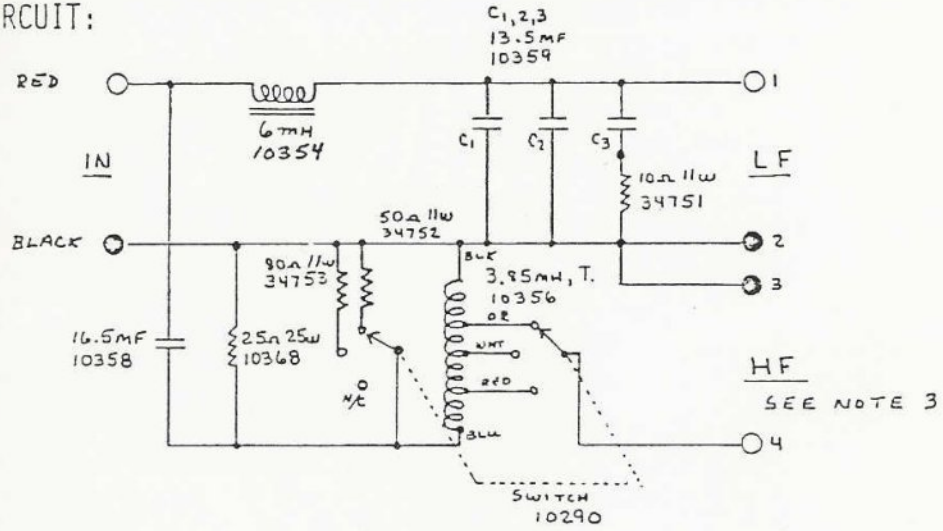
NETWORK SERVICE BULLETIN

JBL MODEL LX5

SPECIFICATIONS: NOTE (1) * ±2dB

LOAD Z	LOW PASS	CROSS OVER	HIGH PASS	ATTENU-ATION
	300 Hz	500 Hz	900 Hz	
16	LF -1 HF -18	LF -9 * HF -9 *	LF -20 HF -5	 HF -5, -7, -10

CIRCUIT:



NOTES:

(1) USE STANDARD TEST FIXTURE

2 AFTER SERIAL 4276

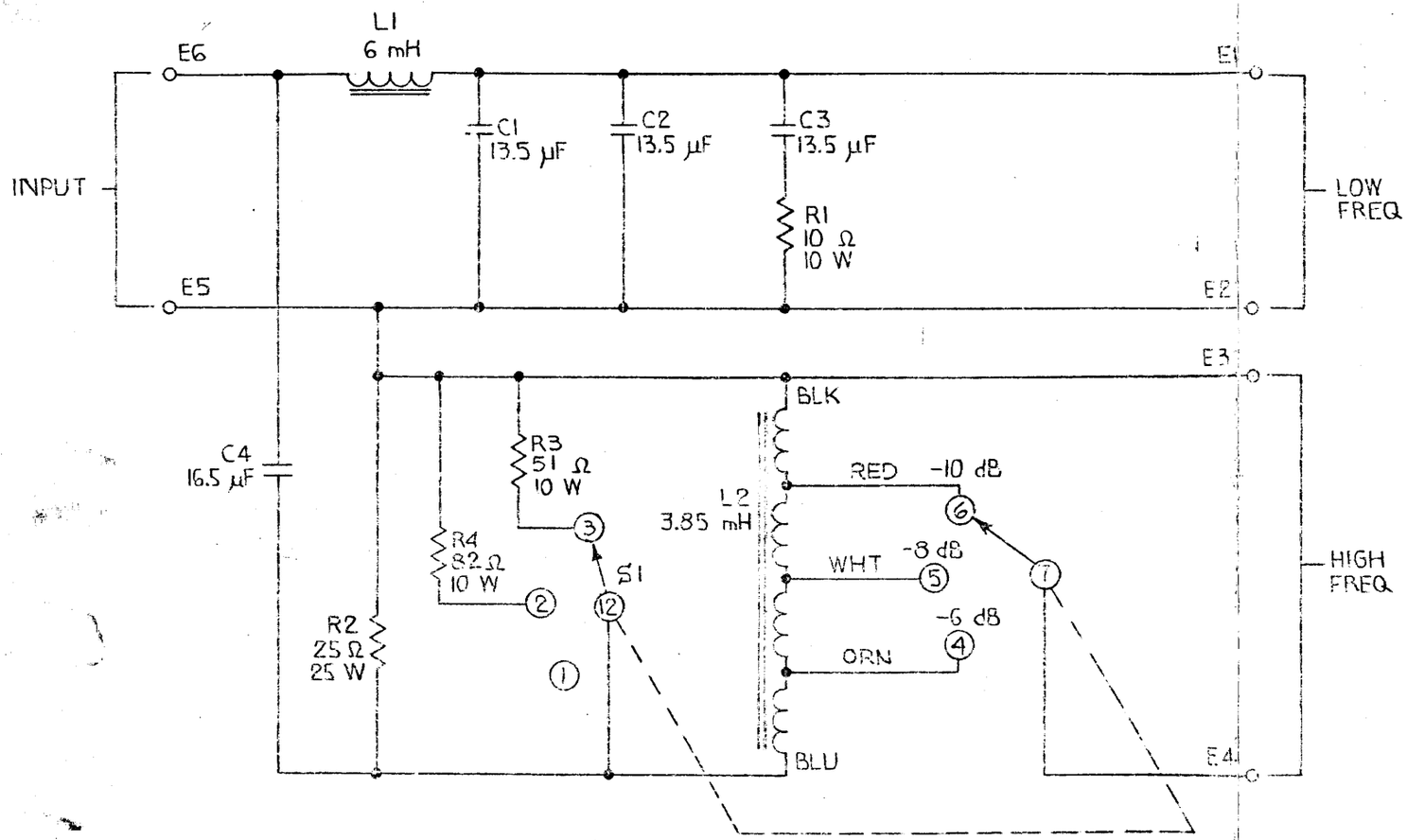
3 TERMINAL 3 MUST CONNECT TO RED TERMINAL OF TWEETER

