

COMMANDER'S HATCH

Armor Modernization, The Key to the Future

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As the Chief of Armor, one of my biggest tasks is to ensure the viability and readiness of our Army's mounted force. The Armor Center has forged a team that includes our peer subordinate commands in TRADOC, TACOM, PM Abrams, numerous companies in private industry, and many other significant organizations to prepare the way ahead for the mounted force. This team has relied heavily on constant input from the field about how to improve the M1 Abrams main battle tank. We are making tremendous strides to equip our soldiers with the most modern version of the M1 tank that we can afford.

The Abrams tank fleet remains the cornerstone of our ground combat capability. We are currently projecting that some variant of the M1 tank will be with our

soldiers until 2025. The fleet will consist of four variants: M1A2 System Enhancement Package (SEP), M1A1 Digital (D), M1A1, and M1.

The M1A2 tank configuration represents a significant advancement in capability over the M1A1 tank in the areas of lethality, survivability, and maintainability. The M1A2 MBT will evolve from its current configuration through a series of pre-planned product improvements (P²). These improvements center on reliability, maintainability, enhanced command and control, better crew performance, and increased lethality.

These pre-planned improvements will capitalize on state-of-the-art technological advances. Most of the Near-Term improvements are grouped into a System Enhancement Package (SEP). Others -

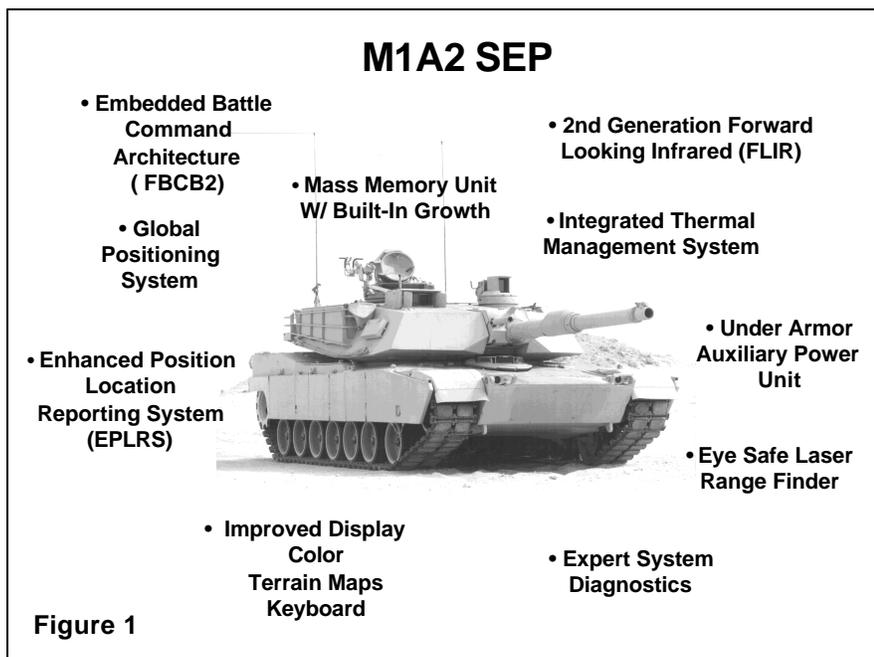
such as Halon replacement, Vehicle Intercom System (VIS), Battlefield Override, Pulse Jet System (PJS), select titanium components, T-158LL track, and an Eyesafe Laser Rangefinder (ELRF) - were part of production line improvements. All M1A2s will either be produced with new production improvements or be modified at field sites or depots into the most modern configuration. This program will ensure that our soldiers are equipped with the best tank possible.

The SEP program is the result of the technological maturation of the second-generation FLIR, the current computer/electronic 3-5 year evolution cycle, and the need to make the M1A2 compliant with the Army's digital Common Operating Environment. The M1A2 SEP will include the following major modifications:

- Upgraded SEP electronics and C²
- Second-generation FLIR and optical improvements
- Under-Armor Auxiliary Power Unit (UAAPU)
- Environmental cooling.

The Army will continue to maintain its edge as the world's most lethal fighting force as the M1A2 SEP is fielded.

