Installation Manual
and Operating Instructions

4 Channel - 2 Zone - VOX - Mute - MOH - Phone Interface

DMA 2015 - 15 Watt RMS
DMA 2030 - 30 Watt RMS
DMA 2060 - 60 Watt RMS
DMA 2120 - 120 Watt RMS

IMPORTANT NOTE: THIS OPERATING MANUAL IS PROVIDED AS AN INSTALLATION AND AS AN OPERATING AID. PASO SOUND PRODUCTS, INC. DOES NOT Assume ANY RESPONSIBILITY AS To ITS ACCURACY AND SHALL NOT Be LIABLE IN TORT OR CONTRACT FOR ANY DIRECT CONSEQUENTIAL OR INCIDENTAL LOSS OR DAMAGE ARISING FROM THE INSTALLATION, USE OR INABILITY TO USE THIS PRODUCT.

CAUTION !

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS APPLIANCE TO WATER, RAIN OR MOISTURE.

REV. 1.5
DESCRIPTION AND APPLICATIONS

- High Performance - High Reliability Design
- Wide Frequency Response - Very Low Distortion
- 4 Channel Inputs - 2 Zone Outputs
- Up to 3 Balanced Microphone Inputs
- Phantom Power on all MIC Inputs
- MIC 2/AUX 1 and MIC 3/AUX 2 Inputs
  With Stereo Summing
- AUX1 and AUX2 Inputs Attenuator
- 600 ohm Transformer Balanced
  Telephone Paging Input
- MIX Buss and 600 ohm Line Output
- Independent Input Controls
- AUX1 Remote Volume Controls
- External EQ Link
- Tone by-pass and EQ Link switches
- Addressable VOX Buss
  Voice Activated Muting
- VOX Variable Time Delay Function
- Addressable MUTE Buss
- Direct Muting and Unmuting
- 600 ohm and 8 ohm 2 Watt Max.
  Music on Hold Amplifier
- MOH Amplifier Source Selector
- Zone 2, 2 Watt - 8 ohm Output
  with Separate Control
- 24 V DC 250 mA Regulated Power Supply Output
- 8 ohm, 25 Volt & 70 Volt Output
- Optional 19" Rack Mounting with Kit
- Low profile - 2-Unit of Vertical Rack space
- UL 6500 Listed (US - CANADA)

UNPACKING

Immediately upon receipt of the amplifier, inspect the unit and shipping container for indications of improper handling or in transit damage. The equipment was carefully inspected and tested before leaving the factory. Notify the Transportation Company immediately if any damage is found. ONLY THE CONSIGNEE CAN FILE A CLAIM WITH THE CARRIER FOR DAMAGE DURING SHIPMENT. Be sure to save the carton and packing material as evidence of damage for the shipper inspection. DO NOT SHIP the unit back to the factory unless authorized by the factory.

IN TRANSIT DAMAGES ARE NOT COVERED BY THE PASO WARRANTY.

SPECIFICATIONS

POWER OUTPUT:
- DMA2015 15 Watt RMS
- DMA2030 30 Watt RMS
- DMA2060 60 Watt RMS
- DMA2120 120 Watt RMS

Distortion: 0.01% THD at 1 kHz rated power
Frequency Response: 20 Hz - 30 KHz ± 2 dB
Inputs:
  - Input 1: MIC Electronically Balanced,
    Transformer Balanced with MT250 (optional)
  - Input 2: Telephone Transformer Balanced
  - Input 3: MIC Electronically Balanced - AUX 1 (Stereo Sum.)
  - Input 4: MIC Electronically Balanced - AUX 2 (Stereo Sum.)

Sensitivity & Z:
- Input 1: Mic 1 = 1.5 Mv - 250 ohm
- Input 2: Tel=100 Mv - 600 ohm - Transformer Balanced
- Input 3: Mic 3 = 1.5 Mv - 250 ohm - AUX 1 = 100 Mv - 47K ohm
- Input 4: Mic 4 = 1.5 Mv - 250 ohm - AUX 2 = 100 Mv - 47K ohm

Input Attenuator: AUX 1 and AUX 2
Phantom Power: All Microphone Inputs by internal jumper (18 V)
Hum & Noise: Mic -70 db, Aux -75 db 600 ohm Transformer balanced

Telephone Paging Input:
- EQ LINK: Preamp. out, Power Amp in with EQ Link Switch
- Line Outputs: Line Out 600 ohm - 1.5 V loaded
- Inputs/Outputs: MIX BUS
- Music on Hold Output: 600 ohm-1 Volt Transformer Balanced
- Zone 2 Output: 2 Watt Max. - 8 ohm with Control
- Main Output Impedance: 8 ohm, 25 Volt and 70 Volt line

Controls:
- Front Panel: Input 1 Volume, Input 2 Volume, Input 3 Volume,
  Input 4 Volume, Bass and Treble
- Rear Panel: AUX 1 Attenuator - AUX 2 Attenuator, VOX Sensitivity
  MOH/ZONE 1 Level Control - ZONE 2 Level Control
  - VOX Sensitivity - MUTE Delay
- Tone Controls: Bass and Treble ± 10 dB at 100 Hz and 10 KHz
- Tone By-Pass: On - Off Switch Rear Panel
- Remote Volume Control: INPUT 3 - AUX 1 Input Volume
- MOH Source Select: AUX 1 and AUX 2
- Zone 2 Source Select: AUX 1 and AUX 2
- VOX BUSS: Available on all Inputs by internal Jumper
- MUTE BUSS: Available on all Inputs by internal Jumper
- MUTE DELAY: Adjustable from 3 Sec to 60 Sec (rear panel control)
- Direct Muting: External Contact Closure
- Power Supply Output: MUTES/INMUTES MIC 1 only
- Rack Mounting: 24 V DC - 250 mA Regulated
- Internal Cooling Fan: Optional 19" Rack Kit
- Thermally Controlled - Models DMA2060, DMA2120
- Power Surge, Overload and Thermal Protection
- Power Requirement: 117 Volt, 50-60 HZ
- Power Consumption: DMA2015 = AC = 570 VA - DMA2030 = 600 VA
  DMA2060 = 670 VA - DMA2120 = 850VA Max.
- AC Accessory Outlet: 117 v - 500 W Max. Unswitched
- Terminations: Screw Terminals, RCA Jacks
- Housing Finish: Black
- Multi-color LED Signal and Clip
- Dimensions: External 3.5" W., 11" D., 4" H. with feet (274X280X102 mm)
- Net Weight: 9.8 Lbs (4.5 Kg)
- Net Weight: DMA2030 = 11.75 Lbs (5.4 Kg)
- Net Weight: DMA2060 = 12.5 Lbs (5.7 Kg)
- Net Weight: DMA2120 = 14.25 Lbs (6.5 Kg)
**RACK MOUNTING**

A) Procure the optional accessory Rack Mount Kit Model 27/3500.
B) Turn amplifier up side down and remove the four rubber feet by unscrewing the four holding screws.
C) Remove the bottom front screws on each side of the amplifier holding the amplifier cover.
D) Install the rack kit brackets by using the self-tapping screws provided.

*Fig. 3 - Rack Kit Mounting*
Fig. 4 - FRONT PANEL CONTROLS

1) INPUT 1 Volume Control
2) TEL INPUT Volume Control
3) INPUT 3/AUX 1 Volume Control
4) INPUT 4/AUX 2 Volume Control
5) BASS Control
6) TREBLE Control
7) On-Off Power Switch
Fig. 5- REAR PANEL INPUTS - OUTPUTS - CONTROLS

1) MOH - Output Level Control
2) Unswitched AC Auxiliary Socket
3) 1 MOH - 600 ohm, 1 Volt Output
4) Zone 1 - 8 ohm, 2 Watt Max. Output
5) MUTE Terminal
6) MIC 1 UNMUTE Terminal
7) 24 Volt DC Regulated Power Supply Output
8) ZONE 1 - Output Level Control
9) INPUT 4 - AUX 2 Balanced Input
10) INPUT 3 Remote Volume Terminals
11) INPUT # _ AUX 1 Balanced Input
12) TELEPHONE Paging Balanced Input 600 Ohm
13) INPUT 1 - MIC 1 Balanced Input
14) INPUT 4 - AUX 2 Input Attenuator
15) INPUT 4 - AUX 2 - Stereo Summing Jacks
16) INPUT 3 - AUX 1 - Stereo Summing Jacks
17) INPUT 3 - AUX 1 Input Attenuator
18) TONE BYPASS - ON/OFF SWITCH
19) MIX BUSS
20) LINE OUT 600 Ohm
21) EQ LINK - PREAMP OUT/POWER AMP IN
22) Standard Module Port
23) MUTE Time Delay Control
24) VOX Sensitivity Control
25) Speaker Output Terminals
26) AC Line Fuse
27) Chassis Ground
28) AC Power Cord

