TOA

For Qualified Service Technicians only

INSTALLATION INSTRUCTIONS FOR SYSTEM MANAGEMENT AMPLIFIERS VM-2120 AND VM-2240

This manual gives qualified service technicians the instructions for the work in the TABLE OF CONTENTS below.
Use this manual referring to the instruction manual supplied with the VM-2120 or VM-2240 System Management Amplifier.
Note that the section numbers and names in this manual are the same as those in the VM-2120/-2240 instruction manual.

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13. CHOKE COIL INSTALLATION

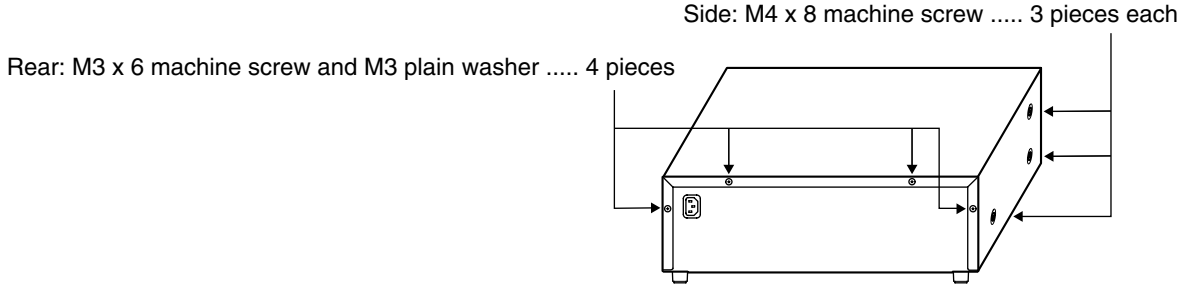
Caution: Leave the following work to a qualified service technician.
Be sure to unplug the AC power cord before the work.

If a checkbox for the indication of "The choke coil is installed." on the rear panel of the VM amplifier is marked with "X", this represents that the choke coil has been installed. Therefore, the following tasks are not necessary. When you installed the choke coil, mark the checkbox with "X".

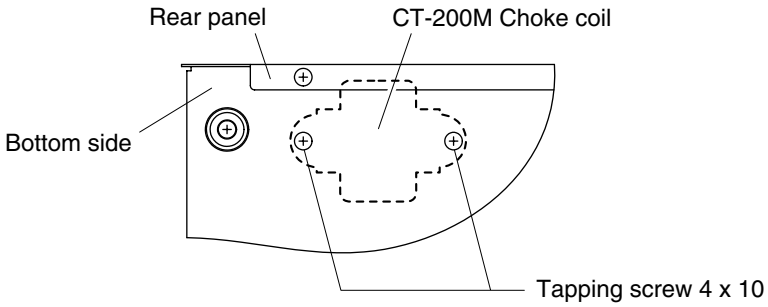
To suppress harmonic component radiation from the power line of the unit, install the optional Chock Coil CT-200M.

Note: In the countries where use of the CE Marking conformity is obligated, the Choke Coil must be installed.

Step 1. Remove 4 screws on the amplifier rear panel and a total of 6 screws on the sides to remove the cover.

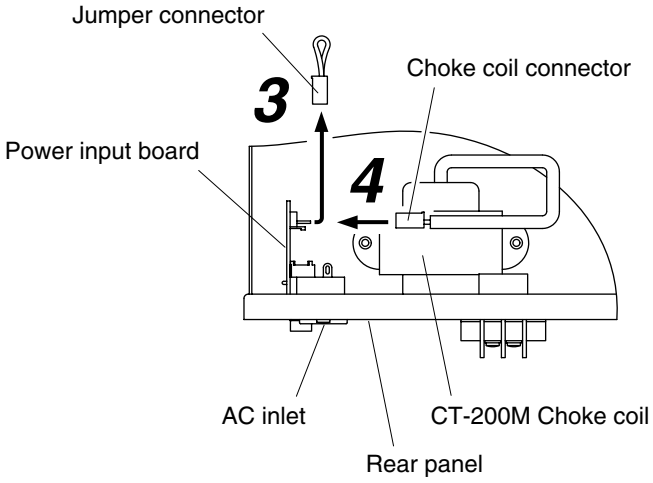


Step 2. Install the Chock Coil near the AC inlet inside the unit.
Fix the Choke Coil with its accessory screws from the unit bottom side.



Step 3. Remove the jumper connector from the power input board connector (CN1202).

Step 4. Plug the Choke Coil connector into the power input board connector (CN1202).



Step 5. Using the 4 rear panel screws and 6 side panel screws removed in Step 1, replace the amplifier cover.

