LABELLING AND MARKING RACKS AND EQUIPMENT.

LONG LINE EQUIPMENT

CONTENTS

1. INTRODUCTION.

1.1 This E.I. outlines the principles and gives some typical examples of signwriting and designating Long Line Equipment.

1.2 It is the responsibility of the installing staff to provide adequate interim labelling and arrange for permanent designation of all new installations or re-arrangements before handing over to the service staff.

1.3 Where equipment is supplied completely assembled and wired, all signwriting, labelling and engraving, applicable to the equipment components, will be done by the manufacturer.

2. OBJECT OF LABELLING AND MARKING.

2.1 Individualize each item for fault location and testing purposes;

2.2 Provide sufficient information through the medium of the panel and jack designations to enable testing, patching and adjustments to be carried out expeditiously.

2.3 Discriminate between various types of circuit conditions e.g., 2-wire or 4-wire, carrier or voice frequency, different signalling conditions, etc..

3. SIGNWRITING OR ENGRAVING.

3.1 The methods to be adopted for designation of various items are set out in Table 1. Alternatives, where listed, should be used where the first indicated method is not practicable, for example, stencilled or engraved inset designations may be used on racks and panels where it is not practical to obtain the services of a competent signwriter.

Adhesive plastic labels (Dymo tapewriter type or similar) are satisfactory for interim use but should not be regarded as a substitute for permanent signwriting.

Paper labels attached with clear adhesive tape are unsatisfactory.

Lead pencil or ball point pen must not be used directly on finished surfaces.

Designation insets for jacks on Trunk Test Boards, and at other places where changes occur due to re-arrangements, should be provided by means of stencilled writing, with suitable coloured Indian ink, on cartridge paper or thin card, protected by a small piece of clear plastic or celluloid. Reference should be made to E.I. LONG LINE EQUIPMENT General P 0010, which specifies distinctive colours for the jack designations of certain classes of high priority trunk circuits.

Item	Method of Designating	Background Colour	Lettering Colour	Size of Characters	Location
Racks	Signwritten	Grey	Black	1"	Top or bottom of rack.
	Alternatively:				
	Stencilled or engraved inset in frame.	White	Black	1"	Top or bottom of rack.
Panels	Signwritten	Grey	Black	½"	Lower left corner of panel if possible
	Alternatively				
	Stencilled or engraved inset in frame.	White	Black	½"	Lower left corner of panel if possible
Components	Signwritten	Grey	Black	3/16″ or ⅛″	As necessary.
		Black	White	3/16″ or ⅛″	As necessary.
		Brown	White	3/16″ or ⅛″	As necessary.
		White	Black	3/16″ or ⅛″	As necessary.
Jack Panels	Engraved or photo anodised labels.	Black	White	⅛″	Placed at ends of jack rows.
		White	Black	⅛″	
Jacks	Stencilled inserts or engraved strip.	White	Black	⅛″	Placed above or below jack rows
	Special jack designations are necessary to assist in identification of high priority circuits. See E.I. LONG LINE EQUIPMENT General P 0010.				
I.D.F.	Signwritten	Yellow	Black	1″ and/or ½″ Dependent on amount lettering	Identification board across the top of the verticals
Row Designation	Signwritten	White (Ground Glass)	Black	1″	Fitted in alarm lantern assembly.
Terminal Strips	Signwritten	Black	White	3/16″	Front face of block.
Fuse Panels	Signwritten	Black	White	3/16"	See Fig. 7.
Power Panels	Process engraved or photo anodised plates.	Black	White	3/16"	Designation plates to be attached to panels with screws or pins.

TABLE 1. DESIGNATION METHODS.

4. EQUIPMENT LAYOUT DESIGNATION SCHEME.

4.1 General. Floor plans depicting the position of all racks to be installed in any Long Line Equipment area must include references to row numbering and rack letter identification.

4.2 Rows shall be numbered consecutively commencing at the front. Each row shall be allocated two consecutive numbers, the first number indicating equipment on the front of the rack or bayside whilst the second indicates equipment at the rear. Where equipment is divided into two or more groups by centre aisles the rows on each side of the aisles shall be separately numbered, the commencing point being at the left hand side looking at the front of the equipment. i.e. Row 1/2 left of aisle, row 3/4 right of aisle.

