



M88A2 重型全履帶式戰場救濟車操作手冊譯本(第四章第一節-預防性維護檢查與潤滑保養說明/使用後/週/月保養-續) TM9-2350-292-10, NOVEMBER 2005, HEADQUARTERS, DEPARTMENT OF THE ARMY.

譯者/周致熠

提要

- 一、本篇譯文-為美陸軍司令部2005年11月版M88A2 重型全履帶戰場救濟車操作手冊，本書區分一冊五個章節，囿於全書篇幅過大，先譯文第一冊第四章第一節「預防性維護檢查」，區分行駛後、每週、每月等三個保養週期，必須執行之工項、所需人力、機工具、附油及保養要領與檢查標準，遇故障狀況排除方式，超過單位保養能力故障報告處置，使預劃性換裝單位，先期閱讀與參考運用，儘早完成準備，俾利換裝任務遂行。(P1)
- 二、行駛後檢查(包含二級廠定期及緊急保養需求之吊卸作業或進行野戰搶修任務)，當作業(任務)完成後，必須於當日以救濟車乘員，採分工或協力方式完成駐鋤(鏟)等31個項次保養與檢查，各項次將以文字條列或圖解方式說明程序、步驟與要領，故障排除與報告方式，若遇故障項目填入保15-002表，並於當日上傳用兵後勤系統。(P3)
- 三、每週(月)利用週五週保養(主官裝備檢查)時機，分別執行電瓶13(1-主絞盤鋼纜)項次檢查與保養，月保養因篇幅有限，僅列1項次主絞盤鋼纜(續譯)，餘均同行駛後保養與檢查要領實施。(P32、44)

關鍵詞：預防性維護檢查與保養、行駛後保養與檢查、故障排除與報告

壹、前言

本譯文-為美陸軍司令部 2005 年 11 月版 M88A2 重型全履帶戰場救濟車操作手冊，區分一冊五個章節，囿於全書篇幅過大，先譯文第一冊第四章第一節「預防性維護檢查」，區分行駛後、每週、每月等三個保養週期，必須執行之工項、所需人力、機工具、附油及保養要領與檢查標準，遇故障狀況排除方式，超過單位保養能力故障報告處置，使預劃性換裝單位，先期閱讀與參考運用，儘早完成準備，俾利換裝任務遂行。

M88A2 為配合 M1 系列戰車因構改逐漸增加車身重量，採用輸出功率較大引擎，強化吊掛桁架結構，改良液壓系統，使其具備單車曳引故障 M1 戰車能力，主絞盤及吊架可提供 25-30 噸牽引及吊掛起卸能力，因結構與功(性)能與前款 M88A1 差異甚距，全操作手冊譯文配合美方手冊抵台後同步校對譯印。

貳、譯文

一、表 3，預防性維護檢查，行駛後。

TABLE1,PREVENTIVE MAINTENANCE CHECKS AND SERVICES , AFTER

(一)前置工作/INITIAL SETUP

1.工具與特殊工具/Tools and Special Tools

(1)黃油槍(項目 41，表 2，WP 0133 00)

Grease gun (item 17, Table 2, WP 0133 00)

(2)漏斗(項目 15，表 2，WP 0133 00)

Funnel (item 41,Table 2, WP 0133 00)

(3)活動板手(項目 41，表 2，WP 0133 00)

Adjustable wrenchl (item 41,Table 2, WP 0133 00)

(4)撬棒(項目 5，表 2，WP 0133 00)

Crowba (item 47,Table 2, WP 0133 00)

(5)棚布(項目 31，表 1，WP 0133 00)

Paulin (item 32,Table 1, WP 0133 00)

2.零件及材料/Materials/Parts

(1)液壓油(項目 17，WP 0135 00)

Lubrication oil,internal combustion(item 17, WP 0135 00)

(2)車用潤滑油(項目 16，WP 0135 00)

Grease, automotive (item 16 WP 0135 00)

(3)擦拭布(項目 45，WP 0135 00)

Wiping rags(item 25, WP 0135 00)

3.所需人員/Personnel Required

3 員

Three

4.參考文件/References

(1)WP 0045 00

(2)WP 0046 00

(3)WP 0047 00

(4)WP 0127 00

(5)WP 0106 00

(6)WP 0108 00

(7)WP 0109 00

(8)WP 0136 00

(9)WP 0048 00

(10)WP 0049 00

(11)WP 0037 00



- (12)WP 0025 00
- (13)WP 0012 00
- (14)WP 0019 00
- (15)WP 0036 00
- (16)WP 0069 00
- (17)WP 0035 00
- (18)WP 0032 00
- (19)WP 0133 00
- (20)WP 0135 00
- (21)WP 0050 00
- (22)WP 0116 00
- (23)WP 0131 00
- (24)WP 0105 00
- (25)WP 0083 00
- (26)TM9-1005-213-10

(二)行駛後檢查項目

行駛後檢查(包含二級廠定期及緊急保養需求之吊卸作業或進行野戰搶修任務)，當作業(任務)完成後，必須於當日以救濟車乘員，採分工或協力方式完成駐鋤(鏟)等 31 個項次保養與檢查，各項次將以文字條列或圖解方式說明程序、步驟與要領，故障排除與報告方式，若遇故障項目填入保 15-002 表，並於當日上傳用兵後勤系統。

PREVENTIVE MAINTENANCE CHECKS AND SERVICES , AFTER

1.位置：

- (1)項次1-鏟、液壓系統、桁架、主絞盤、輔助絞盤、起重機絞盤/ Item No.1-
**Spade, Hydraulic System, Boom, Main Winch, Hoist Winch,
Auxiliary Winch**

A.負責乘員/Crewmember

技師/MECHANIC

B.檢查流程/Procedure：

(A)警告/WARNING

在進行任何起重、拖曳或絞盤操作前，請確認所有安全銷、螺栓完成安裝及固定良好。

Ensure all safety pins and bolts are in place and secure prior to any lifting, towing, or winching operation

(B)接合主液壓系統以確定控制裝置和泵的運行狀況，請參照(WP 0045 00)



Engage main hydraulic system to determine operation of controls and pumps (WP 0045 00).

(C)操作鏟釋放鈕，以確認鎖定功能是否正常，請參照(WP 0046 00)
Operate spade release button to determine locking function (WP 0046 00)..

(D)操作鏟升高及下降，以檢查其樞軸接合處是否固定良好，升降功能是否正確，請參照(WP 0046 00)
Raise and lower spade to determine function and to detect binding at pivot points (WP 0046 00).

(E)操作期間應注意任何異常聲響或震動。
During operation be alert for any unusual noises or vibrations.

(F)警告/WARNING

當桁架升起或降下時，嚴禁人員站立車頂或引擎甲板上，不遵守者，可能會導致桁架撞擊人員造成傷害或死亡。
Do not stand on engine deck or on top of vehicle when boom is being raised or lowered. Failure to comply may result in boom impacting personnel causing injury or DEATH.

(G)檢查液壓系統、主絞盤、輔助絞盤、桁架、鏟及鏟鎖定鎖的操作狀況，請參照(WP 0048 00，WP 0047 00，WP 0049 00，WP 0046 00和WP 0050 00)。
Check operation of main, hoist and auxiliary winches; boom, spade, and spade lock (WP 0048 00, WP 0047 00, WP 0049 00, WP 0046 00 and WP 0050 00)

C.以下狀況停用/Not Fully Mission Capable if:

- (A)液壓系統故障。
Hydraulic System inoperative.
- (B)鏟鎖定鎖失效。
Spade will not lock in raise position
- (C)起重機絞盤不會升高或降低。
Will not raise or lower
- (D)液壓油達三級滲漏。
Class III oil leaks
- (E)任何絞盤或桁架失效。
Any winch or the boom inoperative.

(2)項次2-電磁燃料截斷電纜/ Item No.2- Fuel Shut-Off Cable

A.負責乘員/Crewmember：

駕駛/DRIVER

B.檢查流程/Procedure：

檢查作用是否正確。
Check for proper operation (WP 0019 00)

C.以下狀況停用/Not Fully Mission Capable if:

電磁燃料截斷電纜斷裂。
Fuel shut-off cable is broken.

(3)項次3駕駛座椅/ Item No.3- Driver's Seat (圖1)

A.負責乘員/Crewmember

駕駛/ DRIVER



B. 檢查流程/Procedure

使用調整桿(1)調整駕駛座椅上下(2)調整座椅前後，確保座椅平穩移動，必可將座椅鎖定在所需位置。

Adjust driver's seat up and down using lever (1). Adjust seat forward and backward using lever (2). Ensure that seat moves smoothly and locks in desired position (WP 0037 00)..

C. 以下狀況停用/Not Fully Mission Capable if:

座椅遺失或無法調整

Seat missing or will not adjust.

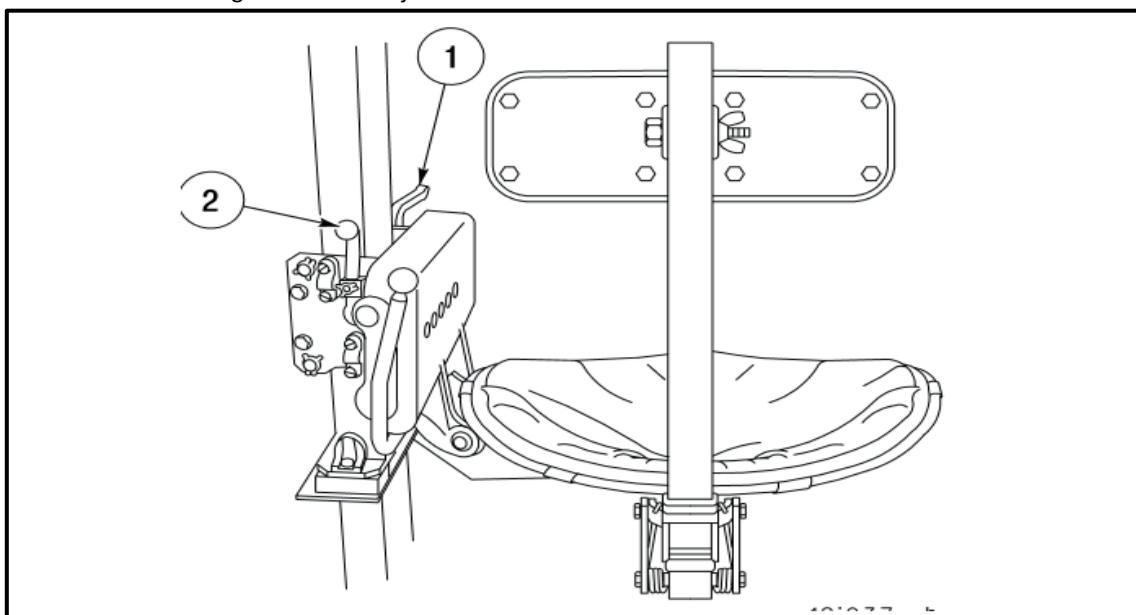


圖 1 駕駛座椅

(4)項次4-空氣濾清器外殼/ Item No.4- Air Cleaner Housing(圖2)

A. 負責乘員/Crewmember

駕駛/ DRIVER

B. 檢查流程/Procedure

(A)注意/CAUTION

不可將濾心於堅硬物上敲打或重摔方式實施清潔，此舉將會造成濾心密封墊圈損壞，使灰塵直接進入引擎造成嚴重損壞。

I Do not drop or rap filter element on a hard surface to clean. Seals may be damaged which will allow dirt to enter engine causing severe damage.

(B)取下防塵罩，清潔防塵罩、濾清器外殼內部及濾芯本體上的灰塵及異物(WP 0116 00)，檢查濾各部機件是否損壞或失效。

Remove dust cover and clean out dust and debris from the cover, filter housing, and filter element (WP 0116 00). Check for damaged or unserviceable components of the air cleaner.

C. 以下狀況停用/Not Fully Mission Capable if

空氣濾清器濾芯或防塵蓋密封件上有任何破洞或裂痕

Any holes or tears in the air filter element or dust cover seal..

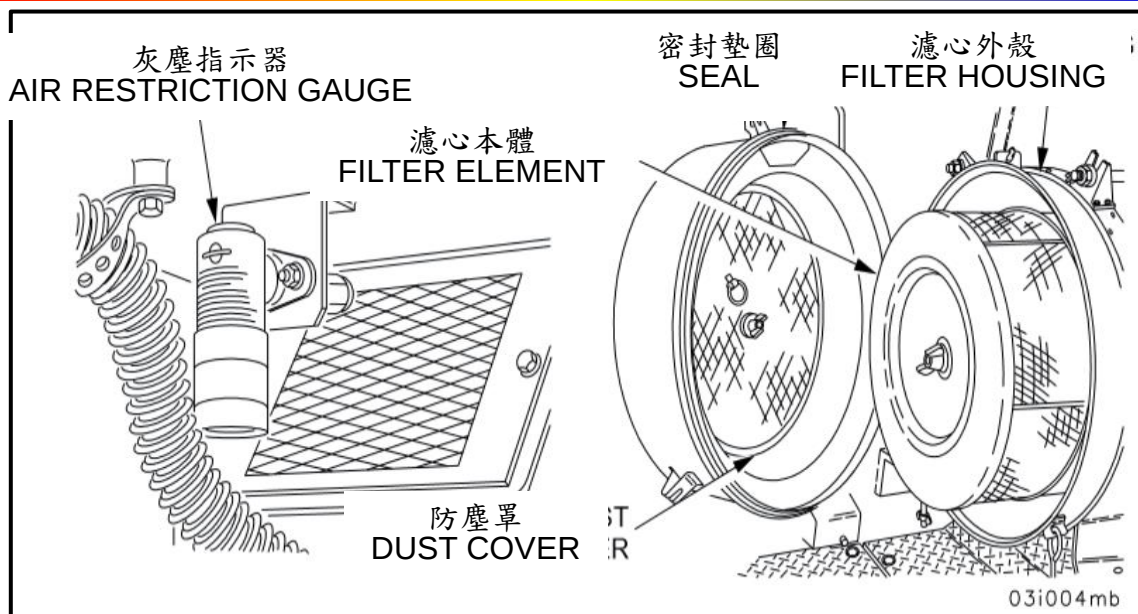


圖2空氣濾清器及灰塵指示器

(5)項次5-煙霧彈發射器及控制開關 / Item No.5-Smoke Grenade Launcher Controls (圖3.4)

A.負責乘員/Crewmember

車長/ COMMANDER

B.檢查流程/Procedure

(A)當ARM/OFF開關置於ON時，指示燈需亮起。

Indicator light comes on when ARM/OFF switch is set to ON

(B)檢查發射器之電纜是否斷裂或接觸不良導致系統無法使用。

Check electrical connector to launcher control for frayed wires, tears and any damage rendering the cable unserviceable.

(C)煙霧彈發射器內管需實施清潔(WP 0131 00)

Clean smoke grenade launcher tubes (WP 0131 00).

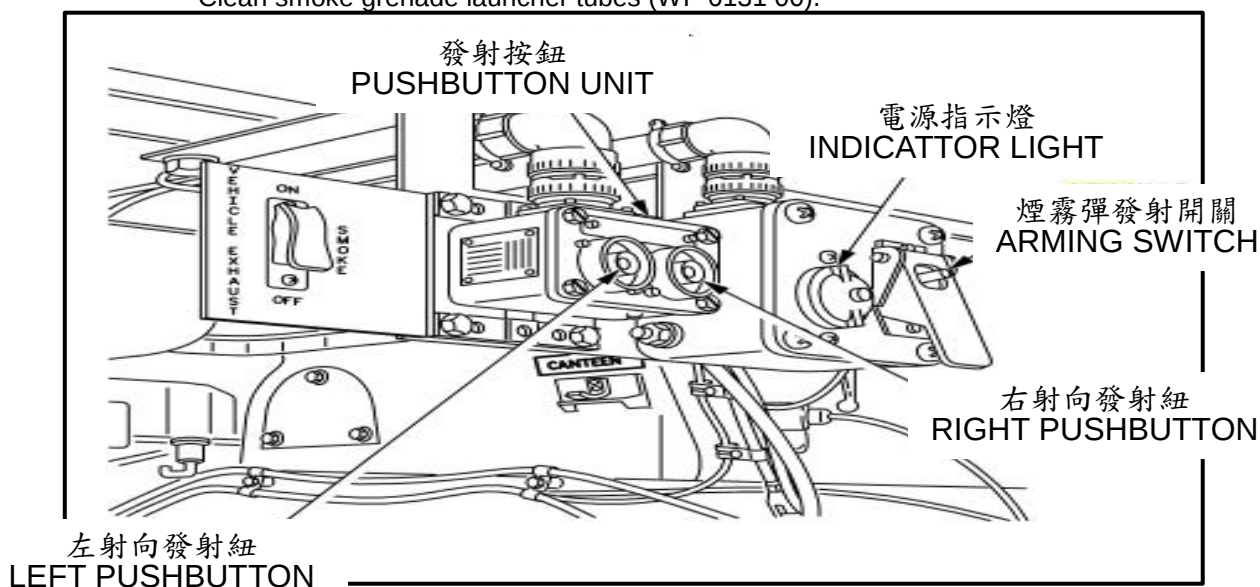


圖 3 煙霧彈發射器控制器

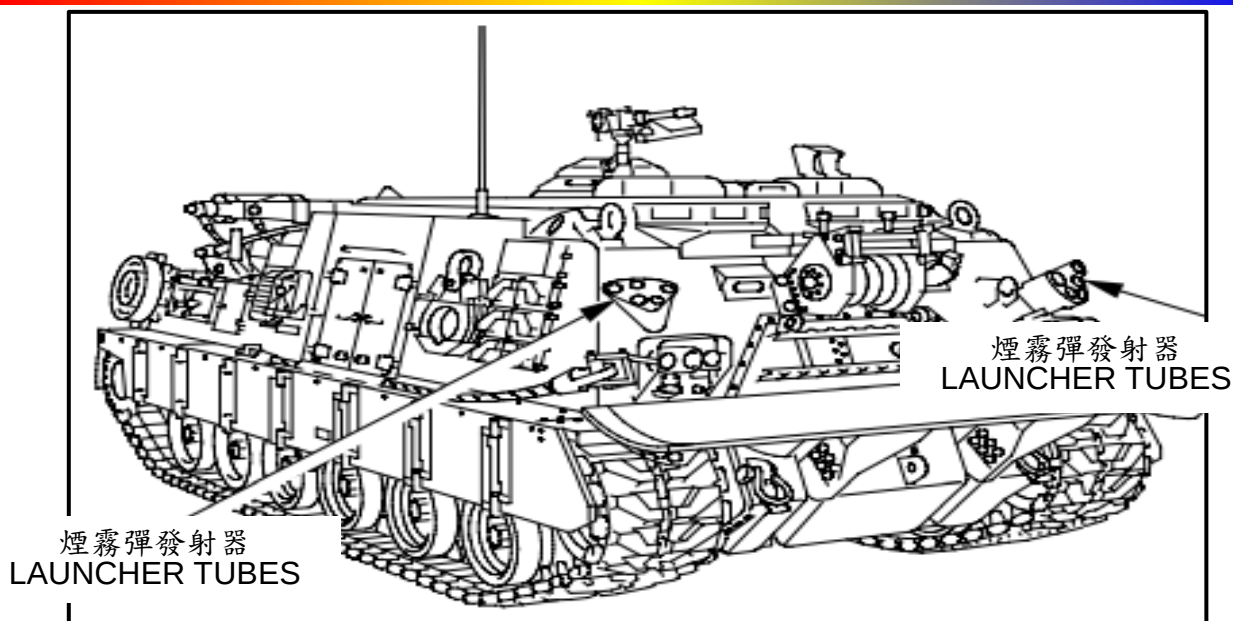


圖 4 煙霧彈發射器

(6)項次6-車長座轉塔 / Item No.6-Cupola (圖5)

A. 負責乘員/**Crewmember**車長/ **COMMANDER**B. 檢查流程/**Procedure**

(A)檢查轉塔鎖定桿是否確實將轉塔鎖定(WP 0025 00)

Check that cupola lock locks movement of the cupola. Release lock and test cupola for ease of movement (WP 0025 00).

