YAMAHA CE25 COMBO ENSEMBLE



CE25 YAMAHA Puts Na

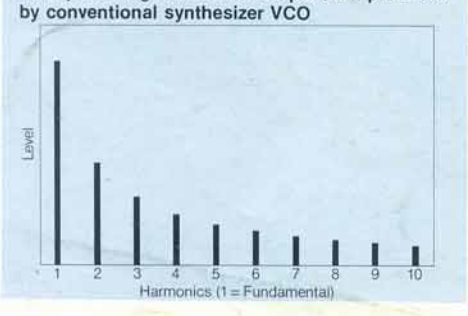
A Break from "Electronic" Synthesizer Sound

It is generally quite easy for most people—especially people involved with music—to discriminate between acoustic and synthesized instrument sounds. And although modern synthesizers do provide a vast extension to the range of voices available to the composer and musician, their application is generally limited to music in which an "electronic" sound is required. Some recent Yamaha developments in the field of electronic music waveform synthesis, however, have made it possible to provide a broad range of totally "new" sounds as well as electronic reproductions of many conventional acoustic instruments that retain the warm, natural feel of acoustically generated sound. It is this advanced Yamaha technology that makes the CE25 the incredibly versatile keyboard that it is. Remarkably compact and lightweight, it nevertheless features 20 polyphonic voices that have all the vibrance, depth and beauty of acoustic instruments. Further, it has a velocity and pressure sensitive keyboard that provides extraordinarily broad expressive capability with initial touch response and after touch response. The CE25 is a keyboard that can literally clear the stage of many bulky keyboards that were previously required to provide the range of sounds and expressive capability that today's keyboardist demands.

FM Tone Generation: the Key to Natural Beauty

In a conventional synthesizer, voices are created by selectively filtering out and/or emphasising certain harmonics in a waveform produced by a voltage controlled oscillator. The basic waveform which is modified, however, has a regular harmonic structure. That is, it has either all even, all odd, or a mixture of even and odd harmonics (except for a sine wave which is a pure tone and has no harmonics). The levels of these harmonics decrease in an orderly manner as they increase in frequency.

Example of regular harmonic spectrum produced by conventional synthesizer VCO



Also, although the cutoff frequencies and resonance of voltage controlled filters can be varied throughout the duration of a note, the actual harmonic structure does not change. It is this regular harmonic structure that makes most synthesizers sound "electronic".

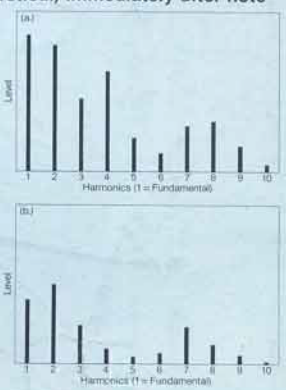
In contrast to the type of synthesis described above, sounds produced by acoustic instruments have an irregular harmonic structure that is constantly changing throughout each note. Basically, the harmonic structure is level dependent, so the tonality of an acoustic instrument note also depends on how loud the note is played.

Indeed, the beauty of an acoustic voice is largely due to its randomness.

The Yamaha FM tone generator system makes it possible to synthesize the same type of random structure found in purely acoustic voices: i.e., they have a random harmonic structure that constantly changes throughout each note, and the initial tonality (harmonic structure) of each note depends on how loud the note is played. Naturally this means that it is possible to recreate the sound of conventional acoustic instruments with a remarkable degree of accuracy. The bonus is that completely new voices can be created that actually sound acoustic.

We certainly don't expect all this technical talk to convince you that the CE25 is a great keyboard, but your ears should tell you in an instant that the CE25 voices have a natural beauty that very few other synthesizers can even approach.

Irregular harmonic spectra produced by acoustic instrument (theoretical) immediately after note attack (a) and after note has decayed to a lower level (b).





All Polyphonic Voices

The CE25 offers two groups of voices. The first (leftmost group of voice selector buttons) includes BRASS 1, BRASS 2, BRASS 3, BRASS 4, BRASS 5, STRING 1, STRING 2, STRING 3, ORGAN 1, ORGAN 2, POLY LEAD 1, POLY LEAD 2, POLY BASS 1, and POLY BASS 2. These are mostly "sustained" voices of the type produced by wind or bowed-string in-

tural Beauty into Electronic



struments. The second "PERCUSSIVE" group selects a number of "piano-like" voices ranging from delicate sounds similar to bells to rich electric piano type sounds.

