



決勝行動訓練環境下之 協同破障：歡迎回到舞池

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A mission sometimes viewed as an “orchestrated ballet of farm implements” is challenging to conduct and worthy of discussion by Army professionals. During the Army’s most recent conventional forced-entry operations in Iraq in 1991 and again in 2003, obstacles stood in the way of ground combat forces. Combat engineer forces enabled maneuver forward in both of these conflicts. Keeping this history in mind while predicting future threats, the Army has introduced a new Decisive Action Training Environment (DATE) that challenges units with an enemy that is equipped, trained, and willing to use a variety of obstacles to deny them freedom of action.

對於美軍專業人士來說，在執行具有挑戰性的任務，有時候會被視為是「農耕機具的美妙芭蕾」。美軍最近兩次分別在 1991 年及 2003 年以正規部隊進入伊拉克作戰期間，伊拉克部隊以各種型式的障礙物遲滯美軍地面戰鬥部隊行動，戰鬥工兵部隊仍可向前機動至雙方衝突接觸地區排除障礙。回憶這段過去的歷史，同時預測未來的威脅，美軍已推出一套新的決勝行動訓練環境，運用假想

敵軍所擁有的裝備、訓練及可能使用的各式障礙物，以阻滯參訓部隊的行動自由。

The threat facing U.S. units in the DATE will require a combined arms team that is prepared to apply lessons learned to counter improvised explosive devices and the conventional complex mine, wire, and earthen berm obstacles employed by adversaries in 1991 and 2003. Descriptions of the hybrid threat that rotational units will face during decisive action rotations at the National Training Center (NTC) at Fort Irwin, California, can be found in the “DATE Version 2.0” handbook published by the U.S. Army Training and Doctrine Command (TRADOC).² This article reports on combined arms breaching observations and training recommendations from the first DATE rotation conducted at NTC in March 2012 with a new “farm implement” at the dance—the Army’s newly fielded assault breacher vehicle (ABV).

在 1991 年及 2003 年決勝行動訓練環境中，美軍所面對的假想敵軍是一支協同部隊，且能夠運用敵軍的準則，設置急造爆裂物、正規混合式雷區、鐵絲網及土堤障礙物等。在愛因堡及加州國家訓練中心的輪訓部隊，於決勝行動輪帶式訓練中將會面對複合式的威脅，這些訓練內容都可以在美國陸軍訓練及準則指揮部所出版的《決勝行動訓練環境 2.0 版》獲得相關資訊。這份報告報導協同破障觀察成果及訓練建議，介紹在 2012 年 3 月於國家訓練中心第一次決勝行動訓練環境輪帶式訓練中，所使用新式的「農耕機具」在跳舞—而這項裝備就是陸軍最新的野戰突擊破障車。

Observations from NTC rotations indicate that success at the breach still requires the Army’s doctrinal breaching tenets—

- Intelligence.
- Breaching fundamentals.
- Suppress.
- Obscure.
- Secure.
- Reduce.
- Assault.

- Organization.
- Mass.
- Synchronization.

從國家訓練中心輪訓課程觀察指出，成功的破障需要依循陸軍準則的破障要項：

- 情報
- 破障基本要素
- 制壓
- 遮蔽
- 確保
- 削弱
- 突擊
- 組織
- 兵火力集中
- 同步化

Engineer formations are understandably out of practice at this particular dance. The biggest shortfall observed in the conduct of combined arms breaching is a lack of company level engineers integrating into and influencing the military decision making process (MDMP) of their supported combined arms battalion. Officers are too often hesitant to recommend the introduction of breaching fundamentals into the course of action. The result is that engineer breaching assets are not in position to rapidly exploit at the point of penetration and help the combined arms battalion maintain momentum through the breach.

工兵部隊必須明確瞭解如何跳這一場特別的舞蹈。在執行協同破障中，最大的缺點是缺乏連級以上工兵幹部整合及影響指參作業程序，以支援聯兵營之任務，工兵軍官在行動方案中，經常對破障基本要素之建議猶豫不決，所造成的後果是工兵破障裝備無法在第一時間快速投入突穿點的位置上，以協助聯兵營在破障期間維持攻勢的動能。

The ABV is built on an M1 Abrams tank chassis and includes a turbine engine that enables it to keep up with the maneuver forces it is designed to support. The

platform has two linear demolition charges (LDCs) mounted on the rear of the vehicle turret. The LDC is a mine-clearing line charge (MICLIC) with a new name, but has a Kevlar cover, has an automatic ejection system to speed reloads and safely react to hazardous malfunctions, and is much more stable on the move than a trailer-mounted system. The modified table of organization and equipment (MTOE) for an engineer company in a heavy brigade combat team consists of three combat engineer platoons and an equipment platoon. The equipment platoon includes six ABVs in two assault sections. The resulting 12 LDCs provide more breaching capability than the four trailer-mounted MICLICs formerly authorized.

突擊破障車是由 M1 亞伯蘭斯坦克底盤及渦輪引擎所組成，可跟隨於其設計之戰鬥部隊。這台突擊破障車砲塔後方有 2 組線性爆炸裝藥(LDC)。線性爆炸裝藥(LDC)是火箭排雷系統(MICLIC)的新名詞，但具有功夫絨披覆，可大量提升裝甲防護力，同時自動裝填系統可加快裝填速度，也可安全地處置彈藥失效問題，比拖式裝填系統更為穩定。在裝甲聯兵旅所屬工兵連之修正後編裝表內，下轄 3 個戰鬥工兵排及 1 個裝備排，這個裝備排下轄 2 個突擊組，共有 6 輛突擊破障車，其中 12 組線性爆炸裝藥(LDC)比 4 部前一款掛車裝載之火箭排雷系統(MICLIC)，可以提供更為優異的破障能力。

The base MTOE also includes two full-width mine plows and a combat dozer blade for each platoon. With that equipment, each platoon would be able to breach a combined obstacle up to 522 meters deep, quite an improvement over the 174 meters of clearance available to a platoon with two trailer-mounted MICLICs. The ABV is also equipped with an automatic lane-marking system. By design, a single ABV can reduce an obstacle with its LDC, proof a lane with its mine plow, and mark lanes while the other ABVs provide redundancy and alternatives for the combat formation.

在基地修正後的編裝表中，每個排也包含2輛全寬排雷犁及1輛戰鬥推土機刮刀。有了這些裝備，每個排突破混合障礙物縱深可達到522公尺，相當於比2輛拖式裝填火箭排雷系統(MICLIC)還多了174公尺的排障能力。突擊破障車亦配有自動通路開設系統。依據設計理論分析，1輛突擊破障車可以用線性爆炸裝藥(LDC)排除障礙，用排雷犁來驗證通路安全，當其他的突擊破障車對其他戰鬥部隊提供備援或替代方法時，可以標記通路。

As engineer leaders work through the MDMP, they may find that instead of placing three ABVs with the two assault squads of the equipment platoon, they might place two ABVs in each of the three platoons. While reducing some mass, this task organization offers additional breaching options across the maneuver force. It is premature in the fielding cycle to call for an MTOE change, but the equal allocation of three mine plows/dozer blades per platoon may bear consideration. The balanced allocation of mine plows and dozer blades would allow mine plow/dozer blade teams to be incorporated into each of the three platoons, with redundancy available from the maneuver task force tank plows. Successive engineer and combined arms training will increase the unit understanding of capabilities and unit confidence in employing this equipment to support combined arms breaching.

當工兵幹部推演指參作業程序作業時，可能會將3輛突擊破障車配發在2個裝備排突擊班，也可能將3個排各配發2輛突擊破障車。當要排除大量的障礙物時，這樣的任務編組調整，將可提供現地戰鬥部隊另一種破障選項。雖然修改修正後編準表以調整運用裝備是有點草率的，但是平均分配3輛排雷犁或戰鬥推土機給每一個排是值得考慮的。排雷犁及戰鬥推土機的平衡分配，可使排雷犁及戰鬥推土機隊分在每一個排，備用裝備可由戰鬥部隊的排雷犁提供。成功的工兵及協同訓練可以提升單位對自我能力的瞭解，以及使用這些裝備支援協同破障的自信。

The ABV is equipped with a blade that can reduce manmade obstacles such as log cribs and move debris that was emplaced to slow down maneuver forces. Teamed with an armored combat earthmover (ACE), it can be used to reduce enemy antitank ditches. The ABV dozer blade is not well suited for filling in antitank ditches, but its power makes it very effective in reducing the berm on the enemy side of the ditch. The ACE doesn't have the power to quickly reduce the berm on the enemy side of the ditch, but it can easily fill in the ditch to create a ramp so that the ABV can reach the berm. At the NTC, an engineer company making multiple breaches through antitank ditches achieved its quickest times using the ABV and ACE in tandem. Units at home station should incorporate antitank ditch reduction training to reflect the nature of complex obstacles commonly emplaced by the DATE near-peer conventional adversary. It is worth noting that bridging assets in the form of armored

vehicle-launched bridges were once organic to brigade combat team engineers and integral to the reduction of antitank ditches and berms. Since current MTOEs do not provide this gap-crossing capability within brigade combat teams, it is critical that planners request these assets from maneuver enhancement brigade formations, find a bypass to the gap-crossing obstacle, and practice the ABV/ACE drill described here. The ABV is equipped with the same automatic lanemarking system used by Stryker vehicles. The system provides entrance, left-hand rail, and exit markers during initial lane marking.

突擊破障車配有刮刀可排除遲滯戰鬥部隊的圓木及障礙物殘骸等人為障礙物。小組配有裝甲戰鬥推土機，可以用來排除敵軍的反戰車壕，突擊破障車的推土刮刀不適合用來填平反戰車壕，但可以非常有效的排除在壕溝遠方的土堤障礙物，武裝戰鬥推土機沒有辦法快速排除反戰車壕遠方的土堤，但可以很快速地填平反戰車壕，並開設斜坡使突擊破障車可以到達土堤。在國家訓練中心，工兵連可先後使用突擊破障車及武裝戰鬥挖土機，在最短的時間內實施多重破障通過反戰車壕。在駐地應整合反戰車壕破障訓練，以應付在決勝行動訓練環境正規敵軍結合天然複雜地形所設置之各項障礙物。履帶機動橋等架橋裝備若是建制在聯兵旅工兵部隊執行排除反戰車壕及土堤是不值得。自從現在聯兵旅的編裝表不再具備渡河能力，計畫人員從機動強化旅申請這些裝備變得相當重要，尋找一條小路到達河川地障，並在此實施突擊破障車及裝甲戰鬥工兵車的訓練。突擊破障車也配有與史崔克裝甲車一樣的自動通路開設系統，這套系統在初步通路開設過程中，可以提供入口、左手護欄及出口。

To take full advantage of the system, units must develop and implement standard marking tactics, techniques, and procedures and capture them as unit standing operating procedures. Without clear standards, units can expect inconsistent initial lane-marking signatures from engineer platoons during various missions across the brigade area of operations and the likelihood of increased casualties resulting from the confusion. The ABV lane marker cannot effectively mark the final approach or the entrance funnel. This step requires planning by the engineer platoon leader to establish the initial lane with a combination of the ABV and dismounted Sappers. To be effective, marking drills must be understood by the maneuver task forces and follow-on sustainment formations.

要發揮這套系統的所有的優點，單位必須發展並運用標準的戰術、技術、程序，並視為單位的標準作業程序。假如沒有破障的標準，旅在作戰地區以內執行多樣任務，可以預期每個工兵排初步通路作法將會不一致，因為混亂造成傷亡人數的增加。使用突擊破障車開設通路的作業人員無法有效標記最終的通路或是入口，這個步驟需要由工兵排排長計畫突擊破障車及戰鬥工兵共同開設初步通路。為使得破障任務更有效率，要訓練戰鬥部隊特遣隊及必須通過破障通路之後續部隊一定要瞭解全般作業方式。

At the NTC, the lane-marking system proved moderately effective in marking the left-hand rail. During plowing operations, the soil was loose enough to allow the emplacement of lane markers, but the left-hand rail became obscured by dust or knocked over by vehicles as follow-on forces moved through the breach site. As a result, some vehicles moved outside the lane and into unproofed sections of the obstacle. Only when units augment the left-hand rail of the lane-marking system with orange traffic cones are follow on forces likely to stick to the lane. The task force and the engineers must rehearse lane marking under day and night conditions. To educate subordinates before executing a combined arms breach mission, engineers should consider setting up a static display of their marking method in an area (such as the tactical assembly area entrance control point) where the task force will maneuver often. (FM 3-34.2 provides standards for lane and bypass marking.4)

在國家訓練中心，通路開設系統以左側圍籬有效驗證。在排雷犁作業過程中，土壤已經被挖鬆，通路標記也容易設置，但是左側圍籬易被灰塵覆蓋隱藏，或是被經過破障通路後續部隊的車輛撞倒。結果造成有一些車輛在安全通路外的區域運動，而進入尚未驗證的障礙區域，只有當單位用橘色交通錐加大雷區開設系統的左側圍籬，後續部隊可以按照通路前進。特遣隊和工兵必須在白日及黑夜的狀況下演練通路開設。在執行破障任務前，必須教育下級單位，而工兵應該考量在特遣隊經常機動的區域設置通路開設方法的看板，使他們瞭解到通路開設之狀況(例如戰術集結地區入口管制點)(野戰手冊3-34.2提供通路及便引道開設的標準)

The proverbial “long pole in the tent” of combined arms breach success is the effectiveness of the lane-marking signature in helping the initial assault force and

follow-on combat forces move forward to the farside objectives. Rehearsals and the use of a common lane-marking standard are critical enablers of this success. The absence of a capable engineer representative (the engineer company commander or a platoon leader) during MDMP and rehearsals presents a major shortfall during the planning of combined arms breaching operations. The engineer representative must ensure that the MDMP includes formal reverse breach planning. Key tasks within reverse breach planning are to—

成功協同破障的中流砥柱是通路開設效能，協助初步突擊部隊及後續戰鬥部隊向目標區的遠方前進。預演及通路開設標準是成功達成任務的要素。有能力的工兵代表(工兵連長或排長)在指參作業程序推演及預演中缺席，將在協同破障計畫造成嚴重的不足。工兵代表必須確認指參作業程序過程中包含正式反向破障計畫。反向破障計畫的重要行動包含：

- Identify available reduction assets.
- Predict the placement of enemy obstacles.
- Understand the scheme of movement and maneuver.
- Identify the number of required breach lanes.
- Identify assets required to reduce, proof, and mark lanes.
- Task-organize reduction assets within the maneuver force.
- 確認可用之破障裝備。
- 預測敵軍障礙物之配置。
- 瞭解我軍之兵力運用。
- 確認需要破障的安全通路數量。
- 確認所需破障、驗證及標記安全通路之裝備。
- 分配破障裝備給戰鬥部隊。

Breaching operations also commonly suffer from a lack of deliberate, combined arms rehearsals incorporating the engineer leadership. The detailed discussion of breach execution is critical during rehearsals at all echelons, from task force level, combined arms rehearsals to company and platoon permission radio rehearsals.

“The rehearsal is one of the most effective synchronization tools available to commanders.” 5 Performed correctly, a rehearsal allows the support force, breach

force (security and engineer reduction elements), and assault force to visualize their actions in time and space and helps the task force commander identify decision points related to the successive commitment decision of the breach force and the assault force. When the reverse breach planning and rehearsals achieve synchronization, the ABV-enabled engineers will be properly positioned with redundant assets and clear commitment criteria, leading to more successful execution on the dance floor. In conclusion, while the ABV will provide the Army with a greater capability to conduct combined arms breaching, it does not diminish the importance of applying doctrinal fundamentals in the form of breaching tenets when planning, preparing, and executing them. The ABV reduces cross-country maneuver time to the point of penetration, decreases the number of vehicles and personnel exposed to direct fire at the point of penetration, and cuts the time to reduce an antitank ditch. To fully realize the advantages of this new breaching asset, task force engineers must be fully integrated into the MDMP and maneuver units must devote particular attention to actions at the breach during rehearsals. The dance floors in our Army's future will surely include the challenges of obstacles. Now enabled with the ABV and renewed attention to the age-old lessons in doctrine, our combined arms force will be well situated to succeed in helping maneuver forces to "seize and exploit the initiative."

破障作業也通常遭受到缺乏周延、且配合工兵思維協同預演的問題。在所有部隊預演期間，從特遣隊階層、協同預演到連與排級允許無線電預演，破障作業的深入討論是相當重要的。「預演是對指揮官最為有效地同步化工具」。正確地運用預演可以使支援部隊、破障部隊(警戒及工兵破障部隊)及突擊部隊在時空上透視他們的行動，協助特遣隊指揮官成功地傳達戰鬥部隊及破障部隊的決心點。當反向破障計畫及預演同步進行時，適當的部署突擊破障車及與備援裝備，並依據破障作業標準，將可以在舞池上帶來更大的成功。總而言之，突擊破障車可提供陸軍執行協同破障的強大能力，但這並不會減少計畫、準備及執行破障要素等準則相關基礎的重要性。突擊破障車可縮短到達突穿點的越野機動時間，降低車輛及人員在突穿點暴露於直射火力的數量，縮減排除反戰車壕的時間。要瞭解這套新裝備的所有好處，特遣隊的工兵必須完全地整合在指參作業程序中，在預演期間戰鬥部隊必須對破障行動投入更大的心力。在我們美軍未來的舞池內包含各種型式障礙物的挑戰。現在運用突擊破障車強化破障

能力，更新準則內老舊的課程，我們的協同部隊將會更成功地協助戰鬥部隊「主動地奪取目標並擴張戰果」。