Professional Series
Model 6020
Power Amplifier

The JBL 6020 is a highly reliable, conservatively rated amplifier, designed for professional sound engineering applications where a high degree of performance is required.

The circuitry has been carefully designed to reduce the possibility of failure within the specified environmental and electrical conditions. A protective circuit is utilized in this amplifier which makes it virtually impossible to damage it under any conditions of overload, including shorted or grossly mismatched load, inductive load at low frequencies, capacitive load at high frequencies, excessive input signal, white noise or installation errors.

The JBL 6020 can be overdriven by at least ten times normal input voltage, from 40 Hz to 15 kHz, and eventually produces square waves increasing in RMS value up to about 250 Watts at which point the output actually begins to decrease.

The DC fuse is intended as a protective device for the power supply in the event of output stage malfunction. In the event of fan failure, the thermal switch will activate if the heat sink temperature exceeds 200°F.

The 6020 amplifier is designed for maximum flexibility in varying input and output arrangements. A standard unbalanced 50,000-ohm input is provided which can be converted to balanced line bridging or matching with the installation of the accessory 5195 transformer. A 250-Hz low cut filter switch reduces the possibility of damaging horns. All the power outputs are balanced and the bridging output is unbalanced.

For studio applications, broader bandwidth and reduced distortion levels can be achieved with slight modification of the circuitry. Bypassing the output transformer results in a 200-Watt output at less than 0.5% total harmonic distortion, 30 to 12,000 Hz (±0.5 dB) operating into a 4-ohm load.

The excellent engineering of this unit is accompanied by an equally excellent layout with serviceability in mind at all times. All components are accessible and easily replaced with particular emphasis on output and driver device removal and installation.

JBL

Model 6020 — Power Amplifier

Architectural Specifications

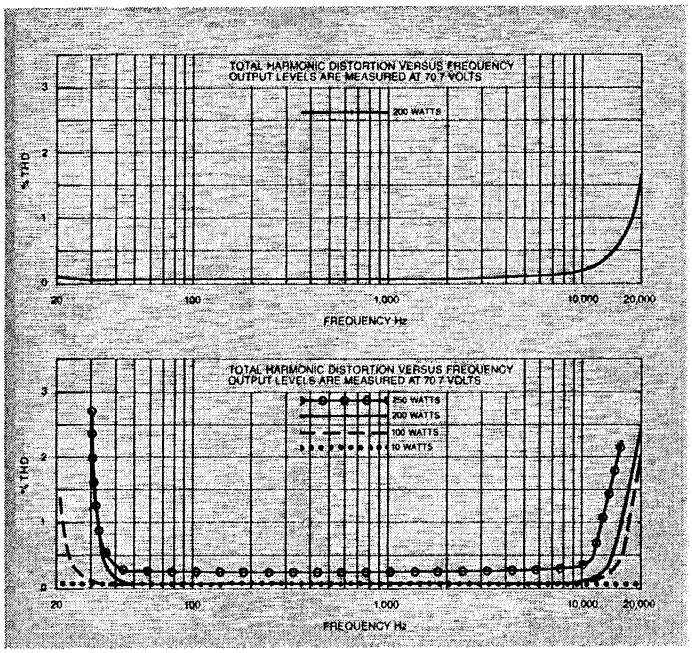
The amplifier shall be capable of delivering an output of 250 Watts RMS @ 1000 Hz with less than 4% THD; 200 Watts RMS with less than 0.5% THD, 35-12,000 Hz.

The hum and noise shall be at least 90 dB below 200 Watts measured 10 Hz to 1 MHz with a 600 ohm input termination. No spurious oscillation shall be present with any combination of grounded or open input connections.

The high impedance program input shall be provided with a socket to accommodate a balanced line transformer with isolation. Matching and bridging inputs shall be available. Screw type terminal board shall be provided for the balanced line inputs as well as for the high impedance unbalanced input. In addition, a phono plug shall be provided for the high impedance input. A low frequency cut filter switch shall be provided.

The amplifier shall have balanced 8-ohm, 16-ohm and 70.7-volt outputs on a screw type terminal board listed by Underwriters' Laboratories, Inc. for class 2 wiring.

The amplifier shall be equipped with the protective circuit which will prevent damage due to overload. The amplifier shall be capable of being overdriven, from 40 Hz to 15 kHz, by at least ten times the rated input voltage in the maximum gain position. This overdrive condition shall not cause the amplifier to malfunction or enter the "protect" mode. The power drawn from the AC line shall not increase by more than 30% at 200 Watts output between 1 kHz and 12 kHz. The amplifier shall be capable of sustained 150 Watts output at 12 kHz for at least one hour without malfunctioning or entering the "protect" mode.



