

Welcome to the Doppelganger™

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

The Doppelganger™ is, in essence, a twin oscillator phaser/vibrato but, being in the grand Lovetone tradition, it offers a whole range of classic uses never previously available in one unit, as well as many new sounds. Its trademark is an unparalleled purity and transparency of tone and harmonic richness. On some of the more subtle settings it can appear as though there is not much going on and you can literally forget it's there - until you switch it off!

Even though it is quite easy to use the Doppelganger™ without any knowledge at all, it is essential to grasp the following basic concept to understand what is going on. The phaser is split up into low and high frequencies (LF & HF). These can be thought of as being separate entities, each with their own depth (**Span**) controls. They can either be driven together by LFO 1 (i.e. LFO 1 foot switch mode) or separately by LFO 1 and LFO 2 respectively (i.e. Dual LFO foot switch mode).

HOUSING (BENEFIT)

Opening up the Doppelganger™ and accessing the battery compartment is so simple it can stump the most highly developed musician's brain. There are no screws - you just lift the front panel up by the middle foot switch while holding down the outer (black) casing and voila - as they say! Keep the case closed when in use for maximum signal screening and minimum hum pick-up. This also prevents ambient light from disrupting the optical workings.

WARNING!! The circuit board and components can be sharp - PLEASE DO NOT TOUCH!

Battery holder

The clip on the back of the battery holder (opposite the contacts) is designed to latch on to the back of the battery. The ideal way to remove the battery is with a pen by lifting the back of the battery and sliding the pen underneath, between the battery and the holder, thus releasing the battery from the clip. Alternatively you can lever it out using a suitable blunt instrument (e.g. medium to large screwdriver) but make sure you lever against the battery holder and not the pedal casing.

WARNING!! Never attempt to remove the battery by pulling on it with excessive force! Avoid placing your hand near the circuit board.

CHROME KNOBS

For that extra spangle carefully remove the plastic covering the shiny bit - you'll be amazed at the difference!

CONNECTIONS (TOP PANEL RIGHT TO LEFT)

In/On

Connecting a jack to this will power up the unit (whether switched on or off). This will use battery power (if power jack is not connected). You can connect either the output of your instrument, or the output of another effect or an fx send from a mixer.

Power jack

This is a commonly available type of jack for connecting a power supply (a.k.a. psu, AC adapter, wall wart)

WARNING!! If you wish to use a power supply you must remove the battery first. Never have a battery and a power supply connected at the same time (see below).

BATTERY OR POWER SUPPLY? (or "How To Get Your Money's Worth!")

Even though the Doppelganger™ will run on a suitable battery (e.g. 9 volt PP3, 6F22 or MN1604 type) and a battery holder is provided, we strongly recommend that this is only as a last resort as the performance of the pedal will be seriously compromised! The inherent voltage decrease (esp. over time) and the relatively high internal resistance of batteries (compared to the low impedance of a good quality regulated power supply) will not be flattering to the potential sound. A power supply will give better headroom and less distortion, especially on high resonance (colour) settings. 12 volts will give extra headroom (which may be desirable for studio use) but please note that it will result in a slightly different frequency response. **NEVER RUN THIS PEDAL ON MORE THAN 12 VOLTS!!**

The maximum current consumption is approx. 50mA which means that even an alkaline battery will not last very long. In the long term it makes absolutely no financial (or ecological) sense to keep replacing them when you can buy a power supply for literally the price of a few disposable batteries. Please note also that a single power supply can be made to run a number of pedals (easily done with a more-than-fashionable Lovetone pedal board!).

POWER SUPPLY SPECIFICATIONS:

The power supply should have a Japanese-style, tip (centre) negative, "barrel" type connector. This type of connector is used widely in many devices and should be readily available from music or electronics outlets. (We do not currently sell power supplies.)

IMPORTANT!! 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 connector has a dual function; to supply power to the pedal and also switch out the battery supply if a battery is fitted. The ideal dimensions for the connector are 2.1mm internal diameter and 5.4mm external diameter. Lovetone cannot guarantee that the correct connector will be used at all times by all customers and we therefore stress that when using a power supply you remove the battery first. Do not connect a power supply without checking to see if a battery is fitted.

