AUDIO REVIEWS
sixmoons.com
AUGUST 2010

NAGRA MSA

Reviewer: Srajan Ebaen
Source: 1TB AIFF-loaded iMAc, Weiss DAC2 connected via Firewire
Preamp: Esoteric C03, ModWright DM36.5
Power amplifier: ModWright KWA-100, FirstWatt J2, F5, M2, Trafomatic Audio Kaivalya monos
Speakers: ASI Tango R, *Voxativ Ampeggio* [on review]
Cables: Complete loom of ASI Liveline
Stands: ASI HeartSong - 2 x 3-tier stands, 2 x amp stands
Powerline conditioning: 1 x Walker Audio Velocitor S, 1 x Furutech RTP-6
Sundry accessories: Furutech RD-2 CD demagnetizer; Nanotech Nespa Pro; extensive use of Acoustic System Resonators, noise filters and phase inverters, Advanced Acoustics Orbis Wall & Corner units
Room size: The sound platform is 3 x 4.5m with a 2-story slanted ceiling above; four steps below continue into an 8m long combined open kitchen, dining room and office, an area which widens to 5.2m with a 2.8m ceiling; the sound platform space is open to a 2nd story landing and, via spiral stair case, to a 3rd-floor studio; concrete floor, concrete and brick walls from a converted barn with no parallel walls nor perfect right angles; short-wall setup with speaker backs facing the 8-meter expanse and 2nd-story landing.

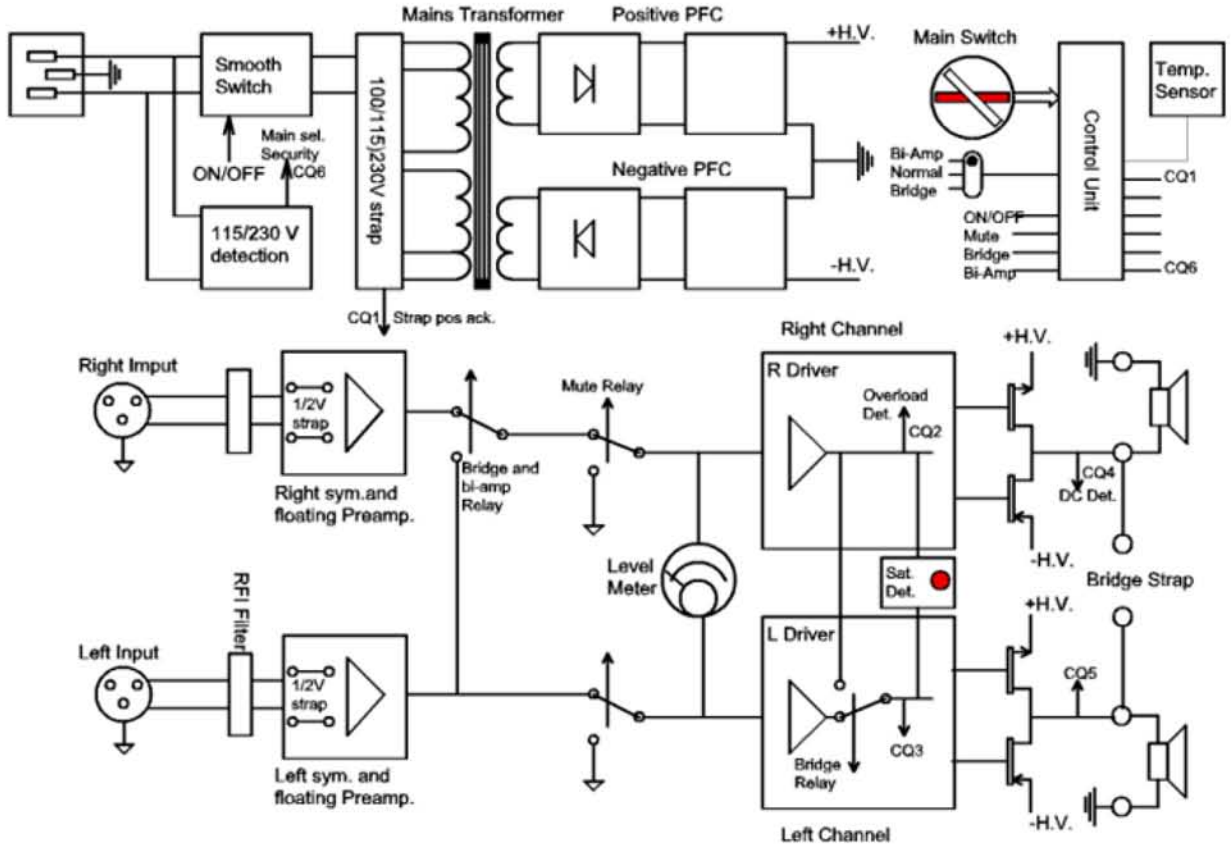
Iconic as are few other audio brands, Nagra is both cursed with and blessed by tradition. What makes a Nagra a Nagra is defined by commandments from the past. Stepping outside the past would undermine the company's heritage and alienate us from its carefully groomed identity. But time moves on. New consumers relate to the golden past not as glorious—they weren't around then—but as passé. Another dual-edged sword is relatively unlimited resources. The Nagra Audio subsidiary is ensconced in the 2.000+ strong conglomerate of the Kudelski Group which is publicly traded on the Swiss stock market. Nagra Audio can pursue insular visions driven by their engineers' flights of fancy rather than any actual market demands. It can thus *afford* to be glacially slow, idiosyncratic and routinely even - well, outright stubborn*.

On the same ledger's sunny side then are products not merely engineered to a 'T' and which go the distance over many decades of ownership. Despite stout stickers, these products are actually priced to retail well below what current trends in manufacturing profit margins and R&D investment return strategies would have to demand to be considered viable. Again that's because the Kudelski Group can afford to. Nagra Audio is less about profitability and being reasonable. It's more about its engineering team's track record of designing and building iconic products nobody else could - or would**. The new push/pull 300B integrated or power amplifier with solid-state drivers and a transformer stack so top-heavy it must ship disassembled is one such beast. American dealers might view today's MSA stereo amplifier at 60wpc and a mere 10kg with exclusively balanced inputs and SMPS equally incredulous. Aren't the most successful expensive amps in the colonies big, heavy, endlessly powerful and running off traditional power supplies with soda-can capacitors and 2000VA transformers?

Now add *vexingly* counter-intuitive remote controls and sideways connector bays. They suggest that to own a Nagra requires not only real money but being properly humiliated by certain idiocies before the applicant is deemed fit for acceptance in the exclusive club. Alas once you actually lay eyes on one of their machines in the flesh, all such musings become...well, eradicated in a blinding flash of white-hot lust. As such and at the end of their far from straightforward path, the folks at Nagra know *exactly* what they're up to. Basterds!

To get properly introduced to today's object of desire, the company shall do the honors. Here goes: The Nagra MSA casing is faithful to the distinctive look and aesthetic standards of the brand. The front face is equipped with the traditional iconic Nagra elements - the elegant modulometer and large rotating selector. The size of the Nagra MSA is consistent in width and depth (275 x 230 mm without connectors) with the compactness of the PL-L, PL-P and VPS preamplifiers and the Nagra CD players family. The MSA is a stereo amplifier with 60 watts RMS output power per channel into 8Ω. The two channels can be parallel-bridged to reach a double mono output power of 120 watts RMS into 4Ω.

As hinted at by the generous heat sink mounted on the top of the unit—a beautifully machined single block of aluminium —the Nagra MSA amplifier achieves amazingly robust performances. A traditional endeavour at Nagra, the MSA relies on original solutions such as the specifically designed PFC-driven power supply and power output stages. These are based on a double-current transfer driver stage and a pair of Mosfet transistors per channel in a common source push-pull configuration with the output on the drains. This arrangement allows comfortable operation under any situation with no instability even when running in parallel-bridged mode with very low impedances loads. Above all, it guarantees transparency and neutrality that only authentic Nagra electronics can.



From the Nagra mission statement for the MSA: A Nagra device stands out by virtue of its rigor and truthfulness. It always operates as close as possible to the original sound source. To achieve this, Nagra is always on the lookout for solutions that are both rational and highly efficient while constantly developing new ideas and innovative designs. Some essential components are impossible to find on the market. If they cannot stand up to Nagra quality requirements, they are made in-house. Selection of electrical or mechanical components is without regard for

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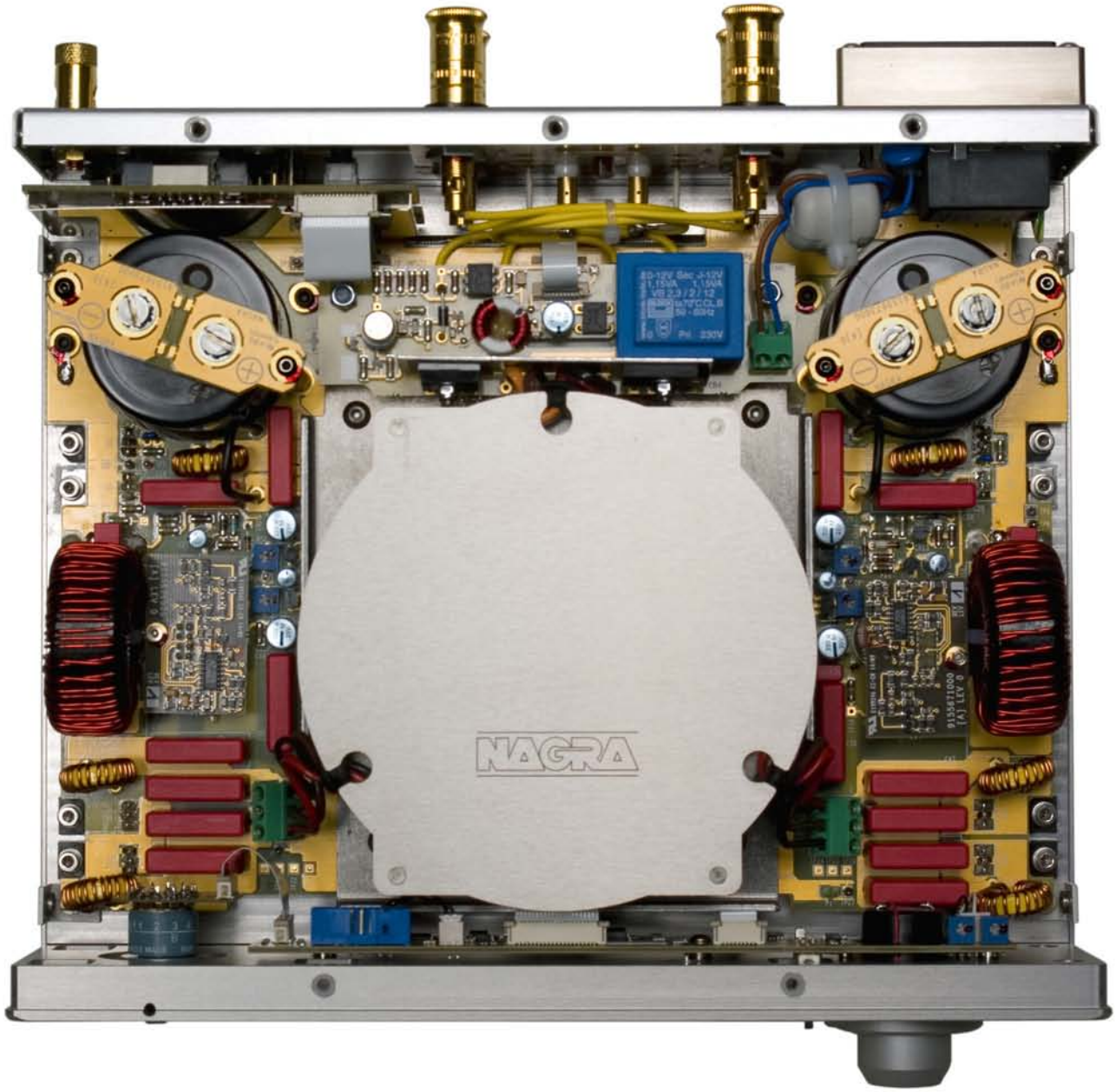
** As do all manufacturers, Nagra must buy many parts from outside vendors. With failures, standard MO is to have the vendors exchange their defective parts. With Nagra, not necessarily. During lengthy R&D cycles, their engineers will often insist on fixing parts-related issues themselves. Occasionally it means actually re-engineering an original part. This consumes time and resources other companies would refuse to allocate. It's one reason why time at Nagra flows slower than elsewhere. It also explains why Nagra equipment is exceptionally long-lived. The concept of inbuilt obsolescence is alien to the Swiss.*

