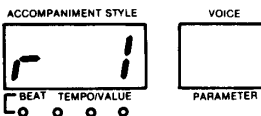
OMNI OFF + CHANNEL 1   OMNI OFF + CHANNEL 16
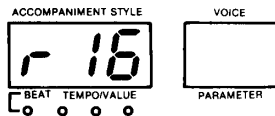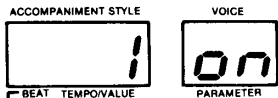
ON   OFF
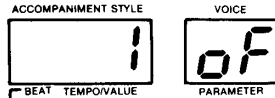
(STANDARD VOICE MODE)

- *The transmit channel is automatically set to channel 1 and the receive channel is automatically set to OMNI OFF + channel 1 when the power is initially turned ON.*
- *OMNI ON means that reception can occur simultaneously on all available channels (1 through 16). When OMNI OFF is selected, reception only occurs on the specified channel.*

Split Transmit Mode ON/OFF Selection

If the Split Transmit Mode is turned ON, lower and upper keyboard notes played in the Single Finger, Fingered or Manual Bass modes are transmitted on different MIDI channels, and can thus be used to control different MIDI devices.
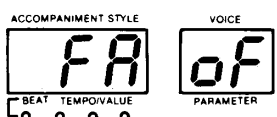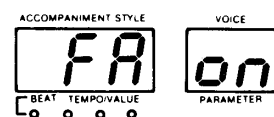
PROCEDURE:
Press the VOICE SELECT number "3" button while holding the MIDI button to select this function, then, while still holding the MIDI button, press the VOICE SELECT " + " button for ON or the " − " button for OFF.

DISPLAYS:
ON   OFF
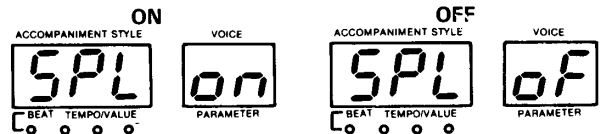
- *Lower-keyboard note data is transmitted on MIDI channel 2, so be sure to set the MIDI device which is to receive the lower-keyboard data to receive on channel 2. The upper-keyboard note data is transmitted on the MIDI channel selected using the MIDI Channel Selection function, described above.*
- *Upper and lower keyboard data can be recorded to a MIDI sequencer on different channels, so that different voices set to the corresponding channels can be independently controlled when the recorded sequence is played back.*
- *This function has no effect when the X4500 is used for reception only.*
- *This function cannot be used when the Standard Voice mode is selected.*
- *When the power is initially turned ON, the Split Transmission Mode is automatically turned OFF.*

Program Change & Control Change Cancel ON/OFF Selection

Normally the X4500 will respond to MIDI program change control change data received from an external keyboard or other MIDI device, causing the correspondingly numbered X4500 voice to be selected and the corresponding "control" operations to be performed. The X4500 will normally also send MIDI program change data whenever one of its voices is selected or control change data when one of its controls are operated, causing the corresponding operation to be performed on an external MIDI device.
This function makes it possible to cancel program change and control change data reception and transmission so that voices can be selected on the X4500 without affecting the external MIDI device, etc. Program Change & Control Change Cancel is automatically turned ON when the power is initially turned ON.

PROCEDURE:
Press the VOICE SELECT number "4" button while holding the MIDI button to select this function, then, while still holding the MIDI button, press the VOICE SELECT " + " button for ON or the " − " button for OFF.

DISPLAYS:
ON   OFF
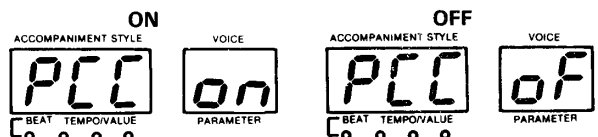
External/Internal Clock Selection

This function determines whether the X4500 rhythm and accompaniment timing is controlled by the X4500's own internal clock or an external MIDI clock signal received from external equipment connected to the MIDI IN connector. The Clock Mode is automatically set to INTERNAL when the power is initially turned ON.

PROCEDURE:
Press the VOICE SELECT number "5" button while holding the MIDI button to select this function, then, while still holding the MIDI button, press the VOICE SELECT "+" button for EXT or the "−" button for INT.

DISPLAYS:

EXTERNAL CLOCK   INTERNAL CLOCK
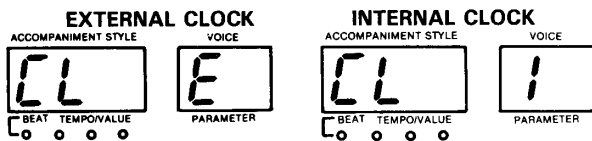
- To synchronize playback of an external sequencer or rhythm programmer to the X4500, for example, set this function to INTERNAL and make sure that the external device is set up to receive EXTERNAL clock data.
- To synchronize the X4500 to playback of an external sequencer or rhythm programmer, set this function to EXTERNAL.

NOTE: If the clock mode is set to EXTERNAL and a MIDI clock signal is not being received from an external source, the X4500 rhythm, accompaniment and other clock-dependent features will not operate.

Local Control ON/OFF Selection

"Local Control" refers to the fact that, normally, the X4500 keyboard controls its internal tone generator, allowing the internal voices to be played directly from the keyboard. This situation is "Local Control ON" since the internal tone generator is controlled locally by its own keyboard.

Local control can be turned OFF, however, so that the X4500 keyboard does not play the internal voices, but the appropriate MIDI information is still transmitted via the MIDI OUT connector when notes are played on the keyboard. At the same time, the internal tone generator responds to MIDI information received via the MIDI IN connector. This means that while an external MIDI sequence recorder, for example, plays the X4500's internal voices, an external tone generator can be played from the X4500 keyboard. Local Control is automatically turned ON when the power is initially turned ON.

PROCEDURE:
Press the VOICE SELECT number "6" button while holding the MIDI button to select this function, then, while still holding the MIDI button, press the VOICE SELECT "+" button for ON or the "−" button for OFF.

