ALTEC LANSING

357A MULTI-TONE GENERATOR

OPERATING INSTRUCTIONS

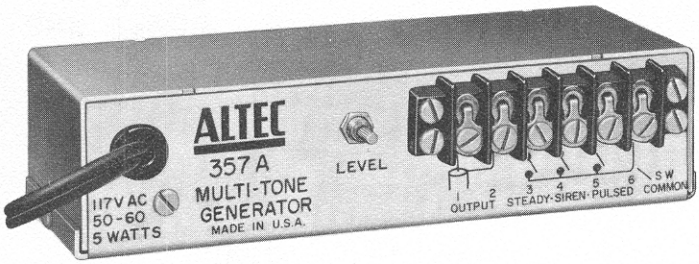

FIGURE 1

SPECIFICATIONS:

Tones:

1. Steady tone, 550 cps fundamental.
2. Siren tone, harmonic chain, 550 cps fundamental. Sweep rate 3 cps. Slow rise, rapid return.
3. Pulsed tone burst, 600 cps fundamental, 175 ms duration, 350 ms interval. (Values are approximate)

Output Level:

2.8 volt peak — Hi-load
56 mv peak 600 ohm load
14 mv peak 150 ohm load
4.6 mv peak 50 ohm load

Output Impedance:	50,000 ohms
Load Impedance:	30 ohms to infinity
Signal to Noise Ratio:	67 db
Power Supply:	117 volts, 50-60 cps, 5 watts
Transistors:	4-2N217
Dimensions:	1⅝" H. x 2⅝" D. x 6¾" W.
Color:	Dark Green
Weight:	10 oz.
Accessories:	10399 Blank Panel (1¾") for rack mounting

DESCRIPTION:

The 357A Multi-Tone Generator is a compact, self-powered transistorized tone generator designed to provide three distinct warning or call tones for use in conjunction with public address, paging, or voice warning systems. The output of the generator may be connected to microphone, line or power amplifier inputs. The unit utilizes a single volume control which adjusts the tone signal independently of other program material. Low voltage wiring is used to the switch or push button location which consists of a common plus one wire for each tone. A terminal strip mounted on the device provides screw terminal connections for signal and push button wiring.

MOUNTING:

Model 357A Multi-Tone Generator will mount on any surface, however, its dimensions are such that it can be rack mounted on a standard 1¾-inch blank panel (ALTEC No. 10399 Ventilating Perforated Metal Type). Two $\frac{5}{32}$-inch holes on 5½-inch centers are required. Two screws are furnished with the 357A for mounting purposes. (See Figure 2.)

The signal generator has been miniaturized to a size which will permit mounting the unit internally in a program clock or other equipment associated with a sound system.

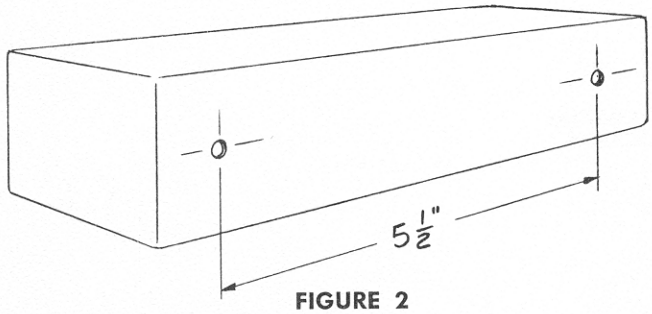

FIGURE 2

CONNECTIONS:

The Multi-Tone Generator operates on 117 volt 50-60 cps AC current and is connected to the AC line by means of the cord and plug furnished.

Output and switch connections appear on a six-lug barrier type terminal strip. The output leads connect to terminals 1 and 2. (See Figure 1.) The output connections should be made by low capacitance single conductor coaxial cable such as RG29/U, RG54A/U, RG55/U, etc.

Maximum separation between the signal generator and the amplifier input should not exceed twenty feet when connected to a high impedance input. The operating switches or keys for the three available signals are made to terminals 3, 4, 5, and 6. Terminal 6 is common for all switch connections.

