



M1A2 SEP戰車操作手冊譯本(第十章-操作手冊:緊急應處流程)

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CHAPTER 10 OPERATOR INSTRUCTIONS:EMERGENCY PROCEDURES

譯者/林存慈士官長

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，說明空氣清淨器維護、引擎失效、轉向失靈、引擎故障停機及啟動器無法關閉與主電源故障立即處置作為、從戰車將受傷的戰車成員搬運救濟、從戰車將受傷的戰車成員搬運救濟(把受傷的成員送出戰車裝填手艙)、卡住的剎車解鎖、開啟與關閉120公厘砲門、初級燃料濾清器異常排除、清除戰車受到的汙染、核爆炸後確認防火控制系統的運行狀況、斷開油料快速斷開接頭及使用手動駕駛等16項應處流程。

關鍵詞：空氣清淨器、引擎失效、轉向失靈、引擎故障、初級燃料濾清器

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，先行翻譯第2冊第10章「空氣濾清器維護、引擎失效及從戰車將受傷的戰車成員搬運救護」等16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、剎車踏板及手剎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、空氣濾清器維護勤務

SERVICE AIR CLEANER

警語/(WARNING)：

在戰車暴露於化生放核環境下，必須小心謹慎的處理所有空氣濾清器，如果存在殘留的有毒或放射性物質，未受保護的人員可能導致傷亡，處理受污染戰車專業人員須戴上防護面具、頭罩、防護用品、工作服和化學防護手套和靴子，受污染的空氣濾清器必須放入雙層塑膠袋中，並迅速轉移到遠離工作場所的隔離區，同樣的程序適用於放射性粉塵污染，但是部隊化生放核處理小組應在移除濾清器前測量輻射劑量，以確定標準作業程序的化生放核附件所列達到安全程序要求範圍，暫時儲放受污染空氣濾清器的隔離區必須清楚標示的化生放核警告標示牌，受污染空氣濾清器的最終處置須遵守標準作業程序執行。

Under the condition of Nuclear, Biological, or Chemical (NBC) exposure, all air filters must be handled with extreme caution. Unprotected personnel may experience injury or death if residual toxic agents or radioactive material is present. If vehicle is exposed to chemical or biological agents, servicing personnel must wear protective mask, hood, protective overgarments, and chemical protective gloves and boots. All contaminated air filters must be placed in double-lined plastic bags and swiftly moved to a segregation area away from the work site. The same procedure applies for radioactive dust contamination; however, the company NBC team should measure the radiation prior to filter removal to determine the extent of safety procedures required in accordance with the NBC Annex to field Standing Operating Procedures (SOP). The segregation area in which the contaminated air filters are temporarily stored must be marked with appropriate NBC placards. Final disposal of contaminated air filters shall be in accordance with local SOP.

小心/CAUTION：

此程序只有用在戰車乘員無法返回保養廠去作空氣濾清器清潔時或沒有其他戰車可用清潔程序時(WP 0382)。處理空氣濾清器濾芯時應格外小心，預防空氣濾清器洩漏、破損、變形。當灰塵或砂石進入發動機將損壞渦輪扇葉及降低空氣濾清器濾清器壽命。

This procedure should only be used when the crew cannot return to a field maintenance site to get air filter elements cleaned or do not have another tank available to use cleaning wand procedure (WP 0382). Be extremely careful when handling air filter elements to prevent damaging seals, puncturing or denting air filter elements. Engine damage can occur when dust or dirt enters the engine around improperly fitted or damaged air filter elements.

備註/NOTE：

如果您執行此程序是因為 DID(2)上顯示 AIR FILTER CLOGGED 警告消息(1)，請確保 AIR FILTERED RESTRICTED 已執行故障排除。

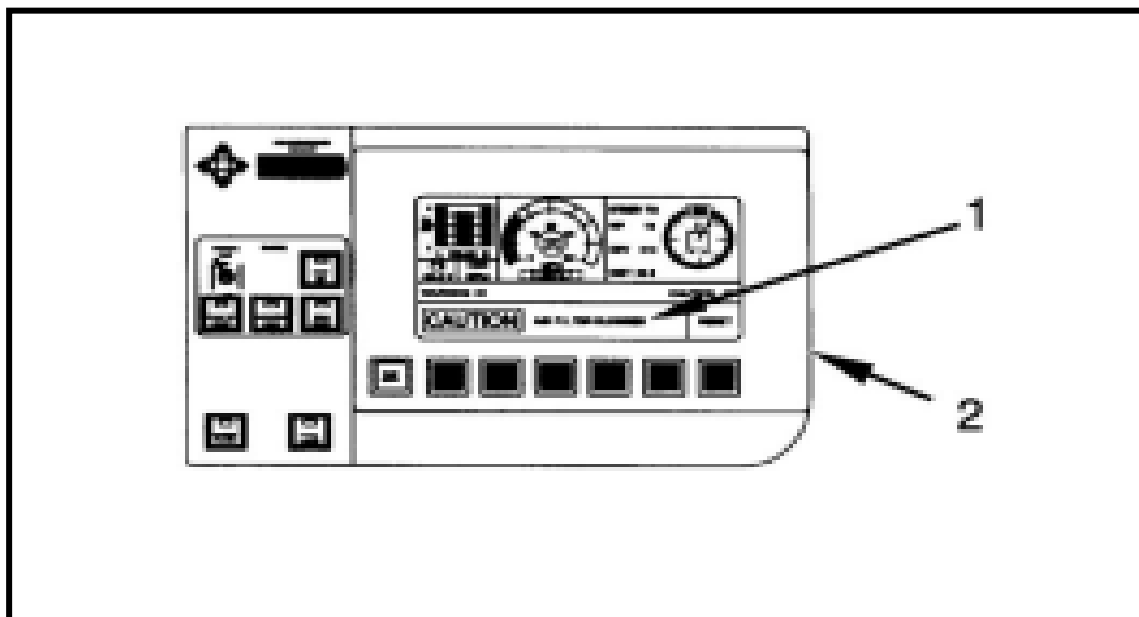
If you are doing this procedure because AIR FILTER CLOGGED caution message (1) is displayed on DID (2), make sure troubleshooting has been performed for AIR FILTER RESTRICTED caution message (WP 0422).



1.打開面板格柵及蓋子。

Open grille doors and covers (Vol 3, WP 0460).

圖 1-DID 顯示器及濾清器警告欄之位置



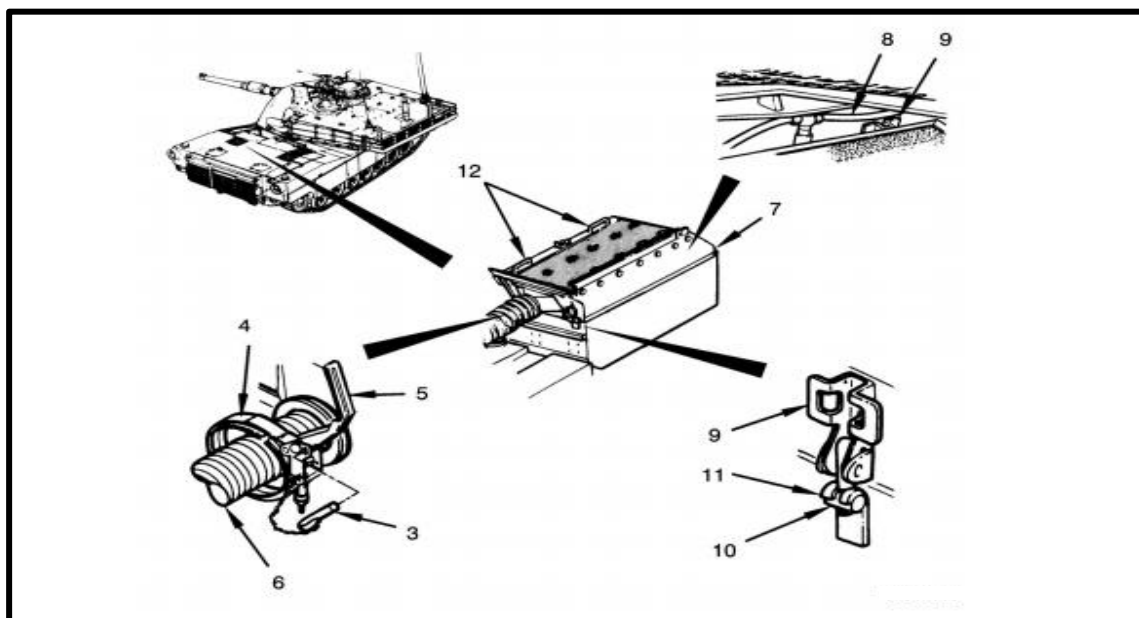
2.移除任何會阻擋的物體。

Remove any foreign material that may have caused a blockage.

3將插銷從夾箍拉出。

Pull clip (3) from clamp (4)

圖 2-初次濾清器位置及附件



4將固定拉桿從夾箍拉起。

Grasp lever (5) and pull up from clamp (4).

5將軟管及夾箍從初濾器中滑出。

(備註:如果需要,將翹起的軟管移至可鬆開彈簧鎖的位置)。

Slide hose (6) and clamp (4) from pre-cleaner (7).

NOTE: If necessary, pry hose (8) out of the way to allow right front latch (9) to release.

6 緊抓四顆彈簧鎖從初濾器拔出並拉下。確保彈簧鎖脫離空氣濾清器掛勾

Grasp four latches (9) and pull out and down from precleaner (7). Make sure latch nuts (10) release from air cleaner hooks (11).

7 緊抓初濾器上的兩個把手。

Grasp two handles (12) on precleaner (7).

8 吊起初次濾清器並置於上甲板。

Lift off precleaner (7) and set on top deck.

9 使用鉛筆，於空氣濾清芯子上標示以下記號。

(1.) 標記 L 於左側濾芯。

Mark L on left air filter element (13).

(2.) 標記 C 於中間濾芯。

Mark C on center air filter element (14).

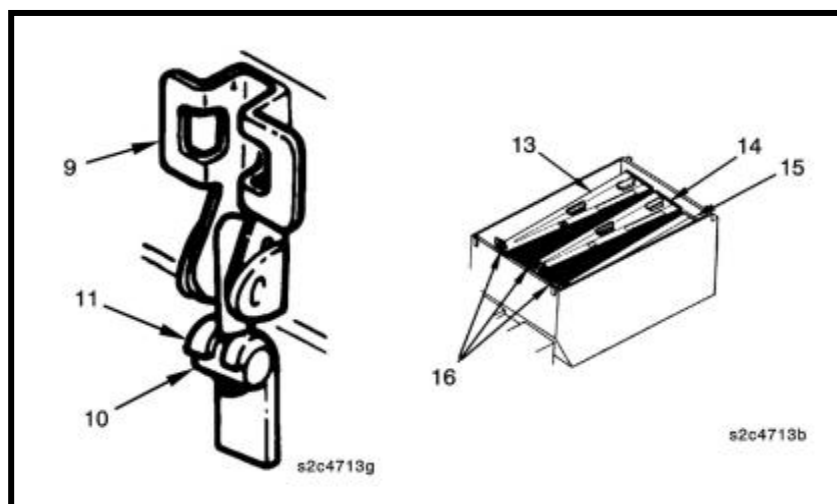
(3.) 標記 R 於右側濾芯。

Mark R on right air filter element (15).

10 垂直拿起三個空氣濾清器夾箍。

Lift three air cleaner clamps (16) straight up.

圖 3-濾芯室及彈簧鎖本體



注意/CAUTION：

1. 注意不要刺破或使濾芯凹陷。

Take care not to puncture or dent air filter elements (13, 14, 15).

2. 不要直立濾芯開口端，封閉端可能會損壞。

Do not stand air filter elements (13, 14, 15) on open end. Seals may be damaged.

3. 當在寒冷的環境下操作時，檔板盒中可能有雪和水。如果積雪出現在濾芯周圍，戰車乘員不要直接以外力移除或等到冰雪消融再作處理，如果冰雪持續圍繞在濾芯周圍，通知野戰保修人員去除。

When operating in a cold environment, snow or water may be in baffle box (17). If ice buildup occurs around air filter elements (13, 14, 15), they should not be removed since they could be damaged. If ice buildup occurs around air filter elements (13, 14, 15), notify field maintenance for removal.

備註/NOTE：



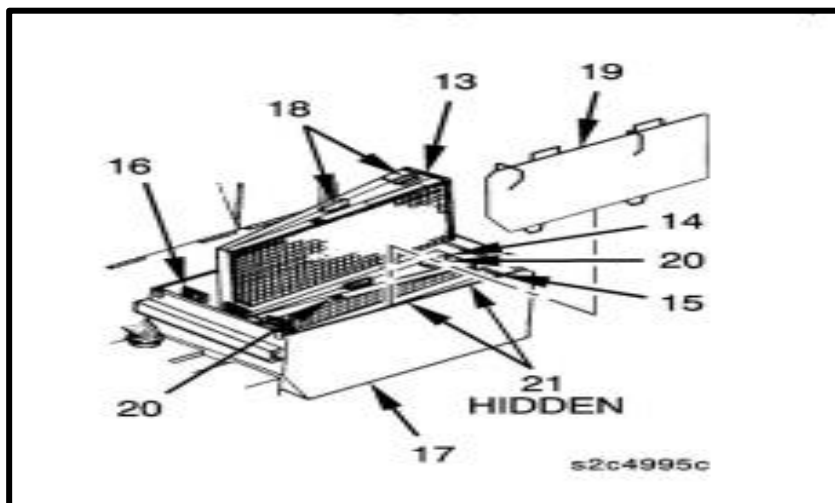
空氣濾清裝置必須從檔板盒左側吊出

Air filter elements (13, 14, 15) must be lifted out from left side of baffle box (17)

11. 緊抓左側濾芯的兩個把手，移動檔板，將左側濾芯垂直吊出檔板盒。

Grasp two air filter element handles (18) on left air filter element (13) and lift left air filter element (13) straight up and out of baffle box (17). Remove divider (19)

圖 4-濾芯抽取位置



12. 緊抓中間濾芯的兩個把手，並滑到檔板盒左側。

Grasp two air filter element handles (20) on center air filter element (14) and slide center air filter element (14) all the way to the left side of baffle box (17).

13. 垂直吊起中間濾芯，並拿出檔板箱。移動檔板。

Lift center air filter element (14) straight up and out of baffle box (17). Remove divider (19)

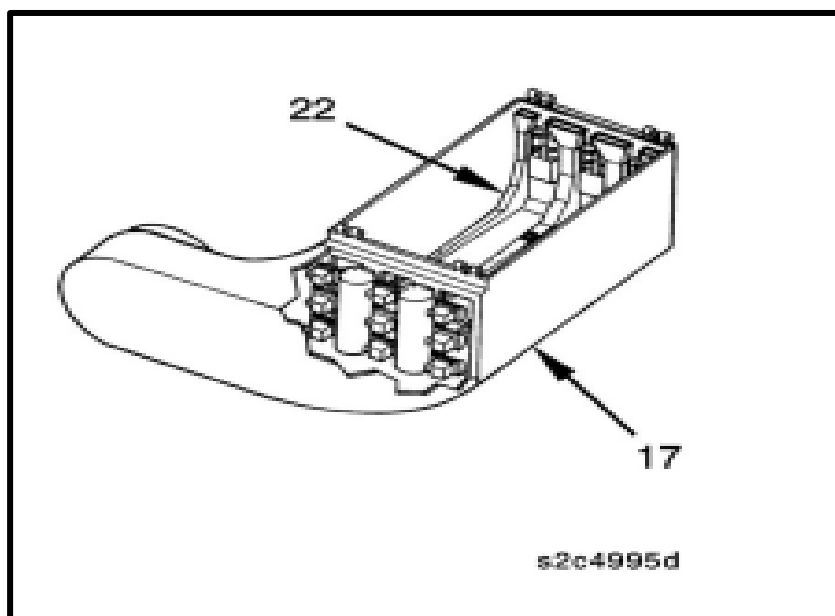
14. 緊抓右側濾芯的兩個把手，並滑到檔板盒左側。

Grasp two air filter element handles (21) on right air filter element (15) and slide right air filter element (15) all the way to left side of baffle box (17).

15. 垂直吊起右側濾芯，拿出檔板盒從檔板盒中移除四個風管。

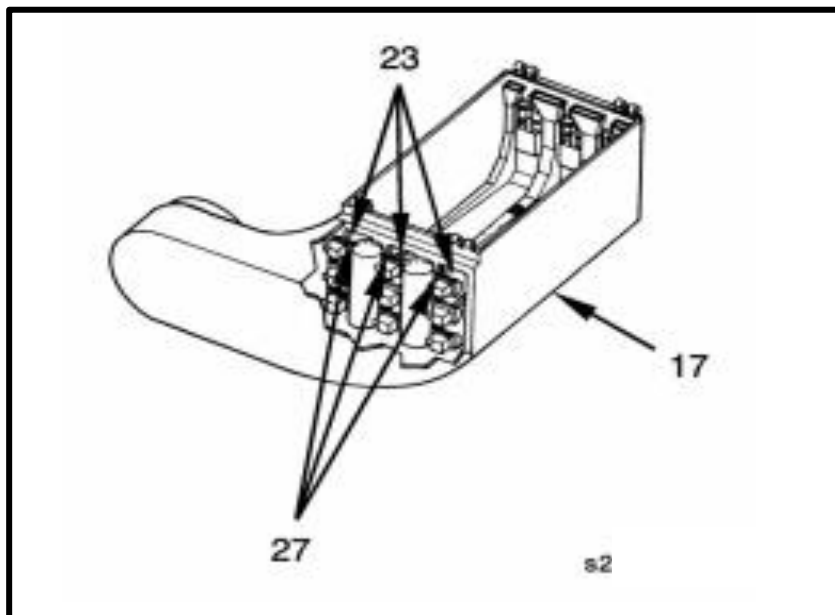
Lift right air filter element (15) straight up and out of baffle box (17). Remove four ducts (22) from baffle box (17).

圖 5-風管位置



16. 用防雨布或半遮蔽物蓋住三個進氣孔。
Cover three intake openings (23) with poncho or shelter half

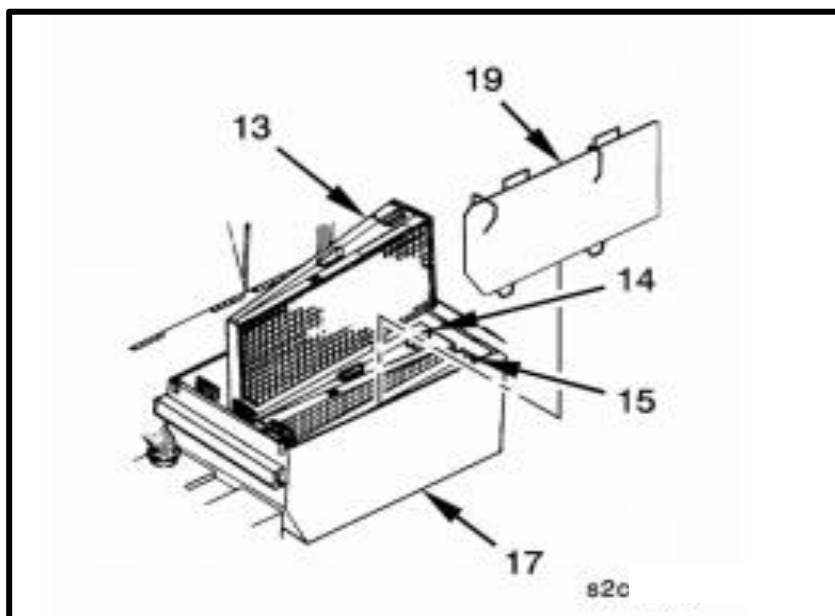
圖 6-進氣孔及密封蓋位置



17. 檢查濾芯和隔板是否損壞(破洞、凹痕、撕裂)或內部(外部)結冰，如果存在損壞或結冰現象，通知野戰保修人員。

Inspect air filter elements (13, 14, 15) and dividers (19) for damage (holes, dents, tears) or buildup of ice inside or out. If damaged, or if buildup of ice is present, notify field maintenance.