DISPLAYS:

ON   OFF
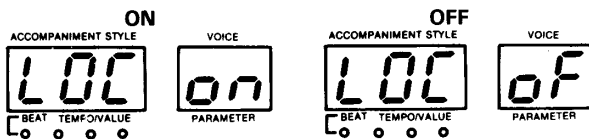
- This function has no effect when the X4500 is being used for reception only.

Panel Data Transmit

This function transmits data corresponding to all of the X4500's current panel settings. This data can be received by a second X4500 to automatically match its settings to the transmitting X4500, or to a MIDI sequence recorder which will then set up the X4500 automatically when played back.

PROCEDURE:
Press the VOICE SELECT number "7" button while holding the MIDI button to transmit the panel data.

Memory Data Transmit

This function transmits all data in the X4500's internal memory (custom accompaniment data, music programmer data, etc). This data can be received by a second X4500 to automatically match its data to the transmitting X4500, or to a MIDI sequence recorder which will then set up the X4500 automatically when played back.

PROCEDURE:
Press the VOICE SELECT number "8" button while holding the MIDI button to transmit the memory data.

DISPLAYS:
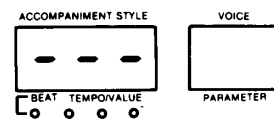
Rhythm Receive Channel Selection

This function is used to select the MIDI receive channel that will be used to receive rhythm data (the channel selected using the MIDI Channel Selection function described earlier applies to non-rhythm parts and voices). The Rhythm Receive Channel must be matched to the transmit channel of the device from which the rhythm data is to be received.

PROCEDURE:
Press the VOICE SELECT number "9" button while holding the MIDI button. Then, while holding the MIDI button, press one of the lowest 16 keys on the keyboard corresponding to the desired channel (see diagram below).

DISPLAYS:

CHANNEL 1   CHANNEL 16
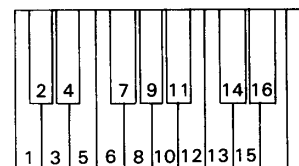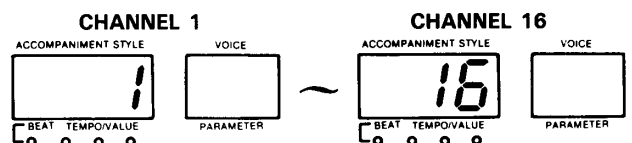
- If the assigned Rhythm Receive Channel is the same as a channel assigned for reception of non-rhythm data, the rhythm data takes priority.
- When the power switch is turned ON, the Remote Control Mode is selected and the OMNI OFF + receive channel 1 mode is selected. If the Standard Voice Mode is then selected, this function is automatically set to channel 16.
- This function has no effect if the Remote Control Mode is selected.

15 TROUBLESHOOTING

Something not working as it should? In many cases what appears to be a malfunction can be traced to a simple error that can be remedied immediately. Before assuming that your PortaTone is faulty, please check the following points.

PROBLEM	POSSIBLE CAUSE
The X4500 speakers produce a "pop" sound whenever the power is turned ON or OFF.	This is normal and is no cause for alarm.
No sound.	Are the MASTER VOLUME control and individual accompaniment and voice volume levels turned up high enough? Is a pair of headphones plugged into the HEADPHONE jack? Perhaps the MIDI LOCAL ON/OFF mode is set to OFF.
Rhythm won't start or no rhythm sound.	Is the RHYTHM volume turned up high enough? Are you sure you pressed the START button? Perhaps the X4500 is in the SYNCHRO START mode, so all you have to do is start playing.
No lower keyboard sound.	Is the BASS and/or CHORD volume turned up high enough? Are you sure you're playing in the lower keyboard (Auto Bass Chord keys) section?
Auto Bass Chord accompaniment won't function.	Have you selected the SINGLE FINGER or FINGERED mode? Auto Bass Chord accompaniment won't function if the FINGERED mode is selected and you're using SINGLE FINGER type fingering.
The accompaniment key changes while you're playing.	Perhaps you accidentally pressed a key in the Auto Bass Chord key range.
Auto Bass Chord accompaniment chords don't seem to change properly.	Are you releasing all Auto Bass Chord keys before playing the next chord? Are you playing chords that the X4500 can recognize (see chord chart on page 11)?
SOLO STYLEPLAY function won't turn on.	The SOLO STYLEPLAY function cannot be turned on when the MUSIC PROGRAMMER is recording or playing.
A voice other than the one selected sounds.	Make sure that the AUTO BASS CHORD selector is set to OFF.
The effects selected do seem to be applied to certain accompaniment parts.	This is normal. The parts to which effects can be applied are pre-determined.
Sound breaks momentarily when switching to or from ECHO effect.	This is normal.
Music Programmer data disappears from memory.	The data is only backed up for approximately one week if the power is not turned ON.
The control panel LEDs light only dimly. Operation errors occur.	In this case, your batteries are probably flat and need replacement.

16 OPTIONAL ACCESSORIES

- **AC Power Adaptor (PA-5)**
  Transforms AC mains voltage to the DC voltage required by the X4500.
- **Car Battery Adaptor (CA-1)**
  Enables you to provide power to the instrument from a car battery using the cigarette lighter socket.
- **Headphones (HPE-3/HPE-5)**
  These specially designed lightweight headphones feature extra-comfortable ear pads.
- **Stand (L-2/L-4)**
  This lightweight, portable stand provides a sturdy, convenient support for your X4500.