*** For a rather more in-depth view at the Nagra phenomenon, read my 2009* **factory tour**.

compromise and often to military specifications because one single weak link can jeopardize the quality of the whole product. We value high-precision mechanics, workmanship and perfect finishing to ensure robustness and reliability. The pleasure of owning a Nagra not only springs from the knowledge that it hosts some of the finest electronics available but also has to do with the very concrete understanding—visual and tactile—that every hand involved in the process of putting it together was caring and highly qualified. Many Nagra devices built during the last sixty years are still working perfectly and bring to their owners the same joy as they did on the very first day. At Nagra, the notion of planned obsolescence has never prevailed.



Development objectives - *a judicious approach to power:* The Nagra MSA stereo amplifier is the result of a two-fold development objective: to devise an electronic design capable of gracefully dealing with the vast majority of speaker systems on the market including those known to be difficult to drive; and to fit it into a harmonious casing expressing the traditional design lineage of previous Nagra equipment. The MSA delivers 60wpc RMS power at 8 ohms. The two channels can be parallel-bridged to reach 120 watt RMS at 4 ohms in mono mode with twice the output current capacity. Nagra engineers consider such a power range perfectly adequate to meet the requirements of most today's speakers, which, although much more efficient than in the past (sensitivities nowadays easily reach 92 to 95dB), in reality reach their physical and acoustic limits way before the 60-watt boundary.

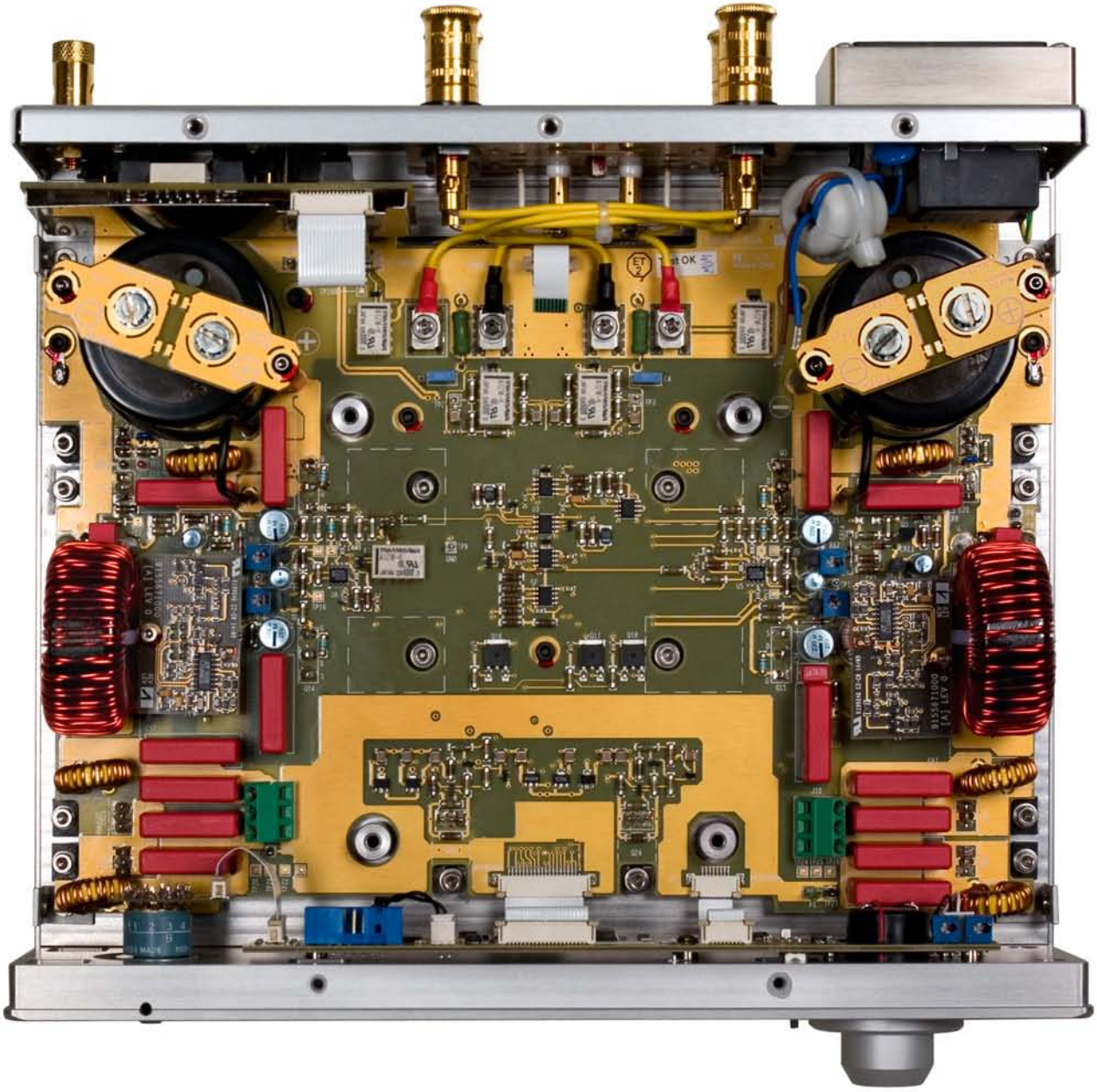
By tackling power issues in a rational way, Nagra has been able to avoid unnecessary complexity in its amplifier circuits. That's always a good course to take when seeking maximum transparency in sound transmission. In electronics, if you want more power you have to pay a price. In particular output stages must host multiple transistors which causes unavoidable difficulties in terms of component matching, stability, energy supply, heat emission and premature aging.

Stable performance in all situations: Speakers are more and more efficient in terms of output. However, they

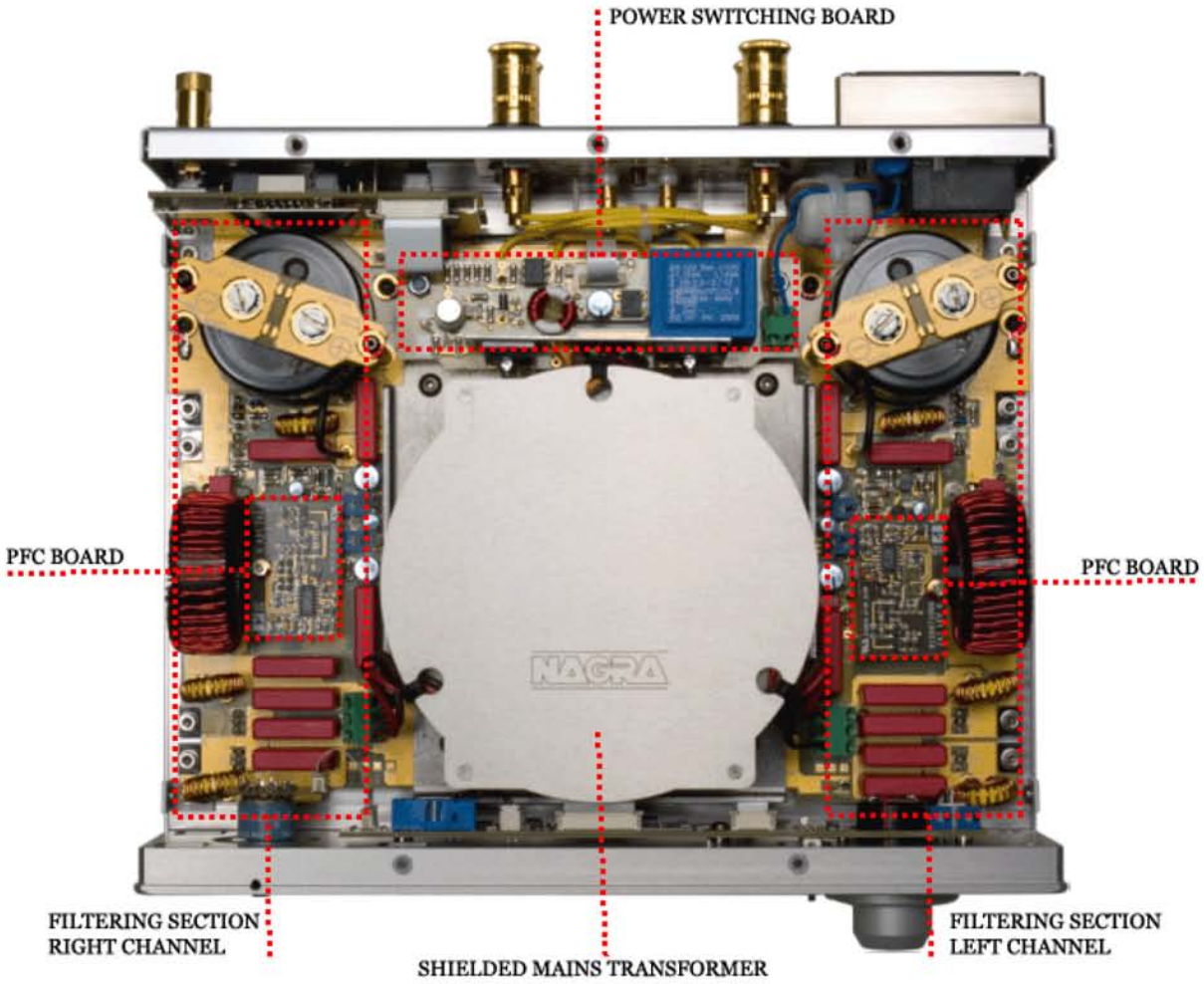
remain complex loads to control, often with very irregular impedance curves. Amplifiers must then deal with sudden impedance variations of great magnitude especially in the lower frequency ranges to challenge the stability of the circuits. To guarantee unwavering handling of sound signal under all circumstances, the power supply must be able to instantly react to an abrupt increase of current demand while maintaining perfectly stable voltage levels. To this effect, Nagra engineers have developed an advanced solution consisting of a power supply that incorporates an active power correction system known as PFC – *Power Factor Correction*. The MSA project development also focused on a judicious balancing of the different stages: power supply, input driving and power circuits. At Nagra, the engineering success of an amplifier is measured by the overall balance of the circuits within it. More than the criterion of sheer power itself, it is what determines an outstanding behavior and excellent sonic performance.

