



# RAMSA

POST-PRODUCTION  
and RECORDING  
CONSOLE

## WR-8616

# Operating Instructions

**Panasonic**<sup>®</sup>

Before operating this set, please read these instructions completely.

### GENERAL DESCRIPTION

Modern day recording and post-production processes require a high degree of flexibility combined with no-compromise audio signal quality.

The WR-8616 fulfills both these requirements and more with innovative electronic design and rugged steel construction. The versatile mainframe combined with a variety of modules allows this console to be tailored to either recording, post-production applications or a combination thereof.

This approach facilitates interfacing with a wide

variety of equipment such as tape cartridge machines, 2 to 16 track tape machines and up to 16 microphones. Six channels of remote play/stop controls allow convenient cueing of tape cartridge machines, turntables, etc.

The WR-8616 is designed to perform all its functions efficiently and effectively, minimizing re-patching and set-up time. Such cost effectiveness can be a real selling point in today's competitive industrial climate.

## FEATURES

### \* Flexible Operation for Varied Applications

The Ramsa WR-8616 accepts two types of input modules (WU-8101, WU-8106) and two types of output modules (WU-8102, WU-8107). Since the two types are interchangeable, the user can obtain a wide variety of configurations by replacing one with the other.

#### 1) Mono Input Module (WU-8101)

The head amplifier employs an electronically balanced circuit to produce clear and vivid sound. The input section employs high-slew-rate operational amplifiers for high quality sound. Balanced line and mic signals can be accepted through independent XL-type connectors.

The module contains a three-band equalizer with continuously variable frequencies, permitting flexible adjustments.

The two effect controls and two send controls can be switched to PRE or POST fader positions.

The pan control may be assigned to the master left and right buses only, or may be switched to enable odd/even panning of the 4 group buses in addition to the master, pan function. An internal slide switch selects the mode of operation. This switch is set to the disable mode (left and right buses only) when shipped from the factory.

#### 2) Stereo Input Module (WU-8106)

The WU-8106 can accept a pair of stereo input signals (left and right) from sources such as cartridge machines and cassette tape recorders. The 2-band equalizer and high- and low-cut filters allow flexible sound adjustments.

#### 3) Basic Group Module (WU-8107)

The WU-8107 basic group module combines all of the signals assigned to its location in the WR-8616 (group positions 1 through 4).

A 100-mm, curepress fader with dB-calibrated markings provides accurate control over the level of these signals while a concentric level and pan control allow pinpoint positioning of the group signal within the master stereo field.

An illuminated group ON switch permits instantaneous muting of the group signal without disturbing level or pan settings. A pre-fader SOLO switch enables monitoring of the group signal even with the output signal muted.

#### 4) Tape Monitor Group Module (WU-8102)

The WU-8102 group module combines the summing and output functions of the basic group module with a versatile 4 input - 4 output monitor mixer. By using the appropriate number of WU-8102 modules, the WR-8616 may be tailored to 4-track, 8-track or even 16-track recording applications.

Individual monitor section mute switches and an independent group send control work together to allow instantaneous transition between operational modes, or may be used to simultaneously monitor up to 32 inputs (16 mics and 16 lines).

This tremendous flexibility can save countless hours of set-up and repatching time in the busy recording studio or production facility.

#### 5) Master Module (WU-8103)

The master module is the control center for the master buses in the WR-8616. The module accepts signals from the input and/or the group modules. It contains master rotary level controls for the send and effect buses, a 100-mm, curepress fader with dB-calibrated markings for master lord bus control, and a versatile effects return section.

The effects return section includes a stereo send control which allows the operator to add the returning reverb or delay signal to the send buses thereby accomplishing a wet monitor send.

#### 6) Monitor Module (WU-8104)

The WU-8104 provides 2 independent stereo mixes in addition to the headphones solo and mono master functions.

A 4-position switch selects the L-R, aux or send L and R signals for studio cue feed or additional program purposes, while a 6-position switch adds pre-fader-monitoring of the group buses to the control room section.

2 push button switches and a rotary fader control the signals sent to the internal headphone amplifier. A solo control prevents sudden level changes in the headphones and control room sections when any solo switch is depressed.

A mono master control provides a post-fader mix of the L and R stereo signals.

#### 7) TB/OSC Module (WU-8105)

The TB/OSC module contains 1 kHz and 80 Hz oscillators for test and slate functions. Since the signal level is set to +4 dB (at maximum level of oscillator output level control.) when shipped out of factory, these signals can be used as reference signals.

A multi-position push-button switch assigns the oscillator (or internal talkback microphone) to the studio, group, master or send buses.

## Main Frame

### \* High performance signal monitoring

The eight bar graph meters allow monitoring of the channel line input, channel direct output and stereo module signals, six VU meters monitor the group master send effect and solo signals.

1) The input channels are monitored by eight bar graph meters -- switched 1 through 8, 9 through 16, and stereo 13 through stereo 16.

#### Mono Input Module :

Signals can be monitored either at the direct output stage or at the line monitor output stage by setting the switch to the appropriate position.

#### Stereo Input Module :

Signals can be monitored either post-head amplifier or at the line monitor output stage, where the left and right signals are already mixed, by setting the switch properly. (See meter panel for further details.)

2) The six VU meters monitor each output channel. Monitoring positions can be chosen among: 1 through 4 group, L-R master, send L/R, effect L/R, solo, and mono.

### Highly Reliable Designs

Using individually selected elements for reliability and professional feel, the 22 curepress fader controls on the input, group, and master modules are designed for quick, positive and precise adjustments of the volume settings. The long, 100-mm stroke fader facilitates exact positioning of the desired level.

The WR-8616 includes refinements such as extensive use of high speed ICs and transistors, which reduce or eliminate many servicing problems. The rear panel connectors—unlike conventional soldered connectors found on many mixers—are wire-wound with strong lapping coils (like those used on computers and test instruments) for excellent reliability.

The modular design makes it easy to pinpoint most malfunctions that may occur, and allows emergency replacement to be made in minutes.

## IMPORTANT NOTICE

1) The mixer outputs are available in a few seconds after the power switch is turned on. Also, it takes approximately 5 minutes before the performance of the mixer becomes fully stabilized. Clicking-sounds might be generated before it is fully warmed up.

2) When selecting the input select switch while the phantom power is on, turn the output faders down to avoid any pop noise which might result in damage to the speakers or other equipment connected. Do not connect unbalanced microphones to the mic inputs. This may result in the damage of the microphones and the mixer's power supply.

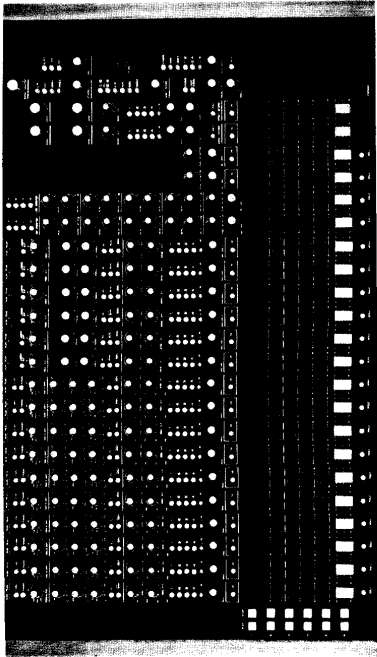
3) The phantom power supply for mono input employs a slow start system (15 sec. at ON and 20 sec. at OFF) to avoid the generation of clicking-sounds.

4) Mounting and removal of the microphone while the phantom power is on may generate clicking-sounds. Be sure to turn on the phantom power after connecting the microphone to the mixer. When disconnecting the microphone, remove it after sufficient time has elapsed.

5) For insertion at the input and group, patch-points, use a Y type adaptor cord (optional), wired as tip: return, ring: send and sleeve: common on a ¼" TRS phone plug.

**Be sure to install only the designated modules in any module location. (See page 3 for module assignments.) Incorrect installation of a module may result in severe damage to the mainframe and/or the module. This type of damage is not covered by the warranty.**

● MODULE LIST (System Configuration)



WR-8616				
	Module Name	Model Number	Mountable Unit	Comment
Standard	TB/OSC Module	WU-8105	1	—
	Monitor Module	WU-8104	1	—
	Master Module	WU-8103	2	—
Option	Basic Group Module	WU-8107	up to 4 units	Interchangeable with WU-8102
	Tape Monitor Group Module	WU-8102	up to 4 units	Interchangeable with WU-8107
	Stereo Input Module	WU-8106	up to 16 units	Interchangeable with WU-8101
	Mono Input Module	WU-8101	up to 16 units	Interchangeable with WU-8106
	Blank Module	WU-8091	—	—

Model WU-8105 TB/OSC Module



Model WU-8104 Monitor Module



Model WU-8103 Master Module



Model WU-8107 Basic Group Module



Model WU-8102 Tape Monitor Group Module



Model WU-8106 Stereo Input Module



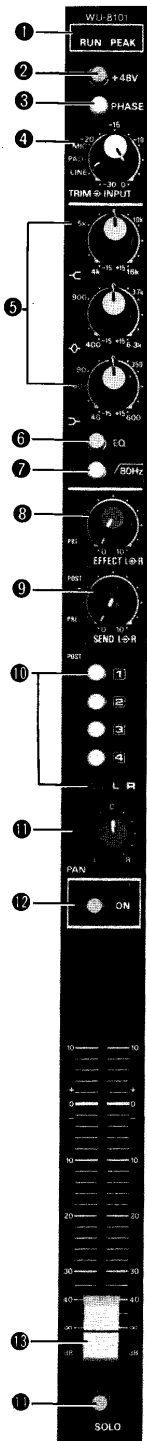
Model WU-8101 Mono Input Module



Model WU-8091 Blank Module



# MONO INPUT MODULE Model WU-8101



This module is interchangeable with a stereo input module (WU-8106).

## 1. Run/Peak LEDs

The run LED is lit when signals at either the pre-amp or post-EQ position are above  $-18$  dB.