- **Bench (BC-6)**
- **Soft Case (SCC-33)**
  For extra protection and convenient carrying, keep your X4500 in this high-quality soft case.
- **RAM Pack (RP-3, RP-5)**
  For convenient long-term storage of your performance data.
- **Expression Pedal (EP-1)**
- **Foot Switch (FC-5)**

  * *Some optional accessories may not be available in all areas.*

17 X4500 SPECIFICATIONS

- **KEYBOARD**
  61 keys (C₁—C₆)
- **VOICE (00 ~ 99)**
  Piano 1, Piano 2, Honky-Tonk Piano, Elec. Piano 1, Elec. Piano 2, Harpsichord, Clavi, Celesta, Toy Piano, Vibes, Glocken, Chimes, Xylophone, Marimba, Bamboo Marimba, Timpani, Steel Drum, Kalimba, Gamelan, Music Box, Strings 1, Strings 2, Pizz. Strings, Synth Strings 1, Synth Strings 2, Violin, Cello, Harp, Flute, Pan Flute, Recorder, Clarinet, Oboe, Bassoon, Saxophone 1, Saxophone 2, Harmonica, Accordion, Bagpipe, Trumpet, Mute Trumpet, Trombone, Horn, Tuba, Brass Ensemble, Power Brass, Synth Brass 1, Synth Brass 2, Pipe Organ, Jazz Organ, Rock Organ, Street Organ, Human Vox, Husky, Whistle, Classic Guitar, Folk Guitar, Jazz Guitar, Rock Guitar, Distortion Guitar, Mute Guitar, Banjo, Mandolin, Sitar, Koto, Shamisen, Acoustic Bass, Bowed Bass, Elec. Bass 1, Elec. Bass 2, Slap Bass, Fretless Bass, Synth Bass 1, Synth Bass 2, Synth Bass 3, Hollow Synth, Soft Cloud, Daybreak, Sunbeam, Arabesque, Aqua, Landscape, Metallic, Crystal, Ice Block, Glass Bells, Synth Bells, Bell Fountain, Pluck, Syntherimba, African Percuss., After Burner, Funny, Monster, Ha Ha Ha!, Emergency, Racing Circuit, Storm, Wave, Orchestra Hit
- **ACCOMPANIMENT STYLES (00 ~ 99)**
  Disco 1, Disco 2, Pop Rock 1, Pop Rock 2, 8 Beat 1, 8 Beat 2, 16 Beat 1, 16 Beat 2, Rock'n'Roll 1, Rock'n'Roll 2, Brass Rock, Christmas Rock, Oriental Rock, Rock Baroque, Techno Rock 1, Techno Rock 2, Hard Rock, Heavy Metal, Speed Metal, Contemporary Soul, Fusion 1, Fusion 2, Funk 1, Funk 2, Funk 3, Rap, Rock Shuffle, Euro Beat 1, Euro Beat 2, Gospel, Rhythm & Blues 1, Rhythm & Blues 2, Slow Blues, Big Band 1, Big Band 2, Modern Jazz, 5/4 Swing, Jazz Ballad, Jazz Baroque, Swing Guitar, Swing Piano, 16 Beat Bounce, Slow Rock, Pop Ballad, Baroque, Shuffle, Boogie Woogie Piano 1, Boogie Woogie Piano 2, Boogie Big Band 1, Boogie Big Band 2, Dixieland Combo, Dixieland Banjo, Country, Country Piano, Country Steel Guitar, Ragtime Piano, Bluegrass, Merengue, Tango, Habanera, Reggae 1, Reggae 2, Salsa 1, Salsa 2, Calypso, Conga, Cuban, Cha-Cha-Cha, Mariachi, Bolero, Flamenco, Argentine Folklore, Island Folklore, Son Afro, Beguine, Rhumba, Manbo 1, Manbo 2, Samba 1, Samba 2, Bossa Nova 1, Bossa Nova 2, Hawaiian, Chanson, Ondo, Enka, March 1, March 2, Polka, Fanfare, Viennese Waltz, Big Band (Waltz), Baroque (Waltz), Jazz Waltz, Lullaby, Classical Guitar, Street Organ, Mandolin Band, String Quartet, Barbershop Quartet
- **PERCUSSION PADS**
  Sound Effects: Bird 1, Bird 2, Bird 3, Car Horn, Breaking Glass, Explosion, Low Scratch, High Scratch, Male Laugh, Chipmunk Laugh, Female "Yeah!", Male "Yeah!", Male "Ha!", Kabuki "Wo", Tsuzumi Drum, Applause
  Percussion Instruments: Low Bass Drum, Low Timbales, Bass Drum, High Timbales, Low Tom, Middle Tom, Cabasa, High Tom, Surdo, Rim Shot, Snare Drum (Gate Echo), Low Conga, Heavy Snare Drum, High Conga, Light Snare Drum, Mute Conga, Pedal Hi-hat, Closed Hi-hat, Low Cuica, Open Hi-hat, High Cuica, Ride Cymbal, Ride Cup, Claves, Low Crash Cymbal, Low Cowbell, High Crash Cymbal, High Cowbell, Reverse Cymbal, Low Synth Tom, Low Agogo, Middle Synth Tom, High Agogo, High Synth Tom, Closed Triangle, Low Samba Whistle, Open Triangle, High Samba Whistle, Tambourine, Claps
- **PAD**
  PROGRAM, SYNCHRO BREAK, SOUND EFFECTS, HOLD, CUSTOM 1, CUSTOM 2, CUSTOM 3, PERCUSSION PAD 1 ~ 8
- **ORCHESTRATION**
  SOLO, ORCHESTRA, TO LOWER, DUAL VOICE, SOLO VOLUME, ORCHESTRA VOLUME

