SWELL

DULCET 30

Vacuum Tube Guitar Amplifier

USER MANUAL

2024

SWELL AMPLIFICATION LLC
2202 West Lone Cactus Drive Suite 4
Phoenix Arizona 85027

swellamps.com

Congratulations on your purchase of a Dulcet 30!

This amp is the culmination of a lifelong passion for electronics and sound,

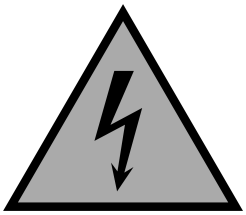
engineered with the legacy of musical innovation in mind.

We built yours with precision, dedication to quality, and love for great tone.

May it ring through every note you make.

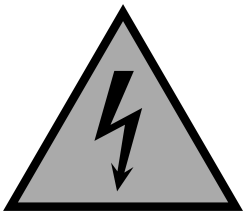
The Hunt Family

SAFETY PRECAUTIONS



NO USER SERVICEABLE PARTS INSIDE -
REFER SERVICE TO QUALIFIED PERSONNEL

USE COMMON SENSE AND OBSERVE
THESE PRECAUTIONS



WARNING! Tube amplifiers generate heat, as do reactive dummy loads and attenuators. Maintain 6 inches of open space behind the Dulcet 30.

WARNING! Do not block any of the openings on the rear or sides of the amplifier, and keep away from flammable objects.

WARNING! Ensure tubes are given time to cool down before moving amplifier, touching tubes, or replacing tubes. Tubes can remain hot for a significant amount of time after the amplifier is turned off.

WARNING! Do not expose to excessive vibration, which could damage tubes and components.

WARNING! Do not expose to rain or moisture. Do not place liquid-filled containers on or near the amplifier.

WARNING! Do not expose to dusty environments. Do not expose to direct sunlight or extremely high temperatures.

WARNING! The Dulcet 30 MUST be properly earthed. Failure to do so may present a shock hazard.

WARNING! Always use a 10+ amp rated, IEC certified 3-prong power cable. Ensure that the electrical outlet you are using is properly earthed. Avoid using extension cords or power strips that are not rated for the amplifier's power draw.

WARNING! Designed for North American mains power ONLY: 120VAC at 60Hz. Running the amp on 50Hz will increase the power transformer flux density beyond what the core can support. *DO NOT OPERATE OVERSEAS on 50Hz through a step-down transformer!*

WARNING! Always unplug power cord before replacing fuses or tubes. When replacing fuses, use only same type and rating.

EMERGENCY INFORMATION

In the case of any malfunction, such as smoke, unusual noises, or smells, turn off the amplifier immediately, unplug it, and contact qualified service personnel.

KEEP AMPLIFIER AWAY FROM CHILDREN!

Unplug the power cord if the Dulcet 30 is not going to be played for an extended period of time, or in advance of a thunderstorm. Store in a cool, dry place away from magnetic fields. Do not use excessive force in handling control buttons, switches and controls. Do not use harsh chemicals, solvents, or abrasives to clean the amplifier.

30 WATTS IS LOUD! EXTENDED EXPOSURE TO HIGH SOUND PRESSURE LEVELS MAY IRREVERSIBLY DAMAGE HEARING!

FIRST TEST DRIVE

Start with both VOLUME controls at 10:00, the rest of the controls at 12:00, and no pull-switches engaged (both footswitch lights should be OFF). Turn both OVERDRIVE MODE switches (back panel) to 0, or off.

Plug a guitar straight into the input and play. Adjust the TREBLE, MIDDLE, BASS, and PRESENCE as necessary for your guitar and speaker cabinet. If desired, engage the REVERB via the footswitch and adjust the mix to taste.

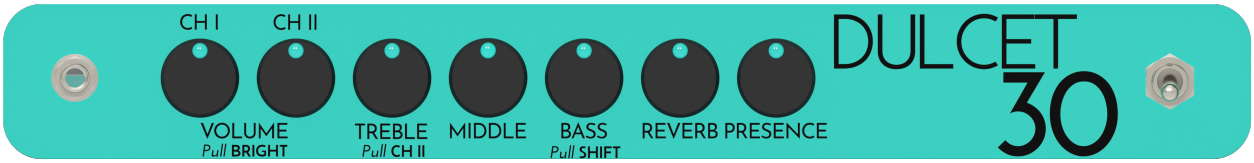
Increase CH I VOLUME to taste. Experiment with the Pull-Bright and Pull-Shift switches— trim the TREBLE and PRESENCE if necessary.