4 PART VALUES CHANGED TO MEET CURRENT AVAILABILITY

NOTICE

THE FOLLOWING DCR'S ARE OUTSTANDING AGAINST THIS DRAWING.

REVISIONS						
CHG	LTR	DESCRIPTION	DRFT	CHK	DATE	APPR
913B	C	REVISED & REDRAWN	GS			
623D	D	REV RESISTOR @ R3 & 4	DAM		6/17/80	



NOTES: (UNLESS OTHERWISE SPECIFIED)

1. FOR WIRING DIAGRAM SEE DWG. 10374.

ITEM	PART NO.	DESCRIPTION	QTY	REMARKS

BILL OF MATERIAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETRES WITH INCH SIZES IN BRACKETS. BREAK SHARP EDGES 0.4 m/m (.016 inch)

TOLERANCES (UNLESS OTHERWISE SPECIFIED)
DECIMALS: X.XXX ± 0.13 (.005 inch); X.XX ± 0.25 (.010 inch); X.X ± 0.5 (.020 inch); FRACTIONAL U.S. DIMENSIONS ± 1/32
ANGULAR ±

ALL DIMENSIONS ARE FINISHED DIMENSIONS
DO NOT SCALE DRAWING

MATERIAL
FINISH
MODELS USED ON: LX5

DRAWN 22 MAR 78 Ruth Sagi
CHECKED 23 MAR 78 Wm Hammid
DESIGN
ENGR 6 Apr 78 Gary Dahl
APPR

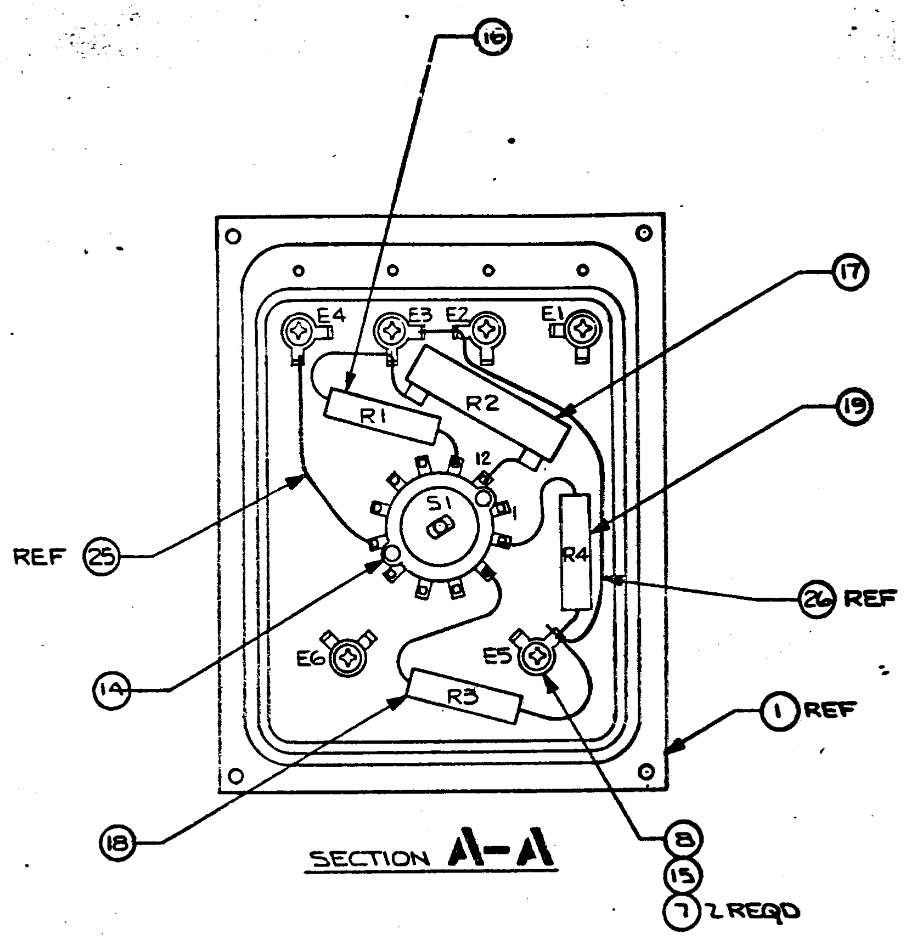
JAMES B. LANSING SOUND, INC.
A Harman International Company
Northridge, California 91329, U.S.A.