A description of the electronics: A new piece of Nagra equipment is rarely designed from scratch. The developments undertaken for generations of previous achievements often represent priceless pillars upon which new evolutions and the latest improvements are based. The Nagra MSA can thus be considered as an evolution of the MPA amplifiers and more recently the PSA and PMA pyramidal amplifiers. The global topology of the circuits is mostly the same, with some in-depth improvements affecting several specific aspects. The circuits for example were completely redrafted. New parts were included where they could bring better performance.

The MSA includes a mother board fixed to the bottom of the large heat sink, as well as six secondary circuits: the input, control, power filtering, drivers, PFC power factor correction (one board per channel) and the output socketry circuits. All circuits have gold-plated print on epoxy resin boards and are the result of advanced developments aimed at improving the ground planes as well as fine-tuning the component layout to prevent ground loops and interference radiation. For the same reasons, the number of wired connections is reduced to the strict minimum. Supply and power transistors that must be cooled are mounted upside-down on the mother board, allowing them to be directly fixed to the heat sink. The mains transformer is located above the mother board on a thick metal plate that acts as both a support and electronic shielding.



Supply circuits: With a PFC-driven power supply, the electrical current is always in phase with the voltage in a perfect sinusoidal curve without interference peaks or distortion. From the network's perspective, this type of power supply is seen as pure resistance and it avoids polluting it. In a way it behaves nearly decoupled from the network. Another obvious advantage is the cleanness of the current propagated downstream to other circuits. By precisely superimposing current and voltage, the PFC power supply generates little losses. It guarantees a very efficient energy transfer and doesn't collapse when the load increases. It is therefore capable of reacting extremely rapidly to stress situations—even paroxysmal ones—as is required by power output stages in a power amplifier.

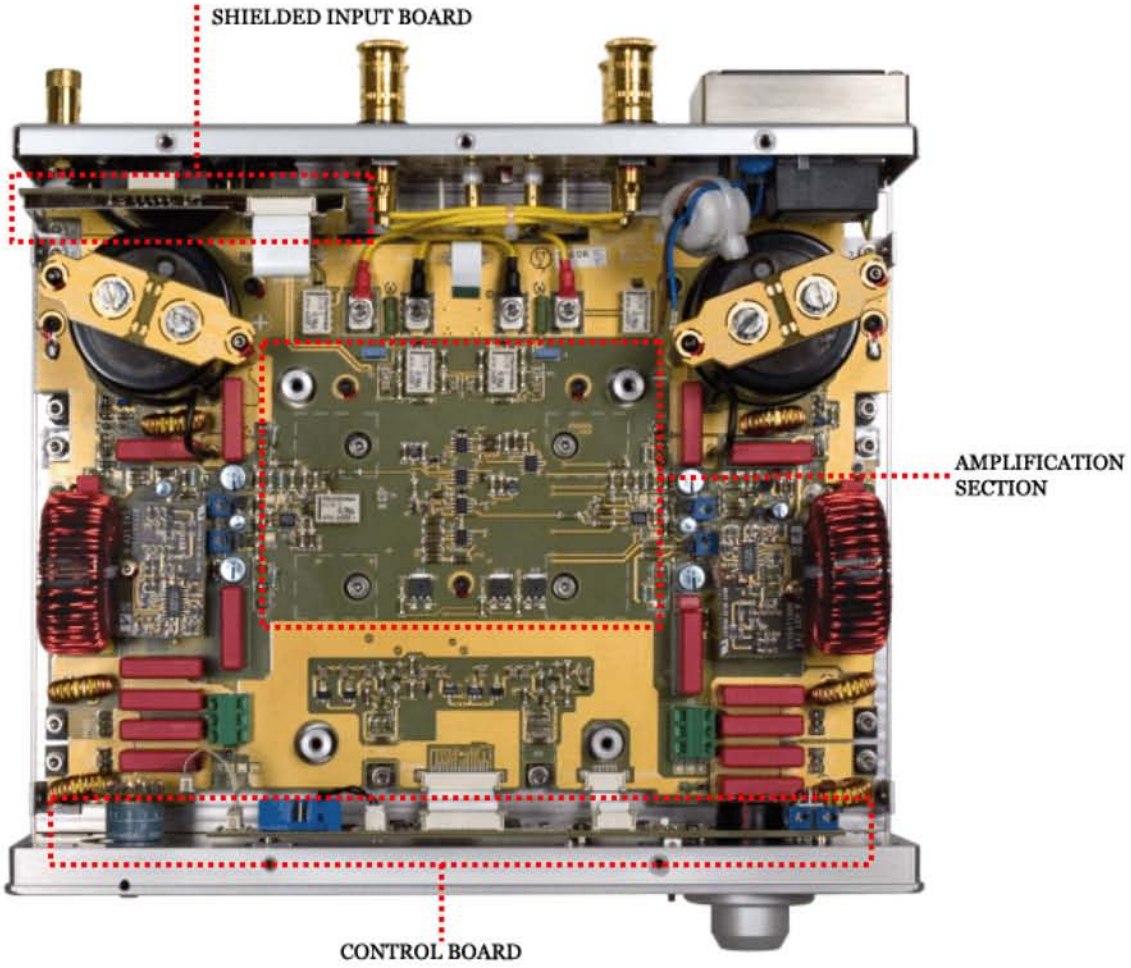


The Nagra MSA PFC power supply is built in ways that fundamentally distinguish it from more conventional switch-mode power supplies. In particular, it has no flyback transformer and no snubber circuit, which can lead to hot spots on the printed circuit board. Instead it is fitted with a sizeable 200VA toroidal transformer that reduces the voltage level to suit the power stage (±35V) from which all other voltages are derived. This transformer runs at the power grid's frequency and avoids generating any residual HF noise. The filtering section of the power supply taking up a good portion of the mother board also was very carefully devised. The quality of the final result depends significantly on the calculations' accuracy, on the nature and choice of the parts as well as their size. For example, multiple polypropylene capacitors and generously dimensioned self-inductance coils and two sturdy 84'000µF electrolytic capacitors feature in the power supply output stage.

Input circuit: Snugly parked behind a mu-metal shielding plate and fixed directly above the mother board behind the XLR connectors that are directly soldered to it, the input circuit consists of a set of high-precision and low-noise operational amplifiers run symmetrically. The input circuit allows the input voltage sensitivity to be adjusted to 1 or 2 volts and to determine the mode in which the unit will work: stereo, parallel-bridged or dual mono. It also includes a detection mechanism in charge of switching the unit on as soon as a signal reaches the input terminals and for engaging the standby mode after 15 minutes without signal. This mechanism comes into play as soon as the *automatic* mode is activated through the main selector on the front panel of the unit. In standby mode, consumption is reduced to less than 2 watts.

Amplification circuit: The amplification section takes up the central third of the motherboard. It is based on a thrifty architectural design. Impeccable stability while running is the chief result. The topology is unique. The driver stage is organised in what is known as a double-current transfer configuration, giving the power stage a considerable tolerance to residual power supply ripple. It relies on a pair of AB-biased Mosfet type transistors assembled on each channel in a push-pull common-source arrangement (output on the drains). Chosen for their excellent audio characteristics, these parts are very carefully hand-selected. The result is so precise that the circuit requires very little negative feedback. It allows the MSA to perform smoothly under all circumstances without instability even when running in bridged mode with very low impedance loads. Above all, it is a true Nagra electronics ambassador by virtue of its transparency and integrity.

Protection circuit: The Nagra MSA is equipped with all necessary safeguards to protect against potential problems. An appropriate array of sensors and surveillance circuits will detect any overheating or output stage overload. As soon as an anomaly is detected, the control circuit triggers a drop-out relay sequence that deactivates all inputs and inhibits the power circuits. The MSA also hosts a soft-start switch-on circuit that makes sure the relays only start up a few seconds after the unit is powered up, preserving the electronics and preventing turn-on transients through the loudspeakers.



Control circuit: Fixed immediately behind the unit's front panel, the control circuit uses a microprocessor to handle the MSA's main functions of start, stop, standby, automatic and silence modes. It also controls the protection circuit and delivers the clock signal to the PFC circuits.

Output circuit: The support plate fixed to the back of the unit's rear panel is equipped with two pairs of speaker terminals and banana-type sockets into which the user may insert, when required, the parallel-bridging jumper.

A description of the mechanical parts - main body: The casing of the Nagra MSA amplifier is entirely made of finely brushed anodized aluminium in true respect of the distinctive look and aesthetic standards of the brand. Its dimensions are of course adjusted to blend with other members of the Nagra audio family such as the PL-L, the PL-P and the VPS preamplifiers or the Nagra CD compact disc players. The width and the depth are identical (275 x 230mm WxD without connectors) whereas the 115mm height is slightly greater due to the hood's heat sink construction covering the top of the unit.

The heat sink itself is a complex slab of aluminium milled from a massive aluminium block weighing 10kg before machining and 3kg once finished. Its construction plays a key role in stabilising the amplification stages. Thanks to the strong moment of inertia of its central part, the heat sink acts as an energy storage space so that the transistors fixed to it can release their peaking capacity without a sudden rise in temperature. The 10mm front panel is also machined from a solid block whereas the sides and the rear panel are made from folded sheets.

Front panel*:* The front panel of the Nagra MSA is equipped with the brand's famous rotating selector to turn the unit on and off, activate manual or automatic modes and mute the power stages. The traditional Nagra modulometer which expresses the power output levels of the amplifier is escorted by a toggle switch to illuminate the display. Finally a small red LED acts as sentinel should the power stages reach saturation.

Back panel: On the back panel an independent element integrating an anti-interference RFI filter carries the mains power switch, the fuse holder and the IEC connection slot for the external power supply cable. Available connections include two XLR symmetrical input connectors, two pairs of gold screw-down terminals to connect the speaker cables, two sockets to accommodate the parallel-bridging jumper for the power stages and a gold-plated threaded terminal to enable the grounding of the unit's chassis. The back panel also gives access to selectors to adjust the input sensitivity levels (each channel can be adjusted separately) and to define the operating mode - stereo, parallel-bridged or dual-mono.

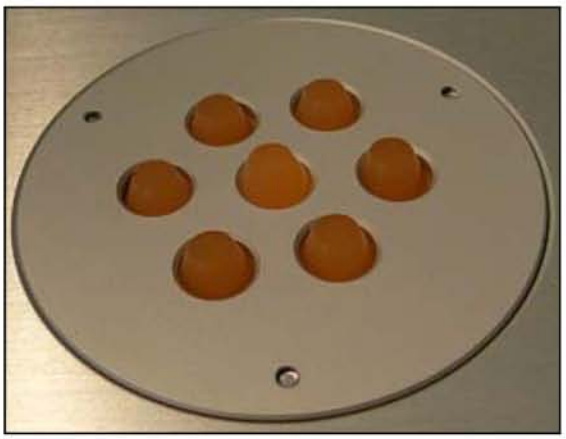
Technical specifications: Class AB, 2 x 60 watts into 8Ω, 1 V or 2 V input, 1 x 120 watts RMS parallel-bridged 4Ω ;10 Hz to 75kHz +0/-3dB bandwidth; channel separation >85dB; S/N ratio typically 109dB (ASA A-weighted); TDH+N <0.08 % @ full power; input impedance >100 kOhms; automatic start with an input level >10 mV; protection deactivates the amplifier when overheating above 60° C (140° F); DC protection for loudspeakers above ±2.5 V DC; monitoring level indication via blue LED on front panel (can be disengaged); clipping indication by red LED on front panel (for I>12 A or U>42V); operating range 90-132 V or 180-264 V, 50-60 Hz; power consumption 350W; dimensions 275 x 230 x 115mm WxDxH; weight 10kg.

