



*Ibanez*



**POWER SERIES  
POCKET MANUAL**

# IBANEZ POWER SERIES

*It wasn't so long ago that all you needed to "jam" was a guitar and an amp. Then along came wah-wah pedals and distortion units, and suddenly guitar playing took on a new dimension. Next, bass players and keyboard players began experimenting with effects giving music a whole new texture and flair. However, there were limitations because most effects were designed for guitar players only. These effects just didn't have the dynamic range for keyboards and bass guitar, and those few that had the dynamic range were just so expensive that they were out of the financial range of most musicians. Such has been the case until now. The POWER Series of compact effects, brand new from Ibanez were tailor-made for the needs of today's musician. The POWER Series effects blend variety (there are seventeen different types of effects), quality and superb specifications in low cost, compact effects.*

# ERIES OF EFFECTS

## ■ ALL NEW HIGH-TECH DIGITAL EFFECTS

The highlight of the POWER Series is the all-new line up of digital effects including the DDL10 (delay time up to 900ms), DML10 (delay time up to 900ms with a full 8:1 sweep modulation circuit) and the DCF10 Digital Chorus/Flanger. All of these units feature 7 kHz bandwidth and stereo outputs for maximum versatility.

## ■ Q-1 SILENT SWITCHING

The Q-1 (Quiet One) silent FET footswitch provides noise-free, reliable switching. The sure-grip switchplate gives you sure footing for fast smooth switching while playing.

## ■ QUICK CHANGE II BATTERY POCKET

The Quick Change II Battery Pocket provides easy access to the battery from the top of the effect pedal, making battery changes a breeze, even if the pedal is mounted on a footboard.

## ■ FRONT MOUNTED INPUT AND OUTPUT JACKS

All connections to Power Series effects are located on the front panel, for easy hookup with less mounting space.

OUT

▲ DRY OUT ▼ DC ▼ IN

TIME

D.I LEVEL

POWER SERIES POCKET MANUAL



1 19-113ms

2 38-223ms

3 75-450ms

4 150-900ms



SELECTION GUIDE

DDL10 DIGITAL DELAY II

TS10 TUBE S R  
DS10 DISTORTION CHARGER

SC10 SUPER T

PH10 BI-MODE PHAS R

GE10 GR F

DELAY II

10

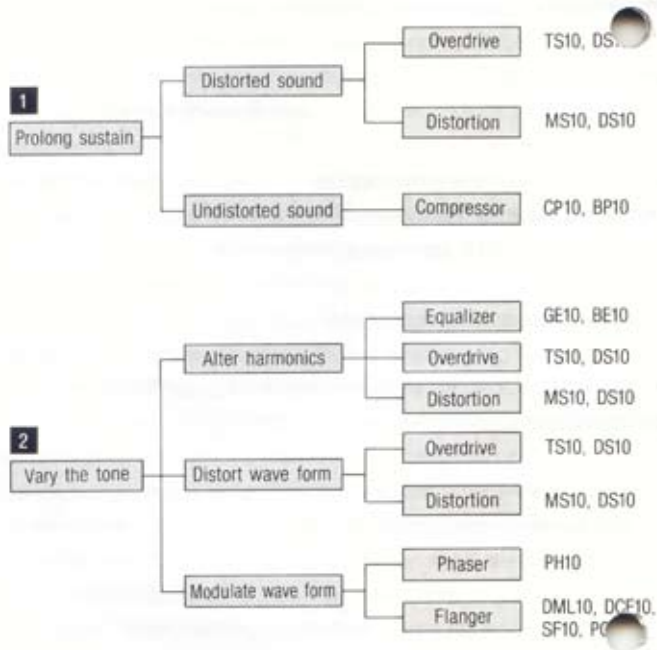
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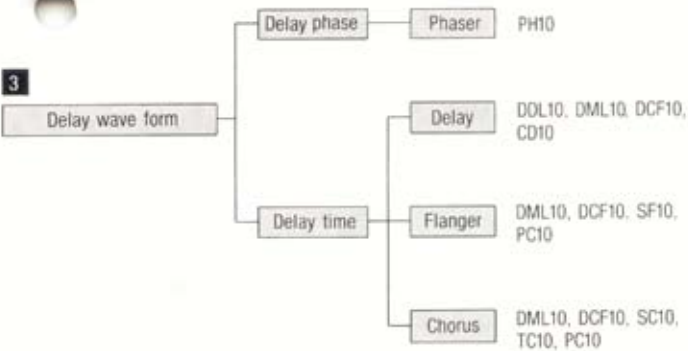
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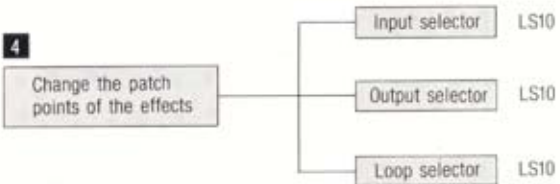
# CLASSIFICATION



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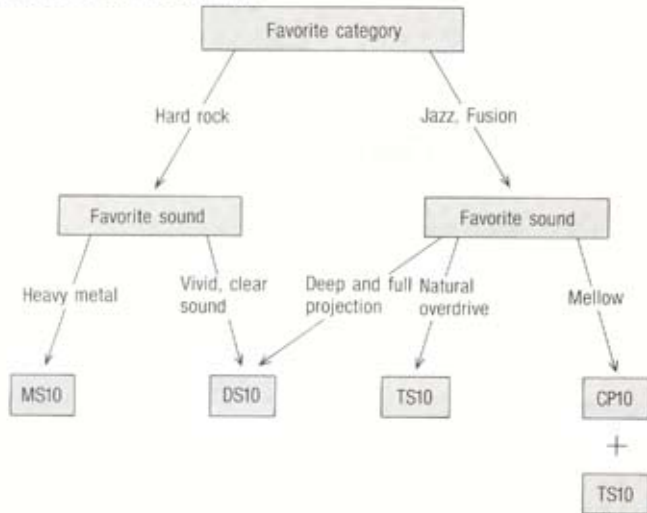


# SELECTION GUIDE

There are many types of effects available to today's musician. The new Ibanez Power Series, in fact, has seventeen different models of compact effects. Since it may be difficult to understand what each effect does, we

thought that it would be a good idea to group related units together and specifically define their functions. In doing this, we hope to aid you in picking just the right Power Series effects for your specific needs.

## ■ DISTORTION SELECTION GUIDE





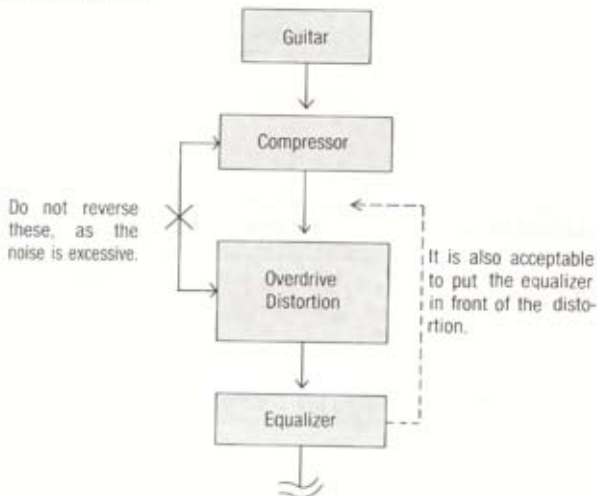
## ■ DELAY/CHORUS/FLANGER SELECTION GUIDE

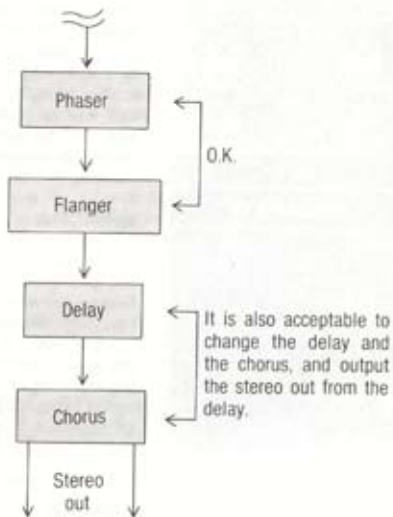


In order to maximize the effect of your Power Series effect and minimize unwanted noise and hum, we recommend that you follow the "Connection Diagram" provided

in this manual. Of course if you don't have all of the effects listed, just simply omit the ones that you don't have, while maintaining the basic order of hookup.

