USER'S GUIDE
BEDIENUNGSANLEITUNG
MODE D' EMPLOI

AVS-10

For Electones
AWM VOICE EXPANDER
Für Electones
AWM VOICE EXPANDER
Pour Electones
EXPANSEUR DE VOIX AWM

YAMAHA

Thank you for purchasing the YAMAHA AWM Voice Expander AVS-10.

The AVS-10 comes preset with the data of 12 voices created by the AWM Tone Generator to provide your Electone with enhanced total quality and versatility.
To get optimum satisfaction from your AVS-10, please read through this User's Guide carefully.

Herzlichen Glückwunsch zum Kauf des YAMAHA Combination Voice Expander AVS-10.

Der AVS-10 wird mit 12 vorprogrammierten Voices geliefert, erzeugt von einem AWM-Tongenerator, um mehr Qualität und Vielseitigkeit für Ihr Electone zu bieten. Um die Möglichkeiten des AVS-10 voll auszunutzen, lesen Sie diese Bedienungsanleitung bitte gründlich durch.

Merci d'avoir porté votre choix sur l'expandeur de voix combinées AVS-10 de YAMAHA.

L'AVS-10 contient les données de 12 voix créées par le générateur de tonalité "AWM" (mémoire à ondes avancée) destiné à améliorer la qualité sonore et la polyvalence de votre Electone. Pour tirer le meilleur parti de votre AVS-10, veuillez lire attentivement ce mode d'emploi.

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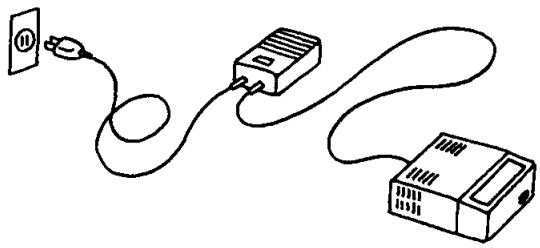
Power Supply

●Make sure to use only the YAMAHA power adapter PA-W10.



●In case of electrical storm probability, unplug the power cord from the electrical socket in advance.
●If you will not use the AVS-10 for a long period of time, unplug the power adapter from the electrical outlet.

Power Cord

●Be careful not to touch the power plug with wet hands; you may receive an electric shock.
●To prevent damage and short-circuiting of the cord wires, always hold the plug when unplugging the cord and never pull on the cord.

Connection

●Before connecting the AVS-10, make sure that the POWER switch of the Electone is turned OFF.
●Before transporting the AVS-10, make sure to disconnect its power cord and MIDI cables.

Handling

●Never remodel the AVS-10 nor disassemble its parts yourself. Such actions can cause serious damage to the AVS-10.
●Never subject the buttons and switches to unnecessary force.
●To prevent damage and short-circuiting of the cord wires, always hold the plug when unplugging the cord and never pull on the cord.
●If water accidentally enters the AVS-10, immediately turn OFF the POWER switch, unplug the power cord, and contact the Yamaha Music Dealer where you purchased this unit.

Choosing an Installation Site

●Avoid places exposed to direct sunlight.
●Avoid places exposed to excessive moisture, dust, and excessively low temperatures.

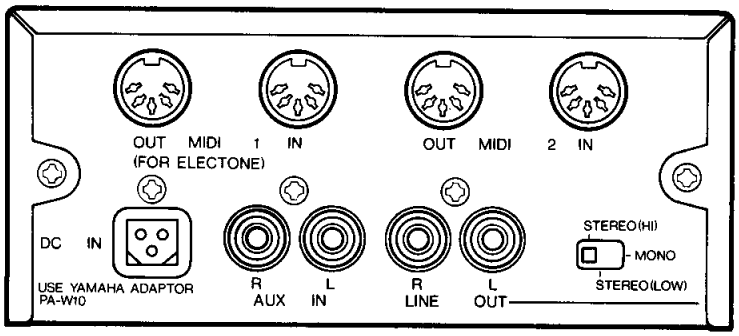
Cleaning the Outer Case

●Clean the outer case by wiping it with a soft, dry cloth.
●Never use thinner, benzine, chemically harsh solvents nor chemically-treated cloths.
●If the case is particularly dirty, moisten a soft, clean cloth in a mild detergent diluted with water, wring the cloth out well, then wipe off the soiled areas. Next, wipe the unit again with a dry cloth.

If the AVS-10 Operates Abnormally

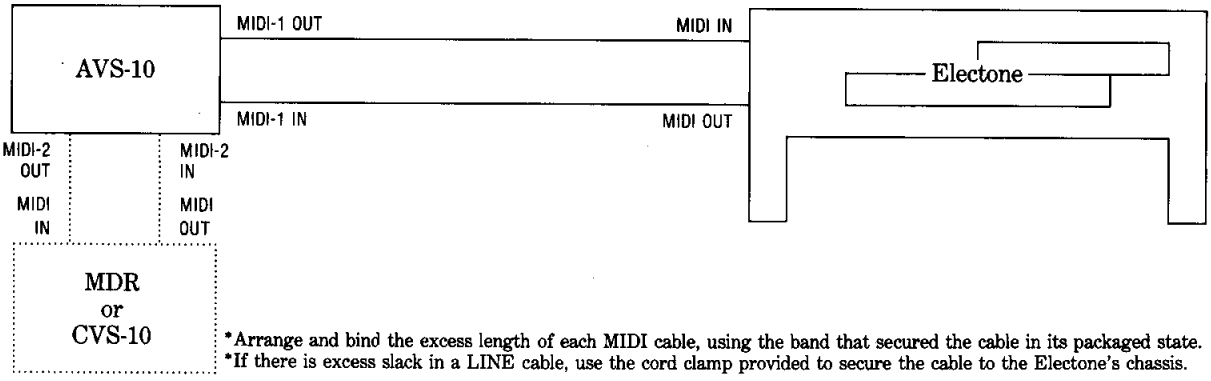
●If the AVS-10 produces an abnormal odor or smoke, immediately unplug the power cord and contact the Yamaha Music Dealer where you purchased this unit.

