

# 352A Mixer/Power Amplifier

# 352A



## Features

- All Transistor Mixer/Power Amplifier
- Five Mixing Inputs with Controls
- 40 Watts of Power
- Full Range of Plug-in Accessories:
  - Microphone Preamplifier
  - Equalized Phono Preamplifier
  - Line Transformer
  - DC Power Adapter
  - Volume Compressor Assembly
  - Vu Meter Assembly
- Equalization — Compression — Amplification All in One Unit
- Battery Operation Optional for Complete Portability and Emergency Use
- Monitor Output with Its Own Volume Control
- Two Recorder Outputs:
  - One Independent of Master Gain and Tone Controls, the Other Subject to Their Settings

**5 CHANNEL MIXER/POWER AMPLIFIER FOR:**  
 CHURCHES — SCHOOLS — HOTELS — THEATERS — CONVENTION HALLS  
 BALL PARKS — STADIUMS — RECREATION AREAS — SOUND TRUCKS  
 RECORDING STUDIOS — BROADCAST STATIONS — AUDITORIUMS

The Altec 352A mixer/power amplifier is an all solid-state power amplifier equipped to control and mix up to 5 independent input signals. Producing 40 watts of power, the 352A mixer/power amplifier is specially designed to operate from either an ac or dc source, providing the utmost in full sound control with the flexibility of portable operation. The 352A features a full range of plug-in accessories, enabling a complete sound system to be assembled in minutes, from the magnetic phono, microphone, or high level line sources, to the 70-volt output — including compressor amplifier, vu meter assembly, dial markers and cover for shelf mounting.

Each of the 5 input channels has a socket for mounting an accessory plug-in unit — whether it is the 1578A or 1588A transistor preamplifier, the 1579A equalized phono preamplifier, or the 15095 line transformer (to match high level balanced lines to the mixer) — to provide impedance matching, preamplification and equalization within the 352A mixer/power amplifier. Each channel is equipped with a volume control AND a speech-music switch to provide dialog equalization. The master gain control has a normal-bright switch associated with it to provide a rise in response in the 3 to 5 kc region to improve articulation. If a volume compressor and vu meter are required, they may be mounted within the 352A mixer/power amplifier and do not require soldering to install. The circuitry of the 352A mixer/power amplifier is designed around a 12 to 14 vdc supply so that operation from a standard 12 volt automobile battery is possible. A socket is provided on the rear of the chassis of the 352A for insertion of the 14649A dc power adapter. When equipped with the dc power adapter the 352A may be operated from a vehicle battery with or without the motor running since the zero signal current drawn from the battery is only 0.24 amperes. On this basis a small 10 ampere-hour battery will last 40 hours in standby and approximately 10 hours with voice announcements.

The Altec 352A mixer/power amplifier is ideally suited for emergency use in applications where a loss of the sound system cannot be tolerated. The dc power adapter with battery used in conjunction with the ac line will provide continuous service in the event of an ac power failure. The 14649A dc power adapter is designed to automatically switch from the ac line to the battery without interrupting program material. In addition, the dc power adapter will provide a trickle charge to the battery, thereby maintaining the battery at full charge ready for instant use.

The Altec 352A mixer/power amplifier is constructed on a standard 19" rack chassis, occupying 7" of rack space. The front panel has raised abrasion resistant characters with bleached write-in blocks for channel identification. The front panel incorporates the standard Altec front panel hinge assembly for rapid access to the chassis interior. The 14784 cover accessory allows the 352A to be shelf mounted and has a sloping front to prevent inadvertent movement of the controls. Weighing only 23½ pounds, the 352A is easily moved for portable operation.



A Division of Ling Altec, Inc.

1515 S. Manchester Ave., Anaheim, Calif. 92803  
 New York



## INPUT ACCESSORIES

The plug-in accessories for the input circuits of the mixer/power amplifier are carefully designed units, using solid-state circuitry for rugged dependable operation and high quality performance. These plug-in accessories make the proper input circuit instantly available for rapid installation permitting use of a wide range of input devices. Sockets on the rear of the mixer/power amplifier are pre-wired for the proper operating voltage and circuit connections, allowing the various plug-in accessories to be interchanged without rewiring, circuit or component changes and to be used in any combination to match properly, all commonly used input devices. The following descriptions are provided to explain the functions and performance of each of them.

