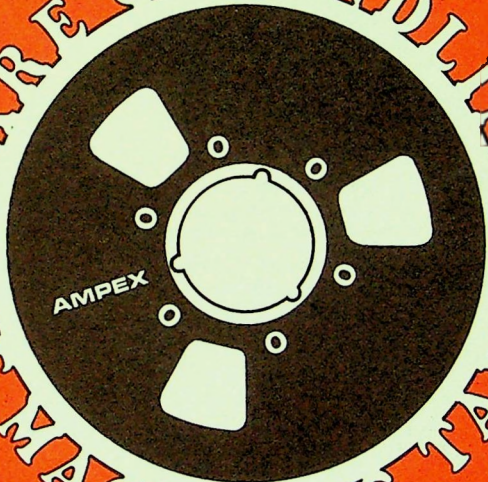


CARE & HANDLING
OF
MAGNETIC TAPE



CARE AND HANDLING OF MAGNETIC RECORDING TAPE

Even if you have been handling magnetic tape for years, by reading this booklet you may discover that you have developed some bad tape handling habits. When handling tape, remember that you are working with a storage medium that has tremendous packing density, and you want to repeatedly and reliably recover every piece of information.

Tape must be treated with TLC (Tender Loving Care) because it is flexible, it is made up of many different ingredients, it has a large exposed surface area (1650 square feet for a 4950 foot reel of 2" wide tape), and it is not sealed in a protective environment. Ingrained habits of careful handling are your best insurance against tape damage.

There are three major causes of loss of information in magnetic tape:

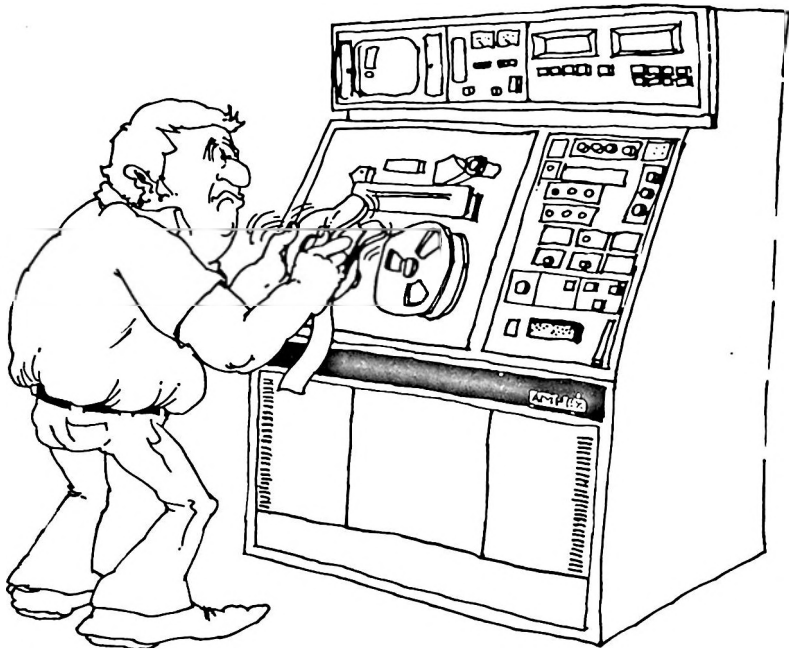
1. Tape imperfections — manufacturer defects or results of improper tape handling.
2. Tape contamination — from the same reel of tape or from a reel previously run on the same tape transport.
3. Foreign contamination — dust, lint, operator-induced.

For best reliability, the tape transport must be operated in a low-dust atmosphere and in a temperature-humidity controlled room. All components of the tape path should be cleaned at least every eight hours of use, and every four hours under continuous usage.

Mechanical alignment of the components in the tape path requires tolerances on the order of .001 inch. *Never* bang against any component in the tape path and always keep components meticulously clean. These components are:

1. Capstan and pinch roller
2. Tape guides
3. Reel flanges and hubs
4. Record/play head unit
5. Erase head
6. Vacuum chambers (if present)
7. Reel motor turntables

Magnetic tape is used to store valuable information and the protection of this information is of the utmost importance. No one should ever operate a tape transport without understanding the following points.



Contrary to popular belief, the purpose of the flanges is NOT to pull the reel off the transport.

Tape Condition

- Cinched tape is the condition where layers of tape in the middle of the pack have folded or washboarded as a result of layer-to-layer slippage. Cinching may be seen through the windows or observed as irregularities in the periphery of the pack. Cinching is caused by a poorly aligned tape transport or by tape with poor layer-to-layer friction. If a poor pack is observed, rewind the tape on the machine end-to-end to establish a uniform pack. Do not attempt to record on or play back from the tape until a uniform pack is achieved.

Tape Transport

- All surfaces that the tape comes in contact with must be smooth and free of foreign matter. After a few hours of operation (even with good tape), fine dust and/or oxide can build up into a hard lump that will deform the tape. Any deformation in the tape will cause a loss of information. Under normal use, cleaning every eight hours is satisfactory. Under heavy use, clean every four hours.
- Clean the tape path components with Kimwipes and an approved solvent. Clean the heads, the rotary head guide, and all guide edges with cotton swabs or Texwipes and an approved solvent.

Freon TF (Dupont) is the most widely used cleaning solvent. Genesolve-D (Allied Chemical) and Ucon solvent 113-LR2 (Union Carbide) are equivalents to Freon TF. Isopropyl Alcohol (IPA) is also an acceptable cleaning agent but has a slower evaporation rate than Freon TF. Freon TP-35 (Dupont) is frequently used. It is a mixture of Freon TF and IPA. Xylene is acceptable but is stronger than necessary and will dissolve plastic and paint. Xylene is recommended in exceptional cases where oxide has been caked on due to neglect or accident.

NOTE

Never clean the rubber pinch roller with anything but Isopropyl Alcohol. The use of the stronger solvents or Freon TF will harden and/or damage the rubber.

- It is recommended that the tapes be stored in an environment with the following characteristics:
 - a. 50° to 90° F.
 - b. 40% to 60% RH.
 - c. No external magnetic fields.
 - d. No excessive vibrations (large motors, trucks, fork lifts, etc.)



In case of fire around magnetic tape, use CO₂ or an inert chemical.

- The free end of the tape must be secured.
- If the storage ambient temperature is different from the operating ambient temperature, the tape should be left in the operating area at least 6 to 8 hours prior to use and preferably 24 hours. This is to insure thermal equilibrium in the pack. A reel that has been exposed to an extreme high or low temperature should be repacked (after a few hours of climatizing) by fast forwarding and then rewinding the tape in order to relieve pack stresses.
- Stored tapes should be rewound about every six months to make sure that no pack stresses are occurring that may permanently damage the tape.

Miscellaneous

- If water (or any foreign matter) gets onto the tape, remove it as soon as possible. Both flanges should be unscrewed and all water should be dabbed off with a water absorbant (and lint free) cloth or industrial towel.
- In case of fire around magnetic tape, use CO₂ or an inert chemical (such as Freon). Magnetic tape itself is not combustible under 100°F but temperatures over 120°F will severely damage the tape.
- If a reel is dropped and the flange is severely bent, remove the bent flange and replace it with a good one. Wind the tape to another reel and then back to eliminate any tape stresses that the dropping may have caused.
- If a contaminated or damaged reel of tape is run on a tape transport, the transport should be cleaned before running a reel of good tape.
- Never handle the tape with your fingers while it is threaded on the transport. You will always leave smudgy finger areas which will eventually deteriorate the tape surface. Sometimes the handling causes creases which will ruin that section of tape. If the tape must be handled (such as with splicing), handle only with special lint-free gloves.

Threading and Removing Tape

- If a tape has a wrinkled beginning, the wrinkled area should be cut off.
- Tape threading should be practiced so that it becomes automatic. Thread onto the take-up reel smoothly and carefully to prevent folding at the very end or at the edge.
- Always wind six turns.
- Standard tapes and other maintenance tapes must be wound off to the left reel to keep the tape on its proper reel.



Store tape boxes on their edges. A reel or box lying on its side is inviting something to be set on it.

Storage

- Tapes belong in only three places:
 - a. Box
 - b. Tape storage cabinet
 - c. Tape transport
- Replace the tape in its box *immediately* after using. Never lay the tape on the surrounding table surfaces — dust and cigarette ashes mean disaster to a tape!
- Store tape boxes on their edges. A reel or box lying on its side is inviting something to be set on it.

Condensed List of Tape Handling Do's and Don'ts

Very Important

Do cut the end off the tape if it is wrinkled. Get into the habit of checking for a clean tape before threading.

Do fix or throw away any reel with a bent flange.

Do be aware of lipping and poor packing.

Do use only approved hold-down tape.

Do remove the reel by reaching around the backside with both hands.

Do clean the machine often. Keep Kimwipes, cotton swabs and a cleaner handy for doing this.

Do handle the reel with care when it is off the transport.

Don't lay reels on top of a transport, cabinet, or scope. Get a box, keep it with the tape and get into the habit of using it. Store it vertically.

Don't eat or smoke near the tape. If you smoke, use an ashtray before touching the tape. Wash your hands after eating.

Not abused as often, but still important

Do thread the tape flat. Watch for a fold under the first wrap.

Do wind on six turns.

Do climatize the tape for a few hours.

Do operate in a clean work area that is dust free and temperature-humidity controlled.

Don't use a dusty or damaged reel of tape.

Don't store the reel in a hot place.

Don't squeeze the flanges together.

Don't touch the tape except at the ends.

AMPEX MAGNETIC TAPE SALES OFFICES:

CALIFORNIA
500 Rodier Drive
Glendale, CA 91201
(213) 240-5000
401 Broadway, MS 22-02
Redwood City, CA 94063
(415) 367-4611

GEORGIA
3135 Chestnut Drive
Suite 101
Atlanta, GA 30340
(404) 451-7112

ILLINOIS
2201 Lunt Avenue
Elk Grove Village, IL 60007
(312) 593-6000

MARYLAND
10215 Fernwood Road
Bethesda, MD 20034
(301) 530-8800

NEW JERSEY
65 Commerce Way
Hackensack, NJ 07601
(201) 489-7400

PENNSYLVANIA
947 Old York Road
(Philadelphia)
Abington, PA 19001
(215) 887-7650

TEXAS
1615 Prudential Drive
Dallas, TX 75235
(214) 637-5100

For your convenience, other
Ampeg Magnetic Tape Sales offices in:

DENVER, COLORADO
(303) 757-6491

ORLANDO, FLORIDA
(305) 423-2962

KENTUCKY
(606) 371-1476

NEW ORLEANS, LOUISIANA
(504) 738-9885

MASSACHUSETTS
(617) 877-8060

BELLEVILLE, MICHIGAN
(313) 681-1622

MINNEAPOLIS, MINNESOTA
(612) 835-5560

PITTSFORD, NEW YORK
(716) 586-2580 from Rochester

NASHVILLE, TENNESSEE
(615) 256-4836

HOUSTON, TEXAS
(713) 928-3741

CHARLOTTE, NORTH CAROLINA
(704) 596-8046

International Sales or Service Companies: ARGENTINA, Buenos Aires, 46-9029 • AUSTRALIA, Sydney 439-4077 • BELGIUM, Nivelles, 067/22 49 21 • BRAZIL, Rio de Janeiro, 242-3795 • CANADA, Bramalea, (416) 453-3100 • COLOMBIA, Bogota, 43-82-43 • ENGLAND, Reading, 734-85200 • FRANCE, Boulogne, 609 91 55 • GERMANY (FEDERAL REPUBLIC), Frankfurt (Main) 60581 • GREECE, Athens, 671-8160 • HONG KONG, Kowloon, K-678051-3 • ITALY, Rome, (06) 5138341, Milan, 65 15 41-2-3-4 • JAPAN, Tokyo, 03-264-7331 • LEBANON, Beirut, 340-820 • MEXICO, Mexico City, 539-68-70/71/72 • NETHERLANDS, Utrecht, 030-61 29 21 • SOUTH AFRICA, Johannesburg, 838-7640 • SWEDEN, Sundbyberg, 08/28 29 10 • SWITZERLAND, Fribourg, 037-22 73 31.

AMPEX

Ampeg Corporation, Magnetic Tape Division
401 Broadway
Redwood City, California 94063