

Operation and maintenance of earth-moving machinery —

Part 11: Specification for auxiliary starting aid electrical connector

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Technical Committee B/513 Construction equipment and plant, and site safety, to Subcommittee B/513/1, Earth-moving machinery, upon which the following bodies were represented:

British Coal Corporation
 Construction Plant (Hire Association)
 Federation of Civil Engineering Contractors
 Federation of Manufacturers of Construction Equipment and Cranes
 Health and Safety Executive
 Institution of Civil Engineers
 Silsoe Research Institute

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National foreword

This Part of BS 6913 has been prepared under the direction of Technical Committee B/513, Construction equipment and plant, and site safety, and is identical with ISO 11862:1993 *Earth-moving machinery — Auxiliary starting aid electrical connector* published by the International Organization for Standardization (ISO).

Cross-references

International standard	Corresponding British Standard
ISO 6165:1987	BS 6914 <i>Terminology (including definitions of dimensions and symbols) for earth-moving machinery</i> Part 1:1988 <i>Glossary of terms for basic types of earth-moving machinery</i> (Identical)
ISO 9247:1990	BS 6913 <i>Operation and maintenance of earth-moving machinery</i> Part 6:1991 <i>Specification for identification and marking of electrical wires and cables</i> (Identical)
IEC 269-1:1986	BS 88 <i>Cartridge fuses for voltages up to and including 1 000 V a.c. and 1 500 V d.c</i> Part 1:1988 <i>Specification of general requirements</i> (Identical)

The Subcommittee has reviewed the provisions of IEC 228:1978 and IEC 245-4:1980, to which normative reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard. A related standard to IEC 228:1978 is BS 6360:1991.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This International Standard specifies the details, dimensions and design of both plug (male) and receptacle (female) which must mate properly to permit interchangeable use of different makes of electrical connectors providing an auxiliary starting circuit for earth-moving machinery as defined in ISO 6165. It lays down a universal connecting device, with correct polarity, standard circuit coding and protection from electrical shorts, which may also be used with any other machinery, vehicle or automotive equipment with the same electrical system voltage range.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6165:1987, *Earth-moving machinery — Basic types — Vocabulary*.

ISO 9247:1990, *Earth-moving machinery — Electrical wires and cables — Principles of identification and marking*.

IEC 228:1978, *Conductors of insulated cables*.

IEC 245-4:1980, *Rubber insulated cables of rated voltages up to and including 450/750 V — Part 4: Cords and flexible cables*.

IEC 269-1:1986, *Low-voltage fuses — Part 1: General requirements*.

3 General requirements

3.1 Receptacle

The receptacle assembly shall be as shown in Figure 1 and shall be permanently installed in a machine. The receptacle contains the male terminals [see Figure 3 b)]; the configuration shall provide positive means of ensuring correct polarity when coupled with the mating plug.

3.2 Plug assembly

The plug assembly shall be as shown in Figure 2; it provides auxiliary starting from one machine to another [see Figure 2 a)], or from an external power source, such as a battery cart, to the machine [see Figure 2 b)]. The plug contains the female terminals [see Figure 3 a)] and mates with the receptacle assembly in 3.1.

4 Construction

4.1 Materials

Connector bodies shall be made of glass-fibre-reinforced nylon or other mouldable insulating material of equal or superior properties. The contact parts shall be coated to ensure low deterioration and low electrical resistance.

4.2 Terminals

Terminals shall be in accordance with Figure 3 and permanently attached to the cable ends before moulding, by soldering, brazing, welding or by other suitable method to provide a connection which will be mechanically and electrically secure.

4.3 Cables

Current-carrying cables shall be 50 mm², 70 mm² or 95 mm² wire size and shall conform with IEC 228 Class 5. Receptacle cables and plug cables shall be type 245 IEC 66 according to IEC 245-4. Particularly flexible stranding shall be used on the plug cables.

All cables shall be of sufficient length and have the appropriate terminals to connect with appropriate points within or between the machines or to any auxiliary power source.

All connecting cables shall be properly secured and protected within the machine.

4.4 Fuses

All fuses shall meet the requirements of IEC 269-1.

4.5 Identification of cables

Colour or number identification of cables shall conform with ISO 9247 and be arranged as shown in Figure 1 and Figure 2 of this International Standard, to provide continuity of identification throughout the connected assemblies.

