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**CT POWER**

**OPERATION & MAINTENANCE  
MANUAL**

**Original instruction**

## **GLOBAL-POWER CO.,LTD**

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# FOREWORD

TO OWNER, USERS, and OPERATORS:

The purpose of this manual is to give you a complete understanding of CTPOWER truck and enable you to operate it correctly and safely. Additionally it can help you to avoid, and provide you with the solutions to the troubles that may occur during operation.

The safe and efficient operation of a lift truck requires skill and alertness on the part of the operator. To develop the skill required the operator, we must:

- \* Adopting proper training in the operation of this forklift.
- \* Understanding capabilities, limitations and rules of the forklift well before operation.
- \* Becoming familiar with the structure of the forklift and maintained know-how.
- \* Reading and understand the warnings and operating procedures in this manual.

We cordially suggest that you read this manual carefully; only by doing so, the minimum troubles, and the maximum safety and performance of the forklift truck may be achieved under the proper operation and maintenance. In addition a qualified person, experienced in lift truck operation, must guide a new operator through operation lesson before operate the forklift alone.

We trust that safety is the most important cause in the daily operation of a truck. If every operator can follow the safety rules which given in this manual, that will help you to prevent from even one accident. The writing of this text has served a real purpose.

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Additional information that describes the safe operation and use of forklift is available from the following sources :

- \* Employment safety and health standards or regulations.
- \* Safety codes and standards.
- \* Publications from government safety agencies, government insurers, private insurers and private organizations.

NOTE : Forklift truck was designed for a single operator. There is no safe place on a lift truck for any passenger or elevating people.

NOTE : CTPOWER forklifts are not intended for use on public roads.

NOTE : The following symbols and words indicate safety information in this manual.

WARNING : Indicates a condition that can cause injury !

CAUTION : indicates a condition that can cause property damage !

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# 前言

致購買客戶,使用者和操作者:

此一手冊主要提供給你如何充分認識與正確操作堆高機的相關資訊,以及在使用過程中所可能發生的問題及排除的方法。

堆高機駕駛者需要具有熟練的技巧及謹慎的態度,才可安全及有效率的操作堆高機。駕駛者須具下列條件才可了解駕駛技巧:

- \* 接受正式的堆高機駕駛操作訓練。
- \* 在操作堆高機前,需詳細了解堆高機性能、限制及規定。
- \* 熟悉堆高機的結構並知道如何保養。
- \* 閱讀並瞭解手冊中的警告事項及操作程序。

我們懇切的建議您詳閱本手冊並務必詳記其中內容,唯有如此才得以使機器在正常操作及適當保養下,達到降低故障與發揮最高安全的功能。除此之外,合格有經驗的人員施予新手一些駕駛的訓練課程是必要,尤其在新手能獨立操作前更顯重要。任何有經驗的人員如每一個駕駛者均能確實遵守手冊中所列舉的安全守則,我們相信,對於各位的安全操作將有相當大幫助。任何的小事故,如能在事前獲得預防,就達到了我們編印手冊的目的,使我們感到非常的榮幸。

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下列資源提供你額外的安全操作及使用的資訊:

- 職員安全及健康的標準及規定
- 安全法規及標準
- 政府安全單位的出版品、政府的保險機構,私人保險公司及機構。

注意:堆高機是設計用來承擔貨物的。因此,請勿用來搭載人員或作為電梯使用。

注意:不可在公路上使用堆高機。

注意:下列標示及文字指的是本手冊的安全資訊。

警告:說明這種情況危險,可能會造成傷害。

小心:說明這種情況危急,可能會對財產造成損失。

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# 1. MODEL DESCRIPTION

## 1.1 General

This manual provides the following models of lift trucks:

- \* FD15、FD18、FD20、FD25、FD30、FD35、FD40、FD45、FD50 SERIES
- \* FG15、FG18、FG20、FG25、FG30、FG35、FG40、FG45、FG50 SERIES
- \* FG(LPG)15、FG(LPG)18、FG(LPG)20、FG(LPG)25、FG(LPG)30、FG(LPG)35、FG(LPG)40、FG(LPG)45、FG(LPG)50 SERIES

-The FD series are available with ISUZU C240PKF-23、4JG2-PE、4JG2-PJ03、PERKINS 1104C-44 or NISSAN TD42 engine.

-The FG series are available with NISSAN H20、NISSAN H25、NISSAN K25 or NISSAN TB-42 engine.

-The FG(LPG) series are available with IMPCO GM 3.0、IMPCO GM4.3、NISSAN H20、NISSAN H25、NISSAN K25 or NISSAN TB-42 engine and LPG (Liquefied Petroleum Gas) conversion system.

There are two transmission systems: Manualshift and Powershift (for above 4 ton), they can be equipped for each FD/FG/FG (LPG) series.

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## 1. 機種概述

### 1.1 概述

本操作手冊將提供於下列機種：

- \* FD15、FD18、FD20、FD25、FD30、FD35、FD40、FD45、FD50 系列。
- \* FG15、FG18、FG20、FG25、FG30、FG35、FG40、FG45、FG50 系列。
- \* FG(LPG)15、FG(LPG)18、FG(LPG)20、FG(LPG)25、FG(LPG)30、FG(LPG)35、FG(LPG)40、FG(LPG)45、FG(LPG)50 系列。

—FD 系列使用引擎有：ISUZU C240PKF-23、4JG2-PE、4JG2-PJ03、PERKINS 1104C-44 or NISSAN TD42 系列。

—FG 系列使用引擎有：NISSAN H20、NISSAN H25、NISSAN K25 or NISSAN TB-42 系列。

—FG(LPG) 系列使用引擎有：IMPCO GM 3.0、IMPCO GM4.3、NISSAN H20、NISSAN H25、NISSAN K25 和 NISSAN TB-42 系列及液化瓦斯轉換系統。

變速系統有兩種：手動及自動排檔(4T以上)，在所有機種上可以安裝以上任何一中變速系統。

### 1.2 How to use L.P.G (Liquefied Petroleum Gas) safety

We have supplied with the L.P.G. CARBURETION SYSTEM in the forklift of CTPOWER FG (LPG) model, but we do not supply the customer with the L.P.G container.

Therefore, when you will use L.P.G system, please refer to the instruction manual of L.P.G. CARBURETION system very carefully.

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The specification of L.P.G. is the HYDROCARBONS or C3 and C4, therefore as the safety requirement of L.P.G. container must comply with local's legislation and criterion of the mix ratio.

Furthermore, it requires strictly that the L.P.G. CARBURETION SYSTEM must be only installed L.P.G container by qualified personnel.

### **Safety instruction for LPG**

1. There is a variation in equipment for filling LPG tanks. The local authorities that have jurisdiction have specific rules and regulations for filling LPG tanks. Make sure these rules and regulation are available and understood.
2. Close the fuel valve on the tank when parking the lift truck more than momentarily.  
Do not store LPG tanks near heat or open flame.  
Do not park the lift truck near heat or ignition sources.  
LPG is extremely flammable. When checking or filling an LPG tank: No smoking. Stop engine.  
Frost or LPG odor indicates a leak. Inspect and repair a leak immediately. Do not start the engine.  
Only trained and authorized personnel are permitted to operate filling equipment.  
Filling LPG tanks outdoors. Stay at least 15 metres (50 feet) from buildings, motor vehicles, electrical equipment or other ignition source. Stay at least 5 metres (15 feet) from LPG storage tanks.
3. Do not use and LPG tank that is damaged. A damaged LPG tank must be removed from service. A damaged hose or fitting may cause LPG fuel leaking and cause an explosion and fire hazard.
4. Before using the LPG system, the driver must confirm that the LPG tank is in the correct position on its bracket.
5. The size of the LPG tank cannot be over the truck configuration.
6. Change-over of Fuel

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### **LPG to Gasoline**

- (1) Rev up engine and turn change-over switch to gasoline side.
- (2) Close valve of gas cylinder after the engine turns smoothly.

### **Gasoline to LPG**

- (1) Open valve of gas cylinder
- (2) Turn off change-over switch, then turn it to LPG side before the engine stops.

## **1.2 如何安全使用液化瓦斯方法**

我公司 LPG 車型裝有液化瓦斯汽化系統，但並未附液化瓦斯桶給客戶。

因此，當你要使用液化瓦斯系統時，請仔細參考指導手冊中有關液化瓦斯的汽化系統。由於，液化瓦斯是高碳化合物的產品，混合比率請參照當地的法規與標準。

此外，嚴格要求液化瓦斯桶只能由合格人員安裝至機台。

### **液化瓦斯的安全須知**

1. 填充液化瓦斯桶的配備各地不同，請記得拿到這些管理規章並確保瞭解使用方法。
2. 非短暫停車時請關掉燃料閥  
液化瓦斯不要存放於高溫或火源附近。  
車輛也不要停放於這些火源附近。  
液化瓦斯極易燃燒。  
檢查或填充時，禁止吸煙並要將引擎熄火。





## 2. DESCRIPTION OF FORKLIFT

### 2.1 The regular using of the forklift

The function of forklift is designed to pick up and move objects. The assembly of forklift is including lift mechanism and forks in the front for provide loading. The lift mechanism lifts can move and stack the object.

Most of people seem to drive forklift is the same as driving an automobile, that's wrong. The driving procedure of forklift might similar automobile, (e.g. Looking where you are going and start/ stop smoothly...etc). However a lift loading is special mechanical that designed complete different from automobile, because the operation space of forklift is very narrow and it's other operation factors (e.g. rear wheel steering and tail swing...etc). Every operator must accepted extra training, even he already owns automobile license.

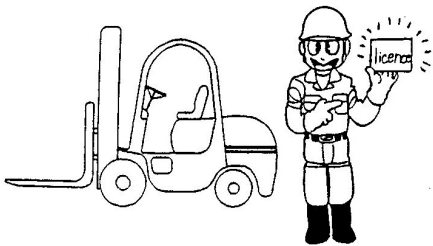
#### 2.1 車輛的正常使用

堆高機是用來承載貨物的。基本上堆高機配備有舉昇機件及貨叉在前頭以便於承載負荷，舉昇機件舉起負載，然後移動及堆放。

很多人誤以為開堆高機像開轎車一樣，這是不對的。開堆高機的程序或許類似開轎車（譬如說，你要注意看到你往那個方向走，緩緩地啟動及停車等...等）。但堆高機的舉昇是個很特別的機械設計，與轎車的操作性能完全不一樣，因為堆高機操作的空間很窄和其他的因素，譬如：後輪轉動及甩尾等特性。每位駕駛必須接受另外的訓練，即使他已持有轎車的駕照。

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### The following discussion lists basic requirements to forklift operation:



下列討論為堆高機的操作基本需求：

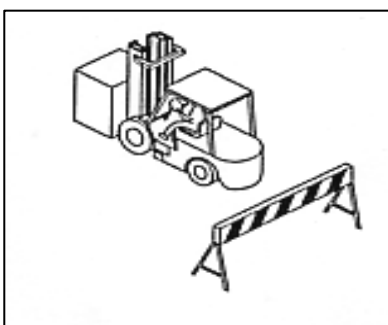
#### 2.1.1 AUTHORIZED AND TRAINED OPERATOR ONLY.

This means the operator must be trained to drive the lift truck and it means that the operator must thoroughly understand the procedures for lift truck operation. It also means that a qualified person experienced in lift truck operation must guide the operator through several driving and load

handling operation before the operator attempts to operate the lift truck alone. A basic education in proper driving and load handling techniques is absolutely necessary to prepare the new operator for proper defensive driving and to expect the unexpected.

#### 2.1.1 僅提供持有合格執照和受過合格訓練的駕駛員

這意思是說：堆高機的駕駛員必須接受過駕駛訓練，而且必須完全瞭解操作堆高機的程序。這也表示持有合格執照並具有駕駛人員經驗，需領導新手正確駕駛及處理貨物技巧，在他們能單獨操作前，這些的基本教育是了讓新手具有適當的駕駛能力和並具有處理意外的事件的技巧。



2.1.2 Operate the forklift only in areas that have been approved for forklift operation, and strictly prohibit operating on the public highway. Certain areas contain hazardous flammable gases, liquid, dust, fibers or other materials.

Lift trucks that are operated in these areas must have special fire safety approval.

These areas must be designated to show the type of lift truck approval required for operation in the area. Changes to special equipment or poor maintenance can make the lift truck lose its special approval.

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2.1.2 只在允許堆高機操作的地方操作，而且嚴禁在公路上使用，有些特定的區域存有危險的易燃瓦斯、液體、塵埃、光纖或其它物質。

在這些地區操作的堆高機必須具備特殊的防火配備，這些地區要顯示准許在此使用堆高機的條件是什麼，更改特殊配備或保養不良會使這些特許使用的堆高機失去其它特殊的使用條件。



2.1.3 不能承載人員。堆高機是只用來承載駕駛一人而已，任何在貨叉上或其他的搭乘的人是相當危險的事。

### Warning

This lift truck is designed and intended for handling materials. Do not use a lift truck to lift people unless it has been determined that there is no other practical option (scaffolds, elevated work platforms, aerial baskets, etc) to perform the needed work. If a lift truck is used to elevate a worker, a safety platform must be attached to the forks and carriage. It must be equipped with a solid floor, hand rail, toe board, a screen or shield with height of 2 meters at least so that it can prevent the worker from falling down.



Before worker is allowed in the platform, lift and lower the upright slowly with the platform in place to make sure lifting upright works properly. Apply the parking brake. Do not travel while there is a person standing on the platform. The operator must remain at the controls. Watch out for the possible overhead obstructions.

### 警告

本堆高機是用來處理貨物的，請勿用來承載人員，除非沒有其他實際選擇，比如鷹架、舉高的工作平台或沒空中纜車等可以執行必要工作時。如果堆高機用來舉高工人，貨叉及托架必須附有安全的工作平台。這平台底板

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要堅硬以防止腳和工人整個滑落。介於站在平台上的人與舉昇機器間的扶手，腳趾板及防護欄至少要有2公尺高。

在允許任何人上平台前緩緩地升降附有平台的桅桿以確定桅桿功能正常，此時要手煞車停妥。人再平台上時，不要移動車輛。駕駛不能離開駕駛座，小心頭上的障礙物。

2.1.4 Do not drive a lift truck into an elevator unless authorized to do so. Approach the elevator slowly. After the elevator is properly leveled, the lift truck must be centered so that the elevator is balance.

When the lift truck is in the proper position in the elevator, pull up the brakes, put the control in NEUTRAL, and shut off the power. It is advisable that all other personnel leave the elevator before the lift truck is elevated.

2.1.4 禁止將堆高機開到電梯上，除非有特別授權可以如此做。緩緩地接近電梯，等電梯停穩後，堆高機必須慢慢地移動以保持電梯平衡。

當堆高機到達電梯內的正確位置時，煞車打空檔、熄火並建議所有其他人員再堆高機進入或離開電梯時離開電梯。

2.1.5 Drive carefully, observe traffic rules and be in full control of the lift truck at all times. Be completely familiar with all the driving and load handling techniques contained in the operating manual.

### 2.1.5 小心駕駛

遵行交通規則並一直完全掌控堆高機。熟悉本書內所描述的一切駕駛及貨物處理技術。

### 2.1.6 Personal protection equipment

We recommend the driver to wear gloves, safety footwear, and ear protector when necessary and mouth protector when driving in a closed area and wear enough clothes to keep warm when operating it in outdoor where the working environment is cold.

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### 2.1.6 保護人員的配備

駕駛堆高機時，建議戴手套、穿安全鞋，必要時並戴耳罩。在密閉的區域要戴口罩；在戶外天寒時要穿足夠的衣物保暖。

### 2.1.7 Limits of the truck

General the truck are operated under the following climate conditions:

- \* Max ambient temperature, continuous duty: 40°C ; Lowest ambient temperature: -20°C.
- \* Service altitude: up to 2000m.
- \* Relative humidity: 30-95%(non-condensing).
- \* The truck can be used in a well-ventilated area outdoors and indoors, but it can not be used in a enclosed area, where it is less than 4m<sup>3</sup>.
- \* When driving the forklift in a raining weather, the driver should wear raincoat and let the taillights blink. Since the sight is bad, so please drive particularly carefully.

The truck cannot be used in a potentially explosive atmosphere. The truck's foreseeable service limit is about seven years. Where trucks are required to operate under more sever conditions, please contact with dealer.

### 2.1.7 車輛的限制

一般情形，車輛可以再下列天氣條件下操作：

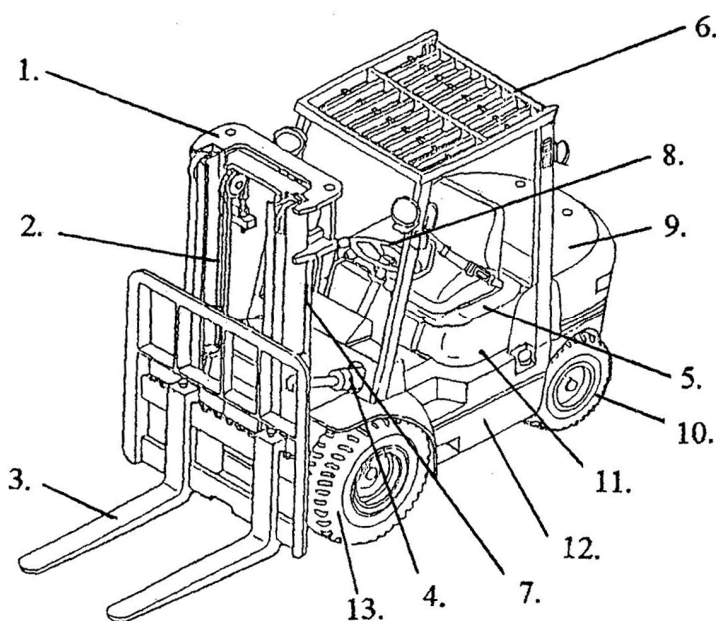
持續工作時，最高溫 40°C；最低溫-20°C。

- \* 最高離海平面高度：2000 公尺。
- \* 相對溼度：30-95%（非濃縮）。
- \* 不管在室內或室外通風要良好，不能於在小於 400 平方米的密封區域操作。
- \* 雨天行駛時駕駛必須穿雨衣、閃尾燈。因視線不良駕駛要格外小心。

在可能引爆的區域禁用堆高機。預期堆高機的最長使用壽命是 7 年。如堆高機要在更嚴厲的條件下使用，請接洽業者。

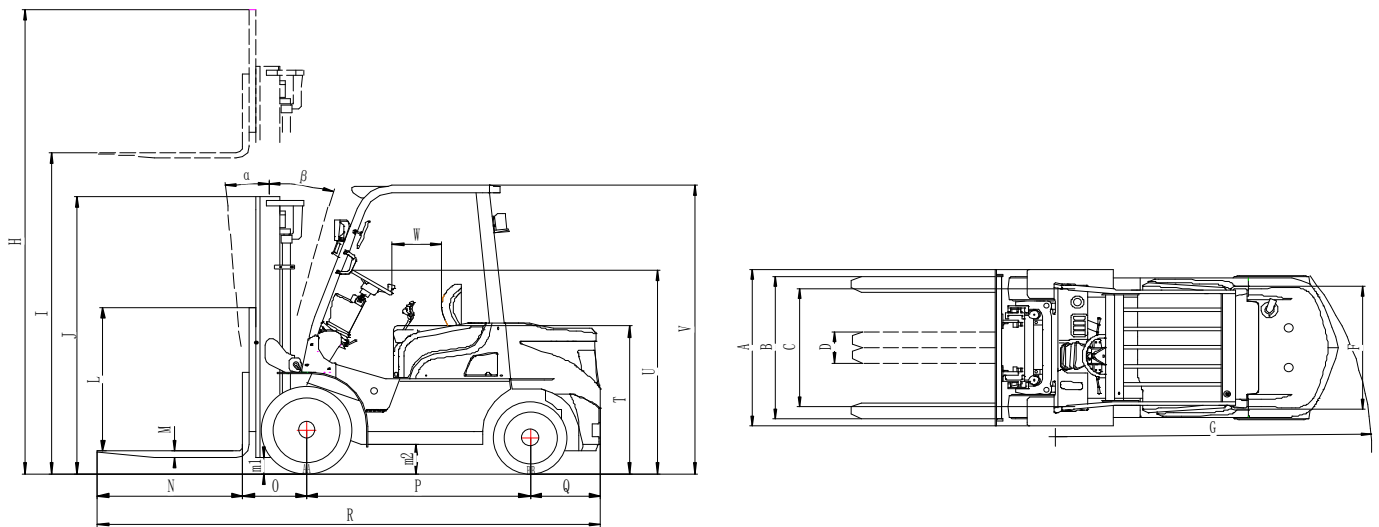
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## 2.2 The main components 主要零件



1.Mast	1. 桅桿
2.Chain	2. 鍊條
3.Fork	3. 貨叉
4.Tilt cylinder	4. 傾斜缸
5.Operator's seat	5. 駕駛座椅
6.Overhead guard	6. 頂護架
7.Lift cylinder	7. 昇降缸
8.Steering wheel	8. 方向盤
9.Counter weight	9. 配重
10.Rear axle	10. 後輪軸
11.Engine hood	11. 引擎蓋
12.Frame	12. 車架
13.Front axle	13. 前輪軸

## 2.3 Dimensions 尺寸規格



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ITEMS項目		MODEL機種	FD/FG 15	FD/FG 18	FD/FG 20	FD/FG 25	FD/FG 30	FD/FG 35
Overall width	全車寬	A	1065	1065	1158	1158	1290	1290
Outside width between forks	差距寬(外)	B	950	950	1025	1025	1150	1150
Front wheels tread	前軸距	C	885	885	970	970	1055	1055
Width of two forks	雙叉寬	D	200	200	250	250	250	250
Width one forks	單叉寬	E	100	100	125	125	125	125
Rear wheels tread	後輪距	F	900	900	985	985	985	985
Min. turning radius, outside	最小迴轉半徑	G	1950	1995	2170	2250	2415	2615
Max. height overall	最大高度	H	4220	4220	4220	4220	4220	4220
Max. fork height	最大貨叉高	I	3000	3000	3000	3000	3000	3000
Height of mast	升降桅桿	J	2000	2000	2000	2000	2000	2000
Free lift	自由行程	K	0	0	0	0	0	0
Height of load bracket	貨叉架高	L	1220	1220	1220	1220	1220	1220
Max. thickness of fork	最大貨叉厚	M	35	35	40	40	50	50
Length of fork	叉長	N	1070	1070	1070	1070	1070	1070
Distance between front and center front wheel	前輪至叉端距	O	425	425	465	465	480	480
Wheel base	軸距	P	1350	1370	1550	1550	1650	1850
Distance between back and center rear wheel	後懸	Q	460	485	445	490	470	530
Overall length	全車長	R	3305	3350	3530	3575	3670	3930
Ground clearance 距地面高度	At lowest point 最地點	M1	120	120	120	120	120	120
	Center of wheelbase 車中心	M2	180	180	195	195	220	220
Height of overhead guard	車頂護架高	V	2070	2070	2110	2110	2140	2140
Dimension of front wheel	前輪尺寸	AA	6.50-10-10P.R.		7.00-12-12P.R.		8.15-15-12P.R.	
Dimension of rear wheel	後輪尺寸	AB	5.00-8-8P.R.		6.00-9-10P.R.		6.50-10-10P.R.	

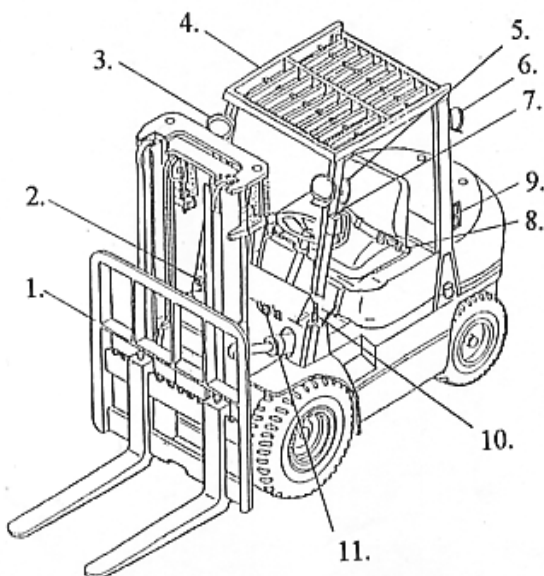
20

TEMS項目		MODEL機種	FD/FG 40	FD/FG 45	FD/FG 50
Overall width	全車寬	A	1450	1450	1450
Outside width between forks	差距寬(外)	B	1320	1320	1320
Front wheels tread	前軸距	C	1150	1150	1150
Width of two forks	雙叉寬	D	300	300	300
Width one forks	單叉寬	E	150	150	150
Rear wheels tread	後輪距	F	1190	1190	1190
Min. turning radius. Outside	最小迴轉半徑	G	2850	2900	3050
Max. height overall	最大高度	H	4220	4220	4220
Max. fork height	最大貨叉高	I	3000	3000	3000
Height of mast	升降桅桿	J	2190	2190	2190
Free lift	自由行程	K	0	0	0
Height of load bracket	貨叉架高	L	1220	1220	1220
Max. thickness of fork	最大貨叉厚	M	50	50	60
Length of fork	叉長	N	1220	1220	1220
Distance between front and center front wheel	前輪至叉端距	O	570	570	570
Wheel base	軸距	P	2000	2050	2200
Distance between back and center rear wheel	後懸	Q	540	540	540
Overall length	全車長	R	4330	4380	4530
Ground clearance 距地面高度	At lowest point 最底點	M1	140	140	140
	Center of wheelbase 車中心	M2	230	230	230
Height of overhead guard	車訂護架高	V	2290	2290	2290
Dimension of front wheel	前輪尺寸	AA	300-15-20P.R.		8.25-15-14P.R.
Dimension of rear wheel	後輪尺寸	AB	7.00-12-12P.R.		8.25-15-14P.R.

