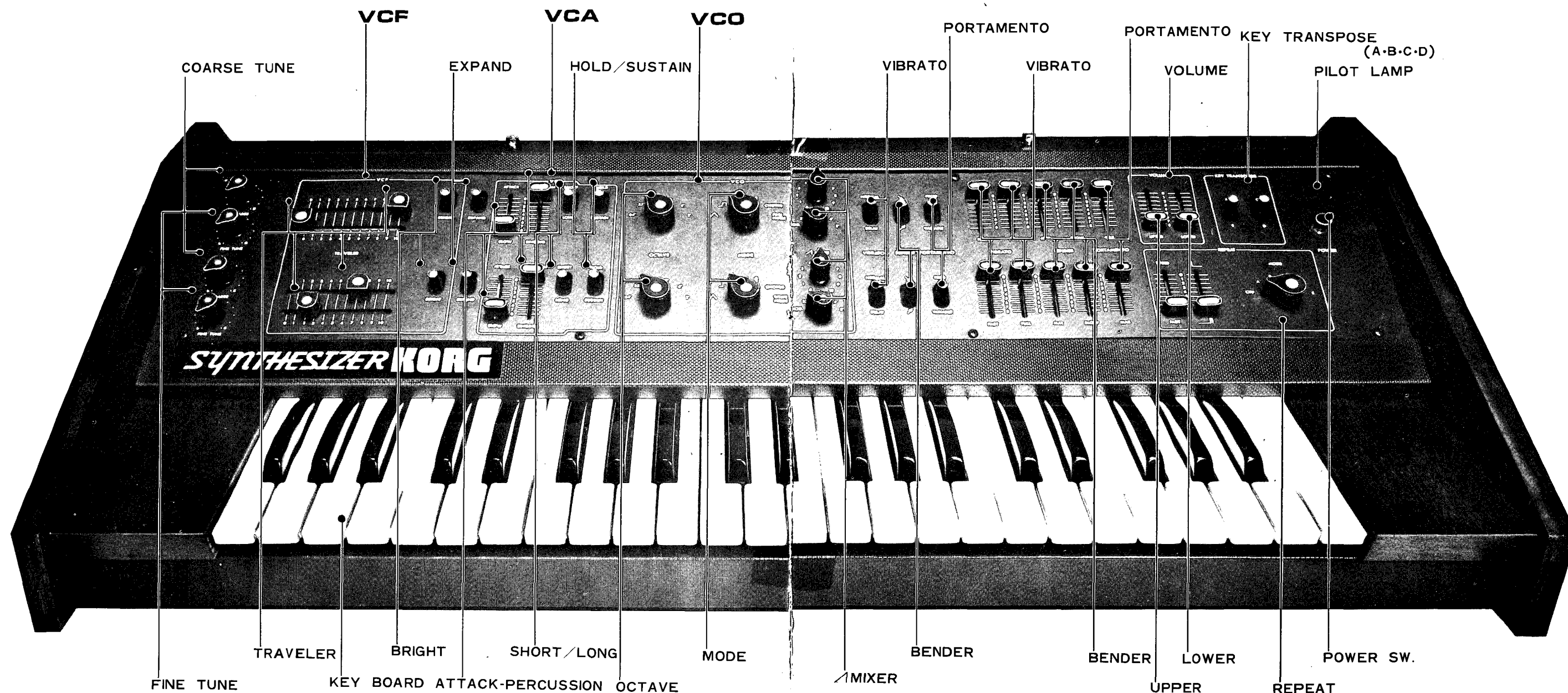


SYNTHESIZER

KORG800 DV

OWNER'S MANUAL





The KORG-800DV is an extremely versatile model — basically a combination of two units in a dual-voice structure.

1 VCO Voltage Controlled Oscillator

2 VCF Voltage Controlled Filter

3 VCA Voltage Controlled Amplifier

4 EG Envelope Generator

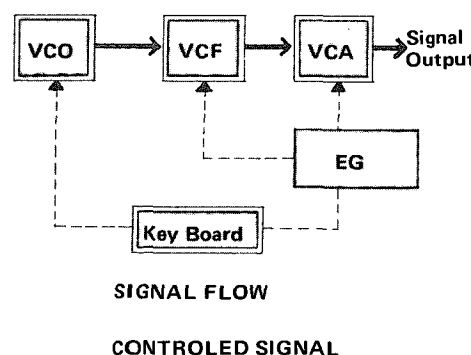
5 Key Board

6 Ring Modulator, Repeat, Bender, Mixer, etc.

These units are connected internally in the following way.

NOTE:

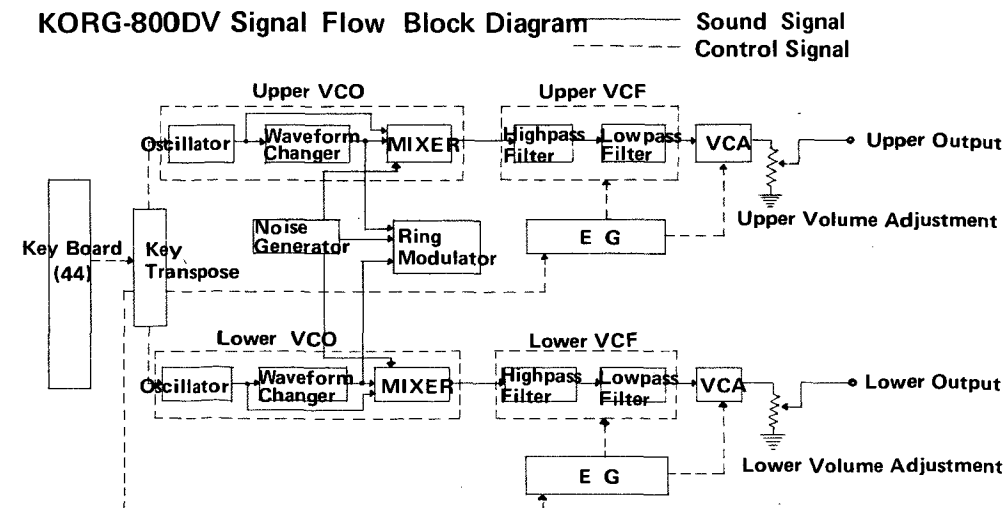
In this structure the EG is normally connected to the VCA, so that there is no "Envelope Generator" on the panel. However, the function is incorporated in the VCA.

