SPARE EQUIPMENT STORAGE AND HANDLING PROCEDURES NO. 3 ELECTRONIC SWITCHING SYSTEM

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1. GENERAL

INTRODUCTION

1.01 This section describes the storage and handling procedures for the spare equipment provided for the No. 3 Electronic Switching System (ESS) offices.

1.02 This section is being reissued to delete information not relevant to spare equipment storage and handling procedures. Since this is a general revision, no revision arrows have been used to denote significant changes.

PURPOSE

1.03 The purpose of the circuit pack storage frame is to provide maintenance personnel with a convenient storage device which stores equipment safely and offers a method for rapid and precise selection of a particular circuit pack or plug-in module.

2. PHYSICAL DESCRIPTION

EQUIPMENT

A. Storage Frame

2.01 The circuit pack storage frame (ED-3H008-30) consists of the basic No. 3 ESS single bay frame (ED-1A150-70), 7 feet tall by 2 feet-2 inches wide with a front-to-back dimension of 12 inches.

2.02 The circuit pack storage frame (Fig. 1) is preassembled with individual mounting plates (storage units) equipped with the spare circuit packs, pulsers, power converters, data set, and a minirecorder. It is shipped to the site intact to provide protection during transit and eliminate the quantity of shipping containers.

2.03 Flexibility of the circuit pack storage frame permits installation in an equipment lineup or against a wall.

2.04 Mounting plates are equipped with apparatus mountings which provide support, protection, and identification for the plug-in units.

2.05 Apparatus mountings are equipped with upper and lower slots for guiding and supporting,

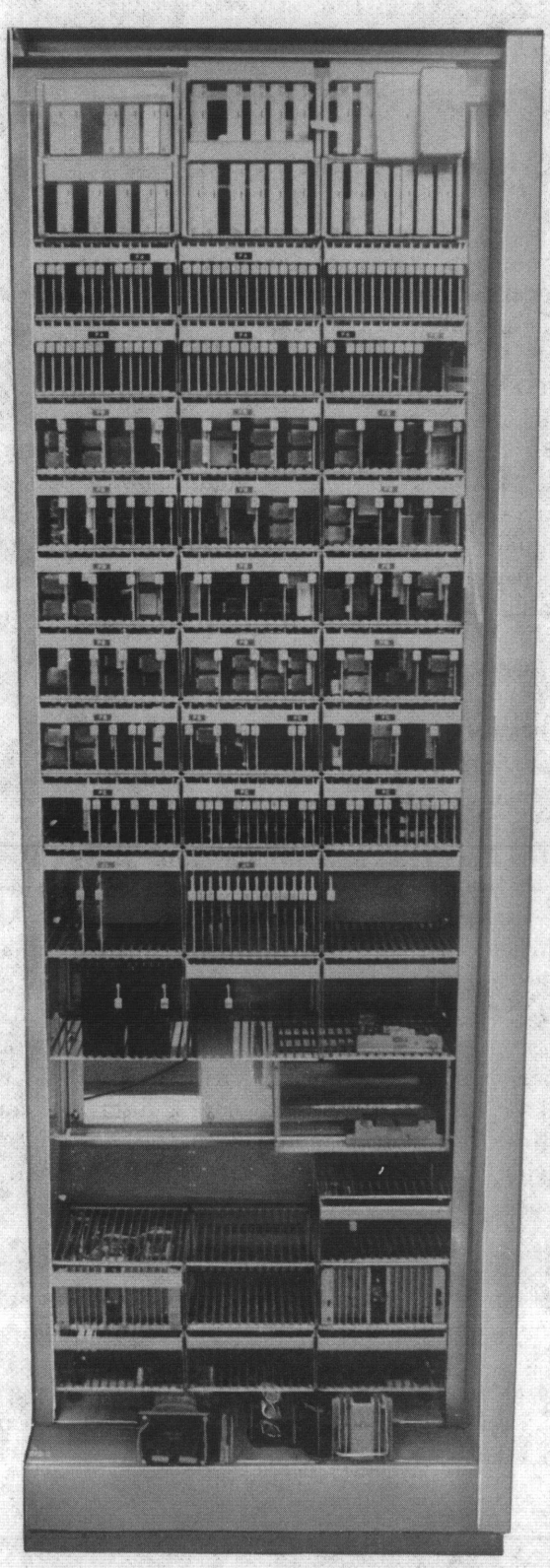

Fig. 1—Circuit Pack Storage Frame No. 3 Electronic Switching System

and a printed wiring board (PWB) stop strip for limiting the insertion depth of a unit. This minimizes the possibility of damage to the connector when the PWB is inserted.

