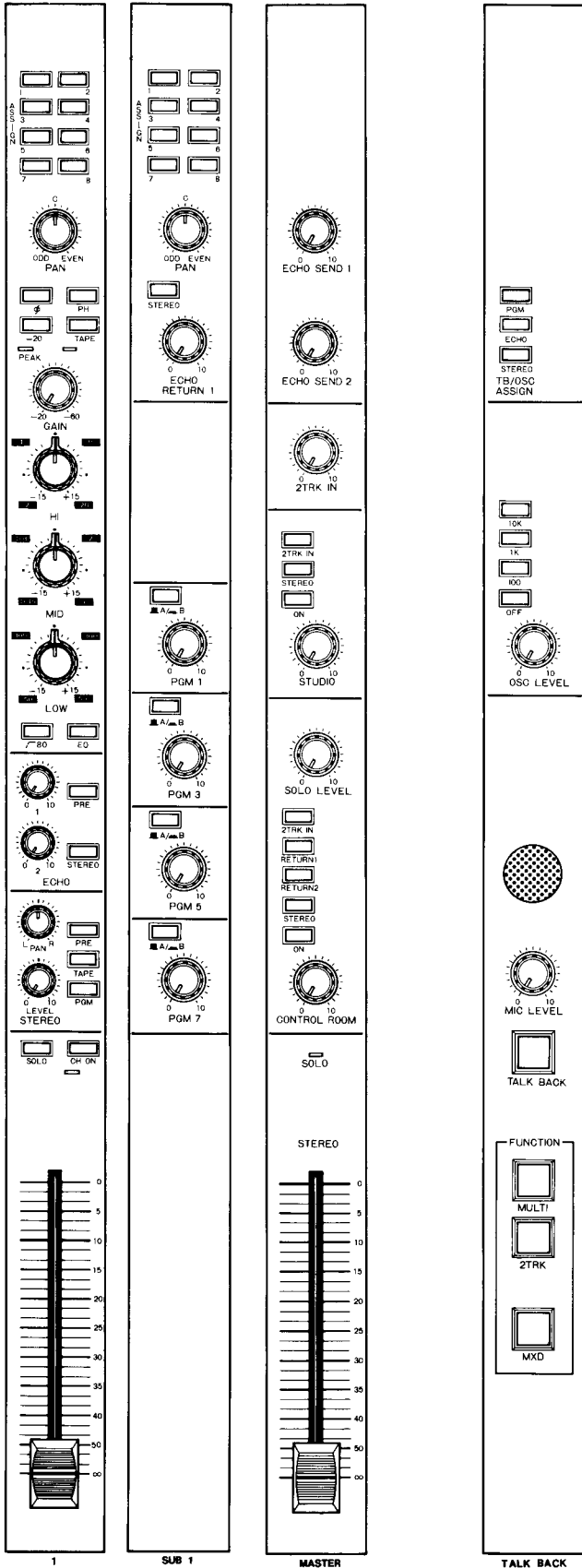


YAMAHA RECORDING MIXER

RM1608 RM2408

OPERATING MANUAL



Congratulations on your selection of this RM1608 or RM2408 recording mixer. With it, you have in your hands an extremely effective—and reliable—tool for studio mixing applications.

Highlighting its many features is versatility. Yamaha has designed the RM1608 primarily for use with either 8 or 16-channel multitrack tape recorders while the RM2408 can be used with up to 24-channel machines, and a wide range of outboard sound enhancement equipment, such as echo units or delay machines, may be easily connected with no special wiring modifications needed.

In the practical world of studio operation, these Yamaha mixer display real utility. Precisely-calibrated fader controls feature a long 100 mm stroke and are designed so that Master takes priority over the Inputs, allowing you to retain individual microphone, etc., positions and still have full control over the output volume. Metering system features LEDs to warn against over-level clipping. All channels are equipped with Insert IN/OUT and Direct out, plus an independent 2-channel system for special effects. To enable rapid communication between the performers and the control room, full attention has also been given to the design of the Talk Back module and Send controls.

Unrivalled technological know-how in studio system design, the product of decades of specialization in audio engineering, has made it possible for Yamaha to offer creative sound engineers the finest recording mixers available today. In order to make the most of the multitude of features offered by the RM1608 and RM2408, Yamaha recommends that you thoroughly cover the contents of this manual before commencing operation.

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SPECIFICATIONS, INPUT/OUTPUT SPECIFICATIONS

■ RM1608/RM2408

FREQUENCY RESPONSE

0 +0, -3dB, 20Hz ~ 20kHz
0 +0, -0.5dB, 30Hz ~ 15kHz

TOTAL HARMONIC DISTORTION (T.H.D.)

Less than 0.1% at +4dB **output, 20Hz to 20kHz
(all Faders and controls at nominal)

HUM & NOISE (20Hz to 20kHz) Rs=150 ohms

INPUT GAIN "-60"

- 128dB Equivalent Input Noise (E.I.N.)
- 95dB residual output noise: all Faders down.
- 80dB (84dB S/N) PGM Master volume control at maximum and all CH PGM assign switches off.
- 64dB (68dB S/N) PGM Master volume control at maximum and one CH Fader at nominal level.
- 73dB (RM1608)
(77dB S/N) STEREO Master Fader at maximum and all CH STEREO level controls at minimum level.
- 70dB (RM2408)
(74dB S/N) STEREO Master Fader at maximum and all CH STEREO level controls at minimum level.
- 64dB (68dB S/N) STEREO Master Fader at maximum and one CH STEREO level control at nominal level.
- 80dB (RM1608)
(70dB S/N) ECHO SEND volume at maximum and all CH ECHO volumes at minimum level.
- 76dB (RM2408)
(66dB S/N) ECHO SEND volume at maximum and all CH ECHO volumes at minimum level.
- 75dB (65dB S/N) ECHO SEND volume at maximum and one CH ECHO volume at nominal level.

CROSSTALK

- 70dB at 1kHz: adjacent Input.
- 70dB at 1kHz: Input to Output.

MAXIMUM VOLTAGE GAIN (INPUT GAIN "-60")

- PGM 74dB: MIC IN to PGM OUT.
24dB: TAPE IN to PGM OUT.
34dB: ECHO RETURN to PGM OUT.
14dB: PGM SUB IN to PGM OUT.
- STEREO 74dB: MIC IN to STEREO OUT.
24dB: TAPE IN to STEREO OUT.
34dB: ECHO RETURN to STEREO OUT.
- ECHO 70dB: MIC IN to ECHO SEND.
- C/R 74dB: MIC IN to C/R OUT.
24dB: 2 TRK IN to C/R OUT.
- STUDIO 74dB: MIC IN to STUDIO OUT.
24dB: 2 TRK IN to STUDIO OUT.

CHANNEL EQUALIZATION

- ±15dB maximum
- HIGH: FROM 2k to 20kHz PEAKING.
- MID: FROM 0.35k to 5kHz PEAKING.
- LOW: FROM 50 to 700Hz PEAKING.

HIGH PASS FILTER

- 12dB/octave cut off below 80Hz.

TALKBACK

- Microphone, preamp, level control, and push-to-talk switch, to PGM busses, STEREO busses, ECHO busses.

OSCILLATOR

- Switchable sine wave 100Hz, 1kHz, 10kHz

VU METERS

- 12 illuminated meters, PGM 1 ~ 8, STEREO L,R (OVU= +4dB) ECHO 1, 2 (OVU=-10dB)

PEAK INDICATORS

- LED (red) built into each Channel Input turns ON when the pre-Fader level reaches 3dB below clipping.
- LED (red) built into each VU meter turns ON when post-Master Fader level reaches 6dB below clipping.

PHANTOM POWER

- 48V DC is applied to XLR type connector's 2 pin and 3 pin for powering condenser microphone.

DIMENSIONS (W x H x D)

- RM1608 953 mm x 279.6 mm x 769 mm (37-1/2" x 11" x 30-1/4")
- RM2408 1,301 mm x 279.6 mm x 769 mm (51-1/4" x 11" x 30-1/4")

WEIGHT

- RM1608 41 kg (90.2 lbs)
- RM2408 55 kg (121.3 lbs)

■ POWER SUPPLY PW1600

POWER REQUIREMENTS

- U.S. & Canadian Models: 120V, 60Hz
- General Model: 110-120/220-240, 50/60Hz

POWER CONSUMPTION

- RM1608 U.S. & Canadian Models: 120W
- General Model: 120W
- RM2408 U.S. & Canadian Models: 150W
- General Model: 150W

DIMENSIONS (W x H x D)

- 480 mm x 140 mm x 300 mm (18-7/8" x 5-1/2" x 11-3/4")

WEIGHT

- 8 kg (17.6 lbs)

● INPUT CHARACTERISTICS

Input Terminals	Input Gain	Input Impedance	Source Impedance	Sensitivity (Max. Gain)	Input Levels		Connectors Used
					Prescribed Level	Maximum Non-Clipping Level	
INPUT	-20 Switch OFF	10kΩ	50 ~ 250Ω MIC	-70dB (0.245mV)	-60dB (0.78mV)	-30dB (24.5mV)	XLR-3-31 type
	-20 Switch ON		600Ω LINE	-30dB (24.5mV)	-20dB (78mV)	10dB (2.45V)	
	TAPE	10kΩ	600Ω LINE	-10dB (245mV)	0dB (775mV)	20dB (7.75V)	
		10kΩ	600Ω LINE	-20dB (78mV)	-10dB (245mV)	20dB (7.75V)	
ECHO RETURN (1, 2)		10kΩ	600Ω LINE	-30dB (24.5mV)	-20dB (78mV)	20dB (7.75V)	Phone Jack
2 TRK IN (L, R)		10kΩ	600Ω LINE	-20dB (78mV)	-10dB (245mV)	20dB (7.75V)	Pin Jack
CH INSERT IN(ch1~16/24)		10kΩ	600Ω LINE	-10dB (245mV)	-10dB (245mV)	20dB (7.75V)	Phone Jack
PGM SUB IN(ch1 ~ 8)		10kΩ	600Ω LINE	-10dB (245mV)	-10dB (245mV)	20dB (7.75V)	Pin Jack

