



US DEPARTMENT OF DEFENSE
BLAST INJURY RESEARCH PROGRAM
COORDINATING OFFICE

Vehicles

Enhanced Underbody and Crew Protection for the M1A2 SEPv3 Abrams Tank

In addition to armor protection upgrades to the Abrams Tank, the Next Evolution Armor (NEA) development effort also addressed both weight reduction and crew protection improvements for under-body blast (UBB). Weight reduction was accomplished through a redesign of the existing Aluminum UBB kit that resulted in a thinner, lighter-weight Steel UBB kit which provided equivalent protection, improved ground clearance and mobility as well as simplified kit installation. Crew protection was significantly improved through incorporation of a mixture of stiffening the basket structure and reducing impulse/arresting secondary projectiles. Specifically, this was accomplished through the use of blast mitigating seats and footrests/blast mats, redesigned turret basket support posts, incorporation of expanded platform stiffeners, installation of a crushable mount for the hydraulic manifold and energy absorbing under-basket stanchions and redesign/strengthening of the access panel, hinges and locking mechanism. NEA UBB Improvements successfully completed UBB Testing using both legacy (Comer) and Engineered Roadbed soils, resulting in drastic improvement for the Loader and overall reduced severity of injury to the rest of the crew. All of these enhancements will be incorporated into the M1A2 SEPv3 Abrams Tank (Figure 1) scheduled to enter production on FY17 and will reduce casualties to the Abrams Tank System crew by providing blast mitigating and energy absorbing systems at the lowest possible overall system weight.



FIGURE 1: M1A2 SEPv3 Abrams Tank

