



# McMartin LT-80B

## TRANSISTOR AMPLIFIER

### 8 WATT

#### SPECIFICATIONS

Power Output	8 watts rms 12 watts music power 16 watts peak power
Frequency Response	30 to 15,000 Hz $\pm 2$ db 20 to 20,000 Hz $\pm 3$ db
Distortion	Less than 2% 50 to 15,000 Hz $\pm 3$ db
Hum & Noise	
Microphone	-55db below 8 watts
Program	-65db below 8 watts
Inputs	
Microphone	Unbalanced Hi Z or balanced Lo Z with MT-4
Program	Unbalanced 15,000 ohms
Phono (w/PH-6B)	Magnetic, ceramic, or crystal
Tuner (w/PH-7)	Hi Z (270K ohms); 5db gain increase
Tape Head (w/PH-8A)	Equalized for 1 $\frac{7}{8}$ , 3 $\frac{3}{4}$ or 7 $\frac{1}{2}$ IPS
Line (w/MT-4)	Balanced 10,000 ohms bridging Balanced 600 ohms matching
Outputs	Balanced 70.7 volt and 25 volt Unbalanced 8 ohm (70.7 volt is 625 $\Omega$ impedance)
Controls	Microphone Gain Program Gain Tone (cut to -15db at 10,000 Hz) Power ON-OFF Switch
Power Supply	120 volt AC, 50/60 cps, fused, 20 watts max.
Ambient Temperature	Full performance to 150° F.
Dimensions & Finish	9" w x 7" d x 4 $\frac{1}{2}$ " h, McMartin blue and brushed aluminum
Shipping Weight	6 lbs.

#### ACCESSORIES

C-1F	3-pin mike connector—female
MGC	Master gain control
PH-6B	Phono preamplifier
PH-7	Program preamplifier
PH-8A	Tape Head preamplifier (specify 1 $\frac{7}{8}$ , 3 $\frac{3}{4}$ , or 7 $\frac{1}{2}$ IPS)
MT-4	Universal line/mic transformer
RP-80	19" Rack panel assembly for LT-80B (size 19" w x 5 $\frac{1}{4}$ " h)
MT-6	Line input transformer

NOTE: All tests conducted in accordance with E.I.A. Standards SE-101-A where applicable.

#### DESCRIPTION

The McMartin LT-80B is a conservatively rated, 8 watt AUDIO/PA amplifier specifically designed for commercial sound and background music installations. Outstanding performance, quality and reliability are assured.

The microphone channel is high impedance with individual level control, professional 3-pin microphone connector (Model C-1M is standard equipment). For balanced low impedance, the MT-4 plug-in microphone input transformer is available. Sockets for the MT-4 transformers are standard equipment. with a tone control (cut to -15db @ 10,000 Hz).

The standard program channel is 15,000 ohms unbalanced with a tone control (cut to -15db @ 10,000 Hz).

With the installation of the PH-6B, PH-7 or PH-8A, the program input operates with a crystal, ceramic or magnetic phono; tape recorder; tuner or similar program source. For matching a balanced line, a socket is provided for the installation of the MT-4 universal plug-in transformer. Screw-type terminals are provided for this connection.

The speaker outputs consist of a balanced 70.7 volts, 25 volts and a normal 8 ohms impedance.

#### PROGRAM INPUTS

##### 15K Ohm Bridging Input

The 15,000 ohm input connection is made at the screw-type terminals on the rear of the chassis marked 15K IN. This standard unbalanced bridging input is for connection of a low or medium impedance input.

##### Program Preamp Input

The PROGRAM jack, J4, is mounted on the rear of the chassis and is connected directly to the transformer socket, J3. (See schematic.) This jack is used for connection of high impedance source equipment such as a radio tuner. When used for this application, the optional high impedance plug-in preamplifier, PH-7, is required. The PH-7 preamplifier is easily inserted into the transformer socket, J3, and the high impedance source input is connected to the PROGRAM jack, J4. Use shielded cable and a phono plug for this connection.

##### Phonograph

A ceramic or crystal phono input may be used by inserting the plug-in Model PH-6B phono preamp into the PRO-

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GRAM TRANS socket and connecting the shielded cable from the cartridge to the PHONO jack.

#### Tape Head

Direct connection to a HiZ tape playback head is possible, inserting the Model PH-8A into the PROGRAM TRANS socket and connecting the input to the PHONO jack. When ordering the PH-8A tape head preamplifier, please specify speed, (1 $\frac{7}{8}$ , 3 $\frac{3}{4}$ , or 7 $\frac{1}{2}$  inches per second). Use shielded cable and a phono plug for this connection.

