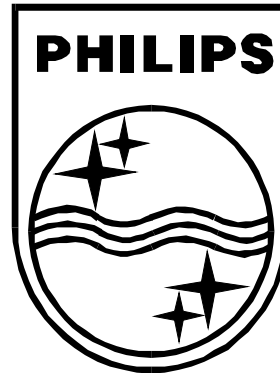


**BACKWARD COMPATIBILITY:  
PROTECTING THE PAST  
WITH FUTURE TECHNOLOGY**



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**Presented at the THIC Meeting at the Hotel Villa, San Mateo, CA  
July 23, 1998**

## **PHILIPS LMS**

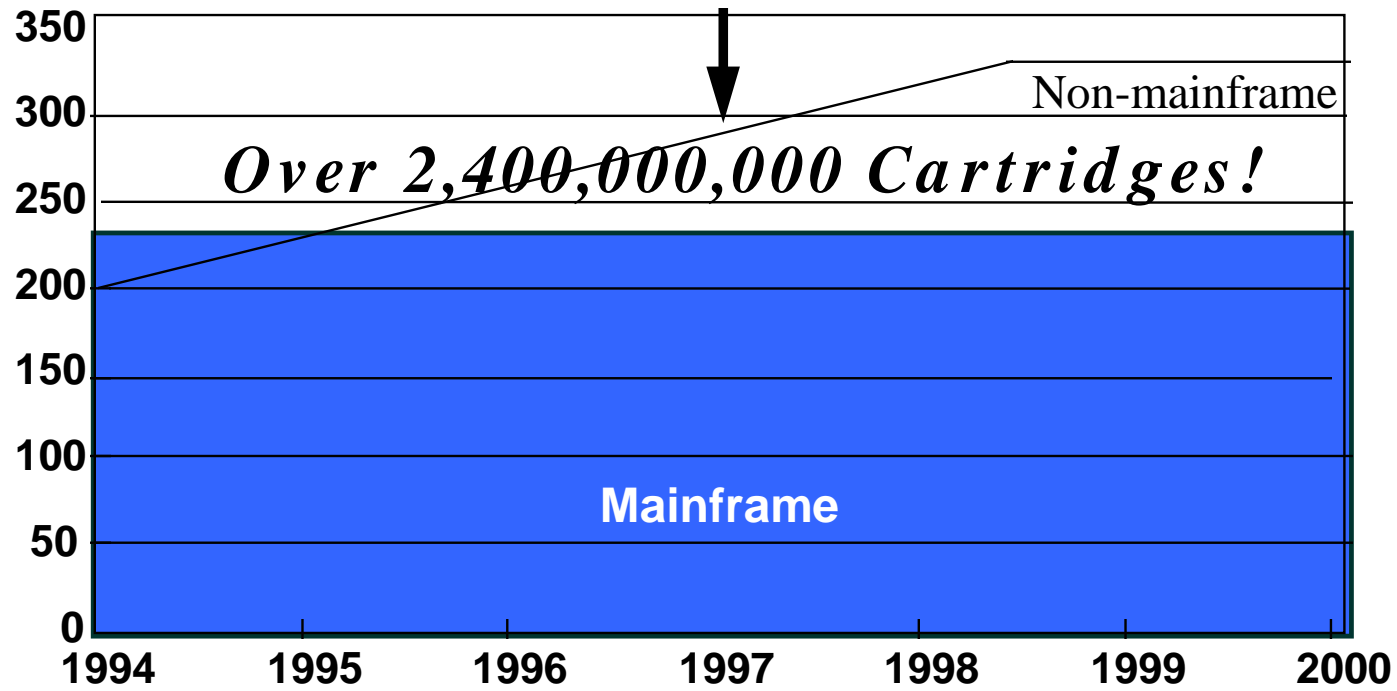
- Optical 12” WORM Drives  
80% Market Share  
Three Product Generations
- Blackjack Tape Libraries - 21 Cartridges  
DLT  
NCTP
- Tape Drives  
3490  
NCTP

## **PHILIPS TAPE DRIVE HISTORY**

- Co-designed and built previous generation of drives for IBM since the early 90's.
- Due to OEM relation with IBM, Philips has been a well-kept secret in the tape industry.
- NCTP - Available March, 1998.