## ■ CONNECTION DIAGRAM





In order to maintain the highest level of performance from your Power Series effects, we recommend the use of an Ibanez AC109 regulated 9 volt adapter. This is especially

true when using any digital effect as the high-tech circuits require a high level of current.

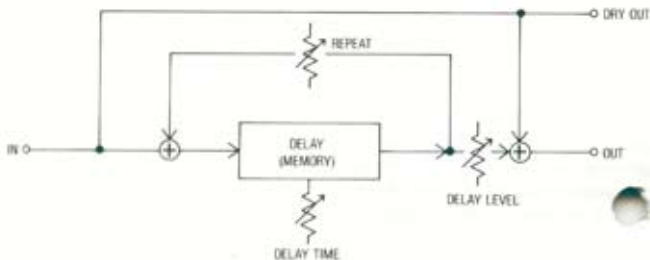


#### ■ FEATURE

The DDL10 is a straight forward delay unit with variable delay times ranging from 19msec to 900msec. The MODE selector divides delay times into four intervals and ultra fine tuning is achieved by the D-TIME knob. There is a REPEAT control to vary multiple repeats and a D-LEVEL control that lets you select how much effect is mixed with the dry signal. The stereo output jacks deliver a dry and normal effect out, allowing dramatic doubling, slap back and delay effects.

#### ■ PRINCIPLE

The original signal (such as a guitar sound) is converted into a digital representation of that sound. In this form it can be manipulated without further degradation of quality. Some change in tonality is unavoidable, but the high resolution or "sample rate" of the new Ibanez series keeps this to an almost inaudible level. The DDL10 allows manipulation of the signal by setting up a time period to elapse before the sound is "played back." Of course, it is converted back into analog form first.



## ■ USE

Time periods between original and delayed sound are adjustable by setting the "Delay Time and Mode" controls. A very short delay time of equal volume (set by "Delay Level" control) to the original sound gives an ambient or spacious quality, fattening up the sound considerably, especially when a second amp is used creating a full stereo effect. Slightly longer time settings can give the impression that two identical parts are being played simultaneously, called "doubling." The classic slapback effect made famous in the 1950's and 1960's using tape delay can be achieved by lengthening the time to around 80-120

milliseconds (ms=1/1000 second) and dropping the level to about  $\frac{1}{2}$  the volume of the original. By using the "Repeat" control, additional repeats or echos are created as the delayed sound is fed back to be delayed again (sometimes called feedback or regeneration). With a few repeats and a setting between 200-400ms, very popular echo effects are achieved. Delay times up to 900ms are available for creating echos that happen at a specific time in the musical context (such as  $1\frac{1}{2}$  measures later).



## ■ SPECIFICATIONS

INPUT IMPEDANCE.....	500k $\Omega$
OUTPUT IMPEDANCE.....	< 1k $\Omega$
MAXIMUM INPUT LEVEL.....	+5dBv
MAXIMUM OUTPUT LEVEL.....	+5dBv
DELAY TIME.....	① 19ms—113ms ② 38ms—225ms ③ 75ms—450ms ④ 150ms—900ms
BANDWIDTH.....	7kHz(±0.5, -3dB)
TOTAL HARMONIC DISTORTION.....	0.5% (400Hz, -20dBv)
EQUIVALENT INPUT NOISE.....	-90dBv(HF-A)
POWER SUPPLY.....	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT.....	58.5mA(DC9V)
SIZE.....	125(D) X 70(W) X 54(H)mm
WEIGHT.....	440g
OPTION.....	AC109 9V AC ADAPTER

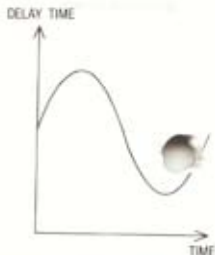
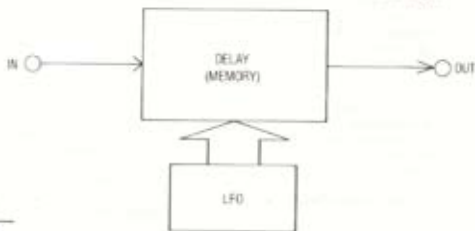


#### ■FEATURE

The new Ibanez DML10 is the most versatile compact effect ever developed. This one compact effect is capable of doing everything that the large rack mount digitals can do. To begin with, it can produce delays from .9msec up to 900 msec that are easily controlled by the four position mode selector. The D-TIME knob fine tunes your delay time so that you can zero in on just the delay time that you want. There is a modulation section with a full 8:1 sweep ratio giving you lush chorusing and flanging effects. The stereo output jacks produce normal effect and dry (no effect) outputs for real stereo imaging, doubling and sound on sound effect.

#### ■PRINCIPLE

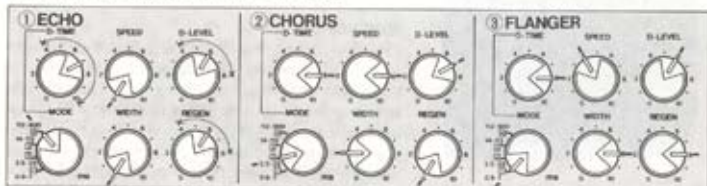
The DML10 operates on the same principles as other delays, such as the DDL10, but with the added feature of modulation. An L.F.O. (low frequency oscillator) changes the delay time periodically. The sweep width, or distance between extremes in delay time, is set by the width control. The period of the sweep cycle is set by the speed control. When delay time is changed (manually or via L.F.O. at regular intervals) the pitch also changes. At short delay settings the pitch sweep is more noticeable than the delays.



## ■ USE

Chorus effect is achieved between 3.5 and 28ms without repeats. Start with the level about 4, width about 6 and speed at 4. As the delay time is increased a more vibrato like effect is heard, especially if the delay level is raised to mask the original. At slower speeds and higher width settings more "movement" is present in the sound. Lengthening delay time gives an apparent "doubling" effect. A low width setting and slow speed setting will give a subtle detuning to the doubled sound further enhancing it's quality. Increasing repeats slightly animates the sound even more. Decrease

the delay time below 15ms and the pitch/delay sweeps are replaced by a "swooshing" sound called flanging. As the delay time is decreased and all other controls increased the effect intensifies. Fast speed settings simulate a rotary organ speaker while slow speeds duplicate the sound created when two tape recorders playing the same music are slightly out of synch. With the width set at zero, standard delay effects are available without modulation.