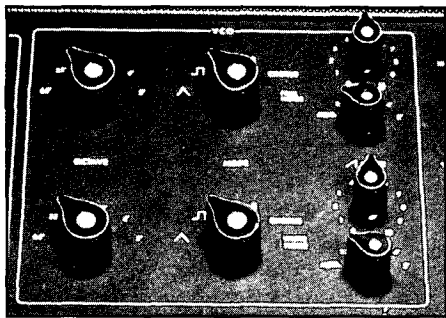


- (1) When a key on the manual is pressed, the VCO oscillates at the frequency of the pitch of that key's note; this wave is the origin of the tone.
- (2) And also a trigger signal of Keypressing is fed to Envelope Generator. Here the envelope signal determines attack and decay characteristics of the sound.
- (3) The basic signal which is fed to the VCF is filtered in an order established by the Envelope Generator. This filtering selects the proper harmonics present in the basic signal. This method of employing filters and changing them temporally is the main characteristic of the synthesizer. By this stage the tone color is for the most part set.

- (4) The basic signal which passes through the VCF finally goes to the VCA according to the order established by the Envelope Generator. The volume of the sound is established here. Since the VCA output signal will be audible at this stage if it is passed to the amp and speaker, various other units can be attached to the KORG-800DV to provide an unlimited number of tone color possibilities. For a more detailed analysis of the KORG-800DV signal flow, see the block diagram to the right.

KORG-800DV Signal Flow Block Diagram

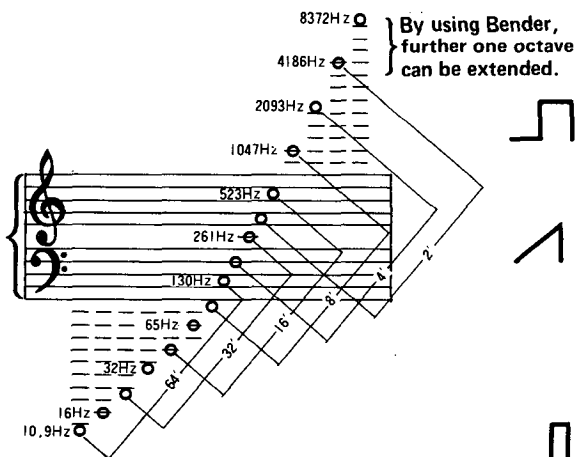




VCO

OCTAVE

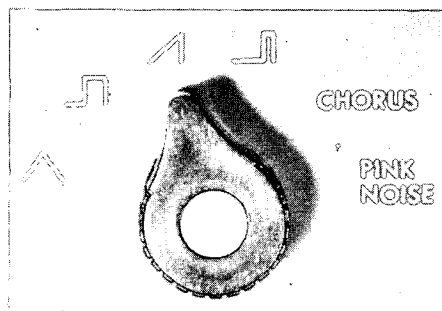
Use of the octave switch permits sounds that exceed the range of the piano, as the chart below shows. The result is an immense variety of pitches.



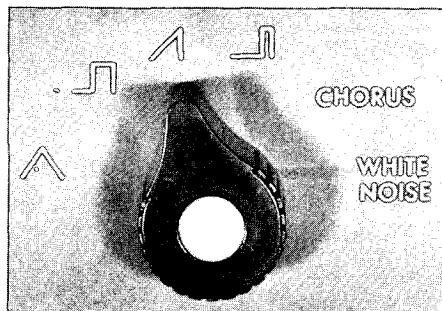
MODE

Seven different waveforms can be created as VCO output.

UPPER VCO WAVEFORMS




LOWER VCO WAVEFORMS



The upper voice can create pink noise and the lower white noise, but the other waveforms are ready on upper and lower voices equally. Following is a description of each.

WAVE FORMS

 **TRIANGLE**

 **SQUARE**

 **SAW-TOOTH**

 **PULSE**

The fundamental component of harmonics is rich and provide a pure and clear sound. Most appropriate for creating sounds in the flute family or a clear sound color similar to a tuning fork. Since there are few harmonics, the Traveler Control effective direction is not particularly extreme.

Provides closed-pipe sounds (clarinet, etc.) by removing even-numbered harmonics.

Since this basic tone contains many harmonics and is sufficiently large, it is suitable for creating a wide range of tone colors. Its versatility can be expanded by combining the Traveler Control to create string, wind, picked string and even human voice effects, plus many others.

Higher harmonic elements abound in this waveform, making use of the Traveler Control highly effective, especially for creating reed sounds or all-new synthetic tone colors.

CHORUS

This gives the effect of two instruments being played at the same time. To create the different pitches, the Vibrato Speed control works in this case as a beat adjustment. Accordion and similar sounds are easiest to produce in this position.

PINK NOISE

This noise is missing higher harmonics to create a unique feeling. Many unusual sounds, such as thunder, etc., can be formed by using this effect with the Ring Modulator, and scaled noise is also possible.

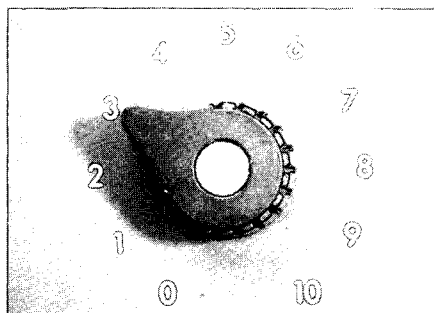
WHITE NOISE

This is a noise which contains all frequency elements from high to low. The special white noise sound is ideal for sounds such as wind, waves, trains, etc., and can be mixed with other waveforms to create brass instrument feelings.

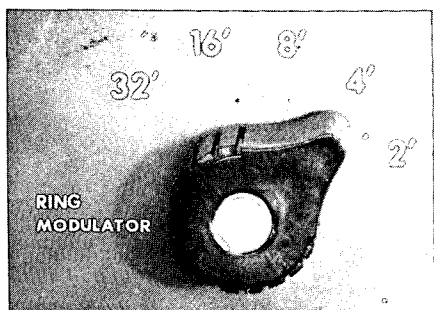
MIXER

The KORG 800DV voices contain several waveforms in pitches from 64' to 2', and 32', 16', 8', 4' or 2' sawtooth waveform can be blended in various proportions by controlling this knob.

For example, a 4' sawtooth waveform can be blended into a 16' triangular waveform to about 30%; for such a sound, use the setting illustrated below. When no sawtooth waveform is desired, set to the "0" position.



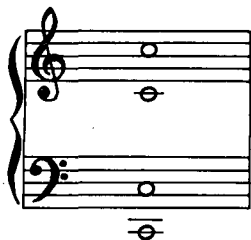
The knob below selects the balance of the chosen sounds.



According to the setting of this knob, for example, if it is set for upper and lower voices, the tone color shown below is possible.



