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# **Alliant Techsystems (ATK)**

## **Transformation of M139 VOLCANO to The Objective Force**

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# Volcano's Mission

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- Mine canister provides rapid emplacement of anti-armor minefield in all types of terrain
- Designed for modularity & maximum commonality between systems
- System components can be interchanged between dispensing vehicles



# Volcano Mission Sequence

Launch



Emplacement



Mine Function



Start Dispense

Arm (2-4 minutes)

T<sub>1</sub>  
4 hours  
Self Destruct

T<sub>2</sub>  
48 hours  
Self Destruct

T<sub>3</sub>  
15 days  
Self Destruct

Timeline

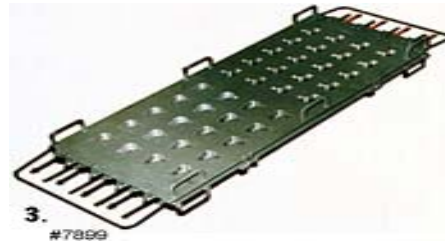
# M139 Subsystems

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- Subsystems are evolving in response to future needs & requirements
- The FCS (Future Combat Systems) program demands new technology with more multi-mission and multi-response flexibility



**Dispenser Control Unit  
(DCU)**



**Launcher  
Racks**



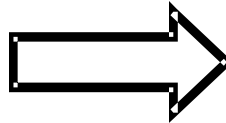
**Munitions  
(Mine & Canisters)**

# M139 Transformation

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- Upgrades will transform M139 to the Objective Force

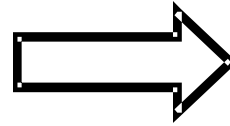
Munitions



R&D efforts underway:

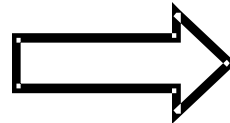
- Improved Electronics
- Canister to Mine Communications
- Mechanical S&A to Electronic S&A Redesign

Vehicle / Aircraft  
Launcher Racks



Volcano Light (HMOVW)

Control Units



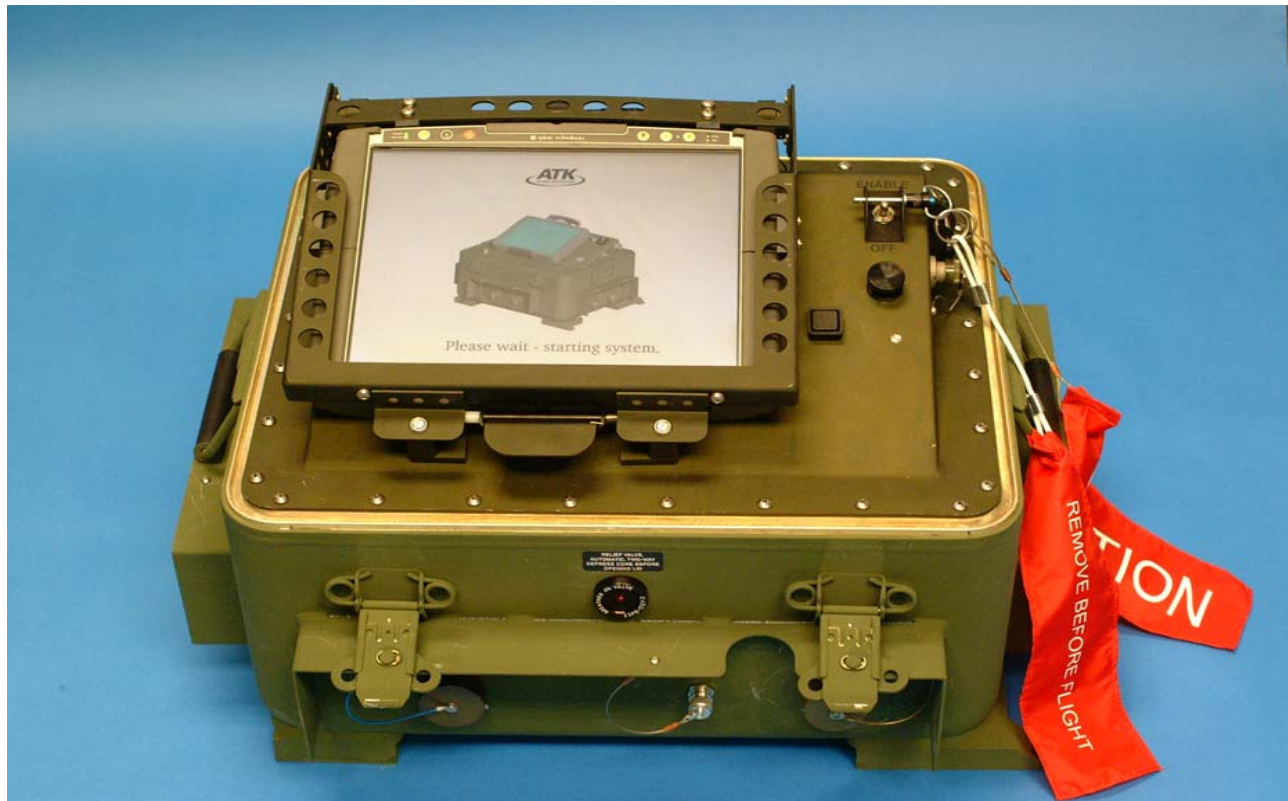
Launcher Control Unit (LCU)



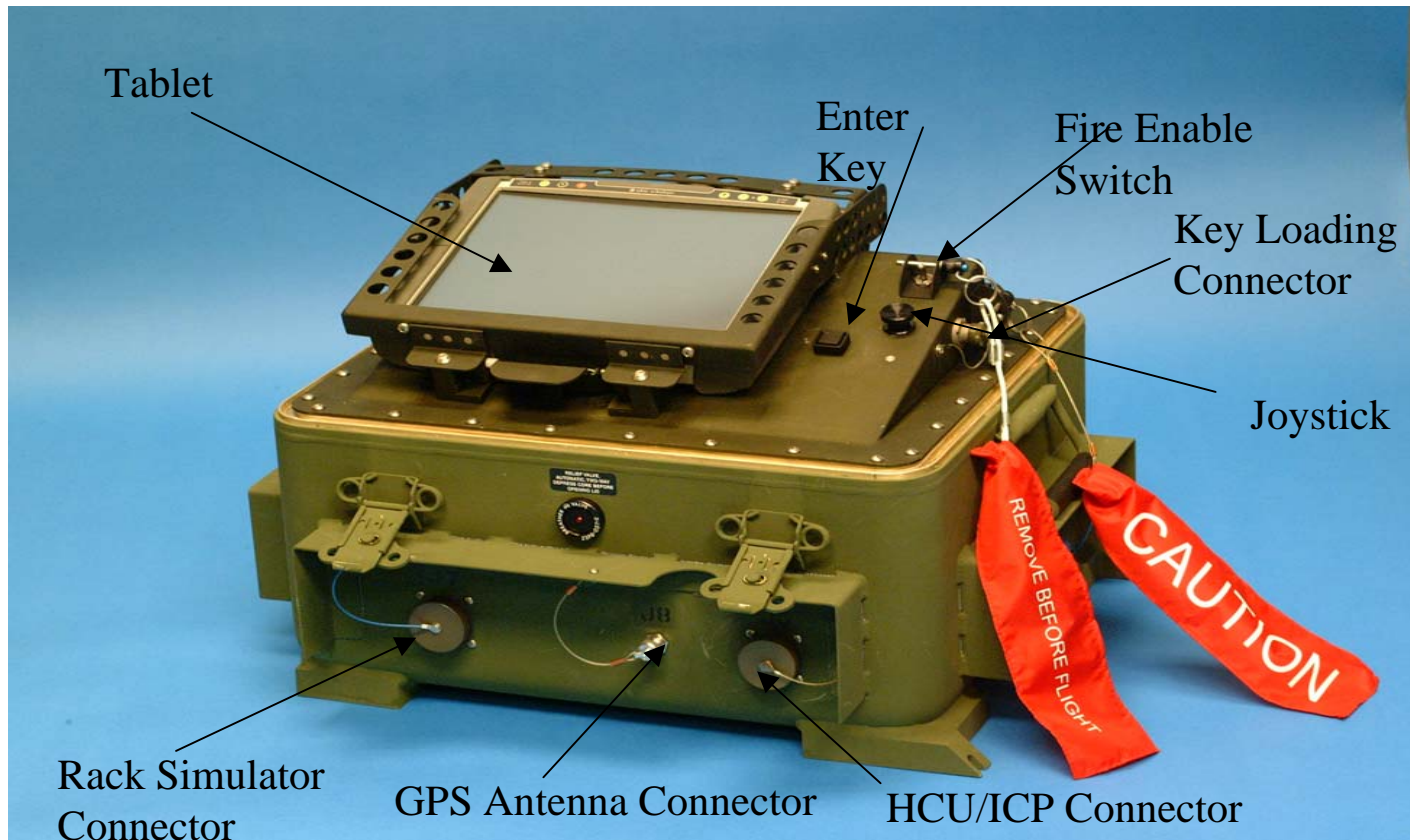
# Launcher Control Unit (LCU) Upgrade

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- Development Contract DAAE30-02-C-1124



# LCU's Features



- Micro-Processor version of DCU
- Fully Programmable
- Software Controlled

- Built-in Manuals
- Built-in Maintenance Self-Tester
- Upgradeable

# LCU's Features (con't)

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## Commonality with the DCU

- Fits existing Pallet Assembly Interfaces and Shipping Container
- Uses same Rack Cables
- Connectors and spacing between connectors are the same
- Electrical characteristics consistent with DCU

## Enhancements

- Ruggedized Laptop (Tablet)
  - Touch Screen Controls – Linux operating system & C++ Code
  - Volcano Operators Manual embedded – visual displays
  - Removable – for easy Volcano setup
- Global Positioning System
  - Establish Minefield Coordinates (4 corners are calculated)
  - Better Control of Minefield Density
- Built in Maintenance Self Tester (MST)
- Expandable for Future Systems



# Improvement Steps for Transformation

1. Upgrade M139 Launcher Control Unit (LCU)
  - Increases Today's Tactical Effectiveness
2. Modify LCU for Volcano Light (HMMWV)
  - Provides capability for the SBCT & Light Fighters
3. Utilize upgrades for Towed Volcano (HEMMT-LHS)
  - Provides rapid deployment of munitions from a M1 flatrack
4. Complete M139 modifications for FCS Deployment of:
  - Munitions & C2 Nodes
  - Unattended Ground Sensors
  - Non-Lethal Delivery
  - Extended Range Delivery of all payloads

## Today At War



M139 Dispenser Control Unit (DCU)

## M139 Platforms Launchers for M87A1 Munitions



## Transforming

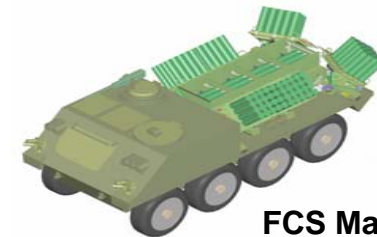


M139 Launcher Control Unit (LCU)

## LCU Platforms Launchers for Intelligent Munitions and Unattended Ground Sensors



FCS-Unmanned Systems



FCS Manned Systems

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# Questions?

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