



Chorus*Delay Pedal

User's Manual

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Software Version 1.1

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Thank you for purchasing a Boomerang® E-155 Chorus*Delay Pedal. We think you'll be thrilled by the sounds you can create with it. The E-155 is the first in a new line of Boomerang® pedals that each have 2 or more effects and can be linked to form a powerful effects system.

We welcome any comments you may have about this manual, good or bad. You are encouraged to contact us with any complaints or suggestions for improvement.

Features

- Great sounding stereo chorus and stereo delay effects including ping-pong delay
- 3 types of chorus: Classic, Shimmer & Lush
- 3 styles of delay: Clean, Tape & Reverse
- 11 presets for storing your sounds
- Expression pedal controls overall effect level or individual parameters
- Ability to smoothly morph between two completely different sounds
- Delay tail fades naturally after effect is turned off
- A variety of input & output routing options
- Pedal Link™ allows simultaneous control of several Boomerang® pedals
- AirMix™ Output places wet and dry signals on separate outputs
- Legendary Boomerang® reliability and mojo (uh, huh... that's right)

1. Chorus

Controls

Speed Knob

This sets the rate of the modulation sweep.

Depth Knob

This sets the width of the sweep and controls the character of the effect from subtle to deep.

Mix (Delay) Knob

NOTE - This knob behaves differently depending on which chorus style is selected.

1) With Shimmer & Lush styles it controls the amount of affected signal blended in with the dry signal.

2) With Classic style it sets the chorus delay time. The Depth Knob, which controls intensity, will set effect level.

On/Off Foot Button

This is the foot button at the bottom left of the chorus section.

Chorus Style Button

This is the small button just to the left of the three Chorus Style lights. It selects one of the three styles of chorus described next. Press & release to cycle through the choices. The current selection is indicated by a light.

Chorus Styles

Classic

This is a traditional sounding chorus and can create a wide range of sounds.

NOTE – When this style is selected the Mix (Delay) Knob controls chorus delay time not effect level. The Depth Knob is used to set effect intensity, essentially setting level.

Shimmer

This style has a wavier texture. Is "wavier" a word?

Lush

This is a multi tap chorus and can produce deep liquid sounds.

2. Delay

Controls

Time Knob

This sets the time between repeats. The available range is 50ms to 2 seconds.

This knob is “speed sensitive” which means it takes bigger steps if moved quickly and smaller steps if moved slowly. You can get where you’re going quickly and have fine, detailed adjustment when you get there.

When moving the knob very slowly the time will change but the clock display may not because there are many time choices but only eleven lights.

Repeats Knob

This sets the number of repeats, or said another way, it sets how fast the repeats fade out. Some folks call this feedback.

Level Knob

NOTE – This knob behaves differently depending on which delay style is selected.

1) With Clean & Tape styles it controls the amount of affected signal blended in with the dry signal.

2) With Reverse style it has 2 zones. From 0 to 8 it increases the affected signal until it is as loud as the dry signal. At higher settings the affected signal level isn’t changed, but from 8 to 11 the dry signal is slowly reduced to zero. This allows you to play a reverse lead live!

On/Off Foot Button

This is the foot button at the bottom left of the delay section. The delay tail will fade out naturally if the delay is turned off with this button.

Tap Tempo Foot Button

This provides a way to set Delay Time with a foot button and is handy for live performance where your hands are busy. Delay Time is set by two taps on the button. The nearby light will blink showing the tempo you tapped in.

Delay Style Button

This is the small button just to the left of the three Delay Style lights. It selects one of the three styles of delay described next. Press & release to cycle through the choices. The current selection is indicated by a light.

Delay Styles

Clean

This produces a crisp, exact reproduction of the original signal. And when used with a stereo rig, Clean produces a *ping-pong* effect. The repeats alternate between the left and right channels. This sounds e-freaking-normous!

Tape

Sounds like the cool, but expensive and unreliable, tape units from the 60’s and 70’s. The repeats become warmer and warmer. Nice!

Reverse

The repeats are played back in reverse producing a very eerie effect. Try it; you’ll like it! This style allows you to play a backwards lead.

NOTE - The Delay Level Knob works differently for Reverse delay. See “Level Knob” above.

3. “Clock” Display

The Clock Display, the ring of eleven lights with one in the center, has two purposes.

