

**INSTALLATION AND REMOVAL TOOLS AND PROCEDURES**  
**SERIES 90 SWITCH/INDICATORS**  
**AND**  
**MATRIX SYSTEMS**

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PURPOSE:

To provide sufficient information to the customer to enable installation or extraction of crimp pins, removal of pushbuttons, switches, and receptacle assemblies.

1. CRIMP PIN INSERTION PROCEDURE:

Insertion tool for crimp pin socket contacts. Stacoswitch PN: 15190 (Military PN: M27534-20). This tool is used to insert the crimp pin socket contacts Stacoswitch PN: 15095 (Military PN: M390208/16-168) into the receptacle. This tool has the insertion part (Red) on one end and the extraction part (White) on the opposite end of the same tool.

1.1 Place contact (attached to wire) into terminal opening in rubber seal. (Fig. 1)

1.2 Position curved metal blade of the Red end of insertion tool in opening next to contact so that the end of tool rests on contact shoulder. Push on insertion tool to seat contact on retaining plate. Tabs, compressed during insertion, will spring inward, locking contact. (Fig. 1 & 2)

1.3 Remove insertion tool and test contact seating by pulling on wire. (Fig. 2)

2. CRIMP PIN EXTRACTION PROCEDURE:

Extraction tool for crimp pin socket contacts Stacoswitch PN: 15190 (Military PN: M27534-20). This tool is used to extract the crimp pin socket contacts Stacoswitch PN: 15095 (Military PN: M39029-16-168) from the receptacle.

2.1 Position curved metal blade of the White end of extraction tool in opening next to contact. (Fig. 3)

2.2 Push tool into hole to force retainer clip tabs outward from contact. Push tool in until it bottoms out on contact shoulder. Twist tool about 90 degrees each way to assure that tabs are out of the way. (Fig. 3)

2.3 Pressing exposed wire against serrations on the plastic part of the tool, pull the tool, wire and contact, out of the terminal opening. (Fig. 3)

3. CRIMPING TOOL AND POSITIONER FOR SOCKET CONTACTS

The crimping and positioner tool is used to crimp wire leads to the socket contacts PN: 15095 used for crimp pin receptacle.

3.1 Crimping tool: Stacoswitch PN: 15191 (Military PN: M22520/1-01) (Fig. 4)

3.2 Positioner: Stacoswitch PN: 15192 (Military PN: M22520/2-14)  
(Fig. 4)

3.3 Data sheet and detailed instructions are provided with crimping tool.

4. PUSHBUTTON REMOVAL PROCEDURE:

Pushbutton removal tool (see Figure 5) Stacoswitch PN: 15193. This tool is used to remove individual pushbuttons from their respective matrix assembly.

4.1 Position tangs of removal tool into detent on each side of pushbutton. (Fig. 6)

4.2 Squeeze legs of tool and pull pushbutton out of switch. (Fig. 6)

5. SWITCH/RECEPTACLE REMOVAL PROCEDURE:

Switch removal tool (see Fig. 7) Stacoswitch PN: 15056. This tool is used to remove the switch subassembly from its respective matrix assembly. Removal of switch or receptacle from the model 95 or 97 matrix frame may be difficult due to friction of the 12 crimp pin terminals. For easy removal use a "Switch removal tool" (Fig. 7) Stacoswitch PN: 15056.

5.1 To remove switch using a "Switch removal tool", (pushbutton already removed), loosen two cam nuts (Switch) retaining switch to matrix frame. Screw heads are located at the top of the switch in the pushbutton cavity. (Fig. 8) Turn two or three complete revolutions.

5.2 Insert "Switch removal tool" into pushbutton cavity (loosen eyebolt handle to relax rubber expander on tool prior to insertion). (Fig. 8)

5.3 Tighten eyebolt, only enough to provide friction for removal of switch. Too tight will bulge sides of switch causing excess friction between housing and matrix frame.

