

JBL

PowerBass™ Series

PB10

Powered Subwoofer

Service Manual



JBL Consumer Products
250 Crossways Park Dr.

Woodbury, New York 11797

Rev7 2/2004



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PB10 – DIFFERENCES IN REVISION 1 AND REVISION 2

REVISION 1	REVISION 2
	Amplifier has main power switch
Amplifier faceplate says "Made in Canada"	
Amplifier serial number starts with "AM"	Amplifier serial number starts with "HA"
Black (or silver) potted, non-serviceable output module	Output transistors in the open, on a large black heatsink
	Large plastic cup enclosing the rear of the amp assembly
	Main PCB, bottom, solder-side contains all SMD devices
	"Made in Mexico" label on outer part of cabinet

BOTH VERSIONS OF THESE AMPLIFIERS ARE NOT CONSIDERED INTERCHANGEABLE; THEY ARE NOT A DROP-IN REPLACEMENT IN THE CABINET OF THE OTHER VERSION.

SAFETY INFORMATION

Warning

Any person performing service of this unit will be exposed to hazardous voltages and the risk of electric shock. It is assumed that any person who removes the amplifier from this cabinet has been properly trained in protecting against avoidable injury and shock. Therefore, any service procedures are to be performed by qualified service personal ONLY!

Caution

Early revisions of the unit did not have a power switch. Hazardous voltages are resent within the unit whenever it is plugged in.

Before amplifier is plugged in, be sure its rated voltage corresponds to the voltage of the AC power source to be used. Incorrect voltage could cause damage to the amplifier when the AC power cord is plugged in. Do not exceed rated voltage by more than 10%: operation below 90% of rated voltage will cause poor performance or may shut the unit off.

Leakage/Resistance Check

Before returning the unit to the customer, perform a leakage or resistance test as follows:

Leakage Current. Note there is no power switch on early revisions of this unit. When the power plug is plugged in, the unit is live. Connect the unit to its rated power source. Using an ammeter, measure the current between the neutral side of the AC supply and chassis ground of the unit under test. If leakage current exceeds 0.5mA, the unit is defective. Reverse the polarity of the AC supply and repeat.

Resistance. Measure the resistance from either side of the line cord to chassis ground, If it is less than 500k ohms, the unit is defective.

WARNING! DO NOT return the unit to the customer if it fails one of these tests until the problem is located and corrected.

Critical Components



All components identified with the IEC symbol in the parts list and schematic diagram designate components in which safety can be of special significance when replacing identified with. Use only the replacement parts designated in the parts list or parts with the same rating of resistance, wattage or voltage.

List of Safety Components Requiring Exact Replacements

Revision 1	Revision 2	Description
F1 - 80114	093-205209-300	Line Fuse Slo Blo 1.25A 5x20mm
PWRCORD 80105	083-041802-009	250V UL approved SPT-2 or better with polarized plug, UL approved wired with the hot side to fused side. Use with factory replacement panel strain relief (70305) only.
TRX 80135	042-010052-003	Power Transformer. Use only factory replacement.
BR RECT 50100	BR1 052-400080-000	Bridge diode. Use only factory replacement.
C1,2 30706	C6,8 034-470745-200	4700uF 50V electrolytic 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 pressure and vibration.
C10 30712	Does not apply	10uF, 100 volt NPE low df radial. (On Power amp PCB)
S64AMI 60301	Does not apply	Power output module. Use only factory replacement
Faceplate 70325	n/a	Use only factory replacement
Rear Amp Cover	063-531808-000	Use only factory replacement
Inductor 80100	Does not apply	CMC - Use only factory replacement
Inductor 80101	Does not apply	L1 - Use only factory replacement
Does not apply	Inductor 043-560200-000	L1 - Use only factory replacement
Does not apply	Inductor 043-300101-000	L2 - Use only factory replacement
Does not apply	Inductor 043-700101-000	L3 - Use only factory replacement
Does not apply	Inductor 043-324300-000	L4 - Use only factory replacement

BASIC SPECIFICATIONS PB10 Subwoofer

Output Power	150 watts RMS
Driver	10" Woofer
Frequency Response	27Hz – Low Pass Frequency setting
Inputs	Line Level (option: LFE); Speaker Level
Outputs	Speaker level fixed frequency 150Hz
Low-Pass Frequency	Variable from 50Hz – 150Hz
High-Pass Frequency	150Hz when using Speaker Level Output
Dimensions (H x W x D)	14" x 14" x 15" 356mm x 356mm x 381mm (with feet) 16" x 14" x 15" 406mm x 356mm x 381mm
Weight	35 lb/15.9kg

Refinements may be made on occasion to existing products without notice but will always meet or exceed original specifications unless otherwise stated.
PowerBass is a registered trademark of JBL, Incorporated.

DETAILED SPECIFICATIONS PB10 Subwoofer

JBL PB 10

150W Powered Sub Amp

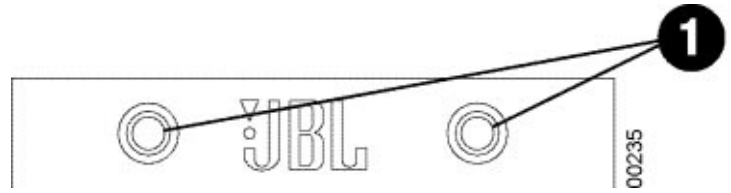
LINE VOLTAGE	Yes/No	Hi/Lo Line	Nom.	Unit
US 120vac/60Hz	Yes	108-132	120	Vrms
EU 230vac/50-60Hz	Yes	207-264	230	Vrms

Parameter	Specification	Unit	QA Test Limits	Conditions
Amp Section				
Type (Class AB, D, other)	D	n/a	n/a	
Load Impedance (speaker)	4	Ohms	n/a	Nominal
Rated Output Power	150	Watts	70	1 input driven
THD @ Rated Power	0.3	%	1	22k filter
THD @ 1 Watt	0.1	%	0.5	22k filter
DC Offset	10	mV-DC	20	@ Speaker Outputs
Damping factor	50	DF	35	
Input Sensitivity				
Input Frequency	50	Hz	50	Nominal Freq.
L&R	128	mVrms	±2dB	To 75 Watts
LFE	128	mVrms	±2dB	To 75 Watts
Speaker/Hi Level Input	1.28	Vrms	±2dB	To 75 Watts
Signal to Noise				
SNR-A-Weighted	100	dB	70-75	relative to rated power
SNR-unweighted	80	dB	70-80	relative to rated power
SNR rel. 1W-unweighted	65	dB	60	relative to 1W Output
Residual Noise Floor	1	mVrms	2 - 2.8	Volume @max, using DVM or A/P (BW=20 KHz)
Residual Noise Floor	1.5	mVrms(max)	2 - 2.8	Volume @max, w/ A/P Swept Bandpass Measurement (Line freq.+ harmonics) (BW=20Khz)
Input Impedance				
Line Input	20K	ohms	n/a	Nominal
Speaker/Hi Level Input	4.7K	ohms	n/a	Nominal
Filters				
Speaker in LP 2nd order variable	60-150	Hz	± 10	
Subsonic filter (HPF) fixed 6th order	Fixed			
LFE Low pass 2nd order fixed	200>LP<1K	Hz		Single input driven
Speaker out HP filter				
Left & Right	200	Hz	± 10	Speaker input - Spkr out 4 Ohms
Left & Right	100	Hz	± 10	Speaker input - Spkr out 8 Ohms
Limiter				
	YES			
Signal Sensing (ATO)				
Auto-Turn-On (yes/no)	YES		functional	Auto - on selection switch in Auto
ATO Input test frequency	50	Hz	functional	"
ATO Level LFE Input	4	mV	functional	"
ATO Level Speaker in	50	mV	functional	"
ATO Turn-on time	5	ms	functional	Amp connected and AC on, then input signal applied
Auto Mute/ Turn-OFF Time	15	minutes	17	T before muting, after signal is removed
Power on Delay time	3	sec.	4	AC Power Applied
Transients/Pops				
ATO Transient	5	mV-peak	n/a	@ Speaker Outputs
Turn-on Transient	50	mV-peak	2v-pp	@ Speaker Outputs
Turn-off Transient	50	mV-peak	2v-pp	@ Speaker Outputs
Efficiency				
	65	%	64	
Stand-by Input Power	15	Watts	18	@ nom. line voltage
Power Cons. @ rated power	115	Watts	120	@ nom. line voltage
Protection				
Short Circuit Protection	YES		functional	Direct short at output
Thermal Protection	YES		functional	@1/8 max unclipped Power
DC Offset Protection	YES		-	DC present at Speaker Out leads
Line Fuse Rating	US version	Amps	1.5	Type-T or Slo Blo-250 V
	EU	Amps	TBD	Type-T or Slo Blo-250 V

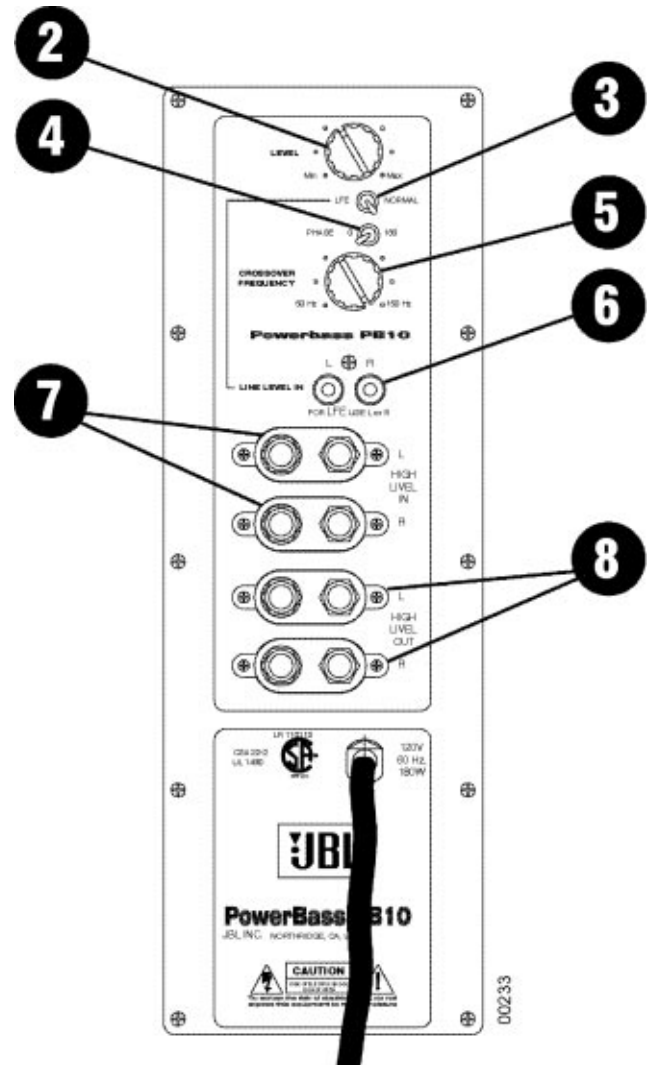
PB10 Subwoofer Controls and Their Function

1. **Power** - These lights will be red when the unit is plugged in and not receiving a signal; when the PB10 receives a signal, the lights will cycle to GREEN. If no signal is received after 10-15 minutes the lights will cycle back to RED (standby) until a signal is present again.
2. **Level Control** - The subwoofer Level Control, PB10, (located on the rear panel) adjusts the volume of the subwoofer relative to the rest of the system.
3. **LFE/Normal Switch** - Ordinarily placed in the Normal position - but switch to LFE when playing Dolby® Digital, DTS® or other digital surround modes - see page 9.
4. **Phase Switch** - Changes the subwoofer's output to be in phase or 180 degrees out of phase with the program material.
5. **Crossover Frequency** - Sets the highest frequency the subwoofer will reproduce.
6. **Line Input** - Main Input connection to subwoofer (preferred).
7. **Speaker In Jacks** - Main Input connection to subwoofer when line level, subwoofer, or preamp output connectors are not available, or when a high pass filter (set at 150Hz) to main loudspeakers is desired through the Speaker Output Jacks.
8. **Speaker Out Jacks** - Connected to main loudspeakers when the Speaker Input Jacks are used.

Front Panel



Rear Panel



Speaker Connection

When we designed the PB10 powered subwoofers, our goal was to offer the user the best possible performance combined with the most flexible and complete installation options. Please look over the following three examples to determine which

description best matches your system and follow the corresponding hookup instructions.

To use the binding-post speaker terminals with bare wire, unscrew the collar until the hole through the center

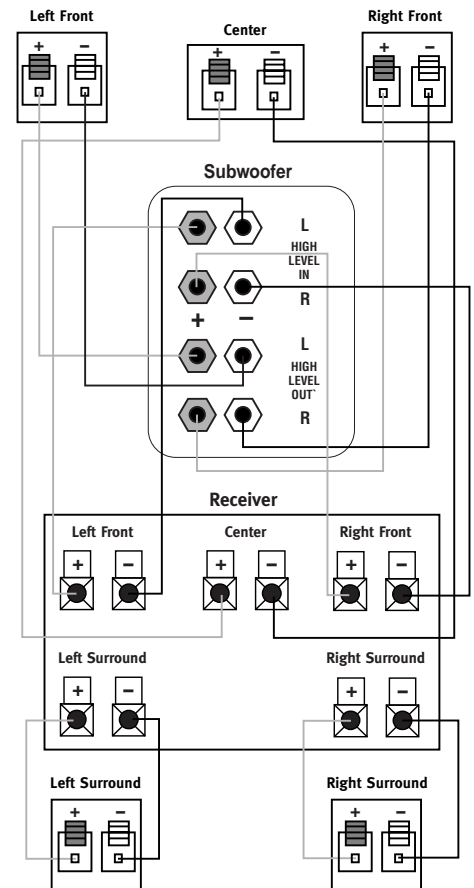
post is visible under the collar. Insert the bare end of the wire through the hole in the post, then screw the collar back down until the connection is tight. The holes in the center of the collars are intended for banana-type connectors.

Dolby Pro Logic (Non-Digital) – Speaker Level

Use this installation method for Dolby Pro Logic applications (not Dolby Digital, DTS or other digital processing), where the receiver/processor does not have a subwoofer output or a volume-controlled preamp (line-) level output:

Connect your receiver or amplifier's front left and right speaker terminals to the left and right terminals on the subwoofer that are marked "High Level In." Connect the left and right terminals on the subwoofer that are marked "High Level Out" to the corresponding terminals on the back of your front left and right speakers.

Connect your receiver or amplifier's center, left and right surround-speaker terminals to the corresponding terminals on the back of your center, left and right surround speakers.



Dolby Pro Logic (Non-Digital) – Line Level

Use this installation method for Dolby Pro Logic applications (not Dolby Digital, DTS or other digital processing), where the receiver/processor is equipped with a subwoofer output or a volume-controlled preamp (line-) level output:

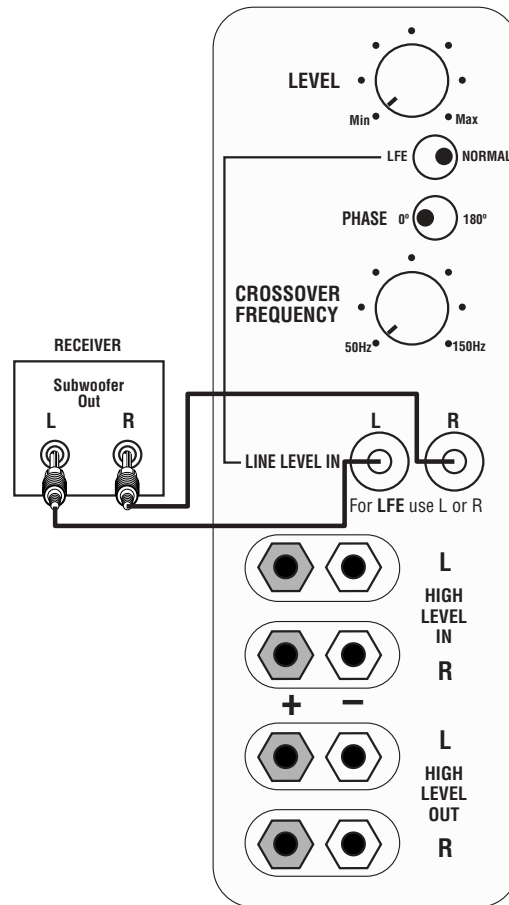
Use RCA-type patch cords to connect the line-level subwoofer outputs on your receiver or amplifier to the line-level inputs on the subwoofer. **IMPORTANT:** Make sure that the LFE toggle switch on the subwoofer is in the "Normal" position. Do not use the "LFE" position with Dolby Pro Logic-only processors.

Note: If your receiver or amplifier only has one subwoofer output jack, then you may connect the subwoofer output on your receiver/preamplifier to either the left or right line-level input on the subwoofer. It makes no difference which jack you choose.

Connect each speaker to the corresponding speaker terminals on your receiver or amplifier.

Make sure your receiver or processor is configured correctly: Make sure that the subwoofer is configured as "On."

Note for advanced users: If your receiver/processor has a built-in low-pass crossover filter for the subwoofer output, then the LFE switch should be set to the "LFE" position to bypass the subwoofer's internal crossover.

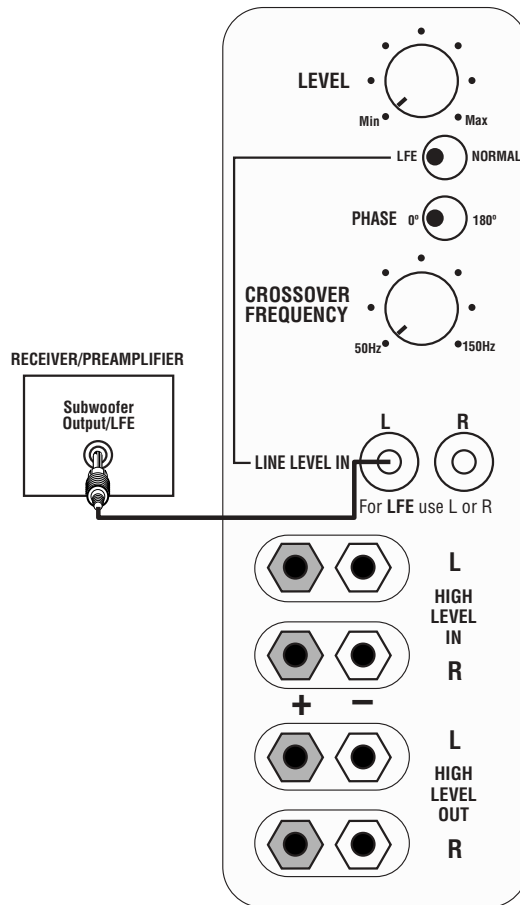


Dolby Digital or DTS (or Other Digital Surround Mode) Connection

Use this installation method for Dolby Digital, DTS or other digital surround processors:
IMPORTANT: Make sure that the LFE toggle switch on the subwoofer is in the "LFE" position. Use the line-level input jacks for the Low-Frequency Effects channel. Connect these jacks to the LFE output or subwoofer output on your receiver or amplifier.