If the volume is too loud, engage the CH I attenuator, which serves a -3dB incremental master volume.
See page 5 for more info on how to use the VIRGA reactive load and attenuators.

Experiment with each OVERDRIVE MODE in CH I. Note the increase in sustain and harmonics as you progress from MODE 0 to MODE 3.

While in OVERDRIVE MODE 3, experiment with your guitar's pickup selector and volume knob(s) to get a feel for the dynamic capabilities of the Dulcet 30. Players who enjoy riding their guitar's volume control may never feel the need to leave this mode.

You should now be familiar with the range of sounds available in the Dulcet 30! Pick two sounds you like and assign one to each channel.



—FRONT PANEL—

INPUT

Stability and low-noise operation are important design objectives at Swell Amplification. Tremendous consideration went into making your amplifier as quiet and stable as possible, but tone is a fragile mistress, and we could not sacrifice her to those ends. The Dulcet 30 wants to scream.

For best results:

- Verify that your guitar has a solid string-to-ground connection, and that the control cavity is well-shielded.
- Use a single high quality cable between the guitar and amplifier for initial testing - pedals should be introduced one at a time after you've developed a feel for the amp.

BRIGHT SWITCHES

The Pull-BRIGHT switch on each VOLUME control is like those found on most classic guitar amplifiers. It allows high frequencies to bypass the VOLUME control, so the effect is more pronounced with the control set low. With most guitars, engaging the Pull-BRIGHT switch also improves the dynamic response.

TONE STACK

The TREBLE, MIDDLE, and BASS controls in the Dulcet function much like those found in countless "holy grail" U.S. and British amplifiers, with the exception of the TREBLE control, which has a more transformative sweep. It could be considered a separate tone knob unto itself.

SHIFT MODE

This mode boosts harmonic content and shifts the dynamic response towards that of a Class A amplifier. Engage via the pull-switch on the Bass control.

REVERB

This control is the mix level for the spring reverberation. The Dulcet 30 employs an unusual fold-back reverb circuit, in which the reverb drive signal is tapped post-power amplifier. This means all of the Dulcet 30's luscious harmonic overdrive is captured and reverberated back through the amplifier. In the vast majority of guitar amplifiers, the entire reverb circuit is contained in the preamp.

However, there is an upper limit to how much reverb can be folded back without causing feedback, so the Dulcet 30 is not capable of a dripping wet surf-style reverb. Use it instead to add shimmer and depth, almost like a plate reverb applied in post production.

The reverb calibration trimmer should not require re-adjustment over the life of the amplifier, but you may refer to the Tech Info on Page 9 for instructions.

PRESENCE

Power amp treble boost. Like the PRESENCE in a classic plexi or hi-power tweed amp, this control may produce a light static sound when rotated.

POWER SWITCH

This switch connects the amp to mains power. After turn-on, the Dulcet 30 should be ready to play within 45 seconds. A traditional high-voltage standby switch is also available on the back panel.

—BACK PANEL—

OVERDRIVE MODE

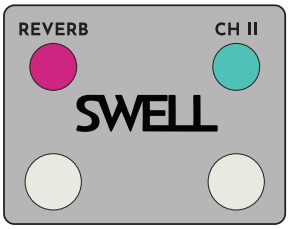
The same four Overdrive Preamps are available to each channel

- **0** is the cleanest, comparable to a 30W black-face amp.
- **1** introduces some grit, but remains open and uncompressed like an early British amp.
- **2** brings in more compression and sustain
- **3** pushes the harmonics and sustain over the top. With most guitars, harmonic feedback and infinite sustain are effortless with the volume at 1:00 or higher

FOOTSWITCH

Use 2 button LED footswitch and stereo TRS cable to switch channels and activate reverb.

