

# IMC in the Cockpit

By Lt. James M. Fitzgerald

I was scheduled to lead a division of red-air, supporting an airwing self-escort strike. The airwing was flying on a 1+15 cycle, and I was the last launch of the night. We were a month into our six-month WestPac deployment. Flying at night had become the norm, and my comfort factor was high. My comfort ended when I heard the Hornet's "deedle, deedle," heard the beeping of the landing-gear-warning tone, and saw the light in the gear handle flashing. My section headed to marshal at 17,000 feet and 50 miles from the ship. After gathering my thoughts, I told the skipper—my wingman—the indications: empty airspeed and altitude boxes in the HUD (my primary attitude instrument); a beeping, flashing gear handle; and an intermittent NAVVEL caution. My air-data computer (ADC) had failed.

The ADC in the Hornet provides pitot static and barometric inputs to the flight instruments. After a brief but thorough discussion with the CATCC rep and my lead, we decided the velocity vector and INS-derived E-bracket should be reliable, and the radar altimeter would be accurate below 5,000 feet. We decided to fly a section approach. Naturally, it was moonless, with a 3,000-to-4,000-foot, overcast layer and scattered rain showers. I managed to keep sight of my lead in our descent through the clouds, and to fend off vertigo. We got below the cloud layer and finally were established at 1,200 feet, 10 miles behind the ship.

Suddenly, just as we lowered the gear in the section approach, the windscreen and the HUD completely fogged. I quickly was forced to fly exclusively off my lead, through the left side of the canopy. I fumbled to put the cockpit temperature knob to full hot and the cockpit defog handle to full forward. After I completed these immediate-action steps, I said, "Skipper, you're never gonna believe this, but I just went completely IMC in the cockpit."

His response was a somewhat comforting, "Well, we'll start down and make a decision at two miles or so."

We began our descent, and I loosened up to a more comfortable tacwing position, as I kept looking hopefully for the HUD and windscreen to clear. At two miles, my windscreen had cleared, but the HUD still was fogged completely. I updated my skipper, and, at 1.5 miles, he responded, "Well, it's your call."

The HUD still was fogged completely, and actually was glowing green. I foolishly had turned up the brightness, trying to achieve burn-through. The HUD also contained my only functioning source of AOA: the E-bracket. The Hornet's automatic-throttle control (ATC), which keeps the jet on-speed AOA for the approach as you adjust power with nose position, wasn't working because of the ADC failure. I, however, had trimmed the jet to on-speed AOA, using a memory address within the FCS for on-speed AOA. The external indexers also were not working, but I actually didn't know that until the LSO debrief. My response on aux was, "I'll give it a whirl," as I called the ball, "No-HUD 5.0," and my lead broke away.

My mistake of not flying a disciplined section approach in parade position cost me a low and lined-up-right start, even though CATCC had called my lead "on and on." I now was off to the races and started making a huge play for lineup and glide slope. The approach literally was like being in the simulator in Lemoore, when the console operator had told me the incorrect final bearing. As I made an aggressive lineup correction to the left, the fogged HUD obstructed the ball and the entire ship. I found myself craning my neck to the left and looking around the HUD, while flying the ball. I got a power call and somehow managed to get the jet over the ramp into the 1-wire, albeit with a good left drift. As I taxied out of de-arming, my

HUD completely cleared up.

During the debrief, I identified many things I could have done better. My biggest mistake was not terminating the approach and giving the HUD a few extra minutes to clear with the cockpit defog. Both jets had plenty of gas for a second section approach, and, most importantly, this delay would have broken the chain of events a mishap board inevitably would have developed. If I had been in the correct parade position, my start would have been much better, and my entire approach would have been much easier and safer. My next mistake was communicating nothing other than the initial ADC failure with paddles or CATCC. I didn't have much time to make my decision, but there would have been if we had discontinued the approach and had given the HUD time to defog. At a minimum, I could have told paddles my velocity might be unreliable because of the ADC failure.

I learned the ECS in the Hornet receives inputs from the ADC. Had I put the cockpit temperature knob to warm or anywhere other than full cold, and had I placed the defog handle full forward instead of leaving it full aft, where it had been since takeoff, the warm, humid, Hawaiian air may not have caused such drastic fogging of my HUD. Last, I realized I never had practiced this type of no-HUD, no auto-throttles approach, with no indexers, during nearly four years of FCLPs in Lemoore. Having done this "circus pass" at least a few times would have made me slightly more comfortable.

I learned later that night the 1-wire was stripped because of my off-center engagement, but I considered myself fortunate to have caused only that damage. Hindsight is always 20/20, but, in this case, I just was happy to have landed without hurting anyone or the jet. 

Lt. Fitzgerald flies with VFA-113.

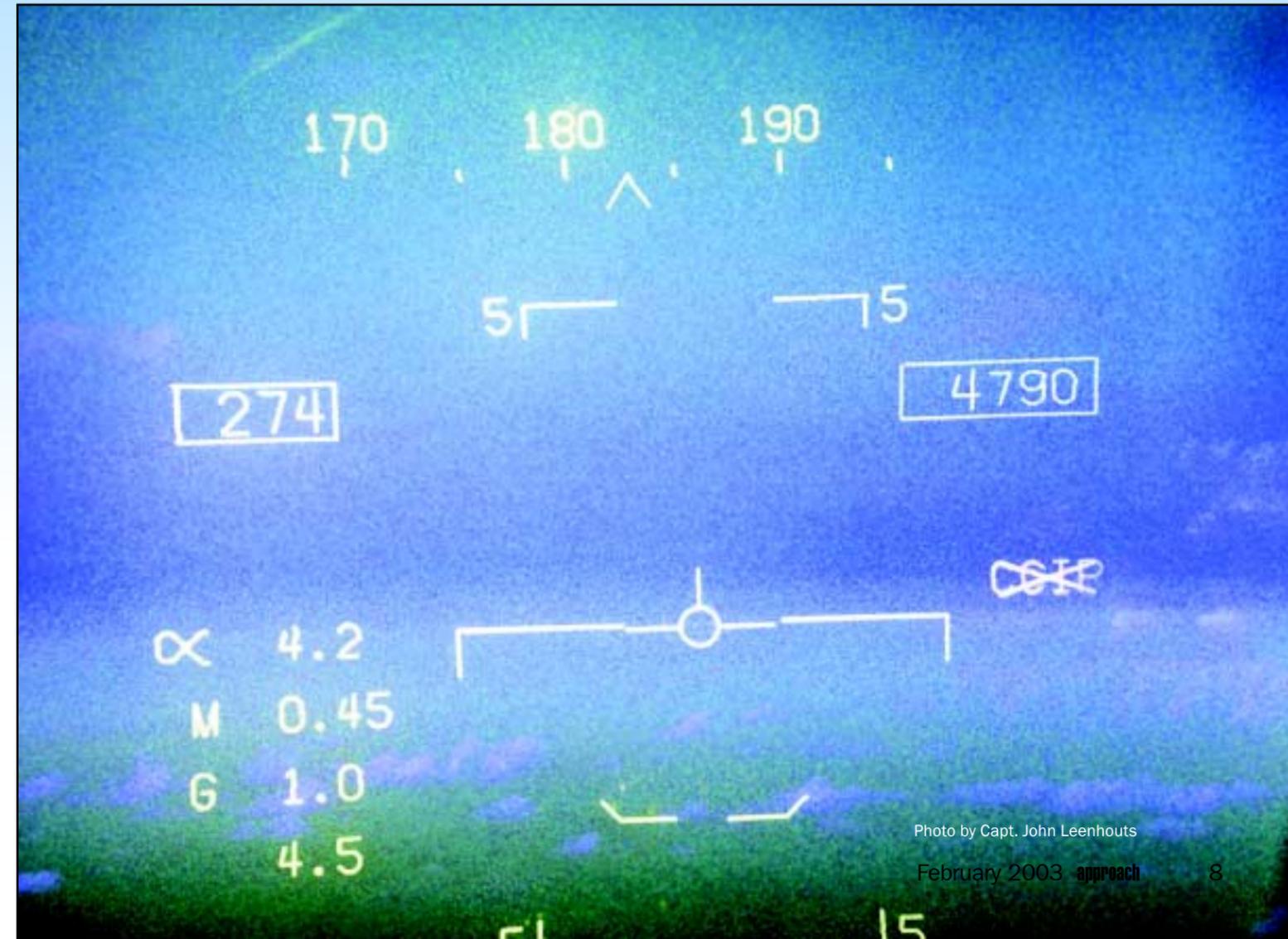


Photo by Capt. John Leenhouts