- **EFFECTS**
  SUSTAIN 1, SUSTAIN 2, ENSEMBLE, DUET, KEY VELOCITY, SOUND EFFECTS VOLUME
- **DIGITAL REVERB**
  ROOM, HALL, ECHO
- **SOLO STYLEPLAY**
- **RHYTHM CONTROL**
  START, STOP, SYNCHRO START, INTRO./ENDING, INTRO./FILL IN 1, INTRO./FILL IN 2, INTRO./FILL IN 3, RHYTHM VOLUME
- **DIGITAL SYNTHESIZER**
  EDIT, PARAMETER, VALUE
- **AUTO BASS CHORD**
  MANUAL BASS, FINGERED, SINGLE FINGER, OFF, BASS VOLUME, CHORD VOLUME
- **CUSTOM ACCOMPANIMENT**
  PROGRAM, RHYTHM, BASS, CHORD, CLEAR, CUSTOM 1, CUSTOM 2, CUSTOM 3, CUSTOM 4, CUSTOM 5
- **MUSIC PROGRAMMER**
  RECORD (SOLO, ORCHESTRA, ACCOMPANIMENT/ORCHESTRA, BASS/ORCHESTRA), PLAY (SOLO, ORCHESTRA, ACCOMPANIMENT/ORCHESTRA, BASS/ORCHESTRA), PAUSE, OFF, SONG SELECT, SONG DELETE
- **REGISTRATION MEMORY**
  MEMORY, 1, 2, 3, 4
- **VOICE SELECT**
  PART SELECT, -, +, 0~9
- **ACCOMPANIMENT STYLE SELECT**
  TEMPO, VARIATION, -, +, 0~9
- **ROLL BAR**
  MODULATION, ORCHESTRA BRILLIANCE, SOLO EXPRESSION, ORCHESTRA EXPRESSION, ACCOMPANIMENT EXPRESSION, MASTER EXPRESSION
- **PITCH BENDER**
- **RAM PACK**
  TO PACK, FROM PACK
- **KEY SPLIT**
- **OTHER CONTROLS**
  POWER SWITCH, MASTER VOLUME, TEMPO, VARIATION, PITCH, TRANSPOSE, 3-DIGIT AND 2-DIGIT LED DISPLAYS, MIDI MODE, DEMONSTRATION
- **CONNECTORS**
  HEADPHONES, AUX OUT (R, L/L+R), EXP. PEDAL, DC IN (9—12V), SUSTAIN, MIDI (IN, OUT), OPTIONAL IN (L, R)
- **AMPLIFIER**
  8 W × 2
- **SPEAKERS**
  12cm × 2
- **POWER REQUIREMENTS**
  DC 9V (six 1.5V SUM-1, D size, R-20 or equivalent batteries), PA-5 Power Adaptor or CA-1 Car Battery Adaptor
- **DIMENSIONS (W × D × H)**
  1221 × 392.4 × 145.6 mm (48-5/7" × 15-3/7" × 5-5/7")
- **WEIGHT**
  8.8 kg (19.4 lbs.)
- **SUPPLIED ACCESSORIES**
  MUSIC STAND

MIDI DATA FORMAT

● SYSTEM EXCLUSIVE MESSAGE

1) Bulk Dump Request

11110000	F0H	STATUS	
01000011	43H	YAMAHA ID	
0010nnnn	2nH	SUBSTATUS/CH	n = local device no.
00001010	0AH	FORMAT NO.	
11110111	F7H	EOX	

2) Bulk Dump Data

11110000	F0H	STATUS	
01000011	43H	YAMAHA ID	
0000nnnn	0nH	SUBSTATUS/CH	n = local device no.
00001010	0AH	FORMAT NO.	
0nnnnnnn	nn	BYTE COUNT MSB	
0nnnnnnn	nn	BYTE COUNT LSB	
01010000	50H	Header	P
01001011	4BH		K
00100000	20H		space
00100000	20H		space
00110010	32H		2
00110001	31H		1
00110010	32H		2
00110010	32H		2
00100000	20H		space
0nnnnnnn	nn	DATA NO.	
0ddddddd	dd		
	:	DATA	
0ddddddd	dd		
0sssssss	ss	CHECKSUM	
11110111	F7H	EOX	

DATA NO.

00H	REGISTRATION MEMORY
01H	SYNTHESIZER DATA
02H	CUSTOM RHYTHM
03H	CUSTOM BASS
04H	CUSTOM CHORD 1 (STROKE)
05H	CUSTOM CHORD 2 (ARPEGGIO)
06H	MUSIC PROGRAMMER INDEX
07H	TRACK 1
:	:
0nH	TRACK n-6

3) Panel Data Request

11110000	F0H	STATUS	
01000011	43H	YAMAHA ID	
0010nnnn	2nH	SUBSTATUS/CH	n = local device no.
01111100	7CH	FORMAT NO.	
11110111	F7H	EOX	

4) Panel Data Transmission

11110000	F0H	STATUS	
01000011	43H	YAMAHA ID	
0000nnnn	0nH	SUBSTATUS/CH	n = local device no.
01111100	7CH	FORMAT NO.	
0nnnnnnn	nn	BYTE COUNT MSB	
0nnnnnnn	nn	BYTE COUNT LSB	
01010000	50H	Header	P
01001011	4BH		K
00100000	20H		space
00100000	20H		space
00110010	32H		2
00110001	31H		1
00110010	32H		2
00110010	32H		2
00100000	20H		space
00100000	20H		space
0vvvvvvv	vv	Software version number.	
0rrrrrrr	rr	Software revision number.	

0ddddddd	dd		
	:	DATA	
0ddddddd	dd		
0sssssss	ss	CHECKSUM	
11110111	F7H	EOX	

5) Name Data Request

11110000	F0H	STATUS	
01000011	43H	YAMAHA ID	
0010nnnn	2nH	SUBSTATUS/CH	n = local device no.
01111101	7DH	FORMAT NO.	
11110111	F7H	EOX	

6) Name Data Transmission

11110000	F0H	STATUS	
01000011	43H	YAMAHA ID	
0000nnnn	0nH	SUBSTATUS/CH	n = local device no.
01111101	7DH	FORMAT NO.	
0nnnnnnn	nn	BYTE COUNT MSB	
0nnnnnnn	nn	BYTE COUNT LSB	
01010000	50H	Header	P
01001011	4BH		K
00100000	20H		space
00100000	20H		space
00110010	32H		2
00110001	31H		1
00110010	32H		2
00110010	32H		2
00100000	20H		space
00100000	20H		space
0vvvvvvv	vv	Software version number.	
0rrrrrrr	rr	Software revision number.	
0ccccccc	cc	CONDITION DATA	
0ccccccc	cc	″	
0ccccccc	cc	″	
0ccccccc	cc	″	
0sssssss	ss	CHECKSUM	
11110111	F7H	EOX	

