

Welcome to the Lovetone ? Flanger

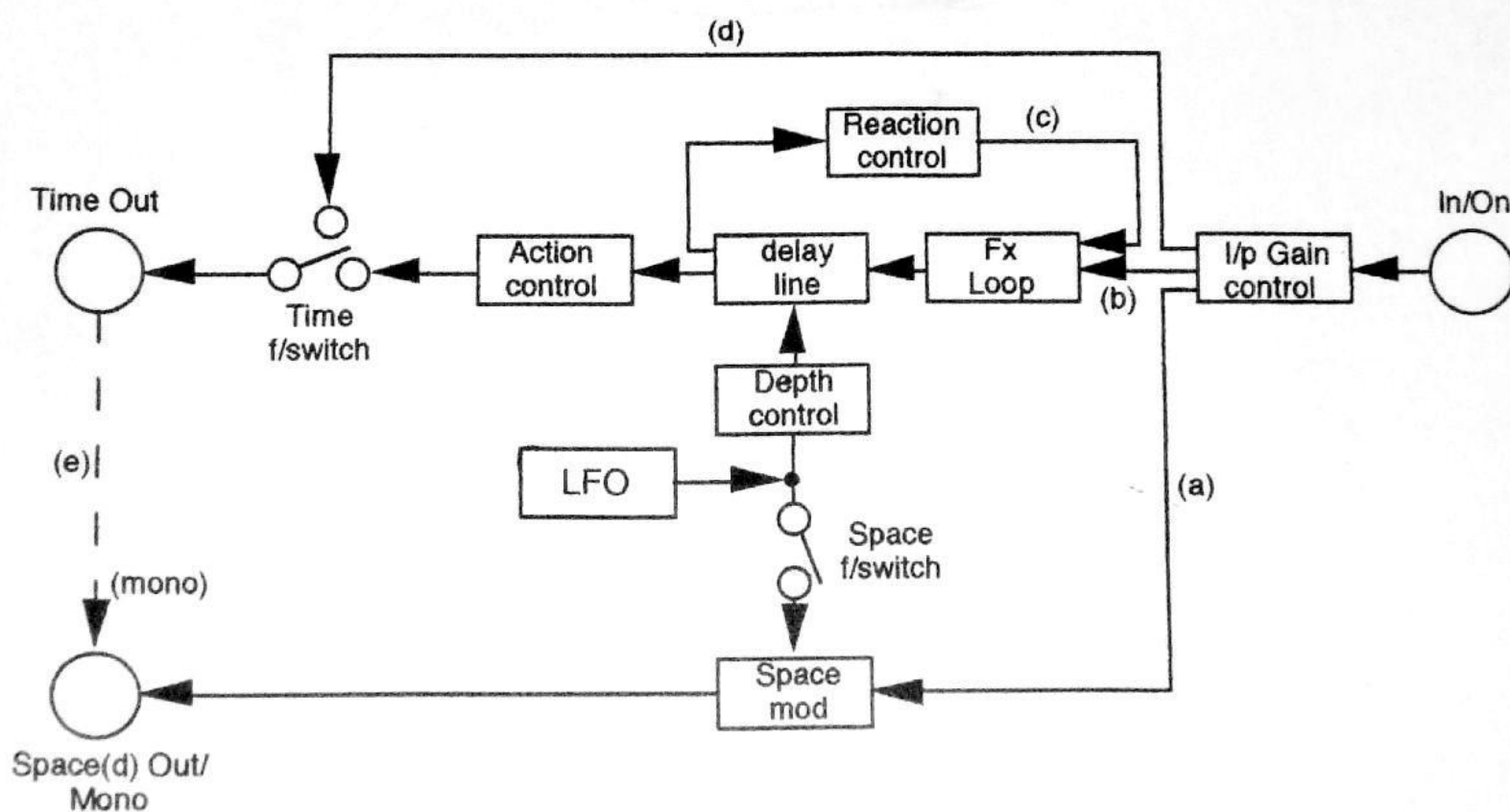
(aka The Flange With No Name™)

THIS MANUAL CONTAINS IMPORTANT SAFETY INSTRUCTIONS - PLEASE READ BEFORE USE!!

