

Manley 120W Monoblock

For methodology see *Studio Sound*, June 1999, page 27.

See it on the web-site:

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Studio Sound's bench test amplifier reviews continue with the Monoblock. **Paul Miller** reports

HAVING TESTED a variety of fairly conventional, solid-state amplifiers over the last few months, we thought it timely, as the saying goes, to look at something completely different. Different, in this instance, means valve-based amplification courtesy of Manley Labs. Based near LA in the States, Manley has footholds in the professional and domestic hi-fi markets with no less than 50 valve-orientated products. These range from microphone preamps, equalisers and limiters to standalone D-A converters and preamplifiers accommodating both line-level and phono sources.

It is Manley's wide range of valve power amplifiers, however, that really straddle the divide between pro and domestic scenes, and here it is possible to choose anywhere between the 18W single-ended triode 300B 'Retro' to models as powerful as the 500W Monoblock. This test revolves around Manley's 120W Monoblock which weighs in at a not insubstantial £2,895 per pair but that employs the 'technology', including user-selectable feedback, associated with its bigger pre and power amps.

This sort of amplifier is not unknown in the control room, but is probably better suited to less



Fig.1

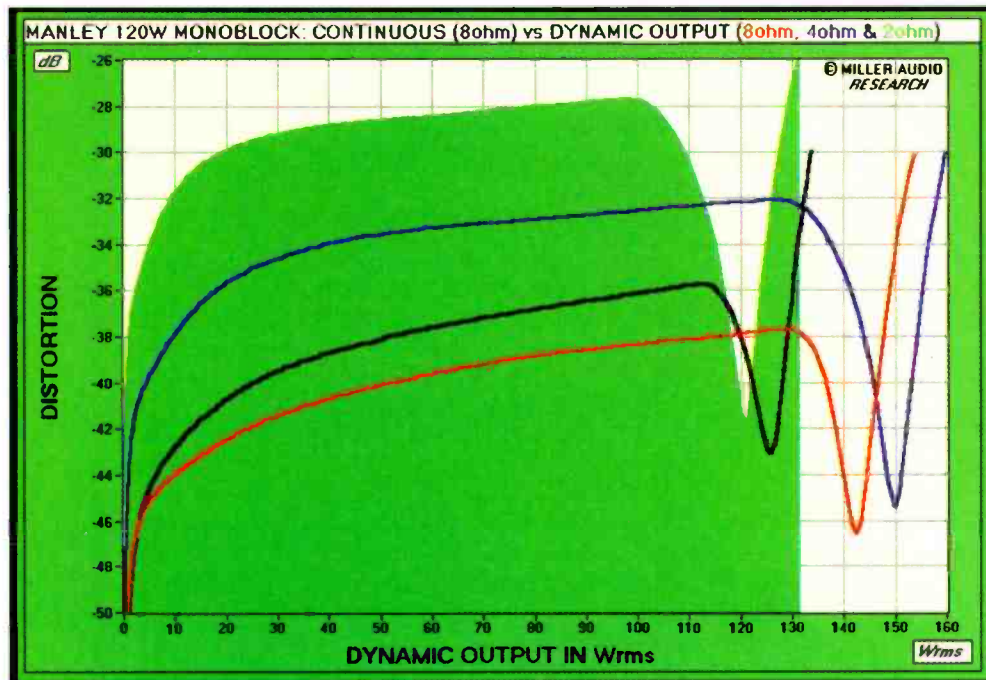


Fig.2

Power Amplifier: Manley 120W Monoblock (Rated Spec. in brackets where given):

	20Hz	1kHz	20kHz
Max Continuous Power Output.			
3% THD into 8Ω (one channel)	47W	135W (120W)	15W
5% THD into 4Ω (two channels)	-	135W	-
Frequency Response @ 0dBV	-0.06dB	0.0dB	-0.8dB
Dynamic Headroom (IHF)		+0.6dB (154W)	
Maximum Current (10msec, 1% THD)		8.1A	
Output Impedance (9dB NF)	1.442Ω (0.5-1Ω)		
Damping Factor	5.547 (-10)		

RCA Input

Total Harmonic Distortion (9dB NF)	
(0dBV, 1kHz)	-49dB
(2/3 power, 1kHz)	-37dB
Noise (A wtd, re. 0dBV)	-79.2dB
(re. 2/3 power)	-97.0dB (-91dB)
Residual noise (unwtd)	-58.4dBV
Input Sensitivity (for 0dBV)	188mV
(for full output)	2186mV (1000mV)
Input loading	100kΩ
DC offset, left/right	0mV
Serial Number	M12021
Retail Price	£2895

intensive work in the editing and/or mastering suite where bomb-proof, 24-hour operation is rarely a pre-requisite. The engine-room is provided by a pair of KT90 pentodes, though 6550's, KT88's and even EL34's (with some small modification) may be loaded as alternatives. The single-ended input is serviced by a 5751 double-triode that, in turn, feeds a

7044 double-triode in a phase-inverted configuration.