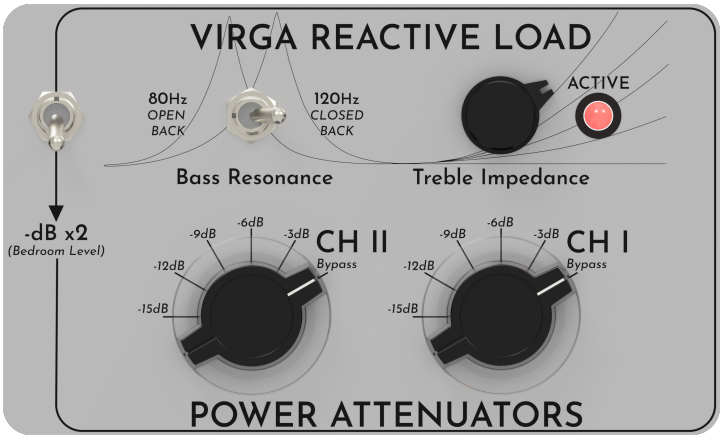
NOTE: *Engaging CH II via the front panel Pull-Switch DEFEATS the footswitch.*



VIRGA™ REACTIVE LOAD

The VIRGA variable impedance reactive load engages when the selected channel's attenuator is on, or when silent mode is active. Silent mode is ideal for practicing without disturbing others or for recording directly into an interface.

Silent mode activates automatically when nothing is plugged into the loudspeaker jacks. *The red ACTIVE LED illuminates whenever the VIRGA is engaged.*



BASS RESONANCE and TREBLE IMPEDANCE

These controls are functional whenever the ACTIVE LED is glowing (attenuator on / silent mode).

Select 80Hz (open-back) or 120Hz (closed-back) for the resonant bass frequency. Play some percussive low notes to hear the difference.

The Treble Impedance knob adjusts the angle of treble impedance curve. Treat it like a standard treble control.

You can adjust these to match the tone and response of the cabinet you are attenuating, or to create your desired response while in Silent Mode. Use the graphic overlay to help visualize the impedance curve.

HOW TO USE THE BUILT-IN VIRGA POWER ATTENUATORS:

Overdrive in the Dulcet 30 occurs primarily in the power amp, so a traditional master volume wouldn't be effective. Instead, each channel has its own VIRGA-based loudspeaker attenuator, which allows you to reduce speaker volume for each channel in -3 decibel increments. Use them as you would individual channel masters: bring down the overall volume while balancing the two channels. Then, tweak the VIRGA's impedance curve to your taste.

The bedroom level switch increases each step down to -6dB, for a maximum attenuation of -30dB.

SILENT MODE OPERATION

Remove all cables from the Loudspeaker jacks to engage the VIRGA as a reactive dummy load and enter silent mode operation. Verify that the Red ACTIVE light is illuminated, and you are ready to play the amp safely without a loudspeaker attached.

If you choose to alternate channels in Silent Mode, the volumes may not match (just as with a loudspeaker). However, you may still use Power Attenuator switches as a means of balancing the channels by switching to -dB x2 Bedroom Level mode. Otherwise, leave Bedroom Level mode OFF when in silent mode.

SILENT MODE TIP: When using any of the cabinet simulator outputs, play with the interaction between the Mic Position and the VIRGA's variable impedance curve (Bass Resonance and Treble Impedance) for powerful control over the tone and response of the emulated speaker cabinet.

DIRECT LINE OUTPUT

This uncompensated line out is tapped off the loudspeaker output, but is still active in silent mode.

To use it as part of a wet/dry rig, run a cable out to your favorite time-based effects then on to a second amplifier and guitar cabinet.

To record from this output, the signal must first be processed with a cabinet simulator or IR device.

CABINET SIMULATOR OUTPUTS

These outputs are filtered by a separate tuned reactive circuit, designed to emulate the sound of a mic'ed guitar cabinet.

Like the Direct Line Output, these outputs are always active.
The balanced XLR line output is transformer isolated and ready to plug into an audio interface.

