

# MODEL 177 PRECISION TONE GENERATOR

## DESCRIPTION AND USE

CONTENTS	PAGE
1. GENERAL .....	1
2. DESCRIPTION .....	1
3. OPERATION .....	2
4. MAINTENANCE .....	2

### 1. GENERAL

1.01 This section covers the description and use of the Model 177 precision Tone Generator.

1.02 The Model 177 is a portable, battery-operated precision tone generator designed for use in fault location and pair identification operations. The Model 177 Precision Tone Generator is very useful when toning in high circuit noise or power influence areas. The 577.5 Hz tone can be easily detected when other tones cannot when using any amplifier, tuned or filtered, to receive the 577.5 Hz tone.

### 2. DESCRIPTION

2.01 The Model 177 is a precision tone source for use in pair identification and fault locating operations. It is crystal controlled and generates a stable 577.5 Hz signal which is useful in areas with high noise and power influence. The 0 - 30 db variable output of the Model 177 allows the operator to adjust the signal level for each job application. The small, portable set weighs only three pounds and measures 5"x4"x5". It is battery operated using one 6-volt NEDA type 915 battery. The Model 177 is housed in a heavy duty plastic case inside a leather carrying case.

2.02 The on/off selector switch is used to turn the set on and off as well as adjusting the output level of the tone. The selector switch is marked with an Off position as well as 1 thru 10 Tone level output positions. The tone output level may be adjusted by turning the selector switch. The output level is doubled each time the selector is advanced to the next higher position from 1 thru 10. A red LED is provided to indicate battery condition.

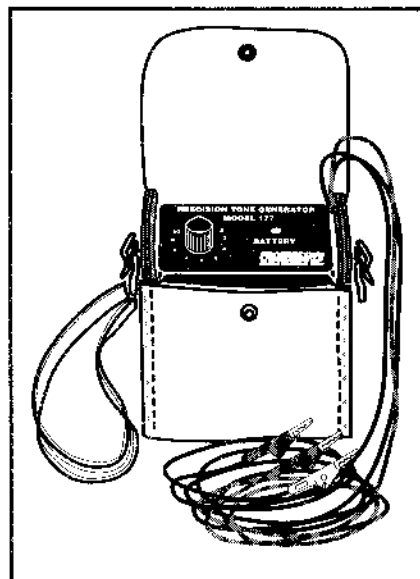


Figure 1 Model 177 Precision Tone Generator

2.03 Three test leads (2 black, 1 red) four feet in length are permanently attached to the Model 177. These test leads are terminated with insulated test clips.

### 3. OPERATION

3.01 The battery must be tested before using the Model 177. Turn the selector switch to any position 1 to 10. A glowing red LED indicates acceptable battery condition; if it does not, replace the battery. See figure 7.

3.02 Connect the Model 177 (black leads only) to the pair to be tested as illustrated by Figures 2 through 5. The output of the Model 177 and the gain of the amplifier to be used should be adjusted to a low but usable tone level at the amplifier's speaker or headset. Setting the tone output level or the amplifier gain to a too high level can produce tone saturation which can cause the tone to appear to spread to other pairs or to run past the fault. Tone saturation is present when increasing the amplifier gain produces little or no increase and sometimes a decrease in tone level at the amplifier speaker or headset. Tone saturation can make it impossible to detect level changes in the tone which are vital to successful pair identification or fault location.

3.03 Connect the probe or coil to the amplifier and place next to cable. Adjust the amplifier for a loud noise level from the speaker or headset. Now reduce amplifier gain to 1/2 this level. The amplifier is now adjusted to the area's ambient noise level and is ready for use.

3.04 Adjust the output level of the 177 for the required tone level from the amplifier.

3.05 The Model 177 supplies "talk power" for crafts-people to communicate on dead lines. Connect one lead of a handset to one side of the pair and the remaining lead to the post on top of the Model 177. The red lead of the Model 177 is connected to the remaining conductor of the pair. Turn the variable output knob to any "on" position 1-10. See figure 6. A low level background tone should be heard which indicates that the unit is functioning properly.

#### 4 MAINTENANCE

4.01 Battery replacement is the only field maintenance required. To replace the battery, unsnap the strap that retains the tone generator in the carrying case. Remove the tone generator and battery from the case. Unscrew the battery leads and replace with the new battery. Connect red lead to + (positive) terminal and black lead to - (negative) terminal. Replace in case and resnap retaining straps. See figure 7.

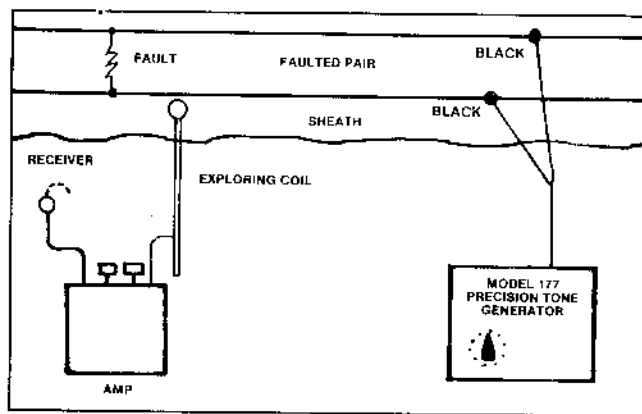


Figure 4 Connecting the Model 177 for fault locating. Fault across the pair.

