



第五屆東亞運動會火炬使用說明

The 5th East Asian Games Torch Instruction Manual



香港2009東亞運動會
燃氣具獨家供應商
HONG KONG 2009 EAST ASIAN GAMES
Gas Appliance EXCLUSIVE SUPPLIER

vatti 華帝™

Manufacturer: Zhongshan VATTI Gas Appliance Stock Co., Ltd.

制造商：中山華帝燃具股份有限公司

使用須知
Guidance Notes

- 1.本說明書是為第五屆香港東亞運動會火炬接力傳遞的專用火炬而編製。
This manual is compiled for torches for the 5th East Asian Games (EAG) torch relay.
- 2.為妥善認識火炬的性能並保障您的安全，使用前請仔細閱讀本說明書。
You are advised to read through this manual carefully to have a clear understanding of the torch features and ensure your safety.
- 3.使用者須在第五屆香港東亞運動會組織委員會(組委會)指定人員在場督導下操作和使用火炬，否則後果自負。
The use and operation of torches should be conducted in the presence and under the supervision of designated staff of the 5th East Asian Games Planning Committee (EAGPC), otherwise users would suffer the consequences.
- 4.如本說明書的中英文涵義有任何出入，則以中文本為準。
In case of any discrepancy in the meaning of words in the Chinese and English versions of the Manual, the Chinese version shall prevail.

中山華帝燃具股份有限公司
Zhongshan VATTI Gas Appliance Stock Co., Ltd.

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安全守則

Safety Precautions

專用燃料罐的安全守則

Safety Precautions for the use of torch- fuel tanks

- 專用燃料罐屬第二類易燃易爆的危險品，應存放在符合有關安全規定的地點。
Torch-fuel tank is a Class 2 flammable and explosive dangerous good. It should be stored in a place which meets relevant safety requirements.
- 燃料罐須由合資格的單位和工具運送。
Fuel tanks should be delivered by a qualified agent and conveyance selected for the purpose.
- 專用燃料罐不得置於高室溫及使用明火的地方，同時應避免日曬雨淋。
Torch-fuel tanks should not be stored in places with high room temperature and naked flame and be protected against sun exposure or rain.
- 不得撞擊或損毀專用燃料罐，否則可構成危險。
Do not strike or cause damage to the fuel tanks to avoid danger.
- 專用燃料罐使用完畢後，應交由組委會指定的專業人員統一回收處理。
Used fuel tanks should be collected by specialist technicians assigned by the EAGPC for further handling.
- 本批次的專用燃料罐只適用於中山華帝燃具股份有限公司為第五屆東亞運動會提供的火炬；火炬的安裝、調試及拆卸等工作只可由組委會指定的專業人員處理。
This batch of fuel tanks is only intended for the use of VATTI torches provided for the 5th EAG. Installation, testing and dismantling of the torches should only be performed by specialist technicians assigned by the EAGPC.

火炬的安全守則

Safety Precautions on the use of torches

- 儲存和運送火炬時應作好防火、防雨、防潮等保護，火炬不得存放於潮濕或含腐蝕性氣體的地點，否則可能影響其性能和外觀。
Torches should be stored and delivered with protections against fire, rain and moisture. They should not be placed in areas with high humidity or corrosive gases, otherwise their performance or appearance will be impaired.
- 儲存、運送和使用火炬時應小心輕放，以免火炬掉下或遭碰撞。
Torches should be handled with care and be protected against falling and collision during storage, delivery and use.

