

# Memorex Computer Media

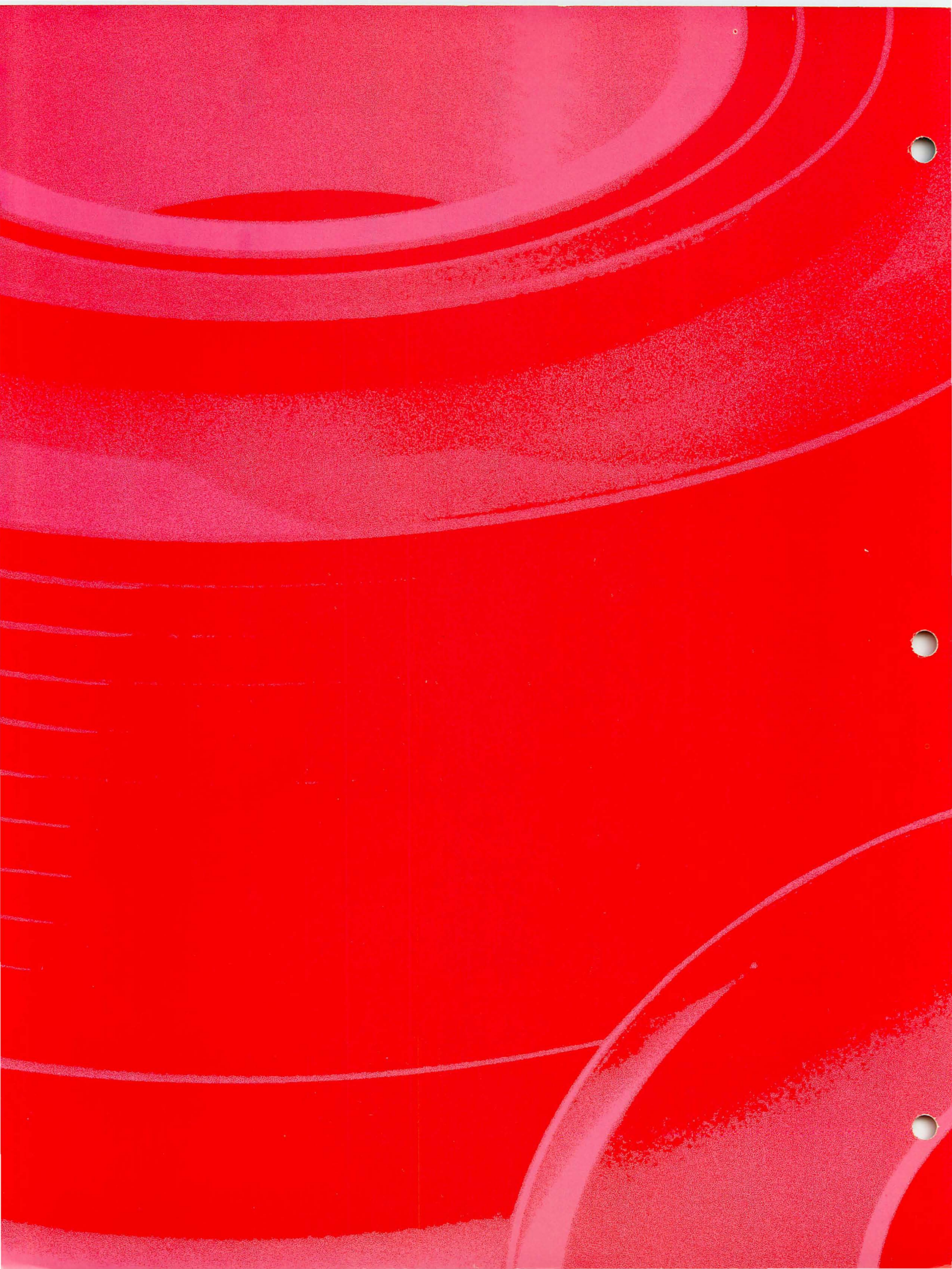


THE COMPUTER HISTORY MUSEUM



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**Introduction  
Computer Tape  
Disc Products  
Flexible Discs  
Memorex Services**



**Memorex is One of the World's  
Leading Suppliers of Information  
Storage and Retrieval Products  
and Services**

**1/3 of a Billion Dollars  
in Annual Sales**





# MEMOREX

The Company





# Corporate Milestones





# MEMOREX

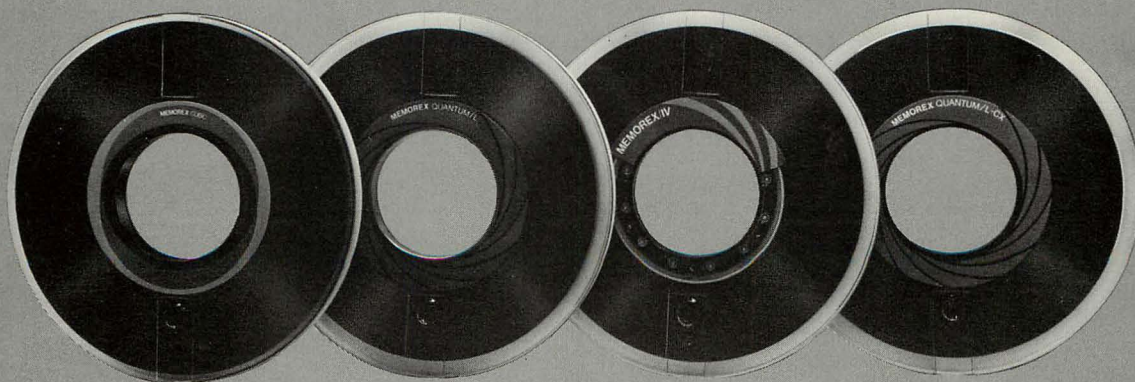




- 1961** Independent Media Supplier
- 1963** Ultra-Thin Instrumentation Tape
- 1965** Video Tape
- 1966** Third Generation Computer Tape  
Independent Supplier of Disc Packs
- 1967** 5-Year Guaranteed Disc Pack
- 1969** 5-Year Guaranteed Computer Tape
- 1970** Carbon-Backed Computer Tape
- 1972** First Independent to Deliver Flexible Discs
- 1973** Lifetime Guaranteed Computer Tape  
Lifetime Guaranteed Disc Packs  
Automated Tape Library Management System
- 1974** First Thick Based Computer Tape  
Procscan, the Automated Disc Conversion System  
Resource, Computer Utilization Evaluator  
First Independent Thin Coated Disc for 3336-11
- 1975** First Independent to Market the Data Module
- 1976** First Independent to Re-engineer and Improve Front Loading Disc Cartridge  
Dual-Sided and Double-Density Flexible Disc  
Tape Error Analysis, Tape Volume and Unit Reliability Evaluator



# The Total Media Manufacturer— Data Recording, Storage and Retrieval Products That Complement Each Other





- 1961** Incorporated
- 1962** Precision Computer Tape
- 1963** Broadband Instrumentation Tape
- 1965-67** International Offices Established
- 1968** Information Systems
- 1969** Word Processing Group Established
- 1970** Consumer Media Products Group Established
- 1975** Became a Quarter of a Billion Dollar Sales Company



# Media Milestones





**TAB**

**COMPUTER TAPE**



# Why More Than One Tape?

MEMOREX

Product Selection



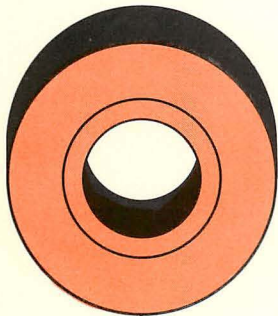


# A Memorex Tape for Every Need

Because You Have More Than One Application!

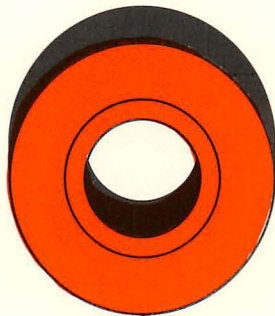
**Work Tapes**

**Memorex/IV**



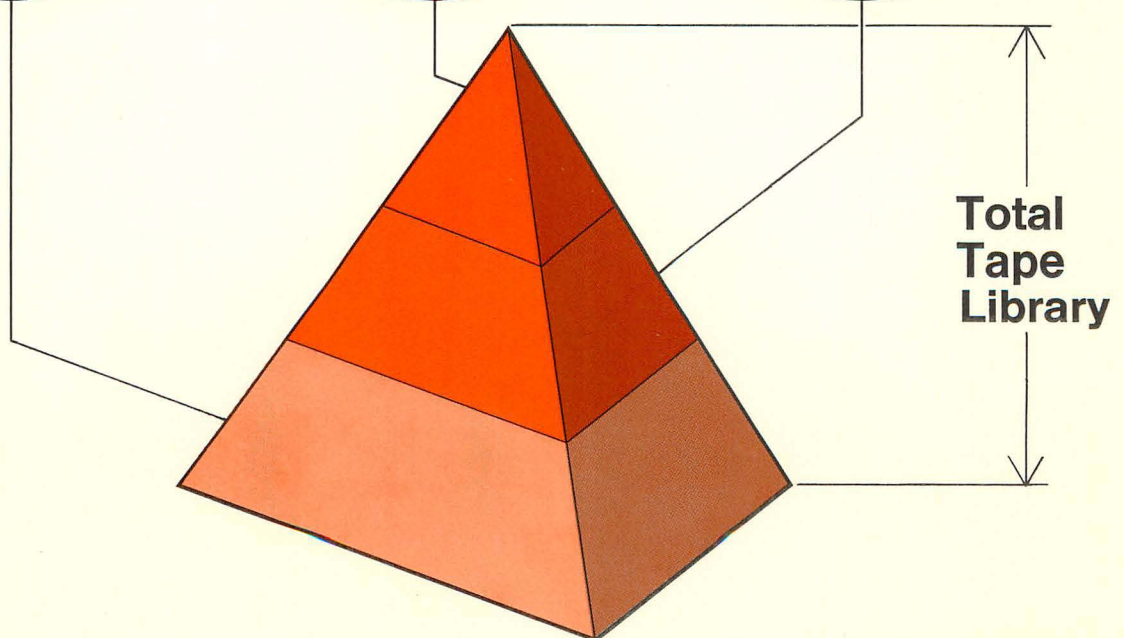
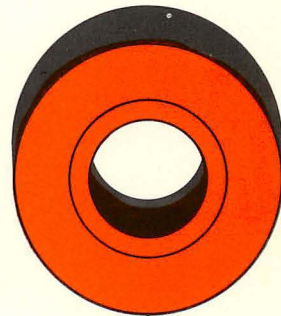
**Critical Data**

**Quantum/L  
Quantum/LCX**



**Standard Applications**

**Cubic**





To aid you in  
the Selection of  
the Proper Tape for  
Specific Jobs,  
we have devised a

**Tape Application  
Configurator  
or**

**T.A.C.**



# With your tape requirements over the next twelve months in mind:

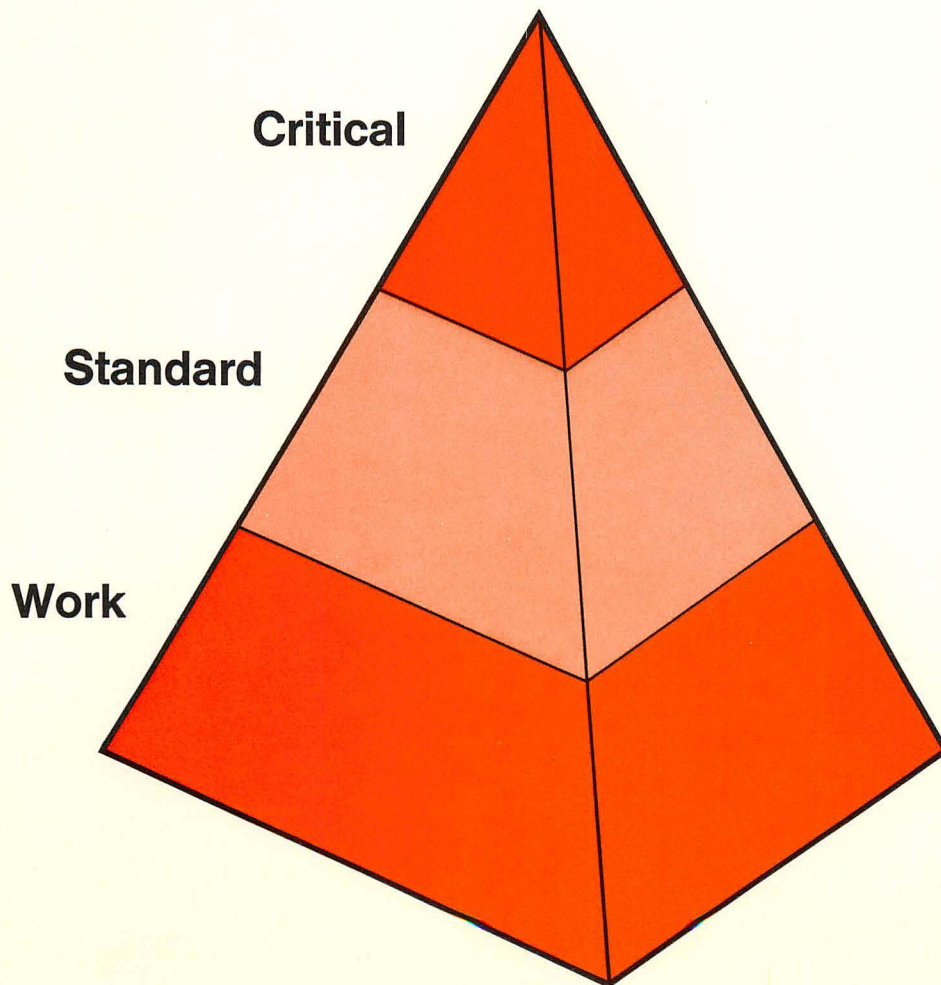
1. Will you add permanent backup to your library? Yes ☐ No ☐  
\_\_\_\_\_ % of Req.
2. Will you add or update master files? Yes ☐ No ☐  
\_\_\_\_\_ % of Req.
3. Will you ship data tapes to other locations? Yes ☐ No ☐  
\_\_\_\_\_ % of Req.
4. How many scratch tapes will be added or replaced? \_\_\_\_\_ Reels  
\_\_\_\_\_ % of Req.
5. Do you have applications where thru-put is critical? Yes ☐ No ☐  
\_\_\_\_\_ % of Req.
6. Is debris a problem? Yes ☐ No ☐
7. Has tape cinching caused reruns? Yes ☐ No ☐
8. What do you anticipate in terms of total tape requirements in the next twelve months? \_\_\_\_\_ Reels

