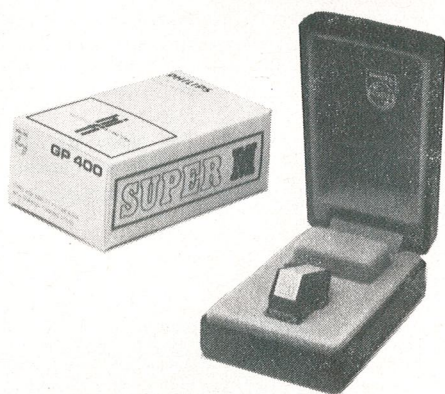
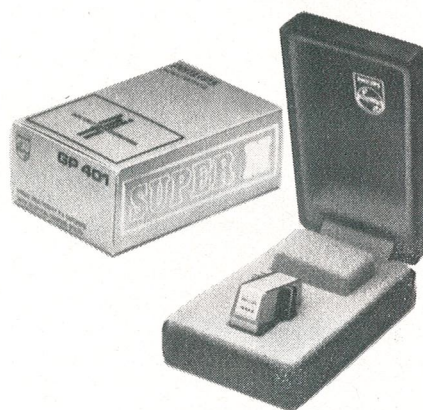


Q LINK-UP. A with TECHNICAL

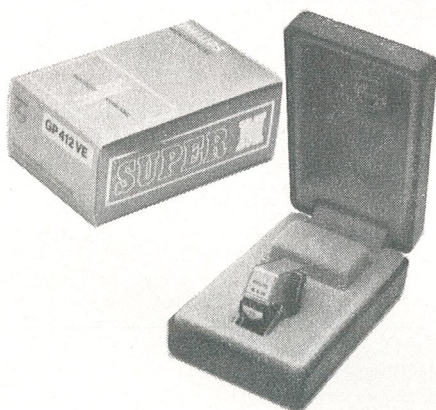
PHILIPS SUPER-M CARTRIDGES



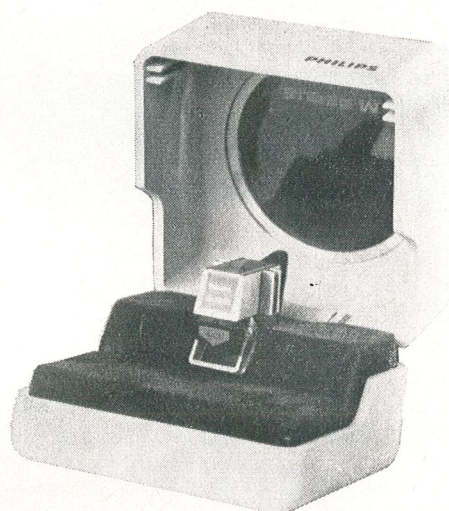
The GP400



The GP401



The GP412



The GP422

The whole range of Philips Hi-Fi Super-M magneto-dynamic pick-up cartridges are available direct from Combined Electronic Services Limited, and the new market prices which are effective from 1st October 1976, are listed below with relevant technical details as well as information on replacement styli.

Super-M pick-up elements are based on the magneto-dynamic principle, with the stylus coupled to a magnet situated between four pole-shoes and four coils. The magnet is made of Ticonal, which is a special magnetic steel containing titanium, cobalt, aluminium and nickel. Each of the four coils has 2,500 turns

of enamelled copper wire of 0.032mm thickness, which is approximately half the average thickness of a human hair. The stylus carrier is constructed of aluminium 0.05mm thick and the total weight of the element is between 6-7g.

The stylus assembly consists of a shaft and a cone with a rounded point. The shape of the stylus point is a contributory factor towards the resultant quality, and for magento-dynamic elements, three different versions are available:—

- (i) Spherical or conical
- (ii) Bi-radial or elliptical
- (iii) SST type (super sound track)

In the GP400 cartridge, the stylus-tip radius has a conical profile, and a radius of 15 μ m. A certain improvement in quality is achieved by using a stylus ground to a bi-radial or elliptical point (GP401 and GP412), and this shape offers better contact between the stylus and the record groove, resulting in quite low figures of distortion even during heavy modulation patterns on the record.

The top of the range cartridge (GP422) is fitted with the SST—super sound track stylus, which is a derivation of the elliptical profile in that the stylus has been ground in a special way, resulting in an increase of the frequency range up to 45kHz. This produces a cartridge in the Hi-Fi range suitable for the playback of both stereo and quadrophonic records using any current system (CD-4, SQ and QS).

SUPER-M CARTRIDGE FEATURES

- ★ High compliance, low dynamic mass, perfect resonance damping, and extremely low frequency modulation distortion.
- ★ High sensitivity and excellent smooth response over a wide frequency range.
- ★ Construction includes a very small magnet of high energy Super-M magnet steel.
- ★ Fitted with diamond stylus
- ★ $\frac{1}{2}$ " Retma mounting distance for use with pick-up arms provided with universal shell.

Additional features for GP422

- ★ Specially shaped SST stylus, suitable for all types of quadraphonic records.
- ★ Extended frequency response (over 40kHz), for discrete quadraphonic systems such as CD-4.
- ★ Suitable for mono, stereo, matrix or discrete 4-channel records, such as CD-4, SQ and QS.
- ★ Special stylus substantially reduces tracking distortion at low stylus forces, as well as record wear.
- ★ Improvement in reproduction of stereo and mono records.

TECHNICAL DATA

	GP400	GP401	GP412	GP422
Frequency response (Hz)	20-20,000 $\pm$ 3dB	20-20,000 $\pm$ 3dB	20-20,000 $\pm$ 2dB	20-45,000 $\pm$ 4dB 20-12,000 $\pm$ 2dB
Sensitivity (mV/cm/sec)	1.2	1.2	1.2	0.7
Output asymmetry	<2dB	<2dB	<1dB	<1dB
Channel separation (1kHz)	>24dB	>24dB	>25dB	>25dB
Frequency intermodulation distortion (at rec. stylus force)	1%	1%	0.7%	0.7%
Stylus (diamond)	Spherical 15 μ m	elliptical 7 x 18 μ m	elliptical 7 x 18 μ m	SST 7 x 18 μ m
Stylus force (gf)	1.5-3	1.5-3	0.75-1.5	0.75-1.5
Rec. stylus force (gf)	2	2	1.2	1.2
Dynamic mass (mg)	<0.8	<0.8	<0.7	<0.7
Compliance (x 10 ⁻⁶ cm/dyne)				
static — lateral	>32	>32	>40	>40
— vertical	>17	>17	>30	>30
dynamic — lateral	>20	>20	>30	>30
— vertical	>16	>16	>20	>20
Vertical tracking angle (nom.)	20°	20°	20°	20°
Tracking at rec. stylus force (300Hz)	>70	>70	>70	>70
Resistance per channel (Ω)	1100	1100	1100	560
Inductance per channel (mH)	750	750	750	185
Rec. load impedance (K Ω)	47	47	47	47
Rec. cable capacitance (pF)	<250	<250	<250	<250
Weight (g)	7	7	7	6
Mounting distance	$\frac{1}{2}$ "	$\frac{1}{2}$ "	$\frac{1}{2}$ "	$\frac{1}{2}$ "
Code number — cartridge	251 17034	251 17035	251 17029	251 17104
Net Trade Price (exc. VAT) cartridge	£9.33	£12.75	£30.81	£46.81
Code number — stylus	251 30041	251 30039	251 30021	251 30047
Net Trade Price (exc. VAT) — stylus	£3.96	£5.50	£9.80	£16.65