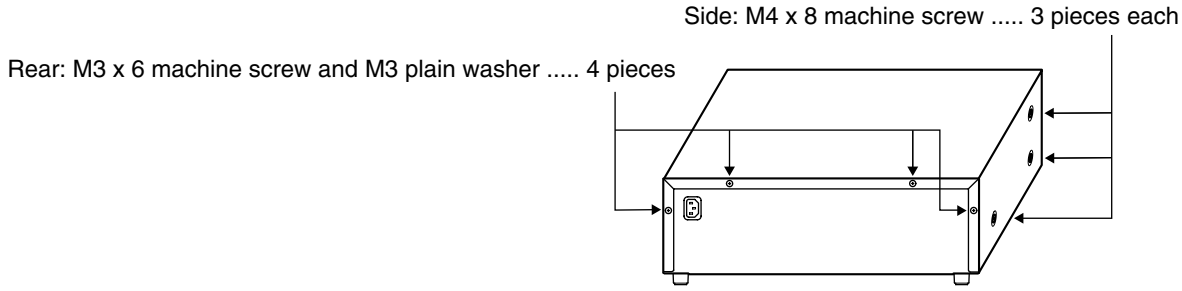
14. INPUT TRANSFORMER INSTALLATION AND ITS BOARD MODIFICATION

Caution: Leave the following work to a qualified service technician.
Be sure to unplug the AC power cord before the work.

14.1. Transformer Installation

You can convert the audio input section in Input 1 – 3 terminals, Remote Microphone (RM) terminal, and Telephone Paging (TEL) terminal on the unit from electronically-balanced input to transformer-balanced type. Solder the optional IT-450 input transformer to the required input section.

Step 1. Remove 4 screws on the amplifier rear panel and a total of 6 screws on the sides to remove the cover.



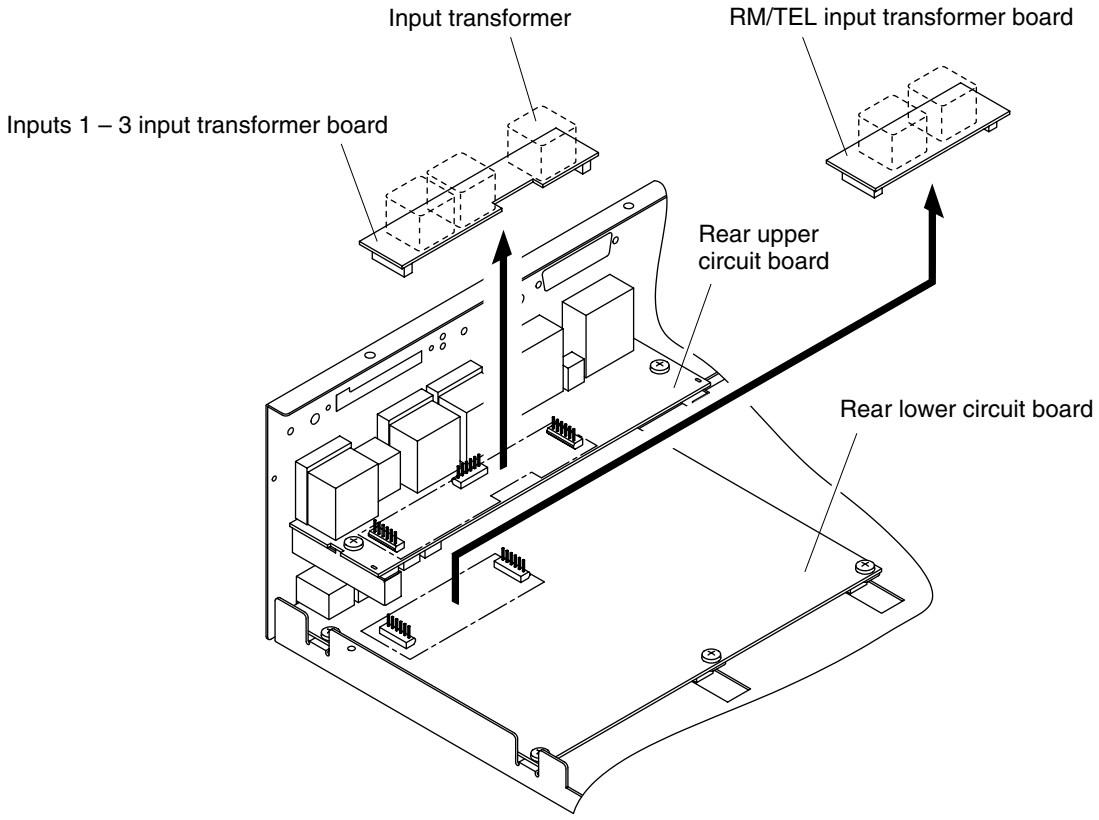
Step 2. Removing the input transformer board

[Inputs 1 – 3]

Remove the Inputs 1 – 3 input transformer board, which is installed on the rear upper circuit board in the unit.