### 1578A MICROPHONE PREAMPLIFIER

The 1578A microphone preamplifier is designed with a gain of 33.5 db. Sensitivity is 43 millivolts rms for an output of +8 dbm. Frequency response is  $\pm 0.5$  db, 20-20,000 cps, or,  $\pm 1.5$  db, 15-50,000 cps. Source impedance is 150 ohms nominal, usable 30 to 20,000 ohms. Equivalent input noise is -122 dbm. The 1578A requires 12 vdc at 13 ma. The 1578A microphone preamplifier may be used with any high quality low-impedance microphone.

### 1588A MICROPHONE PREAMPLIFIER

The 1588A Transistor Preamplifier has a transformer-isolated input and is designed for use with microphones. The 1588A has a gain of 33.5 db and a frequency response of  $\pm 1$  db from 30 to 30,000 cycles. Source impedance is 150/250 ohms and the load impedance is 600 ohms. The 1588A is encased in mu-metal providing effective magnetic shielding for the input transformer of 90 db. The equivalent input noise level is -122 dbm. Physically and electrically, the 1588A is interchangeable with the 1578A Preamplifier.

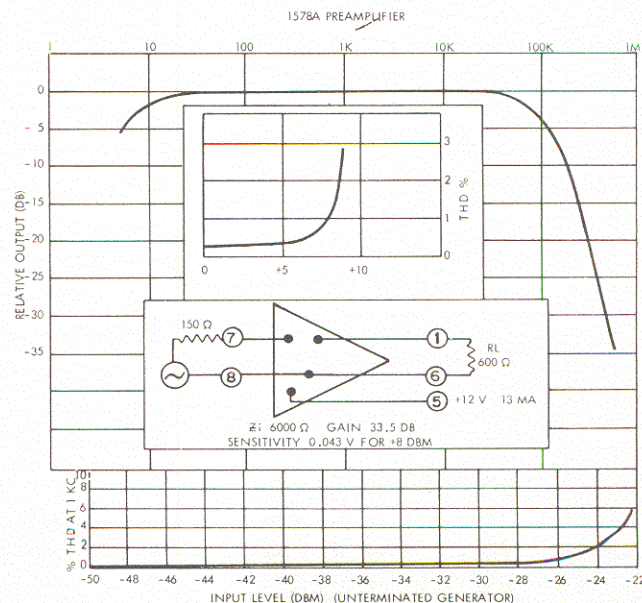
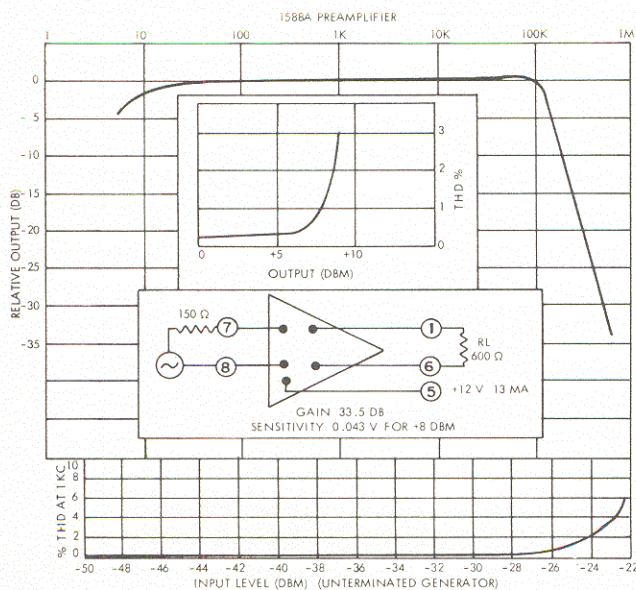
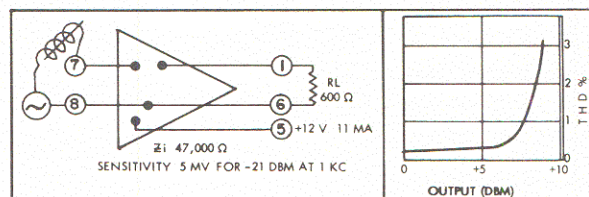
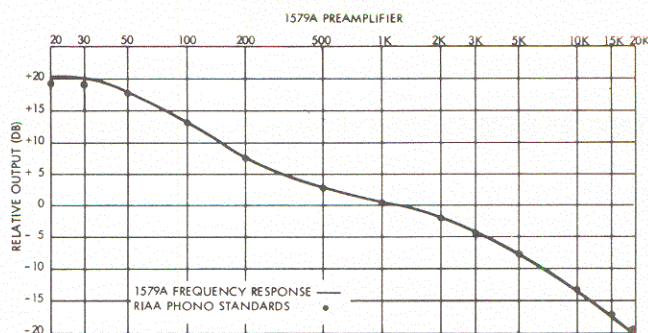
### 1579A PHONO EQUALIZED PREAMPLIFIER

