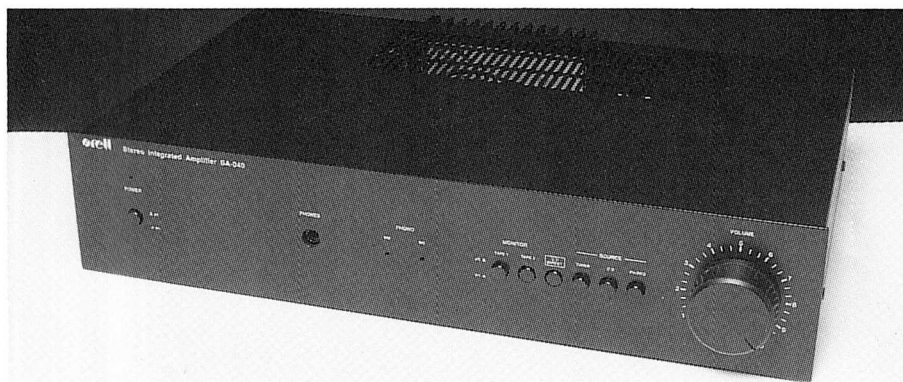


# ORELL SA-040

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RECOMMENDED



Orell is a new company launching its first product in early 1988 – an integrated amplifier with design input from Graham Nalty of Audiokits. The unit supplied for review was a pre-production prototype, but we have been assured that production samples will sound and measure the same as ours, and that construction and finish will be to a high standard.

The 040 is a 'purist' design lacking any form of tone control or other user interactive signal shaping circuitry. The front panel has only a volume control, on/off switch, a row of push button selector switches, and two centrally located LEDs to indicate either moving magnet or moving-coil phono gain setting. CD or 'CD direct' options are alongside phono, aux, tuner and tapes; 'CD direct' links the CD input straight to the volume control, so gain here is low. The back panel has a small finned heatsink, phono inputs and the speaker outputs.

A look inside reveals a large single glass-fibre printed circuit board with pre- and power sections physically well separated. Care has been taken over selection of components in the signal path. Precision resistors are used in selected places, and good quality polypropylene caps are much in evidence.

Power supply comes from a sizeable toroidal transformer feeding good quality 10,000µF electrolytics, while the output is protected by fuses in the speaker lines. Good quality regulators provide each important stage with its own supply. Build quality reflects this units prototype status; hopefully there will be an improvement in production.

## LAB REPORT

Power output met the specified 45W per channel with good bandwidth, holding up well both into 4ohms with both channels driven, and on the one channel 20hm pulsed test. The slightly asymmetric peak current capability is just about adequate; higher currents were available with some waveform break up. Total harmonic and intermodulation distortion results were decent, and noise performance on all inputs adequate. Channel

separation was fine at low and mid frequencies but had fallen to 35dB by 20kHz.

Sensitivities were a little on the low side but the loadings were well chosen. Little mains harmonic breakthrough can be seen on the supply modulation spectrogram, though some harmonic distortion artefacts are visible. The RIAA response was well designed: essentially flat and with the mild bass rolloff also found on the line inputs.

Input overload was generally satisfactory on the moving magnet gain setting, but intermodulation could have been improved upon. The overload margins were a little disappointing on the moving coil setting, the -15dB intermodulation products indicating that cartridge output must be chosen with some care to match the input sensitivity.

## SOUND QUALITY

Our pre-production sample delivered solid 'good plus' ratings *via* both analogue and digital disc input terminals. By implication the moving-coil input is sufficiently good not to prejudice an overall result which is close to the standard set by established high performers in this price group – a promising debut for a new company with their first product!

The m-c input background noise levels were satisfactory and the midrange had a pleasant, well balanced tonal quality, with good detail. The well above average bass had decent rhythm and speed, but a somewhat dry and light balance. The treble achieved a good standard with only mild grit, while stereo imaging had worthwhile depth and ambience with strong stable focus. Louder and more complex passages showed some confusion and mid hardness.

The CD/line input standard was consistent, with only a slight improvement in definition and focus. The overall sound was a little filtered or bandlimited – a subjective effect often associated with frequency responses tightly tailored to the nominal audio bandwidth. High level drive was the one weakspot. Clipping performance was poorer than average, brittleness increasing rapidly at full level, and available loudness

was no higher than the specification suggested.

## CONCLUSIONS

This is a promising start for Orell, confirming the basic quality of the design groundwork in circuitry and component choice. The sound quality as is clearly achieves a Recommended standard, though full approval must await inspection of a final production sample. Peak output current and greater m-c disc overload margin could both be improved.

## TEST RESULTS

Power output		Integrated amplifier	
Rated power into 8ohms, maker's spec		45W (=16.5dBW)	
Power output	20Hz	1kHz	20kHz
One channel, 8ohm load	17.2dBW	17.2dBW	17dBW
Both channels, 4ohm load	15.35dBW	15.85dBW	15.7dBW
One channel, 20hm, pulsed	-dBW	15.5dBW	-dBW
Instantaneous peak current		+10A	-8A
Distortion			
Total harmonic distortion, at rated power, aux/CD in.	20Hz	1kHz	20kHz
	-65dB	-65dB	-52dB
Intermodulation, 19/20kHz, rated power, aux input			-56dB
Intermodulation, 19/20kHz, at 0dBW, disc (mm)			-23dB
Intermodulation, 19/20kHz, at 0dBW, disc (mc)			-15dB
Noise			
Disc (mm) input (1HF, CCIR weighted)			-66dB
Disc (mc) input (1HF, CCIR weighted)			-62dB
Aux/CD input (1HF, CCIR weighted)			-72dB
Residual, unweighted (volume control at min)			-75dB
DC output offset		left 3mV, right 4mV	
DC offset, pre-amp		left 0mV, right 0mV	
Input overload	20Hz	1kHz	20kHz
Disc (mm) input (1HF)	27.7dB	24.5dB	15.3dB
Disc (mc) input (1HF)	22.4dB	16.8dB	7.6dB
Aux/CD input (1HF)	>23dB	>23dB	>23dB
Stereo separation			
Disc input (mm)	64dB	67dB	48dB
Aux/CD input	76dB	60dB	35dB
Output impedance (damp)	0.073ohm	0.08ohm	0.1ohm
Channel balance, disc, at 1kHz			0.5dB
Volume/balance tracking			
Aux/CD input	0.09dB	0.23dB	0.46dB
Input data			
	socket type	sensitivity	loading
Disc (mm) input		0.78mV	49kohms 120pF
Disc (mc) input*		0.28mV	100ohms n/a nF
Aux/CD input		100mV	30kohms n/a pF
Power amp	n/a	n/a mV	n/a kohms n/a pF
Output, pre-amp (tape)			3.7V max, 2.2kohms
Disc equalisation error, 30Hz-15kHz			+0.0dB, -0.6dB
Size (width, height, depth)			43.2x9.2x33cm
Typical price inc VAT			£359

\*See text

