

The invention concerns a loudspeaker unit comprising two loudspeaker boxes for use as a pair for stereo-sound reproduction in consumer electronics devices, preferably in television receivers, in which one loudspeaker box is arranged on each of the right and left sides of the housing of the device, in which the loudspeaker boxes have mirror-symmetrical shapes with reference to a vertical plane and are each constructed symmetrically relative to their horizontal centre line.

For stereo-sound reproduction consumer electronics devices, especially stereo-sound television sets, are provided with an "optically left" and an "optically right" loudspeaker box. These are attached to the housing side walls or can be set out separately at a larger spacing for improvement of the stereo-effect. It is usual to use loudspeaker boxes with a narrow radiating front. They are often constructed as 2-way-bass reflex boxes, i.e. they contain one or two low-medium-frequency loudspeakers (TMT), a (dome-type) tweeter (HT) and a bass reflex opening (BR), which can be tuned with an inserted tube of a particular length. These components are set out along an imaginary vertical line. To avoid acoustic and aesthetic imperfections, it is necessary in each case to arrange the tweeter (HT) at the top, the low-medium-frequency loudspeaker(s) (TMT) in the middle and the bass reflex opening (BR) at the bottom. Thus previously it was necessary to manufacture "left" and "right" boxes of this type with the acoustic baffles or radiating fronts of these boxes not identical but, on design grounds, mirror-symmetrical. Thus the manufacture was expensive.

Such an arrangement is described in DE-A-3210639, in which two loudspeaker boxes can be mounted on the right

and left and which can be connected by means of Connecting elements mechanically and electrically to the television receiver. The two loudspeaker boxes however are constructed differently, and are provided in each case only for the right and left side. Thus in the inner assembly there are two differing constructions.

From Patent Abstracts of Japan, Volume 10, No.170 (E-412) (2226), 17. June 1986; JP - A-61 020 491 it is also known to arrange in the housing of a loudspeaker box a bass reflex opening. In this document however there is no discussion of the object underlying the present application, which consists in facilitating a cheaper manufacture, without damaging the aesthetic and acoustic characteristics of a stereo loudspeaker arrangement. This object is achieved in accordance with the present invention according to the first claim. Further details and constructions may be derived from the dependent claims and the description.

With the openings and the attachment holes for tweeter (HT) and bass reflex opening (BR) are constructed identically, it is possible, in an advantageous manner, to produce pairs of loudspeaker boxes simply by the allocation of the tweeters (HT) and the bass reflex openings to the upper and lower acoustic baffle openings and the attachment holes associated therewith, the loudspeaker boxes using identical housings and acoustic baffles and having identical radiating behaviour.

An embodiment of the invention is described below with the assistance of a drawing.

Figure 1a and b shows loudspeaker boxes of known type at the sides of a television set and located separated from a television set;

Figure 2a and b show an optically "left" box from the front and a rear view on the acoustic baffle of the same box without component parts.

Starting from the state of the art, an example of which is illustrated in Figures 1a and 1b, there is shown a television set housing with loudspeaker boxes 2 and 3 attached to the sides, and with loudspeaker boxes 2 and 3 located to the side and remote from the television set housing 1. In this way the stereo effect is improved by increasing the so-called stereo-basis.

With reference to the "optically left" box of Figure 1a and 1b, the solution in accordance with the invention is now shown in Figures 2a and 2b. In Figure 2a can be seen the openings of the loudspeakers, which are mounted at the rear, viz. the tweeter (HT) 4 at the top, below that the low-medium-frequency loudspeaker (TMT) 5 and below that the bass reflex opening (BR) 6. Figure 2b shows the acoustic baffle of the box of 2a from behind with the fixing holes 7 for all three loudspeakers, which have not yet been mounted.

The openings for the tweeter (HT) 4 at the top and the associated fixing holes 7 correspond, as well as similar openings for the base reflex opening and fixing holes 7, which are not used here though. The insertion tube for the possible desired or necessary tuning is now inserted and possibly glued. The "optically right" box, which is not shown here, is mirror-symmetrical and can be fitted with components from the top to the bottom in a similar way. In this way the essentially cheaper manufacture of only one loudspeaker box is possible, which through the attachment of components is set out as left or right.



Claims

1. A loudspeaker unit comprising two loudspeaker boxes for use as a pair for stereo-sound reproduction in consumer electronics devices, preferably in television receivers, in which one loudspeaker box (2,3) is arranged on each of the right and left sides of the housing (1) of the device, in which the loudspeaker boxes have mirror-symmetrical shapes with reference to a vertical plane and are each constructed symmetrically relative to their horizontal centre line, characterised in that the acoustic baffles of the loudspeaker boxes are each provided along a vertical line with a treble loudspeaker (HT), a low-medium-frequency loudspeaker (TMT) and a bass reflex channel (BR), in which the opening (5) for the low-medium-frequency loudspeaker (TMT) is arranged in each case symmetrically to the horizontal centre line of the loudspeaker box (2,3), in that the openings (4,6) in the acoustic baffles of both the loudspeaker boxes for the treble loudspeakers and the bass reflex channels (BR) are arranged mirror-symmetrically to the horizontal centre line of the acoustic baffles, and in that the openings for both the treble loudspeakers and for the bass reflex channels have the same dimensions and can be selectively used as an opening (4,6) for treble loudspeakers (HT) or bass reflex channels (BR).

2. A loudspeaker unit comprising two loudspeaker boxes for use as a pair according to claim 1, characterised in that for the right-hand side and also for the left-side loudspeaker box the tweeter (HT) is in each case arranged above and the bass reflex channel (BR) is in each case arranged below.



3. A loudspeaker unit comprising two loudspeaker boxes for use as a pair according to claims 1 and 2, characterised in that the bass reflex channels (BR) are tuned in similar manner by plug-in tubes of defined length.

4. A loudspeaker unit comprising two loudspeaker boxes for use as a pair according to claims 2 or 3, characterised in that the fixing holes (7) or means at the openings (4,6) for tweeter (HT) or bass reflex channel (BR) are constructed in similar manner.

5. A loudspeaker unit comprising two loudspeaker boxes for use as a pair according to claim 1, characterised in that the low-medium-frequency loudspeaker (TMT) is arranged in each case in the centre, i.e between tweeter (HT) and bass reflex channel (BR).