Infinity

Interlude Series

IL50 L/R Powered Loudspeaker

Service Manual

Infinity Systems, Inc

250 Crossways Park Dr.

Woodbury, New York 11797

REV10 10/2005

CONTENTS

Specifications

IL50 L/R Frequency Response:	32Hz - 22,000Hz (±3dB)
Recommended Amplifier Power Range	15-150 watts*
Subwoofer Amplifier Output:	250 watts (In to 8Ω from 20 Hz - 100Hz with no more than 0.1% THD)
Sensitivity:	88dB (2.83V @ 1 meter)
Nominal Impedance:	8Ω
Crossover Frequencies:	150Hz; 2500Hz, 24dB/octave,
Low-Frequency Driver:	10" C.M.M.D., magnetically shielded
Mid-Bass Driver:	6-1/2” C.M.M.D., magnetically shielded
High-Frequency Driver:	1” C.M.M.D., magnetically shielded
Dimensions (H x W x D):	42" x 8-3/4" x 14-1/2" (1067mm x 222mm x 368mm)
Weight:	60 lb (27kg)

* The maximum recommended amplifier power rating will ensure proper system headroom to allow for occasional peaks. We do not recommend sustained operation at these maximum power levels.

Detailed Specifications

LINE VOLTAGE	Yes/No	Hi/Lo Line	Nom.	Notes
US 120vac/60Hz	Yes	108-132	120	Normal Operation
EU 230vac/50-60Hz	Yes	207-264	230	Normal operation, MOMS required

Parameter	Spec	Unit	Limits	Conditions
Amp Section				
Type (Class AB, D, other)	AB	---		HC-BASH Power Supply
Load Impedance (speaker)	4	Ohms		Nominal - Resistor Load
Rated Output Power	250	Watts	230	@50Hz, THD 15%, Limiter defeated continuous for 3 second
THD@ 200W	5	%	10	22k filter, 50Hz, LPF "On"
THD @ 1 Watt	0.1	%	0.5	22k filter, 50Hz, LPF "On"
Polarity (Input vs Output)	0	deg.	0˚ ±20	In phase @37Hz .250 faston (+)……205 faston (-)
DC Offset	1	mV-DC		@ Speaker Outputs
Damping factor	>50	DF		
Input Sensitivity				
Input Frequency	50	Hz	50	Nominal Freq. 1 input driven
Line Input	35	dBr	±2	1 Watt, @50Hz LPF "On", BOS "Off"
Speaker/Hi Level Input	21	dBr	±2	1 Watt, @50Hz LPF "On", BOS "Off"
Signal to Noise				
SNR-A-Weighted	115	dBr	100	relative to 200W Output
SNR-unweighted	100	dBr	90	relative to 200W Output 22k filter
SNR rel. 1W-unweighted	80	dBr	70	relative to 1W Output 22k filter
Residual Noise Floor (Line Level Input)	1	mVrms(max	3	>500kHz filter; test unit isolated
Residual Noise Floor (High Level Input)	2	mVrms(max	5	>500kHz filter; test unit isolated
Input Impedance Line Input	10k	ohms		Nominal
Speaker/Hi Level Input	1k	ohms		Nominal
Active Filters				
Low Pass Filter (fixed or variable)	fixed	--		
Frequency	84	Hz		
Slope	24	dB/Octave		
Q	0.7	Damping		
Subsonic filter (HPF)	fixed	--		
Frequency	34	Hz		
Slope	12	dB/Octave		
Q	1	Damping		
Line Out Filter (HPF)	no	--		Output to satellites
Frequency	80	Hz		
Slope	12	dB/Octave		
Q	B/worth	Damping		
Friend Circuit	bypassed	--		
Frequency		Hz		
Av		dB/Octave		
Q		Damping		
Parametric EQ (BOS)				
Frequency Pot	yes	--		21 detent pot (0.1 oct. steps)
Range	20-80	Hz		
Level Pot	yes	--		21 detent pot (0.5dB steps)
Range	0 to -14	dB		
Width(Q) Pot	yes	--		21 detent pot (5steps/0.1 octave)
Range	0.05-0.5	octave		

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Detailed Specifications (Cont.)

Features				
Main Power On/Off Switch	rocker	--		Locate at amp plate
Line/Spkr Input Select Switch	toggle	--		Locate at amp plate
BOS Bypass Switch	toggle	--		Locate at amp plate
Low Pass Filter Switch	toggle	--		Locate at amp plate
Limiter Output power limited to	200	Watts	180	<10%THD
Output Volume Control				
Volume Control Pot	10k	ohm		Locate at front
Taper (lin/log)	A- / C-taper	--		D-shaft pot for knob fitting; A-taper for "right" and C-taper for "left"
Input/Output Configuration				
Line In (L,C,R,AC3,Mono)	Mono	--		RCA phono jack, gold plated
Spkr/Hi Level In (L,C,R,mono)	Mono	--		Binding posts, gold plated
Line Outputs (L,C,R)	Mono	--		RCA phono jack, gold plated with 2nd order HPF
Signal Sensing (ATO)				
Auto-Turn-On (yes/no)	yes	--		bias power never exceed 15W
ATO Input Frequency	50	Hz		
ATO Level	3/100	mV	10/120	@50Hz into single Line/Speaker Input LPF "On", BOS "Off"
ATO Bandwidth	400	Hz	450	ATO-LPF for noise immunity LPF "On", BOS "Off"
ATO Turn-on time	5	ms	10	AC on, then input signal applied
Auto Mute/ Turn-OFF Time	15	minutes	20	muting after signal removed
Power on Features				
Power on Delay time	2	sec.	3	AC Power Applied
Power on LED	yes	--		Bi-color LED located at front
Normal On	green	color		
ATO	red	color		"Active": green; "Standby": red
Transients/Pops				
ATO Transient	10	mV-peak	N/P	@ Speaker Outputs
Turn-on Transient	100	mV-peak	1V-pp	@ Speaker Outputs AC Line cycled from OFF to ON
Turn-off Transient	100	mV-peak	1V-pp	@ Speaker Outputs AC Line cycled from OFF to ON
Efficiency				
Stand-by Input Power	12	Watts	15	@ nom. line voltage
AC Power Cons.@1W	19	Watts	22	@ nom. line voltage
Power Cons.@200W	300	Watts	333	@ nom. line voltage
Efficiency	67	%	60	@ nom. line voltage
Protection				
Short Circuit Protection	preferred	--		Direct short at output
Thermal Protection	preferred	--		@1/8 max unclipped Power
DC Offset Protection	preferred	--		DC present at Speaker Out leads
ESD Protection	preferred			ESD 15kV test to all input terminals
Line Fuse Rating	3	Amps		Type-T or Slo Blo
Power cord length	15	feet		Double insulated cord, AWG#18, IEC receptacle

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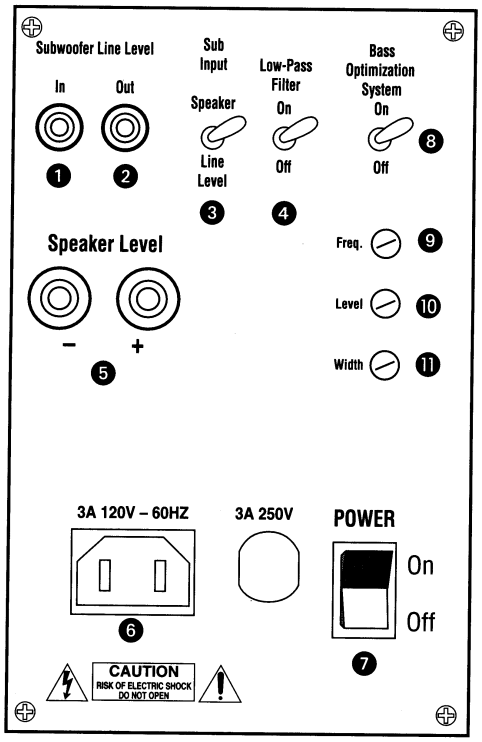
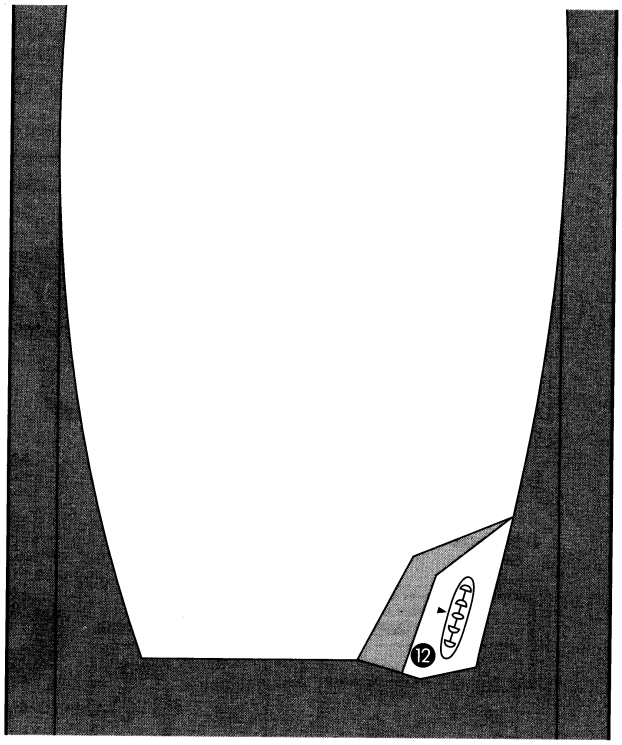
Controls and Connections (Cont.)

Controls and Connections

Rear Panel



Front Panel



❶ Subwoofer Line-Level-In Connector

❷ Subwoofer Line-Level-Out Connector

❸ Subwoofer Input Selector

❹ Low-Pass Filter Switch

❺ Speaker-Level Input

❻ AC-Cord Input

❼ Power Switch

Bass Optimization System

❽ Bass Optimization System Selector

❾ Center-Frequency Adjustment

❿ Bass Optimization System Level

⓫ Bandwidth Adjustment

⓬ Subwoofer Level Control

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Controls and Connections

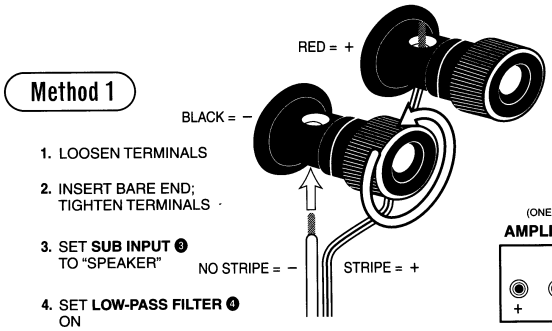
The Interlude IL50 and IL60 offer unprecedented flexibility for connecting the system to any type of audio or home-theater system. Consult the table at right to determine which system description most closely matches your own, then follow the hook-up method corresponding to that system.

If none of these system configurations seem to match yours, consult your dealer or Infinity customer service for direction on how best to hook up your system.

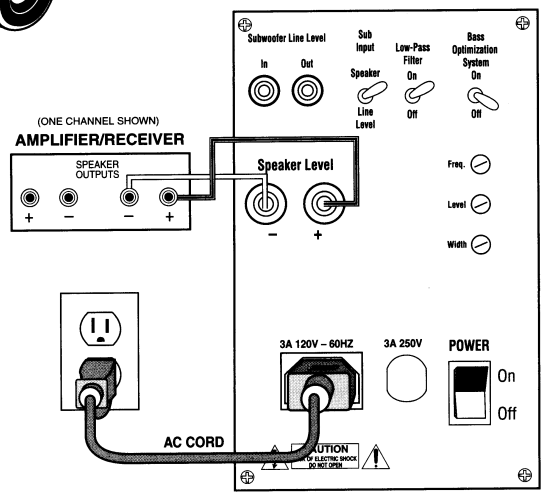
For Methods 2, 3a, 3b and 4, make sure all bass-management features are properly set. The Audio channels should all be set to "Small" or "High-Pass" and the subwoofer set to "On."

System Type	Connection Methods
2-Channel receiver or integrated amplifier that has no subwoofer output or Pre-out/Main-In connectors	1
2-Channel receiver or integrated amplifier with preamp output and input connectors	2
2-Channel system with separate preamplifier and power amplifier	2
Dolby* Pro Logic* with THX®, Dolby Digital, or DTS® receiver with a filtered subwoofer (or LFE) output connector	3a
Dolby Digital or DTS processor with separate power amplifiers or multichannel amplifier	3b
Non-THX certified Dolby Pro Logic receiver with full-range subwoofer outputs	4

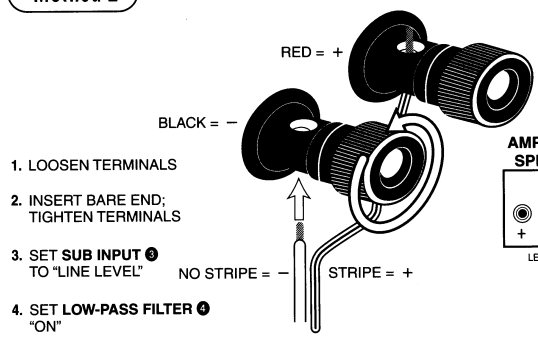
Method 1



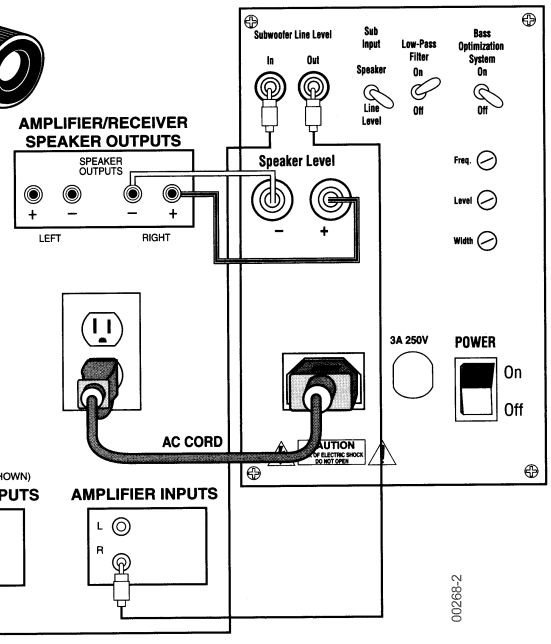
1. LOOSEN TERMINALS
2. INSERT BARE END; TIGHTEN TERMINALS
3. SET **SUB INPUT** ❸ TO "SPEAKER"
4. SET **LOW-PASS FILTER** ❹ ON



Method 2

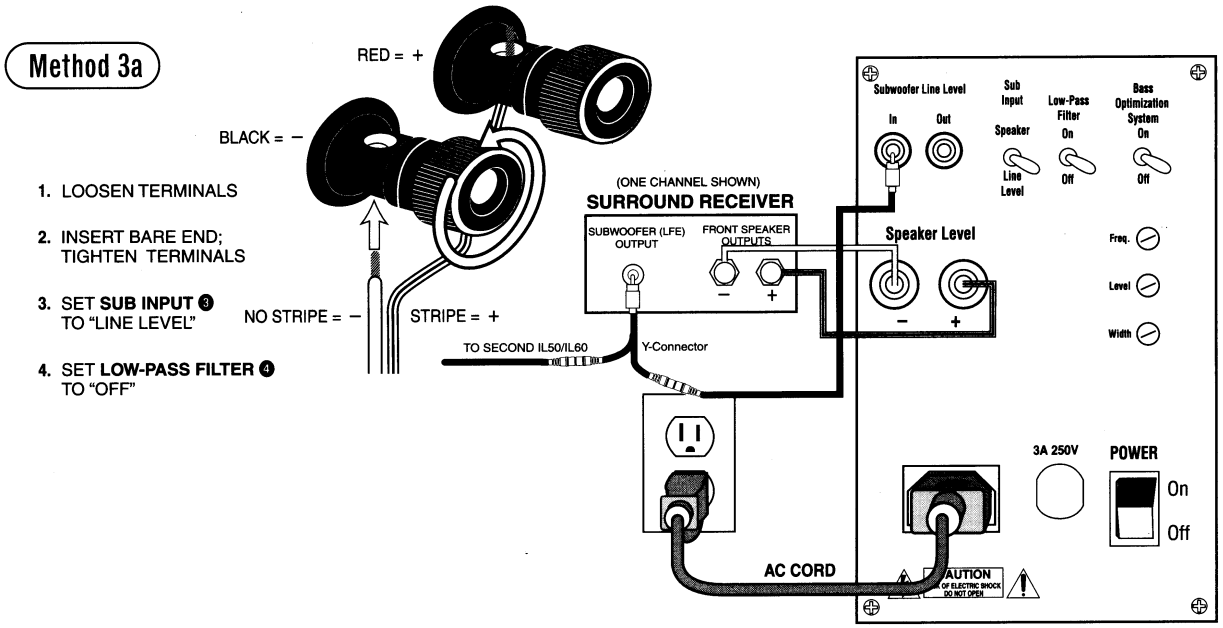


1. LOOSEN TERMINALS
2. INSERT BARE END; TIGHTEN TERMINALS
3. SET **SUB INPUT** ❸ TO "LINE LEVEL"
4. SET **LOW-PASS FILTER** ❹ "ON"

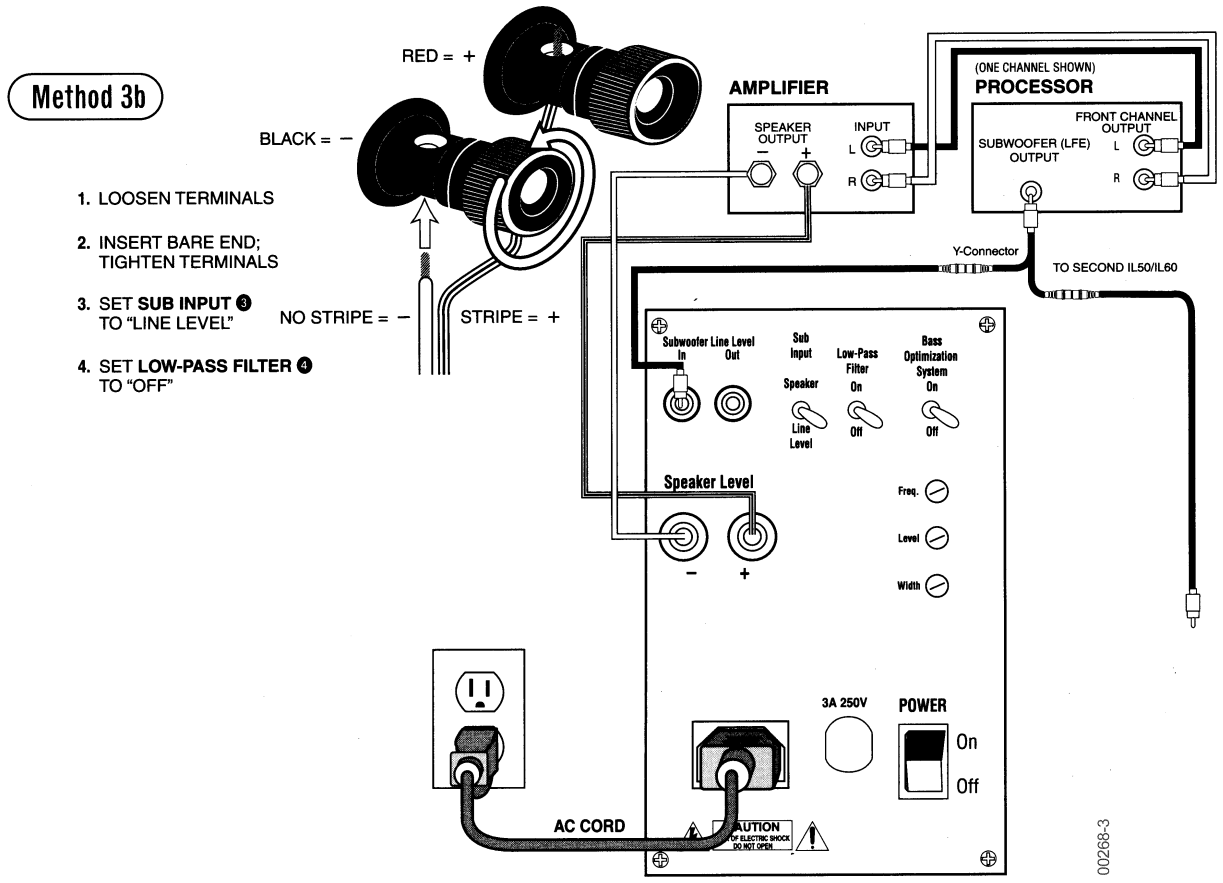


Controls and Connections (Cont.)