# 34XX Interchange

*Over 297,000 Installed Drives in 1997*



## **FEATURE SUMMARY**

- 18GB native capacity
- 10MB/sec transfer rate
- Read 18 and 36 track
- Automation support

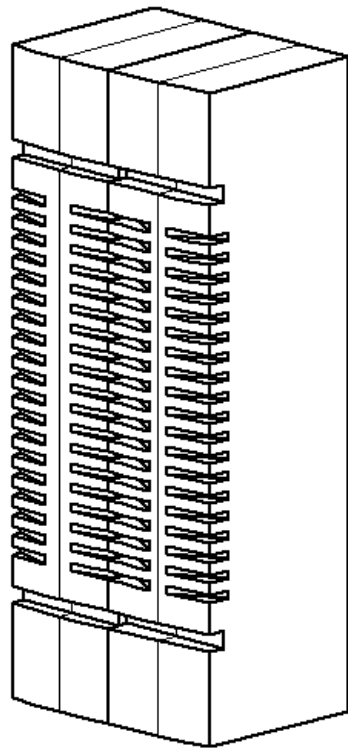
## NCTP HEAD CONDITIONS

- NO PNEUMATIC TAPE LIFTER
- 8.8  $\mu\text{m}$  thin MP++ tape  $\rightarrow$  3.5 oz tape tension  $\rightarrow$  VERTICAL SLOTS for HEAD-TAPE-CONTACT

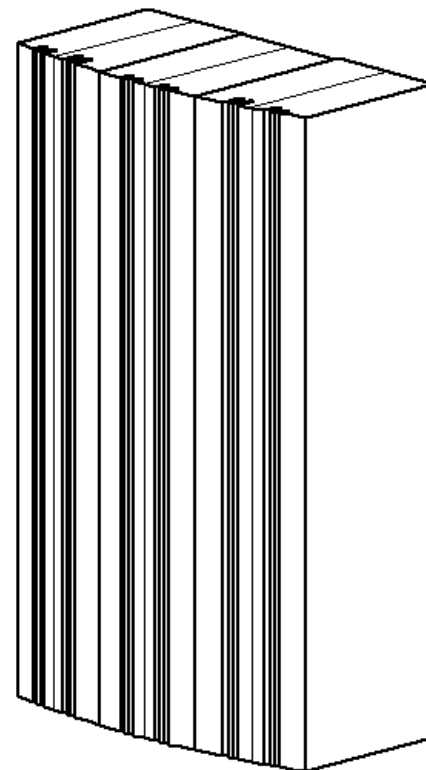
### NCTP TARGETS

TAPE TYPE	TARGET	PROBLEM: STICTION
3480 CrO <sub>2</sub>	> 10,000 PASSES	300 ~ 700 PASSES
3490 CrO <sub>2</sub>	> 10,000	300 ~ 700 PASSES
NCTP MP++	> 10,000	NO PROBLEM