7) Standard Voice Mode/Remote Control Mode Switch

a) Remote Control Mode
   F0H, 43H, 76H, 05H, 00H, F7H
b) Standard Voice Mode
   F0H, 43H, 76H, 05H, 01H, F7H

8) Clock Mode Switch

a) Internal Mode
   F0H, 43H, 73H, 01H, 02H, F7H
b) External Mode
   F0H, 43H, 73H, 01H, 03H, F7H

9) Program/Control Change Cancel ON

F0H, 43H, 73H, 01H, 10H, F7H

● MIDI EXTENDED CONTROL CHANGE

1) Format
F0H, 43H, 76H, 04H, gnH, ccH, ddH, F7H
(n = local device no.)

2) DATA

g	cc	dd	PARAMETER	FUNCTION
0	00h	0~99	STYLE NO.	STYLE
	01h	00h 01h 02h 03h	OFF S/F F/C M/B	ABC
	02h	0 1	VARI. OFF VARI. ON	ABC VARIATION
	03h	00h 01h 02h 04h	OFF FILL1 ON FILL2 ON FILL3 ON	FILL IN
	04h	0	INTRO./ENDING ON EVENT	INTRO./ENDING
	05h	0	S.S ON EVENT	SYNCRO. START
	06h	0~127	TEMPO VALUE	TEMPO SPEED
	07h	36~64	SPLIT POINT	SPLIT
	08h	7Ah ≀ 7Fh 0 1 ≀ 6	−6 ≀ −1 0 +1 ≀ +6	TRANSPOSE
	09h	0~99	SOLO VOICE NO.	SOLO VOICE
	0Ah	0~99	BASS VOICE NO.	BASS VOICE
	0Bh	0 1 2 3 4 5 6 7	ORC. OFF ORC. ON SOLO OFF SOLO ON TO LOWER OFF TO LOWER ON DUAL VOICE OFF DUAL VOICE ON	ORCHESTRATION
	0Ch	0 1	SOLO STYLEP OFF SOLO STYLEP ON	SOLO STYLE PLAY
	0Dh	0 1 2 3 4 5	ENSEMBLE OFF ENSEMBLE ON DUET OFF DUET ON KEY VEL. OFF KEY VEL. ON	EFFECT
	0Eh	0 1 2 3	REV. OFF ROOM HALL ECHO	DIGITAL REVERB
	0Fh	0 1	EDIT OFF EDIT ON	DIGITAL SYNTH
	10h	0 1 2 3 4 5	MODULATION ORC. BRILLIANCE SOLO EXPRESSION ORC. EXPRESSION ACC. EXPRESSION MAST. EXPRESSION	ROLL BAR

g	cc	dd	PARAMETER	FUNCTION
0	11h	0 1 2 3	REGISTRATION 1 REGISTRATION 2 REGISTRATION 3 REGISTRATION 4	REGISTRATION MEMORY
	12h	0 1 2 3 4 5 6 7	SOUND EFFECTS CUSTOM 1 CUSTOM 2 CUSTOM 3 HOLD OFF HOLD ON SYNCR. BREAK OFF SYNCR. BREAK ON	DRUM PAD FUNCTION
	13h	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	PAD1 OFF PAD1 ON PAD2 OFF PAD2 ON PAD3 OFF PAD3 ON PAD4 OFF PAD4 ON PAD5 OFF PAD5 ON PAD6 OFF PAD6 ON PAD7 OFF PAD7 ON PAD8 OFF PAD8 ON	PAD ON/OFF
	14h	0 1 2 3 4	CUSTOM 1 CUSTOM 2 CUSTOM 3 CUSTOM 4 CUSTOM 5	CUSTOM ACCOMPANIMENT
	15h	0 1 2 3 4 5 6 7 8 9 10 11	SOLO REC SOLO PLAY ORC. REC ORC. PLAY ACCOMP. REC ACCOMP. PLAY BASS REC BASS PLAY PAUSE SONG SELECT SONG DELETE OFF	MUSIC PROGRAMER
	16h	0~127	SOLO VOLUME	SOLO VOLUME
	17h	0~127	CHORD VOLUME	CHORD VOLUME
	18h	0~127	BASS VOLUME	BASS VOLUME
	19h	0~127	RHYTHM VOLUME	RHYTHM VOLUME
	1Ah	0~127	SOUND EFFECTS VOL.	SOUND EFFECTS VOL.
	1Bh	0~127	ROLL BAR VALUE	ROLL BAR VALUE

