

TIPS TO ASSIST WITH HOMING USING A HAND HELD AVIATION VHF RADIO

1. GETTING STARTED:

1. Turn the radio on and select 121.5 MHz (121.4 MHz if homing a training beacon).
2. Adjust the squelch control so that you can hear static coming through on the speaker.
3. Adjust the volume control so the signal is clearly audible above the noise around you.
4. Ensure the radio is turned on and adjusted as described above well before you arrive in the general area where the beacon is thought to be located.

Note:

The range of the beacon at ground level varies greatly, but is usually detectable from between around 1km and 7kms, depending on the location of the beacon relative to you, whether it is on a hill or in a valley, or hills and trees between you and the beacon and whether the antenna is upright or lying horizontally.

- Look for high ground to assist in acquiring the signal at the maximum range.
- Once detected, turn the antenna from vertical to horizontal to find which way the signal is loudest. (If the beacon is vertical the signal will be strongest when your antenna is vertical).

2. ON THE WAY

- Once you have received the signal and driven around enough to get an idea where it is strongest, it is time to continue on foot.
- When taking a bearing on the beacon, try to avoid standing near large metal objects like fences or buildings.
- Hold the radio very close to your body but not quite touching the antenna. Then adjust the squelch so that the beacon is only just “breaking through” and is only heard as a series of “chirps”.
- Then rotate your body slowly through 360 degrees. When the beacon is behind you the radio will go silent. This is because your body is acting as a ‘shield’ and not allowing the full beacon signal to be received by the radio. When the beacon is in front, the radio will begin “chirping” again as the signal is now being received without any body shielding. (*Note 9): this may take a few tries before the squelch has been adjusted correctly.
- Take a visual or compass bearing along the direction you have found, then walk a reasonable distance while watching/listening to the signal strength which should be louder and stronger as you get closer to the beacon.
- Take more bearings at different locations as often as needed until two or more of your bearings cross each other when plotted on a map. The beacon should be located near where the two (or more) lines cross each other.

3. HOMING IN

- When the signal is loud and strong, you can get an idea how close you are by holding the radio away from your body and towards the loudest signal. Turn the squelch all the way up, so that the strongest signal is heard.

- Then tune the radio down from 121.5 MHz. If the signal disappears when you de-tune only a little (eg: to 121.325 MHz) then the beacon is still a reasonable distance away (or very well shielded).
- If the signal is still being heard when you have detuned the radio to 120.5 MHz or more you know you are getting close.
- You may have to repeat the homing process several times, leaving the radio on the de-tuned frequency and adjust the squelch until it is just “chirping” again. Remember: The idea is to progressively de-tune as you get closer to the beacon.
- Try to avoid having to “re-tune” closer to 121.5 MHz as it means you may be moving away from the beacon. It might be better to have a walk around the area first before “re-tuning”
- When you are within 2 to 3 metres of the beacon you will be able to hear the beacon signal on all frequencies with the squelch turned up. By moving around with the radio held out and listening for the signal to get louder you should be able to locate the beacon. If it is not immediately visible conduct a methodical search.

NOTES:

1. When you go on a SAR beacon homing mission, always use new batteries in your radio or have a spare set of new batteries.
2. Try to take your initial bearings from open areas on high ground. These are not always possible, but look for the opportunity, especially if you're in the target area and cannot hear any signal.
3. Make sure that other persons in your unit are not standing in front of you when you are homing as their body can 'shield' the beacon signal from your radio.
4. Every now and again, turn your body 360 degrees with the radio held in front of you as described above, to make sure you are still heading in the right direction.
5. Be methodical and persistent. Once you have acquired the signal the beacon can be located. Do not give up.
6. The signal can reflect off buildings, and will be stronger near objects with a lot of metal in them such as fences and powerlines. You may sometimes find yourself approaching the beacon in a series of different directions rather than a straight line.
7. If you think the beacon may be in a building, take several bearings on the beacon from all around the building. This will confirm the beacon is inside and will give you an idea where in the building, the beacon might be located. You will then have to search the building methodically using your eyes and the radio.
8. Remember that beacons work on the line of sight principle. You can use objects such as buildings to assist locating the beacon by walking around them. When the signal fades the building is between you and the beacon.
9. * If you have difficulty fine tuning the squelch to make the signal come out as a series of “chirps”, try reducing the squelch as much as possible while still hearing the signal, then get 1 or 2 people to stand behind you as you turn through 360 degrees. Their bodies will help to shield the signal and make the radio go silent when the beacon is behind you.
10. **Beware!!!** Small hand held radios are also available for Maritime use. These radios look the same but operate between 136.00 MHz and 174.00 MHz. on FM. You cannot home on 121.5 MHz with these radios. Check to make sure your hand held radio can tune to 121.5 MHz.