

YAMAHA *pf10* **ELECTRONIC**
pf15 **PIANOS**



YOU CAN'T HEAR THE "ELECTRONIC" IN THE YAMAHA PF10 AND PF15 ELECTRONIC PIANOS

Most people—especially people involved with music—can easily distinguish between acoustic and electronic sound. So most people who have ever heard an electronic piano know that conventional electronic pianos don't really sound like a piano at all. Some recent Yamaha developments in the field of electronic music waveform synthesis, however, have made it possible to create 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 PF10 and PF15 very special electronic pianos. Despite the fact that they are indeed electronic—and therefore very compact, they sound remarkably acoustic and feature a touch response system that actually makes them as "playable" as an acoustic piano.

The Yamaha FM Tone Generation System

In a conventional electronic piano, voices are created by selectively filtering out and/or emphasizing certain harmonics in a waveform produced by an electronic 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.

Also, although the filtration used 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 electronic pianos sound "electronic".

In contrast to the type of electronic tone generation de-

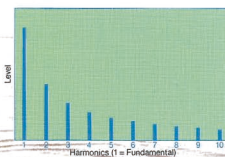
scribed above, sounds produced by an acoustic piano have an irregular harmonic structure that is constantly changing throughout each note. Basically, the harmonic structure is **level dependent**, so the tonality of an acoustic piano note also depends on how loud the note is played.

Indeed, the beauty of an acoustic piano is largely due to the randomness of the harmonics it produces.

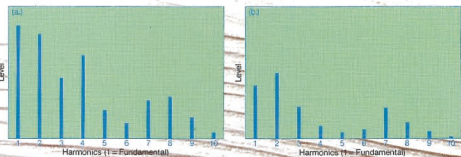
The Yamaha FM tone generator system makes it possible to synthesize the same type of random structure found in purely acoustic voices: i.e., they have a random harmonic structure that constantly changes throughout each note, and the initial tonality (harmonic structure) of each note depends on how loud 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.

Of course, a technical explanation alone is not going to convince you that the PF10 and PF15 really do sound as good as we say they do. We suggest that you visit your nearest Yamaha combo dealer and let your ears be the judge—they'll like what they hear.

