



## CHECKING ALL THE BOXES

**Certifiable and Interoperable, MQ-9B SkyGuardian is the right solution for Canada's multi-mission requirements**



**CANADA IS INTERESTED** in procuring unmanned aircraft that will provide persistent Intelligence, Surveillance and Reconnaissance (ISR) and strike capabilities as part of a Canadian defence policy initiative. With discussions ongoing, it's looking more and more like the MQ-9B SkyGuardian from General Atomics Aeronautical Systems, Inc. (GA-ASI) is the right solution for Canada.

In addition to meeting the Canadian security requirement, GA-ASI's MQ-9B development program, which has already been selected by the UK's Royal Air Force, will include Canadian industry partners for the sustainment and development of new capabilities for not only MQ-9B, but for other Predator series aircraft as well. Companies like CAE and L3 WESCAM are already working with GA-ASI.

"MQ-9B SkyGuardian delivers multi-mission capability and provides a sustainable Arctic presence," said Aria Mahdion, GA-ASI Business Development Lead for Canada. "It's interoperable with existing Royal Canadian Air Force assets, as well as Five Eyes [FVEY] and NATO allies, all with low acquisition cost and sustainment."

### **MULTI-MISSION**

The MQ-9B SkyGuardian leverages the mature system architecture of legacy MQ-9A Remotely Piloted Aircraft (RPA) produced by GA-ASI and in operation with the U.S. Air Force.

*ABOVE: In August 2017 GA-ASI's MQ-9B received FAA approval to fly in non-segregated airspace, representing another step towards eventual certification to fly in civilian airspace.*

*“The challenges Canadian defence faces in the Arctic include sub-zero temperatures, limited high-bandwidth SATCOM coverage, and inhospitable conditions that prevent traditional staffing and logistics approaches. Designed for all-weather operations, the MQ-9B addresses these challenges.”*

MQ-9B incorporates enhancements to support mission capability, global industrial expertise, and unfettered access to national and international airspace. Current MQ-9 series users include the United States, United Kingdom, Italy, France and Spain.

As a multi-mission aircraft, the MQ-9B SkyGuardian and its nine hardpoints provide unmatched configurability to meet an operator’s mission requirements. In a basic ISR configuration, the MQ-9B features a high performance 360° multi-mode maritime radar to support Arctic patrol and maritime surveillance missions, and the GA-ASI Lynx Multi-mode Radar.

A variant can also be configured for maritime operations called the SeaGuardian. GA-ASI developed a maritime radar kit containing a 360° multi-mode maritime radar fielded on U.S. Department of Homeland Security Predator B aircraft. This same kit can be fitted to MQ-9B’s centerline hardpoint. It can support a host of maritime radars facilitating long-range surveillance, coastal surveillance, small target detection, and search and rescue operations. Maritime configured aircraft would also be fitted with the Automatic Identification System (AIS) transponder to aid in the positive identification of vessels.

“MQ-9B fulfills a number of the objectives laid out in the Canadian Defence Policy, but the benefits go way beyond that,” said Mahdion. “It would provide Canada with a new low-cost and high-value capability that supports civil and military applications, and its Arctic patrol mission would be a significant contribution to NORAD.”

## CANADIAN ARCTIC

The challenges Canadian defence faces in the Arctic include sub-zero temperatures, limited high-bandwidth SATCOM coverage, and inhospitable conditions that prevent traditional staffing and logistics approaches. Designed for all-weather operations, the MQ-9B addresses these challenges. It is equipped with a proven ice protection system that has been successfully employed with the U.S. military.

SkyGuardian has an Automatic Take-Off and Landing Capability (ATLC) with Beyond Line of Sight (BLOS) SATCOM data-link that operates above 70° north, while maintaining command and control from anywhere on earth. MQ-9B’s 3,000 nautical mile mission radius combined with the new BLOS ATLC allows for launch and recovery of the aircraft from a hospitable forward operating base. The BLOS ATLC reduces the crew needed at the launch and recovery site.

## CERTIFIABLE

GA-ASI is taking on the challenge of earning airworthiness certification with SkyGuardian. This initiative – to develop a RPA that can be certified to fly in non-segregated airspace – required GA-ASI to fundamentally rethink many aspects of the MQ-9B’s development and design.

Initial development of the MQ-9B was done using GA-ASI Internal Research & Development (IRAD) funds, and introduced a number of hardware and software upgrades, such as improved structural fatigue and damage tolerance, as well as robust flight control software. Other enhancements enabled operations in adverse weather, such as icing conditions, and it’s designed to survive bird and lightning strikes. GA-ASI developed a Detect and Avoid system that provides required collision avoidance, as well as going beyond today’s manned aircraft requirements with the addition of a Due Regard Radar.

The GA-ASI Advanced Cockpit Ground Control Station (GCS) has been modified to meet approval requirements, with some hardware changes required for flight-critical functions similar to what is seen on today’s modern business aircraft.

## PERFORMANCE

With SkyGuardian, GA-ASI is improving the performance and capabilities of the baseline aircraft. Longer span wings fitted with winglets allow nearly 1,360 kg (3,000 lb) of additional fuel to be carried internally. Endurance in an ISR unarmed configuration rises from 27 to more than 40 hours. This increase allows the RPA to be used in a greater number of roles and to operate in difficult-to-reach regions.

SkyGuardian offers customers unmatched persistence, versatility and cost-effectiveness across a broad spectrum of requirements. Having already been selected by the Royal Air Force’s (RAF) PROTECTOR program, the MQ-9B will be certified to NATO standards (STANAG 4671).

According to RAF Group Captain Lyndon Jones, being involved at the outset of MQ-9B development has helped the RAF develop the right RPA for today and tomorrow. “Having an aircraft that’s certified to operate in civilian airspace was a key benefit for us,” said Jones. “I know once the MQ-9B meets the stringent requirements of the UK, it will be easier to meet regulations in other parts of the world.” 🍁