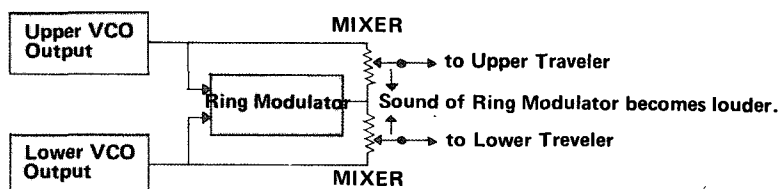
Played note



Four tones sound at once

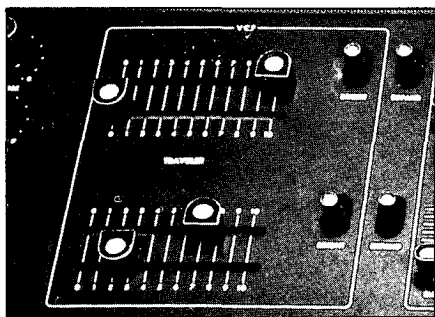
RING MODULATOR

The scale and waveform(s) selected from the upper and lower voices can be fed to the ring modulator, and be multiplied. Then the signal can be combined with the basic signal according to the mixer. In such a case the signal flow is as shown below.



The ring modulator electrically multiplies two signals and, in addition to the frequency elements present in each, it can also create a new spectrum. This can be used for consciously discordant effects to create lifelike chimes, gong sounds, etc.

In addition, if a pink noise signal and triangular waveform are multiplied here, a scaled noise can be created.



VCF

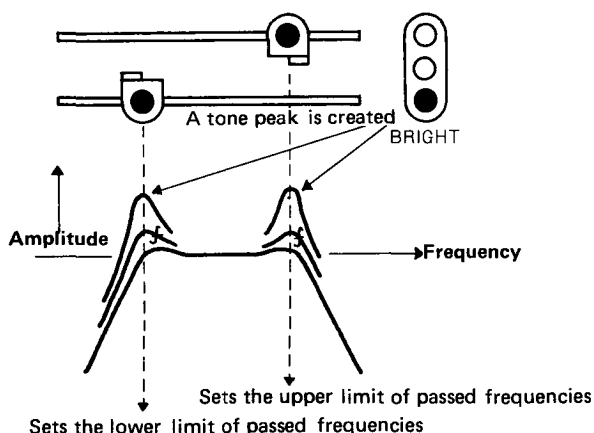
TRAVELER

The combination of harmonics is an important factor in the creation of any tone color. The Traveler is the tone control especially developed to permit free harmonic combination. Incorporating paired low pass and high pass filters, it permits the creation of any tone color. The two controls work in opposition, to regulate the frequencies of the harmonics. The upper lever cuts the higher frequency harmonics, and the lower lever cuts those of lower frequencies. The result is that a group of harmonics is created corresponding to the area between the positions of the levers.

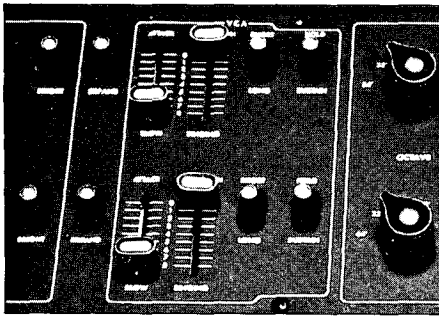
When the Traveler is used as a pre-set, one touch will permit the player to find a tone color spontaneously, once he is familiar with the operation of the two levers.

When the Traveler is used dynamically a fine back and forth movement will create a tremolo. A wider left-right sweep will give rise to a curved tone which, when properly timed to the keyboard action, can create a waw or a muting effect. The Traveler's electronic characteristics are as follows.

CHARACTER OF TRAVELER CONTROL



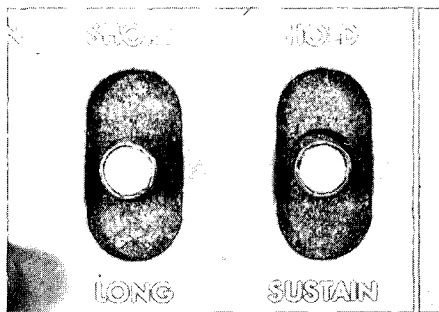
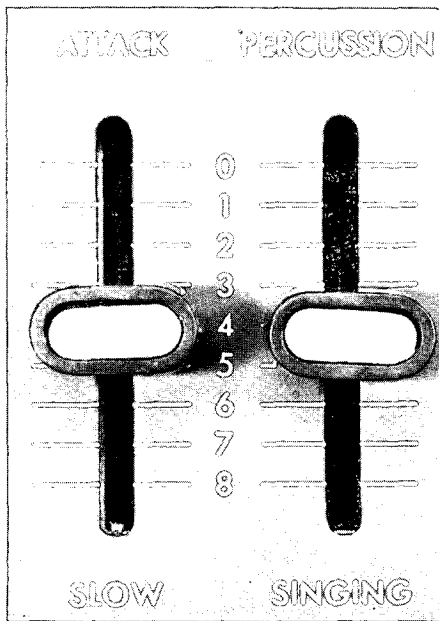
The height of the tone peaks created by the Traveler lever settings can be adjusted to any of three stages by the Bright switch, as shown by the chart above.



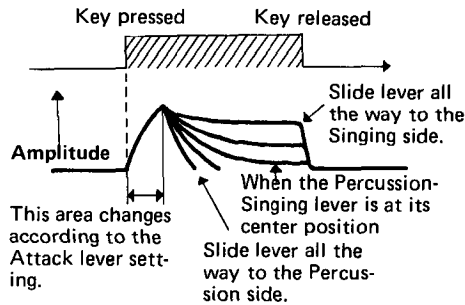
VCA

The VCA controls are composed of two slide knobs and two switches. They are used to adjust the volume curve after the key is pressed.

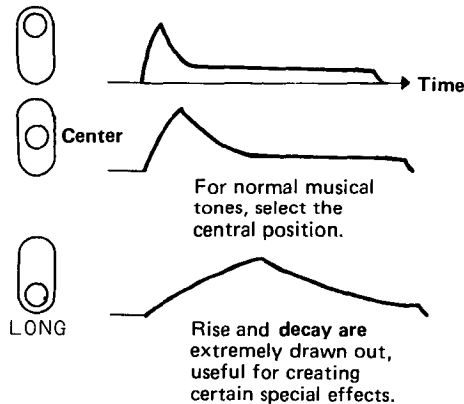
When the Expand switch is on, the Traveler setting is automatically moved to correspond to the volume curve.



