

BOOMERANG®

Phrase Sampler

User's Manual

Version 1

**Boomerang Musical Products
PO Box 541595
Dallas, TX 75354-1595**

1-800-530-4699

<http://www.boomerangmusic.com>

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Welcome to the World of Phrase Sampling

Congratulations on your purchase of a Boomerang® Phrase Sampler. I think you will be pleased and surprised by the musical versatility of this little power house. It was created because we wanted a unit that does what the Boomerang® Phrase Sampler does, and there wasn't anything on the market like it. It was invented by musicians for musicians!

If you'll take a minute to read the sections on *Connections* and *How the Buttons Work*, I believe the learning process will go more smoothly. If, however, you just can't wait to play with it, go ahead! I understand about new toys. Keep this one rule in mind, though. If the unit is behaving in a way that you don't understand, press PLAY/STOP, make sure that all the lights are dimly lit (inactive) and then attempt again what you were doing.

After learning the basics and spending a couple of hours with the Boomerang® Phrase Sampler, you may want to read and experiment with ideas from the *Tips and Suggestions* section.

What's a BOOMERANG® Phrase Sampler

The Boomerang Phrase Sampler is a digital audio recorder with several interesting and unique control features and capabilities. It is embodied as a ruggedly built floor unit with six foot switches and a foot actuated volume control. The Boomerang Phrase Sampler is invaluable as a song writer's scratch pad, a tireless accompanist for rehearsing, and a powerful live performance tool. In a very short time my own soloing skills have improved tremendously practicing with one.

Sound is stored in random access memory (RAM); there is no removable media such as a mini-disc or cassette tape.

Sound may be recorded and played back in forward or reverse. Reverse playback produces a previously difficult to achieve effect that was created in the past by recording onto tape then actually running the tape backwards through the recorder.

Music may be continuously played back in reverse, on a phrase by phrase basis. As a new musical figure is being recorded, the previous musical figure is being played back in reverse. You can actually play a reverse lead live on stage.

Overdubbing is possible so that several parts may be recorded and listened to simultaneously. A composition can be developed in this manner. A distinguishing feature is that the successively recorded parts are merged or mixed together, so that the maximum record time is not diminished as each part is added. We call this *stacking* of parts. Practically speaking, 5 to 7 parts may be stacked. After part one is recorded, part two may be recorded in forward or reverse. Likewise part three may be recorded in forward or reverse; this is true for each subsequent part that is added. This can lead to some incredible musical creations.

Loops may be created so that a chord progression or musical figure can be made to play indefinitely. Then you can work out the next part to stack or practice soloing with the progression.

Playback may be started or re-started instantly with a single button press. This can produce the effect of repeating the first sound of a spoken phrase several times before the remainder of the phrase is heard creating a *stutter* effect.

A recorded piece of music may be played back at half-speed. This drops the pitch one octave so that the key of the music is unchanged, but slows the performance to half its original speed. This is helpful for learning a piece of music from a CD or tape. This process can be reversed, i.e. a musical passage can be recorded at the slow rate and played back at the fast rate. With this technique, musical figures of blazing speed can be created.

One of the most important features of the Boomerang Phrase Sampler is its user interface. Starting or stopping recording or playback, stacking extra parts, and changing playback direction can all be accomplished with one button press. The length of the recorded passage is determined *on-the-fly* by two button presses. This is an important feature as the record time must be preset on many other products with digital record and playback capability.

The sound to be recorded may come from virtually any electronic source, such as a microphone, synthesizer, electric guitar, tape player, etc. And the output of the Boomerang Phrase Sampler may be connected to a variety of electronic devices, including amplifiers, PA systems or recording consoles. I use mine connected to the effects loop of my amplifier.

The Rang has 4 mega-bytes of computer memory and records over 2 minutes at normal speed and over 4 minutes at half-speed.

