

**JBL**

**S E R V I C E M A N U A L**

# **TLX PS10**

**Discrete Output, High Current  
10" Powered Subwoofer**



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**H** A Harman International Company

1112-TLXPS10 Rev A

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**SPECIFICATIONS**

|  |   |
|--|---|
| Amplifier Power RMS . . . . .                            | 100 Watts                                 |
| Drivers . . . . .  | 10" with high-polymer-laminated cones     |
| Inputs. . . . .  | Line level and Speaker Level              |
| Outputs . . . . .  | High level with High-Pass filter at 180Hz |
| Crossover Frequency . . . . .<br>(continuously variable) | 50-150Hz                                  |
| Frequency Response . . . . .<br>(-6dB)                   | 30Hz to (50-150Hz)                        |

**External Dimensions (Inches)**

|                           |         |
|---------------------------|---------|
| Height . . . . .          | 17"     |
| Width . . . . .           | 13"     |
| Depth. . . . .            | 16 3/4" |
| Weight . . . . .          | 36 lbs  |
| Shipping Weight . . . . . | 42 lbs  |

**External Dimensions (mm)**

|                           |         |
|---------------------------|---------|
| Height . . . . .          | 432 mm  |
| Width . . . . .           | 330 mm  |
| Depth. . . . .            | 426 mm  |
| Weight . . . . .          | 16.4 kg |
| Shipping Weight . . . . . | 19 kg   |

High-Level (speaker) outputs are active only if high-level input are used.  
Occasional refinements may be made to existing products without notice, but will always meet or exceed original specifications unless otherwise stated.

## WARRANTY

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This amplifier is warranted against defects in material and workmanship for a period of 90 days from date of shipment, when installed in accordance with the owner's manual in a clean, dry, interior home environment. **THIS AMPLIFIER IS NOT SUITABLE FOR OPERATION OUTSIDE OR IN HARSH ENVIRONMENTS.** During the warranty period, the manufacturer will, at its option, either repair or replace products which prove to be defective.

For warranty service or repair, this product must be properly packed and returned to a service facility designated by the manufacturer. Buyer shall prepay shipping charges to the designated facility and the manufacturer shall pay shipping charges to return the product to buyer. However, Buyer shall pay all shipping charges, duties and taxes for products returned to the manufacturer from another country.

The manufacturer does not warrant that the operation of the product will be uninterrupted or error-free. The Buyer must determine the suitability of the product for his or her purposes.

### LIMITATION OF WARRANTY

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance by Buyer, Buyer-supplied interfacing, unauthorized modification or misuse, operation outside of the environment specifications for the product including inadequate ventilation, or improper site preparation, installation, or maintenance.

NO OTHER WARRANTY IS EXPRESSED OR IMPLIED. THE MANUFACTURER SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

### EXCLUSIVE REMEDIES

THE REMEDIES PROVIDED HEREIN ARE BUYER'S SOLE AND EXCLUSIVE REMEDIES. THE MANUFACTURER SHALL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON CONTRACT, TORT, OR ANY OTHER LEGAL THEORY.

## SAFETY SYMBOLS

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The following symbols are used throughout this manual and in the product. Familiarize yourself with each of the symbols and its meaning before servicing this amplifier.



Instruction manual symbol. The product will be marked with this symbol when it is necessary for the user to refer to the instruction manual in order to protect the unit against damage.



Indicates dangerous voltages are present. Be extremely careful.

The **CAUTION** sign denotes a hazard. It calls attention to a procedure which, if not correctly performed or adhered to, could result in damage to or destruction of the amplifier. Do not proceed beyond a **CAUTION** sign until the indicated conditions are fully understood and met.

**CAUTION**

The **WARNING** sign denotes a hazard. It calls attention to a procedure which, if not correctly performed or adhered to could result in injury or loss of life. Do not proceed beyond a

**WARNING**

**WARNING** sign until the indicated conditions are fully understood and met.

### GENERAL SAFETY CONSIDERATIONS

**THIS UNIT DOES NOT HAVE A POWER SWITCH;**

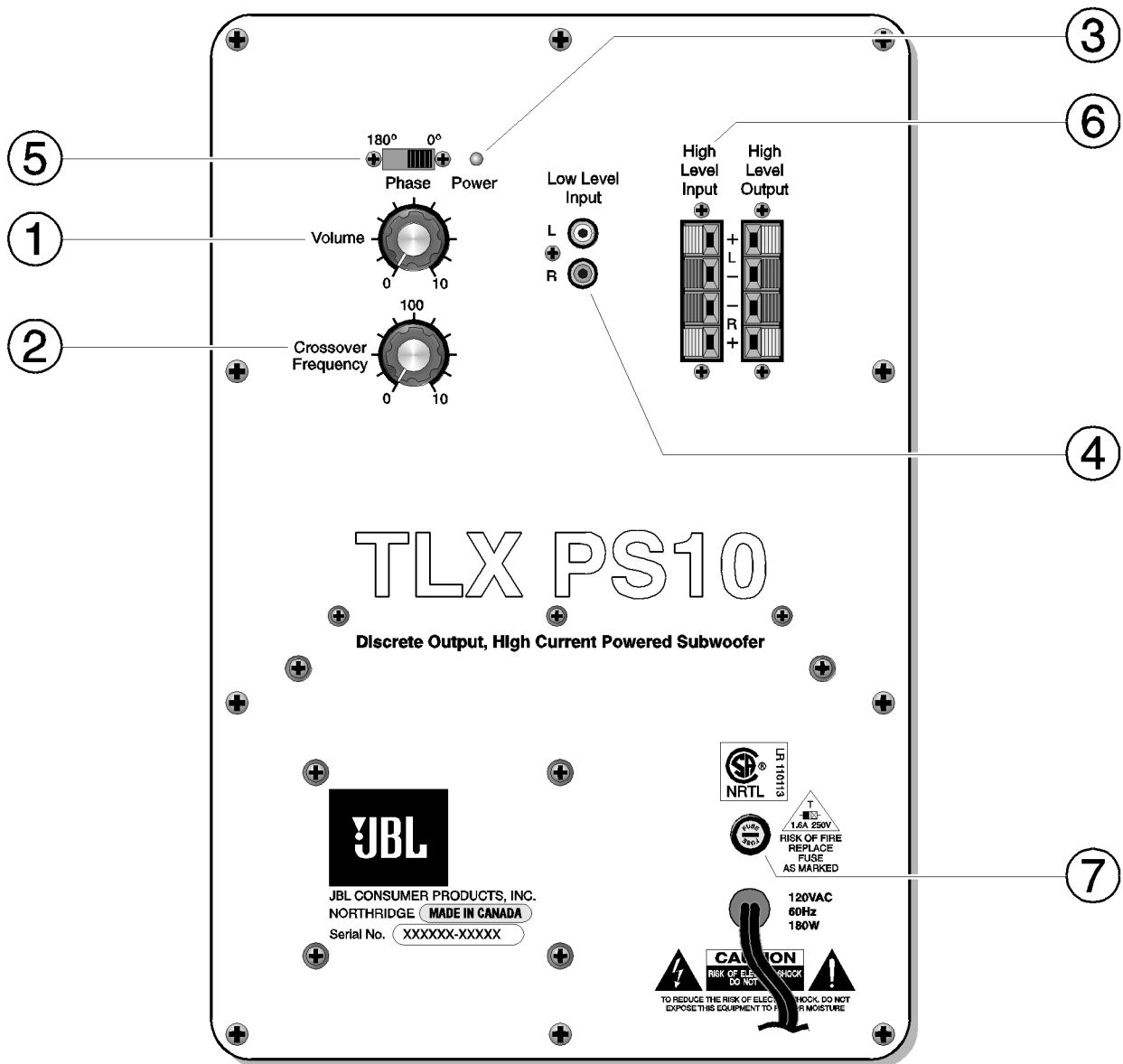
**WARNING**

**HAZARDOUS VOLTAGES ARE PRESENT WITHIN THE UNIT WHENEVER IT IS PLUGGED IN.** This still applies when the over-temperature thermostat opens, as it may automatically reset at any time.

**WARNING**

There are voltages and hot components at many points in the amplifier which can, if contacted, cause serious injury. Be extremely careful. Any adjustments or service procedures that require operation of the amplifier out of its enclosure should be performed only by trained service personnel.

