MADE IN USA

RECEIVING INSPECTION—read before getting started

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

SAVE THE CARTON & ALL PACKING MATERIALS. In the event you have to re-ship your unit, always use the original carton and packing material. This will provide the best possible protection 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 service if needed in the future.

SHIPMENT SHORTAGE. If you find items missing, they may have been shipped separately. Please allow several days for the rest of your order to arrive before inquiring.

RECORD THE SERIAL NUMBER on the enclosed warranty card or below on this manual for your records. Keep your portion of the card and return the portion with your name and comments to us.

USA customers register online at: **www.carvin.com/registration**
All other countries register online at: **www.carvinworld.com/registration**

For your records, you may wish to record the following information.

Serial No._____ Invoice Date_____

CONGRATULATIONS on your purchase of Carvin's **XP650** mixer! The **XP650** model includes 2 built-in high power amplifiers for direct hook-up to your speakers. Please read this manual carefully to take all the advantages of your new mixer.

SUPERB SOUND is derived from the extremely low distortion, high "Headroom" design. State-of-the art, low noise, balanced XLR preamps from our Concert Series mixers provide common mode rejection of better than 78 dB, which means that any possible noise that may come over your cables is virtually eliminated. Distortion is nearly non-existent with THD below 0.1% from input to output, guaranteeing the purity of your sound. Hear the difference - your sound will not seem "sterile" or "processed". It will be dynamically open and transparent just like it was meant to be!

LIGHT WEIGHT and EASY TO USE Controls are logically laid out making the XP Series simple to use, reducing errors during setup and perfomance. Its compact size and weight of only 20 lbs. makes it the lightest, most powerful mixer of its kind. No other manufacturer offers a higher performance to weight ratio!

TWO HIGH CURRENT AMPLIFIERS Choose between a total of 500 watts delivered to your main speakers, or with the touch of a button, use 250watts for the mains and 250watts for monitors. This is the kind of output that maintains the purity and integrity of your sound. 1/4" and Speakon™ output connectors are provided for secure connections with maximum power transfer to your speakers. An output meter and clip indicator for each amp give you a visual indicator of each amp.

A HIGH CURRENT POWER SUPPLY starts with a toroid transformer to assure continuous high amperage DC voltage to both power amplifiers to eliminate "overload" or shutdown. 20,000 mfd capacitors offer a large power reservoir for deep bass output.

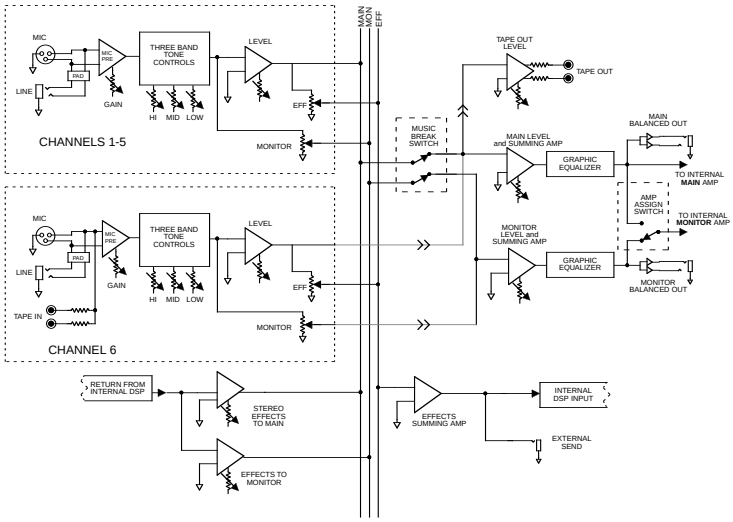
24-Bit STEREO DSP EFFECTS 256 effect variations including reverb, chorus, flange and echo, with fully adjustable parameters for; damping, decay, depth, speed, regeneration and time. Assign each channel a seperate effect level with the send. Effects are adjustable to your stage monitors so you can hear yourself with full effects.

ACTIVE 3 BAND CHANNEL EQ provides easy adjustment for the tone you want. The 80 Hz LO frequency controls deliver solid non-flabby bass. A simple adjustment with the MID band control brings out the best sound for vocals or guitar by affecting the very important 750Hz frequency range. The 11.5k Hz HI treble control adds sparkle to your top-end without adding harshness. Both the LO and HI controls are "shelving", which means they are effective from 20Hz to 20kHz.