The 1579A phono equalized preamplifier is specially designed for magnetic phono pick-ups to meet the RIAA standard. Sensitivity is 5 millivolts for 70 millivolt output at 1 kc. Output is +8 dbm at less than 0.5% thd (total harmonic distortion). Input impedance is 47,000 ohms and the

power required is 12 vdc at 11 ma. Figure 1 illustrates the performance of the 1579A as referenced to the RIAA standard.

### 15095 LINE TRANSFORMER

The 15095 line transformer may be used as a bridging transformer for bridging a balanced 600 ohm line. The 15095 has 30 db of electro-magnetic shielding and a frequency response of  $\pm 1$  db, 30-20,000 cps. The 15095 line transformer may also be used to perform a terminating function rather than a bridging function by the addition of a proper terminating resistor at the input of the mixer/power amplifier.







## ADDITIONAL ACCESSORIES

### 14679A VU METER ASSEMBLY

The Altec 14679A vu meter assembly accessory mounts within the amplifier without the need for soldering. The meter mounting is sub-panel and meter illumination is provided. A range switch on the front panel of the 352A mixer/power amplifier adjusts the 0 vu or 100% reading to +34, +37, +40, +43 dbm and off.

### 14731A DIAL MARKER KIT

The Altec 14731A dial marker kit provides an adjustable reference for setting the five mixer controls and the master gain control. The six dial markers are clear plastic discs which mount against the front panel under the control knobs and may be rotated to change the setting of the indicator line on the disc by grasping the knurled edge and turning firmly as the disc is spring loaded to prevent inadvertent movement.

### 14649A DC POWER ADAPTER

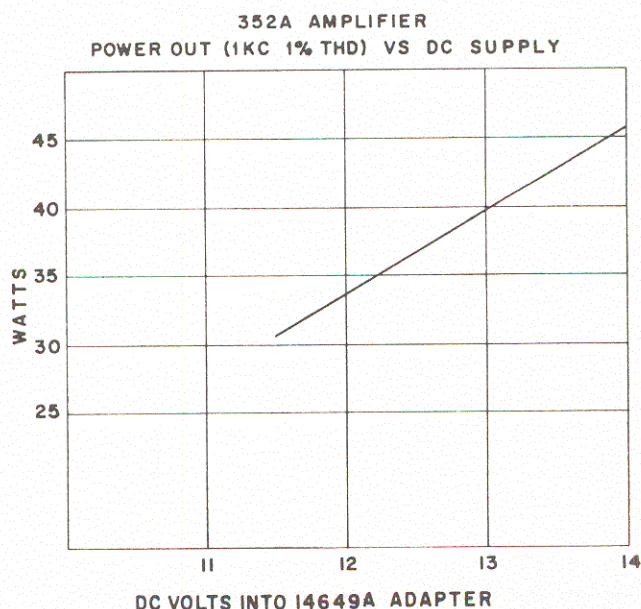
The Altec 14649A dc power adapter plugs into the socket provided on the rear of the 352A mixer/power amplifier and is completely automatic in operation. An outstanding feature of the dc power adapter will be found when using the 352A with both the ac line and a battery connected — the 14649A dc power adapter will trickle charge the battery, if required, and maintain it at full charge for instant use — if an ac power failure should occur, dc power to the amplifier will be supplied instantaneously from the battery with no interruption of program material. With battery operation only, the amplifier may be used as a fully portable unit able to provide all mixing/power amplifier functions in locations devoid of ac power. The dc power adapter is supplied with a #6 SAFCO plug for insertion in an automobile cigarette lighter socket or the dc adapter may be connected to any 12 to 14 vdc source. Trickle charge rate is 0.15 amperes, which is sufficient to maintain batteries at full charge and overcome normal drain.

### 14784 COVER

The Altec 14784 cover encloses the 352A mixer/power amplifier for shelf mounting applications. The cover is designed to permit easy access to the front panel controls by physically sloping the amplifier within the cover. The sides and top of the cover extend out beyond the front panel to prevent accidental changes in control settings. The cover is finished in Altec Green to match the amplifier and has four polyethylene feet to prevent marring any surface the amplifier is placed on. The cover permits easier handling of the 352A amplifier for portable use, and is sturdy enough to support small equipment placed on top of it.