Note: If your receiver or amplifier only has one subwoofer output jack, then you may connect the subwoofer output on your receiver/preamplifier to either the left or right line-level input on the subwoofer. It makes no difference which jack you choose.
 Connect each speaker to the corresponding speaker terminals on your receiver or amplifier.

Make sure that you have configured your surround-sound processor for "Subwoofer On" or "LFE On." The front left, front right, center and rear speakers should be set to "Small" or "Large" depending on their size and frequency response. Consult your receiver's or processor's owner's manual.



OPERATION

Power

When the unit is plugged in and the power switch is on and no signal is received, the LEDs on the front of the unit will turn red. When a signal is present, the LEDs will turn green.

Note: It will take several minutes for the LEDs to turn from green to red after the

input signal to the subwoofer is removed. Due to JBL's unique, high-output, high-efficiency amplifier design, power consumption is minimal when the subwoofer is not receiving a signal. Of course, the subwoofer can be turned off, whenever desired.

NOTE: Early versions of the PB10 did not have a main Power switch.

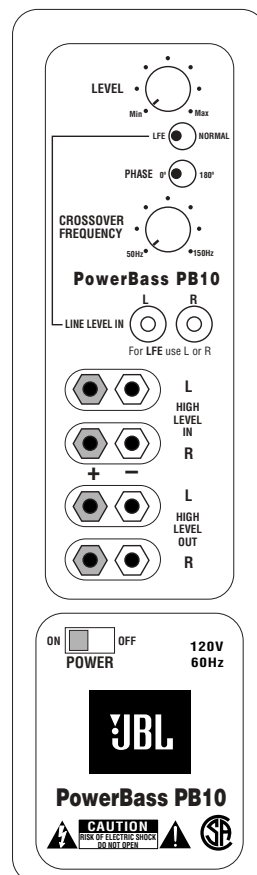
Level Control

The subwoofer Level Control adjusts the volume of the subwoofer relative to the rest of the system. Proper level adjustment depends on several variables such as room size,

subwoofer placement, type of main speakers and listener position. Adjust the subwoofer level so that the volume of the bass information is pleasing to you.

Crossover Adjustments

The Crossover Frequency Control determines the highest frequency at which the subwoofer reproduces sounds. If your main speakers can comfortably reproduce some low-frequency sounds, set this control to a lower frequency setting, between 50Hz – 100Hz. This will concentrate the subwoofer's efforts on the ultradeep bass sounds required by today's films and music. If you are using smaller bookshelf speakers that do not extend to the lower bass frequencies, set the low-pass crossover control to a higher setting, between 120Hz – 150Hz. This control is not used when the LFE switch is in the "LFE" position.



Phase Control



The Phase Control determines whether the subwoofer's piston-like action moves in and out in phase with the main speakers or opposite the main speakers. There is no correct or incorrect setting. Proper phase adjustment depends on several variables such as subwoofer placement and listener position. Adjust the phase switch to maximize bass

output at the listening position. Remember, every system, room and listener is different. There are no right or wrong settings; this switch offers the added flexibility to adjust your subwoofer for optimum performance for your specific listening conditions without having to move your speakers. If at some time in the future you happen to rearrange your

listening room and move your speakers, you should experiment with the phase switch in both positions, and leave it in the position that maximizes bass performance.

TROUBLESHOOTING

If you used the high-level (speaker) inputs and there is no sound from any of the speakers:

- Check that receiver/amplifier is on and a source is playing.
- Check that powered subwoofer is plugged into an active electrical outlet and is switched on.*
- Check all wires and connections between receiver/amplifier and speakers. Make sure all wires are connected. Make sure none of the speaker wires are frayed, cut or punctured.
- Review proper operation of your receiver/amplifier.

If there is low (or no) bass output:

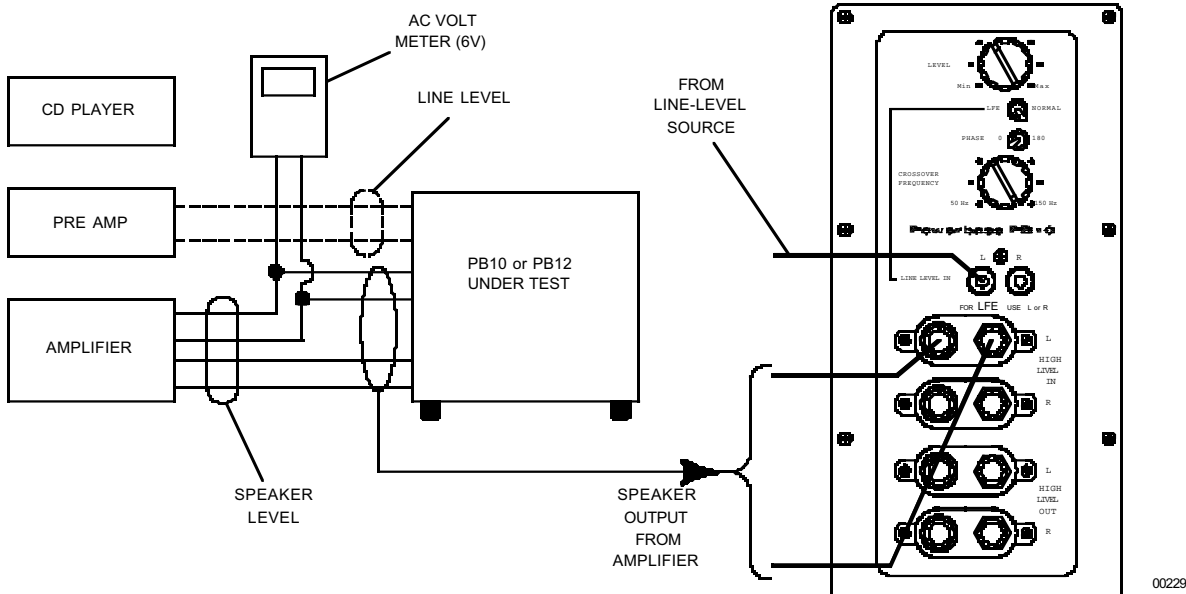
- Make sure the connections to the left and right "Speaker Inputs" have the correct polarity (+ and -).
- Make sure that the subwoofer is plugged into an active electrical outlet and switched on.*
- Adjust the crossover point.
- Flip the Phase Control switch to the opposite position.
- If you are using a Dolby Digital/DTS receiver or processor, make sure that the subwoofer adjustments on the receiver/processor are set up correctly.
- Slowly turn the Level Control clockwise until you begin to hear the desired amount of bass. Make sure that the subwoofer is plugged into an active electrical outlet and switched on.*

If you used the line-level inputs and there is no sound from the subwoofer:

- Check that receiver/amplifier is on and a source is playing.
- Check that powered subwoofer is plugged into an active electrical outlet and is switched on.*
- Check all wires and connections between receiver/amplifier and subwoofer. Make sure all wires are connected. Make sure none of the wires are frayed, cut or punctured.
- Review proper operation of your receiver/amplifier.
- Slowly turn the Level Control clockwise until you begin to hear the desired amount of bass.
- Make sure that you have configured your receiver/processor so that the subwoofer/LFE output is on.

*NOTE: Early versions of the PB10 did not have a main Power switch.

PB10 TEST SETUP AND PROCEDURE



00229

General Function

UUT = Unit Under Test

1. Connect one line level input cable (RCA) from signal generator to either Right or Left Level input on UUT. VOLUME control should be full counterclockwise.
2. Turn on generator, adjust to **100mV, 50Hz**.
3. Plug in UUT; Turn Main Power switch ON (present on later version PB10 only). LED's on the front panel may be either Red or Green. Turn VOLUME control full clockwise. Low Pass control should be set fully clockwise (150Hz).
4. LED should turn Green; immediately 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 **1.0V, 50Hz**. Turn VOLUME control full clockwise.
8. 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 **5.8 ohms**.
3. Connect a pair of speaker cables to driver terminals. Cables should be connected to an integrated amplifier fed by a signal 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.

Service Bulletin

Service Bulletin JBL2001-03 Rev1 – January 2002

This is considered a Minor repair

To: All JBL Service Centers

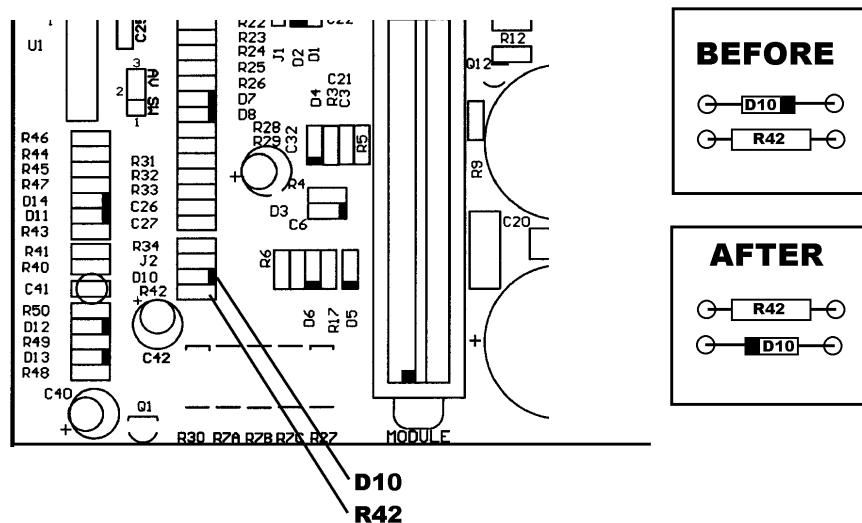
Models: PB10, PB12 (Revision 1 only)*

Subject: Unit Will Not Switch to Standby Mode

When the power cord of the PB series subwoofer is plugged into a wall outlet (and for the PB12 only, the power switch is on), and an audio signal is present, the LED's on the cabinet face will turn green, indicating the subwoofer is in the ON mode. With the audio signal removed, it will take 10 - 15 minutes for the LEDs to turn from green to red, indicating the subwoofer is now in the STANDBY mode. Power consumption is minimal in this mode.

In the event you receive a PB10 or PB12 subwoofer with the complaint: "The unit will not switch to standby mode, even when the audio signal is removed" (indicated by the subwoofer's green LED's remaining on), perform the following modification:

- 1) Set the unit on a padded surface and remove all external cables.
- 2) On the amplifier faceplate, remove the (10) Phillips mounting screws around the perimeter.
- 3) Remove the amplifier assembly from the enclosure. If the amp is turned and supported correctly, no other connectors need to be unplugged.
- 4) Locate Zener Diode D10 and Resistor R42 (22kΩ). See illustration. These parts must be "swapped", i.e., R42 soldered into the D10 location, and D10 soldered into the R42 location. VERY IMPORTANT: Observe polarity on D10 in new location.
- 5) Replace amplifier; test subwoofer to assure the unit goes into the standby mode 10 - 15 minutes after removing the Audio input signal.



Model	Serial number	Status	Action
PB10 * PB12 *	All serial numbers affected	Unit may not switch to Standby mode	Swap locations: Zener Diode D10, Resistor R42 (22kΩ). Observe D10 polarity.

* **Revision 1 of the PB10/12:** Amplifier faceplate says "Made in Canada"; Amplifier serial number starts with "AM"
Black (or silver) potted, non-serviceable S53/64AMI output module. PB10 only – No Power switch



Service Bulletin

Service Bulletin JBL2001-04 Rev2 – February 2003

This is considered a Minor repair

To: All JBL Service Centers

Models: PB10, PB12 (Revision 1 only)*

Subject: Hum, Buzz or “Thumping”

In the event you receive a PB10 or PB12 subwoofer complaint: “There is an audible hum or buzz”, or the subwoofer “thumps” or “pops” every 10 seconds, then review the conditions below to determine the most effective solution:

A) *Audible Hum with unit on, Green LED is ON, hum disappears completely when the connecting input cables (RCA or Speaker-Level) are disconnected:*

Very long runs of line-level input cables, particularly in parallel with AC power cords, may induce hum in the audio cables. Check audio cables for defects, broken ground connections, or replace low quality cables. Try plugging the AC power cord from the subwoofer into a different AC service outlet other than the outlet the rest of the audio equipment is plugged into.

B) *Mild Audible Hum under all circumstances when power cord is plugged in outlet. Hum level does not change whether the LED’s are Red or Green, or input cables are connected or disconnected. Level control adjustments do not change the hum level.*

This may be a mechanical hum caused by the power transformer. Note that a slight hum, within design limits, may be noticeable in a very quiet room, when you are close to the unit. This is acceptable within the PB10/12’s product and price category to most customers, but not to others. If the mechanical hum is unacceptable to the customer, then replace Power Transformer. PB10: JBL part# 80135. PB12: JBL part# 80116

C) *Loud Hum, under all circumstances. It may be louder when LED’s are Green vs. Red ; it may be affected by the position of the Level control. The subwoofer may “thump” or “pop” approximately every 10 seconds.*

Reset the digital subwoofer amplifier by unplugging the AC power cord. Wait 30 seconds, then plug the cord back in. Repeat this 2-3 times if necessary.

For #B only - If the unit still does not function correctly, then check and replace main Power Supply capacitors C1 and C2.

Both Value and df should be checked, with a GenRad model 1657 Digibridge or equivalent

Value should be the rating listed below, within this tolerance: +80/-20 %

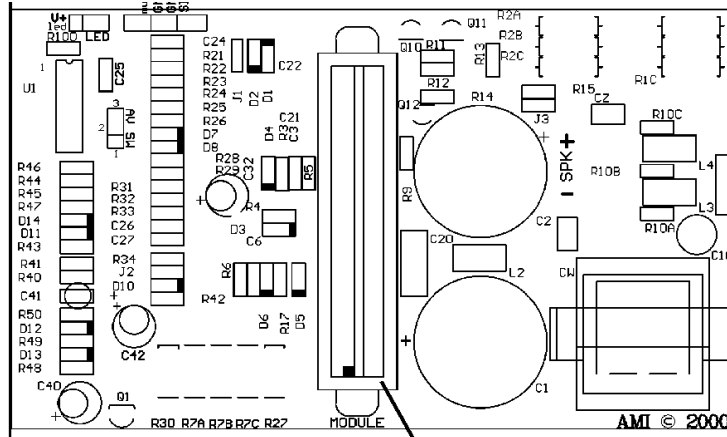
A df value of higher than 15% (.15) should be considered defective.

PB10	4700 μ F 50v 105c	JBL part# 30706
PB12	2200 μ F 100v 105c	JBL part# 30710

For #C only - If the unit still does not function correctly, then replace Power Amp Module S53/64AMI as per instructions below: PB10: JBL part# 60301 PB12: JBL part# 60302

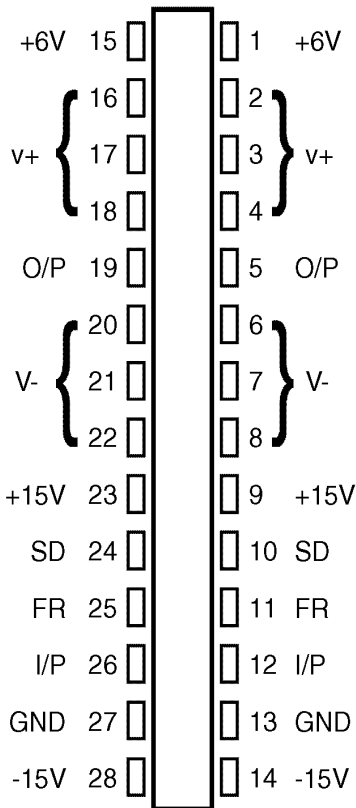
- 1) Set the unit on a padded surface and remove all external cables.
- 2) On the amplifier faceplate, remove the (10) Phillips mounting screws around the perimeter.
- 3) Remove the amplifier assembly from the enclosure. If the amp is supported correctly, no other connectors need to be unplugged.
- 4) Locate the Power Amp Module S53/64AMI, see location on the following page. It is the large black or gray component with a metal case. On the solder side of the circuit board are 28 soldered connections. NOTE: See special handling instructions for S53/64AMI on the following page.
- 5) Replace the amplifier assembly back into the cabinet; replace the screws.
- 6) Test the unit and confirm the original problem has been corrected. **NOTE: THE PB10/12 REVISION 1 AMPLIFIER MUST ALWAYS BE TESTED WITH A WOOFER OR 4 OHM RESISTIVE LOAD.**

PB10/12 Revision 1 Only



S53/64AMI POWER AMP MODULE

S53AMI/S64AMI - Power Amp module SAFETY PART



NOTE: THE FOLLOWING PROCEDURES MUST BE FOLLOWED WHEN INSTALLING NEW S53AMI/S64AMI AMP MODULES: FAILURE TO FOLLOW ONE OR MORE OF THESE STEPS MAY RESULT IN THE INSTANT DESTRUCTION OF THE MODULE WHEN POWERED UP.

- 1) Align white indent marker on Amp Module with indent marker on main PCB; alternately observe position of label on the top of the module; incorrectly replacing the Module 180° in the PCB slot will result in its destruction.
- 2) All AC powered test instruments (meters, oscilloscopes, etc.) must have a floating ground, i.e. be connected to an isolation transformer.
- 3) Align and position the Amp Module before soldering.
- 4) Attach the amp Module with the mounting screws before soldering or powering up.
- 5) Use only rosin-core or non-acid core solder; thoroughly de-flux the surfaces after soldering.

