

POWER AMPLIFIER

PA-3640VB

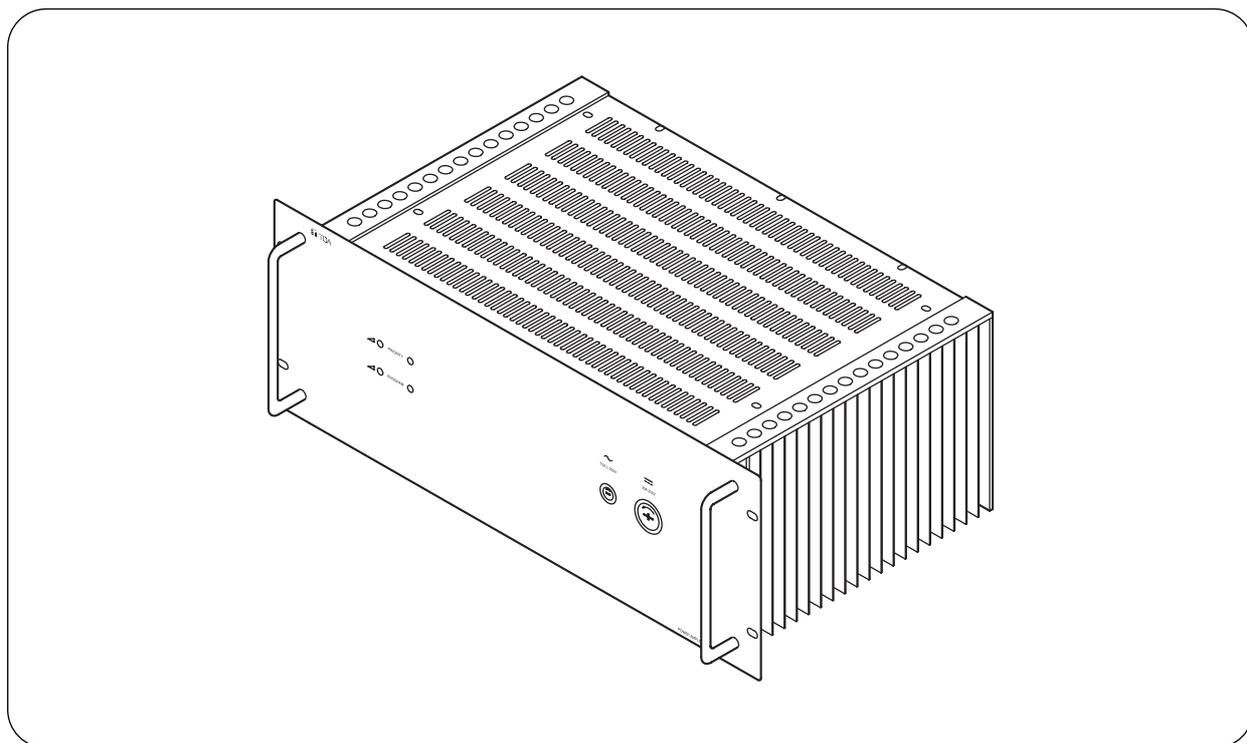


TABLE OF CONTENTS

| | | | |
|--------------------------------------|---|--|---|
| 1. SAFETY PRECAUTIONS | 2 | 5. CONNECTIONS | |
| 2. GENERAL DESCRIPTION | 4 | 5.1. AC Power Supply | 6 |
| 3. NOMENCLATURE AND FUNCTIONS | | 5.2. 24 V DC Power Supply | 6 |
| Front | 4 | 5.3. Speaker and Attenuator Connection | 7 |
| Rear | 5 | 6. MUTE LEVEL ADJUSTMENT | |
| 4. RACK MOUNTING | 6 | (For qualified service personnel only) | 8 |
| | | 7. SPECIFICATIONS | 8 |
| | | Accessories | 8 |
| | | Optional product | 8 |

Thank you for purchasing TOA's Power Amplifier.
Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

1. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- After reading, keep this manual handy for future reference.