安全守則

Safety Precautions

- 火炬手應握持火炬下殼中部偏下的位置，並使火炬頂部朝上，使之與地平線成大於45°的角度；同時把火炬印有會徽的正面傾前握持。
Torchbearer should hold the lower-middle part of the lower casing, positioning it upright at an angle of over 45° above the horizon. The torch side bearing the EAG emblem should face front.
- 須在控制閥打開後8秒內點燃火炬，否則應立即關上控制閥，然後更換火炬，以免引起爆燃。
The torch should be ignited in 8 seconds after the control valve is opened. Otherwise, shut off the control valve immediately and replace the torch with a new one to avoid possible deflagration.
- 火炬手傳遞火炬時，應確保火炬頂部與自己保持在40厘米以上的距離，避免自己或他人被火焰或火炬灼傷，並應防止火焰或火炬燃點或損壞附近的物件。此外，應為火炬傳遞全程做好防火措施。
During torch relay, torchbearer should be mindful of keeping himself/herself from the torch at a distance of more than 40cm to prevent burns by the flame or torch, and avoid setting other nearby objects on fire. Moreover, fire precautions should be in place for the entire torch relay.
- 火炬手傳遞火炬時應避免突然加速、急停或轉身，也不可大幅擺動身體或作出奇怪的動作，以免導致火炬故障或其他安全事故。
Torchbearers should refrain from making acceleration, stops and turns suddenly, or holding the torch with swaying/awkward movements to prevent torch failure or safety hazards.
- 在低層建築物、船舶及車輛等特別場合進行傳遞時，應確保火炬不會引燃其他物件，避免引起火災。
To minimize fire risk, torchbearers should ensure that the torch will not set light on other objects during relay in special settings like low-rise buildings, boats or vehicles.
- 火炬只能在通風良好的環境使用。禁止在密閉場所操作或調試火炬。
Torches can only be operated in a well-ventilated setting. Operation or testing in a confined area is prohibited.

安全守則

Safety Precautions

●如在傳遞火炬期間發生火炬掉下等意外，應立即關閉控制閥；如火炬因控制閥失靈而無法熄滅，可採用乾粉滅火器或其他合適工具熄滅火炬，再更換火炬進行傳遞。

In case of torch falling or other accidents during the relay, immediately shut off the control valve of torch. Where it is impossible to extinguish the torch owing to a failure of the control valve, use dry powder fire extinguisher or other fire-fighting devices, if applicable, to extinguish the torch and replace it with a new one.

●如遇大風、大雨或其他惡劣天氣，應立即停止傳遞活動，以策安全。

For safety's sake, torch relay will be suspended in case of strong wind, heavy rain or hostile weather.

●傷殘及弱智人士傳送火炬時，須由專人護送。

Torchbearers with physical disability or mental handicap should be escorted by designated staff when delivering the torch.

●十六周歲以下和六十周歲以上的火炬手傳遞火炬時，須由專人護送。Torchbearers under 16 or over 60 should be escorted by designated staff when delivering the torch.

●火炬的安裝、調試及拆卸等工作只可由組委會指定的專業人員處理。

Installation, testing and dismantling of torches should only be performed by a specialist technician assigned by the EAGPC during torch relay.

●火炬傳遞時只可由組委會指定的專業人員開關。

Torches can only be switched on/off by a specialist technician assigned by the EAGPC.

●火炬使用完畢後拆下的專用燃料罐和電池，須由組委會的專業人員處理。

Used torch-fuel tank and battery removed from the torch should be handled by a specialist technician of the EAGPC.

●所有火炬手和相關工作人員在使用火炬前，需接受培訓和取得合格資格。

All torchbearers and relevant staff are required to receive training and obtain relevant qualification before using a torch.

火炬說明

Torch Features

基本資料：火炬由外殼、內部燃燒系統、熄火保護裝置和專用燃料罐等部分組成，長72厘米，淨重量1300克。每瓶燃料正常可燃燒10分鐘。火炬的主要零部件載於下圖。

Basic Information: This torch consists of an external casing, an in-built combustion system, a flameout protection device and a torch-fuel tank. It is 72cm in length with a net weight of 1300g. Normally, each bottle of fuel can sustain burning for 10 minutes. Main components of the torch are illustrated as follows:

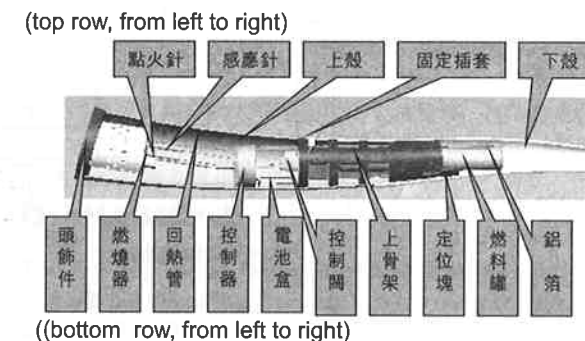


Figure 1

(top row, from left to right)

Ignition needle 點火針

Sensor probe 感應針

Upper casing 上殼

Fixing plug 固定插套

Lower casing 下殼

(bottom row, from left to right)

Top decoration 頭飾件

Burner 燃燒器

Heat recovery duct 回熱管

Controller 控制器

Battery case 電池盒

Control valve 控制閥

Upper frame 上骨架

Fixing piece 定位塊

Fuel tank 燃料罐

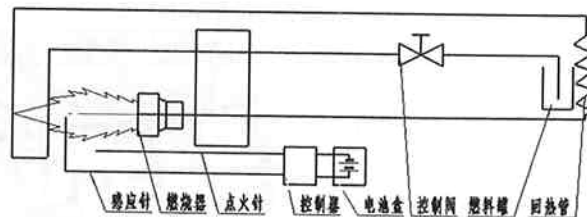
Aluminum foil 鋁箔

火炬操作要點

How a torch works?

火炬的基本原理是通過設置在控制閥上的手動開關掣打開燃料罐閥門，把燃氣輸送到燃燒器，以人手採火點燃。當火炬意外熄滅，感應針會向控制器發出信號，此時點火針會自動重新點燃火炬。

The torch can be ignited manually by turning on the switch of the control valve to open the fuel tanks, to deliver the gas therein to the burner. If the torch flame is extinguished by accident, the sensor probe will signal the controller to re-ignite the torch automatically.



From left to right

Figure 2

Sensor probe 感應針
Burner 燃燒器
Ignition needle 點火針
Controller 控制器
Battery case 電池盒
Control valve 控制閥
Fuel tank 燃料罐
Heat recovery duct 回熱管

使用前的準備

Preparations before Use

●安全檢查：備齊工具和器材，戴上手套，確保存放地點所沒有明火等安全隱患。

Safety Inspection: Prepare all tools and appliances and wear gloves. Check to ensure that the storage area is clear of possible fire risks such as naked flame.

●打開大包裝箱：用剪刀割開大包裝箱上方的封箱膠帶，打開大包裝箱。

Opening the outer box: Open the outer box by cutting the adhesive sealing tape on the upper side of it.

●取出鋁箔：取出大包裝箱內的鋁箔備用。

Taking out the aluminum foil: Remove the aluminum foil in the outer box for future use.

●打開小包裝箱：從大包裝箱取出小包裝箱，打開盒蓋。

Taking out the small inner box: Take out the small inner box from the outer box and open it.

●取出火炬：從小包裝盒取出火炬，將其包裝物放入大包裝箱保存。

Taking out the torch: Take out the torch from the small inner box and put the packaging back into the outer box for keeping.

●檢查外觀：檢查火炬外觀，標示不合規格的火炬並放到指定存放處。

Inspection of torch appearance: Check the torch appearance. Mark the substandard torches and put them in the designated area.

●檢查內部：手持火炬，上下搖晃兩次，檢查火炬內部零部件有否鬆開和脫落，然後標示不合規格的火炬，放到指定存放處。

Inspection of the inner torch: Hold the torch and shake it up and down twice to see if there is any loosen or detached part and component inside the torch. Mark the substandard products and put them in the designated area.

●關閉控制閥：插入鑰匙，以逆時針方向扭動火炬控制閥至最盡頭，確保控制閥在關閉狀態。

Closing the control valve: Insert the key and turn the control valve anti-clockwise to its full extent to make sure it is shut off.

●拔出下殼：拔出火炬中間的固定插套(圖3)，雙手分別握住上殼和下殼，向軸心用力按下即可拆開上殼和下殼。(圖4)

Pulling out the lower casing: Pull out the fixing plug in the middle of torch (Figure3), then press down the pivot to separate the upper and lower casings (Figure 4).