It's a tremendous breakthrough that a keyboard in this class offers this many voices of this quality (not to mention initial and after touch response!), but when all voices are 8-note polyphonic you have an instrument that is likely to be used more than any other in a multi-keyboard setup. In fact, you can probably get by with just one CE25 in many performance situations. Of course, if you're looking for a versatile keyboard to play at home, the CE25 gives you much, much more than any other instrument with a similar price tag. Because the CE25 offers all polyphonic voices, it's likely to be used extensively for backing and chordal accompaniment. For this reason it has several rich string and brass voices that can really thicken your sound. And, if you developed your keyboard technique on a piano (as most keyboardists do), you won't have to adjust your technique to compensate for the limited number of polyphonic voices provided by comparable keyboards.



Touch Response

The piano as we know it today was originally developed to overcome the expressive limitations of its predecessor —the harpsichord—which had no dynamic control capability. Because of its dynamic capabilities the piano has generally been considered the most expressive of keyboard instruments. Now the Yamaha CE25 offers even more expressive control than the acoustic piano with several touch response functions. First, there's the same type of dynamic control as provided by the piano: the harder (faster) you play the keys, the louder the initial attack of the sound. Add to this "initial touch response" a TONE INITIAL control that adjusts the degree of tonal variation produced by varying key attack, and you already have extraordinary expressive versatility—but there's more. An "after touch response" feature makes it possible to vary tonality and add carefully controlled vibrato by varying pressure on the keys after they are initially played. The degree of tonal variation and depth of vibrato that can be created with the after touch response feature can be adjusted using the CE25's TONE AFTER and VIBRATO AFTER controls. Although manual controls are provided for setting your own touch response sensitivity and vibrato parameters, pressing the PRESET button deactivates these controls and activates a special set of preset parameters for each voice selected. The pre-programmed touch response and vibrato parameters have been carefully selected by Yamaha music specialists to give you the most natural sound with each individual voice.

All this expressive capability opens up a whole new world of creative possibilities that can add vast subtlety and depth to your music.

Effects

In addition to the capability of controlling vibrato via pressure on the CE25 keys, an overall vibrato effect can be applied to all voices independently of the after touch response function. The speed of the vibrato effect can be varied over a broad range, and a variable DELAY vibrato control makes it possible to adjust the time it takes for the vibrato effect to reach full depth after initial key attack—this pro-





ghly Expressive, Beautifully tural and Always Musical

the musician, the ability to equately express his musical as is the foremost condition in posing an instrument. To Yamaha, viding the musician with the expressive pability he needs is a dedication. us the CE25. It features the latest Yamaha yboard technology providing 20 beautifully tural polyphonic voices with extensive initial sl after touch response for tremendous expressive pability—at your fingertips. The CE25: nusic instrument for the expressive musician.

Keyboard Sound

duces a more "acoustic" vibrato sound. Vibrato depth is controlled via a thumbwheel to the left of the keyboard for "real time" vibrato effects. When the PRESET mode is active, the vibrato speed and delay controls are deactivated and preprogrammed parameters are applied individually to each voice.
The SYMPHONIC effect is another tremendous feature of the CE25. It creates a rich multi-instrument chorus effect with all voices. A SYMPHONIC DEPTH control lets you add just the right amount of symphonic effect to your sound.
A BRILLIANCE control makes it possible to get a "warmer" or "harder" sound as desired.

Connector Panel

The CE25 connects to any music instrument amplifier, keyboard mixer or sound reinforcement system via a standard 1/4" phone jack. Jacks are also provided for a sustain pedal and expression pedal (provided) for extra foot-controlled expressive capability. A headphone jack that accepts just about any pair of standard stereo headphones is also provided so you can practice in private.



