

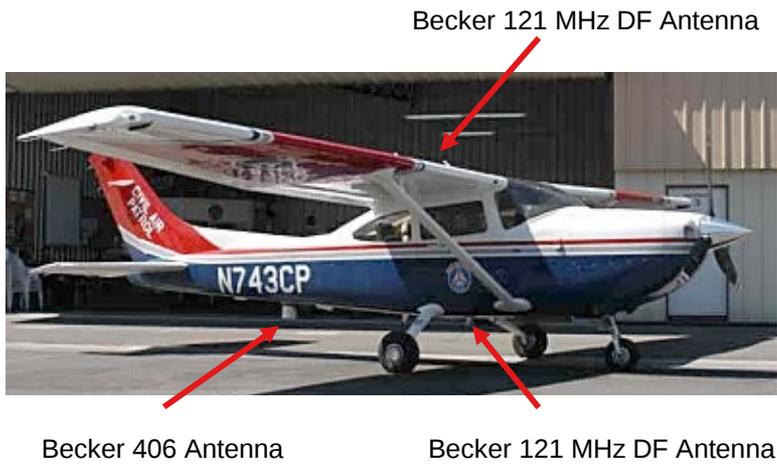
Rhotheta (406 Becker) RT-600 Basic Training

(How to get started for beginners)

The Rhotheta is a direction finder system. It can “DF” signals to find their location in relation to the aircraft.



The system consists of several antenna and a control unit



The 406 antenna is on the belly of the aircraft.

The control unit is to the right of your yoke; above the FM radio.

Frequencies

Prior to the Rhotheta 406 DF System, CAP could only DF the emergency frequency 121.5 and the practice frequency of 121.775.

The Rhotheta 406 Beacon can scan the following frequencies:

Frequency Range	Step Size	Application
118.000 – 123.000 MHz	8.33 kHz	Air VHF
156.000 – 162.025 MHz	25 kHz	Maritime VHF
240.000 – 246.000 MHz	8.33 kHz	Air UHF
400.000 – 410.000 MHz	8.33 kHz	CP-SAR-SAT

406 Can be Complicated

- As new functionality is added to equipment, it gets more complicated and can be quite confusing.
- This class is designed to teach you the BASICS on how to set it up and use it. Note: CAP has several versions of the Rhotheta and they operate a little differently.
- The basics are relatively simple and easy to learn.

What the 406 Means to Us

- We can DF the new 406 beacons that provide a higher location precision. We can get the Longitude/Latitude of an beacon. 406 beacons also put out a 121.5 signal (you can hear the warbling audio signal).
- We can DF the old style 121.5 and 121.775 beacons
- We can DF other frequencies such as the LMO AWOS (120.0 MHz)

Setting Up for a Mission

- After the engine has started and the G1000 is up and running, tune in the beacon frequency in Com2 Standby
 - Tune in 121.5 (emergency), 121.775 (practice beacon), or another frequency such as the LMO AWOS (120.0).
 - Note: you cannot tune in 406 on the com VHF frequencies.



406 Setup (1)



- Turn MISSION MASTER on
- Turn Rhotheta ON
- Adjust brightness
 - Press REP button
 - Rotate PAGE knob
 - 5 seconds



406 Setup (2)

- Adjust the Squelch
 - Turn SQL until squelch is just higher than signal
 - “Top is higher”
- Adjust volume (35 is good)



406 Setup (3)

- Select the frequency
 - The setup for a 406 signal is different from specifying a VHF/UHF frequency.
 - Note: If you are responding to a real beacon, the Incident Commander will tell you if you are responding to a 406 signal or an old 121.5 signal

406 Setup (4)

- To DF a 406 beacon
 - Rotate PAGE knob to DF
 - Rotate Bottom Right knob as far RIGHT as it will go



406 Setup (5)

- To DF a frequency
 - 1. Rotate PAGE knob until MEM is highlighted.
 - 2. Rotate SQL knob to go through the programmed frequencies.
 - 3. If one of the pre-programmed frequencies is not the one you desire, change it by using the bottom left (MHz) and bottom right (KHz) buttons.
 - 1. Rotate PAGE knob until DF is highlighted.