Now Overlay the T.A.C. Recommendations



## Media Engineered to Meet All of Your Requirements

Product Selection





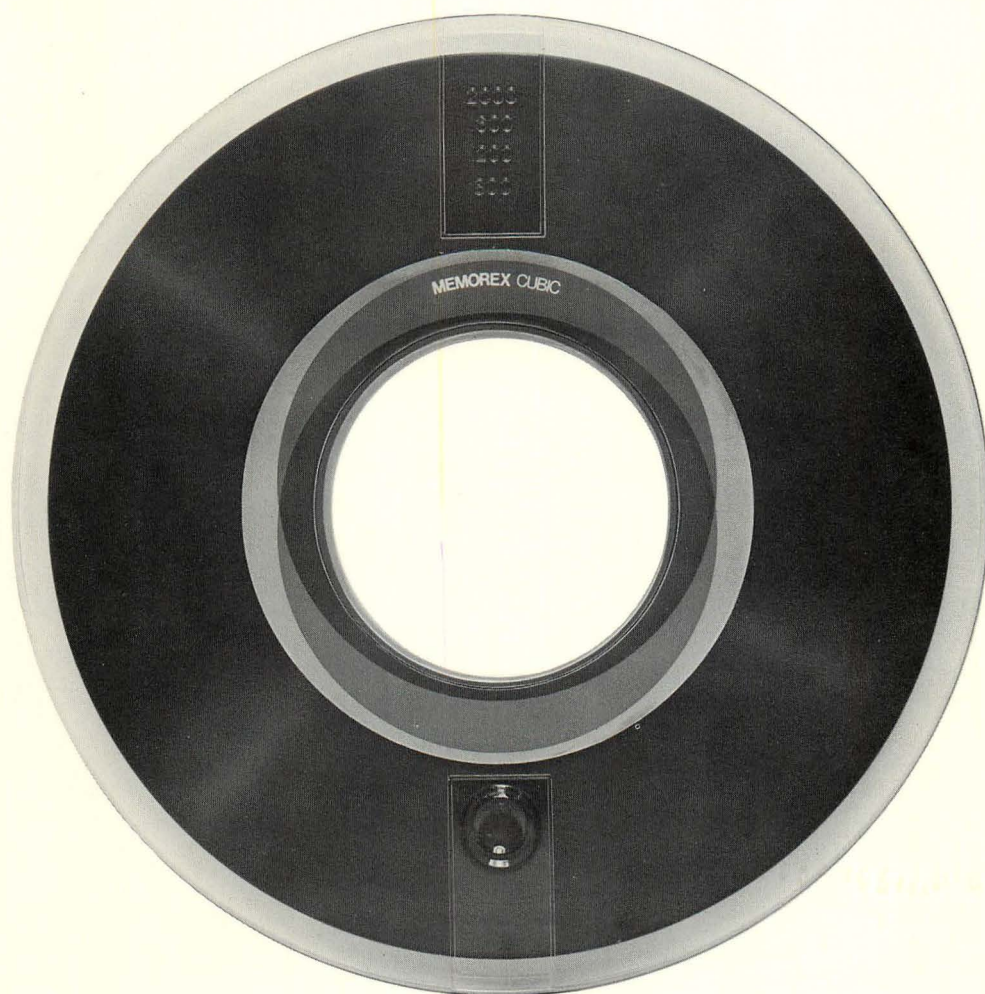
# Cubic





# The First Tape to Address the Principle Cause of Tape Retirement...

MEMOREX



Cubic



# Why Develop Cubic?

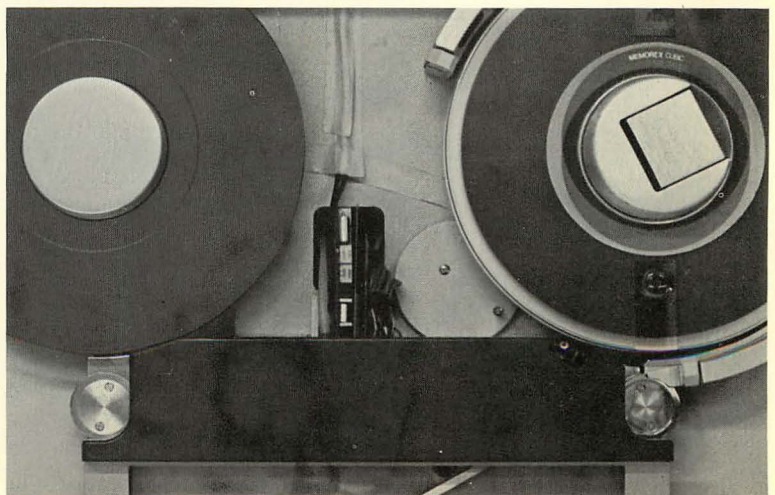
## An Extensive Survey of Tape Users Showed Edge Damage as the Principle Cause of Tape Retirement

**Largest Percentage of Replacements not from Oxide Wear—  
but from Edge Damage Caused by:**

**Drive  
Malfunction**

**Operator  
Mishandling**

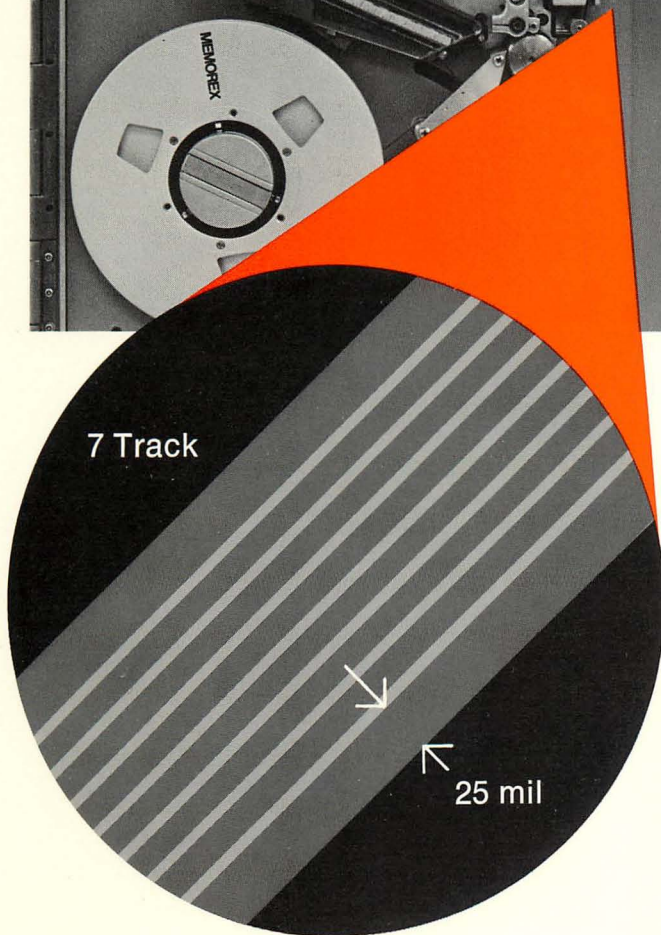
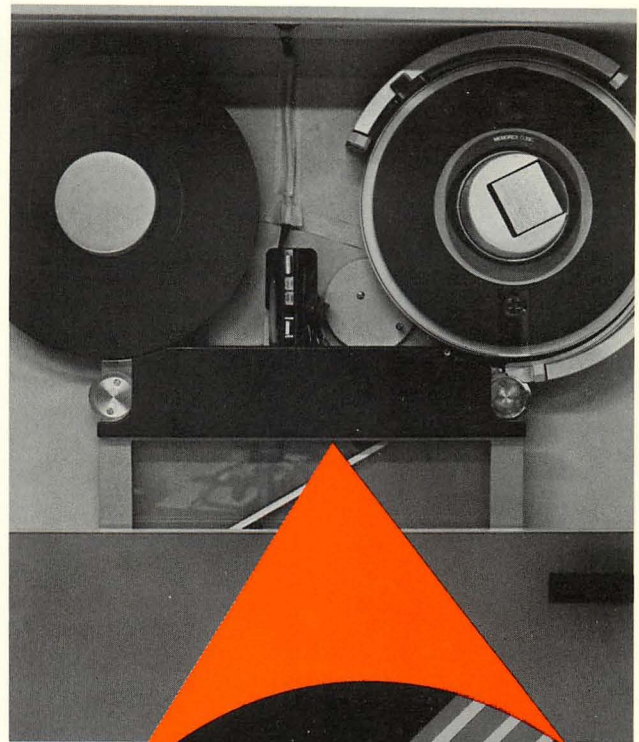
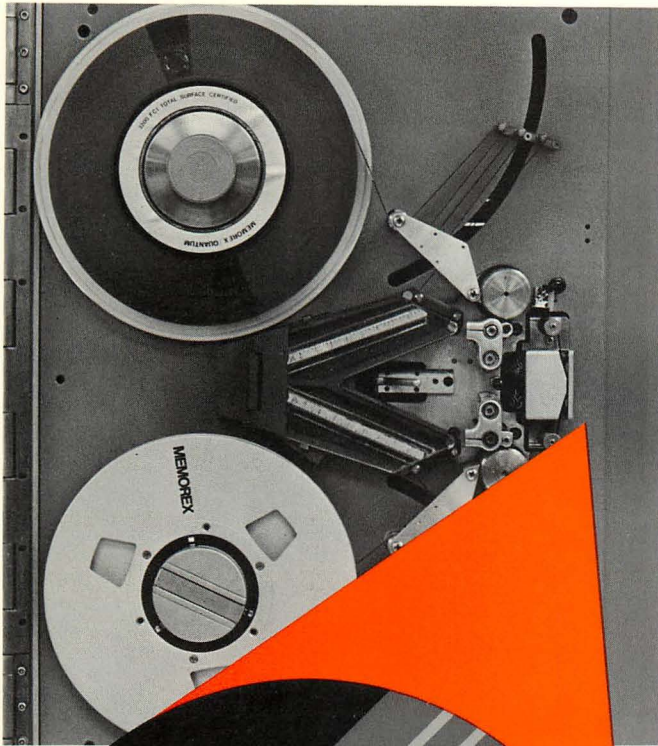
**Tape Drive  
Guides**



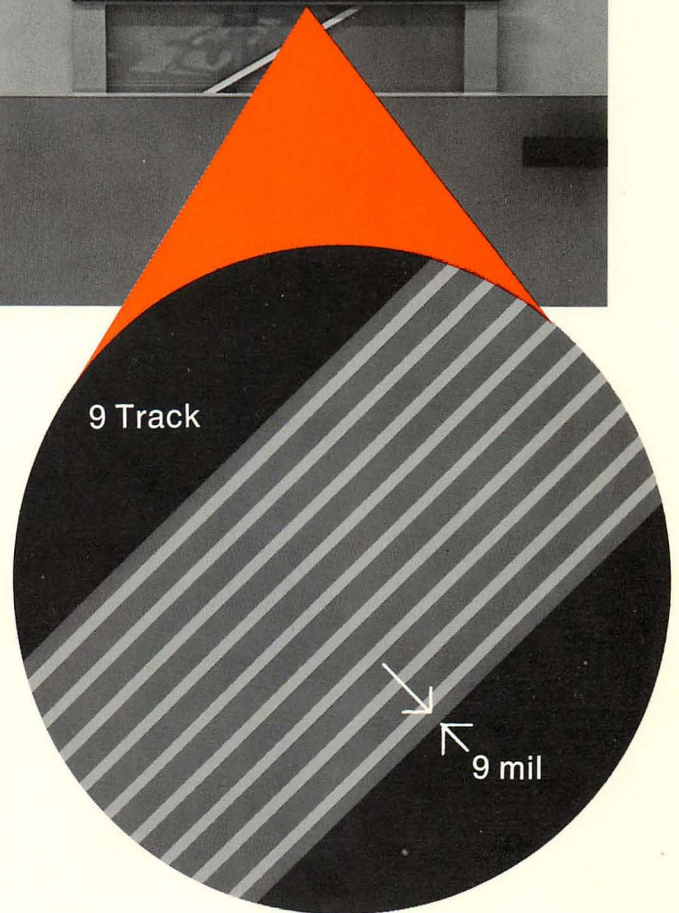


# Tape Drive Performance has Increased

MEMOREX



75 IPS - 200 BPI



200 IPS - 6250 BPI

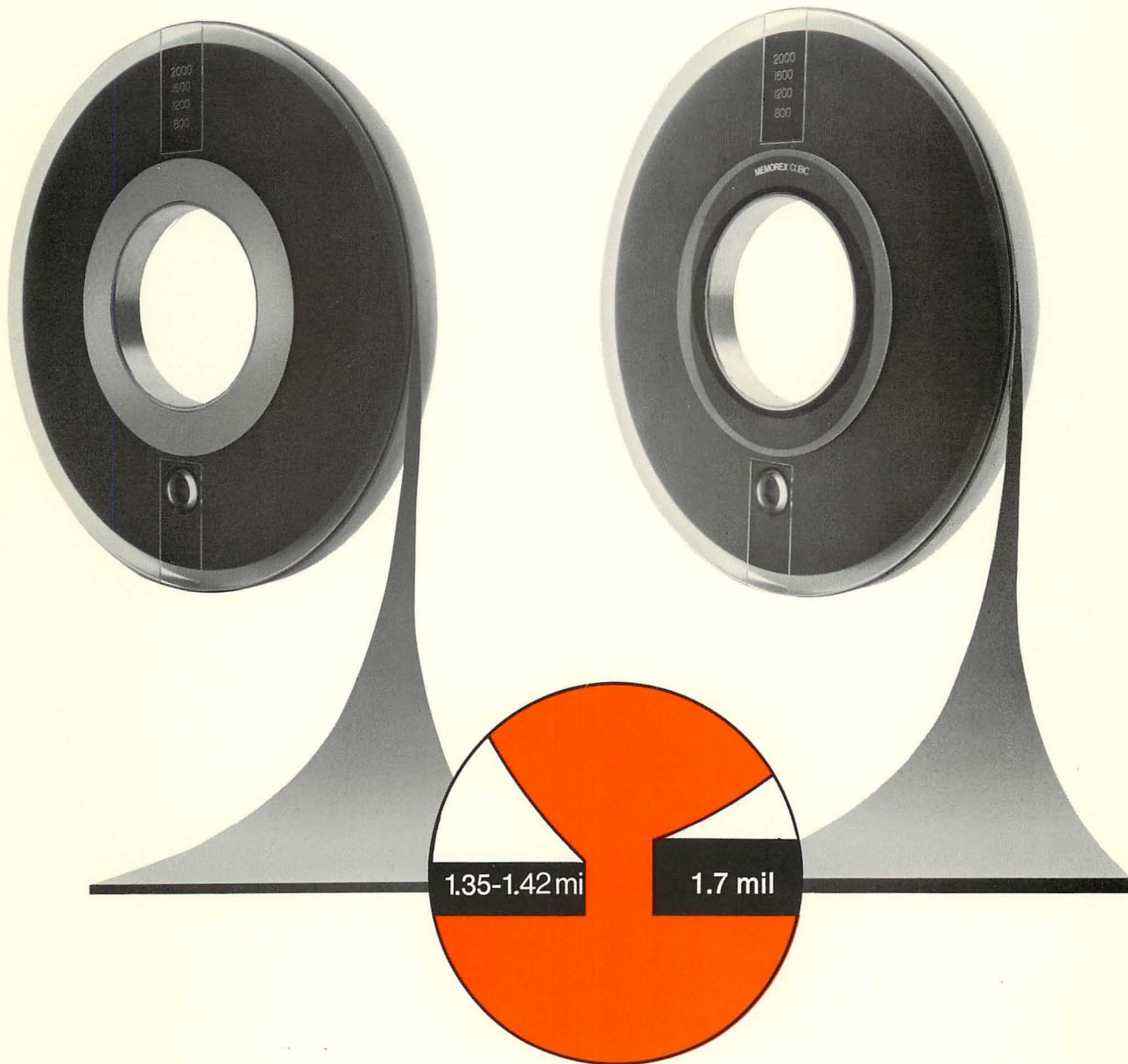
Cubic

**On Nine Channel Recording there is a 300% Greater Probability of Data Loss Due to Edge Damage**



# What Makes Cubic Different?

**Physically Different:**  
Radically Changed Base Film



**Chemically Different:**

Process Developed from Patented Disc Pack Technology which Enhances Performance of the Coating

**Result:**

Improvement in Tracking and Edge Channel Stability



# Why Use Cubic?

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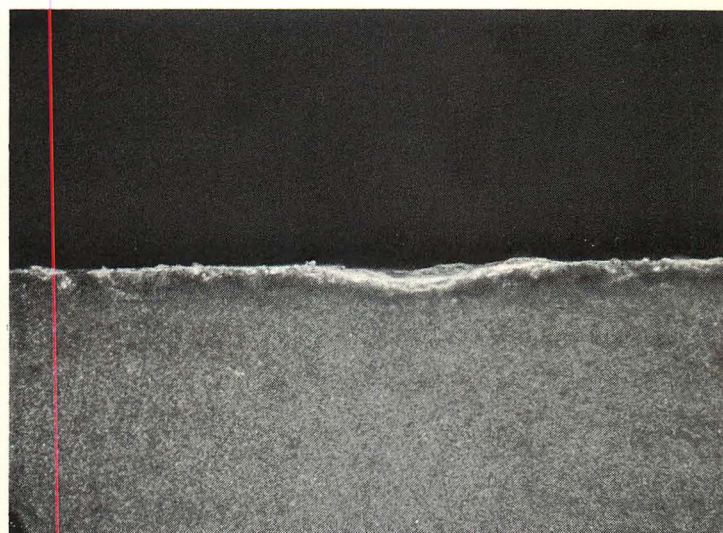
**Greater Resistance Against  
Edge Damage**

