

# CALLBACK

From NASA's Aviation Safety Reporting System



Number 258

February 2001



## The Experience-Procedures Feedback Loop

Procedures are a means of communicating the wisdom of experience in a standardized form to operators. But procedures may need to be revised when incidents and accidents demonstrate their weaknesses. This continuous reinforcement loop between experience and procedures is one of the most important safety tools in aviation.

A Captain's report to ASRS describes the dangerous situation that developed for a Lear-60 crew when a procedural oversight by maintenance was amplified by a flight crew oversight during pre-flight.

■ Upon arrival, I...checked our aircraft's flight log to make sure that the previous day's maintenance work was done properly and signed off correctly... After determining that the...paperwork was correct, I went out to assist the co-pilot [with pre-flight checks]... This was a position leg with no passengers on board the aircraft.

The discrepancy was that our oxygen system needed to be topped off to remain in the required limits. When the mechanic fills the oxygen system [he] must turn off the oxygen flow to the crew and the passenger masks. Then after the oxygen is topped off, the mechanic opens the valve and once again passenger oxygen [is] available to passengers and crew...

I asked my co-pilot if the pre-flight had been accomplished. He stated that it was and we prepared to leave. After takeoff we were cleared to 18,000 feet. Upon reaching 18,000 feet,

I...proceeded to accomplish the transition level checklist. When doing this a visual check of the oxygen pressure gauge as well as checking the crew oxygen mask is required. I did this and did not receive a positive flow of oxygen to my mask. The co-pilot checked his and again received no oxygen pressure. Thus we requested a lower altitude which was given to us. I asked the co-pilot if he had performed the pre-flight check which required him to test both crew member oxygen masks. He said he thought he had, but it was obvious he had not... The reason for this was that he was distracted by ground crew who were bringing beverages and ice to the aircraft.

This Lear 60 has a nose compartment oxygen system... In [this]...system the oxygen indicator will read the oxygen bottle pressure, even if the valve is turned off and the crew masks are tested. When I boarded the aircraft to prepare for takeoff, I looked at the oxygen indicator and it showed a normal oxygen level...I, however, did not test my mask on the ground.

I believe each crew flying...should know where their oxygen system is located and its operational characteristics... It is now company policy for both crew members to check the crew oxygen masks [during pre-flight].

It appears the maintenance technician who serviced the oxygen did not open the shutoff valve after servicing the bottle. The flight crew did not check the oxygen masks for flow until 18,000 feet MSL – a potentially lethal situation had they not detected the problem in time. ▲

## The Tie That Binds

A First Officer reports an unusual event involving what air crews commonly refer to as a "crotch strap" – a part of the seat harness that passes between the legs and snaps into the seatbelt portion of the harness. This same type of restraint is called a "submarine strap" in car racing because it keeps the driver's body from "submarining" under the panel during a crash. Here's what happened:

■ Flight departed block late followed by normal Before Takeoff checklist...[This included] elevator control tab check by both Captain and First Officer simultaneously full aft, then full forward, while confirming associated movement of elevator... This was accomplished. No abnormalities noted. As takeoff was initiated Captain called "80 knots." I accomplished "elevator checks" but noted a somewhat different feel of yoke as if there was a rubbing or stiffness [in] yoke elevator. I checked the elevator two more times feeling the same stiffness, but having elevator authority I elected to continue the takeoff as we were approaching V [speeds] rapidly. On climbout I asked the Captain to take the flight controls after we had been 'cleaned up' and cleared on course

for 2-3 minutes. He took the flight controls and felt the same rubbing or stiffness of the elevator and immediately said we are going back... Normal approach and landing and taxi into blocks [were made]...

The next day one of our assistant Chief Pilots informed the Captain and me that...[my] crotch seatbelt was found in the floor in the slot where the yoke sits... Having never worn the crotch belt (between the legs of the 5-point harness) and having had numerous check rides, line checks, simulator supports on type rides, and having never been corrected to the contrary, and having never witnessed our own Captains using this part of the harness, I thought it was optional. I must confess I had tried it on before but did not use it because of the discomfort... A different assistant Chief Pilot suggested I should start wearing the belt, which I do [now].

