Tactical Wheeled Vehicles Conference Technology Panel

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BLUF: Benefits of Addressing Logistics Up Front?

To more efficiently develop, buy, own and operate the TWV fleet

- **Reduce Operations and Maintenance demand**
  - DOD FY 10 budget: Maintenance -- $85B (gov’t/private) plus military maintainers -- ~ $33B

- **Improve materiel availability and reliability...and maintainable systems**
  - Reduce Operations and Support (O&S) costs
  - Increase mean time between failure
  - Improve maintenance processes
  - Reduce repair cycle time

- **Support planning, forecasting, and budgeting**
  - Enable weapon system lifecycle manager to predict spares requirements/associated costs.

- **Opportunities for cost reduction occur throughout materiel solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support phases.**
The Environment

- Ubiquitous TWV’s
  - In every phase of operations
  - On every part of the battlefield
  - Multiple roles for basic platforms
- No longer unprotected – armor kits/anti-IED
- Recapping of Army and USMC TWV while in midst of developing new TWV
- Preparing for expeditionary and full spectrum operations
- Joint, interagency, intergovernmental, and multinational (JIIM) operations

Protected, sustained, networked mobility – travel further, carry more, engage longer, survive when engaged, retain flexibility to accomplish broad range of missions.
Tactical Wheeled Vehicle Challenges

- Army leverages commercial truck developments but Army market share is small
- Expensive to add military unique improvements or needs:
  - Engines and transmissions ruggedized for field operations
  - Terrain and field operating conditions vs. economical and environmental performance standards
  - Fuel systems used for military limited by operational necessity (JP-8)
  - Protective measures for crews and cargo
- Lessons learned to apply and improvements to equipment:
  - Transportability and deployability by air
  - Rugged suspension, engines and drive trains – but repairable
  - Recovery operations
  - Soldier safety and fire suppression
  - Simplified and quicker maintenance actions
  - Electrical systems to handle new loads and battery charging on board
- MRAPs are $430K to $900K starting from a basic commercial platform
- HMMWV was $70K initially...now over $220K with fragmentation kits
- The lightest of the JLTV’s will weigh 7.5 tons, 3X heavier than the HMMWV
- Projected cost for JLTV in excess of $300K before equipping with essential systems due to “custom” design
- Need to drive improved reliability, availability, maintainability (RAM) into the fleet
Supportability Can’t Be a Trade-Off...

- **Capability**
  - Deployability/mobility
  - Systems – growth (e.g., electric)
  - Technology integration (e.g., AIT/RFID/GPS/On-Star, etc.)
  - Deployability – size and weight
  - Power source (e.g., diesel, electric, fuel cells, solar, hybrid, etc.)

- **Reliability**
  - CBM+
  - Materials – lighter/stronger/simpler

- **Maintainability**
  - 2-Level Maintenance
  - Embedded systems – plug and play

- **Affordability**
  - Durable vs. expendable
  - Incremental introduction and upgrade vs. bulk purchase

- **Expandability**
  - Family of systems/commonality/interoperability (e.g., drive trains, etc.)
  - Adaptable for new mission roles not anticipated

Must Also Consider Non-Materiel Implications
Lifecycle Solutions

- Pre-acquisition efforts are needed to achieve improved system sustainment and reduced costs.
- How do we make our input and how?
  - Identify the problems
  - Collect data for solid analysis
  - Meet Warfighter needs
- Designed, maintained, and modified to continuously reduce the demand for logistics support
  - Warfighter requirements and early development decisions are vital
  - Sustainment strategies must be planned and adaptable
- Benefits of addressing logistics up front in the product lifecycle
  - Pay now or pay more later
  - Low maintenance materials (e.g., composites, coatings, ceramics, etc.)

Maintainability & supportability should be designed-in and not considered as an “add-on.”
Army G-4/LIA Enablers

**Agile Robotics**
- Agile, semi-autonomous robotics capabilities.

**Energy**
- High-impact innovative solutions to reduce fuel consumption and provide alternate energy sources.

**Anti-Corrosion Nanotechnology Solutions – Logistics**
- Nano-engineered coatings and materials.

**Unmanned Aerial Systems**
- Cargo Unmanned Aerial System for future Aerial resupply.

**Common Logistics Operating Environment**
- New generation of technologies in a single operational and technical architecture.

**Condition-Based Maintenance Plus**
- Proactive equipment maintenance capability to predict failure and take appropriate action.

Technical demonstrations of innovative technologies shape and influence up-front design that help reduce system life-cycle costs and sustainment footprint…
What We Need From You...

- **Industry plays a key role**
  - Develops systems that are adaptable to DOD requirements (e.g., wiring harnesses, sensors, durability, diagnostics, etc.)
  - Solutions for collecting and moving platform data for analysis and improvement
  - New technologies/insertions
  - Improved batteries/power reduction/flexible power
  - Unmanned systems and robotics
  - Common repair parts and components to facilitate supportability

- **Legacy vehicle support through Army Force Generation (ARFORGEN) process and the Army Equipping Strategy**

- **Advancements in materials**
  - Lighter/stronger/lower cost

- **Creative and innovative solutions that help drive down costs while improving reliability, maintainability, survivability**

Help identify what technologies are appropriate for upgrade, and at what point in the life-cycle...give us your BEST and most RELIABLE products up-front...