




Illustrated Guide to the CP1

U.R.G., Pro Audio & Digital Musical Instrument Division, Yamaha Corporation

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Only Yamaha could bring so much to the stage piano:
Perfect marriage of keyboard touch and sound was possible
only thanks to our extensive knowledge and experience of
the building of acoustic pianos.
Unrivalled richness of tone is a direct product of our tireless
participation in the development of pianos for stage and
recording environments.
And against the backdrop of our continued stage-piano
production since introducing the CP70 and CP80 in the
seventies, we have remained loyal to the proud tradition of
vintage electric pianos in the recreation of their unique
sound. Achieved through uncompromising pursuit of
perfection in an instrument that surpasses the sum of its
parts, allow us to present...

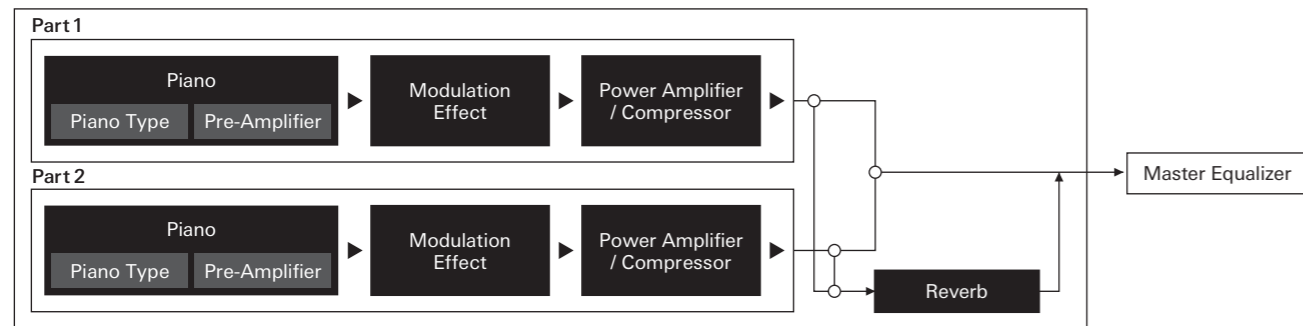
The Yamaha CP1 – Ultimate Stage Piano

The CP1 Concept

In the CP1, we have recreated the unique sounds not only of acoustic pianos, vintage electric pianos, and synthesizer piano voices, but also of the effect units, amplifiers, and other equipment commonly used with each in actual performance and recording settings. As shown below, these instruments and devices are recreated as four different types of structural block – namely, Piano, Modulation Effect, Power Amplifier/Compressor, and Reverb – and CP1 voices are fashioned by arranging these blocks with the instrument's customization function. Referred to as Performances, these voices can then be optimized for the current playing environment using a common Master Equalizer, affecting the instrument as a whole.

Within these pages, you will find an introduction to the various different piano sounds, effects, and amplifiers provided by the blocks used to configure CP1 Performances. We hope that you will find the following descriptions, diagrams, and photographs useful in gaining a deeper appreciation of what this wonderful instrument has to offer, and in addition, that this booklet will serve as a convenient reference when using the CP1's unique customization feature.

