

Stryker - Mobile Gun System (MGS)

Executive Summary

- The Mobile Gun System has operational limitations that restrict the company commander's ability to fight the Mobile Gun System in close or complex terrain.
- The Army made significant design changes to prototype vehicles. These changes included a redesigned ammunition handling system and a survivability upgrade for the 105 mm main gun pod.

System

- The Stryker Family of Vehicles consists of two basic variants: the Infantry Carrier Vehicle and the Mobile Gun System.
- Since the Mobile Gun System needed additional development, the vehicle is undergoing its own separate acquisition program.
- The Mobile Gun System mission equipment includes:
 - M68A1E4 105 mm cannon system with an autoloader
 - Coaxial 7.62 mm machinegun and a secondary M2HB .50-caliber machinegun
 - Full solution fire control system with two-axis stabilization
 - Low-profile turret
- The Mobile Gun System has a three-man crew.
- The system integrates the Driver's Vision Enhancer, Enhanced Position Location Reporting System, Force XXI Battle Command Brigade and Below, Global Positioning System, and Eye-Safe Laser Rangefinder.
- The Mobile Gun System provides the crew with levels of protection against small-arms, fragmenting artillery, mines,



and rocket-propelled grenades. The 105 mm cannon is designed to be protected against small-arms fire.

Mission

- The Stryker Brigade Combat Team equipped with the Mobile Gun System can create openings in walls, destroy bunkers and machinegun nests, and defeat sniper positions and light armor threats. Primary gunnery systems are effective against a range of threats up to T-62 tanks.
- The Mobile Gun System operates as a three-vehicle platoon organic to the Stryker infantry company or as a single vehicle in support of a Stryker platoon.

Activity

- The Army made significant design changes to prototype vehicles. These changes included a redesigned ammunition handling system and a survivability upgrade for the gun pod, which houses the 105 mm main gun and parts of the autoloader.
- The Army conducted a Mobile Gun System Reliability Growth Test in August–September 2005, to assess the status of corrective actions to the ammunition handling system. Results of this test were used to support the low-rate production decision for 58 vehicles.
- The Army is currently updating the Test and Evaluation Master Plan to support the IOT&E and LFT&E scheduled for FY06 and FY07.
- The Mobile Gun System LFT&E program consists of:
 - Mobile Gun System unique armor characterization testing
 - Ballistic hull and turret testing
 - Automatic fire extinguishing system testing
 - Controlled damage experimentation

- Ammunition vulnerability characterization testing
- System-level and full-up system-level testing
- Battle damage assessment and repair exercises

Assessment

- Mobile Gun System operational capabilities include:
 - It is capable of breaching walls and destroying bunkers.
 - Primary gunnery systems are effective against a range of threats up to T-62 tanks.
 - Stabilized system provides the capability to scan and fire on the move.
- Mobile Gun System operational limitations include:
 - Marginally effective auxiliary sights (e.g., sights would become loose, difficult to acquire/maintain an adequate boresight).
 - Minimum range firing solution (e.g., the fire control system could only produce a ballistic solution greater than or equal to 200 meters; restricts the commander's ability to fight

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- the Mobile Gun System in an urban environment). This limitation does not apply to the anti-personnel round.
- Dead space around the vehicle for observation and defensive fires limits the crew's ability to engage close targets.
 - Concerns about C-130 transportability and reconfiguration issues.
 - Capability to integrate existing and planned C4ISR systems.
 - Demonstrated results from the Reliability Growth Test showed that the Mobile Gun System achieved 57 mean rounds between system aborts, versus a growth expectation of 49 mean rounds between system aborts.
 - The Reliability Growth Test assessment was made using developmental vehicles, not fully integrated production representative systems. The Reliability Growth Test highlighted essential function failures that maintainers will have to fix. The Reliability Growth Test did not include use of the coaxial machinegun, and did not address operational effectiveness issues noted in previous Limited User Tests (e.g., marginally effective auxiliary sighting system, ability to meet target identification and engagement requirements, and the ability to effectively engage minimum range targets).
 - Mobile Gun System survivability has not been assessed to date. The Mobile Gun System survivability assessment is scheduled for FY06 and FY07. The Army added armor to the gun pod, but this solution has not been tested or evaluated in full-up system Live Fire tests. The Army also adopted a slat armor vice reactive armor survivability solution against rocket-propelled grenades. The effectiveness of this solution has not been tested.
 - DOT&E is concerned that the Army plans to field the Mobile Gun System to two Stryker Brigades and deploy Mobile Gun System-equipped units into combat before demonstrating performance in planned developmental, live fire, and required operational testing.

Recommendation

1. The Army should continue planned Mobile Gun System developmental, live fire, and initial operational testing and evaluation before deploying Mobile Gun System-equipped Stryker Brigades into combat.