

Pre-Emplaced Electric Vehicle Stopper (PEVS)



U.S. Department of Defense
Non-Lethal Weapons Program

WHAT IS IT?

The Pre-Emplaced Electric Vehicle Stopper (PEVS) is a compact counter-materiel intermediate force capability that can stop a targeted vehicle by injecting high-powered electrical impulses into its engine. PEVS is portable, can be operated remotely, and engage hundreds of targets before requiring any significant maintenance.

HOW DOES IT WORK?

When armed, two spring-loaded electrodes extend upward to deliver a short-duration electrical pulse as they contact the undercarriage of a passing car, truck, or van. The charge causes its electronics to malfunction temporarily, stopping the vehicle. The driver can restart the engine and continue to his/her destination after security personnel determine that no threat was present.

OPERATIONAL IMPACT

PEVS complements an installation's robust entry control point (ECP) measures by providing forces with additional decision time and space to validate that a perceived hostile intent/act is, in fact, hostile. Users can engage large and small vehicles at safer standoff ranges without harming passengers or personnel, mitigating potential vehicle-borne threats and enhancing force protection. This capability supports the full spectrum of military objectives inherent in the National Defense Strategy's framework and across the competition continuum.

RECENT DEVELOPMENTS

PEVS has undergone testing at the Naval Surface Warfare Center-Dahlgren Division since 2008 against more than 100 vehicles—including passenger cars and SUVs as well as pickup, box, dump, and tractor-trailer trucks—representative of worldwide makes/models powered by gasoline, diesel, and electric/hybrid engines.

The Joint Intermediate Force Capabilities Office (JIFCO) has also conducted comprehensive studies and documentation of the following in support of operational assessments, including:

- Human Effects Risk Assessments/Fuel Vapor Ignition Hazard Assessment Reports
- Operations/Maintenance Manuals and Training Material



PEVS stops vehicles at significant keep-out ranges, reducing risk to personnel from vehicle-borne improvised explosive device blast effects



The system's high-powered pulse causes the targeted vehicle's electronics to malfunction temporarily without harming its occupants.



- Level II Technical Data Package
- Independent Reviews (Pulsed Power, Systems Engineering, Reliability, Human Systems Integration, Mechanical)
- Preliminary Legal Reviews

Six operational PEVS prototypes, spares, and equipment suitable for extended evaluations have been built to support pilot programs for the U.S. Air Force. Tinker Air Force Base (Okla.) completed a successful six-month pilot program in 2019.

FUTURE EFFORTS

Research the feasibility of a pre-emplaced, electric, "contactless" capability to stop vehicles at significant keep-out ranges, reducing risk to personnel from vehicle-borne improvised explosive device blast effects. This advanced PEVS could improve ECP defense over current measures by offering:

- Level II Technical Data Package
- Fewer size/weight restrictions for potential targets
- Easier relocation of affected vehicles after engagements



PEVS can operate remotely and engage hundreds of targets before requiring significant maintenance.



The system roadway module (left) and operator interface module allow personnel to stop a wide range of large and small vehicles.

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