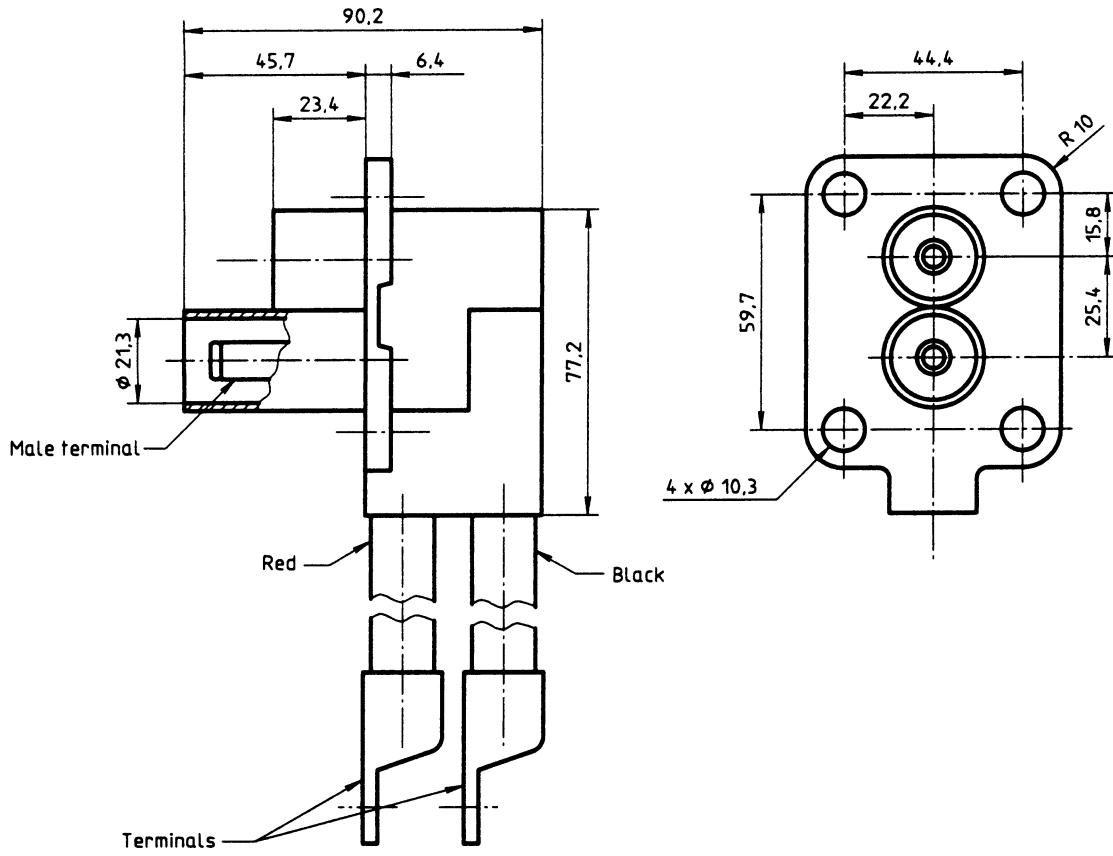
5 Location of receptacle on machine

The receptacle shall be attached on the interior side of the machine with the terminal portion protruding outward through acceptance holes in the side of the machine (see Figure 1) and located so that exposed portions of the receptacle will be protected from external damage by means of a lockable cover as shown in Figure 4.

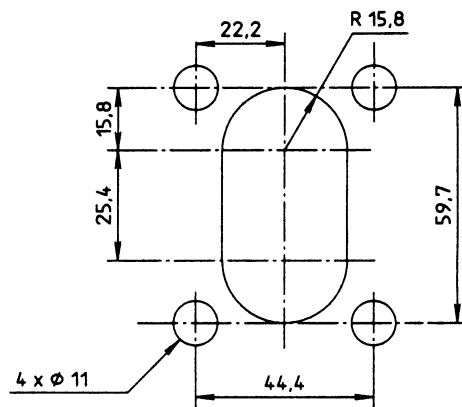
Where safeguarding is a concern, the location may be inside an enclosed compartment. The location should also provide easy access for attaching the auxiliary starting cables, and should be as close as practical to the starter motor in the machine so as to require a minimum length of connecting cables.

The machine manufacturer shall provide a label indicating the electrical system voltage at the receptacle.