Connection Procedures



Connecting the MIDI Cables

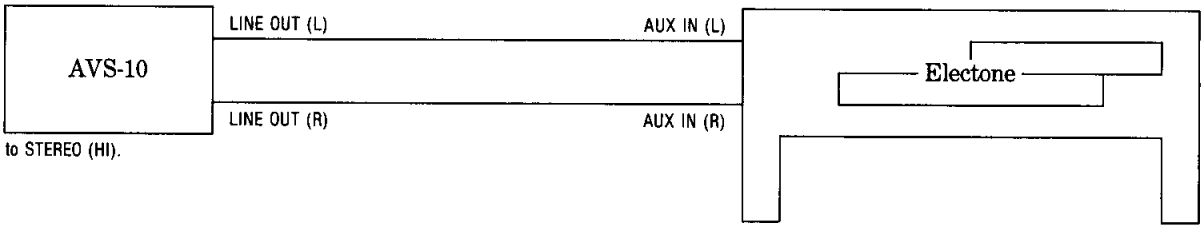
*Set to STEREO (HI).



*Arrange and bind the excess length of each MIDI cable, using the band that secured the cable in its packaged state.
*If there is excess slack in a LINE cable, use the cord clamp provided to secure the cable to the Electone's chassis.

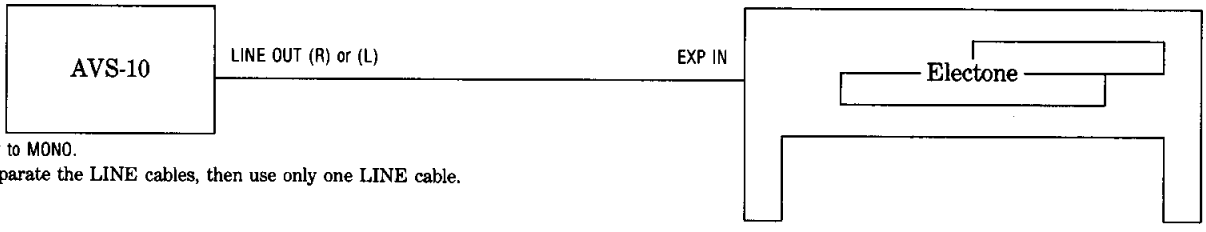
Connecting the LINE Cables

■ To connect AVS-10 to HS-8/7/6:



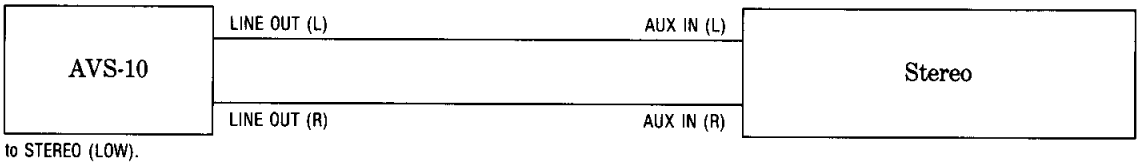
*Set to STEREO (HI).

■ To connect AVS-10 to HS-5/4 (or HX-1/3/5 or HE-8/6):



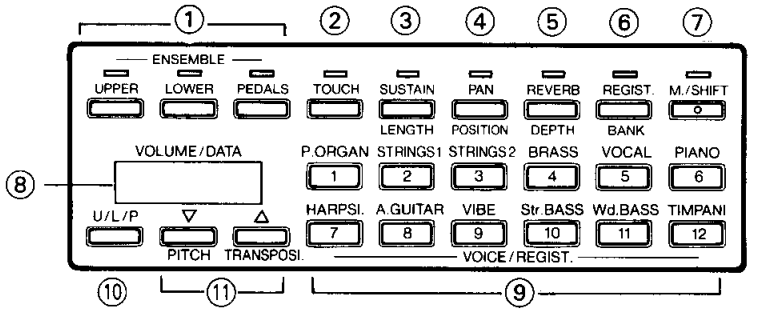
*Set to MONO.
*Separate the LINE cables, then use only one LINE cable.

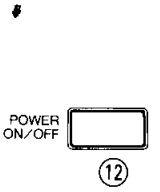
■ To connect AVS-10 to a stereo system:



*Set to STEREO (LOW).

Description of Parts





①**ENSEMBLE:** Turn ON to enable the voice(s) selected at AVS-10 to be sounded from the Electone's upper keyboard (UPPER), lower keyboard (LOWER), and/or pedal keyboard (PEDALS). To disable the voice for a keyboard, turn its corresponding ENSEMBLE button OFF.

②**TOUCH:** Turn ON to enable subtle changes in a voice's volume and/or timbre by varying your pressure on the keys of the keyboard shown in the display.

③**SUSTAIN:** Each AVS-10 voice comes preset to the optimum Sustain Length. Turn ON this button to add a Sustain effect for a duration set by the Sustain Length.

③**LENGTH:** To change the Sustain Length, press this button while you hold down the M./SHIFT button.

④**PAN:** AVS-10 voices come with preset Pan Position settings to create a three-dimensional acoustic effect. The sound pans to center when this button is OFF, or pans to the set Pan Position when it is ON.

④**POSITION:** To change the Pan Position, press this button while you hold down the M./SHIFT button.

⑤**REVERB:** Press to enable the Reverb effect.

⑤**DEPTH:** To change the Reverb Depth, press this button while you hold down the M./SHIFT button.

⑥**REGIST.:** To recall a memorized registration, press the button with the desired Registration No. while you hold down this button. This button is also used to change the MIDI Channel No.

⑥**BANK:** To choose the Registration Bank No. for memorizing a registration, press this button while you hold down the M./SHIFT button.

⑦**M./SHIFT.:** To select the LENGTH, POSITION, DEPTH, or BANK function at the bottom row, press the pertinent button while you hold down this button. This button is also used to memorize a registration, change the Pitch or Transposition setting, etc.

⑧**VOLUME/DATA:** Displays the numeric data of voices, the Sustain Length, and the status of various other data.

⑨**VOICE/REGIST.:** Press one of these buttons to select the voice labelled above that button. If you press one of these buttons while you hold down the M./SHIFT button, the current registration will be memorized at that button. And to recall a memorized registration, press the button labelled with the desired number while you hold down the REGIST. button.

⑩**U/L/P:** While this button is held down, a Voice No. is displayed; when it is released, the volume is displayed. Each time it is pressed, the display switches in the sequence of upper keyboard → lower keyboard → pedal keyboard.