[Remote Microphone (RM) or Telephone Paging (TEL)]

Remove the RM/TEL input transformer board, which is installed on the rear lower circuit board in the unit.



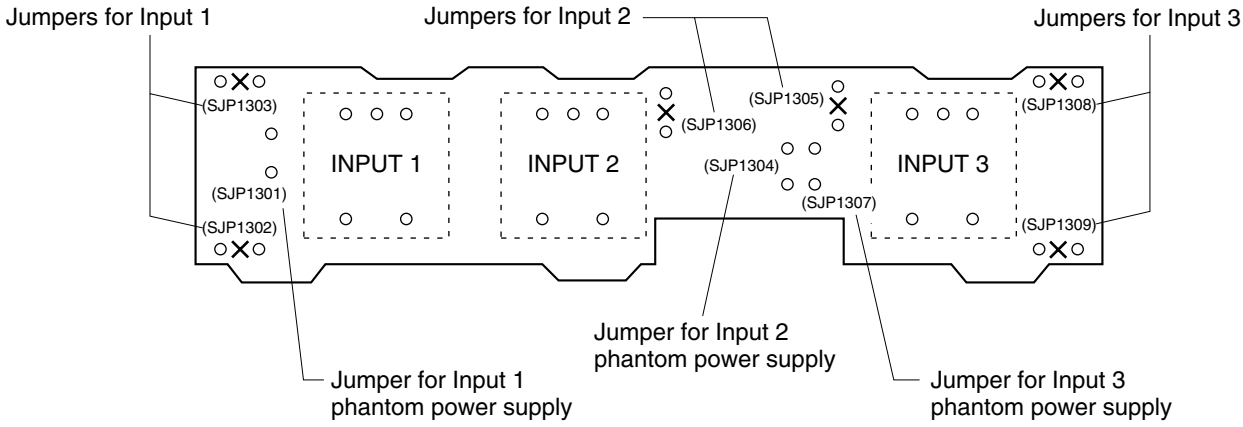
Step 3. Solder the input transformer to the removed input transformer board (5 places).

Note: Be sure not to mistake the solder side for the mounting side.

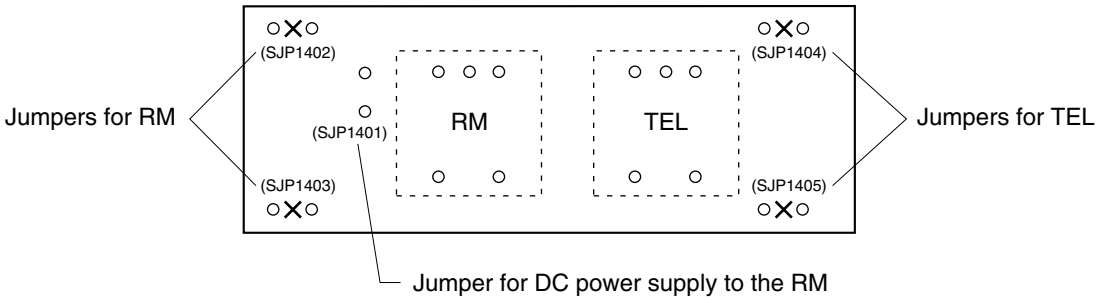
Step 4. Cut off jumper wires (2 places marked with X for each input).

Note: The jumpers are on the back of the circuit board in the figure below.

[Inputs 1 – 3 input transformer board]



[RM/TEL input transformer board]



Step 5. Replace the input transformer board on the circuit board.

Step 6. Using the 4 rear panel screws and 6 side panel screws removed in Step 1, replace the amplifier cover.

14.2. Switching Off the Phantom Power Supply

By cutting the following jumper wires on the Inputs 1 – 3 Input Transformer Board, the corresponding input's phantom power can be switched off. (See the figure above.)