5.4 Pull on eye bolt to remove switch. (Fig. 9)

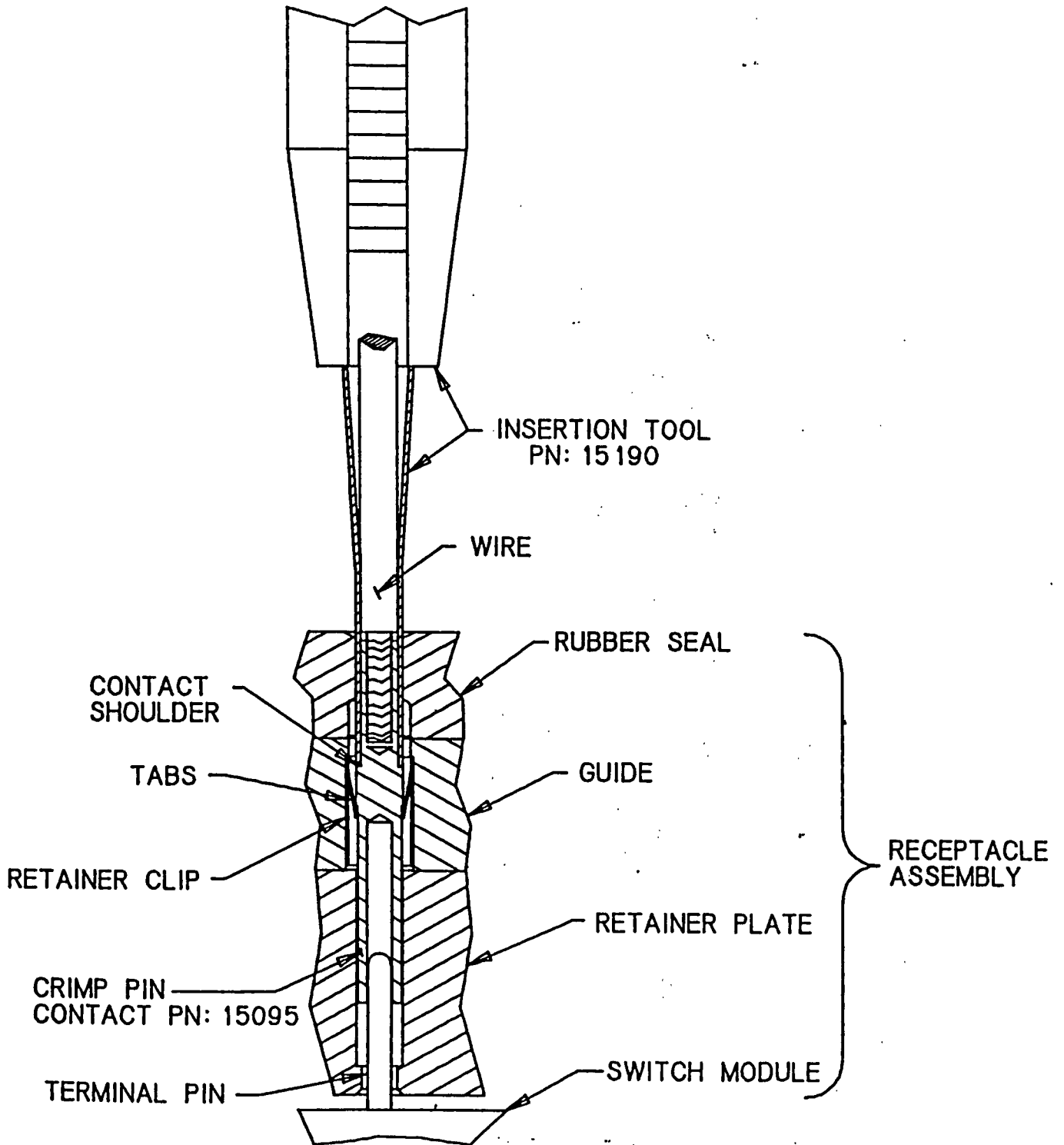
5.5 Loosen eye bolt to remove tool from switch.