### 14678A VOLUME COMPRESSOR ASSEMBLY

The 14678A volume compressor assembly accessory mounts within the amplifier and is connected to the circuitry by means of a five-pin plug. Threshold adjustments are made on the front panel of the 352A amplifier in steps of +34, +37, +40, +43 and off. The compressor is rapid acting having an attack time of 10 milliseconds and has a compression ratio above threshold of better than five to one.





# ALTEC 352A

## SPECIFICATIONS

**Type:** 5 channel transistor mixer power amplifier with plug-in options.

**Gain:** 115 db with 157A plug-in microphone preamplifier. 65 db with 15095 plug-in transformer bridging 600 ohm line.

**Input Sensitivity:** 1 mv rms for 40 watts output with 1579A equalized amplifier for magnetic phono pickups.

**Power Output:** 40 watts at less than 1% thd 35 to 5,000 cps.  
40 watts at less than 3% thd 30 to 12,000 cps.  
45 watts at less than 5% thd 30 to 10,000 cps.  
50 watts at less than 5% thd 35 to 5,000 cps.

**Frequency Response:**  $\pm 1$  db 20c to 20,000 c.

**Input Impedance:** Direct input to mixer pots, 600 ohms nominal (unbalanced).

**Source Impedance:** 150 ohms nominal with 1578A or 1588A preamplifier. Usable to 20,000 ohms. Up to 50,000 ohms with 1579A equalized amplifier. 600 to 15,000 ohms with 15095 transformer.

**Load Impedance:** 4/8 and 16 ohms balanced to ground. 125 ohms ungrounded.

**Load Voltage:** 12.7/18 and 25.3 volts balanced to ground. 70 volts ungrounded.

**Output Impedance:** Less than 15% of nominal load impedance.

**Noise Level:** Equivalent input noise -122 dbm with 1578A or 1588A preamplifier. Output noise -35 dbm with master control closed.

**Monitor Output:** 28 db below main output (max.) into 600 ohms.

**Recorder Output:** #1 0.1 volts into 10,000 ohms (-55 dbm input, 14 db mixer setting, independent of master).  
#2 0.12 volts into 10,000 ohms (-55 dbm input, 14 db in mixer and master controls. Level subject to settings of all controls).

**Controls:** 5 mixer, 1 master, 1 bass, 1 treble, 1 monitor volume. Dialog equalizer switch for each input (-6 db @ 100 cps). Articulation equalizer switch for output (+3 db @ 5 KC). Power switch controlling AC or alternate DC power source.

## Ambient Temperature Range:

## Power Supply:

## External Power Available:

## Dimensions:

## Color:

## Weight:

## Accessories:

## Ordering Information:

-5 degrees to +120 degrees F.

120 volts 50-60 cps (15 watts at zero signal, 56 watts at  $\frac{1}{2}$  output, 90 watts at full output).

OR

12-14 dc using 14649A dc power adapter, (0.24 amps at zero signal, 2.9 amps at  $\frac{1}{2}$  output, 5.0 amps at full output).

Ac receptacle on chassis.

.15 amp nominal trickle charge current for battery using 14649 A dc power adapter when ac power is applied.

7" high, 19" wide, and 7 $\frac{1}{2}$ " deep.

Dark green.

23 $\frac{1}{2}$  lbs.

1578A transistor preamplifier plug-in (microphone).

1588A transistor preamplifier, plug-in, transformer-isolated input (microphone).

1579A equalized transistor amplifier for magnetic phono pickup. Plug-in.

14649A dc power adapter with automatic line-to-battery transfer. Plug-in.

14679A vu meter assembly. Plug-in connection.

14678A compressor assembly. Plug-in connection.

15095 transformer, plug-in. (High level balanced line to mixer.)

14784 cover.

14731 dial marker kit.

XLR 3-12 Cannon straight cord plug.

Order 1, 352A amplifier plus 1, 1578A or 1588A preamplifier for each microphone input, 1, 1579A equalized amplifier for each phono input and 1, 15095 transformer for each line input. Total of above cannot exceed 5.

Add 1, 14679A assembly if vu meter is required.

Add 1, 14678A assembly if volume compressor is required.

Add 1, 14649A adapter if operation from 12 volt battery is required.