Dimensions in millimetres

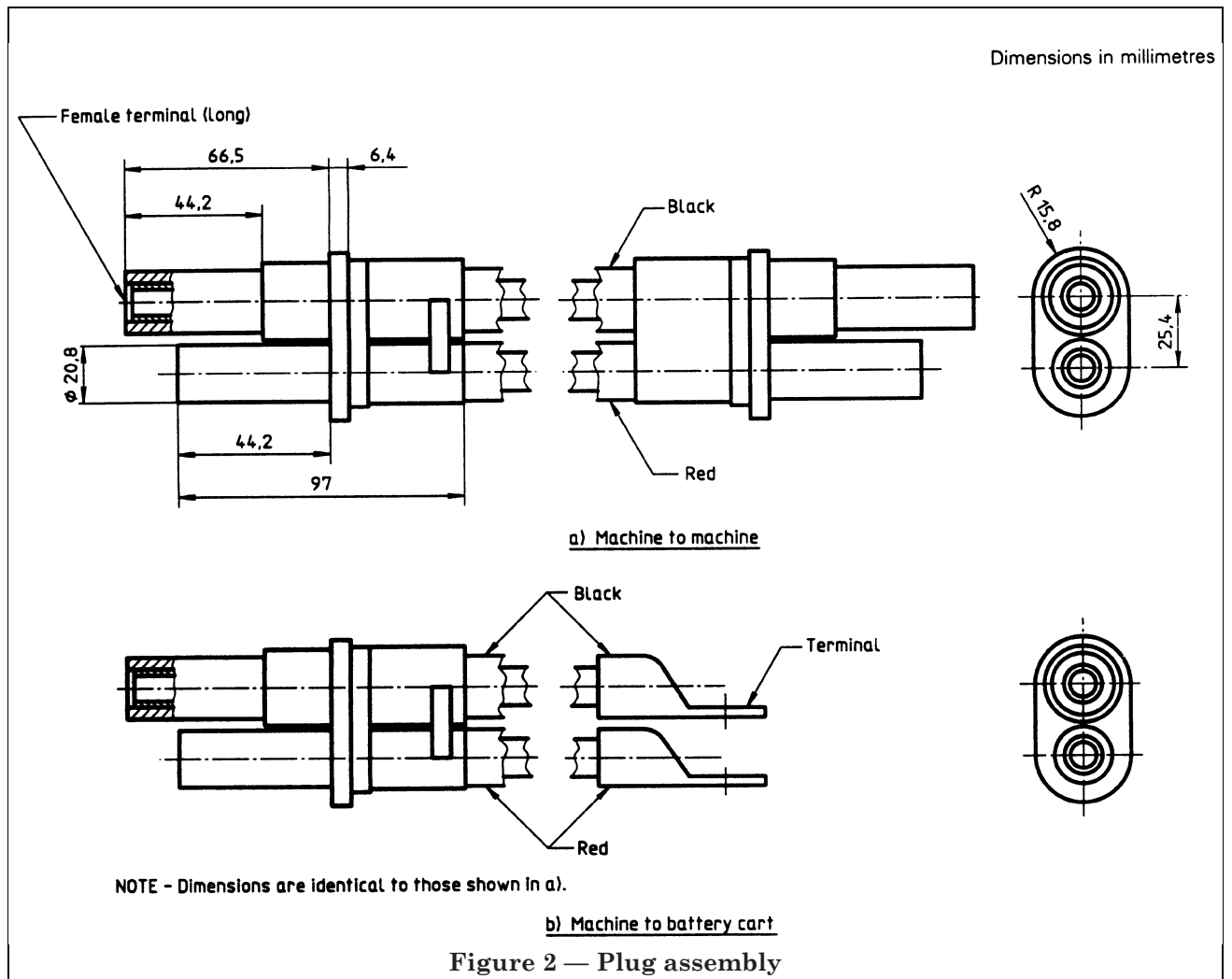


a) Receptacle assembly

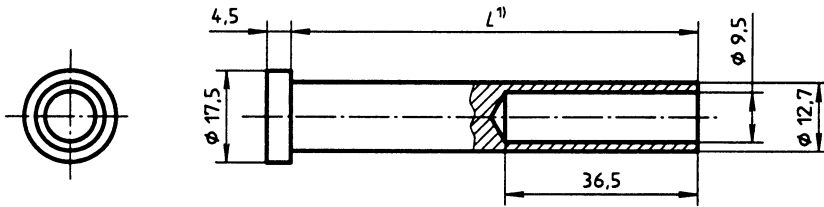


b) Acceptance holes in machine

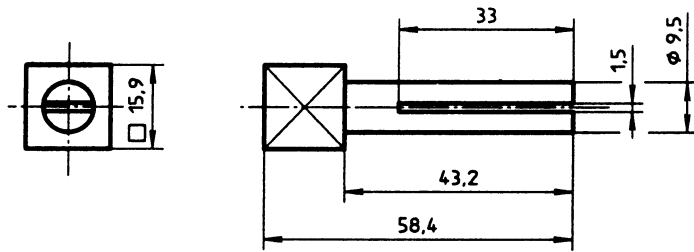
Figure 1 — Receptacle assembly and machine fitting



