# 302- AND 308-TYPE CONNECTORS

# DESCRIPTION

# PROTECTOR FRAMES

CONTENTS PAGE



## 1. GENERAL

1.01 This section describes the 302- and 308-type connectors and the warning markers, guards, insulators, and indicators used with these connectors.

1.02 The reasons for reissuing this section are listed below. Revision arrows have been used to denote significant changes.

(a) Revise paragraphs 2.07 and 2.08 to cover description of 308-type 2 (hinged) connectors.

(b) Add paragraphs 2.09 and 2.10 to include information previously contained in paragraphs 2.07 and 2.08.

(c) Change numbers of Fig. 4 through 8 to Fig. 6 through 10, respectively.

(d) Add two figures (designated Fig. 4 and 5) depicting 308-type 2 connector.

(e) Revise Table A to add 308-type 2 connectors.

(f) Add "Protector Frames" to title.

1.03 The 302- and 308-type connectors provide features for voltage protection, current protec-

tion, testing, identification of special circuits, and disconnection of the outside cable pair from the central office equipment.

**1.04** The 3-, 4-, or 5-type protector units are used with the 302- and 308-type connectors to provide electrical protection. Section 201-208-100 has additional information on the protector units.

**1.05** The central office equipment cables are terminated at the rear of the 302- and 308-type connector on wire-wrap terminals.

## 2. DESCRIPTION

### 302-TYPE CONNECTOR

**2.01** The 302-type connector is available in two separate coded arrangements which apply to different frameworks (see Table A). The 302A1-type connector group (Fig. 1) is used on the ED-1A220-31 modular protector frame. The 302A3-type connector group (Fig. 2), ▶which supercedes the 302A2-type connector group,◀ mounts on the low profile double-sided protector frame. Section 201-219-101 contains the description of the protector frames.

**2.02** The molded plastic panel of the 302-type connector is equipped with 100 groups of 5-pin, grip-type terminals. Four of these terminals (tip and ring) are gold-plated (see Fig. 1). The fifth terminal (center) is solder-plated and provides a ground connection. On the 302A2-100, manufacture discontinued (MD), through 302E2-100 (MD) connectors, all five terminals are solder-plated.

> ***Note:*** Protector units with either gold-plated or solder-plated (MD) terminal pins can be used on the 302-type connectors with solder-plated line terminals. However, care should be taken not to use protector units with solder-plated terminal pins on 302-type connectors with gold-plated line terminals.

**2.03** Pair identification is provided on both the front and back of the connector with pair numbers molded into the connector. When protector units are installed in the connector, pair designation plates should be inserted between every five rows of protector units. These designation plates are marked on the top and bottom to indicate the tens and unit number of the adjacent jack or protector unit. Intermediate numbers are then easily obtained by their relative location to the identification plates.

**2.04** The 302-type connector has gold-plated test terminals which are arranged in two 50-pair groups and are located at the top and bottom of the connector.

**2.05** The test terminals are accessible from the front of the 302-type connector for attaching test connectors to accommodate the necessary test equipment.

> ***Warning: The connector test terminals are gold-plated. Any abuse such as locating tone with a probe, shorting or grounding pairs with long-nose pliers, etc, will damage the test connector.***

### 308-TYPE CONNECTOR

**2.06** The 308-type ▶1◀ connector (Fig. 3) provides a higher termination density than the 302-type ▶1◀ connector and is intended only for use on the ED-97898-31 modular protector frame. For terminating capacities of the modular protector frame, see Section 201-219-101.

**2.07** ▶The 308-type 2 connector (Fig. 4 and 5) provides a higher density option than the 302-type 3 connector for terminating and protecting outside plant cables on the ED-97755-71 low profile double-sided protector frame (LPDSPF) or modified ED-97755-70 LPDSPF.

**2.08** The 308-type 2 connector is basically the same as the 308-type 1 connector except for the mounting arrangement and the stub cable termination. The 308-type 2 connector has a hinged mounting bracket (Fig. 5) which attaches to the vertical member of the LPDSPF. The bracket has two quick-release one-quarter turn fasteners which allow the connector panel to hinge open for the attachment of the equipment cables. The connector is provided with a stub cable for either top or bottom entrance to the frame, depending on the type (308A2 through 308D2). The 308E2-type can be used for pair gain systems and is not provided with a stub cable. In all other respects, the 308-type 2 is the same as the 308-type 1 connector as described in paragraphs 2.09 and 2.10.◀

**2.09** The 308-type connector has a termination capacity of 100 pairs with the protector units arranged in a 5 by 20 array. The pair number identification is hot stamped on the front of the ▶molded plastic◀ connector panel.