## ■ SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 1k $\Omega$
MAXIMUM INPUT LEVEL	+5dBv
MAXIMUM OUTPUT LEVEL	+5dBv
DELAY TIME	110.9ms - 7ms
	23.5ms - 28ms
	14ms - 112ms
	112ms - 300ms
BANDWIDTH	7kHz $\pm$ 0.5 - 3dB
SWEEP RATIO	1 : 8
SPEED RANGE	0.06Hz - 13Hz
TOTAL HARMONIC DISTORTION	0.5% (400Hz, -20dBv)
EQUIVALENT INPUT NOISE	-90dBv (10Hz - A)
POWER SUPPLY	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	68mA (DC 9V)
SIZE	125(D) $\times$ 70(W) $\times$ 54H (mm)
WEIGHT	460g
OPTION	AC109 9V AC ADAPTER

### ■ FEATURE

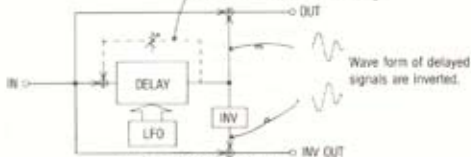
Why buy a separate chorus and flanger ?

Here is a pedal that will operate either as a chorus or a flanger and will do so with such high fidelity that you may never use a traditional chorus or flanger again. Because it's digital the DCF10 has the same 7kHz bandwidth that all Power Series Digital Effects have. It also has an 8:1 sweep ratio with variable speed and width controls. Delay times are variable from .25msec to 128msec and are easily and precisely controlled via the four position MODE selector and D-TIME knob. The REGEN knob controls delay time repeats and adds "SWELL" to the flanging effect. The stereo outputs provide normal and inverted effect signals for true stereo chorusing.

### ■ PRINCIPLE

Like the DML10, the DCF10 is a digital delay with an L.F.O. However, the range of delay times is lower with a minimum of .25 ms. This is much shorter than most units and is very useful for flanging applications. Extremely short delays can cause phase cancellations and resonant peaks that actually alter tonality (sometimes referred to as a "comb filter" because of the comb-like appearance of the frequency response pattern). Raising regeneration (or feedback) increases the complexity of the pattern and the L.F.O. can generate a sweep through many patterns, (the whooshing effect).

When there is feedback, unit is flanging.  
without feedback, unit is chorusing.



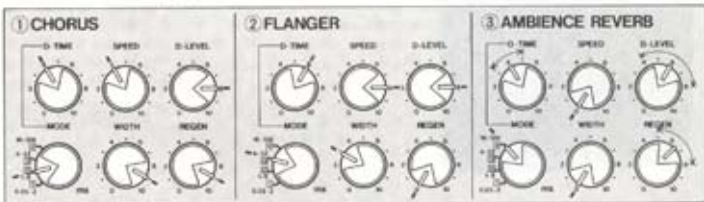
CIRCUIT OF CHORUS-FLANGER



## ■ USE

Chorus and flange settings are essentially the same as the DML10 (Regeneration corresponds to Repeat on delay models). Shorter delay times allow for more sensation of sweeping effects. Changing the delay time varies the pitches which are resonant or being cancelled. More regeneration increases the number of delays (not heard as repeats) which increases harmonic richness as more resonances are created. Speed changes the rate of the sweep cycle, while Width allows narrow or broad sweeps of the "comb." Non-sweeping (width=zero) sett-

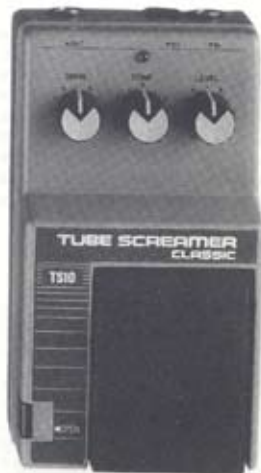
ings can be used to add unique presence and cutting power by emphasizing certain harmonics (fine tuned by delay time). Since the difference in volume or amplitude of different notes or harmonics can be so great, a compressor limiter following the DCF10 would keep annoying peaks under control. (Ex: a 4kHz tone delayed by .25ms would be doubled or 3db louder while a 2kHz tone at .25ms would cancel out to inaudibility)



## ■ SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 1k $\Omega$
MAXIMUM INPUT LEVEL	+5dBv
MAXIMUM OUTPUT LEVEL	+5dBv
DELAY TIME	1) 0.25ms - 2ms 2) 5ms - 8ms 3) 4ms - 32ms 4) 16ms - 128ms
BANDWIDTH	7kHz (+0.5, -3dB)
SWEEP RATIO	1 : 8
SPEED RANGE	0.06Hz - 13Hz
TOTAL HARMONIC DISTORTION	0.5% @ 400Hz, -20dBv
EQUIVALENT INPUT NOISE	-90dBv (HF - A)
POWER SUPPLY	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	64.5mA (DC 9V)
SIZE	125(D) x 70(W) x 54(9)mm
WEIGHT	480g
OPTION	AC109 9V AC ADAPTER

# TS10 TUBE SCREAMER CLASSIC

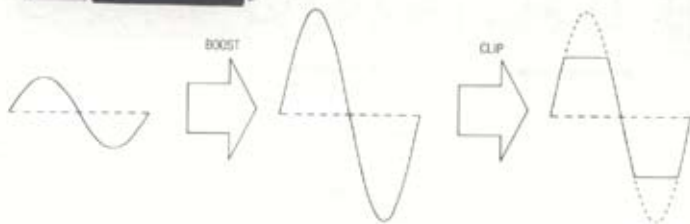


## ■FEATURE

The TS10, Tube Screamer Classic, is the original Tube Screamer that Ibanez became famous for. It provides the sound of an overdriven tube amp. It features a DRIVE control to vary the intensity of the distortion, a TONE control for equalization, and a LEVEL control that varies the overall gain when the distortion is engaged. This is the sound that first made rock and roll famous!!

## ■PRINCIPLE

The TS10 boosts the input signal to extremes, and then clips the wave form with semiconductors that have the characteristics to distort naturally, like a tube amp. At the same time, sustain is added to the sound.



## ■ USE

First, set up the sound you normally use for non-distorted operation of your amp (bypassing the TS10). Set the level on the TS10 low (tone at zero, then activate the pedal. Set the drive control to your taste (clockwise is more overdriven). Then switch the effect in and out while setting the level to the desired relationship with the normal sound (usually slightly louder so distorted solos cut through). Since the TS10 responds to dynamics, you may want to set the drive and level higher than necessary and back off the level on the guitar. By playing techniques and working the volume on the instrument "clean," "dirty" and in between variations are continuously variable and available "on board." This frees you from standing in front of your pedal board when

stage movement is desired. These subtle changes being made while playing can make an average distorted solo into a classic. The tone control of the TS10 can be used to give further contrast to the amp sound. By using the level control at higher settings your amp may be overdriven by the gain of the TS10 for different types of distortion (some solid state amps can't handle the increased level at the input and break-up undesirably). The TS10 in conjunction with amp distortion or another distortion pedal can give further variations (ex: TS10 with channel switching amp gives 4 distinct footswitchable "presets"). Note that excessive distortion adversely affects sound quality.



