

Vintage transistor amps

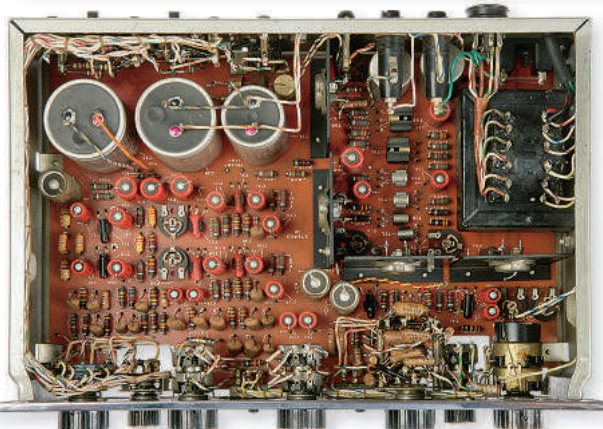
Our guide to buying classic kit from decades past continues with a look at the market for secondhand transistor amps. **Tim Jarman** sorts the icons from the by-gones...

Every hi-fi system needs an amplifier and there were plenty of tempting transistor designs that appeared during the vintage period. In fact, there were thousands, meaning that to give detailed buying advice for every single one of them is an impossibility here. Instead, described over the following four pages are some widely available models that will be an asset to any system.

Like large cars, large amplifiers tend to be more troublesome than smaller ones so the inexperienced vintage buyer is strongly advised to limit themselves to lower-powered units to begin with. Up to around 75W is a good region to operate in. Such a unit should offer more than enough power for the majority of domestic listening requirements.

LEADING LEAK

In the UK, the Leak Stereo 30 was one of the first really popular transistor hi-fi amplifiers. Introduced in 1964, it offered a compact alternative to the company's remaining valve models, most of which would be retired by 1967. The fully-transistorised Stereo 30



ABOVE: The Leak Stereo 30, one of the first really popular transistor amps. The output transistors can be seen in the centre and to the right in the interior shot. The ad features company founder Harold Leak

LEFT: Pioneer amplifiers from the late 1970s, including the SA-9500 (bottom). Japanese build quality was then at a peak

cost about the same as a valve Stereo 20 (along with its matching Point One Stereo control unit) and was an instant hit. The combination of equivalent sound quality, greater output power and cool-running reliability proved irresistible.

These units have survived in large numbers and are not difficult to find in working condition. But there are still a few things to watch out for when buying secondhand. Some samples were supplied for console mounting and therefore have a rather makeshift-looking cardboard top cover. Hold out for one in a wooden sleeve if you want to use the amp as a free-standing unit.

In the case of the Stereo 30 Plus version, modular construction was used and this can lead to problems.

For example, the power amplifiers are built on plug-in cards but the output transistors are bolted to separate heatsinks, meaning that the two parts of the circuit are joined by mechanical connections. Poor contacts here can lead to the destruction of the transistors, which are germanium types and therefore not routinely available.

NEW TRICKS

As with all amps that use germanium output transistors (originally AD140, replace with AD149), the setting of the bias current is critical. Do this with care in the case of the Stereo 30 Plus as the bias controls can disintegrate when an attempt is made to adjust them, which puts the transistors instantly at risk.



BEFORE YOU BUY...

Repairing a transistor amplifier requires much greater skill than sorting out a valve one so it makes sense to hold out for a fully working example.

Feel the heatsinks after 15 or so minutes of use. They should be warm (not hot) to the touch and of equal temperature across both channels.

Missing pre/power amp links are a common reason why old transistor amplifiers fail to work so be sure not to dismiss an otherwise hopeful example for this trivial reason alone.

Don't rush when checking the unit; make all the connections properly as one slip or short can ruin an amplifier in an instant.



Replacing the bias controls with a modern alternative *before* touching them is thus a very good idea.

Sony was quick out of the blocks with a transistorised stereo amp, releasing its TA-1120 in 1966 [re-tested in *HFN* Sep '13]. This model was a very modern concept thanks to the fact that Sony had a new trick up its sleeve: the V-FET. This was a new type of output device which, in some ways, was more akin to a valve than a regular transistor.

The V-FETs went into a whole range of Sony amps, but the most popular was the TA-5650 released in 1975, which became a worldwide best seller. Rated at 50W per channel, the TA-5650 is still respected for its performance today, although how much of this has to do with the V-FETs remains open to debate.

