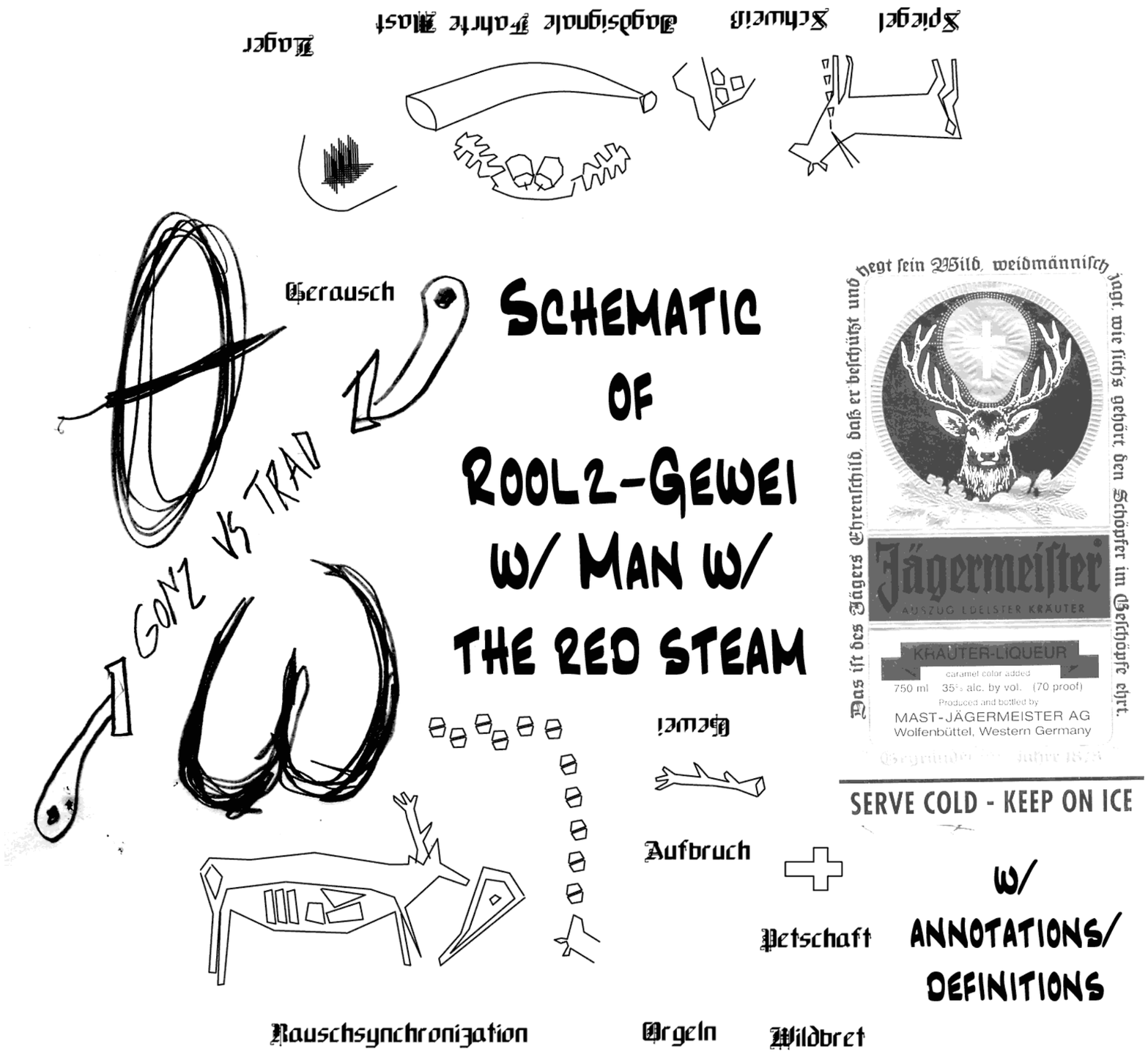


The Roolz-Gewei was a Baroque Instrument. Few of them were made, and had lavish woodwork on them. It came from an older villagio of circuits, called Rolz-5, a drum machine, combined with a radio-sonic circuit called Deerhorn, which is said as "Gewei" in German. One thing you should know, if you look at the images on this phrontis-piece, that the full poetic and allegorical implications of Deerhorn were computed. One, found in Germany, is the language of the Deer-Hunter, Jagersprache. Deerhunting, done when it is cold for fear of parasites, is accompanied by an herbal concoction known as Krauterliquer, of which Jagermeister is the most known among fraternities in Germany and indeed around the world. If you look at the label reproduced here, it is surrounded by cryptic text, and between the natural antenna of the deerhorn, there is a field lit up by a device which has a Jesus-shaped tungsten. This is what deerhorn is about- a field around antenna, like the field of meaning around words.

Back to the language of Jagersprache. It is believed, that the woods have ears and that they can understand everyday "Dutchman" language, so the hunters use a system of secret words which are given a double meaning, to refer to actions that the forest protects against, such as bleeding a deer, cutting it open, shooting it, drinking alcohol, etc.. The semiotics of calling are especially inspiring for the synthesizer maker- a group of rutting deer calling each other is said to "Orgeln," "to play (pipe) organ". And when a hunter makes calls that match the rutting deer, this is "Raushsyncronization", a fine *Kraftwerk* word that means, of course, "noise-syncing".