**More Reliable Self-Loading**

**Tested for 6250 B.P.I.**

**Improved Performance on  
Key-to-Tape Devices**

**Lifetime Warranty**



Cubic



# **Why Your System Needs the Dimensional Stability of Cubic**

## **The First Tape to Address Tape Drive Specifications and Operational Handling Problems**

**300% Greater Probability of Data Loss  
Due to Edge Damage**

**Cubic Resists Edge Damage!**

**Higher Incidence of Tape Misloading with  
Self-Loading Cartridges**

**Cubic Means Fewer Misloads!**

**Greater Probability of Tape Damage on  
Key-to-Tape Devices**

**Cubic Improves Tape Handling!**

**Increased Overall Demands at 6250 B.P.I.**

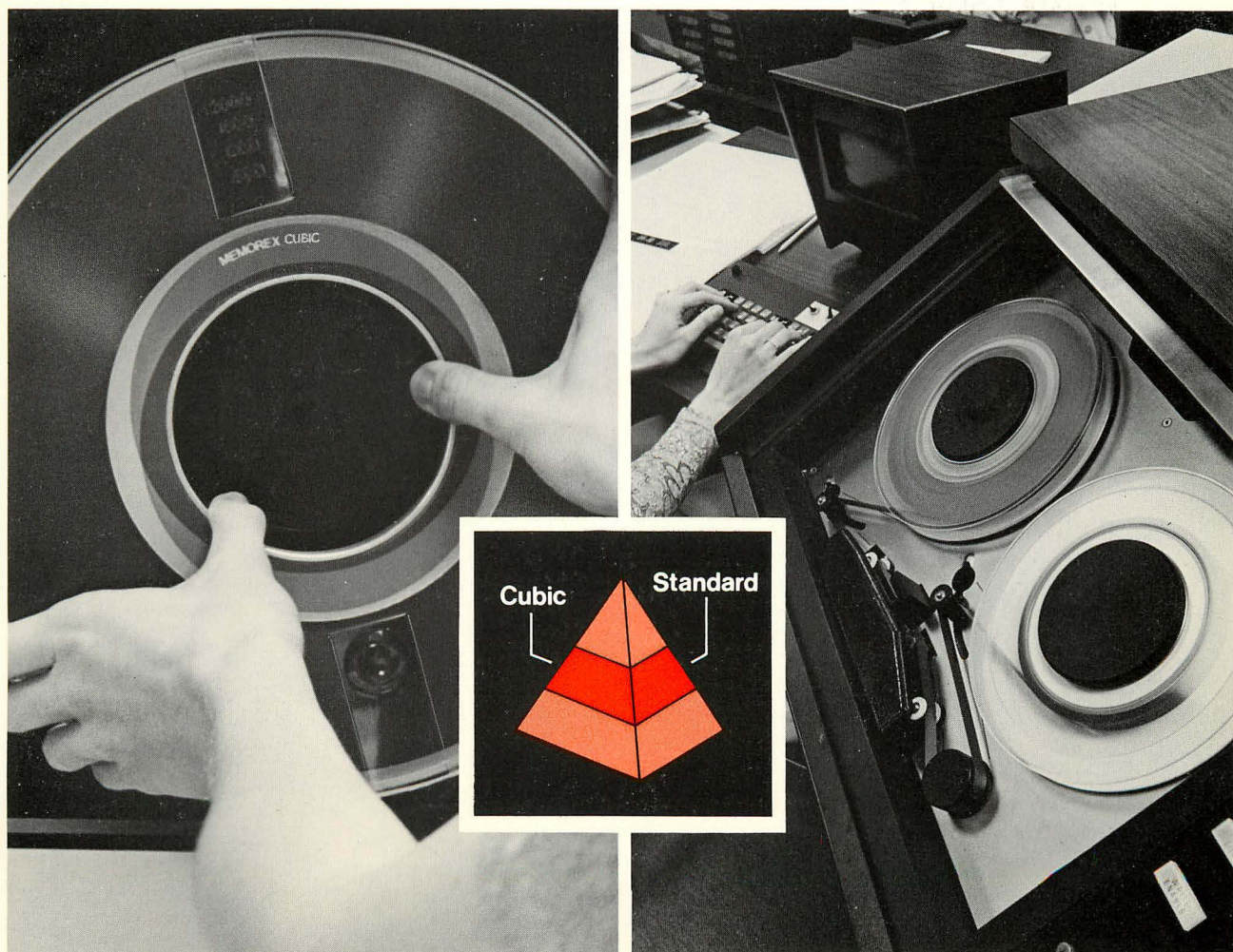
**Cubic is Tested for 6250 B.P.I.!**



# The First Tape to Address both Tape Drive Specifications and Operational Handling Problems

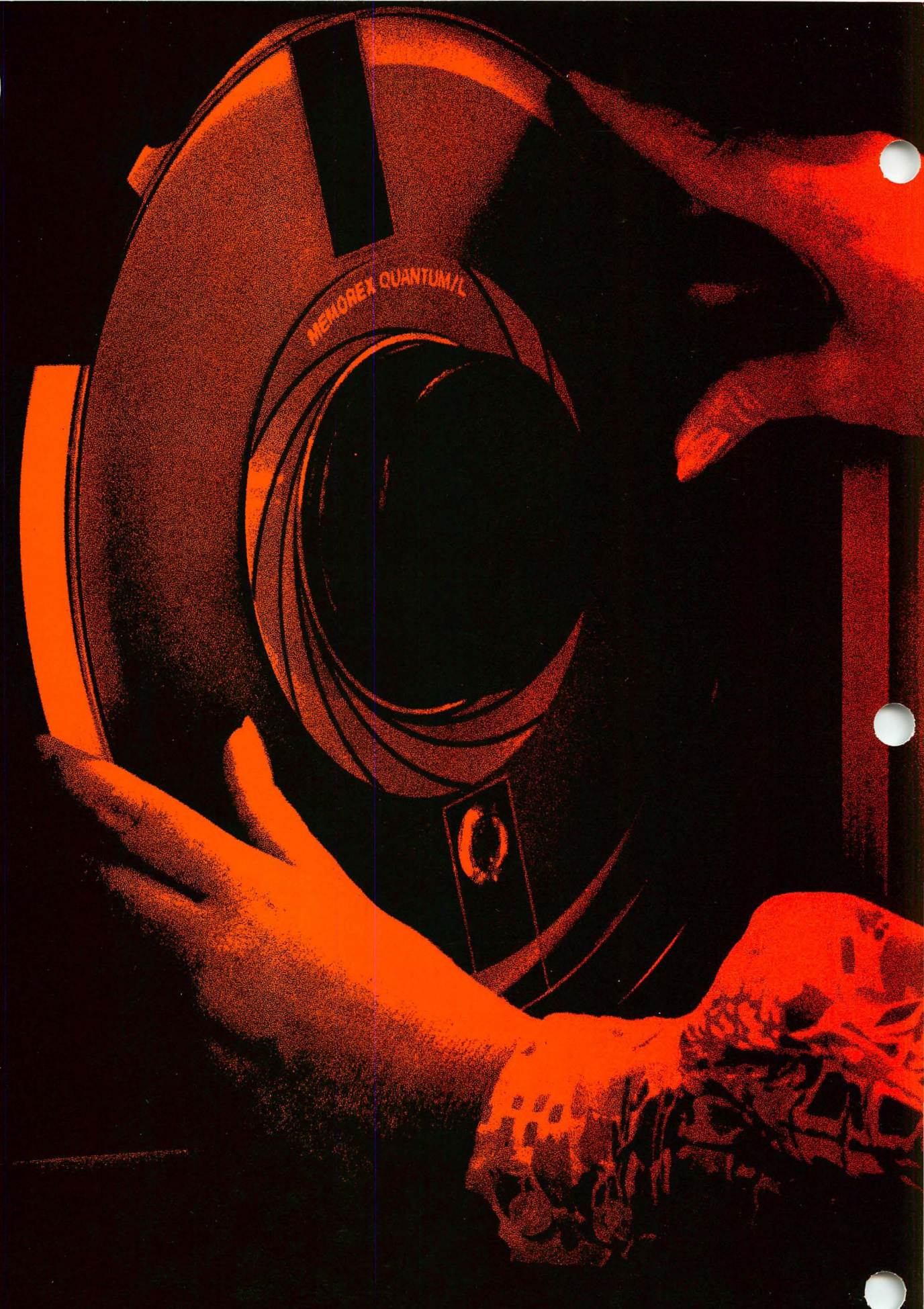
MEMOREX

Cubic





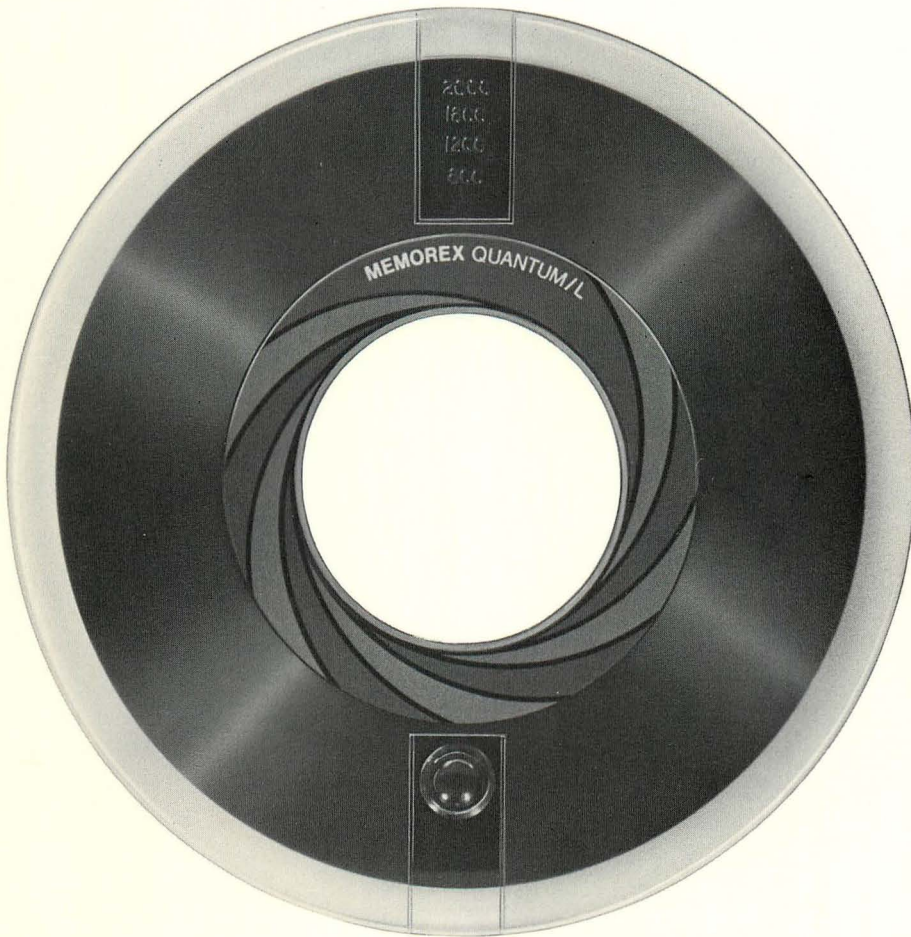
# Quantum/L





# Quantum/L for Critical Applications

MEMOREX



Quantum/L



# Evolution of Quantum/L

## First Independent Tape Product

Type 22 1961

## Archival Tape 5-Year Warranty

Quantum 1967

## Improved Formulation Carbon Backing

Quantum/CX 1970

## Critical Applications

Quantum/L 1973





# What Makes Quantum/L Different?

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## Cross-Linked Polymer Chain

A Memorex Coating Formulation and Process Application That Results In:

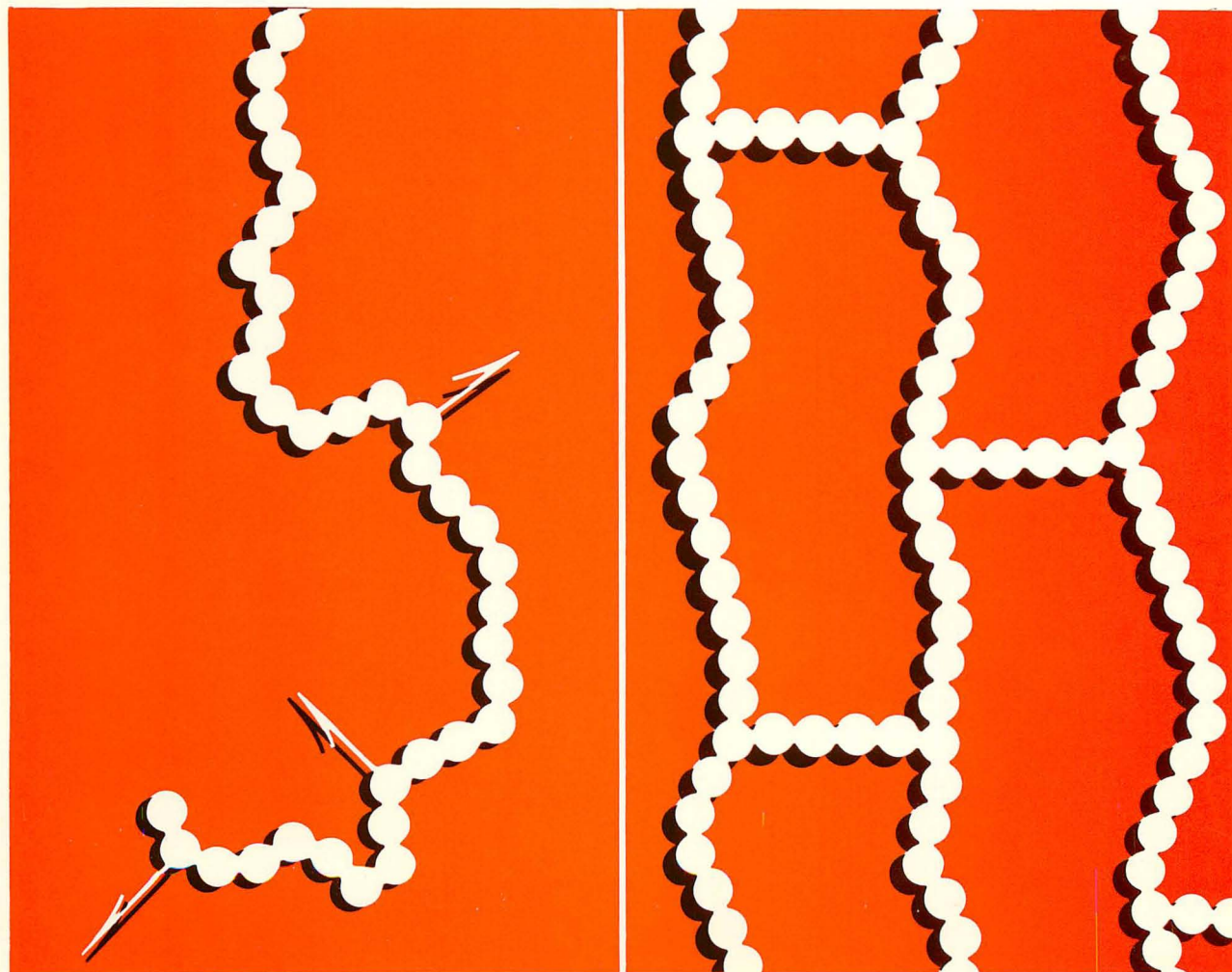
**Error  
Resistance**

**Chemical  
Stability**

**Mechanical  
Strength**

Conventional Tape

Quantum/L With Cross-Linked Polymer Chain



Quantum/L



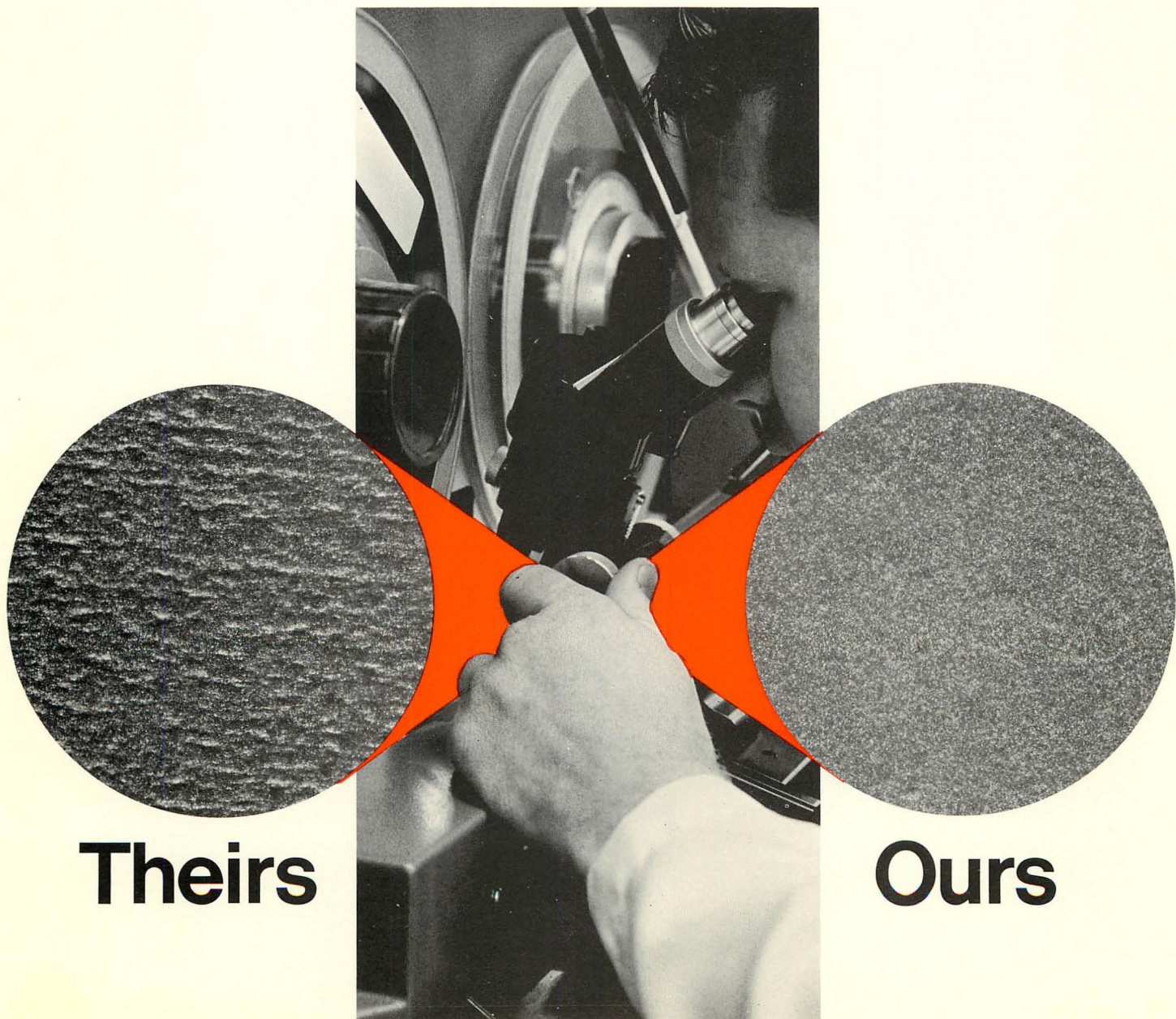
# A Smoother Surface

Resulting in **FEWER DROPOUTS**

**Better Tape To  
Head Contact**

**Less Self-Generated  
Debris**

**Less Recording  
Head Wear**



**Theirs**

**Ours**



# MEMOREX

## Less Self-Generating Debris Resulting in the Cleanest Tape in the Industry

# Quantum/L





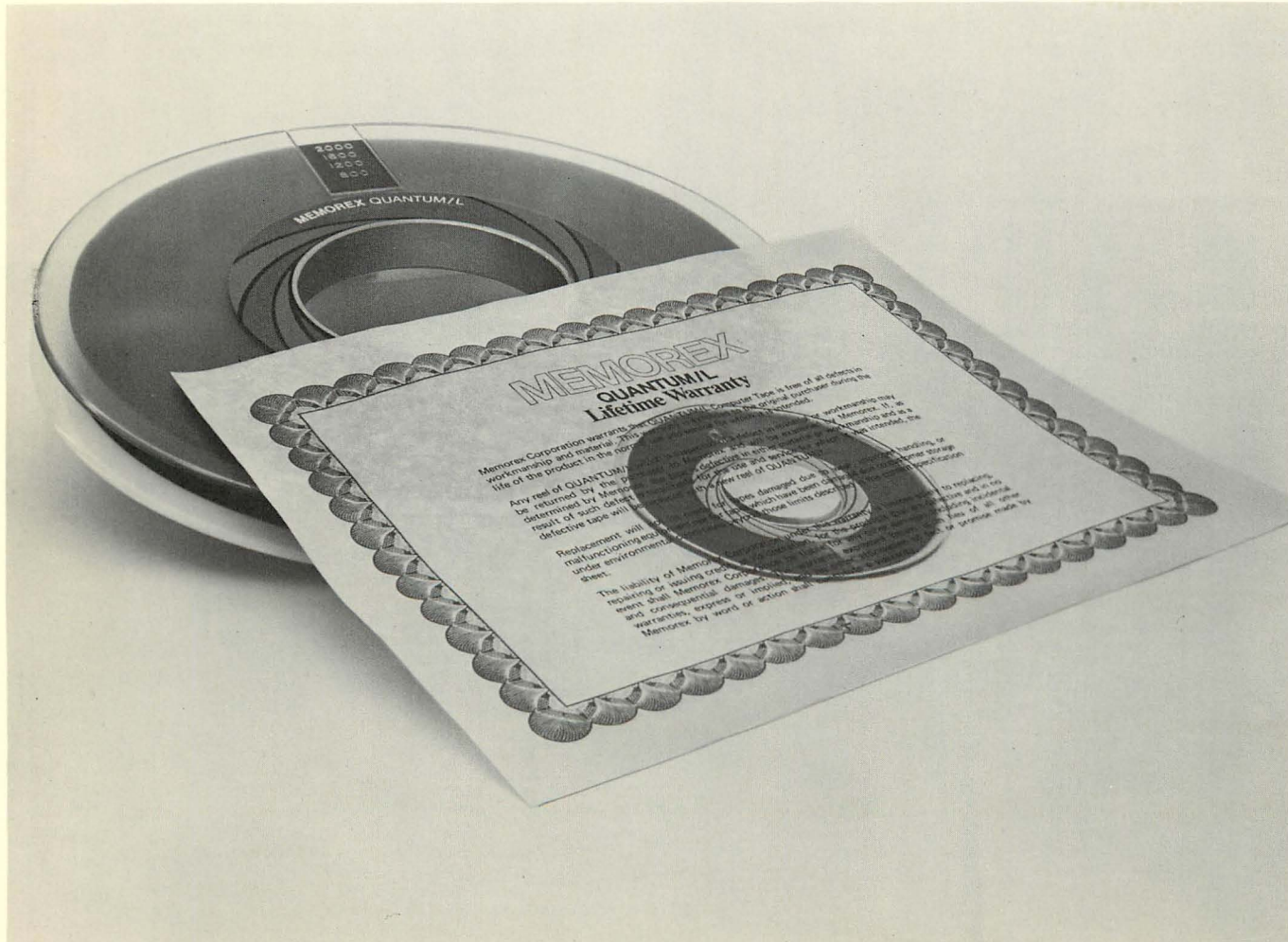
# A Lifetime Warranty

Expression of Manufacturer's Confidence

Customer File Integrity

## What is a Tape Lifetime?

Simulated Torture Testing Equal to  
70 Years Heavy Usage  
Without Appreciable Error Growth





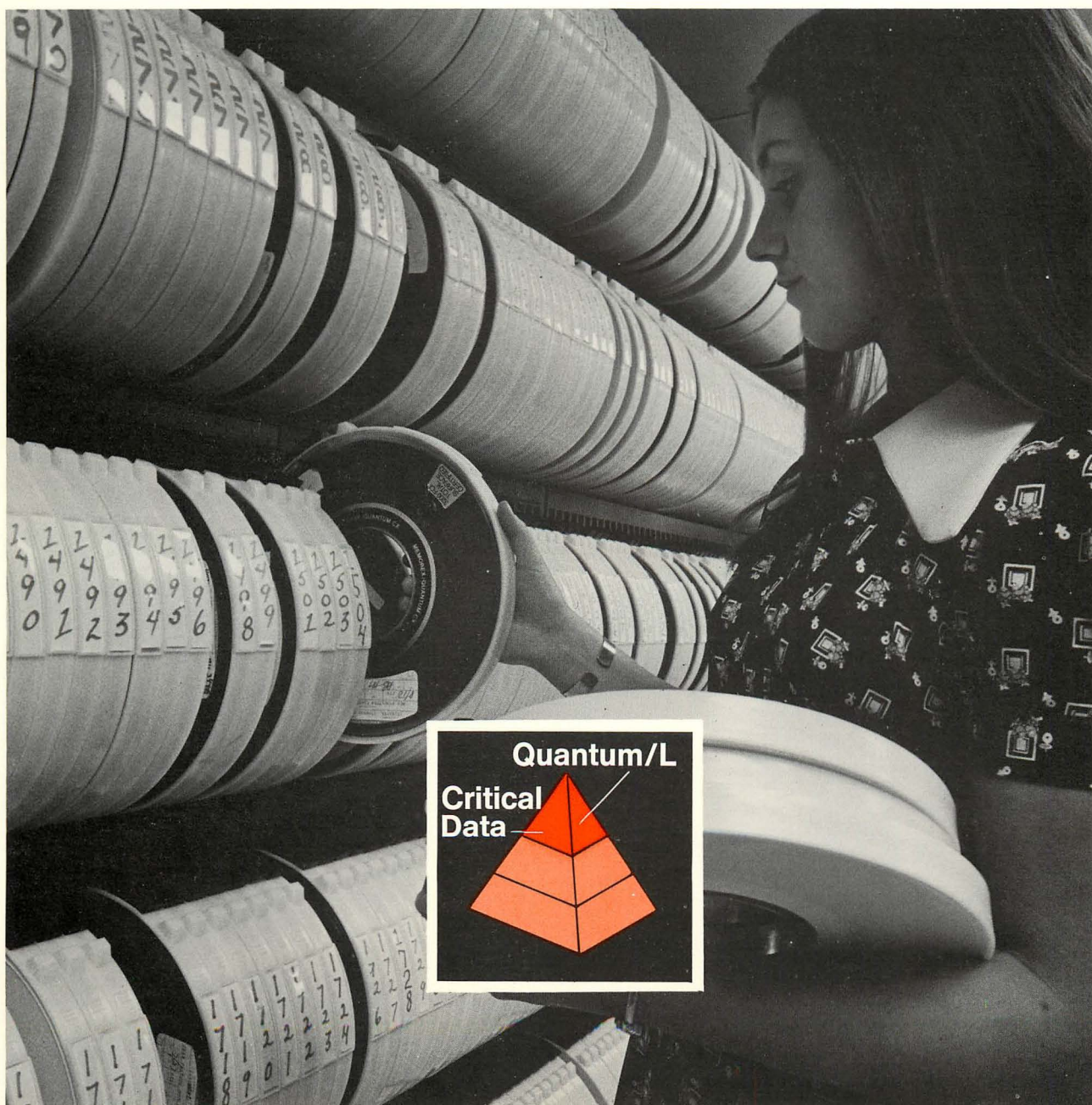
# Why Your System Needs the Security of a Lifetime Warranty

**Archival Storage  
Key Master Files  
Input Files**

**Critical Data Files  
Disc Backup**

MEMMOREX

Quantum/L





# Memorex/IV

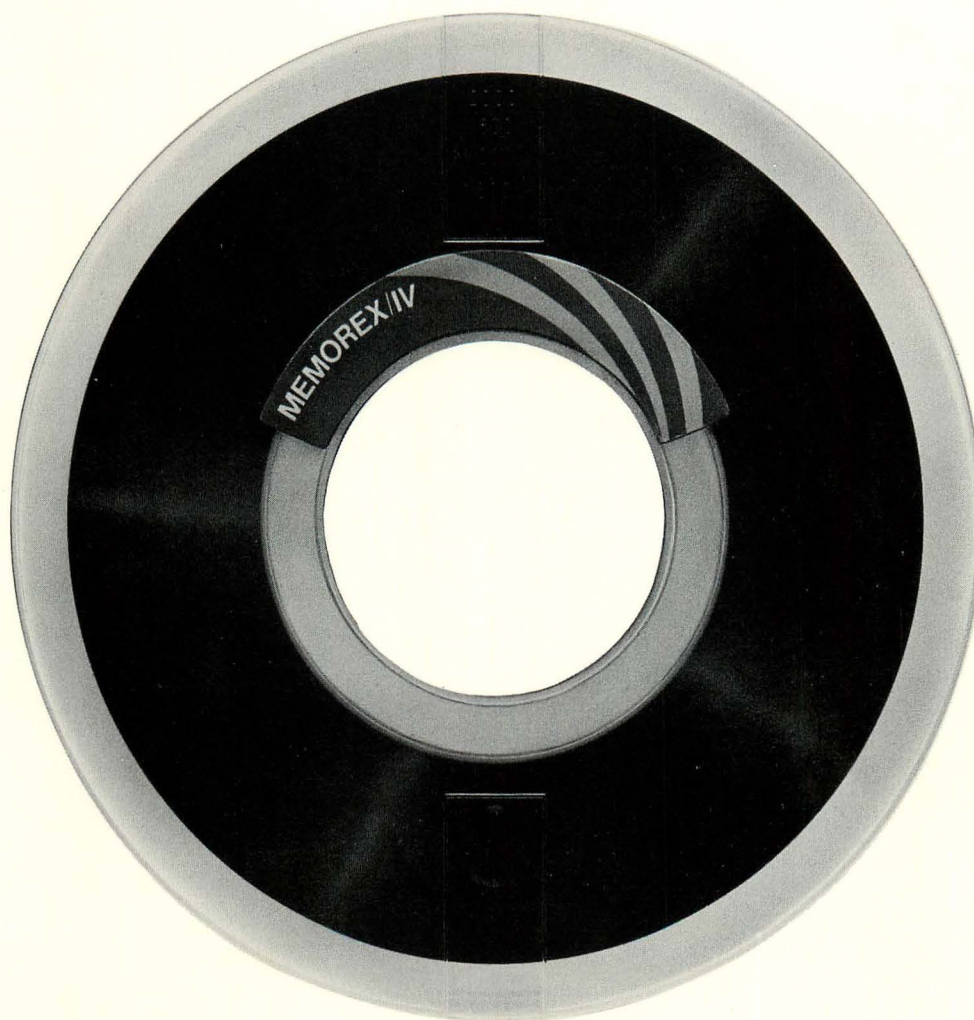




# The New Fourth Generation Tape

**The Price/Performance Leader  
in Work Tapes with Sales Exceeding the  
Total U.S. Requirement for 1975**

MEMOREX

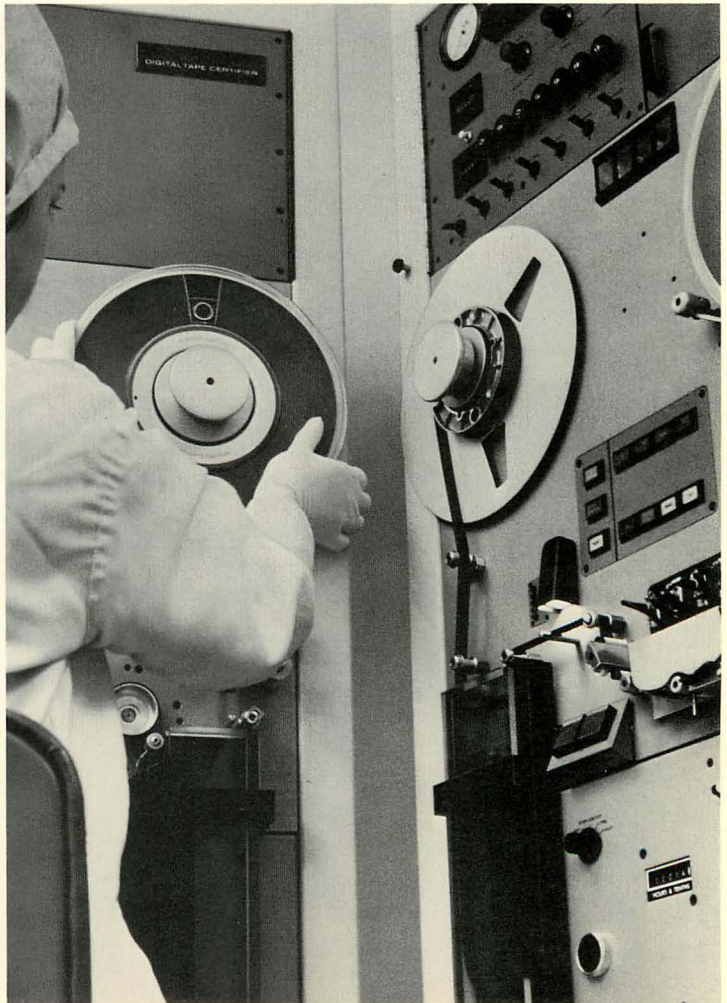


Memorex/IV



# Memorex/IV

**Oxide Formulated for Today's Higher Densities**  
**Smoother Surfaces—Has the**  
**Durability and Smoothness of Quantum/L**  
**Most Durable Tape in its Class**  
**Fully Tested for 6250 B.P.I.**





