RANE

MP 24z
CLUB MIXER

MP 24z MIXER

PROGRAM EQUALIZER

TREBLE — MIN MAX
HI-MID — MIN MAX
MID — MIN MAX
BASS — MIN MAX

EQ ENGAGE

PEAK PROGRAM METER

+8 +5 +3 +1 0 -1 -3 -5 -7 -10 -15 -20 dB
LEFT
RIGHT

POWER

HEADPHONE CONTROL

CUE / PGM
STEREO
MONO — CUE LEFT / PGM RIGHT

CUE PGM PAN
LEVEL

ZONE LEVEL
BOOTH LEVEL

MASTER LEVEL

LOOP ENGAGE

SOURCE CONTROL

LINE 4 LINE 5 LINE 6
LINE 3 PH/AUX 3
4 — CUE

LINE 1 LINE 2
LINE 3 AUX/PH 3
3 — CUE

AUX/PH 1 LINE 1 LINE 2
2 — CUE

1 — CUE

ACTIVE CROSSFADER™

ASSIGN 1 2 3 4

B — 10

RANE F 60

A — 10

ASSIGN 1 2 3 4
ENGAGE

MIC CONTROL

TREBLE — MIN MAX
MID — MIN MAX
BASS — MIN MAX
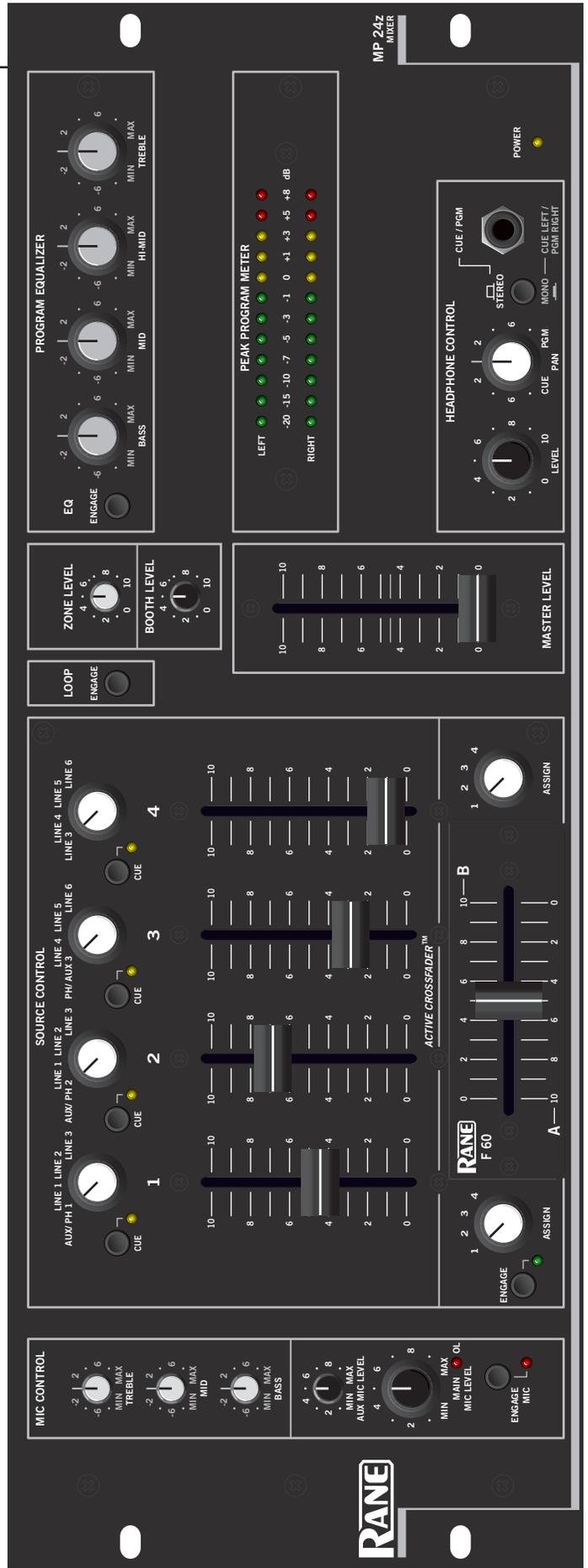
AUX MIC LEVEL — MIN MAX
MIC LEVEL — MIN MAX OL

ENGAGE MIC

RANE

IMPORTANT SAFETY INSTRUCTIONS

For the continued safety of yourself and others we recommend you read the following safety and installation instructions. Keep this document in a safe location for future reference. Please heed all warnings and follow all instructions.

Do *not* use this equipment in a location where it might become wet. Clean only with a damp cloth.

This equipment may be installed in an industry standard equipment rack. We recommend that all mounting holes be used, providing the best physical support. The equipment may be used as a table top device, although stacking of the equipment is dangerous and not recommended.

Do not directly block any of the ventilation openings. If rackmounting, please provide adequate ventilation. Equipment may be located directly above or below this unit, but note that some equipment (like large power amplifiers) may cause an unacceptable amount of hum or may generate too much heat and degrade the performance of this equipment.