TITLE: SCHEMATIC – LX5

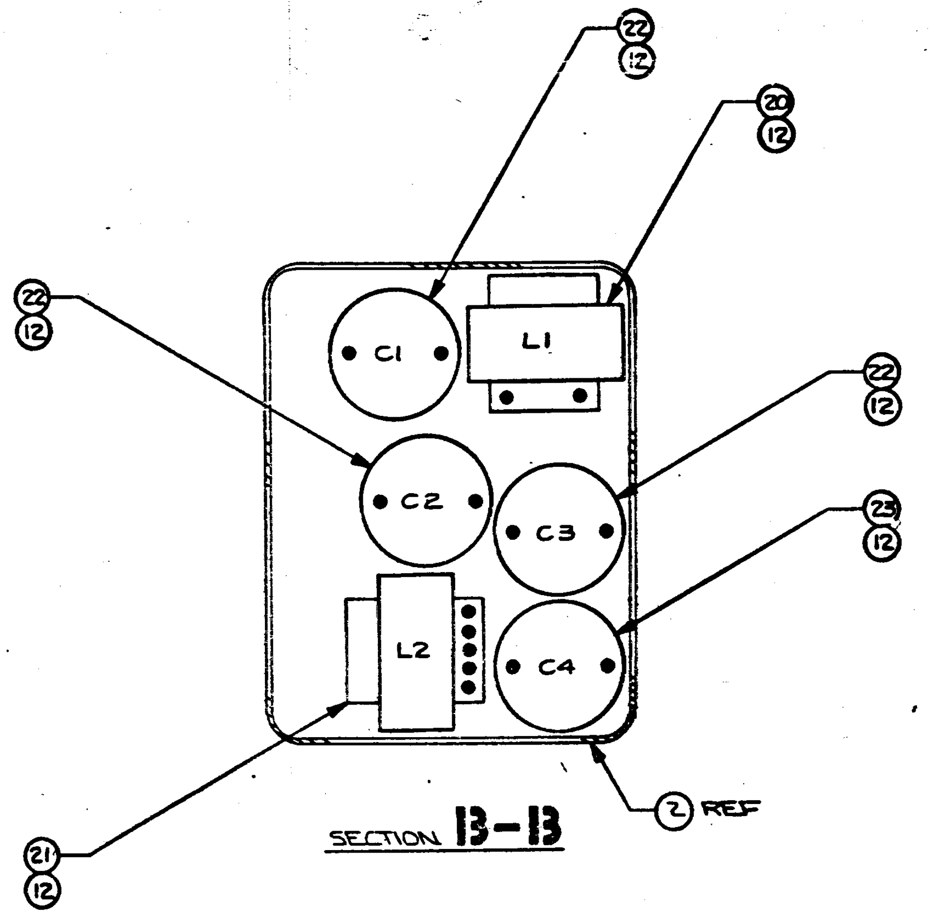
SIZE A2 | DRAWING NO. 11126 | REV D

SCALE | SHEET 1 OF 1

11126



SECTION A-A



SECTION B-B

REVISIONS					
		SEE SHT 1			
ECN	LET.	CHANGE	DATE	BY	

—	LX5	—
QTY	MODEL	NEXT DWG
APPLICATION		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
BREAK SHARP EDGES .015

DECIMALS .XX=±.01 .XXX=±.005 FRACTIONS X/X=±1/32 ANGULAR ±

TIR MATERIAL:

TREATMENT:

MACHINE FINISH: √

DO NOT SCALE DRAWING

DRAWN:
CHECK: 12-8-77
DESIGN:
ENGR:
APPR:

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

TITLE: MFD ITEM/WIRING DIAGRAM- LX5

SIZE D

DRAWING NUMBER 10374

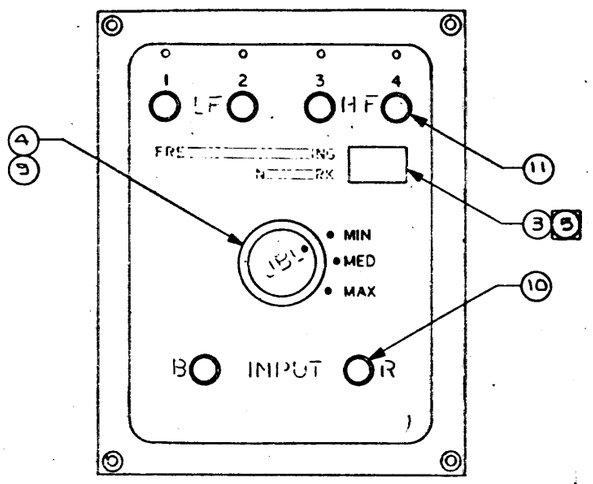
REV L

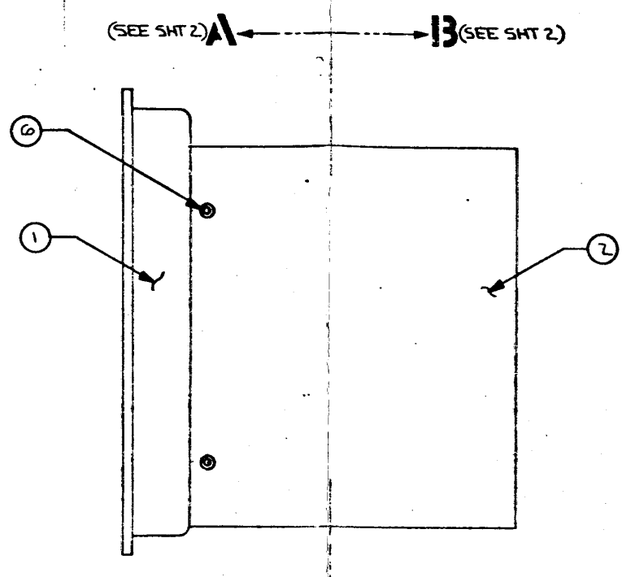
SCALE NONE WEIGHT: —

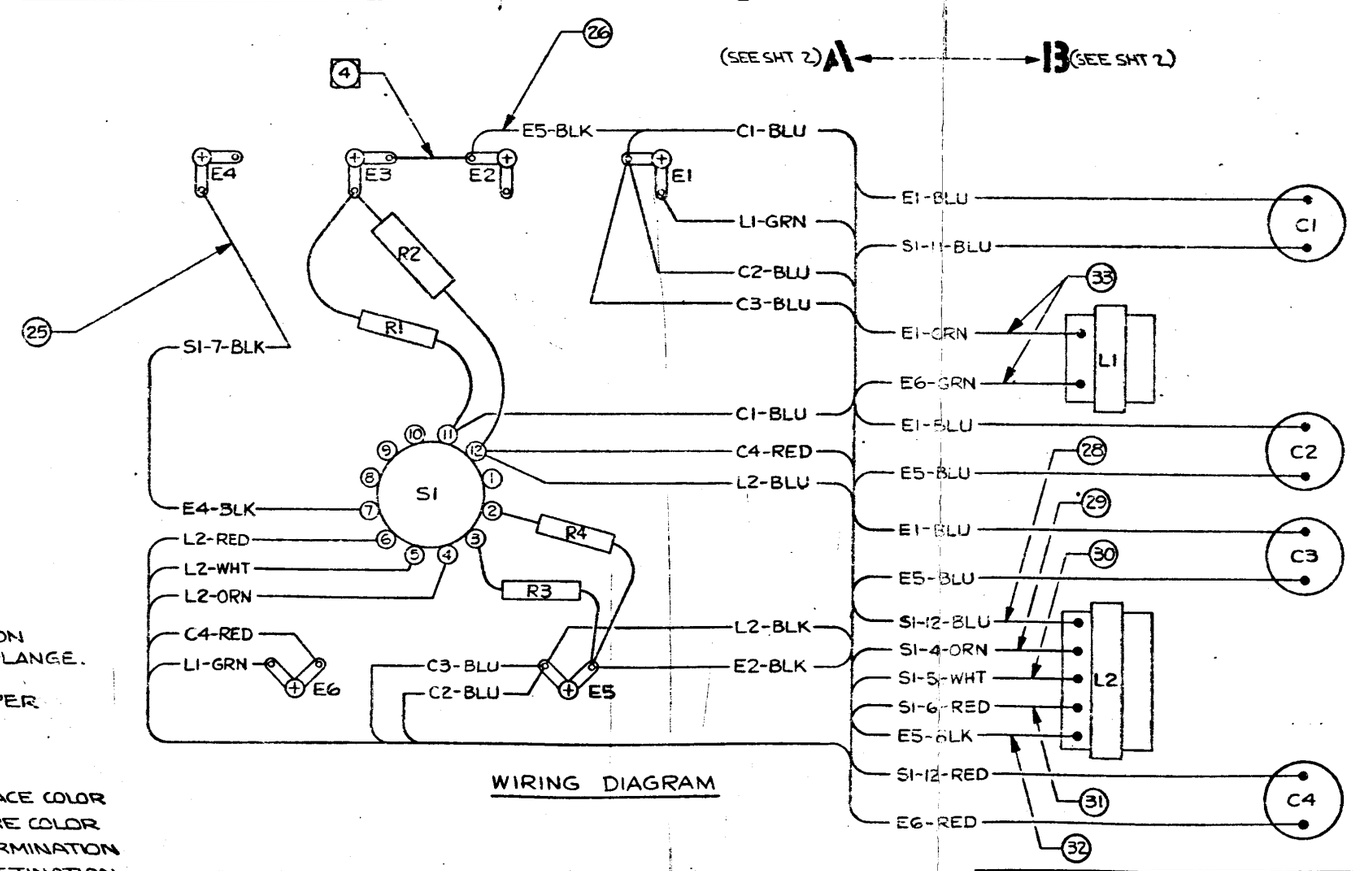
SHEET 2 OF 2

NOTICE

THE FOLLOWING DCR'S ARE OUTSTANDING AGAINST THIS DRAWING.







WIRING DIAGRAM

5 CENTRALIZE FOILCAL ON RAISED SURFACE OF FLANGE.

4 USING ITEM 26, JUMPER E2 AND E3.

3. WIRE IDENT. CODE:
TB1-1-GRN/BLK
- TRACE COLOR
- WIRE COLOR
- TERMINATION
- DESTINATION

2. FOR ENGINEERING SPEC. SEE E.D.S 10043.

1. FOR SCHEMATIC SEE DWG. 11126.

NOTES: (UNLESS OTHERWISE SPECIFIED)

ITEM	PART NUMBER	DESCRIPTION	QTY	REMARKS
33	103515	SLEEVING, NO.14 , GRN	1	14 IN TOTAL
32	103255	SLEEVING , NO. 14, BLK	1	7 IN TOTAL
31	103265	SLEEVING , NO.12 , RED	1	7 IN TOTAL
30	103525	SLEEVING, NO.12 , WHT	1	7 IN TOTAL
