

MOUNTING DEVICE FOR DISHWASHER INSULATION

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to the field of dishwashers and specifically to an insulation mounting assembly therefor.

2. Description of the Related Art

Dishwashers and other washing devices commonly include a molded or formed enclosure in which washing occurs. The enclosure is typically a cubic shape having an open front. To limit the escape of noise and heat from the enclosure, insulation is provided on an external surface of the enclosure. The insulation is generally provided on the top and opposing sides of the enclosure and may also be provided on the rear and bottom. The insulation is provided as a sheet or batt of insulating material, such as fiberglass, adapted to be secured on the enclosure. An example of such insulation is shown in U.S. Pat. Nos. 4,985,106 and 5,044,705 to Nelson, which are incorporated herein by reference.

The insulation is secured to the enclosure a number of different ways. For example, a bar or strap is placed over lower ends of the insulation. Ends of the strap are secured to tabs extending from the enclosure by a polypropylene clip projecting through the strap and engaging in a hole through the tab, as shown in FIG. 1. Another manner of mounting the insulation is shown in FIG. 2. Mounting holes are provided near lower ends of the insulation. The holes fit over hooks projecting from the sides of the enclosure.

Still, the need remains for a simple means of mounting the insulation on the enclosure. The mounting should be inexpensive and easy to manufacture while securely holding the insulation on the enclosure. The tub and insulation should be easy to assemble and should resist inadvertent removal of the insulation.

SUMMARY OF THE INVENTION

The present invention provides a washer, such as a domestic dishwasher. The washer includes a tub having an external surface and defining an internal volume in which objects are washed. An aperture and a sheet of insulation are disposed on the external surface. A clip projects through the insulation and engages in the aperture to secure the insulation on the external surface.

A boss, integrally molded on the tub, extends from the external surface and defines the aperture. A second aperture is disposed on a side of the external surface opposite the first aperture. A second clip projects through the insulation and engages in the second aperture to secure the insulation on the external surface. Each aperture is located adjacent a lower edge of a vertical side wall of the tub. The clip has a plurality of opposed fingers engaging a wall of the aperture and a retaining surface engaging the insulation.

The tub is made of a bottom wall, rear wall, opposing side walls, and top wall defining the external surface. The aperture is disposed on a side wall and the sheet of insulation is disposed on the top and side walls. The second aperture is disposed on a side wall opposite the first aperture. The second clip projects through the insulation and engages in the second aperture to secure the insulation on the external surface. A tab is disposed along an edge of the top wall. The tab extends through a perforation at an edge of said sheet of insulation.

The invention also provides a method of installing insulation on the washer tub. The steps include locating the insulation on the external surface of the tub and inserting a retainer clip through the insulation into an aperture on the external surface of the tub. The retainer clip engages in the aperture to retain the insulation on the external surface. A second retainer clip is inserted through the insulation into a second aperture on a side of the external surface of the tub opposite the first aperture to retain the insulation on the external surface. A perforation in the sheet is hooked over a tab disposed on the top wall.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a prior art manner of mounting insulation on a dishwasher;

FIG. 2 shows another prior art manner of mounting insulation on a dishwasher;

FIG. 3 shows a perspective view of a dishwasher tub according to the invention;

FIG. 4 shows a sheet of insulation;

FIG. 5 shows a perspective view of a mounting clip according to the invention;

FIG. 6 shows a side view of the mounting clip; and

FIG. 7 shows the tub of FIG. 3 with the sheet of insulation of FIG. 4 installed thereon.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 3, a washer, such as a dishwasher, is provided with a molded dishwasher tub 10. The tub 10 has a bottom wall 12, left side wall 14, right side wall 16, rear wall (not shown), and a top wall 18. The walls 12, 14, 16, 18 define an internal volume 20 or washing chamber in which objects are washed. The walls also define an external surface of the tub 10. The tub 10 defines an opening 22 through which the objects are inserted into and removed from the internal volume 20. The tub 10 is generally of a type known in the art and can be modified in its details to accommodate particular features of the dishwasher. The tub 10 is adapted for mounting a door to close the opening 22. A reinforcing frame can be located on the outside of the tub 10, and racks and a water spraying system are located on the inside.

Insulation mounting bosses 24 are molded on lower parts of the opposite side walls 14, 16. Each boss 24 is a generally cylindrical or parallelepipedic member projecting outwardly from an external surface of the respective side wall 14, 16. A central aperture 26, such as a bore, is provided in each boss 24. If tub 10 geometry permits, the apertures 26 can be provided directly in the side walls 14, 16 or another structural element of the tub 10, so long as the possibility of water leakage is considered. In a conventional manner, L-shaped plastic or metal mounting tabs 28 are provided on the top wall 18 at a front flange 30 around the opening 22. The tabs 28 are adapted for fastening the tub to the underside of a countertop (not shown) with screws.

Referring to FIG. 4, a rectangular sheet 32 of insulation, such as a batt or blanket of fiberglass, has a width approximately equal to the depth of the tub 10. The length of the sheet 32 is approximately equal to the sum of the heights of the side walls 14, 16 and the width of the top wall 18. The sheet 32 of insulation is preferably lined with paper or plastic on one or two sides and is suitable for limiting noise and vibrations emanating from the tub 10 during a washing