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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

(affiliée à l'Organisation Internationale de Normalisation — ISO)

NORME DE LA CEI

INTERNATIONAL ELECTROTECHNICAL COMMISSION

(affiliated to the International Organization for Standardization — ISO)

IEC STANDARD

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Schémas, diagrammes, tableaux

Sixième partie: Etablissement des schémas et tableaux des connexions intérieures

Diagrams, charts, tables

Part 6: Preparation of unit wiring diagrams and tables

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1, rue de Varembé

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

DIAGRAMS, CHARTS, TABLES

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FOREWORD

1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.

2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.

3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

PREFACE

This standard has been prepared by Sub-Committee 3B, Preparation of Diagrams, Charts and Tables—Item Designation, of IEC Technical Committee No. 3, Graphical Symbols.

A first draft was discussed at the meeting held in Milan in 1975. A revised draft, Document 3B(Central Office)16, was submitted to the National Committees for approval under the Six Months' Rule in July 1975.

The following countries voted explicitly in favour of publication of this Part 6:

Australia
Austria
Belgium
Canada
Denmark
Finland
France
Germany
Israel
Italy
Japan
Netherlands
Norway
Romania
South Africa (Republic of)
Spain
Sweden
Switzerland
Turkey
Union of Soviet Socialist Republics
United States of America

Other IEC publications quoted in this standard:

Publications Nos. 113: Diagrams, Charts, Tables.
113-2: Part 2: Item Designation.
113-3: Part 3: General Recommendations for the Preparation of Diagrams.
117: Recommended Graphical Symbols.
391: Marking of Insulated Conductors.

DIAGRAMS, CHARTS, TABLES

Part 6: Preparation of unit wiring diagrams and tables

SECTION ONE — GENERAL

1. Scope

This standard applies to unit wiring diagrams and tables used in electrotechnology. The representation of printed circuits is not included in this standard.

2. Related publications

The other parts of IEC Publication 113, Diagrams, Charts, Tables (see inside back cover), are all concerned with matters of drawing practice and provide additional guidance.

Graphical symbols for diagrams are given in the relevant parts of IEC Publication 117, Recommended Graphical Symbols (see inside back cover).

Different methods for the designation and marking of conductors and cables are given in IEC Publication 391, Marking of Insulated Conductors.

3. Purpose of unit wiring diagrams and tables

Unit wiring diagrams and tables provide information on the internal electric connections of a unit or assembly of units. They are intended primarily for manufacturing and maintenance purposes.

Information on the external connections between units is usually not included, but references to the appropriate interconnection diagrams or tables may be provided.

Unit wiring diagrams and tables may supplement one another and both may also contain information from other documents, such as working drawings, circuit diagrams, parts lists, etc.

4. General notes

Some of the methods for the marking of conductors, given in IEC Publication 391, are used in the figures in this standard. These figures, however, are examples only and are not intended as recommendations for the choice of a designation and marking method.

Likewise, in these examples, item designations for components, devices and parts are shown in accordance with IEC Publication 113–2, Part 2: Item Designation. However, in accordance with that publication, other designations may be used, provided they are explained.

SECTION TWO — UNIT WIRING DIAGRAMS

5. Layout

Unit wiring diagrams are generally drawn in approximate topographical representation.

6. Equipment views

The view or views of equipment that are required for a unit wiring diagram are those which will most clearly show the terminals or wiring sides of the component devices or parts as they are mounted in the equipment. In most instances, one view as seen from the wiring side of the items should be sufficient. This view will generally correspond to the view of the items as seen during wiring. More than one view may be required when the equipment is wired from both front and rear. Component devices or parts with more than one level of terminals may also require more than one view.

7. Components, devices and parts

Unit wiring diagrams employ straight lines and simple outlines — squares, circles or rectangles — to depict equipment items. Sometimes graphical symbols may be used. Mechanical details, such as the fastening for an item, should be shown only if this helps in the understanding of the diagram.

If items are located above each other at several levels, these items may be shown in the diagram as flipped, turned or moved in such a way that the terminals may be seen by the reader of the diagram. The method used shall be appropriately indicated.