For steady tone, connect switches to terminals 3 and 6
For siren tone, connect switches to terminals 4 and 6
For pulsed tone burst, connect switches to terminals 5 and 6

The 357A Altec Tone Generator is instantaneous in operation and, unlike most generators, does not require a warm-up period. It is therefore permissible to connect the tone generator to permit mixing of the tone signals with other program material. While it is possible to connect the output of the 357A Tone Generator directly to either high or low level inputs, it is recommended that connections be made whenever possible to the high impedance inputs of line or power amplifiers.

Specifications and components subject to change without notice. Overall performance will be maintained or improved.

ALTEC LANSING

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Figures 3, 4, and 5 illustrate connections to three typical sound systems. Figure 3 illustrates a system utilizing a compressor amplifier. The tone generator could be connected to the compressor input; however, if it were so connected, the intensity of the tone signal would be raised or lowered by the action of the compressor. The 357A therefore, if connected to the compressor amplifier output, would not be affected by the compressor amplifier operation.

In connecting the 357A to the output of the compressor amplifier (between the compressor and power amplifier) it is necessary to insert a 100 K building-out resistor in the line as shown in Figure 3. This resistance is required so that the individual power amplifier volume controls can be set high enough to enable the power amplifier to be properly driven by the signal from the tone generator.

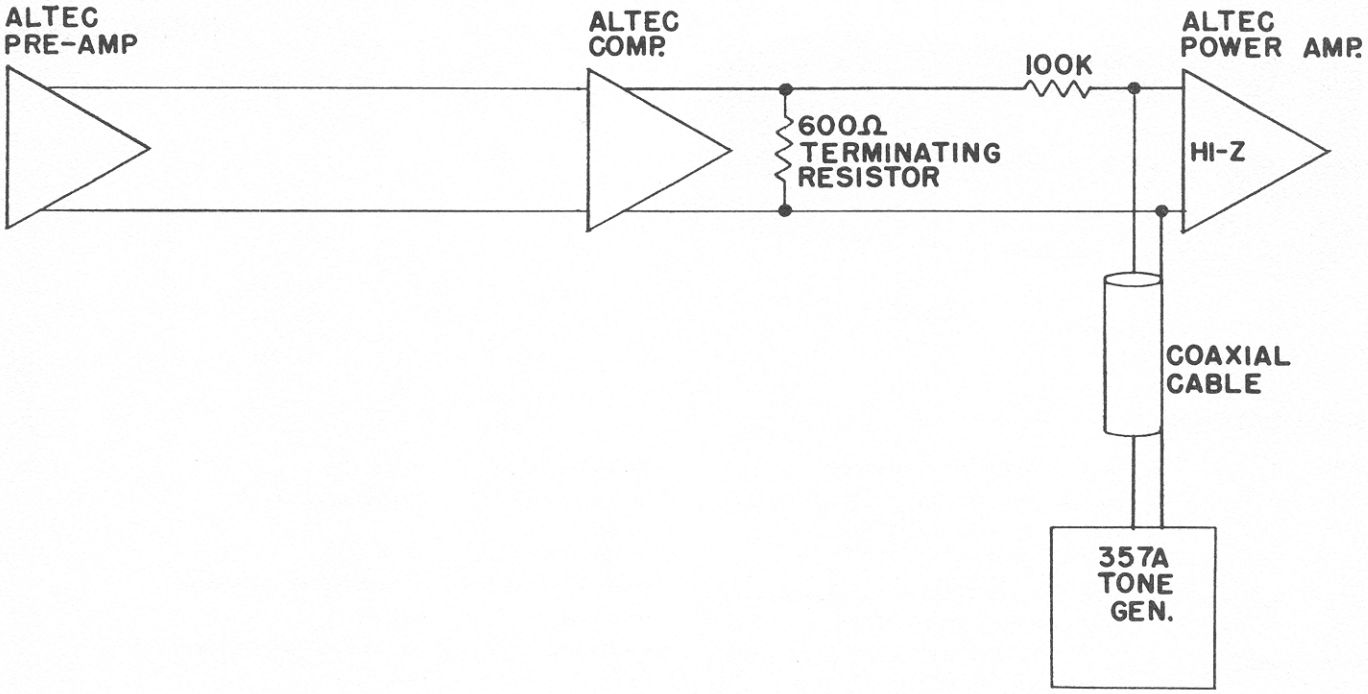

FIGURE 3

Figure 4 illustrates a system where the feed line from the preamplifier terminates in an Altec 15095 Transformer; however, the 357A Tone Generator should be connected to the high impedance input as shown in Figure 4. This provides the most favorable match between the generator and the power amplifier.