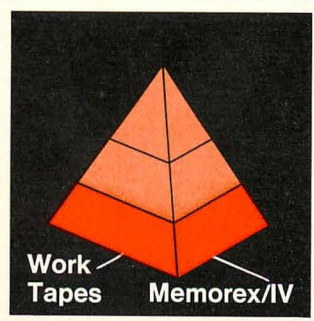
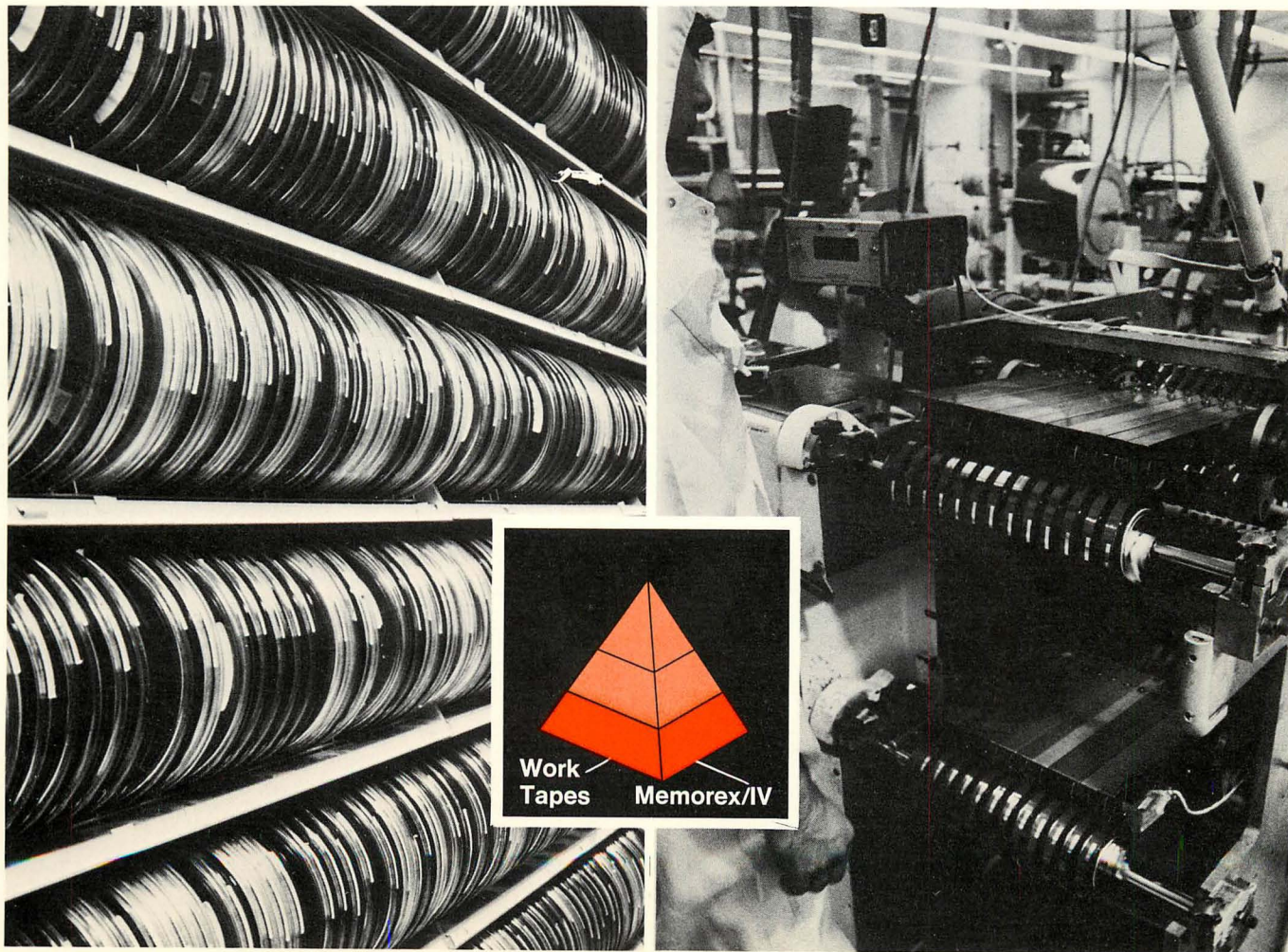
# Your System Needs the Price/Performance of Memorex/IV

MEMOREX

## Fourth Generation Workhorse

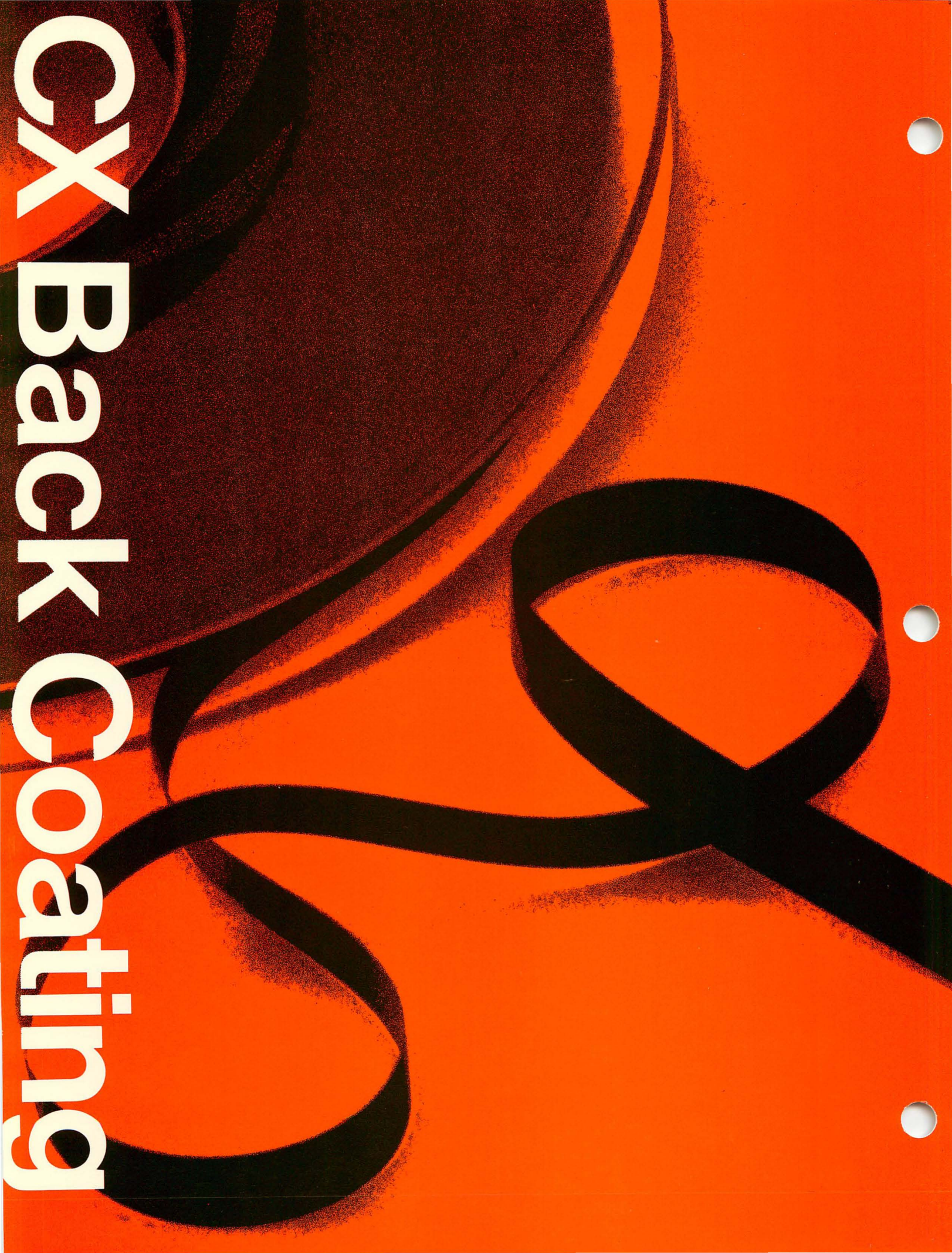
Performs on Fourth Generation Systems  
as MRX III did on Third Generation  
Systems

