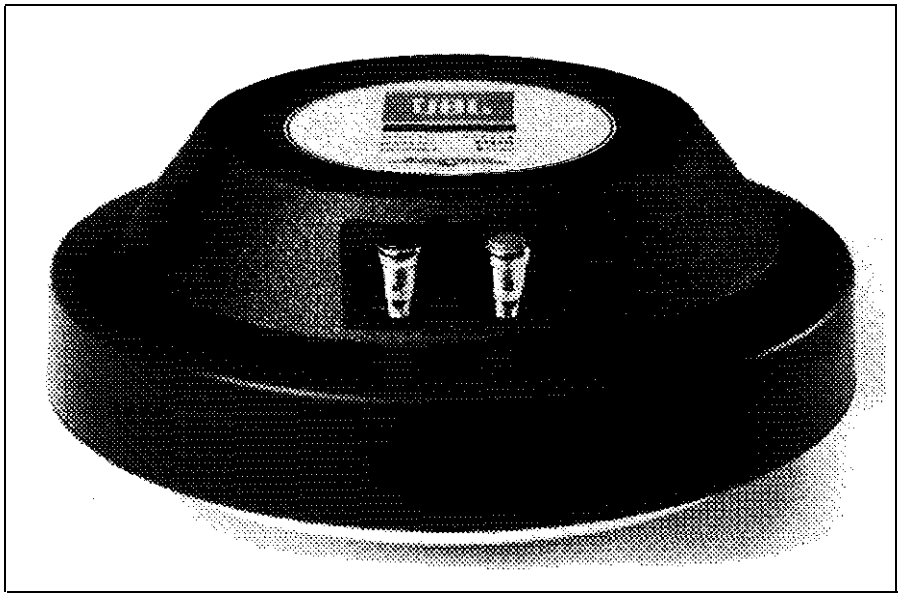
2447H/J Compression Driver

Professional Series

Key Features:

- 100 watts continuous program above 500 Hz
- 150 watts continuous program at 1 kHz and higher
- Coherent Wave phasing plug design for increased high frequency output
- 100 mm (4 in) pure titanium diaphragm with radial-rib topology
- 38 mm (1½) throat exit diameter
- 100 mm (4 in) edgewound aluminum voice coil



The Model 2447H/J is a 38 mm (1½) exit diameter addition to JBL s family of professional quality compression drivers. The 38 mm exit allows the Coherent Wave phasing plug to directly couple with Optimized Aperture Bi-Radial® horns to provide lower distortion and better coverage control to 20 kHz than previous designs. In addition to improving performance the 38 mm design also reduces size and weight.

The Coherent Wave phasing plug structure has four equal length passages to provide in-phase summation of diaphragm output at the 38 mm exit. This optimized configuration produces coherent acoustical power up to much higher frequencies than more conventional designs.

The diaphragm design includes JBL s exclusive three-dimensional diamond pattern surround[1] tuned to reduce fatigue inducing stresses in the membrane and support structure. This provides predictable normal resonance modes, and radial reinforcing ribs increase diaphragm stiffness. This diaphragm design combined with the Coherent Wave phasing plug increases the 2447 s output in the 5 kHz to 20 kHz range.

Preliminary Specifications:

Throat Diameter:	38 mm (1½ in)
Nominal Impedance:	2447H 8 ohms 2447J 16 ohms
Minimum Impednace:	6 ohms (H), 12 ohms (J) @ 5 kHz
DC Resistance:	4.3 ohms (H), 8.5 (J) ±10% @ 25°C
Power Rating[1]:	100 W continuous program above 500 Hz 150 W continuous program above 1 kHz
Sensitivity:	112 dB SPL, 1 W @ 1 m, JBL 2352 horn[2] 114 dB SPL, 1 W @ 1 m, JBL 2353 horn[2] 115 dB SPL, 1 W @ 1 m, JBL 2354 horn[2] 118 dB SPL, 1 mW on plane wave tube[3]
Nominal Efficiency:	30% (500 Hz to 2.5 kHz)
Frequency Range:	500 Hz to 20 kHz
Recommended Crossover:	500 Hz or higher, 12 dB/octave minimun
Recommended Amplifier Power[4]:	200 W into 8 ohms
Diaphragm:	0.05 mm (0.002 in) pure titanium
Voice Coil Diameter:	100 mm (4 in)
Voice Coil Material:	Edgewound aluminum ribbon
Flux Desinty:	1.85 T (18,500 gauss)
B1 Factor:	12.7 (H) T m 18 (J) T m
Polarity:	Positive voltage to black terminal produces diaphragm motion toward phasing plug
Dimensions:	235 mm (9¼ in) diameter 100 mm (4 in) depth
Mounting:	Four ¼-20 studs, 90° apart on 114 mm (4½ in) diameter
Net Weight:	10.7 kg (23.5 lb)

[1]Continuous program power is defined as 3 dB greater than continous pink noise and is a conservative expression of the transducer's ability to handle normal speech and music program material. Continous pink noise power ratings are tested with a pink noise input having a 6 dB crest factor, with a high pass filter set to the specified lower frequency, for two hours duration.

