Attitude Indicator

Quarterly Safety Newsletter

From FSO's Desk

"May is the month when we complete 5 years of our operations by the Grace of Allah Almighty. The efforts of every member of our Vision Air Team have been instrumental in achieving this milestone.

It is almost eight months since we started 5 weekly flights between Karachi and Lahore in Sept 2010. We have added B733 and B742 to our existing fleet of B-732s. With these additions we can undertake a variety of operations to different parts of the world. These operations, though exciting but do pose new challenges too. The capabilities and limitations of the aircraft which are new to the fleet should be understood by everyone concerned before committing to any flight operations.

The summers are in full bloom and the monsoons shall set-in soon in the areas of our operations. Therefore extra care is advised to our team members responsible to extract performance from man and machine.

I congratulate the engineering department and all team members who are taking part in construction of our Maintenance Facility at JIAP, Karachi. This will surely go a long way in enhancing Safety in our Operations.

Good Luck and have Safe Operations."

False Localizer Capture

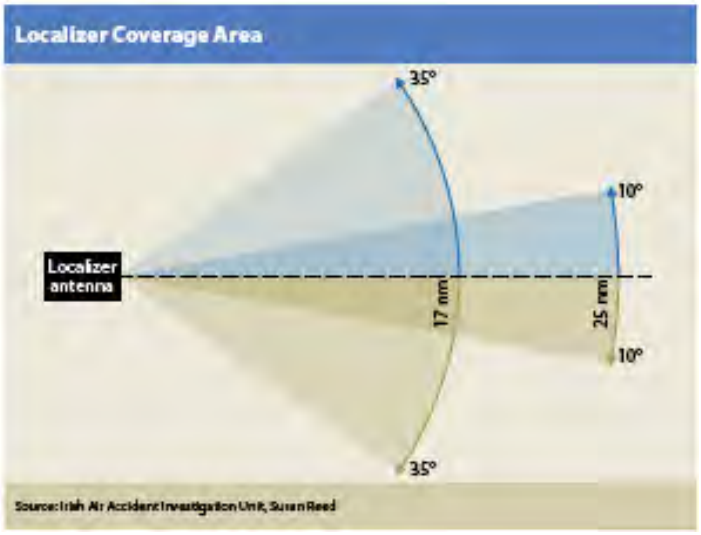
The localizer coverage area, as specified by the International Civil Aviation Organization, extends to a maximum of 35 degrees of the localizer centerline (Figure). Aircraft at an angle greater than 35 degrees from the centerline can intercept the false localizer signal. Such signals — also called "false courses" — are normal byproducts of ILS signal generation and are created at various angles outside the coverage area.' False localizer and glide slope signals also can be generated inside the coverage area during ILS maintenance and testing.

The False localizer capture situation was experienced by the crew of a Gulf stream with an intended destination of London Luton Airport. The crew comprised a contract pilot serving as captain and a company pilot serving as first officer.
The captain,45,had 12,500 flight hours, including 2,600 hours in Gulfstream. The first officer, 38, had 3,200 flight hours, including 200 hours in Gulfstream.

The reported weather conditions at Kerry Airport (Departure Airport) included calm winds, 8,000 m (5 mi) visibility in rain, scattered clouds at 1,000 ft and a broken ceiling at 1,400 ft. and there was convective activity in the vicinity of the airport.

The windshield of the Gulfstream cracked shortly after the aircraft was rotated for takeoff. The captain, the pilot flying, noticed abnormally high readings on the left-engine vibration monitor. He momentarily retarded the left thrust lever to idle, in accordance with quick reference handbook guidance, and the indicated engine vibration level returned to normal. All other engine parameters were normal.
The captain was initiating a turn, in compliance with the standard instrument departure procedure (SID), when the first officer radioed, "Sir, we have a cracked windshield, We are leveling off at three thousand. We would .like to come back to Kerry and Call you overhead at three thousand feet'
The first officer entered the airport waypoint in the flight management system (FMS), and the aircraft which was being flown with the autopilot engaged, made a 180-degree turn and began to fly a northwesterly heading back to the airport.
" The control tower at Kerry Airport was not equipped with radar, and the airport traffic controller asked for a position report. The first officer erroneously replied that the aircraft was 35 nm southeast of the airport. He most likely mistook the indicated distance to the next navigational fix on the SID, for the distance from Kerry(the departure airport). The Gulfstream actually, was about 10 nm southeast of the airport.
The controller again asked for a position report, and the first officer responded, 'Ah, we're turning inbound now; one zero miles inbound. The controller asked him to confirm that the aircraft was inbound on the localizer and the first officer said, "Turning back on the localizer now; one correction, niner miles inbound now" The controller then cleared the crew to conduct the ILS approach.
The autopilot, which was maintaining the selected altitude of 3,000 ft, commanded a left turn to a southwesterly heading after capturing the false localizer signal. The first officer announced that the course deviation indicators were "alive" and told the captain to begin a descent. The captain disengaged the autopilot and commenced descent, in cloud on a track approximately parallel to the ILS but 6 nm south of it.

The localizer was armed while the aircraft was outside the specific localizer coverage sector;
• "The captain commenced a descent' without having a valid ILS [instrument landing system] signal and without cross-checking other available navigational aids [and]
• The situational awareness of the controller in Kerry Tower, was compromised by erroneous position reports from the crew and noncompliance with his instructions, as well as a lack of direct radar information"



Shortly after that, the tower controller requested another position report and the First Officer replied "Coming up on the localizer, ah, seven DME" — that is, 7 nm. The tower controller should have realized that the crew's position reports were inconsistent and inaccurate, and that they had deviated from his instructions. The controller recognized it but felt that the crew was under immense pressure and it was not prudent to challenge them about their noncompliance with his instructions.

Both navigation displays were in the weather radar map mode. If at least one of the displays had been in the EGPWS map mode, the pilots might have realized that they were heading toward terrain rising above 3,000 ft in their Flight Path instead of tracking the final approach path.

"It is fortunate that the descent was made over ground that was relatively low-lying in comparison to much of the terrain in the vicinity of EIKY'

Likely believing that he needed to capture the glide slope from above, the captain established a descent rate of 1,300 fpm and then called for the landing gear to be extended and the flaps to be extended 20 degrees.
Fortunately, Shannon Center radar controller, who was monitoring the flight but was not in radio communication with the crew, phoned the tower controller and told him that the Gulfstream was about six miles south of the localizer at 1,600 ft. The radar controller said, "Climb him immediately, please"
The tower controller advised the crew of their position and said, "Climb immediately to 3,500 ft' . About the same time, the EGPWS generated an alert that the Gulfstream was at a radio altitude of 800 ft.
The aircraft was in a climb when the tower controller handed off the flight

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to a Shannon Center controller, who instructed the crew to climb to 5,000 ft and issued a heading away from the rising terrain. About six minutes later, the controller issued a heading for a vector toward the localizer course.
The first officer, who had flown only 1.4 hours in the preceding 28 days, had difficulty in programming the FMS for the ILS approach. He initially entered an approach to Runway 26 at London Luton (the schedule destination airport for which the flight was being undertaken on that day).
The Shannon controller told the crew to turn left, navigate directly to VENUX (the ILS final approach point), establish the aircraft inbound on the localizer and descend to 3,300 ft when ready. (The glide slope intercept altitude was 3,000 ft.)
"However, the aircraft did not turn left toward VENUX or descend but maintained the heading. "As it passed through the localizer, it commenced a right turn. This was followed by a left-hand orbit to the north of the localizer' At this time, the crew reported that they were having problems with the FMS and requested clearance to maintain their current position. The controller cleared the crew to circle, provided the ILS approach frequency and offered radar vectors to the final approach course. The crew accepted the offer, flew the ILS approach and landed the aircraft safely.

Lessons to be learnt

- Donot be in a hurry to Arm the localizer.
- Always cross check with other aids to ascertain that ou have not captured false localizer.
- If in doubt, switch back to Nav mode and re-arm the localizer.
- Be always mentally prepared for a false localizer capture and commence approach when 100 percent assured of a true localizer capture.

Bird Strike and Damage Control

Mid-size to large birds can penetrate the windshields and can cause pilot incapacitation or disorientation, resulting in loss of control. The drag caused by the loss of the windshield has also resulted in accidents because enough thrust is not always available to overcome the huge drag increase. Likewise, collision-caused deformation of wing or tail surfaces can increase stall speed considerably and affect handling qualities, especially at slower speeds.
Other aspects of the problem have received concentrated attention and reduced hazards on airports. While not always properly implemented, well-developed and documented standards exist for airport habitat management, means for deterring wildlife from entering airfields, active dispersal of birds and other wildlife, and even lethal methods when population control must be employed.
Such efforts must continue and be constantly monitored, but these strategies will not solve the problems of off-airport hazards, communication failures, inadequate pilot training and procedures, or lack of operational guidelines by aircraft owners and regulators that led to many accidents. What is missing is a comprehensive, integrated plan that involves all parties: airports, aircraft operators, air traffic controllers, aircraft and engine manufacturers, regulators and others.

No aviation hazard today is successfully mitigated without effective policy guidance for flight crews and adherence to that policy.

In many low-altitude scenarios, the commonly used response is to increase thrust and climb to avoid the hazard. But the problem with this technique in connection with bird encounters is that it increases the kinetic energy of impact, which equals one-half of the mass times velocity squared. In this case, velocity is determined by engine rotation. By selecting maximum allowed thrust, the crew places the engine at risk of a high-energy collision, almost guaranteeing damage.

A better technique based on current guidelines for confronting large flocks of birds close to the airport is to fly through the flock at low engine rotation speed, allowing the engine to bypass the bird remains around the engine core without cascading damage to the compressor blades.

In another serious event the crew while taxiing, observed a large number of gulls on the runway and in their departure path. The crew discussed the situation but did not report the gulls, ask for bird dispersal prior to takeoff or delay takeoff waiting for the birds to move. Instead, they took off into the birds and ingested gulls into both engines, the impact causing serious vibrations and significant loss of thrust in both engines. The aircraft was returned safely, but both engines were damaged beyond repair.

Similarly, in another incident the crew were warned that large birds were in their departure path by the airport traffic controller and by the crew of another aircraft that preceded them, yet the crew took off, and bird strikes damaged their aircraft. The Air lines reportedly had no policy for its crews to mitigate this hazard.

Hazard avoidance is superior to application of emergency procedures. Avoidance can take a number of forms, many of them simple and cost-free. If birds are in the takeoff path, the pilot should notify the airport operator and delay departure until the birds move or are scared away. Another alternative is to depart via another runway that is free of hazard. Likewise, for landing, flight crews should use a different runway if birds are reported on the landing runway. Or go around and wait for the birds to leave,

The majority of bird strikes occur below 3,000 ft. If departing from an airport in a high-bird-threat environment, jets should use International Civil Aviation Organization Noise Abatement Procedure. This rapid climb to above 3,000 ft above ground level would, in all likelihood, reduce the chances of bird strike. General aviation aircraft should depart at best angle-of-climb speed. Those techniques enable the aircraft to clear the hazard zone below 3,000 ft faster and climb at a lower speed, which can lessen the severity of impact. When landing in an area of high bird activity, the aircraft should remain at 3,000 ft or above if possible until necessary to descend for landing.
If birds are encountered en route, on climb or descent, the flight crew should pull up — consistent with good piloting technique — to pass over the birds. If birds see the aircraft, they will treat it as an obstacle, but may misjudge the closing speed because the threat is usually beyond their experience. Birds may turn or dive as avoidance maneuvers, but they rarely climb. So pulling up is the best and fastest avoidance maneuver.
If the aircraft Is capable of high- speed flight at low altitude ... don't do it.

The heated windows should resist a gull or duck, larger birds may penetrate them or shower the pilots with glass as the inner pane of the window spalls or shatters. Likewise, the small bird that bounces off like a tennis ball when struck at slower speed suddenly becomes a bowling ball when struck at high speed. Below 10,000 ft, limit aircraft speed to 250 kt indicated airspeed or less.

News in Brief

First Interdivisional Coordination conference was held in Ramada Hotel, Karachi on 9th April,2011.
All Divisional Heads, General Managers, Station Managers from Dubai, Karachi, Lahore, Islamabad and available Aircrew and FOOs participated in the conference headed by the President/CEO Capt Aijaz Ali Faizi

President/CEO appreciated the good work of all the participants and stressed on the need of greater coordination in view of expanding operations. Continuous improvement in Safety, Quality Assurance and Efficiency remained the main focus of the conference.

President / CEO decided that such conferences will be held regularly in future as well.

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