**2.10** The 308-type connector has a single 100-pair gold-plated test terminal field which is lo-

cated on the front of the connector and adjacent to the protector unit array. As with the 302-type connector, the test terminals are easily accessible for attaching test ⏵connectors and⏴ cords. Section 201-208-102 contains the information on test connectors and cords.

***Warning: The connector test terminals are gold-plated. Any abuse such as locating tone with a probe, shorting or grounding pairs with long-nose pliers, etc, will damage the test connector.***

## 3. WARNING MARKERS

**3.01** Warning markers are used on the 302- and the 308-type connectors when abnormally high voltages are employed (such as breakdown tests). Pairs subjected to high voltages should be isolated from central office equipment, and a warning marker should be used on these pairs.

**3.02** The ***E warning marker (AT-8590)*** is a red molded plastic unit with white lettering at one end and three prongs on the other end. This warning marker is inserted in place of the protector unit as shown in Fig. 6 to alert personnel of applied high voltage on a particular outside-plant pair.

***Note:*** The E warning marker does not provide protection or circuit continuity when inserted into the connector panel.

**3.03** The ***E warning sign (AT-8325)*** is furnished with cords for securing it to the back of the 302- or 308-type connector as shown in Fig. 7. The cords may be tied around the wiring horns, cross arm supports, cable stubs, ground bars, or through fanning strip holes, whichever is most readily accessible. The combined use of the E warning sign and the E warning marker reduces the danger of exposure to high voltage by identifying both sides of the connector.

***Caution: An observer is required when performing a breakdown test on the 302- or the 308-type connector. A talking path must be set up prior to testing between the observer stationed at the distributing frame and the employee with the breakdown set. If arcing or smoke is seen, the observer should immediately inform the employee applying the voltage that the fault has broken down and no further voltage should be applied.***

**3.04** Warning markers and signs should not be removed or the pairs restored to normal until notified by the test desk or cable locating bureau according to local instructions.

## 4. GUARDS, INSULATORS, AND INDICATORS

**4.01** Guards, insulators, and indicators are used on the 302- and 308-type connectors to prevent service interruptions, equipment damage, and personal injury.

**4.02** On the 302- and 308-type connectors, whenever a jack is associated with a special service line, it is designated by a ***KS-14174, L7 designation pin*** (red) inserted into the hole provided for this purpose as shown in Fig. 8. A protector unit with a red housing is then inserted into the connector. Circuits, other than special service, are identified with various colored designation pins and protector unit housings of the same color. For regular service (standard circuit), no designation pin is used. Additional information on the KS-14174 designation pins and protector units is given in Section 201-208-100.

**4.03** The ***20A circuit guard*** is a cross-shaped metal strip used to prevent accidental removal of protector units from the 302- and 308-type connector. This guard is used on circuits requiring special service protection (SSP) or special safeguarding measures (SSM). The guard is designed with three holes, spaced for use with the 3B-, 4B-, and 5A-type protector units. Progressive steps for the installation of the guard are given below and are shown in Fig. 9.

(1) Determine the proper hole and snip off excess material, if any, at the notched edges adjacent to the hole.

(2) Insert the factory-provided, self-tapping screw into the selected hole and bend the strip to a 90° angle close to the head of the screw.

(3) Place the bent end of the guard into the protector location and install the screw into the designation pin hole.

(4) After the guard is secured to the connector panel, insert the protector unit into positon.

(5) The three tabs on the locking end of the guard are bent over and around the edges of the "T"

shaped pull handle of the protector unit. The protector unit is locked in place.

**4.04** The ***KS-19478, L1 guard*** (Fig. 10) is used to cover the recessed (tip and ring) test terminals associated with special service circuits on the test terminal fields of the 302- and 308-type connectors. The guard prevents accidental contact with the test terminals and deliberately acts as an obstruction to circuit interference from the contacts of a test connector.

> ***Danger: Use long-nose pliers to remove the guard from the test terminal field. If it is necessary to pry the guard with a screwdriver (never a knife), exercise extreme caution by prying it very slowly.***

## 5. REFERENCES

**5.01** The following Bell System Practices contain related information:

| SECTION | TITLE |
|---|---|
| 201-208-100 | 3-, 4-, and 5-Type Protector Units—Description |
| 201-208-102 | 302- and 308-Type Connectors—Associated Test Connectors and Cords-Description |
| 201-219-101 | Protector Frames—Description. |