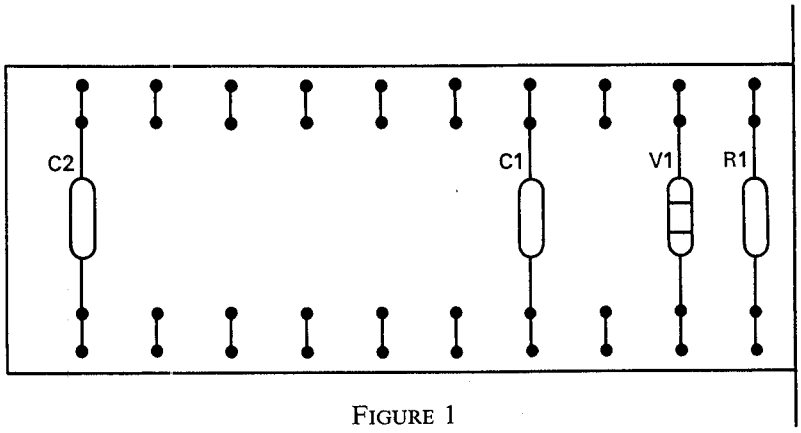

FIGURE 1

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For example, Figure 1 shows a soldering terminal strip, the end of which is viewed in the equipment, flipped to the left by 90°. The long line on the right indicates the hinge of flipping.

Another example is given in Figure 3, page 13, which contains a note indicating that the movable part to the right of the long chain boundary line is wired from the front of the bay. This part is connected by means of a loop.

8. Terminals

Terminals may be represented by graphical symbols. In some cases, on the outline depicting a device, the terminal designation alone may be sufficient.

If a convention is used to distinguish between detachable and non-detachable connections, it shall be shown or referenced on the diagram.

9. **Wiring**

In simple cases, the connections between items may be depicted by individual lines. For example, see Figure 2.

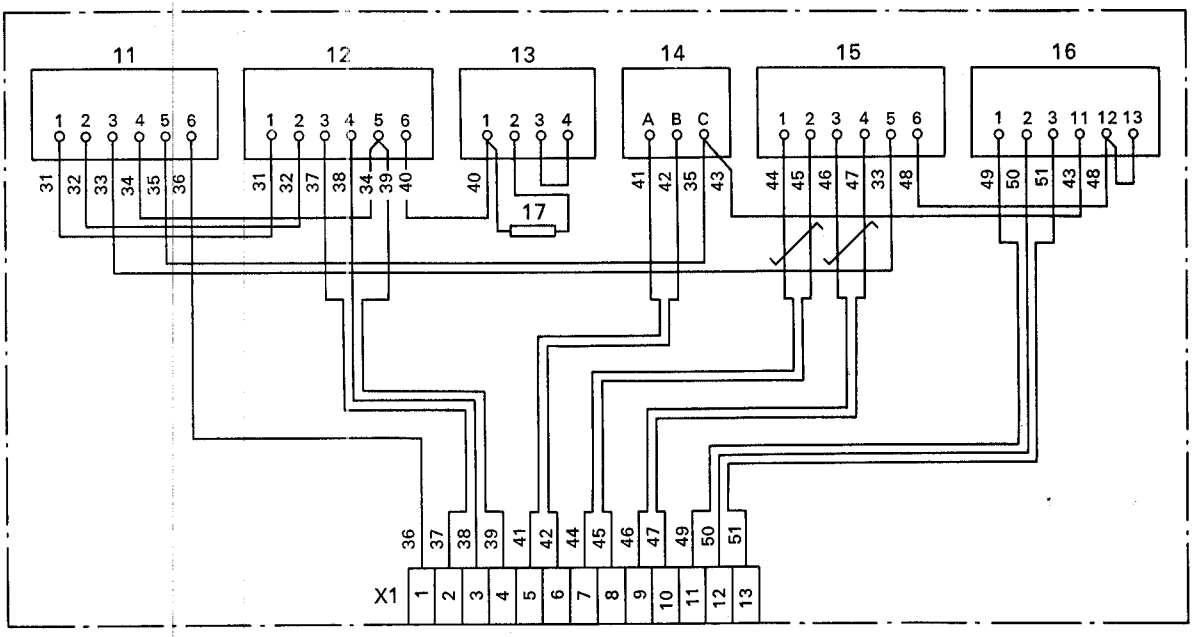

FIGURE 2

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The unit wiring diagram may show technical data for the conductors, such as type of wire and cross-sectional area.

It should show where conductors are to be twisted, shielded, separated from other conductors, etc. In the representation of a shielded conductor, the diagram should show whether the shield is to be isolated or connected and, in that case, a clear distinction should be made between the termination of the conductor and the shield.