## ■ SPECIFICATIONS

INPUT IMPEDANCE.....	500k $\Omega$
OUTPUT IMPEDANCE.....	< 1k $\Omega$
MAXIMUM OUTPUT LEVEL.....	0dB
MAXIMUM GAIN.....	+40dB
EQUIVALENT INPUT NOISE.....	-110dBV(HF-A)
POWER SUPPLY.....	ONE 9V BATTERY (5-008P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT.....	7mA (DC9V)
SIZE.....	125(D) x 70(W) x 54(H)mm
WEIGHT.....	400g
OPTION.....	AC108 9V AC ADAPTER

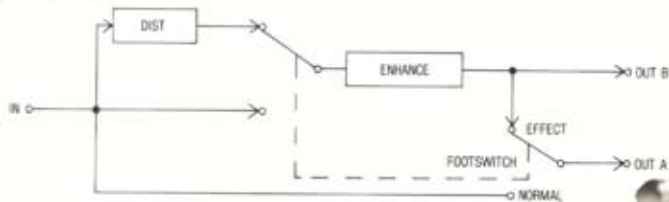
# DS10 DISTORTION CHARGER



## ■FEATURE

Here is the most versatile and unique distortion unit ever produced!! The DS10 can satisfy any type of distortion from classic type to massive metal overdrive. The DS10 starts out as a basic overdrive with two band, post-distortion equalization, but it's only the beginning. What separates the DS10 from the rest is the addition of a high frequency enhancement section. Basically, What happens here, is that high frequency signals are sampled, phase-shifted, and remixed into the output. The result is a clear yet sweet sound. Combine the ENHANCE circuit with the built in distortion for a wide range of effects or use it independently by way of the out "B" jack. Once you have tried a DS10 Distortion Charger, you will agree that this is what distortion units should have been all along.

## ■PRINCIPLE



## ■ USE

The Enhance control, along with 2-band E.Q. allows extreme manipulation of the distorted signal giving a much wider variety of overdrive type sounds. In addition, by using output B, the clean sound can also be enhanced. By adjusting the low and high e.q. levels various amp brands can be simulated. Large stacks usually have more low end than small combo amps for example. This is useful even if your amp has plenty of e.q. since you may have already set the amp e.q.

for certain sounds your amp is best suited for. Moderate use of the enhance control can live up a guitar sound that was uninteresting before.

By taking signals from outputs A and B and routing through 2 sets of processors or amps, (parallel processing) the "enhanced" guitar can sound like 2 very different sounds at once. Since the "enhance" is sensitive to dynamics, use the volume control creatively on the guitar.



## ■ SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 1k $\Omega$
MAXIMUM GAIN	+56dB
EQUIVALENT INPUT NOISE	-110dBv (HF - A)
POWER SUPPLY	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	5msA (DC/9V)
SIZE	125(D) X 70(W) X 54(H)mm
WEIGHT	410g
OPTION	AC109 9V AC ADAPTER

# MS10 METAL CHARGER

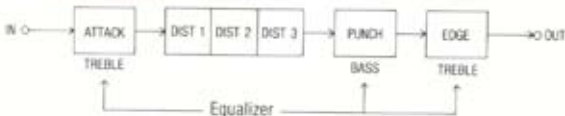


## ■FEATURE

If you are looking for that hot and heavy, massive metalmania distortion, hook up with an Ibanez MS10. It has more "raw gain" than any other distortion available. It has five controls to let you really capture the rage in your guitar.

There is a DRIVE control that varies the amount of distortion, an ATTACK control for predistortion, treble boost and PUNCH and EDGE controls that provide post distortion equalization. Plug into an MS10 and you will swear that you have a wall of power behind you.

## ■PRINCIPLE



## ■USE

The MS10 was designed specifically to recreate the tonality of large British amplifiers. Because of various reasons including different tubes (valves), equalization, speaker characteristics and cabinet resonances these amps sound drastically different than other amps. The punch control

simulates the cabinet resonance at certain low frequencies while the attack and edge concentrate on high frequency e.g. and speaker traits. Distortion is adjustable and at 10 settings simulates not only pre-amp clipping but adds the effect of power-amp and speaker overdrive.

As with any distortion device, location in the "chain" or signal flow is very important. It is usually desirable to distort the guitar signal first before adding further processing (with possible exception of compression).

Since many large "stacks" don't have effect loops or outputs after the pre-amp, these amps are "miked" and the sound engineer

adds processing to the microphone channel. In large halls or studios this is fine because the guitarist hears the finished product through a fine monitoring system. But for most players this is impossible. Even if you own an amplifier like this, chances are you aren't getting the "finished product."

The MS10 at the front of a chain of processors may actually sound better than processors fed into expensive amplifiers. Don't distort your processing, distort the guitar then process the distortion. (experiment with placement of e.g. compressor and phaser but always place delay effects "post distortion")



#### ■ SPECIFICATIONS

INPUT IMPEDANCE	1M $\Omega$
OUTPUT IMPEDANCE	< 1k $\Omega$
MAXIMUM GAIN	+62dB
EQUIVALENT INPUT NOISE	110dBv (3HF - A)
POWER SUPPLY	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	12mA (DC9V)
SIZE	125(D) x 70(W) x 54(H)mm
WEIGHT	410g
OPTION	AC109 9V AC ADAPTER

# SC10 SUPER STEREO CHORUS

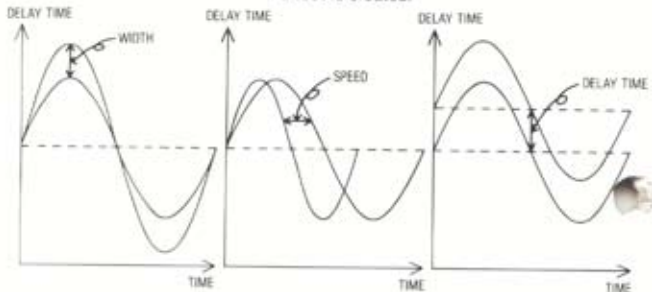


## ■ FEATURE

If you have been shopping around for a stereo chorus, look no farther. The SC10 is the basic chorus unit of the Power Series, that goes far beyond just being basic. In addition to the usual speed and width controls there is a new delay time knob that lets you capture even the most subtle of chorusing effects. The analog BBD circuitry provides rich mellow tones while drawing very little current, giving you long battery life. The SC10 also features normal and inverted stereo outputs allowing you to play in full, rich, true stereo.

## ■ PRINCIPLE

Chorusing is an effect that is created by mixing constantly changing, short delayed signals with normal, dry signals, producing a deep, melodic type vibrato. The SC10 uses analog BBD type circuitry to produce this effect, giving the SC10 a very warm tone, while the three control knobs allow full variation of the effect. The range of the effect is controlled by the WIDTH knob, where as the rate at which it moves is controlled by the SPEED knob. The D-TIME knob varies the point in time where the effect is created.

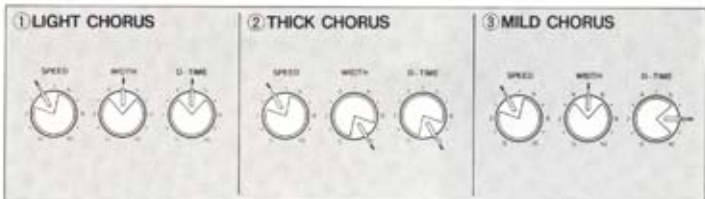




## ■USE

Although the chorus effect seems to improve almost any sound, the key to its proper use in music is restraint. When the special stereo effect is used to emphasize or bring attention to a certain passage, it has a more exciting effect on the listener than constant

usage. Although long delay settings increase the richness of the sound, too high of a setting on the width control causes an offensive out of tune impression. Varying the speed for different songs adds interest and keeps the chorus "fresh" sounding.