1) It shows preset information – the center light is green.

Each of the eleven numbered lights in the display represents a preset. The *active* preset is indicated by one of the lights glowing green. This is the preset that is affecting your sound right now. The *selected* preset is indicated by one of the lights glowing yellow. This is the preset that will be used when the Recall button is pressed & released.

2) It shows the values set by the knobs – the center light is red.

Whenever a knob is moved, the preset information will disappear and the Clock Display will show the parameter’s value with one or more of the lights glowing yellow green. Two seconds after you stop moving the knob, the display returns to showing preset info and the center light changes from red to green.

NOTE - If the center light of the clock display blinks, the active preset has been altered.

NOTE – When a knob is moved one “click” the display shows the parameter value but does not change it. The parameter value will be changed on the following click(s).

4. Presets

What’s A Preset?

A preset is a “snapshot” of a customized sound. Each preset contains all the information necessary to return the pedal to a particular setup or sound. When recalled, all parameters are set to the values they had when the preset was stored, including Chorus speed, depth, mix, style, Delay time, repeats, level and style.

There are 11 killer presets programmed at the factory so you can immediately use your E-155. See the “Factory Preset Parameters” table below for the glorious details.

If you have an expression pedal attached, the setup information is also stored with the patch. See Section 6 - Expression Pedal.

Also, whether each effect is on or off is stored in the preset. Why would you want to store a preset with neither effect active? What, are you nuts? Actually such a preset can be useful.

Suppose you play most of a song dry but use Chorus on the bridge and Delay on the lead break. Adjust the Chorus and Delay knobs to get the sounds you want, turn off both effects and store this as a preset. When recalled, neither effect is active, but your lovingly tweaked sounds are ready to go. Here comes the bridge... press the Chorus On/Off button. Ahhh. The lead follows the bridge; here we go. Press both On/Off buttons at once. The Chorus turns off, the Delay turns on and you are in tone heaven, heaven, heaven...

So tweak the sounds to your heart's content and then save your settings in one of the presets. There are eleven locations for storing presets. Each is represented by one of the lights in the 'Clock' Display. See "Storing A Preset" below for more details.

NOTE – Each style retains its unique parameter settings. For example, select Classic chorus style and set speed = 3, depth = 5 and delay = 4. Then select Shimmer chorus style and set speed = 6, depth = 6 and mix = 8. When you select Classic style again the parameters are returned to speed = 3, depth = 5 and delay = 4. All of these settings are stored, so each preset can have 3 distinct chorus sounds and three distinct delay sounds.

Controls

There are two buttons in the Preset section of your E-155.

Select Button

This chooses one of the 11 presets.

Recall Button

This button does a few different things.

- 1) After selecting a preset, press & release this button to recall the preset.
- 2) After recalling a preset, press & release this button to turn the effects on and off.
- 3) After creating a sound of your own, press & hold this button for two seconds to store your sound as a preset.

Selecting And Recalling A Preset – There are 3 ways the Chorus*Delay recalls presets.

Each of the eleven numbered lights in the clock display represents a preset. The *active* preset, the one affecting your sound right now, is indicated by a green light.

Method 1

The Preset Select button steps through the presets in clockwise order with each tap. Press & hold the Select button and the indicator steps through the presets in counterclockwise order. The *selected* preset light becomes yellow while the *active* preset light remains green.

A tap of the Recall button recalls the *selected* preset and all parameters are updated to those of the preset. The Chorus and Delay style lights will put on a show.

After a preset is recalled, a tap of the Recall button turns off all active effects and the Recall light turns off. This is a way to easily turn off a preset that uses both chorus and delay without having to press both on/off buttons. The next tap turns the effects on again.

Method 2

Tapping the Preset Select button advances to the next higher preset AND recalls it. Tapping the Recall button moves to the next lower preset AND recalls it. This "one tap" method is great for live performance. Holding the Recall button still stores modified presets.

Selecting A Preset Recall Method

You choose which method you want to use during power up. Hold down the Delay On/Off button while powering up to select the new, one-button-press method. Hold the Chorus On/Off button during the entire power up sequence to select the original two button method. Your choice will be remembered so that you needn't repeat this process with each power up.