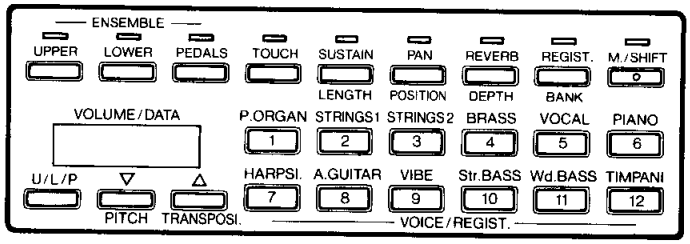
⑪△ ▽: Used to change the numeric values of data, etc.

⑪**PITCH/TRANSPOSI.:** To change the Pitch setting, press the left (▽) button while you hold down the M./SHIFT button. To transpose the overall key, press the right (△) button while you hold down the M./SHIFT button.

⑫**POWER:** Turns the power ON or OFF.

Before You Begin

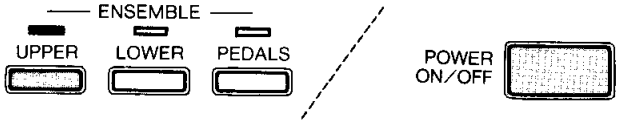
Before choosing a voice, perform the operation below.



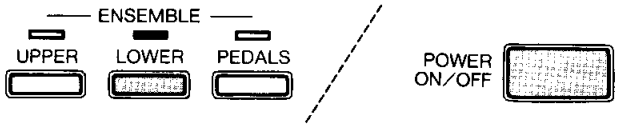
1. If you are using AVS-10 for the first time:

First, set the Touch Sensitivity by performing the operation below that corresponds to your Electone model.

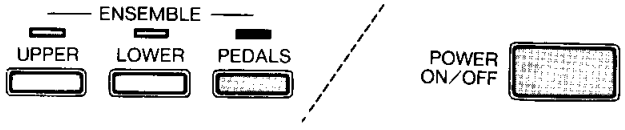
[HS-8 or HE Electones]
Turn ON the POWER switch while you hold down the ENSEMBLE UPPER button.



[HS-7/6/5/4 Electones]
Turn ON the POWER switch while you hold down the ENSEMBLE LOWER button.



[HX Electones]
Turn ON the POWER switch while you hold down the ENSEMBLE PEDALS button.

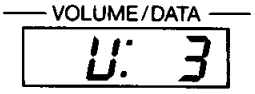


The Touch Sensitivity (the manner in which the volume and/or timbre changes according to your touch on the keys) varies slightly with the Electone model. If you will be using the AVS-10 for the first time, be sure to set the Touch Sensitivity first.

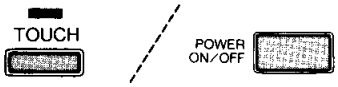
[Additional Information]
Even after you turn OFF the AVS-10's POWER switch, this Touch Sensitivity setting will remain unchanged. If you perform a Power-ON Reset operation, however, please note that it will be reset to the setting for the HS-8 and HE Electones. (➡page 6)

1. For the second or subsequent use of AVS-10: Turn ON the POWER switch.

The volume level for the upper keyboard will be displayed.

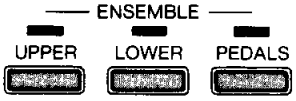


[Power-ON Reset operation]
■ To return all the AVS-10 data to the originally preset values, turn OFF the POWER switch, then turn it back ON while you hold down the TOUCH button.
This operation resets all data to the preset values described below, clearing any data that you have previously set.



●**Voice No.:** U: 9, L: 6, P; 11 ●**Voice Volume:** U: 24, L: 24, P: 14 ●**Sustain Length:** 4 ●**Pan Position:** Center ●**Reverb Depth:** 24 ●**Regist. Bank:** 1 ●**Registrations:** 1 (All GENERAL PRESETS from R. Banks 1 to 4) ●**MIDI Receive Channel:** U: 1, L: 2, P: 3 ●**Touch Sensitivity:** HS-8 or HE Electones

2. Decide how to set the ENSEMBLE buttons.

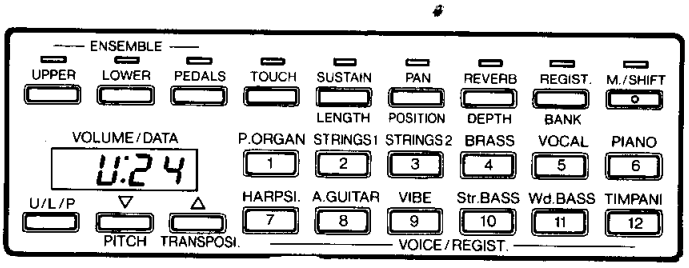


UPPER: ON/OFF status of the upper keyboard.
LOWER: ON/OFF status of the lower keyboard.
PEDALS: ON/OFF status of the pedal keyboard.

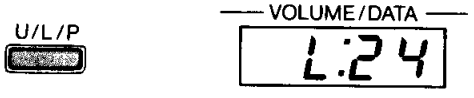
When an ENSEMBLE button is ON, the voice selected at AVS-10 can be sounded from the corresponding keyboard. When it is OFF, that voice will not be sounded.

Choosing a Voice

One voice can be chosen for each keyboard of the Electone.

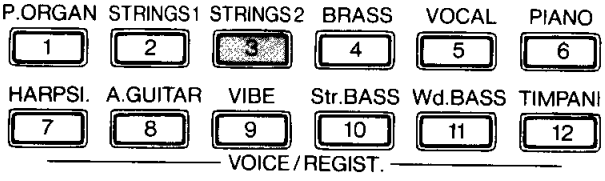


1. Press the U/L/P button until the menu of the desired keyboard is displayed.

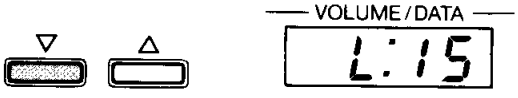


Each time the U/L/P button is pressed, the display changes in the sequence of: upper keyboard (U) → lower keyboard (L) → pedal keyboard (P).

2. Press one of the 12 voice buttons to choose the desired voice.



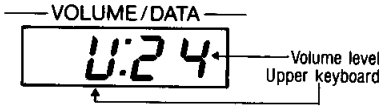
3. Press the △ or ▽ button to adjust the volume.



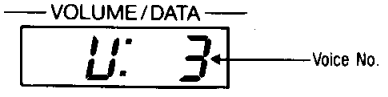
△ **button:** Raise the volume.
▽ **button:** Lower the volume.