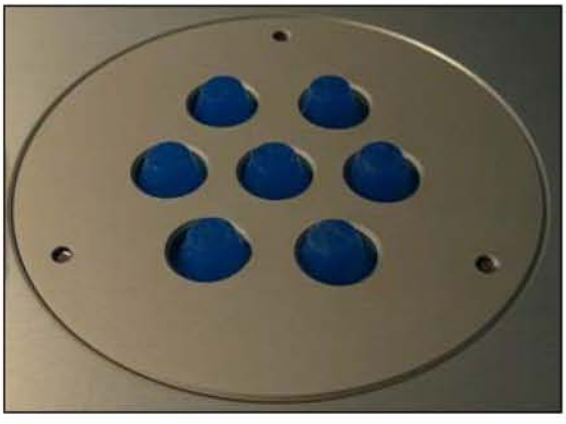
Like Linn, Nagra has championed switch-mode power supplies for ages. With Nagra's outboard supplies for their preamps and digital decks not showing in most commercial photography, the company simply failed a bit at promoting this fact. Perhaps it's due to how most upper-crust hifi manufacturers with lesser engineering resources have very successfully demonized SMPS as fit only for noisy computer applications. Leashing hifi machines to off-the-shelf laptop-type supplies as is common for low-power T amps should fully validate those expectations. However, audition for example the Austrian Crayon Audio CFA-1 integrated amplifier or tiny MiniWatt valve amp from Hong Kong. You'll have to confess that their sonics—both with 6moons awards—aren't despite their chosen power management solutions. They're because of it. Bang & Olufsen's popular ICEpower™ modules also rely on SMPS as do the Philips-sponsored Hypex equivalents. Thinking folks now add to the emerging picture that like Nagra, the Danes and Dutch run *far* more sizeable engineering departments than the average boutique audio outfit which so loudly condemns switch-mode supplies. Draw your own conclusions.

Nagra's CDC and PL-L will make contributing appearances to describe the sound of a *complete* Nagra system - three-piece or CD-direct to amp. What follow are mini tours through their innards. For formal circuit and feature descriptions, refer to Nagra's website to not overburden this report. Common to all three machines are the compact footprint; the triple footer system with captive Delrin ball tips; matching indentations on the covers for stacking; and the optional two-layer support system with viscoelastic pellets.

Not equally shared is Nagra's sideways orientation of the connector bays. The PL-L preamp still adopts the hardcore house tradition with inputs on the left cheek, outputs on the right. The CDC's stock orientation has become conventional—to the rear—but may be ordered sideways (Nagra to date had only *one* such request). The MSA meanwhile is exclusively conventional in layout. This clearly reflects three different model generations.

It's one area where tradition becomes a curse. This is particularly true when one's product is exceptionally long-lived to remain active in the field over decades. Change and your new machines no longer match the legacy units. Don't adapt and eventually end up painted in a weird corner. It's a no-win situation but intrinsic to being iconic. It will probably take a change in management for altogether fresh blood and/or the further passage of time before a comprehensive makeover can address these idiosyncrasies. Another oddity are the MSA's exclusive XLR inputs. While RCA/XLR adaptors are provided, why couldn't those be *integrated* to avoid wobbly unsightly afterthought interfaces?

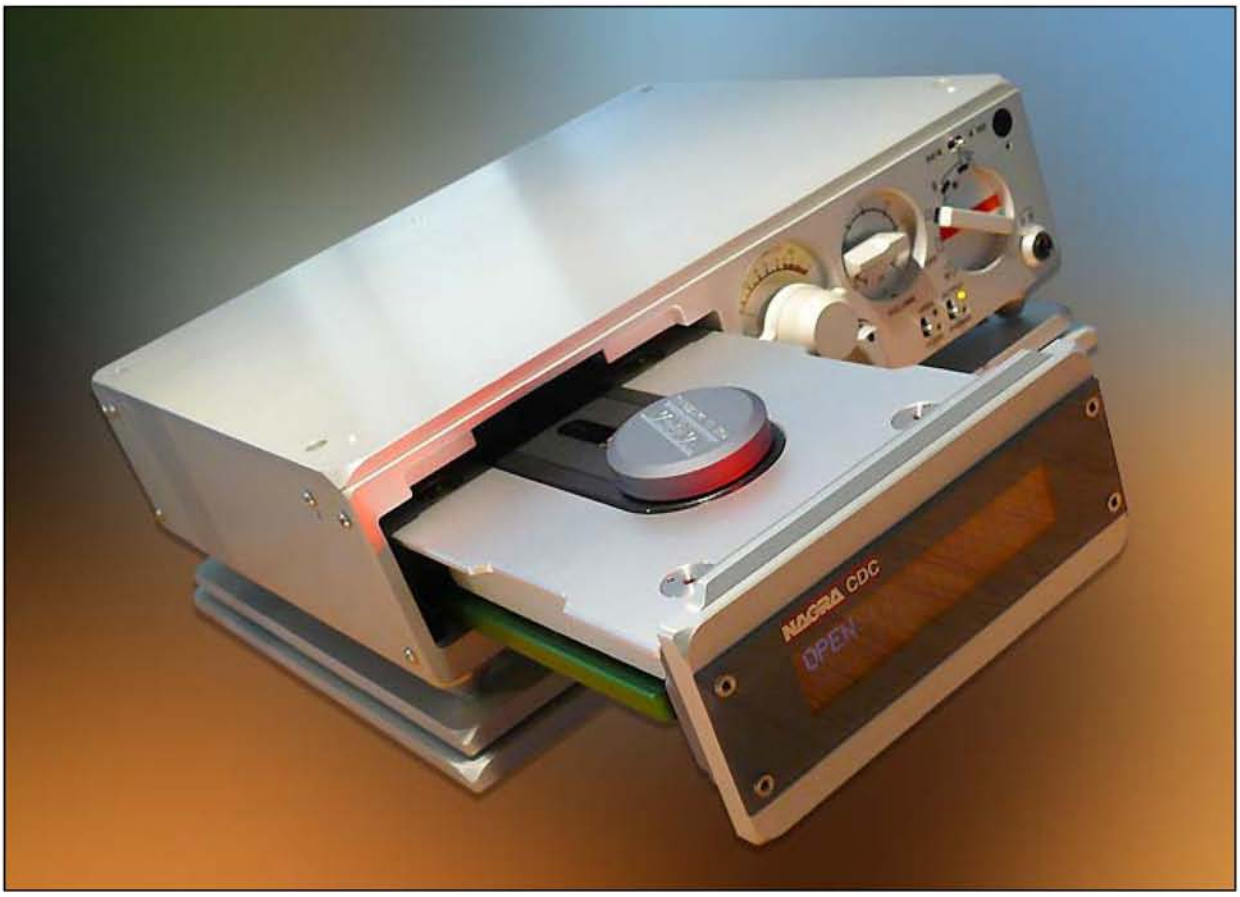




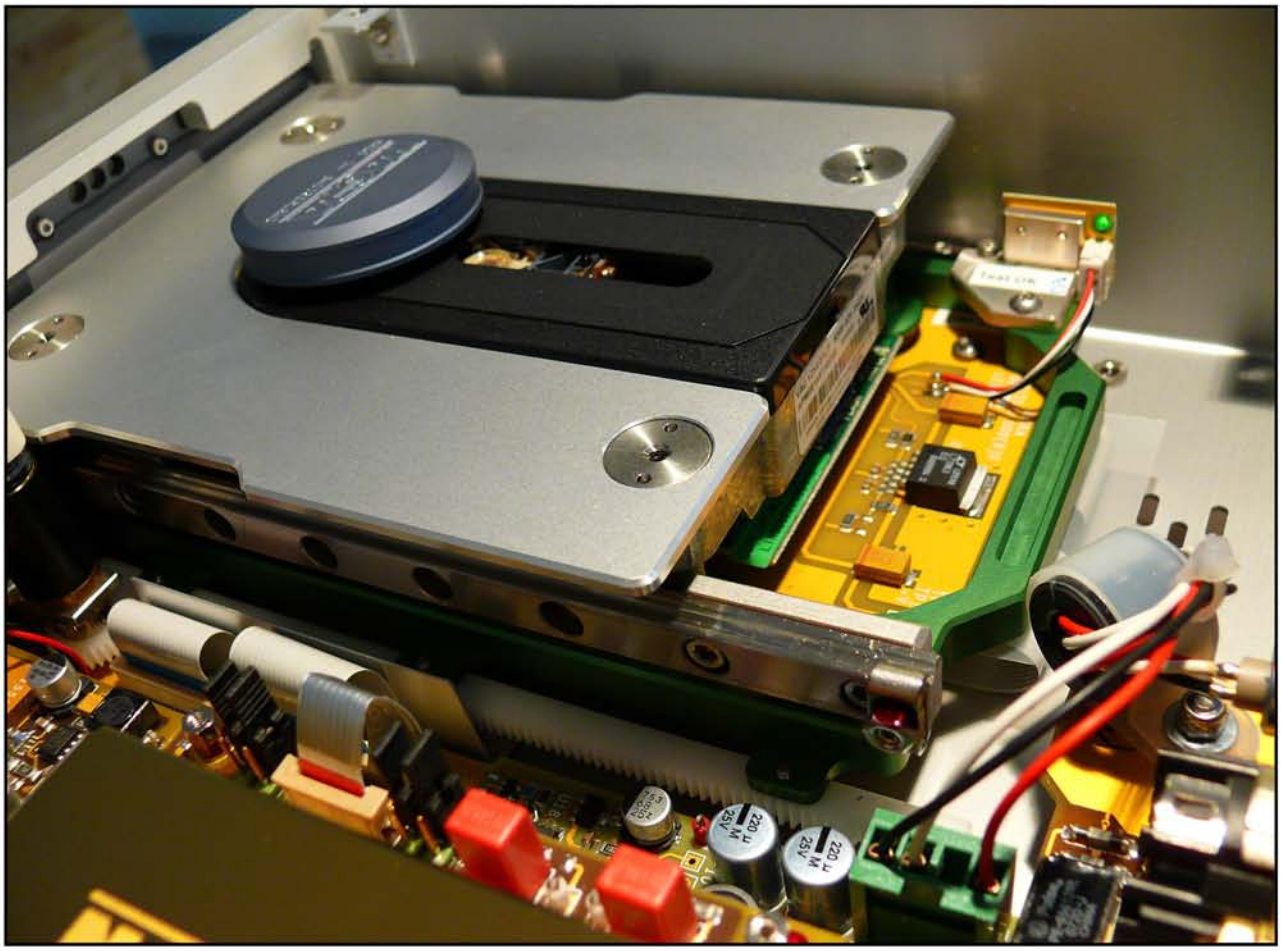
Nagra shares with Esoteric an area where tradition can slow down progress. Both firms are stout advocates of exemplary *mechanics*.

Esoteric has invested heavily into the creation and ongoing refinement of its VRDS sleds for CD, SACD and DVD. Nagra invested into its unique ejectable CD drive as a true marvel of Swiss precision engineering. But VRDS and Nagra-style *transportation* clearly is costly.