If the new S53AMI/S64AMI Amp Module has larger mounting hole(s) in the case, and the stock screws no longer will fit, and screws of the proper type cannot be obtained locally order:

- (2) part# 60301S (screws)
- (2) part# 60301N (nuts)

MODEL	Serial Number (120v) Serial numbers are located on the cabinet directly below the amplifier faceplate.	STATUS	ACTION
PB10	See serial numbers on Page 3 for factory modified units	Hum, Buzz or "Thumping"	Replace Power Amp Module S53AMI for symptoms described in #C only
PB12		Hum, Buzz or "Thumping"	Replace Power Amp Module S64AMI for symptoms described in #C only

* **Revision 1 of the PB10/12:** Amplifier faceplate says "Made in Canada"; Amplifier serial number starts with "AM"
Black (or silver) potted, non-serviceable S53/64AMI output module. PB10 only – No Power switch

FACTORY MODIFIED PB-10 SERIAL NUMBERS

1953	23000	25270-25272	25852-25864	26465	26718-26720	28283	30526-30533
7720	23896	25276	25866-25868	26474	26722-26725	28286	30535-30625
8579	23904-23905	25278-25291	25870	26477	26729-26730	28288	30627-30649
10145	23989	25294-25297	25874-25881	26479-26480	26732-26743	28291	30651-30686
10448	23991	25300	25883-25886	26483	26745-26747	28293-28294	30688-30748
10458	23993	25302-25303	25888	26486	26750	28296	30750-30930
11772	23997	25306-25307	25890-25891	26498	26752-26753	28298	30932-31025
11792	24004	25309	25893-25894	26503	26755	28300	31027-31072
11939	24010	25311	25896-26000	26510-26512	26757-26759	28302-28303	31074-31123
13128	24166	25313-25314	26002-26012	26514	26762-26768	28305-28331	31125
13296	24230	25333-25334	26014-26076	26517	26770-26771	28333-28343	31127-31139
14371	24874-24875	25341	26079	26520	26773-26778	28345-28354	31256
14508	24888	25345	26081	26781	27376-27399	28369	31771
14510	24902	25347-25348	26083	26783	27401-27503	28379-28689	35089
14519	24905-24907	25351-25352	26086-26087	26786	27532	28691-28697	35733
14674	24909	25358	26089-26091	26789	27553	28699-28708	36186
14822	24913-24914	25360-25361	26093-26094	26791	27624-27647	28710-28715	37400
15092	24919	25363-25364	26096-26097	26793	27649-27698	28717-28720	39339
15525	24924	2536825369	26099-26101	26795-26797	27701-27720	28722-28724	80749
15634	24926	25371	26103-26104	26799-26801	27722-27769	28726-28731	
15644-15645	24928-24929	25375	26106	26804	27771-27774	28734	
15649	24931-24932	25384-25386	26108	26807	27776-27852	28736	
15654	24934	25391-25392	26110	26810	27854-27866	28738-28740	
15657	24936	25394	26112	26813	27868-27911	28742-28744	
15659	24939	25396	26115	26815-26816	27913-27999	28746-28750	
15662	24944	25399	26118-26119	26820	28001-28067	28752-28754	
15673-15674	24948	25402	26121-26124	26822	28069	28756-28821	
15676-15677	24950	25406	26126	26825	28070	28823-29130	
15679	24960	25408	26128	26827	28072-28073	29132-29142	
15681	24986	25416	26130-26131	26829	28075	29144-29219	
15683	24988	25419	26133-26134	26833-26834	28078	29221-29276	
15692	24991	25421	26136-26137	26838	28087	29278-29280	
15696	24994	25426	26139	26840	28092-28094	29282-29327	
15702	24996	26141-26150	26522	26843	28096-28097	29329-29338	
15705	24998	26152-26172	26525	26844	28099	29340-29379	
16413	25001	26174	26528	26846	28101-28102	29381-29389	
17723	25003-25005	26176-26185	26531	26850	28105	29391-29451	
17740	25007	26187-26197	26533	26857	28108	29453-29455	
18274	25015	26198-26201	26536	26874	28110-28114	29457	
19665	25018	26203	26540-26541	26876-26880	28116-28117	29459-29528	
20470	25020	26206	26543-26544	26882	28119-28120	29530-29531	
21026	25025	26209	26546-26554	26885-26886	28122-28123	29533-29605	
21124	25029-25030	26211	26556-26557	26888-26894	28125	29607-29624	
21126	25033	26213-26214	26560	26913	28130-28131	29626-29634	
21637	25037	26217	26565	26915-26917	28133	29636-29790	
22892	25039	26235	26568	26922-26935	28137		
22894-22895	25041	26238	26573	26967	28140-28150		
22901	25043-25056	26242	26587	26984-27001	28152-28158		
22905-22906	25058-25115	26244	26599	27010-27033	28160-28161		
22908	25117	26246	26604	27100	28167		
22913	25119-25142	26251-26252	26614-26615	27103-27104	28172		
22917	25144-25147	26254-26255	26624-26625	27122-27126	28177		
22927	25149-25152	26266	26627	27142-27143	28181		
22933	25154-25156	26273	26629	27148-27149	28184		
25158-25159	25436	26278	26632	27151	28186-28187		
25161	25691	26282	26638	27153	28193		
25164	25694	26286	26641-26643	27190	28196		
25168	25698-25699	26384	26645	27192	28202-28203		
25171	25704	26388	26655	27196-27273	28207		
25174	25706	26390-26391	26658	27275-27277	28211		
25179	25710	26399-26400	26662	27279-27312	28215		
25185	25712-25713	26402	26665	27314-27329	28217-28218		
25187	25715-25719	26405-26406	26669	27331-27351	28220-28221		
25189	25721-25730	26408-26409	26671	27353-27370	28223		
25194	25732	26411	26673	27372	28227		
25214	25734	26413-26415	26675-26677	27374	28231-28234		
25218-25219	25735	26417	26680	28236-28237	29792-29860		
25229	25737-25739	26419	26686	28239-28241	29862-29915		
25234-25236	25742-25745	26421	26692-26694	28243	29917-30062		
25238-25243	25747-25770	26432	26696-26697	28245	30064-30133		
25247-25249	25772-25777	26438-26439	26700	28250	30152-30288		
25251-25252	25779-25791	26443	26702	28256	30290-30345		
25256-25257	25793-25833	26451-26452	26706	28259	30347-30413		
25261-25263	25835-25845	26457-26458	26708	28264-28267	30415-30490		
25265-25267	25847-25850	26460-26462	26713-26716	28270-28271	30492-30524		

Troubleshooting tips and solutions to common service problems

For models: PB10, PB12 (Revision 2) *

TIP# JBLTT2003-04

Subject: Replacing MOSFETS Q18, Q22

In the event you need to replace MOSFET transistors Q18 or Q22 as part of a repair, it is important to use ONLY the JBL part# FE106401110 *or* only the brands: International Rectifier, or Fairchild.

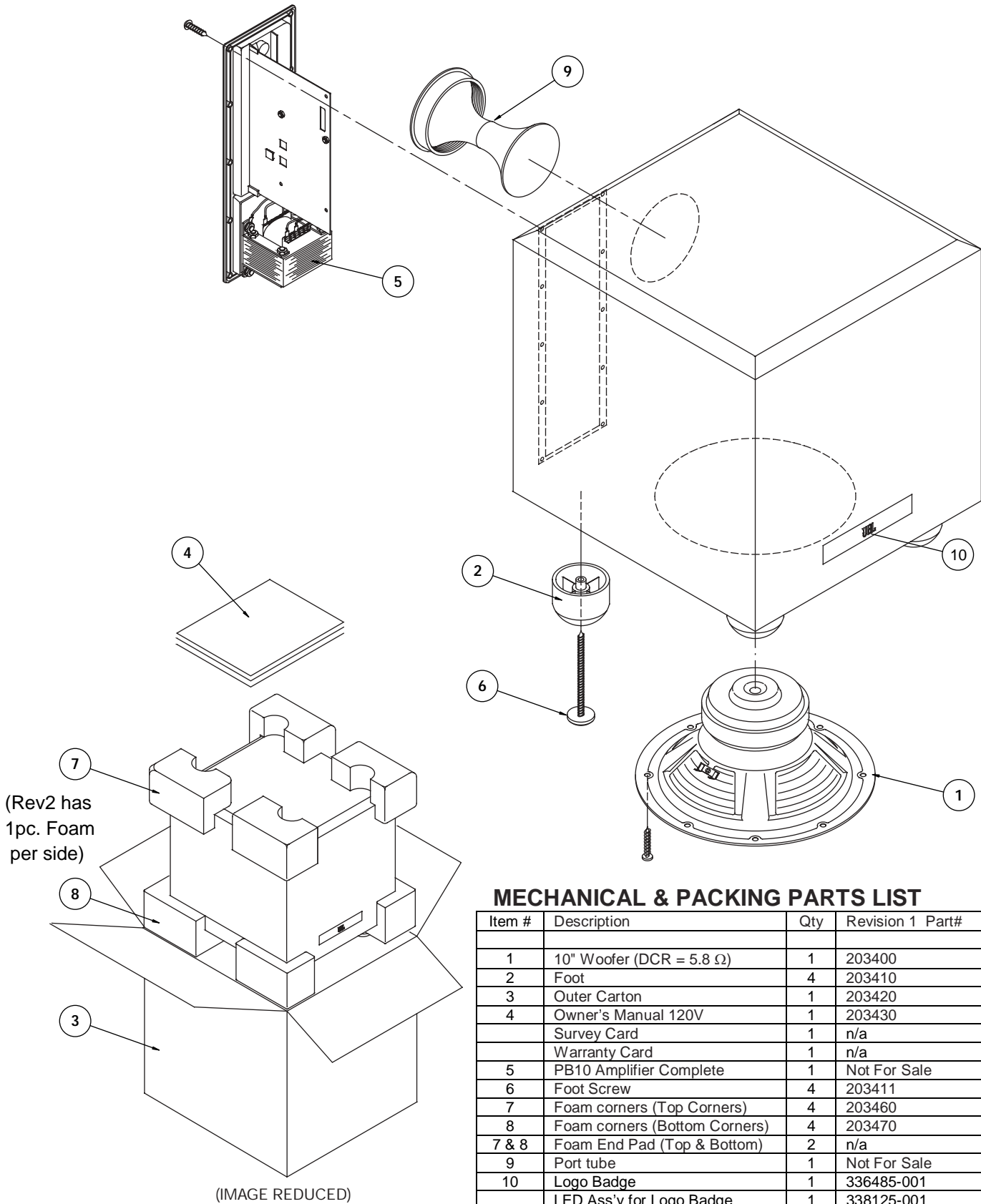
Replace both Q18 and Q22 MOSFET's in the circuit, even if only one seems to be damaged.

Do NOT mix & match these components from different manufacturers, or batches. They should be identical.

* Late version PB10 or PB12 subwoofers (Revision 2 in the service manual) can be identified by:

- Amplifier serial number starts with "HA"
- Output transistors in the open, on a large black heatsink
- Large plastic cup enclosing the rear of the amp assembly
- Main PCB, bottom, solder-side contains all SMD devices

Exploded and Packaging Views

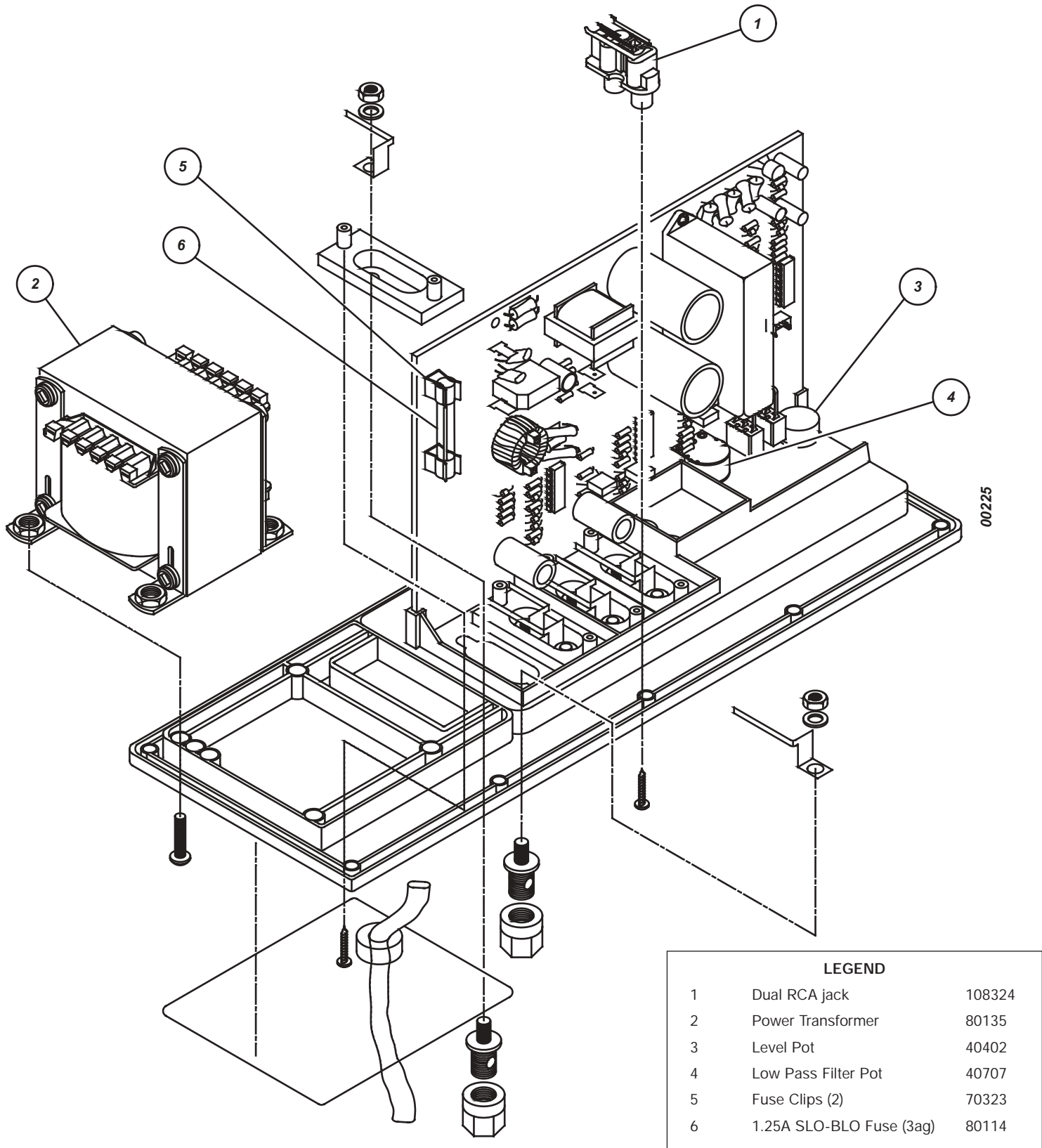


MECHANICAL & PACKING PARTS LIST

Item #	Description	Qty	Revision 1 Part#	Revision 2 Part#
1	10" Woofer (DCR = 5.8 Ω)	1	203400	338127-001
2	Foot	4	203410	336486-001
3	Outer Carton	1	203420	338130-001
4	Owner's Manual 120V	1	203430	338129-001
	Survey Card	1	n/a	331384-001
	Warranty Card	1	n/a	331994-001
5	PB10 Amplifier Complete	1	Not For Sale	Not For Sale
6	Foot Screw	4	203411	763-31110-40
7	Foam corners (Top Corners)	4	203460	n/a
8	Foam corners (Bottom Corners)	4	203470	n/a
7 & 8	Foam End Pad (Top & Bottom)	2	n/a	338132-001
9	Port tube	1	Not For Sale	336804-001
10	Logo Badge	1	336485-001	336485-001
	LED Ass'y for Logo Badge	1	338125-001	338125-001

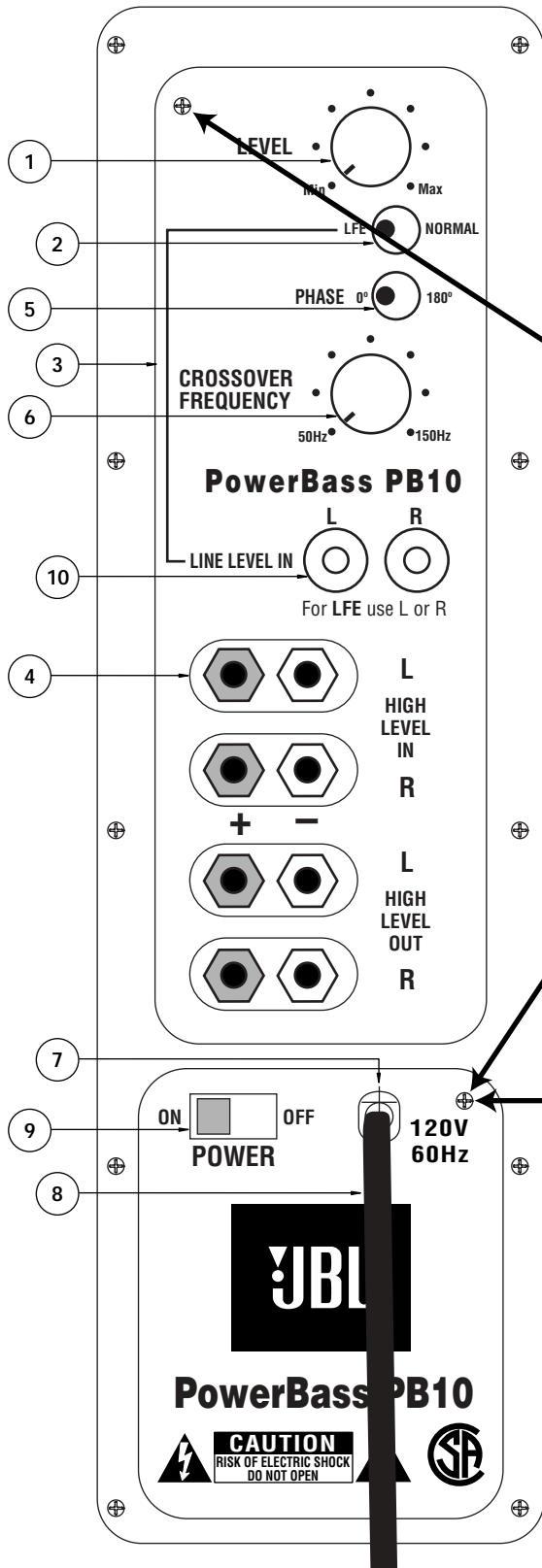
Identification Of PB10 Revisions 1 and 2 can be found on Page 2.

Amplifier Exploded View (Revision 1 Only)



00225

Amplifier Faceplate/Access



**REMOVE THESE TWO SCREWS
TO REMOVE REAR COVER
AND ACCESS AMPLIFIER**

LONGER SCREW HERE

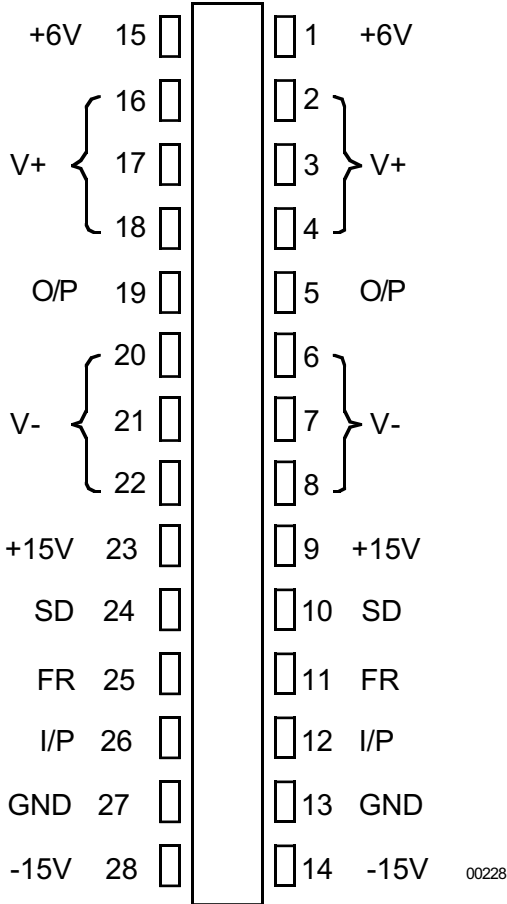
MECHANICAL & PACKING PARTS LIST

Item #	Description	Qty	Revision 1 Part#	Revision 2 Part#
1	Level Knob	1	70313	061-020000-000
2	LFE Defeat Switch	1	70150	074-030002-000
3	PB10 faceplate	1	70325	n/a
4	HI LEVEL Input/Output Jacks	4	108116	072-060170-000
5	Phase Switch	1	70150	074-030002-000
6	Crossover Frequency Knob	1	70313	061-020000-000
7	Strain Relief Plug	1	70305	061-314002-000
8	Power Cord	1	80105	083-041802-009
9	Power Switch	1	n/a	074-020018-000
10	RCA Input jacks	1	108324	072-010007-000

Identification Of PB10 Revisions 1 and 2 can be found on Page 2.

