

BOGEN[®]

COMMUNICATIONS, INC.

TELEPHONE PAGING AMPLIFIER

TPU-15A

CAUTION

Connect only to PBX system incorporating isolation from telecom network.

ATTENTION

Raccorder seulement à un système PBX indépendant du réseau de télécommunication.

DESCRIPTION

Bogen Model TPU-15A is a unique fifteen-watt, wall-mounted amplifier, specifically designed for telephone paging applications. This compact unit incorporates state-of-the-art electronic technology, including voice-activated muting of music when paging. The page channel features automatic output leveling (ALC) as channel input varies, which is particularly advantageous where persons of varying voice levels and paging techniques have access to the system. A night ringer (tone generator) is provided; a steady ringing tone, indicating incoming calls, can be transmitted through the public address system during other than regular business hours. This alerts security personnel to answer the call.

Input terminals are furnished for a 600-ohm balanced telephone line, a background music source and normally-open dry contacts for the night ringer. Output terminals offer a choice of 25 volts, 70 volts, or 8 ohms for connection of various types of loudspeakers.

Model TPU-15A features screwdriver-adjustable controls for page, music, and night ringer level, plus amplifier tone. Protective devices include an LED overload indicator and a low-cut switch for use with horn loudspeakers. The unit is professional in styling and is finished in black with white lettering. It operates from a 120VAC, 60Hz source.

INSTALLATION

CAUTION

The following installation instructions are for use by qualified service personnel only. To avoid an electric shock hazard, do not perform any functions requiring the removal of the cover of the amplifier unless you are qualified to do so. To prevent fire or shock hazard, do not expose this unit to rain or excessive moisture.

UNPACKING

Your unit was carefully checked before leaving the factory; inspect the shipping container and unit closely for improper handling. If the unit has been damaged, make an immediate claim to the distributor from whom it was purchased. If the unit was shipped directly to you, save all shipping material, notify the carrier immediately and place your claim.

POWER AND GROUNDING

The AC line cord has a three-prong plug which should be plugged into a three-wire, grounded 120V, 60Hz outlet. It is important to ground the unit. If a three-wire outlet is not available, use an adaptor and connect the grounding pigtail to the screw securing the wall plate. If the wall plate screw is not grounded, connect a wire from the ground terminal of the amplifier to a suitable earth ground.

MOUNTING

Model TPU-15A is designed for surface wall mounting. When mounting the unit, consider the proximity to heat sources and power supply, adequate air flow for chassis heat dissipation, and access to controls and terminal wiring. Where possible, secure to wall studs or a suitable back brace. Use self-fastening or molly-type hardware on plasterboard and other thin materials.

INPUT CONNECTIONS

PAGING

A balanced transformer-isolated input for a telephone line is provided. One 600-ohm telephone line may be connected at the terminals marked TIP and RING. If two-conductor shielded wire is used, connect the shield to the GND terminal.

MUSIC

An unbalanced high-impedance auxiliary input is provided. Make connections to terminals marked MUSIC and GND.

NIGHT RINGER

A ringing tone can be transmitted through the public address system by connecting the NIGHT RINGER and GND terminals on the TPU 15A amplifier through a pair of normally open dry contacts (which are customer-supplied). A steady ringing tone will be heard as long as the dry contacts are closed.

TECHNICAL SPECIFICATIONS

Pated Power Output:	15 watts RMS
Distortion:	Less than 2%
Frequency Response:	<i>Music</i> —70Hz to 12kHz \pm 2dB <i>Paging</i> —shaped for maximum intelligibility
Sensitivity:	<i>Music</i> —70mV <i>Paging</i> —-20dBm, 600 ohms
Inputs:	<i>Music</i> —Hi-Z AUX, 25k ohms, unbalanced <i>Paging</i> —600 ohms balanced, transformer-isolated <i>Night Ringer</i> —steady tone while dry contacts* are closed
Outputs:	15 watts @ 8 ohms; 25V and 70V balanced, transformer-coupled
Signal to Noise ("A" weighted):	-70dB
Controls and Indicators:	Screwdriver-adjustable—PAGE VOLume, MUSIC VOLume, NIGHT RINGER VOLume, and TONE; LO-CUT switch (for horn protection); PEAK LEVEL-indicating LED (ON when peak output exceeds rated output); CIRCUIT BREAKER
Tone Control:	-3dB @ 2.5kHz; 6dB per octave
Low Cut:	-3dB @ 350Hz; 6dB per octave
ALC (Page Channel):	+1, -3dB output level change with 15dB input level change (ref. -20dBm rated input sensitivity)
Power Consumption (120VAC, 60Hz):	.4A, 48W

*Customer-supplied

All specifications subject to change without notice.

OUTPUT CONNECTIONS

SPEAKERS

The unit provides 8-ohm, 25V and 70V transformer-coupled outputs, balanced or unbalanced. Connect the system speaker to the output terminals, with one lead to the COM terminal and the other to the terminal which corresponds to the impedance of the speaker system.

