



POWERED MIXER

OWNER'S MANUAL



MODEL: PC6400B

PLEASE READ BEFORE USE

MIXER INPUT SECTION

Input	Actual Load Impedance	For Use With	Sensitivity	Connector
Mic	7k ohm	50 ohm to 600 ohm microphones	-50dBu	XLR Type
Line	30k ohm	27k ohm or lower impedance line	-20dBu	Phone Jack
Aux	10k ohm	10k ohm or lower impedance line	-18dBu	Phone Jack
Aux RCA	15k ohm	15k ohm or lower impedance line	-15dBu	RCA Jack
Amp In	100k ohm	100k ohm or lower impedance line	-1dBu	Phone Jack
Effects Return	10k ohm	10k ohm or lower impedance line	-15dBu	Phone Jack

MIXER SECTION

No. Test	Test Condition	Value
1. Max Voltage Gain	MIC IN to MIX OUT	50dB
	LINE IN to MIX OUT	20dB
	MIC IN to MONITOR OUT	50dB
	MIC IN to EFFECTS SEND	40dB
	AUX IN to MIX OUT	15dB
	RETURN to MIX OUT	15dB
2. Frequency Response	@ 40dB Gain	20Hz-20kHz
3. Total Harmonic Distortion	@ 40dB Gain	.05%
4. Intermodulation Distortion	SMPTE 50Hz + 7kHz 4:1	.05%
5. EIN	150 ohm, AWTD	-127dB
6. Channel Low EQ	100Hz Shelving, 1kHz Hinge Frequency	+/- 12dB
7. Channel High EQ	10kHz Shelving, 1kHz Hinge Frequency	+/- 12dB
8. Graphic EQ	50Hz Cut & Boost	+/- 12dB
	100Hz Cut & Boost	+/- 12dB
	250Hz Cut & Boost	+/- 12dB
	500Hz Cut & Boost	+/- 12dB
	1kHz Cut & Boost	+/- 12dB
	5kHz Cut & Boost	+/- 12dB
	10kHz Cut & Boost	+/- 12dB
10. Res Noise	Mix Out, Vol Max	-85dBu

MIXER OUTPUT SECTION

Output	Actual Source Impedance	For Use With	Output Level		Connector
			Nominal	Max Before Clip	
Monitor Out	1K ohm	600 ohm or higher imp line	+1dBm	+21dBu	Phone Jack
Mix Out	1K ohm	600 ohm or higher imp line	+1dBm	+21dBu	Phone Jack
Effects Send	1K ohm	600 ohm or higher imp line	+4dBm	+21dBu	Phone Jack

POWER AMPLIFIER SECTION

No. Test Item	Test Condition	Value
1. Power Output	4 ohm at 1% THD	400W
	8 ohm at 1% THD	230W
2. Total Harmonic Distortion	1W 4 ohm	.06%
3. Intermodulation Distortion	SMPTE 50Hz + 7kHz 4:1	.06%
4. Frequency Response	0dB	20Hz-20kHz
5. Damping Factor	Relative to 8 ohms	150
6. Slew Rate	Ref 400W	13.23V/USEC.
7. Input Sensitivity	Amp In	-1dBm

NOTE: 0dB is referenced to 0.775 V RMS.

POWER REQUIREMENT: 600 W 120Vac 60Hz.

DIMENSIONS: 11" H x 21" W x 11" D (280mm x 533mm x 280mm)

UNIT WEIGHT: 40 lbs. (18 kg)

For improvement purposes, specifications and design are subject to change without notice.



Congratulations!

You have purchased one of the finest powered mixer values in professional sound today. This unit was developed using the expertise of professional sound engineers and musicians to obtain the high standards of quality and performance required from powered mixers today. You will find your new Ross Systems PC6400B to have greater flexibility and superior performance than any other powered mixer in its price range. Read this manual carefully so you can utilize this unit to its fullest extent. Thank you for selecting Ross Systems as your choice of powered mixers.

Power Requirements:

120 volts AC 50/60Hz for USA/CANADA version. Outside of NORTH AMERICA, check the rating on the back of each unit to be sure it matches the AC power source you plan to use.