For the student, nothing can enhance practice time more than some simple accompaniment. With the Boomerang Phrase Sampler any desired chord pattern can be entered and looped indefinitely while practicing a second part or improvisation. Instructors can enter patterns to be practiced and the student can play along for extended periods until the new technique is learned.

Songwriters will appreciate the ability to capture original ideas and loop them continuously while working out lead or vocal phrasing, harmonies, counterparts and the like.

Performing musicians will love the capabilities of the Boomerang Phrase Sampler for creating their own accompaniment.

Meaning of the LED's

When power is applied to the unit, all five of the green LED's will be dimly lit. This is simply an indication that the unit is on and ready to go. We call this the idle mode, because the unit is just waiting to be told what to do. When not recording, playing back or in reverse mode, these five LED's will be dimly lit. Otherwise, they come on at different times to indicate what operation the Boomerang Phrase Sampler is performing. The meaning of these LED's, and the red one labeled 1/2 SPEED, is explained in the *How the Buttons Work* section. The meaning of the yellow one labeled CLIP is explained in the *Setting Levels* section.

Connections

Analog Inputs and Outputs

The main input and output are quarter inch phone jacks and are labeled IN and OUT; clever, huh? The most obvious way to connect the Boomerang Phrase Sampler is to plug your guitar, microphone or whatever into the IN jack and run a cable from the OUT jack to the input of your amplifier or mixer. This works fine, but you may get a better sound by placing the Boomerang Phrase Sampler in the effects loop of your amp. If your amp has an effects loop, plug your instrument directly into the amp and connect the effects send to the IN jack and the effects return to the OUT jack.

The auxiliary input and output are RCA jacks, and are labeled AUX IN and AUX OUT. AUX IN is provided to allow connection to a compact disk or tape player for capturing pre-recorded material. AUX OUT is provided to allow connection to a tape recorder for saving your musical creations in a convenient manner. These extra ports allow you to make these connections and have your instrument connected to the Boomerang Phrase Sampler at the same time. None of the main IN signal comes out the AUX OUT jack, only the recorded signal. This makes the AUX OUT a natural for connecting to a drummer's monitor; he will be able to clearly tell when a loop is playing or not.

Placing the Boomerang Phrase Sampler after other effects processors, in the signal chain, allows for the maximum in creative flexibility. With this arrangement different effects can be selectively recorded on the Rang; for example, the first part can be recorded with chorus, the second with reverb, the third with delay, etc. If you then play along with your creation while it's looping, you can select yet another effects patch. If the Boomerang Phrase Sampler is placed in front of your effects unit, all parts will use the same effects patch.

Setting Levels

The incoming signal is passed through the unit unaltered. This *through* signal is not affected by the controls of the IN/OUT LEVEL section. The THRU MUTE foot switch, on the upper-left front panel, turns the through signal on or off and can be changed at any time as it is purely an analog connection. Typically the through path will be enabled, but for special situations the through path can be turned off allowing only the sampled audio to be heard.

The IN/OUT LEVEL section does affect the sampled signal and must be adjusted to provide the optimum recording levels for the unit. The main input and output jacks can accommodate a wide variety of signal levels by adjusting the controls of this section. The INPUT LEVEL switch sets the general range of input sensitivity and the TRIM control adjusts sensitivity within that range. The LINE setting is the least sensitive, the INST (instrument) setting is more sensitive and the MIC (microphone) setting is the most sensitive. These controls should be set so that only occasional flickering of the CLIP LED occurs when the highest level signals are produced by the signal source.

Please note that this group of controls is labeled IN/OUT because it affects both the input and output signals. What this means, primarily, is that you should not change the settings between recording a part and playing it back. Attempt to have all of the signals you wish to record at roughly the same volume.

The AUX IN and AUX OUT jacks are permanently set for operation at -10dBu and are compatible with most standard consumer audio equipment.

The OUTPUT LEVEL roller on the front panel of the Boomerang Phrase Sampler controls the playback volume but has no effect on the through signal.