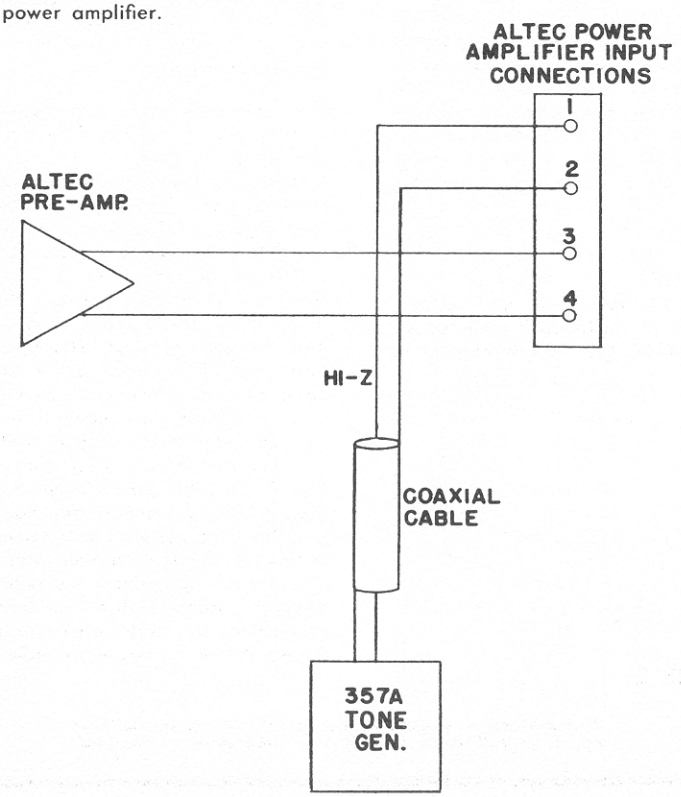

FIGURE 4

Figure 5 illustrates the connection of the tone generator to a line amplifier. In this type of system, the outputs of several preamplifiers are reduced to a single line for connection to the line amplifier before branching out to various power amplifiers. This junction point is therefore the proper point of the circuit for introducing the output of the 357A into the sound system circuit.

NOTE: The requirements of many installations dictate that, upon the sounding of signals, all other program material should be interrupted and silenced, therefore it is suggested that relays be installed to open circuits feeding other program material to the system. Additional contacts on the signal generator actuating switches should be provided to operate the relay function.