Method 3a



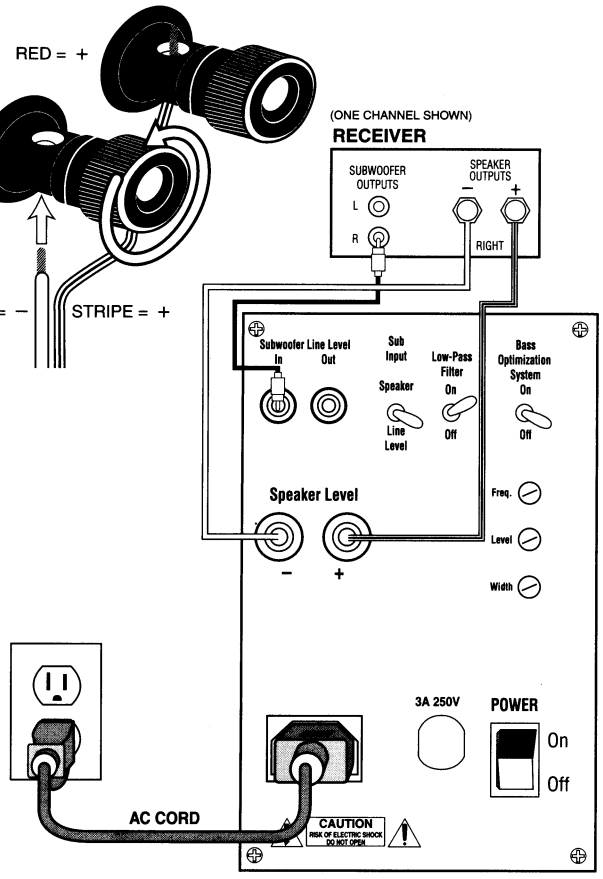
Method 3b



Controls and Connections (Cont.)

Method 4

1. LOOSEN TERMINAL
2. INSERT BARE END; TIGHTEN TERMINAL
3. SET **SUB INPUT** ❸ TO "LINE LEVEL"
4. SET **LOW-PASS FILTER** ❹ TO "ON"



Final Positioning

After correctly connecting the loudspeaker and verifying that both the subwoofer and main section portions are playing, it is time to optimize the system for your particular listening room.

Earlier, you placed the loudspeakers in their general location. Finding the exact location for optimum performance sometimes only involves moving the speakers a few inches in any direction. We urge you, therefore, to experiment with placement until your speakers deliver their full potential. When the speakers are moved inward (toward each other) there is generally better focus of instruments and vocalists; however, moving the speakers too close together can reduce the spaciousness of the stage effect and you may need to experiment with the trade-off between focus and imaging. If your listening room is larger than average and your listening position is relatively far from the speakers, wider placement of the speakers may be required.

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Operation/Bass Optimization System™

Operation

Power On

Plug your speakers' AC cords into a wall outlet. Do not use the outlets on the back of the receiver.

Initially set the subwoofer Level Controls (12) to the "0" position.

Turn on your subwoofers by pressing the power buttons (7) on the rear panel of the speakers.

Turn on your entire audio system and start a CD or movie soundtrack at a moderate level.

Adjust Gain

Turn both subwoofer Level Controls (12) up to the "5" position (half way). If no sound emanates from the subwoofers, check the AC-line cords and input cables. Are the connectors on the cables making proper contact? Are the AC plugs connected to "live" receptacles? Have the power buttons (7) been pressed to the "On" position? (Note: The Level Control on the front panel will turn green when the power is on and there is a signal present. After about ten minutes with no audio signal, the indicator will turn red.) Once you have confirmed that the subwoofers are active, proceed by playing a CD, record or cassette. Use a selection that has ample bass information.

Set the overall volume control of the preamplifier or stereo to a comfortable level. Adjust the subwoofer Level Controls (12) until you obtain a pleasing blend of bass. Bass response should not overpower the room but rather be adjusted so there is a harmonious blend across the entire musical range. Many users have a tendency to set subwoofer volume too loud, adhering to the belief that a subwoofer is there to produce lots of bass. This is not entirely true. A subwoofer is there to enhance bass, extending the response of the entire system so the bass can be felt as well as heard. However, overall balance must be maintained or the music will not sound natural. An experienced listener will set the volume of the subwoofer so its impact on bass response is always there but never obtrusive.

Bass Optimization System™

Infinity's Bass Optimization System is a simple-to-use, yet sophisticated, low-frequency calibration system. Each Interlude IL50 or IL60 subwoofer contains a parametric equalizer that you can adjust by following the directions below. By following these instructions, you can improve the sound of your system.

The Bass Optimization System Goal

It is a fact of audio that what we hear at low frequencies is determined as much or more by the listening room than by the loudspeaker itself. Placement of the loudspeakers and listeners and the acoustical characteristics of the room surfaces are all important determinants of bass quantity and quality. In most practical situations, there is little that can be done about this, except for patient trial-and-error repositioning of the loudspeakers and listeners. Usually, the practical constraints of a living space and the impracticality of massive acoustical treatment mean that equalization is the only practical solution.

Professional sound engineers routinely employ sophisticated measurement systems and equalizers to optimize speakers to the installation. This was never practical for the home audiophile. This is why the Bass Optimization System was created. It enables you to identify the dominant low-frequency response characteristic of your room. Once you know the problem, the Bass Optimization System provides the tools needed to optimize the low-frequency characteristics of the speakers to the room they are in, exactly as the professional sound engineers do it.

Preparations

Before beginning the bass tests, please check the following:

- Make sure all three Bass Optimization System controls, (9), (10) and (11), on both speakers are turned fully clockwise.
- Make sure the loudness contour (if any) on your receiver/processor/preamp is turned off.
- Set the tone controls (Bass and Treble) to their center or flat positions.
- Bypass all surround and effects features of your receiver/processor/preamp or set to Stereo Bypass.
- If you are using a multichannel surround processor or receiver, make sure all bass-management features are properly set. The Audio channels should all be set to "Small" or "High-Pass" and the subwoofer set to "On."
- Set the Bass Optimization System selectors (8) to "On."

For best results, it is recommended that all major furnishings are in place and that all doors and windows in the listening area are in their normal positions. That is, if you normally listen to music with all doors closed, then this is how they should be during this procedure.

To solve a problem, it helps to first identify whether you have one and, if so, what it is. First, play a variety of music and films with energetic bass sounds, like bass guitar, kick drum, keyboards, etc. A kick drum should produce a tight "thump" not a flabby "boom." Bass melody or harmony lines should have notes that are about equally loud. If some notes disappear, or stand out because they are consistently too loud, there is a problem. Disappearing notes have to be handled by moving the listening position, or the loudspeakers, to slightly different locations. Often, but not always, this will be enough. Excesses in bass tend to be most annoying, and energetic resonances that cause "boomy" or "lumpy" bass can be truly aggravating over a period of time. Infinity's Bass Optimization System can fix this.

So, the first step is to exercise your music collection, and listen for low-frequency problems that crop up in several different recordings. Something that only happens in one recording is likely to be a problem in the recording – it happens! If you identify something that is consistently wrong, select a record that shows it very clearly, and put your CD/DVD player into a repeat mode (A-B repeat is especially helpful, because you can isolate a short musical passage).

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Bass Optimization System™ (Cont.)

NOTE:It is important that you make the same adjustments to both loudspeakers.

Set the Bass Optimization System Bandwidth adjustments ⓫ to a middle position (10 clicks from a fully clockwise position) and set Level adjustments ⓾ for a –6dB (8 clicks from a fully clockwise position). Then,while the music is playing,sit in your favorite chair and have somebody else slowly adjust the Frequency controls ❾ from fully clockwise to fully counter-clockwise. At a certain frequency, you should hear the problem lessen and the overall bass performance improve. When you are satisfied that you have found the best frequency, have your assistant vary the Levels ⓾ slowly up and down until you have maximized the improvement.If you have really keen ears, you can also have the Bandwidth controls ⓫ adjusted for maximum benefit.

While the Bass Optimization System allows the listener to fine-tune the bass response to sound best in a particular room,some listeners don't have the skill or desire to adjust their system by ear. In order to facilitate quicker and more accurate results, Infinity has developed an optional test and measurement kit that allows the user to perform a series of measurements and aids him/her in properly setting the Bass Optimization System controls. With the addition of this kit,the Bass Optimization System becomes truly room-adaptive.

The kit consists of the following:a test CD, a sound-level meter that is specifically calibrated for low frequencies, and something we call a "Q-Finder, "a device to help find the width of the measured curve and, finally, a measurement template. It works as follows. The listener plays the tones from the test CD and records the relative output level of each test tone, using the sound-level meter, on the provided measurement template. After all the tones are complete, the template contains a response curve for the frequencies below 100Hz. The user simply notes the frequency of the largest bass peak,calculates the correct amount of attenuation,and uses the "Q-Finder" to determine the width of the curve. These three values are dialed into the Bass Optimization System controls located on the speaker.The entire process takes less than twenty minutes.

If your dealer does not stock the Bass Optimization System test and measurement kit,you may purchase it directly from Infinity. U.S. residents can visit our Web site at www.infinitysystems.com or call 1-800-553-3332.Canadian residents should contact their dealer or call 1-800-567-3275.

Ask for Infinity part number 335852-002.

IL50 L/R Mechanical Parts List

IL50 Complete Amplifier Ass'y	NOT FOR SALE
Grille Set (one Upper and one Woofer):	
Grille, Black, left	335612-072
Grille, Black, right	335612-071
Grille, Midnight Blue, left	335612-052
Grille, Midnight Blue, right	335612-051
Grille, Rich Burgundy, left	335612-062
Grille, Rich Burgundy, right	335612-061
Grille, Gray, left	335612-042
Grille, Gray, right	335612-041
Midrange, 6-1/2" C.M.M.D., shielded, 4.5 ohms±10%	335741-001
Woofer, 10" C.M.M.D, shielded, 3.4 ohms±10%	335808-001
Tweeter, 1" C.M.M.D., shielded, 3.5 ohms±10%	335225-002
Volume Control Assembly	336250-002
Passive Crossover Network	336476-001
Port tube	336805-001*
Pedestal	336256-001
Cup, Grille (10)	333249-003
Baffle, Front, L	336163-002
Baffle, Front, R	336163-001
Bump-On, Foot (4)	330104-001
Trim Ring, Woofer	336162-001
PACKAGING	
Owners Manual, IL50,60	335832-001
Grille Option Literature	336503-001
Grille Assembly	See Options Above
Pad, End, Bottom/L	336437-003
Pad, End, Bottom/R	336437-002
Pad, End, Top	336437-001
Protective Corners (4)	335692-002
Outer Carton	336438-001
Survey Card	330033-001
Warranty Card	335841-001
Spike Foot Set	331360-001

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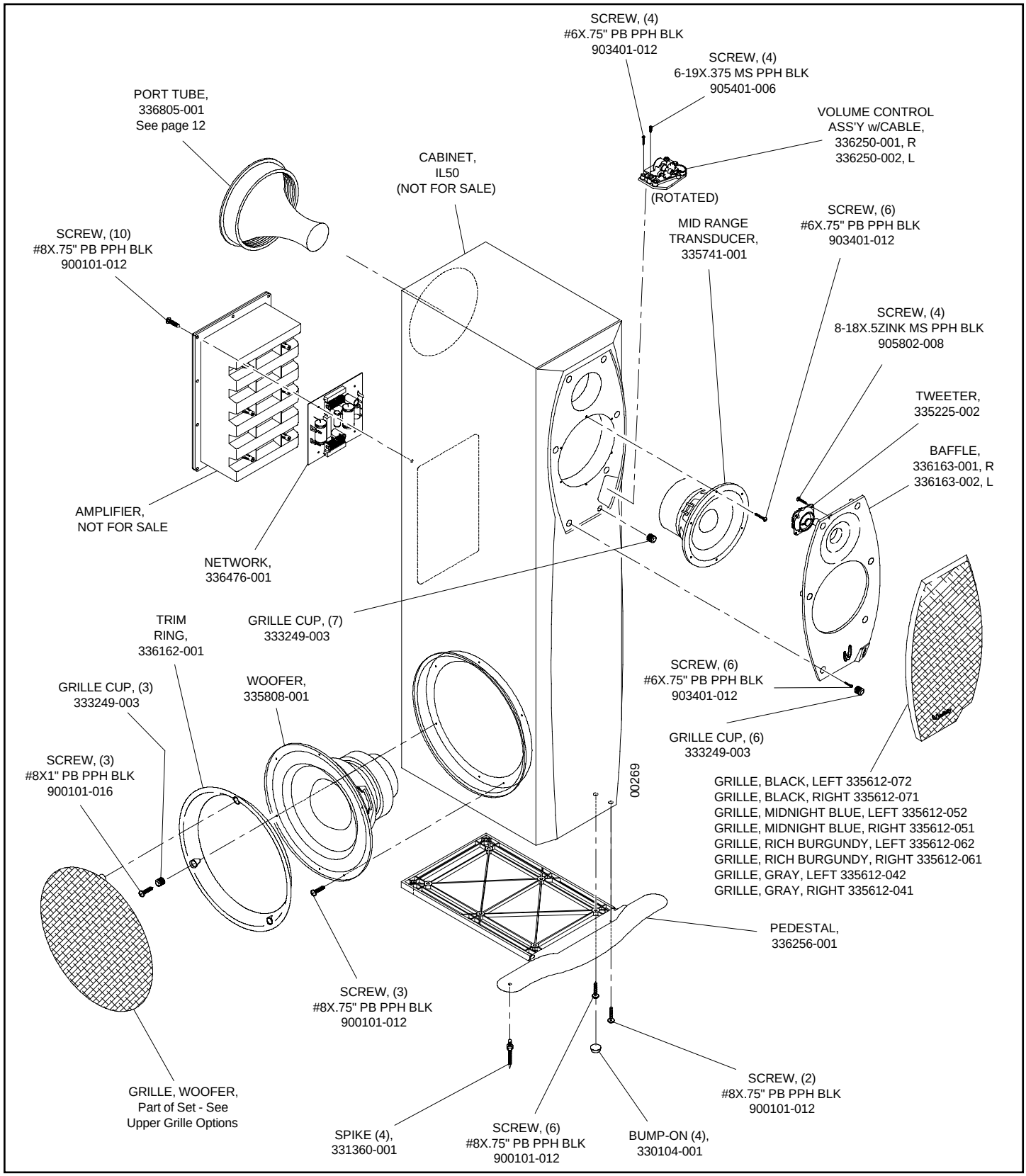
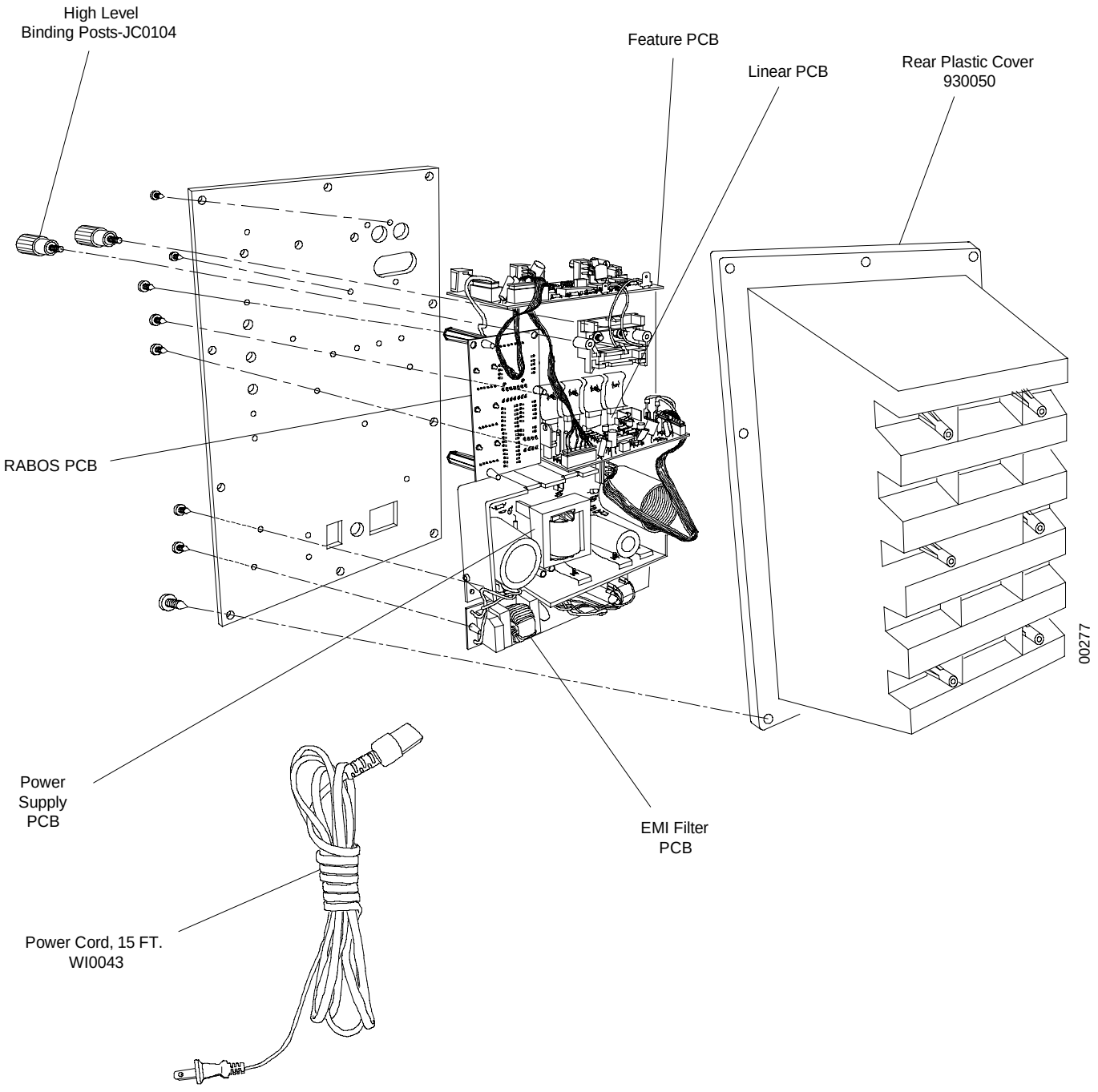
* On 9/1/2000 a new replacement port tube was included with the IL50. Supplied part number reflects the new part. In addition, modified IL50 product w/ new port tube may be identified by the following serial number prefixes, which appears on the amplifier faceplate and the carton barcode label:

IL50BLKL - NM0825-01001 and above
IL50MPLL - NM0826-01001 and above
IL50CHL - NM0827-01001 and above
IL50BLKR - NM0828-01001 and above
IL50MPLR - NM0829-01001 and above
IL50CHR - NM0830-01001 and above

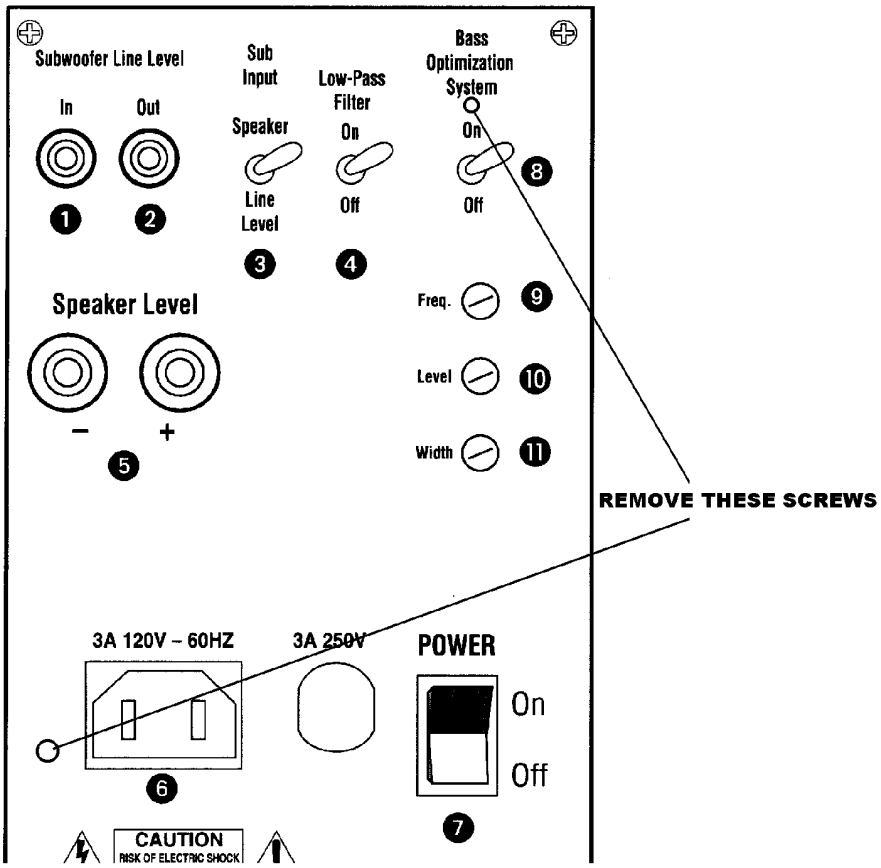
Exploded View



Exploded View of Amplifier



Service Tips



GENERAL SERVICING

Disengage the plastic cover from the amplifier faceplate by removing the two screws shown in the illustration.

On earlier versions of the product, the internal wires were so short that after the plastic cover is detached, it will not pull away from the faceplate sufficiently enough for serviceability. In this case, the adhesive and wires protruding from the rear of the cover must be detached. When servicing is complete, the integrity of the rear cover once again must be made air-tight by applying hot-melt, silicon sealer, or similar adhesive to the openings. Failure to do this will result in an air leak and poor subwoofer performance.

In addition, take care to replace the rear cover exactly as it was taken off; there is an "UP" indicator molded into the rear cover. The cover is not symmetrical.

SERVICING THE VOLUME CONTROL PCB (part# 336250-001 Right or 336250-002 Left)

If the VOLUME CONTROL PCB has to be serviced for any reason:

1. Remove the grille.
2. Extract all (6) rubber grille retainers; this can be accomplished by carefully pulling them out of their cavities with long-nosed pliers or similar tool.
3. Remove the (6) Phillips screws that are now exposed.
4. Lift the front baffle off the cabinet; this exposes the VOLUME CONTROL PCB.
5. Remove the (3) plated mounting screws and unplug the molex connector from the PCB.
6. 10K Potentiometer part# is RP0097; LED part# is DL0014.

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Service Bulletin

Service Bulletin INF2002-02 - February 2002

Warranty labor rate: MINOR repair

To: All Infinity Service Centers

Model: Interlude IL50, IL100s

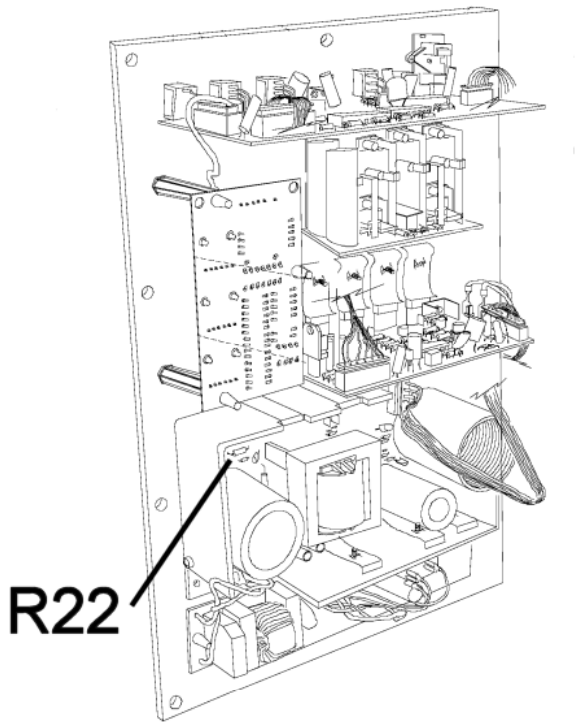
Subject: No Output

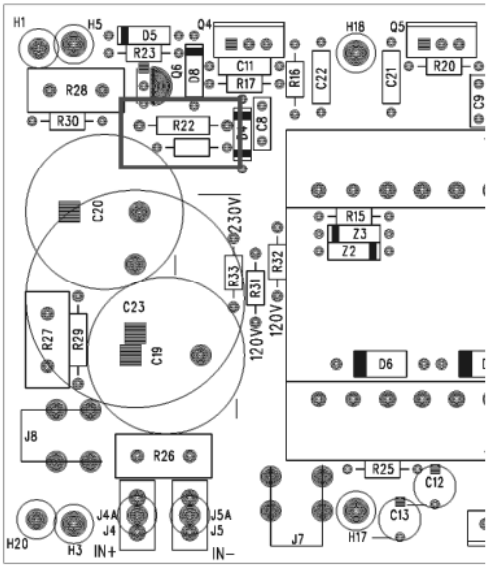
In the event you receive an Interlude IL50 or IL100s subwoofer with the complaint: "There is no output, and the LED on the volume control does not light, red or green", check the items listed below:

Check the 3A line fuse to make sure it's not open. If open, replace with a 3A MDL (.25 x 1.25) slo-blo fuse, Infinity part# 80126.

Locate R22 in the power supply section, as shown below.
If value of R22 is not 100k ohms ±5%, then replace R22 with a 1/2 Watt 100k ohm ±5%, resistor.

1. Remove the grille. Lay the subwoofer on its face on a padded surface, amplifier facing upwards.
2. Remove the 10 Phillips screws around the outer perimeter of the amplifier faceplate; remove the amplifier from the cabinet.
3. Remove two Phillips screws on the faceplate to remove the rear plastic cover; they are (1) the screw directly above the Bass Optimization switch and (1) to the left of the power cord receptacle; remove the amp cover.
4. Locate the power supply section and R22 from the illustrations below. R22 can be checked in-circuit and should be 100k ohms ±5%. If it is any other value, or open, replace with Infinity part# RC0082.
5. Reassemble the amplifier, rear cover, replace the amplifier in the cabinet and test the subwoofer.





Service Bulletin

Service Bulletin INF2001-04 Rev2 – May 2005 | Warranty labor rate: MINOR repair

To: All Infinity Service Centers

Model: Interlude and Intermezzo IL50, IL60, IL100s, IL120s, IM1.2s, IM4.1t

Subject: No Output

In the event you receive an Interlude or Intermezzo loudspeaker with the complaint: "There is no output, and the LED on the volume control does not light, red or green", check the item listed below:

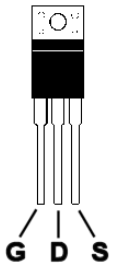
1) Check the line fuse to make sure it's not damaged. Replace if necessary

IL50, IL100s	3A	Infinity part# FS0022
IL60, IL120s	4A	Infinity part# FS0026
IM1.2s, IM4.1t	6A	Infinity part# FS0027

If the fuse is intact, or the unit still does not function, check the power supply portion of the amplifier circuit, described below:

2) Refer to the Exploded view page for detailed instructions on amplifer removal from the enclosure.
3) Remove all connectors and screws necessary to detach the Power Supply PCB from the main chassis heatsink. Squeeze the heads of the plastic standoffs with long-nosed pliers to detach the PCB from the heatsink.
4) Refer to the illustration on page 2. Check the DC resistance of following parts, in circuit, with a DMM:

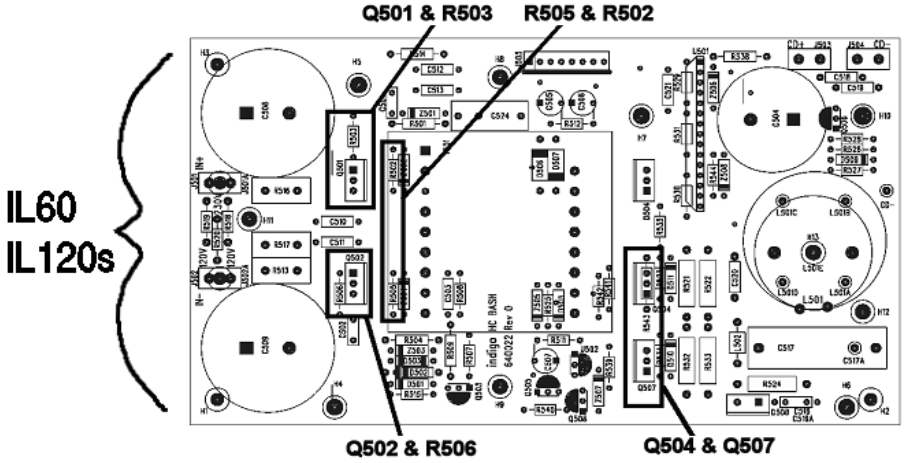
IL120s IL60	IRF740 MOSFETS **Q501, Q502** Infinity part# QM0055	D to S or S to D G to S or S to G D to G or G to D	Should measure >28K ohms* Should measure >400 ohms Should measure >28K ohms*
	22 Ohm 0.6W Resistors **R506, R503** Infinity part# RM0340	Should measure 22 ohms ±1%	
	422 Ohm 1/4 watt Resistors **R505, R502** Infinity part# RM0397	Should measure 422 ohms ±1%	
IL50 IL100s	IRF740 MOSFETS **Q4, Q5** Infinity part# QM0055	D to S or S to D G to S or S to G D to G or G to D	Should measure >28K ohms* Should measure >400 ohms Should measure >28K ohms*
	22 Ohm 0.6W Resistors **R17, R20** Infinity part# RM0340	Should measure 22 ohms ±1%	
	475 Ohm 1/4 watt Resistors **R16, R19** Infinity part# RM0075	Should measure 475 ohms ±1%	
IM1.2s IM4.1t	IRF740 MOSFETS **Q403,404,406,407** Infinity part# QM0055	D to S or S to D G to S or S to G D to G or G to D	Should measure >28K ohms* Should measure >400 ohms Should measure >28K ohms*
	22 Ohm 0.6W Resistors **R407,410,414,417** Infinity part# RM0340	Should measure 22 ohms ±1%	
	365 Ohm 1/4 watt Resistor **R408,411,415,418** Infinity part# RM0072	Should measure 365 ohms ±1%	

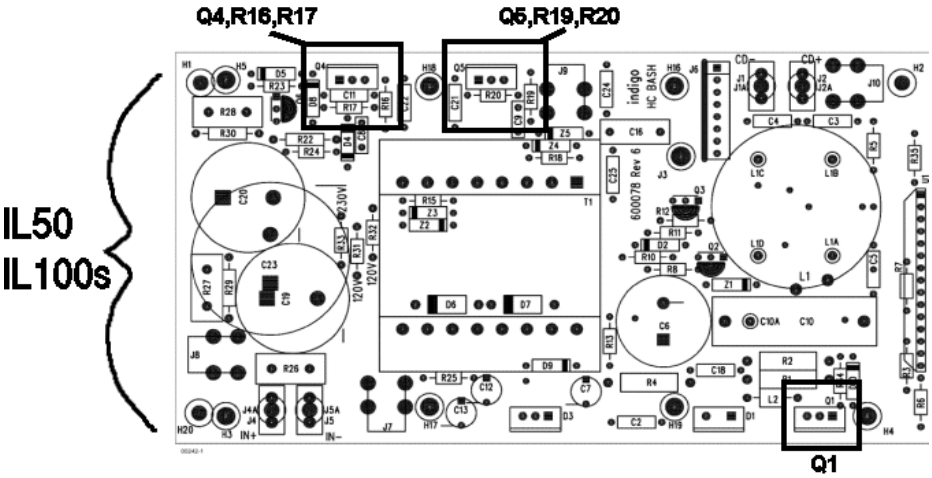


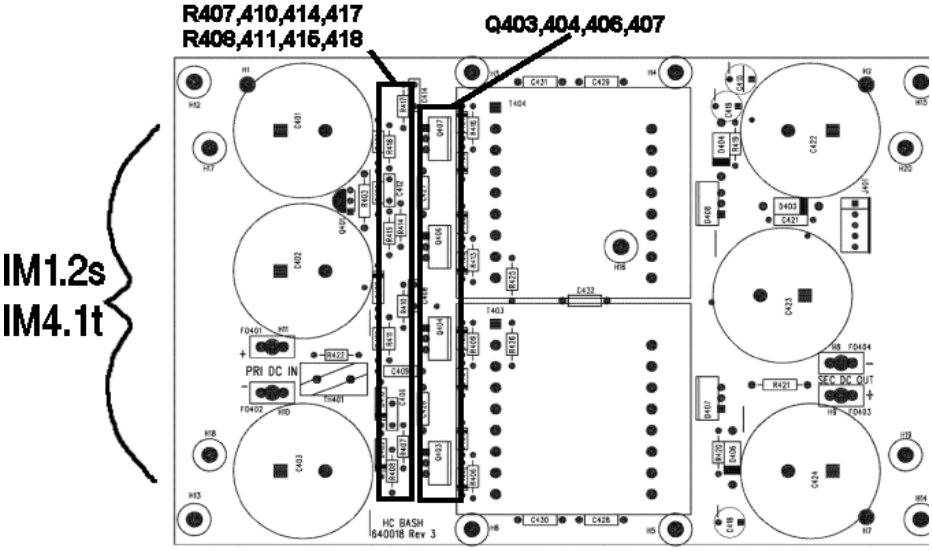
* The two transistor leads should be shorted together before these measurements are taken; the DMM leads will "charge" the circuit and the value may change, but should match the values above. Very low values that do not change indicate a shorted MOSFET.

5) Replace any defective parts above that show measured values lower than normal.
6) Reconnect J505 or J6 multicolor ribbon cable connector; remount the Power supply PCB; reconnect J501/502 or J4/J5 black/red Faston connectors.
7) All models except IM1.2S, IM4.1t: **temporarily DO NOT connect the pair of black/red "CD±" leads on the linear PCB).** Isolate the ends so they are not touching each other, or any conductive material. (For models IM1.2S, IM4.1t procedure is finished; replace amplifier).

8) Connect the subwoofer amplifier to an AC power source; turn the unit ON. Measure the DC voltage at the **"CD±"** wires; it should be 10-20 volts.
9) If it is 25 volts or greater, turn the amplifier OFF, disconnect from the power source, and replace:
   IL120S, IL60: **Q504,Q507** IRF640 on the Power Supply PCB, Infinity part# QM0015.
   IL50, IL100s: **Q1** IRF540 on the Power Supply PCB, Infinity part# QM0020.
10) If the voltage is normal, turn the amplifier OFF, disconnect from the power source, and reconnect the "CD±" leads.
11) Finish reassembling the amplifier, remount the heatsink, replace the amplifier in the cabinet and test the subwoofer.







Service Bulletin

Service Bulletin INF2002-05 Rev5 - October 2005

Warranty labor rate: MAJOR repair

To: All Infinity Service Centers

Model: Interlude IL50

Subject: Reliability Upgrade

PURPOSE: Improve reliability of the IL50 amplifier; this procedure should be followed for every unit that has to be serviced, for any reason.

PLEASE READ ENTIRE PROCEDURE FIRST BEFORE ORDERING PARTS OR SERVICING THE AMPLIFIER. SOME PART REPLACEMENTS ARE AS NEEDED BASIS ONLY; SEE SHADED AREAS IN CHART BELOW.

