

# WALL MOUNT SPEAKERS

# BS-680F BS-680FC

Thank you for purchasing TOA's Wall Mount Speaker.

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.

### **WARNING**

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

### **CAUTION**

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

### **WARNING**

- Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket. Doing otherwise may result in the unit falling down and causing personal injury and/or property damage.
- Do not use other methods than specified to mount the bracket. Extreme force is applied to the unit and the unit could fall off, possibly resulting in personal injuries.
- Tighten all screws securely. If any is loosely fixed, this may cause the speaker cabinet or baffle to fall, resulting in personal injury.

### **CAUTION**

- To avoid electric shocks, be sure to switch off the amplifier's power when connecting speakers.
- Do not operate the unit for an extended period of time with the sound distorting. This is an indication of a malfunction, which in turn can cause heat to generate and result in a fire.
- Do not stand or sit on, nor hang down from the unit as this may cause it to fall down or drop, resulting in personal injury and/or property damage.

## 2. FEATURES

- Constructed with metal cabinet, the speakers are ideal for use in a voice evacuation system.
- Can be surface- or flush- mounted to the wall.
- Either concealed in-wall wiring or exposed wiring can be used for speaker cable connection.
- The speaker structure of direct wall-mounting with screws prevents the speaker from falling easily even if an outward force is applied to.
- The input impedance can be easily changed by changing the tap position of the transformer.
- A 16 cm (6") double cone speaker unit ensures high quality sound.
- Two steatite screw terminal blocks (1 cable to 1 connection type) make bridge connection easier. (BS-680FC)
- The push-in type input connector makes cable connections easy and allows bridge wiring. (BS-680F)
- The BS-680FC complies with British Standard 5839 part 8.

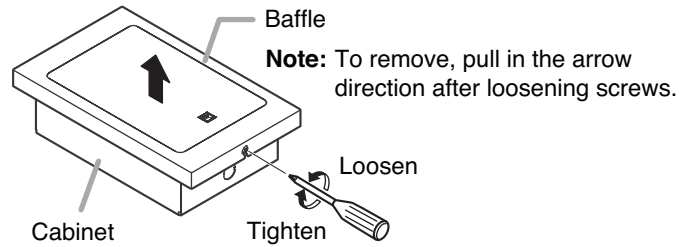
#### Traceability Information for Europe (EMC directive 2004/108/EC)

Manufacturer:  
TOA Corporation  
7-2-1, Minatojima Nakamachi, Chuo-ku, Kobe, Hyogo, Japan

Authorized representative:  
TOA Electronics Europe GmbH  
Suederstrasse 282, 20537 Hamburg, Germany

### 3. INSTALLATION

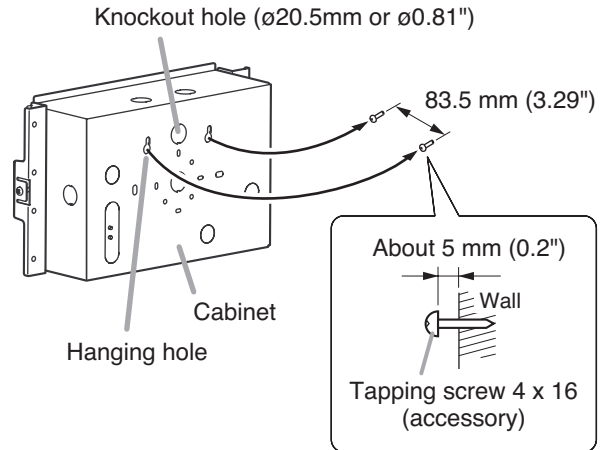
- Step 1.** Loosen one each of the screws on both sides of the speaker, then remove the baffle.  
You can remove the baffle by loosening the screw without taking it out.



- Step 2.** Install the cabinet on the wall.  
The cabinet has knockout holes ( $\varnothing 20.5$  mm or  $\varnothing 0.81$ " ) for cable routing.  
Remove the desired knockout hole depending on the wiring method, and route cables.