Protect the power cord and plug from damage caused by being walked on or pinched. Protect the line cord, where it exits the unit, from excessive strain. Only use attachments and accessories specified by Rane.

Unplug this equipment during lightning storms or when unused for long periods of time.

Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug damage, spilled liquid, fallen objects into an opened chassis, exposure to rain or moisture, a dropped unit, or abnormal operation.
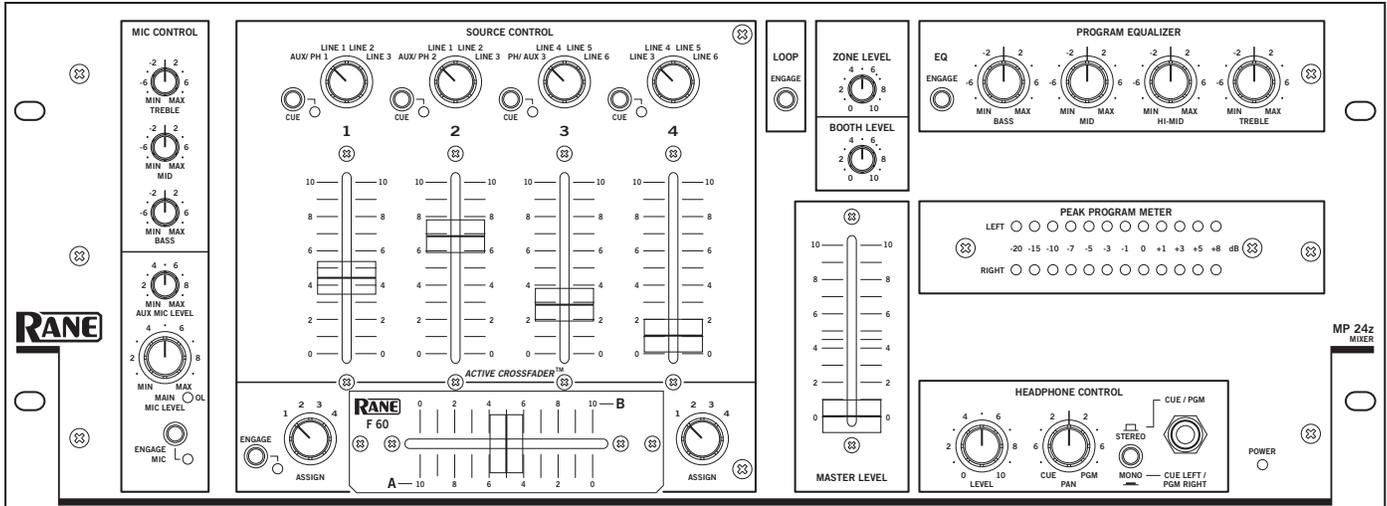
QUICK START

Don't! Quick-starting an MP 24z is like trying to quick-start a 747. It's just not something you do. Trust us, you don't want to make mistakes with this sucker. So just this once—*please*—we *highly* recommend you read this *entire* manual: front-to-back, every single page, every single word. It will familiarize you with the many intricacies of the MP 24z, not to mention all the nooks and crannies.

WEAR PART

This product contains the following wear part subject to the ninety (90) day warranty period described on page Warranty-1: *(1) Active Crossover Assembly F 60.*

FRONT PANEL DESCRIPTION
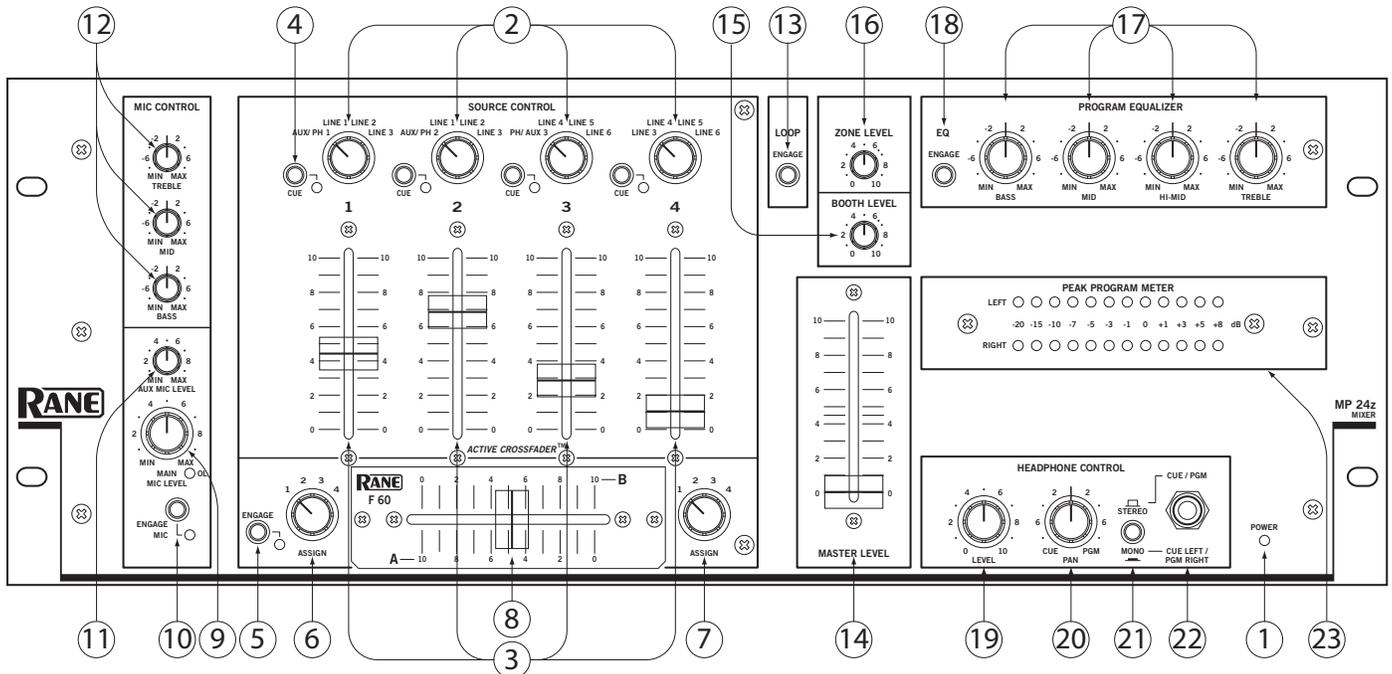
① **POWER "ON" indicator**: Illuminates anytime the MP 24z is connected to an appropriate power source (see ㉘, *Rear Panel*).