WARNING THIS APPLIANCE MUST BE EARTHEO
Fig. 6 - MAIN AND PREAMPLIFIER BOARD TOP VIEW

FUNCTION SWITCHES AND JUMPERS LOCATION

AUX 1 INPUT 3
AUX 2 INPUT 4 INPUT 3
REMOTE VOLUME
TEL PAGING
S114 OFF V1
S112 OFF MUTE1
S109 MIC AUX1 SELECTOR
S107 AUX1 AUX2 MOH - ZONE 1
S109 (INPUT 3) MIC AUX1
S114 (INPUT 1) OFF V1
S110 OFF MUTE1
S115 UNMUTE ON OFF
S113 OFF M1
S112 (INPUT 3) OFF M1
S110 OFF V1 INPUT 3
S108 OFF VOX1
S115 ON MUTE1
S108 PHANTOM POWER MIC 1
S102 ON MUTE1
S103 ON MUTE1
S104 ON MUTE1
S105 ON MUTE1
S101 (INPUT 4) MIC 4
S103 (MIC 3) PHANTOM
S102 (MIC 4) PHANTOM
S101 (INPUT 4) MIC 2
S104 (MIC 1) PHANTOM
S105 (MIC 1) PHANTOM
INPUT 1 TRANSFORMER SWITC
**FUNCTION SWITCHES AND JUMPERS DEFAULT SETTING TABLE**

<table>
<thead>
<tr>
<th>JUMPER AND SWITCH ID NO.</th>
<th>JUMPER REFERENCE</th>
<th>FUNCTION DESCRIPTION</th>
<th>FACTORY SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PREAMPLIFIER PCB JUMPERS (Upper Board)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S102</td>
<td>INPUT 4 (MIC 4)</td>
<td>PHANTOM POWER ON - OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>S103</td>
<td>INPUT 3 (MIC 3)</td>
<td>PHANTOM POWER ON - OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>S104</td>
<td>INPUT 1 (MIC 1)</td>
<td>PHANTOM POWER ON - OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>S108</td>
<td>INPUT 4</td>
<td>VOX 1 - OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>S110</td>
<td>INPUT 3</td>
<td>VOX 1 - OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>S114</td>
<td>INPUT 1 (MIC 1)</td>
<td>VOX 1 - OFF</td>
<td>V1</td>
</tr>
<tr>
<td>S115</td>
<td>INPUT 1 (MIC 1)</td>
<td>UNMUTE ON - OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>S111</td>
<td>INPUT 4 (AUX 2/MIC)</td>
<td>MUTE 1 - OFF</td>
<td>M1</td>
</tr>
<tr>
<td>S112</td>
<td>INPUT 3 (AUX 1/MIC)</td>
<td>MUTE 1 - OFF</td>
<td>M1</td>
</tr>
<tr>
<td>S113</td>
<td>INPUT 1 (MIC 1)</td>
<td>MUTE 1 - OFF</td>
<td>OFF</td>
</tr>
<tr>
<td><strong>MAIN PCB JUMPERS (Lower Board)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S203</td>
<td>TEL INPUT</td>
<td>VOX 1 - OFF</td>
<td>V1</td>
</tr>
<tr>
<td>S204</td>
<td>TEL INPUT</td>
<td>MUTE 1 - OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

**SWITCHES/JUMPERS**

<table>
<thead>
<tr>
<th>JUMPER AND SWITCH ID NO.</th>
<th>JUMPER REFERENCE</th>
<th>FUNCTION DESCRIPTION</th>
<th>FACTORY SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>S101</td>
<td>INPUT 4</td>
<td>MIC 4 OR AUX 2</td>
<td>SWITCH AUX 2</td>
</tr>
<tr>
<td>S105</td>
<td>INPUT 1</td>
<td>XFMER/DIRECT</td>
<td>SWITCH DIRECT</td>
</tr>
<tr>
<td>S109</td>
<td>INPUT 3</td>
<td>MIC 3 OR AUX 1</td>
<td>JUMPER AUX 1</td>
</tr>
</tbody>
</table>

**MOH/ZONE 1 BOARD JUMPERS**

<table>
<thead>
<tr>
<th>JUMPER AND SWITCH ID NO.</th>
<th>JUMPER REFERENCE</th>
<th>FUNCTION DESCRIPTION</th>
<th>FACTORY SETTING</th>
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</thead>
<tbody>
<tr>
<td>S107</td>
<td>MOH/ZONE 1 INPUT SOURCE</td>
<td>AUX 1 - AUX 2</td>
<td>AUX 1</td>
</tr>
</tbody>
</table>

**REAR PANEL SWITCHES**

<table>
<thead>
<tr>
<th>JUMPER AND SWITCH ID NO.</th>
<th>JUMPER REFERENCE</th>
<th>FUNCTION DESCRIPTION</th>
<th>FACTORY SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>S201</td>
<td>EQ LINK</td>
<td>Inserts External EQ between Preamp Out and Power Amp Input</td>
<td>INTERNAL</td>
</tr>
<tr>
<td>S202</td>
<td>TONE BYPASS</td>
<td>Defeats Front Panel Bass &amp; Treble Controls</td>
<td>SWITCH OFF</td>
</tr>
</tbody>
</table>
UNDERSTANDING THE INPUT FUNCTIONS

VOX AND MUTE - The Amplifier provides an independent VOX and MUTE SYSTEM.

FUNCTION SOCKETS - EACH INPUT IS PROVIDED WITH A VOX (V1) AND A MUTE (M1) SOCKET.

INPUTS VOX AND MUTE FUNCTION - All Inputs provide a VOX SEND and a MUTE RECEIVE functions. The VOX and MUTE functions are SWITCHED-ON, on each Input, by Internal Jumpers provided for each Input. The VOX BUSS SEND (V1) and the MUTE BUSS RECEIVE (M1) can be independently SWITCHED-ON or OFF to suit the application requirement.

Fig. 8 - Any Input VOX and MUTE Functions

The figure below shows how the VOX 1 Logic Switch is switched ON and the MUTE 1 Logic Switch is SWITCHED-OFF by moving the Jumpers as indicated. When the Input is activated by a Source signal the corresponding VOX Signal is sent to the V1 BUSS. When the VOX 1 is activated by any Input the MUTE Signal is present on the MUTE 1 BUSS and it will MUTE any Input with the MUTE M1 turned on.

Fig. 8B - Any Input VOX 1 activated and MUTE 1 OFF

SETTING THE VOX AND MUTE JUMPERS

JUMPER SETTINGS - The VOX and MUTE Functions are SWITCHED-ON or OFF by setting the JUMPERS on the VOX (A) and MUTE (B) SOCKET. See Fig. 8A.

The SOCKETS are located on the Main PCB inside the Amplifier as shown on the SWITCHES and JUMPERS LOCATION DIAGRAM in this Manual. Each Socket is identified by an ID NUMBER and the FUNCTION and DEFAULT settings are listed on the FUNCTION SWITCHES and JUMPERS DEFAULT SETTING TABLE in this Manual.

TO SET: Lift the Jumper and reset as required. making sure that the JUMPER is properly positioned over the two shorting pins.

The VOX JUMPER has two positions: OFF, and V1
The MUTE JUMPER has two positions: OFF, and M1

Fig. 8A - VOX and MUTE Sockets

IMPORTANT NOTE

BE SURE NOT TO SET BOTH THE VOX AND CORRESPONDING MUTE ON THE SAME INPUT OR THE INPUT WILL MUTE ITSELF WHEN ACTIVATED.

EXAMPLE: INPUT 1 - V 1 and M 1 BOTH ON.
EXAMPLE 9

V1 OFF
M1

INPUT 1 (MIC 1) mutes INPUT 3/AUX 1. When the Microphone is activated the Music on AUX 1 is muted.

EXAMPLE 9A

V1 OFF
M1

INPUT 1 (MIC 1) and TEL IN (Phone Paging) both mute INPUT 3/AUX 1. When the Microphone or the Phone Paging are activated the Music on AUX 1 is muted.

