

Integrating Airborne Police Technology

In the last 10 years, there have been dramatic changes to law enforcement avionics, aircraft, missions and the knowledge needed for police aircrews to implement technology to keep our communities safe.

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The information available to the general aviation pilot today would make the airline pilot of the 1970s green with envy. Glass cockpits, paperless approach chart systems, collision avoidance systems, global positioning systems (GPS), heads-up displays, moving map systems, microwave downlink systems, night vision goggles (NVG) and satellite weather all help make aviation safer.

Naturally, this technological revolution has also impacted the airborne law enforcement aircraft. Not only have the same technology advances enjoyed by all of aviation worked their way into the airborne law enforcement cockpit, there have been significant technology advances specific to the industry. These advances have introduced an array of equipment for the aircraft designed to make missions more safe and effective.

Not only has aircraft technology advanced, the training afforded to airborne law enforcement personnel today is more sophisticated, advanced and specialized, and the personal safety equipment that has become almost standard includes flame resistant flight suits, helmets and safety vests.

Moving Map Systems

Until a few years ago, most aviation crews navigated the old fashioned way – with a paper street map and their own personal knowledge of the patrol area. They would often find the specific location of an incident by counting the blocks from a major intersection. At other times, they would simply fly to the “flashing lights,” and then attempt to pinpoint the exact location. Today’s aviator faces a much simpler task. In an aircraft equipped with a moving map, he or she simply enters the address of the incident on the cockpit keyboard, and it appears on the moving map. Most systems also provide a suggested heading and time to target.

These units offer a critical advantage when aircrews operate in unfamiliar or completely unknown environments, as the moving map tells the crew exactly where they are in terms of street location. Vehicle pursuits have become easier to describe from the air, as pilots can easily see the streets traveled and transmit precise locations. When an airborne law enforcement aircraft is utilized in a mutual aid call to another jurisdiction, the crew can operate effectively with the moving map and not need to take along another crew member from the requesting agency to help them locate specific streets.

Microwave Downlink

The ability to transmit real-time images to command centers is an advantage for airborne law enforcement. In the past, ground commanders relied on flight crews’ descriptions of events. And while many crews did an excellent job providing the information, microwave downlinks allow ground commanders to see exactly what is developing at an incident and how they can strategically use their resources.

In addition, a ground commander can request that an aircrew transmit images of any location they need and quickly receive images. The ability to record quality images has also impacted court cases, providing high quality evidence for prosecutors to use in court.

Night Vision Goggles

NVGs are an example of the many technologies that have been borrowed from the U.S. military and adapted to the civilian market. NVGs give the airborne law enforcement pilot a critical safety edge at night, especially in light of the extremely complex and demanding environment in which they fly: low, slow and with takeoffs and landings off-site.

“Once you fly with NVGs, you will never want to fly without them again,” said a police aviator who wished to maintain anonymity. “They are an absolutely remarkable safety tool, and I consider them as required equipment at night.”

NVGs are just emerging in airborne law enforcement, and administrative and bureaucratic obstacles have emerged along the way, with the Federal Aviation Administration tweaking its certification requirements and training standards.

Aircraft Systems

The health and usage monitoring systems installed on airborne law enforcement aircraft give the law enforcement aviator a large amount of information regarding the health and well being of the aircraft. No longer does the aircrew have to scan each and every instrument to seek out problems or possible trouble. Today’s police aircraft indicates if there is a problem with bells, tones, visual prompts in some cases computer voices.

Personal Safety Equipment

It's nice to see many airborne law enforcement units properly equipping their flight crews for our often-dangerous missions. Helmets, personal emergency position-indicating radio beacons, life vests and emergency breathing systems are just a few of the life-saving personal equipment that is now being worn by most airborne law enforcement officers.

No Free Lunch

There is a downside to all this equipment and technology. Price continues to be a major factor preventing some agencies from acquiring the latest and greatest equipment, as well as the cost of maintaining the sometimes-fickle newest technology. Many agencies are finding that equipment bought with a one-time grant costs more than budgeted due to repairs and maintenance.

Is all this equipment and information absolutely necessary for safely and effectively completing a police airborne law enforcement mission? Are flight crews spending too much time with their "heads down" in the cockpit in order to manage equipment and data? What, if any, impact has this technology had on safety? Is today's airborne law enforcement officer safer and more effective than in the past?

Although no formal academic studies have been done regarding the issue, there are many anecdotal stories that indicate yes, we are more effective with this equipment.

Just as in the not too distant past in which police flight crews were armed with binoculars, a paper map and a searchlight, the police aviator of tomorrow will wonder how they accomplished their missions in 2008 without the aid of the next generation of equipment.

Naturally, refinements to all the current equipment will continue to take place as well as the introduction of such technology as unmanned aerial systems (UAS) into the airborne law enforcement world. Interestingly, the goal and objective of unmanned systems is both a reduction of cost (no flight crews) and a safety benefit (no flight crews to be killed or injured in an aircraft crash). Yet, an informal study by a PhD from the Massachusetts Institute of Technology has found that in order to operate some of the UAS systems in service today, there is a need for almost 10 times the personnel.

Computers are here to make our lives easier, right? In any case, it is certain when today's police aviators have earned their place in the sun and we are resting comfortably regaling tales to our grandkids about police aviation, the police aviator of tomorrow will certainly wonder; how did you ever get by without...? We can only imagine the airborne law enforcement officer of the future asking, "Grandpa, did you really have to look inside the aircraft at an electronic moving map to navigate? Wow, I can't believe you did that!"