CHECK PILOTS MONTHLY

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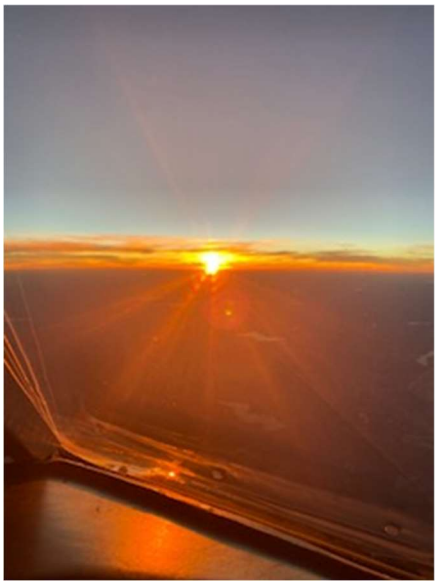

Photo by Jon Moriarty

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4) If you are doing anything non-standard or illegal, don't take a picture.

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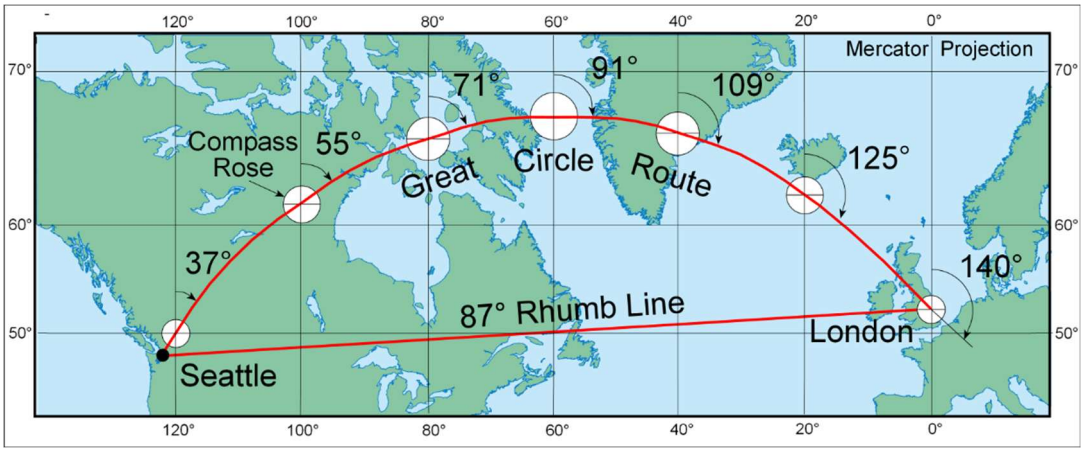
Long Range Operations

By Erik Lund, Contributing Author

Look forward to next month's article on long range operations! Erik is putting together a synopsis that will show you how to get 4.3 out of a standard Lear 35. These techniques can apply to other airframes.

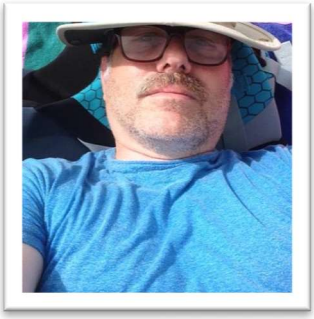
In the meantime, long range charts are available in each aircraft detailing required speeds and fuel burn relative to altitude and temperature. Check them out!

Photo by Tony Gastrich



https://blog.geogarage.com/2012/03/gerardus-mercator-father-of-modern.html

Peio, March 5, 2012



"Check Ride"

"Hello, I'm Kevin Murphy and I will be administering your check ride today."

A continuing series by Kevin Murphy, *Contributing Author*

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tldr; Read time: 3 minutes

Pilots are apprehensive about performing steep turns. The requirements: Altitude ±100', IAS ±10 knots, bank ±5º, roll out on heading ±10º. Pitch for ~3.5º nose up. Add 2% RPM. Maintain your bank angle at 45º, right on 45º, or as close as you can. Bank Angle is paramount. Next month we'll look at circling approaches.

In my time as a company check airman, I have found no other maneuver which has instilled as much fear in the heart of an applicant as the steep turn. I say this about check rides with both captains and copilots. Certainly, not every applicant has had this misgiving and they have performed flawlessly when it came time to turn (you know who you are). Still, I have found many pilots have trouble with steep turns. We'll look at the 'standards', the task, the knowledge and try to wheedle out the important points.

The FAA defines the maneuver and what it is designed to accomplish. The FAAs Flight Standards Information System (FSIMS) describes the maneuver as "…a level turn in each direction with a bank of 45 degrees, continuing for at least 180 degrees, but not more than 360 degrees. Inspectors and examiners should direct special attention to an applicant's smoothness, coordination, and orientation."[1] The Airman Certification Standards (ACS) for

[1] FSIMS 8900.1 Vol 5 Ch. 3 Par. 5-831(C)

applicants further requires the examiner to determine the pilot "…maintains the entry altitude ±100 feet, airspeed ±10 knots, **bank ±5°**, (rolling) out on the specified heading, ±10°."[2]

These are simple turns, albeit near the edge of the flight envelope and what would be considered an usual attitude in IFR flight, but simple turns. The main purpose is to test the applicant's ability and understanding of the aerodynamics of the turn. The maneuver demonstrates how the applicant maintains coordination and bank angle, while dividing focus, to maintain the ACS standards.

Your examiner will have you enter the turn at a designated altitude and airspeed on a known heading. Smoothly roll into a 45º bank and, in the Lear jet, give two clicks of nose up trim. While entering the turn add 2% RMP on both engines. That might be enough, it might not, but we will start there.

Pull back on the yoke to pitch up to 3.5º on the attitude indicator. Yes, you cannot fly the maneuver with trim alone, you must use pressure on the yoke, but trim will help you maintain a constant pitch. I have found that 3º descends slowly and 4º climbs slowly, enabling altitude correction if needed. Always adding pressure to the yoke, not consciously moving it.

As you roll into the 45º bank increase back pressure on the yoke, scan your altitude indicator (primary for pitch), any change here means you don't have proper pitch attitude. Maintain a constant bank of 45º for the entire turn of 180º or 360º (examiners choice). Bank angle is paramount! If you are distracted and bank changes, the requirements for all other parameters change also and you will end up chasing your altitude and airspeed.

Glancing over your instruments, at the first sign of altitude loss or gain, adjust your pitch. Then hold the pitch steady. If you can do this, you could actually trim to hold the pitch there and impress your examiner. But, once again, any change in bank angle will change the requirements for pitch and power. Bank angle is paramount! The examiner, or your PNF if you have one, **is not allowed to call out headings under the new standards**. Therefore, you will have to divide your attention and roll out on the proper heading.

As you start your roll into the opposite direction smoothly unload yoke even putting pressure nose down if it needs it. I have always liked this portion the most. Rolling through level, holding the nose down, increasing bank into the opposite direction. It always conjures up images of Wolfgang Langeweische's book "Stick and Rudder".

[2] FAA-S-ACS-11 Sec IV Para. A Skills

So you see, the maneuver is rather simple and calming. Roll into a 45º bank, add 2% RPM, pitch for ~3.5º. Couldn't be simpler.

That is all for this month. I hope you come away with a better understanding of what the examiner is looking for, and a less stressful way of providing that performance. Next month I will take a look at circling approaches. See you next time and fly safe.

Winner of the Hunter's Moon Contest!!

Photo by C. Childs

LET'S DO WHAT WE DO BEST.....WE FLY!!!!