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USER GUIDE



Chameleon C3 Headphone Audio Processor

P/N 991035

Revision 1.0

Welcome to the world of Angry Audio, home of Audio Chameleon.

Since the beginning of time, man has sought to control the sounds of his environment. Cave-dwellers needed to eliminate echo, hunter/gatherers wanted low-pass filters for mastodons, and early settlers of Peru's high mountains had a deep desire for effective peak control (get it?).

Seriously though – engineers from the dawn of broadcasting have sought to tame the dynamics of their content with ever-improving technology. The first analog limiting amplifiers gave way to multi-band processing, which in turn was supplanted by DSP. But getting the basics right and sweating the details – those things will never be obsolete.

A good studio is built by including components that make it a convenient and enjoyable place to create the content that dazzles your listeners, drives traffic to your advertisers, and lets you keep the summer place in Jackson Hole.

Accordingly, every Angry Audio product – including this Chameleon audio processor – is designed to solve common yet critical problems, and is meticulously engineered with performance and longevity in mind to deliver pristine audio and reliable performance for many years.

Our promise and guarantee.

Folks who install Angry Audio products generally think they're the bee's knees, and we hope you'll feel the same. That's why we give you 30 days to laugh, cry, and hug it out with your Chameleon audio processor. If you find you lack the emotional attachment you were hoping for, we'll buy it back.

Every Angry Audio product is warranted to be free from defects in parts and workmanship for two full years after you purchase it. If it fails within this time period, Angry Audio, at its discretion, will repair or replace it so long as you let us know of the failure within the warranty period and can provide proof of purchase in the form of a dated sales receipt. You can call us at +1 615-763-3033, or reach us online at www.angryaudio.com/contact.

Making a good first impression.

When you unbox your Chameleon audio processor, we hope it makes a good first impression and you take a moment to appreciate the lengths we've gone to in order to create a "built for broadcast" product. All of our products are over-engineered to provide long-term reliability and guaranteed RFI immunity. Some of this is apparent – such as the durable powder-coated steel enclosure – but much of this goodness is invisible, like the premium components within. Even if you can't see it, you'll hear it!

A word or two about safety.

The fact that you've purchased an Angry Audio product proves without doubt that you're an intelligent person – not the sort who would intentionally fire up a kerosene heater in the house, or drop a frozen turkey into a vat of boiling oil. Nevertheless, our legal eagles tell us we must provide some boilerplate in order to guard against the unexpected.

Audio gadgets aren't nuclear generating stations or air traffic control consoles, but they are still intended for use by qualified personnel. To avoid electric shock, do not open the unit or attempt to perform any servicing unless you are qualified to do so.



Chameleon audio processors have an internal 120VAC / 240VAC power supply. Hazardous voltages are present whenever the unit is plugged in and may still be present on certain components even when the unit is unplugged.

The power cord is the primary disconnect device and so the outlet providing power to the unit should be easily accessible. In other words, make sure you can pull the plug in case of emergency. Use only a properly grounded outlet for power. Do not cut the ground pin or use a ground-lifting adapter, and do not defeat the polarized plug. Do not overload outlets.

Do not expose your Chameleon to rain or moisture. Do not block any ventilation openings, as lack of airflow could damage the unit or create a fire hazard. Any electronic device can fail without warning; do not use this product in applications where a life threatening condition could result due to failure.

Exercise caution with headphone volume. Permanent hearing damage may result from excessive volume.

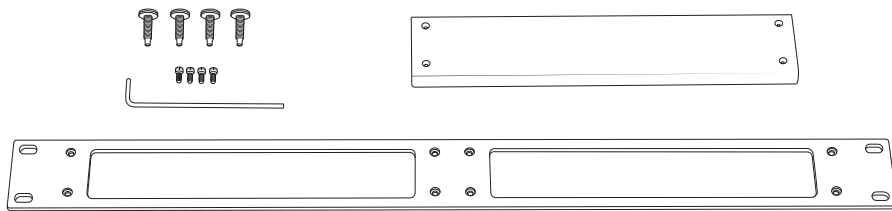
Never operate your Chameleon audio processor while driving; a car is a dangerous weapon. Do not attempt to feed raccoons by hand unless you think the nickname "Stumpy" will buff your status within your social circle. And for heaven's sake, throw out those powder-blue Sansabelt slacks you got in 1979. You're never going to get down or boogie-oogie-oogie in those again.

Mounting your Chameleon in a rack.

Your Chameleon audio processor sits on four rubber feet that ensure it won't slide off the edge of your Lucite desk when your yacht heels over too hard.

If you prefer to rack mount your Chameleon, you'll need the optional Rack Mount Kit which allows one or two units to be installed side by side in a standard 1RU rack space.

Each Rack Mount Kit consists of a custom rack panel with cutouts for all front panel controls and displays. A blank filler panel is also provided if you are mounting only one unit.



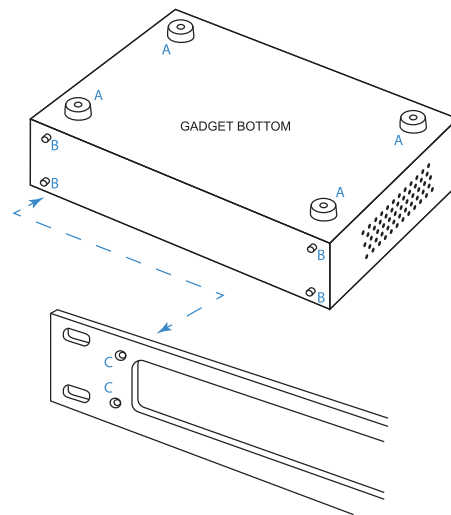
When rack mounting, remove the four rubber feet ("A") from the bottom of the gadget with a #1 Phillips screwdriver.

