

# AMPEX

## 620

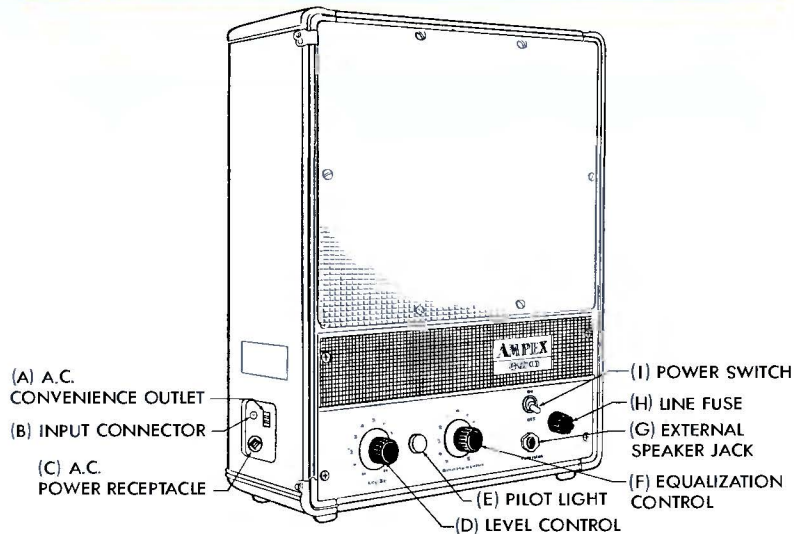
## OPERATOR'S GUIDE



Your Ampex Model 620 Amplifier-Speaker represents a major advance in the quality of sound reproduction available in a small portable unit. The sound output of the speaker is tested **acoustically** in production and is flat and free from appreciable dips and rises in response over the frequency range of 65 to 10,000 cycles per second. You will hear remarkable bass, and an excellent balance in mid-range and high frequencies. To achieve this superb performance, the amplifier, speaker and enclosure were specially made for each other. The Ampex 620 is a completely integrated design rather than a collection of independently designed units.

The perfect signal source for the Ampex 620 is the Ampex Model 600 portable tape recorder which it matches in performance and appearance. The Model 620 will also provide excellent reproduction when used with record changers, turntables, AM-FM or TV tuners, or microphone preamplifiers. This guide should enable you to utilize its versatility, power, and range with any of these sources.

## GENERAL INSTRUCTIONS



The operation of the Ampex 620 requires only a simple understanding of the controls and the input and output connections.

### POWER

1. The power cable furnished should be connected from the POWER receptacle (C) to any source of nominal 117-Volt 50 or 60 cycle AC power.
2. The second AC connector (A) is a convenience outlet which may be used to furnish power to auxiliary equipment.
3. The 620 is turned on and off with the POWER switch (I). **This switch does not control power at the convenience outlet.** The pilot light (E) indicates that the 620 is ON.
4. The line fuse (H) on the 620 is a 1 Ampere 3AG type.

### INPUT

1. The INPUT connector (B) takes a standard phono pin plug. Most phonographs and tuners are equipped with this type of connector and may be plugged directly into the 620. A shielded interconnecting cable is furnished primarily for use with the Ampex Model 600 tape recorder. Any cable used to connect the 620 to other equipment should be of the shielded type.
2. The Model 620 has a 20,000-ohm input impedance and may be fed from any equipment for which this or a **lower** output impedance is specified.

### OUTPUT

1. The internal speaker of the Model 620 is used in normal operation. An external speaker may, however, be plugged into the EXTERNAL SPEAKER jack (G). Insertion of an external speaker plug automatically disconnects the internal speaker.
2. The amplifier in the Model 620 has a low output impedance and will operate satisfactorily into external speaker load impedances of approximately 12 ohms.

### CONTROLS

1. The two controls on the Model 620 are the LEVEL or volume control (D), and the EQUALIZATION or tone control (F).
2. The EQUALIZATION control will increase bass and decrease treble when turned to the left, or decrease bass and increase treble when turned to the right. The center position provides flat response. This control may be used to improve the overall result under poor acoustical conditions, or simply to satisfy the listener's ear.

