



TBA15

Paging/Talk Back Amplifier

Installation and Use Manual

Notice

Every effort was made to ensure that the information in this manual was complete and accurate at the time of printing. However, information is subject to change.

Federal Communications Commission (FCC) Statement (Part 68)

This equipment is component registered with the Federal Communications Commission (FCC) in accordance with Part 68 of its rules. In compliance with the rules, be advised of the following:

Registered equipment may not be used with Coin Telephone Lines. Equipment may be used with Party Lines in areas where state tariffs permit such connections and when equipment is adaptable for such service.

**This equipment is registered as follows:
Registration Number - US: CD272Q-17147-KX-N
Ringer Equivalence - 0.0B**

If trouble is experienced, the equipment should be disconnected from the interface to determine if this equipment, or the telephone line, is the trouble source. If the equipment is determined to be malfunctioning, it should not be reconnected until repairs are effected.

Repairs to this equipment, other than routine repairs, can be made only by the manufacturer or its authorized agents.

If the equipment causes harm to the telephone network, the local telephone company may temporarily discontinue your service and, if possible, notify you in advance. If advance notice is not practical, you will be notified as soon as possible. You will be given the opportunity to correct the problem and informed of your right to file a complaint with the FCC.

The local telephone company may make changes in its facilities, operations, or procedures that could affect the proper functioning of your equipment. If they do, you will be given adequate notice in writing to allow you an opportunity to maintain uninterrupted telephone service.

Important Safety Information

Always follow these basic safety precautions when installing and using the system:

1. Read and understand all instructions.
2. Follow all warnings and instructions marked on the product.
3. DO NOT block or cover the ventilation slots and openings. They prevent the product from overheating. DO NOT place the product in a separate enclosure or cabinet, unless proper ventilation is provided.
4. Never spill liquid on the product or drop objects into the ventilation slots and openings. Doing so may result in serious damage to the components.
5. Repair or service must be performed by a factory authorized repair facility.
6. The product is provided with a UL-CSA approved, 3-wire ground type plug. This is a safety feature. DO NOT defeat the safety purpose of the grounding type plug. DO NOT staple or otherwise attach the AC power supply cord to building surfaces.
7. DO NOT use the product near water or in a wet or damp place (such as a wet basement).
8. DO NOT use extension cords. The product must be installed within 6 feet of a grounded outlet receptacle.
9. DO NOT install telephone wiring during a lightning storm.
10. DO NOT install telephone jacks in a wet location unless the jack is specifically designed for wet locations.
11. Never touch uninsulated wires or terminals, unless the line has been disconnected at the paging or controller interface.
12. Use caution when installing or modifying paging or control lines.

CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**

**CAUTION: TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE ANY FRONT/BACK COVERS OR PANELS. NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED PERSONNEL.**



The lightning flash with an arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions.

Description

The **Bogen Model TBA15** is a 15-watt Paging/Talk Back amplifier which complies with Part 68 of FCC rules. The unit permits two-way communication between a telephone handset, and one or more paging zones.

The TBA15 senses and automatically switches the direction of conversation from telephone to loudspeaker without the use of relays or other moving parts. Control of speech direction is maintained at the telephone handset. Controls are provided to adjust the switching sensitivity, switching delay, and loudspeaker and talk back (handset) volume levels.

The TBA15 has a talk back frequency response which has been shaped for maximum intelligibility and background noise rejection. Switching delay time is adjustable from less than 50ms to greater than 0.5 seconds to ensure an intelligible flow of conversation.

A “power on” LED, circuit breaker, and volume control are located on the front panel. A recess in the panel, protected by a removable cover, houses the 600-ohm transformer-coupled telephone line input, 25V and 70V constant voltage outputs, and muting terminals (for one-way paging). Controls to adjust sensitivity, switching delay and talk back volume are also located within the panel recess.

The amplifier operates from a 120 volt, 60 Hz, AC source. A press-to-reset circuit breaker protects the unit from excessive current flow. Safe Operating Area (SOA) and thermal protection safeguard the output device. The unit is finished in textured black enamel and mounts easily on a wall backboard or in standard 19” equipment racks.

Installation

Warning: To prevent fire or shock hazard, do not expose this equipment to rain or moisture. There are no user-serviceable parts within this equipment. Removal of the cover presents an electrical shock hazard. Have all internal service performed by qualified service personnel.