Safety Symbol and Message Conventions

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety hazards.



Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.



Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.



When Installing the Unit

- Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.
- Use the unit only with the voltage specified on the unit. Using a voltage higher than that which is specified may result in fire or electric shock.
- Do not cut, kink, otherwise damage nor modify the power supply cord. In addition, avoid using the power cord in close proximity to heaters, and never place heavy objects -- including the unit itself -- on the power cord, as doing so may result in fire or electric shock.
- Be sure to replace the unit's terminal cover after connection completion. Because the voltage of up to 100 V is applied to the high impedance speaker terminals, never touch these terminals to avoid electric shock.

When the Unit is in Use

- Should the following irregularity be found during use, immediately switch off the power, disconnect the power supply plug from the AC outlet and contact your nearest dealer. Make no further attempt to operate the unit in this condition as this may cause fire or electric shock.
 - If you detect smoke or a strange smell coming from the unit.
 - If water or any metallic object gets into the unit
 - If the unit falls, or the unit case breaks
 - If the power supply cord is damaged (exposure of the core, disconnection, etc.)
 - If it is malfunctioning (no tone sounds.)

- To prevent a fire or electric shock, never open nor remove the unit case as there are high voltage components inside the unit. Refer all servicing to qualified service personnel.

- Do not place cups, bowls, or other containers of liquid or metallic objects on top of the unit. If they accidentally spill into the unit, this may cause a fire or electric shock.

- Do not insert nor drop metallic objects or flammable materials in the ventilation slots of the unit's cover, as this may result in fire or electric shock.

- Do not touch during thunder and lightning, as this may result in electric shock.

- When replacing the fuse, be sure to use the supplied one. Using any other fuse than supplied may cause fire or electric shock.



When Installing the Unit

- Never plug in nor remove the power supply plug with wet hands, as doing so may cause electric shock.

- When unplugging the power supply cord, be sure to grasp the power supply plug; never pull on the cord itself. Operating the unit with a damaged power supply cord may cause a fire or electric shock.

- When moving the unit, be sure to remove its power supply cord from the wall outlet. Moving the unit with the power cord connected to the outlet may

cause damage to the power cord, resulting in fire or electric shock. When removing the power cord, be sure to hold its plug to pull.

- Do not block the ventilation slots in the unit's cover. Doing so may cause heat to build up inside the unit and result in fire.
- Avoid installing the unit in humid or dusty locations, in locations exposed to the direct sunlight, near the heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.
- Install the unit only in stable locations, and make appropriate arrangements to prevent it from falling down or rolling cross the floor. If it falls down or moves, this may cause personal injury and/or property damage.
- When unpacking or moving the unit, be sure to handle it with two or more persons. Falling or dropping the unit may cause personal injury and/or property damage.
- To avoid electric shocks, be sure to disconnect the power supply cord from the AC outlet when connecting speakers.
- Be sure to follow the instructions below when rack-mounting the unit. Failure to do so may cause a fire or personal injury.
 - Install the equipment rack on a stable, hard floor.

Fix it with anchor bolts or take other arrangements to prevent it from falling down.

- When connecting the unit's power cord to an AC outlet, use the AC outlet with current capacity allowable to the unit.
- The supplied rack-mounting screws can be used for the TOA equipment rack only. Do not use them for other racks.

When the Unit is in Use

- Make sure that the volume control is set to minimum position before power is applied to the unit. Loud noise produced at high volume when power is on can impair hearing.
- Do not operate the unit for an extended period of time with the sound distorting. Doing so may cause the connected speakers to heat, resulting in a fire.
- Contact your TOA dealer as to the cleaning. If dust is allowed to accumulate in the unit over a long period of time, a fire or damage to the unit may result.
- If dust accumulates on the power supply plug or in the wall AC outlet, a fire may result. Clean it periodically. In addition, insert the plug in the wall outlet securely.
- Unplug the power supply plug from the AC outlet for safety purposes when cleaning or leaving the unit unused for 10 days or more. Doing otherwise may cause a fire or electric shock.