Performance



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Piano Block

Piano Type & Pre-Amplifier Units

01

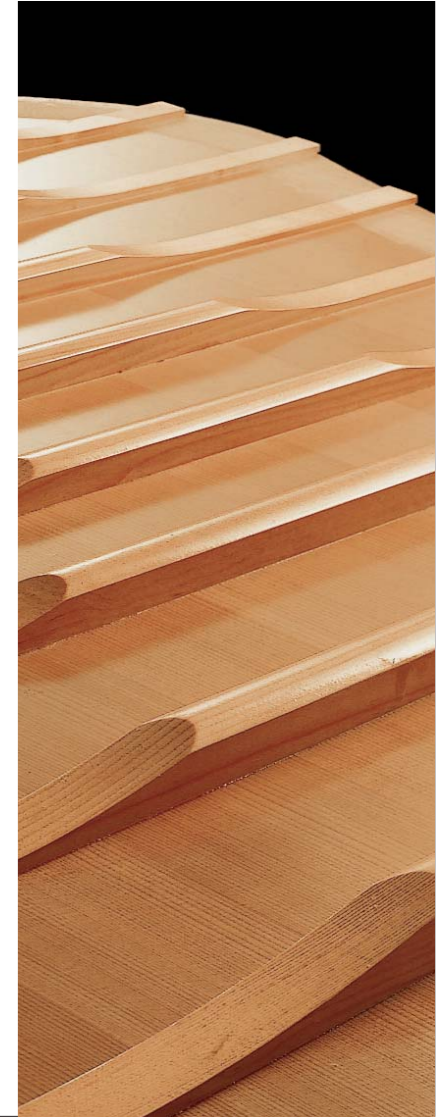
Each of the CP1's Piano blocks comprises a Piano Type unit and a perfectly suited Pre-Amplifier unit. Whenever you choose a piano type, therefore, the ideal pre-amplifier for that specific piano will be automatically selected. Broadly-speaking, the Piano Block replicates three different classes of piano sound – namely, acoustic pianos, electric pianos, and synthesizers. The following pages will describe the actual piano sounds that can be realized in each of these classes.



01-1 Acoustic Pianos

The acoustic piano voices of the CP1 effortlessly reproduce the distinctive sounds of Yamaha grand pianos, which are among the best in the world. When an acoustic piano is played live as part of a band, the sound thereof is normally picked up using a number of microphones and then mixed in order to prevent it from being drowned out by the other instruments. As part of this process, the signal from the microphones is boosted using pre-amplifiers and its frequency characteristic is adjusted using tone control in order to realize the best possible sound for the overall ensemble. For this reason, the acoustic piano voices of the CP1 feature microphone pre-amp simulators that can be used to optimize the sound in the very same way.

