M915 - Palletized Loading System Demonstrator

11 June 2003

Mr. Jeffrey Kozierowski
National Automotive Center

Tank-Automotive Research, Development & Engineering Center

DISTRIBUTION STATEMENT A:
Approved for Public Release
Distribution Unlimited

Committed to Excellence
Outline

• The 915 Family of Vehicles
• New Technologies
• Permo-Drive RDS
• Questions
The 915 FOV

• Why this vehicle?
• 6 mpg Cruising
• 917 Dump Truck
• Stop and Go Drive Cycle
New Technologies

- Electronic Braking System (EBS)
- Air Dryer
- LED Headlights/Taillights
- Steerable Rear Axles
- Exhaust Vibration Balancer
EBS

- Uses Electronics to control braking system
- Reduces number of components
- Detects brake wear
- Shortens stopping distance
Air Dryer

- Protects braking system from moisture and contamination
- 11 Pounds
- Water Absorption
- High reliability
LED

- Low heat, High efficiency
- Vibration sensitivity
- Multi-Color capability
- Covert communication
- Used on ST II
All Steer

- Improves maneuverability
- Automated, user operated
- Improves turning radius by 30%
Exhaust Vibration Balancer

- Balances vibration, torque and road shock
- Reduces fuel consumption
- Reduces failure
- Increases durability
Key Components

- Axial Piston/Pump Regenerative Drive System
- Accumulator(s)
- Oil Reservoir
- Piping/Plumbing
- Electronics and Wiring
Class VI Regenerative Drive System

- Continuous Drive Shaft
- Inline Design
- Operating Pressure 5000psi
- Digitally Controlled
- Retrofitable
Why Hydraulic?

- High Power Density
- High Energy Flow – Not Temperature or Chemically Limited
- Efficient Charging & Discharging
- Reliable Performance Over a Wide Range of Operating & Climatic Conditions
- Minimal Routine Maintenance
Why Hydraulic?

- Readily Available Spare Parts
  - Hoses
  - Filters
  - Oil
  - Fittings
- Robust Components
- Mature Technology
- Excellent ROI
- Retrofitable
OPSEC REVIEW CERTIFICATION  
(AR 530-1, Operations Security)

I am aware that there is foreign intelligence interest in open source publications. I have sufficient technical expertise in the subject matter of this paper to make a determination that the net benefit of this public release outweighs any potential damage.

Reviewer: Jeffery S Ernat  
Name:  
Signature:  
Grade: GS-13  
Title: Elec. Eng.  
Date: May 23 2003

Description of Information Reviewed:
Title: M915 - Palletized Loading System Demonstrator  
Author/Originator(s): Jeffrey Kozierowski - National Automotive Center  
Publication/Presentation/Release Date: June 11, 2003

Purpose of Release: Presentation for the 2003 Intelligent Vehicle Systems Symposium

An abstract, summary, or copy of the information reviewed is available for review.

Reviewer's Determination (check one)

1. Unclassified Unlimited.
2. Unclassified Limited, Dissemination Restrictions IAW
3. Classified. Cannot be released, and requires classification and control at the level of

Security Office (AMSTA-CM-XS):  
Concur/Nonconc:  
Signature:  
Date: 30 May 03

Public Affairs Office (AMSTA-CM-PI):  
Concur/Nonconc:  
Signature:  
Date: 3 Jun 02

STA 7114-E  
Sep 1999