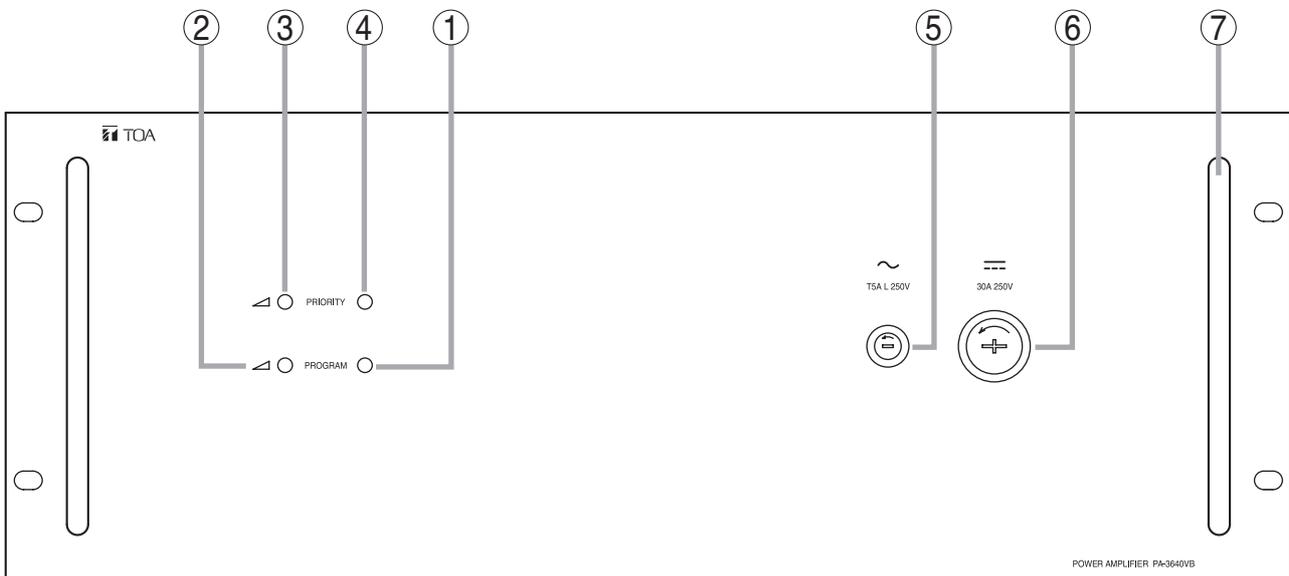
2. GENERAL DESCRIPTION

The PA-3640VB is a rack-mount Power Amplifier having Priority input/output and Program input/output. Shorting the Priority control terminal allows the Priority input to take precedence over the Program input and the rear-mounted Priority control output to be activated. In this case, the front-mounted Priority indicator lights red to indicate the priority circuit is activated. The input and output for each of Priority and Program are internally connected in parallel, permitting multiple power amplifiers to be bridge-connected to have the same input sources.

The unit can operate on either 220 V AC or 24 V DC. The rear panel includes provision for mounting an optional YA-1000A Fault Detection Circuit Module that functions to detect power amplifier failures.

3. NOMENCLATURE AND FUNCTIONS

[Front]



1. Power indicator (Green)

Lights when the power is applied to the unit.

2. Program volume control

Adjusts the program input volume.

Turn the control clockwise to increase the volume and counterclockwise to decrease it.

3. Priority volume control

Adjusts the priority input volume.

Turn the control clockwise to increase the volume and counterclockwise to decrease it.

4. Priority indicator (Red)

Lights when the Priority control input terminal (12) is shorted.