**CONTROLS AND THEIR FUNCTION**

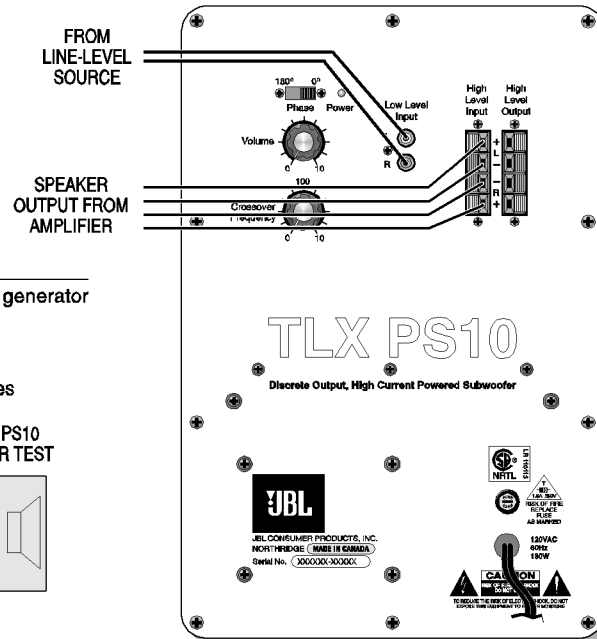
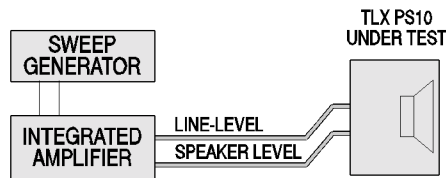


1. **Output Level** - The Output Level adjustment determines volume level strength.
2. **Crossover Frequency** - The Crossover Frequency adjustment determines the highest frequency the TLX PS10 will reproduce. It allows a seamless transition from the subwoofer to the satellite speakers.
3. **On (LED)** - This LED will light green when the unit is plugged in and is receiving signal.
4. **Low Level Input** - These left and right Line Level Inputs are normally used when the receiver/processor has line-level “pre-amp out” or “subwoofer out” jacks.
5. **Phase Switch** - The Phase switch is used to adjust the relative polarity of the subwoofer. Normally this switch is set to “0”.
6. **High Level Inputs** - These High Level Inputs are for receivers that do not have line-level “pre-amp out” or “subwoofer out” jacks. When a pair of main or satellite speakers are attached to the OUTPUT terminals, frequencies below 180 Hz are attenuated by the high-pass filter.
7. **Fuse** - Use only a 1.6A GMC type fuse.

## TEST PROCEDURES

### EQUIPMENT

Function generator/signal generator/sweep generator  
 Integrated Amplifier  
 Multimeter  
 Cables - line level (RCA) and speaker cables



### General Function

UUT = Unit Under Test

1. Connect both right and left line level inputs (RCA) to signal generator and UUT. Use Y-cable if necessary from mono source. VOLUME control should be full counterclockwise.
2. Turn on generator, adjust to **50mV, 50 Hz**.
3. Plug in UUT; red LED should be ON. Turn VOLUME control full clockwise.
4. LED should turn Green; immediate bass response should be heard and felt from port tube opening.
5. Turn off generator, turn VOLUME control fully counterclockwise, disconnect RCA cables.
6. Connect one pair of speaker cables to either high level input terminal on UUT. Cables should be connected to an integrated amplifier fed by the signal generator.
7. Turn on generator and adjust so that speaker level output is **2.0V, 50 Hz**.
8. Turn VOLUME control full clockwise.
9. Green LED should light, immediate bass response should be heard and felt from the port tube opening.

### Sweep Function

1. Follow steps 1-4 above, using a sweep generator as a signal source.
2. Sweep generator from 20Hz to 300Hz. Listen to the cabinet and drivers for any rattles, clicks, buzzes or any other noises. If any unusual noises are heard, remove driver and test.

### Driver Function

1. Remove driver from cabinet; detach + and - wire clips.
2. Check DC resistance of driver; it should be **3.3** ohms.
3. Connect a pair of speaker cables to driver terminals. Cables should be connected to an integrated amplifier fed by a signal generator. Turn on generator and adjust so that speaker level output is **5.0V**.
4. Sweep generator from 20Hz to 1kHz. Listen to driver for any rubbing, buzzing, or other unusual noises.

# CAUTION

BEFORE THIS AMPLIFIER IS PLUGGED IN, make sure its rated voltage corresponds to the voltage of the AC power source to be employed. Failure to use the correct voltage could cause damage to the amplifier when the AC power cable is plugged in. Do not exceed the rated voltage by more than 10%; operation below 90% will degrade performance or cause the unit to shut off.

## 1. TROUBLE SHOOTING BEFORE OPENING

Check connections, control settings, driver and other possible external problems. If there is Output, determine if all controls and Inputs function properly. Rotate Pots over full range while applying lateral and vertical oscillating forces to locate possible intermittent function. High Level Inputs should be tested individually both differentially (signal from "-" to "+" with normal output) and in common mode (signal from low level ground to both "+" and "-" shorted together, giving virtually no output). While passing a signal, corner drop the enclosure a few inches to expose possible intermittent problems. Check woofer for rubbing of voice coil or tears in cone or surround. Check cabinet for loose extraneous articles which may have been pushed into front port.



## 2. REMOVING THE AMPLIFIER.

### WARNING

There are voltages and hot components at many points in the amplifier which can, if contacted, cause personal injury. Be extremely careful. Any adjustments or service procedures that require operation of the amplifier out of its enclosure should be performed only by trained service personnel. Refer to PCB drawings for locations of hazards and familiarize yourself with their locations before starting.

## 3. TROUBLE SHOOTING AFTER REMOVAL

### WARNING

Verify AC plug is disconnected See WARNINGS in section 2.

### WARNING

To prevent loose hardware from reducing safety spacings, it is essential that all hardware be replaced in the same manner as it was removed, with lock washers under all nuts, proper torque on screws and thread locking sealer on the transformer nuts.

### CAUTION

If line core, its strain relief, or the AC switch are replaced, it is necessary to seal them completely to panel with an approved conformal coating to prevent air "whistling" through any openings from woofer pressure.

### WARNING

To reduce the risk of electric shock and/or fire, replace items as marked on schematic with the safety marking only with the exact replacements listed in the safety component list, section 5. If exact replacements are not available, order them from the factory or an authorized service center.



- A.) Check fuse F1. If blown visually check transformer for discoloration, and large capacitors (C36, C37) for bulges or venting. Check for shorts in Q3-Q7 with an Ohmmeter, (see schematic).
- B. With ohmmeter, verify contacts of thermostat are closed, voice coil of woofer is 3.3 ohms and windings of transformer are continuous.
- C. Examine board and wiring for obvious damage, broken or poorly soldered connections, or discoloration.
- D. Repair or replace items identified above. Procedures for replacing power transistors and removing PCB are as follows:

### CAUTION

Use low power, grounded temperature regulated iron with small tip such as Weller PTA7 and ESD control. Use SN63/37 solder 0.032" diameter with "no clean" flux core, Alpha Metals P2 or equal.

- I) **Replacing power transistors:** Clip all 3 leads near body of transistor. Remove screw and discard device (keep hardware and insulator). Holding each lead in turn with needle nose

pliers, gently heat and remove cut lead from hole in edge or PCB.

Clean insulator and seating area on back of panel. Coat both sides of insulator with silicon (white) thermal compound (unless silicone rubber pads are provided), position it centered on back of device with holes aligned. Insert leads into PCB then place pair over hole in panel; ensure hole in insulator is aligned. Insert screw from far side, pass shoulder bushing over screw and carefully seat shoulder in hole in tab, add flat washer, lock washer and nut (finger tight). Center insulator tighten screw first then solder all three leads in respective slots with full fillet, being careful not to bridge pads. Use ohmmeter to verify there is no short from tab of transistor to panel, or between pads.

**CAUTION**

Never operate amplifier with load connected when PC assembly is not attached to panel or when any of output transistors is not properly screwed to panel.

After repair, inspect for possible safety hazards, including loose hardware, missing lock washers, correct fuse and lead dress of primary wires (these must be held in position with cable ties so that they cannot touch secondary components). With ohmmeter, check that panel is connected to signal ground.

**WARNING**

It is essential that the following safety insulation test be performed prior to returning the Power Sub-Woofer to the customer, using one of the following methods.

**A) Insulation Resistance Test**

With a 500VDC Insulation Tester, Check insulation from the outer metal contact of the RCA jack (chassis) to the line neutral of AC cord. Resistance should be >100MΩ.

**B) Hi-Pot Test**

If a UL approved Hi-Pot tester is available, test line & neutral of AC cord to outer shell of RCA jack (chassis) at 1100VAC for 2 seconds. Observe all of instrument manufacturer's instructions and safety warnings in performing this test.