4.3 Racks shall be indicated by letters commencing at the left hand side of each row (viewed from the front). Each row must re-commence at "A" after an aisle. Where for any reason (pillars etc.) it is not possible to install any rack in a row its letter should be omitted from the lettering scheme for that row. The letters "O" and "I" should be omitted from the designations.

Fig. 1 shows a typical application of row and rack identification.

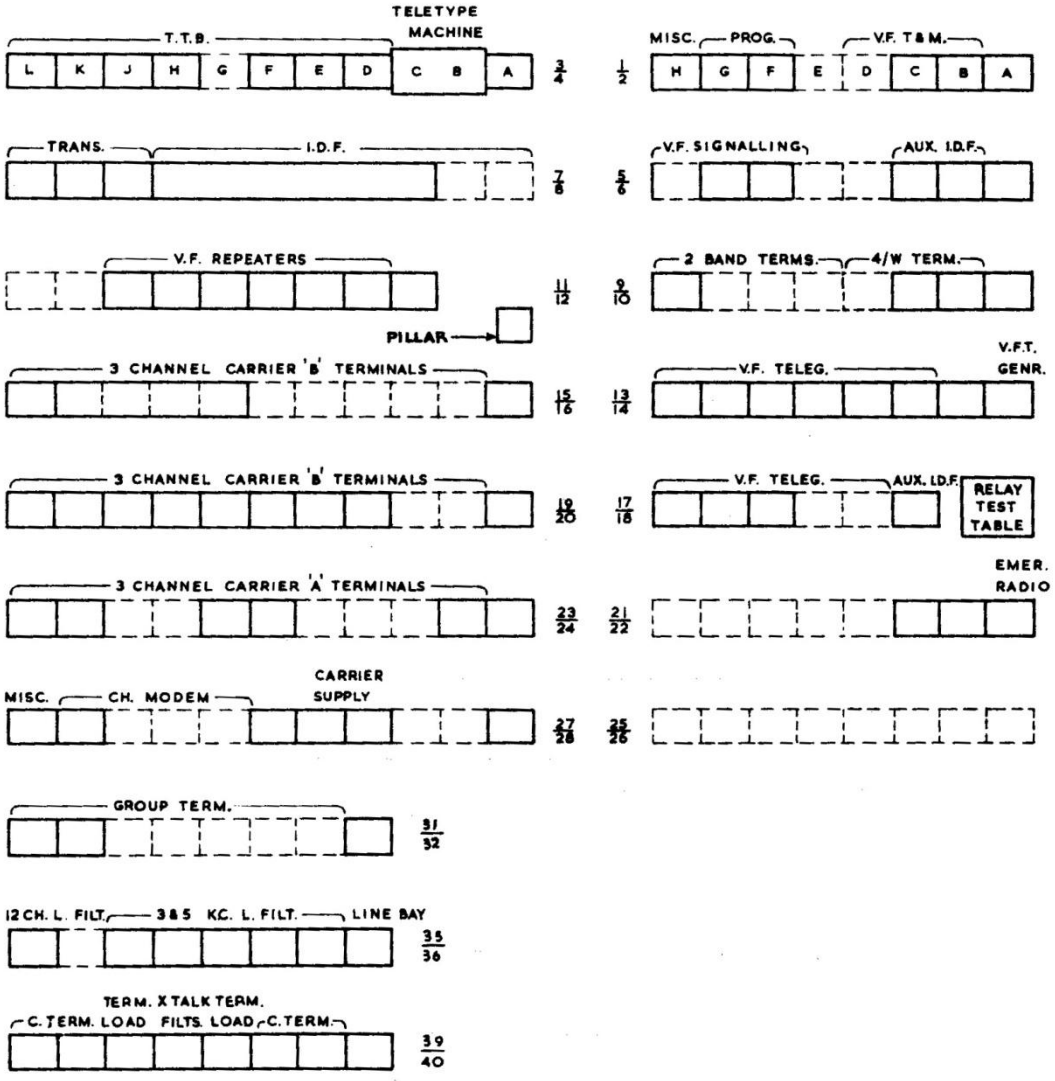


FIG. 1. TYPICAL ROW NUMBERING AND RACK LETTERING SCHEME.