② **SOURCE CONTROL selectors:** Provide Input selection between the various Phono and Line Inputs for their respective mixing channels.

③ **Input channel faders:** Control the relative Levels of each of the four Input mixing channels.

④ **Channel CUE selectors:** Engaging any single or combination of CUE pushbuttons sends any program present at the respective channel's SOURCE CONTROL selector to the Headphone Cue section. The yellow LEDs adjacent to each CUE select button illuminate when the switch is engaged.

⑤ **CROSSFADE ENGAGE switch:** Activates the CROSSFADER and disables manual mixing capabilities. The adjacent green LED illuminates whenever the Crossfader is active.

⑥ **Left-hand CROSSFADE ASSIGN switch:** Assigns the *left* side of the Crossfader to any of the four Input channels when the Crossfader is activated by its ENGAGE switch.

⑦ **Right-hand CROSSFADE ASSIGN switch:** Assigns the *right* side of the Crossfader to any of the four Input channels when the Crossfader is activated by the ENGAGE switch.

⑧ **ACTIVE CROSSFADER:** Controls the Levels of any two channels assigned to it by the left and right Crossfade ASSIGN switches when the ENGAGE switch is activated. The entire Crossfader assembly is replaceable from the front panel without disassembling the entire unit. (See *Service Information* on page Manual-9.)

⑨ **ENGAGE MIC switch:** Enables the Microphone Inputs to feed the Booth, Zone, and Main Outputs. The adjacent red LED flashes whenever the ENGAGE MIC switch is down and locked. This switch also activates a "ducker" circuit in the Booth Output.(See *Front Panel* ⑮ and *Rear Panel* ⑳.)

⑩ **MAIN MIC LEVEL control:** Sets the Level of the balanced low impedance MAIN MIC Input.

⑪ **AUX MIC LEVEL control:** Sets the Level of the unbalanced high impedance AUX MIC Input, often used for wireless mics.

⑫ **Microphone equalization controls:** Adjust the frequency contour of both Microphone Inputs. They have no effect on any other program material.

⑬ **LOOP ENGAGE switch:** Controls the Switchable Effects Loop; pressing it to its *down* and locked position routes the main signal through the processor attached to the SWITCHABLE LOOP connectors on the rear. (See *Rear Panel* ⑫ and ⑬.)

⑭ **MASTER LEVEL fader:** Determines the program and mic level at the Main Outputs. Unity gain is approximately "4.5".

⑮ **BOOTH LEVEL control:** Adjusts the program and mic level at the Booth Outputs. Unity gain is approximately "6.5". This Output utilizes a "ducking" circuit, reducing the mic level when the MIC ENGAGE switch is pressed. (See *Rear Panel* ⑳.)

⑯ **ZONE LEVEL control:** Adjusts the program and mic level of the Zone Outputs. Unity gain is approximately "6.5".

⑰ **PROGRAM EQUALIZER controls:** Contour the frequency response of the program at the Main, Booth and Zone Outputs. This is not designed to be the only equalizer in the system, this is intended to provide EQ between varying program materials.

⑱ **PROGRAM EQUALIZER ENGAGE switch:** Enables the Program Equalizer to function when pressed *in*. The Equalizer is bypassed in the *out* position.

⑲ **HEADPHONE LEVEL CONTROL:** Clockwise rotation of this rotary control increases the headphone drive level.

⑳ **HEADPHONE PAN CONTROL:** Serves two purposes…In the STEREO mode it changes the relative levels of the Cue and Program mixed together in both earcups. In the MONO mode it changes the balance between the Mono Cue in the left ear cup and the Mono Program in the right.

㉑ **HEADPHONE CUE mode switch:** In the *up* position, this switch feeds STEREO Program and Cue to both earcups, in the *down* position the Headphone circuit provides MONO Cue to the left ear and MONO Program to the right.