Integrated Circuit Diagrams (Revision 1 Only)

S53AMI/S64AMI - Power Amp Module SAFETY PART



NOTE: THE FOLLOWING PROCEDURES MUST BE FOLLOWED WHEN INSTALLING NEW S53AMI/S64AMI AMP MODULES:

FAILURE TO FOLLOW ONE OR MORE OF THESE STEPS MAY RESULT IN THE INSTANT DESTRUCTION OF THE MODULE WHEN POWERED UP.

1. Align white indent marker on Amp Module with indent marker on main PCB; alternately observe position of label on top of the Module; incorrectly replacing the Module 180° in the PCB slot will result in its destruction.
2. All AC powered test instruments (meters, oscilloscopes, etc.) must have a floating ground, i.e., be connected to an isolation transformer.
3. Align and position the Amp Module before soldering.
4. Attach the Amp Module with the mounting screws before soldering or powering up.
5. Use only rosin-core or non-acid core solder; thoroughly de-flux the surfaces after soldering.

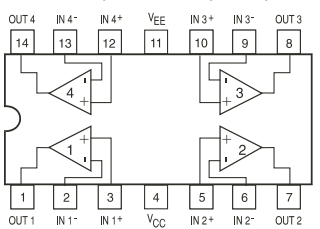
If the new S53AMI/S64AMI Amp Module has larger mounting hole(s) in the case, and the stock screws no longer will fit, and screws of the proper type cannot be obtained locally order:

(2) part# 60301S (screws)

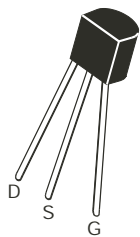
(2) part# 60301N (nuts)

NOTE: THE PB10/12 REVISION 1 AMPLIFIER MUST ALWAYS BE TESTED WITH A WOOFER OR 4-OHM RESISTIVE LOAD.

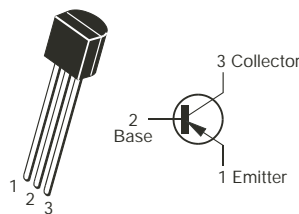
LM324, TLO64, U1, U2



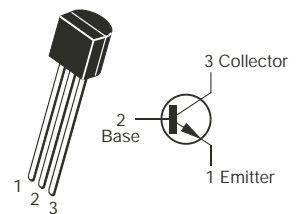
N-Chan JFET Q1



MPSA56, Q10, Q11

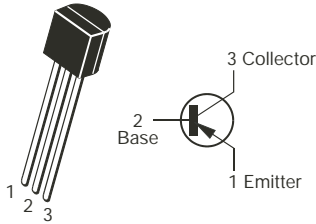


2N4401, Q12

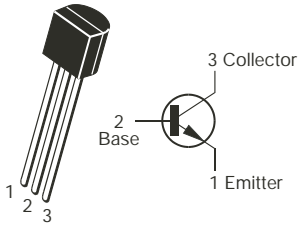


Integrated Circuit Diagrams (Revision 2 Only)

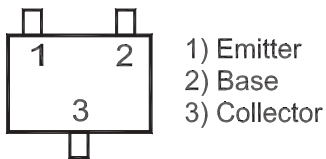
2N5401
Q1



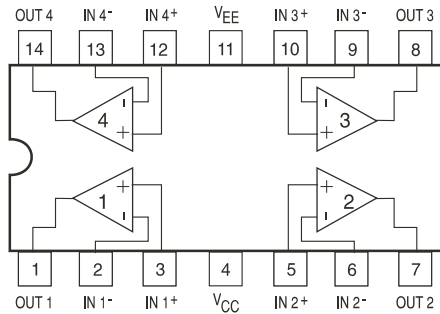
MPSW06RLRA,
MPSW56RLRAMPQ,
MPS2222ARLRA,
2N2907A, 2N5551,
Q2, 16, 3, 21, 19, 23, 17



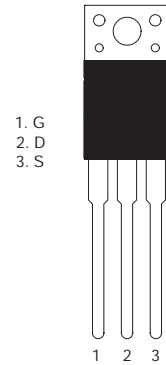
MMBT3904LTI SOT23,
MMBT3906LTI SOT23,
DTC114EK SMT3,
MMBT5401 LTI,
MMBT5551 LTI
Q11, 14, 13, 5, 8, 9, 6, 10,
12, 15, 7, 20, 24, 26, 25



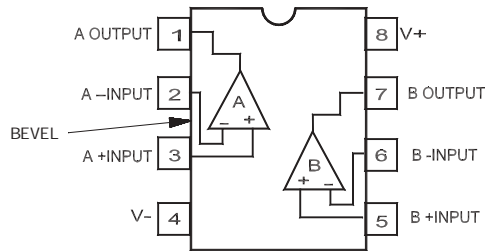
OPAMP, QUAD
TL074CDR
U2, 3



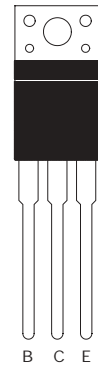
MOSFET IRF640
Q18, 22



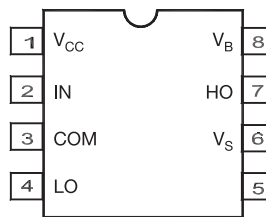
OPAMP, DUAL
TL072CDR SO-8,
NJM4558M-TE3
U5, 6, 4



TIP31C
Q4



IR2111 HALF-BRIDGE
DRIVER
U7



PB10 Testing Procedure (Revision 1 Only)

A. Power Amp Section

Resistance Check	Resistance from O/P of the module to GND should be $>1M \Omega$ (NO LOAD)
	Resistance from V+ of the module to V- of the module should read $>4k \Omega$
	Resistance from V+ of the module to O/P of the module should read $>1M\Omega$
	Resistance from V- of the module to O/P of the module should read $>1M \Omega$

2. Power Up LED RED

With a 5mV signal to Low level input, LED should change to GREEN

-Voltage measurements (DVM)

LED	OP AMP	
	P-U1(1)	P-U1(7)
RED	0Vrms	14VDC
GREEN	12Vrms	-14VDC

3. D.C. Operation

-Voltage measurements (DVM) on Power Amp Module

Between	+6V	V+	O/P	V-	+15V	S/D	FR	I/P	GND	-15V
And This Point	V-	GND	GND	GND	GND	V-	GND	GND	GND	GND
Get this Reading	+5.75V	+45.7v	0V	-45.7V	+15.5V	+4.75V	0V	0V	0V	-15.5V

4. Check Switching Frequency

- Oscilloscope - **Use scope (EITHER USES AN ISOLATION TRANSFORMER OR ATTACHES THE PROBE TIP TO SPK- and REFERENCE LEAD TO SPK+)**
- A 10Mv signal may need from the input to trigger the **Switch** frequency turn on
- Reading 100kHz +/-10%, 1Vpp

B. Pre Amp Section

Low Level Input Sensitivity

-Set up Turn level, Low-Pass Pot Fully CW and LFE switch off
 Generator Set at 100mV@50Hz
 Signal to Low level input

PB10 Testing Procedure (Cont.) (Revision 1 Only)

- Voltage measurements

OP AMP									SPEAKER O/P
U1(7)	U2(7)	U1(1)	U2(1)	U1(14)	U2(14)	U2(8)	PU1(14)	PU1(8)	
180mV	266mV	325mV	404mV	451mV	451mV	1.33V	6.37V	5.72V	15.3V

2. High Level Input Sensitivity

-Set up Turn level, Lo Pass Pot Fully CW and LFE switch off
Set Generator at 1.09V@50Hz
Signal to High level input

-Voltage measurements 15.3V at speaker output

3. Low-Pass

-Set up Set Generator at 100 mV@100Hz
Signal to Low level input
Measure voltage at speaker output

-Voltage measurement

Low-Pass Pot Setting	Output
CW	11.4V
CCW	2.19V

4. LFE

-Set up Set Generator at 100mV@200Hz
Signal to Low level input
Measure voltage at speaker output

LFE switch Setting	Output
OFF	2.96V
ON	8.40V

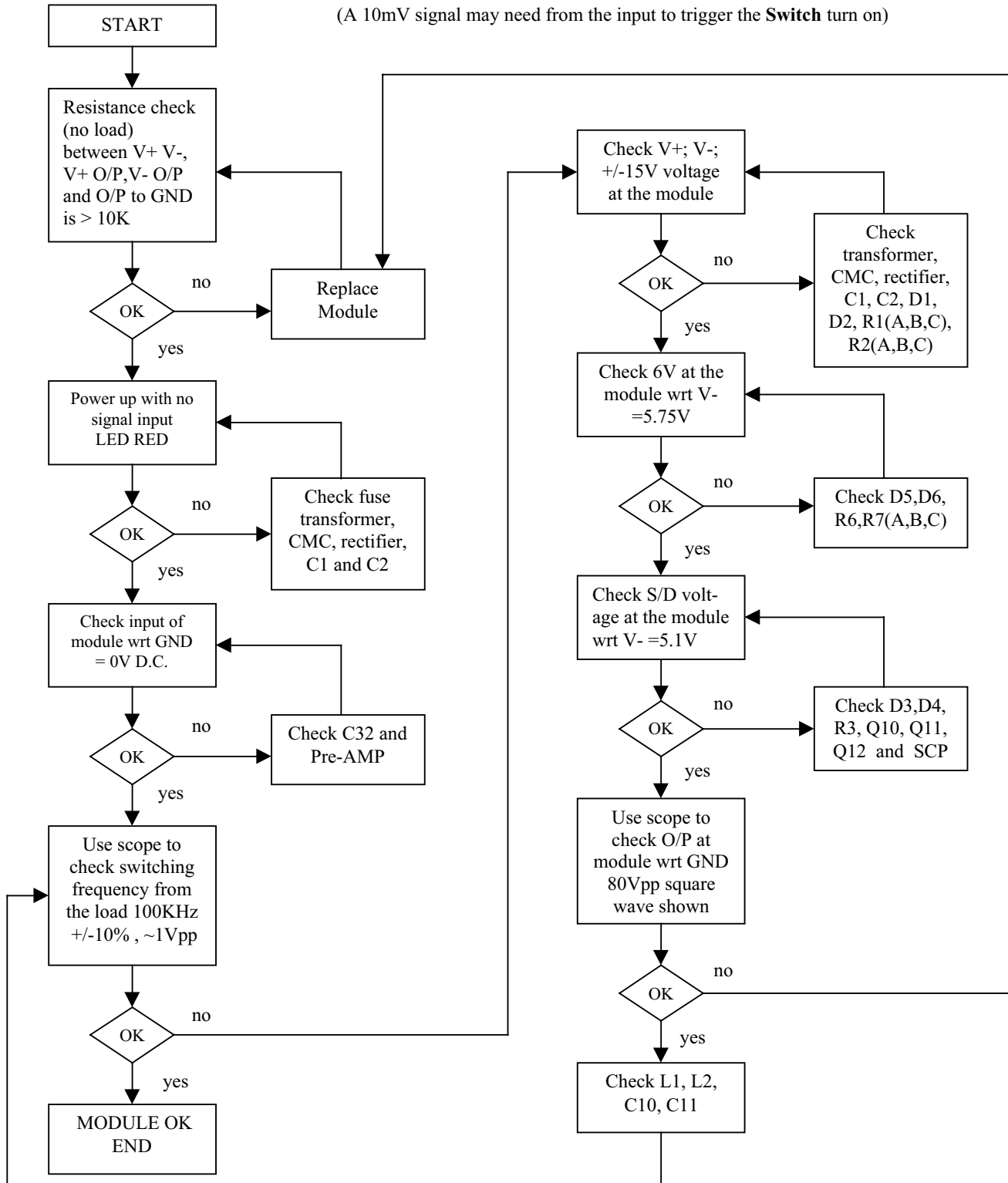
See flow chart next page for diagnostics.

PB10 Testing Procedure (Cont.) (Revision 1 Only)

PB10 POWER MODULE TESTING FLOW CHART

CAUTION : MODULE OUTPUT IS FLOATING AND IS **NOT** PROTECTED AGAINST A SHORT TO GROUND. ALL TEST INSTRUMENTS CONNECTED TO THE OUTPUT **MUST** BE FLOATING. ATTACH THE SCOPE PROBE TIP TO SPK - and REFERENCE LEAD TO SPK+.

(A 10mV signal may need from the input to trigger the Switch turn on)



PB10 Testing Procedure (Cont.) (Revision 2 Only)

A. Power Amp Section

Resistance Check	Resistance from S+ (SPK O/P) to GND should be $>1M \Omega$ (NO LOAD)
	Resistance from V+ (C6 P+) to V- (C8 P-) gradually Fully CHARGED should read $>10k \Omega$
	Resistance from V+ (C6 P+) to S+ (SPK O/P) should read $>1M \Omega$
	Resistance from V- (C8 P-) to S+ (SPK O/P) should read $>1M \Omega$

2. Power Up LED RED

With a 5mV signal to Low level input, LED should change to GREEN

-Voltage measurements (DVM)

LED	OP AMP	
	P-U4(1)	P-U4(7)
RED	0Vrms	8VDC
GREEN	6.3Vrms	-10.7VDC

3. D.C. Operation

-Voltage measurements (DVM) on CLASS D POWER AMP

Between	V+	Q4(E)	Q1(C)	Q10(C)	U7(1)	U7(2)	U7(4)	U7(6)	U7(7)	U7(8)
And This Point	GND	V-	GND	GND	GND	GND	GND	GND	GND	GND
Get this Reading	45.9V	0V	-45.9V	0V	-45.9V	-45.7V	-45.5V	0V	0V	4.7V

4. Check Switching Frequency

- Oscilloscope - **USE THE PROBE TIP TO U6(7) TO GND**
- Reading 100kHz +/-10%,22Vp-p

B. Pre Amp Section

Line Level Input Sensitivity

-Set up Turn level, X'OVER FREQ POT Fully CW and LFE switch off
Generator Set at 100mV@50Hz
Signal to Line level input

PB10 Testing Procedure (Cont.) (Revision 2 Only)

- Voltage measurements

OP AMP									SPEAKER O/P
U2(1)	U2(14)	U2(8)	U3(7)	U3(1)	U3(14)	U3(8)	U5(7)	U5(1)	
133.6mV	200.2mV	245.9mV	314.8mV	314.9mV	350mV	1.67V	1.452V	2.098V	15.3V

2. High Level Input Sensitivity

-Set up Turn level, X'OVER FREQ POT Fully CW and LFE switch off
Set Generator at 1.15V@50Hz
Signal to High level input

-Voltage measurements 15.3V at speaker output

3. Low-Pass

-Set up Set Generator at 100 mV@100Hz
Signal to Line level input
Measure voltage at S+ speaker output

-Voltage measurement

X'OVER FREQ. Setting	Output
CW	10.72V
CCW	2.165V

4. LFE

-Set up Set Generator at 100mV@200Hz
Signal to Line level input
Measure voltage at S+ speaker output

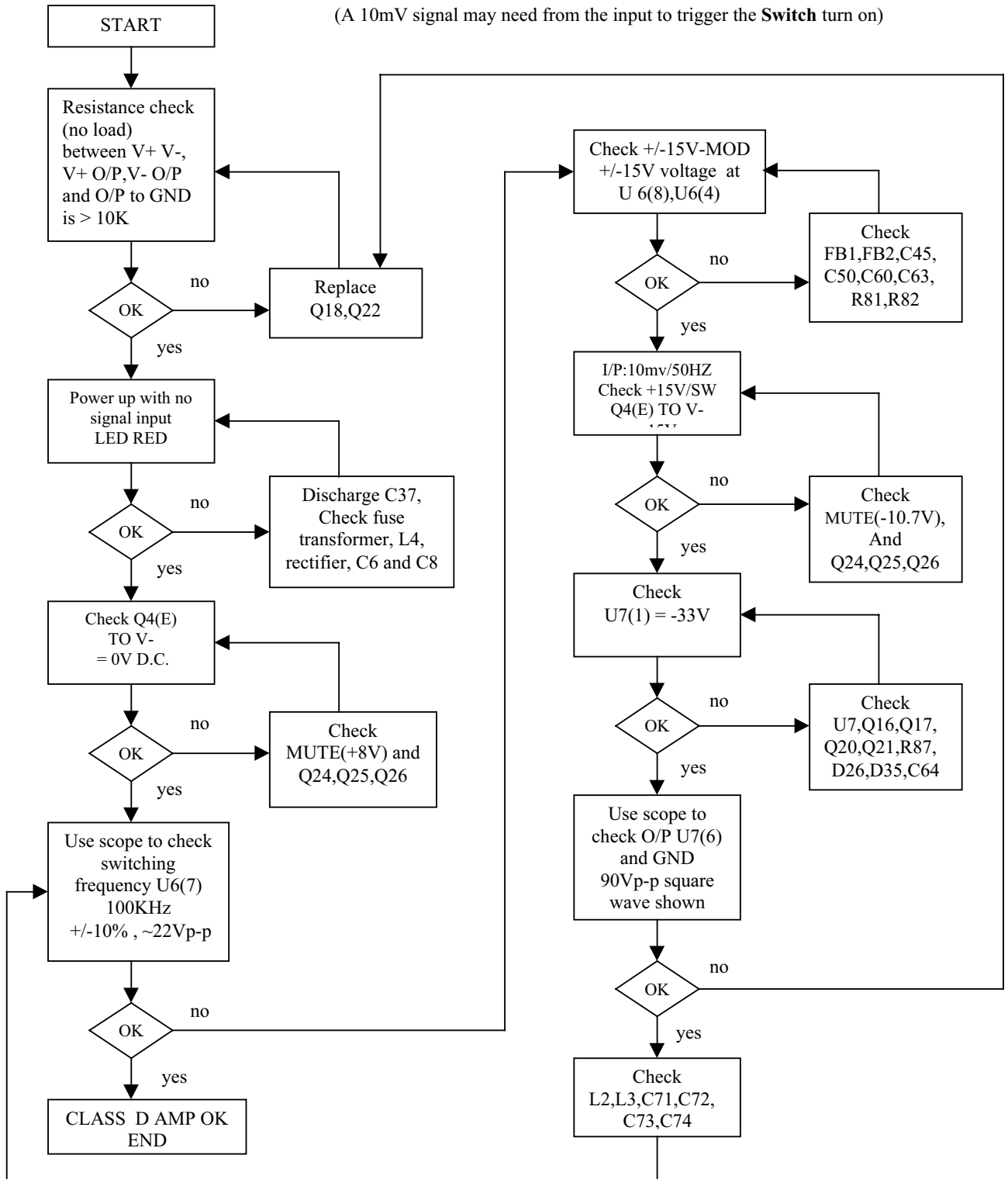
LFE switch Setting	Output
Normal	2.9V
LFE	7.62V

See flow chart next page for diagnostics.

