

Abrams M1A2 System Enhancement Program Version 3 (SE Pv3) Main Battle Tank (MBT)

Executive Summary

- DOT&E approved the Abrams M1A2 System Enhancement Program Version 3 (SE Pv3) Main Battle Tank (MBT) Test and Evaluation Master Plan and LFT&E strategy on March 26, 2015.
- In FY15, the Army continued testing to characterize the performance of the M1A2 SE Pv3 Next Evolutionary Armor (NEA) against multiple, operationally realistic threats.
- The Army conducted underbody IED testing against M1A2 ballistic hull and turrets (BH&T) to challenge vulnerability reduction measures taken to improve the protection provided by the tank against underbody IEDs. The Program Office used these test results to determine which design changes to integrate into the M1A2 SE Pv3 to improve underbody IED protection.
- DOT&E is working with the Army to utilize data from ongoing test phases to support its final assessment of M1A2 SE Pv3 survivability against existing and emerging threats in FY20.

System

- The Abrams M1A2 SE Pv3 is an upgrade to the U.S. Army's current MBT. The M1A2 SE Pv3 is a tracked, land combat, assault weapon system possessing significant survivability, shoot-on-the-move firepower, joint interoperability (for the exchange of tactical and support information), and a high degree of maneuverability and tactical agility.
- The Army intends the M1A2 SE Pv3 to enable the crew to engage the full spectrum of enemy ground targets with a variety of accurate point and area fire weapons in urban and open terrain.
- The M1A2 SE Pv3 includes multiple upgrades to improve:
 - Power generation and distribution to support power demands of future technologies
 - Network compatibility
 - Survivability against multiple threats by incorporating NEA, a new underbody IED kit and other vulnerability reduction measures to reduce the tank's vulnerability to IEDs. These measures include redesigned crew seating, additional floor stiffeners, hardware to provide lower limb protection, and changes in the material and dimensions of internal structural supports.



- Lethality by providing the ability for the fire control system to digitally communicate with the new large caliber ammunition
- Energy efficiency (sustainment) due to the incorporation of an auxiliary power unit

Mission

- Units equipped with the M1A2 SE Pv3 enable Army combined arms teams to close with and destroy the enemy by fire and movement across the full range of military operations.
- The Army intends the M1A2 SE Pv3 to defeat and/or suppress enemy tanks, reconnaissance vehicles, infantry fighting vehicles, armored personnel carriers, anti-tank guns, guided missile launchers (ground and vehicle mounted), bunkers, dismounted infantry, and helicopters.
- The M1A2 SE Pv3 is expected to support the full range of military operations by being fully integrated, expeditionary, networked, decentralized, adaptable, and lethal.

Major Contractor

General Dynamics Land Systems – Sterling Heights, Michigan

Activity

- DOT&E approved the M1A2 SE Pv3 Test and Evaluation Master Plan and LFT&E strategy on March 26, 2015.
- In FY15, the Army continued testing to characterize M1A2 SE Pv3 armor performance against multiple threat types

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under the auspices of NEA, a separate materiel development verification and production effort. DOT&E is following the NEA development and verification program to leverage all relevant data to support the M1A2 SEpv3 survivability assessment. DOT&E is working with the Army to finalize M1A2 SEpv3 armor performance evaluation plans.

- In accordance with DOT&E-approved test plans, the Army continued underbody IED T&E against M1A2 BH&T in FY15, to finalize design plans intended to improve M1A2 SEpv3 IED protection.
- The Army will conduct additional testing in FY16 to better characterize the protection provided by the tank equipped with the new underbody kit and recently integrated vulnerability reduction features. These features include redesigned crew seating, additional floor stiffeners, hardware to provide lower limb protection, and changes in the material and dimensions of internal structural supports.
- In FY16, the Army plans to continue testing to characterize NEA and explosive reactive armor performance, vulnerabilities associated with stowed ammunition and underbody IED protection.

Assessment

- DOT&E continues to assess data resulting from the Army's ongoing efforts to characterize the protection provided by NEA against expected, operationally-realistic threats.
- The underbody IED testing against non-operational BH&Ts with underbody protection kits has resulted in design changes expected to improve the M1A2 SEpv3's IED protection.
- All testing conducted thus far will inform the planning process for the final full-up system-level live fire testing of operational M1A2 SEpv3 MBTs scheduled in FY19.
- DOT&E will leverage all relevant vulnerability test data from the armor characterization and underbody IED test phases and evaluate all modeling and simulation tools available to support a FY20 final assessment of the tank's survivability to current and expected threats.

Recommendations

- Status of Previous Recommendations. This is the first annual report for this program.
- FY15 Recommendations. None.