

# 6215, 6230      POWER 6260, 6290      AMPLIFIERS



## FEATURES:

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- Active, balanced bridging input circuitry
- Full complementary driver and output circuitry
- Low transient intermodulation distortion (TIM)
- Rugged, road-worthy construction
- Individual stepped gain controls
- XL-type, phone jack, and barrier strip input connectors
- Heavy duty 5-way output binding posts
- Rear panel switch for bridged, dual mono, or stereo operation

 approval on Models 6215, 6230, 6260

Models 6230, 6260 and 6290 approved by Lucasfilm for THX® installations

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JBL power amplifiers have been designed to meet the most critical professional sound requirements. They are rugged and road-worthy, conservatively rated, and can handle highly reactive loads with ease.

The engineering design approach stresses the optimization of each stage, allowing high slew rate and relatively low loop gain. Overall feedback has been held to a minimum and is employed only to stabilize the gain and the operating point. This design approach results in amplifiers with excellent performance under the most demanding dynamic

input and load conditions. As evidence of the stress on dynamic rather than static or steady-state distortion mechanisms, transient intermodulation distortion measures less than 0.03% by the DIM 100 test. (Leinonen, Ojala, and Curl, "A Method for Measuring Transient Intermodulation Distortion (TIM)," *Journal of the Audio Engineering Society*, Vol. 25, No. 4, April, 1977, pp. 170-177.)

The heat sinks of the amplifiers are made of heavy aluminum extrusions; the chassis is fabricated of heavy gauge steel. All internal components are easily accessible through removal of top and bottom panels. Front panel graphic details are incorporated on the rear side of a polycarbonate laminate which is virtually indestructible.

The 6230, 6260 and 6290 use multiple 200-watt output devices in complementary configuration for high reliability and low distortion. At rated power into 8 ohms, these output devices are operated at less than 35% of their rated power dissipation. The benefit is high reliability and long component life.

The 6215, 6230 and 6260 employ a continuous duty power supply section common to both channels. The 6290 has two totally independent power supplies with separate power switches and fusing.

Reliable operation of these amplifiers is ensured through the following protection modes: Current is limited under improper load or drive conditions. Output relays, with front panel LED indication, protect the loudspeaker load under conditions of DC offset or large low-frequency transients. The relays also provide power-up, power-down, and "brown out" muting to protect loudspeakers from AC power transients generated anywhere in the signal path. LED's on the front panel indicate the onset of clipping and standby mode.

The JBL amplifiers may be operated in the normal stereophonic mode, dual monophonic mode, or bridged monophonic mode. A rear panel switch sets these modes, eliminating the need for patch cords or adaptors.

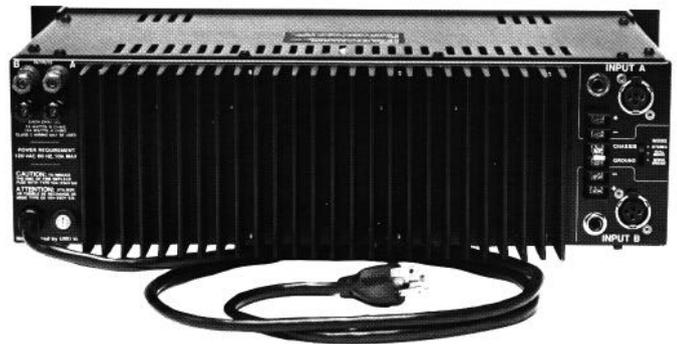
Active differential input circuitry offers the benefits of balanced operation without the use of input transformers. Input connections may be made via 3-pin XL-type connector, three-conductor TRS 6.3 mm (1/4 in) jack, or barrier strip. The barrier strip includes a ground strap which can be removed to isolate the circuit ground from chassis ground.

The five-way output binding posts are arranged in a 19 mm (3/4 in) array so that bridged as well as normal connections may be made with standard dual banana plugs, bare wire, or terminal lugs.

