

CARVIN

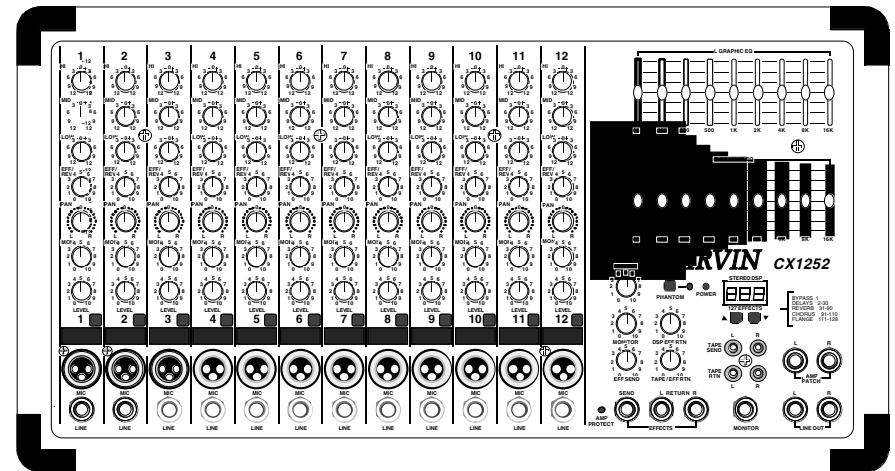
HELPLINE

1-800-854-2235

USA

CX STEREO MIXERS

CX842 and CX1252



CARVIN

12340 World Trade Drive
San Diego, CA 92128

OPERATION MANUAL

Manual No. 76-01252
Revision 1.1

Made in USA

CARVIN

Record the serial number of your CX Mixer in the space provided below:

Serial No. _____ Invoice Date _____

1-800-854-2235

CX MIXER SPECIFICATIONS

Frequency Response:	Mic or Line Inputs: 20Hz-20KHz \pm 2dB
Total Harmonic Distortion:	Less than .025%
Equivalent Input Noise:	150 ohm source: -120dBV
Output Noise: (All Levels Minimum)	-80dBu non-powered mixers -60dBu powered mixers
Output Power: (Power Mixers Only)	CX1252: 250Watts RMS/side @ 4 Ω CX842: 200Watts RMS/side @ 4 Ω
Maximum Gain:	Mic in two-track main out: 70dB
Crosstalk:	Adjacent ch's: -60db at 1KHz
Common Mode Rejection:	-60db at 1KHz
Phantom Power:	All channels
Channel EQ.:	3 band active, LOW: 100Hz \pm 12dB MID: 1.5KHz \pm 12dB HI: 10KHz \pm 12dB
Graphic EQ.:	9 Band Oct. Intervals \pm 12dB
Mic Input:	Balanced XLR input: -60 dBu
Line Input:	Unbalanced 1/4" Phone Jack -10dBV
Power Consumption:	CX1252: 620VA, CX842: 540VA
Size:	Box Model: (25lbs) 11"H x 19.5"W x 9"D Rack Model: 8.75"H x 19"W x 7.75"D

FUSE SELECTION

There are two versions of the CX842 and the CX1252. A 120 Volt AC version using the North American three prong plug and a 240 Volt AC version using the European CEE-7 plug. The following chart shows what fuse values to use for each model.

Fuse Selector Chart for 120 VAC Models

Model	Fuse Value	Carvin #	Size
CX1252	6A, 250V, Slow Blow	70-22060	3AG, 1/4 x 1 1/2" (6.35 x 32mm)
CX1252R	0.25A, 250V, Slow Blow	70-21002	3AG, 1/4 x 1 1/2" (6.35 x 32mm)
CX842	6A, 250V, Slow Blow	70-22060	3AG, 1/4 x 1 1/2" (6.35 x 32mm)

Fuse Selector Chart for 240 VAC EXPORT Models

Model	Fuse Value	Carvin #	Size
CX1252	3A, 250V, Slow Blow	70-22030	3AG, 1/4 x 1 1/2" (6.35 x 32mm)
CX1252R	0.125A, 250V, Slow Blow	70-21001	3AG, 1/4 x 1 1/2" (6.35 x 32mm)
CX842	3A, 250V, Slow Blow	70-22030	3AG, 1/4 x 1 1/2" (6.35 x 32mm)

RECEIVING INSPECTION

INSPECT YOUR CX MIXER FOR ANY DAMAGE which may have occurred during shipping. If any damage is found, notify the shipping company and call CARVIN immediately.

SAVE THE CARTON & ALL PACKING MATERIALS. If you have to reship your mixer, always use the original carton and packing material. This will provide the best possible protection for the mixer during shipment. CARVIN and the shipping company are not liable for any damage caused by improper packing.

SAVE YOUR INVOICE. It will be required for warranty servicing of your unit. Always check the invoice against the items you have received.

SHIPMENT SHORTAGE. If you find some items missing, it may be that they were shipped separately. Please allow several days for the rest of your order to arrive before inquiring. If you determine (after allowing an appropriate amount of time) you have not received all the items you ordered, please call CARVIN.

FOR THE NEW OWNER

Congratulations on your selection of CARVIN products: "The Professional's Choice." Your new CX series mixer demonstrates CARVIN's commitment to producing the highest quality and most sophisticated engineering in the audio industry today. Its wide acceptance and use by industry professionals illustrates the basis for CARVIN's recognition as "The Professional's Choice."

The CX series mixers were designed to be a professional quality mixer in a compact package. The desire was to pack as many professional features into the smallest package we could, without sacrificing the quality of any one of the features or the mixer. The CX1252 includes a full function 12 channel stereo mixer, two nine band graphic equalizers, a 128 preset digital signal effects processor, and a 500 Watt stereo power amplifier capable of 250 Watts a side into 4 ohms. The CX842 is an 8 channel stereo mixer with a 400 Watt power amplifier. The CX842 has all the features of the CX1252 including the two nine band graphic equalizers and the effects processor. Each CX series mixer is the size of a 5 space rackmount unit surrounded by a 3/4" poplar plywood cabinet covered with Duratuff carpeting making the CX mixer road worthy and ready for a show anywhere.

If you would like to comment on any features or the performance of your new mixer, please feel free to contact us. Comments from our customers have helped us to improve and further develop our products and our business.

May you enjoy many years of success and fun with your new CARVIN mixer!

Carvin's toll free number: 800-854-2235

CX STEREO SERIES PARTS LIST

CAUTION

RISK OF ELECTRIC SHOCK



THIS UNIT CONTAINS HIGH VOLTAGE COMPONENTS INSIDE! REFER SERVICING TO QUALIFIED SERVICE PERSONNEL!