4.4 Non-Standard Racks. The use of some racks which exceed the nominal width of 1'8½" may require a modified interpretation of the foregoing paragraph. Early type "J" and "K" equipment racks (duct bays) also German type 52 racks should be allocated letters in sequence from the end of the row or from the standard type racks from which the position allocation of this type of rack is commenced. Should the use of standard type racks be recommenced in the row, the alignment should be made to conform to the original layout position. A "take up" space left to allow this positioning should be allocated the row letter or letters to continue the sequence so that each standard rack is allocated the same letter as those in similar positions in other rows.

Similar conditions apply to the layout allocation for Trunk Cable Terminating racks with a width of 2'6¾".

Single sided (Rack type) I.D.Fs. which may have a width equal to either 2 or 3 standard racks should be allocated the 2 or 3 letters which, in normal sequence, would indicate the standard racks to occupy the relative positions.

Fig. 2 illustrates typical applications.

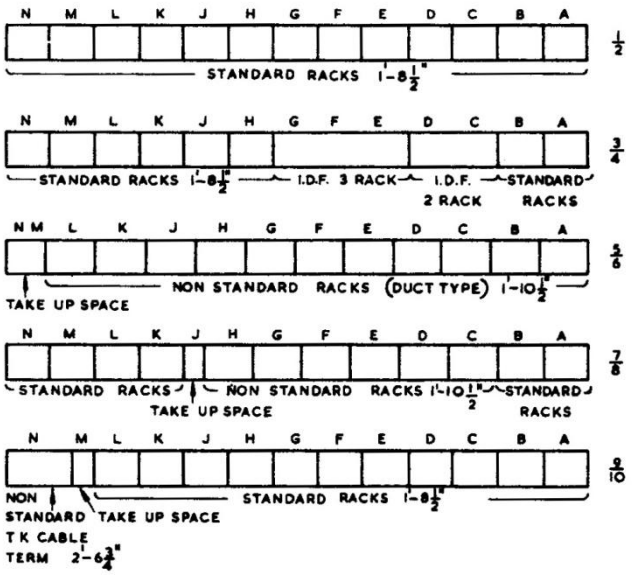


FIG. 2. TYPICAL LAYOUT WITH NON STANDARD RACKS.

5. OTHER MARKING FOR FINAL SELECTOR RACKS.

5.1 The numerous items of Long Line Equipment should be designated with abbreviations typical of those shown in Table 2. This list is not exhaustive but is intended as a guide.

Item	Abbreviation
Amplifier	Amp.
Attenuator Pad (With value if necessary)	Pad — db.
Cable Terminating Rack	C.T.R.
Capacitor (With value if necessary)	C
Carrier Leak Adjustment	Carr. Bal.
Carrier Oscillator	Carr. Osc.
Carrier Supply	Carr. Sup.
Channel	Ch.
Demodulator	Demod.
Demodulator Band Pass Filters (Input)	D.B.Fs. In
Directional Filters	
Line Terminals	D.F. Line
Receiving	R.D.F.
Sending	T.D.F.
Equaliser (Line)	Eq. Line
Four Wire Terminating Set	4 W Term.
Group Modulator	Gp. Mod.
Hybrid Line	Hyb. Line
Hybrid Network	Hyb. Net
Hybrid Input (Receiving terminals)	Hyb. In
Hybrid Output (Sending terminals)	Hyb. Out
Internal Balance Network	Int. Net.
Modulator Input	Mod. In
Modulator Band Pass Filters Out	M.B.Fs. Out
Monitoring Point	Mon.
Negative Impedance Repeater	N.I.R.
Pre-group Modulator	P.G. Mod.
Programme Amplifier	Prog. Amp.
Resistor (With value if necessary)	R
ohms value 0 - 999 eg.	600
ohms value 1000 - 999,000 eg.	47 K
ohms value greater than 1,000,000 eg.	1.5 M
Sideband Upper (With frequency)	U
Signalling Oscillator	Sig. Osc.
Signalling Receiver	Sig. Rec.
Signalling Lead	
Controlling transmission	"M" Lead
Controlled by received signal	"E" Lead
Transformer	Transfr.
Transmitting Amplifier Input	Trans. Amp. In
Trunk Test Board	T.T.B.
Voice Frequency	V.F.
Voice Frequency Telegraph	V.F.T.