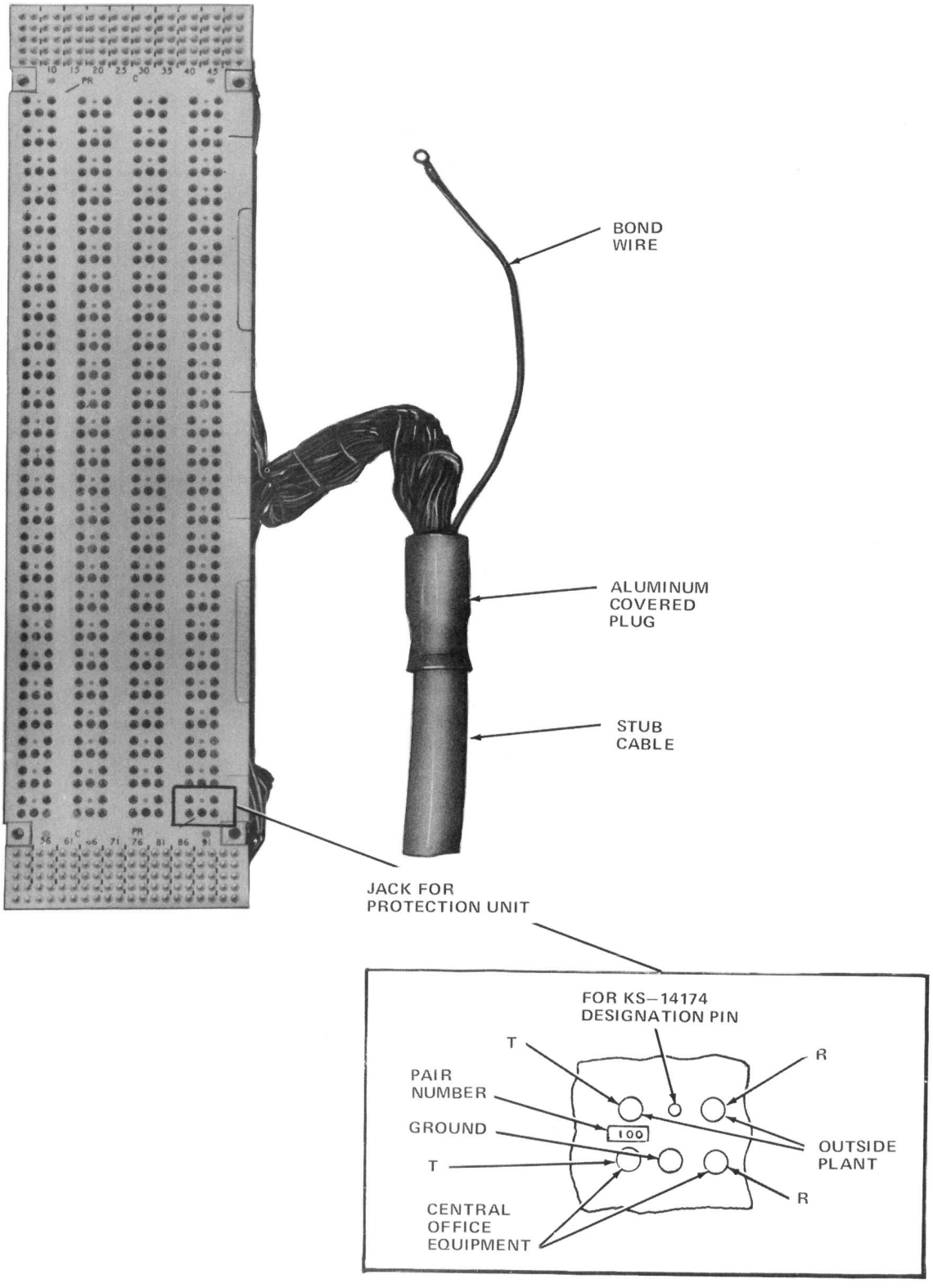



**Fig. 1—302A1-Type Connector**