29	103535	SLEEVING , NO.12 , ORN	1	7 IN TOTAL
28	103235	SLEEVING NO 14 , BLU	1	7 IN TOTAL
27				
26	56621	WIRE , STRANDED - BLK, 18 AWG	1	6 IN. MRD 56863
25	10298	WIRE , SOLID - BLK , 20 AWG	1	2 1/2 IN.
24				
23	10358	CAPACITOR, 16.5 μF	1	C4
22	10359	CAPACITOR, 13.5 μF	3	C1, C2, C3
21	55030-03R85	INDUCTANCE COIL, 3.85 mH	1	L2
20	55029-06R0	INDUCTANCE COIL, 6 mH	1	L1
19	34753	RESISTOR, 62 Ω, 10 W	1	MRD 35491 R4
18	34752	RESISTOR, 51 Ω, 10 W	1	MRD 35491 R3
17	10368	RESISTOR, 25 Ω, 25 W	1	R2
16	34751	RESISTOR, 10 Ω, 10 W	1	MRD 35491 R1
15	10241	SOLDER LUG - "Y" TYPE	6	
14	57559	SWITCH, ROTARY - 3 POSITION	1	S1
13				
12	65684	ADHESIVE	.005	
11	33751	BINDING POST, BLACK	5	E1 THRU E5
10	33750	BINDING POST, RED	1	E6
9	12961	SET SCREW, 6-32 x 1/4	1	
8	10811	SCREW, PN.HD. 6-32 x 3/8	6	
7	10817	WASHER, INSULATING # 6	12	
6	53672	RIVET	4	
5				
4	10293	KNOB	1	MRD 47178
3	10373	FOILCAL	1	
2	10357	NETWORK CONTAINER	1	MRD 47171
1	10365	FLANGE, MOUNTING	1	MRD 47175