The various V-FET devices that Sony made have long ceased to be available and even though they are robust when all is running well, relatively minor faults in the surrounding circuitry can easily destroy them. In particular, two bias voltages derived from an unusual arrangement of diodes, capacitors and resistors in the amplifier's power supply section must be present and at the correct level when the main

ABOVE: Sony's TA-1120A from 1966 and original *Hi-Fi News* review of the amp from the September 1967 issue

BELOW: Sweet sounding, but the Sony TA-5650 from 1975 needs to be checked over before being pressed into service as the special V-FET transistors that it uses are now no longer obtainable

supplies appear or the V-FETs will be ruined. These components must be checked to ensure that they're in first-class condition before an untried unit is powered on.

As well as the power amp stage, the TA-5650 also uses V-FETs in its phono stage, which runs from a stabilised supply of nearly 100V in a bid for maximum immunity against distracting surface noise. These are nowhere near as problematic but were made especially for this model, making replacement a non-trivial task if they do fail.

SIMPLE 'N' SOLID

Not all 1970s Japanese amplifiers contained strange devices and novel circuitry. Most were simple and solid, built at a time when the undervalued Yen made professional standards of construction and finish available at high street prices in the UK.

Typical was the Pioneer SA-9500, also released in 1975. Essentially conventional but beautifully made, this 100W hulk of metal looks fantastic (before the MkII re-style, anyway) and, aside from the odd crusty capacitor and noisy

with a modicum of care. Japanese electronic components of the 1970s were typically of high quality so it pays only to replace things which are actually faulty when overhauling kit made in Japan during this time.

A transistor amplifier is one of the simplest hi-fi components to make

on a limited scale so it's not surprising that Britain's smaller manufacturers came up with a multitude of designs. Many were based

on standard circuits originated by semiconductor manufacturers like Hitachi, Texas Instruments and Philips, but quite a few were original pieces of work.

One model which sold well, despite its relatively low output →

'The Pioneer will last a lifetime if treated with a modicum of care'



BUYING VINTAGE



power, was the original Naim Nait of 1983. Unusually, Naim chose not to specify the amp's output power but independent tests soon established it to be around 10W per channel. At the time, a decent quality 40W amplifier could be bought for the same sort of money, yet the Nait proved to be popular due to its impressive sound quality and Naim's good reputation.

The Nait has proved to be very reliable if used sensibly, the only weaknesses being the small red plastic-cased electrolytic capacitors found in some examples which are now coming to the end of their useful lives, and the flimsy PCB-mounted sockets at the rear of the amp. Both problems are easily remedied, Naim's own repair service being a good (if expensive) option.

SUPERIOR SUGDEN

Another long-running success was the Sugden A48. It is commonly seen in three versions, but it is the first two that will be of interest to the vintage buyer. The original model looks very conservative, having a rather derivative silver and black fascia and a heavy wooden sleeve. It's the second incarnation that is arguably the prettiest, sporting a nice industrial look enlivened by an orange inlay behind the main controls. Both are fine-sounding amps, if a little restrained.

Since the quality of components available to British manufacturers was poor during the period when these amplifiers were made both iterations may benefit from a thorough overhaul to restore original performance. The results

that can be achieved will more than justify the cost.

It takes a real vintage buff to remember the Mission 778 integrated amplifier from 1983, but mention the later Cyrus Two and suddenly everyone knows what you are talking about. These compact units were proper 'audiophile' designs but one quirk was that they dispensed with the usual protection

circuitry for the output stages, making them somewhat fragile under adverse conditions.

The '778 is rated at 50W per channel and the Two at 60W but they need to be used with care. Loudspeaker matching and the integrity of the cabling needs to be first-rate to avoid problems. An external power supply known as the PSX was later offered for the Cyrus Two, but if more power is felt to be necessary then a larger amplifier is a much better solution.

WEMBLEY WINNER

Also for the serious listener, the Musical Fidelity A1 combined Class A sweetness with integrated amplifier convenience. Since Class A amplifiers inevitably generate a lot of heat, a clever piece of design was contrived where the whole top of the unit became a heatsink.