The ?™ Flanger is essentially a time delay based device but with a host of innovative features which expand its applications into previously unheard (of) areas. At its most basic, flanging involves modulation of the delay time which causes changes in pitch to the signal. This is combined with the straight signal to produce the familiar "swooshing" effect. The ?™ allows separate access to these two elements (enabling stereo use) as well as various control options. Although billed as a flanger, it will also go into realms of phasing and chorusing as well as providing genuine vib/trem FX. In practice, however, these are limiting descriptions which don't do justice to the limitless nature of this pedal! As well as being a processor the ?™ is designed to self-oscillate which means it can generate its own sounds to take it into crazed modular synth type territory! As you may have already gathered this is no one-trick pony but a highly evolved piece of kit! To get the most out of it and appreciate its hidden depths it is absolutely essential to read and understand this manual. Don't be put off though, once you have grasped the basic principles involved the ?™ is really intuitive and full of (pleasant) surprises (as long as you follow the safety advice!). The colour scheme should give enough of a clue that it will respond best to gentle coaxing as opposed to a rush job. When you get it going the tiniest movement in the right spot can trigger waves of oscillations and strange noises!

WARNING! Self-oscillations can give rise to very high output levels (up to +4dBm- approx. 1.2v RMS - at Time Out and 0dBm-0.775v RMS - at Space(d) Out/Mono). These sounds can appear regardless of input signal level or gain control setting and therefore may be considerably louder than the signal being processed. Initially keep all amp/monitor levels low until you have checked the maximum output levels available (by turning the Manual control to maximum and the Reaction and Action controls to their extremities - please see relevant sections). We strongly recommend that you become fully conversant with the interaction of all the controls **ESPECIALLY AT THE EXTREME SETTINGS** before turning up your amp/monitor levels and that you exercise extreme caution at all times! If in doubt, stand by to hit the central footswitch. This will turn off the delay path and eliminate all self-oscillations. The other source of high output levels (that are not dependent on input signal) can be Square Wave LFO modulation at high depth (see Warnings in Depth and LFO Selector Sections).

The extended features of the ?™ give it such numerous sound possibilities that it would be foolish to attempt to do them all justice here. We are therefore NOT providing sample settings (so please don't bother to ask) but relying instead on an understanding of the principles involved. We do, however, include a settings sheet which can be photocopied. Experimentation is the key!



PRECIS OF OPERATION

This is a very simplified (and not necessarily theoretically correct) description of the main functions in the pedal (please refer to block diagram above). All these points are covered in greater detail later in the manual but will be much easier to follow if you understand the diagram. The input signal level is adjusted by the **I/p Gain** control (which also affects the bypass level). It is then split into two main paths: (a) straight path which comes out at **Space(d) Out/Mono** (via Space mod - see below) and (b) delay path which goes via the **FX Loop** (normalised if nothing is connected) into the **delay line**. The (centre-zero) **Reaction** control sets the level of Regen (or "regeneration/feedback") which is fed back in before the FX loop. The FX loop is therefore included in the Regen path (c). The delay path then goes via the **Time footswitch** and out at **Time Out** at a level which is determined by the (centre-zero) **Action** control. When the **Time footswitch** is "off" the delay path is bypassed completely and the output of the **I/p Gain** section goes straight to **Time Out** as shown by (d). The LFO can be used to modulate the delay time (at an amount set by the Depth control and/or the straight path to create Space mod (at a fixed amount if selected by the Space footswitch). If nothing is connected to **Time Out** its output will automatically be routed to **Space(d) Out/Mono** as shown by (e) and summed with (a) to create a mono output.

CONNECTIONS (TOP PANEL RIGHT TO LEFT)

In/On

This is the main signal input. You can connect an instrument, mike, mixer send, or the output of another effect to attain a sufficient level. The mike should be 200-600 ohm and connected via a suitable impedance matching (1:10 step-up) transformer for high impedance 50kohm output (the in-line balanced XLR to 1/4" jack type is ideal). Please see also I/p Gain.