㉒ **HEADPHONE output jack:** A tip-ring-sleeve stereo jack provides for the insertion of stereo headphones.

㉓ **PEAK PROGRAM METER:** provides a visual indication of program output voltage. The calibration of the indication is user adjustable. (See *Rear Panel* ⑥.)

Fader Cleaning

    With heavy use in harsh environments, the faders may need lubrication. This treatment extends longevity and can make used faders as good as new. The fader assembly must be removed from the MP 24z for proper cleaning. We recommend any of the following cleaning solutions:

Caig DeoxIT FaderLube F100 spray lubricant (*www.caig.com*)
Caig DeoxIT FaderLube F5 spray cleaner (*www.caig.com*)
CRC 2-26 (*www.crcindustries.com*)

    Order CaiLube MCL° from:
CAIG Laboratories, Inc.
12200 Thatcher Ct.
Poway, CA 92064
Phone 858-486-8388
Fax 858-486-8398
**www.caig.com**

CLEANING INSTRUCTIONS
A. Fader assembly removal
1. Remove (2) 3mm screws.
2. Draw fader assembly out through hole.
3. Remove ribbon cable.

B. Fader cleaning
1. Hold the fader assembly away from the mixer.
2. Position the fader at mid-travel.
3. Spray cleaner/lubricant into both ends of the fader.
4. Move the fader over its full travel back and forth a few times.
5. Shake excess fluid from the fader assembly.
6. Wipe off excess fluid.

REAR PANEL DESCRIPTION
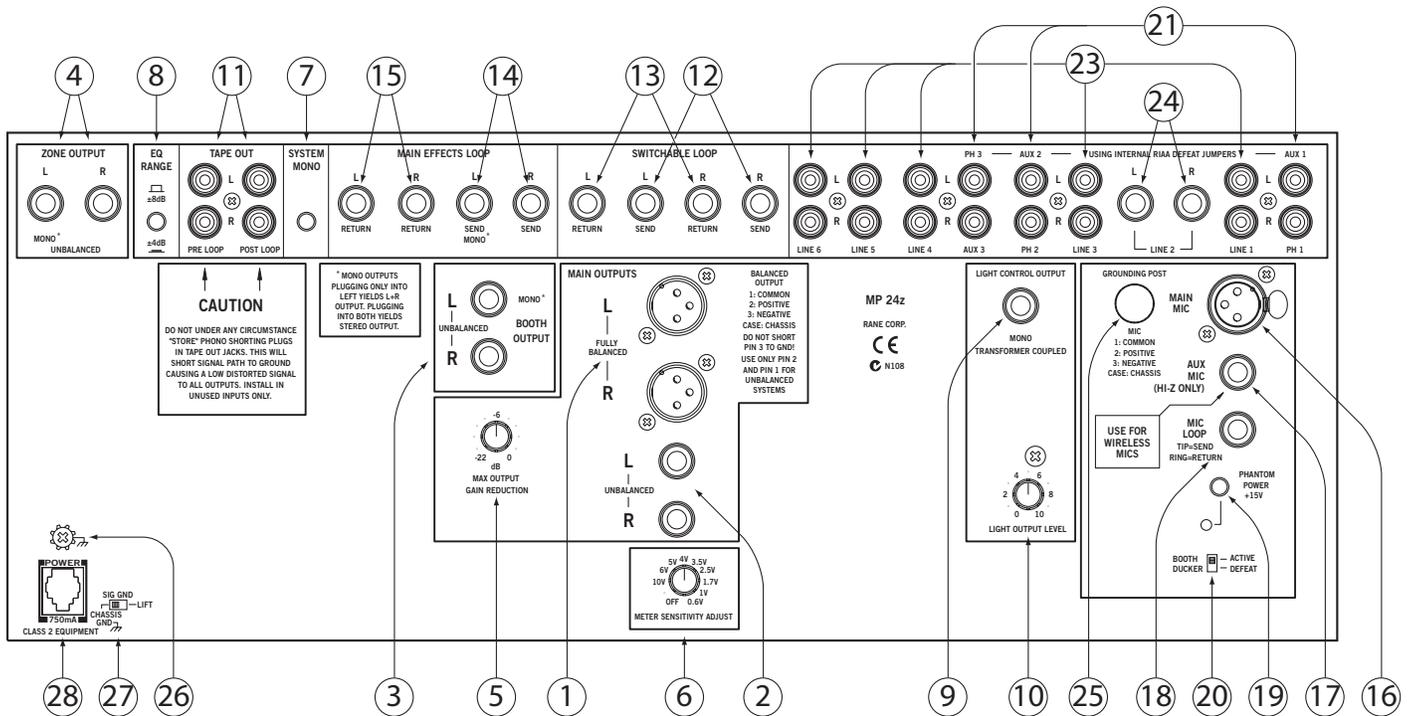
① **BALANCED MAIN OUTPUT connectors:** Provide a fully balanced Main Output signal—pin 2 is (**+**), pin 3 is (**–**) and pin 1 is signal ground. *Pin 3 must never be grounded for unbalanced operation. Use only pin 2 as hot and pin 1 as return for any unbalanced operation*.

