

AFS-600 *Regulatory Support Division*

Vol. 14, No. 3

A quarterly publication designed to serve the
Examiner, Designee, and Instructor Community

JULY 2002

IN THIS UPDATE

ARTICLES FOR THE NEWSLETTER.....	1
RNAV(GPS) APPROACHES WITH VNAV.....	1
HELPING THE LYRIS MANAGER.....	2
THE Vmc DEMO	3

ARTICLES FOR THE NEWSLETTER

If you have an article for the newsletter that you would like to share with the DPE and the CFI community send me an e-mail with it attached in Microsoft Word Paul.J.Maenza@faa.gov
This does not guarantee it will be published, but I will send you a response.

RNAV (GPS) approaches with VNAV

RNAV (GPS) approaches such as the RNAV (GPS) RWY 6 approach at Birmingham are becoming very common today. Every revision of the IAP charts has several new RNAV (GPS) charts included. Since June, 2001 some of these RNAV (GPS) approaches also have VNAV minimums that are significantly lower than the LNAV minimums.

The problem is that many pilots have only started to learn the basic GPS approach and have never heard of the VNAV approach that gives true vertical guidance. In fact, their Garmin or King GPS has a VNAV function so why can't this be used for the VNAV approach? I have visited with 10 professional pilots and 25 instrument or instrument instructor pilot applicants and only one of the professional pilots even knew what I was talking about. The rest assumed they could use the lower minimums (that actually require the use of VNAV vertical guidance) with their Garmin or King basic GPS equipment that are certified only for LNAV approaches.

The RNAV (GPS) RWY 6 approach at Birmingham is an example of an approach where you must know your minimums and the limitations of your equipment. The VNAV minimums are 360 feet lower

than the LNAV minimums (MDA) and are 109 feet lower than a prominent obstruction that is only about 3 miles from the end of the runway.

The only equipment legal and safe to go down to the 940 foot **decision altitude** will have a statement in the Airplane Flight Manual (AFM) or an AFM supplement explicitly stating the RNAV system is certified for IFR VNAV approaches. This VNAV equipment will have glide slope information displayed on the HSI much like an ILS approach. The VNAV function of a King or Garmin GPS will tell you the descent rate necessary to go from where you are to where you want to go but it will never tell you that descent rate might take you right into an obstacle. It can **not** show if you are **below the required glide path**.

The FAA Advisory Circular AC 90-97 *Use of Barometric Vertical Navigation(VNAV) for Instrument Approach Operations Using Decision Altitude* (<http://terps.faa.gov/directiv/AC90-97.pdf>) covers the requirements and operation of the VNAV portion of these approaches. Briefly, the requirements are:

- 1) Approved FMS System where GPS is an active component.
- 2) RNP system approved for RNP 0.3 NM Operations in IFR conditions.
- 3) Barometric VNAV capability.
- 4) Database includes the waypoints, VNAV angles and altitudes that pertain.
- 5) A temperature below the limits for a particular approach requires that you descend only to the LNAV MDA.
- 6) You must select the appropriate VNAV mode - Vertical speed is not acceptable for VNAV approaches.
- 7) A current altimeter setting for the landing airport is required.

The RNAV (GPS) approaches with VNAV are marvelous approaches with great accuracy and lower minimums. There will be many more of them in the very near future. They will be available in remote areas and require only a local altimeter setting for equipment on the ground. Pilots just need to be absolutely sure that we know how to do the procedure correctly.

Here is a link to the approach chart. http://download.aopa.org/iap/20020418/se4of4/bhm_rnav_gps_rwy_6.pdf

Thanks for this article from Lowell Weir, DPE Des Moines, IA lwpiilot@mchsi.com

Helping the Lyris Manager

When Lyris users update their e-mail addresses with the Lyris e-mail distribution system they are not canceling their old e-mail address. The last time a message was sent on Lyris there were 226 obsolete addresses listed that had to be manually deleted. Please help the Lyris manager with this problem and delete your old e-mail addresses.

There are two listings which a designee can subscribe to at no cost. One list is for pilot designee's and the other is for airworthiness designee's. You may subscribe to either or both e-mail listings.

The process for subscribing is quite simple. Send a **blank** e-mail to the following:

For pilot designee's, the address is:

join-opsdesignee@silver.lyris.net

and for airworthiness, the address is:

join-awdesignee@silver.lyris.net

After you send your **blank** e-mail message, you will receive a message back which will ask for confirmation. Just reply to that message and you will receive information via e-mail when changes occur.

THE Vmc DEMO

Both the private and commercial practical test standards for a multiengine class rating require a Vmc demonstration. Previous PTS Books (FAA-S-8081-12A and FAA-S-8081-14) contained a "NOTE" reference this task which advised that airplanes with normally aspirated engines will lose power as altitude increases, and the loss of power may result in a Vmc lower than stall speed at higher altitudes. Also, some airplanes have such an effective rudder that even at sea level Vmc is lower than stall speed. The note went on to say that in these airplanes a demonstration of loss of directional control may be safely conducted by limiting rudder travel to simulate maximum available rudder. The information in this note was intended to be informative rather than directive.

The information regarding limiting rudder travel to simulate maximum available rudder does not appear in the new practical test standards which become effective August 1, 2002, and as an answer to questions we have received regarding this issue, we would like to emphasize that the omission is intentional. It is FAA policy that "blocking the rudder" during the Vmc demonstration task **on a practical test** is not an acceptable method of demonstrating or evaluating this maneuver. During **training** however, single engine procedures should be practiced to prepare for an actual emergency situation, not just a practical test demonstration. In the training situation "blocking the rudder" has been, and will continue to be, an acceptable and productive method of teaching single engine procedures. As recovery ability is gained with practice, the speed at which the maneuver is started may be lowered in small increments until the feel of the aircraft in emergency conditions is well known. Practice should be continued until an instinctive corrective reaction is developed, and the corrective procedure is automatic. In a training situation, restricting rudder travel in effect sets up an artificial situation which is very useful in the interest of safety. By the time a student's training is complete, and he/she is ready for a practical test, the student should be well versed in the effects of density altitude on Vmc, the relationship of Vmc to stall speed, reasons for loss of directional control, indications of loss of directional control, loss of directional control recovery procedure, and the critical importance of never allowing the airplane to enter a stall with one engine inoperative. This is what the applicant will demonstrate on the practical test, not just the ability to mechanically approach a loss of control situation and recover.

It must be remembered that the practical test standards are designed to be "testing documents" rather than "teaching documents". The practical test standard books contain the **standards** to which a particular maneuver/procedure must be accomplished. Information on teaching and performing specific maneuvers is

contained in the Airplane Flying Handbook (FAA-H-8083-3) and the Pilot's Operating Handbook for the specific make and model airplane. The practical test standards do not require an actual loss of control on a Vmc demonstration. This has not changed. The practical test standards require that an applicant recognize any indications of loss of directional control, **or** stall warning, **or** stall buffet, and recovers promptly and correctly when either is encountered. Artificially limiting rudder travel defeats this purpose. Pilot's Operating Handbooks for popular light twin engine training airplanes such as Piper PA-34, PA-31, PA-44, Cessna 402, BE-76 and BE-58 make no mention of limiting rudder travel during Vmc demonstrations on FAA practical tests. Almost invariably the POH's for these and other aircraft recommend that recovery be initiated at Vmc, stall warning, or stall buffet, as in the Practical Test Standards.