(B)檢查車長座轉塔艙門蓋作用是否正常。

Check hatch operation.

C. 以下狀況停用/**Not Fully Mission Capable if:**

(A)當鎖定桿於鎖定時但轉塔仍可轉動或未鎖定時轉塔不易旋轉

Cupola moves when lock is locked. Cupola does not move easily.

(B)艙門蓋無法固定於開啟或關閉位置。

Hatch will not lock in open or closed position..

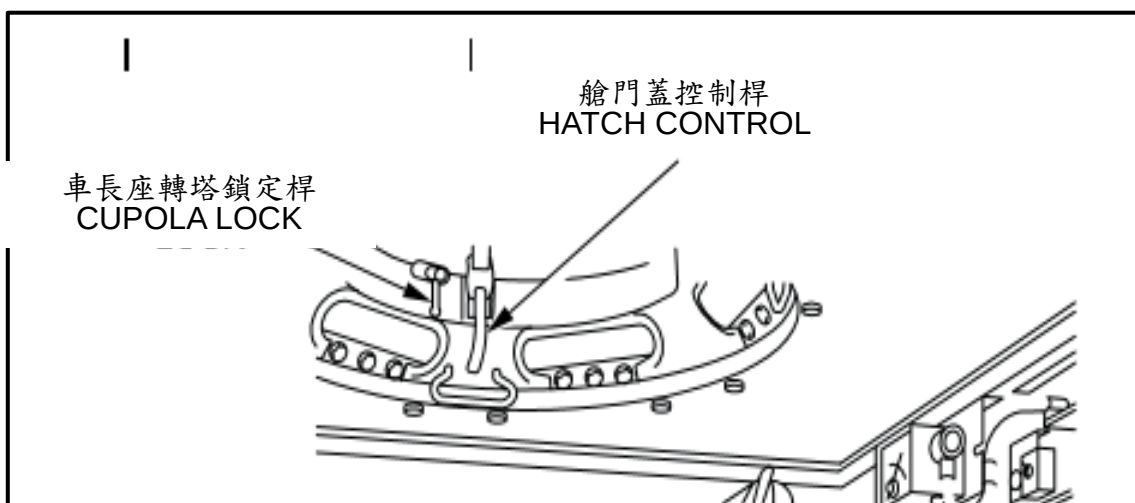


圖 5 車長座轉塔

(7)項次7-電磁離合器儲油箱油平面(新型單檢修門式)/ Item No.7- Electro Magnetic Clutch Reservoir Oil Level(圖6)

A. 負責乘員/Crewmember

車長/ COMMANDER

B. 檢查流程/Procedure

車輛須放置於平坦路面。啟動主引擎(WP 0012 00)並將電磁離合器接合約5分鐘。將主引擎熄火後(WP 0019 00)打開下甲板檢修門(WP 0036 00或WP 0036 01)，將油尺取出並擦拭乾淨。重新插入油尺後取出，以目視檢查儲油桶油平面是否位於F(滿線)位置。如未達標準則取下(排氣孔/加注蓋)並加注適合及適量之機油(表6 WP 0105 00)，直到油平面達滿線位置，關閉下層檢修板(WP 0036 00或WP 0036 01)。

Park vehicle on level surface. Start main engine (WP 0012 00) and operate electromagnetic clutch for 5 minutes. Shut off engine (WP 0019 00). Open subfloor access door (WP 0036 00 or WP 0036 01), remove bayonet gauge and wipe clean. Reinsert bayonet gauge. Remove bayonet gauge and verify oil level reaches the F (full) mark. If required, remove vent/fill cap and add proper grade oil (Table 6, WP 0105 00) until oil level reaches full mark on bayonet gauge. Close subfloor access door (WP 0036 00 or WP 0036 01).

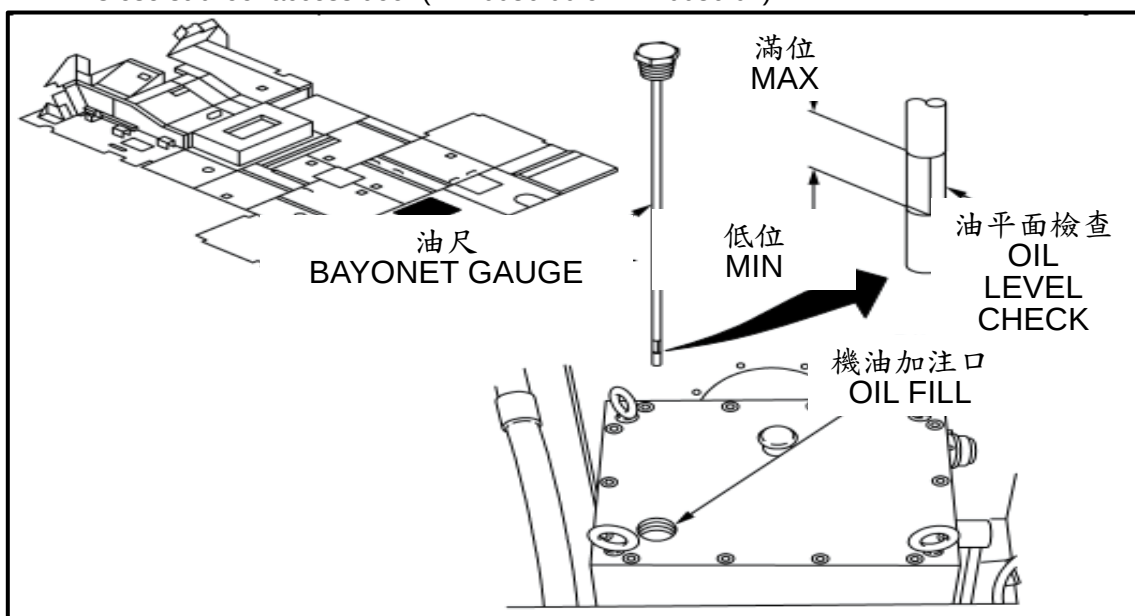


圖6 離合器儲油桶油平面

(8)項次8-液壓儲油筒油平面/ Item No.8- Hydraulic Reservoir Oil Level (圖7)

A. 負責乘員/Crewmember

車長/COMMANDER

B. 檢查流程/Procedure

(A)注意/CAUTION

請勿在桁架向下時過度填充液壓儲油筒。

Do not overfill the hydraulic reservoir with the boom down.



(B)將車輛停置平坦路面，移除或打開下層檢修板(WP0036 00或WP0036 01)，將機油表尺取出並擦拭乾淨後重新插回原位，再次將表尺取出，檢查油平面是否高於表尺危險標記之上。

Park vehicle on a level surface. Remove or open subfloor plate (WP 0036 00 or WP 0036 01). Remove bayonet gauge, wipe clean and insert. Remove bayonet gauge and verify oil level, on the bayonet gauge, is above the DANGER mark

(C)如需要添加機油，需打開機油加注口蓋並加入適當號數之機油(表6，WP105 00)，使油平面高於危險標記，加注後充新插回機油表尺，發動主引擎(WP0012 00)並使液壓系統運行，直至液壓油到達工作溫度後將主引擎熄火，取出表尺並依桁架實際位置對應其所需油平面標準(桁架上，油平面需位於桁架上標記範圍；桁架下，油平面需位於桁架下標記範圍)，如未達標準再行添加置所需位置，再次檢查油平面，合格後關閉下層檢修板(WP0036 00或WP0036 01)。

If required, remove filler cap and add proper grade oil (Table 6, WP 0105 00) to bring oil level above DANGER mark. Insert bayonet gauge. Start main engine (WP 0012 00) and operate hydraulic system until hydraulic oil is at operating temperature. Shut off main engine (WP 0019 00). Remove bayonet gauge and verify that oil level, on the bayonet gauge, reaches the lower FULL mark with the boom down or the upper FULL mark with the boom up. If required, remove filler cap and add oil. Install filler cap and bayonet gauge. Recheck oil level. Install or close subfloor plate (WP 0036 00 or WP 0036 01).

C. 以下狀況停用/Not Fully Mission Capable if

三級滲漏或油平面位於危險標記區或更低。

Class III oil leaks or level is at DANGER mark or below

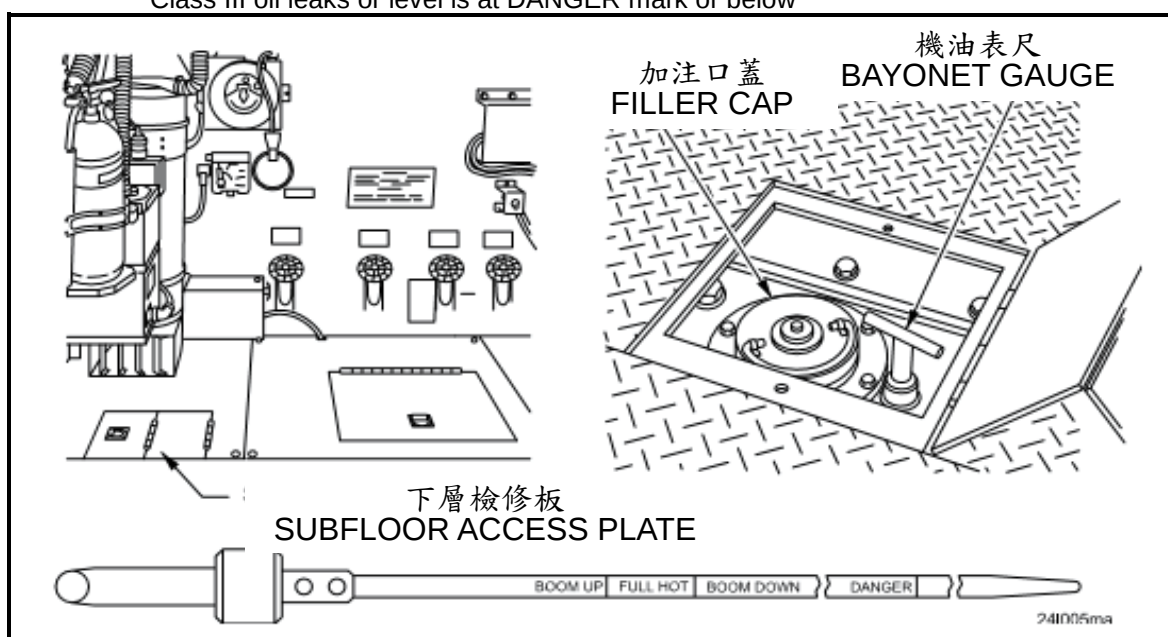


圖7 液壓儲油筒及機油表尺

(9)項次9-主絞盤機油檢查/ Item No.9- Main Winch Oil Level (圖8)

A. 負責乘員/Crewmember :

車長/COMMANDER

B. 檢查流程/Procedure :

將車輛停置於平坦路面，打開底層地板(WP 0036 00 or WP 0036 01)，取出主絞盤油尺，將油尺擦拭乾淨再重新插回檢查口，重新取出油尺檢查油平面是否位於FULL線上。如需要加注機油，請取出機油表尺及並於加注口安裝漏斗並添加適當等級的機油

表6. (WP0105 00)。

使用油尺檢查油平面，將機油添加至FULL線，取下漏斗並回裝底層地板(WP 0036 00 or WP 0036 01)。

Park vehicle on a level surface. Remove or open subfloor plate (WP 0036 00 or WP 0036 01). Remove bayonet gauge, wipe clean, insert, remove again and verify oil level is at FULL mark. To add oil to the main winch, remove the bayonet gauge, install a funnel in the tube and add the proper grade of oil (Table 6, WP 0105 00). Check oil level with the bayonet gauge. Add oil until the oil level reaches the full mark. Remove the funnel and install the bayonet gauge. Install or close subfloor plate (WP 0036 00 or WP 0036 01).

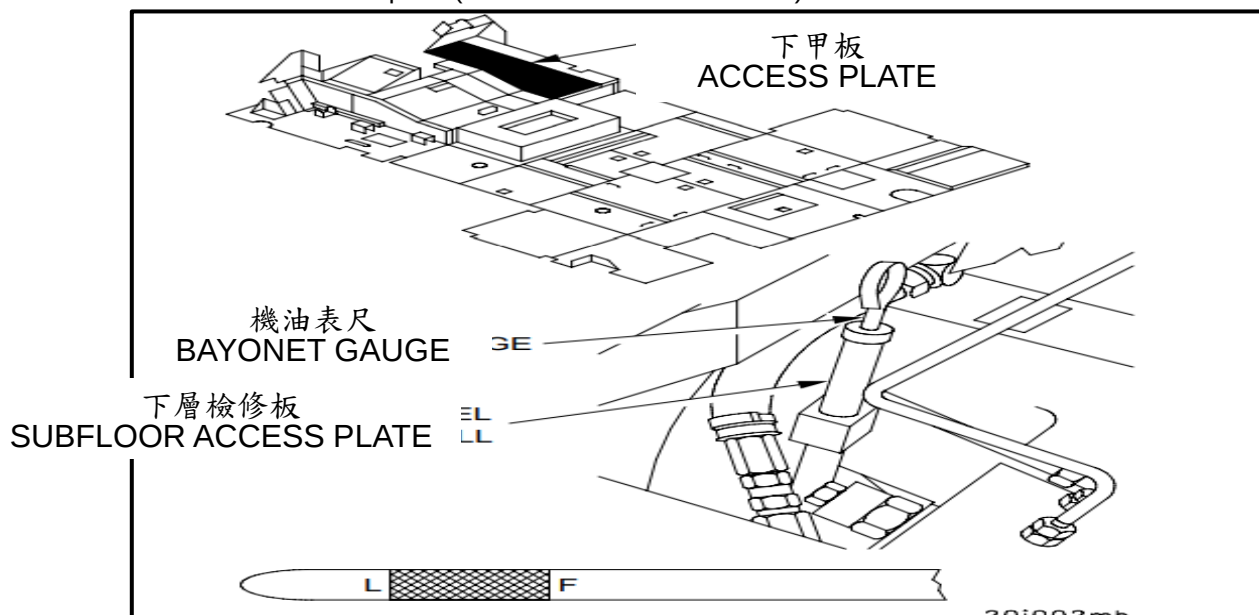


圖8 主絞盤機油表尺

(10)項次10-50機槍/ Item No.10-Machine Gun Caliber .50

A. 負責乘員/Crewmember :

車長/COMMANDER

B. 檢查流程/Procedure :

(A) 警告/WARNING

檢查機槍是否無彈藥，且槍管無障礙物，以防止人員受傷。

Check that machine gun is clear of ammo and barrel is free of obstructions to prevent injury to personnel.

(B) 註記/NOTE

請參閱WP 0127 00進行拆卸

Refer to WP 0127 00 for removal.



按照TM9-1005-213-10進行拆卸、清潔並輕度潤滑。

Disassemble, clean, and lightly lube per TM 9-1005-213-10.

(C)注意/CAUTION

機槍有可能無法擊發，請確保槍枝清潔與安全，檢查槍管是否暢通無阻，以防止裝備損壞。

Machine gun can fail to fire. Ensure gun is clear and safe. Check that barrel is free of obstruction to prevent damage to equipment.

(11)項次11-機槍座/ Item No.11-Machine Gun Mount . (圖9)

A.負責乘員/Crewmember :

車長/COMMANDER

B.檢查流程/Procedure :

檢查槍架是否缺少插銷，檢查所有固定件及操作件是否接合緊密。將彈藥箱門鎖鎖定，檢查門鎖鎖定後彈藥箱必須緊定，參照(WP 0069 00)。

Inspect all Check gun mount for missing pins. Check for tightness of all fasteners and operating parts. Operate ammo box locking latch. When locked, ammo box must be sturdy and secure. (WP 0069 00).

C.以下狀況停用/Not Fully Mission Capable if

損壞、需靠綑綁才固定、缺件或插銷遺失。

Damaged, binding, or missing parts or pins.

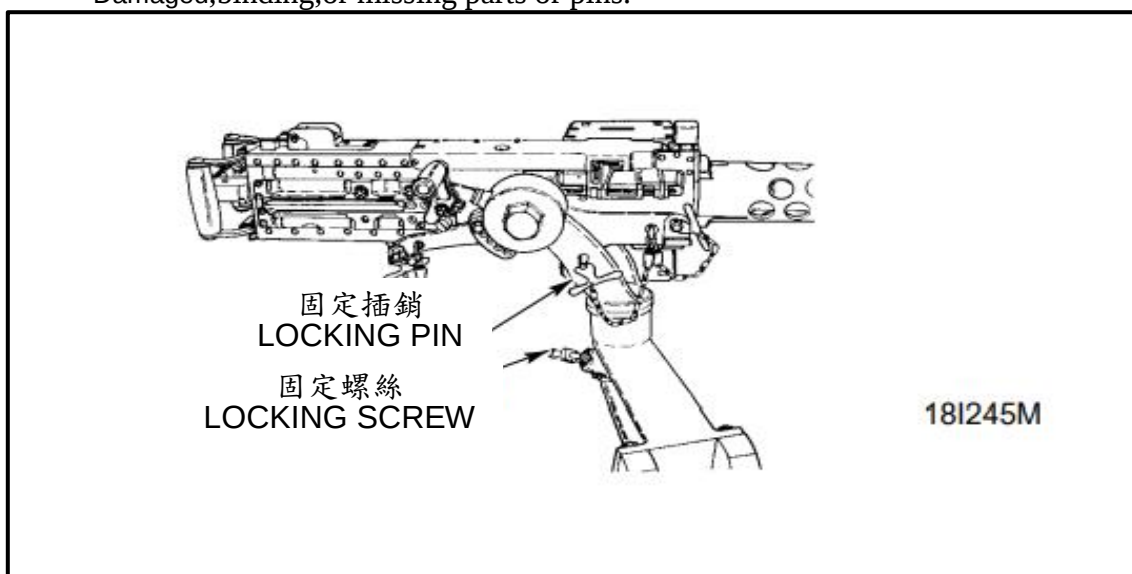


圖 9 機槍架

(12)項次12-，140噸、6.5噸、35噸開合滑車組及繫塊/ Item No.12- Snatch Block Assembly One 140-Ton, One 6.5-Ton, One 35-Ton Hook Block (圖10)

A.負責乘員/Crewmember :

駕駛、技師/DRIVER/MECHANIC

B.檢查流程/Procedure :

(A)本體完成清潔以目視檢查是否缺件或遺失。

Clean and visually inspect for presence.