You Are Ready to Go!

- Program the G1000 with the location where you are headed.
- Turn on AUX speaker button to hear the 121.5 signal.
- Climb to a proper reception altitude; 5,000' AGL suggested for best reception.
- Follow the black dot when you get it.



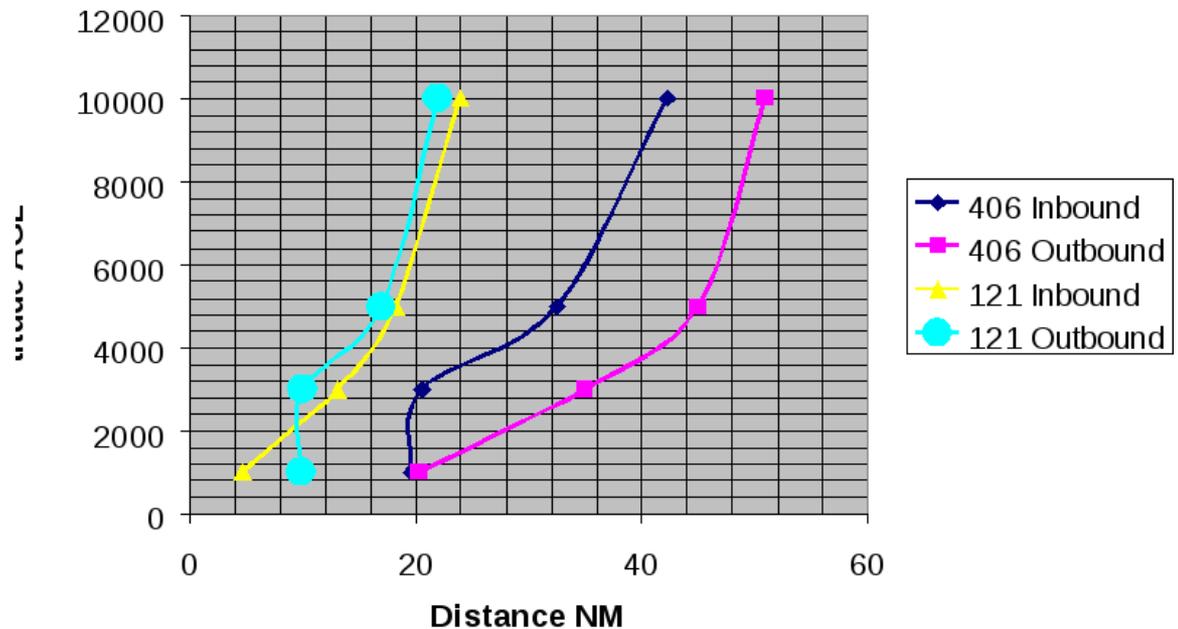
What to Do While Airborne

- You are listening for the 121.5 tone on both Com2 and AUX.
- Watch the Rhotheta display unit for a black dot to appear showing direction to the beacon.
- Note: A 406 beacon will be intermittent (every 50 seconds); a 121.5 or other frequency may or may not be intermittent .



