

THERMIONIC

CULTURE

**THE CULTURE VULTURE**  
*mastering PLUS*

OPERATING MANUAL



# WARNING

Do not take this unit seriously. The Culture 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.

The Culture Vulture Mastering PLUS, though valve based, does not run exceptionally hot. Other equipment can be mounted in the rack directly above and below it, as long as the rack is well ventilated and the ventilation slots are not obstructed.

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## 1 Introduction

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The Culture Vulture is the first and only all valve unit, dedicated to producing the best harmonic distortion money can buy. It can 'warm' a sound gently, or create a noise like a 200 watt guitar stack overdriven with all speakers slashed.

The Culture Vulture is a two channel unit for adding harmonic distortion to a variety of input sources. By biasing and configuring the distortion valve (5725), four types of distortion with infinite variations can be achieved.

Although the unit can be 'clean' (less than 0.2% THD), added valve distortion may be quite desirable, improving naturality and smoothing off unwanted digital spikes. But The Culture Vulture can be used for effects! Push it and try it!.

The user has total control over the type and amount of distortion, which can be changed from even to odd harmonics or a combination of both. Starved, the sound from The Vulture becomes thin and loses its body, overfed, it becomes fatter and more rounded.

The Culture Vulture features two channels which can be used independently on individual tracks, or put across a whole stereo mix.

The CULTURE VULTURE MASTERING was developed for mastering engineers to add subtle distortion to a mix or pair of tracks for "warming up" the sound. The Mastering + Culture Vulture is designed to provide accurate recallable facility plus the ability for even more extreme distortion, so that it can be used in all applications where valve distortion is required.

We have used a Mullard M8100 input valve to achieve very low noise. The extra "drive" position gives some of the bite of "overdrive" but with far less noise. The extra control over output level with the (-10db) switch allows the unit to be driven into extreme distortion but still have a respectable stereo balance. However the "P2" and "P3" positions will become so extreme that true stereo won't always be applicable.

## **2 Controls & Meters**

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### **2.1 Drive**

This control is really in 2 parts, a switch and a rotary pot. The switch gives a coarse control and the pot a fine control of the signal input level. At the first position “Normal” (for line level signals) the frequency response is flat. The “Drive” position increases the gain by 10dB and adds some top end for extra bite. “Overdrive” is 28dB above “Normal” and can be used for extreme distortion effects at line level, also guitars and other low level sources.

The drive pot controls the amount of signal you are feeding to the 2<sup>nd</sup> valve, a 5725, so the higher it's set the more effect. It should be used in conjunction with

### **2.2 Output Level**

Again this control is in 2 parts, a switch (-10dB) and a rotary control. This controls the signal going to the output valve. Usually set rotary control between 0 and +4 with switch down for low distortion at line level. Set the switch to (-10dB) and reduce the rotary control when pushing the distortion valve at other than P3, which always requires maximum gain

### **2.3 Bias (and meter use)**

This control varies the current through V2 by changing the positive voltage on its cathode. The actual current is shown on the milliammeter. When the Vulture is starved of current the sound is thinner and when over-fed it becomes warmer and fatter. The best setting for low distortion is 0.25 mA. When the Vulture is being pushed into heavy distortion the meters will twitch. **N.B.** The bias pot is naturally noisy in operation as all of the valve's current is flowing through it, but it should be silent when set.

## **2.4 Function Switch**

“T” and “P1” positions mean that V2 is configured as a triode (all even harmonics) or a pentode (odd harmonics).

“P2” is an exciting new discovery. It will sound quite clean until overload is close when lots of harmonics are suddenly added, and at higher levels over-compression will occur and dynamics are inverted

“P3” is a very distorted sort of pentode. Rectifying effects can be obtained when lowering the bias and this can result in what sounds like pitch change to the ear.

## **2.5 Filter**

This is a low pass filter taking out frequencies above 7 kHz at 12dB/octave.

## **2.6 Bypass**

This switch links the input to the output directly, cutting out the electronics of the Culture Vulture.

### 3 General Operational Hints

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When just “warming” the sound use “T” or “P1” settings with output level control at 0 or line level output. Turn down the control as you increase input level and/or with increased V2 current settings. Turn to max for most “P2” & “P3” applications.

The “cleanest” setting for the bias is 0.25mA and “T” function, this should be used to give sounds just a bit more “naturalness”. The unit will have unity gain at this setting when Drive & Output level controls are set to “0”.

A good setting to simulate analogue tape distortion is “T”, normal drive, meter set to 0.3-0.4 mA. The most popular setting, generally, appears to be “P” 0.4mA with Output level reduced.