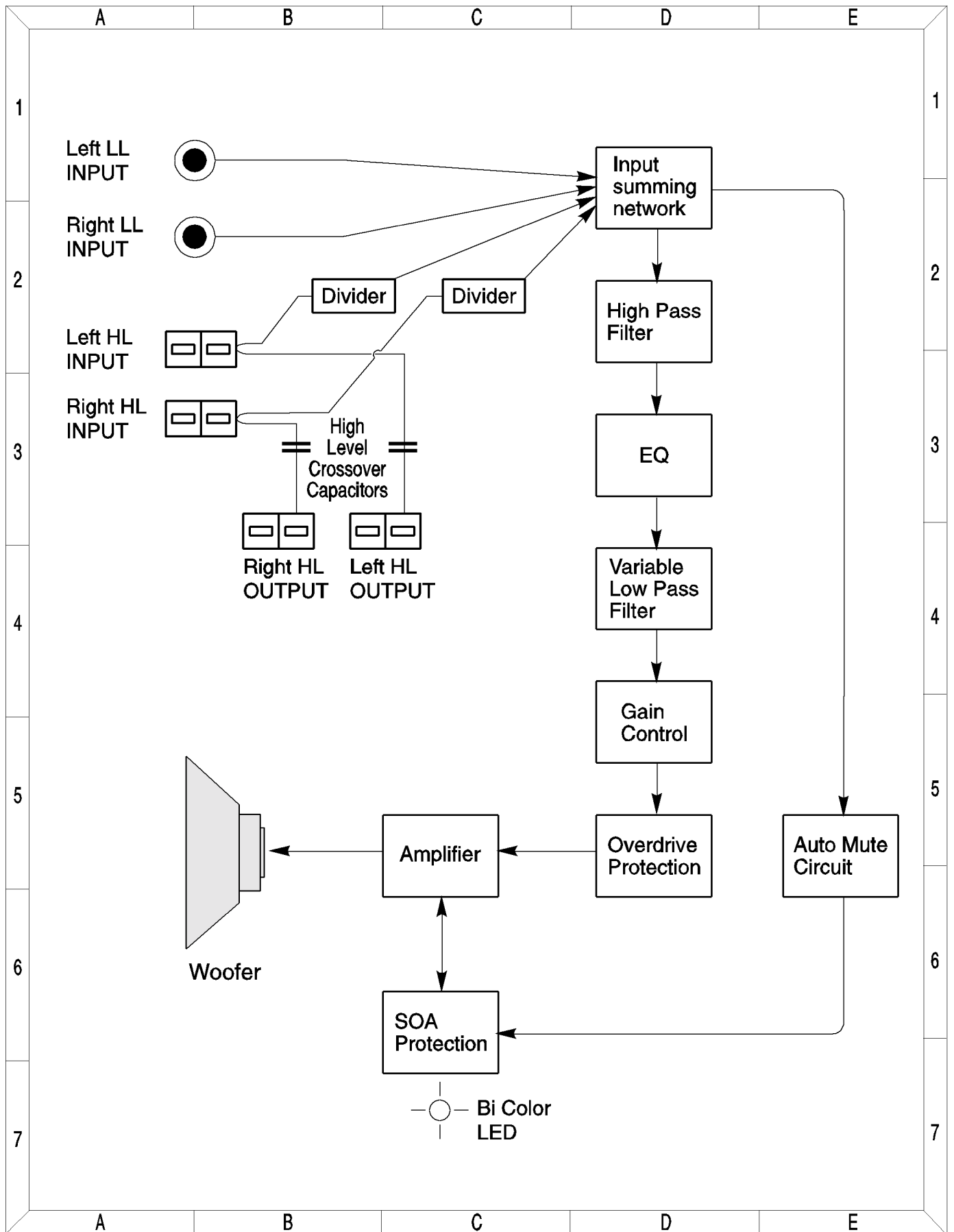
Connect sub-woofer system to a music source. Play at high level while checking for air leaks around panel edge,

driver, panel jacks and controls, and voice coil problems such as rubbing or loose turns. With the crossover "frequency" set to 50Hz, very little of the voice content should be heard.

**4. LIST OF SAFETY COMPONENTS REQUIRING EXACT REPLACEMENTS**

- F1 Fuse SLOW BLO 1A 250v GMC 20mm UL approved.
- FH Fuse holder. Use only factory replacement.
- PWR CORD SPT-2 better with polarized plug, UL approved wired with the hot side to fused side. Use with UL approved panel strain relief only.
- XF transformer. use only factory replacement.
- BD1 Bridge diode. Use only factory replacement.
- C36, 37 6800uF, 63V electronic filter caps. Be sure replacement part is at least the same working voltage and capacitance rating. Also the lead spacing is important. Incorrect spacing may cause premature failure due to internal cabinet pressures and vibration.
- K1 Safe operating area relay to protect output devices. Use only factory replacement.
- R64 5.6Ω .5W METAL FILM, non flammable.

### TLX PS10 AMPLIFIER BLOCK DIAGRAM





AMPLIFIER EXPLODED VIEW

| #  | P/N       | DESCRIPTION                         | QTY | #  | P/N       | DESCRIPTION                            | QTY |
|----|-----------|-------------------------------------|-----|----|-----------|--|-----|
| 1  | SMPP42606 | MACHINE SCREW                       | 2   | 13 | 260231802 | CONN. DUAL RCA INPUT                   | 1   |
| 2  | S2PP43008 | SELF TAPPING SCREW                  | 1   | 14 | 530051901 | KNOB                                   | 2   |
| 3  | 560050600 | HEATSINK                            | 1   | 15 | 260232901 | FUSE HOLDER                            | 1   |
| 4  | 150227601 | TRANSFORMER 8603071F                | 1   | 16 | 550087300 | STRAIN RELIEF                          | 1   |
| 5  | NOT SOLD  | PCB INSULATOR FOAM BEZEL            | 1   | 17 | 290223801 | "F1" FUSE SLOW-BLO T1.6A 250V          | 1   |
| 6  | NOT SOLD  | FOAM INSULATION TAPE for REAR PLATE | 1   | 18 | 540083700 | BRACKET (FOR HEATSINK)                 | 2   |
| 7  | 510112601 | FACEPLATE                           | 1   | 19 | 50107100  | SPACER                                 | 2   |
| 8  | 260231001 | CONN., SPEAKER TERMINALS            | 2   | 20 | 560031601 | HEAT SINKS (FOR Q4 & Q5)               | 2   |
| 9  | 120215001 | CROSSOVER, VR 500KX2                | 1   | 21 | STPP43007 | SELF TAPPING SCREWS (H/S Q4 & Q5)      | 2   |
| 10 | 120211501 | VOLUME, VR B20KX2                   | 1   | 22 | STPP33W14 | SELF TAPPING SCREW                     | 2   |
| 11 | 180200301 | SLIDE SWITCH                        | 1   | 23 | 210213601 | POWER CORD                             | 1   |
| 12 | 250213501 | LED BRG333B (R/G)                   | 1   | 24 | SMPP43A12 | MACHINE SCREW (3 piece, sold as a set) | 2   |
|    |           |                                     |     | 25 | STPP43006 | MACHINE SCREW                          | 4   |
|    |           |                                     |     | 26 | NM0H54000 | NUT                                    | 4   |
|    |           |                                     |     | 27 | WS4426600 | SPRING WASHER                          | 4   |
|    |           |                                     |     | 28 | WF5411010 | FLAT WASHER                            | 4   |
|    |           |                                     |     | 29 | SMPP440W9 | MACHINE SCREW                          | 4   |
|    |           |                                     |     | 30 | SMPP440W7 | MACHINE SCREW                          | 2   |
|    |           |                                     |     | 31 | STPP430W8 | SELF TAPPING SCREW                     | 3   |
|    |           |                                     |     | 32 | S2PP43010 | SELF TAPPING SCREW                     | 4   |
|    |           |                                     |     | 33 | 320008400 | O/P TRANSISTOR MICA PAD                | 2   |

