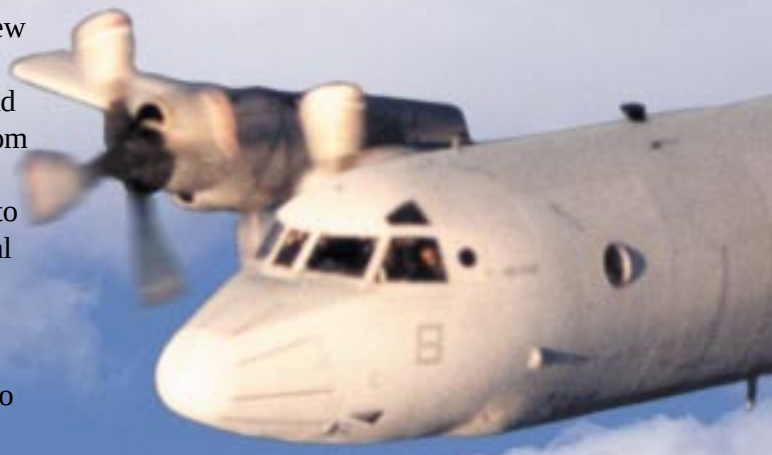
Impossib

That's W

by Lt. Shane Tallant



Preflight went without a hitch. Apart from the usual summer buildups, the weather was beautiful at flight level 240. The aircrew was jovial and enjoying a Friday afternoon airways-and-instrument-training flight for a weekend RO2N. We even had a midshipman onboard whom I gladly let fly the mighty Orion in the left seat, while I supervised from the right. He was going to return to school with a new appreciation for naval aviation. Life couldn't be better.

As we flew over a VORTAC somewhere in Kentucky, our future aviator made a 60-degree heading change. He hadn't quite mastered how to maintain altitude while turning, so we both felt a little negative G as the aircraft dropped about 75 feet. Nothing out of the ordinary, and the aircraft was already correcting. The midshipman commented, "Something doesn't look right over here." I glanced over, and his attitude gyro was tumbling. I took control of the aircraft and directed him to switch to his standby gyro.

As I rolled wings level on the horizon, I glanced at my gyro, which was also tumbling. "That doesn't make any sense," I thought. The pilot and copilot attitude indicators receive inputs from two independent inertials and two independent power sources. As I switched over to standby gyro, it was time for our future naval aviator to get out of the seat and for a qualified one to get in. I started to think that life could be a little better, after all.

I took a much closer look at my instruments. My horizontal situation indicator and needles were frozen, but without the nav warning flags you'd expect. I went back to the basics. *Aviate*: My standby gyro looked good, and I had a discernable horizon. I wasn't going to fall out of the sky. *Navigate*: I had a wet compass, and we had been backing up all of our airway navigation with GPS. It took a few minutes to transition to the new scan (the wet compass on a P-3 is in an inconvenient position). We were already two miles off track with the GPS, but we were correcting back on course.

Communicate: If you lose a navigation instrument in flight, you have to report it to ATC, according to the AIM-FAR. But I've had a TACAN go in flight, and we didn't report it. If your ADF goes out, are you going to report it? Probably not. Well, I thought about it briefly. I was aviating fine and navigating fine, and we hadn't had a chance to troubleshoot yet. Why get ATC involved in something that I would probably have fixed in a few minutes anyway? Looking back, I shouldn't have let my pride get in the way and made the report.

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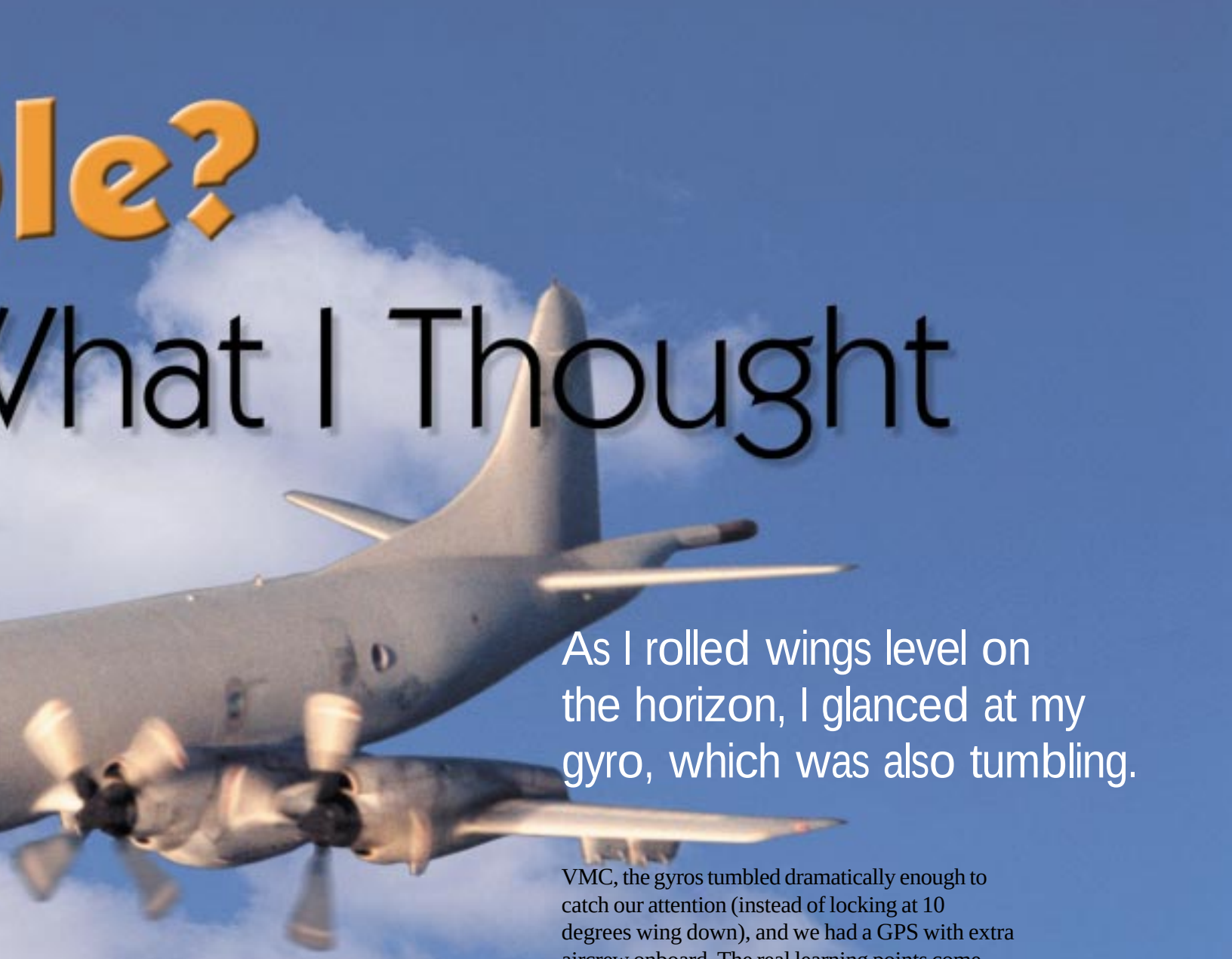
What I Thought



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What if the GPS was off? GPS is only a supplement to navigation, and while accurate, not legal. What if the standby gyro failed?

Fortunately, we had three pilots and two NFOs onboard, so we were able to bring everybody into the flight station and work through the problem. We delegated who was flying, who had the extra set of eyes backing up the pilot at the controls, who was navigating and communicating, and who was troubleshooting. The NFOs confirmed that both inertials had dumped. Fortunately, they were experts on the inertials and were able to realign them in flight. We had reliable heading information in about five minutes, and my gyros were back online in 15 minutes. Once again, I reflected, life couldn't be better.

What seemed to be statistically impossible had occurred on this flight. Fortunately, we were VMC, the gyros tumbled dramatically enough to catch our attention (instead of locking at 10 degrees wing down), and we had a GPS with extra aircrew onboard. The real learning points come from considering what could have happened if one or all of these factors had been different.

The most important aspect of this incident was the aircrew coordination during post-flight. ACT doesn't end when the chocks are in place. We reported the incident to maintenance, safety and all pilots. This aircraft for the next two months had a history of both inertials dumping in flight with no apparent trends, and every crew was able to handle their malfunction because of our discussions. It took multiple aircrews and numerous maintenance man-hours to track down the problem to a single bad wire from the original airframe modification that incorporated the inertials. Until the problem was solved, the aircraft was restricted to day VMC flights.

Lt. Tallant flies with VP-16.

P-3 photo by PH3 Darwin Coligado
Photo-composite by Pat Eaton