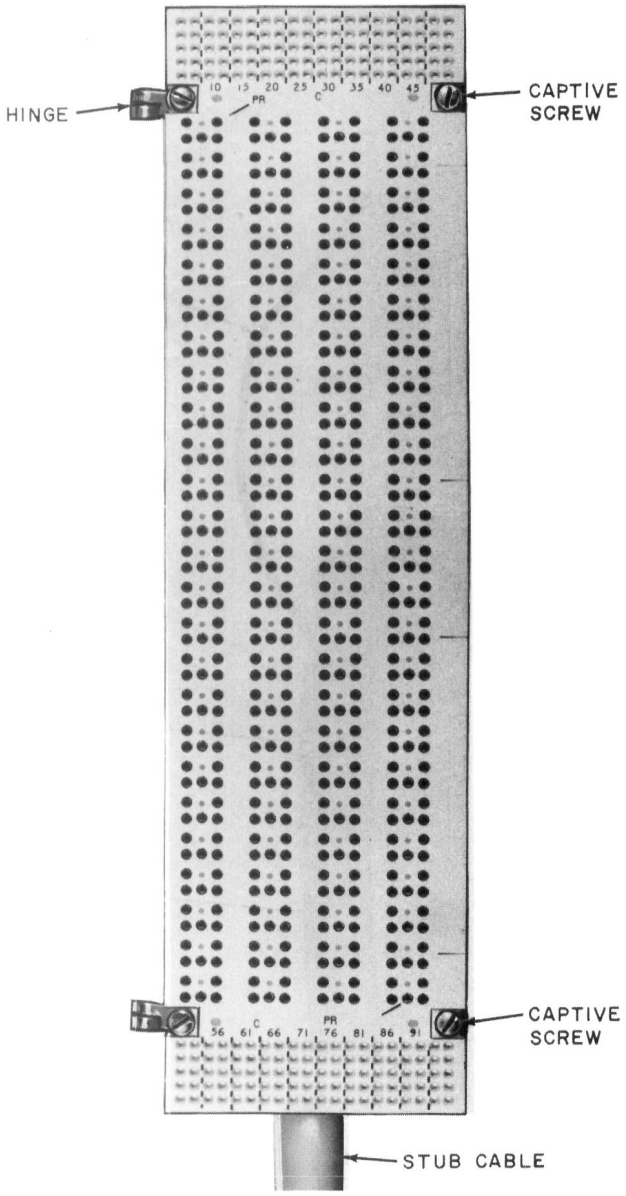
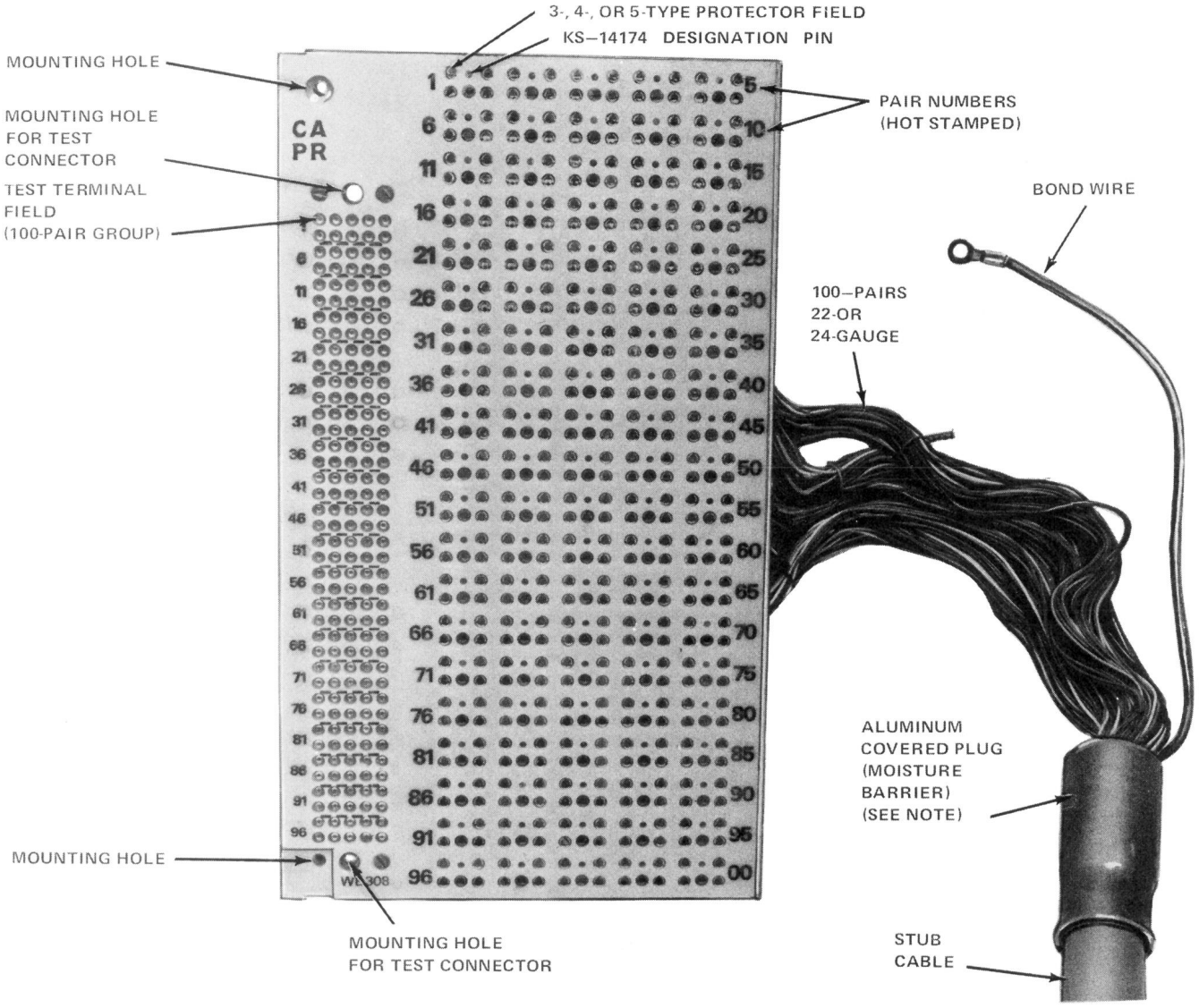