On the “P2 & P3” settings only, it’s a characteristic of the type of valve used that a frequency doubling effect can occur when distortion sets in. This can be quite interesting and is most likely to occur with high bias (around 0.1mA current).

Use the “drive” setting of the “drive” switch if you want a little more “bite” or brightness. There may be sufficient gain to use this setting for some electric guitars when DI’d, if a low bias (high current thru V2) is used. Otherwise, use the “overdrive” setting when DI-ing guitars

Use the “filter” switch to reduce unpleasant upper harmonics, especially useful when using “P2 & P3” effects.

If using the unit across a stereo mix or group, then ensure that you set it up with both meters reading the same rather than relying on knob positions. You can only expect a properly balanced stereo picture when the “function” switch is set to “T” or “P1” positions. Little chance on “P2 & P3” position.

## 4 Inputs & Outputs

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All inputs and outputs are TRS ('stereo') jacks.

The DI inputs on the front are connected unbalanced with ring shorted to sleeve (ground).

All line inputs and outputs, at the rear, are connected with the signal connected to tip and ring and sleeve grounded.

The user has the option of taking the output direct from the output valve by using the unbalanced outputs or via a balancing transformer using the balanced outputs.

The unbalanced output gives a more 'open' sound, whereas the balanced output will be a little more 'rounded' with some bass distortion probable at high levels. Using the balanced output will also help to avoid any hum loops so may be quieter.

Both types of output cannot be used at the same time. Use of unbalanced disconnects balanced.

Always use twin screened 'balanced' cable when connecting line inputs and outputs. There should be no problem whatsoever when connecting line inputs and outputs into balanced or unbalanced systems.

## 5 Servicing & Maintenance

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### 5.1 Valves

The unit comes with a 12 month warranty covering all parts, including valves, and it is essential that it is returned to our factory or to the dealer from which it was purchased for repairs to be carried out otherwise the warranty is invalidated. There is, however, one important exception to this rule:

Valves are quite delicate items and the most common cause of failure, despite our choice of high quality military grade ones.

If a fault occurs on one channel, a valve is quite likely to be the cause, so if you feel confident and willing to do the following, here's the procedure:

Unplug the power and remove the top by undoing screws which attach it. Note: 1 screw is shiny and must be replaced in the same place. The unit can be powered up safely without the top on provided that the screening plate above the circuit board is not removed and reasonable care is taken not to touch exposed connections, but don't change valves with the power on! Change over the 2 input valves. These are the ones with metal screening cans nearest the left & right sides. If you press down a little and twist the can anti-clockwise it will come off, then gently pull out the valve. Be careful when replacing that the pins line up. Do not bend them! Plug back in and see if the fault has changed sides, if not try changing the next pair in (the "distortion" valve). Be sure not to mix up the valves as they are different types and have different pin connections!

The valve in the centre is the output valve and is a double triode common to both channels. This is very robust – we have had to replace less than 11 in 11 years, so it's unlikely to be a problem in the 1<sup>st</sup> 12 months. If you want to be sure, you can replace it with the common ECC82 (12AU7) with very slightly degraded results. Spares can be obtained from Thermionic Culture Ltd.

Input valves can be replaced individually but “distortion” valves should be replaced in matched pairs if you use the unit for stereo. (otherwise it can be quite fun to have different sounds from each side – some of our old customers prefer it!)

Valve complement: (equivalents in brackets, nearest 1<sup>st</sup>)

Input            2 x 5654 (M8100, EF95, 6AK5)  
Distortion      2 x 5725 (6AS6)  
Output -        1 x 13D5 (ECC82, 12AU7)

## **5.2 Operating voltage / Fuse**

The Culture Vulture Mastering Plus 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

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A) Figures obtained with 1kHz signal, 0.25mA bias current, Function at T, feeding a 10k $\Omega$  load.

Distortion (THD):	0.2%
Frequency response:	40Hz to 17kHz , +/-1dB
Max Output Level (MOL):	+17dBu, 2% distortion (0.5dB more when using unbalanced outputs)
Gain available:	47dB line, 53dB DI input
Noise:	88dB below MOL

B) Maximum Figures:

Distortion (THD):	98%
MOL:	+21dBu, 20% distortion
Gain:	76dB, P1, min. bias.

C) Impedances:

Line Input:	20k $\Omega$
DI Input:	50k $\Omega$
All Outputs:	2k $\Omega$

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**Thermionic Culture Ltd., Harlow, Essex, UK**  
**Tel: +44 (0)1279 414770 email: [technical@thermionicculture.com](mailto:technical@thermionicculture.com)**

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