

SHURE V15 TYPE V-MR PHONO CARTRIDGE

Julian Hirsch, Hirsch-Houck Laboratories



FEATURES

- ☐ Masar-polished Micro-Ridge diamond stylus tip
- ☐ Beryllium Microwall/Be tubular stylus cantilever
- ☐ High-efficiency magnetic structure with low-inductance coils for freedom from capacitance effects
- ☐ Dynamic Stabilizer brush to reduce the effects of record warp, remove dust, and reduce surface static charges
- ☐ Side-Guard stylus-protection system (withdraws stylus into body if excessive sideways force is applied)
- ☐ Precision jig for alignment of the cartridge in the turntable
- ☐ Recommended tracking force: 1 gram
- ☐ Recommended load: 47,000 ohms in parallel with 100 to 400 picofarads
- ☐ Weight: 6.6 grams

WHEN we originally reported on the Shure V15 Type V moving-magnet phono cartridge in 1982, we acclaimed it as the best all-around cartridge available at the time. Upgrading the Type V must have been a formidable challenge, but Shure's new V15 Type V-MR actually provides a substantial improvement in the tracking ability of what was already the best-tracking cartridge we knew of. It also retains the original's flat frequency response, low distortion, and Dynamic Stabilizer (a front-mounted antistatic dust brush that effectively damps the low-frequency cartridge/arm resonance to improve the tracking of warped discs).

The improvements derive from a new stylus assembly, the VN5MR.

When this is sold with the Type V body, the combination is known as a V15 Type V-MR cartridge. An older Type V cartridge can be upgraded to Type V-MR status simply by replacing its stylus with a VN5MR. The "MR" stands for Micro-Ridge, which refers to the special shape of the new stylus, a shape that provides a smaller tracing radius than the Hyperelliptical (HE) stylus used on earlier Type V's.

On a Micro-Ridge stylus a narrow ridge is formed along the tracing portion of the diamond stylus tip. This ridge, the only part of the stylus actually to touch the groove wall, has a playing radius of only 0.15 mil (thousandth of an inch), but its radius is 3 mils measured at right angles to the direction of stylus travel. While the new stylus has a

tracing radius 25 percent smaller than that of the original Hyperelliptical design, its radius along the slope of the groove wall is fully twice as large. The result is a distribution of the rated 1-gram tracking force over a larger area and a concomitant reduction of groove-wall indentation by the stylus—and thus a reduction in record wear.

Tracking ability (the ability of the stylus to stay in contact with the groove wall) during high-velocity excursions) is improved too. Shure's "total trackability index" (TTI) rating, which combines tracking ability with the relative indentation factor of the stylus, is its "figure of merit" for cartridge tracking. The MR version of the Type V has a substantially greater TTI rating than the HE version, which Shure had claimed to be the world's leading cartridge in that respect.

The Shure V15 Type V-MR tracked 100 micrometers at its rated tracking force with such a total lack of strain we have no doubt it could go considerably higher.

Like the V15 Type V-HE, the V-MR comes with an unusually complete array of installation aids and tools. Also included are a computerized printout of Shure's performance-verification measurements of the cartridge and a certificate redeemable for a copy of the Shure TTR-117 tracking-ability test record. Price: V15 Type V-MR cartridge, \$275; VN5MR replacement stylus, \$125. Shure Brothers, Inc., Dept. SR, 222 Hartrey Ave., Evanston, Ill. 60204.

Lab Tests

In testing the V15 Type V-MR we took the opportunity to retest the Type V-HE by the simple expedient of substituting a VN5HE stylus for the newer VN5MR. By using the same cartridge body and changing only the stylus assembly, we were able to assess the differences between the MR and HE versions without the effects of slight sample-
(Continued on page 39)

HIRSCH-HOUCK LAB MEASUREMENTS

Note: Results in parentheses are for the VNSHE Hyperelliptical stylus, all others for the VNSMR Micro-Ridge stylus.