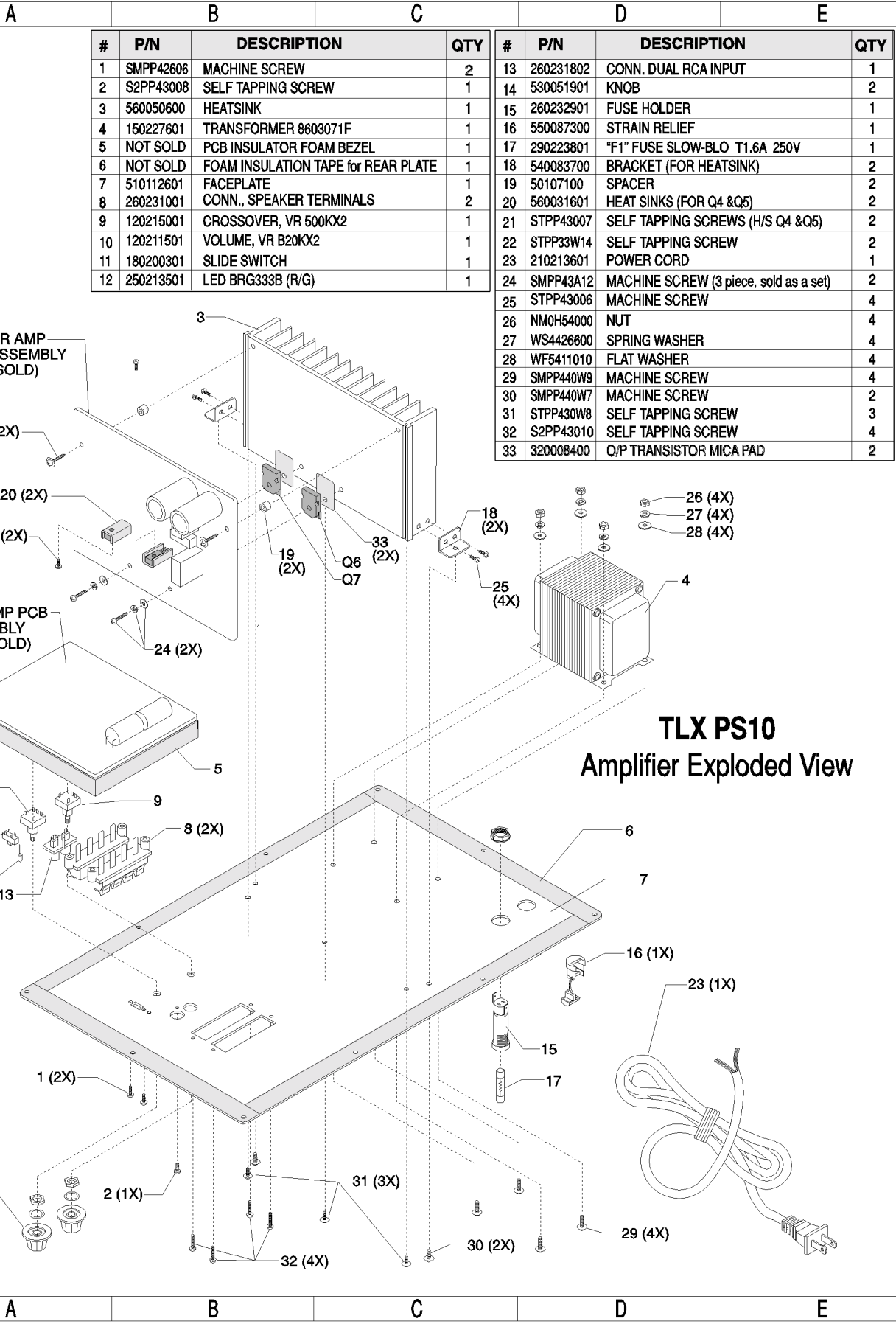
POWER AMP PCB ASSEMBLY (NOT SOLD)

PRE-AMP PCB ASSEMBLY (NOT SOLD)