[2]Sensitivity measured on-axis in the far field with 2.83 V rms at 8 ohms or 4.0 V rms at 16 ohms and referred to a 1 meter distance calculated by inverse square law. Listed sound pressure level (SPL re 20 µPa) represents an average from 1 kHz to 4 kHz.

[3]As specified by recognized standards organizations, JBL plane wave tube measurements represent the SPL referred to a 25 mm diameter terminated tube, using a 1 mW input signal (0.126 V rms into 16 ohms; 0.089 V rms into 8 ohms) swept from 500 Hz to 2.5 kHz. The sensitivity with a 1 W input would be 30 dB greater.

4Recommended power amplifier rating is a guide for amplifier selection considering normal program material and line voltage available to amplifiers, although lower power amplifiers may be utilized.

JBL continually engages related to product improvement. New materials, production methods, and design refinements are introduced into existing products without as a routine expression of that philosophy. For this reason, any currents JBL product may differ in some respect from its published description, but will always equal or exceed the original design specification unless otherwise stated.

[1] U. S. Patent # 4.324.312.
Foreign patents pending.

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High temperature voice coil former materials and adhesives enable the 2447H/J to handle high power levels over extended periods of time. The voice coils themselves are identical to previous JBL models, so that impedance and network matching will be the same. After manufacture, the frequency response of each transducer is tested for conformity to JBL s rigid performance standards.

The model 2447H/J is ruggedly constructed to withstand the rigors of both fixed installations and touring applications. All tolerances are held to the same high levels traditionally associated with JBL designs. The JBL manufacturing process permits the use of rim centered diaphragms for instant interchangeability and ease of field service.

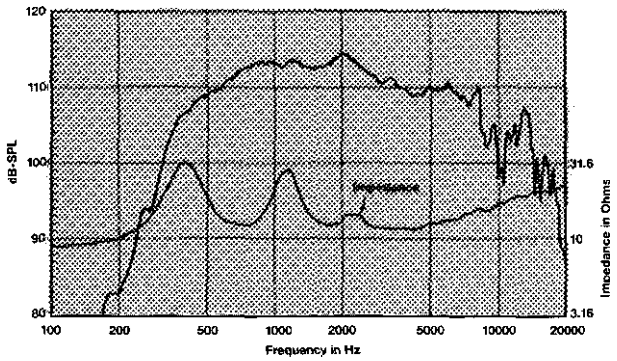
Architectural Specifications:

The compression driver shall consist of a ferrite magnetic structure with all magnetic assembly parts machined from cast or extruded billet stock. The phasing plug shall be assembled of concentric horns to minimize phase cancellations. The diaphragm shall be .05 mm (.002 in) pure titanium pneumatically drawn to shape and embossed with radial reinforcing ribs to increase stiffness. High frequency response shall be controlled through the use of a three dimensional suspension structure. The voice coil shall be edgewound aluminum ribbon of not less than 100 mm (4 in) diameter, operating in a magnetic field of not less than 1.85 T (18,500 gauss).

Performance specifications of a typical production unit shall be as follows: Measured sensitivity with a 1 mW input on a 25 mm (1 in) terminated tube, averaged from 500 Hz to 5 kHz, shall be at least 118 dB SPL. Measured sensitivity with a 1 W input at 1 m distance on-axis from the mouth of a horn with a Q of 6.3 averaged in the 2 kHz octave band shall be at least 111 dB SPL. As an indication of electromechanical conversion efficiency, the B1 factor shall be at least 18 Tesla meters. Frequency response, measured on a terminated tube, shall be flat within ± 1 dB from 500 Hz to 3.3 kHz, with 6 dB/octave roll-off above that point. Nominal impedance shall be 8 [16] ohms and power capacity shall be at least 100 watts normal speech or music program material.

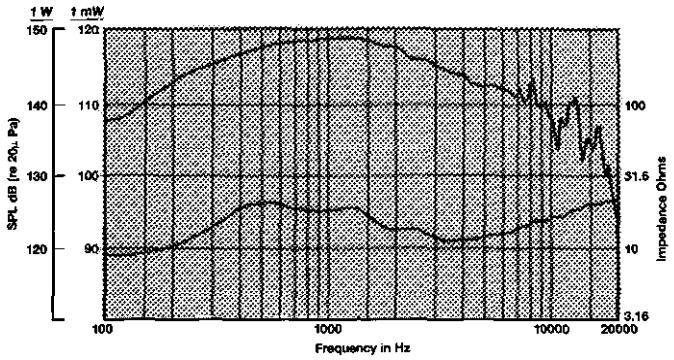
The compression driver shall be the JBL Model 2447H[J]. Other drivers will be considered for equivalency provided that submitted data from a recognized independent test laboratory verify that the above performance specifications are met.

Response on JBL 2352 Bi-Radial® Horn



Frequency reponse of the 2447H coupled to a JBL 2352 Bi-Radial® Horn, measured on-axis at a distance of 1 meter with a 1 watt (2.83 V RMS) input in a reflection free environment, with impedance vs. frequency curve.

Response on Plane-Wave Terminated Tube



Frequency response and impedance modulus of model 2447H coupled to a 38 mm (1½ in) diameter terminated plane wave tube. This is the power response of the transducer, and is the frequency response that will be obtained on a true full range constant directivity horn design, such as JBL s 2350 series of Bi-Radial® horns.

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