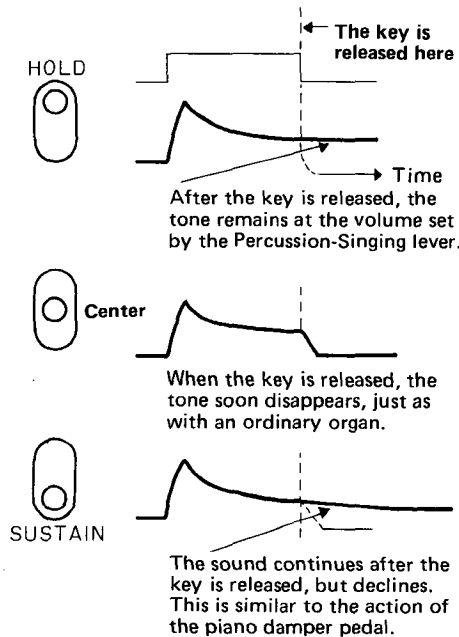
- (1) The two slide levers have an effect on the rise and decay of the tone as shown below.



- (2) Function of the Short & Long Switches
These slide levers operate as the others described above, to lengthen or shorten the envelope curve.



- (3) Function of the Hold/Sustain Switch
This switch is used to determine how long the sound lingers after the key is released.



EXPAND

The Expand switch connects the output from the sound envelope generator (normally it is connected to the VCA) to the point which regulates the Traveler control cutoff frequency.

This switch can be used to create a bright tone (abundant trebles) when the sound is full, or a "mellow" tone when the sound is reduced.

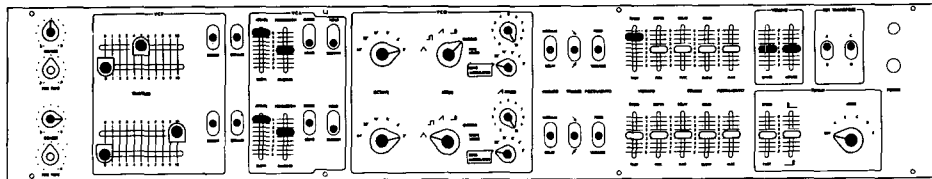


- To release the connection, for strings, etc.
- Center Sound combination is medium, for brass, woodwinds, etc.
- Sound fusion is strong, for various synthesizer sounds.

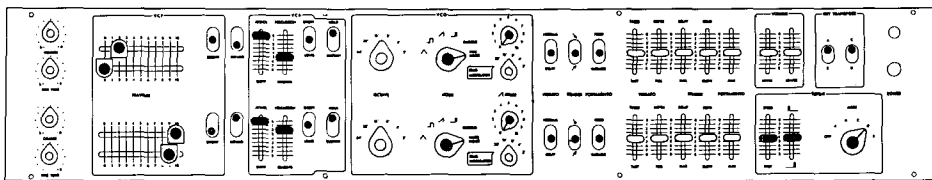
With the Traveler Bright switch set to its strongest position and a mild rise/decline envelope shape set, effective tone color and tone color variations can be achieved in the sound which lingers after the key is released.

KORG 800 DV PREPARED INSTANT-SET CHART

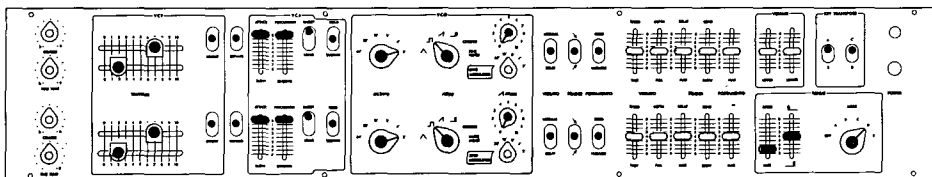
CHIME When both upper and lower voices are fed to the Ring Modulator, a bell-like effect is created. If the upper voice is set to Chorus, a humming results. Be careful of too wide a divergence in Tuning knob setting, for this setting is extremely delicate.



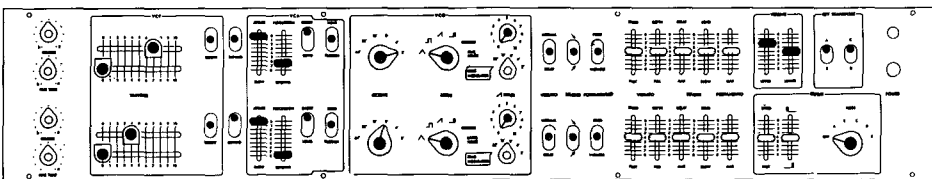
RHYTHMER Creates two percussion tone colors, then sounds them alternately. The tempo and swing can be controlled by the knob.



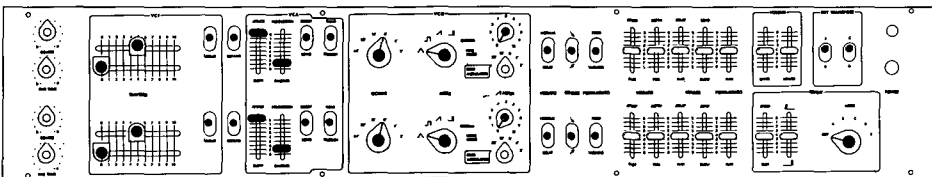
MARIMBA This creates a tremolo effect by alternately playing the sounds of any two keys pressed.



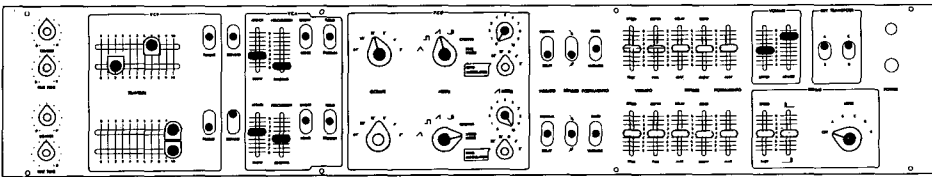
HAMMOND ORGAN This is the synthesis of clear and mellow tones. Be sure to select the proper Octave and Volume control settings.



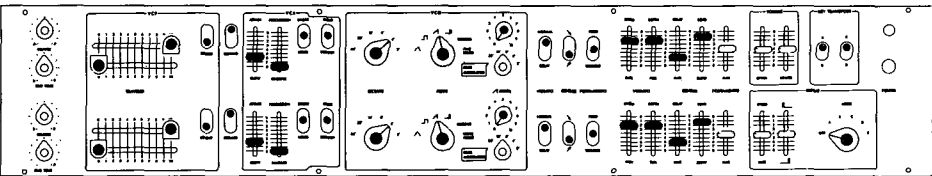
ELECTRIC PIANO Upper and lower voices are combined with the same percussion sound. By the proper selection of waveform switches, a variety of percussion sounds can be obtained.



