

## Stryker Mobile Gun System (MGS)

### Executive Summary

- The Army has mitigated, by either material fixes or tactics, techniques, and procedures, 22 of 23 deficiencies identified in the 2008 Secretary of Defense report to Congress. DOT&E identified 20 of these deficiencies in its 2008 IOT&E report to Congress.
- The Army, in coordination with DOT&E, submitted the final report to Congress in July 2013, updating the status of actions taken by the Army to correct or mitigate all Stryker Mobile Gun System (MGS) deficiencies, as directed in Section 115 of the FY09 Duncan Hunter National Defense Authorization Act.
- In FY13, the Army corrected the coaxial machine gun low ammunition sensor deficiency and demonstrated improvements for four survivability deficiencies.
- In live fire testing, Stryker Reactive Armor Tiles (SRAT II) demonstrated that it mitigates some MGS vulnerabilities and can serve as a vulnerability reduction measure for all flat-bottom Stryker vehicles. LFT&E did reveal SRAT II performance deficiencies. The details are classified.

### System

- The Stryker Family of Vehicles consists of two variants on a common vehicle platform: Infantry Carrier Vehicle and the MGS.
- The MGS provides the three-man crew with varying levels of protection against small arms, fragmenting artillery, mines, and rocket-propelled grenades (RPGs). Add-on armor options that provide RPG protection include slat armor (high hard steel arranged in a spaced array) and SRAT II (reactive armor tiles).
- The MGS mission equipment includes the following:
  - M68A2 105 mm cannon system with an ammunition handling system
  - Coaxial 7.62 mm machine gun and a secondary M2HB, .50-caliber machine gun
  - Full solution fire control system with two-axis stabilization
  - Low-profile turret meant to provide survivability against specified threat munitions

### Activity

- During the December 2010 Stryker Double-V Hull (DVH) Configuration Steering Board, the Army decided not to pursue full-rate production for the Stryker flat-bottom MGS. The Army determined it could not integrate the DVH design onto the MGS platform without the Stryker modernization program to resolve weight and power shortfalls.
- The Army has produced and fielded 142 MGSs. Three MGSs are total losses due to battle damage, so the current fleet has 139.



- Driver's Vision Enhancer and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance components as government-furnished equipment

### Mission

- The Stryker Brigade Combat Team uses the MGS to create openings in walls, destroy bunkers and machine gun nests, and defeat sniper positions and light armor threats. The primary weapon systems are designed to be effective against a range of threats up to T-62 tanks.
- The MGS operates as a three-vehicle platoon organic to the Stryker infantry company or as a single vehicle in support of a Stryker infantry platoon.

### Major Contractor

General Dynamics Land Systems – Sterling Heights, Michigan

- In December 2012, the Army executed a gunnery demonstration to validate the correction to the coaxial machine gun low ammunition sensor deficiency identified during previous operational testing.
- The Army completed the LFT&E program for the MGS with SRAT II. Test and evaluation activity in FY13 included armor performance testing of individual tiles and ballistic hull and turret testing to complete the characterization of the protection

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provided by the add-on armor. The Army also completed its modeling and simulation effort in support of the final ballistic vulnerability evaluation of MGS equipped with SRAT II.

- The Army, in coordination with DOT&E, submitted the final report to Congress in July 2013, updating the status of actions taken by the Army to correct or mitigate all Stryker MGS deficiencies, as directed in Section 115 of the FY09 Duncan Hunter National Defense Authorization Act.
- There have been five auxiliary battery box fires since 2008, the last one in August 2013. After this recent fire, ATEC identified the auxiliary battery box as a safety hazard. The Army released a Ground Precautionary Action detailing near-term corrective actions.
- The Army conducted all operational testing in FY13 in accordance with DOT&E-approved test plans.

## Assessment

- The Army has mitigated, by either material fixes or tactics, techniques, and procedures, 22 of 23 deficiencies identified in the 2008 Secretary of Defense report to Congress. DOT&E identified 20 of these deficiencies in its 2008 IOT&E report to Congress.
- In 2013, the Army corrected the coaxial machine gun low ammunition sensor deficiency and demonstrated improvements for four survivability deficiencies.
- In live fire testing, SRAT II demonstrated that it mitigates some MGS vulnerabilities and can serve as a vulnerability reduction measure for all flat-bottom Stryker vehicles. LFT&E did reveal SRAT II performance deficiencies. The details are classified.

- In the 2007 IOT&E report, DOT&E assessed the MGS as not operationally effective when operating in a degraded capacity. DOT&E assessed that the gun pod can be easily disabled, causing the MGS to operate in a degraded capacity, thereby making the MGS not operationally effective. Lack of adequate gun pod protection makes the MGS vulnerable to widely proliferated threats including RPGs, which increases the likelihood of the MGS operating in a degraded capacity. The Army has no plans to improve gun pod protection.
- The C-130 Transportability Key Performance Parameter is a design constraint that limits MGS capabilities. Because of size and weight constraints for transporting equipment on the C-130, there is a limitation on the size and weight of the MGS. This limit results in several survivability deficiencies, including protection of the Commander's Weapon Station, protection of 105 mm ammunition, gun pod protection, and hydraulic circuit separation. If the Army decides to move forward with full-rate production, a Stryker modernization program will have the opportunity to address these deficiencies.

## Recommendations

- Status of Previous Recommendations. The Army has addressed one of the recommendations from FY12 but did not address the recommendation to increase gun pod protection.
- FY13 Recommendation.
  1. As part of DOT&E coordination with the Army, as directed in Section 115 of the FY09 National Defense Authorization Act, the Army should increase gun pod protection.