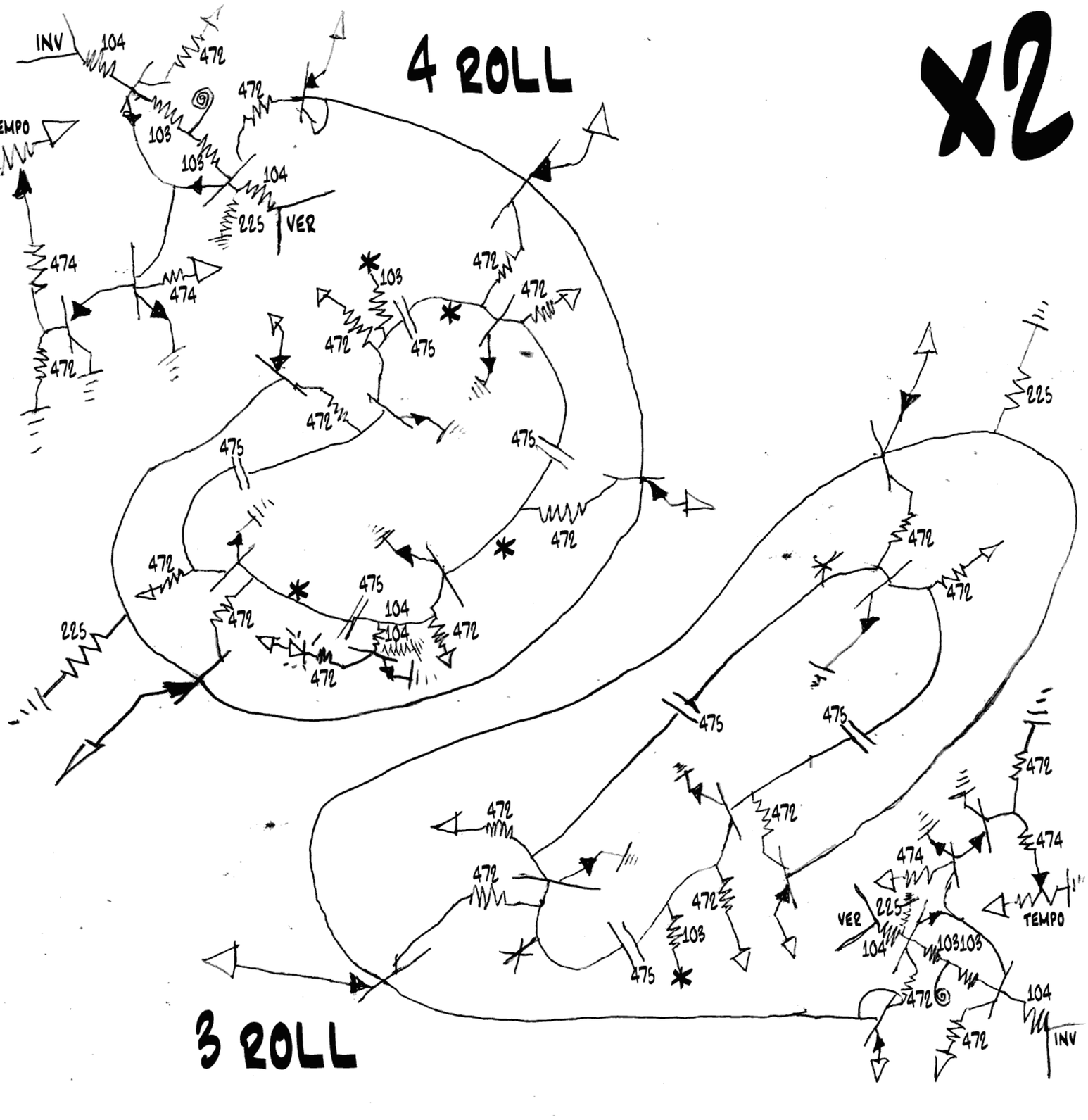
Much is seen about deerhorn here on this page, but you must remember that the Rolz drum machine covers the bulk of this paper packet. It is primarily about a dialectic; "Gonzo versus Traditional" and "Drum versus Drama" are the fundamentals. The original "Rolz-5" used loops of discrete jerk circuits, in geometries of 3, 4, 5, and 6. It was found that odd rolls created a wonderful ultrasound chaos disturbance, while even rolls were stable and tick-tocked at regular rhythms, yielding a drum machine. The rolls were given three manifestors: AVDog, Gong, and Ultrasound, to bring out various facets.

For the Baroque Roolz-Gewei, in the 21st century, the villagio was organized into an estate, and tribal culture became a republic. The five layers of the Roolz- roll, ultrasound, AVDog, Gong, roll- were stratified into five worldmaking stratagema: Agricultural Cycles, Maritime and Shipping, Ultrasonic Manufacturing Center, Palatial Complices, and Pulsemining.

In the Laboratory Roolz-Gewei, the Republic of Rolz is re-stratified as a modern (utopian) city, with factories as the downtown, and a wide swath of organoform, but matricized suburbs, leading to wilde woods. The etymology of Plumbutter in this context shall now be explained.

It got to the point that we have all these names: Rolz-5, Roolz-Gewei, Man with the Red Steam. What do they all mean? A lot of confusion when viewed together. Since this is the final evolution of this product, we decided to give it a new name. It's actually very simple, it has to do with product placement. All instruments @ Ciat-Lonbarde, designed by Peter Christian Quincy Blasser. I'm not responsible for my name, I just use it. CQ, the middle two, became the name of a high end instrument- Cocoquantus. Now this being the other high end instrument at C-L Boutique, it must use PB. My whole life i've been made fun of (like everyone else) - Petroleum Bottle, Blaster, Bladder, Peanut Butter - but the best one is Plumbum, meaning lead. Literally this instrument is fueled by praxis with lead in my college years. Now we don't use lead aymore, and I assure you the Plumbutter does not use lead, just ideas formed under its influence. The man with the red steam is an especially leaden module- sequencer and snare drum, nicely 20th century. So We combine Plumbum and Peanut Butter and we get- Plumbutter! So in the final product placement at C-L Boutique- it is a spiral- two instruments for babies, two midrange organs, and two high end products- the PB and the CQ.

Roolz-Gewei is the first synthesizer to have a "face" on facebook. There, he is a Dutchman. Psycho-geography is important here. Roolz-Gewei marries The Man with the Red Steam. This is the schematic for the new "Laboratory Roolz-Gewei". A siloetto of a factory, and all joined by the heat-sinking subterranean interstate which connects Little Italy to a nuclear reactor in the woods...



The original paper rolls were not voltage controlled, preferring instead “capacitance controlled”. That meant that a highly Baroque process of building many rolls with randomized capacitors allowed the eventual patron of the instrument to develop a sort of muscle memory towards drum speeds that were pleasing, as a psychological map of capacitance relationships on the geometries unfolded over time. Ha! The first laboratory kaizen was to eliminate this Baroque mannerism and replace it with standard voltage control, including a knob for each one.

The “Arp-Serge Assemblage” is the main current control of any module. Here it is in the top left corner, for the 4 roll, and the bottom right corner, for the 3 roll. It is like before, the rolls were without this “parasite”, and they ran as viruses; their power was only in their geometries/their structure. Now, their power is in their brain. Rudolph Steiner once pointed out that the head is like another organism on top of the body. This brain has been grafted on and the rolls now can interact with other animals, through inputs, labeld VER and INV, for verso and inverso. These feed into a differential pair, which is the primary propulsion of any Serge module. Note there is a 225 resistor to ground from any VER input, and this is called the Serger. The Serger brings the unmodulated action of the differential pair down, so it seems as if a perfect exponential curve without saturation at the top.

Now beneath this Serge business, at its emitter tail, is an Arp exponential current generator. It too is a composition of two transistors, but whereas the differentials were both NPN, now there is one NPN and PNP. They are complimentary transistors, thus temperature compensating, and they may be trans-linear too. Its base is set by a pulling resistor., classed into two tiers- strict laboratory and multi-vibrator. These rolls are multi-vibrators, as well as Ultrasound, which we will get to later. These look like buns at Cinnabon! The cinnamon swirl is actually the base of a huge parallel “Wilson” Current Mirror, which kaizens with butter the rolls to become VCOs! The butter is the Arp-Serge Ass..

