



Microelectronics

Probing the World of

PROBE TIPS #6

A Technical Bulletin for Probing Applications

Probe Card Care and Handling

It is so tempting to pick up a probe card assembly and stroke the needle tips with your finger and play it like a banjo. It usually gives some good vibrations nice sound and feels so natural to do it.

IT IS ALSO A GREAT WAY TO RUIN AN EXPENSIVE TEST FIXTURE.

Probe cards are precision electromechanical test fixtures, which are extremely fragile and can be damaged through improper handling.

LIMITED ACCESS

Most people simply don't realize that those needles have been tweaked within microns of perfection. It is vitally important that physical access to probe cards be limited only to people who have been properly trained in the handling of probe card assemblies. Probe card assemblies assembled by an outside probe card supplier, are often damaged accidentally when as they are opened and handled by personnel in the receiving department. Probe card assemblies should be processed through receiving without being opened unless by an experienced technician who is familiar with probe cards and their handling.

DOWN SIDE UP

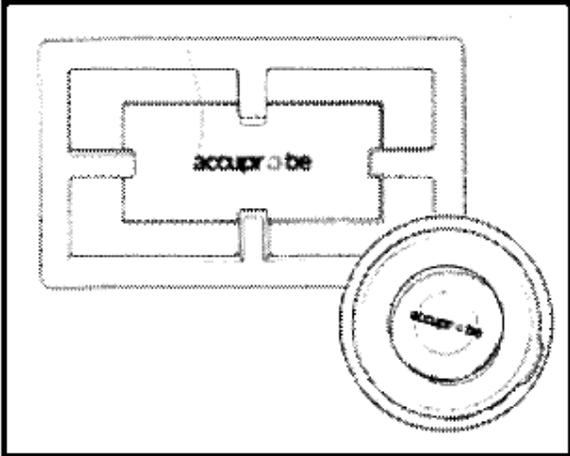
It sounds like we have this a little backwards but down side up is correct. A very common problem when inexperienced people handle a probe card is to place the card with probe tips down on the tabletop or other surface. The card should not rest on the tips but should be flipped over with the tips pointing up to prevent their damage.

CARD STORAGE

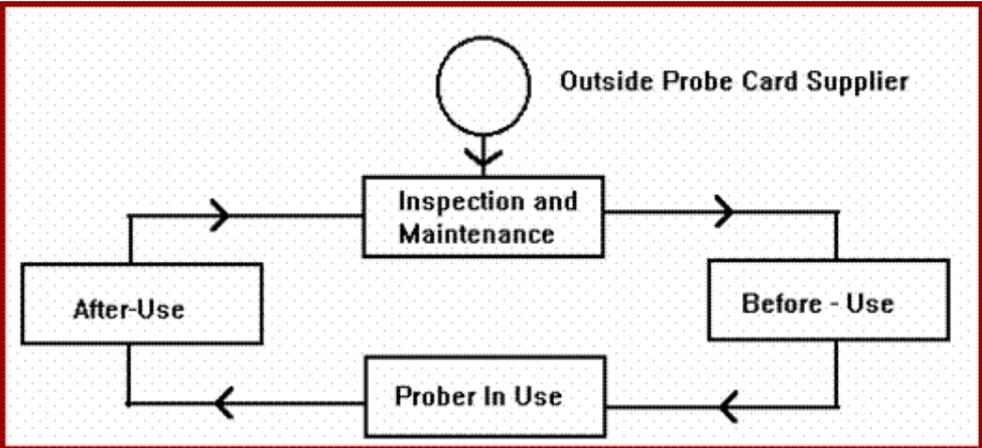
Several approaches are used to store probe card assemblies. Many companies store their probe cards in wooden card racks, which hold the cards on their sides in slots between the shelves. These probe card libraries have proven to be an effective method to secure, sort and store a large volume of probe card assemblies.

In the last few years molded plastic probe card protectors (PCP) have been used to safely store individual probe cards and prevent accidental damage. These PCP's provide mobile protection for the card assembly and provide protection from the rack to the prober. This portable protection can save considerable damage by reducing probe card exposure outside a protective environment.

A combination of the wooden rack and PCP protection containers provides a complete storage protection capability. The PCP containers are stackable or can be stored in wider slots on the wooden racks.



The Two Rack System



The two-rack system evolved from a need to control probe card performance through separating probe card assemblies after use to prevent the repetitive application of a card assembly without a quality review of the card before reuse. The two storage racks separate the probe card assemblies in to "after use" and "before use" groups. The "after use " storage rack serves as a buffer storage until the cards can be cleaned and inspected for alignment and planarization after which they are transferred to the 'before use" storage rack. Such a system installs discipline, which insures that the probe cards are in excellent condition and are ready for use. New card assemblies from outside suppliers should be inspected before being approved for use.