

Mine Resistant Ambush Protected (MRAP) Family of Vehicles (FoV) – Marine Corps

Executive Summary

- The U.S. Marine Corps (USMC) will retain 2,467 Mine Resistant Ambush Protected (MRAP) vehicles in its enduring fleet that includes Cougar Category (CAT) I, Cougar CAT II, Buffalo CAT III, and MRAP All-Terrain Vehicle (M-ATV) variants.
- Early live fire testing conducted in 4QFY14 suggests that the Cougar CAT II A1 variant with seat survivability upgrades will meet its required level of performance; however, additional planned live fire testing remains to be executed in FY15.
- The Cougar retrofitted with a remote weapons station for use by the Air Force provides protection from underbody blasts.

System

- The MRAP Family of Vehicles (FoV) is designed to provide increased crew protection and vehicle survivability against current battlefield threats, such as IEDs, mines, small arms fire (SAF), rocket-propelled grenades (RPGs), and Explosively Formed Penetrators (EFPs). The MRAPs are employed by units in current combat operations in the execution of missions previously accomplished with the High Mobility Multi-purpose Wheeled Vehicle.
- In FY14, the MRAP Joint Program Office (JPO) dissolved and the Army and the Marine Corps became the lead Services responsible for their respective MRAP variants. In 2013, the Marine Corps defined its enduring MRAP fleet, which it will retain after transitioning from a JPO to a USMC-led program manager. Currently, 2,467 MRAP vehicles will be retained in the USMC enduring fleet: CAT I A1 (1,337 vehicles); CAT I A1 tube-launched, optically-tracked, wireless-guided (TOW®) weapons system (59); CAT II A1 (300); Cougar A2 Ambulance (19); M-ATV with Underbelly Improvement Kit (704); Cougar CAT II Mounted Communications Emitter Sensing Attack System (10), and Buffalo CAT III (38). In addition, the USMC will remain the Primary Inventory Control Activity for all Cougar platforms, including those vehicles divested to the Navy and Air Force.
- This report covers testing of two USMC Cougar CAT II A1 variants: one with seat survivability upgrades (SSU) and one



Cougar Category (CAT) II A1

with a remote weapons station (RWS) that is intended for use by the Air Force.

- The SSU is primarily a redesign of the rear crew compartment of the Cougar, focusing on improved seating for survivability, safety, and human factors integration, and can carry 10 Marines and 1 gunner.
- The Air Force RWS Cougar has a Common Remotely-Operated Weapons Station II mounted to its roof, and will carry a crew of three (driver, assistant driver, and RWS gunner).

Mission

Marines will operate the MRAP Cougar CAT II A1 vehicle to conduct mounted patrols, reconnaissance, communications, and command and control missions in a threat environment. Explosive Ordnance teams will rely on the Air Force RWS Cougar for support in a wide range of missions and environments both in the U.S. and while deployed.

Major Contractor

General Dynamics Land Systems – Ladson, South Carolina

Activity

Cougar CAT II A1 with SSU

- The Marine Corps plans to retrofit a total of 303 USMC, 41 Air Force, and 14 Navy CAT II A1 vehicles with the SSU upgrades that are designed to achieve Capabilities Production Document 1.1 objective-level protection against underbody and under-wheel blast mines.
- Live fire testing of the CAT II A1 Cougar with SSU commenced in FY14 with an underbody blast event, crew Automatic Fire Extinguishing System testing, and ballistic exploitation testing. Additional planned blast testing will continue into FY15. This seat upgrade program is a result of the 2010 DOT&E report on the original MRAP Cougar

vehicles and a 2011 DOT&E report on the Cougar vehicles retrofitted with an Independent Suspension System. Both reports emphasized the need for the then JPO to install improved energy-attenuating seats across the Cougar fleet.

Air Force RWS Cougar

- The Air Force will integrate the RWS upgrade into the following Cougar four variants: CAT I A1 (9 vehicles), CAT II A1 (39 vehicles), CAT I A2 (15 vehicles), and CAT II A2 (19 vehicles).
- The Marines executed a single underbody blast test of a CAT II A1 Cougar in the RWS configuration. The CAT II AI Cougar comprises 39 of the 82 total vehicles to be retrofitted, and configuration of the RWS integration across all four variants is sufficiently similar for the results of that test to apply to all four variants. This test focused on the area of significant modification for this platform, which was under the new RWS gunner seat.
- All testing was conducted in accordance with a DOT&E-approved test plan.

Assessment

Cougar CAT II A1 with SSU

- Early live fire testing indicates that the Cougar CAT II A1 with SSU meets its contract specifications. However,

additional planned live fire testing remains to determine the level of protection provided to occupants of the vehicle. The results from the legacy Cougar live fire test program (as found in the 2010 DOT&E report on the original MRAP Cougar vehicles) relative to other tested threats such as IEDs, indirect fire, SAF, RPGs, and EFPs are applicable to the Cougar CAT II A1 with SSU.

Air Force RWS Cougar

- The Air Force RWS Cougar provides protection to its occupants from underbody blasts at the location tested. The results from the legacy Cougar live fire test program (as found in the 2010 DOT&E report on the original MRAP Cougar vehicles) relative to other tested threats such as IEDs, indirect fire, SAF, RPGs, and EFPs are applicable to the Air Force Cougar with RWS.

Recommendations

- Status of Previous Recommendations. The program is making progress implementing the previous recommendations regarding upgrading the seats in the Cougar CAT II A1 vehicles. There was no live fire or operational testing conducted on the M-ATV in FY14; therefore, none of the FY13 recommendations apply to the vehicles tested in FY14.
- FY14 Recommendations. None.