Add 1, 14731A kit if dial markers are required.

Add 1, 14784 cover if shelf mounting is required.

## ARCHITECTS AND ENGINEERS SPECIFICATIONS

The mixer/amplifier shall be of the all solid-state type, designed to control and mix up to 5 independent input signals. Each input shall be capable of accepting XL type connectors, with associated sockets for plug-in accessories, specified elsewhere, to provide proper input matching for magnetic phono, microphone, high-level line or equivalent. Each of the 5 channel inputs shall be equipped with separate volume and speech-music controls. The master gain control shall have a normal-bright switch associated with it to provide a rise in response in the 3 to 5 kc region for articulation. The mixer/amplifier shall have a treble and bass control, monitor volume control, power on-off, and in addition shall be capable of supplying the proper voltages and mounting facilities for a volume compressor and vu meter, including properly designated areas for control knobs.

The mixer/amplifier shall have a frequency response of  $\pm 1$  db, 20-20,000 cps and shall produce 40 watts at less than 1% thd (total harmonic distortion) 35 to 5,000 cps. Gain shall be 115 db with plug-in microphone preamplifier, specified elsewhere, and input impedance shall be 600 ohms direct to mixer pots (unbalanced). The output impedance of the mixer/amplifier shall be 4/8 and 16 ohms balanced to ground and 125 ohms ungrounded.

The mixer/amplifier shall be capable of using a dc power adapter accessory, specified elsewhere, enabling the mixer/amplifier to operate either ac or dc from a 12-volt battery. Power requirements of the mixer/amplifier shall be such that the unit may operate at least 10 hours on voice announcements from a standard vehicular type battery, and if used in conjunction with the ac line, shall supply a trickle charge to the battery to maintain it in full charge condition. In addition, when used with both the ac line and a battery, the mixer/amplifier shall provide uninterrupted program material in the event of an ac line failure when switching from either the ac line to the battery, or from the battery to the ac line.

The mixer/amplifier shall be constructed on a standard 19" rack chassis, occupying 7" of rack space, 19" wide and 7 $\frac{1}{2}$ " deep, and shall weigh no more than 23 $\frac{1}{2}$  pounds. The mixer/amplifier shall be painted dark green and shall have raised abrasion resistant characters on the front panel with bleached write-in blocks for channel identification. The front panel shall be hinged to permit access to the interior of the unit without removing the chassis from the rack or cover.

There shall be available, as a plug-in accessory to the mixer/amplifier, a transistor preamplifier with a nominal 150-ohm source impedance, usable 30-20,000 ohms. Frequency response shall be  $\pm 0.5$  db, 20-20,000 cps, or,  $\pm 1.5$  db, 15-50,000 cps. The transistor plug-in preamplifier shall have a gain of 33.5 db and sensitivity shall be 43 millivolts for an output of +8 dbm. The plug-in transistor preamplifier shall allow any high-quality low-impedance microphone to be used with the mixer/amplifier.

There shall be available, as a plug-in accessory to the mixer/amplifier, a transistor preamplifier with a transformer-isolated input and with a nominal 150-ohm source impedance, usable 30-20,000 ohms. Frequency response shall be  $\pm 1$  db, 30-30,000 cycles. The transistor plug-in preamplifier shall have a gain of 33.5 db and sensitivity shall be 43 millivolts for an output of +8 dbm. The plug-in transistor preamplifier shall allow any high quality low-impedance microphone to be used with the mixer/amplifier.

There shall be available, as a plug-in accessory to the mixer/amplifier, a phono equalized transistor amplifier which shall meet the RIAA standard. Sensitivity shall be 5 millivolts for 70 millivolt output at 1 kc. Output shall be +8 dbm at less than 0.5% thd (total harmonic distortion). Input impedance shall be 47,000 ohms and power required shall be 12 vdc at 11 ma.

Any mixer/amplifier and plug-in accessories not meeting the above specifications shall be deemed unacceptable under this specification.

The mixer/amplifier shall be Altec Lansing model 352A.

The transistor preamplifier shall be Altec Lansing model 1578A.

The transistor preamplifier with transformer-isolated input shall be Altec Lansing model 1588A.

The phono preamplifier shall be Altec Lansing model 1579A.

## NOTICE

We recommend that you obtain your Altec products from factory trained authorized Altec Sound Contractors and Distributors. This will assure you of proper installation, a continuing source of knowledgeable advice, service, and quick warranty protection.