946-/947- AND 970-/971-TYPE CONNECTORS

CLEANING PROCEDURES

CONTENTS PAGE

1. GENERAL

1.01 This section covers procedures to be followed when cleaning 946-/947- and 970-/971-type connectors within a frame or unit.

1.02 Whenever this section is reissued, the reason for reissue will be given in this paragraph. This issue does not affect the Equipment Test List.

1.03 The cleaning procedures in this section are for 946-/947- and 970-/971-type connectors only and are not designed to be applicable to all types of connectors. Nor are the cleaning procedures designed for use in cases of wide spread unit contamination, but are designed for the cleaning of isolated, contaminated locations within a frame or unit.

Danger: These cleaning procedures entail the use of volatile solvents which may be harmful to personnel if safety precautions are not observed. The solvents are also capable of degrading components, protective coatings, and adhesives; thus the reliability of the system. Refer to Section 065-330-320 for general precaution to be observed when using cleaning fluids.

1.04 The most common types of contamination likely to be encountered on 946-/947- or 970-/971-type connectors are flux contamination and acrylic contamination.

(a) Flux residue results from improper cleaning of units after soldering or bonding operations.

(b) Acrylic contamination occurs when an acrylic coating is applied to FB and FC circuit packs as a protective coating for printed wiring boards.

2. SAFETY PRECAUTIONS

2.01 Freon TA and the solvent used as a carrier in the KS-19416 lubricant (trichloroethane) can be harmful if inhaled in sustained quantities. Since both of these compounds are solvents, they will extract skin oils resulting in dryness, cracking, and in some instances, infection. It is also possible for the solvents or their vapors to be absorbed through the pores of the skin resulting in much the same effects as inhalation. For these reasons, the following precautions should be observed.

(a) Work in a well ventilated area.

(b) Avoid prolonged exposure to the vapors.

(c) Keep the work piece at least 1 1/2 feet away from the face so that vapors are not breathed directly.

(d) Do not smoke in the area where solvents are being used.

(e) Wear safety glasses with side shields. If solvent should accidently contact the eyes, flush thoroughly with water.

(f) Wear rubber gloves to avoid solvent to skin contact.

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2.02 Care must be taken to restrict solvents to the contact area of the connector being cleaned. Both, Trichloroethane and Freon TA, will soften the acrylic cover coat used on FB and FC coded circuit packs. The solvents will also degrade the RTV encapsulant which protects the ceramic on FA coded circuit packs. If solvent does come in contact with the circuit pack, do not attempt to wipe the solvent away. Rather, allow the solvent to evaporate of its own accord.

2.03 It is important that drying times be observed. If circuit packs are returned to their locations with solvent remaining on the connectors, the solvent may flow off the connectors onto the board and between the circuit pack board and its card edge or apparatus housing. When this occurs, the acrylic cover-coat on the circuit pack is softened or liquefied. In time, the solvent will evaporate, the acrylic will reharden and the circuit pack is, in effect, glued to the card cage.

3. LIST OF TOOLS AND EQUIPMENT

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
—	Cobra Brush-Miller Stephenson-MS-226 Miller-Stephenson Chemical Co., Inc., 1350 W. Fullerton Ave., Chicago, Ill.
—	Receptacle Cleaning Brush P325 E. Gornell & Sons, Inc., 3453 Kedzie Ave., Chicago, Ill. 60618 or equivalent
—	Spray unit such as prevail power unit with bottle. Obtain locally or order from Graves Supply Co., 432 N. Cicero Ave., Chicago, Ill.
MATERIALS	
KS-19416 L2	Contact lubricant (pints or gallons) General Bearing Cleaning Co., P.O. Box 68, Central Valley, New York
—	Cleaning Solvent, Freon TA Miller-Stephenson-MS-185 in pressurized cans. Miller-Stephenson Chemical Co., Inc., 1350 W. Fullerton Ave., Chicago, Ill.
—	Safety goggles with side shields such as American Optical Co. 484B Chemical Goggles.
R-3034	Gloves, Acid Resistant
—	Cardboard or heavy paper-about 1 square foot-obtain locally

4. CLEANING PROCEDURES

4.01 Remove all power from the frame or unit to be cleaned.

4.02 Remove the circuit pack from the location to be cleaned.

946- AND 970-TYPE CONNECTORS (on a Circuit Pack)

4.03 Attach the Cobra brush to the pressurized can of Freon TA cleaning solvent.

4.04 Hold the circuit pack with the plug facing down and at a slight angle.

4.05 Press the release button on the pressurized can until the bristles of the attached brush are saturated with cleaning solution.

4.06 Using the Cobra brush, start on the upper portion of the spring contacts nearest the components and stroke toward the front along the length of the spring contacts. The cleaning solvent should be flowing in sufficient quantity that it is flowing off the plug assembly. Continue this action until the contacts are clean, being careful that the solvent does not get on other parts of the circuit pack (See 2.02).