IR = Brand International Rectifier A/R = As required

Infinity Part Number	Ref. Designator	Description	Qty	Comment
QM0061	Q1	MOSFET, IRF540 TO220AB IR ONLY	1	As Needed
QM0055	Q4,Q5	MOSFET, IRF740 TO220AB IR ONLY	2	As Needed
TS0016		TUBING, #5 BLACK CUT TO .3	A/R	
DR0091	D1	RECT, 15A 200V MUR1540 MOTOROLA ONLY	1	As Needed
810066		HEATSINK, FET CLIP, CLIP ON - NO SCREW	2	Used with heatsink 810156 on U2,U3
810156		HEATSINK, LINEAR VOLTAGE REG	1	
810157		HEATSINK, FET SEC BLACK	1	Replaces 810091
810158		HEATSINK, FET PRIMARY BLACK	1	Replaces 810092
810056		HEATSINK, FET CLIP .9 x .5 x .2	1	Use with Q1
MS0017		MISC, CERAMIC PLATE TO-220, CERAMIC INSULATOR 0.025	5	Use with Q1,3,4,7,8
		Thermal grease	A/R	Use with Q1,3,4,5,7,8, D1,D3
RM0002	R43	RES, MF 10K0 1/4W 1%	1	Replace
KS0027		50 DEGREE PTC THERMISTOR	1	Add
		RTV DOW CORNING 747 OR EQUIVALENT	A/R	
CE0145	C6	CAP, E 1000uF 100V 18 x 40 105C	1	To replace 85 deg. part
TS0009		HEATSHRINK TUBING 1/16” DIA.	A/R	For KS0027 leads
CC0040	C11	CAP 0.0047µF 100v 10%	1	As Needed
RX0109	R1, R2	0.1 Ω RES MO, 2W 5% METAL FILM	2	As Needed
QB0014	Q6	MPSA92 PNP TO92 TRANS	1	As Needed
293-100K	R22	100KΩ 1/2W RES CF 5%	1	As Needed
KS0020	R26	SURGISTOR 10R 2A CL-110 (13S100L)	1	As Needed
RC0136	R30	RES, CF 160K 1/4W 5%	1	As Needed
RC0273		RES, ZERO OHM 1/4W	1	
MS0005		SILPAD, .009" .3C/W TO3P	1	

The repair procedure is to be executed in 3 phases.

1) POWER SUPPLY BOARD UPGRADE - THESE STEPS CORRESPOND WITH FIGURE 1

Step	OPERATION
1.	Q1 - This part must be IR only. Replace with QM0061, MOSFET, IRF540 TO220AB IR if needed. Use TUBING, #5 BLACK cut to .3 (TS0016) to set mounting height to 0.3”.

2.	Q4,Q5. These parts must be IR ONLY. Replace with MOSFET, IRF740 TO220AB IR (QM0055). Q4 and Q5 must have black tubing on component leads: TUBING, #5 BLACK cut to .3 Inch in length (TS0016) or equivalent.
3.	D1 should be MUR1540 MOTOROLA ONLY, if not replace with DR0091, RECT, 15A 200V MUR1540 MOTOROLA
4.	Add a thin ceramic, CERAMIC PLATE TO-220, INSULATOR 0.025 THICK " (MS0017) behind Q1 with thermal grease on both sides of the ceramic. Ensure that grease covers the complete surface of ceramic on both sides.
5.	Remove SILPAD (MS0005 SILPAD, .009" .3C/W TO3P) behind D3 and thoroughly clean the adhesive film with an Alcohol blended cleaner such as IPA etc.
6.	Parts Q4, Q5, D1, D3 must also have thermal grease between the devices and the heatsink.
7.	Verify that C6 is a 105 deg.C part, if not replace with CAP, E 1000uF 100V 105C (CE0145)
8.	Ensure that C11 is 0.0047uF (4700PF 100V 10%). This part must be axial and not a radial part. If not order Infinity Part# CC0040
9.	Ensure that R1, R2 are 0.1 ohm resistors (Color Code - Brown, Black, Silver and Gold) RES, MO 0.1 ohm 2W 5% Metal film, not wire wound. If not order Infinity Part# RX0109
10.	Ensure that Q6 is MPS A92 PNP TO92 MPSA92TR. If not order Infinity Part # QB0014
11.	Ensure that R22 is 100K, 1/2 watt part. (Color Code - Brown, Black, Yellow and Gold), RES, CF 100K 1/2W 5%. If not order Infinity Part# 293-100k
12.	Ensure that R26 is SURGISTOR 10R 2A CL-110 (13S100L) If not order Infinity Part# KS0020
13.	Ensure that R30 is 160K part (Color Code - Brown, Blue, Yellow, Gold), RES, CF 160K 1/4W 5%. If not order Infinity Part# RC0136
14.	Assemble the (new part) PRIMARY BLACK HEATSINK 810158 on the (2) FET(Q4 & Q5) side. ENSURE THAT THE FETS ARE FLUSH AGAINST THE HEATSINK.
15.	Assemble the 810157, HTSNK, FET SEC BLACK heat sink on side of three devices (Q1, D1, & D3) Install FET CLIP 810056 on Q1 (not shown in illustration)

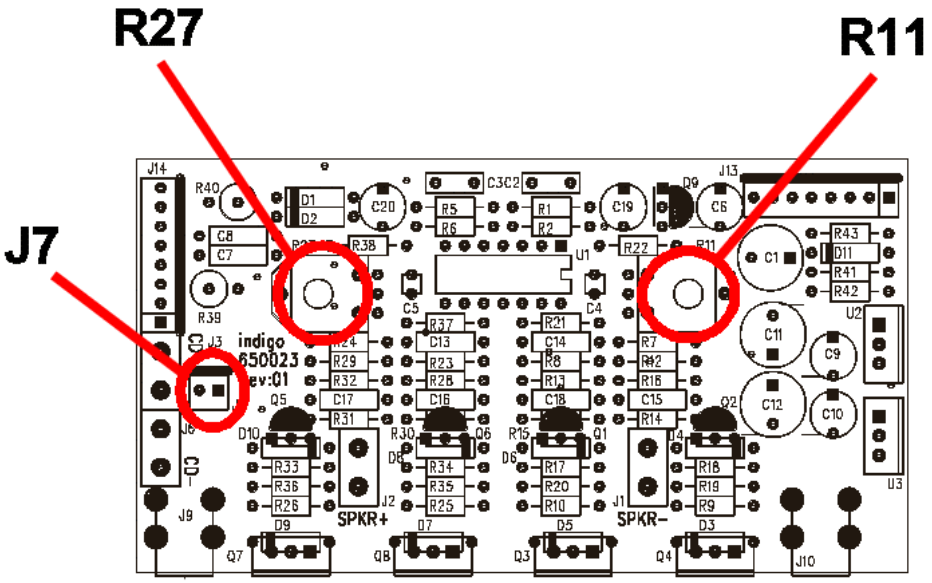
2) LINEAR BOARD UPGRADE

Step	OPERATION
	Remove Linear Board from Amplifier Assembly
A	Remove SILPADS under indicated location “A” in Figure 3 and thoroughly clean surface with IPA or equivalent.
	THESE STEPS CORRESPOND WITH FIGURE 2
1.	Replace R43 with Infinity Part# RM0002, RES, MF 10K0 1/4W 1%
2.	Locate, unsolder and lift a lead from C1 (CAP, E 2.2UF 50V BP 6X11 5MMLS) that is closest to the trim pot, see image.
3.	Mount new Thermistor (KS0027) at linear board mounting point as shown by removing the screw retaining the PCB bracket, inserting the Thermistor and rethreading the screw to hold down both the PCB and Thermistor, the tab “sandwiched” between the bracket and faceplate. Thermistor body should be flush with the faceplate.
4.	Important ! Cover both exposed thermistor leads with Shrink tubing (TS0009)
5.	Solder RC0273 (RES, ZERO OHM 1/4W) to one lead of new Thermistor, as depicted.
6.	Solder other lead of RC0273 to PCB location previously occupied by C1, as depicted.
7.	Solder lifted lead of C1 to Thermistor as depicted.
	THESE STEPS CORRESPOND WITH FIGURE 3
8.	Insert (new part) MS0005, SILPAD, .009" .3C/W TO3P between new Heatsink (810156) and both Regulators U2 and U3
9.	Add (new part) HEATSINK, LINEAR VOLTAGE REG (810156)
B.	Apply thermal grease to both surfaces of all (4) of the CERAMIC PLATE TO-220, CERAMIC INSULATOR 0.025” (MS0017), and sandwich between each power device and the faceplate. Replace the screws and clips; tighten.
10.	Secure Voltage regulators U2 and U3 to 810156, HEATSINK, LINEAR VOLTAGE REG using 810066, HEATSINK-FET CLIPS. These clip on and do not use screws
11.	Secure THERMISTOR leads & C1 using RTV DOW CORNING 747 or equivalent as depicted

3) IL50 ADJUST BIAS PROCEDURE

(Mandatory when any output MOSFET transistors Q3,4,7,8 are replaced)

1. Locate the Linear board assembly (PCB with the output transistors)
2. Adjust R11 and R27 fully Counter Clockwise. See diagram below.
3. Apply 120 VAC power to unit, Turn power switch ON.
4. Verify LED illuminates on the front gain control dial unless you have disconnected the plug.
5. Remove shorting plug on terminal J7 on Linear board, and insert current meter, set to the low mA range.
6. Verify initial current is less then 1 mA.
7. Adjust R11 Clockwise until current meter reads **5 mA** plus the initial current from step #6.
8. Adjust R27 Clockwise until current meter now reads **10 mA** plus the initial current from step #6.
9. Turn amplifier OFF. Disconnect AC power to unit.
10. Remove current meter; insert shorting plug back in terminal J7.
11. Replace cover (if present), wires if disconnected, and replace amplifier back into cabinet.



Location for Bias pots

FIGURE 1 POWER SUPPLY BOARD UPGRADE

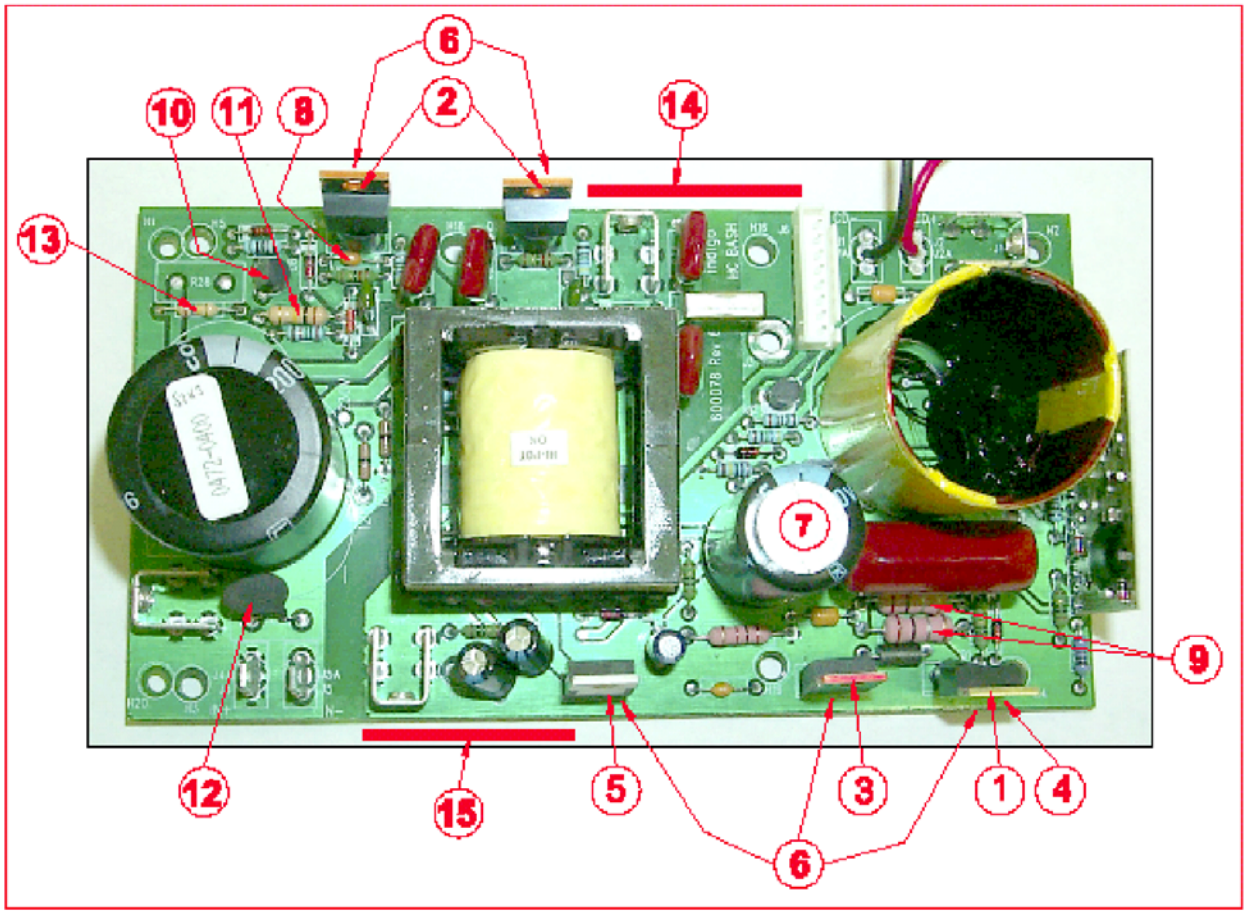


FIGURE 2 LINEAR BOARD UPGRADE
(Most components absent for clarity)

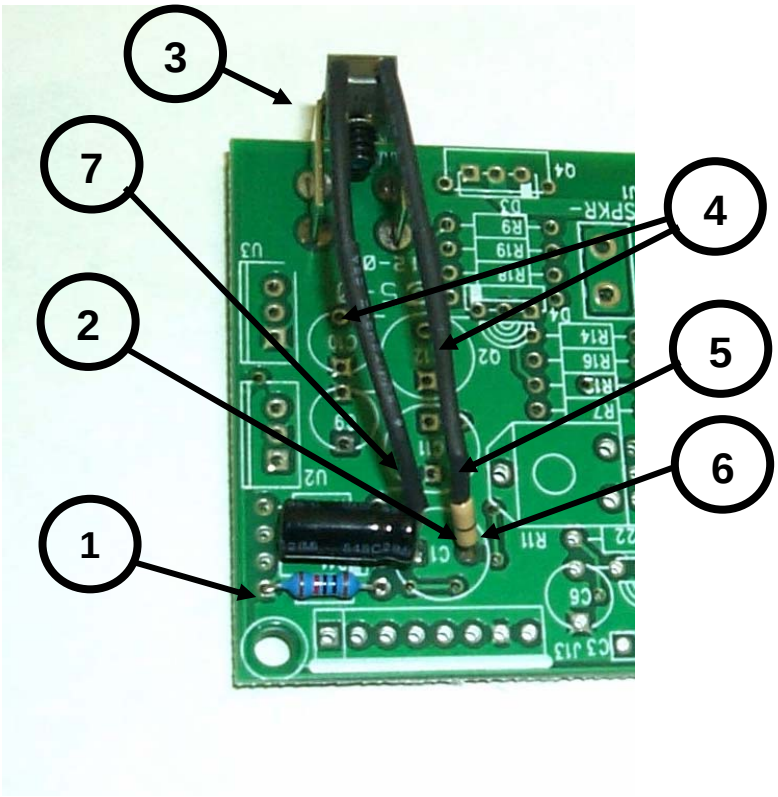
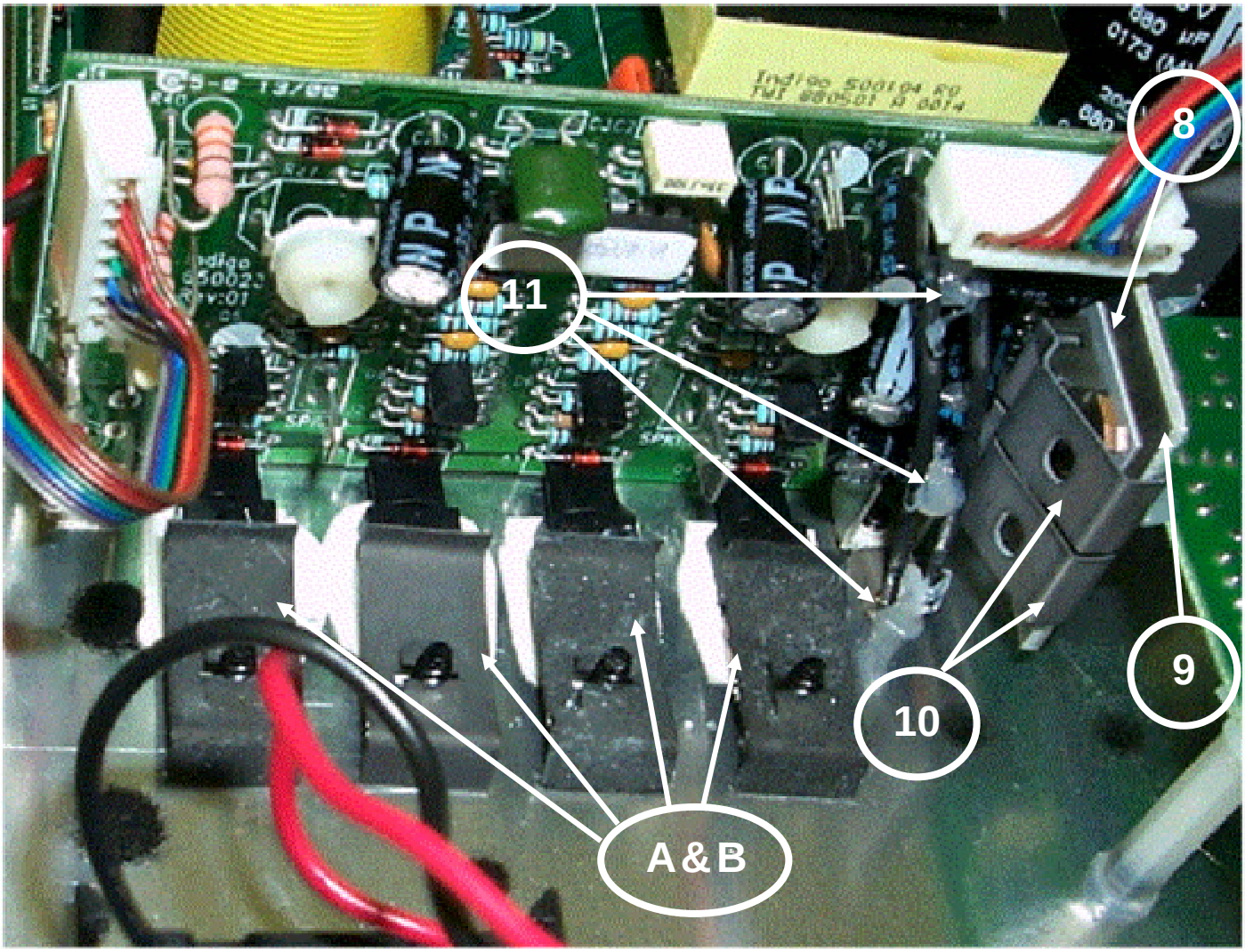


