LABEL CLIP FOR ELECTRICAL COMPONENT HOUSING

TECHNICAL FIELD

The present invention relates to housings for electrical or electronic components, such as for example, relays, in which the housing includes a base and a removable enclosure for the component, which enclosure is held on to the base by means of a flexible clip, enclosing the electrical component. More particularly the invention relates to component identifying labels for such housings.

BACKGROUND ART

Electrical or electronic components often are housed inside of a protective housing.

One form of such a protective housing includes a base for mounting the component in a desired location, and an enclosing top or cap or other form of enclosure, which in the form of the type used in the invention usually is relatively high in its height above the base. A flexible "U" shaped clip, typically made of a flexible, somewhat resilient metal wire having its terminal ends affixed to the base, is used to hold the enclosure top to the base. The enclosure cap is often of a box-like shape having a square or rectangular configuration in its cross-section, with straight side edges, and typically is made of some form of insulating material, such as for example an appropriate, insulating, molded plastic.

Such a component housing system for an electrical relay of the type previously used in conjunction with an elevator system is illustrated in FIG. 1. In an elevator system using such an enclosed relay component, a number of them are mounted on a metal backing, usually of the order of, for example, ten to fifteen (10–15) relay components each in their separate housings. The relays typically are different from one other, varying for example in their designed voltages and types.

The wire clip 2 has substantially a "U" shape when viewed from the side, although the return legs (the upper one 2A being seen in FIG. 1) will typically have lateral undulations 2B along their lengths for enhanced holding capabilities. The return leg on the underside (which cannot be seen in FIG. 1) typically is substantially identical to, or a mirror image of, the return leg 2A, which can be seen in the figure. Typically, the distal, central portion 2C of the clip 2 also includes an undulation or peak 2D for enhancing grasping of the clip.

At each of the two proximal ends of the clip wire 2 there typically is a ninety (90°), inner bend, so that the tips (not seen) laterally extend into circular openings or holes in the base 1 into which they mate, forming attachment axes. This interfacing allows the clip 2 to rotate about the proximal ends, as well as to affix the clip to the base 1.

With respect to each enclosed relay component, when it is desired to maintain the enclosure on the base 1 and "lock" it in place, the enclosure 3 is placed in position on the base 1, and the flexible "U" shaped clip 2 is clipped over the enclosure, holding it in place under compression.

When it is desired to remove the enclosure 3, the clip 2 is merely pulled or popped off to the side, rotating about the proximal end tips, allowing the enclosure to be removed. This action provides access to the relay or other electrical or electronic component (not particularly illustrated) mounted on the base 1. When so removed, the relay mounted on or in the base 1 can be viewed and removed for, for example, replacement.

Typically, it is desired to label the component in the housing identifying it to provide guidance for, for example, maintenance workers and repair men in checking out or "trouble shooting" and repairing the electrical system, which includes such enclosed components.

However, depending on the component and the base design, there typically is no available room on the base for the label in an area which could be readily seen by the worker, and the same is typically true of the component. Even if there is room on the component for a label, when the component is removed, the identifying label then also is gone, and typically the replacement component is unlabeled. Also, one has to open the housing to view any such labeled component.

Although there usually is room for a label on the enclosure caps or top covers 3, they are typically standard in size and, when removed, can be easily mixed up with the covers from the other adjacent components. This allows then for the easy misidentification of components by the cover from one housing inadvertently being put in place of the cover on another housing and vice-versa, which housings are enclosing possibly totally different relays or other electrical components.

Thus, a need has existed for a long period of time for an appropriate labeling approach for such housings for properly identifying on a relatively permanent basis the component enclosed within each housing.

DISCLOSURE OF INVENTION

The present invention is thus directed to providing a housing system for electrical components using a wire-type clip attached to the base of the housing having a labeling subsystem for such housings for properly identifying on a relatively permanent basis the component enclosed within each housing.

It is a further object to have such a label subsystem function so that it is independent of the enclosure cap or top and is not dependent on either the exterior surfaces of the base or the component for the labeling.

The present invention achieves these objects in its preferred embodiment by including on the wire-type clip a label holder, and preferably redesigning the wire clip, so that it has a laterally extended leg from which the label holder is suspended. Even more preferably the laterally extended leg is included on the wire clip at that portion along its length which just underlies the distal, bottom portion of the enclosure clip.

The label holder preferably has a "T" shaped cross-section, with the wire extending through the top of the "T" portion and with the wire preferably being integrated with the label holder, either fixedly or in a manner which allows some rotation of the label holder about the wire.

Once the label holder is so provided, it presents a readily available, vertically aligned surface on the stem portion of the "T" shape for the identifying indicia to be displayed. Such indicia can be added to the holder by means of, for example, a separate paper label having an adhesive backing.

Both it and the label holder with its integrated clip wire can be added to the base at the time of the component and housing subassembly or added later on site, or one or more of the various elements can be added at different times along the way, from the initial mounting