

forces makes the training, planning, and execution infinitely more difficult on the military.

## Types

An AA unit may be called upon to support any of the 16 MOOTW missions/operations listed in JP 3-07, *Joint Doctrine for Military Operations Other than War*, but most likely, the unit will be involved in the following:

- Enforcing exclusion zones.
- FHA.
- Military support to civil authorities.
- NEO.
- Peace operations.
- Recovery operations.
- Combating terrorism.
- Enforcing sanctions.
- Strikes and raids.

## Employment Advantages

AAVs are employed in MOOTW missions for their distinct logistical capability; mobility, firepower, and armor protection; amphibious capability; and shock/intimidation value.

### *Logistical Capability*

When employed in a logistical role, the AAV provides the following advantages:

- **Armor protection**—The AAV has a large personnel carrying capacity while providing armor protection. This is especially important when carrying noncombatants, critical supplies or nongovernmental organization workers through potentially hostile terrain.
- **Armored ambulance capability**—The AAV with a litter kit can transport up to six personnel on stretchers under armor protection.
- **Large logistical capacity**—The AAV can carry large quantities of food, water or supplies over varied terrain and under armor protection.

### *Mobility, Firepower, and Armor Protection*

When conducting convoy, convoy security, and checkpoint operations, the AAV's mobility, firepower, and armor protection are important. The AAV can provide fire support from the UGWS, armor protection to the embarked infantry, and infantry mobility in diverse and difficult terrain.

### *Amphibious Capability*

The AAV can provide NEOs' or combat operations' logistical support from ship to shore.

### *Shock/Intimidation Value*

When employed in crowd control, patrolling, convoy or checkpoint operations, the AAV's size and appearance can intimidate combatants and noncombatants.

## Employment Disadvantages

While the AAV's shock and intimidation value can be useful in MOOTW, it can be a detractor in a volatile situation. The appearance of AAVs or other armored vehicles may incite violence or destabilize a situation. The commander must weigh this consideration. In addition, the commander must plan for the AAV's large logistical requirements.

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## Breaching Operations

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In battle, Marine Corps forces can expect to encounter numerous manmade and natural counter-mobility obstacles. When such obstacles cannot be bypassed, they must be overcome. The Marine Corps has equipment and forces to deal quickly and efficiently with these obstacles to maintain the momentum and shock of the attack. Within the AA battalion, this mission belongs to the M/CM platoon. The primary mission of the M/CM platoon is to provide support in the clearing of lanes through minefields and other obstacles during amphibious

operations and in support of subsequent operations ashore. Because of this specialized mission, the M/CM platoon is considered a division asset and has established a special working relationship with the division combat engineer battalion. Operational proficiency in the employment of M/CM assets requires an understanding of the MK-154 LMC system used to clear obstacles, the organization of M/CM assets, M/CM precepts, and amphibious breaching operations. See MCWP 3-17.3, *MAGTF Breaching Operations*, for an indepth analysis of tactics, techniques, and procedures for breaching operations. For information involving types of breaching equipment, see FM 5-100, *Engineer Operations*. For information involving types of obstacles, see FM 5-100; FM 5-102, *Countermobility*; and FM 20-32, *Mine/Counter-mine Operations*.

### MK-154 Linear Mine Clearing System

The MK-154 LMC system is a special mission kit specifically designed for use on the AAVP7A1. When not installed on the AAV, the kit is stored in its own shipping container. A trained crew can mount the MK-154 in 2 hours. The use of the

AAVR7A1 boom or another heavy-lift asset is required to mount the kit on top of the AAVP7A1. See figure 7-6.

The MK-154 ammunition load occupies the entire troop compartment of the AAV. A full reload of the system, three line charges and rockets, requires approximately 45 minutes. Each line charge consists of a rocket, a line charge of 100 meters of C-4 explosive, and 66 meters of safety line. The crew remains inside the AAV when using the hydraulically deployed rocket launcher.

#### Characteristics

The MK-154 LMC has the following characteristics:

- Launching device weighs 3,040 pounds.
- Container and device weighs 8,790 pounds.
- Container dimensions are 175.75 by 96.88 by 60.5 inches.

The MK-154 ammunition has the following characteristics:

- Linear demolition charge with tub (ML25) weighs 2,550 pounds.

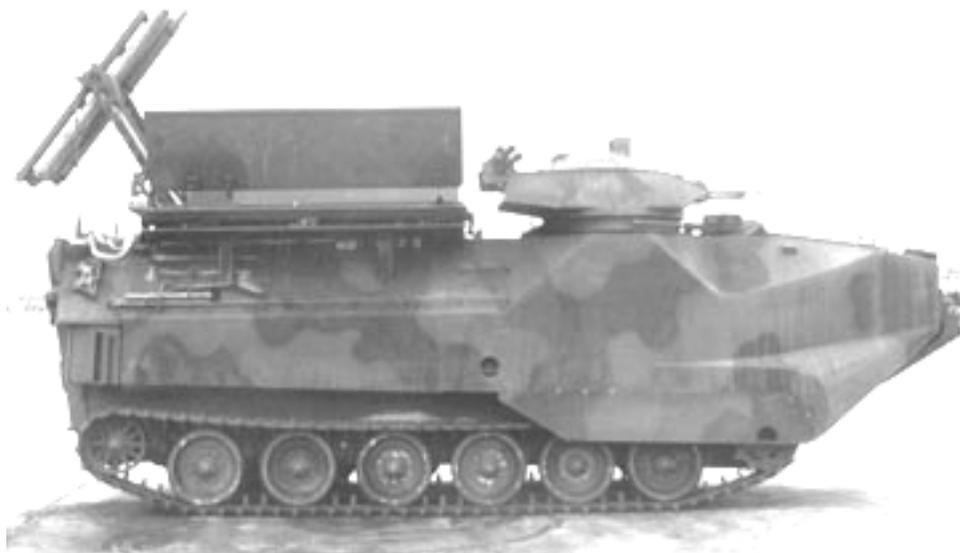


Figure 7-6. MK-154 LMC.

- C-4 charge weighs 1,750 pounds.
- Three MK22 model rockets weigh 115 pounds each.
- Four MK22 model rockets weigh 128 pounds each.
- LMC and combat-equipped AAV with EAAK weigh 65,600 pounds.

### Capabilities

- The MK-154 LMC system is specifically designed for defeating manmade obstacles intended to hinder and delay military operations. The following are capabilities of the MK-154 LMC system:
  - Can be mounted on any AAVP7A1 hull without additional modification to the AAV.
  - Is capable of firing three line charges consecutively without reloading the system.
  - Permits the breaching of a minefield up to 260 meters in depth with proper overlap of each charge.
  - Creates a line charge explosion blast area 16 meters wide and 100 meters in length that is 95 percent clear of mines (with the exception of double impulse and magnetic impulse mines).
  - Reduces wire obstacles and trip wires with the line charge blast.

### Limitations

Environmental factors may restrict the ability of the MK-154 LMC system. When the vehicle is on a slope in excess of 53 percent bow up, the MK-154 LMC system is unable to fire using its electrical system. However, the system can be fired manually with the vehicle on a slope up to 60 percent bow up. In addition, waves over 3 feet in the surf zone may swamp the vehicle when the system is raised and preparing to fire.

### Employment Techniques

The operational employment techniques for the MK-154 are as follows:

- AAVP7A1 with MK-154 approaches the minefield/obstacle belt.

- AAVP7A1 with MK-154 stops approximately 70 meters before the minefield boundary.
- MK-154 launcher is deployed.
- MK-154 is aimed by pointing the entire vehicle in the direction of intended rocket flight.
- MK-154 is launched. When fired, the rocket pulls the line charge from the troop compartment of the AAVP7A1.
- Rocket reaches the end of the 166-meter line (62.5 meters of safety line and 103.5 meters of explosive), rocket pulls the line charge taut, and line falls to the ground. The 62.5-meter safety line provides the maximum distance between the launch vehicle and the explosion.
- AAV crew detonates the line charge from within the AAV. The explosion creates a lane approximately 100 meters long by 16 meters wide.
- AAV moves to execute additional firings to accomplish the mission if additional lanes are required or if the minefield is of such a depth to require multiple charges.

### Organization of Mobility, Countermobility Assets

The M/CM platoon is located in the H&S company, AA battalion, and consists of 24 AAVs with 12 MK-154 line charge kits. Normally, the smallest unit used for breaching operations is the breach team, consisting of four AAVs and two MK-154 kits. Table 7-1 shows the M/CM organization.

**Table 7-1. M/CM Organization.**

M/CM Unit	Equipment
Platoon	12 AAVP7A1 equipped with 12 MK-154 LMC systems 12 AAVP7A1 support vehicles
Section	6 AAVP7A1 equipped with 6 MK-154 LMC systems 6 AAVP7A1 support vehicles
Breach Team	2 AAVP7A1 equipped with 2 MK-154 LMC systems 2 AAVP7A1 support vehicles
Breach Element	1 AAVP7A1 equipped with 1 MK-154 LMC system 1 AAVP7A1 support vehicle