

VLBA ACQUISITION MEMO #286
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To: VLBA Data Acquisition Group

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Subject: Head wear rates with Fotoceram spacers

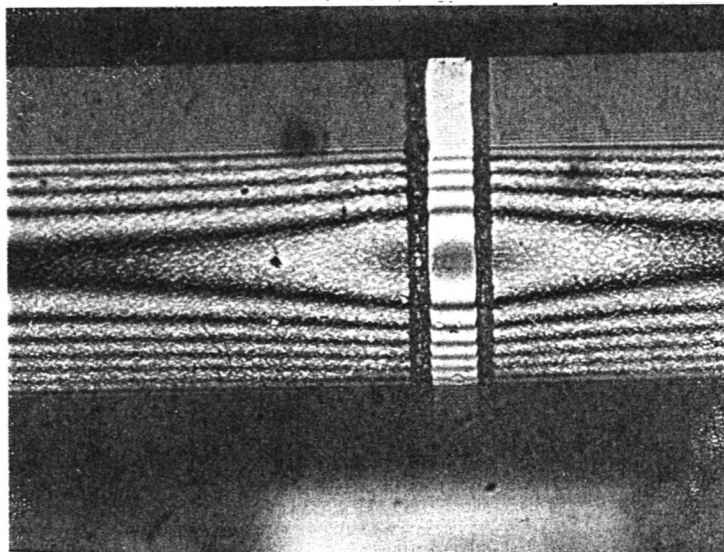
The use of Fotoceram (Corning glass) instead of calcium titanate for spacing material between heads, shows promise as a means of improving the short-wavelength response. Under normal running conditions the Fotoceram wears a little faster than the ferrite so that the head-to-tape contact at the gap improves. This improvement is only practical if it can be maintained without significant reduction in head life. The following wear rates have now been measured:

Tape	Wear Rate	
	Fotoceram $\mu\text{m}/\text{hour}$	Titanate $\mu\text{m}/\text{hour}$
Sony V16B	0.08 [1]	0.06 [2]
Sony D1K	0.004 [3]	0.004 [4]
Sony D1K	0.20 [5]	0.09 [6]
Notes: [1] At 50% RH, 160 IPS, 10". [2] From VLBA Acquisition Memo #170, at 60% RH, 160 IPS, 10". [3] At 40% RH, 160 IPS, 10". [4] From VLBA Acquisition Memo #170, at 30% RH, 160 IPS, 10". [5] At 100% RH, 160 IPS, 10". [6] At 100% RH, 160 IPS, 10".		

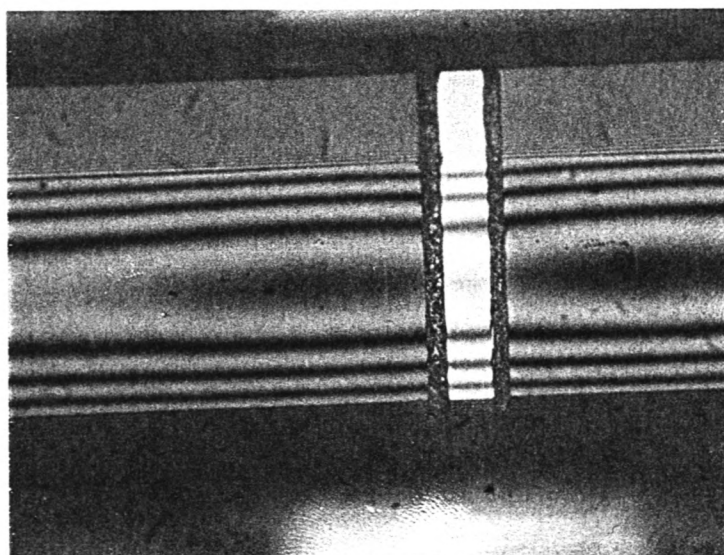
Figure 1 shows interference microscope photos (fringes produced by putting a 5 mil thick glass cover slide on the headstack) of the headstack surface after running Sony D1K and after running V16B. With the D1K it is clear that the Fotoceram is worn down further. Also, the Fotoceram surface has a slightly rougher surface formed by what appears to be glass crystals. With V16B, the crystals disappear and the wear is almost equal for the ferrite and the Fotoceram spacer.

While measurements of the Fotoceram are still needed for different tapes its use continues to look interesting. So far the most worrisome property of the Fotoceram is the very high wear rate (twice that of calcium titanate) at very high humidity. Errors for wear rate measurements are quite large ($\pm 50\%$) and these results should be considered as tentative. The actual lifetime of a Fotoceram headstack might be a more reliable indicator.

Super performance contours



Fotoceram after 48 hours running Sony D1K.



Fotoceram after running with V16B at 20".

Figure 1.