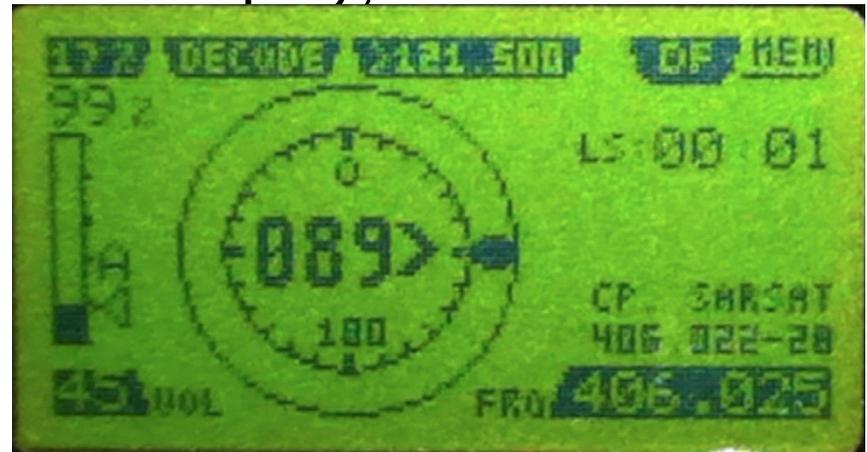
Sample Detection Ranges

- About 5,000 foot AGL is considered a good initial detection altitude over flat terrain



What to Do When You Get a Signal

- If you are hearing the signal:
 - confirm if it is on Com2 and/or AUX. If you have it on AUX, turn down or detune Com2
 - Fly toward the signal, if you loose it, turn around, find it again, go left/right as necessary
- If you see the black dot on the display, follow the dot. You are hot on the trail!



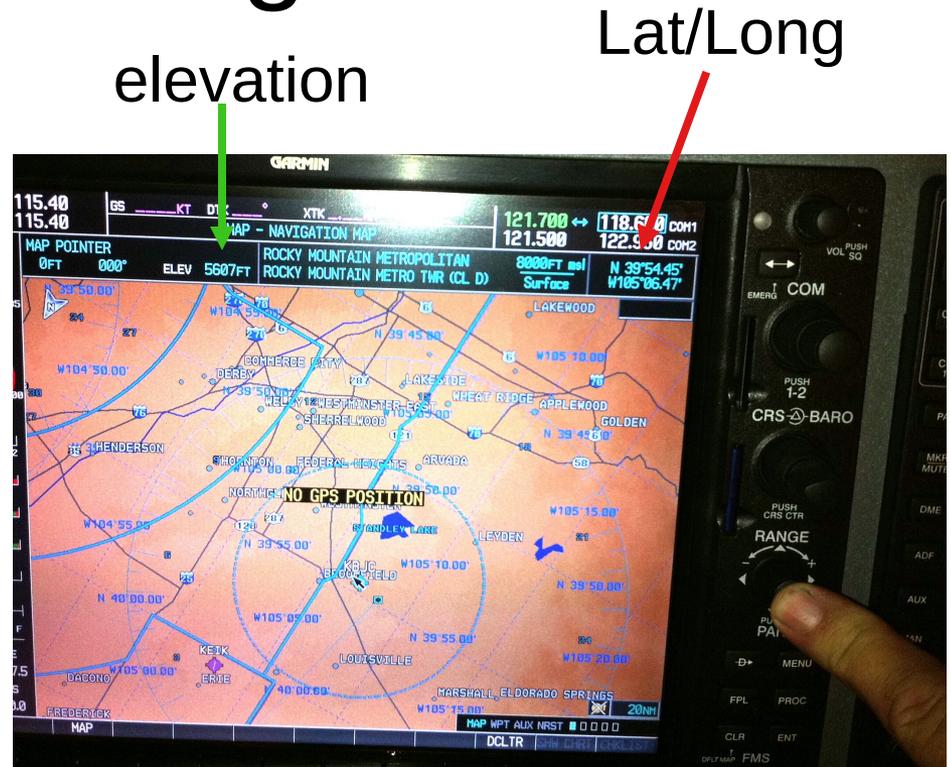
Finding the Beacon

- Keep the dot on the top with the aircraft flying toward it.
- Turn as necessary.
- You could be 30 miles or more from the beacon.
- Decrease your altitude as you can but still keep the signal.
- When you can, DF on the 121.5 signal (STORE/F2); use to go back to 406 if needed.
- When the dot suddenly goes to the bottom, you have passed over the beacon.



Final Things

- Fly over the area and confirm the location of the beacon.
- Use the G1000 to get the coordinates.
- Plot it on your map so you are ready to direct the ground team in.
- Call the ground team, MB, or IC as required.



CONGRATULATIONS!

You have found your beacon.