BILL OF MATERIAL

REVISIONS					
	P	REV PIN'S ON ITEMS 20 & 21	SM	BK	
	N	65684 WAS 61961	SM		
	M	[illegible]	[illegible]		
	L	[illegible]	[illegible]		
	K	REV RESISTOR C ITEM 18 & 19	[illegible]		
9/3/76	J	REV. & REDRAWN			
ECN	LET.	CHANGE	DATE	BY	

QTY | MODEL | NEXT DWG: LX5
APPLICATION

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

DRAWN 12-8-76
CHECK 12-8-76
DESIGN
ENGR
APPR

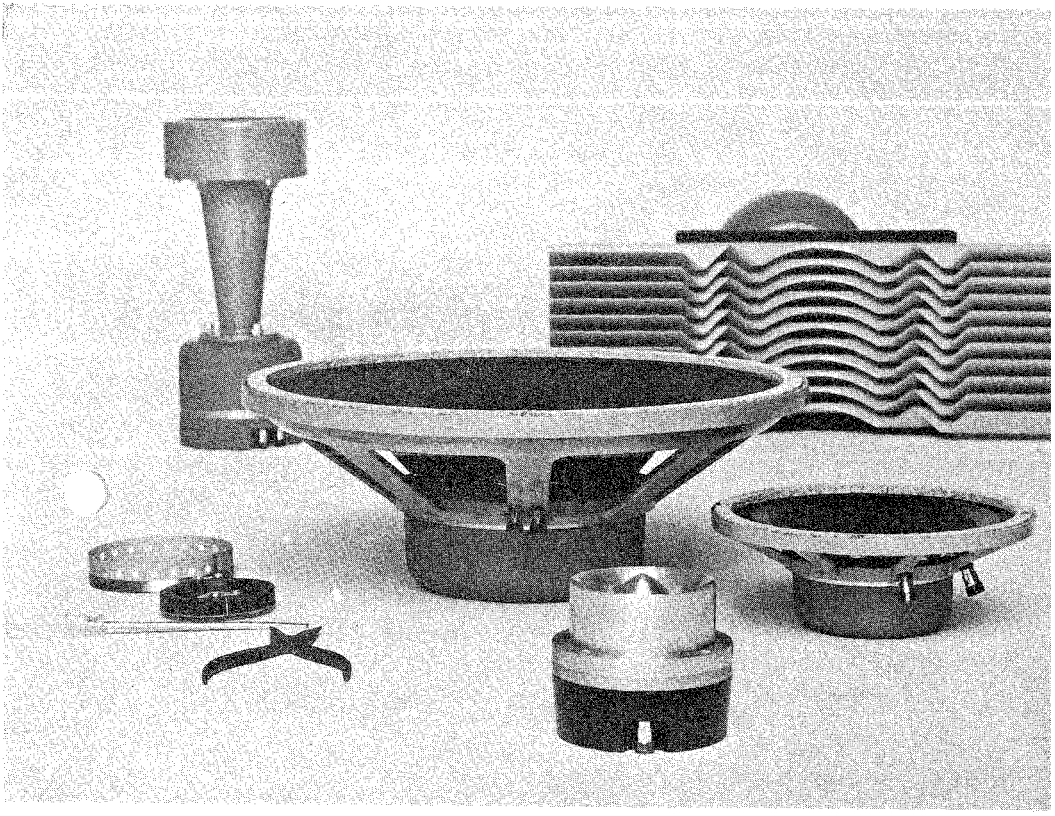
JBL JAMES B. LANSING SOUND, INC. Los Angeles, California 90022

TITLE: MFD ITEM/WIRING DIAGRAM-LX5

SIZE D | DRAWING NUMBER 10374 | REV J

SCALE NONE | WEIGHT X | SHEET 1 OF 2

BISHOP GRAPHICS/ACCUPRESS RECORDER NO. A-8679



PUBLICATION OM22-3

JBL

JBL
DIVIDING NETWORK
INSTRUCTION MANUAL

James B. Lansing Sound, Inc. maintains a Technical Service Department to help JBL owners with their individual problems. If you cannot find the answer you need in published JBL literature or obtain it from your Audio Specialist, please write us.

All JBL precision transducers are fully guaranteed against defects in materials and workmanship. Be sure to fill out and mail the warranty card immediately.