Remove the four front panel 3/32" hex screws ("B"). You can rummage around your toolbox for your own hex key, or use the one we thoughtfully provide in the mounting kit.

Line up the Chameleon so that the holes exposed after removing the socket head screws line up with the mounting holes ("C") in the rack panel.

Attach the rack panel to the front of your unit with the same screws you just removed. If you dropped one and it immediately got lost in the shag carpet (as these things always do), don't panic - we've included spares in the kit.

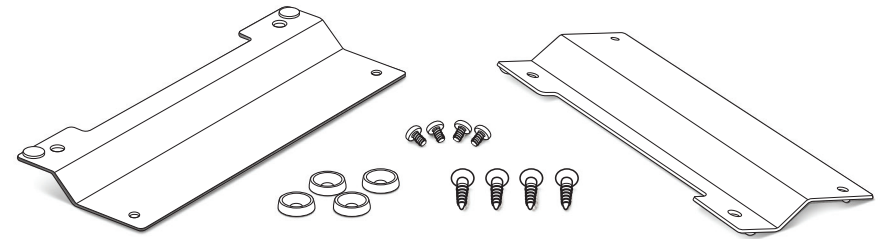
Finally, use the provided rack screws (all four, please) to mount your Chameleon.



Attaching your Chameleon to a wall.

We can't for the life of us image why you'd want to wall-mount an audio processor, but hey - you might. And if you prefer to secure your unit to the inside of a rack, cabinet, or other flat surface, the optional Wall Mount kit comes in handy.

Each Wall Mount Kit includes two brackets, four No. 6 screws, and four cup washers.

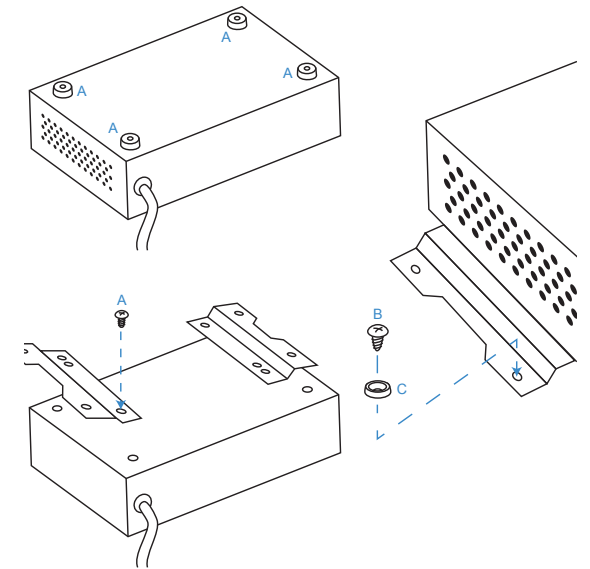


Remove the four rubber feet ("A") from the bottom of the gadget with a #1 Phillips screwdriver, being careful to save the screws.

Align the bracket holes with the holes in the bottom of the gadget, then attach the brackets using the screws removed from the rubber feet.

Use the four No. 6 screws ("B") and the four cup washers ("C") to secure the gadget to a plywood surface. Drilling pilot holes is recommended to reduce the risk of splitting the wood.

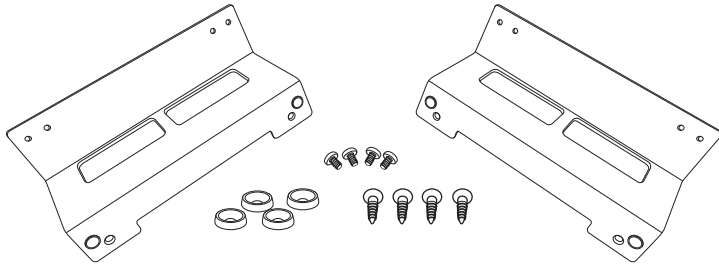
Different hardware (not supplied) will be required if you are mounting the gadget to a drywall (or other) surface.



Mounting your Chameleon under a counter.

Your Chameleon can be mounted under a counter, desk, or table using the optional Under Counter Mount Kit.

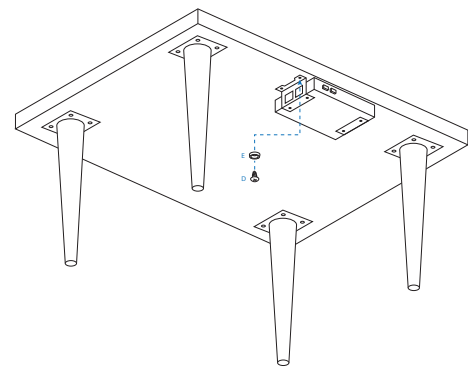
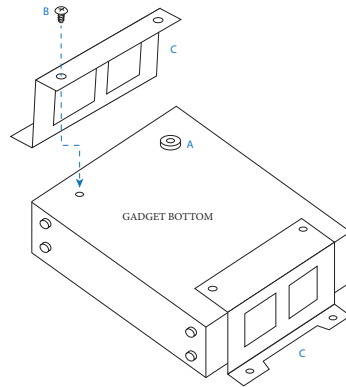
This kit includes two brackets, four No. 6 wood screws, and four cup washers suitable for mounting to a plywood surface. Different hardware (not supplied) may be needed if the mounting surface is a different material.



