

CORNELL



Plexi 18/20

Owner's Manual

DC Developments
Musical Equipment Design & Development
Unit 13 Rosshill Industrial Park, Southend-on-sea, Essex SS2 5PZ England

Tel/Fax +44 (0)1702 610964
www.dc-developments.com

CONTENTS

Introduction	3
The Cornell Plexi Sound	3
Construction and Design	4
The Pre-amplifier	
The Output Stage	
Controls	5
Specifications	6
Valve Replacement	7

Please read all instructions before operating the amp!

WARNING

To prevent damage, fire or shock hazard, do not expose this unit to rain or moisture.

No user serviceable parts inside. Refer servicing to qualified personnel only.

This unit must be earthed. Use the correct mains cord.

If you require any further information regarding the **Plexi 18/20** amplifier, or any other CORNELL products, please do not hesitate in contacting us (details on front page).

Introduction

Thank you for choosing a Cornell **Plexi 18/20** amplifier.

Your amplifier employs valve technology, and is hand built to the highest standards. Only top quality components are used in our amplifiers, so that you can enjoy years of trouble-free use.

Please take time to read this manual, to ensure that you get the best from your **Plexi 18/20** amplifier.

Most guitarists of today will know some amplifier history, and the name 'Plexi' must be one of the best known. Plexi is a nickname for an amplifier produced between 1963 and 1969, and consisted of a range of three amplifiers of 20, 50 and 100 Watts. These amplifiers remain a legend, which is reflected in their second-hand value.

The Cornell **Plexi** amplifiers are not one-hundred-percent copies of the old 1960s models - they are more like one-hundred-and-ten-percent copies !

Research has shown us that not all amplifiers made at this time were the same. Minor changes - not just in a visual sense, but also in the basic circuit design - appear between batches made at the factory. We have taken the basic design to its finest point, tailoring the components and adjusting the circuit to produce the ultimate **Plexi** sound.

The Cornell **Plexi** amplifier is not just a good-looking reproduction antique to be admired; it reproduces that classic sound and can be gigged and gigged, and gigged.

Cornell **Plexi** Sound

The Cornell **Plexi** amplifier has a great tone that is instantly recognised, and often emulated. Some boffins will tell you that its tone is due to its simplicity of design, and this is the result of having a minimum number of components in the signal path.

Amplifiers of today offer a wide range of tones and sounds, resulting in a mass of controls that can confuse even the most enthusiastic fiddler. The result of this complexity is that most modern amplifiers sound the same, with a noticeable loss of natural tone - tone that can only be reproduced by simple design and point-to-point wiring.

Cornell 'Cream Box'

Part of the Cornell **Plexi** sound is due to our little 'cream box'. We can't tell you what's inside - it's our little secret. We think it makes our **Plexi 18/20** sound rather special. But take a listen and judge for yourself.

Construction and Design

Virtually all modern amplifiers are built using printed circuit boards, which helps to speed up production and keep down costs. There is, however, one major drawback with printed circuits - conductor tracks that connect components together often run very close to one another, creating a small capacitance. The result of this in a guitar amplifier is a substantial loss in both high frequency response and harmonic richness.

Cornell amplifiers are designed to avoid this by having point-to-point wiring throughout. Components are mounted onto a specially designed component board which is then sealed, using a conformal coating to prevent noise and the reduction of component life caused by moisture penetration.

The hand wiring, carried out by our highly-trained staff, takes time but ensures that each of our amplifiers performs to the highest standards of reliability and sound.

The stainless steel chassis holds our specially-designed transformers, and chassis-mounted (rather than circuit-board mounted) valves (tubes).

Such attention to detail ensures a very close reproduction of the full harmonic spectrum of your guitar's pickups, resulting in a pure, natural sound that will turn heads at any venue and/or that records superbly.

The Pre-amplifier

The *Plexi 18/20* is designed to be simple in use, and yet produce the quality of sounds that the musician of today expects from a professional amplifier.