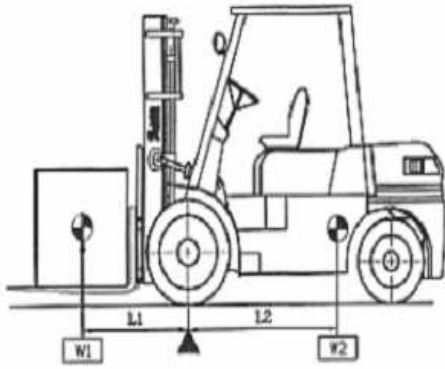
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## 2.4 The safety related components 安全零件描述

### 2.4.1 For 1.5T-5.0T



1. Load bracket	1. 貨架
2. Horn	2. 喇叭
3. Halogen head lamp	3. 前大燈
4. Overhead Guard	4. 頂護駕
5. Rear view mirror	5. 後視鏡
6. Rear work lamp	6. 後工作燈
7. Turn signal lamp	7. 方向燈
8. Safety belt	8. 安全帶
9. Rear combination lamp	9. 後綜合燈
10. Toggle-type parking brake lever	10. 切換式手煞車桿
11. Brake pedal	11. 腳煞車



$$W_1 \times L_1 < W_2 \times L_2$$

## 2.5 Stability and center of gravity 穩定性及重心

The lift truck works principally the same way as a see-saw. The lift truck front wheels act as a fulcrum, the center of gravity (CG) of the lift truck and the center of gravity of the load must be kept in balance.

This basic principle is used for picking up a load. Every object has a CG. When the lift truck picks up a load, the truck and load have a new combined CG. The stability of the lift truck is determined by the location of its CG, or if the truck is loaded, the combined CG.

As the mast tilts forward and back, or moves up and down, the lift truck has a CG that moves.

The center of gravity, and therefore the stability, of the loaded lift truck is affected by a number of factors, such as size, weight, shape, and position of the load; the amount of forward and backward tilt; tire pressure; and the dynamic forces created when the truck is moving.

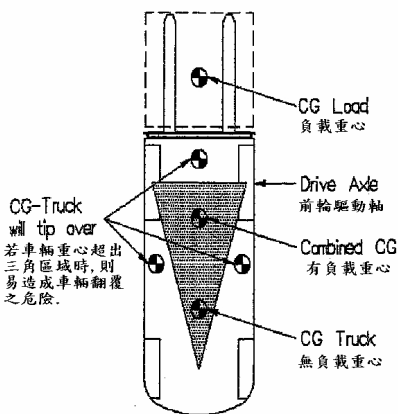
堆高機的重心原理跟翹翹板一樣，前輪是支撐點。車輛重心及負荷重心必須保持平衡，這基本原理適用於承載負荷。

每個東西皆有一個重心。當堆高機舉起負荷時，車輛跟負荷會有新的重心，而堆高機的穩定性決定於重心的位置，或者在負荷下決定於新的重心點。

當桅桿前傾、後傾、昇上、降下時，堆高機的重心跟著移動，因此堆高機的重心及其穩定度，受到一些因素所影響、諸如尺寸、重量、形狀、負荷的位置等，車輛移動時前後傾的角度、胎壓及動態的力量等皆是。

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These dynamic forces are caused by things like acceleration, braking, turning, and operating on uneven surfaces or on an incline. These factors must be considered when the truck is traveling without load, as well, because an unloaded truck will tip over to the side easier than a loaded truck with its load in the lowered position.



In order that the lift truck runs stably (no tipping to be stable over forward or to the side) the CG must stay within the area of the lift truck represented by a triangle drawn between the drive wheels and the pivot of the steering axle.

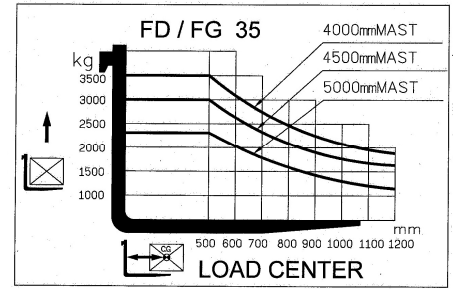
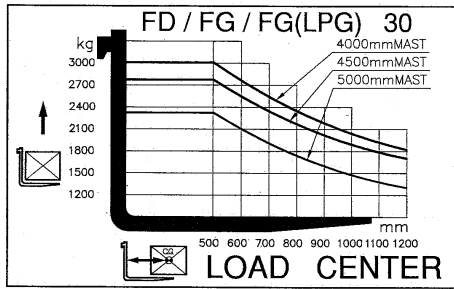
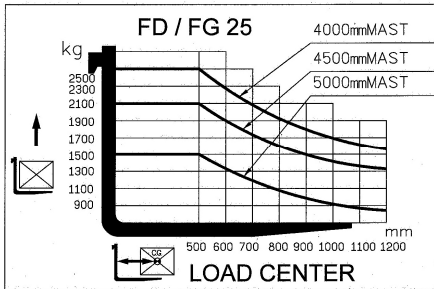
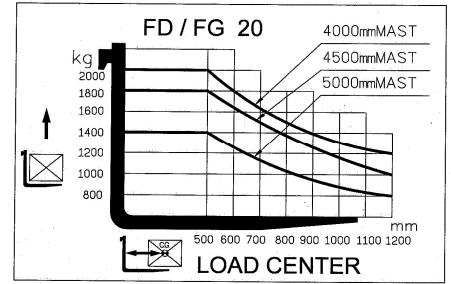
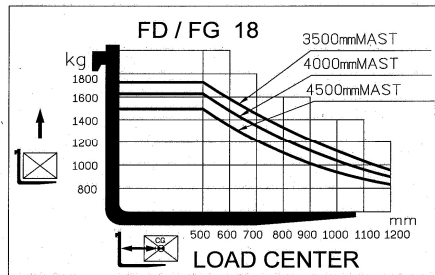
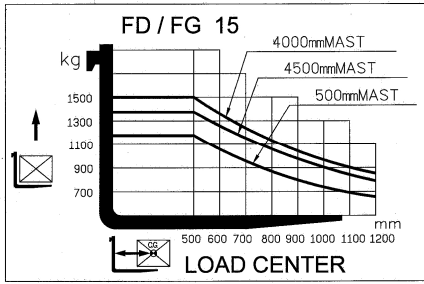
If the CG moves forward of the drive axle, the lift truck will tip forward. If the CG moves outside of the line represented by the lines drawn between the drive wheels and the steering axle pivot, the lift truck will tip to the side.

這些動態的力量由像加速、煞車、轉彎及像在不平路面操作或在一坡度上操作所形成。無負載行走時，必須考慮這些因素，因為無負載的車輛比有負載在低位時的車輛更容易傾倒。

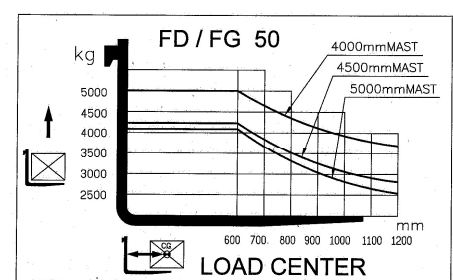
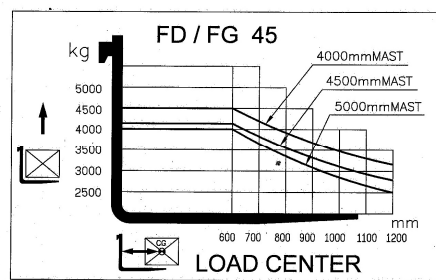
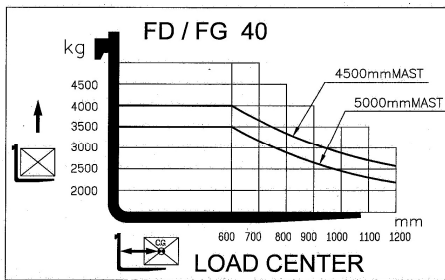
為使堆高機平衡不致於前傾或側傾，車輛重心必須保持在車輪及控制軸間的三角區域內，如果重心超過前驅動軸，堆高機就會前傾，如果重心超過車輪及控制軸間的直線時，堆高機就會傾斜。

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## 2.6 Capacity (weight and load center) 性量 (重量及負荷重心)



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# CE **POWER** FORKLIFT TRUCK

Model	<input type="text"/>	MFG Date	<input type="text"/>
Out Model	<input type="text"/>	Serial No.	<input type="text"/>
Engine No.	<input type="text"/>	Trans. No.	<input type="text"/>
Rated Capacity	<input type="text"/> kg	Lift Height	<input type="text"/> mm
Attachment	<input type="text"/>	Power	<input type="text"/> kw
Truck Weight	<input type="text"/> kg	With attach.	<input type="text"/> kg
Electric Truck Only	Truck Weight Without Battery		<input type="text"/> kg
	Battery Capacity	<input type="text"/> Ah	<input type="text"/> V
	Battery Weight	max. <input type="text"/> kg	min. <input type="text"/> kg
Max. drawbar pull	with/without load		<input type="text"/> N

GLOBAL-POWER CO., LTD

JIAOZHOU YINGHAI INDUSTRIAL PARK, QINGDAO CITY, SHANDONG PROVINCE, P.R.CHINA

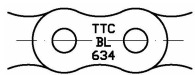
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Model 機型	Engine 引擎	LOAD 荷重能力	Weight 重量	ENG. POWER 動力
FD 15	ISUZU C240	1500	3000	38.8
FG 15	NISSAN H20	1500	2920	35.3
FD 18	ISUZU C240	1800	3050	38.8
FG 18	NISSAN H20	1800	2970	35.3
FD 20	ISUZU 4JG2	2000	3580	38.8
FG 20	NISSAN H20	2000	3500	35.3
FD 25	ISUZU 4JG2	2500	3800	44.9
FG 25	NISSAN H20	2500	3720	42.7
FD 30	ISUZU 4JG2	3000	4500	44.9
FG 30	NISSAN H25	3000	4420	42.7
FD 35	ISUZU 4JG2	3500	4700	44.9
FG 35	NISSAN H25	3500	4620	42.7
FD 40	PERKINS 1004-42	4000	6420	64
FG 40	NISSAN TB-42	4000	6470	69
FD 45	PERKINS 1004-42	4500	6550	64
FG 45	NISSAN TB-42	4500	6600	69
FD 50	PERKINS 1004-42	5000	6700	64
FG 50	NISSAN TB-42	5000	6750	69

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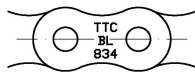
**(3) CHAIN 鏈條**

FD/FG/FG(LPG) 15,18,20,25



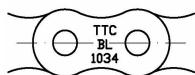
**LH1234**

FD/FG/FG(LPG)30,35



**LH1634**

FD/FG/FG(LPG)40,45,50



**LH2034**

**(4) Truck type tape 車型噸數貼紙**

FD/FG 15

**15**

FD/FG 18

**18**

FD/FG 20

**20**

FD/FG 25

**25**

FD/FG 30

**30**

FD/FG 35

**35**

FD/FG 40

**40**

FD/FG 45

**45**

FD/FG 50

**50**

**(5) DIESEL ENGINE (柴油引擎)**

ISUZU C240PKF-23、4JG2-PE、4JG2-PJ03、  
PERKINS 1104C-44 or NISSAN TD42

**Diesel**

**GASOLINE ENGINE (汽油引擎)**

IMPCO GM 3.0、IMPCO GM4.3、NISSAN  
H20、NISSAN H25、NISSAN K25 和 NISSAN  
TB-42

**Gasoline**

**(6) Wheel air pressure (輪胎壓力)**

FD/FG/FG (LPG) 15 ~ 25	➡ (7) ⬅
FD/FG/FG (LPG) 30 ~ 35	➡ (7.7) ⬅
FD/FG/FG (LPG) 40 ~ 50	➡ (8) ⬅

**(7) FG (LPG) 18,20,25,30,35,40,45,50**

**Safety instruction for LPG**

- There is a variation in equipment for filling LPG tanks. The local authorities that have jurisdiction have specific rules and regulations for filling LPG tanks. Make sure these rules, and regulations are available and understood.
- Switch off the fuel valve on the tank when the forklift does not park momentarily.
  - LPG is extremely flammable. Don't store LPG tanks nearby heat、tinder and flame sources.
  - Don't park the forklift nearby heat or flame sources.
  - It's strictly forbid smoking and no switch off engine during checking or filling an LPG tank.
  - Don't switch on the engine when LPG tanks frost or a leak of gas odor. Please inspect and repair a leak of tank immediately by the personnel who got training and authorized to operate filling equipment.
  - Please leave fill LPG tanks outdoors and stay at least 15 meters (50 feet) from buildings, motor vehicles, electrical equipment or any other ignition sources. Stay at least 5 meters (15 feet) from LPG storage tanks.
- Do not use an LPG tank, which was damaged. Especially a damaged hose or connector can leak of gas that will cause an explosion or fire hazard.
- Before using the LPG system the driver must confirm that the LPG tank is on the correct position of its bracket.
- The dimension of LPG tank must not over the truck specification.
- Change over of Fuel system
 

**LPG to Gasoline:**

  - Rev up engine and turn change over switch to gasoline side.
  - Switch off valve of gas cylinder after the engine runs smoothly.

**Gasoline to LPG:**

  - Open valve of gas cylinder.
  - Turn off change over switch, and then turn it to LPG side before the engine stops.

## 液化瓦斯的安全須知

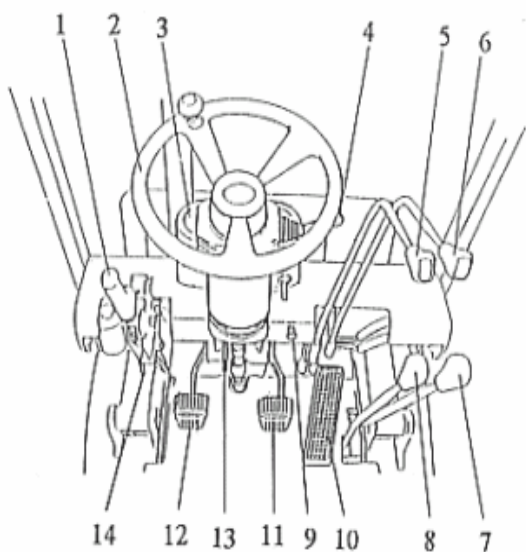
1. 填充液瓦斯桶的裝備因各地不同將有些差異，請在安裝前，得到當地管理規範的規章，並確保瞭解使用方法。
2. 堆高機為非暫停狀態，請關掉料燃料閥
  - 液化瓦斯為易燃物品。因此避免存放在高溫、易燃物及火源附近。
  - 車台也不要停放在高溫及火源附近
  - 檢查或填充時，嚴格禁止吸煙並且須先將引擎熄火。
  - 液化瓦斯結霜或聞有異味時表示漏氣，請立即檢查及修理，並且禁止發動引擎，只有合格人員才准予操作填充設備。
  - 請在室外裝填，裝填位置至少離建物 15 公尺並離液化瓦斯儲存槽至少 5 公尺處。
3. 受損的液化瓦斯桶不要再使用，而且要淘汰這些瓦斯桶。受損軟管及接頭會漏氣並可能造成爆炸及火災的危險。
4. 使用液化瓦斯系統前，駕駛必須確認瓦斯桶置放在支架上正確的位置。
5. 瓦斯桶的尺寸不能超過車輛的規格設定。
6. 改變燃料系統使用：  
**液化瓦斯轉換到汽油：**
  - (1) 加速引擎，並將開關轉換轉到汽油那一邊。
  - (2) 引擎運轉順暢後關掉瓦斯桶開關。**汽油轉換到液化瓦斯：**
  - (1) 打該瓦斯桶開關。
  - (2) 關掉轉換開關，然後於引擎停止運轉前，轉到液化瓦斯的一邊。

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## 2.9 Instruments and Controls 儀表及控制

### 2.9.1 手排車 (Clutch models)

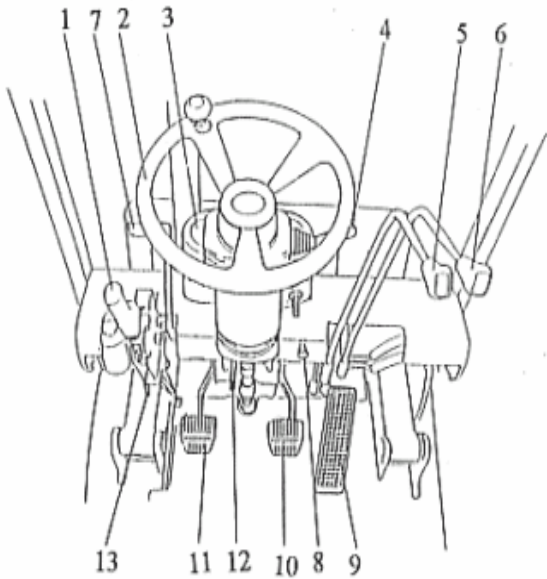
1. 手煞車 (Parking brake lever)
2. 方向盤 (Steering wheel)
3. 儀表面板 (Dashboard)
4. 方向燈/喇叭 (Turn signal and Horn switch)
5. 升降控制桿 (Lift lever)
6. 傾斜控制桿 (Tilt lever)
7. 前進/後退桿 (Gear levers F/R)
8. 高/低速桿 (Gear levers High/ Low speed)
9. 燈火開關 (Light switch)
10. 油門踏板 (Accelerator pedal)
11. 煞車踏板 (Brake pedal)
12. 離合器踏板 (Clutch pedal)
13. 方向盤調整桿 (Tile steering adjust lever)
14. 引擎蓋鎖/放桿 (Engine hood lock/release lever)



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## 自排車(Automatic models)

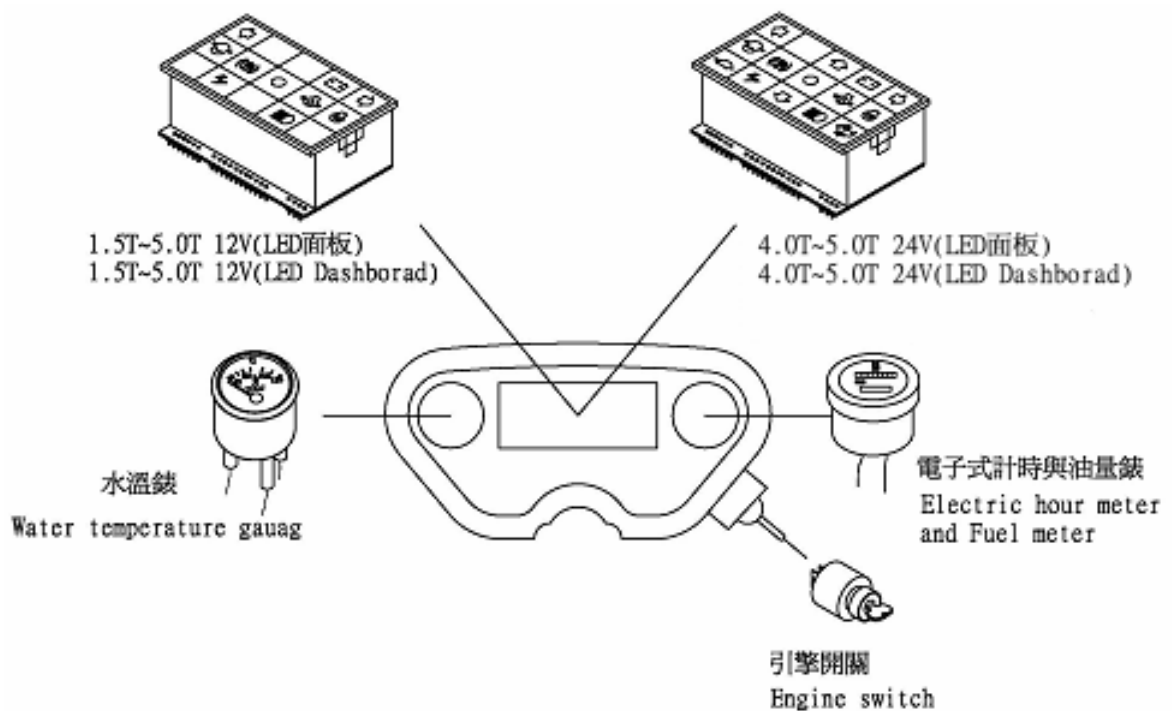
1. 手煞車 (Parking brake lever)
2. 方向盤 (Steering wheel)
3. 儀表面板 (Instrument panel)
4. 方向燈/喇叭 (Turning and Horn switch)
5. 升降控制桿 (Lift lever)
6. 傾斜控制桿 (Tilt lever)
7. 前進/後退桿 (Gear levers F/R)
8. 燈火開關 (Light switch)
9. 油門踏板 (Accelerator pedal)
10. 煞車踏板 (Brake pedal)
11. 吋動踏板 (Inching pedal)
12. 方向盤調整桿 (Tilt steering adjust lever)
13. 引擎蓋鎖/放桿 (Engine hood lock release lever)



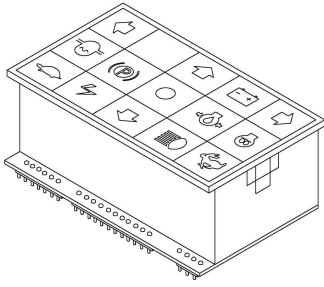
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### 2.9.2 儀錶板

#### Instrument

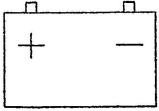


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## LED Dashborad LED 面版:顯示堆高機狀態

### 1. 充電指示燈(Charging warning lamp) :



Charging lamp will tell you if the generator is properly generating electricity. CHG will shine when power supply is turned on, but the light will go out after engine is started and has run for a short period of time, If the engine is running at abnormal speed but still lights, check to see if the fan belt is broken or adjust the tension of the belt. When the above said actions fails to stop lighting of the charging warning lamp, contact your dealer for further examination.

它告訴你發電機的正常運作。打開電源時會亮起，但引擎發動及操作一會兒後它會熄滅。如果引擎在正常速度運轉而一直亮著，請檢查風扇皮帶是否斷掉，或則調整其鬆緊度。上述程序如還不能解決問題，請接洽經銷商作進一步檢查。

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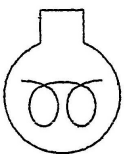


### 2. 手剎車指示燈(Parking Brake display) :

Show parking brake has pulled.

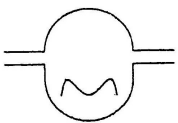
顯示手剎車已拉起。

### 3. 預熱指示燈(Glow warning lamp) :



There is special exclusive device in a diesel engine. Before starting the engine when it is cold, turn the key to "ON" position and conduct the electric current into preheating plug for several seconds until the glow warning lamp goes out; then turn the key to "START" position to start the engine. Each preheating should be less than 30 seconds. Between two preheating, there should be an interval time of at least 20 seconds.

這是柴油引擎特有裝置。引擎冷車發動，將鑰匙轉到“ON”的位置，等待數秒讓電流導到預熱棒及預熱室，直到加熱燈熄掉，然後將鑰匙開到“START”的位置以發動引擎。預熱時間請不要超過 30 秒，二次預熱間隔至少要有 20 秒以上的時間。

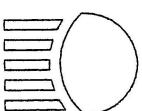


### 4. 積水警告指示燈(Sediment warning lamp) :

This light is mounted at the right side of the instrument panel. When warning light is lighting in moving, it shows water sediment has been infiltrated with water.

It is necessary to check the cause at once.

當燈示燈亮起，表示沉積器積水，必須立即檢查積水原因並排除積水。

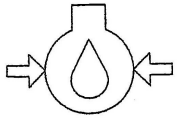


### 5. 大燈指示燈(Head light) :

To show head lamp has been turned on.

顯示大燈已開啟。

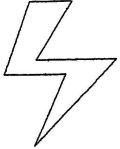
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## 6.油壓警告指示燈(Oil pressure warning lamp)：

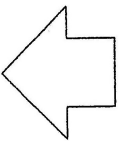
The lamp will tell you if the engine oil pressure is in normal condition. When power supply is turned on, "OIL" will light until the engine is started and run a short period of time, which indicates that the oil pressure is normal. If oil pressure still lights, check to see if there is sufficient engine oil, and if the lubrication system is properly working. If the problem still cannot be solved, contact your dealer for further examination.