Input 1: SJP1301
Input 2: SJP1304
Input 3: SJP1307

14.3. Instructions When the Sub- and Master VM Amplifiers Are Connected

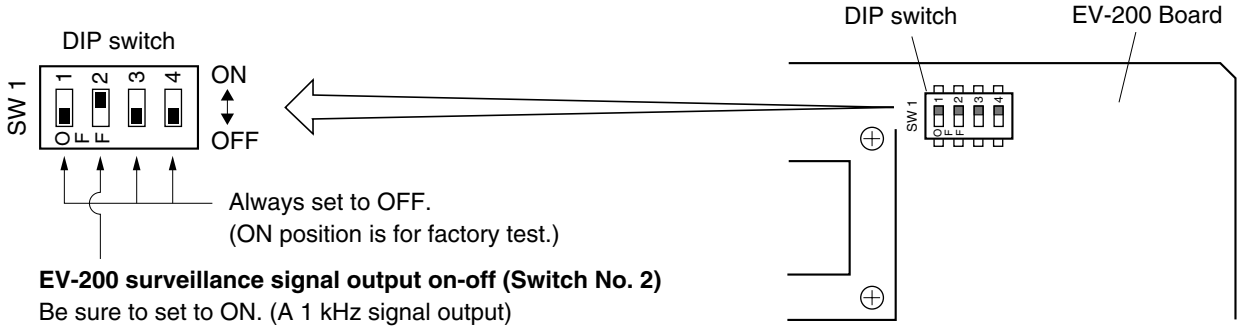
- Be sure to cut the jumper wires SJP1401, SJP1402, and SJP1403 on the RM/TEL input transformer board in the sub-VM amplifier.
- To make the Remote Microphone (RM) input transformer-isolated, be sure to install the input transformer on the RM/TEL input transformer board in the master VM amplifier. In addition, cut the jumper wires SJP1402 and SJP1403 while remaining SJP1401 intact.

15. MOUNTING AN OPTIONAL EV-200 VOICE ANNOUNCEMENT BOARD

Caution: Leave the following work to a qualified service technician.
Be sure to unplug the AC power cord before the work.

Do not handle unless your body is static-free because some of the assembled components are sensitive to static electricity.

Step 1. Set the DIP switch on the EV-200 Board as shown in the figure.

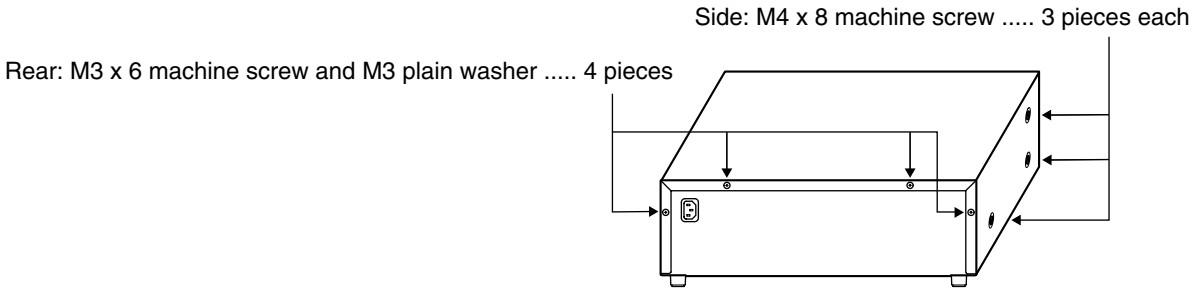


EV-200 surveillance signal output (Switch No. 2)

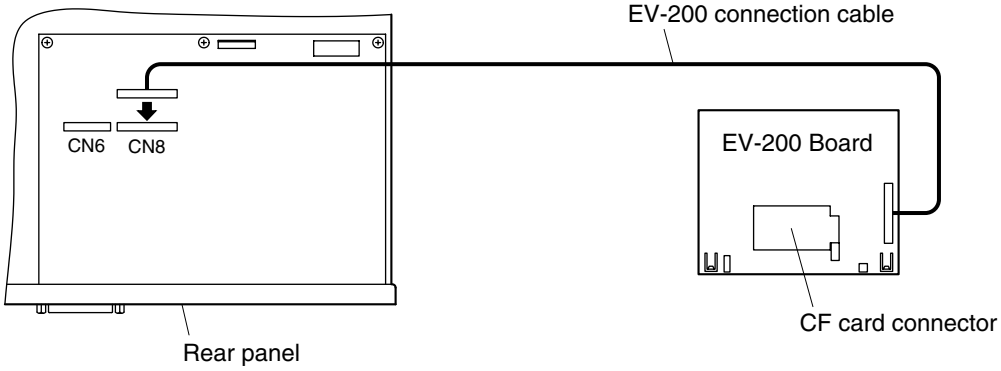
The EV-200 board always transmits a 1 kHz sine wave signal to an amplifier when the EV-200 Board is not reproducing audio signals. The amplifier detects the existence of the 1 kHz signal. When the signal does not exist, the amplifier judges the board's failure and causes the FAULT indicator to light.* (The signal indicating the EV-200's failure is transmitted from the CONTROL I/O connector.)