#### Line Bridging

The optional plug-in MT-4 transformer must be used. The balanced 10,000 ohm impedance enables many amplifiers to be connected to a single 600 ohm line without loading. The rear chassis terminals are marked LINE IN. To preserve good frequency response, a single resistor (470 to 680 ohms) should be used to terminate a 600 ohm line for any number of bridging amplifiers.

#### Line Matching

The optional plug-in MT-4 transformer must be used and PROGRAM TRANS socket wiring modified for a balanced 600 ohm impedance. Move the socket wires connected to pins 5 and 6 to pins 1 and 4. Connect the input to rear chassis terminals marked LINE IN.

## MICROPHONE INPUT

#### High Impedance (unbalanced)

This input is standard and can be used with any high impedance type microphone. Mike cable lengths should be limited to approximately 20 feet. Note: The C-1M connector is factory installed. If a two-conductor shielded cable is used for a HiZ mic, ground the unused wire to pin 1.

#### Low Impedance (balanced)

The optional MT-4 transformer must be used. Any low impedance microphone of 50 to 600 ohms can be connected. Several hundred feet of mike cable may be used.

#### Low Impedance (unbalanced)

An optional MT-4 transformer must be used and the jumper must be wired between pins 1 and 9 on the MIC TRANS socket. The wire between this connector and pin 2 must be moved to pin 3. Because the mic cable is unbalanced, the length should be limited to approximately 30 feet.

The microphone circuit will accommodate virtually all types of microphones. For those microphones with extremely high output levels which may tend to overload the input and cause distortion, install R20. (See schematic.)

## OUTPUTS

#### 8 Ohm (unbalanced)

Generally only a single speaker or few speakers are connected to this output.

#### 70.7 volt and 25 volt (balanced)

These constant voltage outputs are most convenient for connection to a multiple speaker installation. The 70.7 volt or 25 volt transformers must be used with each speaker system.

#### Utility AC Outlet

A convenient AC outlet on the rear of the chassis will handle loads up to 250 watts. This outlet is not fused or controlled by the amplifier power switch, SW1.

## CONTROLS

#### Microphone Gain

The MICROPHONE control, R6, is used for adjusting the output level of the microphone preamplifier Q1 and Q2. Bass response in the microphone channel is attenuated for crisp voice amplification.

#### Program Gain Control

The PROGRAM control, R37, is used for adjusting the input signal level applied to the base of transistor Q3.

#### Tone Control

The TONE control, R34, is used for attenuation of high frequency response.

#### ON-OFF Switch

The ON-OFF switch, SW1, controls all power to the unit except the utility AC outlet. A neon indicator lamp located along side of the power switch is illuminated when the switch is placed in the ON position.

## SERVICE

#### Connections

The use of shielded cable is recommended when connecting microphones, phonographs or similar source equipment to the amplifier. Care should be taken to see that input connections are made properly and securely. Use spade lugs for connections to all screw-type terminals.

#### Maintenance

Adequate ventilation should be provided for the amplifier. The externally mounted fuse, F2, on the rear of the chassis is protection against a continuous overload. If this fuse fails after several hours of operation, check to see that the speakers are correctly matched and the amplifier is not continuously delivering more than its rated output. Another possible cause of fuse failure is inaudible high frequency oscillation applied to amplifier inputs. Check the speaker output with an oscilloscope as oscillation may originate in the input source (e.g. tape recorder). The speaker and program or microphone wires should not be installed within the same conduit.

Maximum power output with a sine wave signal may be checked at any frequency up to 10,000 Hz. A sustained tone above 5000 Hz at full output should not be applied for more than a few seconds as excessive transistor heating will occur and cause the fuse (F2) to fail. High frequencies at a lower power output will not have an adverse effect.

Damage to transistors may result if any wiring is shorted while servicing or circuit-tracing. Do not remove transistors from their sockets while power is on. If replacement of a power transistor is required, coat both sides of the mica insulator with Silicon Gel.

The power fuse, F1, is located under the chassis and is accessible when the bottom chassis cover is removed.

## ARCHITECTS AND ENGINEERS SPECIFICATIONS

The amplifier shall be a voltage and power amplifier capable of 8 watts rms output and shall be rated at 12 watts music power and 16 watts peak power. The microphone circuit shall be provided with a socket to accommodate a plug-in transformer to permit the use of low impedance microphones. 3 pin (C-1M) microphone connectors shall be standard equip-

ment. A high impedance program input circuit shall be provided with a socket to accommodate a plug-in transformer to permit the use of a balanced line with isolation; both matching and bridging inputs shall be available. Screw-type termination shall be provided for the balanced line input. A screw-type terminal board shall be provided for all outputs.