Ideally, our goal would be to put an M1A2 SEP in every Armor unit in the U.S. Army, but currently we are not able to achieve this goal. The M1A1D is the next-best option to the M1A2 SEP. The M1A1D represents a solution to the critical need for operational performance improvements to the M1A1. With digitization, our Armor formations can operate at an increased tempo and commanders can execute their missions well within the threat commander's decision cycle.



High payoff improvements for the M1A1 D are:

- Integrated appliqué computer system
- Far-target designation capabilities
- FBCB2 command and control system
- Upgraded tank commander's panel
- Eye-safe laser rangefinder

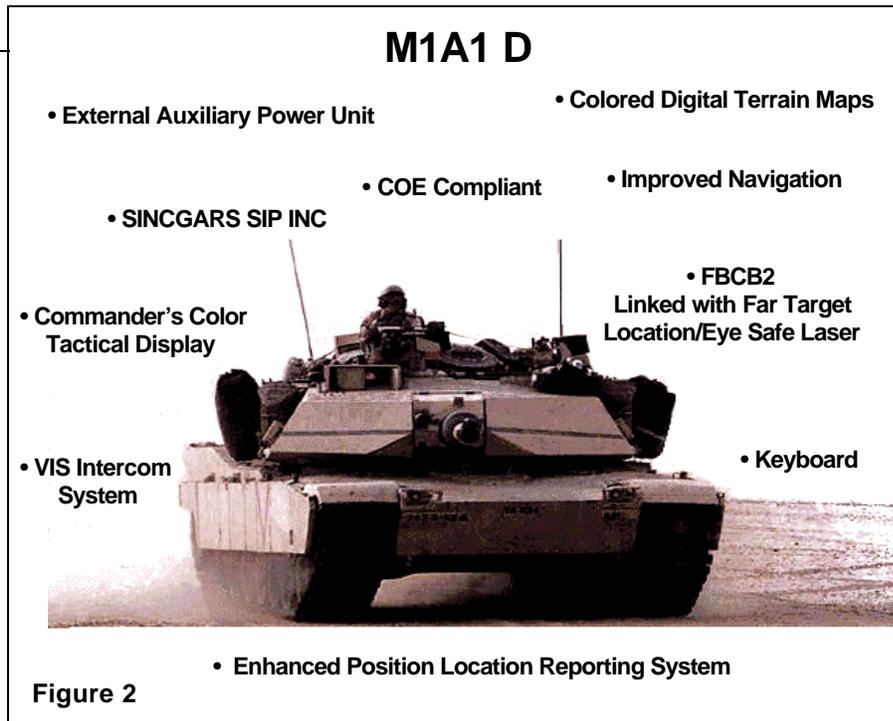
Modernization of our M1 MBT fleet means that the M1A2 SEP and the M1A1D will continue to be the dominant mounted maneuver systems in the world. To ensure this, we must pursue an active modernization program that capitalizes on the most modern technological advances that our country can provide. Our Army must be able to adapt to the requirements of the 21st century. We must continue to maintain the capabilities of combat overmatch that we currently enjoy.

As the Armor Center readies for the biennial Armor Functional Area Assessment to the senior Army leadership, we have revised the Armor modernization strategy. This strategy mirrors the Army modernization strategy, and is the path to the future of the Armor Force. The key components of the Army's modernization plan are:

- Fielding programs that enable information superiority
- Maintaining combat capability overmatch through selective modernization of combat systems.
- Conducting essential research and development into leap-ahead science and technology.
- Re-capitalizing aging systems with product improvements, so as to achieve status as a totally integrated force.

The Armor modernization plan, like the Army modernization plan, consists of five key areas. The first effort is to field tanks that **enable information superiority**. The M1A2 SEP and M1A1D provide excellent situational awareness and command and control capabilities. The M1A1D and M1A2 SEP provide us the **information dominance** needed to provide leaders a common relevant picture of the battlefield, scaled to their level of interest and tailored to their special needs.

The second critical component of the Armor modernization plan is to **maintain combat capability overmatch** through selective modernization of combat systems. The Armor modernization strategy focuses on improving survivability with the latest armor packages and a Vehicle



Integrated Defense System (VIDS). Improved ammunition and better target acquisition with next-generation FLIR are required in order that we can maintain the capability of lethality overmatch. Our first priority is to provide the M1A1 with a second-generation FLIR for the Gunner's Primary Sight (GPS), starting in 2006, to maintain a combat overmatch. The M1A2 SEP, with its second-generation FLIR has the lethality overmatch capability until 2012. In 2012, the next-generation FLIR needs to be added to both the GPS and CITV in order to enable the tank to maintain overmatch until production and fielding of the Future Combat System (FCS). Additionally, FLIR also provides increased capability to avoid fratricide because it increases the range at which the gunner and tank commander can positively identify a target.