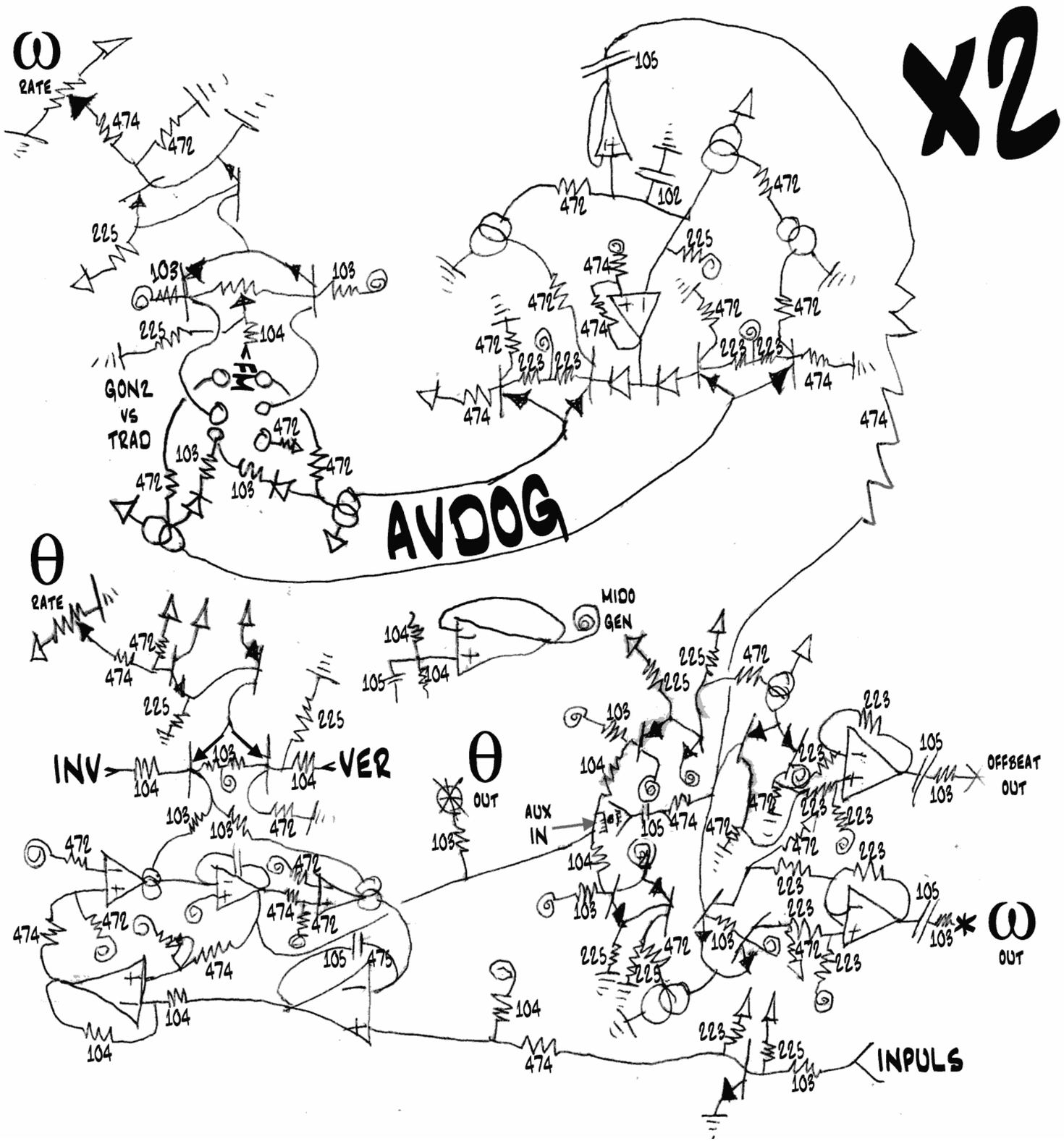
This capricious circuit theory started in the Enoch Pratt Free Library, in Baltimore, inside a dusty book by Delton T. Horn, named simply, “Oscillators”. In it, he details many laboratory oscillators, including the worthy two transistor multi-vibrator. Delton did detour in a short paragraph about a “3 transistor multi-vibrator [that] produces exotic tones”. He explained that its behaviour is not quite predictable and changes wildly based upon the current injected at each base. Wild changes (current controlled!) are the hallmark of a chaos vortex, and this one is stimulated by a simple paradox: three is an odd number.

Let me explain. Each stage on a multi-vibrator is an inverter. So, with an even numbered multi-vibrator, starting at a stage that is ON, the next node is OFF, and if it is two stages, back to the first one, which is ON again. It is self-reinforcing. However, thinking about a three stage multi-vibrator, ON, OFF,ON; the start is now OFF when it was ON! This oscillator contains a paradox, so it spirals out of control, into ultrasound frequencies with much noise. If you connect it with the nodes of an even one, well, you get a combo of rhythm and noise, thus a drum-machine is bourne.

There is a raisin for every stage. A raisin is an asterisk, is a banana jack. On each cinnamon roll, there is one CV output (orange jack) and the rest are pulse-nodes (brown), which means they are both input and output (androgynous) dealing in pulses- transient negative spikes.

This assemblage is doubled on the board. Here is a parts count, known as a Partouche :

472	21	103	6	223	0
104	12	474	8	225	8
1P	2	2F	0	PJ	11



Now we are in the part of the papers that is a “twofer tuesday”, in the sense that there are actually two micro-modules within each module. Thus, there will be two Arp-Serge Assemblages on these two papers. The AVDog and the Gongue both have a theta section and an omega miniscule section. Theta refers to brainwaves between 4-7 Hertz, but here it refers to a wider spectrum of low-frequency, sub-audio, or gestural waveforms. Omega miniscule, however, refers to an audio rate signal, which is thought of as a frequency; it is super-haptic. Of course the two will overlap and this will be interesting too. So you see here, on the left side of the drawing there are two Arp-Serge Assemblies. The top one is for omega miniscule, and it has a more finely controlled modulation section, where the “FM” symbol is; it has a knob to control the direction and intensity of modulation, also known as a “Serge Knob”. The bottom A-S-ASS has the complimentary verso-inverso inputs such as on last page; it is for theta.

Now what is the AVDog theta? It is a state variable filter, but with huge capacitors so it resonates at theta waves and slower. This is percieved more as an undulation, or discrete waves like at the beach. They are used to amplitude modulate the omega miniscule waveform, which is a sort of triangle/saw wave. Thus it is a sonic manifestor of the resonance of a rhythm. The entire omega miniscule section may be bypassed to allow an auxiliary input as the indicator.