Features (guide)

- Rugged Power Amplifier section delivers 400 watts RMS into 4 ohm loads.
- Power Amplifier Limiter Circuit prevents output clipping, providing distortion free performance.
- Internal Muting Circuit provides power on delay and instant power off, preventing "pops" and turn off noise.
- 6 Mixable Input Channels in a compact package, accepts both microphone and line sources.
- Independent Low and High EQ Controls on each input channel for maximum flexibility.
- Built-in 7-band Graphic Equalizer lets you optimize the frequency response to compensate for speaker and room acoustic conditions, also helps control feedback.
- Built-in Reverb System for great sounding vocals.
- Effects Send and Return Buss for patching external effects devices.
- Complete Monitor Send and Mix System lets you "hear" clearly, just add an external power amplifier.
- Auxiliary Inputs for patching in external signal or tape playback.

For your protection, we recommend you write down the serial number shown on the rear panel.

SERIAL NUMBER: _____

High grade components and craftsmanship have been employed in this product. No regular service is required. However, to insure trouble free operation, be careful not to allow any liquids, cigarette ashes, or excessive dust to enter the switch openings or fader slots. For cleaning, use a soft cloth that has been moistened with a mild detergent and water solution. Avoid harsh chemicals that may attack plastic parts or damage the finish.

OPERATING THE CONSOLE (guide)



AC POWER: Before connecting the AC power cord, check the back panel to see that the rated AC line voltage of the amplifier agrees with the line voltage available from your AC outlet. (Be sure adequate power is available; at least 600 watts is needed for full output using 4 ohm loads). With the gain controls down and the power switch "OFF", insert the AC plug into the wall outlet. Your PC6400B is now ready for operation.

1. Ensure that the POWER SWITCH is off. See Hint 1.
2. Connect the microphones and/or line level signals to the inputs.
3. Connect speakers to the output jacks on the rear panel. See Hint 2.
4. Connect all the auxiliary inputs and external effects to be used.
5. If monitors are to be used, connect the MONITOR OUT to an external power amplifier.
6. Adjust the MAIN LEVEL control to the center position, nominal operating level.
7. Adjust the MONITOR LEVEL control to the center position, nominal operating level.
8. Turn the POWER SWITCH on.
9. Adjust the channel LEVEL controls to achieve the desired level of volume for each channel.
10. Adjust the channel MONITOR controls to achieve the desired monitor volume for each channel. The monitor volume will not be effected by the channel level control.
11. Adjust the CHANNEL and GRAPHIC EQUALIZER as desired. See Hint 3.
12. Adjust the channel REVERB/EFFECTS control and REVERB MAIN, or EFFECTS RETURN control for desired level of effects. See Hint 4.
13. Re-adjust the MASTER LEVEL control to achieve the desired level of volume at the speaker output.
14. Re-adjust the MONITOR LEVEL control to achieve the desired level of volume at the monitor output.
15. When the performance has ended, adjust the master volume to minimum. Then, turn the POWER SWITCH to "off" before disconnecting the inputs and line cord.

HELPFUL HINTS (guide)

1. POWER ON-OFF SWITCH

The power on-off switch applies AC line voltage to the amplifier in the "on" position as indicated by the red LED power indicator on the front panel. When other equipment feeding the amplifier is turned on, some transient clicks or pops may occur. If external equipment such as tape players or effects devices are to be used, always turn the PC6400B "on" last, and "off" first to ensure pop free operation.

2. SPEAKER OUTPUTS

Two 1/4" (6.35mm) phone jack output connectors are provided. You may connect your loudspeakers to either output jack. The wire used to connect the speakers should be 18 gauge or larger to prevent loss of power due to wire resistance. This also ensures that the speakers see a low source impedance for correct damping factor. When the speakers are located more than 50 feet (20m) from the amplifier, 16 gauge or larger wire should be used to minimize cable resistance losses.

The power amplifier performance is specified for speaker impedances of 4 and 8 ohms. Higher impedances may be used without any difficulty. Impedances lower than 4 ohms should be avoided because with high outputs and low impedances, excess heating of the amplifier may occur, requiring improved ventilation, or use of an external fan. If the amplifier is overworked with low impedance loads for a period of time, some damage could occur.

3. EQUALIZATION CONTROLS

THE CHANNEL EQUALIZER adjusts the frequency response characteristic of the individual channels. The controls function within the following specification:

LOW EQ 100Hz shelving, hinge freq.
1kHz

HIGH EQ 10KHz shelving, hinge freq.
1kHz

The 7-BAND GRAPHIC EQUALIZER adjusts the frequency response characteristic of the main output. It can be used to modify specific portions of the program material, or to eliminate feedback in the system. Compensation for inadequacies in microphones, speakers, or room acoustics is easily accomplished.

