THERMIONIC CULTURE

THE SOLO VULTURE

valve distortion unit

OPERATING MANUAL

WARNING

Do not take this unit seriously. The Solo Vulture is a ‘fun’ effects unit and has been designed for maximum pleasure!

However, for your personal safety, please read this operating manual and this warning thoroughly before using the equipment.

This unit must be installed in such a manner that operator access to the mains plug is maintained. Where the product is to be rack mounted, this may be achieved by having access to the disconnection device for the whole rack.

To reduce the risk of electric shock, it is essential that the unit is disconnected from the mains supply before removing the cover.

Please also note that the power supply capacitors within this unit can remain charged even after the mains supply has been disconnected. It is essential that these capacitors are discharged after the mains supply has been disconnected and the covers have been removed.

In the event that this unit has been dropped or has suffered an impact, an electrical safety test must be carried out before reconnection to the mains supply.

This equipment is not intended for use in explosion hazard environments. It must be used and stored in studio conditions, such that the ambient relative humidity does not exceed 80%, nor is the temperature to be allowed to drop to a level, which would cause dew point to be reached.

Please ensure that adequate ventilation is provided and that the ventilation slots are not obstructed. When rack mounting this equipment, a fan may be required to provide sufficient airflow.

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1 Introduction

The *Solo* Vulture is a version of the classic 2 channel Culture Vulture.

It's a mono unit, but it's much more than half of a Culture Vulture.

Designed initially for guitar use, it's very much at home with any instrument(s), including keyboards, bass, violin, cello, brass and even percussion.

It has higher gain and will amplify any electric instrument to get full effect from this new circuit. The rear input is "semi floating" so no unwanted (solid state) distortion will be added if a balanced source is plugged in. This input has the same gain as the DI, but is cut out when a jack is plugged into the DI input.

The same "distortion" valve is employed (6AS6 type). The features found only in the "Anniversary" edition are available along with a Presence switch, extra top lift pre-distortion at high gain settings, and a 4 position low pass filter to reduce unwanted harmonics. The special Hi Q mid lift feature is available on all Distortion settings.

The circuit comprises 2 switchable channels, CLEAN & DIRTY. The Clean channel is there for comparison with the Dirty signal and the volumes of both can be controlled by the 2 controls under the meter. Switching between the channels is totally silent yet solid-state free, using light dependent resistors. This means that the true Thermionic Valve "warm" sound is fully retained.

The Clean channel can also be used for gentle (2^{nd} harmonic) distortion, though not on low level inputs.

2 Controls & Meters

2.1 Input gain

This switch varies the amount of gain in the 1st stage of the *Solo* Vulture. The figures, 5 to 35 dB, represent the gain available to the Clean channel with the Clean output control set at 8, so 5 dB more gain is actually available. The first stage goes straight to the output stage when Clean is switched in. When Dirty is selected, a top lift is introduced in the 25 & 35 dB positions to give more "bite".

2.2 Drive

This control varies the amount of signal fed to the 6AS6 type distortion valve. The higher it's set the more gain and distortion.

2.3 Presence

A 3 position switch. 1 "flat", 2 a broad mid lift favouring the upper mid range, 3 a broader mid lift with more boost.

2,4 Bias (and meter use)

This control varies the current through the 6AS6 type valve by changing the positive voltage on its cathode. The actual current is shown on the milliameter. When the Vulture is starved of current the sound appears thinner and when over-fed it becomes warmer and fatter. The typical setting is 0.25 – 0.3 mA, which also gives lowest distortion. When the *Solo* Vulture is pushed to heavy distortion the meter will twitch.

N.B. The Bias control in naturally noisy in operation, but should be quiet when set.

2.5 Distortion Type switch

This switch controls the configuration of the special 6AS6 type valve:

T: The valve is a Triode, which is smoothest, all 2nd harmonic distortion.

P: It becomes a natural Pentode, which has higher gain, especially with low bias, and some odd harmonics come in giving a more "aggressive" sound. This setting is favoured by most users.

SQ1: The SQ settings take advantage of the unusual valve for effects. SQ1 is similar to P but when the valve is pushed it distorts rather more, compresses then over-compresses so much so that it reaches cut-off point. Use with caution.