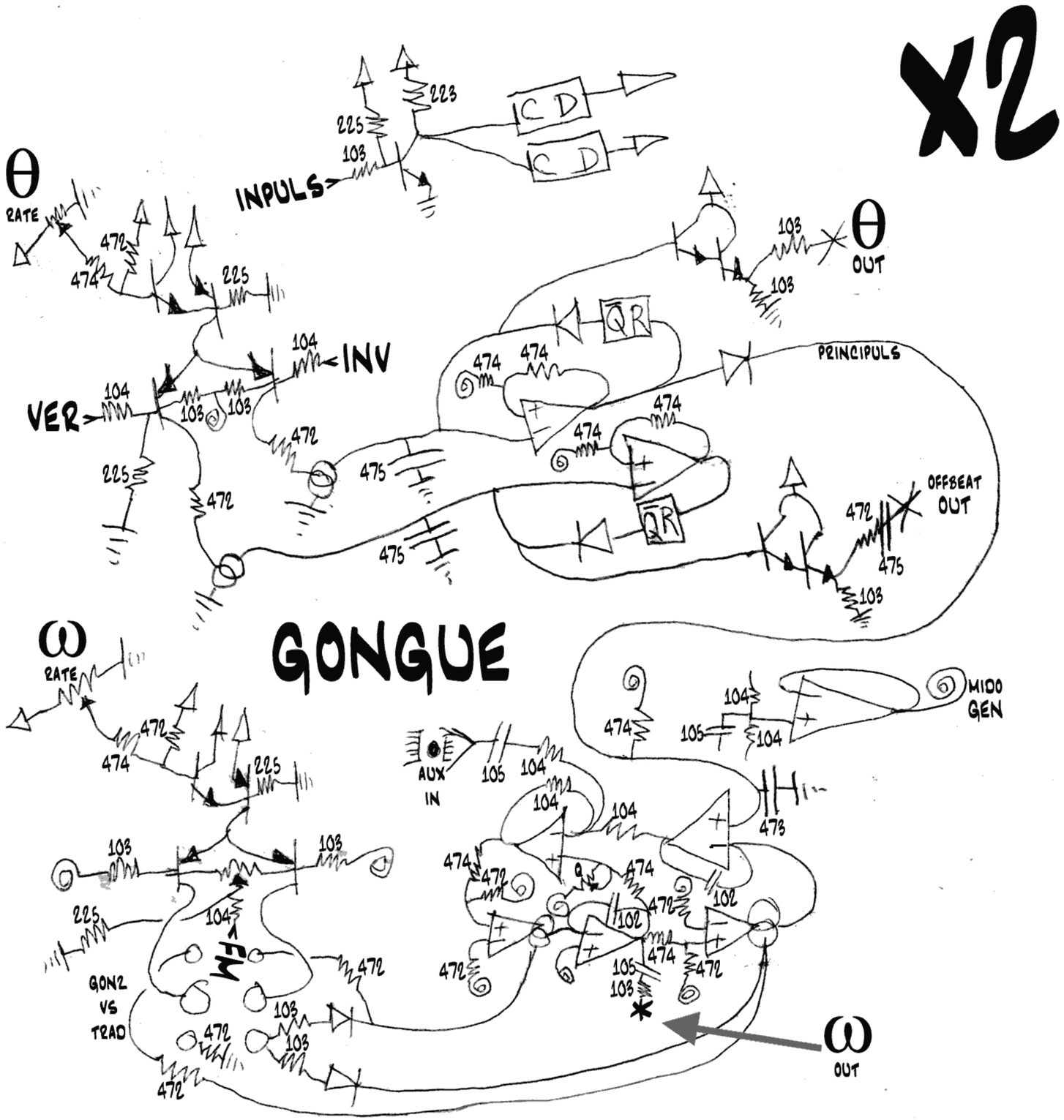
There is a dialectic in the LABROLZ, between Drum and Drama- a repetitious locomotion versus a scenic and expressive topology. The choo choo train is in the mountains. Driven by steam, pistons, and rhythmic churning. The mulberry is like the fig in that he keeps on growing, in the hills and folds of forest, organing (from Jagersprache “orgeln,” to play a pipe organ). As I said, there is a dialectic between Drum and Drama like the 19th century Railroader and the wildes of America. The AVDog is the liaison between the two, to make a synthetic deer-call in the suburbs, to import important rural aesthetics into the habitat of city locomotion. The AVDog was originally any sort of such “helper analog chub”, now it is a suburban, liaison between the locomotive drums and the scenic drama.

AVDog was originally a song I wrote in TIMARA class. It meant “Audio-Visual Dog,” i.e. any sort of helper chub in any TIMARoetic application. Later, it became a hairy box that housed a power transformer and sometimes an amplifier. When Rolz-5 was originally founded, Avdog was re-appropriated to mean, the opposite (the drama for the drum) of gong, a theta-wave measurer and manifestor in abstract analog tones. Here's how it does it, in the Jazz-text for this diagram.

It has the same SVF (State Variable Filter) as does the gong, and they both have a Q knob, but its capacitors are big, so big that they resonate at theta-wave frequencies, so they undulate in response to rhythm. SVF make theta out, controlled by theta rate through arp-serge assemblage. Theta out goes into two more arp exponentials, centered around mido (BTW there is always a mido generator, mido which is represented by a spiral). The exponential current controls a stereo amplitude envelope of “the dogtone”. The dogtron is controlled by omega miniscule (audio rate) rate, through an arp-serge assemblage, with verso and inverso nodes as theta is more sensitive to direction than intensity. Gonz versus Trad controls if the dogtone is differential (going to saw waves), or monolithic triangle oscillator.

You know, if you do not like this text, for any reason, please just cut all this shit off. You see, these schematics were designed for 11x11 inch paper, which can be had by cutting a piece of 11x17 down six inches. This remainder is used for “liner notes” which Miles Davis hated, he wanted the music to speak for itself, which you may do as you cut the shit out and leave pure symbols and brand names behind, making you, the cutter, into a shadow of Miles Davis. The partouche for AVDog:

472	22	103	15	223	13
104	10	474	12	225	10
1P	5	2F	8	PJ	5

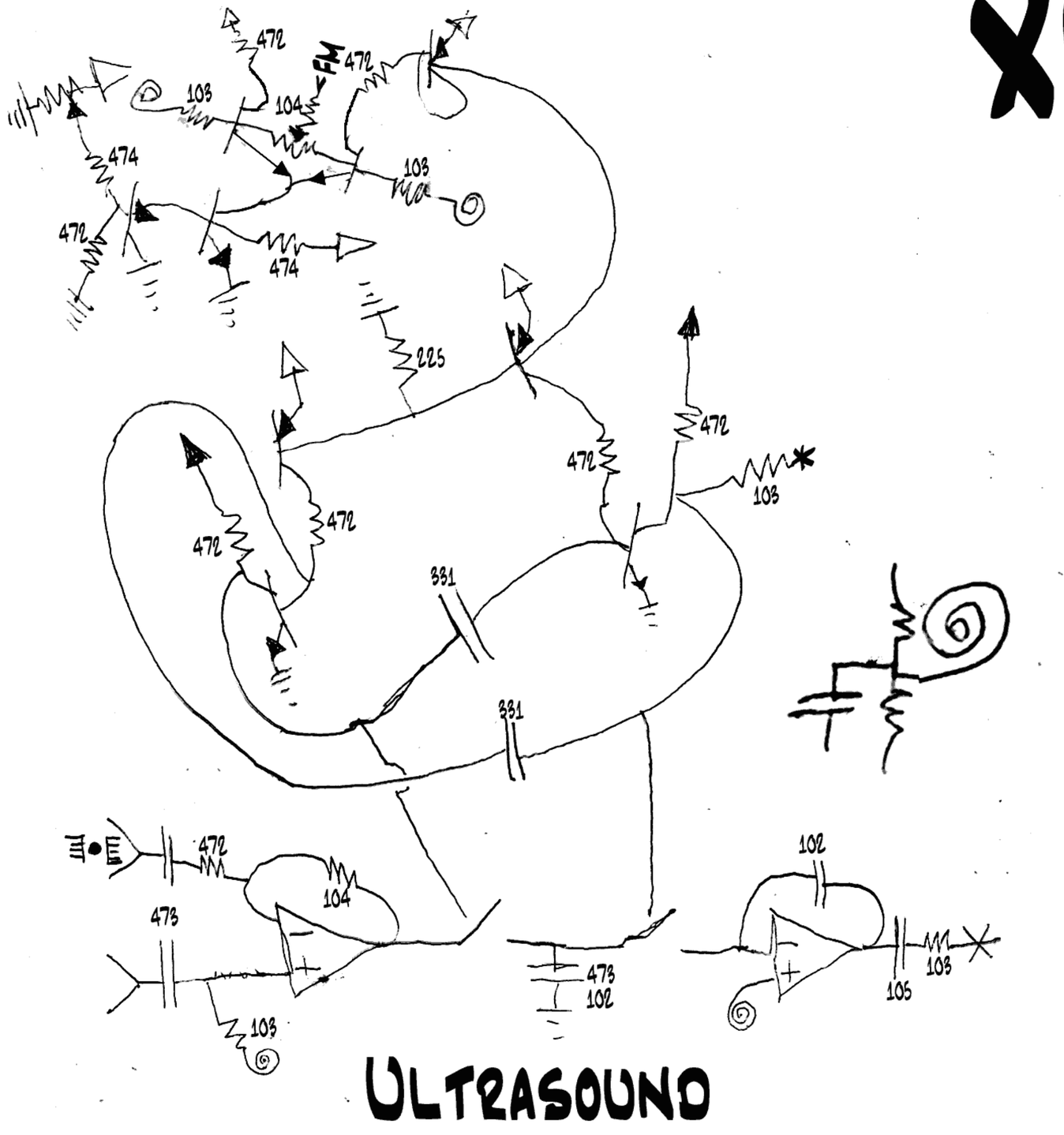


There is also the dialectic between carrot (input) and asterisk (output). For the former, Johnson Banana Jacks provide cool colors such as blue, purple, and green. For the latter, hot colors such as orange, red, and white. There is also the dialectic between Cologne and IRCAM (synthesized versus based on field recordings). Cologne is represented by the onboard synthesizers in avdog (the dogtron) and gongue (a damped resonator). But this dampness may also be harnessed by inputting program notes directly into the resonator, without using the impulse trigger circuitry that makes up the theta section of this module. You may input such field recordings, spoken word, or tape pieces, into the phront of the instrument and then gongue is just a VCF made out of the SVF. You see, each of the Twofer-Tuesday modules have an SVF in them. Here it has normal audio rate capacitors, so it is the omega miniscule this time. Jazz-text is as follows:

Theta-rate is a knob, controls an arp-serge assembly, which bangs two current mirrors of ground, sucking two big capacitors, in two Jerk timers. Each Jerk timer uses a Flip-Flop, clocking it to allow the capacitors to droop, until they jerk back up with a reset. Theta out is the Darlington buffered node of the principuls, and the offbeat out comes from the other Darlington buffer. Since they are at the mercy of the arp-serge differential pair, they will respond to control voltages in opposite ways, one faster and the other slower. Omega miniscule rate is a knob, controls an arp-serge assembly, which has a differential output. Gonz versus Trad controls whether the SVF (State Variable Filter) has differential on the BP and LP or monolithic frequency control. Differential will modulate the “Q”; monolithic will sound like a Trad 70s philter, for indeed it uses audio rate capacitors. Triggered by principuls, with a simple and subtle diode butter pulse shaper.

-Petroleum Bottle

472	12	103	11	223	1
104	8	474	10	225	5
1P	2	2F	2	PJ	3



It was found that the odd rolz create high frequency oscillations due to their paradoxical natures (see their page for a recap on the Delton T Horn “strange oscillator).

Thus one way to harness this chaotic energy is to bring it down to audible frequencies.

This is done with any sort of heterodyne, which is what the Ultrasound filter, basically, is.

Here's how it works.

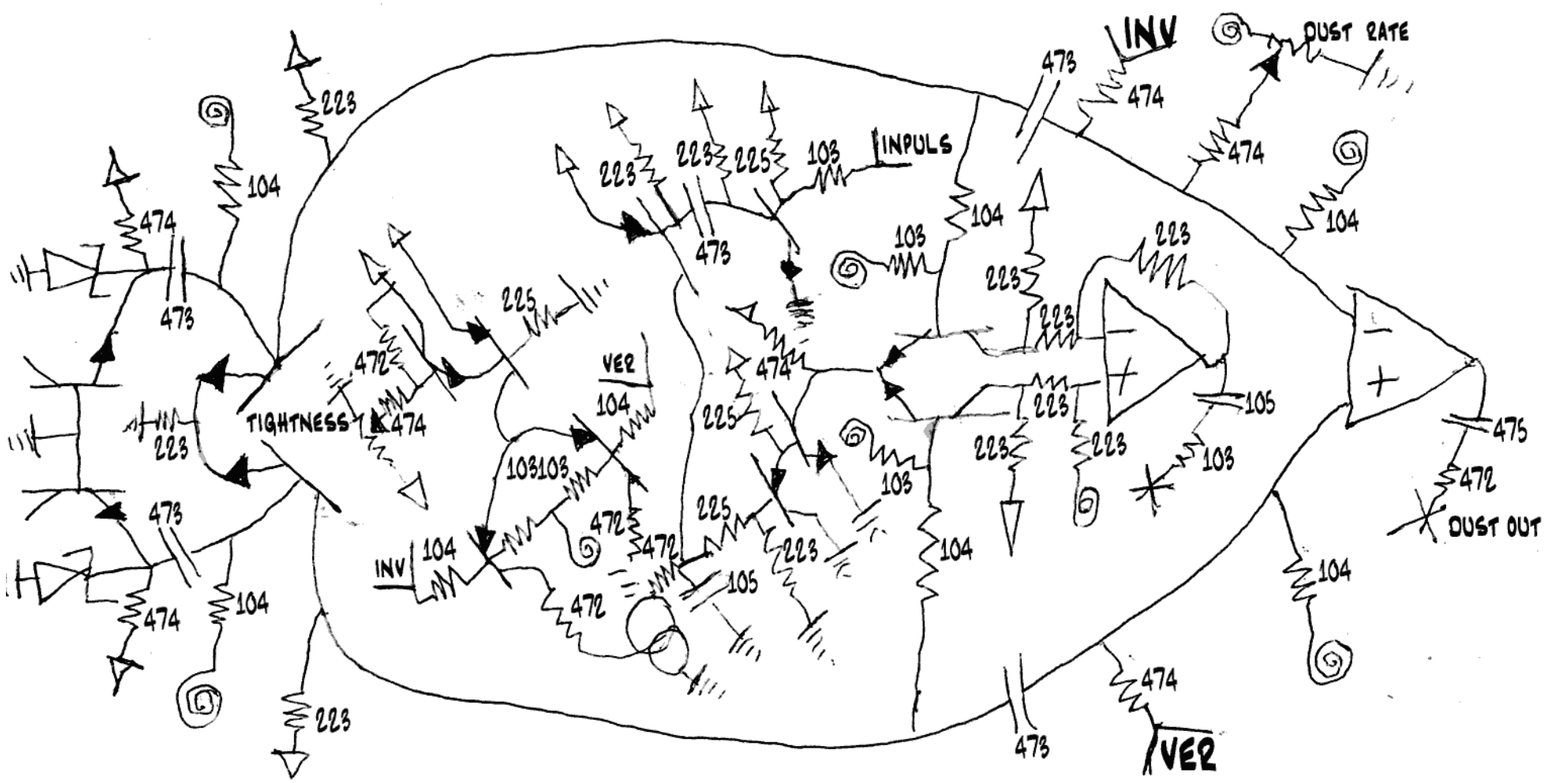
The top part is, of course, an Arp-Serge assemblage, calibrated for the multivibrator tier, because the core of Mr.. Ultrasound is a two stage multivibrator (confer with rolz which had three and four stages). This multivibrator has capacitors 331 and 331, which brings it up to very high frequencies, and all modulated by the Arp-Serge assemblage with FM knob.

