VLBA ACQUISITION MEMO #369

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Subject: Wear rates for heads with fotoceram and MN130 spacer material

Figure 1 shows the measured wear rates for heads with fotoceram and MN130 at various humidities. The wear rates were measured running the transport at 80 IPS and at a 10" H_2O vacuum. For a headlife of more than 5,000 hours the wear rate must be less that 11 nanometers (nm) per hour for a 55 μm initial depth of gap. The wear rates for both spacer materials are very similar and both are extremely dependent on the RH in the head-to-tape contact area. (If it is not possible to bring the room humidity down then the RH can be lowered by allowing the transport to warm up. For a small temperature rise the transport inlet fan can be partially blocked.)

Conclusions and Recommendations

1) Fotoceram vs MN130

The MN130 is slightly more wear resistant but there is little to choose between the two materials so I see no need to change to MN130 unless Metrum feels that MN130 is easier to use.

2) Acceptable range of RH

An RH from about 30 to 37% results in good performance along with a tolerable wear rate. At humidities below 30% the wear rate is so low that a head which is degraded (with the wrong contour or scratch) fails to recover in a reasonable time. Thus good performance maintenance at humidities below 30% RH could turn out to be a problem. However, I found no evidence that the performance of either head will gradually degrade on its own at humidities down to 25%. There is not a significant difference between the 3M and Sony tape on either fotoceram or MN130. We must try to avoid running above 37% RH for extended periods and above 50% RH even for short periods.

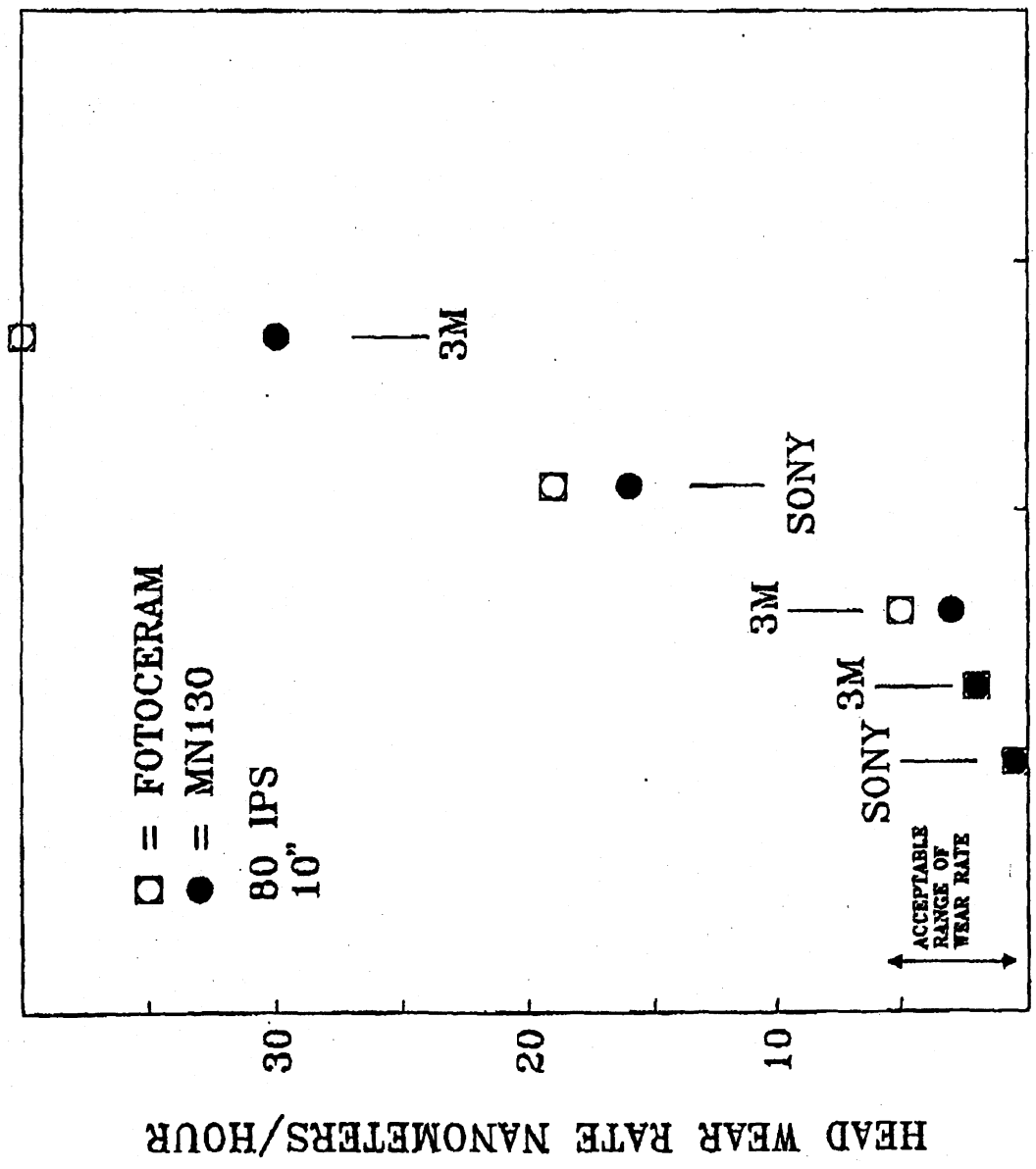

Figure 1. Head wear rates