The amplifier shall have outputs of 8 ohms unbalanced and 25 volts and 70.7 volts balanced, with a tone control capable of treble cut to -15db at 10,000 Hz. It shall also have separate microphone and program controls. An AC power outlet shall be provided. All transistors shall be provided with the amplifier. The performance specifications shall be as listed under Specifications.

## WARRANTY

McMartin Broadcast and Audio Products are warranted to be free from defects in workmanship **FOREVER**.

At our discretion, we will exchange or repair any defective unit or component, at any time, without charge. Material and components are guaranteed for a period of 90 days from date of original purchase. Transportation charges must be prepaid on equipment returned for warranty service.

This warranty does not extend to any of our products which have been subjected to misuse, neglect, accidents, incorrect wiring which is not our own, improper installation, or to use in violation of the instructions furnished by us; nor to units that have been altered outside our factory.

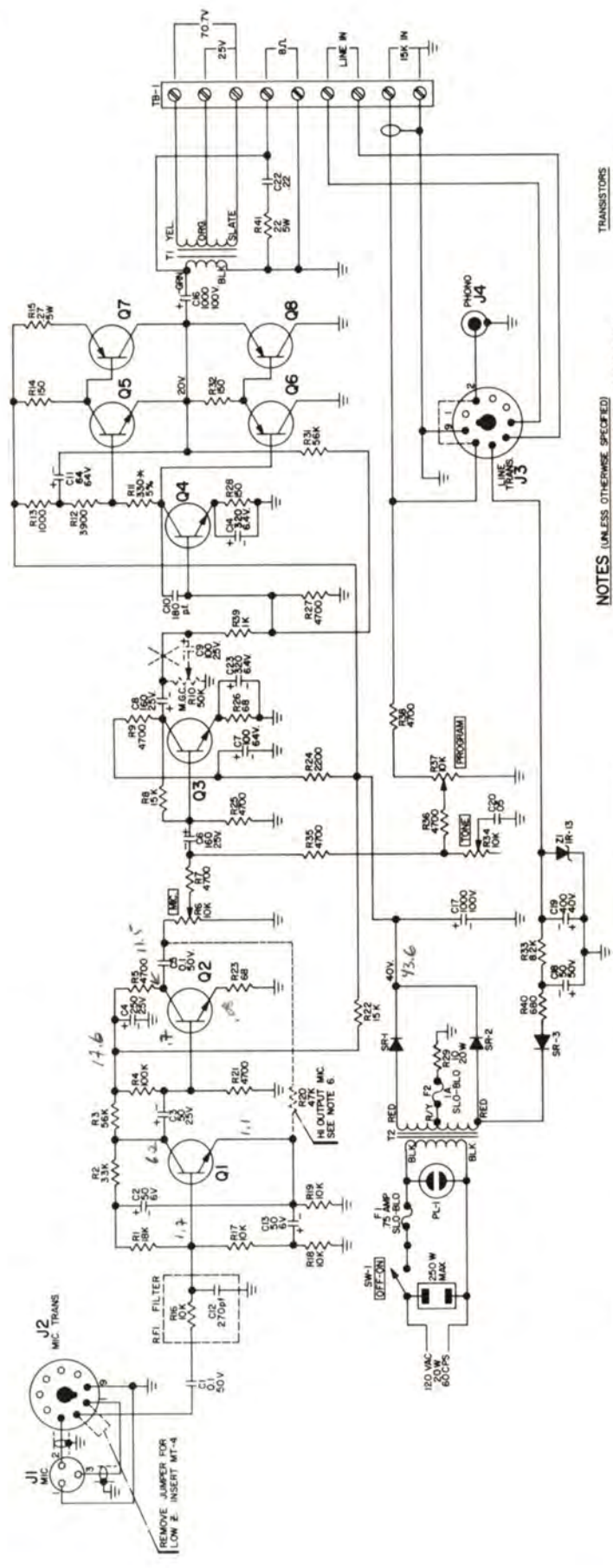
## REPLACEMENT PARTS

Symbol No.	Stock No.	Description	Symbol No.	Stock No.	Description
Q-1, Q-3	201049	Transistor SE-4002	R-16, R-17,		
Q-2, Q-4, Q-5	201022	Transistor SE-4001	R-18, R-19	502112	Resistor 10K ohm ½W
Q-6	201052	Transistor 2N4249	R-23, R-26	502060	Resistor 68 ohm ½W
Q-7, Q10	201020	Transistor MC-110	R-24	502096	Resistor 2.2K ohm Pot ½W
SR-1, SR-2,			R-20	536005	Resistor 10 ohms 20W
SR-3	210008	Diode Rect 8D8	R-33	502110	Resistor 8.2K ohm ½W
Z-1	220007	Zener 13V Silicon (1R-13)	R-40	502084	Resistor 680 ohm ½W
PL-1	291003	Leecraft 3200 Neon 125V	R-41	533009	Resistor 22 ohm 5W
R-1	502118	Resistor 18K ohm ½W	C-1, C-5	640016	Capacitor .1 MFD P 80-20 100V Disc
R-2	502124	Resistor 33K ohm ½W	C-2, C-13	640025	Capacitor 50 MFD 6.0V
R-3, R-31	502130	Resistor 56K ohm ½W	C-3	600011	Capacitor 50 MFD 25 VDC
