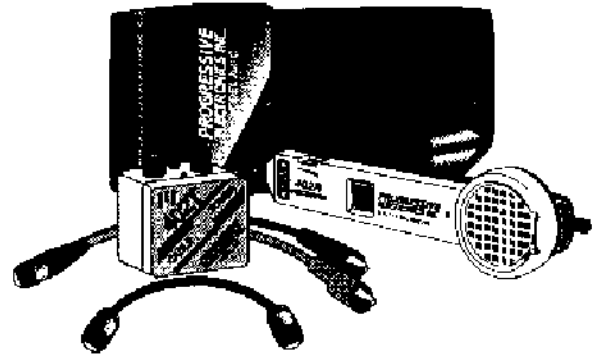


# Model 402K CABLE TV TONE TEST SET

CONTENTS	PAGE
1. DESCRIPTION	1
2. OPERATION	1
A. BATTERY TEST	1
B. SENDING TONE TO IDENTIFY CABLES	1
C. CONTINUITY TESTING	2
3. MAINTENANCE	2
FIGURE 1 Model 402K	1
FIGURE 2 Lock Box or Pedestal Application	2



## 1. DESCRIPTION

The Model 402K CATV Cable Tone Test Set consists of the 402T Tuner and the 402R Receiver. There are female F-connectors on both units for testing and toning purposes. Specifically designed for the CATV, SMATV and MATV industries, the Model 402K aids in the identification of non-tagged or incorrectly tagged coaxial cables. The Model 402K is capable of sending tone through several passive devices including traps, splitters or directional couplers. The unit will provide a viable tone signal through attenuation of 45dB direct connection, 25dB inductively and 15dB magnetically. The addition of adapter test leads permits use on any size cable, with or without connectors.

## 2. OPERATION

### A. BATTERY TEST

The 402T and 402R units require one 9V battery each (not included) and both batteries should be tested prior to any tone or test functions. To test the 402T battery, attach the red/black test leads and short them together. Move the toggle switch to the CONT (continuity) position and note the presence and level of LED brightness and audible tone. A dim LED or weak tone indicates the need to replace battery.

To test the 402R, turn unit on and touch metal tip to the barrel of the 402T (with a known good battery) and turn the toggle switch on the 402T to TONE. An audible tone signal indicates acceptable battery level.

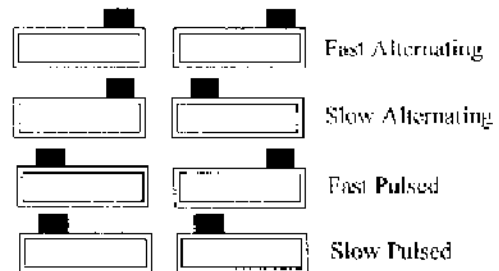
### B. SENDING TONE TO IDENTIFY CABLES

**NOTE: DO NOT ATTEMPT TO PERFORM TONE OR TEST FUNCTION ON AN ENERGIZED CABLE.**

### SELECTING TONE

The Model 402T is capable of generating four distinct tones: fast alternating, slow alternating, fast pulsed and slow pulsed. In the TONE position, the 402T will produce a soft audible tone confirming operation and specific tone setting. To select a tone, remove screw and separate the 402T case and position the two internal slide switches until the desired tone is produced.

Tone Select options:



### TONING CONNECTED RG-6 & RG-59 CABLES

Connected cables (male fittings) can be attached directly to the 402T or via the wall plate with the push-on RG-59 coaxial adapter cable. With the toggle switch in the OFF position, note the condition of the LED display. The LED on the 402T will be lit if AC or positive DC voltage is detected up to 60 volts.

Connect the 402T to the cable to be traced and move the toggle switch to the TONE position.

### TONING CABLES WITHOUT CONNECTORS

Use the red/black adapter clip leads on the 402T. Attach the red lead to the cable shield and the black lead to either the center conductor or independent earth ground.

### LOCATING OPEN CABLES

To locate open cables, place the 402R probe in the area

of the multiple cables and run the metal tip along each individual cable until you hear the loudest tone. This will be the cable in question.

#### IDENTIFYING CONNECTED DROPS AT PASSIVE DEVICES

**Individual Drops** - Use the area marked coil located at the end of the 402R probe approximately one inch away from the metal tip for identifying the cable that is connected to the 402T. Move the end of the probe (not the tip) around the cables that you are trying to identify. The loudest tone will signal identification of the cable in question. Connected drops can only be identified in the inductive mode to the port of the first passive device.