② **UNBALANCED MAIN OUTPUT connectors:** Provide Main Output signals on ¼" TS (tip-sleeve) unbalanced connections.

③ **BOOTH OUTPUT connectors:** The Left Output only supplies a *mono* Booth Monitor Output; connecting to both Left and Right provides a stereo Output.

④ **ZONE OUTPUT connectors:** The Left Output only supplies a *mono* Zone Output, connecting to both Left and Right provides a stereo Output. The Zone Outputs are located Post-EQ, which includes the Microphone Output. An internal jumper block programs the Zone to Pre-EQ (and no mic) if required. (See *Service Information* on page Manual-9.)

⑤ **MAXIMUM OUTPUT GAIN REDUCTION control:** Decreases the maximum Level of the balanced and unbalanced MAIN OUTPUTS of the MP 24z as it is rotated counter-clockwise.

⑥ **METER SENSITIVITY ADJUST:** Clockwise rotation decreases the full-scale sensitivity of the PEAK PROGRAM METER, as indicated by the full-scale voltage calibrations around the control.

⑦ **SYSTEM MONO/STEREO switch:** Engaging this pushbutton converts all Outputs (except tapes and loops) to MONO, regardless of the nature of the Input signals.

⑧ **EQ RANGE switch:** In the *out* position, the maximum boost/cut available from the Program Equalizer is ±8 dB. In the switch's *in* position, this range is reduced to ±4 dB.

⑨ **LIGHT CONTROL OUTPUT jack:** Provides a transformer-coupled mono program signal for use by a lighting controller's trigger input. This is a balanced ¼" output—the tip is positive, the ring is negative and the sleeve is floating.

⑩ **LIGHT OUTPUT LEVEL attenuator:** Counter-clockwise rotation reduces the Output Level at the LIGHT CONTROL OUTPUT jack.

⑪ **TAPE OUT jacks:** One pair of RCA jacks provides pre-EQ, *pre*-LOOP Program Outputs. The other pair supplies pre-EQ, *post*-LOOP Program Outputs. The microphone signals are not available at these Outputs, however they are selectable using an internal jumper block. (See *Service Information* on page Manual-9.)

⑫ **SWITCHABLE LOOP SEND jacks:** Use these ¼" unbalanced Left and Right Outputs for driving the inputs of a processor activated by the LOOP button (front panel ⑬).

⑬ **SWITCHABLE LOOP RETURN jacks:** Use these ¼" unbalanced Inputs for receiving the outputs of the above processor.

⑭ **MAIN EFFECTS LOOP SEND jacks:** Provide drive to the inputs of a signal processor *which is not to be switched* from the front of the mixer. Connecting only to the LEFT Effects Send provides a *mono* Output; connecting to both LEFT and RIGHT provides a stereo feed. These are ¼" TS (Tip-Sleeve) unbalanced connections.

⑮ **MAIN EFFECTS LOOP RETURN jacks:** Receiving the processed signal generated from the Main Effects Loop SENDs. These are ¼" TS unbalanced connections.

⑯ **Balanced MAIN MIC Input jack:** Connects a balanced microphone of any impedance, either dynamic or condenser.

⑰ **Unbalanced high-impedance AUX MIC Input jack:** Connects an unbalanced wireless or other high-impedance mic.

⑱ **MIC LOOP jack**: Inserts external signal processing in the microphone circuit only. This is a ¼" TRS *tip-send, ring-return* configuration. This feature does not affect the operation of the Main Program channels.

⑲ **PHANTOM POWER switch:** Engaging this pushbutton applies +15 V Phantom Power to the balanced (XLR) MAIN MIC Input only. It has no effect on the Aux Mic Input. The adjacent red LED illuminates whenever Phantom Power is active.

⑳ **BOOTH DUCKER switch:** When in the ACTIVE position, the ENGAGE MIC switch (front panel ⑨) reduces the Microphone level at the Booth Outputs. When in the DEFEAT position, Microphone level is not reduced.

㉑ **AUX/PHONO input jacks:** Use these stereo Phono Input pairs for connecting any moving-magnet type cartridges to the mixer. Internal jumpers are provided to convert these into Line level Inputs (See *Service Information* on page Manual-9). AUX/PH 1 and AUX/PH 2 jumpers are set at the factory for PHONO. The PH/AUX 3 jumper is set at the factory for a LINE level input. When these jumpers are set to PHONO, never use these Inputs for any other purpose due to the amount of gain and RIAA equalization present. *Any unused Phono Input should have the Phono Shorting Plug installed to prevent interference from an outside source.* Do not put any of the Phono Shorting Plugs into the Tape Out jacks, as this will short *all* the Outputs.

㉒ **PHONO/AUX 3 input jacks:** As in ㉑ above. Note this Input is shipped with the internal jumpers in the LINE position.

㉓ **LINE 1 & 3 through 6 Input jacks:** Are suitable for all line-level devices such as the audio outputs of DVD players, CD players, iPods, radio tuners, drum boxes, keyboards, etc. These RCA connectors pairs are unbalanced, line-level Inputs only.

㉔ **LINE 2 Input jacks:** Are a fully balanced, ¼" TRS (Tip-Ring-Sleeve) line Input. The tip of the jack is (+), the ring is (–) and the sleeve is ground.