● OUTPUT CHARACTERISTICS

Output Terminals	Output Impedance	Load Impedance	Output Levels		Connectors Used	
			Prescribed Level	Maximum Non-Clipping Level		
PGM OUT (CH1 ~ 8)	4dB	600Ω	10kΩ LINE	4dB (1.23V)	20dB (7.75V)	Phone Jack
	-10dB	2kΩ	10kΩ LINE	-10dB (245mV)	6dB (1.55V)	Pin Jack
STEREO OUT (L, R)	4dB	600Ω	10kΩ LINE	4dB (1.23V)	20dB (7.75V)	Phone Jack
	-10dB	2kΩ	10kΩ LINE	-10dB (245mV)	6dB (1.55V)	Pin Jack
ECHO SEND (1, 2)		600Ω	10kΩ LINE	-10dB (245mV)	20dB (7.75V)	Phone Jack
STUDIO OUT (L, R)		600Ω	10kΩ LINE	4dB (1.23V)	20dB (7.75V)	Phone Jack
CONTROL ROOM OUT(L,R)		600Ω	10kΩ LINE	4dB (1.23V)	20dB (7.75V)	Phone Jack
PGM SUB OUT (CH1 ~ 8)		600Ω	10kΩ LINE	-10dB (245mV)	20dB (7.75V)	Pin Jack
CH INSERT OUT (CH1 ~ 16/24)		600Ω	10kΩ LINE	-10dB (245mV)	20dB (7.75V)	Phone Jack
CH INSERT OUT (CH1 ~ 16/24)		600Ω	10kΩ LINE	-10dB (245mV)	20dB (7.75V)	Pin Jack
PHONES OUT		100Ω	8Ω PHONE	1mW	40mW	Stereo Phone Jack
			40Ω PHONE	3mW	130mW	

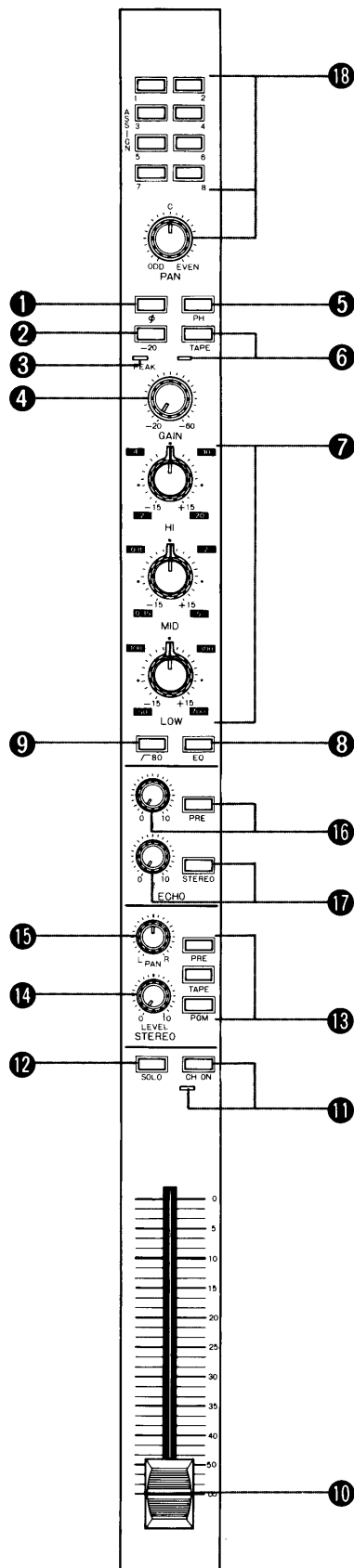
● 0dB = 0.775Vr.m.s.

● XLR 3-31 type connector is balanced,
pin and phone jacks are unbalanced.

* Hum and Noise are measured with a -6dB/octave filter at 12.47kHz; equivalent to a 20kHz filter with infinite dB/octave attenuation.
** 0dB is referenced to 0.775V RMS.

● Sensitivity is the lowest level that will produce an output of -10dB (245mV), or the nominal output level when the unit is set to maximum gain.
● All specifications subject to change without notice.

INPUT (CH1 ~ CH16/24)



1 PHASE SELECTOR SWITCH

This switch selects the phase. Set to Normal (), the input connector's No. 2 pin is hot and No. 3 pin is cold.

2 -20 (INPUT ATTENUATOR)

This attenuates the input by 20dB from the set levels. If the input level from the MIC/LINE terminals is too high to be reduced by the 4 gain control, then set this switch to ON ().

3 PEAK INDICATOR

This detects peak signal levels prior to the channel fader. LED comes on 3dB before the clipping level to warn that inputs are approaching the clipping level.

4 GAIN CONTROL

This lets you adjust input sensitivity to the ideal levels in accordance to input signals. By setting this so that the Peak indicator flashes from time to time, with the channel fader scale set in the vicinity of "10" will ensure operating conditions to obtain the best balance between signal/noise and dynamic range. If attenuation level is insufficient, set -20dB attenuator 2 to ON ().

5 PHANTOM SWITCH

This takes condenser microphones employing an external power supply (+48V). Setting the switch to ON () supplies DC 48V power to the No. 2 and 3 pins of the INPUT connector. At this time be sure the PHANTOM MASTER switch on the rear panel is set to ON.

* With the switch in the ON position (), balanced type dynamic microphones or LINE input cannot be employed. Further, connection to an unbalanced circuit or to a transformer whose center is connected to a grounded circuit can not only cause hum, but can also result in breakage. Therefore keep this switch to OFF () except while actually in use.

6 TAPE (INPUT SELECTOR SWITCH)

This switch is for selecting the input terminals of each input module. With the switch in the OFF position (), signals from the unit(s) connected to the MIC/LINE terminals are supplied; in the ON position () (green LED lights) signals from the unit connected to the TAPE terminals are supplied to the input.

* When performing switching, it is recommended that you lower the fader for each channel, as switching noise in some cases may have a detrimental effect.

* When the TALK BACK module's FUNCTION selector is set to the MXD position, the green LED will also light, and the TAPE terminals will receive the input signals.

7 EQUALIZER

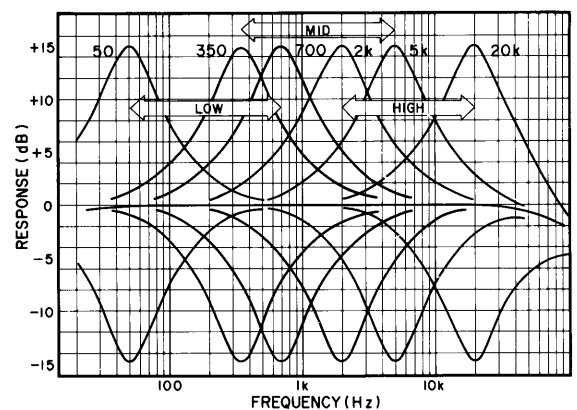
These permit peaking or dipping with a maximum of 15dB. The parametric type equalizer offers free adjustment at three points. Center frequency is 50 to 700Hz for LOW; 350Hz to 5kHz for MID; and 4 to 20kHz for HIGH.

8 EQ SWITCH

Setting the switch to ON () makes possible adjustment of the equalizer controls. If the switch is OFF (), flat, unequalized signals are reproduced. When equalization is not required, it is more effective to set this switch to OFF than to set each knob to the "0" position, as a better S/N may be obtained.

9 80 HPF SWITCH

This is a high pass filter with an 80Hz cutoff frequency. Slope is 12dB/oct. Its purpose is to cut unnecessary low frequency components.





10 CHANNEL FADER


These are slide-type faders with an extended 100mm stroke. Their function is to control the level of the output signals in each channel.

When the TALK BACK function selector is set to the MULTI position, the signals being controlled by the fader are assigned to the mixing buss, and when performing mixdown or 2-track mixing the signals are assigned to the STEREO mixing busses. The prescribed output level is with the fader at the "10" position.

11 CH ON SWITCH

By setting this switch to ON (), a yellow LED will light to indicate that the unit is operating. When switch is set to OFF (), the signals are cut prior to the channel fader (after INSERT OUT), so signals assigned to the mix bus may be muted with no need to readjust the level setting.




12 SOLO SWITCH


Whether the CH switch is set to ON or OFF, as long as this switch remains ON () through the operation of the relay in the MASTER module, signals after the channel fader may be monitored either by headphones or from the speaker in the control room.

13 PRE/TAPE/PGM SELECTOR SWITCH

At the rear section of each INPUT module is a two-system signal line. The level of signals in the main system is controlled by the channel faders, and the signals in the sub-system are controlled by the stereo level control.

This switch selects the position by which the signals sent to the STEREO LEVEL control are obtained.

Signal is assigned to the STEREO LEVEL controls as follows: Set the PRE (), it is processed as a pre-fader signal; at TAPE (), signals are assigned directly to the TAPE IN terminals; and at PGM () signals are obtained prior to the PGM OUT terminals.

* The PGM OUT signal is not available to channels 17 ~ 24 on the RM2408. For this reason the input is open when the PGM selector is engaged () so the STEREO LEVEL control should be set to "0".

14 STEREO LEVEL CONTROL



This adjusts the level of the signals selected by the position of switch 13. When the TALK BACK module's FUNCTION selector is set to MULTI, the signals adjusted by the level control are assigned to the stereo mixing buss; in the MXD or 2TRK position the signals adjusted by the level control are sent to the PGM mix buss.

15 STEREO PAN



When the FUNCTION switch on the TALK BACK module is set to MULTI, the signals of the sub-system which is set by the STEREO LEVEL control -- or, when set to MXD or 2 TRK the signals of the main system set by the channel fader control -- can be separated to the left and right stereo mix busses.

