



## Handling LTO Tape Cartridges

### Recommendations for Transporting and Handling of Half-Inch Linear-Tape Open High-Capacity Cartridges

This document outlines the environmental specifications and recommendations on transporting and handling of the Linear-Tape Open (LTO) cartridges.

#### ENVIRONMENTALS FOR LTO CARTRIDGES

##### Operating environment:

temperature:	10°C to 45°C
relative humidity:	10% to 80%
wet bulb temperature:	26°C max.

Cartridges should be conditioned for 24 hours at the specific environment prior to use.

##### Short term storage environment:

Cartridges shall be stored under the following conditions for short term storage:

temperature:	16°C to 35°C
relative humidity:	20% to 80%
wet bulb temperature:	26°C max.

The short term storage environment is recommended for cartridge storage durations of up to six months.

##### Archive storage environment:

Cartridges shall be stored under the following conditions for archive storage:

temperature:	16°C to 25°C
relative humidity:	20% to 50%
wet bulb temperature:	26°C max.

The archival storage environment is recommended for cartridge storage durations of greater than six months.

##### Transportation environment:

It is recommended that during transportation that the cartridges be kept within the following conditions:

temperature:	-23°C to 49°C
relative humidity:	5% to 80%
wet bulb temperature:	26°C max.

There should be no condensation in or on the cartridge.

The stray magnetic field at any point on the tape shall not exceed 4,000 A/m. There shall be no deposit of moisture on or in the cartridge.

*NOTE: Local tape temperature in excess of 52°C may cause permanent tape damage.*

If during storage and/or transportation a cartridge has been exposed to conditions outside the above values, it shall be conditioned before use by exposure to the operating environment for a time equal to, or greater than, the time away from the operating environment up to a maximum of 24 h. There shall be no deposit of moisture on or in the cartridge.

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### TRANSPORTATION AND STORAGE OF CARTRIDGES

Proper packaging of cartridges is imperative to guarantee the life of the cartridge, and the integrity of the data contained on it. *Cartridges shipped with inadequate packaging could be damaged, which may result in data loss or reduction to the life of the cartridge.*

#### Shipment of Cartridges Offsite

##### Single Cartridge Shipment:

- 1) To ship a cartridge, place it in a jewel-case (the plastic case surrounding most new cartridges) to protect the cartridge from moisture, contaminants, and physical damage. If a jewel-case is not available, place the cartridge in a plastic bag.
- 2) Place cartridge in a cardboard shipper which meets the following: 200lbs burst, 32lbs/in edge crush, 65lbs gross weight
- 3) Prior to putting the cartridge in the box, the bottom of the box should be lined with several layers of bubble wrap; after inserting the cartridge in the shipper, another couple of layers of bubble wrap should be placed on top of the cartridge prior to sealing the box. It is recommended that at least 3" of bubble wrap surround the cartridge on all sides, and that the cartridge be constrained from moving within the shipper box.

##### Multiple Cartridge Shipment Using a DataGuard case:

Instructions for packing a DataGuard Multiple Cartridge Container:  
No overpack is necessary.



LTO cartridges in DataGuard case

Note that the cartridges do not need to be in the jewel cases **only** in the **DataGuard** case.

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### Multiple Cartridge Shipment Using a Turtlecase:

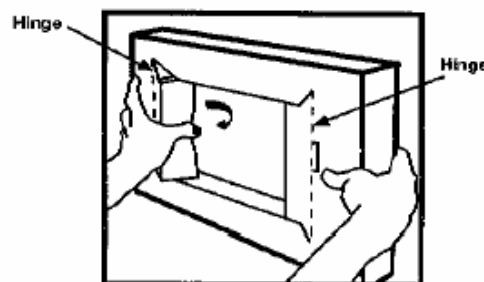
Instructions for packing a Turtlecase Multiple Cartridge Container in conjunction with an Overpack box.

- 1) Place all cartridges in jewel cases prior to placing them in the Turtlecase.



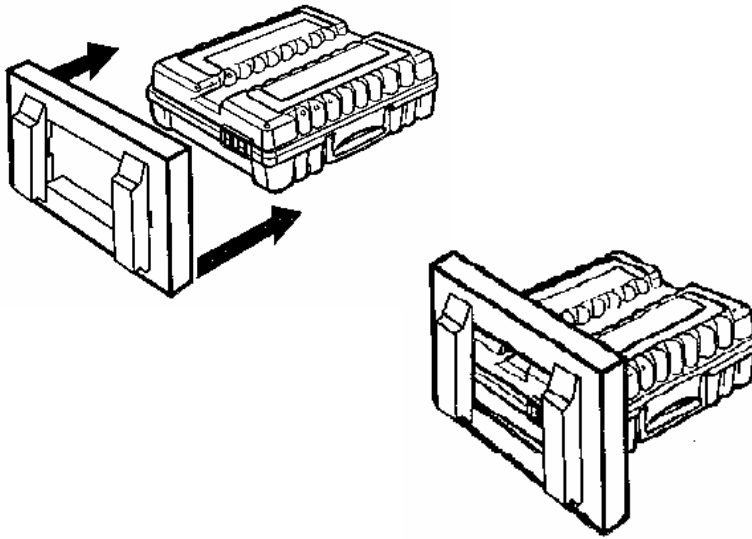
LTO cartridges in the Turtlecase.

- 2) Using the foam end caps included in the Over Pack box, grasp a foam panel with hinged side towards you. Firmly pull hinged insert toward you as shown until it pivots out of its flat position and pops into place. Repeat for remaining side.

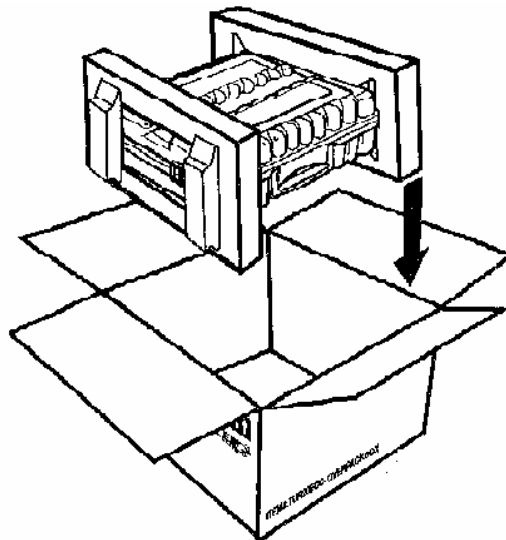


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- 3) Slide foam panel over the end of the Turtlecase as shown. Make sure foam panel is pushed snugly against the end of the Turtlecase. Repeat for opposite end foam panel.



- 4) Slide completed packed unit down into the shipping carton.



- 5) Close the Overpack box and seal with re-sealable tape.

Note that the cartridges **must** be placed in jewel cases for proper storage in the **Turtlecase**. Also remember that an **overpack** is required for the **Turtlecase**.