顯示油壓是否正常。打開電源時，油燈會亮起直到引擎發動及運轉一會兒為止，這表示已到達正常油壓。如果引擎在正常速度運轉而油壓錶一直亮著，則請檢查機油是否不足，及潤滑系統運轉是否正常。如果還沒解決辦法，請接洽經銷商進一步檢查。



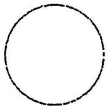
## 7.動力指示燈(Power display)：

To show forklift truck has been started.  
顯示堆高機已啟動。



## 8.左方向燈指示燈(Left direction indicator)：

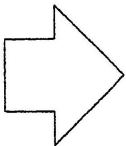
To show Left indicator has been turn on.  
顯示左方向燈已開啟。



## 9.空檔指示燈(Idle indicator)：

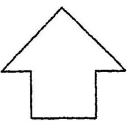
To show gear lever is in idle position.  
顯示變速桿位於空檔位置。

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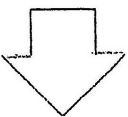
## 10.右方向燈指示燈(Right direction indicator)：

To show Right indicator has been turn on.  
顯示右方向燈已開啟。



## 11.前進行走指示燈(用於 4.0T 機型以上)： Forward indicator(for upto 4.0T model)：

To show gear lever is in forward position.  
顯示變速桿位於前進檔位置。



## 12.倒退指示燈(用於 4.0T 機型以上)： Reverse indicator(for upto 4.0T model)：

To show gear lever is in reverse position.  
顯示變速桿位於倒退檔位置。



## 13.高速開關指示燈(用於 4.0T 機型以上)： High speed switch indicator(for upto 4.0T model)：

Forward and reverse speed can be accelerated and the grade ability can be increased by shifting this H/L speed switch on the lever.

前進/後退速度可加速。而且變換桿上的高低速開關可增加爬坡能力。

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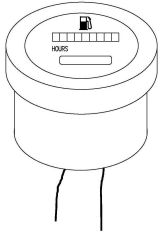
## 14. 低速開關指示燈(用於 4.0T 機型以上)



### Low speed switch indicator(for upto 4.0T model) :

Forward and reverse speed can be accelerated and the grade ability can be increased by shifting this H/L speed switch on the lever.

前進/後退速度可加速。而且變換桿上的高低速開關可增加爬坡能力。

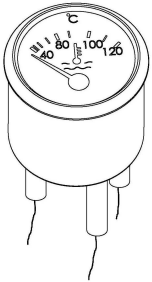


## 15. 電子式計時表與油量錶(Electric hour meter and Fuel meter) :

To count driving time, reckoning in hour unit and accumulate for maintenance Reference, and this gauge indicates the amount of fuel in the fuel tank.

計時開車時間，以小時為單位計時，以作為保養之參考數據。

油量顯示，指示油箱內剩餘油量。

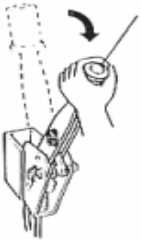


## 16. 水溫錶(Water temperature gauge) :

The gauge is mounted at the upper right of the instrument panel. When power supply is turned on, the gauge pointer will indicate the cooling water temperature of engine. Under normal engine operation, the pointer will indicate a temperature in normal zone; If the pointer points at a dangerous zone of the temperature; it means that the engine's temperature is too high and it is necessary to drive the forklift truck to a safe place, keeping the engine idling for 2-3 minutes until the pointer indicates a normal temperature again. Temporary overheat of engine may be caused by a loose fan belt, malfunction of cooling system, insufficient cooling water, and leakage of radiator.

打開電源時，指針會指出引擎的冷卻水溫度，引擎在正常操作時，指針會指在正常的區域。如指在危險區域，表示引擎怠速 2 到 3 分鐘，直到指針回到安全區域的油溫。風扇皮帶鬆弛，冷卻水不足及散熱水箱漏水皆會導致一時的引擎過熱的情形。

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### 2.9.3 手煞車拉桿 Parking brake lever:

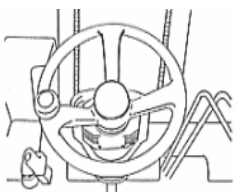
The parking brake lever, which is located at the front left of wind fender, is for parking use to fix the front wheels by steel ropes. Pull the lever up-and backward to fix the front wheels while parking. Push the lever in counter-direction to the release the parking break. The lever head can be swiveled clockwise or counter-clockwise to adjust the brake tightness.

手煞車桿在擋風板的左前方，是以鋼索用來固定前輪的。停車時拉起向後可將前輪固定。反向釋放可放掉手煞車。桿頭可以順時鐘或反時鐘轉動以調整煞車的緊度。

- \* Never hold the lever at other than the grip because a finger may be pinched.
- \* When parking on a slope, apply wheel chocks to the wheels.
- \* Traveling without releasing the brake will spoil the brake performance.

- 不要在握把以外的地方握桿，因可能夾到手指頭。
- 再斜坡停車時，要額外用組塊擋住輪子。
- 行駛時如未放掉煞車，會損壞煞車功能。

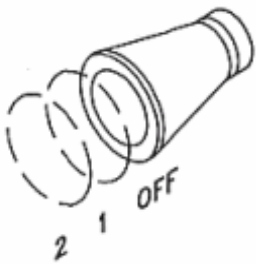
### 2.9.4 方向盤 Steering wheel :



The steering wheel is operated in the conventional manner. That is, when the wheel is turned right, the truck will turn to the right; when the wheel is turned left, the truck will turn to the left. The steer wheels are located at the rear of the truck. These cause the rear of the truck to swing out when a turn is made. With a little practice, steering of this type will be easily mastered.

方向盤為傳統的操作方法。就是當方向轉向右時，車輛轉向右邊；而方向盤轉向左時，車輛轉向左邊。方向的控制輪在車台的後方，這造成轉彎時會有甩尾的現象。因此作些練習將可以輕易操控使用它。

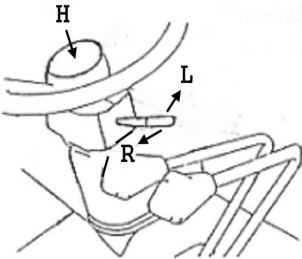
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### 2.9.5 燈火開關 (Light draw knob) :

The light draw knob is a two-section knob: the first position sets: front and rear, tail and instrument panel lights; the second section controls headlights and rear work light.

裝置於儀表板下側，是兩段式拉鈕，第一段控制前後方向燈、尾燈、儀表燈。第二段則為前大燈、後大燈。



### 2.9.6 方向燈與喇叭開關 (Turn signal and Horn switch) :

R	右轉 (Right Turn)	前推 Push forward
L	左轉 (Left Turn)	後拉 Pull backward
H	喇叭 (Horn)	按壓 Push center

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### 2.9.7 變速操縱桿—手排(Gear shift lever-clutch models)

There are two manual model gearshift levers:

The **F-R Lever** at right hand side is for forward and reverse:

- Forward: push the lever forward
- Reverse: pull the lever backward
- Idle: posit the lever at middle place

The **H-L Lever** at left hand side is for change the speed:

- Low speed: push the lever forward
- High speed: pull the lever backward
- Idle: posit die lever at middle place

手排機種變速桿有 2 種：

右側的 F-R 操縱桿為 前進/後退 操縱桿:

- 向前：推桿向前
- 後退：拉桿向後
- 空檔：置桿於中間的位置

左側的 H-L 操縱桿為 變換速度 操縱桿:

- 低速：推桿向前
- 高速：拉桿向後
- 空檔：置桿於中間的位置。



#### F-R LEVER

F	前進 (FORWARD)
N	空檔 (IDLE)
R	後檔 (REVERSE)

#### H-L SPEED LE

1	低速 (LOW)
N	空檔 (IDLE)
2	高速 (HIGH)

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## 變速排檔桿—自排 (Shifting lever)



For automatic models, lever for shifting between 「Forward」 and 「Reverse」.

**Forward**-----push forward      **Reverse**-----push backward

**Idle**-----posit the lever between forward and reverse

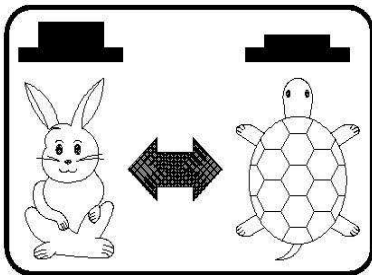
The engine cannot be actuated unless the lever is at idle position.

自排車操縱前進/後退之排檔桿。前進：排檔桿前推

後退：排檔桿後推      空檔：前進/後退中間位置

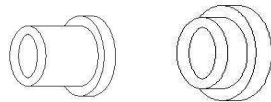
排檔桿若非至於空檔，則引擎將無法啟動。

## 高、低速檔切換開關(Switch between the High / Low speed)



It is used to switch between the high and low operation speed of the truck.  
此開關是用來控制堆高機作高、低速切換用的。

※ Only suitable for 4T~5T truck. 適用於 4T~5T 堆高機



**Turtle (Push button down)** 烏龜(位置下)

**Rabbit (Pull button up)** 兔子(位置上)

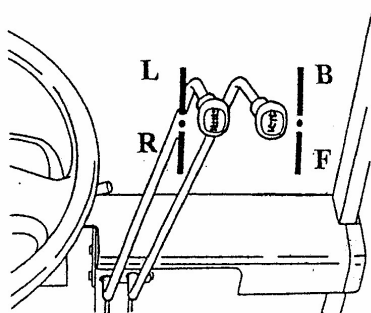
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### Caution: (for manual models and automatic models)

•Always set the levers at the neutral positions before starting the engine. The engine cannot be started unless the control lever (or gear shift lever) is at the neutral position.

### 注意：(手排及自排機種)

•發動引擎前，請永遠將變速桿置於空檔的位置。除非控制桿或變速桿至於空檔的位置，否則引擎無法啟動。



### 2.9.8 Forks lift lever (A):

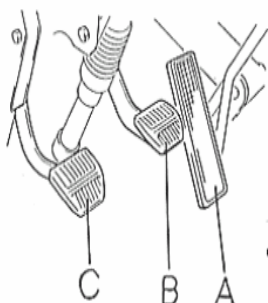
Pull the lever backward to lift and forward to lower. The lifting can be expedited to a certain speed by stamping the accelerator pedal: while the lowering speed can only be controlled by the lever and has nothing to do with the rpm of the engine.

### 2.9.8 貨叉舉昇桿 (A):

拉桿向後會揚舉、向前降下，加速踏板可以輔助加快舉昇速度。而降下的速度只能由桿操控，跟引擎轉速沒有關係。

### Forks tilt lever (B):

Pull the lever backward to tilt backward and forward to tilt forward A mast height of less than 3.5m has a forward tilt of 6 degrees and a backward tilt of 12 degrees. The same with lift lever, both forward and backward tilt can be speed up by stamping accelerator pedal.



### 貨叉傾斜桿 (B):

拉桿向後會向後傾斜，拉向前會向前傾斜。小於 3.5 米的桅桿高度可前傾 6 度、後傾 12 度，跟揚昇桿一樣前/後傾斜皆可藉踩加速踏板加速傾斜速度。

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### 2.9.9 Pedal 踏板:

- **A** pedal is accelerator pedal. The accelerator pedal increases the engine speed. With this pedal released, the engine runs at idle rpm.

- **B** pedal is brake pedal. Press this brake pedal to slow or the stop the truck. At the same time, the brake lights come on.

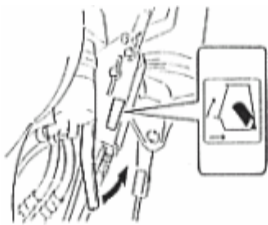
- **C** pedal is clutch pedal for manual models. The purpose of the clutch is to permit the operator to couple or uncouple the engine and transmission. When the clutch pedal is pressed, the engine and transmission are uncoupled and when released, it allows power to flow from the engine to transmission through the clutch.

- \* Do not run the lift truck with the clutch in a half-clutch condition as much as possible.

- **C** pedal is inching pedal for automatic models. As the inching pedal is pressed, the oil pressure in the hydraulic clutch drops accordingly allowing the operator to perform inching operation. Use this pedal to inch the truck while operating the hoist system at a high speed. When pressed to the full, this inching pedal serves as a brake pedal.

- **A** 踏板指的是加速踏板。它可用來增加引擎轉速，放開踏板引擎會以怠速運轉。

- **B** 踏板是煞車踏板，它可用來減慢或停止車台。當踩踏板的同時，煞車燈會同時亮起。



- **C** 踏板是手排的離合器踏板。其目的是允許操控者接合或分離引擎及變速箱，踏下時引擎與變速箱分離，釋放後會咬合在一起。允許動力經由離合器傳到變速箱。

- \* 盡量不要只踏離合器一半的行程，這樣很容易損壞離合器片。

- **C** 踏板是自排的離合器踏板。踏下時油壓離合器的油壓會降下來，允許駕駛操作寸動功能。當高速操作揚昇系統時，可使用此一踏板來寸動車輛，踏到底時，寸動踏板

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可當成煞車使用。

### 2.9.10 Open and close the engine hood:

#### Opening :

The release lever of the engine hood is located at the left lower side of the parking brake lever. Pull backward the engine hood lever, the steering adjustment lever will automatic forward; the engine will be then unlocked. Hold the engine hood using the clearance underneath and raise it. Open the engine hood fully and leave it hanged there after checking for sure that the pneumatic cylinder supports it.

#### Closing :

Close the engine hood gently. Holding the hood until it is locked to the position with a checking sound. Pull the steering wheel backward to return it to the original position.



#### **Caution:**

**Operating the lift truck without firm locking of the engine hood is very dangerous. Be sure to check firm locking before operating the lift truck.**

#### 打開:

引擎蓋的鎖/放桿在手煞車桿的左下方。將引擎蓋桿拉向後，方向柱自動前傾。此時引擎蓋即已打開，利用下方的間隙握住引擎蓋並將它掀起，掀到底後確定鎖住引擎不會動時放開手。

#### 關閉:

慢慢的關上引擎蓋，握住直到鎖住聲響起。拉方向盤向後已回復到原來的位置。

小心: 未鎖上引擎蓋，操作堆高機是很危險的事。請確記在操作前，要牢牢鎖住引擎蓋。

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## 2.10 Noise and Vibrations 噪音與震動

### 2.10.1 Noise emissions 噪音放出值:

The equivalent continuous A-weighted sound pressure level at driver position is within  
此噪音壓力測試值為在駕駛中狀態, 已持續等量 A- 衡量過的噪音壓力標準

Engine type 引擎種類	Sound pressure level 噪音壓力標準
C240	75 db(A)
PERKINS 1104C	80 db(A)
NISSAN TB-42	75 db(A)

The equivalent continuous A-weight sound power level at driver position is within :  
此噪音壓力測試值為在駕駛中狀態, 已持續等量 A- 衡量過的噪音功率標準

Engine type 引擎種類	Sound power level 噪音壓力標準
C240	85 db (A)
PERKINS 1104C	89 db (A)
NISSAN TB-42	85 db (A)

Note: The standards according to which the measurement of noise emissions is made.  
此標準是依據噪音測試標準是根據

DIN 45635 part 36-1981	IEC 651
ISO/DIS 11202-1993	IEC 225
ISO/DIS 3746.2-1995	IEC 804

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### 2.10.2 Vibration 震動 :

The weighted root mean square acceleration value to which the arms are subjected, does not exceed:

Engine type 引擎種類	Vibration level 震動標準
C240	2.1 m/s <sup>2</sup>
PERKINS 1104C	2.3 m/s <sup>2</sup>
NISSAN TB-42	2.0 m/s <sup>2</sup>

The weighted root mean square acceleration value to which the body (feet and posterior) are subjected, they does not exceed:

Engine type 引擎種類	Vibration level 震動標準
C240	0.3 m/s <sup>2</sup>
PERKINS1104C	0.4 m/s <sup>2</sup>
NISSAN TB-42	0.2 m/s <sup>2</sup>

Note: The standards according to which the measurement of noise emission is made

ISO 7096	ISO 8662-1
ISO 5348	DIN 45635 part 36
ISO 5349	

**2.11 Truck hosting method 吊起車輛的方法:**

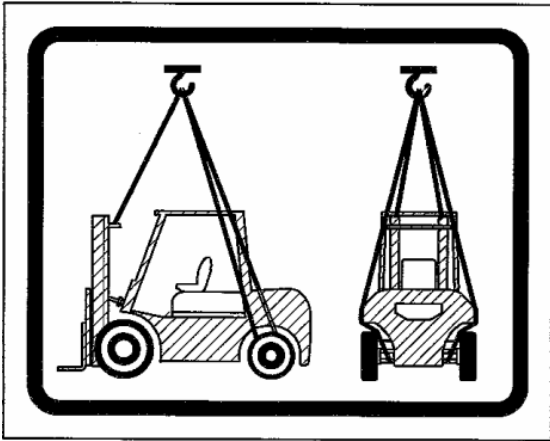
When hoisting the vehicle, use the lifting holes near the top of the mast and the steering axle for the rear position as shown in the illustration.

- Caution :** \* Use wire cable which is sufficiently strong.  
 \* Never use the holes on the upper side of the counterweight to hoist the vehicle.  
 \* The met weight of each models are :

吊起車輛時，請用靠近桅桿頂端的孔作為前面的吊孔，鋼纜繞過後輪梁作為後面的運吊位置。

依如下圖所示：

注意：\* 使用夠強的鋼纜。 \* 請不要使用配重上方的孔來吊起車輛。 \* 每一機種的淨重如下。



FD/FG/FG (LPG) 15:	3000 kg
FD/FG/FG (LPG) 18:	3100 kg
FD/FG/FG (LPG) 20:	3500 kg
FD/FG/FG (LPG) 25:	3800 kg
FD/FG/FG (LPG) 30:	4600 kg
FD/FG/FG (LPG) 35:	4800 kg
FD/FG/FG (LPG) 40:	6550 kg
FD/FG/FG (LPG) 45:	6700 kg
FD/FG/FG (LPG) 50:	6850 kg

**NOTES**

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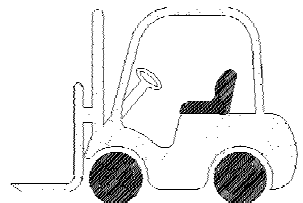
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## 3. OPERATION PROCEDURES

### 3.1 Inspection before operation

**3.1.1** Check with the engine stopped. Inspect the lift truck before use and every eight hours or daily as described in the section 4 **Maintenance** of this **OPERATING MANUAL**. Before using the lift truck, make the following checks:

- \* Fuel level
- \* Electrode level of the battery (unless it is a kind of maintenance- free).
- \* Oil level in the engine and hydraulic tank.
- \* Coolant level in the cooling system and condition of the drive belts.
- \* Condition of the radiator. Clean if necessary.
- \* Condition of forks, carriage, chain, upright, attachment, and overhead guard.
- \* Any Leaking from the engine, transmission, hydraulic system and fuel system.
- \* Conditions of wheels and tires. Check air pressure in pneumatic tires.
- \* Seat belt fastens correctly.
- \* Seat is correctly fastened to its mounts. Hood is securely latched.

#### **WARNING :**

**Report damage or faulty operation immediately. Do not operate a damaged or defective lift truck. A lift truck can work only in its good conditions. If repairing is required, install a tag in the operator's area stating "DO NOT OPERATES" and remove the key from switch.**

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## 3. 操作程序

### 3.1 操作前的檢查

**3.1.1** 停車檢查。使用前檢查及每日每八小時檢查一次，如操作手冊第4章節保養的部分所描述的。使用堆高機前請做下列檢查：

- \* 油量水平。
- \* 電池電解液水平（除非是免充電的）。
- \* 引擎及液壓油箱中的油水平。
- \* 冷卻系統的冷卻液水平及驅動皮帶的狀況。
- \* 散熱器的狀況，必要時做清潔動作。
- \* 貨叉、貨架、鏈條、桅桿、附件及頂護駕的狀況。
- \* 引擎、變速箱、油壓系統及燃料系統是否漏油。
- \* 輪胎及內胎的狀況，檢查氣胎的胎壓。
- \* 風扇皮帶已緊度適當。
- \* 座椅正確地鎖在位置上，引擎蓋穩固的固定住等。

#### 警告：

如有任何損壞或操作不良，請立即報告。損壞或不良的堆高機請不要操作使用。按正確合宜的工作程序，才能使堆高機發揮其功能。如需要修理，請在駕駛座上掛個牌子說明請勿操作，並將鑰匙拔走。

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### 3.1.2 The procedure to start a gasoline or LPG engine

Never start or operate the lift truck, including any of its functions or attachments unless operator is seated on the designate position.

1. If the lift truck uses LPG fuel, open the fuel valve on the LPG tank.

\* **WARNING** : LPG is very flammable. An odor of LPG fuel indicates a possible leakage in the fuel system. Do not start the engine until the fuel leakage is repaired.

1. Make sure the parking brake is applied or push on the inching/brake pedal.

2. If direction control lever of the transmission is equipped, put it in the neutral (N) position.

3. Turn the key to the START position to ignite the starter.

\* **CAUTION** :

**Do not engage the starter for more than 10 seconds at one time. If the engine does not start, turn the key switch to OFF. Wait 30 seconds before engaging the starter again.**

4. If the engine does not start after four attempts, get help from authorized service personnel.

5. When the engine is running, check the gauges and indicator lights for the correct operation. See the section **2.9 Instruments and Controls** in this **OPERATING MANUAL** for a description of the correct operation.

### 3.1.2 汽油引擎或液化瓦斯引擎的發動程序

請勿在設計的駕駛座以外的地方啟動或操作堆高機，包括其他任何功能或附件。

1. 如車輛使用液化瓦斯燃料，請打開液化瓦斯桶的燃料閥。

\* **警告**：液化瓦斯為易燃物，當聞到液化瓦斯異味可能表示燃料系統漏油，在修復前請勿啟動引擎操作。

2. 請確記手煞車有拉起或踏下寸動/煞車踏板。

3. 如有配備變速箱方向控制桿，請置於空檔的位置。

4. 打開鑰匙到啟動的位置以發動引擎。

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**小心：**

一次請不要啟動超過 10 秒，如 10 秒內無法啟動，請將鑰匙轉到關閉的位置，等 30 秒鐘以上後再重新啟動。

5. 數次發動後如仍無法起動，請求助於專業保修人員。

6. 引擎運轉時，請檢查儀表及指示燈有沒有正常運作，有關正確的操作請參考操作手冊。

請參見操作手冊的 2.9 章節，有關儀錶及控制板的正確操作說明。

### 3.1.3 Starting procedures for diesel engine

1. Make sure the parking brake is applied or push on the inching/brake pedal.

2. If equipped, put the direction control lever for the transmission in the NEUTRAL (N) position.

3. A special device exclusive to diesel engine. Before cold start of engine, turn the key to "ON" position and wait for several seconds to conduct the electric current into preheating plug and preheating chamber until the glow warning lamp goes out; then turn the key to "START" position to start the engine. Each preheating time should be less than 30 seconds. Between two preheating, there should be an interval time of at least 20 seconds.

\* **CAUTION**

**Don't let the key stay at "START" position while the engine is running; otherwise it may cause damage to the start motor.**

4. If the engine does not start after four attempts, get help from authorized service personnel.

5. When the engine is running, check the gauges and indicator lights for the correct operation. See the section 2.9 Instruments and Controls in this OPERATING MANUAL for a description of the correct operation.

### 3.1.3 柴油引擎的啟動程序

1. 記得拉起手煞車或踏下寸動/煞車踏板

2. 如有配備變速箱方向控制桿，請置於空檔的位置。

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3. 柴油引擎特配有機件。在冷車發動引擎前，將鑰匙轉到打開的位置，然後等待數秒鐘讓電流導入預熱棒及預熱室加熱直到預熱燈熄滅，這時將鑰匙轉到開的位置以發動引擎，每一次的預熱時間應該不要超過 30 秒，介於 2 次間的預熱最少不得少於 20 秒鐘。
- \* 小心：引擎已經在運轉時，請不要將鑰匙再次轉到啟動的位置，否則會損壞到啟動馬達。
4. 數次發動後如仍無法啟動，請求助於專業保修人員。
5. 引擎運轉時，請檢查儀錶即指示燈有沒有正常運作。有關正確的操作，請參考操作手冊 2.9 有關儀錶及控制的章節。

### 3.1.4 Check with the engine running

Make sure that the area around the lift truck is clean before starting the engine or making any operational checks. Be careful when making the checks. If the lift truck is stationary during a check, apply the parking brake and put the transmission in **NEUTRAL**. Proceed carefully.

Check the operation of the following function as described in the section 4 maintenance.

- \* Check the operation of the horn, gauges and indicator lights.
- \* Check the oil level in the power-shift transmission when the direction control lever is in **NEUTRAL** and the engine is running at idle speed.
- \* Operate the lift, tilt and auxiliary functions to check for the correct operations.
- \* Check the operation of the transmission, the direction control lever and accelerator pedal.
- \* Check the operation of the brake pedal and parking brake.
- \* Check the operation of the steering system.

\* **CAUTION** : Do not run the engine in a confined area (such as garage or building) unless you need to move the truck or the equipment, because the exhaust gas contains carbon monoxide, which by itself has no color or odor. Carbon monoxide is a dangerous gas. It can cause unconsciousness and can be lethal.

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### 3.1.4 引擎運轉中做檢查

請記得在發動引擎或做任何操作性的檢查前，堆高機的周圍地區乾淨，小心檢查。檢查中如車輛是靜止的，請務必使用手煞車及變速箱放空檔，謹慎進行。

依第 4 章節保養所述，檢查下列功能的操作：

- \* 操作檢查喇叭、儀錶及指示燈。
- \* 方向控制桿在空檔時及引擎以怠速運轉時，檢查變速箱的油水平。
- \* 操作檢查舉昇、傾斜及輔助功能是否能正常運作。
- \* 操作檢查變速箱、方向控制桿及加速踏板是否能正常運作。
- \* 操作檢查煞車踏板及手煞車可否正常運作。
- \* 操作檢查方向控制系統可以正常運作。

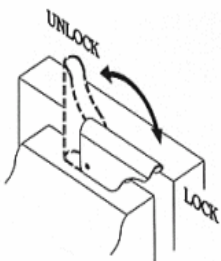
小心：

請不要在空間狹窄的地方發動引擎（如車庫或室內）不夠移動或配備的狹窄地方發動引擎，因為放出的引擎廢棄含有一氧化碳，這種氣體無色無味，它是一種危險的氣體會造成休克，並且可能危及生命。

## 3.2 Adjustments 調整

### 3.2.1 Forks 貨叉

The position of the fork can be adjusted to suit various load dimensions by pulling up the fork stopper, then move leftward or rightward along the fork support to the desired width; then push down the stopper to lock the forks in place.