TWO 7 BAND EQUALIZERS provide precise adjustments to fine tune your overall sound and to help control feedback. One graphic equalizer controls the main outputs, and a seperate equalizer controls the monitor outputs.

ENGINEERED TO LAST Every XP Series mixer incorporates a rugged injection molded case and steel chassis. Continuous full power is assured from a high-grade 6063-T5-aluminum heat sink cooled by a variable speed fan. Sealed controls and switches guard against the outside elements while heavy-duty connectors provide a positive connection to your cables. Hidden deep in the heart of these mixers is the "SMT" Surface Mount Technology construction that utilizes surface mounted components to prevent parts from shaking or vibrating loose. Precision 1% tolerances guarantee that your settings will be accurate every time. Fire retardant FR-4 military spec circuit cards feature double-sided copper construction to guard against noise and radio frequencies (RF). The XP Series is professionally made in the USA for years of dependable service!

XP650 BLOCK DIAGRAM



MODEL XP650 SPECIFICATIONS:

Frequency Response:	Mic or Line Inputs: 20Hz-20kHz ±1dB
Total Harmonic Distortion:	Less than .1% at nominal levels
Equivalent Input Noise:	150 ohm source: -117dBu
Output Noise:	-90dBu Master Line Out
	(All Levels Minimum)
Output Headroom:	+20dB
Maximum Gain:	Mic in to Master Line Out: 70dB
Crosstalk:	Adjacent ch's: -60db at 1KHz
Common Mode Rejection:	-78db at 1KHz
Phantom Power:	48volt @ XLR Mic channels
Channel EQ 3-band active:	LOW: 80Hz ±12dB
	MID: 750Hz ±12dB
	HI: 11.5KHz ±12dB
Power Output:	500w (2x250w@2Ω)
Power Req.:	120VAC 60 Hz or optional 240VAC 50 Hz model
Size and Weight:	11"H x 17.5"W x 10.5"D, 20 lbs
Remote Effects Controller:	Optional FS22 footswitch for on/off effects
Vinyl Cover:	CV880

CARVIN

12340 World Trade Drive, San Diego, CA 92128

XP650 CONTROLS

QUICK START UP

If you're like most new owners, you're probably in a hurry to plug your 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:

A. CONNECTING AC POWER TO YOUR MIXER

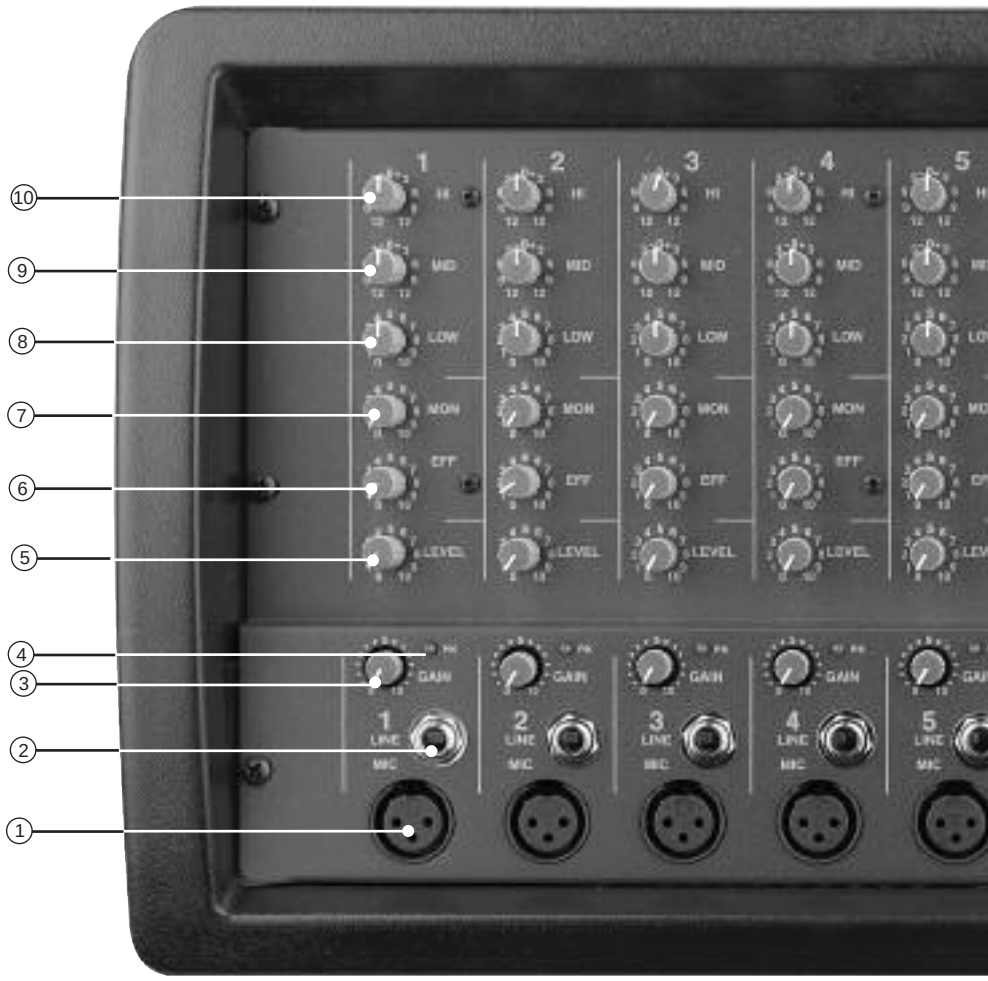
- Be sure to plug your mixer into the proper voltage marked on your mixer, either **120V-60Hz** or **240V-50Hz**.
- Use only a grounded (3 prong) power outlet to prevent a shock hazard (do not bypass). This gives the quietest grounding for your mixer.