Conducting essential research and development on modification to the Abrams fleet and future Operations and Sustainment (O&S) cost-savers is the third component of the Armor modernization program. In the near term, this includes the research, development, test & evaluation (RDT&E) effort for VIDs and other components that can be applied to our existing M1 series of vehicles. In the far term, the RDT&E effort is the procurement of the Future Combat System (FCS).

As we attempt to maintain the Abrams fleet through 2025 it is important that we have a viable program to **re-capitalize the fleet**. The Abrams Integrated Management (AIM) program is the fourth

element of the modernization strategy that gives us the capability to bring tanks back to a like-new status. AIM is required not only for the M1A1 fleet, but will also be needed for the M1A2 fleet as it reaches its 15th year.

Now that you have looked at the strategy and understand the basic building blocks that will carry Armor into the next century, we need to explain the modernization time line that will maintain our combat overmatch capabilities.

We have focused our modernization strategy for Armor on improved survivability and lethality. These capabilities, coupled with the gun & ammunition capability upgrades, are the essence of Armor supremacy through 2025 timeframe. The capabilities collectively provide Armor the ability to dominate distributed operations on the emerging Force XXI battlefield. Improved survivability and target acquisition/fire control found in the M1A1D and M1A2 SEP will only magnify Armor's capabilities.

As you can well determine, the Armor modernization plan comprehensively covers all of the desired capabilities that we need in the mounted, mobile system for the 21st century. The near-term Armor modernization program upgrades the M1A1/M1A2 with increased situational awareness and re-capitalizes the older models of the M1 with the AIM program. The mid-term plan is product im-

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provements on the M1A1 and upgrades to the M1A2 to maintain survivability and lethality overmatch. Our far-term focus is to provide for successor to the Abrams tank, the FCS.

This article focuses on one of our primary materiel solutions for the next century. At the Armor Center we are also immersed in crafting training, leader development, and tactics to complement the improved Situational Awareness, Survivability, and Lethality that the Abrams M1A2 SEP and M1A1D provide the Armor Force. Our commitment to the soldiers and leaders of Armor is to create the most DTLOMS-comprehensive systems that we can provide. Forge the Thunderbolt!

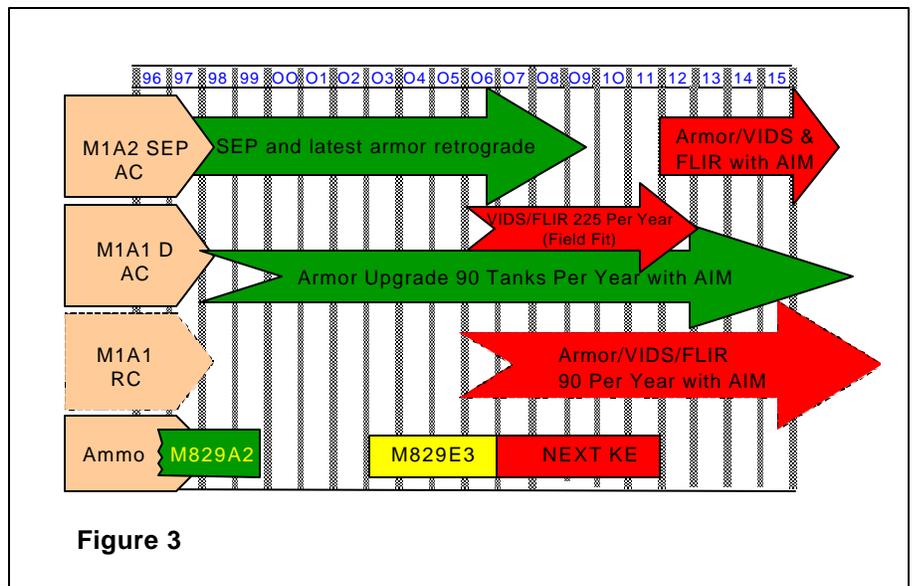


Figure 3