2.06 The apparatus mountings are also equipped with a hinged designation strip. Telephone company personnel may mark the strip in a manner providing alphanumeric storage of the spare packs.

B. Spare Equipment

2.07 The majority of the plug-in units are circuit packs which are coded alphanumerically (ie, A981, A982, etc, or FA1010, FA1011, etc). They are stored left to right in alphanumeric sequence within the apparatus mountings.

2.08 The A, FA, FB, and FC packs are approximately 4 inches high by 8 inches long. The JK and JL packs are similar to FB and FC except they are 6 inches high by 8 inches long. The length (8 inches) includes the length of the connectors.

2.09 The converters and minirecorder are distinguishable by the larger space that they displace on a mounting plate.

2.10 The tape data controller unit uses the KS-21447 L2 minirecorder which contains four non-Bell System coded plug-in circuit packs. The maintenance philosophy requires that a complete spare minirecorder be provided.

2.11 Each circuit pack to be stored should contain the following:

(a) Alphanumeric code (ie, FA1011) marked or stamped on the pack.

(b) Date and location of manufacture.

(c) Series number of the original manufacture and any subsequent changes (ie, 1—3 means that design changes 1, 2, and 3 have all been incorporated; 1.3 or 1/3 means that only changes per series 1 and 3 have been included in the pack). The latest series number required by a particular system for a circuit is shown on the circuit pack schematic drawing for that system.

3. FUNCTIONAL DESCRIPTION

PHILOSOPHY—PLUG-IN SPARES

3.01 The objective of the spare equipment storage system is to improve service by providing the proper spare when needed while minimizing the quantity of spares kept on hand.

3.02 The present philosophy is to provide a circuit pack storage frame in each No. 3 ESS office. This philosophy will change as No. 3 maintenance performance history is accumulated. Then it may prove more economical to have a central storage location with little or no plug-in spares stored in the individual office storage frames. The six groups provided per ED-3H008-30 support this flexibility.

4. HANDLING

GENERAL PRECAUTIONS

4.01 Circuit packs are physically constructed to withstand limited mechanical shocks such as drops and jolts of a normal nature. They are not indestructible, however, and excessive shocks may shorten their life expectancy or change their electrical characteristics.

4.02 In the event a plug-in unit is dropped from any height, a visual inspection should be made. An item that looks defective should never be returned to the storage frame but returned to a service or repair center in accordance with local procedures.

4.03 Semiconductor devices and circuits generally are sensitive to static charges. A static charge of several thousand volts can be produced by walking on nonconductive floors, by low humidity condition, and by certain types of clothing. These static charges should be dissipated by touching a grounded metal object such as a metal frame immediately prior to handling the pack.

4.04 The main causes of mechanical damage in handling circuit packs include:

(a) Dropping

(b) Stacking packs on or against one another

(c) Applying direct pressure to components

(d) Touching connector contacts, which contaminates the gold plating and causes poor connections.

4.05 Circuit packs should be stored with the shipping connector covers in place within the frame. The covers are not to be discarded upon arrival to the field.

Warning: Connector covers are required on all circuit packs mounted on the storage frame to protect the circuit pack gold connectors.

4.06 When inserting a circuit pack in an apparatus mounting, carefully align the board in the associated upper and lower guide slots directly under its code on the destination card.

4.07 To remove a circuit pack from an apparatus mounting, raise the hinged designation strip and grasp the circuit pack faceplate. Then gently remove the pack from its position. The procedure for handling spare power converters and data sets is, for all practical purposes, the same as for the circuit packs.

4.08 Damage may also result from dirt and other contaminants that rub the gold contacts and cause premature wear of the circuit packs. Once the gold plating has worn off or been scratched, an insulating film will form on the exposed copper of the printed circuit board. This film will cause electrical noise in the circuit and, if undisturbed for a long time, can open the circuit.

4.09 There are two types of circuit pack connector covers. The first type is 3.5 inches long with rounded edges. It is only to be used on type "A" circuit packs. The second type cover is approximately 3 inches long with squared edges. It is to be used on all other types of circuit packs.

4.10 When plug-in units must be carried from a central stock location to a central office or vice versa, KS-21487 blister packs and a KS-21040 carrying case should be used. Another method is to wrap the unit in plastic bubble sheets, which are manufactured with bubble sizes of 1/8 inch, 1/4 inch, or 1/2 inch. The 1/2 inch size is recommended for wrapping units and should be available locally.