● STANDARD VOICE MODE OUTPUT VOICE NUMBER CHART

X4500 NO.	PANEL VOICES	MIDI OUT NO.	STANDARD VOICES
00	PIANO 1	03	PIANO 1
01	PIANO 2	52	PIANO 2
02	HONKY-TONK PIANO	25	HONKY TONK PIANO
03	E. PIANO 1	05	ELECTRIC PIANO 1
04	E. PIANO 2	54	ELECTRIC PIANO 2
05	HARPSICHORD	04	HARPSICHORD 1
06	CLAVI	30	FUNKY CLAVI
07	CELESTA	06	CELESTA
08	TOY PIANO	26	TOY PIANO
09	VIBES	07	VIBRAPHONE
10	GLOCKEN	32	GLOCKENSPIEL
11	CHIMES	64	CARILLON
12	XYLOPHONE	59	XYLOPHONE
13	MARIMBA	08	MARIMBA
[14]	BAMBOO MARIMBA	65	PIZZICATO VIOLIN
15	TIMPANI	66	TIMPANI
16	STEEL DRUM	09	STEEL DRUM
17	KALIMBA	61	KALIMBA
[18]	GAMELAN	62	TUBULA BELLS
19	MUSIC BOX	24	MUSIC BOX
20	STRINGS 1	41	STRINGS 1
21	STRINGS 2	50	STRINGS 2
22	PIZZ. STRINGS	78	PIZZICATO STRINGS
23	SYNTH STRINGS 1	51	SYNTH STRINGS
[24]	SYNTH STRINGS 2	67	VIOLIN 2
25	VIOLIN	10	VIOLIN 1
26	CELLO	11	CELLO
27	HARP	37	HARP
28	FLUTE	20	FLUTE
29	PAN FLUTE	47	PAN FLUTE
30	RECORDER	88	RECORDER
31	CLARINET	19	CLARINET
32	OBOE	21	OBOE
[33]	BASSON	97	KAZOO
34	SAXOPHONE 1	18	SAX
[35]	SAXOPHONE 2	42	ALPENHORN
36	HARMONICA	22	HARMONICA
37	ACCORDION	31	ACCORDION
38	BAGPIPE	43	BAGPIPE
39	TRUMPET	15	TRUMPET
40	MUTE TRUMPET	44	MUTE TRUMPET
41	TROMBONE	16	TROMBONE
42	HORN	17	HORN
43	TUBA	84	TUBA
44	BRASS ENSEMBLE	92	BRASS ENSEMBLE 1
[45]	POWER BRASS	83	WOW TRUMPET
46	SYNTH BRASS 1	00	SYNTH BRASS 1
47	SYNTH BRASS 2	82	SYNTH BRASS 2
48	PIPE ORGAN	29	PIPE ORGAN 2
49	JAZZ ORGAN	01	JAZZ ORGAN

X4500 NO.	PANEL VOICES	MIDI OUT NO.	STANDARD VOICES
50	ROCK ORGAN	27	ROCK ORGAN
51	STREET ORGAN	57	STREET ORGAN
52	HUMAN VOX	96	HUMAN CHORUS
53	HUSKY	95	HUMAN VOICE 2
54	WHISTLE	23	WHISTLE
55	CLASSIC GUITAR	73	CLASSIC GUITAR
56	FOLK GUITAR	36	FOLK GUITAR
57	JAZZ GUITAR	12	JAZZ GUITAR
58	ROCK GUITAR	68	ROCK GUITAR 2
59	DISTORTION GUITAR	13	ROCK GUITAR 1
60	MUTE GUITAR	70	ROCK GUITAR 4
61	BANJO	34	BANJO
62	MANDOLIN	74	MANDOLIN
63	SITAR	75	SITAR
64	KOTO	76	KOTO
65	SHAMISEN	77	SHAMISEN
66	ACOUSTIC BASS	14	WOOD BASS 1
67	BOWED BASS	35	BOWED BASS
68	ELEC. BASS 1	38	ELECTRIC BASS 1
69	ELEC. BASS 2	79	ELECTRIC BASS 2
70	SLAP BASS	39	SLAP BASS
71	FRETLESS BASS	80	ELECTRIC BASS 3
[72]	SYNTH BASS 1	81	WOOD BASS 2
73	SYNTH BASS 2	58	SYNTH BASS 1
74	SYNTH BASS 3	86	SYNTH BASS 2
[75]	HOLLOW SYNTH	98	MUSIC SAW
[76]	SOFT CLOUD	46	JUG
[77]	DAYBREAK	53	HARPSICHORD 2
[78]	SUNBEAM	56	BANDNEON
[79]	ARABESQUE	69	ROCK GUITAR
[80]	AQUA	28	TREMOLO ORGAN
[81]	LANDSCAPE	99	SINE WAVE
[82]	METALLIC	45	SYNTH REED
[83]	CRYSTAL	33	HAWAIIAN GUITAR
84	ICE BLOCK	48	ICE BLOCK
[85]	GLASS BELL 2	63	HAND BELL
[86]	SYNTH BELLS	40	UKULELE
[87]	BELL FOUNTAIN	72	12 STRING GUITAR
[88]	PLUCK	60	SYNTH (PERCUS)
[89]	SYNTHERIMBA	71	PEDAL STEEL GUITAR
[90]	AFRICAN PERCUSS.	55	GLASS CELESTA
[91]	AFTER BURNER	85	SYNTH REED 2
[92]	FUNNY	91	SAMBA WHISTLE
[93]	MONSTER	87	FLUGEL HORN
[94]	HA HA HA!	94	HUMAN VOICE 1
[95]	EMERGENCY	49	REED ORGAN
[96]	RACING CIRCUIT	93	WOODWIND ENSEMBLE
[97]	STORM	89	OCALINA
[98]	WAVE	02	PIPE ORGAN 1
99	ORCHESTRA HIT	90	ORCHESTRA HIT