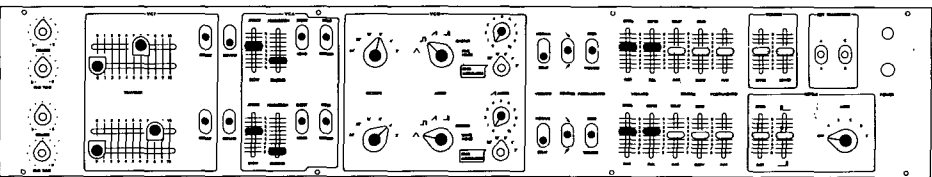
TRUMPET Using noise set on the lower voice from time to time provides more realistic trumpet sound.



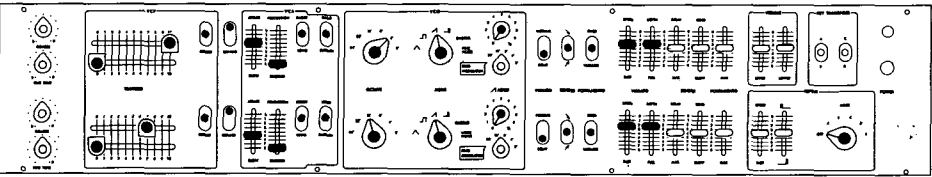
WESTERN VIOLIN Using this as two voices, an interesting result can be obtained by the adept use of Pitch Bend.



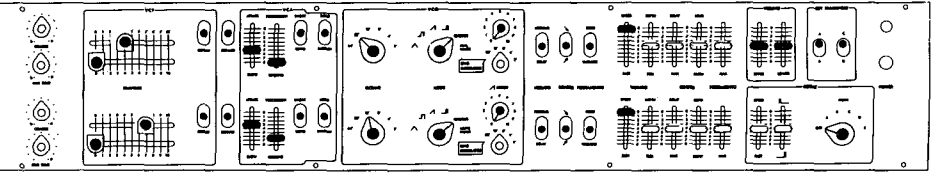
CLARINET, FLUTE The upper voice is clarinet, the lower flute. The difference in the two tones is derived from source signal. A square waveform is used for the clarinet.

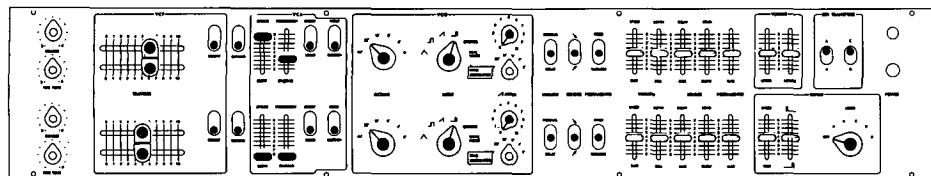


VIOLIN & CELLO The main difference between violin and cello tones is the pitch. The Traveler can create delicate tonal nuances.



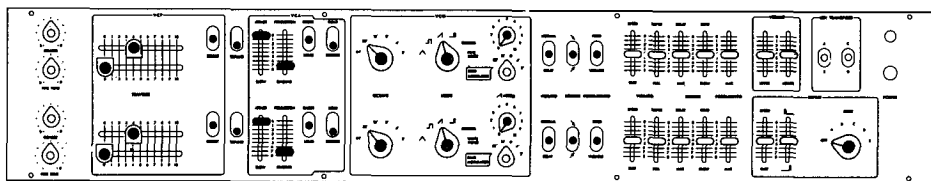
BRASS ENSEMBLE Play the tuba and trombone selection with a solemn melody. Using both amplifiers, a feeling of grand space is created.





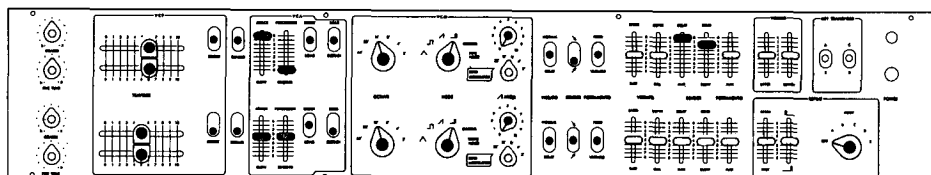
In this way Sustain Long can create a long beat. In addition, tone colors varies according to time by using Bright and Expand.

TRAVELING SOUND



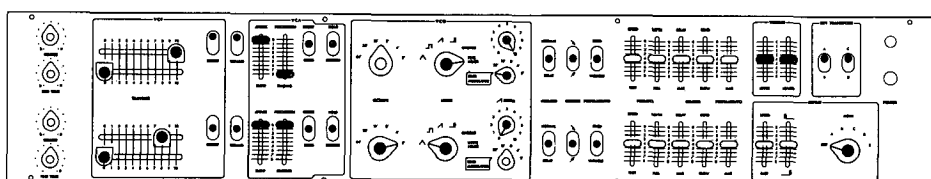
If the two pitches are slightly different a wide sound feeling can be created.

CHORUS BASS



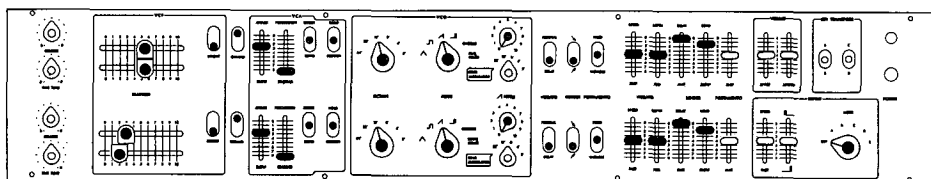
Comical sounds can be made using Pitch Bend, Expand and Bright. In the setting shown in the diagram, the upper voice gives a comic reed, the lower a comic wow.

COMIC WOW



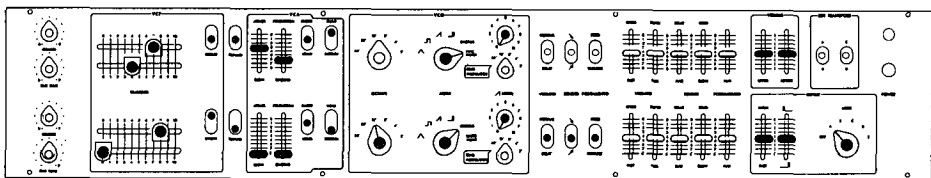
A noise with the feeling of musical intervals is formed by feeding a triangular waveform and pink noise through the ring modulator. In the setting shown in the diagram, the Upper Volume controls this signal, while the Lower Volume attack sound of the triangular waveform.

