FUJIFILM

FLASH TECHNICAL SUPPORT

MAGNETIC MEDIA, OPTICAL DISCS AND OTHER DATA STORAGE PRODUCTS

Magnetic Tape Data Cartridge Care & Handling

Tape systems are unique; they require four elements (software, hardware, media and *people*) to function properly. Personnel should be trained in their responsibility for the condition, care and handling of media (tape cartridges). Proper care by your staff is important to prevent inadvertent errors and media damage. Your tape cartridges must be managed, handled and stored properly. A step-by-step guide to magnetic tape data cartridge care and handling follows:

Upon Receiving New Cartridges:

1) Inventory and inspect the delivery. Incomplete shipments or visible carton damage that may affect the contents should be immediately noted on all copies of the carrier's delivery receipt.

   Do not leave data cartridges on the loading dock or in delivery areas lacking environmental controls – quickly move the shipment to an environment that is the same as your tape drive operating environment. However, do not immediately unpack the shipment if acclimation is required. Acclimation means allowing data cartridges to *slowly* adjust to the drive-operating environment for up to 24 hours prior to use. *See Appendix A for acclimation instructions.*

2) Unpack the cartridges and inspect for damage. If cartridge damage is discovered, keep all packaging material as evidence for filing a claim. If the shipment was not properly packaged to protect the cartridges against damage, inform your vendor in order to reduce the possibility of future deliveries being improperly packaged. *See Appendix B for transportation guidelines.*

3) If the cartridge comes with a protective case, a cardboard insert with important information and user labels are inside the case. Remove information cards and user labels from the case! Refer to the information card for cartridge labeling and operating instructions.

   Be sure to remove cardboard inserts and labels from inside the cartridge protective case. This will prevent labels from being inadvertently picked up along with a cartridge and inserted into a drive. Any static electricity charge on the cartridge shell can cause the label stock to cling to the cartridge shell. A label sheet accidentally inserted into a drive along with a cartridge can prevent the cartridge hub and drive gear from meshing and possibly even damage the drive.

4) Individual Protective Cases are prescribed for many Cartridge Tape Technologies and these cartridges will come in protective cases provided by the cartridge tape manufacturer. When not being used, the cartridge should be stored in its protective case (*after removing any paper items mentioned above*). Do **not** transport or store cartridges without adequate protection! *See Appendix B for transportation guidelines. See Appendix C for storage guidelines.*

Appendix A

Data Cartridge (Magnetic Tape) Acclimation Recommendations

Cartridges should be acclimated to the tape drive-operating environment before use. Allow acclimation time periods, at least equal to any time the cartridge was exposed to uncontrolled environments, up to 24 hours.

The need for acclimation and the necessary acclimation time period will vary; this will depend on the difference in temperature and humidity between environments. Cartridges should be well packaged to protect against rapid environmental changes when leaving a controlled environment. This allows cartridges to acclimate slowly. Cartridges exposed to extreme environments during shipping (or improper storage) must be slowly acclimated to the drive's operating environment for 24 hours.

- The ideal 24-hour acclimation procedure is to keep the cartridges in their shipment packaging or shipping-container during the first eight hours.
- This will allow cartridges to adjust slowly (slowly acclimate) to the operating environment; unpack the cartridges for the second eight hours of a 24-hour acclimation period.
- During the final eight hours of a 24-hour acclimation period, the cartridges should be removed from their protective cases and can be prepared for use.

Even though the temperature of the cartridge shell may feel normal, the tape inside takes much longer to acclimatize. Humidity is important too; tapes are hygroscopic and acclimation is required to adjust humidity, not just temperature. Up to four days of acclimation time may be needed after a longer exposure to extreme humidity.

When the magnitude of any temperature and/or humidity differences between the uncontrolled environment exposure and the drive-operating environment is not so extreme, less acclimation time is needed. Adjust the above procedure by allotting one-third of any shorter time period to each of the described acclimation stages. If lengthy exposure to extreme humidity, allow for additional acclimation time.

Best Practice: It is best to protect cartridges from extreme conditions by avoiding uncontrolled environments! However, when harsh environments are unavoidable, plan for acclimation time.

Appendix B

Data Cartridge (Magnetic Tape) Transportation Guidelines

Magnetic tape data cartridges should be protected from impact loads, vibration and extremes of temperature and humidity during transportation.

- Avoid dropping the cartridge during handling.
- Avoid mechanical loads that would distort the cartridge shape.
- Always ship data cartridges in original manufacturer or better packaging.
- Cartridges should be placed in individual cartridge containers for storage and transportation.
  - when individual protective cases are not prescribed or not available, moisture-proof ("Zip-Lock" polyethylene) padded bags can be used.
- Cartridges should be packed snugly in a rigid shipping box with adequate impact protection.
  - surrounded by adequate shock-absorbent material for protection and
  - adequately supported to prevent any movement within the box and
  - oriented on edge (tape reel axis horizontal) inside the final box.
- The box should be clearly marked to indicate its correct handling orientation.
- The box should be sealed to protect the interior from *rapid* environmental fluctuations.

Extreme changes in temperature and humidity should be avoided whenever possible!

Handle data cartridges with care during transportation!

Inspect incoming shipments to identify inadequate packaging and/or product damage.

Report inadequate packaging and/or product damage to the shipper.

Report product damage to the shipment carrier.

Received cartridges should be conditioned in the operating environment before using.

Data cartridges should not be exposed to stray magnetic fields in excess of 8000 A/m.

Appendix C

Data Cartridge (Magnetic Tape) Storage Guidelines

Fujifilm Magnetic Tape Data Cartridges are an ideal long-term archival media with a storage life of 30 years or more. To achieve the maximum shelf life, a data cartridge should be stored in a good and stable environment. Store data cartridges on their edge (reel axis horizontal) in their individual protective cases (if prescribed) whenever outside the tape system.

Keep data cartridges within a reasonable temperature and humidity range for both intermediate and long-term storage. A good environment for storing data cartridges is within a temperature range of 64°F to 78°F and relative humidity of 35 to 55 percent. The ideal environmental conditions for storage are non-fluctuating 65°F and 40% relative humidity.

Maximum Wet Bulb Temperature

As a user, you should be familiar with the "Maximum Wet Bulb Temperature" specification that is always included in hardware and media environmental specifications! Simply stated, any specified temperature & humidity ranges are limited by the inclusion of a maximum wet bulb temperature specification, such that:

- If the temperature is within the high end of the specification, the relative humidity must be in the lower range of its specification.
- On the other hand – if the relative humidity is within the high end of the specification, temperature must be in the lower range of its specification.

In other words, it is **not** permissible to have both Temperature & Humidity at the high end of their respective allowable range. Of course, it's best to limit exposure to the extremes at either end of any allowable temperature and/or humidity range.

You should always operate your equipment and store your media under the best conditions, not the extremes at either end of the allowable environmental range.

Proper environmental conditions for operation and storage will maximize media longevity.