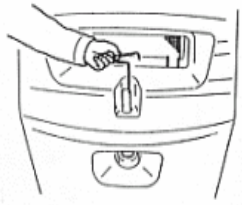
- \* **WARNING**: Make sure the forks are locked before picking up a load.

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貨叉寬度可調整以適應不同的負荷尺寸。調整的方法是拔起叉停止器，然後貨叉支架上左右移動貨叉到想要的寬度。然後推回停止器以鎖住貨叉定位。

\* 警告: 記得在舉起負荷前要鎖住貨叉。

### 3.2.2 Draw bar 拖拉桿



The tug bar is located at the back of the counterweight, and is used to pull the truck should its tires drop into a gutter or should the truck get stuck in mud. It can also be used for loading the forklift onto a truck or another vehicle.

\* CAUTION: Please refer the pulling force that the tug bar can endure, in the nameplate on each truck. Do not over pull it. And make sure that it is securely fixed when pulling it.

拖拉桿在配重的後方。它是用來拖拉車輛，當車胎陷入軟泥動彈不得時，它並也可用來裝載堆高機到卡車或其它的運輸車輛。

\* 注意：拖拉桿的拉力，請參考每一車輛的銘牌上的資料。請不要超限拖拉，拖拉時一定要固定住拖拉桿。

### 3.2.3 Operator's seat



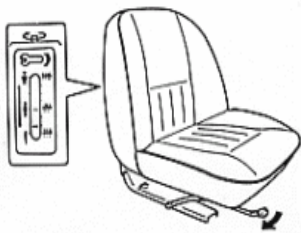
#### Standard 標準型

Pull rightward the adjusting lever under the seat to the desired position; then pull the lever back to original place to finish the seat adjustment. Make sure and try to move the seat after adjustment, to see if it is fixed on the gliding rail.

拉座位下的調整桿置想要的位置，然後拉桿向後到原來的的位置已完成座椅調整。調整後記得試著移動座椅是否固定在滑軌上。

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### Suspension seat adjustment-Option 選購—可調整式座椅



The seat spring can be adjusted according to operator's weight to add comfortableness by turning clockwise or counter-clockwise the screw bolt at middle place of the seat back to the proper position. Pull rightward the adjusting lever under the seat to adjust the seat to the desired position; then pull the lever back to the original place to finish the seat adjustment. Make sure to move the seat adjustment to see if the seat is fixed in the gliding channel.

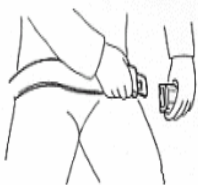
可依作業者體重調整座椅彈性，使操作時改到充分的舒適感，將椅背中間的螺栓順或逆時鐘旋轉已調整彈簧至所需的重量位置。將座椅底下調整桿向右側拉，可將座椅位置任意作前後調整，當座椅調至所需位置後，請記得前後搖動座椅，確定座椅已置入滑軌凹槽。

### 3.2.4 Seat belt 椅帶

#### Fastening method

Adjust the seat to a comfortable seating position.

1. After checking the seat belt for twisting, insert the plate into the buckle.
2. If the belt is short, extend the belt as the right illustrate.
3. Always position the seat belt as low on your hips as possible.
4. Adjust the seat belt to fit snugly but comfortably when buckled.



#### Disconnecting method

1. Push the button in the center to the buckle.
2. After disconnection the seat belt, insert the plate into the buckle.



\* CAUTION: Always buckle up the seat belt when you drive the truck.

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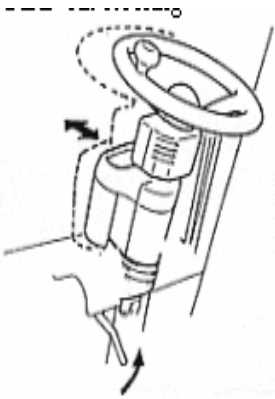


扣繫的方法：

1. 先調整座椅到一個舒服的位置。
2. 檢查椅帶是否扭住後扣上扣環。
3. 如帶子太短，如右圖所示延長。
4. 儘量讓椅帶低近你的屁股。
5. 調整椅帶使其在扣上時夠繫，但仍覺得舒服。

卸開的方法：

1. 壓下帶子中間的扣環。
  2. 拆開椅帶後，請將扣子扣回去。
- \* 小心：駕駛車輛時，請永遠扣上椅帶。



### 3.2.5 Tilt steering 方向柱傾斜調整

1. The steering wheel position may be adjusted back and forth while the tilt steering adjust lever is kept lowered.
2. Raising the lever at the proper position fixes the steering wheel at that position.
3. After the adjustment, try to move the steering wheel back and forth to see that it is fixed.

\* **CAUTION:** The steering wheel position must be adjusted before starting the truck. Adjustment during traveling must be avoided.

1. 在放開方向盤調整桿後，可調整方向盤位置向前或向後。
2. 拉起調整桿，移動方向盤到適合的位置，然後壓下調整桿固定住。
3. 調整後，請嘗試移動方向盤向前向後看看他是否固定住。

\* 小心：必須在啟動車輛前調整方向盤的位置，如有必要的話，禁止在駕駛中做任何調整。

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## 3.3 Operation techniques 操作技術

### 3.3.1 Driving and direction changes

The following paragraphs describe how to operate the transmission:

The lift truck has a direction control lever to control the powershift transmission. The truck has a direction control lever, move the lever toward the front of the lift truck to travel **FORWARD**. Move the lever toward the rear of the lift truck to travel in **REVERSE**. To move the lift truck, push on the inching/brake pedal and release the parking brake. Then push down the accelerator pedal as the inching/brake pedal is released.

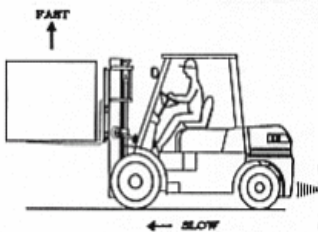
The operator of a lift truck with a powershift transmission can select the opposite direction at slow travel speeds (less than a walking speed), but the upright must not be raised. If the lift truck is moving rapidly, slow to a walking speed before changing the direction of travel.

\* **CAUTION:** The drive train can be damaged if the lift truck is traveling too fast when the controls are changed to the opposite direction.

### 3.3.1 駕駛及轉彎

下列章節描述操作變速箱的技術。

堆高機有方向控制桿控制變速箱。推向前可使車輛向前走；推向後可使車輛向後走。要開動車輛，踏下寸動/煞車踏板然後釋放手煞車，放開寸動/煞車踏板，然後加速。



在慢速下（比行走還慢的速度），操控者可變換到相反相向，但桅桿必須升起，如車子移動的很快，在改變方向前要慢下來。

小心：在快速中改變前進/後退方向時，會損壞傳動軸的方向。

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### 3.3.2. Inching 吋動

Inching is movement of a lift truck that allows a slow travel speed while keeping the engine speed high for fast operation of the lift mechanism. The inching pedal is used to control the inching operation on a lift truck with a powershift transmission. When the inching pedal is applied, the clutch in the transmission is partially disengaged and the movement of the truck is slow. When the inching pedal is fully applied, the transmission is completely disengaged and the brakes are applied. Use the accelerator pedal to keep the engine speed high while inching.

**\* WARNING :** Inching requires coordinated movement of the inching pedal and the accelerator pedal. New operators must practice this procedure before attempting to handle loads.

吋動是堆高機的一種動作，它會使行走動作慢下來，同時使舉昇功能仍可快速操作。踩下吋動踏板時離合器片會部分分離，因此讓車輛慢下來，當全部踩下吋動踏板時，變速箱會完全分離並獲得煞車的效果。在吋動下時，請使用加速踏板保持引擎高速運轉。

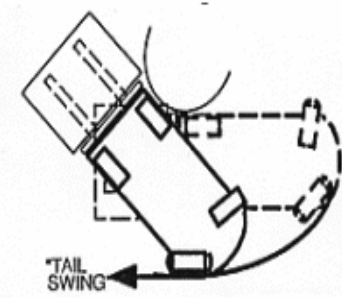
\* 警告：吋動需要吋動踏板及加速踏板配合動作。新手在獨立操作負荷時，要先練習此一技術。

### 3.3.3 Steering 轉彎

Because lift trucks are designed to work in a relatively narrow space, they can turn sharper than some other vehicles.

Most lift trucks steer by the rear wheels and the rear of the lift truck can move to the side very fast during a turn. This movement is called "tail swing". An operator must be aware of tail swing and always check to make sure the tail swing area is clear before turning.

**\* WARNING :** Failure to observe the tail swing area when making a turn can injure or kill someone.



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因堆高機設計用來在狹窄的空間中工作，它可比其他的一般車輛做更小的轉彎。

大多數堆高機由後輪操控，在轉彎中堆高機後部會很快移動到側邊，這種動作叫甩尾。駕駛必須小心甩尾的動作，在轉彎前一定要記得甩尾的區域是淨空的，否則很容易傷到人。

\* 警告：轉彎時要緩慢行走，即使再低速時堆高機仍可能翻覆。

When turn the lift truck from a wide aisle into a narrow aisle, start the turn as close to the opposite stockpile as tail swing will permit. This action permits the truck to enter the narrow aisle going straight ahead.

Do not turn on an incline. To reduce the possibility of a tip over, a lift truck must not be driven across an incline.

When possible, keep both hands on the steering wheel. During most loading or Loading operations, the operator steers with the left hand. The right hand is use to operate the lift, tilt and attachment controls.

當堆高機由寬向轉到窄巷時，在甩尾容許的範圍內，儘量靠近對面的貨物堆時才開始轉彎，這樣的動作可是車輛進入窄巷後還能直行。

使再下坡時不要轉彎，為要減少翻覆的可能性，堆高機不能行走橫過坡度。

儘可能二手放在方向盤上。在大多數負/無負荷的狀況下，操作者以左手操控，而右手是用來操作揚昇、傾斜及其它附件的操控。

**\* WARNING :**

**TRAVEL SLOWLY WHEN TURNING.** Lift trucks can tip over even at very slow speeds .The combination of high speed and the sharp turn can cause a tip over. A lift truck is less stable when the forks are elevated, with or without a load. Most operators can understand the need to be careful when handling loads. But some operators do not realize that a tip over can occur with an empty lift truck because

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similar dynamic forces are present. In fact, the lift truck will actually tip over easier when empty, than when loaded with the load lowered. Rearward tilt, off-center loads and uneven ground will aggravate these conditions.



**\* 警告：**

速度上加上轉彎的角度會造成翻車，在貨叉升高時堆高機是比較不穩的，不管有沒有負荷，駕駛皆要懂得小心處理可能造成翻覆的可能狀況。有些駕駛不瞭解空車也可能翻車。事實上空車時，仍有一些動態的力量存在，而使空車較容易翻車。堆高機負荷並且負荷在低空時較穩。後面傾斜、未對正負荷、地不平皆會使這些情形惡化。



**\*WARNING**

**FASTEN SEAT BELT if Lift Truck Could Tip Over.**

- \* Do Not Jump-Stay On Truck
- \* Hold Firmly To Steering Wheel-Brace Feet-Lean Forward and away from impact.

The seat belt is installed to help the operator stay on the truck if the lift trucks tip over. IT CAN ONLY HELP IF IT IS FASTENED.

The operator must be aware that the lift truck can tip over. There is a great risk that the operator or someone else can be killed or injured if trapped or hit by the truck as it tip over. The risk of injury can be reduced if the operator stays on the truck. If the truck tip over do not jump off.



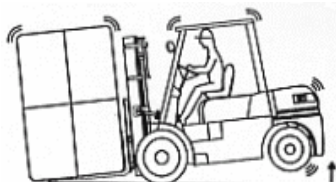
The SEAT BELT AND HIP RESTRAINT BRACKET provides a means to help the operator keep the head and torso substantially within the confines of the truck frame and overhead guard once a tip over occurs. This protection system is intended to reduce the risk of the head and torso being trapped between the truck and the ground, but it cannot protect the operator against all possible injury in a tip over.

**\* 警告：**

請繫好安全帶以免車子翻覆，造成危險。

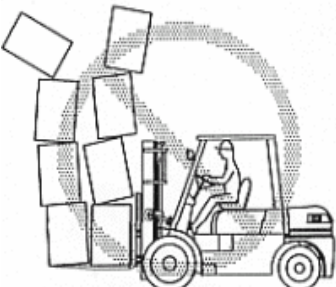
不要跳，試圖待在車上。

手握緊方向盤、腳頂住地板、身體向前傾避免撞擊。



安全帶車輛翻覆時可保護駕駛穩坐車上，但也只有繫上才會有作用。

駕駛必須清楚地知道車子有可能翻覆。翻車時被車子卡住或撞到，會有傷亡的危險。但如駕駛想辦法待在車上，危險就可降低。車子翻覆時不要想要跳開。



安全帶及臀部固定架，幫助駕駛頭部及身體待在車內，以降低被車體壓到的危險。但如真翻覆時不可能完全免於受傷，因此，還是以小心駕駛為原則。

**3.3.4 Handling load, general 處理負荷的一般原則**

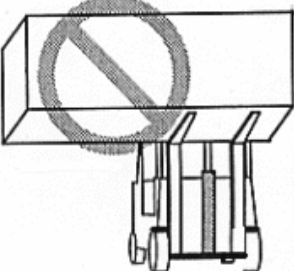
1. Handle loads only within the rated capacity as shown on the nameplate. This rating represents the maximum load that can be lifted.

However, such factors as weak floors, uneven terrain, special load handling attachments or loads having a high center of gravity can mean that the safe working load is less than the rated capacity. When such conditions exist, the operator must reduce the load so that the lift truck will remain stable.

2. Handle only stable loads. A load can have unstable items that can easily shift and fall on someone.

**\*WARNING**

**Do not handle a load of loose part, for it is above the load backrest and**

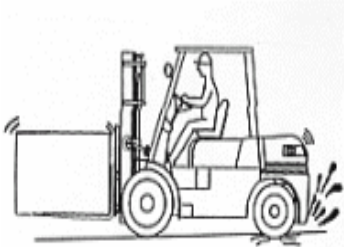


part may fall on someone.

3. Position each fork the same distance from the center of the carriage. This action will help center the load on the carriage. Set the forks as far apart as possible for maximum support of the load. Center the weight of the load between the two forks.

If the weight of the load is not center between the forks, the load can fall from the forks when you turn a corner or hit a bump. An off center load will increase the possibility of the truck tipping over to the side.

Make sure the pins that keep the fork in position are engaged so that the forks cannot move.



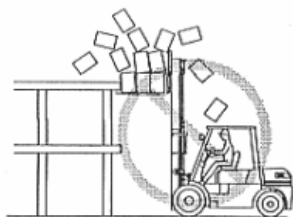
4. Prior to passing a bridge or soft ground, make sure that the bridge or the ground can endure the total weight of the forklift truck. Never assume the ground where your trucks is to operate on is strong enough to support the weight. Make sure the bridge or the ground is strong enough to take this moving load safety. And slow down.

1. 以銘牌上的噸數等級處理相當的負荷。它是處理負荷重量的極限，但如地板太弱、不平、裝有附件或重心高時，則負荷能力降低。在這種狀況下，駕駛要降低負荷以使推高機穩定。

2. 只對穩定的貨物作處理。有些負荷其物件不穩很容易移動或掉下來而打到人。  
警告：如負荷上有部分東西鬆掉或會掉下來打到人時，請勿承載。

3. 將每一貨叉定位於托架中心等距的地方，這樣的動作可幫助負荷置於托架中心點。貨叉儘量調寬以獲得最大支撐，負荷的中心點要放在貨叉的中間，如沒有則當車子轉彎時或撞到東西時，負荷東西會掉下來。歪斜的負荷會增加翻覆的可能性。並請記得貨叉上的停止器固定住定點，使貨叉無法移動。

4. 經過橋或軟地前，請確認它可以支撐堆高機的全部重量，永遠不要預設在堆高機操作下的地板夠強可以支撐重量。經過這些地方速度要慢。



### 3.3.5 Handling, lifting, lowering and tilting load 處理揚昇、降下及傾斜負荷

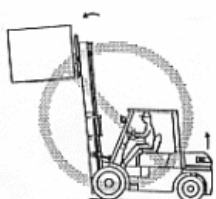
The **LIFT** and **TILT** functions are controlled by separate levers. See the section **2.9 Instruments and Controls** for the correct operation.

The speed of the hydraulic function is controlled by the position of the control levers and the speed of the engine. The farther the hand lever is moved from the **NEUTRAL** position, the faster the speed of the hydraulic function.



Do not lift or hit anything that can fall on the operator or a bystander. Remember, a lift truck equipped with an overhead guard and load backrest extension provides reasonable protection to the operator from falling objects, but cannot protect against all possible impact.

A lift truck without an overhead guard provides no such protection and other personnel have no overhead protection. Avoid hitting objects such as stacked material that could become dislodged and fall.



The operator must exercise carefully while working near such objects. Whether the lift truck is loaded or unloaded, do not travel with the load or carriage in a raised position.

揚昇跟傾斜分別有兩個不同的操控桿，請參考操作手冊 2.9 章節有關儀錶及控制的部分，以作正確的操作。油壓機械的速度由控制桿的位置及引擎速度控制，控制桿離中立位置越遠，則油壓的速度越快。

不要揚昇或撞任何會掉下來砸到人的東西。記得配備有頂護架及負荷柵欄加寬的堆高機，可以提供駕駛好的保護，以免被掉下來的東西打到。但也只僅於此，它並不能保護所有可能的衝擊。

因此沒有配備有頂護架及負荷柵欄加寬的堆高機，應儘量避免撞到堆壘不穩可能掉下來的東西。在這些不穩的貨物附近工作時，駕駛要特別小心，不管車子有沒負荷，將負荷或托架升起時，車子不要行走。

### \*WARNING

Keep yourself and all the others clear of the lift mechanism. Never allow anyone under or on the forks.

NEVER put hands, arms, head or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also a helper.

None is allowed to stand close to the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Lift and lower with the mast vertical or tilted slightly backward. Tilt the elevated load forward only when directly over the unloading place. If the lift mechanism is raised to pick up or deposit a load, keep the tilt angle in either direction to a minimum. Backward and forward tilt is helpful, but they affect side and forward stability. Do not tilt in either direction more than necessary when handling a load that is raised. The lift truck can tip forward if the upright is tilted forward with a load in the raised position.

### \*WARNING

The lift truck can tip over forward when the load is raised. Tipping forward is even more likely when tilting forward, braking while the truck is traveling forward or being accelerating in reverse.

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**IF THE LIFT TRUCK TIPS, DO NOT JUMP OFF! HOLD FIRMLY TO STEERING WHEEL, BRACE YOUR FEET, AND LEAN AWAY FROM POINT OF IMPACT.**

### \* 警告

不要讓任何人處在舉昇機件的四周，更不要讓任何人站在貨叉的下面。

手臂、頭、足不要靠近或伸過桅桿托架或舉昇鏈條，這個警告不只針對駕駛而且也針對協助者。

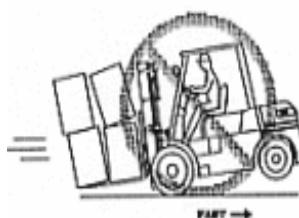
在駕駛嘗試處理負荷時，協助者不可站在負荷或舉昇機件的附近。舉升機件移動貨物時，如沒足夠的空間易造成嚴重的傷害。

昇降架垂直揚昇或下降、或向後稍作傾斜，只當要在卸載的直上方要卸載時，才可將升降架向前傾。在升起或卸載負荷時，儘量將傾斜角度縮小。前/後傾或有幫助，但她們會影響側面的穩定度，處理揚昇的負荷時，不要將傾斜角度超過實際的需要。堆高機負荷而且升起時，如也將昇降架傾前，則可能會整個車子翻倒。

### \* 警告

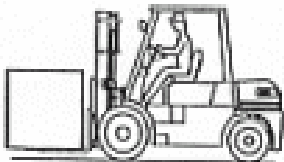
負荷升起時，堆高機可能向前翻倒。當向前行走或向後加速時、煞車或向前傾斜，翻倒的可能性高。如真的翻倒，不要想要跳出來。此時要握緊方向盤、腳用力然後整個身體向前傾，以遠離衝擊。

## 3.3.6 How to engage and disengage a load in handling 處理負荷、承載及卸載



1. Avoid fast starts. Sudden movement can cause the lift truck to tip. People can be hurt or killed and material can be damaged. Approach the load carefully. Make sure that the truck is perpendicular to the load. Raise the forks to the proper height for engaging the load.

避免啟動過快，突然移動可能引起堆高機翻倒，人員受傷、死亡、貨物損壞等，小心接近負荷，確認堆高機跟負荷成直角，升起貨又到適當高度以便插入貨叉。

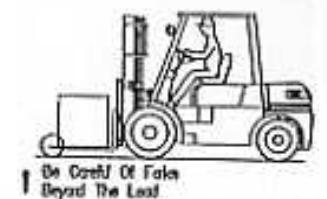


2. Move forward slowly until the forks are in position under the load. The forks must support at least 2/3 of the length of the load.

Make sure that the load is centered between the forks. Make sure that the forks do not extend past the load so that loads or equipment that are behind the load being lifted are not damaged. Lift the load a small distance from the floor to make sure the lift truck has the capacity to lift the load.

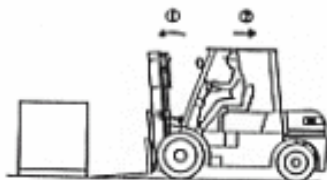
If the forks are longer than the load, move the forks under the load so that the tips of the forks do not extend beyond the load. Lift the load from the surface. Move backward a few inches, then lower the load onto the surface and inch forward to engage the load against the carriage. Tilt the upright backward just far enough to lift the load from the surface.

緩慢開向前，直到貨叉定位於負荷的直下方，貨叉必須至少支撐負荷 2/3 的長度。請確認負荷位在貨叉的中間而且沒伸出去。這樣才可避免負荷後的配備或貨物受到損壞。將負荷稍微從地板升起，以確保堆高機有能力升起該負荷。假如貨叉長過負荷，則要向後退讓叉尖不要伸出負荷。當要將貨物舉昇起來，向後開數寸，降下負荷到地面上，寸動向前以使貨叉定位於負荷下，昇降架向後傾讓它足以挑起負荷。



3. When a load is put on the floor, tilt the upright forward to a vertical position and lower the load. Tilt the upright forward to permit smooth removal of the forks. Carefully move the lift truck backward to remove the forks from under the load.

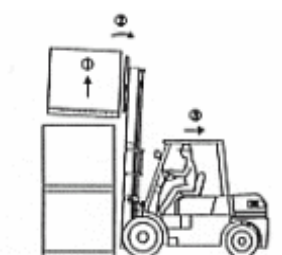
當負荷要放在地上時，傾直昇降架並降下負荷，然後傾前以便抽出貨叉，抽出貨叉時要小心開車向後，以便從負荷底下抽出貨叉。



4. If the load is being removed from a stack, slowly move the lift truck away from the stack. When the load is clear of the stack, lower the load for traveling. Always travel with the load as low as possible and tilted backward. Lowering speed is controlled by the position of the control lever. Lower slowly and

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smoothly. Slowly return the control lever to the neutral position so that the load is not dropped or that the lift truck is not tipped over due to the rapid stop of the load.



在從堆壘中取出負荷時，要慢慢地離開堆壘，負荷離開後，降下負荷以便行走。行走時，負荷位置要儘量低並稍後傾。

下降速度由操控桿的位置所控制，緩緩順暢的降下負荷，慢慢的將控制桿回到中立的位置。以免負荷掉下來。或則避免因負荷停的太快而使車子翻覆。

5. To put the load on a stack, align the lift truck with the stack. Lift the load to eye level and then tilt the load forward until it is level. Raise the load higher than the point where it will be placed. Do not raise the load to a point below where the load is to be placed and "jog" the load up into position. This operation uses added energy. Be careful not to damage or move adjacent loads.

要堆放負荷於棧板或堆壘上，要先將堆高機對齊堆壘。將負荷舉到眼睛的高度後，將貨叉向前傾直到水平舉高，舉昇負荷到預要放置的點高一些，這些操作需要額外的專注，小心不要傷及旁邊的貨物。

### \* WARNING

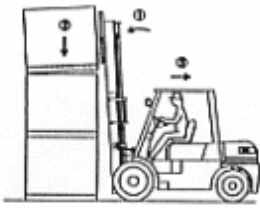
Move carefully and smoothly when the load is raised over a stack. When the load is elevated the center of gravity of the lift truck and load becomes higher. The lift truck may tip over when the load is raised.

