CALLBACK

From NASA's Aviation Safety Reporting System

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A Maintenance Legacy

Aviation Maintenance Technicians (AMTs) bear the solemn responsibility of keeping our aircraft safe and airworthy, and on occasion, they assume additional duties during the course of a flight. Operating in what is commonly considered the most hazardous work environment, AMTs guard their own safety and that of co-workers, crewmembers, and passengers. Inquisitive and innovative, AMTs often quell threats and hazards before they become incidents and accidents.

In May, we often remember Charles E. "Charlie" Taylor, the Wright Brothers' legendary bicycle mechanic, who turned engine mechanic and became the country's first real AMT. Charlie was born on May 24, 1868 in Cerro Gordo, Illinois. His life is an iconic American story. In his tradition, ASRS honors and thanks all AMTs for their expertise and professionalism in maintaining America's aircraft.

This month, *CALLBACK* offers selected incidents that demonstrate significant impact, positive or negative, that AMTs can have on all flights. AMTs work tirelessly to mitigate or eliminate real and potential threats. Explore the narratives as you identify the issues and the actions taken by the AMTs involved.

Part 121 – Inflation Protection

Servicing a B767, this air carrier AMT calls for better safety and protections through new or updated functional inflation tools for all Technicians servicing aircraft tires with nitrogen.

■ *The tire inflation tools available for use when servicing tires with nitrogen do not allow for personnel to stand forward or aft of the tire that is being serviced. The fitting at the end of the hose has to be held onto the inflation valve by hand, thus meaning you have to stand in front of the tire during servicing. The AMM (Aircraft Maintenance Manual) reference states in a warning that "make sure that the servicing cart and all personnel are forward or aft of the tire before you do the servicing procedure. If the wheel comes apart, the pieces can cause damage to equipment and kill or cause injuries to personnel." The tooling we have doesn't allow personnel to stand forward or aft of the wheel. I have always felt uncomfortable using this tooling during this task, and so do several of my fellow colleagues. ...the tooling we have works well when new but with time and use it wears. Suggestion: Buy a different inflation tool that allows staff to stand where the AMM suggests during tire servicing, or keep the current tooling but change the hose, so that you are able screw the end of the hose onto the inflation valve.*

Part 91 – Documentation

The time on a life limited repair was exceeded when this corporate medium-large transport was flown without knowledge of the repair. The AMT/Inspector detailed the incident, its resolution, and the strict adherence to procedures that would have prevented this and other incidents like it.

■ *Released aircraft for service with exceeded life limited structural major repair of the R/H aft wing attach fitting that was previously installed. The repair was unknown at the time because no record of it was entered in the aircraft maintenance logs, nor was there a form 337 filed with the FAA. It wasn't until after the aircraft had been in operation for one season that an engineering order for the repair was discovered at the previous owner's location during a records search. The engineering order placed a life limit of 500 cycles or 1 year, whichever occurs sooner, on the repair with 100 hr. recurring visual inspections in the interim. Since its discovery, the repair has been evaluated with a damage tolerance assessment by a Structural Designated Engineering Representative and incorporated into our structural inspection program. FAR 91.417 states that any life limited item or item requiring recurring inspection shall be recorded in the aircraft maintenance records and 91.419 requires that owner operator who sells an aircraft to transfer the permanent aircraft records to the purchaser at the time of sale. I believe the failure to follow these rules by the previous owner/operator led to the problem we have today. Moving forward, documenting maintenance in accordance with FAR 91.419(a) in the permanent records such as the maintenance log books and submitting a form 337 would appropriately mitigate this problem.*

Part 121 – A Professional Referral

An air carrier AMT-qualified Ramp worker described an abnormal condition during pushback. Fortunately, the B777 returned to the gate, Maintenance was summoned, and a more serious incident may have been averted.

■ *Aircraft X landed in ZZZ.… The ramp and flight crew failed to notice a failed wheel bearing condition at the gate. Since local policy prohibits Maintenance personnel from performing routine Maintenance walk around inspections on turns, there was no Maintenance trained eyes on the aircraft. The aircraft was fueled, and passengers were boarded as normal. As the aircraft was being pushed back on to its next flight, a ramp employee noticed…what looked like smoke coming from the left Main Landing Gear (MLG). The aircraft came back to the gate and Maintenance was called to investigate. The Maintenance crew determined severe bearing failure conditions and took the aircraft out of service. The aircraft was towed to my hangar on 3 MLG tires only. The gate Maintenance crew was directed to remove the number 4 MLG tire for the ramp to move the plane.… Wheel / tire / landing gear failures are becoming a common occurrence. This aircraft was very close to departing again with a severely damaged MLG.…*

Part 121 – Treasures Lost

Air carrier AMTs made unusual discoveries performing emergency field service on a B757. Correcting the situation could easily have prevented a serious ensuing incident.

■ *ZZZ [Airport] field serviced the aircraft… Technicians were awarded emergency field service to ZZZ for aircraft 757-200 left wing dry bay leak. When tank access panel was opened, a large piece of FOD fell out of hole. Upon further inspection of left fuel tank boost pump pickup screen area, more FOD was found; appeared to be absorbent blankets totaling 4, each with a dimension of approx 32" in length and 14" wide. All FOD was removed from tank area. After a discussion with Maintenance Control, it was determined that an inspection of [center] and [right] main tank be accomplished. Upon opening [center] tank access panel, inspection of that bay revealed tooling left behind, some type of pick approx 4" long. Inspection of right main tank did not reveal any FOD, and boost pump screen pickup area clean. I would like to add that I have been a technician for over 15 years and over the years have found many items left behind by previous tank entries, but by far this discovery was one of the worst findings. This type of maintenance on our fleet is unacceptable and very concerning, not only to me, but all of us on the tank team. Thankfully this was found before the boost pump pickup screens became blocked, resulting in engine flameout while operation under ETOPS. Suggestion: If this was the result of a third-party contractor or vendor, they too should be held to the same quality control standards that all technicians are held to. These clearance to close protocols are in place for this very reason, and if not followed, could result in a much worse outcome.*

Part 91 – "…Wisdom Listens." – J. Hendrix

This FBO AMT listened while towing a Piper Seminole. Inquisitive and proactive, the Technician discovered and corrected a serious problem with the wheel assembly.

■ *During tow operations, I had noticed a noise coming from the left main landing gear. The wheel cover was removed, and the axle nut was found rolling loose inside of the cover without a safety device. I removed the wheel assembly and inspected for damage. Upon inspection I found that both wheel bearings were damaged. I cleaned and inspected the rest of the wheel assembly for any other damage, but no other damage was found. The wheel assembly was then reassembled with new bearings with appropriate grease, and a new tire tube. The wheel assembly was then reinstalled on the aircraft, and I ensured this time that the axle nut was tightened properly and a correct safety device was installed.*

Part 91 – Never a Dull Moment

Attempting the test run to complete a seemingly unrelated repair on a Premier 1 aircraft, this AMT discovered a second problem and a much larger surprise.

■ *Company Service Center [was] notified of hydraulic seal failure on Aircraft X. Company mobile service unit began addressing/performing maintenance; determining a filter seal located on the hydraulic power unit had failed. Company mobile service provider/mechanic, after assembling the aircraft hydraulic unit [and] prior to test running…notices he had left [the] aircraft generator in "ON" position overnight causing aircraft main battery to result in insufficient voltage to power aircraft. GPU (Ground Power Unit) was then used for unknown attempts for starting right engine. Starting sequence for Aircraft X is 2 attempts then 2 hours for cooling prior [to] a third attempt. … mechanic reports right engine N2 only spooling up to 24% N2 after inducing fuel. Company asked company mechanic to perform a borescope to the right engine. The borescope that Company performed indicated that the #2 turbine was missing fins to the internal component. …Company 2 determined that the engine was to be removed and sent to manufacturer for repair.*

The reports featured in CALLBACK are offered in the spirit of stimulating thought and discussion. While NASA ASRS does not verify or validate reports, we encourage you, our readers, to explore them and draw your own conclusions.

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UAS/Drone Safety Reporting

ASRS Alerts Issued in March 2025	
Subject of Alert	**No. of Alerts**
Aircraft or Aircraft Equipment	2
Airport Facility or Procedure	16
ATC Equipment or Procedure	14
Other	2
TOTAL	**34**

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March 2025 Report Intake	
Air Carrier/Air Taxi Pilots	5,496
General Aviation Pilots	1,660
Flight Attendants	1,635
Military/Other	943
Controllers	425
Mechanics	222
Dispatchers	195
TOTAL	**10,576**