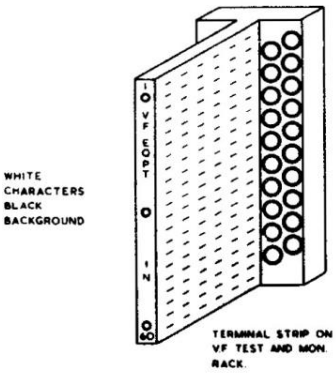
TABLE 2. TYPICAL ABBREVIATIONS USED ON L.L.E.

6. MARKING OF TERMINAL STRIPS.

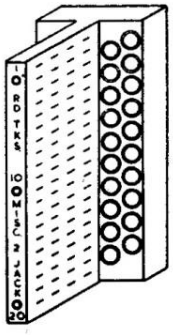
6.1 All terminal strips on panels, racks and distributing frames shall be clearly marked to indicate the circuits in which they are connected.

Terminal strips should be signwritten in white on the face of .the black retaining strip on the front of the tag block.

Figs. 3 and 4 indicate typical applications.



TYPICAL BLOCK DESIGNATIONS.
FIG. 3.



TYPICAL BLOCK DESIGNATIONS.
FIG. 4.

6.2 Circuit Lead Designations. These designations must be marked on the face of the block in a similar manner to the circuit designations. The first circuit number appearing on each block shall be designated at the top of the face and the last circuit appearing shall be designated at the bottom of the face. See Fig. 4.

On terminal strips accommodating more than one group of circuits or a number of miscellaneous circuits, designations may be written on the face of the portion of the strip occupied by each group. The first and last circuit numbers shall be shown opposite the top and bottom occupied row respectively as shown in Fig. 4. The individual groups should be indicated by a line across the face of the block between the last tag row of any group and the first of the succeeding group.

6.3 Where the number of circuits grouped on one terminal strip is such that designation of each group is impractical, the face of the block should be designated in such a manner that this condition is indicated e.g. "MISC" "TEST CCT." etc. and a block appropriation drawing supplied to the maintenance staff.

6.4 The direction of growth of circuits on a terminal strip must be inward and downward, i.e., the first appearing circuit is connected to the front tags of the top row, the next circuit to the group of tags behind the first etc.. Succeeding circuits are terminated on successive rows.

7. DESIGNATION OF RACKS.

7.1 General. Each rack in an office must be marked to indicate its purpose and the particular section of the office wiring or circuits with which it is associated, and if more than one unit having a similar function is customarily used, its sequence number.

Typical examples:-

Trunk Test Board Primary No. 1	-	T.T.B. Pri. No. 1
Cable Terminating Rack North "B" Side	-	C.T.R. North "B"
Line Filter Rack "A" Side	-	Line Filt. "A"
Four Wire Terminating Rack 1-60	-	4 W Term. 1-60

The use of the letter "R" to indicate "Rack" in the description of any item is not required except that it may be used under certain conditions e.g., M.A.R. for miscellaneous apparatus rack.

7.2 Each row shall have the row number and the appropriate letters to indicate the rack allocation, signwritten on the ground glass of the alarm lantern assembly as shown in Fig. 5.

