

Mine Resistant Ambush Protected (MRAP) Family of Vehicles

Executive Summary

- DOT&E transmitted its Assessment of the Mine Resistant Ambush Protected (MRAP) Family of Vehicles to Congress and the Secretary of Defense in March 2010.
- In FY10, the MRAP program continued a capabilities insertion program in FY10 to acquire, test, and assess enhanced capabilities and solutions to be integrated across the MRAP Family of Vehicles. The capability insertions are undergoing developmental, live fire, and operational testing to assess their contribution to MRAP operational effectiveness.
- The Army Test and Evaluation Command (ATEC) completed the operational testing of the Force Protection Industries, Inc. (FPI) Cougar Independent Suspension System (ISS) and Navistar Dash MRAP variants in December 2009 at Yuma Proving Ground, Arizona.
- DOT&E assessed the FPI Cougar Category I (CAT I) and Category II (CAT II) as possessing the off-road mobility needed to transport units over Afghanistan terrain. The FPI Cougars are operationally suitable.
- The Navistar Dash, as tested, is not operationally effective for use in Operation Enduring Freedom. These vehicles could not negotiate cross-country terrain. The program plans to incorporate an ISS to improve off-road mobility. The vehicles were not operationally suitable due to poor reliability.

System

- MRAP vehicles are a family of vehicles designed to provide increased crew protection and vehicle survivability against current battlefield threats, such as IEDs, mines, and small arms. DoD initiated the MRAP program in response to an urgent operational need to meet multi-Service ground vehicle requirements. MRAP vehicles provide improved vehicle and crew survivability over the High Mobility Multi-purpose Wheeled Vehicle (HMMWV) and are employed by units in current combat operations in the execution of missions previously executed with the HMMWV.
- This report covers two categories of MRAP vehicles and the MRAP-Ambulance variant. The MRAP CAT I vehicle is designed to transport six persons and the MRAP CAT II vehicle is designed to transport 10 persons. The MRAP Ambulance variant vehicle is designed to transport up to three litter casualties and from three to six ambulatory casualties. MRAP vehicles incorporate current Service command and control systems and counter-IED systems. MRAP vehicles contain gun mounts with gunner protection kits capable of mounting a variety of weapons systems such as the M240B medium machine gun, the M2 .50 caliber heavy machine gun, and the Mk 19 grenade launcher. The program has developmental efforts underway to integrate improved



FPI Cougar Category I



FPI Cougar Category II



Navistar Dash Category I



BAE RG-33L Category II



GDLS RG-31A2 Category I



BAE TVS Caiman Category I



NAVISTAR Ambulance Cat. I



BAE Ambulance Category II

- protection against Rocket Propelled Grenades (RPGs) on existing MRAP vehicles.
- Five vendors have been awarded ongoing production contracts for MRAP CAT I and CAT II vehicles: FPI, General Dynamics Land Systems Canada (GDLS-C), NAVISTAR Defense, BAE-Tactical Vehicle Systems (BAE-TVS), and BAE Systems (BAE). Six CAT I and CAT II variants have been purchased:
 - FPI Cougar CAT I
 - FPI Cougar CAT II
 - NAVISTAR Defense MaxxPro CAT I vehicle and Ambulance variant

DOD PROGRAMS

- BAE RG-33L CAT II and Ambulance variant
- GDLS-C RG-31A2 CAT I
- BAE TVS Caiman CAT I
- Units equipped with the MRAP CAT I vehicles will conduct small unit combat operations such as mounted patrols and reconnaissance. Many of these operations are conducted in urban areas. Units equipped with MRAP CAT II vehicles conduct ground logistics operations including convoy security, troop and cargo transportation, and medical evacuation. The MRAP Ambulance variant supports the conduct of medical treatment and evacuation.

- MRAP vehicles support multi-Service missions and are fielded to units based upon priorities established by the operational commander.

Major Contractors

- Force Protection Industries (FPI), Inc. – Ladson, South Carolina
- General Dynamics Land Systems Canada – Ontario, Canada
- NAVISTAR Defense – Warrenville, Illinois
- BAE-TVS – Rockville, Maryland
- BAE Systems – Santa Clara, California

Activity

- In FY10, the MRAP program continued a capabilities insertion program to acquire, test, and assess enhanced capabilities and solutions to be integrated across the MRAP Family of Vehicles. The major capability insertions are the following: ISS; Command, Control, and Communication Suite; Common Remote Weapon Station; and Gunner Protective Kit Overhead Protective Cover.
- The Joint Program Office is managing the capability insertion program through Engineering Change Proposals. The capability insertions are undergoing developmental, live fire, and operational testing to assess their contribution to MRAP operational effectiveness.
- ATEC completed the operational testing of the FPI Cougar ISS and Navistar Dash MRAP variants in December 2009 at Yuma Proving Ground, Arizona.
- In March 2011, the program will execute a Limited User Test (LUT) at Yuma Proving Ground, Arizona, to examine a unit's ability to execute missions with the MRAP Family of Vehicles modified with an ISS and the operational effectiveness of the FPI Cougar CAT II ambulance variant.
- Following publication of the DOT&E MRAP report in March 2010, the Secretary of Defense directed additional live fire testing on two of the MRAP variants. ATEC completed these tests in accordance with a DOT&E-approved test plan.
- ATEC completed Live Fire testing of the FPI Cougar A1 and A2 ISS upgrades in 3QFY10. DOT&E plans to issue a single vulnerability report on these vehicles in early FY11.

Assessment

- The FPI Cougar CAT I and CAT II demonstrated the off-road mobility needed to transport units over Afghanistan-like terrain during the MRAP All Terrain Vehicle IOT&E.
- The FPI Cougars with ISS enable units to be less predictable in their movement, continue operations under armor protection, and conduct a greater variety of mounted maneuver to approach and secure an objective than possible with current MRAPs.
- The FPI Cougars are operationally suitable.
- The Navistar Dash, as tested, is not operationally effective for use in Operation Enduring Freedom. These vehicles could not negotiate cross-country terrain. The program plans to incorporate an ISS to improve off-road mobility. The MRAP program intends to complete operational testing of an ISS-equipped Dash in FY11. The vehicles were not operationally suitable due to poor reliability. The Navistar Dash demonstrated 121 Mean Miles between Operational Mission Failure (MMBOMF) versus its operational requirement of 600 MMBOMF.

Recommendations

- Status of Previous Recommendations. The MRAP program continues to address all previous recommendations.
- FY10 Recommendation.
 1. The program should improve the Navistar Dash reliability and off-road mobility capability by integrating an ISS and completing operational testing of an ISS-equipped Dash.