16 ECHO VOLUME/PRE SWITCH

Since this unit is equipped for a 2-system echo line with ECHO 1 and ECHO 2 connectors, two separate effectors such as echo machine, or phase shifter delay machine, etc. can be employed separately according to the types of sound source and type of echo desired.

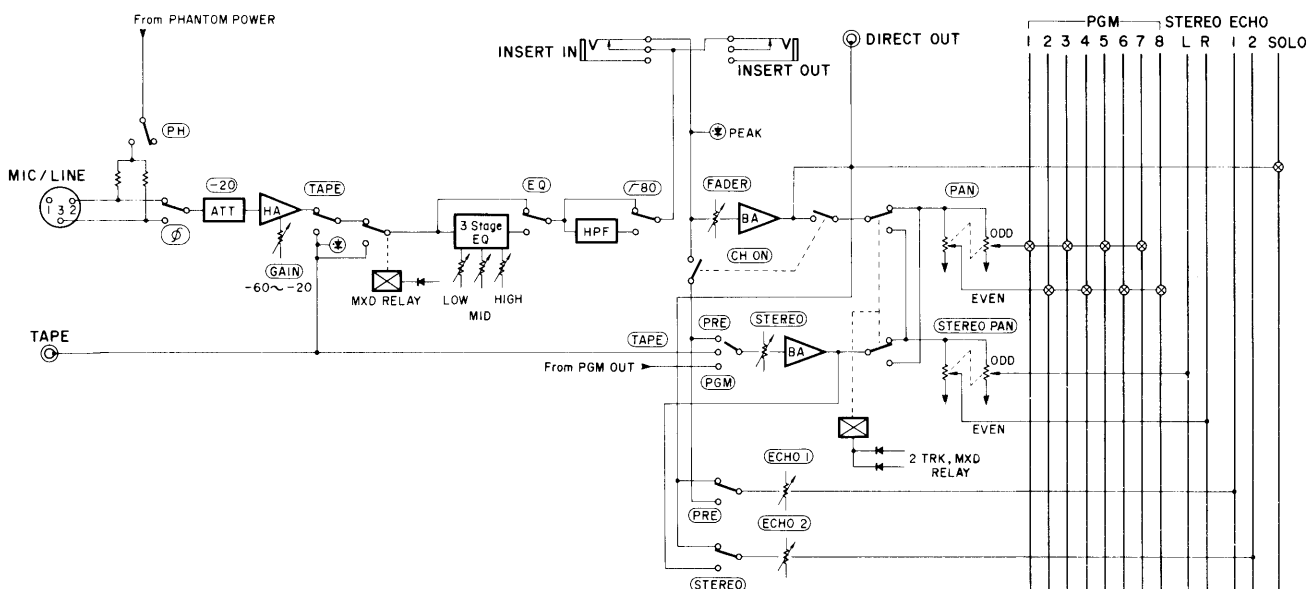
The position to obtain signals sent to the ECHO 1 mixing buss is selected by the PRE switch. Signals are obtained by setting to () for post-fader; () for pre-fader. After the volume of ECHO 1 is adjusted, signals are assigned to the ECHO mix buss.

17 ECHO 2 VOLUME/STEREO SWITCH

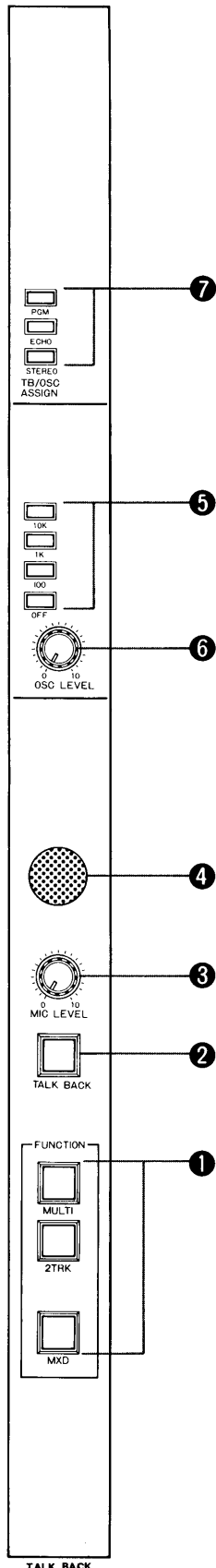
The position to obtain signals sent to the ECHO 2 mix buss is selected by the STEREO switch. Signals are obtained by setting to () for post-fader. Set to (), the signals after STEREO LEVEL control are assigned to mix buss 2 after level adjustments are made with the ECHO 2 volume control.

18 PAN (PAN POT)/PGM ASSIGN SWITCH

The main system signals controlled by the channel fader, or sub-signals controlled by the setting of the STEREO LEVEL control are divided into ODD (1, 3, 5, 7) or EVEN (2, 4, 6, 8) and assigned to the mix buss using the PGM assign switch.



TALK BACK

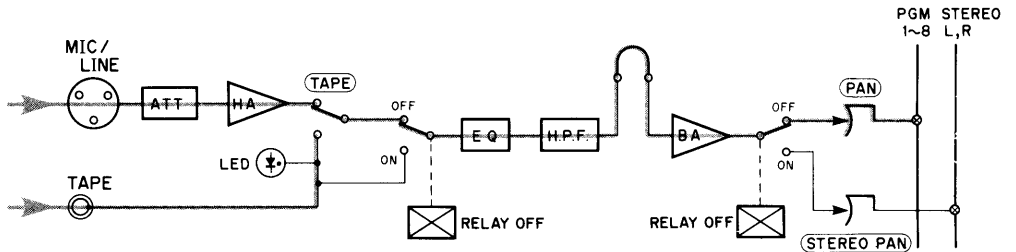


1 FUNCTION SELECTORS

Pressing one of these buttons selects the recording mode. By selection of a button, the two relays inside the INPUT module are set to either ON or OFF.

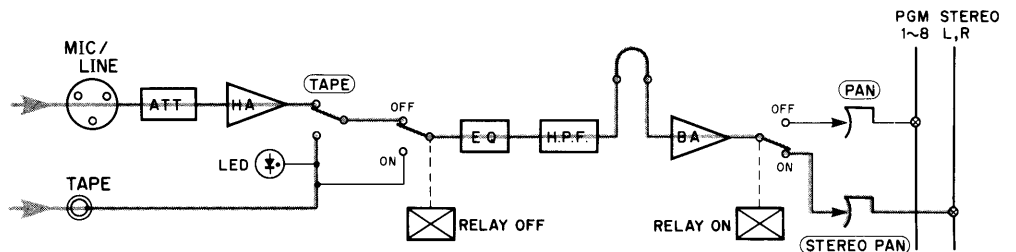
MULTI: Connect a multi-track recorder to the PGM out terminals, and set to ON () when recording.

The input source can be selected by the TAPE (INPUT selector switch) on the INPUT module.



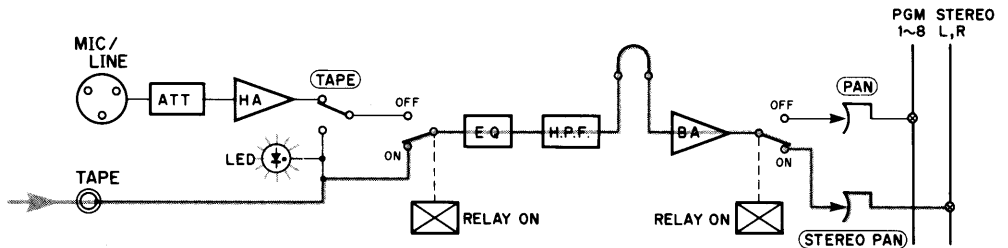
2TRK: Connect a 2-track recorder to the STEREO OUT terminals, and set to ON () when performing 2-track recording.

The input source can be selected by the TAPE (INPUT selector switch) on the INPUT module.





MXD: Connect a 2-track recorder to the STEREO OUT terminals, and set to ON () when mixing down the source originally taped on the multitrack recorder.

By setting the switch to ON (), the green TAPE indicator lamp on the INPUT module will light, and INPUT switching of the TAPE terminals will be displayed.



* In the 2 TRK or MXD mode, selecting the PGM assign switch corresponding to the PGM (MONITOR) signal returning to the STEREO BUSS can cause feedback. This will only happen, however, if the STEREO LEVEL control is set above its nominal level.

② TALK BACK SWITCH

While the switch is pressed in, the talk back may be assigned to the MIX buss or to STUDIO OUT according to the position of the TB/OSC ASSIGN switch. Depending on which of the 100, 10K or 1K OSC function selectors are ON (), the OSC signals will be mixed with the Talk Back signals, so the OSC function switch should be left OFF ().

While the TALK BACK switch is being pressed, it also functions to mute the monitored sound in the control room in order to prevent the occurrence of howling.

③ MIC LEVEL CONTROL

This control the volume level of the talk back signals.

④ TALK BACK MIC

This microphone for talk back use is built into the module.