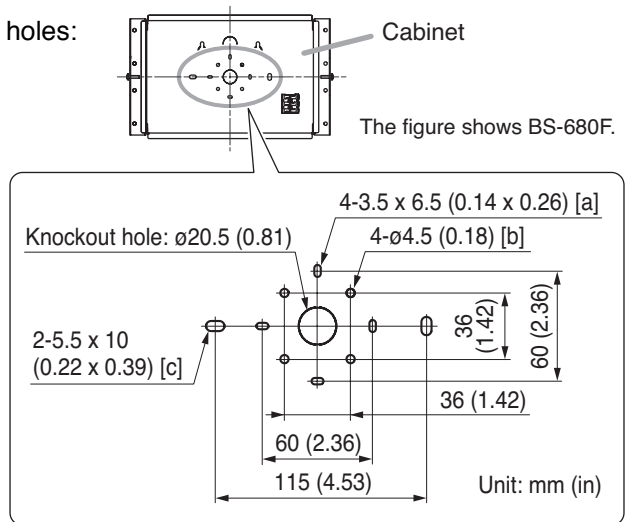
**2-1.** When installing the cabinet on the wall using the hanging holes:

- (1) Fix 2 supplied screws (tapping screws 4 x 16) to the wall leaving about 5 mm (0.2") space from the wall surface.
- (2) Remove the cabinet's knockout, then run the cables routed from the wall through this hole. In the case of exposed wiring, fit the supplied rubber grommet into the knockout hole.  
**Note:** Cut a hole in the grommet's thin membrane to match the cable size.
- (3) Hook the cabinet onto the stick-out screws, then tighten the screws.  
**Tip:** The shape of cabinet's hanging hole is so designed to prevent the cabinet from falling easily even if an outward force is applied to.



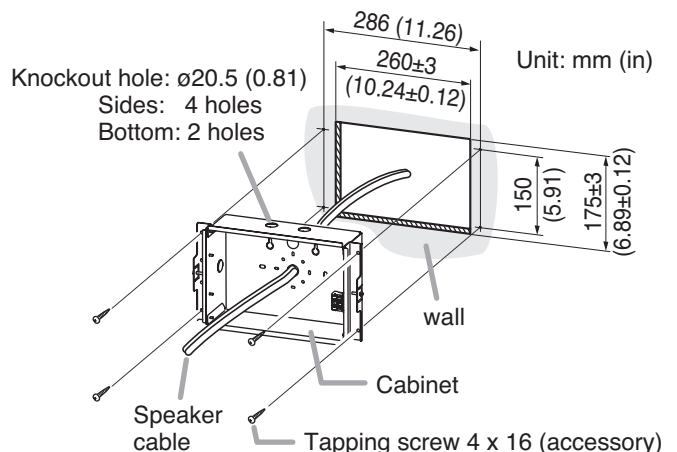
**2-2.** When installing the cabinet on the wall using other holes:

- (1) Remove the cabinet's knockout, then run the cables routed from the wall through this hole. In the case of exposed wiring, fit the supplied rubber grommet into the knockout hole.  
**Note:** Cut a hole in the grommet's thin membrane to match the cable size.
- (2) Install the cabinet on the wall using the mounting holes [a], [b] or [c] shown at right.  
**Note:** Since no mounting screws are supplied with the speaker, separately prepare them appropriate for the construction of wall and its thickness.



**2-3.** When mounting the cabinet into the wall:

- (1) Make a mounting hole of 260 x 175 mm (10.24" x 6.89") in the wall.
- (2) Remove the cabinet's knockout hole, run the cables through this hole, then install the cabinet using 4 supplied screws (tapping screw 4 x 16). Fit the supplied rubber grommet into the knockout hole.  
**Note:** Cut a hole in the grommet's thin membrane to match the cable size.



**Step 3. Perform wiring.**

**3-1.** Connect both the lead-in and lead-out cables to the terminal block attached to the cabinet.

[Applicable cable]

BS-680F	Solid wire: $\varnothing 0.8 - \varnothing 1.6$ mm (AWG 20 - 14) 7-core twisted wire: $0.75 - 1.25$ mm <sup>2</sup> (AWG 18 - 16)
BS-680FC	Solid wire: $\varnothing 1.0 - \varnothing 3.0$ mm (AWG 18 - 9)