**IF THE LIFT TRUCK TIPS OVER EITHER TO THE SIDE OR FORWARD, DO NOT JUMP OFF! HOLD FIRMLY TO STEERING WHEEL, BRACE YOUR FEET, AND LEAN FORWARD AND AWAY FROM THE POINT OF IMPACT.**

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### \* 警告

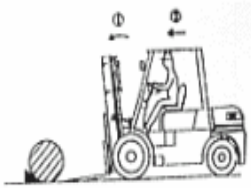
從堆疊升起負荷後，小心平緩地行走。升起負荷後車子及負荷的重心會變高，此時車子可能翻覆，如車子向測邊或前邊翻覆，請不要想要跳下車。而是要緊緊握住方向盤、伸展出大腿、身體後仰，嘗試遠離衝擊。



Move forward slowly. When the load is in position, lower the load on to the stack or the rack. Lower the forks just enough to remove them from under the load. Do not lower the fork so that they will drag on the surface under the load. Carefully move the lift truck backward to remove the forks from under the load. Lower the forks when traveling.

開車緩緩向前使負荷到達定位時，將負荷降到堆疊或貨架，降下貨叉到足以從負荷下抽離的高度，但不要让貨叉在負荷下的地面上拖著走，小心地開車向後以抽出貨叉。

6. When lifting round objects, use a block behind the object. Tilt the mast forward so that the forks can slide along the floor under the object to be lifted. Tilt the mast fully backward to help keep the load stays on the forks.



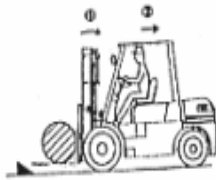
#### NOTE:

Not every load can be lifted only with the forks of a truck. Some loads will require a special attachment.

舉昇圓形物時，要用墊塊墊在物件的後面。將升降架傾前，以便讓貨叉順在要昇起的貨物下。順著地板滑動，然後將升降架全部向後傾以幫助負荷好好地置於貨叉上不會動。

注意：

不是每個負荷皆能只用貨叉就能舉起，有些物品負荷需要特別的附件。



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### 3.3.7 Handing load and traveling

1. When the truck traveling with the load lowered, keep the load against the carriage and the upright tilted fully backward. This will help to keep the load on the forks and stabilize the truck.

車子有負荷在低位行走時，要讓負荷靠著柵欄並將貨叉完全後傾，這會幫助負荷穩定在貨叉上，並產生足夠的穩定度，不致於前傾及側傾。

2. Travel with the lift mechanism raised only enough to clear the ground or obstacles.

When the mast, carriage or load is in a raised position, the stability of the lift truck is reduced. This is also critical when the lift truck is not carrying a load. The possibility that truck with load in a lowered position tips over is less than a truck without load.

Therefore, a lift truck without a load is more likely to tip sideways, especially in a turn, than a lift truck with a load carried in the lowered position.

行走間貨物舉起的高度只要足以離開地面或離開障礙物即可，升降架、托架或負荷升起時，堆高機的穩定性即會降低，空車比負荷在低位時更容易翻覆。

堆高機有負荷並且負荷在低位時，穩定性較佳，抗側翻的能力也較好。因此，不要輕忽以為空車就會較安全。



3. For better visibility with large loads, travel with the load trailing:

Always watch out in the direction of traveling. Normally, direction of travel is determined by the best visibility available to the operator. If the lift truck must travel in a direction where visibility is obstructed, a helper to watch out may be needed.

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## \*WARNING

Some lift trucks have mirrors for viewing along the side to observe the tail swing area. These mirrors are an aid to the driver, but are NOT driving mirrors and must NOT be used as such when operating in reverse. Always look in the direction of travel to avoid damage to something or injury to someone.



負荷大件物品時，如何獲得較佳視線：

拖拉負荷行走，但要小心前進的方向。一般情形，前進的方向決定於最好的視線，如行走在視線被阻礙的方向，則必要有一個協助者幫忙看清路線。

4. When the truck traveling up or down a grade with a heavy load, always keep the load side in up direction maintain the control. When operating an unloaded lift truck on a steep grade, always keep the counter-weight side in up direction.

在坡度上，上下行走時，如負荷體積大且重，要以負荷朝上行走，空車下坡時，配重要在後面而又端在前面走。



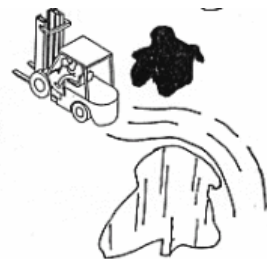
5. Watch out for pedestrians at all the times. Do not drive up to anyone standing in front of an object. Use extra care at cross-aisles, doorways and other locations where pedestrians can step into the path of travel of the lift truck. Slow down when approaching blind intersection or turns and sound the horn. This alarm is to warn pedestrians that there is a vehicle in the area and to be alert possible danger.

注意行人，不要對著站在物品前的任何人開車。交叉路、巷道要特別小心，在這地方行人容易步近車輛的行徑。轉入盲巷時，轉彎時要慢下來並鳴喇叭示警，喇叭是用來警告行人有車輛在附近，讓它警覺可能的危險性。



6. Anytime when a lift truck is moving, keep arms, legs, etc. inside of the operator's compartment. Arms and legs put outside of the machine may be hurt when the

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- truck passes obstructions.

任何時間都要保持手臂、腿等在駕駛室內側。經過障礙而將手臂、腿放在機器外容易受傷。

7. Avoid bumps, holes, slick spots and loose materials that may cause the lift truck to swerve or tip. If unavoidable, slow down.

Different models of lift truck are designed to operate under different conditions. Cushion tire models are designed to operate on relatively smooth, firm surfaces. Lift trucks with pneumatic tires can adapt to more uneven ground. Always make sure you pick the smoothest route for your lift truck.

避開窟窿、孔、滑溜點、鬆動的物質，這些會造成堆高機旋轉或翻覆。如不可避免則慢下來。實心胎是設計用來在平滑、堅固的表面上操作的；而氣胎較可忍受不平的路面，因此要確認你選對了行走的路徑。

8. Watch clearances, especially forks, upright, overhead guard and tail swing. A lift truck is designed to perform a wide variety of functions within limited space. The operator must be aware that the forks extend beyond the front of the load. If the forks extend beyond the load, the operator can hit an object or lift other load. Uprights and overhead guards hitting pipes and beams near the ceiling can cause serious accidents.

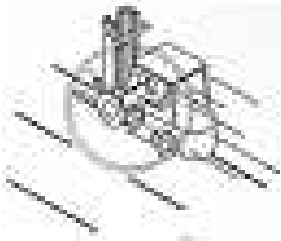
小心間隙，尤其貨叉，升降架、頂護架及甩尾等。堆高機設計可在狹窄的空間中使用，操作者必須知道貨叉可能長過於負荷，可能因此撞到人或物或舉起另外的負荷，升降架及頂護架會造成嚴重的意外事故，比如撞到屋頂的管件及橫樑等。

9. Do not indulge in stunt driving or horseplay.

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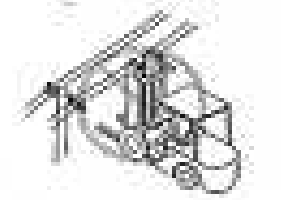


請不要將開堆高機當成特技駕駛或騎馬遊戲。



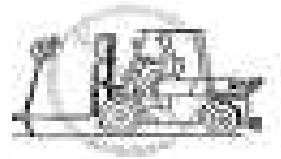
10. Do not pass another lift truck traveling in the same direction at intersections, blind spots or at other dangerous location.

請不要在交叉路、盲點或其他危險的位置，超越其它同方向的車輛。



11. Stay away from the edge of the road. Keep the wheels of the lift truck, particularly the steer wheels, on the roadway. If the wheels are allowed to run off the edge of the roadways, or if the wheels run into a soft ground, the lift truck may tip over.

請遠離路邊駕駛，保持輪子尤其是控制輪在路面上，如果輪子跑到路邊上或軟地裡，可能就因此翻覆。



12. Ensure that there is ample height and width for the forklift truck to pass. Watch out your side clearance, particularly when the truck with a wide load. Be careful of electric wires and other obstacles inside and outside the building.

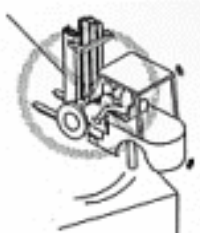
請確認路徑上的高度及寬度皆足夠堆高機通過，尤其有負荷時，小心建築物內外的電線及其他障礙物。

13. Always drive at a safe speed considering all conditions. Be sure you understand your limitation. Drive slowly at corner.

考慮各種可能情況，以最安全的速度行駛。請確認你瞭解你的限制，在角落時要緩慢行駛。

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### 3.3.8 Highway trucks, railroad cars and docks 公路卡車、鐵路車輛及碼頭



#### \*WARNING

Maintain a safe distance from the edge of docks, ramps, platforms and other similar working surfaces.

Watch the "tail swing". Remember when traveling in the forward direction and the steering wheel is turned to move the lift truck away from the edge of the dock the rear will swing toward the edge. This action can cause the lift truck to fall off the dock.

#### \* 警告

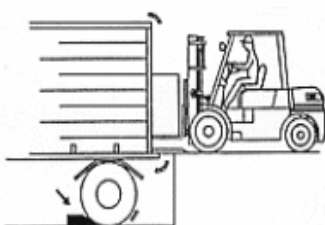
跟碼頭邊、岸邊及高地、平台或其它類似的工作表面保持一個安全距離，小心甩尾。記得前進行走時，方向盤轉動，轉彎離開碼頭邊時，後側會甩尾閃到邊上去，這個動作會使車子摔到碼頭下去，請務必要小心。

#### \*WARNING

IF THE LIFT TRUCK FALLS OFF THE DOCK, DO NOT JUMP OFF! HOLD FIRMLY TO STEERING WHEEL, BRACE YOUR FEET, AND LEAN FORWARD AND AWAY FROM THE POINT OF IMPACT.

#### \* 警告：

如推高機摔到碼頭下時，不要想要跳開。請手緊緊握住方向盤、腿用力、身體向前傾，嘗試遠離衝擊點。



Before operating in a highway truck or railroad car, observe the following:

**DO NOT** use a lift truck to move a railroad car.

**DO NOT** use a lift truck to open or close the door on a railroad car unless the truck has an attachment that is specially designed for opening and closing railroad car doors and the operator is trained for this use.

Check to make sure that the brakes on the highway truck are set and that

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wheel blocks have been placed on both sides of the rear wheels (unless a dock locking mechanism is engaged). Fixed jacks may be necessary to support the front and rear of a semi-trailer to prevent it from moving or tipping during loading or unloading.

Make sure that the railroad car brakes are set and the wheels are blocked while loading or unloading. Do this so that the railroad car will not move due to the movement of the lift truck in and out of the railroad car. Check the condition of the driving surface. Make sure the floor will support the weight of the lift truck and the load.

Make sure the dock board is secured, in good condition and of the proper capacity. When entering a railroad car the operator can enter at an angle (if the dock plate or bridge is wide enough). This will reduce the turning required after entering

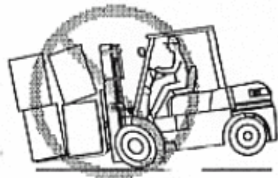
在公路卡車、鐵路車輛及碼頭上操作時，請遵行下列事項：

請不要用堆高機來移動鐵路車輛。

請不要用堆高機來打開或關閉鐵路車輛上的門，除非開堆高機有特殊配備，而駕駛也受過該用法訓練。再上下載時，請檢查確認公路車輛已煞了車，輪子也已墊了防止移動的塊木。請一定要做這樣的動作，以避免堆高機進出卡車時，卡車也跟著動。

檢查駕駛路面的狀況，確認地板可以支撐堆高機及負荷的重量。

確認碼頭的固定板是堅固安全狀態的，並可承載堆高機和負荷的重重。當堆高機進入貨櫃車時，需要以一個角度進入（如果卸貨鐵板或橋夠寬），這將可以減少進入轉彎的需求。



### 3.3.9 Stopping 煞車

Stop the lift truck as gradually as possible. Hard braking and wheel sliding can cause the load to fall off of the forks and damage the load or hurt someone.

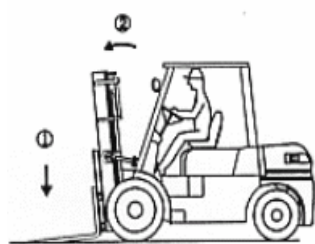
盡量緩緩地停車。煞車太急及輪子打滑，皆可能造成負荷從貨叉上掉落下或可能傷到人。

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### 3.3.10 Parking 停車

The operator must never leave a lift truck in a condition that can cause damage and injury. When parking the lift truck, do the following operations:

操作者絕不能讓車輛處在一個會造成財產損失或人員傷亡的狀況。停車時，操作這必須做下列的事項：



1. Stop the lift truck and apply the parking brake.
2. Fully lower the forks or carriage. Tilt mast forward until the tips of the forks touch the ground.
3. Put the direction control lever for the powershift transmission in **NEUTRAL**. If the lift truck has a manual transmission, leave the gears of the transmission engaged. **DO NOT** leaves a manual transmission in **NEUTRAL**.
4. Turn the key switch to "**OFF**" to stop the engine.
5. Turn the cutout switch to "**OFF**" to prevent hazard due to accidental discharge, and avoid to expend of the battery.

6. If the lift truck must be left on an incline, put blocks on the down hill side of the wheels so that the lift truck cannot move.

If the lift truck is equipped with an LPG fuel system and is parked more than momentarily, close the fuel valve at the tank. If the lift truck is going to be left over night or longer, the truck must be parked outside or the LPG tank must be removed and stored outside. Do not park the lift truck so that it limits access to fire aisles, stairways, and fire equipment.

1. 停下車輛並拉上手煞車。
2. 貨叉或托架全部降到底，將貨架向前傾直到貨叉尖碰地為止。
3. 方向控制檔置於空檔。如車子使用手排的車，可讓齒輪咬合著，不要讓手排變速箱置於空檔。
4. 將鑰匙切換到關閉的位置已停車熄火。

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- 將斷電開關切到關閉的位置以避免因意外漏電而造成危險，並且避免電池沒電。
- 如果車子必須停在下坡路段，則輪子要墊塊木，以防車輪移動。如果車子配有 LPG 燃料系統，而將停車一段時間時，要將燃料閥關掉。

如果車子是 LPG 車，當停車過夜或更久時，則車子必須停在外面，或燃料桶必須拆除並放置於外面。請不要將車子放置於防火巷口、樓梯口及防火設備前。

### 3.3.11 Refuel 加油

Turn off the engine when refueling the forklift truck or when checking the battery. Don't smoke or create any spark.

加油時或檢查電池時要熄火。不要吸煙或造成任何火花。



#### \* CAUTION:

The water/diesel fuel mixture is flammable, and could be hot. To help avoid personal injury and/or property damage, do not touch the fuel coming from the drain valve, and do not expose the fuel to open flames or sparks. Be sure you do not overfill the container. Heat (such as from the engine) can cause the fuel to expand. If the container is too full, fuel could be forced out of the container. This could lead to a fire and the risk of personal injury and/or truck or equipment damage.

#### \* 小心

水/柴油燃油混合是易燃的，而且會造成高熱。為防止個人受傷或財產損失，不要接觸從洩油閥來的燃油，也不要對大火及星火暴露燃油。確記不要加油過量，比如來自於引擎，會使燃油膨漲，如油桶太滿燃油有可能被迫溢出來，這可能造成火災及人身財產的危險。

## NOTES

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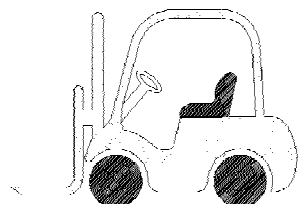
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## 4.MAINTENANCE 保養

### 4.1 General 一般概述

This section contains a MAINTENANCE SCHEDULE and the instructions for maintenance and inspection.

The MAINTENANCE SCHEDULE has time intervals for inspection, lubrication and maintenance for your lift truck. We recommend you to carry out maintenance regularly, being on the daily service time, like here we stay 8 hours per day. If a truck is usually used longer than 8 in a day, the shorter the maintenance interval will be. Shorter than our recommendation in the maintenance schedule, like in the following conditions :

- a. If the lift truck is used more than eight hours per day.
- b. If the lift truck must work in dirty operation conditions.

You dealer for CTPOWER lift truck has the equipment and trained service people to do a complete program of inspection, lubrication, and maintenance. A regular inspection, lubrication, and maintenance will help your lift truck give more efficient performance and operate for a longer period of time.

Some users have service personnel and equipment to do the inspection, lubrication, and maintenance shown in the MAINTENANCE SCHEDULE.

#### \*WARNING

**Do not make repairs or adjustments unless you have both authorization and training. Repairs and adjustments that are not correct can make a dangerous operating condition.**

#### \*WARNING

**Do not operate a lift truck that needs repairs. Report the need for repairs immediately. If repair is necessary, put "DO NOT OPERATE" tag in the operator's area. Remove the key away the key switch**

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本章節包括保養時程及保養、檢查的說明。

檢查、潤滑及保養有一定的時程，建議每工作 8 小時即做一次保養。如有下列情形可酌減時程：

- a. 每日工作超過 8 小時
- b. 如果車子必須在污濁的環境中操作的話。

您的經銷商有設備及受過訓練的專業人員做一整套的檢查，潤滑及保養、定期保養可幫助你的車子表現更順暢，使用壽命更長久。

#### \*警告：

除非你有被授權及受過訓練，否則請不要做修理或調整。不正確的修理、調整會導致危險的操作情況發生。

#### \*警告：

需要修理的車子不要開動，請立即報告需要修理。如需修理，請掛個牌子上面寫”不要操作”，放在駕駛區域內並將鑰匙拔去。

### 4.2 How to move a disable lift truck 如何移動拋錨的堆高機

#### \*WARNING

Use extra caution when towing a lift truck if any of the following conditions exist:

- a. Brake does not operate correctly.
- b. Steering does not operate correctly.
- c. Tires are damaged.
- d. Traction conditions are bad,
- e. The lift truck must be towed on a slope.

If the engine cannot run, there is no power available for the hydraulic steering system and the service brakes. This condition can make the lift truck difficult to steer and stop. If the lift truck uses power from the engine to help apply the brakes, the application of the brakes will be more difficult. Poor traction can cause the disable lift truck or towing vehicle to slide. A slope will also make the lift truck more difficult to stop.

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Never lift and move a disable lift truck unless the disable lift truck MUST be move and cannot be towed. A lift truck used to move a disable lift truck MUST have a capacity rating equal to or greater than the weight of the disable lift truck. The capacity of the lift truck used to move a disable lift truck must have a load center equal to half the width of the disable lift truck. The forks must extend the full width of the disable lift truck. Put the weight center of the lift truck on load center of the forks. Be careful not to damage the bottom of the lift truck.

**\* 警告**

拖車時如存有列情況，要格外小心。

- a. 煞車操作不正常。
- b. 方向控制操作不正常。
- c. 輪胎受損。
- d. 行走情況不良。
- e. 堆高機必須在一斜坡上拖拉時。

如引擎沒辦法運轉，就不會有油壓供方向控制及煞車使用。這種情況會使方向控制及煞車困難，不良的拖拉會造成拋錨的車輛或拖車本身打滑，斜坡更使得堆高機停車困難。

除非堆高機無法拖拉，否則萬不要想舉起並移動一個拋錨的堆高機。一個要能舉起拋錨堆高機的堆高機，其負荷能力必須等於或大於一拋錨的堆高機。而且其負荷中心必須是拋錨堆高機寬度的一半，貨叉必須伸展到拋錨堆高機的全寬，將重心放在貨叉的負荷中心點，小心不要傷到堆高機的下側。

### **4.3 How to tow the lift truck 如何拖拉堆高機**

1. The towed lift truck must have an operator.
2. Tow the lift truck slowly.

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3. Raise the mast and fork approximately 30 cm (12 inches) above the ground surface. Install a chain to prevent the carriage and mast channels from moving.
4. If another lift truck is used to tow the disable lift truck, that lift truck must have an equal or larger capacity than the disable lift truck. Install approximately 1/2 of capacity load on the forks of the lift truck that is being used to tow the disable lift truck. This 1/2 capacity load will increase the traction of the lift truck. Keep the load as low as possible.
5. Use a towing link made of steel that fastens to the draw bar in the counterweights of both lift trucks.

1. 被拖拉車必須有一個操作者
2. 慢慢地拖拉
3. 舉起桅桿及貨叉約離地 30 公分（12 英寸），固定鏈條防止托架在桅桿軌道移動。
4. 如欲用另一堆高機來拖拉拋錨堆高機，則拖拉堆高機必須等於或大於拋錨車的負荷能力。將拖拉堆高機大約負荷能力一半的負荷，放在堆高機的貨叉上，這一半的負荷將增加堆高機的牽引力，並儘量放低負荷。
5. 使用鐵做的拖拉連結，固定二個堆高機的拖拉桿。

### **4.4 How to put a lift truck on blocks 如果將堆高機置於木塊上**

**\* WARNING**

The lift truck must be put on blocks for some types of maintenance and repair. The removal of the following assemblies will cause large changes of the center of gravity: mast, drive axle, engine and transmission, and the counterweight. When the lift truck is put on blocks, put additional blocks in the following positions to maintain stability:

- a. Before removing the mast and drive axle, put blocks under the counterweight so that the lift truck cannot fall backward.
- b. Before removing the counterweight, put blocks under the mast assembly so that the lift truck cannot fall forward.

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The surface must be solid, even, and level when the lift truck is put on blocks. Make sure that any blocks used to support the lift truck are solid, one-piece unit.

**\* 警告**

有些保養及修理必須將車輛放在木塊上，拆除下列組件會造成重心改變：桅桿、驅動軸、引擎及變速箱、配重等。當車輛放在塊木上時，要放置額外的木塊在下列的位置以保持穩定性。

- a. 拆去桅桿及驅動軸前將木塊墊於配重底下，防止堆高機向後掉落。
- b. 拆去配重前，置塊木於桅桿組件底下，防止堆高機向前掉落。

地面必須堅硬、水平。並請記住任何用來支撐的塊木必須是堅硬，一整塊的而不是多塊組合的。

#### 4.5 How to raise the drive tires 如何舉起驅動輪胎

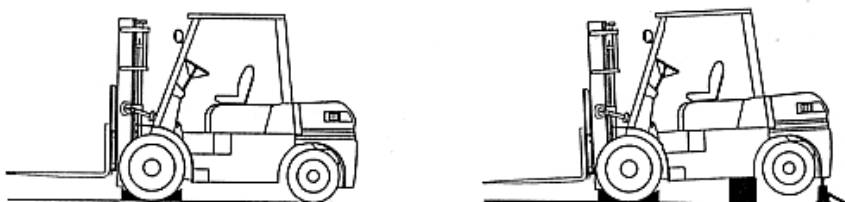
1. Put blocks on each side (front and back) of the steering tires to prevent movement of the lift truck.
  2. Put the mast in a vertical position. Put a block under each outer mast channel
  3. Tilt the mast fully forward until the drive tires are raised from the surface.
  4. Put additional blocks under the frame behind the drive tires.
  5. If the hydraulic system will not operate, use a hydraulic jack under the side of the frame near the front. Make sure that the jack has a capacity equal to at least half the weight of the lift truck. See the nameplate.
1. 將塊木置於方向輪胎的每一側（前/後），以防止堆高機移動。
  2. 將桅桿打直，於外桅桿滑軌底下置一木塊。
  3. 桅桿全部傾前，直到驅動輪從地面舉起。
  4. 置額外的塊木於驅動輪後的車架底下。
  5. 若油壓系統無法運作，可用油壓千斤頂置於靠近前面的車架底側。記住千斤頂的能力至少等於堆高機的一半重量，車子的重量請看銘牌。



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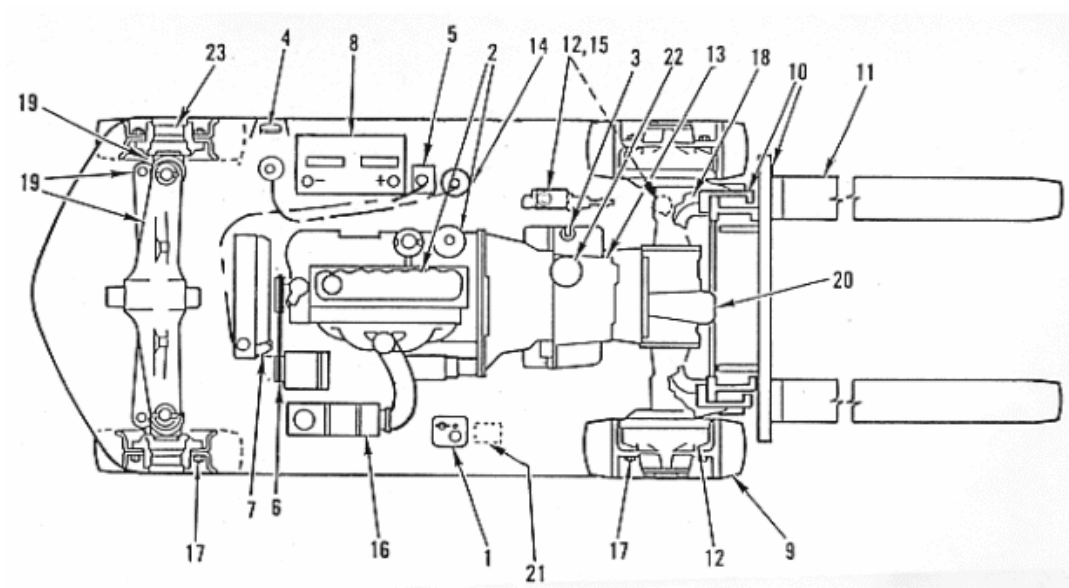
#### 4.6 How to raise the steering tires 如何舉起方向控制輪