APPLICATION

JBL precision networks use circuits carefully designed to give an imperceptible transition from low to high frequency transducers. Unlike ordinary all-purpose networks, each JBL circuit is specifically engineered to match the characteristics of the JBL transducers with which it is used, and should not be connected to components for which it is not designed. Components which match each of the JBL dividing networks are listed in the table below:

NETWORK MODEL	CROSSOVER FREQUENCY	LOW FREQUENCY TRANSDUCER	HIGH FREQUENCY TRANSDUCER	HIGH FREQUENCY CONTROL	INPUT IMPEDANCE (OHMS)	SHIPPING WEIGHT (LBS.)
N500	500	150-4's 150-4C	375	Strapping Bar	16	16
LX5	500	LE15A	375, LE175, LE85	3-position switch	8	10
LX7	500	LE14A	LE175	3-position switch	8	10
N1200	1200	D130, D131, 130A, 130B's	LE175	3-position switch	8	9
LX10	1500	LE14A	LE175	Continuously variable	8	3
LX8	2000	LE14A	LE20	3-position switch	8	3
LX11	2500	LE10A	LE20	3-position switch	8	3
LX2	2500	D123, D208, D216	LE20	Continuously variable	8	3
N2400	2500	D130, D131, D123	075	Continuously variable	8	4
N7000	7000	Any two-way system	075	Continuously variable	4 to 16	3

SOPHISTICATED CIRCUITRY

Dividing networks are used in two-way loudspeaker systems to electrically channel low tones to the bass loudspeaker and high notes and overtones to the high frequency transducer.

If a dividing network is to fulfill its function without compromise, it must be able to handle extreme variations in dynamics, the full range of audio frequencies, complex transients, and the varying impedance of a loudspeaker load.

JBL dividing networks are carefully designed to complement the exact characteristics of the JBL transducers with which they are to be used. Each network circuit controls the signal to the high and low frequency transducers in such a way that smooth acoustic response is maintained through the full audio spectrum. Thus, the effects of individual speaker characteristics, impedance fluctuations, and the physical separation of the two sound sources are all taken into account in the complete system design.

Naturally, such sophisticated engineering demands very close tolerances in production if all the benefits of the design approach are to be realized. Ordinary networks, for example, often use electrolytic capacitors with tolerances of plus or minus 20%. Response through the crossover region is ragged, and characteristics vary from unit to unit.

All JBL networks, on the other hand, use only non-inductive paper or mylar dielectric capacitors (not electrolytic units) individually tested to meet JBL tolerances. The special inductors used in JBL networks have extremely low insertion loss so that none of the driving power to the loudspeaker system is wasted in the network. Each inductor is calibrated on a sensitive electronic bridge and its value set precisely. To meet JBL production tolerances, network components must check out within plus or minus 1% of the established design value.

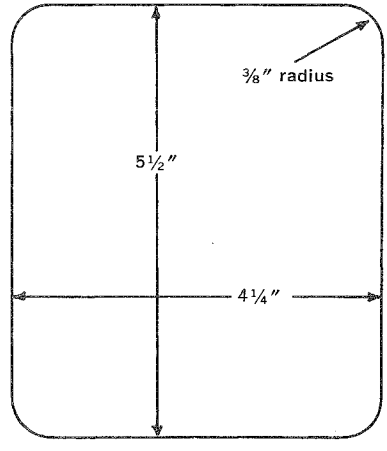
MOUNTING IN JBL ENCLOSURES

JBL dividing networks are normally installed in the back panel of the loudspeaker enclosure. In JBL enclosures, they may be easily installed directly into the mounting hole which is provided. Make sure that the white tubular gasket is in place around the network flange. Center the network into the mounting hole and secure by driving four #6 x ¾" round head wood screws into the outside surface of the panel. (To install the LX4-2 network into the standard cutout, the F2 mountin flange is required.)

MOUNTING IN CUSTOM ENCLOSURES

Dimensions for the required mounting hole are shown in the diagram. (To mount the LX4-2 in a cutout of this size, the F2 mounting flange is required.)

If you mount the network in the same compartment as the low frequency driver, make sure that the mounting hole is cut exactly. Otherwise, the white tubular mounting gasket will not seal properly, and the resulting air leaks may introduce objectionable hisses and whistles into the system.



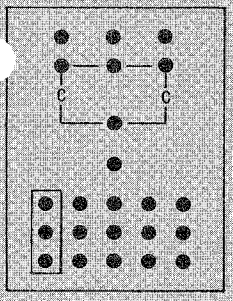
ADJUSTING HIGH FREQUENCY GAIN

Since the high frequency characteristics of rooms cannot be predicted, each JBL dividing network is provided with a high frequency level control, which makes it possible to achieve a realistic tonal balance under a variety of room conditions. The acoustics of your listening room and your personal listening taste will dictate the setting which will provide the most pleasing performance.

The control enables you to adjust the power fed to the high frequency transducer. It does not affect the crossover frequency, nor does it limit the upper frequency response of the loudspeaker system.