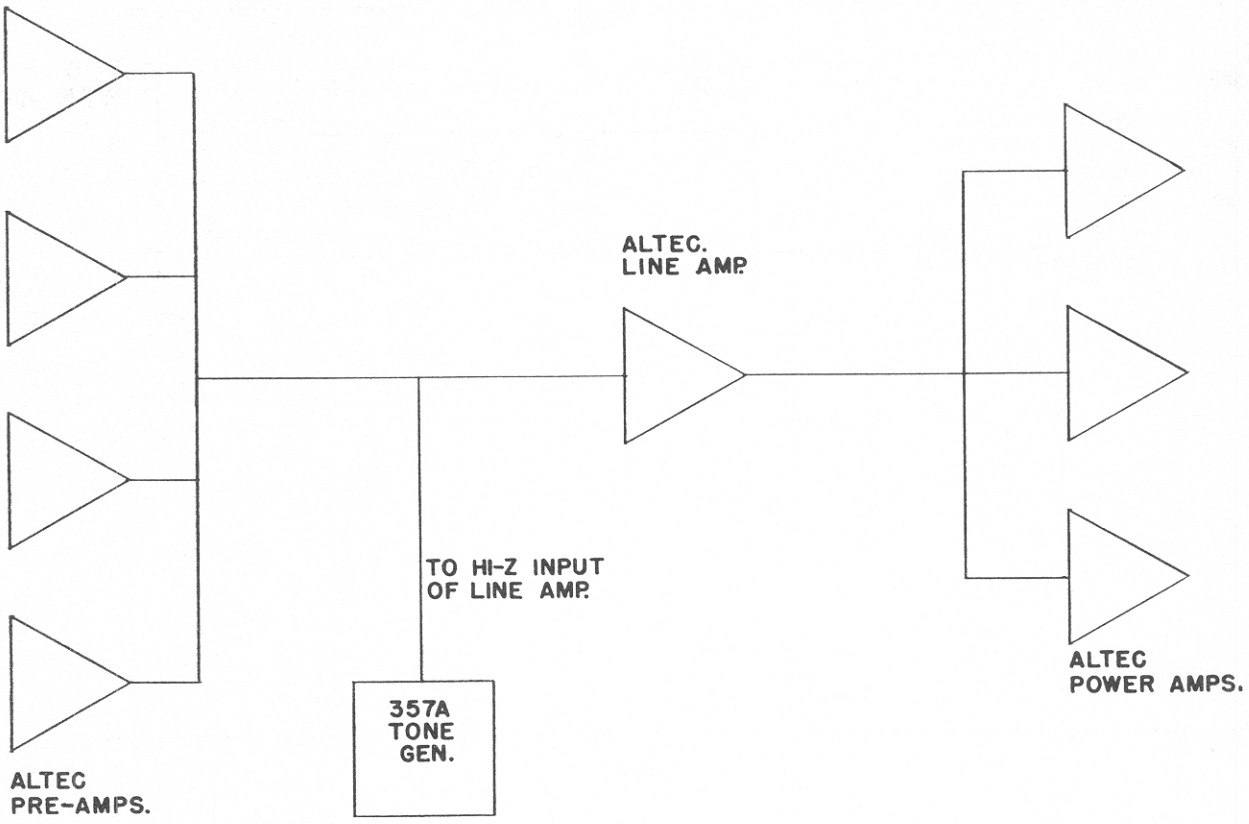

FIGURE 5

APPLICATION:

The three signal tones distinctly differ from each other and provide a wide range of signal applications. For air raid or an emergency alarm, the siren tone is recommended. For actuating this function, locking type key switches are most generally used. The "all-clear" is generally obtained by exciting the steady tone for one long blast or signal. This is usually actuated by manually operated keys or switches. The fire alarm signal, if manually operated by locking keys or switches, can best be served by actuating the pulse tone burse. In accordance with the latest Office of Civil and Defense Mobilization Bulletins, it is recommended that the "yellow alert" signal be a continuous siren tone sounded for a period of 3 to 5 minute duration. The attack or "red" condition is designated by the sounding of a constant siren tone for a period of five minutes or until silenced by order of proper Civil Defense authority.

The 357A being instantaneous in operation requires no warm-up period, making it possible for any electric switching device to actuate the signal generator. Program clocks for sounding start and stop signals, auto-call or similar coders, standard fire alarm pull boxes, varisters, etc. are but a few of the sensing or switching devices which will find commercial and industrial applications in conjunction with the 357A Tone Generator.

CONTROLS:

The 357A Generator has only one control marked LEVEL. This control is for adjusting tone level independently of other program material in a sound system. The control should be adjusted at time of installation. No further adjustment should be required following the initial setting.

MAINTENANCE AND SERVICE:

The Altec 357A Tone Signal Generator uses highest quality components operating at conservative levels. Should it be necessary to gain access to the inside of the Multi-Tone Generator, remove one screw on each end of the cover.

WARRANTY:

This unit is covered by the standard Altec Lansing Warranty for a period of one year against defects of material and workmanship. See your Altec Engineering Contractor for additional information on warranty.

PARTS LIST

C1, 2	100 mfd 10 v. Sprague TE 1119.3
C3, 5	.1 mfd 75 v. Ceramic Disc.
C4, 6, 7	.01 mfd 600 v. ±20% Ceramic Disc.
C8, 9	75 mfd 15 v. Sprague TE 1161
CR1	Diode IN 34A
Q1, 2, 3, 4	Transistors 2N217 RCA
R1, 2, 12, 16	27,000 ohms ±10% ½ w.
Re, 10, 17	3,300 ohms ±10% ½ w.
R4, 6	4,700 ohms ±10% ½ w.
R5	39,000 ohms ±10% ½ w.
R7	2,700 ohms ±10% ½ w.
R8, 21	470 ohms ±10% ½ w.
R9	2,200 ohms ±10% ½ w.
R11, 18	1,000 ohms ±10% ½ w.
R13, 15	6,800 ohms ±10% ½ w.
R14	10,000 ohms ±10% ½ w.
R19	Potentiometer 50,000 ohms Audio Taper, ½ Dia.
R20	47,000 ohms ±10% ½ w.
T1	Transformer, Altec 6693