- (B)檢查繫塊外部是否有裂痕或變形，檢查滑車是否有碎屑、凹痕和裂紋，檢查滑車之鎖定機制及能力，檢查掛鉤是否有為裂紋和是否筆直。

Inspect all snatch block housings for any cracks/defects. Inspect pulley for chips, dents and cracks. Inspect locking mechanisms for locking capabilities. Inspect hooks for cracks and straightness.

C. 以下狀況停用/Not Fully Mission Capable if

- (A)本體任意部分缺件或遺失。

Any snatch block assembly missing.

- (B)滑車外部破裂火無法閉鎖，35噸開合滑車缺安全螺釘，掛鉤異常彎曲、滑輪彎曲。

Blocks are cracked and/or do not lock. Safety screw missing from 35-ton block. Hook on block is bent. Pulleys bent.

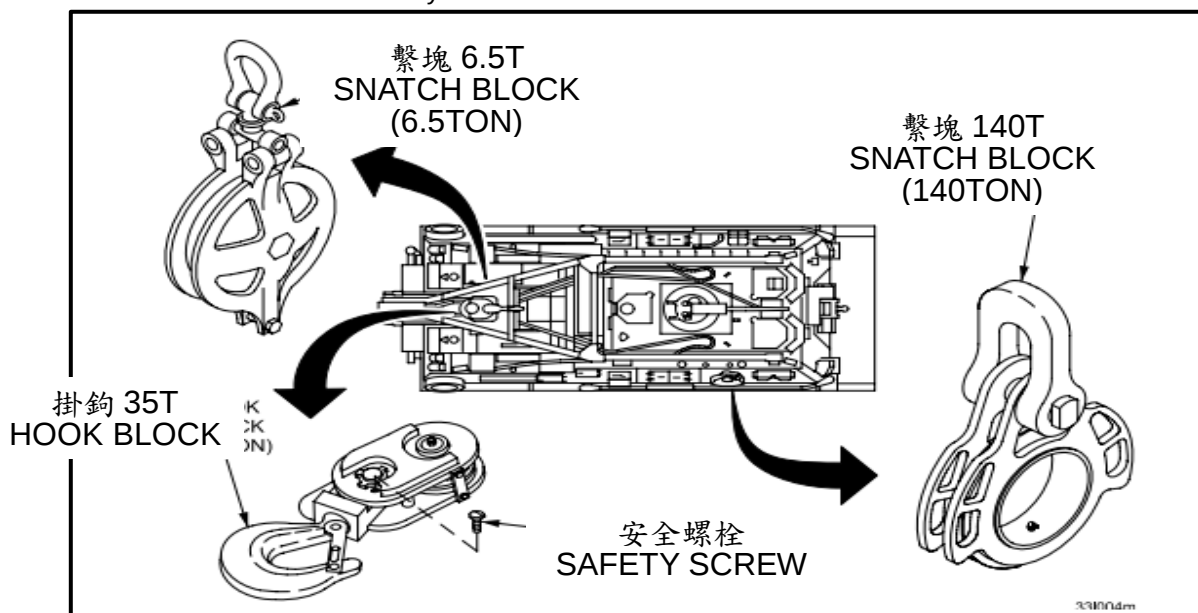


圖10 6.5噸、35噸、140噸開合滑車組及繫塊

(13)項次13-引擎艙/ Item No.13-Engine Compartment

- A.負責乘員/Crewmember：

駕駛/DRIVER

- B.檢查流程/Procedure：

升起桁架，參照(WP 0047 00)並打開引擎上甲板格柵門，參照(WP 0035 00)，檢查艙底是否有液體滲漏

Raise boom (WP 0047 00) and open engine deck access doors (WP 0035 00). Check for fluid leaks.

C. 以下狀況停用/Not Fully Mission Capable if:

任何燃料油滲漏或有機油達三級滲漏。

Any fuel leak or ClassIII oil leak.

(14)項次14-變速箱油平面檢查/ Item No.14-Transmission Oil Level

(圖11)



A. 負責乘員/Crewmember :

駕駛/DRIVER

B. 檢查流程/Procedure :

(A) 警告/WARNING

如果車輛在變速箱油平面超過油尺FULL標記的狀態下操作，車輛排氣系統可能會異常冒煙或起火，進而導致裝備損壞或人員傷亡。
If vehicle is operated with transmission oil level above the FULL mark on oil gauge rod, smoke and fire may occur in vehicle exhaust system, resulting in damage to equipment or death to personnel

(B) 注意/CAUTION

如果車輛在變速箱油平面低於油尺ADD標記的狀態下操作，可能會降低變速箱的可靠性及耐用性。
If vehicle is operated with transmission oil level below ADD mark, reliability and durability of transmission may be reduced.

(C) 註記/NOTE

變速箱總成內部包括數個儲油隔間及有數個泵，用於各隔間之供油。
The transmission assembly includes several compartments that contain oil. The transmission assembly also includes several pumps that transfer oil between these compartments.

(D) 將車輛停於平坦路面，並使用P檔駐車。

Park vehicle on a level surface with parking brake applied.

(E) 發動引擎，參照(WP 0012 00)將變速箱油加熱至180-200°F

(83°C-93°C)，為了達到所需溫度，視狀況可執行失速測試：保持全程踏住煞車踏板使車輛無法移動，將變速箱置於3檔位置，並以全油門運轉引擎，惟時間需不超過30秒，將轉速恢復怠速，如溫度仍未達到檢查所需，可於60秒後再行失速測試以取得期望溫度。
Operate engine (WP 0012 00) to warm transmission oil to temperature between 180 to 200 F (82 to 93 C). To reach desired transmission oil temperature, it may be necessary to perform high range stall. To perform stall: depress and hold brake in applied position, place transmission in 3rd range and run engine at full throttle for no longer than 30 seconds. Return engine speed to idle. If required, repeat procedure after 60 seconds of idling to attain the proper oil temperature.

(F) 關閉引擎，參照(WP 0019 00)

Shut down engine(WP 0019 00)

(G) 注意/CAUTION

驗證變速箱油平面是否於正確位置，油溫及時間非常重要，在取出油尺檢查油平面之前須等待3-5分鐘使其達檢查溫度，如未依規定判讀結果可能不正確。

如果車輛在變速箱油平面低於油尺ADD標記的狀態下操作，可能會降低變速箱的可靠性及耐用性。

To verify that proper transmission oil level is present, it is very important that transmission oil level is at correct temperature and that correct amount of time, 3 to 5 minutes, has passed before reading oil gauge rod. Failure to comply may result in an inaccurate oil level reading. If vehicle is operated with transmission oil level below ADD mark, reliability and

durability of transmission assembly may be reduced.

- (H)打開動機艙左後隔柵板及排氣導流板，參照(WP 0032 00)，打開變速箱機油加注口檢修門。

Open left side engine deck grille and exhaust deflector (WP 0032 00). Open transmission oil filler tube access doors.

- (I)從加注口取出油尺，並予以清潔。

Remove transmission oil gauge rod from oil filler tube, clean oil gauge rod.

- (K)將油尺重新插回加注口，再次取出油尺並檢查油平面是否位於ADD至FULL標記間。

Insert oil gauge rod into transmission filler tube. Remove oil gauge rod and verify that oil level is between ADD and FULL marks.

- (L)註記/NOTE

可以使用AOAP閥移除變速箱過多之機油。

Excess oil may be removed from transmission using the AOAP valve.

- (M)如果變速箱油高於油尺FULL記號時，可參照(WP 0012 00)啟動引擎以清除變速箱中多餘的機油

If indicated oil level is above FULL mark on the oil gauge rod, start engine (WP 0012 00) and remove excess oil from transmission.

- (N)註記/NOTE

機油表尺上1/2英吋(12.7毫米)之距離，大約等於1加侖之機油容量。

1/2 inch (12.7 mm) on oil gauge rod equals about one gallon of oil.

- (O)如機油平面低於ADD，則參照(表6，WP 0105 00)對變速箱添加適

用等級之機油，並添加至ADD與FULL標記之間。

If indicated oil level is below ADD mark on oil gauge rod, add enough proper grade oil (Table 6, WP 0105 00) to transmission to bring oil level between ADD and FULL marks

- (P)重新發動引擎並將變速箱油加溫至180-200°F(83°C-93°C)。

Restart engine (WP 0012 00) and warm transmission oil to 180 to 200 F (82 to 93 C).

- (Q)關閉引擎，參照(WP 0019 00)

Shut down engine(WP 0019 00)

- (R)注意/CAUTION

驗證變速箱油平面是否於正確位置，油溫及時間非常重要，在取出油尺檢查油平面之前須等待3-5分鐘使其達檢查溫度，如未依規定判讀結果可能不正確。

如果車輛在變速箱油平面低於油尺ADD標記的狀態下操作，可能會降低變速箱的可靠性及耐用性。

To verify that proper transmission oil level is present, it is very important that transmission oil level is at correct temperature and that correct amount of time, 3 to 5 minutes, has passed before reading oil gauge rod. Failure to comply may result in an inaccurate oil level reading. If vehicle is operated with transmission oil level below ADD mark, reliability and durability of transmission assembly may be reduced.

- (S)再次確認變速箱機油平面是否位於ADD至FULL標記之間。

Check transmission level again to verify that oil levels are between ADD and FULL marks.

- (T)參照(WP 0032 00)，將油尺重新插回加注口，並關閉左側排氣導流



板及排氣隔柵板。

Re-install oil gauge rod into transmission oil filler tube. Close left side engine deck exhaust grille and exhaust deflector (WP 0032 00).

C. 以下狀況停用/Not Fully Mission Capable if:

油平面低於 ADD 標記

Oil level below ADD mark.

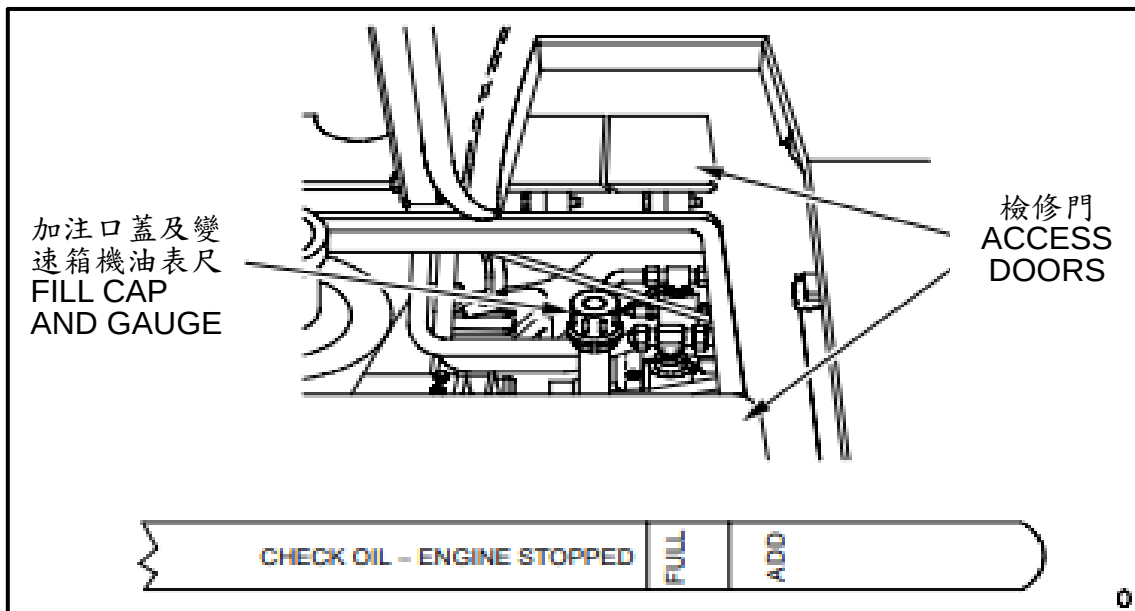


圖 11 變速箱機油加注口及表尺

(15)項次15-拖車吊耳(車身前部、車身後部)/ Item No.15 Tow Lugs (Rear and Front) (圖12)

A. 負責乘員/Crewmember :

駕駛、技師/DRIVER/MECHANIC

B. 檢查流程/Procedure :

目視檢查是否缺件或變形

Visually inspect for presence and condition

C. 以下狀況停用/Not Fully Mission Capable if:

拖耳斷裂或缺件

Tow lugs missing or broken.

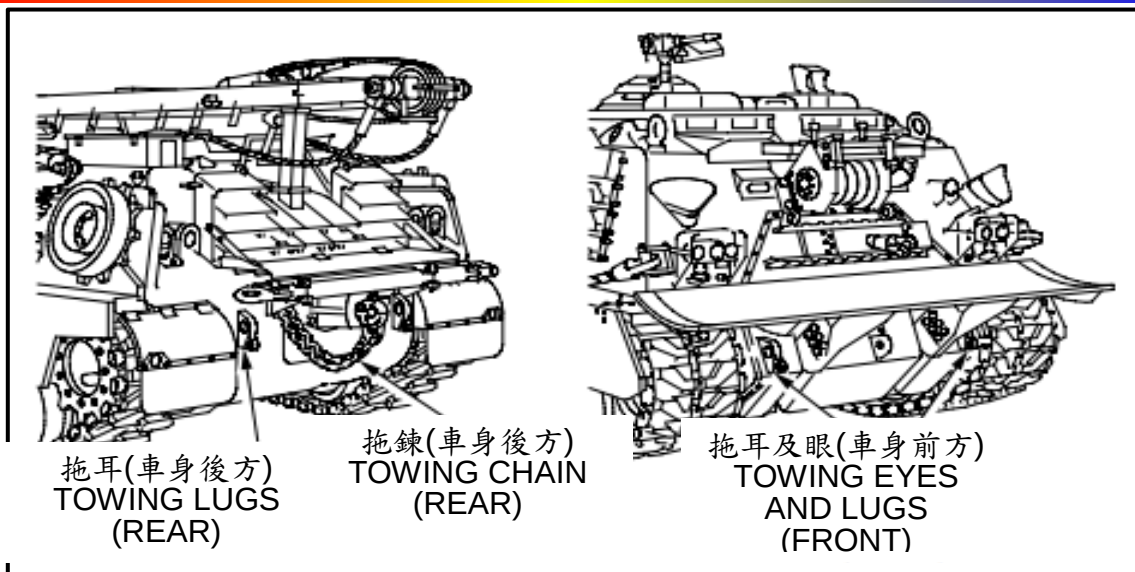


圖12 拖車吊耳

(16)項次16-拖車吊鍊(車身後部)/ Item No.16 Tow Chain (Rear) (圖12)

A.負責乘員/Crewmember：

駕駛、技師/DRIVER/MECHANIC

B.檢查流程/Procedure：

目視檢查是否缺件，檢查鍊環本體或連接處是否破裂或損壞，檢查固定機件是否鬆動或缺件。

Visually inspect for presence. Check for cracked/broken links or attaching eyes. Check for loose or missing mounting hardware.

C.以下狀況停用/Not Fully Mission Capable if:

拖鍊遺失、鍊環本體、連接處有裂痕或斷裂。

Visually inspect for presence. Check for cracked/broken links or attaching eyes. Check for loose or missing mounting hardware.

(17)項次17-拖車鉤/ Item No.17 Tow Pintle

A.負責乘員/Crewmember：

駕駛/DRIVER

B.檢查流程/Procedure：

目視檢查本體是否缺件、斷裂及作用是否正常，並用手打開拖車鉤鎖及上鉤顎，如在執行拖車或潤滑後需用撬棒打開上鉤顎則需更換拖車鉤組。

Visually inspect for presence, condition, and cracks. Move tow pintle lock and pintle hook by hand. REPLACE TOW PINTLE IF PRY BAR IS NEEDED TO OPEN JAW AFTER TOWING MISSION AND LUBING.

C.以下狀況停用/Not Fully Mission Capable if:

拖車鉤遺失、裂痕或斷裂或鎖及上鉤顎無法以手實施操作。

Tow pintle missing, broken, cracked; or pintle lock and hook will not operate by hand.

(18)項次18-最終傳動器左側、右測/ Item No.18 Final Drive.Right and



Left Side (圖13)

A. 負責乘員/Crewmember :

駕駛/DRIVER

B. 檢查流程/Procedure :

(A)檢查最終傳動器與主動輪底部之間是否有機油三級滲漏。

Check for Class III oil leakage between final drive and bottom of sprocket.

(B)檢查主動輪之輪殼螺栓是否斷裂。

Check for sheared mounting bolts.

(C)檢查主動輪固定螺栓是否缺少或主動輪齒有裂痕，如輪齒驅動面已

超過磨耗線，請通知保修人員。

Check drive sprocket (reversible) for missing mounting bolts or broken sprocket teeth. If driving side of sprocket is worn to wear limits, notify unit maintenance.

(D)檢查主動輪殼是否過熱

Check final drive hubs for overheating.

(E) 註記/NOTE

在更換或換面安裝主動輪之前，保修人員須先確定其可用性。

Have unit maintenance confirm serviceability of drive sprocket before exchange or reversal of sprocket.

C. 以下狀況停用/Not Fully Mission Capable if:

(A)機油滲漏達三級。

Class III leak.

(B)任一側最終傳動器有二個含以上之輪殼螺栓斷裂。

More than two final drive hub bolts sheared off on any one final drive.

(C)任一個主動輪之輪齒驅動面二側均磨損超過磨耗線。

Any portion of wear limit indicator no longer visible on driving side of sprocket tooth.

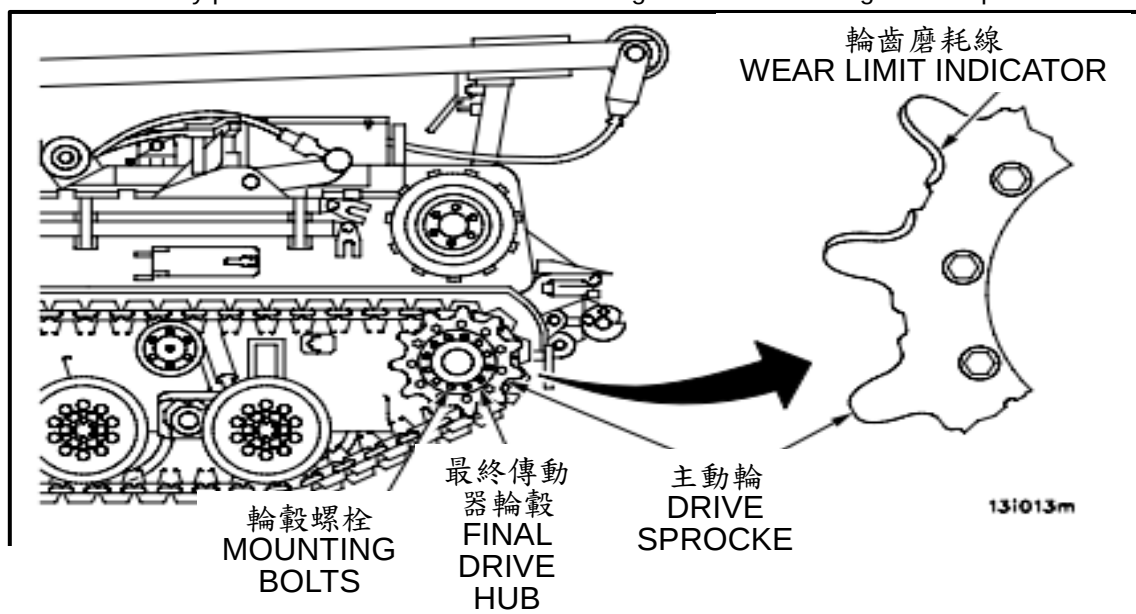


圖13 最終傳動器

(19)項次19-拖車桿(2只)、拖車鋼索(2條)，安裝車側與車後/ Item No.19

Tow Bars (2 each), Tow Cables (2 each), Back and Side Mounted (圖14)

A. 負責乘員/Crewmember :

駕駛、技師/DRIVER/MECHANIC

B. 檢查流程/Procedure :

(A) 檢查拖車桿是否存在。

Visually inspect for presence.