Example of regular harmonic spectrum produced by conventional synthesizer VCO



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



pf10/pf15

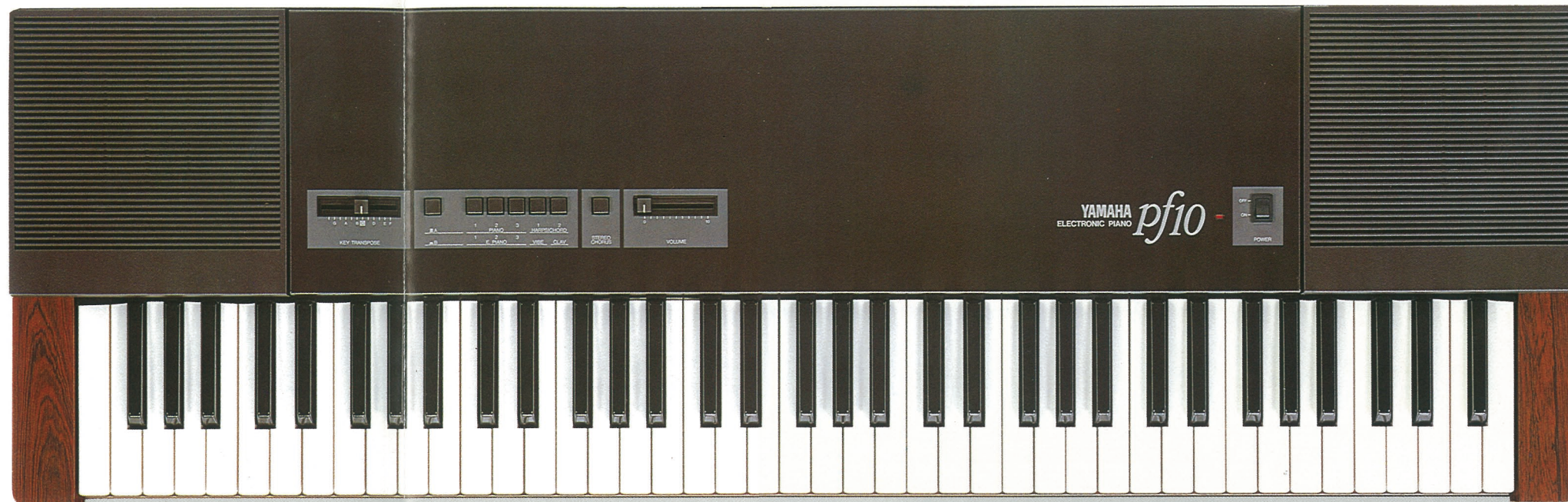
REAL ALTERNATIVES TO THE ACOUSTIC PIANO

Although there is yet nothing that can replace the acoustic piano for its incredibly beautiful sound, response, and sensitivity, the Yamaha PF10 and PF15 FM Electronic Pianos come very close. Much, much closer than any other electronic piano in this class. In fact, the only electronic keyboards that surpass the PF10 and PF15 in this area are the Yamaha GS1 and GS2—from which the advanced Yamaha FM tone generation technology used in the PF10 and PF15 has been derived. This kind of great piano sound and response in a compact, affordable package is something that many people have been waiting for. That's because for many people who would love to own a fine piano there are a number of reasons why a conventional piano is out of the question: people who are constantly on the move cannot afford to move a piano from place to place; many small city apartments and school dormitories simply do not have enough space for even an upright piano; uncooperative neighbors and thin walls place unreasonable limits on available "playing time"; and an acoustic piano is a considerable financial investment.

Then, of course, there is the professional musician. Lugging an acoustic piano around is usually ruled out because of space and tuning problems, but being forced to play whatever's available is not always conducive to a good performance. Both the PF10 and PF15 are very attractive answers to the above problems. They both feature Yamaha's FM tone generation system to create acoustic and electric piano voices, harpsichord voices, a clavichord voice and a vibes voice that are warm, rich and vibrant with an unmistakably "acoustic" quality that puts these fine keyboards in a class by themselves. Both have dual built-in speakers and amplifiers that deliver full all-around sound and make the most of a unique built-in stereo chorus effect, and both have an advanced touch response system that gives them the dynamic expression capabilities of their acoustic counterparts.

The PF10 has a 76-key keyboard and organ-like key action making it ideal for combos and people who are more used to playing organ or synthesizer type keyboards. The PF15 has a full 88-key keyboard with simulated acoustic piano key action for people who have been trained on an acoustic piano or who want to learn traditional keyboard technique. Of course the extra keyboard range is also essential for classical piano music.

Either way, the PF10 and PF15 outperform every other electronic "piano" in their class. So if you've been looking for a viable alternative to the acoustic piano, or for a good electronic keyboard to learn on, the only remaining choice is whether you want the PF10 or PF15.



External Input

Why waste the high-quality built-in amplifier and dual speaker system that both these unique electronic pianos offer? An INPUT jack provided on the PF10 and PF15 rear panels lets you plug in a rhythm machine to back you up without needing another amplifier system, or another electronic keyboard can be plugged in letting both players be heard via the PF speakers.

PF10 or PF15?

The PF10 and PF15 offer the same voices, with the same superb FM tone generation quality and the same dynamic touch response. The difference? The PF10 has a 76-key keyboard with spring-action keys that have the same feel as most organ and synthesizer keyboards. Of course, the shorter key-

board means that the PF10 is more compact than the PF15 which has a full-size 88-key keyboard. The PF15 keyboard is specially constructed so that it has the general feel and action of an acoustic piano keyboard. The full-size keyboard is needed for many classics, and the acoustic feel is a welcome feature for players who have been trained on an acoustic piano.