4. REVERB/EFFECTS

The channel reverb effects control adjusts the signal level from each channel routed to the built-in reverb and to the effects send jack. When there is no effects loop connected to the send and return jacks, this control will adjust the amount of reverb on each channel. When an effects loop is connected to the send and return jack, the rev/eff control will adjust the level of signal from each channel sent to the external effect from the effects send jack. The effects return control will adjust the amount of effected signal which is sent to the master buss and mixed into the main output.

5. CABLES

Always use shielded cables from the signal source to the mic or line inputs. Keep the cables as short as possible to reduce unwanted noise. Never use shielded signal cable to connect the speakers.

6. INPUTS

The mic inputs are a balanced configuration designed to use "XLR-type" connectors with low impedance mics (50 to 600 ohms). The 1/4" (6.35mm) line inputs accept high level signal sources while providing an input impedance of more than 20k ohms.

CONTROLS (guide)

MONITOR - Controls the amount of channel signal that is sent to the monitor out jack. This control is post EQ so the channel equalization will effect the monitor signal.

LEVEL - The channel level control adjusts the level of each input channel.

GRAPHIC EQUALIZER - Optimizes the frequency response characteristic of the main output. Useful for controlling "feedback" and "enhancing" speaker response.

EFFECTS RETURN - Controls the level of effected or processed signal from the return jack that is mixed with the "dry" signal and routed to the power amplifier.

REVERB MONITOR - Controls the level of the internal reverb sent to the monitor buss and mixed into the monitor output.

REVERB MAIN - Controls the level of the internal reverb sent to the master buss and mixed into the main output.

MONITOR LEVEL - The monitor level control adjusts the overall level of the monitor sources, and controls the signal level sent to the monitor out jack.

MAIN LEVEL - This control adjusts the overall volume of all the sources, and controls the signal level sent to the speaker output.

REVERB/EFFECTS - Controls the signal level from each channel routed to the built-in reverb and to the effects send jack.

HIGH EQ - Adjusts the high frequency response of the channel signal. The high EQ control functions as a 10kHz shelving type with a maximum cut or boost of 12dB.

LOW EQ - Adjusts the low frequency response of the channel signal. The low EQ control functions as a 100Hz shelving type with a maximum cut or boost of 12dB.

LINE - Input, 1/4" (6.35mm) phone jack accepts high impedance mic signals, or unbalanced line level (-20dBu) signals.

MIC - Input, XLR mic jack balanced input which accepts low impedance mic level (-50dBu) signals.

AUX IN - Line level inputs, 1/4" (6.35mm) (-18dBu) and two RCA jacks (-15dBu) used to connect an external signal source such as tape playback, tuner, etc. The main level control adjusts the auxiliary signal level at the main output.

EFFECTS SEND - Effects send (+4dBu) signal output adjusted by channel rotary effects control. It can be used with the return in an external effects loop.

EFFECTS RETURN - Line level (-15dBu) signal input used to connect external effects such as digital delay, tape playback, etc. It can be used with the effects send to set up an external effects loop.

AMP IN - Direct input (-1dBu) to the internal power amplifier. Inserting a 1/4" (6.35mm) phone plug into this jack interrupts signal from the mix out to the internal power amplifier.

PHANTOM POWER - Depressing the Phantom Power switch will apply +48Vdc to all mic inputs allowing the use of condenser microphones. When Phantom Power is "on", the red Phantom Power LED will illuminate.

MIX OUT - Mix send (+1dBu) signal output that is a post master EQ sum of all the channel signals.

MON OUT - Monitor send (+1dBu) signal output adjusted by channel monitor rotary controls and the monitor level master control. Used for driving an external monitor power amplifier.

