LTO Tape Cartridge Overview

An LTO tape drive is susceptible to being rendered un-useable if a broken or damaged tape is loaded into the drive. Problems can develop when a tape has been dropped or damaged, either by mishandling or other environmental conditions. For these reasons this brief handling and inspection procedure has been developed to help the user identify a tape cartridge problem before it damages the tape drive.

LTO Tape Cartridge General Handling Precautions

- Always keep tape cartridges in their protective plastic case when they are not in a tape library or magazine.
- Before you use a cartridge, let it acclimate for at least 24 hours to the normal operating environment.
- Ensure that all surfaces of the cartridge are dry before using it.
- Do not open the cartridge case at any time. The upper and lower parts of the case are welded; separating them destroys the usefulness of the cartridge.
- Always observe the proper tape storage environmental conditions. The ideal archival environment for storing tape cartridges is at a temperature range of 60-90 Fahrenheit (16-32 Celsius) and at 10 to 80 percent relative humidity (non-condensing).
- Stand each cartridge vertically, when placing them in archival (long term) storage.
- Never stack the tape cartridges more than six high. Although cartridges are shipped and should be stored in the vertical position, you can temporarily lay them flat when moving them. The bottom of each cartridge has four raised areas that fit into the indented areas on the top of another cartridge. This construction helps prevent the cartridges from sliding when you move them.
- Avoid placing tape cartridges near any source of high intensity magnetic fields, such as monitors, power supplies or electric motors. Such exposure can cause loss of recorded data or make a blank cartridge unusable.
- Never put a label anywhere but in the designated label area of a tape cartridge.
- Only use ink when marking the labels. No not use pencils, grease pens, or other debris-producing writing instruments.
- Do not carry cartridges loosely in a container. Allowing them to bang together creates undesirable physical shock.
- Do not touch or allow direct contact with the tape. Handling the tape can damage the tape's surface or edges, which may interfere with read or write reliability. Pulling on tape that is outside the cartridge can damage the tape and the brake mechanism in the cartridge.
- Do not expose the tape cartridge to moisture or direct sunlight.
- If a cartridge has been dropped, do not load it into a tape drive as the drive could be damaged.
- Do not degauss a tape cartridge that you intend to reuse. Degaussing makes the tape unusable.
- **Do not perform bulk erasure of the tape**. Bulk erasure will make the tape unusable.

LTO Tape Cartridge Inspection

As a general practice, LTO tape cartridges should be inspected before use whenever cartridges are being changed or new ones are loaded.

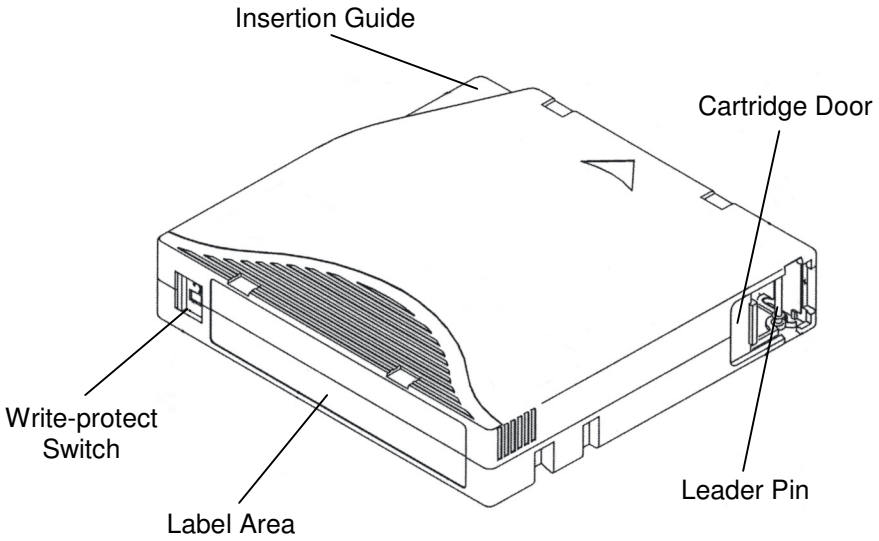

Figure 1 The LTO Cartridge and its Components

Follow these steps to inspect a LTO tape cartridge:

1. Remove the tape cartridge from its protective plastic case.
2. Look at the cartridge to check for any obvious cracks or other physical damage. Look for broken or missing parts.
3. Locate the cartridge door and slide it open so the leader pin can be inspected (Figure 2). The tape or media should be attached to the pin itself and the pin should be located in the recesses at the top and bottom on the inside of the door. **Do not use the cartridge if the tape is not attached to the pin, the pin is loose, missing, not seated correctly or cocked at an angle.**