Ref Des	Description	CARVIN No.			
A1	IC4558 Op Amp Dual	60-45580	C97	Capacitor Poly .033µF 100 Volt 10%	46-33312
A2	IC4558 Op Amp Dual	60-45580	C98	Capacitor Poly .001µF 100 Volt 10%	46-10212
A3	IC4558 Op Amp Dual	60-45580	C99	Capacitor Poly .0068µF 100 Volt 10%	46-68212
A4	IC4558 Op Amp Dual	60-45580	C100	Capacitor Poly .001µF 100 Volt 10%	46-10212
A5	IC4558 Op Amp Dual	60-45580	C101	Capacitor Poly .0022µF 100 Volt 10%	46-22212
A6	IC4558 Op Amp Dual	60-45580	C102	Capacitor Ceramic 250PF 500 Volt 5%	45-25152
A7	IC4558 Op Amp Dual	60-45580	C105	Capacitor Poly .22µF 100 Volt 10%	46-22412
A8	IC4558 Op Amp Dual	60-45580	C106	Capacitor Poly .01µF 100 Volt 10%	46-10312
A9	IC4558 Op Amp Dual	60-45580	C107	Capacitor Poly .068µF 100 Volt 10%	46-68312
A10	IC4558 Op Amp Dual	60-45580	C108	Capacitor Poly .0033µF 100 Volt 10%	46-33212
A11	IC4558 Op Amp Dual	60-45580	C109	Capacitor Poly .022µF 100 Volt	46-22312
A12	IC4558 Op Amp Dual	60-45580	C110	Capacitor Poly .001µF 100 Volt 10%	46-10212
A13	IC4558 Op Amp Dual	60-45580	C111	Capacitor Poly .0047µF 100 Volt 10%	46-47212
A14	IC4558 Op Amp Dual	60-45580	C112	Capacitor Ceramic 330PF 1000 Volt 10%	45-33113
A15	IC4558 Op Amp Dual	60-45580	C113	Capacitor Ceramic 56PF 500 Volt 5%	45-56052
A16	IC4558 Op Amp Dual	60-45580	C114	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051
A17	IC4558 Op Amp Dual	60-45580	D1	LED Red #204HD 3mm T-1.00 1" Leads	60-75320
A18	IC4558 Op Amp Dual	60-45580	D2	LED Red #204HD 3mm T-1.00 1" Leads	60-75320
A19	IC4558 Op Amp Dual	60-45580	D3	N/U	
C1	Capacitor Ceramic 82PF 500 Volt 5%	45-82052	D4	Diode RECT GEN 1N4003 1A 200V	61-40030
C2	Capacitor Ceramic 82PF 500 Volt 5%	45-82052	D5-9	N/U	
C3	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	D10	LED Red #204HD 3mm T-1.00 1" Leads	60-75320
C4	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	H1	Connect Header .100" 10 Pin	23-10011
C5	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	H2	N/U	
C6	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	H3	Connect Header .100" 4 Pin	23-10004
C7	Capacitor Ceramic 27PF 500 Volt 5%	45-27052	H4	Connect Header .100" 4 Pin	23-10004
C8	Capacitor Ceramic 27PF 500 Volt 5%	45-27052	H5	Connect Header .100" 4 Pin	23-10004
C9	Capacitor Ceramic 330PF 1000 Volt 10%	45-33113	H6	Connect Header .100" 4 Pin 90d	23-10014
C10	Capacitor Poly .0047µF 100 Volt 10%	46-47212	H7-8	N/U	
C11	Capacitor Ceramic 39PF 500 Volt 5%	45-39052	H9	Connect Header .100" 4 Pin	23-10004
C12	Capacitor Electrolytic 47µF 63Volt 20%	47-47061	J1	Neutrik XLR Connect NL4FC FEM	21-40000
C13	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	J2	Jack .250" 3 PIN 24mm Plastic	21-06453
C14	Capacitor Poly .047µF 100 Volt 10%	46-47312	J3	Jack RCA QUAD PC Vertical PC MTG	21-40022
C15	Capacitor Poly .047µF 100 Volt 10%	46-47312	J4	Jack .250" 3 PIN 24mm Plastic	21-06453
C16	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	J5	Jack .250" 3 PIN 24mm Plastic	21-06453
C17	N/U		J6	Jack .250" 3 PIN 24mm Plastic	21-06453
C18	Capacitor Electrolytic 470µF 16 Volt 20%	47-47116	J7	Jack .250" 3 PIN 24mm Plastic	21-06453
C19	Capacitor Electrolytic 470µF 16 Volt 20%	47-47116	J8	Jack .250" 3 PIN 24mm Plastic	21-06453
C20-27	N/U		J9	Jack .250" 3 PIN 24mm Plastic	21-06453
C28	Capacitor Electrolytic 470µF 16 Volt 20%	47-47116	J10	Jack .250" 3 PIN 24mm Plastic	21-06453
C29	N/U		J11	Jack .250" 3 PIN 24mm Plastic	21-06453
C30	Capacitor Ceramic 180PF 500 Volt 5%	45-18152	J12	Jack .250" 3 PIN 24mm Plastic	21-06453
C31	Capacitor Ceramic 180PF 500 Volt 5%	45-18152	J13	Jack .250" 3 PIN 24mm Plastic	21-06453
C32	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	J14	Jack .250" 3 PIN 24mm Plastic	21-06453
C33	Capacitor Ceramic 39PF 500 Volt 5%	45-39052	J15	Jack .250" 3 PIN 24mm Plastic	21-06453
C34	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	J16-17	N/U	
C35	Capacitor Ceramic 39PF 500 Volt 5%	45-39052	P1	POT 12 "D-P" 35F B50K-C Noble	71-13057
C36	N/U		P2	POT 12 "D-P" 35F B50K-C Noble	71-13057
C38	Capacitor Ceramic 82PF 500 Volt 5%	45-82052	P3	POT 12 "D-P" 35F B50K-C Noble	71-13057
C39	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	P4	POT 12 "D-P" 35F B50K Noble	71-13056
C41	Capacitor Ceramic 82PF 500 Volt 5%	45-82052	P5	POT 12 "D-P" 35F B50K Noble	71-13056
C42	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	P6	POT 12 "D-P" 35F B50K Noble	71-13056
C44	Capacitor Ceramic 39PF 500 Volt 5%	45-39052	P7	POT 12 "D-P" 35F B5K-C Noble	71-13055
C45	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	P8	POT 14 "D-P" 35F B100KX2 JP	71-13074
C46	Capacitor Ceramic 39PF 500 Volt 5%	45-39052	P9	POT 14 "D-P" 35F B100KX2 JP	71-13074
C47	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	P10	POT 14 "D-P" 35F B100KX2 JP	71-13074
C48	Capacitor Ceramic 39PF 500 Volt 5%	45-39052	P12	POT 12 "D-P" 35F B50K Noble	71-13056
C49	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	P13	POT 12 "D-P" 35F B50K Noble	71-13056
C50	N/U		P20	Fader 50K Ohm	71-10332
C51	Capacitor Poly .047µF 100 Volt 10%	46-47312	P21	Fader 50K Ohm	71-10332
C52	Capacitor Electrolytic 470µF 16 Volt 20%	47-47116	P22	Fader 50K Ohm	71-10332
C53	Capacitor Electrolytic 470µF 16 Volt 20%	47-47116	P23	Fader 50K Ohm	71-10332
C54	Capacitor Electrolytic 470µF 16 Volt 20%	47-47116	P24	Fader 50K Ohm	71-10332
C70	Capacitor Poly .47µF 100V 10%	46-47412	P25	Fader 50K Ohm	71-10332
C71	Capacitor Poly .022µF 100 Volt	46-22312	P26	Fader 50K Ohm	71-10332
C72	Capacitor Poly .1µF 100 Volt 10%	46-10412	P27	Fader 50K Ohm	71-10332
C73	Capacitor Poly .0047µF 100 Volt 10%	46-47212	P28	Fader 50K Ohm	71-10332
C74	Capacitor Poly .033µF 100 Volt 10%	46-33312	P30	Fader 50K Ohm	71-10332
C75	Capacitor Poly .001µF 100 Volt 10%	46-10212	P31	Fader 50K Ohm	71-10332
C76	Capacitor Poly .0068µF 100 Volt 10%	46-68212	P32	Fader 50K Ohm	71-10332
C77	Capacitor Poly .001µF 100 Volt 10%	46-10212	P33	Fader 50K Ohm	71-10332
C78	Capacitor Poly .0022µF 100 Volt 10%	46-22212	P34	Fader 50K Ohm	71-10332
C79	Capacitor Ceramic 250PF 500 Volt 5%	45-25152	P35	Fader 50K Ohm	71-10332
C82	Capacitor Poly .22µF 100 Volt 10%	46-22412	P36	Fader 50K Ohm	71-10332
C83	Capacitor Poly .01µF 100 Volt 10%	46-10312	P37	Fader 50K Ohm	71-10332
C84	Capacitor Poly .068µF 100 Volt 10%	46-68312	P38	Fader 50K Ohm	71-10332
C85	Capacitor Poly .0033µF 100 Volt 10%	46-33212	Q1	Transistor MPSW42 NPN TO-92	60-00042
C86	Capacitor Poly .022µF 100 Volt	46-22312	Q2	N/U	
C87	Capacitor Poly .001µF 100 Volt 10%	46-10212	Q3	N/U	
C88	Capacitor Poly .0047µF 100 Volt 10%	46-47212	QC1	Term PCB Vert PC MTG .250	06-40050
C89	Capacitor Ceramic 330PF 1000 Volt 10%	45-33113	QC10	N/U	
C90	Capacitor Ceramic 56PF 500 Volt 5%	45-56052	QC11	N/U	
C91	Capacitor Electrolytic 10µF 50 Volt 20%	47-10051	QC12	N/U	
C93	Capacitor Poly .47µF 100V 10%	46-47412	R1	Resistor 5.62K Ohm .25W 1% Metal	50-56231
C94	Capacitor Poly .022µF 100 Volt	46-22312			
C95	Capacitor Poly .1µF 100 Volt 10%	46-10412			
C96	Capacitor Poly .0047µF 100 Volt 10%	46-47212			

QUICK START UP

If you're like most new owners, you're probably in a hurry to plug your CX mixer in and use it. Here are some brief instructions to get you going quickly. With the mixer unplugged and the unit turned off, complete the following procedures:

- CONNECTING AC POWER TO YOUR MIXER**
 - Check the rear panel to make sure the mixer received uses the proper AC Line Voltage. (USA 120VAC, Europe 240 VAC ...etc.)
 - Use only a grounded (3 prong) power outlet to prevent a shock hazard. This gives the quietest grounding for your mixer.
- CONNECTING SPEAKERS (Powered Models Only)**
 - Use the right and left 1/4" speaker jacks on the rear panel which are controlled by the main level control on the front). The speaker cables should be non-shielded and at least 18 gauge(AWG) wire. For speaker cable runs of over 20 feet 16 gauge wire is recommended..

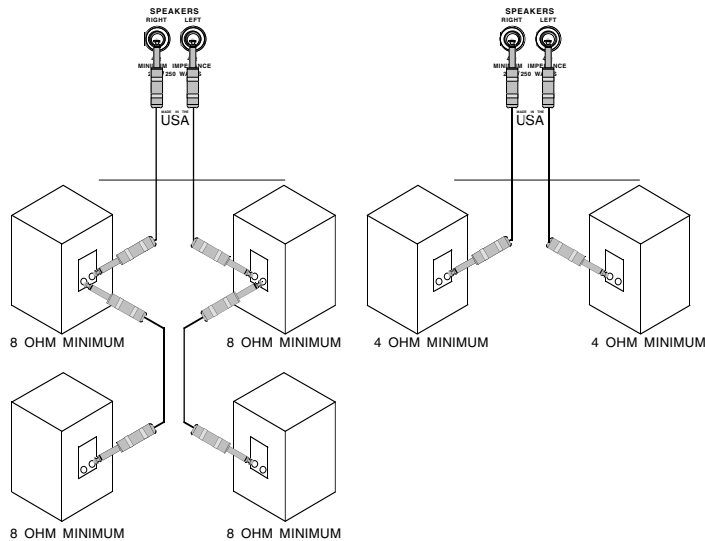
NOTE: Do not run your speakers through microphone wire, guitar cables, or multi-conductor microphone junction boxes or "snakes" as they are sometimes referred to. This wire is normally shielded and of a very light gauge causing a substantial loss of power and oscillations at high frequencies in the amplifier. All speaker wires must be non-shielded.
- SpeakerGuard™ and the "PROTECT" LED**
 - The protect LED comes on along with the output relays in three different protection modes: Shorted speaker outputs, Speaker Impedance below minimum rating, and when the amplifier exceeds maximum operating temperature.
 - In event the LED comes on turn off the amplifier and identify and correct any speaker cable or speaker jack shorts and make sure the total speaker impedance for each output is 4 ohms or greater. Also make sure the fan is not blocked and check that cool air can circulate around the rear of the mixer.
- CONNECTING INPUTS TO YOUR MIXER**
 - For low level balanced devices such as microphones, plug into the balanced **MIC** inputs using a shielded microphone cable with XLR ends.
 - For high level unbalanced devices such as Tape Recorders and Keyboards plug into the **LINE** input jacks using a shielded cable with 1/4" phone ends.
- TURNING YOUR MIXER ON**
 - Adjust all channel and master level controls to their off positions (fully counter clockwise).
 - Adjust all "EQ" tone controls— the channel's Hi, Mid, and Bass and the two master 9 Band Graphic EQ's to their center detent position.
 - Adjust all the Channel "PAN" controls to their center detent position.
 - Turn the mixer on by the rear panel power switch and watch for the power LED to come on. Your mixer is now ready to operate.