● *Voice numbers not enclosed in boxes are common panel and standard voices.*

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● STANDARD VOICE MODE INPUT VOICE NUMBER CHART

MIDI IN		X4500	
NO.	STANDARD VOICES	NO.	PANEL VOICES
00	SYNTH BRASS 1	46	SYNTH BRASS 1
01	JAZZ ORGAN	49	JAZZ ORGAN
02	PIPE ORGAN 1	[28]	FLUTE
03	PIANO 1	00	PIANO 1
04	HARPSICHORD 1	05	HARPSICHORD
05	ELECTRIC PIANO 1	03	E. PIANO 1
06	CELESTA	07	CELESTA
07	VIBRAPHONE	09	VIBES
08	MARIMBA	13	MARIMBA
09	STEEL DRUM	16	STEEL DRUM
10	VIOLIN 1	25	VIOLIN
11	CELLO	26	CELLO
12	JAZZ GUITAR	57	JAZZ GUITAR
13	R.GUITAR 1 (DIST)	59	DISTORTION GUITAR
14	WOOD BASS 1	66	ACOUSTIC BASS
15	TRUMPET	39	TRUMPET
16	TROMBONE	41	TROMBONE
17	HORN	42	HORN
18	SAX	34	SAXOPHONE 1
19	CLARINET	31	CLARINET
20	FLUTE	28	FLUTE
21	OBOE	32	OBOE
22	HARMONICA	36	HARMONICA
23	WHISTLE	54	WHISTLE
24	MUSIC BOX	19	MUSIC BOX
25	HONKY-TONK PIANO	02	HONKY-TONK PIANO
26	TOY PIANO	08	TOY PIANO
27	ROCK ORGAN	50	ROCK ORGAN
28	TREMOLO ORGAN	[57]	JAZZ ORGAN
29	PIPE ORGAN 2	48	PIPE ORGAN
30	FUNKY CLAVI	06	CLAVI
31	ACCORDION	37	ACCORDION
32	GLOCKENSPIEL	10	GLOCKEN
33	HAWAIIAN GUITAR	[56]	FOLK GUITAR
34	BANJO	61	BANJO
35	BOWED BASS	67	BOWED BASS
36	FOLK GUITAR	56	FOLK GUITAR
37	HARP	27	HARP
38	ELECTRIC BASS 1	68	ELEC. BASS 1
39	SLAP BASS	70	SLAP BASS
40	UKULELE	[62]	MANDOLIN
41	STRINGS 1	20	STRINGS 1
42	ALPENHORN	[42]	HORN
43	BAGPIPE	38	BAG PIPES
44	MUTE TRUMPET	40	MUTE TRUMPET
45	SYNTH REED 1	[75]	HOLLOW SYNTH
46	JUG	[76]	SOFT CLOUD
47	PAN FLUTE	29	PAN FLUTE
48	ICE BLOCK	84	ICE BLOCK
49	REED ORGAN	[51]	STREET ORGAN
50	STRINGS 2	21	STRINGS 2
51	SYNTH STRINGS	23	SYNTH STRINGS 1
52	PIANO 2	01	PIANO 2
53	HARPSICHORD 2	05	HARPSICHORD
54	ELECTRIC PIANO 2	04	E. PIANO 2
55	GLASS CELESTA	[90]	AFRICAN PERCUS.
56	BANDONEON	[37]	ACCORDION
57	STREET ORGAN	51	STREET ORGAN
58	SYNTH BASS 1	73	SYNTH BASS 2
59	XYLOPHONE	12	XYLOPHONE
60	SYNTH (PERCUSS)	[88]	PLUCK
61	KALIMBA	17	KALIMBA
62	TUBULA BELLS	[11]	CHIMES
63	HAND BELL	[19]	MUSIC BOX

MIDI IN		X4500	
NO.	STANDARD VOICES	NO.	PANEL VOICES
64	CARILLON	11	CHIMES
65	PIZZICATO VIOLIN	[22]	PIZZ STRINGS
66	TIMPANI	15	TIMPANI
67	VIOLIN 2	25	VIOLIN
68	R.GUITAR 2	58	ROCK GUITAR
69	R.GUITAR 3	[58]	ROCK GUITAR
70	R.GUITAR 4	60	MUTE GUITAR
71	PEDAL STEEL GUI	[56]	FOLK GUITAR
72	12 STRING GUITAR	[56]	FOLK GUITAR
73	CLASSIC GUITAR	55	CLASSIC GUITAR
74	MANDOLIN	62	MANDOLIN
75	SITAR	63	SITAR
76	KOTO	64	KOTO
77	SHAMISEN	65	SHAMISEN
78	PIZZ. STRINGS	22	PIZZ. STRINGS
79	ELECTRIC BASS 2	69	ELEC. BASS 2
80	ELECTRIC BASS 3	71	FRETLESS BASS
81	WOOD BASS 2	72	SYNTH BASS 1
82	SYNTH BASS 2	47	SYNTH BRASS 2
83	WOW TRUMPET	[39]	TRUMPET
84	TUBA	43	TUBA
85	SYNTH REED 2	[76]	SOFT CLOUD
86	SYNTH BASS 2	74	SYNTH BASS 3
87	FLUGELHORN	[42]	HORN
88	RECORDER	30	RECORDER
89	OCARINA	[54]	WHISTLE
90	ORCHESTRA HIT	99	ORCHESTRA HIT
91	SAMBA WHISTLE	[54]	WHISTLE
92	BRASS ENSEMBLE	44	BRASS ENSEMBLE
93	WOODWIND ENSEM.	[31]	CLARINET
94	HUMAN VOICE 1	52	HUMAN VOX
95	HUMAN VOICE 2	53	HUSKY
96	HUMAN CHORUS	[52]	HUMAN VOX
97	KAZOO	33	BASOON
98	MUSIC SAW	[75]	HOLLOW SYNTH
99	SIN WAVE	[28]	FLUTE
100	—	14	BAMBOO MARIMBA
101	—	18	GAMELAN
102	—	24	SYNTH STRINGS 2
103	—	80	AQUA
104	—	81	LANDSCAPE
105	—	82	METALLIC
106	—	83	CRYSTAL
107	—	35	SAXOPHONE 2
108	—	45	POWER BRASS
109	—	75	HOLLOW SYNTH
110	—	76	SOFT CLOUD
111	—	77	DAYBREAK
112	—	78	SUNBEAM
113	—	79	ARABESQUE
114	—	85	GLASS BELLS
115	—	86	SYNTH BELLS
116	—	87	BELL FOUNTAIN
117	—	89	SYNTHERIMBA
118	—	90	AFRICAN PERCUSS.
119	—	91	AFTER BURNER
120	—	98	WAVE
121	—	92	FUNNY
122	—	93	MONSTER
123	—	94	HA HA HA!
124	—	95	EMERGENCY
125	—	96	RACING CIRCUIT
126	—	97	STORM
127	—	XX	NO CHANGE