## ■SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 1k $\Omega$
MAXIMUM INPUT LEVEL	+4dBv
DELAY TIME	1.0ms—7.2ms
SPEED RANGE	0.6Hz—6Hz
EQUIVALENT INPUT NOISE	-100dBv (BHF—A)
POWER SUPPLY	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	25mA (DC9 V)
SIZE	125(D) X 70(W) X 54(H)mm
WEIGHT	410g
OPTION	AC109 9V AC ADAPTER

# TC10 TWIN CAM CHORUS



## ■ FEATURE

The TC10 can do everything that a regular stereo chorus can do, and then some. We have combined two individual sweep sections into one unit. Use Modulator "A" for true vibrato and high speed pitch bends and Modulator "B" for normal chorus effects. Use either separately or mix both together for truly unique sweeps and complex patterns. Step out even farther and tap into the normal and inverted stereo outputs for the ultimate in chorusing.

## ■ PRINCIPLE



SMALL SWELL



LARGE SWELL

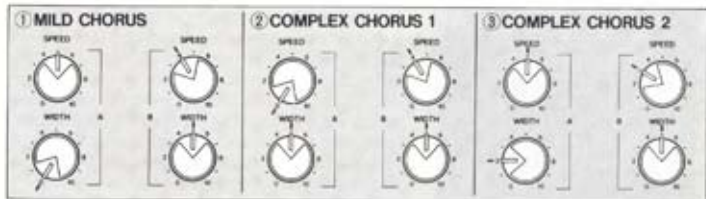


COMPLEX SWELL

## ■USE

Through the use of dual modulation, the TC10 allows deeper and more realistic chorusing than the SC10 without as much chance of offering side effects such as phase shifts (causing amplitude drops at regular intervals), out of tune notes or chords and periodic sweeps unrelated to the tempo of the

music. By modulating at 2 different speeds and depths simultaneously, less depth or width (change in delay time) is needed to create an obvious effect. The TC10 is the very best effect you can use to create a stereo image using two amps.



## ■SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 3k $\Omega$
MAXIMUM INPUT LEVEL	+4dBv
DELAY TIME	4ms—0.3ms
SPEED RANGE	A : 0.8Hz—6Hz B : 0.3Hz—3Hz
EQUIVALENT INPUT NOISE	-100dBv (3HF—A)
POWER SUPPLY	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	20mA (DC9 V)
SIZE	125(D) X 70(W) X 54(H)mm
WEIGHT	410g
OPTION	AC109 9V AC ADAPTER

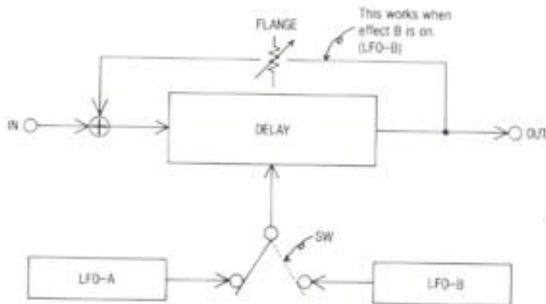
# PC10 PRIME DUAL CHORUS



## ■FEATURE

So, you have been out looking at stereo choruses and flangers and you like the unique quality that each one gives to your instrument, but you are not yet ready to buy two separate pedals. Well, no farther. For just about the same price of either you can have both in the new Ibanez PC10. The PC10 has two completely separate modulation sections that can be accessed by either the top mounted A/B switch or by plugging in an optional footswitch. In the "A" mode, depressing the unit's footswitch will give you effect "A" or dry. In the "B" mode, depressing the unit's footswitch will give you effect "B" or dry. In the A/B mode, depressing the unit's footswitch will give you effect A or effect B alternately. In addition there is a stereo output jack that when accessed by a 1/4" stereo plug gives you both normal and inverted effect outputs enabling you to play in true stereo.

## ■PRINCIPLE

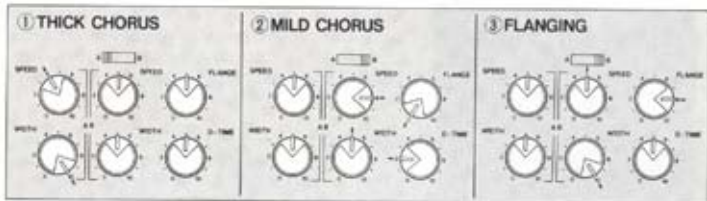


## ■USE

Like the TC10, the PC10 is a chorus with 2 modulators (or L.F.O.'s). The same dual chorusing is available with many new variations because one of the modulators can also create flanging effects by decreasing delay time and increasing intensity. These are some of the most lush sounds available through processing. Set the flanger intensity on modulator B to "0" and delay time

to "2" to create identical function of both modulators (like the TC10). of course different speeds and widths on A and B give best results.

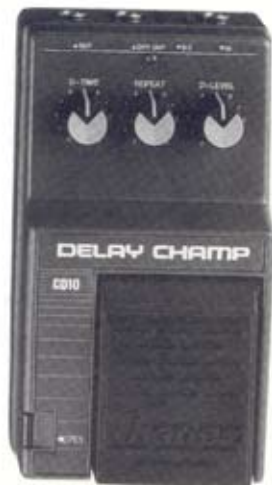
By using the footswitch "toggle" feature described previously, 2 presets can be used for convenience in live performance. Two different chorus sounds or a chorus and flanger are available instantly.



## ■SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 1k $\Omega$
MAXIMUM INPUT LEVEL	+4dBv
DELAY TIME	A : 3.2ms—6.5ms B : 1.3ms—6.4ms
SPEED RANGE	A : 0.6Hz—6Hz B : 0.035Hz—6Hz
EQUIVALENT INPUT NOISE	—100dBv @HF—A)
POWER SUPPLY	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	25mA (DC9V)
SIZE	125(D) x 70(W) x 54(H)mm
WEIGHT	410g
OPTION	AC109 9V AD ADAPTER

# CD10 DELAY CHAMP

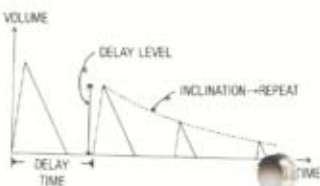
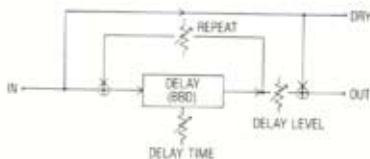


## ■FEATURE

One of the most effective ways to fatten up the sound of an electronic instrument is to add depth and extension. The best way to do this is by using some sort of a delay. By utilizing slightly repeated, tight echoes, one can achieve a very rich and mellow tone. The CD10 is the perfect device for this. The CD10's analog circuitry mimics the vintage tonality of an old tape echo, yet because of its reliable hi-tech circuitry, the CD10 is able to work night after night with very few battery changes. The CD10 features delay times up to 300msec with low noise and a wide dynamic range giving you both economy and versatility without sacrificing performance. Normal and dry stereo outputs allow you to add even more dimension and depth to your delay effect.

## ■PRINCIPLE

The CD10 is termed as an analog delay because it uses an analog BBD circuit to produce its delay effect, rather than digitizing the analog signal, storing it, and converting it back to an analog output. The result is a warmer, more natural sounding echo. Multiple repeats are obtained by looping the delayed signal back to the input.



## ■USE

Since analog delay processing distorts and rolls off high frequencies as the number of repeats increases the CD10 actually is more natural sounding than a digital delay. In natural sound reflections are influenced by the reflective surface's density and texture. High frequencies are more susceptible to absorption and aren't reflected as much. Even air and humidity can distort an acoustic signal as it travels to the listener. The

soft, pleasing sound of the CD10, especially in the 200-300ms. range give effects digital delays are incapable of without considerable extra processing.