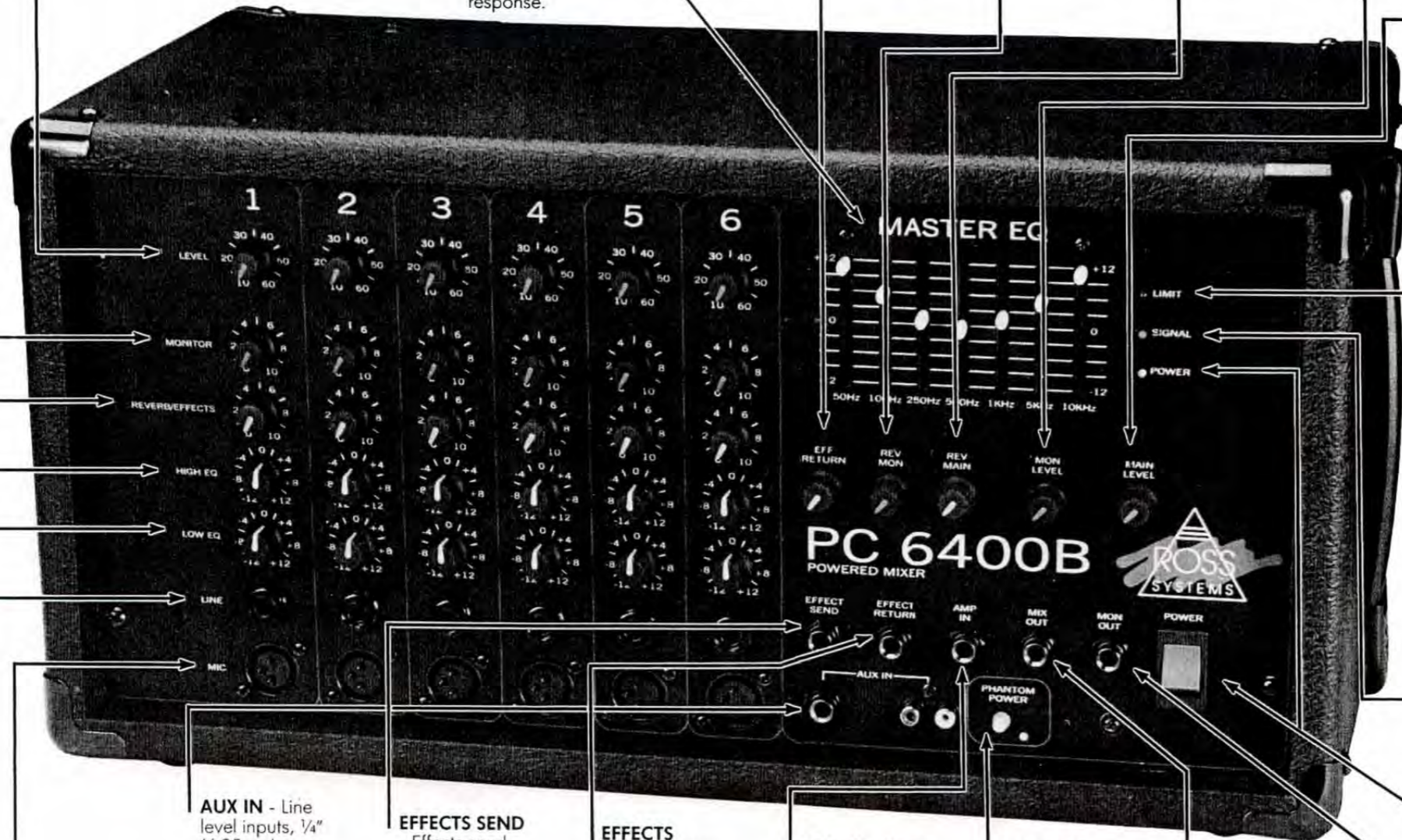
POWER SWITCH - Main AC power switch. Power "ON" is indicated by a red LED on the front panel.

SPEAKER OUTPUTS - Located on the rear panel are two parallel 1/4" (6.35mm) jacks for speaker connections. The amplifier is rated for speaker impedances of 4 ohms or greater. Do not connect loads of lower than 4 ohms. For example, two 8 ohm speakers or one 4 ohm speaker is the minimum load. High impedance loads may be used, but maximum power will be delivered only into 4 ohms.