The 6215, 6230 and 6260 models are cooled by natural convection and the 6290 has a quiet two-speed fan for extra thermal protection when the "heat is on."



Back Panel Model 6215



Back Panel Models 6230, 6260



Back Panel Model 6290

# 6215, 6230, 6260, 6290

## SPECIFICATIONS COMMON TO ALL MODELS EXCEPT WHERE NOTED

OUTPUT POWER	6215		6230		6260		6290	
	Rated Power 20 Hz-20 kHz	Midband Power 1 kHz	Rated Power 20 Hz-20 kHz	Midband Power 1 kHz	Rated Power 20 Hz-20 kHz	Midband Power 1 kHz	Rated Power 20 Hz-20 kHz	Midband Power 1 kHz
8-ohm stereo (per channel)	35 W	40 W	75 W	110 W	150 W	190 W	300 W	400 W
4-ohm stereo (per channel)	45 W	50 W	150 W	175 W	300 W	315 W	600 W	700 W
16-ohm bridge	45 W	50 W	150 W	220 W	300 W	380 W	600 W	700 W
8 ohm bridge	90 W	100 W	300 W	350 W	600 W	630 W	1200 W	1350 W
Rated Power: is minimum continuous sine wave average power output per channel, with both channels driving their rated load and over a power bandwidth of 20 Hz to 20 kHz. Maximum total harmonic or intermodulation distortion measured at any power level from 250 milliwatts to rated power is less than 0.1% for 8 ohm stereo and 16 ohm bridge, 0.2% for 4 ohm stereo and 8 ohm bridge.								
Midband Power: is maximum output power at onset of clipping, both channels driven with 1 kHz sine wave, THD 1%								
Frequency Response: +0, -1 dB, 20 Hz to 20 kHz, at any level up to rated output								
Noise: At least 100 dB below rated output (15.7 kHz noise bandwidth, A weighted)								
Input: Balanced bridging differential amplifier								
Input Impedance: 6215, 6230, 6260: 40k ohms used as balanced input; 20k ohms used as unbalanced (single-ended) input 6290: In dual mono and bridged mono modes, 20k ohms balanced; 10k ohms unbalanced								
Maximum Input Level: +20 dB (7.75 V rms)								
Input Sensitivity: 1.1 V for rated output into 8-ohm load								
Voltage Amplification: Variable; maximum 24 dB (6215), 27 dB (6230), 30 dB (6260), 33 dB (6290)								
Rise Time: Less than 7 microseconds								
Slew Rate: 40 V/microsecond into 8-ohm load								
Damping Factor: With 8-ohm load, greater than 200 at any frequency from 20 Hz to 1 kHz; greater than 70 at 20 kHz								
Channel Separation: Greater than 60 dB at 1 kHz								
Polarity: Output signal is in phase with pin 3 of XL-type connector and tip of TRS jack								
AC POWER; Typical AC Power Consumption:								
At Idle (approximate)	30 W		50 W		50 W		120 W	
At Rated Output Both Channels 8-ohm	180 W		420 W		600 W		1400 W	
At Rated Output Both Channels 4-ohm	225 W		720 W		1180 W		2000 W	
DIMENSIONS	44 x 483 mm (1 1/4 x 19 in)		133 x 483 mm (5 1/4 x 19 in)		178 x 483 mm (7 x 19 in)		178 x 483 mm (7 x 19 in)	
DEPTH	229 mm (9 in)		280 mm (11 in)		280 mm (11 in)		356 mm (14 in)	
NET WEIGHT	4.76 kg (10.5 lbs)		11.9 kg (26.25 lbs)		20.2 kg (44.5 lbs)		28.6 kg (63 lbs)	
SHIPPING WEIGHT	5.67 kg (12.5 lbs)		15.9 kg (35 lbs)		24 kg (53 lbs)		33.2 kg (73 lbs)	
Optional Accessories: Attenuator security covers, 70 V autoformers and transformers								

## ARCHITECTS & ENGINEERS SPECIFICATIONS:

The amplifier shall be a dual channel model of solid state design employing active balanced input circuitry, and complementary cascode driver circuitry as well as fully complementary output circuitry. Front panel controls shall include power switch[es] and individual stepped gain controls. Front panel indicators shall include illuminated on-off indicator, illuminated clipping indicators for each channel, and illuminated standby indicator[s]. Front panel graphic details shall be protected by a polycarbonate laminate.