MAINTENANCE

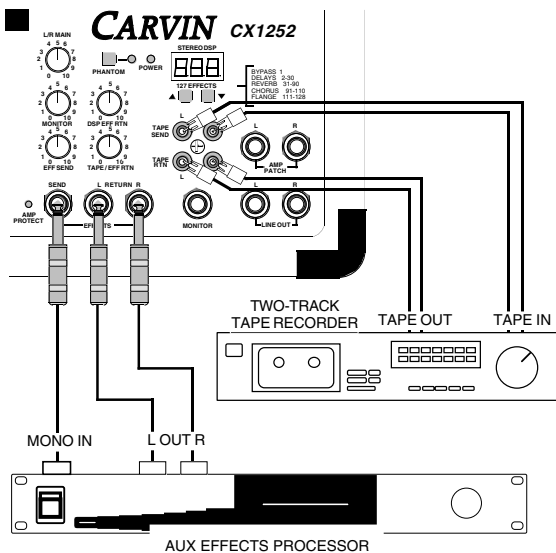
To bring back the new look, your CX mixer can be washed with mild detergent and/ or a warm damp soft cloth. This will remove normal dust and oil from the front and back panels. Never spray cleaners or detergents directly at the unit. The mixer's are virtually sealed from outside dust and dirt, but it is recommended to keep the mixer free from dust, dirt, and moisture as much as possible.

SPEAKER CONNECTIONS

Here are two possible speaker connections, two or four 8 ohm speakers with one or one pair to each 1/4" speaker output. Also two 4 ohm speakers can be connected one to each speaker output. Never go below 4 ohms on either of the two speaker output jacks, this would result in premature distortion, thermal shut down, and/or possible damage to the internal power amplifier.



TAPE DECKS AND EXTERNAL EFFECTS



The basic hook up is simple, using four (or two stereo) RCA cables plug the TAPE SEND on the mixer into the tape deck's inputs, and the mixer's TAPE RTN's into the tape deck's outputs. With an effects processor plug the effects send 1/4" phone output on the mixer into the input jack on the effects processor, and plug one or both (for stereo) of the L/R EFFECTS RETURN 1/4" phone inputs on the mixer into the outputs on the effects processor.

6. CHANNEL PAN CONTROL

The PAN control adjusts where the channel is heard in the stereo field of the stereo main outputs. If it is turned to the extreme left, then the channel will only be heard in the left main output and similarly only in the right main output if turned to the extreme right. In the center position the channel is heard equally in both the left and right main outputs. A good starting point for the pan is in the center position. Then if stereo placement is needed, a quarter turn to the desired side from the center position gives a smooth placement in the stereo field, or if desired a full turn to one side gives a hard placement.

7. CHANNEL EFFECTS/REVERB LEVEL CONTROL

The EFF/REV control adjusts the volume of the channel going to the effects send master control, and/or the internal DSP effects (if DSP is present). The effects control is post channel level. This means adjustments in the channel's EQ or level controls will be affecting the effects mix output of that channel.

8-10. CHANNEL TONE CONTROLS

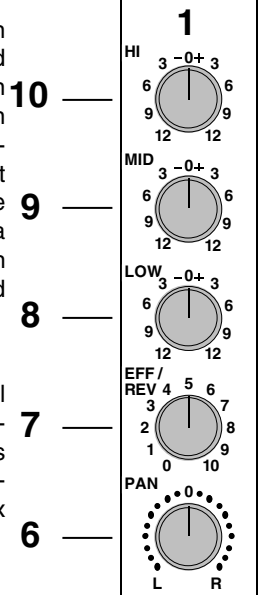
Each channel features three tone controls LO, MID, and HI. The LO and HI controls are shelving type tone controls with corner frequencies at 100Hz and 10KHz respectively. The shelving means, the for the LO control, all frequencies from 100Hz down to the lowest frequency the mixer can handle are all boosted when the knob is turned clockwise and cut when turned counter-clockwise from the center position. For the HI control the shelving means all the frequencies from 10kHz and up to the upper limit of the mixer are all boosted when the knob is turned clockwise and cut when turned counter-clockwise from the center position. The MID control is a band pass type of tone control. The band pass means a middle section of frequencies centered around 1.5kHz, but not over lapping the HI and LO controls, is boosted when the knob is turned clockwise and cut when turned counter-clockwise from the center position.

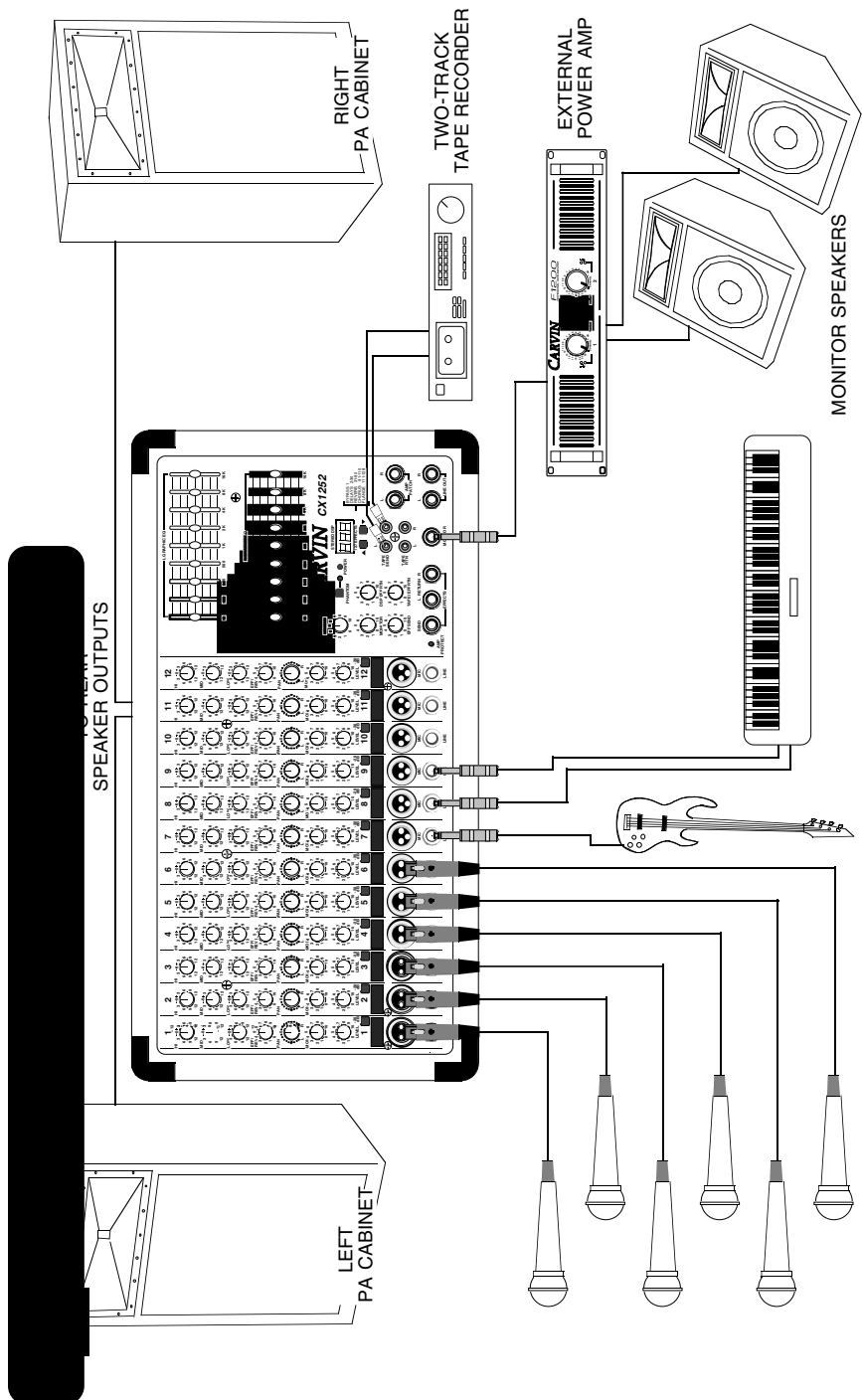
Familiarity with the channel tone controls:

- LO affects the deep low bass tones and the typical bass tones.
- MID affects all the middle frequencies where the clarity of an average persons spoken voice is mostly heard. Also the MID encompasses the louder sometimes harsher tones that can distort the over all sound of the system.
- HI affects the treble tones and very high treble tones bringing brightness and brilliance to the channel's input.

Adjusting:

Use these controls to change the tonal shape of the input signal and in many cases to reduce possible feedback from microphones near the mixer's output speakers. It is suggested the channel tone controls start out in their center detent position where they do not effect the original incoming signal. Then, if needed, turn the tone controls (boost, turn to the right, or cut, turn to the left) to change the sound.





4. TAPE/EFFECTS RETURN LEVEL CONTROL

The TAPE/ EFF RTN control is a stereo effects or tape return volume control. It can receive input from both the L/R TAPE RTN RCA jacks and the L/R 1/4" EFFECTS RETURN jacks. This volume controls the return level being fed back into the master L/R stereo mix. A mono return into the stereo mix can be achieved by simply feeding the mono signal into both Left and right return jacks. The stereo return can also be used as just another input to the stereo mix for a keyboard or other stereo gear.

5. DSP RETURN LEVEL CONTROL

The DSP EFF RTN level control is the stereo output volume control for the internal digital effects processor. This volume controls the return level being fed back into the master L/R stereo mix and a smaller amount to the monitor mix.

