Don't Let Your Flight Go A-Fowl

Keeping Your Metal Bird Free of Nests

FRANK CONWAY

Spring is a season of pleasant activity. Trees bud, flowers bloom, the mercury rises. To the chagrin of many pilots, though, spring is also the time when scores of our nested avian friends return from their winter roosts. Thankfully, there are many programs that can help aviators successfully avoid the hazard of an in-flight encounter with a bird or a flock of birds. However, another more subtle bird hazard lurks for the unsuspecting aviator — birds nesting in the aircraft engine compartment.

General aviation (GA) aircraft may sit idle on the ramp for weeks or even months at a time, making them perfect targets for nesting sites. That makes being proactive with bird-proofing your aircraft critical, as birds need only a few days to build a reasonably sized nest. While aircraft plugs and covers block most open access points, they do not completely seal the aircraft fuselage and engine compartments. GA aircraft with retractable landing gear may provide access to the engine compartment via the recess that accommodates the nose gear in flight. A bird that manages to enter the engine compartment from one of these openings can build a large nest in an area of the aircraft that is not specifically included on a preflight inspection checklist, and not easily seen in even the most thorough preflight inspection.

Photo by H. Dean Chamberlain

To highlight the insidious nature of these avian engineers, here's a look at an example of an undetected nest that may have had disastrous results. During a training flight, a certificated pilot rented and flew a single engine airplane with retractable gear. The pilot observed no anomalies during the 90-minute flight. A post-flight inspection of the aircraft found nothing unusual.

The next day, another pilot preflighted the same rental aircraft prior to his scheduled flight. During the preflight inspection, the pilot noted an area of burned skin on the lower engine cowling aft of the engine compartment louvers. This external indication of fire was not detectable until the pilot was close enough to check the security of the lower cowling fasteners. The fact that the second pilot almost missed seeing this burned skin underscores the point that it was not easily detected during the previous post-flight inspection.

Naturally, the flight was cancelled. A maintenance inspection revealed that a bird's nest had been located behind the cowling in an area not detectable during preflight. The fire had occurred during the previous flight, and it caused significant damage to the starter cable as well as possible damage to the engine mounts.

During the first pilot's flight, the bird's nest provided combustible material that most likely ignited after landing, when the air flow in the compartment was static and the nearby exhaust stack was likely to be at a high temperature (due to turbocharger bypass at lower power settings). The hazards associated with an inflight fire are significant, and good fortune prevented this potentially hazardous situation from ending with a more severe outcome.

To mitigate the dangers associated with bird nest construction, consider following these steps:

1. Although not called for in the preflight procedures, use an inspection mirror and flashlight aimed through any opening to get a better look at areas where bird nests can occur.
2. In addition to using the plugs provided by the manufacturer, consider developing custom, removable plugs properly tagged "REMOVE BEFORE FLIGHT" for all engine compartment openings large enough to permit birds to enter. (*Please note, however, that such action may result in bird penetration to other parts of the aircraft. Birds are very determined creatures that can fit through remarkably small openings. Each aircraft and situation is different, so every action you take should be specific to your particular aircraft.*)

Frank Conway is a former certification pilot with FAA's New York Aircraft Certification Office and is currently employed as an experimental test pilot with The Boeing Company.