This looked great and appeared to be a good idea until repairs

ABOVE: Some 20 years after Harold Leak was pictured in a company ad holding up his latest and greatest amp, Naim founder Julian Vereker proffers a plate full of miniature Nait amps in this quirky '80s ad

ABOVE LEFT: A Sugden A48, ripe for picking at a recent Audiojumble. The orange fascia shows this sample to be a MkII version of the amp – the most attractive variant

BELOW: The Cyrus Two was a popular next step up from the NAD 3020 and was praised for its fine performance. The lack of effective protection circuitry made it fragile though

US TRANSISTOR AMPS

Unlike vintage American tube amps, few cults have developed around the affordable US equivalents of assorted Leaks, Armstrongs, Sugdens and Quads. While makes like Fisher, Scott, Harman Kardon, Marantz and numerous others produced mid-priced (but never 'entry level') solid-state models that are regarded with fondness, the ones that are coveted most were high-end when new. What they have in common with 'golden age' American valve amps is that they're rare, too, in the UK.

UK collectors of Americana must think about the poor availability of vintage solid-state amps relative to the demarcation I will call 'BK' and 'AK' – for Before- and After-Krell. Prior to that range of amplifiers cracking open the UK market in the mid-1980s even relatively



affordable US transistor amps were impossible to find. If you're lucky, you might find smaller 'BK' McIntosh receivers, the occasional Dynaco piece, or pre-Japanese Marantz. After Krell, US amps became respectable.

Massive powerhouses and high-end classics like the first Mark Levinson components, all true Class A Krell hardware, and beasts from Phase Linear, Threshold, SAE and the like are highly desirable. But if you don't want to break the bank, solid-state Harman Kardon Citations, like the Citation 11 preamp and matching 2x60W Citation 12 power amp are great buys. The first AR integrated amplifier is a gem, if somewhat pesky due to its 'early transistor' innards.

Hot tip: those in the know relish the heavyweight Crown (sold here as Amcron) DC-300 power amplifier [pictured above], or its sister, the D150, or any of the variants. KK



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BUYING VINTAGE



were needed (and this model wasn't known for being especially reliable). Only then would it be discovered that the output transistors were stuck fast to the top cover by the heat transfer compound that was used to fit them in place. Extensive damage can be caused if repair is undertaken and this point is not appreciated as gentle persuasion is the only way to part the transistors from the lid. Nonetheless, the A1 is a superb-sounding amplifier.

NAD'S WONDER

Of the budget designs, the NAD 3020 [see *HFN* Nov '12] stands head and shoulders above all others. Introduced in 1979 to universal acclaim, this £69 20W-per-channel wonder set new standards at the entry level and was a major headache for NAD's competitors for most of the following decade.

Numerous revisions were made, as well as derivative models such as the 3120 (no tone controls) and 1020/2140 pre/power combo. An original NAD 3020 can be identified by its provision of spring clip terminals for loudspeakers and the lack of an MC option for the phono stage (which was introduced with the 3020A).

The design is essentially a durable one, helped by clever touches such as automatic thermal cut-outs, which offer some protection against shorted loudspeaker cables (a major transistor amplifier killer) but build quality of early examples is dubious. Sub-standard soldering and printed circuit defects are high on the list of potential sources of trouble. That said, most working samples will have thrown up any problems by

now and will have been worked on, but it's still worth checking that all the functions operate correctly.

Another issue is that most 3020s will have had a hard life, being a student-system mainstay for many years. The plastic front panel marks easily and the flimsy knobs are easily lost, so finding a clean and complete one may be a challenge.

RECEIVERS, TOO...

Some transistor amplifiers, the NAD included, formed the basis of receivers which, although considerably more expensive when new, can now offer better value for money. A decent FM section makes an amplifier far more useful, offering not only a source of free, high quality entertainment but also a way

to warm up the system without causing wear to the sources.

Models like the Armstrong 621, the B&O Beolab 1700 and the Nytech CA-202

are all much better buys in receiver form, which in these cases were the Armstrong 625 (or 626 with AM as well), the B&O Beomaster 1100 and the Nytech CTA-252 (a true classic). Meanwhile, the NAD receiver is the 7020. All these models offer essentially identical performance to their amplifier-only equivalents and are well worth considering. ☺

ABOVE: The ubiquitous NAD 3020, centrepiece of countless starter systems. Despite its budget price the 3020 was strong and capable and remained a popular choice for years after its release in 1979

'The NAD 3020 stands head and shoulders above all others'



ALSO CONSIDER...