使用前的準備

Preparations before Use

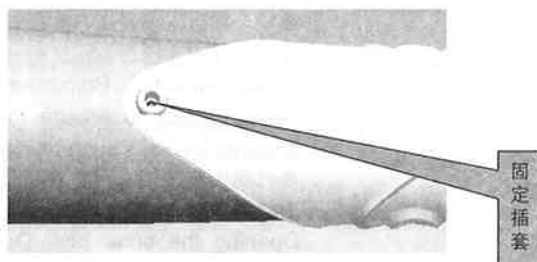


圖3 Figure 3 固定插套 Fixing plug

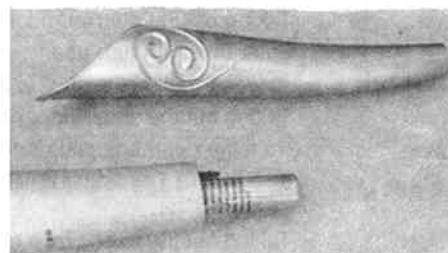


圖4 Figure 4

●拆出燃燒器：按下上骨架尾部的定位槽(圖5)，使定位槽完全脫離上殼與之對應的小定位塊，然後將上殼向尾部方向推，取出燃燒器。

Removing the burner: Press down the fixing slot at the tail of the upper frame (Figure 5) to separate it completely from its corresponding small fixing piece in the upper casing. Then push the upper casing towards the tail and take out the burner.

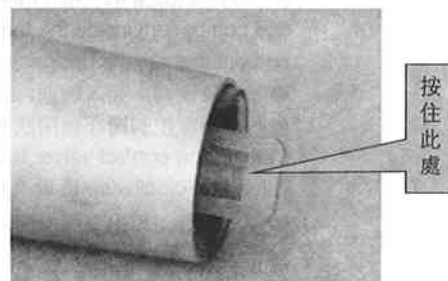


圖5 Figure 5 按住此處 Press down here

使用前的準備

Preparations before Use

a、如燃燒器因接合太緊而難以取出，請按住骨架尾部，用膠錘從尾部敲擊上骨架。

If the burner is too tightly fitted making it difficult to remove, press the tail of the upper frame and hit it from the tail end with a rubber hammer.

b、為避免燃燒器掉下損壞，應選擇在鋪設地毯或保護墊的環境進行以上程序。

To prevent damage of burner caused by a fall, you are advised to perform the above procedure in a setting paved with carpet or protective mat.

●檢查控制閥：以肉眼檢視控制閥下端燃料罐接頭內的膠墊是否安裝妥當(圖6)以及連接螺紋狀態是否良好，然後標示不合格的控制閥，放到指定存放處。

Inspection of the control valve: Visually check the rubber gasket in the fuel tank connector located at the tail end of the control valve to see if it is properly fitted (Figure 6), and ensure that the connecting screw threads are in good condition. Mark the substandard valves and put them in the designated area.

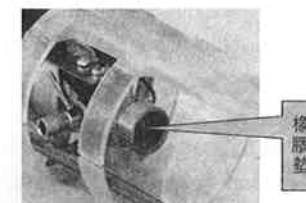


圖6 Figure 6 膠墊 rubber gasket

●拔出燃料罐：打開火炬專用燃料罐的包裝箱，取出一瓶燃料罐，擰開罐頂部的護套。

Removing the fuel tank: Remove the packaging of the torch-fuel tank and take one from it. Remove the sheath of the bottle head.

●檢查燃料罐：檢查專用燃料罐的連接螺紋是否完好，然後標示不合規格的燃料罐，放到指定存放處。

Inspection of fuel tank: Check if the connecting screw threads of the torch-fuel tank are in good condition. Substandard fuel tanks should be marked and put in the designated area.

a、燃料罐檢重：用電子磅確定專用燃料罐的總重量是否符合要求(介乎160克至180克)，然後標示不合規格的燃料罐，放到指定存放處。

使用前的準備

Preparations before Use

Weighing the fuel tank: Check out the gross weight of the fuel tank with an electronic scale to ensure it meets the relevant weight requirement (between 160 g to 180 g). Substandard tanks should be marked and put in the designated area.

b、燃料罐檢漏：手執燃料罐尾部，把罐頂部浸入環境溫度的水中，徐徐轉兩圈，檢查有否氣泡冒出水面。將出現這個情況的燃料罐標示為不合規格，然後放到指定存放處。

Detection of fuel tank leakage: Hold the tail end of fuel tank and immerse it in water at ambient temperature. Motion it in circle twice and see if there are air bubbles coming out from the water. Mark those tanks with bubbles coming out as substandard and put them in the designated area.

●安裝燃料罐：一手把燃燒器頂部向下垂直，另一手捏住燃料罐尾部，使燃料罐頂部的螺紋接頭對準控制閥，再按順時針方向輕輕轉動燃料罐(圖7)，然後擰緊(圖8)。

Installation of fuel tank: Hold the burner head vertically upside down with one hand and hold the tail end of fuel tank with the other. Make sure the screw threads at the top of the fuel tank are directed at the control valve. Gently rotate the fuel tank clockwise (Figure 7) and tighten it (Figure 8).



圖7 Figure 7



圖8 Figure 8

●火炬檢漏：握住上骨架，用鎖匙打開控制閥，點燃火炬，再用小明火從下而上檢查燃料系統是否出現洩漏現象(圖9)。過程中小明火應上下移動，不得留在同一位置，以防燒毀相關器件。

使用前的準備

Preparations before Use

Detection of leakage in torch: Hold the upper frame, open the control valve with a key and light the torch. Then, use small naked flame to check the fuel system from lower to upper to ascertain whether there is any leakage (Figure 9). During the process, move the small naked flame up and down. Do not leave the flame in one position as this will burn other relevant devices.



圖9 Figure 9

a. 如有洩漏現象應立即關閉控制閥，熄滅火炬。如在燃料罐接頭處出現洩漏，把專用燃料罐重新擰緊後再進行檢查；如在其他部份出現洩漏，即確定該火炬不合規格，並在標籤後置於指定存放處。

In case of leakage, immediately shut off the control valve and extinguish the torch. If a leakage occurs at the connector of fuel tank, retighten the bolt of the fuel tank before conducting inspection again. If a leakage on other parts is found, this torch shall be deemed substandard. Under such circumstances, it shall be labeled and kept in a designated place.

b. 如發現燃料洩漏現象，應立即用專用鎖匙關閉控制閥。如仍然不能熄滅火焰，立即使用滅火器滅火。

In case of fuel leakage, immediately shut off the control valve with a dedicated key. If the flame cannot be extinguished, put it out with a fire extinguisher promptly.

●檢查火焰高度：正常的火焰高度介乎30厘米-35厘米。如不在這範圍內，應使用2.5毫米六角扳手調節控制閥上方的調節螺釘(圖10)。火焰偏短時，順時針旋轉扳手；火焰偏長時，逆時針旋轉扳手，直至火焰高度調整妥當(火炬出廠前一般以作調整)。

Checking the flame height: The flame height usually ranges from 30 cm to 35 cm. If the height is out of this range, adjust

使用前的準備

Preparations before Use

the adjustable screw on the control valve with a 2.5 mm hex key spanner (Figure 10). To obtain the desired flame height, rotate the spanner clockwise if the flame is too short, or anticlockwise if the flame seems too tall. (The torch has been properly adjusted before delivery from the factory).

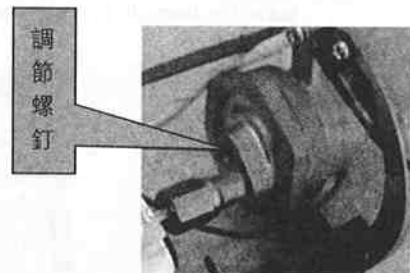


圖10 Figure 10

●檢查熄火保護裝置:對向感應針頭部吹一口氣,使火焰偏離感應針,此時如聽到點火針頭部發出“啪啪啪”的雷弧打火聲,表示熄火保護裝置正常。如熄火保護裝置操作不正常,須交由專業人員處理。

Checking the flameout protection device: Blow a breath towards the sensor probe to deviate the flame from it. When the Ignition needle emits crack sounds of arc ignition, it indicates that the flameout protection device is functioning properly. Rectification of the faults in the device shall be conducted by a specialist technician.

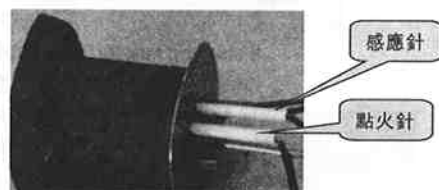


圖11 Figure 11

●熄滅火炬:火炬調整妥當後立即關閉控制閥,熄滅火炬。如在檢查和調整火焰時消耗的燃料過多(即裝上專用燃料罐後控制閥累計開越5分鐘),應更換專用燃料罐並作相應檢查。

Extinguishing the torch: After adjusting the flame height, immediately shut off the control valve and extinguish the torch.

使用前的準備

Preparations before Use

If excessive fuel is consumed during inspection and flame adjustment (i.e. the control valve with the torch-fuel tank installed has been opened for a total of more than 5 minutes), the torch-fuel tank shall be replaced and relevant inspection shall be conducted again.

●整理回熱管:為確保回熱管把足夠熱量傳送給燃料罐,必須使回熱管與燃料罐緊接,並把回熱管置於鎖匙孔左側,而非在中間位置。

Adjusting the heat recovery duct: To ensure the transfer of sufficient heat to the fuel tank, the heat recovery duct and fuel tank shall be kept close together. Place the heat recovery duct on the left side of the keyhole instead of its centre (Figure 12).



圖12 Figure 12

●用鋁箔包裹:取出一張備用鋁箔,撕出防黏紙,用鋁箔把回熱管及專用燃料罐裹緊(圖13),使回熱管緊貼專用燃料罐,並確定回熱管沒有上下纏結。

Wrapping with an aluminum foil: Get a piece of aluminum foil and tear off the release paper. Wrap the heat recovery duct and torch-fuel tank firmly with the aluminum foil (Figure 13), so that they are closely fitted together. Make sure that the heat recovery duct is not tangled up.

●把燃料器裝回上殼:將裝安燃料罐的燃料器裝回上殼,此時應確定上骨架尾部的定位槽被上殼上的小定位塊準確定位。
Reinstalling the burner to the upper casing: Reinstall the burner equipped with fuel tank to the upper casing. Then, ensure that the fixing slot on the bottom of the upper frame is firmly positioned by a small fixing piece on the upper casing.

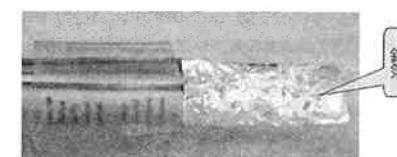


圖13 Figure 13

使用前的準備

Preparations before Use

●裝回下殼：把下殼裝回火炬，並在先前取下的固定插套入原位置。

Reinstalling the lower casing: Reinstall the lower casing into the torch, insert the fixing plug removed before back into the original position.

●裝回包裝箱：把火炬套上塑膠套後再放入小包裝盒。至此，準備工作完成。

Putting the torch back to the packaging box: Wrap the torch with a plastic protective cover and put it back into the small packaging box. The preparation work is now finished.

使用方法

How to Use

●取出火炬：在使用前約5分鐘從包裝內取出火炬，並確認火炬處於正常狀態。

Unpacking: Take out the torch from the packaging box about 5 minutes before use. Make sure that the torch is in good condition.

●點燃火炬：提前5至8秒打開火炬的控制閥開關，待火炬手傳遞過來的火種靠近時，把火炬頂部靠向火種，即可把火炬燃點，進行傳遞（要求火炬手在火炬點著後在原地停留3至5秒，然後才進行傳遞）。

Lighting the torch: Open the control valve of the torch 5 to 8 seconds in advance. When the torch flame carried by a torchbearer is approaching, turn the head of the torch towards the flame, light the torch and start another leg of the relay. (Having lit the torch, the torchbearer shall remain in the original position for 3 to 5 seconds before starting another leg of the relay.)

●握持方法：火炬手應握持火炬下殼中部偏下部分，使火炬頂部朝上且保持直立，並使印有會徽的正面朝前。

Torch-holding method: The torchbearer should hold the lower middle part of the lower casing to keep the torch upright with the side bearing the EAG emblem facing front.

●動作要求：火炬手在傳遞過程中應避免突然加速、急停和轉身，火炬在傳遞過程中最大傾斜角度應不超過45°。

Movement requirements: The torchbearer should avoid sudden acceleration, stopping and turning around during the relay. The inclination angle of the torch during the relay should be no more than 45°.

●火炬掉下的處理方法：傳遞過程中如發生火炬掉下的意外，應立即關閉控制閥開關。如控制閥開關失效而不能熄滅時，應使用乾粉滅火器或其他合適工具熄滅火炬，更換火炬後才進行傳遞。

Handling of torch falling: If the torch is dropped accidentally during the relay, immediately shut off the control valve. If the torch cannot be extinguished due to the defective switch of the control valve, a dry powder fire extinguisher or other fire-fighting devices, if applicable, should be used to extinguish the torch. Then, replace the torch with a new one before starting another leg of the relay.

使用方法

How to Use

●火炬意外熄滅的處理方法：傳遞過程中如發生火炬熄滅的意外，應立即關閉控制閥開關，更換火炬後才進行傳遞。

Handling of accidental flameout: If the torch flame goes out during the relay, immediately shut off the control valve and replace the torch with a new one before starting another leg of the relay.

●熄滅火炬的處理方法：在一般情況下，已完成傳遞的火炬應待下一支火炬的火焰穩定狀態(點著後3至5秒)，並已開始進行傳遞後才關閉控制閥開關，熄滅火炬。

Extinguishing the torch: Generally speaking, if a torchbearer finishes a leg of the relay, the lit torch should be extinguished by shutting off the control valve after the torch flame carried by the next torchbearer has become stable (wait for 3 to 5 seconds after the torch is lit) and another leg of the relay has begun.

傳遞後的處理

Handling of Torch after Relay

●冷卻：剛熄滅的火炬頂部仍然很灼熱，為免灼傷，應先把熄滅的火炬冷卻至少5分鐘，然後才進行操作。不可把火炬立即裝入包裝盒內，以免引起著火。

Cooling: The torch head remains hot even after it is extinguished. To avoid burns, let the extinguished torch cool down for at least 5 minutes before handling it. Do not immediately put the torch back into the packaging box to prevent any fire risk.

●拔除下殼：待火炬冷卻後，取下固定插套，把下殼拔除。

Removing the lower casing: After the torch is cooled down, remove the fixing plug and withdraw the lower casing.

●撕開鋁箔：將包裹燃料罐與回熱管的鋁箔撕開。

Tearing off the aluminum foil: Tear off the aluminum foil covering the fuel tank and heat recovery duct.

●拆除燃料罐：兩手分別握住上殼和專用燃料罐，以逆時針方向旋轉專用燃料罐，把其擰出，然後把用後的專用燃料罐交給指定人員集中處理。

Removing the fuel tank: Hold the upper casing and torch-fuel tank with both hands. Rotate the fuel tank anticlockwise and withdraw it. The used fuel tank shall be handed over to designated personnel for centralized disposal.

●重新裝入下殼：把已拔除的下殼裝回火炬，並把固定插套置於原位。

Reinstall the lower casing: Reinstall the lower casing to the torch and insert the fixing plug back into the original position.

●包裝：先把火炬及其說明書裝入塑膠防護套，然後再放入小包裝盒。

Packing: Put the torch and the relevant user manual into a plastic cover. Then, place them back into the small packaging box.