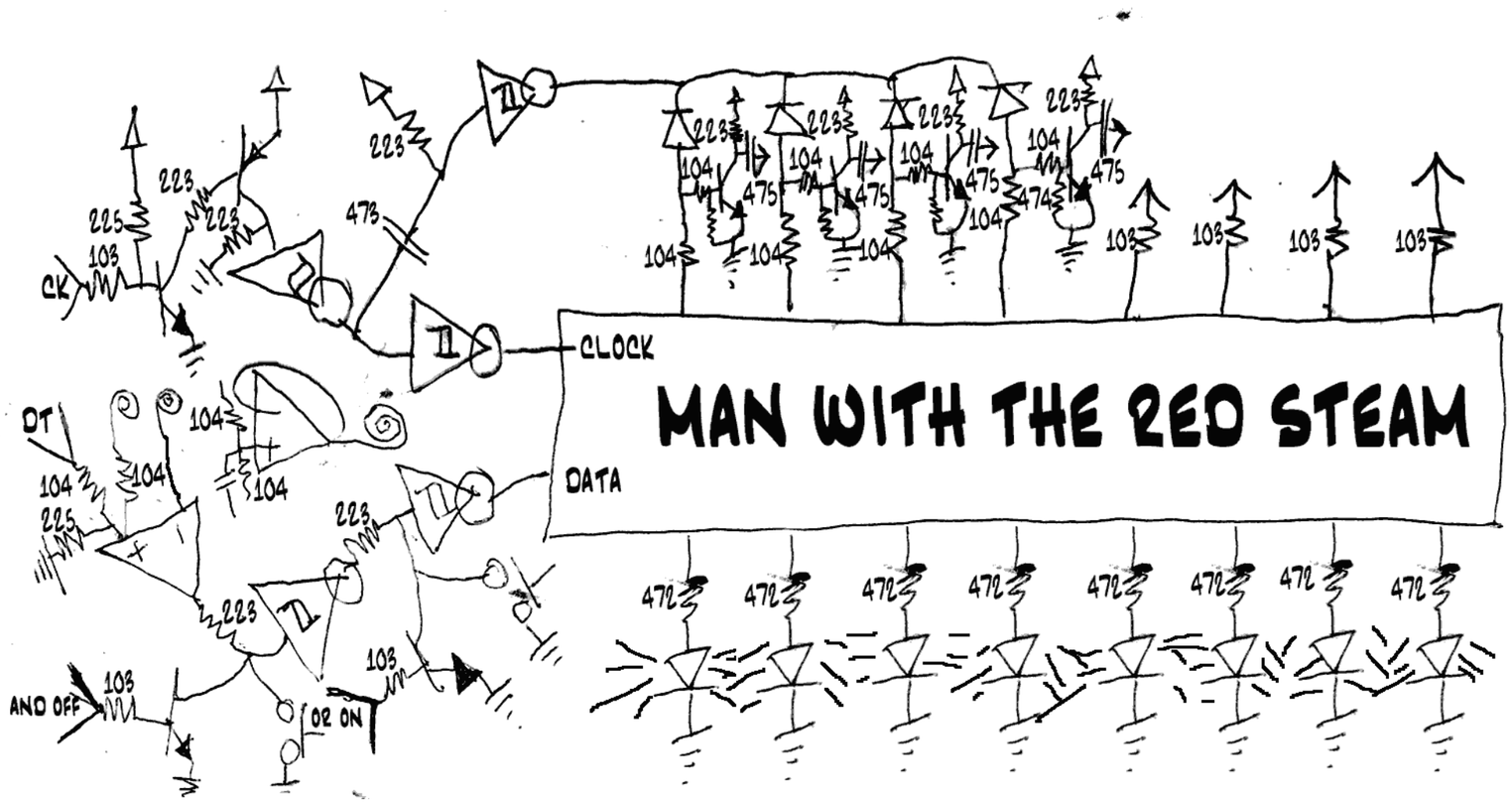
Mr. Ultrasound's lips are formed by the cross-feedthrough of this twofer-Tuesday oscillator.

Now, the oscillator has two complimentary square waves, which means it has a push-pull sort of output, which drives a “capacitance pump”, using a 4066 quad analog switch, and capacitors at certain places in series to make it, ostensibly, a “switched capacitor low-pass filter”. But of course if you research this schematic, you will find that it does bring out any frequencies which are near its switching speed, sampling and holding them, thus heterodyning them as well as preserving their periodic waveshape.

This was the original “snare drum” of the Rolz-5 villagio, that when odd and even rolls were tied together with circuit bending, they created rhythmic pulses of chaotic ultrasound, which this filter would then bring down to a pleasant, pulsed noise sound.

472	8	103	7	223	0
104	2	474	2	225	1
1P	1	2F	0	PJ	4





MAN WITH THE RED STEAM

PLUMBUTTER: MAN WITH THE RED STEAM. It is a twofer-module. The base of the factory has heat noise, from burning the trash of the city. That represents a snare drum. The siloh of the phactory is a mechanical series of scrubbers and feedback that accepts orders from the foreman.

Labrolz is joined with the Man with the Red Steam, which is a design from the earliest empire for an empirical drum machine. Of course I tweaked it and added a few special sauces, including the strict binary formalism of Tektronix designers. The Man with the Red Steam is a snare drum and a 8 bit pattern generator. Thus there are two derived meanings for “Red Steam”: an 8 piston steam engine, and the sound of heat chaos in water vapor.