Power jack

This is a commonly available type of jack for connecting a power supply (a.k.a. PSU, AC adapter, wall wart). PLEASE NOTE: We have not provided a battery holder as running the ?™ (and indeed all the other "large" Lovetone pedals) on batteries long term is financially (and ecologically) unsound (the ?™ uses up to 40mA)! Also, the performance would be seriously compromised. We do, however, provide an adaptor plug which enables a battery to be connected to this socket but we must stress that this should only be used in emergencies or out of sheer desperation! This adaptor has the exact type of connector you need on your power supply (see below).

POWER SUPPLY SPECIFICATIONS

The power supply should have a Japanese-style, tip (centre) negative, "barrel" type connector. This type of connector is widely used in many devices and should be readily available from music or electronics outlets. (We do not currently sell power supplies.) PLEASE NOTE: Even though it is used widely, the connector is a non-standard part and comes in many size variations not all of which will work reliably. The ideal dimensions for the connector are 2.1mm internal diameter and 5.4mm external diameter. For safety reasons we recommend using a power supply with **double insulation** as opposed to earthing /grounding - in addition, this will help prevent hum loops. It should be well "**smoothed**"; otherwise you can also get hum problems (from "ripple" on the dc output).

Voltage: the output should be 9v or 12v dc. (or either if it has a selector switch). The ?™ is calibrated for 9v operation but can be readily re-adjusted for 12v (please see "Calibrating the Regen level"). 12v will give improved headroom and also slightly increased LFO modulation depth.

WARNING: Never run this pedal on more than 12v as this can result in permanent damage.

Current: the current rating should be a minimum of 200mA (0.2A) up to 1.5A. Higher current (more expensive) supplies will generally have a stiffer, smoother output resulting in a cleaner sound. Anything higher than 1.5A, however, would be a waste of money for running a set of pedals. **PLEASE NOTE: THE CURRENT RATING OF THE POWER SUPPLY IS ITS MAXIMUM CAPACITY – THE PEDAL WILL ONLY DRAW THE CURRENT IT REQUIRES.**

FX Loop

This acts as an insert point for the delay path, coming after the I/p Gain control and before the delay itself. Note that the Send output is **treble-boosted** and can be used as such if required. It is available regardless of whether the Loopage switch is selected (see later). Any signal connected to the Return is correspondingly treble cut. This enables it to be used as a "lo-fi" input (especially useful for all manner of nasties), and also allows for the tape echo simulation effect described later in this section. Connecting a jack into Return will break the path of the delay signal. When nothing is connected, the Send is "normalized" to the Return (i.e. no jack cable needs to be connected for basic operation). The Return has a 100K Ohm input impedance. IMPORTANT: Because in basic operation the break jack set-up described above may be sitting idle for very long periods of time, it may be necessary, every now and again, to "exercise" the contacts by inserting a jack a few times. If you experience any signal loss this is the first thing to try.

The FX Send output will also contain any Regen signal as dialed in on the Reaction control, but only when Time mode is selected by the central footswitch. This enables the loop to be included in the feedback path which allows, amongst others, the following phenomena to be exploited:

A - Multiple echo effects from a single repeat delay as found for instance on a 3-head tape machine. (Stereo machines can have tracks connected in series to double the available delay time).

B - Tape echo simulation using a digital delay which is achieved because the repeats have ever-decreasing bandwidth which gives a theoretically crap but musically brilliant and natural echo. (Keep the external delay's own Regen at zero and preferably use 100% wet mix). The flanger circuitry will "lo-fi" up the sound of the DDL making it almost bearable! As if this wasn't enough the manual control can be advanced clockwise to introduce authentic sounding tape hiss thus leading to an altogether more satisfying experience, uncannily resembling the classic vintage tape echo sound. The repeats can be wobbled using the LFO controls. Subtle use will result in stunning chorusing effects. Unsubtle use may well not!

The optimum signal level at the FX Loop insert point is lower than that at the pedal outputs. When patching in any equipment the operating level is ideally -10dBm. This is the same operating level for most effects pedals and semi-pro tape machines etc.

Trig/Gate

This is a dual-function socket which allows stop/start and continuous synchronization of the LFO.