EXAMPLE 9B

V1 OFF
M1

INPUT 1 (MIC 1) mutes INPUT 3/AUX 1. INPUT 3 (Jukebox) mutes INPUT 4 (Satellite Receiver). When the Jukebox is turned on the Background Music on AUX 2 is muted. The Microphone Paging when activated will mute the Background Music but not the Jukebox. The MUTE 2 DELAY (Reference 23) Control is provided to adjust the duration of the MUTE when the Jukebox is activated (this effects also the duration of the MUTE when Paging from the Microphone.

EXAMPLES
**INPUT 1 - MICROPHONE INPUT**

**MICROPHONE TYPE**
The Microphone Input accepts Low Impedance (250-600 ohm) Dynamic Microphones. The Microphone may be a balanced output type (three wire) or an unbalanced output type (two wire).

**PASO MICROPHONES**
All PASO low impedance Microphones have a balanced output for best performance. Connect the RED lead to terminal HOT, the WHITE lead to terminal COM and the SHIELD to terminal G.

**WIRING**

**MICROPHONE INPUT**
Attach the microphone leads to the terminal strip as per diagrams at left.

**DO NOT GROUND THE MICROPHONE CABLE SHIELD TO THE CHASSIS OF THE AMPLIFIER**

**BALANCED MICROPHONE**
IMPORTANT NOTE: The use of an unbalanced Microphone (two leads) is not recommended. For best results in a PA Application always use a Unidirectional Dynamic, Low Impedance, Balanced Microphone (three leads).

**UNBALANCED MICROPHONE**
Attach the Microphone leads to the terminal strip as per diagram in Fig 10A. The cable length should not exceed: 15 Ft. (4.5 m).

**CABLE**

**CABLE LENGTH** - If the distance between the Microphone and the Amplifier Input is greater than 15 ft (4.5 m) a Balanced Microphone must be used. Use a two conductor shielded wire and connect Microphone to Amplifier as per Diagram in Fig. 10.

**MICROPHONE CABLE ROUTING** - The Microphone Cable should be carefully routed. Improper Cable routing will cause spurious oscillations, regenerative noises, hum, etc. that may permanently damage the Amplifier.
- Do not route cable next to power lines.
- Do not route cable near or over Fluorescent Fixtures.
- Do not route cable next to Speaker Wires.
- Do not install cable inside Power Line Conduits.
- Avoid the use of staples that may penetrate the cable.
INPUT 1 - USING A DESK BASE MICROPHONE

USING A PUSH-TO-TALK DESK BASE MICROPHONE
Microphone paging and precedence over AUX 1 or AUX 2 channels may be accomplished by using a Desk Base or a Gooseneck Microphone. Wire the Microphone output leads to the MIC input terminals as per Fig. 11A.

MUTING: The Amplifier is equipped with two independent Muting Circuits:
- Direct Muting by shorting the MUTE Terminals
- Automatic Muting with VOX - Voice Activated Muting

For additional information on the Muting operation refer to the Muting Functions section of this Manual.

CAUTION: TO PREVENT POSSIBLE DAMAGE TO SPEAKERS OR THE AMPLIFIER ALL INPUT CONNECTIONS MUST BE MADE WITH THE AMPLIFIER POWER OFF.

WIRING
Wire the Desk Base Microphone leads to the Microphone Input terminal strip as per diagram in Fig 11A. Check Microphone instructions and connect HOT LEAD (B) to Terminal HOT, COMMON LEAD (A) to Terminal COM and SHIELD LEAD to Terminal G. Connect Muting Switch to Terminals MUTE and G as shown.

DO NOT GROUND THE MICROPHONE CABLE SHIELD TO THE CHASSIS OF THE AMPLIFIER

MUTING - PRIORITY SETTINGS
Direct Muting is provided by the Desk Base Muting Switch wired as per diagram in Fig. 11A. If Auto-Mute (VOX) is desired follow instructions below. The Desk Base Muting Switch can be omitted.

MUTING INPUT 4/AUX 1 (MUSIC INPUT)
To mute Input 4/AUX 1 (Music Input) when Paging from MIC 1, set INPUT 4/AUX 2 MUTE 1 JUMPER to ON Position. Each time MIC 1 is activated the Program on Input 4/AUX 2 is automatically muted by the VOX.
CAUTION!  REMOVAL OF THE AMPLIFIER COVER PRESENTS AN ELECTRICAL SHOCK HAZARD
ALWAYS REMOVE THE POWER CORD FROM THE AC WALL OUTLET

THE FOLLOWING INSTRUCTIONS REQUIRE THE REMOVAL OF THE AMPLIFIER PROTECTIVE COVER AND ARE
PROVIDED FOR USE BY QUALIFIED PERSONNEL ONLY.
TO AVOID THE RISK OF ELECTRICAL SHOCK DO NOT PERFORM ANY INSTALLATION OR SERVICING UNLESS YOU
ARE QUALIFIED TO DO SO. REFER INSTALLATION OR SERVICING TO QUALIFIED PERSONNEL.

INPUT CONNECTIONS

CONDENSER AND ELECTRET MICROPHONES

Condenser and Electret Microphones require a DC Operating Voltage. The Amplifier provides this operating voltage or Phantom Power selectively on Inputs 1-3-4.

Prior to selecting the Condenser or Electret Microphone be sure that the Operating Voltage and Output Impedance of the device match the Input characteristics of the Amplifier listed below.

Phantom Power = 18 Volt DC
Input Impedance = 250 to 600 ohm

ACCESS TO PHANTOM POWER SELECTORS
1) Remove Power Cord from AC Outlet.
2) Remove the three screws on each side of the Amplifier.
3) Lift Cover and carefully slide Cover out towards the rear.
4) Jumpers are located on the Top Printed Circuit Board.

PHANTOM POWER SELECTOR JUMPERS

By following the Main Printed Board Layout locate the Selector Jumpers with the ID No. as indicated on the Table below.

Reset the Phantom Power Jumpers for INPUT 1 - 3 or 4 to the ON position as desired. Lift the Mini Jumper out of the socket pins and re-position to the ON position. Make sure the Jumper is lined up with the socket pins.

INPUT 4 and 5 CONFIGURED AS MIC INPUTS

If INPUT 4 and INPUT 5 need to be configured as Microphone Inputs, reset the Phantom Power Jumpers as well as the Switches provided for the two Inputs as indicated in the Table below.

PHANTOM POWER SELECTORS

CONNECTIONS

PHANTOM POWER SELECTORS

By following the Main Printed Board Layout locate the Selector Jumpers with the ID No. as indicated on the Table below.

Reset the Phantom Power Jumpers for INPUT 1 - 3 or 4 to the ON position as desired. Lift the Mini Jumper out of the socket pins and re-position to the ON position. Make sure the Jumper is lined up with the socket pins.

INPUT 4 and 5 CONFIGURED AS MIC INPUTS

If INPUT 4 and INPUT 5 need to be configured as Microphone Inputs, reset the Phantom Power Jumpers as well as the Switches provided for the two Inputs as indicated in the Table below.

WIRING

CONNECTIONS

DO NOT GROUND THE MICROPHONE CABLE SHIELD TO THE CHASSIS OF THE AMPLIFIER

CONFIGURATION TABLES

BALANCED CONDENSER/ELECTRET MICROPHONE WIRING

INPUT 3 - 4 SWITCH SETTINGS WHEN CONFIGURING AS MICROPHONE INPUT

<table>
<thead>
<tr>
<th>Input</th>
<th>Switch No.</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT 3</td>
<td>S109</td>
<td>MIC 3</td>
</tr>
<tr>
<td>INPUT 4</td>
<td>S101</td>
<td>MIC 4</td>
</tr>
</tbody>
</table>

INPUT 3 (MIC)  TEL (PAGING)  INPUT 1 (MIC)

G  COM  HOT  G  COM  HOT  G  COM  HOT

+18V +18V

MIC Lo Z  SHIELD  HOT LEAD  HOT LEAD

Fig. 12 - Balanced Condenser/Electret Microphone Wiring - Configuration Tables
CAUTION: TO PREVENT POSSIBLE DAMAGE TO SPEAKERS OR THE AMPLIFIER ALL INPUT CONNECTIONS MUST BE MADE WITH THE AMPLIFIER OFF (POWER OFF).

Fig. 13 - Connecting to the Telephone Paging KSU

WIRING - The Amplifier is interface ready for the Telephone line in applications requiring paging from the telephone system. The Telephone line Paging Output (Tip and Ring) can be directly connected to the TEL input and to the HOT and COM as shown in the wiring diagram Fig. 13A.

CABLE - Use a two conductor twisted wire.