So, how to model heat chaos? Use a transistor noise source. See US Patent 3913097, “Sound Simulator for Model Steam Engine”. My father was a model railroader. He would sit in the basement all day working on the components. He never got it all set up. Well, this ones for him! The Steam Simulator here is distilled to a basic concept- Zener noise on a reverse biased transistor. Actually, make that two Zener transistors- they form a complimentary pair, which is what I meant about the strict formalism of Tektronix: all signals should be passed in differential pairs, a philosophy now pervasive, but back in the frontier days of transistors, many circuits would be made with single transistor stages, which have more gain but also pick up more hum from outside. A good example from the 20th century (Nixon Years) is U.S. Patent #3,913,097, “Sound Simulator for Model Steam Engine”. Since we are listening to quantum noise, and amplifying it, I decided to formalize the steam simulator as a Tektronix engineer would make an oscilloscope. I've always wanted to have pure quantum mechanics as the kernal for a module, and here it is, using Zener heat/junction noise. We generate a simple snare with voltage controlled envelope, as well as voltage controlled dust.

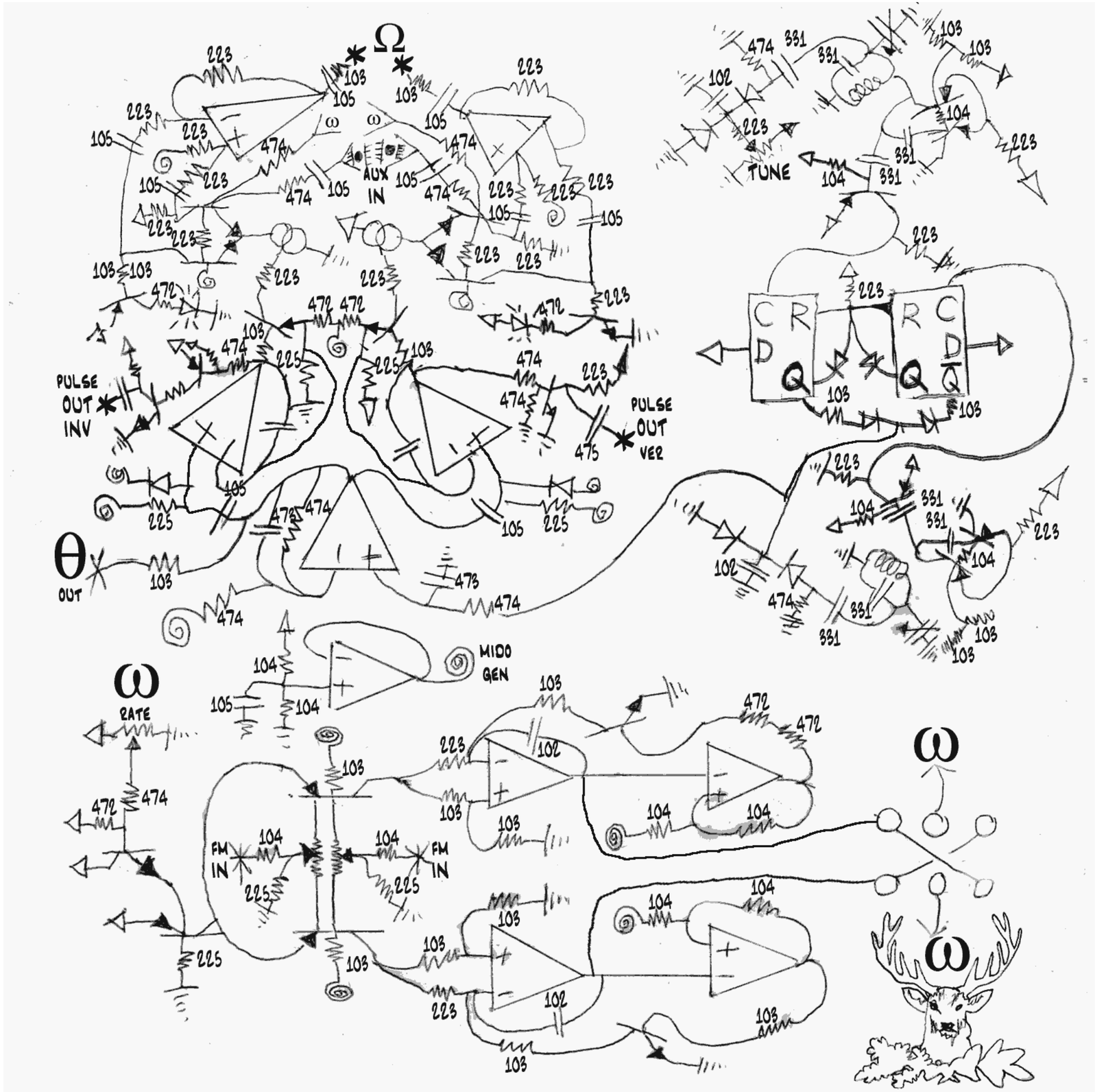
What is dust? It is particles, or motes, suspended in air. In the computer music language, SuperCollider2, Paul McCarthey coined dust as an opcode, meaning transient impulses separated by space. Dust is achieved in analog electronics by taking a noise source and comparing it to make it square. Dust can be used to spike the pulse electronics and add a quantum intention to it. Dracula could form himself out of motes in the twilight air.

Now to the other half of The Man with the Red Steam- his locomotive steam engine, in a factory at the burned out heart of downtown. Downtown here is Jagersprache for “4000 series CMOS logic”, the topic of a visual piece “Tommy Lee 4013 Pamela Anderson 40106”. The 4000 series is a 20th century matrix of logic functions etched into discrete core slices (芯片), a favorite of hobbyists and exploited to great profit by synthesizer makers. Man with the Red Steam uses 4015, an 8 position shift register, to make polyrythms of 5,6,7,and 8 possible. The inputs are a clock signal and a data signal, which can be feedback or fresh from elsewhere. He gives out four tailored pulses and four cvs, and has a “red light smokestack” which shows visual feedback of the data which is entered by button or logic.

Man with the Red Steam was, of course, a “person” in many songs by The Gongs, who also used him to perform rhythmic tasks, he being a collection of copper silicon circuits encased in Sassafras, Juniper, and an Ohio Turnpike aluminum mile marker as the face plate.

This is actually a twofer-Tuesday module, as you can see- it is like two different songs by the same author, let's say, Man with the Pink Floyd. The top is an early, Piper at the Gates of Dawn track, and the bottom is later, perhaps on Dark Side of the Moon.