* If Switch No. 2 is set to the OFF position, the FAULT indicator lights even when the board is operating correctly.

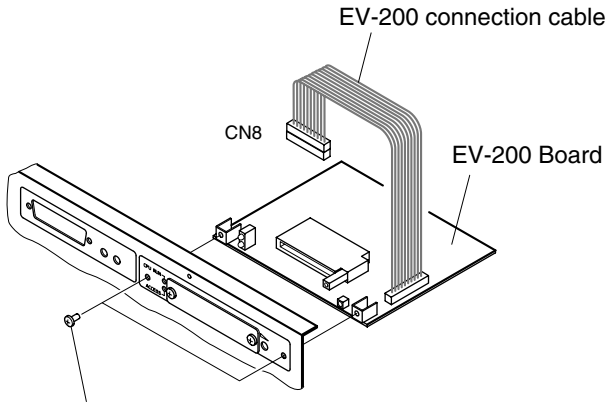
Step 2. Remove 4 screws on the amplifier rear panel and a total of 6 screws on the sides to remove the cover.



Step 3. Insert the EV-200 connection cable coming from the EV-200 Board into connector CN8 in the amplifier.



Step 4. Using 2 screws supplied with the EV-200, mount the EV-200 in the amplifier.



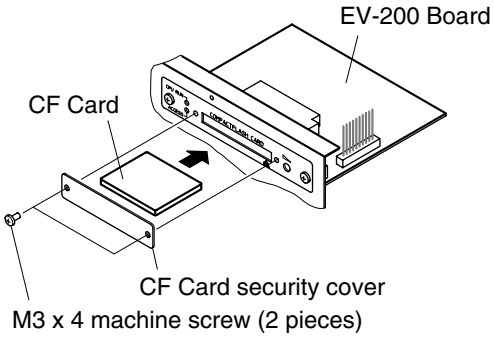
M3 x 6 machine screw ..... 2 pieces (supplied with the EV-200)

Step 5. Check the DIP switch on the EV-200 Board again for correct setting. (See Step 1.)

Step 6. Using the 4 rear panel screws and 6 side panel screws removed in Step 2, replace the amplifier cover.

CF Card security cover

Remove 2 screws to detach the security cover when inserting the CF Card into the card slot. Be sure to replace the cover after inserting the card.

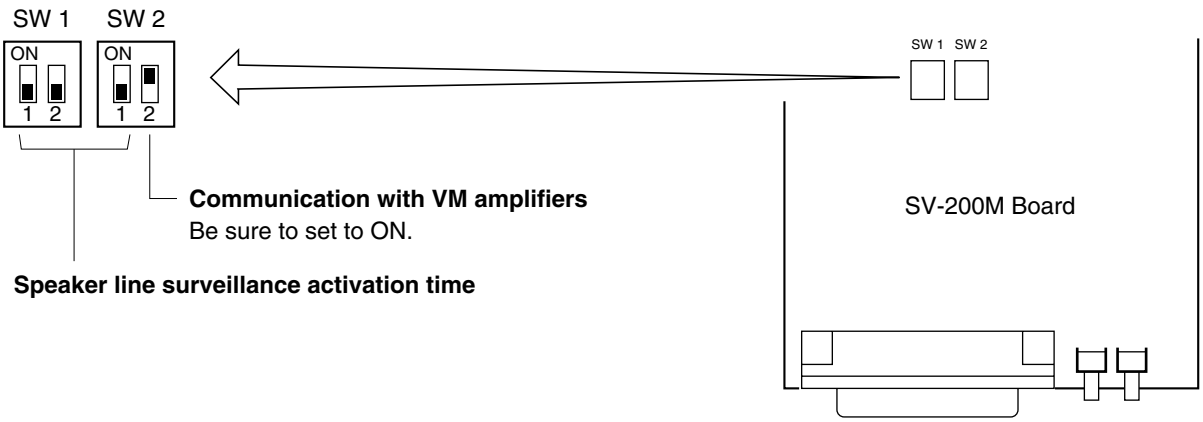


16. MOUNTING AN OPTIONAL SV-200M SURVEILLANCE BOARD

Caution: Leave the following work to a qualified service technician.
Be sure to unplug the AC power cord before the work.

Do not handle unless your body is static-free because some of the assembled components are sensitive to static electricity.

Step 1. Set the DIP switch on the SV-200M Board as shown in the figure.