Remove the four rubber feet ("A") from the bottom of the unit using a #1 Phillips screwdriver, being careful to save the screws.

Line up the brackets ("C") so that their mounting holes line up with holes exposed after removing the rubber feet. Orient the brackets as shown in the diagram to the right so that the deeper flat side supports the gadget and the "notched" side faces the under-mount surface.

Use the pan-head screws ("B") removed from the rubber feet to secure the brackets to the gadget.



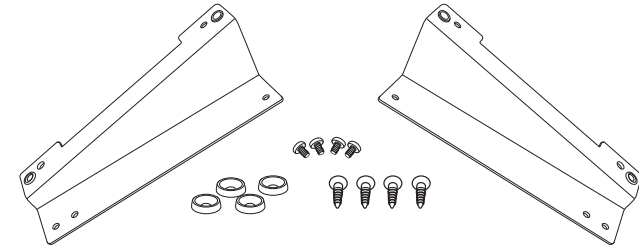
Use the four provided No. 6 screws ("D") and the four cup washers ("E") as shown in the diagram to the left to secure the gadget to the plywood underside of the counter, desk, or table.

Drilling pilot holes is recommended to reduce the risk of splitting the wood.

Using your Chameleon on a desktop.

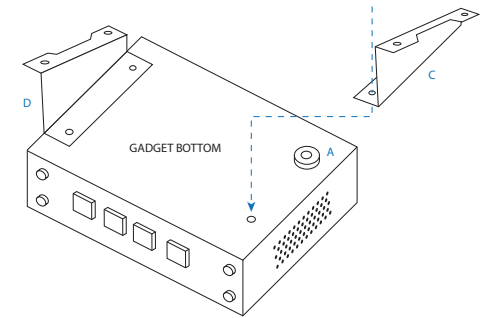
If you like the idea of using the Chameleon on a desktop but prefer a more permanent installation along with the convenience of having it angled up toward the user, we've got you covered with the optional Desktop Bracket Kit.

This kit includes two brackets, four No. 6 wood screws, and four cup washers suitable for mounting to a plywood surface. Different hardware (not supplied) may be needed if the mounting surface is a different material.



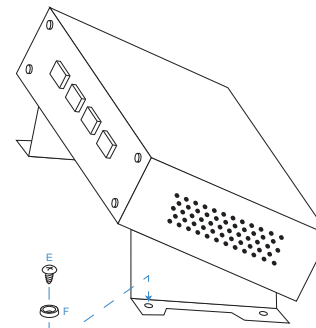
Remove the four rubber feet ("A") from the bottom of the unit using a #1 Phillips screwdriver, being careful to save the screws.

With the bottom of the Chameleon facing up and the front panel facing toward you, line up bracket "C" with the holes exposed after removing the feet on the right side of the gadget. Orient the bracket as shown in the diagram to the right so that the flat side is attached to the unit, and the "notched" side sticks up with the notch facing outwards. Use the pan-head screws ("B") removed from the rubber feet to secure the brackets to the unit.



Use the four provided No. 6 screws ("E") and cup washers ("F") as shown in the diagram above to secure the gadget to a plywood surface.

Drilling pilot holes is recommended to reduce the risk of splitting the wood.



“What do you mean, I can’t monitor off-air?”

Back in the analog days, when dinosaurs roamed the earth and promo 45s were thick on the ground, on-air personalities jacked their headphones right into a receiver tuned to their station. The station’s audio processing made everything sound bigger and louder; they could hear everything the way the listeners did and so adjust their voice and mic technique to achieve the sound they wanted.

Unfortunately, when radio stations transitioned to digital audio processing, delay was introduced into the signal chains. So much delay, in fact, that you could almost do your rap, go get a burger and fries, and come back to the station before the audio came out of the radio. It became impossible for talent to listen live to processed station audio, and monitoring the dry, unprocessed Program bus left talent feeling flat.

To combat this problem, resourceful engineers sometimes rigged up a spare analog processor for the talent, but not everyone had one lying around. Some modern digital processors have a low-latency monitor tap, which is a good solution if your processor lives in the studio with the talent — but processors are usually located at the transmitter site, making that “fast” HP feed about as useful as a screen door on a submarine.