Quad 34/405: The original 'current dumper' was at first difficult to partner with loudspeakers, a problem addressed in the Mk II version. The 34 preamp has tone controls and filters galore – not fashionable, but very effective.

Trio KA-2000A: Lovely little 1970s Japanese integrated, only 16W per channel but sounds as sweet as they come. Still a bargain – for now.

Sony TA-AX500: Designed to partner the CDP-101 CD player (so why isn't it black then?). A conventional design after years of V-FETs and Class D, it's very competent, if a little bland.

Exposure III/IV: Looks a tad 'home made' but was a great pre/power amp combo in its day. Reliability was always slightly suspect, so perhaps a bit of a liability now.



BELOW: The unusually styled Nytech CTA-252, seen here with its cover and without, may have looked like a gimmick but was a serious piece of kit, both amp and tuner sections being of excellent quality

Lecson AC1/AP1: Pretty but problematic, it's these models' industrial design (pictured above) which keeps prices buoyant. The later AP1X power amp was an improvement but reliability was still poor by Japanese/European standards.

Pioneer A-400: The NAD 3020 of the early '90s, basic but sounding much better than its price suggested. Like the NAD, most are worn and battered now but clean samples are well worth seeking out.

Audiolab 8000A: It's hard to believe that this was introduced in 1983, yet its influence is still clear in the Audiolab range today. Performance was strong, right from the start.

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Marantz 1300DC amplifier

It's big, a little brash-looking and sports more knobs than a door factory, but who can deny the appeal of this late-'70s integrated? We check out how it performs today...

Review: **Tim Jarman** Lab: **Paul Miller**

The 1300DC integrated amplifier was released when Marantz was still owned by US company Superscope, though much of the manufacturing was carried out by Marantz Japan. On the market from 1978 to 1979, the amp was one of the final flowerings from the marque as in 1980 Superscope sold the Japanese factory and the rights to the Marantz name to Philips. From this point onwards, the amplifiers' model numbers gained a 'PM' prefix while their styling and design took on a more 'international' feel.

Big was beautiful in the world of late '70s hi-fi and the new ranges of semiconductors that were becoming available made it relatively easy to construct massive amplifiers with enormous power outputs. With a rating of around 150W per channel the 1300DC had no shortage of grunt, although it was not the most powerful Marantz amplifier of the period. That accolade belongs to the 2600 receiver, which boasted 300W.

TWO AMPS COMBINED

Essentially, the 1300DC integrated was a combination of the 3650 pre and 300DC power amp, built onto a single chassis. The DC in the model name indicated that it was DC coupled, though it is important to realise that this arrangement has its limitations. In simple terms, DC coupling implies that there is no low frequency cut-off and that the amplifier will continue to be effective down to zero Hertz (DC). Such



ABOVE: Contemporary catalogue shows the range of Marantz amps available in the late 1970s; the design and styling of the range would change when Philips took over the brand shortly afterwards

an arrangement eliminates the difficulty of selecting a cut-off point whose effect is inaudible and eradicates the problem of phase shifts, which can occur around any circuit that is frequency selective.

In practice, these minor gains are outweighed by the disadvantages. The only effect of having a DC component in the output signal is to move the rest position of a speaker's woofer cones away from their natural point of balance. As well as being wasteful of power, this can damage both the amplifier and the loudspeakers if maintained for any length of time.

Sensibly, Marantz chose to make only the power amplifiers used in the 1300DC DC coupled. The preamp stages were conventional in design and, for line-level sources (tuner, tape, aux), the roll-off occurs at around a claimed 10Hz.

PLUGGING THE SOCKETS

When the power amplifier sections are used alone (achieved by inserting plugs into the 'main in' sockets, which disconnect the preamp automatically) the unit can then be DC coupled, though this is not to be recommended. This is especially true in the case of modern digital sources, which may present a DC voltage at their outputs under certain circumstances.

Fortunately Marantz fitted a switch to the amp that allows AC coupling to be used in this mode and the switch has no real effect when the 1300DC is used as a traditional integrated amplifier.

To feed the two hungry power amplifier modules, the 1300DC employs a separate

LEFT: The 1300DC in its wooden sleeve. Most samples are seen without this nowadays; it wasn't a fashionable look in the '80s and '90s and only served to increase the amp's bulk





power supply for each channel, run from independent windings on a common mains transformer. The power stages can therefore be described as dual mono in design, although the preamplifier is not.