Method 3 - Recalling Presets With An External MIDI Controller

Presets may be recalled by sending external MIDI Program Change commands on channel 16 to your Chorus*Delay pedal. Program Change 1 recalls Preset 1, Program Change 2 recalls Preset 2, etc. Connect your MIDI controller to the Pedal Link™ In port with a normal MIDI cable. Commands must be sent on MIDI channel 16.

Editing A Preset

To edit a preset, simply change any parameter by moving a knob or tapping the Tap Tempo button. A preset may have Chorus active, Delay active, both or neither.

After making changes, wait two seconds and the Clock Display will return to showing preset info. The center light changes back to green and continues to blink. You can now store the new data in the current location or choose another preset location.

NOTE – The center light of the clock display blinking means the active preset has been altered.

Storing A Preset

When you have a sound you want to keep, you can save it as a preset. Select one of the preset locations, then press & hold the Recall button for two seconds. The Chorus and Delay style lights will put on a show to indicate a successful store operation.

NOTE – When you store a preset, the previous preset is overwritten and lost. If you want to restore a factory preset, it is easily done.

Copying A Preset

If you want to copy a preset from one location to another, select the original preset and recall it by tapping the Recall button. Then select another preset and store by pressing & holding the Recall button for two seconds.

Factory Presets

There are 11 killer presets programmed at the factory so you can immediately use your E-155. Check 'em out. They show the wide range of sounds this pedal produces. Each style provides a different sound, so there are 3 chorus and 3 delay sounds with each preset.

Restoring All Factory Presets

Start with the power off. Hold down both the Preset Select and Recall buttons while applying power and all preset data will be replaced with Factory Preset data. Continue to hold the buttons until all 11 clock lights begin to flash.

NOTE - All presets you have created will be lost!

Restoring One Factory Preset

If you want to restore only one factory preset, start with your E-155 powered up. Select a preset with the Preset Select button then hold down both the Preset Select and Recall buttons for 2 seconds. The selected preset light will flash letting you know the factory preset has been restored.

Factory Preset Parameters

P r e s e t	Chorus					Delay				
	Style	Speed	Depth	Mix - Delay	On or Off	Style	Time	R e p e a t s	Level	On or Off
1	Lush	2.5	2.5	6	On	Tape	3.0	4	6.5	Off
2	Shimmer	8.5	5.5	6.5	On	Tape	3.0	4	6.5	Off
3	Classic	3	2	4	On	Reverse	2.1	2	4.5	Off
4	Classic	6	8	1	On	Clean	2.3	3	4	On
5	Shimmer	3	3	10	On	Clean	1.9	4	5	On
6	Classic	1	2.5	1	On	Clean	2.1	4	5	Off
7	Classic	1	1	10.5	On	Tape	2.0	1	6	On
8	Shimmer	3	3	10.5	Off	Clean	1.4	1	8	On
9	Lush	3	3	10	Off	Tape	2.7	5	6.5	On
10	Shimmer	4	4	5	Off	Reverse	8.3	1	11	On
11	Lush	3	2	8	On	Reverse	3.0	2	8.5	On

5. Chorus Sounds

Here are some settings to get your experimentation started.

MILD - Traditional chorus sounds

Style = Classic, speed = 2, depth = 3, delay = 4

Style = Shimmer, speed = 2, depth = 4, mix = 4

Style = Lush, speed = 3, depth = 4, mix = 4

STRONG – More intense chorus sounds

Style = Classic, speed = 1, depth = 7, delay = 9

Style = Shimmer, speed = 7, depth = 8, mix = 10

Style = Lush, speed = 8, depth = 6, mix = 10

WILD - Unusual sounds

Style = Classic, speed = 1, depth = 5, delay = 11

Style = Shimmer, speed = 2, depth = 1, mix = 11

Style = Lush, speed = 11, depth = 5, mix = 11

6. Expression Pedal

Your expression pedal can be used in two different ways.

1) It can control overall effects level.

2) It can control individual effect parameters in ways you specify. For example, the pedal could control the delay repeats, chorus speed or both.

Overall Control

Changing effect sounds on the fly can really spice up your sound. Plug an expression pedal into your E-155 and you are ready to go. With no additional hassle, the pedal controls the overall level of your effects.

NOTE – A passive volume pedal can be used as an expression pedal but requires a special cable. See “Using A Volume Pedal As An Expression Pedal” below.