B. CONNECTING INPUTS TO YOUR MIXER

- For balanced microphones, use a shielded cable and plug into the XLR **MIC** inputs.
- For high output devices like instruments & keyboards, plug into the **LINE** input jacks using a shielded cable. Adjust the **GAIN** control for mic or for instruments.

C. TURNING YOUR MIXER ON

- Set all channel and master **LEVEL** controls to their OFF positions
- Set all **HI**, **MID**, and **BASS** controls and the graphic equalizers to their center "flat - no boost or cut" position.
- Connect your speakers and monitors at the rear panel.
- Turn the mixer on by the rear **POWER SWITCH** and watch for the front **POWER** LED to come on. Your mixer is now ready to operate by turning the levels up.



MIC CHANNEL FEATURES

1. XLR MICROPHONE INPUT

The **XLR MIC** input is designed for balanced low impedance microphones. The high performance, low noise preamps do a superb job of noise reduction. 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). Note: Make sure the phantom power is switched off before connecting or disconnecting microphones to the mixer.

2. LINE INPUT JACKS

The **LINE** input is a 1/4" phone jack designed for balanced or unbalanced line or instruments. Examples of these inputs would be guitar, keyboard or effect returns. The line input can be used at the same time the mic input is being used.

3. GAIN CONTROL

The **GAIN** control adjusts the input sensitivity on both the LINE and MIC input jacks over a range of 40dB. For quietest operation, set the **GAIN** control just below the point where the **PK** LED flashes. If the PK LED lights or if distortion is heard reduce the **GAIN** slightly until the PK LED is off.

4. CHANNEL "PK" LED

The **PK** LED indicates when the channel is nearing it's clipping level, causing distortion. Reduce the GAIN slightly to prevent distortion. To get more volume, increase the master MAIN control and re-adjust your main mix.

5. CHANNEL LEVEL CONTROL

The **LEVEL** control adjusts the 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 at the main outputs.

6. CHANNEL EFFECTS LEVEL

The **EFF** control adjusts the level sent to the effects processor and to the front **EFF SND** jack. The effects control is post-channel level, which automatically tracks the channel's LEVEL & EQ controls. Reduce the **EFF** level if the **PK LEDs** are flashing on the effects processor.

7. CHANNEL MONITOR CONTROL

The **MON** control adjusts the volume of the channel going to the master **MONITOR** control. The **MON** control is a pre-LEVEL control. This means it is unaffected by the channel **LEVEL**.