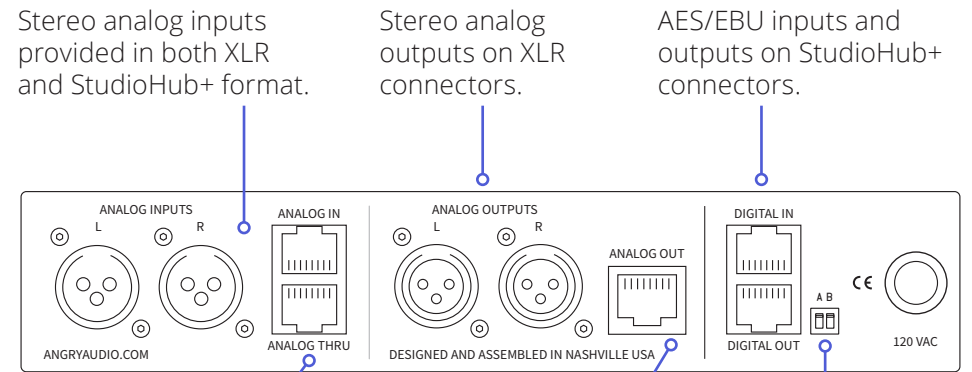
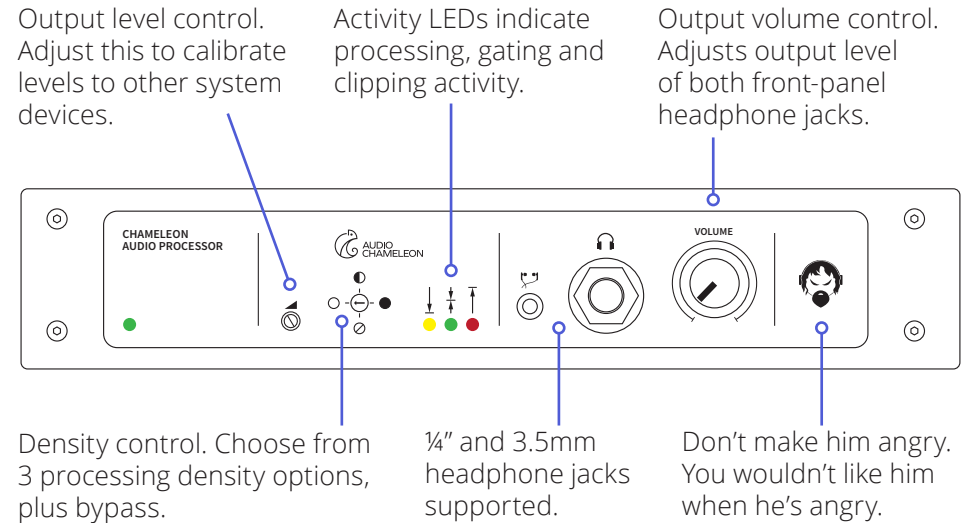
The solution: Chameleon C3, a low latency multi-band audio processor plus high-performance headphone amplifier combined into a compact, easy to use half-rack gadget.

To get that great “On the air!” sound, Chameleon uses a form of A.I. (a benevolent form, not the evil Skynet kind) to continuously adjust its parameters to fit the content of your program audio. It does this far faster than the threshold above which the human brain can detect latency.

When we say “easy to use”, we mean it. There are only 3 controls on the front panel, and the air talent can only use one of them. Calibrate the output, choose the level of processing, then sit back and let the jocks start thanking you for giving them back their “air sound”.

Lights, controls and connectors, oh my!

Ah, that new gear smell. Let’s take a look at the tools at hand.



Analog pass-through on StudioHub+ connector lets you send input signal to other devices.

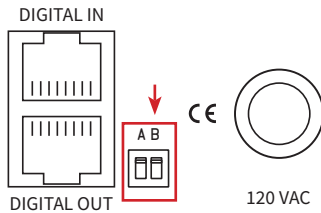
Analog output on StudioHub+ connector delivers audio + power to compatible devices.

DIP switches activate active phase rotation and select between digital and analog inputs.

Select your input source.

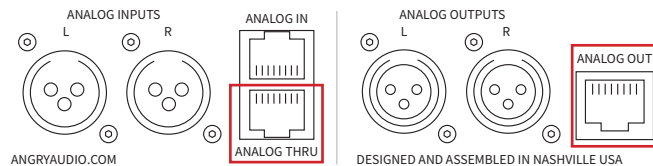
Chameleon C3 is equipped with both analog and digital audio inputs and outputs on XLR and StudioHub+ RJ-45 connectors. A DIP switch on the rear panel selects which input feed to use.

As shipped from the factory, analog is selected as the default input, but best performance will be achieved by using the digital input and output (AES/EBU) on StudioHub+ RJ45 connectors.



To change the audio source, find the DIP switches on the rear panel, adjacent to the line cord. For ANALOG input, leave DIP switch B in the “down” position. To select DIGITAL input, flip DIP switch B to the “up” position.

Feed other devices.



The Analog section of the rear panel hosts two items to take note of. The ANALOG THRU connector is useful for daisy chaining the same input source to multiple devices. Let your imagination run wild!

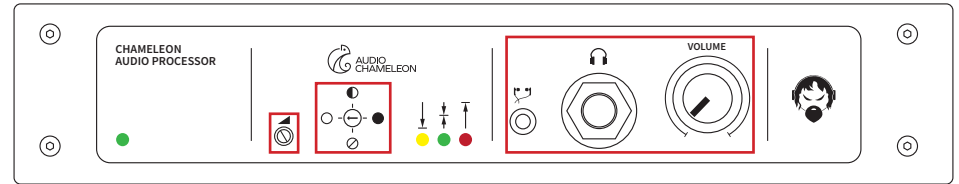
The ANALOG OUT StudioHub+ RJ-45 connector provides audio and $\pm 15\text{VDC}$ to certain types of connected devices. For example, you could use this to feed both power and processed audio over CAT5 from your Chameleon C3 to one or more Angry Audio Headphone Gizmos (shameless plug) at guest positions in your studio as illustrated below.