3480/3490



NCTP



# **STICTION PROBLEM EXPERIMENTAL RESULTS**

- **START-STOP**
- **LESS VERTICAL SLOTS**
- **ALL FERRITE HEAD**

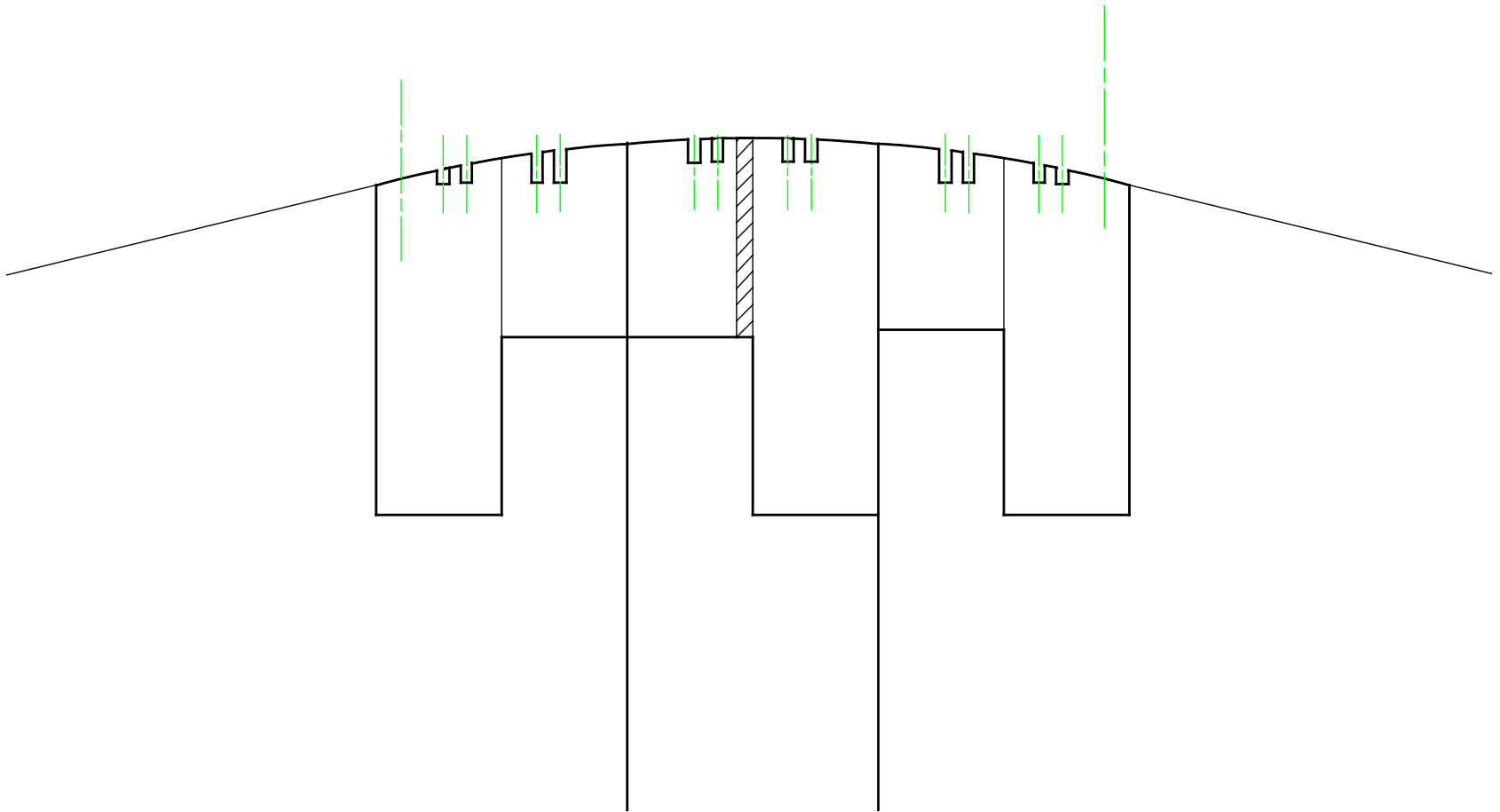
