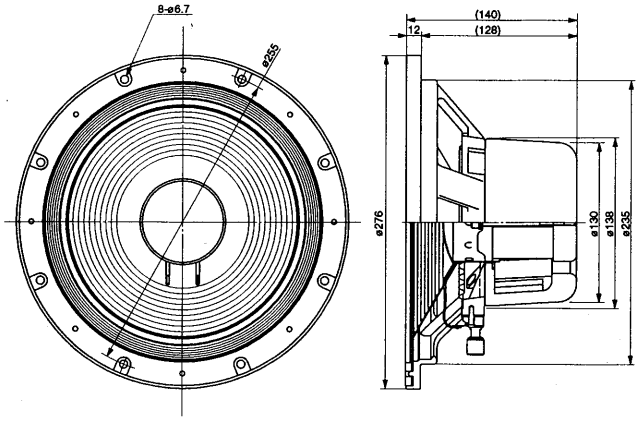
TAD Technical Audio Devices

TL-1102

LOW FREQUENCY LOUDSPEAKER

INSTRUCTION MANUAL



FEATURES

1. High-strength Integral Magnetic Circuit and Aluminum Diecast Frame

The yoke and the plate, which were separate pieces with the conventional internal magnetic circuit, have been integrated by a special casting method, and by bolting the center pole to the yoke, the strength of the magnetic circuit has been approximately quadrupled, while tertiary high heat distortion has been approximately halved by use of high-performance ductile cast iron material.

2. Low-distortion Magnetic Circuit

An Alnico magnet is used, which in principle permits reduction of the secondary high-frequency distortion. Low reduction is aimed for by using a special shape for the center pole. As the design of the magnet operation point also provides a sufficient margin, the sensitivity drop by demagnetization at high power presents no problems with use inside the specifications.

3. Edgewise Voice Coil with High Heat Resistance

The edgewise voice coil with a winding width of 13 mm stays within the magnetic gap even with an amplitude of 5 mm (p-p) while exhibiting the drive power for powerful playback. The voice coil bobbin and the adhesive also have a sufficiently high heat resistance for the max. input of 500 W (IEC).

4. The Vibration Sheet Provides a Smooth Frequency Characteristic:

The vibration sheet has edge-processed natural pulp as its main material, which is blended with various types of pulp for paper making, laminated with special film, and the surface is coated with a vibration-damping coating. Together with the half vertical angle of 30°, a light and full-bodied natural sound is played back.

5. Large Input Terminals

Speaker cables with a cross section of 14 mm² can be connected directly.