8-10. CHANNEL TONE CONTROLS

Each channel features active 3-band EQ tone controls **LO**, **MID**, and **HI**. All three function as boost (clockwise) & cut (counter-clockwise) controls. The center **0** is the "flat" or no effect position. The **LO** and **HI** controls are shelving type with corner frequencies at 80Hz and 11.5k Hz respectively. The **MID** control is a band pass type centered at 750Hz. These settings will vary with the type of voice or instrument. Try reducing the **MID** to add clarity and turn up the **LO** and **HI** for a fuller sound.

11. TAPE IN JACKS

The **TAPE IN** inputs on CHANNEL 6 are for connecting a CD or tape player. These **TAPE IN** jacks can be used for returning another effects processor or instrument (keyboard). **Channel 6 inputs are NOT muted by the MUSIC BREAK switch.**

MASTER SECTION FEATURES

12. MAIN LEVEL

The **MAIN** control is the master volume control for all channels. The **MAIN** signal is sent through the MAIN **GRAPHIC EQ** to the **MAIN** amp and the front **MAIN** output jack.

13. MONITOR LEVEL

The **MONITOR** master level is sent through the MONITOR **GRAPHIC EQ** to the **MONITOR** amp and front output jack.

14. TAPE OUT LEVEL

The **TAPE OUT** LEVEL sends the **MAIN** signal mix to the **TAPE OUT** jacks for recording. The **TAPE OUT** level is unaffected by the MAIN level control so a recording level can be set independently of the MAIN speaker volume.

15. TAPE OUT JACKS

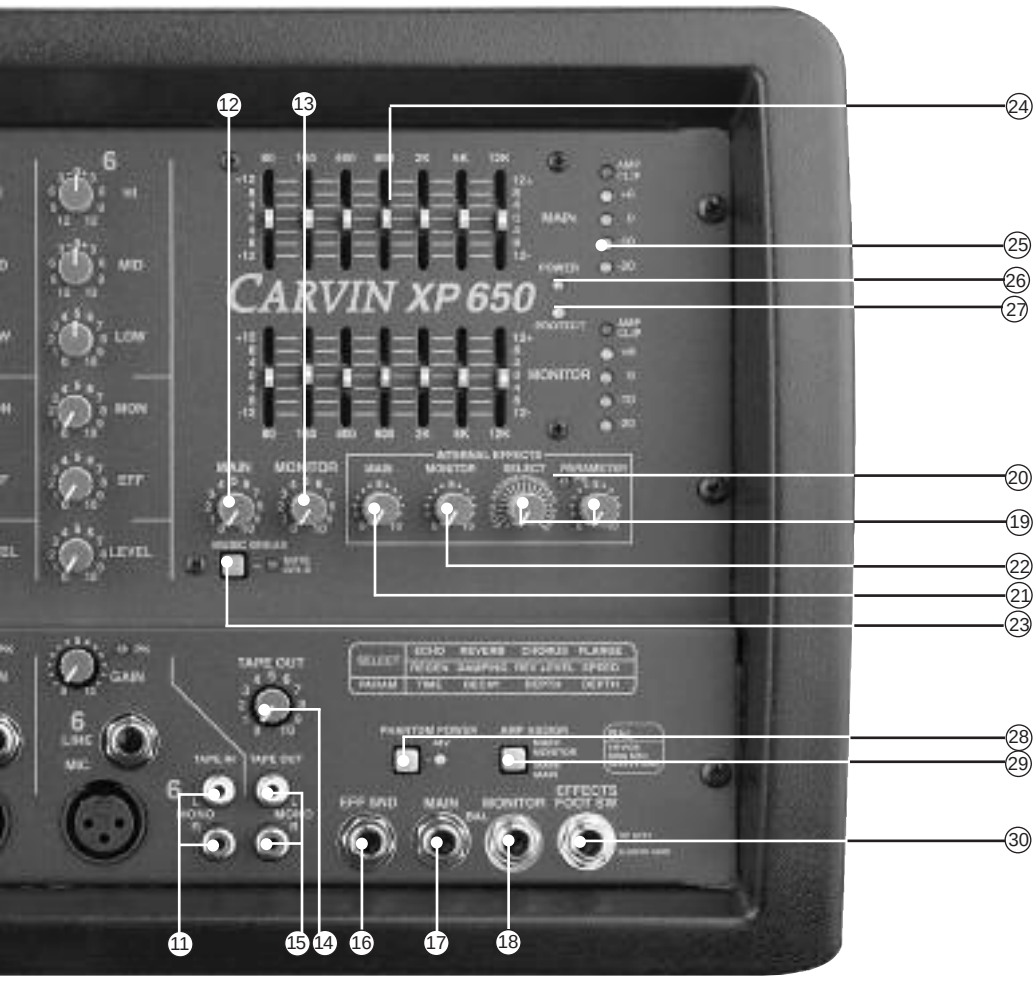
Use the **TAPE OUT L-R** jacks for recording or to send to external power amps. If the TAPE OUT is being used to record, make sure the TAPE IN jacks are not connected to the recorder output or turn the channel 6 LEVEL to "0" or feedback will result.

