



Interagency Aviation Lessons Learned



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Subject: Airtanker Base Ground Operations

Area of Focus:

Distribution: All Aviation Operations

Discussion: In recent years, there have been at least five fixed-wing aircraft involved in separate ground handling incidents while supporting fire suppression operations. In this Fixed-Wing Ground Handling Lessons Learned, we will discuss one of them.

On the evening of June 3, 2024, a ground incident involving a Type-1 airtanker occurred at a Forest Service Airtanker base. This airtanker and four hangar doors were damaged as a result.



An After-Action Review (AAR) was conducted, and the following factors were highlighted for further discussion:

- On the day of the incident, the airtanker was to be moved to day-off parking utilizing an established route (See Figure 1, on page 2). Although the route to day-off parking had been changed at the end of the 2023 fire season to accommodate SEAT parking, the aircrew, Ramp Manager Trainee (RAMP(t)) and Fixed Wing Parking Tender (FWPT) had all performed this ground movement before. The aircrew noted the route was still “newer” to them.
- The RAMP(t) was serving as the wing walker along the hangar side of the airtanker and, standing on the western end of the hangar, planned to move with the wing back to the east. The airtanker continued down the taxiway and onto the ramp toward the row of hangars. As the airtanker was turning left near the hangars, the aircrew reported the RAMP(t) in sight.
- The RAMP(t) indicated the right wing was clear with a thumbs-up signal as they walked back towards the east. At this point, the RAMP(t) turned their back to the aircraft to check for trip hazards, and when turning back to face the airtanker, the wing was already impacting the hangar doors.

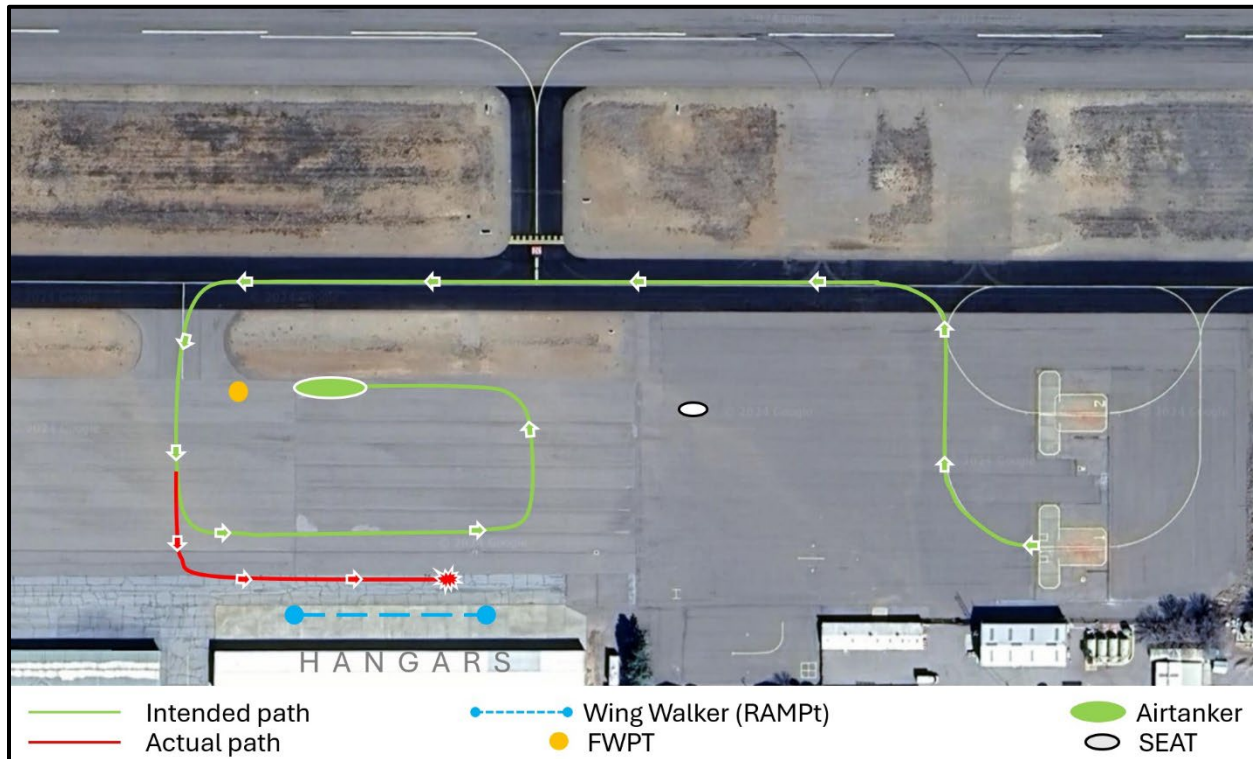


Figure 1 Actual and intended path of aircraft.

Other incidents involving ground handling of airtankers:

- 2014 DC-10 impacted air stairs ([SAFECOM #14-0446](#))
- 2016 DC-10 impacted hangar ([SAFECOM #16-0545](#))
- 2018 SEAT impacted hangar ([SAFECOM #18-0994](#))
- 2019 RJ-85 impacted blast fence ([SAFECOM #19-0354](#))
- 2019 DC-10 wing over helicopter ([SAFECOM #20-0040](#))
- 2022 SEAT impacted fence ([SAFECOM #22-0626](#))

There are many lessons learned from this and similar incidents that have occurred over the years that are worth repeating:

- An in-depth base and ramp orientation is critical for all personnel supporting airtanker base operations, but it is especially critical for those locations without permanent leadership or portable bases where leadership roles change frequently.
- Ensure all personnel involved in the ground movement of aircraft are fully aware of their roles and responsibilities. Don't hesitate to take a quick tactical pause to ensure everyone understands the plan and their role in that plan. Remember that "slow is smooth and smooth is fast." Complete an After-Action Review to provide continual improvement to operations.
- Be familiar with all types of aircraft utilized, emphasizing knowledge of length, wingspan, and characteristics specific to particular airframes (i.e., "wing growth" on swept wing aircraft). A simple pocket card/cheat sheet with aircraft specifications can enhance situational awareness for those involved in the ground handling of aircraft.

- Empower everyone involved in the ground handling of aircraft as part of a team. Utilizing effective Crew Resource Management techniques during all airtanker base operations can effectively reduce risk and increase operational efficiency.
- Continual use of available Quality and Safety Assurance tools will help ensure standardization of airtanker base training and operations, reduce risk to a level that is as low as reasonably possible, and provide feedback to leadership in an effort to maintain and grow an effective safety and learning culture.

NWCG Standards for Airtanker Base Operations, PMS 508 (SABO), specifies:

“Wing Walking is critical to airtanker base safety when the FWPT cannot see or judge the distances between the aircraft being parked and any obstacle nearby. Wing walkers add assurance to pilots as they taxi into parking areas that they have proper wing clearance to advance. Wing walking is a duty, not a position, but should be performed by FWPTs or other ramp personnel involved in the movement of aircraft.

- Wing Walkers should understand their roles and responsibilities before undertaking the assignment. RAMP, FWPTs, and Wing Walkers shall brief roles, responsibilities and the plan or action before performing operations requiring wing walkers.
- Wing Walkers are required to be used anytime any part of an aircraft is within 30 feet of an object over three feet in height.
- Stop the operation by using the emergency stop signal (crossing arms) and/or utilizing the radio before any part of the aircraft comes within 10 feet of an object over three feet in height.
- Maintain depth perception awareness and watch for wing growth and tail swing as aircraft turn.
- It is the wing walker’s responsibility to inform the FWPT marshalling the aircraft or pilot and stop the operation by crossing their arms in an Emergency Stop Signal and/or utilizing the radio before any part of the aircraft comes within 10 feet of an object over three feet in height.
- Stop an aircraft if unsure of clearances and assess the situation.” PMS 508, page 18.¹

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¹ NWCG. (May 2024). NWCG Standards for Airtanker Base Operations, PMS 508. Page 18, <https://fs-prod-nwcg.s3.us-gov-west-1.amazonaws.com/s3fs-public/publication/pms508.pdf>