Note: Contact springs may occassionally pop out of their slots. If this should happen, use the Cobra brush to push the spring back into its slot (Fig. 1). Only a small amount of force is required. ***Do not use fingers.***

4.07 Shake any excess solvent off the connector by quickly moving the circuit pack through a short arc. This must be done with care to prevent damage to the circuit pack. Direct the motion

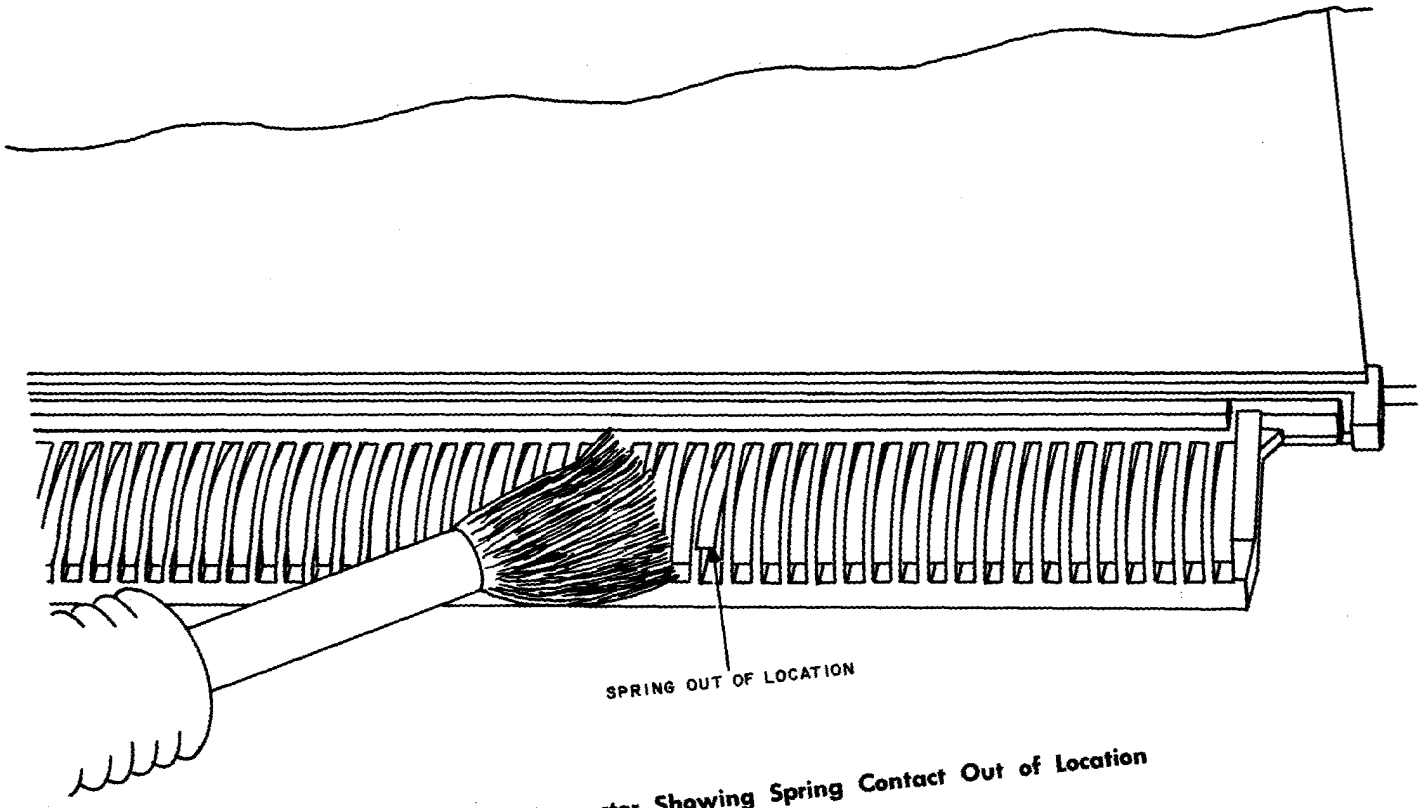

Fig. 1—946 Connector Showing Spring Contact Out of Location

away from any equipment or components which may be damaged by the solvent.

4.08 Set the circuit pack aside in a position so that its contacts are not touching another surface and allow to dry for at least 1 minute, then lubricate per Part 5.

947- AND 971-TYPE CONNECTORS (within the frame)

4.09 Using the Cobra brush attachment, apply the Freon TA cleaning solvent onto the receptacle cleaning brush. Shake off any excess solvent by moving the brush through a single short arc. Direct the motion away from the frame or any components which may be damaged by the solvent.

4.10 Place the brush into the 947 or 971 receptacle opening and clean the connector by using either in and out or up and down motions. Continue this action for about 15 seconds, being careful that cleaning solution does not get on other components or equipment.

Note: Discard the bottle brush and replace with a new one after approximately 100 cleanings.

4.11 Allow the contacts to dry for at least 30 seconds.

5. LUBRICATION

946- AND 970-TYPE CONNECTORS

5.01 Cover all areas of the circuit pack using heavy paper or cardboard.

5.02 Using the prevail power unit or equivalent sprayer and KS-19416 L2 contact lubricant, lubricate the contacts of the 946- or 970-type connectors as follows (see precautions in Part 2):

(a) Hold the sprayer approximately 7 inches away from the plug contacts in a vertical position.

(b) Aim the sprayer 4 inches to either side of the connector and depress the sprayer valve.

(c) Move the sprayer parallel to the plug contacts until the sprayer is 4 inches past the othe

side of the plug and release the valve. The entire spray duration should last approximately 2 seconds. One coating of lubricant is sufficient.

5.03 Allow the contacts to dry approximately 15 seconds.

Note: Do not store the sprayer with the bottle attached. After each use, remove the bottle from the sprayer and replace the cap on the bottle.

5.04 After all drying times are completed, return the circuit pack to its appropriate location and reapply power to the unit.