16. EFF SEND JACK

The **EFF SEND** jack can send a signal to an external processor. This is the same signal sent to the internal effects processor. Effect returns can be connected to any input channel. *Make sure the EFF control for the return channel is set to "OFF" or "EFF1" or feedback will occur.*

17. MAIN OUTPUT

The front **MAIN** output is the same signal that feeds the internal MAIN amp. Use this balanced 1/4" output to feed additional power amps, etc..



18. MONITOR OUTPUT

The front **MONITOR** output is the same signal that feeds the internal MONITOR amp. Use this balanced 1/4" output to feed additional power amps, etc..

19. DSP EFFECTS PROCESSOR

A 24-Bit processor provides a host of great sounding effects including Flange, Reverb, Echo, & Chorus.

The channel **EFF** send control delivers the signals to the processors.Note: Reduce these levels if the red PEAK LEDs are flashing on the processors.

Turn up the **MAIN** effects control to add your effects to the MAIN outputs. Adjust the **SELECT** and the **PARAMETER** controls to get the desired effect. Note: An audible noise will be heard while adjusting the effects.

A) ECHO: SELECT the amount of the regeneration (repeating). Now select the **PARAMETER** control for the shortest or longest delay time between the original signal and the echo.

B) REVERB: SELECT the amount of presence (high frequencies) in the reverb. Now turn the **PARAMETER** control to provide the minimum or maximum decay.

C) CHORUS: SELECT the amount of reverb with your chorus. Now turn the **PARAMETER** control to increase the depth.

D) FLANGE: SELECT the amount of speed with your flange (phasing effect). Now turn the **PARAMETER** control to increase the depth.

20. EFFECTS PEAK LED's

The **PK LED** indicates that the signal level to the processor is too high. To prevent distortion, turn the **EFF** control towards the "0" (off) position until the **PK LED** stops flashing.

21. MAIN EFFECTS CONTROL

The **MAIN EFFECTS** level controls the amount of the effects that go to your **MAIN** outputs.

22. MONITOR EFFECTS LEVEL

The **MONITOR EFFECTS** level controls the amount of the effects that go to your MONITORS.

23. MUSIC BREAK SWITCH / LED

The **MUSIC BREAK** feature turns off all inputs, except for channel 6. This is useful during breaks. This allows pre-recorded music to be played through the **TAPE IN** jacks. The channel 6 MIC/LINE inputs are left active for announcements or solo acts. The remaining input channels (1-5) are turned OFF eliminating feedback or other unwanted sounds from open mics during breaks or changes. The LED indicates the **MUSIC BREAK** is ON. The internal effects are also muted.

24. GRAPHIC EQ MAIN + MONITOR

When the EQ sliders are in their center position, they do not affect the audio signal. When EQ sliders are raised or lowered from this position, they boost or cut a narrow frequency band.

For tone enhancement you may want to raise the 80Hz and 160Hz sliders (for deeper bass) and the 6kHz and 12kHz sliders (for crisper highs) while reducing the 400Hz, 800Hz and 2kHz sliders in a moderate "curve".

To help prevent feedback, microphones should be placed behind the main speakers.

To reduce feedback in the low frequency range, try lowering one of the 80Hz or 160Hz sliders. High frequency feedback is usually reduced by lowering the 2kHz or 6kHz sliders.

25. OUTPUT LED's /AMP "CLIP" LED's

The **OUTPUT METER LEDs** indicate the output levels for each power amp. The yellow "**+6**" LED indicates the output level is near maximum. The red **CLIP** LEDs indicate when the power amps are starting to distort (clip). Reduce the MAIN and/or MONITOR master levels to prevent distortion.