⑤ OSC FUNCTION SELECTOR

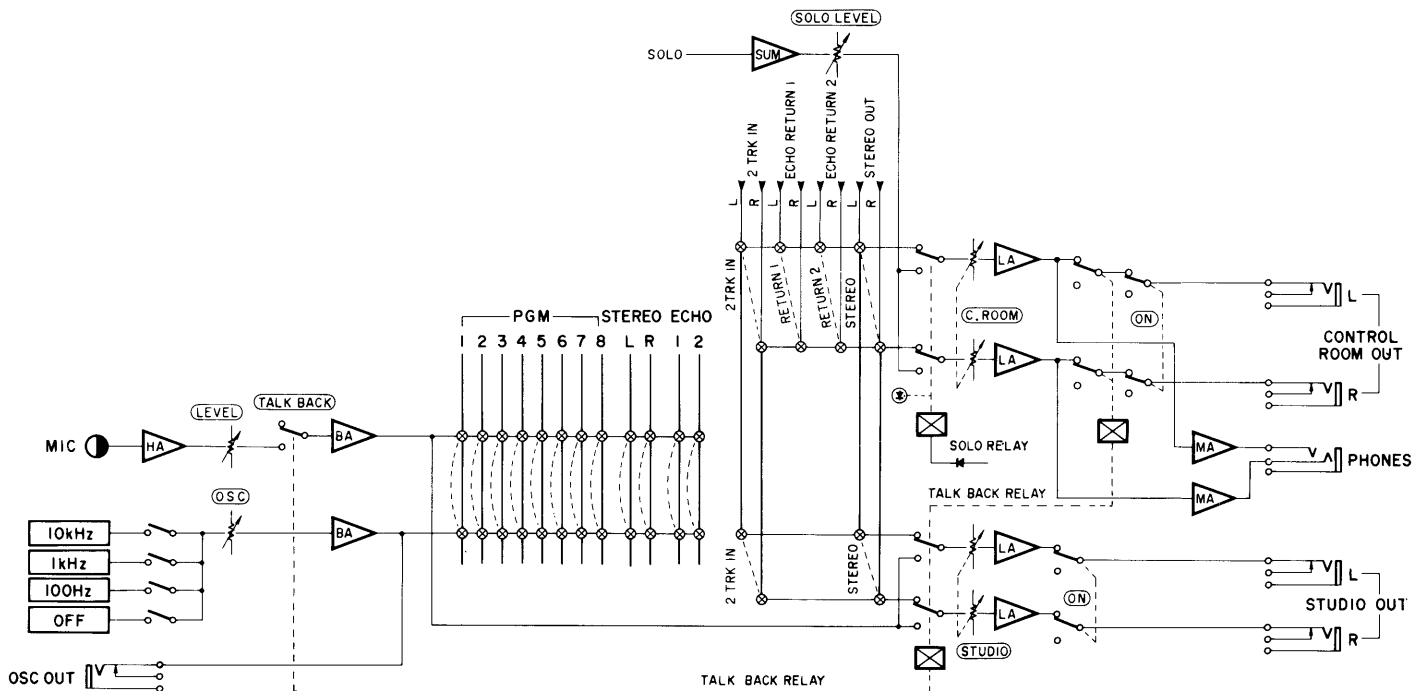
This selects the fixed frequency signal of the built-in oscillator. The 10kHz and 1kHz signals are utilized to check and correct the level in the signal path. They can also be employed in setting the standard level for tape recorder input. The 100Hz signal should be recorded at the start of each tape track, to facilitate location of the program material.

⑥ OSC LEVEL CONTROL

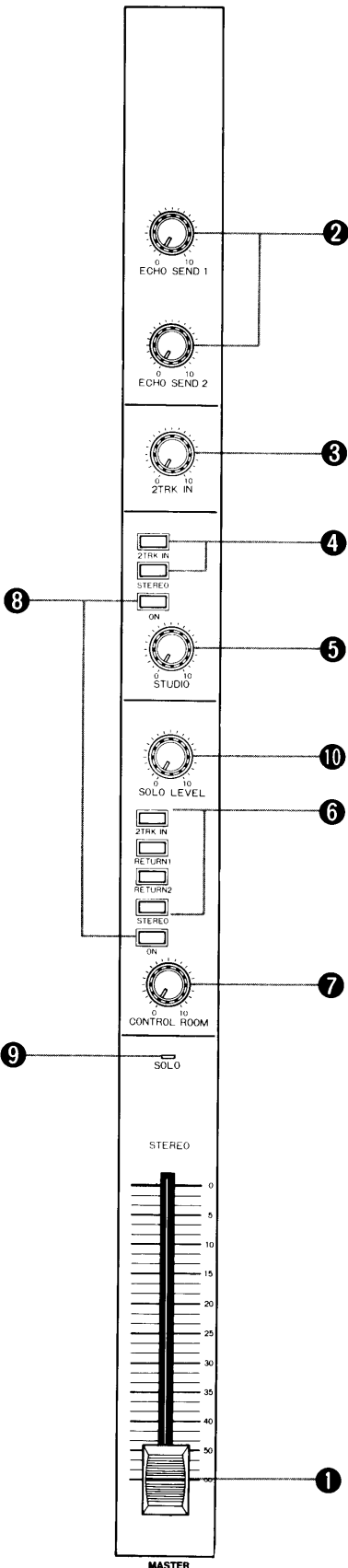
This controls the level of the OSC signals, which are assigned either to the MIX buss or the OSC out terminals.

⑦ TB/OSC ASSIGN SWITCH

This selects the MIX buss to which the talk back signal or OSC signals are assigned.



MASTER

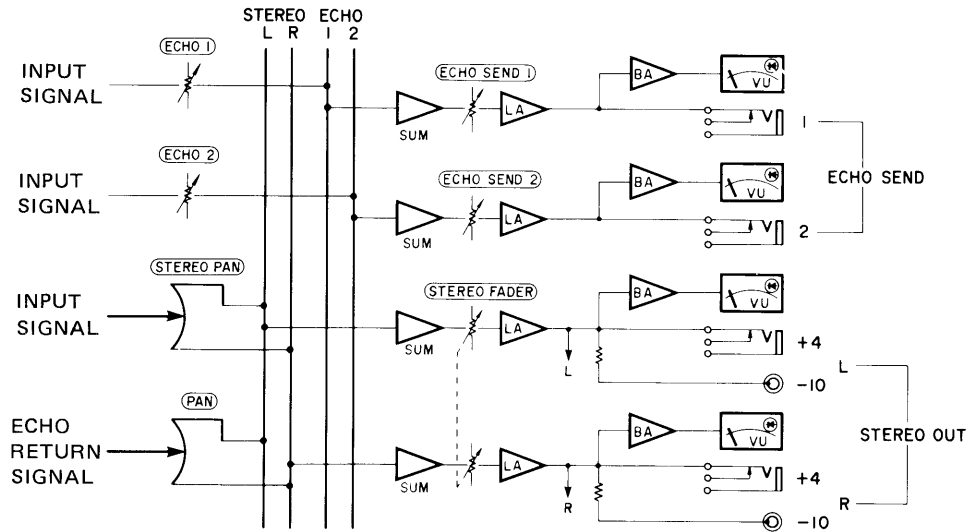


1 STEREO MASTER FADER

This adjusts the overall level of the mixed stereo signals from each INPUT module and the SUB 1/SUB 2 modules which include settings of ECHO RETURN 1 and 2. The signals are then produced as STEREO OUT L and R. By setting the fader position to "0", the regular output may be obtained, with the output level indicated on the VU meters.

2 ECHO SEND 1, 2 VOLUME

This adjusts the overall level of mixing signals according to the ECHO 1 and 2 volume settings on each INPUT module, and assigns them to ECHO SEND 1 and 2.



3 2TRK IN VOLUME

When monitoring the signals on the unit connected to the 2TRK IN terminals, set the monitor selector switch to the 2TRK position.

4 STUDIO MONITOR SELECTOR SWITCH

This selects the signals to be monitored in the studio. To monitor signals being supplied to the 2TRK IN terminals, push in (). To monitor signals after the stereo master fader, press the STEREO button in ().

5 STUDIO VOLUME

The level of the signals selected by the STUDIO monitor selector switch are adjusted by this level and then assigned to STUDIO OUT.


6 CONTROL ROOM MONITOR SELECTOR SWITCH

This selects the signals to be monitored by the speaker or headphones located in the control room. Signals can be monitored as follows: with the 2TRK IN set to () for signals being supplied to 2TRK IN terminals; with STEREO set to (), the signals after the stereo master fader; and with RETURN 1 set to (), the signals being supplied to the ECHO RETURN 1 terminals.


7 CONTROL ROOM VOLUME

This adjusts the volume of the signals selected by the CONTROL ROOM monitor selector switch and supplies them to CONTROL ROOM OUT or PHONES.