Some experimentation with this control is usually necessary when the system is first installed in its permanent location. If musical reproduction seems to be shrill and edgy, turn the control counterclockwise to a lower setting. If it seems dead and dull, turn clockwise to a higher setting. Comparative listening tests should be made at the usual listening location. Once the control is set for best overall results, it need not be changed. You can compensate for additional differences in source material with your preamplifier controls.

THE MODEL N500



The JBL N500 dividing network is a professional unit designed primarily for theater installations. It is usually mounted on top of the enclosure or in some other visible and convenient location.

All terminal screws lying on the white line are common. The output screws on this line should be connected to the black speaker terminals. The two screws marked "LF" are internally connected so that connecting an LF driver to each set of posts effectively connects the drivers in parallel.

The gain of the high frequency unit may be adjusted by changing the position of the strapping bar. Zero position provides the maximum intensity level of the HF unit. Each successive step lowers the HF level one db.

CONNECTING JBL NETWORKS

NETWORK IMPEDANCE All JBL dividing networks are matched to the characteristic impedance of the transducers with which they are used. Model N500 is a 16-ohm network and should be connected to the 16-ohm amplifier tap for most efficient power transfer. All other JBL networks will operate most efficiently when connected to the 8-ohm amplifier tap, although the 4-ohm or the 16-ohm tap can be used without danger of damage to amplifier or loudspeakers.

WIRE SIZES In factory-installed JBL systems, 18-gage stranded insulated wire is used for connection of components. In home installations, 18-gage stranded or solid wire or ordinary commercial lampcord may be used for speaker-amplifier connections up to 50 feet.

CONNECTING TO AMPLIFIER Fasten the leads from your amplifier to the two push-type terminal posts on the face of the dividing network.

The "B" or black post connects to the black, or common, lead. The "R" or red post connects to the 8 or 16 ohm amplifier tap. No soldering is required. Simply depress the colored button, insert the bare end of the lead wire, and release.

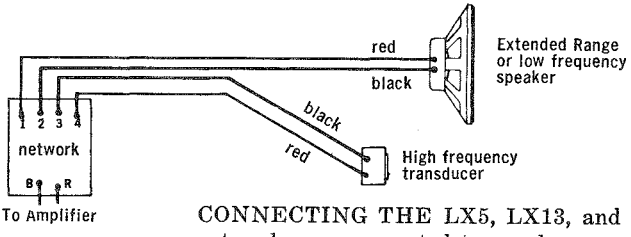
CONNECTING TO SPEAKERS Most JBL networks are mounted on an escutcheon plate which fits into the standard mounting cutout on the enclosure. Lead wires from the speakers are brought out to the push-type terminal posts on the panel through eyelets in the escutcheon plate.

Proper connections of speakers to the various JBL networks are explained below. Care should be taken to follow connecting instructions exactly to ensure that the system will operate in phase: that is, so that a signal from the amplifier will cause both diaphragms to move in the same direction at the same time.

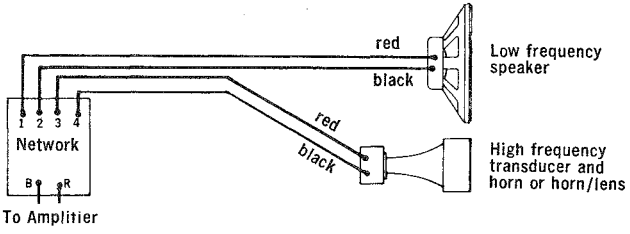
CONNECTING THE LX11 Emerging from the chassis of the LX11 network are four wires: two black, one green and one red. Connect the green wire to the red terminal post of the LE10A low frequency loudspeaker. Connect the red wire to the red terminal post of the LE20 high frequency transducer. Connect the black wires to the black posts of the speakers. Since these two wires are connected in the internal circuitry of the network, either black wire may be connected to either speaker.

CONNECTING THE LX8 The LX8 network is connected in the same way as the LX11. Connect the green wire to the red terminal post of the LE14A low frequency loudspeaker. Connect the red wire to the red terminal post of the LE20 high frequency transducer. Connect the black wires to the black posts of the speakers — either wire to either speaker.

CONNECTING THE N400, N1200, N2400 and LX2. Each of these four dividing networks is connected as shown in the diagram below:



CONNECTING THE LX5, LX13, and LX10. These networks are connected to speakers as shown in the diagram below:



CONNECTING THE N7000 The N7000 dividing network provides a means of adding the 075 to existing high-quality two-way loudspeaker systems to obtain added brilliance in the very high frequencies. It is connected to the high frequency terminals of the main dividing network as shown in the diagrams below: