

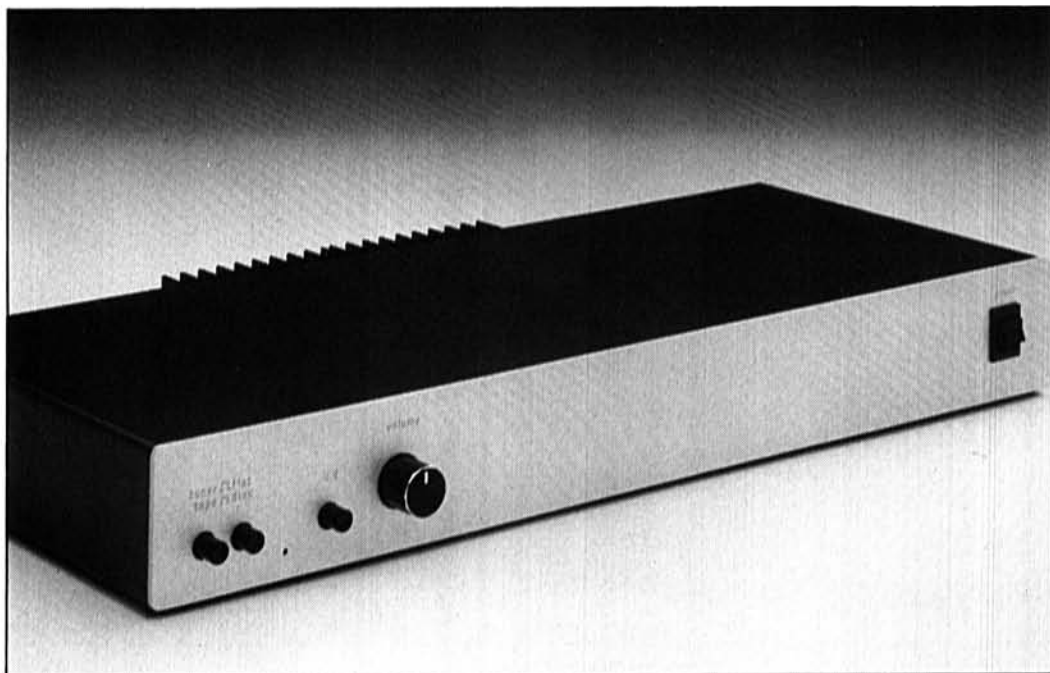
RECOMMENDED

AMPLIFIERS

MYST TMA3

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With the price held to £250 for 1986, the TMA3 is an example of an amplifier built to very high standards but in low production volumes. The company concerned is a small but dedicated, and have designed this no-frills, low-line integrated amplifier to give a normal-use output of 40W per channel.

Appearance is distinctive, with a cobalt blue case complemented by a satin silver alloy front panel; black finish is now available at a slightly higher price. The controls are reduced to a bare minimum, namely power, volume and just two selector buttons whose various combinations produce tape, tuner, CD and LP disc. All inputs are DIN sockets except for LP disc.

Internal construction is a model of its kind with neat cabling, clear layout, and fully shrouded mains wiring and contacts. Both moving coil and moving magnet cartridges are catered for by plug-in boards, and various loading requirements may be readily met.

A combination of integrated circuit and discrete transistor technology is employed, each where considered appropriate. *Via mc* the input is a virtual earth or shunt feedback current input, considered by many to be the ideal loading, and an input buffer is placed before the RIAA equaliser stage. The moving-magnet offers the normal cartridge loading.

The CD input bypasses the line buffer and is fed directly to the power amplifier *via* the volume control. The impedance here is a satisfactory 12kohms while the normal auxiliary input is higher at 17kohms.

Remarkably simple, the power amplifier is based on a classic Hitachi circuit, with only five transistors. The output is direct coupled complementary with Hitachi 2SK226/2SJ82 MOSFET output devices coupled to the speakers *via* a 2.5amp quick blow fuse.

LAB REPORT

Rated output was comfortably exceeded, with

the peak programme output near to 17dBW (50W) per channel with an excellent power bandwidth shown at 16.7dBW. The output held well into 4ohms, while the 2ohm pulsed level was only 2dB below the 8ohm result. The $\pm 12A$ peak current was sufficient for the rating, and good overall load tolerance was shown.

Harmonic distortion had deteriorated by 20kHz, measuring only -50dB at full power with considerable crossover effects. The high frequency intermodulation results were fine, however, so distortion was not considered a real cause for concern. Input noise levels were fine while input overload levels were satisfactory. Note that the mc figures relate to EMF at the input, whereas in practice the shunt design implies much better figures using a real cartridge. Channel separation was above average, while volume tracking was excellent. Above 200Hz, the RIAA equalisation was most uniform, but the subsonic filter rolloff incorporated rolls off a little early in the audible bass register, and may account for the 'light' character *via* LP disc.

SOUND QUALITY

Scoring above average, the TMA3 sounded a trifle 'lean', even bright, in tonal balance terms, but this did not impart noticeable 'brittleness'. Tidy and well integrated in character, it provided moderate depth to the stereo images, and some average focus. The bass was found to lack some definition, and did not throw full 'weight'.

The quality held up well *via* disc (mm), but *via mc* some additional loss of definition and clarity was observed. It behaved well at full power into the normal load, providing 102.5dBA, with 101dBA into the adverse load.

CONCLUSIONS

This excellently constructed, compact integrated amplifier, offers well matched inputs, no frills, and a dependable performance with good load tolerance. It should offer a long life, and taking this in conjunction with the above average sound quality, merits recommendation.

Test measurements

To show how well the amplifier sustains its 8ohm output into real loudspeaker loads, the level into 4ohms and 2ohms is given in dBW (where 0dB=1W), without adding 3dB or 6dB respectively, as in usual 'power' ratings.

TEST RESULTS

Power output	Integrated amplifier		
Rated power into 8ohms, maker's spec	35W (=15dBW)		
Power output	20Hz	1kHz	20kHz
One channel, 8ohm load	16.7dBW	16.7dBW	16.7dBW
Both channels, 4ohm load	14.2dBW	14.3dBW	14.3dBW
One channel, 2ohms, pulsed	-dBW	14.6dBW	-dBW
Instantaneous peak current	+12.0A -12.0A		
Distortion			
Total harmonic distortion,	20Hz	1kHz	20kHz
at rated power, aux input	-80.0dB	-68.0dB	-50.0dB
Intermodulation, 19/20kHz, rated power, aux input	-75.0dB		
Intermodulation, 19/20kHz, at 0dBW, disc (mm)	-77.0dB		
Intermodulation, 19/20kHz, at 0dBW, disc (mc)	-74.0dB		
Noise			
Disc (mm) input (IHF, CCIR weighted)	-66.0dB		
Disc (mc) input (IHF, CCIR weighted)	-66.0dB		
Aux/CD input (IHF, CCIR weighted)	-72.0dB		
Residual, unweighted (volume control at min)	-78.0dB		
DC output offset	left 13mV, right 6mV		
DC offset, pre-amp	left nilmV, right nilmV		
Input overload	20Hz	1kHz	20kHz
Disc (mm) input (IHF)	20.0dB	20.0dB	20.0dB
Disc (mc) input (IHF)*	10.0dB	6.0dB	6.0dB
Aux/CD input (IHF)	>20dB	>20dB	>20dB
Stereo separation			
Disc input (mm)	-70.0dB	70.0dB	64.0dB
Aux input	77.0dB	71.0dB	55.0dB
Output impedance (damping)	0.095ohm	0.09ohm	0.11ohm
Channel balance, disc, at 1kHz	0.4dB		
Volume/balance tracking	0dB	-20dB	-60dB
Aux input	0.3dB	0.2dB	0.1dB
Input data	socket type	sensitivity	loading
Disc (mm) input	Phono	63mV	47kohms
Disc (mc) input*	Phono	see text	see text
Aux input	DIN	40.0mV	-50.0kohms
Power amp	n/a	n/a mV	n/a kohms
Output, pre-amp (tape)	00.0V max, 000ohms		
Disc equalisation error, 30Hz-15kHz	+0.08dB, -0.55dB		
Size (width, height, depth)	43x21.5x6cm		
Typical price inc VAT	£250 (available in black at £275)		

For graph references see issue No 44