NOTE: The Telephone Paging Input is a Transformer Balanced 600 ohm input.

DO NOT GROUND THE TIP OR RING WIRE TO THE CHASSIS OF THE AMPLIFIER

OUTPUT LEVEL CONTROL - Use TEL OUTPUT LEVEL Control located on the Rear panel. After wiring adjust control for the desired output level.

VOICE ACTIVATED MUTING (VOX) - Muting of the AUX 1 - AUX 2 channels (music muting) during Paging is automatic via the Voice Activated Muting System. No contact closure for the Muting Circuit is required from the Telephone system. For additional information on the Muting operation refer to the Muting Functions section of this Manual.

PHONE PAGING PRIORITY OVER MICROPHONES - Priority over any Microphone Input may be accomplished by setting the MIC Inputs MUTE Jumpers.

Fig. 13A - Balanced Telephone Input Wiring
**INPUT 3 SET AS AUX 1**

The AUX 1 input is provided for high level program source. The output from a Satellite Receiver, Tuner, Tape Cassette Deck, CD Player or other high level program source may be directly connected to this input.

**AUX 1 SENSITIVITY ATTENUATOR**

The AUX 1 Input is equipped with a Sensitivity Attenuator that allows the interface of the Input with Devices having a wide range of Output Levels.

**TYPICAL OUTPUT LEVEL OF MUSIC DEVICES:**

- **Satellite Receivers** = 1 to 5 Volt
- **Digital Tuners/Receivers** = 100 to 300 Mv
- **CD Players/Changers** = 2 to 3 Volt
- **Tape Decks** = 500 to 700 Mv

By adjusting the Input Sensitivity to the level that matches the device used the correct interface with the Amplifier is achieved resulting in lower overall distortion and better frequency response characteristics.

**SETTING THE AUX 1 INPUT ATTENUATOR**

Connect a Music Source to the Amplifier.

1. Turn Attenuator (rear panel) fully counterclockwise.
2. Turn INPUT 4 Front Panel Control to midway.
3. Switch Amplifier and Music Source ON.
4. Turn Attenuator Control (rear panel) until desired Output Level is achieved.
5. Adjust INPUT 4 Front Panel Level Control Up-Down as desired.

**STEREO SUMMING**

Most Music Source Devices provide a Stereo Output. Accordingly the Amplifier is equipped with two Jacks for the AUX 1 Input (L and R). The two Inputs are internally buffered and electronically mixed to Mono. This system ensures that the Music Device is properly loaded and that the Stereo Signals are correctly summed (L+R) to Mono without distortion.

**CABLE**

To connect the music source devices to the AUX 1 Input use two single conductor shielded audio cable terminated in a single prong phono plug on both ends.

**AUX 1 INPUT MUTING**

**MUTING - WHEN MIC 1 OR THE TEL IN ARE ACTIVATED THE VOX 1 BUSS IS SWITCHED-ON AND THE SIGNAL PRESENT ON THE MUTE 1 BUSS WILL MUTE THE MUSIC FROM AUX 1.**
**SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE**

### INPUT 4/AUX 2 DEFAULT SETTING

<table>
<thead>
<tr>
<th>JUMPERS/SWITCH NO.</th>
<th>FACTORY SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>S108 - VOX JUMPER</td>
<td>OFF</td>
</tr>
<tr>
<td>S111 - MUTE JUMPER</td>
<td>M 1</td>
</tr>
<tr>
<td>S101 - AUX 2-MIC 4 SWITCH</td>
<td>AUX 2</td>
</tr>
</tbody>
</table>

### AUX 2

**INPUT 4 SET AS AUX 2**

The AUX 2 input is provided for high level program source. The output from a Jukebox, Tuner, Tape Cassette Deck, CD Player or other high level program source may be directly connected to this input.

**AUX 2 SENSITIVITY ATTENUATOR**

The AUX 2 Input is equipped with a Sensitivity Attenuator that allows the interface of the Input with Devices having a wide range of Output Levels.

**TYPICAL OUTPUT LEVEL OF MUSIC DEVICES:**

- **Satellite Receivers** = 1 to 5 Volt
- **Digital Tuners/Receivers** = 100 to 300 Mv
- **CD Players/Changers** = 2 to 3 Volt
- **Tape Decks** = 500 to 700 Mv

By adjusting the Input Sensitivity to the level that matches the device used the correct interface with the Amplifier is achieved resulting in lower overall distortion and better frequency response characteristics.

**SETTING THE AUX 2 INPUT ATTENUATOR**

Connect a Music Source to the Amplifier. Turn Attenuator (rear panel) fully counterclockwise. Turn INPUT 5 Front Panel Control to midway. Switch Amplifier and Music Source ON. Turn Attenuator Control (rear panel) until desired Output Level is achieved. Adjust INPUT 5 Front Panel Level Control Up-Down as desired.

**STEREO SUMMING**

Most Music Source Devices provide a Stereo Output. Accordingly the Amplifier is equipped with two Jacks for the AUX 1 Input (L and R). The two Inputs are internally buffered and electronically mixed to Mono. This system ensures that the Music Device is properly loaded and that the Stereo Signals are correctly summed (L+R) to Mono without distortion.

**CABLE**

To connect the music source devices to the AUX 1 Input use two single conductor shielded audio cable terminated in a single prong phono plug on both ends.

**AUX 2 INPUT MUTING**

**MUTING - WHEN MIC 1 OR THE TEL IN ARE ACTIVATED THE VOX 1 BUSS IS SWITCHED-ON AND THE SIGNAL PRESENT ON THE MUTE 1 BUSS WILL MUTE THE MUSIC FROM AUX 2.**

---

**Fig. 15 - Rear Panel AUX 2 Input Diagram**

**Fig. 15A - Stereo Summing and AUX 2 Input Attenuator**

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DMA2015/2030/2060/2120

PROFESSIONAL AUDIO & SOUND

DIGITAL MUSIC AMPLIFIERS

COMPACT

DIGITAL MUSIC AMPLIFIERS
ADDRESSABLE VOX SYSTEM

VOX - VOICE ACTIVATED MUTING

VOX - VOICE ACTIVATED MUTING - The Amplifier is equipped with a noiseless, fast acting Logic VOX Switching System. When any of the INPUTS are activated and a Signal is present on a given INPUT and the VOX 1 is Switched-ON (using internal Jumpers) then the MUTE 1 BUS is ACTIVE. If any of the INPUTS have the MUTE 1 Switched-ON (by Internal Jumpers) then the INPUT (or INPUTS) will be MUTED according to the Jumpers Setting. Once the SIGNAL-ON on the ACTIVE INPUT is terminated the normal functions are automatically restored on all muted inputs.

ACCESS TO VOX AND MUTE JUMPERS
REFER TO JUMPERS AND SWITCHES INTERNAL ACCESS.

CAUTION: PRIOR TO PERFORMING THE ABOVE OPERATION BE SURE TO FOLLOW THE SAFETY NOTES REFERING TO THE REMOVAL OF THE AMPLIFIER COVER.

VOX 1 SENSITIVITY CONTROL

The VOX 1 Sensitivity Control sets the sensitivity level at which point the VOX 1 is engaged during INPUT ACTIVATION. The VOX Sensitivity Control is located on the Amplifier Rear Panel.

VOX 1 SENSITIVITY CONTROL = Reference 24

VOX SENSITIVITY ADJUSTMENT

1) Turn all Front Panel Input Level Controls to 0.
2) Turn VOX Sensitivity Control counterclockwise until it stops.
3) Connect a Signal Source (Microphone, Telephone or Music) to the respective Input Terminals (For connection details refer to the appropriate section in this Manual).
4) While talking from a Paging Source (Microphone or Telephone) or Playing Music rotate the INPUT LEVEL CONTROLS (Front Panel) until the desired output level is achieved.
5) While talking from a Paging Source (Microphone or Telephone) or Playing Music, turn the Sensitivity Control (VOX 1) slowly clockwise until the Muting is activated.