Most Durable Tape in its Class



Memorex/IV





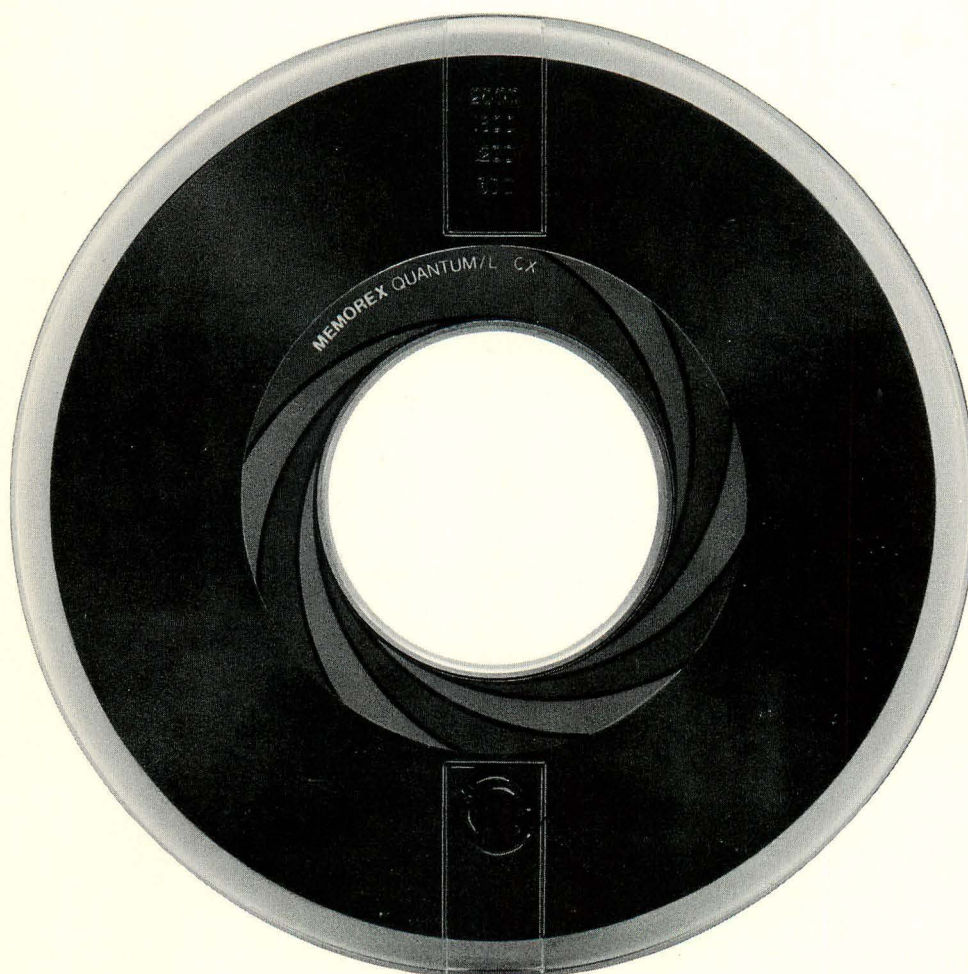
# CX Back Coating



# Back Coating - Another Memorex First

**We Developed a Solution for Video Recording Problems -- Then Used That Technology to Improve Digital Recording**

MEMOREX



**CX Back Coating**



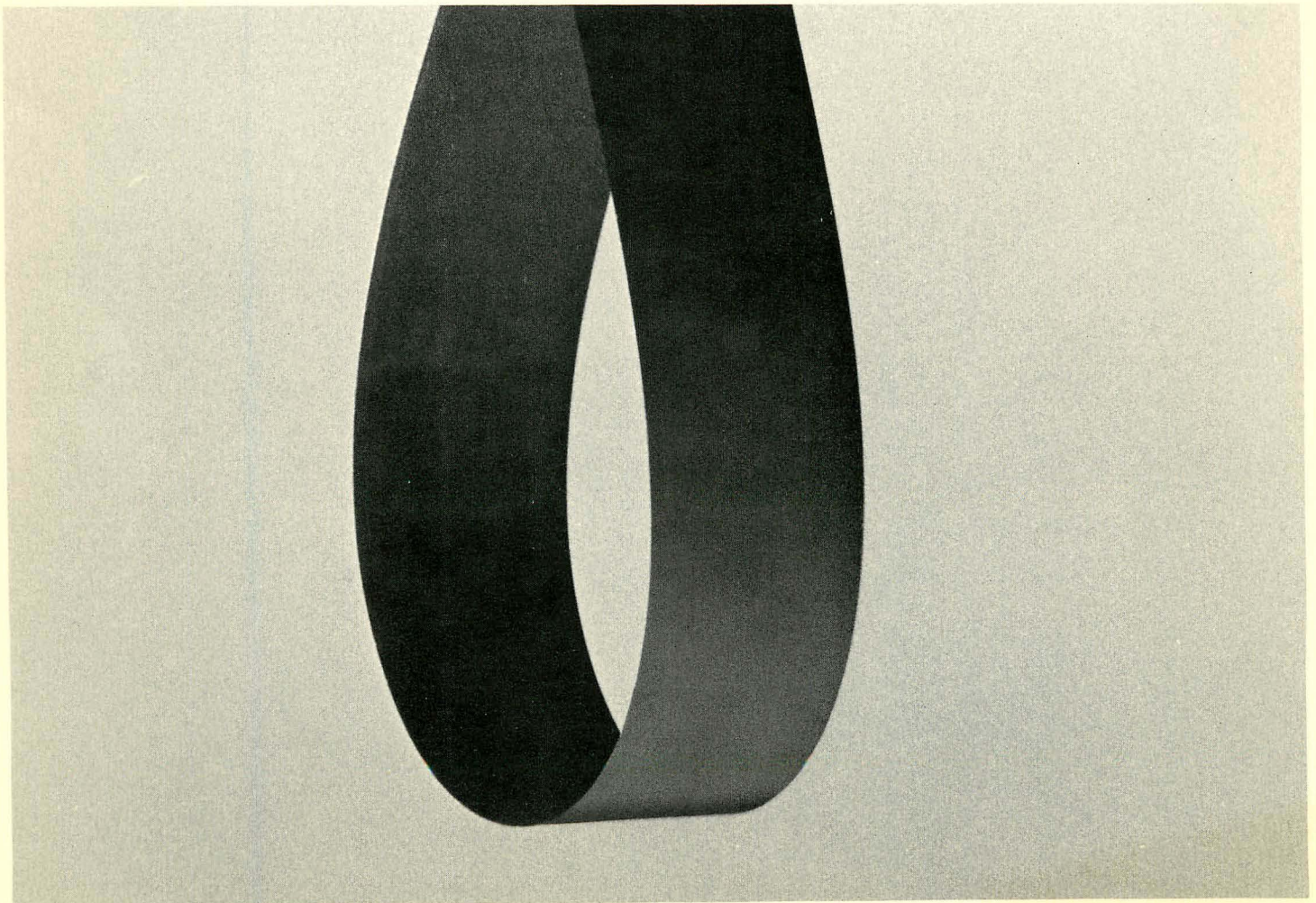
# Unique Advantages

**CX Backing Adds New Values to Premium-Value Tape . . .**

**Minimizes Debris Accumulation**

**Virtually Eliminates Scratching**

**Improves Drive Handling Characteristics**



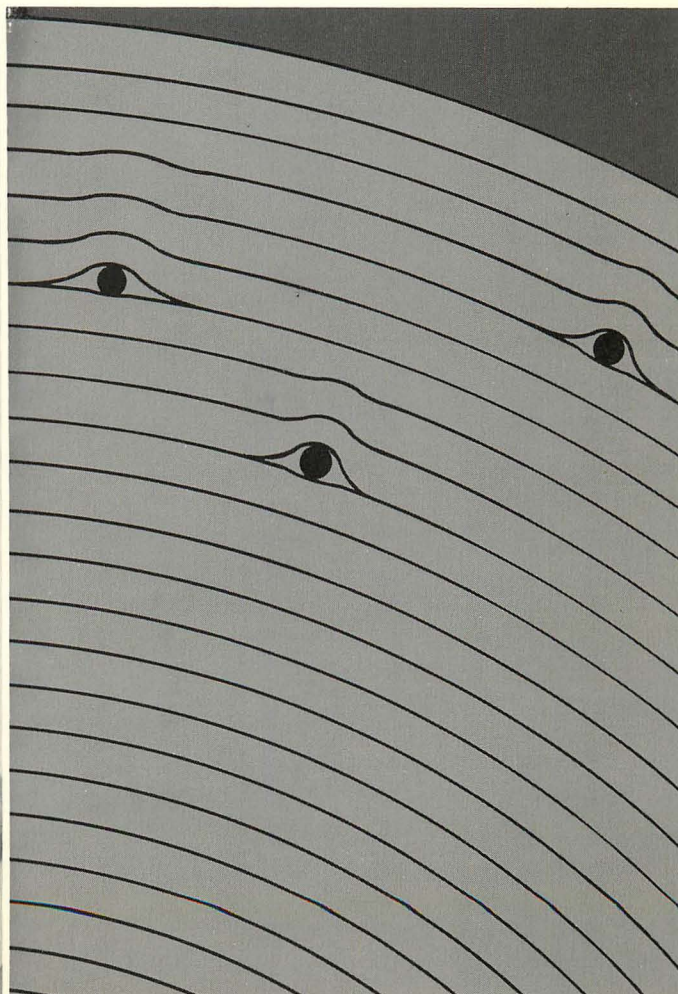
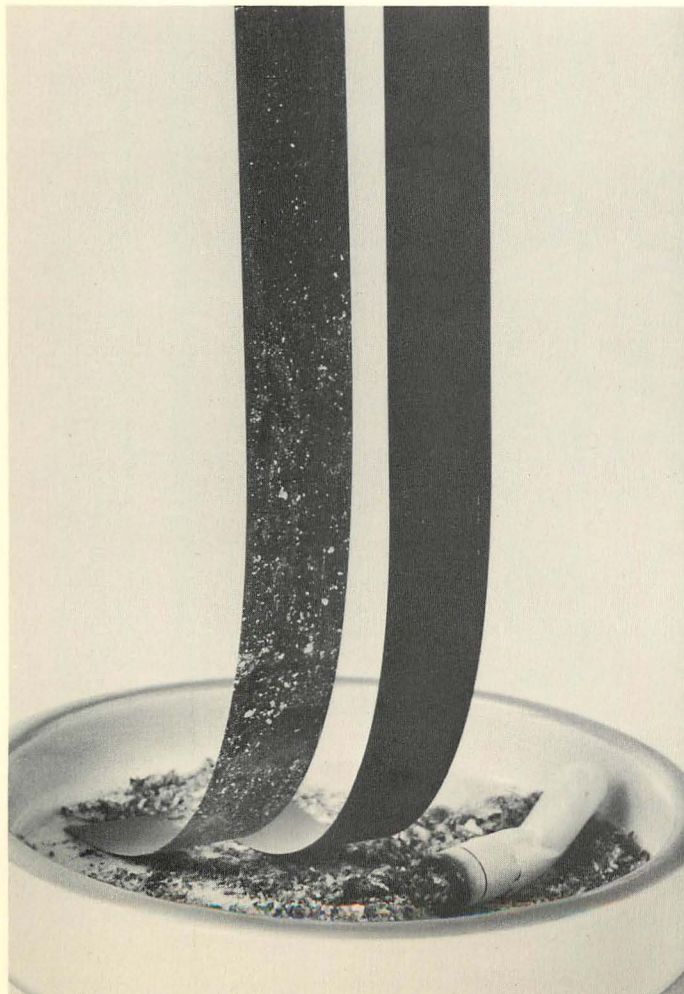


# Back Coating Reduces Tape Errors

MEMOREX

**Minimizes Debris  
That Can be Wound  
Into Tape Pack  
Forming Dropouts**

**Minimizes Static  
Charge That  
Attracts Debris**



**CX Back Coating**







**TAB**

**Disc Products**



# Data Mark 70/70F

MEMOREX

**The Most Advanced Rotating  
Memory Device in the Industry**

**Completely Self-Contained**

**Closed-Loop Air System**

**Optimum Data Integrity**



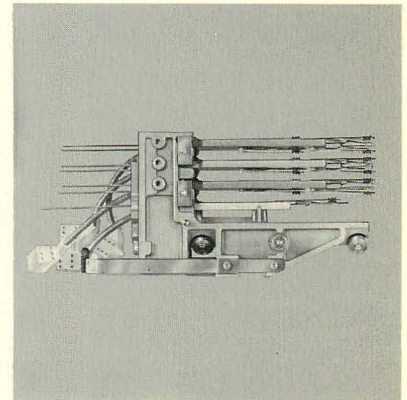
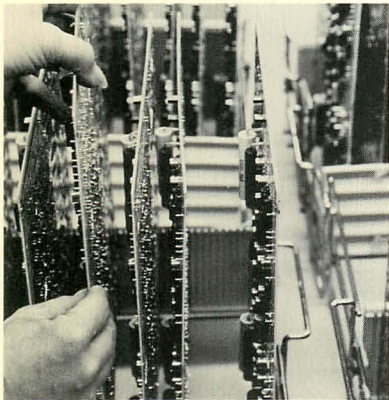
Data Mark 70/70F

**Interchangeable with the IBM 3348, Model 70,  
Model 70F Modules and Other MRX 3640 or  
IBM 3340 Compatible Disc Drives**

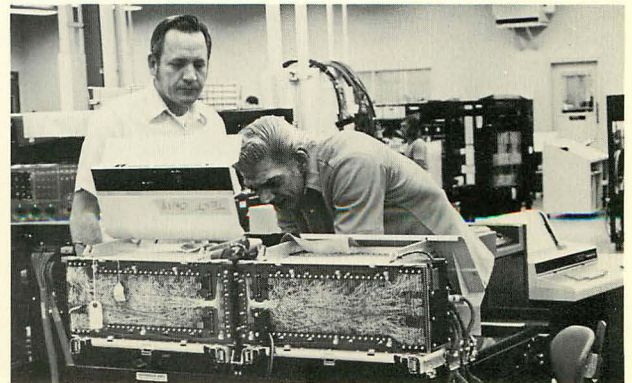


# Data Mark Data Module— A New Direction in Disc Technology:

**Head Assemblies, Electronic Circuitry, Multiple Discs and  
Spindle are All Contained Within the Sealed Module**



**Memorex is The Only Leading Independent  
To Manufacture Both Disc Packs and Disc  
Drives, Head Assemblies and Computer Tape**

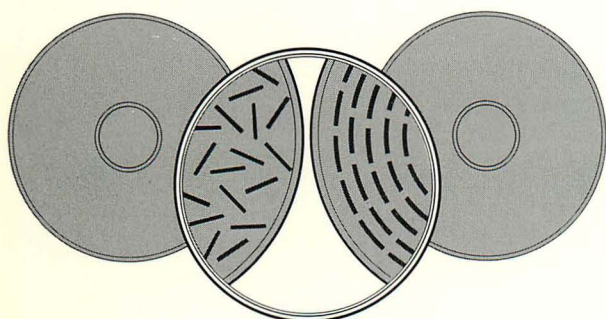




# Memorex is the Major Pioneer in Coating Recording Media

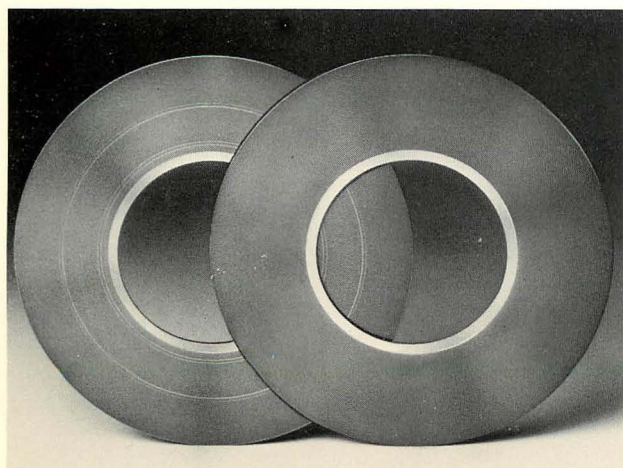
MEMOREX

## Oriented Oxide



**Truer Resolution**  
**Minimized Residual Noise**  
**Reduced Bit Shift**

## Armor Tough Coating and "100X" Surface Shield



**Reduced Head Wear on Starts and Stops**  
**Minimizes Heat Impact Damage**  
**Engineered for Seven Years Life**  
**Maximum Coating Durability**  
**Withstands Head Loading Stress**  
**Micro Smooth Surface**

Data Mark 70/70F



# **Experience and Excellence**

## **Memorex Out-Engineers the Competition**

**Recording Head Technology**

**Hardware Experience**

**Corporate Research and  
Development**

**Manufacturing Quality Controls**



# The Logical Choice for Superior Performance

MEMOREX

**Experience with Oriented Oxide**

**Armor Tough Coating**

**"100X" Surface Shield**

**Proven Expertise in Drive and Head  
Manufacturing**

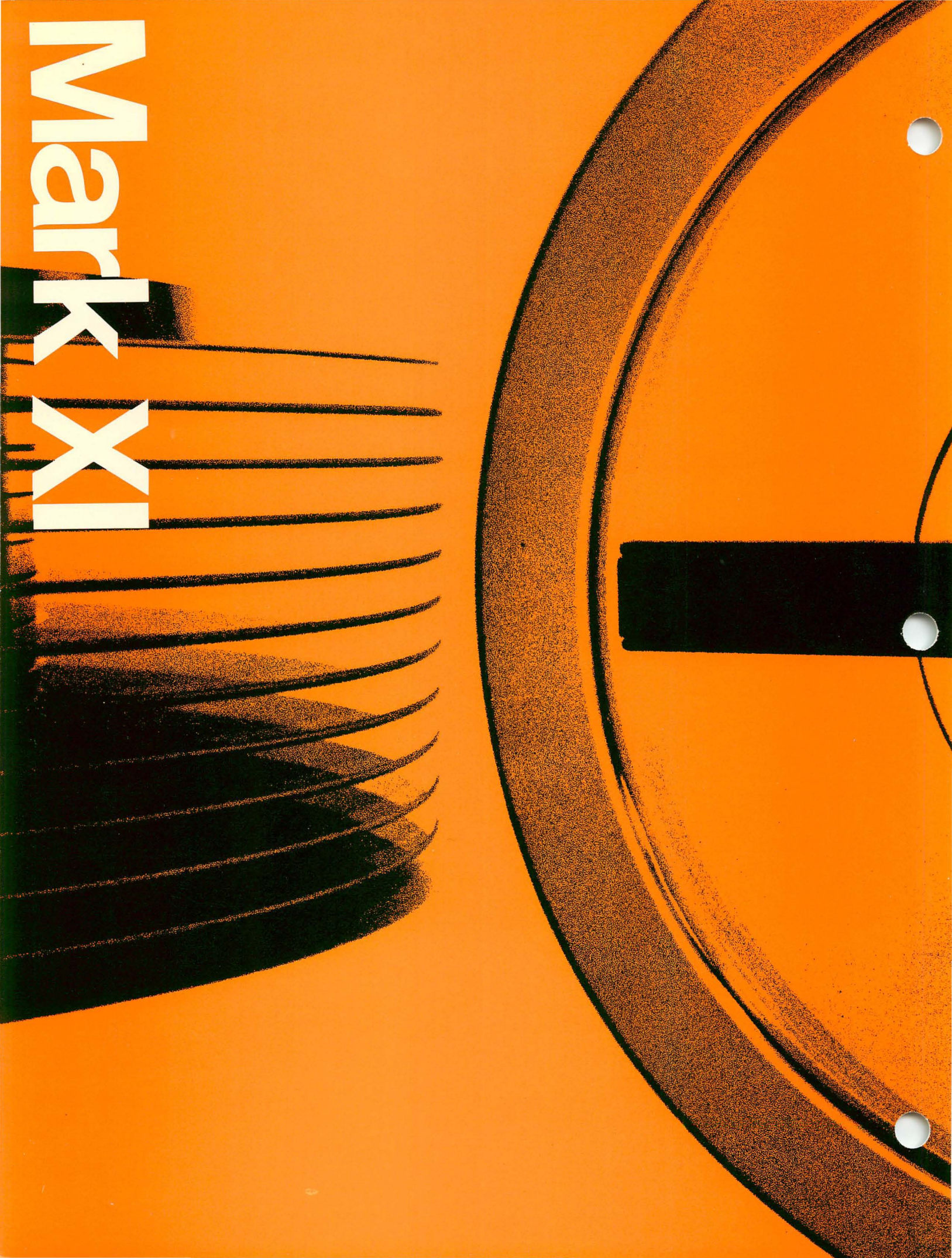
**Stringent Testing**

**70 Upgradable to 70F**

**Data Mark 70/70F**







Mark XI



**TAB**

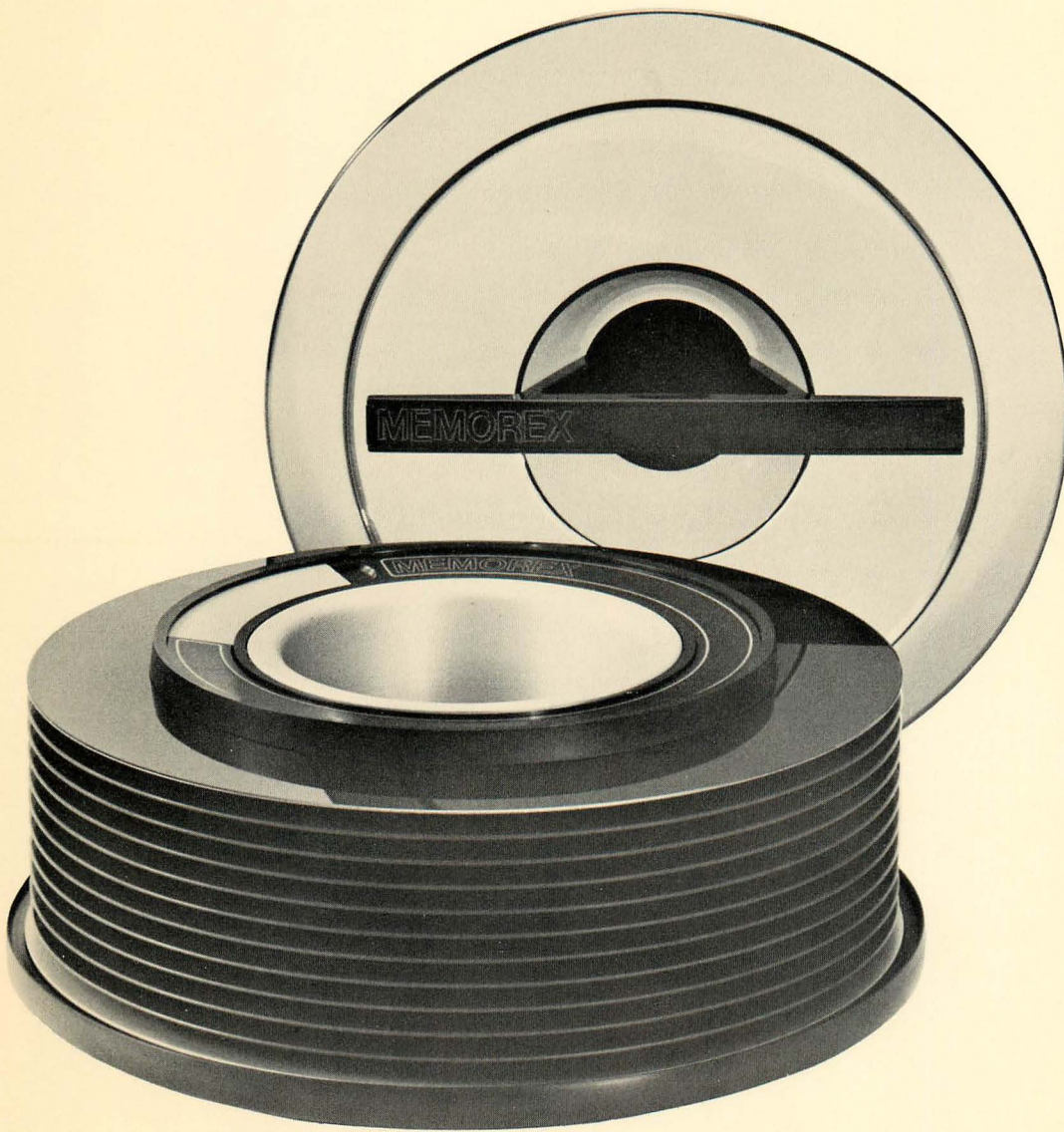
**Disc Packs**



# The High Performance Disc Pack with A Lifetime of Superior Reliability

MEMOREX

Mark X/L



Unmatched Performance from  
the World's Largest  
Independent Manufacturer of Disc Packs



