

AN IMPROVED ELECTRIC CONDUCTOR CONNECTOR

In the manufacture of electric components having one or more than one electric conductor electrically connected to a terminal or terminals within the component, it is the general practice during inspection of an electric component to check for electrical continuity, to measure circuit resistance and to effect other electrical tests. In order to carry out such electrical tests, it is common practice to connect the electric conductors of an electric component under test to electrical leads of test equipment by means of spring-loaded clips. The operation of connecting electric conductors of electric components to spring-loaded clips is time consuming and therefore expensive.

15 It is an object of the present invention to provide a simple and inexpensive device for effecting electrical connection between one or more than one electric conductor of an electric component and the electrical lead or leads of electrical test equipment.

20 According to the invention, the device comprises a base member of electrically insulating material supporting one or more than one table of electrically conductive metal or metal alloy, which table or tables is or are, or can be, electrically connected to the electrical lead or leads of electrical test equipment; a cover of electrically insulating material pivotally mounted with respect to the base member and having means

11

2.

associated with the base member for maintaining the cover in the closed position, in which position the cover overlies the electrically conductive table or tables; and at least one body of resilient electrically insulating material so carried by the cover that the resilient material will be compressed on to the or each electrically conductive table when the cover is in the closed position, the arrangement being such that, with the table or tables electrically connected to the electrical lead or leads of electrical test equipment, electrical connection between an electric conductor of an electric component and the or an electrical lead of said electrical test equipment is effected by placing an exposed end of the electric conductor on the table or one of the tables and closing the cover so that the exposed end of the electric conductor is maintained in electrical contact with the table.

It will be appreciated that the resilient material carried by the cover will be compressed when the cover is maintained in the closed position to prevent substantial relative movement between the table and the exposed end of the electric conductor placed thereon. It will also be appreciated that the device of the present invention has the very important advantage that an exposed end of an electric conductor can be readily and quickly placed in position on the table or on one of the tables without the necessity of manipulating a spring clip.

Preferably, the means for maintaining the cover in the closed position comprises electromagnetic or mechanical inter-engageable means which locks the base member and the cover together and/or it may comprise
5 spring means which urges the cover into either the closed or open position.

Where the base member supports two or more electrically conductive tables, preferably the tables are arranged side by side and are electrically insulated
10 one from another and preferably, also, the base member carries means identifying one table from another. Where the device is intended for use in inspecting electric components having connected to terminals within the component, a three core flexible wiring cable,
15 preferably the device has three tables arranged side by side and electrically insulated one from another, one table being identified as the live or brown table, one table being identified as the neutral or blue table and one table being identified as the earth or green/yellow
20 table.

Preferably, the cover carries means, e.g. a mercury tilt switch, which electrically isolates the electrically conductive table or tables from the electrical lead or leads of test equipment when the
25 cover is in the open position.

The base member is preferably in the form of a shallow box of electrically insulating material housing a bedding layer of electrically insulating material on which the table or tables is or are supported,
 5 upstanding walls of electrically insulating material being provided between adjacent tables.

As the resilient electrically insulating material carried on the cover, it is preferred to employ a cellular plastics material or a cellular rubber.

10 The invention is further illustrated by a description, by way of example, of a preferred device for use in inspecting electric components of the kind having connected to terminals within the component, a three core flexible wiring cable, with reference to the
 15 accompanying diagrammatic drawing which shows an isometric view of the device.

The device comprises a shallow box 1 of electrically insulating material to which is hinged a cover 2 of electrically insulating material urged towards the open position by a spring (not shown). Housed in the shallow box 1 is a bedding layer 3 of electrically insulating resin in which are partially encapsulated three electrically conductive tables, one table 4 being the live or brown table, one table 5 being the neutral or blue table and one table 6 being

the earth or green/yellow table. An upstanding wall 7 of electrically insulating material electrically isolates tables 4 and 5 and an upstanding wall 8 of electrically insulating material electrically isolates tables 5 and 6. An exposed portion of the bedding layer 3 adjacent an opening 20 in a side wall of the shallow box 1 and extending into the compartments bounded by the side walls of the box and the upstanding walls 7 and 8 is appropriately coloured to identify the three tables 4, 5 and 6.

Secured to the undersurface of the cover 2 are three bodies 14, 15 and 16 of cellular rubber which, when the cover is in the closed position, are compressed on to the associated electrically conductive tables 4, 5 and 6.

