

 **MAG** AEROSPACE

THE
MC-208
GUARDIAN™

MULTI-ROLE ON EVERY MISSION



CAPABILITIES DISCUSSION

June 2021



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INTRODUCTION: THE MC-208 GUARDIAN™ FROM MAG AEROSPACE

In 2020, MAG Aerospace (MAG) introduced the MC-208 Guardian, an enhanced variant of its MC-208 multi-role platform that is fielded in Africa, Asia, and the Middle East. The platform brings together every aspect of the company's expertise — from development to deployment — to present a proven, reliable, and truly versatile aircraft that can adapt with the mission. Based on the rugged, globally sustainable Cessna Caravan, the MC-208 Guardian is configured to perform intelligence, surveillance and reconnaissance (ISR), close air support (CAS), precision strike, air mobility, and casualty and medical evacuations (CASEVAC/MEDEVAC), eliminating the need for multiple specialized platforms and conserving precious resources.

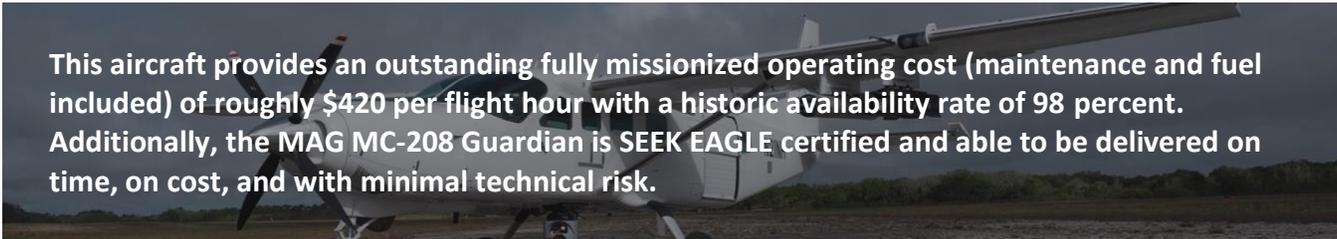


As the Military Services adjust to meeting the demands of the U.S. National Defense Strategy, low-cost and multi-role platforms are pivotal for future force posture. The MC-208 Guardian solves the problem of needing to continue essential missions in the most cost-effective and least resource intensive way.

IMAGE 1: The MC-208 Guardian is fully compliant with the Buy American Act and MAG has taken extra care to ensure the components and modifications to the aircraft are manufactured in the United States.

MEETING THE NEEDS OF SPECIAL OPERATIONS FORCES AND PARTNER NATIONS

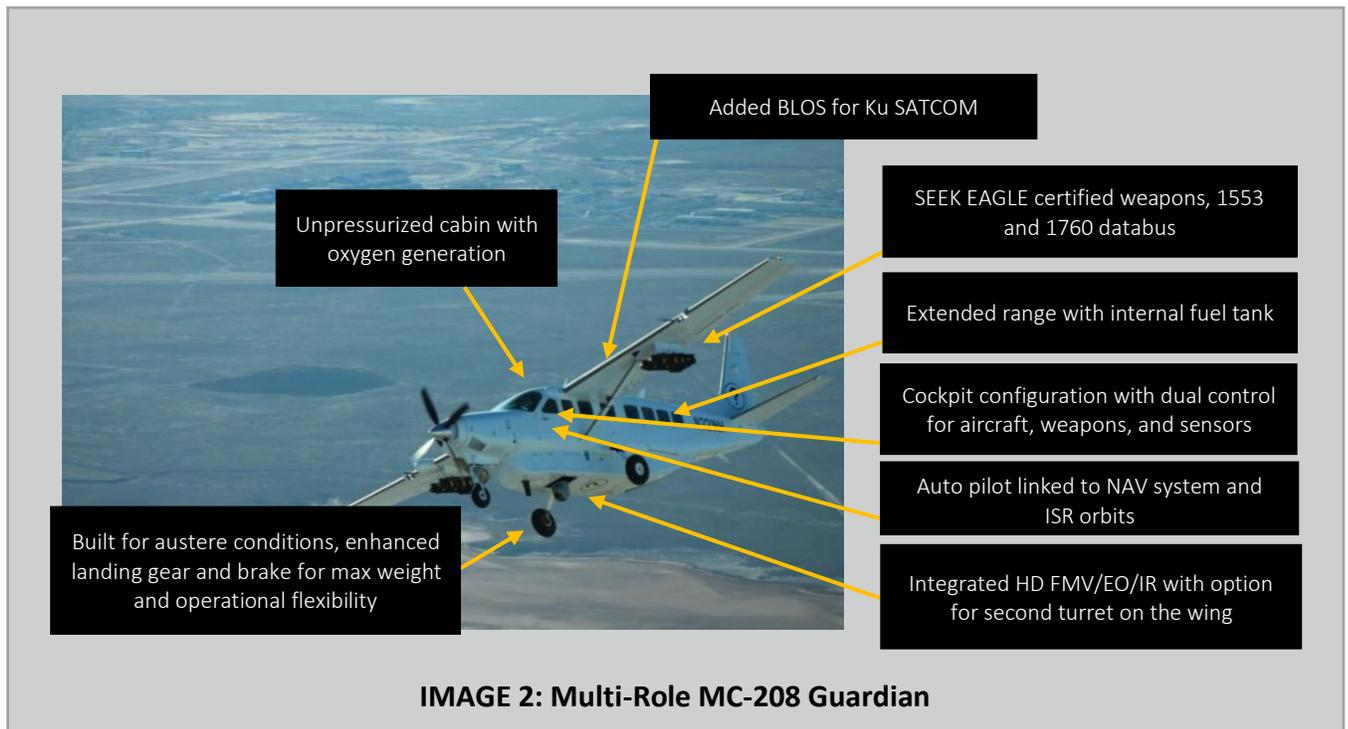
MAG Aerospace has an acute understanding of the unique constraints placed upon aircraft operations in support of Special Operations Forces (SOF) and partner nation (PN) forces. Many of MAG's key personnel have firsthand experience as former USSOF or have supported USSOF efforts, and the MAG MC-208 Guardian reflects that firsthand knowledge. Unlike aircraft designed under past DoD programs, MAG's MC-208 Guardian was developed from the ground up around mission specific requirements. The aircraft is designed to operate in remote, unaccommodating terrain and conditions, land on austere and unimproved airstrips, and be easily maintained in the field. It has successfully weathered operating in the harshest environments, from the Alaskan tundra to the remote and unforgiving African desert.



This aircraft provides an outstanding fully missionized operating cost (maintenance and fuel included) of roughly \$420 per flight hour with a historic availability rate of 98 percent. Additionally, the MAG MC-208 Guardian is SEEK EAGLE certified and able to be delivered on time, on cost, and with minimal technical risk.

*The equipment and services described herein may require U.S. Government authorization for export purposes.
Diversion contrary to U.S. law is prohibited.*

In addition to enabling the CAS mission, the MC-208 Guardian configurations also offer customers full precision strike capabilities with weapons integration and release, enhanced range and endurance, improved landing gear and brakes for austere conditions, integrated beyond-line-of-site (BLOS) satellite communications (SATCOM), high definition (HD) MX-15 full motion video (FMV) / electro-optical (EO) / infrared (IR) turret, and a modular multi-sensor station.



MAG actively produces and delivers missionized ISR and armed MC-208 Guardian aircraft to CONUS and OCONUS special operations customers through its active production line in Titusville, FL, part of its Mission Integration Division.

MAG MISSION INTEGRATION EXPERTISE

MAG continually refines its mission integration processes by applying lessons learned and leveraging prior investments in sensor integration, weapons certification, sensor-weapon mission integration, ballistic armor, and IR suppression to meet customer requirements. The MAG production line for the MC-208 Guardian is active in integration efforts for deliveries of missionized aircraft to customers around the world. This offers a low risk, high value solution that meets and exceeds a variety of mission demands.

MAG can manage and control risk to cost, performance, and schedule by conducting modifications and integrations using proven and certified solutions. MAG's experience with Grand Caravan modifications to date parallel with standard DoD Threshold and Objective criteria models. This positions MAG to 1) know the cost, 2) understand the resulting performance, and 3) confidently establish and maintain a schedule.

DEVELOPED FROM THE GROUND UP TO BE MULTI-MISSION

Proven, Sustainable OEM Baseline

The MC-208 Guardian is built upon a proven baseline capability in the Cessna C-208B Grand Caravan that has undergone a rigorous series of certifications and testing to significantly reduce and mitigate risks to special mission integrators. The C-208B offers relevant pedigree with OEM operational data in 120 countries — on 5,500 aircraft amassing — with more than 24 million flight hours. This past performance allows MAG and the MC-208 Guardian to focus on the special mission needs and to continually evolve and meet the requirements of special operations air components around the world.

Additionally, with the Cessna Grand Caravan as the base platform, the MC-208 ensures ease of sustainability through a global supply chain and 24/7 support. A five-person team (two pilots and three maintainers) can maintain the aircraft anywhere in the world.



IMAGE 3: Rapid Deployability. Disassembly and reassembly of the MC-208 Guardian for C-17 transport can be done in 13 hours with only 5 crew, putting the aircraft on the ground and mission-ready almost anywhere in the world within 48 hours. Two disassembled aircraft fit on a C-17.

[VIEW](#)
Rapid Deployability Demonstration

Special Mission Focus Areas

When conceptually designing the MC-208 Guardian MAG considered the various mission sets and concepts of employment for special operations users. Based on this assessment, MAG has focused the following criteria and capabilities:

Versatility: The MC-208 Guardian is designed to function in multiple ways to meet and exceed in a variety of mission sets in a single sortie. The MC-208 Guardian can transition from armed reconnaissance to strike coordination, precision strike, close air support, and reconnaissance support for high value targeting – all in a single mission. Additionally, the MC-208 can be reconfigured for the air mobility mission set, supporting cargo airdrop resupply, personnel airdrop, Infil/Exfil, CASEVAC, and MEDEVAC aid.

Austerity: The baseline Grand Caravan includes design features to facilitate takeoff and landing in austere conditions and on unimproved runways. To enhance this inherent capability, the MC-208 Guardian aircraft includes a supplemental type certification (STC) upgrade to the landing gear and brakes that increases maximum load capacity. At maximum

takeoff weight (MTOW) and maximum landing weight, the MC-208 Guardian is capable of takeoff and landing on an unimproved 2,030 ft runway with California bearing ratio (CBR) of 12 at the defined standard configuration load (SCL).

Range and Endurance: The MC-208 Guardian comes with an internal fuel capacity of 2,246 pounds, which provides 6.36 hours of flight time with standard mission configuration. MAG also offers an extended range configuration by adding an internal auxiliary fuel tank providing up to an additional 670 pounds of fuel capacity to extend mission duration by approximately 1.5 hours.

Weapons System: The MC-208 Guardian is integrated with both the 1553 and 1760 databus communications for employment of AGM-114 (K-R2), APKWS LGR, Talon LGR, Hydra 70 unguided rockets, and stand-off precision guided mission (SOPGM). The aircraft has four OEM Type Certified external load hardpoints that can hold up to 525 pounds each, including suspension equipment. Additionally, MAG has integrated a Common Launch Tube rack system that can hold two (2) SOPGM munitions as an internal launch capability out of the MC-208 Guardian's air-operable roll up door. The MC-208 Guardian has completed Air Force SEEK EAGLE Office certification criteria for safe separation and live fire for approved use of APKWS, Hydra 70, and AGM 114 munitions.

Communications: The MC-208 Guardian can be tailored to meet the communication requirements across a variety of mission sets with internal wiring and antenna provisions for up to six radios, including Situational Awareness Data Link (SADL). The MC-208 Guardian also includes capabilities to allow the long-range transmission of critical EO/IR sensor data using BLOS full motion video (FMV) Ku/Ka and Link-16 via a ViaSat Ku antenna system. Additionally, MAG has conducted multiple test and integration activities on the DoD sponsored AERONET Gen 2 program by providing DoD with a test platform for future test and integration on Special Operations air component aircraft. All components are Technology Readiness Level 9 (TLR-9) and proven in operational environments.



IMAGE 4: Cockpit configuration

Crew Complement Options: The MC-208 Guardian can be configured in multiple configurations based on customer requirements. This includes configuration to operate with a two-pilot/one-combat systems officer crew complement with a cabin sensor operator workstation as well as a two-pilot crew with the co-pilot position configured to operate all special mission components.

OEM Avionics: The MC-208 Guardian is configured with an autopilot that can control ISR-type flight profiles based on sensor position. The autopilot is capable of coupling with civilian airfield database for worldwide navigation.

Electro-Optical/Infrared (EO/IR): The MC-208 Guardian is designed to work with various OEM offerings for full motion video sensors with fixed and retractable mounting provisions. The most recent deliveries of the MC-208 Guardian incorporate the WESCAM MX-15 EO/IR for HD full motion video turret and sensors that include an integrated laser designator for weapons guidance. MAG offers various supplemental type certifications to provide maximum flexibility to the end-user.

Oxygen System: The MC-208 is configured with oxygen under pressure with additional commercially available options for On-board Oxygen Generation System (OBOGS) for increased flight duration during high altitude operational missions.

Defensive Systems:

- **Missile Warning System (MWS):** The MC-208 Guardian has an available option for a missile warning receiver with automated flare dispensers to counter IR man-portable, air-defense systems. This complete solution is available without additional engineering.
- **Ballistic Armor:** The MC-208 Guardian has an integrated modular armor system constructed of an ultra-high molecular weight polyethylene (UHMWPE) composite laminate. This armor system has been tested to withstand three shots within an eight-inch triangular pattern of 7.62X54mm LPS (mild steel core) with a nominal projectile weight of 148 grains and impact velocities up to 2,560 ft/s.
- **Fuel Tank Armor/Self Sealing:** The OEM fuel tanks on the MC-208 Guardian are delivered with self-sealing foam design capabilities. The on-board auxiliary fuel tank also can be equipped with a self-sealing liner and protected with the modular armor system.

Modularity: The MC-208 Guardian has been configured to permit the inclusion of new, open mission architecture sensors and other devices as they become available. This is made possible through the inclusion of wiring, size, weight, and power to demonstrate the modular pod systems to include the Logos Redkite WAMI System and AgilePod as Open Mission Architecture compatible platforms utilizing common interfaces to facilitate quick configuration of different sensors within the same pod systems.

[VIEW](#)

Mission Capabilities Demonstration



IMAGE 5: MEDEVAC/CASEVAC. A significant added advantage of the MC-208 Guardian is its cargo capacity and its ability to perform medical and casualty evacuations, as well as airdrops of personnel or supplies via an air-operable roll up door.

VERSATILE / PROVEN / SUSTAINABLE

Built on the fully certified Cessna Grand Caravan, the MC-208 Guardian is the reliable, cost-effective, solution able to meet the needs of Special Operators today.

The MAG MC-208 is production-ready solution that helps the Services adapt innovation and agility in meeting multiple mission sets with a single platform, in a single sortie. The aircraft is a proven workhorse with a historical availability rate of 98 percent. Built intentionally to accommodate various mission demands, the aircraft excels in austere environments and offers the flexibility required for the range of Special Operations missions. In addition to remarkable availability, the MC-208 also offers exceptionally low cost per flight hour (~\$420), robust communications, world-leading ISR capabilities integrated with proven weapons capabilities, endurance, mobility, and survivability essential to dominate violent extremist organizations.

ABOUT MAG

Since its founding in 2010, MAG Aerospace has become a leader in integration and the provision of manned/unmanned full-spectrum outsourced ISR services.

With nearly 1,700 employees, MAG has flown nearly half a million hours operating more than 200 fixed wing, rotary wing, and unmanned aircraft system (UAS) aircraft across six continents in the most difficult and demanding flight conditions for the U.S. government, international organizations, commercial customers, and dozens of friendly foreign governments.

Eighty percent of the MAG team are veterans and 78 percent are co-located with customers bringing their experience and expertise to bear on the customer's mission.

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