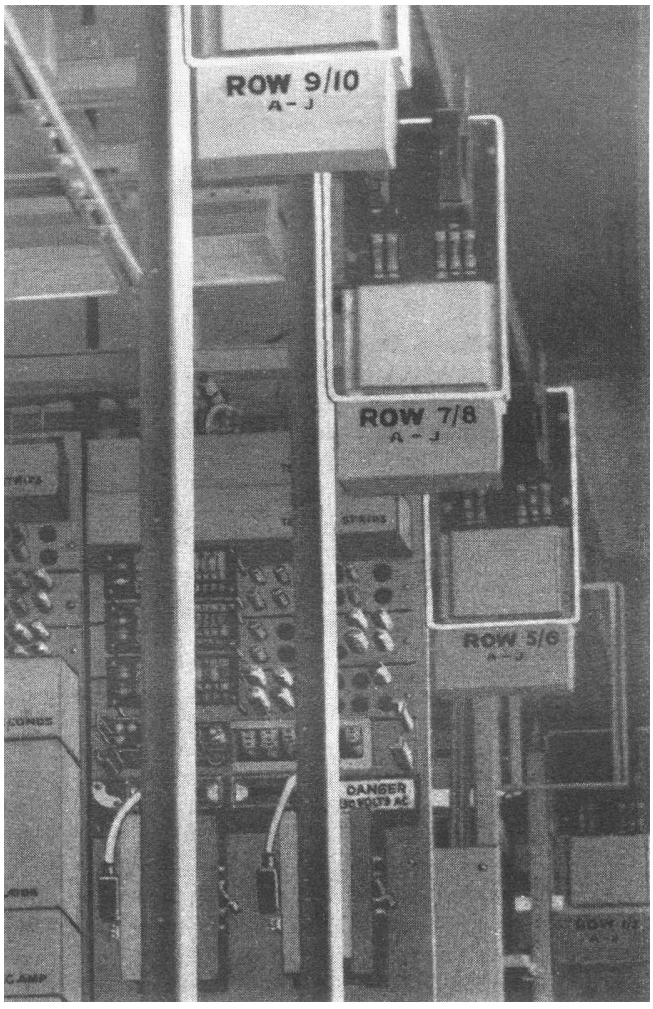


FIG. 5.

7.3 Detailed Information. Carrier Terminals and Repeaters, Group Terminals, Channel Modems, etc., should have a data card affixed in a convenient position, on which is typed or stencilled the following information:-

(i) System number (E.I. LONG LINE EQUIPMENT General RE 0001).

(ii) Poling (if applicable) ("A" or "B").

(iii) Frequency allocation (NA, SA, S, U, etc.).

(iv) Distant Terminal(s) (Adelaide, Maitland, Ipswich etc.) e.g.,

System N 1151
"A" Terminal
SA
ORANGE

8. DESIGNATION OF PANELS.

8.1 General. Each panel of equipment must be marked to indicate its purpose, and the particular function to which it has been allocated. If a rack is equipped with a number of similar units, the panels must be numbered in sequence.

Typical examples:

4 Wire - 2 Wire Terminating panel equipped with 3 Terminating units numbers 16-17-18	4 W Term.
Programme Line Amplifier No. 7	Prog. Amp. 7
Line Transformers Numbers 25 to 30	Transfr. 25 to 30

8.2 Equipment Panels. Panels on which the equipment includes oscillators and/or modulators and demodulators may be marked with the oscillator and the channel band which is being transmitted or received, a typical example is shown below.

MODEM
Ch. 1
Mod. 21.4 K C. U.
Demod. 12.9 K C. U.

The designation insert indicates that the panel contains the modulator and demodulator for channel 1 of the particular system, the modulator oscillator frequency is 21.4 K.C. with the upper side band being transmitted, the demodulator oscillator frequency is 12-9 K.C. with the upper side band being received.

8.3 Jack Panels. The designation plates attached to each end of jack panels should indicate the purpose of the jacks fitted in the particular panel, e.g. Trunk Test Boards, on which the "LINE" jacks occupy the upper row and "DROP" jacks the lower row of a double jack panel, should have the designation plate marked "LINE" opposite the upper row and "DROP" opposite the lower row. (Fig. 6.)

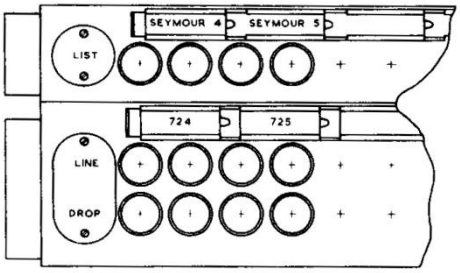


FIG. 6. DESIGNATION OF JACKS.

Should the jacks on any panel serve various purposes, the end designation plate should indicate the group of equipment with which they are associated. e.g., Where the various jacks associated with a channel on a carrier terminal are grouped on a jack panel, the designation plate should be marked "CH. 1", "CH. 2" etc. as applicable.

The method of marking the jack panel designation plates, where additional panels are fitted to racks, should be similar to the designation plates already equipped. Where racks are being assembled, the jack panel designations may be photo-anodised on aluminium, process engraved by etching on nickel silver or machine engraved on phenol fibre or metal. The two methods first mentioned are practicable only where a comparatively large number of designations having the same lettering are required for use, as their manufacture entails preparation by means of repetition printing processes. The finish of these types is, however, better than that obtained with the machine engraving method.

