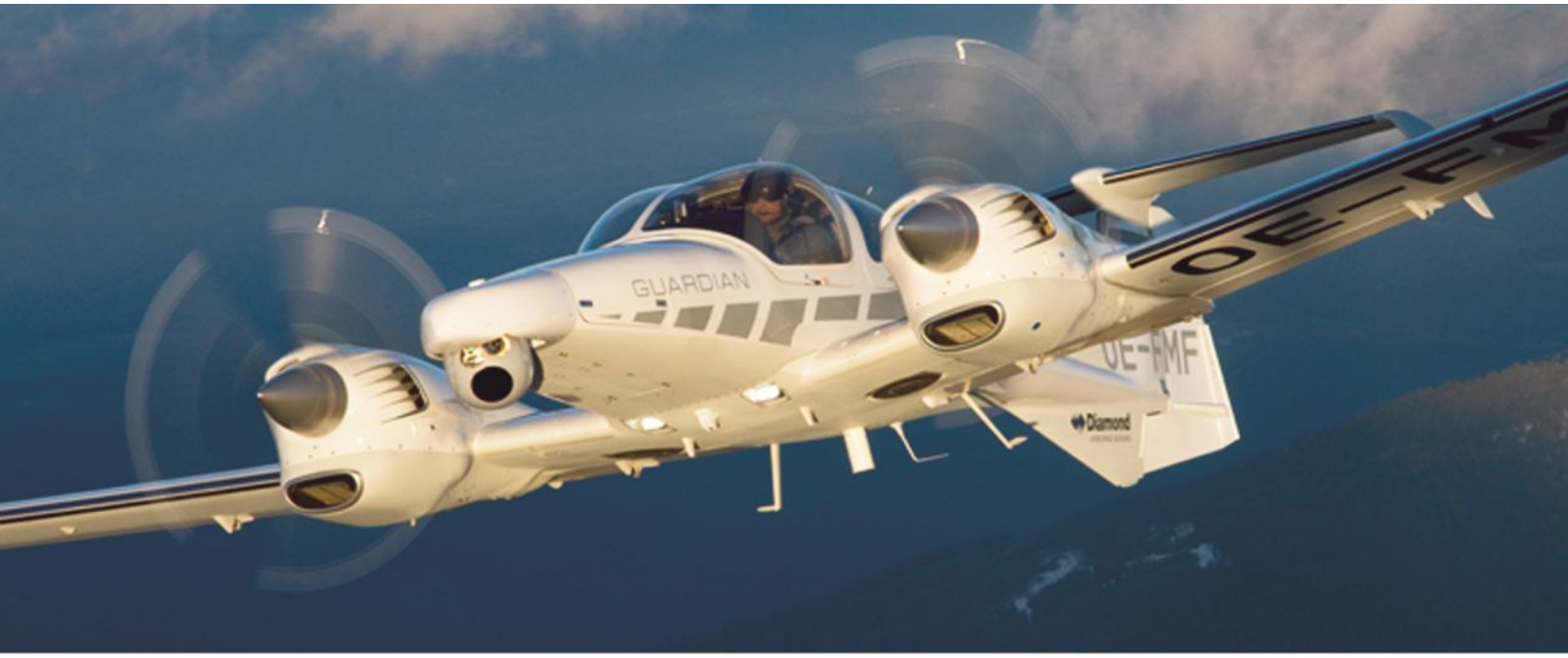

Building a Mixed-Fleet:
Benefits of Fixed-Wing Patrol Support

By John Nielsen, California Highway Patrol (ret.)

One of the most satisfying missions I've performed in my 23 years in airborne law enforcement involved standing on the skid of a hovering helicopter and hoisting a critically injured hiker off the side of a cliff in the high Sierras.

Helicopters have amazing capabilities and will always be desirable for law enforcement because of their ability to hover and land in tight locations. However, no one aircraft type is perfect for every mission. Helicopters are excellent for on-call rescue missions, but they are expensive to operate. They burn fuel quickly and are not well suited for long duration missions. Often, the most effective aircraft configuration would be a mixed fleet of helicopters and fixed-wing aircraft for both on-call and long-dwell patrol missions. The low cost of operation of light fixed-wing aircraft may also be the key to getting a new unit started or keeping a financially strapped unit in the air.

Every aircraft design involves compromises. For instance, an aircraft may have an excellent payload of up to eight passengers, but it may also come with a fuel burn four times higher than a slightly smaller aircraft (consider that four times the fuel burn might also mean a one quarter reduction of your budgeted flight hours). An aircraft with a high wing might have better straight and level visibility for the pilot, but it might also have a restricted field of view for the side-mounted sensor behind a fixed-landing gear.

By being strategic, compromises on multiple aircraft can lead to the ultimate strength of the unit as a whole. The California Highway Patrol (CHP) unit I was a part of, for example, produced some incredible results by using fixed-wing and helicopter assets.

Fixed-Wing Patrol Support: A Core Law Enforcement Task

In just a single month, one of my unit's fairly old single-engine piston aircraft flew 203 hours, performed 195 searches, located 65 suspects and filmed 27 pursuits. While that was an above average month, the results were not out of the ordinary. The key to our success was simple: get in the air every night and support the officers on the ground for at least four or five hours. By being airborne every night, we made great fans of the officers on the ground who came to rely on our coverage.

Up until 2006, our CHP unit focused primarily on using helicopters for patrol and rescue, while our fixed-wing fleet was focused primarily on daytime speed enforcement. What changed everything was the adoption of a powerful 15-inch EO/IR camera with a Geo Point mapping system.

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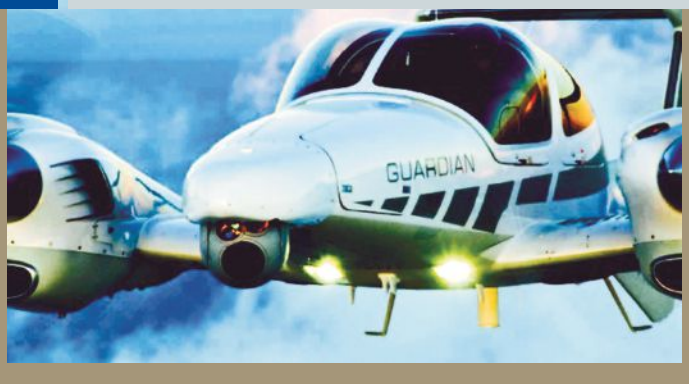
In addition to our capital investments in sensors, we also made investments in education, attending the ALEA thermal imaging course taught by a veteran officer/pilot, Kevin Means of the San Diego Police Department. The Los Angeles Police Department Air Unit also assisted our tactical fight officers with expert instruction in time-tested tactics. With these newfound skills to hunt down criminals effectively, our locate-and-arrest statistics soared. Once we became airborne with our new equipment and training skills, it became apparent the difference between productive air support and less than productive air support was the immediacy of the aircraft response. Responding from the ground just didn't cut it. By the time we were airborne on a call, we had already missed the action. Often the chase was over, the perpetrators had gone to ground, or the perimeter had already been broken down.

When we changed our tactics to being on station for long durations, everything changed. Instead of showing up after the action, we were able to immediately cue the sensor to the dispatcher's call. With the aid of advanced mapping systems, our sensor is now on target within seconds of the dispatcher's call over the radio. If a chase ensues, we are on it from the start, and when the perpetrators ditch and run we know exactly where they went, often talking officers onto their location within seconds.

I found that launching from the ground resulted in missing the action on the vast majority of calls. In missions like firefighting, you can launch on a call and the fire will still be at the same place when you arrive; for law enforcement, this is not the case. Our criminal customers are doing everything humanly possible to create distance from a crime scene in the shortest amount of time they can. Pursuits typically last only a few minutes, and one of three things typically happens: the units terminate, it turns into a foot chase or a driver crashes. The window of time to get overhead, locate the suspect and provide information is fleeting. This is where a modern fixed-wing aircraft, coupled with an advanced camera system, can pay off. One rule has always held true: being in the air and responding to calls immediately is the key, and it ultimately results in overwhelming support for the air unit from the officers on the ground.

Time Tested

It turns out our "new" tactics weren't actually very new. The military has been doing this since the early 1990s and have perfected their own tactics and developed virtually all the technology available to most law enforcement aircraft today. Even the concept of a mixed-fleet is common in military operations. In today's world, that involves a mix of unmanned and manned intelligence, surveillance and reconnaissance aircraft that feed real-time full-motion video to attack aircraft and ground units. What the military has discovered, and what some law enforcement units are now learning, is that the advantage lies in an "unblinking eye" in the sky. Continuous sensor coverage ensures that the bad guys never have a window to cause mischief. In one major city, they actually maintain this advantage by overlapping their airborne patrol shifts, ensuring an immediate response to any call.



More than anything else, the technological advances in sensors and their accompanying geo-rectified mapping software and hardware have dramatically changed what is required from law enforcement aircraft. Previously, our key piece of equipment for a night search was our helicopter-mounted floodlight. Today, the floodlight is often a tool of last resort. In most cases, our experience finds that the higher we are above the ground, the less likely our targets have any idea they are under surveillance. Time after time, we see cases where officers on the ground can break off a chase because we have a "FLIR lock" on the target we are tracking. In these cases it only takes a few minutes for the perpetrator to feel like he has escaped. When he feels secure, he attempts to blend in, because he doesn't know that we still have him under surveillance.

It is this revolution in sensors that now allows us to orbit above 5,000 feet, where only a few years ago we would have had to hover at a few hundred feet to get the same clear image. This revolution is what has made it possible to use low cost fixed-wing aircraft for missions that previously only a helicopter could perform.

The benefits of being on station for long durations of time go far beyond simply a lower aircraft operating cost. Hundreds of man-hours can be saved by locating and immediately directing officers to perpetrators. Video evidence of suspects fleeing from crime scenes and running and hiding from police can save thousands of hours of court time and costs. Having that unblinking eye unobtrusively over a scene also allows us to provide tactical information to officers on the ground at critical times, giving the good guys a real advantage and helping keep them safe.

Final Approach

A few weeks ago, I flew the type of patrol shift all pilots want to experience. This was my final flight as an officer. This last flight embodied all the possibilities of what a state-of-the-art fixed-wing aircraft with cameras and mapping technologies can do in law enforcement.

We recorded three good FLIR finds, all from a high altitude, silent and stealthy fixed-wing aircraft during the shift. The first was a burglary suspect we found jumping fences before hiding in a side yard. The second was a stolen vehicle pursuit that had gone to a foot bail into a residential area. The suspect hid in a trashcan and was located by my TFO using the IR camera to detect the suspect's heat signature through the trashcan. The third was an at-risk teen with a possible overdose that we found in open farmland.

This was a normal weekend shift that demonstrated the effectiveness of fixed-wing patrol support. If there is anything I can do to assist you, give me a call. I look forward to helping your department find the right fixed-wing solution for your needs.

About the Author: *This is the first installment in a series of columns focused on fixed-wing public safety aviation. John Nielsen is a retired California Highway Patrol pilot. He teaches ALEA fixed-wing patrol classes and consults with law enforcement agencies seeking to establish a fixed-wing unit. Send your fixed-wing related questions to John at fixedwing@alea.org.*