



U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND GROUND VEHICLE SYSTEMS CENTER

ARMY FUELS

22 APRIL 2026

AGENDA



- Introduction
- Army Fuel Policy
- History & Background of Fuels
- Diesel Fuels
- Renewable Fuels

FUEL IS LETHALITY



HISTORY OF ARMY FUEL: FROM A GROUND PERSPECTIVE



- **Prior to 1960s – Army operated on gasoline**
- **1960s – 1980s → Diesel Fuel (F-54)**
 - Major Problem: Waxing @ low temps
- **1981–1988 → M1 Fuel Mix AKA NATO F-65**
 - Started in Germany in 1981
 - Blended F-54 Diesel with kerosene aviation fuel (JP-5 or JP-8)
- **1988 → Implemented Single Predominate Fuel, JP-8**
 - Field test at Fort Bliss from October 1988 through July 1991
- **2013 to present → Conversion to F-24 in CONUS**
 - Official notification via ALARACT 113/2013 (30 April 2013)
 - Complete conversion in December 2014



ARMY FUEL POLICIES



- **Title 10 U.S.C. §125 - Section 125:**
 - Functions, powers, and duties: transfer, reassignment, consolidation, or abolition **gives the Secretary of the Defense the authority to assign functions to certain branches**, agencies or individuals under his control more or less.
- **DODI 4140.25 - DoD Management of Bulk Petroleum Products, Natural Gas, and Coal**
 - DoDI 4140.25, Enclosure 2 (25 Jun 15) states: 9. SECRETARY OF THE ARMY..... the Secretary of the Army provides the materiel, personnel, and management required to conduct **overland petroleum distribution from the high water mark, including inland waterways.**
- **Army Regulation 70-12 – Fuels & Lubricants**
 - Primary Fuels: JP-8 and F-24
 - ASA (ALT): approve the introduction and use of new and non-standard fuels, lubricants, and associated products.
 - Materiel Developers: Design new materiel to comply with the use of the JP-8/F-24 and standard lubricants and associated products.
 - Waivers must be submitted for fuels other than JP-8 or F-24 to APC

ARMY'S UNIQUE USE OF JP-8 AND F-24



Accepted Initial Risks:

- 2-4% increase in fuel consumption
- Lubricity
- Cetane
- OEMs had limited experience



Recent Risks:

- Availability & cost of export engines



Benefits:

- Fuel specifications harmonized worldwide
- All temperature fuel
- Reduced potential for microbial contamination
- Reduced potential for fuel system corrosion
- Simplified logistics
 - Reduced infrastructure and distribution equipment
 - Increased storage capability
 - Increased flexibility for refueling
 - No segregation of products
 - Eliminated need to clean distribution equipment



DRIVERS TOWARD THE ARMY'S USE OF DIESEL FUEL



- Production Contracts
 - Vehicles are shipped and stored with diesel fuel

- Operational Scenario
 - No access to additized aviation fuel
 - National Guard locations do not have fuel facilities for F-24 or JP-8
 - Production of diesel fuel in the battlespace

- Uninformed Decisions

CHALLENGES WITH COMMERCIAL DIESEL FUEL



- **US Military has limited control over commercial specifications**
- **Commercial fuels are intended for near-term use**
 - Army stores & consumes fuels at a slower rate
- **Military does not align with commercial practices for particulate contamination and filtration for diesel engines and fuel injection systems**
- **Worldwide Diesel Fuel Specifications**
 - US commercial engines are optimized for local diesel fuel
 - Not harmonized across the world
 - Spec updates driven by changes in emission standards & engine advances
 - Differences in allowed biodiesel content
- **Availability**
 - ULSD not available all over the world; sulfur content varies by country
- **Low Temperature Operability**
 - Diesel fuel is seasonal & regional
 - Ambient temperatures would have to be monitored to prevent gelling
- **Storage & Handling**
 - Addition & segregation for diesel supply chain

RECENT ISSUES WITH DIESEL FUEL



- USAF banned the use of the B20 blends at ALL installations due to extensive microbial contamination
- ISV stored fielded with diesel fuel and sat for over a year without being refueled. High water contamination and gummy residue in fuel filter.
- HMMWVs in CA fueled with R99 and experienced leaking. Unit replaced 201 leaking fuels pumps from Nov24-Mar25
- M915 Line Haul Trucks in Bay City, MI experiencing corrosion of fuel tanks. Fielded with B20 fuel and then topped off with diesel fuel over the years. Samples sent to USAF confirmed presence of microbial contamination.
- Army Reserve unit in Maine experiencing gelling due to diesel fuel usage in the wrong season
- Unit from Fort Bliss took trucks to Alaska with Diesel Fuel – resulting in fuel gelling

IS ASTM D975 ENOUGH....



....to protect our military engines?

- Streamlining effort to add B6 to B20 will cause confusion
- No clear requirements for Renewable Diesel
- No clear path for testing RD from sources other than HEFA
- Renewable Diesel Considerations
 - Additive Solubility Concerns
 - Lack of Aromatics
 - Fuel Stability
 - Materials Compatibility
 - Compatibility with other flavors of RD, petroleum, and biodiesel
 - Effects on Lubricating Oil
 - Handling and Distribution
 - Fuel System Deposit Forming Tendencies
 - Water Separation Characteristics
 - Trace Components
 - Cold Soak Filterability
 - Bulk Modulus

ARMY'S PATH FORWARD



- Develop military specification for Renewable Diesel Fuel

- Monitor ASTM D975 Streamlining effort
 - Potential to activate and update the military specification for diesel fuel



THANK YOU.

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