All in all the user should find sufficient flexibility to allow the Boomerang Phrase Sampler to be placed anywhere in the signal path, and only experimentation will determine the best configuration for each individual artist or application.

How the Buttons Work

While most of the functions provided by the Boomerang Phrase Sampler are fairly obvious, it is helpful to describe each foot switch button in some detail as there are several hidden features you will want to know about. In particular, the order and combination of button presses alter some of the functions, and a brief read through these descriptions may help save you some time. If things do happen to get a little out of control just remember to push the STOP button and take a second to collect your thoughts.

Just so we are all on the same page, the buttons with a second label in parentheses may be referenced by either name.

RECORD

This button is probably the most used of all. When it is pressed, recording begins and the RECORD LED lights up brightly. A second press ends the recording and the Boomerang Phrase Sampler begins playing back; the PLAY LED lights up brightly to indicate the change. If no other buttons are pressed, playback will continue indefinitely, repeating over and over the sounds recorded during the time between the two button presses. During playback the RECORD button can be pressed again and a new recording will begin. Recording erases any previously stored sounds. During playback the RECORD LED will blink briefly at the beginning of the loop each time it comes around; this helps in identifying the loop start point for stacking additional parts.

If the system reaches the end of available memory during recording, a special mode will be entered where all LED's are turned on brightly; then the user must press either RECORD or PLAY. Pressing RECORD will begin a new recording and the previous one will be lost. Pressing PLAY initiates playback and preserves the recorded material.

PLAY (STOP)

This button has different functions depending on what the Boomerang Phrase Sampler is currently

doing, hence the two-part name. If the Rang is recording, pressing STOP halts the recording and the unit becomes idle; your music is recorded and ready for playback. If the Rang is playing back, pressing STOP halts playback and the unit becomes idle.

If the Boomerang Phrase Sampler is idle, pressing PLAY starts playback of whatever was last recorded, in a continuously looping manner. During playback the PLAY LED will be on and the RECORD LED will blink at the beginning of each pass through the loop.

ONCE

As with the previous buttons, this one has different functions depending on what the Boomerang Phrase Sampler is currently doing. Pressing ONCE while recording will halt recording and initiate an immediate playback of the signal just recorded, but the loop will playback only once. Pressing ONCE during playback tells the Boomerang Phrase Sampler to finish playing the loop and then stop. This is handy for terminating a loop without abruptly stopping it in the middle, which would happen if the STOP button was pressed. If the Boomerang Phrase Sampler is idle, pressing ONCE will playback your recorded loop one time. After pressing this button, the ONCE LED will be turned on letting you know this is the last time through your loop.

There is an interesting twist in the way the ONCE button works. Pressing it while the ONCE LED is on will always immediately restart playback. Repeated presses produces a stutter effect sort of like record scratching.

The first three buttons, RECORD, PLAY and ONCE, were designed to provide any possible sequence of actions: record followed by looping, record and then stop, record and then playback once, playback once and then stop, etc.

DIRECTION

The DIRECTION button does just what you think... most of the time. If the unit is playing back, pressing this button will immediately reverse the direction through your loop, resulting in reversed audio output. DIRECTION can be pressed any number of times during playback with a resulting instantaneous reversal of playback direction with each press. Try this with recorded speech; it'll crack you up!

If the DIRECTION button is pressed so the REVERSE LED is on before the recording process begins, a special continuous-reverse mode can be entered where the system is continually re-recording new sound while simultaneously playing the previously recorded sounds in reverse. Press the RECORD button twice to define a recording length and then start jamming. Both the RECORD and PLAY LED's will become brightly lit, along with the REVERSE LED, to denote this unique mode. This produces a continuous, reversed output as the user continues to play and provide the 'Rang with new licks. Turn off the through signal by pressing the THRU MUTE switch so that only the reversed signal is present and you can play a reverse solo live! It is usually best to define a relatively short loop for this purpose so you are playing just a little ahead of the accompaniment so chord changes can be easily anticipated. I recommend one or two measures. But, as with all features of the Boomerang Phrase Sampler, there are no rules and experimentation is the name of the game.