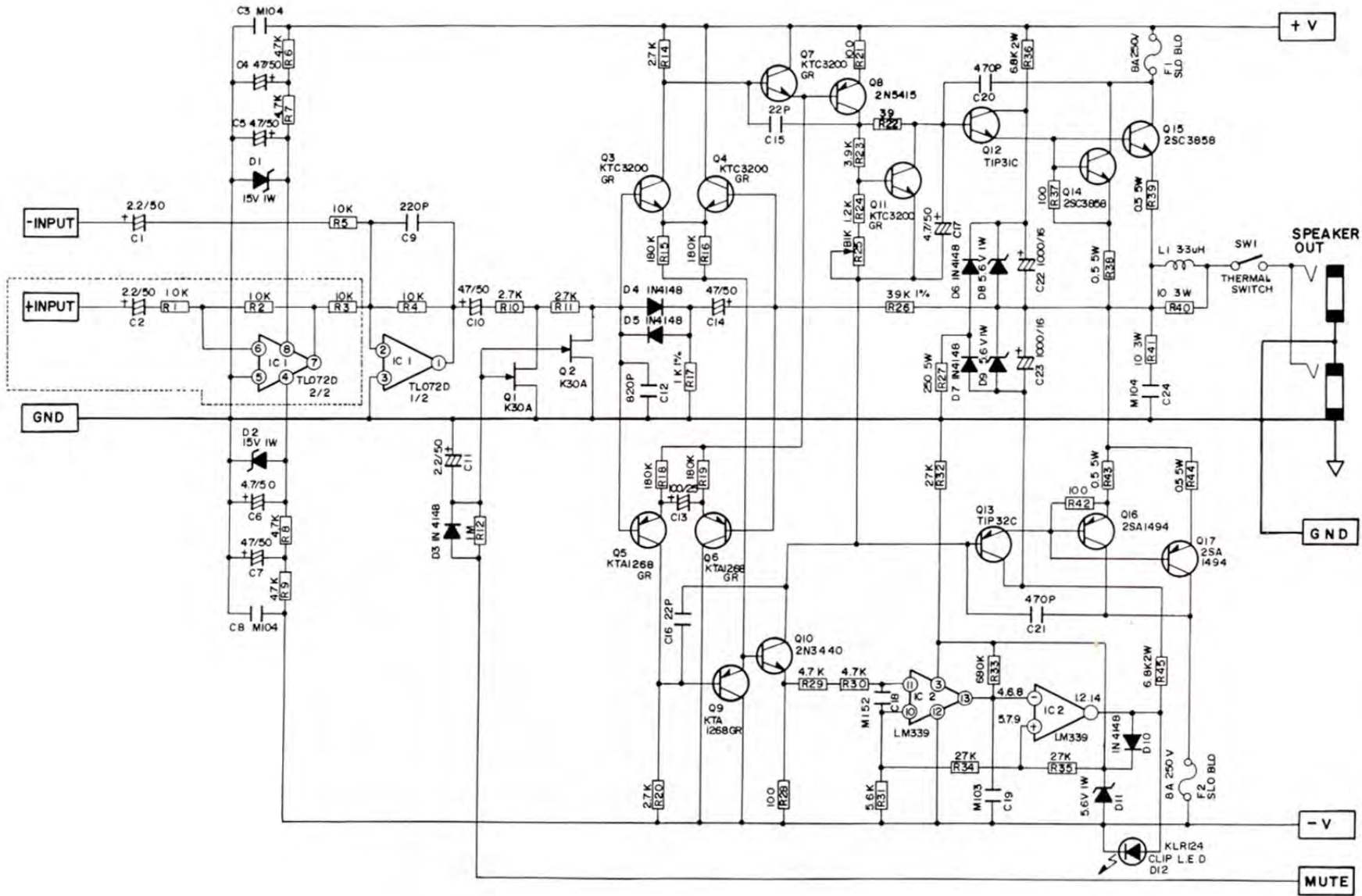
FUSE - To maintain protection against fire and shock hazards, replace only with an equivalent type and rating.

LIMIT LED - This red LED indicates when the power amplifier limiter circuit has been activated. The limiter circuit will prevent the power amplifier from "clipping" the output signal, preventing the unwanted harsh distortion that normally occurs when maximum power output is exceeded. Under normal full power operation, this LED should be flashing on and off. A constant "on" condition indicates full limiting and maximum available power output.

