STRIPPING AND BUTTING CABLES

This E.I. details the methods and tools to be used when stripping and butting Braided, Lead Covered and Plastic cables.

INDEX.

1. RESPONSIBILITY.

1.1 The Officer-in-Charge of a section of apparatus on which cabling work is being done (usually a Senior Technician) is responsible for:-

Using the most suitable number of men for the job.

Seeing that each man is fully employed.

Seeing that each man has the necessary tools, as detailed herein, and examining these before work starts.

Examining all platforms, stages, etc. for correct fixing and safety.

Using the methods in these E.Is. to ensure a high standard of workmanship.

2. PRECAUTIONS.

2.1 Stripping is removing all outer coverings from cable.

Butting makes a neat and tidy finish at the point from which the outer covering is removed from cable.

When stripping and butting it is imperative to:-

Determine the thickness of the outer covering.

Check the cable to see that the wires are laid up neatly; if any of the wire groups appear to be misplaced within the sheath of the cable, take extreme care when stripping the outer covering from the cable.

Check that the setting of the adjustable blade type stripping tools (see Figs. 6 and 15) is sufficient to cut the outer covering only and will not cut into the inner wrapping or the wires.

Ensure that the butting point is correctly marked before butting and stripping.

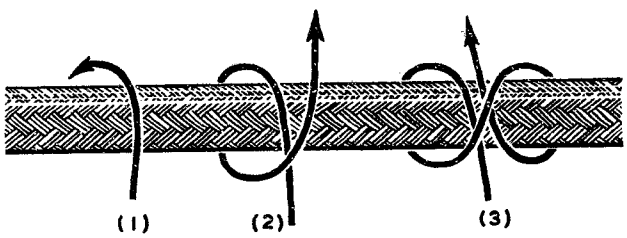
Identify each cable to ensure that both ends are in the correct position and at the correct terminating point, terminal block, shelf, etc.

Make sure the covering and paper strips from cable do not accumulate on the floor but are placed in waste boxes. This will minimise the fire risk.

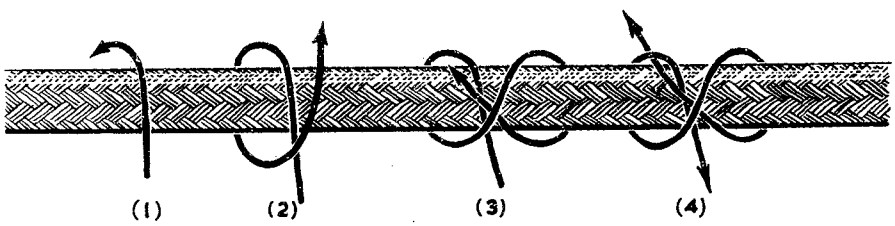
Check (a) the tightness of the initial lacing knot during the process of butting to ensure that the wires are not being too tightly packed, (b) that the stripping tools are sharpened and that they will not damage the wires and (c) that the stripping is done in such a way that injury to persons is avoided.

3. BRAIDED CABLES AND STRIPPING TOOLS.

3.1 Butting Braided Cable. A piece of lacing twine is tied around the cable at the position where the butt is required, see Fig. 1. Fig. 1a shows a conventional clove hitch and Fig. 1b a modified clove hitch; the modified clove hitch should be used when butting braided cables. The twine is pulled tight and the ends cut off close to the knot. The outer covering is carefully stripped to the twine; the braid is then carefully trimmed to the twine with diagonal cutting pliers (or scissors) as in Fig. 2 to 5. The edges of the braid and the tape must not be tucked back under the cotton braiding.



(a) Clove Hitch.



(b) Modified Clove Hitch.

KNOTS FOR BINDING BRAIDED CABLE BUTTS.

FIG. 1.

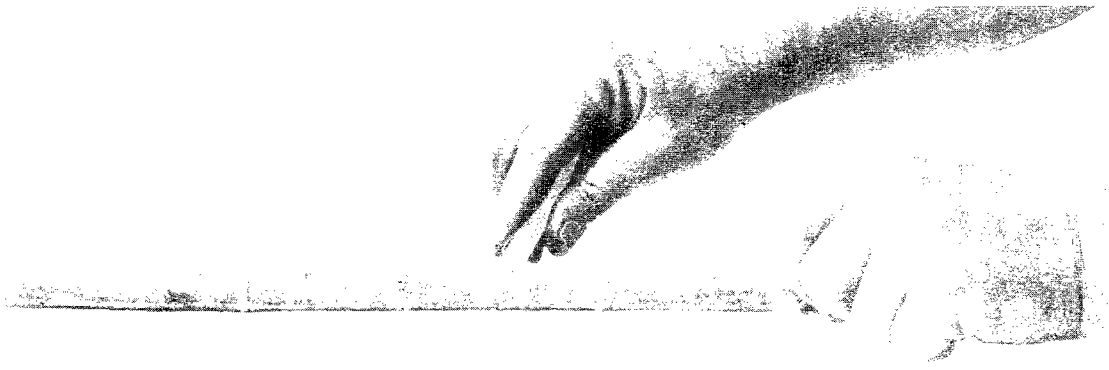


FIG. 2. CUTTING BRAIDED CABLE COVERING.

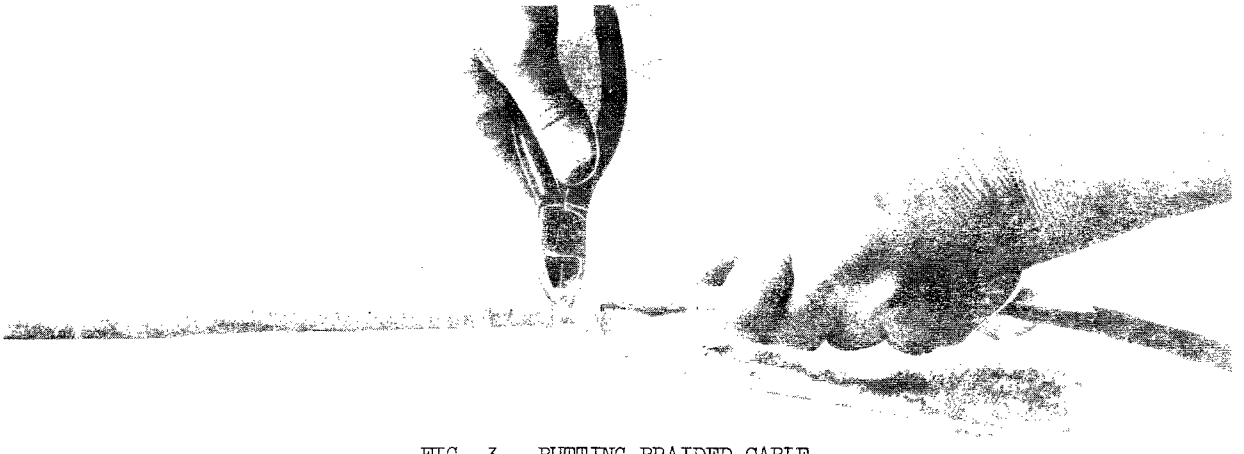


FIG. 3. BUTTING BRAIDED CABLE.

FIG. 4. CUTTING ROUGH THREADS FROM BUTT.

FIG. 5. BUTT ON BRAIDED CABLE.

STRIPPING TOOLS.

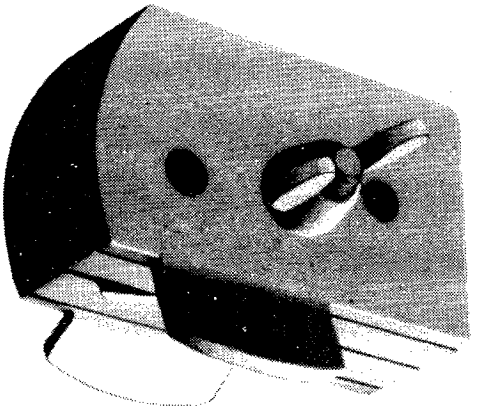
3.2 Tools for Stripping Braided Cable. The tools in general use for stripping braided cable are -

Razor blade type.
Ground hack-saw blade.
Pocket knife.
Tool similar to A.T.E. Tool No. L.14607A.

Each of these tools is satisfactory but must be used with care to avoid cutting the textile insulation of the wires.

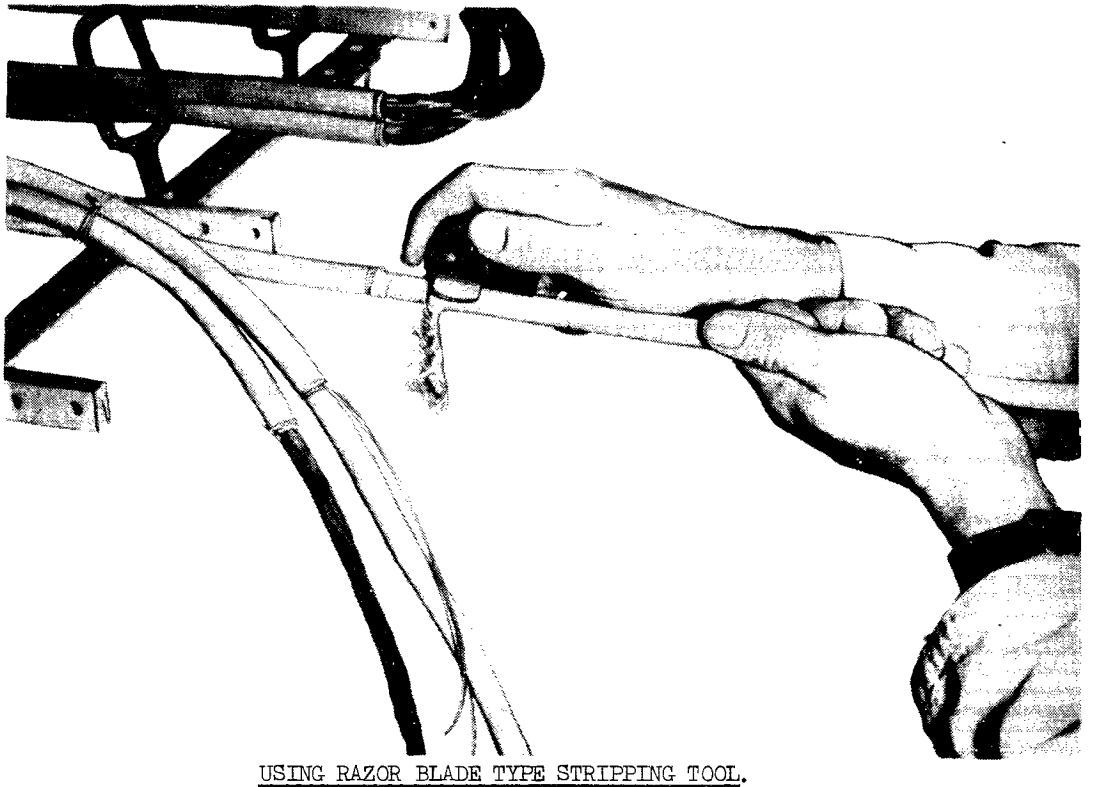
When using any stripping tool, the cable must be held taut to eliminate flexing and to prevent the tool from bedding into the wires below the outer covering.

Razor Blade Type. With the razor blade type stripping tool (Fig. 6) it is essential that the blade does not project further than is necessary to cut through the outer covering of braid with normal pressure applied to the tool. The end of the cable is held in the left hand and pulled taut and the tool is pulled along the cable with the right hand towards the user (see Fig. 7).



RAZOR BLADE TYPE STRIPPING TOOL.

FIG. 6.



USING RAZOR BLADE TYPE STRIPPING TOOL.

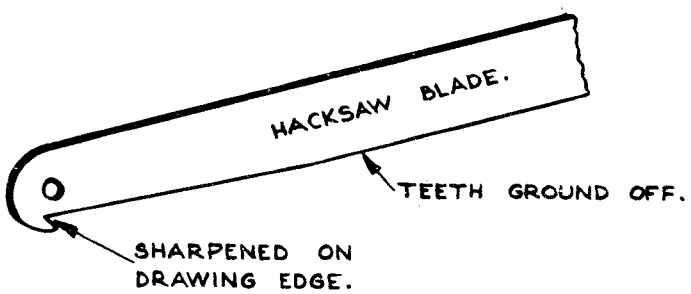
FIG. 7.

(Note the different stages of Stripping and Butting.)

Hack-saw Blade Type (see Fig. 8). This tool is restricted to the following methods -

(i) The cable is held in the left hand and pulled taut and the tool is held in the right hand at an acute angle to the cable; the point of the tool is then pressed into the cable and drawn towards the user. Great care is necessary to avoid cutting the wires. This method applies only to short lengths of cable, particularly those which are fixed to frameworks such as T.C.F's, etc.

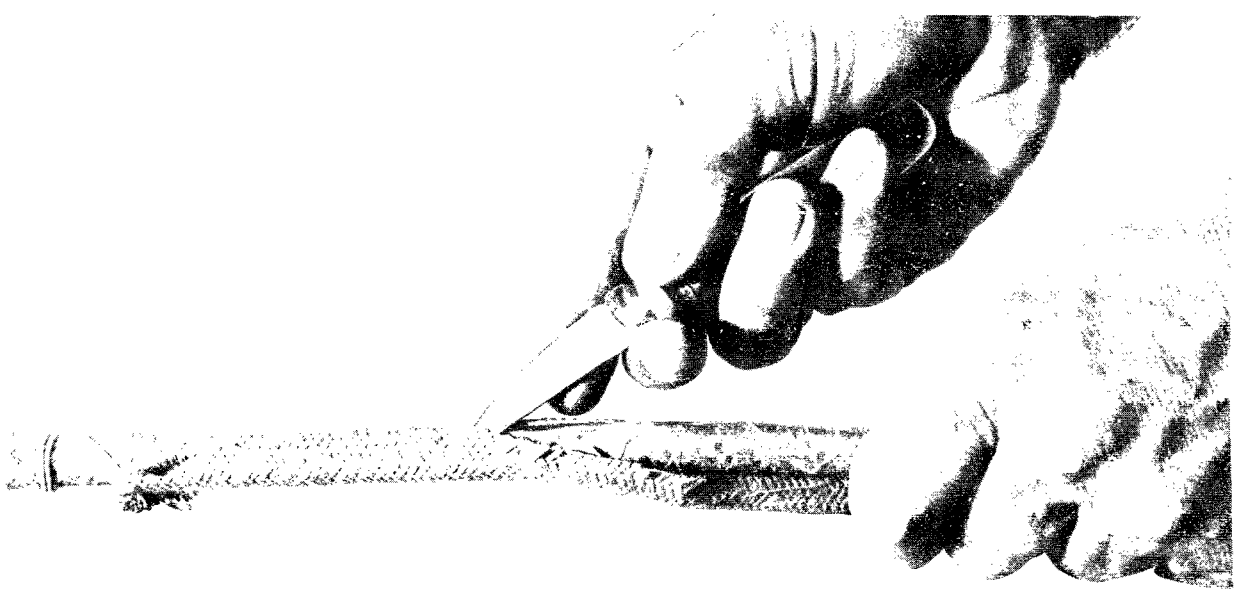
(ii) When cables are free of equipment, the stripping must be done away from the user. The cable is held in the one hand and the tool in the other at an acute angle to the cable. The point of the tool is pressed into the cable and slitting of the outer braid takes place towards the end of the cable.



HACK-SAW BLADE TYPE STRIPPING TOOL.

FIG. 8.

Pocket Knife. A sharpened pocket knife is often used but it is suitable only for experienced cable workers. Take care to see that it is used in the correct manner and that too much pressure is not applied. The knife is held at an acute angle to the cable and either drawn to, or forced away from, the user. The second and third fingers should be used for gauging the depth of cut. (See Fig. 9, 10 and 11.)



STRIPPING BRAIDED CABLE WITH POCKET KNIFE FORCED AWAY FROM THE BODY.

FIG. 9.

STRIPPING BRAIDED CABLE WITH KNIFE DRAWN TOWARDS USER.

FIG. 10.

STRIPPING BRAIDED CABLE WITH POCKET KNIFE DRAWN TOWARDS USER.

FIG. 11.

Tool similar to A.T.E. Tool No. L.14607A. This tool, shown in Fig. 12, is sometimes used for stripping braided cables. Take precautions similar to those for the pocket knife and the hack-saw blade type stripping tool when using the tool.

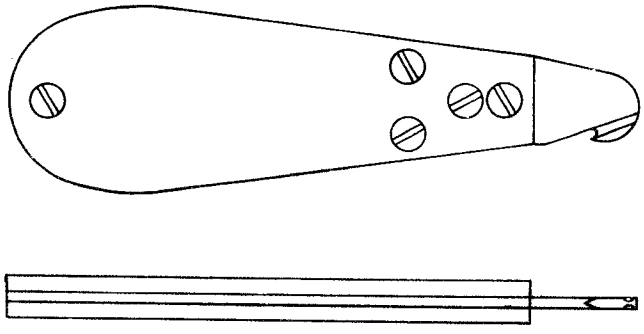


FIG. 12. ALTERNATIVE CABLE STRIPPING TOOL.

4. LEAD-COVERED CABLES.

4.1 Lead-covered cables are stripped and butted as follows:-

(i) Wrap a piece of stiff paper approximately 2" × 6" around the lead sheath of the cable at the point where the butt is required, and mark the sheath with a pencil to serve as a guide when grooving the lead. (See Fig. 13.)

(ii) Score a "V" shaped shallow groove around the pencil mark on the lead sheath with a sharp pocket knife. (See Fig. 14.)

(iii) Use a grooving tool to groove the sheath from the mark made by the pocket knife, to the end of the cable. (See Fig. 15.)

(iv) Tear out the piece of lead inside the groove marks, with pliers. (See Fig. 16.)

(v) Peel off the remainder of the lead sheath. (See Fig. 17.)

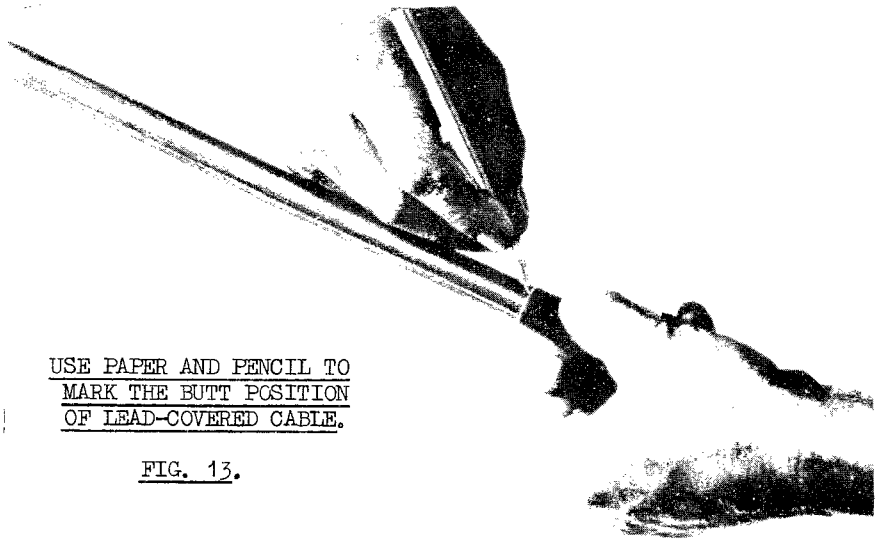
(vi) Unwind waxed tape. (See Fig. 18.)

(vii) Cut off waxed tape about 3/4" from the butt (See Fig. 19.)

(viii) Double about 9" of this tape and wrap it around the wires at the butt to build up the wires to the level of the lead. (See Fig. 20.)

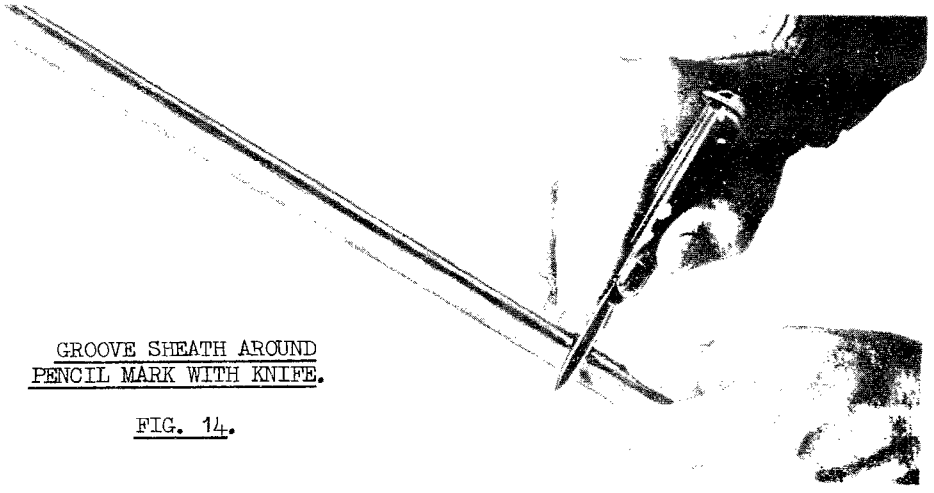
(ix) With a wedge shaped softwood sliver slightly bell the lead sheath to prevent damage to insulation. Push the last turn of tape carefully into the end of the cable sheath with the softwood sliver. (See Fig. 21.)

(x) Wrap a length of the waxed tape (from the cable and about 12" long) around the wires and lead; half the width of the tape on the lead and half on the wires. (See Fig. 22.) The wax in the tape is sufficient to hold the tape end in position. (See Fig. 23.)



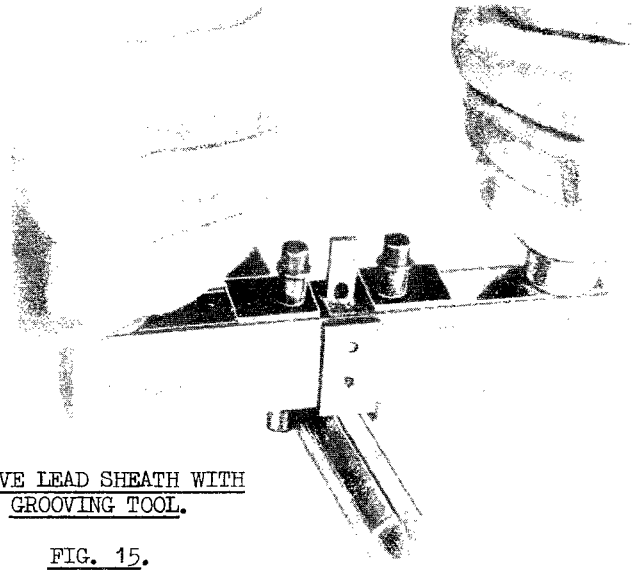
USE PAPER AND PENCIL TO MARK THE BUTT POSITION OF LEAD-COVERED CABLE.

FIG. 13.



GROOVE SHEATH AROUND PENCIL MARK WITH KNIFE.

FIG. 14.



GROOVE LEAD SHEATH WITH GROOVING TOOL.

FIG. 15.

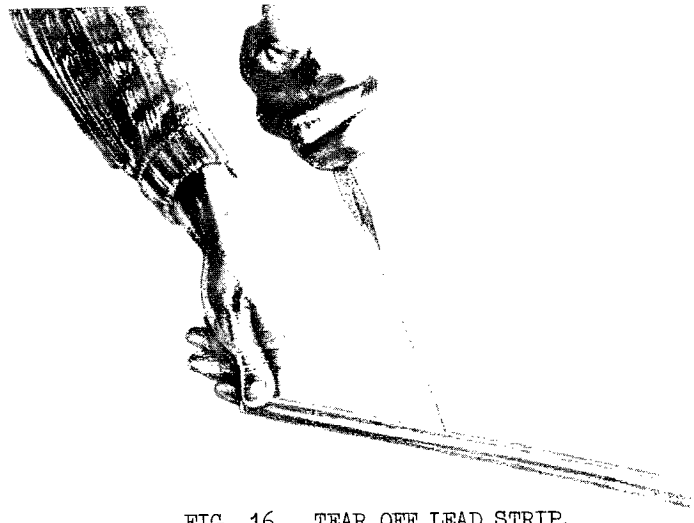


FIG. 16. TEAR OFF LEAD STRIP.

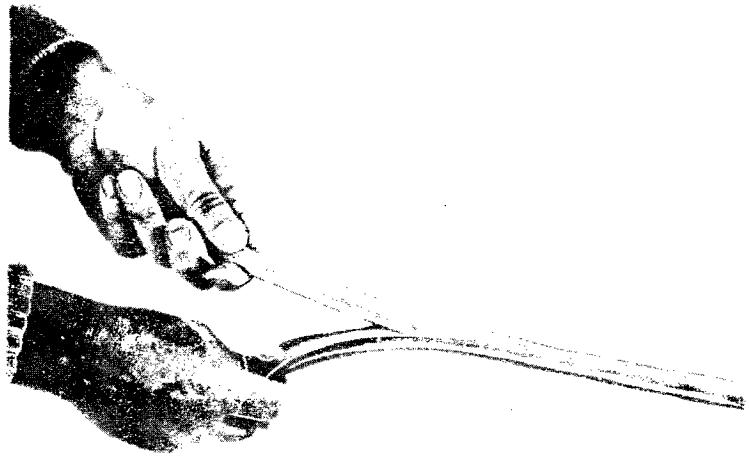


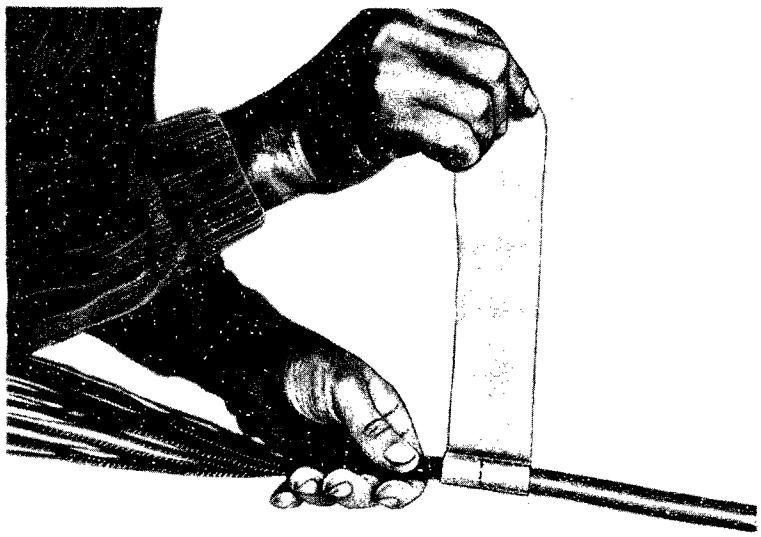
FIG. 17. PEEL OFF REST OF LEAD.

FIG. 18. AND UNWIND THE WAXED TAPE.

FIG. 19. CUT OFF WAXED TAPE ABOUT 3/4" FROM BUTT.

FIG. 20. DOUBLE ABOUT 9" OF WAXED TAPE AND WRAP AROUND WIRES.

FIG. 21. USE A WEDGE SHAPED PIECE OF SOFT WOOD TO SLIGHTLY "BELL" THE LEAD SHEATH AND TO PUSH THE TAPE END INTO THE SHEATH; THIS PREVENTS ABRASION OF THE INSULATION BY THE EDGE OF THE LEAD.



THEN WRAP WAXED TAPE AROUND THE LEAD AND WIRES.

FIG. 22.

BUTTED AND STRIPPED LEAD-COVERED CABLE.

FIG. 23.

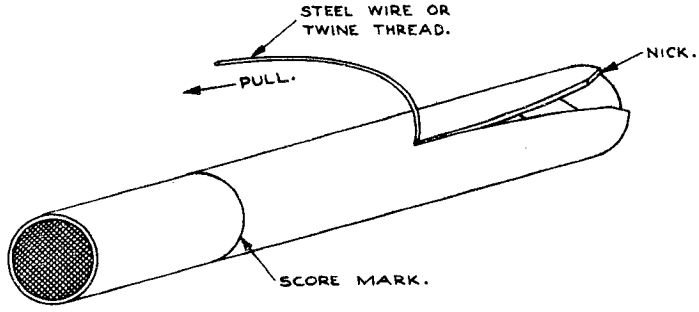
5. PLASTIC CABLES.

5.1 Plastic external covered switchboard cable requires different techniques from those used when stripping braided cable. A tool similar to that for stripping lead-covered cable is used; this has a diamond-shaped chisel head to score the sheath. After the score in the sheath is cut it is opened for a short distance at the end of the cable with a pair of side-cutting pliers and the sheath peeled off by opening along the score mark. To finish off neatly at the butt a scoring mark is made around the outer face of the cable, a starting cut inserted into the scoring mark and the remainder of the covering is then torn off.

5.2 Some plastic cables may have a textile thread or drawing wire running longitudinally between the exterior sheath and the lapping covering the wires. The thread is pulled back towards the butting position of the cable and this breaks open the exterior plastic covering to the required length. See Fig. 24.

5.3 Plastic cables must be examined before stripping by the officer in charge of the operation, to determine whether it is necessary to score the face of the outer covering or whether the stripping aid is in the cable make-up.

5.4 The practices described above are related, in the main, to cables used in the installation of exchange equipment where the number of wires is large. Plastic sheath cable for the wiring of subscribers' premises has been in use for some time. The method of stripping this cable by slitting one end and then drawing the outer sheath away from the enclosed conductors to remove the outer covering will still apply.



STRIPPING PLASTIC COVERING FROM CABLES USING DRAWING THREAD.

FIG. 24.

END.