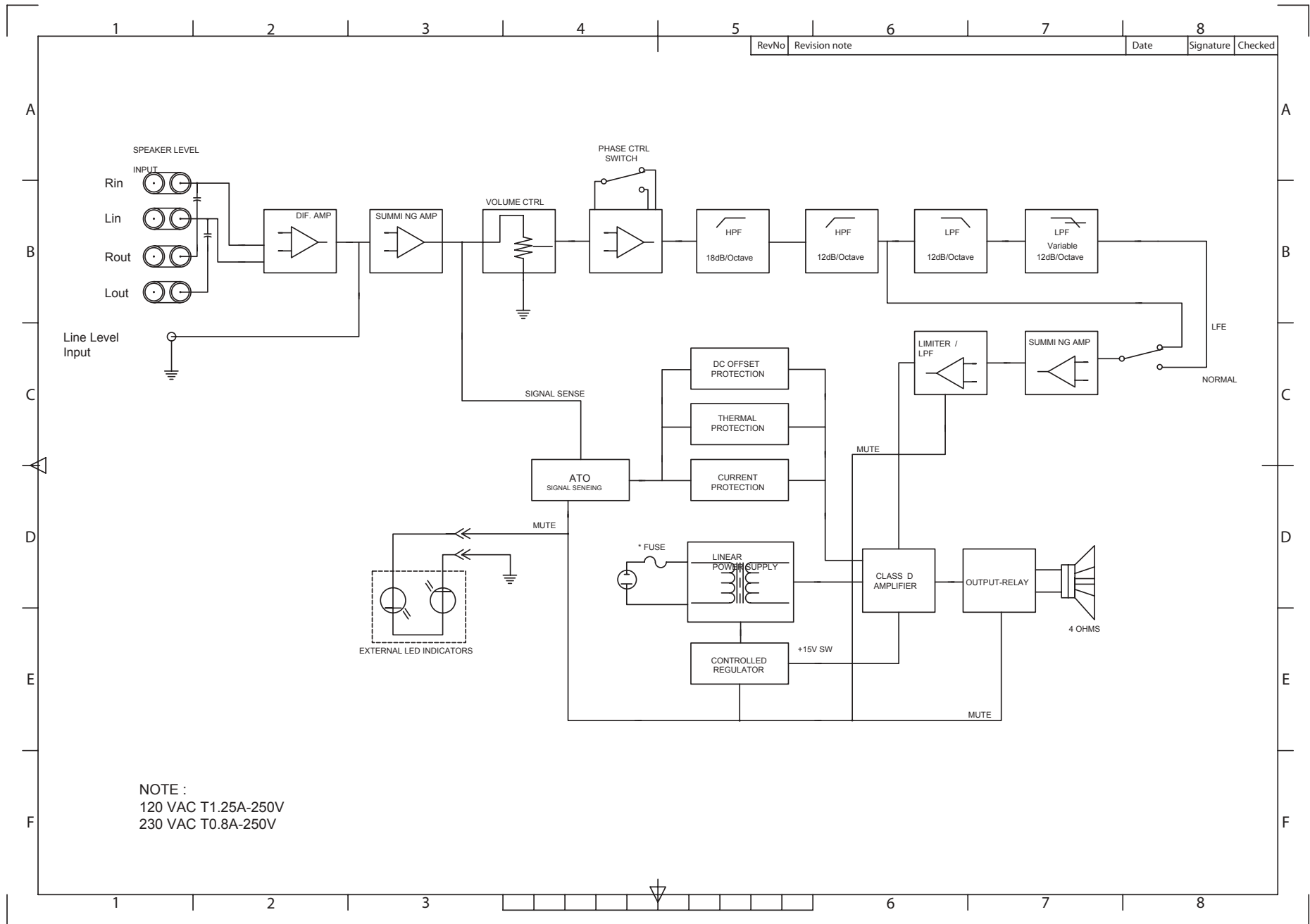
PB10 Testing Procedure (Cont.) (Revision 2 Only)

PB10 POWER MODULE TESTING FLOW CHART - REVISION 2 ONLY

CAUTION : SPEAKER OUTPUT IS FLOATING AND IS **NOT** PROTECTED AGAINST A SHORT TO GROUND. ALL TEST INSTRUMENTS CONNECTED TO THE OUTPUT **MUST** BE FLOATING. ATTACH THE SCOPE PROBE TIP TO S- and REFERENCE LEAD TO S+.



PB10 Block Diagram Revision 2 Only



PB10 Electrical Parts List (Revision 1 Only)

PB10 POWER AMP section of PCB Version 6.3.

Part #	Ref. Designator	Description			
<i>Semiconductors</i>					
60301	MODULE	S53			S53AMI amp module
60102	U1	TLO64			Quad OpAmp
50100	BR RECT	RS604	6AMP		
50105	D1	1N4744A	15V		1w Zener
50112	D10	1N5242B	12V		.5w Zener
50104	D11	1N4148			Sig Diode
50112	D12	1N5242B	12V		.5w Zener
50104	D13	1N4148			Sig Diode
50104	D14	1N4148			Sig Diode
50105	D2	1N4744A	15V		1w Zener
50101	D3	1N5256B	30V		.5w Zener
50104	D4	1N4148			Sig Diode
50113	D5	1N4735A	6.2V		1W
50107	D6	1N5234B	6.2V		.5w Zener
50104	D7	1N4148			Sig Diode
50104	D8	1N4148			Sig Diode
60157	Q1	2N5457	25V		N-chnl FET
60154	Q10	MPSA56	120V		PNP 600mA
60154	Q11	MPSA56	120V		PNP 600mA
60156	Q12	2N4401	40V		NPN 600mA
<i>Capacitors</i>					
30706	C1	4700uF	50V	+80 / -20	Electrolytic 105C
30712	C10	10uF	100V	0.2	BP/NP Electr DF<.1
30502	C11	100nF	50V	0.2	mono ceramic
30706	C2	4700uF	50V	+80 / -20	Electrolytic 105C
	C20	NOT USED			
30502	C21	100nF	50V	0.2	mono ceramic
30502	C22	100nF	50V	0.2	mono ceramic
30526	C24	220nF	50V	0.1	mono ceramic
30529	C25	1n5F	50V	0.1	mono ceramic
30508	C26	10nF	50V	0.1	mono ceramic
30513	C27	3n3F	50V	0.1	mono ceramic
30502	C3	100nF	50V	0.2	mono ceramic
30714	C32	10uF	35V	+80/-20	Electrolytic
30715	C40	10uF	16V	+80/-20	Electrolytic
30716	C41	1uF	16V	+80/-20	Electrolytic
30717	C42	100uF	16V	+80/-20	Electrolytic
30702	C6	100nF	50V	0.2	mono ceramic
30505	C7A	100nF	100V	0.2	mono ceramic or film
30505	C7B	100nF	100V	0.2	mono ceramic or film
	CW	NOT USED			
	CZ	NOT USED			

PB10 Electrical Parts List (Cont.) (Revision 1 Only)

PB10 POWER AMP section of PCB Version 6.3.

Part #	Ref. Designator	Description			
<i>Resistors</i>					
	R100	NOT USED			
40105	R10A	0.1 ohms	.5W	0.05	metal
40105	R10B	0.1 ohms	.5W	0.05	metal
40105	R10C	0.1 ohms	.5W	0.05	metal
40420	R11	1k	.25W	0.05	carbon
40420	R12	1k	.25W	0.05	carbon
40417	R13	47k	.25W	0.05	carbon
40718	R14	3k3	.25W	0.05	carbon
40406	R15	100k	.25W	0.05	carbon
40719	R1A	2k2	1W	0.05	metal
40719	R1B	2k2	1W	0.05	metal
40719	R1C	2k2	1W	0.05	metal
40405	R21	4K7	.25W	0.05	carbon
40720	R22	42K2	.25W	0.01	metal
40721	R23	237k	.25W	0.01	metal
	R24	NOT USED			
	R25	NOT USED			
40722	R26	6k8	.25W	0.05	carbon
40723	R27	2k2	2W	0.05	metal
40110	R28	732 ohms	0.5W	0.01	metal
40110	R29	732 ohms	0.5W	0.01	metal
40719	R2A	2k2	1W	0.05	metal
40719	R2B	2k2	1W	0.05	metal
40719	R2C	2k2	1W	0.05	metal
40702	R3	6M8	.25W	0.05	carbon
40723	R30	2k2	2W	0.05	metal
40417	R31	47k	.25W	0.05	carbon
40417	R32	47k	.25W	0.05	carbon
40427	R33	23k7	.25W	0.01	metal
40724	R34	8k87	.25W	0.01	metal
40725	R4	15k	0.5W	0.01	metal
40420	R40	1k	.25W	0.05	carbon
40701	R41	1000k	.25W	0.05	carbon
40409	R42	10k	.25W	0.05	carbon
40701	R43	1000k	.25W	0.05	carbon
40406	R44	100k	.25W	0.05	carbon
40415	R45	470K	.25W	0.05	carbon
40701	R46	1000k	.25W	0.05	carbon
40409	R47	10k	.25W	0.05	carbon
40409	R48	10k	.25W	0.05	carbon
40726	R49	15k	.25W	0.05	carbon
40412	R5	33k2	.25W	0.01	metal
40427	R50	2k2	.25W	0.05	carbon
40111	R6	47 ohms	.25W	0.05	carbon
40728	R7A	5k6	1W	0.05	metal
40728	R7B	5k6	1W	0.05	metal
40728	R7C	5k6	1W	0.05	metal
40729	R8A	4k7	1W	0.05	metal

PB10 Electrical Parts List (Cont.) (Revision 1 Only)

PB10 POWER AMP section of PCB Version 6.3.

Part #	Ref. Designator	Description			
40729	R8B R9	4k7 NOT USED	1W	0.05	metal
<i>Miscellaneous</i>					
80101	L1	110uH			Gapped E-core choke
80102	L2	2.2uH			2.2uH ferrite bead
	L3	0-R Jumper			
	L4	0-R Jumper			
80100	CMC	2m2H	5 Amp	0.05	2.2mH choke
108326	LED Harness	MOLEX 2			FEMALE
80135	TRX	MCI 5024	100VA	Conc Wnd	Power Transformer
50106	On Harness	2Clr LED			T 1 3/4 Type
50106	On Harness	2Clr LED			T 1 3/4 Type
70322	LED PCB socket				Male PCB LED socket
80114	3AG FUSE	1.25A SloBlo			Glass
70324	0.187" Tabs	7			0.187" PCB fastons
70323	PCB-mount Fuse Holders	2			PCB fuse clips
70325	PB10 faceplate				PB10 faceplate
80105	Power cord				Power cord
70305	Strain relief				Strain relief

PB10 PREAMP section of PCB Version 6.3.

Part #	Ref. Designator	Description			
<i>Semiconductors</i>					
60100	U1	LM324			LM324 op amp
60100	U2	LM324			LM324 op amp

Capacitors

Film Caps may be used in any position EXCEPT C1, C2

30707	C1	200uF	50V	0.2	BP Electrolytic
30526	C10	220nF	50V	0.1	mono ceramic
30514	C11	47nF	50V	0.1	mono ceramic
30504	C12	100n	50V	0.1	mono ceramic
30514	C13	47n	50V	0.1	mono ceramic
30528	C16	220nF	50V	0.05	film
30528	C17	220nF	50V	0.05	film
30100	C18	330pF	50V	0.2	mono ceramic
30100	C19	330pF	50V	0.2	mono ceramic
30707	C2	200uF	50V	0.2	BP Electrolytic
30519	C20	100nF	50V	0.2	mono ceramic
30519	C21	100nF	50V	0.2	mono ceramic
30519	C22	100nF	50V	0.2	mono ceramic
30519	C23	100nF	50V	0.2	mono ceramic
30101	C3	220pF	50V	0.2	mono ceramic
	C30	NOT USED			
30101	C4	220pF	50V	0.2	mono ceramic

PB10 Electrical Parts List (Cont.) (Revision 1 Only)

PB10 PREAMP section of PCB Version 6.3.

Part #	Ref. Designator	Description			
30101	C5	220pF	50V	0.2	mono ceramic
30101	C6	220p	50V	0.2	mono ceramic
30527	C7	330nF	50V	0.05	film
30527	C8	330nF	50V	0.05	film
30527	C9	330nF	50V	0.05	film
<i>Resistors</i>					
40405	R1	4k7	.25W	0.05	carbon
40409	R10	10k	.25W	0.05	carbon
40708	R11	57k6	.25W	0.01	carbon
40454	R12	45k3	.25W	0.01	metal
40412	R13	33k2	.25W	0.01	metal
40709	R14	68k1	.25W	0.01	metal
40710	R15	11k3	.25W	0.01	metal
40711	R16	1k3	.25W	0.01	metal
40712	R17	243k	.25W	0.01	metal
40441	R18	13k7	.25W	0.01	metal
40441	R19	13k7	.25W	0.01	metal
40405	R2	4k7	.25W	0.05	carbon
40713	R20	5k6	.25W	0.05	carbon
	R21	Or Jumper			
40713	R22	5k6	.25W	0.05	carbon
	R23	Or Jumper			
40109	R24	604 ohms	.25W	0.01	metal
40412	R25	33k2	.25W	0.01	metal
40405	R26	4k7	.25W	0.01	metal
40109	R27	604 ohms	.25W	0.01	metal
40412	R28	33k2	.25W	0.01	metal
40406	R3	100k	.25W	0.05	carbon
40714	R30	14k	.25W	0.01	metal
40715	R33	9k09	.25W	0.01	metal
40716	R34	60k4	.25W	0.01	metal
40451	R35	137k	.25W	0.01	metal
40406	R4	100k	.25W	0.05	carbon
40406	R5	100k	.25W	0.05	carbon
40406	R6	100k	.25W	0.05	carbon
40717	R8	2k7	.25W	0.05	carbon
40717	R9	2k7	.25W	0.05	carbon
<i>Miscellaneous</i>					
108116	HI LEVEL I/O		OUT		Binding Post
108116	HI LEVEL I/O		IN		Binding Post
108324	RCA CONNECTOR				DUAL RCA-yellow
40402	LEVEL	5k POT		0.2	Log (A) Pot
40707	Crossover CONTROL	20k POT		0.2	Lin (B) Pot.
70150	LoPass Defeat Sw.	SW SPDT			mini-Toggle
70150	Phase Switch	SW SPDT			mini-Toggle

PB10 Electrical Parts List (Cont.) (Revision 1 Only)

PB10 PREAMP section of PCB Version 7.2.

Part #	Designator	Description
<i>Resistors</i>		
40719	R1A	2k2 1W 5% metal SAFETY
40719	R1B	2k2 1W 5% metal SAFETY
40719	R1C	2k2 1W 5% metal SAFETY
40719	R2A	2k2 1W 5% metal SAFETY
40719	R2B	2k2 1W 5% metal SAFETY
40719	R2C	2k2 1W 5% metal SAFETY
40702	R3	6M8 .25W 5% carbon
40725	R4	15k 0.5W 5% metal SAFETY
40412	R5	33k2 .25W 1% metal
40111	R6	47 ohms .25W 5% carbon
40728	R7A	5k6 1W 5% metal SAFETY
40728	R7B	5k6 1W 5% metal SAFETY
40728	R7C	5k6 1W 5% metal SAFETY
40729	R8A	4k7 1W 5% metal SAFETY
40729	R8B	4k7 1W 5% metal SAFETY
	R9	NOT USED
40105	R10A	0.1 ohms .5W 5% metal
40105	R10B	0.1 ohms .5W 5% metal
40105	R10C	0.1 ohms .5W 5% metal
40420	R11	1k .25W 5% carbon
40420	R12	1k .25W 5% carbon
40417	R13	47k .25W 5% carbon
40718	R14	3k3 .25W 5% carbon
40406	R15	100k .25W 5% carbon
40405	R21	4K7 .25W 5% carbon
40720	R22	42K2 .25W 1% metal
40721	R23	237k .25W 1% metal
	R24	NOT USED
	R25	NOT USED
40722	R26	6k8 .25W 5% carbon
40723	R27	2k2 2W 5% metal SAFETY
40110	R28	732 ohms 0.5W 1% metal
40110	R29	732 ohms 0.5W 1% metal
40723	R30	2k2 2W 5% metal SAFETY
40417	R31	47k .25W 5% carbon
40417	R32	47k .25W 5% carbon
40427	R33	23k7 .25W 1% metal
40724	R34	8k87 .25W 1% metal
40407	R35	220K .25W 5% carbon
40420	R40	1k .25W 5% carbon
40701	R41	1000k .25W 5% carbon
40409	R42	10k .25W 5% carbon
40701	R43	1000k .25W 5% carbon
40406	R44	100k .25W 5% carbon
40415	R45	470K .25W 5% carbon
40701	R46	1000k .25W 5% carbon
40409	R47	10k .25W 5% carbon
40405	R48	4.7k .25W 5% carbon
40405	R49	4.7k .25W 5% carbon
40427	R50	2k2 .25W 5% carbon

PB10 Electrical Parts List (Cont.)

PB10 PREAMP section of PCB Version 7.2.

Part #	Designator	Description				
<i>Capacitors</i>						
30706	C1	4700uF	50V	+80 / -20	Electrolytic 105C	SAFETY
30706	C2	4700uF	50V	+80 / -20	Electrolytic 105C	
30502	C3	100nF	50V	20%	mono ceramic	
30702	C6	100nF	50V	20%	mono ceramic	
30505	C7A	100nF	100V	20%	mono ceramic or film	SAFETY
30505	C7B	100nF	100V	20%	mono ceramic or film	SAFETY
30712	C10	10uF	100V	20%	BP/NP Electr DF<.1	
30502	C11	100nF	50V	20%	mono ceramic	
	C20	NOT USED				
30502	C21	100nF	50V	20%	mono ceramic	
30502	C22	100nF	50V	20%	mono ceramic	
30526	C24	220nF	50V	10%	mono ceramic	
30529	C25	1n5F	50V	10%	mono ceramic	
30508	C26	10nF	50V	10%	mono ceramic	
30513	C27	3n3F	50V	10%	mono ceramic	
30714	C32	10uF	35V	+80/-20	Electrolytic	
30715	C40	10uF	16V	+80/-20	Electrolytic	
30716	C41	1uF	16V	+80/-20	Electrolytic	
30717	C42	100uF	16V	+80/-20	Electrolytic	
	CW	NOT USED				
	CZ	NOT USED				
<i>Semiconductors</i>						
50105	D1	1N4744A	15V		1w Zener	
50105	D2	1N4744A	15V		1w Zener	
50101	D3	1N5256B	30V		.5w Zener	
50104	D4	1N4148		5%	Sig Diode	
50113	D5	1N4735A	6.2V		1W	
50107	D6	1N5234B	6.2V		.5w Zener	
50104	D7	1N4148		5%	Sig Diode	
50104	D8	1N4148		5%	Sig Diode	
50112	D10	1N5242B	12V	5%	.5w Zener	
50104	D11	1N4148			Sig Diode	
50112	D12	1N5242B	12V		.5w Zener	
50104	D13	1N4148			Sig Diode	
50104	D14	1N4148			Sig Diode	
60157	Q1	2N5457	25V		N-chnl FET	
60154	Q10	MPSA56	120V		PNP 600mA	
60154	Q11	MPSA56	120V		PNP 600mA	
60156	Q12	2N4401	40V		NPN 600mA	
50100	DIODE BRIDGE	RS604	6AMP		*	SAFETY
60102	U1	TLO64			Quad OpAmp	
60301	MODULE	S53			S53AMI amp module	SAFETY
<i>Miscellaneous</i>						
70322	LED 3	Molex 2 Header			Male Connector	
108326	LED Harness	Molex 2 Socket			Female Connector	
50106	On Harness	Bi-Color LED	2 Legged		T 1-3/4, white diff. Type	
50106	On Harness	Bi-Color LED	2 Legged		T 1-3/4, white diff. Type	
80101	L1	110uH			Gapped E-core choke	

PB10 Electrical Parts List (Cont.)