**Fig. 2—302A3-Type Connector**




NOTE:
FACTORY-INSTALLED PLUG PREVENTS MOISTURE FROM ENTERING THE CO SPLICE DUE TO "BREATHING" ACTION OF CABLE DURING CHANGES IN TEMPERATURE.

**Fig. 3—308-Type 1 Connector**

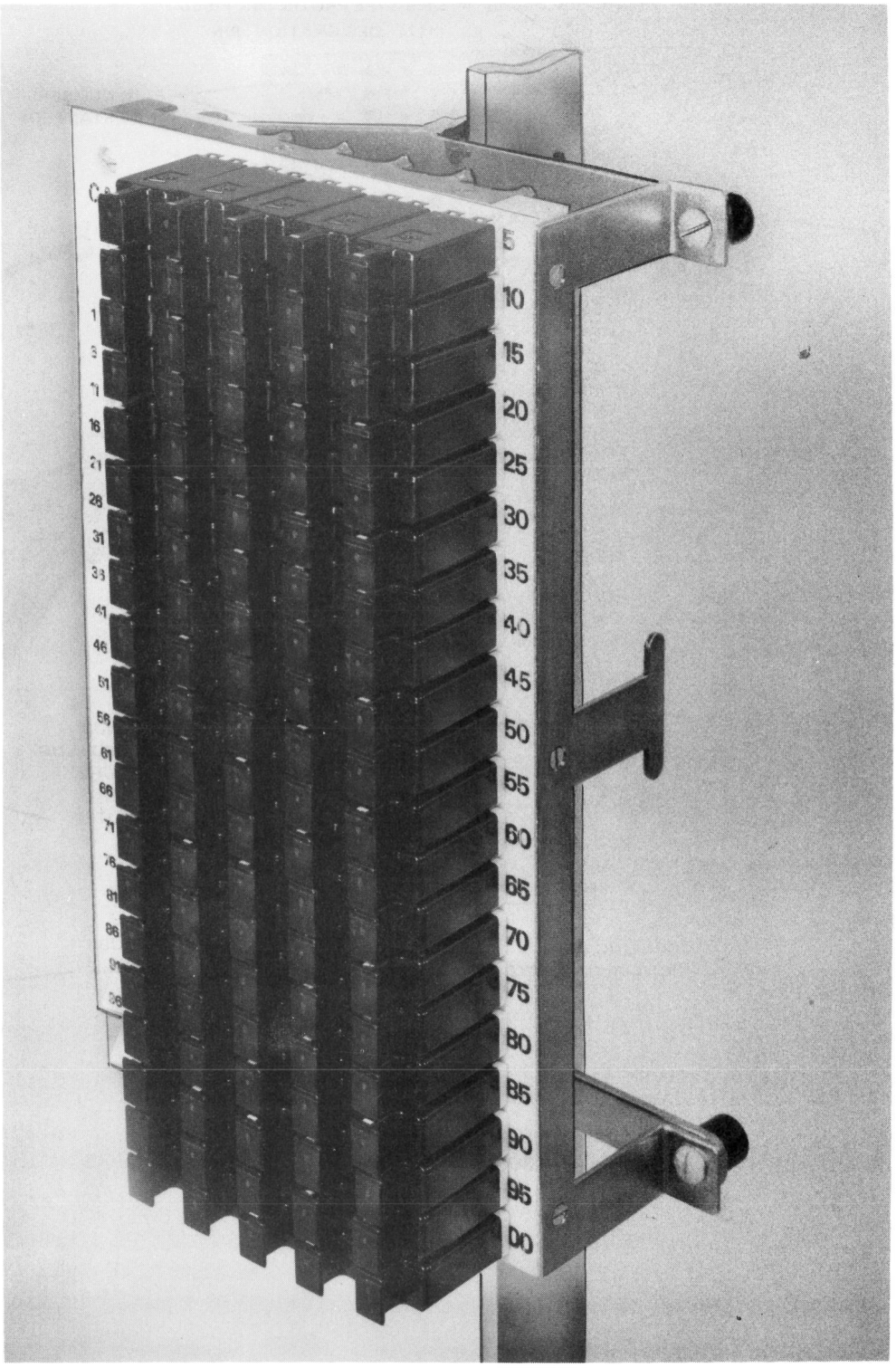