The unused belt was only part of the problem here. The control column seal in this older aircraft (DC-8) was apparently not maintained properly, allowing the unused belt strap to become caught in the base of the column. ▲

### ASRS Recently Issued Alerts On...

False warnings of smoke in a CL65 cargo hold
B737-200 uncommanded yaw during takeoff roll
Non-compliance with DC9 radome repair procedures
Multiple reports of false GPWS / EGPWS terrain warnings
Late arrival clearances and runway changes at an airport

A Monthly Safety Bulletin from

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

<http://asrs.arc.nasa.gov/>

### December 2000 Report Intake

Air Carrier / Air Taxi Pilots	2051
General Aviation Pilots	566
Controllers	56
Cabin/Mechanics/Military/Other	166
<b>TOTAL</b>	<b>2839</b>

# High-Stakes Flights from ASRS Files

Flight crews of multi-engine aircraft experiencing engine or system failures during flight often can proceed to destination without making a precautionary landing. The decision to do so is generally safe because of system redundancies, well-honed crew coordination procedures, and other factors. But when an engine failure occurs over water, safety margins can quickly shrink, as highlighted by this First Officer's report.

■ *During scheduled (overflow) flight over ocean, our aircraft suffered a catastrophic engine failure. Our Chief Pilot was acting as Pilot Not Flying (PNF) and Captain. After shutdown and feather of the #2 engine, we determined that the nearest suitable airport for landing was [on a Caribbean island]. I, as First Officer, recommended [this airport] for diversion as was required (flight to nearest suitable airport) by our company's ops manual. The Captain overruled this and determined that our flight should continue on to its next destination – maintenance base of operations [over twice as far]. Arguments made in defense of this decision included the following: (1) As Chief Pilot, the Captain felt a responsibility to return the flight to the maintenance base; (2) he did not want to spend the night away from home; (3) this was a [standby aircraft] that was not originally scheduled to fly.*

The First Officer implies that the Captain's decision was questionable, but the Captain may have had motivations other than those noted for continuing to the company base. The closest airport during an emergency may not always be the most "suitable" because of weather, crew familiarity with the airport, runway length, and other important considerations.

Hurry-up pressures are evident in this report from a flight crew that ignored safe operating procedures in a rush to take off:

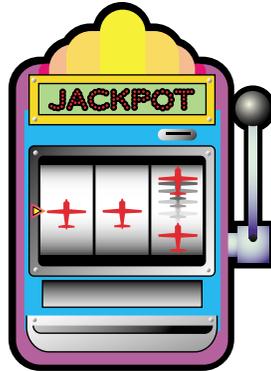
■ *The Captain's elevator trim was erroneous compared to the surface position indicator, First Officer's and normal revolutions from zero. It read from 4 to 12 units up at the takeoff range from the other indicators. It was decided to take off after discussion...with throttles above 50%. The takeoff warning sounded and takeoff was aborted at less than 20 knots. Returned to the gate for maintenance. Captain's trim wheel moved correctly but indicator plate was slipping. Fixed by maintenance and flight proceeded without incident.*

As Will Rogers said, "If you're riding' ahead of the herd, take a look back every now and then to make sure it's still there." ▲

## Investment in the Wrong Slot

A helicopter pilot with passengers bound for a casino depended too heavily on ATC for a steer to an alternate airport. That gamble not only didn't pay off, but led to an upsetting reception for all involved:

■ *...Ten miles outside [airport ABC] called Tower and gave them my intentions. I indicated we were coming in for overnight stay to go to local casinos. They gave me a squawk code. I idented and they recognized [aircraft]. They indicated that a local municipal airport was closer. I requested them to vector me to this airport. They indicated 3 miles...dead ahead on our current course. I asked for the frequency. They indicated 123.0. I called this frequency without response on three occasions. I tuned back to [ABC] to ask why no answer. They explained this is an uncontrolled airport. I tuned back to 123.0 and announced my downwind to traffic... On downwind leg I began to notice many B-52 bombers parked and no civilian aircraft in sight. I could not raise anyone on the radio and was unable to check map or GPS while over a populated area (needing both hands to maintain full control of the aircraft at low altitude).*



*I landed in an open wide area in plain sight in front of the Control Tower.*

*After sitting down, I tuned into the GPS and looked at map to find location was Air Force Base. I got their frequency and called the Tower to explain our situation. We were instructed to hold. Tower then came back on and said that we should shut down, that it was out of [their] control and up to security.*

*We were then taken into custody after being searched, handcuffed, and [the] aircraft searched by dogs. We remained separated in interrogation for 3 hours before release. Our stories all matched per the Investigators... Hopefully the controllers can utilize this information to realize how important they are to the pilot who is depending on accurate information to be conveyed.*

Our reporter was intent on getting his passengers to the gaming tables and didn't adequately prepare for arrival in the area. The ATC assistance offered may have been less than optimal, but the final responsibility for navigation belonged to the pilot – not to ATC. ▲