26. POWER LED

The blue POWER LED indicates the mixer is powered ON.

27. PROTECT LED

The mixer will "protect", engaging relays to mute the speakers if: a) impedance is below minimum on any amplifier b) shorted speaker cables, or c) ventalation problems. If the LED comes on, shut the mixer **OFF** and check for cable problems, proper impedance and obstructed rear cooling vents. If you encounter an over-heat problem, leave the mixer **ON** allowing the fan to cool down the internal components. The mixer will auto-reset in about 5 minutes.

28. 48V PHANTOM POWER SW/LED

The **48V PHANTOM POWER** switch turns on the microphone phantom power in the channel XLR jacks. This power is used for supplying a high voltage to condenser microphones. The **LED** indicates the phantom power is turned on. The phantom power will not damage conventional dynamic microphones. Note: Make sure the phantom power is switched off before connecting or disconnecting microphones to avoid a "pop".

29. AMP ASSIGN SWITCH

This switch allows you to use one amp for MAIN and one amp for MONITOR, or use both power amps for the MAIN speakers. The front MONITOR output jack remains unchanged and can still be used for external power amps or in-ear monitor systems.

30. EFFECTS FOOT SWITCH JACK

The optional **FS22** will remotely shut off the internal effects.

REAR PANEL-POWER/SPEAKER CONNECTIONS

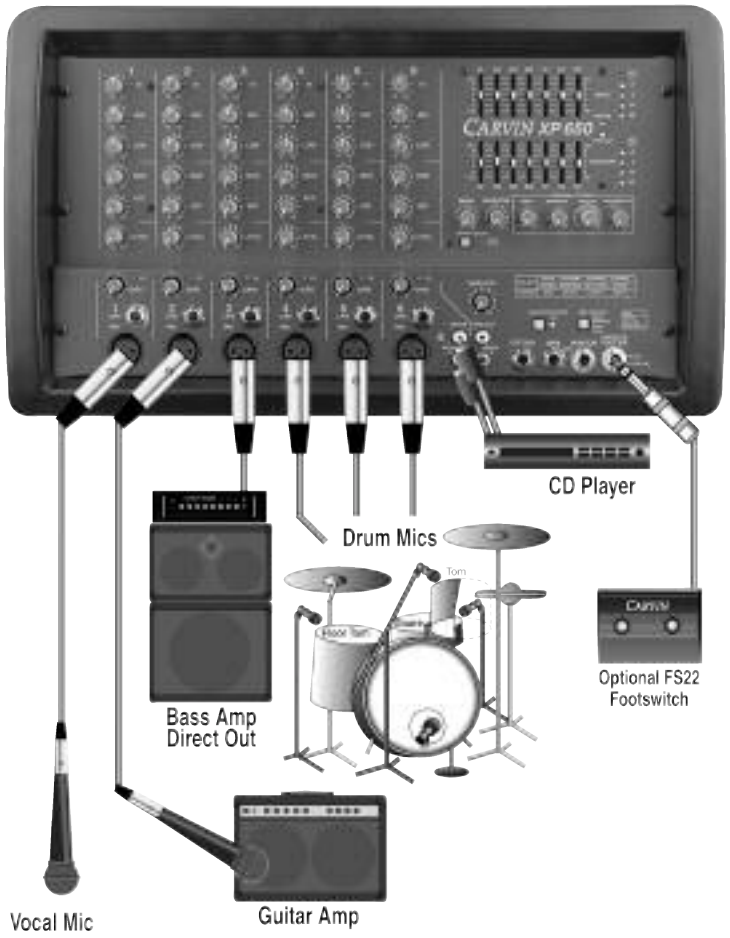
The rear panel contains the **POWER SWITCH** and **AC** power cable connection. There are 2 groups of speaker jacks. Each group has one Speakon™ connector and two 1/4" outputs (wired in parallel).

