



RDECOM



GROUND VEHICLE **POWER & MOBILITY**

DRIVING THE **ARMY** FORWARD



Power Plant Integration Team

The TARDEC Ground Vehicle Power and Mobility Power Plant Integration Team **MISSION** is to:

- Research, develop, test and transition superior ground vehicle power plant integration systems to warfighters.
- Provide research, development, engineering and testing support to our customers in all matters concerning power plant integration.
- Identify technology barriers and develop effective solutions to improve the Current Force and realize superior capability of the Future Force.
- Be an unsurpassed resource for engineering expertise and testing capabilities in the areas of Transmissions, Thermal Management and Air Filtration Systems.

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.



Application Areas

TARDEC's Ground Vehicle Power and Mobility Power Plant Integration Team activities can range from research, development, test, evaluation (RDT&E) and modeling and simulation (M&S) to power plant integration sustainment and field support of military ground vehicles including:

- Transmission Development and Test
- Engine & Transmission Cooling
- Electronics Cooling
- Crew Comfort, HVAC
- Cooling System Test and Evaluation
- Advanced Cooling Technologies
- Air and Fluid Filtration Systems RDT&E
- Power Train Systems – Clutches, Torque Converters, Final Drives, Transfer Cases

Services

The TARDEC Ground Vehicle Power and Mobility Power Plant Integration Team provides the following engineering services for successful final solutions and products to satisfy customer expectations:

- Transmission Performance Testing – Steer, Brake, Shift Points, Cooler Characteristics, Converter and Lock up Performance
- Transmission Endurance Testing
- Transmission Durability Testing
- Vehicle Full Load Cooling Test
- Vehicle High Temperature HVAC Test
- Radiator Heat Rejection Test
- Pressure Cycling Assessment of Radiators
- Electronics Cooling Performance Testing
- Air Filtration Efficiency and Dust Capacity Test
- Air Filtration Life Measurement Testing
- Vehicle Flow and Heat Transfer Analysis
- Cooling System Component Comparisons
- Optimization of Existing Cooling System
- Cooling Impact of Engine Upgrades
- Power Plant Cooling Handbook
- Cooling System Design Guide
- Electronic Cooling Concept Studies
- Functional Benefit Analyses and Feasibility Studies
- Technology Insertion Evaluations
- Linear/Non-Linear Structural Analysis

- Technology Integration and Testing
- M&S/Testing/Verification
- Predictive Analysis and Simulation
- Vehicle Level Cooling System M&S
- Component Level Computational Fluid Dynamics Cooling System M&S
- HVAC Design and Simulation

Major Programs & Initiatives

- M88 HERCULES Full Load Cooling Test
- M109 Paladin Re-Power Program
- Abrams X1100 Transmission Test Program
- Barrier-less Air Cleaner Test Program
- Micro-channel Radiator Test
- Graphite Foam Radiator Test
- Carbon Foam Cold Plate/Phase Change
- Advanced Inverter Cooling Demonstration
- Waste Heat Recovery Research
- Advanced Fluid Research (Nanofluids)
- Component and System Level M&S
- Cooling System Evaluation Tool
- Advanced Co-Simulation Thermal Analysis Tool
- Innovative Spot Cooling Research
- Micro-fluidics and Nano Technology RDT&E
- Two-Phase Thermal Management System
- Enhanced Super Conductor
- Cross-Flow Membrane Fuel Filter
- Developed Powered Air Precleaner
- Electro-Mechanical Filter
- Sonic/Acoustic Cleaning System
- Long Life M1 Abrams Air Cleaner Scavenging Blower Motor