Grouped conductors: cables, cable forms, etc., may be represented by a common line. See IEC Publication 113–3, Part 3: General Recommendations for the Preparation of Diagrams (Sub-clause 4.3). If a unit contains several conductor groups (cables, cable forms, etc.), these must be properly distinguished from one another. In the equipment represented in Figure 3, page 13, the individual conductors are identified by colours and are grouped in two cable forms, A and B. The reference figures where the lines representing individual conductors join those representing cable forms are provided to assist in the reading of the diagram.

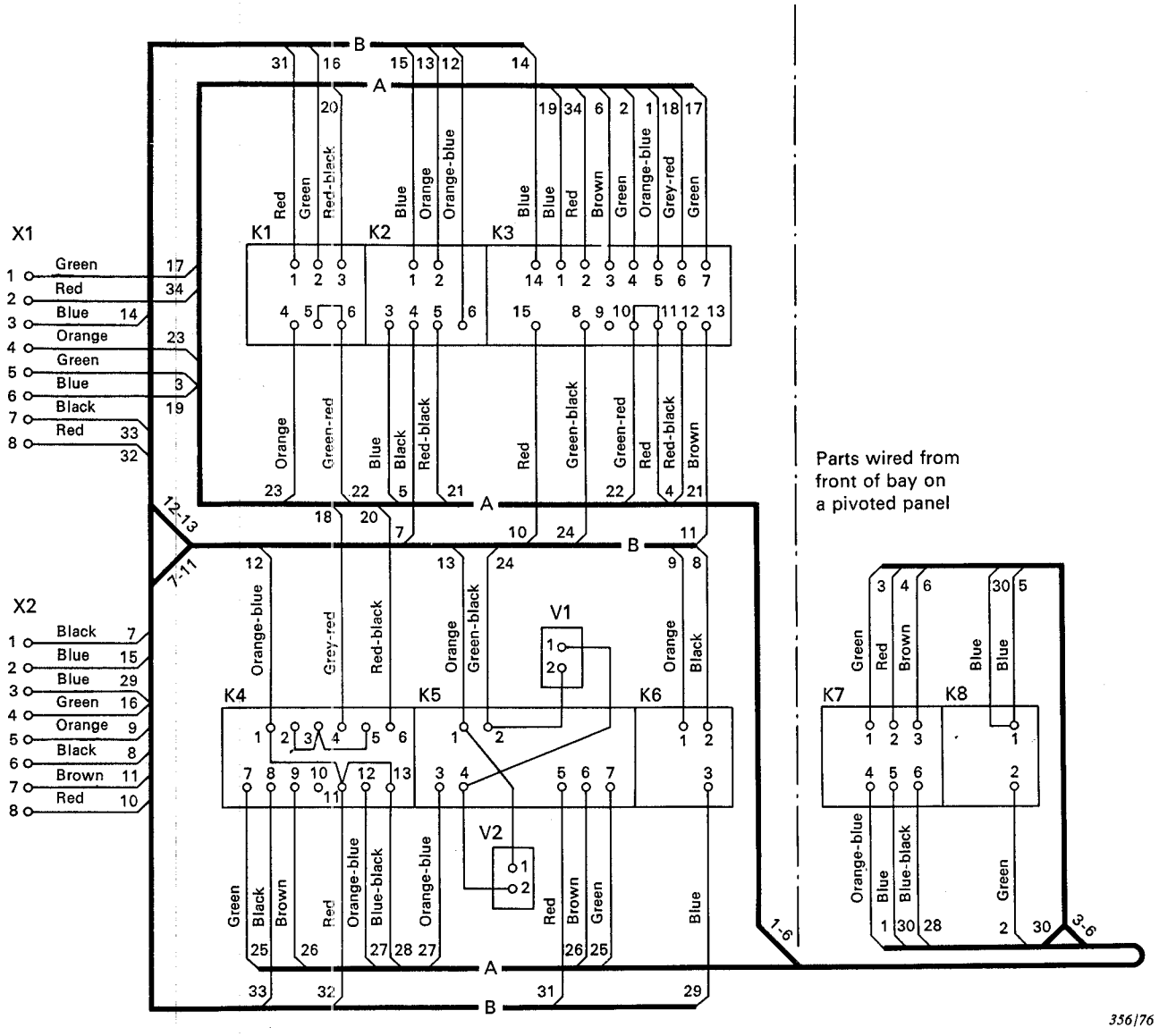

FIGURE 3

Interrupted line technique in accordance with Clause 4 of IEC Publication 113–3 may be used to clarify the diagram. Provision must be made for the association of the broken lines. See the example given in Figure 4, page 15. In this equipment, the independent marking system described in IEC Publication 391 is used for the conductors.

