



Figure 1

1. INTRODUCTION

These instructions deal with the Tone Generator 1490531-1, shown in Figure 1. The tone generator is designed for use with Butt Set 1490532-1 (408-8656) and Tone Tracer 1490533-1 (408-8655).

2. DESCRIPTION

Tone Generator 1490531-1 contains the following features:

- Three distinctly different tones selected from front panel
- Constant tone amplitude over life of battery
- Two tone amplitude levels – normal and half
- Auto-off of tone after 3 hours – no dead battery if left on
- Tone may be added in any mode – allows phone sets without monitor feature to pick up tone
- No power draw in continuity mode with leads open – no dead battery if left in continuity
- Separate Talk Battery mode for increased voltage and power for Butt sets
- RJ jack allows use of modular cable or provided alligator clip leads

3. OPERATION

DANGER

Do not attach Tone Generator 1490531-1 to live AC circuits. Doing so could create an extreme shock hazard, as well as damage the tone generator.

3.1. Checking the Status of a Phone Circuit

1. Move slide switch on left side tone generator to the "OFF Status" position.

2. Connect black lead to TIP and the red lead to RING – or one lead to each wire of the pair, if designation is unknown.

- If NRM LED turns on: the polarity is correct and the black lead is connected to TIP.
- If the REV turns on: the leads are reversed. If the NRM or REV LED is bright: the line is not in use.
- If the LED is dim: the circuit is in use.
- If both NRM and REV are on or flashing: an AC voltage is present.

NOTE

-- Application Hints

The TIP signal is nominally at ground potential. So RING can be identified by attaching the black lead to a ground point and connecting the red lead to each wire of the pair. When the red lead is connected to RING, the NRM LED will light.

The status LEDs also indicate a ringing line by both NRM and REV LEDs flashing brightly. To verify a phone line, connect the tone generator (in status mode) to the line to be tested and call that line's number from another line. The Tone Generator status LEDs should indicate a ringing line.

To Check the Continuity of a Circuit

Use only on non-energized circuits. Any energy present may damage the tone generator or cause erroneous results.

1. Move slide switch on left side of Tone Generator 1490531-1 to the "Cont" position.

2. Connect the tone generator's leads to each end of the circuit to be tested. If the DC resistance of the path is approximately 11,000 ohms or less, the REV LED will light.

3. Move slide switch to "OFF Status" when finished. The tone generator draws no power when the leads are open, but the leads touching during storage could drain the battery.

To Supply Talk Battery Power

1. Move slide switch on left side of Tone Generator 1490531-1 to the "Talk Battery" position.
2. Connect the tone generator in series with a phone set at one end of a dead pair. To connect the tone generator in series with a phone set, connect one lead from the generator to one lead of the phone set and connect the two remaining free leads to the dead pair.
3. Connect a second phone set across the dead pair at the other end of the line.
4. Take both phone sets off hook and communications is established.
5. Move slide switch to "OFF Status" when finished. The Tone Generator draws no power when the leads are open, but the leads touching during storage could drain the battery.

3.2. To Send a Tone for Tracing

1. Move slide switch on left side of Tone Generator 1490531-1 to the "OFF Status" position for normal operation, especially if toning powered phone lines. See "Application Hints" (below) for other configurations.
2. Connect leads across the line, or attach one lead to ground and the other lead to one wire of a cable or pair to be traced.
3. Press the button on the unit briefly to turn on the signal. If the desired signal level indicator (HI or LO) is not blinking, press the button briefly until the correct signal level is selected. The tone generator rotates through a HI-LO-OFF sequence.
4. Select a different signal type, if desired (see Paragraph 3.3, **To Select or Verify Signal Type**).
5. To turn off the signal, press the button briefly. If it has been more than 15 seconds since the last press, the tone generator will go directly to OFF. If not, a second press may be necessary, if the unit was set to HI.

NOTE

-- **Application Hints**

When tracing wires terminated to a terminal block, such as a "66 block", attaching both tone generator leads to the cable or pair tends to contain the signal within the cable. The tracer must nearly touch the end of the cable to detect the signal, which is helpful when the wires are close together, as when terminated. The LO amplitude setting may generate a stronger signal when connecting both leads of the tone generator to a cable, by reducing the field canceling effect

of having a signal and it's return close together, especially in twisted pair cable. A modular phone cable can be used to connect the tone generator directly to a wall jack.

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When tracing along cable runs and to maximize radiated signal, connect one lead of the tone generator to the wire or cable, and the other end to ground (case of an electrical box, electrical conduit, metallic water pipe or ground rod). If no ground is available, do not connect the other lead to anything – let it dangle as near to the earth as possible. Connect the tone generator to the ungrounded shield of a coax cable. The shield will do it's job, if connected to the center lead, and block the tone. The LO amplitude setting is useful if there is too much bleeding of the signal, or the tracer being used has fixed volume and is overloading.

There are several useful techniques that take advantage of the ability to generate tone in any slide switch position. Both leads of the tone generator be connected to the pair in order for them to work. With tone on, the "Cont" mode can be used on a dead line to indicate finding the line to a helper, or to verify having found both leads of a pair. Once the pair is presumed to be found, short out the pair and the REV LED should light on the tone generator, indicating the pair has been found. The "Talk Battery" mode can be used with tone to allow a phone set without a passive monitor function to hear the tone when the phone leads are attached across the pair the tone generator is powering.

3.3. To Select or Verify Signal Type

Tone Generator 1490531-1 has three distinctly different tone types available – one single and two dual (or warble) tones.

1. Press and hold the front panel button until both the HI and LO LEDs turn on – this indicates entry into the tone style selection function.

2. Continue holding the button down, one of the two LEDs will turn on steady or flash to indicate the currently selected type. The Single LED will turn on steady to indicate the single type is selected. The Dual LED will either flash for one of the dual tones, or be on steady for the other. Releasing the button before two seconds have passed will leave the signal type unchanged.

3. To select another signal type, continue holding the button down until the desired type is displayed. The tone generator will continue to cycle through the three types until the button is released, or the unit times out and turns off (10 to 12 seconds).

NOTE

The currently selected tone type is generated at the RJ jack once the signal selection function is entered. Holding a tone tracer near the jack will allow the user to hear each tone type as it is selected.

4. BATTERY REPLACEMENT

1. Remove screw on the rear of Tone Generator 1490531-1. Carefully open the tester.
2. Remove old battery and disconnect from battery leads.

3. Snap the battery leads onto a new battery (9V, alkaline). Place battery in case.

4. Close tester and replace screws. Do not overtighten.

5. REPAIR/RETURN POLICY

Order replacement tone generators through your Tyco Electronics representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 1-717-986-7605 or write to:

CUSTOMER SERVICE (38-35)
TYCO ELECTRONICS CORPORATION
P.O. BOX 3608
HARRISBURG, PA 17105-3608

For Tone Generator 1490531-1 repair service, please contact a Tyco Electronics representative at 1-800-526-5136.

6. REVISION SUMMARY

Per EC 0990-0596-02

- Initial release of document