**NOTE: FOR TRACING CABLES THROUGH MULTIPLE PASSIVE DEVICES, PLEASE REFER TO THE DIRECT CONNECT METHOD. DO NOT TRY TO IDENTIFY CONNECTED DROPS INDUCTIVELY AS TONE MAY NOT BE PRESENT.**

#### DIRECT CONNECT METHOD

**Multiple Passive Devices (Directional Couplers/Splitters)** - Using the threaded part of the 402R probe located near the speaker, insert the fittings from the suspected cables. An audible tone will signify the cable in question.

**Drop at Lock Box Grounding Bar** - If individual drop is connected to the ground bar, place the 402R probe tip onto the end of the 1-81 plastic covering without inserting the tip into the barrel. The tip will inductively pick up the signal. Keep moving probe into different F-81's until you hear the tone, indicating the cable in question.

**APPLICATION NOTE:** Up to four 402T toner units may be used in conjunction with one 402R receiver probe for tracing multiple cable runs. Set each toner unit to a separate tone and record the placement and tone signal of those units at the remote locations. (Example: apartment 201 - fast alternating, apartment 202 - fast pulsed, etc.) Move to the location of the cable ends (lock box, pedestal); locate the four tones and tag the cables accordingly. This process will eliminate possible confusion when using multiple toners.

**Toning Trunk or Distribution Cables** - When sending tone to identify larger coaxial cables, use the red/black adapter leads to connect the 402T to the respective conductor and shield. Attach red clip lead to shield and attach black clip lead to center conductor or independent earth ground. At remote end of the cable, use the 402R probe to locate toned cable.

#### C. CONTINUITY TESTING

To check a cable for continuity, attach the 402T to the subject cable using the female F-connector or red/black adapter leads connected to center conductor and shield. With the switch in the OFF position, note the condition of the LED display. A lit LED indicates the presence of AC or positive DC voltage on the line. **DO NOT ATTEMPT TO PERFORM TONE OR TEST FUNCTIONS ON AN ENERGIZED CABLE.**

If no voltage is detected, move the toggle switch to the CONT position. Note the presence and levels of the LED and audible tone. Examples of continuity conditions:

**0 to 20K $\Omega$**  = LED is lit and tone is audible (LED intensity will increase with lower resistance)

**20 to 150K $\Omega$**  = LED is off and tone is audible (tone intensity will increase with lower resistance)

**NOTE:** The 402T (in TONE and OFF positions) will withstand connection to a maximum 60 volts AC or DC indefinitely. The 402T in the CONT position will withstand 60 volts AC or 24 volts DC for up to one minute.

#### 3. MAINTENANCE

The only maintenance required for the Model 402K is the periodic replacement of the batteries in the two units (402T and 402R.) Each unit requires one 9 volt battery. To replace the battery in the 402T, remove screw and separate housing, replace battery and reassemble. To replace the battery in the 402R, remove screw and battery cover (on back of unit), replace battery and reassemble. **DO NOT OVERTIGHTEN SCREWS.**

**NOTE:** Although not required, the use of "connector saver" adapter on the 402T and 402R's female F-connectors will help to maintain the contact integrity of those terminals. These adapters are available from most local electronics supply distributors.

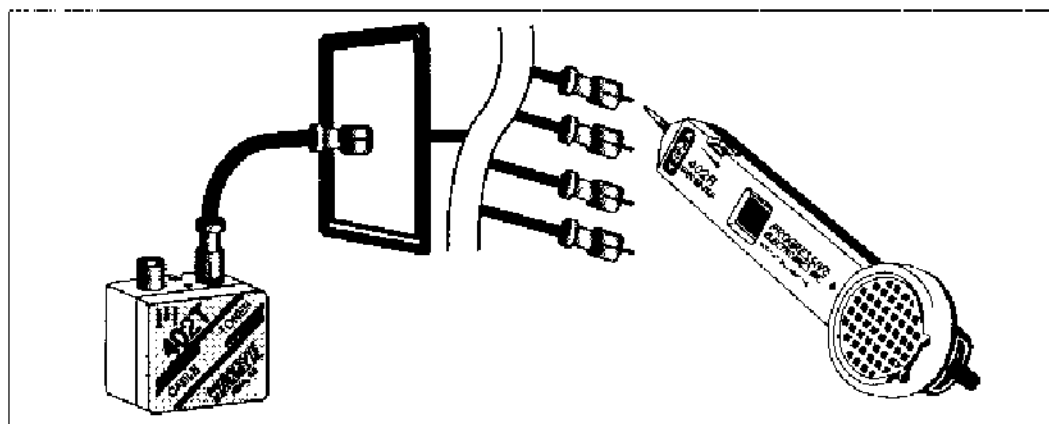


Figure 2 - Lock-Box or Pedestal Application