Fig. 4—308-Type 2 Connector

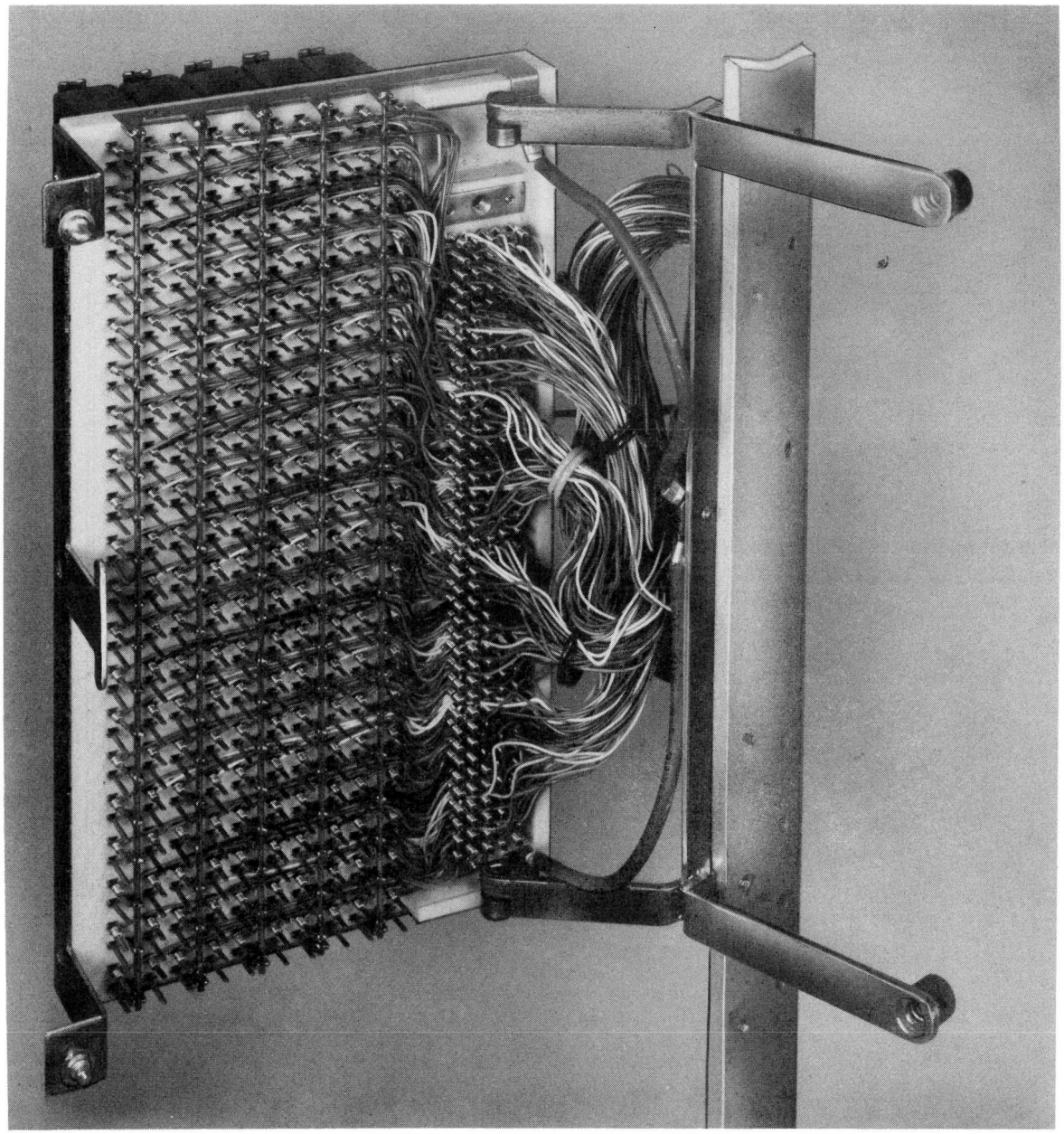


Fig. 5—308-Type 2 Connector—Opened on Hinges

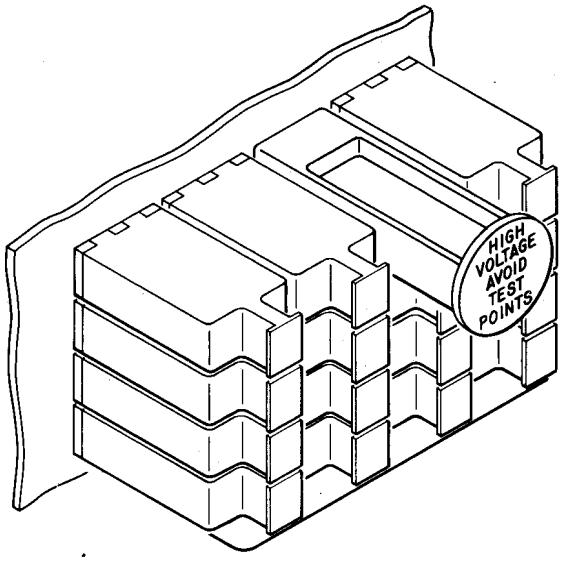



