

AIR ATTACK

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**SUPER SCOOPER IN
TRAINING**

AERO-FLITE'S PROGRAM

**VIKING AIR'S
NEW CL-515
FIRST RESPONDER**

**NORTH AMERICA
AERIAL FIRE FIGHTING
CONFERENCE REPORT**



SUPER SCOOPER IN TRAINING

STORY BY JASON JORGENSEN



During the last decade, the United States Forest Service's (USFS) requirements for the 'Next Generation of Air Tankers,' has shaped the available fleets of air tankers in the U.S. While all operators understood that these requirements meant that they needed newer airframes, Aero-Flite's interpretation of 'Next Gen' didn't just begin and end with the types of aircraft they chose to operate. **Jason Jorgensen** reports on Aero-Flite's program.



Safety is a core value that is embraced from the top down at Aero-Flite Inc. On the company's flight operations side, this culture of safety is due in no small part to the intensive and comprehensive training programs that the company has cultivated over the years. For the company, 'Next-Gen' has become a culture all its own and those ideals are readily apparent when it comes to the company's CL-415 program. A program in which the training for their pilots has been shaped by subject matter experts with decades of experience in fire aviation and seaplane operations, and continues to adapt and evolve, helping the company demonstrate what 'Next-Gen' scooper operations can look like.

THE GATHERING

During the first quarter of each year, Aero-Flite's CL-415 pilots gather to begin their winter training. That training begins with six days of Aircraft Systems instruction, which is then followed by simulator time. Currently, Aero-Flite is using Ansett Aviation's Level-D, EASA certified simulator in Malpensa, Italy. This full motion simulator allows them to integrate fire tactics as well as normal, abnormal,



emergency and IFR procedures. Additionally, the sim allows them to virtually scoop anywhere in the world where there is water, it can also simulate different sea states from glassy water to 12-foot seas along with variable winds which are excellent capabilities from a scooping seaplane aspect. The sim can also model different intensities and different shapes of fires. The computer modeling is also such that the wind can adjust and change the shape of the fire. Every day for much of the next week, new pilots will alternate between spending a couple hours as the flying pilot, and a couple as the non-flying pilot, and have a couple of hours spent briefing and debriefing. After the simulator time in Italy, all of the company's pilots converge on the State of Washington for a further week of ground-based pilot instruction followed by a week of flight training.

At Aero-Flite's headquarters in Spokane, WA, the CL-415 pilots combine with the RJ85 air tanker pilots and PC12 logistical pilots. The first three days cover a variety of topics relevant to the company's entire pilot population. Briefings from the company, a couple of guest speakers, briefings about what was learned from last season, briefings from maintenance regarding all the





maintenance done over the winter time, lessons learned from last season and briefings from maintenance about what pilots could do differently to reduce the maintenance issues (improving pilot technique from a maintenance perspective). Followed by more Human Resources, IT and logistical employer/employee type briefings. Once these pilots finish their training cycle, the only time they will return to Spokane for the rest of the year is if they have to drop an aircraft off for maintenance or pick one up from maintenance. So, it's the best time to fill out any needed forms or update any employment paperwork.

This year, the third day was a company-wide human-factors seminar, then First Aid and CPR classes. Now, days four and five, are where Aero-Flight's concept of 'Next-Gen' really comes into its own, and training begins to go well beyond just what is necessary to meet agency requirements.

NEXT-GEN, WHAT DOES IT MEAN?

Aero-Flite's definition of 'Next-Gen Air Tankers' has been largely due to the vision of their Director of Flight Operations, Mike Lynn. Having been in the aerial



firefighting business for more than 40 years, Lynn worked as an air tanker pilot for 13 years then spent the next 20 as a lead-plane pilot and Aerial Supervision Module (ASM) with the USFS and Bureau of Land Management (BLM). After retiring from the government in 2013, Lynn joined Aero-Flight. During his career, he's had the opportunity to see many types of aircraft, and pilots performing their duties over countless fires year after year. Over the years he realized that in order to make fire aviation safer, they not only needed to be operating better aircraft, but the



whole paradigm needed to change. “Next Gen doesn’t just stop at the tankers, it is a new overall approach to air tanking, including tactics, management, SMS, safety and maintenance.” states Lynn. Agencies, companies and contract personnel all need to begin by thinking differently if the tanker industry is going to attain the higher standards of safety, efficiency and performance.

In 1995, while working for the USFS, Lynn, with the help of a few dedicated agency aerial firefighters created a first; a cooperative and interagency course with agency and



contractor instructors. This course is called the National Aerial Firefighting Academy (NAFA) and it's designed to help with the standardization and safety for aircraft operating in the airspace over fire. Lynn remarks, "I wanted to give these guys the benefits of my 40 years over a short period of time. During class (NAFA) the new guys and experienced guys learn more about fire tactics, weather and fire behavior. But in between classes and at night when they're having a beer is when some really cool stuff was happening while the experienced guys were sharing ideas, experiences and lessons learned with the new guys and that's what this training was all really about." These days, NAFA 1 is a five-day course that's meant for pilots that are newer to fire. While attending this interagency sponsored collaboration between contractors and agency cadre, pilots learn about the anatomy, mechanics and communication in the Fire Traffic Area (FTA). NAFA also covers tactics and strategy, fire behavior, weather, human factors, lessons learned, and operations involving dissimilar aircraft. A follow-on advanced course, known as NAFA 2, is also an interagency sponsored course geared towards more experienced aerial firefighters and integrates simulator exercises between multiple types of aircraft.



UNDERSTANDING THE SYSTEM

Jason Robinson, Chief Pilot for Aero-Flite's CL-415 program, is also involved with the NAFA Steering Committee, as part of the industry representation for the collaborative course. He explains that it's especially important for his CL-415 crews to know how a LAT (Large Air Tanker) works and how Type-1, Type-2 and Type-3 helicopters work, because his crews operate for extended periods at low levels. He also describes that they're pretty intimate with the different tanker and helicopter vendors and maintain a really good working relationship with them. Robinson states "LATs might come in and out on scene for as little as five minutes at a time, but we'll be on scene for three plus hours, sometimes more if the airport is close. So, it's important for us to understand everyone's roles and for them to better understand ours, and that's a big touch point at NAFA." Both Lynn and Robinson have taken the core ideas from NAFA and added it into Aero-Flite's annual pilot training programs. Resulting in what Lynn describes as "A mini NAFA on steroids, that is also heavily focused on tactics. Experienced captains are very good at scooping water and delivering on a fire as needed but the tactics class teaches them why they are dropping where they are,



why the Aerial Supervisors want them to focus on certain areas over others.”

This year, to help teach this additional, agency-level of tactical training to the pilots in their company, Aero-Flite brought in four retired but still very active aerial supervisors. All of them qualified as Air Tactical Group Supervisors (ATGSs) and as Air Tactical Supervisors (ATs), which are the ‘right seaters’ in an Aerial Supervision Module (ASM). This is the second year that Aero-Flight has added this unique segment of training. Last year, this two-day specialized training was largely focused on initial attack. The focus of training this year was on Incidents Within an Incident (IWI), which is when an unexpected situation or incident happens on a fire other than the original primary mission. Examples of IWIs are instances with an injured firefighter or a dozer getting stuck with the potential for a burn over. Robinson describes this part of their training as “...a mind bender for people to really think about. We still have to operate within the FTA but now, how can we help the Aerial Supervisor, ground contact, or Incident Commander as their mission is shifting from firefighting to a potential rescue operation. This can lead to task saturation, and it’s important for the aerial resources to recognize the situation and be ready to assist

as needed. At first, I thought why should we be so focused on IWI? Then I thought to myself, I've been on at least ten fires where something out of the norm happened - We've been on fires where a dozer got stuck and we had to support that, on another fire there was a helicopter crash and we were supporting that and there are more. So, I was convinced pretty quickly once I understood their vision." Even more training value is added by including the use of Sand Table Exercises (STEX) where the pilots run the different exercises and they also train by reviewing video from real fire missions.

STEX

A technique that is frequently used in the military, STEX can be employed to great effect in teaching tactics. The table can be set up to simulate a fire they've fought or create entirely fictitious scenarios from initial attack to extended attack or IWIs like urgently supporting firefighters or protecting a disabled Type 4 Fire Engine. As the pilots and Aerial Supervisors talk and maneuver through the scenarios on the sand table, they become more immersed in the training and begin to feel the pressure even to the point of starting to sweat. CL-415 Pilot, Glen Znamirovski, states "I love the sand table training, it can totally get you nervous and excited, I've noticed on many occasions when my voice starts to go up a few octaves because of how 'in the moment' I'm feeling."

Sand Table Exercises can also be a great way to cultivate effective communication. Practicing brevity, relaying what needs to be done without taking up a lot of bandwidth while doing so. This is also especially helpful since the pilots and Aerial Supervisors are from all over the country, and while everyone speaks English, everyone also brings their own nuances and colloquialisms. STEX can really help identify where communication conflicts may arise and help the crews all get on the same page in order to conduct their operations together more efficiently and safely. As Lynn remarks, "better to figure it out now here, than trying to fix it later out there." Practicing communication, leaving out the slang and keeping it concise and as close to predictable procedures as possible. The agency and industry agree that standardization and predictability are the key to safely and efficiently conducting air operations in close proximity.

SCOOPER TRAINING

The two days of additional intensive tactical ground training wrap up the ‘all-tanker pilots’ training and now the sixth day is spent on deeper, mission specific training. For the CL-415 crews, it’s time to discuss water sources. Aero-Flite maintains a database of evaluated and potentially “scoopable” lakes in the form of lake plans which also ensure that risks regarding Aquatic Invasive Species (AIS) are mitigated. The company’s Water Source Coordinator works with agency managers and the pilots to ensure the latest information and notifications have been made available. Many times, if Aero-Flite scoopers are on a fire and there is concern from the Forest Aviation Officer about not having a lake plan for a particular body of water, Aero-Flite will likely already have a plan prepared as they have earlier identified certain lakes in the area as potential scooping sources. When scooping at one lake with known AIS, if the tankers need to switch water sources to another lake, they will return to the airport with their maintenance crews and hot wash the tanks for longer than the recommended wash time set forth by the USFS. Aircraft are visually inspected and hot rinsed at the end of shift or between fuel cycles if they have operated in known infested waters. If the AIS status of a water source is unknown, the aircraft will always be hot rinsed and visually inspected. Because of these special considerations, the Water Source Coordinator puts on a half-day briefing of updates to the company’s water source information, their proprietary water source mapping tools, as well as on aquatic invasive species planning and training. The rest of the day is then spent covering the IFR and GPS improvements that have been implemented on the aircraft.

Rounding out this training-packed week is a day set aside to “train the trainers.” Chief CL-415 Pilot Robinson and the Initial Attack Training Pilots AKTPs go out and conduct essentially the same profiles that they will be doing with the rest of the IA Captains, Upgrade candidates, copilots, and new hire pilots during the coming week. This consists of using a simulated fire at a specific Latitude and Longitude, the AKTPs then roll in with their “TARO card” (Tactical Aviation Resource Order) brief the crews on how they will travel to the fire, what water sources they have available and plan to use to scoop from, the types of drops they will practice on the simulated fire, followed



by what airfield they will recover to. Then, going out and flying the program together, before they will be doing it with their assigned crews. This is to make doubly sure that everyone is on the same page, ensuring that all are clear on standardization, standard operating procedures (SOPs), training profiles and special emphasis items based on whatever the instructor's input is, or based on problems that have been encountered in the past.

FINAL WEEK

The next day begins the final week of winter flight training. It is during the next four to five days that Aero-Flite's CL-415 crews will put all of the skills, information and techniques discussed over the past few weeks into practice with the actual aircraft. Alternating between briefing for a few hours and flying practice missions for a few hours, making sure that every IA Captain, IA Candidate, Co-Pilot, and AKTP gets signed off on everything that this intensive training program is there to teach and test. Additionally, before heading out to their contracted bases, maintenance and flight crews also spend some time training for the possibility of the



Super Scoopers being disabled on lakes. For instance, if the aircraft broke down and had to set down on a lake out in the middle of nowhere, no power and they're out there floating around flight crews would anchor the aircraft. There are also portable boats on board that the crew can deploy and depending on the situation they could paddle to shore or simply wait for the mechanics to get a boat to assist the crew and work through the contingency. "With this type of intensive, early season training, Aero-Flite can bring everyone in, iron out their skills, and as our aircraft get carded for the season, also wring out the airplanes for any other minor maintenance issues they find, all those little gremlins and wintertime things can be sorted out all at once making sure their aircraft and crews are ready for the long season ahead." States Robinson.

Under Lynn's guidance, Aero-Flite has poured a lot of their time, money and effort into training, safety and investing back into their personnel, seeing the agency contract minimums as a baseline, while setting their own sights on achieving higher standards. Lynn recounts "Back in the earlier days of air tanking the season would start and pilots would show up to the hangar and that same day,



the companies would ask, ‘Are you ready to go?’ Of course, we’d say ‘Yeah!’ Then, they’d tell us ‘Okay, the airplanes are ready to go.’ they’d give us a fistful of credit cards and off we’d go flyin... I survived.” Lynn pauses in reflection “Today, we’re doing much better. We have newer equipment, but we are also changing our thinking and training to rise to the next level. It wasn’t always a smooth transition - mixing up the new guys with the old guard, it was a bit of a rough time. The old guard didn’t like having to do things a different way. But we had meetings, we wrote papers, we did studies and got in arguments too. But we hashed it out because things had to be done in a better way.”