Frequency response (with CBS STR100 test record): 40 to 20,000 Hz ± 0.5 , -1 dB referred to 1,000-Hz level (± 0.5 , -2.5 dB)

Tone-burst distortion (highest found with TTR-103 test disc), 0.67% at 30 centimeters per second groove velocity (0.8% at 30 cm/s)

Intermodulation distortion (highest

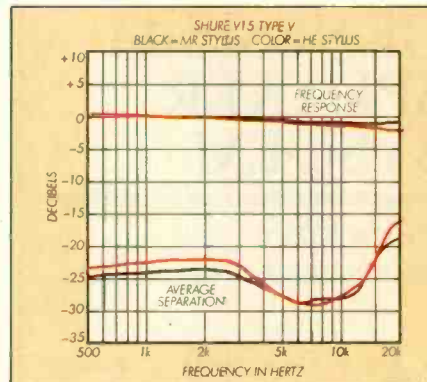
found with TTR-102 test disc): 2% at 27.1 cm/s groove velocity (3.0% at 27.1 cm/s)

Tracking ability (at 300 Hz with German Hi-Fi #2 test disc): 80 micrometers (60 μ m) at 0.75 gram tracking force; 60 μ m (40 μ m) at 0.5 gram

Output voltage (at 3.54 cm/s groove velocity, 1,000 Hz): 2.51 millivolts (2.68 mV)

Channel balance: 0.1 dB (0.0 dB)

Vertical stylus angle: 18 degrees (20 degrees)



to-sample variations among cartridge bodies or changes in tone-arm mounting and alignment.

For most of the tests (with both styli) we set the tracking force to the rated 1 gram (plus another 0.5 gram to cancel the upward force of the Dynamic Stabilizer). The frequency response was measured with load capacitances of 200 and 335 picofarads; the effect of capacitance changes on the high-frequency response was negligible, and we used the lower value in later testing.

We made the usual measurements of frequency response, cross-talk, output voltage, tracking distortion, tracking ability as a function of tracking force, and vertical tracking angle. All measurements were made using the Micro-Ridge stylus and repeated with a Hyperelliptical. (In the "Measurements" box the HE figures are in parentheses.)

Comments

As with our tests of the original V15 Type V, we find it difficult to avoid superlatives when discussing the new MR version. The two were very similar in almost all respects, although the MR had slightly flatter overall frequency response. Also, our attempts to measure tracking distortion, whether intermodulation or 10.8-kHz tone-burst distortion from the Shure TTR-102 and TTR-103 test records, were fruitless. The readings were so low, and so unrelated to recorded velocity levels, that we must conclude that they were the residual distortions of the test records or the test setup. Even a graph of the measurements would provide no further enlightenment.

There was one real, and most

impressive, difference between the two versions, however. The 300-Hz tones of the German Hi-Fi #2 test record, which could be played only up to the 70-micrometer level at 1 gram by the HE, were tracked without strain at the record's maximum level of 100 micrometers by the MR. When the force was reduced to 0.75 gram, the MR tracked 80 micrometers and the HE tracked the 60-micrometer level. At only 0.5 gram (well below the rated minimum for these cartridges), the MR tracked 60 micrometers, but the HE could track only up to about 40 micrometers.

To put this into perspective: by our standards, a true hi-fi cartridge should be able to track at least the 60-micrometer level of the German Hi-Fi #2 record at its rated tracking force. We have found a number of cartridges that could barely meet this standard. Only a few of the best can track as high as 100 micrometers at their rated operating force. The Shure V15 Type V-MR, on the other hand, tracked 100 microme-

ters with such a total lack of strain that we have no doubt it could go considerably higher if suitable test records were available. And, while we can see no real advantage to operating this cartridge below its rated 1-gram force, at 0.5 gram it can outperform most high-quality cartridges operating at 1.5 to 2 grams! (The latter force level is at the danger point in terms of long-term record wear.)

Most important, the V-MR sounds as good as it measures, with a notable lack of coloration and distortion. There are a few other cartridges that can do pretty much the same, but only on recordings whose peak levels are not excessive. The V15 Type V-MR, however, will perform superbly with *any* record we know of by virtue of a tracking ability that is (to our knowledge) unmatched in the industry. If you hear any distortion when using a V15 Type V-MR, the odds are very high that it is from the record, not the cartridge!

Circle 141 on reader service card



"... This toccata by Wanda Landowska sounds a wee bit fuzzy, Manchester. Try a little more spit on the stylus."