Mounting

Avoid proximity to heat sources and strong magnetic fields. Provide for adequate ventilation for chassis heat dissipation. To eliminate possible crosstalk interference, do not run input and output lines close together, and route through separate knockouts on the terminal strip cover.

For **Wall-mounted installation**, set the 2 top screws 18-5/16” apart, allowing the screw heads to protrude 1/8” to 1/4”. Fit the chassis onto the screw heads at the keyhole slots and position the two bottom screws. Complete the installation by tightening all screws securely. For best support, use self-fastening hardware when mounting the unit to plasterboard or similar thin materials. The unit weighs 7 pounds.

For **Rack-mounted installation**, install the unit facing into the rack. A blank panel may be used to cover the exposed rear surface of the amplifier. Secure the unit and blank panel with the same screws.

Power and Grounding

The AC line cord is terminated in a three-prong plug, which should be plugged into a three-wire, grounded outlet. It is important to ground the amplifier properly. “Pigtail” adapters may be used only when properly connected to a grounded outlet. A front panel LED illuminates when power is applied to the unit.

Connections

All connections to the TBA15 are made through a screw terminal strip, located within a recess on the amplifier front panel. Keyhole slots on the recess cover allow for quick access to terminal connections. Knockouts are provided on the cover to admit wiring. Run input and output wiring through separate knockouts.

Telephone Line

The TEL LINE terminals are a 600-ohm transformer-balanced telephone side connection (dry signal only, no loop current). In typical applications with a single-paging zone, this line interfaces with a station port or trunk port of an in-house telephone system (via the Bogen Model TAMB2 Telephone Access Module, or other suitable interface) and is reached by dialing a number reserved for paging.

Loudspeakers

The TBA15 provides 25V and 70V constant voltage speaker outputs for balanced systems. Use two-conductor shielded cable with insulation over the shield. Connect one conductor to the 25V or 70V terminal and the other conductor to the COM terminal. Connect the cable shield to the GND terminal. The total speaker load should not exceed 15 watts.

Mute

The TBA15 may be configured for unidirectional (telephone to loudspeaker) operation, if desired, by connecting the +MUTE terminal to the –MUTE terminal. The +MUTE terminal is a current limited (by a 1 kilohm resistor) 15 volt supply provided primarily to control the talk back mute feature; however, it may be used to supply power to auxiliary equipment (e.g., TAMB2 external VOX enable). The –MUTE terminal is the talk back mute control terminal. The talk back feature will be defeated if +5V DC or greater (referenced to the GND terminal of the TBA15) is applied to this terminal.

Controls

Output Volume

Controls the volume at the loudspeaker. Clockwise rotation of the control increases the level; counterclockwise rotation decreases the level.

Talkback Volume

Adjusts the talk back volume level in the handset earpiece. Clockwise rotation increases the level; counter clockwise rotation decreases the level.

Switching Sensitivity

Adjusts the point at which the VOX circuit will switch from talk back to talk modes. Clockwise rotation increases sensitivity; counter clockwise rotation decreases sensitivity.

Switching Delay

Adjusts the release time of the VOX circuit, allowing for short pauses between words without causing the unit to switch to the talkback mode in the middle of a sentence. Clockwise rotation increases the delay; counterclockwise rotation decreases delay.