CE20 An Outstanding All-Round Performer



The CE20 is another outstanding Yamaha keyboard that features FM tone generation technology. It offers 14 high-note-priority monophonic voices that are ideal for lead lines, and 6 8-note polyphonic voices for backing. The monophonic voices are PICCOLO, FLUTE, OBOE, CLARINET, SAXOPHONE, TRUMPET 1 (classical trumpet voice), TRUMPET 2 (jazz tone), TROMBONE, VIOLIN, CONTRABASS 1 (bowed), CONTRABASS 2 (pizzicato), ELECTRIC BASS 1 (mellow), and ELECTRIC BASS 2 (funky). The polyphonic voices feature BRASS, HORN, ORGAN, ELECTRIC PIANO, HARPSICHORD and STRINGS. All these voices are generated by the Yamaha FM tone generator system, and therefore have a remarkably "acoustic" feel.
The CE20 has all the same touch response features as the CE25, so you have dynamic control with initial touch response, attack-dependent tonal variation with TONE INITIAL, and tonal variation according to key pressure with TONE AFTER. Vibrato can be applied via the after touch response function as well as independently with VIBRATO SPEED, DEPTH and DELAY controls. Also like the CE25 the CE20 has a PRESET selector which activates pre-programmed touch response sensitivity and vibrato parameters for each individual voice. The CE20 additionally features a SLIDE CONTROL function that can be used with all the monophomic voices. With this function turned on, you first use a slide control wheel at the left of the keyboard to adjust the length of a portamento-like slide between each note played. The unique feature of this effect is that a slide occurs only when a second note is played before releasing the first, thus allowing both pitch bend and portamento effects to be introduced through keyboard technique alone. Overall, the CE20 offers tremendous versatility and expressive capability with surprising economy.

SPECIFICATIONS

	CE25	CE20
Keyboard	49 keys, $C_2 \sim C_6$	49 keys, $C_2 \sim C_6$
Simultaneous Output Notes	Polyphonic: 8 notes (first note played)	Polyphonic: 8 notes (first notes played) Monophonic: 1 note (high-note priority)
Voice Selectors	BRASS 1, 2, 3, 4, 5 STRING 1, 2, 3 ORGAN 1, 2 POLY LEAD 1, 2 POLY BASS 1, 2, PERCUSSIVE 1, 2, 3, 4, 5, 6	Monophonic: PICCOLO, FLUTE, OBOE, CLARINET, SAXOPHONE, TRUMPET 1, TRUMPET 2, TROMBONE, VIOLIN, CELLO, CONTRA BASS 1, CONTRA BASS 2, ELECTRIC BASS 1, ELECTRIC BASS 2 Polyphonic: BRASS, HORN, ORGAN, ELECTRIC PIANO, HARPSICHORD, STRINGS
Touch Controls	PRESET switch SENSITIVITY TONE INITIAL lever TONE AFTER lever VIBRATO AFTER lever VIBRATO SPEED lever (4 ~ 10 Hz) DELAY lever	PRESET switch SENSITIVITY TONE INITIAL lever TONE AFTER lever VIBRATO AFTER lever VIBRATO DEPTH lever SPEED lever (4 ~ 10 Hz) DELAY lever
Controls	VIBRATO DEPTH wheel SYMPHONIC switch SYMPHONIC DEPTH lever BRILLIANCE lever PITCH lever: 436 ± 2 ~ 447 ± 2 Hz (A_3) TOTAL VOLUME lever	SYMPHONIC switch BRILLIANCE lever PITCH lever: 436 ± 2 ~ 447 ± 2 Hz (A_3) SLIDE CONTROL: switch, wheel (function with monophonic voices)
Jacks	LINE OUT: 600 ohms, unbal. HEADPHONES: 8—150 ohms, mono. (stereo headphones can be used)	LINE OUT: 600 ohms, unbal. HEADPHONES: 8 ohms, mono. (stereo headphones can be used)
Others		
Power Supply	General Model: 110—130 or 220—240 V selectable 50/60 Hz U.S. & Canadian Models: 120 V, 60 Hz	General Model: 110—130 or 220—240 V selectable, 50/60 Hz U.S. & Canadian Models: 120 V, 60 Hz
Power Consumption	General Model: 35 W. U.S. & Canadian Models: 30 W	General Model: 35 W. U.S. & Canadian Models: 30 W
Dimensions (W × H × D)	841 × 86 × 294 mm (33-1/8" × 3-3/8" × 11-5/8")	841 × 86 × 294 mm (33-1/8" × 3-3/8" × 11-5/8")
Weight	9 kg (19 lbs. 12 oz.)	9 kg (19 lbs. 12 oz.)
Standard Accessories	Expression pedal FC-6 Sustain pedal FC-5 Music stand, Top Cover	Expression Pedal FC-6 Sustain Pedal FC-5 Music stand, Top Cover

Specifications are subject to change without notice.

CE25/20 OPTIONAL ACCESSORIES

LC-20E Keyboard Case



Protect your CE25 or CE20 from scratches and damage with this hard keyboard case. An internal compartment holds the sustain and expression pedals.



LG-5 Keyboard Stand & Stand Case



This ruggedly constructed stand maintains your CE25 or CE20 at the optimum playing height. Assembly and disassembly are fast and easy for improved convenience and portability. The lightweight fabric carrying case greatly facilitates transportation.

For details please contact:

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