



# 75<sup>TH</sup> RANGER REGIMENT

## First Combat Employment of Man Portable Line Charge (MPLC)

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AFTER ACTION REPORT (AAR)





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# MPLC Capabilities

- The Man Portable Line Charge is a single use, lightweight, man-portable, rocket launched explosive line charge system designed to establish breach lanes through complex minefields. It can be employed in various terrain to include urban terrain from covered and concealed positions. The MPLC provides a precise, light weight man portable mine clearing weapon system.
- The system is light enough to be carried by one Soldier and can be deployed within 30 seconds.
- It utilizes a dual shock tube assembly with separate signals for line charge deployment and line charge detonation.



# MPLC Data

System Weight:	30 lbs
Explosive Type:	RDX based plastic bonded explosive
Max Rocket Altitude:	6m (20 ft.)
Max Length of Breach:	25m (82 ft.)
Width of Breach (soil dependant):	0.3m (1 ft.)
Standoff Distance:	30m (100 ft.)
Net Explosive Weight (NEW):	20.25 lbs

# MPLC

## Physical Description

The MPLC is composed of an 84 foot plastic bonded explosive line charge (1100gr Det Cord), a small rocket motor used to deploy the line charge, an arrestor strap, a launch rod, and 100 feet of dual shock tube housed in a Skin Pack. The shock tube is initiated by two – M81 firing devices. The shock tubes are connected through an Energetic Transfer Assembly that contains a PBXN-5 Booster. All of these items are contained in a medium size assault pack.





# MPLC Expectations

- The MPLC is designed to assist in the clearing of a narrow footpath to a target by exposing, disrupting, or neutralizing IED trigger mechanisms, while minimizing collateral effects on non-combatant personnel, structures and property.
- The MPLC is not intended to defeat or detonate the IED itself. Any path created by MPLC must be proofed before it is considered clear.
- IED triggers can still be “hot” after line charge detonation.
- Employing the MPLC does have the possibility to detonate IED’s.



# Combat Employment

- The Task Force had recently sustained a casualty on a high speed avenue of approach from a PPIED, it is a best practice to avoid similar roads and choke points.
- The dismounted ground force encountered a semi isolated road leading to the main road along their EXFIL Route.
- Both sides of the road consisted of waist to neck high fields of vegetation. The fields were utilized for the INFIL route, which took an excessive amount of time to travel through.
- The decision was made to employ the newly fielded MPLC to clear the danger area and use the road for EXFIL. The road was roughly 50m long and the danger area was assessed to be within the first 25m.
- The MPLC was deployed at the end of the hard packed road on the way to the EXFIL location.



# Combat Employment

## (continued)

- The MPLC Team took cover behind a wall after reaching the end of the initiating system.
- It was observed that the Line Charge had deployed properly after the rocket was fired in a generally straight line along the right side of the road.
- After deployment of the Rocket, the MPLC Team did not move up to check the Det Cord line for possible looping after the Line Charge was deployed (looping was an issue at the Operational Demonstration at Fort Benning, GA).
- The MPLC had a High Order detonation.
- The MPLC cut a channel along the right side of the road, and charred the ground on the road about three feet wide.
- From the disturbed ground, the ground force was able to quickly clear a 2 foot wide safe path along the road. No IED triggers were found.





# POSSIBLE LOOPING OF LINE CHARGE CAUSING LOW ORDER DETONATION

**Issue:** Possible looping of Line Charge causing Low Order Detonation.

**Discussion:** At the Operational Demonstration at Fort Benning, GA, four of the MPLC systems used had an issue of the line charge laying on top of itself, creating a loop within the Arrestor Strap section of Line Charge (approx first 10-12ft). One system had a Low Order Detonation due to looping, cutting itself where the Line Charge laid over itself. Three other systems had the looping issue, but achieved high order detonation. A modification of cutting the first six inches of stitching in the Arrestor Strap was done at the demonstration to alleviate the looping issue. Both of the two modified systems had no looping issue. **Current MPLC systems forward for Combat Evaluation have the modification of the first six inches of stitching in the Arrestor Strap cut.**

**Recommendation:** With the successful High Order Detonation of the first Combat MPLC system it is recommended the modification of cutting/removing the first six inches of stitching in the Arrestor Strap be sustained in future systems.



## STAKES TOO LONG FOR HARD PACKED SOIL

**Issue:** Stakes provided in the MPLC kit are too long for hard pack soil.

**Discussion:** The stakes that come with the MPLC system are approximately 6" long and when installed must be flush to the Launch Plate. In hard pack soil it would be very difficult to near impossible to make these stakes flush with the Launch Plate. A modified stake was made out of a 4" bolt that was sharpened to a point. During the NET training the modified stakes were provided and instructed to use for hard pack soil. **Without the additional modified stakes, the factory provided stakes would not have been flush with the base plate and could have caused the Line Charge to become tangled as the rocket was deployed.** Factory stakes would have been fine for soft pack soil.

**Recommendation:** The short stakes need to be a sustain for current systems and be an addition to future MPLC systems for use in hard pack soil. The current long stakes should be sustained for soft soils, where short stake may not be long enough to hold the plate and Arrestor Strap in place.



# ARRESTOR STRAP SECURING LOOP AND STAKE

**Issue:** The Arrestor Strap Securing Loop was difficult to get the stake through.

**Discussion:** As instructed to do so with the modified stakes in the New Equipment Training (NET), the Arrestor Strap was attached to the stake under the Launch Plate in the rear hole. The small head on the bolts used as the modified stake could allow the Arrestor Strap to come loose off the top of the stake when the Rocket is launched and the Arrestor Strap begins deploying, if attached to the stake above the Launch Plate. **It was difficult finding and opening the Arrestor Strap Loop to place a stake through when the strap is secured under the plate under Night Vision Goggle's (NVG's).**

**Recommendation:** During the Pre-Combat Inspection (PCI) process, work the arrestor strap loop so that it is easily opened or put a wrap of 100 mph tape at the top of the loop so it will have a tendency to stay open.



# DIFFICULTY REMOVING SAFETY PIN

**Issue:** Difficulty removing the M81 safety pin.

**Discussion:** When preparing to initiate the MPLC, the safety pin on the M81's were extremely difficult to remove. From the factory the 2x M81 safety pins are bent completely flat on the backside of the M81 attached to the 100' Skin Pack. M81's used currently for breaching and demolition operations are not bent to such extreme.

**Recommendation:** When at your safe firing position prep your M81's by bending the safety pin ends generally straight, but not removing either until ready to fire the appropriate M81. This will mitigate any prolonged delay when ready to initiate either the Rocket or the Line Charge.



# Points of Contacts

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