BSI

BS AU 237 : Part 1 : 1990

British Standard Automobile Series :

Jumper lead sets for automotive starting

Part 1. Specification for jumper lead sets for light domestic duty

Contents

Foreword

This Part of BS AU 237 has been prepared under the direction of the Automobile Standards Policy Committee to establish a standard of performance for jumper lead sets for automotive jump starting.

BS AU 237 deals with requirements for jumper lead sets for use when starting an internal combustion engine from a supplementary battery. Examples are motor vehicles, boats, aircraft and other installations.

The standard is applicable to all 6 V, 12 V and 24 V vehicle systems and is presented in three separate parts:

Part 1 Specification for jumper lead sets for light domestic duty in environmental temperatures down to −10 °C restricted to maximum engine capacity, 3.5 L petrol and 2.5 L diesel

Part 2 Specification for jumper lead sets for heavy domestic duty in environmental temperatures down to −30 °C restricted to maximum engine capacity 6 L petrol and 4 L diesel

Part 3 Specification for jumper lead sets for commercial vehicles having an engine capacity in excess of 4 L diesel.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

1 Scope

This Part of BS AU 237 specifies the requirements for jumper lead sets for light domestic use when starting an internal combustion engine from a supplementary battery in environmental temperatures down to −10 °C restricted to maximum engine capacity, 3.5 L petrol and 2.5 L diesel.

Requirements for the safe use of jumper lead sets for jump starting are given as safety and operating instructions in appendix C.

NOTE. The publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this British Standard the definitions given in BS 6604 apply together with the following.

2.1 conductor. That portion of a cable which has the specific function of conveying current.

2.2 clip. A device which makes a mechanical and electrical connection from the conductor to the battery or earth terminal of a vehicle.

2.3 jumper lead set. A set of two insulated flexible low-voltage conductors and four insulated clips securely attached to the ends of the conductors.

2.4 starter battery. A battery principally used for starting, lighting and ignition on vehicles or plant employing internal combustion engines.

2.5 jump starting. A technique used for assisting the starting of an internal combustion engine where a healthy and reasonably well charged battery is connected temporarily in parallel with an ailing or discharged battery of the same nominal voltage to provide additional cranking power.

3 Performance

Jumper lead sets shall be capable of withstanding the tests given in appendix A.

4 Cable and construction

4.1 Jumper lead length

When measured between the ends of the jaws of each clip, the minimum length of the jumper leads as shown in figure 1 shall be not less than 3 m.

4.2 Cable construction

Any material used for cable construction shall satisfy the requirements of this standard and be of a size capable of carrying 100 A continuously.

NOTE. Multi-strand copper is commonly used.

4.3 Cable insulation

The cable covering shall be homogeneous and shall be tested in accordance with the type tests described in section 3 of BS 6862 : Part 1 : 1971.

The minimum thickness of the insulation shall be of nominal value 1.3 mm with a minimum thickness tolerance of 10 % ± 0.1 mm.

4.4 Colour coding

A clear distinction shall be made between the two cables in a jumper lead set by colour coding of the cables and clips. The cable used for a positive connection shall be red, and the cable used for negative shall be black.

4.5 Temperature range

All cables and conductors shall be designed to operate within a temperature range of −25 °C to +70 °C.

When tested in accordance with **A.3** the cable insulation shall show no cracking or rupture visible to the naked eye, if necessary corrected to give normal vision, or a trained observer.

5 Clips

5.1 Design

Clips consisting of a pair of jaws held together by, and pivoted about, a hinged point shall be fitted with a spring clamping device to provide force on the jaw holding the clip in a closed position.

NOTE. Designs of clips are optional provided that they meet the requirements of this standard.

5.2 Performance

The clip shall be capable of clamping on and firmly grasping a horizontal plain stud of a diameter of 25 mm which projects 10 mm from a surrounding flat surface and shall be capable of resisting a tensile force equal to the jumper leads mass plus a further mass of 5 kg applied in the direction of the cable.

The clip spring shall not deteriorate when tested in accordance with **A.1**.

5.3 Battery clip temperature

With 100 A flowing through a single cable for 60 s, the maximum acceptable temperature measured at the joint between cable and clip shall be 70 °C.

5.4 Current rating

When tested in accordance with **A.1.4**, the clip shall have a minimum continuous current carrying capacity of 100 A when the jaws are fitted to a solid copper conductor bar with dimensions as follows:

(a) 2 mm × 25 mm rectangular bar;

(b) 25 mm, round bar.

5.5 Cable terminations

5.5.1 *Electrical.* The clip shall be attached by either of the following methods.

(a) The clip shall be clamped or crimped to the conductor of the cable.

(b) A ring termination shall be crimped to the conductor and bolted to the conducting material of the clip.

No portion of the insulation shall be within the zone of crimping or clamping.