1. Apply the parking brake. Put blocks on both sides (front and back) of the drive tires to prevent movement of the lift truck.
  2. Use a hydraulic jack to raise the steering tires. Make sure that the jack has a capacity of at least 2/3 of the total weight of the lift truck as shown on the nameplate.
  3. Put the jack under the steering axle or frame to raise the lift truck. Put blocks under the frame to support the lift truck.
1. 置手煞車。置木塊於驅動輪兩側（前/後），以防止堆高機移動。
  2. 用一油壓千斤頂舉起方向控制輪，記住千斤頂的負荷能力至少是堆高機重量的 2/3 倍。車輛顯示在銘牌上。
  3. 將千斤頂放在方向控制軸或車架的下方已舉起堆高機，置木塊於車架下以支撐堆高機。



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#### 4.7 Maintenance schedule 保養時程



#### MAINTENANCE AND LUBRICATION POINTS 保養及潤滑點

**NOTE:** The dispose of all maintenance oil must be in accordance with local rules and legislation.  
注意：所有保養油的處置必須根據當地的法律規章進行。

No. 項次	ITEM 項目	8hr 時	200hr 時	1000hr 時	2000hr 時	PROCEDURE OR QUANTITY 程序或數量	SPECIFICATION 規格
1	Hydraulic system 油壓系統	C			R	FD/FG/FG(LPG)15,18,20 45L FD/FG/FG(LPG)25,30,35 60L FD/FG/PG(LPG)40 95L FD/FG/FG(LPG)45 95L FD/FO/FG(LPG)50 100L	ISO VG46 Viscosity Index 95 and above 黏度指標 95及以上
2	Engine oil (Gasoline and LPG) 引擎油 (汽油及液化瓦斯)	C	R			See NOTE 1 請看備註	API SE/SF/SG 30 °C and above (及以上)SAE 30 15-30°C SAE 30 0-15°C SAE20 -10°C and below(以下)SAE 10W
	Engine oil (Diesel) 引擎油 (柴油)	C	R			See NOTE 1 請看備註 1	API CC/CD 27°C and above(及以上)SAE 40 0-32°C SAE 30 -7°C and below (及以下)SAE 10W
3	Transmission oil 變速箱油	C		R		See NOTE 1 請看備註 1	API GL-4
4	Fuel tank 燃油箱	C		R		FD/FG/FG(LPG)15,18,20 45L FD/FG/FG(LPG)25,30,35 60L FD/FG/PO(LPG) 40 95L FD/FG/FG(LPG) 45 95L FD/FO/FG(LPG)50 100L	Gasoline 汽油 Diesel 柴油 LPG 液化瓦斯
5	Cooling system 冷卻系統	C				Check for level/ 檢查水平 Check for leaks/ 檢查有沒漏水	50 Water with 50 ethylene glycol 50%水和 50%丙三醇
6	Fan belts 風扇皮帶					Check condition 檢查使用情況	See page 99 請看 99頁

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7	Radiator hoses 散熱軟管	C				Check condition 檢查使用情況	See PARTS LIST 請看零件手冊
8	Battery electrolyte 電解水	C				Check for level 檢查水平	See Page 100, 101 請看 100, 101頁
9	Tiers, Tiers pressure 輪胎、胎壓	C				Check condition 檢查使用情況	See Page 103, 104, 122, 123 請看 103, 104, 122, 123頁
10	Mast, Carriage, Lift chain 桅桿、貨架、舉鏈	C				Check condition 檢查使用情況	See Page 106, 107, 108 請看 106, 107, 108頁
11	Forks 貨叉	C				Check condition 檢查使用情況	See Page 105, 106 請看 105, 106頁
12	Service brake and Parking brake 手及腳煞車	C				Check operation / 操作檢查 Check condition / 檢查使用情況	See Page 115, 116 請看 115, 116頁
13	Transmission 變速箱	C				Check operation 操作檢查	See Page 112, 113 請看 112, 113頁
14	Water sediment 油水分離器	C				Clean or Replace 清潔或更換	See Page 112 and PARTS LIST 請看 112頁及零件手冊
15	Brake fluid 煞車油		C			FD/FG/FG (LPG) 15~35 200 ml FD/FG/FG (LPG) 40~50 150 ml	SAEJ-1703
16	Air filter 空氣濾清器	C			R	Clean or Replace 清潔或更換	See page 102 and PARTS LIST 請看 102頁及零件手冊
17	Wheel nuts 輪螺帽		C			Check torque 檢查扭力	Drive wheels/驅動輪 237-305 N.m Steel wheel/轉向輪 610-680 N.m
18	Mast pivots 桅桿樞軸			L		2 Fittings 2個附件	Multi-Purpose Grease See Note 1 多用潤滑脂 請看備註 2
19	Pivots pin, Tie rods, Kin pin bearings (Upper and lower) 軸銷、固定桿、 大王銷軸承(上及下)			L		1 Fittings / 附件 4 Fittings / 附件 2 Fittings / 附件	Multi-Purpose Grease 多用潤滑脂

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20	Differential oil 差速器油		C	R		7.6 L	SAE80W-90;85W-140
21	Hydraulic oil filter 機油濾清器				R	See NOTE 3 請看備註 3	See PARTS LIST
22	Transmission oil filter 變速箱油濾清器				R	See NOTE 3 請看備註 3	See PARTS LIST
23	Wheel bearings 輪軸承			L		0.5kg/公斤	Multi-Purpose Grease 多用途潤滑脂
24	Check for leak fuel, oil, water 檢查漏油、機油、水	C				Clean for leaks 檢查有沒漏油	
25	Warning labels 警告標誌	C				Replace if necessary 必要時更換	See Page 110 請看 110 頁
26	Safety Belt 安全帶	C				Check condition 檢查使用情況	See page 110, 111 請看 110, 111 頁
27	Hood / Seat 引擎蓋 / 座椅	C				Check condition 檢查使用情況	See Page 110, 111 請看 110, 111 頁
28	Horn, Gauges, Lights, Alarms 喇叭、儀錶、燈光、警告	C				Check operation 操作檢查	See Page 111 請看 111 頁
29	Steering 方向控制	C				Check operation 操作檢查	See page 117 請看 117 頁

C: Check 檢查                      R: Replace 更換                      L: Lubricate 潤滑

**NOTE 1:** Check dipstick, the oil level must be at middle, please changing on new lift trucks after first 50 hours.

檢查油標尺，油水平必須在上下限的中間。初次使用之新車，50 小時請更換。

**NOTE 2:** Multi-purpose grease with 2-4 molybdenum disulfide.

含有 2-4% 二硫化鉬的多用途潤滑脂。

**NOTE 3:** Change filters on new lift trucks after first 200 hours.

使用 200 時，請換新的堆高機濾清器。

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#### 4.8 How to make the checks with the engine stopped 熄火時如何做檢查

Put the lift truck on a level surface. Lower the carriage and forks stop the engine and apply the parking brake. Open the hood and check for leaks and conditions that are not normal. Clean oil or fuel spills. Make sure that lint, dust, paper, and other materials are removed from the engine compartment.

置堆高機於水平地面，降下托架及貨叉、引擎熄火、拉上手煞車、打開引擎蓋，檢查有無漏油及使用情況勢否正常。清潔油污或溢出的燃油，記住灰塵、紙及其它物質必須從引擎室中清除。

##### 4.8.1 Hydraulic system oil

\*WARNING 警告

At operating temperature the hydraulic oil is HOT. Do not permit the hot oil to touch the skin and cause a burn.

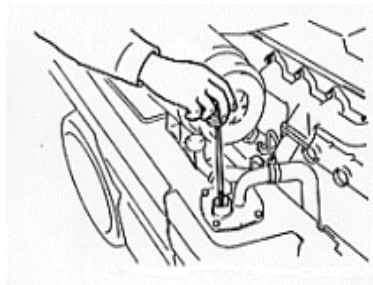
運作中的液壓油溫很熱，請不要讓它碰觸到皮膚，否則會造成灼傷。

\* CAUTION 小心

Do not permit dirt to enter the hydraulic system when the oil level is checked or the filter is changed. Never operate the hydraulic pump without oil in the hydraulic system. The operation of the hydraulic pump without oil will damage the pump.

檢查油水平時或更換濾清器時，不要允許髒物進入油壓系統。油壓系統中無油時，請不要操作油壓泵浦，否則會造成油壓泵浦損壞。

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Check the hydraulic oil level when the oil is at operating temperature, the carriage is lowered and the engine is stopped. Add hydraulic oil only as needed. If more hydraulic oil is added than the "FULL" level, the hydraulic oil will leak from the breather during operation. The oil level indicated by the dipstick is most accurate when the oil temperature is 53°C to 93°C.

當油處於操作油溫時，降下托架、引擎熄火時，才檢查液壓油水平。如需要則增加液壓油，但如加過全滿的水平，液壓油在引擎操作時會從呼吸孔中溢出來。當油溫在 53°C 到 93°C 時，游標尺所量出來的油水平最準確。

#### 4.8.2 Engine oil 引擎機油

After the engine has stopped, wait one minute before checking the oil level. Keep the oil at the correct level as indicated on the dipstick. Use the correct oil as shown in the Maintenance schedule.

引擎熄火等候一分鐘後，在檢查油水平，保持油水平的正確，如油標尺所標示的；使用正確的機油，如保養時程中所標示的。

#### 4.8.3 Fan belt 風扇皮帶

Inspect the fan belt for cracks, fraying and tension. If any abnormalities are found, have the belt replaced or adjusted at a CTPOWER dealer.

檢查風扇皮帶有沒斷裂、磨損及過緊。如發現任何不正常，則請更換皮帶或由經銷商做調整。

#### 4.8.4 Cooling system 冷卻系統

\* WARNING

DO NOT remove the radiator cover from the radiator when the engine is hot. When the radiator cover is removed, the pressure is released from the system. If the system is hot, the steam and boiling coolant can cause burns. DO NOT remove the cover from the radiator when the engine is running.

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\* 警告

當引擎熱時，不要想從水箱拆下水箱蓋。打開水箱蓋後，壓力會從系統中洩掉，如果系統正熱著，蒸氣及滾燙的冷卻液會造成灼傷。引擎在運轉時不要打開水箱蓋。

Make sure the coolant level is between the "FULL" and the "LOW" mark on the auxiliary coolant reservoir. The coolant will expand as it is heated and the level in the auxiliary coolant reservoir will increase. If coolant is added, use the correct mixture of water and ethylene glycol, inhibitors. If the air temperature becomes below 0°C the coolant should be added with antifreeze.

Check the radiator fins. Clean the radiator with compressed air or water as needed.

請確認冷卻液的水平，在輔助冷卻液瓶中介於全滿及低標間。冷卻液受熱會膨脹，而輔助冷卻液瓶中的水平會升高。如加了冷卻液，請用水及防鏽劑的正確混合比例，如果天氣在 0°C 以下，可加抗凍劑。

#### 4.8.5 Battery 電池

\* WARNING

The acid in the electrolyte can cause injury. If the electrolyte is spilled, use water to flush the area. Use a solution of sodium bicarbonate (soda) to make the acid neutral. Acid in the eyes must be flushed with water immediately. Wear eye protection and gloves during this adding procedure. Batteries generate explosive fumes. Keep the vents in the cover clean.

Keep sparks or open flame away from the battery area. Do not make sparks from the battery connections. Disconnect the battery ground cable when doing maintenance.

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Keep the battery and cable terminals clean. Check the electrolyte level (except maintenance-free battery). Keep the electrolyte level above the separators and plates. Use distilled water. Do not fill the battery more than the bottom of the internal filler neck. If the battery becomes discharged and requires a booster battery to start the engine, follow these procedures carefully when connecting the jumper cables:

- a. Always connect the positive jumper cable to the positive terminal of the discharged battery and the negative jumper cable to the negative terminal.
- b. Always connect the jumper cable that is the ground cable last.
- c. Always connect the jumper cables to the discharged battery before connecting them to the booster battery.

**\* 警告**

電解水是酸性的會造成人體傷害。如果沾到身體，要用水沖洗沾到的地方，用蘇打水中和其酸性。如沾到眼睛，則要用水立即沖洗。在加入電解水的過程中，請戴護目鏡及手套。

電池會產生爆炸性的氣體。請保持瓶蓋上的通氣孔乾淨、並保持火花或火源遠離電池的區域。做保養時，要拆掉電池的接地線。

保持電池及電纜接頭乾淨。檢查電解水水平，除非是免保養式的電池。

保持電解水水平高於隔板，請使用蒸餾水。但不要加超過內部加水的頸部，如電池電力不足，需要以輔助電池來發動引擎，接電纜時請小心地遵守下列程序：

- a. 先接陽極再接負極
- b. 接地線最後才接
- c. 先接沒電的電池端，再接到輔助電池的一端。

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#### **4.8.6 Air filter 空氣濾清器**

Clean or replace the air filter if necessary. Use compressed air to clean the filter element. Air pressure must be less than 210kpa(30psi). Apply the air from the inside to the outside of the filter element.

Inspect the element. Put a bright light inside the filter element and look for holes or other damage. If the filter element is damaged, replace it with a new filter element. Use a cloth with solvent to clean the inside of the canister when the filter element is replace.

必要時請清潔或更換空氣濾清器。用壓縮空氣清潔心子，空氣壓必須低於 210kpa (30psi)，從內向外噴檢查心子，於心子內置一亮燈找出孔或其他損壞。如濾清器新子損壞，請更換新的，換好心子後，用沾有清潔劑的布塊清潔匣式內部。

#### **4.8.7 Fuel system 燃油系統**

**\*WARNING**

All fuels are very flammable and can burn or cause an explosion. DO NOT use an open flame to check the fuel level or to check for leaks in the fuel system. If there is a leak in the fuel system, extra care must be taken during the repair. Do not operate the lift truck until a leak is repaired.

Check the fuel system for leaks and the condition of parts. When fuel is added to the lift truck, see the section 4.10 How to add fuel to the lift truck of this OPERATING MANUAL.

**\* 警告**

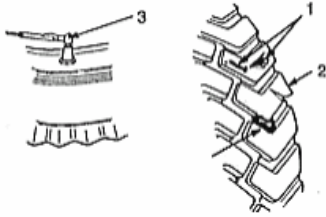
所有的燃油皆很易燃，會造成灼傷或爆炸。請不要用火把檢查燃油水平或用來檢查燃油系統中有沒有漏油。如果燃油系統漏油，在修理時要格外小心。除非已修理好漏油，否則請不要操作該堆高機。

檢查燃油系統有沒漏油及其零件使用狀況。加油時請看本手冊 4.10 章節有關如何加油的部分。

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## 4.8.8 Tires and wheels 輪胎及輪子

### \*WARNING



1. CHECK FOR DAMAGE, REMOVE OTHER OBJECTS FROM THE TREAD  
檢查損壞部分並將物體從輪胎移除
2. MAKE SMOOTH EDGES  
清除凹縫處, 使輪胎平滑
3. CHECK THE TIRE PRESSURE (PNEUMATIC TIRES)  
檢查胎壓 (氣胎)

Air pressure in pneumatic tires can cause tire and wheel parts to explode. The explosion of wheel parts can cause serious injury death. Remove all of the air from the tires before the tires are removed from the lift truck.

If the air pressure is less than 80% of the correct air pressure, the tire must be removed before air is added. Put the tire in a safety cage when adding air pressure to the tire. Follow the procedures described in section 4.11.1.4 Add air to the tires of this operation manual.

When air is added to the tires, a remote air check must be used so that the person adding air can stand away and to the side and not in front of the tire.

Check the tires for damage inspect the tread and remove any object that will cause damage. Check for bent or damaged rims. Check for loose or missing parts. Remove any wire, straps or other material that is wrapped around the axle.

If the lift truck has pneumatic tires, keep the tires under the correct air pressure. Check the air pressure with a gauge when the tires are cold. If it is necessary to add air, and the tire is warm, check the other tires on the same axle and add air to the tire that has low pressure so that the air pressure are equal. The air pressure of the warm tires must always be equal to or greater than the specification of cold tires.

Make sure the drive wheel nuts are tight. Tighten the wheel nuts in a cross pattern to the correct torque value shown in the Maintenance schedule.

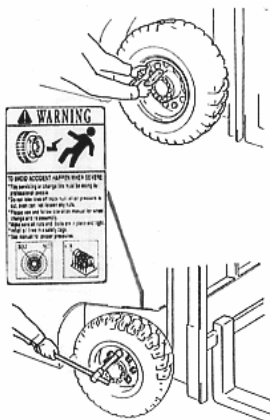
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### \*CAUTION

When the drive wheels have been installed check all wheel nuts after 2-5 hours of operation. Tighten the nuts in a cross pattern to the correct torque value shown in the Maintenance schedule. When the nuts stay tight for eight hours, the interval for checking the torque can be extended to 250 hours.

### \* 警告

胎壓太大會造成輪胎及輪子零件爆炸，因而造成重大事故。拆下輪胎前要先洩掉所有的氣體。如胎壓少於 80% 的正確胎壓，則加壓前必先拆除輪胎，加壓時將輪胎放於安全欄中。遵守在 4.11.1.4 章節中所描述有關於加壓的程序。



加壓時要使用遙控空壓檢查錶，因此加壓的人可站的遠遠的以防安全。

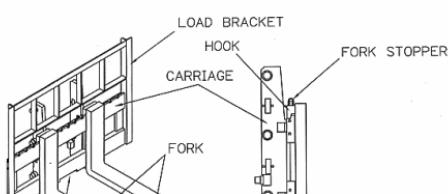
檢查輪胎有沒受損、檢查其胎紋，除去任何會造成傷害的東西。檢查鋼圈有沒有受損及彎曲，檢查零件有沒鬆動或遺失，除掉繞在輪軸上的任何電線、繩子或其他物品。

如是氣胎，要保持正確的胎壓。當輪胎冷卻時在量胎壓，如需要於熱胎時加壓，要檢查同一軸上的胎壓夠不夠？先從較低壓的加起。

兩輪的胎壓必須相等，而且不能大於冷胎胎壓的規格。確認驅動輪螺帽鎖緊了，鎖緊螺帽時交叉鎖到正確扭力，這些扭力值顯示在保養時程表上。

### \* 小心

裝好驅動輪後於 2-5 小時後，要檢查其輪螺帽是否鬆動，以交叉的方式鎖緊到正確的扭力值，這些扭力值顯示再保養時程表上，螺帽如能經過 8 小時使用而仍保持其緊度，則往後檢查扭力可於 250 小時後實施。



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#### 4.8.9 Forks 貨叉

The identification of a fork describes how the fork is connected to the carriage. The series of lift trucks have a hook fork.

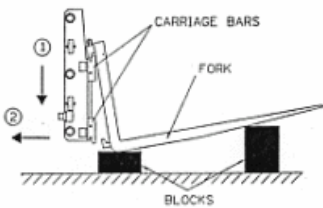
貨叉如何連接到貨架描述如下，這系列的堆高機裝的是吊鈎叉。



#### 4.8.10 Forks adjustment 貨叉的調整

Hook forks are connected to the carriage by hooks and stopper. These stopper are installed through the top fork hooks and fit into slots in the top carriage bar. Adjust the forks as far apart for the load to be lifted. Raise the stopper in each fork to slide the fork on the carriage bar. Make sure the stopper is engaged in the carriage bar to lock the fork in position after the width adjustment is made.

吊鈎貨叉以鈎及固定梢連接到貨架，這些固定梢穿透貨叉到托架頂端的孔裡。儘量調寬貨叉，舉起貨叉上的固定梢調整完後，要記得要將固定梢放回去定位。



#### 4.8.11 Forks removal and installation 除貨叉及安裝

A fork can be removed from the carriage for replacement of the fork or other maintenance.

##### \* WARNING

**Do not try to move a fork without a lifting device. Each fork for these lift trucks can weight 45 kg to 115 kg (100lb to 250lb).**

Fork (Remove). Slide a fork to the fork removal notch. On the carriage, lower the fork onto blocks so that the bottom hook of the fork moves through the fork removal notch. Lower the carriage further so that

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the top hook of the fork is disengaged from the top carriage bar. Move the carriage away from the fork, or use a lifting device to move the fork away from the carriage.

Fork (Installation). Move the fork and carriage so that the top hook on the fork can engage the upper carriage bar. Raise the carriage to move the lower hook through the fork removal notch. Slide the fork on the carriage so that both upper and lower hooks engage the carriage. Engage the stopper with a notch in the upper carriage bar.

貨叉可以從托架上移除以更換新品或做維修用途。

##### \* 警告

請不要嘗試不用舉起設備而要移動貨叉，貨叉可達 45 到 115 公斤。

移除貨叉時，移動貨叉到貨叉拆除凹槽，將貨叉降到塊木上，讓貨叉的下鈎脫離貨叉拆除凹槽，繼續降下貨架以讓托叉頂端能從托架上脫離，將托架移開貨叉或用一舉起設備將托叉脫離貨架。

安裝貨叉。移動貨叉及托架讓貨叉的上鈎及上托架結合，舉起托架以移動下鈎進入到貨叉拆除的凹槽，滑動托架上的貨叉讓上下鈎結合托架，然後將停止器嵌入上托架的凹槽裡。

#### 4.8.12 Inspection of forks, mast and lift chains 貨叉、桅桿及舉鏈的檢查

##### \* WARNING

Lower the lift system completely. Never allow any person under a raised carriage. Do not put any part of your body in or through the lift mechanism unless all parts of the mast are completely lowered and the engine is STOPPED.

Do not try to correct fork tip alignment by bending the forks or adding shims. Replace damaged forks. Never repair damaged forks by heating or welding. Forks are made of special steel through special procedures. Replace damaged forks.

1. Inspect the welds on the mast and carriage for cracks. Make sure that the nuts are tight.

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2. Inspect the channels for wear in the areas where the rollers travel. Inspect the rollers for wear or damage.
3. Inspect the load bracket extension for cracks and damage.
4. Inspect the forks for cracks and wear. Check that the fork tips are aligned within 3 % dimension of fork length of each other. Check whether the bottom of the fork is worn (item 5).
5. Replace any damaged or broken parts that are used to keep the forks locked in position.
6. If the lift truck is equipped with a side-shift carriage or attachment, inspect the parts for cracks and wear. Make sure the parts that fasten the side-shift carriage or attachment to the carriage are in good condition.
7. Check that the lift chains are correctly lubricated. Use multi-purpose grease to lubricate the lift chains.
8. Inspect the lift chains for cracks or broken links and pins.
9. Inspect the chain anchors and pins for cracks and damage.
10. Make sure the lift chains are adjusted so that they have equal tension. Adjustment or repair work of the lift chains must be done by authorized personnel.

**\* 警告**

將揚昇系統完全降下來，不要讓任何人站在昇起的托架下，也不要讓你的身體任何部位穿過舉昇的機件，除非桅桿全部降下來而且引擎在熄火的狀態。

請不要想要彎曲貨叉，或增加墊片以修正叉尖的平整性。更換受損的貨叉，不要用熱處理或燒焊的方法來修理貨叉，貨叉是用特殊鋼並用特殊程序所製造出來的。如損壞則請更換之。

1. 檢查桅桿上的焊接點、檢查托架有沒彎曲破裂，確認螺帽皆已鎖緊。
2. 檢查滑軌有沒磨損？檢查滾輪有沒磨損？
3. 檢查柵欄的延伸有沒彎曲受損？
4. 檢查貨叉有沒彎曲磨損？檢查貨叉尖的對齊在 3% 的貨叉長度內？檢查貨叉底部沒有磨損？
5. 更換任何損壞或破裂的零件，這些零件用來固定貨叉定位的。
6. 如堆高機配有側移貨架或附件，檢查零件有沒彎曲及磨損？確認固定側移的零件或貨架的附件，其使用狀況是否良好。

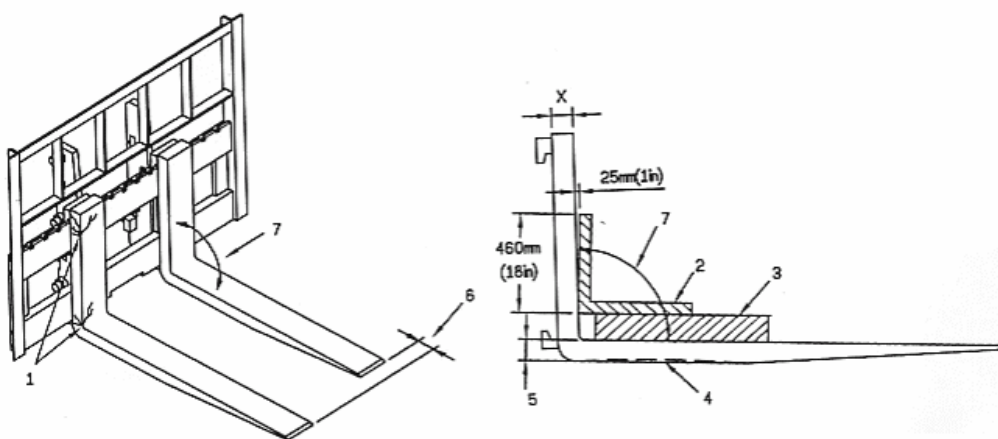
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7. 檢查舉鏈潤滑正確，要用多用途黃油潤滑。
8. 檢查舉鏈有沒破裂或節目及銷斷裂。
9. 檢查鏈錨及插銷有沒破裂或損壞
10. 確認舉昇鏈條調整過後其張力相等，調整或修理舉昇鏈條必須由授權人員為之。

**\* Warning the supplied 警告提供**

Only use CE approved forks. Use of non-standard forks may change the Load Rating.