SCALED NOISE



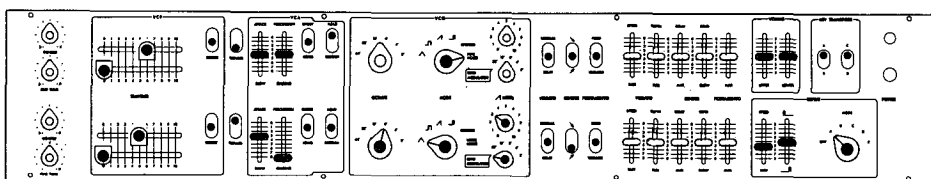
According to the positions of the two Traveler levers, various vowel sounds can be formed. In the diagram, the upper voice setting is for an "a" and the lower for an "wu"

HUMAN VOICE "a" "wu"



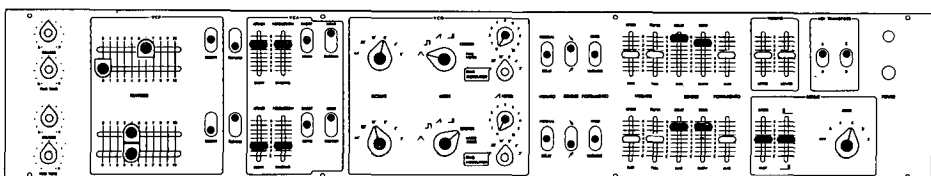
Periodically noise on the upper voices, with Chorus on the lower, creates the sound of a train starting off. Experiment with Volume, Repeat and Traveler settings.

SUBWAY NOISE



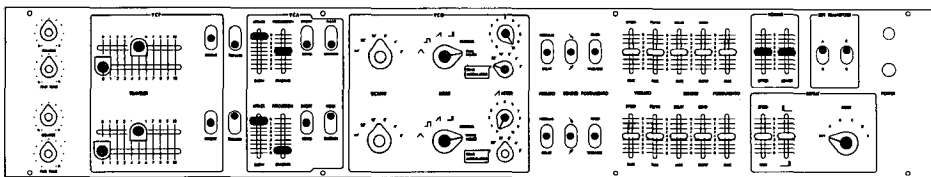
The upper voices give the hissing, beeping sound when used with Repeat, while the lower the whistle. For a sound similar to crossing a trestle, add a touch of Singing.

STEAM LOCOMOTIVE



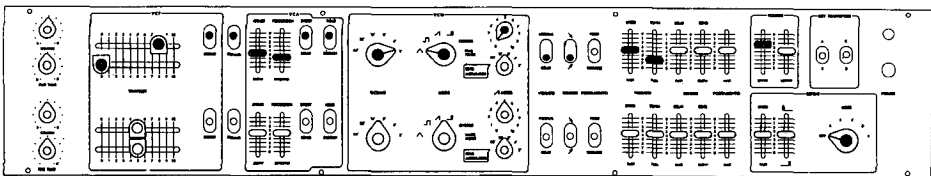
The upper voice gives the sound of a temple block, while the lower sounds like a human voice. The lower voice Traveler should be activated in time with the rhythm.

OKYO



The upper voice sounds like thunder, the lower like rain. With the right use of Traveler and Volume levers the feeling of a violent storm can be created, but be careful to avoid an input so strong that it damages the speakers.

THUNDERBOLT

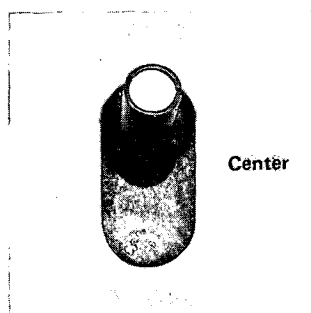


The upper voice is set for whistling. Now, what will you do with the lower voice?

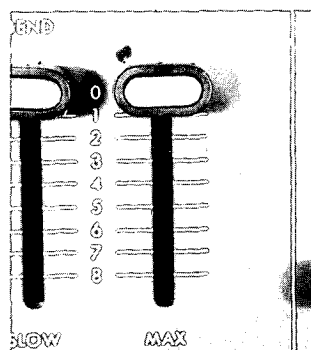
WHISTLE

PORTAMENTO

This connects one note on the keyboard continuously with the next one played. When the switch is set to Fixed, the time it takes for the tone to shift becomes extremely long, creating a special sound effect.



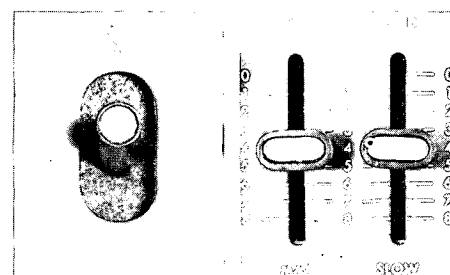
If the switch is set to Variable the interval then depends upon the motion of the Portamento slide lever. The center position is off, to permit normal playing.



Shift interval lengthens.

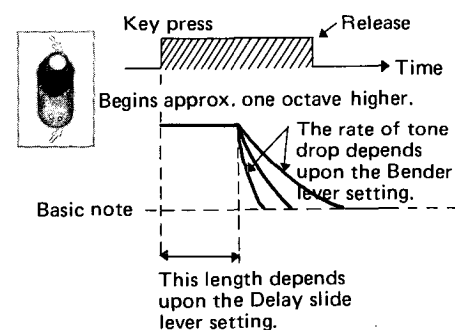
BENDER

The Bender is a section which alters the pitch of the sound at the moment the key is pressed. Various modes can be set by using the switch and two slide levers.

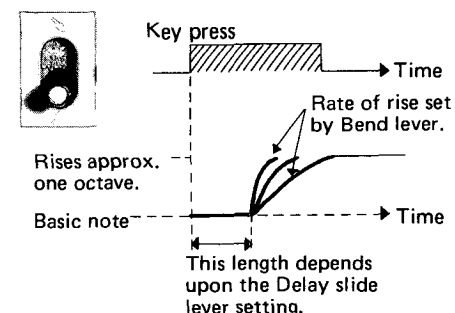


If you set as shown in these illustrations, the effects shown below can be produced.

- (1) When the switch is set to ↓.



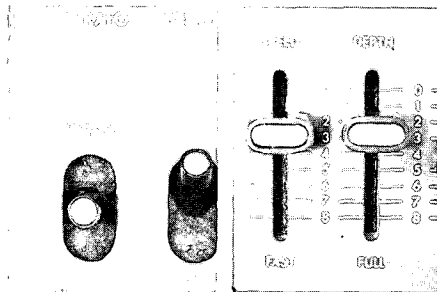
- (2) When the switch is set to ↑.