Acoustic Pianos



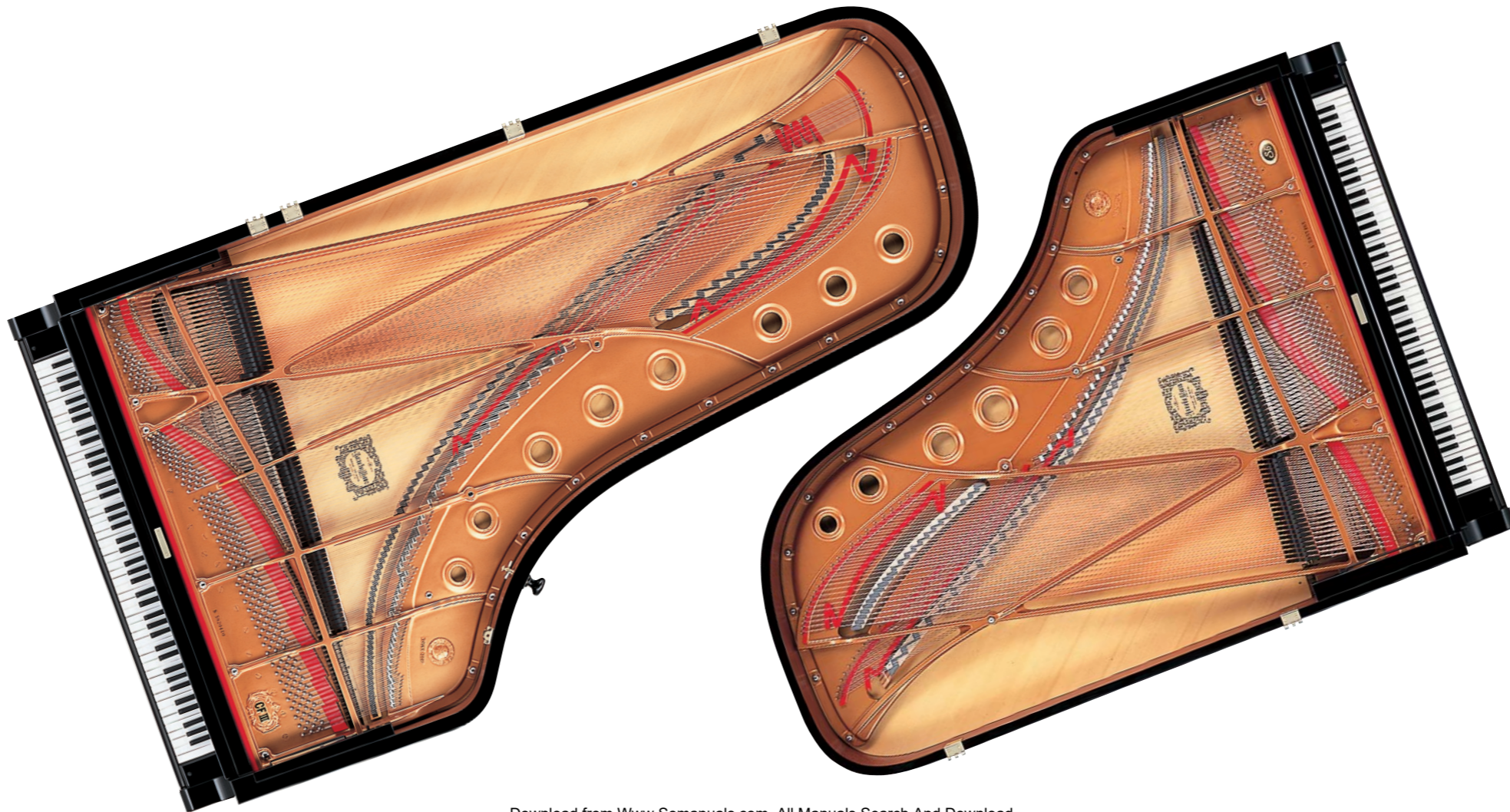
CFIIIS

CF 3Band, CF 2Band

The CFIIIS is the crowning glory of Yamaha's concert grand piano range. Distinctive for its rich harmonic overtones, this piano marries a rich, deep low-mid register with clear and bright highs.

Our insistence on sonic excellence extends even to the soundboard, ribs, strings, bridge, hammers, action, and pins – all of which are manufactured in-house using state-of-the-art production technologies. Furthermore, the CFIIIS has been carefully designed to achieve the best possible balance between each of these parts while optimizing their overall synergistic effect.

In the CP1, you will find that even the sound of resonance between strings has been replicated in order to recreate the luscious acoustics of the CFIIIS. What's more, microphone pre-amps featuring two- or three-band tone control and perfectly tuned to the characteristics of the CFIIIS have also been included to complete the sound of this remarkable instrument.



S6B

S6 3Band, S6 2Band

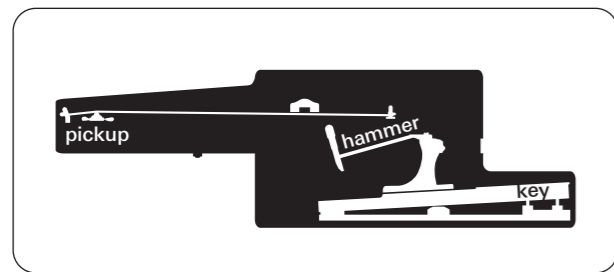
Made possible through lavish application of CFIIIS techniques and technologies, the Yamaha S6B grand piano is produced at the same plant, using carefully-selected parts, and under the strictest quality and engineering standards. Its modest size allows for excellent overall balance, both musically and structurally, and as a result, this piano is perfectly suited to many different styles of music. Delivering a warm, deep sound, the S6B is ideal for extremely expressive performances combining both power and subtlety.

The rich tone of this grand piano is faithfully reproduced in the CP1, even to the level of resonance between strings.

In combination with this piano voice, furthermore, you can also use a microphone pre-amp unit with two- or three-band tone control perfectly tuned to the S6B sound.