● *Voice numbers not enclosed in boxes are common panel and standard voices.*

● STANDARD VOICE MODE RHYTHM INSTRUMENT CHART

	MIDI IN		X4500
NO.	KEY	STANDARD RHYTHM VOICES	RHYTHM VOICES
33	A0	—	REVERSE CYMBAL
34	A#0	—	HIGH COWBELL
35	B0	—	HIGH CRASH CYMBAL
36	C1	—	PEDAL HIGH HAT
37	C#1	—	CLOSED TRIANGLE
38	D1	SYNTH SNARE	S.D (GATE ECHO)
39	D#1	—	OPEN TRIANGLE
40	E1	SYNTH TOM BASS	LOW SYNTH TOM
41	F1	SYNTH TOM LOW	LOW SYNTH TOM
42	F#1	SYNTH TOM MID	MIDDLE SYNTH TOM
43	G1	SYNTH TOM HI	HIGH SYNTH TOM
44	G#1	BASS DRUM 2	LOW BASS DRUM
45	A1	BASS DRUM 1	BASS DRUM
46	A#1	RIM SHOT 2	RIM SHOT
47	B1	BASS TOM	LOW TOM
48	C2	LOW TOM	LOW TOM
49	C#2	SNARE HI	LIGHT SNARE DRUM
50	D2	MID TOM	MIDDLE TOM
51	D#2	RIM SHOT	RIM SHOT
52	E2	SNARE LO	HEAVY SNARE DRUM
53	F2	HI TOM	HIGH TOM
54	F#2	HAND CLAP	CLAPS
55	G2	COWBELL	LOW COWBELL
56	G#2	SHAKER (CABASA)	CABASA
57	A2	HI-HAT CLOSE	CLOSED HI-HAT
58	A#2	BRUSH HIT	CLOSED HI-HAT
59	B2	HI-HAT OPEN	OPEN HI-HAT
60	C3	CRASH CYMBAL	LOW CRASH CYMBAL
61	C#3	SPLASH CYMBAL	RIDE CYMBAL
62	D3	RIDE CYMBAL CUP	RIDE CUP
63	D#3	RIDE CYMBAL	RIDE CYMBAL
64	E3	CONGA LOW	LOW CONGA
65	F3	CONGA HI OPEN	HIGH CONGA
66	F#3	CONGA HI MUTE	MUTE CONGA
67	G3	BONGO LOW	SURDO
68	G#3	BONGO HI	SURDO
69	A3	TIMBALES LOW	LOW TIMBALES
70	A#3	TIMBALES HIGH	HIGH TIMBALES
71	B3	TAMBOURINE	TAMBOURINE
72	C4	CASTANET	RIM SHOT
73	C#4	CLAVES	CLAVES
74	D4	AGOGO LOW	LOW AGOGO
75	D#4	AGOGO HI	HIGH AGOGO
76	E4	CUICA LOW	LOW CUICA
77	F4	CUICA HI	HIGH CUICA
78	F#4	WHISTLE	LOW SAMBA WHISTLE
79	G4	BRUSH	CABASA
80	G#4	—	HIGH SAMBA WHISTLE
81	A4	—	BIRD 1
82	A#4	—	BIRD 2
83	B4	—	BIRD 3
84	C5	—	CAR HORN
85	C#5	—	BREAKING GLASS
86	D5	—	EXPLOSION
87	D#5	—	LOW SCRATCH
88	E5	—	HIGH SCRATCH
89	F5	—	MALE LAUGH
90	F#5	—	CHIPMUNK LAUGH
91	G5	—	FEMALE "YEAH!"
92	G#5	—	MALE "YEAH!"
93	A5	—	MALE "HA!"
94	A#5	—	KABUKI "WO"
95	B5	—	TSUZUMI DRUM
96	C6	—	APPLAUSE

● *Voice numbers not enclosed in boxes are common X4500 and standard voices.*

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YAMAHA [ Portatone ]                               Date : 04/10 1989
    Model X4500  MIDI Implementation Chart         Version : 1.0
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Function		Transmitted	Recognized	Remarks
Basic	Default	1	1	
Channel	Changed	1-16	1-16	
	Default	3	3	remote control
Mode	Messages	X	OMNI on,OMNI off	mode
	Altered	**************	X	
Note		36-96	36-96 *1	
Number : True voice		**************	36-96 *2	
Velocity	Note on	O 9nH,v=1-127	O v=1-127	
	Note off	X 9nH,v=0	X	
After	Key's	X	X	
Touch	Ch's	X	X	
Pitch Bender		O	O 0-2 semi	7bit resolution
Control	1	O	O	Modulation
	7	O	O	Volume
Change	64	O	O	Sustain
Program		O 0-99	O 0-99 *3	
Change : True #		**************	0-99	
System Exclusive		O	O	
System : Song Pos		X	X	
: Song Sel		X	X	
Common : Tune		X	X	
System :Clock		O	O	
Real Time:Commands		O	O	
Aux :Local ON/OFF		X	O	
:All Notes OFF		X	O (122-125)	
Mes- :Active Sense		O	O	
sages:Reset		X	X	

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Notes : *1   1 -127 if standard voice mode is on
        *2  24-102 if standard voice mode is on
        *3   0 -126 if standard voice mode is on
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Mode 1 : OMNI ON,  POLY     Mode 2 : OMNI ON,  MONO      O : Yes
Mode 3 : OMNI OFF, POLY     Mode 4 : OMNI OFF, MONO      X : No
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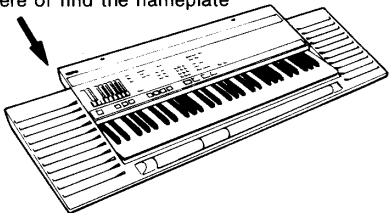
FCC INFORMATION

YAMAHA

The serial number of this product may be found on the bottom of the unit. You should note this serial number in the space provided below and retain this manual as a permanent record of your purchase to aid identification in the event of theft.

Model No. __X4500_____

Serial No. _____

Where of find the nameplate

Concerning Warranty
This product was made for international distribution, and since the warranty for this type of product varies from marketing area to marketing area, please contact the selling agency for information concerning the applicable warranty and/or service policies.