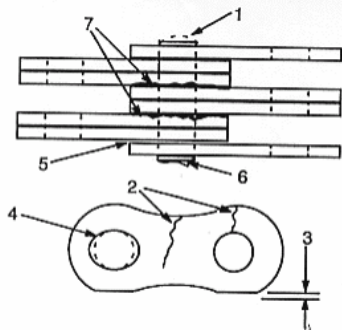
僅供 CE 貨叉使用. 使用非標準貨叉會改變負載功率.



CRACKS  
SQUARE  
WOCK BLOCK  
HEEL WEAR  
HEEL OF FORK MUST BE 90% OF DIMENSION X  
TIP ALIGNMENT (MUST BE WITHIN 3% OF FORK LENGTH)  
MAXIMUM ANDLE 93°

1. 裂痕
2. 角尺
3. 木塊
4. 貨叉底部磨損
5. 貨叉厚度不得少於“X”尺寸的90%
6. 尖端的平行度不得少於貨叉總長得3%
7. 最大角度不得大於93°

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- |                     |                     |       |                        |      |
|---------------------|---------------------|-------|------------------------|------|
| 1.                  | <b>WORN PIN</b>     | 磨損的插銷 | 5. <b>LOOSE LEAVES</b> | 葉鬆脫  |
| 2.                  | <b>CRACKS</b>       | 裂痕    | 6. <b>DAMAGED PIN</b>  | 插銷受損 |
| 3. <b>EDGE WEAR</b> |                     | 角磨損   |                        |      |
| 4. <b>HOLE WEAR</b> |                     | 孔磨損   |                        |      |
|                     | 7. <b>CORROSION</b> | 腐蝕    |                        |      |

#### 4.8.13 Warning labels 警告標誌

##### \*WARNING

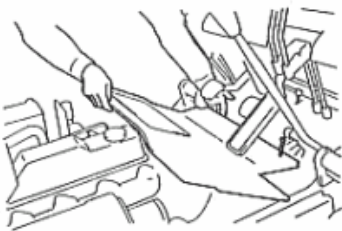
Warning labels are installed on the lift truck to give information about operation and possible hazard. It is important that all warning labels are installed on the lift truck and clear enough to be read.

Check that all warning labels are installed in the correct location on the lift truck. See the section **2.7 Warning labels** of this **OPERATING MANUAL** for the correct location of the warning labels.

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##### \*警告

警告標誌貼在車上是用來提供有關操作及危險的資訊。將所有警告貼在車上並且具可讀性是很重要的事。檢查是否所有的警告標誌都以貼在正確的位置，請參考2.7章有關警告標語的章節，以知道其正確的張貼位置。



#### 4.8.14 Operator protected system 保護操作者的系統

The safety belt, seat and mounting, hood, engine hood latches and floor plates are all part of the operator restraint system. Each item must be checked to make sure it is attached securely, functions correctly and is in good condition.

安全帶、座椅及其安裝，引擎蓋及地板等，皆是約束操作者的系統。每一項都必須檢查以確定其安裝穩固，可正確發揮功能及在良好的使用狀態。

#### 4.9 How to make the checks with the engine running 引擎運轉中如何做檢查

##### \*WARNING

**FASTEN YOUR SEAT BELT!** The seat belt is installed to help the operator stay on the truck if the lift truck tip over. **IT CAN ONLY HELP WHEN IT IS FASTENED.**

Make sure that the area around the lift truck is clear before starting the engine or making any operational checks. Be careful when making the checks. If the lift truck is stationary during a check, apply the parking brake and put the transmission in **NEUTRAL**. Make the checks carefully.

##### \*警告

繫好椅帶。它是當翻車時用來固定操作者在座位上的，也只有繫上它才会有其功能。確記在起動堆高機做任何功能性的測試前，堆高機四週無人小心檢查。在檢查中如果車子保持在不動，要拉手煞車及置變速箱於空檔。

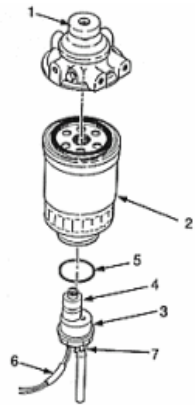
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### 4.9.1 gauges, lights, horn and fuses 儀錶、燈光、喇叭及保險絲

Start the engine. Check the gauges and lights for correct operation as described in section **2.9 Instruments and controls** of this **OPERATING MANUAL**. Check the operation of the horn. If any of the lights or gauges does not operate correctly, check the fuses. The fuses are upper the floor plate on the right side of the cowl.

發動引擎。依本手冊第2.9章節儀表及控制中的描述，檢查儀錶及燈光是否正常運作，檢查喇叭的操作，如任何燈光或儀錶無法正常運作，請檢查保險絲。它安裝在踏板的上方的右側。

### 4.9.2 Water sediment (for diesel engine) 水沉積器 (供柴油引擎)



1. Priming pump 泵浦
2. Filter 濾清器
3. Water sediment cap 水沉積器蓋
4. Sender, float assembly 偵測器、浮動組件
5. O-ring O 形環
6. Wire connection, sender 偵測器的電線連
7. Drain valve and hose 洩閥及軟管

NOTE: Operate the priming pump up and down to perform air bleeding.

備註：操作泵浦使其上下運動以抽出空氣。

Check the indicator light on the instrument panel. If the indicator light is illuminated, the water sediment must be drained. See the procedure in **How to drain the water from the water sediment**.

檢查儀錶板上的指示燈如果亮著，表示積水需要洩掉。請參考有關如何從水沉積器中洩掉水的程序。

### 4.9.3 How to drain water from the water sediment 如何從油水分離器中洩掉水分

1. Turn the wing nut to open the drain valve on the bottom of the water sediment. Drain some fuel (and any water) until clean fuel flows from the water sediment.

轉動螺帽打開沉積器底的洩漏閥，洩掉一些燃油直到清潔燃油從水沉積器中流出來。

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2. Turn the wing nut to close the drain valve. 鎖回螺帽關上洩閥

### 4.9.4 Powershift transmission oil level 自動變速箱的油水平

Apply the parking brake. Check the oil level in the powershift transmission when the engine is running at idle speed and, if equipped, the direction control level is in the NETURAL position. Use the correct oil as show in the section 4.7 **Maintenance schedules** of this **OPERATING MANUAL**. Keep the oil level at the "FULL" mark on the dipstick.

拉手煞車。引擎怠速運轉時，檢查自動變速箱中的機油水平，如配有方向控制桿，請置於空檔。如本操作手冊第 4.7 章保養時程中所示的。使用正確的機油，保持機油水平在油標尺滿的位置。

### 4.9.5 Control levers 控制桿

Check that the control levers for the transmission, mast and attachment as described in section 2.9 Instrument and controls of this **OPERATING MANUAL**.

請依本操作手冊第 2.9 章中有關儀表及控制的描述，檢查變速箱、桅桿及附件的控制桿。

### 4.9.6 Lift system operation 舉昇系統的操作

#### \*WARNING

Lower the lift mechanism completely. Never allow any person under a raised carriage. Do not put any part of your body in or through the lift mechanism unless all parts of the mast are completely lowered and the engine is STOPPED.



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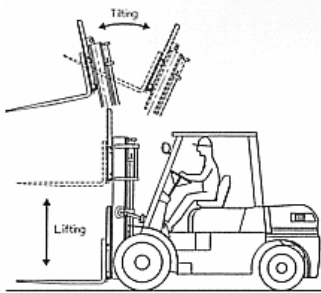
Before making any repairs, use blocks and chains on the mast weldments and carriage so that they cannot move. Make sure the moving parts are attached to a part that does not move.

Do not try to find hydraulic leaks by putting hands on pressurized hydraulic components. Hydraulic oil can be injected to the body by the pressure.

### \*警告

將舉昇機件全部降下來，不要讓任何人站在昇高的貨架下；也不要讓你的身體任何部分穿過舉昇機件，除非所有的桅桿零件皆已全部降下來，而且引擎並已熄火。

做任何修理前，請用塊木堵住桅桿上的鏈條及托架以防止它們移動。請確認移動零件已固定在不會動的零件上。



不要用手放在油壓零件上嘗試想要找到漏油，高壓的液壓油可能會直接噴到您的身體。

### Do the following checks and inspections 請做下列檢查:

- a. Check for leaks in the hydraulic system. Check the condition of the hydraulic hoses and tubes.

檢查油壓系統中有無漏油，檢查油壓管的使用狀況。

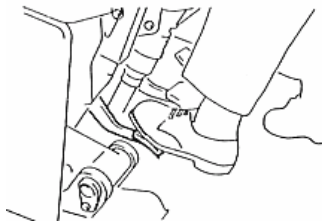
- b. Slowly raise and lower the mast several times without load. Raise the mast to its full extension height at least once. The mast components must raise and lower smoothly in the correct sequence.

無負載狀況下，慢慢地舉起放下桅桿次數，至少舉到最高一次。桅桿零件必須已正確的順序平順的舉起放下。

**NOTE:** Some parts of the mast move at different speeds during raising and lowering.

**注意：**有些桅桿零件在舉起放下的操作中，會以不同的速度移動。

- c. The inner weldments and the carriage must lower completely.



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內桅桿及托架必須全部降下來。

- d. Raise the mast 1 meter (3 feet) with a capacity load. The inner weldments and the carriage must rise smoothly. Lower the mast. All moving components must lower smoothly.

負載舉起桅桿 1 公尺，桅桿及托架必須順暢地舉起。降下桅桿，所有的運動零件必須可以很順暢地降下來。

- e. Lower the load to approximately 0.3 meter (1 feet). Tilt the mast forward and backward. The mast must tilt smoothly and both tilt cylinders must stop evenly.

降下負載 0.3 米、桅桿傾前、傾後。桅桿必須能順暢的傾斜而且二個傾斜缸必須可以很平穩的停住。

- f. Check that the controls for the attachment operate the functions of the attachment. (See the symbols by each of the controls.) Make sure all of the hydraulic lines are connected correctly and do not leak.

操作附件的功能，檢查附件的控制功能，確定所有的液壓管路多連接正確且沒有漏油。



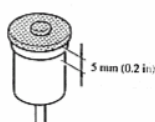
### 4.9.7 Inching pedal 吋動踏板

Push on the inching pedal. The service brakes must be applied before the inching pedal reaches the floor plate. Full application of the inching pedal applies the service brakes and puts the transmission in NEUTRAL.

踏上吋動踏板。在吋動踏板踩到底前，必可以使腳煞車生效，同時讓變速箱變成空檔。

### 4.9.8 Service brakes 腳煞車

Check the operation of these service brakes. Push on the brake pedal. The brake pedal must stop firmly and must not move slowly down after the brakes are applied. The service brakes must apply equally to both drive wheels. The service brakes must not pull the lift truck to either side of the travel direction when they are applied.



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The service brakes are automatically adjusted when the brakes are applied and the lift truck changes direction.

#### \*WARNING

Loss of fluid from the brake fluid reservoir indicates a leak. Repair the brake system before using the lift truck. Replace the brake fluid in the system if there is dirt, water or oil in the system.

For some of lift trucks except own brake and add a brake booster, but when the engine is not running that the brake booster is also not operating. The brakes will decrease braking power.

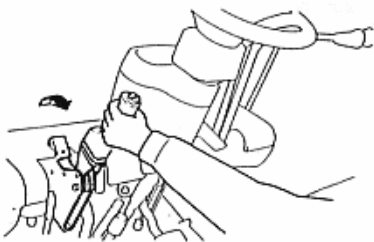
檢查腳煞車的操作。踩踏腳煞車板，它要能夠穩定的停下車來，不會讓車子再移動。腳煞車必須兩邊驅動輪作用力相等，不能使行走中的車子偏向一邊。踩下腳煞車及車子轉彎時車子會自動調整腳煞車。

#### \* 警告：

煞車油從油瓶中消失意謂漏油，請停止使用先行修理。如果煞車油髒了，系統中有水或機油則換掉它。

針對一些堆高機除了本身的煞車器外，還另加裝煞車輔助器，不過當引擎不動時，煞車輔助器就無法運轉，因此煞車力就會降低。

### 4.9.9 Parking brake 手煞車



Check the operation of the parking brake. The operator must adjust the parking brake so that the lift truck does not move if it is parked on an incline.

The parking brake, when in good condition and correctly adjusted, will hold a lift truck with a capacity load on a 15 % (approximately 8.5°) grade.

To adjust the parking brake, turn the adjustment knob on the lever that applies the parking brake. Do not tighten the adjustment so that the parking brake is still applied when the lever is released the lock on the lever when the parking brake is released.

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檢查手煞車的操作情形。手煞車必須調整到，拉起後即使在斜坡中的車輛也不會移動。

手煞車在正常情況及正確調整後，可以在負載下停住在坡度8.5度的斜坡上。

要調整手煞車。轉動煞車桿上的調整扭，但不要將調整扭鎖得太緊，以致於放開手煞車後車子還處於煞車狀態。

### 4.9.10 Steering system 轉向控制系統

#### \* WARNING

The lift truck has hydraulic power steering. The steering can be difficult if the engine is not running. Make sure the steering system operates smoothly and gives good steering control.

#### \* 警告

堆高機配有油壓轉向控制系統，因此引擎如不運轉，是無法轉動方向盤的。切記轉向控制系統操作要順暢容易控制。

### 4.10 How to add fuel to the lift truck 如何加油

#### \*WARNING

Stop the engine. Turn the key switch to OFF. The operator must be off of the lift truck while fuel is added.

**No smoking.** All fuels for internal combustion engine are very flammable. Fill the fuel tank only in a designated area with good ventilation. Have a fire extinguisher available. Never fill the fuel tank near an open flame or near equipment that can create sparks. Never check fuel level or check for leaks with an open flame.

#### \* 警告

將引擎熄火、關掉鑰匙，加油時駕駛必須離開堆高機。

禁止抽煙。所有內燃機所使用的燃油都是易燃的，請在通風良好的指定區域加油，並隨時準備滅火器。不要在靠近火源的地方加油，也不要用火把照明檢查漏油。

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### 4.10.1 Liquefied Petroleum Gas (LPG) 液化瓦斯

#### \* WARNING

Close the fuel valve on the tank when parking the lift truck more than momentarily.  
Do not store LPG tank near heat or open flame. Do not park the lift truck near heat or ignition sources.  
LPG is extremely flammable. When checking or filling an LPG tank: No smoking. Stop engine.  
Frost or LPG odor indicates the leak. Inspect and repair a leak immediately. Do not start the engine.  
Only trained and authorized personnel are permitted to operate filling equipment.  
Fill LPG tanks outdoors. Stay at least 15 meters (50 feet) from buildings, motor vehicles, electrical equipment or other ignition sources. Stay at least 5 meters (15 feet) from LPG storage tanks.

#### \* 警告

要停車一段時間時，請關掉燃料桶上的燃料閥。液化瓦斯桶不要放置於靠近火源的地方。  
車輛不要停靠於熱或起火源，液化瓦斯極易燃燒，檢查液化瓦斯桶時禁止吸煙，並且引擎要熄火。  
結霜或聞有瓦斯桶異味即是漏氣，要立即檢查並修理。此時不要發動引擎，只有受過訓練的人員可以操作填充設備。  
填加液化瓦斯要在室外，離建物、汽車或電動設備，或其它點火點至少15公尺遠的地方。而且離液化瓦斯貯存槽至少要5公尺遠的地方。

### 4.10.2 Gasoline or diesel fuel 汽油或柴油

#### \* WARNING



When fuel is added, keep the funnel or fuel nozzle in contact with the metal of the fuel tank to reduce the possibility of static electric sparks. Clean any spilled fuel.

1. Remove the fuel cap. Make sure the fuel tank is filled with the correct fuel for the type of engine in the lift truck. Clean the fuel cap.
2. Replace the fuel cap.

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#### \* 警告

加油時要讓加油嘴接觸著燃油箱的鐵皮，以降低靜電引起火花的危險。如有溢出要清潔乾淨。

1. 拆下加油蓋。請確認所加的油是引擎所使用的油品，清潔加油蓋。
2. 蓋回加油蓋。

### 4.11 Wheels and tires 輪子及輪胎

#### 4.11.1 Pneumatic tires 氣胎

##### \* WARNING

A solid rubber tire that is the same shape as a pneumatic tire can be installed on a wheel for a pneumatic tire. DO NOT make changes in the parts of the rim if this type of solid rubber tire is installed instead of a pneumatic tire. Changes to the parts of the rim can cause a failure of the wheel and cause an accident.

##### \* 警告

跟氣胎形狀一樣的實心胎，可以取代氣胎安裝在車子上。如果裝的是實心胎，則請不要對鋼圈的任何零件作任何變更，變更鋼圈的零件會造成輪子損壞而引起一場意外。

#### 4.11.1.1 Remove the wheels from the lift truck 從堆高機上拆下輪胎

##### \* WARNING

Wheels must be changed and tires repaired by trained personnel only.

Deflate tire completely before removing the wheel from the lift truck. If dual wheels are used, deflate both tires. Air pressure in the tires can cause the tires and rim parts to explode causing serious injury or death.

Always wear safety glasses.

Never loosen the nuts that hold the inner and outer wheel halves together when there is air pressure in the tire.

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1. Put the lift truck on blocks as described in section **4.4 How to put the lift truck on blocks** of this OPERATING MANUAL.
2. Remove the air from the tire. Remove the valve core to make sure that all of the air is out of the inner tube. Push a wire through the valve stem to make sure that the valve stem does not have a restriction.
3. Loose the wheel nuts and remove the wheel and tire from the lift truck. Lift truck tires and wheels are heavy.

**\* 警告**

更換輪子及修理輪胎必須由受過訓練的人來做。拆下輪子前，要將胎內氣體全部洩掉。如果用的是雙胎則2個都要洩，胎中的氣壓如太高，會造成輪胎及鋼圈零件爆炸以致造成傷亡的慘劇。

永遠戴著護目鏡。胎中還有氣壓時不要拆開螺帽，這些螺帽固定著內外襯墊。

1. 將車輛置於塊木上。
2. 洩氣。拆充氣閥心子，確記內胎氣全洩完。用一金屬絲穿過打氣閥以確保沒有阻礙。
3. 拆輪子螺帽並拆下輪子及輪胎。

#### **4.11.1.2 Remove the wheel from the tire 從輪胎中拆下鋼圈**

**\*WARNING**

Make sure that all of the air pressure is removed from the tire before a wheel is disassembled. Air pressure in the tires can cause the tire and rim parts to explode causing serious injury or death. Keep tire tools in firm contact with the wheel parts. If the tool slips, it can move with enough force to cause an injury.

**STEP 1.** Remove the nuts that fasten the wheel halves together.

**STEP 2.** Loosen the tire bead from the side flange.

**STEP 3.** Remove the wheel from tire. Remove the inner tube and flap.

**\* 警告**

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拆解鋼圈前，要確認胎中氣壓已全部洩掉了。胎中的氣壓如太高，會造成輪胎及鋼圈零件爆炸，以致造成傷亡的慘劇。拆卸時工具不要滑掉了，如不幸滑掉會造成人員受傷的。

步驟 1: 拆下固定輪胎襯墊的螺帽。

步驟 2: 從邊襯鬆掉打氣孔。

步驟 3: 拆下輪子，拆下內胎及襯墊。

#### **4.11.1.3 Install the wheel in the tire 鋼圈裝回輪胎**

**\*WARNING**

Wheel can explode and cause injury or death if the following procedures are not followed:

- \* Clean and inspect all parts of the wheel before installing the tire.
- \* DO NOT use any damaged or repaired wheel parts.
- \* Mark sure that all parts of the wheel are the correct parts for that wheel assembly.
- \* DO NOT mix parts between different types or manufacturers of wheels.
- \* DO NOT mix types of tires, type of tire tread, or wheel assemblies of different manufacturers on any one lift truck.

Do not use a steel hammer on the wheel. Use a rubber, lead, plastic or brass hammer to put parts together. Make sure that the side ring is in the correct position. The ends of the side ring must not touch. The clearance at the ends of the side ring must be 2.5 to 6.5mm (0.1 to 0.25 inch) after it is installed. If the clearance is wrong, the wrong parts have been used.

1. Clean and inspect all parts of the wheel. Paint any parts that have rust or corrosion.
2. Install a new inner tube in the tire. Used tubes and flaps can cause tire failure.
3. Apply a rubber lubricate or a soap solution to the tire bead and tube.

**\*WARNING**

DO NOT lubricate the tire bead with antifreeze or petroleum based liquid. Vapors from these liquids can cause an explosion during inflation or use.

4. Install a new tire flap. Make sure the rim is the correct size for the tire. Lubricate the part of the wheel that contacts the bead and flap.

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### \*警告

鋼圈會造成爆炸或傷亡，如果未遵循下列程序的話：

- \* 安裝鋼圈前，清潔並檢查鋼圈的所有零件。
- \* 損壞及修理過的鋼圈零件不要再使用。
- \* 確記鋼圈的所有零件都是正確的。
- \* 不同的廠商、不同品牌的鋼圈，零件不要混雜在一起。
- \* 不要在鋼圈上使用鐵鎚，可使用橡膠槌、鉛槌、橡膠槌或銅槌。

確記邊環位置正確，邊環的兩端不能接在一齊。安裝後至少間隙2.5-6.5 mm，若間隙不對就表示用錯了零件。

1. 清潔並檢查鋼圈的所有零件，如有生鏽或腐蝕的零件要塗漆。
2. 裝新內胎，不要使用用過的內胎及襯墊。
3. 塗一層橡膠潤滑油或肥皂水到打氣孔及內胎。

### \*警告

不要用防凍油或石油基的液體潤滑胎孔，這些液體揮發的氣體會在打氣或使用中造成爆炸。

4. 安裝心內胎襯。
5. 請確認輪圈是正確的尺寸。請潤滑任何接觸到打氣孔及胎襯的鋼圈零件。



#### 4.11.1.4 Add air to the tire 打氣到胎中

##### \*WARNING

Add air pressure to the tire only in a safety cage. Inspect the safety cage for damage before use. When air pressure is added, use a check that fastens onto the valve stem of the inner tube. Make sure there is enough hose to permit the operator to stand away from the safety cage when air pressure is added to the tire.

Do not sit or stand by the safety cage. Do not use a hammer to try and correct the position of the side flange or lock ring when the tire has air pressure greater than 0.2 kg/cm<sup>2</sup>.

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1. Put the tire in a safety cage.
2. Add 0.2 kg/cm<sup>2</sup> of air pressure to the tire.
3. Check that all wheel parts are correctly installed. If installation is not correct, remove of the air pressure from the tire. Remove the valve core to make sure all of the air pressure has been removed and then make adjustment.
4. If installation is correct, add air pressure to the tire to the specified pressure.

### \*警告

請只在安全柵欄中打氣。使用安全柵欄前，檢查其有沒損壞。使用壓力計接到內胎的閘桿，打氣時打氣軟管要夠長，可以讓打氣者站遠離安全柵欄，不要站在柵欄旁邊。當胎壓大於0.2kg/cm<sup>2</sup>時，使用鐵鎚去修正邊框或鎖環的位置。

1. 將輪胎置於安全柵欄中。
2. 加壓0.2 kg/cm<sup>2</sup>到胎中。
3. 檢查所有鋼圈零件都已正確安裝，如安裝不正確，要將胎壓洩掉、拿掉打氣閘心子，以確保能清除所有的壓力然後做調整。
4. 如果安裝正確，依下列規格加壓：

Model 型號	Front Wheel 前輪0.2kg/cm <sup>2</sup>	Rear Wheel 後輪0.2kg/cm <sup>2</sup>	Model 型號	Front Wheel 前輪0.2 kg/cm <sup>2</sup>	Rear Wheel 後輪0.2kg/cm <sup>2</sup>
FD/FG/FD(LPG)15	7	7	FD/FG/FD(LPG)35	7.7	7
FD/FG/FD(LPG)18	7	7	FD/FG/FD(LPG)40	8	7
FD/FG/FD(LPG)20	7	7	FD/FG/FD(LPG)45	8	7
FD/FG/FD(LPG)25	7	7	FD/FG/FD(LPG)50	8	8
FD/FG/FD(LPG)30	7.7	7			

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#### 4.11.1.5 Install the wheels 安裝鋼圈

Install the wheel on the hub. Tighten the nuts as shown in the section **4.7 Maintenance schedule** of this **OPERATING MANUAL**. If the wheels are the two-piece rims, make sure the nuts that fasten the rim halves together are toward the hub when they are installed.

#### \* WARNING

When the wheels have been installed, check all wheel nuts after 2 to 5 hours of operation. Tighten the nuts to the correct torque. When the nuts stay tight for eight hours, the interval for checking can be extended to 250 hours.