01-2 Electric Pianos

Whenever an electric-piano key is played, a hammer mounted on the keyboard strikes a resonator such as a string or reed. The vibration of the resonator is converted into an electrical signal by a pickup, and this signal is then amplified and adjusted to produce a sound. Featuring pre-amp units capable of faithfully reproducing the acoustic characteristics of this process, the electric piano voices of the CP1 authentically recreate the sounds of the electric pianos that became so distinctive of the sixties and seventies.



Electric Pianos



 CP80

CP80, CP88

Striking its strings with an authentic grand piano action and using pickups to convert their vibration into an electrical signal, the CP80 is an electric grand piano in the true sense of the word. This instrument arrived on the scene during the latter half of the seventies and soon became famous for exquisite keyboard touch rivaling that of acoustic pianos, for fast compression-like attack, and also for its unique harmonic overtones. The CP80 voices reproduced in the CP1 have been tuned to perfectly match this instrument's keyboard. Furthermore, the corresponding pre-amplifier unit faithfully reproduces the three-range tone control of the original, making it possible to easily create a wide range of different sounds.



Rd I

71Rd I, 73Rd I, 75Rd I

Producing a sound that became inseparable from the jazz, rock, and pop music of the seventies, the Rd I is now practically synonymous with the electric piano. Over the years, the resonator used in this piano has changed from stiff wire to rod or metal plate as the hammer transitioned from felt to rubber. Meanwhile, technological advances in the circuits and other components used in pre-amplifiers paved the way for many different variations of this instrument, each producing a sound that became symbolic of the corresponding period. In addition to recreating the ambiance of the Rd I pianos of a number of different time periods, the CP1 also features two-band tone control in combination with an auto-pan effect having unique, natural-sounding modulation and controllable speed and depth.



Rd II

78Rd II, Dyno

The latter half of the seventies saw remarkable progress in making instruments louder in response to the demands of the times. A child of this period, the Rd II electric piano employed the latest advances in technology to realize a unique, brilliant sound that was free of distortion even at high volumes. With plastic replacing wood in this instrument's action, furthermore, it was possible to achieve timbral colors that were brighter and more suited to pop than those of the Rd I. Also in this period, piano sounds with boosted high frequencies also became increasingly popular, as did the practice of customizing pre-amps in order to achieve this tone. In response, a number of modification kits appeared on the market. The CP1 expertly reproduces both the clear sound of the Rd II and the brighter, harder sound achieved through Dyno-type customization of the original pre-amp. Each of these two piano types also features two-band tone control, allowing the Rd II to sound more solid; the Dyno, more metallic.





69Wr, 77Wr

Sharing the limelight with the Rd pianos in the sixties and seventies, the Wr electric piano produced its distinctive sound by striking flat steel-reed resonators with hammers whose action closely resembled that of an acoustic piano. Thanks to this design, light playing produced a delicate sound, while playing with force produced a thick, heavy sound with unique distortion. Earlier models were noted for a powerful sound with a slightly higher level of distortion; later models had a bright, clearly defined tone. Both of these Wr variations can be recreated by the CP1, as can the pleasant-sounding distortion of this electric piano and its unique tremolo effect. And with three-band tone control also included, a broad range of different sounds can be easily configured.



Sound Enhancement

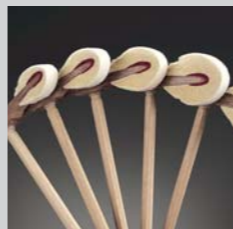
In order to allow for extremely-flexible creation of piano sounds, the CP1's Piano Block features a wide range of sophisticated parameters for each piano type and the associated pre-amp. What follows is an introduction to some typical examples of parameters for acoustic and electric piano sounds.

Piano Type Unit



Damper Resonance Level

Typically occurring when an acoustic piano's damper pedal is depressed, sympathetic resonance can also be produced by depressing the CP1's sustain pedal, and the Damper Resonance Level parameter is used to adjust the level thereof.



Hammer Stiffness

The Hammer Stiffness parameter can be used to make the piano sound harder or softer in the same way as if the physical properties of the hammers were to be changed.