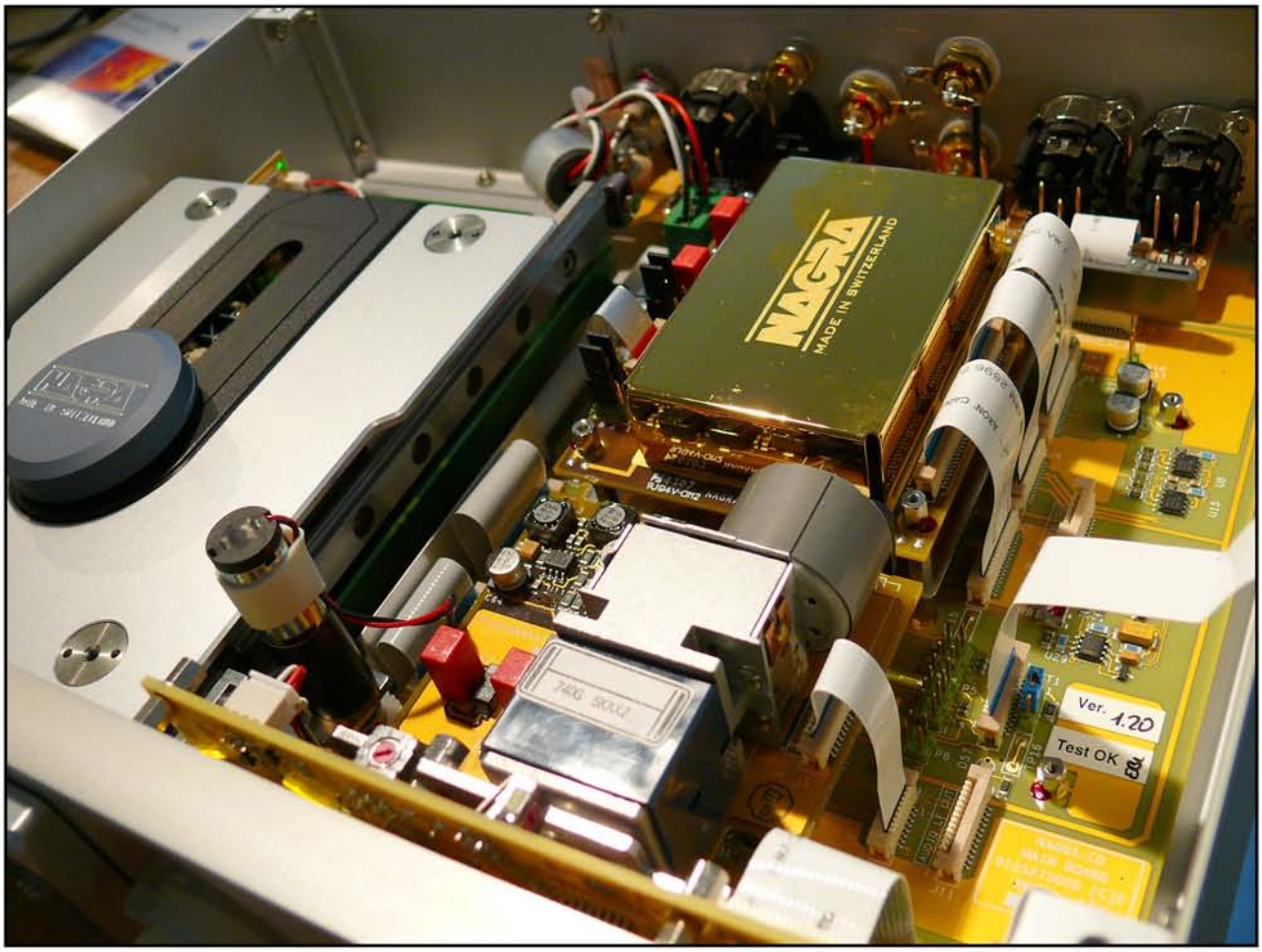
Enter iMac, laptop and streamer/server sources with cheap DVD/ROM drives to rip data and play back from hard disc or SSD. This renders overbuilt mechanical solutions obsolete. Neither Nagra nor Esoteric offer present Firewire connectivity. While Esoteric has added USB to some of its models, it's neither 24/192 nor async. The former Japanese leader in digital audio has seemingly fallen behind small firms like M2Tech and HRT. Nagra seems yet further behind.



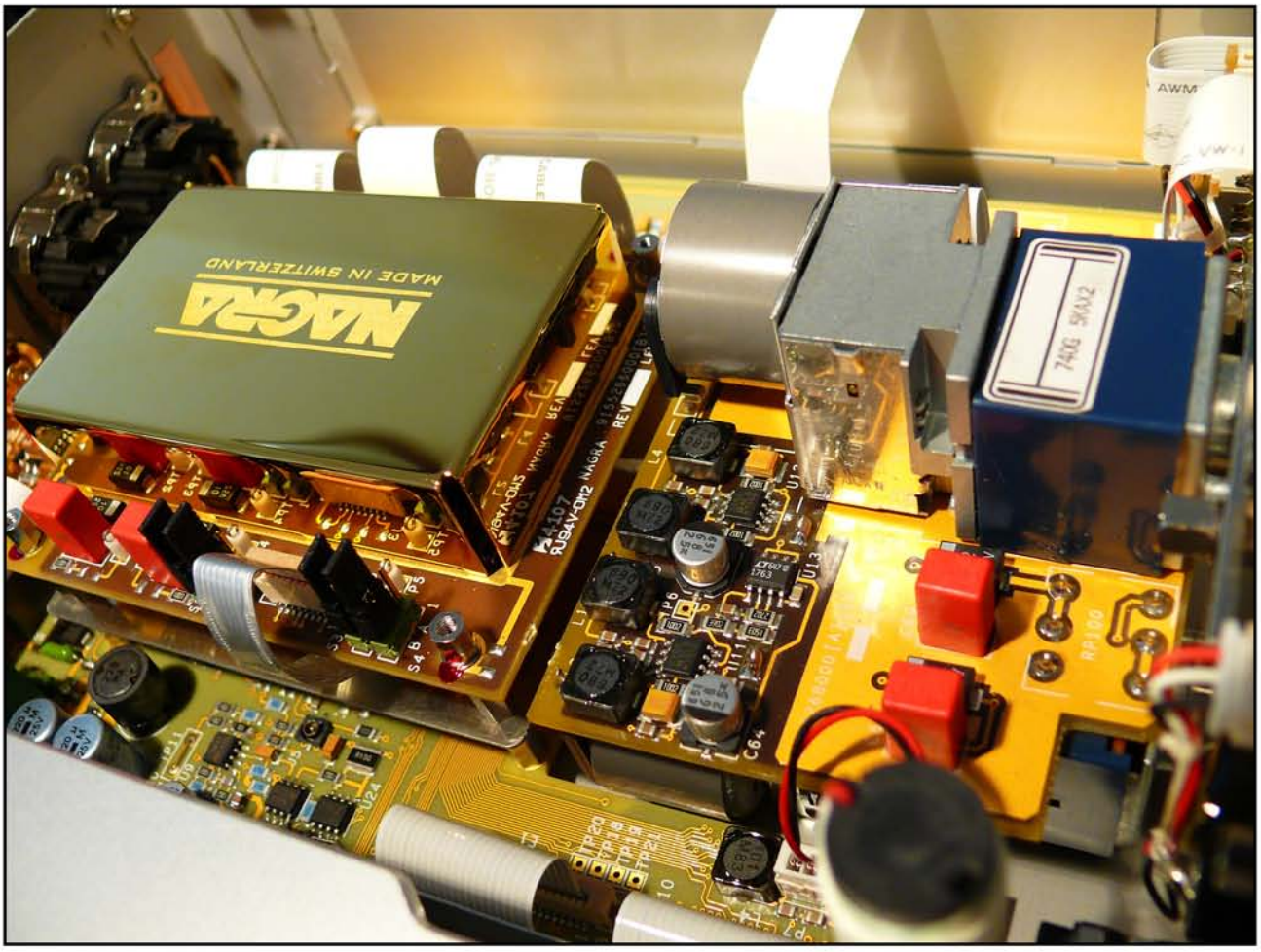
Alas, it's easy to appreciate why hitching a ride on the express train of streaming audio would be especially challenging for champions of superior old-fashioned solutions like Esoteric and Nagra. It turns the *expensive* Swiss CDC platform into quite an anachronism. Yet this needn't mean the desire to own one is on the endangered list. There will be customers of proper liquidity and appreciation for extreme mechanical excellence who'd single out the CDC over anything else on the market for precisely those reasons. Going this route—as customer *and* maker—simply isn't cost-effective, user-friendly compared to iTunes convenience or still required to obtain superior performance.
The CDC in particular would seem to exist primarily because Nagra *could* engineer it that way, not because anyone asked for or really needs anything remotely like it.



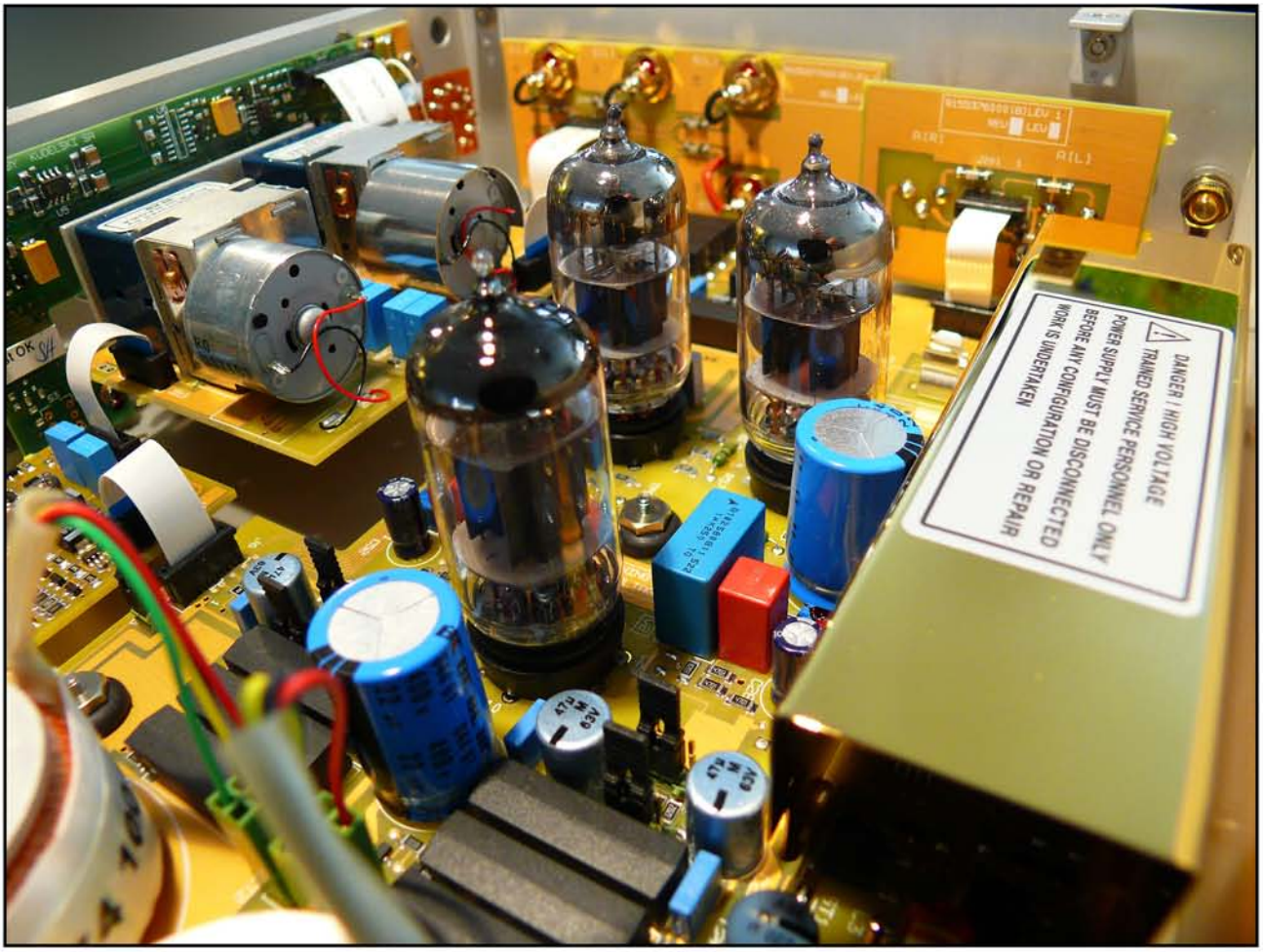
That too is part of being iconic. It's about statements nobody expected but which leave indelible impressions and set new standards regardless.