The amplifier shall operate on 120 V AC, 50/60 Hz power source.

The performance specifications shall be listed under SPECIFICATIONS and shall be met or exceeded.

The amplifier shall be listed by the Underwriters' Laboratories, Inc.

The amplifier shall be JBL Model 6020.

Specifications

Power Gain	73 dB
Input Sensitivity	
Unbalanced HiZ (50,000 ohm)	0.7 volts
Balanced bridging with accessory 5195 transformer (15,000 ohm)	0.383 volts
Balanced matching with accessory 5195 transformer (600 ohm)	77 millivolts
Power Output	200 Watts at less than 0.5% THD, 35 to 12,000 Hz 250 Watts at less than 4% THD, at 1000 Hz
Intermodulation Distortion (SMPTE Standard)	Less than 2% at 200 Watts Less than 1% at 10 Watts Less than 1% at 150 milliwatts
Frequency Response	20 to 20,000 Hz ± 1 dB, measured at 1 Watt
Load Impedance	4 ohms unbalanced 8, 16 or 25 ohms transformer isolated
Load Voltage	28, 40, 57, 70.7 volts
Output Regulation	Less than 15%
S/N Ratio	Better than 90 dB below 200 Watts
Filter	Low cut, 250 Hz, 6 dB/octave
Controls	
Power	On-off
Level	Continuously variable
Low Cut Filter	In-out, rear panel mounted
Indicators	
Normal	Green — power on, safe operation
Protect	Red — thermal overload, amplifier in protect mode
Power Supply	120V AC, 50/60 Hz 52 Watts at zero signal level 282 Watts at 70 Watts output 370 Watts at 200 Watts output
Fuse	6¼-amp, slow-blow
Operating Temperature	Full performance to 150°F (65°C)
Dimensions	8¾" x 19" x 10" deep 22 x 48 x 25 cm deep
Mounting	5 EIA standard rack spaces
Panel Finish	Non-glare baked enamel; light gray
Special Features	Overload protection circuit Forced air cooling AC convenience outlet (unswitched)
Net Weight	56 lbs. (25 kg)
Shipping Weight	59 lbs. (27 kg)
Warranty	2 years
Listing	Underwriters' Laboratories, Inc.
Accessory	5195 plug-in matching/bridging transformer