The peak LED indicates that 6 dB of headroom remains in the pre-amp section only. By adjusting the input/trim control until a constant run indication is achieved, you can obtain the optimum signal to noise ratio, while retaining low distortion. The LED indication applies to pre-equalizer and pre-fader signals.

## 2. +48V DC Phantom Power Switch

phantom condenser microphone is supplied only to the mic line by turning on this switch.

## 3. Phase Switch

This switch allows instantaneous phase reversal of the microphone or the equipment connected to each input. If an out-of-phase condition exists (a possibility if two microphones are miking the same instrument, or if the cables are connected in reverse), this convenient switch can return the input to normal phase.

This is an enormous time-saver, especially when compared to re-soldering the mic cables (required by some mixers to reverse the phase).

## 4. Input/Trim Control

The input trim knob consists of an outer switch for MIC, PAD, or LINE position.

MIC:  $-60$  dB to  $-30$  dB

PAD:  $-40$  dB to  $-10$  dB

LINE:  $-20$  dB to  $+10$  dB

The inner knob adjusts the input gain.

The trim takes effect before the insertion jack, allowing adjustment to the optimum level for connecting external equipment.

## 5. Equalizer

These controls offer the engineer maximum flexibility in tonal adjustment—a sophisticated three-band, continuously-variable-frequency equalizer section

included. The inner knob controls the level and includes a 0 dB centerdetent. The outer knob adjusts the frequency.

These rotary controls provide three bands of equalizer adjustment:

HIGH 4 kHz to

16 kHz  $\pm 15$  dB (sheilding)

MID 400 Hz to

6.3 kHz  $\pm 15$  dB (peaking)

LOW 40 Hz to

600 Hz  $\pm 15$  dB (shelving)

A continuously variable rotary control knob permits precise frequency adjustment, converting more than one octave around the center frequency. Refer to the charts 1 and 2 on page 22.

## 6. Equalizer Switch

Using this switch, you can turn the equalizer on or off without resetting the equalizer adjustment positions.

## 7. High-Pass Filter Switch

This filter provides a sharp  $-18$  dB/octave cutoff at 80 Hz. This is useful for eliminating low-frequency vibrations (which may occur when using hand-held mics) or to provide greater microphone isolation. Refer to the chart 3 on page 22.

## 8. Effect L, R Controls

### with pre/post selector switch

The effect controls utilize a novel, highly practical approach.

The effect signal may be derived post-equalizer, post-fader or post-equalizer, pre-fader.

## 9. Send L, R Controls with pre/post selector switch

These controls adjust the amount of signals sent to the musician's headphones, via the master cue send controls. Either one stereo or two mono cue signals may be sent to the headphones. The send signal may be derived post-equalizer, post-fader or pre-equalizer, pre-fader.

## 10. Program Bus Assign Switches

This section assigns the input signal to any of the four group outputs, or directly to the L-R output section.

## 11. Pan Control

Turning the pan control to the left assigns L channel and turning to the right assigns R channel. During mixdown, the pan is an effective tool for creating stereo sound field.

\* Pan switch on the printed circuit board allows you to pan between G4 and G2, and G3 G4. (The pan pot is effective only between L and R outputs when shipped out of factory.)

## 12. Channel On Switch

When this switch is engaged, the input signal is sent to all of the assigned output channels. When it is switched out, the signal to the group and master output buses is muted; the direct out signal is disconnected as well.

Mic leakage or noise caused by a mic not in use is thus eliminated.

## 13. Input Fader

The extra-long, 100-mm stroke fader assures precise level setting; reference dB levels are also indicated.

## 14. Solo Switch \* modified S/S/T Gobbler

This switch is used to monitor the pre-fader or post-fader signal at each input module individually. It can be locked in the ON position, monitoring simultaneously of several modules achieved. Activation of the solo button is indicated by the solo LED.

The solo setting has priority over other monitoring modes, so even if the L and R master volume must be attenuated, the input levels may still be monitored. In addition to headphone monitoring, the L and R control room outputs connected to separate monitor speakers will also provide a mono/solo signal.

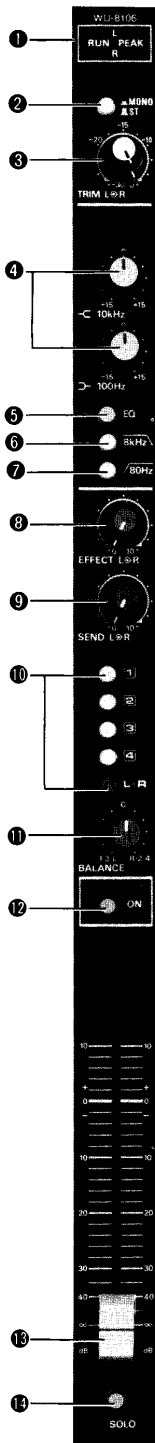
This is especially useful for conducting final checks prior to actual takes.

\* The solo signal may be derived post-fader by switching a jumper lead on the printed circuit board.

### \* Insertion Pre/Post Switch

This switch on the printed circuit board in the module allows you to set the insertion point to either pre- or post-EQ.

# STEREO INPUT MODULE Model WU-8106



The WU-8106 is capable of accepting a set of stereo signals (left and right). This module is interchangeable with a mono input module (WU-8101).

## 1. Run/Peak LEDs

The run LED is lit when the post-equalizer signal is above  $-18$  dB. Individual LEDs are provided for the left and right channels. The peak LED is lit when less than 6 dB of headroom remains at any point in the input channel.

## 2. Mono/Stereo Switch

When this switch is depressed, stereo signals are converted into a monaural signal.

## 3. Trim L, R Controls

These knobs adjust the input levels for the head amplifiers. The input level may vary between  $-20$  dB and  $+10$  dB, a range of 30 dB. The inner knob is for the left channel, and the outer knob, for the right channel. These controls may be used to obtain balanced input levels for the left and right channels.

## 4. Equalizer

A two-band (high and low) equalizer is employed in the equalizer section.

HIGH 10 kHz  
 $\pm 15$  dB (shelving)  
LOW 100 Hz  
 $\pm 15$  dB (shelving)

Refer to the chart 4 on page 22.

## 5. Equalizer Switch

Using this switch, you can turn the equalizer on or off without resetting the equalizer adjustment positions.

## 6. Low-Pass Filter Switch

This filter provides a sharp  $-12$  dB/octave cutoff at 8 kHz. It can be used to reduce tape hiss noise and disc scratch noise. Refer to the chart 5 on page 22.

## 7. High-Pass Filter Switch

This filter provides a sharp  $-18$  dB/octave cutoff at 80 Hz. This is useful for eliminating low-frequency vibrations.

Refer to the chart 5 on page 22.

## 8. Effect L, R Controls

The effect controls utilize a novel, highly practical approach. The effect signal is derived post-EQ, post-fader.

The inner knob controls the left channel, and the outer knob controls right channel. (Note that the signal in the left channel cannot be sent to the right channel or the other.)

## 9. Send L, R Controls

When recording, these controls may be used to the signals sent to the musician's headphones, via the master cue send control. In other application, the send signal may be used as an auxiliary output. The send signal is derived post-EQ, pre-fader.

## 10. Program Bus Assign Switches

This section assigns the stereo input signals to the appropriate output buses.

In the stereo mode the left input signal may be assigned to group bus 1, group bus 3, master bus left or any combination of the three. The right input signal may be assigned to the group 2, group 4 or the right master bus in a similar manner.

When the mono switch is depressed, a summed monaural signal may be assigned to any combination of the six output buses.

## 11. Balance Control

This control knob adjusts the balance between the left and right signals. Balance may be simultaneously adjusted between channels 1 and 2, 3 and 4, and left and right.

## 12. Channel On Switch

When the switch is engaged, the input signal is sent to the assigned output channels.

When it is switched out, the signal to the group and output buses is muted; the direct out signal is disconnected as well.

Mic leakage or noise caused by a mic not in use will thus be eliminated.

## 13. Input Fader

The extra-long, 100-mm stroke fader assures precise level settings; reference dB levels are also indicated.

## 14. Solo Switch

This switch is used to monitor the pre-fader or post-fader signal at each input module individually. Because it can be locked in the ON position, simultaneous monitoring of several modules can be performed. Activation of the solo button is indicated by the solo LED.

The solo setting has priority over other monitoring modes, so even if the L and R master volume must be attenuated, the input levels may still be monitored. In addition to headphone monitoring, the L and R control room outputs connected to separate monitor speakers will also provide a mono/solo signal.

This is especially useful for conducting final checks prior to actual takes.

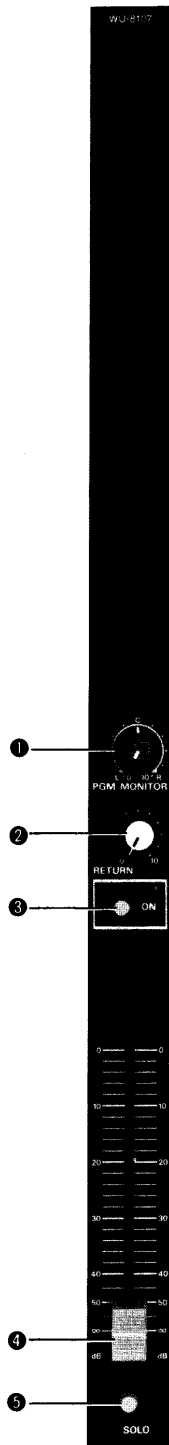
\* The solo signal may be derived pre-fader or post-fader. The mode is selected by a switch on the printed circuit board. The SOLO switch is set at pre at the time of shipment.

The solo signal is a monaural signal consisting of the left and right signals.

\* The stereo input module has no function of direct out and insertion.

\* Modified 5/87  
T. Godwin

# BASIC GROUP MODULE Model WU-8107



This module is interchangeable with the tape monitor group module (WU-8102).