4. Try playing the keyboard (of the Electone) for which you set a voice in Steps 1 to 3 above.

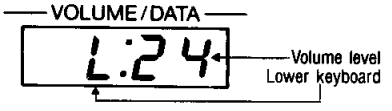
When the U/L/P button is held down, the Voice No. for the previously displayed keyboard will appear. When it is released, the voice volume for the next keyboard will appear.



While the button is pressed:



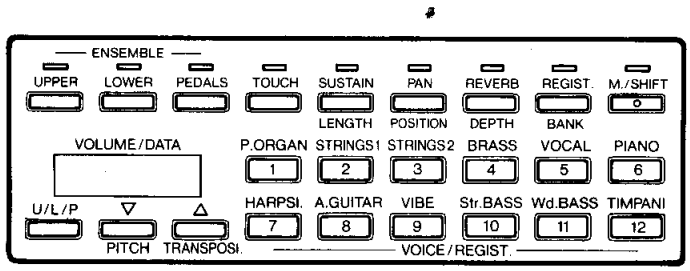
When the button is released:



[Additional Information]
■ The volume can be set to one of 24 levels. At level 0 (MIN), the voice will be inaudible. Level 24 (MAX) corresponds to the maximum volume of a voice at the Electone.
■ The balance between the volume levels of the upper and lower keyboards can also be adjusted by the Electone's MANUAL BALANCE function.

Adding an Effect

You can also control the TOUCH, SUSTAIN, PAN, or REVERB effects.



TOUCH

1. Turn ON the TOUCH button.

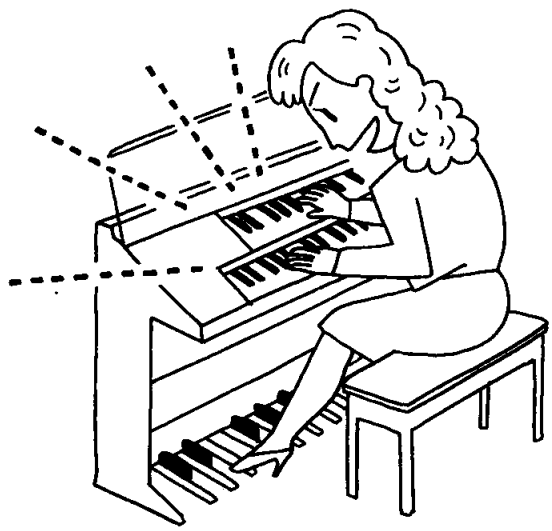
While this button is ON, touch control is effective for the keyboard shown on the display.

TOUCH: This function subtly changes the volume and/or timbre of a voice according to the pressure of your touch on the keys. There are two types of touch control: Initial Touch and After Touch.

[Initial Touch]
The volume and timbre are controlled by the pressure (velocity) with which you initially press the keys. The stronger your pressure, the more the volume and timbre will change.

[After Touch]
After you press the keys, the volume is controlled by your subsequent pressure on the keys. The stronger your pressure, the more the volume will change.

2. Try playing the Electone's keyboard while varying the pressure of your touch on the keys.

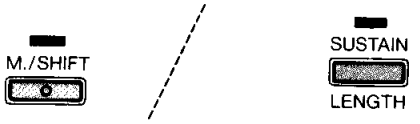


SUSTAIN

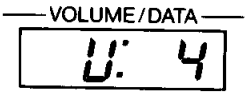
1. Turn ON the SUSTAIN button.

SUSTAIN: Adds a lingering effect to the notes sounded. When this button is ON, a Sustain effect based on the set Sustain Length will be added to the currently selected voice.

2. To determine the Sustain Length, press the SUSTAIN button while you hold down the M./SHIFT button.

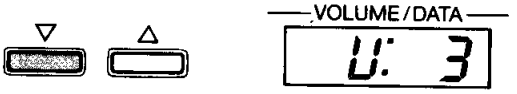


The currently set Sustain Length will be displayed.



[Additional Information]
■ The Sustain Length can be set within a range of 0 (MIN) to 4 (MAX).
These values correspond to the Sustain Length values which can be set at, for example, an HS Electone.
■ The Sustain effect can be turned ON or OFF from the Electone.

3. Press the △ or ▽ button to adjust the Sustain Length.



△ button: Increase the duration of sustained notes.
▽ button: Reduce the duration of sustained notes.

[Additional Information]
■ When the Power-ON reset operation is performed, the Sustain Length will be reset to its preset value (4). (➡page 6)

4. When the desired value is displayed, turn OFF the M./SHIFT button.

[Additional Information]
■ Even after you turn OFF the AVS-10's POWER, this Sustain Length setting will remain unchanged.
■ To ensure a more realistic sound, the Sustain Length of the PIANO voice cannot be adjusted.

PAN

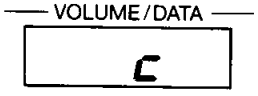
1. Turn ON the PAN button.

PAN: This function provides a three-dimensional acoustic effect by directing (panning) the sound from the speakers to a specific position. When the PAN button is OFF, the sound pans to center (C). When it is ON, the sound pans to the set Pan Position.

[Additional Information]
■ When the level selector switch is set to MONO, the PAN function cannot be used.

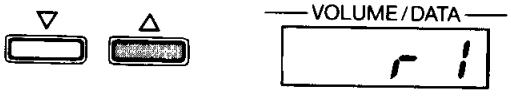
2. To determine the Pan Position, press the PAN button while you hold down the M./SHIFT button.

The currently set Pan Position will be displayed.



[Additional Information]
■ The Pan Position can be set within a seven-position range from R3 (right), C (Center), to L3 (left).

3. Press the △ or ▽ button to adjust the Pan Position.



△ **button:** Move the Pan Position to the right.
▽ **button:** Move the Pan Position to the left.

[Additional Information]
■ When the Power-ON reset operation is performed, the Pan Position will be reset to its preset value (C). (➡page 6)

4. When the desired value is displayed, turn OFF the M./SHIFT button.

[Additional Information]
■ Even after you turn OFF the AVS-10's POWER, this Pan Position setting will remain unchanged.

REVERB

1. Turn ON the REVERB button.

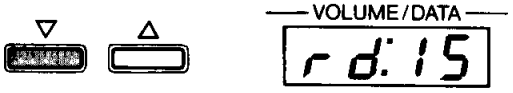
REVERB: Adds an echo effect to the notes sounded. When this button is ON, the Reverb effect will be added to the currently selected voice.

