Locating Non-distress ELTs and EPIRBs

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More than 95 percent of searches for Emergency Locator Transmitters will be concluded as a non-distress condition—often at airports, harbors, or homes. These "false alarm" ELTs and EPIRBs must be located and deactivated rapidly to avoid their interfering with bonafide emergency signals or overloading the search and rescue satellite system. Some of these urban searches can be just as challenging as those for a crash in mountain wilderness. This article will address the equipment and techniques that will enable you to locate these transmitters quickly and efficiently.

ELT location requires a receiver to hear the signal and a way to measure either signal strength or direction (preferably both). Direction can be measured using left-right homing, beam antennas, or body shielding; strength is measured by meter or by sound. The L-Tronics Little L-Per is used as an example in this article because it can do all of these things. If something is unclear, or for more information on the mechanics of using a system, refer to the section at the end of this article which summarizes the procedures, and to your equipment's operating manual for more details.

Not only should you understand the mechanics of how your equipment works, you should also know how the ELT signal behaves so you can interpret the information your equipment gives you. Figure 1 shows an ELT on an airport ramp, which represents one of the simplest conditions you'll find; however, these principles can be applied to all ELT location situations.

1. **The signal becomes stronger as you approach the ELT.** The direction finder at (2) will have a stronger signal than that at (4), while the strongest signal will be near the ELT at (1). The rate of change will also be faster as you get closer. When you're very near the ELT, you will have a noticeable increase in signal strength by moving just a few yards closer.
2. **The ELT signal will travel in a straight line unless something obstructs it.** In the figure, the radio waves will radiate outward until they reach an obstruction (the hangar), which reflects and blocks them.
3. **Conductive objects block or reflect the signal.** An extention of the second principle, the figure shows how the direction finders at four different locations will receive the ELT.

   The DF at (1) will have a strong signal because it's close and will give a clean direction to the ELT because there is nothing to block or reflect the signal.

   At (2), the signal comes by two paths: one direct from the ELT and one somewhat weaker by reflection from Hangar A. The reflection will cause both the indicated direction and strength to vary around their true values. You can reduce much of these effects by averaging the readings of the DF while walking. Bearing quality will be poorer than at (1), but still quite usable.

   At (3), the direct signal is blocked by Hangar A, making the reflections from Hangar B stronger than the true signal. Strength will be much

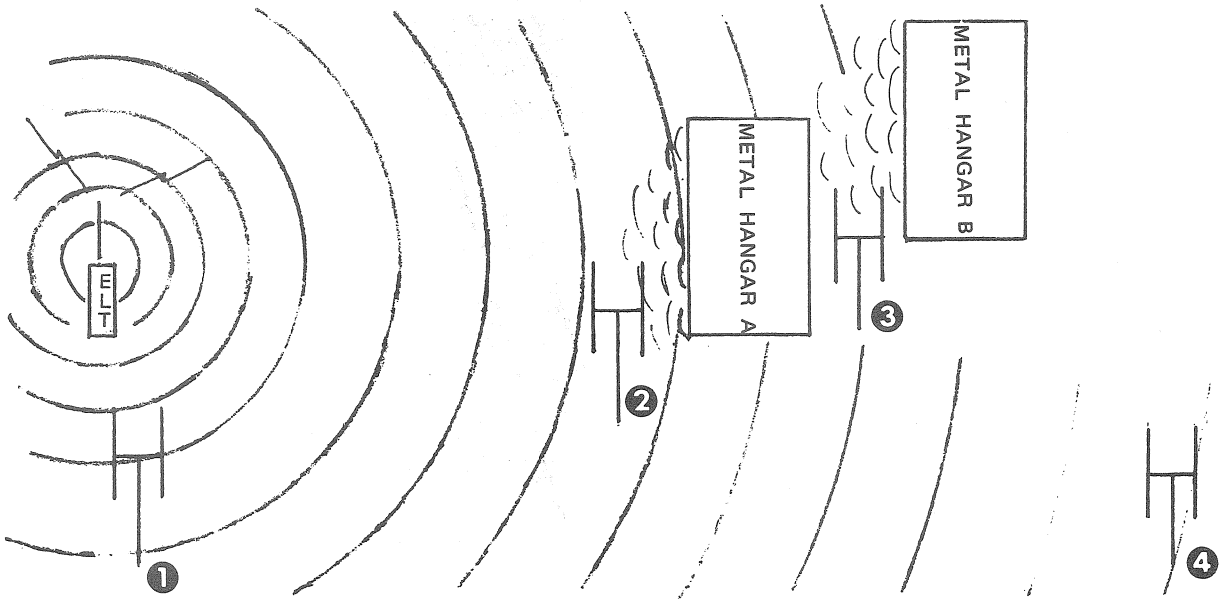

Figure 1