

## 300 AND SIMILAR TYPE SWITCHES AND 245 AND SIMILAR TYPE RELAYS SOLDERING STRAP WIRES

### 1. GENERAL

1.01 This section covers procedures for unsoldering and soldering strap wires of 300 and similar type switch multiples and 245 and similar type relay contact springs.

1.02 This section is reissued to list the No. 537A strap wire tool.

1.03 The procedure for shaping the tip of the soldering copper and for using and maintaining the soldering copper is covered in Section 069-140-811.

### 2. TOOLS AND MATERIALS

2.01 No. 537A strap wire tool.

2.02 Soldering copper.

2.03 Piece of 1/32" sheet fiber approximately 1-1/2" wide (See 3.02). (RM-591863 or equivalent).

### 3. PREPARATION

3.01 Take the equipment out of service in the approved manner before starting the work.

3.02 Before unsoldering or soldering strap wires, provide a protective covering for the apparatus below. A suitable protection is a piece of 1/32" sheet fiber approximately 1-1/2" wide and long enough to span the length of the wire on which the work is to be done. Place this piece of fiber on the terminals directly beneath those on which the work is to be done.

### 4. PROCEDURES

4.01 *Unsoldering Single Strap Wire Connection:* To remove a strap wire connection from a terminal, place the hot soldering copper

against the soldering lug so as to melt the solder which holds the wire to the lug. As the solder melts, place the end of the No. 537A strap wire tool having the slot at right angles to the length of the tool below the wire where the lugs point up and above the wire where the lugs point down as shown in Fig. 1. Push the wire out of the slot in the lug, taking care not to stretch or otherwise damage the wire. Hold the wire away from the lug long enough to permit the solder to solidify, then remove the strap wire tool.

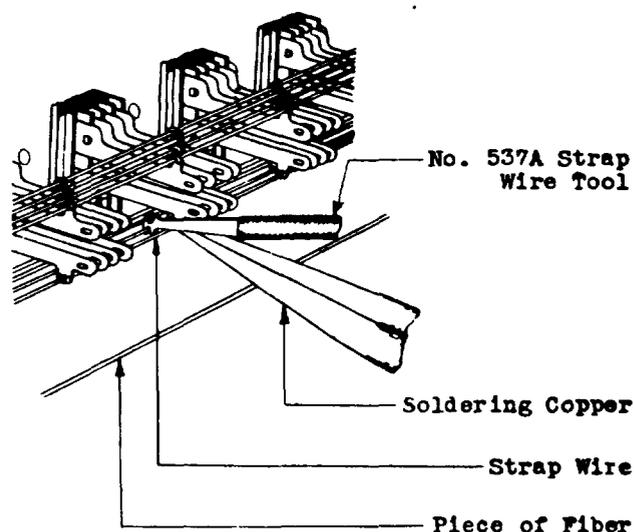
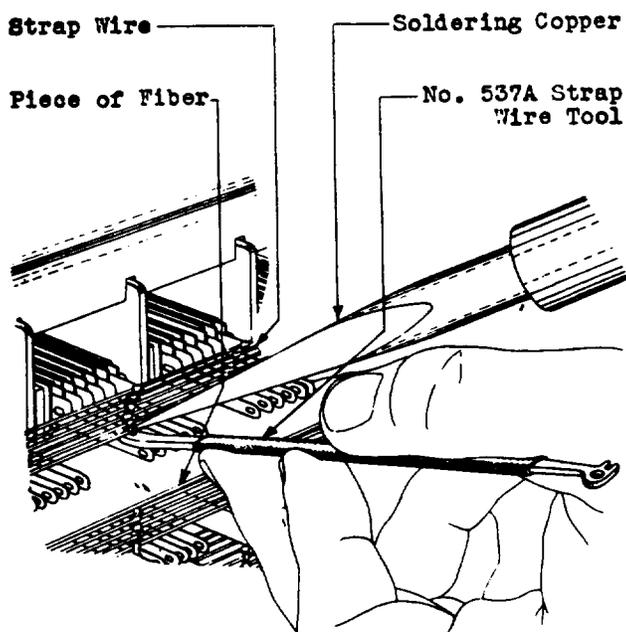


Fig. 1 - Method of Unsoldering Single Strap Wire Connection

4.02 *Unsoldering All Strap Wire Connections of Vertical Unit of a 300 or 301 Type Switch or of a 245 Type Relay:* Where all of the strap wire connections are to be removed from a vertical unit of a 300 or similar type switch or from a 245 or similar type relay, begin at the top terminals and work downward. On

each individual crosspoint, remove the wire farthest from the framework first and work inward.

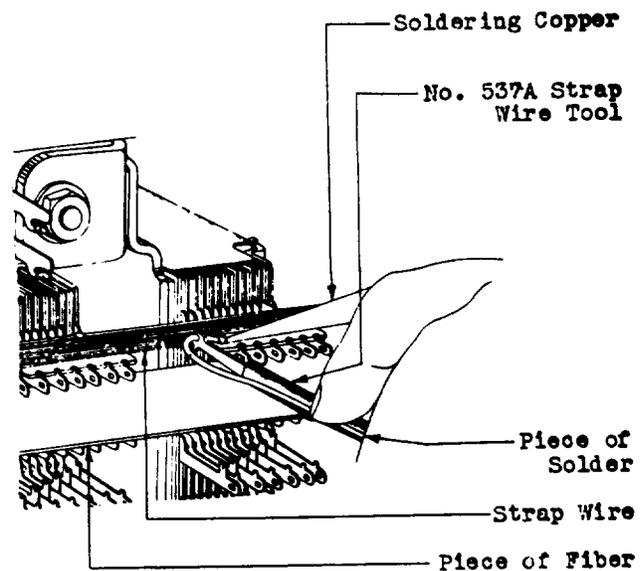
**4.03** On each individual wire, place the hot soldering copper against the soldering lug so as to melt the solder which holds the wire to the lug. As the solder melts, place the sharp end of the No. 537A strap wire tool on the terminal so that the tool straddles the soldering lug and the tool is below the wire where the lug point up and above the wire where the lugs point down. (See Fig. 2.) Withdraw the soldering copper and, at the same time, carefully pry the wire out of the slot in the lug, taking care not to stretch or otherwise damage the wire.



**Fig. 2 – Method of Unsoldering Strap Wire Connection Where all Connections at Crosspoint are Being Removed**

**4.04 Soldering Single Strap Wire Connection:** Make sure that the soldering lug and the wire are thoroughly clean or a satisfactory job cannot be done. Cut a piece of wire solder about 8" long and thread approximately 3/8"

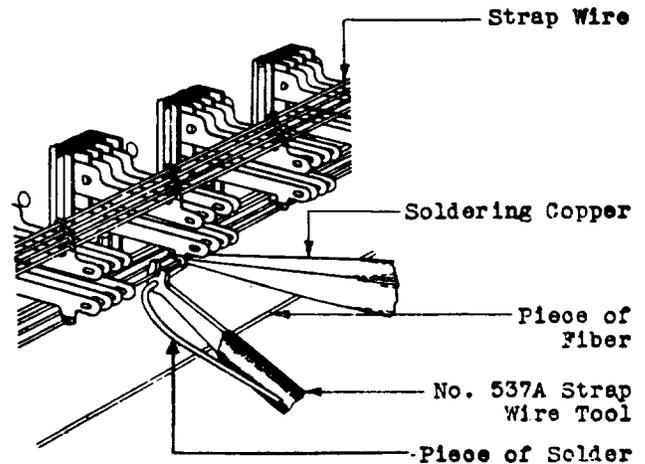
through the hole in the strap wire tool. Bend the portion of the solder not projecting through the hole so that it is parallel to and against the handle of the tool so that the solder and tool can be held in the same hand. Place the end of the strap wire tool having the slot at right angles to the length of the tool on the wire so that the solder will be at the point at which the wire is to be soldered as shown in Fig. 3 or 4 depending upon whether the lugs point up or down. While holding the wire in position in the lug, place the tip of the soldering copper against the wire, solder and lug so that the solder will be carried to the lug. Draw the soldering copper over the wire so that the solder will flow under and around the wire and then draw the soldering copper off the lug so as to carry with it any surplus solder and leave a clean, smooth joint. Take care not to leave an excess amount of solder on the connection so as to avoid short circuiting adjacent terminals. When the solder solidifies, remove the strap wire tool. If sufficient solder is not carried to the lug repeat this operation. Smooth out any bulges or kinks in the wire with the strap wire tool.



**Fig. 3 – Method of Soldering Strap Wire Connection Where Soldering Lugs Point Up**

**4.05 Soldering All Strap Wire Connections to Vertical Unit of 300 or Similar Type Switch or to a 245 or Similar Type Relay:** Where all strap wire connections of a 300 or similar type switch vertical unit or of a 245 or similar type relay are to be soldered, work on the top crosspoint first and proceed downward. In the case of 245 and similar type relays, make sure that the insulator is in place on the soldering lugs. On each individual crosspoint, solder the wire nearest the framework first and work outward. Solder each wire to its respective terminal as covered in 4.04.

**4.06** After all wires are soldered, remove any particles of solder or dirt that may have become lodged on adjacent apparatus. Check that the requirements specified for the apparatus are met, after which restore the apparatus to service.



**Fig. 4 – Method of Soldering Strap Wire Connection Where Soldering Lug Point Down**