6. MONITOR LINE OUT JACK

The MONITOR LINE OUT jack is where the monitor mix from the MONITOR master level control is output. This is a line level output and can be used to drive an external power amplifier or it can be plugged into one of the AMP PATCH jacks to drive one of the internal power amplifiers along with its corresponding graphic EQ.

7. LEFT/RIGHT LINE OUT JACKS

The LEFT/RIGHT LINE OUT jacks are post graphic EQ line output jacks for the stereo mix. The same signals are also being fed to the internal power amplifier. Note: If the AMP PATCH jacks are being used for patching the monitor out to one of the internal amplifiers, then that new signal will also be present on the corresponding LEFT/RIGHT LINE OUT jack. The stereo mix may still be accessed at the RCA TAPE SEND jacks if needed. NOTE : This jack should not be patch into the AMP PATCH jacks, feedback oscillations will occur.

8. LEFT/RIGHT AMP PATCH JACKS

The LEFT/RIGHT AMP PATCH jacks are pre-graphic EQ and normalized to the stereo mix L/R MAIN level control. When something is plugged into these jacks, the stereo mix is disconnected from the graphic EQ and internal power amplifier allowing the new signal, that was plugged into the jack, to go through the graphic EQ and to the internal power amplifier. Also, this new signal appears at the corresponding LEFT/RIGHT LINE OUT jacks. A typical use for these jacks is in the case where a powered mono main mix and powered monitor mix are needed. Here either the left or right main mix can be used for the mono main mix and the monitor line out jack can be plugged in the opposite AMP PATCH jack for a powered monitor mix.

9. TAPE SEND AND TAPE RETURN RCA JACKS

The LEFT/RIGHT TAPE SEND RCA jacks deliver the main mix output pre the graphic EQ uninterrupted by the status of the AMP PATCH jack. If the AMP PATCH jacks are being used, the TAPE SEND jacks are a way to access the main mix.

The LEFT/RIGHT TAPE RETURN RCA jacks are RCA inputs to the TAPE/ EFF RTN level control. These TAPE RETURN jacks can also be used for returning another effects processor or instrument such as a keyboard to the main mix.

to be plugged into the snake or directly into the “LINE” input of the mixer. This can be accomplished by a high to low impedance adapter or a “Direct box” (both are available from Carvin or other electronics outlets). Verify that all the connections are good and that all mics are connected properly. The next step is connecting the speakers outputs.

4. POWERED AND NON-POWERED MIXER OUTPUTS

With powered mixers (i.e. mixers with built in power amplifiers) the LEFT and RIGHT amplifier outputs can **NOT** be feed through the snake to power the speakers on stage. Doing this could result in damage to the mixer’s internal power amp. Only ‘Pre-amp’ signals can be returned to the stage through the snake. Since speaker level signals cannot be sent through the snake separate speaker cables must be used. These speaker cables will carry the signal from the mixer’s power amp outputs directly to the speakers.

With non-powered mixers use the MAIN L/R LINE OUT jacks as the main pre-amp outputs to drive external power amplifiers. The same snake that was used to feed the signals from the stage to the mixer usually has provisions for sending line output signals from the mixer to the stage. The (pre-amp level) MAIN L/R LINE OUT outputs on the front of the mixer may be plugged into the snake cable. This will send the signal to the power amplifiers, usually placed on stage. Once the snake, or alternate means of cabling, carrying the signal has reached the stage, the connections are made to the power amplifiers. The power amp outputs can then be connected to the speakers, using 16 gauge (AWG) or heavier non-shielded wire.

Note: Speaker cables are the only ones that should **NOT** be shielded. All other cables that carry ‘Mic’ and ‘Pre-amp’ level signals should be shielded. Shielded cables connected to the power amp outputs can damage the power amplifier.

5. CONNECTING THE MONITOR AMPS AND SPEAKERS

In a typical setup for live sound the MONITOR LINE OUT will be used to provide a monitor mix for the musicians on stage. The MONITOR LINE OUT output signal will be sent to the stage just like the main output signals. The signal is sent to the stage either by using a direct shielded wire from mixer output or by using the snake. The signal can now be plugged into the inputs of the power amplifiers that will be powering the monitor speakers.

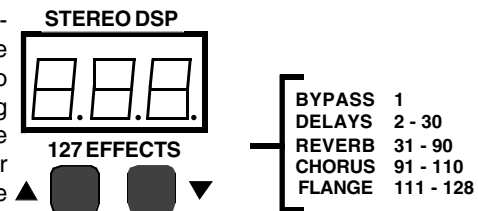
6. TESTING THE MAIN SPEAKERS

It is best to start a new mix with the mixer set as follows: all the channel level and monitor knobs turned down and the master main level, and master monitor level turned down (counterclockwise or off). Also it is easier to start with the channel tone controls turned to their center positions. This way when the system is turned on and the master is first turned up there will not be any surprises such as feedback from a microphone or loud signals coming from a channel that was turned up loud. With the mixer set the main master level can be turned up to a low level (2 or 3 on the dial). Then a channel with signal can be turned up until it is heard in the speakers. If no signal is heard from the speakers and the channel volume is up full, lower the channel volume and check the connections. It may be the signal source was not plugged in correctly, so try another source. Also it may be the connections to the speakers or external amplifiers. When the prob-

INTERNAL DSP EFFECTS

SELECTING AN EFFECTS PROGRAM (EFFECT)

To select a program use the up or down buttons to scroll to the desired program number. If you press and hold either button, after a couple seconds the scrolling rate will increase ten times. When you are close to the desired number stop pressing the button and step through the last few program numbers to your desired program. The scroll rate automatically returns to the slow speed when the button is not pressed and held.



The last program number select-ed will be saved in non-volatile memory when power is removed. You do need to wait approximately 30 seconds after changing the program number before removing power for that number to be saved. Under normal use this will not be a factor because you will be using the program selected before removing power.

Note: If both up and down buttons are pressed together, the display will change and show C01 telling you the MIDI channel is 1. This feature is not used in the CX mixer series. If this appears, leave the buttons alone for approximately 10 seconds and the display will change back to the last program number used.

SETTING AUDIO LEVELS

Turn all channel EFF/REV level controls to the off position (fully counter clock-wise). Set the DSP EFF RTN level to 5. Then turn up the channel EFF/REV level control of the desired channels until the effect level is heard in the stereo mix. If clipping is heard in the effects, reduce the channel EFF/REV level control until the clipping is gone. Finally, readjust the DSP EFF RTN level to vary the amount of effect needed in the stereo mix.

A LITTLE ABOUT THE PRESET PROGRAMS

Bypass: [1] No effect is created. This is used so the effect levels can remain set even though no effect is wanted at that time.

Delays: [2-30] The delays range from 30mS to 550mS delays with various feedback settings from 0 to infinity. Some include a stereo bouncing effect between the left and right outputs.

Reverbs: [31-60] These natural sounding reverberation effects range from a short plate reverb to simulating reverberation heard in a cathedral.

Reverbs + Delay: [61-90] These are combinations of the two above effects with variations in the amount of pre-delay and echo density.

Chorus: [91-110] These are two to six voice stereo choruses, which vary in delay time, number of echoes, speed and recirculation. Some have reverb.

Flange: [111-128] These are stereo flangers with variations of depth, delay and speed. Some are followed by a short reverb.



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



ATTENTION: RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT OPEN CHASSIS; DO NOT DEFEAT OR REMOVE THE GROUND PIN OF THE POWER CORD; CONNECT ONLY TO A PROPERLY GROUNDED AC POWER OUTLET.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

CAUTION: NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

EXPLANATION
OF SYMBOLS:



"DANGEROUS VOLTAGE"
"DANGER HAUTE TENSION"
"GEFAHRLICHE SPANNUNG"



"IT IS NECESSARY FOR THE USER TO REFER TO THE INSTRUCTION MANUAL"
"REFERREZ-VOUS AU MANUAL D'UTILISATION"
"UNBEDINGT IN DER BETRIEBUNGSANLEITUNG NACHSCHLAGEN"

IMPORTANT! FOR YOUR PROTECTION, PLEASE READ THE FOLLOWING:

WATER AND MOISTURE: Appliance should not be used near water (e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

POWER SOURCES: The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

GROUNDING OR POLARIZATION: Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

POWER CORD PROTECTION: Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

SERVICING: The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

FUSING: If your unit is equipped with a fuse receptacle, replace only with the same type fuse. Refer to replacement text on the unit for correct fuse type.

SAFETY INSTRUCTIONS (EUROPEAN)

NOTICE FOR CUSTOMERS IF YOUR UNIT IS EQUIPPED WITH A POWER CORD.

WARNING: THIS APPLIANCE MUST BE EARTHED.

The cores in the mains lead are coloured in accordance with the following code.

GREEN and YELLOW - Earth BLUE - Neutral BROWN - Live

The power cord is terminated in a CEE7/7 plug (Continental Europe). The green / yellow wire is connected directly to the unit's chassis. If you need to change the plug, and if you are qualified to do so, refer to the table below.

CONDUCTOR	WIRE COLOR	
	NORMAL	ALTERNATIVE
L LIVE	BROWN	BLACK
N NEUTRAL	BLUE	WHITE
E EARTH	GREEN / YEL	GREEN

WARNING: If the ground is defeated, certain fault conditions in the unit or in the system to which it is connected can result in full line voltage between chassis and earth ground. Severe injury or death can then result if the chassis and the earth ground are touched simultaneously.

U.K. MAINS PLUG WARNING: A moulded mains plug that has been cut off from the cord is unsafe. Discard the mains plug at a suitable disposal facility. **NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAINS PLUG INTO A 13 AMP POWER SOCKET.** Do not use the mains plug without the fuse cover in place. Replacement fuse covers can be obtained from your local retailer. Replacement fuses are 13 amp and **MUST** be ASTA approved to BS1362.