FIGURE 3 LINEAR BOARD UPGRADE (cont'd)



Model	Identification 120V	STATUS	ACTION
IL50	No Label	Needs Reliability Upgrade	Follow Steps Outlined Above
IL50	Small White Rectangular label On Amp faceplate "Rev II 2002-XXX"	Modified by factory	NONE REQUIRED

TECH TIPS

Troubleshooting tips and solutions to common service problems

For models: IL50, IL100s, MSW-1, IL60, IL120s, IM2.6, IM3.5c **TIP# INFTT2003-03**

Intermezzo, Interlude and Modulus MSW-1 Power Supply Repair

Recommended for instances where the PCB has been damaged, for the above models only:

1) Change all MOSFETS, even for one device failure.
2) Clean and repair the PC board if required (See Tech Tip HCG2002-01 - Damaged Printed Circuit Boards).
3) Replace the Hybrid Bash Controller IC:

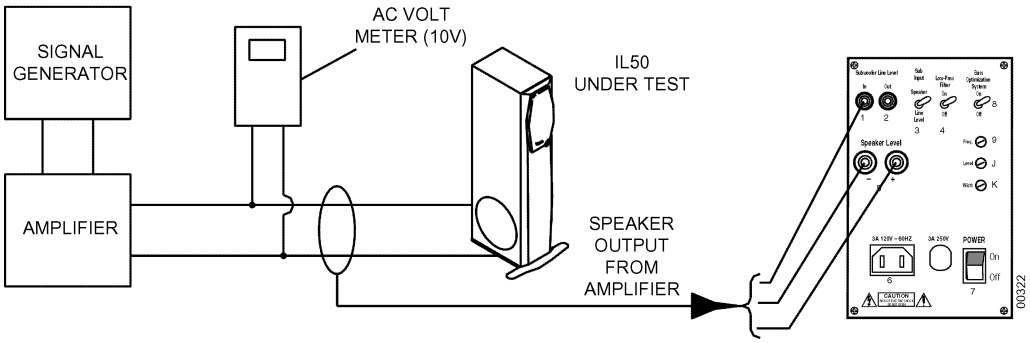
   U1 in models: IL50,IL100s,MSW-1,IM2.6,IM3.5c

   U501 in models: IL60, IL120s

   Infinity part # **HC1011**

FAILURE TO FOLLOW THE INSTRUCTIONS ABOVE MAY RESULT IN UNIT FAILURE WHEN THE AMPLIFIER IS POWERED UP

Test Set Up and Procedure



SYSTEM AURAL SWEEP TEST

Equipment needed:

- Function/signal generator/sweep generator
- Integrated Amplifier
- Multimeter
- Speaker cables

General Unit Function (UUT = Unit Under Test)

1. Remove the loudspeaker grille.
2. Switches on the amplifier faceplate:
   Sub Input to "Line Level"
   Low Pass Filter to OFF
   Bass Optimization system to OFF
3. From the signal generator, connect one line level (RCA) cable to the Subwoofer Line Level Input jack on the UUT.
4. On the front of the unit, turn the LEVEL control full counterclockwise (1).
5. Turn on generator, adjust to **50mV, 50 Hz.**
6. Plug in UUT; turn the power switch ON. LED should be Red. Turn LEVEL control full clockwise (10)
7. LED should now be Green; immediate bass response should be heard and felt from port tube opening.
8. Turn off generator, turn VOLUME control fully counterclockwise, disconnect RCA cable.
9. Connect one pair of speaker cables to Speaker Level input terminal on UUT. Cables should be connected to an integrated amplifier fed by the signal generator.
10. Switch Sub Input on the amplifier faceplate to "Speaker".
11. Turn on generator and adjust so that speaker level input at the amplifier is **1.5V, 50 Hz.** Turn LEVEL control full clockwise.
12. Green LED should light, immediate bass response should be heard and felt from the port tube opening.

Sweep Function

1. Follow steps 10-12 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 woofers and test.

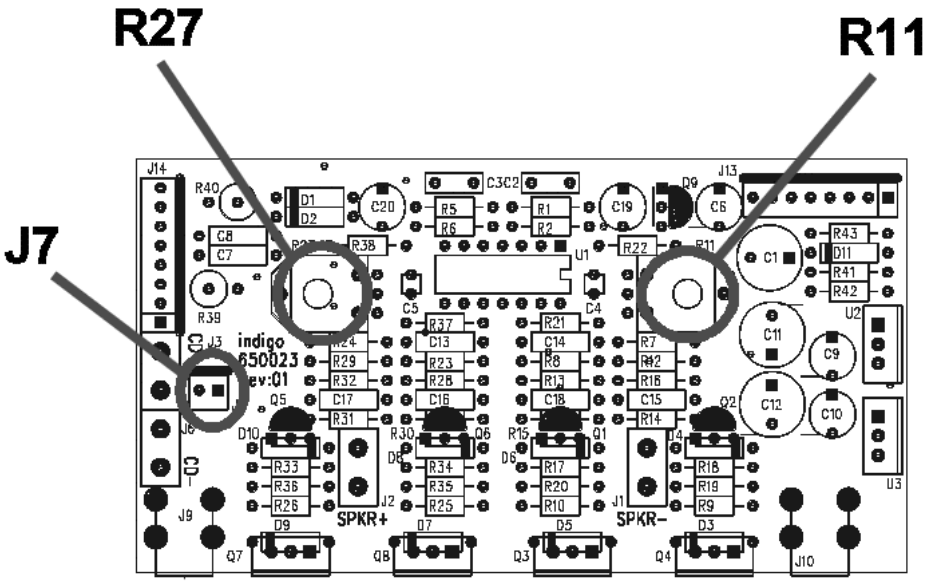
Driver Function

1. Remove woofer from cabinet; detach + and - wire clips.
2. Check DC resistance of woofer; it should be **3.4 ohms** ±10%
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.

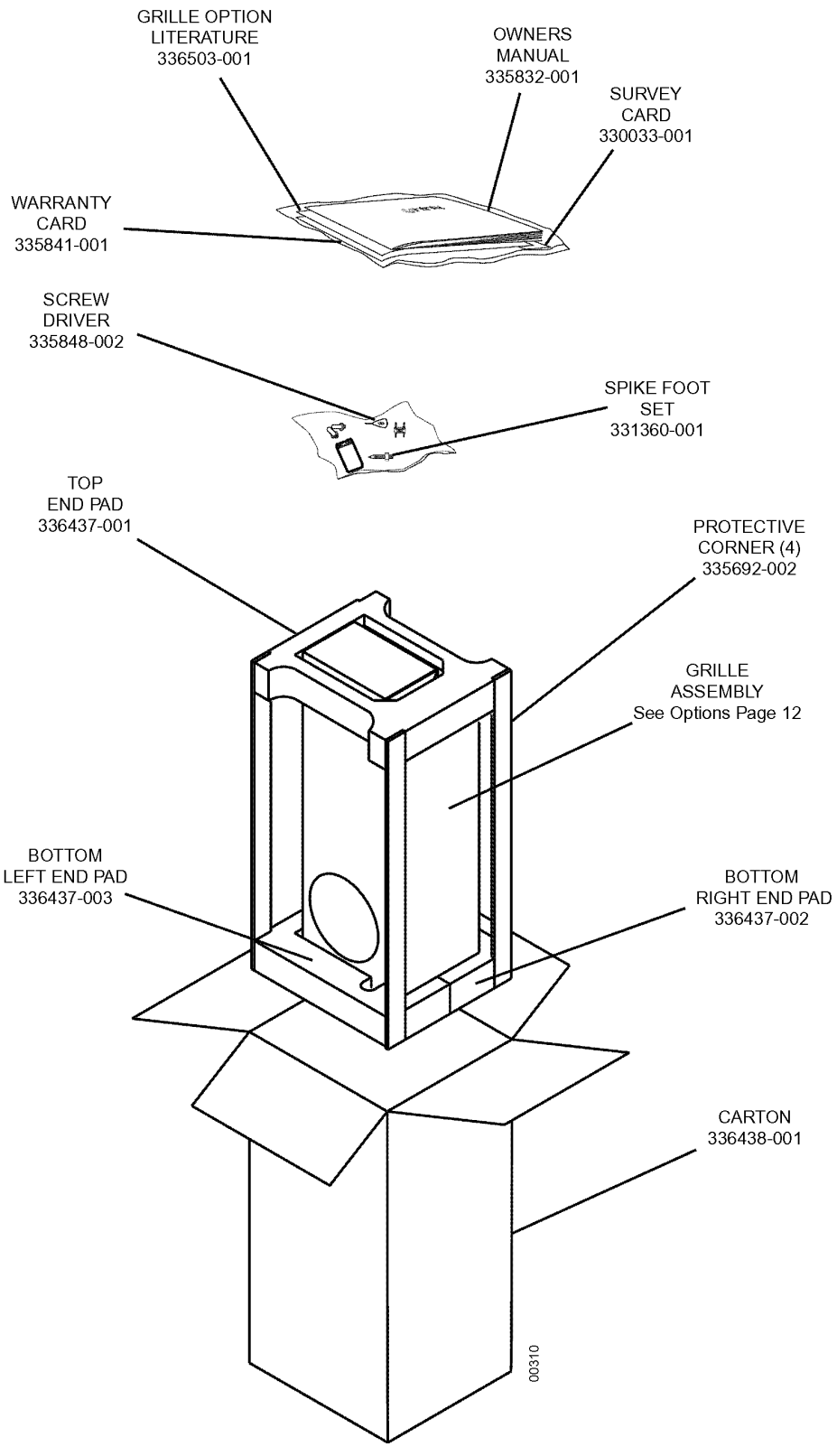
IL50 ADJUST BIAS PROCEDURE

(Mandatory when any output MOSFET transistors Q3,4,7,8 are replaced)

1. Amplifier should be unplugged and OFF.
2. Remove Amp assembly from cabinet; remove rear plastic cover if present. All wires exiting the cover can remain connected unless they will prevent you from removing the amplifier or accessing potentiometers on the Linear board PCB in the following steps.
3. Locate the Linear board assembly (PCB with the output transistors)
4. Adjust R11 and R27 fully Counter Clockwise. See diagram below.
5. Apply 120 VAC power to unit, Turn power switch ON.
6. Verify LED illuminates on the front gain control dial unless you have disconnected the plug.
7. Remove shorting plug on terminal J7 on Linear board, and insert current meter, set to the low mA range.
8. Verify initial current is less then 1 mA.
9. Adjust R11 Clockwise until current meter reads **5 mA** + the initial current from step #8.
10. Adjust R27 Clockwise until current meter now reads **10 mA** + the initial current from step #8.
11. Turn amplifier OFF. Disconnect AC power to unit.
12. Remove current meter; insert shorting plug back in terminal J7.
13. Replace cover (if present), wires if disconnected, and replace amplifier back into cabinet.



Packaging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MANUAL
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SURVEY
CARD
330033-001
WARRANTY
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SCREW
DRIVER
335848-002
SPIKE FOOT
SET
331360-001
TOP
END PAD
336437-001
PROTECTIVE
CORNER (4)
335692-002
GRILLE
ASSEMBLY
See Options Page 12
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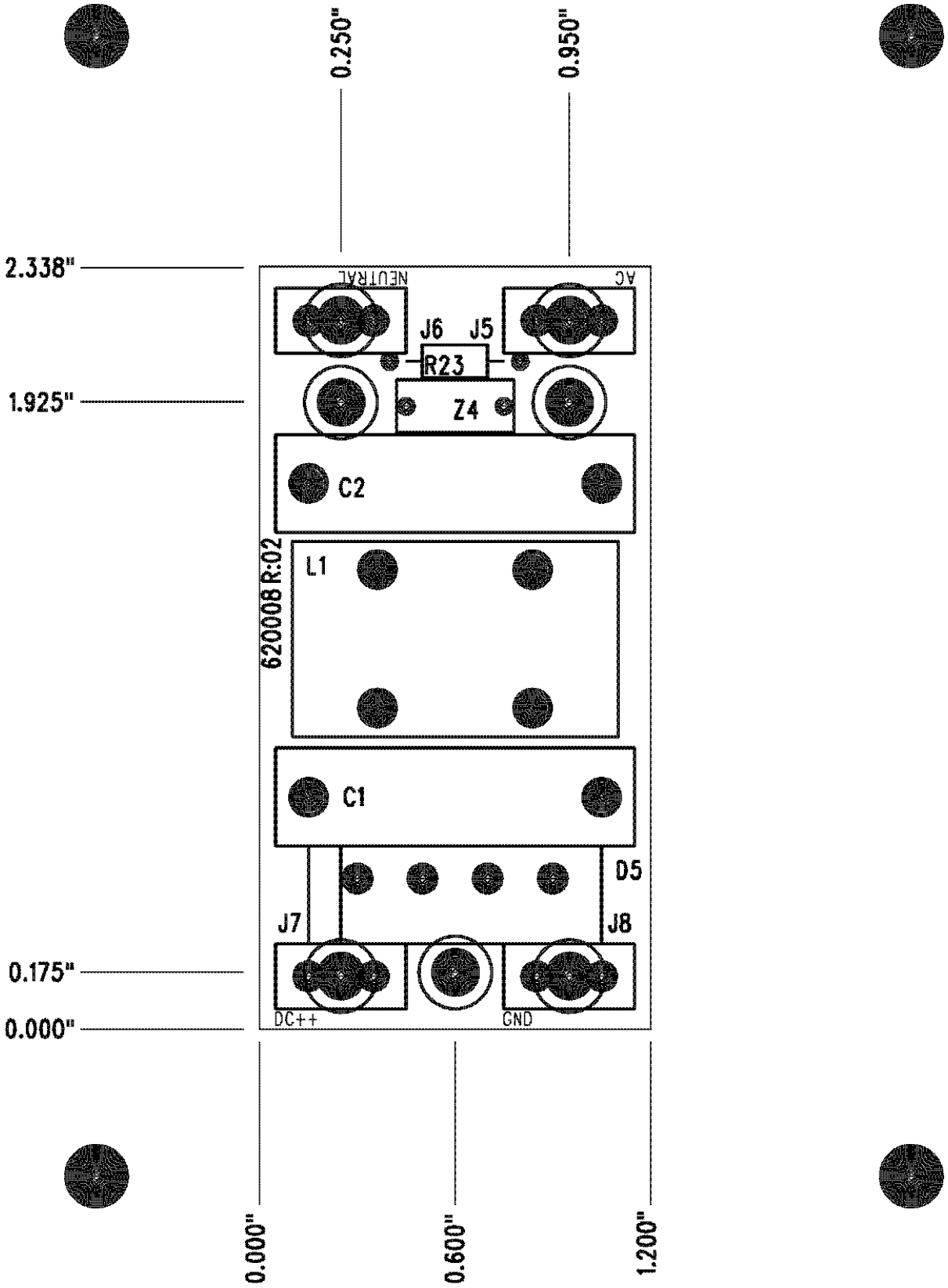
336437-003
BOTTOM
RIGHT END PAD
336437-002
CARTON
336438-001
00310

EMI Filter PCB



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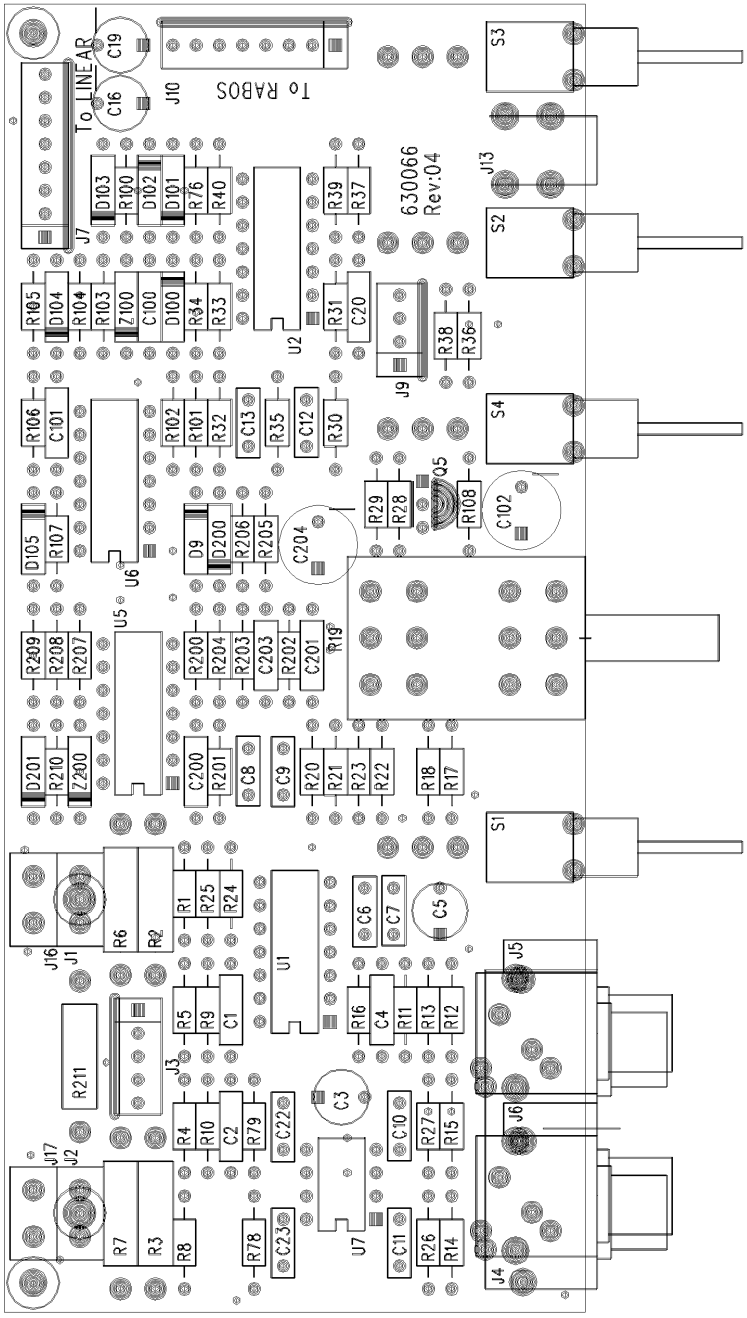
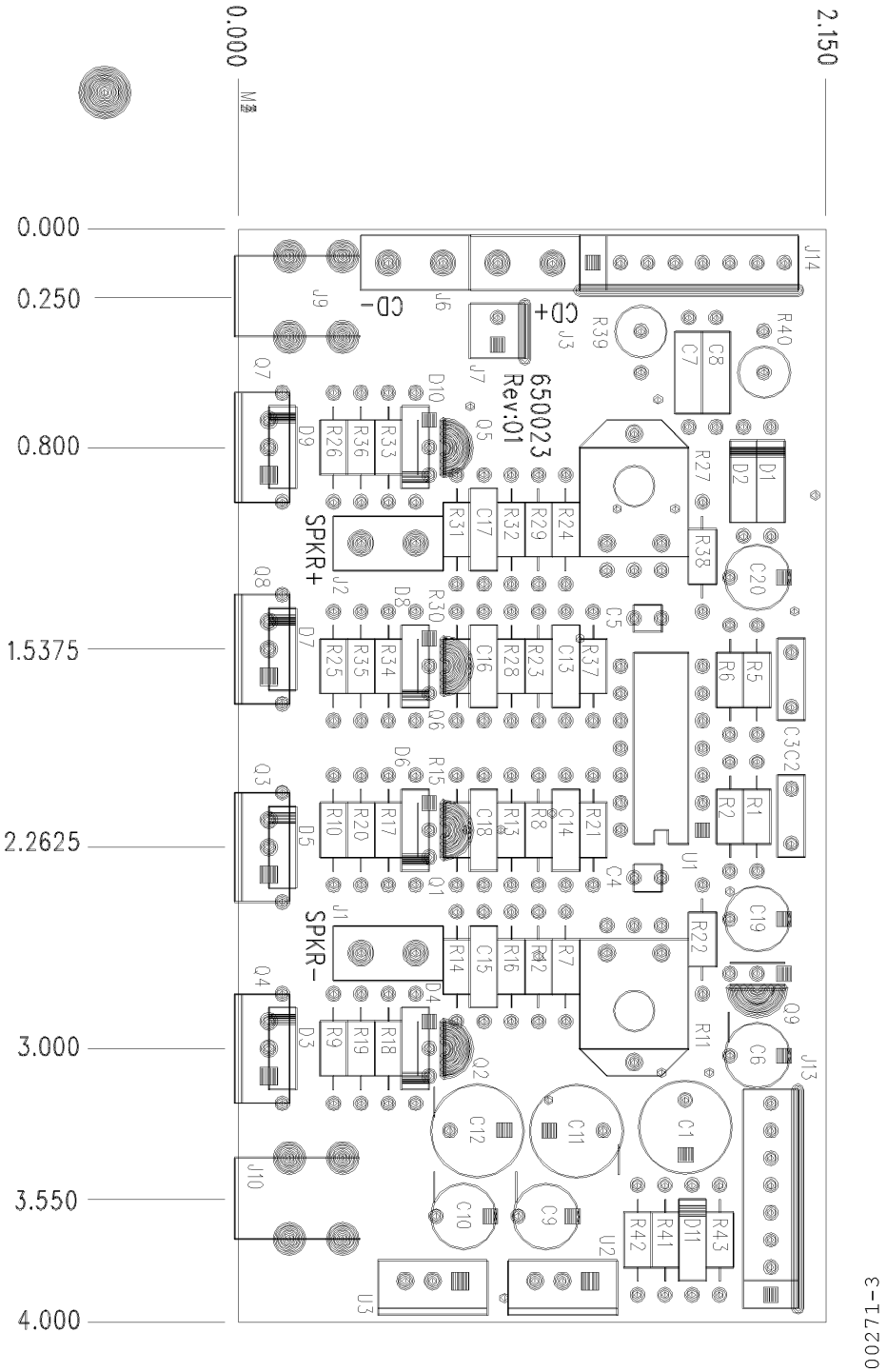
Feature PCB