A doubling or slapback effect (delay time: 50-100ms, repeat: 0) in stereo is very effective with the CD10, as the repeated sound seems to come from a distance because our ears perceive the loss of highs as a sound that has traveled farther.



## ■SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 1k $\Omega$
MAXIMUM INPUT LEVEL	+7dBv
DELAY TIME	20ms - 300ms
EQUIVALENT INPUT NOISE	-100dBv (B/F - A)
POWER SUPPLY	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	24mA (DC9V)
SIZE	125(D) x 70(W) x 54(H)mm
WEIGHT	400g
OPTION	AC109 9V AC ADAPTER



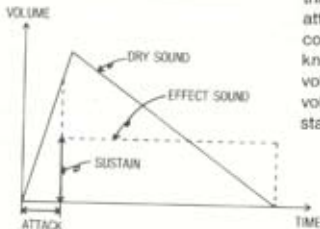
### ■FEATURE

Compressor/Sustainers, unlike distortion effects, do not drastically alter the sound (distort it) to create sustain. Instead, they maintain the basic integrity of the original sound while at the same time adding subtle changes to the attack and sustain. They also even-out the overall output gain, providing a clean, uniform sound.

The Ibanez CP10 Compressor/Sustainer is a high tech, studio quality effect in a compact case. It's ultra low input noise ( $-107\text{dBv}$ ) combined with the latest VCA circuit provides clean, distortion free compression and sustain. The CP10 also features three controls giving you complete control of the attack time, sustain and output level.

### ■PRINCIPLE

The CP10 Compressor/Sustainer is an effect that controls the envelope of sound, which is actually time's effect on volume. The envelope of a guitar is depicted by the solid line. The CP10 alters the envelope of the guitar so that it looks like the dotted line. Note the smooth and prolonged sustain. The three controls on the CP10 allow you to contour the attack and sustain to taste. The ATTACK knob controls the level of the initial attack. The SUSTAIN knob controls the threshold level, so that if the volume is too great, it is compressed and if the volume is too slight, it is boosted, keeping a constant output level.



### ■USE

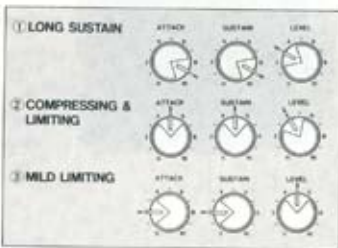
Compressor limiters are used very often on vocals or extremely dynamic instruments



to give uniform volume or amplitude in many applications, Peak levels are limited so tape saturation won't occur in a recording situation, allowing higher recording levels which increase signal to noise ratio. Dead spots on certain instruments can be eliminated live and in the studio. Stage monitors can be heard better when soft vocals normally would be buried, yet feedback can simultaneously be controlled by keeping a limit on the volume, helping to prevent the need for unnatural over-equalization. These applications aren't typical of how a guitarist uses a compressor but keeping them in mind will lead to efficient and creative use of the CP10.

Most often a compressor is used on a guitar to influence either the attack or sustain portions of the sound. To emphasize the attack, gradually increase the attack control. Too much emphasis can ruin the sound by eliminating the sustaining pitched portion of the sound. Be sure the sustain time control is set at a moderate level when emphasizing attack to eliminate this side effect. This usage is especially nice for muted or "blocking" styles of playing. If the sustain is set too high, notes following a heavily

attacked note may not come out well because the CP10 is still sustaining the previous note. Another major usage of compressors is to add sustain without distortion. Sustain isn't actually added but as the sound naturally decay, the CP10 increases it's gain giving the impression that the sound isn't dying out but sustaining smoothly. Once the signal has dropped below a certain point, the compressor can do no more than raise the level of the remaining noise. Careful adjustment of the sustain control to playing techniques can keep noise from getting out of hand. Low sustain levels are useful for limiting applications.



#### ■ SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 1k $\Omega$
MAXIMUM INPUT LEVEL	-10dBv
MAXIMUM OUTPUT LEVEL	-10dBv
ATTACK TIME	5ms - 22ms
COMPRESSION RANGE	35dB
EQUIVALENT INPUT NOISE	-107dBv (1HF - A)
POWER SUPPLY	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	6mA (DC3V)
SIZE	125(D) x 70(W) x 54(0.6mm)
WEIGHT	400g
OPTION	AC109 9V AC ADAPTER

# GE10 GRAPHIC EQ

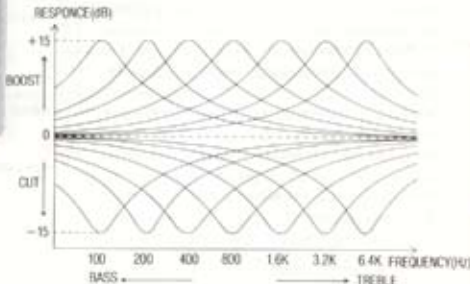


## ■ FEATURE

The Ibanez GE10 graphic equalizer controls the seven octave ranges between 100Hz and 6.4kHz with  $\pm 15$ dB of equalization at each octave. There is also a master gain control that provides a total  $\pm 15$ dB of variation in the output level without disturbing any of the filter settings.

The GE10 is most useful as an overall tone altering device but it has other uses too. By manipulating the 3.2kHz and 6.4kHz filter, troublesome feedback howls can be reduced or eliminated. The GE10 can also be used as a gain booster by increasing the level control.

## ■ PRINCIPLE



## ■ USE

A graphic equalizer can be a very valuable tool for a guitarist who needs versatility in basic tones. The GE10 isn't so much an effect as it is a tone "shaper". The seven bands or frequency areas covered by the GE10 are the most important areas of con-

cern for guitarists. Any band may be boosted or subtracted (cut) as much as 15dB (decibels). A boost of 10dB at 200Hz, for example would give a very bassy sound to any guitar by increasing the volume of the low notes and subharmonics.

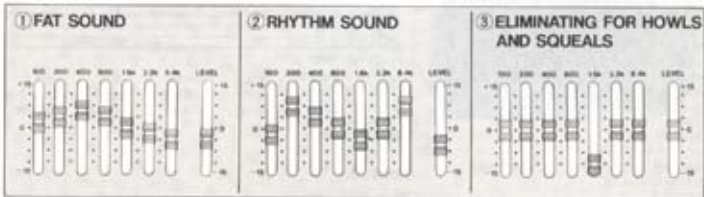
100Hz, and under are very low tones that when boosted add a rumble effect, much like the resonance of a large speaker cabinet. Subtracting this range can help a muddy sound, attenuate hum and noise from bad A.C. lines or single coil pickups.

200Hz, as in the example, can influence the overall bass characteristics of the sound. Subtracting at 200Hz can emphasize a boost at the surrounding areas of 100Hz or 400Hz, is where the warmth of a guitar sound can be emphasized by a slight boost: especially helpful when used after a distortion device to simulate popular American tube amps with 12" speakers in open back cabinets. Subtracting at 400Hz can take away the midrange characteristic so offensive in

acoustic electric guitars. 800Hz, like 400 Hz, can be used to add character to a distortion lead sound. Slight boost at both 800 Hz and 400Hz can fatten up single coil pickups, simulating the sound of a humbucker (try also subtracting higher frequencies).

1.6kHz, can be boosted for increased presence and clarity. Extreme boost can emphasize pick attack and amp feedback characteristics while slight cut at 1.6kHz can smooth out a rhythm sound.

3.2kHz boosted adds bite and brilliance while 6.4kHz deals with the "sizzle" or "sparkle". A guitar with humbuckers set in the center pick-up toggle position with both 3.2kHz and 6.4kHz boosted can sound like a single coil type guitar.




#### SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 5k $\Omega$
MAXIMUM INPUT LEVEL	+4dBv
MAXIMUM OUTPUT LEVEL	+3dBv
FILTER FREQUENCY	100, 200, 400, 800, 1.6k, 3.2k, 6.4k (Hz)
FILTER CONTROL RANGE	+15dB
LEVEL CONTROL RANGE	+15dB
EQUIVALENT INPUT NOISE	-107dBv (119F-A)
POWER SUPPLY	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	17mA (DC9V)
SIZE	125(D) x 70(W) x 54(H)mm
WEIGHT	420g
OPTION	AC108 9V AC ADAPTER

# BE10 GRAPHIC BASS EQ



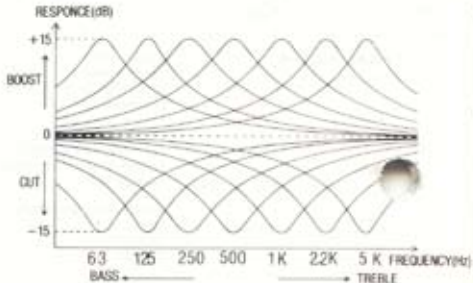
## ■ FEATURE

The BE10 is a redesigned version of the GE10 for bass guitar. Unlike guitar eqs, that start at 100Hz, the BE10 begins its eq range at 63Hz. The reason for this is simple. Guitar equalizers just  not properly handle the low notes that a bass guitar creates. The open "E" on a bass resonates at 41Hz, far below the 100Hz cutoff of a guitar eq. By beginning the equalization process at 63Hz instead of 41Hz, the tone and "punch" of the low "E" is realized but the harmonic rumbling is left out. The result is a frequency range that lets you reach the fullest dynamic potential of your bass guitar, with the full freedom to get any tone that you desire.

(Actually 1 octave below)



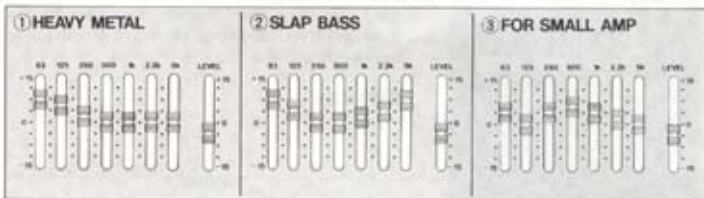
## ■ PRINCIPLE



## ■USE

Although the BE10 is essentially the same as the GE10, the frequency range and bands are more properly suited to bass guitar. Because of transients caused by aggressive playing techniques and on board pre-amps the BE10 will operate more effectively with bass by subtractive equalization. When a

certain region is to be boosted, a slight boost setting joined by cutting of adjacent bands will give proper emphasis. Subtracting at 125 and 250 while slightly boosting at 63 can smooth out the response of small combo bass amps whose speakers and cabinets are very inefficient in the low octaves.



## ■SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 1k $\Omega$
MAXIMUM INPUT LEVEL	+4dBv
MAXIMUM OUTPUT LEVEL	+3dBv
FILTER FREQUENCY	63, 125, 250, 500, 1k, 2.2k, 5k (Hz)
FILTER CONTROL RANGE	$\pm 15$ dB
LEVEL CONTROL RANGE	$\pm 15$ dB
EQUIVALENT INPUT NOISE	-107dBv (BHF-A)
POWER SUPPLY	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	17mA (DC9V)
SIZE	125(D) X 70(W) X 54(H)mm
WEIGHT	400g
OPTION	AC109 9V AC ADAPTER

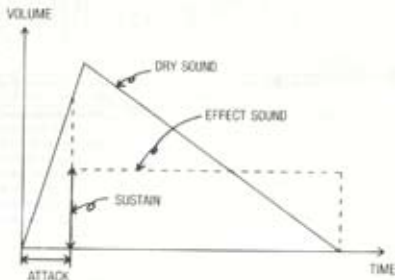
# BP10 BASS COMPRESSOR



## ■FEATURE

The new BP10 has all of the high tech specs and characteristics of the CP10, including it's low noise characteristics. What's different here is that the range of the attack time has been shortened to better match the needs of low frequency bass notes. If the attack time is too long, it over emphasizes the attack causing a loss of both clarity and overall crispness. The BP10 provides clarity and eliminates the unwanted garble in "slapping" and picking techniques, giving you the smoothest and most responsive bass tones possible.

## ■PRINCIPLE



## ■USE

Like the CP10, sustain time increases as the sustain control is turned clockwise. Too high settings flatten the output dynamically while a moderate amount can improve consistency from note to note and when a variety of playing techniques are used in the

same song.

High attack levels enhance pizzicato techniques but can deprive picked or "popped" tones of crispness. A conservatively set CP10 on bass can be left on as a subtle improvement for all bass sounds.



## ■SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 5k $\Omega$
MAXIMUM INPUT LEVEL	-12dBv
MAXIMUM OUTPUT LEVEL	-10dBv
ATTACK TIME	2ms-9.6ms
COMPRESSION RANGE	35dB
EQUIVALENT INPUT NOISE	-105dBv (1Hz-A)
POWER SUPPLY	ONE 9V BATTERY (5-001P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	6mA (DC9V)
SIZE	125(D) X 70(W) X 54(H)mm
WEIGHT	400g
OPTION	AC109 9V AC ADAPTER

# SF10 SWELL FLANGER

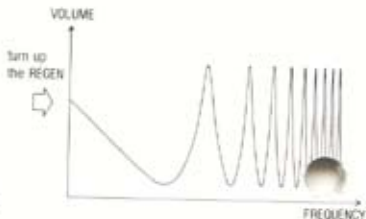
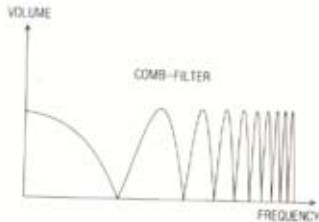


## ■FEATURE

If you are looking for a flanger that will give you years of continuous service, yet not cost you an arm and a leg, check out an Ibanez SF10. It's BBD circuitry delivers rich, smooth flanging effects that will enrich the tone of any electronic instrument. The SF10 features four control knobs that give you complete control of the delay time, speed, width and feedback of the effect, allowing you to produce an almost unlimited array of flanged effects.

## ■PRINCIPLE

A flanger, such as the Ibanez SF10, makes its effect by mixing dry and short delayed signals together. These signals are mixed in a way that causes a moving group of frequencies to drop out, forming a moving comb-filter. The range in which the comb-filter moves is controlled by the WIDTH knob, where as the rate at which it moves is controlled by the SPEED knob. The REGEN knob controls the amount of feedback. Turning this CW intensifies the effect. When the delay time is shortened by turning the D-TIME control CCW, the overall effect becomes more metallic in sound.

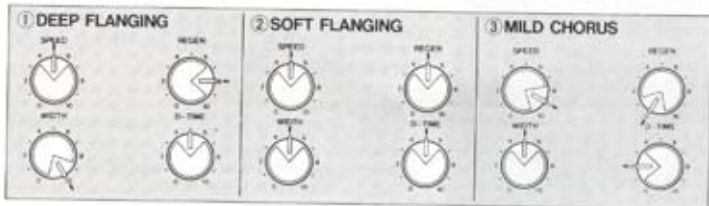




## ■ USE

Although virtually identical in theory and operation to a digital flanger such as the DCF-10, the analog circuitry of the SF10 creates a uniquely rich and warm sound. Since the delayed signal is slightly different from

the original, unique patterns of resonance and phase cancellation occur. The SF10 is especially suited for flanging distortion guitar sounds.