PB10 PREAMP section of PCB Version 7.2.

Part #	Designator	Description
80102	L2	2.2uH
	L3	0-R Jumper
	L4	0-R Jumper
80100	CMC	2m2H
70323	3AG TYPE	3AG PC CLIP
80114	3AG FUSE	1.25A SloBlo
70324	0.187" Tabs	6
70328	0.250" Tabs	1
70325	PB10 faceplate	PB10 faceplate
80105	Power cord	Power cord
70305	Strain relief	Strain relief
80135	TRX	MCI 5024 100VA
		5 Amp 5% 2.2mH choke
		2 PCB-mount fuse clips
		Glass
		0.187" PCB fastons
		0.250" PCB fastons
		SAFETY
		SAFETY
		SAFETY
		SAFETY
		SAFETY
		SAFETY
		SAFETY

PREAMP section of PCB Version 7.2

Part #	Ref. Designator	Description
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Resistors

40405	R1	4k7	.25W	5%	carbon
40405	R2	4k7	.25W	5%	carbon
40406	R3	100k	.25W	5%	carbon
40406	R4	100k	.25W	5%	carbon
40406	R5	100k	.25W	5%	carbon
40406	R6	100k	.25W	5%	carbon
40717	R8	2k7	.25W	5%	carbon
40717	R9	2k7	.25W	5%	carbon
40409	R10	10k	.25W	5%	carbon
40708	R11	57k6	.25W	1%	carbon
40454	R12	45k3	.25W	1%	metal
40412	R13	33k2	.25W	1%	metal
40709	R14	68k1	.25W	1%	metal
40710	R15	11k3	.25W	1%	metal
40711	R16	1k3	.25W	1%	metal
40712	R17	243k	.25W	1%	metal
40441	R18	13k7	.25W	1%	metal
40441	R19	13k7	.25W	1%	metal
40713	R20	5k6	.25W	5%	carbon
	R21	0r Jumper			
40713	R22	5k6	.25W	5%	carbon
	R23	0r Jumper			
40109	R24	604 ohms	.25W	1%	metal
40412	R25	33k2	.25W	1%	metal
40405	R26	4k7	.25W	1%	metal
40109	R27	604 ohms	.25W	1%	metal
40412	R28	33k2	.25W	1%	metal
40714	R30	14k	.25W	1%	metal
40715	R33	9k09	.25W	1%	metal
40716	R34	60k4	.25W	1%	metal
40451	R35	137k	.25W	1%	metal
40402	LEVEL	5k POT		20%	Log (A) Pot
40707	LOW PASS	Dual 20k POT		20%	Lin (B) Pot.

PB10 Electrical Parts List (Cont.)

PB10 PREAMP section of PCB Version 7.2.

Part #	Designator	Description			
<i>Capacitors</i>					
Film Caps may be used in any position EXCEPT C1, C2					
30707	C1	200uF	50V	20%	BP Electrolytic
30707	C2	200uF	50V	20%	BP Electrolytic
30101	C3	220pF	50V	20%	mono ceramic
30101	C4	220pF	50V	20%	mono ceramic
30101	C5	220pF	50V	20%	mono ceramic
30101	C6	220p	50V	20%	mono ceramic
30527	C7	330nF	50V	5%	film
30527	C8	330nF	50V	5%	film
30527	C9	330nF	50V	5%	film
30526	C10	220nF	50V	10%	mono ceramic
30514	C11	47nF	50V	10%	mono ceramic
30504	C12	100n	50V	10%	mono ceramic
30514	C13	47n	50V	10%	mono ceramic
30528	C16	220nF	50V	5%	film
30528	C17	220nF	50V	5%	film
30100	C18	330pF	50V	20%	mono ceramic
30100	C19	330pF	50V	20%	mono ceramic
30519	C20	100nF	50V	20%	mono ceramic
30519	C21	100nF	50V	20%	mono ceramic
30519	C22	100nF	50V	20%	mono ceramic
30519	C23	100nF	50V	20%	mono ceramic
	C30	NOT USED			
<i>Semiconductors</i>					
50104	D50	1N4148		5%	Sig Diode
50104	D51	1N4148		5%	Sig Diode
50104	D52	1N4148		5%	Sig Diode
50104	D53	1N4148		5%	Sig Diode
50104	D54	1N4148		5%	Sig Diode
50104	D55	1N4148		5%	Sig Diode
60100	U1	LM324			LM324 Quad Op Amp
60100	U2	LM324			LM324 Quad Op Amp
<i>Miscellaneous</i>					
70150	LP DEFEAT SW	SW SPDT			mini-Toggle
70150	PHASE SWITCH	SW SPDT			mini-Toggle
108116	HI LEVEL I/O		OUT		Binding Post
108116	HI LEVEL I/O		IN		Binding Post
108324	Li, Ri	RCA connector	90 Deg		DUAL RCA-yellow

PB10 Electrical Parts List (Cont.) Version 2 Only

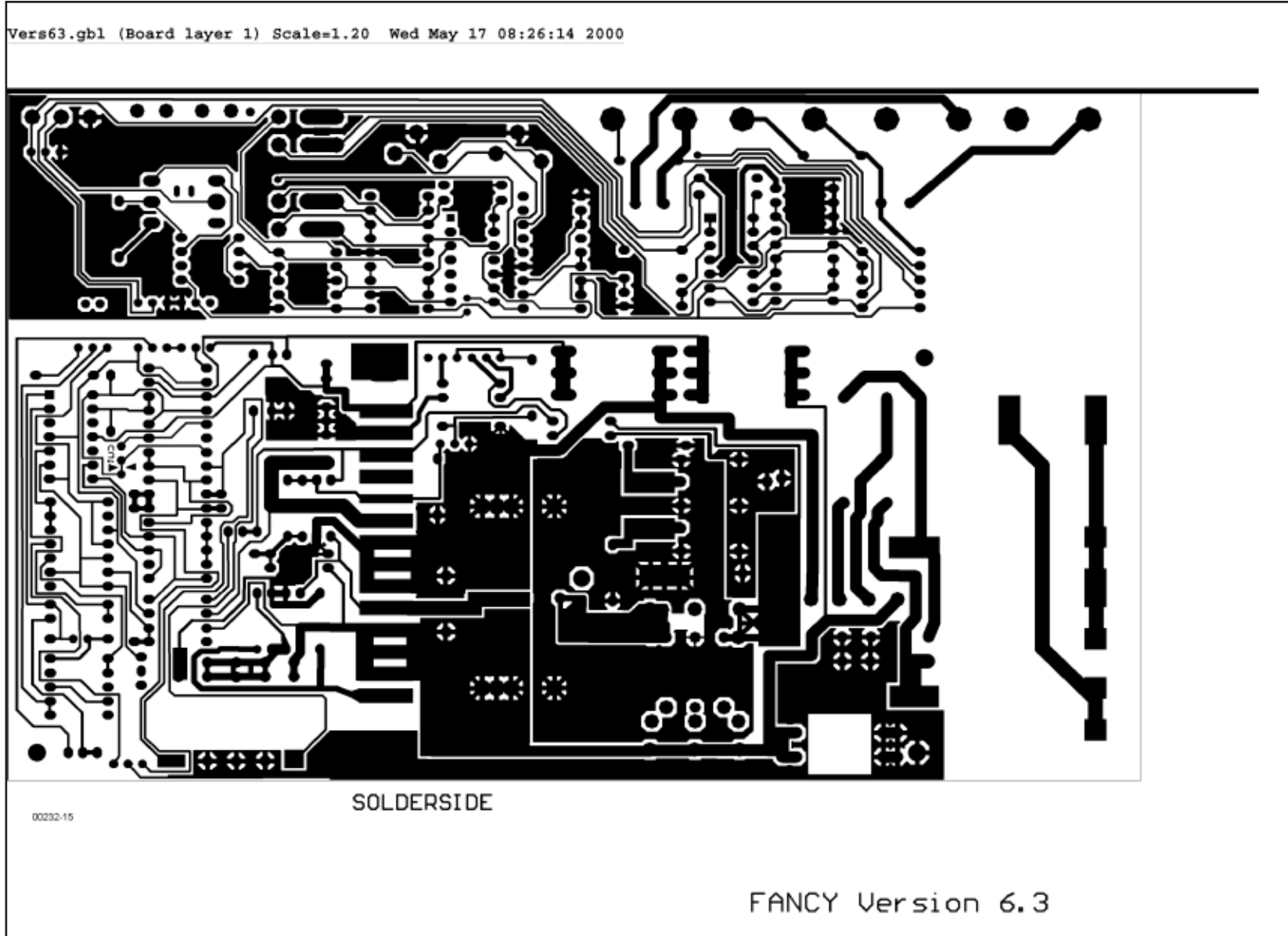
Part Number	Description		Qty	Reference designators
<i>Resistors</i>				
020-000498-120	Film Resistor	0 ohms 1/4W Jumper	2	R10, 11
021-100401-120	MOF Resistor	1K 1W J	1	R103
021-820303-020	MOF Resistor	820 ohms 3WS J	2	R6, 9
022-500003-020	KNP Resistor	0.05 ohms 3WS J	1	R104
024-100298-120	SMD Resistor	10 ohms 1/8W J	2	R81, 82
024-100398-120	SMD Resistor	100 ohms 1/8W J	1	R62
024-100498-120	SMD Resistor	1K 1/8W J	8	65, 79, 83, 92, 95, 96, 105, 108
024-100598-120	SMD Resistor	10K 1/8W J	30	R2, 17, 19-21, 37, 54, 58, 63, 69, 71-72, 74-75, 84, 88-89, 97, 106, 109, 111, 113-117, 119-120, 123-124
024-100698-120	SMD Resistor	100K 1/8W J	6	R3, 22-25, 112
024-110598-100	SMD Resistor	11K 1/8W F	1	R98
024-113598-100	SMD Resistor	11K3 1/8W F	1	R34
024-120498-120	SMD Resistor	1K2 1/8W J	2	R51, 53
024-130498-100	SMD Resistor	1K3 1/8W F	2	R35, 110
024-137598-120	SMD Resistor	13K7 1/8W F	2	R42, 43
024-137698-100	SMD Resistor	137K 1/8W F	1	R32
024-150498-120	SMD Resistor	1K5 1/8W J	6	R67, 68, 12-15
024-150598-120	SMD Resistor	15K 1/8W J	1	R29
024-200598-120	SMD Resistor	20K 1/8W J	1	R94
024-220398-120	SMD Resistor	220 ohms 1/8W J	1	R90
024-220498-121	SMD Resistor	2K2 1/8W J	3	R1, 87, 61
024-220598-120	SMD Resistor	22K 1/8W J	3	R50, 52, 118
024-220798-120	SMD Resistor	2M2 1/8W J	2	R80, 121
024-237598-120	SMD Resistor	23K7 1/8W F	1	R48
024-237698-100	SMD Resistor	237K 1/8W F	1	R45
024-243698-100	SMD Resistor	243K 1/8W F	1	R36
024-270498-120	SMD Resistor	2K7 1/8W J	2	R64, 73
024-300398-120	SMD Resistor	300 ohms 1/8W J	1	R55
024-300598-120	SMD Resistor	30K 1/8W J	1	R56
024-330498-120	SMD Resistor	3K3 1/8W J	5	R7, 8, 26, 27, 59
024-330598-120	SMD Resistor	33K 1/8W J	3	R4, 5, 122
024-360498-120	SMD Resistor	3K6 1/8W J	1	R28
024-390498-120	SMD Resistor	3K9 1/8W J	1	R93
024-390598-120	SMD Resistor	39K 1/8W J	1	R77
024-430498-100	SMD Resistor	4K3 1/8W F	1	R78
024-453598-100	SMD Resistor	45K3 1/8W F	1	R30
024-470298-120	SMD Resistor	47R 1/8W J	2	R101, 102
024-470398-120	SMD Resistor	470 ohms 1/8W J	3	R76, 99, 100
024-470498-120	SMD Resistor	4K7 1/8W J	2	R85, 86
024-470598-120	SMD Resistor	47K 1/8W J	4	R44, 47, 49, 107
024-470698-120	SMD Resistor	470K 1/8W J	1	R70
024-470798-120	SMD Resistor	4.7M 1/8W J	1	R60
024-560498-120	SMD Resistor	5K6 1/8W J	2	R40, 41
024-604598-100	SMD Resistor	60K4 1/8W F	1	R39
024-620398-120	SMD Resistor	620 ohms 1/8W J	3	R16, 18, 57
024-680498-120	SMD Resistor	6.8K 1/8W J	2	R46, 91

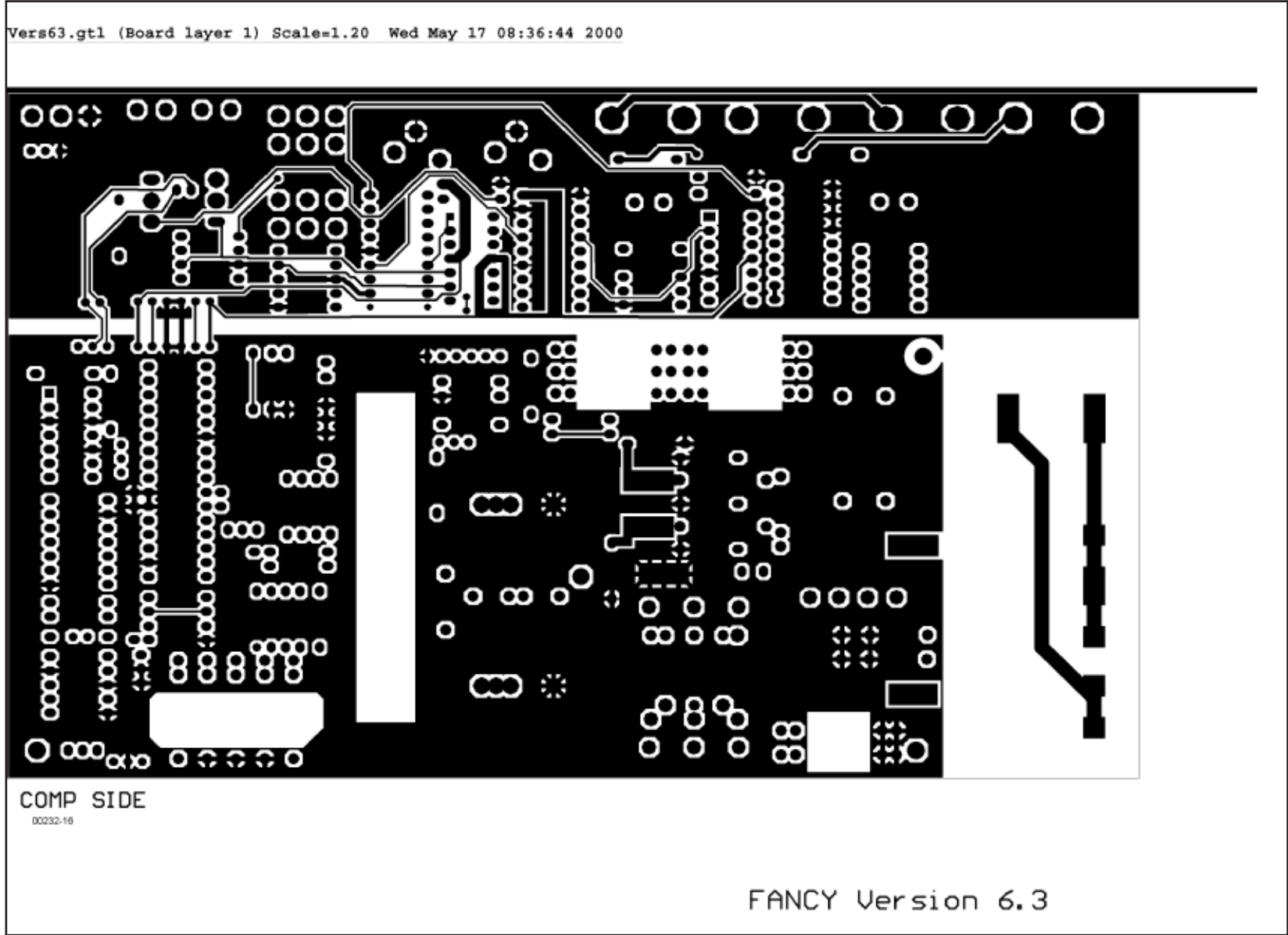
PB10 Electrical Parts List (Cont.) Version 2 Only