5.6 The receptacle is retained in the matrix housing by two cam nuts. To remove, first remove the switch, then turn the two receptacle screws two or three complete revolutions. The receptacle may then be removed from the matrix housing.

5.7 Note: For installation of switch, to assure that cam nuts will lock switch or receptacle to matrix frame, position cam nut approximately in the center of screw thread.



INSERTION OF CRIMP PIN CONTACTS



**FIG. 1**  
INSTALLING CRIMP PIN CONTACT

INSERTION OF CRIMP PIN CONTACTS

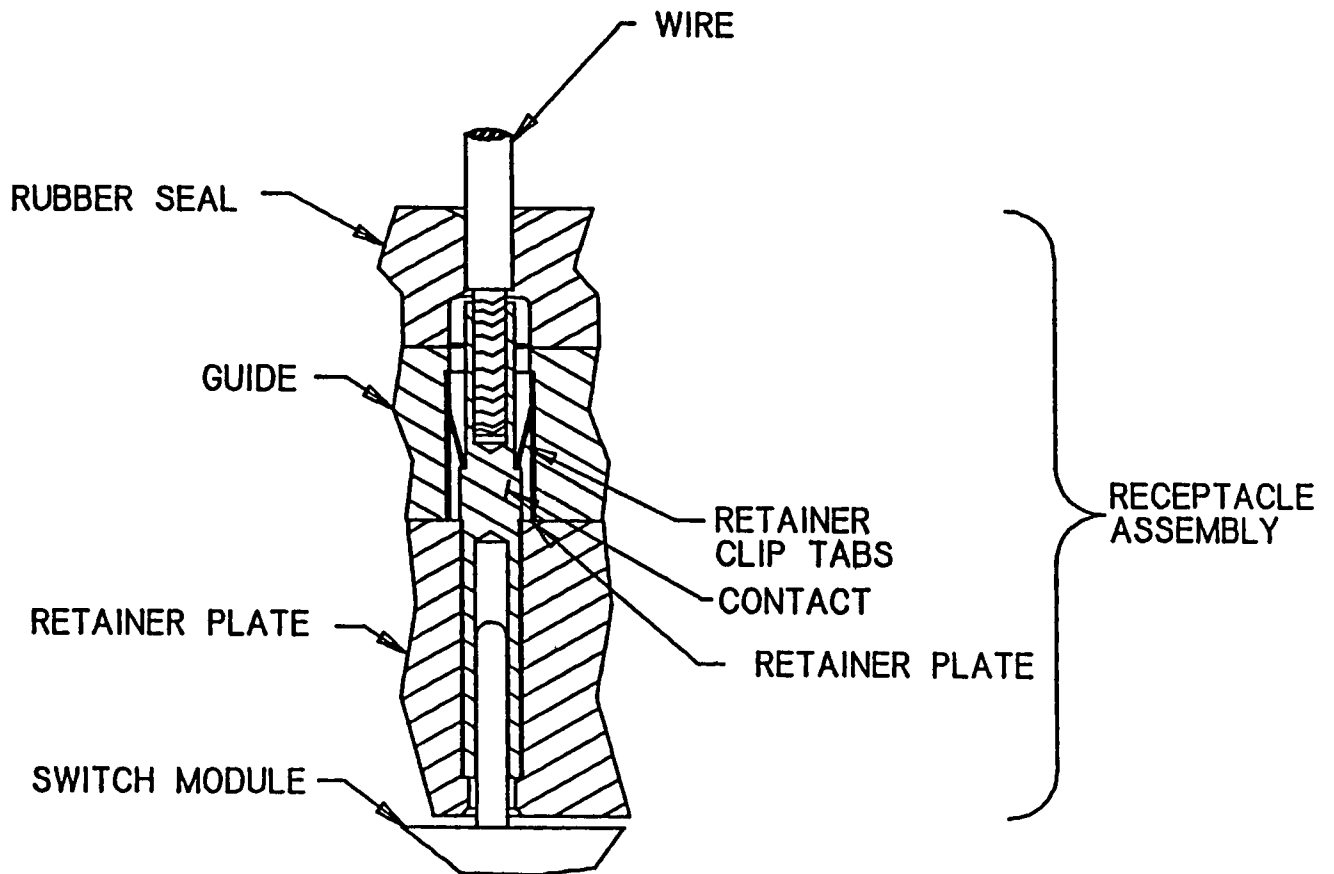


FIG. 2

CONTACT IN PLACE

EXTRACTION OF CRIMP PIN CONTACTS