OPERATION

POWER

Once connection has been made to a 120VAC, 60Hz power source, the TPU-15A will remain in a power standby condition. (See CIRCUIT BREAKER information, also.)

CONTROLS

PAGING

The PAGE VOLume screwdriver-adjustable control is used to adjust the volume of the page input. Rotate the control **clockwise to increase**

volume and **counterclockwise to decrease** it. Set the control to minimum if the input is not used.

MUSIC

The MUSIC VOLume screwdriver-adjustable control is used to adjust the volume of the background music input. Rotate the control **clockwise to increase** volume and **counterclockwise to decrease** it. If the input is not used, set the control to minimum.

NIGHT RINGER CONTROL

The NIGHT RINGER VOLume is screwdriver-adjustable through the top of the unit. Rotate the control **clockwise to increase** volume and **counterclockwise to decrease** it.

TONE CONTROL

The TONE screwdriver-adjustable control is used to adjust the tonal value of the amplifier output. Rotate the control **fully clockwise** to provide a nominal, flat high-frequency response and **counterclockwise to decrease** it.

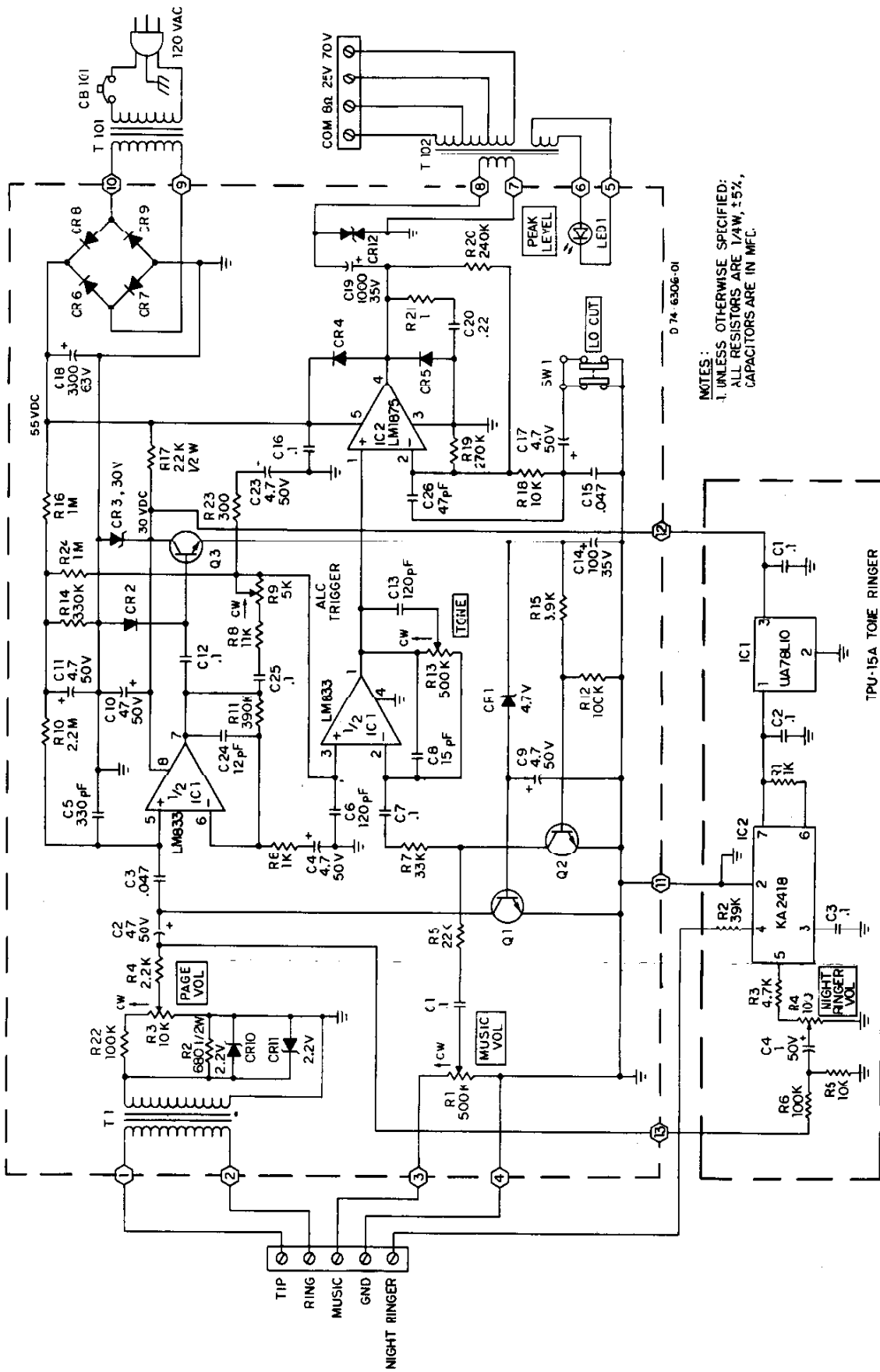


Figure 1—Schematic Diagram, Model TPU-15A

LO-CUT SWITCH

The LO-CUT filter is used to decrease low-frequency response when horn-type paging speakers are used. Move the switch to the right (toward the marking) to enable this feature.