㉕ **GROUNDING POST terminal:** Provided to facilitate your hum chasing, buzz eliminating experiments. Its purpose is to provide a place to connect those extra wires coming out of the turntables.

㉖ **Chassis ground point:** Since the MP 24z does not get chassis ground through the AC cord, this point is provided in case your system does not have another earth ground such as the rack rails. A #6-32 screw and toothed washer is provided for chassis ground. See *Chassis Grounding* on page Manual-8 for details.

㉗ **GROUND LIFT SWITCH.** Separates *chassis ground* from *signal ground*. Normally, this switch should be in the LIFT position. In some circumstances, moving it to the opposite position eliminates stubborn hum and buzz problems. If you are tempted to move this switch with your power amplifiers turned on and cranked up, *don't. Always turn your system levels down before changing your grounds around* and then bring them up slowly.

㉘ **POWER input connector:** No, this is not where Commissioner Gordon plugs in his Bat-phone, in fact *it is not a telephone jack* at all. The MP 24z uses an 18 volt AC center-tapped transformer. *Use only a model RS 1 remote AC power supply approved by Rane.*

MP 24z CONNECTION

Even though the system variations are limitless in most applications where the MP 24z is used, an installer must follow some basic interconnect guidelines. Unfortunately, even though the system and the primary components such as mixers, processors and amplifiers are of commercial grade, most of the source components, i.e. turntables, disc players, tape decks and so on are consumer grade, with consumer interconnect limitations. Therefore, on the input side of the MP 24z, RCA connectors will prevail with unbalanced lines thereto attached. It is recommended, for no scientific reason, that the turntable furthest to the left be connected to Phono 1, and proceed from left to right with Phono 2 and then Phono 3, if used. See *Service Information* on page Manual-9 to convert any PHONO level Input into a LINE level Input.

When determining which Line Inputs to use for what, the process becomes a bit more difficult. Obviously, if one of the line devices feeding the MP 24z is of the commercial variety sporting balanced outputs, use Line 2 for this due to its unique ability to accept such foreign substances. The rest of the assignments are pretty much a matter of what you want to appear where on the source switches. As you can see, Lines 1 through 3 appear only on Input Channels 1 and 2; Lines 4 through 6 appear only on Input Channels 3 and 4. So the layout will depend on how heavily you will use the Phono Inputs and how many line level devices you will be using.

On the Output side, things are a bit less restrictive. On the MAIN OUTPUTS you have been given a choice between XLR balanced and ¼" unbalanced. Which you use should be derived from some consideration of how far the cable has to run from the mixer to the next component, how much ambient noise there is in the local atmosphere (Radio Moscow in the next building, 36,000 SCR controlled light dimmers in the next rack), and any other possible encumbrance on the quality of the audio inside the jacket. Most experienced installers and users of commercial sound equipment have a good handle on which to use in a given situation. The general rule is: if the Output from the MP 24z is running longer than 10 feet (3 meters), use **balanced** cables. If the input to your system equalizer, crossover, or power amplifier is balanced, go **balanced**. If you keep the cable length short and your destination has unbalanced inputs, you can probably get away with using the ¼" unbalanced connectors.

The TAPE OUTPUTS are unbalanced RCA connectors; the assumption being that most readily available tape recording equipment such as would be used in a club situation would be of similar type. Simply determine whether you want the signal processing in the Effects Loops to have an effect on the recording being made and connect the record inputs (left and right) to the appropriate PRE-LOOP or POST-LOOP TAPE OUTPUTS. These Tape Outputs *do not contain any signal from the Microphone section*. If you need to record the Mic, use the Unbalanced Main Outputs, Zone Output, or the Booth Output with the Booth Ducker circuit defeated. (If none of these are available, see *Service Information* on page Manual-9 for internal jumper changing instructions.)

The front panel switchable LOOP is for stereo devices only, so consider which effects are connected where. Some processors, such as delays and reverbs, have only one mono input and two outputs. This is accommodated automatically by using the MONO Output of the MAIN EFFECTS LOOP.

The Zone Outputs and the Booth Outputs are the automatic mono/stereo type. If mono is required, simply connect *only* to the LEFT OUTPUT. Inserting a plug into the RIGHT OUTPUT automatically renders it stereo. All of these Output connectors are unbalanced. *Attempting to run TRS balanced on any of these results in an open leg on the receiving component and causes problems.*

This is a good place to discuss the problems encountered in connecting the MP 24z to all of the different types of cables and connectors that one finds when basing a system on consumer goods (the pieces of equipment with the RCA connectors), commercial audio products (¼", XLR etc.), and no telling what else. In consumer audio devices, one rarely finds ground-lift capabilities, or any of the other hum prevention devices normally provided on commercial equipment. Chassis ground and signal ground are normally the same thing, a situation which may cause problems when the two species get on the same bus.