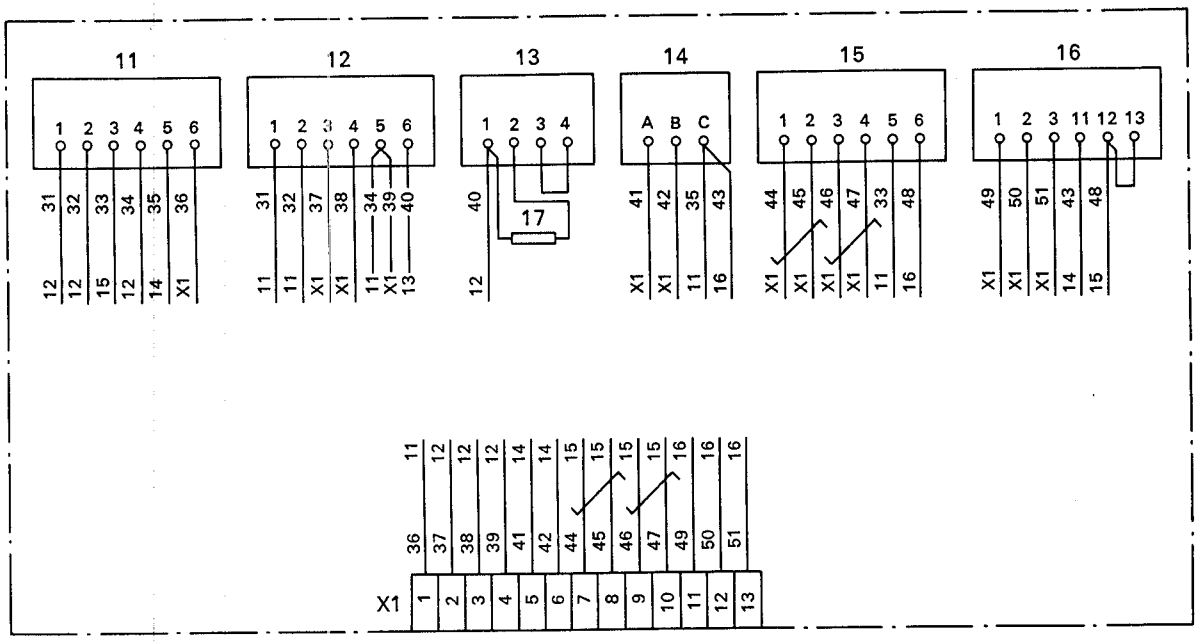

FIGURE 4

SECTION THREE — DESIGNATION

10. Items

Item designations appearing on the wiring diagram or table should be the same as those on the corresponding circuit diagram and associated documentation.

11. Terminals

Each point of termination should be identified by:

a) either a marking appearing on the actual item;

b) or a designation appearing in associated documentation;

c) or an arbitrary designation explained in the wiring information.

The designation of terminals in a diagram may be omitted if no ambiguity arises.

12. Conductors

Lines representing conductors should be suitably identified, e.g. by any marking appearing on the actual conductor or by a designation assigned in accordance with the appropriate IEC standards. Identification by colour is often employed.

13. Code for the representation of conductor colours

Under consideration.

SECTION FOUR — UNIT WIRING TABLES

14. General

The information given by unit wiring diagrams can conveniently be given by tabular listing. In many cases, a table is more satisfactory than a diagram. The detail of tabular arrangement will depend on the circumstances of each case.

Because many satisfactory variants are possible, no examples are shown in this standard.

Unit wiring tables may be supplemented by location diagrams.

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à la

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to

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Schémas, diagrammes, tableaux

Sixième partie:

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13. *Codification de la couleur des conducteurs*

Remplacer "A l'étude" par le texte suivant:

Le code normalisé pour la désignation des couleurs, donné dans la Publication 757 de la CEI: Code de désignation de couleurs, est recommandé pour la désignation de la couleur des conducteurs.

Si un autre code est utilisé, y compris la méthode de désignation des combinaisons, ce fait doit normalement être indiqué sur le schéma ou signalé dans un document associé.

Le code doit se distinguer de toute autre désignation de façon adéquate.

Page 15

13. *Code for the representation of conductor colours*

Replace "Under consideration" by the following text:

A standard code for the designation of colours is given in IEC Publication 757: Code for Designation of Colours, and it is recommended for the designation of conductor colours.

If another code is used, including the method for designating combinations, this fact should be indicated on the diagram or referenced in a supporting document.

The code should be distinguished from other designations in an appropriate manner.

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