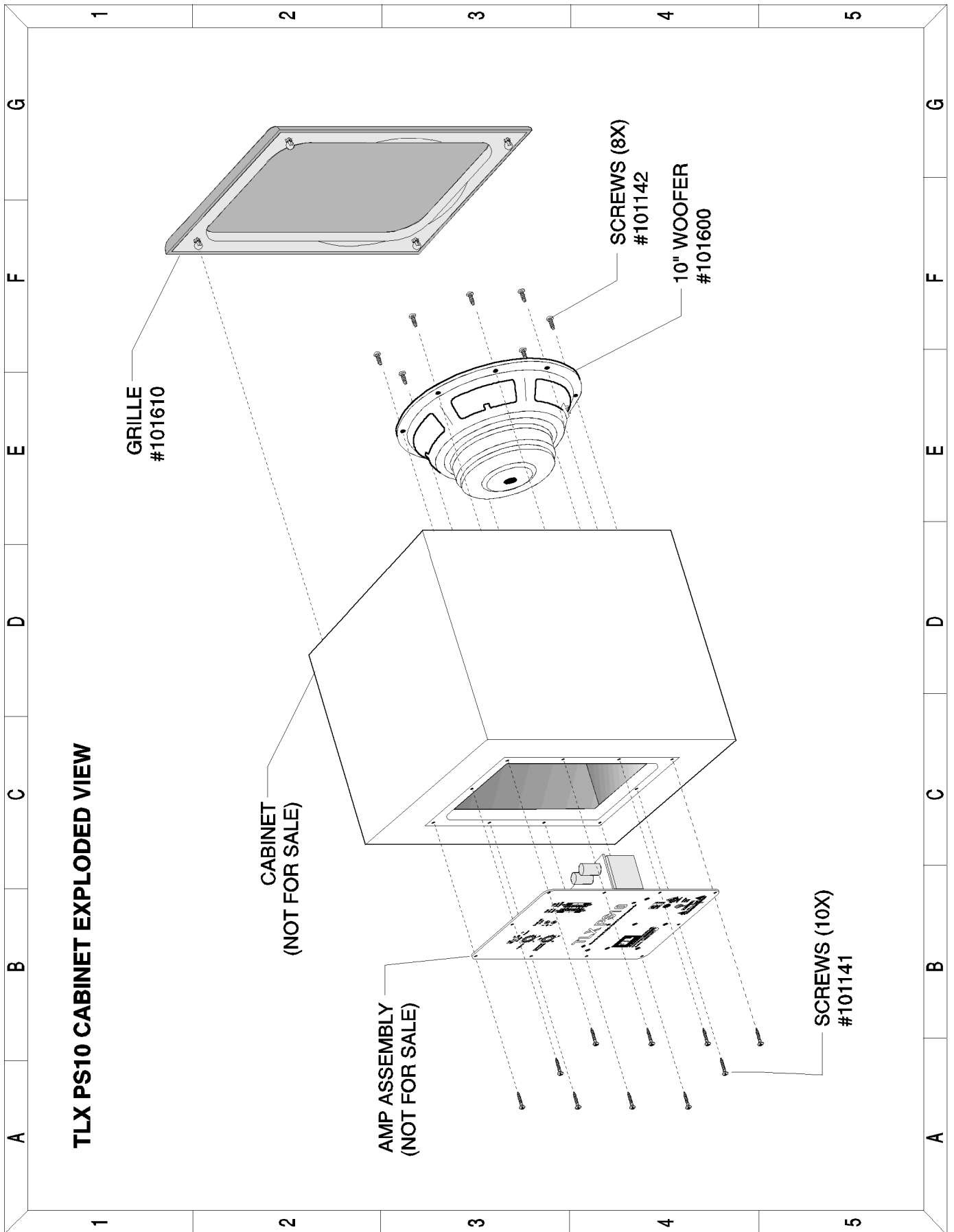
TLX PS10  
Amplifier Exploded View

1  
2  
3  
4  
5  
6  
7

1  
2  
3  
4  
5  
6  
7



CABINET EXPLODED VIEW



**TLX PS10 PARTS LISTS**

**ELECTRICAL PARTS LIST**

| Ref. Number             | Part Number | Description        | Quantity |
|-------------------------|-------------|--------------------|----------|
| <b>Capacitors</b>       |             |                    |          |
| C1, 2                   | 130001529   | 100UF 100V NP      | 2        |
| C3, 4                   | 130000557   | 4.7UF 16V          | 2        |
| C5, 6                   | 135100811   | 100PF CERAMIC      | 2        |
| C7, 11                  | 130000627   | 0.015UF 5% MYLAR   | 2        |
| C8                      | 135020811   | 20PF CERAMIC       | 1        |
| C9, 10                  | 130000634   | 0.012UF 5% MYLAR   | 2        |
| C12                     | 130048607   | 0.1UF 16V          | 1        |
| C13                     | 13000610    | 0.001UF 5% MYLAR   | 1        |
| C14                     | 130048604   | 0.68UF 16V         | 1        |
| C15                     | 130000620   | 0.033UF 5% MYLAR   | 1        |
| C16                     | 130000628   | 0.0039UF 5% MYLAR  | 1        |
| C17, 26                 | 130048605   | 0.33UF 16V         | 2        |
| C18                     | 130000639   | 0.0056UF 5% MYLAR  | 1        |
| C19                     | 130000610   | 0.001UF 5% MYLAR   | 1        |
| C20                     | 130000596   | 0.22UF 16V         | 1        |
| C21                     | 135470811   | 470PF CERAMIC      | 1        |
| C22                     | 130054710   | 100UF 16V          | 1        |
| C23                     | 132104652   | 0.1UF CERAMIC      | 1        |
| C24                     | 130000551   | 1000UF 25V         | 1        |
| C25                     | 130000527   | 4.7UF 16V          | 1        |
| C27, 28, 29             | 130000518   | 100UF 25V          | 3        |
| C30                     | 130000622   | 0.01UF MYLAR 5%    | 1        |
| C31                     | 130000619   | 0.047UF MYLAR 5%   | 1        |
| C32                     | 135022811   | 22PF CERAMIC       | 1        |
| C33                     | 130000506   | 10UF 16V           | 1        |
| C34, 35                 | 130000549   | 220UF 25V          | 2        |
| C36, 37 ▲               | 130001530   | 4700UF 50V         | 2        |
| CPRD                    | 133223312   | 0.022UF CERAMIC    | 1        |
| <b>Resistors</b>        |             |                    |          |
| R1, 2, 3, 4             | 092101502   | 100 MF 2W          | 4        |
| R5, 6                   | 084274503   | 270K CF 1/4W       | 2        |
| R7, 8                   | 086472502   | 4.7K CF 1/4W 10MM  | 2        |
| R9, 10                  | 084473503   | 47K CF 1/4W 10MM   | 2        |
| R11, 12                 | 084333503   | 33K CF 1/4W        | 2        |
| R13, 14                 | 086473502   | 47K CF 1/4W 10MM   | 2        |
| R15, 16                 | 086102502   | 1K CF 1/4W 10MM    | 2        |
| R17, 18                 | 075893582   | 589K MF 1/16W 1%   | 2        |
| R19                     | 075242582   | 52.4K MF 1/16W 1%  | 1        |
| R20                     | 072394582   | 2.39M MF 1/16W 1%  | 1        |
| R21, 22                 | 079303582   | 930K MF 1/16W 1%   | 2        |
| R23                     | 071415282   | 141.5K MF 1/16W 1% | 1        |
| R25                     | 071475282   | 147.5K MF 1/16W 1% | 1        |
| R26                     | 073203582   | 320K MF 1/16W 1%   | 1        |
| R27                     | 071603582   | 160K MF 1/16W 1%   | 1        |
| R28                     | 073203582   | 320K MF 1/16W 1%   | 1        |
| R29, 30, 31, 35, 36, 37 | 084103503   | 10K CF 1/4W        | 6        |

| Ref. Number        | Part Number | Description               | Quantity |
|--------------------|-------------|---------------------------|----------|
| R32                | 084392503   | 3.9K CF 1/4W              | 1        |
| R33                | 086224502   | 220K CF 1/4W 10MM         | 1        |
| R34                | 086102502   | 1K CF 1/4W 10MM           | 1        |
| R38                | 084104503   | 1K CF 1/4W                | 1        |
| R39                | 084470503   | 47 CF 1/4W                | 1        |
| R41                | 084275503   | 2.7M CF 1/4W              | 1        |
| R42                | 084332503   | 3.3K CF 1/4W              | 1        |
| R43                | 084332503   | 3.3K CF 1/4W              | 1        |
| R44                | 084752503   | 7.5K CF 1/4W              | 1        |
| R45                | 084104503   | 100K CF 1/4W              | 1        |
| R46                | 084102503   | 1K CF 1/4W                | 1        |
| R47, 50            | 084223503   | 22K CF 1/4W               | 2        |
| R48                | 071101143   | 1.1K MF 1/4W 1%           | 1        |
| R49                | 084102503   | 1K CF 1/4W                | 1        |
| R51                | 084102503   | 1K CF 1/4W                | 1        |
| R52, 53            | 084392503   | 3.9K CF 1/4W              | 2        |
| R54                | 084272503   | 2.7K CF 1/4W              | 2        |
| R55                | 084182503   | 1.8K CF 1/4W 10MM         | 1        |
| R56, 57            | 091122502   | 1.2K MF 1W                | 2        |
| R58, 59            | 084470503   | 47 CF 1/4W                | 2        |
| R60, 61            | 084220503   | 22 CF 1/4W 10MM           | 2        |
| R62, 63            | 092228502   | 0.22 MF 2W                | 2        |
| R64 ▲              | 095569502   | 5.6 MF 1/2W               | 1        |
| R65                | 084104503   | 100K CF 1/4W              | 1        |
| R66                | 084472503   | 4.7K CF 1/4W 10MM         | 1        |
| R67                | 084223503   | 22K CF 1/4W               | 1        |
| R68                | 084561503   | 560 CF 1/4W               | 1        |
| R69                | 084153503   | 15K CF 1/4W               | 1        |
| R70                | 084562503   | 5.6K CF 1/4W 10MM         | 1        |
| R71                | 084472503   | 4.7K CF 1/4W 10MM         | 1        |
| R72                | 105821502   | 820 5W                    | 1        |
| R73                | 092102502   | 1K MF 2W                  | 1        |
| R74                | 092621502   | 620 MF 2W                 | 1        |
| <b>Diodes</b>      |             |                           |          |
| BD1 ▲              | 240184801   | DIODE BRIDGE RS402L/KBL01 | 1        |
| D1, 2, 3, 4        | 240002605   | DIODE IN4148              | 4        |
| ZD1, 2             | 240224101   | ZENER IN5231B             | 2        |
| ZD3, 4, 5, 6       | 240221701   | ZENER IN4744A             | 4        |
| ZD7                | 240094701   | ZENER 24V 1/2W            | 1        |
| <b>Transistors</b> |             |                           |          |
| Q1, 2              | 230164501   | 2SA1015                   | 2        |
| Q3                 | 230201201   | MPSA06                    | 1        |
| Q4                 | 230175901   | 2SD1563                   | 1        |
| Q5                 | 230175801   | 2SB1086                   | 1        |
| Q6                 | 230224901   | 2SA1516                   | 1        |
| Q7                 | 230225001   | 2SC3907                   | 1        |
| Q8, 10             | 230154501   | 2SC1815                   | 2        |
| Q9                 | 230164501   | 2SA1015                   | 1        |
| Q11                | 230078101   | 2SC2274                   | 1        |

| Ref. Number                | Part Number | Description                 | Quantity |
|----------------------------|-------------|-----------------------------|----------|
| <b>Integrated Circuits</b> |             |                             |          |
| U1, 2, 3, 4, 5             | 220214601   | IC 4558L DUAL OP AMP        | 5        |
| U6                         | 220013602   | IC 4558D DUAL OP AMP        | 1        |
| <b>Fuse</b>                |             |                             |          |
| F1 ▲                       | 290223801   | FUSE SLOW-BLO T1.6A 250V    | 1        |
| <b>Miscellaneous</b>       |             |                             |          |
| K1 ▲                       | 200222501   | RELAY 24V 6A                | 1        |
| 4 ▲                        | 150227601   | TRANSFORMER 8603071F        | 1        |
| 8                          | 260231001   | CONNECTOR SPEAKER TERMINALS | 2        |
| 9                          | 120215001   | VR1 500K X 2 Frequency      | 1        |
| 10                         | 120211501   | VR2 20K x 2 Volume          | 1        |
| SW1                        | 180200301   | SLIDE SWITCH                | 1        |
| LED1                       | 250213501   | LED BRG333B(R/G)            | 1        |
| 13                         | 260231802   | CONN DUAL RCA INPUT         | 1        |
| 15 ▲                       | 260232901   | FUSE HOLDER                 | 1        |
| 23 ▲                       | 210213601   | POWER CORD                  | 1        |

| Ref. Number | Part Number | Description | Quantity |
|-------------|-------------|-------------|----------|
|-------------|-------------|-------------|----------|