If DIRECTION is pressed during the recording process the system will be armed to enter the reverse playback mode immediately at the point when the end of the loop is defined by the second press of the RECORD button.

STACK (SPEED)

This button has two main functions. If the unit is idle, it selects the sample rate: full or half speed. Full speed offers twice the bandwidth but reduces the recording time available. Half speed offers double recording time at the expense of bandwidth. The user can decide which mode to use based on his needs at the time. Sounds recorded at full speed may be played at half speed by stopping the system and changing the speed before the next playback. This is handy when trying to learn difficult licks from a CD or tape. Signals recorded at half speed may also be played back at full speed with a resulting *chipmunk* effect. Stacking on a bass line is also possible by recording at half speed and adding the bass line at full speed. When the result is played back at half speed the bass line will be dropped an octave.

If STACK is pressed during playback, the system will accept additional input and add it to the existing loop so that on the next pass through the loop, both parts will playback together. This stacking of parts will continue for as long as the STACK button is held down. This is different than the other buttons, which are operated with a single tap. There is no hard limit to the number of parts that can be added in this manner, in fact a whole song can be created in just a few minutes by stacking on various parts, one by one. If the Boomerang Phrase Sampler is connected to a small mixing console, different instruments and microphones can be easily selected and added to the mix. By controlling the relative levels of each new addition the final result will sound well balanced; this is an experience thing. Also note that the stacking feature works during reversed playback so any part can be recorded forward or reversed.

Since the stacked signals are being added together, there is a practical upper limit to how large they can grow after repeated stacking. The user should be aware that the system will internally attenuate the original loop by about 2.5dB to help insure no overloading will occur. It may take a little practice, but once you find the best settings stacking will be easy and predictable.

Since the system is slightly attenuating the loop signal while the STACK button is pressed, if the STACK button is held down but no new signal is input, the result will be a very smooth fade-out of the recorded loop. This can be cool.

If the loop is very short and the STACK button is held down while you continue to play, the effect is essentially the same as that of a conventional delay with a very slow decay setting. The OUTPUT LEVEL roller then becomes the effect/clean mix control. The cool thing is that the delay time is precisely controlled by two presses of the RECORD button, so it will be just what you need at the moment.

Tips & Suggestions

It's difficult to adequately describe the effects you can get using the Boomerang Phrase Sampler. Like many products you simply must use it for yourself to appreciate how it fits into your way of making music. We heartily encourage you to experiment; and please call us if you come up with a new or unique way of using your Rang. The following list contains suggestions for basic Boomerang Phrase Sampler control technique, creative ways to use a Rang and ways to care for and get the maximum life out of your unit.

- If you are having trouble creating smooth loops, or said another way, if there is always a little *hiccup* at the end of your loops, then try this. Concentrate on pressing the RECORD button along with your natural foot tap; make your button presses on the first beat of the measure.
- Try using a microphone to record percussion instruments and create a loop with a groove. Use it to work out a new progression or just jam.
- If you are using a Rang live, try giving the drummer the AUX OUT signal. This signal does not include the through sound, and should be easier to follow like a click track. The drummer hears only the sampled loop playing back.
- Create a bass part by sampling at the high rate and playing back at the slow rate. This is easiest to do if you play simple, clean parts. Remember that the tempo, as well as the pitch, will be cut in half, so play the bass part twice as fast as you will want to hear it.
- If you own a keyboard sampler, use the Rang to create multi-timbral samples. For example, you could stack a screaming guitar note, a bass note and a percussion hit. When it sounds just right, sample it directly into your keyboard.