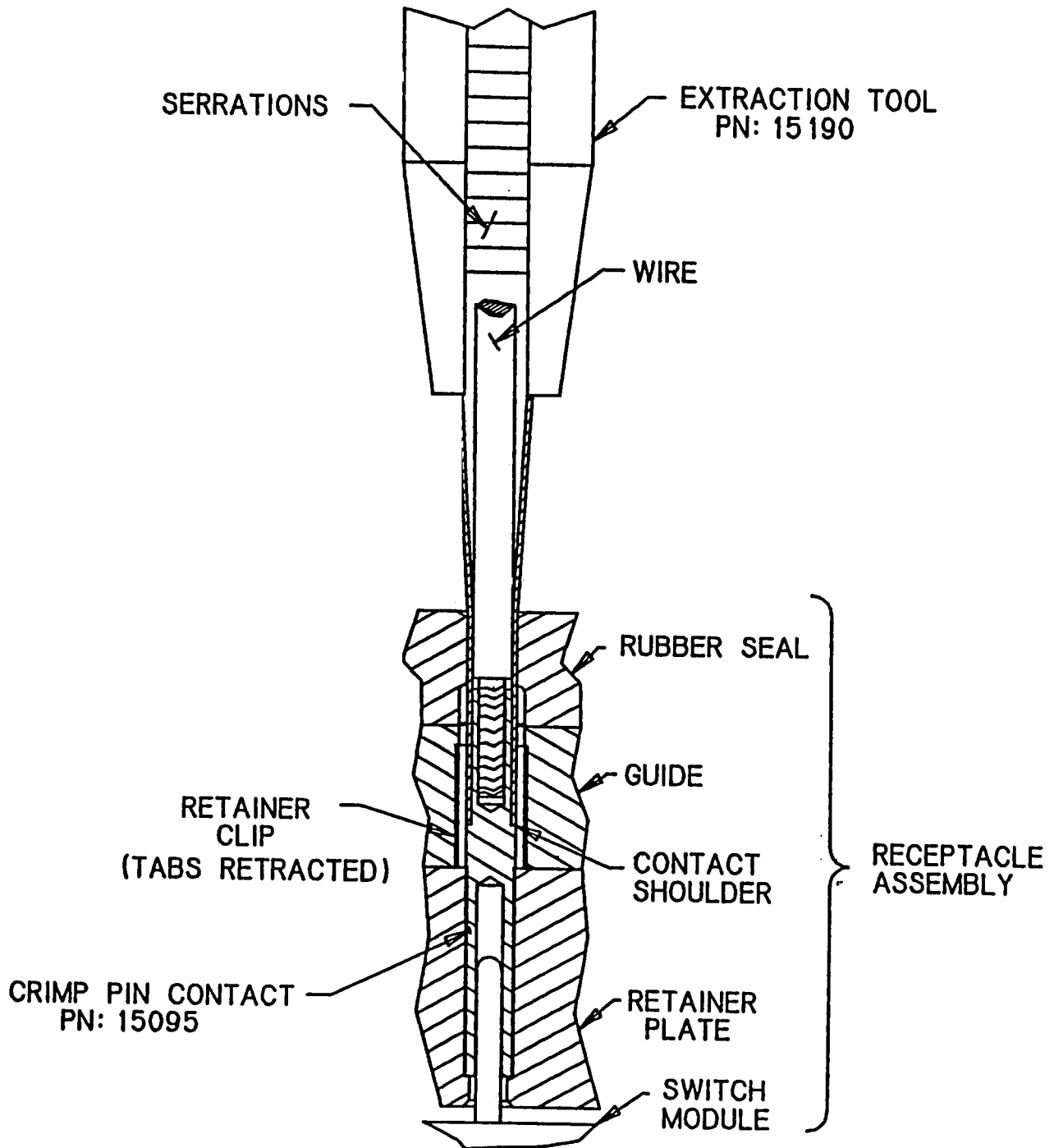


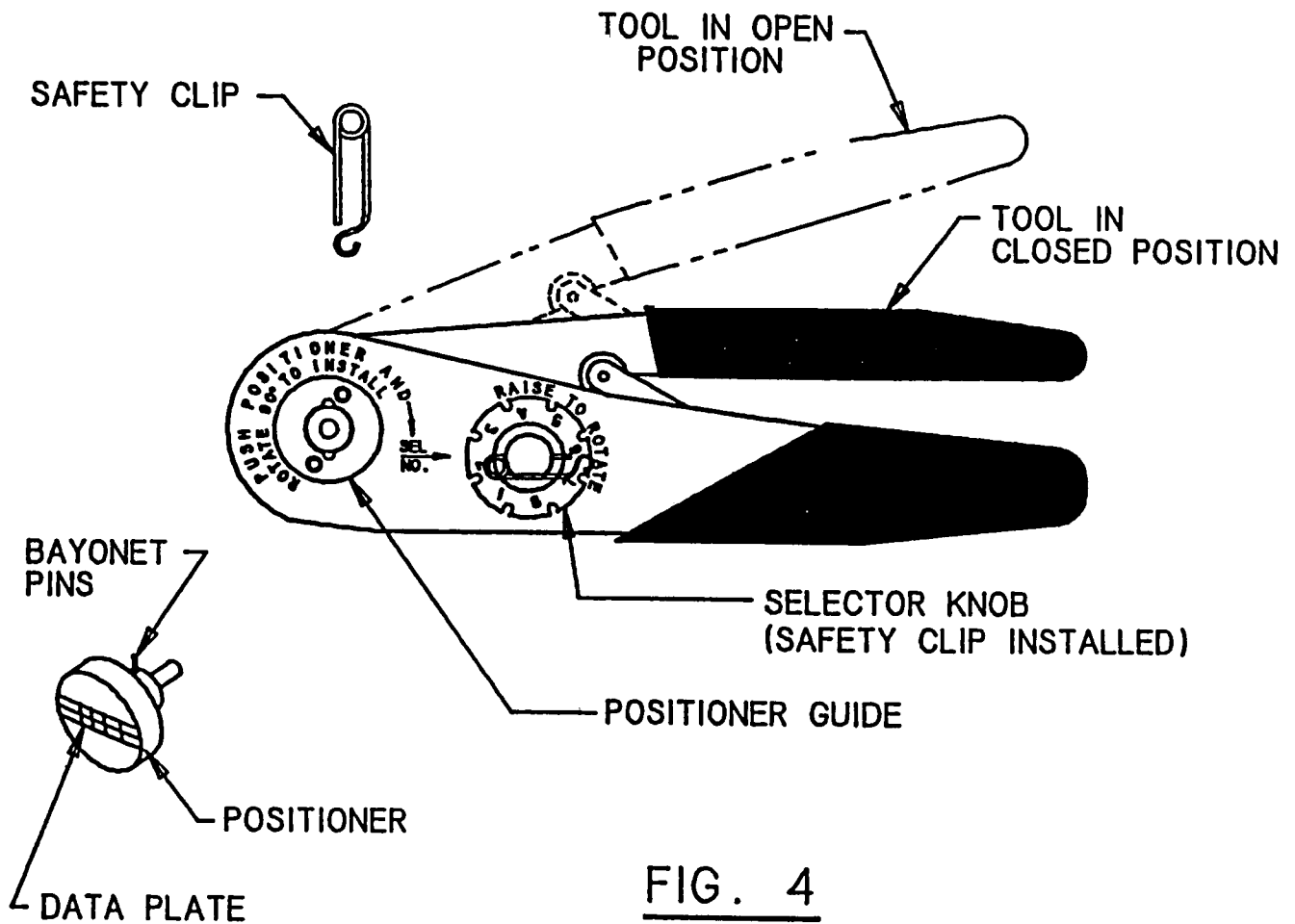
FIG. 3



# STACOSWITCH

A COMPONENTS CORPORATION OF AMERICA COMPANY  
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## SERIES 90 CRIMPING