5. AC fuse holder

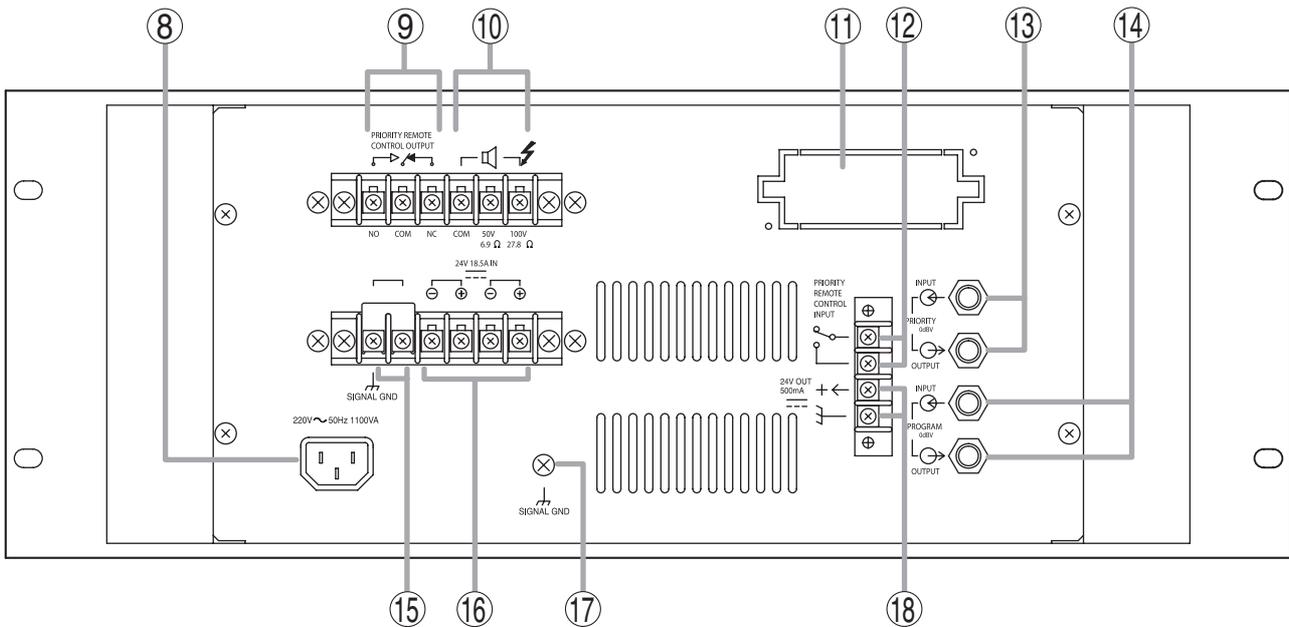
Fuse capacity: 5 A

6. DC fuse holder

Fuse capacity: 30 A

7. Handle

[Rear]



8. AC inlet

Connects to the supplied AC power cable.

9. Priority-activated control output terminal

Provides relay contact outputs.

The relay contact transfers from NC (normally closed) contact to NO (normally open) contact when the priority control input (12) is activated.

10. Speaker output terminal

Connect speakers to the COM terminal and 50 V or 100 V terminal.

Never use both 50 V and 100 V terminals at the same time for connection.

11. Port for YA-1000A

Provided for installing the optional YA-1000A Fault Detection Circuit Module.

To install the YA-1000A, remove the knockout plate with nippers.

For details, refer to the instruction manual attached to the YA-1000A.

Note

Refer servicing to qualified service personnel. Contact your TOA dealer.

12. Priority control input terminal

When shorted, the Priority input takes precedence over the Program input and the Priority-activated control output (9) is activated.

13. Priority input/output terminals

0 dB*, 100 k Ω , balanced, phone jacks.

Both input and output terminals are internally connected in parallel.

The Priority input overrides the Program input when the Priority control is activated. The Priority output terminal can be connected to the next power amplifier's Priority input terminal, feeding the same Priority input sources to the amplifier.

14. Program input/output terminals

0 dB*, 100 k Ω , balanced, phone jacks.

Both input and output terminals are internally connected in parallel.

The Program input is muted by the Priority input when the Priority control is activated. The Program output terminal can be connected to the next power amplifier's Program input terminal, feeding the same Program input sources to the amplifier.

