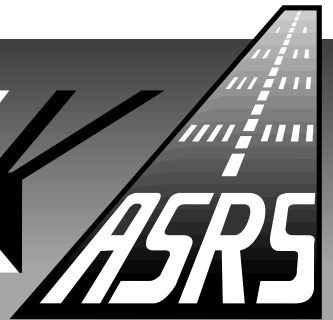


CALLBACK



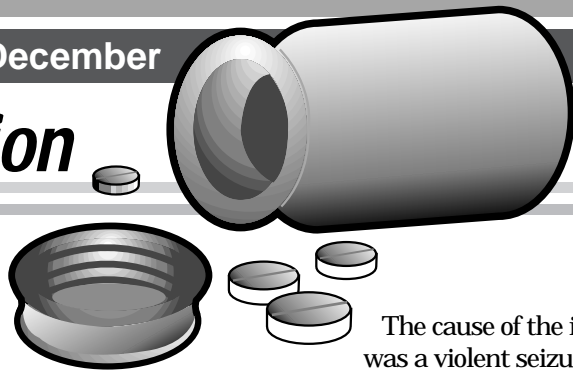
From NASA's Aviation Safety Reporting System

Number 198

November/December

1995

Flight Crew Incapacitation



Serious medical incapacitation of a flight crew member occurs infrequently. Still, ASRS receives reports from pilots who have been adversely affected by illness, medication, food (or its lack), blood donations, hypoxia, and other causes. What follows is a sampling of some of the most interesting and educational reports recently received by ASRS.

Subtle vs. Profound Incapacitation

A textbook example of subtle incapacitation, noticed but not clearly defined by either the ill Captain or his concerned First Officer, is the subject of the next report:

■ *All preflight duties and initial takeoff normal. During the en route climb, I had to remind the Captain to reset his altimeter, as well as insist that he participate in altitude awareness procedures. Small portions of the Captain's speech became unrecognizable. I took control of the aircraft, and advised the Captain that I would fly the remainder of the flight. The Captain agreed, however, his actions indicated that he wanted to participate. Not wanting to create a confrontational atmosphere, I asked the Captain to get the ATIS and the approach plates. These tasks became too difficult for the Captain to accomplish. An uneventful landing was accomplished.*

The incapacitation was very subtle, with the Captain going into and out of a completely normal state periodically. He wanted to "help" with the flying when he was not lucid. I wish that it had been a sudden and complete incapacitation, as this would have been easier to recognize and deal with.

Kudos to this First Officer for keeping a calm and cooperative atmosphere on the flight deck during this episode. The Captain was later diagnosed with a serious systemic infection.

In a report describing profound incapacitation, a First Officer found its sudden onset no easier to cope with than the previous reporter's encounter with subtle incapacitation.

■ *We had started the final descent to the ILS. The Captain was flying the autopilot. ATC gave us a heading change. I acknowledged, but noticed that the Captain was not turning the heading knob. I repeated the heading change to him, and he reached for the airspeed knob. I asked him if he was OK. He suddenly started shaking all over and...pushing on the rudder and leaning on the yoke. I quickly started to counter his inputs as the autopilot disconnected.*

When the flight attendant came in, I was still wrestling with the controls. The Captain suddenly went limp, but with his leg still pushing on the rudder. A doctor sitting in First Class came up to help move the Captain out of his seat. In the meantime, I had declared an emergency and requested a turn to final. By then, the Captain had wakened and was fighting the doctor and the Flight Attendant to get back up. [Eventually], they secured the Captain.

The cause of the incapacitation was a violent seizure which required further medical treatment. This type of incident is fortunately rare, and the flight crew and cabin responded well, using all crew and medical resources on board. The crew might have found it easier to help the Captain if seatbelt extensions had been available, which can be used to secure persons and large objects.

The First Officer added that all his previous training had discussed only subtle incapacitation, in which the crew member would "fade away," but not become violent. As a result of the First Officer's experience, his air carrier will be addressing violent incapacitation in future training sessions.

An Unnerving Experience

A commuter First Officer reporting to ASRS described an incapacitation hazard involving prescribed medication. Our reporter had received a physical exam from a doctor who was not an Aviation Medical Examiner. During the exam, the doctor prescribed a tranquilizer. The reporter continues:

■ *...I inquired if this medication would affect my flying performance or my job. [The doctor's] opinion was that it would not affect either. Based on what I thought was his "expert" opinion, I agreed to take the medication. I flew for approximately 1-1/2 months while taking the medication. I did not notice any side effects of the medication either on or off the job...*

[Several months later], I went to the local Aviation Medical Examiner in order to obtain a First Class Flight Medical Certificate. When filling out the paperwork, I indicated that I had been taking the [tranquilizer]... Upon reading this, the A.M.E. notified me that he could not issue a medical certificate and that I should contact the FAA Aeromedical Branch. Upon contacting the FAA, I was notified that the tranquilizer was a disqualifying medication [and] that I would need to be off the medication for 90 days in order to receive a medical certificate. I immediately...notified my employer of the situation. I was taken off flight status pending the reissuance of my medical certificate...

Our reporter concludes, "A pilot should always seek the advice and expertise of an A.M.E. before taking any medication of any kind." One excellent reason is that Aviation Medical Examiners have a list of medications that are prohibited by the FAA. The reporter attributes naiveté about the tranquilizer to inexperience with all types of medication. ▲

ASRS Recently Issued Alerts On...

An arrival/departure conflict over Seoul, Korea
Fire warning and autoland malfunctions on two A-320s
Target correlation problems with two ATC radar systems
Collapse of a Boeing 767-300ER landing gear during taxi
Non-uniform depiction of speed restrictions on SID charts

A Monthly Safety Bulletin
from

The Office of the NASA
Aviation Safety Reporting
System,
P.O. Box 189,
Moffett Field, CA
94035-0189

September 1995 Report Intake

Air Carrier Pilots	1591
General Aviation Pilots	699
Controllers	83
Cabin/Mechanics/Military/Other	38
TOTAL	2411

Navigation Mishaps

Bird strikes are a common occurrence at this time of the year, due to heavy migratory activity. In our first report, a general aviation pilot belatedly figured out how to “duck” bird strikes:

■ *Entering downwind...in a nose-high attitude to slow for gear extension. At 800 feet AGL, a flock of about 20 ducks came into view, rising. I started evasive action. The flock scattered and we impacted multiple ducks. One duck shattered the windscreen and ended up in the back seat. Headsets were knocked off, eliminating communication. Added power to maintain airspeed...gear extension on final, no flaps...landed without incident. No injuries.*

Due to nose-high attitude I had no view of the ducks rising from below me. Loss of communication was very unsettling. When the windscreen came out, [there was a] major airspeed loss. It would have been very easy to stall at 800 feet AGL. Even more power was needed when the gear was extended.

As a partial remedy, the reporter suggests slowing gradually and keeping the nose low to improve visibility. Turning landing lights on during final approach may also help birds see and avoid aircraft.

Another pilot, reporting an equally damaging bird strike, observed tongue-in-cheek that there is only one way to prevent such incidents: “Enact federal regulation requiring all birds to be equipped with transponders and TCAS.”

Be advised that most birds are already squawking.

...and Gadgetry Notes

Unlike birds, which navigate by following their instincts (with sometimes disastrous results, as noted above), pilots often rely on electronic navigational systems. These, too, are subject to error, as this GA reporter can attest:

■ *While on a routine flight...I had been receiving advisories from Center, but was terminated due to traffic saturation in that sector. I continued navigating [using RNAV] to a point...which would keep me just south of the Restricted Area. I checked my sectional chart to confirm my RNAV waypoint, and found no error. However, when I cross-checked my position with the #2 radio, I found my position well into the Restricted Area. I turned immediately to vacate the area. I continued without further incident. I had the VOR-RNAV unit inspected, [and] the radio was found to have substantial error both in the aircraft and later when tested at an avionics repair station.*

FAR 91.171 requires VOR units used for IFR flight to be checked for bearing error within the preceding 30 days. As this reporter learned, even for VFR flight, an accurate VOR receiver can be critical.

■ *In cruise, approaching XYZ VOR, Center asked if we showed on course. The FMS showed us on course. We*

checked the VOR coordinates and they were correct. Upon switching to the [VOR] radio, we realized that we were left of course. Center told us that, if we continued on our course, we were going to pass west of the VOR by about 13 miles, instead of passing over it. Center then gave us “direct [intersection].” We used the FMS to go direct and checked the coordinates in the FMS, which were correct. Then, the aircraft turned too far to the left. We went back to the radio and intercepted the XYZ arrival. We checked the FMS again, and it indicated that we were 7 miles right of course. [With help from Center], we continued inbound and landed. We asked the Flight Attendants if anyone in the cabin was using some type of electronic equipment. They said that there were several people playing electronic games.

The navigation errors could have been caused by the portable electronic devices in the passenger cabin, or by a malfunction or calibration error in the FMS. Normal operating procedure is to verify FMS information with any other operational systems, such as VOR or DME.

(Almost) Lost at Sea

A widebody crew, relying solely on dual Omega Navigation Systems for overwater navigation, encountered repeated errors in the system. The Second Officer reports:

■ *The #1 Omega went into and out of ambiguity mode several times during the flight. The difference in distance [reading] between the two units was 4 miles or less. Approximately one hour out of our destination, both Omegas went into ambiguity and diverged to a greater degree, approximately 10 miles apart. We asked Center for a radar ident...and were approximately 10-15 miles from our indicated position. Center then gave us vectors and the flight landed normally. At the ramp, the Omegas were found to be 15 and 14 miles off, respectively. Reliability has been virtually 100% during the Spring, Summer and Fall. However, during the Winter, [these] instances have been common.*

In this instance, the Omega unreliability was apparently caused by wintertime sunspot activity that created polar disturbances. These disturbances can affect the Omega Very Low Frequency (VLF) propagation. ▲

To Our Readers

Because of severe production delays related to the recent government furlough, the November and December *CALLBACKS* are being combined into this single issue (#198). Regular monthly production is expected to resume in January 1996 with issue #199.

861

BULK RATE
POSTAGE & FEES PAID
NASA
Permit No. G-27

Official Business
Penalty for Private Use, \$300

Ames Research Center
Moffett Field, California 94035-1000

National Aeronautics and
Space Administration