WARRANTY AND SERVICE INFORMATION

Call Toll-Free 800-854-2235 if you need help with your CARVIN product. If you need to return it for service, our service dept. will issue a Service Number so that we can expect your shipment. Write the Service Number on the carton and be sure to include a full description of every problem. Package the product to be serviced in its original carton using all its packing material. Return by UPS pre-paid. Units returned with physical damage, missing parts, or damage from improper service are not serviceable.

REPAIRS UNDER WARRANTY (1Year)

There is no charge for service under warranty. However, shipping is to be paid both ways by the customer.

REPAIRS OUT OF WARRANTY

If your warranty has expired, call us for the current flat rate service charge which includes parts, labor and testing to bring your unit up to factory specifications.

SERVICING IN YOUR AREA

You may select your own service center or have your own qualified technician work on the unit at your own expense. This will not void the warranty unless damage was done because of improper servicing. Under the ONE YEAR WARRANTY, Carvin will ship parts pre-paid to you or your technician providing that the defective part(s) are first returned for our inspection. If you do not have a qualified service person, we ask that you do not involve yourself in servicing the unit.

EXTENDED WARRANTY

An extended warranty is available beyond the normal one year period. Please call 1-800-854-2235 for more information.

LIMITED WARRANTY

Your Carvin Professional Series Product is guaranteed against failure for ONE YEAR. Carvin will service the unit and supply all parts at no charge to the customer providing the unit is under warranty. **CARVIN DOES NOT PAY FOR PARTS OR SERVICING OTHER THAN OUR OWN.** This warranty is extended to the original purchaser only and is not transferable. **THIS WARRANTY DOES NOT INCLUDE FAILURES CAUSED BY INCORRECT USE, INADEQUATE CARE OF THE UNIT, OR NATURAL DISASTERS. A COPY OF THE ORIGINAL INVOICE IS REQUIRED TO VERIFY YOUR WARRANTY.** Carvin takes no responsibility for any horn driver or speaker damaged by this unit. This warranty is in lieu of all other warranties, expressed or implied. No representative or person is authorized to represent or assume for Carvin any liability in connection with the sale or servicing of Carvin products. No liability is assumed for damage due to accident, abuse, lack of reasonable care, loss of parts, or failure to follow Carvin's directions. **CARVIN SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

In the interest of creating new products and improving existing ones, Carvin is continually researching the latest state of the art audio design methods, and modern packaging and production techniques. Thus, Carvin reserves the right to make changes in its products and specifications without notice or obligation.

CARVIN

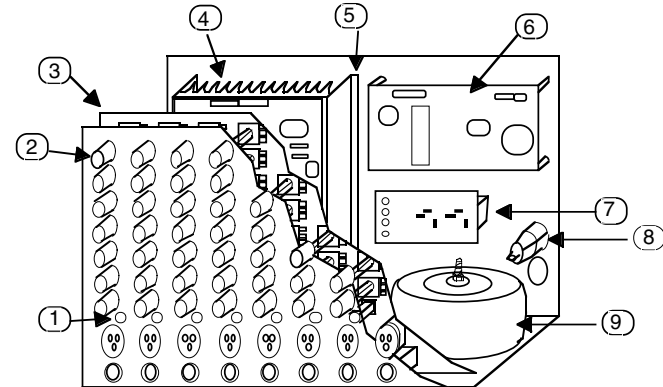
1-800-854-2235

TABLE OF CONTENTS

	PAGE
RECEIVING INSPECTION	i
FOR THE NEW OWNER	i
TABLE OF CONTENTS	1
GETTING STARTED QUICKLY	2
MAINTENANCE	2
CHANNEL FEATURES	3,4
MASTER SECTION FEATURES	5-7
INTERNAL DSP EFFECTS PROCESSOR	8
INTERNAL DSP EFFECTS PROGRAMS CHART	9
SETTING UP YOUR SOUND SYSTEM	10-12
SAMPLE PA SYSTEM CONFIGURATIONS	13-14
SPEAKER CONNECTIONS	15
TAPE DECKS AND EXTERNAL EFFECTS	15
BLOCK DIAGRAM	16
CX MIXER PARTS LIST	17,18
CX MIXER TECHNICAL SPECIFICATIONS	19
FUSE SELECTION	19
WARRANTY INFORMATION	20

R2	Resistor 5.62K Ohm .25W 1% Metal	50-56231	R62	Resistor 1K Ohm .25W 5% Carbon	50-10035
R3	Resistor 2.21K Ohm .25W 1% Metal	50-22131	R63	Resistor 1K Ohm .25W 5% Carbon	50-10035
R4	Resistor 2.21K Ohm .25W 1% Metal	50-22131	R70	Resistor 2.4K Ohm .25W 5% Carbon	50-24035
R5	Resistor 47K Ohm .25W 5% Carbon	50-47045	R71	Resistor 150K Ohm .25W 5% Carbon	50-15055
R6	Resistor 10K Ohm .25W 5% Carbon	50-10045	R72	Resistor 2.2K Ohm .25W 5% Carbon	50-22035
R7	Resistor 100K Ohm .25W 5% Carbon	50-10055	R73	Resistor 300K Ohm .25W 5% Carbon	50-30055
R8	Resistor 300K Ohm .25W 5% Carbon	50-30055	R74	Resistor 2.2K Ohm .25W 5% Carbon	50-22035
R9	Resistor 100K Ohm .25W 5% Carbon	50-10055	R75	Resistor 360K Ohm .25W 5% Carbon	50-36055
R10	Resistor 10K Ohm .25W 5% Carbon	50-10045	R76	Resistor 2.2K Ohm .25W 5% Carbon	50-22035
R11	Resistor 300K Ohm .25W 5% Carbon	50-30055	R77	Resistor 110K Ohm .25W 5% Carbon	50-11055
R12	Resistor 2.2K Ohm .25W 5% Carbon	50-22035	R78	Resistor 1.8K Ohm .25W 5% Carbon	50-18035
R13	Resistor 100K Ohm .25W 5% Carbon	50-10055	R79	Resistor 91K Ohm .25W 5% Carbon	50-91045
R14	Resistor 150K Ohm .25W 5% Carbon	50-15055	R82	Resistor 2.2K Ohm .25W 5% Carbon	50-22035
R15	Resistor 2.2K Ohm .25W 5% Carbon	50-22035	R83	Resistor 220K Ohm .25W 5% Carbon	50-22035
R16	Resistor 3.3K Ohm .25W 5% Carbon	50-33035	R84	Resistor 2.4K Ohm .25W 5% Carbon	50-24035
R17	Resistor 4.7K Ohm .25W 5% Carbon	50-47035	R85	Resistor 180K Ohm .25W 5% Carbon	50-18055
R18	Resistor 15K Ohm .25W 5% Carbon	50-15045	R86	Resistor 2K Ohm .25W 5% Carbon	50-20035
R19	Resistor 4.7K Ohm .25W 5% Carbon	50-47035	R87	Resistor 130K Ohm .25W 5% Carbon	50-13055
R20	Resistor 15K Ohm .25W 5% Carbon	50-15045	R88	Resistor 2.2K Ohm .25W 5% Carbon	50-22035
R21	Resistor 10K Ohm .25W 5% Carbon	50-10045	R89	Resistor 110K Ohm .25W 5% Carbon	50-11055
R22	Resistor 4.7K Ohm .25W 5% Carbon	50-47035	R90	Resistor 10K Ohm .25W 5% Carbon	50-10045
R23	Resistor 10K Ohm .25W 5% Carbon	50-10045	R91	Resistor 150K Ohm .25W 5% Carbon	50-15055
R24	N/U		R92	Resistor 470 Ohm .25W 5% Carbon	50-47025
R25	Resistor 10K Ohm .25W 5% Carbon	50-10045	R93	Resistor 2.4K Ohm .25W 5% Carbon	50-24035
R26	N/U		R94	Resistor 150K Ohm .25W 5% Carbon	50-15055
R27	Resistor 150K Ohm .25W 5% Carbon	50-15055	R95	Resistor 2.2K Ohm .25W 5% Carbon	50-22035
R28	Resistor 150K Ohm .25W 5% Carbon	50-15055	R96	Resistor 300K Ohm .25W 5% Carbon	50-30055
R29	Resistor 0 Ohm .50x .20" Jumper	50-00050	R97	Resistor 2.2K Ohm .25W 5% Carbon	50-22035
R30	Resistor 68K Ohm .25W 5% Carbon	50-68045	R98	Resistor 360K Ohm .25W 5% Carbon	50-36055
R31	Resistor 27K Ohm .25W 5% Carbon	50-27045	R99	Resistor 2.2K Ohm .25W 5% Carbon	50-22035
R32	Resistor 33K Ohm .25W 5% Carbon	50-33045	R100	Resistor 110K Ohm .25W 5% Carbon	50-11055
R33	Resistor 68K Ohm .25W 5% Carbon	50-68045	R101	Resistor 1.8K Ohm .25W 5% Carbon	50-18035
R34	Resistor 27K Ohm .25W 5% Carbon	50-27045	R102	Resistor 91K Ohm .25W 5% Carbon	50-91045
R35	Resistor 33K Ohm .25W 5% Carbon	50-33045	R103	Resistor 1K Ohm .25W 5% Carbon	50-10035
R36	Resistor 22K Ohm .25W 5% Carbon	50-22045	R105	Resistor 2.2K Ohm .25W 5% Carbon	50-22035
R37	Resistor 22K Ohm .25W 5% Carbon	50-22045	R106	Resistor 220K Ohm .25W 5% Carbon	50-22055
R38	Resistor 22K Ohm .25W 5% Carbon	50-22045	R107	Resistor 2.4K Ohm .25W 5% Carbon	50-24035
R39	Resistor 22K Ohm .25W 5% Carbon	50-22045	R108	Resistor 180K Ohm .25W 5% Carbon	50-18055
R40	Resistor 1K Ohm .25W 5% Carbon	50-10035	R109	Resistor 2K Ohm .25W 5% Carbon	50-20035
R41-43	N/U		R110	Resistor 130K Ohm .25W 5% Carbon	50-13055
R44	Resistor 4.7K Ohm .25W 5% Carbon	50-47035	R111	Resistor 2.2K Ohm .25W 5% Carbon	50-22035
R46	Resistor 150K Ohm .25W 5% Carbon	50-15055	R112	Resistor 110K Ohm .25W 5% Carbon	50-11055
R47	Resistor 10K Ohm .25W 5% Carbon	50-10045	R113	Resistor 10K Ohm .25W 5% Carbon	50-10045
R48	Resistor 470 Ohm .25W 5% Carbon	50-47025	R114	Resistor 150K Ohm .25W 5% Carbon	50-15055
R49	Resistor 0 Ohm .50x .20" Jumper	50-00050	R115	Resistor 470 Ohm .25W 5% Carbon	50-47025
R50	Resistor 150K Ohm .25W 5% Carbon	50-15055			
R51	Resistor 10K Ohm .25W 5% Carbon	50-10045	S1	Switch DPDT PUSH PC MTG	25-02201
R52	Resistor 470 Ohm .25W 5% Carbon	50-47025	S2	Switch DPDT PUSH PC MTG MOMENT	25-02202
R53	Resistor 150K Ohm .25W 5% Carbon	50-15055	S3	Switch DPDT PUSH PC MTG MOMENT	25-02202
R54	Resistor 470 Ohm .25W 5% Carbon	50-47025	S4	Switch DPDT PUSH PC MTG	25-02201
R55	Resistor 22K Ohm .25W 5% Carbon	50-22045			
R56	Resistor 2.2K Ohm .25W 5% Carbon	50-22035	U1	DISPLAY 7 SEGMENT 3 DIGIT Red	30-84204
R57	Resistor 150K Ohm .25W 5% Carbon	50-15055	U1	SOCKET IC 6 PIN DISPLAY DX	60-31600
R58	Resistor 470 Ohm .25W 5% Carbon	50-47025			
R59	N/U				
R60	Resistor 0 Ohm .35x .20" Jumper	50-00035			
R61	Resistor 39 Ohm 2W 5% Carbon	54-39005			