PEAK LEVEL INDICATOR

A front-panel LED will illuminate when the amplifier is driven into clipping. Adjust the output level of the PAGE, MUSIC, and/or NIGHT RINGER if the LED remains ON.

CIRCUIT BREAKER

If the circuit breaker opens, the amplifier output will cease. Disconnect the plug from the outlet and momentarily depress the red circuit breaker reset button. Reapply power; if the breaker trips again, do not attempt to reset it. Have the unit checked by a qualified technician.

MAINTENANCE

CAUTION

There are no user-replaceable parts within the unit. To avoid an electric shock hazard, have all internal servicing done by a qualified technician. The warranty will become void if repairs are made by other than the Bogen Service Department or an authorized service agency.

BOGEN SERVICE

We are interested in the maintenance of your Bogen equipment. In the event of any difficulty, do not hesitate to ask our advice or assistance. Information may be obtained by writing to Service Department, Bogen Communications, Inc., P.O. Box 575, Ramsey, NJ 07446.

When communicating with us, give the model and series designation of your unit, describe the difficulty and include details of the electrical connections to associated equipment. We will send you information if the remedy appears simple. If service is required, we will send you the name and address of the nearest authorized Bogen Service Agency.

When shipping your unit, pack it well, using the original shipping carton or a similar container and filler material to prevent damage in transit. Send the unit, fully insured and prepaid, via UPS or any responsible carrier. It will be promptly repaired and returned to you collect (or prepaid while in warranty).

REPLACING COMPONENTS

CAUTION

Improper soldering may damage components or the printed circuit board. Such damage can void the warranty.

Many semiconductor components are soldered in place to ensure maximum reliability. When soldering transistors or diodes, use a heat sink (such as a small alligator clip) between the component and the

source of heat. Unless you are experienced in the removal of IC components, do not attempt to remove them, since excessive heat can damage an IC and/or the printed circuit board. If you are certain that an IC is defective, the easiest method of removal is to cut the leads off close to the component and desolder the leads individually. If you are not certain an IC is defective, the use of a low-wattage, vacuum-type desoldering tool (such as Ungar Type 7800) is advised.

REPLACEMENT PARTS

Most components are standard parts available through reputable parts suppliers. The parts listed herein may be obtained from the factory. When ordering a part, specify the part number as listed, the model number of the unit, and give the series designation, which is a letter followed by numbers, printed on the chassis. For parts on the circuit boards, also give the component board assembly number, which begins with "45."

Schem. Ref.

Part No.

Description

Component Boards

—	45-7288-05	Component Board Assembly (Main Board)
C2,4,9,11,17,23	79-126-055	Cap., Elect., 4.7 μ F, 50V
C10	79-126-057	Cap., Elect., 47 μ F, 50V
C14	79-126-053	Cap., Elect., 100 μ F, 35V
C18	79-119-015	Cap., Elect., 3300 μ F, 63V
C19	79-126-044	Cap., Elect., 1000 μ F, 35V
CR1	96-5691-01	Diode, Zener, 4.7V, IN5230A
CR2,4,5	96-5430-01	Diode, IN4148
CR3	96-5344-08	Diode, Zener, 30V
CR6-9	96-5333-01	Diode, 400prv @ 1A
CR10,11	96-5684-02	Diode, Zener, 2.2V, IN4680A
CR12	96-5692-01	Suppressor, Transient, SCM16C
IC1	96-5690-01	IC, LM833N
IC2	96-5649-01	IC, LM1875T
LED1	96-5576-01	LED, Red
Q1-3	96-5641-01	Transistor, MPS4123
R1,13	77-001-843	Control, 500 kilohms, Audio
R3	77-001-817	Control, 10 kilohms, Audio
R9	77-007-002	Trimpot, 4700 ohms
R21	76-146-109	Resistor, 1 ohm, 1/4 watt, 5%
SW1	81-003-067	Switch, Slide
T1	83-060-000	Transformer, Input
—	45-7351-05	Component Board Assembly (Night Ringer)
C4	79-126-069	Cap., Elect., 1 μ F, 50V
IC1	96-5667-01	IC, μ A78L10
IC2	96-5729-01	IC, KA2418
R4	77-015-001	Trimpot, 100 ohms
<h4>Chassis</h4>		
CB101	94-0025-03	Circuit Breaker, 0.63A
T101	83-837-000	Transformer, Power
T102	83-496-000	Transformer, Output

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