



Pacific Southwest Aviation Lessons Learned



Event Description:

At approximately 1620 PDT on July 12, 2014, there was a report of a Legacy Airtanker (AT) and a NextGen Airtanker that came within 400 feet of each other while approaching the Porterville Airport (KPTV). The two aircraft had been supporting the Nicholls Fire on the Sequoia National Forest with retardant drops, and were returning to load at the Air Attack Base (AAB), in Porterville, CA when the incident occurred.

The FAA defines a near mid-air collision as any incident associated with the operation of an aircraft in which a possibility of collision occurs as a result of proximity of less than 500' to another aircraft, or a report is received from a pilot or a flight crew member stating that a collision hazard existed between two or more aircraft.

Conditions:

Location: 15 nm SE of Porterville Airport, CA

Mission: Retardant Drop; Load and Return

KPTV Airport: Uncontrolled

Injuries: None

Weather: VFR and Clear

Sequence of events

July 12th -The Nicholls Fire was being managed by a Type 2 Incident Management Team (IMT) and Aerial Supervision was being provided over the fire, within the Fire Traffic Area (FTA). The Legacy AT departed Porterville AAB ahead of the NextGen AT for the Nicholls incident. The Legacy AT contacted the Aerial Supervision platform and entered the FTA to join up with the Lead Plane, closely followed by the NextGen AT. The Legacy AT was first in the sequence to complete the retardant drop on the fire and was then instructed to "load and return". The NextGen then tagged and extended the retardant line of Legacy AT line and was also instructed to "load and return". Both aircraft departed the FTA for the Porterville AAB (Legacy ahead of the NextGen).

As the two aircraft were returning to the AAB at the Porterville Airport (an uncontrolled airport) both flight crews made their calls over the CTAF to announce their positions. When the pilots of the Legacy AT heard the NextGen AT announce their position of "15 miles out" at that moment the Legacy AT crew knew they also just announced their position "15 miles out". The TCAD (Traffic Collision Alert Device) simultaneously reported traffic on the display and over the intercom. The NextGen AT then descended directly over the top of the Legacy AT. The Legacy AT flight crew reported that the TCAD displayed 400 feet vertical separation and confirmed it visually. The Legacy AT Pilot-in-Command took action to obtain separation from the NextGen AT avoiding the possibility of encountering wake turbulence. The NextGen AT crew did not receive a resolution advisory (RA) on their TCAS (Traffic Collision Avoidance System) and proceeded to the airport, unaware that an incident had occurred. Both aircraft landed without further incident.

July 13th - A Washington Office Airtanker Compliance Team was conducting scheduled audits in the area, which happened to include the Porterville AAB on the day after the incident occurred. During the audit the pilot of the Legacy AT informed the team about the incident that took place the previous day. The acting National Airtanker Program Manager (member of the Compliance Team) immediately contacted the Regional Aviation Safety Manager (RASM), and additional notifications were made. This incident had not yet been reported and was unknown, until the coincidental Compliance Team visit.

Agency Response

July 14th – After completing the NextGen AT audit in the morning, the acting National Airtanker Program Manager took the opportunity to discuss the incident, reported by the Legacy crew. The NextGen crew was not aware that this event had occurred two days prior. The NextGen crew was open to discussing it with the Legacy crew, which commenced immediately after the NextGen audit was completed. The Regional Aviation Safety Manager (RASM) notified and reported the incident to the Washington Office and in coordination determined a written document outlining lessons learned was appropriate. The Region formed a team who collected statements and documented the After Action review. A SAFECOM was also submitted by the Legacy Flight Crew.

LESSONS LEARNED

Although this incident occurred on the approach to landing at an airport, and not during retardant drop operations over the fire, the lessons can be extrapolated and applied to all fire operations to enhance flight safety.

Timely Reporting of Incidents: In any situation where safety is compromised or a safety issue emerges---it must be brought to the attention of the parties involved as well as appropriate Regional Aviation Staff as soon as possible, in order to initiate actions to correct the situation and prevent injury to personnel or damage to property. Timely reporting helps to protect the accuracy and integrity of information surrounding the event and enables the most efficient response.

Procedures for Uncontrolled Airports: (Part 91)

FAR Part 91 prescribes safe procedures for operation of aircraft at uncontrolled airports which includes communications requirements relative to altitude, position and intentions. However, when air traffic increases at uncontrolled airports, the call outs and procedures described under Part 91 may not be sufficient to ensure safety. Though, not a factor in this incident, Airtanker and Helibases that are located at uncontrolled airports should establish indicators and trigger points for ordering a temporary FAA tower for traffic control.

Airtankers: As the agency transitions from Legacy airtankers to NextGen airtankers, pilots and agency aviation personnel need to remain cognizant of the differences in flight profiles and capabilities between different aircraft types. For example, a P2V requires a more gradual descent in order to prevent shock cooling the reciprocating engines, while other turbine and turbojet aircraft fly higher and faster and do not require the gradual descent. Therefore, it is imperative that flight crews maintain situational awareness of their position in the rotation to and from an incident. For example, if one aircraft is off the fire and knowingly behind another aircraft, it is crucial to locate that aircraft visually or via radio prior to descending or overtaking. Since it is known that airtankers under contract consist of a mix of traditional and NextGen airtankers with different operating speeds and capabilities, vigilance is necessary to maintain separation and avoid conflicts when those aircraft are working in close proximity. Overtaking other aircraft in flight is not inappropriate, but intentions must be communicated, especially when entering or exiting bases located at uncontrolled airports, to avoid conflicts.

Relative Motion Reminder: Relative Motion is the direction and speed an object appears to move when observed from another moving object. A target that is stationary in the windshield, whether it is approaching you head on or traveling the same direction is extremely difficult to see due to lack of relative motion. Any aircraft that appears to have no relative motion and stays in one scan quadrant is likely to be on a collision course. Also, if a target shows no lateral or vertical motion, but increases in size, take evasive action.



“Different Aircraft, Different Airspeeds, Stay Vigilant”
~ Lead Plane Pilot

Collision Avoidance Systems: TCAS/TCAD systems monitor the airspace around an aircraft and warn pilots of the presence of other transponder-equipped aircraft which may present a potential threat of near mid-air collision (NMAC). TCAS and its variants are only able to interact with aircraft that have a correctly operating mode C or mode S transponders.

When TCAS/TCAD are not sufficient:

- *An aircraft not equipped with a transponder (some GA aircraft) will not show on TCAD/TCAS. Pilots operating in uncontrolled airport environments or in the fire environment should continue to practice see and avoid.*
- *TCAD/TCAS (as well as other electronic devices-- such as GPS, IPADS, XM weather) produce a growing tendency to get drawn into the cockpit to monitor the gadgets inside the aircraft. This can interfere with proper scan outside of the aircraft. Traffic Collision Avoidance devices such as TCAD/TCAS do not replace the need to continue the scan for VFR traffic.*
- *A condition referred to as "shadowing effect" can also be created when the transponder antenna signal is limited due to its location on the aircraft. The agency should validate current requirements for TCAS/TCAD.*

For informational purposes: (reference USFS Fire & Aviation Management NextGen Airtanker Information Briefing Paper, June 2014) Speeds indicated are in Knots

Aircraft Model	Fire Order Cruise Speed	Preposition Speed	Drop Speed
BAe-146	330-340	380	120-130
Avro RJ 85	340	380	120-130
C-130Q	340	380	120-130
MD-87	320	420	130-140
DC-10	380	480	140-150
P2V	185	225	120-130
S-2T	200	180	120-140
SEATS	165	173	95-105

Conclusion:

The lessons learned report is designed to generate discussion and awareness on the subject of near-misses and near mid-air collisions. This occurrence was not the first and probably will not be the last. It is incumbent on all aviators and aviation managers to be aware of the common denominators and the contributors. According to NTSB statistics, most mid-air collisions and near misses occur within a couple of miles of uncontrolled airports. This has been especially consistent among pilots that have done most of their flying under ATC control and assistance. There is no suggestion that this was any sort of a factor in the case of this event, however, the fact that the agency has several contracts with new vendors, warrants higher awareness of all possible contributors and to be diligent in methods that help ensure operations are conducted in the safest manner possible -- including enhancing air traffic control with temporary FAA towers, when fire traffic increases. Pilots need to constantly consider and be aware of the limitations of collision avoidance systems, the dangers of operations at uncontrolled airports and maintain situational awareness of their position in the rotation to and from an incident.

[See and Avoid is still the most reliable Practice]

“This incident has strengthened my scan procedures, we all need to be more vigilant, especially with all the new platforms being introduced into the system” ~ Legacy Airtanker Pilot