

Why is everybody always pickin' on ADF?

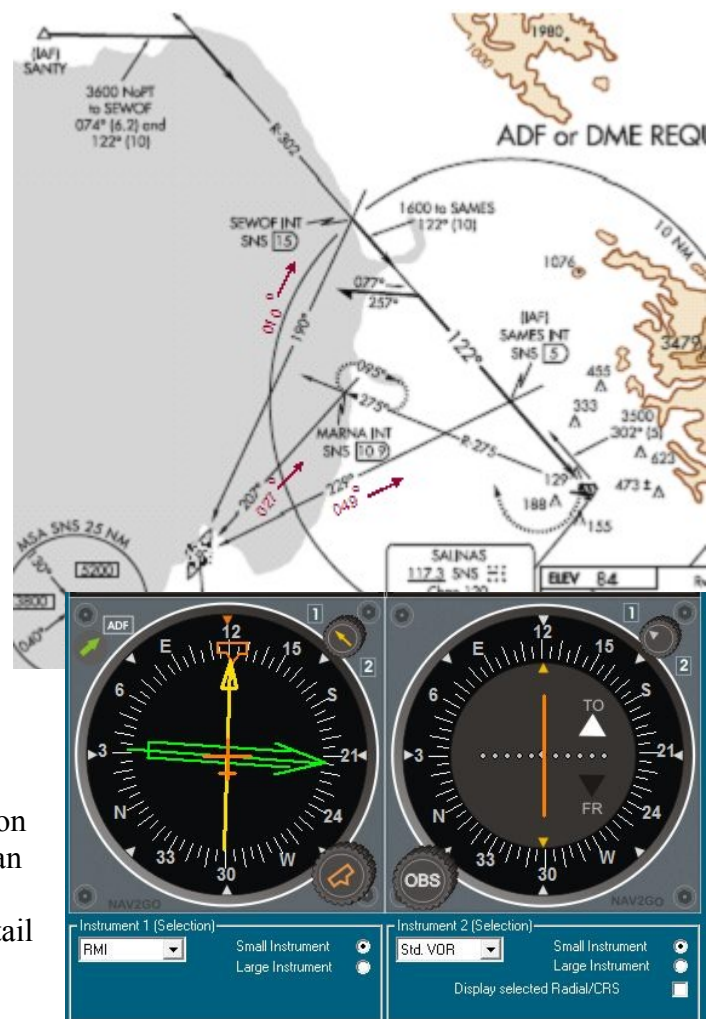
Along with most general aviation pilots, I used to hate ADF navigation. Back in the 60s, (if you can remember the 60s, you weren't really there) I used to fly a localizer approach to runway 13 at Chicago-Midway in my Cessna 206. The approach procedure required a minimum altitude above six factory smoke stacks on final until you passed a bearing to a nearby NDB. I found my fixed card ADF so confusing that I simply maintained the minimum altitude until I felt the bounce of the thermals coming off the stacks. That worked fine until tough times caused the factory to cease production. Unfortunately, GPS and moving maps had yet to be invented. Fortunately, I met an old salty airline captain who showed me how simple ADF navigation could be. "So what?" you say. "I'm flying glass! I don't need no stinkin' ADF." Well lucky you! But keep in mind, it is driven by software! And regardless what Garmin or Avidyne might say, the folks in Silicon Valley tell us, "It's gonna fail!" So, smart pilots know it is important to maintain round dial proficiency including ADF. Besides, if you are getting ready for an FAA knowledge exam, round dials are in your future!

Here is the good news: ADF navigation is really quite simple... once you understand it (but then so is quantum physics). The first thing we gotta do is trash the formula $MH + RB = MB$. Who has time to do algebra while flying an aircraft? Instead, discover how easy it is to navigate using RMI's, and apply the lessons learned to fixed card ADF. Then instead of attempting to determine our position relative to the station using inbound bearings, use outbound bearings. Visualization using outbound bearings off a low freq beacon (the tail of the needle instead of the arrow head) then becomes as simple as using radials from a VOR.

Take the VOR RWY 13 approach to Salinas, CA for example: Notice we have written in reciprocals for each of the three bearings used by the approach procedure. Using the tail of the RMI needle to represent our position on the approach is more in line with how we track our position when using VORs to triangulate.

Refer now to the RMI and VOR indicators shown below (courtesy of NAV2GO): The RMI shows our heading as 122 degrees; just what we need if there is no crosswind to push us off course. The VOR shows the 122 degree inbound course selected with the needle perfectly centered. That means our heading is doing just fine and no cross wind exists (lucky us). Now check out the number 2 needle of the RMI pointing at MUNSO (but refer to the tail of the needle pointing to the 031 "radial" of MUNSO). Is that not roughly half way between SEWOF and SAMES? This is so easy even a caveman can do it!

OK. But what about a fixed card ADF you ask? Easy peasey, nice and easy! Once again we call on NAV2GO to illustrate how simple the process can be: The VOR still shows us on course (still no cross wind. How long can that last?) Notice the tail



of the ADF needle is pointing to a Relative Bearing from MUNSO of 271 degrees. Forget the formula!



Just move the needle (in your mind's eye) over to the Heading Indicator and you now have a poor man's (or poor woman's) RMI. What can be easier than that, I ask you? Check out the last illustration

showing just the fixed card ADF with the needle superimposed on the Heading Indicator to see how simple it is to use the ADF. It turns out that we have not moved much since we last checked our position. We don't need no stinkin' glass cockpit. Think how much money you can save flying round dials!

And now for the best part! Abrams Aviation Seminars now has the NAV2GO simulator available for sale, modestly priced at just \$59 USD!

NAV2GO is the very same software used for the screen shots in this article. Spend a little time with this powerful product and radio nav will become a piece of cake. FAA knowledge test questions will become no brainers (you may be tempted to ask the test administrator for a tougher exam). Flight tests and proficiency rides, using round dials, will be like a walk in the park.



We recommend this product to all our students and they report back to us that it is the best trainer on the market. Call or email us for your own copy and see how easy fixed card ADF (or RMI, HSI, and Localizer navigation can be. Even if you are flying glass, the test writers in Oklahoma City don't care. Long after Scotty is beaming us around the universe. round dials will still be on the "written!" And no telling when your beautiful MFD and PFD might go blue with the words, "Contact Tech Support." It could happen!

Meanwhile... keep the dirty side down and may you always have tail winds... except during takeoffs and landings.

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