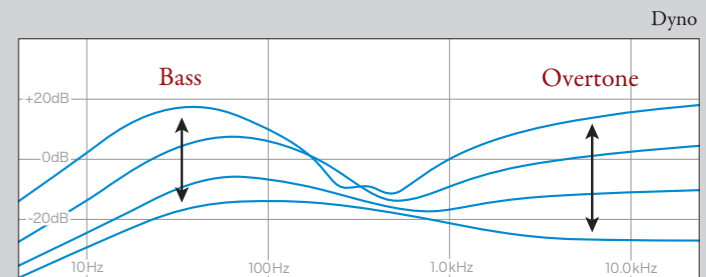
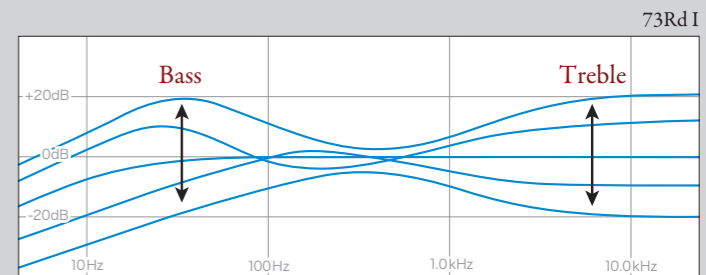
Striking Position

The Striking Position parameter is used to reproduce the effect of moving the point at which an electric piano's hammers strike the resonators.

Pre-Amplifier Unit

Bass, Treble, Overtone

The Pre-Amplifier unit has been provided with tone controls optimized for each different piano type, and the following diagrams illustrate the frequency characteristics corresponding to some typical parameter settings.

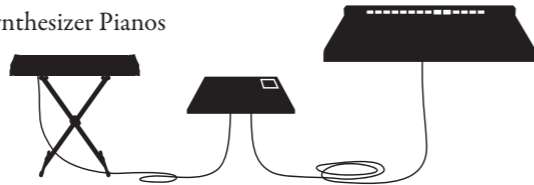




01-3 Synthesizer Pianos

The CP1 can also faithfully reproduce the piano sounds of the classic Yamaha DX7 synthesizer. A synth produces sound by manipulating signal waveforms using electronic circuits or digital signal processing. Whenever this type of instrument is used as part of an ensemble, furthermore, its line-output sound is processed using pre-amplifier tone control in order to produce a frequency characteristic that blends well with that of the other instruments. In order to further enhance its synthesizer piano sounds, the CP1's synth voices feature a tone controller capable of reproducing this specific type of frequency characteristic.

Synthesizer Pianos



DX7

DXEP 1, DXEP 2, DXEP 3, DXEP 4

Operating on the principle of FM tone generation, the Yamaha DX Series debuted at the beginning of the eighties as the world's first digital synthesizers. The number of different sounds available and their sensitivity to different playing styles left musicians around the world in awe. Singled out for particular praise and quickly finding a home in many different musical scenes were the electric piano sounds of the DX synths. Produced by laying hard, high-order harmonic overtones that change delicately in response to touch over a warm, wide characteristic tone, this totally new electric piano sound took to world by storm. The CP1 does not, however, limit itself to merely recreating the sounds of that time; rather, a thicker tone more suited to today's musical scenes and optimized for highly-effective performance on a wooden keyboard can also be produced.



Modulation Effect Block

02

Each Modulation Effect block contains a versatile collection of modulation-type effects that will prove indispensable in the creation of piano sounds for both stage and recording environments. On this and the following page, you will find a brief introduction to each of the available effects.



Small Phaser

The Small Phaser effect can be used to reproduce the smooth, beautiful phasing sound much loved by countless musicians from the seventies onwards. In addition to replicating the unique undulating nature of this type of effect, Small Phaser is also capable of producing a highly distinctive distortion that can be adjusted using the Drive parameter.



Max90, Max100

Max90 and Max100 replicate the standard-type phasers popular with all musicians of all levels, right up to top-flight professionals. Max90 can be adjusted to produce a unique distortion sound using the Drive parameter; meanwhile, the Mode parameter of the Max100 can be used to recreate the modulation depth and feedback settings distinctive of that effect.