- If you are using the Rang to learn a song, and you want to quickly get to the end of the recorded music, use the REVERSE button. Simply start playback and press REVERSE to position near the end of the recorded segment instead of listening from beginning. Tap REVERSE again to play the material in the proper forward fashion.
- There are two types of echo or delay effects the Rang can create. One was previously described in the STACK(SPEED) section; the other uses the continuous reverse mode. Starting with the unit in idle, press REVERSE and observe the brightly lit REVERSE LED; quickly tap the RECORD button twice, and observe the RECORD and PLAY LED's are brightly lit. Leave the through signal enabled and begin playing; this creates an unusual reversed slap-back echo effect. Use the OUTPUT LEVEL to set effect/clean mix.
- Play in continuous-reverse mode with through enabled and attempt to create a phrase that harmonizes with itself in reverse. The classical composers did stuff like this to keep from getting bored on rainy afternoons!
- I call this colliding reverse chords, and it's a guitar thing. Record a part that is just a series of *one-strum* chords that you let ring out. Play this in reverse and stack on the same chords an octave higher. The trick is to play the second part chords just when the first part chords hit their peak volume. If this makes sense and you get it right, it's way cool.
- Without playing your instrument, press the STACK button during playback. Your loop will smoothly fade into oblivion. This works best with short loops.
- Suppose you've created a great sounding loop, but there's one note that's too loud. It can be fixed by pressing the STACK button when that note plays. If you are not inputting a new part, this has the effect of attenuating that portion of the loop. One or two times should do the trick.
- Earlier we recommended that the Rang be at the end of the signal processing chain. Well, here's a time when it would be useful to have it at the very front of the signal processing chain. If you are trying to tweak a desired effect or get that perfect pre-amp setting, let the Boomerang Phrase Sampler substitute for your playing while you adjust the effect parameters. Just create a loop in the appropriate playing style and let it rip while you put your instrument down and concentrate on tweaking!
- For lowest noise and distortion as well as maximum headroom select an input/output range which allows the TRIM control to be set closest to the center. Because the CLIP LED indicates clipping only at the input to the A/D converter it is possible that clipping can occur in the pre-amp section and not be indicated by the CLIP LED. It is also possible for clipping to occur in the output sections even though no clipping was indicated during recording. Both of these situations are generally the result of using signals which are too large for the selected range or extreme settings of the TRIM control. If you hear distortion but no clipping is indicated try using a different input/output range setting.
- The Boomerang Phrase Sampler is great for learning songs off of CDs or tapes. Capture the portion of the song you want to work on and play it as needed to hear what you're after. If the part is fast, you can slow it down by switching to half-speed mode and then playing back. This will drop the part an octave so it'll be in the same key. If you want to slow down a part so that it is easier to hear, but maintain the original pitch, here's a technique that works pretty well. Place a pitch shifter between the Rang's output and your amplifier, and set it to *1 octave up*.
- The foot buttons and OUTPUT LEVEL roller are designed to be fast and sensitive requiring only a minimal press for accurate timing of loops and other operations. While quite sturdy they may be damaged by heavy 'stomping'. The roller is designed for convenient foot adjustment but is not capable of supporting the weight of a person. Using a light touch will help to insure reliable and long-lived operation of these components.

If You're Having Problems

- No sound is coming through your unit
 - No sampled sound is playing back
- > Press the THRU MUTE foot switch
 - > Increase the playback volume with the foot roller

Warranty

The Boomerang Phrase Sampler is a computer-based, digital product with very few moving parts and is therefore inherently very reliable. However, sometimes problems do occur. Boomerang Musical Products warrants your Boomerang Phrase Sampler against defects in materials or workmanship for one (1) year from the date of purchase. This warranty is void if the unit has been abused (dropped, exposed to moisture, etc.)

For the warranty to be valid, we must receive a completely filled out warranty card within 14 days of the time you purchased your unit. If it becomes necessary to return your unit to the factory, you will be responsible for the cost of shipping. Please contact us before returning a unit.