The amplifier may be operated in Ultralinear mode, where the feedback signal is derived from one of the transformer taps, or triode mode, where the feedback is taken from the point at which the plates are connected to transformer primary. The lower-output triode mode ensures the tube is ostensibly more richly biased and therefore more linear, but maximum sound levels and, potentially, valve life will be forfeit. The output transformers themselves are wound in-house, promising a more consistent part that's also 'tweaked' very specifically for the product at hand. An output tap rating of some 5Ω provides a 'halfway house' between separate 8Ω and 4Ω taps commonly encountered on other valve power amplifiers.

Tested in the preferred Ultralinear mode, this '120W Monoblock' succeeds in delivering some 135W into 8Ω at 1kHz with a THD limit of 3%. This represents a gain of +23.5dB. Unlike most solid-state designs, their valve cousins rarely clip so abruptly, but overload in a progressive and arguably more graceful fashion. Nevertheless, with transformer core saturation to cope with at very low frequencies and slew-limiting at high



frequencies, this same 3% limit is quickly reached at just 47W (20Hz) and 15W (20kHz), respectively (Fig.1).

It is possible to squeeze slightly more juice from the Manley's under dynamic conditions but, as depicted by Fig.2, the increase in THD with output follows an almost logarithmic path. Plotted here on a *linear* power scale, it's possible to see the anomalous *decrease* in distortion just before the notional clip point at 154W (red), 160W (blue trace) and 131W (green trace) into 8Ω, 4Ω and 2Ω loads, respectively. The amplifier's continuous output profile is traced in black. Clearly, the Manley lacks both the load tolerance (dynamic current = 8.1A) and headroom (just +0.6dB) of its solid-state competitors, so moderate-to-high sensitivity speakers with a minimum 8Ω impedance loads are recommended.

The nature of the speaker load takes on even greater significance in the light of this amplifier's high output impedance trend. Three levels of negative feedback (low 6dB, medium 9dB and high 12dB) are available and which inevitably effect this trend (see Fig. 3), but none can quell the inductive rise at HF which reaches nearly 5Ω at 20kHz (minimum feedback). Even with maximum feedback (red trace), the overall amp-speaker response will depend heavily on the swings in impedance of the speaker load, especially at HF.

The linear losses are reflected on Fig.4 which shows the response into nonreactive 8Ω (green trace) and 4Ω (red trace) loads with minimum feedback. The responses may be compared with those obtained into no load (blue trace) and 8Ω with medium feedback (black trace). Note that all responses are normalised at 1kHz, concealing

the uniform loss between 8 and 4Ω loading, for example. Either way, with the HF impedance trend of many speakers dipping below 4Ω, the impact on the overall system response will certainly colour the final sound of the amp-speaker combination.

Tonal colour, of course, is also modified by the high and extended harmonic complement of the amplifier's distortion spectrum, traced out on Fig.5 with minimum (blue), medium (black) and maximum (red) levels of applied feedback. The lower spectrum clearly highlights the high 2nd, 3rd and 4th harmonics which typically persist at around 0.7%–1.0% through the mid-range at modest power levels and medium (9dB) feedback. Higher-order harmonics are also clearly visible which do not enjoy the same degree of signal masking and, therefore, contribute to a greater subjective impact. It's also possible to see some supply modulation, visible as the cluster around the base of the ~1kHz tone, which, typically, influences bass resolution and the crispness of stereo imagery.