8.4 Jack Designations. Individual jacks on panels should be marked to indicate –

(i) The portion of the circuit in which they are wired,

(The jacks at the output of the Receive Line Amplifier on a 3-channel carrier system will be marked "Rec. Amp. Out".)

(ii) The circuit number with which they are associated,

(The jacks on a Primary Trunk Test Board for a physical pair are mounted in sequence on 2 jack panels. The 2 inserts should show (i) the Physical pair, e.g. 724 and (ii) the traffic channel occupying the voice frequency range on the pair e.g., "SEYMOUR 4". See Fig. 6.)

(iii) The functions which they perform,

(Jacks provided for special purposes on panels will be marked with their individual functions e.g., Test Trunk number 1 on a rack will be marked "T Tk 1". The input to a Transmission Measuring Set will be marked "T.M.S. IN" etc.)

8.5 Fuse Panels. Each fuse panel or section of a fuse panel used for a specified voltage distribution must be signwritten to indicate the voltage connected via the panel or the particular portion of the panel.

Each individual fuse must be marked below the stud to indicate the circuit or circuits with which it is associated. The marking must also indicate, where more than one equipment panel of similar type is supplied by any fuse panel, the sequence number of the equipment item being supplied by each fuse. (Fig. 7.)

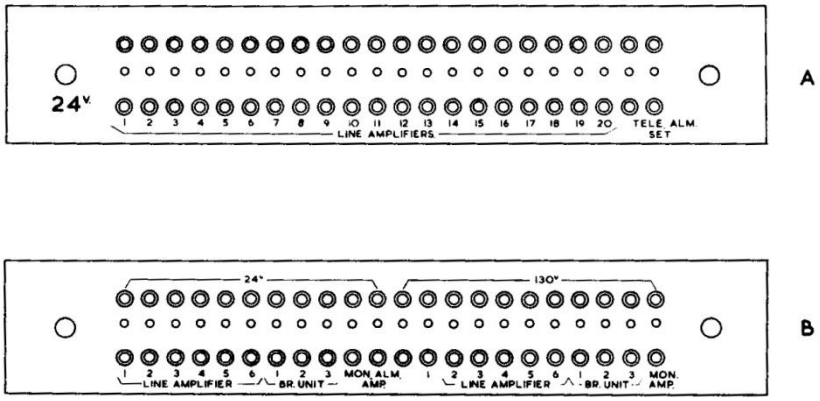


FIG. 7. DESIGNATION OF FUSE PANELS.

9. POWER PANELS AND BUSBARS.

9.1 General. Designations on Power Panels and associated rectifiers should be provided to indicate clearly all switching conditions. Standard designations should be provided by means of thin metal plates on which the characters have been printed in white or silver on a black background by means of etching or photo-anodising.

Power panels and rectifiers of earlier manufacture, having front panels, finished in black zelemite may, if necessary, be designated by means of machine engraved plates of black phenol fibre 1/16 inch thick with white lettering.

9.2 Busbars must be colour coded throughout to indicate the voltage rating of each busbar and terminating point. This will usually be achieved by the use of plastic sheathing of colour appropriate to the rating of each busbar.

The complete list of busbar colours in a multi-voltage power installation is listed below.

24 Volt Negative	Green (B.S. 3810 Colour No. 221)
24 Volt Positive (Earth)	Red (B.S. 3810 Colour No. 538)
130 Volt Positive	Gold (B.S. 381C Colour No. 356)
50 Volt Negative	Blue (B.S. 381C Colour No. 104)
50 Volt Positive (Earth)	Red (B.S. 381C Colour No. 538)
50 Volt Positive (Meter and Telegraph)	White

The colour of the busbar covering should be the nearest available in the particular covering material to those specified above.

Fuse panels for sub main distribution should have both main and alarm (Parallel) fuses designated with the service voltage, e.g. "24V NEG" etc. The fuse wedge in which the cartridge is fitted must also be signwritten showing the current rating of the cartridge, spare wedges must be similarly marked.

10. SINGLE SIDED (RACK TYPE) I.D.Fs.

10.1 The rack designation plate will be signwritten with the letters "I.D.F.".

10.2 The tag blocks must be designated in accordance with the various descriptions given in earlier sections of this E.I.