**PACKAGING PARTS LIST**

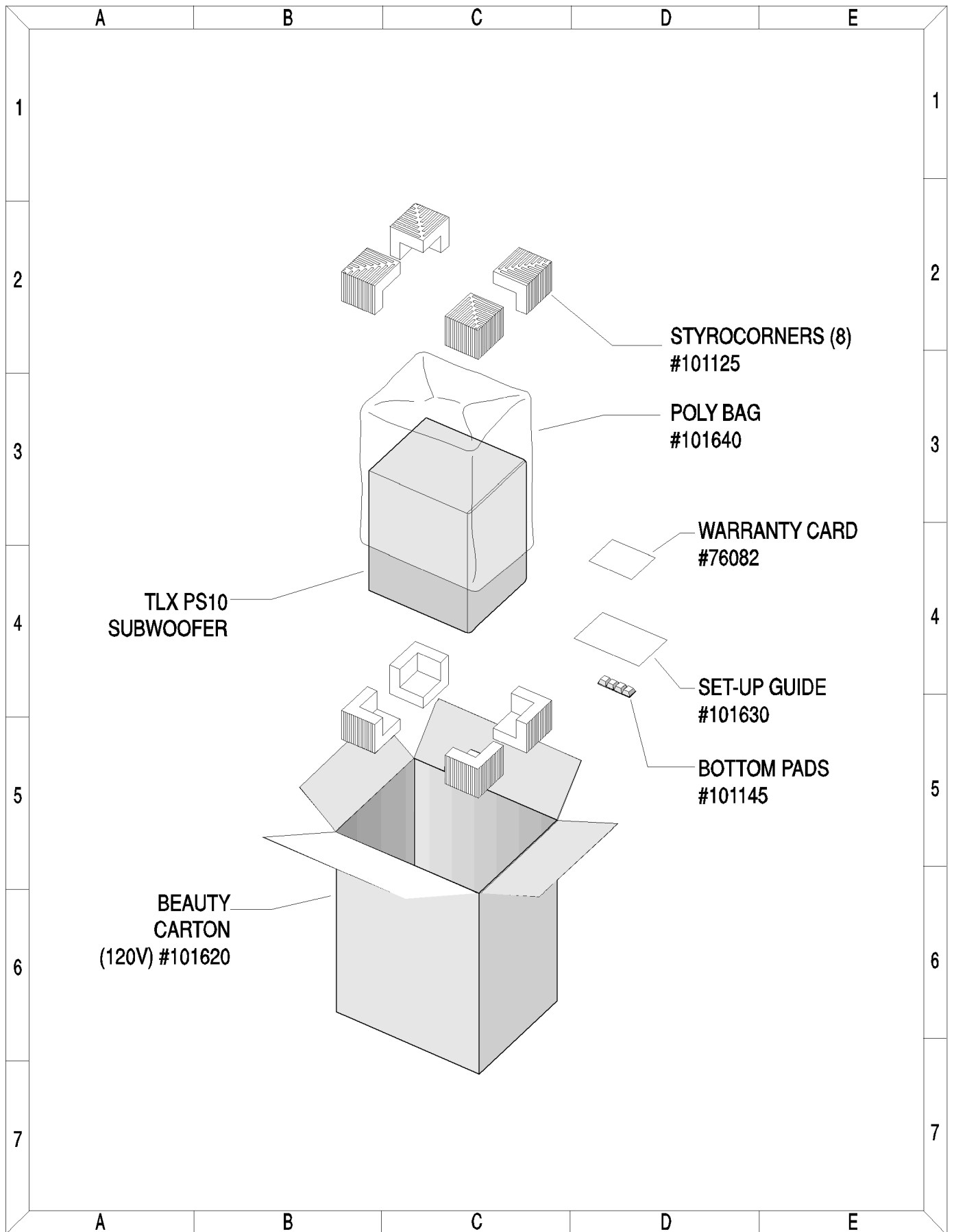
|        |               |   |
|--------|---------------|---|
| 101125 | STYROCORNERS  | 8 |
| 101640 | POLY BAG      | 1 |
| 101620 | BEAUTY CARTON | 1 |
| 76082  | WARRANTY CARD | 1 |
| 101630 | SET-UP GUIDE  | 1 |
| 101145 | BOTTOM PADS   | 1 |

**NOTE:** This caution sign ▲ is found by components in which safety can be of special significance. When replacing a component identified with the sign ▲ replace only with same rating.

**MECHANICAL PARTS LIST**

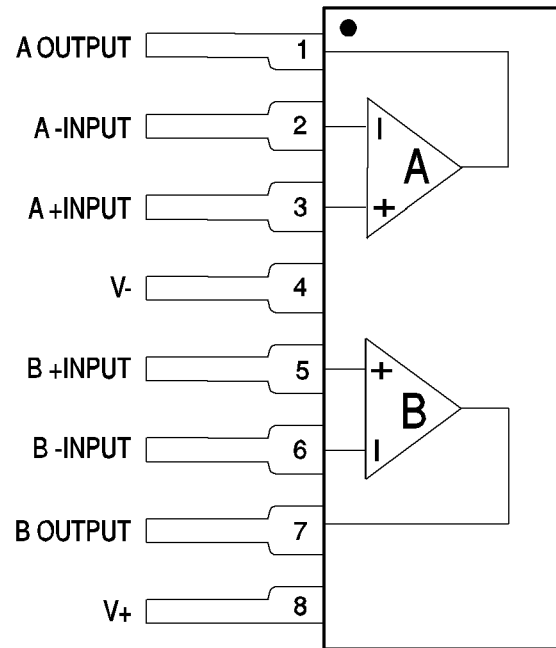
| Ref. Number | Part Number | Description                 | Quantity |
|-------------|-------------|-----------------------------|----------|
| 1           | SMPP42606   | MACHINE SCREW               | 2        |
| 2           | S2PP43008   | SELF TAPPING SCREW          | 1        |
| 3           | 560050600   | HEATSINK                    | 1        |
| 5           | NOT SOLD    | PCB INSULATOR FOAM BEZEL    | 1        |
| 6           | NOT SOLD    | FOAM INSULATION TAPE        | 1        |
| 7           | 510112601   | FACEPLATE                   | 1        |
| 14          | 530051901   | KNOB                        | 2        |
| 16          | 550087300   | STRAIN RELIEF               | 1        |
| 18          | 540083700   | BRACKET FOR HEATSINK        | 2        |
| 19          | 50107100    | SPACER                      | 2        |
| 20          | 560031601   | HEATSINK FOR Q4 & Q5        | 2        |
| 21          | STPP43007   | SELF TAPPING SCREWS         | 2        |
| 22          | STPP33W14   | SELF TAPPING SCREW          | 2        |
| 23          | 210213601   | POWER CORD                  | 1        |
| 24          | SMPP43A12   | MACHINE SCREW (sold as set) | 2        |
| 25          | STPP43006   | MACHINE SCREW               | 4        |
| 26          | NH0H54000   | NUT                         | 4        |
| 27          | WS4426600   | SPRING WASHER               | 4        |
| 28          | WF5411010   | FLAT WASHER                 | 4        |
| 29          | SMPP440W9   | MACHINE SCREW               | 4        |
| 30          | SMPP440W7   | MACHINE SCREW               | 2        |
| 31          | STPP430W8   | SELF TAPPING SCREW          | 3        |
| 32          | S2PP43010   | SELF TAPPING SCREW          | 4        |
| 33          | 320008400   | O/P TRANSISTOR MICA PAD     | 2        |
|             | 101610      | GRILLE                      | 1        |
|             | 101142      | SCREWS (FOR WOOFER)         | 8        |
|             | 101600      | 10" WOOFER                  | 1        |
|             | 101141      | SCREWS (FOR REAR PLATE)     | 10       |