8 MONITOR ON SWITCH

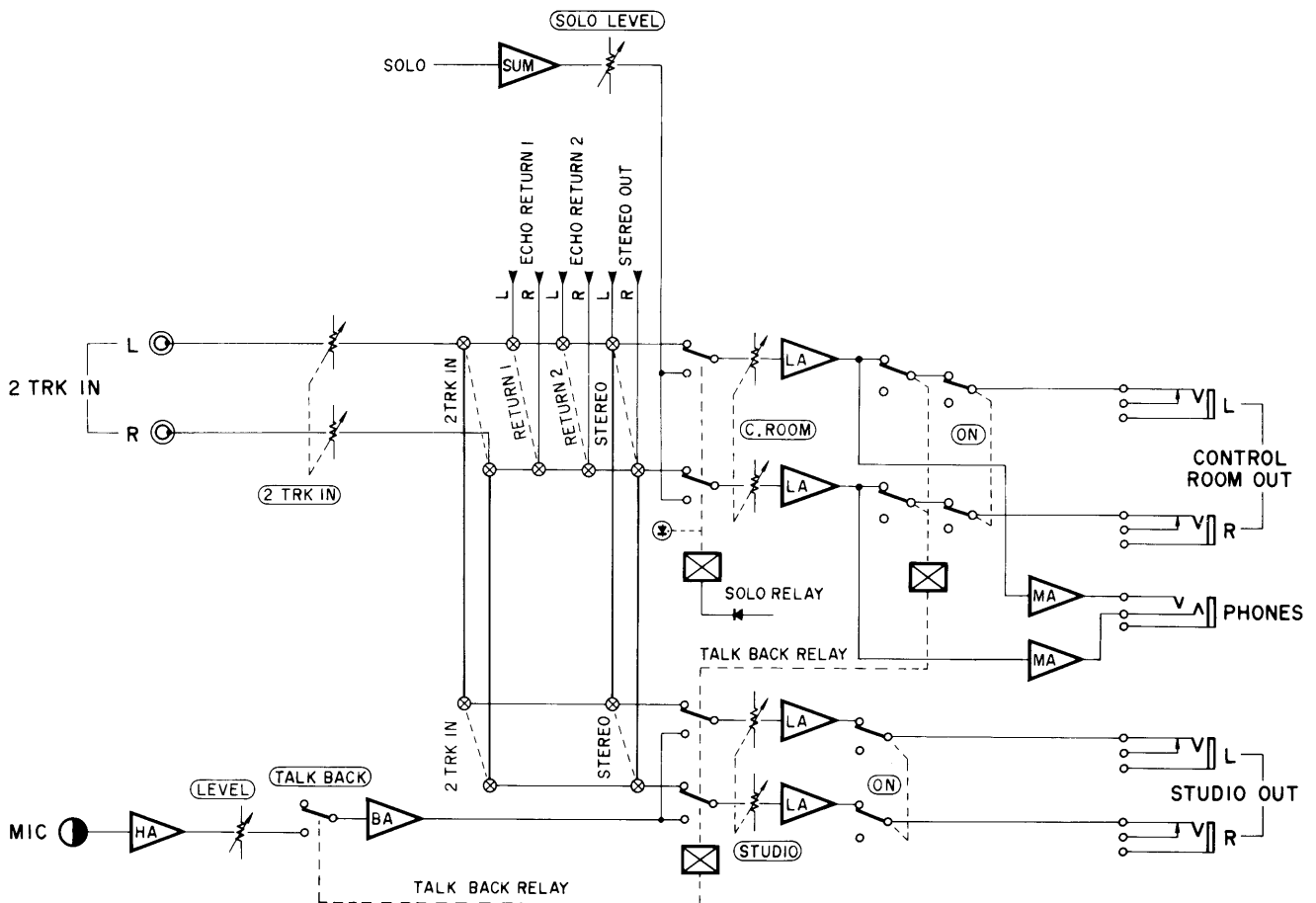
This switch is positioned prior to the STUDIO OUT or CONTROL ROOM OUT terminals. If the monitored signals are to be assigned to the output, set this switch to ON (). While the TALK BACK switch on the TALK BACK module is being pressed in, protect signals up to this point being monitored in the control room are muted to prevent howling, and the talk back signals can be monitored on the speakers in the studio.

9 SOLO INDICATOR

While the SOLO switch on the INPUT module is set on (), the red LED will light to indicate that the SOLO signal is being monitored. The control room monitor is designed to give priority to SOLO, so when this switch is pressed in, all selector switches for the control room monitor are defeated and the SOLO signal is monitored with priority over the other monitor signals.

10 SOLO LEVEL CONTROL

Before the SOLO signal is sent to the control room, this knob should be used to adjust the volume level.



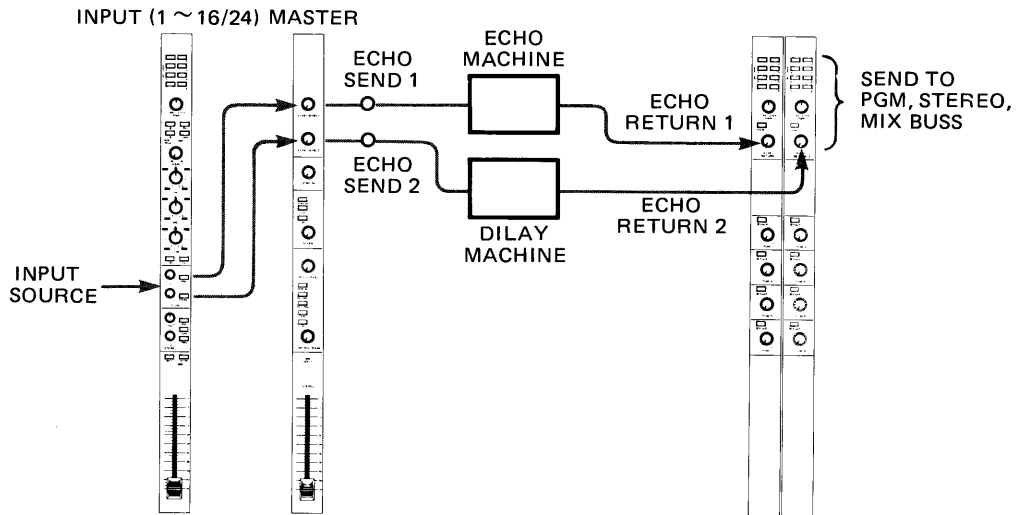
SUB(1,2)

① ECHO RETURN 1/2 VOLUME

This adjusts the volume of the input levels of the units connected to the ECHO RETURN 1 and 2 terminals.

② PAN (PAN POT)/ECHO RETURN ASSIGN SWITCH

By means of ECHO RETURN 1 and 2 volume controls, the level of the echo return signals can be separated to ODD (1, 3, 5, 7, STEREO L) and EVEN (2, 4, 6, 8, STEREO R). Then these signals are assigned to the mix buss by means of the ECHO RETURN ASSIGN switch. If only the L terminal is used, the PAN functions as a pan pot control; however if both L and R terminals are employed, the PAN will function as a balance control.

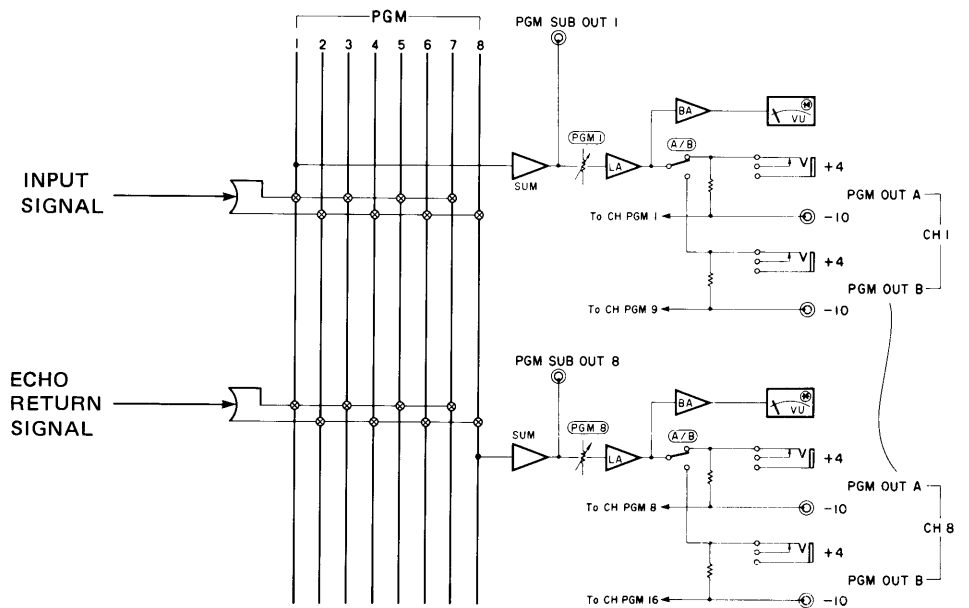
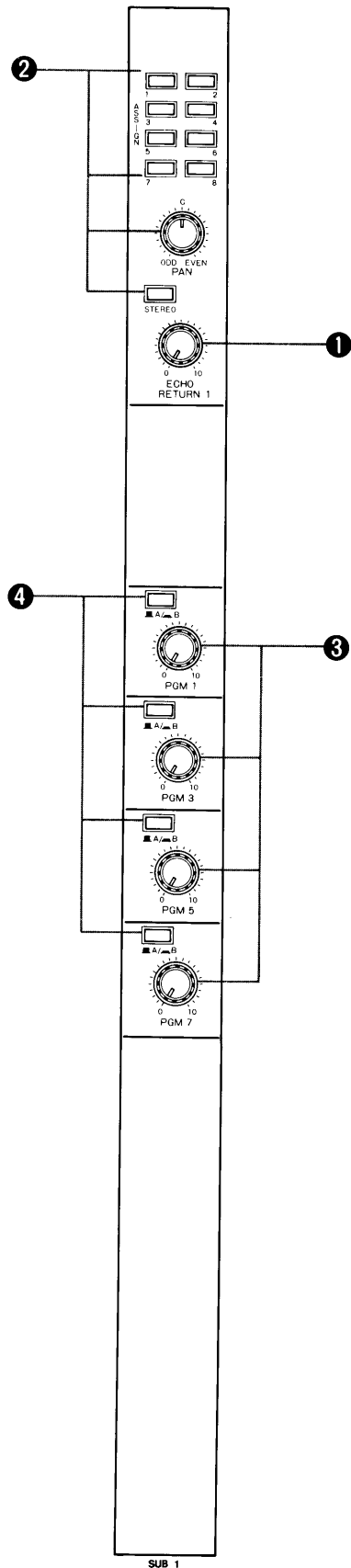


③ PGM 1~ 8 MASTER VOLUME CONTROL

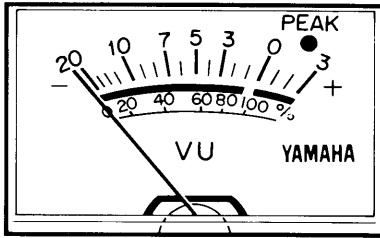
This adjusts the overall program signals mixed from each INPUT module and the ECHO RETURN volume controls, and assigns them to PGM OUT 1 through 8. Signal levels may be viewed on the VU meter.

④ A/B (PGM OUT SWITCH)

This unit has two sets of PGM OUT terminals, A and B. Use this switch to select them. This switch is designed to be utilized with a 16 channel multi-track tape deck unit.