VOX SENSITIVITY CONTROLS

VOX SENSITIVITY ADJUSTMENT

Fig. 16 - Rear Panel VOX 1 Sensitivity Control and MUTE Time Delay Control

VOX JUMPERS DEFAULT SETTING TABLE

<table>
<thead>
<tr>
<th>JUMPER ID NO.</th>
<th>JUMPER REFERENCE</th>
<th>FUNCTION DESCRIPTION</th>
<th>FACTORY SETTING</th>
<th>FACTORY SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>S110</td>
<td>INPUT 3</td>
<td>VOX1 - OFF</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S108</td>
<td>INPUT 4</td>
<td>VOX1 - OFF</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S114</td>
<td>INPUT 1</td>
<td>VOX1 - OFF</td>
<td>V1</td>
<td></td>
</tr>
<tr>
<td>S203</td>
<td>TEL IN</td>
<td>VOX1 - OFF</td>
<td>V1</td>
<td></td>
</tr>
</tbody>
</table>
ADDRESSABLE MUTING SYSTEM

MUTING SYSTEM - The Amplifier is equipped with a noiseless, fast acting Logic MUTING Switching System. When any of the INPUTS are activated and a Signal is present on a given INPUT and the VOX 1 is Switched-ON (using internal Jumpers) then the MUTE 1 is ACTIVE. If any of the INPUTS have the MUTE 1 Switched-ON (by Internal Jumpers) then the INPUT (or INPUTS) will be MUTED according to the Jumpers Setting. Once the SIGNAL-ON on the ACTIVE INPUT is terminated the normal functions are automatically restored on all muted inputs.

ACCESS TO MUTE JUMPERS
REFER TO JUMPERS AND SWITCHES INTERNAL ACCESS.

CAUTION: PRIOR TO PERFORMING THE ABOVE OPERATION BE SURE TO FOLLOW THE SAFETY NOTES REFERRING TO THE REMOVAL OF THE AMPLIFIER COVER.

MUTING TIMING - The MUTING is preset for -60 db Attenuation. When MUTE 1 is actuated the MUTE BUSS is instantaneously Switched-ON. When the Muting is deactivated the program source is gradually restored.

MUTE 1 (MUTE) = TIMING ADJUSTABLE 3-60 SECONDS
MUTE 1 DELAY = USE REAR PANEL CONTROL Reference 23

DIRECT MUTING - Direct Muting may be accomplished by shorting the MUTE Terminal to the G Terminal through an external switch. Each time the Muting Switch is closed the MUTE BUSS is activated.

WIRING

Fig. 17 - Direct Muting Terminals and Diagram

DMA2015 MUTE FUNCT 01

MUTE DELAY - The MUTE Delay can be adjusted by using the MUTE DELAY CONTROL on the rear panel (reference 23).

Fig. 17B - M 1 Function Timing Diagram

MUTE JUMPERS DEFAULT SETTING TABLE

<table>
<thead>
<tr>
<th>JUMPER ID NO.</th>
<th>JUMPER REFERENCE</th>
<th>FUNCTION DESCRIPTION</th>
<th>FACTORY SETTING</th>
<th>FACTORY SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S111</td>
<td>INPUT 4/AUX 2</td>
<td>MUTE 1 - OFF</td>
<td>M1</td>
<td></td>
</tr>
<tr>
<td>S112</td>
<td>INPUT 3/AUX 1</td>
<td>MUTE 1 - OFF</td>
<td>M1</td>
<td></td>
</tr>
<tr>
<td>S113</td>
<td>INPUT 1</td>
<td>MUTE 1 - OFF</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S204</td>
<td>TEL</td>
<td>MUTE 1 - OFF</td>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

DMA2015/2030/2060/2120
INPUT 1 (MIC 1) UNMUTING FUNCTION

DIRECT UNMUTING

INPUT 1 (MIC 1) UNMUTING FUNCTION
The Input 1 (MIC 1) can be preset to be normally MUTED (INPUT OFF) when the JUMPER S115 - MIC 1 UNMUTE - IS SET TO THE ON POSITION. The MIC 1 is SWITCHED-ON when the UNMUTE and G Terminals are shorted by a Switch Contact Closure. This function allows for a multi zone installation using two or more Amplifiers and a single Microphone and Zone Switches. When the Jumper S115 is set to the ON Position the Microphone Input is OFF and it is turned ON when the UNMUTE and the G terminals are closed by a switch.

JUMPER NO. FUNCTION POSITION SET
S115 MIC 1 Muted ON

If the Jumper requires resetting follow the instruction below.

ACCESS TO UNMUTING JUMPER
1) Remove Power Cord from AC Outlet.
2) Remove the three screws on each side of the Amplifier securing the Top Cover to the Chassis.
3) Lift Cover and carefully and slide Cover out towards the rear.
4) On the Main Amplifier Printed Board locate the S115 - MIC 1 UNMUTE Jumper Set.
5) Set Jumper to the ON position.

UNMUTE - VOX AND MUTE JUMPER SETTINGS ON AMPLIFIERS 1 & 2

INPUT 1 MIC 1
On MUTE OFF
S114 VOX ON

MIC 1 UNMUTE
On MUTE OFF
S115

INPUT 3 AUX 1
On MUTE OFF
S112 MUTE ON

DMA2015 Unmute Jump Set

Fig. 18A - 2 - Zone System Jumper Settings

The Fig. at right shows a typical 2 Zone Switching Panel. Use SPST Momentary Contact Switches. See complete 2 - Zone Wiring Diagram provided in this Manual.

DMA2015 2 Zone Diagram 01

Fig. 18B - 2 - Zone Switching Panel
Fig. 19 - 2 Zone Paging and Music System

**OPERATION**

- **A 2 Zone Paging Wiring Diagram Application** is provided. The Paging Microphone is connected in parallel to all the Microphone Inputs. Two Independent SPST Switches are provided for the Paging Zone Selection. The MUSIC SOURCE (Satellite Receiver) is cascaded to the Amplifiers. When one or more Zone Switches are activated, the UNMUTE Function opens the Microphone Channel on the Amplifier selected, and the MICROPHONE is active for the PAGING. Simultaneously, the MUSIC is MUTED ONLY ON THE ZONE (OR ZONES) selected.

- **MUSIC ON HOLD (MOH)** is available from each of the Amplifiers used. The MOH source may be selected from either the AUX 1 or the AUX 2 Input. The MOH source is immune to Paging and the MUTE/UNMUTE Function.
**INSTALLATION AND WIRING**

**EXTERNAL EQUALIZER LINK**

- **CONNECTING TO AN EXTERNAL EQUALIZER**
  The Amplifier is equipped with an External Equalizer Link to allow the use of an External Equalizer for applications requiring Frequency Selective Acoustic Correction. The Amplifier is furnished with the two jacks of the Link bridged by a SELECTOR SWITCH. When the **EQ LINK Switch (REFERENCE 21)** is the **EXTERNAL** position the internal Preamplifier to Amplifier Link (Reference 21) is broken allowing the insertion of an External Equalizer.

**INSTALLATION TIPS**
1. Use high quality, short length audio cables and position the Equalizer in close proximity to the Amplifier. Avoid mounting the EQ on top of the Amplifier unless it is Rack mounted.
2. Be sure that the Amplifier input controls and the EQ level control are set at zero prior to turning the system On.
3. The Amplifier TONE BY PASS SWITCH (Reference 18) should be set to ON (linear response position).
4. Carefully adjust the EQ Level Control to avoid distortion caused by excessive signal boost.
5. Follow the instructions supplied with the Equalizer.

**WIRING**
To connect to an External Equalizer use two (2) single conductor shielded audio cables terminated in a single prong phono plug on both ends.

**MIX BUSS BRIDGING**

- **BRIDGING TWO AMPLIFIERS**
  The MIX BUSS (Reference 19) allows two Amplifiers to be bridged and share all inputs.

  All signal sources connected to all the inputs are common to the output of both amplifiers. Muting and level controls operate in exactly the same way as if only one amplifier was used.

**WIRING**
To bridge two amplifiers or to connect to an external Mixer use a single conductor shielded audio cable terminated in a single prong phono plug on both ends.
INSTALLATION AND WIRING

INPUT 3 (AUX 1) REMOTE VOLUME

REMOTE VOLUME CONTROL
The Amplifier features a Remote Volume Control Capability: The INPUT 3 (AUX 1) Remote Volume (Reference 10). A 10 K ohm Potentiometer is required. Mount the 10 K Pot on a suitable Wall Plate or any other convenient surface and connect to the Amplifier RVC Terminals as shown in the Diagram. The Paso Model RVC10W Decora Style Remote Volume Control may be used.

INPUT 3 (AUX 1) OPERATION
When connected the Remote Volume adjusts the INPUT 3 (AUX 1) Level only. Usually this input is utilized for the Music Source (Sat. Receiver, CD Player, etc.).