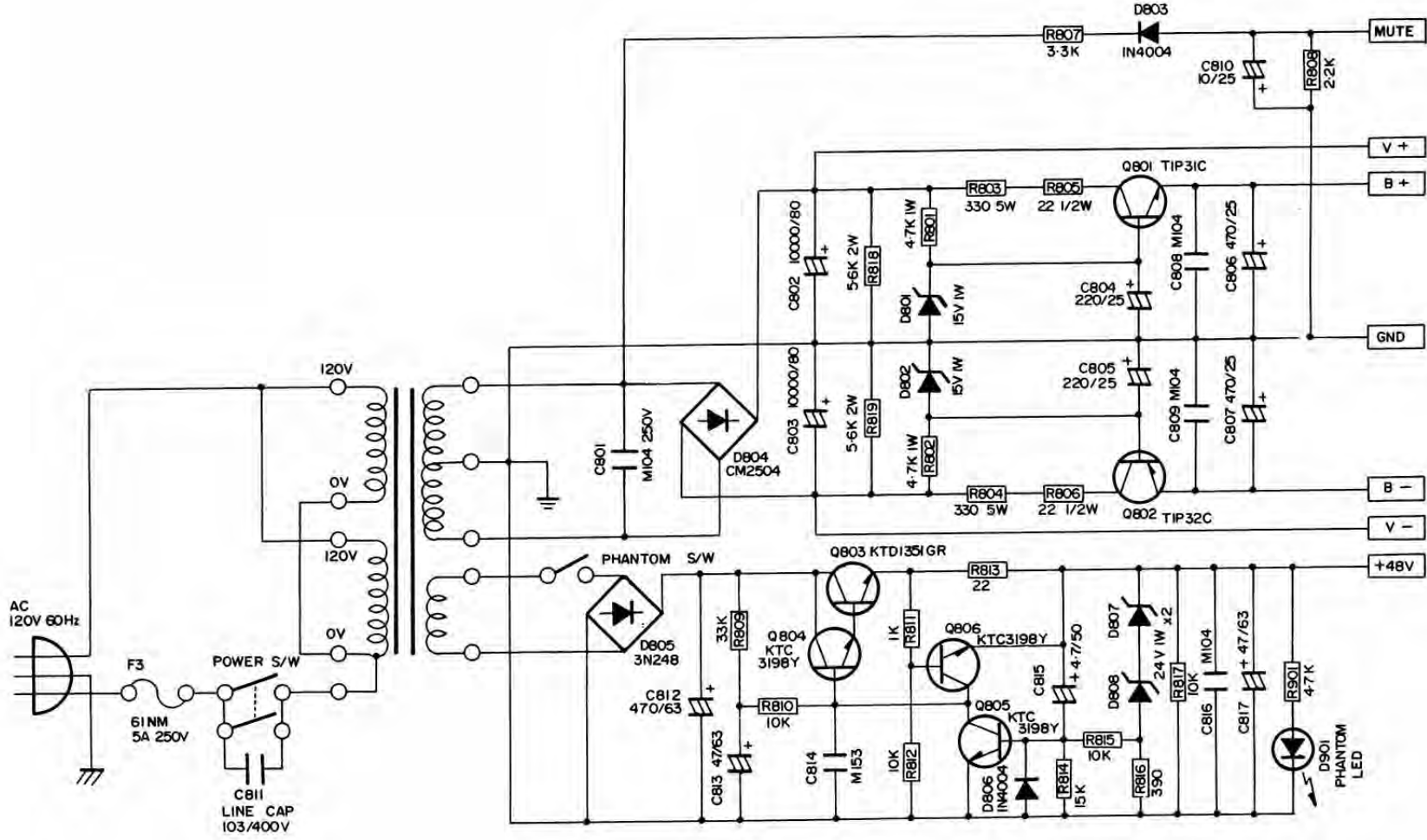
SIGNAL LED - This green LED indicates the presence of signal at the power amp input.



POWER AMPLIFIER



POWER SUPPLY



PARTS LIST

PC6400B CHANNEL PCB ASSY

I.M.C.

PART

REI00500	I.C. OP AMP 5532D
REJ00920	Phone Jack 3SPCMTI RCS
REJ01420	XLR Female RCS
REV00700	VR Rotary B10K
REV01600	VR Rotary B50K
REC16350	Capacitor, 10MFD 50V EL-RD
REC18750	Capacitor, 47MFD 63V EL-RD
REC19800	Capacitor, 100MFD 35V EL-RD
REC05505	Capacitor, 1NFD M102 50V
REC12005	Capacitor, .22MFD M224 50V
REC00600	Capacitor, 10PFD CER
REC02200	Capacitor, 100PFD CER