10.3 To permit ready identification of the various circuit groups connected to the I.D.F., a yellow identification notice board shall be provided across the heads of the verticals.

10.4 It shall be signwritten in black with a letter identifying each vertical together with an indication of the equipment terminated thereon. (Fig. 8.)

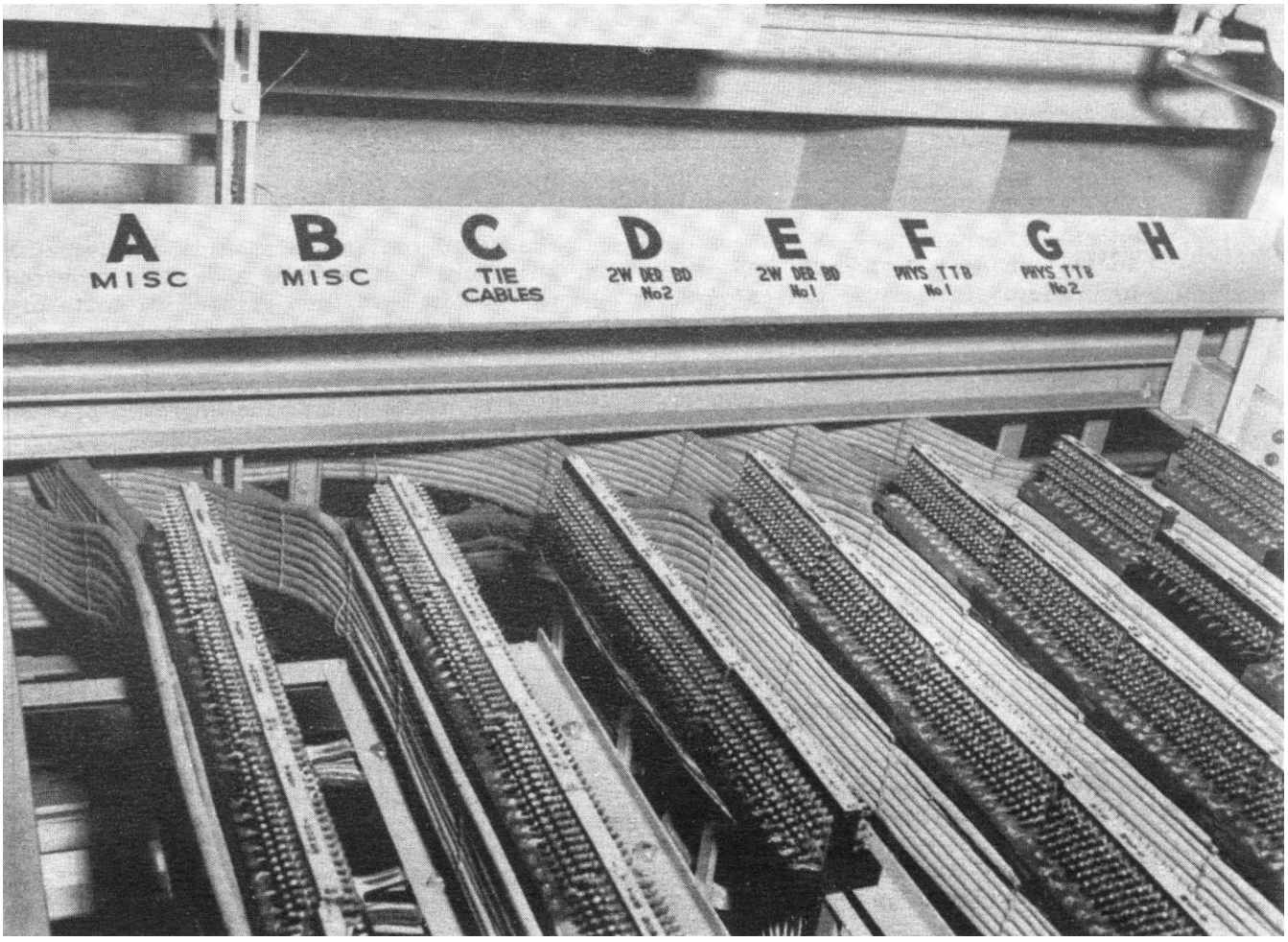


FIG. 8.