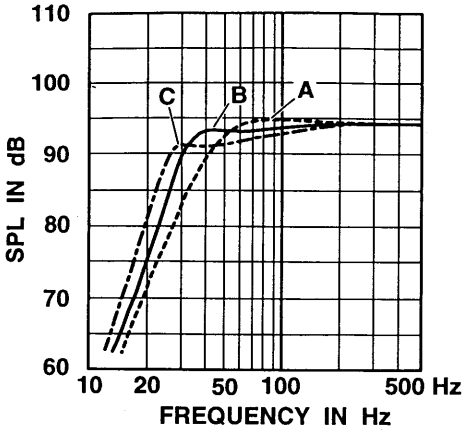
SPECIFICATIONS

Nominal diameter	276 mm (11 in.)
Impedance	8 ohms (Rated)
	8.3 ohms (Min) ±7 % at 20°C
Sound pressure level [1]	94 dB SPL, 1 W (2.83 V), 1 m (3.3 ft)
Power capacity	500 W RMS (Max Power) [2]
	125 W RMS (Rated Power) [3]
Frequency range [4]	31 Hz to 3000 Hz
Highest recommended crossover [5]	1800 Hz
Recommended enclosure [6]	40 to 121 liter (1.4 to 4.27 ft³)
Effective piston diameter	216 mm (8.5 in.)
THIELE/SMALL PARAMETERS:	
Fs	31 Hz
Qts	0.30
Qes	0.32
Qms	4.35
Bl	13.5 N/A
Re	7.2 ohms
ηo	1.10 %
Vas	121 liter
Sd	0.0366 m² (56.8 in²)
Mms	0.0413 kg
Mmd	0.0341 kg
Cms	6.382 x 10^{-4} m/N
Le	1.1 mH
LARGE-SIGNAL PARAMETERS:	
Pe (max)	500 W
Xmax	6.2 mm (0.24 in.) [0-P]
Vd	227 cm³ (13.9 in³)
Maximum excursion before damage	32 mm (1.26 in.) [P-P]
MAGNETIC CIRCUIT AND VOICE COIL:	
Total magnetic flux	148000 Maxwell
Magnetic flux density	12800 Gauss
Magnetic gap depth	6 mm (0.24 in.)
Magnetic assembly weight	5.2 kg (4.35 lb)
Voice coil diameter	65 mm (2.6 in.)
Voice coil material	Edgewound Ribbon copper
Voice coil winding depth	18.4 mm (0.72 in.)
MOUNTING INFORMATION:	
Baffle opening diameter	237 mm (9-5/16 in.)
Bolt circle diameter	255 mm (10-1/16 in.)
Volume displaced by driver	1.7 liter (0.24 ft³)
EXTERNAL DIMENSIONS:	
Diameter	276 mm (10-7/8 in.)
Depth	140 mm (5-1/2 in.)
Weight	6.3 kg (13.9 lb)
ACCESSORIES	
Mounting screws (M5 x 40 Philips head)	8
Nuts, Fung nuts, Washers	8 each
Airtight packings	4
Instruction manual	1

* *Specifications and features are subject to change without notice due to improvements.*

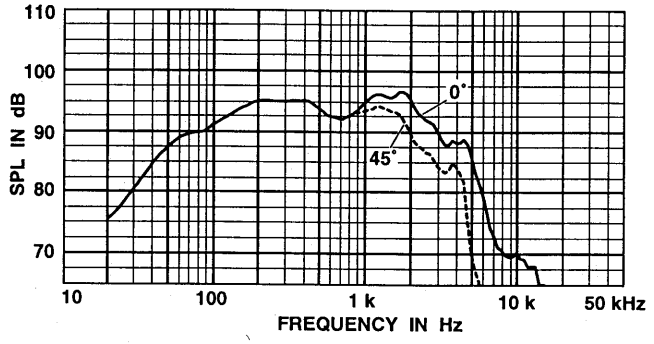
1) Indicates the average of 200 to 500 Hz.
2) IEC 268-5: Long term maximum power
3) IEC 268-5: Rated noise power
4) For frequency band, a frequency 10 dB lower than the rated output level at half space condition placed in an enclosure of 22 ft³ is shown.
5) When a high-range impedance compensation network is necessary, insert 12 μF + 8 Ω in parallel with the speaker.
6) Computer simulation sample of bass characteristics is shown on the other side.

Enclosure volume and port tuning

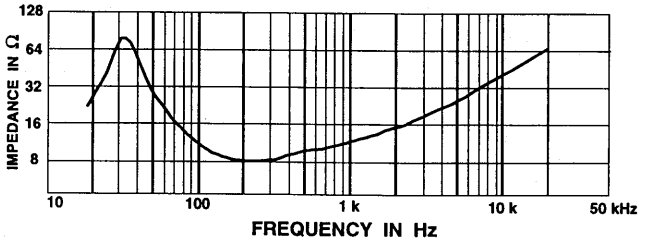


A: Enclosure volume ..... 40 liter (1.4 ft³)
Port tuning frequency ..... 38 Hz
B: Enclosure volume ..... 80 liter (2.8 ft³)
Port tuning frequency ..... 26.5 Hz
C: Enclosure volume ..... 140 liter (5 ft³)
Port tuning frequency ..... 33 Hz