GATE: Connect a mono jack all the way in. A positive dc voltage of between 0.7v and 15v will "freeze" the LFO as long as it is applied. When the voltage is absent (or negative going) the LFO will run as normal (at the rate set on the panel control). To sync the LFO to your track you need to set the LFO Rate to approximately the correct tempo and apply short gate signals at intervals corresponding to a whole number of bars. This will (inaudibly) reset the LFO each time. Adjusting the LFO Rate with different gate signals and modulation parameters will give many other interesting rhythmic sounds including "burst" or "ramp" FX. The Gate facility can also be utilized to switch the LFO on and off remotely by using a simple device consisting of a footswitch with a battery in series (with +voltage going to the tip of the connector and a voltage in the range given above).

TRIG: Connect a mono jack in half-way. Negative going edges of a gate signal (square wave) will sync the LFO (and will only interrupt its motion whilst the transition is made). As above, adjusting LFO Rate and modulation parameters can create interesting rhythmic FX. An audio signal of sufficient amplitude (i.e. line level) can also be used to sync the LFO (particularly in the bass region). The results, however, may be somewhat erratic compared to the aforementioned methods and will depend largely on the nature of the audio signal. You can try miking a bass drum for example (via a matching transformer -see In/On) and connecting straight to this socket. Or you could take a suitable feed from the desk. Connecting fully or half-way will yield slightly different results but both are worth trying.

CV In/Pedal

This is a STEREO jack socket that accepts 3 different types of controllers for the delay time:

1) Volume Pedal

a) Using a MONO cable:

Connect the output of a passive (i.e. non battery-using) volume pedal (e.g. Boss FV50 or FV60) to the socket. Use the Manual control

to offset the range of pedal operation (it will need to be almost fully anticlockwise to achieve a good sweep).

b) Using a **STEREO** cable (this will provide a better sweep and a greater offset range for the Manual control):

This requires making a special cable consisting of one stereo (TIP-RING-SLEEVE) jack "A" (which plugs into the ?™) and two mono jacks "B" + "C" (which plug into a passive volume pedal, B to the output and C to the input).

Wire the following connections: A TIP to C TIP, A RING to B TIP, A SLEEVE to B+C SLEEVE.

Moving your foot forward will decrease delay time for both a) and b).

2. Light Jack

Insert the jack (which is provided) into the socket. It will respond to ambient light changes and, more directly, hand movements (which you can create, with a bit of practice, very Theremin-like effects). The brighter the ambient light, the greater the available range will be. Maximum darkness will give the longest delay time (which will approach, but never quite reach, that set on the Manual control if the jack was not plugged in).

3. CV (Control Voltage)

Connect a mono jack with CV feed all the way in to the socket. Positive going voltages decrease delay time and vice versa. Time Out this is the delay path output. It is "floating" (i.e. not grounded or earthed). This is to avoid earth loops when using two guitar amps or other separately earthed equipment. The phase of this output in bypass is determined by the stereo-mono slide switch (see later). In most practical applications (e.g. when using two separately earthed amps or unbalanced mixer inputs) the pedal should function correctly. If, however, there is a buzzing sound on the Time output you will need to use a stereo (tip/ring/sleeve) 1/4" plug when connecting to this socket. You can either:

A - Use a stereo jack to jack cable, or

B - Extend your existing mono cable with a (stereo) headphone extension cable (connecting the stereo plug to Time Out), or, if none of the above works;

C - Disconnect the "ring" terminal in the stereo plug, or

D - make up a dedicated (standard single core screened mono) cable with a mono plug at one end and a stereo plug at the other (to connect to Time Out) wired screen to sleeve, core to tip with the ring disconnected. If you are only using Time Out, and any hum or buzzing persists (especially when using a guitar or other "floating" source connected to the input) you will need to earth the pedal by connecting an earthed cable to Space(d) out. If you are going into balanced mixer inputs you may experience the above problem (depending on how your unbalanced to balanced cables are wired). The correct wiring in this case is as follows: pins 1 (ground) + 2 (cold) on the XLR plug should be joined and go to screen/sleeve on the jack; pin 3 (hot) should go to tip on the jack. Alternatively, simply join the two barrels (if they are metal) or sleeves of the output jacks together with a jumper wire.

