INTERCOMMUNICATION SERVICE A10 TERMINATING NEW TYPE OF TERMINAL STRIP - FILE E-XS.8/3

1. INTRODUCTION

1.1 This Instruction lists and describes the methods to be used for cabling and terminating this type of service.

1.2 The latest type of Intercom. Telephone No.2 (A10, Serial 271, Item 53) differs from the previous type in that the terminal strip consists of two parts :-

(i) Tags for soldered connections.
(ii) "Opening springs" to facilitate testing.

Fig. 1 shows the front view of the terminal strip.

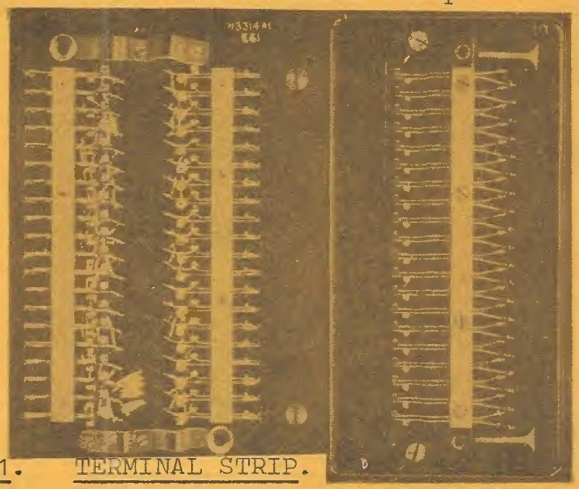

FIG. 1. TERMINAL STRIP.

2. METHOD

2.1 For ease and efficient installation, it is essential that the detailed steps listed be strictly adhered to and that the special tools and aids be used. Fig. 2 shows the special tools etc. and their associated Drawing numbers.

* Indicates amendments since previous issue.

Distribution: Administrative Libraries
Internal Plant Libraries

Issue 2, January, 1970.

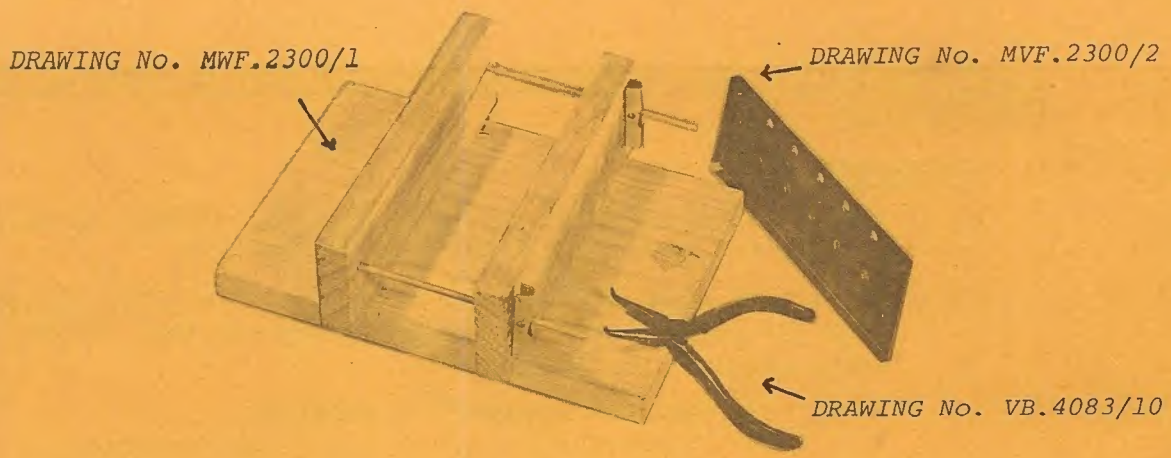

FIG. 2. SPECIAL TOOLS AND AIDS.

The method described is based on :-

* (i) The backboard being modified by drilling fanning holes and fitting a spacing block (Drawing No. VB.4643) on the underside. Fig. 3 shows the underside view of the backboard with the fanning holes drilled and the spacing block fitted.

NOTE :- Use template (Drawing M.W.F. 2300/2) to mark position of holes.

(ii) Use of jig (Drawing M.W.F. 2300/1) to hold the terminal base for fanning out of the cables. (Fig. 4.)

(iii) Use of offset tip pliers (Drawing No. VB.4803/10) for stripping and terminating the conductors. Fig. 2 shows these pliers.

(iv) Conductors fanning direct from holes without crossing tags and being terminated with one turn only. (See Figs. 9 and 11.)

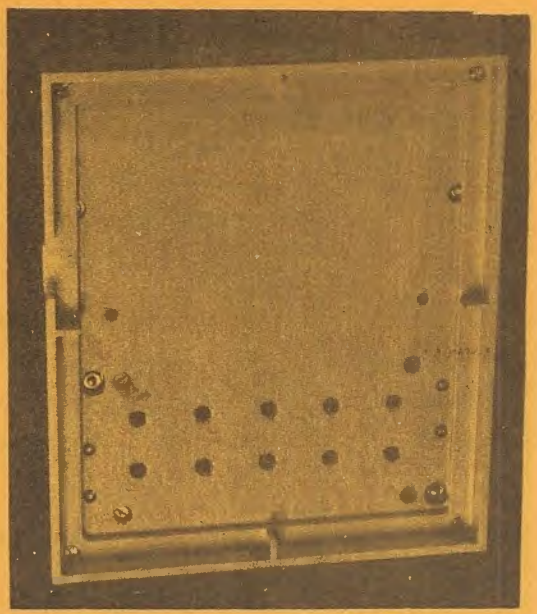

FIG. 3. DRILLED BACKBOARD WITH SPACING BLOCK FITTED.

FIG. 4. JIG FOR FANNING OUT CABLES

2.2 Cable Colour Code Allocation

(i) Instruments. All A.10's installed are to be wired for 11 extensions and to have a tag allocation for 1D1, 2D1, and EB from Transfer Unit.

The basic allocation of the 'A' and 'B' wires of the 41 wire P.V.C. cable to tags 1 - 40 is set out in Table 1.

Instrument Connection	U-Jack/Tag	Colour	Instrument Connection	U-Jack/Tag	Colour
			11B	Allocate as	Slate-White
			11A	in Table 2	White
1B) Extn.	20	Blue-Slate	Spare	40	Blue-Brown
1A)	19	White	EB Transf. Unit.	39	White
R	18	Respective	10B)	38	Brown-Slate
HL	17	Extn.Colour	10A)	37	White
Earth	16	Blue-Green	9B)	36	Brown-White
Earth	15	White	9A)	35	White
BT	14	Blue-Orange	8B)	34	Green-Slate
BT	13	White	8A)	33	White
EB	12	Vacant	7B)	32	Green-Brown
1D1	11	White of Blue-White	7A)	31	White
CM	10	Slate	6B) Extns.	30	Green-White
2D1	9	White	6A)	29	White
1D	8	Brown	5B)	28	Orange-Slate
1C	7	White	5A)	27	White
1B	6	Green	4B)	26	Orange-Brown
1A	5	White	4A)	25	White
2D	4	Orange	3B)	24	Orange-Green
2C	3	White	3A)	23	White
2B	2	Blue	2B)	22	Orange-White
2A	1	White	2A)	21	White
		SPARE WIRES	RED-WHITE BLUE-WHITE		

TABLE 1.

At each extension point the pair relevant to that particular extension is to be terminated directly on HL and R (Tags 17 and 18). The 11th extension pair (Slate White/White) is then terminated on the extension tags left vacant by this operation.

For example :-

At Ext. 1 point. Blue Slate/White pair on to Tags 17 and 18.
Slate White/White pair on to Tags 19 and 20.

At Ext. 2 point. Orange White/White pair on to Tags 17 and 18.
Slate White/White pair on to Tags 21 and 22 and so on -

The following table, Table 2, shows the colour code and tag connections for the complete installation of the 11 extensions.

A.10 Point No.	Ext.1 Colour B/S-W	Ext.2 Colour O/W-W	Ext.3 Colour O/G-W	Ext.4 Colour O/BR-W	Ext.5 Colour O/S-W	Ext.6 Colour G/W-W	Ext.7 Colour G/BR-W	Ext.8 Colour G/S-W	Ext.9 Colour BR/W-W	Ext.10 Colour BR/S-W	Ext.11 Colour S/W-W
1.	17-18	21-22	23-24	25-26	27-28	29-30	31-32	33-34	35-36	37-38	19-20
2.	19-20	17-18	"	"	"	"	"	"	"	"	21-22
3.	"	21-22	17-18	"	"	"	"	"	"	"	23-24
4.	"	"	23-24	17-18	"	"	"	"	"	"	25-26
5.	"	"	"	25-26	17-18	"	"	"	"	"	27-28
6.	"	"	"	"	27-28	17-18	"	"	"	"	29-30
7.	"	"	"	"	"	29-30	17-18	"	"	"	31-32
8.	"	"	"	"	"	"	31-32	17-18	"	"	33-34
9.	"	"	"	"	"	"	"	33-34	17-18	"	35-36
10.	"	"	"	"	"	"	"	"	35-36	17-18	37-38
11.	"	"	"	"	"	"	"	"	"	37-38	17-18

TABLE 2

(ii) Transfer Unit. The connections between the Transfer Unit 3A terminal box or Transfer Unit 2A, and the Main Intercom. terminal box are made with a 10 pair cable as shown in Table 3.

Instrument Connection	Transfer Unit 3A U-Jack/Tag	Transfer Unit 2A Screw Terminal	'Main' Intercom. Tag	Colour
2A	21	2A	1	White
2B	22	2B	2	Blue
2C	23	2C	3	White
2D	24	2D	4	Orange
1A	11	1A	5	White
1B	12	1B	6	Green
1C	13	1C	7	White
1D	14	1D	8	Brown
EB	16	EB	39	White
CM	26	Not Used	10	Slate
BT	17)	B	13	White
BT	18)		14	Blue-Orange
EARTH	19)	E	15	White
EARTH	20)		16	Blue-Green
HL	27	Not Used)	To A+B of Extn. No.Allotted to External Extn.	White
R	28	Not Used)		Blue-White
1D1	15	1D1	11	White
2D1	25	2D1	9	Blue-Brown
X1	5	Not Used)	Direct to External Extn.	Spare)White Wires)Blue-Slate
X2	6			

TABLE 3

2.3 Detailed steps of terminating method

(i) Length of cable. Leave two feet of free cable for fanning and terminating.

(ii) Butting of cable.

(a) Butt the cable 12" from the end.

(b) Butt both cables before releasing knife.

(c) Slide the sheath carefully off each cable and wind a rubber band firmly around the skinners, about 1" from the free end. (Fig. 5.) Take care not to disturb the lay of the cable.

FIG. 5. BUTTED CABLE READY FOR FANNING.

(iii) Use of jig

(a) Use the jig to hold the terminal box for fanning out the cables.

(b) Fig. 4 shows the correct fitting of the terminal box in the jig. Tighten the butterfly nuts firmly by hand only.

(c) Place the jig in the most comfortable working position, e.g., on knee, floor, chair, etc.

(iv) Fanning cables

(a) First, completely fan the outgoing cable, then fan out the incoming cable in an identical manner.

(b) The general method for fanning is to grasp the two required pairs close to the rubber band, pull clear of the band, twist the ends tightly together, and pass through the correct hole. (Refer Figs. 5 and 6.)

(c) Start the fanning with the Blue-Brown and Brown-Slate pairs through hole 37-40, and pull these pairs until the cable butt is hard against the hole. To hold the cable in its correct position wind these pairs twice around the adjacent pillar. (See Fig. 6.)

(d) Fan the remaining pairs according to allocation, and working backwards through the colour code.

(e) The two spare wires are fanned with the Blue and Orange pairs.

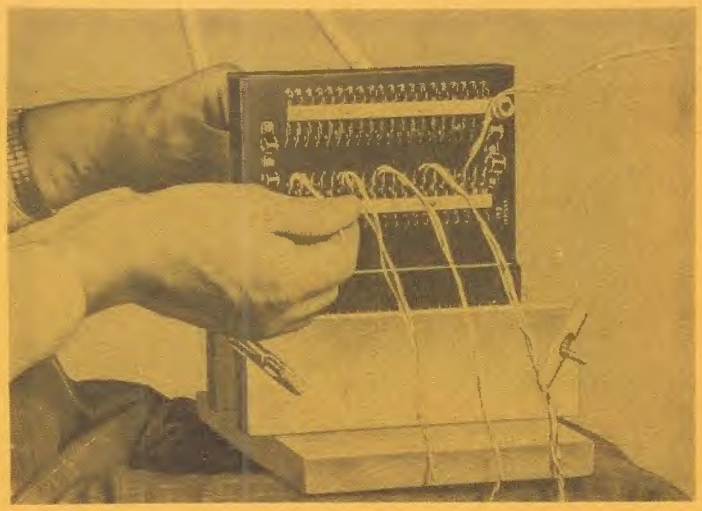

FIG. 6. FANNING CABLES USING JIG.

(v) Cable Identification

(a) After fanning the outgoing cable tie the skinners, using the shortest twisted pairs, into two groups relative to each terminal strip. (See Fig. 7.)

(b) After fanning the incoming cable tie the skinners, using the shortest twisted pairs, into one group between the outgoing groups. (See Fig. 7.)

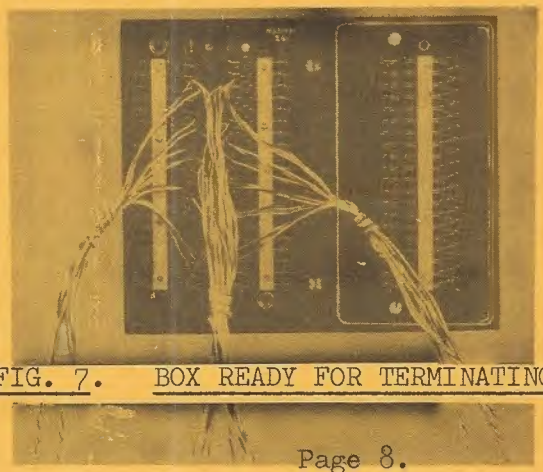

FIG. 7. BOX READY FOR TERMINATING.

NOTE:- The outgoing cable is in the two small groups to the outside. The incoming cable is in the one group in the centre.

(vi) Mouting Terminating Box. Depending on the method of cabling used, either feed the surplus cable into the cavity, or coil the cable in the rear of the box. (See Fig. 8.) Attach the box to the wall with screws.

(vii) Terminating.

(a) Use the special pliers (Tool No.213 Modified) for stripping and terminating. The general method is:-

1. Position the tip of the pliers on the wire at the exact length to be stripped.
2. Apply light pressure to the pliers and pull the insulation down the wire 3/8" - ½". (See Fig. 9.)
3. Retain the pliers in this position and wrap the wire on to the tag with one turn only.. (See Fig. 10.)

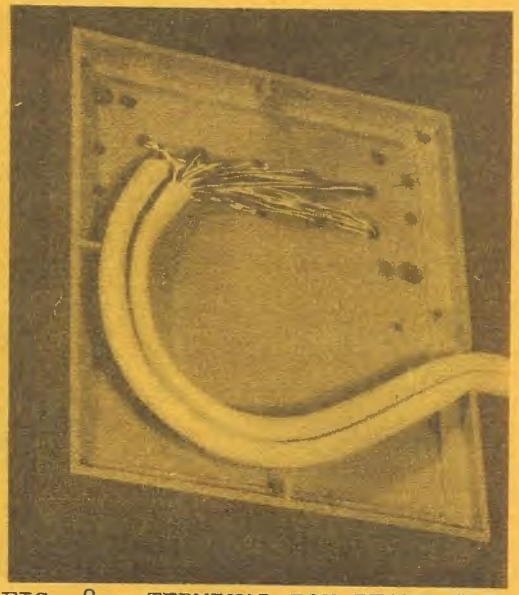

FIG. 8. TERMINAL BOX READY FOR ATTACHMENT TO WALL

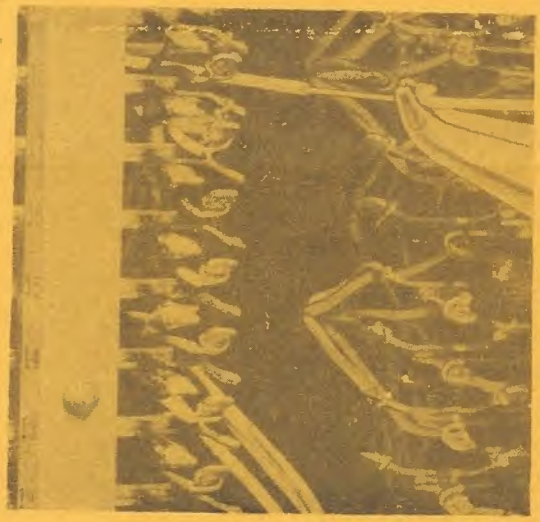

FIG. 9. STRIPPING INSULATION FROM WIRES

NOTE:- Spare cable may be folded in rear of box.

(b) For each group of tags, lay the conductors along the upper side of the top tag and the lower side of the bottom tag. (See Fig. 10.)

(c) Terminate the outgoing cable first. Start with the Blue-Brown pair and work down the right hand strip, and then down the left hand strip.

(d) Repeat for the incoming cable.

(e) Solder all terminations and coil the spare wires. (See Fig. 11.)

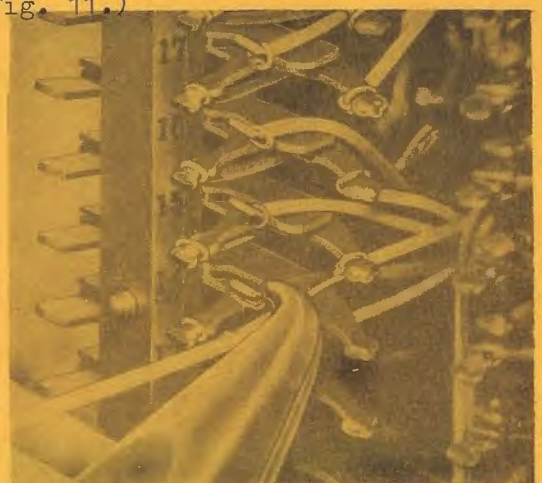

FIG. 10. TERMINATING WIRES ON TAGS.

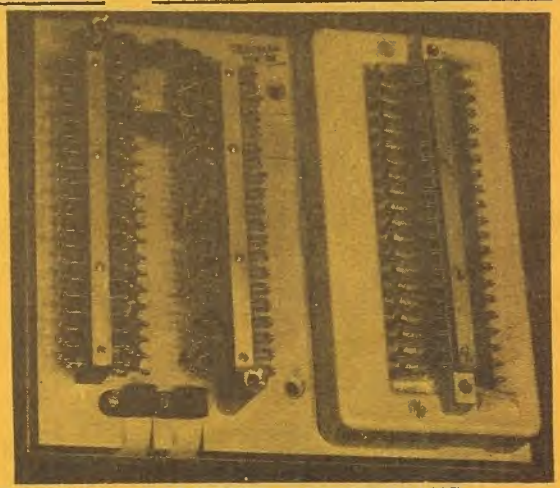

FIG. 11. SOLDERED CONNECTIONS.

3. RESTRICTED EXCHANGE ACCESS FACILITY

3.1 When a point requires restricted access the company D wire is moved to the required D1 tag on the terminal strip.

For example :-

Restricted Access Line 1. Move the company wire on Tag 8 to Tag 11.

Restricted Access Line 2. Move the company wire on Tag 4 to Tag 9.

4. BARRED EXCHANGE ACCESS FACILITY.

4.1 All the work to provide this facility is carried out on the terminal box of the particular extension and is as follows :-

(i) Disconnect the company 'D' wire at the opening springs, insulate, and fold away.

(ii) Disconnect the company 'C' wire, and extend it to the earth tag.

For example :-

Barred Access Line 1.

(i) Disconnect the 'D' wire from Tag 8 and insulate.

(ii) Disconnect the 'C' wire from Tag 7 and extend it to Tag 15.

Barred Access Line 2.

(i) Disconnect the 'D' wire from Tag 4 and insulate.

(ii) Disconnect the 'C' wire from Tag 3 and extend it to Tag 16.

5. EXTENSION BELL FACILITY. (For any Internal Instrument)

5.1 Tag 12 is for this purpose. At the point requiring an extension bell, local wiring to the extension bell can be used, with negative battery being provided from Tag 13. Alternatively, if the extension bell is to be installed nearer another point, tag 40 is to be used to extend the required EB lead through the multiple wiring, with negative battery being provided from Tag 13 at this point.

6. EXTENSION BELL FACILITY. (For Transfer Unit)

6.1 This facility is available from the EB terminal (Tag 16) on the transfer unit, and from all instrument points on Tag 39. Connection to the extension bell is made by running a local cable from the nearest position, which also provides negative battery from Tag 13.

7. ADDITIONAL EXTENSION

7.1 When cabled according to this instruction the 11th extension is provided by extending and wiring the multiple cable to the 11th point. (See Tables 1 and 2.) No other extension wiring needs alteration.

8. EXTERNAL EXTENSION

8.1 This facility is provided by local cabling to the X1, X2 terminals (Tags 5 and 6) in the transfer unit terminal box.

9. MAINTENANCE

9.1 To assist maintenance personnel, diagrams as shown in paragraphs 9.2 and 9.3 must be left at every installation.

These diagrams are to show by arrows the termination (or directions) of the cables. For example, a cable between points 6 and 7 of figure 14 terminated as an "outgoing" at 7 and an "incoming" at 6 show thus :-

FIG.12

NOTE Cable terminated as an "incoming" cable is terminated on a double tag terminal thus :-

Cable terminated as an "outgoing" cable is terminated on a single tag terminated thus :

9.2 At every extension a diagram with relative notes as required must be left under the cover of the extension tag strip. Figure 13 shows a typical diagram for point No.5 of Fig. 14.

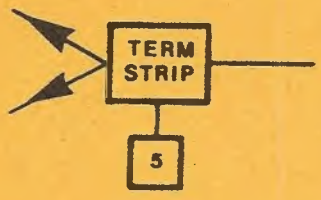

FIG.13 TYPICAL EXTENSION DIAGRAM

9.3 In addition a complete Internal Cabling Plan showing cable runs and terminal box positions must be prepared and kept at the main station for reference. Fig.14 shows a typical cabling plan.

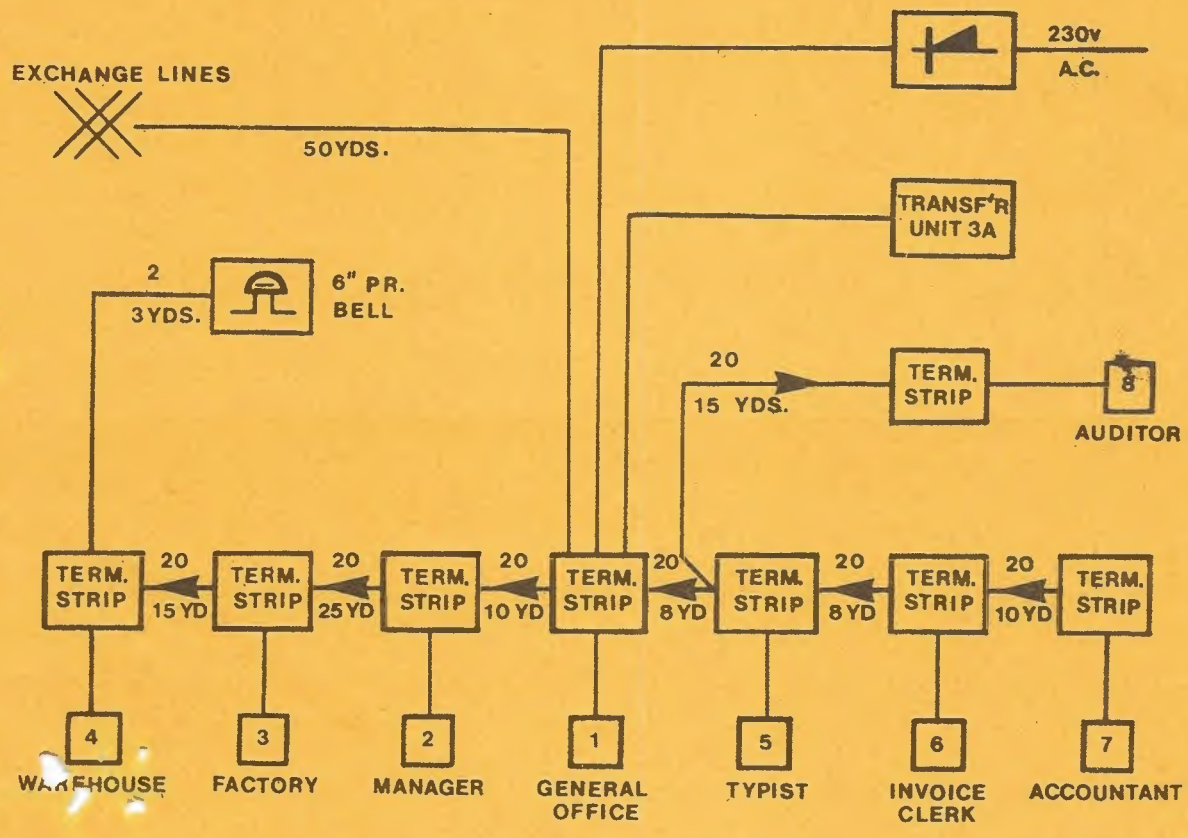

FIG.14. TYPICAL INTERNAL CABLING PLAN

E N D