Individual Parameter Control - Description

There is a second, powerful way to use an expression pedal with your E-155. The function of any, or all, of the six knobs can be controlled by an expression pedal. This is handy, for example, if you would rather change chorus speed than overall effects mix on a particular preset.

But that’s only scratching the surface. Check this idea. You can have a great chorus sound when the expression pedal is in the heel down position, and a delay when the expression pedal is in the toe down position. The expression pedal will smoothly morph (change) between the two sounds.

Individual Parameter Control - Setting It Up

IMPORTANT – Don’t mess with this if you don’t have an expression pedal connected.

Hold down both style buttons for 2 seconds; the chorus and delay on/off lights will blink.

Move the expression pedal to the heel down position and set the six knobs any way you like. Then move the expression pedal to the toe down position and move any of the knobs to create a different sound. You can change one knob, or two, or all of them. Whatever butters your bread. The pedal will smoothly morph between the two sounds you create.

The 6 style lights show which knobs are affected by the expression pedal.

Light	Affected Parameter
Classic	Chorus Speed
Shimmer	Chorus Depth
Lush	Chorus Mix (Delay)
Clean	Delay Time
Tape	Delay Repeats
Reverse	Delay Level

When you are happy with the setup, hold down both style buttons for 2 seconds and the chorus and delay on/off lights will stop blinking. The six style lights return to showing which styles are selected.

NOTE – The expression pedal setup you just created must be stored as a preset to be recalled later.

NOTE – If a knob is assigned to the expression pedal, the clock display will not respond to it as usual. Moving the knob reveals the current parameter value but will not change it.

Individual Parameter Control - Turning It Off

Hold down both style buttons for 2 seconds; the chorus and delay on/off lights will blink.

If any knobs are assigned to the expression pedal, the corresponding style lights will blink.

A press of the Chorus Style button cancels any Chorus knob assignment to the expression pedal and the style lights turn off. Press the Delay Style button to cancel any Delay knob assignments to the expression pedal. The Delay style lights turn off.

Hold down both style buttons for 2 seconds and the chorus and delay on/off lights will stop blinking. The six style lights return to showing which styles are selected.

Compatible Expression Pedals

Purchase an expression pedal that uses a stereo cable (TRS) such as the Roland EV5 & EV7, Korg EXP2, or BOSS FV-500L & FV-500H. If the pedal does not come with a stereo cable then you will need to purchase one that has a TRS (tip/ring/sleeve) plug on both ends.

NOTE - Expression pedals that use a mono cable (TS) will not work with your E-155.

Using A Volume Pedal As An Expression Pedal

Virtually any passive volume pedal can be used as an expression pedal with your E-155.

NOTE - An "insert cable" is required if you are using a volume pedal.

Insert cables have a TRS plug on one end and 2 mono plugs on the other end. The TRS end plugs into your E-155 and the 2 mono plugs connect to your volume pedal. A few cables that should work fine are Hosa STP201RT, Horizon HYS-P ¼", Live Wire TRS(M)-Dual ¼" and Pro Co IPBQ2Q3 or IPBQ2Q5.

NOTE – If your volume pedal doesn't work properly, swap the 2 plugs at the volume pedal.

7. AirMix™ Output

This is a cool new way to experience effects. If your guitar is plugged into the right input jack and both output jacks are used, the dry signal comes out the right output jack and the affected signal comes out the left. The two signals blend in the air to create a rich sound. This works for both chorus and delay.

Since it requires a stereo amplifier rig (two combo amps will do), it may not be for everyone, but it can be very cool sounding. Try it out if you have the amps; you might find your new sound.

8. Pedal Link™ System

This and other dual function Boomerang® pedals can be linked using an optional Boomerang® Pedal Link™ cable so that storing or recalling a preset on one will store or recall it on all pedals. Two or more Boomerang® pedals can be linked to form a complete effects system using the two identical Pedal Link™ connectors on the rear panel.

9. Front Panel

Most of the front panel bells and whistles have been described previously.

Clip Light

The Clip light, to the right of the Boomerang® logo, indicates signal level. It's OK if it occasionally turns on, but if it is on most of the time then your input signal is too hot. The pedal will not be harmed but your signal may sound distorted. If the sound is good to you then don't worry about it. Let your ears make the final decision.

