

SMS Service Information

Card Maintenance

Cleaning and Lubricating

Use the following procedure to clean SMS card tab contacts that have not been lubricated or that are visibly contaminated with foreign particles. This procedure insures low contact resistance and reduces wear of the gold-plated contact surface. If any doubt exists about the contamination of the card tabs, relubricate them. The cleaning and lubricating procedure permits relubricating any number of times without affecting contact reliability.

1. Use SMS card contact lubricant (to be released) or equivalent. The equivalent is 5% ($\pm 2\%$) petrolatum by weight in 1.1.1 trichloroethane.
2. Apply the lubricant indirectly by saturating a clean piece of cheesecloth or lint-free industrial tissue, or apply the lubricant directly by wetting all 16 card tabs with the lubricant.
3. Clean and lubricate the card tabs by wiping them with a moistened cloth or tissue from the leading edge toward the component section of the card.
4. Rub the contact with a clean piece of cloth or tissue until no trace of lubricant is visible. If the contacts have been properly cleaned, the cloth or tissue will not be soiled.
5. Repeat the procedure if the cloth or tissue is soiled.

Field Maintenance

Nonavailability of spares and economy sometimes require field repair of cards.

The printed circuit is comparatively easy to troubleshoot because conductors and components are easily accessible. Replacing defective components is not difficult if reasonable care is used. The printed card can be damaged, however, by excessive heat during unsoldering or resoldering components or if strong-arm methods are used to remove a component. Overheating deteriorates the adhesive bond between the conductor and insulating base material. Conductors cannot withstand heavy stresses applied by component leads if these stresses tend to pull the conductor away from the laminate. The conductors are practically immune to stresses directed toward the laminate, as shown in Figure 22.

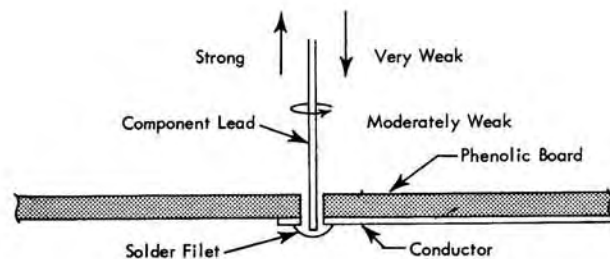


Figure 22. Stress Applied to Component Leads

A raised or unlaminated conductor should be clipped off to a point where the bond is not broken and then repaired with solder.

WARNING: Printed cards are delicate and can be easily damaged. Always use a low wattage soldering iron to apply heat. Remove the iron from the joint quickly. Be careful not to apply excessive heat to transistor leads; transistors can be damaged by heat.

Component Removal

The following procedure for replacing a component on a printed card is recommended for most repairs.

1. Cut defective component leads as close as possible to the base on the component side of the card. All components, including transistors, should be removed by using diagonal cutting pliers; be careful not to damage the card or adjacent components.
2. Hold the card in your hand and with a clean, tinned soldering iron heat the leads at the printed circuit land pattern side. When the solder just starts to flow, a rap of the hand on the work surface causes the solder and remaining piece of wire to leave the hole.
3. In most cases this procedure provides a clean hole in which to install a new component lead; use as little heat as possible to clean the hole.
4. In every case, before a repaired card can be considered repaired, it must be tested dynamically in a machine or test instrument.

The preceding procedure is destructive to the removed component because the leads are cut. When the leads of the component must be preserved and the leads are bent over on the *wiring side* of the card, take care when straightening the leads to apply no force tending to separate the conductor from the board. The leads can be straightened with the tip of the iron or long nose pliers (Figure 23). This operation usually requires the iron to remain on the card longer than in the first procedure, and should be used only when absolutely necessary. After the component leads are straightened, they can be heated and pulled from the board.

Installing New Component

1. Insert component and cut leads, leaving about 1/16 inch of lead to bend over on the land pattern.

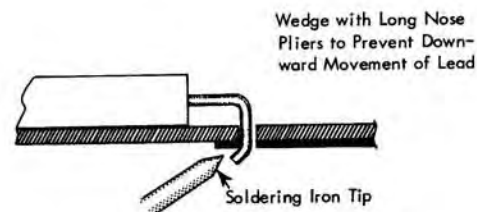


Figure 23. Component Removal