LOUDSPEAKER PROTECTION

With so much power available, it is good to know that serious attention was paid to loudspeaker protection. With an effective relay-based system in force, the Marantz cannot be faulted in this respect.

The rest of the circuitry is standard in nature, although it is expansive due to the sheer variety of signal routing options available. As well as having two phono inputs, one of which offers variable loading and is suitable for MM or MC cartridges, the 1300DC also offers two tape-loops plus extensive tone controls and filters.

Unusually, it is possible to use the tone controls (but not the filters) to equalise the recording outputs so that a correctly balanced tape recording can be made

from a worn or badly produced LP. In this mode the response of the main amplifier becomes 'flat' in order that the effect of the compensation is not multiplied through the tape loop.

Another point of interest is that the volume control operates simultaneously at both the input and the output of the preamp so that both noise and overload performance can be optimised. The aim of such arrangements is to ensure that the intermediate stages of the amplifier cannot be overloaded before the output stage clips, regardless of the

settings of the individual controls.

To achieve this, a volume control with four active elements rather than the usual two is needed. It's an exotic component, but is just the kind of thing that the Japanese seemed to be able to produce at will during this golden period.

Though made in Japan using Japanese components, the 1300DC was designed in the US and was clearly tailored to

'Bass was tight and fast with bags of percussion sparkle too'

ABOVE: A well-stocked front panel, although the layout is random and some of the controls are duplicated needlessly; note that there are independent tone sliders for each channel

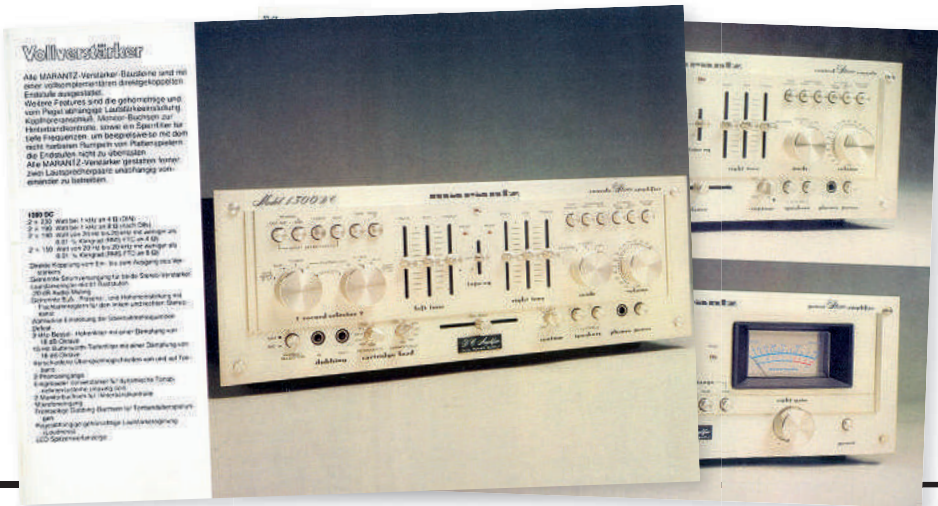
American tastes. As a result, its size and appearance may have been at odds with what European buyers had come to expect. Weighing in at just under 25kg and almost half a metre deep, this is a massive unit which is difficult to house in conventional furniture. Then there's the styling and garish printed legends, which some will think look crude when compared with Japanese best practice (as employed by Technics and Pioneer at the time).

Ergonomically there are some shortcomings too. The size of the amp's individual controls bears no relation to the importance of their purpose and while the panel layout is symmetrical, only some of the functions are. Separate tone controls for left and right channels are a nuisance (and surely a fascia-filling gimmick) and why the seldom-used recording EQ switch was given the prominent central position is anyone's guess. Still, it's hard not to warm to the muscle amps of this period; for me they are a bit of a guilty pleasure.