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). The power supply should also be of the regulated type, which means that its output voltage should not vary significantly with load.

Voltage: the output should be 9v or 12v d.c. (or either if it has a selector switch).

WARNING!! Never use 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.

Direct Out

Provides a "buffered" version of the input signal. It enables the Doppelganger™ to be used in stereo by sending this output to one amp and the main pedal **Out** to another. The most pronounced effect in this case will be in Vibrato mode (see **Phase/Vib** foot switch section). You could also use this output as an extra send to another effect.

Pedal 1 and Pedal 2

WARNING!! These pedal input jacks are to be used only with a passive (i.e. non-battery using) volume pedal such as the Boss FV50/FV60. DO NOT CONNECT ANYTHING ELSE TO THESE (E.G. INSTRUMENTS, AMPS ETC.) AS THIS COULD RESULT IN PERMANENT DAMAGE.

Connect the **output** of the volume pedal to the socket. Pedal 1 affects **LFO 1 Rate** and Pedal 2 affects **LFO 2 Rate** (see below under **OSCILLATOR SECTION**). Both pedal options are wired in series with the pot (i.e. they add to whatever is dialled in on the pot). With the pot set at minimum, the range of the pedal will approximate the normal travel of the pot. With the pot at maximum, the pedal will provide extra slow LFO rates. Please note that a standard volume pedal will increase the rate as you lift the pedal up in both cases.

LFO 1 Triangle/Square selector

Switches between triangle ("normal") and square wave for LFO 1 only (LFO 2 is unaffected).

LFO 1 Slow selector

Gives extra slow LFO 1 rates (LFO 2 is unaffected).

Out


Pedal output.


The control panel is basically divided into two halves, oscillators on the left and phase shifter on the right, meeting in the middle with the two span controls.

OSCILLATOR SECTION

LFO 1 Rate and LFO 2 Rate

Determine the frequencies of oscillator 1 and oscillator 2 respectively.

 means LF and HF will be modulated "in phase" i.e. together.

 means HF phase is inverted (180° out of phase with LF) so in LFO 1 mode LF and HF will be driven alternately. (In Dual LFO mode the HF is still inverted, offering extra sound possibilities, however the result is obviously different as in this case it is no longer linked to LF).

LF Span and **HF Span** are very interactive controls which not only determine the depth of LF and HF phasing, but also the frequencies where phasing occurs as well as the oscillator waveforms (which become more "squashed" as the controls are turned up). The green LEDs give a visual indication of LF and HF status. They are also used to show whether the effect is on or bypassed.

PHASE SHIFTER SECTION

Colour

Controls the LF resonance. For more subtlety back off the control anti clockwise.

Blend

Controls the level of phase shifted signal. In **Phase** mode (see "**Phase/Vib** foot switch" below) this determines the blend between phase shifted signal and straight signal (which makes it a depth control). In **Vibrato** mode there is no straight signal so it becomes a simple output volume control.

True and Spectral

These only operate in bypass. **True** gives negligible loading, so your instrument will retain its natural sound. **Spectral** gives a "scooped" bypass signal reminiscent of the Hendrix Univibe sound. This is because the signal is still going through the filter even though there is no phase shifting. Please note that the tone in spectral bypass is dependent on the **Phase/Vib** foot switch setting (see below) as well as the settings of **Colour** and **Blend**. This means that the Doppelganger™ also doubles as a variable tone shaper (around some very guitar-friendly frequencies).

Bypass foot switch

This switches the effect on or off (as indicated by the green LEDs).

Phase/Vib foot switch

Switches between phaser and vibrato modes. (Phase is basically vibrato with the straight signal added). **PLEASE NOTE: Blend will therefore affect the output signal level in vibrato mode as well as when the pedal is in Spectral bypass in vib mode.** The red LED indicates phaser mode. If using the pedal in stereo it should be set to vibrato mode otherwise there will be a straight signal going to each amp thus potentially swamping the effect. By all means try phase mode as well. It may give an interesting sound, especially if you are using markedly different sounding amps.

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 (particularly 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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