## SPECIAL APPLICATIONS

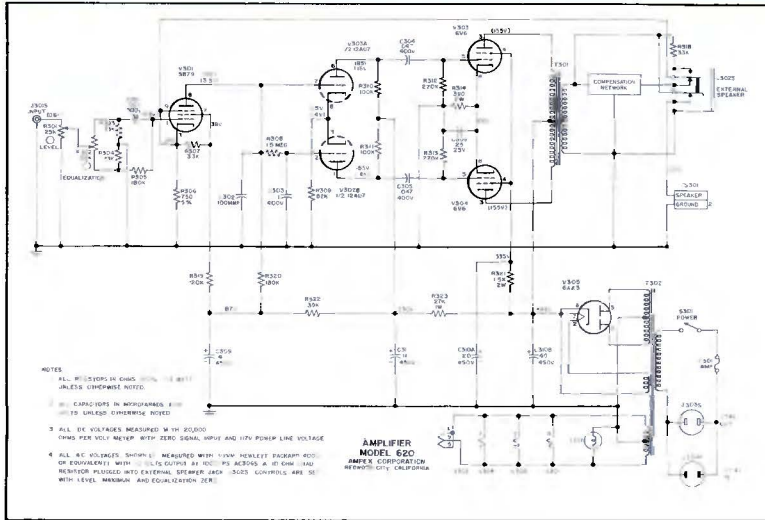
Your Model 620 is a versatile unit, readily adaptable to a variety of practical applications. It can be used as a portable public address system, a guitar amplifier, or a remote auxiliary unit for a fixed sound installation. See your distributor for advice on these special applications.

The use of the Model 620 in conjunction with the Ampex Model 600 Recorder as a portable public address system is covered in detail below as an example of what can be done with this unit.

### Models 620 and 600 as a Portable PA System

1. Connect a microphone to the Model 600.
2. Connect the Model 600 output to the Model 620 input.
3. **Turn the Model 600 MONITOR SELECTOR to the INPUT position.**
4. Turn both machines on.
5. Set the Model 600 MIC REC LEVEL control exactly as for making a recording.
6. Adjust the loudspeaker volume with the LEVEL control on the Model 620. (The MIC REC LEVEL control on the Model 600 will also affect loudspeaker volume, but it should not be used for this purpose once it has been set as in Step 5.)
7. A recording of the program may be made simultaneously by simply threading a tape on the Model 600 and placing the machine in the record mode. This will not affect the public address operation.

## MODEL 620 SCHEMATIC DIAGRAM



### SERVICE NOTES

Certain circuit characteristics of the Model 620 should be understood before attempting measurements or servicing. (See schematic diagram.)

1. While response of the 620 (including speaker) is **acoustically flat**, the response of the amplifier, measured at the internal speaker terminals, is **not flat**. The amplifier response is flat **only** when measured across a 12-ohm load plugged into the EXTERNAL SPEAKER jack.
2. The phase inverter, (V302) is of the differential amplifier or grounded grid type. Note, however, that the grid of the second section, (V302B) is at ground potential with respect to AC only, (due to the low impedance of C303), and is approximately 100 volts positive with respect to DC ground.

The remainder of the circuitry is conventional, and subject to standard servicing procedures.

For service access to tubes, remove the four retaining screws from the front panel of the amplifier. For access to under-chassis parts, remove the screws at the forward edges of the amplifier chassis, and pull the front panel forward and down.

Should speaker servicing be necessary, remove the screws from the front of the speaker baffle, remove the large bolt at the back of the case, and pull the entire speaker assembly out.