TIM LISTENS

In terms of basic compatibility, amplifiers have changed little in the past 40 years and I was quickly able to connect my Cyrus CD8 SE CD player and Monitor Audio PL100 loudspeakers to the 1300DC. Do note, though, that adapters will be needed if your speaker cables have 4mm plugs as these won't fit into the jumbo spring-clip terminals on the Marantz on their own. ↪

LEFT: More Marantz heavy metal – with the US market as its main target at the time, large amplifiers were a speciality, although in Europe the appeal of such behemoths was more limited



VINTAGE HI-FI

RIGHT: The lesser 1122DC reviewed in *HFN* when new. This was a lower-powered amp with a clear family resemblance. An exploded view of the 1300DC's rear panel is shown behind

Despite being apparently ready for immediate use, I have found in the past that large transistor amplifiers benefit from a warm-up period of about an hour before they give their best. The Marantz 1122 was no exception, and during this time its sound underwent a transformation from being a little mechanical and inept to one that was really rather good.

My session started with Level 42's *World Machine* [Polydor 827 487-2], an album I imagined would play to the strengths of the Marantz. My assumption was correct. The music is driven primarily by Mark King's bass and in this recording its sound is heavy, meaning you need a big amplifier to get the complete picture. With the track 'Physical Presence' the 1300DC provided a pleasing balance boasting a tight, fast and flexible bottom end with bags of percussion sparkle to keep things interesting.

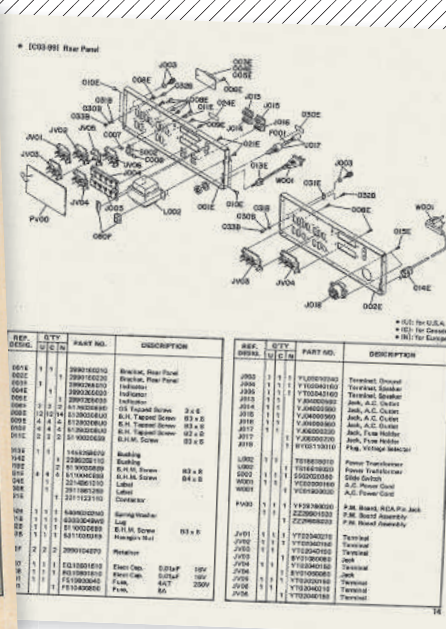
In my set-up this basic tonal correctness was accompanied by a large and stable soundstage where there seemed to be a place for every element in the mix.



Feeding the Marantz a range of other bass-driven dance tracks confirmed this impression further, though while the amp's top-end could never be described

'It's an amp with a remarkable amount of get-up-an-go'

as harsh, it didn't sound as effortlessly smooth as some I've heard. The listening experience was more about detail than relaxing into the music. It would be a fine amplifier for forensically exploring a new album but perhaps less of an asset if you like drifting off to sleep while listening to the close of a late-night session of BBC Radio 3's 'Late Junction'.



Having confirmed the amplifier's credentials with jazz funk and dance, I swapped the music for a range of more easy-going fare. One of the discs used was Chris Rea's breakthrough album *On The Beach* [Magnet CDMAG-5069] which provided an opportunity to check out the 1300DC's performance with closely recorded vocals.