More Than Just a Piano

Although the main attraction of the PF10 and PF15 is probably their stunningly rich acoustic piano voices—and there is a choice of three different acoustic piano voices—both models also feature a number of other voices that are equally as rich and "real." There are three electric piano voices that are reminiscent of some of the most popular and well-

known types available (an electric piano is one in which sound produced by actually striking strings or metal "tines" via a mechanical piano-type key action is picked up by electromagnetic or piezoelectric transducers and amplified, as opposed to an electronic piano—like the PF10 or PF15—in which the voices are generated entirely with electronic circuitry). There are also two harpsichord voices, a clavichord voice and a vibes voice. Further, since the PF10 and PF15 have full touch response, the expressive effects available with the harpsichord, clavichord and vibes voices are totally unlike any available with the original acoustic instruments.

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, unmatched in expressive capability by all



but the most expensive, sophisticated electronic keyboards. Now, in affordable, easy-to-use form, the PF10 and PF15 offer touch response that rivals the acoustic piano in depth, subtlety and expressive freedom.

A Choice of Outputs

For really private practice, the PF10 and PF15 offer headphone jacks that accept any standard pair of stereo headphones. That way you can even play late at night, and you won't forget that fantastic melody line because you were afraid the neighbors would complain. Of course, if you want to be heard both models have a built-in amplifier and two speakers so you get full, rich sound surrounding the instrument rather than just emanating from a single tiny speaker as in many electronic pianos. Then, if you really want to be heard—

i.e. when playing in a band—you can connect to any music instrument amplifier or directly to a PA system.

Stereo Chorus

With the PF10 and PF15 you get an effect that you won't find on any comparable electronic piano—stereo chorus. This effect creates a vibrant multi-instrument sound that adds depth and warmth to the straight voices. The dual speaker systems provided by the PF10 and PF15 let you make the most of this unique stereo effect without having to use external amps. But if you want to deliver the full stereo chorus sound to a crowd of people, outputs I and II on

the rear panel can be fed to independent amp/speaker systems to put out the full stereo effect on stage.

Sustain and Key Hold Pedals

While most electronic pianos offer some sort of foot-pedal sustain control, the PF10 and PF15 offer connection for one more pedal—Key Hold. A foot pedal connected to this jack can be used to create an effect similar to the sostenuto pedal found on fine grand pianos. Sustain one or more notes while playing others staccato for added expressive effect.



PF10/PF15 SPECIFICATIONS

Keyboard:	PF10: 76 keys with velocity sensitive touch response, $E_0 \sim G_6$	Key Hold:	ON/OFF foot pedal
	PF15: 88 keys with velocity sensitive touch response, $A_1 \sim C_7$	Output I:	- 10 dB max. 600 ohms
		Output II:	- 10 dB max. 600 ohms
Tone Generation:	Yamaha digital FM tone generation system	Phones:	1/4" stereo phone jack, 8 ohms
			Stereo mini jack, 8 ohms
Key Transpose:	12-position slide switch	Speakers:	12-cm x 2, 5 watts max.
Tone Selectors:	A/B group selector	Power Requirements:	General: 110-120/220-240 V 50/60 Hz
	PIANO 1, PIANO 2, PIANO 3, HARPSICHORD 1, HARPSICHORD 2, E. PIANO 1, E. PIANO 2, E. PIANO 3, VIBE, CLAV		U.S. & Canada: 120 V 50/60 Hz
Stereo Chorus:	ON/OFF switch	Power Consumption:	General: 37 W
Volume Control:	Continuously variable slider control		U.S. & Canada: 30 W
Power Switch:	ON/OFF switch with indicator LED	Dimensions (W x H x D):	PF10: 1129 x 87 x 359 mm
Pitch:	Rotary control on rear panel, A_3 : 436-447 Hz		44-1/2" x 3-3/8" x 14-1/8"
Line Input:	- 15 dBm max.		PF15: 1321 x 123 x 390 mm
Sustain:	ON/OFF foot pedal		52" x 4-3/4" x 15-3/8"
		Weight:	PF10: 18 kg (39 lbs. 10 oz.)
			PF15: 35 kg (77 lbs.)
		Standard Accessories:	PF10: FC-5 foot pedal, music stand, cover.
			PF15: FC-4 foot pedal, music stand, cover.

Specifications are subject to change without notice.

For details please contact:

SINCE 1887



YAMAHA

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