All of which is reflected in the very rich, warm and undeniably 'colourful' sound produced by the 120W Monoblocks. A sound that audiophiles would, and with some justification, describe as 'musical' and enthralling if not especially neutral. So, as a transparent window on the musical event, this amp's slightly rose-tinted perspective is, perhaps, not ideal as a tool for mixing and production purposes. And yet, when the desks are powered down and the studio quiet of an evening, I can imagine the Manley's being brought out if only to enhance the simple pleasure of listening to the fruits of a day's labours. ■

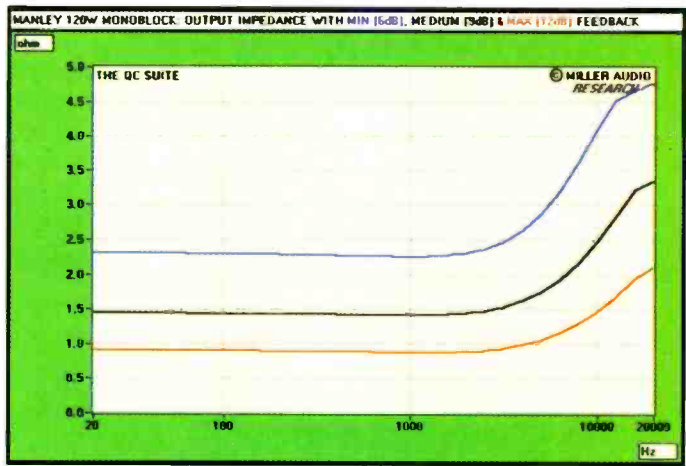


Fig.3:

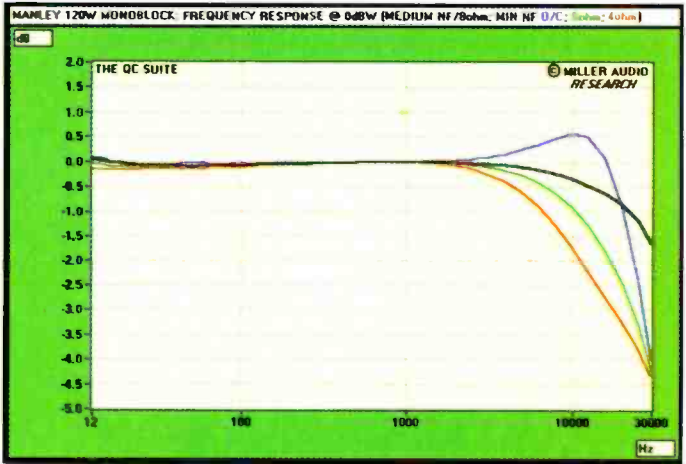


Fig.4:

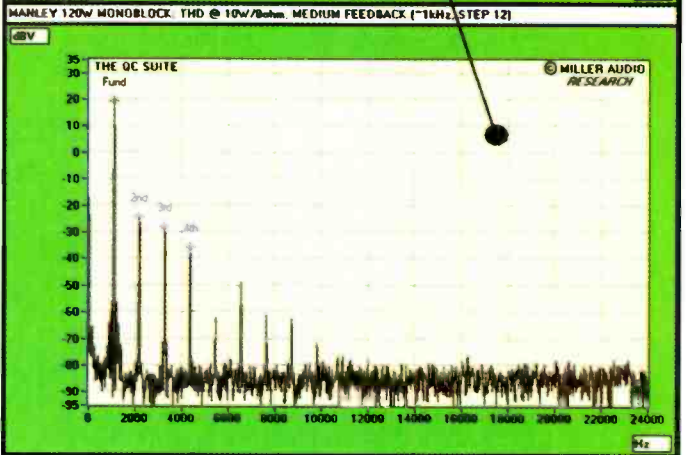
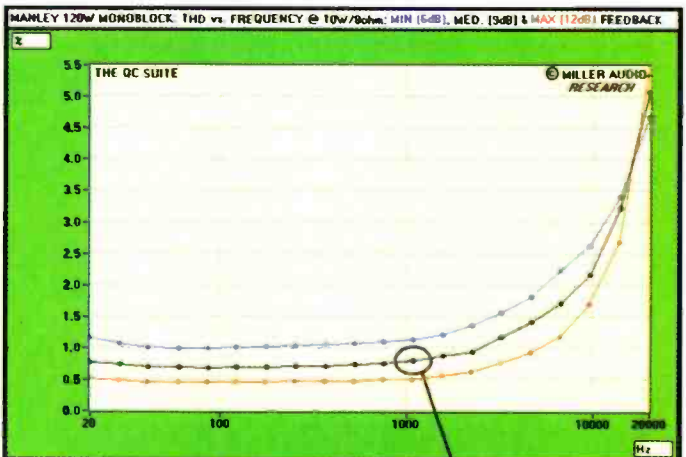


Fig.5: