Reduced Vertical Separation Minimum

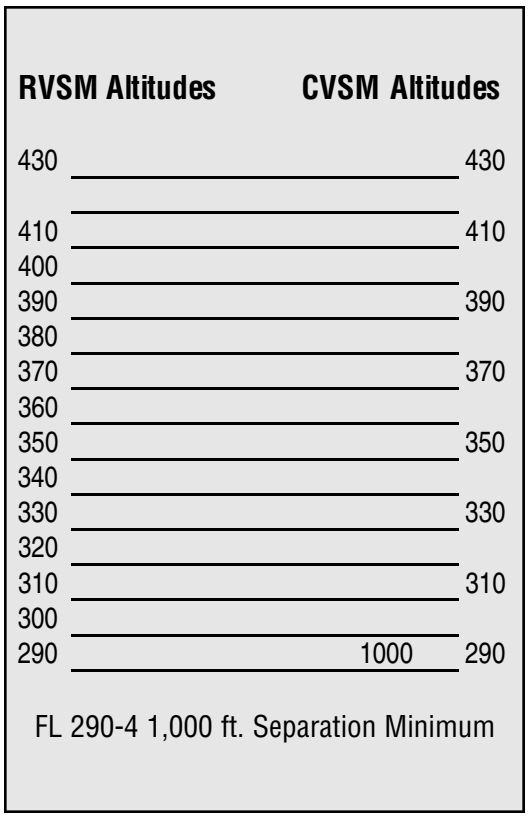
Will America Be Ready?

BY GARY PICOU

Just like some folks will complain about the weather, others will complain about the crowded skies. In the seemingly vast stretches of airspace, corporate jet operators need reservations before launching into the wild blue. It is like waiting for a table in a fancy resaurant—show up on time to get a choice spot.

Unlike the weather, complaints about the near capacity airspace have been heard, and action is at hand. Domestic Reduced Vertical Separation Minimum, or DRVSM, is a plan to ease congestion in the flight levels, increase capacity, and reduce delays. (Where the approaches and runways for all these airplanes are going to be is another issue.) The plan reduces enroute altitude separation from 2,000 feet to 1,000 feet between 29,000 feet and 41,000 feet. Great idea! What is the catch?

In order for the airspace to handle traffic smoothly and efficiently, aircraft need to meet a new standard in air data. The least capable aircraft must comply. There is a deadline looming. If you want to play in the rarified airspace above FL290, you are going to have /W on your flight plan, starting in January 2005.



What it is

Air Traffic control's ability to keep airplanes apart is based on the accuracy of the equipment available to show them where the airplanes are, in 3 dimensions. If there is an uncertainty in the altitude or position, then ATC must add that into the spacing equation. Historically, the altitude reporting and indicating equipment was inaccurate, particularly at the flight levels above 30,000 feet. A baro altimeter, whose design was unchanged since Kollsman was a lad, can have hundreds of feet of error, and still be in tolerance.

Modern technology gives us the ability to refine both our positioning space, and the ability to datalink that information to ATC and other aircraft. So an airspace system predicated on the old technology is inefficient.

The rub is that everybody must have a similar capability. You cannot have aircraft that are capable of reporting their altitude within 15 feet, sharing the airspace with those with 350 feet of error. The airspace plan must be configured to match the least capable aircraft, the lowest common denominator.

The hardware for RVSM is essentially a dual air data system. The static system is calibrated and corrected to eliminate or compensate any source errors. Therefore what the pilot sees, and what ATC sees, is the same, and is the same as what any other pilot or static system sees.

These altimeter/static systems must be independent. The aircraft must have altitude deviation alerting because one of the regulations is an operator's report to the FAA when you deviate the assigned altitude by 300 feet.

RVSM is not like installing an ELT, or even TCAS system. RVSM requires operator and maintenance training, and continuing airworthiness monitoring. Simply put, the pilots need to know how the system is doing, and mechanics need to know how to keep it as accurate as necessary.

Regulations

14 CFR 91.180- Operations within airspace designated as Reduced Vertical Separation Minimum airspace.

Except as provided in paragraph (b) of this section, no person may operate a civil aircraft in airspace designated as Reduced Vertical Separation Minimum (RVSM) airspace unless:

The operator and the operator's aircraft comply with the minimum standards of appendix G of this part; and

The operator is authorized by the Administrator or the country of registry to conduct such operations.

The real world

Avionics News talked to purveyors of RVSM solutions in all quadrants, East, South, West and North, to get a sense of how the operator community is embracing DRVSM. This year, the same scenarios are being played out across the nation. Operators are coming to realize that DRVSM WILLhappen on January 20, 2005. No extensions, no waivers. If you want to fly above 290, you WILL be RVSM-enabled.

This summer, if an operator wants to have his aircraft equipped and certified for RVSM, it is still possible to find an avionics shop and get on the schedule. As Jim Lauer of IFR Avionics put it, "There is always room for Jell-O." Probably GREEN Jell-o, because many of the folks we spoke with indicated that compliance will be possible, as long as the procrastinator is willing to pay the overtime to get the job done.

Kevin Harriman at Pro Star told us that although the schedule has installations booked through the deadline, there are some holes he can fill. ProStar concentrates on Hawkers and Citations—although they have taken on a one-off Gulfstream.

Dan Rice of Flightcraft in Portland, Ore., is working split shifts to accommodate the Citation customers in the Pacific Northwest. As a Citation Service Center, they are making these mods on Cessna Service Bulletins, in about 10 working days. Even with the added man power, the operator will be lucky to get into Flightcraft within 90 days. Typically, the modification will run 10 to 15 days, depending on the other "stuff" added in.

One reason for the extended downtime (Lauer says that a Hawker can be RVSM-capable in one day) is that few operators do ONLY an RVSM upgrade. Most will also opt for a TAWS capability, and often add a TCAS II capability.

One common thread from coast to coast is that the avionics manufacturers like ISS, Honeywell or Collins have factored in this hardware requirement and are being very helpful for delivering the goods in time.

Jim Pommier of Westair stated that Honeywell is working with their sales forecast, and delivering the equipment within 30 days. This works out well, because Westair requires an initial deposit to hold the schedule spot, and payment on the hardware at 30 days of the job start before the RVSM mod begins. Westair concentrates on Lears, and has 100 systems sold to date for 31 to 36-series. Pommier also says that they are working on a Conquest STC, to add RVSM to that popular t-prop.

Ben Montgomery of Star Aviation says that his company is providing 15 to 20 kits per month, but expects to see this ramp to 35 as the end of the year approaches. He is grateful for the support of the equipment manufacturers too, "there is almost no lead time, and the prices are stable, so far."

Another common issue was that these RVSM installations almost always take on additional work—such as TCAS and most often a TAWS installation. Although the RVSM deadline is upon us, Terrain Avoidance is just over the horizon on March 29, 2005. If the aircraft is going to be down for 10 days, the extra five for TAWS is only logical.

Everybody we spoke to commented that the bottleneck could be the FAA. Although hardware is available, and the installation slots are filling up quickly, the FSDOS may not understand the scope of the work involved for turning back approved Letters of Authorization (LOA) for the DRVSM operators. Some operators have waited over six months for the LOA, some have submitted documents, and have had no response. But hey, there are six months left, right?

Conclusion

Less than six months remain before January 20, 2005 at 0900 Zulu. At that moment, non DRVSM-equipped aircraft will be not able to share the airspace between 290 and 410 without asking, please, more than 48 hours before departure. That means inconvenience. That means the efficiency of that expensive biz jet will be hampered in a big way.

Between now and then, avionics shops should encourage their operators to get the installations scheduled, in the shop, finished and flying again. This can take 10 working days, and cost $100,000. But as that deadline approaches and the supply of installation time gets consumed, the costs will increase.

Columbia Avionics is a supplier of STC kits for Citation 500 and 650-series, and Lance Fox says that some operators believe that there will be a delay, but if they are harboring a notion that the FAA will delay the rules, forget it. The folks we spoke to were unanimous in saying that the customers they have installed see the writing on the wall, and understand that it WILL be necessary to be compliant by January 2005.

The bottom line is that if any aircraft operator plans to use FL290 to 410, after January 20, 2005, they had better call their avionics shop NOW, and hope that the price of procrastination will not be too dear. ❑