VU METER



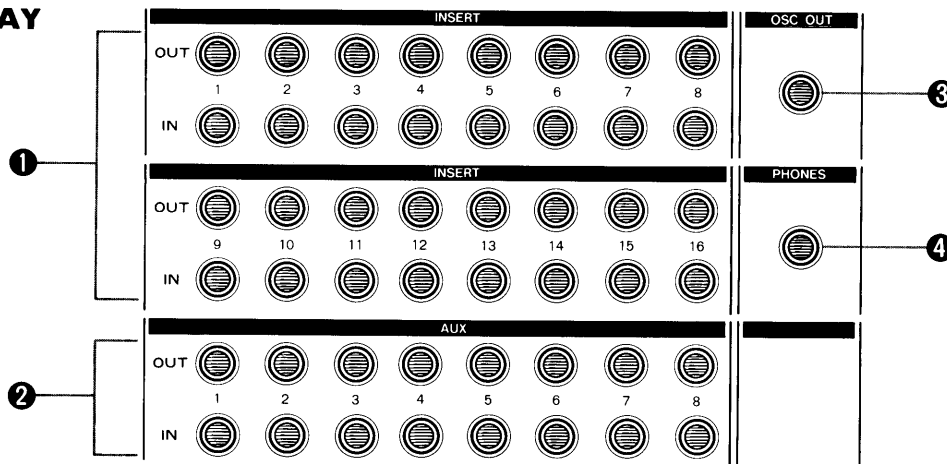
VU METER SETTING	-20VU	-10VU	-5VU	0VU	+3VU
+4 dB output level	-16dB (123mV)	- 6dB (388mV)	- 1dB (691mV)	+ 4dB (1.23V)	+ 7dB (1.74V)
-10dB output level	-30dB (24.5mV)	-20dB (77.5mV)	-15dB (138mV)	-10dB (245mV)	- 7dB (346mV)

These are VU meters with a built in peak indicator LED. The enable monitoring of the output levels for PGM OUT (1 ~ 8), STEREO OUT (L/R) and ECHO SEND (1/2). When the meter indication is at 0 VU, output is at the prescribed level.

The peak indicator lights when transient signals to which the VU meter cannot respond (+14dB higher than the prescribed level) occur in the input.

When setting the output levels, the PGM master volume, stereo master fader and echo send volume should be set in the range of -10 to 0 VU in order to obtain optimal S/N ratio with low distortion.

PATCH BAY



By use of patch cords, the connection of such external equipment controlled on the front panel such as effectors, etc. or the insertion of the OSC signals can be facilitated.

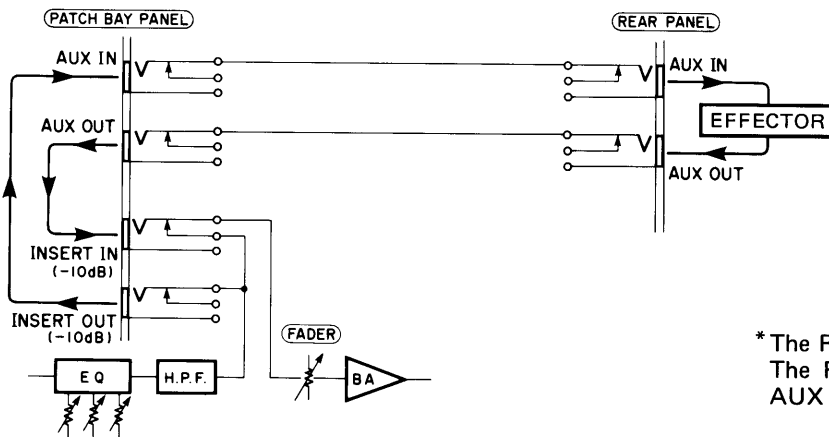
1 INSERT IN/OUT -10dB

These are unbalanced type input and output terminals located between the equalizer on the INPUT module and the channel fader control.

By inserting a plug into the IN terminals, the internal circuitry for that module is cut off, and the signals are supplied to those IN terminals. These may be used for connection of a compressor, effector or other equipment to each individual channel.

The terminals employ standard plugs, and are designed to work with the prescribed input and output level as follows: IN -10dB/600 ohm source; OUT -10dB/10 kohm load.

2 AUX IN/OUT (SUPPLEMENTARY TERMINALS FOR PATCH HOOKUP)



The IN/OUT terminals on the patch bay and the AUX IN/OUT terminals on the rear panel are arranged in parallel. This facilitates connection to the various terminals on the rear panel.

3 OSC OUT

This supplies the sine wave signals selected by the OSC function switch on the TALK BACK module.

It can function as input to INSERT IN, or to make checks from the input section or sub mixer.

4 PHONES

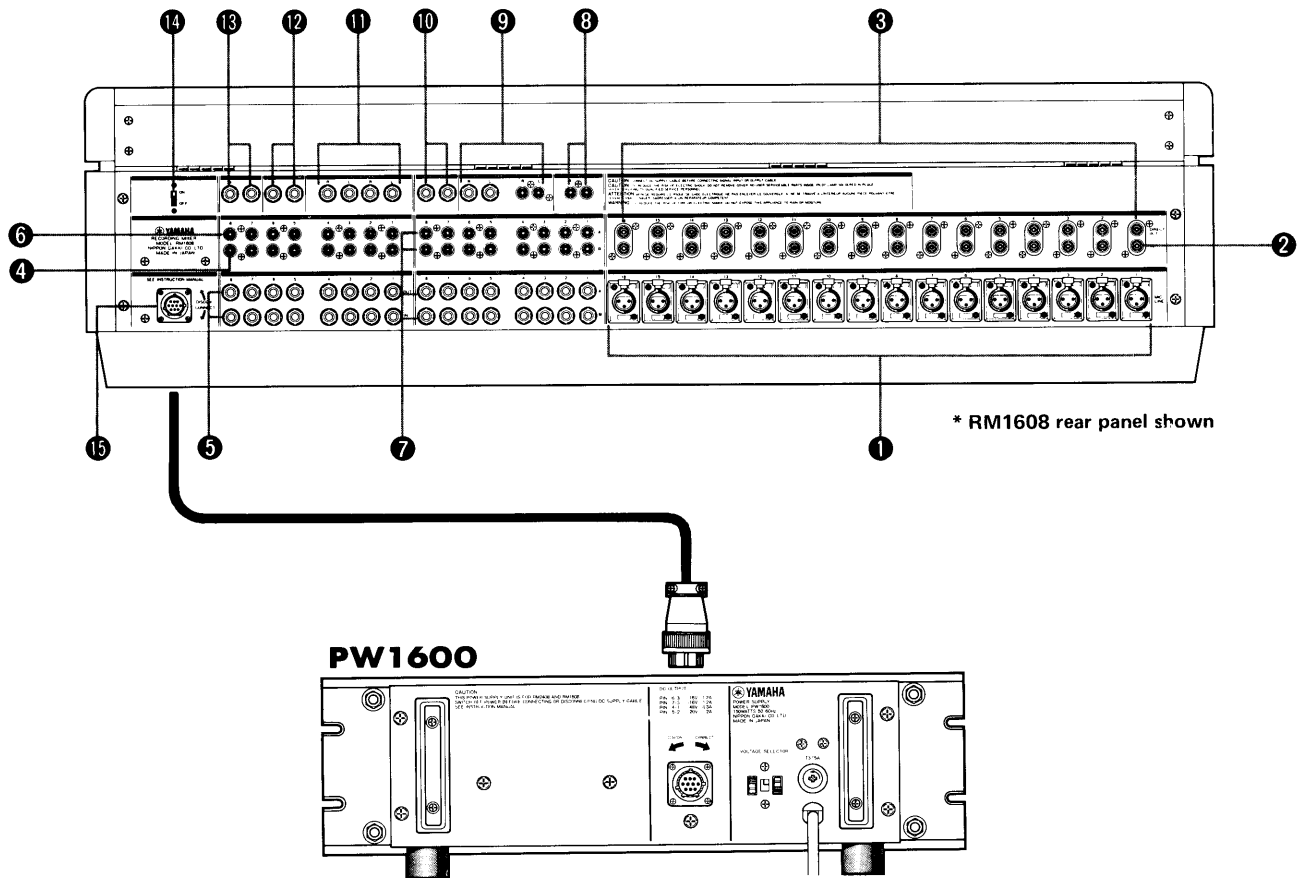
A pair of stereo headphones may be connected here, permitting monitoring of the same signals supplied to CONTROL ROOM OUT.

* The RM1608 patch bay is shown.

The RM2408 patch bay has 24 INSERT patches and 12 AUX patches.

REAR PANNEL

RM1608/RM2408



① MIC/LINE IN

These are balanced type input terminals for connection of microphones or LINE equipment. They are designed for a prescribed level of -60dB to 0dB for input, and output impedance is 50 to 250 ohms for microphones and 600 ohms for LINE. If condenser microphones requiring an external power supply are to be employed, of this unit's built-in phantom power will supply DC 48V.

② TAPE IN -10dB

These are pin-type tape input terminals for connection of a tape deck having up to 16 channels with the RM1608, or 24 channels with the RM2408. Their prescribed input level and impedance is -10dB/600 ohms.

③ DIRECT OUT -10dB

These are unbalanced type output terminals for obtaining post fader signals directly. When recording signals prior to mixing, these terminals should be employed. They are compatible with pin plugs and are designed for a prescribed output level and impedance of -10dB/10 kohms.

④ PGM SUB IN -10dB

This receives signals which do not require equalization or level adjustments. This means for example, that when supplying signals which were premixed in the submixer, input terminals for adding extra channels may be employed. They are compatible with pin plugs, and their prescribed input level and impedance is -10dB/600 ohms.

⑤ AUX IN/OUT (SUPPLEMENTARY TERMINALS FOR PATCH HOOKUP)

The IN/OUT terminals are arranged internally in parallel with the AUX IN/OUT terminals in the patch bay. These accept patch cord connections and may be employed for all types of applications.

