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## GOLDRING G-920 IGC CARTRIDGE

### Manufacturer's Specifications

**Frequency Response:** 20 Hz to 20 kHz,  $\pm 2$  dB.

**Channel Balance:** Within 2 dB at 1 kHz.

**Channel Separation:** 25 dB at 1 kHz.

**Sensitivity:** 6.5 mV  $\pm 1.5$  dB at 5 cm per second.

**Static Compliance:** Lateral, 24 mm/N; vertical, 16 mm/N.

**Vertical Tracking Angle:** 24 degrees.

**Recommended Load Impedance:** 47 kilohms.

**Recommended Tracking Force:** 1.0 to 2.5 grams.

**Price:** \$125.00.



Goldring was among the first manufacturers to use the van den Hul stylus type, a chisel-shape design shown in Fig. 1. It bears a certain resemblance to the well-known Shibata configuration, but instead of facets, the surfaces contacting the record are ground into smooth curves. The actual contact area

is stated to be 3.5 microns, which is pretty close to the radius of a typical record cutter stylus. The inventor, Alk Jouk van den Hul, used an IBM 370 computer to optimize the design, which has to take into account tip mass and tracing distortion, among other factors.

The first Goldring cartridge to use a

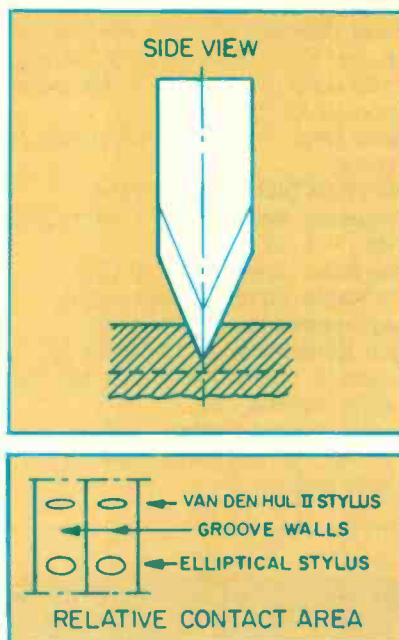
van den Hul type stylus was the G-900 IGC, which is still at the top of the line at \$240.00. The model selected for reviewing here is the G-920 IGC, which is a later version using a modified stylus which they call the van den Hul II. According to Goldring, this stylus shape has the major axis reduced and the mi-

nor radius enlarged to "produce a less radical shape compatible with a wider range of tonearms and is simpler to make." The price has certainly been reduced, as the G-920 lists at only \$125.00 — slightly more than half the G-900's price. The G-920 employs the same basic construction as the G-900, with the four coils wound as double pairs without joins. Weight of the cartridge is only 4.25 grams and there is a neat detachable stylus guard. Inductance is stated as being 570 mH, and the rated output is higher than average at 6.5 mV at 5 cm/S velocity. Equivalent tip mass is stated to be 0.45 mg — a little higher than the G-900's 0.32 but still lower than most top-quality cartridges these days.

#### Measurements

For test purposes, the cartridge was mounted on a Sony PS-X800 SLT turntable, and the tracking force was set at 1.25 grams. The first test was frequency response and separation, and the results can be seen in Fig. 2. Note that there is 30 dB of separation through the mid-band, from just below 400 Hz to about 2500 Hz, decreasing to 15 dB at 10 kHz. The optimum load capacity is stated to be 180 pF total, which would include both the tonearm wiring and the preamp input. This value was confirmed; increasing the capacity to 350 pF caused a rise in the response at 13 kHz and a falling off at 17 kHz. It appears wise, therefore, to pay some attention to the cables used with this cartridge to make certain they are low-capacitance types. The square-wave response characteristics can be seen in Fig. 3; after the initial overshoot, the G-920's response is very well damped. Channel matching was within 0.5 dB, which is good performance, and output measured 3 mV at 3.54 cm/S velocity.

The Goldring G-920's trackability performance was rather good overall and would have to be rated as one of the best in its price class. The low-frequency performance in this area was excellent, as the cartridge was able to track all bands on the big drum test on Shure's *Obstacle Course* — Era III even when the tracking force was reduced to 1 gram. However, to cleanly track the *Deutsches Hi-Fi No. 2* test disc's 300-Hz 80- $\mu$ m band, the tracking force had to be increased to 2.5 grams. It must be



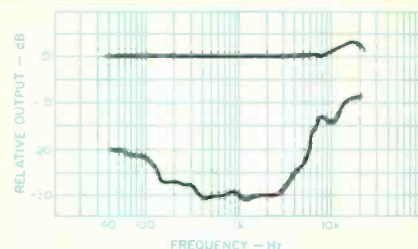
**Fig. 1 — Goldring's van den Hul II stylus profile and its contact area relative to an elliptical stylus.**

pointed out, however, that this is a tough test. Going on to Shure's Era IV record, some hardness was audible on level three of the orchestral bell test along with some distortion on band 5 of the flute and bell test, which very few cartridges can play at all. High-frequency trackability with 10.8-kHz tone bursts was 25 cm/S, and IM (with 400 Hz and 4 kHz) was well below 2 percent up to 15 cm/S velocity, increasing rapidly above 25 cm/S.

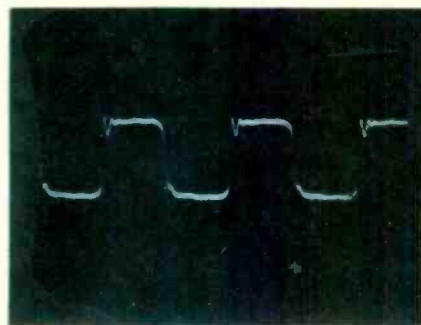
#### Use and Listening Tests

As usual, a fairly large selection of records was used for the listening tests, and some difficult-to-track discs were naturally included. One of these latter records was the new *Sheffield Tower of Power*, which has some particularly high modulation levels. No trouble was experienced with mistracking, though I must admit that I did keep the tracking force set at 1.75 grams just to be on the safe side. Best results will be had with low- to medium-mass arms.

The sound quality of the Goldring Model G-920 was notable for a tight bass, and there is an almost analytical character of the response in the treble



**Fig. 2 — Frequency response and separation with a 180-pF load (see text).**



**Fig. 3 — Response to a 1-kHz square wave.**

range, which is sometimes associated with moving-coil phono cartridges. Whether this apparent extra clarity and definition is due to the van den Hul stylus and its tracking abilities or to the mild rise in the high-frequency response is a moot point. While the effect is fairly subtle, it is definitely there upon close listening. One very nice aspect of the G-920's sound is that there was no trace of harshness or stridency in the listening tests.

Not so long ago, \$125.00 was a great deal of money to pay for a phono cartridge, but looking at last October's *Annual Equipment Directory* I find that this figure is now somewhere in the middle of the range. My judgment must therefore be that the G-920 offers very good value indeed, and will be of particular interest to those who face budget limitations and also desire a cartridge with a van den Hul stylus.

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