2. To determine the Reverb Depth, press the REVERB button while you hold down the M./SHIFT button.

The currently set Reverb Depth will be displayed.

[Additional Information]
■ The Reverb Depth can be set within a range of 0 (MIN) to 24 (MAX).
For example, the lowest and highest REVERB buttons on an HS Electone respectively correspond to Depth 0 and 24 on the AVS-10.

3. Press the △ or ▽ button to change the Reverb Depth.



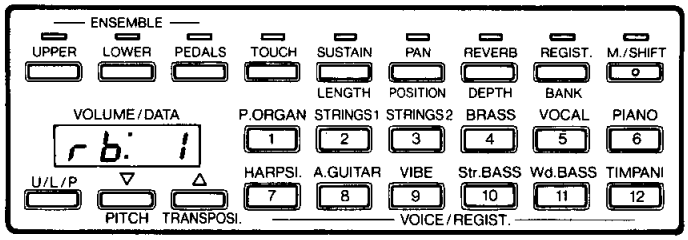
△ **button:** Increase the depth of reverberation.
▽ **button:** Reduce the depth of reverberation.

4. When the desired value is displayed, turn OFF the M./SHIFT button.

[Additional Information]
■ Even after you turn OFF the AVS-10's POWER switch, this Reverb Depth setting will remain unchanged.

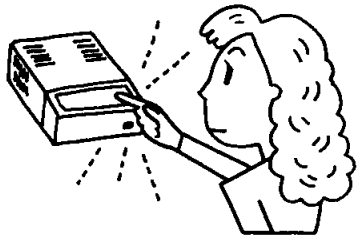
Using the Registrations

The registrations that you set at the AVS-10 can be memorized in four Registration Banks which hold 16 registrations each, for a total of 64 registrations.



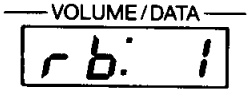
Memorizing a Registration

1. Set a registration at AVS-10.

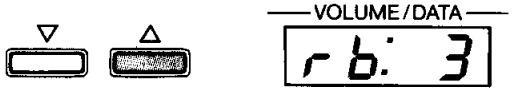


2. To choose a Bank, press the REGIST. button while you hold down the M./SHIFT button.

The menu below will be displayed.



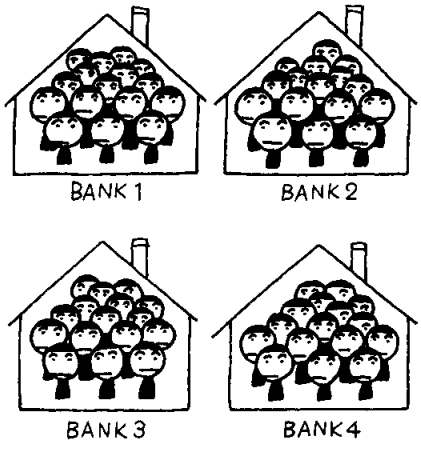
3. Press the △ or ▽ button to display the number of the Bank in which you wish to memorize the registration.



△ **button:** Increase the Registration Bank No.
▽ **button:** Decrease the Registration Bank No.

[Additional Information]
■ In the memory area reserved for each registration, you can memorize the selected Voice No., ON/OFF status of effects, Sustain Length, Pan Position, and Reverb Depth for each keyboard.

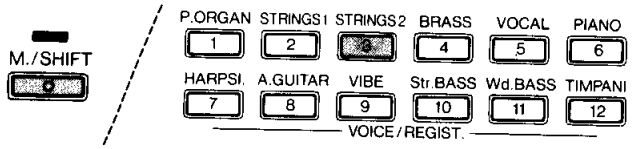
[What is a Bank?]
■ If we assume that each registration from 1 to 16 is a member of one family, then each Bank from 1 to 4 can be regarded as a "house." The AVS-10 is provided with four houses (Banks 1 to 4) in which one 16-member family resides.



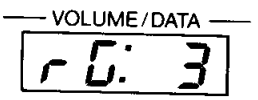
4. When the desired Bank No. is displayed, press the M./SHIFT button.

The previous display is restored.

5. Next, memorize the registration by pressing the button labelled with the Registration No. at which you wish to memorize the registration while you hold down the M./SHIFT button.



The selected Registration No. will be displayed for a few seconds.



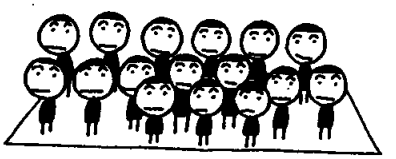
SOUND MEMO

Registrations can also be stored in the MDR.

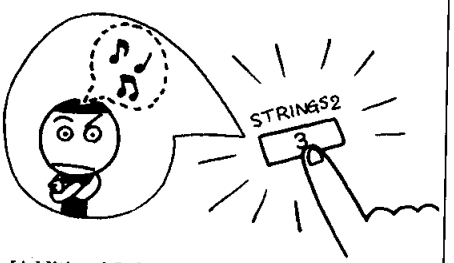
When you connect the AVS-10 to an MDR (Music Disk Recorder) and then perform recording at MDR in Normal mode, the data of the Registrations in the currently selected Bank at AVS-10 will be memorized onto the MDR's disk.

In addition, when playback at MDR is performed in Normal mode, the registrations stored on the MDR's disk will be saved in the currently selected Bank at AVS-10 (and the previous data in that Bank will be erased).

For example, if you select Bank No. 3, one of the 16 members of the family residing in BANK 3 (shown on page 12) becomes available.



When a Registration No. is selected, one memory area of BANK 3 is selected and the registration you have set is memorized in that memory area.



[Additional Information]

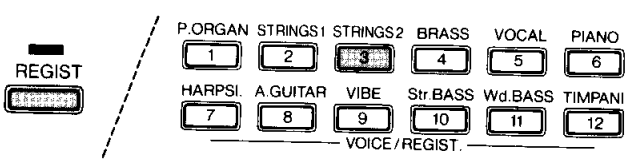
■ If you select a different REGISTRATION MEMORY number while performing on the Electone, however, the current registration at AVS-10 will also be changed to that same number. Be sure to consider this fact when selecting the Registration Nos. to be used at the AVS-10.

