



M1A2 SEP戰車操作手冊譯本(第十章-操作手冊:緊急應處流程)下冊 TM9-2350-388-10-2,FEBRUARY 2009, CHAPTER 10 OPERATOR INSTRUCTIONS:EMERGENCY PROCEDURES

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提要

- 一、本篇譯文-美陸軍司令部2009年2月版M1A2 SEP 120公厘火砲全履帶戰車操作手冊，本書籍區分3冊17個章節，為美陸軍配賦M1A2戰車之部隊所用之單位技術書刊，然其內容包含裝備諸元性能、操作機件名稱及功用、正常及非正常之操作程序、單位保養項目及規範、簡易故障排除要領等，可供我部署單位先期研讀參用。
- 二、本篇譯文針對第2冊第10章緊急應處流程項目中英譯文介紹，說明嵌裝乏鈾裝甲板受損後的立即性處置作為、乏鈾的戰鬥損害裝甲板修復程序(立即性檢查及評估)、乏鈾裝甲戰車戰鬥受損之修復程序(清理)、戰鬥受損之修復程序(清理附著型乏鈾殘留物)、戰鬥受損之修復程序(戰損檢查篇)、戰鬥受損之修復程序(聚合物安裝篇)、人員緊急逃生程序、戰車翻覆(側邊)、戰車翻覆(復正)、戰車失火的火災逃生程序、清空加密數據失敗之立即作為、軟體重新啟動等12項應處流程。

關鍵詞：人員緊急逃生程序、戰車翻覆、戰車失火的火災逃生程序

壹、前言

鑑於戰車部隊為聯合國土防衛作戰-灘岸殲敵階段主戰兵力，我已獲得美方同意供售 M1A2T 戰車，由於新戰車採用燃氣渦輪發動機，此為國軍地面戰鬥車輛首次採用，在獲得的同時應先期對該項裝備之特殊設計、系統特性、操作及保養等項，透過譯文獲得初步了解，以加速接裝人員對裝備了解及提升對裝備之熟悉度，本篇譯文-先以緊急應處流程，先行譯文第2冊第10章「裝甲車之裝甲受損後的立即性處置作為、乏鈾的戰鬥損害後的裝甲修復程序、戰車翻覆(復正)、戰車失火的火災逃生程序」等12個項目，惟本手冊為2009年版與2022年構改後駕駛、射手及車長面板構造與功能將有所不同，駕駛操縱機構包含油門、換檔及轉向把手、駕駛艙門開啟、煞車踏板及手煞車踏板與釋放桿等機械裝置仍持續沿用，供先期赴美接裝受訓及讀者參考運用。

貳、譯文

一、操作手維護手冊-裝甲車之裝甲受損後的立即性處置作為/ OPERATOR MAINTENANCE ARMOR DAMAGE IMMEDIATE ACTION

警語/ (WARNING) :

乏鈾裝甲裡含有輻射性物質，但在未受損的情況下是安全的，且不會對健康產生危害。乏鈾裝甲的任何受損皆認定為輻射危害，人員必須立即採取行動以確保護自身健康。

Depleted uranium (DU) armor contains radioactive material but is safe and poses no health hazard if undamaged. Any damage to DU armor will be considered a radiation hazard and requires immediate action to protect your health.

1. 乘員們穿上防護服(覆蓋全身皮膚範圍)及配戴有M13A1濾毒罐之M25A1防毒面具。

Crew members put on protective clothing (covering all skin areas) and M25A1 protective mask with M13A1 filter element (WP 0338).

2. 依車長指示，乘員們用毯子、野戰夾克或泥巴覆蓋裝甲受損區域以防止任何人看見內部裝甲板。

As directed by tank commander, crew members cover damaged area with a blanket, field jacket, or mud to prevent anyone from seeing inside the armor.

3. 車長需通知野戰保修及輻射損管防護官。

Tank commander notifies field maintenance and Radiological Protection Officer of damage.

4. 若裝甲受損區域曝露內部裝甲板，必須採取秘密保護措施。如需更多資訊，請參考TB 9-1300-278

Damage which shows inside of armor shall be protected as SECRET. For further information, refer to TB 9-1300-278.

二、操作手維護手冊-乏鈾的戰鬥損害後的裝甲修復程序(立即性檢查及評估)/ ARMOR REPAIR PROCEDURES FOR DEPLETED URANIUM BATTLE DAMAGED TANKS (IMMEDIATE UNIT SURVEY AND ASSESSMENT)

備註/NOTE :

1. 輻射安全軍官或核生化軍/士官監督所有人員著裝

The Radiation Safety Officer (RSO) or NBC officer/NCO will supervise dress-up of personnel.

2. 在進行車輛清消過程時殘留乏鈾飄散，必須強制採取基本安全預防措施，

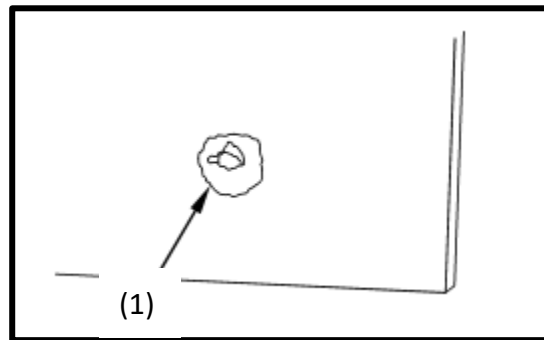
包括呼吸保護以防止吸入鈾粉塵；皮膚及眼部的保護，避免接觸鈾粉塵。Basic safety precautions are mandatory during vehicle DU survey and removal to include respiratory protection, to prevent breathing DU dust, as well as skin and eye protection.

1. 打擊定義(1). 底盤擊穿是指穿透裝甲進入乘員艙或引擎室之傷害；砲塔擊穿是指穿透裝甲進入乘員艙之傷害；砲塔及底盤穿刺傷害是指未貫穿裝甲板。

Define hit (1). Hull perforation is an injury through armor into crew or engine compartment. Turret perforation is an injury through armor into crew compartment. Hull and turret penetrations are injuries stopped in the armor



圖 1-打擊定義(貫穿)



資料來源：TM9-2350-388-10-2 WP0409-1頁

- 2.使用輻射偵測器完成檢測，如果攻擊具有輻射性，依據"AR700-48"和"PAM700-48"處理。

Use radiac meter to determine if hit is radioactive IAW AR 700-48 and PAM 700-48.

- 3.確認戰車是否能執行任務能力。

Determine if tank is mission capable

- 4.向車長回報結果，依據"AR700-48"和"PAM700-48"確認如果等級超過任務活動等級，通知輻射安全官或核生化軍/士官。

Report results to commander and if DU levels exceed action levels identified in AR 700-48 and PAM 700-48, notify RSO or NBC officer/NCO.

三、操作手維護手冊-乏鈾裝甲板戰車戰場受損修復程序(清理)/ OPERATOR MAINTENANCE ARMOR REPAIR PROCEDURES FOR DEPLETED URANIUM BATTLE DAMAGED TANKS (CLEANING)

警語/ (WARNING) :

- 1.當使用聚合物時，應戴上橡膠手套

Rubber gloves should be used when applying polymers.

備註/NOTE :

- 1.輻射安全軍官或核生化軍/士官監督人員著裝

The RSO or NBC officer/NCO will supervise dress-up of personnel.

- 2.在進行車輛清理過程中，必須強制採取安全預防措施，包括呼吸保護以防止吸入粉塵皮膚、眼部的保護及避免接觸

Basic safety precautions are mandatory during vehicle cleaning to include respiratory protection, to prevent breathing DU dust as well as skin and eye protection to prevent skin contact.

- 3.輻射、核生化安全軍/士官需保留並呈報一份進入殘留區域之所有人員名單。

The RSO or NBC officer/NCO will maintain a list of all personnel entering area where DU residue is present.

- 4.受汙損的戰車在執行任何檢查或保養/保修活動，事先確認已清除無散布乏鈾殘留。若受汙損戰車無法在執行檢查或保養/保修前，確認已清除無散布乏鈾殘留，輻射、核生化軍/士官必須確實、強制執行人員安全防護措施，於執行任何檢查或保養/保修活動前，再次核對檢查或強制人員穿戴防護措施。

Damaged vehicles will be certified to be free of loose DU residue prior to any inspection or maintenance/repair activity. If damaged vehicle cannot be certified to be free of loose DU residue prior to inspection or maintenance/ repair, personnel protective safety measures must be strictly enforced by Radiation Safety Officer (RSO) or NBC officer/NCO. The RSO or NBC officer/NCO will verify certification or enforce personnel protective measures prior to any inspection or maintenance/repair activity

- 5.所有碎片必須蒐集/調查，如檢驗含有乏鈾殘留物，則將比照輻射性廢棄物處理。

All debris will be collected/surveyed and if determined to contain DU residue, disposed of as radioactive waste.

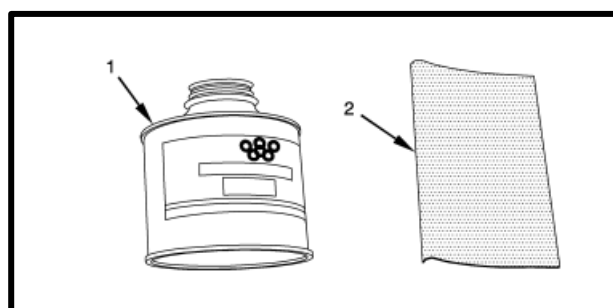
- 6.清理時須依據AR 700-48, PAM 700-48, TB 9-1300-278, TM 9-2350-200-BD-1, and TM 9-2350-200-BD-2.

Cleaning shall be AR 700-48, PAM 700-48, TB 9-1300-278, TM 9-2350-200- BD-1, and TM 9-2350-200-BD-2.

- 1.清除來自汙損區域所有髒污，汙泥和其他汙染物。

Remove all dirt, mud, and other contaminants from damaged area.

圖 2-聚合物修補成套工具內之 2911 及 10 號砂紙



資料來源：TM9-2350-388-10-2 WP0410-2頁

- 2.從受損部位之內部清除所有散布微粒。

Remove any loose particles from inside of injury.

- 3.如果戰車表面仍有乏鈾粉塵微粒，可以使用大力(布)膠帶(Vol 3, WP 0557, Item 32)與輻射檢測器進行檢驗。

Duct tape (Vol 3, WP 0557, Item 32) can be used with detector to determine if loose DU residue remains on vehicle surface.

- 4.使用聚合物修補箱之2911修補液清理(1)受汙染區域。

Use Polymer patch kit - 2911 conditioner (Vol 3, WP 0557, Item 29) (1) to clean area.

- 5.使用40號的砂紙打磨受損裝甲板周圍區域及背面(2)，這將為維修提供更好的附著力

Roughen area around injury and back of armor patch with 40 grit sandpaper (2). This will provide better adhesion for repair

四、操作維護-戰場受損乏鈾裝甲戰車修理程序(附著乏鈾殘留物)/OPERATOR MAINTENANCE ARMOR REPAIR PROCEDURES FOR DEPLETED URANIUM BATTLE DAMAGED TANKS (FIXED DU RESIDUE)

備註/NOTE：

- 1.相當牢固附著於表面的乏鈾殘留物，無法以簡單方法移除，稱之為附著型乏鈾殘留物。

Surface DU residue that is quite firmly attached to surface and that is not removed by simple means is called fixed DU residue.