TOOL AND POSITIONER FOR SOCKET CONTACTS



### CRIMPING TOOL

STACOSWITCH PN: 15191 (MILITARY PN: M22520/1-01)

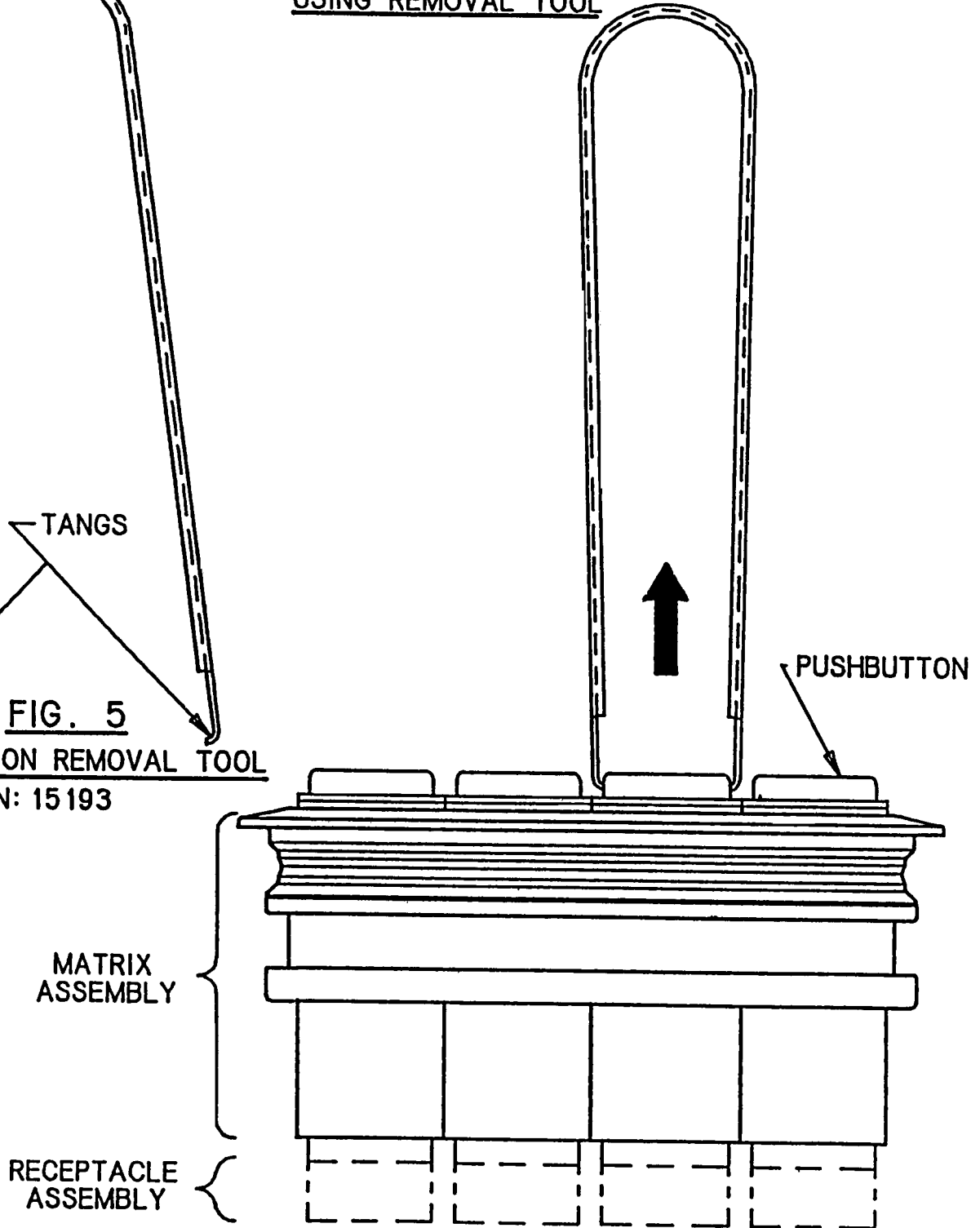
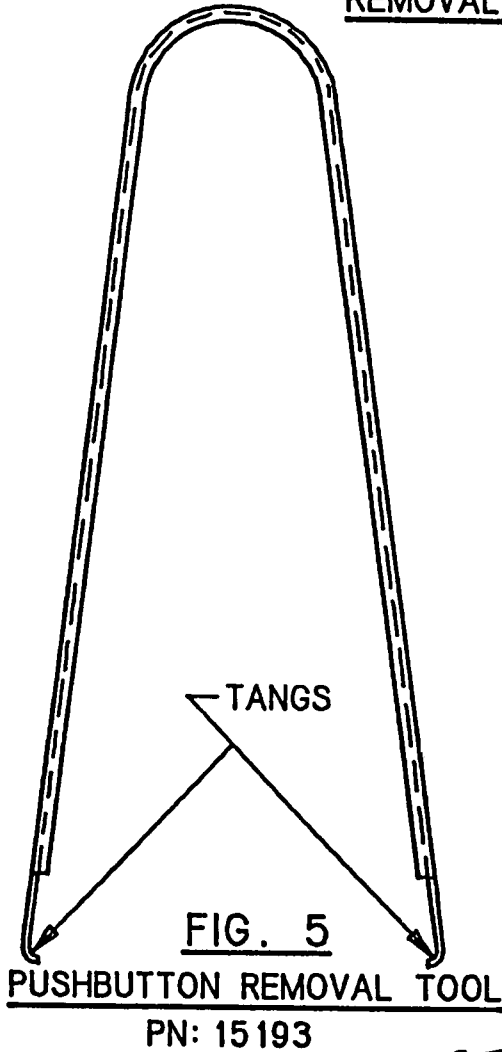
### POSITIONER