Linear PCB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SPKR-
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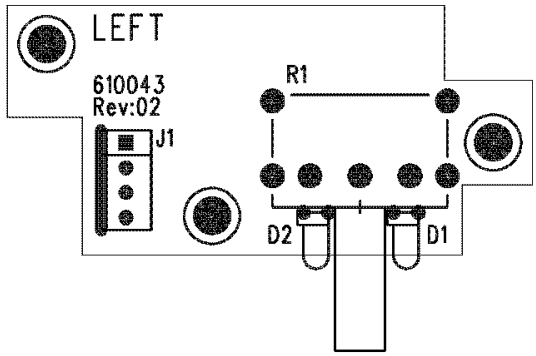
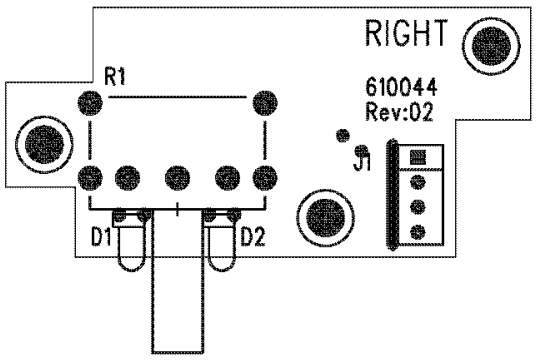
U1
U2
U3
002711-3

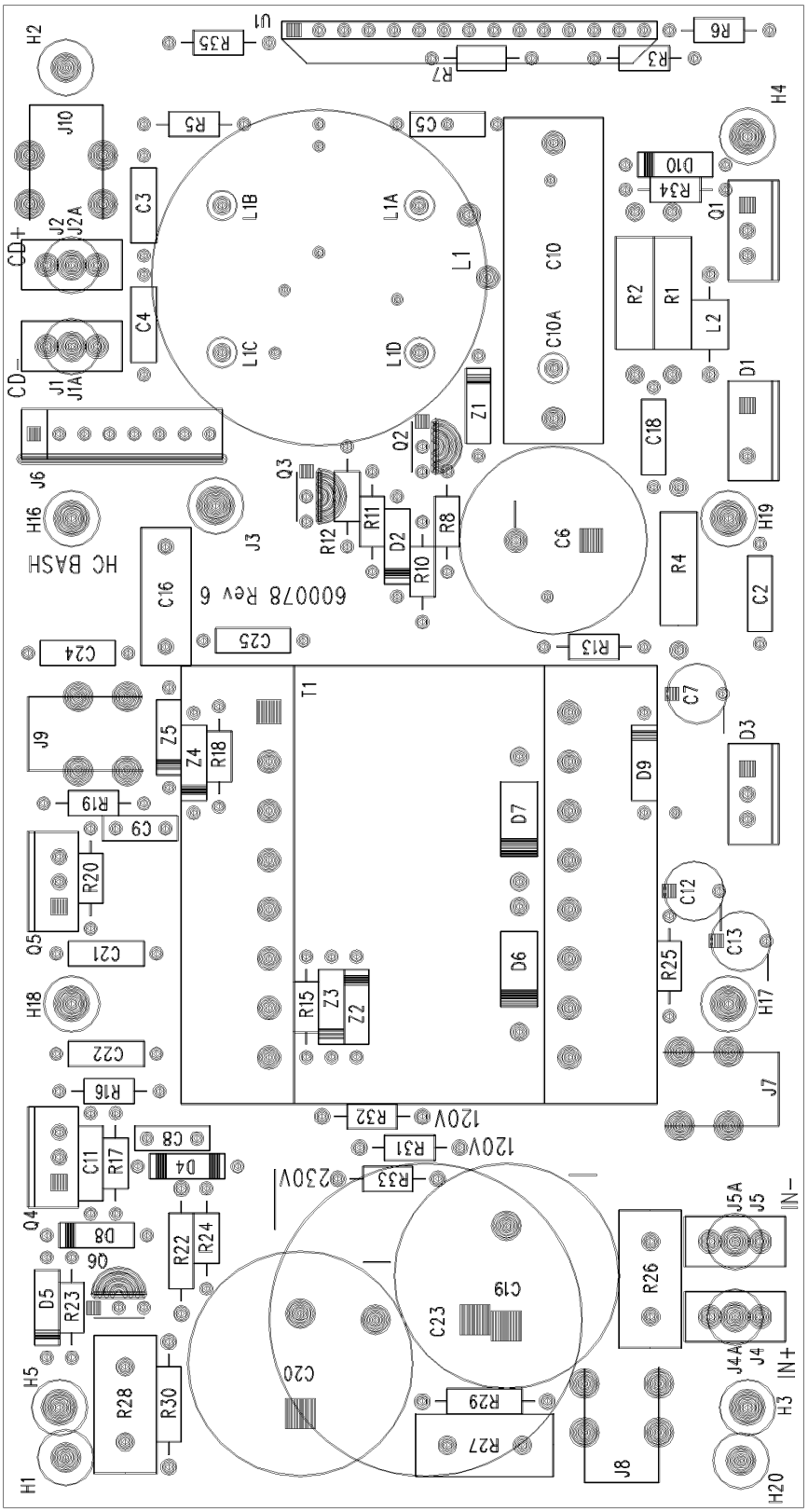
Volume Control PCB





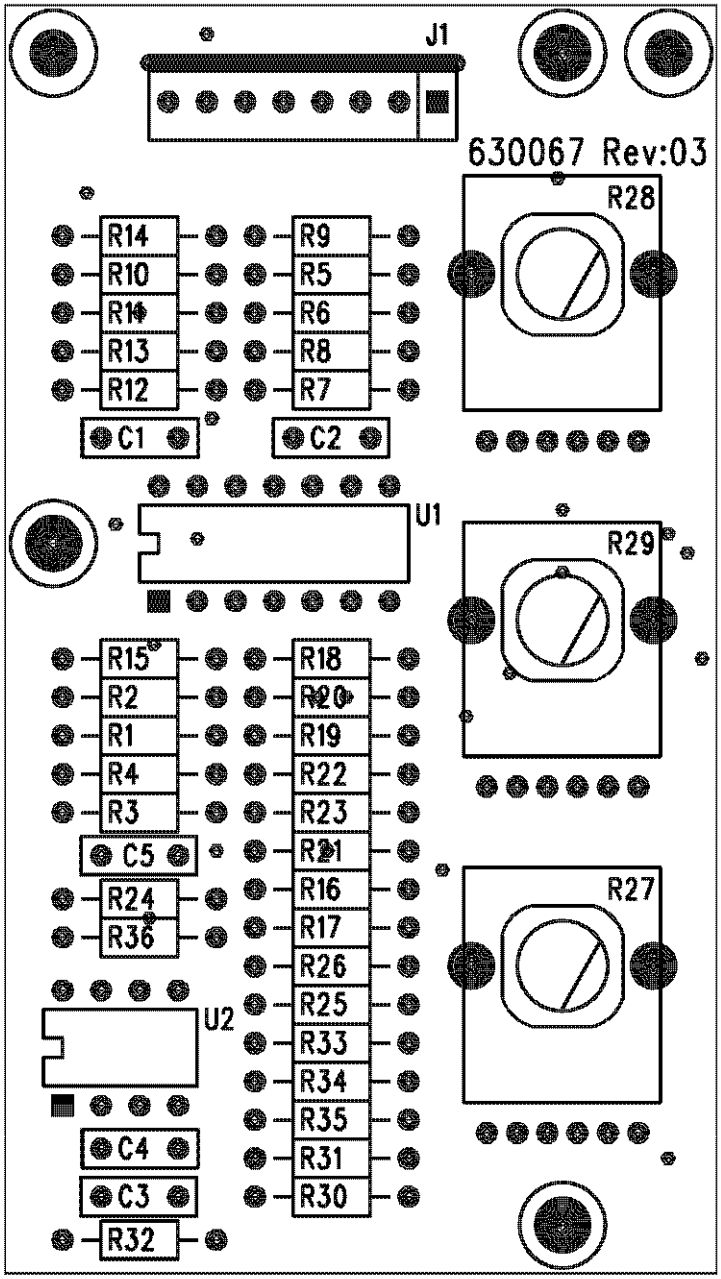
00271-6

Power Supply PCB



00271-4

RABOS PCB



00271-5

IL50 Electronic Parts List

Part#	Reference Designator	Qty	Description
PCB, FEATURE INTERLUDE 50			
	Semiconductors		
DS0001	D9, D100, D101, D102, D103, D104, D105, D200, D201	9	RECT, 100mA 75V SIGNAL 1N4148T
QM0035	Q5	1	JFET, N-CH J111 TO92 TR
UA0003	U5,U6	2	OPAMP, QUAD 14PIN DIL LM324N
UA0009	U1,U2	2	OPAMP, QUAD 14P DIL TL074/084
UA0010	U7	1	OPAMP, DUAL 8PIN DIL TL082
DZ0002	Z200	1	ZENER, 500mW 12V 5% 1N5242B
DZ0014	Z100	1	ZENER, 500MW 14V 5% 1N5244B
	Capacitors		
CC0020	C200	1	CAP, CA 470PF 100V 5%
CC0025	C203	1	CAP, CA 1000PF 100V 10%
CC0072	C1,C2,C4,C20,C100,C101	6	CAP, CA 100PF 100V 10%
CC0082	C201	1	CAP, CA .1UF 50V 20%
CE0013	C204	1	CAP, E 47UF 50V 20% 5MMLS
CE0101	C16, C19	2	CAP, E 4.7UF 50V 85D 5X11 5MML
CE0103	C102	1	CAP, E 100UF 35V 85DEG 5MMLS
CE0106	C5	1	CAP, E 22UF 35V BP 8X11 5MMLS
CE0108	C3	1	CAP, E 4.7UF 16V BIPOLAR 5X11
CF0045	C7, C9, C10, C11	4	CAP, F .1UF 63DC 5% 5MMLS
CF0055	C6, C8	2	CAP, F .22UF 63V 10% 5MMLS
CF0078	C12, C13	2	CAP, F .47UF 63V 10% 5MMLS
	Resistors		
RC0001	R211, R19A , R19B, R19C, R19D, R20, R24,	1	RES, CF 1K0 1/2W 5%
RC0273	R33, R36, R39, R79	10	RES, ZERO OHM 1/4W
RC0290	R206	1	RES, CF 9M1 1/4W 5%
RM0002	R12, R100, R101, R102, R208, R209	6	RES, MF 10K0 1/4W 1%
RM0003	R200, R210	2	RES, MF 15K0 1/4W 1%
RM0011	R1,R4,R103,R105,R201	5	RES, MF 100K 1/4W 1%
RM0012	R14,R30	2	RES, MF 100R 1/4W 1%
RM0016	R104	1	RES, MF 13K0 1/4W 1%
RM0024	R207	1	RES, MF 2K21 1/4W 1%
RM0031	R204	1	RES, MF 3K32 1/4W 1%
RM0049	R18,R23	2	RES, MF 9K09 1/4W 1%
RM0075	R205	1	RES, MF 475R 1/4W 1%
RM0079	R76	1	RES, MF 750R 1/4W 1%
RM0085	R107	1	RES, MF 2K00 1/4W 1%
RM0106	R26	1	RES, MF 14K0 1/4W 1%
RM0111	R17,R22	2	RES, MF 17K8 1/4W 1%
RM0113	R32	1	RES, MF 20K0 1/4W 1%
RM0120	R9,R10	2	RES, MF 30K1 1/4W 1%
RM0136	R202	1	RES, MF 150K 1/4W 1%
RM0144	R16	1	RES, MF 47K5 1/4W 1%
RM0156	R108	1	RES, MF 392K 1/4W 1%
RM0158	R27	1	RES, MF 28K0 1/4W 1%

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IL50 Electronic Parts List (Cont.)

Part#	Reference Designator	Qty	Description
RM0171	R31,R203	2	RES, MF 475K 1/4W 1%
RM0180	R35	1	RES, MF 4K99 1/4W 1%
RM0188	R106	1	RES, MF 499R 1/4W 1%
RM0347	R11	1	RES, MF 78K7 1/4W 1%
RM0389	R28,R29	2	RES, MF 806R 1/4W 1%
RX0001	R2,R3	2	RES, MO 1K 1W 5%
	Miscellaneous		
480113	J1	1	SUB, #18B 6" 1/4" STRIP BOTH
480114	J2	1	SUB, #18R 6" 1/4" STRIP BOTH
JC0091	J5, J6	2	CNCTR, RCA SINGLE PC MT
JH0006	J9	1	CNCTR, HEADER 4PIN .100CTR
JH0074	J7, J10	2	CNCTR, HEADER 8PIN LOCKING .1C
MT0003	J17	1	TERM, FASTON MALE PCMT 250X032
MT0036	J16	1	TERM, FASTON MALE PCMT 205X032
SR0007	S1,S3,S4	3	SWITCH, SPDT TOGGLE C/W CAP PC
MM0025	J13	1	MISC, PC MT SCREW TERM 6-32
PCB, LINEAR BD			
	Semiconductors		
DS0001	D1,D2,D3,D4,D5,D6,D7,D8,D9,D10,D11	11	RECT, 100mA 75V SIGNAL 1N4148T
QB0017	Q2,Q6	2	TRANS, NPN 150V 0.6A 2N5551TR
QB0018	Q1,Q5	2	TRANS, PNP 150V 0.6A 2N5401TR
QM0034	Q4,Q8	2	MOSFET, IRF9540 TO220AB
QM0036	Q3,Q7	2	MOSFET, IRF530 TO220
QM0054	Q9	1	JFET, N-CH J113 TO92
UA0009	U1	1	OPAMP, QUAD 14P DIL TL074/084
UV0010	U2	1	VREG, +15V 500MA LM7815CT
UV0011	U3	1	VREG, -15V 500MA LM7915CT
	Capacitors		
CC0025	C15, C16, C17, C18	4	CAP, CA 1000PF 100V 10%
CC0080	C13, C14	2	CAP, CA 220P 100V 10%
CC0082	C7, C8	2	CAP, CA .1UF 50V 20%
CC0097	C4, C5	2	CAP, C 10P 50V 10
CE0003	C6	1	CAP, E 2.2UF 50V 20% 105C
CE0013	C9, C10	2	CAP, E 47UF 50V 20% 5MMLS
CE0018	C11, C12	2	CAP, E 100UF 25V 20% 5MMLS
CE0106	C19, C20	2	CAP, E 22UF 35V BP 8X11 5MMLS
CE0116	C1	1	CAP, E 2.2UF 50V BP 6X11 5MMLS
CF0125	C3	1	CAP, F .068UF 100V 5% 5MMLS
CF0128	C2	1	CAP, F .033UF 100V 5% 5MMLS
	Resistors		
RC0273	R19,R20,R35,R36	4	RES, ZERO OHM 1/4W
RM0001	R12,R13,R14,R15,R28,R29,R30,R31	8	RES, MF 1K00 1/4W 1%
RM0002	R1,R2,R5,R6,R22,R38,R41,R42	8	RES, MF 10K0 1/4W 1%
RM0021	R7,R8,R23,R24	4	RES, MF 1K82 1/4W 1%

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IL50 Electronic Parts List (Cont.)

Part#	Reference Designator	Qty	Description
RM0024	R17,R18,R33,R34	4	RES, MF 2K21 1/4W 1%
RM0027	R21,R37	2	RES, MF 33K2 1/4W 1%
RM0029	R9,R10,R25,R26	4	RES, MF 3K01 1/4W 1%
RM0144	R43	1	RES, MF 47K5 1/4W 1%
RM0180	R16,R32	2	RES, MF 4K99 1/4W 1%
RP0059	R11,R27	2	POT, 2K 8MM TOP ADJ/COVER
RX0048	R39,R40	2	RES, MO 330R 1W 5%
	Miscellaneous		
JH0016	J7	1	CNCTR, HEADER 2PIN .100CTR
JH0074	J13,J14	2	CNCTR, HEADER 8PIN LOCKING .1C
MM0025	J9,J10	2	MISC, PC MT SCREW TERM 6-32
MT0003	J2	1	TERM, FASTON MALE PCMT 250X032
MT0023	J3,J6	2	TERM, FASTON MALE PCMT 187X032
MT0036	J1	1	TERM, FASTON MALE PCMT 205X032
PCB, RABOS			
	Semiconductors		
UA0009	U1	1	OPAMP, QUAD 14P DIL TL074/084
UA0010	U2	1	OPAMP, DUAL 8PIN DIL TL082
	Capacitors		
CF0045	C1,C2,C5	3	CAP, F .1UF 63DC 5% 5MMLS
	Resistors		
RC0273	R30,R32,R33	3	RES, ZERO OHM 1/4W
RM0001	R24,R25	2	RES, MF 1K00 1/4W 1%
RM0002	R1,R2,R4,R9,R14,R15,R21,R23	8	RES, MF 10K0 1/4W 1%
RM0003	R8,R13	2	RES, MF 15K0 1/4W 1%
RM0012	R3	1	RES, MF 100R 1/4W 1%
RM0013	R34	1	RES, MF 11K0 1/4W 1%
RM0024	R22	1	RES, MF 2K21 1/4W 1%
RM0042	R26	1	RES, MF 681R 1/4W 1%
RM0080	R5,R10	2	RES, MF 825R 1/4W 1%
RM0260	R36	1	RES, MF 1M0 1/4W 1%
RM0271	R19	1	RES, MF 110K 1/4W 1%
RM0281	R7,R12	2	RES, MF 6K04 1/4W 1
RM0315	R17	1	RES, MF 2K67 1/4W 1%
RM0369	R6,R11	2	RES, MF 340R 1/4W 1%
RM0370	R18	1	RES, MF 9K31 1/4W 1%
RM0377	R16	1	RES, MF 3K57 1/4W 1%
RM0378	R20	1	RES, MF 549R 1/4W 1%
RP0087	R27,R29	2	POT, A10K DUAL 12MM HOR SEL
RP0088	R28	1	POT, C10K DUAL 12MM HOR SEL
	Miscellaneous		
JH0074	J1	1	CNCTR, HEADER 8PIN LOCKING .1C

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IL50 Electronic Parts List (Cont.)

Part#	Reference Designator	Qty	Description
PCB, MAIN			
	Semiconductors		
DR0086	D6,D7	2	RECT, 1A 600V ULTRAFAST MUR160
DS0001	D2,D10	2	RECT, 100mA 75V SIGNAL 1N4148T
DS0002	D5,D8,D9	3	RECT, 100MA 200V SIGNAL 1N3070
DD0003	D4	1	RECT, 1A2 60V DIAC
DR0026	D3	1	RECT, 16A 200V CATHODE FEP16DT
DR0087	D1	1	RECT, 15A 200V ULTRA MUR1540
QM0004	Q4,Q5	2	MOSFET, IRF740 TO220AB
QM0020	Q1	1	MOSFET, IRF540 TO220AB
QB0002	Q2	1	TRANS, NPN 40V .6A TO92 2N4401
QB0017	Q3	1	TRANS, NPN 150V 0.6A 2N5551TR
QB0018	Q6	1	TRANS, PNP 150V 0.6A 2N5401TR
HC1011	U1	1	HYBRID, THK FILM HC BUCK CNTR
DZ0004	Z1	1	ZENER, 500mW 18V 5% 1N5248B
DZ0021	Z2,Z3,Z4,Z5	4	ZENER, 500MW 15V 5% 1N5245B
	Capacitors		
CC0025	C2	1	CAP, CA 1000PF 100V 10%
CC0059	C3,C4,C5,C18	4	CAP, CA .1UF 100V 20%
CE0013	C12,C13	2	CAP, E 47UF 50V 20% 5MMLS
CE0098	C7	1	CAP, E 22UF 50V 20% 5X11 5MMLS
CF0019	C8,C9	2	CAP, F 4700PF 100V 5% 5MMLS
CC0124	C11	1	CAP, C .01UF 500V DISC .2LS
CE0040	C23	1	CAP, E 680UF 200V 30X35 85DEG
CE0110	C6	1	CAP, E 1000UF 100V 18X40
CF0020	C16	1	CAP, FY2 4700PF 250V 20%
CF0050	C21,C22,C24,C25	4	CAP, F .1UF 250V 10% 10MMLS
CF0146	C10	1	CAP, F 6.8UF 250V 10% 27MMLS
	Resistors		
RC0128	R35	1	RES, CF 33K 1/4W 5%
RC0217	R22	1	RES, CF 47K 1/2W 5%
RC0273	R31,R32	2	RES, ZERO OHM 1/4W
RM0001	R23	1	RES, MF 1K00 1/4W 1%
RM0002	R8	1	RES, MF 10K0 1/4W 1%
RM0035	R11	1	RES, MF 4K75 1/4W 1%
RM0039	R6	1	RES, MF 5K11 1/4W 1%
RM0070	R12	1	RES, MF 301R 1/4W 1%
RM0075	R15,R16,R18,R19	4	RES, MF 475R 1/4W 1%
RM0111	R7	1	RES, MF 17K8 1/4W 1%
RM0123	R5	1	RES, MF 36K5 1/4W 1%
RM0198	R24	1	RES, MF 205K 1/4W 1%
RM0260	R10	1	RES, MF 1M0 1/4W 1%
RM0339	R3,R13,R25,R34	4	RES, MF 10R 0.6W 1% FLAMEPROOF
RM0340	R17,R20	2	RES, MF 22R 0.6W 1% FLAMEPROOF
RX0072	R4	1	RES, MO 100R 1W 5%
KS0020	R26	1	SURGISTOR, 10R 2A CL-110
RW0022	R1,R2	2	RES, WW 0R1 2W 5%

Change R22 to 100K ohm - See Page 16

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IL50 Electronic Parts List (Cont.)

Part#	Reference Designator	Qty	Description
	Miscellaneous		
JH0074	J6	1	CNCTR, HEADER 8PIN LOCKING .1C
MM0025	J7,J8,J9,J10	4	MISC, PC MT SCREW TERM 6-32
480007	J1	1	SUB, #18B 4" 187X032/1/4" STRP
480029	J2	1	SUB, #18R 4" 187X032/1/4"STRP
500104	T1	1	XFMR, POWER 100V HC TRAN ETD39
540131	L1	1	IND, 25UH UPRIGHT AIR COIL
BF0007	L2	1	BEAD, FERRITE
MT0005		2	TERM, KWIKDISC .187 X.032 FEMA
MT0023	J4,J5	2	TERM, FASTON MALE PCMT 187X032
			TUBING, #5 BLACK CUT TO .3
TS0016		2	USED ON Q4,Q5
PCB, EMI FILTER			
	Semiconductors		
KV0001	Z4	1	VARISTOR, 275V 100J .6W
DB0009	D5	1	RECT, 6A 400V BRIDGE
	Capacitors		
CF0057	C1,C2	2	CAP, FX .22UF 250V 10%
	Resistors		
RC0004	R23	1	RES, CF 1M0 1/4W 5%
	Miscellaneous		
480007		3	SUB, #18B 4" 187X032/1/4" STRP
480029		1	SUB, #18R 4" 187X032/1/4"STRP
540124	L1	1	IND, CM CHOKE YT7271
MT0005		4	TERM, KWIKDISC .187 X.032 FEMA
MISCELLANEOUS			
480119		1	SUB, #16B 20" 205X032/205X032
480120		1	SUB, #16R 20" 250X032/250X032
480121		1	SUB, #16B 30" 205X032/205X032
480122		1	SUB, #16R 30" 250X032/250X032
810056		7	MET, HTSNK CLIP .9X.5X.2 FET
810066		2	MET, HTSNK CLIP HPS SERIES
810091		1	MET, HTSNK SEC 3FET RP5
810092		1	MET, HTSNK PRI 2FET RP5
930050		1	CUP, AMP BUCKET IL50S/IL100

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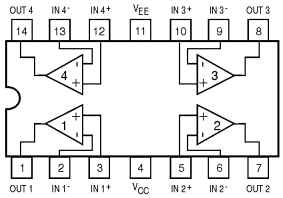
IL50 Electronic Parts List (Cont.)

Part#	Reference Designator	Qty	Description
FH0012		1	FUSE, HOLDER PANEL MT SEALED
FS0022		1	FUSE, 3A 250V 1.25X.25 GLASS
HS0004		5	SCREW, #6-32X1/4 PAN PHIL ZNP
HS0062		7	SCREW, #6-1/2 TYPE B PP BLK
HS0065		1	SCREW, #6-32X1/4 PAN PHIL BLK
HS0067		12	SCREW, #6-3/8 TYPE A PP BLK
HS0078		6	SCREW, #4-24X1/2 HL PP BLK
IL50 PANEL		1	INTERLUDE IL50 PANEL COMPLETE
JC0071		2	CNCTR, FEM-FEM HARNESS 8PIN 9"
JC0072		1	CNCTR, 2PIN MINI JUMPER(SHUNT)
JC0104		1	CNCTR, 2PIN BP GOLD C/W TERM
JC0111		1	8PIN RIBBON CABLE 3"
JC0129		1	CNCTR, AC IEC SOCKET .250 2PIN
JC0169C		1	CNCTR, FEM-FEM HARNESS 4PSH 28"
MM0069		3	MISC, RUBBER GROMMET IL50/100
MS0005		7	SILPAD, .009" .3C/W TO3P
MZ0003		1	STANDOFF, 6-32 3/8 ROUND AL
MZ0030		6	STANDOFF, 3/8" NYLON
MZ0040		3	STANDOFF, 30MM NYLON
SR0032		1	SWITCH, ROCKER TV5
WI0043		1	WIRE, POWER CORD 15FT IEC
MC0001		1	Cable Tie 4"

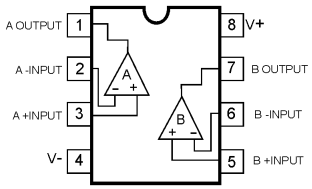
00272-6

Integrated Circuit Diagrams

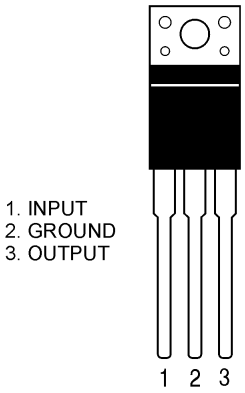
QUAD OP-AMP, LM324, TL084
U1, U2, U5, U6



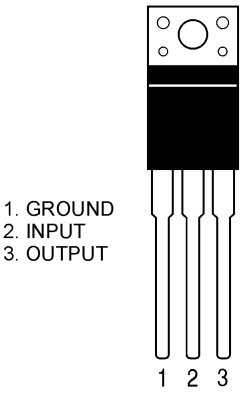
OPAMP, DUAL 8PIN DIL TL072
U2, U7



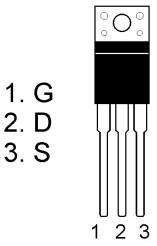
+15V TO220 LM7815CT
REGULATOR
U2



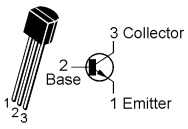
-15V TO220 LM7915CT
REGULATOR
U3



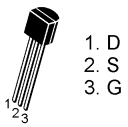
MOSFET, IRF530/ 540/9540
Q1, Q3, Q4, Q5, Q7, Q8



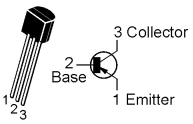
TRANS, NPN 150V 0.6A 2N5551,
Q1, Q2, Q3, Q5, Q6
2N4401,