- 2.輻射安全軍官或核生化軍/士官監督所有人員著裝



The RSO or NBC officer/NCO will supervise dress-up of personnel.

- 3.基於安全在進行車輛清理過程中，採取預防與強制性防護措施，包括呼吸道及皮膚與眼部，避免吸入及接觸乏鈾粉塵。

Basic safety precautions are mandatory during vehicle cleaning to include respiratory protection, to prevent breathing DU dust as well as skin and eye protection to prevent skin contact.

- 4.輻射、核生化安全軍/士官需保留並呈報一份進入乏鈾殘留區域之所有人員名單。

The RSO or NBC officer/NCO will maintain a list of all personnel entering area where DU residue is present.

- 5.受汙損的戰車在執行任何檢查或保養/保修活動，事先確認已清除無散布乏鈾殘留。若受汙損戰車無法在執行檢查或保養/保修前，確認已清除無散布乏鈾殘留，輻射、核生化軍/士官必須確實、強制執行人員安全防護措施，於執行任何檢查或保養/保修活動前，再次核對檢查或強制人員穿戴防護措施。

Damaged vehicles will be certified to be free of loose DU residue prior to any inspection or maintenance/repair activity. If damaged vehicle cannot be certified to be free of loose DU residue prior to inspection or maintenance/ repair, personnel protective safety measures must be strictly enforced by Radiation Safety Officer (RSO) or NBC officer/NCO. The RSO or NBC officer/NCO will verify certification or enforce personnel protective measures prior to any inspection or maintenance/repair activity

- 6.所有碎片必須蒐集/調查，如檢驗含有乏鈾殘留物，則將比照輻射性廢棄物處理。

All debris will be collected/surveyed and if determined to contain DU residue, disposed of as radioactive waste.

- 1.自受損戰車移除清除所有乏鈾粉塵微粒後，可以目視檢查並標示戰車附著型粉塵位置，再以戰車輻射偵檢器檢查車輛受擊彈著點周圍，並標記每一個附著型乏鈾粉塵位置，以利後續裝甲板維修。

After all loose DU residue has been removed from damaged tank; tank shall be visually surveyed to locate fixed DU residue. Use tank's radiation detector to inspect all areas around impact points on vehicle and mark each area of fixed DU residue surface for armor repair

- 2.所有乏鈾材質從戰車裝甲板嵌入，執行封裝作業需使用聚合物工具箱。

All DU material observed to be embedded in tank armor is to be encapsulated by application of Polymer patch kit (Vol 3, WP 0557, Item 29).

- 3.如果乏鈾明顯殘留，但又看不到彈著點位置，可使用耐化學劑塗料 (Chemical Agent Resistant Coating, CARC) 或聚合物工具箱封止乏鈾微粒滲出。

If DU residue is noted, but no impact locations are visible, an application of CARC paint or a Polymer patch kit (Vol 3, WP 0557, Item 29) may be used to encapsulate DU particles.

五、操作手維護手冊-乏鈾裝甲戰車戰損修復程序(戰損檢查篇)/ ARMOR REPAIR PROCEDURES FOR DEPLETED URANIUM BATTLE DAMAGED TANKS (DAMAGE INSPECTION)

備註/NOTE：

受汙損的戰車在執行任何檢查或保養/保修活動，事先確認已清除無散布乏鈾殘留。若受汙損戰車無法在執行檢查或保養/保修前，確認已清除無散布乏鈾殘留，輻射、核生化軍/士官必須確實、強制執行人員安全防護措施，

於執行任何檢查或保養/保修活動前，再次核對檢查或強制人員穿戴防護措施。

Damaged vehicles will be certified to be free of loose DU residue prior to any inspection or maintenance/repair activity. If damaged vehicle cannot be certified to be free of loose DU residue prior to inspection or maintenance/repair, personnel protective safety measures must be strictly enforced by Radiation Safety Officer (RSO) or NBC officer/NCO. RSO or NBC officer/NCO will verify certification or enforce personnel protective measures prior to any inspection or maintenance/repair activity.

1.內部與外部損壞部位不能直接對接。修補混合物應與損壞區域重疊至少3英吋(7.6公分)。

Interior damage may not be directly opposite exterior damage. Patch mixture should overlap damaged area a minimum of 3 inches (7.6 cm).

六、操作手維護手冊-乏鈾裝甲戰車戰損修復程序(聚合物安裝篇)/ OPERATOR MAINTENANCE ARMOR REPAIR PROCEDURES FOR DEPLETED URANIUM BATTLE DAMAGED TANKS (POLYMER PATCH INSTALLATION)

備註/NOTE：

1.在混合化合物之前，所需工具及設備都應備齊並置於隨手取得位置，否則材料會在數分鐘內凝固。

All application tools and equipment should be readily accessible prior to mixing compounds. Material will solidify within minutes.

2.從聚合物修補成套箱=取出2311基材和固化劑混合成彈性修補劑 (Vol 3, WP 0557, Item 29).

Base and solidifier combine to form Polymer patch kit - 2311 elastomer mixture (Vol 3, WP 0557, Item 29).

3.根據受損部位的大小，要求將破孔完全填補，較大破孔需要額外的聚合物修補箱-2311均勻無條紋混合物填補破孔。

Depending on size of injury, additional packets of Polymer patch kit - 2311 (Vol 3, WP 0557, Item 29) may be required to completely fill void.

4.根據溫度，裝甲板修補可能需要保持固定約1分鐘，取決於環境溫度。

Depending on temperature, armor patch may have to be held in place for approximately 1 minute depending on ambient temperature

5.若無1577絕緣數位萬用表 (Insulation Digital Multimeter)執行核實檢查 (Due Diligence,DD)，請將下列物件如控制顯示單元(Control&Display

Unit,CDU)及駕駛整合顯示器(Driver's Instrument Display, DID) 在放置鄰近保修地區，這些不確認已修復/修理事件，不可讓維修人員忽略。

If unable to place DD Form 1577 on or near repair area, place on item such as CDU or DID. This will ensure fix/repair does not go unnoticed by maintenance personnel.

1.測量受損區域包括內部貫穿損傷，以確定所需修補的尺寸。

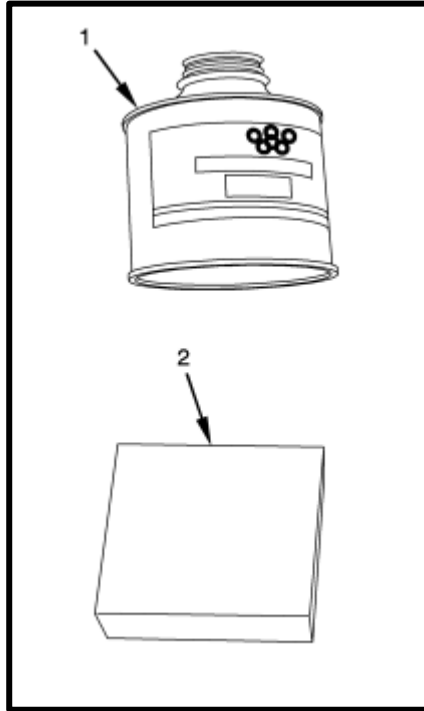
Measure damaged area, including interior damage in direction of penetration to find size of patch needed.

2.在受損區域的正面及背面塗抹一層薄且均勻的聚合物修補成套工具2911修補液，受損表背面裝甲板修復，修補液的狀態至少摸起來是乾的，再進行下一步驟。

Apply a thin even coat of Polymer patch kit - 2911 conditioner (Vol 3, WP 0557, Item 29) (1) to surface of damaged area and back of armor patch (2). Conditioner (1) must be at least touch dry before proceeding to next step



圖 3-聚合物修補成套工具 2911 所使用之表面需為乾燥狀態

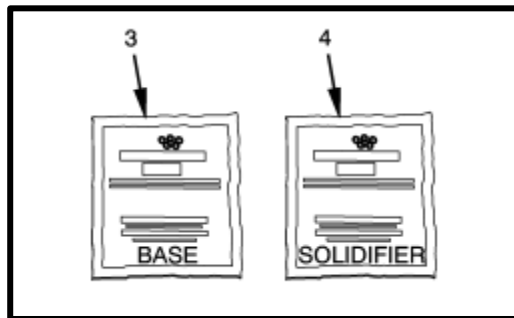


資料來源：TM9-2350-388-10-2 WP0413-1 頁

- 3.揉捏基材及固化劑包，這會使料包順暢的倒出，當揉捏時，將基材及固化劑內容物向底部擠壓。

Knead both base (3) and solidifier (4) packets. This will provide smoother product removal. While kneading, squeeze contents toward bottom of base (3) and solidifier (4) packets.

圖 4-2311 基材及固化劑料包

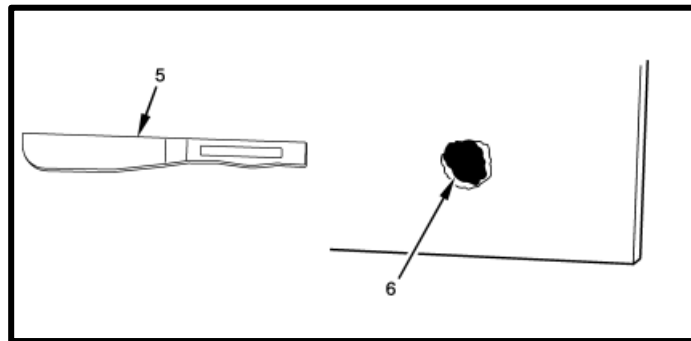


資料來源：TM9-2350-388-10-2 WP0413-2 頁

- 4.基材及固化劑料包，儘可能於包裝封底處剪開。
Cut off one end of both base (3) and solidifier (4) packets as close to end of seal as possible.
- 5.使用混合刮刀的直邊，將基材和固化劑擠出，放置於乾淨適合混合的表面上(紙板箱或MRE(Meal,Ready to Eat,MRE,口糧袋等))。
Using straight edge of mixing spatula (5), squeeze out contents of base (3) and solidifier (4) packets onto a clean suitable mixing surface (cardboard box, MRE bag etc.).
- 6.將兩種成分完全混合，達成均勻的材料，直至條紋。
Mix two components thoroughly to achieve a uniform material, free of streaks.
- 7.使用將聚合物修補箱2311均勻無條紋混合物，使用刮刀塗抹混合物在受損部位內部，確認保所有受損部位內部皆有塗抹到，若受損區域過小，可配戴手套以手指塗抹於受損部位。

Apply Polymer patch kit - 2311 (Vol 3, WP 0557, Item 29) mixture (6) to inside of injury, ensuring that all inside areas of injury are coated. Spatula (5) may be used to apply polymer. If injury is too small, use gloved finger to pack material in injury

圖 5-刮刀及受損部位示意圖



資料來源：TM9-2350-388-10-2 WP0413-2頁

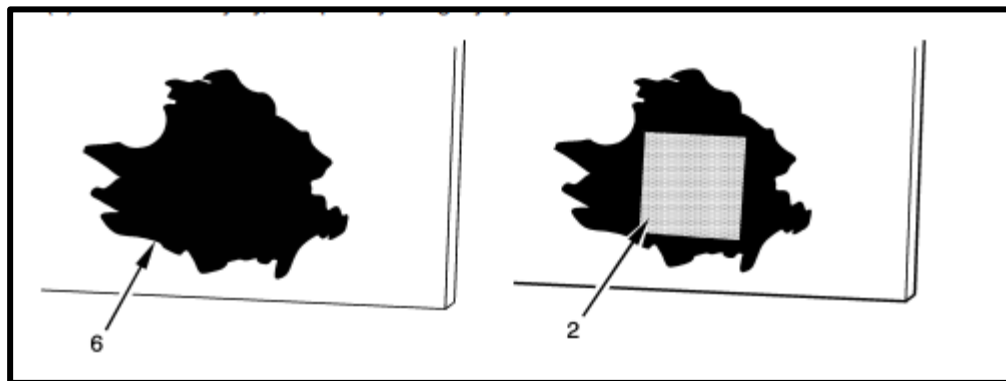
- 8.視需要將額外的聚合物修補箱-2311均勻無條紋混合物塗抹在受損部位內部，使其完全填滿。

If necessary, apply additional Polymer patch kit - 2311 (Vol 3, WP 0557, Item 29) mixture (6) to inside of injury, completely filling injury.

- 9.使用聚合物修補箱-2311均勻無條紋混合物塗抹於受損區域表面，並確定覆蓋的表面大於4英吋修補面積。

Apply Polymer patch kit - 2311 (Vol 3, WP 0557, Item 29) mixture (6) around surface of injury. Ensure that surface covered is larger than 4 inch patch (2).

圖 6-修補受損區域之聚合物要大於表面 4 英吋



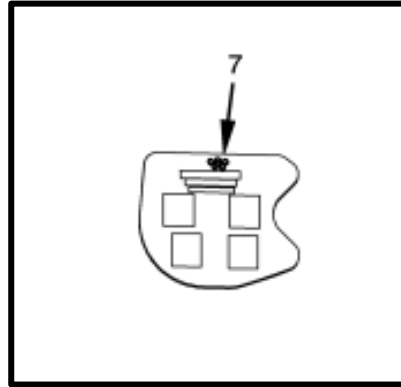
資料來源：TM9-2350-388-10-2 WP0413-3頁

- 10.使用聚合物修補箱-2311均勻無條紋混合物塗抹於修補部位背面，並使用刮刀將凹洞填滿。

Apply Polymer patch kit - 2311 (Vol 3, WP 0557, Item 29) mixture (6) to back of patch (2). Use spreader (7) to fill recess.



圖 7-使用刮刀將凹洞填滿

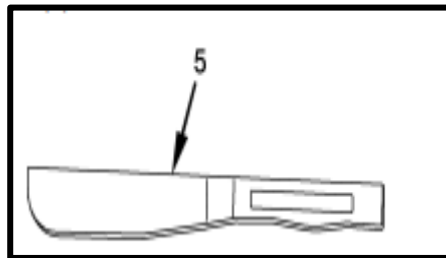


資料來源：TM9-2350-388-10-2 WP0413-3頁

- 11.將修補片背面壓在受損部位，直至固定修補位置，再使用刮刀密封修補片周圍邊緣。

Press back of patch (2) over the injury. While holding patch (2) in place, use spatula (5) to seal around edges of patch (2).

圖 8-刮刀

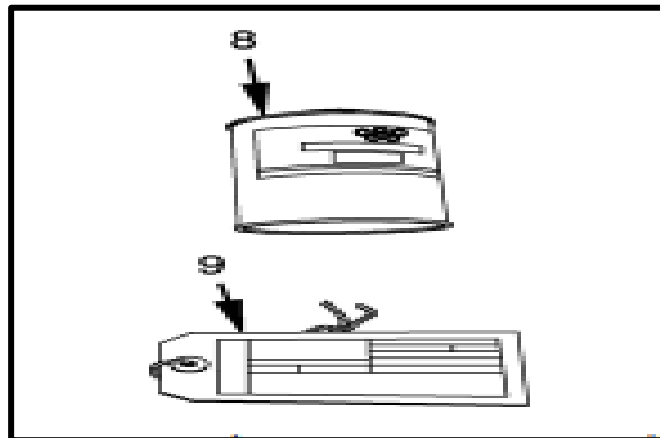


資料來源：TM9-2350-388-10-2 WP0413-4頁

- 12.使用聚合物修補箱-9111清潔劑/除油劑，清潔混合器具以供重複使用。

Clean mixing utensils with Polymer patch kit - 9111 (Vol 3, WP 0557, Item 29) cleaner/ degreaser (8) for reuse.

圖 9-聚合物修補成套工具-9111 清潔劑/除油劑及 DD 表 1577



資料來源：TM9-2350-388-10-2 WP0413-4 頁

- 13.保修申請工令註記無1577可供核實檢查，或製作標籤於受損物件，並放置於保修站或鄰近地區。

Document fix/repair on DD Form 1577 (9) or fabricated tag and place on or near repair.

14. 盡快通知合格的維修人員。他們將檢驗受損部位維修是可維修或需更換
Inform qualified maintenance personnel as soon as possible. They will determine if repair can be deemed permanent or temporary

七、操作手維護手冊-乘員緊急逃生程序 / OPERATOR MAINTENANCE EMERGENCY CREW EVACUATION PROCEDURES

備註/NOTE：

1. 在緊急狀況發生時，緊急逃生口是最快速且最安全的出口。
Evacuation is the fastest and safest exit from a tank required by an emergency situation
2. 人員安全第一，裝備次之。
Personnel safety is first, and then material.
3. 每位成員必須知道如何打開所有頂門蓋
Each crewmember must know how to open all hatches.
4. 逃生程序適用於以下幾個狀況：
Evacuation procedures are provided for:
 - (1) 翻覆(側邊)。
Rollover (Side).
 - (2) 翻覆(復正)。
Rollover (Top).
 - (3) 戰車起火。
Vehicle Fire.
5. 在緊急狀況中移動受傷乘員程序，參見(WP 0395)。
Procedures for removing an injured crewmember in an emergency situation can be found in (WP 0395).

八、操作手維護手冊-戰車翻覆(側邊) / OPERATOR MAINTENANCE ROLLOVER (SIDE)

警語/ (WARNING)：

1. 當戰車有要翻覆跡象時，首先人員進入到砲塔內，並握緊支撐接受撞擊，暴露在戰車外的人員可能會從戰車上摔下，並造成傷亡。切勿企圖從未穩定下來的戰車中撤離，等戰車穩定下來後再小心疏散人員。
At first indication of a rollover, drop down inside turret and brace for impact. Exposed personnel could be thrown from tank, causing injury or death. Do not attempt evacuation from unstable tank. Evacuate with caution when tank has stabilized.
2. 盡可能的在逃生前先確保所有頂門蓋位於開啟並鎖固定的位置，未固定且開啟頂門蓋有可能會倒下，造成傷亡。
Ensure all hatches are in open-lock position, if possible, before evacuating. An unlocked open hatch can fall, causing injury or death.
3. 戰車移動前，各乘員必須確認所有鬆動的物件及裝備皆已固定。鬆動的物件及裝備可能會造成人員傷亡。
Each crewmember must ensure all loose items and equipment are firmly secured prior to tank movement. Loose items and equipment can cause severe injury or death.
4. 若乘員撤離時穿過砲塔和底盤之間，砲塔固定鎖必須鎖定。若砲塔/底盤移動，可能造成乘員傷亡。
Turret lock must be locked if crewmembers pass between hull and turret during evacuation. Turret/hull could move, causing injury or death to crewmembers.
5. 譯文同第八項操作手維護手冊-戰車翻覆(側邊) 警語第4點
Turret lock must be locked if crewmembers pass between hull and turret during evacuation. Turret/hull could move, causing injury or death to crewmembers.



- 6.完成所有乘員逃生後，檢查可能引發車輛起火因素，如：油、燃料、液壓油及電瓶液，檢查戰車時為避免車輛突然起火，進而引發人員傷亡，檢查人員需備妥可攜式滅火器。

Upon complete evacuation of all crewmembers, tank should be inspected for fire hazards such as leaking oil, fuel, hydraulic fluid, and electrolyte. Stand by with portable fire extinguisher when inspecting tank for leaks in case of fire, which could cause injury or death.

警語/CAUTION：

- 1.切勿於在關斷引擎熄火按鈕按下前將主電源關斷，引擎有可能因此受損或著火。

Do not turn MASTER POWER off before ENGINE SHUTOFF pushbutton is pressed for off. Engine damage or fire could occur.

備註/NOTE：

- 1.各乘員的任務需與其他乘員的同步進行。
Each crewmember task is performed at the same time as other crewmember tasks.
- 2.駕駛手若要從砲塔逃生，或乘員要從駕駛室逃生時，可能需要移除一個或多個砲塔螢幕。

One or more turret screens may have to be removed to allow evacuation of driver through turret, or turret crewmembers through driver's hatch (4).

1.車長/ TANK COMMANDER：

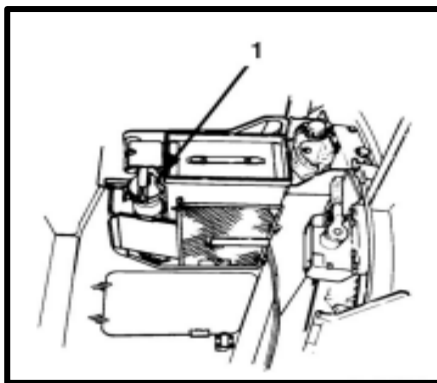
- (1)戰車達穩定後，檢視環境及車輛狀況並檢查乘員傷勢，如果有緊急狀況發生，即採取急救措施，參考 FM 4-25.11。

Once tank has stabilized, survey situation and check crewmembers for injuries. Administer first aid if critical situation exists, see FM 4-25.11.

- (2)若砲塔起火，使用車長攜帶式滅火器滅火

If turret fire exists, use commander's portable fire extinguisher (1) to fight fire (Vol 1, WP 0049).

圖 10-車長攜帶式滅火器之放置位置



資料來源：TM9-2350-388-10-2 WP0415-2頁

- (3)使用無線電發送求助信號或要求救護車傷患後送報告，並提供乘員傷勢情況。

Radio for assistance or send MEDEVAC request report and provide crewmember injury status.

- (4)指示駕駛手關閉主電源。

Direct driver to turn off master power.

- (5)確定戰車是否停穩以及當下情況是否能安全完成疏散，

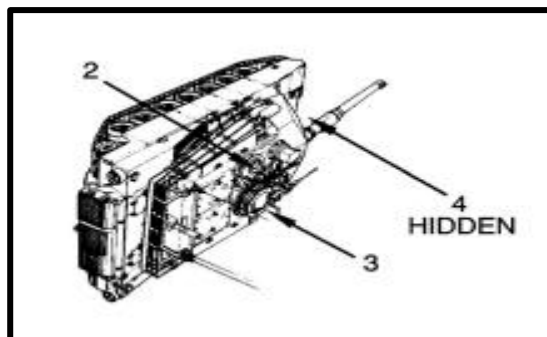
Determine if tank is fully stable and evacuation can be accomplished safely.

- (6)若當下情況可以安全完成疏散，通知乘員可從左或右逃生口及駕駛手逃生口逃生，不管是經裝填手或車長艙門口逃生，以接近地面一側為主，

並於逃生時帶著可攜式滅火器。

If evacuation can be accomplished, announce either EVACUATE RIGHT or EVACUATE LEFT and DRIVER EVACUATE. Evacuate through either loader's hatch (2) or tank commander's hatch (3), whichever is closer to the ground, with portable fire extinguisher (1)

圖 11-戰車翻覆時，成員逃生位置



資料來源：TM9-2350-388-10-2 WP0415-2頁

- (7)如果無法完成疏散且無生命威脅情況下，使用無線電求救並指示乘員等待救助人員。

If evacuation cannot be accomplished and life-threatening situation does not exist, radio for rescue and direct crewmembers to wait for rescue personnel.

- (8)如果駕駛手無法從駕駛頂門蓋逃生，則指示駕駛手等待救助人員。若駕駛手有生命危險狀況，指示射手清除砲塔內的障礙物，並嘗試轉動砲塔以取得進入駕駛室之路線

If driver cannot evacuate through driver's hatch (4), direct driver to wait for rescue personnel. If life-threatening situation exists for driver, instruct gunner to clear turret of obstructions and attempt traversing turret to gain access to driver's station.

- (9)協助乘員疏散並指示乘員於戰車後方至少98英尺(30公尺)處集合，必要時採取急救措施，參閱 FM 4-25.11.

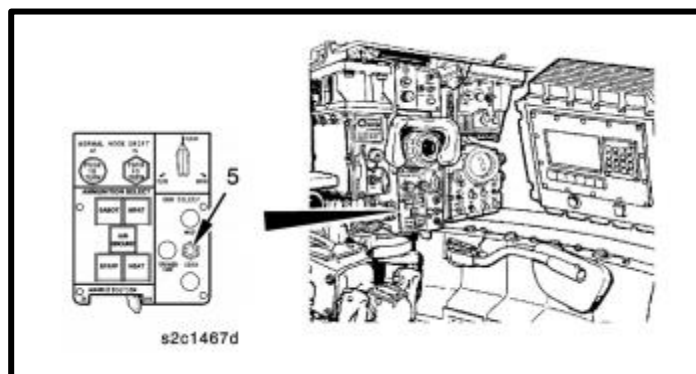
Assist crewmembers in evacuation and direct them to assemble at least 98 feet (30 m) to rear of tank. Administer first aid if necessary, see FM 4-25.11.

2. 射手/ GUNNER：

- (1)確保戰車停穩並將武器選擇開關置於保險位置

Ensure tank has stabilized and place GUN SELECT switch (5) to TRIGGER SAFE.

圖 12-武器選擇開關置於保險位置之示意圖



資料來源：TM9-2350-388-10-2 WP0415-3頁

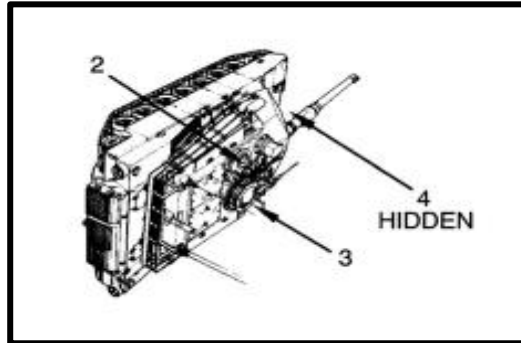
- (2)依車長指示，確認砲塔內有無障礙物並在情況允許下清除障礙物。依



指示嘗試轉動砲塔(先手動再用電動)以取得通往駕駛室的路線，若可取得路線則指示裝填手鎖上砲塔固定鎖

On tank commander's order, check turret for obstructions and remove the obstruction whenever possible. On order, attempt to move turret (manually and then with power) to gain access to driver's station. Direct loader to set turret lock if access is achieved.

圖 13-戰車翻覆時，各成員逃生口



資料來源：TM9-2350-388-10-2 WP0415-4頁

(3)依指示協助車長。

Assist tank commander as directed.

(4)依車長指示，以靠近地面為主，不論是裝填手或車長艙門逃生。

On tank commander's order, evacuate through either loader's hatch (2) or tank commander's hatch (3), whichever is closer to the ground.

(5)於戰車後方98英尺(30公尺)處集合後回報。

Report to assembly area 98 feet (30 m) to rear of tank.

3.裝填手/ LOADER：

(1)戰車停穩後，立刻聯繫駕駛手

Once tank has stabilized, establish contact with driver.

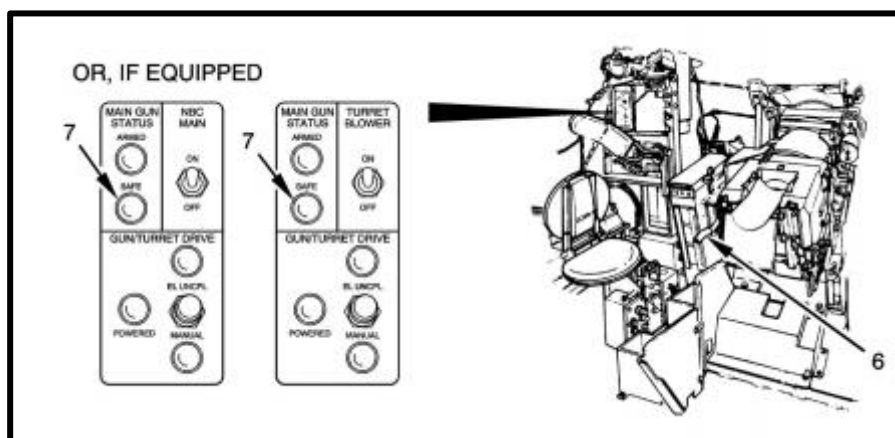
(2)將砲門操作手柄置於關保險位置

Move SAFE/ARMED handle (6) down to SAFE position.

(3)確認主砲保險燈為亮起狀態

Make sure MAIN GUN STATUS SAFE light (7) is lit

圖 14-砲門操作手柄及主保險燈位置之示意圖



資料來源：TM9-2350-388-10-2 WP0415-5頁

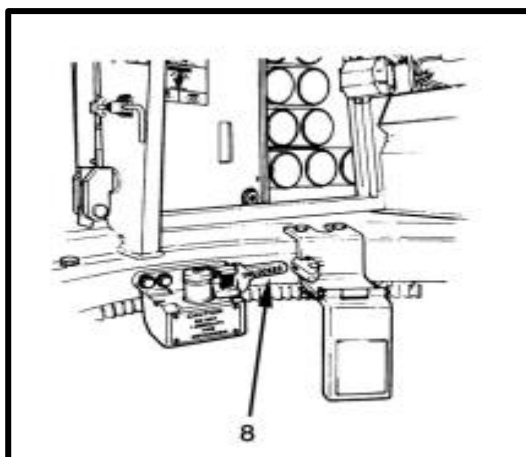
- (4)依射手指示，鎖上砲塔固定鎖讓駕駛手可以從砲塔逃生或砲塔內乘員亦可從駕駛艙蓋逃生離。

On gunner's order, lock turret lock (8) so driver may evacuate through turret or turret crewmembers can evacuate through driver's hatch (4).

- (5)視需要協助駕駛手由砲塔逃生。

Assist driver with evacuation through turret, if necessary.

圖 15-砲塔固定鎖鎖定之示意圖



資料來源：TM9-2350-388-10-2 WP0415-5頁

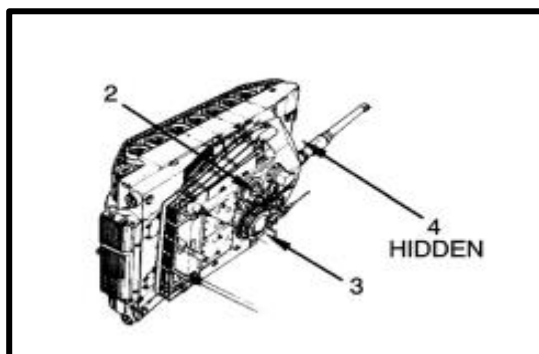
- (6)依車長指示，以接近地面為主，不論是經裝填手或車長艙門逃生。

On tank commander's order, evacuate through either loader's hatch (2) or tank commander's hatch (3), whichever is closer to the ground.

- (7)譯文同第八項操作手維護手冊-戰車翻覆(側邊)射手操作程序第5點

Report to assembly area 98 feet (30 m) to rear of tank.

圖 16-戰車翻覆時，各成員逃生口



資料來源：TM9-2350-388-10-2 WP0415-6頁

4. 駕駛手/ DRIVER：

- (1)待戰車穩定後，大喊關閉引擎並熄火。

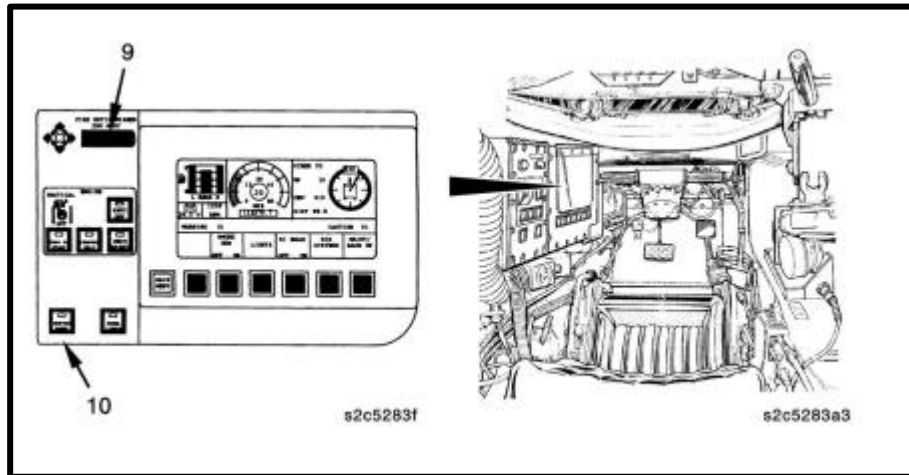
Once tank has stabilized, announce SHUTDOWN and power down engine (Vol 1, WP 0085).

- (2)若引擎起火且第1發滅火器(自動)未將火熄滅，則啟動第2發滅火開關。

If engine fire exists and the 1st shot (automatic) bottle has not extinguished the fire, activate 2nd shot fire extinguisher switch (9).



圖 17-第二個滅火器開關及主電源開關之位置



資料來源：TM9-2350-388-10-2 WP0415-6頁

- (3)依車長指示，按下主電源開關置於關斷位置，若有安裝駕駛手夜視鏡，則將其移除(Vol 1, WP 0084)。

On tank commander's order, press MASTER POWER pushbutton (10) for off. Remove driver's night vision viewer, if installed (Vol 1, WP 0084).

- (4)待戰車達穩定後，車長於情況允許下大喊駕駛手逃生，並指示駕駛手由其頂門蓋逃生，若情況不允許，則待在駕駛室內等待人員救助，若駕駛手有生命危險，逃生前須確認通往砲塔的逃生路線暢通及砲塔固定鎖置於鎖定位位置，逃生時艙門不管是裝填手還是車長艙門逃生，以接近地面一側為主。

Once vehicle has stabilized, announce DRIVER EVACUATING and evacuate, on tank commander's order, through driver's hatch (4), if possible. If not possible, stay inside driver's station and wait for rescue personnel. If life threatening situation exists, crawl through to turret once route is cleared and turret lock is locked. Evacuate through either loader's hatch (2) or tank commander's hatch (3), whichever is closer to the ground.

九、操作手維護手冊-戰車翻覆(復正) / OPERATOR MAINTENANCE ROLLOVER (TOP)

警語/ (WARNING) :

1.譯文同第八項操作手維護手冊-戰車翻覆(側邊)警語

At first indication of a rollover, drop down inside turret and brace for impact. Exposed personnel could be thrown from tank, causing injury or death. Do not attempt evacuation from unstable tank. Evacuate with caution when tank has stabilized.

Ensure all hatches are in open-lock position, if possible, before evacuating. An unlocked open hatch can fall, causing injury or death.

Each crewmember must ensure all loose items and equipment are firmly secured prior to tank movement. Loose items and equipment can cause severe injury or death.

警語 /CAUTION :

Do not turn MASTER POWER off before ENGINE SHUTOFF pushbutton is pressed for off. Engine damage or fire could occur.

備註/NOTE :

1.譯文同第八項操作手維護手冊-戰車翻覆(側邊)備註

Each crewmember task is performed at the same time as other crewmember tasks.

1.車長/ TANK COMMANDER :

(1)譯文同第八項操作手維護手冊-戰車翻覆(側邊)車長操作程序第1點

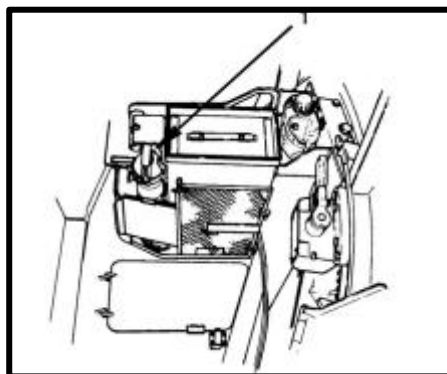
Once tank has stabilized, survey situation and check crewmembers for injuries. Administer

first aid if critical situation exists, see FM 4-25.11.

(2)譯文同第八項操作手維護手冊-戰車翻覆(側邊)車長操作程序第2點

If turret fire exists, use commander's portable fire extinguisher (1) to fight fire (Vol 1, WP 0049)

圖 18-車長攜帶式滅火器之位置



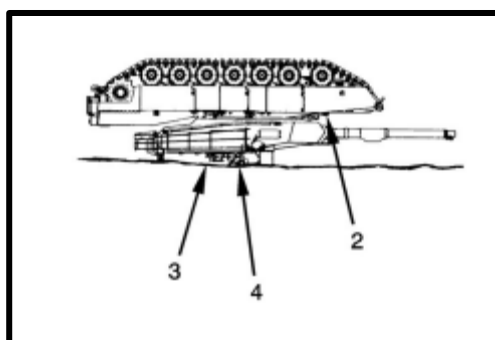
資料來源：TM9-2350-388-10-2 WP0416-2頁

(3)確認逃生路線，逃生路線可能使用駕駛手、裝填手或車長的艙門蓋，

選擇能最容易打開的頂門蓋，確定路線後，下達逃生命令。

Check for evacuation route. Evacuation route should be through driver's (2), loader's (3), or tank commander's (4) hatch, whichever can be most easily opened. Announce EVACUATE once route is established.

圖 19-倒覆戰車三個頂門蓋位置



資料來源：TM9-2350-388-10-2 WP0416-2頁

警語/ (WARNING) :

1.譯文同第八項操作手維護手冊-戰車翻覆(側邊)射手操作程序警語

Turret lock must be locked if crewmembers pass between hull and turret during evacuation. Turret/hull could move, causing injury or death to crewmembers.

(4)如果無法完成疏散且無生命威脅情況下，以無線電求救，戰車主電源

可由車長或指示駕駛關閉，並指示乘員等待救助人員，視需要實施初步急救。

If evacuation cannot be accomplished and life threatening situation does not exist, radio for rescue and turn off vehicle master power or direct driver to turn off vehicle master power. Direct crewmembers to wait for rescue personnel, and administer first aid if necessary (see FM 4-25.11).

(5)若砲塔乘員或駕駛手有生命危險時，指示射手嘗試轉動砲塔至允許使

用駕駛室，當戰車完全穩定後，通過確定逃生路線。

If life threatening situation exists for any turret crewmember or driver, instruct gunner to attempt traversing hull to allow access to driver's station. Evacuate through established route once tank has fully stabilized.



(6)譯文同第八項操作手維護手冊-戰車翻覆(側邊)車長操作程序第9點

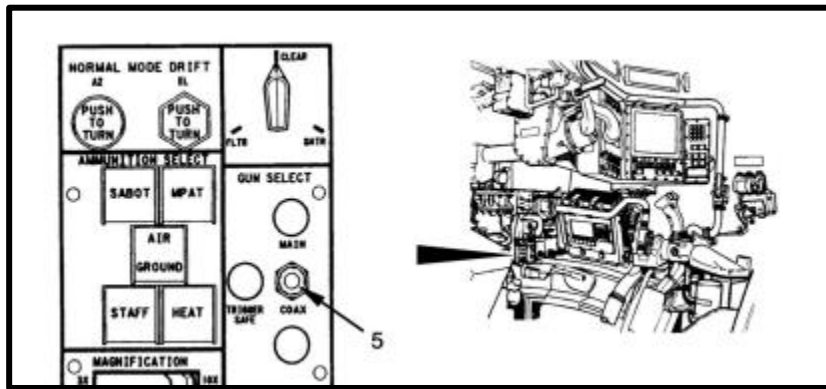
If evacuation is accomplished, direct crewmembers to assemble 98 feet (30 m) to rear of tank.
Administer first aid if necessary (see FM 4-25.11).

2.射手/ GUNNER :

(1)譯文同第八項操作手維護手冊-戰車翻覆(側邊)射手操作程序第1點

Ensure tank has stabilized and set GUN SELECT switch (5) to TRIGGER SAFE.

圖 20-武器選擇開關



資料來源：TM9-2350-388-10-2 WP0416-3頁

警語/ (WARNING) :

1.譯文同第八項操作手維護手冊-戰車翻覆(側邊)射手操作程序警語

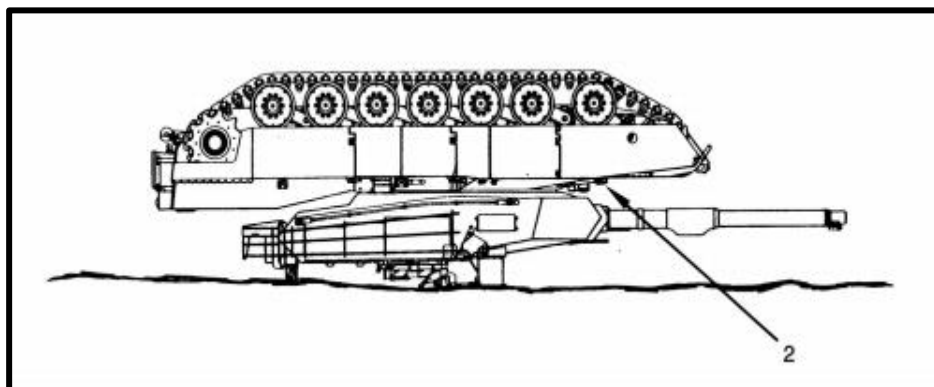
Turret lock must be locked if crewmembers pass between hull and turret during evacuation.
Turret/hull could move, causing injury or death to crewmembers.

備註/NOTE :

1.譯文同第八項操作手維護手冊-戰車翻覆(側邊)射手操作程序備註

One or more turret screens may have to be removed to allow evacuation of turret crewmembers through driver's hatch (2), or driver through turret.

圖 21-駕駛頂門之示意圖



資料來源：TM9-2350-388-10-2 WP0416-4頁

(2)確認砲塔內有無障礙物。依車長指示嘗試轉動砲塔(手動或電動)，視需要砲塔乘員可從駕駛室頂門蓋，駕駛亦可經砲塔室逃生，若可取得逃生路線，指示裝填手將砲塔固定鎖鎖上。

Check turret for obstructions. On tank commander's order, attempt to traverse hull (with power or manually) so turret crewmembers can evacuate through driver's hatch (2), if necessary, or driver can evacuate through turret, if necessary. Direct loader to set turret lock if access is achieved.

- (3) 需逃生戰車盡可能依車長命令行動戰車完全穩定下來，建立一個逃生路線。如果沒有，則在砲塔室內等待急救人員。

On tank commander's order, evacuate tank, if possible, by established route once tank has fully stabilized. If no evacuation route exists, remain in turret and wait for rescue personnel.

- (4) 若完成逃生，抵達戰車後方98英尺(30公尺)處集合並回報。

If evacuation is accomplished, report to assembly area 98 feet (30 m) to rear of tank.

3. 裝填手/LOADER：

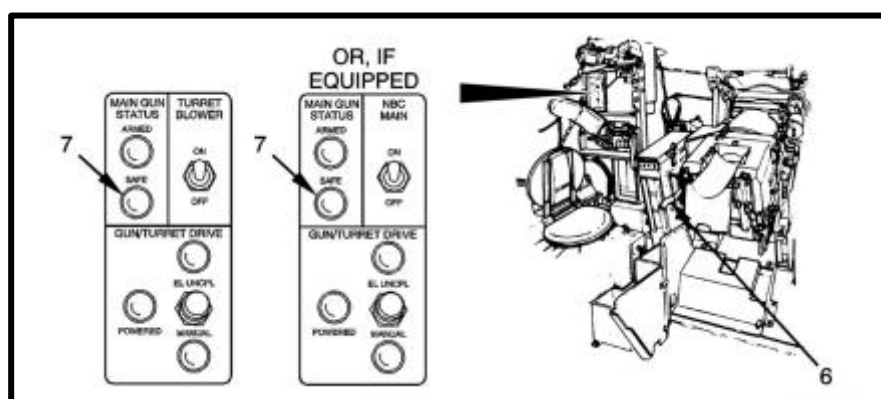
- (1) 譯文同第八項操作手維護手冊-戰車翻覆(側邊)裝填手操作程序第1點

Once tank has stabilized, establish contact with driver

- (2) 譯文同第八項操作手維護手冊-戰車翻覆(側邊)裝填手操作程序第2點

Move SAFE/ARMED handle (6) down to SAFE position

圖 22-主砲保險燈及砲門操作手柄



資料來源：TM9-2350-388-10-2 WP0416-5頁

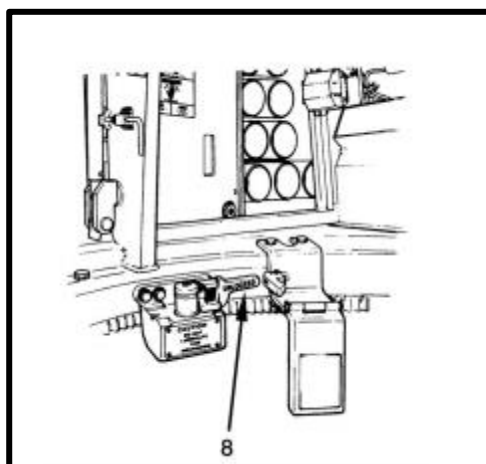
- (3) 譯文同第八項操作手維護手冊-戰車翻覆(側邊)裝填手操作程序第3點

Make sure MAIN GUN STATUS SAFE light (7) is lit.

- (4) 協助射手檢查砲塔內有無障礙物，並依射手指令鎖上砲塔固定鎖。

Assist gunner in checking turret for obstructions, as required, and set turret lock (8) on gunner's order

圖 23-砲塔固定鎖鎖定之示意圖



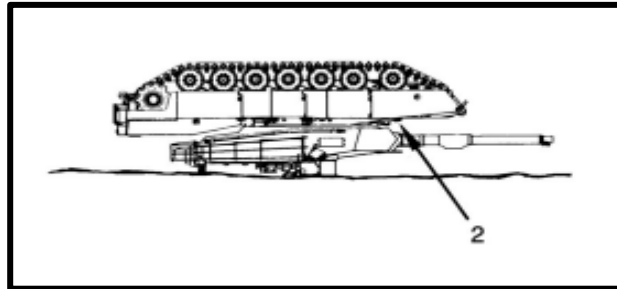
資料來源：TM9-2350-388-10-2 WP0416-5頁

- (5) 視需要協助砲塔內乘員由駕駛手頂門蓋逃生。視需要協助駕駛手由砲塔逃生。



Assist turret crewmembers with evacuation through driver's hatch (2), if necessary. Assist driver with evacuation through turret, if necessary。

圖 24-駕駛頂門之示意圖



資料來源：TM9-2350-388-10-2 WP0416-6頁

(6)譯文同第九項操作手維護手冊-戰車翻覆(復正)射手操作程序第3點

On tank commander's order, evacuate tank, if possible, by established route once tank has fully stabilized. If no evacuation route exists, remain in turret and wait for rescue personnel.

(7)譯文同第九項操作手維護手冊-戰車翻覆(復正)射手操作程序第4點

If evacuation is accomplished, report to assembly area 98 feet (30 m) to rear of tank.

4.駕駛手/DRIVER：

(1)譯文同第八項操作手維護手冊-戰車翻覆(側邊)駕駛手操作程序第1點

Once tank has stabilized, announce SHUT DOWN and shut down engine (Vol 1, WP 0085)

(2)譯文同第八項操作手維護手冊-戰車翻覆(側邊)駕駛手操作程序第2點

If engine fire exists and the 1st shot (automatic) bottle has not extinguished the fire, activate 2nd shot fire extinguisher switch (9).

備註/NOTE：

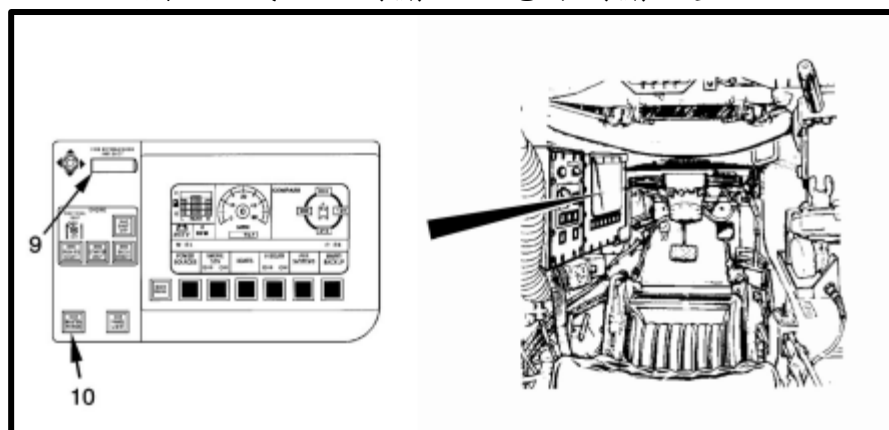
1.若主砲位置並非位於中央，或在距中央左/右45°，駕駛不須拆除星光夜視鏡(如有裝置)，由駕駛頂門蓋逃生。

If main gun is positioned anywhere except center, 45° right from center, or 45° left from center, driver can evacuate through driver's hatch (2) without removing driver's night vision viewer, if installed.

(3)依車長指示，按下主電源開關置於關斷位置，若有安裝駕駛手夜視鏡，則將其移除(Vol 1, WP 0084)。

On tank commander's order, press MASTER POWER pushbutton (10) for off. Remove driver's night vision viewer, if installed (Vol 1, WP 0084).

圖 25-滅火器開關及主電源開關位置



資料來源：TM9-2350-388-10-2 WP0416-7頁

警語/(WARNING)：

- 1.駕駛不可任意逃生，直到砲塔固定鎖鎖定，並收到到駕駛逃生命令，方可行動，在轉動中的砲塔可能會造成傷亡。

Driver must not evacuate until turret is locked and command DRIVER EVACUATE is given. A traversing turret could cause injury or death.

備註/NOTE：

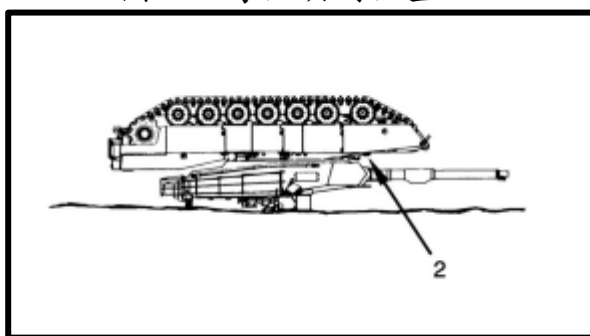
- 1.譯文同第八項操作手維護手冊-戰車翻覆(側邊)射手操作程序備註

One or more turret screens may have to be removed to allow either evacuation of turret crewmembers through driver's hatch (2), or driver through turret.

- (4)譯文同第八項操作手維護手冊-戰車翻覆(側邊)駕駛手操作程序備註

Once vehicle has stabilized, announce DRIVER EVACUATING and evacuate, on tank commander's order, through driver's hatch (2), if possible. If not possible, crawl through to turret once route is cleared and turret lock is locked. Evacuate through established route once tank has fully stabilized.

圖 26-駕駛頂門位置



資料來源：TM9-2350-388-10-2 WP0416-8頁

警語/(WARNING)：

- 1.譯文同第八項操作手維護手冊-戰車翻覆(側邊)駕駛手操作程序警語

Upon complete evacuation of all crewmembers, tank should be inspected for fire hazards such as leaking oil, fuel, hydraulic fluid, and electrolyte. Stand by with portable fire extinguisher when inspecting tank for leaks in case of fire, which could cause injury or death.

- (5)譯文同第九項操作手維護手冊-戰車翻覆(復正)射手操作程序第4點

Report to assembly area 98 feet (30 m) to rear of tank.

十、操作手維護手冊-戰車失火的火災逃生程序 / OPERATOR MAINTENANCE FIRE EVACUATION PROCEDURE FOR VEHICLE FIRE

警語/(WARNING)：

- 1.譯文同第八項操作手維護手冊-戰車翻覆(側邊)警語

Ensure all hatches are in open-lock position, if possible, before evacuating. An unlocked open hatch can fall, causing injury or death.

- 2.發現車輛起火時，所有乘員停止呼吸，並只能下達命令或肢體回應。吸

入物質燃燒過後的瀰漫煙霧，可能會阻礙逃生並造成傷亡。

When fire is detected, crewmembers are to stop breathing and only speak to give commands or responses. Breathing smoke or fumes from burning materials may impede evacuation or injure or kill you.

備註/NOTE：

- 1.所有乘員均需回報車輛起火或火災跡象。

Any crewmember may announce the presence or indication of a fire.

- 2.譯文同第八項操作手維護手冊-戰車翻覆(側邊)備註

Each crewmember task is performed at the same time as other crewmember tasks.

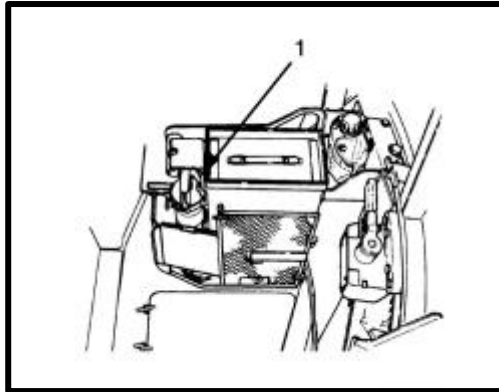


1. 車長/ TANK COMMANDER :

- (1) 射手拿取車長的攜帶式滅火器並把它傳遞給在外的車長，車長需要空手以方便快速逃生。

Gunner will secure tank commander's portable fire extinguisher (1) and pass extinguisher out to tank commander. Commander will need hands free to evacuate quickly.

圖 27-車長攜帶式滅火器之位置



資料來源：TM9-2350-388-10-2 WP0417-1頁

- (2) 大聲呼叫車輛失火!注意熱源!

Announce VEHICLE FIRE!, POWER!

警告/ (WARNING) :

1. 先關上駕駛頂門蓋(Driver's Hatch Lid,DHL)備便，不按程序做，若駕駛在轉動砲塔之前或轉動中打開頂門蓋，可能會導致延誤從戰車逃生，並造成傷亡

Be prepared to override DHL if driver opens hatch before or during turret traverse. Failure to do so may result in delay in evacuating vehicle causing injury or death.

- (3) 將砲塔轉向至左側(4800密位)，並關閉砲塔電源。

Traverse turret over left side of tank. Turn off turret power (Vol 1, WP 0205).

- (4) 下達逃生命令!打開車長頂門蓋並從此處逃生，接獲射手可攜式滅火器

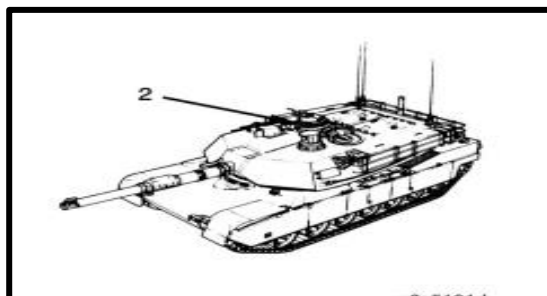
再協助射手由車長艙門蓋逃生。移動至戰車前方斜板，協助駕駛逃生。

Give order to EVACUATE! Open tank commander's hatch (2) and evacuate through tank commander's hatch (2). Secure portable fire extinguisher from gunner and assist gunner with evacuation through tank commander's hatch (2). Move to front slope of tank to assist in driver's evacuation.

- (5) 指示戰車乘員在戰車後方30公尺處或大約三輛戰車長度後方集合。

Instruct crewmembers to assemble at least 30 meters, or approximately 3 tank lengths, to the left rear of tank.

圖 28-車長頂門蓋之示意圖



資料來源：資料來源：TM9-2350-388-10-2 WP0417-2頁

警語/ (WARNING) :

- 1.若發現砲塔有不正常高溫或是聽到彈藥架有爆炸聲，切勿攀登戰車，否則將可能造成人員傷亡。

Do not board tank if turret feels unusually hot to the touch or if ammunition is heard exploding. Injury or death to personnel could result.

- (6)當目擊火光或煙霧時，判斷是否能返回戰車使用可攜式滅火器滅火。

Using visual evidence of fire and smoke, determine feasibility of returning to tank to fight fire with portable fire extinguisher (Vol 1, WP 0049).

- (7)若戰車為安全且可攀登的狀態，指示乘員向其他戰車借取扳手以截斷電瓶負極線及電瓶組連接。

If tank is safe to mount, direct crew to secure wrench from another tank and disconnect the negative emergency disconnect link in the battery compartment.

2.射手/ GUNNER :

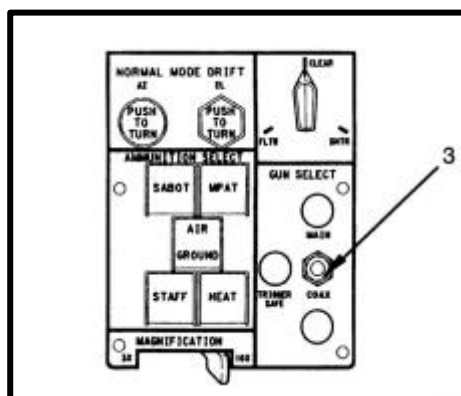
- (1)面向砲塔壁以盡可能的減少熱能跟火源接觸。

Turn to face turret wall to limit exposure to heat and fire.

- (2)將武器選擇開關置於保險位置。

Set GUN SELECT switch (3) to TRIGGER SAFE.

圖 29-武器選擇開關

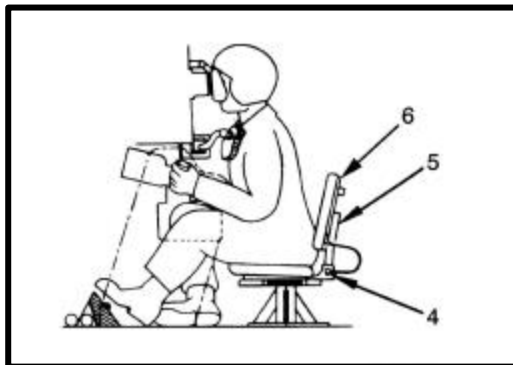


資料來源：TM9-2350-388-10-2 WP0417-3頁

- (3)拉出(4)插銷握住靠背至(5)位置再將靠背從(6)移除。

Pull pins (4) holding seat back posts (5) in place. Remove seat back (6).

圖 30-射手座椅高度調整示意圖



資料來源：TM9-2350-388-10-2 WP0417-3頁

- (4)由車長頂門蓋逃離砲塔時，拿取車長可攜式滅火器並交給在外的車長

Secure tank commander's portable fire extinguisher (1) (Vol 1, WP 0049) and pass it to the commander while evacuating turret through tank commander's hatch (2).



(5)移動至後方甲板協助裝填手截斷連接油料管的快拆接頭

Move to rear deck and assist loader with disconnecting fuel line quick-disconnect coupling (WP 0406).

(6)回報與射手一同至集合區，至少離戰車30公尺或3輛個戰車長度，離開戰車後方。

Report with loader to assembly area at least 30 meters, or approximately 3 tank lengths, to the left rear of tank.

(7)依車長指示準備滅火。

Stand by to fight fire as directed by tank commander.

3.裝填手/ LOADER：

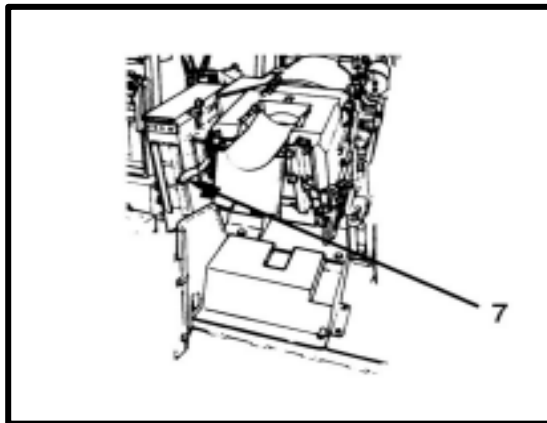
(1)面向砲塔壁以盡可能的減少熱能跟火源接觸

Turn to face turret wall to limit exposure to heat and fire.

(2)將砲門操作手柄置於關保險位置

Move the SAFE/ARMED handle (7) to the SAFE position.

圖 31-砲門操作手柄

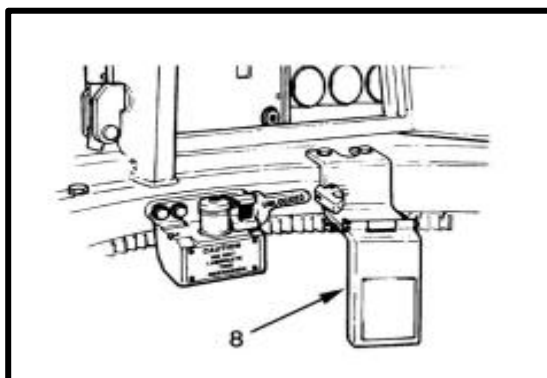


資料來源：TM9-2350-388-10-2 WP0417-4頁

(3)將彈藥隔艙膝蓋開關開(8)向上(儲存)位置。

Move the ammunition compartment knee switch (8) to the up (stowed) position.

圖 32-彈藥隔艙膝蓋開關

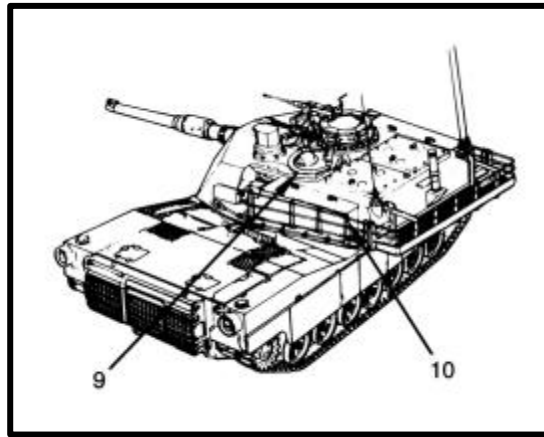


資料來源：TM9-2350-388-10-2 WP0417-4頁

(4)打開裝填手艙門蓋並固定，從裝填手頂門蓋逃生。

Open loader's hatch (WP 0275) until locked. Evacuate through loader's hatch (9).

圖 33-裝填手頂門蓋及油料管的快拆接頭示意圖



資料來源：TM9-2350-388-10-2 WP0417-5頁

警語/ (WARNING) :

- 1.當在戰車上時，隨時與戰車保持三點接觸，例如雙腳和任一隻手臂。在失去平衡的狀況下，可能導致人員傷亡。

When on top of tank, always maintain three points of contact; for example, two feet and one hand. Loss of balance could cause injury or death.

- (5)從左側置物箱取出攜帶式滅火器

Remove loader's portable fire extinguisher from left cargo rack box (10).

- (6)移動至後甲板並協助射手手截斷連接油料管的快拆接頭。

Move to rear deck and assist gunner with disconnecting fuel line quick-disconnect coupling (WP 0406).

- (7)譯文同第十項操作手維護手冊-戰車失火的火災逃生程序射手操作程序第6點

Report with Gunner to assembly area at least 30 meters, or approximately 3 tank lengths, to the left rear of tank.

- (8)依車長指示準備滅火

Stand by to fight fire as directed by tank commander.

4.駕駛手/DRIVER :

- (1)停下戰車，將排桿檔打至 N 檔

Stop tank. Move shift select to N.

注意/ (NOTE) :

- 1.駕駛手不得打開駕駛頂門蓋門直到TC (車長)完成轉動砲塔，以避免受到DHI(駕駛頂門蓋)影響。

The driver must not open the driver's hatch until the TC (Tank Commander) has completed traversing the turret to prevent the DHI from engaging

- (2)外掀駕駛頂門蓋導入新鮮空氣，但不完全打開。

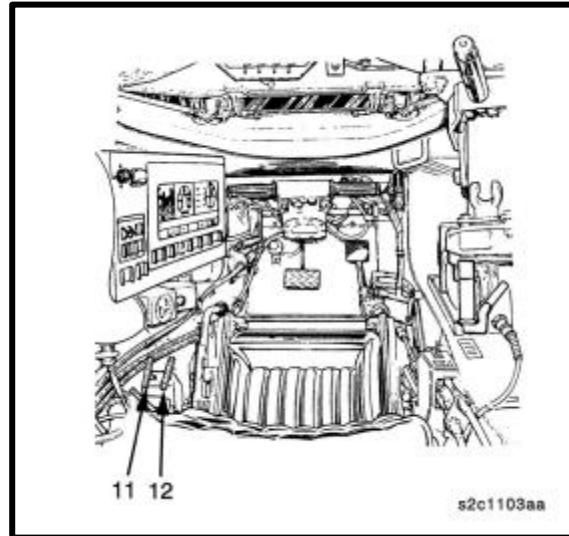
Pop-up driver's hatch (Vol 1, WP 0055) to allow for fresh air, but do not open

- (3)拉起乘員艙或引擎室手動滅火拉柄。

Pull CREW FIRE T-HANDLE (11) or ENGINE FIRE T-HANDLE (12)



圖 34-成員艙手動滅火拉柄及引擎室手動滅火拉柄



資料來源：TM9-2350-388-10-2 WP0417-6頁

(4) 踩下手剎車然後關閉引擎。

Set parking brake and shut down engine (Vol 1, WP 0085).

(5) 放鬆轉向油門控制桿。

Stow steer-throttle control (Vol 1, WP 0056).

(6) 若有安裝駕駛手夜視鏡，將其移除。

Remove driver's night vision device, if installed (Vol 1, WP 0084)

警語/ (WARNING)：

1. 譯文同第九項操作手維護手冊-戰車翻覆(復正)駕駛手操作程序警語

Driver must not evacuate until turret is stopped and command EVACUATE is given. A traversing turret could cause injury or death.

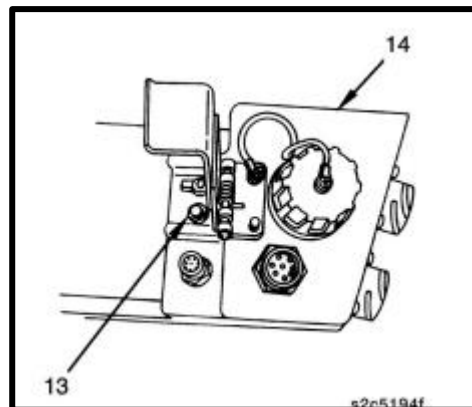
(7) 依車長逃生命令，在高動力重置單元(Hight Power Distribution

Unit, HPDU) (14) 上按下戰車重啟 (TANK RESET) 按鈕(13) 截斷所有電

源，打開駕駛手頂門蓋從駕駛手頂門蓋(15) 逃生。

On tank commander's evacuation order, press TANK RESET pushbutton (13) on HPDU (14) to interrupt all electrical power, open driver's hatch and evacuate through driver's hatch (15).

圖 35-HPDU 面板及戰車重啟按鈕之位置



資料來源：TM9-2350-388-10-2 WP0417-7頁

(8) 拉出戰車外部左側的第2發 T 型滅火拉柄。

Pull the external 2nd shot T-handle on the left side of tank (Vol 1, WP 0059).

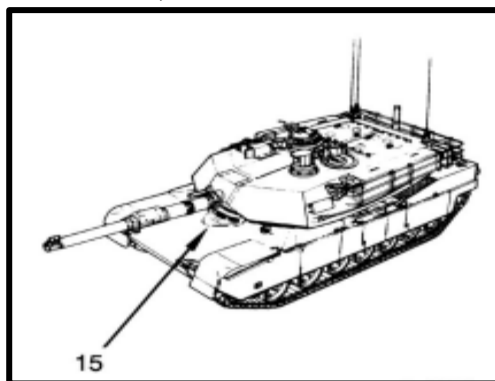
(9)回報與車長一同至集合區，至少離戰車30公尺或3輛個戰車長度，離開戰車後方。

Report with tank commander to assembly area at least 30 meters, or approximately 3 tank lengths, to the left rear of tank.

(10)依車長指示待命滅火

Stand by to fight fire as directed by tank commander

圖 36-駕駛頂門蓋示意圖



資料來源：TM9-2350-388-10-2 WP0417-7頁

十一、操作手維護手冊-清空加密數據失敗之立即作為 / OPERATOR MAINTENANCE DO IMMEDIATE ACTION FOR FAILURE TO ZEROIZE CRYPTO DATA-AEGR

備註/NOTE：(僅能在車長顯示器下幅操作)

1.此程序只能在車輛狀態顯示框(2) 歸零密碼選單 (Zeroize Crypto Menu)並在主螢幕(下幅)顯示歸零狀態失敗(Zeroize Status Failed),(1))，

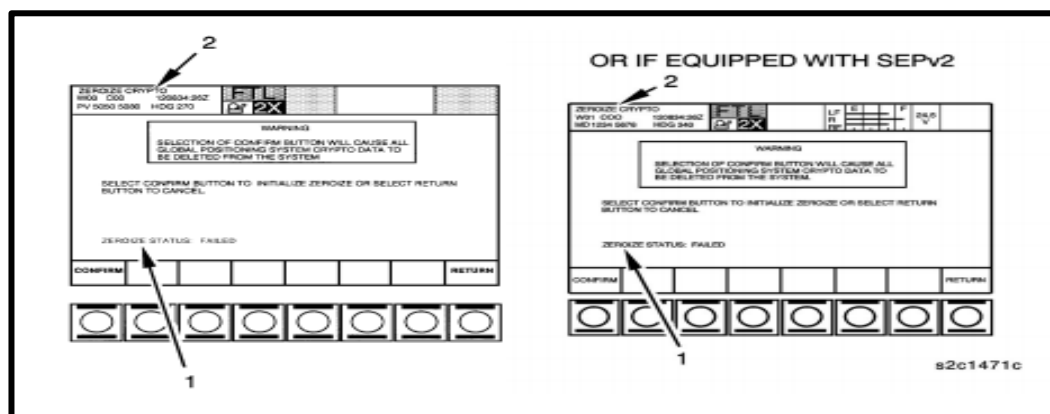
且任務決定將加密數據從接收器 (AEGR)中刪除，才得以使用。

This procedure should only be performed when ZEROIZE STATUS (1) on ZEROIZE CRYPTO menu (2) indicates FAILED and mission dictates crypto data be removed from AEGR.

2.截斷在戰車管理程式單元(Tank Management Program Unit,TMPU)上的 J1連接器，將使接收器 (AEGR)中的數據歸零。參閱戰場標準作業程序 SOP 使用歸零密碼資料。

Disconnecting cable J1 connector (3) on TMPU (4) will zeroize crypto data in AEGR. Refer to field SOP for use of ZEROIZE CRYPTO DATA.

圖 37-主螢幕歸零狀態失敗訊息(1)及車輛狀態顯示框(2)

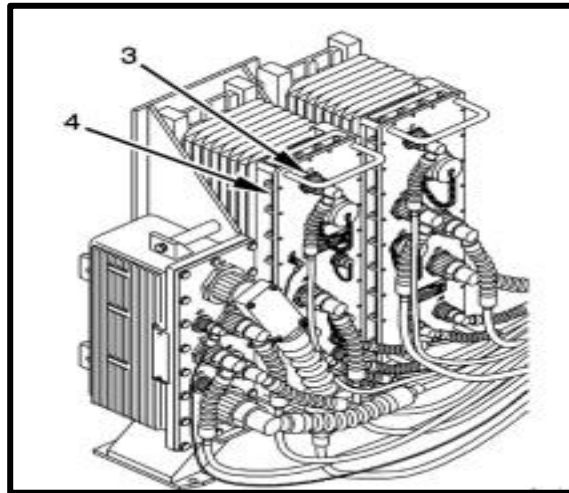


資料來源：TM9-2350-388-10-2 WP0418-1頁



- 1.關閉戰車電源。
Power down tank (Vol 1, WP 0107).
- 2.截斷在戰車管理程式單元4)上的J1連接器(3)。
Disconnect cable at J1 connector (3) on TMPU (4)
- 3.等待約10秒，再重新連接J1連接器。
Wait approximately 10 seconds, then reconnect cable to connector J1 (3).
- 4.若需執行更多操作，則啟動戰車並繼續操作
If required for further operations, power up tank and continue operations.

圖 38-TMPU 上之 J1 連接器位置



資料來源：TM9-2350-388-10-2 WP0418-2頁

十二、操作手維護手冊-軟體重新啟動 / OPERATOR MAINTENANCE

PERFORM SOFTWARE RESET(本節相關21世紀旅級及以下部隊指揮 管制系統美方不供受他國，僅列參考)

注意事項/CAUTION：

- 1.在正常情況下，若 FBCB2正在運行時請勿執行開關或戰車重置及關閉主電源。若電源被中斷，可能會造成 FBCB2傷害。參考 Vol 1, WP 0188，關閉 FBCB2。

Under normal conditions, do not perform SW RESET or TANK RESET or turn off master power if FBCB2 is running. Damage may result to FBCB2 if power is interrupted. Shut down FBCB2 (Vol 1, WP 0188).

備註/NOTE：

- 1.當系統鎖定不接受任何乘員輸入，使用上述程序將軟體重置。
Use this procedure to reset software when system locks up and does not respond to any inputs from crewmembers.
- 1.若戰車正在移動，依照下列指示：
If vehicle is moving, do the following:
 - (1)停止戰車。
Stop vehicle (Vol 1, WP 0076).
 - (2)向前旋轉轉向油門操控桿
Twist throttle handgrips (1) forward.
 - (3)打檔至N檔
Set shift control to N (Vol 1, WP 0076).
 - (4)踩下手煞車踏板。

Set parking brake (Vol 1, WP 0076).

2. 確認主砲及砲塔已上鎖，參考(WP 0223) and (WP 0282)。

Make sure main gun/turret is locked, see (WP 0223) and (WP 0282).

備註/NOTE：

1. 不得在重置系統前一刻或同一時間執行其他功能，待軟體重置後才可執行下一步操作。

Do not operate any controls or perform any functions just prior to, or at the same time as, reset is initiated. Wait until software resets before attempting any further operations.

3. 通知所有乘員正在執行軟體重置。

Notify all crewmembers that software reset is going to be performed.

警語/ (WARNING)：

1. 需設置剎車鎖定，排檔桿打至 N 檔，油門控制器必須向前轉，且人員不得在引擎發動並執行軟體重置時，站在戰車前面。軟體重置時變速箱將會自動排檔，若戰車在此時移動，將會造成人員傷亡

Parking brake must be set, transmission must be in N, throttle handgrips must be twisted forward, and personnel must not be standing in front or rear of tank when performing SOFTWARE RESET with engine running. Transmission will automatically be placed into gear during the SOFTWARE RESET process, resulting in serious injury or death to personnel if tank moves.

備註/NOTE：

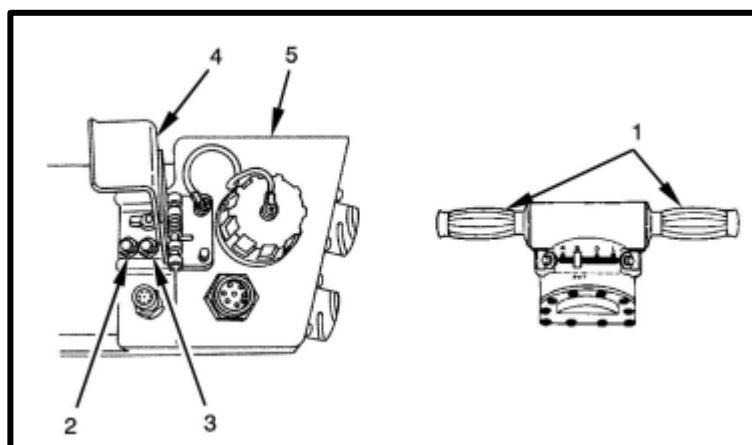
1. 當重置開關(2)被拉起並向戰車重置開關(3)反方向移動，電子系統和顯示器將會瞬間斷電然後再次通電

When S/W RESET switch (2) is pulled up and moved outward away from TANK RESET switch (3), electronic units and displays will momentarily power down and then power up again.

2. 當 S/W 重置開關鬆開時彈簧會重新回到中心位置

S/W RESET switch (2) is spring loaded and will return to center position when it is released.

圖 39- HPDU 面板、戰車重啟按鈕及油門操控桿之位置



資料來源：TM9-2350-388-10-2 WP0419-2頁

4. 掀開 HPDU 面板蓋。將 S/W 重置開關(2)拉起並向戰車重置開關(3)反方向移動，然後鬆開

Lift cover (4) on HPDU (5). Pull S/W RESET switch (2) up and move it outward, away from TANK RESET switch (3), then release.

5. 在戰車電源重啟時，螢幕顯示警告或注意訊息，需繼續執行任務。若出現



其他訊息，則進行故障排除

Monitor displays for warning and caution messages as vehicle powers up again and continue operations as required. If any messages appear, do troubleshooting

6. 若系統依舊鎖定，依下方步驟的操作

If system continues to lock up, do the following:

(1) 關閉引擎

Shut down engine (Vol 1, WP 0085).

(2) 如果引擎無法關閉，執行引擎故障停機立即處置作為來關閉引擎

If engine will not shut down, perform DO IMMEDIATE ACTION FOR ENGINE FAILURE TO SHUT DOWN (WP 0400) to shut down engine.

(3) 當引擎停止，按下戰車重置開關，停止戰車運轉

When engine stops, press TANK RESET switch (3) to power down vehicle.

(4) 通知現場維修人員

Notify field maintenance.

譯者簡介



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