The 1/4" output serves as a low impedance line output when used with a standard mono instrument cable, but doubles as a headphone output (with simulated stereo room effect) for late night noodling.

The Mic Position control allows you to emulate the recording microphone's position on the speaker cone.

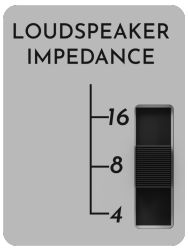
These outputs may also be used as part of a wet/dry rig, but will sound best when used with full-range amplifiers and speakers.

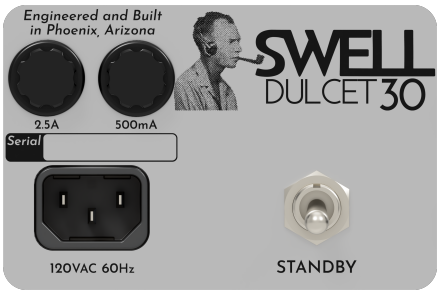
LOUDSPEAKER JACKS

Connect a 30+ Watt rated speaker cabinet to one of the LOUDSPEAKER jacks using an 18 AWG or thicker 1/4" speaker cable. Use the second LOUDSPEAKER jack to add a parallel cabinet.

IMPEDANCE SELECTOR

Due to the complex switching circuits involved in the VIRGA reactive load-based power attenuators, *it is essential that this switch is set to match the combined impedance of your speaker cabinet(s)*. 4, 8, and 16Ω are selectable. You may ignore this switch if operating the Dulcet in silent mode.





POWER INLET

Designed for North American mains power ONLY: 120VAC at 60Hz.

DO NOT OPERATE OVERSEAS on 50Hz through a step-down transformer!

The amplifier MUST be earthed with a 3-prong 18 AWG or thicker power cord.

FUSES

Use only the correct type and rating. See TECH INFO on Page 8 for more information.

STANDBY

Hi-tension power supply switch - mutes the entire amplifier. It is NOT necessary to warm up or cool down the Dulcet 30 in STANDBY mode.

—TECH INFO—

FUSES

Remove power cable before replacing fuses. When replacing either fuse, it is imperative that you use fuses of the original size and rating.

The 500mA Hi-Tension fuse will typically only release if there is a power tube failure.
The 3A Mains fuse should not release under normal circumstances.

If a replacement fuse of the correct rating immediately blows, seek qualified personnel. Send an Email to info@swellamps.com if you require assistance.

CLEANING THE COLOR-CHANGING ACRYLIC GLASS

Treat much like you would regular glass. Use glass or lens cleaner with a soft cloth. DO NOT USE ALCOHOL-BASED PRODUCTS, or any abrasive materials or compounds.

BIAS ADJUSTMENT / POWER TUBE REPLACEMENT

1. Turn amplifier off, remove power cord, and wait until vacuum tubes have cooled completely.
2. Remove back panel (4 Phillips screws).
3. Turn bias trimmer all the way down (full counter-clockwise). Turn front panel controls all the way down.
4. If replacing power tubes, carefully do that now. Be sure to observe proper orientation: the guide key points to the back of the amplifier.
5. Take out a digital voltage meter and set it to read DC voltage. If not auto-ranging, set meter to the lowest DC millivolt scale.
6. Connect the common black lead to ground (somewhere on the chassis). Connect the positive red lead to the bias test point between the power tubes.
7. Re-attach power cord and power up amplifier completely (standby off, ready-to-play mode) and wait for 1 minute.
8. While monitoring DC millivolts, slowly advance the bias trimmer clockwise.
9. For EL34, KT77, 6L6GC, 5881, and KT66 power tubes, adjust until you read a steady 9-10mV (.009-.01V) between bias test point and ground.