### 1. Program Monitor Controls

The group output signal is sent to the master module. The inner knob adjusts the level, and the outer knob adjusts the balance between L and R.

### 2. Return Control

This control knob adjusts the input level of the signal from the return-in connector located on the rear panel.

### 3. Channel On Switch

When this switch is turned on, the green LED lights, and the group signal is routed to the group out connector on the rear panel.

### 4. Group Fader

The extra-long, 100-mm stroke fader assures precise level settings; reference dB levels are also indicated.

### 5. Solo Switch

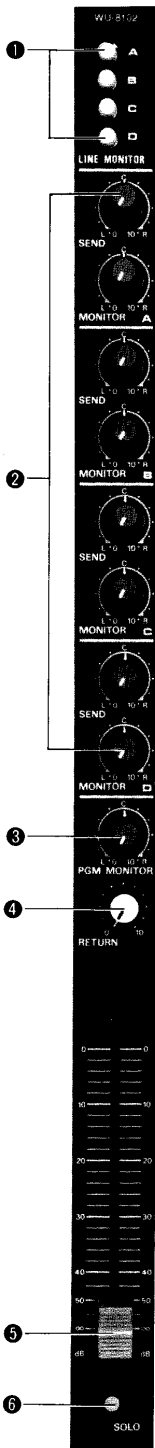
Depressing this switch allows individual monitoring of the group signal. The signal will be routed via the solo bus line to the control room out and the headphones monitor out.

\* The solo signal is normally derived pre-fader.

\* To derive the solo signal post-fader, change the jumper lead connections on the printed circuit board.



# TAPE MONITOR GROUP MODULE Model WU-8102



This module is interchangeable with the basic group module (WU-8107).

The WU-8102 tape monitor group module combines the summing and output functions of the basic group module with a versatile 4 input-4 output monitor mixer.

By using the appropriate number of WU-8102 modules, the WR-8616 may be tailored to 4-track, 8-track or even 16-track recording applications.

Individual monitor section mute switches and an independent group send control work together to allow instantaneous transition between operational modes, or may be used to simultaneously monitor up to 32 inputs (16 mics and 16 lines).

This tremendous flexibility can save countless hours of set-up and repatching time in the busy recording studio or production facility.

## 1. Line Monitor Selector Switches

The line monitor switches have the following functions:

### 1) In the case of a mono input module (WU-8101):

Selects a signal from those connected to the line input terminals. The signal will be derived immediately after the line head amplifier.

### 2) In the case of a stereo input module (WU-8106):

Selects a signal from mixed monaural signals:

- \* Since one of this module can monitor four input sources, when four of this modules are mounted, up to 16 input sources can be monitored.

- \* The following table shows which corresponds to which channel number.

Module Location	Channel Number			
	Group 1	Group 2	Group 3	Group 4
A	1	5	9	13
B	2	6	10	14
C	3	7	11	15
D	4	8	12	16

## 2. Line Monitor Controls

After a signal has been selected, this knob controls the amount of signal to be sent to the send L and R buses (or the master module's L and R buses). Each of four channels (A through D) has a set of control knobs.

- \* The inner knob of the send control adjusts the send signal level, and the outer knob determines its position between left and right.

- \* The inner knob of the monitor control adjusts the monitor signal level, and the outer knob determines its position between left and right.

- \* By using the send control, you can mix the output signals from the multi-track recorder (has 16 tracks) connected to monaural input modules, and obtain a cue signal for the musician.

- \* The monitor control allows you to roughly mix the MTR signals to check the quality of recording.

## 3. Program Monitor Controls

These control knobs adjust the signal sent from the group bus to the master module. Input signals are first grouped into four channels of signals.

The program monitor controls are then used to adjust the group signals to the master stereo pair.

## 4. Return Control

This control knob adjusts the input level of the signal fed via the return-in connector located on the rear panel.

## 5. Group Fader

The extra-long, 100-mm stroke fader assures precise level settings; reference dB levels are also indicated.

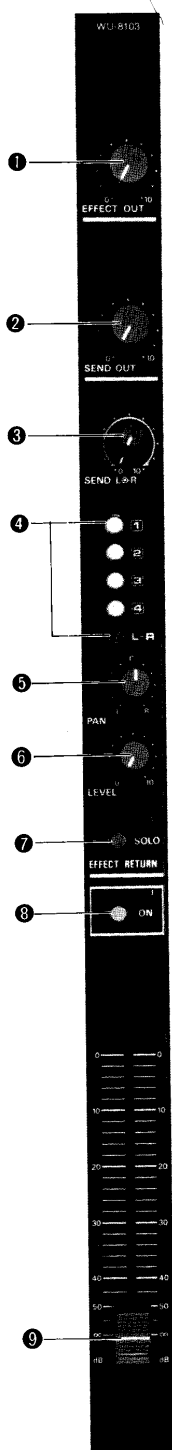
## 6. Solo Switch

- \* This switch allows monitoring only this group module.

- \* The solo signal is derived pre-fader.

- \* To derive the solo signal post-fader, change the jumper lead connections on the printed circuit board.

## MASTER MODULE Model WU-8103



This module provides complete control facilities for the various signals from the input and group modules, effect units, and other signal processors. Because the master module can control all signals, the settings made on the input and group faders may be retained.

### 1. Master Effect Control

This controls the master level of the signals sent to the effect unit.

### 2. Master Send Control

This provides master level control of the headphones cue signals, which are sent from the input module or line monitor section. This feature can be used for headphone monitoring by the performers in the studio.

### 3. Send L, R Controls

These assign the effect return signals to the left and right send mixing buses, where the effect can be added to the musician's send signals. The outer knob is a pan control, and the inner knob is for level adjustments.

### 4. Effect Return Assign Switches

These switches assign the signals returned from the effect unit to the selected program bus.

### 5. Pan Control

This pan pot assigns the effect return signals to your selected L/R bus (using effect return assign switch L-R).

### 6. Effect Return Level

This control adjusts the level of the effect return inputs.

### 7. Solo Switch

Depressing this switch allows individually monitoring the signal fed via the effect in jack. The signal will be routed via the solo bus line to the control room out and the headphones monitor out.

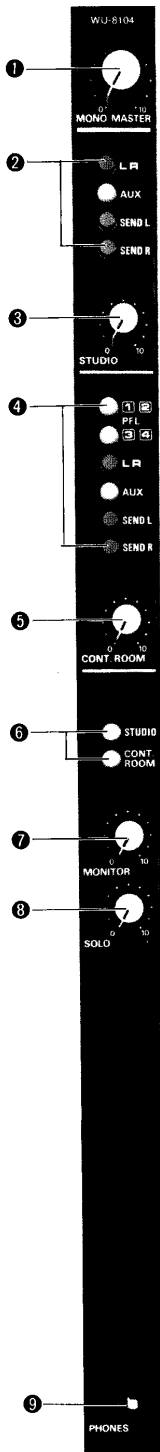
### 8. Channel On Switch

When this switch is turned on, the green LED lights, and the master out signal is routed to the rear panel connector.

### 9. Master Fader

The extra-long, 100-mm stroke fader assures precise level settings; reference dB levels are also indicated.

## MONITOR MODULE Model WU-8104



In response to demands for truly flexible monitoring capability, Ramsa has included facilities in the WR-8616 that allow checks at all stages of the mixer output, both in the studio and in the control room.

### 1. Mono Master Control

This control knob adjusts the monaural signal mixed from the master L and R signals. The signal is routed to the monaural master output connector.

### 2. Studio Selector Switches

These switches select one of the four modes available for studio monitoring. The L-R position allows performers to monitor the stereo mix-down signals. Aux permits stereo monitoring of the signal from the tape deck connected to the aux input terminals.

The SEND output L and R switches allow mono monitoring of the separate left and right signals.

### 3. Studio Control

This controls the output level for the studio monitoring.

### 4. Control Room Out Switches

These switches select one of the six monitoring modes available.

Monitoring Mode	Switch Name	Signal	Mode	Monitoring Point
1	1 - 2	Group 1, 2	(Stereo)	Pre Fader
2	3 - 4	Group 3, 4	(Stereo)	Pre Fader
3	L - R	Master L, R	(Stereo)	Post Fader
4	AUX	Aux input	(Stereo)	—
5	Send L	Send L	(Mono)	Post Send Master
6	Send R	Send R	(Mono)	Post Send Master

### 5. Control Room Volume Control

This set the output level for control room listening. Where the solo switch of any input or output module is pressed, the solo LED lights, and the solo signal of that channel will replace the selected signal.

### 6. Phones Selector Switches

You can select headphone monitoring from either the studio or the control room with these switches.

### 7. Monitor Control

This control adjusts the listening levels for stereo headphone monitoring.

### 8. Solo Level Control

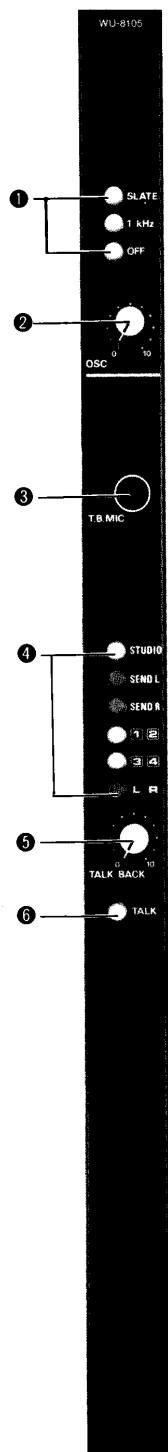
This controls the input and output solo signals to prevent sudden level change when switching between the normal and solo modes.

### 9. Headphones Jack

Standard 1/4" phone jack for stereo headphones.

**TB/OSC  
MODULE  
Model WU-8105**

For close communication between the mixing operator and the studio musicians, this module features a convenient provision for two-way talkback. Internal oscillator facilities make it easy to confirm that the controls are set properly prior to actual recording of the program.



**1. OSC Selector Switches**

With these switches, the operator can choose either an 80-Hz slate tone or a 1-kHz sine wave. When the OFF position is selected, the talkback facility may be activated.