■ If you select a different No. of REGISTRATION MEMORY at the Electone while the M./SHIFT button of the AVS-10 is ON, your registration at the AVS-10 will also be memorized as that same Registration No.

■ In case of a Electone that has a REGISTRATION MEMORY provided with 16 numeric buttons, by pressing a REGISTRATION MEMORY button from 13 to 16 at the Electone while you hold down the M./SHIFT button, you can also memorize registrations at Registration Nos. 13 to 16 (which are not represented on the AVS-10's panel).

Recalling a Registration

1. Press the button labelled with the Registration No. you wish to recall while you hold down the REGIST. button. This will recall the registration memorized at that number.



If a different REGISTRATION MEMORY number is selected at the Electone, however, the current Registration No. at the AVS-10 will also be changed to that same number.

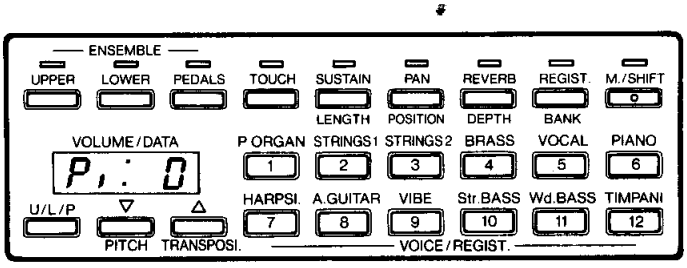
[Additional Information]

If a disk has been used to record a performance using an Electone+AVS-10+MDR system, that disk cannot be played back when using an Electone+MDR system (without the AVS-10).

■ If you wish to select another bank before choosing the Registration No., perform Steps 2, 3, and 4 of "Memorizing a Registration" beginning on the previous page.

Other Types of Control

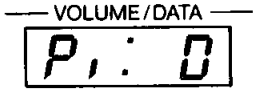
The AVD-10 also allows you to finely adjust the pitch, transpose the overall key, and perform MIDI control.



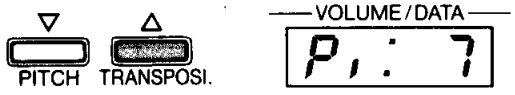
PITCH

1. Press the ▽ button while you hold down the M./SHIFT button.

The menu below will be displayed.



2. Use the △ or ▽ button to finely adjust the pitch.



△ **button:** Each time this button is pressed, the pitch is slightly raised. (When A_3=440Hz, 1 step is equal to about 0.3Hz over a maximum 15-step range.)
▽ **button:** Each time this button is pressed, the pitch is slightly lowered. (When A_3=440Hz, 1 step is equal to about 0.3Hz over a maximum 4-step range.)

[Additional Information]
■ The variable ranges described above are identical to those of the Electone's PITCH CONTROL function.

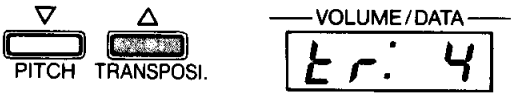
3. When the desired pitch is displayed, press the M./SHIFT button.

TRANSPOSITION

1. Press the △ button while you hold down the M./SHIFT button.

The menu below will be displayed.

2. Use the △ or ▽ button to adjust the key.



△ button (Higher key)

Normal Key	△ × 1	△ × 2	△ × 3	△ × 4	△ × 5	△ × 6
C	C♯ (D♭)	D	D♯ (E♭)	E	F	F♯ (G♭)

▽ button (Lower key)

Normal Key	▽ × 1	▽ × 2	▽ × 3	▽ × 4	▽ × 5	▽ × 6
C	B	B♭ (A♯)	A	A♭ (G♯)	G	G♭ (F♯)

3. When the desired Transposition value is displayed, press the M./SHIFT button.

△ button: Each time this button is pressed, the key is raised one half-step (for a maximum of six half-steps.)
▽ button: Each time this button is pressed, the key is lowered one half-step (for a maximum of six half-steps).

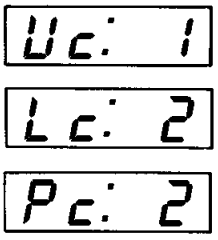
[Additional Information]
■ The variable ranges described above are identical to those of the Electone's TRANSPOSITION function.

Changing the MIDI Receive Channel Nos.

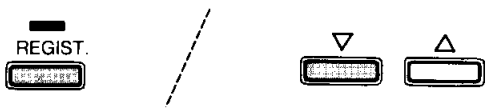
Although this operation is usually not required, it can be useful when you wish, for example, to provide an AVS-10 sound with greater richness, to sound a PEDALS voice from the upper (or lower) keyboard, and so on.

Example

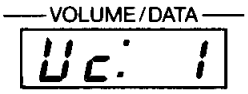
Let's assume that you have set the MIDI Receive Channel Nos. to "1" for the upper keyboard, "2" for the lower keyboard, and "2" for the pedal keyboard. Now, when you play the upper keyboard, the "UPPER VOICE" will be sounded; and when you play the lower keyboard, both the "LOWER VOICE" and "PEDALS VOICE" will be sounded. This method can be used when you wish to combine the bass notes with the part you perform using the left hand.



1. Press the ▽ button while you hold down the REGIST. button.

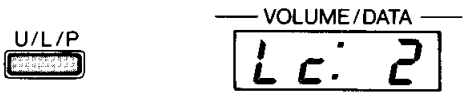


The menu below will be displayed.



The MIDI Receive Channels for the upper, lower, and pedal keyboards are pre-assigned with the numbers below:
- ●1 = Received by the upper keyboard.
- ●2 = Received by the lower keyboard.
- ●3 = Received by the pedal keyboard.

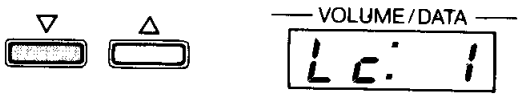
2. Press the U/L/P button to position the cursor at the keyboard for which you wish to change the Channel No.



Uc: Channel No. of the upper keyboard.
Lc: Channel No. of the lower keyboard.
Pc: Channel No. of the pedal keyboard.

3. Press the △ or ▽ button to change the Channel No.

△ **button:** Increase the Channel No.
▽ **button:** Decrease the Channel No.