## ■ SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 3k $\Omega$
MAXIMUM INPUT LEVEL	+7dBv
DELAY TIME	1.0—12.8ms
SPEED RANGE	0.04—10Hz
EQUIVALENT INPUT NOISE	-100dBv (BPF—A)
POWER SUPPLY	ONE 9V BATTERY (5-C06P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	18mA (DC9V)
SIZE	125(D) X 70(W) X 54(H)mm
WEIGHT	410g
OPTION	AC109 9V AC ADAPTER

# PH10 BI-MODE PHASER

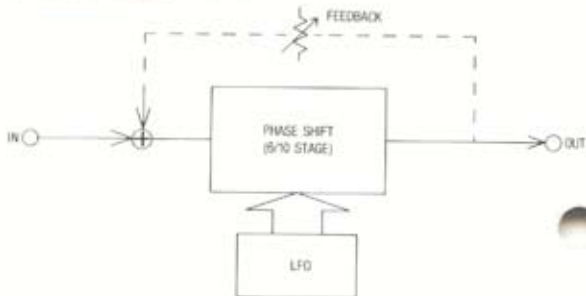


## ■ FEATURE

The Ibanez PH10 Phase Shifter is the phase shifter of the '80s. It features a mode selector that allows you to go from a six stage phase shift to a ten stage phase shift. This is a considerable advantage when you realize that most phase shifters only use a four stage phase shift. The PH10 also features speed, width and feedback controls allowing you to get just the sound that you want. The PH10 is truly the phase shifter of today.

## ■ PRINCIPLE

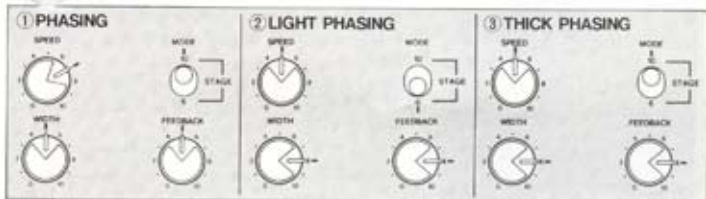
Although similar in sound to a flanger the phaser is uniquely different in that the sound is not delayed. Flanging creates intricate patterns of phase cancellation and resonance. The cancellations of a phaser are less complex than flanger cancellations, causing a smoother swept effect. The cancellation pattern is also different, with a different spacing between the "teeth" of the "comb".



## ■USE

A standard sweeping phaser effect can be achieved with the following settings: Feedback = "0", Stage = "6", Speed = "3". Width = "0". Increase the stage to 10 and add

width for deeper more resonant phasing. Used in conjunction with distortion and delay devices, incredible stereo "jet" effects are possible.



## ■SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 1k $\Omega$
MAXIMUM INPUT LEVEL	+8dBv
SPEED RANGE	0.04Hz - 10Hz
MODE	6 STAGE/10 STAGE
EQUIVALENT INPUT NOISE	-90dBv (9Hz - A)
POWER SUPPLY	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	22mA (DC9V)
SIZE	125(D) X 70(W) X 54(H)mm
WEIGHT	410g
OPTION	AC109 9V AC ADAPTER

# LS10 DUAL LOOP SELECTOR

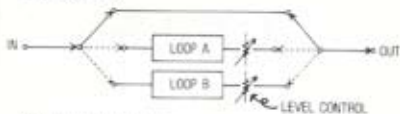


## ■FEATURE

The Ibanez LS10 is a switching device which allows you to group your effects into two discrete loops and either switch between them or bypass them completely. Each loop has its own level control with  $\pm 6\text{dB}$  of gain control. What's more, you can use the LS10 as an input master switch or as an output master switch by simply varying your patch connections.

## ■PRINCIPLE

### ① LOOP SELECTOR



When not using LOOP B



### ② INPUT SELECTOR



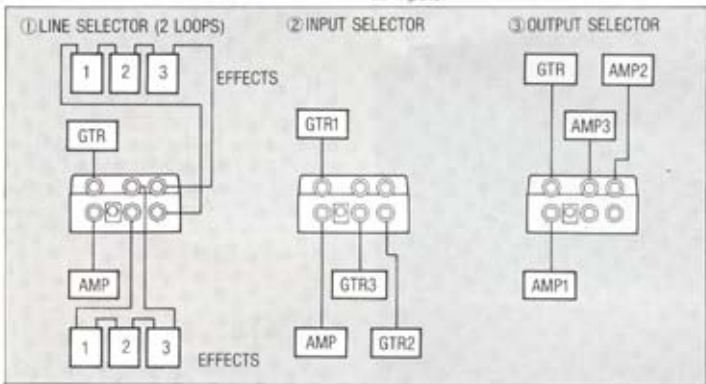
### ③ OUTPUT SELECTOR



## ■USE

The LS10 can be used in many ways, as it provides a choice of 2 signal routes to a final destination. This is most useful when 2 different sets of effects are used for different sounds. For example a "clean chain" using a compressor and chorus may be switched with "dirty chain" utilizing a dis-

ortion and equalizer. Switching between the 2 sounds occurs with one pedal depression of the LS10 (instead of pressing each pedal once). The level of each loop is adjustable. Other applications include switching between 3 guitars or 3 amplifiers by considering sends as outputs and returns as inputs.



## ■SPECIFICATIONS

INPUT IMPEDANCE	500k $\Omega$
OUTPUT IMPEDANCE	< 1k $\Omega$
SEND IMPEDANCE	< 1k $\Omega$
RETURN IMPEDANCE	500k $\Omega$
MAXIMUM INPUT LEVEL	+10dBv
MAXIMUM OUTPUT LEVEL	+10dBv
LOOP CONTROL GAIN	$\pm$ 6dB
EQUIVALENT INPUT NOISE	-95dBv (3Hz-A)
POWER SUPPLY	ONE 9V BATTERY (5-006P/ALKALINE) OR AC ADAPTER
POWER REQUIREMENT	10mA (DC9V)
SIZE	125(D) X 70(W) X 54(H)mm
WEIGHT	420g
OPTION	AC109 9V AC ADAPTER



## AC109 AC ADAPTER

The AC109 AC adapter is the optional power supply available for all "Power Series" effects. It is a 200mA regulated power supply that is suggested for extended use situations. NOTE: The use of any AC adapter, other than the AC109 may damage or impede the performance of any "Power Series" effect.



## DC4 DC CORD

The DC4 operates as an extension cord to power up to 4 "Power Series" effects from one AC109. Please note that the AC109 and DC4 combination are rated at 200mA current capacity and exceeding this may damage the effects, or effect their performance.



## CN104 CONNECTION CABLE

Color connection cable set for Power Series 4 inch (10 cm) x 4pcs.

## CN404 CONNECTION CABLE

Color connection cable set for Power Series 1-1/4 feet (40 cm) x 4pcs.



## DAT6 DIGITAL AUTO TUNER

Simplicity, convenience and most of all, accuracy. This was the foundation for the Ibanez DAT6 Digital Auto Tuner. With operation for guitar and bass equally simple, just plug in your instrument (or use the built-in microphone for acoustics) and pick a string. The DAT6 digitally samples the signal, identifies the string and key and displays it on an easy to read, specially designed meter. The DAT6 is illuminated so tuning on a dark stage will never be a problem.

All specifications subject to change without notice or obligation

# Ibanez

POWER SERIES POCKET MANUAL