CABLE
To connect the Remote Control to the Amplifier use a two conductor wire not less than AWG 20. While the Remote Volume System uses DC rather than audio caution should be exercised in the layout of the wire. Always avoid routing next to power lines. If the total wire resistance exceeds 3 K ohm the Volume may not go down to zero.

Fig. 21B - Input 3 Remote Volume Control Diagram

REMOTE VOLUME CONTROL - OPTIONAL ACCESSORY

MODEL RVC10W REMOTE VOLUME CONTROL

SPECIFICATIONS

REGULATED AUXILIARY POWER SUPPLY

POWER SUPPLY
The Amplifier provides a 24 Volt - 250 mA DC Regulated Auxiliary Power Supply Output (Reference 7).

CABLE
To connect the Power Supply Output to accessories use a two conductor wire not less than AWG 18. This minimum wire gauge is necessary to minimize potential Voltage Drops in long wire connection applications. For wire resistance refer to Table below.

Fig. 28 - 24 Volt Power Supply Output Diagram

WIRE GAUGE - RESISTANCE TABLE

<table>
<thead>
<tr>
<th>WIRE AWG</th>
<th>RESISTANCE IN OHMS per 1000 Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>4.016</td>
</tr>
<tr>
<td>18</td>
<td>6.385</td>
</tr>
<tr>
<td>20</td>
<td>10.15</td>
</tr>
<tr>
<td>22</td>
<td>16.14</td>
</tr>
<tr>
<td>24</td>
<td>25.67</td>
</tr>
<tr>
<td>26</td>
<td>40.81</td>
</tr>
</tbody>
</table>

NOTE:
When calculating the Wire Resistance for each run using a two conductor Wire the wire Resistance should be doubled.

EXAMPLE: The Total Resistance of a 1000 Ft. run of a AWG 24 two conductor Wire is:

\[25.67 \times 2 = 51.34\ \text{Ohm}\]
CAUTION! REMOVAL OF THE AMPLIFIER COVER PRESENTS AN ELECTRICAL SHOCK HAZARD ALWAYS REMOVE THE POWER CORD FROM THE AC WALL OUTLET

THE FOLLOWING INSTRUCTIONS REQUIRE THE REMOVAL OF THE AMPLIFIER TOP COVER AND ARE PROVIDED FOR USE BY QUALIFIED PERSONNEL ONLY. TO AVOID THE RISK OF ELECTRICAL SHOCK DO NOT PERFORM ANY INSTALLATION OR SERVICING UNLESS YOU ARE QUALIFIED TO DO SO. REFER INSTALLATION OR SERVICING TO QUALIFIED PERSONNEL.

IMPORTANT NOTE
The PASO Module PMEQ32B can be used only with the following PASO Amplifier Models:
DMA2015 - DMA2030
DMA2060 - DMA2120
DMA3060 - DMA3120

ACCESS TO THE EQ SOCKET
ACCESS TO THE INTERNAL EQ MODULE SOCKET
1) Remove the Power Cord from the AC Outlet.
2) Remove the three screws on each side of the Amplifier securing the Top Cover to the Chassis.
3) Lift Cover and carefully slide Cover out towards the rear.
4) Locate the Socket marked EQ MODULE on the Main Printed Board.

INSTALL THE MODULE
1) Procure the PASO Model PMEQ32B Module for the BOSE 32 Speaker System.
2) Line-up the “NOSE” of the Module with the Keyway of the Socket on the Main Printed Board.
3) Press the Module gently into the Socket (do not force).
4) Replace Amplifier Top Cover.

SETTINGS
PRIOR TO TURNING AMPLIFIER ON SET THE FOLLOWING:
1) Set the EQ LINK Switch Reference 22 on the rear panel to EXTERNAL (EQ Module Active).
2) Set the TONE BY-PASS Switch Reference 18 on the rear panel to the ON position (Front Panel BASS and TREBLE Controls defeated).
3) Attach the PMEQ32B Silver Label, packed with the module, on the rear panel to indicate that the module is installed inside.

Fig. 22 - PMEQ32B Installation Diagram
CAUTION! REMOVAL OF THE AMPLIFIER COVER PRESENTS AN ELECTRICAL SHOCK HAZARD
ALWAYS REMOVE THE POWER CORD FROM THE AC WALL OUTLET

THE FOLLOWING INSTRUCTIONS REQUIRE THE REMOVAL OF THE AMPLIFIER TOP COVER AND ARE PROVIDED FOR USE BY
QUALIFIED PERSONNEL ONLY. TO AVOID THE RISK OF ELECTRICAL SHOCK DO NOT PERFORM ANY INSTALLATION OR SER-
VICING UNLESS YOU ARE QUALIFIED TO DO SO. REFER INSTALLATION OR SERVICING TO QUALIFIED PERSONNEL.

OUTPUT LEVEL TRIMMER

Fig. 23 - AC1B/DMS CHIME MODULE

IMPORTANT NOTE
The PASO Module AC1B/DMS can be used with the following
PASO Amplifier Models:
DMA2015 - DMA2030
DMA2060 - DMA2120
DMA3060 - DMA3120

ACCESS TO THE CHIME SOCKET
ACCESS TO THE INTERNAL
CHIME MODULE SOCKET
1) Remove the Power Cord from the
AC Outlet.
2) Remove the three screws on each
side of the Amplifier securing the Top
Cover to the Chassis.
3) Lift Cover and carefully slide Cover
towards the rear.
4) Locate the Socket marked
CHIME MODULE on the Main Printed
Board.

INSTALL THE MODULE
1) Procure the PASO Model
AC1B/DMS Chime Module
2) Line-up the “NOSE” of the Module
with the Keyway of the Socket on the
Main Printed Board.
3) Press the Module gently into the
Socket (do not force).

SETTINGS
PRIOR TO TURNING AMPLIFIER
ON SET THE FOLLOWING:
1) Set the Chime Module Output
Level Control Trimmer approx. 1/4
of a turn clockwise.

2) Replace Amplifier Top Cover.

3) Turn Amplifier ON and momentar-
ily short the Terminal MUTE
(Reference 5) to Terminal G
(ground). The Chime should sound.

4) If the Chime level needs to be
reset, turn Amplifier OFF, remove
cover and adjust the Chime
Trimmer accordingly.

Fig. 23A - AC1B/DMS Wiring Diagram
ZONE 1 AND MUSIC ON HOLD FUNCTIONS

ZONE 1 OUTPUT
The DMA Amplifier is equipped with a 2 Watt, 8 ohm Amplifier and a separate 600 ohm MUSIC ON HOLD AMPLIFIER.

600 Ohm MOH - The MOH Output provides a 600 ohm, 1 Volt Transformer Balanced Output (Reference 3).

2 WATT, 8 OHM - Simultaneously a Second Zone 8 ohm, 2 Watt Output may be utilized to drive up to 4 Speakers (Reference 4).

OUTPUT LEVEL CONTROL - Independent Level Controls for both the 600 ohm Output and the 2 Watt Output are provided (Reference 1 and 8)

MOH AND ZONE 1 AMPLIFIER INPUT SOURCE SELECTION
The program source for the Input of the 600 ohm MOH Output and the 2 Watt 8 ohm Output can be selected from either AUX 1 or AUX 2 source. Set the Jumpers Set No. S107 to desired position. Default setting is AUX 1.

OUTPUT LEVEL CONTROL - A Level Control for the 2 Watt Output is provided (Reference 8)

MOH - ZONE 1 AMPLIFIER FUNCTIONS
MOH AMPLIFIER
a) The MOH Amplifier can receive programs from AUX 1 or AUX 2.
b) Selection of the input source is by Internal Jumper.
c) The ZONE 1 independent 600 Ohm and 8 Ohm Outputs may be used simultaneously.
d) The MOH 600 ohm Output is Transformer Balanced.
e) The Rear Panel ZONE 1 Level Control operates both the 8 Ohm Output.
f) The Rear Panel MOH Level Control operates the 600 Ohm Output.

MOH AND ZONE 1 OPERATION ISSUES
1) Paging from the Microphone Inputs or the Telephone Input does not effect the MOH/ZONE 1 Amplifier.
2) Position of the INPUTS Level Control does not affect the MOH/ZONE 1 Amplifier Output Level.
3) Position of the AUX 1 and AUX 2 ATTENUATOR does not affect the MOH/ZONE 1 Amplifier Output Level.
4) Muting activation of M1 or M2 Buss (from Microphones or Telephone) does not effect the Output of the MOH/ZONE 1.
INSTALLATION AND WIRING

MOH CONNECTIONS

MOH AMPLIFIER
An independent 600 ohm, 1 Volt Output, Transformer Balanced MUSIC-ON-HOLD Amplifier is provided. The Input SOURCE of the MOH Amplifier can be selected from either the AUX 1 or AUX 2.