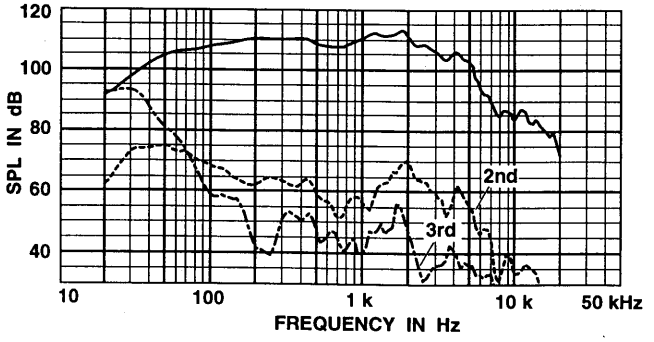
FREQUENCY RESPONSE



IMPEDANCE



HARMONIC DISTORTION



Impedance was measured at free space.
Frequency response and harmonic distortion were taken in a 2-space (hemispherical free-field) condition placed in an enclosure of 620 liter (22 ft³).

INSTALLATION METHOD

Method of fitting the gasket

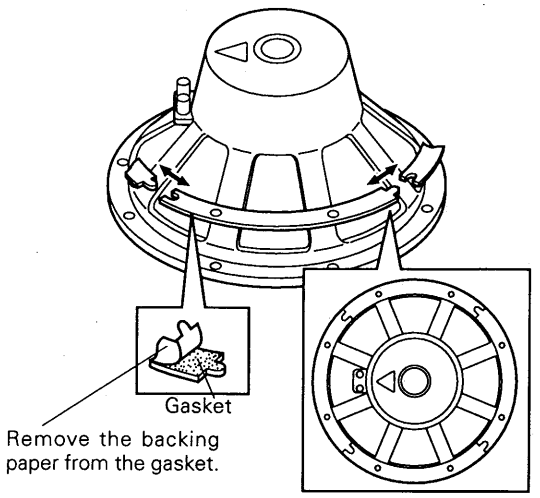


Fig. 1

WHEN USING FANG NUTS

First, drill 7 mm diam. holes in the baffle. Next, using the method shown in Fig 2, drive fang nuts into these holes from the back of the baffle. Finally, insert the screws provided (8) and tighten them up.

WHEN USING NUTS

First, drill 6 mm diam. holes. Next, using the method shown in Fig. 3, fit the mounting screws, washers and nuts, and then tighten up firmly.

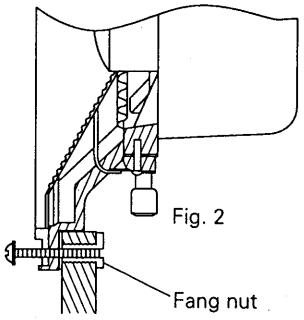


Fig. 2

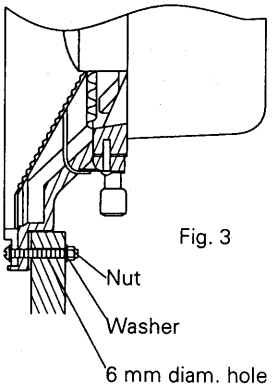


Fig. 3

After pulling out the mounting screws, fit the TL-1102 into position, then finally reinsert the screws and tighten securely. Progressively tighten up diagonally opposite screws, applying final tightening torque after adjusting the position of the speaker. As washers are not required, make sure they are removed from the mounting screws.

CONNECTIONS:

Connect the ⊕ side of the speaker cable from the power amplifier to the red terminal and connect the ⊖ side of the speaker cable to the black terminal.

Note:
Be careful not to short-circuit the speaker cable end.

Recone

Use the diaphragm assembly SXV1003 for the TL-1102 as a cone replacement repair kit.

TAD Technical Audio Devices

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