Processing controls.

Most audio processors are meant for on-air heavy lifting, and have so many controls, knobs and displays that a PhD in Advanced Tweakage is required.

Chameleon C3, on the other hand, is so easy to use that there’s hardly any tweaking to do. In fact, there’s only one processing adjustment. Put your Craftsman Heavy-Duty Titanium Tweak Tool back in the cabinet with the tape head demagnetizer to keep it from getting lonely.



Choose your desired audio processing mode using the selector switch on the front panel:

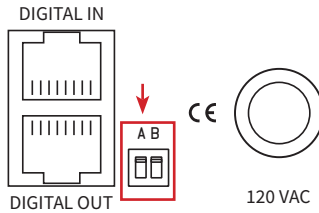
- The 6 o’clock position (⊗ symbol) is Bypass mode. This allows you to compare processed audio with unprocessed audio during setup.
- The 9 o’clock position (○ symbol) selects Open processing. This is the lightest processor setting; it delivers good dynamic range with a light amount of smoothing.
- The 12 o’clock position (● symbol) selects Medium processing. This gives a good amount of audio density, and is probably the setting most users will prefer.
- The 3 o’clock position (● symbol) selects Dense processing mode. It is the most processed setting, and delivers consistent loudness to the user.
- The recessed Calibration screw to the left of the processing selector adjusts the output levels of the C3. This affects the headphone output as well as rear-panel outputs. Use to calibrate the C3 to other output devices in your studio.

Headphone controls.

Well, only one control really – the Volume knob at the far right of the front panel. Thanks to its high-performance amplifier design, the Chameleon C3 delivers plenty of oomph to power even the most insensitive cans with extremely clean sound, even at high output levels. Oomph is expensive these days, but we didn’t skimp. The two jacks provided (1/4” and 3.5mm) are mutually exclusive.

Phase rotation.

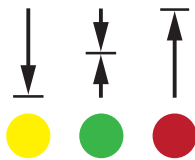
Chameleon C3 has a selectable phase rotator which may be enabled if desired. Phase rotation keeps the highest peaks in the audio content positive, which allows more modulation and helps content (especially voices) sound fuller; phase rotation in the station's audio processing was common back in the day and was responsible for some of that "Boss Jock" sound. Switching this on recreates this effect.



The C3 Phase Rotator can be engaged or bypassed using rear panel DIP switch "A". Place switch A in the UP position to engage phase rotation; disengage by setting the switch in the DOWN position.

The Activity Display.

The three LEDs found on the front panel tell you what's going on inside Chameleon C3's processing engine.



- The Amber LED at left is the "Gain Lock" indicator. This indicates that processing is frozen and that gating is active.
- The Green LED at center tells you that the processing section is engaged and audio is actively being processed.
- The Red LED at right tells you that your audio is overdriving the C3's inputs and that clipping is occurring. Reduce input gain until the LED darkens.

Specifications.

Part Numbers

North America: p/n# 991035

Australia: p/n# 991035A

Europe: p/n# 991035E

United Kingdom: p/n# 991035U

Included in the box: Chameleon C3 Processing Gadget
Pocket trimpot adjustment tool

Connections

Analog Input: Balanced +4dBu Stereo XLR connectors
Balanced +4dBu Stereo RJ45F connector (StudioHub+ pinout)

Analog Through: Parallel to Analog Input (StudioHub+)

Analog Output: Balanced +4dBu Stereo XLRM connectors
Balanced +4dBu Stereo RJ45F connector (StudioHub+ includes $\pm 15\text{VDC}$)

Digital Input: Transformer isolated, AES/EBU, RJ45F connector (StudioHub+) ASRC, 44.1kHz to 48kHz sampling rate

Digital Output: Transformer isolated, AES/EBU, 48kHz S/R, RJ45F connector (StudioHub+)

Power and Environmental

Power Input: 115VAC 50/60Hz (North America Version)
230VAC 50/60Hz (Australia, Europe, U.K Versions)

Power Consumption: 15VA

Operating Temp.: 0° to 40° C (32° to 104° F)

Storage Temp.: -20° to 45° C (-4° to 113° F)

Relative Humidity: 0% to 90% non-condensing

Cooling: Venting chassis (fanless)

Product Dimensions

Product Dimensions: 8.5 x 6.25 x 1.7 inches (21.6 x 16 x 4.32 cm)

Product Weight: 3.5 pounds (1.59 kg)

Shipping Weight & Dimensions

Shipping Dimensions: 12 x 9 x 6 inches (30.5 x 22.9 x 15.3 cm)

Shipping Weight: 5 pounds (2.27 kg)

Compliance in the U.S.

In the U.S., this Gadget complies with the limits for a Class A computer device as specified by FCC Rules, Part 15, Subpart J, which are designed to provide reasonable protection against such interference when this type of equipment is operated in a commercial environment.

...and in Canada.

In Canada, this Gadget does not exceed the Class A limits for radio noise emissions set out in the Radio Interference Regulations of the Canadian Department of Communications.

...and in Europe.

This Gadget complies with the requirements of the EEC Council Directives 93/68/EEC (CE Marking), 73/23/EEC (safety – low voltage directive), and 89/336/EEC (electromagnetic compatibility). Conformity is declared to standards EN50081-1 and EN50082-1.

...and in Wonderland.