15. Signal/chassis ground terminals

A ground lift jumper is pre-mounted at the factory.

Removing the jumper disconnects the chassis ground from the signal ground, thereby eliminating a ground loop.

16. DC power input terminals

Considering the allowable current capacity for each input terminal, be sure to use the dual DC power input when connecting a DC power supply unit.

17. Functional ground terminal (Signal ground)

Hum noise may be generated when external equipment is connected to the unit. Connecting this terminal to the functional ground terminal of the external equipment may reduce the hum noise.

Note: This terminal is not for protective ground.

18. 24 V DC output terminal

Supplies DC power of 24 V, 500 mA max. to external devices.

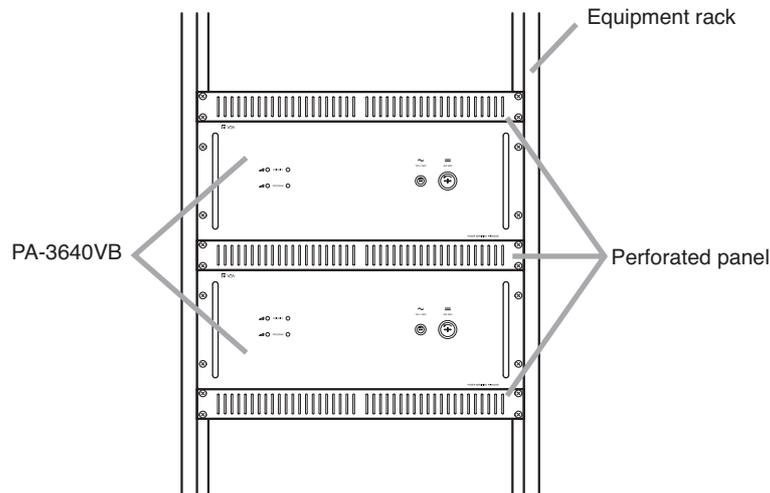
* 0 dB = 1 V

4. RACK MOUNTING

The PA-3640VB is designed exclusively for rack mount use.

If 2 or more amplifiers are mounted in an equipment rack, space should be provided upper and lower side of the units for ventilation.

The Perforated Panel is recommended in place of space.



5. CONNECTIONS

5.1. AC Power Supply

The PA-3640VB is a permanent connected apparatus having no power on/off switch on itself. Its power cord should be connected to the Switched AC power outlet of the Junction Panel such as model JP-0410, so that you can control the power on/off for the entire amplifier rack.

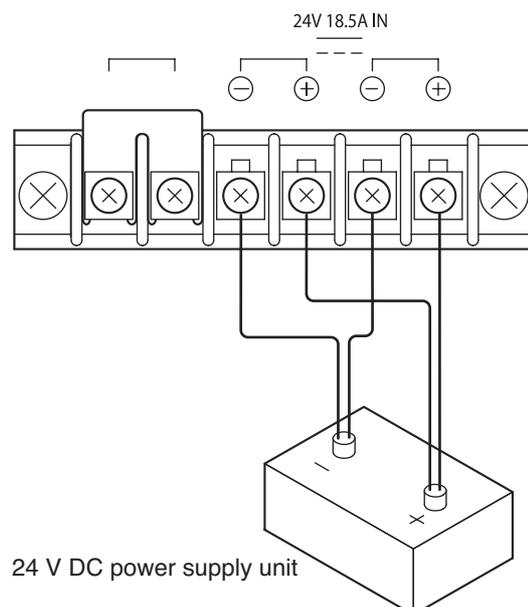
For the power line of the rack system, ALL-Pole Mains Switch with a contact separation of at least 3 mm in each pole should be incorporated in the electrical installation of the building.

5.2. 24 V DC Power Supply

- When using a DC power supply unit, connect it to the DC power input terminals on the unit's rear panel.
- When the AC power fails, the power is automatically switched to the DC power.

Note

Be sure to connect the power supply unit to both positive terminals and both negative terminals.



5.3. Speaker and Attenuator Connection



WARNING

Be sure to replace the terminal cover after completing speaker cable connection. Failure to do so may cause electric shock because up to 100 V is applied to the speaker terminal.

5.3.1. Speaker connection

Connect speakers to either 100 V (27.8 Ω) or 50 V (6.9 Ω) terminal. Never use both terminals simultaneously.

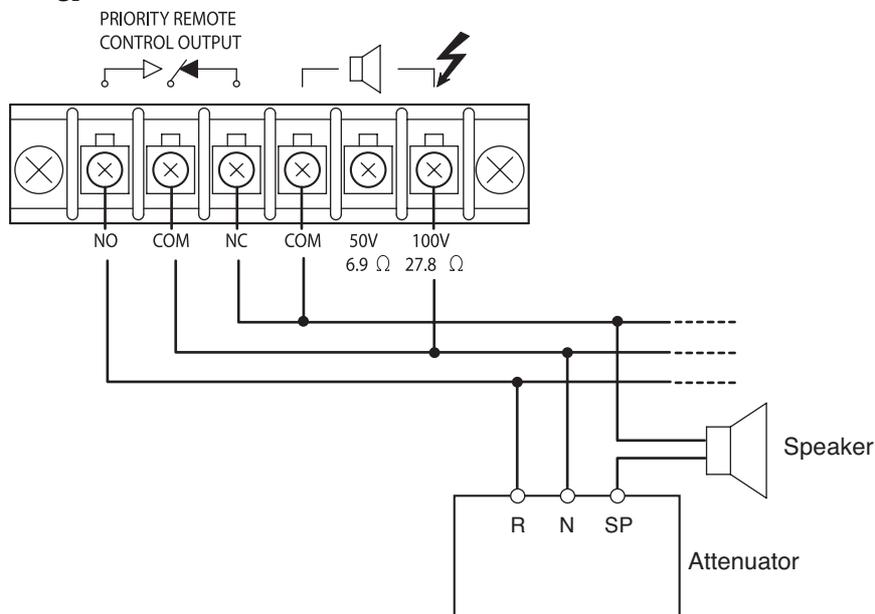
5.3.2. Attenuator Connection

The PA-3640VB has a built-in relay activated by the Priority control input. The relay provides NC (normally closed) and NO (normally open) contacts at the Priority-activated control output terminal on the rear panel. For an emergency broadcast state when the Priority control is activated, this terminal allows 2 ways of connections depending on the type of attenuator as shown below.

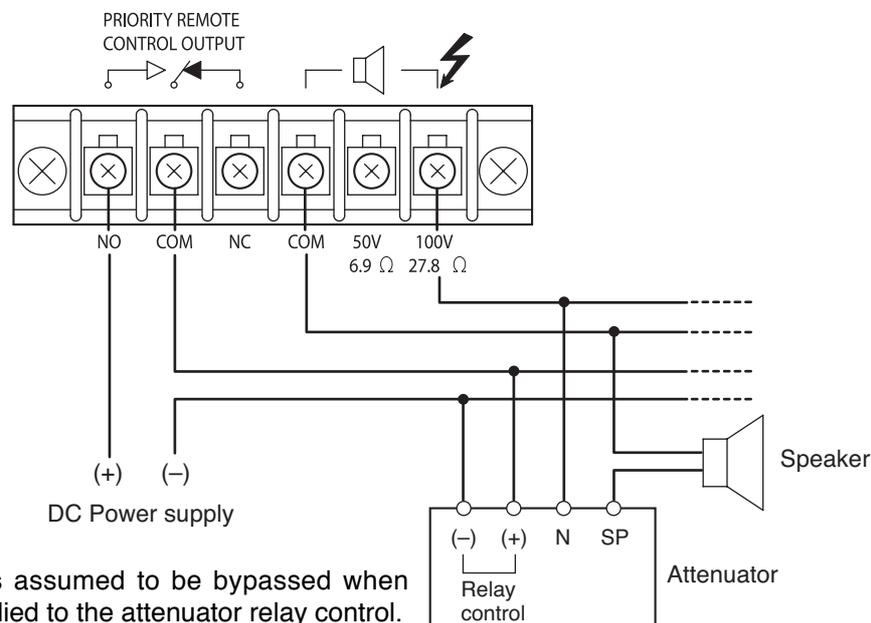
Note

In both connection methods, be sure to use the "100 V" terminal for speaker/attenuator connection. Never use 50 V terminal.

[3-Wire System Wiring]



[4-Wire System Wiring]



Note

The attenuator is assumed to be bypassed when the power is supplied to the attenuator relay control.

6. MUTE LEVEL ADJUSTMENT (For qualified service personnel only)

When the Priority control input is activated, the Priority input mutes the Program input by a preset level, which can be adjusted with the Mute level control inside the unit.



WARNING

This work should only be performed by a qualified professional electrician. If users open the unit case or modify the unit, this may cause fire or electric shock.

[Adjustment procedure]

This adjustment is made under the condition that the unit's power is on and speakers are connected to the unit.

For safety, be sure to disconnect the AC power from the unit only before opening and replacing the upper case (Steps 1 and 5 below). In addition, never touch any component other than the Mute level control.

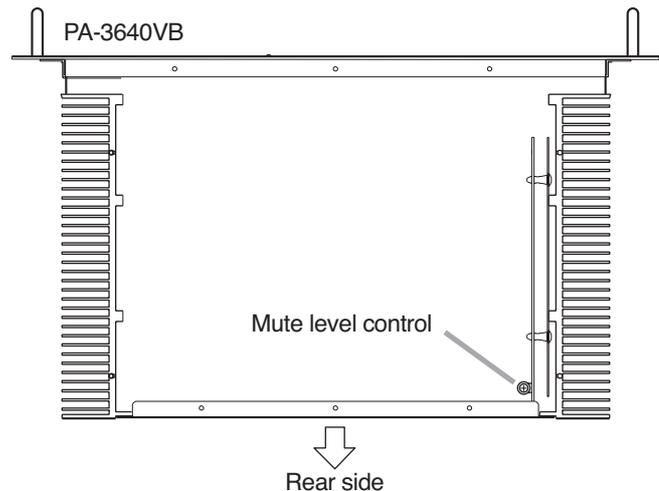
Step 1. Unscrew the upper case to remove it.

Step 2. Apply different signals to the Priority input and Program input.

Step 3. Short the Priority control input terminal.

Step 4. While hearing sound, adjust the mute level control for an appropriate mute level by turning it clockwise or counterclockwise with a standard screw driver.

Step 5. Replace the upper case.



7. SPECIFICATIONS

| | |
|---------------------------|---|
| Power Source | 220 V AC, 50 Hz or 24 V DC |
| Power Consumption | 1,100 VA (at rated output) |
| Output Power | 360 W |
| Inputs | 2 Program input/output (parallel): 0 dB*, 100 k Ω , balanced 2 Priority input/output (parallel): 0 dB*, 100 k Ω , balanced |
| Output and Load Impedance | 100 V/27.8 Ω , 50 V/6.9 Ω |
| S/N Ratio | Over 80 dB |
| Distortion | Under 2% (at rated output f = 1 kHz) |
| Indicators | Power: Green LED Priority: Red LED |
| Frequency Response | 40 – 16,000 Hz \pm 3 dB (at 1/3 rated output) |
| Finish | Panel: Surface-treated steel plate, black, 30% gloss, paint |
| Dimensions | 483 (w) x 177 (h) x 332 (d) mm |
| Weight | 27.8 kg |

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

Rack mounting screw with washer (5 x 12) 4 Fuse 5 A 1
Fuse 30 A 2

• Optional product

Fault detection circuit module: YA-1000A



TOA Corporation

URL: <http://www.toa.jp/>

133-22-183-10