



# Joint Light Tactical Vehicle (JLTV) Concept of Operations

---

## 1. Introduction:

### a. Purpose

This Concept of Operations (CONOPS) summarizes how the Marine Corps and Army intend to Deploy, Employ, Redeploy, and Sustain the Joint Light Tactical Vehicle (JLTV).

### b. Applicability and Scope:

This CONOPS is summarized in the JLTV CDD. Where any conflict may exist between this document and the approved CDD, the CDD shall take precedence. Service unique aspects are described where they apply; otherwise this CONOPS describes JLTV from a Joint Army – Marine Corps perspective. This document focuses on topics relevant to the CONOPS and not covered elsewhere. Therefore, this document does not repeat information such as the mission profile or operating environment (reference [A]), the threat summary (reference [B]), system attributes (reference [C]), or other key documents as listed in section six.

### c. Key Characteristics

JLTV is a Family of Vehicles (FoV) providing protected light tactical mobility to the maneuver and sustainment forces of the Army and Marine Corps. The following key characteristics distinguish JLTV capabilities within the light tactical fleets of the Army and Marine Corps.

- Transport compatibility with airlift, sealift (inter- and intra-theater), and rotary wing aircraft providing the capability to rapidly deploy, employ, and re-deploy.

**DISTRIBUTION A. Approved for Public Release, distribution unlimited.**

- Light tactical mobility allows small units to use all available terrain as maneuver space, to fully engage the enemy without being unduly restricted by the immediate environment. Trafficability over soft-soil conditions is a signature attribute of the light fleet, and critical to the light TWV fleet's ability to support maneuver across the spectrum of operations and environmental conditions. This includes the ability to leave the local road network and maneuver over cross country terrain, gravel/dirt secondary roadways, single track trails with no manmade improvements, & cross-country terrain with no roads, routes, or well-worn trails. Sufficient vehicle power-to-weight ratios allow the capability to negotiate steep areas and to eliminate routes of enemy escape. The ability to ford water obstacles opens the maneuver space to gain positions of tactical advantage ahead of the enemy. Mobility at gross and combined vehicle weight (with armor installed) enables maneuver across all types of terrain (highway, cross-country, and restricted).

- JLTV protection levels are commensurate with the expected operational environment and balanced with the remainder of the required light tactical and light combat capabilities. Modular armor, integrated ballistic protection, and additive active protection systems provide protection levels adequate to protect vehicle occupants. JLTV is resilient to attack, with ballistic tolerance that allows it continue to operate under fire after sustaining damage. JLTV resists rollover using modern automotive safety enhancements, and if a rollover does occur, the cabin stays intact to protect lives and to foster recovery and repair. When conditions allow, JLTV's scalable armor allows commanders, with reasonable logistic delay, to increase protection against IED, RPG, and EFP threats. JLTV provides support elements the same level of protection as the force with which it is operating.

- Sufficient payload and towing capacity provides units the ability to carry the necessary mission related items needed for teams and squads to perform their intended roles with their essential mission role equipment. Mission role equipment includes weapons and mounts, vehicle occupants and their associated multi-day sustainment loads, shelter systems, C4ISR equipment, towed 105mm artillery (M119A2/3) as well as palletized or bulk cargo. Compatible trailer(s) support payload by either providing additional cargo capacity, or the ability to serve as a prime mover for trailer mounted systems (e.g., generator sets, signal systems, etc.) and trailed weapon systems.

- Interoperability allows access to the network, applications, and situational awareness/operational environment information required to execute command and control. Improved situational awareness enables forces to conduct decisive maneuver with greater precision by: developing the situation largely out of contact; maneuvering rapidly by ground and air to positions of advantage; engaging key enemy elements at the time and place of the commander's choosing; and combining speed, surprise, fires, and shock to achieve decisive results through destruction, dislocation, and/or disintegration of enemy forces.

- Sustainability levels compatible with the anticipated austere operating conditions and integrated into the existing USA and USMC sustainment structures. JLTV is highly reliable and easier to repair, allowing commanders to focus more on warfighting rather than sustainment.

**DISTRIBUTION A. Approved for Public Release, distribution unlimited.**

JLTV efficiently uses fuel to maneuver the vehicle and power on-board systems, actually reducing the demand for fuel by JLTV equipped units by 15 - 20% over a similar HMMWV equipped force.

- The ability to efficiently power onboard and off-board systems is a key enabler in the modern warfighting environment. JLTV keeps pace with growing power demands with adequate electric power generation and storage for on and off-board use to support a wide array of mission roles.