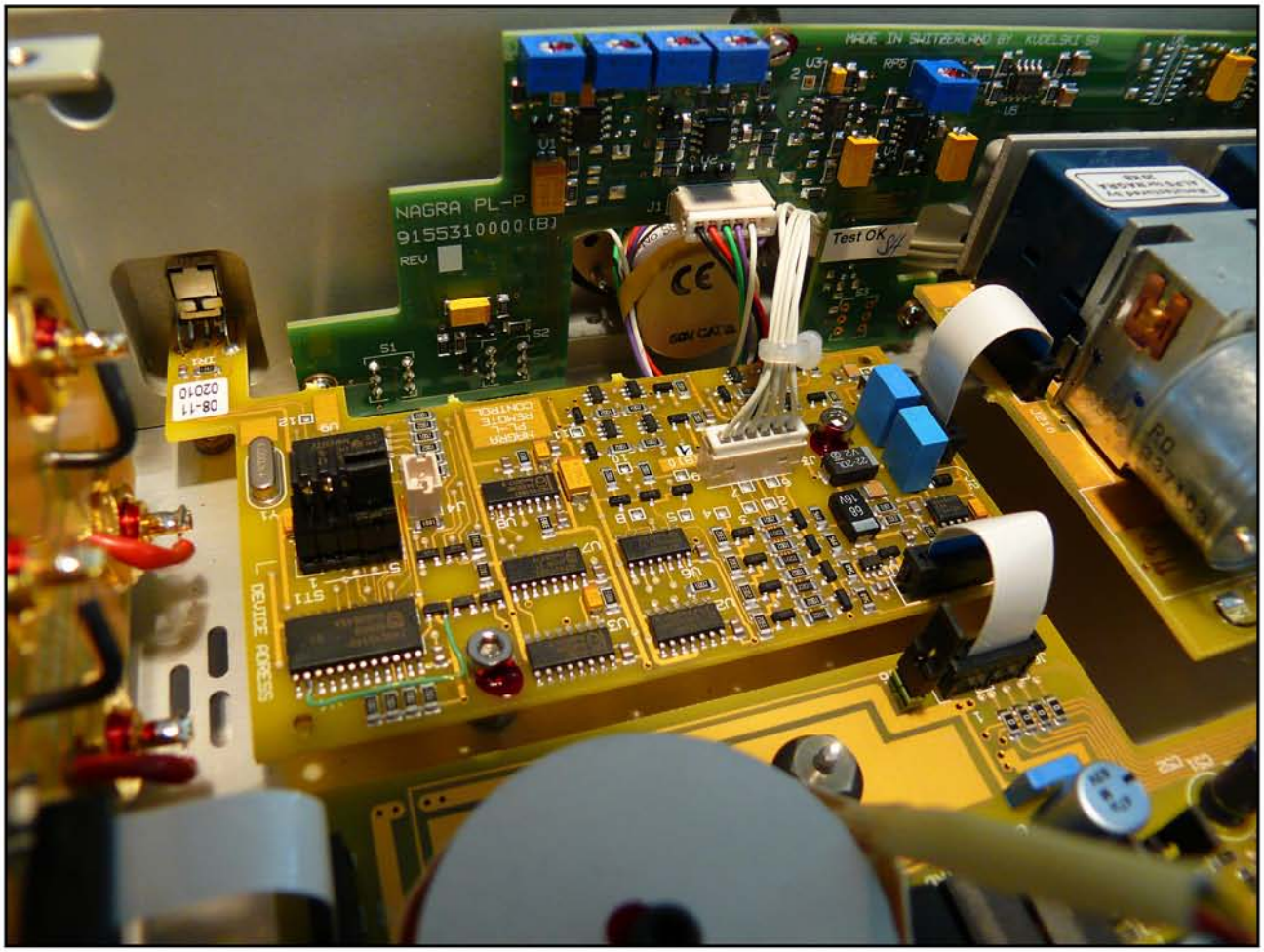


Here we have the vacuum-tube PL-L version of Nagra's preamps sans phono module and top panel.



The volume and balance pots are made by Alps to Nagra's specifications.

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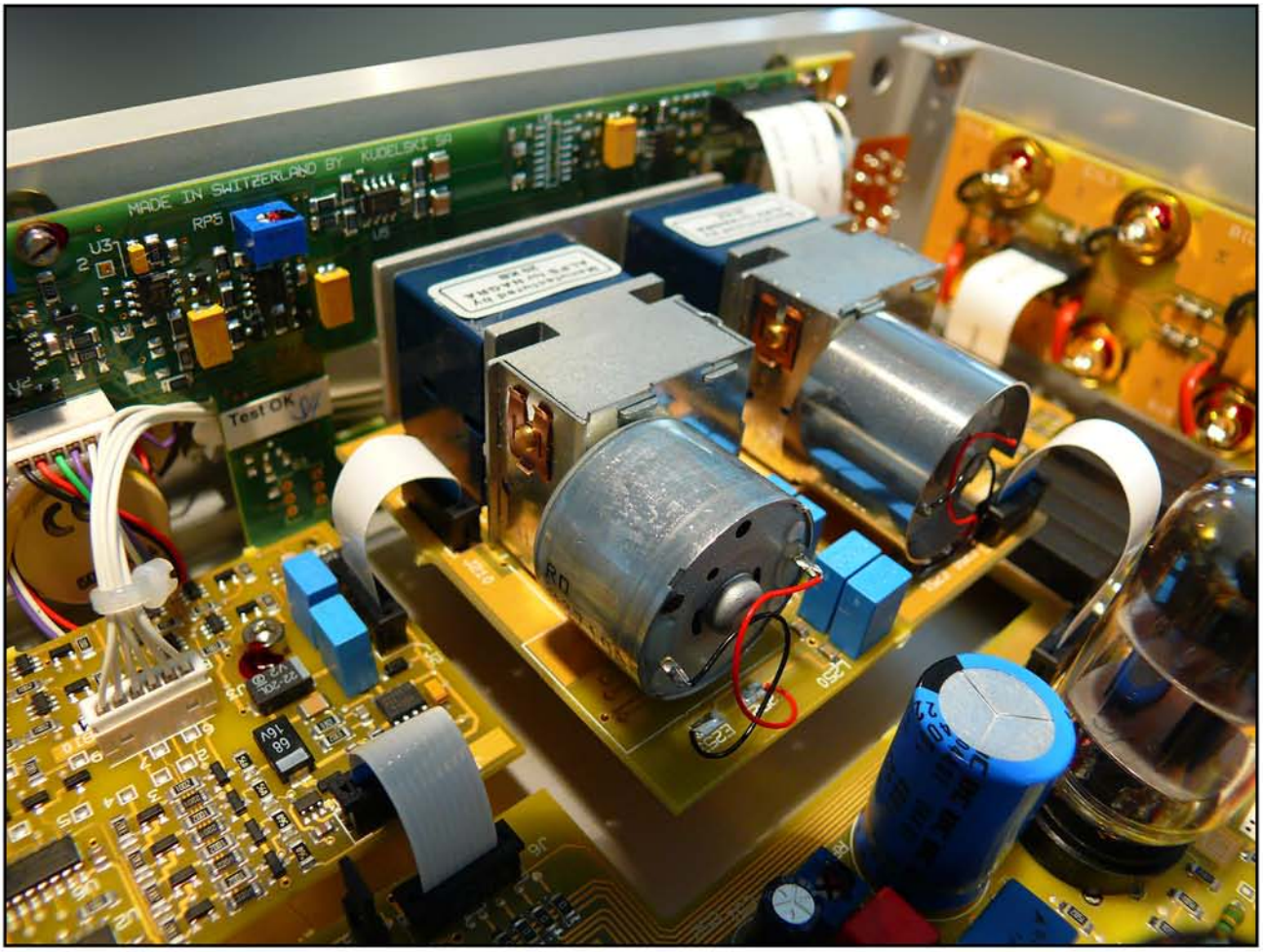
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MSA sonics: A common signature for Mosfet outputs is what Stereophile's Sam Tellig cunningly coined *Mosfet mist*. It differentiates a generic class of one—transistor amplifiers—into many classes of Mosfets, bipolars and power JFets. Each is accompanied by certain core signature traits disregarding obvious generalizations and exceptions. Mosfets are routinely billed as 'tube like'. This points at their gentler transients, softer edges, fluffier textures and concomitant warmth. Bipolars tend to be cooler, more lit up, dry and incisive. Power JFets in amplifiers are still rare but FirstWatt's F3 and J2 suggest that they combine bipolar articulation and illumination with Mosfet textures to position in the middle.

Solid-state amp designers thus have their own if you will 'pentode' and 'triode' choices to make and numerous suppliers of transistors to consider. Nagra's focus on *measurably* good engineering eliminates single-ended operation in their book—that's why even their 300B amp had to be push/pull—but appreciates that so-called single-ended push/pull with just one device per phase eliminates paralleled matching errors for greater precision. Hence the MSA is limited to four transistors total. It's as minimalist/purist as push-pull circuits can get.

To gather feedback on speaker system performance—handicapped as it fundamentally is by room interactions and the innate time/amplitude/THD distortions of loudspeakers—a superior headphone reference system is useful. I rely on a fully maxed-out Woo Audio Model 5 300B SET with top glass from Synergy Hifi and TJ/Full Music connected directly to my Weiss DAC2. Transducers are ALO Audio-recabled beyerdynamic T1s and Sennheiser HD800s. 600-ohm loads seeing millivolt signal are quite idealized conditions for direct-heated triodes to actually *behave* as the ultra-low distortion super linear devices they theoretically can be but often aren't. The crossover-less single drivers in headphones which are quasi direct-coupled to our ears meanwhile max out resolution and clarity beyond what most speaker systems can pull off on their finest days.

