

WIRE STRAPPING AND GRADING

This E.I. describes the method to be used when installing new gradings and in re-trunking existing gradings.

1. GENERAL.

1.1 Purpose:-

A combination of insulated jumpers and bare-tinned copper straps is used to condense the number of circuits outgoing from one rank of equipment to the next. The circuits in the grading are known as "Individuals" and "Commons" and are connected as follows and as in 2.2 and 2.3.

- (i) The individual circuits of a grading are provided by an insulated wire jumper between the trunk terminals on the outgoing terminal strip and the terminals of the grading terminal strip and must be installed as in INTERNAL PLANT INSTALLATION Wires and Cables J 3010.
- (ii) The common circuits in a grading are provided by an insulated jumper between the trunk terminals on the outgoing terminal strip and the terminals of one of the several grading terminal strips which the trunk serves and, in addition, by a strap connecting the associated grading terminals into a common group.

1.2 Precautions:-

As the insulated jumpers are terminated nearest to the back of the terminal they must be installed before the strappings or links. This ensures neatness of work and facilitates the operation as a whole.

The strapping links or commons are usually of bare uninsulated tinned cadmium copper wire and therefore require particular care in their installation to avoid any slackness of the wire between the tags which would be a potential source of contact trouble.

On trunk distributing frames and link type terminal bays which are built up of a number of separate assemblies, i.e., grading terminal strips, take care to see that these strips are securely fitted and correctly aligned. A check of the vertical alignment must be made by means of a plumb line suspended from the top to the bottom of the last set of terminals in the grading assembly and any corrections made before work is commenced.

(This check is not necessary when the moulded type terminal is used as is the case when grading at the back of 2000 type racks with similar type grading facilities.)

2. NEW GRADINGS.

2.1 In T.D.F.'s. New gradings on T.D.F. must be installed as follows:-

- (i) Form a small hook at the end of the strapping wire (see insert in Fig. 1) hang it over the top terminal and solder.
- (ii) Lay the wire down the full length of the grading assembly.
- (iii) Attach a weight to the lower end of the wire to hold the wire taut in position in the groove at the end of the grading tags.
- (iv) Solder the wire neatly to each tag, in turn, down the assembly. Take care to use a hot iron and to do the soldering quickly to avoid overheating and straining of the grading.

- (v) Remove the weight and neatly cut off the surplus grading wire below the lowest tag in the grading.

Repeat operations (i) to (v) until all gradings are completed, and then cut away all strappings between terminals which are not necessary in the grading.

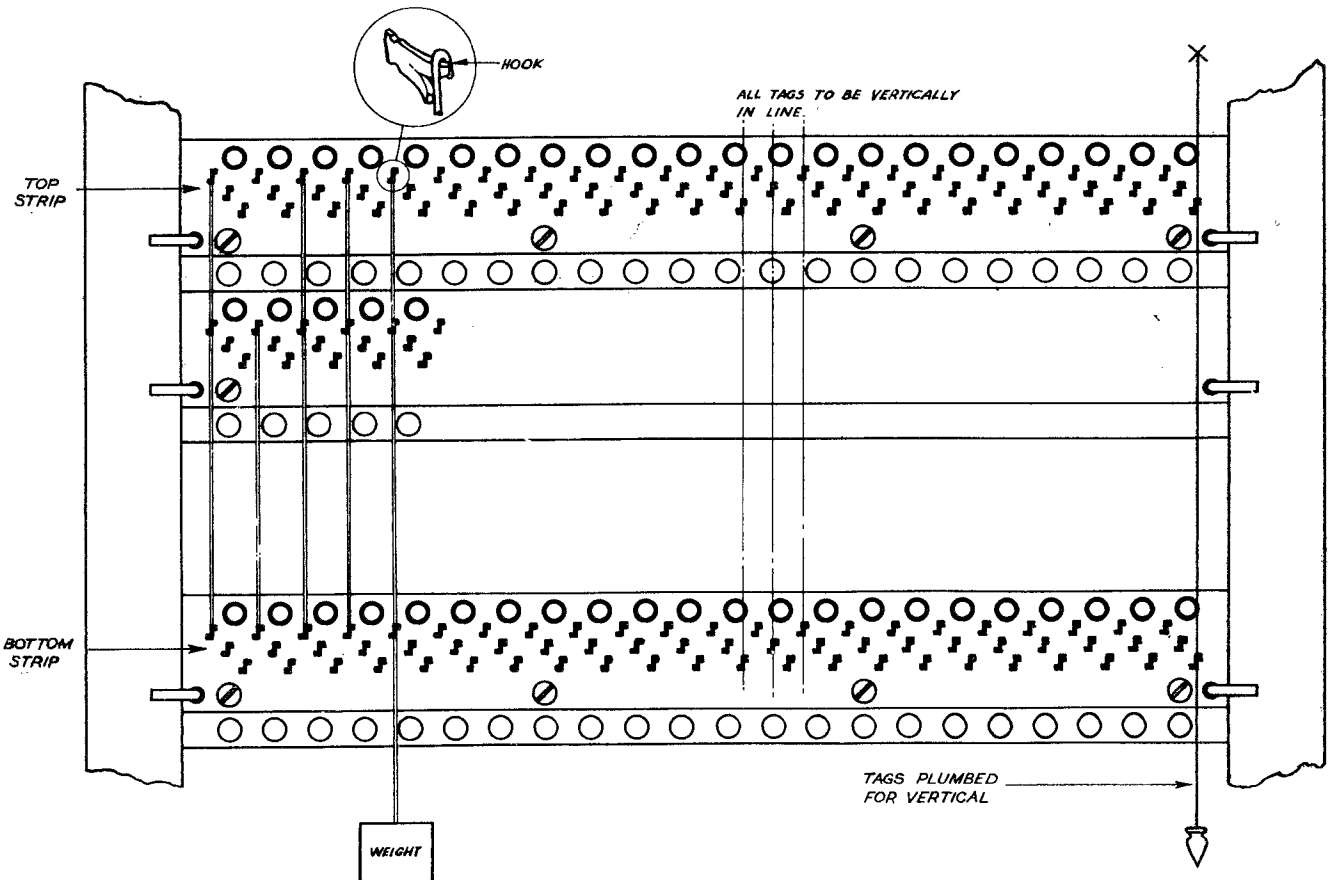


FIG. 1. INSTALLING NEW GRADINGS ON T.D.F.s.

2.2 On Flat Type Blocks. (127 and 128) (See Fig. 2.)

When grading or commoning is being done on Flat Type Terminal Blocks (such as those fitted on 2000 Type Equipment racks), the above procedure is not applicable as the shape of the tags is different and the length of wire between tags is much shorter. In this form of grading, the jumpers are provided and terminated as specified in E.I. INTERNAL PLANT INSTALLATION Wires and Cables T 3010. The commoning is done with B.T.C. wire and is terminated as specified for switchboard wire.

The method of commoning is as follows:-

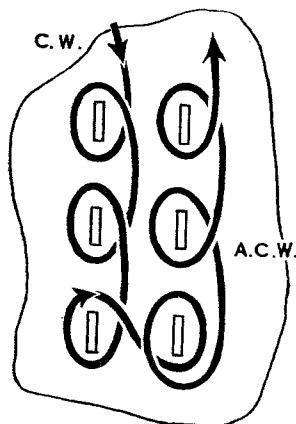
- (i) Wrap the grading wire successively around all tags to be commoned, start at the top of the first circuit and strapping in a clockwise direction around each tag before passing to the tag immediately below.
- (ii) Upon reaching the bottom tag of the row, pass the wire to the bottom tag of the next row and continue the commoning up this row by strapping around each tag in an anti-clockwise direction until the top tag is reached.

(iii) Operations (i) and (ii) are continued until all tags on the block have been completed.

(iv) Surplus links are then cut away.

To expedite this work a special tool (see Fig. 4) has been developed and must be used.

By strapping alternately clockwise and anti-clockwise as described, all the straight sections of the B.T.C. wire are on the right-hand side of the tags, thus maintaining uniformity.

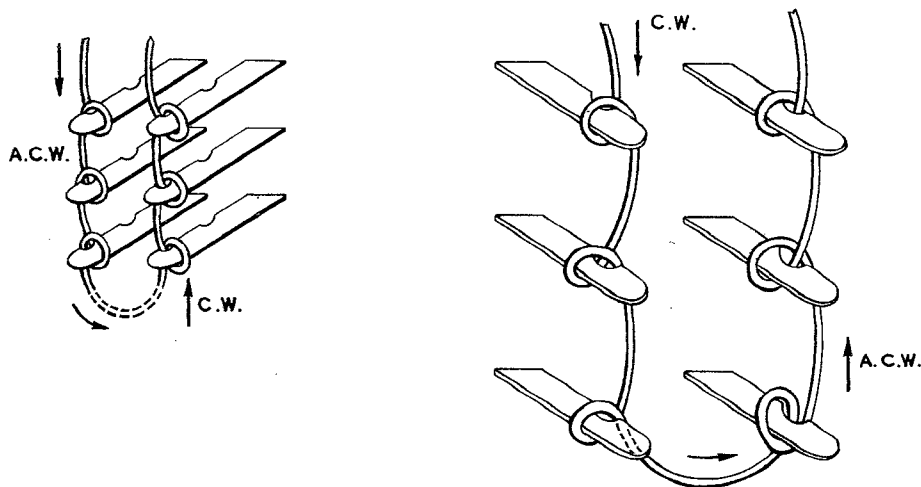


DIRECTION OF STRAPPING ON FLAT TYPE TERMINAL BLOCKS.

FIG. 2.

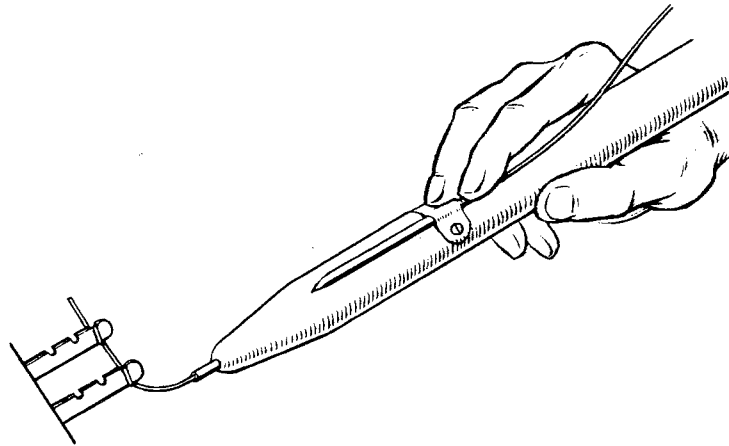
2.3 Strip Terminal Blocks (T or L Shaped):-

Flat Terminal Blocks. When commencing on this type of block the strapping directions (either C.W. or A.C.W.) should be arranged so that the vertical strappings are oriented with the notches in the tags. See Fig. 3.



ORIENTATION OF STRAPPING ON TERMINAL BLOCKS.

FIG. 3.



USING COMMONING TOOL.

FIG. 4.

3. ALTERATIONS TO EXISTING GRADINGS.

3.1 Trunk Busing:-

When trunks or circuits are to be removed or added to a grading it is necessary to busy the trunk on which work is to be done to prevent interference to traffic for the period during which the alteration is being effected.

A Trunk Busing test set (CE.-972) is now available as Installation Test Set No. 117 and must be used to test and busy the trunks in advance of their alteration. The operation of Test Set No. 117 is described in E.I. INTERNAL PLANT INSTALLATION Testing T 1340. Its use saves time by obviating the need for a technician to wait for a trunk which is in use becoming free before proceeding with the work.

3.2 Preliminary work such as providing additional equipment required, switches, etc., must be completed before the actual alterations to the grading are started.

All additional trunks must be tested and the jumpering run and terminated on the appropriate terminals of the outgoing terminal blocks and the free end left ready for the grading.

This work can be done during normal hours of duty but all alteration on the grading should be made during periods of light traffic when the removal of trunks from service will not cause interference or congestion to the traffic over the group.

END.