## **CONCLUSION**

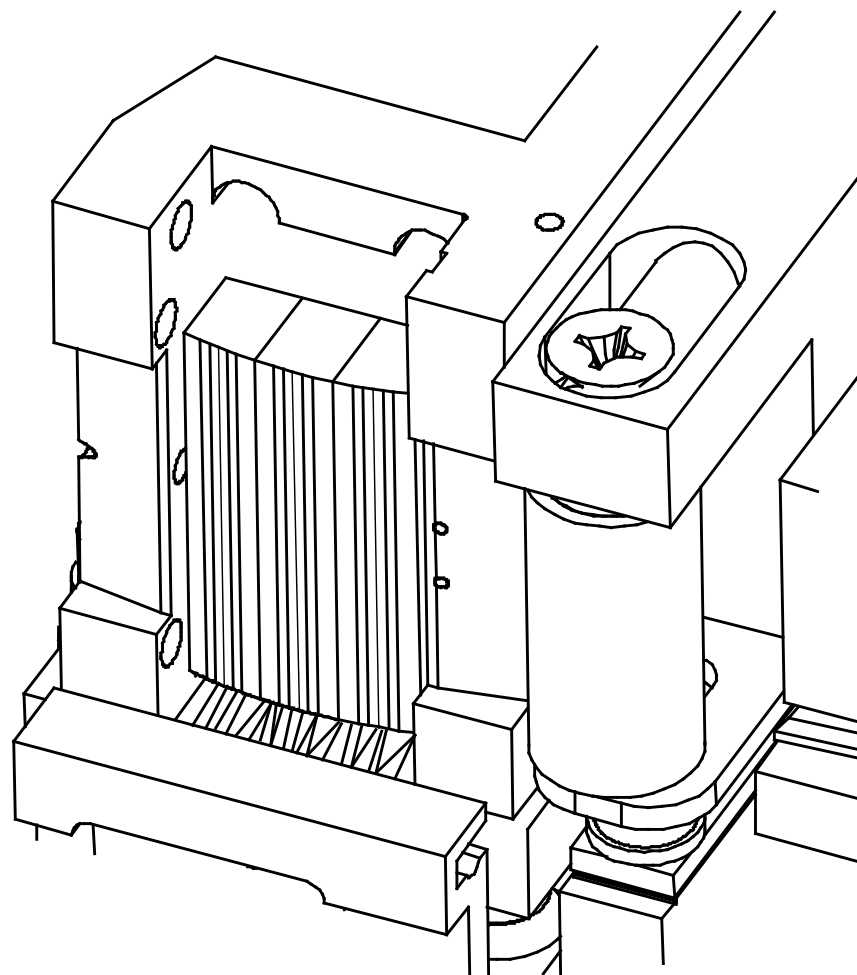
**STICTION** is caused by **DEGRADATION** of the  $\text{CrO}_2$  binder coating surface due to running start-stop over the **SHARP VERTICAL SLOT EDGES** of  $\text{AlTiC}$