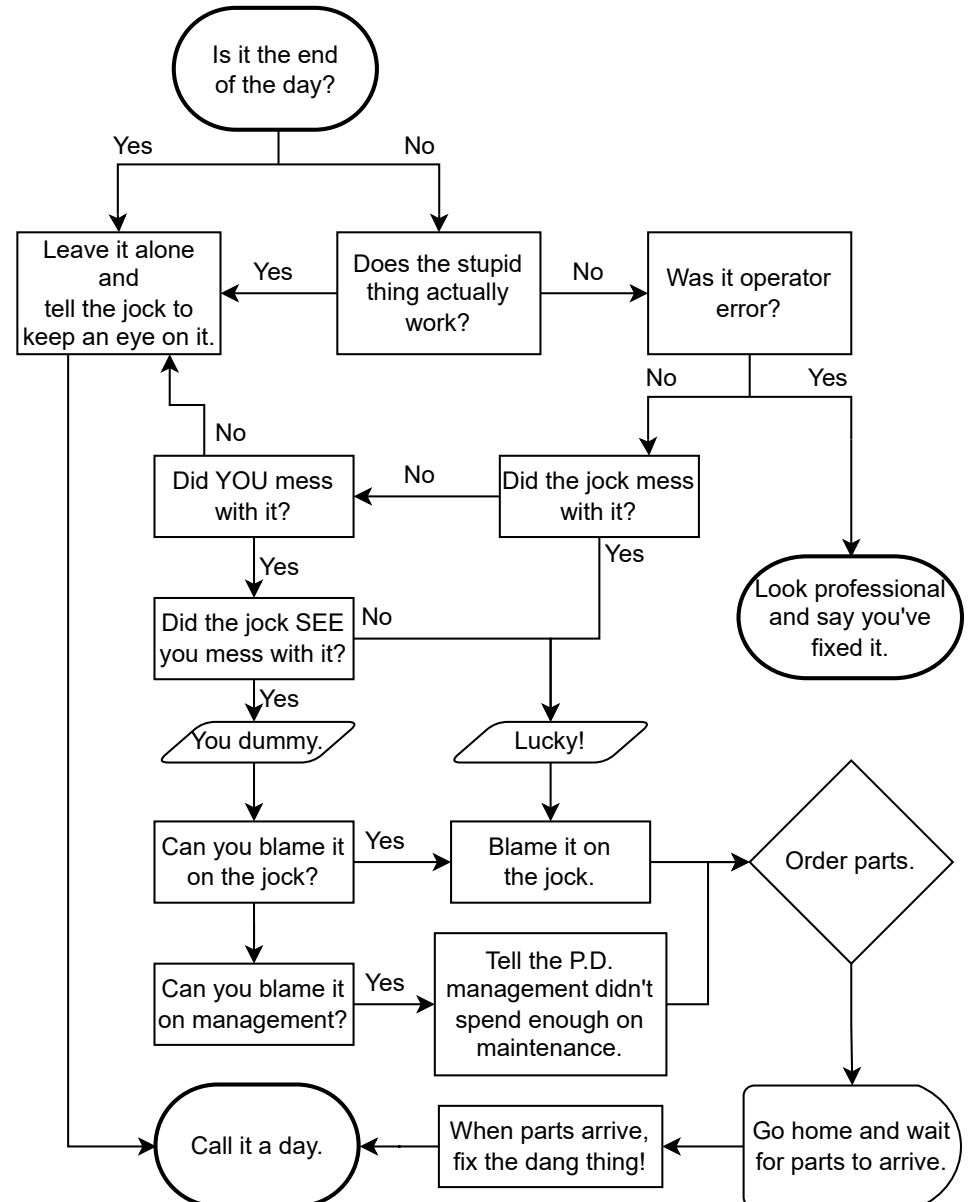
This Gadget complies with any and all directives set forth by the Red Queen relating to audio electronic devices, pursuant to the All Ways Are My Ways Act of 1865. No hedgehogs are harmed by the operation of this device.