PC6400B MASTER PCB ASSY

REI00100	I.C. OP AMP 072D
REI00400	I.C. OP AMP 4558
RET03432	Transistor, KTA 1266
RET02860	Transistor, 2SC3198L
RED02100	LED, Red Round 3MM
RED02020	LED, Green Round 3MM
REI00620	IC OPTO Isolator VTL5C7
REJ01050	Phone Jack, 5SCHMTI
REV01520	VR Rotary A50K 6400B
REV00810	VR Rotary B10K 6400B
REV02520	VR Rotary B100K 6400B
REV03860	VR Slide B50K 6400B
REC12400	Capacitor, .47MFD 50V EL-RD
REC13000	Capacitor, 1MFD 50V EL-RD

REC16500	Capacitor, 10MFD 50V EL-RD
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REC17400	Capacitor, 22MFD 50V EL-RD
REC05505	Capacitor, 1NFD M102 50V
REC06600	Capacitor, 2.2NFD PFILM
REC07000	Capacitor, 4.7NFD PFILM
REC08600	Capacitor, 10NFD MYLAR
REC08900	Capacitor, 15NFD PFILM
REC09400	Capacitor, 22NFD PFILM
REC10100	Capacitor, 47NFD PFILM
REC11300	Capacitor, .1MFD MYLAR
REC12005	Capacitor, .22MFD M224 50V
REC00600	Capacitor, 2.2NFD PFILM
REC01600	Capacitor, 46PFD CER
REC02200	Capacitor, 100PFD CER
REC02600	Capacitor, 120PFD CER
REC03000	Capacitor, 150PFD CER

PC6400B RCA PCB ASSY

REJ01310	RCA Jack, 6400B
RES01120	Switch, Push RCS
RED02100	LED, Red Round 3MM

PC6400B MAIN PCB ASSY

REI00100	I.C. OP AMP 072D
REI00175	I.C. Comparator LM339
RET03433	Transistor, KTA1268GR
RET01100	Transistor, 2SA1494
RET03800	Transistor, 2N5415
RET04200	Transistor, TIP32C
RET03437	Transistor, KTC 3200GR
RET03000	Transistor, 2SC3858
RET03700	Transistor, 2N3440
RET04100	Transistor, TIP31C
RET03410	Transistor, K30A
RED01600	Diode, 1N4148
RED00400	Diode, Zener 15V 1 watt

COMPONENT

IC101
J101
J102
VR103, 104, 105
VR101, 102
C100, 105, 110
C101, 102
C111, 112
C109
C106, 107
C103, 108
C104

IC701, 702
IC703-708
Q703
Q701, 702
LED701, 702
LED703
LDR701
J701, 704-708
VR710, 711
VR713
VR701, 712
VR703-709
C716
C718, 721, 722, 725, 727, 730
C701-704, 720, 723, 729, 735, 736, 738
C739
C709
C731
C740
C711
C708
C707, 713
C710, 715, 741
C712, 717, 732
C714, 719, 734
C705, 737
C724, 742
C706, 733
C728
C726

J702, 703
Phantom Sw.
D901

IC101
IC102
Q105, 106, 109
A116, 117
Q108
Q113
Q103, 104, 107, 111
Q114, 115
Q110
Q112
Q101, 102
D103-107, 110
D101, 102

I.M.C.

PART

RED00100	Diode, Zener 5.6V 1 watt
RED02100	LED, Red Round 3MM
REV05620	VR Rotary Trimptot B1K MA8B
RHW00345	Connector, Con 103 MA8B
RHW00355	Connector, Con 104 MA8B
RHW00330	Connector, Pin, TP1, 2 MA8B
RER27550	Resistor, .5 ohm 5 watt
RER32900	Resistor, 250 ohm 5 watt
RER30300	Resistor, 10 ohm 3 watt
RER33900	Resistor, 6.8K ohm 2 watt
REC13750	Capacitor, 2.2MFD 50V EL-RD
REC15300	Capacitor, 4.7MFD 50V EL-RD
REC18700	Capacitor, 47MFD 50V E-RD
REC19500	Capacitor, 100MFD 25V EL-RD
REC22200	Capacitor, 1,000MFD 16V EL-RD
REC05800	Capacitor, 1.5NFD PFILM
REC08200	Capacitor, 10NFD PFILM
REC11320	Capacitor, .1MFD M104 100V
REC01100	Capacitor, 22PFD CER
REC03500	Capacitor, 220PFD CER
REC04300	Capacitor, 470PFD CER
REC04960	Capacitor, 820PFD CER
RCI00100	Inductor, 3.3UH Power amp coil
REF02300	Fuse Holder 30MM PC.MT
REF00920	Fuse 8A 250V