*MODIFIED.  
SLATE & 1KHz DISCONNECTED.  
SLATE BECOMES OSC ON  
4 POS SELECTOR SWITCH ADDED  
TO SELECT 16KHz, 10KHz, 1KHz  
OR 30 Hz*

**2. Oscillator Output Level Control**

**3. Talkback Microphone**

Built-in condenser microphone.

**4. T.B./OSC Assign Switches**

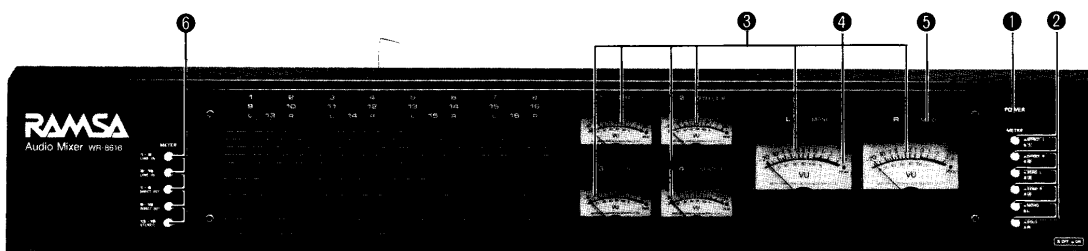
These switches assign the T.B./OSC signal to output buses. When the OSC switch is on, the OSC (oscillator) signal will be sent; and when the OSC switch is off, the TB mic (talkback mic) signal will be sent.

**5. T.B. Mic Level Control**

**6. Talk Switch**

With the OSC switch in the OFF position, this is held in while speaking to the musicians. The volume can be adjusted with the TB level control.

## METER PANEL



### 1. Power Indicator Lamp

Indicates that the power supply unit is turned on and the mixing board is supplied with  $\pm 20$  V DC power.

### 2. VU Meter Selectors

These switches allow monitoring of 12 important signals with the six VU meters. The monitorable output signals are: master L and R, group 1 through 4, send L and R, effect L and R, mono and solo.

### 3. VU Meters

For monitoring group, master, send, mono, and effect outputs.

### 4. Peak LED

Lights when group, master, effect, solo, mono, and send outputs exceed +18 dB.

### 5. Meter Selector Lamp

Provided for each of group, master, send, mono, solo and effect outputs. These high-visibility indicators verify which signal is monitored at any given time.

### 6. LED Meter Selectors

The following table shows the switch positions and signals being monitored.

### Notes for monitoring the meters:

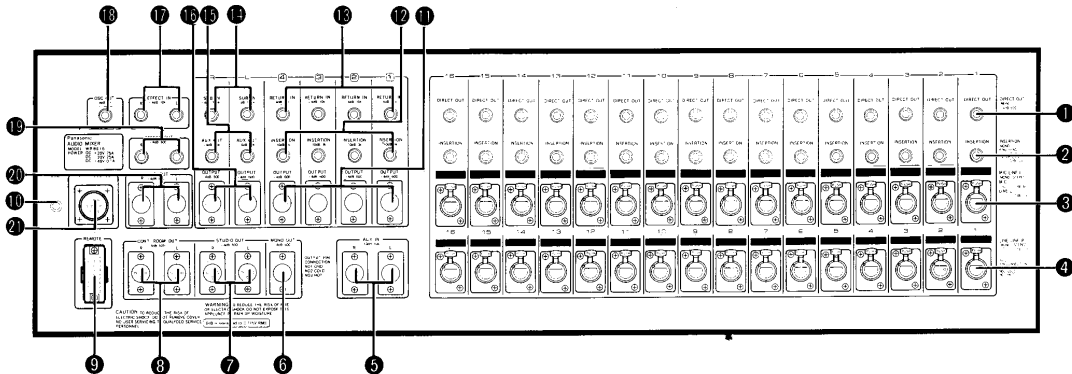
1) The LED bar graph meters indicate "0" when the signal level -line input (stereo) or direct out signal --- is +4 dB. When in the 1-8 line in or 9-16 line in mode, if a -20 dB signal is fed into the line input of the mono input module, the LED bar graph meter will not light. This is because the -20 dB position on the bar graph scale corresponds to the line input level of -16 dB.

2) Stereo input modules mounted on channels 1 through 16 cannot be monitored by selecting 13-16 stereo. If you select 1-8 line in (or 9-16 line in), however, you can monitor the signals as mixed mono signals. When all channels contain mono input modules, selecting 13-16 stereo will not let you monitor any signals.

### 6. LED Meter Selectors

Switch Name (Switch Position)	Monitored Signal	Channel Affected	Remark	
			Mono Input	Stereo Input
1-8 (A) Line In	Line Input	1 - 8	Signal Post Line Pre-Amp	Summed Post Line Pre-Amp
9-16 (B) Line In	Line Input	9 - 16	Signal Post Line Pre-Amp	Summed Post Line Pre-Amp
1-8 (C) Direct Out	Direct Out	1 - 8	Signal Post Fader	---
9-16 (D) Direct Out	Direct Out	9 - 16	Signal Post Fader	---
13-16 (E) Stereo	Stereo Line Input	13 - 16	---	Stereo Post Line Pre-Amp

## REAR PANEL



### 1. Direct Output

The direct out jack can be easily used for a direct send to a multi-track recorder, or as an individual cue or effect send. Each jack accepts a 1/4" TS phone plug.

+4 dB 600 ohms unbalanced

Active for mono input module only. No output available when stereo input module is used.

### 2. Input Insertion

For external signal processing units such as compressors, limiters, equalizers. Each jack accepts a 1/4" TRS (Tip-ring-sleeve) format phone plug.

Send: -10 dB 3 k ohms (ring)

Return: -10 dB 10 k ohms (tip)

Unbalanced

This jack is available only for mono input module.

### 3. Input

i) Mono input module

Mic input -60 to +10 dB  
3 k ohms balanced

ii) Stereo input module

Line L input -20 to +10 dB  
10 k ohms balanced

XL-type connector

### 4. Input

i) Mono input module

Line input -20 to +10 dB  
10 k ohms balanced

ii) Stereo input module

Line R input -20 to +10 dB  
10 k ohms balanced

XL-type connector

### 5. Aux Inputs

Auxiliary inputs for L and R channels.

-10 dB 10 k ohms balanced

These terminals are connected to the aux on the monitor module (WU-8104). XL-type connectors

### 6. Mono Output

Summed mono signal post-fader L + R signals

+4 dB level 600 ohms balanced

XL-type connector

The level can be controlled by the mono master control on the monitor module (WU-8104).

### 7. Studio Outputs

+4 dB level 600 ohms balanced  
XL-type connectors

### 8. Control Room Outputs

Control room monitor outputs

+4 dB level 600 ohms balanced

XL-type connectors

### 9. Remote Control Connector

The terminals of the remote control switches ---located in the lower part of the front panel --- are connected to these pins. There are six circuits for play and six circuits for stop. (Refer to the Service Manual for pin numbers.)

### 10. GND

Ground terminal.

### 11. Group Outputs

Group bus outputs. The signals come post group fader.

+4 dB level 600 ohms balanced

XL-type connectors

### 12. Group Insertion

Group insertion jacks. Used to connect external equipment (compressors, limiters, equalizers, etc.) to process the signal of any given group bus. Each jack accepts a 1/4" TRS format phone plug.

Send: -10 dB 3 k ohms (Ring)

Return: -10 dB 10 k ohms (Tip)

### 13. Return Inputs

These jacks are used to feed external signals to modules of group 1 through 4. Useful when connecting outputs from a 4-track recorder or when connecting another mixer. The signal can be adjusted with the return control of that group. Each jack accepts a 1/4" TS phone plug.

+4 dB level 10 k ohms unbalanced

### 14. Sub Input

Auxiliary input jacks for master L and R. Can be used to connect another mixer. Each jack accepts a 1/4" TS phone plug.

+4 dB level 100 k ohms unbalanced

### 15. Aux Outputs

Auxiliary output jacks for master L and R. Each jack accepts a 1/4" TS phone plug.

+4 dB level 10 k ohms unbalanced

### 16. Master Outputs

Post-fader left and right outputs

+4 dB level 600 ohms balanced

XL-type connectors

### 17. Effect Inputs

Connect to the output of any echo unit, harmonizer, delay unit, phase shifter, etc. Each jack accepts a 1/4" TRS phone plug.

+4 dB or -20 dB level

10 k ohms balanced

(Switchable by changing a jumper lead on the master module printed circuit board.)

### 18. OSC Output

Output jack for the oscillator (or talkback) signal. The signal can be adjusted with the OSC (or T.B.) level control. This jack accepts a 1/4" TS phone plug.

+4 dB level 3 k ohms unbalanced

### 19. Effect Outputs

Effect L and R mixing buses; The signals are routed via the effect master level control. Each jack accepts a 1/4" TS phone plug.

+4 dB level 600 ohms unbalanced

### 20. Send Outputs

Send L and R mixing buses. The signals are routed via the send output level control.

+4 dB level 600 ohms balanced

XL-type connectors

### 21. Power Source Connector

Connector for DC power supply. DC is applied from the power supply unit (Model WU-8083) through the attached power cable. (No other cable can be used.)

### Notes :

\* 0 dB is referenced to 0.775 V RMS.

\* TRS format

Tip : return

Ring : send

Sleeve : common (shield)

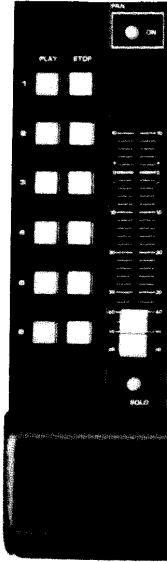
1/4" phone plug

Ring

Tip

Sleeve

## REMOTE CONTROL SWITCHES



These switches play or stop the external turntables, tape recorders, or cartridge machines connected to the remote control connector.

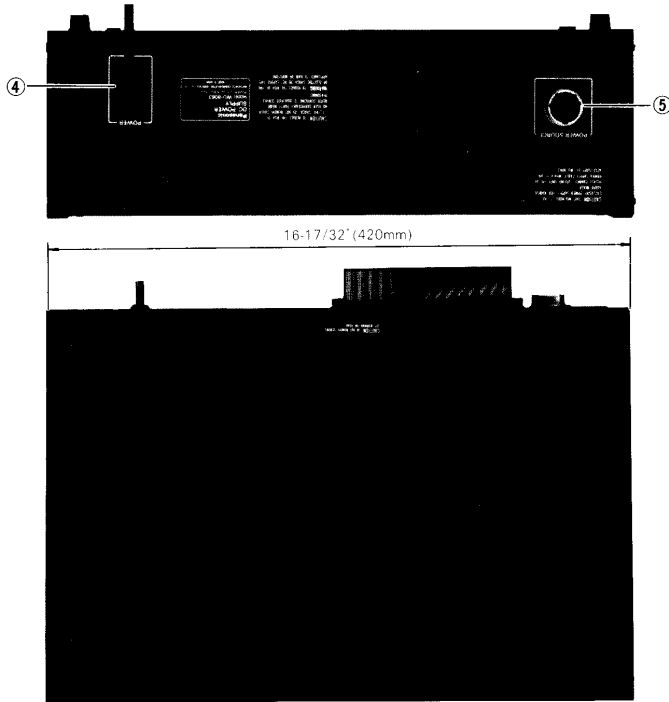
Up to six units can be controlled.

The connector for the switches are located on the back panel, printed REMOTE. (Refer to the Service Manual for pin connections.)

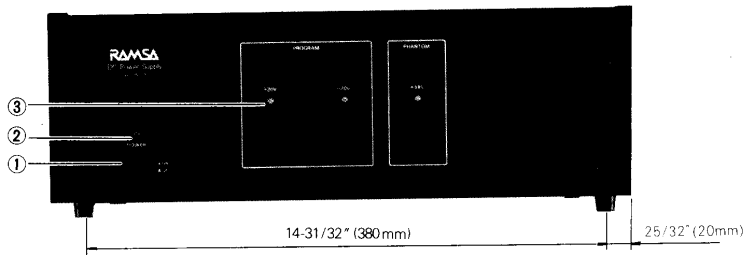
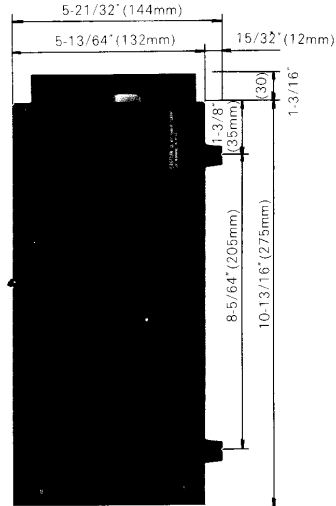
The switches are momentary contact button type.

# POWER SUPPLY WU-8083

The WU-8083 is the exclusive power supply for RAMSA MIXING CONSOLES WR-8724 and WR-8616.



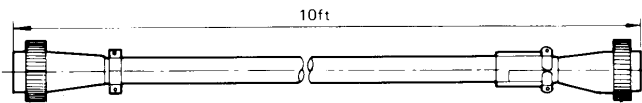
- 1) Power switch
- 2) Power indicator LED
- 3) +20V, -20V, +48V DC LEDs indicate regulated DC voltages as:  
+ 20 V  
- 20 V  
+ 48 V (phantom power)



- 4) AC power cord
- 5) Power supply connector + 20 V, - 20 V, + 48 V DC and mute control signal are supplied through this connector. The supplied connection cable should be connected.

**CAUTIONS:**

- 1) When replacing the AC fuse inside, be sure to use a fuse of the specified value.
- 2) Refrain from exposing this unit to direct sunlight or rain.



10-pin male connector

10-pin female connector

pin no.	RATING VOLTAGE	RATING CURRENT
1 4	0V	TOTAL 2.5 MAX
2 5	+20V DC	
3 6	-20V DC	
7	CONTROL SIGNAL (20V)	10mA MAX
8	+48V DC	0.15A MAX
9	0V	

## TECHNICAL SPECIFICATIONS

**Power requirement** 120 V AC ± 10% 60 Hz  
**Output voltage** +20 V DC 2.5 A max.  
 -20 V DC 2.5 A max.  
 +48 V DC 150 mA max.  
 Control Signal for Muting(20 V)  
**Power Consumption** 210 Watts

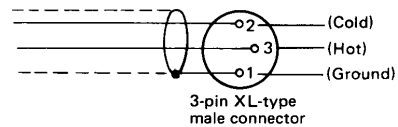
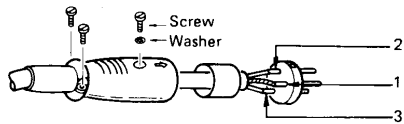
**Accessory** 10-core cable with 10-pin connector length 10 feet . . . 1  
 Rack Mount Angles . . . . . 2  
 Screws (M4 x 8) . . . . . 4  
 Service Manual . . . . . 1  
**Dimensions** Operating Instructions . . . . . 1  
 16-17/32"(W) (420mm)  
 5-21/32"(H) (144mm)  
 10-13/16"(D) (275mm)  
**Weight** Approx. 24 lbs (11 kg)

## CABLE CONNECTIONS TO IN/OUT CONNECTOR

- **XL-type Connectors**

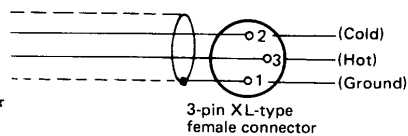
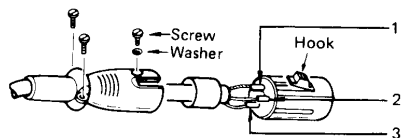
- a. **Balanced Connection (Input)**

Connect 2-core shielded cable as shown below.



- b. **Balanced Connection (Output)**

Connect 2-core shielded cable as shown below.

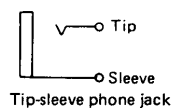
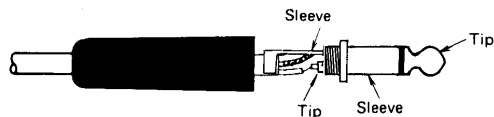


- c. **Unbalanced Connection (Input and Output)**

When using an unbalanced microphone, connect pin No. 3 (Hot) and No. 2, 1 (Ground).

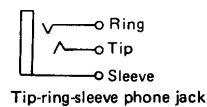
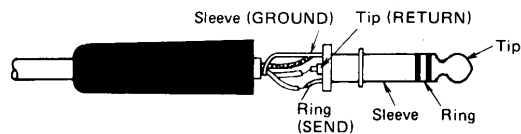
- **Tip-sleeve phone plug (Input and Output)**

Connect single-core shielded cable as shown below.



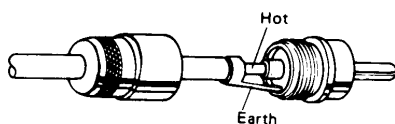
- **Tip-ring-sleeve phone plug (INSERTION IN/OUT)**

Connect 2-core shielded cable as shown below.



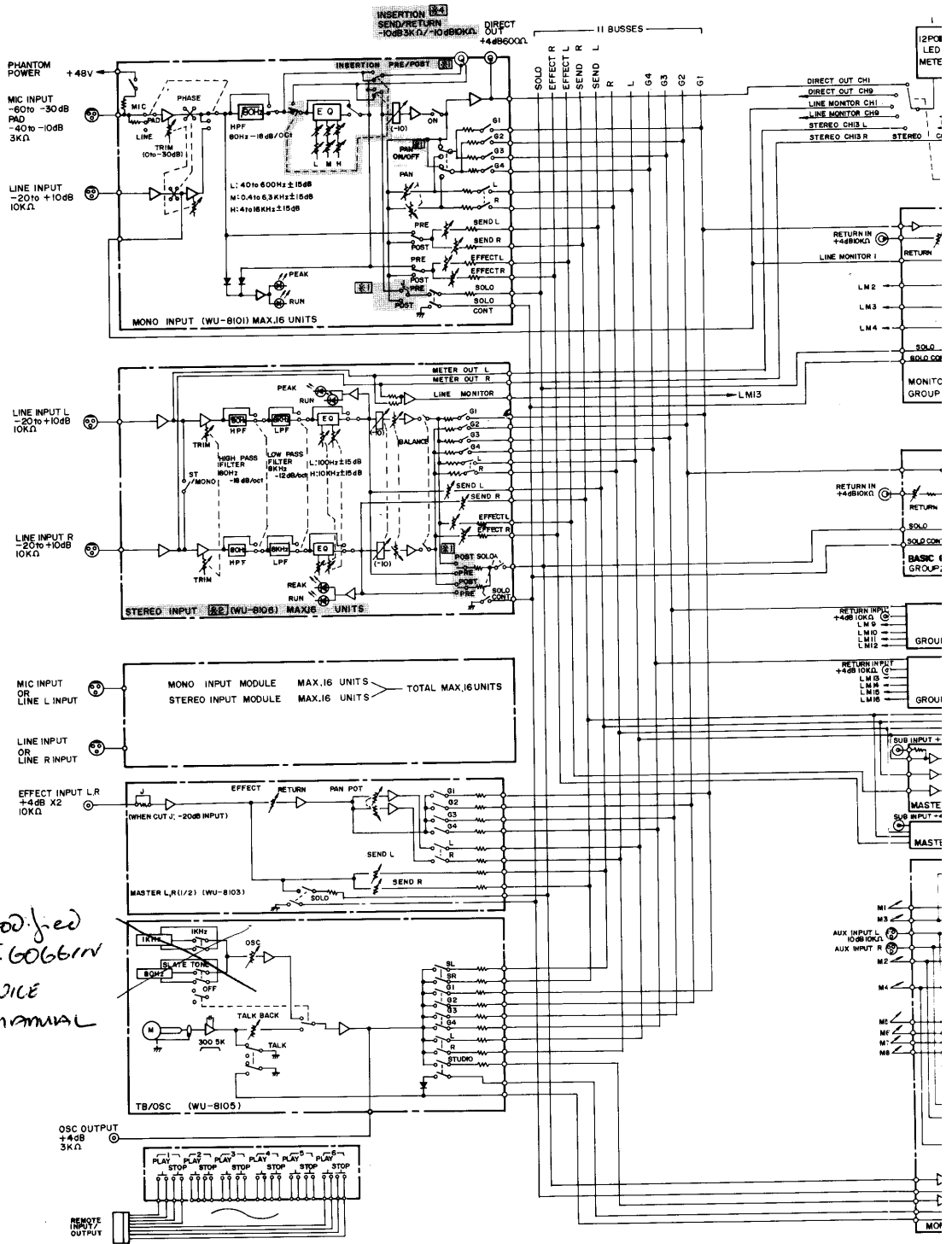
- **RCA pin-plug (Output)**

Connect single-core shielded cable as shown below.

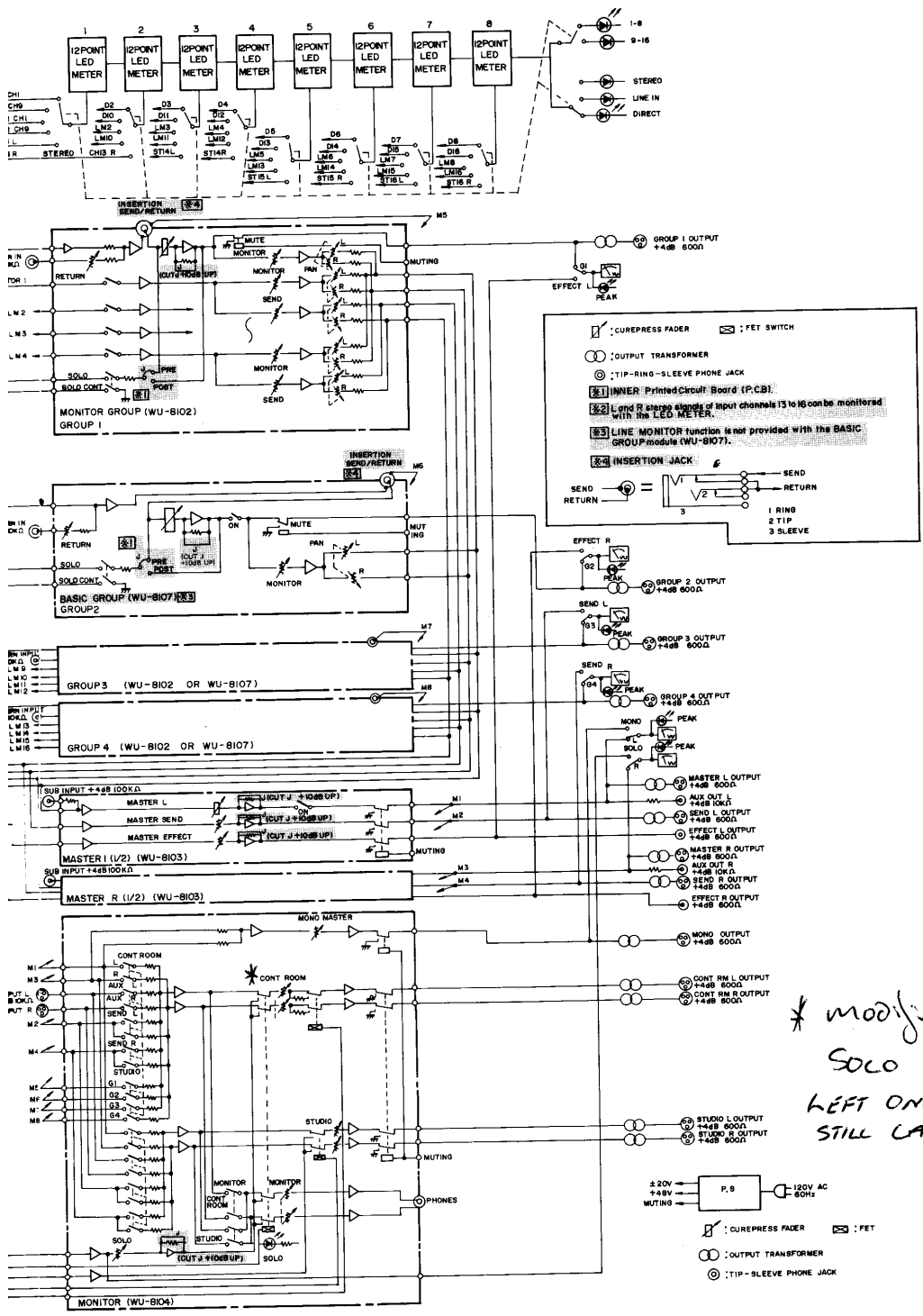




# BLOCK DIAGRAM

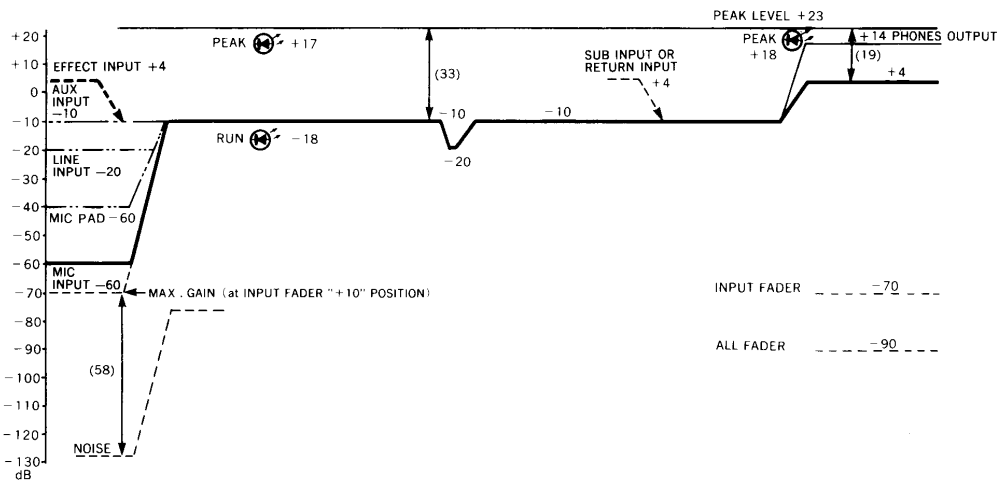
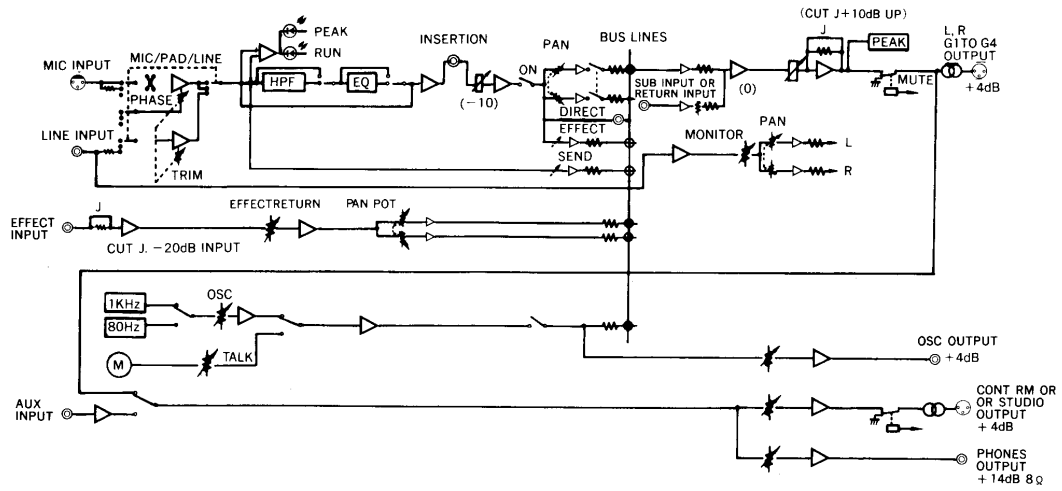


modified  
5/87 T. Gobbins  
SEE SERVICE  
MANUAL



\* modified 5/87 T.GOBBLIN  
 SOLO INSERTED ON  
 LEFT ONLY - RIGHT  
 STILL CARRIES PROG

# LEVEL DIAGRAM



Note: 0 dB = 0.775V rms.

## PLANNING TABLE

INPUTS		EFFECT IN L	EFFECT IN R	OUTPUT ③
MIC/LINE L 1		EFFECT IN L		OUTPUT ④
LINE/LINE R 1		RETURN IN ①		OUTPUT L
MIC/LINE L 2		RETURN IN ②		OUTPUT R
LINE/LINE R 2		RETURN IN ③		MONO OUT
MIC/LINE L 3		RETURN IN ④		SEND OUT L
LINE/LINE R 3		SUB IN L		SEND OUT R
MIC/LINE L 4		SUB IN R		STUDIO OUT L
LINE/LINE R 4		AUX IN L		STUDIO OUT R
MIC/LINE L 5		AUX IN R		CONT ROOM OUT L
LINE/LINE R 5		INSERTION 1		CONT ROOM OUT R
MIC/LINE L 6		INSERTION 2		EFFECT OUT L
LINE/LINE R 6		INSERTION 3		EFFECT OUT R
MIC/LINE L 7		INSERTION 4		DIRECT OUT 1
LINE/LINE R 7		INSERTION 5		DIRECT OUT 2
MIC/LINE L 8		INSERTION 6		DIRECT OUT 3
LINE/LINE R 8		INSERTION 7		DIRECT OUT 4
MIC/LINE L 9		INSERTION 8		DIRECT OUT 5
LINE/LINE R 9		INSERTION 9		DIRECT OUT 6
MIC/LINE L 10		INSERTION 10		DIRECT OUT 7
LINE/LINE R 10		INSERTION 11		DIRECT OUT 8
MIC/LINE L 11		INSERTION 12		DIRECT OUT 9
LINE/LINE R 11		INSERTION 13		DIRECT OUT 10
MIC/LINE L 12		INSERTION 14		DIRECT OUT 11
LINE/LINE R 12		INSERTION 15		DIRECT OUT 12
MIC/LINE L 13		INSERTION 16		DIRECT OUT 13
LINE/LINE R 13		INSERTION ①		DIRECT OUT 14
MIC/LINE L 14		INSERTION ②		DIRECT OUT 15
LINE/LINE R 14		INSERTION ③		DIRECT OUT 16
MIC/LINE L 15		INSERTION ④		AUX OUT L
LINE/LINE R 15		OUTPUTS		AUX OUT R
MIC/LINE L 16		OUTPUT ①		OSC OUT
LINE/LINE R 16		OUTPUT ②		

## TECHNICAL SPECIFICATIONS

<b>Frequency Response:</b>	MIC INPUT 20Hz to 20kHz $\begin{matrix} +0.5 \\ -1.5 \end{matrix}$ dB 74dB Gain at trim control maximum +4dB at Group, Master Output LINE INPUT 20Hz to 20kHz $\begin{matrix} +0.5 \\ -1.5 \end{matrix}$ dB 34dB Gain at trim control maximum +4dB at Group, Master Output LINE INPUT 20Hz to 20kHz $\begin{matrix} +0.5 \\ -1.0 \end{matrix}$ dB 34dB Gain at trim control maximum +4dB at Direct Output
<b>THD:</b>	MIC INPUT, LINE INPUT Less than 0.3% at 20Hz Typical 0.2% Less than 0.1% at 1kHz Typical 0.05% Less than 0.1% at 20kHz Typical 0.05% (MIC INPUT 64dB Gain +20dB at Group, Master Output) (LINE INPUT 24dB Gain +20dB at Group, Master Output)
<b>Equivalent Input Noise:</b>	-128dB Maximum -132dB Typical IHF "A" WTD (MIC INPUT 74dB Gain 150 ohm Source)
<b>Maximum:</b>	MIC: 74dB $\pm$ 1.5dB (84dB with internal jumper) LINE: 34dB $\pm$ 1.5dB (44dB with internal jumper)
<b>Crosstalk:</b>	60dB at 1kHz
<b>CMRR:</b>	70dB Minimum at 1kHz 80dB Typical (MIC INPUT 74dB Gain)
<b>Input Channel Equalizer:</b>	Low 40Hz to 600Hz $\pm$ 15dB (Shelving) Mid 400Hz to 6.3kHz $\pm$ 15dB (Peaking) High 4kHz to 16kHz $\pm$ 15dB (Shelving) (High, Mid, Low $\pm$ 13dB minimum)
<b>Mixing Buses:</b>	Group 4 Effect 2 Master 2 Solo 1 Send 2
<b>Meter:</b>	8 x 12 Point LED Bar Graph 6 VU Meter (with Peak LED)
<b>Peak Factor:</b>	MIC 33dB LINE 19dB Program 18dB
<b>Power Consumption:</b>	120V AC 60Hz, 200W
<b>Dimension:</b>	35-53/64" (W) x 10-7/16" (H) x 29-23/32" (D) (910mm) (265mm) (755mm)
<b>Weight:</b>	Approx. 114 lbs (52 kg)

\* 0 dB is referenced to 0.775V  
Weight and dimensions shown are approximate.  
Specifications are subject to change without notice.

\* The value of power consumption and weight are in the following module configuration.

WU-8101 x 10 pcs.	WU-8103 x 2 pcs.
WU-8106 x 6 pcs.	WU-8104 x 1 pc.
WU-8102 x 2 pcs.	WU-8105 x 1 pc.
WU-8107 x 2 pcs.	

● Input Specification

Connection	Input Level		*1	Actual Load Impedance	Indicated impedance	Nominal Impedance of Products connected	Connector Used	Mating connector (not provided)
	Nominal	Maximum before clip	Sensitivity (at maximum gain)					
*2 Mic In 1 to 16 Mic Pad 1 to 16	-60dB to -30dB -40dB to -10dB	-27dB to +3dB -7dB to +23dB	-80dB to -50dB -60dB to -30dB	2.2kΩ 5.9kΩ	3kΩ	150Ω to 600Ω Mics	3-pin XL-type female con- nector or equivalent, (Balanced)	3-pin XL-type male connector or equivalent
*3 Line In 1 to 16 (Stereo L, R In 1 to 16)	-20dB to +10dB	+14dB to +23dB	-40dB to -10dB	9kΩ	10kΩ	600Ω to 10kΩ Lines	3-pin XL-type female con- nector or equivalent, (Balanced)	3-pin XL-type male connector or equivalent
Effect In L, R	+4dB/ -20dB	+28dB/ +13dB	-30dB	9kΩ	10kΩ	600Ω to 10kΩ Lines	Tip-ring- sleeve phone jack, (Balanced)	Tip-ring-sleeve phone plug
Return In G1 to G4	+4dB	+28dB	-6dB	17kΩ	10kΩ	10kΩ Lines	Tip-ring- sleeve phone jack, (Unbalanced)	Tip-sleeve phone plug
Sub In L, R	+4dB	+28dB	-6dB	110kΩ	100kΩ	600Ω to 100kΩ Lines	Tip-ring- sleeve phone jack, (Unbalanced)	Tip-sleeve phone plug
Aux In L, R	-10dB	+23dB	-10dB	9kΩ	10kΩ	600Ω to 10kΩ Lines	3-pin XL-type female con- nector or equivalent, (Balanced)	3-pin XL-type male connector or equivalent
Input Insertion 1 to 16 G1 to G4	-10dB	+23dB	-30dB (1 to 16) -20dB (G1 to G4)	9kΩ	10kΩ	600Ω to 10kΩ Lines	Tip-ring- sleeve phone jack, (Unbalanced)	Tip-ring-sleeve phone plug

\*1. These values are obtained when +10 dB up jumper of group master out is cut, the fader is at the maximum position and the output is +4 dB.

\*2. These values are measured with the OSC switch off.

\*3. LINE IN L and R levels of the stereo input module are the same as the line input level of mono input module.

● Output Specification

Connection	Output Level		Indicated impedance	Nominal Impedance of Products connected	Used Connector	Adaptable Connector (not provided)
	Nominal	Maximum before clip				
Group Output 1 to 4	+4 dB	+23 dB	600Ω	600Ω Lines (or higher impedance lines)	3-pin XL-type male connector or equivalent, (Balanced)	3-pin XL-type female connector or equivalent
Master Output L, R						
Mono Master Output						
Send Output L, R						
Studio Output L, R						
Control Room Output L, R						
Effect Output L, R						
Direct Output 1 to 16						
Aux Output L, R						
OSC Output	+23 dB (T.B. Mic)	3kΩ	3kΩ (or higher impedance lines)			
Headphones	—	+14 dB 2W (RL=8Ω) 25mW (RL=600Ω)	—	8Ω to 600Ω phones	Tip-ring-sleeve phone jack	Tip-ring-sleeve phone plug
Group Insertion 1 to 16 G1 to G4	-10dB	+23 dB	3kΩ	10kΩ Lines	Tip-ring-sleeve phone jack, (Unbalanced)	Tip-sleeve phone plug

# TYPICAL PERFORMANCE

Chart 1

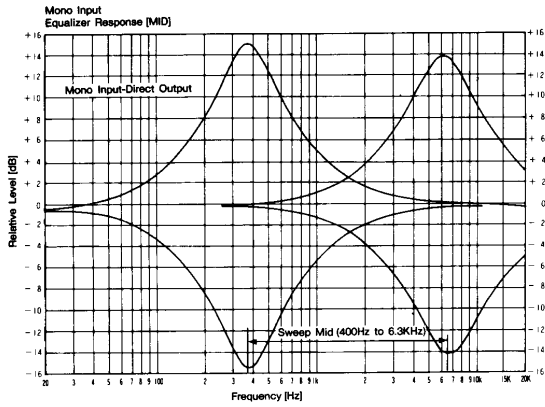


Chart 2

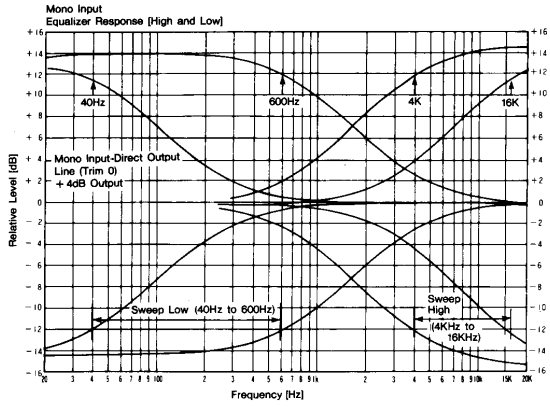


Chart 3

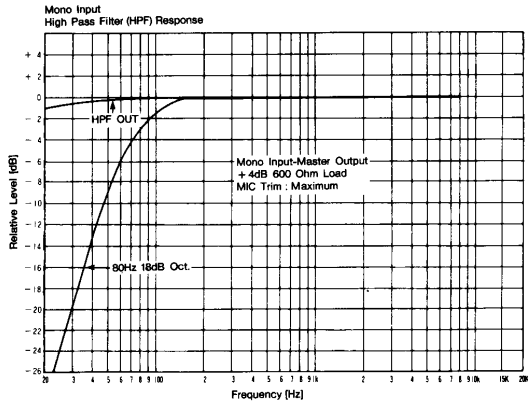


Chart 4

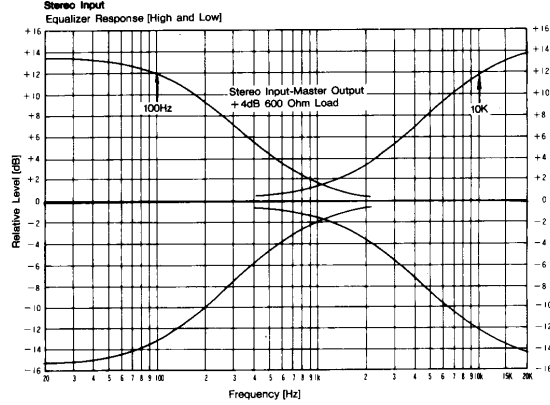


Chart 5

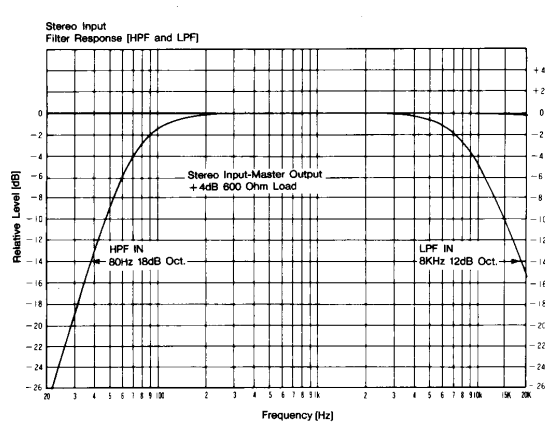
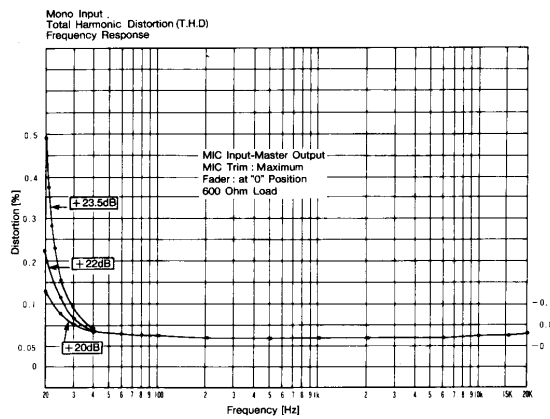
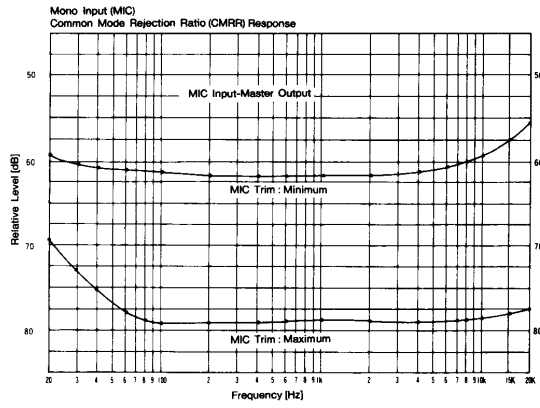


Chart 6

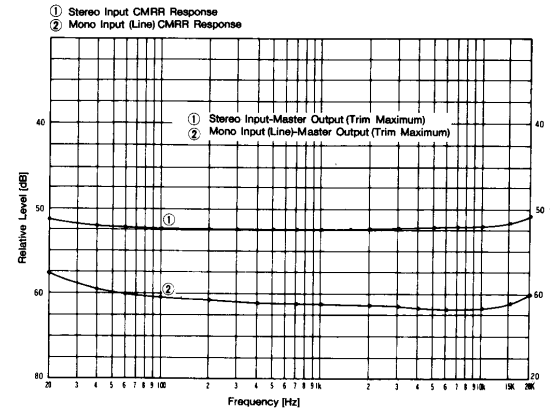




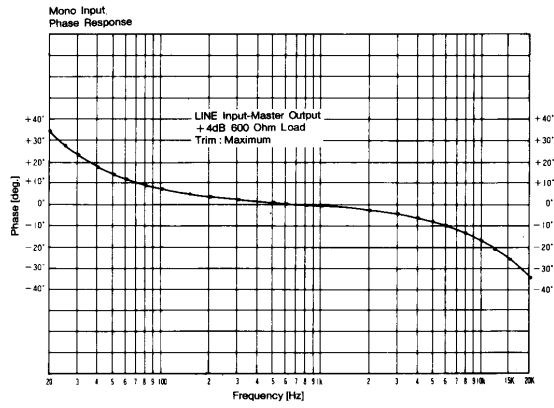
**Chart 7**

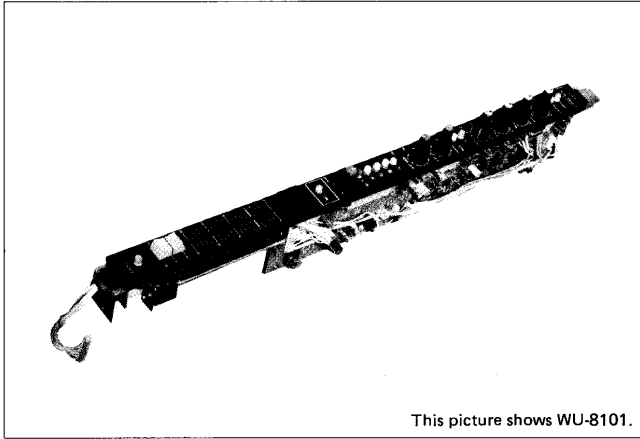


**Chart 8**



**Chart 9**





This picture shows WU-8101.

# RAMSA

Modules for WR-8616  
 WU-8101, WU-8102, WU-8103  
 WU-8104, WU-8105, WU-8106  
 WU-8107  
 Blank Module  
 WU-8091

## Operating Instructions

### Panasonic®

Before attempting to connect or operate this product please read these instructions completely.

These operating instructions are for Modules and Blank Module (option) to be used with RAMSA Mixing Console WR-8616.

### IMPORTANT NOTICE

Be sure to install only the designated modules in any module location. (Refer to the operating instructions for WR-8616 on page 3 and 4.) Incorrect installation of a module may result in severe damage to the mainframe and/or the module. This type of damage is not covered by the warranty.

### MOUNTING PROCEDURE

1. Before mounting modules and blank modules, be sure to turn off the power.
2. Remove the screws on both sides of the mixing console and remove the arm rest. (Fig. 1)
3. Set the modules and blank modules in the module insertion guide slits in the \*assigned positions. (Fig. 2)  
 \* Refer to the operating instructions for WR-8616 on page 3 and 4.
4. Secure the front of the module with the module mounting screw, then insert the bus connector. (Fig. 2)
5. Set the arm rest in the original position.

Fig. 1 Side plate mounting screws

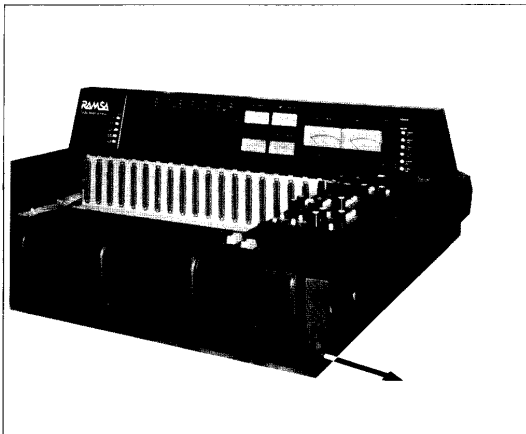
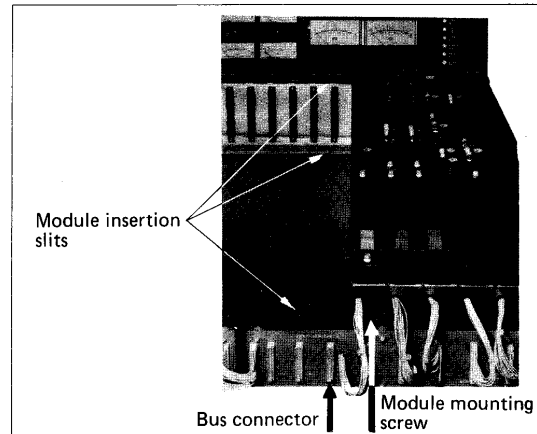


Fig. 2



\* Please turn over for the REPLACEMENT PROCEDURE.

## REPLACEMENT PROCEDURE

1. Before replacing the modules and blank modules, be sure to turn off the power.
2. Remove the screws on both sides of the mixing console and remove the arm rest. (Fig. 3)
3. Remove the screw holding the module or the blank module to be replaced. (Fig. 4)
4. Pull off the bus connector and pull out the module or the blank module toward you. (Fig. 5)
5. Mount a new module or a blank module by reversing the preceding steps 4, 3, 2.
6. Turn on the power and check that the module operates properly.

Fig. 3 Side plate mounting screws



Fig. 4 Module unit mounting screw

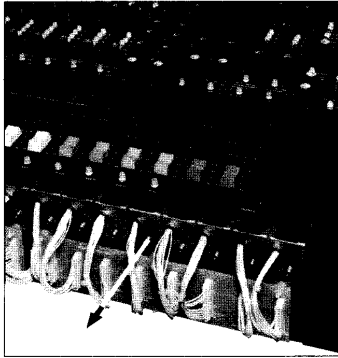
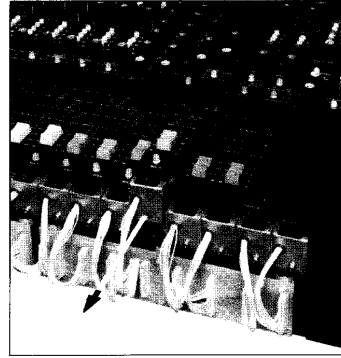


Fig. 5 Removal of module



**Panasonic**<sup>®</sup>

AUDIO-VIDEO SYSTEMS DIVISION  
PANASONIC INDUSTRIAL COMPANY  
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