Space(d) Out/Mono

This is the straight path output in stereo use and a summed (mono) output when there is nothing connected to Time Out (see also Mono/Stereo switch section). IMPORTANT: The Time Out socket has break contacts which sit idle in mono operation. In prolonged mono use, therefore, it may be necessary to "exercise" these occasionally (see FX Loop).

CONTROL PANEL

Manual

Determines the off-set value of the delay time. This gives the default steady setting for delay time (when the Depth is at zero). Short delay times (anticlockwise settings) will give phasing. Short to medium delay times will give flanging (with Regen). Medium to long delay times will give chorusing and double tracking traditionally with no Regen but in this case it is available and sounds good! On longer delay times "cardboard tube" reverb and slap back echo are possible. Longer delay times will inevitably be accompanied by some hiss. These delay times are well beyond what is found in conventional flangers. They considerably expand the potential of the unit and the noise factor very much depends on the context of use. Indeed, on many occasions, it actually adds interesting rhythmic and atmospheric articulation. Some "dead" area at each extreme of this control is normal and provides extra offset or "swing" for the CV/Pedal input. Around these regions, modulation depth will appear to be reduced (or even non-existent) for the following reason:

If you set the control to either limit of the delay time and apply modulation it can only go in one direction so only half the modulation effect will be heard. If you set the control beyond the limit then you will need sufficient modulation depth to "pull" the delay time back into the active region. Conversely, if you set the control just before the limit, the LFO can "push" the delay time out of the active region. Modulation can only be heard while the delay time is in the active region and therefore these examples can result in interesting variations on the usual LFO theme. Depth

WARNING!! High depth settings when used in conjunction with square wave LFO modulation of the delay time can result in very loud, bass' thumping (which can be much louder than the input signal and also not dependent on it). Keep your amp/monitor volume turned down low until you have established the maximum output levels available. Determines the amount of LFO modulation of the delay time (the mean or "off-set" value of which is set by the Manual control and/or incoming CV/pedal amount). When turned past half way the modulation can become quite intense (especially with square waves) which can cause loud thumping or buzzing (at high rates) as the delay time is radically shifted beyond what was considered taste-safe by previous flanger designs. This is not a fault but just another example of the limit-pushing qualities of this unit and can actually be used to provide extra emphasis to the modulation as well as unique DIY rhythm tracks (esp. with some Regen) and eminently sample able hits and FX.

Rate

Determines the rate (or speed) of the LFO. It has a wide range from very slow right up to low audio frequencies. The green and red LED's will reflect this when selected.

I/p Gain

This enables the best headroom/noise compromise to be attained. For instruments (guitars, basses etc.) about half-way is ideal; less than this for line level and high o/p instruments (synths etc.); for mikes it should be up towards maximum. Because of the nature of the effect it is vital to optimise the signal level for any given source in order to achieve a good signal to noise ratio. Too much will result in noticeable clipping and too little will give increased apparent noise. Please note that the delay path has much less headroom than the straight (especially with Regen applied). This means that if the signal passing through the pedal is too high there will be a discrepancy between the delay and straight signal levels at the outputs. The I/p Gain level should then be adjusted accordingly. Also, when this control is at zero, no signal connected at In/On will be audible at the outputs, although any external FX Return signal and/or internal self-oscillation will not be affected. **IMPORTANT: The I/p Gain control also affects the bypass level.**

Reaction (See **WARNING!!** in intro)

Adds regeneration (aka reaction or Regen) to the delay path (via the FX loop). **IMPORTANT: This is a CENTRE-ZERO control!** When the knob aligns with the mark at 12 o'clock the Regen is at zero. Moving the knob in either direction will produce Regen in increasing amounts. "Yin" (anticlockwise) gives odd harmonics and "Yang" (clockwise) gives even harmonics. These offer two distinctly different tonalities. The ?™ is deliberately designed to self-oscillate and this will occur when the knob is turned to the regions with the broken lines. The amount of Regen available depends on the operating voltage, the setting of the internal trim pot (see below) and also the length of delay time. Regen happens more readily at longer delay times. (i.e. when Manual is turned clockwise). The pedal has been calibrated to provide full oscillation of all delay times for 9 volt operation. If you are using 12 volts the control will "kick in" earlier. If you want to make the necessary adjustments please see below.