For well-recorded 'adult instrumental' music, the Norwegian Øystein Sevåg can always be relied upon. His *Caravan* album displayed on my iMac screen below is no exception. "Wind" is a minimalist Garbarek-type number with Bendik Hofseth on saxophone and built up over washes and drum groove. While most the textures are mellow, Paolo Vinaccias' rim shot and kick drum accents crack *real* hard over my headphones. Their suddenness or steepness is akin to touching a hot burner and withdrawing your hand. Lightningy. The peakiness or loudness rise is akin to the involuntary shouted curse that usually accompanies getting burnt. It's startling, raw and entirely uncensored.

The MSA tracked this dynamic envelope better than two Mosfet amps from FirstWatt and ModWright (M2 and KWA-100 respectively) but did it neither as fiercely as my headphone system nor as violently as far more powerful direct-coupled class A amps like a big Karan would. On transient sharpness or edginess—the lightningy aspect—the MSA exhibited Sam Tellig's Mosfet mist. It was less honed and blistery than FirstWatt's F5 for example. Texturally, such sharp attacks didn't peel out from soggier surrounding thicket to the same distinctive extent. For dynamic jump or startle factor however, Nagra's 60-watter was actually quite surprising. It delivered the swing voltages. I'm inclined to regard its switch-mode power supply as enabler of this subjective speed. For transient pungency or whipping action meanwhile, the MSA was mellower. It clothed its attacks in some thin cotton. It didn't maximally highlight textural differences between a snarly popped e-bass wire and a legato bowed violin string. That was recognizable Mosfet behavior which incurs some mild homogenization. This usually falls under *prettification*.

In most reviews attempting to define the Nagra house sound, variations on *sumptuous* dominate. This suggests that the Swiss are very concerned with what's vaguely grouped under tone or timbre. Of the three components supplied, the MSA exhibited the least of this yet clearly carried distilled remnants versus something cooler and more lit up like my F5. I'd characterize the MSA as microdynamically pushing the envelope of the more affordable but quality Mosfet amps I had on hand. Macrodynamically it will be power limited at least in stereo mode yet relative to neighbourly peace and what I can realistically listen to, this never became an issue and was relevant only vis-à-vis my headphone reference.

If the most useful reviews condense a component's performance into one or two core features the writers are certain will translate across various systems to not bother with details that wouldn't survive outside their own setups, I'd single out for the MSA its handling of massed strings. Be it the elegiac *Adagio for Strings* by Samuel Barber, the Adagio of Prokoviefs *5th Symphony,* any Bruckner Andante or the saucy mayhem of a large Budapest gypsy ensemble doing a csardas or doïna, the Nagra indulged that typically (controlled!) tube thang of layering and burnished tone colors.

Blistery Flamenco guitar arpeggios and rasgueados, close-mic'd drum set workouts or brutal club fare with hard-as-nails bass beats weren't a special forté. Piano, violin and cello as the three classical instruments most cruel to transistor amps were. That's because the MSA focused on the *sustain* of tones while its excellent S/N ratio tracked decays very keenly. The Nagra then differed a bit from precedents in my circle of acquaintances. It didn't compromise good dynamic reflexes with its deliberate orientation towards minor warmth and mellower edges. Often warmer amps become cuddly and portly. They slow down. The MSA didn't. It did however refuse to get ugly. Music that only sounds authentic with maximum grit and bright shards underwent a Swiss civility makeover. That's part of this package.

This squarely applied also to other speakers like Aurelia's Cerica from Finland which were in at the same time. If you think *legato not staccato*, you've pegged the MSA's essence. If you think tube like, you will have to reference not the Yamamoto A-09S but something like my white Serbian EL84 push/pull monos. Their two local feedback loops of 0.3 and 4dB through the interstage and output transformers respectively 'mow grass' very deliberately (cancel THD). My current assessment of the Kaivalyas pegs them as about 30% tube, 70% transistor. I'd place the MSA on similar turf. It's likely why in past Nagra presentations, I've always preferred this amplifier to the company's own valve amps. Their *Mosfet Stereo Amp* distills just enough tube flavor to really suit this reformed valve appreciator.

PL-L vs DM36.5: Priced at around €8.000 each, the Nagra and ModWright preamps are direct competitors. My twin-box tube reference from America would help put the Swiss into quick perspective for today's limited purposes. Noteworthy for being current year 2010 machines, both eschew the now near ubiquitous numerical volume control in favor of motor-driven pots which at least via remote are less precisely administered. The DM36.5's lower gain and shallower taper do offer more flexible adjustments. With its bigger badder boxes, the ModWright also offers higher return on raw material investment. The Nagra retaliates with its laboratory finishing and snazzier metal remote. On socketry it's a near draw. The ModWright merely sports an additional RCA input, a tape out and HT bypass feature. The Nagra adds balance control, the ModWright remote polarity inversion. In theory, these machines compete for the very same customer. In practice, the PL-L's non-standard size and sideways layout could make it more appealing in an all-Nagra context.

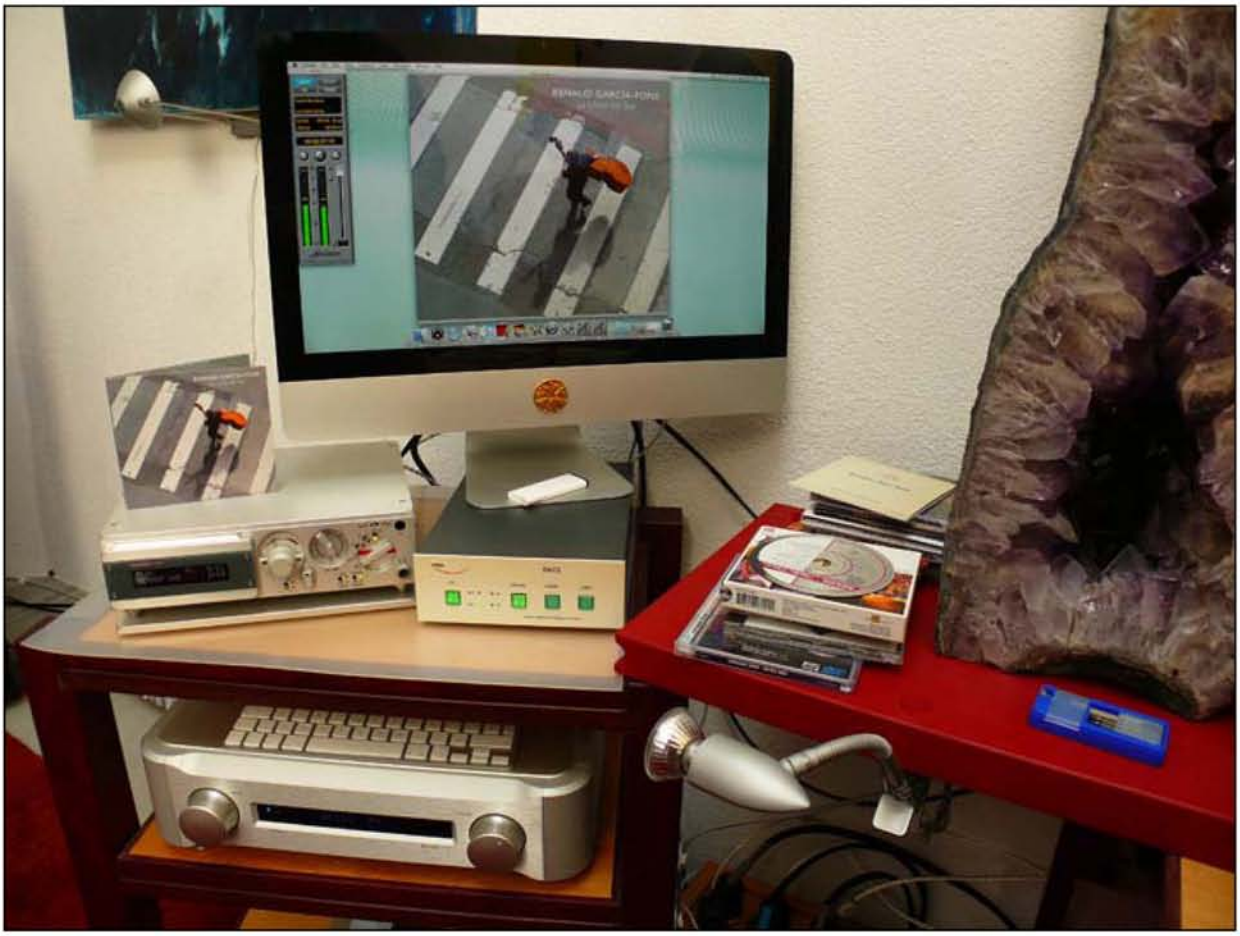
The ModWright would usually be separated on two shelves. To only deal with one variable, my customary F5 amplifier replaced the MSA for these initial PL-L sessions.

Nagra's two 12AX7 + one 12AT7 vs. ModWright's twin 6H30 with dual each 5AR4/GZ34 rectifiers and 6EA7/6EM7 voltage regulators diverged less than anticipated. Both are low-noise devices with high S/N ratios and acute resolution. The Nagra was tonally somewhat more saturated and had more of what our strange audiophile lingo refers to as wetness. The ModWright's top end was brighter, more lit up and in hue silver or Platinum to the Nagra's gold. That aspect seems directly related to Dan Wright's choice of the Russian 6H30, the so-called super tube. It prefers top-end energy and attack sharpness over ultimate smoothness. On-string action with the American thus had a tad more virility, incision and particularly at lower frequencies deeper striations. With massed ensembles, this led to subjectively greater separation. With edgy hard recordings, the Nagra's mellower treble delayed the onset of purist scorn. It was another mild case of prettification.

Nagra's Matthieu Latour in the listening seat

The Nagra might have had a slight edge in dynamic responsiveness. Voltage swings seemed to occasionally kick in more rapidly but this fell under the header 'perhaps'. It would suggest itself when the Nagra played, then be questioned again when the ModWright followed to inspect the same passage. Certain regardless was that both ModWright's overbuilt traditional power supply and Nagra's far more compact modern SMPS proved equally viable. It's high time that the audiophile club made a full-fledged member in good standing of properly designed switch-mode supplies. Anything less is ill-informed snobbery.

CDC vs. iMac/DAC2: Ditto PC audio. It can be bona fide high-end. At triple the cost but with drastically cut-back functionality—just loading a CD felt so unbelievably quaint—Nagra's elite CD player enjoyed *zero* sonic advantages and justifications. Once I had dialled in the precise input level offset on my Esoteric C-03 preamp to switch on the fly (this actually took the longest to get right), I sought rather in vain to clearly distinguish between both front ends. The only very mild qualifier I managed revolved around *insistent*. I felt my reference stack had a skoch more of this attribute. After plenty of musical chairs involving Renaud Garcia Fons, Dulce Pontes, Hüsnü Senlendirici and Luciano Pavarotti, I was ready to call it quits and a draw.