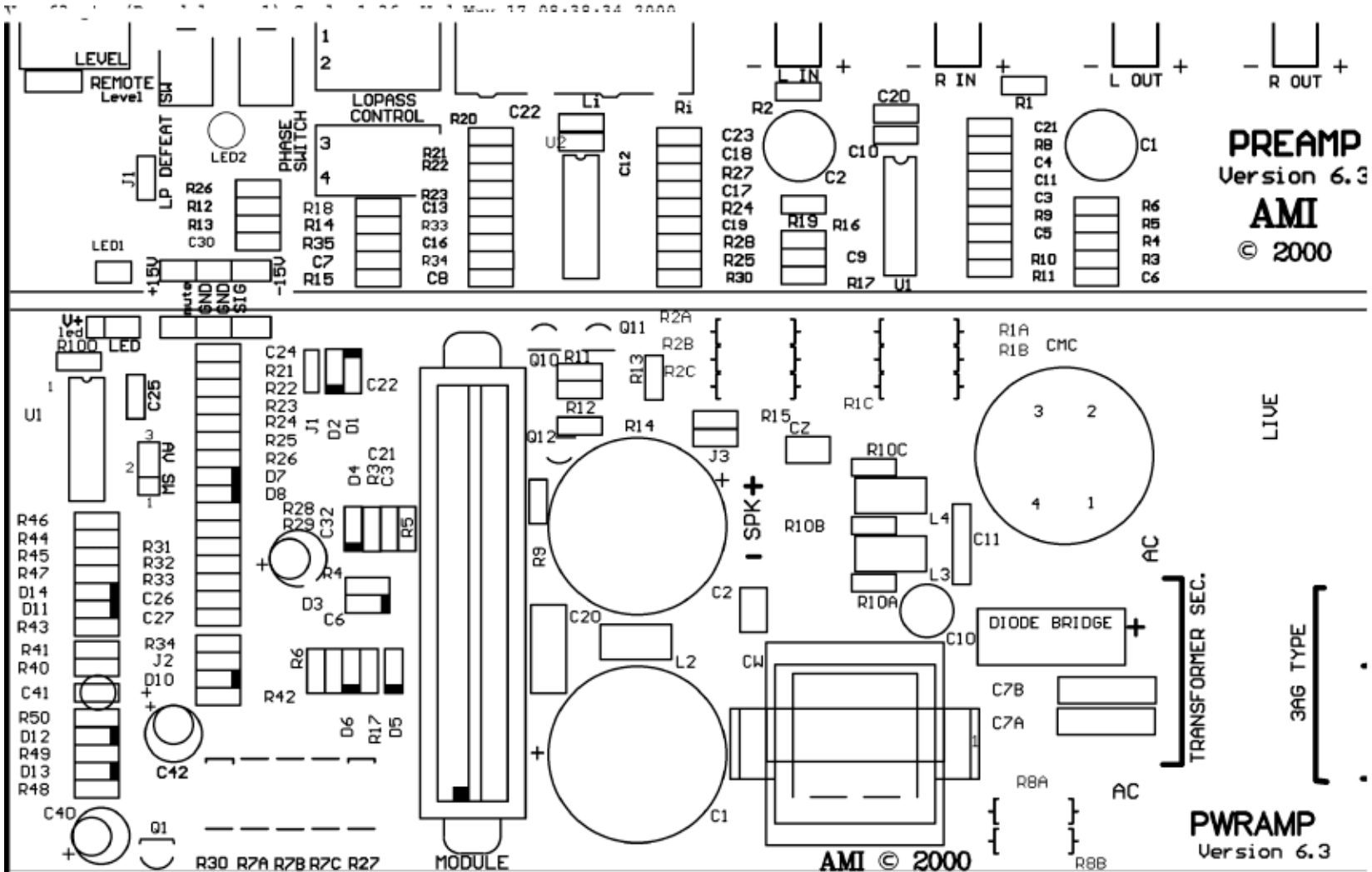
Part Number	Description		Qty	Reference designators
024-680598-120	SMD Resistor	68K 1/8W J	3	R31, 33, 66
024-909498-100	SMD Resistor	9K09 1/8W F	1	R38
026-200595-269	VR2 FREQUENCY POT	RD163121R034-20KBx2(EJ)	1	VR2
026-500495-252	VR1 LEVEL POT	RK163111R522-5KA (EJ)	1	VR1
<i>Capacitors</i>				
031-100244-100	SMD Ceramic Capacitor	0u01/50V K	7	C5, 10, 33, 45, 51, 66, 67
031-100343-100	SMD Capacitor	100pF/50V J	3	C16, 36, 58
031-100344-100	SMD Capacitor	0u1/50V K	16	C11, 42-44, 46-49, 52, 54, 55, 60, 63, 71, 74, 77
031-100364-100	SMD Capacitor	0.1uF/100V K	2	C3, 7
031-150244-100	SMD Capacitor	0u0015/50V K	1	C32
031-220344-100	SMD Capacitor	220pF/50V J	5	C14, 15, 20, 21, 19
031-330444-300	SMD Capacitor	3300pF/50V K	2	C40, 34
031-470244-102	SMD Capacitor	0u047/50V K	2	C62, 59
031-560243-100	SMD Capacitor	56pF/50V J	2	C57, 61
031-560343-102	SMD Capacitor	560pF/50V J	1	C56
032-100464-202	END PE Capacitor	1uF/100V K	2	C70, 70B
033-200645-300	NP Capacitor	200uF/50V M	2	C17, 18
033-470444-270	NPE Capacitor	4u7/50V K	1	C73
033-680464-270	NPE Capacitor	6u8/100V K	1	C72
034-100525-300	Electrolytic Capacitor	10uF/25V M	1	C35
034-100625-300	Electrolytic Capacitor	100uF/25V M	1	C64
034-220525-301	Electrolytic Capacitor	22uF/25V M	6	C39, 50, 53, 41, 4, 9
034-220615-301	Electrolytic Capacitor	220uF/16V M	1	C37
034-330525-300	Electrolytic Capacitor	33uF/25V M	1	C1
034-330615-300	Electrolytic Capacitor	330uF/16V M	2	C12,78
034-470415-301	Electrolytic Capacitor	4u7/50V M	1	C2
034-470615-301	Electrolytic Capacitor	470uF/16V M	1	C65
034-470745-200	Electrolytic Capacitor	4700uF/50V M	2	C6, 8
038-100363-300	MPE Capacitor	0u1/100V J	3	C68, 69, 27
038-220393-300	MPE Capacitor	0u22/63V J	4	C25-26, 29, 31
038-330393-300	MPE Capacitor	0u33/63V J	3	C22, 23, 24
038-470293-300	MPE Capacitor	0u047/63V J	2	C28, 30
039-100390-100	UL Capacitor	0u1/275V	1	CXAC1
<i>Semiconductors</i>				
051-000600-100	NPN Transistor	MPSW06RLRA	2	Q2, Q16
051-005600-100	NPN Transistor	MPSW56RLRA MPQ	1	Q3
051-222200-100	NPN Transistor	PN:MPS2222ARLRA	1	Q21
051-290700-100	NPN Transistor	2N2907A	2	Q19, 23
051-540101-000	PNP Transistor	2N5401	1	Q1
051-555100-000	NPN Transistor	2N5551	1	Q17
052-400080-000	Bridge Rectifier	PN:RS804 400V,8A	1	BR1
053-211100-000	IC;DIP	PN:IR2111 HALF-BRIDGE DRIVER	1	U7
054-000100-100	SMD DIODE	ES1D 200V,1A	5	D5, 26, 29, 33, 38
054-001001-100	SMD Zener Diode	10V SOT-23 DZ23C10	1	D35

PB10 Electrical Parts List (Cont.) Version 2 Only

Part Number	Description		Qty	Reference designators
054-001500-100	SMD Zener Diode	15V SOT-23 DZ23C15	3	D6, 7, 9
054-007200-100	SMD IC	TL072CDR SO-8 (TI) DUAL OP-AMP	2	U5, 6
054-007400-100	SMD IC	PN:TL074CDR (TI) QUAD OP-AMP	2	U2, 3
054-033904-100	SMD TR (Motorola)	MMBT3904LT1 SOT23	6	Q11, 14, 13, 5, 8, 9
054-033906-100	SMD TR (Motorola)	MMBT3906LT1 SOT23	4	Q6, 10, 12, 15
054-045580-100	SMD OPA IC	NJM4558M-TE3 DMP-8 DUAL OP-AMP	1	U4
054-050600-100	SMD Zener Diode	5.6V SOT-23 DZ23C5V6	3	D24, 36, 37
054-211400-100	SMD NPN Transistor	DTC114EK SMT3	1	Q7
054-414803-100	SMD Zener Diode	LL4148	24	D1-4, 8, 10-23, 27, 30-31, 34, 39
054-540100-100	SMD PNP Transistor	MMBT5401 LT1	3	Q20, 24, 26
054-555100-100	SMD NPN Transistor	MMBT5551 LT1	1	Q25
051-003100-000	NPN Transistor	TIP31C TO-220	1	Q4
FE1064011100		MOSFET IRF640 TO-220	2	Q18, 22
<i>Miscellaneous</i>				
093-205209-300	Fuse	1.25A (2AG) 250V, 5x20mm	1	F1
073-050001-000	Fuse Clip	P/N:CFFH1206	2	
044-100100-000	SMD Ferrite Bead	600R/100MHZ	2	FB1, FB2
041-115001-000	Bead Coil	YT-10911	1	L5
043-300101-000	Inductor	30uH YT-10033	1	L2
043-324300-000	Inductor	324uH YT-10778	1	L4
043-560200-000	Inductor	56uH YT-10779	1	L1
043-700101-000	Toroidal Inductor	70uH YT-10682	1	L3
072-010007-000	RCA Housing	SCJ-1020 2P(G) WHT,RED	1	CONN1
072-040039-000	Terminal	PC205 (t=0.8m/m) T205MA	1	S-
072-040064-000	Terminal	PC250(t=0.8),T250MA	1	S+
072-040096-000	Terminal	(t=0.8mm) PC187(0.8)	7	AC1, AC3, T1, T2, AC2, SW2, SW4
072-040169-000	Connector	2 PIN JS-1001-2 P:2.5mm	1	CONN3A
072-060170-000	Binding Post	B.P. A'ssy	4	BP/IP, BP/OP
074-030002-000	Toggle Switch	LFE/NORMAL - PHASE	2	SW5, SW6
074-300018-000	Relay	PN:943-1C-48D	1	K1
042-010052-003	X'fmr	YT-10615-4	1	
061-020000-000	Knob	20 x 15 m/m UL 94V-0 Blk	2	
061-314002-000	Strain relief	SB4F-2	2	
063-010012-000	Clamps holding output transistors to heatsink	TRK-1	4	
063-531808-000	Rear plastic cover w/G	ABS	1	
073-032316-601	Heatsink	70 x 42 x 20 mm	1	
074-020018-000	Main Power switch	RF1003-BB4-0	1	
083-041802-009	Power Cord 120V	SPT-2 BLK #18 T187	1	
181-911600-161	Output wires	#16 AWG UL1007 Blk	1	
181-911655-135	Output wires	#16 AWG UL1007 Green	1	
181-921600-000	Output wires	#16 AWG UL1015 Blk	1	
181-921699-000	Output wires	#16 AWG UL1015 Wht	1	

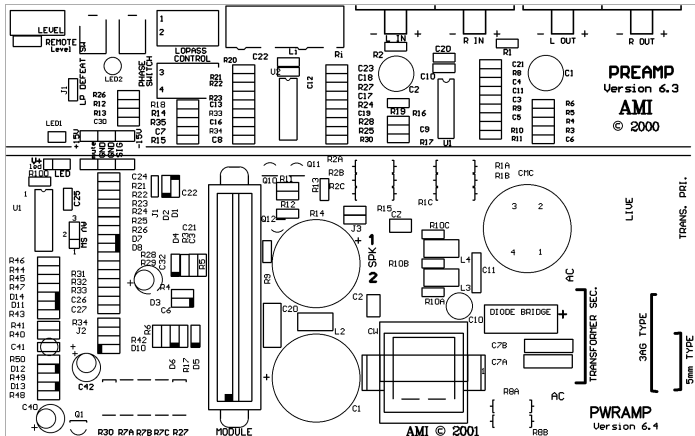




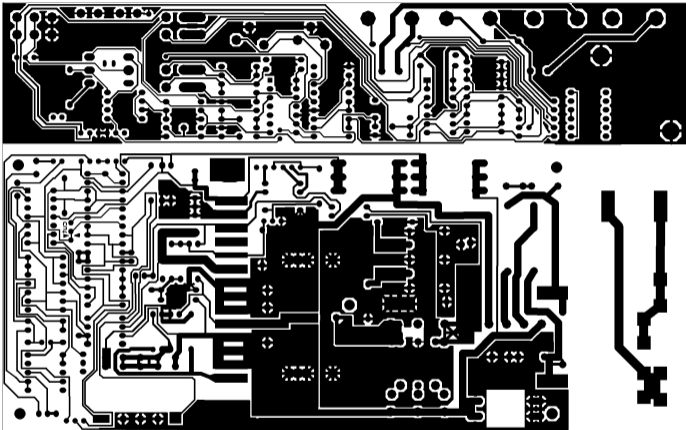


FANCY Version 6.3

PB10 (PCB version 6.4) Power Amp Only (Revision 1 Only)



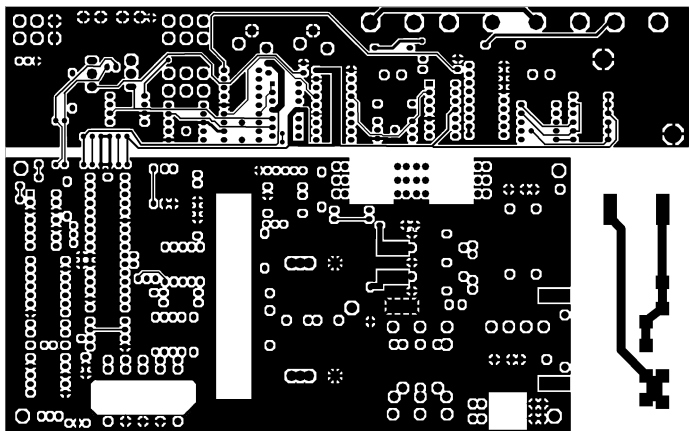
FANCY Version 6



SOLDERSIDE

FANCY Version 7.2

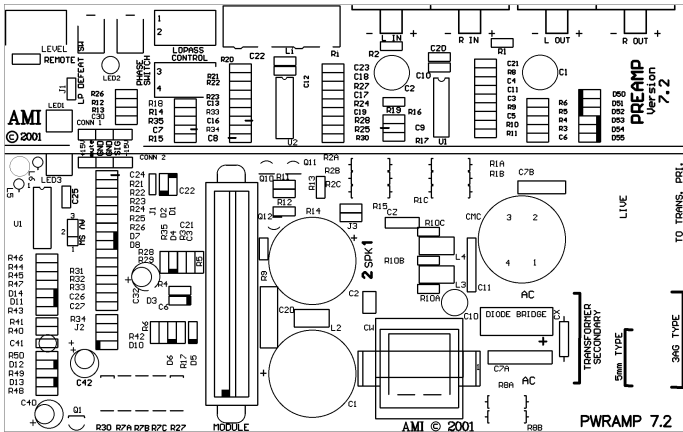
.125 holes NOT thru-plated



COMP SIDE

FANCY Version 7.2
.125 holes NOT thru-plated

PB10 (PCB version 7.2) (Revision 1 Only)