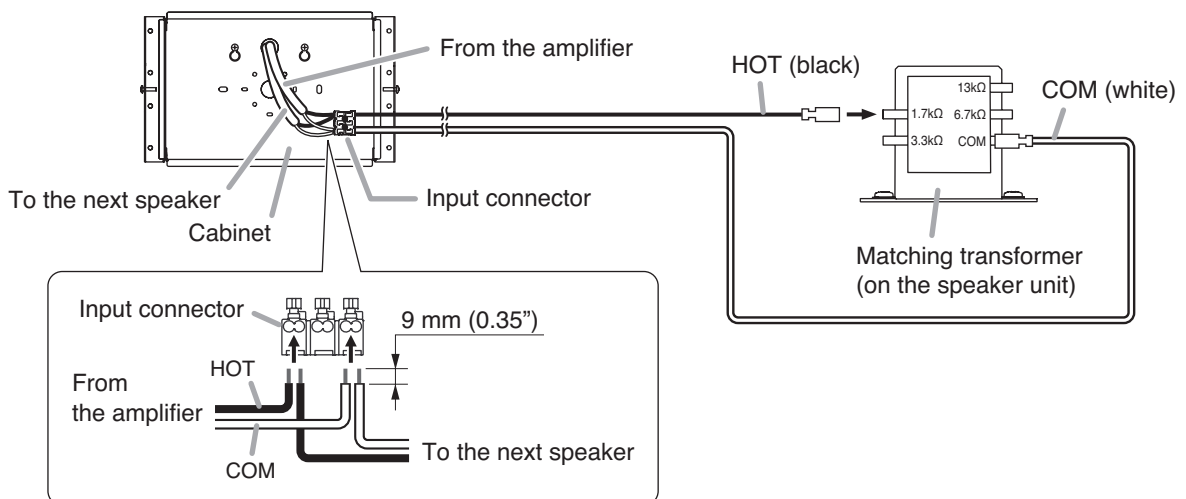
**3-2.** Insert the fasten terminals fitted at the ends of the HOT, COM, and Earth (BS-680FC only) cables from the input connector on the cabinet into the taps of the matching transformer on the speaker unit.

Connect the COM cable to the transformer's COM tap, the HOT cable to the desired transformer's input tap, and the Earth cable (BS-680FC only) to the lug terminal at the transformer base. (Refer to the figure below.)

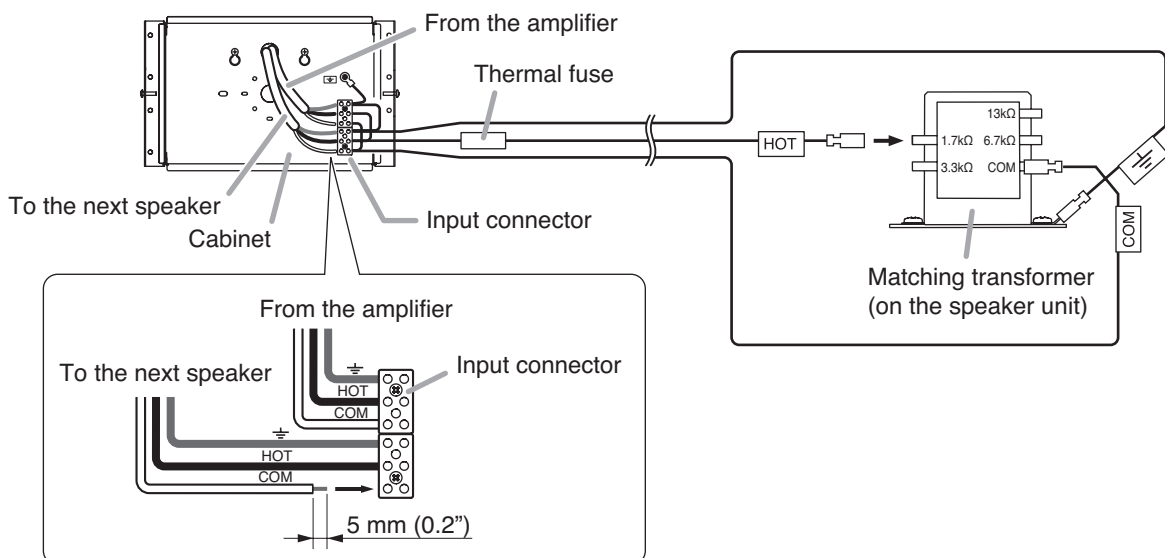
The table below shows the relationship between impedance and input power.

