

POLYTHENE CABLES

Conductor Jointing Using Connectors, Wire Insulated No. 1 and 1A and Pliers, Crimping No. 2

[NOTE:- This Instruction cancels F 9216(TD)]

1 General. This Instruction describes the method of conductor jointing using Connectors, Wire Insulated (CWI), Nos. 1 and 1A, and Pliers, Crimping No. 2. This method of conductor jointing must be used for all joints between aluminium conductors and between aluminium and copper conductors. It is also suitable for joints between copper conductors.

2 Limitations. The method of jointing described in this Instruction is subject to the following limitations:-

(a) Because the connectors are comparatively expensive they should not be used for cables having copper conductors and containing over 100 pr.

(b) At present, supplies of connectors and crimpers are limited and they are only available to Areas where, for sizes up to 100 prs. aluminium conductor cables are being installed exclusively. In these Areas they may be used for all joints up to 100 pairs.

(c) Small numbers of Connectors Wire Insulated No. 1A and Pliers, Crimping No. 2 will also be supplied to those Areas making joints in cabinet shells and jointing posts.

3 Description of Connectors, Wire Insulated, No. 1 and 1A (see Fig. 1). The connectors consist of an inner serrated tinned phosphor bronze sleeve inserted into an outer brass sleeve, which is in turn insulated with a plastic sleeve. The connectors are closed at one end, the conductors to be jointed being inserted at the other. The connectors are approximately 1 in. in length.

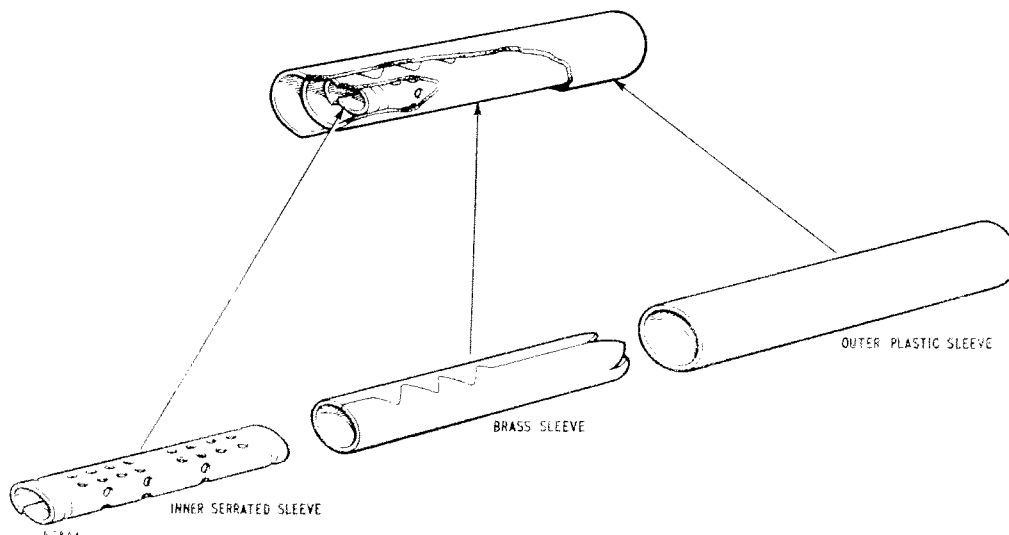


FIG. 1

The conductors to be jointed are inserted in the connector, which is crimped in a specially designed tool so that the serrations on the inner sleeve pierce the insulant and make contact with the conductors (see Fig. 2).

4 Types of connector. The types of connectors and their use are as follows:-

- (a) Connectors, Wire Insulated No. 1 - white outer sleeve.
- (b) " " " No. 1A - blue outer sleeve, grease filled.

Grease filled connectors should be used for jointing in cabinet shells and jointing posts. Unfilled connectors should be used for all other purposes.

Initial supplies of connectors may not be of standard colour.

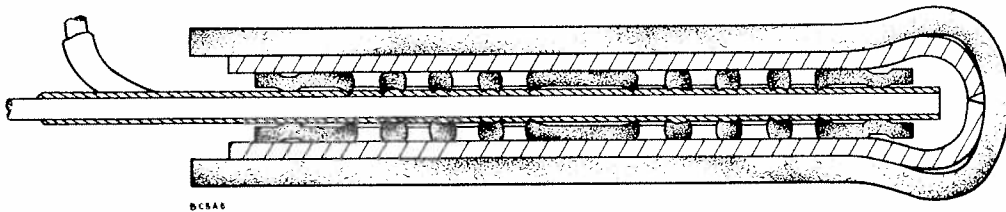


FIG. 2

Tables 1 and 2 show the sizes of conductor that can be jointed using Connectors Wire, Insulated No. 1 and 1A.

TABLE 1 - Straight Connections

1st Wire	2nd Wire						
	4lb	6½lb	10lb	20lb	0.5mm	0.6mm	0.8mm
4lb	✓	✓	✓	✓	✓	✓	✓
6½lb	✓	✓	✓	✓	✓	✓	✓
10lb	✓	✓	✓	No	✓	✓	✓
20lb	✓	✓	No	No	✓	✓	No
0.5mm	✓	✓	✓	✓	✓	✓	✓
0.6mm	✓	✓	✓	✓	✓	✓	✓
0.8mm	✓	✓	✓	No	✓	✓	✓

TABLE 2 - Teed Joints

1st Wire	2nd Wire	3rd Wire						
		4lb	6½lb	10lb	20lb	0.5mm	0.6mm	0.8mm
4lb	4lb	✓	✓	✓	✓	✓	✓	✓
4lb	6½lb	✓	✓	✓	No	✓	✓	✓
4lb	0.5mm	✓	✓	✓	No	✓	✓	✓
4lb	0.6mm	✓	✓	✓	No	✓	✓	✓
6½lb	6½lb	✓	✓	No	No	✓	✓	No
0.5mm	0.5mm	✓	✓	✓	No	✓	✓	No
0.5mm	0.6mm	✓	✓	No	No	✓	No	No

Connections not included in the above tables or marked "No" cannot be made with Connectors, Wire, Insulated. In these cases a short length of 6½lb copper wire should be jointed in, using an extra connector.

5 Description of Pliers Crimping No. 2. The pliers are shown in Fig. 3. The jaws are inside the opening in the head of the tool. There is a latch which ensures that when the handles are operated they will not release until they have been fully closed. This ensures that connectors are properly crimped.

At the base of the jaws is a stop that limits the depth to which the connectors can be inserted. On the earlier tools manufactured by Walter Rose KG, the stop was in the form of a flat plate but this was found to be unsuitable and was changed to a stepped plate with the step protruding into the jaw aperture. If any tool is found to have a flat plate it should not be used until it has been modified. Stepped back plates can be obtained from THQ /TD 8.2.1. They should be fitted so that the step reduces the depth of the jaw aperture. A check gauge is supplied with each tool.

Before use the pliers should be examined to ensure that the catch is functioning correctly and the jaw gap should be checked with the gauge (see para. 6) to ensure that the tool has not become maladjusted.

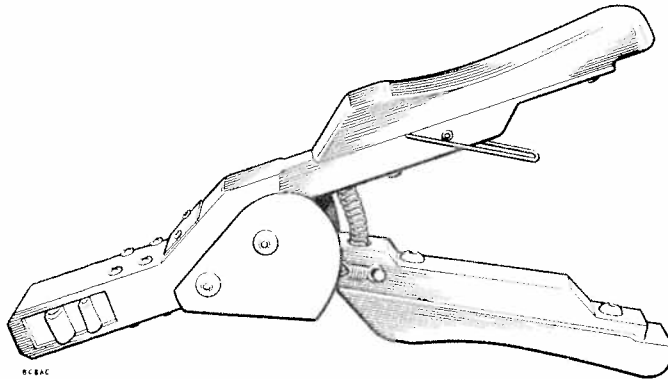


FIG. 3

6 Description and use of Gauges Check 1.9 mm. The check gauge consists of approximately $3\frac{1}{2}$ in. of $3/16$ in. gauge plate $5/16$ in. wide. One end is ground down to 1.9 mm for a distance of about $1\frac{1}{8}$ in. Later issues of gauge have a plastic handle and cover.

With the handles in the fully closed position, it should not be possible to insert the 1.9 mm end of the check gauge fully into the jaws of the pliers. If the pliers meet this condition they are correctly adjusted.

Pliers should be checked daily before jointing commences. Should they accept the 1.9 mm gauge, they must be exchanged. Do not attempt to adjust the pliers to prevent the gauge entering the jaws.

7 Jointing the conductors. For polythene to polythene insulated conductors take the appropriate pair from each side of the joint and twist the four wires together (see Fig. 4) for one complete turn at a distance of approximately $1\frac{1}{4}$ in. from one end of the jointing gap. Do not wipe the petroleum jelly off the polythene insulant. Repeat this operation with subsequent pairs at intervals of approximately $1\frac{1}{4}$ in. across the jointing gap. Cut all the twisted conductors to approximately 1 in. in length beyond the twisted portion. Do not remove the insulant (see Fig. 5).

Separate each group of four wires into "A" wires and "B" wires and place a Connector, Wire Insulated No. 1 over each pair of "A" wires and each pair of "B" wires, making sure the wires are parallel. (see Fig. 6). Push the connector down until the ends of the wires butt against the end of the inner sleeve of the connector. All pairs across the jointing gap should be fitted with connectors. Then crimp each connector in the line by placing the jaws of the pliers over it and closing the handles (see Fig. 7). It is important that the connectors are fully inserted within the jaw aperture, and touching the back plate whilst crimping. Lay the crimped connectors flat by passing the hand over them (see Fig. 8); this action will show up any connector which has not been crimped by brushing it off the wires. Joint the remaining pairs in the same way.

Occasionally it may be necessary to joint polythene insulated conductors to paper insulated conductors. This should be done by partly separating the pairs of wires, taking the appropriate wire from each side of the joint, twisting them together and proceeding as previously described for polythene to polythene insulated conductors.

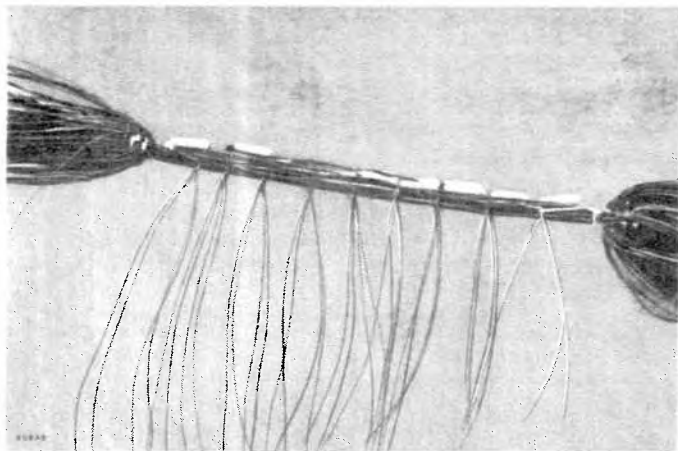


FIG. 4

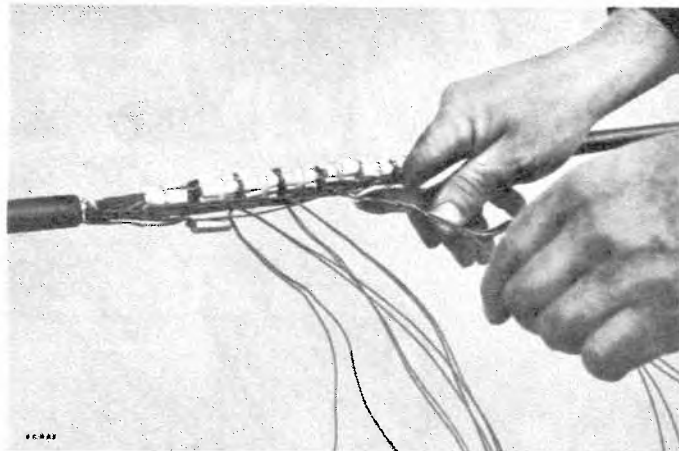


FIG. 5

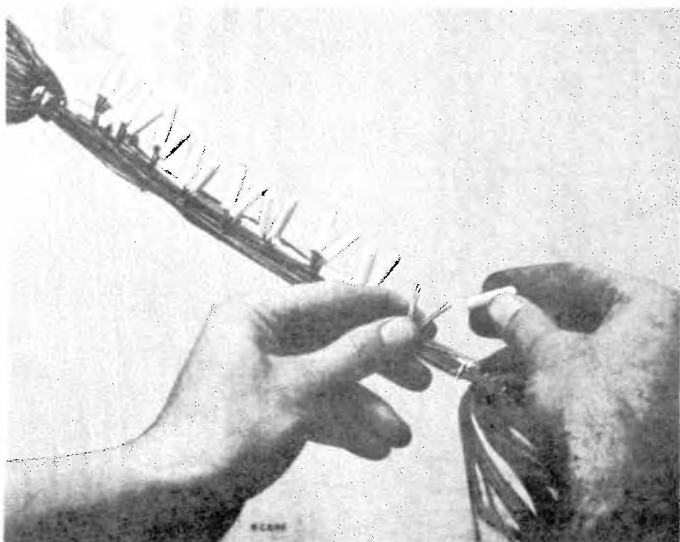


FIG. 6

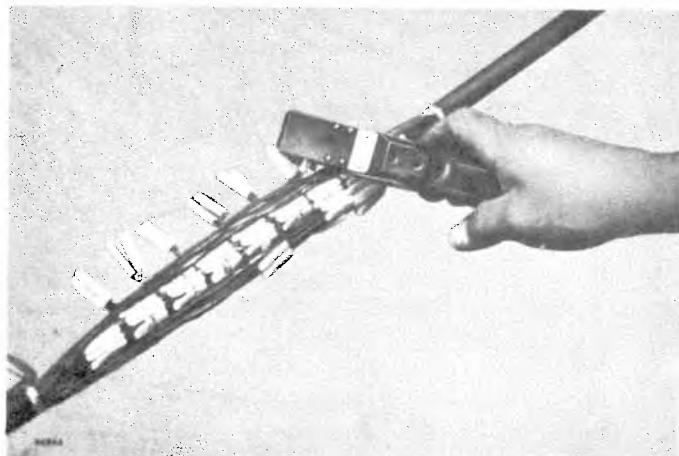


FIG. 7

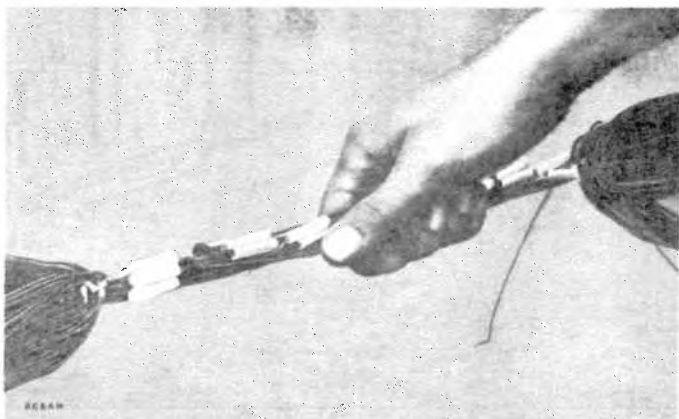


FIG. 8

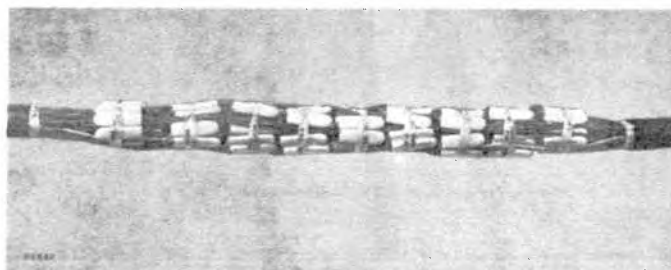


FIG. 9

8 Closing the Joint. When all the Conductors have been jointed, the joints must be closed in accordance with F 3232 or F 3260.

Silica Gel must be inserted in accordance with F 3292 in all joints except those filled with epoxy resin in accordance with F 3272.

References:- F 3232, F 3272, F 3292, F 3260
(TD 8.2.1)

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