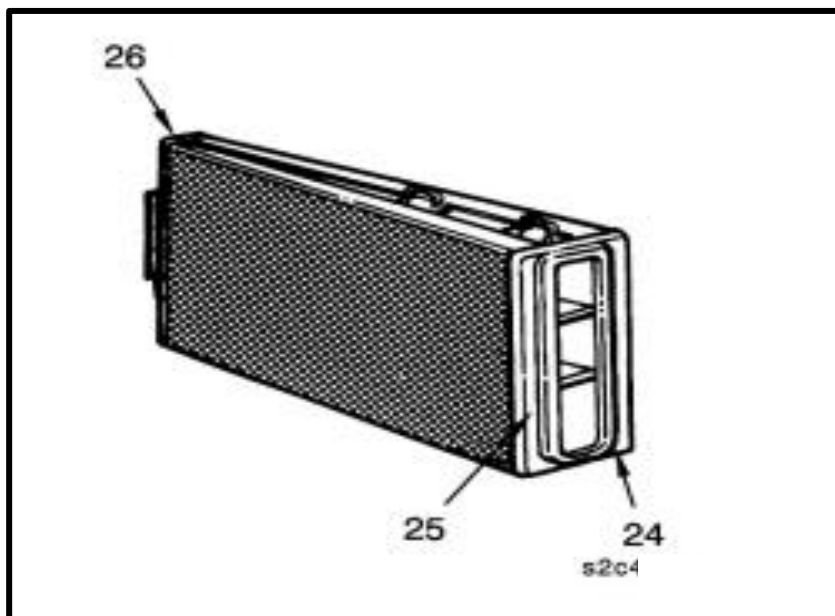
圖 7-濾芯及本體外觀檢查



18. 檢查濾芯前的珠子是否有凹痕，如果損壞，通知野戰保修人員。
Inspect bead (24) on front face (25) of air filter elements (13, 14, 15) for dents. If damaged, notify field maintenance.



圖 8-濾芯正視圖



19.檢查濾芯背面是否彎曲。如果損壞，通知野戰保修人員。
Inspect rear face (26) of air filter elements (13, 14, 15) for buckling. If damaged, notify field maintenance.

20.檢查濾芯是否潮濕。如果潮濕且時間允許，請在安裝前風乾。
Inspect air filter elements (13, 14, 15) to see if they are wet. If wet and time permits, allow to air dry before installing.

注意/CAUTION：

1.在堅硬的表面上彈動濾芯以清除污垢。濾芯可能會損壞並影響安裝。
Do not bounce air filter elements (13, 14, 15) on hard surface to remove dirt. Element could be damaged and prevent installation.

2.清潔空氣濾芯時，不要讓污垢或灰塵落入檔板盒中。
Do not allow dirt and dust to fall into baffle box (17) when cleaning air filter elements (13, 14, 15).

21.清理時，輕晃及手刷濾芯上的髒汙及灰塵。
Shake and hand brush dirt and dust from air filter elements (13, 14, 15).

22.如果濾芯嚴重堵塞。通知現場維護人員。
If air filter elements (13, 14, 15) are badly clogged, notify field maintenance.

23.清理檔板盒和密封件。使用抹布去除所有積水。
Clean baffle box (17) and baffle box seals (27). Using rags (Vol 3, WP 0557, Item 30), remove any standing water.

24.取下進氣口的蓋子。
Remove cover from intake openings (23).

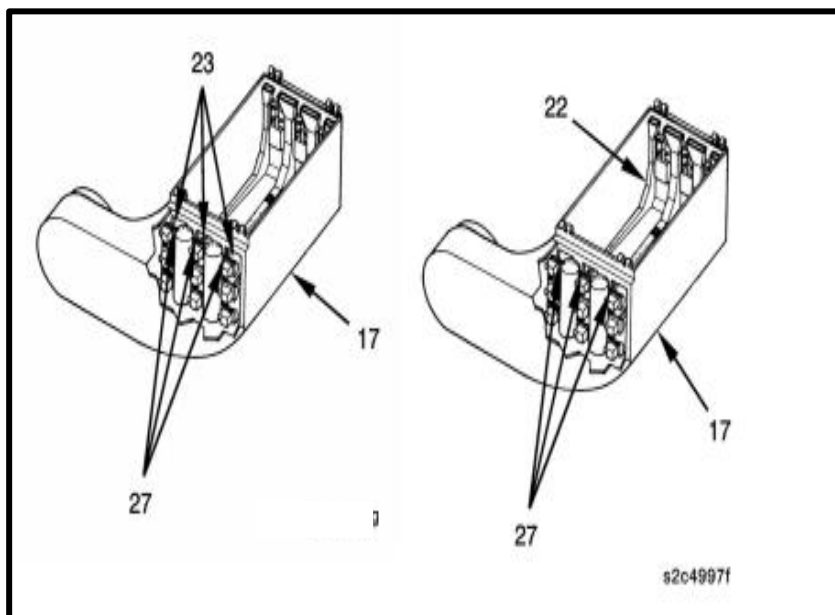
25.檢查三個排檔盒密封蓋是否撕裂。如果損壞，通知野戰保修人員。
Inspect three baffle box seals (27) for rips or tears. If damaged, notify field maintenance

備註/NOTE：

在之前濾芯已作上標記，告訴保修人員何處是右側，中央及左側。
Use marks made on air filter elements (13, 14, 15) to tell which is right, center, and left.

26.空器濾清故障排除-由戰車乘員安裝四個管道，並在安裝濾芯期間握住濾芯夾箍。
Have crewmember install four ducts (22) and hold air cleaner clamps (16) up during installation of air filter elements (13, 14, 15).

圖 9-濾芯室檢查



27. 右側濾芯把手，將右側濾芯至於檔板盒左側，寬的那一端向前。

Grasp right air filter element handles (21) and put right air filter element (15) in left side of baffle box (17) with wide end forward.

28. 滑動右側濾芯至檔板盒右側。

Slide right air filter element (15) all the way to right side in baffle box (17).

29. 安裝隔板，緊抓中間濾芯的兩個把手，且將中間濾芯至於檔板左側寬的那一端向前

Install divider (19). Grasp center air filter element handles (20) and put center air filter element (14) in left side of baffle box (17) with wide end forward.

30. 向右滑動中央濾芯直到置中於檔板盒中

Slide center air filter element (14) to right until centered in baffle box (17).

31. 安裝隔板，緊抓左邊濾芯的兩個把手，將左側濾芯至於檔板盒左側。

Install divider (19). Grasp left air filter element handles (18) and put left air filter element (13) in left side of baffle box (17) with wide end forward.

32. 寬的那一端向前兩端的方形元件和下方三個夾子固定濾芯。

Square air filter elements (13, 14, 15) at both ends and lower three air cleaner clamps (16) to hold air filter elements (13, 14, 15).

33. 折疊空氣濾清器把手

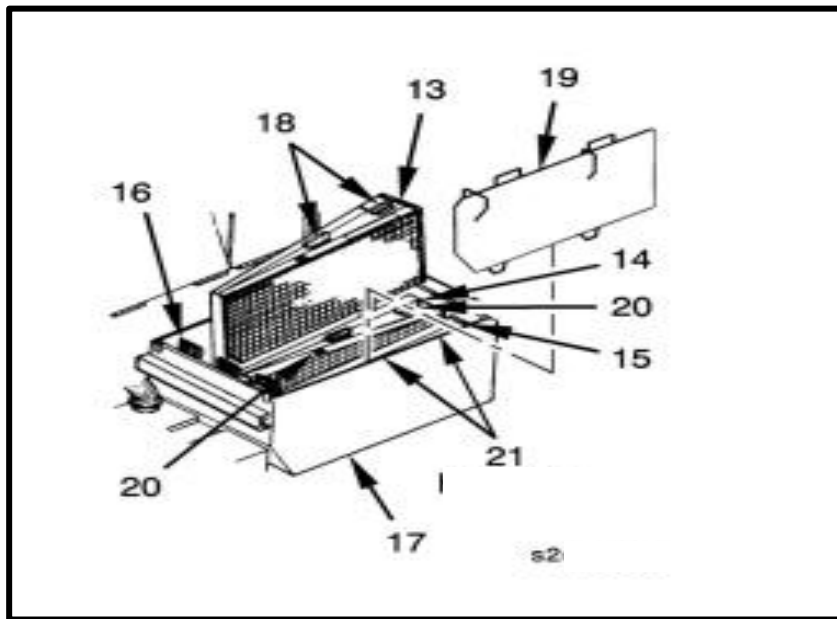
Fold down air filter element handles (18, 20, 21).

34. 檢查頂部及底部初次濾清器橡膠密封件是否有破裂，如果有損壞，通知野戰
保修人員

Inspect top precleaner rubber seal (28) and bottom precleaner rubber seal (29) for rips or tears. If either is damaged, notify field maintenance.



圖 10-濾芯安裝順序圖

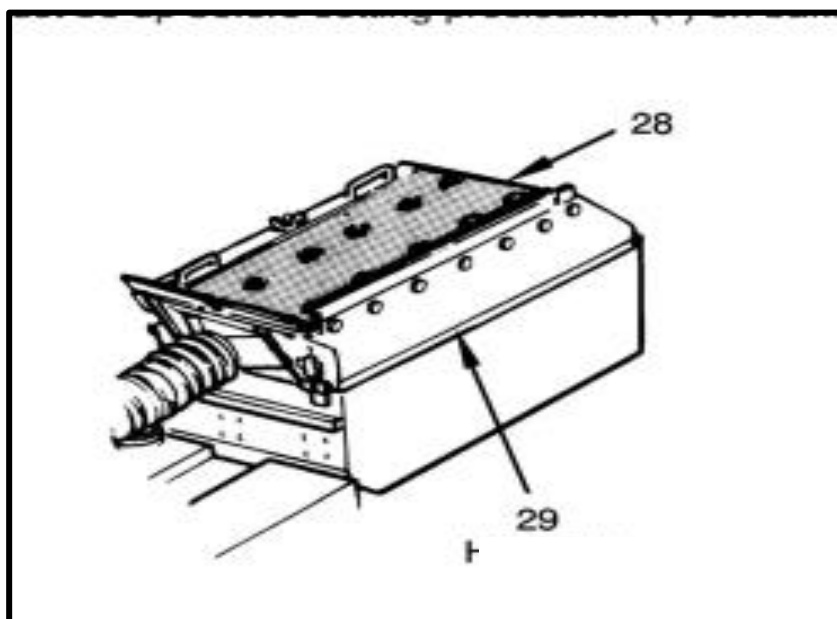


備註/NOTE：

在檔板箱上設置預過濾器之前，必須打開四個門鎖。

Four latches (9) must be up before setting precleaner (7) on baffle box (17).

圖 11-空氣濾清器本體橡膠密封處



35.設置初次濾清器在檔板箱上

Set precleaner (7) on baffle box (17). 36. Put four latch nuts (10) under air cleaner

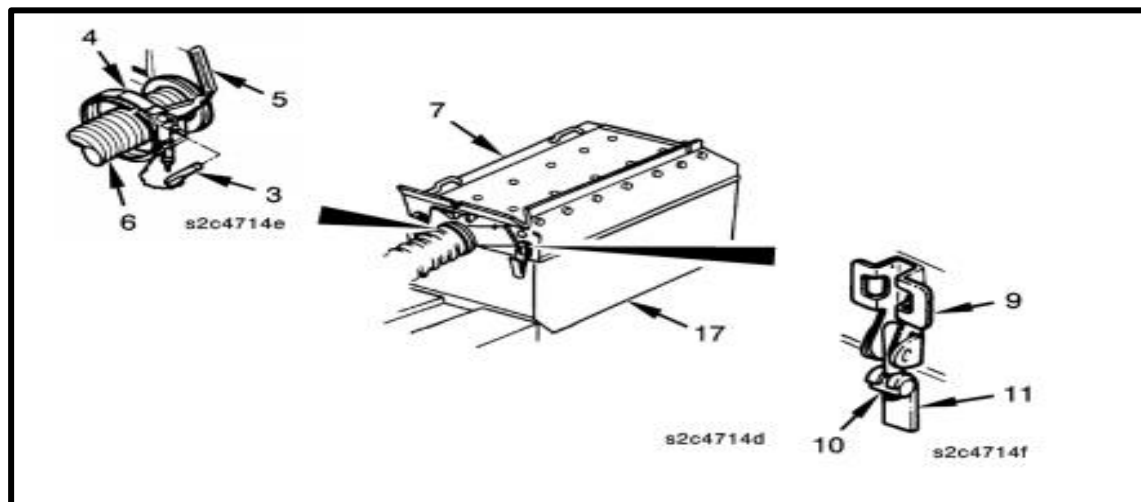
36.將四個門鎖螺母放在空氣濾清器掛勾下

Put four latch nuts (10) under air cleaner hooks (11).

37.一直向上拉門鎖並卡直正確位置

Pull latches (9) all the way up and snap into place.

圖 12-初級濾清器安裝示意圖



38.在初次濾清器上滑動軟管及夾箍

Slide hose (6) and clamp (4) on precleaner (7).

39.緊抓推桿向下推向夾箍

Grasp lever (5) and push down on clamp (4).

40.將插銷插入夾箍

Push clip (3) in clamp (4).

41.關上蓋子

Close grille doors and covers (Vol 3, WP 0462).

二、引擎失效的立即處置作為

DO IMMEDIATE ACTION FOR LOSS OF ENGINE POWER

警語/ (WARNING) :

- 手煞車不會停止車輛直到速度低於3 mph (5 km/h)
- 如果在前進上坡或倒車時失去發動機動力，無論上坡或下坡，請立即使用煞車踏板，戰車會立即停止。戰車乘員須注意勿因急煞而受傷。
- Parking brake will not stop vehicle until speed drops below 3 mph (5 km/h).
- If engine power is lost while driving in forward up a hill or in reverse, either up or down hill, apply parking brake immediately. Tank will stop suddenly. Crewmembers could be injured in a sudden stop.

備註/NOTE :

戰車轉向緩慢，剎車壓力不足，油門踏板失靈是發動機功率損失的跡象。
Slow steering, weak service brakes, or dead throttle are signs of loss of engine power.

1.通知車長發動機失去動力。

Notify tank commander that engine power is lost

警語/ (WARNING) :

如果在水平地面或向前下坡時發動機失去動力，駕駛應嘗試在速度在高於3 mph (5 km/h)之前將戰車轉向平坦淨空的區域。在速度降至3 mph (5 km/h)之前，一旦速度降至3 mph (5 km/h)以下且轉向和煞車都失效。必須使用停車置動器停下戰車。

If engine power is lost while on level ground or while going in forward down a hill, driver should attempt to steer tank to a clear, level area before speed drops below 3 mph (5 km/h). Once speed drops below 3 mph (5 km/h) steering and service brakes are lost. Parking brake must be used to stop tank.



備註/NOTE：

盡可能不要同時轉向和使用停車製動器。

Do not steer and use service brakes at the same time if possible.

2. 盡可能將戰車轉向可見的平坦區域。

Steer tank to a clear, level area if possible.

3. 在戰車減速到3 mph (5 km/h)或更低，踩停車製動踏板(圖1)然後停車。

After tank slows to 3 mph (5 km/h) or less, push parking brake pedal (1) and stop tank

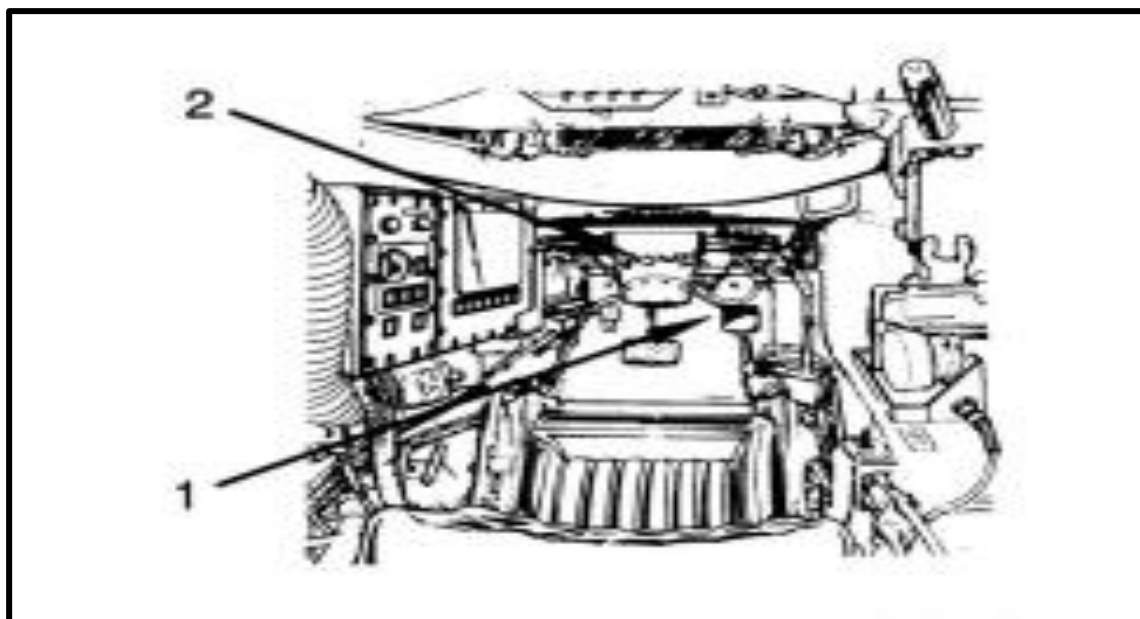
4. 將檔位打至N檔(圖2)。

Set shift control (2) to N.

5. 通知野戰保修人員。

Notify field maintenance.

圖 13-手煞車踏板及空檔位置圖



三、轉向失靈立即處置作為

DO IMMEDIATE ACTION FOR LOSS OF STEERING

(一)項次 1-警告/ (CAUTION)：

不要踩煞車踏板，戰車可能打滑或過彎速度過快。

Do not pump service brake pedal (1). Tank may skid or turn quickly

1. 通知車長轉向失靈。

Notify tank commander that steering is lost.

2. 轉動轉向把手保持向前。

Twist throttle handgrips (2) forward.

3. 確保戰術怠速開關處於關斷位置。

Make sure that TACTICAL IDLE switch (3) is set to OFF.

4. 均勻穩定地踩下煞車踏板。

Push evenly and steadily on service (1) and stop tank

5. 將檔位打至N檔。

Set shift control (4) to N.

6. 踩下手煞車踏板，鎖定煞車，然後放鬆踏板。

Push parking brake pedal (5) to set parking brake and then let go.

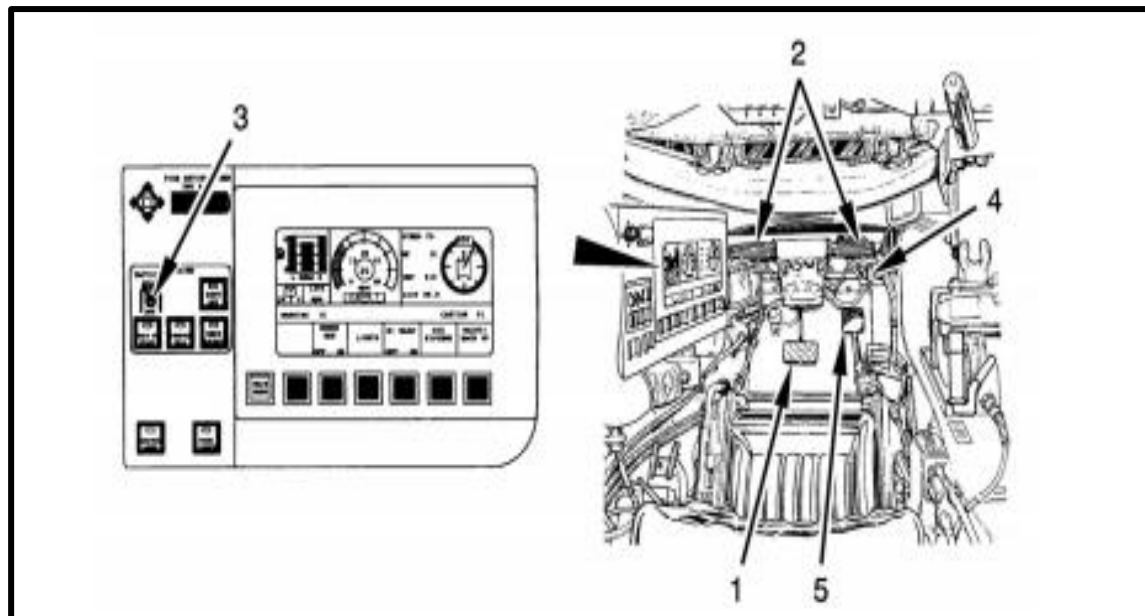
7.關閉引擎。

Shut down engine (Vol 1, WP 0085).

8.通知野戰保修人員。

Notify field maintenance.

圖 14-轉向失效處置相關機構位置圖



警語/ (WARNING)：

手煞車不會停止車輛，直到速度低於3mph(5km/h)，僅當戰車向前行駛上坡時才踩下。

Parking brake will not stop vehicle until speed drops below 3 mph (5 km/h).

停車製動踏板。踩下停車製動踏板，戰車會如然停止，機組人員可能會在突然停止時受傷。

Push parking brake pedal (1) only if tank is driving in forward up a hill or in reverse either up or down a hill. Tank will stop suddenly when parking brake pedal (1) is pushed. Crewmembers could be injured in a sudden stop.

(二)項次 2-內文：

1.通知車長轉向手把失效。

Notify tank commander that service brakes do not work.

2. 轉動轉向把手保持向前。

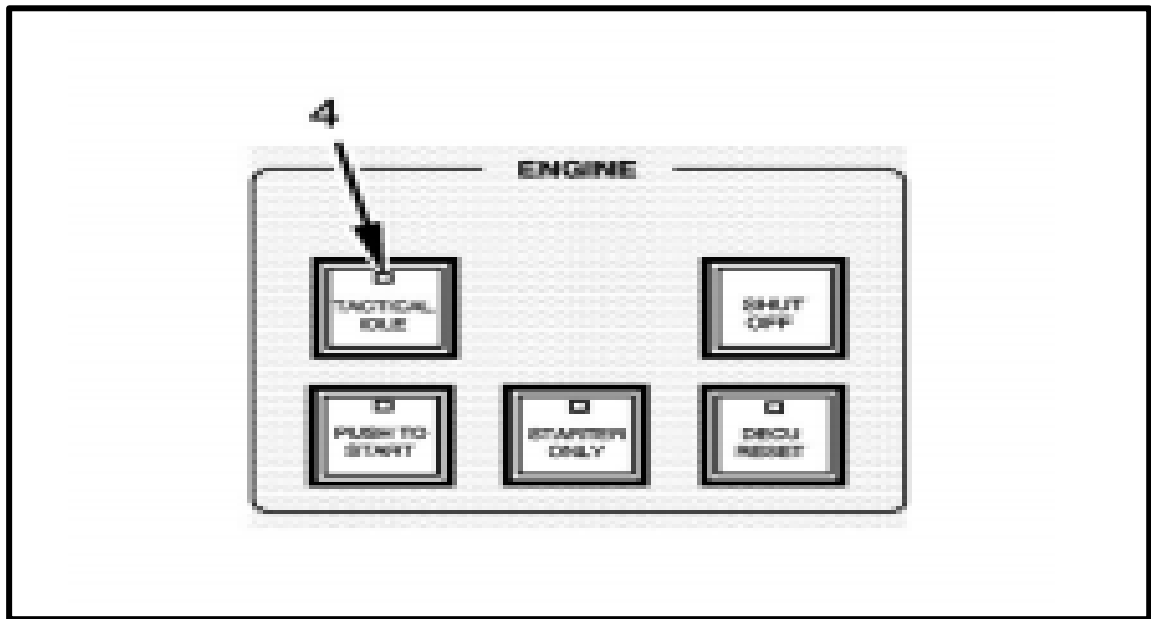
Twist thottle handgrips (2) forward.

3.確保「戰術怠速」開關在關斷位置，如果載具是 SEPv2，確保「戰術怠速」指示燈是熄滅的。

Make sure that TACTICAL IDLE switch (3) is set to OFF. If vehicle is SEPv2, make sure TACTICAL IDLE indicator light (4) is off.



圖 15-戰術怠速訊號燈



4.戰車直行並讓其靠邊滑行直至停車。

Steer tank and allow tank to coast to stop.

5.踩下剎車踏板，鎖定停車製動器，然後放鬆踏板。

Push parking brake pedal (1) to set parking brake and then let go.

6.打檔至N檔。

Set shift control (5) to N.

備註/NOTE：

以剎車踏板停止戰車，戰車能以低於3mph(5km/h)的速度短距離移動。

將檔為移至L或R檔，並以低速行駛戰車。

Tank can be moved for short distances at speeds below 3 mph (5 km/h) by using parking brake pedal (1) to stop tank. Set shift control (5) to L or R and move tank at low speed.

7.故障排除

Do troubleshooting (WP 0422).

四、將受傷的戰車駕駛由駕駛艙搬運搶救 REMOVE INJURED CREWMEMBER FROM TANK

(REMOVE INJURED DRIVER THROUGH DRIVER'S HATCH)

警告/ (WARNING) :

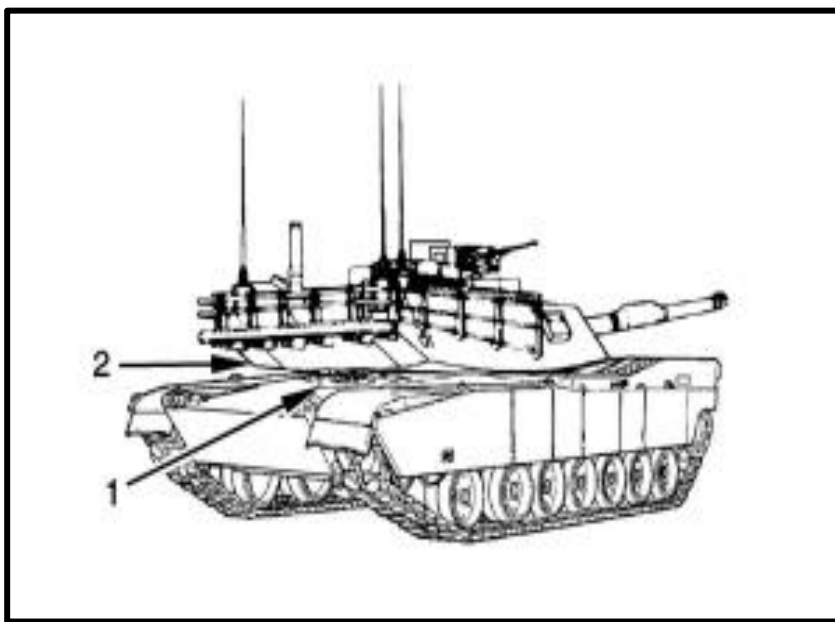
在穿過砲塔室之前，確保駕駛員身體遠離砲塔，否則因意外啟動砲塔可能導致他死亡。

Before traversing turret, make sure driver's body is clear of turret or you could kill him.

備註/NOTE :

- 三名乘員需要將受傷人員運出駕駛艙。
- Three crewmembers are needed to remove injured driver through driver's hatch (1).
- 僅在醫護人員無法救護時，執行上述程序。
- Use this procedure only if medical personnel are not available.
- 如果駕駛艙室開的，直接前往步驟四。
- If driver's hatch is open, go to step

圖 16-主砲在後示意圖



1.機組人員在砲塔中時，使用手動搖砲使駕駛艙位於砲塔後方，使主砲位於後甲板上方。

Crewmember in turret, traverse turret (WP 0222) or (WP 0220) so that driver's hatch (1) is under rear of turret (2) and main gun is over rear deck.

2.鎖上砲塔鎖。

Lock turret lock (WP 0282)

3.機組人員在砲塔中時，以下述方式打開駕駛艙。

Crewmember in turret, open driver's hatch (1) as follows

(1)旋轉裝填手的安全門將其打開。

Swing loader's safety guard open (Vol 1, WP 0109).

(2)進入駕駛艙並抓緊把手。

Reach into driver's compartment and grasp handle (3).

(3)按下按鈕並拉下把手，鬆開後即可打開。



Press button (4) and push up on handle (3) all the way and then let go

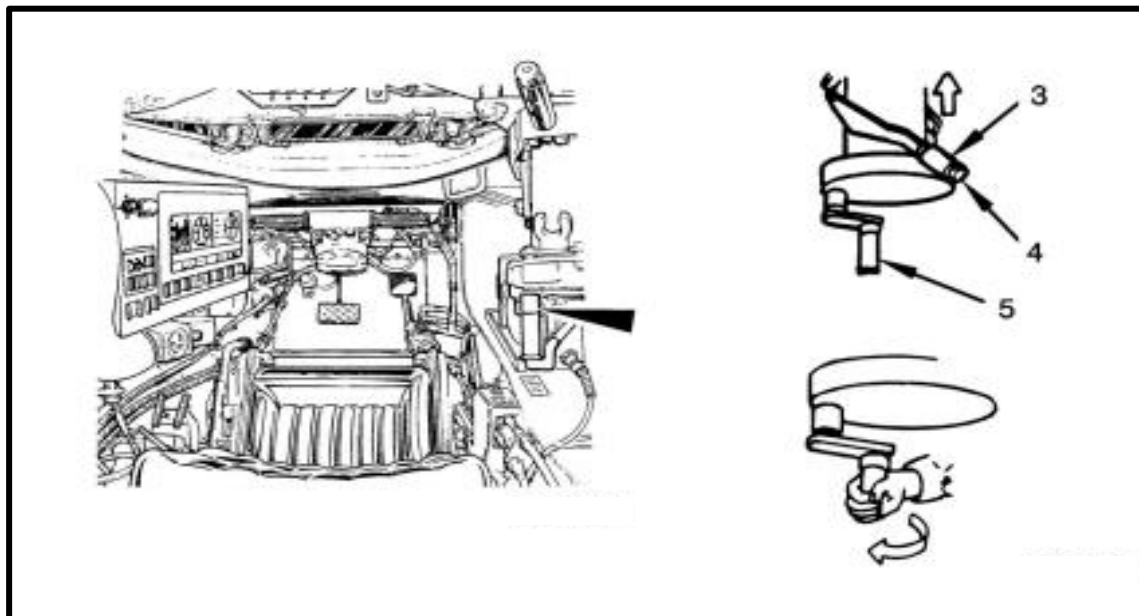
(4)依順時針旋轉曲柄打開駕駛艙。

Turn crank (5) clockwise to open driver's hatch.

(5)旋轉裝填手的安全門將其關閉。

Swing loader's safety guard closed (WP 0277)

圖 17-裝填手安全門之操作



4.機組人員在砲塔中，解開砲塔鎖

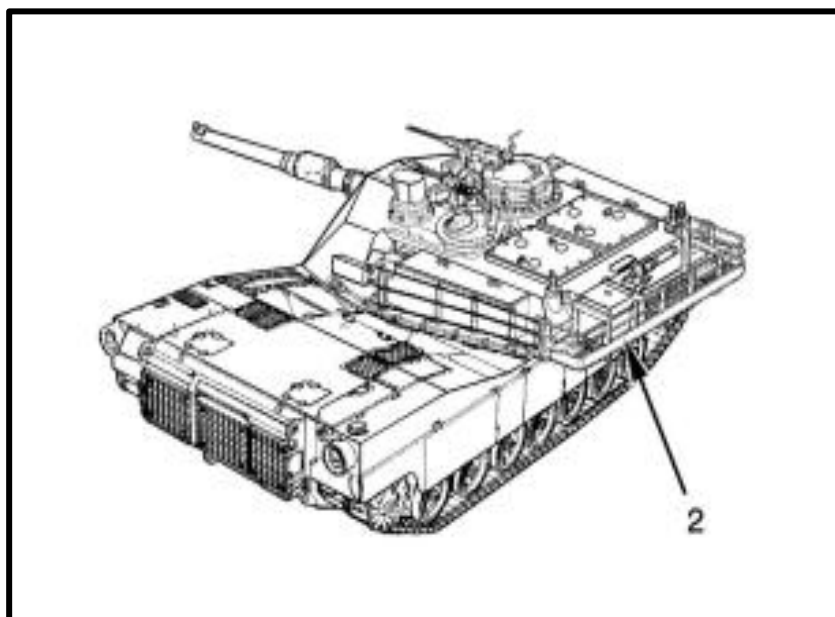
Crewmember in turret, unlock turret lock (WP 0281)

5.其他乘員將砲塔轉向垂直方向，可以參考(WP 0222) 及 (WP 0220)

位置，旋轉後讓砲塔指向左(270°)或右方(90°)。

Crewmember in turret, traverse turret, see (WP 0222) or (WP 0220), so that rear of turret (2) is over right or left side of tank.

圖 18-主砲在垂直方位示意圖



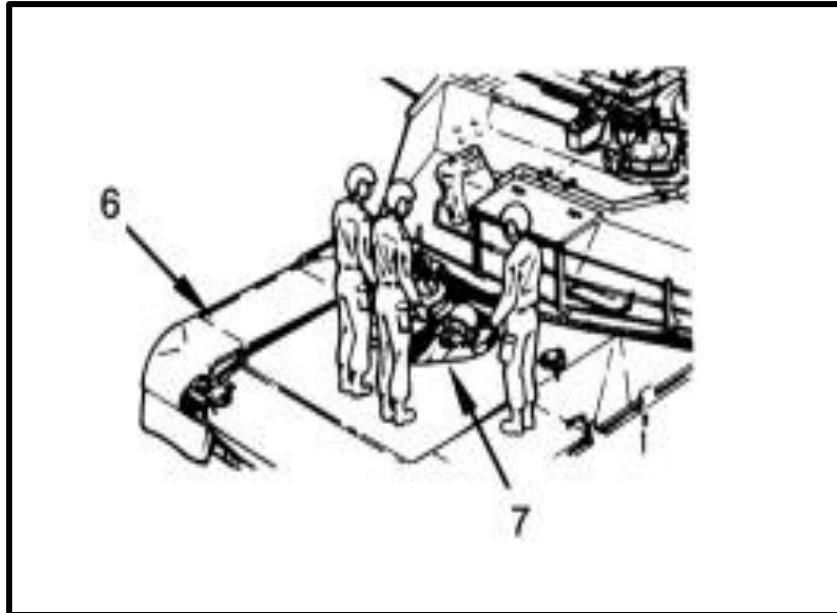
6.組員於砲塔內鎖上砲塔鎖

Crewmember in turret, lock turret lock (WP 0282).

7.三名乘員站立於前甲板周邊，圍繞駕駛艙門蓋。

Three crewmembers, get on hull (6) around driver's hatch opening (7).

圖 19-施救受傷駕駛戰車乘員之站立位置示意圖



8.一名乘員伸手進入駕駛艙，並將駕駛手頭連結之快速解脫器拔除。

One crewmember on hull (6), reach into driver's hatch opening (7) and disconnect leads to driver's helmet at quick-disconnect (8).

圖 20-戰車乘員通信頭盔快速解脫器位置圖



警告/ (WARNING)：

為確保在對人員造成傷害前，在救治駕駛前必須先確定引擎是否關閉，否則將有可能造成設備、人員的死傷。

Failure to ensure that vehicle main engine is shut off before performing injured driver removal may result in damage to equipment and death or injury to personnel.



9.關閉引擎並放掉油門，把檔位打至L低速檔。

Shut down engine and stow driver's steer-throttle control (Vol 1, WP 0085) and set shift selector to L (low).

10.升起枕頭並輕輕地把駕駛的頭往下。

Raise headrest to stowed position (Vol 1, WP 0053) and gently lower driver's head.

11.在駕駛人右側的組員打開駕駛艙(7)，並拉起駕駛人收傷的右腿，拉出右腿並放置於底盤上。

Crewmember on right side of driver's hatch opening (7) grasp injured driver's right leg (9). Pull out right leg (9) and lay on hull (6).

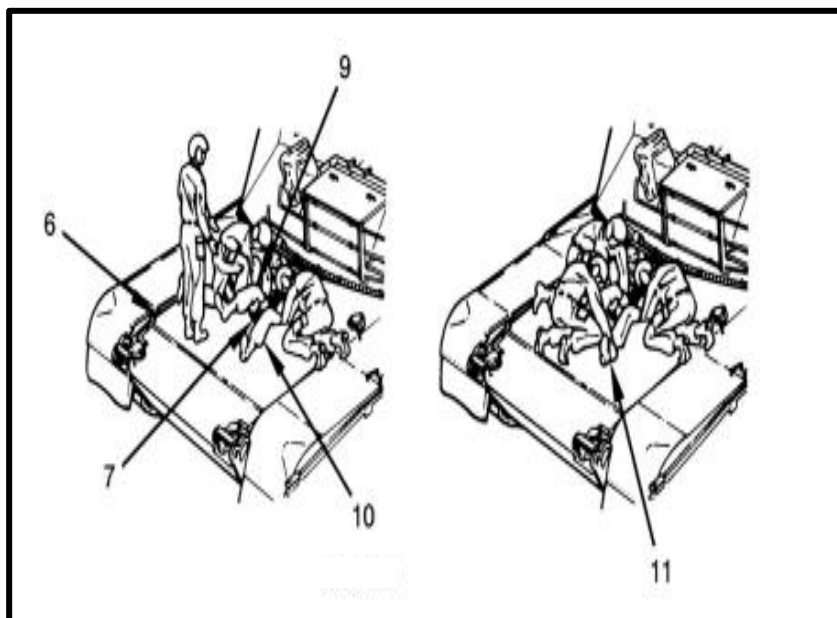
12.駕駛艙右側之組員抓住傷者的右腿並平放在底盤上。

Crewmember on left side of driver's hatch opening (7) grasp injured driver's left leg (10). Pull out left leg (10) and lay on hull (6).

13.其餘乘員抓住傷員的兩個腳踝。

Remaining crewmember, grasp injured driver by both ankles (11).

圖 21-駕駛艙搶救駕駛示意圖



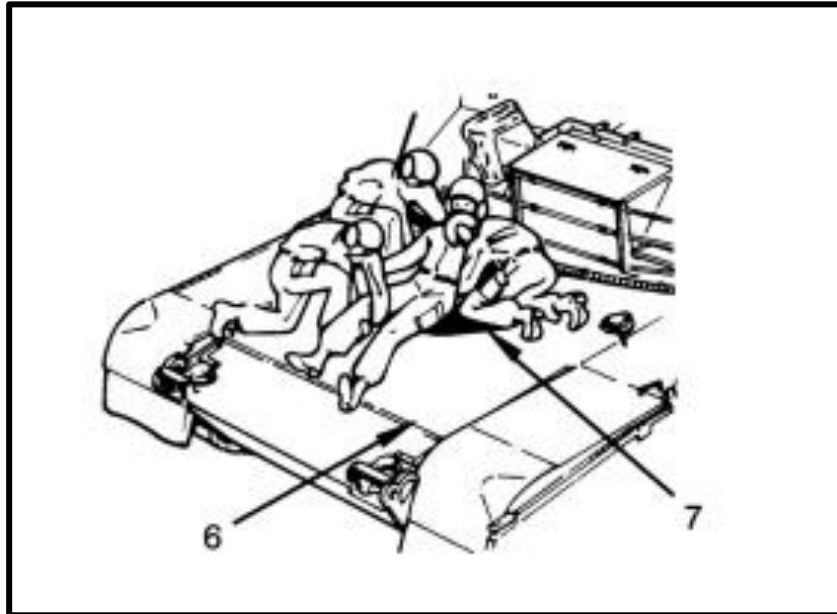
14.三名乘員視需要拉動握把，將傷員至駕駛艙口接出。

All three crewmembers pull and change grips as necessary to remove injured driver from driver's hatch opening (7).

15.讓傷者在平躺於車體上並給予急救。

Lay injured driver on hull (6) and give first aid.

圖 22-受傷駕駛平躺於底盤並予急救示意圖



五、將砲塔室受傷的戰車乘員由裝填艙口搬運搶救

REMOVE INJURED CREWMEMBER FROM TANK

(REMOVE INJURED CREWMEMBER THROUGH LOADER'S HATCH)

(一)項次 1-警告/ (WARNING)：在穿過砲塔室之前，確保駕駛員身體遠離砲塔，否則你可能導致死亡。

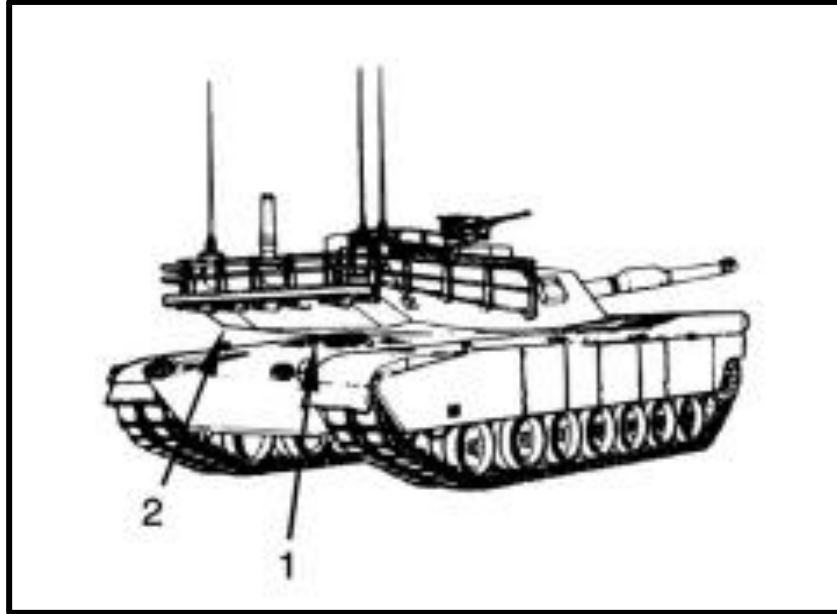
Before traversing turret, make sure driver's body is clear of turret or you could kill him.

備註/NOTE：

- 3名成員須將受傷的組員帶離裝填手艙口。
- Three crewmembers are needed to remove injured crewmember through loader's hatch.
- 如果醫護人員不在現場，才能執行這個程序。
- Use this procedure only if medical personnel are not available.
- 將受傷的駕駛帶離裝填手艙口，從步驟1開始執行。
- To remove injured driver through loader's hatch, begin at step 1.
- 其他受傷的乘員帶離裝填手艙口，執行操作步驟3-7和13-19。
- To remove another injured crewmember through loader's hatch, do steps 3 thru 7 and 13 thru 19.



圖 23-主砲在後(駕駛能穿過砲塔室)



1.乘員在砲塔中時，使用手動搖砲使駕駛艙位於砲塔後方，使主砲位於甲板正後方(180°)。

Crewmember in turret, traverse turret (WP 0222) or (WP 0220) so that driver's hatch (1) is under rear of turret (2) and main gun is over rear deck.

2.鎖上砲塔鎖。

Lock turret lock (WP 0282).

3.打開裝填手艙口。

Open loader's hatch (WP 0268)

4.放置好裝填手機槍方便通過。

Prepare loader's machinegun for travel (WP 0309).

5.收起裝填手的防護裝置。

Stow loader's guards (WP 0317).

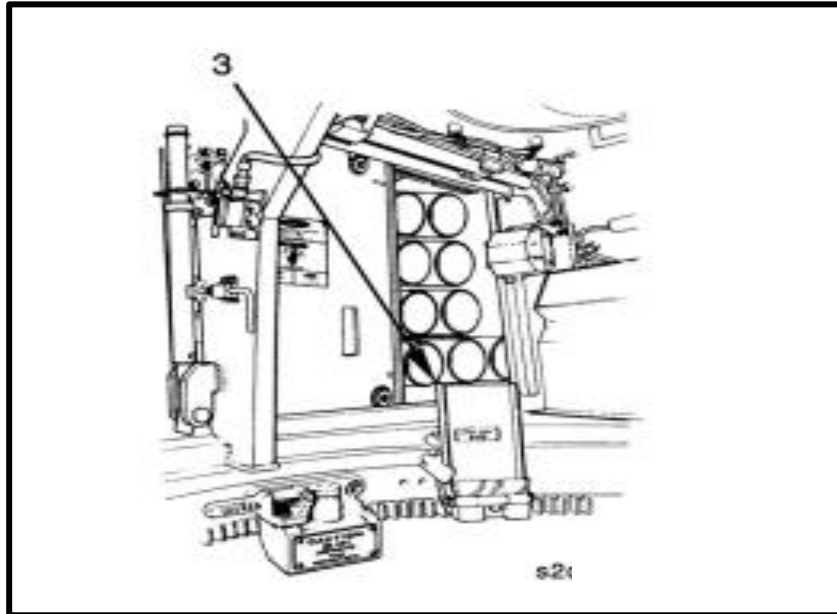
6.收起裝填手座椅。

Stow loader's seat (WP 0274).

7.移動座椅開關至固定安全位置。

Swing knee switch (3) up to safe position.

圖 24-裝填手座椅開關位置示意圖



8. 切換裝填手的安全裝置到打開。

Swing loader's safety guard open (Vol 1, WP 0109)

9. 在砲塔室內的乘員，進入駕駛艙並調整座位如下所示。

Crewmember in turret, reach into driver's station (4) and adjust seat as follows

(1) 用左手緊抓住座椅背部上的調整用的控制手柄。

Grasp upper seat back adjustment lever (5) with left hand.

(2) 按住並推控制手柄。

Push adjustment lever (5) all the way in and hold.

(3) 用右手抓住座椅墊後方右上角，向下拉。

Grasp right top corner of seat back cushion (6) with right hand and pull all the way down.

(4) 鬆開控制手柄。

Let go of adjustment lever (5).

(5) 確保駕駛座椅在下方的位置。如果沒有，用左手抓住座椅桿並推向駕駛手。

Make sure driver's seat is in down position. If not, grasp seat lever (7) with left hand and push in toward driver. When seat starts to go down, let go of lever (7). Gently lower seat.

(6) 鬆開座椅墊。

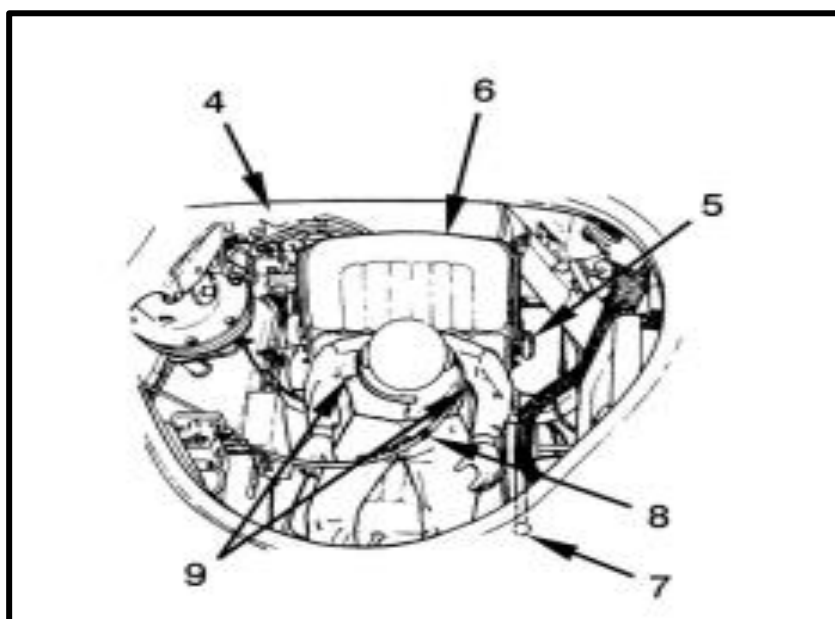
Let go of seat back cushion (6).

10. 在砲塔內的乘員，進入駕駛艙並將駕駛頭盔快速解脫器解開。

Crewmember in turret, reach into driver's station (4) and disconnect lead to driver's helmet at quick-disconnect (8).



圖 25-駕駛座椅調整示意圖



11. 升起頭墊到裝載的位置，並輕輕地降低駕駛手的頭。

Raise headrest to stowed position (Vol 1, WP 0053) and gently lower driver's head.

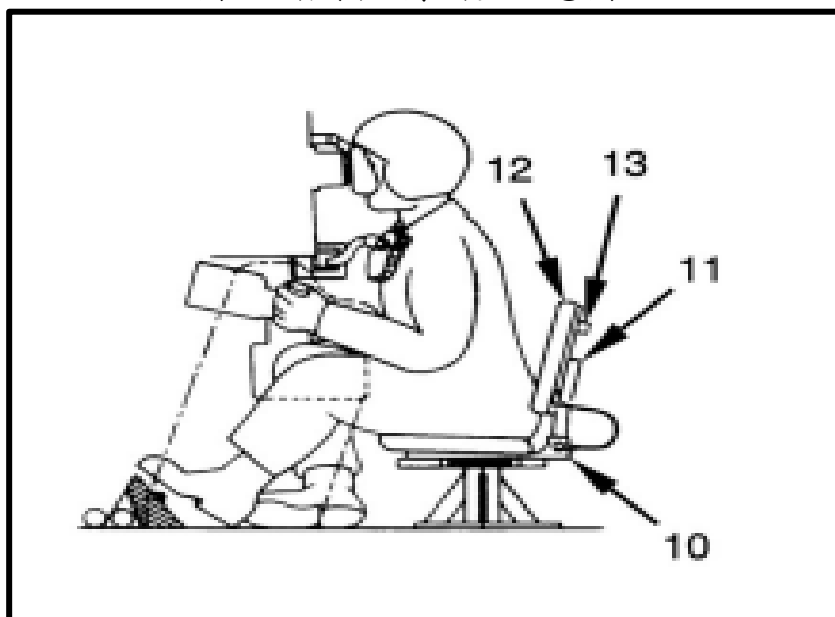
12. 一位在砲塔室內的乘員，抓住受傷的駕駛手腋下，並且拉進砲塔。另一位在砲塔室的乘員，抓住受傷的駕駛手並且協助他進入砲塔。

One crewmember in turret, grasp injured driver under arms (9) and pull up into turret. Another crewmember in turret, grasp injured driver and help pull injured driver into turret.

13. 假如射手要移動位置，從座椅後往上拉拉銷，並通過抓住皮帶拉回座椅

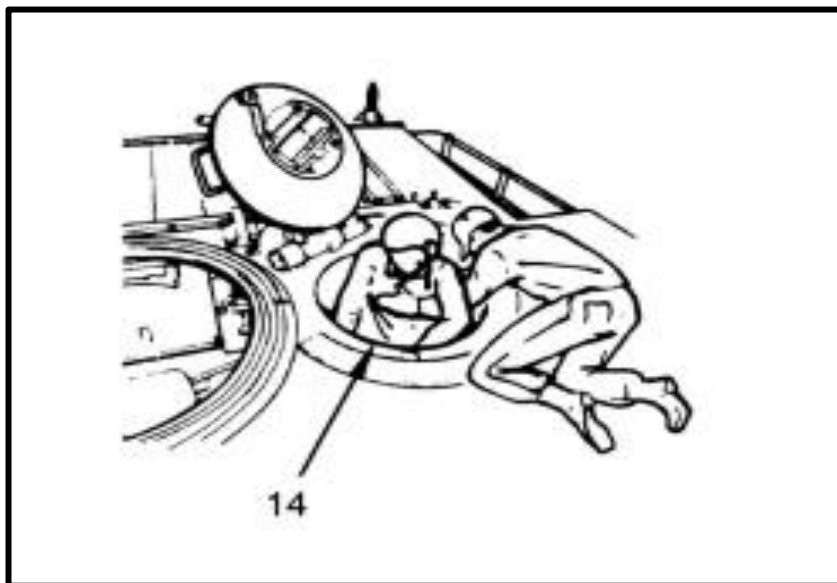
If gunner is being removed, pull pins (10) from seat back posts (11) and pull seat back (12) by grabbing strap (13).

圖26-射手座椅調整示意圖



14.兩位在砲塔室的乘員將受傷的乘員移動到打開的裝填手艙口下
Two crewmembers in turret move injured crewmember to area under loader's hatch opening (14).

圖 27-裝填手艙口搶救示意圖



15.一位乘員到砲塔上打開的裝填手艙口旁邊
One crewmember, get on turret next to loader's hatch opening (14).

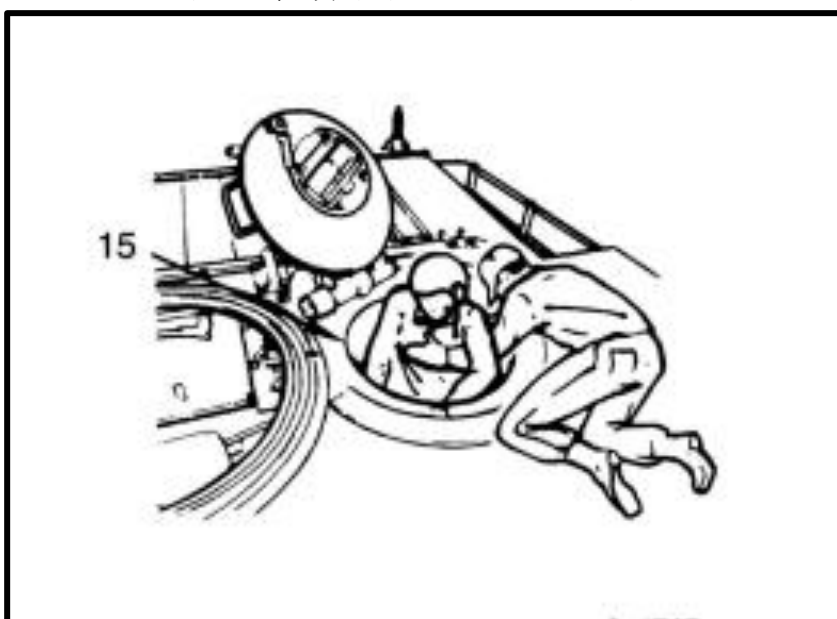
16.另外在砲塔內乘員抱起傷者由在外乘員拖救傷者離開砲塔室。
Two other crewmembers in turret, lift injured crewmember up so that crewmember on turret can grasp injured crewmember

17.關閉裝填手的膝蓋防護裝置
Close loader's knee guard (WP 0317).

18.關閉裝填手的安全防護裝置
Close loader's safety guard (WP 0317).

19.其他三位乘員，協力讓傷者從裝填手艙口離開，並在砲塔上急救。
All three crewmembers, lift injured crewmember through loader's hatch opening (15). Lay injured crewmember on turret and give first aid.

圖 28-裝填手艙口搶救示意圖





六、解開卡住的剎車 UNLOCK STUCK PARKING BRAKES

1. 駕駛須遵守：

Driver, do following:

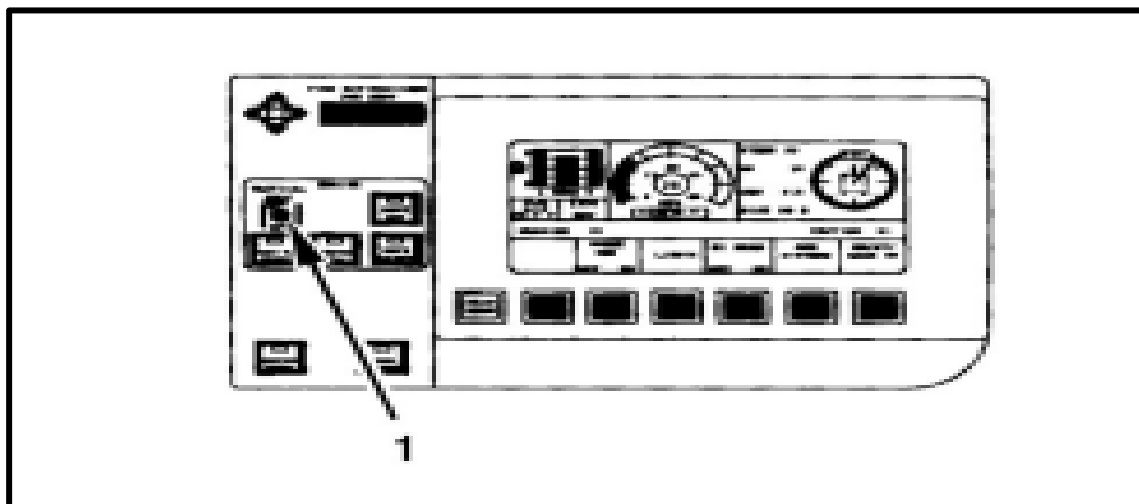
(1) 保持引擎轉速。

Keep engine running.

(2) 確保戰車怠速開關置於關斷位置。

Make sure TACTICAL IDLE switch (1) is set to OFF.

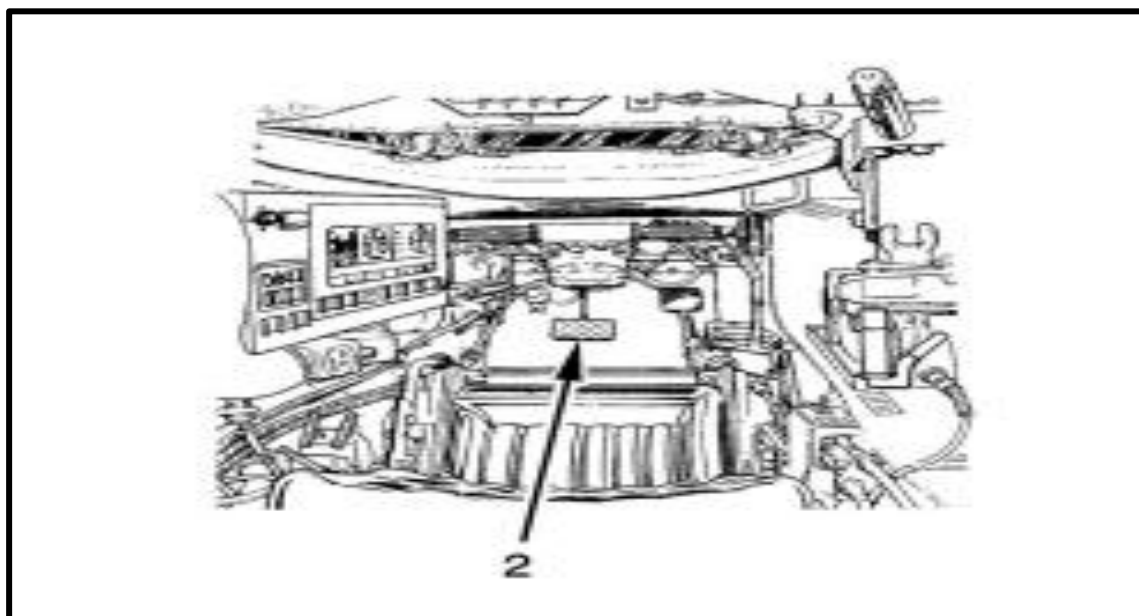
圖 29-戰術怠速開關位置圖



(3) 在鬆開手煞車時，踩住剎車踏板防止戰車移動。

Press and hold service brake pedal (2) to keep tank from moving when parking brake releases.

圖 30-駕駛艙煞車踏板位置圖



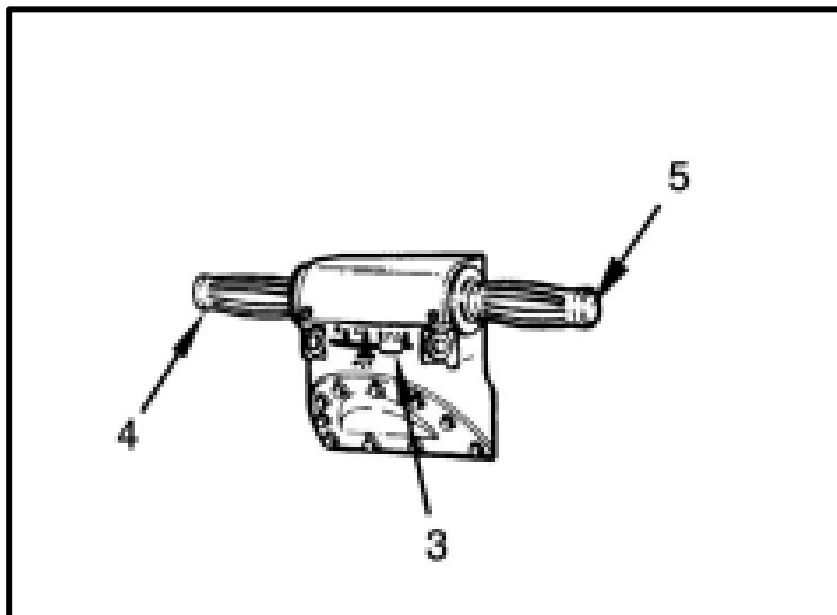
(4) 確保排檔桿位於 N 檔。

Make sure shift control (3) is set to N.

(5) 握住並旋保持油門轉把朝前。

Twist throttle handgrips (4, 5) forward and hold.

圖 32-排檔及油門轉把位置圖



2.乘員在砲塔中時，轉動砲塔，參考(WP0222 和 WP0220)，因此主砲會在右邊第一顆承載輪上方，然後鎖上砲塔鎖，做接下來的步驟。

Crewmember in turret, traverse turret, see (WP 0222) or (WP 0220), so main gun is over number one right roadwheel, and then lock turret lock (WP 0282). Do the following:

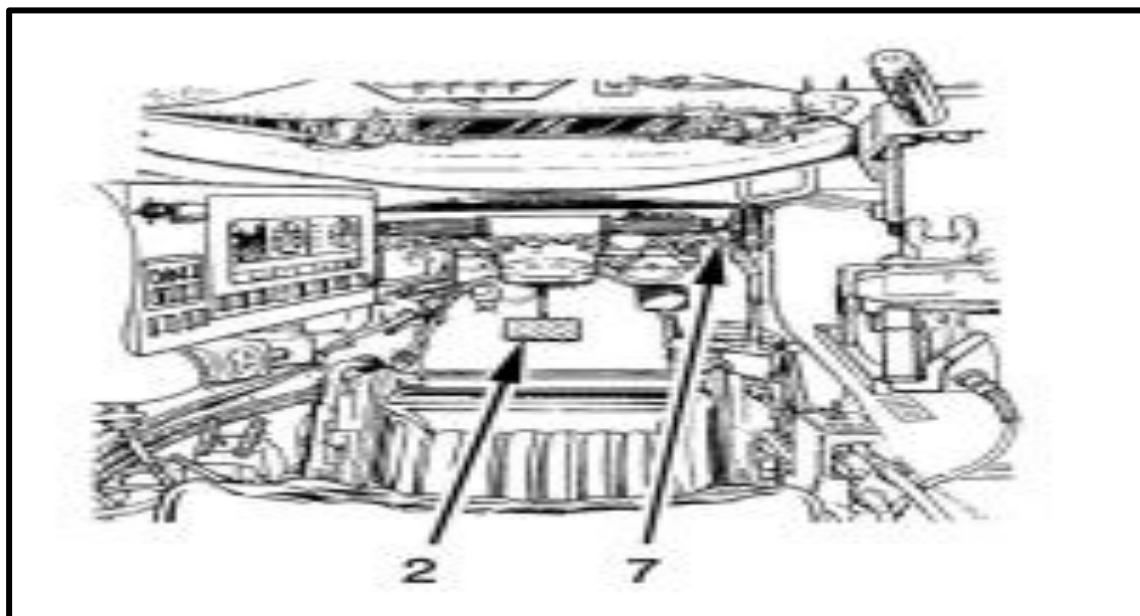
(1)打開砲塔平台檢修門，找出手煞車釋放桿位置。

Open turret platform access door (Vol 3, WP 0471) and locate parking brake actuator (6).

(2)讓駕駛員拉動手煞車釋放桿。

Have driver pull and hold parking brake release handle (7).

圖 33-手煞車釋放桿位置圖



(3)使用鐵鎚，將棘輪軸末端敲出。

Using hammer, tap end of ratchet shaft (8) extending beyond housing

(4)關閉砲塔檢修門。

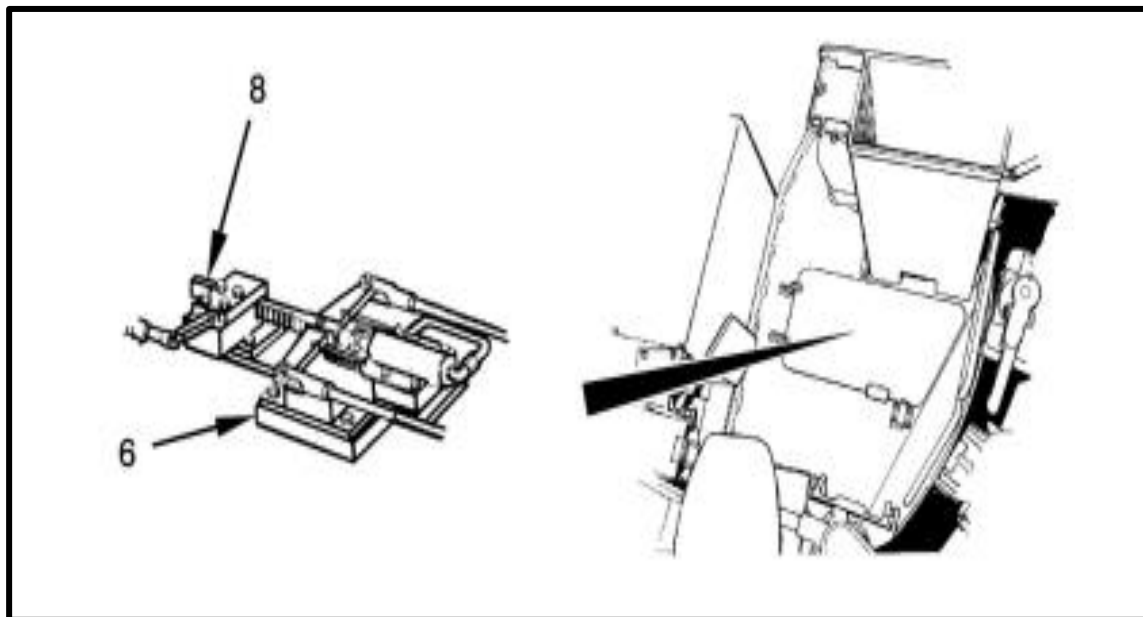
Close turret platform access door (Vol 3, WP 0471)

(5)如果煞車沒有解開，回到步驟 3。

If brakes do not unlock, go to step 3.



圖 34-剎車鎖定解除(檢查位)



3. 放置木塊在兩條履帶下方。

Place a wood block under each end of both tracks

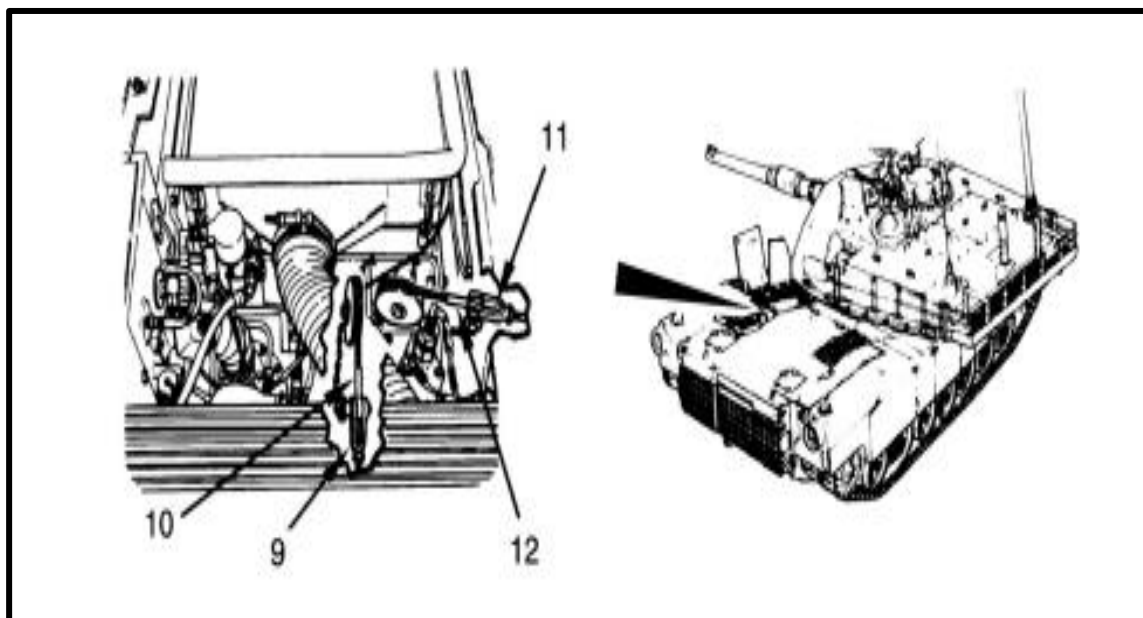
4. 打開隔珊門。

Open grille doors and covers (Vol 3, WP 0460)

5. 將螺絲起子穿過手煞車電纜上。

Put screwdriver through parking brake cable clevis (9).

圖 35-剎車鎖定機件位



6. 抓住螺絲起子的兩端，向戰車的後方拉以拉動電纜。

Grip both ends of screwdriver and pull toward rear of tank to pull cable (10).

7. 從手煞車電纜線上將螺絲起子取下。

Remove screwdriver from parking brake cable clevis (9).

8. 把螺絲起子穿過手煞車電纜。

Put screwdriver through parking brake cable clevis (11).

9. 抓住螺絲起子的兩端，向戰車的右邊往後拉以拉動電纜。

Grip both ends of screwdriver and pull toward right side of tank to pull cable (12).

10. 從手煞車電纜線上將螺絲起子取下。

Remove screwdriver from parking brake cable clevis (11).

11. 告訴駕駛做下列事項：

Tell driver to do the following:

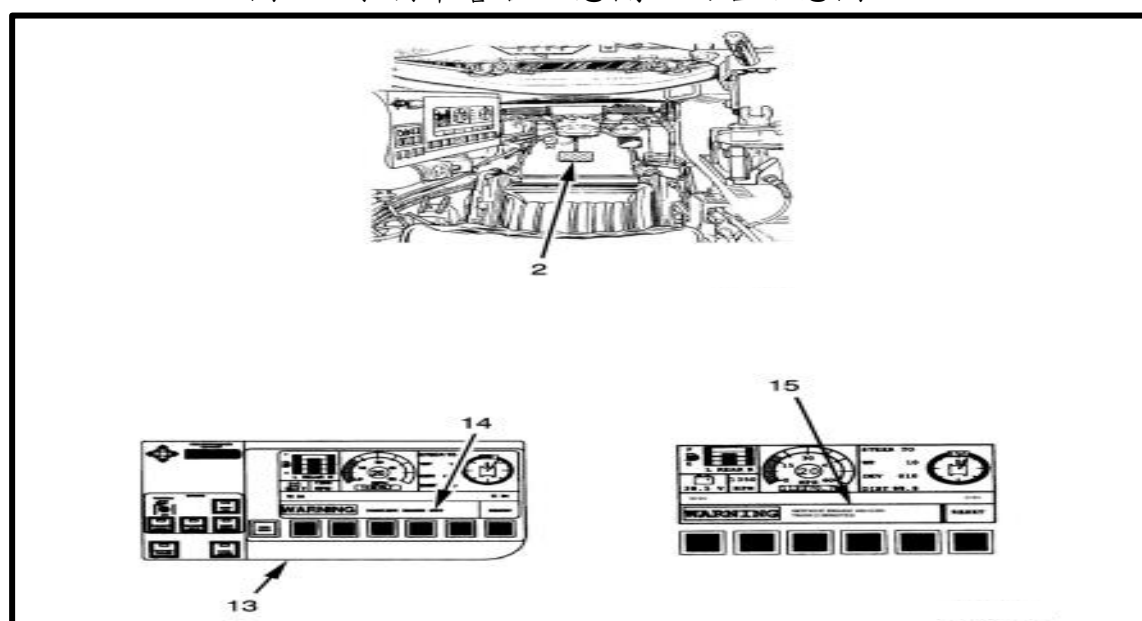
(1) 鬆開煞車踏板，並再次快速踩住剎車踏板。

Release service brake pedal (2), and then quickly press and hold service brake pedal (2) again.

(2) 檢查面板是否有剎車制動器的警告訊息或是剎車踏板 2 分鐘警告訊息，如果沒有警告訊息顯示在面板上，就接著步驟 12，如果有警告訊息顯示在面板上就接步驟 14

14 Check DID (13) for PARKING BRAKE SET warning message (14) or SERVICE BRAKE ON GTR THAN 2 MINUTES warning message (15). If no warning message is displayed on DID (13), go to step 12. If a warning message is displayed on the DID (13), go to step 14.

圖 36-手剎車警告訊息欄及內容示意圖



12. 關上面板門和護板。

Close grille doors and covers (Vol 3, WP 0462).

13. 移開放在履帶下方的枕木。

Remove wood block from under each end of both tracks.

14 盡速通知野戰保修人員。

Notify field maintenance as soon as possible.



七、打開 120 公厘砲門

OPEN 120MM BREECHBLOCK

備註/NOTE：

使用這個程序只有在射擊後砲門沒有自動打開或是沒有退殼。

Use this procedure only if a round has been fired and breechblock does not open automatically or stub base does not eject.

1. 啟動引擎。

Start engine, see (Vol 1, WP 0063)

2. 關閉所有打開的艙門，包括駕駛、車長及裝填手艙門。

Close all open hatches. For driver's hatch see (Vol 1, WP 0108), for commander's hatch see (Vol 1, WP 0116), and for loader's hatch see (WP 0275)

3. 關閉排放活門。

Close drain valves (Vol 1, WP 0057).

4. 確定駕駛和裝填手的潛望鏡安裝好。

Make sure driver's (Vol 1, WP 0084) and loader's (WP 0276) periscopes are installed

5. 確定車長和射手的潛望鏡安裝好，如果沒有安裝好，通知現場維修人員

Make sure commander's and gunner's periscopes are installed. If they are not installed, notify field maintenance.

6. 打開化生放核系統。

Turn on NBC MAIN system (WP 0338).

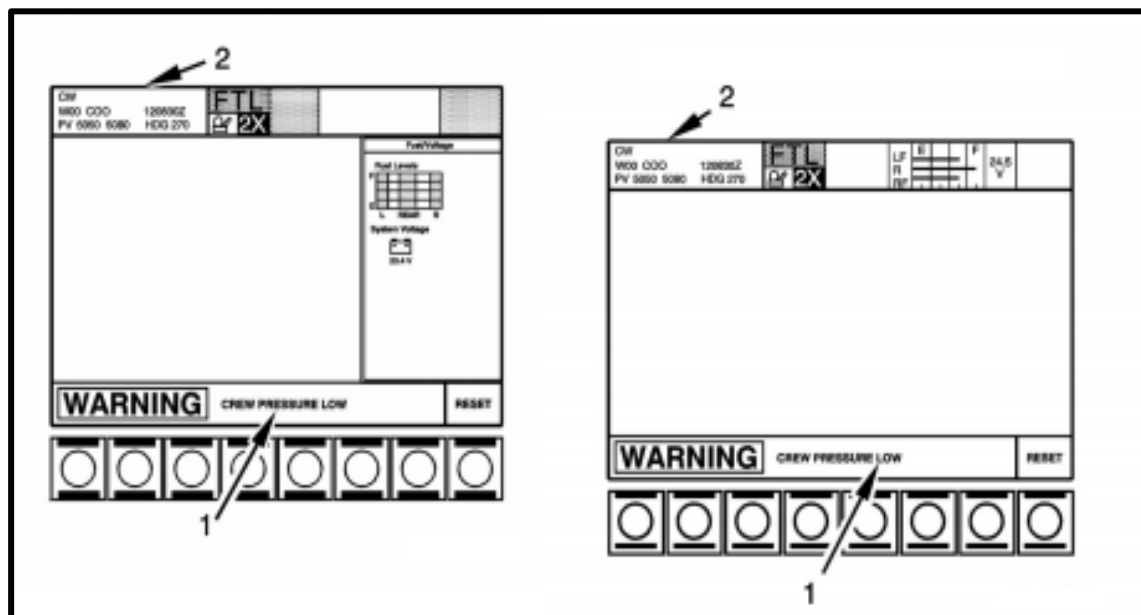
7. 等待兩分鐘使成員艙充壓。

Wait 2 minutes for crew compartment to pressurize.

8. 如果成員艙壓力過低警告訊息出現在車長顯示器上，調整壓力。如果警告訊息沒有消失，通知野戰保修人員。

If WARNING message CREW PRESSURE LOW (1) appears on CDU (2), adjust pressure (Vol 3, WP 0526). If warning message (1) will not disappear, notify field maintenance.

圖 37-車長顯示器化生放核警報器及艙壓警示位置圖



警告/ (WARNING) :

•在乘員艙裡低壓力可能會產生尾焰回火傷害戰車乘員，如果壓力太低等待 30 分鐘後再行開門。

• Low pressure in crew compartment could allow flareback and injure crewmembers. If pressure is low, wait 30 minutes before opening breechblock.

•不要在沒使用隔熱手套的情況下處理，手會被熱氣流或砲座燙傷。

• Do not handle spent stub base without using heat protective mittens (Vol 3, WP 0555, Item 45). Hands will get burned from hot spent stub base.

備註/NOTE :

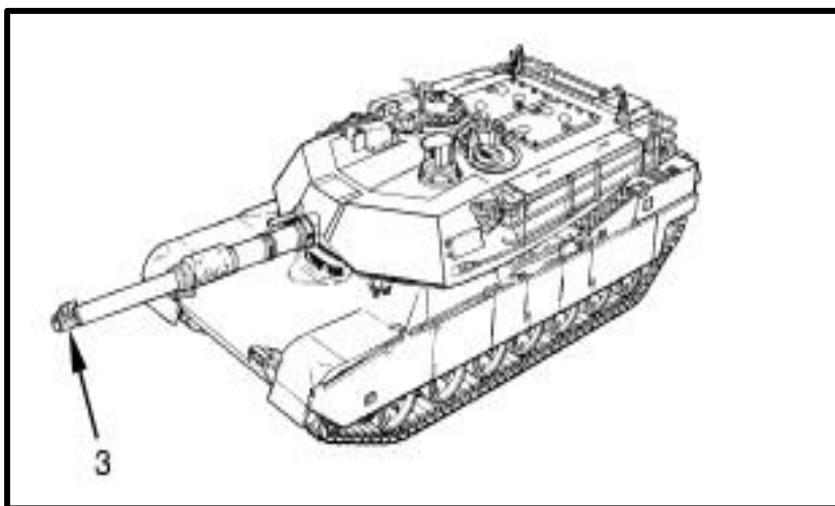
如果砲門沒有退殼，就執行退彈程序。

If stub base does not eject, perform Unload Stuck Stub Base (WP 0299).

9.手動開門，加壓會迫使氣體排出砲口。

Open breechblock manually (WP 0293). Pressurization will force gases out muzzle (3).

圖 38-120 公厘主砲砲口位置圖





八、關閉 120 公厘砲門 CLOSE 120MM BREECHBLOCK

備註/NOTE：

只有在關門簧無法完全關閉砲門或彈簧已失效才使用此程序。

Use this procedure only if closing spring fails to close breechblock (1) completely or spring is inoperative.

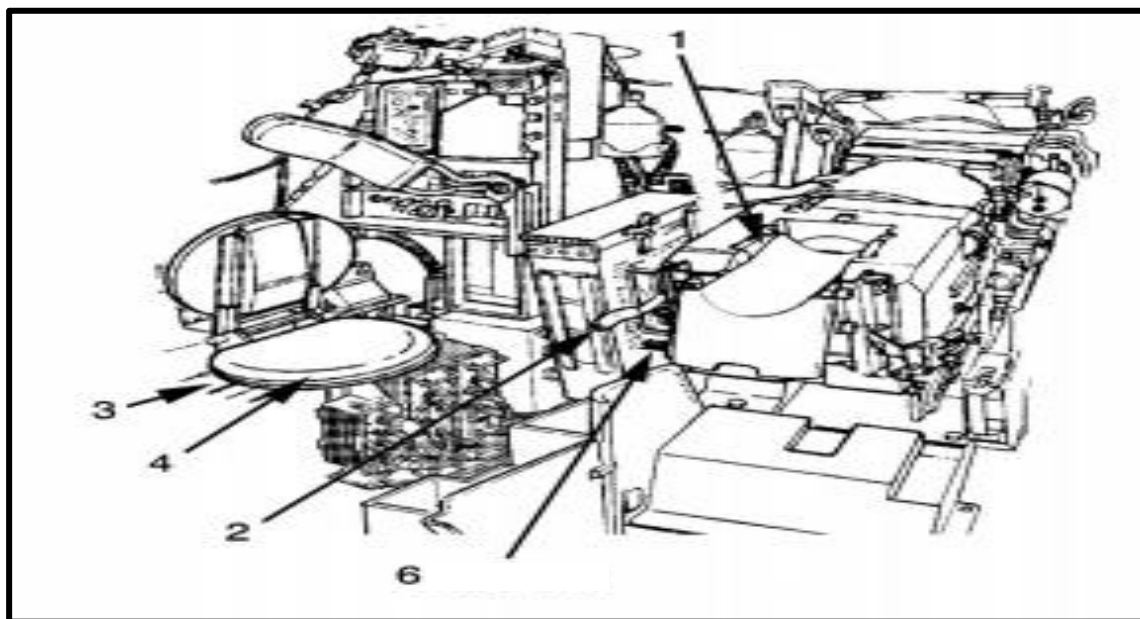
1.當砲門打開和砲門操作手柄不能關閉砲門時，從裝填手座椅下卸下柄。

When breechblock (1) is open and lever (2) will not close breechblock (1), remove handle (3) from under loader's seat (4) and put notched end (5) of handle (3) into slot (6).

2.拉手柄向後及向下，用手壓下手柄，直到砲門被關閉。

Pull handle (3) rearward and down, while pushing down on lever (2) with hand, until breechblock (1) is closed.

圖 39-M1 砲塔室內部構型圖



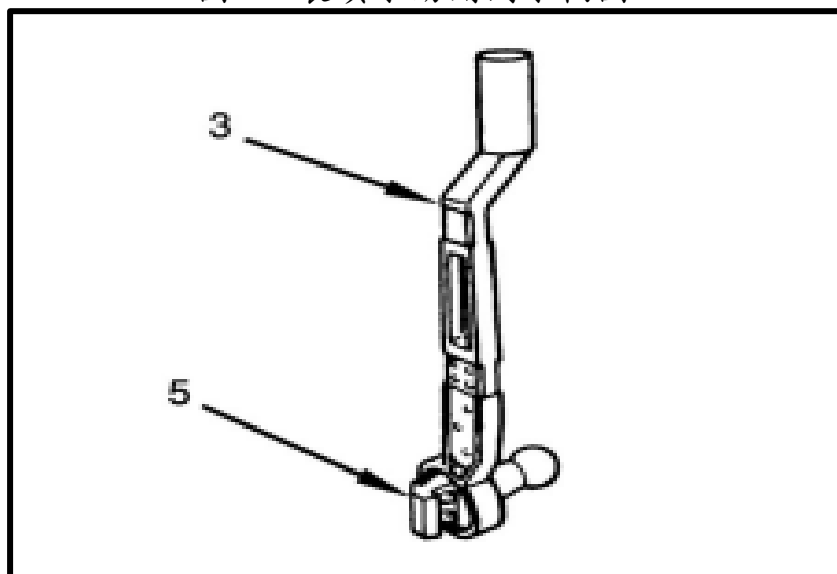
3.移除手柄並放進裝填手座椅下。

Remove handle (3) and put it in stowage beneath loader's seat (4).

4.通知野戰保修人員。

Notify field maintenance.

圖 40-裝填手動開門手柄圖



九、引擎故障停機立即處置作為

DO IMMEDIATE ACTION FOR ENGINE FAILURE TO SHUT DOWN

(一)項次 1-警語/ (WARNING)：

(1)在穿過砲塔室之前，提醒乘員確保該區域無障礙物。

Before traversing turret, alert crew and make sure area is clear of obstacles.

(2)人員可能死亡或受傷或導致裝備損壞。

Personnel could be killed or injured or equipment could be damaged.

(二)項次2-備註/NOTE：

如果要立即停止發動機，關閉燃油耦合開關。

If it is necessary to shut down the engine as quickly as possible, do disconnect fuel quick disconnect coupling (WP 0406).

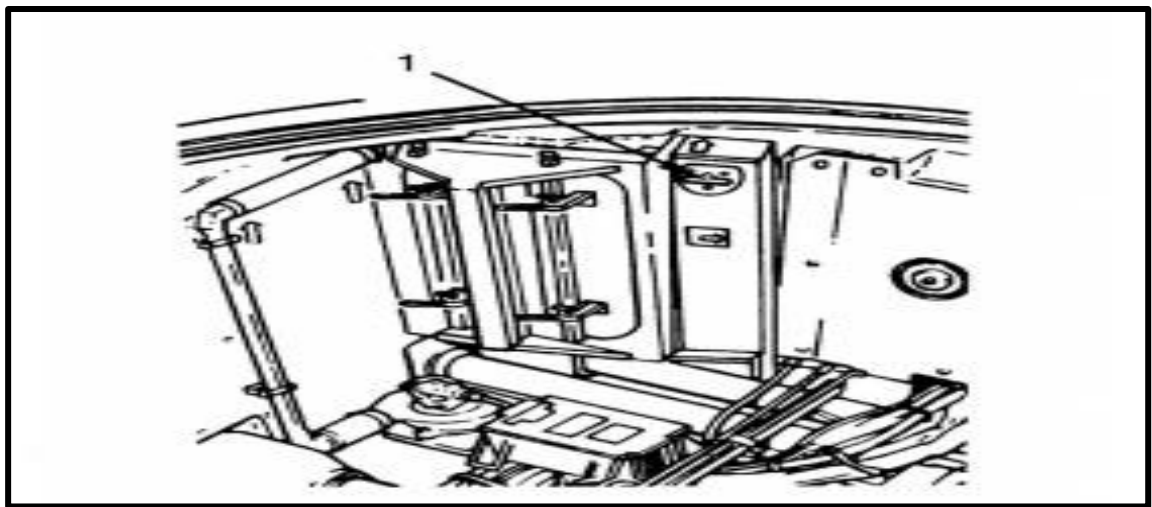
1.穿過砲塔室，(WP0222)和(WP0220)，以便觸及緊急關閉引擎T型手柄。

Traverse turret, (WP 0222) or (WP 0220), so that emergency ENGINE shutoff T-handle (1) can be reached.

2.拉動T型手柄向後緊急關斷發動機，如發動機2分鐘後還沒關閉，則關閉燃油耦合開關。

Pull out emergency ENGINE shutoff T-handle (1) until engine stops. If engine has not stopped after 2 minutes, do DISCONNECT FUEL QUICK DISCONNECT COUPLING (WP 0406).

圖 41-發動機緊急關斷-T型手柄位置圖



警告/ (CAUTION)：

確定緊急關閉發動機T型手柄是向後拉，預防緊急關斷手柄纜線損壞。

Make sure emergency ENGINE shutoff T-handle (1) is pushed back in after engine stops to prevent damage to emergency ENGINE shutoff T-handle (1) cable.

3.當發動機停止時，將緊急關閉T型手柄推回原定位。

When engine stops, push emergency ENGINE shutoff T-handle (1) back in

4.通知野戰保修人員。

Notify field maintenance.



十、啟動器無法關閉立即處置作為

DO IMMEDIATE ACTION FOR STARTER FAILURE TO DISENGAGE

備註/NOTE：

當啟動器在引擎發動期間無法關閉時使用此程序移除動力。

Use this procedure to remove power from engine starter when it fails to disengage during engine start

1.在駕駛控制面板按下關閉按鈕。

Press SHUTOFF pushbutton (1) on driver's integrated display (DID) (2)

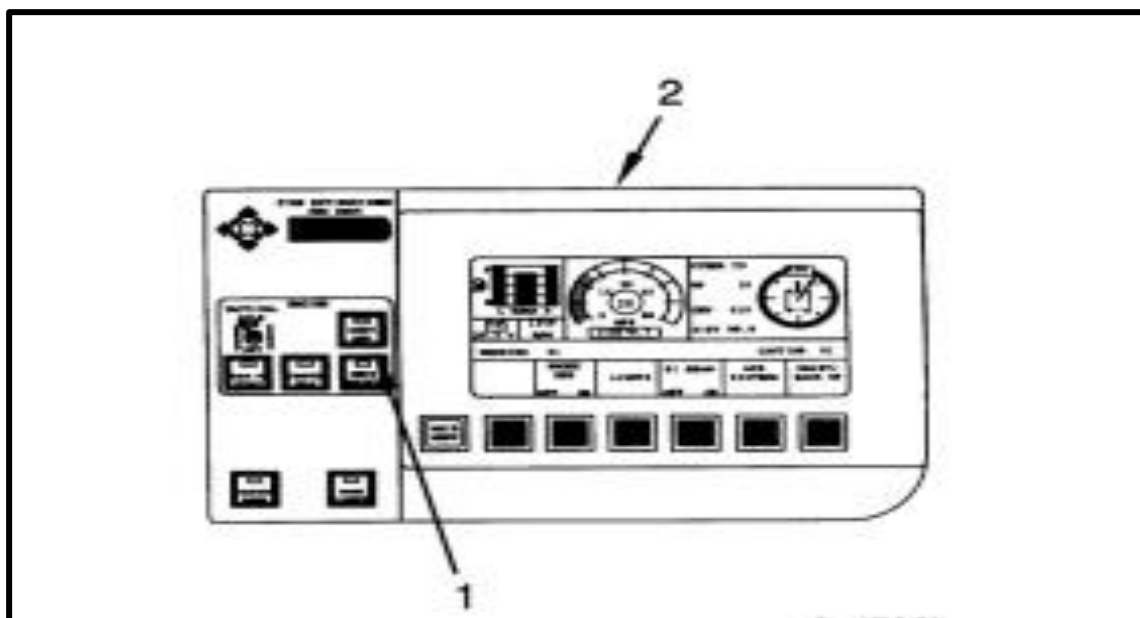
2.當啟動器無法關閉時，在高動力分配單元(Higher Power Distribution Unit,HPDU)面板上按下戰車重啟按鈕。

If starter does not disengage, press TANK RESET pushbutton on HPDU (WP 0403)

3.通知野戰保修人員。

Notify field maintenance.

圖 42-駕駛控制面板(關閉按鈕)



十一、初級燃料濾清器異常排除

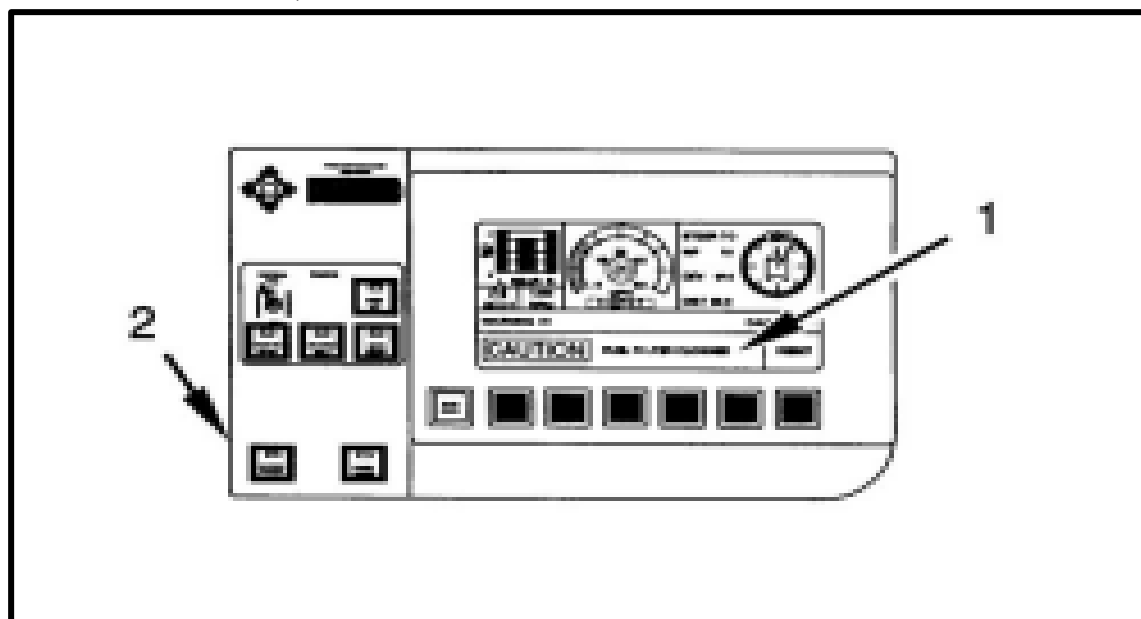
BYPASS PRIMARY FUEL FILTER

警告/ (CAUTION)：

當燃料濾清器在駕駛手數位面板顯示警告訊息時使用此程序，你必須繼續行駛進入野戰維修廠或繼續執行重要的任務

Use this procedure when FUEL FILTER CLOGGED caution message (1) appears on the driver's integrated display (DID) (2) and you have to continue driving the tank to reach field maintenance or to continue a critical mission.

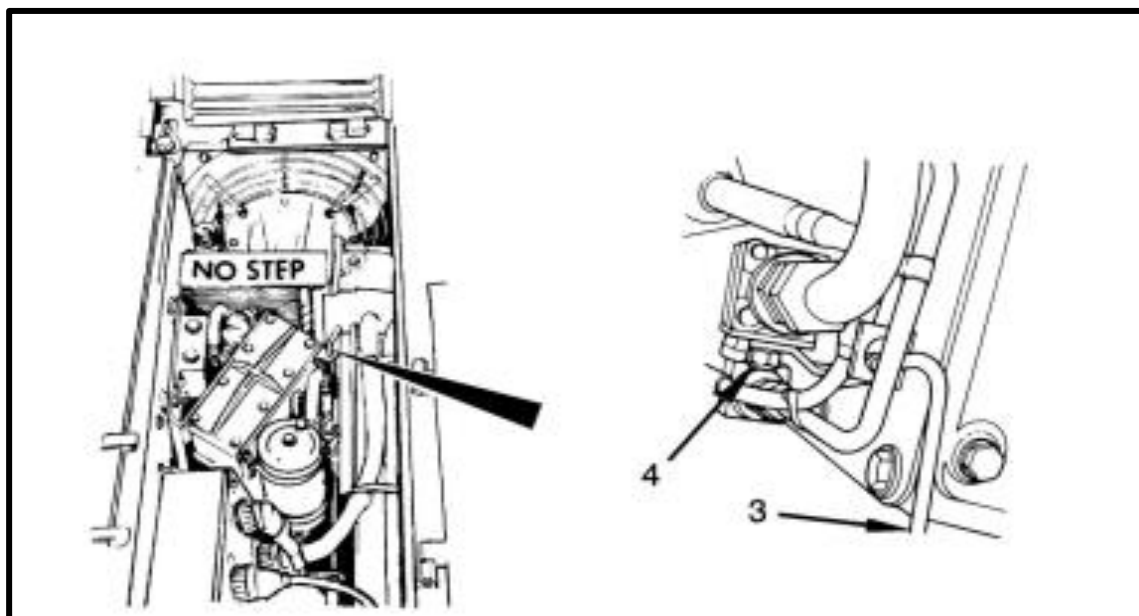
圖 43-駕駛面板燃料濾清器警告燈及警與位置圖



- 1.橫移砲塔使主砲移動至戰車側邊(90° 或 270°)。
Traverse turret so main gun is over side of tank, see (WP 0222) or (WP 0220).
- 2.鎖定砲塔固定鎖。
Lock turret lock (WP 0282).
- 3.打開上方甲板的右側格柵門。
Open top deck right grille doors (Vol 3, WP 0468).
- 4.拉起手柄移動控制桿置於關斷位置。
Pull up on handle (3) to move lever (4) to bypass position.
- 5.關閉上方甲板的右側格柵門。
Close top deck right grille doors (Vol 3, WP 0470).
- 6.狀況允許，盡速通知野戰保修人員。
Notify field maintenance as soon as the situation permits.



圖 44-初級空氣濾清器及關斷拉柄位置圖



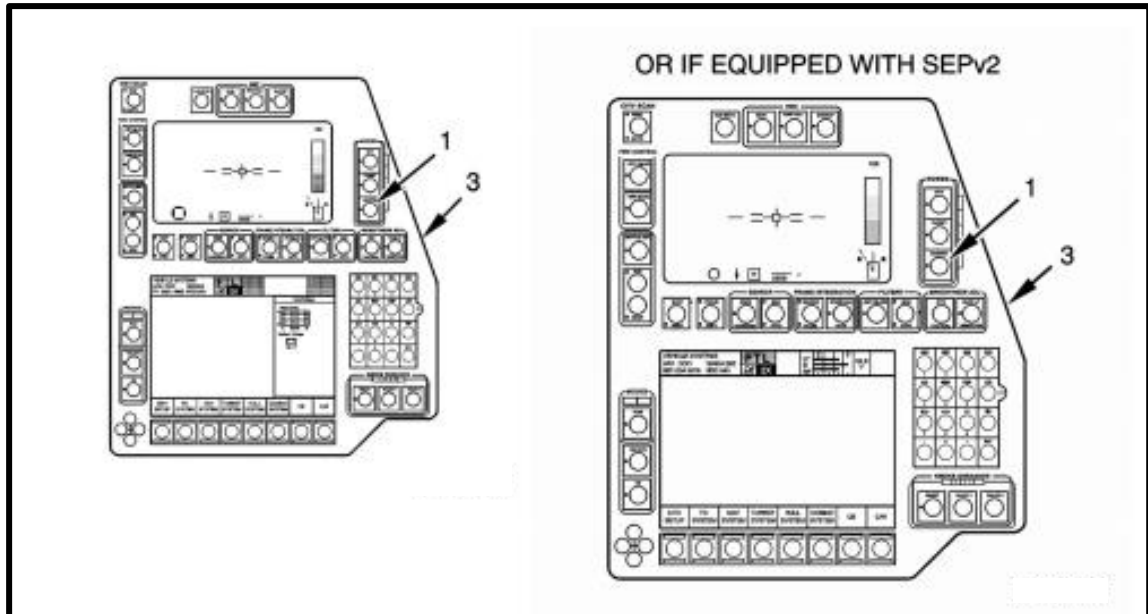
十二、主電源故障立即處置作為

DO IMMEDIATE ACTION FOR MASTER POWER FAILURE TO POWER DOWN

備註/NOTE：

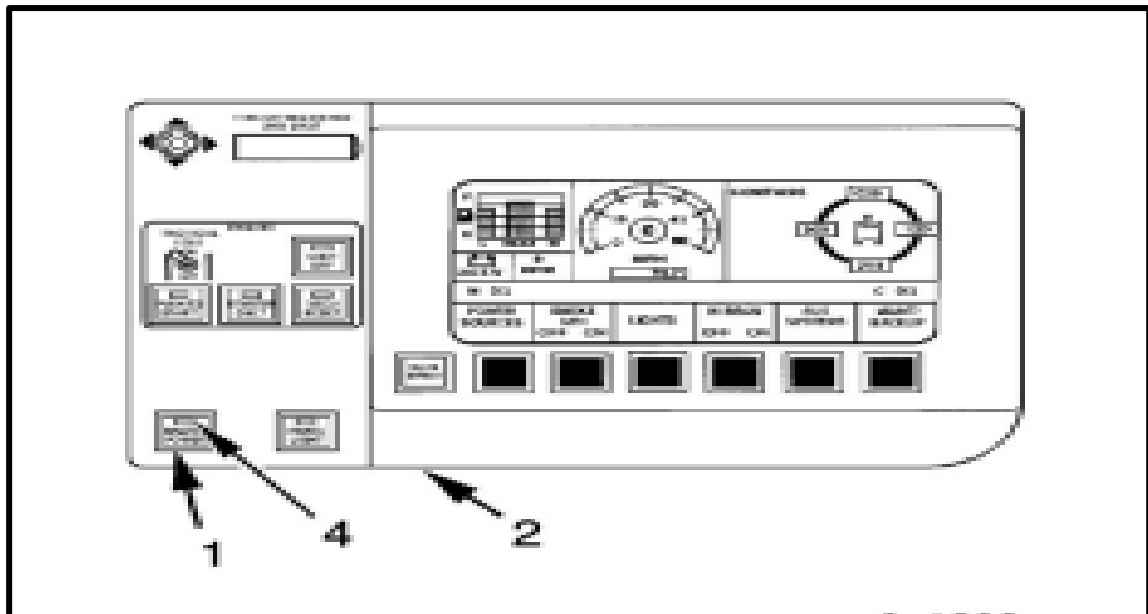
當駕駛數位面板或車長數位控制單元無法運作時，使用這個程序讓戰車斷電。
This procedure is used to power down the tank if MASTER POWER pushbutton (1) on DID (2) or CDU (3) does not work.

圖 45-車長數位控制單元主電源按鈕位置



1. 按下駕駛數位面板或車長數位控制單元的主電源按鈕使主電源關閉。
Press MASTER POWER pushbutton (1) on DID (2) or CDU (3) to turn off master power

圖 46-主電開關及其指示燈



(1) 如果駕駛數位面板上的主電源指示燈沒有熄滅，或是當壓下在車長數位控制單元上的主電源按鈕之後還沒有熄滅，執行步驟 2。

If MASTER POWER indicator light (4) on DID (2) does not go out or master power is not off after pressing MASTER POWER pushbutton (1) on CDU (3), go to step 2.



(2)如果駕駛數位面板上的主電源指示燈關閉或在車長數位控制單元上的主電源是關閉的，通知現場維護人員。

If MASTER POWER indicator light (4) goes off on the DID (2) or CDU (3) master power is off, notify field maintenance about faulty MASTER POWER switch (1).

2.確認主砲／砲塔已上鎖，引擎熄火。

Make sure main gun/turret is locked, see (WP 0223) and (WP 0282), and engine is shut down (Vol 1, WP 0085).

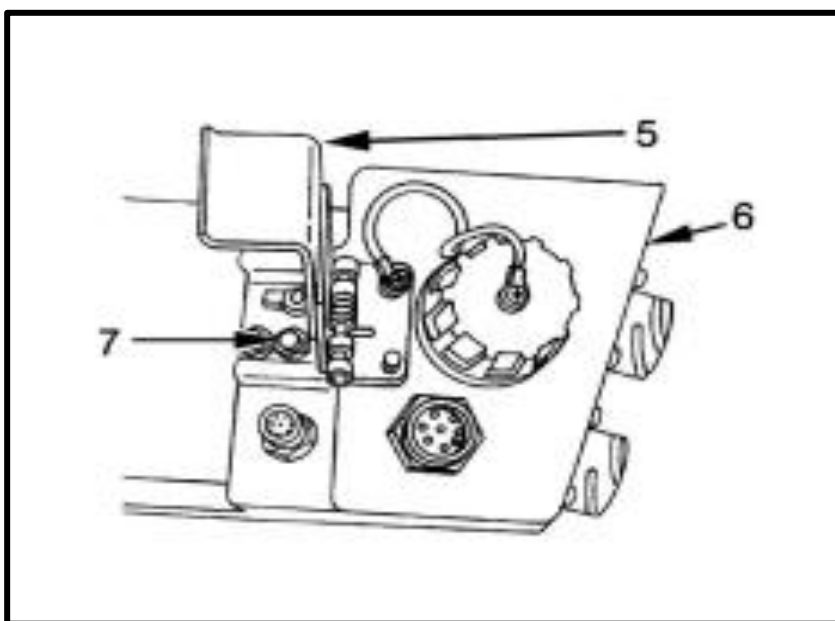
3.打開在高動力分配單元(Higher Power Distribution Unit,HPDU)面板上的蓋子，按下戰車重啟按鈕。

Lift cover (5) on HPDU (6) and press TANK RESET pushbutton (7)

4.通知野戰保修人員

Notify field maintenance.

圖 47-高動力分配單元(HPDU)-戰車重啟按鈕位置圖



十三、清除戰車受到的汙染

DECONTAMINATE TANK

(一)項次 1-警語/ (WARNING)：

1. D S 2 是一個可燃性的物質。D S 2 也可以造成嚴重的皮膚燒傷、造成失明，或者毀壞化學性的保護戰鬥服。不可使用 D S 2 在靠近開放性火源或者靠近皮膚、衣服，使用 DS2 專業人員必須穿著保護性衣服及防護眼罩。

DS2 is flammable. DS2 also can severely burn the skin, cause blindness, or deteriorate the battledress chemical protective overgarments. Do not use DS2 near an open fire, or allow it to touch skin or clothing. Personnel handling DS2 must wear protective clothing and eye protection.

警告/ (CAUTION)：

M11 為裝入 DS2 容器作為除汙清消之用，它可以嚴重損毀光學元件，當使用 M11 清消器實施化生放核洗消時，避免散佈到觀測器材上。

M11 decontaminating apparatus contains DS2, which can seriously damage optical components. When using M11 decontaminating apparatus for exterior decontamination, avoid spraying it on vision blocks.

備註/NOTE：

(1)在時使用此程序必須離開戰車內。

Use this procedure when it is necessary to exit tank.

(2)所有人員須經裝填手艙門撤離戰車。

All personnel to exit tank through loader's hatch.

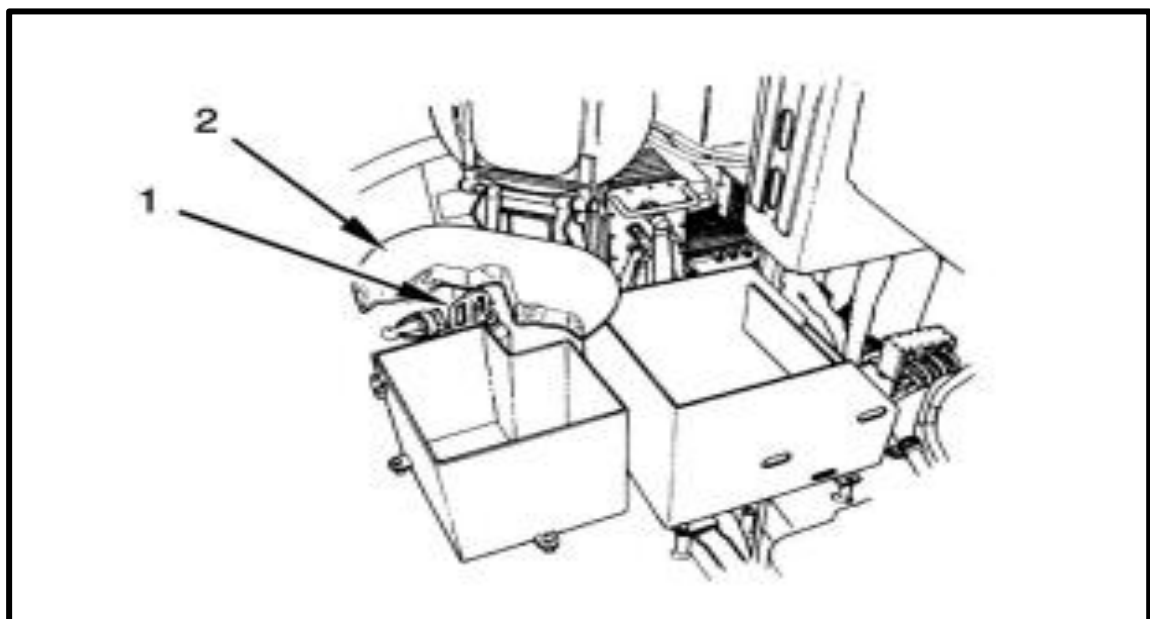
(3)三個 M11 清消器包含 DS2 都裝載在戰車內，一個儲存於裝填手座椅下方，其他兩個被收藏於砲塔外收納箱。

Three M11 apparatuses (1) containing DS2 are carried on tank. One M11 apparatus (1) is stored beneath loader's seat (2), and one M11 apparatus (1) is stowed in each turret stowage box (3, 4).

1.如果戰車外部因化學或生物戰劑攻擊造成汙染，則依照以下指示：

If outside of tank becomes contaminated during a chemical or biological attack, do the following:

圖 48-裝填手下方之 M11 清消器收納位置圖



(1)從座椅下方拿起 M11 清消器

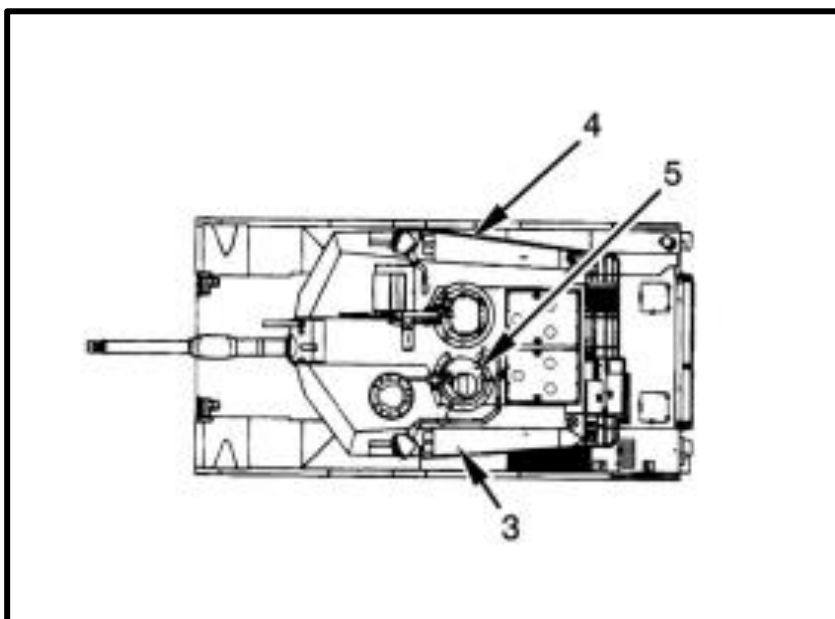
Get M11 apparatus (1) from beneath loader's seat (2).

(2)打開裝填手艙門，噴灑裝填手艙周遭砲塔頂部的外面包括左右兩邊的收納箱及收納箱之把手。



Open loader's hatch (5) (WP 0275) and spray outside turret roof around loader's hatch (5) including path to left and right turret stowage boxes (3, 4). Spray handles of stowage boxes (3, 4)

圖 49-砲塔室 M11 清消器收納位置圖



備註/NOTE：

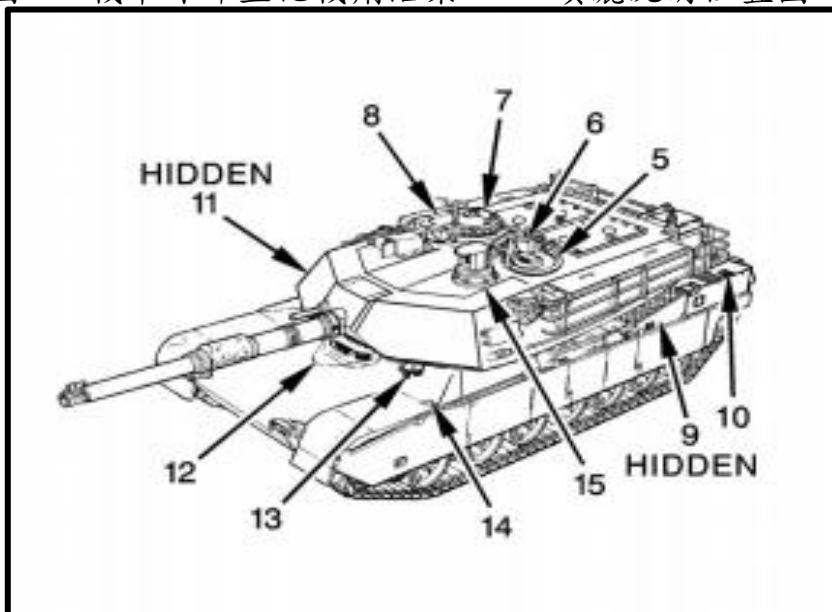
(1)在需要的時候，從左、右兩邊的收納箱取出 M11 儀器。
Get M11 apparatuses (1) from left and right stowage boxes (3, 4) as needed.

(2)刷洗會讓 DS2 作用效果更好。
Scrubbing will make DS2 work better.

(3)離開戰車並噴灑裝填手艙門、裝填手機槍、車長艙門、車長機槍、甲板上的網狀門和把手、後保護蓋右側外殼保護門把手駕駛手艙門、前燃油蓋、油箱前側的洗消經路、戰車乘員扶握把、車長獨立熱顯像儀外殼。

Exit tank and spray loader's hatch (5), loader's machinegun controls (6), commander's hatch (7), commander's machinegun controls (8), top deck grille door and cover handles (9), rear sponson covers (10), right hull sponson box handle (11), driver's hatch (12), front fuel tank covers (13), path to front of tank for dismounting, crewmember tank mounting handle (14), and commander's independent thermal viewer (CITV) (15).

圖 50-戰車外部生化戰劑沾染 DS2 噴灑洗消位置圖



警告/ (CAUTION) :

使用淨化裝置，M11 可能會導致電氣/光學元件損壞。當使用 M11 清消器做抗污染時避免噴進戰車內。

Use of decontaminating apparatus, M11 may result in severe damage to electrical/optical components. Do not spray M11 decontaminating apparatus inside tank.

備註/NOTE :

以下是緊急操作步驟，只在所有清消步驟不可用或戰車必須操作時使用。

The following procedure is an emergency procedure only. It is to be used only when full decontamination procedures are not available and tank must be operated.

2.如果戰車內部遭受化學或生物攻擊，立刻執行外部清淨和個人擦拭裝備，並在遭攻擊15分鐘內完成以下步驟：

if inside of tank becomes contaminated during a chemical or biological attack, immediately perform skin decontamination and personal wipe down techniques as required (see FM 3-11.5), and do the following within 15 minutes of attack:

(1)使用 M258A1 裝備(前兩個淨化程序，以下操作只能使用 DECON2 擦拭不能用 DECON1，有需要的話使用多個裝備，用化學監測器檢查。

Using M258A1 kits (formerly a two-step decontamination process), perform the following steps using DECON 2 wipes only. Do not use DECON 1 wipes. Use several kits if necessary. Check using the chemical agent monitor (CAM).

(2)擦拭駕駛裝填手射手車長操作所需的裝備。

Wipe driver's, loader's, gunner's, and commander's controls needed to operate

(3)擦拭頭枕和頭枕護墊。

Wipe all head rests and brow pads.

(4)擦拭所有艙口和艙門門/手把。

Wipe inside of all access hatches and hatch latches/handles

(5)擦拭彈藥保險開關。

Wipe ammo door knee switch.

(6)擦拭所有武器瞄準器。

Wipe all gun sights.

(7)擦拭其他會直接操作的裝備，像砲門操作手柄。

Wipe any other equipment you may directly handle, such as SAFE/ARMED handle.

(8)將廢棄的裝備丟到車外密封的集裝箱，必須作為危險廢棄物處理。

Dispose of spent kits outside of vehicle in a sealed container since they must be disposed of as hazardous (contaminated) waste.

(9)用鏡片擦洗液沖洗武器瞄準鏡上的剩餘殘渣。

Rinse gun sights with lens cleaning fluid (Vol 3, WP 0557, Item 8) to remove residue.

3.如果時間允許，完成整輛戰車淨化。

When time permits, decontaminate complete tank.



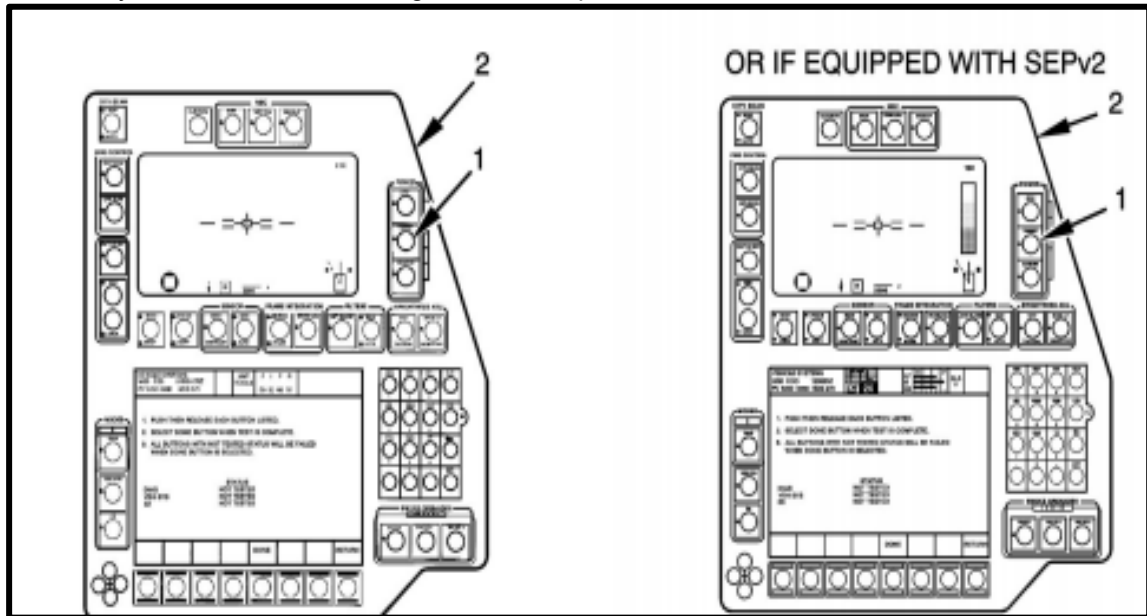
十四、核爆炸後確認防火控制系統的運行狀況

VERIFY OPERATIONAL READINESS OF FIRE CONTROL SYSTEM FOLLOWING A NUCLEAR EXPLOSION

備註/NOTE：

此程序用於確保積體電路未遭破壞，並確保儲存在電子記憶體中的資訊在核爆炸後仍準確無誤

This procedure is used to ensure that critical circuitry has not been degraded and that information stored in electronic memory is still accurate following a nuclear explosion.



圖五十一 CDU 上之砲塔電源開關位置

1.在車長數位控制單元面板上按下砲塔電源按鈕來關閉砲塔電源。

Press TURRET POWER pushbutton (1) on CDU (2) to turn off turret power.

2.在車長數位控制單元面板上按下砲塔電源按鈕重啟砲塔電源。

Press TURRET POWER pushbutton (1) on CDU (2) to turn turret power on.

3.執行火力控制系統測試

Perform fire control system test (WP 0247).

(1)如果火力控制系統測試通過，請執行步驟4

If fire control system passed, go to step 4.

(2)如果火力控制系統未通過測試，請執行故障排除

If fire control system fails, do troubleshooting (WP 0422).

4.如果戰術條件允許，執行射手控制顯示面板(Gunner Control Display

Plate,GCDP) 數據檢查。如果條件不允許執行GCDP數據檢查時，持續執行任

務並在更早以前就要做射手控制顯示面板的數據檢查

If tactical conditions allow, perform GCDP data checks (WP 0216). If unable to perform GCDP data checks, continue mission and perform GCDP data checks at earliest opportunity.

十五、斷開油料快速截斷接頭

DISCONNECT FUEL QUICK-DISCONNECT COUPLING

1. 砲塔轉至左側270°，主砲置於戰車側邊。

Traverse turret, see (WP 0222) or (WP 0220), so main gun is over side of tank.

2. 將砲塔鎖鎖上。

Lock turret lock (WP 0282).

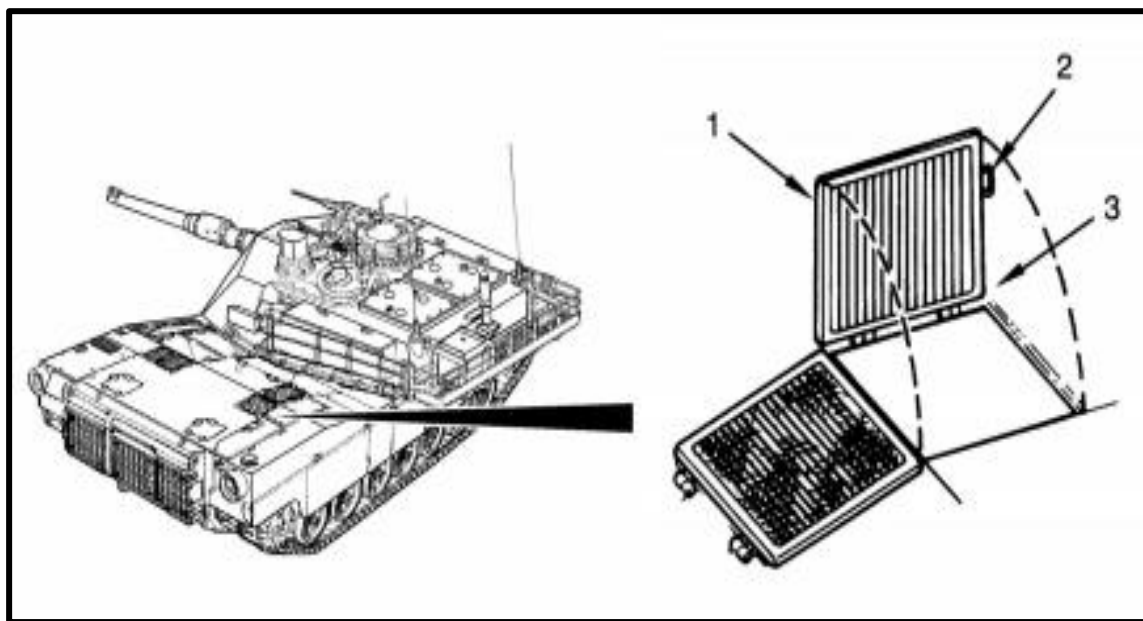
3. 確認主電源顯示燈關閉。

Make sure MASTER POWER indicator light is off (Vol 1, WP 0107).

4. 依車長指示離開戰車。

Exit tank on order from tank commander

圖 52-後甲板格柵門下方快速截斷接頭位置圖



5. 打開甲板的右側格柵門並依下列指示：

Open top deck right grille door (1) as follows:

(1) 打開電瓶蓋板。

Open battery covers (Vol 3, WP 0476).

(2) 使用把手升起甲板的右側格柵門並放置於甲板之上。

Raise top deck right grille door (1) with handle (2) and lay it back on top deck (3).

6. 找出彈性輸出軟管。

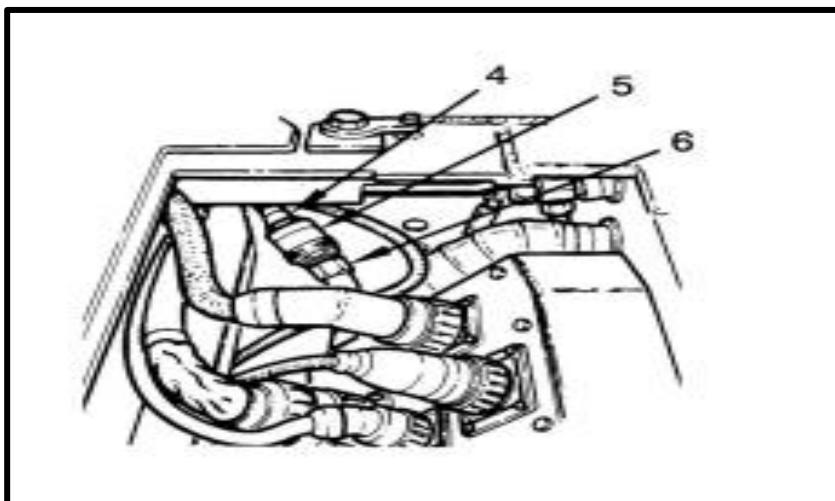
Find flexible outlet line (4).

7. 拉回快速截斷接頭，逆時針旋轉燃料管直到從接頭上截斷。

Pull back on quick-disconnect coupling (5) and turn fuel feed line (6) counterclockwise until fuel feed line (6) is disconnected from coupling (5).



圖 53-快速斷開接頭



十六、使用戰鬥駕駛 USE BATTLE OVERRIDE

(一)項次 1-警告/ (CAUTION)：

1.戰鬥駕駛只允許在緊急情況下使用，如果輸出軸齒輪失速導致發動機轉速過高，會導致發動機嚴重損壞。

Battle override is for use in emergency (combat) conditions only. The engine could overspeed if transmission drops out of gear, resulting in serious engine damage.

備註/NOTE：

2.如果電氣控制的變速箱/引擎失效，戰鬥駕駛將會提供手油門控制如果變速箱處於空檔則機械性將傳動裝置接合在驅動裝置中。

• If electrical control of transmission/engine is lost, battle override will provide manual throttle control and mechanically engage the transmission in drive if transmission is in neutral.

3.假設變速箱如下狀況：

• If transmission is:

(1)當戰鬥駕駛使用倒車檔，變速箱將會持續反轉。

in reverse when battle override is engaged, it will remain in reverse

(2)當戰鬥駕駛使用低速檔，變速箱持續以低速輸出。

in drive/low when battle override is engaged, it remain in drive/low.

(3)戰車必須盡快返回野戰保修廠。

Tank must return to field maintenance as quickly as possible

(4)當指示要開手動駕駛，關閉換檔選擇總成電路斷路器

When directed to engage battle override, turn off SHIFT SELECT ASSEMBLY hull circuit breaker (Vol 1, WP 0087).

警語/ (WARNING)：

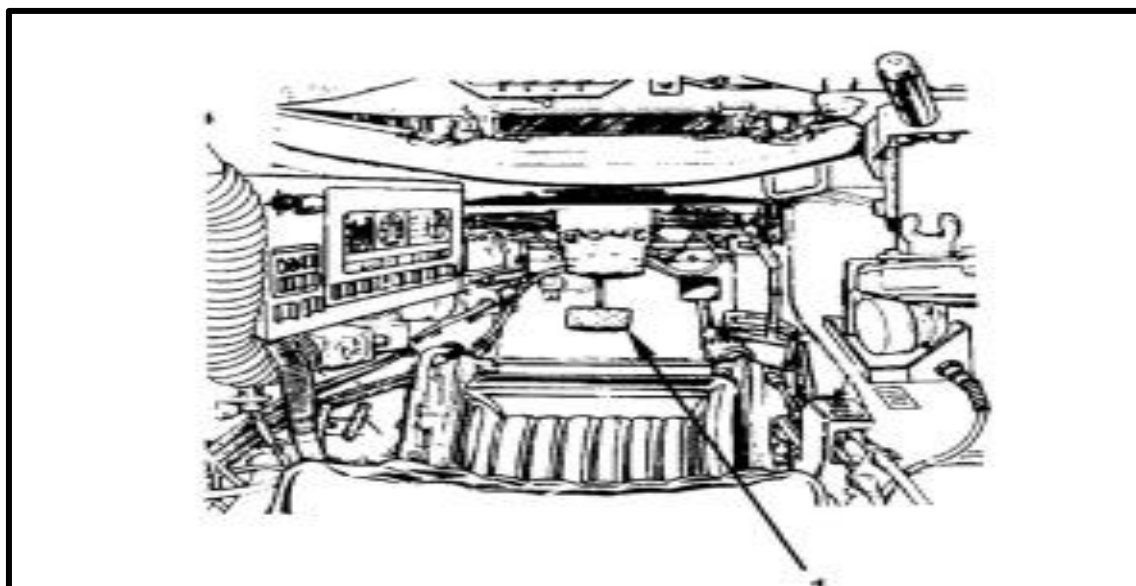
1.當變速箱運轉時，戰車會移動，為避免受傷，確保沒有人戰車周圍並持續踩著煞車踏板直到戰車準備好機動時。

When transmission engages, tank will move. To avoid injury, make sure no one is around tank and keep foot on service brake pedal (1) until ready to move.

2.腳踩戰車煞車踏板至戰車機動時。

Put foot on service brake pedal (1) to keep tank from moving.

圖 54-駕駛艙煞車踏板位置圖

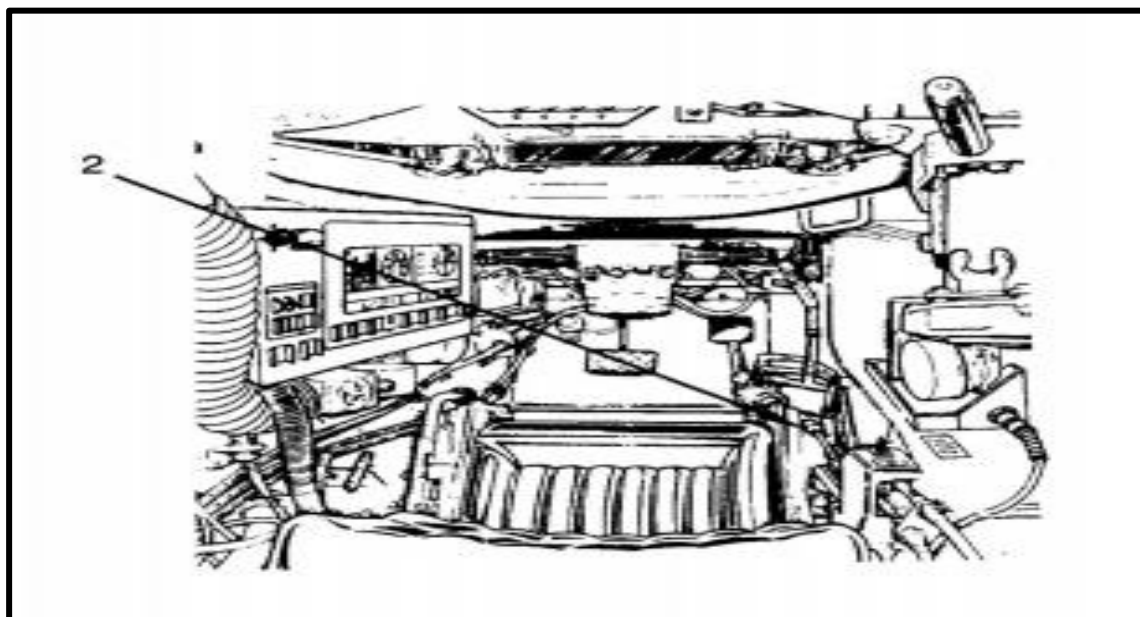




3.手拉戰鬥駕駛手柄回到結合變速箱和門鎖油門線。

Pull battle override handle (2) back fully to engage transmission and latch throttle cable.

圖 55-戰鬥駕駛手油門位置圖



注意/CAUTION：

1.需防止發動機超速運轉，使用戰鬥駕駛手油門降低發動機轉速時，可能因為降低超速運轉而受損。如果戰鬥駕駛手油門無法下降發動機轉速，在戰車駕駛手需按2次在駕駛數位整合顯示器上的熄火按鈕用以關閉發動機。

Be alert for engine overspeeding. Engaging battle override handle (2) removes engine controls and engine could be damaged by overspeeding. If engine speed cannot be reduced by moving battle override handle (2) back, on tank commander's order, press SHUTOFF pushbutton (3) on DID (4) two times.

2.使用戰鬥駕駛手油門向前則加速，向後則減速。

Move battle override handle (2) forward to increase speed and back to slow down.

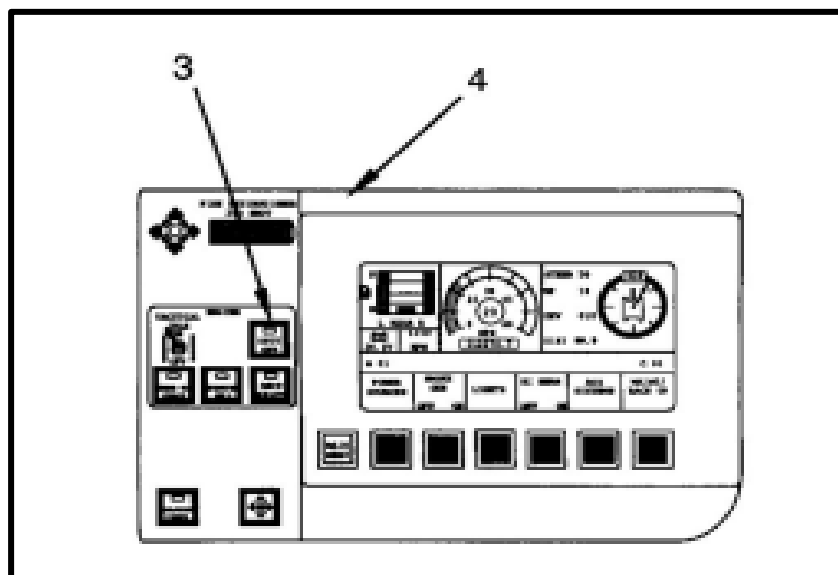
3.將戰車開至野戰保修廠。

Drive tank to field maintenance.

4.關閉引擎

Shut down engine (Vol 1, WP 0085).X

圖 56-駕駛整合顯示器上之熄火按鈕



譯者簡介



姓名：林存慈

級職：士官長教官

學歷：領士 88 年班 16 期

經歷：車長、副排長、連士官長、中隊長，現任陸軍裝訓部車輛組士官長教官

電子信箱：軍網：K129198@wedmail.mil.tw

民網：K121666311@gmail.com.tw