MOH - 600 OHM SYSTEM
Most Phone systems operate on a 600 ohm Input Impedance, if the Impedance required is 600 ohm connect the Amplifier to the Phone System MOH by using the diagram above (Reference 3).

MOH - 8 OHM, 1 WATT SYSTEM
Some older Key Phone systems require a 1 watt Power Output having an Output Impedance of 8 ohm to drive the Music on Hold feature. If the Impedance required is 8 ohm connect the Phone system MOH to the 8 ohm, 2 Watt MOH Output of the Amplifier (Reference 4).

CABLE
Use a cable consisting of a twisted pair of at least AWG 18. Use care in extending the cable and avoid routing near power lines, fluorescent lights and other systems that may generate a disturbing electric field.

SOURCE SELECTOR
Select the Input Source desired by following the instructions at right. CAUTION: REMOVAL OF THE COVER PRESENTS AN ELECTRICAL SHOCK HAZARD!

LEVEL CONTROL
After the wiring is completed adjust the MOH and ZONE 1 Amplifier Level Controls on the rear panel to the desired output level (Reference 1 and 8).

MOH/ZONE 1 AMPLIFIER SOURCE SELECTOR
MOH/ZONE 1 SOURCE SELECTOR
The Source for the MOH/ZONE 1 Amplifier can be selected from either the AUX 1 or AUX 2 by setting the JUMPER SET No. S107 provided for this purpose. Default Setting for this Jumper Set is AUX 1. To change the setting do the following:

ACCESS TO THE MOH/ZONE 1 INPUT SOURCE SETTING
1) Remove Power Cord from AC Outlet.
2) Remove the three screws on each side of the amplifier holding the amplifier cover.
3) Lift Cover and locate the Jumpers Set No S107 on the TOP Amplifier Board (see Function Switches Jumpers Location Diagram).
4) Set Jumper as required (AUX 1 or AUX 2)
5) Replace protective cover.

Fig. 25 - Rear Panel MOH Connection Diagram
USING SPEAKERS FOR ZONE 1 OUTPUT

ZONE 1 OPERATION
The Amplifier is equipped with a 2 Watt, 8 ohm Outputs designated ZONE 1 (Reference 4). The Output may be utilized to power up to 4 speakers in various combinations as described in the diagrams on the next page. This feature will provide a SECOND ZONE (in addition to the main output) with up to 2 Watt of output power and will amplify only the Source from either AUX 1 or AUX 2 (see input source selection) and will not be affected by the Paging (from MIC or TEL), VOX or MUTING.

It can be used in any area (up to 2 Watt) where only a Program Source is desired uninterrupted by Paging.

CABLE
Use an AWG 18 jacketed, twisted pair cable.

ZONE 1 SETTINGS
INPUT SOURCE SELECTOR
Independent JUMPER SETS for ZONE 1 (S107) is available to select the Input Source for the 2 Watt Amplifier.

Select the Input Source desired by following the instructions in the MOH Amplifier Source Selection section.

LEVEL CONTROL
After the wiring is completed adjust the ZONE 1 (Reference 8) Level Control on the rear panel to the desired output level.
**ZONE 1 CONNECTING SPEAKERS**

**USING A SINGLE 8 OHM SPEAKER WIRING**

**USING A SINGLE 8 OHM SPEAKER**

A single 8 ohm Speaker may be used connected to the ZONE 1 - 2 Watt Output. In this configuration up to 2 Watt of Power will be available on the Speaker.

Independent Level Control is provided.

**USING TWO 4 OR 8 OHM SPEAKERS WIRING**

**USING TWO 4 OR 8 OHM SPEAKERS**

The Figure at left shows:

ZONE 1 with two 4 ohm speakers connected in series, each speaker provides 1 Watt power output (2 Watt Total).

Independent Level Control is provided.

**USING FOUR 8 OHM SPEAKERS WIRING**

**USING FOUR 8 OHM SPEAKERS PER ZONE**

Four 8 ohm Speakers are used and connected to the 2 Watt Output. In this configuration up to 1/2 Watt of Power will be available on each Speaker (2 Watt Total).

Independent Level Control is provided.
OUTPUT CONNECTIONS

CONSTANT VOLTAGE DISTRIBUTION SYSTEMS

25 VOLT AND 70 VOLT CONSTANT VOLTAGE DISTRIBUTION SYSTEMS - In applications requiring a large number of speakers that are located at a far distance from the amplifier a 25 Volt or a 70 Volt Constant Voltage method is most widely used.

MAIN ADVANTAGES IN USING THE HIGH IMPEDANCE METHOD
1) All speakers are connected in parallel usually on to a single speaker line.
2) The Amplifier Output Voltage is constant over a very wide range of load impedance.
3) The Amplifier Output Voltage remains practically constant if loudspeakers are connected or disconnected from the line.
4) Different acoustic power can be allocated in each area as required by using the power taps on the speaker line transformer.
5) Since the system provides a higher voltage at a lower current, resistive loss in the cable is reduced resulting in a higher efficiency.
6) Calculations of the output power needed and the speaker power requirements are simple and easily accomplished.

INSTALLATION TIPS
1) Determine the amount of speakers required for the installation and their location.
2) Choose the power output needed for each speaker (typically 1.25 Watt for background music applications and 5-10 Watt for paging horns).
3) Add all the speaker taps wattage (see Fig. 28) and be sure that the total power needed does not exceed the Rated RMS Power Output of the Amplifier.
4) Procure a jacketed, two conductor cable of at least 18 gauge.
5) Carefully route cable starting with the farthest speaker in the system and until all speakers are reached by the cable and terminating at the Amplifier location. The best cable route is determined by the individual application.
6) Connect each speaker in accordance to the power output required by selecting the corresponding Power Tap.
7) Connect the speakers cable to the 25 Volt or 70 Volt and COM output terminals of the Amplifier, turn the system on and balance the various speakers accordingly. The selection of the Constant Voltage (25 Volt or 70 Volt) is determined by the speakers used. All speakers must operate at the same constant voltage and cannot be mixed.

LINE ATTENUATORS
In installation requiring that one or a group of speakers have an independent level control a Line Attenuator can be utilized. The Fig. 28A shows the use of PASO model VC20 - 20 Watt Attenuator used to control two speakers simultaneously. The wire colors pertain to the VC20, if other types are used follow the directions supplied with the unit.

By turning the stepped switch of the VC20 the level of speakers SPK 1 and SPK 2 can be adjusted, up or down, from 0 (no output) to the maximum output determined by the tap utilized on the speakers (in this example 2.5 Watt max.). Speakers SPK 3 and SPK 4 are not affected.

NOTE: The total power required for all the speaker or speakers to be controlled should not exceed the Power Handling rating of the Attenuator. Example: the maximum load for the VC20 is 20 Watt.
APPLICATION
This Note illustrates a typical installation in a Restaurant/Diner/Lounge using Background Music and a Jukebox. The Background Music can be automatically interrupted when the Jukebox is activated. The Background Music is then automatically restored once the Jukebox stops playing. This built-in feature of the DMA Amplifier eliminates the need of any external device.

PAGING MICROPHONE
PRIORITY PAGING MICROPHONE - A Low Impedance Dynamic Microphone can be connected to the Amplifier INPUT 1. The Microphone Input can be set to provide Priority PAGING over the Music Program but not the Jukebox when activated. Optionally PAGING may be generated from the Phone system if desired.

PAGING FROM THE PHONE SYSTEM
PRIORITY PAGING FROM THE PHONE SYSTEM - PAGING may be generated from a Phone system by using the TEL INPUT of the Amplifier. The TEL INPUT can be set to provide Priority PAGING over the Music Program but not the Jukebox when activated. The TEL INPUT provides a 600 ohm Transformer balanced Phone interface.

MUTE DELAY
The Jukebox Configuration utilizes the VOX/MUTE 1 Buss. In order to prevent the premature JUKEBOX/MUSIC SOURCE switching (the Music Source cuts-in while the Jukebox is active) a MUTE TIME DELAY TRIMMER is available on the Rear panel to increase the MUTE DELAY as necessary. The MUTE DELAY can be adjusted from 3 to 60 Seconds.

EXAMPLE: If the Jukebox is playing and the Tune has a long pause or the long pause while the Jukebox is cycling between CDs it is possible that the Music Source (Background Music) may cut-in causing annoying and unwanted chatter while the Jukebox is still active. To prevent this problem the MUTE TIME DELAY TRIMMER should be adjusted accordingly.

JUKEBOX REMOTE VOLUME CONTROL
A Jukebox Remote Volume Control may be provided to adjust the Output Level independently from the Background Music Source. The Jukebox Music Level should be set in accordance to the ambient noise which may change during peak business hours. The AUX 1 Input (used for the Jukebox) is equipped with a Remote Volume Control feature. Use the optional PASO Model RVC10W (10K) Volume Control mounted on a single gang plate.

MUSIC ON HOLD
The Zone 1 Amplifier provides a separate 600 ohm Transformer Balanced Music on Hold Output for the Telephone system. If the Zone 1 Input Selector Switch is set to Input 4/aux 2, the MOH Output receives only the PROGRAM from the MUSIC SOURCE without Paging or the Jukebox interruptions.

ZONE 1 2 WATT - 8 OHM OUTPUT
The Zone 1 Output may be used to cover small area with MUSIC ONLY without interruption from the Microphone or Phone Paging or the music from the Jukebox. The ZONE 1 Output may be used to cover small area with MUSIC ONLY without Paging or the Jukebox interruptions.

INPUT JUMPERS - SWITCHES SETTING
The Wiring Diagram shows the connection of up to 4 (8 ohm) Speakers for the Zone 1 - 2 Watt Amplifier. When 4 Speakers are used each Speaker Output will be a 1/2 Watt.

THE MUTE DELAY CONTROL AUTOMATICALLY MUTES THE MUSIC SOURCE WHEN SWITCHED ON

FIGURE: DMA JUKEBOX APP 126
APPLICATION
The Satellite Receiver may be configured to provide Music Output (MAIN AUDIO OUT) and Messages on Hold (OPTIONAL AUDIO OUT) if equipped with an LE CARD OR MESSAGES ON HOLD CARD.

The PASO DMA SERIES Amplifiers can provide both Outputs from the Encompass Receiver to be independently routed:

1) **Music Output** to the 25/70 Volt (or 8 ohm) Main Speaker Output.

2) **Messages Out** to the Telephone System Music on Hold Output.

WIRING
A Wiring Diagram is provided on page 2.

NO INTERNAL JUMPERS RE-SETTING IS REQUIRED. Use the factory default settings.

A) By using a pair of Audio Cable terminated with standard RCA Plugs connect the Main Audio Output (MUSIC) to Input 4 - AUX 2 (REF . 15) of the Amplifier.

B) By using a pair of Audio Cable terminated with standard RCA Plugs connect the Optional Audio Output (MESSAGES) to Input 3 - AUX 1 (REF . 16) of the Amplifier.

C) Connect the Music on Hold Input of the Telephone System to the MOH 0 and 600 ohm Output Terminals (REF . 3) of the Amplifier.

CONTROLS SETTING
BE SURE THE AMPLIFIER AND THE ENCOMPASS UNIT ARE OFF.

a) Set Front Panel Controls INPUT 1/MIC, TEL, INPUT 3/AUX 1 AND INPUT 4/AUX 2 to Zero (fully counterclockwise).

b) Set Input 4 - AUX 2 Attenuator on rear panel (REF.14) to the 1 o'clock position.

c) Set Input 3 - AUX 1 Attenuator on rear panel (REF.17) to ZERO.

d) Set MOH Level on rear panel (REF.1) to ZERO.

Be sure all wiring and connections have been made. Turn both the Encompass and the Amplifier ON.

e) Slowly turn the INPUT 4/AUX 2 Volume Control clockwise (MUSIC) on the front panel until the desired Output Music Level has been achieved. If the Music Output Level is insufficient raise the INPUT4/AUX2 Attenuator another 1/4 of a turn.

f) MOH - By listening through a Handset slowly turn the MOH LEVEL Control clockwise (REF. 1) on the rear panel until the proper level for the Messages is achieved.

PAGING FROM A MICROPHONE
PRIORITY PAGING MICROPHONE - A Low Impedance Paging Microphone may be connected to the INPUT 1 of the Amplifier. The Amplifier is preset to mute the Music on Input 4 when the Paging is activated.

PAGING LEVEL
The Microphone Paging Output level is set by the INPUT 1 Level Control located on the Front Panel.

PAGING FROM THE TELEPHONE
PRIORITY TELEPHONE PAGING - A Telephone Paging Output may be connected to the TEL Input of the Amplifier. The Amplifier is preset to mute the Music on Input 4 when the Telephone Paging is activated.

PAGING LEVEL
The Telephone Paging Output level is set by the TEL Level Control located on the Front Panel.

VOX SENSITIVITY ADJUSTMENT
The rear panel control marked VOX SENS sets the sensitivity of the VOX when Paging. While Paging (from either the Microphone or the Telephone) turn the VOX SENS Control slowly clockwise until the Music is muted.

**NOTE:** The Paging from the Microphone or the Telephone will NOT be routed to the the MOH Output.
CUSTOMER SERVICE

REPLACEMENT PARTS

Please provide complete information when you request replacement parts from either the Factory or a Paso Authorized Distributor. Be certain to include the Part Number and Description as it appears on the parts list, the Model Number of the unit and if possible the Serial Number and the date of purchase of the unit. Replacement parts inventory is maintained specifically to repair Paso products. Part sales for other reasons or applications will be declined.

ORDERING FROM THE FACTORY

Print all information on a purchase order form and mail to:
PASO SOUND PRODUCTS, INC.
4750 Goer Drive - Building F
CHARLESTON, SC  29406

Be sure to include the following:
- Paso part number
- Part description
- Quantity required
- Model number of the unit
- Serial number of the unit
- Your payment or your authorization for COD shipment for parts not covered by the Warranty or if your company has a current account with the factory

RETAIN ORIGINAL IN WARRANTY PARTS UNTIL YOU RECEIVE REPLACEMENTS. PARTS THAT SHOULD BE RETURNED TO THE FACTORY WILL BE LISTED ON YOUR PACKING SLIP.

For your convenience replacement parts are also available through Paso Authorized Distributors and Dealers nation wide. Obtain a location list directly from the Factory or your regional Paso Representative.

TECHNICAL CONSULTATION

- Need help with your installation ?
- Need help with the operation of the unit ?
- Need help with a repair ?

Call or write for assistance. You will find our Technical Dept. eager to help or assist you with any technical problem you may have encountered except “Customizing” for a unique application.

The effectiveness of our consultation service depends on the accuracy of the information you furnish. Be sure to tell us:
- The Model and Serial number of the unit
- The date of purchase
- An exact description of the difficulty
- All you have done in attempting to correct the problem

Call our toll-free phone number:
1-800 231 3034

REPAIR SERVICE

Repair service for out of warranty Paso products may be obtained from your local Paso distributor or any other qualified repair station.

In warranty repairs must be returned to the Factory. Prior authorization must be obtained from the Factory. Products received without authorization will be refused by our Receiving Dept..

IN WARRANTY REPAIR SERVICE

Call or write the Factory to obtain an authorization to return the product for repairs.

Pack the equipment in the original carton or in a strong carton with at least THREE INCHES of resilient packing material on all sides, top and bottom. Seal the carton with reinforced tape and mark it FRAGILE on at least two sides. Remember, the Carrier will not accept liability for shipping damages if the unit is improperly packed.

EQUIPMENT RECEIVED IN DAMAGED CONDITION DUE TO POOR PACKING WILL BE REFUSED AND THE WARRANTY COVERAGE IS AUTOMATICALLY VOIDED.

The Paso Sound Limited Warranty provides:

The examination of the returned product must disclose in our judgement, a manufacturing defect. The warranty does not extend to any product that has been subject to misuse, neglect, accident, improper installation or where the serial number of the product has been removed or defaced.

Ship via insured prepaid United Parcel Service or Parcel Post to:
PASO SOUND PRODUCTS, INC.
4750 Goer Drive - Building F
CHARLESTON, SC  29406
Attn. SERVICE DEPARTMENT
The equipment will be returned freight prepaid after repairs.

Be sure to include the following:
- Your name and address
- Date of purchase and copy of invoice
- A brief description of the difficulty
- A return address shipping label

OUT OF WARRANTY REPAIR SERVICE

Follow return instructions as per in warranty repair service. Prior to performing all necessary repairs, you will be advised of the charges and at that time a written authorization by you will be required including authorization to return the equipment COD for the service and shipping charges. This will avoid unnecessary delays in returning the equipment to you.