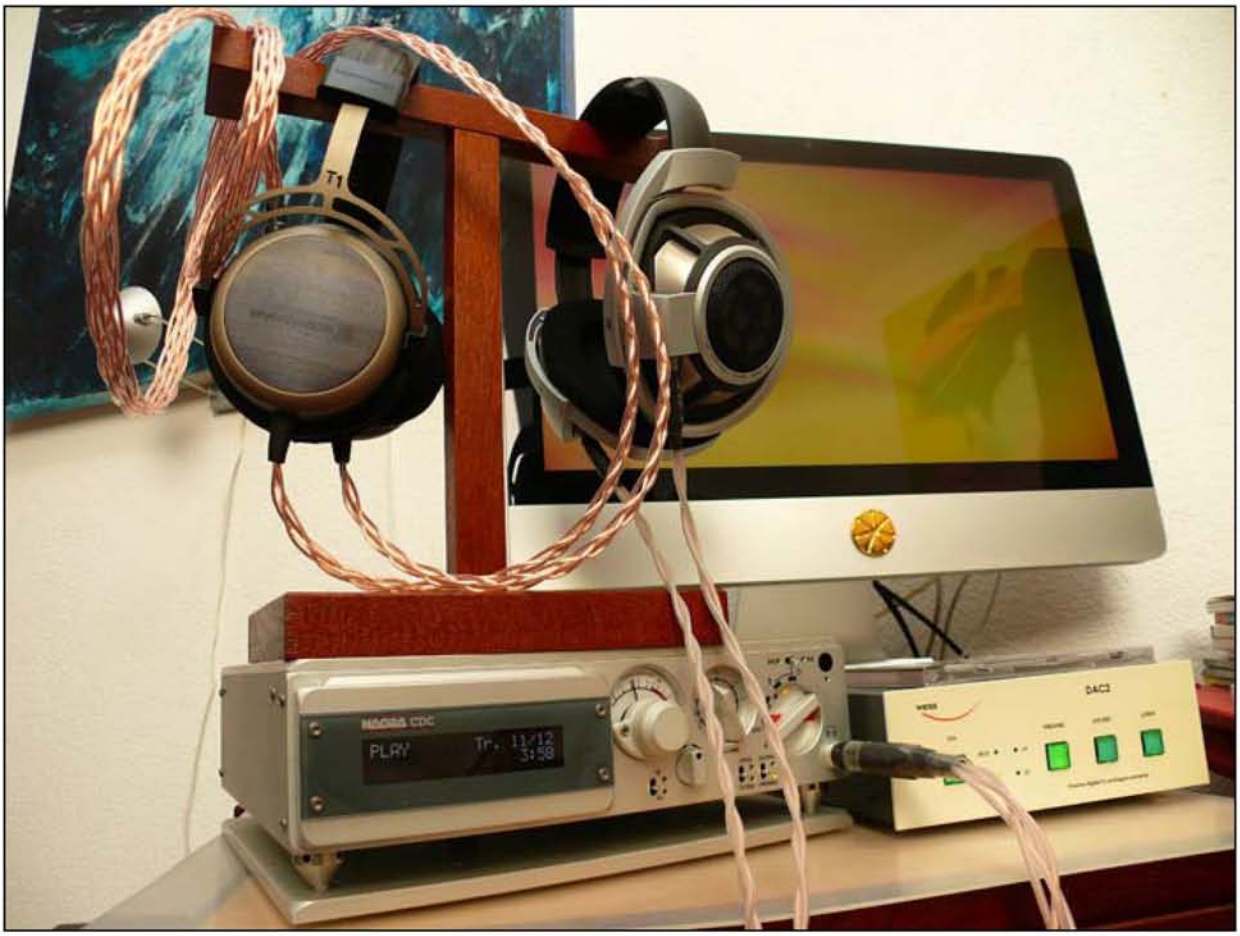


Then the phone rang and I throttled back playback levels to late-night standards. Upon return, the Nagra proved to fade quicker into the fogs. That peculiar insistence or separation power of the Mac/Weiss combo began to dominate to greater degrees as playback volumes diminished (this was with the Nagra's own attenuator fully open). Because I do a lot of pleasure listening well past dinner, I'd have to give the sonic nod to my computer/converter combo [€1.700 + €3.000]. At regular and higher levels, the CDC was a virtual stand-in.

I simply was incapacitated to even *begin* to justify its exorbitant price based on raw performance. Of the three Nagras on loan, the CDC was least compelling not because it was most expensive. It was so because one can duplicate the results for 35 cents on the dollar. That's quite blatant. Needless to say, parallel findings don't prevent Rolex from selling five-figure watches that keep no better time than Casio. Unlike that Rolex, the CDC's raw manufacturing cost consumes a far higher percentage of the final sell price. Its luxurious sled simply keeps no better time than CDs ripped to hard disc via an iMac's cheap DVD/ROM slot drive. On a devil's advocate note, anything as flamboyantly mechanical as Nagra's drive also attracts suspicion over trouble-free operation in the long term. A top loader like Bel Canto's €2.950 CD2 player which also is based on Philips' excellent CD2/PRO transport would seem inherently less prone to eventual complications.

What further soured the CDC pill was discovering that Nagra's headphone output was far from being commensurate with iconic stature. Figuratively speaking, my T1s and HD800s diagnosed too much Mosfet mist and not enough crystalline clarity. While the sonics were pleasantly warm and utterly non-offensive, a sub $1K Burson Audio HA-60 or KingRex HeadQuarters would be quite superior to mention just two. Further, the front-panel controls particularly for play, pause and mute are clunky by requiring the turning of the wheel. It's all one massive throwback to *analogue times* that will strike some as charming and inspired, others as outmoded and ridiculous. The CDC thus requires a high degree of techno lust before it becomes a compelling acquisition proposition. It'll never be a smart purchase. It will be exclusive however. For some that's sufficient.

Adding up the parts: Relative to the reputation of Nagra's house sound as *sumptuous*, I found each individual component only modestly so. In sequence from least to most, I'd array this threesome as CDC, MSA and PL-L (with the player's headphone output a distant fourth but that's merely a feature, not discrete component). Matching up the PL-L with my F5 or conversely the C-03 with the MSA veered no deeper into the 'lush life' than replacing the MSA with either the M2 or KWA-100 amplifiers or the PL-L with the DM36.5 preamp. The real question was, how would individual modesty combine in an all Nagra setup?



Sumptuous x 3? The tri-Nagra system most assuredly veered deeper into the kind of flesh+blood turf usually associated with push/pull valves. But really, this was the marriage of triode preamp with Mosfet power amp. It suggested that driving the MSA directly off the CDC to eliminate the PL-L might move backwards again into slightly leaner, faster and more lit-up energetic territory. Where the below combination exceeded what most all-tube systems can provide was a low noise floor. The Nagras are very quiet. This creates high ambient retrieval of the spiderwebby stuff that's behind and around the performers to suggest—or with premium recordings actually *impose*—recorded space in (or on) your own acoustic.

The three Nagras were connected with balanced Crystal Ultra cables since I don't have two pairs of LiveLines.

By now the sound had grown plumper and meatier particularly in the bass where mass went up, articulation down. The midrange too had assumed more weightiness to subjectively shift attention away from the treble. The overall trend was deeper into richness but also heaviness. This made the music more material and dense but also less translucent and fleet-footed. What remained were the dynamic reflexes previously noted with the MSA. While transients of this presentation were softer and rounder than I'm used to, the general dynamic response maintained sufficient excitement to prevent getting too mellow which is a side effect that often accompanies this general trend.

The arrangements of the PL-L's sockets demanded a left-to-right array of the components.

Eliminating the PL-L from the equation introduced greater inside-out illumination; what I call lucidity. By shedding fat and minor fuzziness, the sound became lither, nimbler and more sharply present. It now exhibited greater distinctiveness between bowed and plucked strings, between stick and skin. Attack articulation improved. This confirmed expectations. It also underscored an earlier assessment. Of these three machines, the PL-L weighs heaviest on the sumptuous scale. While lovers of standard classic fare could favor the preamp's inclusion—I'd exclude period ensembles whose naturally thinner more nasal tonalities wouldn't completely benefit if you want to stay real—I'm quite certain that for more modern harder-hitting music, most listeners would prefer direct drive. It's a nice €8.670 savings too. Put differently, the MSA has plenty of tone density to not require active preamp intercession. This is a case of the better preamp is no preamp.

If just the CDC had USB or Firewire inputs; *any* digital inputs for that matter. Even an S/PDIF socket could be 'converted' to USB on the cheap via an M2Tech hiFace. With the player's analog-domain volume *and* balance so conveniently controlled from the seat, such connectivity would bring this machine squarely into the 21st century. To my way of thinking, it would make it relevant again to outgrow its present more or less fossilized status.

The general upshot: MSA = tube pre/transistor power sound from one box. That's the essence. Meanwhile PL-L+MSA = all-tube system. Practically and even with the MSA set to its lower 2V input sensitivity, I never managed to get much past 9:00 o'clock on the PL-L's dial when the CDC was at full output. As set up delivered, the PL-L was unnecessarily packed with gain*; or the CDC with built-in preamp stage too potent to be teamed up. Customers intending to use the PL-L will anyhow opt for the CDP. This saves €2.000 and perhaps even pockets a small up tick in resolving power when the extra volume control is eliminated.

** As I later learned, this can be trimmed with the PLL's internal gain adjustment.*

House sound: What my experiments with Nagra's threesome suggest also relative to prior trade show demos is that their engineers maintain an unusually firm vision on the sound they're after and know how to enforce that vision quite irrespective of output devices. If they ever design a class D output stage, I'm certain it still would have *that Nagra sound*. While one certainly shouldn't expect the forthcoming 300B Nagra to sound *like* a 20-watt MSA—what would be the point?— the MSA very unapologetically and cleverly sounds like a sand amp the glowing bottle brigade would approve of. Just don't think SET. Think push/pull à la Octave Audio with an extra sprinkling of warmth.

MSA conclusion: Perhaps because it's newest in the catalogue, the amp was the most modern of the supplied Nagras. Its socketry orients normally, its power output is neither puny nor overkill, it runs cool and its onboard SMPS is highly efficient. Serious coin was spent to machine its massive but perfectly finished heatsink. This maintains the traditional Nagra footprint without frankensteining cosmetics into an Aleph 3. The MSA is a prime candidate for passive preamps (to accommodate multiple sources including analog) or source-direct operation (particularly with quality analog attenuation like Nagra's own CDC, the Ancient Audio decks or USB converters like Eastern Electric's MiniMax and Antelope Audio's Zodiac+).

As Nagra's CDC demonstrated, being iconic can occasionally mean dead ends or failing to remain current. The PL-L retains functional idiosyncrasies of the past to show how being iconic can turn on itself. The MSA on the other hand shows adaptation, modernization and how to stay relevant all without giving up on carefully groomed company culture. This includes the famous tube-oriented flesh+blood Nagra sound to which was added the stone quiet operation, load-invariant behavior and current drive which transistors excel at. Of the three Nagras submitted, the MSA was by far my favorite. It exhibits known Mosfet virtues of good tone, minimizes liabilities like haziness, then pays special tribute to excellent dynamics and high speed. It's a very compelling mix of desirable qualities in a beautifully crafted elegantly dimensioned wrapper. *MSA = macht sehr an!*

Srajan Ebaen

Quality of packing: Tops.
Reusability of packing: Many
Ease of unpacking/repacking: Easy.
Condition of component received: Flawless.
Website comments: Marginal considering company reputation and resources.
Human interactions: Friendly but *very* slow.
Pricing: High as is normal for all luxury brands.
Final comments & suggestions: The CDC/CDP begs for digital inputs—S/PDIF, USB and/or Firewire—to modernize its appeal and functionality. The PL-L's socketry needs to be relocated to the back to not only match Nagra's own current-gen products but everything else on the market. The MSA's XLR inputs should be paralleled by RCA to eliminate those wobbly XLR/RCA adaptors. The remote would be friendlier if the controls to assign different components were named rather than numbered.