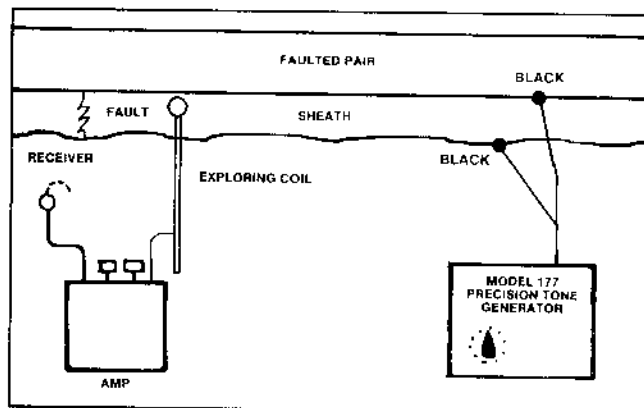


Figure 5 Connecting the Model 177 for fault locating. Fault from conductor to sheath.

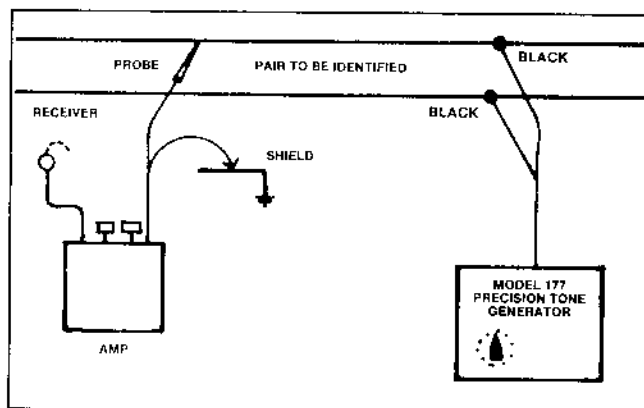


Figure 2 Connecting the Model 177 across the pair for pair identification

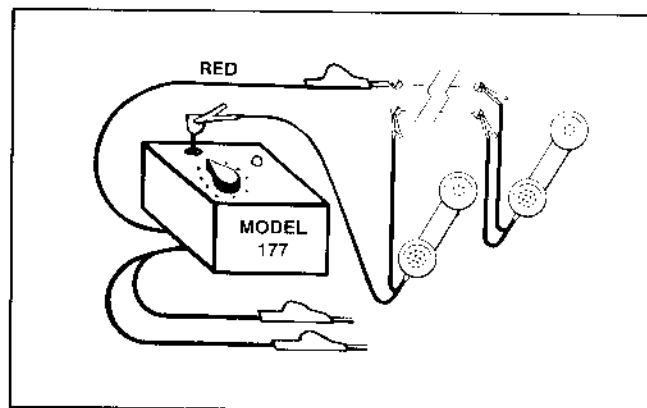


Figure 6 Connecting the Model 177 for "Talker Power."

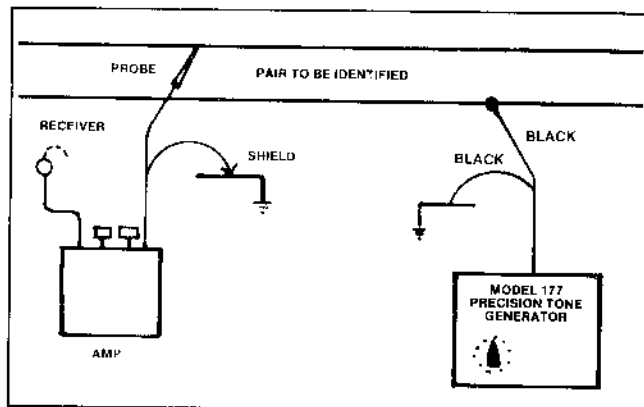


Figure 3 Connecting the Model 177 from one side of the pair to earth ground for pair identification

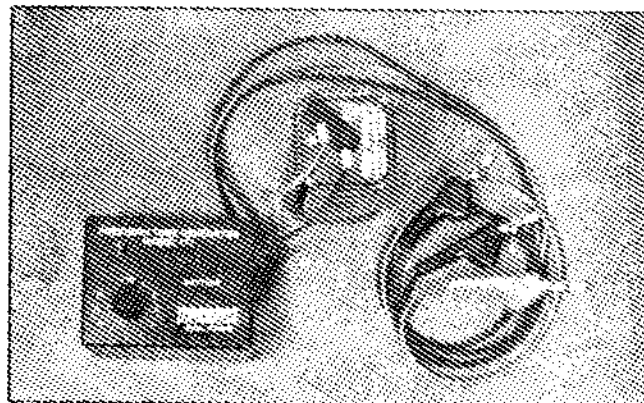


Figure 7 Battery Replacement