Calibrating the Regen level:

Make sure that the Action control is not set in the middle. Open the pedal by pulling on the middle footswitch while holding on to the black outer casing. On the back of the LARGE main PCB you will see a trim pot marked "Trim Regen" about half way between the Action pot and the Space LED. Using a trim tool or small screwdriver advance the trim pot a few degrees clockwise to reduce the Regen amount (i.e. make the pedal self-oscillate a little later on the Reaction control travel). This procedure can also be used if you are generally concerned about an excessive tendency for the unit to self-oscillate, but please note that in this case the more you turn the trim pot clockwise the more sonic possibilities will be lost. If however the pedal does not regenerate enough at the shorter delay times on your chosen operating voltage (i.e.: is not self-oscillating) you can adjust the trim pot anticlockwise until self-oscillation occurs. (There is no advantage in adjusting it any further in this direction - you will just reduce the usable part of the Reaction control travel.) PLEASE NOTE: The exact point of self oscillation may vary slightly according to the orientation of the Action control. **WARNING!! The circuit board and components can be sharp - PLEASE DO NOT TOUCH!**

Under no circumstances touch or disturb any of the components on the small PCB (on the back of the pedal) as they are sensitive and could suffer permanent damage. THE TRIM POT ON THIS PCB DOES NOT NEED ADJUSTING!!

It is important to note that opening the pedal will let in ambient light which will affect the calibrating procedure. Please therefore ensure that once you have familiarized yourself with the operation you carry it out with minimum ambient light falling onto the pedal. During normal pedal use keep the case closed. This will also ensure maximum signal screening and minimum hum pick-up.

Action

Determines the mix level of the delay path (it is not a "blend" control and therefore has no effect on the straight signal). This is also a centre-zero control. When it aligns with the mark at 12 o'clock there will be minimum signal at Time Out. If you are lacking effect or have little or no signal at Time Out the first thing to check is the position of this control. Moving the knob in either direction will increase the level of the delay signal. "Yin" (anticlockwise) gives an "out of phase" signal and "Yang" (clockwise) gives an "in phase" or "normal" signal. These, again offer two distinctly different tonalities which, taken with the choices available on the Reaction control, offer a vast array of sonic options. The 1:1 balance of delay level (providing it is not self-oscillating) with the “un-modulated” straight signal occurs just before the control reaches either extreme. The most pronounced flanging sounds will be heard in these regions. PLEASE NOTE: In stereo use (i.e.: When listening to Time Out individually) you will notice that the delay effect level is equivalent to the delay bypass level when the Action control is set to approx "9 o'clock" or "3 o'clock". When the control is at the extremes there will consequently be a drop in level when delay path is bypassed. (The purpose of this is to give a good overall effect/bypass balance when the delay output is summed with the straight in mono operation). In stereo operation you can set the preferred balance and adjust the amp/monitor volume accordingly.

LFO selector switch

WARNING: Turn your amp/monitor level down and set the Depth control to LESS than half way before moving this switch until you have established the maximum levels of thumping from square wave LFO modulation of delay time, if you have a high Depth setting in one of the two switch positions giving triangle LFO modulation of DELAY TIME and then switch to either of the other two positions (giving square wave modulation). This can cause a very large and sudden increase in output volume (with a substantial bass content) which could cause permanent damage to your speakers if you have the volume too loud.

This sets the triangle/square waveform options for “Time” and “Space”, as shown by the symbols above the corresponding foot switches. Please note that the modulation depth is only adjustable for Time. Space mod is always at maximum.

FOOTSWITCHES

Loopage

Accesses whatever is connected to the FX loop return socket. It is "in" when the yellow LED is on.

Time

Selects the delay path for time-based FX as indicated by the green LED. The LED brightness shows the length of delay time (with maximum brightness for longest delay and vice versa). If modulated by the LFO it will pulse at the corresponding rate. At minimum, however, the LED does not go out completely so it still shows its status (useful on very slow LFO rates). In bypass (i.e. when the LED is off) the “Time” output is not silent but reverts to the input signal (see Mono/Stereo switch). Also, in bypass, no Regen is available.