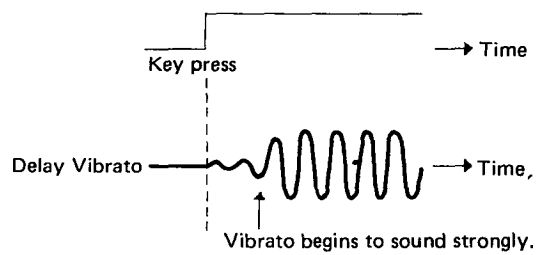
- (3) When Bend is not needed, set the switch to its center position.



VIBRATO



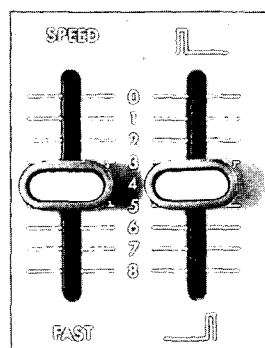
Vibrato is controlled for each voice section via a switch and two slide levers. When set to its center position, the switch is off. Move it up to Normal for vibrato like that of an electronic organ. If it is set to Delay, the vibrato only takes effect after a certain interval from the time the key is pressed. This is very effective when you want to make the instrument sing.



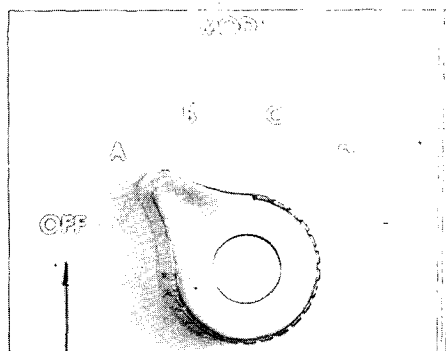
The speed and intensity of the vibrato are controlled freely by the slide levers.

REPEAT

Many of the KORG-800DV's special features, based upon its dual voice system, are made possible by this Repeat section. In addition to the Repeat Speed knob normally found on organs, this unit also features a rhythm-instrument type of Repeat use.



The timing of the sound projection between upper and lower voices can be varied.



A Repeat on upper voice only



B Repeat on lower voice only



C Repeat on both upper and lower voices at once



D Repeat alternates between upper and lower voices

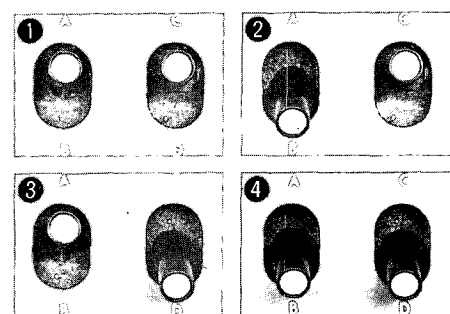


E The sound shifts from upper to lower voice



KEY TRANSPOSE

Key Transpose is a switch used to divide the tones played on one keyboard between upper and lower voices, according to tone color. It has the following four modes.

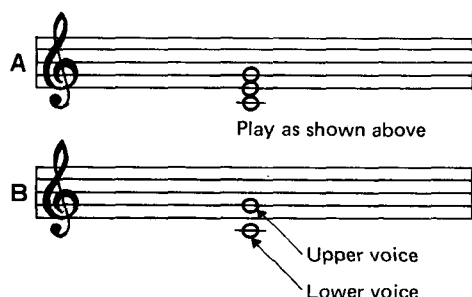


- ① In this AC mode, pressing one key creates the tone colors of both the upper and lower voices at the same time. When two keys are pressed, however, the tone colors of the upper and lower are separated.
- ② The BC mode provides only the upper voice tone color when one key is pressed. When two are pressed, it operates like ① above.
- ③ This AD mode brings out the lower voice tone color when one key is pressed. When two keys are pressed, it operates like ① and ② above.
- ④ This is the BD mode. If only one key is pressed, no sound is heard. When two keys are pressed, the effect is like that in the other modes.

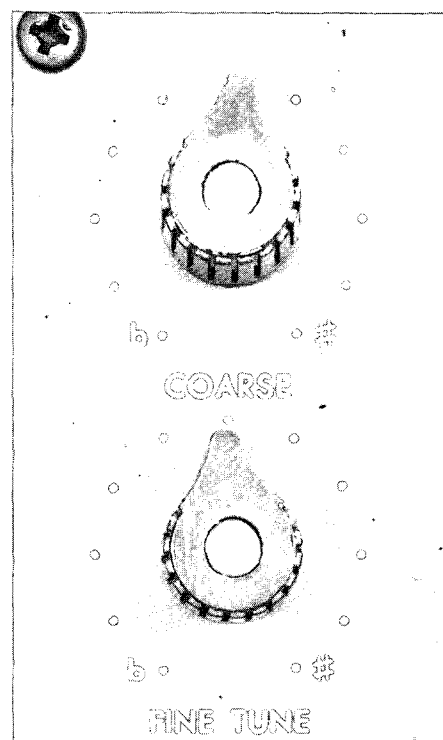
Each of the four modes has its own special characteristics, and it would perhaps be best to think of them as aids to an easier performance. For performances which consist mainly of normal, simple tones (including tone colors which are combinations of two sounds), mode ① is best. When you wish to use two voices in contrast, ② or ③ would be the choice. Finally, in cases where movement of two voices is always the same, choose mode ④.

NOTE:

If more than two keys are pressed at once, the lowest will sound the lower voice tone, the highest the upper voice. In other words, if you play as shown in Fig. A below, the sound will be as in Fig. B.



TUNING

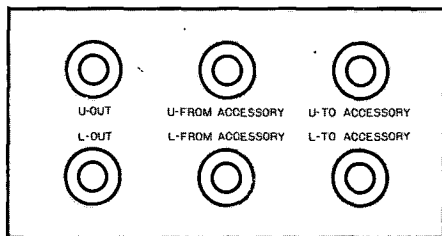


There are two tuning knobs for the upper voices and two for the lower. The top knob in each pair can be varied within approximately one octave, and can be used for special tone colors.

For example, if you want to create the interval of a third between the upper and lower voices in order to play a selection maintaining parallel thirds, or when you wish to use the Ring Modulator to create a combined sound with the one struck, etc., use these knobs. Each knob has a click-stop position at the center, for quick realignment of pitch after a special use has ended.

The lower knob in each set (Fine Tune) has a very limited range and should be used for matching the sound to other musical instruments.