# **Mark XI Double Capacity**

**The Premium Disc Pack—Comparable  
to No Other in Design, Manufacture,  
Performance and Reliability**

MEMOREX

Mark XI



**Compatible with the Memorex 3675 and  
the IBM 3330-11 and Comparable Disc Drives**



# **What is a Premium Disc Pack?**

## **Quality Engineered for Trouble-Free Operation**

**Memorex Was the First Independent to Offer the Thin Coated 3336-11 Disc Packs**

**Memorex Was the First Independent to Orient the Oxide on 3336-11 Disc Packs**

**Memorex Developed a Proprietary Servo Writing Process for the Mark XI**

## **Comprehensive Testing**

**Over 100 Manufacturing Audits**

**Tested on Memorex Designed Equipment**

**Final Tested Under Stringent Conditions**

## **Best Performance Record of Any Independent**

**Armor Tough Coating Reduces Potential Head Crashes**

**Stringent Testing Eliminates Potential Dropouts**

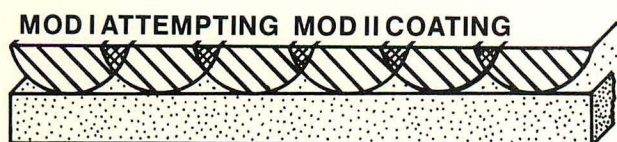
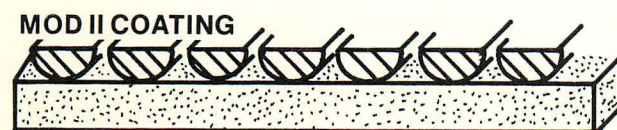
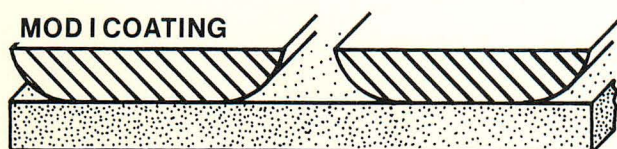
**Field Engineers for Evaluations at Customers' Locations**



# Thin Coating is Critical to 3330-11 Disc Packs

MEMOREX

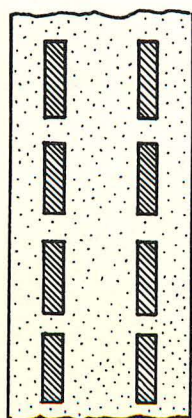
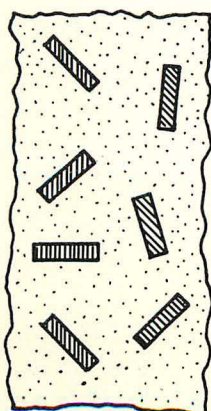
**While Others Tried to Use a Thick Coated Disc for the New Packs, Memorex Spent Time and Resources Developing a Thin Coated Disc with Superior Performance Characteristics**



**Eliminates Cross Talk  
Increases Signal Amplitude  
Reduces Potential Head  
Crashes  
Greater Data Reliability**

Mark XI

## Thin Coated Discs Require Oriented Oxide



**Better Servo Tracking  
Eliminates Soft Errors  
Optimizes Signal Output  
Longer Operating Life**



# Memorex Quality Production Creates the Most Reliable Disc Pack in the Industry

**Substrates Polished to the  
Smoothness of Optical Glass**

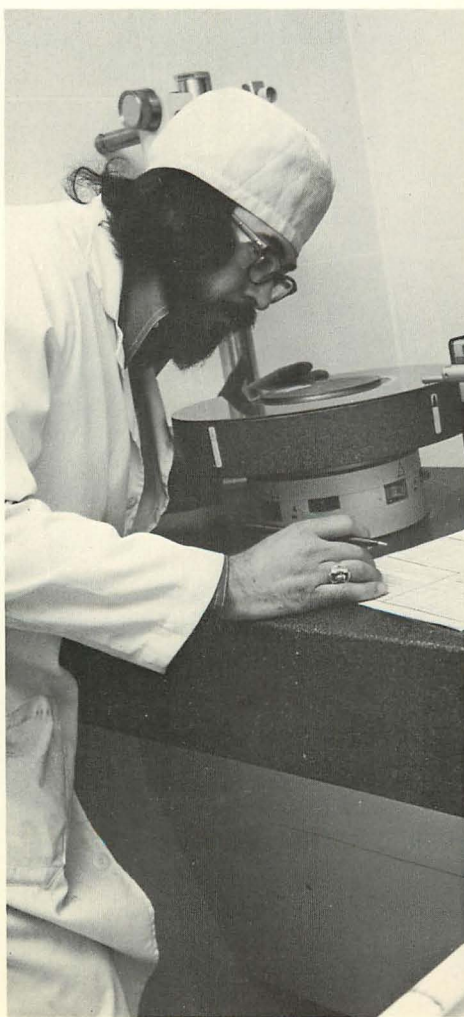
**Proprietary Process to Enhance  
Substrate Adhesion**

**Special Test Heads Are  $\frac{1}{2}$   
Altitude Flown to Test Each Disc**

**200% Electronic  
Testing of Each Surface**

**Dual Plane Balanced  
Proprietary Servo Writer  
Is a Result of Memorex's  
Experience in Disc  
Manufacturing**

**Special Drives Are  
Used to "Torture Test"  
the Disc Packs Under  
Marginal Conditions**





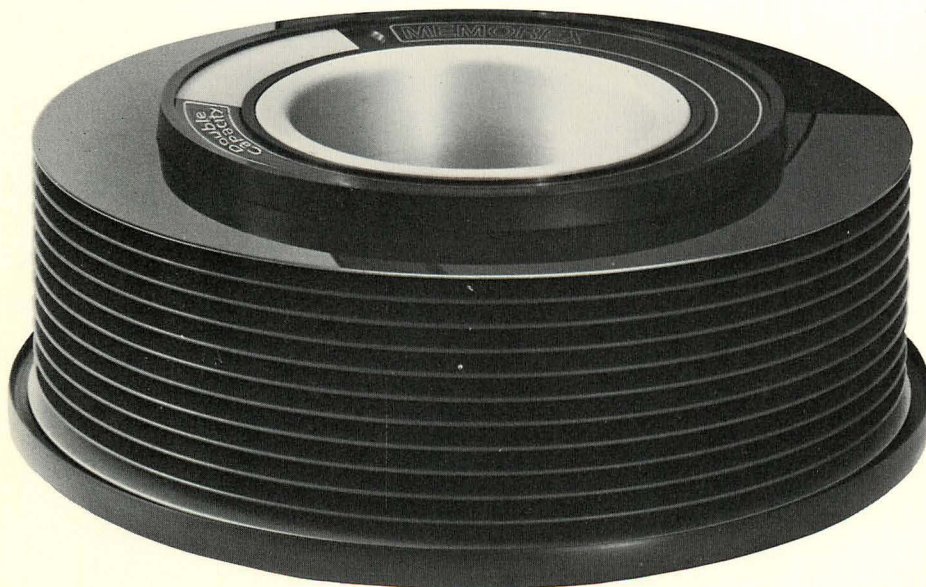
# **The Mark XI Premium Disc Pack**

MEMOREX

**Only a Manufacturer with Worldwide  
Success in Disc Pack and Disc Drive  
Technology Could Bring You a  
Premium Disc Pack**

**Special Armor Tough Coating  
Memorex's Proven Capability  
in Memory Excellence**

**Thin Coated  
Oriented Oxide  
Critical Testing**



Mark XI





# Mark X



# **The High Performance Disc Pack with Proven Reliability**

MEMOREX

Mark X



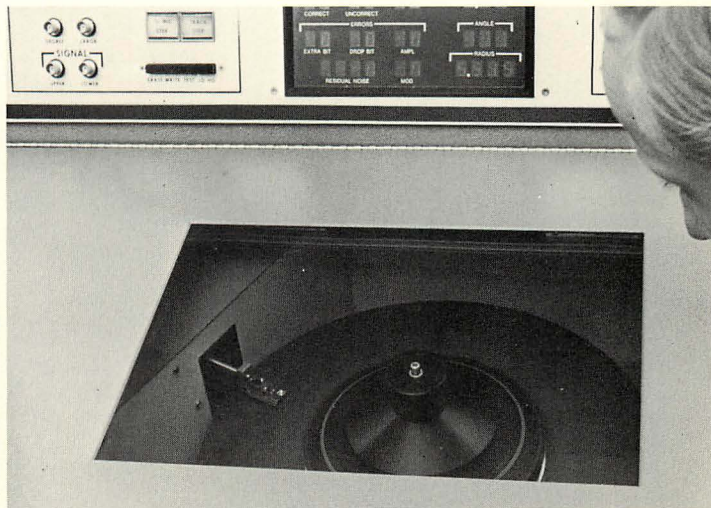
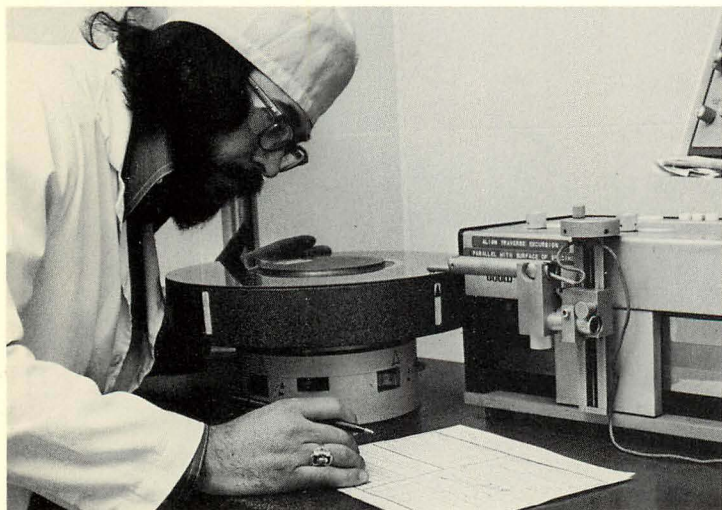
**Third Generation Disc Pack Compatible  
with Memorex 3670, IBM 3330 and  
Comparable Disc Drives**



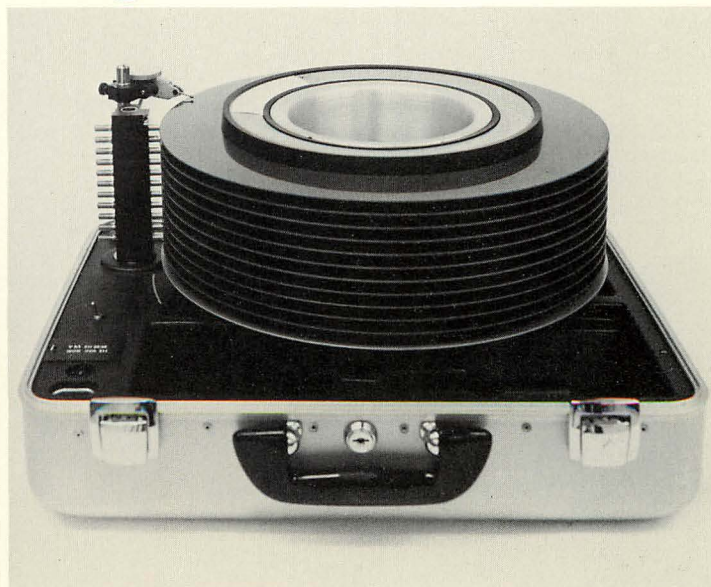
# **The Same Dedication to Reliability and Quality Found in Data Mark and Mark XI**

**Each Mark X is Subjected to the Same "Torture Tests" as Our Mark XI Premium Pack**

**Upgradable to Mark XI**



**Each Mark X is Preinitialized at the Factory  
Free Servicing and Cleaning**





# **The Mark X Gives You Years of Proven Reliability**

**Memorexperience with Mark X  
Paved the way for Mark XI and  
Data Mark**

**Disc Experience Dating to 1964**

**Memorex Designed Testing  
Equipment**

**Proprietary Servo Writing**

**Tested on Equipment Set for Stringent  
Operating Conditions**

**Full Program of Purchase and  
Lease Options**

MEMOREX

Mark X



# Mark III





# Designed - In Excellence— Memorex's Disc Cartridges

MEMOREX



Mark III

## Two Configurations

**Mark IIIF (2315 Compatible)**

**Mark IIIT (5440 Compatible)**

**Available in Standard or High Capacity—  
100 to 400 TPI, 1,100 to 6,060 BPI**

**Special Sector Configurations**

**Guaranteed Error-Free Upon First  
Initialization**

**Fully Warranted for 5 Years**



# **Mark IIIF— Industry's First Front Loading Disc Cartridge Design Improvement in Over 10 Years**

**Re-engineered Door and  
Latch Assembly Assures—**

**Positive Seal  
Reliable Closure  
Resistance to Contamination**



**Meets or Exceeds All ANSI Specifications**

**New Hinged Door Offers Greater Travel**

**Eliminates Potential Distortion Through Flexing**

**New Torsion Spring/Pivot Hinge Latch Design**

**Assures Positive Location**

**New Closing Ramp and Solid Edge Seal Further Assure  
Contamination Resistant Operation**

**Provide Long Life and Repeatability**

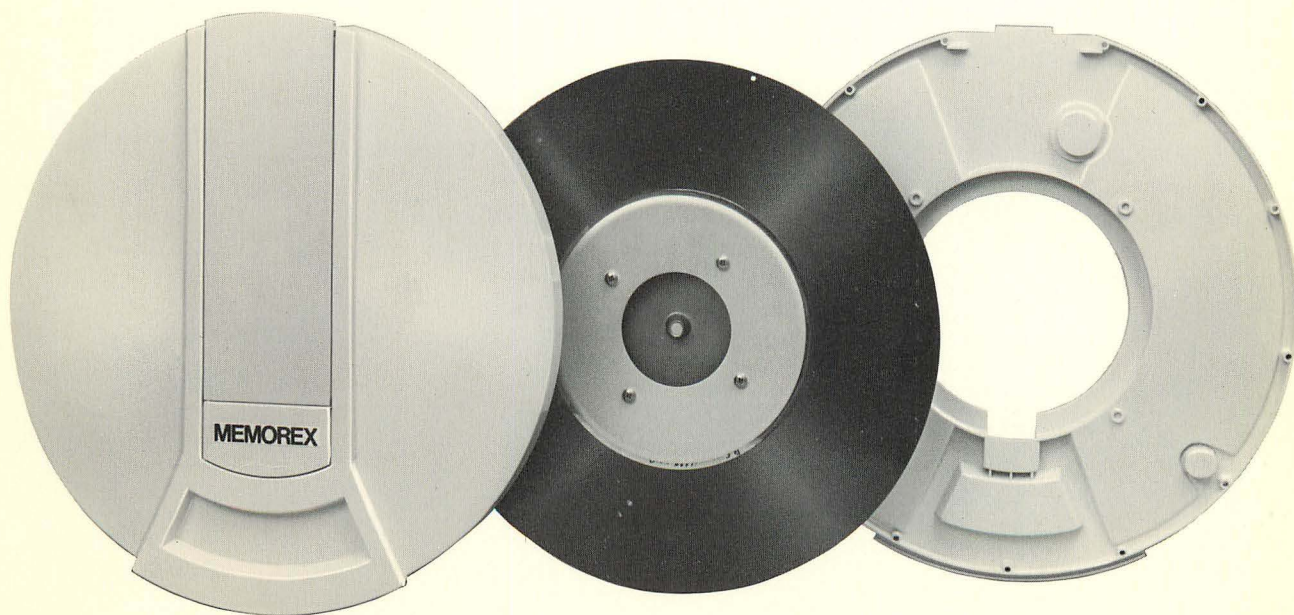


# Enhanced Design Means Greater Operating Performance and Storage Stability

**Larger Interior Clearances Allow  
Reliable High Capacity Disc  
Applications**

**Redesigned Stability Bosses  
Insure Better Interior Stability—  
Eliminate Damage and Debris  
Caused by Poor Handling**