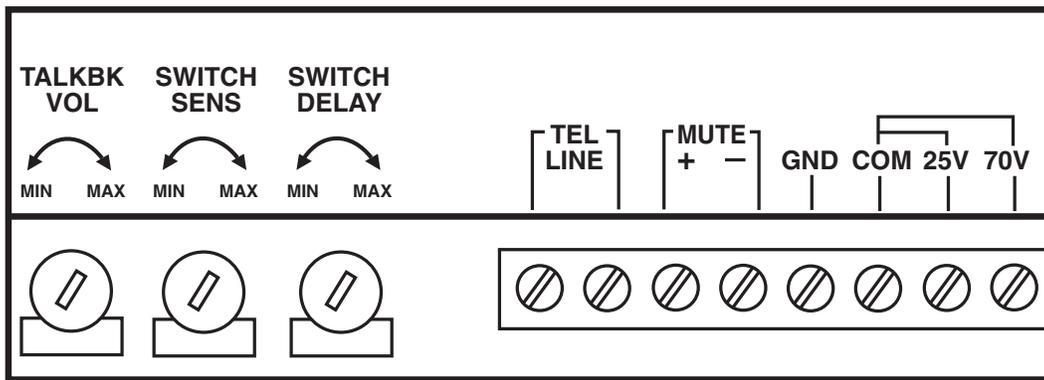


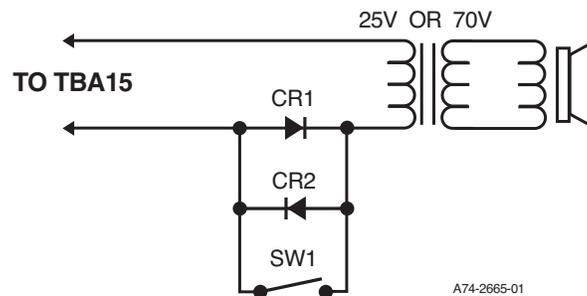
Figure 1 – TBA15 Terminal Strip

Configurations

Remote Privacy: Any remote speaker may be modified for privacy (see Figure 2). When SW1 is open, paging announcements from the telephone handset are received at the loudspeaker, but the telephone operator cannot monitor the loudspeaker area.

Single Zone Talk Back with TAMB2: A single paging zone, at the trunk or station level, is configured using the Bogen Model TAMB2, Telephone Access Module. Note that a power supply is required for both the trunk and station access modes (see Figure 3).

Multi-Zone Station Level Paging: The use of a Bogen ZPM3 Zone Paging Module permits up to 3 zones of paging. Both one-way and two-way zones may be incorporated in the configuration. Installation instructions are included with the ZPM3.



NOTES:

CR1 AND CR2 ARE 50 prv, 1A (IN4001 OR EQUIVALENT).
SW1 IS AN SPST SWITCH.

Figure 2 – Remote Privacy

Adjustment Procedures

Controls are provided to adjust the performance of the TBA15. Since these controls interact with each other, the following procedure should be used to set the unit for optimum performance.

Adjusting the performance of the TBA15 requires two people; one in the talk back zone having the highest background noise level, and one at the amplifier location. Due to the high sensitivity of a telephone mouthpiece, sound from a nearby speaker may cause the TBA15 to switch. Do not adjust while using a speaker located near the telephone.

Note: Where possible, use only one type of speaker in each zone. Horn-type loudspeakers provide a significantly stronger talk back signal than a cone-type speaker and, preferably, should be used when this procedure is performed. Also, better results are achieved when speakers are tapped closer to their maximum power.

1. Set the SWITCH SENS control at its full counterclockwise position.
2. Set the SWITCH DELAY control at about mid-rotation.
3. Have the person in the talk back zone speak in a voice loud enough to overcome the ambient background noise level. Rotate the TALKBK VOL control clockwise to obtain an acceptable volume level over the handset. The talk back volume level should be set on the low side to improve intelligibility. Higher settings will tend to muddy the sound, since the background noise will become a significant signal at the telephone.
4. With the person in the paging zone silent, rotate the SWITCH SENS control clockwise until the switching becomes unstable (switches back and forth by itself). Rotate the control counterclockwise until the switching again becomes stable. At this point, the unit is critically stable; any noise on the telephone side will cause the unit to switch to the talk mode and any loud impulse-type noise at the loudspeaker may cause the unit to switch to the talk back mode.
5. With the person in the talk back zone speaking, rotate the SWITCH SENS control counterclockwise so that the unit does not switch.
6. Have the person in the talk back zone make loud impulse noises that may be characteristic of the environment (door slamming, machine noises, etc.). If necessary, make additional adjustments to the SWITCH SENS control so that the unit does not switch momentarily to the talk mode.
7. Speak into the telephone handset in a normal paging voice. The TBA15 should switch to the talk mode (switching will be apparent by the total absence of background noise in the handset earpiece). If the unit does not switch, increase the sensitivity by rotating the SWITCH SENS control clockwise until switching becomes consistent. Recheck the unit's response to impulse noises, making sure that the person in the talk back zone is not uncharacteristically close to the loudspeaker.
8. To set the switching delay, start a moderately fast alternate count between the telephone side and the talk back zone. Adjust the SWITCH DELAY control so that the complete response from the talk back zone can be heard. (Clockwise rotation minimizes delay, counterclockwise rotation increases delay.) Then, while speaking into the telephone handset, check the delay to ensure it will allow short pauses between words without switching into the talk back mode. Adjust for a slightly longer delay if the unit switches between words. A slight pause is generally advisable for speech continuity and intelligibility.