NO GRIT OR GRAIN

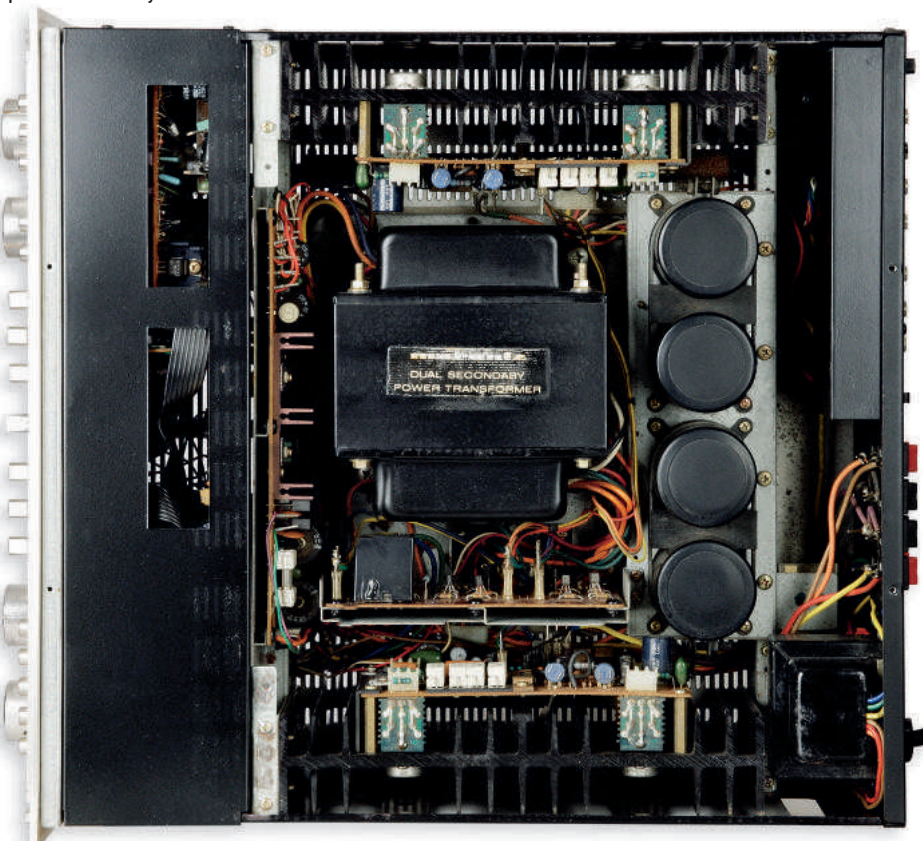
Rea's famously gravelly style is clearly demonstrated on the track 'Little Blonde Plaits', which an amplifier with a vivid top-end could easily make sound wearing. Not so the Marantz which, although not as sweet-sounding as some, still managed to resolve the texture of the sound without coming over as gritty or grainy.

The absence of background noise (and of mechanical buzz from the power supply components for that matter – not always a certainty with old kit) also meant that there was nothing to dilute the song's haunting atmosphere. A bit more warmth in the midband would not have gone amiss for most of this album, but this is a matter of taste rather than of technical competence. Overall, it was pleasing to discover that there is more to the Marantz 1300DC than just making a lot of noise – although it is very good at doing that too.

Overall the 1300DC can best be described as sounding bright and punchy. It has no shortage of power at the bottom end and, provided the cables used are of reasonable quality, its DC-coupled output stages are an ideal way to control a loudspeaker cone, as the smoothness and confidence of the lower registers testified.

It's also a fast-sounding and lively amplifier with a remarkable amount of

LEFT: The interior is dominated by the power supply arrangements in the centre, with the two power amp modules above and below. The preamp is in a screened housing to the left



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VINTAGE HI-FI

MARANTZ 1300DC (Vintage)



ABOVE: The rear of the amp offers a socket for everything you could possibly need. This European model has a mains voltage selector, US versions (115V) may not

get-up-an-go. The only caveat is that the top-end can sound a little busy at times, meaning that smooth-sounding sources are the way to go. An MC cartridge with a sting in its tail is definitely not recommended!

As I was listening I couldn't help thinking that this amplifier would have been an ideal partner for the Marantz CD-73 CD player, which appeared a few years later. After all, the CD-73 boasted one of the creamiest top-ends in the business.

BUYING USED

A common failing of many Marantz models of this period is that the contacts inside the pre-out/amplifier sockets become corroded over the years, resulting in intermittent loss of one or other channel or loud clicks and pops through the loudspeakers. While it is possible to dismantle the unit and 'link out' the offending contacts, an easier route is simply

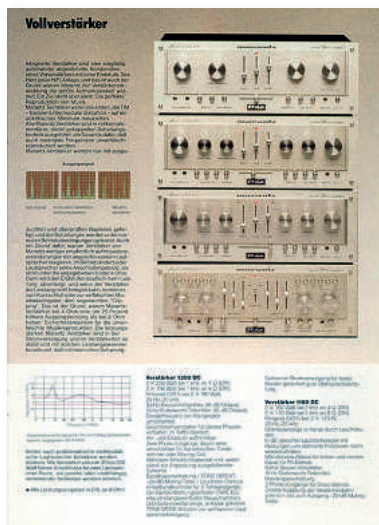
to insert a short RCA interconnect between them externally.

The various small push switches can also be a reason why sound is missing from channels as these don't seem to be particularly resistant to dirt and contamination. The use of a good quality contact cleaner fluid should help to solve this problem.

Because of the DC-coupled topology, it is also important that the offset and bias adjustments are carefully made in each power amplifier. A quick check can be made with a DC voltmeter connected to the loudspeaker terminals. With the loudspeakers removed and the volume control at minimum the output should be within a few millivolts of zero. Have the adjustments checked if it is not.