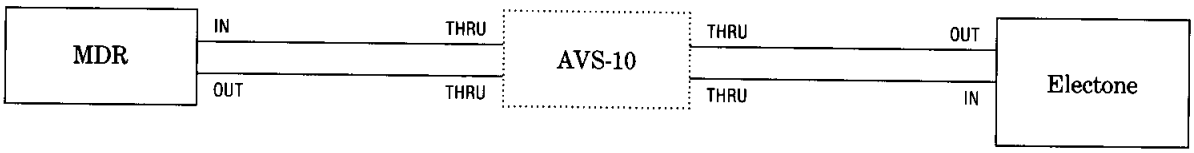
4. To complete the setting, press the M./SHIFT button.

Setting MIDI Transfer to SLEEP Mode.

Although this operation is usually not required, it may be useful if you have connected the Electone and the CVS-10 to a MDR (Music Disk Recorder).

Example

This operation can be used in the following cases:
- After recording only the Electone's data at MDR without using the AVS-10, when you wish to perform playback at MDR without disconnecting the AVS-10.
- When you wish to transfer data only between the Electone and the MDR. (Other cases when you wish the simulate the status of a direct connection between the Electone and the MDR.)



1. Turn OFF the POWER switch, then turn it back ON while you hold down the △ button.

To cancel this mode, turn off the POWER switch.

The message below is displayed to indicate that the AVS-10 is in SLEEP mode (data will simply pass THROUGH the AVS-10 without being processed).

Troubleshooting

Please note that the appearance of any of the following phenomena does not indicate a mechanical failure of the AVS-10.

Phenomenon	Cause and Solution
The ASV-10 is turned ON, but no sound is produced from the Electone's keyboard.	①The MIDI cables, LINE cables, and/or the power adapter are not properly connected. For example, the MIDI IN and OUT cables are connected in reverse, the MIDI-1 and MIDI-2 cables were incorrectly connected, etc. (➡page 3) ②The pertinent ENSEMBLE button is OFF. (➡page 6) ③The volume for the pertinent keyboard is set to "0". (➡page 7) ④The MIDI Receive Channel No. is set to receive the data sent from a different keyboard than the one which you are playing. (➡page 16)
AVS-10 is connected to a stereo, but either no sound is produced from the stereo, or its volume is too small or too loud, the sound is distorted, etc.	①If no sound is produced: The LINE cables are improperly connected. For example, the LINE OUT (L) jack is connected to the AUX IN (R) jack, the AUX IN jack of AVS-10 is connnected to the LINE OUT jack of the stereo, etc. (➡page 3) ②If the volume is too small or too loud, the sound is distorted, etc.: Either the LINE OUT selector switch is improperly set, or the connection to the Electone's AUX IN or EXP IN jack is incorrect. (➡page 3)
The volume balance between the upper and lower keyboards differs from the volume settings performed at the AVS-10.	The volume settings at the AVS-10 are being affected by the Manual Balance setting at the Electone. The volume balance between the upper and lower keyboards is designed to be set by the Electone's Manual Balance function. If you want the volume balance to be solely controlled by the AVS-10, set the Electone's Manual Balance function to the center level.
The Sustain effect is not produced.	The Sustain Length is set to "0". (➡page 9)
The direction of panning does not change.	The Pan Position is set to "C" (Center). (➡page 10)
The Reverb effect is not produced.	The Reverb Depth is set to "0". (➡page 11)
The functions do not operate properly.	This may be caused by various reasons. Normal operation can sometimes be restored by turning off the POWER switch, then performing a Power-ON Reset operation. (➡page 6)
A crackling sound is sometimes heard.	Noise may be produced when either an electrical appliance is turned ON/OFF or an electric power tool, such as a a neon sign or drill, is used in the proximity of the AVS-10. In such case, plug the AVS-10 into an electrical outlet located as far as possible from the device that seems to be the source of the problem.
Interference from radio, TV, wireless radios, etc.	This is caused by the proximity of a high-power broadcasting station or amateur ham radio station.

Chart of the Display Indications

Upper keyboard	U	Regist. Bank	rb
Lower keyboard	L	Pitch	P,
Pedal keyboard	P	Transposition	tr
Pan Position	L, C, r	MIDI Receive Channels	Uc,Lc,Pc
Reverb Depth	rd	MIDI Sleep Mode	SLEP
Regist. No.	rU	Transmission of Bulk data	SEnd

Specifications

Tone Generator	AWM (Advanced Wave Memory); Upper and Lower (15-note polyphonic), Pedals (monophonic)
Voices	P. Organ, Strings 1, Strings 2, Brass, Vocal Piano, Harpsi., A. Guitar, Vibe, Str. Bass, Wd. Bass, Timpani
Ensemble	Upper, Lower, Pedals
Control/Effects	Volume: Upper/Lower/Pedals; Touch On/Off, Feeling; Sustain On/Off Length; Pan On/Off Position; Reverb On/Off Depth; Pitch; Transposition
Registration Memory	16 Memories × 4 Banks
Other Controls	M./Shift, Power Switch, Stereo/Mono Switch, Impedance Switch (Hi: Electone; Low: Home Stereo)
Indicators	LED Display, Upper, Lower, Pedals, Touch, Sustain, Pan, Reverb, Regist., M./Shift
Input/Output Jacks	MIDI-1 (In, Out; for Electone), MIDI-2 (In, Out), Aux. In (L, R), Line Out (L, R), DC In
Accessories	MIDI Cable (1.5m × 2), Audio Cable (Stereo; 1.5m), 1-unit Bracket BRT-3 (for HX, HS and HE Electones; optional), 2-unit Bracket BRT-3D (for HX, HS and HE Electones; optional), Power Adaptor PA-W10 (DC In 10V; 700mA −A; not included)
Dimensions (W × D × H)	135 × 200 × 63.5mm (5.3″ × 7.9″ × 2.5″)
Weight	1.1kg (2.4 lbs.)

*Specifications and descriptions in this User's Guide are for information purposes only. Yamaha Corp. reserves the right to change or modify products or specifications at any time without prior notice. As specifications, equipment or options may not be the same in every locale, please check with Yamaha dealer.

CANADA

THIS APPARATUS COMPLIES WITH THE "CLASS B" LIMITS FOR RADIO NOISE EMISSIONS SET OUT IN RADIO INTERFERENCE REGULATIONS.

*This applies only to products distributed by Yamaha Canada Music Ltd.