Space

Selects the "Space Mod", which acts on the straight signal, as indicated by the pulsing red LED (which, as above, does not go dim completely). This is great on its own, or with the delay path active (whether modulated or not). With high LFO rates it is possible to get pseudo ring mod FX.

Mono/Stereo switch

Selects the phase of the Time output (in bypass only) which is necessary in order to obtain the strongest "bypass" signal (i.e. when both Time and Space footswitches are off). This switch has no effect when the delay path is on and its effect on the phase should not be confused with those of the Reaction and Action controls, whose settings conversely have no effect in bypass.

MONO SET-UPS (i.e. when Space(d) out only is connected) The switch should be set to Mono for a proper "in phase" bypass sound.

STEREO SET-UPS (i.e. when both outputs are connected) The switch should normally be set to Stereo for a proper "in phase" bypass sound, however this depends entirely on the phase relationships of whatever the pedal is going in to. For instance if it is two differing guitar amps they may well be 180 degrees out of phase with each other, in which case set the switch to Mono for the best bypass signal. In all cases simply try both settings and select the preferred one.

LOVETONE SHALL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, OR CONSEQUENTIAL LOSS, HOWSOEVER CAUSED, RESULTING FROM THE USE OF THIS PRODUCT.

Please ensure that associated equipment e.g. amplifiers (especially of the valve variety) and any other equipment connected to this product is safely earthed. Always use high quality cables, connectors and power supplies. Lovetone cannot be held responsible for misuse of this product due to associated equipment being faulty, unsafe, or poorly maintained.

This product is guaranteed by Lovetone for a period of ONE YEAR from the initial date of shipment by Lovetone to a distributor, dealer, or end user. Lovetone will, at its discretion, repair or exchange for a new one, free of charge, any faulty or defective product returned to it within the above period except where the product:

A - Is deemed by Lovetone to have suffered unreasonable misuse or abuse

B - Has been tampered with or modified either in any way not compatible with normal use as suggested in the manual, or without the express permission of Lovetone.

PLEASE NOTE: If any product is found to be defective or develops a fault please contact us first on +44 1491 571411 or email: info@lovetone.com before sending it back as most problems can be sorted out by phone or email.

IMPORTANT!! If you do have to return the pedal and are outside the United Kingdom you must write: "RETURNED FOR REPAIR UNDER WARRANTY - CUSTOMS VALUE ZERO" clearly on the customs declaration. LOVETONE RESERVES THE RIGHT TO PASS ON TO THE CUSTOMER ANY CUSTOMS CHARGES INCURRED IF THE CUSTOMER DOES NOT DO THIS.

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SIMPLE QUICK START GUIDE:

First knob (Manual) = Controls the Delay time

9 o'clock to noon = phasing

Noon to 2 = flanging

Past 2 o'clock = chorusing then a doubling effect.

Second and Third Knobs

Control the sweep

Depth and Rate = (Unless you are going for sci-fi sounds keep them left of Noon or maybe 1 o'clock).

Fourth Knob

Gain knob = I think it's best to keep it between noon and 1:30. I can't remember the specifics.

Fifth and Sixth Knobs

The last two knobs (Reaction and Action) are OFF when set to 12 noon!

I believe turning the reaction or action knobs left or right from 12 noon imparts positive or negative polarity, one way sounds kind of hollow while the other way sounds a little deeper and fuller.

Fifth Knob

The second to last knob (Reaction) controls the amount of delay feedback/regenerated in the line. Any setting before 9 o'clock or after 3 o'clock generates sci-fi and typically unusable sounds. Stay within the solid lines on the range (9 o'clock thru 3 o'clock), the dotted lines indicate experimental sounds. Again noon is off for this knob too.

Sixth Knob

The last Knob (Action) controls the mix of the delay to the signal so if it's set at noon you will get none of the time-based effects selected by the position of the manual knob. 12 noon on Action = No time based effects like phase/Flange/Chorus/Doubling