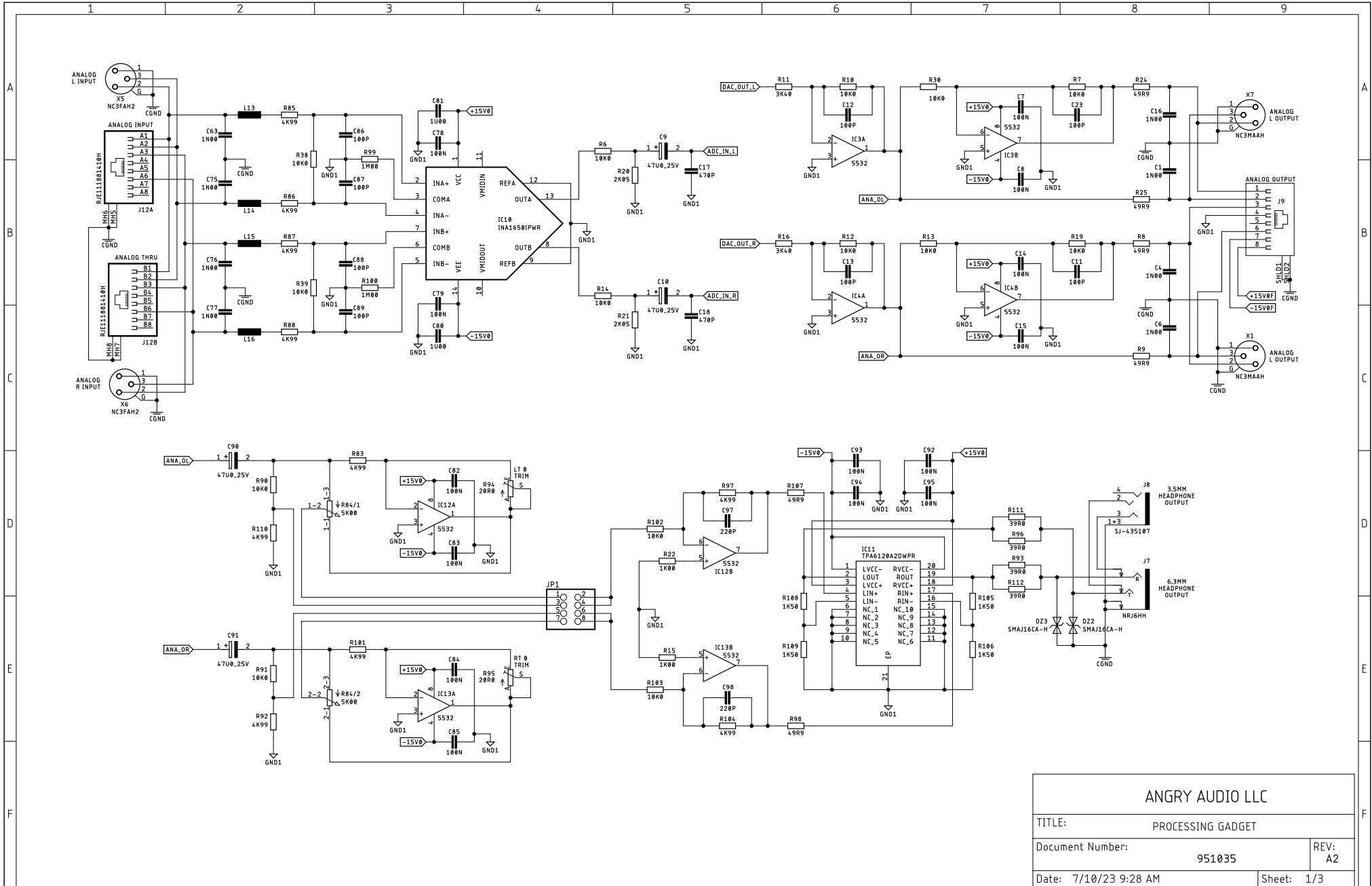


Because who would want to harm an innocent hedgehog?

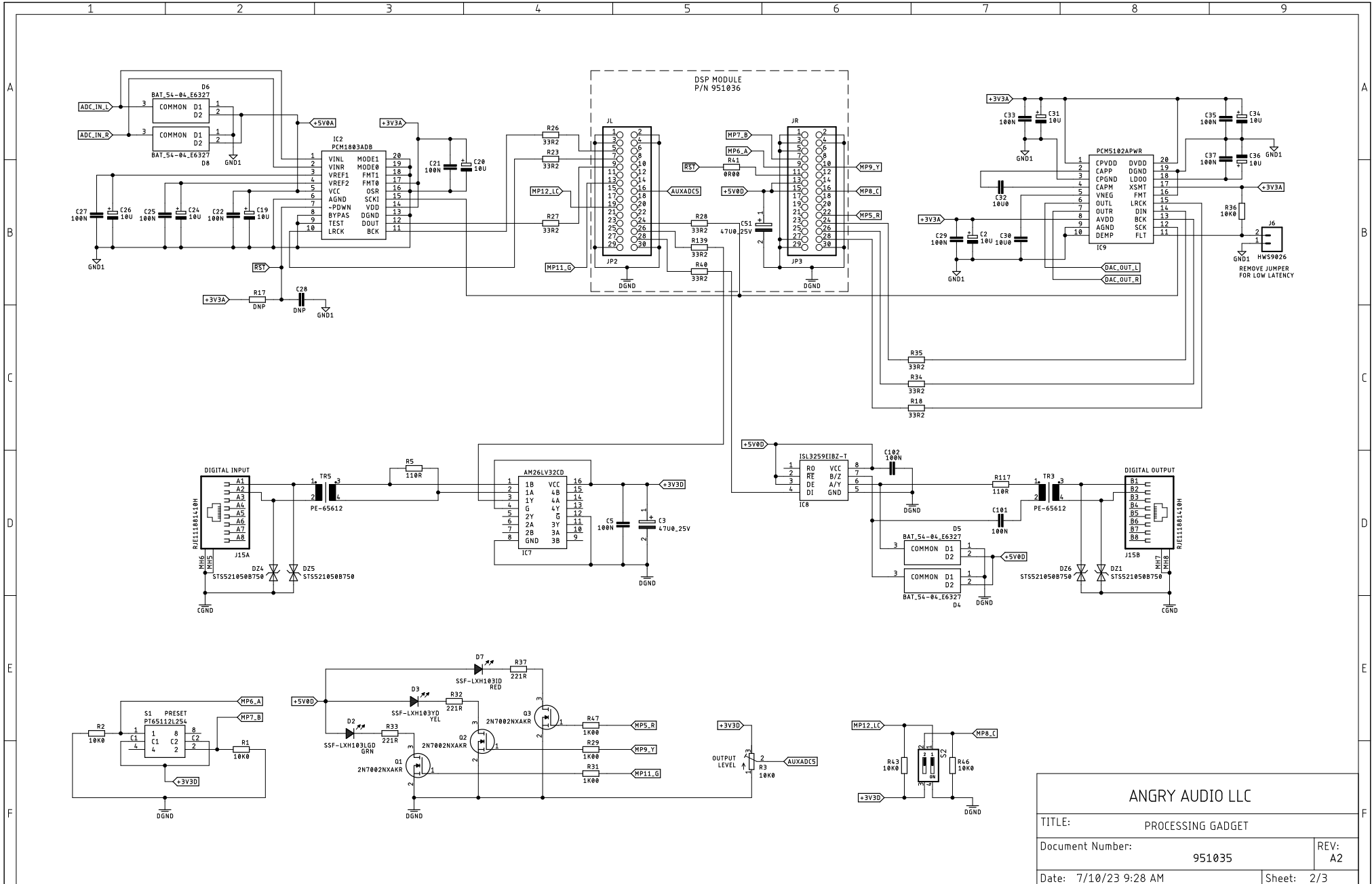
Studio Equipment Maintenance Decision Tree