There are two independent channels, each having its own **volume** control which controls the overall loudness of the amplifier. The **tone** controls are designed to work over the entire frequency range of your guitar, allowing increased amounts of low and high frequency adjustment.

Channel Two has a brighter tone than that of that of Channel One.

The Output Stage

The *Plexi 18/20* amplifier has **Class A** output design, achieved by means of fixed bias resistors. The resistance values are selected to complement exactly the characteristics of the output valve. Cathode bias resistors help to stabilise current flow throughout the lifetime of the valve. The voltage across each bias resistor will vary with the valve's characteristics. When these voltages are equal, each valve is drawing the same amount of current and the valve set is 'matched', resulting in maximum output and long life.

Controls

- 1. Input - Hi & Lo** [applies to each channel]
Both inputs offer high impedance connections for instruments. The Hi input provides 6dB more gain than the Lo input.
- 2. Volume**
Adjusts the gain of the pre-amp and is used to set the overall volume of the amplifier.
- 3. Tone**
Adjusts the amount of high and low frequency boost.
- 4. Channel 2**
The controls are the same as for Channel 1.
The overall tone of Channel 2 is brighter than Channel 1.
- 5. 18/20 Switch**
This changes the rectifier from valve (18) to semiconductor (20). The valve rectifier gives a bluesy 'sag' in output, while the semiconductor rectifier has a faster response and less sag, improving transient attack.
- 6. Low-High Switch**
This reduces the maximum power from 20 Watts in the 'high' position, to 5W in the 'low' position.
- 7. Output Connectors**
The two output jacks are wired in parallel. The output impedance switch allows an 8 Ohm or 4 Ohm load to be used.
- 8. Mains Indicator**
When illuminated, this shows that the valve heaters are on, and that there is power to the amplifier.
- 9. Mains Fuse**
The fuseholder contains the mains fuse for the amplifier. The mains fuse protects the amplifier from electrical faults.

Replace a failed fuse only with the same type and rating.

Do not operate the mains switch without a 30 second delay between operations. There is an internal thermistor to reduce mains surges. This protects the amp and helps to ensure a long life for the components. The thermistor works by introducing a resistance in the circuit when the power is switched on. Within a few seconds the thermistor heats up and its resistance reduces, allowing the full current to flow into the mains transformer. After switching off the amp, it takes a few seconds for the thermistor to cool down and to return to its initial, protective resistance value.

Specifications

POWER	230 Volt AC, 50Hz, 80 Watts 115 Volt AC, 60Hz, 80 Watts
FUSES	600mA Slo-blow for the 230v model 1 Amp, Slo-blow for the 115v model
INPUT IMPEDANCE	Hi - 2.2 MegOhm: Lo - 94 kOhm
CONTROLS	Channel 1: Volume, Tone Channel 2: Volume, Tone
OUTPUT	High: 18/20 Watts Low: 4.5/5 Watts
CABINET	Pine shell & plywood baffle. Green covering.
SIZE <i>Head</i>	Height: 7.75in (195mm) Width: 19in (480mm) Depth: 8.5in (215mm)
<i>Combo</i>	Height: 20in (510mm) Width: 24in (610mm) Depth: 9in (230mm)
WEIGHT <i>Head</i>	22 lbs / 10 Kg
<i>Combo</i>	44 lbs / 20 Kg
OPTIONS (on request)	Choice of speakers, colours

Valve Replacement

Valve life varies, depending upon playing style and application. Power valves have a much shorter life than pre-amp valves, which can last for years. In order to maintain the optimum performance of your amplifier, the valves should only be replaced with the same types of valve, as specified below.

The **Plexi 18/20** amplifier has two pre-amp valves (12AX7/ECC83), two power valves (EL84) and a rectifier valve (GZ34).

Warning

When changing valves, ALWAYS unplug the amplifier, and remember that the VALVES ARE HOT! Wait for the valves to cool, or replace the valves when the amplifier has not been used for several hours.

Valve Line-up