ALL B- Reference designators are 0 ohm jumpers
PART DESCRIPTION (Parts without PCB REF. DES)



#	DESCRIPTION	CARVIN #	QTY
1.	Switch Cap Grey Extended	07-01603	15
2.	Knob 11 D shaft (COLOR)	07-120--	---
3.	Front Panel PCB (12 Chan)	30-12524-1	1
4.	Power Module 500Watts	80-05028	1
5.	Heatsink Bracket 2.5"	10-12527	2
6.	DSP Reverb PCB	80-02105	1
7.	Speaker Output PCB	30-12524-3	1
8.	Fuse Holder slow blow	see fuse chart	1
9.	toroid transformer 600Watts	15-60120	1

Color Knob Code	
Yellow	20
Green	25
Drk Grey	28

CHANNEL FEATURES

1. LINE INPUT JACK

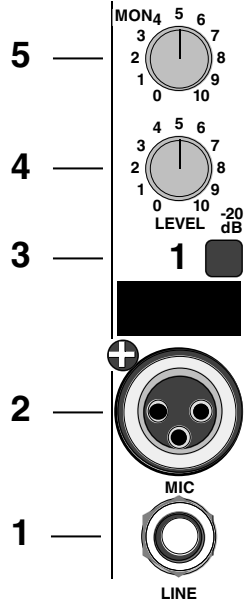
The LINE input is a 1/4" phone jack designed for unbalanced line and instrument level inputs. Examples of these inputs would be instruments such as a guitar, a keyboard, an unbalanced mic, or a pre-amp output. The line input can be used at the same time the mic input is being used.

2. XLR MICROPHONE INPUT

The XLR MIC input is designed for balanced low impedance (microphone) input signals. The balance means the input differential amplifier will reduce the common noise picked up on the microphone cables. The XLR connector is wired as per the industry standard, pin 1 is ground, pin 2 is non-inverting (positive), and pin 3 is inverting (negative).

Phantom power is available on every XLR input jack when the phantom power switch in the master section is pressed. This feature allows condenser microphones to be run directly from the mixer.

Note: When using phantom power make sure the phantom power is switched off before connecting or disconnecting microphones to the mixer. It is recommended to allow 5 seconds for the phantom power to discharge before making any microphone connections. Also, to avoid hearing a pop, turn down the master volume when turning on the phantom power.



3. -20DB PAD SWITCH

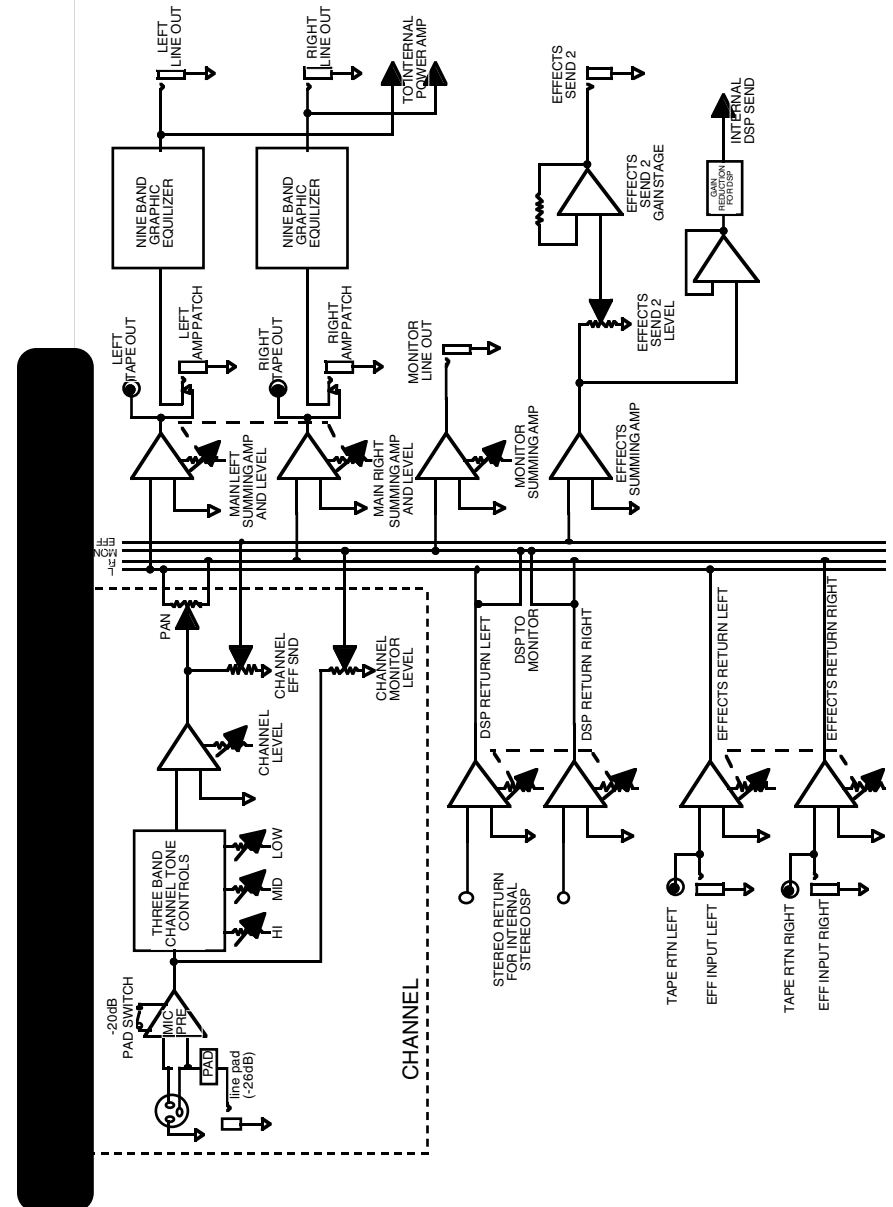
This switch reduces the input gain on both the line and mic input jacks by 20dB. If distortion is heard regardless of the channel LEVEL control's setting engage this switch. This will eliminate the over-driving of the input amplifier before the channel LEVEL control.

4. CHANNEL LEVEL CONTROL

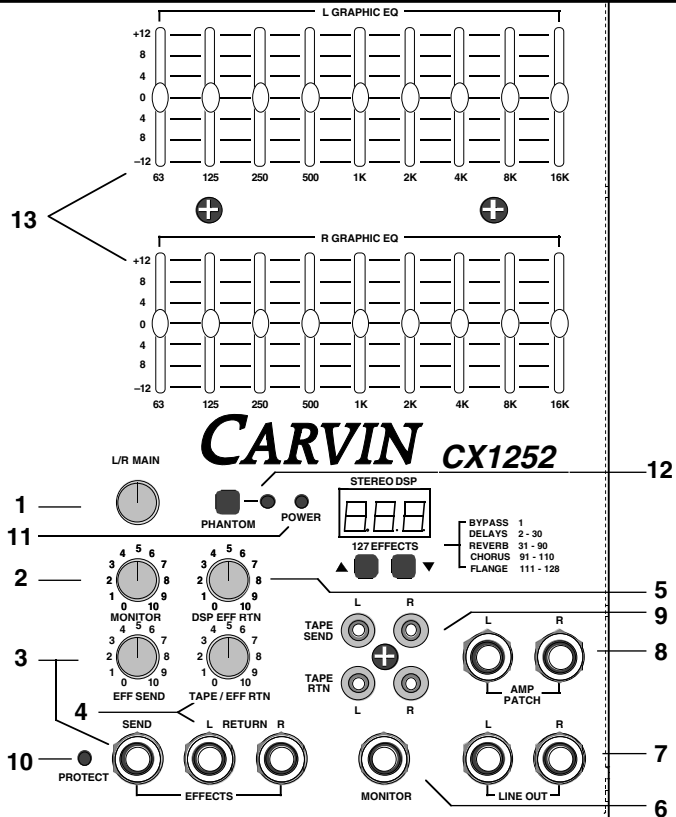
The LEVEL control adjusts the final volume of the channel before going to the Pan control. Here is where the individual channel volumes are adjusted to make up the desired mix heard at the main outputs. A general rule to prevent distortion with in the mixer, is to always keep the MAIN master level the same or higher than the channel LEVEL.