PC6400B PSU PCB ASSY

RET04200	Transistor, TIP32C	Q802
RET03420	Transistor, KTD1351 NPN	Q803
RET02860	Transistor, 2SC3198L	Q804, 805, 806
RET04100	Transistor, TIP31C	Q801
RED01700	Diode, 1N4004	D803, 806
RED00400	Diode, Zener 15V 1 watt	D801, 802
RED00600	Diode, Zener 24V 1 watt	D807, 808
RED01159	Bridge Rectifier, 3N248 6400B	D805
RER33120	Resistor, 330 ohm 5 watt	R803, 804
RER33850	Resistor, 5.6K ohm 2 watt	R818, 819
RER33690	Resistor, 4.7k ohm 1 watt	R801, 802
REC15300	Capacitor, 4.7MFD 50V EL-RD	C815
REC16200	Capacitor, 10MFD 25V EL-RD	C810
REC18750	Capacitor, 47MFD 63V EL-RD	C813, 817
REC20800	Capacitor, 220MFD 25V EL-RD	C804, 805
REC21700	Capacitor, 470MFD 25V EL-RD	C806, 807
REC21900	Capacitor, 470MFD 63V EL-RD	C812
REC25500	Capacitor, 10,000MFD 80VVV EL	C802, 803
REC08920	Capacitor, 15NFD 100V M153	C814
REC11310	Capacitor, .1MFD 50V M104	C808, 809
REC11320	Capacitor, .1MFD M104 100V	C816
REC11340	Capacitor, .1MFD 250V A C	C801

PC6400B FINAL ASSEMBLY

RTX02060	Transformer, 6400B 120/240V	Power Transformer
RTX02050	Transformer, 6400B 110/220V	Power Transformer
REF01300	Fuse Holder	
RED01160	Bridge Rectifier SB252 MA80016	D804
RES00200	Switch, Rocker	Power on/off
RES01200	Switch, Thermal 110 degree C	SW101
RPC00100	Power Cord A.C. 3 cond open 1	AC120V
REC05205	Capacitor, .01MFD 400V AC LINE	C811
RSR00250	Reverb Unit, BS3FB2C1B 6400B	
RSK01202	Knob, VR Soft Blue	
RSJ01203	Knob, VR Soft Red	
RSK01204	Knob, VR Soft Yellow	
RSK01206	Knob, VR Soft Green	
RSK01300	Knob, Rubber E.Q. (White)	
RSK01220	Knob, Push SW Gray	
RHW01920	Corner, PC6400B	
RHW02750	Rubber Feet, MA800B	
REJ00920	Phone Jack 3SPCMTI RCS	SPK OUT
REF00920	Fuse 8A 250V	AC FUSE

Date of purchase _____

Dealer's name _____

City _____ State _____ Zip _____

Model # _____

Serial # _____

SAFETY WARNING INSTRUCTIONS

WARNING: To prevent fire or shock hazard, do not expose this appliance to rain or moisture.



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE AND SHOCK HAZARDS, REPLACE THE ORIGINALLY SUPPLIED FUSE ONLY WITH THE SAME VALUE AND TYPE.

LIMITED WARRANTY

INTERNATIONAL MUSIC COMPANY (IMC) warrants all **ROSS SYSTEMS®** products against defects in material and workmanship, to the original consumer purchaser, for a period of **THREE YEARS** from the date of purchase. If the unit fails to function properly within the warranty period, we will, at our option, repair or replace it without charge, if returned to an authorized service center or our factory service center in Fort Worth, Texas, during the warranty period. A return authorization number must be obtained from **IMC** prior to the return of the product. The sales receipt may be requested as proof of original purchase.

THE DURATION OF ANY IMPLIED WARRANTY, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS EXPRESSLY LIMITED TO THE PERIOD OF THE EXPRESS WARRANTY SET FORTH ABOVE. IN NO EVENT SHALL IMC BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES.

This warranty is void if purchased outside the USA, or if unit has been damaged due to accident, improper handling or operation, shipping damage, abuse, misuse, or if the serial number has been altered, defaced or removed.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state. For products purchased outside the USA, contact the authorized distributor in the country of purchase for specific warranty information.

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