Fig. 6— E Warning Marker Installed on 302-Type Connector (Installed Similarly on 308-Type Connector)

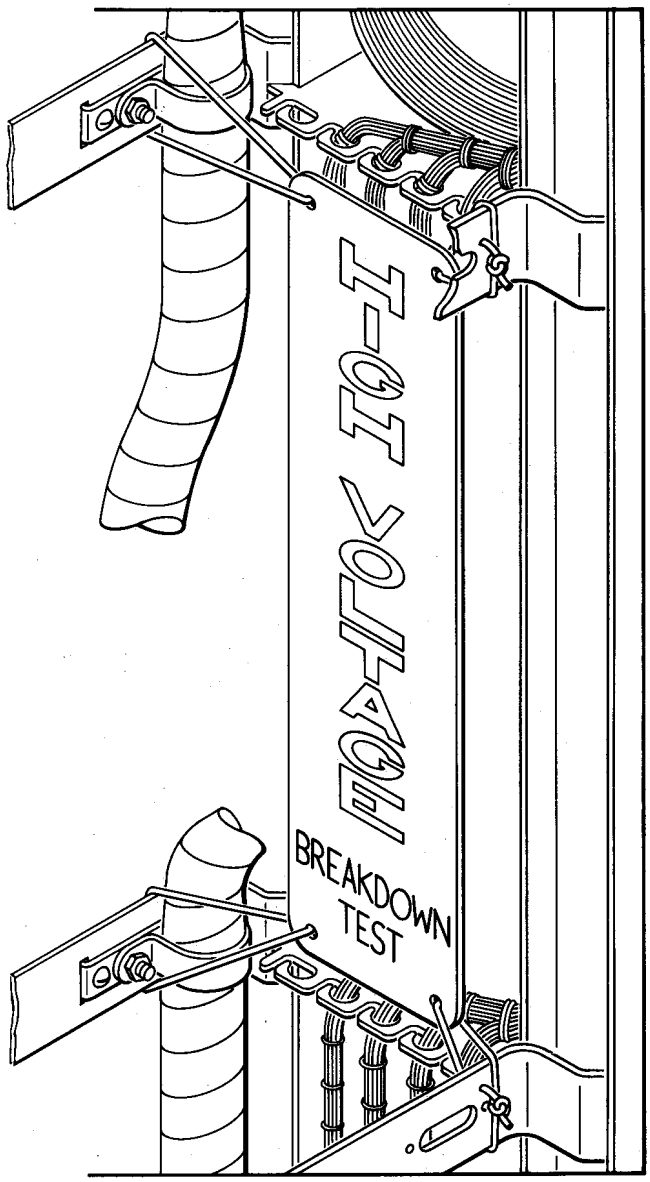



Fig. 7—E Warning Sign Installed on Backside of 302-Type Connector (Installed Similarly on 308-Type Connector)