Finally, the sheer bulk of the unit means it can easily be damaged when being moved around. Look for scuffed corners and bent controls. ☹

• Thanks to Red Diamond Audio for providing our review sample



ABOVE: Marantz range of integrated amplifiers as offered in Germany in 1980

HI-FI NEWS VERDICT

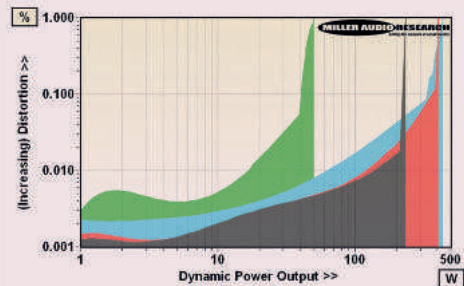
Big and brash it may be, but the Marantz 1300DC proved to be a surprisingly refined performer overall thanks to its taut and powerful low-end and a treble which, while perhaps not the sweetest around, certainly repays in detail retrieval. Japanese build quality combined with more facilities and more power than you will ever need makes this a good amplifier for a long term relationship.

Sound Quality: 80%

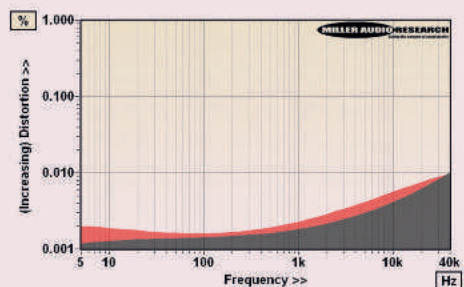


Rated at a hefty 150W/8ohm, Marantz's 1300DC is quite the most powerful integrated amplifier we've encountered in our long-running Vintage Review series. Reflecting its pre-CD vintage, the overall gain is fairly high at +41.4dB and the A-wtd S/N ratio above average at 90dB (re. 0dBW) while the practical power output is massive at 200W/300W into 8/4ohm, increasing to a very substantial 235W, 410W and 440W into 8, 4 and 2ohm loads but limited to 50W/1ohm under dynamic conditions. Nevertheless with its maximum current capability of 14.8A this amplifier would have driven most contemporary, or indeed modern, 4-8ohm loudspeakers with reasonable ease.

Distortion is low and climbs with power output and frequency, from a mere 0.0007% at 1kHz/1W to 0.0019% at 10W and 0.006% at 100W and to a fine 0.006% at 20kHz/10W. Undoubtedly this reflects Marantz's use of compensation (feedback) but the figures are 'better' than those offered by many current integrated amplifiers. The frequency response is also as flat and extended as any 'widebandwidth' design of the digital era, rolling gently away to -0.2dB/20kHz (tone controls and filters defeated) but still good to -2.8dB/100kHz (and -1dB at 1Hz in AC mode). Interestingly, bearing in mind the applied feedback, the 1300DC's output impedance is still moderately high at 0.13-0.20ohm while the stereo separation, more a function of board layout, is a little weak at 70dB (midrange) to 50dB (treble). Similarly, in either 'AC or DC coupled' modes the output DC offset is +20mV. Readers are invited to view a full QC Suite test report for Marantz's heavyweight 1300DC amplifier by navigating to www.hifinews.co.uk and clicking on the red 'Download' button. PM



ABOVE: Dynamic power output vs. distortion (8ohm tap) into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads



ABOVE: Distortion versus extended frequency (5Hz-40kHz) at 10W/8ohm (black = left; red = right)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	200W / 300W
Dynamic power (<1% THD, 8/4/2/1ohm)	235W / 410W / 440W / 50W
Output impedance (20Hz-20kHz)	0.12-0.20ohm
Frequency resp. (20Hz-100kHz, 0dBW)	-0.06dB to -2.8dB
Input sensitivity (for 0dBW/150W)	24mV / 300mV
A-wtd S/N ratio (re. 0dBW/150W)	89.9dB / 111.7dB
Distortion (20Hz-20kHz, 10W/8ohm)	0.0013-0.0061%
Power consumption (Idle/rated output)	90W / 596W
Dimensions (WHD) / Weight	416x146x436mm / 24.5kg