PACKAGING EXPLODED VIEW

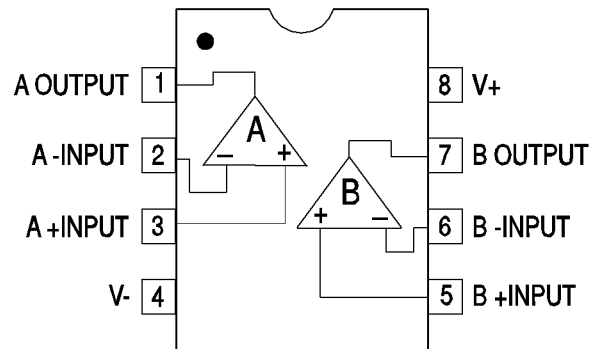


**INTEGRATE CIRCUIT DIAGRAMS**

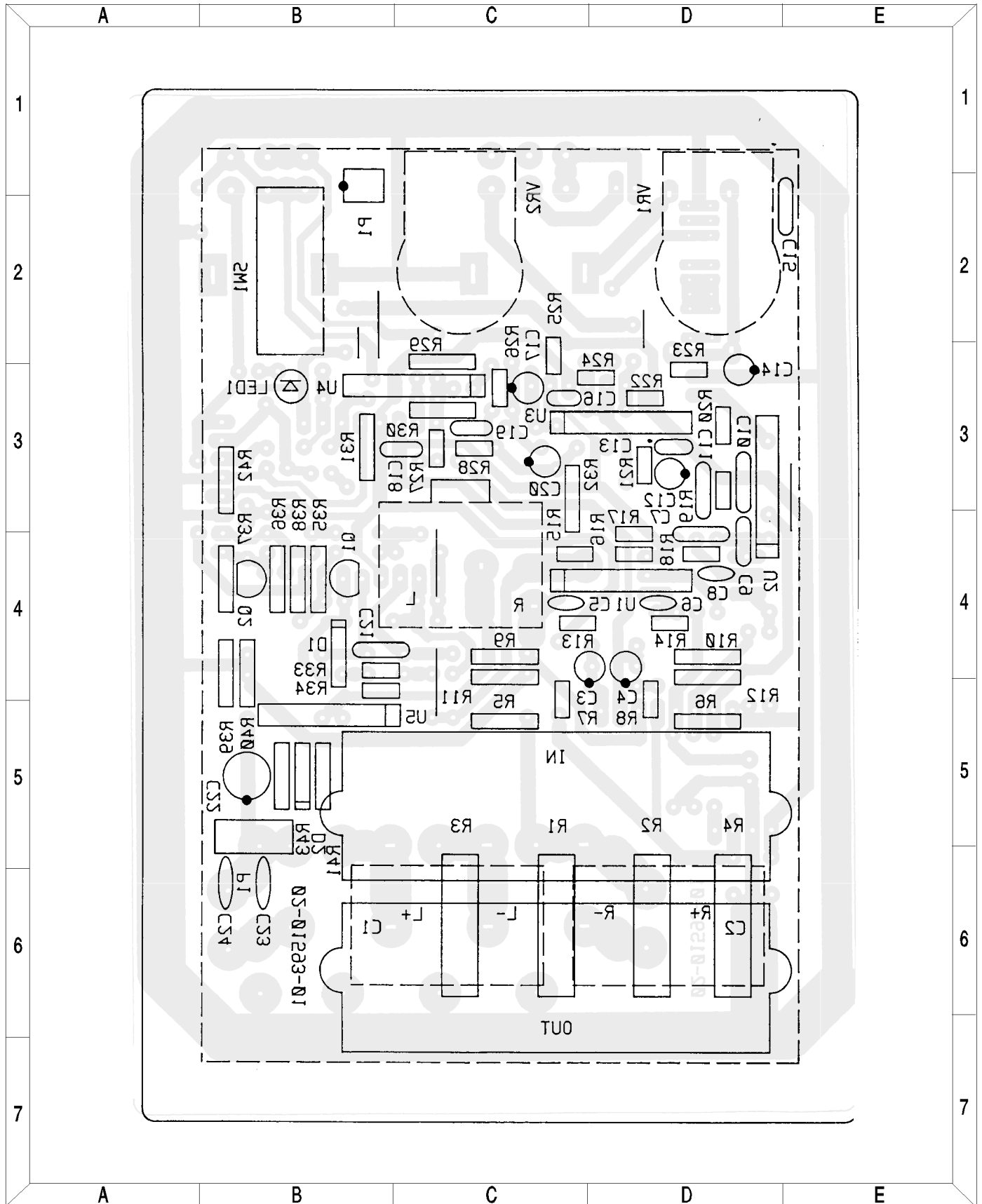
**U1, 2, 3, 4, 5 - 220214601 (4558L)  
Dual Op Amp (side view)**



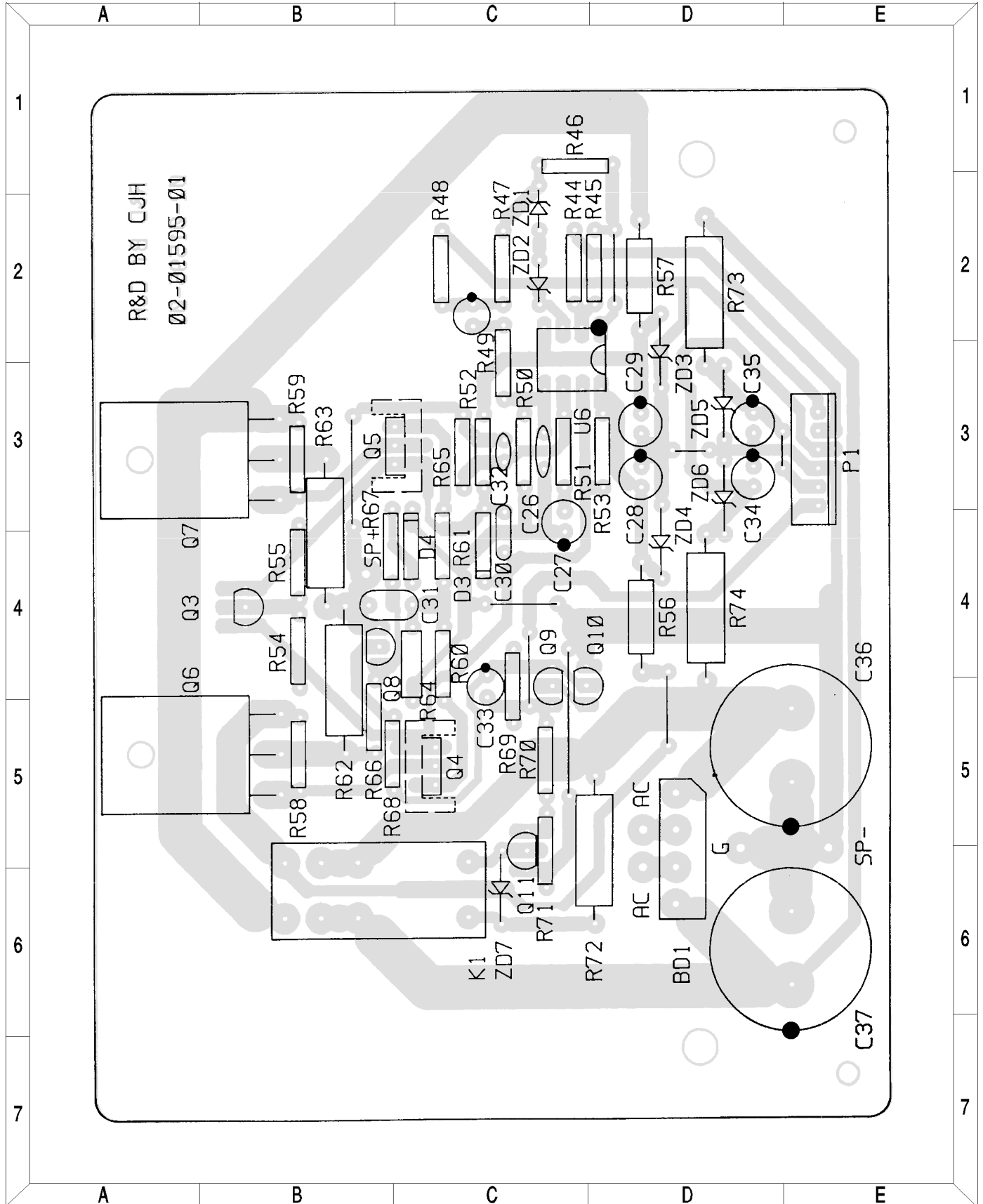
**U6 - 220013602 (4558D) Dual Op Amp  
Dual In-Line Package (top view)**



PREAMP PRINTED CIRCUIT BOARD (TOP VIEW)