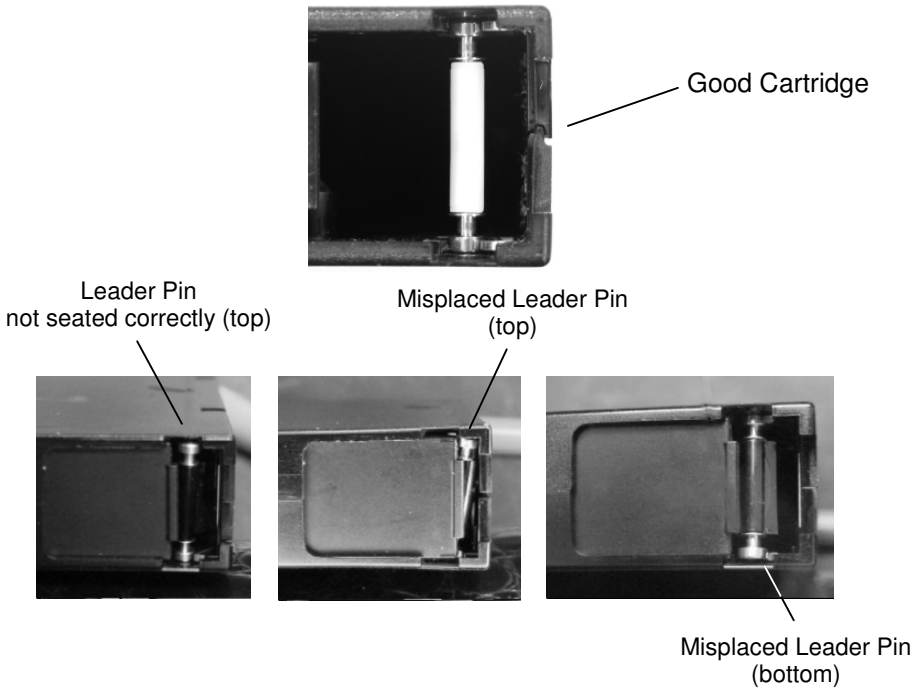

Figure 2 The Leader Pin

4. Check the seams of the tape cartridge where the top and bottom have been press welded together. Inspect all four sides of the tape cartridge and there should be an equal gap, a fraction of a millimeter all the way around the tape cartridge. See Figure 3.

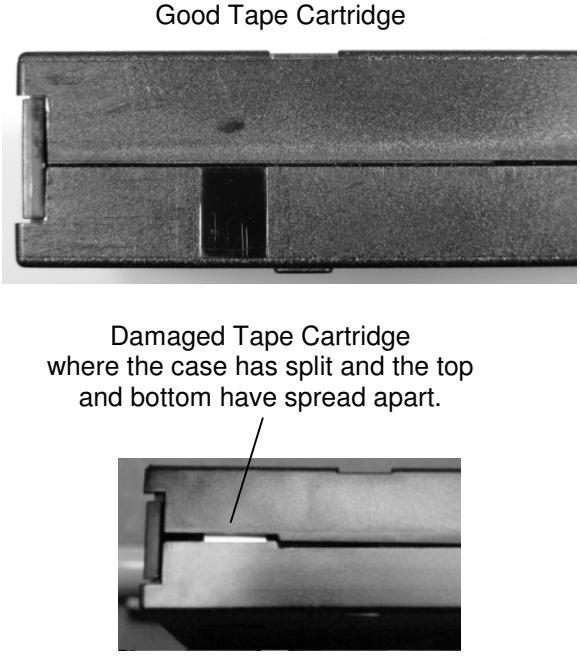

Figure 3 Tape Cartridge Seam

5. If this gap is irregular or has changed, then it is possible that the screws that secure the top of the cartridge to the bottom may have come loose or the media has become damaged from dropping. First, ensure that the screws are secure (see Figure 4 for the location of the screws).

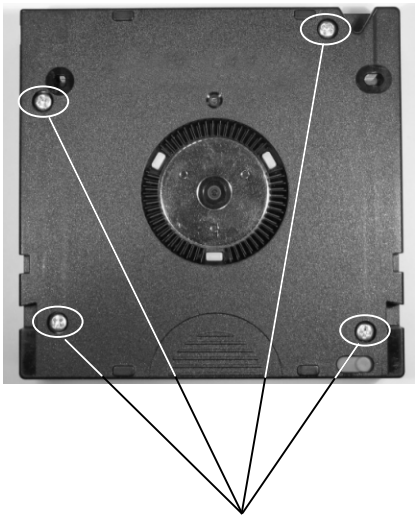

Figure 4 Location of the Four Screws

6. If the screws are secure, then the issue was probable caused from the cartridge being dropped. **No tape cartridge that exhibits the symptoms of the case being split from being dropped should be used in a tape drive.**
7. If labels are applied to the tape cartridge make sure that they are applied in the designated label area only. If the designated area is not used, this could result in the media getting stuck in the drive or within the internals of the library. If labels are placed on top of each other, the same symptoms could be seen. The designated area is along the spine of the tape cartridge, to the left of the write protect switch. See Figure 1 and Figure 5.

Figure 5 Label Placement on the Tape Cartridges