- Modular, open systems architecture, with space for C4ISR ancillary electronic equipment to allow for the communications compatibility described above and to keep up with the rapid evolution in C4ISR equipment. Scalability allows for adaptability for a variety of missions, permits fuel economy, and permits the force to present a less threatening posture when the situation demands it. The mounting and integration of protection kits is completed in a secure location, when operational conditions allow for a unit to adjust armor capabilities to match the operational environment.

- JLTV is resilient to threat attack with multiple defensive and recovery capabilities. JLTV includes the latest automotive technologies to allow it to remain under control under difficult driving conditions, such as stability and braking control systems. When accidents occur, the JLTV vehicle body is crush resistant during rollovers, allowing the vehicle to be repaired and returned to the fighting force and improving the survivability of the occupants. When under attack, JLTV is able to escape the ambush kill zone and minimize the damage of attack with fire proofing and active fire response systems.

## 2. Deploy

JLTV deploys worldwide by sea, air, and land modes to support strategic deployment and operational maneuver in accordance with USA and USMC doctrinal concepts. This capability provides flexibility for entry operations (permissive and non-permissive) to counter threat anti-access strategies by using multiple austere entry points to bring in combat configured units.

Via sea, JLTV embarks amphibious ships, Maritime Prepositioning Ships (MPS), Roll-on Roll-off (RORO), Logistics Support Vessels (LSV), Landing Craft Utility (LCU), Army Fast Sealift Ships (FSS), and Army Pre-Positioning Stocks (APS) at home station and travels in the vehicle storage decks of those ships where HMMWVs are currently stowed. This requires driving from the ship entry point to a stowage position where the vehicle is lashed down for long duration transit. Once in theater, JLTV embarked aboard amphibious ships are disembarked via landing craft and rotary wing aircraft. JLTV embarked aboard MPS, FSS and APS are moved ashore when the vessel is docked at pier in permissible conditions. Transport by sea is an essential part of force deployment and a hallmark aspect of USMC Expeditionary capabilities. Transport by sea is equally important to Army forces, where sea movement is a primary deployment method for heavy forces. Sealift allows world-wide deployment of JLTV, supporting prepositioning, Sea Basing, and Amphibious force projection capabilities.

**DISTRIBUTION A. Approved for Public Release, distribution unlimited.**

Movement of Joint Forces via rotary wing aircraft provides the Services an essential vertical envelopment capability critical to the execution of their individual Service missions. When the unit mission requires rotary wing air transport to positions of tactical advantage, JLTV is lifted either singly or in tandem. JLTV is transported at either gross vehicle (combat) weight, or at transport weight. While the preferred means of transport is at combat weight in fully armored condition, JLTV can also be lifted in a transport configuration. In transport configuration, JLTV has inherent ballistic protection and one day of supply, or 2000lbs of payload, but is not fully armored against all IED threats. It arrives on the landing zone ready to enter combat operations with minimal preparation once detached from the helicopter and de-rigged. This includes all necessary weapons and equipment, plus one day of supply, where the vehicle has inherent ballistic protection. When conditions allow, commanders may up-armor JLTV in a secure location using trained personnel and material handling equipment. The option to lift the vehicle in transport configuration provides commander's tactical flexibility when conditions or aircraft capabilities preclude moving the vehicle when fully armored.

During USA air assault operations, JLTV moves to positions of advantage via CH-47 as a part of a larger assault force. During USMC forcible entry amphibious operations, JLTV embarked on amphibious ships are moved to the flight deck where it may be tandem or single lifted by CH-53 aircraft; or moves to the well deck for surface movement to shore aboard LCAC or LCU landing craft. Movement to shore aboard certain watercraft, including LCU, requires deepwater fording to get ashore between exiting the ship and the finally exiting the surf zone. During Army in-the-stream discharge operations JLTVs roll off the Strategic Sealift ships onto roll-on/roll-off discharge platforms and loaded onto Army LSVs, LCUs for forward movement to the beach, fix ports or inland waterways.

Via air, JLTV deploys using existing cargo aircraft, including C-130, C141, C-5, and C-17. During air land operations, JLTV embarks the aircraft using the existing ramp, and disembarks in the same manner with only minimal preparation. JLTV may also be deployed via airdrop means, in support of Army forcible entry airborne operations. JLTV is rigged to airdrop platforms and inserted via Low Velocity Air Drop as a part of a larger airborne assault force. On the drop zone, JLTV is quickly de-rigged and put into action supporting the maneuver of the assault force.

Via land, JLTV equipped units may self-deploy over long distances over existing road infrastructure, or be moved via rail through the existing rail infrastructure, including tunnels. JLTV may also be moved via select military and civilian trailers to permit long distance transportation without the vehicle accruing additional operational miles.

### **3. Employ**

JLTV is employed in support of Force Application, Focused Logistics, and Battlespace Awareness functional concepts. Each member of the JLTV FoV responds to one or more of these functional concepts.

**DISTRIBUTION A. Approved for Public Release, distribution unlimited.**

- Force Application. JLTV provides a maneuver and maneuver support platform for ground maneuver forces with sufficient mobility, protection and connectivity required to maintain pace with other mounted combat arms elements (such as infantry in fighting vehicles). The JLTV provides protected mobility for maneuver forces and small units, maneuvers infantry weapon systems around the close battle area, provides a platform supporting battle command, and provides a limited capacity to move combat support forces with their associated equipment. Situational awareness of the crew and occupants (mounted unit) is provided by systems such as intra-vehicle communications (IVC), radios, combat identification, position locator, and systems delivering a common operating picture (COP) / access to the Global Information Grid (GIG). Though these systems may not be part of the vehicle, JLTV provides space, weight, and power to support them.
- Battlespace Awareness: JLTV provides a platform supporting the collection and dissemination of knowledge and understanding of the operational area's environment, factors, and conditions, to include the status of friendly and adversary forces, neutrals and noncombatants, weather and terrain, that enables timely, relevant, comprehensive, and accurate assessments, in order to successfully apply combat power, protect the force, and/or complete the mission.
- Focused Logistics. The JLTV provides protected, sustained, general purpose mobility for combat support and combat service support payloads. This mission includes the movement of bulk cargo of all classes of supply, data interchange systems, shelters (including maintenance or communications), medical evacuation platforms, shelters, and non-standard troop transport. This mission also includes serving as the prime mover for certain existing combat towed loads such as the light howitzer, and air defense (radar) systems.

JLTV Variants: JLTV is comprised of two variants, a two seat and a four seat variant, and a companion trailer (JLTV-T). The two seat variant (Combat Support Vehicle (CSV)) has one base vehicle platform, the Utility (JLTV-UTL). The four seat variant (Combat Tactical Vehicle (CTV)) has two base vehicle platforms, the General Purpose (JLTV-GP) and the Close Combat Weapons Carrier (JLTV-CCWC). The base vehicle platforms will exist in a variety of configurations through the installation of kits and mission essential equipment required to perform their primary operational role.

JLTV Four Seat Mission Package Configurations:

JLTV-GP: A highly mobile multi-purpose platform for general utility, the GP provides protected movement of unit leaders, troops or small supply items, and the protected movement of selected staff at the battalion level and above along with their associated battle command equipment. The GP will provide general purpose command and control, fires, maneuver, and logistical support, including administrative movement. The GP may be equipped with selected kits to become a multi-purpose platform for the general C2 purposes of unit leaders and functional staffs within the USMC Ground Combat Element and the US Army Brigade Combat Teams. When such kits are mounted, the primary purpose of the JLTV GP is to

**DISTRIBUTION A. Approved for Public Release, distribution unlimited.**

support small-unit leader C2 by providing access to classified or unclassified networks, as well as command and control applications supporting maneuver, fires, aviation, intelligence, signal (including retrans) and logistics. These kits provide more capable command and control systems that support specialized C2 / staff missions, or small unit leaders, such as company commanders. They allow conduct of command and control tasks away from fixed command posts, closer to the points of decisive action on the battlefield. These kits provide access to classified or unclassified networks, as well as command and control applications supporting maneuver, fires, and logistics. The Army GP hosts one or more of: Soldier Network Extension, Point of Presence, and Fire Direction Center (FDC) capabilities.

JLTV Heavy Guns Carrier: The JLTV Heavy Guns Carrier (JLTV-HGC) is a JLTV-GP mission package configuration that accommodates mounting crew served weapons (machine guns and grenade machine-guns) with a protected gun mount and will be the principal light vehicle employed for over-watch and base of fire during infantry attack, convoy escort, and security (military police).

JLTV Close Combat Weapon System: The JLTV Close Combat Weapon System (JLTV-CCWC) is the base vehicle platform for employment of the Close Combat Weapons System, currently the Tube-launched, Optically-tracked, Wire command data link, guided missile Improved Target Acquisition System (TOW-ITAS) (U.S. Army) or Saber (USMC), and direct fire kinetic weapons such as the M2 .50 Cal machine-gun. The JLTV-CCWC is employed on avenues of approach, over-watch positions or attack by fire positions. During all types of operations including urban operations, they use precision long range fire capability to enable maneuver of Infantry units in the close fight. The JLTV-CCWC satisfies the requirement for an anti-tank / anti-armor weapons platform within the USMC and U.S. Army.

JLTV Two Seat Variant (JLTV-UTL): The JLTV-UTL is a base vehicle platform that carries cargo (or unprotected troops in an administrative environment) on an open bed; this provides mobility primarily for non-shelter loads, such as boxes, pallets, small containers, or break bulk cargo. As a prime mover, this vehicle tows existing combat loads including 105 mm howitzers, Q-36 radars, or other towed loads typically moved by light tactical vehicles. The JLTV-UTL acts as a Shelter Carrier when outfitted to carry existing standard shelters required for maintenance, communications, etc. A shelter adapter may be required to accept shelter loads and optimize vehicle performance while loaded with a shelter. Standard legacy shelters are supported by this vehicle.

JLTV Trailer (JLTV-T): The JLTV-T is capable of meeting the mobility characteristics of the JLTV and capable of safely carrying the assigned payload.

## 4. Redeploy

JLTV supports retrograde operations in the same manner as entry operations.

**DISTRIBUTION A. Approved for Public Release, distribution unlimited.**

## 5. Sustain

JLTV provides reliable, durable performance over the anticipated spectrum of conflict and is easy to maintain at the unit level without undue logistical burden. Sustainability also includes the impact of the vehicle on the logistics elements required to support it. This implies efficient use of fuels to move the vehicle and generate power; maximum practical commonality of components among variants to improve supportability; simplicity in diagnostics and repair; and simplicity in operator training. JLTV fits into the existing supply system, primarily using DoD common fuels, oils, and lubricants. JLTV sustainability is possible through a low maintenance ratio, allowing units to focus more on warfighting than logistics; high reliability, meaning fewer maintenance actions; short repair times, getting key weapons quickly back into action; as well as on-platform and at-platform vehicle health management and diagnostics capabilities.

### a. Maintenance

JLTV fits into the existing maintenance concepts of the Army and Marine Corps. Army Maintenance concept for the JLTV will be two levels of maintenance known as field and sustainment maintenance. "Field maintenance" is defined as return-to-user tasks, and consists primarily of on/near-system repairs. "Sustainment maintenance" is defined as return-to-supply tasks and consists of off-system repair. Marine Corps maintenance concept for the JLTV will be three levels of maintenance known as operator and crew level, field level, and sustainment level maintenance. Operator and crew maintenance includes the performance of preventive maintenance checks and services (PMCS) and selected corrective maintenance actions. Its function is to sustain the equipment in mission capable condition. Field maintenance includes lower level maintenance actions that are beyond the capabilities of the operator and crew. Its function is to expeditious assessment and repair of end items and selected major sub-systems, sub-systems, and assemblies as dictated by the technical data. Sustainment maintenance includes what is known as depot maintenance activities, whether organic or commercial. Its function is to facilitate major repairs or overhauls and modifications beyond the capabilities of lower levels of maintenance.

### b. Recovery

Harsh operating conditions and demanding unit level missions imply vehicles will occasionally need recovery. JLTV is recovered by the existing tactical wheeled vehicle recovery assets of the services in both lift and flat tow configurations. JLTV is able to self-recover from mires via winch or conduct like-vehicle recovery via tow-bar.

### c. Training

JLTV drivers are incidental operators, meaning existing unit personnel, regardless of military specialty, are trained at the unit using a standardized program of instruction. Training incidental

**DISTRIBUTION A. Approved for Public Release, distribution unlimited.**

drivers allows commanders the ability to select appropriate Incidental drivers, based on unit resources and priorities. JLTV drivers are trained in expected terrain and driving conditions using existing methods, resources, techniques, and licenses. JLTV maintainers are trained at service "school-houses," under the existing training programs for light tactical wheeled vehicle mechanics. JLTV fits into the existing set of common driver trainers with minimal modification, meaning JLTV-unique driver trainers are not required. JLTV Operator/Maintainer/Crew Chief training is be designed to support and sustain the highest levels of training readiness by leveraging existing institutional methods, assets, and unit training profiles with the addition of tailored JLTV maintenance training devices, simulation, and NET. Training will be assessed through, operational exercises and assessments. Existing military training facilities and curricula will be used to the maximum extent possible.

## **6. References:**

- [A] JLTV Operational Mode Summary and Mission Profile (OMS/MP) version 3, 24 February 2011
- [B] System Threat Assessment Report (STAR) for the Joint Light Tactical Vehicle, 08 June 2011
- [C] JLTV Capability Development Document (CDD) ver 3.6
- [D] Marine Corps Operating Concepts, 3d Edition
- [E] USA Future Force Capstone Concept (2015-2024)