Shaping the future of the TWV Fleet

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Who is TARDEC?

MISSION:
Develop, integrate and sustain the right technology solutions for all manned and unmanned Department of Defense (DOD) ground systems and combat support systems to improve Current Force effectiveness and provide superior capabilities for the Future Force.

VISION:
The first choice of technology and engineering expertise for ground vehicle systems and support equipment – today and tomorrow.

We help our Warfighters succeed and come home alive
TARDEC’s 30-Year Strategy

Strategic References

30-Year Strategy

VALUE STREAM 1: Shape Requirements for Future Programs of Record

VALUE STREAM 2: Develop New Capabilities for Current Ground Systems

VALUE STREAM 3: Provide Engineering Support and Services

Art of the Possible

Survivability  Power and Energy  Electronic Architecture  Autonomy  Software  Human Interface  Force Projection

Modeling and Simulation  Advanced Concepts

Balanced portfolio

Expeditionary, Lethal, Autonomy-Enabled, Efficient

Modular, Flexible, Adaptable, Smart

Unclassified, Distribution A
**Tactical Truck of the Future**

### Today

#### JTTS Modular Prime Mover

- 6x6
- 8x8
- 10x10

**Autonomous Trailer Option**

**Dry Cargo Modules**
- M1 Flatrack
- M1077 Flatrack
- M3 CROP
- M3A1 CROP

**Bulk Water Modules**
- XM9/10 Water Distributor
- HIPPO
- SIXCON

**Bulk Fuel Modules**
- Modular Fuel System (MFS)
- SIXCON

**Dump Modules**
- M6 Dump Body Module

**5th Wheel Modules**

**Wrecker Modules**

**Load Handling System (LHS)**

**P/L Module Infrastructure**

### Beyond 2025

#### JTTS Modular Prime Mover

**Powertrain Efficiency**
- 30 - 35%

**On-board Vehicle Power**
- 5.6 – 11.2 kW

**Mobility**
- 120 – 160 kW

**Protection**
- Active Protection System

**Hit Avoidance**
- None

**Autonomy**
- None
- Active Safety / Driver Assist
- Leader Follower
- Autonomous Convoy Operations
Tactical Truck of the Future

AFFORDABLE
- Modular platform replaces 5 families of systems across the Army and USMC (over 40 systems) currently in the tactical vehicle fleet

SMART
- Autonomous Convoy capability enables soldiers to be reassigned to mission critical tasks while increasing logistic throughput and enabling 24/7 operation.
- Networked collaboration between UGV, UAV and unmanned sensors.

FAST
- Highly efficient powertrains significantly reduce the operational energy requirements for the tactical fleet
- Significantly more available on-board vehicle power enables advanced capability on the platform and exportable power to support contingency basing.

PRECISE
- Integration to Sustainment Network to enable the right supplies reaching the soldier when they need it

PROTECTED
- Ability to optionally man platform significantly reduces the risk to soldiers.
- Modular, low cost active protection systems enable tailorable protection from a range of threats when vehicles are manned.
- Active safety and driver assist technology significantly reduce crash and rollover injuries
RDECOM prototype vehicles drive state of the art, achievable requirements and set acquisition programs of record up for success.

1999-2002
Future Tactical Truck System (FTTS) STO

2003-2007
FTTS Advanced Concept Technology Demonstrator (ACTD)

2009 - Present
Joint Light Tactical Vehicle Program of Record

- FTTS enabled the Army to get hardware in the hands of the User prior to JLTV program initiation to define achievable, affordable requirements and work future tactics and doctrine.
- Accelerate POR execution, reduce acquisition costs and drive down POR technical risk.
- Created a cohort of technical experts within S&T on prototype vehicle’s trade space and integration challenges that populated the new JLTV Program Office.
- Brought non-traditional ground vehicle industry into the competitive process for JLTV acquisition.
Joint Tactical Transport System (JTTS)

Detailed system engineering analysis ongoing between TARDEC, CASCOM and PEO CS&CSS

Operational Research and Analysis
- Legacy TWV Requirement Crosswalk
- Concept of Operation Development
- System of System Analyses (capability effectiveness assessment)

Risk (ISEF, Project Recon)
- Risk & opportunity identification, evaluation, mitigation planning

Needs → Requirements (DOORS)
- Requirement decomposition, tracing, verification planning

$101M Joint Funding

Advanced Vehicle Power and Technology Alliance (AVPTA)

$25M Joint Funding

Leveraging Joint Department / Service Technology Development

Series Hybrid-Electric Powertrain
- Battery assisted speed/accel boost
- Fuel economy improvements over realistic transient mission profiles
- Silent mobility / silent watch capable
- Export power generation

18 Ton Payload Variant (LHS)

Modular Chassis Concept Approach

- Ground up Integration of Autonomy
- Modular Engine Compartment
- Modular Axle
  - Field reconfigurable, tailor to mission needs
  - Potential for autonomous insert/trailer docking

Increase Survivability

Setting the stage for prototype development in FY19
Autonomy-Enabled Logistics Operations

RDECOM plays a critical role in defining the future autonomy strategy for the Army to "Operationalize" Autonomy-Enabled systems.
Autonomous Ground Resupply

Near-Term Challenges:

- Development of Open Robotics Architecture
- Advanced Autonomous Behaviors and Software Development Tools
- Incorporating modeling and simulation into the design, development, and testing of unmanned ground systems
- User Acceptance

Bringing the state of the art in autonomy-enabled sustainment into Army operations today
External Business Office (EBO)

The EBO is Your Connection for New Opportunities

- Visit TARDEC’s Web Site [www.army.mil/TARDEC](http://www.army.mil/TARDEC) for details:
  - TARDEC Capabilities
  - 30-Year Strategy
  - New Opportunities

- Engage TARDEC through our Ground Vehicle Gateway (online) to submit:
  - New Proposals
  - Technology Plans

- Industry Days - April 2016

We Need Your Help to Shape the Future of the Army and Deliver Advanced Capabilities to the Warfighter