OAS-35A
(4/18)

Interagency Aviation Lessons Learned

Subject: Flight Safety

Area of Concern: In-Flight Distractions

Distribution: All Aviation Operations

Discussion: Last summer, an Aero Commander AC-690B aircraft sustained substantial damage when it landed gear-up on a runway soon after takeoff. There were no mechanical issues with the aircraft, and the gear was observed up and locked with no damage after the accident. There were no injuries.

You may be wondering, "How does a perfectly good airplane land gear up right after takeoff?"

The simple answer: **Distraction!**

The aircraft was dispatched on an Aerial Surveillance mission for an Alaska State fire. After the takeoff run and liftoff from the 8,575-foot runway, the pilot noted a positive rate of climb and selected the landing gear control lever UP. Immediately after, the pilot and Air Tactical Group Supervisor (ATGS) heard a loud noise in the cabin. They both turned and looked aft to determine the cause. An unsecured 1-gallon plastic jug of water was seen sliding back along the floor of the cabin. When the pilot and ATGS turned back to the front of the aircraft, they each noticed that the pitch attitude was much lower than the usual takeoff attitude and the aircraft was settling. Soon thereafter, the aircraft bounced hard on the runway during the landing gear retraction cycle. The pilot decided to abort the climb and committed to a landing because there was ample runway available to stop and he was unsure about the condition of the aircraft structure. The pilot stated the landing gear was in transit and there was not enough time to reselect and activate the gear down before landing. The aircraft settled onto the belly and slid almost the entire length of the runway as the engines were secured, which resulted in substantial damage to the lower structure of the fuselage.

Lessons Learned

1. **Distractions**. Distractions during a critical phase of flight, such as takeoffs, landings, and low-level maneuvering, are a serious and yet common occurrence. Dropped pens, spilled drinks, personal electronic devices (PEDs) have contributed to the pilot or passenger induced distractions. Even unnecessary crew communications can distract from flying the aircraft. All crew members should adhere to sterile cockpit rules, secure all loose items, and brief normal and emergency procedures before a critical phase of flight so that every member of the crew or passengers can improve their

situational awareness. The NTSB published some great guidance and case studies on accidents caused by distractions. 2019-20-MWL1-Distraction-A.pdf.

2. **Aviate, Navigate and Communicate/CRM**. Even though the takeoff phase of a flight is relatively short, the pilot's workload is intense and requires full attention. Pilots learn from day one to "Aviate, Navigate and Communicate" as a method of prioritizing tasks in moments of stress. Maintaining positive control (aircraft attitude, airspeed, and altitude) is always the top priority. In this accident, the ATGS was able to see and advise the pilot that the distracting noise was a water bottle, and the pilot could have utilized sound Crew Resource Management (CRM) to remain focused on the climb out procedures.

3. **Power Lever Friction Locks**. The pilot had the Power Lever friction set at low for takeoff, which may have allowed the Power Levers to creep back when the pilot removed his right hand from them to move the landing gear handle up and then turned to look at the back of the aircraft. While there is no manufacturer's guidance for what friction to set, it is prudent to ensure engine control friction settings are sufficient to maintain a desired setting during each specific phase of flight.

4. **Landing Gear Retraction**. Pilots must consider many factors when deciding when to raise the landing gear, primarily adherence to manufacturer's procedures for the environmental factors present at that time, with due consideration for potential single engine performance and climb. The FAA Airplane Flying Handbook (FAA-H-8083-3C) Chapter 13, Transition to Multiengine Airplanes, provides the following guidance: *Normally, the gear should be retracted when there is insufficient runway available for landing and after a positive rate of climb is established as indicated on the altimeter.* For this accident, the runway length was 8,575 feet, and only 2,100 feet were needed to takeoff and climb to 50 feet. Had the pilot delayed the gear retraction for a second or more, the landing gear would have been down for the unplanned landing.

Summary. This incident underscores the critical importance of maintaining focus during high-workload phases of flight and ensuring all items—regardless of size—are properly secured. Distractions, even seemingly minor ones, can quickly escalate into serious safety events. By reinforcing sterile cockpit procedures, securing all gear, and adhering to established flight protocols, we can significantly reduce risk by enhancing focus on the critical components that impact flight safety.

Related Safety Documents

IA SA 23-01: Portable Electronic Device (PED) Safety and Security

IA LL 25-04: Human Factors - Startle Effect

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