472	13	103	13	223	21
104	20	474	11	225	6
1P	7	2F	1	PJ	4



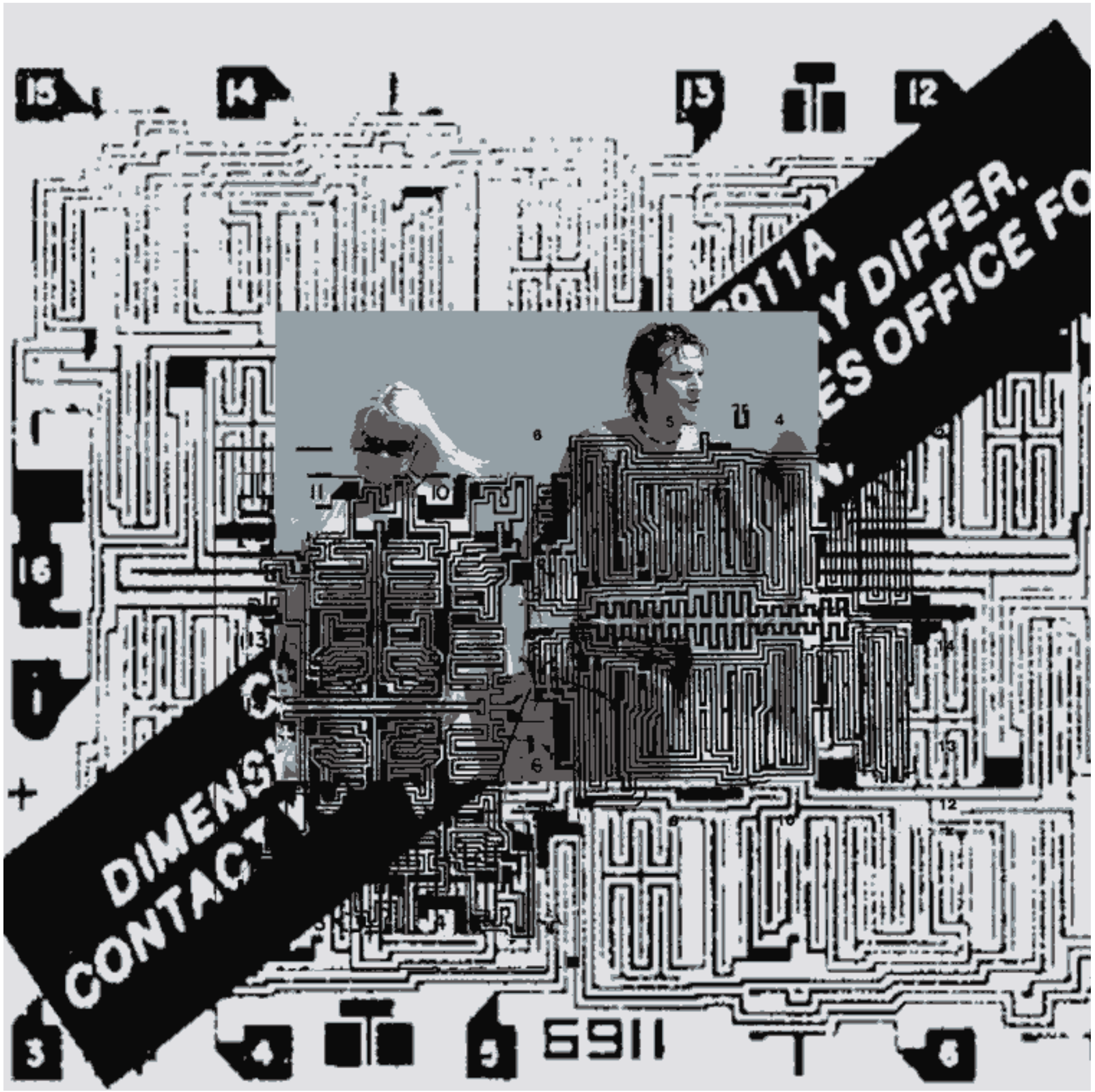
As I have said, this area was free for Jazz-text; since the schematics were for an imaginary paper size, that of 11x11 inches. You have reached the final schematic, which is unique within the instrument, for it is a Deerhorn module. Deerhorn fundamentals are: it is wilde, completely analog, and sensing invisible things. It represents the forest in the topology of LabRolz. There is one Man with the Red Steam, and one Deerhorn. They are like bookends- downtown industry and wilde woods. Jagersprache is the language of the invisible. Hunters speak in metaphors and secret meaning, as do CB radio talkers. The deerhorn rack on top of a deer is surrounded by an invisible field.

In the radio modules, which each have an antenna, there are two coils, specified for 1 millihenry each. They form an LC resonator, which is excited by a Franklin style transistor configuration to keep it oscillating. Each oscillator tank also decouples to a varactor junction, and it is this varactor junction which is incoporated into a PLL (Phase Locked Loop), and it is the feedback of this PLL which yields a theta output. The PLL uses one 4013 chip to phase-comparate the feedback oscillator with the other, freewheel oscillator, whose varactor junction has a fine-tuning knob.

A varactor has lower capacitance at higher reverse bias voltage, which means effectively a higher frequency for a higher voltage; thus it is verso voltage controlled. So, when you get closer to the feedback antenna, it will compensate and try to go faster- its voltage will go up. The two voltages are broken down into envelopes for either the onboard synthesizer (Cologne) or an auxiliary input for Musique Concrete (IRCAM).

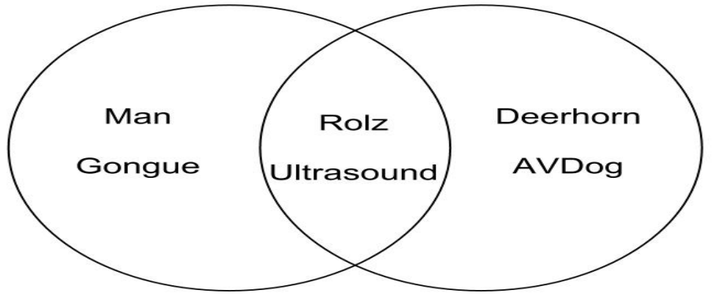
This on board synth, is controlled by omega miniscule rate, which goes into an arp-serge assemblage, which actually has two knobbed inputs for maximum control. Its differential output drives two VCOs, lifted for the original Texas Instruments datenblatt for LM324.pdf. At the deerhorns copied from the Jagermeister bottle, there are two omega miniscules, write large. These are the output of an orienting switch which also has an off position (to allow aux inputs to have a say). They are a stereo output, which jumps over and meets up with the two other omega miniscules, below the final, enveloped omega output. Here is its partouche:

472	7	103	22	223	25
104	13	474	14	225	7
1P	3	2F	7	PJ	5



What you are seeing is micron silicon topology for logic chips. It is also known as black-light exposure doping patterns. You are also seeing Pamela Anderson and Tommy Lee against the beach.

There is the relationship between Drum and Drama in this maschine. The Man with the Red Steam is meant to bolster the drum aspect, his snare beating the drama of Deerhorn and AVDog, in the following diagram:



DRUM---------->>>>>>> DRAMA

The Rolz and the Ultrasound are in the liminal region between Drum and Drama, for they are multivibrators, that have the odd paradox behavior noted before. Tommy is no doubt wearing Flip Flops, so he is represented by a 4013 flip flop topology, which also matches his tattoos. She, a 40106 hex schmitt inverter topology, symmetrical like her breasts and her panty-line.