

MIRATWIN MST-2 MAGNETIC PICKUP CARTRIDGE

The uniformly high quality of magnetic pickups already on the market might well seem to act as a deterrent to any manufacturer who might contemplate introducing another, but the new Miratwin was introduced nevertheless, and is likely to entrench itself firmly amongst the others because of some of its features.

The Miratwin—built by the manufacturers of the Miracord XA-300 record changer and the Miraphon XM-110A manual record player—comes in two types, depending on the styli supplied. The MST-2A is equipped with two sapphires, and the MST-2D is equipped with a sapphire stylus for standard grooves and a diamond for microgrooves. Both models are otherwise identical, and consist of two electrically and magnetically separate units permanently mounted back to back, as in Fig. 4, and carried in a mounting that switches electrical outputs as the pickup assembly is rotated so that the leads from the pickup housing do not twist back and forth with rotation of the pickup. A separate connecting lug on the mounting permits grounding the frame through the usual third pin on the pickup housing.

The stylus assembly of each of the pickup units may be removed easily using only one's fingernails, and when replaced is seated accurately because of a locating tab. Thus the styli can be changed easily by the user without the need for returning the



Fig. 4. The new Miratwin magnetic pickup cartridge.

pickup to the dealer or factory. The stylus shoe has sufficient vertical compliance to prevent damage in case the pickup is dropped on the record.

As should be expected from a high-quality pickup, response is flat within ± 2 db from 20 to 18,000 cps on LP Vinylite records, and from 20 to 22,500 cps on shellac 78's, using the correct stylus for each, the usual increase in the high end on shellac pressings is, of course, due to decreased compliance of the record material over the softer Vinylite.

Using a Cook Series 10 test record with a stylus velocity of 9 cm/sec at 1000 cps, the output of the LP side was measured at 49 millivolts, which matches the advertised claim for 55 mv at a 10-cm/sec stylus velocity; similarly, measured output for the same record using the standard stylus was 41 mv—both values being relatively high. With the microgroove stylus, a peak of about 1.1 db was noted at 17,000 cps, and output was down 3.3 db at 20,000 cps, the highest recorded on the Cook disc. Inductive hum pickup was almost unmeasurable—being of the same order of magnitude as that usually found with moving-coil types with impedances of the order of 2 ohms or so. No condition could be found where hum picked up from the phonograph motor could be heard in the loudspeaker with amplifier controls set for normal program output. Yet the impedance of the Miratwin is approximately 1450 ohms on the LP side, 910 on the standard. This is composed of inductances of 385 and 248 millihenries for LP and 78, respectively, and resistances of 1400 and 875 ohms for the two sides. Stylus compliance is stated to 4.2×10^{-6} cm/dyne, which is about normal for a high-quality magnetic pickup, and effective mass is listed at approximately 3 mg, which is also about normal.

Mounting is simplified by the construction of the cartridge, which is held in the "chassis" by the shaft of the turnover knob. The entire pickup assembly can be removed from its holder by pulling the knob and shaft out, allowing the unit to be lifted out and giving access to the holes for the mounting screws, which are furnished. Slotted holes in the holder provide some latitude in mounting.

The Miratwin tracks without distortion up to stylus velocities of 20 cm/sec (the highest levels of tones available on discs for testing) and shows no audible distortion of records with stylus velocities as high as 28 cm/sec. Needle chatter is desirably low, and there is no apparent magnetic pull exerted against a ferrous turntable to increase stylus force when only one record is between stylus and platter.

The cartridge has a total weight of 18 grams, and a load resistance of 50,000 ohms is recommended, resulting in a practical limit of 200 μ f for the connecting leads—which means about eight feet of the usual low-capacitance microphone cable (25 μ f/ft). The recommended stylus force for changers is 8 grams, reducing to 6 grams for manual turntables with high-quality arms.

The instruction booklet supplied with each Miratwin cartridge includes a serially-numbered machine-run response curve showing output at eight frequencies resulting from actual measurements, thus showing the user what he has a right to expect from his pickup.

With the relatively high output and very low hum pick-up, the Miratwin cartridge is especially well suited for any installation where a strong a.c. field has been causing trouble, but on the count of listening quality alone it must be considered one of the better-quality magnetic pickups.

M-22