11. FRONT ROW EQUIPMENT.

11.1 The various racks installed in the front or test row can be identified by the installation of a notice board similar to that installed at the head of Rack Type I.D.Fs, as in Section 10. See Fig. 9.

12. OTHER EQUIPMENT.

12.1 Reference should be made to E.I. INTERNAL PLANT INSTALLATION Practice A 1015 when apparatus described therein is to be marked in Long Line areas.

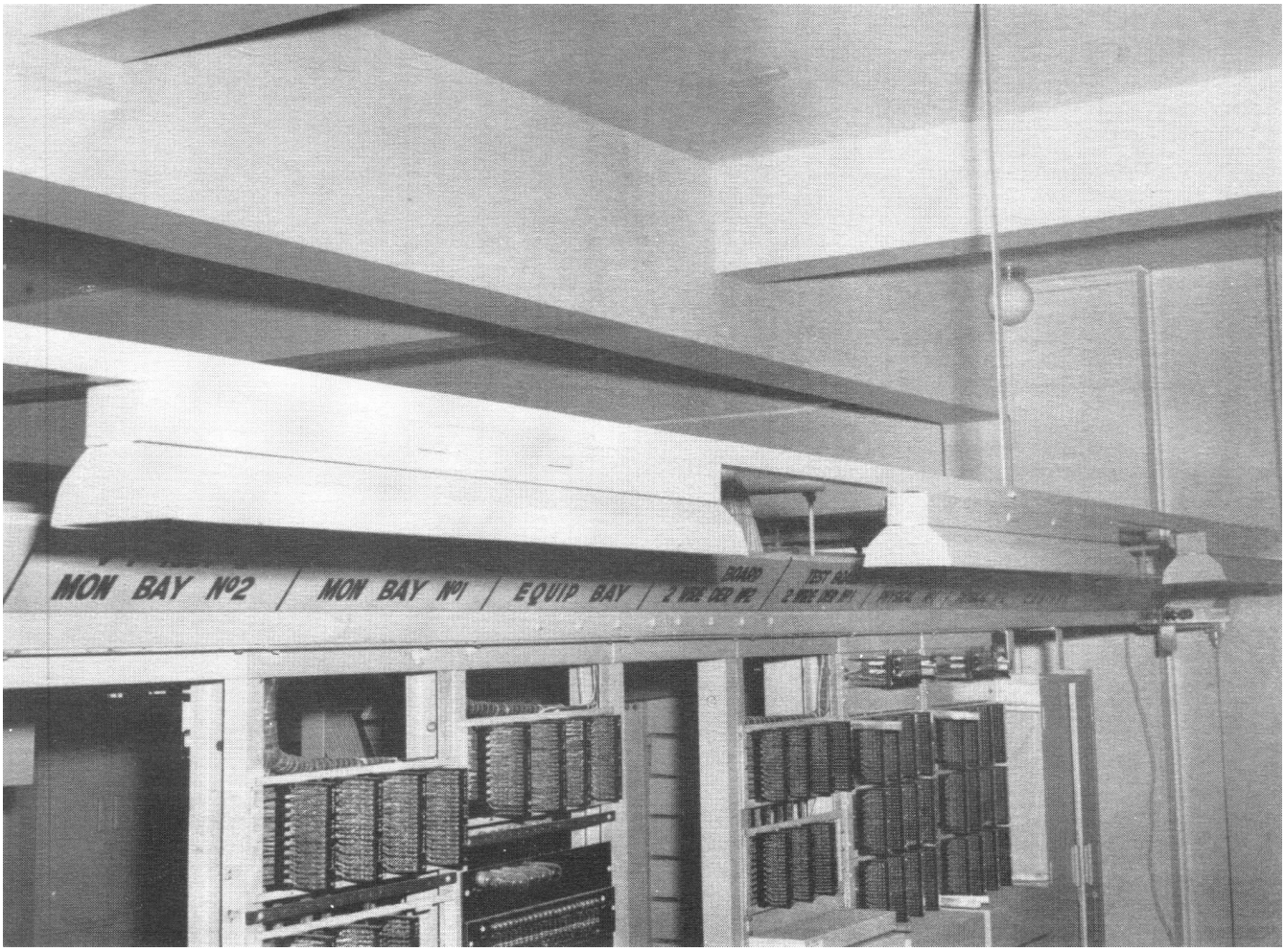


FIG. 9.

END.