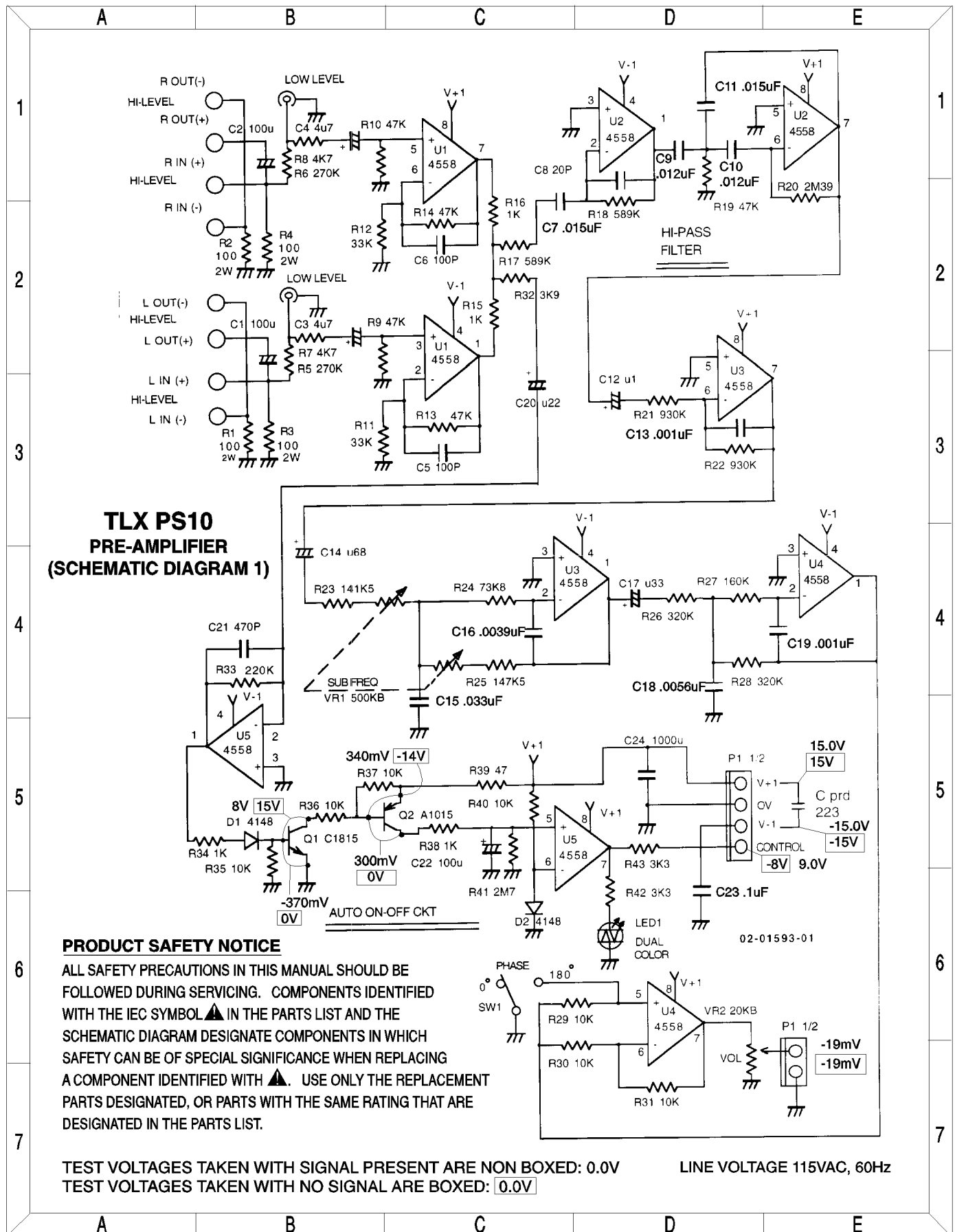


POWER AMP PRINTED CIRCUIT BOARD (TOP VIEW)







**SCHEMATIC DIAGRAM 1**



**TLX PS10  
PRE-AMPLIFIER  
(SCHEMATIC DIAGRAM 1)**

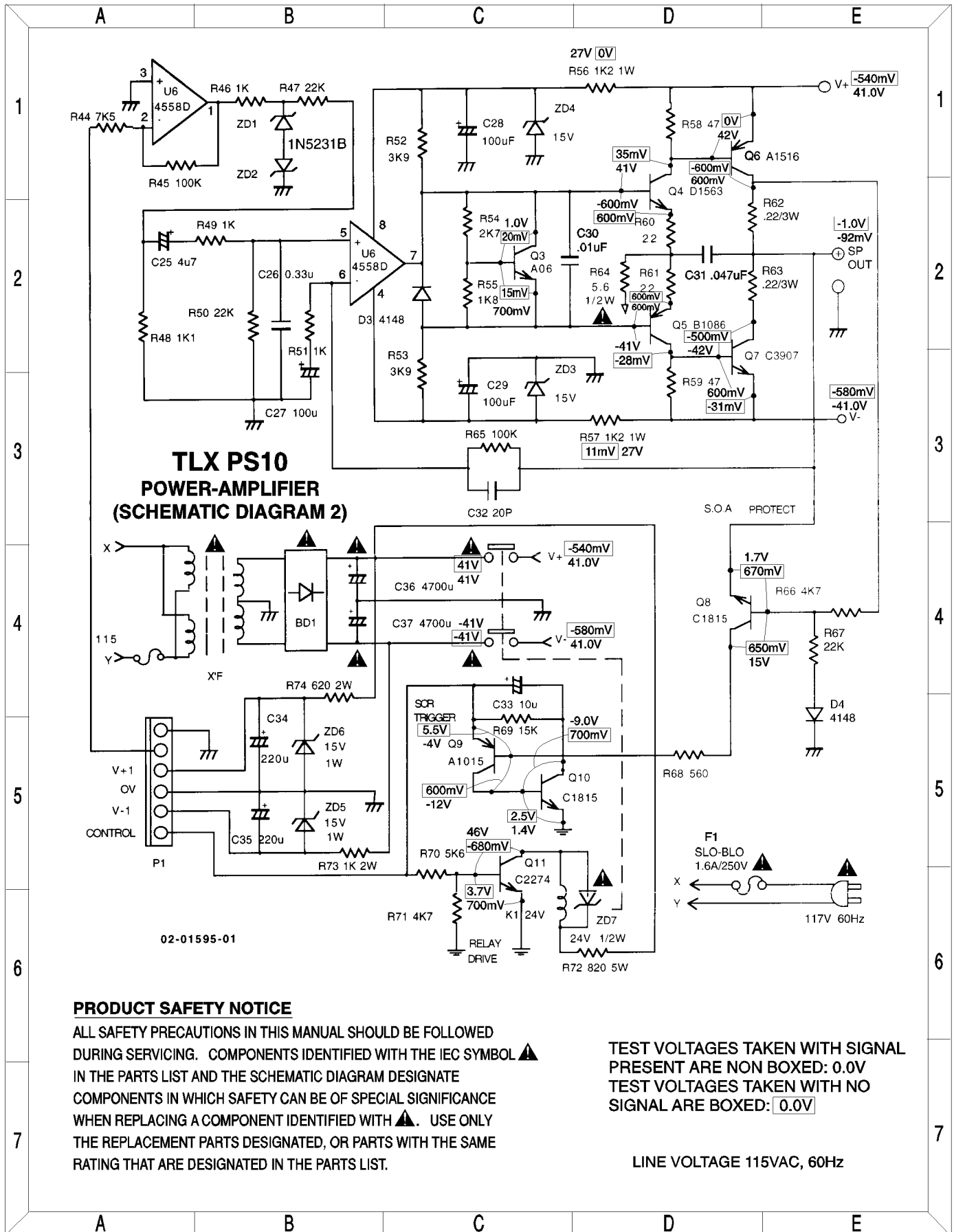
**PRODUCT SAFETY NOTICE**

ALL SAFETY PRECAUTIONS IN THIS MANUAL SHOULD BE FOLLOWED DURING SERVICING. COMPONENTS IDENTIFIED WITH THE IEC SYMBOL  IN THE PARTS LIST AND THE SCHEMATIC DIAGRAM DESIGNATE COMPONENTS IN WHICH SAFETY CAN BE OF SPECIAL SIGNIFICANCE WHEN REPLACING A COMPONENT IDENTIFIED WITH . USE ONLY THE REPLACEMENT PARTS DESIGNATED, OR PARTS WITH THE SAME RATING THAT ARE DESIGNATED IN THE PARTS LIST.

TEST VOLTAGES TAKEN WITH SIGNAL PRESENT ARE NON BOXED: 0.0V  
 TEST VOLTAGES TAKEN WITH NO SIGNAL ARE BOXED: 0.0V

LINE VOLTAGE 115VAC, 60Hz

**SCHEMATIC DIAGRAM 2**



**PRODUCT SAFETY NOTICE**

ALL SAFETY PRECAUTIONS IN THIS MANUAL SHOULD BE FOLLOWED DURING SERVICING. COMPONENTS IDENTIFIED WITH THE IEC SYMBOL IN THE PARTS LIST AND THE SCHEMATIC DIAGRAM DESIGNATE COMPONENTS IN WHICH SAFETY CAN BE OF SPECIAL SIGNIFICANCE WHEN REPLACING A COMPONENT IDENTIFIED WITH . USE ONLY THE REPLACEMENT PARTS DESIGNATED, OR PARTS WITH THE SAME RATING THAT ARE DESIGNATED IN THE PARTS LIST.

TEST VOLTAGES TAKEN WITH SIGNAL PRESENT ARE NON BOXED: 0.0V  
TEST VOLTAGES TAKEN WITH NO SIGNAL ARE BOXED: 0.0V

LINE VOLTAGE 115VAC, 60Hz