5. MONITOR LEVEL CONTROL

The MONITOR level control adjusts the volume of the channel going to the monitor mix. Here is where the individual channel monitor volumes are adjusted to make up the desired mix heard at the monitor output. The monitor level control is pre channel level and pre channel tone controls. This means it is unaffected by adjustments in channel level and tone controls. The purpose for this is so the main mix adjustments for tone and level can be made without disturbing the monitor mix.



MASTER SECTION FEATURES



1. MAIN MASTER LEVEL CONTROL

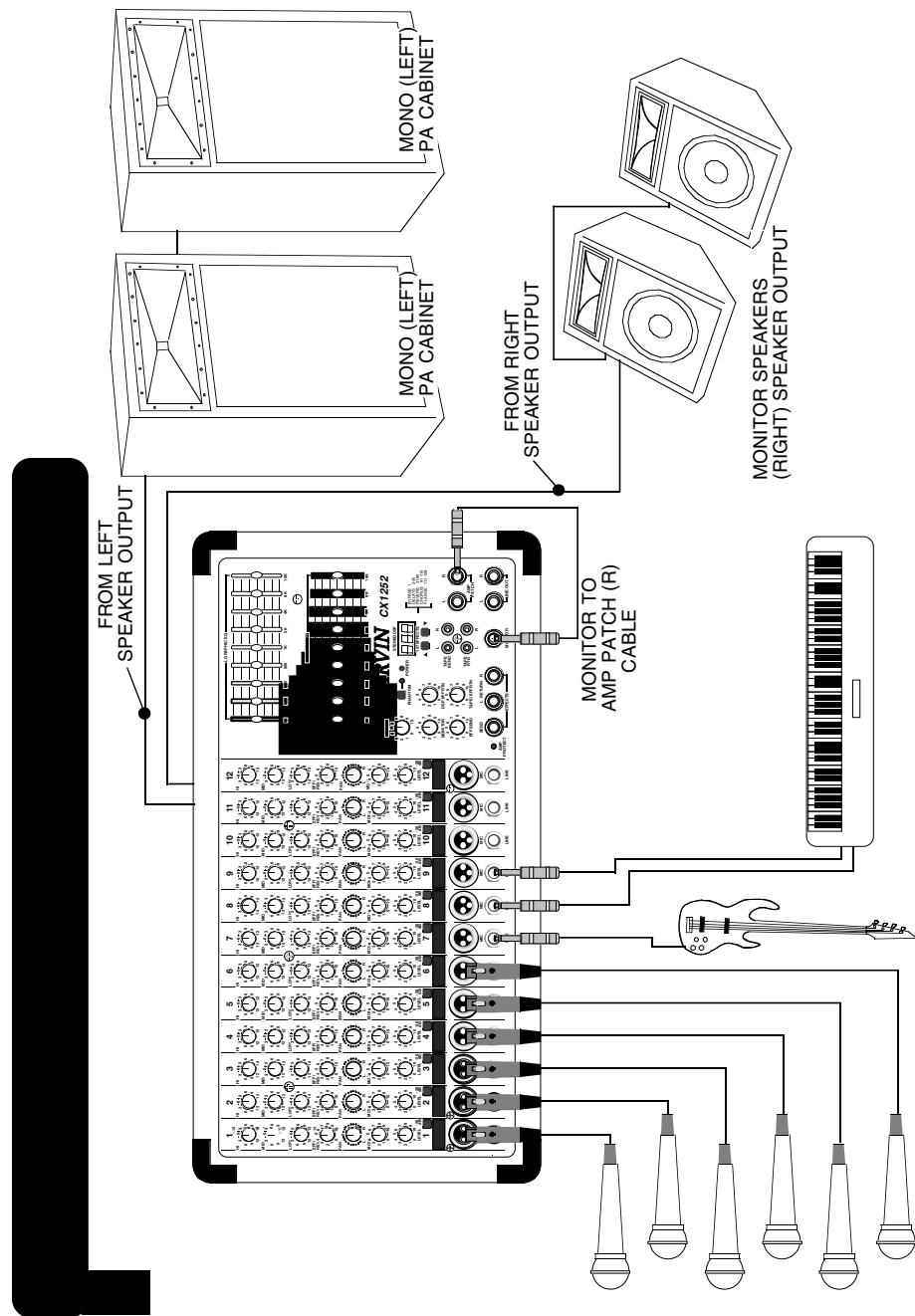
The L/R MAIN master control is the master volume control for the main stereo mix. This volume receives its signals from the channel pan controls. If the AMP PATCH jacks are not being used, then this is also the master volume control feeding the Graphic EQ, the main line out jacks, and the internal stereo power amplifier (in the powered mixer version).

2. MONITOR MASTER LEVEL CONTROL

The MONITOR master level control is the master volume for the monitor mix heard in the monitor output. This volume receives its signals from the channel monitor level controls.

3. EFFECT SEND MASTER LEVEL CONTROL

The EFF SEND master control is the master volume for the effects send mix heard in the effects send output. The volume gets its signals from the effects/reverb control on the channels. The typical use of effects send mix it to drive external Effects processors, but it can also be used as another stage monitor mix if needed.



The RCA jacks are Ideal for using a cassette deck to record a mix with using the TAPE SEND jacks and playing it back through the TAPE RETURN jacks with out using up any channels for play back or having to use adapters to hook up the cassette deck.

10. PROTECT LED

The PROTECT LED indicates the internal relays have disengaged the amplifiers from the speaker output jacks on the rear panel. The LED is not used in the non-powered versions.

There are three instances that will engage the protection circuitry.

The first is in the case of a short on the speaker outputs. The second is if the total speaker impedance is lower than the minimum impedance rating. And the third is if the maximum operating temperature of the power amplifier is exceeded due to poor air circulation and/or over-loading.

11. POWER LED

The Power LED indicates when the mixer is powered up.

12. PHANTOM POWER SWITCH AND LED

The PHANTOM power switch turns on the microphone phantom power in the channel XLR jacks. This power is used for supplying a bias voltage to condenser microphones. The LED indicates the phantom power is turned on. The phantom power will not damage dynamic microphones.

13. THE GRAPHIC EQUALIZER

Each mixer has two nine band graphic EQ's (equalizer). The graphic EQ's are dedicated to the left and right outputs following (or post) the amp patch jacks of the mixer. The 9 band Graphic EQ's provide a wide degree of tonal flexibility.

The Frequencies:

Here are some tonal reference ranges for the individual sliders to help relate the frequencies in hertz to perceived tonal changes.

In order from left to right:

- the 63 Hz slider effects deep sub bass levels.
- the 125 Hz is typical bass adjustments.
- the 250, 500 and 1K Hz are for low mid and high mid adjustments.
- the 2K and 4K Hz are for lower treble adjustments.
- the 8K and 16K Hz are for the very high treble adjustments.

Adjusting:

When the sliders are in their center detent position they do not affect the audio signal. When a slider is raised or lowered from the center position, it boost and cuts respectively the level of a narrow frequency band assigned to that particular slider. It is recommended that all sliders are set in their center position before equalizing your tone. Typically low frequency feedback is in the 125 and 250 Hz range while high feedback is in the 2k and 4k Hz range. Occasionally one frequency (slider) of the equalizer will have to be pulled down to -12dB to stop feedback. If many of the sliders have to be pulled down to stop feedback, the placement of the speakers with respect to the microphones may need to be reconsidered. As much as possible, try to have the main speaker facing away from and in front of the microphones not on stage behind them. The graphic EQ is mainly used to "equalize" the response of the main room and reduce feedback from microphones. Don't be afraid to use the Graphic EQ, but take care not to over-

lem has been corrected start again with turning up the low level signal and use this low level signal to check if all the speakers are working. Now the main system is ready for the sound check.

7. TESTING THE MONITOR AMPLIFIER AND SPEAKERS

Each input channel of the mixer has a knob labeled MON. This knob is used to adjust the volume of each channel's send to the monitor buss.

The channel monitor signal is pre the channel tone controls and the channel level control. What this means is any adjustments to the channel tone controls or the channel level control will not effect the monitor mix. The advantage of this is, if more high frequencies are wanted in the main mix speakers from one channel, turning up the HI tone control will not result in feedback in the monitors.

With the mixer set as suggested in section 6, the MONITOR master level can be brought up to 5 or 6 on the dial and a channel, with signal, can have its monitor level turned up until it is heard in the monitors. If nothing is heard in the monitors first make sure the channel does have signal. One way to test the signal is to turn it up in the main speakers. If the signal is present in the mains, but not in the monitors then turn them both down again and start checking the monitor system connections from the mixer output to the amplifiers and speakers. When the problem has been corrected start again with turning up the level and use the signal to check that all the monitor speakers are working. Now the monitor system is ready for the sound check.

8. THE SOUND CHECK

The sound check takes some skill, but mostly patience from the performers and especially you the system operator. If you get frustrated during the sound check the performers can lose confidence and the sound may suffer due to things missed in the sound check. The basic sound check follows this format: First test all microphones and other input devices(direct boxes, etc.) before the performers are included in the sound check. A good thing to also check here is feedback in the monitors from the microphones. Good positioning of the monitors and the use of a graphic equalizer before the monitor power amp solves most major monitor feedback problems. Now for a sound check with the performers. First set the level of each performers individually and in cases where a performer has multiple microphones, such as with a drummer, set each drum mic individually then the drum set as a whole. This is also a good time to make some channel tone control adjustments to tailor the sound of the individual performers and instruments. Next after setting each individual have the performers run through a song or a portion of the show. Don't hesitate to stop the performers if something needs to be adjusted or if an individual performer or microphone needs to be heard solo again. Remember the sound check is not a rehearsal, but a system check, a time to work the bugs out of the system so the show can go smoothly. It is always a good idea for the mixer operator to have a microphone to inform the performers of what is needed during the sound check. If a monitor system is being used, the mixer operator's microphone should only be heard through the monitors when addressing the on stage performers, especially if something needs to be checked during the show. If the sound check is allowed to run through its full course, the system should run smoothly at show time.