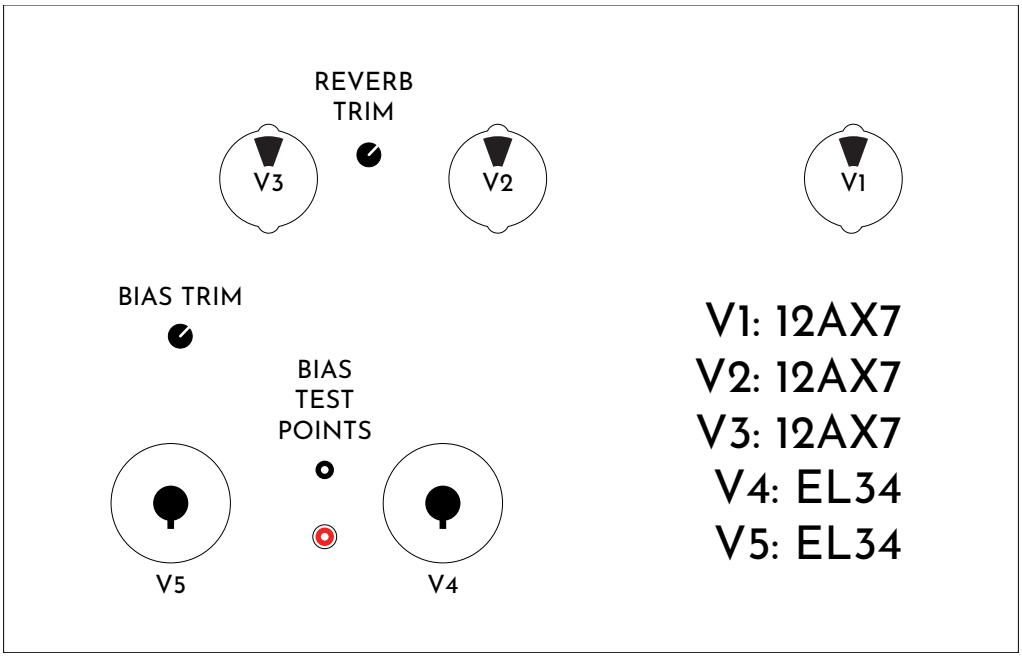
   For 6V6GT power tubes, adjust bias trimmer until you read a steady 5-6mV (.005-.006V) between bias test point and ground.

DO NOT install larger power tubes (6550, KT88, KT90, et cetera).

PREAMP TUBES 2024

The input tube in the Dulcet 30 (V1) is extremely sensitive. A low-noise tube is essential, and you may have to experiment. The only way to ensure a tube's compatibility in V1 is to test it in that position in all Overdrive modes.

Amongst modern-production tubes, we achieve the best results with the JJ ECC83 from Slovakia. We generally get decent results with the 12AX7B from China as well. The Dulcet 30 will respond very well to the right vintage tubes, if you can find them. We recommend 1960's short plate Philips tubes from Western Europe (Amperex, Mullard, Valvo, etc) above all else.



—TUBE LAYOUT FROM BACK OF AMPLIFIER—

REVERB CALIBRATION

Only to be performed if feedback issues arise after a tube swap or accidental misalignment. *If you are not experiencing reverb feedback issues, there is no need to recalibrate.*

Do not attempt to use reverb calibration trimmer to increase dwell time or strengthen reverb mix.

SETUP: Remove back panel. Turn reverb trimmer all the way down (full counter-clockwise). Set current channel to OVERDRIVE MODE 0. Turn Bright Switch ON, Shift Mode ON, Presence control all the way up. Set remaining controls to 12:00

CALIBRATION PROCEDURE:

1. Power up amplifier and allow it to warm up.
2. Plug a guitar into the input jack, and adjust the Power Attenuator to a volume that does not hurt your ears, as the following procedure will induce feedback at full output power.
3. Turn the front panel Reverb knob all the way up. Strike some percussive notes on the treble strings as you VERY slowly turn up the Reverb calibration trimmer.
4. When reverb starts to feed back, immediately turn the front panel Reverb knob all the way down.
5. Dial the reverb trimmer back a few degrees.
6. Repeat steps 3-5 until you find the maximum trim position that does not produce feedback.

TROUBLESHOOTING

Email info@swellamps.com for assistance with any issues related to your Dulcet 30.

LIMITED LIFETIME WARRANTY

Lifetime warranty on the amplifier, excluding tubes. Tubes are covered for 90 days. Email info@swellamps.com to submit a warranty claim.

Buyer is responsible for shipping costs associated with warranty service.