Speaker line surveillance activation time

SW1-1	SW1-2	SW2-1	Setting contents
OFF	OFF	OFF	Automatic activation disabled
ON	OFF	OFF	10 minutes intervals
OFF	ON	OFF	20 minutes intervals
ON	ON	OFF	30 minutes intervals
OFF	OFF	ON	30 minutes intervals
ON	OFF	ON	40 minutes intervals
OFF	ON	ON	50 minutes intervals
ON	ON	ON	60 minutes intervals

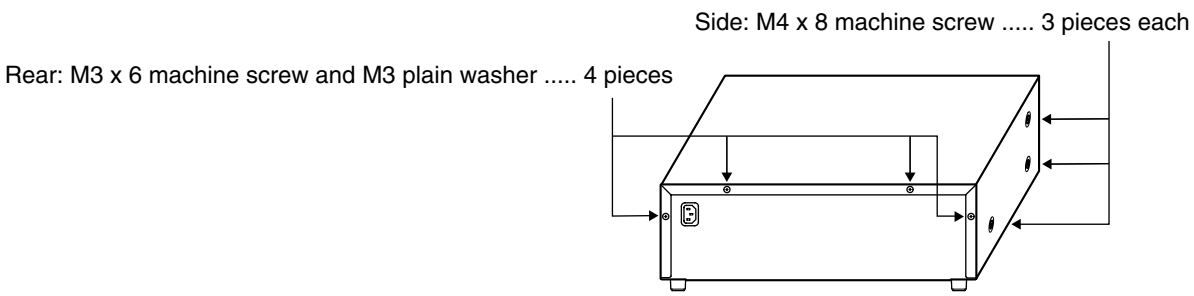
This setting executes failure detection by means of the "speaker line surveillance activation" signal from the external control input (SURVEILLANCE I/O 25-pin D-sub connector).

Speaker lines are automatically monitored at set time intervals.

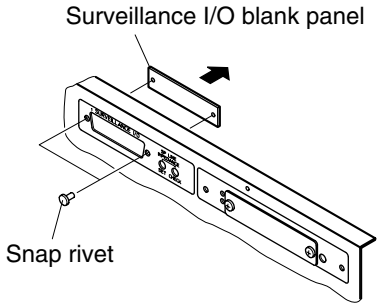
Communications with VM (VM-2120 or VM-2240) amplifier

SW2-2	Setting contents
OFF	Disabled (communications impossible)
ON	Enabled (when SV-200M Board is installed in VM amplifier)

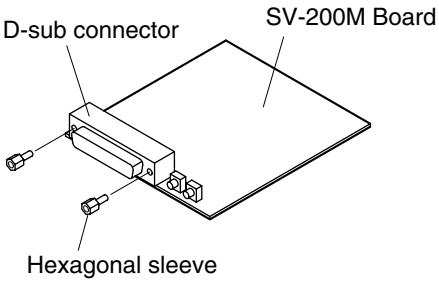
Step 2. Remove 4 screws on the amplifier rear panel and a total of 6 screws on the sides to remove the cover.



Step 3. Detach the surveillance I/O blank panel on the amplifier rear panel by removing 2 fixing snap rivets.



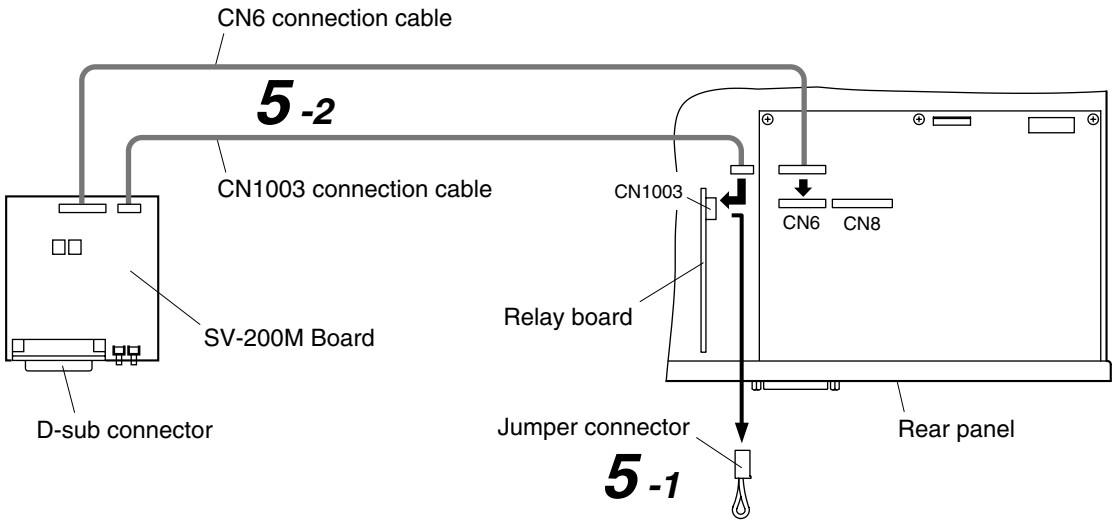
Step 4. Unscrew 2 hexagonal sleeves mounted on the 25-pin D-sub connector on the SV-200M Board.



