VLBA ACQUISITION MEMO # 379

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To: VLBA Data Acquisition Group

From: Hans F. Hinteregger & Dan L. Smythe

Subject: Recovery of Shock-Deformed Tape

We sent two thin tapes to NFRA, and they arrived with severe pack deformation, probably due to mechanical shock, as documented in the attached telefax. The worse of the two tapes, GIFT0005 (3M5345), was returned to Haystack, where we observed that its condition had improved somewhat during the return shipment. This tape was evaluated and restored to useable condition as follows:

1. Received at Haystack 1/24/94: Rear pack-flange separation ~.015" mildly shock-bent pack.

2. Wind to non-self-packing (NSP) glass reel at 5" H_2O (1.1 N) tension, 360 ips; no bumps, no scatter, packs in (against rear flange). Note that low tension minimizes 'flange-forcing'. 'Perfect packing' with flange separation equal to tape width (.997" typical) is normally obtained at 5" H_2O on a good self-packing reel.

3. Rewind to low tape (LT); flange separation = 1.006"; minimum front flange to pack ~.005". Low-tape stop/start produces exposed strands subject to damage by crushing with "clamping" reel band.

4. Test for Damage: Wind forward (FOR) 10", 80 ips - no bumps.

5. Reverse (REV) 5", 80 ips; flange separation = 1.003"; front flange to pack ~.003". Low-tape stop/start exposure ~.003". Note lower speed reduces 'flange-forcing'.

6. Old Corning self-packing (SP) reel doesn't meet new .996/.986" flange minimum separation specification. Measured 1.000" minimum separation allows .003" exposed strand even without any flange deflection.

7. Put on "clamping" reel band. No crushing of OD scatter apparent.

8. Put into 2" shipper and let sit outside in 10°F weather for two days.

9. Subjected package to 8 foot flat drop.

10. Examined pack after warm-up. Mild spoking apparent if you catch the light just right. Maximum flange-to-pack distance ~.005" both sides, approximately opposite azimuth.

11. Ship tape back to Europe as-is; no complaints from NFRA.

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TELEFAX

TO: Prof. R.T. Schilizzi
LOCATION: JIVE, Dwingeloo
NUMBER: 010 31 5219 7332
FROM: S.M. Parsley
DATE: 11th January '94 NUMBER OF PAGES: 3

SUBJECT: Haystack cross-play tapes

Dear Richard,

Attached are the results of our goods-inward inspection of the tapes provided.

We can start to look at the Sony tape straight away. Before we can use the 3M tape, however, we will have to make special arrangements to re-spool it. and it is probable that the tape is damaged.

We would be interested to look at the 3M tape but, in view of its condition, we would like you to confirm first that you wish us to proceed.

Regards

Steve.

Results of Goods Inwards Inspection carried out on 2off tapes from Haystack. 10.1.94.

Tape 1 - Code No. 3M5345 / 54300 - 7 - 12 GL/HAY/G
GIFT 0005 F2EB (2/93 'FLIPPED')

Visual Inspection - Tape packed hard against flange with labels. Edge deformed (Fig 1), some deformation at one part of circumference (Fig. 2.)

Evidence of tape cinching visible through clear reel flange (Fig 3)

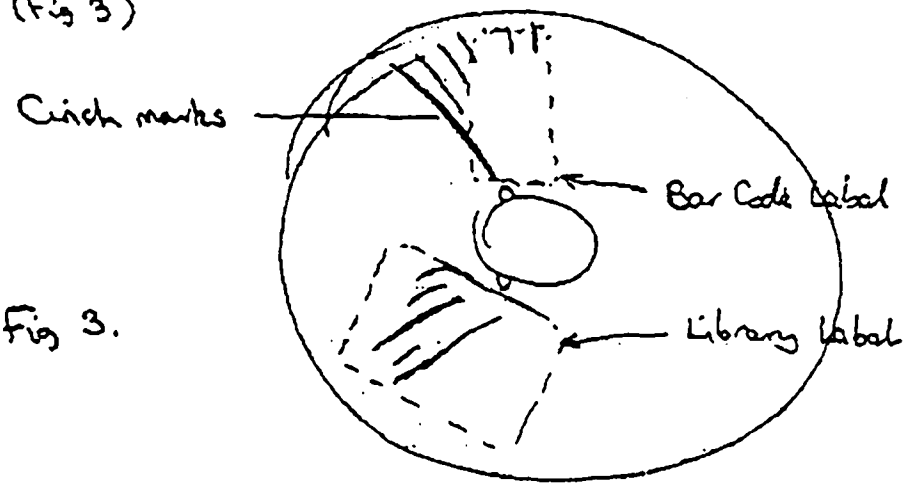
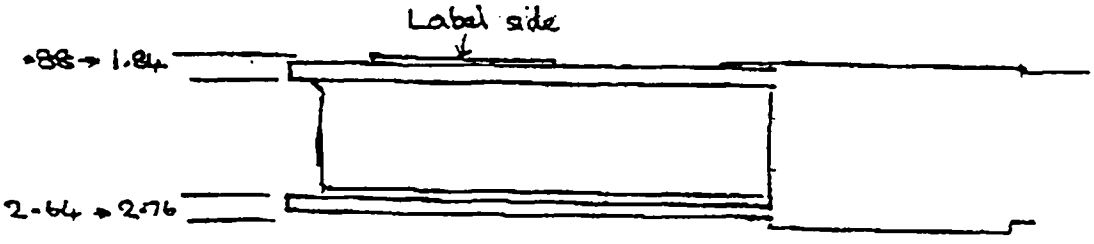


Fig 3.

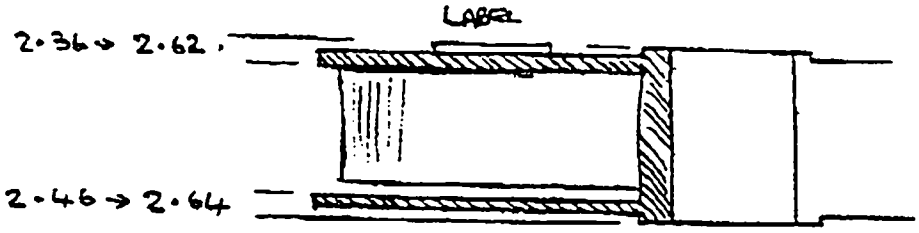


As our transports locate the label side against the reel platform, the distance between the tape edge and the deck

World be, at worst, 19·2 mm, approximately 1·8 mm away from the normal running position. This amount of correction at the first guide would give unacceptable edge wear.

Tape 2. - Code No. SONY DI-E / 112060F2 /GL/USNO / G
USNO 1035 3645

Visual Inspection - Although the tape pack was biased towards the flange with labels, a small clearance, ~ ·05mm, was evident, with a ·5mm gap on the opposite side. Generally, pack quality and edge quality looks good.



This reel should be suitable for replay tests.