The amplifier shall be of robust construction, with internal parts easily accessible through removal of top and/or bottom panels.

Rear panel controls shall include a three-position mode switch for selecting the following modes of operation: normal stereophonic, dual monophonic from channel A input, or bridged monophonic from channel A input. Input connections for each channel shall include: 3-pin female XL-type connector, 3-conductor TRS 6.3 mm (1/4 in) phone jack, and barrier strip. Provision shall be made for lifting the circuit ground from chassis ground. Output terminals shall be dual 5-way binding posts.

A T.R.S. 1/4" (6.3 mm) stereo phone jack shall be provided for output monitoring on the front panel (6215 only).

The amplifier shall contain sensing circuitry which provides for current limiting under improper drive or load conditions. The amplifier shall contain an output relay[s] which disengages the load under DC offset conditions, large low-frequency surges, low line voltage, power up, power down, and over temperature.

The power amplifier shall meet the following performance criteria: Maximum input voltage, at least 7.75 V rms. Voltage required to reach rated output, 1.1 V rms. Maximum voltage amplification, 24 dB, (27 dB), (30 dB), (33 dB). Hum and noise level at least 100 dB below rated output (A weighted). Frequency response +0, -1, 20 Hz to 20 kHz, at any power up to rated output. Damping factor at least 200 from 20 Hz to 1 kHz with 8-ohm load. Output power per channel into 8 ohms, 35 watts, (75 watts), (150 watts), (300 watts); bridged into 16 ohms, 45 watts, (150 watts), (300 watts), (600 watts); bridged into 8 ohms, 90 watts, (300 watts), (600 watts), (1200 watts); with THD or IM no greater than 0.2%. Transient intermodulation distortion shall measure less than 0.03% by the DIM 100 method of Leinonen, Otala, and Curl, JAES, Vol. 25, No. 4, April, 1977.

The amplifier shall be the JBL Model 6215, (6230), (6260), (6290).

# 6215, 6230, 6260, 6290

## AMPLIFIER/TRANSFORMER/AUTOFORMER OUTPUT CHARACTERISTICS:

Amplifier Model	Stereo E <sub>OUT</sub>	Mono Bridge E <sub>OUT</sub>
6215	13.4 VAC	26.8 VAC
6230	25 VAC	50 VAC
6260	35 VAC	70 VAC
6260	50 VAC	100 VAC

