



# RWR Pilot Training



## Malibu - Mirage - Meridian

*Insurance Approved, Type Specific Training Programs  
Designed to Make Your Flying Safe and Enjoyable  
Provided When and Where You Choose*

### I'm Glad You Asked

### *King Autopilot Operational Issues*

By Dick Rochfort, ATP, MCFI, CFII, MEI

QUESTION: I have several questions about the operation of my King 150 Autopilot. It does not always do what I want it to do. Can you help?

ANSWER: I'm glad you asked ...

It is important for us to always remember that the AP/GPS interface is a computer. It will do exactly what we ask it to do, so the prevailing doctrine has to be "Trust, but verify"

With respect to your King 150 AP with King HSI (no roll steering) your questions are:

*Q - On flying outbound from the IAF (toward the PT), with the yellow HSI course selector on the outbound course, will the AP track the course outbound? Should I use nav mode or approach mode?*

A - First, always set the course pointer to what Garmin tells you to set it to when it sequences to the next waypoint (the white banner flashes in the lower right corner). You can get this information from the flight plan page under the DTK column if you miss the banner flash. Do this as soon as the banner flashes to ensure that you do not overshoot the course (remember, you are considered to be "crossing" or "established" when the white banner begins to flash). If you are tracking a localizer, the BC button on the autopilot is the best method to track the inbound course outbound. Without roll steering, the heading bug is best to complete the turn to intercept the inbound course. Once the turn is complete and ATC has cleared you for the approach, arm the approach. On GPS approaches, the King AP (STEC and Magic also) will track any GPS course that Garmin defines, so yes, it will track the outbound course when Garmin sequences to it. You will know the course definition from the Garmin flight plan page (see the photo).

Unfortunately, the King AP will not track GPS courses in reverse with the BC button; you will have to use the heading bug (STEC and MAGIC will track GPS courses in reverse with the REV Button). Always use the Approach mode when you are cleared for the approach and not before. It gives the CDI greater sensitivity when you are on the approach and it is your reminder that you are cleared for the approach.

*Q - When I get to the 45 deg turn for the outbound leg of the PT, with the outbound PT leg highlighted in magenta on the 430, and the course selector set to the correct PT heading, will the AP track the course outbound on the PT? It didn't when I tried it a few days ago. It seems that I need to go to heading mode on the AP and use the heading bug to force the plane to track the legs of the PT.*

*Fly Safely - Train Often*

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A - No. Not without roll steering. Even if you had roll steering I think it is unwise to use it without an EHSI unless you physically move the course needle to the correct course because it may lead to confusion on your position. (Remember, pilots are occasionally unsure of their position, but never seriously in doubt about it)

*Q - Inbound on the PT using the heading bug, I set the final approach course and arm the approach mode on the AP. When using an ILS, the AP intercepts and tracks dead on, but the GPS interception and tracking seems sloppy.*

A - Well, I'm a little hazy on sloppy. Are we talking ½ dot or much more? Remember the sensitivity of the CDI changes rather dramatically on the approach; from 1 mile full deflection to .3 miles full deflection inside the marker. This change happens in a step down "wedding cake" fashion unlike the smooth taper of an ILS. Make sure you are using the APR mode, not NAV. Additionally there is a roll control potentiometer in the face of the King 150 which requires a 3/32" flat blade plastic screw driver to adjust it... could be that "your pot needs tweaking"

There are numerous ways to interface these boxes and each installation needs to be considered unique until proven otherwise, especially in older aircraft with modifications. Garmin does have a nice synopsis of the differences between the "classic" unit and the new "W" series. It is available at my website and I encourage you to look it over.

[http://www.rwrpilottraining.com/GNS430W\\_WhatIsNewwiththe400W-500WSeries.pdf](http://www.rwrpilottraining.com/GNS430W_WhatIsNewwiththe400W-500WSeries.pdf)

Additionally please feel free to call me.

I hope this information is helpful.

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*"I'm Glad You Asked" is a regular column written by Master Flight Instructor Dick Rochfort. Dick answers questions which come up frequently while conducting training in the Malibu, Mirage and Meridian aircraft. If you have a question for Dick, you can send it to him at [mail@rwrpilottraining.com](mailto:mail@rwrpilottraining.com). He'll be ... "glad you asked".*

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## Biography

### Richard W Rochfort



A former corporate pilot and primary flight instructor, Dick is a full-time Master Certified Flight Instructor providing insurance approved initial and recurrent pilot training in the Piper PA46 Malibu, Mirage, and Meridian aircraft. He is currently flying over 450 hours per year and trains 60-80 pilots every year exclusively in these aircraft.

He holds multi-engine ATP and Gold Seal Flight Instructor Certificates with CFII, MEI and CE-525S ratings. He has been actively involved in flight training since 1991 and has trained pilots all over the US, Canada and Europe.

Dick is an Aviation Safety Counselor for the FAA Baltimore FSDO, a National Industry Member of the FAA Safety Team (FAAST) and has conducted hundreds of programs for the pilot community. He is an instructor for the M/MOPA Safety and Training Foundation and The National Association of Flight Instructors has designated him Master CFI. Less than 1% of all flight instructors have earned this designation.

Dick served as a Staff Sergeant E6 in the US Army Special Forces from 1970 until 1976 as an A team radio operator, training indigenous personnel in field communications. He worked from 1976 until 1991 as an industrial engineer training manufacturing personnel for the production of communication and navigation equipment for US military.

His education includes undergraduate degrees in Clinical Psychology and Engineering and a Masters Degree in Business Administration. Dick lives in Baltimore, Maryland with his wife and two daughters. He is a PADI Certified Scuba Diving Instructor, First Aid Instructor and an Eagle Scout.

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