USMC Family of Light Armored Vehicles

Command & Control

Logistics

Mortar 81MM

25MM Light Assault

Recovery

Electronic Warfare

Anti-Tank

DISTRIBUTION STATEMENT A. Approved for public release: Distribution is unlimited.
### Status of Marine Corps Light Armored Vehicles (Past and Current)

<table>
<thead>
<tr>
<th>1980’s `</th>
<th>1990’s</th>
<th>2000’s</th>
<th>2010’s</th>
<th>2020’s</th>
<th>2030’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Procurement of LAVs (7 Variants)</td>
<td>Ongoing</td>
<td>Service Life Extension Program (SLEP) LAV-A1</td>
<td>IROAN at the Depots</td>
<td>Sustainment (including modifications)</td>
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<tr>
<td>A 32 year old legacy fleet…</td>
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<tr>
<td>…required to remain relevant for another 19 years</td>
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</tr>
</tbody>
</table>

**OB Program**
- CDD Signed
- Program Definition
- Funding Decremented and program restructured to remove Mobility
- EMD
- T&E
- Production
- Fielding

End of Service Life 2035
No Upgrade Zone
Status of Marine Corps Light Armored Vehicles (Future)

<table>
<thead>
<tr>
<th>2010s</th>
<th>2020s</th>
<th>2030s</th>
<th>2040s</th>
<th>2050s</th>
<th>2060s</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>IROAN at the Depots</td>
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<tr>
<td>C2 Upgrades</td>
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<tr>
<td>OB Program</td>
<td>EMD</td>
<td>T&amp;E</td>
<td>Production</td>
<td>Fielding</td>
<td></td>
</tr>
<tr>
<td>Suspension modification</td>
<td>New Start TBD</td>
<td>EMD</td>
<td>T&amp;E</td>
<td>Production</td>
<td>Fielding</td>
</tr>
<tr>
<td>ATM</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Army LVAD-LAV Program</td>
<td>TBD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Next Gen Light Armored Recon Capability</td>
<td>EMD</td>
<td>T&amp;E</td>
<td>Production</td>
<td>Fielding</td>
<td></td>
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</tbody>
</table>

An A3 fleet with obsolescence mitigation...

...a new capability for 2030 and beyond.
<table>
<thead>
<tr>
<th></th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19</th>
<th>FY20</th>
<th>FY21</th>
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</thead>
<tbody>
<tr>
<td>MOD (OB) – RDT&amp;E</td>
<td>$11.3</td>
<td>$13.9</td>
<td>$4.5</td>
<td>$2.5</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>MOD (OB) – PMC</td>
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<td>$0</td>
<td>$38.8</td>
<td>$66.1</td>
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<tr>
<td>ATM – RDT&amp;E</td>
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<td>$0</td>
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<tr>
<td>ATM – PMC</td>
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<td>$54.1</td>
<td>$34.9</td>
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<tr>
<td>Modifications – RDT&amp;E</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$2.5</td>
<td>$2.5</td>
</tr>
<tr>
<td>Modifications – PMC</td>
<td>$0</td>
<td>$0</td>
<td>$2.0</td>
<td>$2.0</td>
<td>$2.0</td>
<td>$2.0</td>
</tr>
</tbody>
</table>

PresBud 2017 Figures
A mission suite upgrade that addresses obsolescence and provide improved reliability, availability, and maintainability

**Scope:**

- Acquire targets while on-the-move, precision long-range capability to destroy enemy tanks along with advance thermal sight and advanced guidance control system

*In the production and deployment phase*
Emerson 901 Turret (Legacy)
- Turret is manned, gunner sits in turret
- Guidance set (=FCS) located under gunners seat in turret
- Has optical path and thermal imager in hammer head
- Has a hydraulic drive system
- Can’t be erected while on the move
- Sighting system must be removable for ground mounting
- Has no laser range finder
- Has no Far Target Location system
- Manual turret drive back-up is by manual hydraulic pump
- Turret has vision blocks
- Turret has gunner’s hatch
- Has small emergency battery for sighting system only
- Hydraulic stow with mechanical back-up
- No protective cover for day sight tracker
- Only Gunner has video and optical sight view

ATWS Turret
- Turret is unmanned, gunner sits in vehicle chassis
- Exterior armored sensor enclosure houses MTAS & FCS
- Has Day Camera and Thermal Imager in the hammer head
- Has an electric EL & AZ drive system
- Is erect on the move and only placed in Stow for Transit
- Sighting system is hard mounted
- Has eye safe laser range finder
- Has Far Target Locator capabilities
- Has backup mechanical El and Az drive
- Turret has no vision blocks
- Back-up battery system for independent turret operation
- Manual mechanical stow
- Armored ballistic door cover for MTAS
- Gunner and commander have video sight displays
- Auto TML missile loading position capability
Restore lost platform performance due to increased GVW and correct significant automotive obsolescence issues by utilizing mature technology

- **Scope:**
  - Replace power pack (engine and transmission)
  - Replace driveline (T-Case, differential, driveshaft)
  - Replace steering system (durability, reliability issues)
  - Replace slip ring and Driver’s Instrument Panel (obsolescence and compatibility)

- In the engineering and manufacturing development phase
Cummins/Allison Power Pack
FMS based

Drive Train
GEN 3.5

Transfer Case
FMS based

E-W Driveshaft
3.5 (not shown)

Steering Damper
MOB Design

MOOG Slip Ring

New DIP

Obsolescence Program
• Driver’s Seat Safety Modification
• Buoyancy Improvement Kit
• Underbody Survivability
• EPLRS replacement
• Joint Battle Command-Platform (JBC-P) integration
• CREW Vehicle Receiver/Jammer (CRVJ) counter IED system integration
• Intercom System reliability improvement
Driver’s seat controls being refined to improve seat operation and driver safety

**Scope:**

- Seat pneumatic valve control provides an improved control of seat rise and lowering and provides a “return to center” that automatically stops seat at any desired seat height
- Replaces current locking pin with a more accessible mechanism with locked/unlocked visible indicator from inside driver’s compartment as well as aft
Buoyancy Improvement Kit

Restore the freeboard and buoyancy lost due to weight growth from add-on armor and other upgrades over the years

- **Scope:**
  - Incorporates buoyancy materials and compartments to restore over 1,700 lbs of buoyancy
  - Leverages lighter weight materials that provide equivalent underbody IED protection performance as compared to currently fielded underbody protection kit

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Kit volume displacement (Water)</th>
<th>Buoyancy Weight Reduction</th>
<th>Weight of Kit</th>
<th>Total Buoyancy Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>½ 5059 Al Bottom, ¼ 5059 Trim Vane, 1/8 5059 Al elsewhere, 1.9 PSF foam</td>
<td>1.225 M³</td>
<td>2700 lbs</td>
<td>928 lbs</td>
<td>1,772 lbs</td>
</tr>
</tbody>
</table>
Addresses CDD defined IED protection requirements by integrating energy attenuation seats in all seat locations for all variants

**Scope:**

- Provide energy attenuating seats that could meet developed performance specification and fit within space claims as defined in Interface Control Document
- Redesign of scout compartment and relocation of LAV-25 fuel tanks that also incorporates self-sealing properties
Next Generation Light Armored Reconnaissance

- FMID preparing POM-19 new start initiative for Next Gen Armored Reconnaissance (LAV Replacement)

Current Light Armored Reconnaissance

- LAV end of service extended from 2005 to 2035

Current Capability Assessment

- LAR units experience capability and capacity gaps and shortfalls in their ability to conduct combined arms reconnaissance and surveillance, counter-reconnaissance, raids and offensive actions, security and defensive operations in support of maneuver, while operating across extended lines of communication with minimal external support:
  - Sense, orient, track, classify, and defeat incoming threats; Active Protection
  - Organic ground and unmanned sensing capability to extend surveillance reach and expand the security area
  - Networked C4I and fire control capability/capacity
  - Water mobility to expand the maneuver space
  - Land mobility to conduct operations while keeping pace with the future MAGTF
  - Effective, organic, all-weather direct and indirect fire systems to fight and win the counter-reconnaissance battle
  - Lethality to deliver effective direct fire effects at range to defeat threats; defeat close-in enemy heavy armor threats with organic heavy anti-armor weapons; effectively execute the LAR commander’s EFSTs with organic precision indirect fires
  - Full spectrum tactical EW capability.
  - Force protection and system survivability for the emerging & forecasted threats
  - Kinetic and non-kinetic counter-UAS

Next Gen Way Ahead

- Draft gap statement for POM-19 validation (Marine Corps Gap List)
- Develop POM-19 New Start Initiative
- Planning study / analytical activities to support Armored Reconnaissance CBA in conjunction with POM-19 CBA
- Draft and staff an Initial Capabilities Document (ICD)
- Draft and Staff concept of employment
- Develop supporting acquisition strategy
- Review available trade space analysis tools and organizations (contracted and Government)
<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAV-25</td>
<td><img src="image" alt="LAV-25" /></td>
</tr>
<tr>
<td>Personnel Carrier</td>
<td><img src="image" alt="Personnel Carrier" /></td>
</tr>
<tr>
<td>Ambulance</td>
<td><img src="image" alt="Ambulance" /></td>
</tr>
<tr>
<td>Recovery</td>
<td><img src="image" alt="Recovery" /></td>
</tr>
<tr>
<td>Anti-Tank</td>
<td><img src="image" alt="Anti-Tank" /></td>
</tr>
<tr>
<td>Anti-Tank – A2</td>
<td><img src="image" alt="Anti-Tank – A2" /></td>
</tr>
<tr>
<td>Mortar</td>
<td><img src="image" alt="Mortar" /></td>
</tr>
<tr>
<td>Mortar – A2</td>
<td><img src="image" alt="Mortar – A2" /></td>
</tr>
<tr>
<td>Command &amp; Control</td>
<td><img src="image" alt="Command &amp; Control" /></td>
</tr>
<tr>
<td>Engineer</td>
<td><img src="image" alt="Engineer" /></td>
</tr>
<tr>
<td>Ammo Carrier</td>
<td><img src="image" alt="Ammo Carrier" /></td>
</tr>
<tr>
<td>Assault Gun</td>
<td><img src="image" alt="Assault Gun" /></td>
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</table>

2,104 Total Vehicles Sold Internationally to Date
<table>
<thead>
<tr>
<th>Title</th>
<th>Funding</th>
<th>Planned RFP</th>
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</thead>
<tbody>
<tr>
<td>Driver’s Seat Safety Modification Kit Production: (8(a) Small Business Set Aside)</td>
<td>PMC</td>
<td>4Q FY17</td>
</tr>
<tr>
<td>LAV-ATM Desktop Operator Trainer: Development/Procurement (via PM TRASYS)</td>
<td>PMC</td>
<td>4QFY17</td>
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<tr>
<td>Underbody Survivability: Energy Attenuation Seats (all positions)</td>
<td>N/A</td>
<td>RFI Release: 1QFY17</td>
</tr>
<tr>
<td>Survivability Improvement: LAV 25 Scout Seats and Self Sealing Fuel Tank</td>
<td>N/A</td>
<td>RFI Release: TBD</td>
</tr>
</tbody>
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