**New Positive Detent Write  
Lock Design Prevents Mis-positioning**



MEMOREX

Mark III

**The New Mark IIIF—The Disc Cartridge  
Pace-Setter**



# Product selection





# **Memorex— One Source for All Your Disc Product Needs**

MEMOREX

## **Mark I**

**First Disc Pack Available from an  
Independent Manufacturer  
Used on Memorex 630 Drives  
Interchangeable with IBM 1316  
Packs**



## **Mark VI**

**More Units Installed Than  
Any Independent Supplier  
Standard or High Capacity  
and Special Sectoring  
Configurations  
Used on Memorex 660 Drives  
Interchangeable with  
IBM 2316 Packs**



## **Mark VIII**

**The High Performance, High  
Capacity Disc Pack with 3336-11  
Type Discs  
Compatible with CalComp  
T50 / T80 or Equivalent Drives**



Product Selection



## **Mark IX**

**Interchangeable with  
Burroughs 9974-4 Packs  
11 Disc Formation with Top  
and Bottom Protective Discs  
20 Recording Surfaces  
406 Tracks Per Surface**



## **Mark XII**

**Specially Designed  
Disc Packs in Two  
Configurations**

**Mark XII C—Compatible  
with CDC 9780 and NCR  
658-201 Disc Drives**

**Mark XII H—Compatible  
with Honeywell MSU 451  
Disc Drives**

**19 Data Surfaces Plus  
One for the Pre-Recorded  
Servo Tracks**





# **Now You Know Why Memorex is THE Alternative**

**World's Largest Independent Disc  
Products Manufacturer**

**Full Product Line Allows Ease of  
Upgrading Disc Storage Capability**

**Industry's Most Critical Testing**

**Experienced Field Service Engineers  
Providing On-Site Pack Maintenance**

MEMOREX

Product Selection









**TAB**

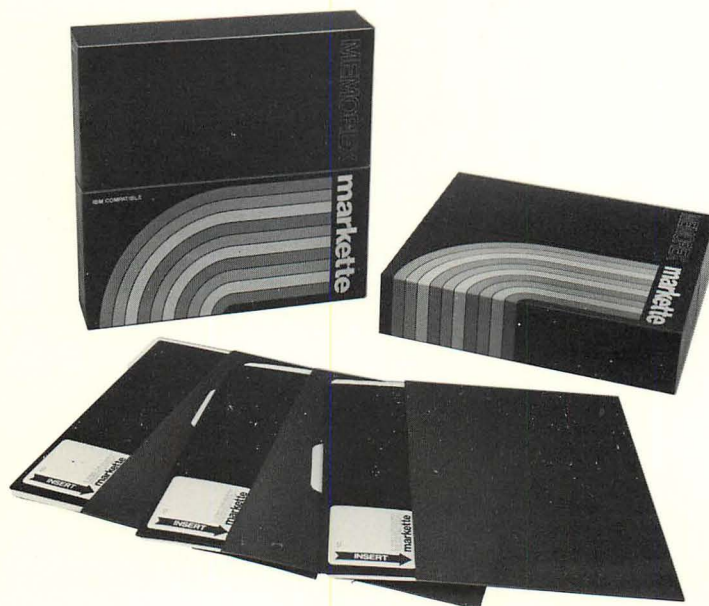
**Flexible Discs**



# The Markette Family— Human Engineered for Reliability, Long Life and Ease of Operation

**Tape and Disc Manufacturing Expertise  
Combine to Assure Highest Quality**

MEMOREX



Markette

**Advanced Oxide Formulation Provides Stronger Surface,  
Lasting Durability**



**Unique Cleaner-Lined  
Jacket Protects Disc**

**Stress Relief Notches to  
Reduce Handling Damage**

**Crush Proof Box Used as  
Desk Top File, Index Tabs,  
Color Coded Labels  
for User Convenience**

**Critically 100% Tested for  
Reliable Performance**



# **Versatile Markette Flexible Discs for Multiple Applications**

## **Single-Sided Markette**

**IBM Compatible**

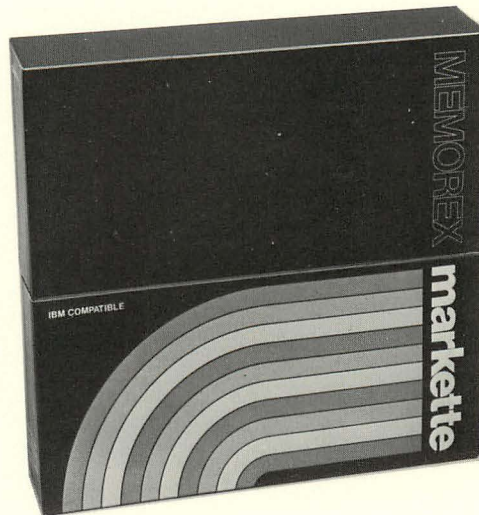
**10 Million Passes**

**Error Free Plus Safety  
Margin**

**1.9 Million Bit capacity**

**Critically 100% Tested**

**Human Engineered**



## **Dual-Sided Markette**

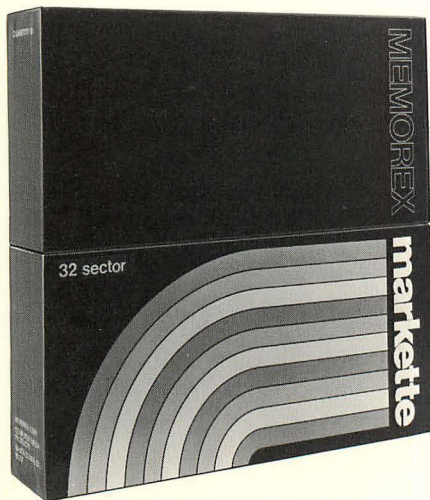
**IBM Compatible**

**Recordable on Both Sides**

**Double Capacity**

**Built-in Markette Reliability**





## 32 Hard Sector Markette

**Compatible with Hard Sector Versions of CalComp, CDC and Pertec Drives**

**32 Hard Sectors on Inner Diameter**

## FD IV Markette

**Memorex 651 Compatible**  
**High Temperature Performance**  
**2.5 Million Bit capacity**  
**Hub Reinforcing Ring**



**Markette**

## FD VI Markette

**Successor to FD V**  
**Memorex 651 Compatible**  
**For Use at Standard Temperatures**  
**Hub Reinforcing Ring**  
**Highly Reliable**









**TAB**

**Memorex Services**



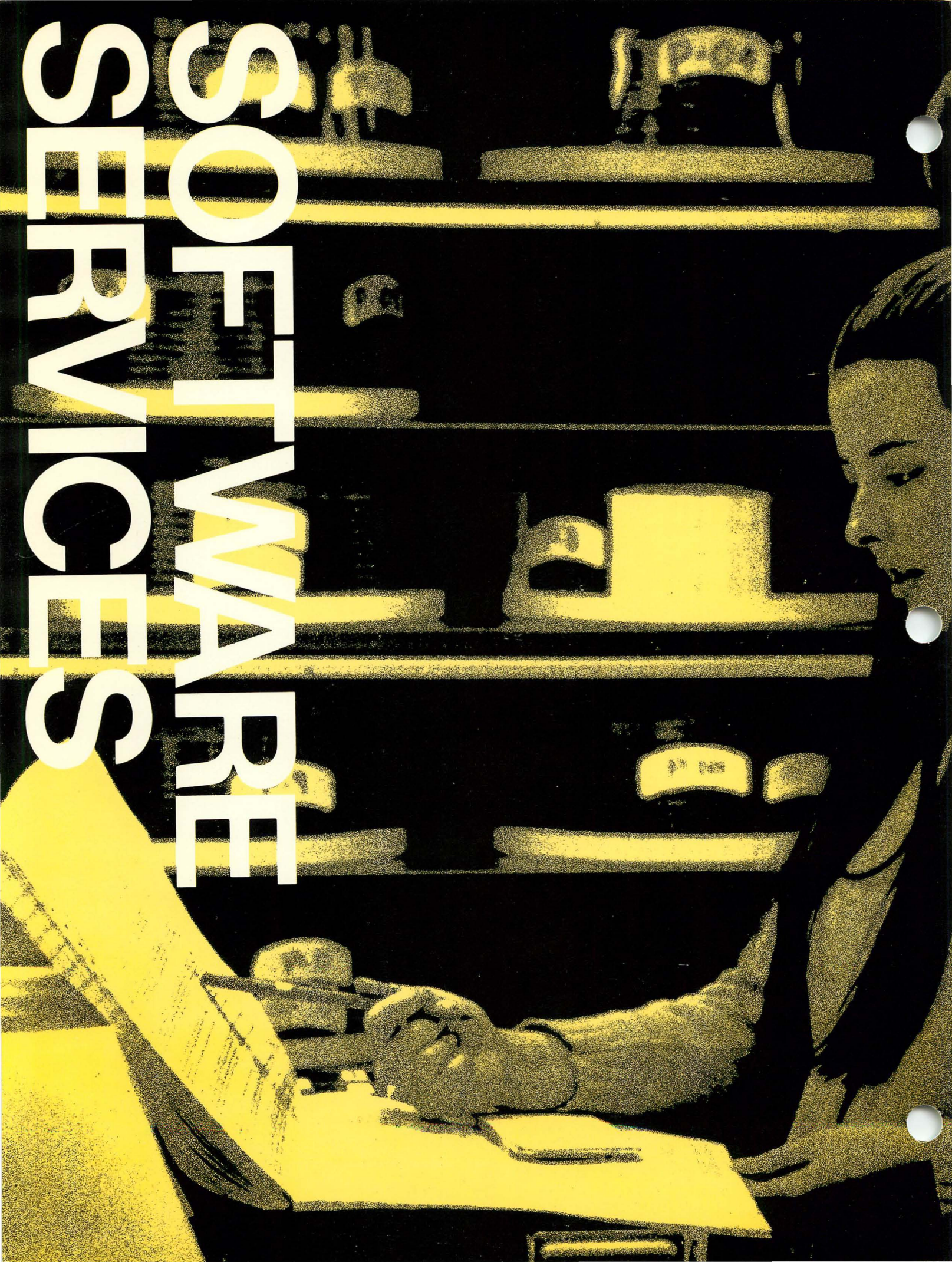
# Strategically Located Distribution Centers Speed Delivery and Field Support

MEMOREX

Memorex Services







# SOFTWARE SERVICES



# The Memorex Tape Management System

MEMOREX

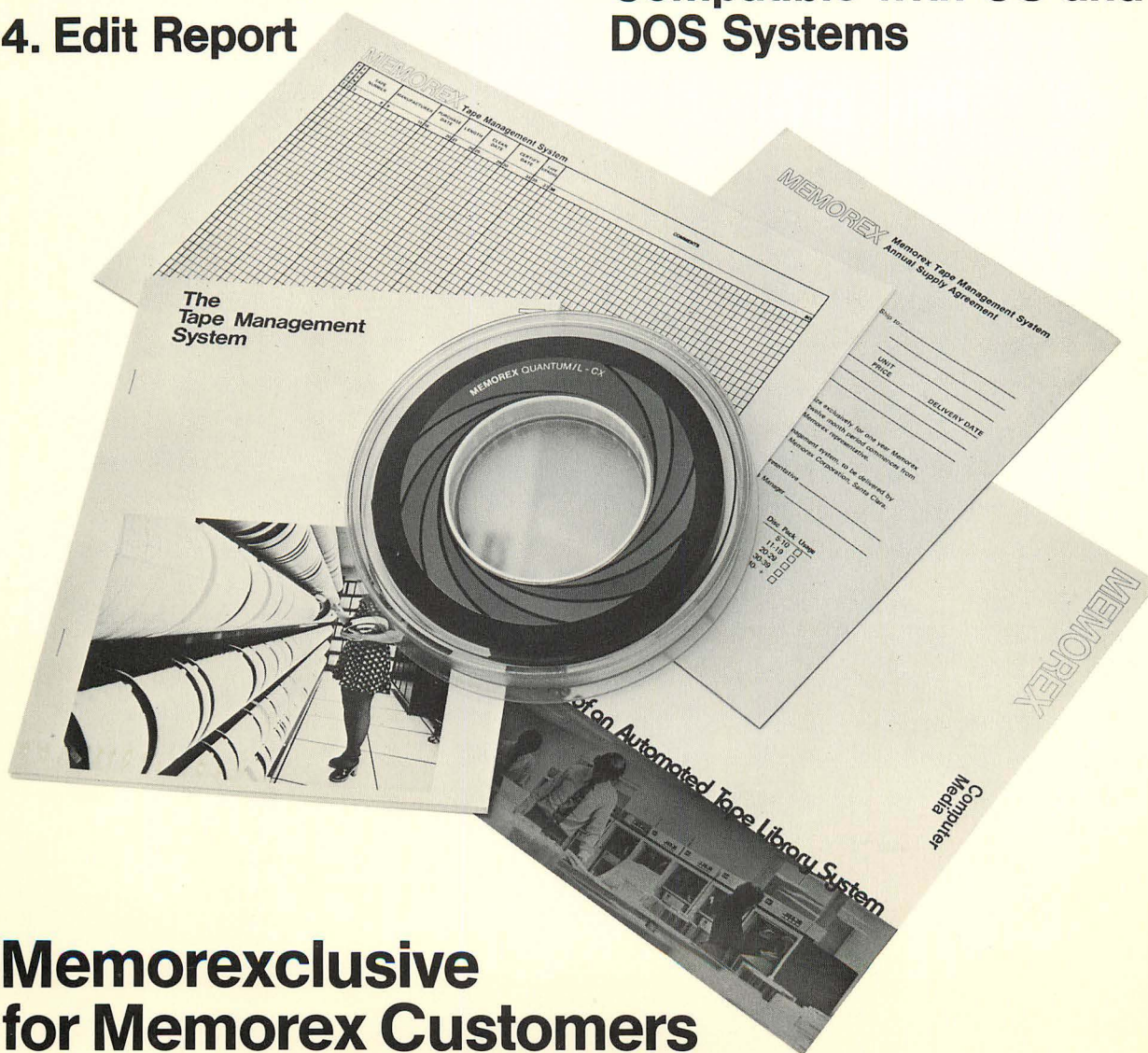
**Fully Automates Your Tape Library**

**Generates Four  
Essential Reports:**

1. Data Set Name Report
2. Volume Serial  
Number Report
3. Release Report
4. Edit Report

**Flexible, Highly Modular and  
Easy to Install**

**ANS COBOL System which is  
Compatible with OS and  
DOS Systems**



Software Services

**Memorexclusive  
for Memorex Customers**



# Resource—For Evaluating Computer Operations Productivity

**Gives Detailed Summary Regarding  
Daily Activity on a 360/370 Operating  
Under OS/360, DOS/360, OS/VS1, OS/VS2  
and DOS/VS**

**Generates Three  
Essential Reports:**

- 1. Daily Run List**
- 2. Activity Summary by Shift**
- 3. Utilization Graphs**



**Memorexexclusive for Memorex Customers**



# Procscan—An Automated Conversion System

MEMOREX

**Assists IBM 360/370 OS Users in Conversion from 2311's or 2314's to 3330's**

**Procedure Library (Proclib) References Are Charged Automatically So That 3330's Are Referenced for Public Space**

**Generates Four Essential Reports:**

**1. Monitors All Lines of a Proclib That Meet Same Criteria**

**3. Updated Proc List**

**4. Proc Listing**

**2. Proclib Conversion Exception List**



Software Services

**Memorexexclusive for Memorex Customers**



# **Tape Error Analysis—For Evaluating Tape Volume and Unit Reliability**

**Assists Evaluation of the  
Condition of Tapes and  
Tape Drives**

**Runs Under OS/360, DOS/360,  
OS/VS1, OS/VS2 or DOS/VS  
Systems**



**Generates Four Essential Reports:**

- 1. Capture Audit Report**
- 2. Transaction Report**
- 3. Unit History Report**
- 4. Volume History Report**

**Memorexexclusive for Memorex Customers**