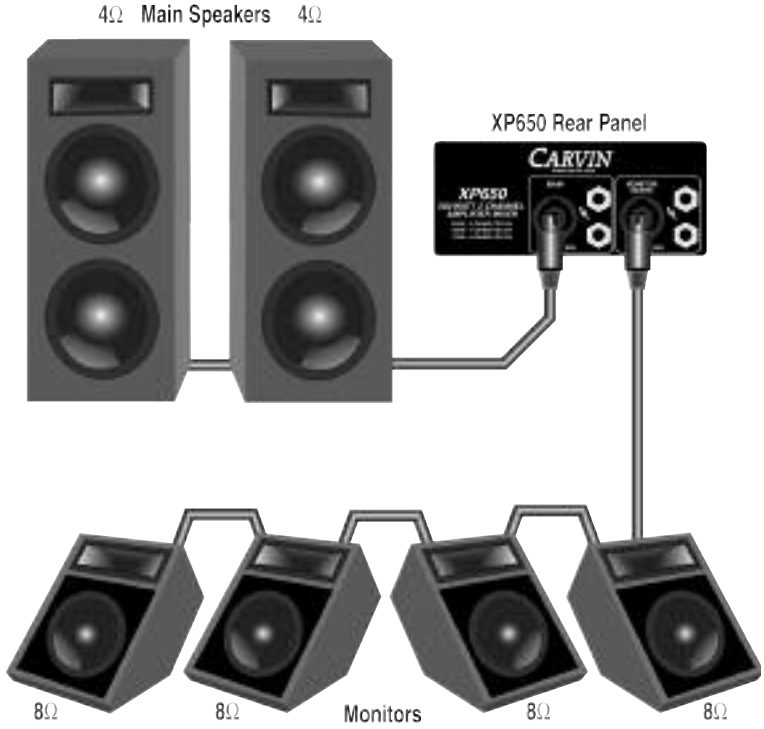
Each amp has a **2Ω MINIMUM IMPEDANCE**

(Maximum *two* 4Ω speakers or *four* 8Ω speakers per amp).

MAKE ALL SPEAKER CONNECTIONS <u>BEFORE</u> TURNING THE MIXER ON .

XP650 LIVE SET UP





A NOTE ABOUT SPEAKER IMPEDANCE (Ω) and CABLES

As you add more speakers to an amp, the total impedance (ohms) is reduced. The amplifiers will drive an impedance of 2Ω or higher. This means up to four 8Ω speakers, or two 4Ω speakers, for each amp.

Speaker cables should be a minimum 16 gauge for up to 50ft (**PH50**). Heavy-duty Speakon™ 12 gauge cables (**SP100**) are recommended for lengths over 50ft.

CAUTION
RISK OF ELECTRIC SHOCK
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL! THIS UNIT CONTAINS HIGH VOLTAGE INSIDE!

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT! FOR YOUR PROTECTION, PLEASE READ THE FOLLOWING:

WATER AND MOISTURE: Appliance should not be used near water (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)

The conductors in the AC power cord are colored in accordance with the following code.

GREEN & YELLOW—Earth BLUE—Neutral BROWN—Live

U.K. MAIN PLUG WARNING: A molded main plug that has been cut off from the cord is unsafe. NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAIN PLUG INTO A POWER SOCKET.

LIMITED WARRANTY

Your Carvin product is guaranteed against failure for 1 YEAR unless otherwise stated. Carvin will service and supply all parts at no charge to the customer providing the unit is under warranty. Shipping costs are the responsibility of the customer. CARVIN DOES NOT PAY FOR PARTS OR SERVICING OTHER THAN OUR OWN. A COPY OF THE ORIGINAL INVOICE IS REQUIRED TO VERIFY YOUR WARRANTY. Carvin assumes no responsibility for horn drivers or speakers damaged by this unit. This warranty does not cover, and no liability is assumed, for damage due to: natural disasters, accidents, abuse, loss of parts, lack of reasonable care, incorrect use, or failure to follow instructions. 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. CARVIN SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

When RETURNING merchandise to the factory, you may call for a return authorization number. Describe in writing each problem. If your unit is out of warranty, you will be charged the current FLAT RATE for parts and labor to bring your unit up to factory specifications.

MAINTAINING YOUR EQUIPMENT

Avoid spilling liquids or allowing any other foreign matter inside the unit. The panel of your unit can be wiped from time to time with a dry or slightly damp cloth in order to remove dust and bring back the new look. As with all pro gear, avoid prolonged use in caustic environments (salt air). When used in such an environment, be sure the mixer is adequately protected by a cover.