INTERNAL DSP EFFECTS PROGRAM CHART

EFF #	DESCRIPTION	EFF #	DESCRIPTION
1	BYPASS No audio output	66	DLY& REV 33mS Predelay Percussion Plate 3.9s
2	DELAY 33mS w/ 11% regeneration	67	DLY& REV 55mS Predelay Vocal Plate 0.5s
3	DELAY 33mS w/ 17% regeneration	68	DLY& REV 55mS Predelay Vocal Plate 0.7s
4	DELAY 33mS w/ 25% regeneration	69	DLY& REV 55mS Predelay Vocal Plate 1.3s
5	DELAY 33mS w/ 32% regeneration	70	DLY& REV 55mS Predelay Vocal Plate 2.4s
6	DELAY 33mS w/ 44% regeneration	71	DLY& REV 55mS Predelay Vocal Plate 3.1s
7	DELAY 55mS w/ no regeneration	72	DLY& REV 55mS Predelay Vocal Plate 3.9s
8	DELAY 55mS w/ 11% regeneration	73	DLY& REV 89mS Predelay Small Room 0.5s
9	DELAY 55mS w/ 17% regeneration	74	DLY& REV 89mS Predelay Small Room 0.7s
10	DELAY 55mS w/ 25% regeneration	75	DLY& REV 89mS Predelay Small Room 1.3s
11	DELAY 55mS w/ 32% regeneration	76	DLY& REV 89mS Predelay Small Room 2.4s
12	DELAY 55mS w/ 44% regeneration	77	DLY& REV 89mS Predelay Small Room 3.1s
13	DELAY 89mS w/ no regeneration	78	DLY& REV 89mS Predelay Small Room 3.9s
14	DELAY 89mS w/ 11% regeneration	79	DLY& REV 100mS PredelayMedium Room 0.5s
15	DELAY 89mS w/ 17% regeneration	80	DLY& REV 100mS PredelayMedium Room 0.7s
16	DELAY 89mS w/ 25% regeneration	81	DLY& REV 100mS PredelayMedium Room 1.3s
17	DELAY 89mS w/ 32% regeneration	82	DLY& REV 100mS PredelayMedium Room 2.4s
18	DELAY 89mS w/ 44% regeneration	83	DLY& REV 222mS PredelayMedium Room 3.1s
19	DELAY 100mS w/ no regeneration	84	DLY& REV 222mS PredelayMedium Room 3.9s
20	DELAY 100mS w/ 17% regeneration	85	DLY& REV 333mS PredelayLarge Room 0.5s
21	DELAY 100mS w/ 25% regeneration	86	DLY& REV 333mS PredelayLarge Room 0.7s
22	DELAY 100mS w/ 44% regeneration	87	DLY& REV 444mS PredelayLarge Room 1.3s
23	DELAY 222mS w/ no regeneration	88	DLY& REV 444mS PredelayLarge Room 2.4s
24	DELAY 222mS w/ 37% regeneration	89	DLY& REV 555mS PredelayLarge Room 3.1s
25	DELAY 333mS w/ no regeneration	90	DLY& REV 555mS PredelayLarge Room 3.9s
26	DELAY 333mS w/ 37% regeneration	91	CHORUS Slow & Shallow
27	DELAY 444mS w/ no regeneration	92	CHORUS Medium & Shallow
28	DELAY 444mS w/ 37% regeneration	93	CHORUS Fast & Shallow
29	DELAY 555mS w/ no regeneration	94	CHORUS Slow & Deeper
30	DELAY 555mS w/ 37% regeneration	95	CHORUS Medium & Deeper
31	REVERB Percussion Plate 0.5s decay	96	CHORUS Fast & Deeper
32	REVERB Percussion Plate 0.7s decay	97	CHORUS Slow & Deep
33	REVERB Percussion Plate 1.3s decay	98	CHORUS Medium & Deep
34	REVERB Percussion Plate 2.4s decay	99	CHORUS Slow & Really Deep
35	REVERB Percussion Plate 3.1s decay	100	CHORUS Medium & Really Deep
36	REVERB Percussion Plate 3.9s decay	101	CHORUS#91 33mS Predelay Percussion Plate 1.3s
37	REVERB Vocal Plate 0.5s decay	102	CHORUS#92 33mS Predelay Percussion Plate 2.4s
38	REVERB Vocal Plate 0.7s decay	103	CHORUS#93 33mS Predelay Percussion Plate 3.1s
39	REVERB Vocal Plate 1.3s decay	104	CHORUS#94 33mS Predelay Percussion Plate 3.9s
40	REVERB Vocal Plate 2.4s decay	105	CHORUS#95 55mS Predelay Vocal Plate 0.5s
41	REVERB Vocal Plate 3.1s decay	106	CHORUS#96 55mS Predelay Vocal Plate 0.7s
42	REVERB Vocal Plate 3.9s decay	107	CHORUS#97 55mS Predelay Vocal Plate 1.3s
43	REVERB Small Room 0.5s decay	108	CHORUS#98 55mS Predelay Vocal Plate 2.4s
44	REVERB Small Room 0.7s decay	109	CHORUS#99 55mS Predelay Vocal Plate 3.1s
45	REVERB Small Room 1.3s decay	110	CHORUS#100 55mS Predelay Vocal Plate 3.9s
46	REVERB Small Room 2.4s decay	111	FLANGE Slow & 6mS depth
47	REVERB Small Room 3.1s decay	112	FLANGE Medium & 6mS depth
48	REVERB Small Room 3.9s decay	113	FLANGE Fast & 6mS depth
49	REVERB Medium Room 0.5s decay	114	FLANGE Slow & 13mS depth
50	REVERB Medium Room 0.7s decay	115	FLANGE Medium & 13mS depth
51	REVERB Medium Room 1.3s decay	116	FLANGE Fast & 13mS depth
52	REVERB Medium Room 2.4s decay	117	FLANGE Slow & 24mS depth
53	REVERB Medium Room 3.1s decay	118	FLANGE Medium & 24mS depth
54	REVERB Medium Room 3.9s decay	119	FLANGE Slow & 40mS depth
55	REVERB Large Room 0.5s decay	120	FLANGE Medium & 40mS depth
56	REVERB Large Room 0.7s decay	121	FLANGE#111 55mS Predelay Percussion Plate 1.3s
57	REVERB Large Room 1.3s decay	122	FLANGE#112 55mS Predelay Percussion Plate 2.4s
58	REVERB Large Room 2.4s decay	123	FLANGE#113 55mS Predelay Percussion Plate 3.1s
59	REVERB Large Room 3.1s decay	124	FLANGE#114 55mS Predelay Percussion Plate 3.9s
60	REVERB Large Room 3.9s decay	125	FLANGE#115 55mS Predelay Vocal Plate 0.5s
61	DLY& REV 33mS Predelay Percussion Plate 0.5s	126	FLANGE#116 55mS Predelay Vocal Plate 0.7s
62	DLY& REV 33mS Predelay Percussion Plate 0.7s	127	FLANGE#117 55mS Predelay Vocal Plate 1.3s
63	DLY& REV 33mS Predelay Percussion Plate 1.3s	128	FLANGE#118 55mS Predelay Vocal Plate 2.4s
64	DLY& REV 33mS Predelay Percussion Plate 2.4s		
65	DLY& REV 33mS Predelay Percussion Plate 3.1s		

SETTING UP THE SOUND SYSTEM

This section is a brief overview of what it takes to hook up a sound system using a CX series mixer. The overview will include some of the different possible set-ups and some basics on how to mix live sound. If you are new to using mixers you should find this section very informative in helping you to operate your sound system properly. If you are experienced with mixers then you may find some of the information new or presented with a new approach that can help you as well. As always, experimentation is the key to success, so don't be afraid to use the controls to get a feel for what they do.

1. INPUT CONNECTIONS FROM THE STAGE

For a live sound reinforcement public address system (P.A. System), the input signals to the mixer will come from the microphones and instruments on the stage. Each microphone or instrument to be amplified by the P.A. system must be connected to one of the mixing console inputs. It is preferred to have as many of the stage instruments as possible plugged into the mixer. This allows the best overall sound control of the instruments as they are mixed together and then amplified by the P.A. system.

2. ON STAGE OPERATION

The CX Series mixers are small enough to have on the stage. The advantages to this are: a band member can operate the mixer so no extra person is needed; all the cables for microphones, instruments, and speakers are short and plug directly into the mixer; and there are no cables for the audience to trip over. The only disadvantages are the band member/mixer operator on stage doesn't hear what the audience is hearing, and because the mixer operator is a band member he can not react fast to problems with the P.A. system such as feedback and sudden volume differences.

3. REMOTE TO STAGE OPERATION

Many times the mixer will be located a distance from the stage. This allows the performance to be monitored and mixed from the audience's perspective. Monitoring at a distance from the stage usually means employing a multi-cable cable or more commonly referred to as a "Snake" (available from CARVIN). Each of the microphones and instruments are plugged into the snake box at the stage and the snake cable carries all these signals to the mixer. At the mixer the snake cable, which fans out to plugs corresponding to the jacks on the snake box, is plugged into the appropriate inputs and line level (pre-amp) outputs of the mixer. All snake cables are numbered, both on the snake box and the cable, to help keep track of which microphones are being plugged into which channels. It is a good idea at this point to label each of the console channels according to what instrument they will be controlling. This can be done with masking tape (Scotch brand #230 drafting tape) or another suitable 'light' sticking tape. The tape provides a replaceable surface to write on. The (XLR) balanced low impedance format will ensure you the best possible performance and lowest possible noise when operating with long cable lengths, such as a snake. However, many times an unbalanced output (1/4 inch phone plug type) from an instrument needs