10. Rear Panel

Power Connector

The included power supply plugs in here. Any power supply that has the following output specs will work: 9-10 volt, AC or DC, positive or negative tip. We try to make it easy for you.

Signal Connections - ¼" phone jacks

There are two input and two output jacks. For basic mono use, plug your instrument into the left input and connect your amp to the left output.

NOTE - The E-155 will function differently depending on which jacks are used. The following table lists all valid connections.

“X” means a cable is plugged in.

“—” means there is no cable connected.

Input		Output		Behavior
L	R	L	R	
—	X	X	—	Mono in, mono out
X	—	X	—	Mono in, mono out
X	—	X	X	Mono in, stereo out
—	X	X	X	AirMix™ Output - Mono in, effect out L, dry out R
X	X	X	—	Stereo in, mono out
X	X	X	X	Stereo in, stereo out

Pedal Link™ Connectors

These are for linking two or more Boomerang® effects pedals to create an effects system or using an external MIDI controller to recall presets.

Expression Pedal Jack

Connect your expression pedal here using a stereo cable with a ¼” TRS phone plug.

11. Do's, Don'ts & Other Suggestions

- Don't assign any knob to be controlled by an expression pedal if you don't have an expression pedal attached. You might not like the resulting behavior.
- Don't connect the output of a power amplifier to this or any pedal.
- **IMPORTANT** – Do power your rig up and down correctly. When you power up any amplified system, turn the power amp on last. Plug everything together, turn on all effects and then turn on your amp. When powering down, turn your amp off first. This will avoid annoying pops & clicks.
- Do experiment freely, even wildly.
- Do contact us if you have any comments or questions about any of our products.

12. Problems

Problem	Solution
There is no delay or chorus effect when you recall a preset.	The preset might have been stored with both effects turned off. Press the chorus & delay on/off buttons.
There is no delay or chorus effect when you recall a preset <u>and</u> the effects are turned on.	1) The Delay Level, Chorus Mix or Chorus Depth knob was setup to be controlled by an expression pedal and no pedal is connected. See “Individual Parameter Control – Turning It Off” above. 2) An expression pedal is connected and set to control effect level but is in the minimum position; move the expression pedal.
No sound comes through the pedal.	1) Move the amp connection to the left output jack. The right output jack will not work with only one input. 2) Reverse Delay is being used and the level is set to 11. Set the level to 8 or lower.
The Chorus and Delay Style lights and/or the on/off lights are blinking.	Press & hold <u>both</u> the Chorus and Delay Style buttons for 2 seconds.
The clock display doesn't move when I turn a knob.	That knob is controlled by the expression pedal. See “Individual Parameter Control – Setting It Up”.

13. Specifications

Max input signal: ~ 2V (peak), 4V (peak to peak)
Input Impedance: ~ 1Mohm (mono), approx. 2Mohm (stereo, each input)
Output Impedance: ~ 600 ohm (each output)
Noise Level: ~ -104dB (20Hz-20KHz)
Dynamic Range: ~ 107dB (20Hz-20KHz)
Sample Rate: 48KHz
Sample Width: 24 bit
Max delay: 2 second
Power connector: OD = 5.5mm, ID = 2.5mm, length = 9.0mm
Power: 9-10V, AC or DC, positive or negative tip, 600mA or greater
9-12VDC REGULATED, 500mA or greater

14. Warranty

Boomerang Musical Products, Ltd. warrants your Boomerang® Plus Phrase Sampler to be free from defects in materials and workmanship for one (1) year from the date of purchase. This warranty is void if the unit has been abused in any way.

We suggest that you fill out and return the enclosed warranty card, although it is not required for the warranty to take effect. We do, however, require that a dated proof of purchase be retained throughout the warranty period.

If it becomes necessary to return your unit to the factory, you will be responsible for the cost of shipping to us. Do not return the unit to the dealer, but ship it directly to us. Always insure a valuable item like your Chorus*Delay pedal when shipping. Please contact us before returning a unit. Our phone numbers and email info are on the front of this manual. Securely package the unit including a description of the problem, a copy of your dated proof of purchase, your phone number, a complete "return to" address and ship to: Boomerang; 3704 Oakwood Drive; Grapevine, TX 76051-4505

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