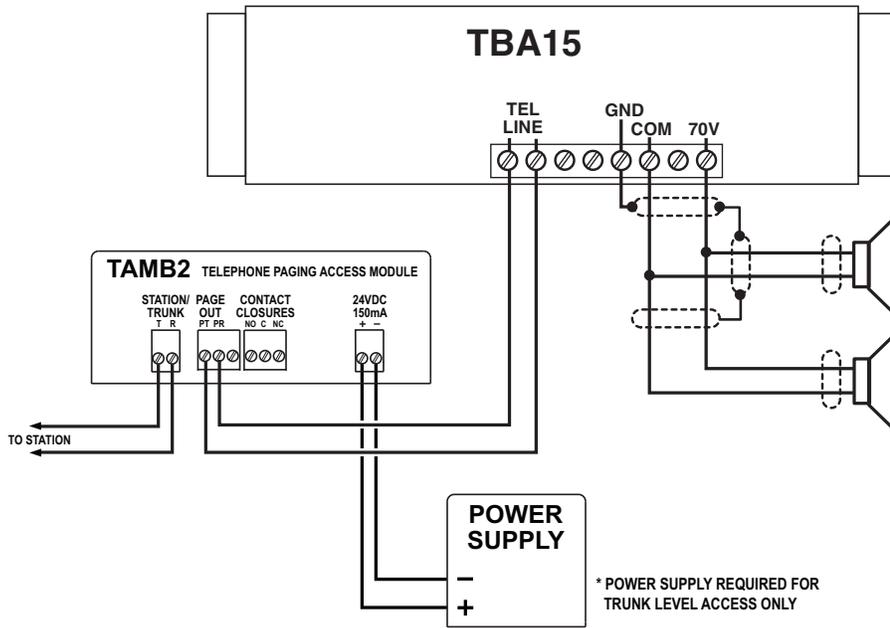


Figure 3 – Single-Zone Talk Back with TAMB2 Accessory

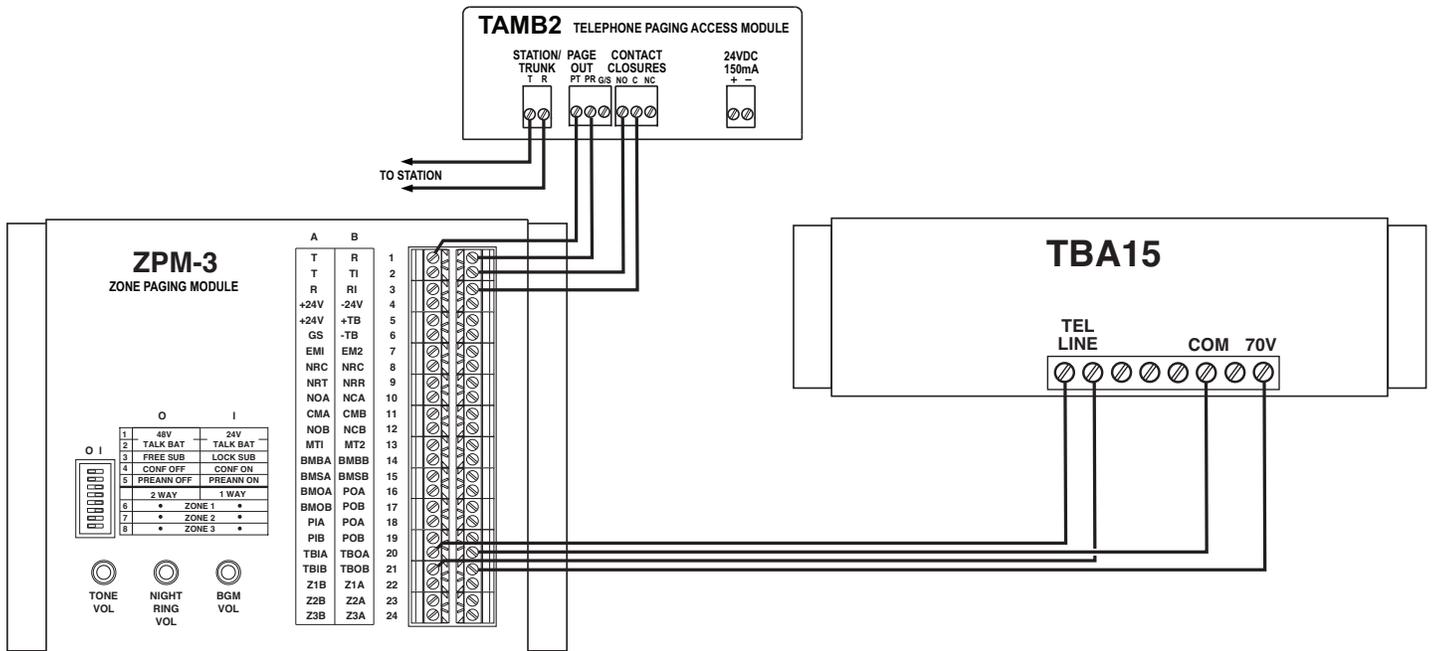


Figure 4 – Multi-Zone Station Level Paging with TAMB2 & ZPM3 Accessories

Technical Specifications

FCC Registration Number, under Part 68 rules:CD272Q-17147-KX-N
Ringer Equivalence:0.0B
Controls (screwdriver-adjustable):Loudspeaker Output Volume, Talkback Volume, Switching Sensitivity, Switching Delay

Telephone to Loudspeaker

Rated Power Output:15W
Frequency Response:200 Hz to 10 kHz
Input Sensitivity:-20 dBm
Input Impedance:600 ohms, balanced
Distortion (@RPO):Less than 3% (150 mV input signal)
Signal-to-Noise Ratio:-50 dB (20 Hz to 20 kHz)
Voice-Activated Switching:Sensitivity: -46 dBm; Attack Time: Less than 5 ms. (3 ms., typ.);
Switching Delay Time: adjustable from 50 ms.
to greater than 0.5 sec.
Output Impedance:25V or 70V balanced line

Loudspeaker to Telephone

Frequency Response:1500 Hz to 20 kHz
Distortion:Less than 2%
Signal-to-Noise Ratio:-40 dB
Output Level:Processed to meet FCC Part 68
Circuit Overload Protection:Push-to-Reset circuit breaker, Safe Operating Area (SOA)
and thermal protection for the output device
Unidirectional Operation:Terminals provided to defeat two-way function
Power Requirements:120V AC, 60 Hz, 0.7A
Temperature Range:0 - 50°C (32 - 122°F)
Humidity Range:0 - 95%, noncondensing
Enclosure:Sheet metal finished in black enamel
Dimensions:19" W x 5-1/4" H x 2-5/8" D
Product Weight:7 lb.

Limited Warranty; Exclusion of Certain Damages

The **Bogen TBA15 Paging/Talk Back Amplifier** is warranted to be free from defects in material and workmanship for two (2) years from the date of sale to the original purchaser. Any part of the product covered by this warranty that, with normal installation and use, becomes defective (as confirmed by Bogen upon inspection) during the applicable warranty period, will