It never fails: you're headed to another jobsite or home for the weekend, and there's a maintenance call from the on-air booth. Here's a handy flowchart to help determine your course of action.

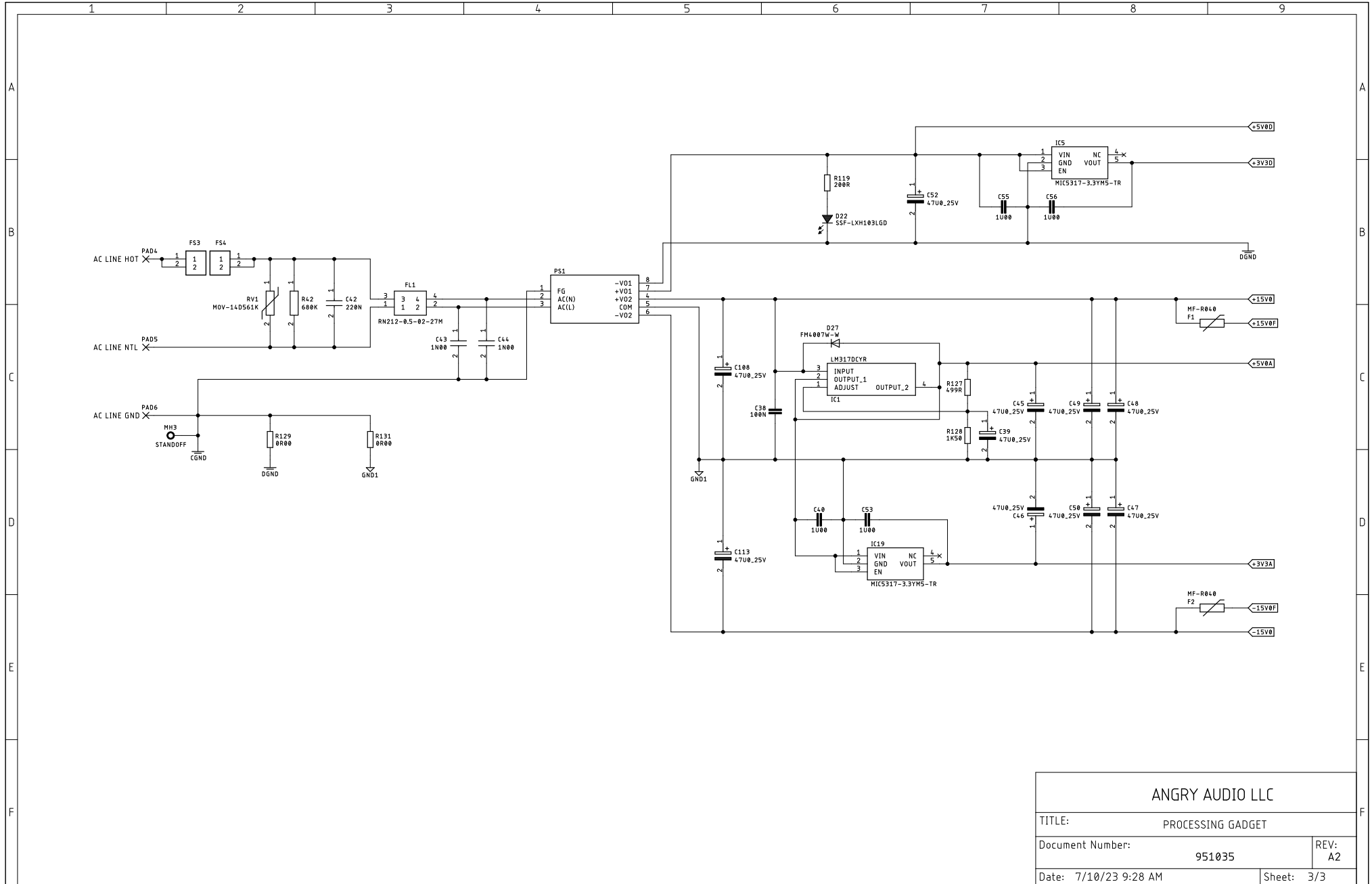




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