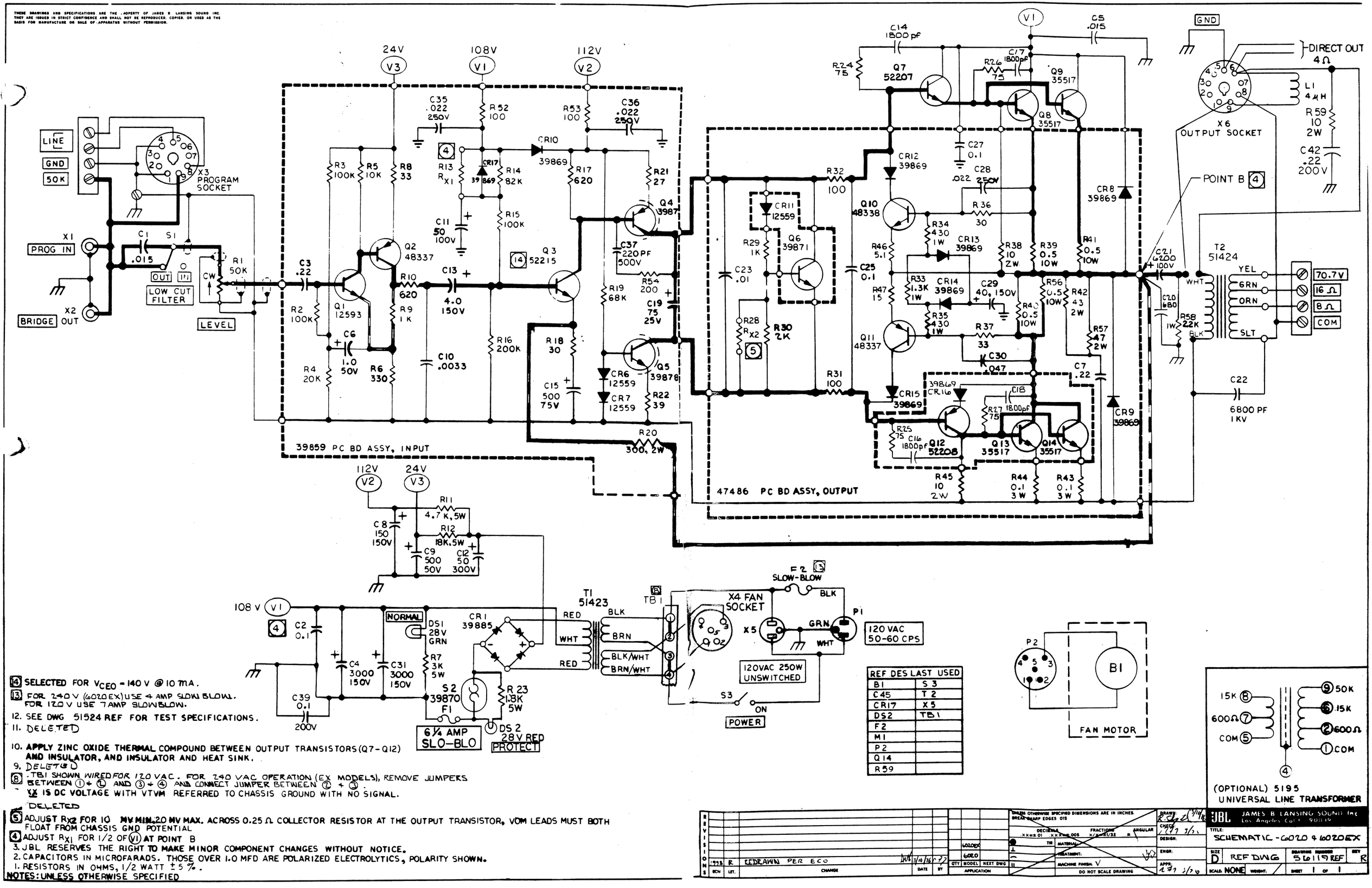
JBL

Professional Series

Professional Division

James B. Lansing Sound, Inc. 3249 Casitas Avenue, Los Angeles, California 90039

PPB 6020/73 Printed in U.S.A.



REF DES	LAST USED
B1	S 3
C45	T 2
CR17	X 5
DS2	TB 1
F2	
M1	
P2	
Q14	
R59	

14. SELECTED FOR V_{CEO} = 140 V @ 10 mA.
13. FOR 240 V (6020EX) USE 4 AMP SLOW BLOW. FOR 120 V USE 7 AMP SLOW BLOW.
12. SEE DWG 51524 REF FOR TEST SPECIFICATIONS.
11. DELETED
10. APPLY ZINC OXIDE THERMAL COMPOUND BETWEEN OUTPUT TRANSISTORS (Q7-Q12) AND INSULATOR, AND INSULATOR AND HEAT SINK.
9. DELETED
8. TB1 SHOWN WIRED FOR 120 VAC. FOR 240 VAC OPERATION (EX MODELS), REMOVE JUMPERS BETWEEN ① + ⑤ AND ③ + ④ AND CONNECT JUMPER BETWEEN ② + ③.
7. VX IS DC VOLTAGE WITH VTVM REFERRED TO CHASSIS GROUND WITH NO SIGNAL.
6. DELETED
5. ADJUST R_{X2} FOR 10 MV MIN, 20 MV MAX. ACROSS 0.25 Ω COLLECTOR RESISTOR AT THE OUTPUT TRANSISTOR, VOM LEADS MUST BOTH FLOAT FROM CHASSIS GND POTENTIAL
4. ADJUST R_{X1} FOR 1/2 OF (V1) AT POINT B
3. JBL RESERVES THE RIGHT TO MAKE MINOR COMPONENT CHANGES WITHOUT NOTICE.
2. CAPACITORS IN MICROFARADS. THOSE OVER 1.0 MFD ARE POLARIZED ELECTROLYTICS, POLARITY SHOWN.
1. RESISTORS IN OHMS, 1/2 WATT ±5%.

NOTES: UNLESS OTHERWISE SPECIFIED

REVISIONS					
SCN	LET.	CHANGE	DATE	BY	
1223	R	REDRAWN PER ECO	3/10/76	JW	

6020EX / 6020 — QTY — MODEL — NEXT DWG — APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. BREAK SHARP EDGES .015. DECIMALS XX±.01, XXX±.005. FRACTIONS ±1/32. ANGULAR ±1°. TOL. MATERIAL: TREATMENT: MACHINE FINISH: V. DO NOT SCALE DRAWING.

DRAWN: 2/24/76 — CHECK: 3/3/76 — DESIGN: — ENGR: — APPR: 3/10/76

JBL JAMES B. LANSING SOUND Inc. Los Angeles, Calif. 90039

TITLE: SCHEMATIC - 6020 & 6020EX

SIZE D — REF DWG — DRAWING NUMBER 56119 REF — REV R

SCALE: NONE — WEIGHT: — SHEET 1 OF 1