To maintain the cover in the closed position against the action of the spring (not shown), the device includes electromagnetic inter-engageable means comprising two electromagnets 10 housed in corners of the shallow box 1 and electrically connected to a source of supply via a lead 11 and two blocks 12 of ferrous metal mounted on the undersurface of the cover 2 and engageable with the electromagnets.

The tables 4, 5 and 6 are electrically connected to a source of supply by a three core flexible lead 18, a

mercury tilt switch 19 being inter-connected between the lead 18 and the tables to disconnect the tables from the supply when the cover 2 is in the open position.

When the device is to be used in inspecting an electric component having, connected to terminals within the component, a three-core flexible wiring cable, bared ends of the three cores of the wiring cable are laid on the appropriate tables 4, 5 and 6 of the device with the cable protruding through the opening 20 in a side wall of the box 1 and, with the electromagnets 10 energised, the cover 2 is closed so that the bared ends of the electric conductors are maintained in electrical contact with the tables on which they are laid, the cover being maintained in the closed position against the action of the spring (not shown) by the electromagnets 10 holding the ferrous blocks 12.

After inspection of the electric component is completed, the supply to the electromagnets 10 is disconnected, the cover 2 opens under the action of its spring, (not shown) to interrupt the electrical supply to the tables 4, 5 and 6 by actuation of the mercury tilt switch, and the three cores of the flexible wiring cable of the electric component can be removed, the device then being ready for inspection of another electric component.

The device is simple and inexpensive and enables electric components having, connected to terminals within the component, a three core flexible wiring cable to be successively inspected swiftly and efficiently.



7.

CLAIMS:

1. A device for effecting electrical connection between one or more than one electric conductor of an electric component and the electrical lead or leads of electrical test equipment, which device comprises a base
5 member of electrically insulating material supporting one or more than one table of electrically conductive metal or metal alloy, which table or tables is or are, or can be, electrically connected to the electrical lead or leads of electrical test equipment; a cover of
10 electrically insulating material pivotally mounted with respect to the base member and having means associated with the base member for maintaining the cover in the closed position, in which position the cover overlies the electrically conductive table or tables; and at
15 least one body of resilient electrically insulating material so carried by the cover that the resilient material will be compressed on to the or each electrically conductive table when the cover is in the closed position, the arrangement being such that, with
20 the table or tables electrically connected to the electrical lead or leads of electrical test equipment, electrical connection between an electric conductor of an electric component and the or an electrical lead of said electrical test equipment is effected by placing an
25 exposed end of the electric conductor on the table or one of the tables and closing the cover so that the exposed end of the electric conductor is maintained in electrical contact with the table.

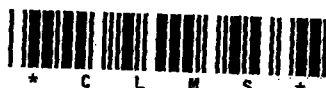
2. A device as claimed in Claim 1, wherein the base member supports two or more electrically conductive tables arranged side by side and electrically insulated one from another.

5 3. A device as claimed in Claim 1, wherein the base member carries means identifying one table from another.

4. A device as claimed in Claim 1, wherein the base member supports three tables arranged side by side and
10 electrically insulated one from another, one table being identified as the live or brown table, one table being identified as the neutral or blue table and one table being identified as the earth or green/yellow table.

5. A device as claimed in any one of the preceding
15 Claims, wherein the cover is urged into the open position by spring means.

6. A device as claimed in Claim 5, wherein the means for maintaining the cover in the closed position against the action of said spring means comprises
20 electromagnetic inter-engageable means which locks the base member and the cover together.



7. A device as claimed in any one of Claims 1 to 5, wherein the means for maintaining the cover in the closed position against the action of said spring means comprises mechanical inter-engageable means which locks the base member and the cover together.

8. A device as claimed in any one of the preceding Claims, wherein the cover carries means which electrically isolates the electrically conductive table or tables from the electrical lead or leads of test equipment when the cover is in the open position.

9. A device as claimed in any one of the preceding Claims, wherein the base member comprises a shallow box of electrically insulating material housing a bedding layer of electrically insulating material on which the table or tables is or are supported, upstanding walls of electrically insulating material being provided between adjacent tables.

10. A device as claimed in any one of the preceding Claims, wherein the resilient electrically insulating material carried on the cover is a cellular plastics material or a cellular rubber.

11. A device for effecting electrical connection between a three core flexible wiring cable or an electric component and the electrical leads of electrical test equipment substantially as hereinbefore described with reference to and as shown in the accompanying drawing.