Flanger

The Flanger modulation effect recreates the sound and musicality of a variety of flagship analog flanger units from the seventies. As such, it is ideally suited to all types of flanger-based sound creation.



Touch Wah, Pedal Wah

Touch Wah and Pedal Wah effortlessly reproduce the acoustic and melodic characteristics of many of the seventies' leading filter sweep effects. All of your wah-type effect needs – regardless of whether filter sweeping is to be controlled based on key velocity or pedal operation – can be easily satisfied using these effects.



Chorus

The Chorus modulation effect reproduces the clear-cut, highly adaptable sound of a synth-type chorus unit.



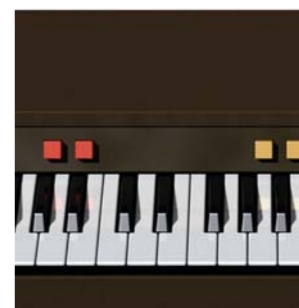
D Chorus

D Chorus models the sound of the famed rack-mounted stereo chorus unit that soon became a standard in recording studios following its release. Irrespective of its soft, gentle modulation, this effect can produce a wide stereo sound, and it uniquely adds brilliant harmonic overtones while emphasizing attack.



816 Chorus

Famous for combining eight DX7s in a single rack unit, Yamaha's TX816 featured a thick, detuned chorus sound reproduced here by the 816 Chorus modulation effect.



Symphonic

A multi-stage chorus true to the Yamaha tradition, Symphonic can be used to replicate the ensemble effect of the electronic organs and string ensemble keyboards of the seventies. By performing simultaneous, complex modulation, this effect creates a distinctive tone and sense of space that other chorus effects cannot mimic, deepening and widening the piano sound in the process.

Power Amplifier / Compressor Block

03

For further shaping of piano sounds, the Power-Amplifier / Compressor block can be used to select either a power-amplifier and speaker combination or a compressor, each of which is modeled with remarkable levels of precision. The following provides a brief introduction to each of the virtual devices that can be selected within this block.



Power Amplifiers

71Rd I

Adding warm, vintage-type distortion, 71Rd I is ideal for enhancing the acoustic nuances of electric pianos.

73Rd I

Also intended for use with electric pianos, the 73Rd I power-amp/speaker combination produces a spacious, more mellow tone.

75Rd I

75Rd I is an electric-piano power amplifier that energizes piano sounds to produce a powerful, all-engulfing tone.

78Rd II

Particularly well suited to chorus-type effects, the 78Rd II power-amp/speaker combination is characterized by a clear, highly-present tone.

69Wr

Capable of both power and subtlety, the 69Wr power amplifier enhances low-end punch while enriching the overall electric-piano sound.

77Wr

For a higher degree of presence, power-amplifier 77Wr adds a bright, colorful ambience to electric piano sounds.

Compressor

Compressor 376

Compressor 376 emulates the acoustic characteristics of the analog compressors found in practically every recording studio. This compressor is best suited to clear and crisp tones, producing a thick, solid sound.



04

Reverb Block

The Reverb block provides a host of exquisite reverb algorithms originally developed by Yamaha for use in professional-audio applications. Each of this block's reverb types is introduced briefly on the right.

Rich Hall, Rich Plate, Rich Room

Inheriting the audio characteristics of the ProR3 digital reverberator, the Rich Hall, Rich Plate, and Rich Room reverb algorithms produce a natural sounding reverberation with a smooth decay.



Woody Room

Woody Room replicates a distinctive reverb effect featured in the Yamaha DM2000 and other digital mixers. Producing dense, rich reverberation, it also adds a sense of width and depth that work hand-in-hand to enhance the original sound.



Room1, Room2, Stage1, Stage2

As direct descendants of the classic SPX90 and SPX1000 digital multi-effects processors, Room1, Room2, Stage1, and Stage2 provide standard reverb sounds for use in practically any situation.



We hope that this brief introduction has

provided all the information

you need to start enjoying the incredible CP1

and to enrich your playing experience.

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