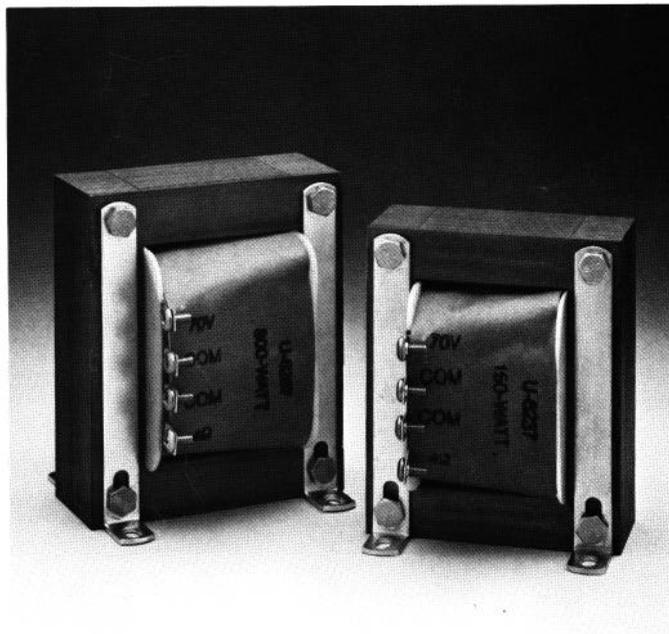
  

Autoformer Model	Transformer Model	Z <sub>in</sub>	70V P <sub>out</sub>	Impedance Ratio*
6217	6218	4 ohm	45W	1:27
6237	6238	4 ohm	150W	1:9
6267	6268	4 ohm	300W	1:4
6297	6298	4 ohm	600W	1:2

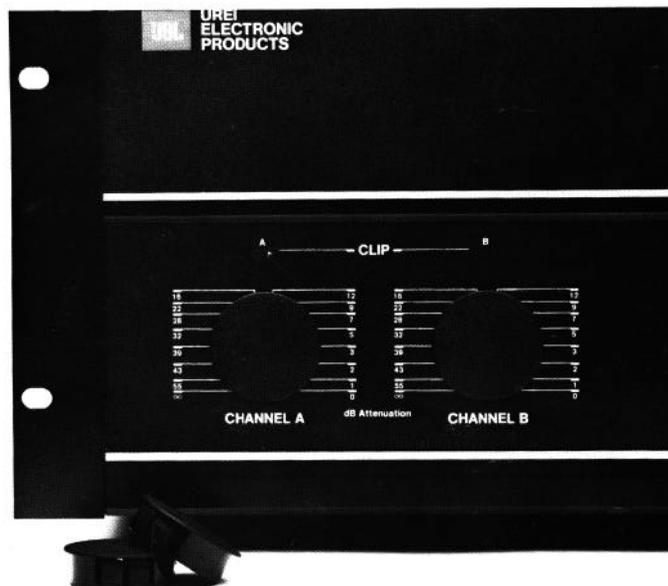
\*Can be used for step-up or step-down

## TRANSFORMER/AUTOFORMER SPECIFICATIONS:

Frequency Response:	±0.5 dB 25Hz-20kHz		
THD:	Less than 0.5% from 25Hz-20kHz at rated output		
Insertion Loss:	Less than 0.75 dB		
Connections:	#6-32 Screw/Solder Lugs		
Mounting:	Mounting "L" brackets attached		
MODEL NO.	DIMENSIONS	NET WEIGHT	SHIPPING WEIGHT
6217:	76 x 76 x 76 mm (3 x 3 x 3 in)	1.8 kg (3.9 lbs)	2.3 kg (5 lbs)
6218:	76 x 79 x 96 mm (3 x 3 1/8 x 3 3/4 in)	2.2 kg (4.8 lbs)	2.7 kg (6 lbs)
6237:	102 x 83 x 89 mm (4 x 3 1/4 x 3 1/2 in)	2.8 kg (6.2 lbs)	3.2 kg (7 lbs)
6238:	89 x 96 x 115 mm (3 1/2 x 3 3/4 x 4 1/2 in)	3.7 kg (8.2 lbs)	4.1 kg (9 lbs)
6267:	102 x 89 x 96 mm (4 x 3 1/2 x 3 3/4 in)	3.6 kg (8.1 lbs)	4.1 kg (9 lbs)
6268:	115 x 83 x 96 mm (4 1/2 x 3 1/4 x 3 3/4 in)	5.6 kg (12.3 lbs)	5.9 kg (13 lbs)
6297:	115 x 83 x 96 mm (4 1/2 x 3 1/4 x 3 3/4 in)	5.9 kg (12.9 lbs)	6.4 kg (14 lbs)
6298:	115 x 96 x 133 mm (4 1/2 x 3 3/4 x 5 1/4 in)	7.8 kg (17.1 lbs)	8.2 kg (18 lbs)



6267, 6237



6200SC Security Cover Caps for Model 6230, 6260, and 6290. 6201SC Security Cover Caps for Model 6215.