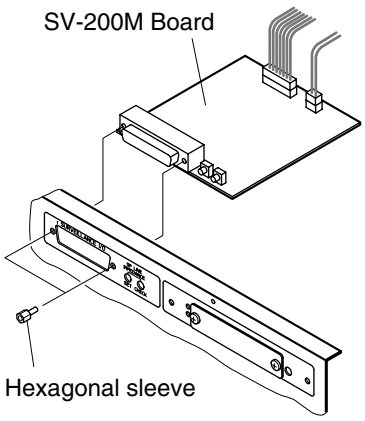
Step 5. Connect the SV-200M Board to the VM amplifier's boards with the connection cables.

5-1. Plug out the jumper connector from the relay board connector (CN1003) shown below.

5-2. Connect the 2 cables attached to the SV-200M to the connectors in the VM amplifier's boards shown below.



Step 6. Using the removed 2 hexagonal sleeves, mount the SV-200M in the amplifier.



Step 7. Check the DIP switch on the SV-200M Board again for correct setting. (See Step 1.)

Step 8. Using the 4 rear panel screws and 6 side panel screws removed in Step 2, replace the amplifier cover.

20. CHANGING THE SPEAKER LINE VOLTAGE

Caution: Leave the following work to a qualified service technician.
Be sure to unplug the AC power cord before the work.

The VM amplifier's speaker line voltage is set for 100 V line output. For 50 V or 70 V line applications, change internal connector wiring as shown below.

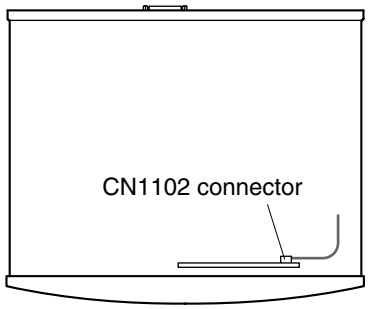
Step 1. Remove 4 screws on the amplifier rear panel and a total of 6 screws on the sides to remove the cover.

Step 2. Pull the cable connector (9-pin) connected to CN1102 connector on the circuit board with the zone volume control (selector switch).

Step 3. Change wires inserted into the cable connector for different wires according to color-coding shown in the table below to switch to the desired line voltage.

Step 4. Connect the cable connector to the circuit board.

Step 5. Using the 4 rear panel screws and 6 side panel screws removed in Step 1, replace the amplifier cover.



VM amplifier's front panel

Connector pin assignment

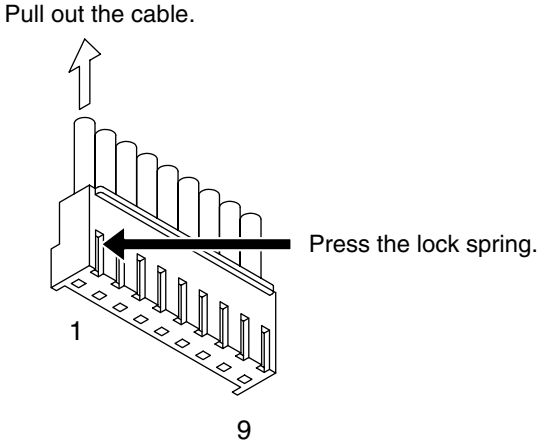
Speaker line voltage	CN1102 Connector Pin Number								
	1	2	3	4	5	6	7	8	9
100 V	White	Violet	Blue	Green	Yellow	Orange	Red	Brown	Black
70 V	Violet	Blue	Green	Yellow	Orange	Red	Brown	White	Black
50 V	Blue	Green	Yellow	Orange	Red	Brown	White	Violet	Black

Speaker line voltage/impedance

Speaker line voltage	VM-2120	VM-2240
100 V	83 Ω	42 Ω
70 V	42 Ω	21 Ω
50 V	21 Ω	10 Ω

How to remove cables from connector

Pull out the cable pressing the lock spring with a pointed object like tweezers as shown below.