be repaired or replaced by Bogen, at Bogen's option, provided the product is shipped insured and prepaid to: Bogen Factory Service Department, 50 Spring Street, Ramsey, NJ 07446, USA. Repaired or replacement product will be returned to you freight prepaid. This warranty does not extend to any of our products that have been subjected to abuse, misuse, improper storage, neglect, accident, improper installation or have been modified or repaired or altered in any manner whatsoever, or where the serial number or date code has been removed or defaced.

THE FOREGOING LIMITED WARRANTY IS BOGEN'S SOLE AND EXCLUSIVE WARRANTY AND THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY. BOGEN MAKES NO OTHER WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED AND EXCLUDED TO THE MAXIMUM EXTENT ALLOWABLE BY LAW. Bogen's liability arising out of the manufacture, sale or supplying of products or their use or disposition, whether based upon warranty, contract, tort or otherwise, shall be limited to the price of the product. **IN NO EVENT SHALL BOGEN BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, LOSS OF DATA OR LOSS OF USE DAMAGES) ARISING OUT OF THE MANUFACTURE, SALE OR SUPPLYING OF PRODUCTS, EVEN IF BOGEN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSSES.** Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

Products that are out of warranty will also be repaired by the Bogen Factory Service Department – same address as above or call 201-934-8500. The parts and labor involved in these repairs are warranted for 90 days when repaired by the Bogen Factory Service Department. All shipping charges in addition to parts and labor charges will be at the owner's expense. All returns require a Return Authorization number. For most efficient warranty or repair service, please include a description of the failure.

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