(B) 檢查拖車桿身是否斷裂或變形，檢查桿身前拖環是否有裂痕或變形，

檢查拖車桿銷、U型鉤銷、鎖定銷。

Inspect tow bar legs for bends and cracks. Inspect lunette for cracks and bends. Inspect for tow bar pins, clevises, and locking pins.

(C) 檢查拖車鋼索是否有異常扭轉、鋼絲破損或磨損，兩端拖環是否有裂痕

Inspect tow cables for kinks, broken/frayed wires. Inspect eyelets for cracks.

C. 以下狀況停用/Not Fully Mission Capable if:

(A) 拖車桿兩只均遺失

Both tow bars missing.

(B) 任何彎曲、裂縫及銷或鎖銷遺失，拖車桿前拖環變形或破裂。

Any bends, cracks, missing pins/locking pins. Lunette bent or cracked.

(C) 拖車鋼索遺失、異常扭轉、彎曲或鋼絲磨損及斷裂；拖環破裂。

Missing, kinks, bends, or broken/ frayed wires. Eyelet cracked.

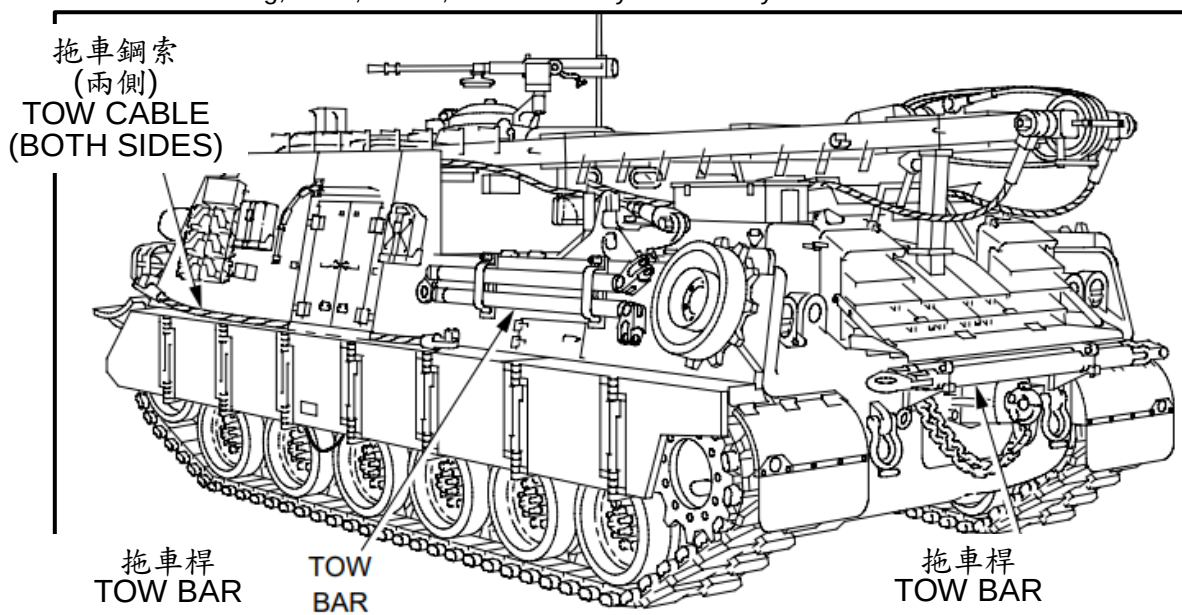


圖14 拖車桿及鋼索

(20) 項次20-承載輪、惰輪輪殼及避震器溫度/ Item No.20 Temperatures of Roadwheel, Idler and Support Roller Hubs and Shock Absorbers (圖15)

A. 負責乘員/Crewmember :



駕駛、技師/DRIVER/MECHANIC

B. 檢查流程/Procedure :

(A) 警告/WARNING。

請勿將同側履帶側裙之四組絞鍊銷同時拆除，此舉會使側裙掉落肇生嚴重傷害

Do not remove all four hinge pins from the same skirt. Skirt may fall, causing serious injury.

(B) 註記/NOTE

需打開左右兩側側裙，請開啟第1.3.5.7組
Open skirts #1, #3, #5 and #7 on left and right sides.

(C) 在停車期間或運行後只要時間允許需打開側裙，參照(WP 0106 00)，

指細檢查該系統機件溫度間的變化，如輪轂過熱表示軸承失效或潤滑不足，如避震器失效則避震器體溫度將比車身溫度低。

As time permits during halts and immediately after vehicle operation, open skirts (WP 0106 00). Feel these components cautiously for noticeable variation in temperature between like components. An overheated hub indicates maladjustments, inadequate lubrication of bearings. If shock absorbers are defective, they will be colder than the hull.

(D) 如果車輛使用輕型承載輪，請檢查承載輪內側邊緣下方約2英吋

(50MM)處油漆是否有裂紋，如該區出現由任何油漆裂紋，則需由二級保養人員驗證承載輪之堪用性。如破紋達全輪周長則該輪不堪使用，通知權責單位更換。

If vehicle is equipped with lightweight roadwheels, inspect about 2 inches (50 MM) down from the inside edge of roadwheel for cracked paint. Any sign of cracked paint in that area, notify unit maintenance so unit maintenance can verify serviceability of roadwheel. If the paint is cracked completely around the entire roadwheel, the roadwheel is unserviceable and must be replaced. Notify unit maintenance.

C. 以下狀況停用/Not Fully Mission Capable if:

任一輪轂明顯過熱。

Any hub found to be overheated.

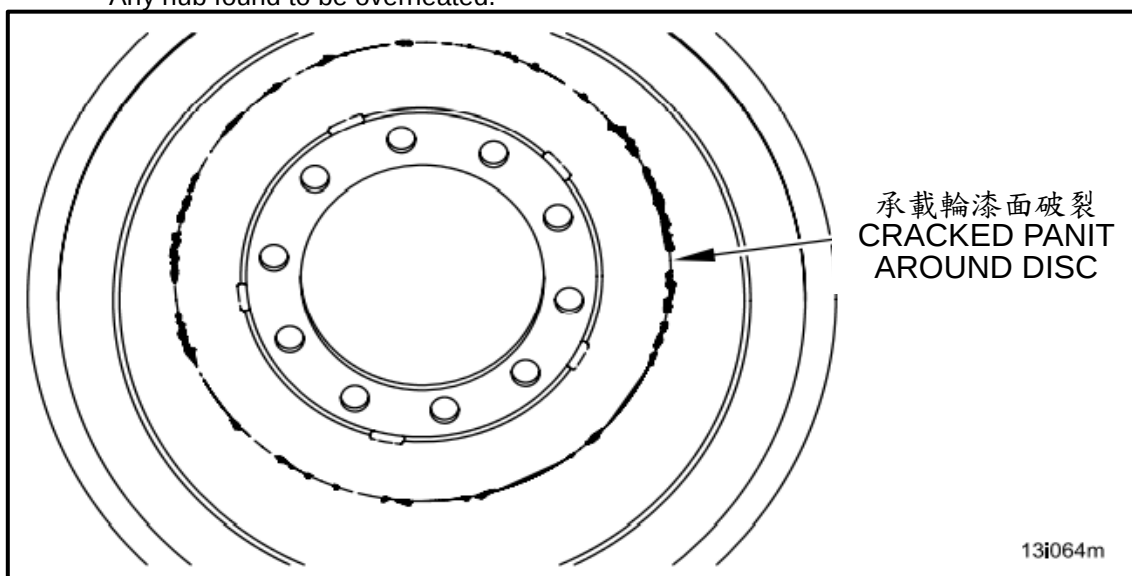


圖15 承載輪

(21)項次21-左右支輪與輪轂及避震器/ Item No.21 Track Support

Rollers, Hubs Right and Left Side and Shock Absorbersa. (圖16)

A. 負責乘員/Crewmember :

駕駛/DRIVER

B. 檢查流程/Procedure :

(A) 檢查支輪是否遺失或鬆動。

Check for missing or loose track support rollers.

(B) 檢查支輪膠圈是否與輪框分離或大部破損。

Check rollers for separation of rubber from metal and chunking.

(C) 警告/WARNING。

小心以手抓住避震器並搖晃，以檢查安裝襯套是否移動。

Cautiously grasp shock absorber and shake. Check for movement which indicates worn mounting bushings.

C. 以下狀況停用/Not Fully Mission Capable if:

(A) 任一支輪遺失或鬆動。

Any track support roller missing or loose.

(B) 膠圈分離或裂塊狀況達支輪全面積之半，。

Rubber separation and/or chunking equals half the original contact area around the entire roller.

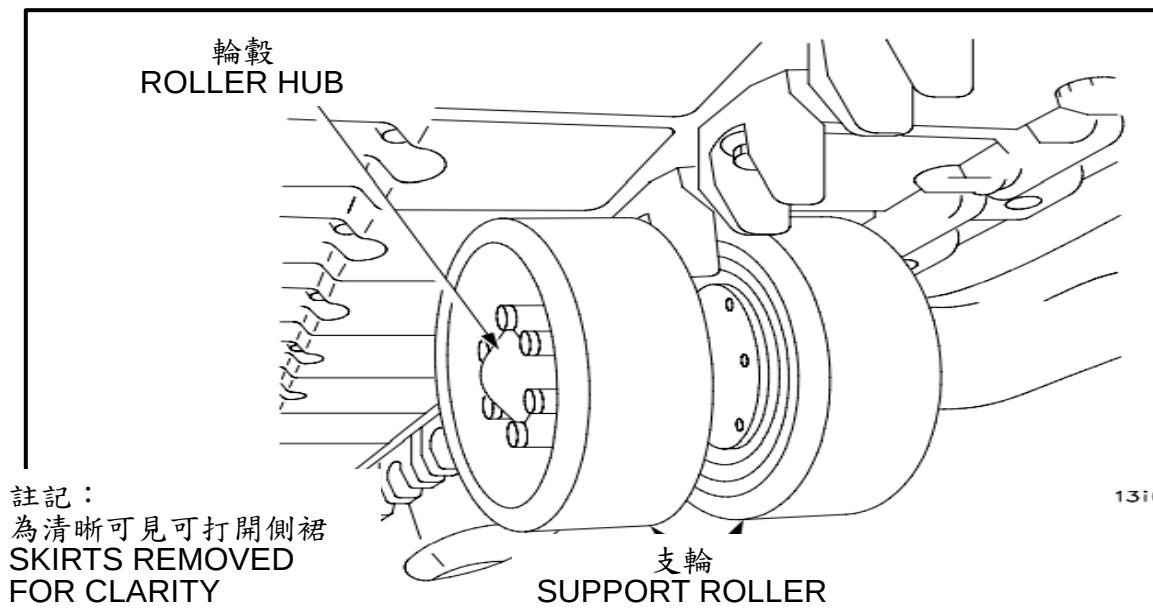


圖16 支輪

(22)項次22-左右惰輪、承載輪與輪轂/ Item No.22 Roadwheels and Hubs Compensating Idler Wheels And Hubs Right and Left Side (圖17)

A. 負責乘員/Crewmember :

駕駛/DRIVER

B. 檢查流程/Procedure :

(A) 檢查本體是否變形、破損、遺失。

Check for bent, broken or missing roadwheel, or compensating idler wheel.



(B)檢查輪固定螺栓、螺帽是否鬆動或遺失。

Check for any loose or missing mounting bolts or nuts.

(C)檢查惰輪、承載輪膠面是否與大部破損或與輪圈分離。

Check roadwheels and compensating idler wheels for chunking or separation.

(D)檢查內外承載輪輪轂是惰輪輪轂是否滲漏。

Inspect inner and outer roadwheel and compensating idler wheel hubs for leaks.

(E)註記/NOTE。

如有飛濺之油漬表示油封破損

Splattered grease indicates defective seal.

C. 以下狀況停用/Not Fully Mission Capable if:

(A)安裝於支臂上的兩個承載輪或兩個惰輪，任一輪破裂、變形或遺失。

Two roadwheels or idler wheels on same arm, either side, cracked, bent, or missing.

(B)同一輪轂上兩只(含以上)固定螺栓及螺帽有遺失或斷裂。

Two or more mounting nuts missing on same wheel hub..

(C)膠面與鋼圈密合處產生1英吋(含)以上之間隙，輪圈膠面覆蓋於金屬圈上之面積低於75%或膠圈表面產生3X4英吋(含)以上之破面。

Separation of 1 in. of rubber contact from metal surface around 75% of roadwheel or compensating idler wheels and/or chunking that exposes metal extending 3 to 4 in. on wheel surface exists..

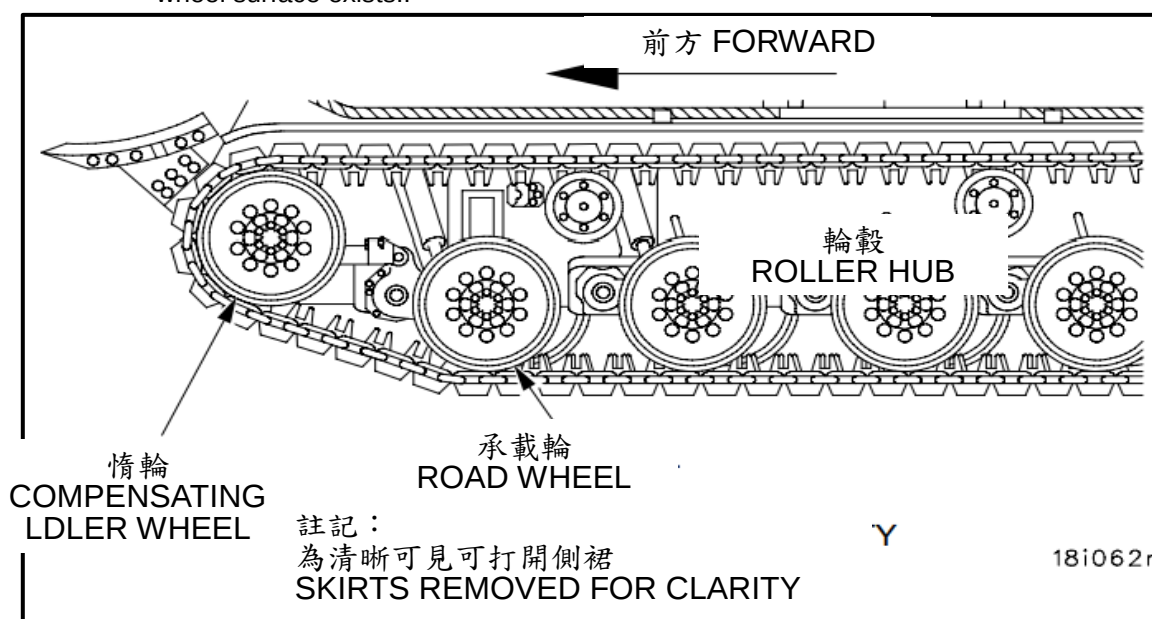


圖17 惰輪與承載輪

(23)項次23-左右履帶總成/ Item No.23 Track Shoes, Right and Left Side (圖18.19.20)

A. 負責乘員/Crewmember :

乘員/CREWMEMBER

B. 檢查流程/Procedure :

(A)檢查終端連結器過度磨損、破裂、遺失。

Check for excessive wear, worn, missing or cracked end connectors

- a. 檢查終端連結器厚度需超過1/8英吋。
End connector wear thickness 1/8 inch.
- (B) 檢查終端連結器是否有遺失、鬆動或未正確安裝的楔型鐵、楔型螺栓，如果發現終端結器或中央導齒於車輛停止時鬆動，請將其旋緊，並盡快通知保修人員檢查及上緊適當扭力。
Check end connectors for missing, loose or improperly sealed wedges or wedge bolts. If end connectors or center guides are found to be loose at halts, tighten them. Also, notify unit maintenance ASAP for inspection and application of proper torque.
- (C) 檢查履帶銷是否遺失、彎曲、斷裂或損壞。
Check for missing, bent, cracked or broken track pins.
- (D) 檢查履帶板與承載輪接觸之膠面或履帶膠塊是否破損至履帶銷管裸露。
Check for exposed or binocular tubes on roadwheel path and/or grouser surface.
- (E) 檢查冷卻管是否損壞、冷卻管上方分離。
Check cooling tubes for damage or separation above cooling tube.
- (F) 檢查履帶蹄片是否損壞或咬死，一片履帶蹄片無法於前後片成一直線
Inspect for dead (broken) track shoes. A dead track shoe appears to be out--of--line.
- (G) 註記/NOTE。
車輛停止時如發現終端連結器或中央導齒有鬆動，請將其旋緊
If end connectors or center guides are found to be loose at halts, tighten them.
- (H) 檢查端板是否有裂痕或破損。
Check for cracked or broken end plates
- (I) 檢查端板是否有裂痕或破損，磨損後厚度不得小於1/4吋或小厚度。
Check end plates for cracks, breaks or wear to 1/4 inch or less.
- (J) 檢查中央齒是否彎曲、破裂、損壞或遺失。
Check for bent, cracked, broken or missing center guides.
- C. 以下狀況停用/Not Fully Mission Capable if:
- (A) 一個(含以上)終端連結器遺失。
One or more end connectors missing or cracked.
- a. 終端連結器厚度小於1/8英吋。
Worn to less than 1/8 inch thickness.
- (B) 一個(含以上)楔型鐵安裝未緊密或遺失。
One or more wedges missing or improperly sealed.
- (C) 一個(含以上)履帶銷斷裂或遺失。
One or more missing, cracked or broken track pins.
- (D) 如果履帶銷管裸露於履帶板與承載輪接觸之膠面或履帶爬齒之外。或者膠塊厚度小於1/2吋。
If binocular tube is exposed or damaged on the roadwheel path and/or grouser surface. Grouser height less than 1/2.
- (E) 如果橡膠距離冷卻管上方2吋或更多，或者冷卻管縮入或移出履帶本體超過1/4吋，或者冷卻管損壞。



(F)一個或更多履帶蹄片損壞或咬死。

One or more dead (broken) track shoes.

(G)一個或更多端板破裂或損壞。

One or more end plates cracked or broken.

(H)一個或更多端板破裂或破損或磨損至厚度小於1/4吋。

One or more end plates cracked, broken or worn to less than 1/4 inch.

(I)任何位置連續二個中央導尺遺失。

Any two consecutive missing center guides.

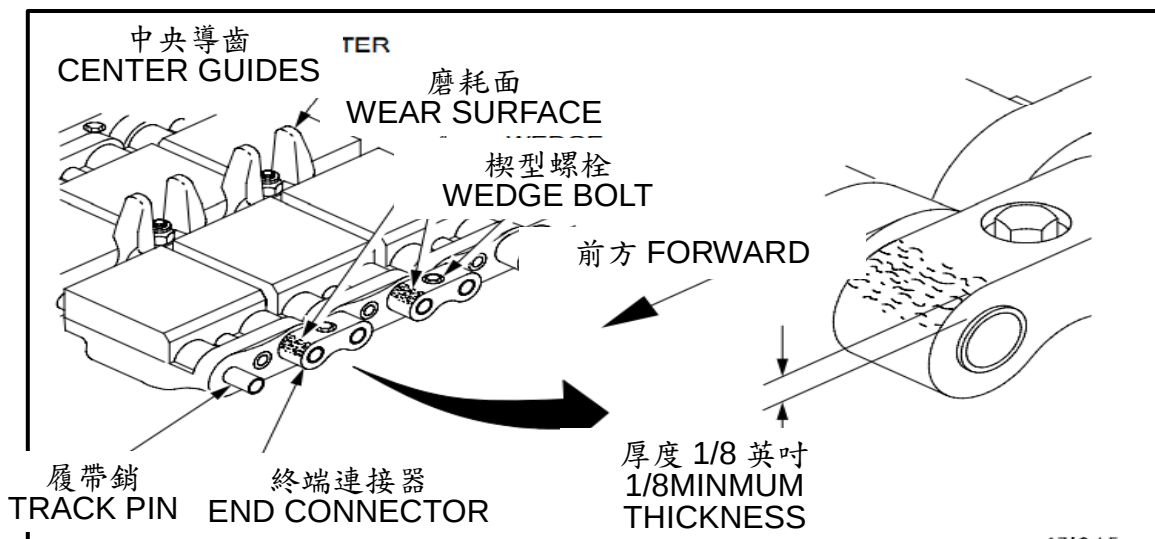


圖18 履帶總成

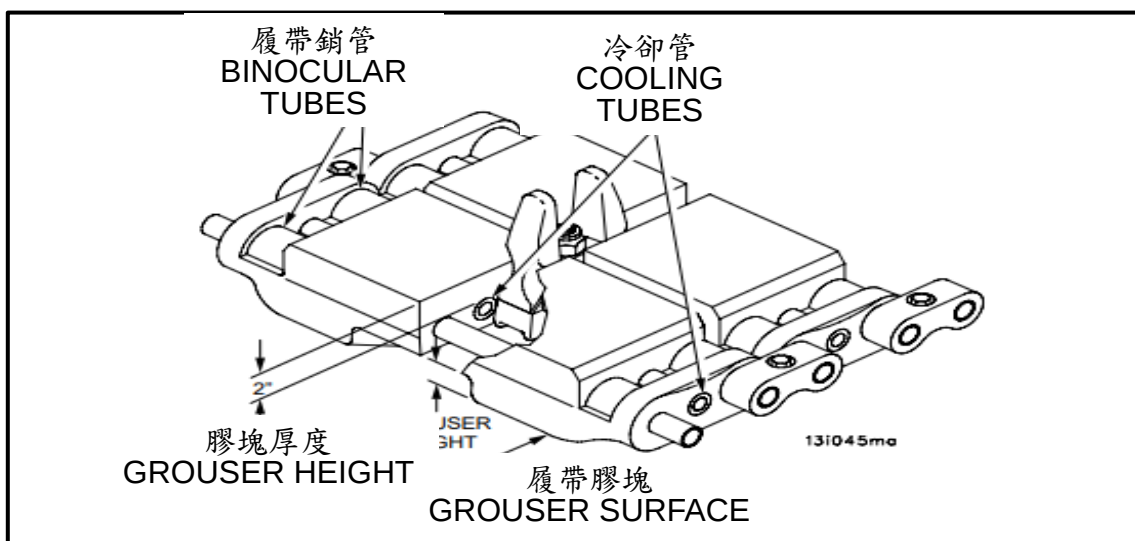


圖19 履帶總成

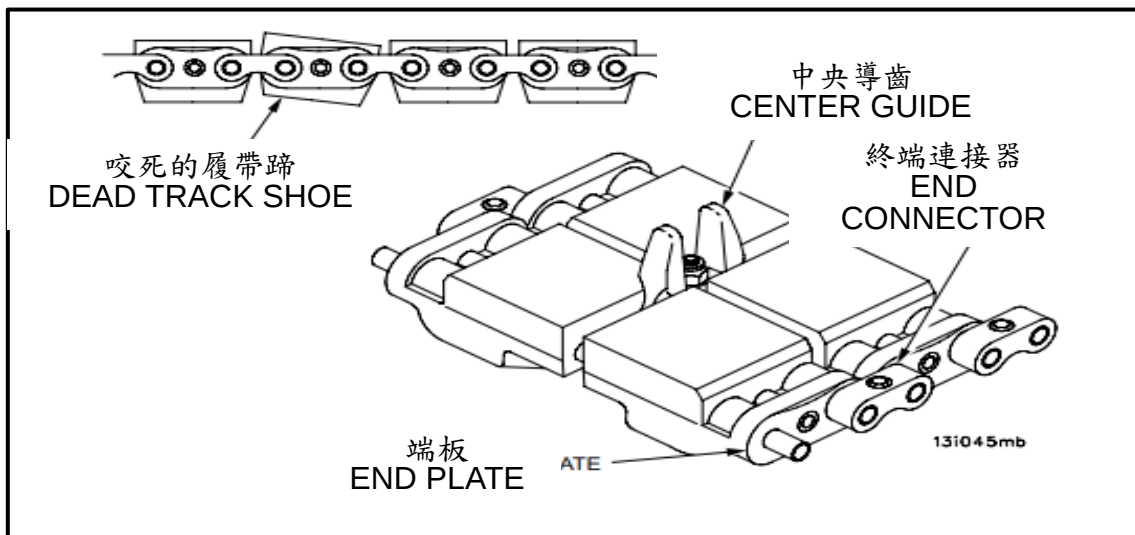


圖20 履帶總成

(24)項次24-左右承載輪之扭力桿/ Item No.24 Torsion Bars For Roadwheels Left and Right Side (圖21)

A. 負責乘員/Crewmember :

駕駛/DRIVE

B. 檢查流程/Procedure :

- (A) 檢查第1輪、第6輪承載臂位置之扭力桿，是否有車輛傾斜或承載輪抬起致使履帶離開地面。車輛傾斜或承載輪或履帶抬起，皆有可能為扭力桿斷裂之跡象。

At roadwheel arm positions 1 and 6, look for tilt of vehicle or lifting of roadwheel and track off ground. Tilting of vehicle or lifted roadwheel/track may be an indicator of a broken torsion bar.

- (B) 如要檢查第2輪之第5輪承載臂之扭力桿，請使用翹棒將該承載輪抬起，如不能將輪抬起為該輪扭力桿正常，若能抬起為該輪扭力桿斷裂。

To test torsion bars at roadwheel arm positions 2 thru 5, use tanker's bar to pry up on roadwheels. If roadwheel cannot be lifted, torsion bar is good. If roadwheel can be lifted, the torsion bar may be broken.

C. 以下狀況停用/Not Fully Mission Capable if:

- (A) 第1或第6輪任一處扭力桿斷裂或遺失

Torsion bars at roadwheels 1 and/or 6 broken or missing.

- (B) 第2或第5輪任二處扭力桿斷裂或遺失

Any two torsion bars in a row are broken or missing at roadwheels 2-5.

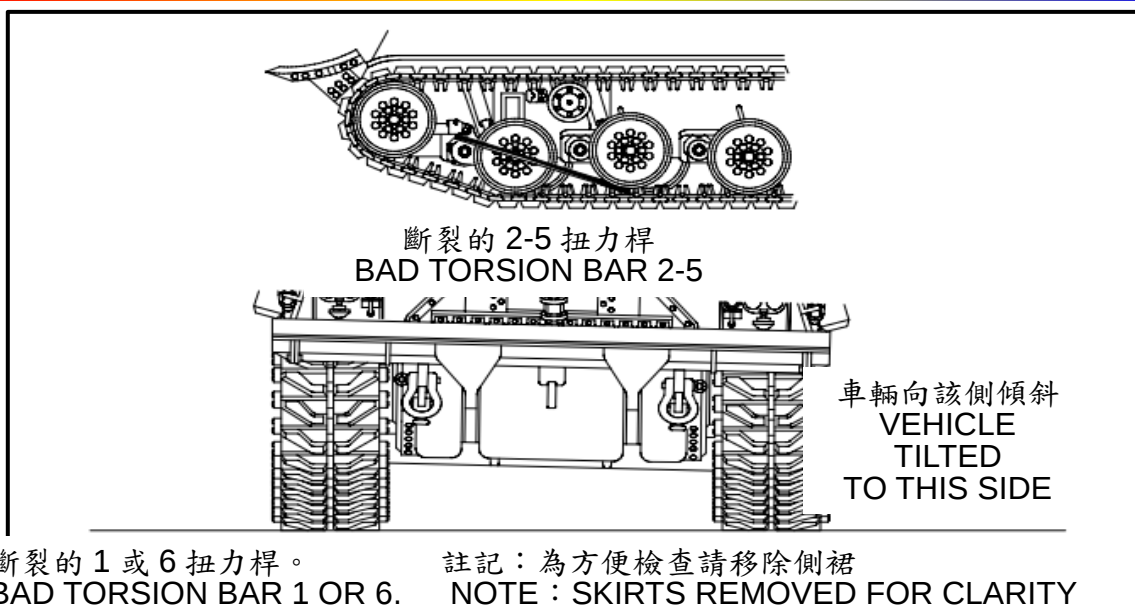


圖21扭力桿

(25)項次25-左右履帶張力調整器連接處/ Item No.25 Track Adjusting Links, Right and Left Side (圖22)

A. 負責乘員/Crewmember：

駕駛/DRIVE

B. 檢查流程/Procedure：

(A)檢查連接處組件無遺失或損壞。

Check that link assembly is not missing or broken.

(B)檢查開口銷是否遺失或損壞。

Check that cotter pin is not missing or broken.

(C)檢查連接銷及固定螺栓。

Check connector pin and retainer bolt..

(D)關閉側裙，參照(WP 0106 00)。

Close skirts (WP 0106 00).

C. 以下狀況停用/Not Fully Mission Capable if:

(A)連接處組件無遺失或損壞。

Torsion bars at roadwheels 1 and/or 6 broken or missing.

(B)連接銷損壞、遺失固定螺栓遺失。

Connector pin broken, missing or nut missing.

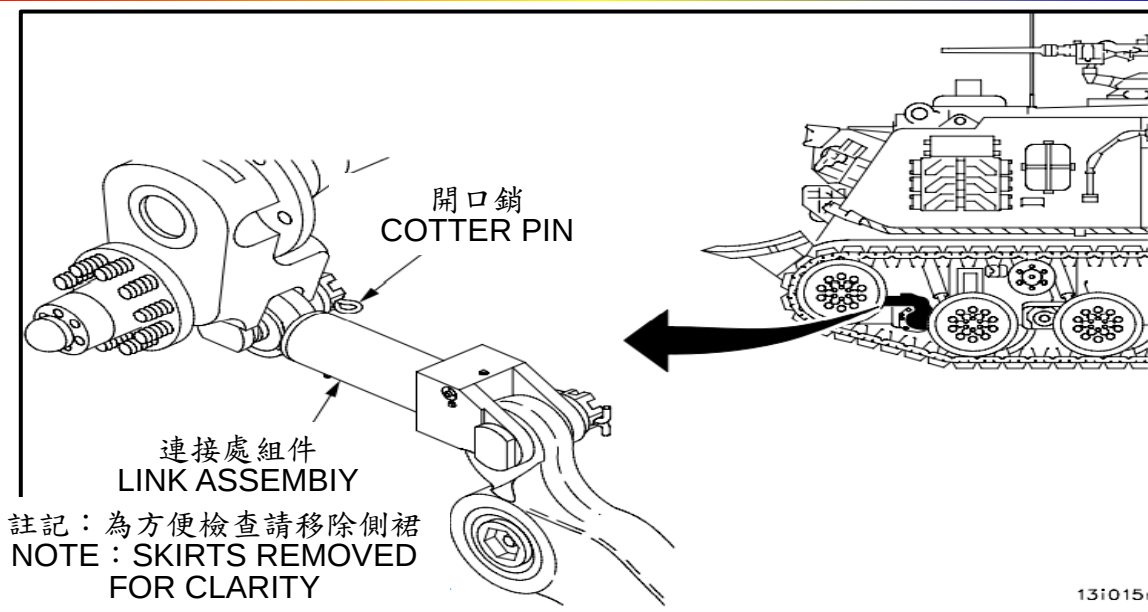


圖 22 張力調節器組件

(26)項次26-左右履帶張力/ Item No.26 Track Tension, Right and Left Side

A. 負責乘員/Crewmember :

全車人員/CREW

B. 檢查流程/Procedure :

(A) 註記/NOTE。

在任何履帶故障排除後需檢查及調整履帶張力。

Adjust track tension after all other track inspection faults have been corrected

(B) 移動車輛並採用不轉向或煞車的情況下自然滑行使車輛停止。

Move vehicle forward on hard level surface and coast to stop without using brakes or steering.

(C) 打開第1至第5片側裙，參照(WP 0106 00)。

Open skirts # 1 thru # 5 (WP 0106 00)

(C) 檢查並調整履帶張力，參照(WP 0108 00 or WP 0109 00)。

Check and adjust track tension (WP 0108 00 or WP 0109 00)...

(D) 關閉第1至第5片側裙，參照(WP 0106 00)。

Close skirts # 1 thru # 5 (WP 0106 00)

C. 以下狀況停用/Not Fully Mission Capable if:

無

Non



(27)項次27-側裙鋼板絞鍊銷和固定釘螺絲/ Item No.27 Side Armor Skirt Panel Hinge Pins and Locking Screws. (圖23)

A. 負責乘員/Crewmember :

駕駛/DRIVE

B. 檢查流程/Procedure :

(A) 檢查所有側裙鋼板絞鍊銷和固定釘螺絲是否遺失或損壞。

Check that all side armor skirt hinge pins and locking screws are present.

C. 以下狀況停用/Not Fully Mission Capable if:

任何側裙鋼板絞鍊銷和固定釘螺絲是否遺失或損壞。

Any hinge pin or locking screw missing or broken.

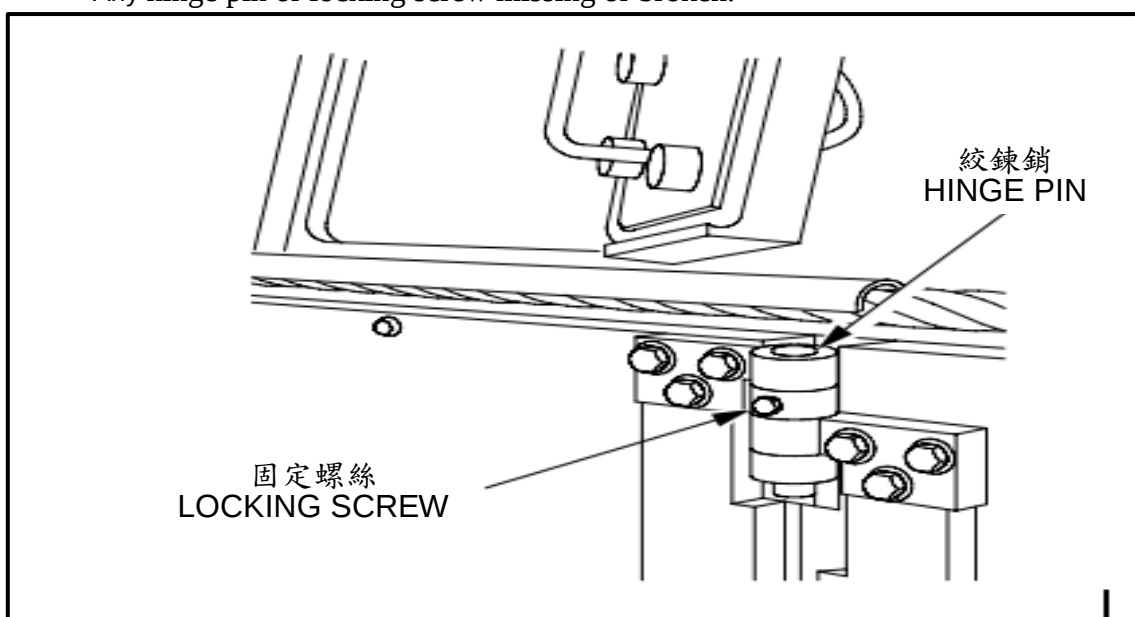


圖 23 側裙鋼板絞鍊銷和固定釘螺絲

(28)項次28-輔助臂及固定螺栓/ Item No.28 Auxiliary Boom and Retaining Bolt (圖24)

A. 負責乘員/Crewmember :

駕駛/DRIVE

B. 檢查流程/Procedure :

(A) 檢查輔助臂桿和固定釘螺栓是否遺失或損壞。

Check that auxiliary boom and retaining bolt are present and undamaged.

C. 以下狀況停用/Not Fully Mission Capable if:

無

Non

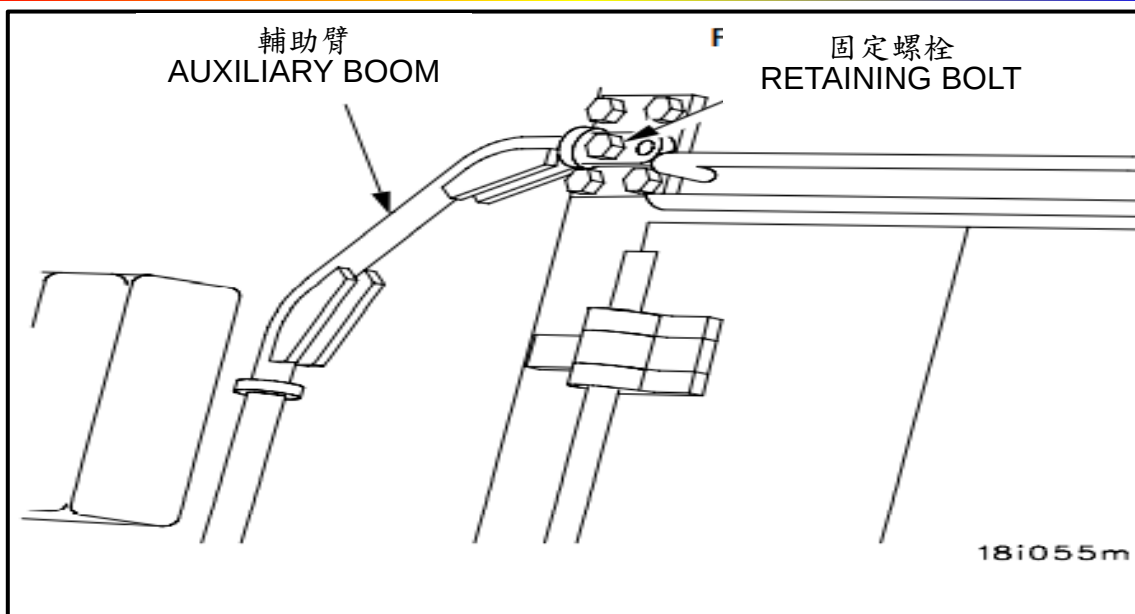


圖 24 輔助臂及固定螺栓

(29)項次29-儲物箱和存放設備/ **Item No.29 Storage Boxes and Stowed Equipment**

A. 負責乘員/**Crewmember** :

駕駛/**DRIVE**

B. 檢查流程/**Procedure** :

檢查箱體本及設備裝況(列於表3及表4)，(參照WP 0136 00)檢查是否安全、清潔即可維修。

Check condition of boxes and equipment (listed in Tables 3 and 4, WP 0136 00) to see if they are secure,serviceable and clean.

C. 以下狀況停用/**Not Fully Mission Capable if:**

無
Non

(30)項次30-車體排水活門/ **Item No.30 Hull Drains (圖25)**

A. 負責乘員/**Crewmember** :

駕駛/**DRIVE**

B. 檢查流程/**Procedure** :

(A)打開兩個車體排水管，讓車體排水參照(WP 0083 00)

Open both vehicle hull drains. Allow vehicle hull to drain (WP 0083 00).

C. 以下狀況停用/**Not Fully Mission Capable if:**

無
Non

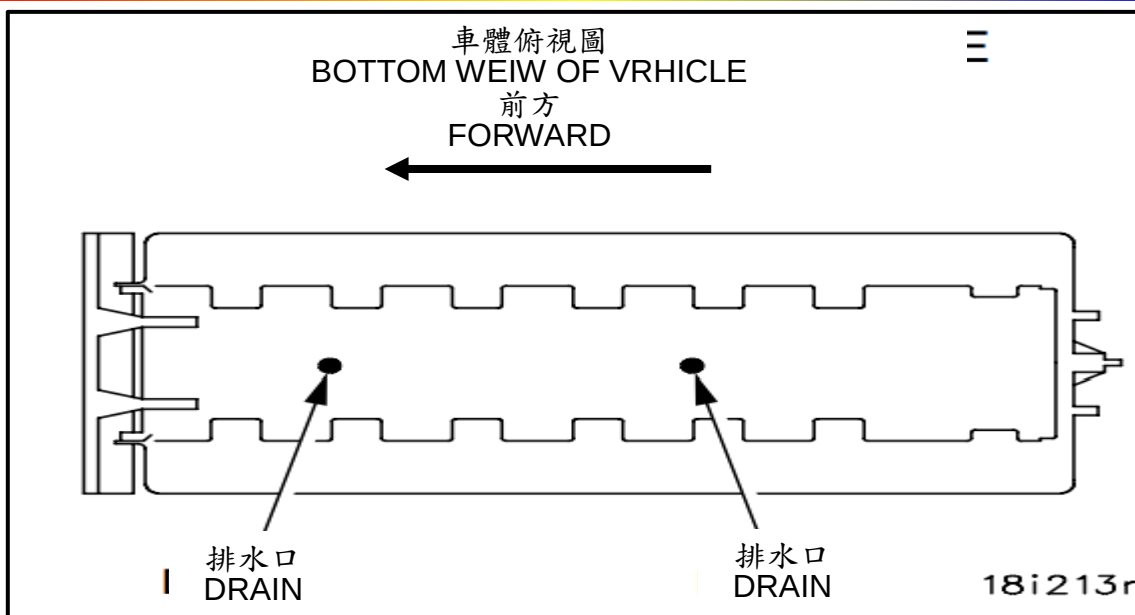


圖 25 車體排水孔

(31)項次31-車體排水活門及檢修板/ Item No.31 Hull Drains and Access Plates (圖26)

A. 負責乘員/Crewmember :

駕駛/DRIVE

B. 檢查流程/Procedure :

(A) 注意/CAUTION

如果車輛需停放超過(二週含以上)，兩個排水活門都需打開。

If vehicle is being parked for an extended period of time (two weeks or longer) both hull drains must be left open.

a. 五個檢修板均須拆除。

All five hull access plates must be removed.

b. 必須將動力機外甲板覆蓋。

Engine deck area must be covered.

c. 如不按上述步驟，可能會造成車輛動力機艙積水過多致使車輛損壞。

Failure to comply could result in vehicle damage due to excessive water build-up in vehicle engine compartment.

(B) 打開車體兩處排水活門，並確保活門本體清潔且無碎屑。

Open both vehicle hull drains, and make sure drains are clear and free of debris

(C) 使用尼龍布將動力機艙覆蓋。(參照，WP 0133 00 表1 項目32)

Cover engine deck with nylon paulin (item 32, Table 1, WP 0133 00).

C. 以下狀況停用/Not Fully Mission Capable if:

無

Non

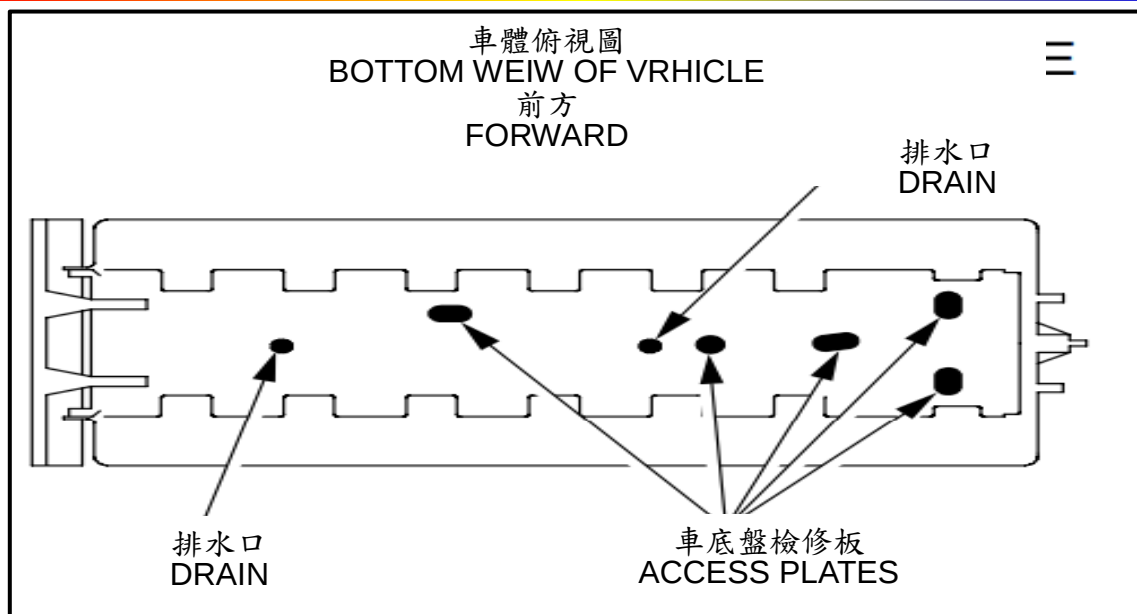


圖 26 車底盤檢修板及車體排水孔



二、表 4，預防性維護檢查，週保養

TABLE4,PREVENTIVE MAINTENANCE CHECKS AND SERVICES , WEEKLY

(一)前置工作/INITIAL SETUP

1.工具與特殊工具/Tools and Special Tools

(1)活動板手(項目 41，表 2，WP 0133 00)

Adjustable wrench(item 41,Table 2, WP 0133 00)

(2)手套(項目 16，表 2，WP 0133 00)

Gloves (item 47,Table 2, WP 0133 00)

2.零件及材料/Materials/Parts

(1)擦拭布(項目 45，WP 0135 00)

Wiping rags(item 25, WP 0135 00)

(2)潤滑油(項目 25，WP 0135 00)

Lubrication oil(item 25, WP 0135 00)

(3)車用潤滑油(項目 16，WP 0135 00)

Grease, automotive (item 16 WP 0135 00)

(3)鏡頭擦拭紙(項目 35，WP 0135 00)

Lens paper(item 35, WP 0135 00)

3.所需人員/Personnel Required

3 員

Three

4.參考文件/References

(1)WP 0032 00

(2)WP 0035 00

(3)WP 0026 00

(4)WP 0024 00

(5)WP 0023 00

(6)WP 0059 00

(7)WP 0056 00

(8)WP 0068 00

(9)WP 0133 00

(10)WP 0135 00

(11)WP 0017 00

(12)WP 0030 00

(13)WP 0117 00

(14)WP 0136 00

(15)WP 0021 00

(16)WP 0022 00

(17)WP 0119 00

(二)週保養檢查項目

PREVENTIVE MAINTENANCE CHECKS AND SERVICES, WEEKLY.

每週利用週五週保養時機，執行電瓶等 13 項次保養與檢查，餘均同行駛後保養與檢查要領實施。

1.位置：

(1)項次1-電瓶/ **Item No.1 Battleries(圖27)**

A.負責乘員/**Crewmember：**

駕駛/**DRIVE**

B.檢查流程/**Procedure：**

(A)警告/**WARNING。**

a.打開電瓶檢修門。

Open battery compartment access doors.

b.檢查液面高度，高度應位於電瓶加注口下裂口環平齊，如過低或已沸騰，回報並缺失改進。

Check electrolyte level. Electrolyte level should be to the ledge in battery filler opening (vent). If low or boiling, notify unit maintenance.

c.檢查電瓶所有連接是否緊定且無鏽蝕，如有鏽蝕或鬆動，回報並缺失改進，且瓶蓋應清潔並旋緊。

Check that connections are tight and not corroded. If corroded or loose, notify unit maintenance. Caps should be clean and screwed on tightly.

d.檢查電瓶是否破裂，如有破裂，回報並缺失改進。

Check for cracked batteries. If cracked, notify unit maintenance.

C.以下狀況停用/**Not Fully Mission Capable if:**

(A)電瓶遺失。

Battery is missing.

(B)電瓶液面高度過低或電瓶液沸騰。

Electrolyte level is low or boiling.

(C)電瓶電纜或固定架鬆動。

Any loose cables or connections.

(D)電瓶破裂。

Battery is cracked.

(E)電瓶電量無法啟動車輛。

Batteries will not start vehicle.

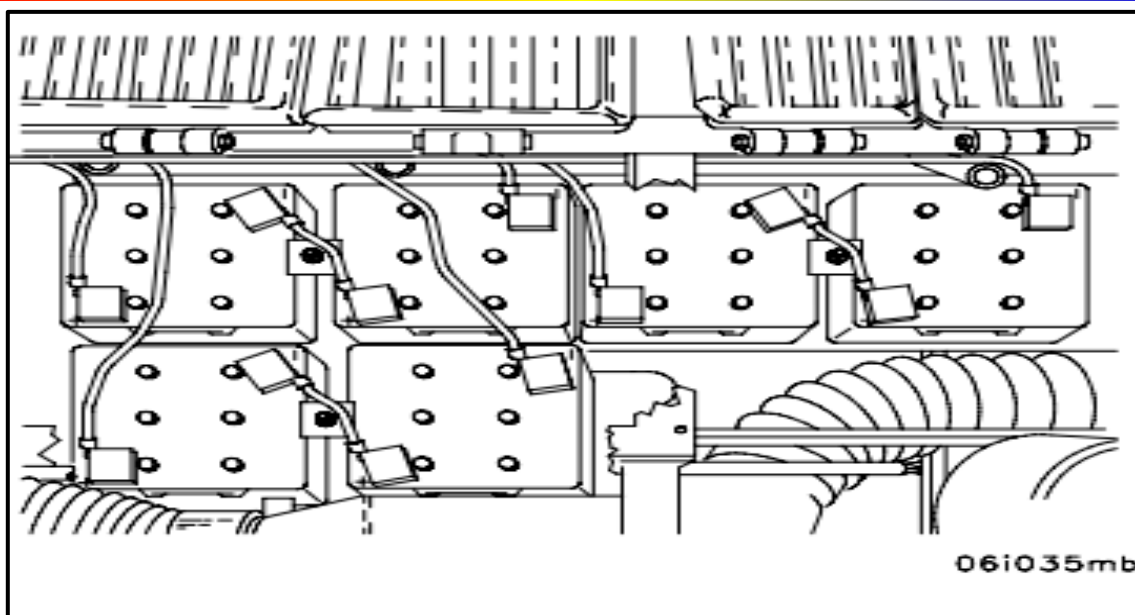


圖 27 電瓶

(2)項次2-制動器調整與後隔柵門/ Item No.2 Service Brake Adjustment and Rear Grille Doors (圖28.29.30)

A. 負責乘員/Crewmember :

駕駛/DRIVE

B. 檢查流程/Procedure :

(A)確實運用停車制動器停車並鎖定車輛，參照(WP 0017 00)。

Fully apply and lock vehicle service brakes (WP 0017 00).

(B)打開左、右側後隔柵門(1)，參照(WP 0032 00)。

Open left and right side rear grille doors (1) (WP 0032 00).

(C)打開左、右側變速箱檢修門(2)。

Open left and right side transmission access doors (2).

(D)註記/NOTE。

必需完全踏下煞車踏板，以確保制動器調整數值正確。

Brake pedal must be fully applied to ensure accurate brake adjustment reading.

(E)制動器調整記號(3)(此記號塗於制動連桿上)確實與調整指示桿

(4)(該指示桿位於變速箱導軌)對齊，另一側按此要領檢查。

Ensure Brake Adjustment Indicator (3) (painted on brake linkage) is aligned with the Brake Adjustment Indicator Rod (4) (attached to transmission guide rails). Repeat on other side.

(F)關閉左、右側變速箱檢修門(2)。

Close left and right side transmission access doors (2).

(G)關閉左、右側後隔柵門(1)，並確保隔柵門確實固定，參照(WP 0032 00)。

Close left and right side rear grille doors (1). Make sure grille doors are secure (WP 0032 00)..

C. 以下狀況停用/Not Fully Mission Capable if:

(A)制動指示記號未對準，回報並缺失改進。

Brake Adjustment Indicators out of alignment. Contact unit maintenance.

(B) 隔柵門遺失或無法固定。

Grille doors are missing or cannot be closed and secured.

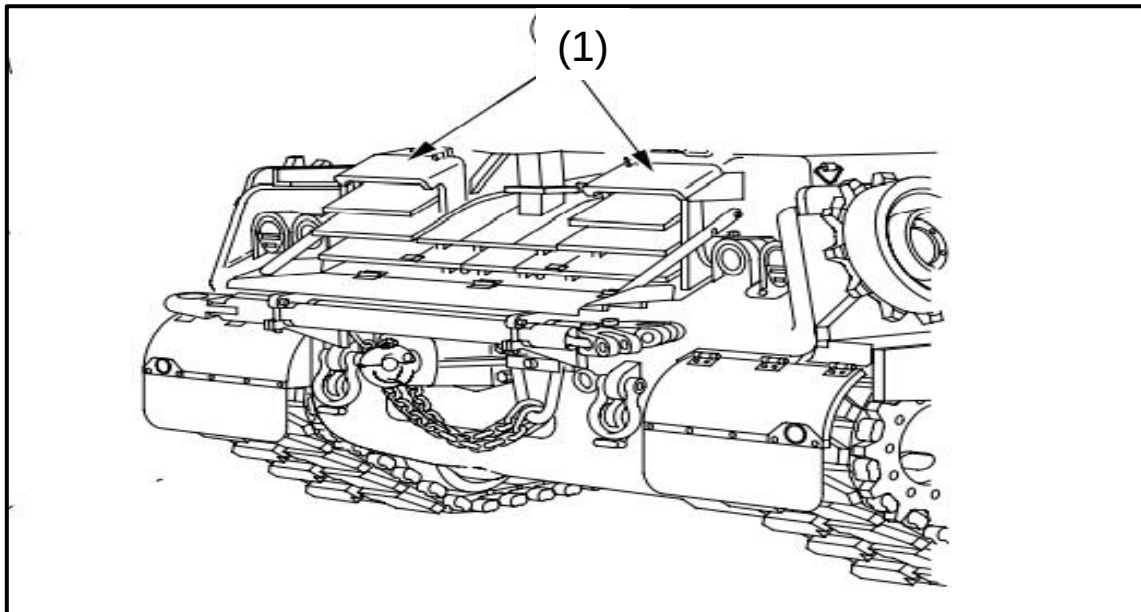


圖 28 後隔柵門

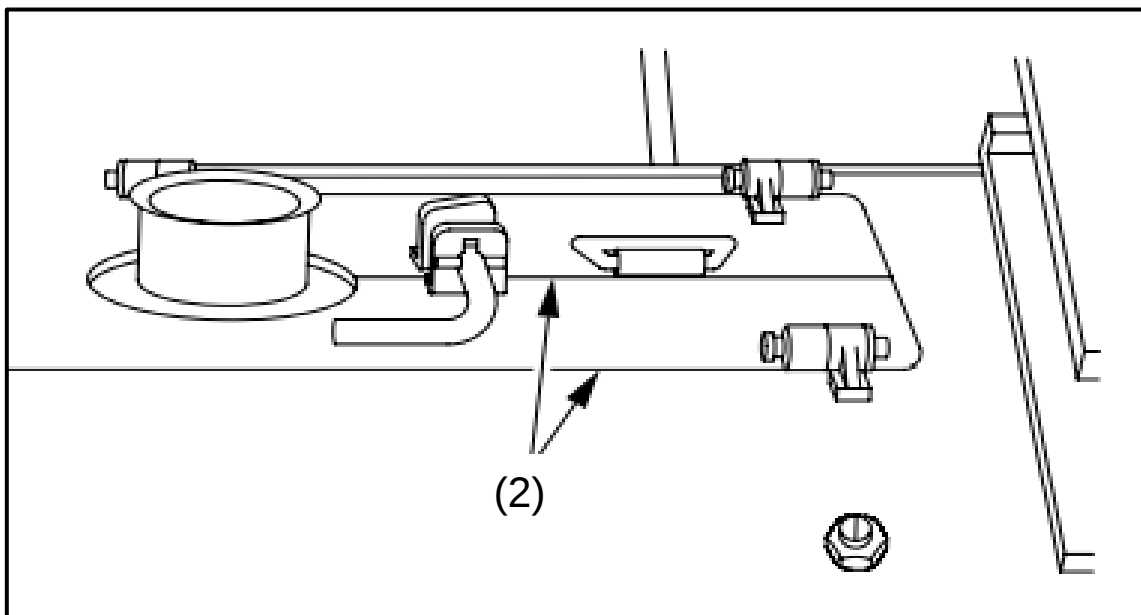


圖 29 後隔柵門

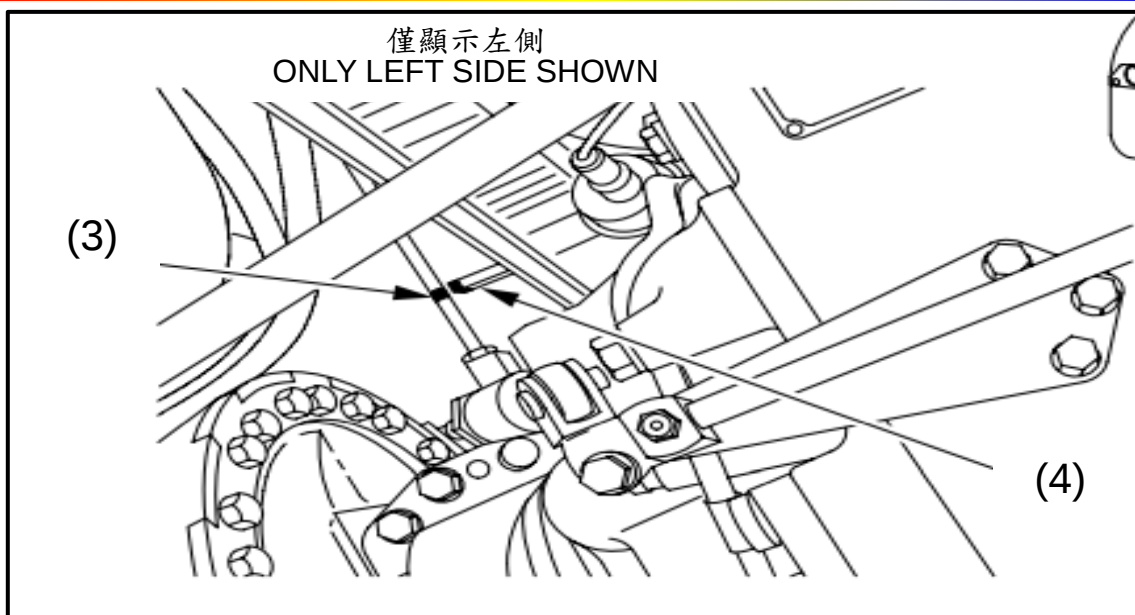


圖 30 調正記號與指示桿

(3)項次3-桁架/ Item No.3 Service Brake Adjustment and Rear Grille Doors (圖31)

A. 負責乘員/Crewmember :

駕駛/DRIVE

B. 檢查流程/Procedure :

(A) 目視檢查桁架行程鎖的操作和狀況。

Visually inspect boom travel lock for operation and condition.

(B) 目視檢查桁架桿、滑輪、油壓缸狀況和損壞狀況。

Visually inspect boom, rollers, cylinders, boom levers, and pulleys for condition and damage..

C. 以下狀況停用/Not Fully Mission Capable if:

桁架行程鎖損壞或遺失，導致桁架在車輛行駛時上下跳動；滑輪變形或損壞。

Boom travel lock is damaged or missing, which would allow boom to bounce up and down while vehicle is moving; broken or bent pulleys.

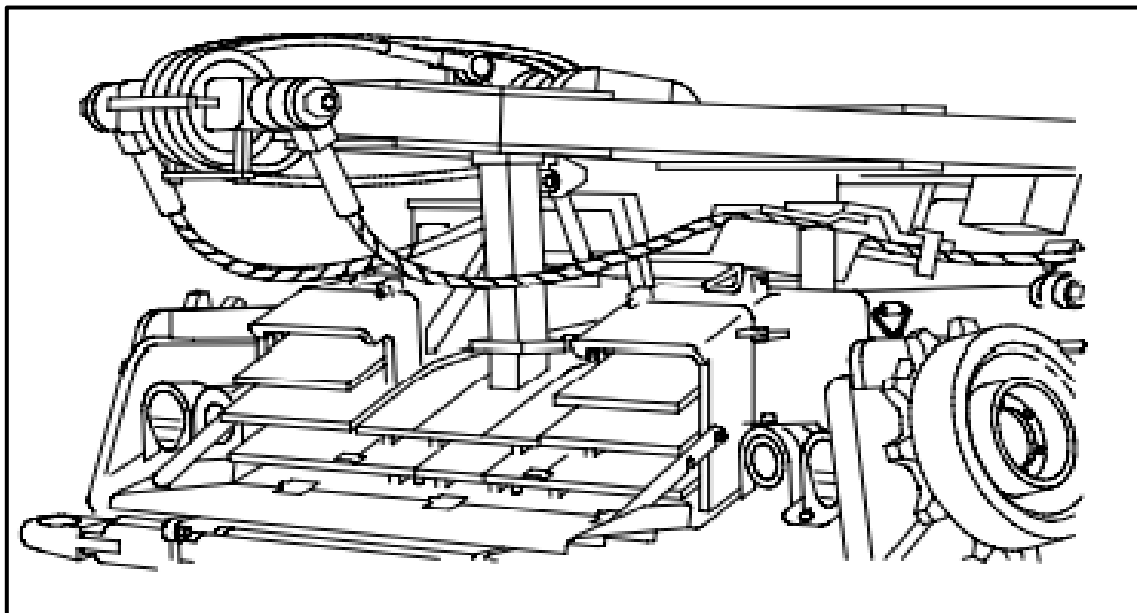


圖 31 桁架

(4)項次4-輔助動力裝置(康敏式)/ Item No.4 Auxiliary Power Unit. (圖 32)

A. 負責乘員/Crewmember :

駕駛/DRIVE

B. 檢查流程/Procedure :

將車輛停於平坦路面，打開APU艙門，並將鎖門將門固定，參照(WP 0030 00)，檢查及加註曲軸箱及鍊條箱機油，參照(表6及WP 0105 00)
Park vehicle on a level surface. Open APU compartment door until secured by hold open latch (WP 0030 00). Check and fill crankcase and check and fill chaincase in accordance with Table 6, WP 0105 00.

(A)打開發動機甲板檢修門，參照(WP 0035 00)。

Open engine deck access doors (WP 0035 00).

(B)使用容器置於燃料濾心下方，並打開排水閥，使凝結水排出。當乾淨之燃料流出後關閉排水閥。

Drain condensation from fuel filters by placing container under filter and opening drain cock to drain water. Close drain cock when clean fuel begins to flow out.

(C)檢查燃料與機油是否洩漏。

Check for oil and fuel leaks.

(D)打開發動機甲板檢修門，參照(WP 0035 00)。

Close engine deck access doors (WP 0035 00).

(E)檢查與保養輔助動力裝置的空氣濾清器，參照(WP 0117 00)。

Inspect and service APU air cleaner (WP 0117 00)

C. 以下狀況停用/Not Fully Mission Capable if:

任何燃料滲漏與機油三級滲漏。

Any fuel leaks or any Class III oil leaks.

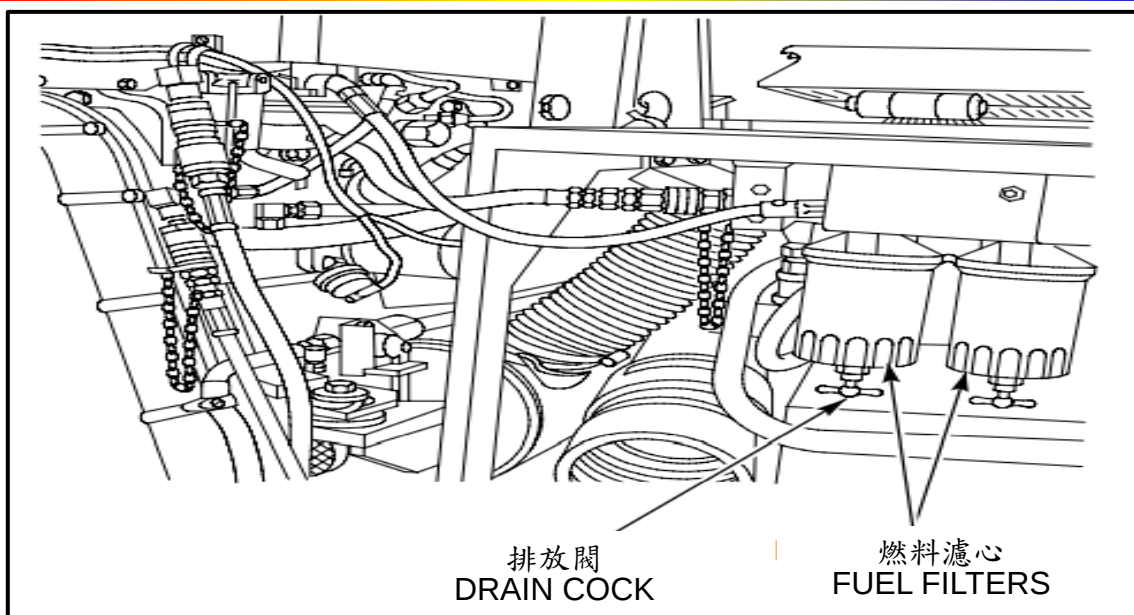


圖 32 康敏式輔助動力裝置

(5)項次5-輔助動力裝置(HATZ式)/ Item No.5 Auxiliary Power Unit(HATZ). (圖33)

A. 負責乘員/Crewmember :

駕駛/DRIVE

B. 檢查流程/Procedure :

將車輛停於平坦路面，打開APU艙門，並將鎖門將門固定，參照(WP 0030 00)，檢查及加註曲軸箱及鍊條箱機油，參照(表6及WP 0105 00)
Park vehicle on a level surface. Open APU compartment door until secured by hold open latch (WP 0030 00). Check and fill crankcase and check and fill chaincase in accordance with Table 6, WP 0105 00.

(A)打開發動機甲板檢修門，參照(WP 0035 00)。

Open engine deck access doors (WP 0035 00).

(B)使用容器置於燃料濾心下方，並打開排水閥，使凝結水排出。當乾淨之燃料流出後關閉排水閥。

Drain condensation from fuel filters by placing container under filter and opening drain cock to drain water. Close drain cock when clean fuel begins to flow out.

(C)檢查燃料與機油是否洩漏。

Check for oil and fuel leaks.

(D)打開發動機甲板檢修門，參照(WP 0035 00)。

Close engine deck access doors (WP 0035 00).

(E)檢查與保養輔助動力裝置的空氣濾清器，參照(WP 0117 00)。

Inspect and service APU air cleaner (WP 0117 00)

C. 以下狀況停用/Not Fully Mission Capable if:

任何燃料滲漏與機油三級滲漏。

Any fuel leaks or any Class III oil leaks.

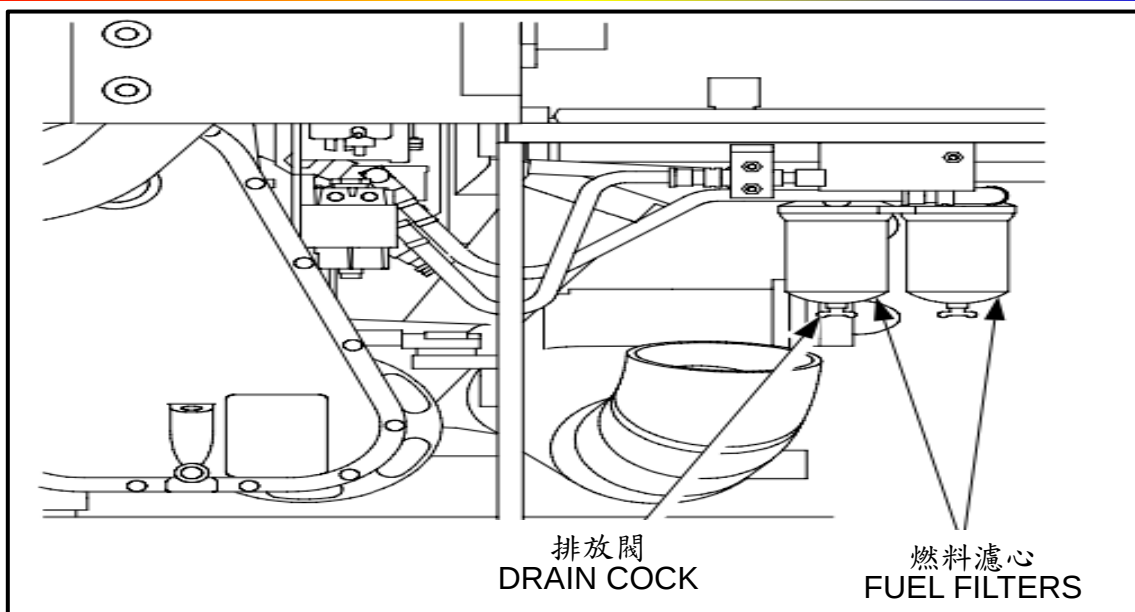


圖 33 HATZ 式輔助動力裝置

(6)項次6-頂艙門蓋/ Item No.6 Top Hatches. (圖34)

A. 負責乘員/Crewmember :

駕駛/DRIVE

B. 檢查流程/Procedure :

(A)檢查本體完整及操作正常，參照(WP 0026 00)。

Inspect for presence and operation (WP 0026 00).

(B)檢查防撞墊與門封是否鬆動及損壞。

Check for loose or damaged crash pads and door seals.

C. 以下狀況停用/Not Fully Mission Capable if:

遺失或無法使用不會固定在打開或關閉位置。

Missing/ inoperable. Will not lock in open or closed position.

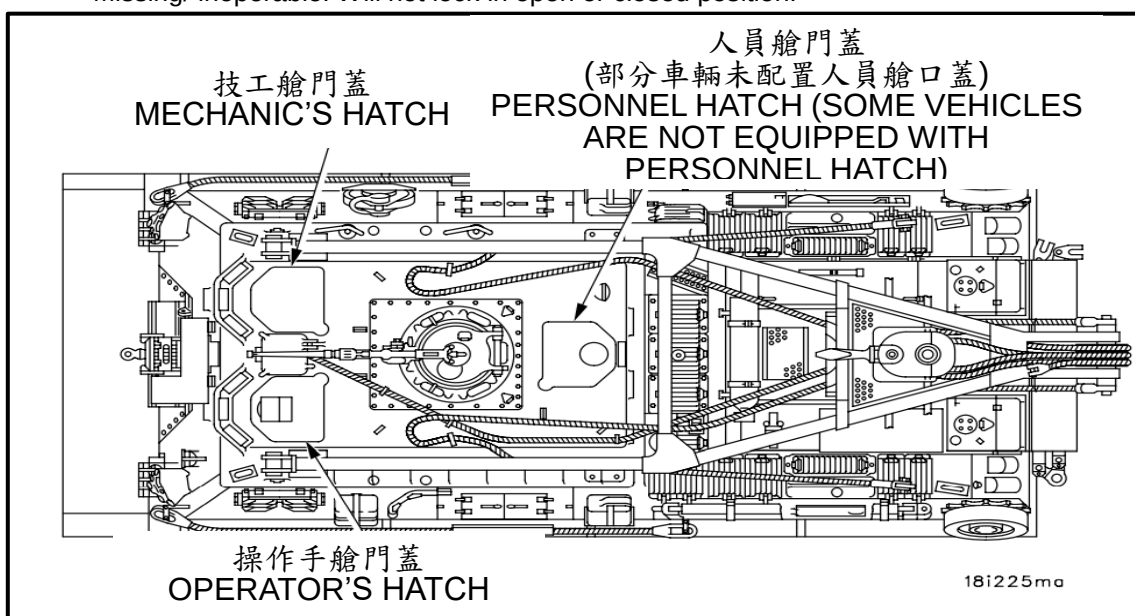


圖 34 頂艙門蓋



(7)項次7-乘員側門/ Item No.7 Personnel Side Doors. (圖35)

A. 負責乘員/Crewmember :

駕駛/DRIVE

B. 檢查流程/Procedure :

(A)檢查本體完整級操作正常，參照(WP 0024 00)。

Inspect for presence and operation (WP 0024 00).

(B)檢查防撞墊與門封是否鬆動及損壞。

Check for loose or damaged crash pads and door seals.

C. 以下狀況停用/Not Fully Mission Capable if:

遺失或無法使用不會固定在打開或關閉位置。

Missing/ inoperable. Will not lock in open or closed position.

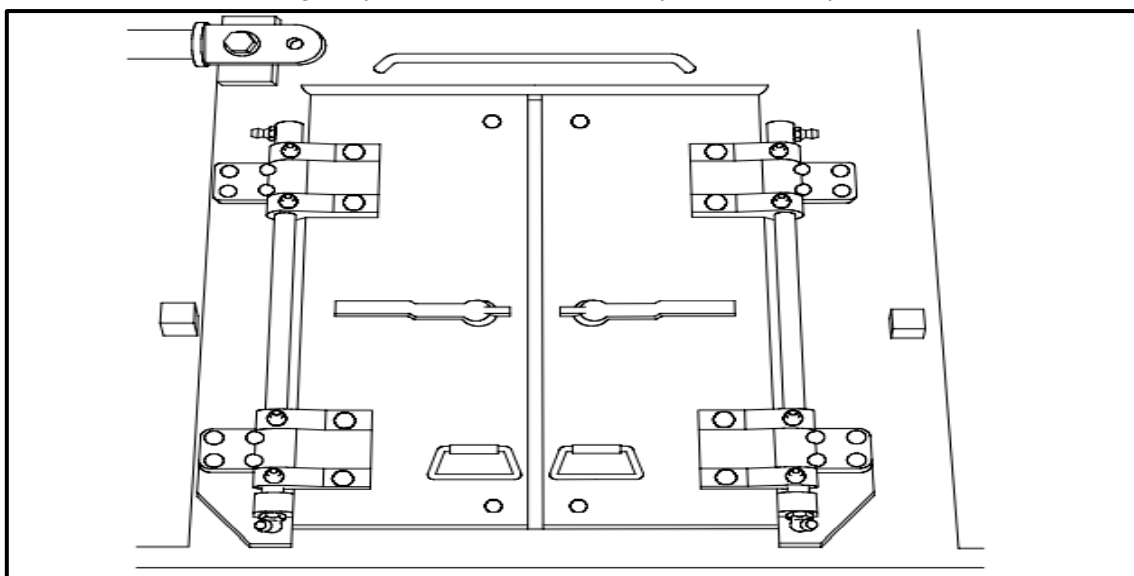


圖 35 乘員側門

(8)項次8-儲物箱和存放設備/ Item No.8 Storage Boxes and Stowed Equipment

A. 負責乘員/Crewmember :

駕駛/DRIVE

B. 檢查流程/Procedure :

檢查箱體本及設備裝況(列於表3及表4)，(參照WP 0136 00)檢查是否安全、清潔即可維修。

Check condition of boxes and equipment (listed in Tables 3 and 4, WP 0136 00) to see if they are secure, serviceable and clean.

C. 以下狀況停用/Not Fully Mission Capable if:

無

Non

(9)項次9-燈光/ Item No.9 Light(圖36)

A.負責乘員/Crewmember :

駕駛/DRIVE

技師/MECHANIC

B.檢查流程/Procedure :

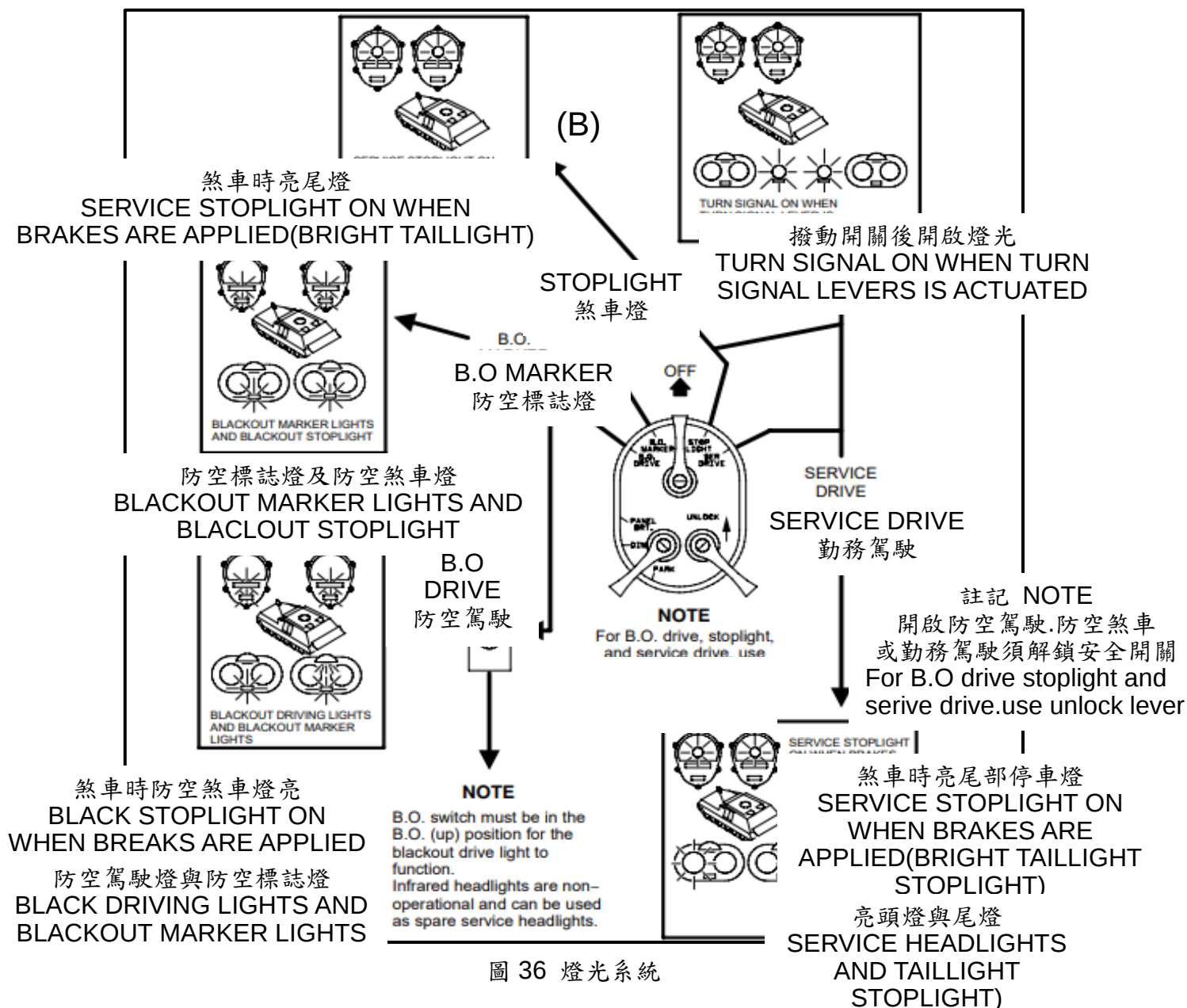
檢查燈光是否操作正常。

Check operation of lights(WP 0021 00,WP 0022 00,WP0023 00).

C.以下狀況停用/Not Fully Mission Capable if:

無

Non





(A)撥動開關後開啟燈光

TURN SIGNAL ON WHEN TURN SIGNAL LEVER IS ACTUATED

(10)項次10-駕駛夜視器材(AN/VVS-2(V))/ **Item No.10 Driver's Night Vision Viewer (AN/ VVS-2(V)) (圖36)**

A.負責乘員/Crewmember：

駕駛/DRIVE

B.檢查流程/Procedure：

(A)注意/CAUTION

保護夜視儀免受強光照射，強光會使裝備損壞。

Protect night vision viewer from bright light. Bright light will damage the unit.

(B)依據TM11-5855-249-10對裝備實施檢查及依據WP 0059 00之步

驟實施操作及檢查。

Inspect equipment in accordance with TM 11-5855-249-10 and check operation in accordance with WP 0059 00.

C.以下狀況停用/Not Fully Mission Capable if:

無

Non

(11)項次11-潛望鏡/ **Item No.11 Vision Devices (圖37)**

A.負責乘員/Crewmember：

駕駛/DRIVE

B.檢查流程/Procedure：

(A)檢查潛望鏡及其本體是否因安裝不當(密封不良)導致水氣進入。

Check for moisture entering through periscope or vision block mounting (defective seals).

(B)檢查固定本體之蝶型螺帽是否固定，並檢查潛望鏡玻璃表面是否有

髒汙、灰塵或刮痕，並使用潛望鏡清潔紙(項目35 WP 0135 00)並

依據(WP 0119 00)實施清潔玻璃表面。

Check retaining wingnuts for tightness. Check lens glass surface for dirt, dust or scratches. Use lens paper (item 35, WP 0135 00) to clean lens glass (WP 0119 00).

C.以下狀況停用/Not Fully Mission Capable if:

(A)視覺效果有50%被遮蔽。

Vision is over 50% blocked.

(B)一個(含)以上之潛望鏡遺失或損壞

One or more periscopes broken or missing.

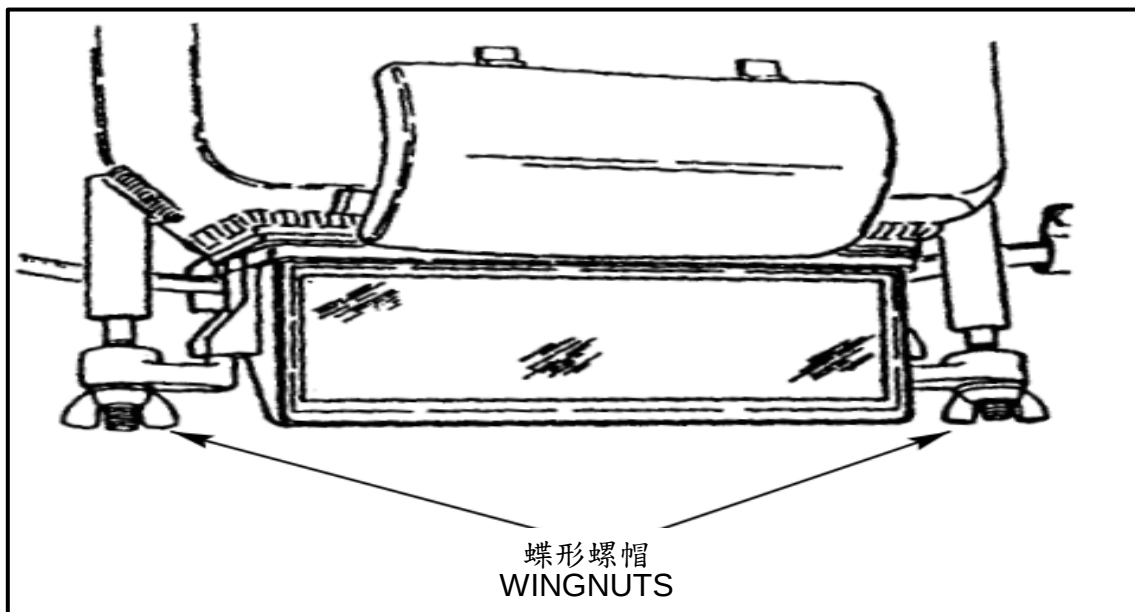


圖 37 潛望鏡

(12)項次12-人員加溫器/ Item No.12 Personnel Heater (圖38)

A. 負責乘員/Crewmember :

駕駛/DRIVE

B. 檢查流程/Procedure :

(A) 警告/WARNING

依據(WP 0056 00)打開人員加溫器並檢查是否作用正常，並檢查是否有排氣或燃料洩漏。

Turn the personnel heater on (WP 0056 00) and check for proper operation. Check for fuel and exhaust leaks.

C. 以下狀況停用/Not Fully Mission Capable if:

任何的排氣及燃油的洩漏。

Any fuel or exhaust leaks exist.

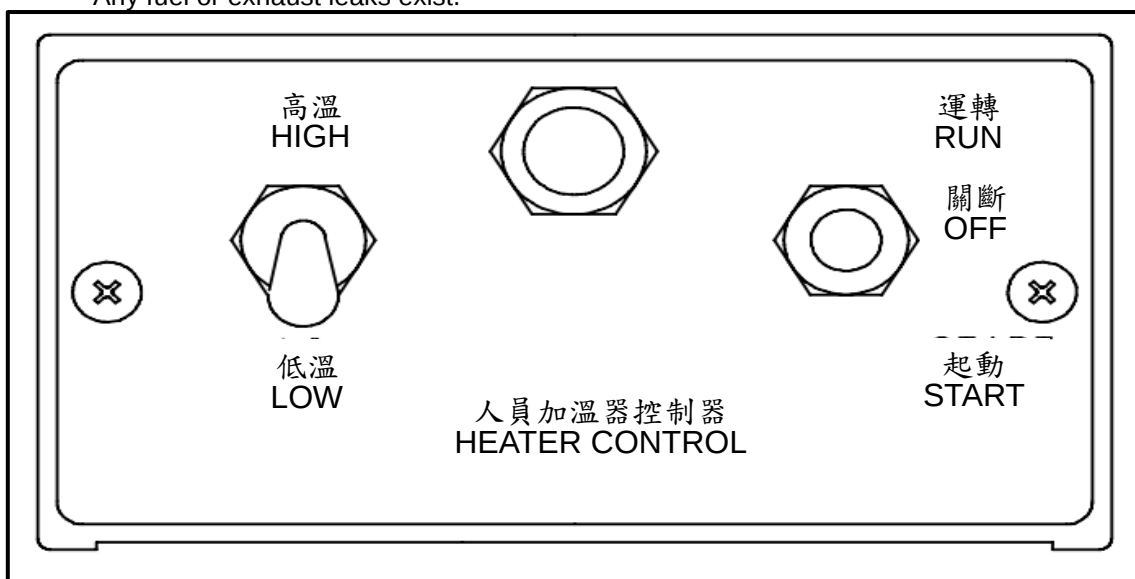


圖 38 人員加溫器



(13)項次13-氣體微粒過濾裝置(GPFU)/ Item No.13 Gas Particulate Filtration Unit (GPFU)

A.負責乘員/Crewmember：

駕駛/DRIVE

B.檢查流程/Procedure：

(A)警告/WARNING

a.依據(WP 0068 00)打開過濾裝置，並檢查裝置是否運行平順且出口有氣體排出。

Turn switch to ON. Check motor for smooth operation and check outlets for air flow (WP 0068 00).

b.檢查電纜絕緣層是否磨損、破裂或連結鬆動。

Check cable assembly for worn or cracked insulation and loose connections.

c.檢查所有軟管是否磨損、損壞或變質。

Check all hoses for wear, damage or deterioration.

d.檢查整個過濾組件視是否有凹痕、裂縫或機件損壞。

Check entire filter unit assembly for dents, cracks, or missing parts.

e.將M3加熱器開關轉至ON。檢查氣流出口是否有熱空氣。

Turn M3 heater switch to ON. Check for heated air at air flow outlets.

f.依據TM3-4240-280-10檢查防護面罩

Check protective mask in accordance with TM 3-4240-280-10.

(B)註記/NOTE

M3加熱器需運行10-15分鐘後才有產生熱氣。

M3 heater must operate 10-15 minutes before heat is felt

C.以下狀況停用/Not Fully Mission Capable if:

不能運行或無空氣流出。

Does not operate or no air flow.

三、表 5，預防性維護檢查，每月保養

TABLE4,PREVENTIVE MAINTENANCE CHECKS AND SERVICES , MONTHLY

(一)前置工作/INITIAL SETUP

1.工具與特殊工具/Tools and Special Tools

(1)手套(項目 16，表 2，WP 0133 00)

Gloves (item 47,Table 2, WP 0133 00)

2.零件及材料/Materials/Parts

(1)擦拭布(項目 45，WP 0135 00)

Wiping rags(item 25, WP 0135 00)

3.所需人員/Personnel Required

3 員

Three

4.參考文件/References

(1)WP 0050 00

(2)WP 0048 00

(3)WP 0049 00

(4)WP 0133 00

(5)WP 0135 00

(二)月保養檢查項目

PREVENTIVE MAINTENANCE CHECKS AND SERVICES, MONTHLY.

每月利用主官裝備檢查時機，執行主絞盤鋼纜等 1 項次檢查與保養，月保養受篇幅有限，僅列 1 項次主絞盤鋼纜(續譯)，餘均同行駛後保養與檢查要領實施。

1.位置：

(1)項次1-主絞盤鋼纜、起重機絞盤鋼纜、輔助絞盤鋼纜、支撐鋼纜/ Item No.1 Main Winch Cable, Hoist Winch Cable, Auxiliary Winch Cable, and Staylines. (圖39)

A.負責乘員/Crewmember：

全體乘員/CREW

B.檢查流程/Procedure：

(A)警告/WARNING

a.鋼纜可能會磨損或斷股，處理鋼纜時需穿戴厚皮革手套，以免鋼纜造成手部傷害。

Cable can become frayed or contain broken wires. Wear heavy leather-palmed work gloves when handling cable. Frayed or broken wires can injure hands

b.嚴禁鋼纜於收放時，使用手碰觸鋼纜，即使有戴手套仍是禁止，任何的斷鋼纜仍會穿透手套造成手部受傷。

Never let moving cable slide through hands, even when wearing gloves. A broken wire could cut through glove and cut hand.

(B)注意/CAUTION

a.在放鋼纜之全程需保持鋼纜張力，如鋼纜鬆弛會損壞裝備。

Always keep tension on cable during payout. Slack in cable may cause equipment damage.

b.當鋼纜完全回收時，確保主絞盤鋼纜U型夾可牢固固定於導向器中，

鋼纜鬆動會導致水平捲繞器故障指示燈亮起或損壞水平捲繞器。

Ensure main winch cable clevis is seated firmly in trumpet guide when cable is fully retracted. Loose cable may cause level winder malfunction indicator to come on or damage to level winder.

c.依據(WP 0050 00)放出主絞盤電纜、(WP 0048 00)放出起重機絞

盤電纜、(WP 0049 00)放出輔助絞盤電纜，並檢查下列項目。

Pay-out main winch cable (WP 0050 00), hoist winch cable (WP 0048 00), and auxiliary winch cable (WP 0049 00), inspect for:

(a)扭結、散開、壓碎的鋼纜

Kinked, birdcaged, or crushed cable



(b)磨損或鋼纜間有被壓平

Abrasion or peening.

(c)鋼纜腐蝕惡化

Corrosion deterioration

(d)檢查鋼纜是否斷裂

Inspect cable for breaks..

(C)註記/NOTE

鋼纜捻距或捻距長度是沿鋼纜的長度，其中一根股線繞鋼纜旋轉一圈。

A rope lay or lay length is the length along the rope in which one strand makes a complete revolution around the rope.

C. 以下狀況停用/Not Fully Mission Capable if:

(A)鋼纜被扭結、散開、擠壓到無法完全纏繞到捲筒上的程度。

Cable is kinked, birdcaged, or crushed to the point it cannot be completely wound on drum.

(B)一只鋼纜中有合計有六只鋼絲線斷裂。

Six wires in one rope lay are broken.

(C)鋼纜中一只絞線內三股鋼絲線斷裂。

Three wires in one strand in one rope lay are broken..

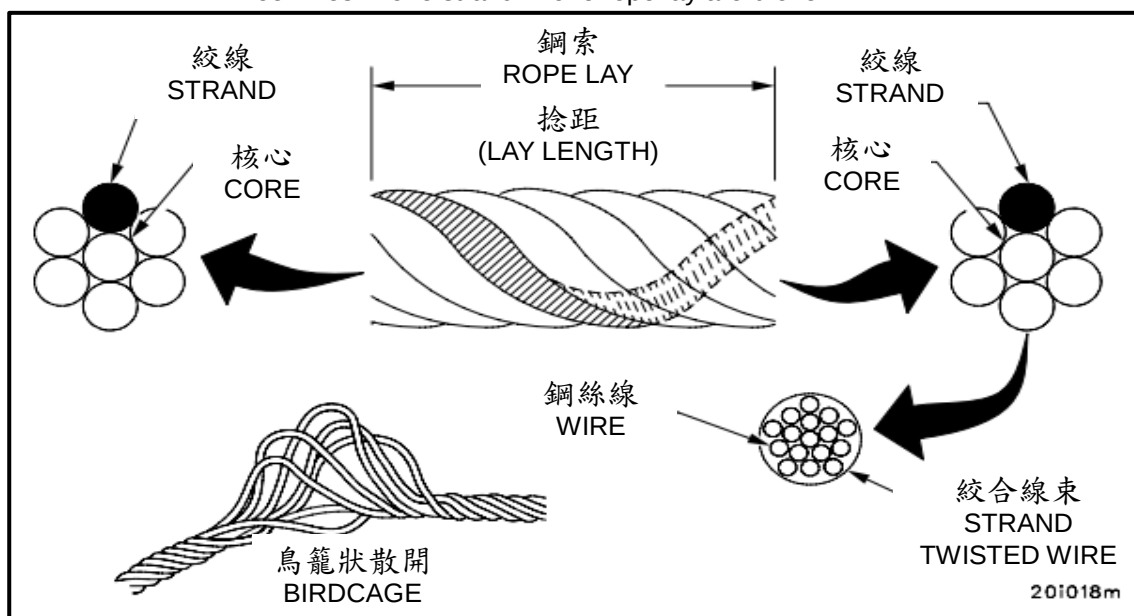


圖 39 鋼纜

參、結語

裝備妥善是發揮戰力之憑藉，隨著裝備日新月異且各項系統也越趨複雜化，由其每日預防保養檢查是各項保養中最基礎但也最重要的；在此次翻譯新式裝備M88A2戰車救濟車之操作手冊發現，雖然該裝備不論在底盤承載系統、動力系統等皆比現有之M88A1戰車救濟車更為先進，但唯一不變的是不因為新式裝備之設計精密而放棄保養中最基礎的每日檢查保養，反而更加精確分工讓全車乘員都有自己需要檢查的項目、並逐項逐動的落實檢查，以發揮裝備最大戰力

及減少因裝備損壞肇生之人員傷亡，希望藉由此篇譯文可讓裝配M88A2戰車救濟車之保修部隊成員於獲得裝備前可先行了解新式裝備所需保養之項目及要領，期能達到「保養重於保修、保修重於購置」之最終目標。



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