STACOSWITCH PN: 15192 (MILITARY PN: M22520/2-14)

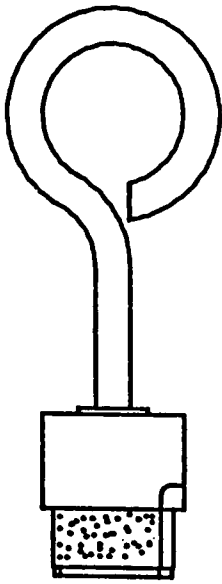




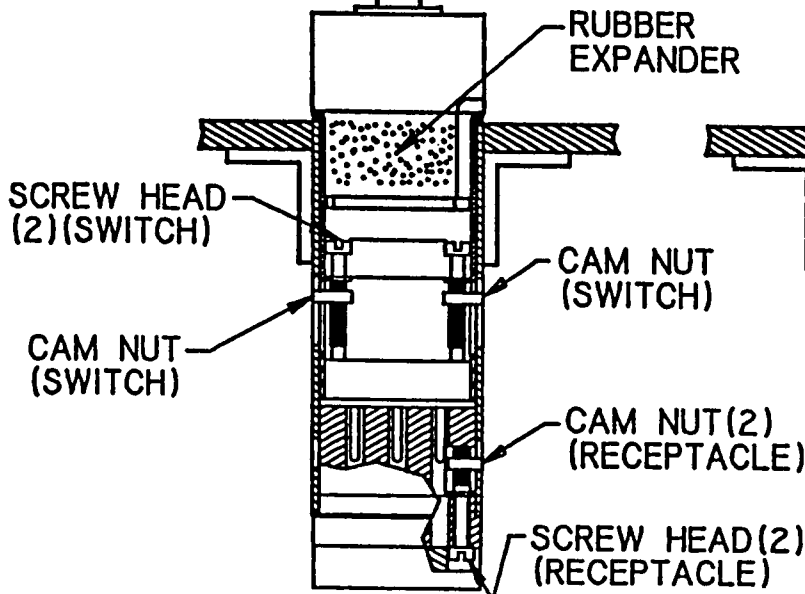
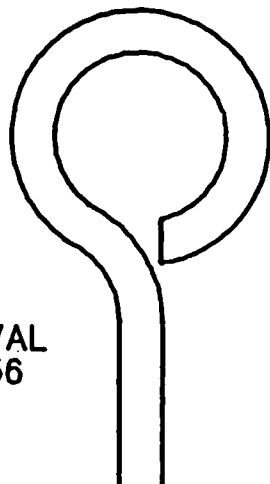
MODELS 94 THRU 97  
REMOVAL OF PUSHBUTTONS FROM MATRIX  
USING REMOVAL TOOL



**MODELS 95 & 97 CRIMP PIN**  
 REMOVAL OF SWITCH OR RECEPTACLE  
 FROM MATRIX FRAME, USING SWITCH REMOVAL TOOL

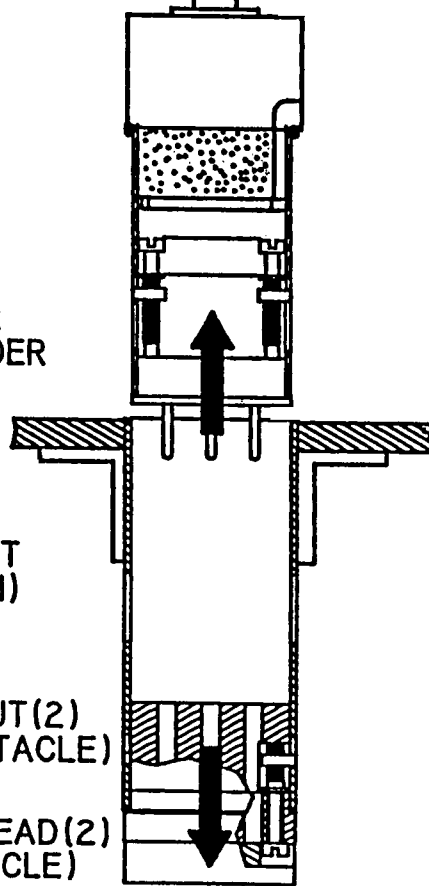
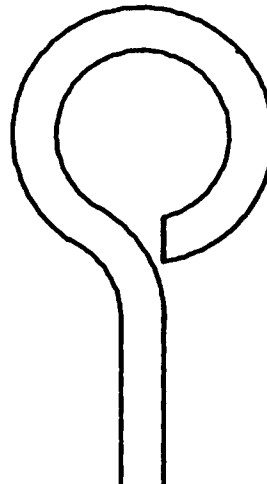


**FIG. 7**  
 SWITCH REMOVAL  
 TOOL PN: 15056



**FIG. 8**

SWITCH IN MATRIX FRAME.  
 SWITCH REMOVAL TOOL IN POSI-  
 TION IN SWITCH PUSHBUTTON CAVITY



**FIG. 9**

SWITCH REMOVED FROM  
 MATRIX FRAME USING  
 SWITCH REMOVAL TOOL

SWITCH

MATRIX  
 FRAME

RECEPTACLE  
 ASSEMBLY