STANDARDS

While focusing their training program to a much higher standard, their selection process for hiring pilots and the flow of how pilots advance within the company, is geared to equally high standards. Aero-Flite finds that a diverse group of pilots with backgrounds in Airtanker, Crew (Airline and Military), and Instructors from professional



or collegiate training programs make great candidates because all of them are used to learning new skills, maintaining safety standards, and utilizing SOPs. When looking at pilots for the CL-415 program, Robinson also looks for candidates that have lots of experience in seaplanes, preferably commercial experience, in Beavers, Otters and Twin-Otters. There are only a few places in the world where pilots can get that type of commercial seaplane experience, but in the long run, that is just what has proven to be the most effective mix of prior experience. Jason remarks that “It is difficult to find pilots with bush experience that also bring strong IFR and Crew skills to the table. It is imperative that our scooper pilots have the ability, proficiency, and confidence to depart IFR, transition to water and fire ops some distance away in VFR, then shoot an approach down to minimums back at the base.”

Unfortunately, just teaching a 5,000-hour seaplane pilot to fight fires doesn’t ensure anyone’s success. The widely varying locales that Aero-Flite can be called to operate in requires that pilots be very well rounded when it comes to regional environmental and airspace experience, especially as they progress in the program and are hoping to make captain. For a new CL-415 program pilot to become an Initial Attack Scooper Captain (AKI) with Aero-Flite, they will generally spend three to five years in the right seat, being mentored on the machine, environment, risk management, FTA integration, and

strategies & tactics. One of the toughest parts about hiring pilots for the Scooper program is managing the pilot's expectations. According to Robinson, it is tough because they bring in very experienced pilots, and since they start out as copilots, there are times where the only time they're flying the airplane is to and from the fire. During the mission, the IA Captain is ultimately responsible for placement of the load and ensuring the safety of the ground firefighters.

Aero-Flite has set the bar high when it comes to the company's internal requirements for becoming an AKI in the CL-415. With the dozens of fire seasons of experience that both Lynn and Robinson have, they understand all too well the added complexity and potential critical issues with having Captains out there that are only experienced enough to meet some set of minimum requirements. This choice to hold their pilots to higher standards has also been a double-edged sword at times, making it harder for them to retain pilots who expect to rapidly advance. To promote retention and help maintain a healthy work/life balance, scooper crews are paid competitively and work on a rotating schedule giving them nearly as much time spent at home, as is spent out at their assigned bases. It is still tough work though, the fire season can be hard, and the lifestyle doesn't always agree with everyone. The airlines too, are also always looking to scoop up any experienced pilots they can find and usually offer great benefits as well. Sometimes, this can catch the attention of pilots who are not feeling like the scooper lifestyle is a good match for them.

PATIENCE IS A VIRTUE

The path to becoming a CL-415 Captain takes time and pilots would be well served to recognize that depending on the fire season, you could fly as little as 16 hours or as many as 300 - so, it's going to be a long road. The best recipe for success is patience, and focus on learning the fire environment, and the best use of the machine. According to Robinson, pilots will get a type rating and in season two or three depending on their skill and application, and they'll start building that PIC time when they're hands on flying. Then, based on their aptitude, they'll get carded as an AKP-Scooper (Captain - Scooper). Once the pilot is an AKP-Scooper, they can fly missions



as an Initial Attack Candidate with IA instructor pilots (AKTPs). The agencies require that the pilot has completed a minimum of 25 missions. But, for a scooper, what defines a mission? “We could go out and work the same target area and do 40 drops. That’s only one mission. On a four hour fuel cycle, we could also get diverted to three different fires, that could be three missions. If on one of those fires, we were working this flank on the West with this one ground contact, and also another flank on the South with another ground contact, that one fire might actually be considered two missions.” Jason explains. The last pilot to advance to Captain had roughly 400 drops on 30 plus missions, so it is a process that takes time and while it generally takes about a season, they have had some people take a year and a half and others just didn’t make it to IA Captain. As Jason reminds his Scooper IA Candidates; “It’s no offense against anyone. The training and performance standards need to be up here where we have them. Even the best among us make mistakes, but when you’re flying at 100-150 feet over the trees and fire, there is little margin, and no forgiveness.” ■