Dimensions in millimetres



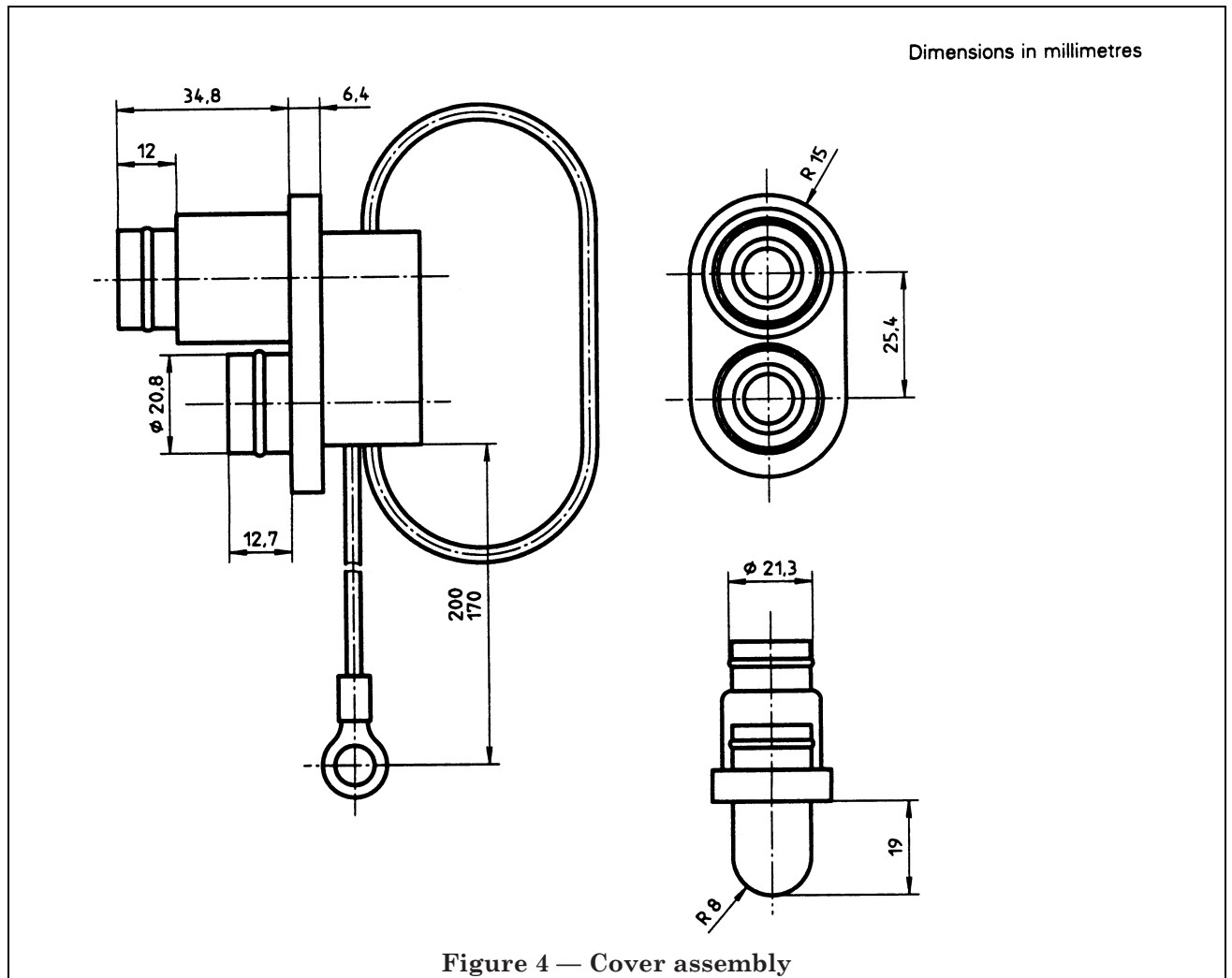
a) Female terminal



b) Male terminal

- 1) L = Short terminal (red wire): 46,8 mm
 L = Long terminal (black wire): 66,3 mm

Figure 3 — Terminals



List of references

See national foreword.

BS 6913-11:
1994
ISO 11862:
1993

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