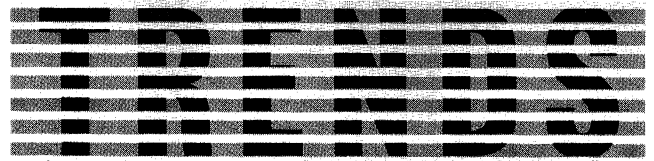




AMPEX

MAGNETIC TAPE



APPLICATION ENGINEERING BULLETIN

BULLETIN NO. 1

JUNE 1963

TO ALL PRECISION TAPE USERS:

Here is your first issue of Magnetic Tape "Trends." We hope that you will find it both useful and informative.

This issue inaugurates a new engineering service from Ampex Corporation, Magnetic Tape Division. It is the first of a series of application notes containing information on the latest trends in magnetic tape development and use throughout the industry.

Magnetic tape recording systems are complex combinations of various components. Tape, however, is common to them all. "Trends" will deal with both phases of these systems: tape and equipment. The early issues will be devoted to topics of general interest and basic magnetic technology. Later issues will go into more specific tape application details.

The technical information appearing in "Trends" is designed to be retained as basic reference material and each sheet is punched for easy insertion into a three ring binder.

The special mailing folder containing this issue has provision for routing "Trends" to other people in your organization who may find it of interest. If they would like to have their names included on our regular mailing list, a reply card will be sent with the next issue.

"Trends" is for you--we hope you will enjoy it.

IN THIS ISSUE

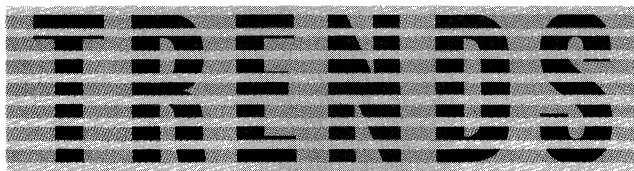
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COMMON TAPE DEFECTS
INSTRUMENTATION TAPE

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COMMON TAPE DEFECTS
COMPUTER TAPE

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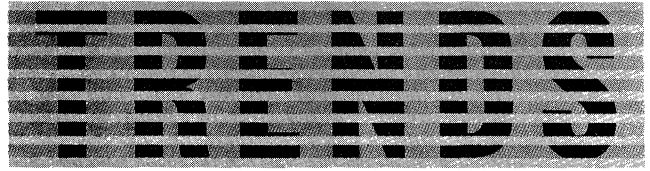
COMMON TAPE DEFECTS

INSTRUMENTATION TAPE

SYMPTOMS		CAUSES
Physical	Performance	
Oxide Shed.	Signal reduction and dropouts.	<p>Oxide shed may be caused by defective oxide binder and tape formulation. Oxide shed may be caused by defective tape guides which tend to rumple tape edges.</p> <p>Improper machine setting of tape tensioning system can contribute to oxide shed.</p> <p>The signal reduction is caused by oxide shed build-up on the heads, which causes head-to-tape separation.</p>
Tape edges not parallel - bad pack - one side up, one side down, with the edge of the down side approaching the side of the flange. Also described as "tape edge stretch" or "raised edges."	Excess flutter - poor tracking - poor signal on edge tracks. Imbalance of multi-channel output.	Tape damaged on slitter or in re-wind at time of manufacture. Can also be caused by skewed guides on the machine itself. May result from poor tape storage and mishandling. Warped reels or improperly adjusted turntable height may contribute to this.
Output too high or too low.	Wide reel-to-reel variance.	Formulation and oxide non-uniformity, and/or excessive variation in coating thickness. This situation has been helped in recent years by GSA specifications which caused tapes by various manufacturers to be more nearly uniform.
Center hump in the tape pack when seen from the edge.	Reduced signal or even dropouts on edge tracks.	Defective base material and variance in thickness of base material.

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COMMON TAPE DEFECTS

COMPUTER TAPE

SYMPTOMS		CAUSES
Physical	Performance	
Oxide shed	Dropouts and reduced signal	1. Old formula 2. Bad guides or heads 3. Oxide delamination in old formula 4. Contaminated base material which will not bind well.
Shiny spot on oxide side of tape with dull ring around it	Dropouts	Foreign material coated into the tape, or a slight raised area of oxide coating that has become highly polished. (Problem should not appear on Ampex Computer Tape which is 100% pre-checked for dropouts.)
Oxide re-deposit	Dropouts after use	Oxide accumulates on heads and guides and becomes pressed back into the pack when dislodged due to tape movement. This tends to be a greater problem with regular wear tapes because the softer binder tends to stick into the tape upon redeposit, rather than bounce off. More frequent cleaning of the tape recorder should eliminate this problem.
Wrinkles across the tape. Sometimes called "pleating", "cinch pack", "accordioning" and "slipped pack"	Dropouts	Pleating effect due to cinching in a loose pack.
Wrinkles in a more random pattern	Dropouts	Rough handling, either by personnel or machines. Can also be caused by improper storage or not acclimating tape to computer environment before using.
Surface scratches	Dropouts	Defective washing process when brushes are set too deep. May result from bad head stacks or tape guides with surface imperfections.
Edge flake re-deposit	Dropouts	Faulty slitting by dull slitter blades. Defective reel or oxide buildup in tape path could also contribute.
Tape pack bumps or imprinting	Dropouts (usually temporary) which may disappear after several passes when the base material becomes ironed out.	End of reel photo markers or tabs pressed against adjacent tape. Appears on extraordinary occasion where temperature, pack, handling and storage factors have all contributed. May result from any foreign matter (dust, dirt, etc.) that finds its way into the tape pack.
Edge fold	Dropouts	On fast rewind layers of tape may protrude beyond the pack edge. When the reel is grasped too firmly, this protruding edge may be folded over by the surface of the flange.
Surface scuff marks	Dropouts or loss of signal	Pinch roller imprint due to machine programming fault.