Impedance	1.7 k $\Omega$	3.3 k $\Omega$	6.7 k $\Omega$	13 k $\Omega$
100 V line	6 W	3 W	1.5 W	0.8 W
70 V line	3 W	1.5 W	0.8 W	0.4 W

[Connection of the BS-680F]



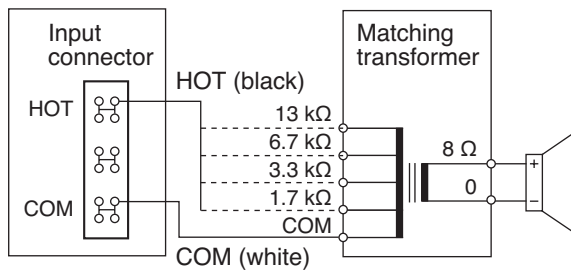
[Connection of the BS-680FC]



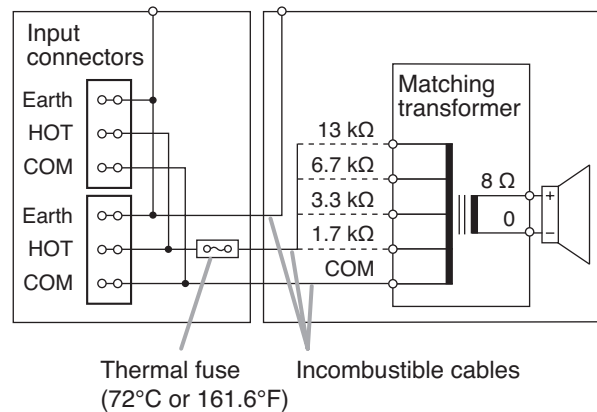
**Step 4.** Replace the baffle to the cabinet, then tighten 2 screws loosely attached on both sides of the cabinet.

## 4. WIRING DIAGRAMS



### 4.1. BS-680F



### 4.2. BS-680FC



## 5. SPECIFICATIONS

Model No.	BS-680F	BS-680FC
Rated Input		6 W (100 V line), 3 W (70 V line)
Rated Impedance		100 V line: 1.7 kΩ (6 W), 3.3 kΩ (3 W), 6.7 kΩ (1.5 W), 13 kΩ (0.8 W) 70 V line: 1.7 kΩ (3 W), 3.3 kΩ (1.5 W), 6.7 kΩ (0.8 W), 13 kΩ (0.4 W)
Sensitivity		94 dB at 1 W, 1 m (500 Hz – 5 kHz, pink noise) — 77 dB at 1 W, 4 m (100 Hz – 10 kHz, pink noise) according to EN 54-24 89 dB at 1 W, 1 m (100 Hz – 10 kHz, pink noise) converted based on EN 54-24
Maximum Sound Pressure Level		84 dB at 6 W, 4 m (100 Hz – 10 kHz, pink noise) according to EN 54-24 96 dB at 6 W, 1 m (100 Hz – 10 kHz, pink noise) converted based on EN 54-24
Frequency Response		150 Hz – 20 kHz (at 20 dB below peak)
Coverage Angle (–6 dB)		500 Hz: 180° (Horizontal and Vertical); 1 kHz: 140° (Horizontal and Vertical); 2 kHz: 120° (Horizontal), 110° (Vertical); 4 kHz: 100° (Horizontal), 80° (Vertical); according to EN 54-24
Speaker Component		16 cm (6") double cone type
Standard	Traceability Information for Europe (EMC directive 2004/108/EC)  	The European Standard EN 54-24: 2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems Certification number: 1438/CPD/0178, Certified year: 10 Environmental type: A (Indoor applications) In compliance with the British Standard BS 5839-8: 2008  1438
Applicable Cable	Solid wire: $\phi 0.8 - \phi 1.6$ mm (AWG 20 – 14) 7-core twisted wire: 0.75– 1.25 mm <sup>2</sup> (AWG 18 – 16)	Solid wire: $\phi 1.0 - \phi 3.0$ mm (AWG 18 – 9)
Connection	Push-in connector (Bridging terminal)	Screw connector (Steatite terminal x 2) bridging
Finish	Baffle, Cabinet: Steel plate, off white (RAL 9010 or equivalent color), paint Grille: Surface-treated steel plate net, off white (RAL 9010 or equivalent color), paint	
Dimensions		310 (w) x 190 (h) x 87.2 (d) mm (12.2" x 7.48" x 3.43")
Weight		2.6 kg (5.73 lb)

### Notes

- The design and specifications are subject to change without notice for improvement.
- The Specifications data was measured in an anechoic chamber.
- Reference axis: Axis is on the center of grill surface and perpendicular to the grill surface.
- Reference plane: Plane is on the grill surface and perpendicular to the reference axis.
- Horizontal plane: Plane is containing the reference axis and perpendicular to the reference plane.
- Other technical data: See the specification sheet BS-680F/FC.

### • Accessories

Rubber grommet ..... 2

Tapping screw (4 x 16) ..... 4



TOA Corporation

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

533-06-153-6C