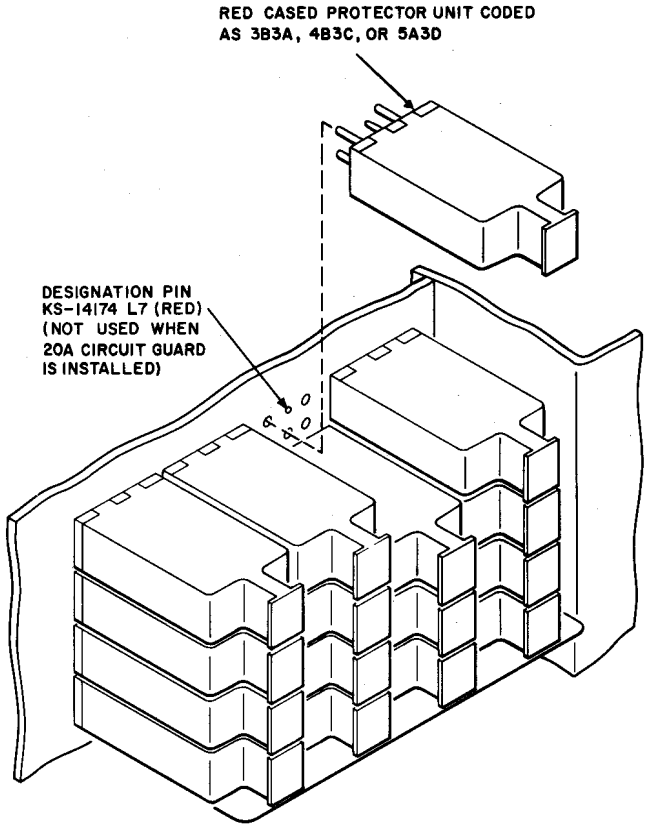



**Fig. 8— Use of KS-14174 Designation Pin and Red Cased Protector for 302- and 308-Type Connector**

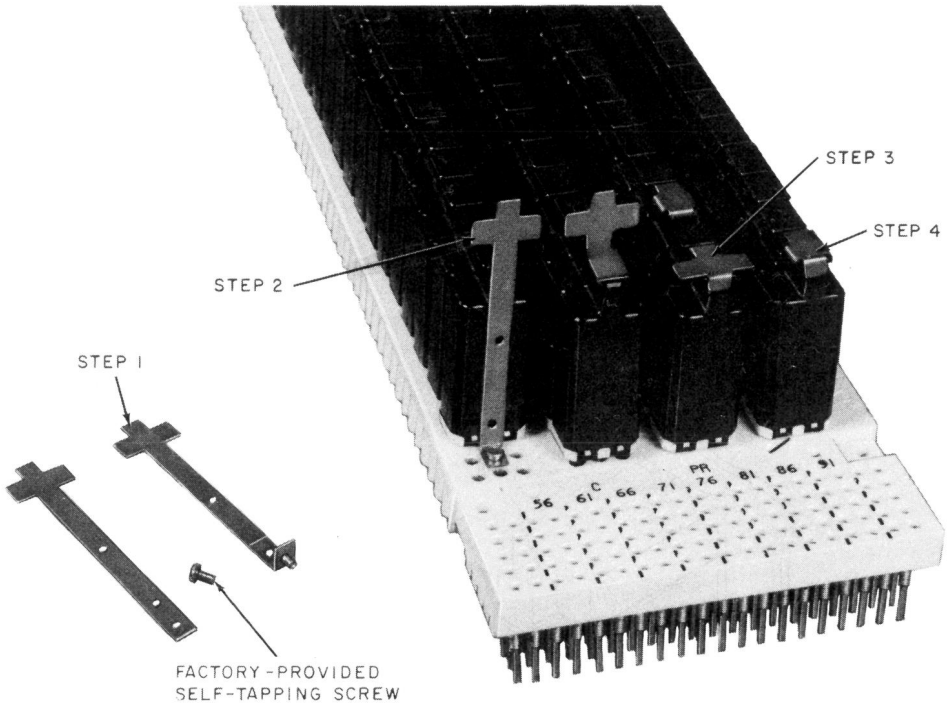



**Fig. 9—Installing 20A Circuit Guard**

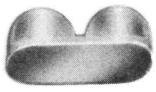


**Fig. 10—KS-19478, L1 Guard**

→TABLE A←

**STANDARD AND SUPERSEDED CODES OF THE 302- AND 308-TYPE CONNECTOR**

| STANDAR CODES (See Note) | | SUPERSEDED CODES (See Note) | | |
|---|---|---|---|---|
| CONNECTORS | CONNECTOR CONTACT PLATING | CONNECTORS | CONNECTOR CONTACT PLATING | APPLICATION |
| 302A1-100<br>302B1-100<br>302E1-100 | Gold | None | — | Modular Protector Frame (ED-1A220-31 only) |
| 302A3-100<br>302B3-100<br>302C3-100<br>302D3-100<br>302E3-100 | Gold | 302A2-100<br>302B2-100<br>302C2-100<br>302D2-100<br>302E2-100 | Solder | Low-Profile and Tall Double-Sided Protector Frame |
| 308A1-100<br>308B1-100 | Gold | None | — | Modular Protector Frame (ED-97898-31 only) |
| 308A2-100<br>308B2-100<br>308C2-100<br>308D2-100<br>308E2-100 | Gold | None | — | Low Profile Double-Sided Protector Frame (LPDSPF) |

***Note:*** For complete listing of protector units, see Section 201-208-100. Stub cables are available in 30-, 50-, 80-, 100-, 150-, and 200-foot lengths.