SQ2: The configuration is now more Tetrode than Pentode and is a seriously distorting setting. Can be quite fun. An octave may be added at high bias settings. (also with SQ1). Needs more "Dirty" output gain.

2.6 Mid Lift

This switches in a very high "Q" tuned circuit which is designed to boost frequencies that relate to musical chords. It can be very effective when it's switched to the key of a song and can really make a guitar or other instrument stand out in a mix. It's most effective in **P** distortion setting with medium bias.

2.7 LPF (Low Pass Filter)

This is a sharp (12dB/octave) filter to remove unwanted high frequencies:

15kHz subtly takes off a little HF “tizz”
9 kHz for unwanted “hard” distortion effects
4 kHz is a pretty drastic setting. Can give a warm “valvy” sound.

2.8 **Dirty** and **Clean** output level controls

These 2 controls set the sound level sent to the output valve. The channels can be selected by the toggle switch to the right or a foot pedal. Switching is totally silent. When using the *Solo* Vulture, set the 2 controls to get a comparison between Clean and Dirty, also an adequate output level. The headroom of this unit is higher than that of the standard Culture Vulture.

For T & P distortion settings, the **Dirty** will be set much lower than **Clean** but in the SQ settings it will be (possibly) higher.

3 Operational Hints

It's impossible to list all the options here, as it's up to the user to find their own best settings.

Just a few guide lines:

For electric guitar, use higher bias settings for rhythm and lower for solo as you get a more open, warmer sound. Turn up the Presence and use the LPF for a very "middly" sound. Tune the Mid Lift to the key of the song to be most effective.

If playing live then ideally use the *Solo* Vulture as a pre-amp for a power amplifier – or even in the effects loop. Of course use the low level output for these purposes.

When mixing, the Mid Lift is really useful at lower distortion settings and 0.2 – 0.3 on the meter when this control acts more dynamically, so the instrument can jump out of the mix without using too much space. Use in **P** mode for most effect. Tune to the right frequency.

4 Inputs & Outputs

There are 2 input and 2 output sockets, all standard TRS jacks.

The Line Input at the rear is “semi floating” so that it can be used with balanced signals without quality loss. The front DI input is unbalanced.

The 2 outputs are both unbalanced with the Lo 20dB (approx.) below the Hi for use in re-amping, etc.

5 Servicing & Maintenance

The unit comes with a 12 month warranty, including valves. In the event of a fault developing within the warranty period it must be returned to the dealer who sold it, or to our factory at purchaser's expense, otherwise the warranty is invalidated.

5.1 Valves

One of the most common faults is a valve failure and we may be able to be able to diagnose this by 'phone or email so contact our Technical Support department first – technical@thermionicculture.com.

Valve complement (near equivalents in brackets):

Input - ECC83 (12AX7, 7025);
Distortion - 5725 (6AS6, M8196, CV4011);
Output - 5965 (12AV7)

New valves can be supplied by Thermionic Culture Ltd.

5.2 Operating voltage / Fuse

The Solo Vulture is switch selectable to operate from either 230V or 115V 50/60Hz AC mains supply.

NOTE: Mains fuses may be replaced in accordance with the following table:

Operating Voltage	Fuse Rating
115V	T500mA 20mm type
230V	T250mA 20mm type

6 Specification

6.1 Clean channel

Measurements with Clean gain at max, 10kΩ load, 5dB gain.

Distortion (THD)	<0.1% (+4dBu ouput level)
Frequency response	35Hz to 20kHz (+0, -2dB)
Max. O/P Level (MOL)	+23dBu, 2% distortion
Noise (30kHz filter)	98dB below MOL
Max gain (35dB setting)	40dB