The best we can do to try to help you eliminate hum, oscillations, or other stray characters from your system is to tell you to experiment. If you think lifting the ground on the MP 24z, crossovers, equalizers or power amplifiers might help, go ahead and try it. There *is* science involved in de-humming a system, however it is sometimes faster to just experiment. Occasionally, directly grounding the chassis of the mixer to the power amplifiers with a large gauge wire helps. And by the same token, isolating the two when they are installed in the same rack may have a quieting effect. A word of caution: *Don't do anything with Level controls up, power on, or under any condition that could cause damage to delicate loudspeakers and ears.* Make your changes with the system off, then power up carefully to make sure you haven't made matters worse. Bring up Level controls slowly and with great caution. Surprises are nice on birthdays and Christmas, and rarely any other time.

If hum problems only exist on the Phono Inputs, there is always a possibility for experimental troubleshooting at this end also. Experience has shown that just because the manufacturers put ground wires on them, they are not always connected! Some turntables even have two ground wires, one for the tone arm and one for the chassis. Sometimes only one of these should be connected for optimum signal-to-noise, sometimes both, sometimes none. The rule is: "Whatever works, works."

OPERATING INSTRUCTIONS

INITIAL OPERATION

Operation of the MP 24z is fairly straightforward, deviating only slightly from other products of its type. Assuming at least one turntable is connected and assigned to PHONO 1, operation consists of the following: Make sure all faders are set to zero, the MIC, LOOP, EQ, and ACTIVE CROSSFADER are all *disengaged*, (switches *out*) and that all rotary LEVEL controls are either fully counter-clockwise or in their center detents, whichever applies. Select PHONO l on Input Channel 1. Simultaneously raise the Channel 1 fader and the MASTER LEVEL fader. Before much travel is reached on the faders, the results should be heard. If not, shut everything down and recheck connections, power to the mixer (look for the yellow POWER light) and ancillary devices (EQs, crossovers, amplifiers, etc.)

Once an output is established from the turntable, go ahead and try everything else. Assign all Inputs to the Channels they will be used, and test the system. Once all sources are set as desired, proceed.

REAR PANEL ADJUSTMENTS

There are some controls on the rear panel which need to be set. Set the METER SENSITIVITY ADJUST so the system is at maximum level, (usually just short of amplifier clipping). Run the system up to this maximum level and turn the METER SENSITIVITY ADJUST so that the highest peaks on the PEAK PROGRAM METER occasionally hit the +8 dB indicator. This warns the operator that further pressure on the throttle will overdrive the system.

At this point check the MAXIMUM OUTPUT GAIN REDUCTION control so that with the MASTER LEVEL at "10", the meter responds as it did in the previous step. This would be a good time to make the adjustment. This may be accomplished by turning the rear panel MAX OUTPUT GAIN REDUCTION adjustment all the way down, pushing the MASTER LEVEL fader all the way up, setting a normal mix level on the Input fader, and then turning up the MAX OUTPUT GAIN REDUCTION adjustment on the rear until the required output level is attained. In some cases, make this adjustment with both the Source Level and the MASTER LEVEL faders all the way up. This is acceptable only if sources can be adjusted such that they all have equal output before they reach the Input of the MP 24z. If this is not possible, full system drive will not come from some components. To accomplish this feat, use identical cartridges in all turntables so the phono levels are all the same. Having done all of this it is possible to use the MAX OUTPUT GAIN REDUCTION on all of your sources.

The other rear panel adjustment that should be made at this time has to do with the maximum deviation to the frequency response of the system left to the operator. This is controlled by the EQ RANGE switch. In the *out* position, the range of all of the EQ controls is ±8 dB. In the *in* position, this range is reduced to ±4 dB. The latter is considered safer in situations where taste makes waste—in drivers, that is.

THE HEADPHONE CONTROL (CUE) SYSTEM

To use the HEADPHONE CUE System, signal must be present at one of the Inputs. (Well, at least you do to make sure it works.) Depressing the CUE switch for the respective Input channel presents this signal to the Headphone Cue amplifier. An LED illuminates next to the CUE switch, attesting to the fact that it was indeed pushed *down*. Now select *how* to listen to it — Mono *Cue* in one ear, Mono *Program* in the other, *Stereo Program* in both ears, or *Stereo Cue* in both ears. The STEREO/MONO CUE switch allows this flexibility. To vary the level between Cue and Program, rotate the HEADPHONE PAN control in the desired direction. Counter-clockwise rotation increases the Cue Level, clockwise rotation increases the Program Level. The overall volume of all of this is then controlled by the rotary HEADPHONE LEVEL control.

USING THE ASSIGNABLE ACTIVE CROSSFADER

Active Crossfader™ technology combines state of the art voltage controlled amplifier design with a professional quality crossfader control. This combination sets new standards for performance, reliability and serviceability. Virtually all crossfader noise is eliminated. Channel to channel crosstalk is greatly reduced and the *off* isolation of the faded channel is greatly increased. *Active Crossfader* technology dramatically increases the service life of the crossfader. In the unlikely event of crossfader failure, there is no loss of signal. If a crossfader becomes rough or noisy, it may be "hot-swapped" during a performance *with no interruption of the audio signal*. Simply use the input faders to set the audio levels while the crossfader is out of service.

