

Handle with Care Video Highlights

The attached video, entitled Handle with Care, was produced by Seagate Technology. It is being sent to you by Toshiba TSD, along with this bulletin, as part of your Technical Library. It will also be used with the Strategy Self-Training Kit provided for all offices.

Please take the time to read this bulletin and view the 15-minute video with your technical staff. The video describes the proper handling procedures for hard disk drives and the damage that can be caused when these procedures are not observed. This bulletin highlights the video information and provides additional data, related to handling, not given in the video.

The information and examples contained in this bulletin are specific to Strategy Voice Processing systems. However, all hard drives and other electronic equipment, regardless of manufacturer, is subject to failure from improper handling.

By becoming aware of the potential for damage, you will save yourself, your company, and your customers time and money in unnecessary and costly repairs. The simple guidelines given in the Handle with Care video, if followed, can help protect all your electronic equipment.

Mechanical Damage is the #1 Cause of Hard Disk Failure

The typical maximum G-Force specifications for hard disk drives are as follows:

- ♦ A 2.5-inch drive, as used in the Strategy DK, will withstand up to 100 Gs, during operation, and 250 Gs, when not operational, before damage occurs.
- ♦ A 3.5-inch drive, as used in Strategy and other PC-based systems, will withstand only 10 Gs, during operation, and 75 Gs, when not operational, before damage occurs.

An example of the amount of G-Force exerted on a 3.5 inch drive dropped only 1 inch to a flat surface is: a one-half-inch thick plywood surface equals 850 Gs and a padded work bench equals 450 Gs.

It is, therefore, important to remember:

- ♦ When a Strategy DK system is inside a Strata DK16e demo kit, handle the demo kit with care as not to damage the hard disk drive.
- ♦ That the real damage can occur weeks or months prior to actual failure of the hard drive.

Handle with Care

- ♦ Use caution when seating the Strategy DK system into the cabinet. Use even more caution when seating other Strata boards into the cabinet when a Strategy DK is turned on and operational.

Electrostatic Discharge (ESD) Damage is the #1 Cause of all Electronic Component Failure

A Styrofoam™ cup generates 5,000 volts of electrostatic discharge, transparent office tape 25,000 volts, and walking on the carpet on a dry day 35,000 volts. Your body acts as a battery and stores this voltage. When you touch a printed circuit board, the voltage is discharged (ESD) through the electronic component causing the damage.

Always wear the anti-static wrist strap provided with every Strategy DK system and handle all printed circuit boards properly, according to our documentation.

Timing is Everything

Once the equipment is damaged, its like a time bomb waiting to go off at the most inconvenient time. Remember, the actual damage can occur weeks or months prior to the failure of the electronic equipment.

In the case of the dropped or bumped hard disk drive (in both the Strategy DK and Strategy PC-based systems), a divot in the platter is created immediately as a result of a head crash caused by the G-Force exerted. But the debris from the divot keeps moving around with the damage getting progressively worse until finally the failure occurs.

The ESD damage may not cause the circuit or component to fail immediately. Instead, the circuit or component breaks down over a period of time before complete failure occurs. Sometimes it may even become intermittent, causing frustrating visits to the customer site and expending unnecessary time and money in troubleshooting the problem.

Transportation and Packaging

Always transport the Strategy systems in their original packaging. Never allow a Strategy system to bounce around in any vehicle without it being properly contained in it's packaging.

The Strategy DK anti-static bag should not be opened until your wrist strap is on and you are ready to install it into the cabinet. Never open the bag using a tool (e.g., screwdriver, scissors, etc.). Remember, you will be handling the Strategy DK when it is most fragile—unpacked and exposed.

Any temperature change greater than 20 degrees Fahrenheit will cause condensation in the hard disk drive. Let Strategy adjust to the ambient room temperature for 24 hours before installation.

An Ounce of Prevention

Now that you are aware of the potential damage, you and your co-workers can save time and money by handling the units with care. Always remember, all hard disk drives and other electronic equipment, regardless of manufacturer, is subject to failure from improper handling.