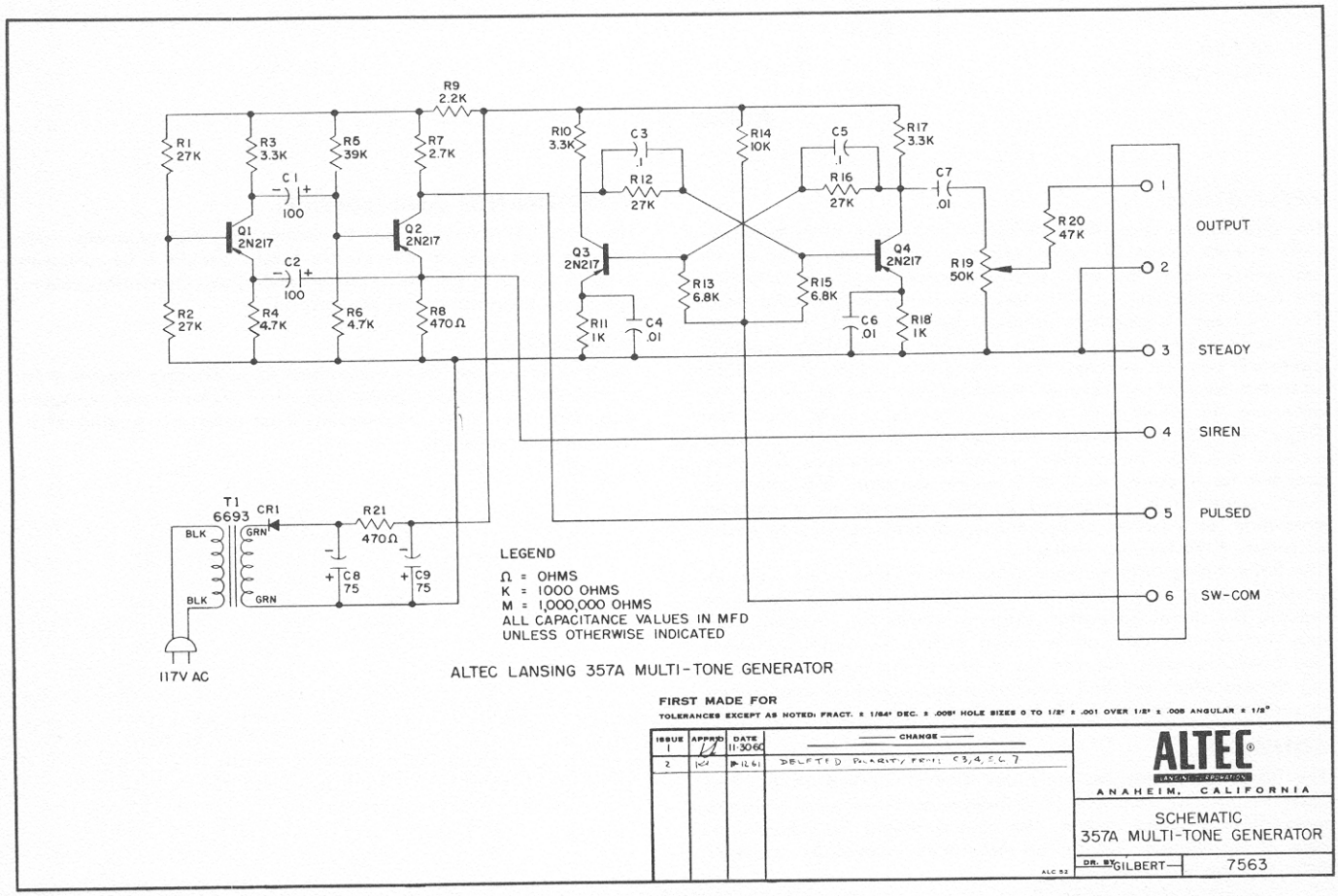

FIGURE 6