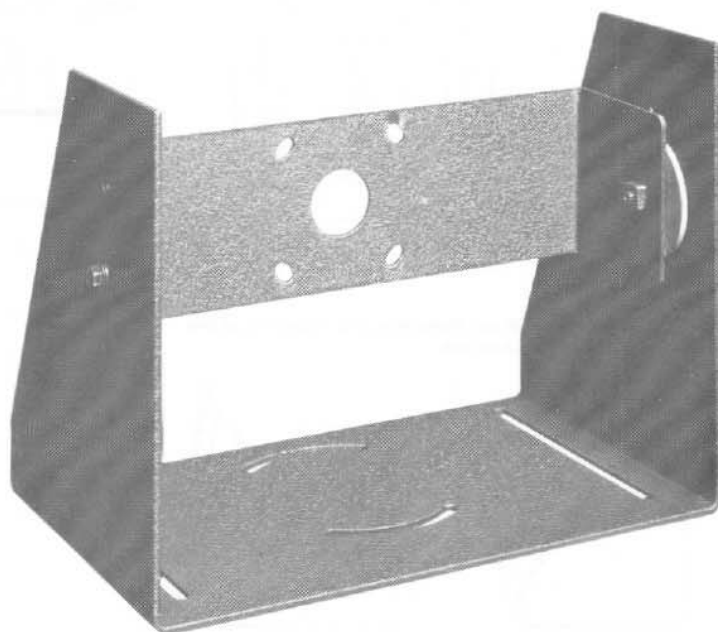




## HMK-4 Horn Mounting Kit

- Mounts HP99 horn to top of TL15-1XS low-frequency system
- Allows  $\pm 30^\circ$  horizontal horn orientation
- Allows  $+10^\circ/-15^\circ$  vertical horn orientation
- Works with drivers having 33-mm (1.3-in.) bolt-on exits (DH2As1 and DH1Amt)

### SPECIFICATIONS

#### Material:

10-gauge steel

#### Finish:

Black wrinkle powder coat

#### Hardware Supplied:

See Table 1

#### Net Weight:

4.1 kg (9 lb)

#### Shipping Weight:

5.0 kg (11 lb)

### DESCRIPTION

The HMK-4 horn mounting kit allows the HP99 horn to be mounted to the top of a TL15-1XS low-frequency system, with horizontal rotational freedom of  $\pm 30^\circ$  and vertical rotational freedom of  $+10^\circ/-15^\circ$ . The HMK-4 is designed for drivers with 33-mm (1.3-in.) exits such as the DH2As1 and the DH1Amt. Most other EV horns cannot be used, because they have 51-mm (2-in.) entrances.

### INSTALLATION INSTRUCTIONS

The HMK-4 consists of two U-shaped brackets and the hardware to hold them together. The larger bracket mounts to the low-frequency system. The smaller bracket mounts between the high-frequency driver and horn and then mounts between the uprights of the larger bracket. Screws and T-nuts have been installed in the TL15-1XS for attaching the larger bracket and all other hardware required is supplied with the HMK-4 (see Table 1 and Figure 1) or with the driver.

The following assembly steps are recommended:

1. Place the DH2As1 driver back down on a convenient assembly surface.

2. Install the four 1/4-20 threaded studs supplied with the driver into the four tapped holes on the top of the driver. One end of each stud will accept a 1/8-in. hex socket wrench also supplied with the driver.

3. Place the smaller horn/driver U-bracket (item 7) on the driver with the legs of the "U" facing down, and with the studs from the driver lining up with the corresponding holes on the bracket (see Figure 2). This orientation is necessary to place the horn/driver assembly's center of gravity at the appropriate point. The oval holes allow the assembled horn/driver section to be rotated slightly in order to square up the horn with the low-frequency section.

4. Remove backing from the cork gasket (item 2) and apply the adhesive side to the mounting flange of the throat of the horn. This ensures a proper acoustic seal with the bracket.

5. Place the horn through the driver studs and secure with lock washers and 1/4-20 nuts, supplied with the driver. The nuts have a 7/16-in. head (see Figure 2 for proper horn/bracket orientation).

6. There are two methods for attaching the large U-bracket (item 6) to the top of the low-frequency enclosure. Select the most appropriate:

A. Outer four screws of the enclosure with the two straight slots of the bracket: Use for pointing the horn straight ahead. This gives only front-to-back adjustment to line up the horn with the front of the enclosure. (The frequency response curves shown on the TS992 engineering data sheet were

made with the horn mouth flush with the front of the low-frequency system.)

B. Central two screws of the enclosure with the two circular slots of the bracket: Use to point the horn other than straight ahead. The front-to-back location is fixed and the center of the horn is nominally flush with the front of the enclosure.