R-4	502136	Resistor 100K ohm ½W	C-4	600008	Capacitor 250 MFD 25 VDC
R-5, R-7, R-9,			C-6, C-8	600009	Capacitor 160 MFD 25 VDC
R21, R-25	502104	Resistor 4.7K ohm ½W	C-7	600013	Capacitor 100 MFD 64 V
R-27, R-35,			C-10	640014	Capacitor 180 PF 500 VDC
R-36, R-38	502104	Resistor 4.7K ohm ½W	C-11, C-18	600006	Capacitor 64 MFD 64 V
R-6, R-34,			C-12	650011	Capacitor 270 PF
R-37	400014	Control 10K ohms Pot ¼W	C-14, C-23	600022	Capacitor 320 MDF 6.4 V
R88, R-22	502116	Resistor 15K ohm ohm ½W	C-16	601020	Capacitor 1000 MFD 100 V
R-11	502076	Resistor 330 ohm ½W	C-19	600020	Capacitor 400 MFD 40 VDC
R-12	502102	Resistor 3.9K ohm ½W	C-20	640015	Capacitor .05 MFD P 80-20 100 VDC Disc
R-13	502088	Resistor 1K ohm ½W	C-22, C-17	630026	Capacitor .22 MFD 200 VDC
R-14, R-28,			T-1	910016	Transformer Output
R-32	502068	Resistor 150K ohm ½W	T-2	900007	Transformer Power
R-15	533024	Resistor .27 ohm 5W			

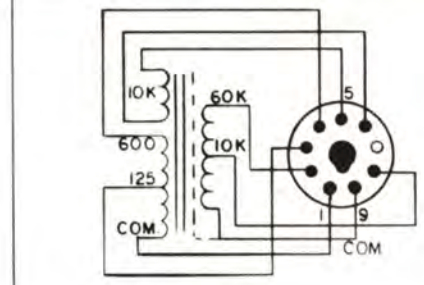
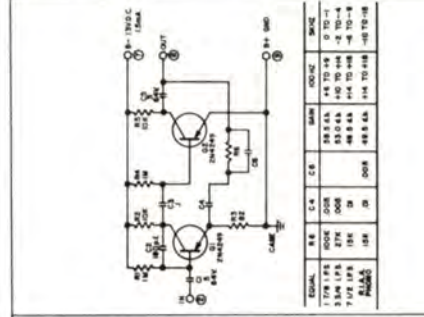
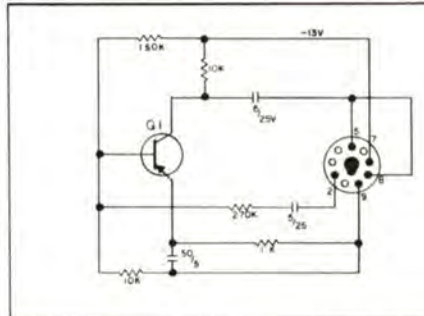


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- NOTES (UNLESS OTHERWISE SPECIFIED)**
1. ALL CAPACITORS OVER ONE MFD ARE ELECTROLYTIC.
  2. ALL CAPACITORS ARE 50V UNLESS OTHERWISE SPECIFIED.
  3. RESISTORS 1/2W UNLESS OTHERWISE SPECIFIED.
  4. CAPACITORS ARE MFD UNLESS OTHERWISE SPECIFIED.
  5. ALL TRANSISTORS ARE MFD WITH VTYM TO B+ GROUND.
  6. PLACE (R-200) 47K AS SHOWN ON SCHEMATIC.
  7. COMPONENT VALUES IN UNIT MAY DIFFER FROM DIAGRAM. NEW SCHEMATICS ARE ISSUED WHEN MAJOR CHANGES OCCUR.
  8. VALUES SELECTED IN PRODUCTION.
  9. SP-1,2 & 3 BY-127 OR CER-72 OR EQUIVALENT.
- TRANSISTORS**
- Q1, Q3 2N2704
  - Q2, Q4, Q5, Q6, Q7, Q8 2N2704



INCLUDE DWGS A-1267, 1268, 1269, 1270, 1271, 1273, 1274, & 1298

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TITLE SCHEMATIC

LT-808 TRAN. AMPLIFIER

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