⑥ PGM SUB OUT -10dB

The mixed signals assigned to the PGM mix buss can be obtained here prior to the master volume. The out terminals may be used when this unit is employed as a sub mixer. They are compatible with pin plugs and their prescribed output level and impedance is -10dB/10kohms.

⑦ PGM OUT +4dB/-10dB

These are unbalanced type program terminals which are designed for recording with a 16 channel tape unit through the use of two rows of output terminals, PGM OUT A and PGM OUT B. The output terminals for A and B are selected by the PGM OUT switch on the SUB module. Since there are two types of jacks which are different prescribed output levels for PHONE (+4dB) and PIN (-10dB), connection jacks must correspond to the requirements of the unit being connected. The matching impedance is 10 kohms.

⑧ 2TRK IN -10dB

This is for connection of a 2-track tape deck. To monitor when playing back the recorded source material, set the CONTROL ROOM monitor selection switch or studio monitor switch to 2TRK IN (■). These are compatible with pin plugs, and the prescribed level and matching impedance is -10dB/600 ohms.

9 STEREO OUT +4dB/-10dB

Output of each input module and the stereo signals from the mixing of the ECHO RETURN volume controls in the SUB module are obtained here. These are unbalanced type output terminals also suitable for connection to the REC terminals on a 2-track tape deck.

Since the prescribed output level of the output terminals is different for PHONE (+4dB) and PIN (-10dB), be sure to make connections which match requirements of the equipment in use. The matching impedance is 10 kohms.

10 ECHO SEND -10dB

The signals of each input module are mixed with ECHO 1 and 2, and the output levels can be adjusted by means of the ECHO SEND volume controls on the MASTER module. These are unbalanced type output terminals for assigning signals from echo machine, phase shifter, delay machine or other effector equipment. They are compatible with PHONE plugs, and their prescribed output level and matching impedance is -10dB/10 kohms.

11 ECHO RETURN -20dB

These are unbalanced terminals designed to receive input from reverb unit, echo machine or other effector equipment.

If connection is made only to the L terminals, the monaural signals can be inserted into both L and R terminals. Since the right channel phone jack functions as a switch, at this time be sure not to insert a phone plug into the right channel. Prescribed input level and matching impedance is -20dB and 600 ohms.

12 CONTROL ROOM OUT +4dB

The power amplifier used to drive the monitor speaker in the control room should be connected here.

The set level of output signals being monitored in the control room will be the same as from the PHONES terminal. It is compatible with PHONE plugs. The prescribed output level and matching impedance are +4dB/10 kohms.

13 STUDIO OUT +4dB

The power amplifier used to drive the monitor speaker in the studio should be connected here.

It is compatible with PHONE plugs. The prescribed output level and matching impedance are +4dB/10 kohms.

14 PHANTOM MASTER SWITCH

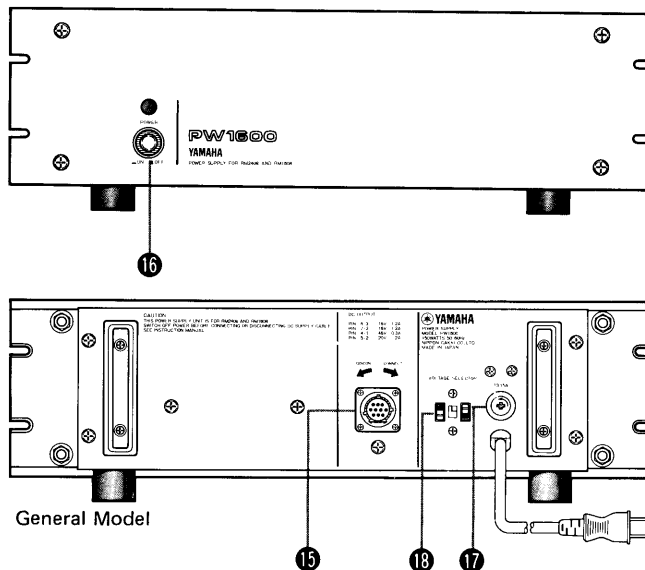
This is the master switch for the phantom power supply. Whenever using the PH switch in each channel, the switch should be set to ON.

Set to OFF when not using phantom powering.

15 POWER SUPPLY UNIT CONNECTORS

These connectors are for connecting the power supply unit.

POWER SUPPLY UNIT PW1600

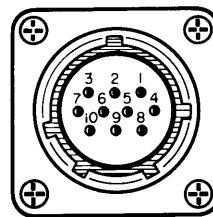


The PW1600 is a power supply unit designed especially for the RM1608/RM2408. It supplies the mixer unit with the following direct voltage:

DO NOT use this power supply unit with any other equipment.

Power supply	Voltage	Pin number
Line power supply	16V 1.2A	PIN 6
	-16V 1.2A	PIN 7
	E	PIN 3
Phantom power supply	48V 0.3A	PIN 4
	E	PIN 1
Meter/lamp power supply	+20V 2A	PIN 5
	E	PIN 2

DISCON. CONNECT



16 POWER SWITCH

This switch turns on the RM1608/RM2408 by supplying the power. As a safety measure, it is designed so that voltage cannot be supplied if the power supply cable is not connected.

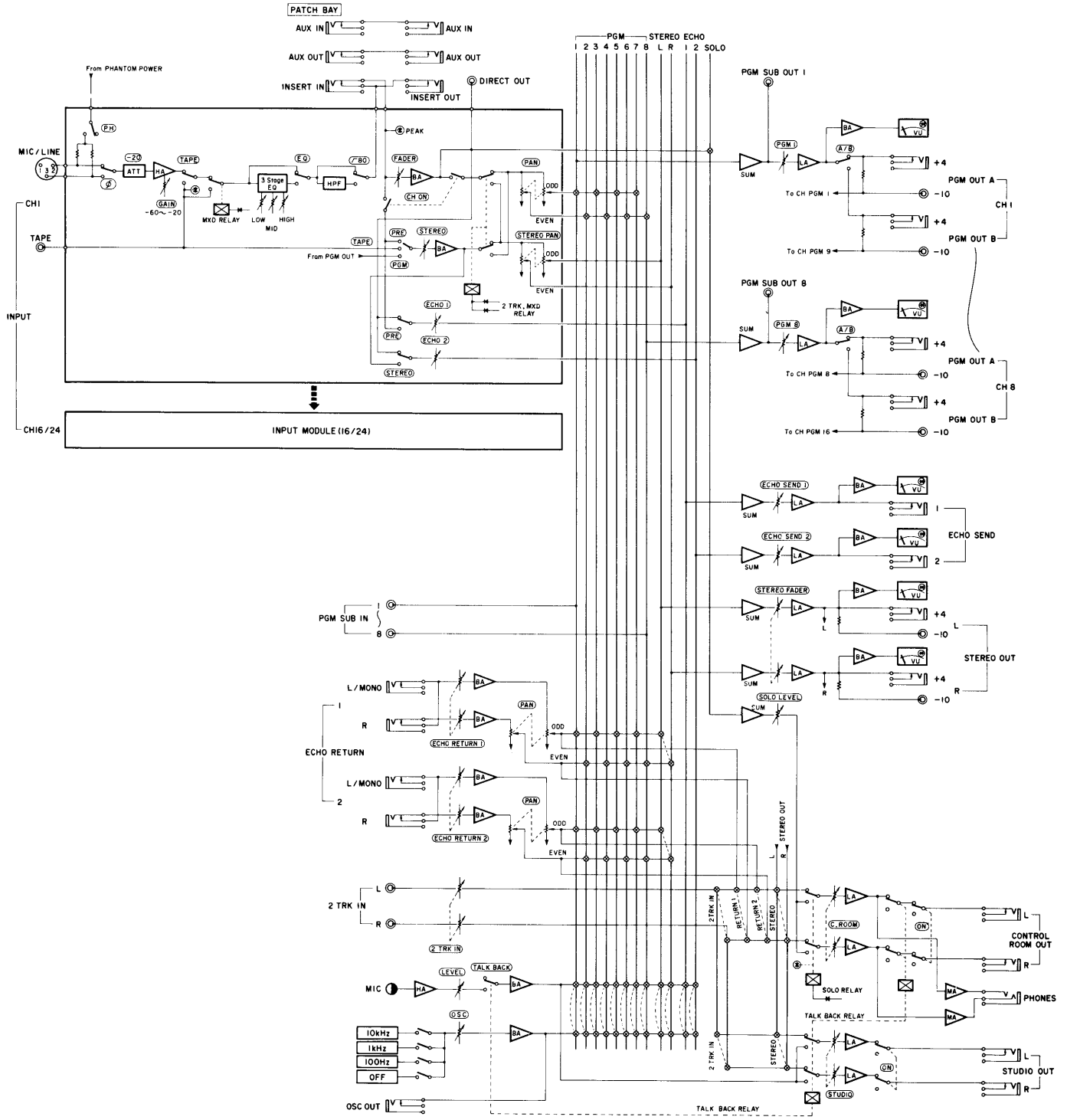
17 FUSE

This is a primary side fuse rated at 4A 250V. When replacing, always be sure to use a fuse with the same load.

18 VOLTAGE SELECTOR (GENERAL MODEL ONLY)

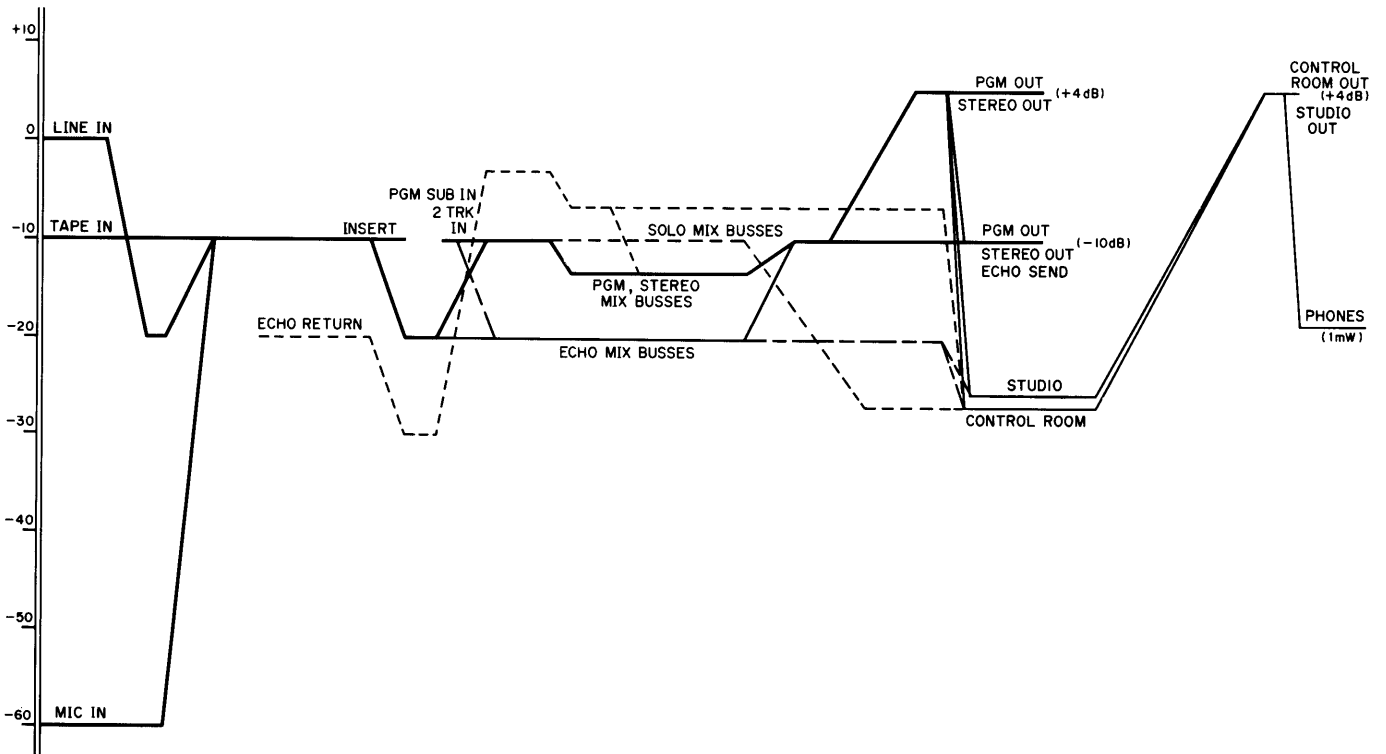
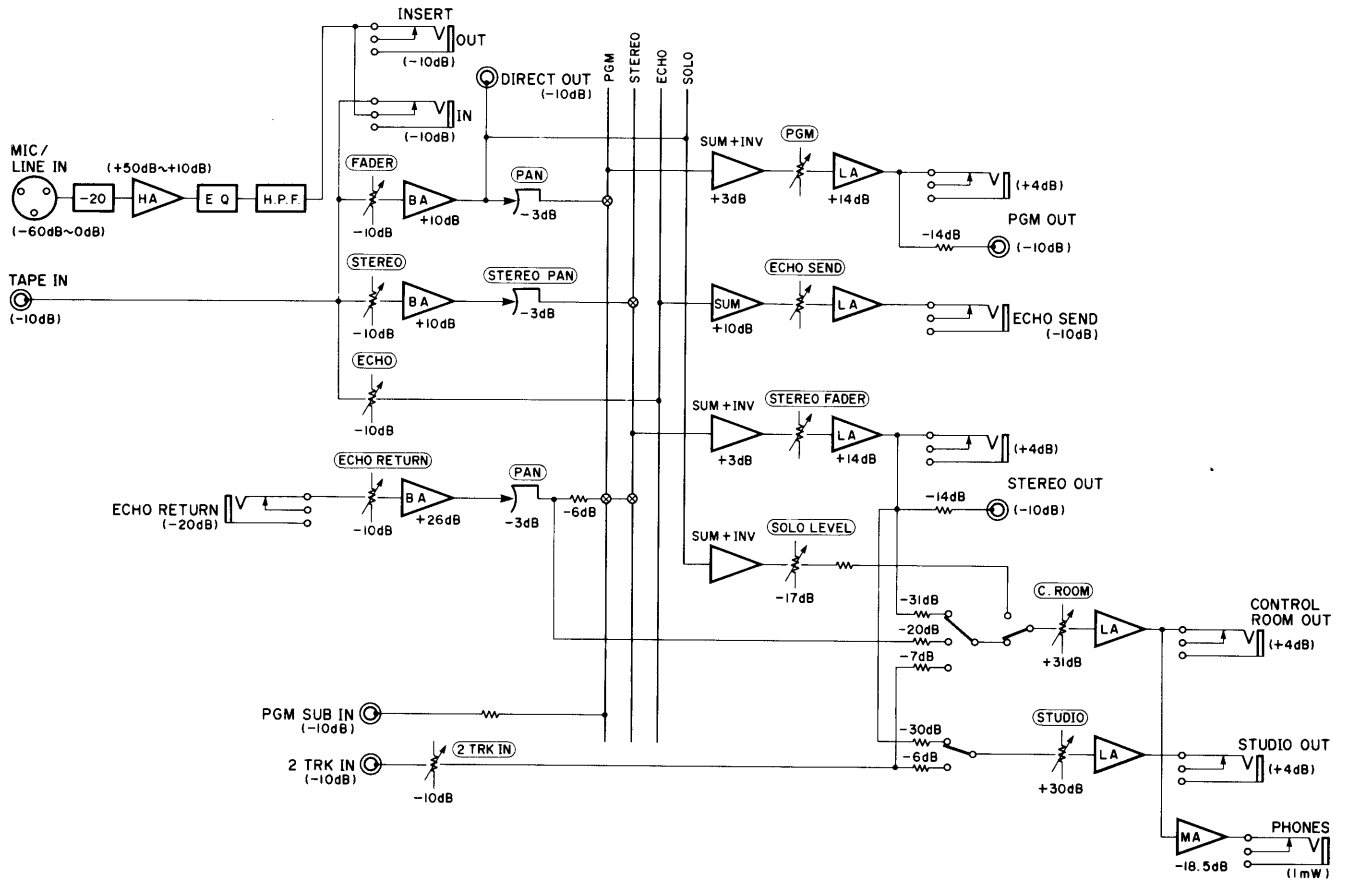
Before turning the unit on, make sure that the rear-panel voltage selector is properly set according to the line voltage in your area.

BLOCK DIAGRAM

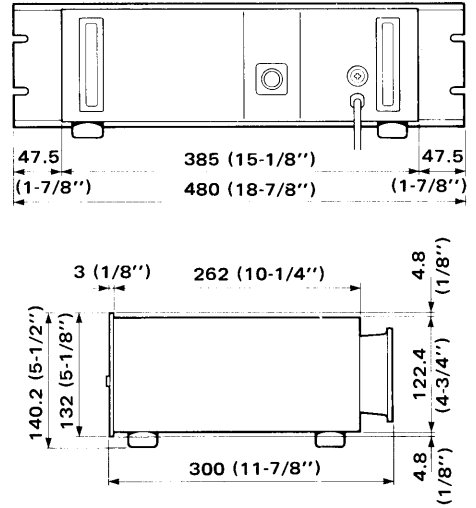
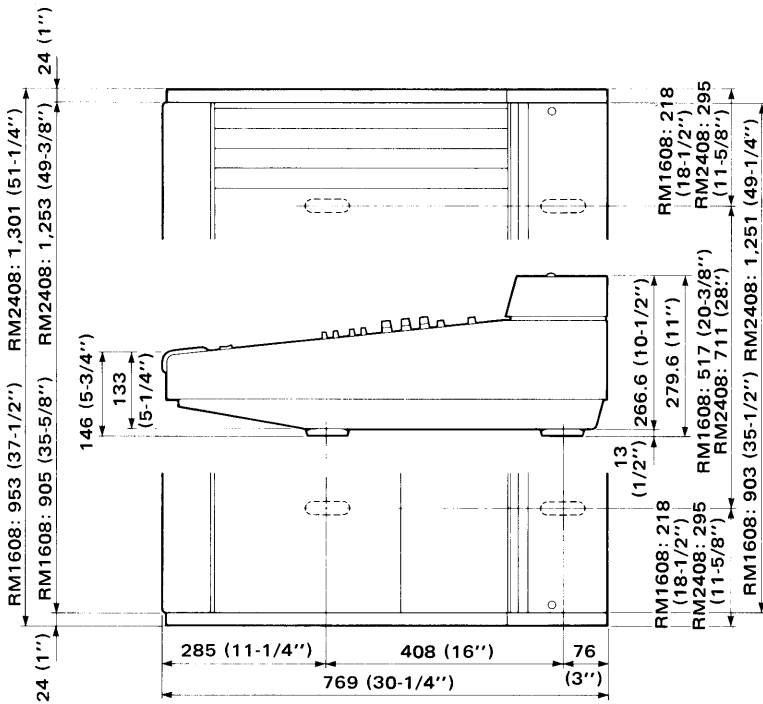


* The RM1608 permits connection of up to a 16-channel tape deck, while the RM2408 can be connected to up to a 24-channel deck.

LEVEL DIAGRAM



DIMENSIONS



UNIT : mm (Inch)
 WEIGHT : RM1608 41kg (90.2 lbs)
 RM2408 55kg (121.3 lbs)
 PW1600 8kg (17.6 lbs)

SERVICE

The RM1608/RM2408 are supported by Yamaha's worldwide network of factory trained and qualified dealer service personnel. In the event of a problem, contact your nearest Yamaha dealer.

SINCE 1887



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