7. After deciding the horizontal aiming, remove the necessary screws installed in the T-nuts on the top of the low-frequency system. The screws have slotted, 3/8-in. hex heads. **The slanted sides of the U-bracket legs aim in the direction of the low-frequency driver (see Figure 3).** It is suggested that the bracket be attached to the enclosure with the screws, but that these screws are not tightened until the final aiming of the assembled unit is complete.
8. There are three bracket mounting holes in each leg of the larger U-bracket. They are designed for maximum downward ( $-15^\circ$ ), straight ahead, and maximum upward ( $+10^\circ$ ) aimings. These three aimings minimize the distance from the horn lip to the low-frequency enclosure, which then gives the smoothest frequency response in the crossover region. The suggestions below may not be ideal for all situations and the user is encouraged to try any possible orientation. Select the opposite pair most appropriate for attachment of the small U-bracket to the large U-bracket (see Figure 3):

A. Upper pair (farthest away from the bottom of the bracket): Use for maximum downward aiming (toward the low-frequency system).

FIGURE 1 - HMK-4 Contents Identification

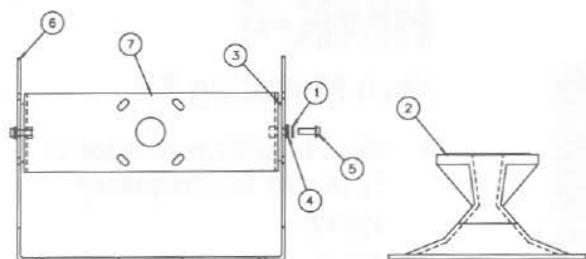


FIGURE 2 - Mounting the HMK-4's U-Bracket Between the Driver and Horn

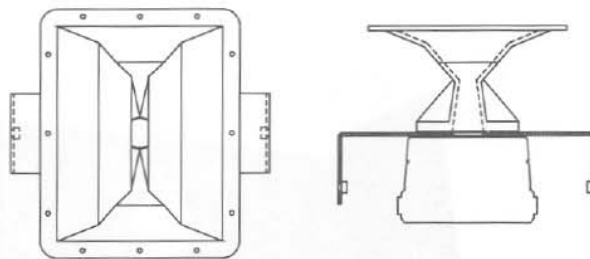


FIGURE 3 - Orientation of the HMK-4's Large U-Bracket and Three Possible Locations of the Small U-bracket for different Vertical Horn Aimings

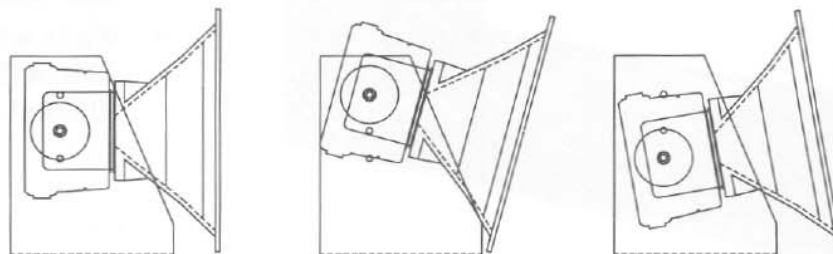


TABLE 1 - Contents of HMK-4 Horn Mounting Kit

| Reference No. | Part No. | Quantity | Description              |
|---------------|----------|----------|--------------------------|
| 1             | 3897-CP  | 2        | Lock washer 1/4 in.      |
| 2             | 38765    | 1        | Cork gasket 3.75 in.     |
| 3             | 38829    | 2        | Neoprene friction washer |
| 4             | 38843-CP | 2        | Flat washer              |
| 5             | 63195-CP | 2        | Screw 1/4-20 x 3/4 in.   |
| 6             | 73179-JF | 1        | Large U-bracket (base)   |
| 7             | 73180-JF | 1        | Small U-bracket (swivel) |

B. Central pair: Use for straight-ahead horn aiming (horn axis parallel with the axis of the low-frequency system).

C. Lower pair: Use for maximum upward horn aiming (away from low-frequency system).

- Remove backing and apply the neoprene friction washers (item 3) around the mounting hole pair of your choice on the inner side of the "U." This washer will be between the larger and smaller U-brackets and will provide a great deal of holding strength to keep the horn pointing in the desired orientation.
- Attach the smaller U-bracket to the larger U-bracket (already mounted on the low-frequency enclosure) with the two supplied 1/4-20 screws (item 5) with a slotted, 3/8-in. hex head.
- Finalize both vertical and horizontal horn/driver aiming and tighten all screws.
- Have a great time enjoying some really fine sound.

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