

# COMMUNICATIONS SPECIALISTS Lost Plane Locator

by Del Schier



The Lost Plane Locator is an insurance policy that will protect your investment in large aircraft like this B-17.

If you haven't lost an airplane your either haven't been at the hobby long or you are very lucky. Myself, I have been fairly lucky, I have only lost one, a three-meter sailplane that folded a wing when flying at vision limits. If you want to avoid such problems, Communications Specialists has exactly what you need to find a lost plane. This RC airplane ELT system is a must have for everyone who doesn't want to lose an airplane. Communications Specialists is an old and established company with an extensive line of radio products including several versions of radiolocation systems.

The transmitter is a keyed carrier pulse transmitter that transmits on the 218MHz band using synthesized frequency control. You have your choice of dozens of channels within that band. It does not interfere with airborne receivers and operates at low power. The lithium coin cell should operate continuously for at least six weeks. A pack of a dozen batteries cost less than \$20 from CSI.

The receiver is also commercial quality and in a very rugged aluminum case. The front panel includes a mechanical digital readout channel selector, on/off/battery-test switch, three-position range switch, speaker, signal strength meter, and a volume control. It is a very sensitive receiver with a minimum signal detection capability of minus 150



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## SPECS

**RECEIVER: PR-50**

**SENSITIVITY:** -150 dbm

**POWER REQUIREMENTS:** 9V alkaline

**SIZE:** 6.3x3.5x2.7 in. without antenna

**WEIGHT:** 21 ounces with directional antenna

**FREQUENCY:** Tunable over 218 MHz channels 10 to 59

**PRICE:** \$199.95

**TRANSMITTER: PT-1B ELT**

**SIZE:** 1 in. diameter, .5 in. height

**WEIGHT:** 0.33 ounces

**POWER REQUIREMENTS:** CR2032 lithium coin cell

**FREQUENCY:** Supplied on your choice of 218 MHz channels 10 to 59

**PRICE:** \$49.95

dbm; about 1000 times as sensitive as a broadcast receiver. The receiver comes with a battery and two antennas. The long-range antenna is a fiberglass two element directional antenna of a Moxon Rectangle design, not a simple directional loop. The other antenna is a "rubber duck" for close in work, but in my experience you will find your plane with the directional antenna.

TIPS FOR SUCCESS

You may be successful just by reading the excellent illustrated color manual, but I think that it is imperative that you get actual real world practice with radio direction finding techniques before actually losing an airplane.

Adjust the meter for a minimum useable meter indication (1 or 2 on the scale of 10) on the strongest signal at a given location and then do not touch the controls again until you become close enough to have full-scale meter readings. This technique will give you relative range indications and usable direction indications. Understand that a meter is useless if it is reading full-scale. Holding the setting as long as possible gives a standard reference point to determine signal strength.

It is important that you know your plane's locator transmitter channel before losing your airplane. This should be obvious, but you do not want to be switching between fifty channels while you are trying to find the signal.

A proper half wavelength antenna for 218 MHz is approximately 24 inches. The four-inch antenna supplied on the transmitter is required for FCC type certification. If you surf the web you will find that people are using antennas up to 18 inches for greatly increased range.

FIELD TESTING

The first test was without reading the instructions, bad idea. Editor-in-Chief Tom Atwood drove away and hid the transmitter. When Tom came back, all I knew was the general direction in which to search. Since I wasn't aiming the antenna correctly, I didn't get a signal before going off in the car. Then, from inside the car, all we picked up was noise from the car's electrical system. Down the road, I started getting a signal, so we parked, got out and did some direction finding. After five minutes and 100 feet of walking, I was standing at the transmitter. Even though I had not read the instructions and was not holding the antenna correctly (and it was dark and I couldn't see the meter), I would have found the lost airplane anyway.

I did a few range checks by myself, and with the help of my son I did some "find the lost airplane" runs. I hid the transmitter ("airplane") about a mile away and about five feet up in a tree; this time with an 18-inch piece of wire on it. I gave the receiver to my son (who has no radio direction finding experience) and told him generally "which way the plane went." I showed him the controls on the receiver and told him how to aim and use the antenna (he didn't read the manual). From our house, he got a good signal with a correct directional indication. We took another fix at the end of our 500-foot driveway. In the car he got a continuous signal but without any clear indication of direction, and the interference from the car continued.

After driving for about a mile, the signal weakened; he took several readings and decided to drive in another direction. A half-mile



away from the "airplane," we stopped again for some triangulation, and decided to back track to the road where I had hidden the "airplane." About a hundred feet away from the "airplane" the signal was very strong so my son got out and started walking. In a few minutes he knew where the "airplane" was but couldn't see the tiny transmitter in the tree.

The result of several tests was that you can expect a signal to penetrate at least one-eighth of a mile through heavy foliage using the four-inch antenna, when the antenna is located near the ground. With the 18-inch antenna and the transmitter five feet up off of the ground, you

can expect a signal to travel well over a mile through heavy trees and in hilly terrain. With an airplane up in a tree and in a radio-quiet area, you could probably pick up the signal 20 miles away. Inside a running car or in an urban area, however, the radio interference may be so great that you will receive a signal for only a block or two.

RC clubs could vote to purchase a receiver for all their pilots to use. Each pilot would only need one \$50 transmitter that could be moved from plane to plane. If you fly turbine powered jets, you will want to have this system. Even the average plane recovered totally wrecked but with its motor and electronics still intact, would pay for the receiver and transmitter.

CONCLUSION

I know from my own experiences of searching for friends' lost planes, that even when we think we know where the planes went down, we can still spend hours looking with no luck. Granted, your airplane may fly away without control in climbing level flight, but even then, miles away, a CSI Lost Plane Locator would give you a very good chance to find it. Until you get your Lost Plane Locator, at least make sure you have your AMA lost airplane sticker in every airplane!



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