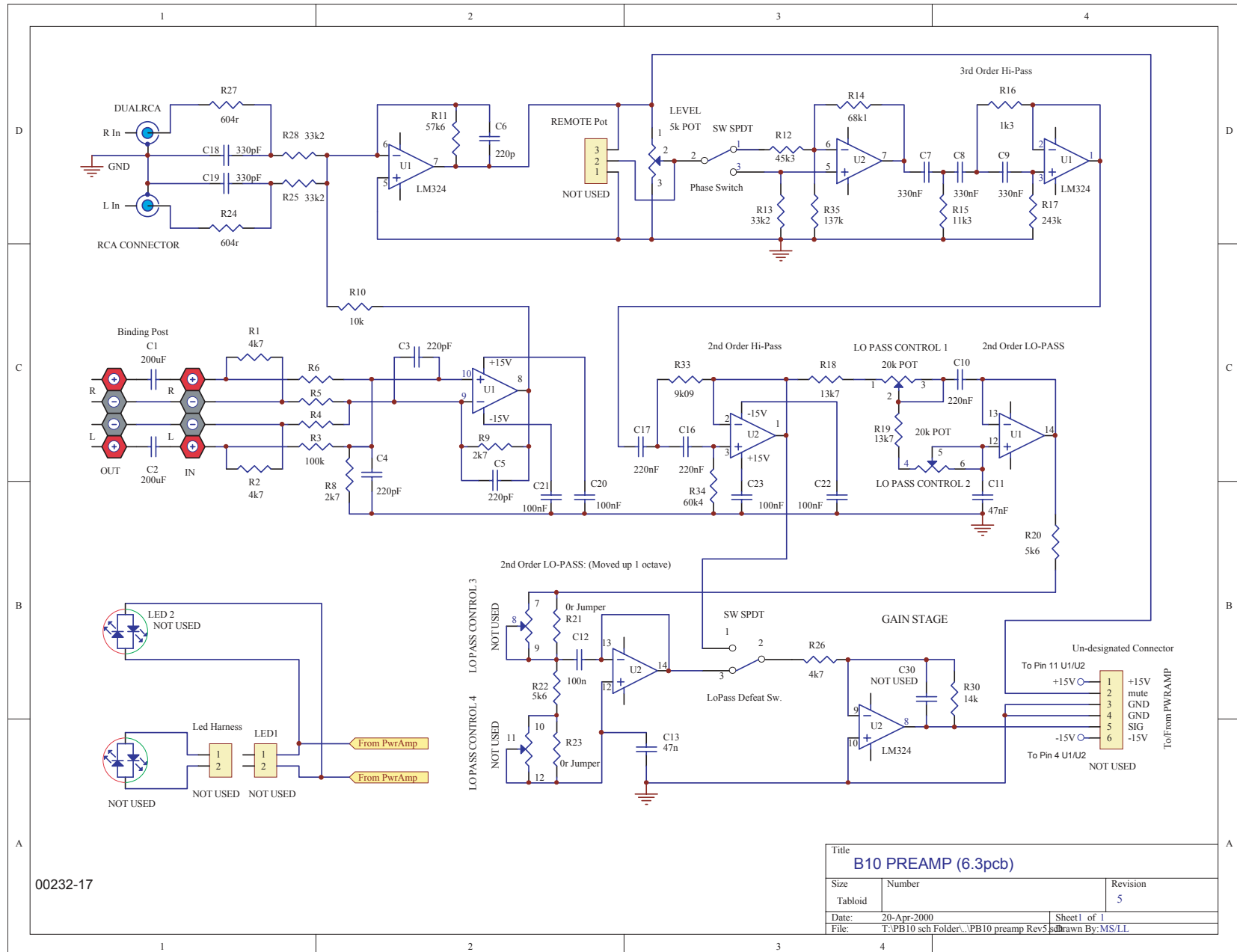
SILKSCREEN

AMI © 2001

PWRAMP 7.2

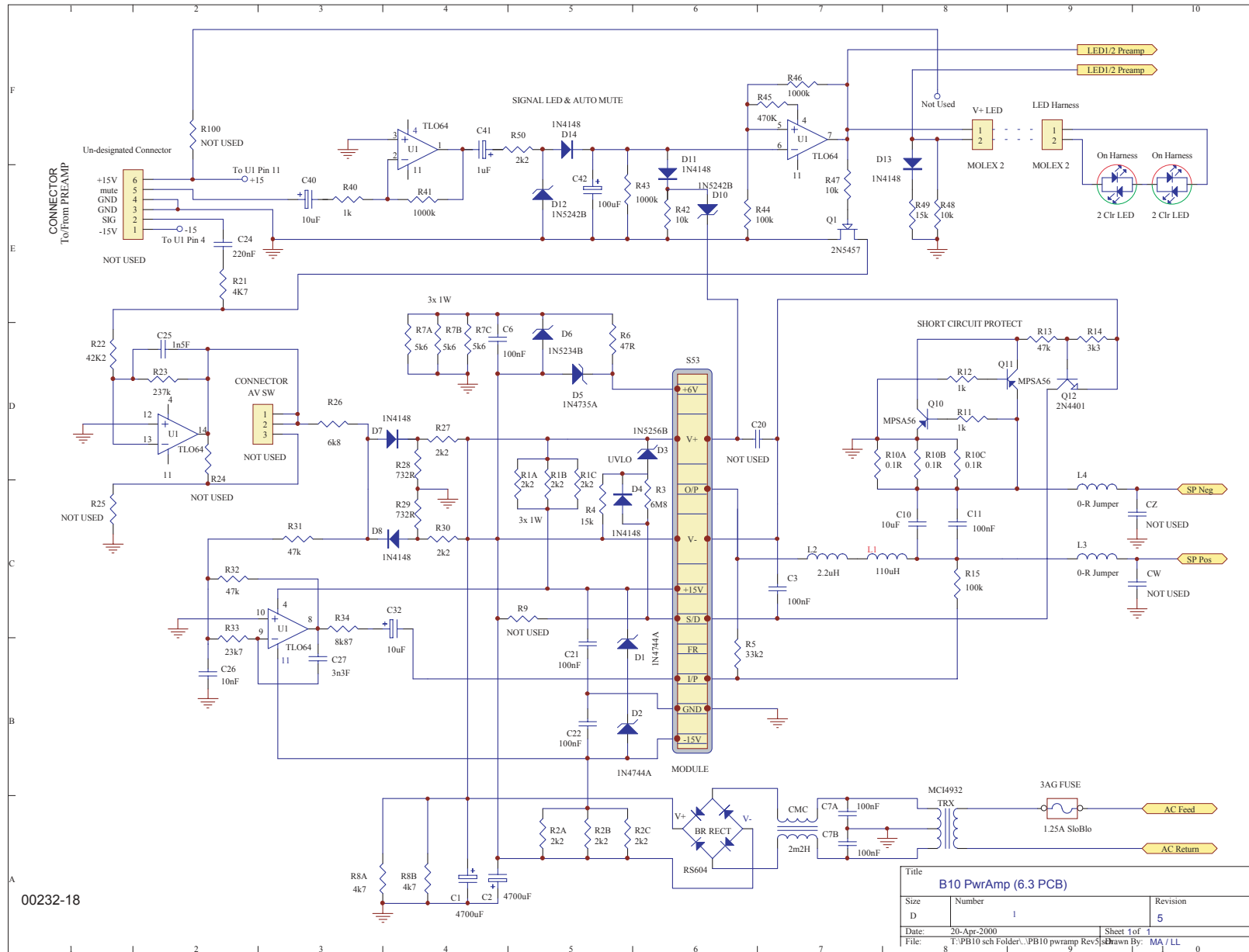
FANCY Version 7.2

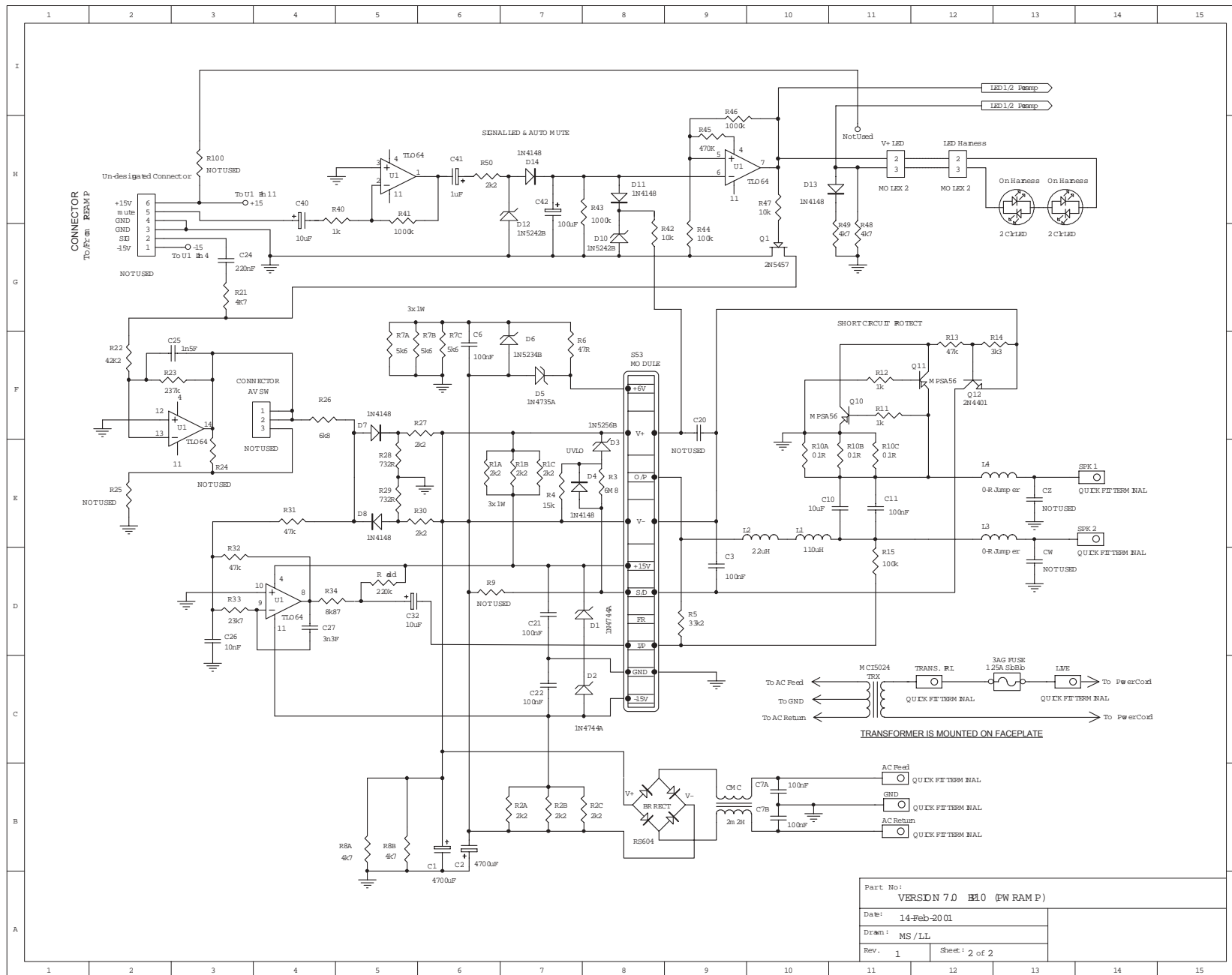
.125 holes NOT thru-plated

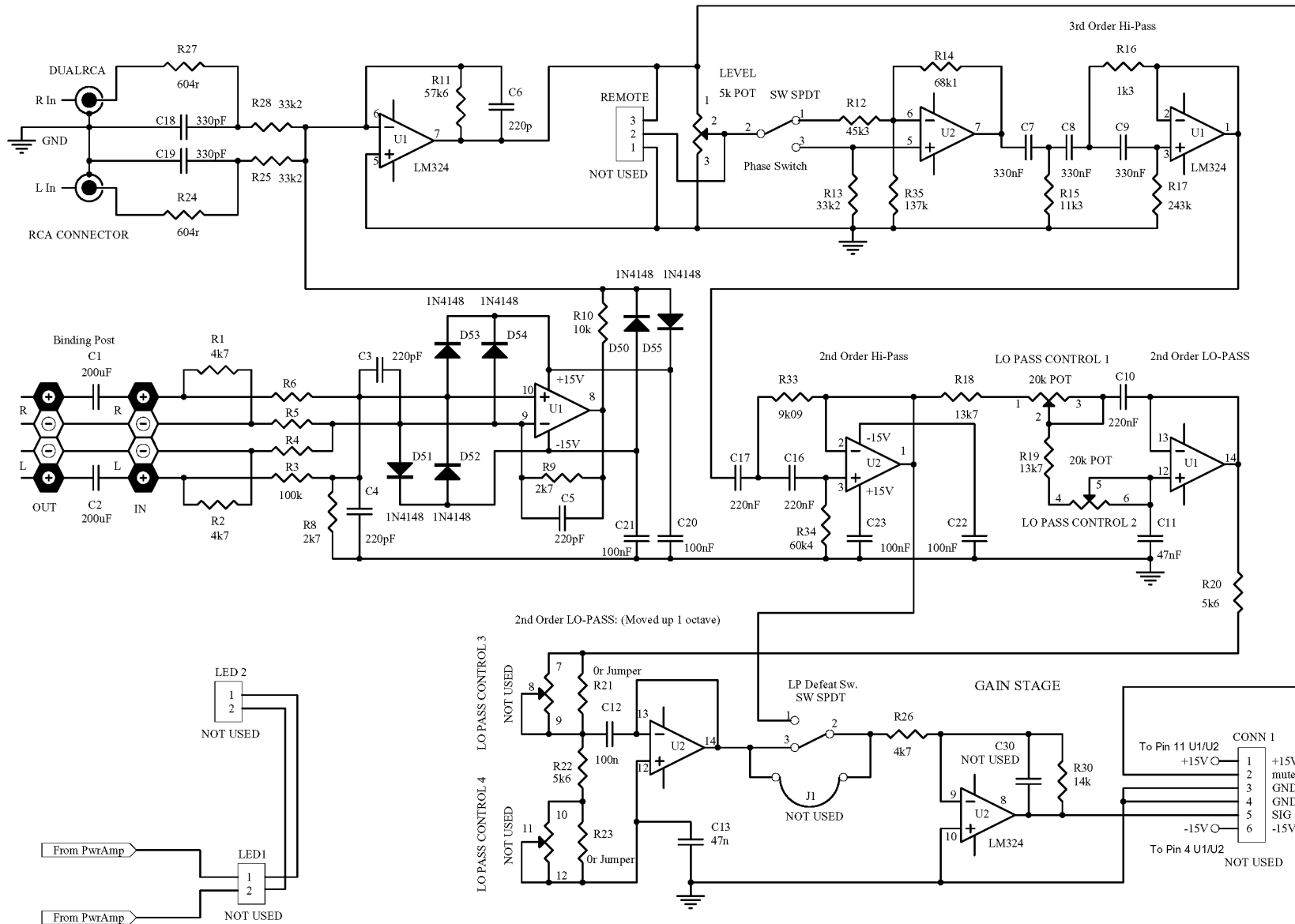


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Title		
B10 PREAMP (6.3pcb)		
Size	Number	Revision
Tabloid		5
Date:	20-Apr-2000	Sheet 1 of 1
File:	T:\PB10 sch Folder\...\PB10 preamp Rev5.scb Drawn By: MS/LL	







Part No:		VERSION 7.2 PB10 (PREAMP)	
Date:	20-Jun-2001		
Drawn:	MS/LL		
Rev.	1	Sheet:	1 of 2

CONNECTOR
To/From PREAMP

SIGNAL LED & AUTO MUTE

SHORT CIRCUIT PROTECT

S53
MODULE

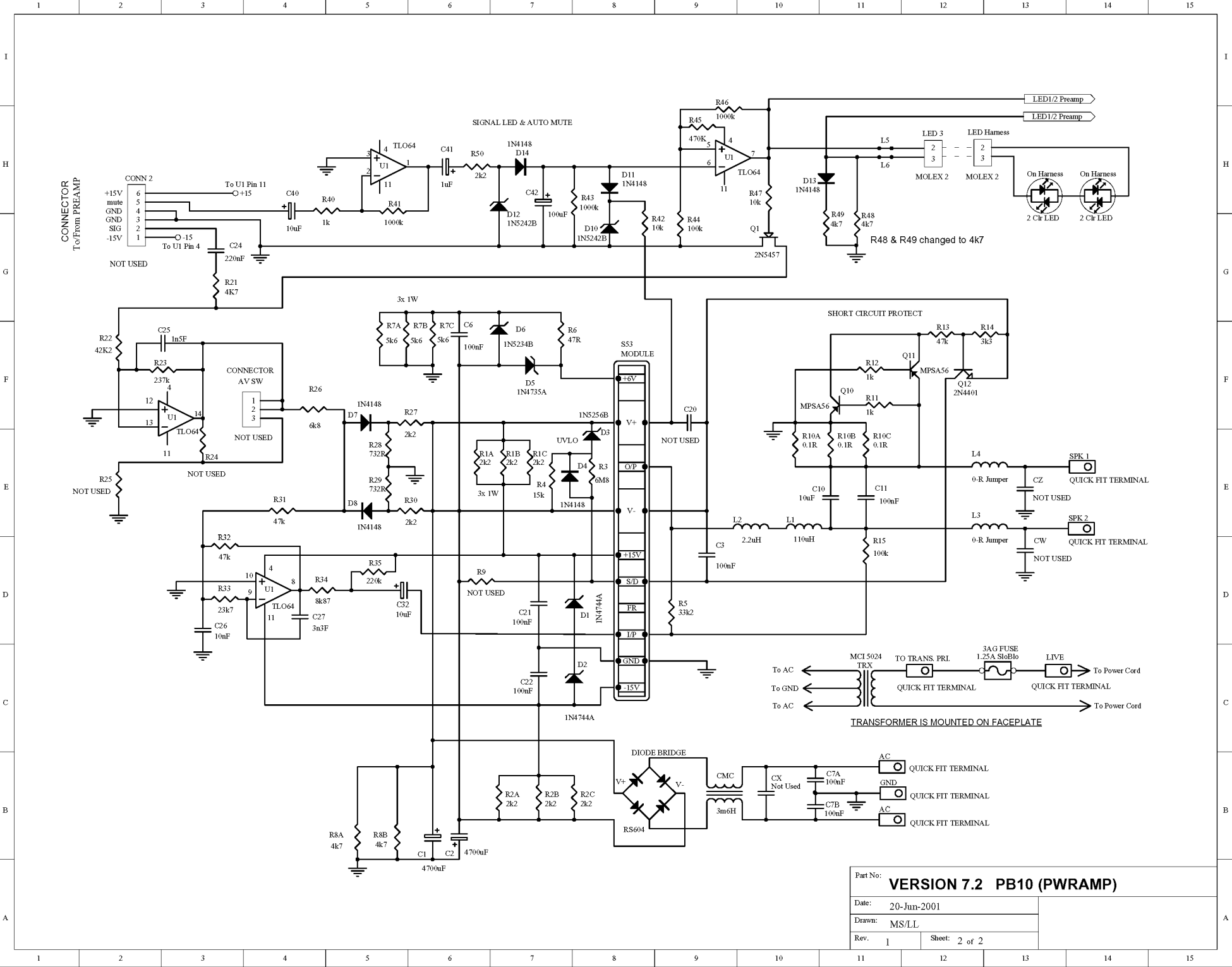
UVLO

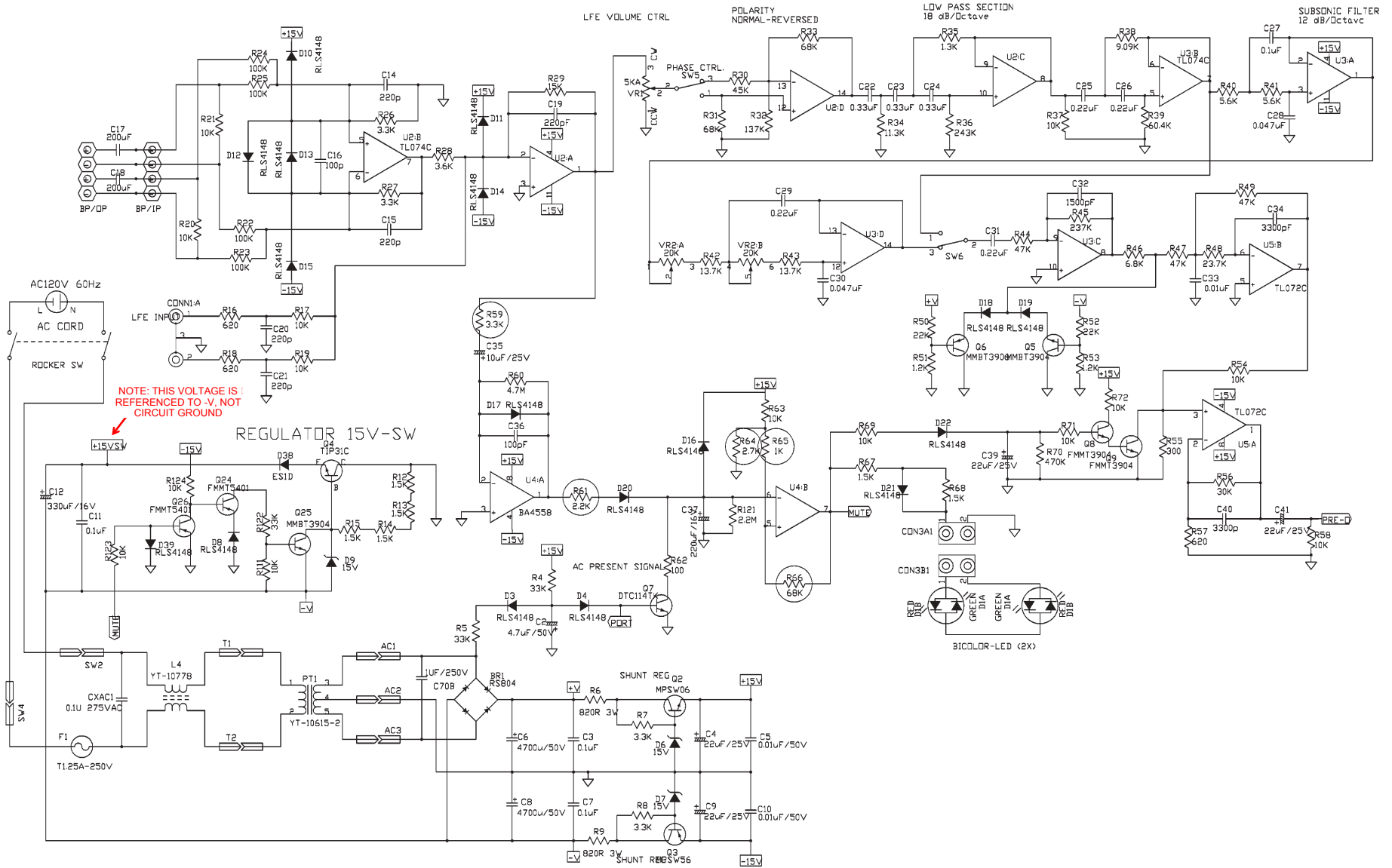
DIODE BRIDGE

TRANSFORMER IS MOUNTED ON FACEPLATE

Part No: **VERSION 7.2 PB10 (PWRAMP)**

Date: 20-Jun-2001
 Drawn: MS/LL
 Rev. 1 Sheet: 2 of 2

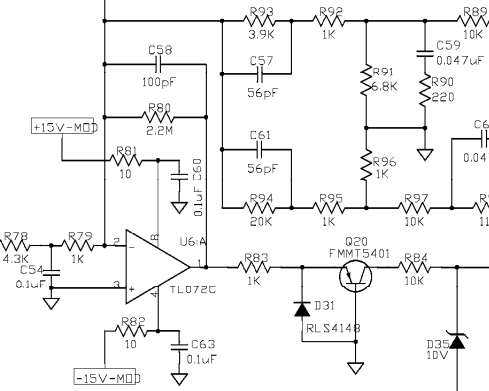
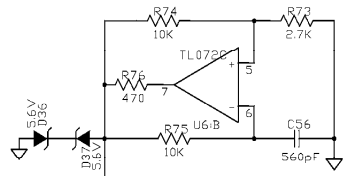
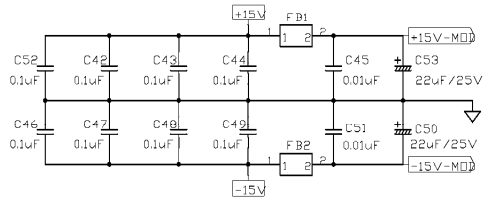




PRE-AMP

PB10 Revision 2 Schematic Diagrams

POWER AMP



NOTE: THIS VOLTAGE IS REFERENCED TO -V, NOT CIRCUIT GROUND

NOTE: THIS VOLTAGE IS REFERENCED TO -V, NOT POWER-AMP CIRCUIT GROUND