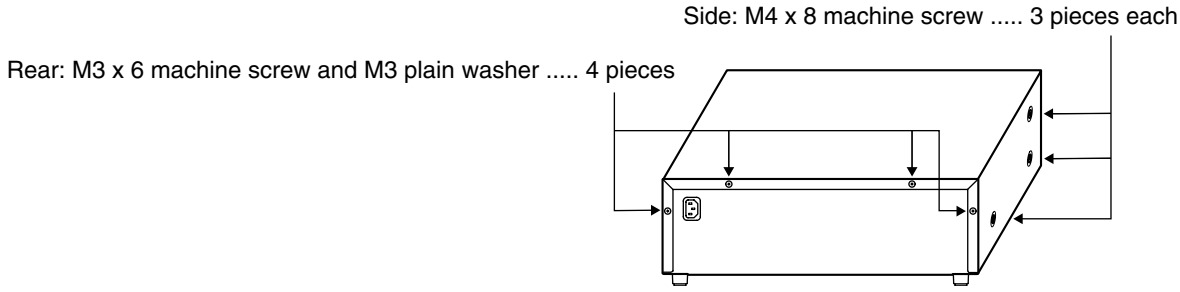


23. FUNCTION SWITCH OPERATION

23.2. VM Amplifier's Internal Function Switches

Caution: Leave the following work to a qualified service technician.
Be sure to unplug the AC power cord before the work.

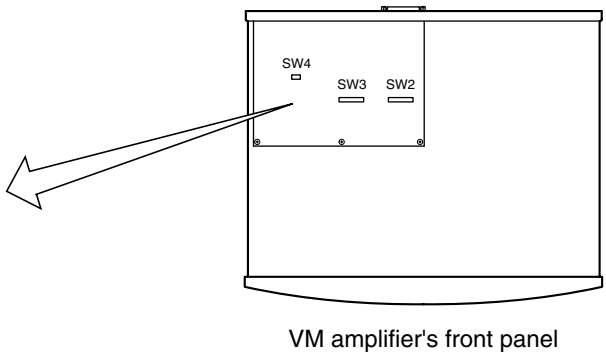
Step 1. Remove 4 screws on the amplifier rear panel and a total of 6 screws on the sides to remove the cover.



Step 2. Set the amplifier's internal DIP switches SW2, SW3, and SW4 according to the table below.

Step 3. Replace the amplifier cover using the screws removed in Step 1.





VM amplifier's front panel

SW2 switch setting (All switches are factory-preset to OFF position.)

Switch No.	1	2	3	4	5	6	7	8
Function	Inputs 1 – 3 Broadcast Priority Level			TEL Paging Priority Level	Voice Announcement Board's Message Priority Level			Priority Mode for Same Priority Unit
	Input 1	Input 2	Input 3		Message 3	Message 4	Message 5	
ON	1	1	1	1	3	3	3	Unit No. Priority (Numerical order)
OFF	2	2	2	2	1	1	1	First/Last Priority

SW3 switch setting (All switches are factory-preset to OFF position.)

Switch No.	1	2	3	4	5	6	7	8
Function	First/Last Priority*	Priority 2 Mixing	Mode after Emergency Talk	Input 3/LINE (Input 3/MIC) Chime On/Off	Unit Type	No. of Connected Units		
ON	First-come first-served	Mixed	Silent	On (off)	Sub-unit	See the Connected unit No. table on the next page.		
OFF	Last-come first-served	Not mixed	Evacuation message	Off (on)	Master unit			

* This function is set in relation to the SW2-8 switch. (For details, see p. 26 "GENERAL-PURPOSE BROADCAST PRIORITY" of the instruction manual supplied with the VM-2120 or VM-2240.)

Connected unit No. table (SW3)

Switch No.			No. of Connected Units*
6	7	8	
OFF	OFF	OFF	0
ON	OFF	OFF	1
OFF	ON	OFF	2
ON	ON	OFF	3
OFF	OFF	ON	4
ON	OFF	ON	5

* The total number of one Sub-VM amplifier and up to 4 Remote Microphones (excluding the Master amplifier and Remote Microphone Extension)

SW4 switch setting (Both switches are factory-preset to ON position.)

Switch No.		BGM broadcast volume attenuation*
1	2	
OFF	OFF	No attenuation
	ON	–28 dB (just audible)
ON	Don't care	–∞ dB (inaudible)

* Determines the attenuation level when the broadcast of higher priority (level 2 or 3) overrides the BGM broadcast (priority level 4). (For details, see p. 26 "GENERAL-PURPOSE BROADCAST PRIORITY" of the instruction manual supplied with the VM-2120 or VM-2240.)

USE OF VR COVERS

The VM-2120/-2240 has 4 VR covers attached as accessories. They are prepared as security covers for the setting of volume and tone controls. Remove the knob of volume or tone control and put the VR cover instead of it.
If you need more VR covers, they are available as spare parts.