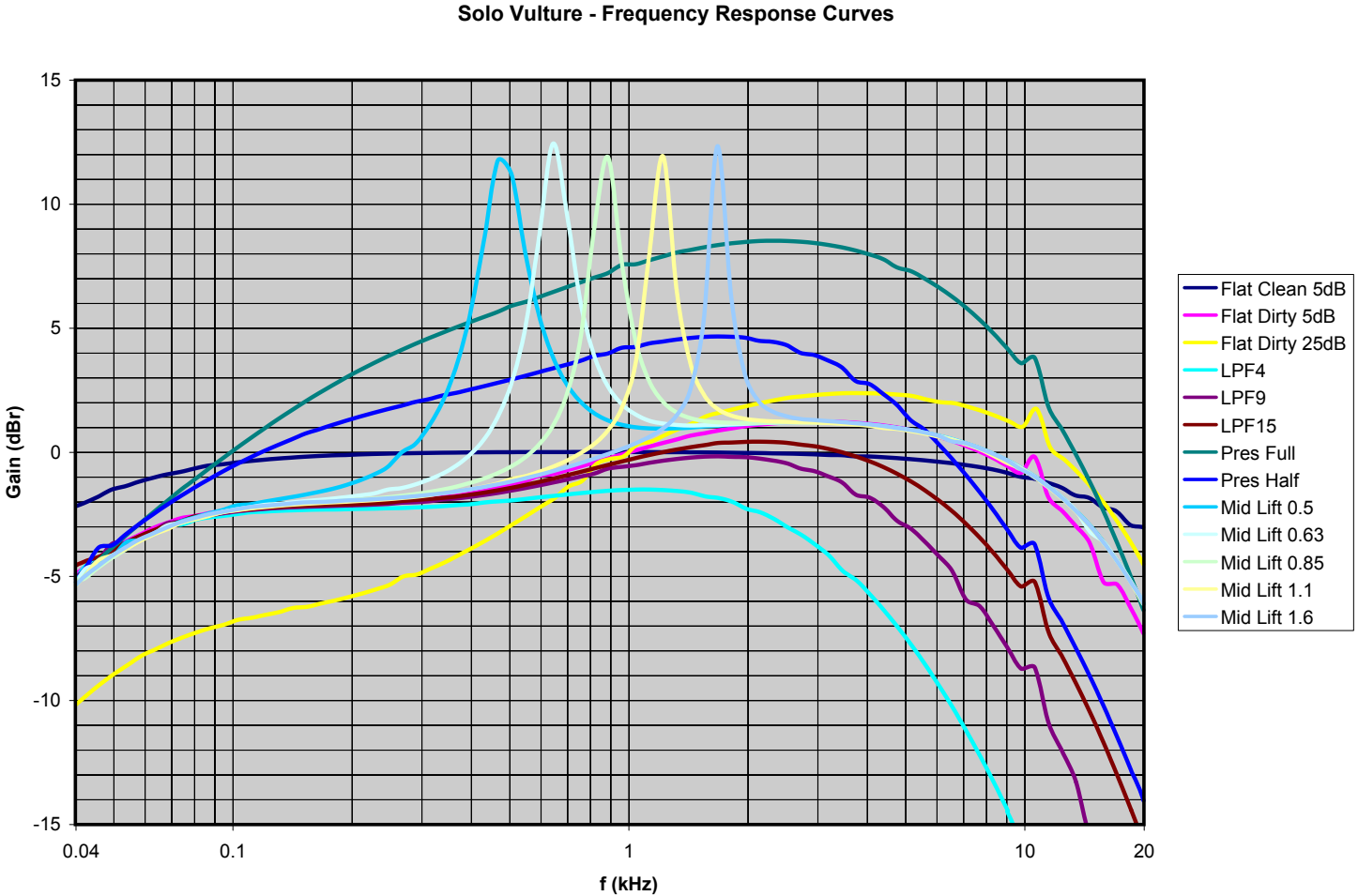
6.2 Dirty channel

Measurements with Dirty gain at 8, 10kΩ load, bias control at 5.5, P selected, controls at "flat".

Distortion (THD)	<1% (+4dBu ouput level)
Frequency response	60Hz to 15kHz (+0, -2dB)
Max. O/P Level (MOL)	+24dBu, 20% distortion
Noise (30kHz filter)	88dB below MOL
Max gain (35dB setting)	>75dB
Max. possible distortion	>97%

6.3 Impedances

Both inputs: 50kΩ
Hi Output: 240Ω
Lo output: 1.7kΩ


Solo Vulture - Frequency Response Curves
15
10
5
0
-5
-10
-15
Gain (dBr)
0.04
0.1
1
10
20
f (kHz)
Flat Clean 5dB
Flat Dirty 5dB
Flat Dirty 25dB
LPF4
LPF9
LPF15
Pres Full
Pres Half
Mid Lift 0.5
Mid Lift 0.63
Mid Lift 0.85
Mid Lift 1.1
Mid Lift 1.6

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