OUT PUT JACKS



There are six jacks on the rear of the KORG-800DV, to permit full use of the dual-voice versatility.

- (1) When connecting a single amp, use the U-OUT or L-OUT jack. Both voices are mixed automatically, making performance quite easy.
- (2) If two amps are used, the voices can be divided. Connect one to U-OUT (upper voice signal) and the other to L-OUT (lower voices).

- (3) When connecting a fuzz, echo machine or other special effect unit use one or more of the other jacks. For example, if you wish to feed only the upper voice signals to the echo machine, and the lower voices to fuzz, connect as follows:

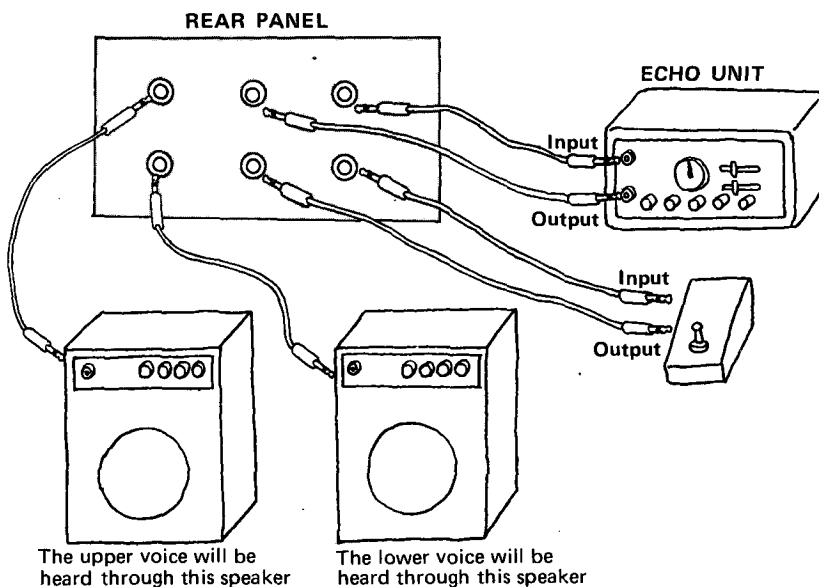
U-TO ACCESSORY: connect to echo machine input.

U-FROM ACCESSORY: connect to echo machine output.

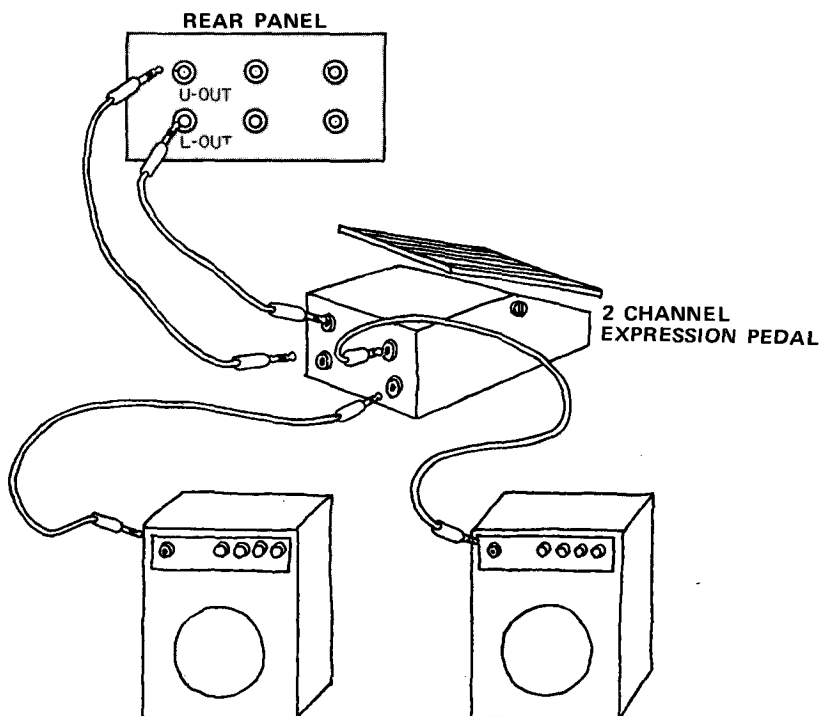
L-TO ACCESSORY: connect to fuzz unit input.

L-FROM ACCESSORY: connect to fuzz unit output.

The two amplifiers in the illustration below are connected as explained in (2) above.



When two amplifiers are connected and you want to control the volume of both with a single expression pedal, use the special pedal (optionally available) connected as shown in the illustration below.



KNOB AND LEVER COLORLING

For easiest possible operation, the KORG-800DV controls are color coded according to function.

Pitch-related controls (Tuning, Octave switch, Bender)	Blue
Volume-related controls (VCA family, sawtooth waveform mixer, Volume)	Orange
Tone color-related controls (Traveler, Bright, Expand)	Red
Portamento	Green
Vibrato	Gray
Repeat	Yellow
Key Transpose	White

SPECIFICATIONS

Key board

Scale 44 Keys F-C 3½ Octaves

Scale

64', 32', 16', 8', 4', 2' Total: 8.5 Octaves + α

Wave Form

Triangular Wave, square Wave, Sawtooth Wave, Pulse Wave, Chorus, Pink Noise (High tone only), White Noise (Low tone only)

Effect Switch

Bright, Expand, VCA Short-Long, Sustain-Hold, Vibrato, Delay Vibrato, Pitch Bend Δ , Portamento, Keytranspose ABCD, Δ Mixer-32', 16', 8', 4', 2', Ring Modulator, Repeat Mode ABCDE.

Power Supply

Set to local voltage

Power Consumption:

30W

Others

Power Switch, Pilot Lamp, Output Jack (Independent Type), Accessory Input & Output Jacks included making in all 6 parts. (Output Impedance-Approx. 5K Ω)

Slide Control

Traveller, Attack Slow, Percussion Singing, Vibrato Speed, Vibrato Depth, Pitch Bend, Repeat Speed, Repeat Ratio, Delay Pitch Bend Speed, Portamento, Volume

Others

Coarse Tuning, Fine Tuning, Δ Mixer

Note:

Besides Keyboards, Keytranspose Switch and Repeat, it can afford to be with two completely independent Hi/Lo Traveller filters, twin voltage controlled oscillators, twin ADSR, and double the versatility throughout.

Dimensions

Length-31-5/8 inches, Width-17 inches
Height-6-3/8 inches

Weight

35.6 Lbs.

Accessories

Music Rack and Connection Cord

Option

Case, Stand, Expression Pedal (2 Channels)

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