For normal operation, press the Crossfade ENGAGE switch. The green LED next to the switch illuminates. The Crossfade ASSIGN switches determine the two Input channels to be mixed by the Crossfader. As an example, assume the left ASSIGN switch is set on 1 and the right ASSIGN switch is on 2. This activates both mix faders on Channels 1 and 2. Their outputs, however, are under the control of the Crossfader. When in its left-most position, only Channel 1 appears at the Outputs. Both Channels are present in equal levels in the when the Crossfader is brought to the middle, and only Channel 2 is heard once the far right is reached.

The contour of the Crossfade has been optimized for contemporary use. However, the mix of the two input signals will have an impact on volume level as you fade from one input to the other.

Once crossfaded to Channel 2, maybe cue up some video and put the audio on Channel 4. Hard to do? No way. Simply pull the Channel 1 fader to zero, set the ASSIGN switch on the left of the Crossfader to Channel 4, Cue up 4, set the level on fader 4 and Crossfade into it. We realize that it's a bit strange to Crossfade from 2 to 4 by sliding the fader to the left, however it's just an unavoidable oddity caused by having so much flexibility.

MICROPHONE OPERATION

To use the mic, connect it to the appropriate connector, and set the PHANTOM POWER switch to the desired mode (it's a good idea to have the Phantom Power in the *on* position for condenser mics, *off* for dynamics). Leave the MASTER LEVEL fader in roughly the same location as it was for the music that's been playing, press the MIC ENGAGE switch and slowly adjust the MAIN MIC (or AUX MIC) LEVEL. Once this has been accomplished, the tonal balance may be adjusted via the MIC EQ controls located above the LEVEL controls. Modifying the sound of the mic in this way won't affect the EQ of the music in the system. The two Equalizer sections (Mic and Program) are totally independent. When the microphone is not in use, release the MIC ENGAGE switch again to its *upward* position. When the switch is *down*, the red LED flashes. When off, the LED will be *out*. If the microphone preamp becomes overloaded, the red LED Overload light illuminates. If this is a problem, lower the appropriate MIC LEVEL control and increase the level of the MASTER LEVEL fader to restore desired microphone level.

MONO OPERATION

There may be situations where a mono output signal is preferable to a stereo output. If this is the case, mono outputs may be obtained on all of the Outputs (Master, Booth, Zone) by engaging the SYSTEM MONO switch on the rear panel. When engaged, the SYSTEM MONO switch sums the Left and Right buses together. In this situation, if only one of the stereo Inputs on any of the three Phono or six Line sections is driven, the applied signal appears in equal quantities at both Left and Right OUTPUT connectors.

USING THE LIGHTING CONTROL OUTPUT

The mono LIGHT CONTROL OUTPUT allows use of lighting systems designed to be triggered from an audio source. A LIGHT OUTPUT LEVEL control adjusts the output level appropriate for the lighting controller. There appears to be a wide variety of sensitivities in different brands of controllers, therefore some adjustment is likely required. In the full CW position of the LIGHT OUTPUT LEVEL control, the signal delivered is amplified 20 dB relative to the pre-master fader level. If this is excessive, CCW rotation of the LIGHT OUTPUT LEVEL control decreases the drive amount. None of the LEVEL controls past the Input Channel faders affect this drive level.

BOOTH AND ZONE OUTPUTS

The ZONE OUTPUT is an additional Stereo Output with it's own ZONE LEVEL control that can be routed to an amplifer that feeds the bar, another tape recorder, etc. This output is *Post-EQ*, which means also that the mic is heard from the Zone Outputs along with any Program EQ changes (This can be changed with an internal jumper block). The BOOTH OUTPUT operates much the same way, with an added feature: When the ENGAGE MIC switch is activated, the gain of the BOOTH OUTPUT "ducks" down 13.5 dB to prevent feedback from the booth speakers. If this Output is used for something else and this feature is undesired, a BOOTH DUCKER DEFEAT switch is provided on the rear panel. Be sure this switch is in the ACTIVE position if booth speakers are used.

SOME FURTHER HINTS

Set the Input Channel faders near their maximum levels to preclude required excessive gain from the Output stage. Optimum noise performance is achieved by running the majority of the gain on the Input stages. Taking the least amount of gain on the Output stage ensures that the system doesn't have to amplify the unavoidable noise generated by the input buffers and summing amplifiers.

IMPORTANT NOTE

CHASSIS GROUNDING

The MP 24z is supplied with a rear mounted ground-lift switch. The unit is shipped with this switch in the "grounded" position, tying circuit ground to chassis ground. If after hooking up your system it exhibits excessive hum or buzzing, there is an incompatibility in the grounding configuration between units somewhere. Here are some things to try:

1. Try combinations of lifting grounds on units that are supplied with ground lift switches or links.
2. If your equipment is in a rack, verify that all chassis are tied to a good earth ground, either through the line cord grounding pin or the rack screws to another grounded chassis.
3. This units outboard power supply does *not* ground the chassis through the line cord. Make sure that this unit is grounded either to another chassis which is earth grounded, or directly to the grounding screw on an AC outlet cover by means of a wire connected to a screw on the chassis with a star washer to guarantee proper contact.

Please refer to RaneNote "*Sound System Interconnection*" (supplied with this manual and available at www.rane.com) for further information on system grounding.