FCC Information (USA)

While the following statements are provided to comply with FCC Regulations in the United States, the corrective measures listed are applicable worldwide.

The digital series of Yamaha Electones™ use frequencies that appear in the radio frequency range, and if installed in the immediate proximity of some types of audio or video devices within three meters (approximately ten feet), interference may occur.

This series of Yamaha Electones™ has been type-tested and found to comply with the specifications set for a class B computer in accordance with those specifications listed in sub-part J, part 15 of the FCC rules. These rules are designed to provide a reasonable measure of protection against such interference. However, this does not guarantee that interference will not occur.

If your Electone™ should be suspected of causing interference with other electronic devices, verification can be made by turning your Electone™ off and on. If the interference continues when your Electone™ is off, the Electone™ is not the source of the interference. If your Electone™ does appear to be the source of the interference, you should try to correct the situation by using one or more of the following measures:

- Relocate either the Electone™ or the electronic device that is being affected by the interference.
- Utilize power outlets for the Electone™ and the device being affected that are on different branch (circuit breaker or fuse) circuits, or install AC line filters.
- In the case of radio-TV interference, relocate the antenna or if the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial type cable.

If these corrective measures do not produce satisfactory results, please contact an authorized Yamaha Electone™ dealer for suggestions and/or corrective measures. If you can not locate an authorized Yamaha Electone™ dealer in your general area, please contact the Electone™ Service Department, YAMAHA CORPORATION OF AMERICA, U.S.A., 6600 Orangethorpe Ave., Buena Park, CA 90620.

If for any reason, you should need additional information relating to radio or TV interference, you may find a booklet prepared by the Federal Communications Commission Helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet, Stock #004-000-00345-4, is available from the US. Government Printing Office, Washington DC. 20402.

AVS-10

MIDI Implementation Chart / MIDI-Anwendungstabelle
Tableau d'implantation

Date: 3/20, 1989
Version: 1.0

Functions...		Transmitted	Recognized	Remarks
Basic Channel	Default	×	1	UK (PRESET)
		×	2	LK (PRESET)
		×	3	PK (PRESET)
	Changes	×	1-16	
Mode	Default	Mode 3	Mode 3	
	Messages	×	×	
	Altered	**********	×	
Note Number		×	36-96	UK
		×	36-96	LK
		×	36-96	PK
	True Voice	**********	36-96	UK, LK, PK
Velocity	Note ON	×	○ 9nH, v=1-127	
	Note OFF	×	○ 9nH, v=0, 8nH	
After Touch	Key's	×	×	
	Ch's	×	○	
Pitch Bender		×	×	
Control Change	7	×	○	Volume
	11	×	○	Expression Pedal
	8	×	○	Manual Balance
	64	×	○	Sustain
Program Change		×	0-15	Regist. Memory
	True #	**********	0-15	
System Exclusive		○ *	○ *	
System Common	Song Pos	×	×	
	Song Sel	×	×	
	Tune	×	×	
System Real Time	Clock	×	×	
	Commands	×	×	
Aux Messages	Local ON/OFF	×	×	
	All Notes OFF	×	○	
	Active Sense	×	○	
	Reset	×	○	
Notes		* Refer to Exclusive message list.		

Mode 1: OMNI ON , POLY Mode 2: OMNI ON , MONO
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO

○: YES
×: NO

SYSTEM EXCLUSIVE MESSAGES / SYSTEM-EXKLUSIVMELDUNGEN
MESSAGE EXCLUSIFS DU SYSTEME

Code	Messages	Remarks
F0H, 43H, 70H, 70H (Electone), ..., F7H	1. Electone common messages/Electone-Normalmeldungen/Messages communs de l'Electone	
F0H, 43H, 70H, 2BH (Model), ..., F7H	2. Model-Specific messages/Modell/Einzelmeldungen/Messages spécifiques au modèle	
F0H, 43H, 70H, 71H, ..., F7H	3. HX-Series common messages/Normalmeldungen für HX-Serie/Messages communs de la série HX	
F0H, 43H, 70H, 72H, ..., F7H	4. HS-Series common messages/Normalmeldungen für HX-Series/Messages communs de la série HS	
F0H, 43H, 70H, 76H, ..., F7H	5. Expander common messages/Expander-Normalmeldungen/Messages communs de l'expanseur	

1. Electone common messages/Electone-Normalmeldungen/Messages communs de l'Electone

F0H, 43H, 70H, 70H, ... (code) ..., F7H

Code	Messages	Trans.	Recog.
00H, ... (data) ...	Bulk dump data	×	○
10H	Request-to-send all RAM data	○	○
20H	Request-to-receive all RAM data	○	○
30H	Request-to-send Model ID data	○	○
40H, 45H, (data)	Foot Sw data	×	○
40H, 60H, xxH	Tremolo Control	○ (MIDI-2)	○
43H, (data)	Regist. Memory	×	○
70H, 01H	MDR Play start	×	○
70H, 03H	MDR Record start	×	○

xx 00: off 01: Tremolo 2: Chorus

2. Model-specific messages/Modell-Einzelmeldungen/Messages spécifiques au modèle

F0H, 43H, 70H, 2BH (Model), ... (code) ..., F7H

Code	Messages	Trans.	Recog.
00H, ... (data) ...	Bulk dump data	○	○
00H	Model ID data	○	×
10H	Request-to-send all RAM data	×	○
20H	Request-to-receive all RAM data	×	○
30H	Request-to-send Model ID data	×	○
42H	Current Request data	○	○

3. HX-Series common messages/Normalmeldungen für HX-Serie/Messages communs de la série HX

F0H, 43H, 70H, 71H, ... (code) ..., F7H

Code	Messages	Trans.	Recog.
41H, 1EH, xxH	Manual Balance	×	○

xx = 00H, 04H, 08H, 0CH, 10H, 14H, 18H

4. HS-Series common messages/Normalmeldungen für HS-Serie/Messages communs de la série HS

F0H, 43H, 70H, 72H, ... (code) ..., F7H

Code	Messages	Trans.	Recog.
41H, 20H, xxH	Manual Balance	×	○

xx = 00H-0CH

5. Expander common messages/Expander-Normalmeldungen/Messages communs de l'expanseur

F0H, 43H, 70H, 76H, ... (code) ..., F7H

Code	Messages	Trans.	Recog.
00H, ... (data) ...	Bulk dump data	○	○

YAMAHA

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