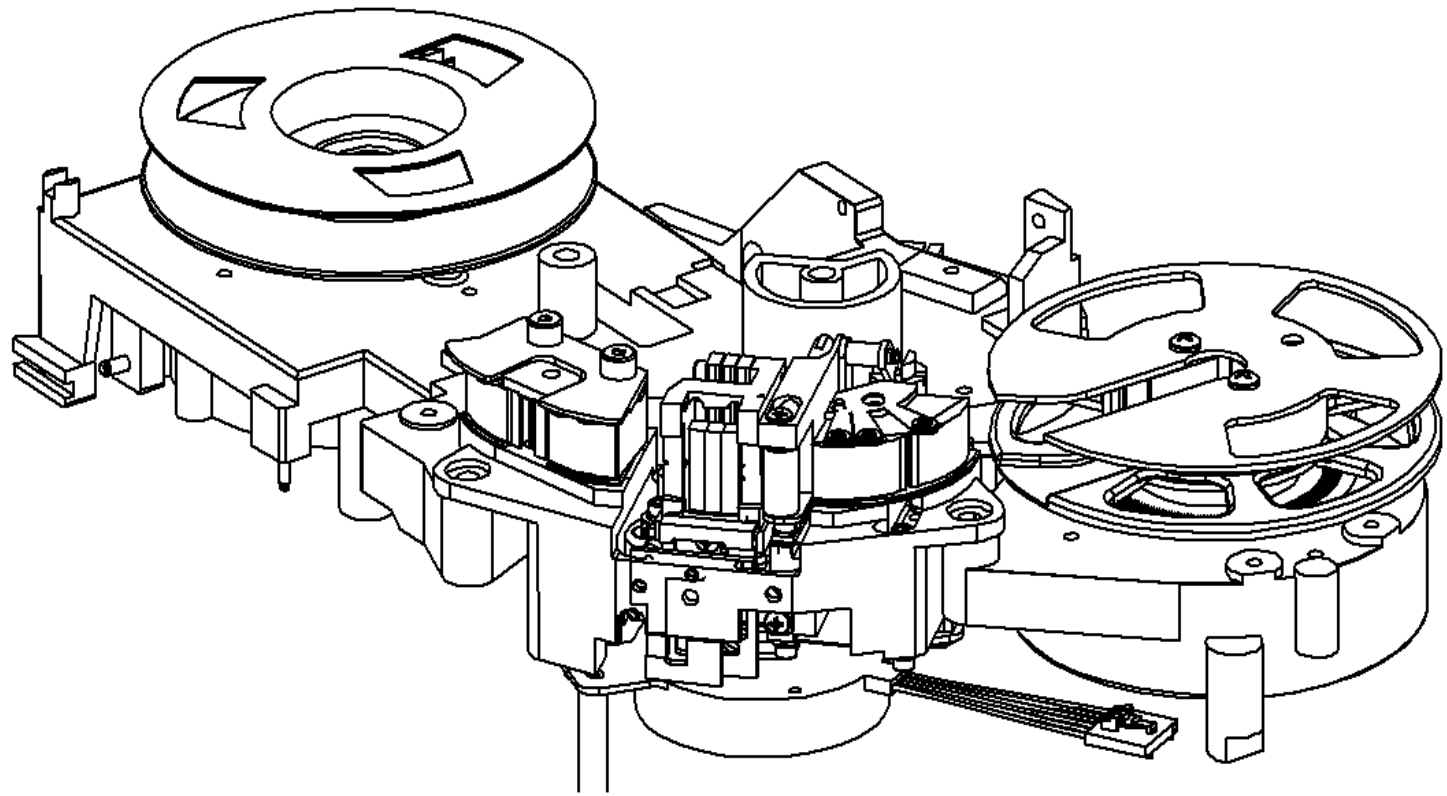


## **POSSIBLE SOLUTIONS**

- **SMALL CHAMFER** on the **SLOT EDGES**
- **USE MATERIALS SOFTER** than **AlTiC**
- **AVOID CrO<sub>2</sub> tapes TOUCHING** the **AlTiC WRITER**







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## **DEBRIS PROBLEM**

- VERTICAL SLOTS COLLECT DEBRIS

## **EXPERIMENTAL RESULTS**

- MOST DEBRIS comes from 3480 and 3490 tapes
- NCTP MP++ DEBRIS occurs only on first passes

## **POSSIBLE SOLUTIONS**

- **VERTICAL AIR PUFFER**
- **SCRAPER VACUUM PUMP**
  - runs continuously during tape motion
  - brush motor vane pump → brushless motor valve pump
- **HEAD BRUSH**
- **SPECIAL NCTP CLEANING TAPE**
  - NCTP cleaning cartridge has no “file protect” switch

# CONCLUSION

<b>PROBLEM</b>	<b>SOLUTION</b>
STICTION	TAPE LIFTER ROLLER
DEBRIS	brushless motor valve PUMP HEAD BRUSH NCTP SPECIAL CLEANING TAPE

# PHILIPS NCTP

- Protect Customer Investment
- High Performance - 10MB/sec
- High Capacity - 18 GB