JFET, Q5,Q9

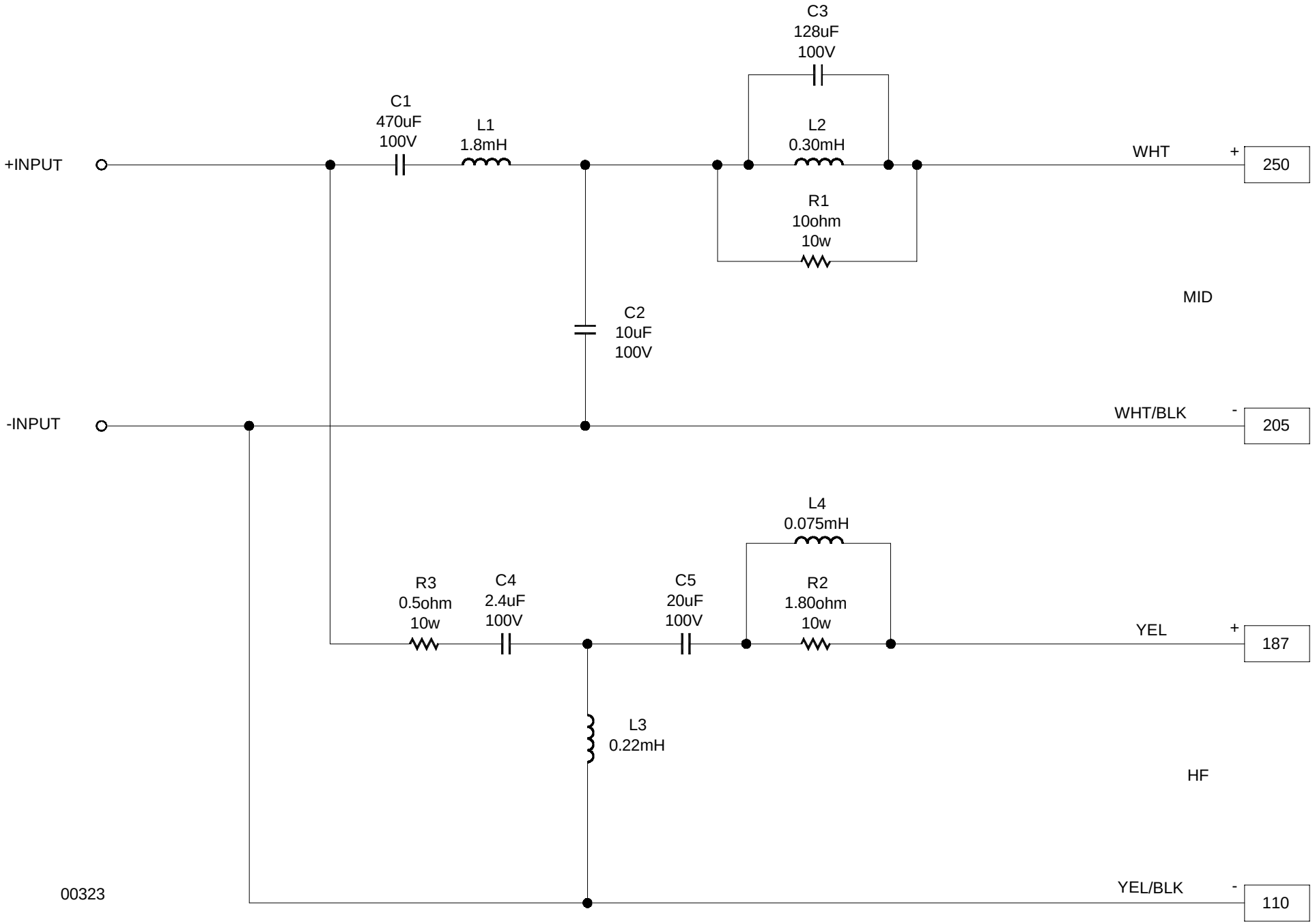


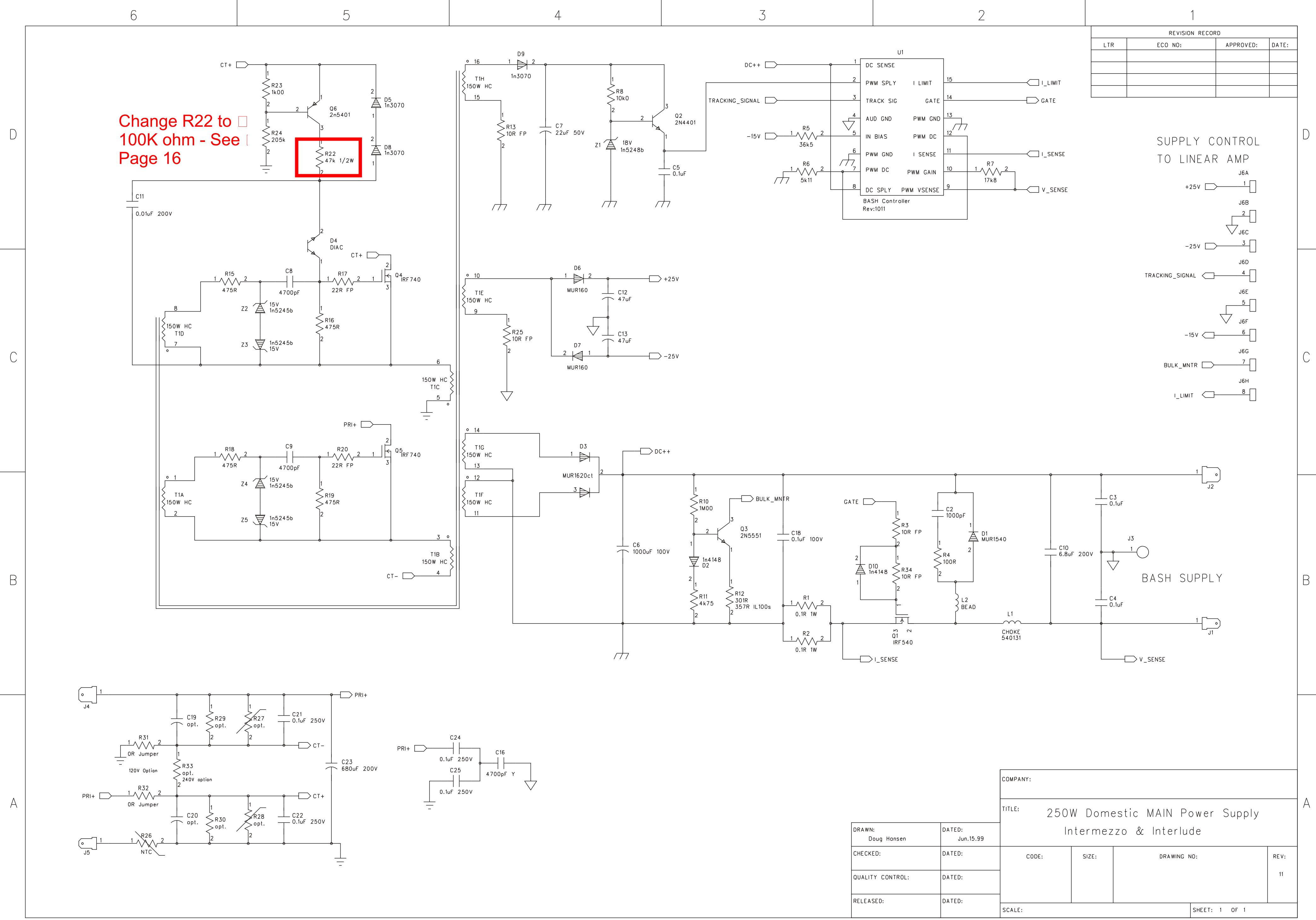
TRANS, PNP 150V 0.6A 2N5401,Q6



00311

Crossover Network Schematic




Change R22 to 100K ohm - See Page 16
REVISION RECORD
LTR
ECO NO:
APPROVED:
DATE:
SUPPLY CONTROL
TO LINEAR AMP
BASH SUPPLY
U1
BASH Controller
Rev:1011
DC SENSE
PWM SPLY
TRACK SIG
AUD GND
IN BIAS
PWM GND
PWM DC
DC SPLY
I LIMIT
GATE
PWM GND
PWM DC
I SENSE
PWM GAIN
PWM VSENSE
TRACKING_SIGNAL
BULK_MNTR
I_LIMIT
I_SENSE
V_SENSE
R22
47k 1/2W
Q6
2n5401
D4
DIAC
Q4
IRF740
Q5
IRF740
Q2
2N4401
Q3
2N5551
Q1
IRF540
L1
CHOKE
540131
C6
1000uF 100V
C10
6.8uF 200V
C23
680uF 200V
COMPANY:
TITLE:
250W Domestic MAIN Power Supply
Intermezzo & Interlude
DRAWN:
Doug Hansen
DATED:
Jun.15.99
CHECKED:
DATED:
QUALITY CONTROL:
DATED:
RELEASED:
DATED:
CODE:
SIZE:
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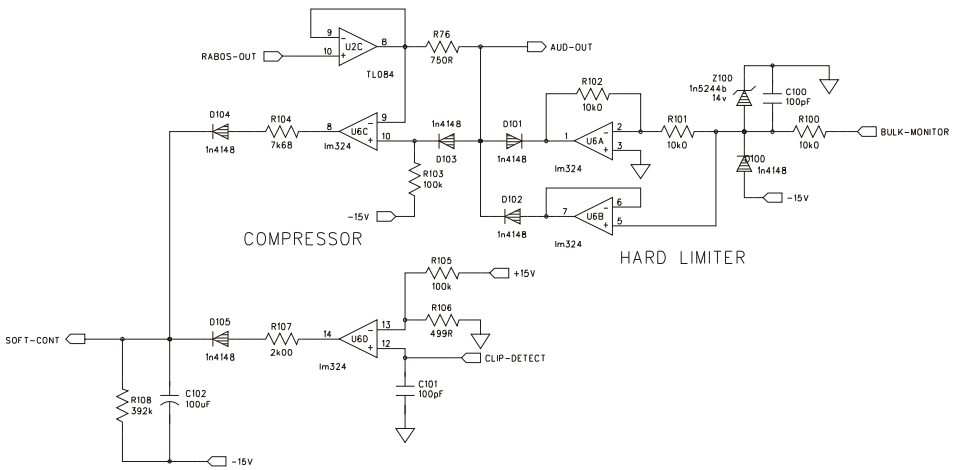

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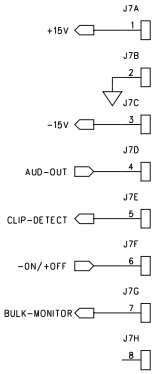

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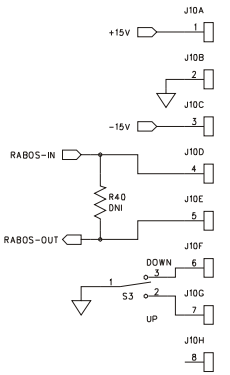

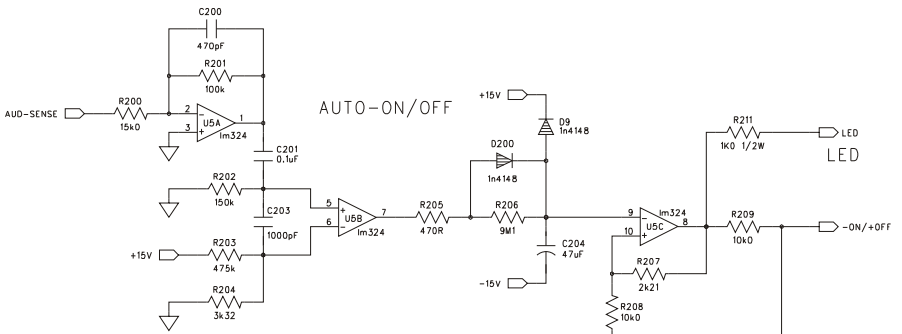

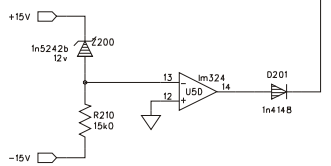

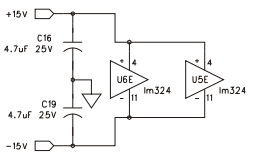

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IL50

Infinity

REVISION RECORD			
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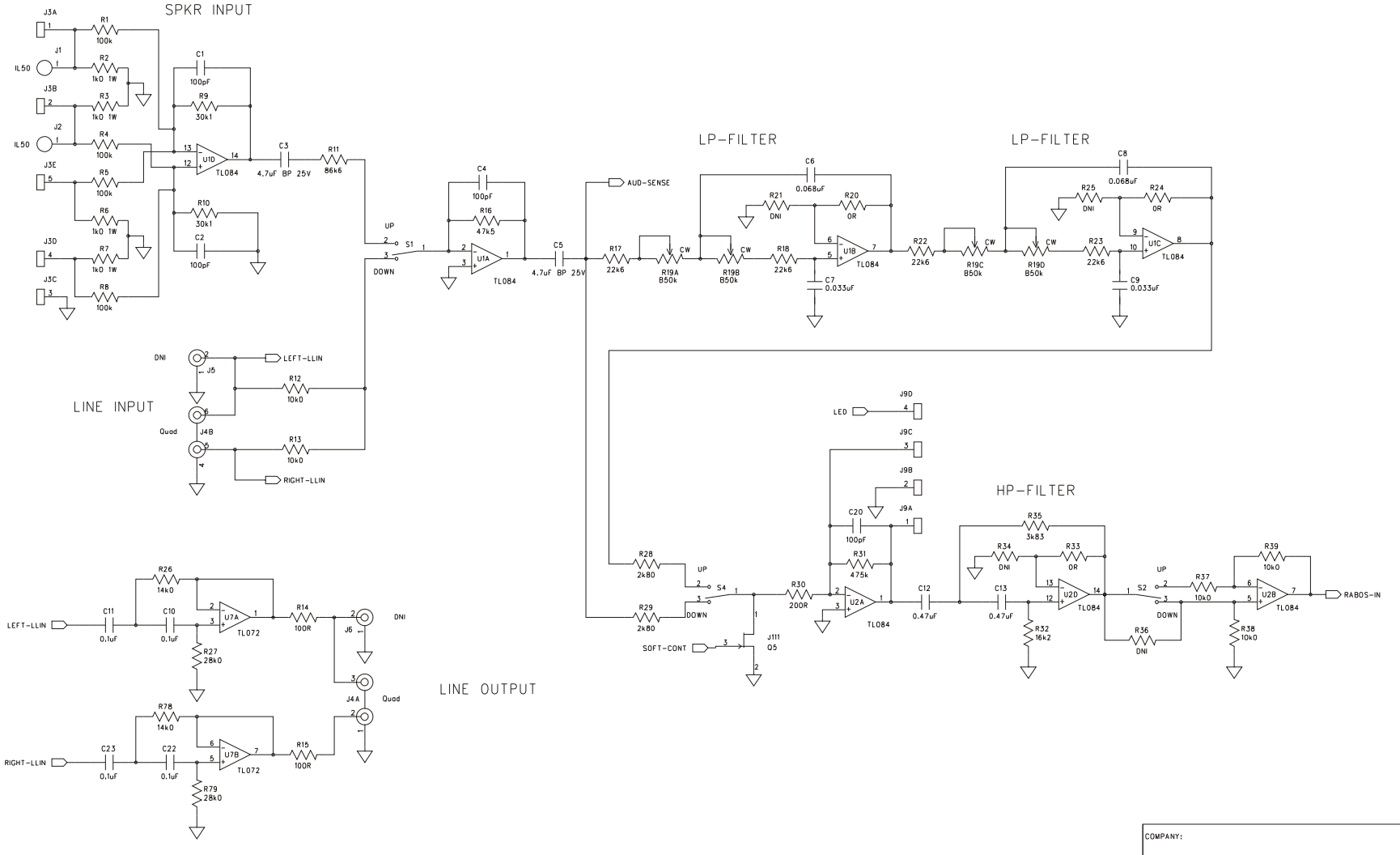

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QUALITY CONTROL:	DATED:	CODE:	SIZE: DRAWING NO: REV: 10
RELEASED:	DATED:	SCALE:	SHEET: 1 OF 2

REVISION RECORD			
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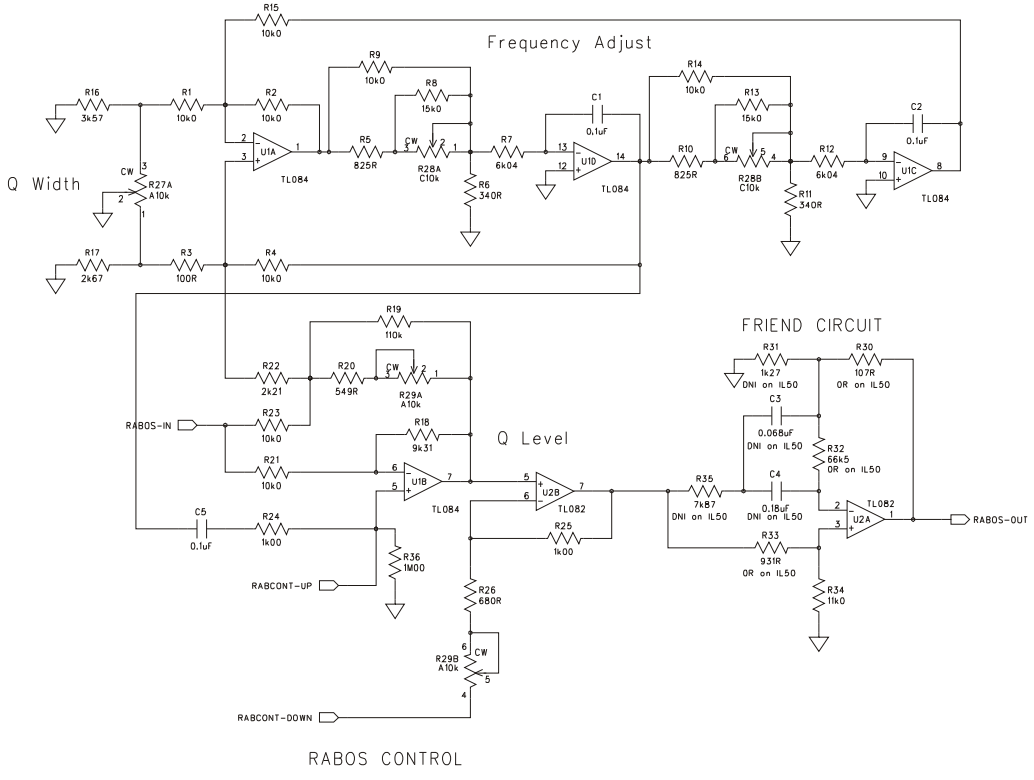

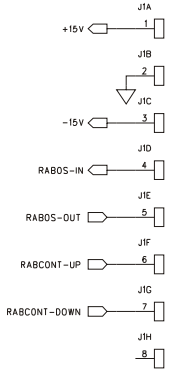

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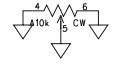
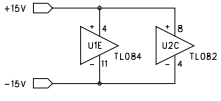
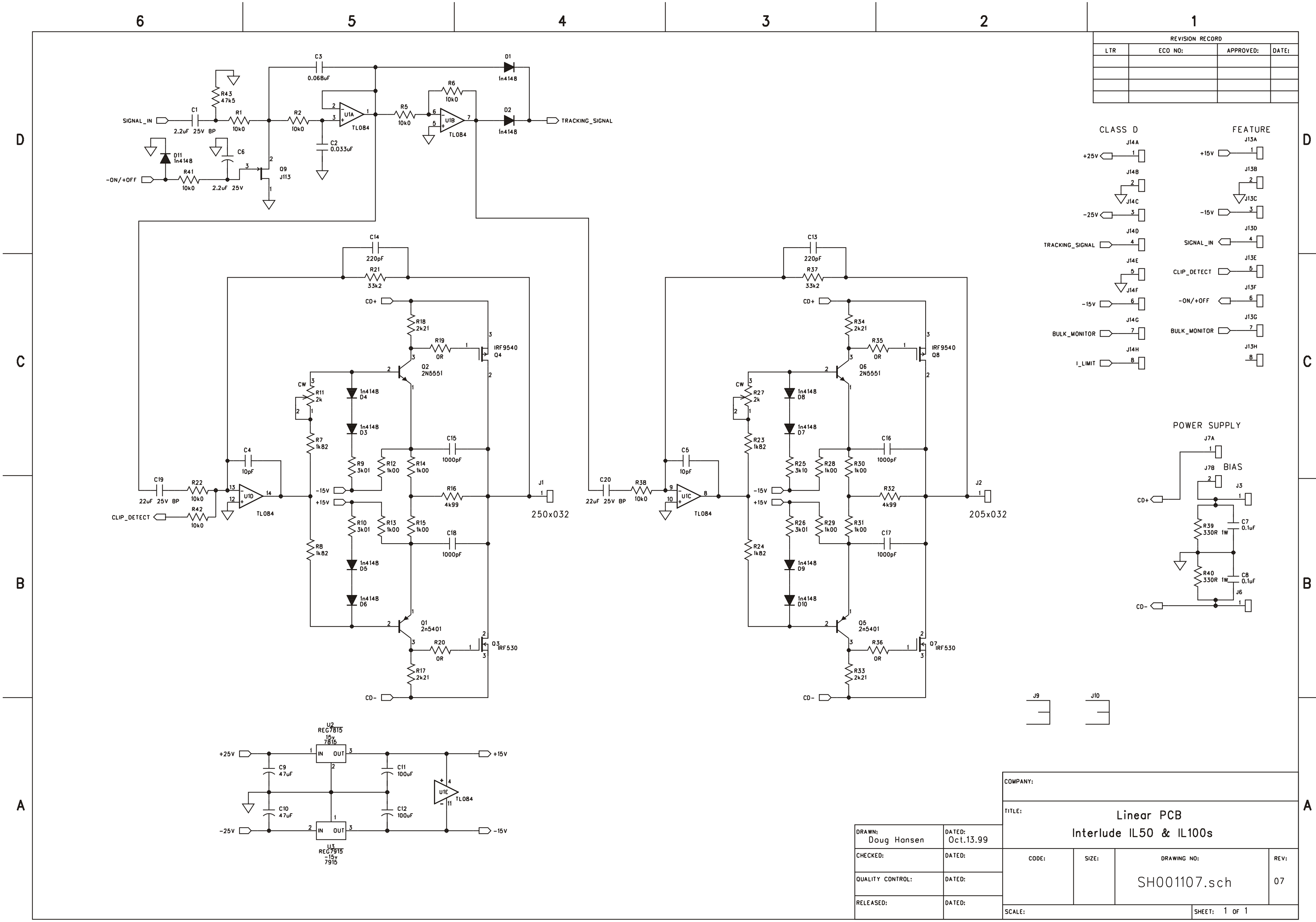


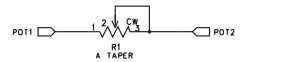


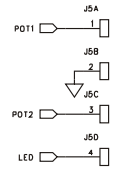
DRAWN: Doug Hansen	DATED: Dec.06.99	COMPANY:	
CHECKED:	DATED:	TITLE: Feature Rabos Interlude IL100s	
QUALITY CONTROL:	DATED:	CODE:	SIZE: DRAWING NO: REV: 06
RELEASED:	DATED:	SCALE:	SHEET: 1 OF 1

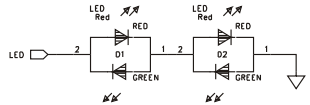


REVISION RECORD
LTR
ECO NO:
APPROVED:
DATE:
SIGNAL_IN
-ON/+OFF
TRACKING_SIGNAL
CLIP_DETECT
CLASS D
FEATURE
+25V
-25V
-15V
+15V
BULK_MONITOR
I_LIMIT
SIGNAL_IN
POWER SUPPLY
BIAS
CD+
CD-
TL084
IRF9540
IRF530
2N5551
2n5401
1n4148
J113
250x032
205x032
REG7815
REG7915
COMPANY:
TITLE:
Linear PCB
Interlude IL50 & IL100s
DRAWN:
Doug Hansen
DATED:
Oct.13.99
CHECKED:
QUALITY CONTROL:
RELEASED:
CODE:
SIZE:
DRAWING NO:
SH001107.sch
REV:
07
SCALE:
SHEET: 1 OF 1

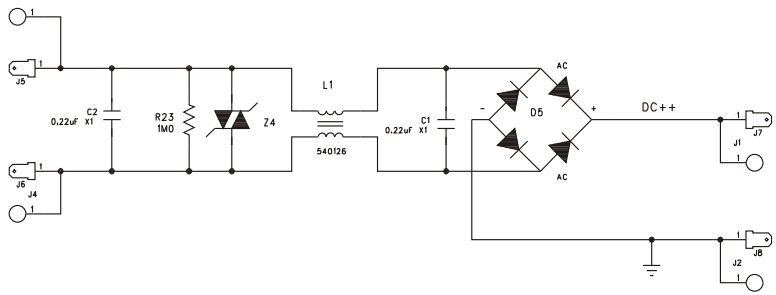
REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:







J3



DRAWN: Doug Hansen	DATED: Jan.31.00	COMPANY:	
CHECKED:	DATED:	TITLE: Volume-LED PCB (Left & Right) 250W AC-DC and EMI	
QUALITY CONTROL:	DATED:	CODE:	SIZE: DRAWING NO: SH001201.SCH REV: 01
RELEASED:	DATED:	SCALE:	SHEET:1 OF 1