## PARTS LIST MODEL 620

| Schematic Reference Number                                                                                      | Description                                               | Ampex Catalog Number |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|----------------------|
| C301                                                                                                            | .001 MFD Mica Capacitor, 500V                             | CO-20                |
| C302                                                                                                            | 100 MMF Mica Capacitor, 500V                              | CO-17                |
| C303                                                                                                            | .1 MFD Paper Capacitor, 400V                              | CO-294               |
| C304                                                                                                            | .047 MFD Paper Capacitor, 400V                            | CO-332               |
| C305                                                                                                            | .047 MFD Paper Capacitor, 400V                            | CO-332               |
| C306                                                                                                            | 25 MFD Electrolytic Capacitor, 25V                        | CO-59                |
| C309                                                                                                            | 4 MFD Electrolytic Capacitor, 450V                        | CO-54                |
| C310                                                                                                            | 40-20 MFD Electrolytic Capacitor, 450V                    | CO-418               |
| C311                                                                                                            | 10 MFD Electrolytic Capacitor, 450V                       | CO-55                |
| F301                                                                                                            | 1 Amp. 250V Fuse, Type 3AG                                | FU-1                 |
| I301                                                                                                            | Lamp, 6V, .15 Amp., Miniature Bayonet Dial Light Assembly | LA-5<br>DL-30        |
| J301S                                                                                                           | Phono Jack                                                | JA-13                |
| J302S                                                                                                           | Phone Jack, (with integral switch)                        | JA-20                |
| J303S                                                                                                           | AC Power Outlet (Cinch #12844)                            |                      |
| J304P                                                                                                           | AC Power Receptacle                                       | PL-319S              |
| <b>All fixed resistors are <math>\pm 10\%</math>, <math>\frac{1}{2}</math> watt unless otherwise specified.</b> |                                                           |                      |
| R301                                                                                                            | 25,000 Ohm Potentiometer, Centralab Model R, C2 Taper     | RE-673               |
| R302                                                                                                            | 50,000 Ohm Potentiometer, AB, Linear Taper                | RE-482               |
| R303                                                                                                            | 33,000 Ohm Composition Resistor                           | RE-295               |
| R304                                                                                                            | 33,000 Ohm Composition Resistor                           | RE-295               |
| R305                                                                                                            | 180,000 Ohm Composition Resistor                          | RE-652               |
| R306                                                                                                            | 750 Ohm Composition Resistor, $\pm 5\%$                   | RE-592               |
| R307                                                                                                            | 33,000 Ohm Composition Resistor                           | RE-295               |
| R308                                                                                                            | 1,500,000 Ohm Composition Resistor                        | RE-340               |
| R309                                                                                                            | 82,000 Ohm Composition Resistor                           | RE-455               |
| R310                                                                                                            | 100,000 Ohm Composition Resistor                          | RE-300               |
| R311                                                                                                            | 100,000 Ohm Composition Resistor                          | RE-300               |
| R312                                                                                                            | 270,000 Ohm Composition Resistor                          | RE-297               |
| R313                                                                                                            | 270,000 Ohm Composition Resistor                          | RE-297               |
| R314                                                                                                            | 390 Ohm Composition Resistor, 2 Watts                     | RE-516               |
| R319                                                                                                            | 120,000 Ohm Composition Resistor                          | RE-716               |
| R320                                                                                                            | 180,000 Ohm Composition Resistor                          | RE-652               |
| R321                                                                                                            | 1,500 Ohm Composition Resistor, 2 Watts                   | RE-159               |
| R322                                                                                                            | 39,000 Ohm Composition Resistor                           | RE-553               |
| R323                                                                                                            | 27,000 Ohm Composition Resistor, 1 Watt                   | RE-19                |
| S301                                                                                                            | Switch, SPST, 3 Amp. 250 V, Toggle                        | SW-74                |
| T301                                                                                                            | Output Transformer                                        | B-9403               |
| T302                                                                                                            | Power Transformer                                         | B-9402               |
| V301                                                                                                            | 5879 Vacuum Tube                                          | TU-35                |
| V302                                                                                                            | 12AU7 Vacuum Tube                                         |                      |

### MISCELLANEOUS PARTS

|                        |        |                                        |        |
|------------------------|--------|----------------------------------------|--------|
| *Loudspeaker . . . . . | SQ-16  | Octal Socket . . . . .                 | SO-38  |
| Power Cable . . . . .  | CS-2   | 9-Pin Novel Socket . . . . .           | SO-39  |
| Input Cable . . . . .  | B-9411 | Carrying Case (complete with hardware) | D-9404 |

\*Available **only** as a replacement part for the Model 620. This loudspeaker will not function correctly when associated with any other equipment.



**M O D E L**  
**620**

**SPECIFICATIONS**

|                                            |                                                                     |
|--------------------------------------------|---------------------------------------------------------------------|
| <b>OVERALL FREQUENCY RESPONSE (in air)</b> | 65 to 10,000 cycles, essentially flat                               |
| <b>*AMPLIFIER FREQUENCY RESPONSE</b>       | 20 to 20,000 cycles $\pm 1/2$ db                                    |
| <b>*POWER OUTPUT</b>                       | 10 watts at less than 1% total harmonic distortion                  |
| <b>*SIGNAL-TO-NOISE</b>                    | 70 db below rated output                                            |
| <b>POWER REQUIRED</b>                      | 117 Volts AC, 50 or 60 cycles; 0.5 amperes, 55 watts                |
| <b>*INPUT</b>                              | 20,000 ohms input impedance; 0.6 volts in required for 10 watts out |
| <b>*OUTPUT (at external speaker jack)</b>  | 12 ohms, nominal                                                    |
| <b>DIMENSIONS:</b>                         | 13 x 16 x 8 inches                                                  |
| <b>WEIGHT</b>                              | 25 pounds                                                           |

*\*Measured with amplifier working into external load*



934 CHARTER STREET  
REDWOOD CITY, CALIFORNIA