將鋼圈安裝在輪轂上，如本手冊第4.7章節保養時程所示鎖緊螺帽。如果鋼圈是雙輪圈式的，請確定鎖緊鋼圈的螺帽組裝是向著輪轂的。

#### \* 警告

使用2-5小時後，檢查所有鋼圈的螺帽。將螺帽鎖到正確扭力，如果使用8小時後沒有鬆動的現象，則下次檢查可以在250小時後。

#### 4.12 Safety inspection 安全檢查

NO 序號	Description 描述	Frequency 頻率
1.	Is the traveling control lever marked correctly / 行走控制桿標識正確嗎?	Monthly / 每月
2.	Is the traveling control lever operate correctly / 行走控制桿操作正確嗎?	Daily / 每日
3.	Is the lifting control lever marked correctly / 揚昇控制桿標識正確嗎?	Monthly / 每月
4.	Is the lifting control lever operate correctly / 揚昇控制桿操作正確嗎?	Daily / 每日
5.	Is the tilting control lever marked correctly / 傾斜控制桿標識正確嗎?	Monthly / 每月
6.	Is the tilting control lever operate correctly / 傾斜控制桿操作正確嗎?	Daily / 每日
7.	Is the parking brake lever marked correctly / 手煞車控制桿標誌正確嗎?	Monthly / 每月
8.	Does the parking brake lever operate correctly / 手煞車控制桿操作正確嗎?	Daily / 每日
9.	Does the horn operate effectively / 喇叭能有效運作嗎?	Daily / 每日
10.	Are the pedal brake lights operate effectively / 腳煞車燈能有效運作嗎?	Daily / 每日
11.	Are the turn indicator lights operate effectively / 方向燈能有效運作嗎?	Daily / 每日
12.	Are the back indicator lights operate effectively / 後車燈能有效運作嗎?	Daily / 每日
13.	Are the tail lights operate effectively / 尾燈能有效運作嗎?	Daily / 每日
14.	Are the Halogen head lights operate effectively / 前大燈能有效運作嗎?	Daily / 每日
15.	Are the mirrors operate effectively / 後視鏡能有效運作嗎?	Daily / 每日
16.	Does the safety belt operate correctly / 安全帶能有效運作嗎?	Daily / 每日
17.	Does the sustain cylinder of engine cover operate correctly / 引擎蓋支撐氣缸能有效運作嗎?	Daily / 每日
18.	Are all the warning labels placed correctly / 所有的警告標示正確張貼嗎?	Monthly / 每月
19.	Are all the marking labels placed correctly / 所有的註解標籤正確張貼嗎?	Monthly / 每月

### 4.13 Engine 引擎

The general information and periodical inspection and maintenance of engine, please refer to the instruction engine service manual (NISSAN) or the instruction manual (ISUZU / PERKINS).

The recovery of engine oil, please follow the local's legislation.

\* NOTE: The Nissan engine (gasoline engine) can only use unleaded gasoline.

有關引擎的一般資訊及定期檢修，請參考NISSAN 的引擎服務手冊中的指示，或ISUZU/ PERKINS的手冊

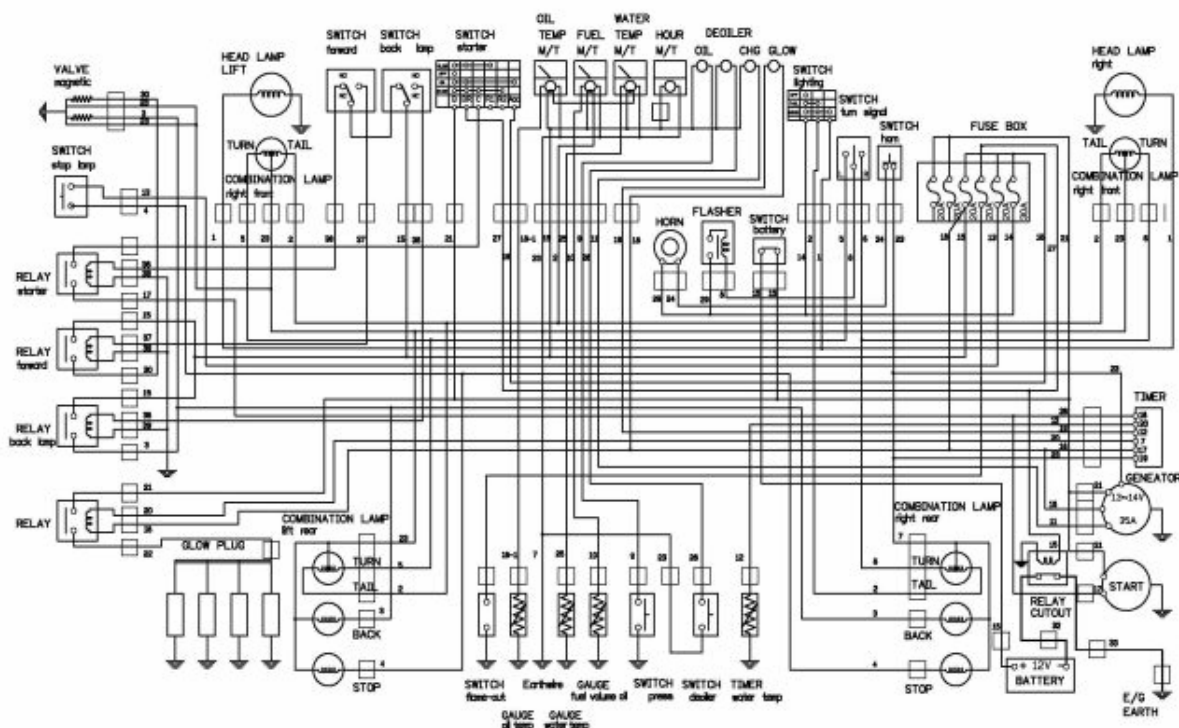
### 4.14 L.P.G. CARBURETION SYSTEM 液化瓦斯化油器系統

The general information and maintenance of L.P.G. CARBURETION SYSTEM, please refer to the instruction manual of L.P.G. CARBURETION SYSTEM.

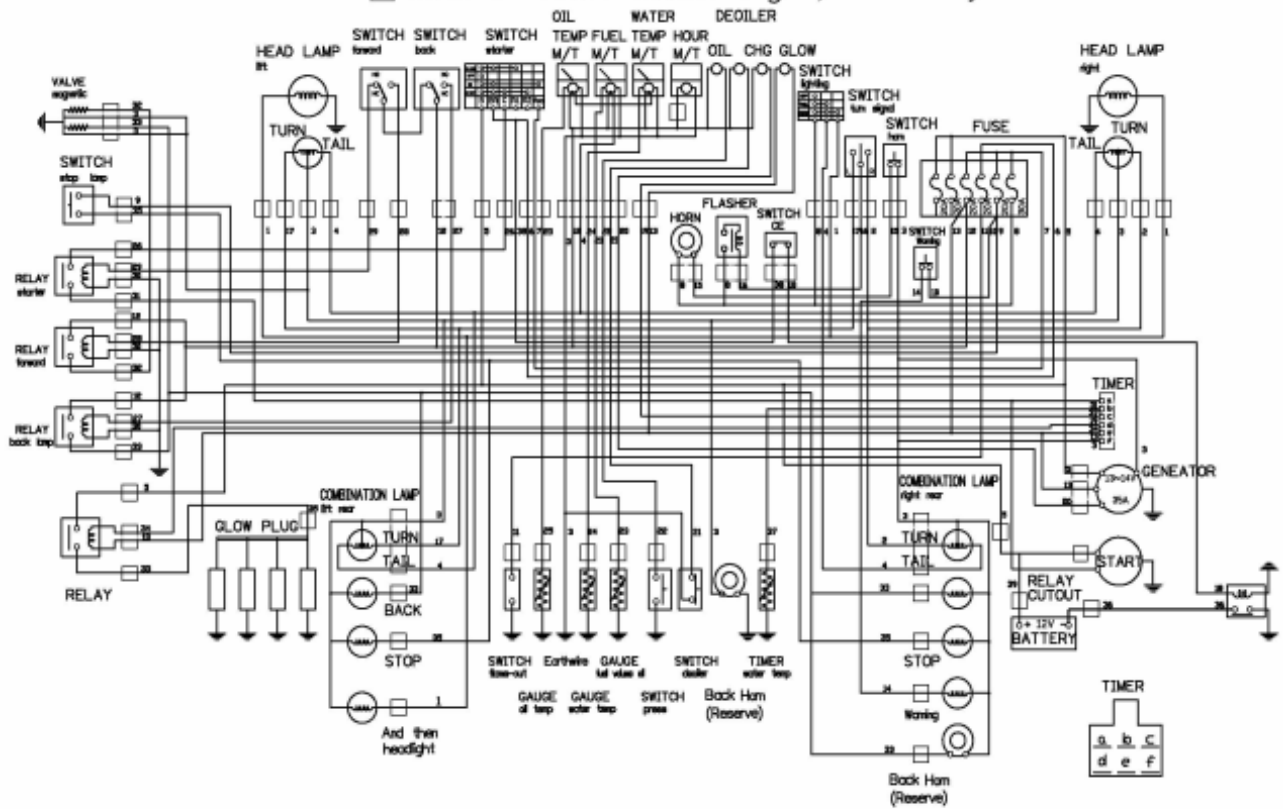
液化瓦斯化油器系統的一般資訊及維修，請參考液化瓦斯化油器系統的手冊說明。

### 4.15 Electrical circuit diagram 電路圖

ISUZU C240 Diesel engine, Electric system

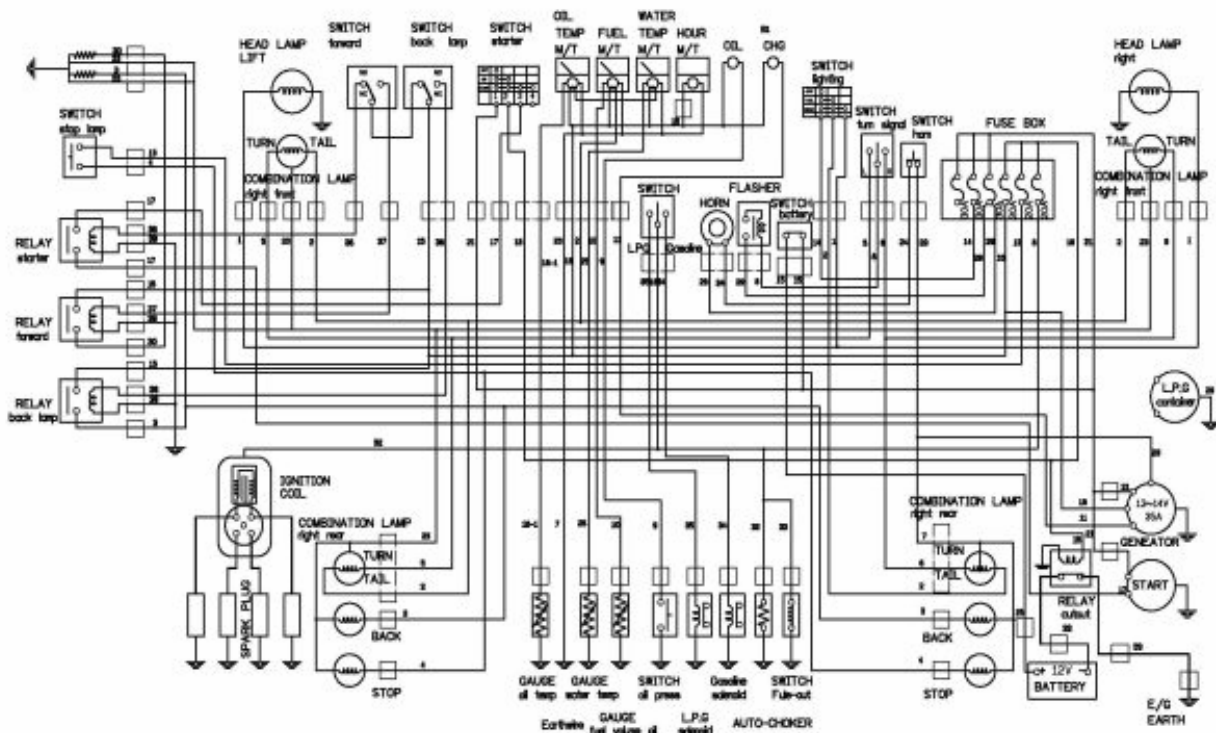


## ISUZU 4JG2 Diesel engine, Electric system



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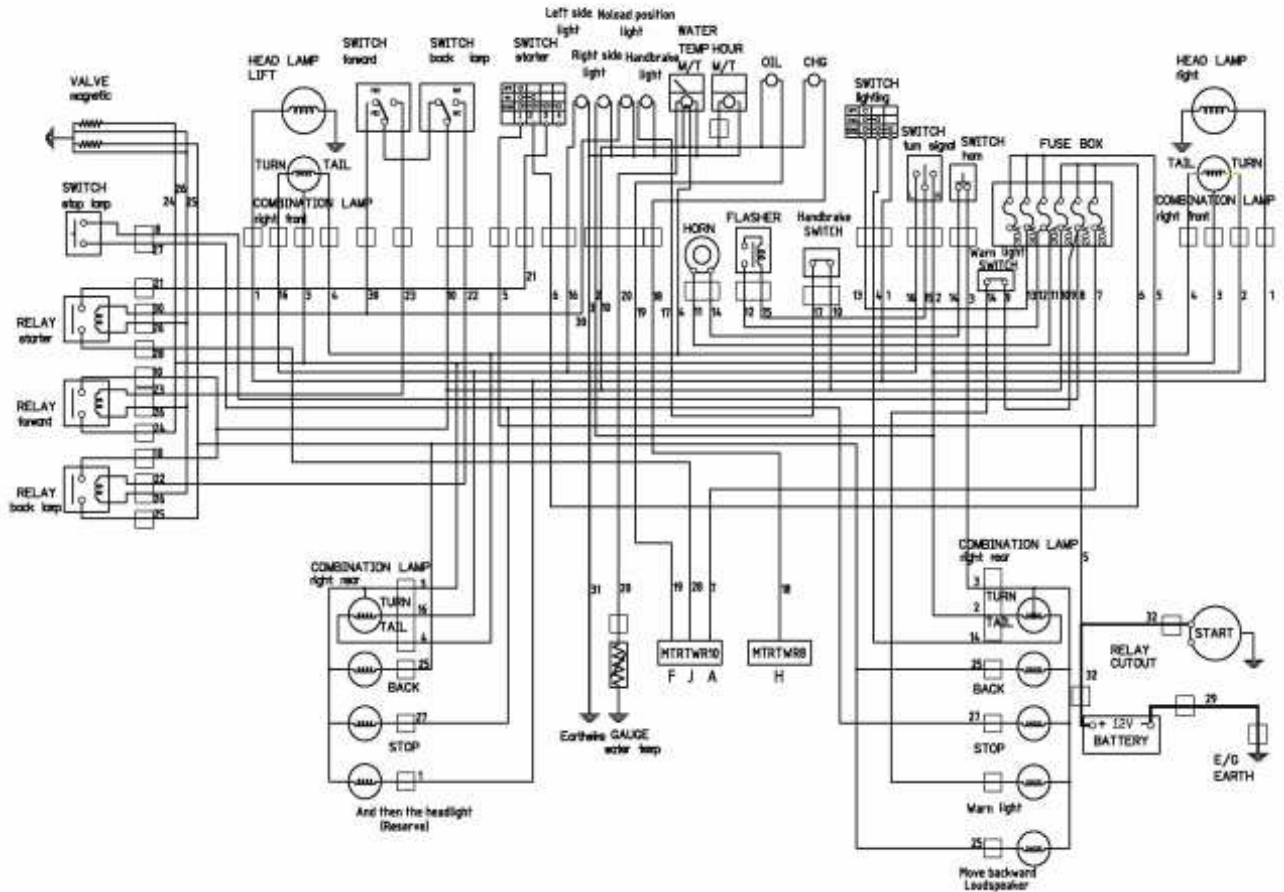
## NISSAN H20 H25 Gasoline engine and LPG, Electric system



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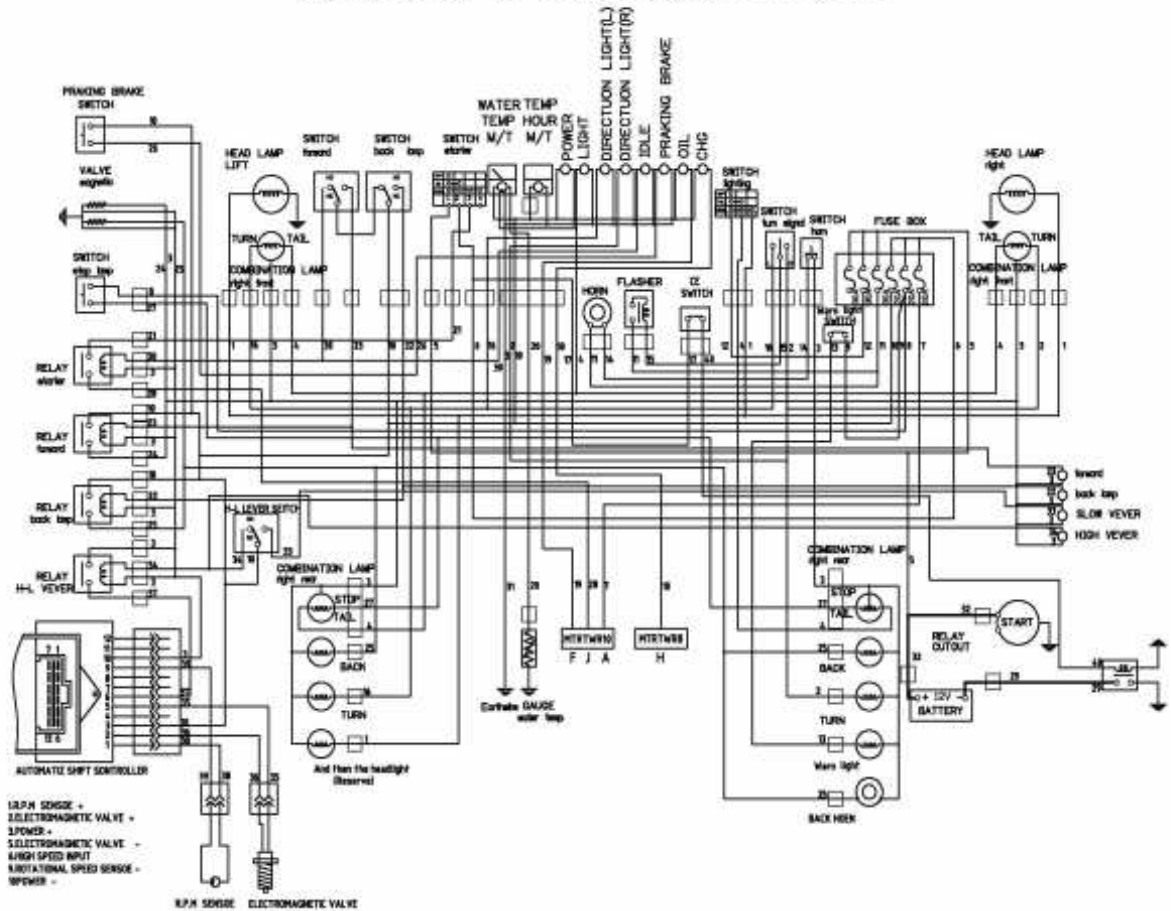


## IMPCO GM 3.0 Gasoline engine, Electric system



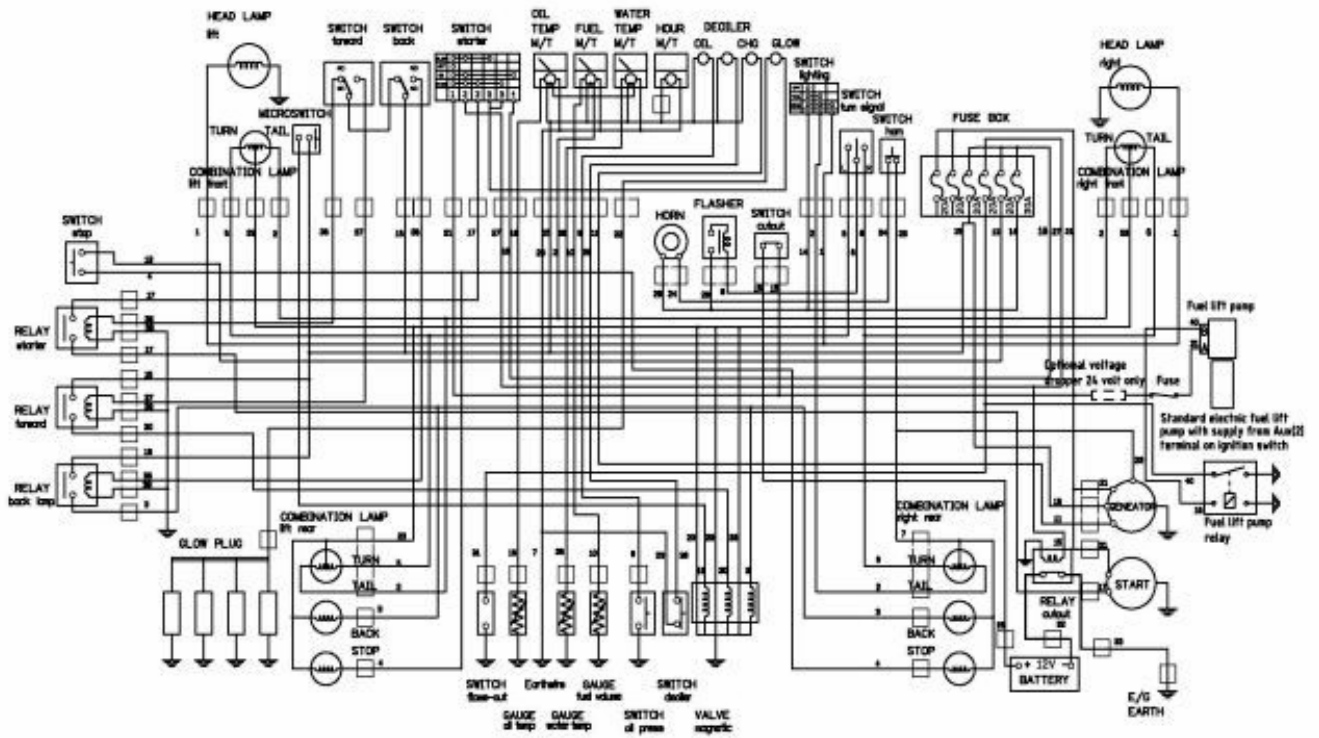
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## IMPCO GM 4.3 Gasoline engine, Electric system

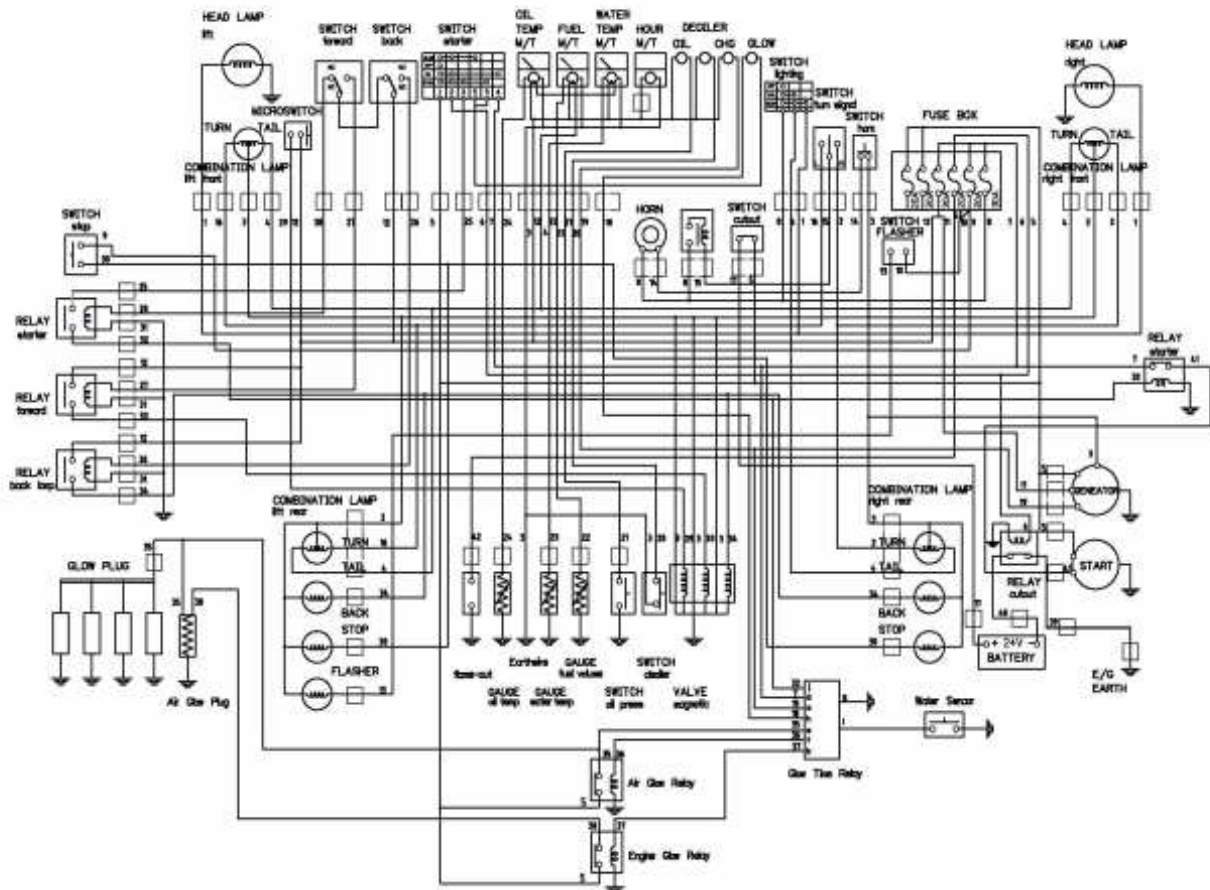


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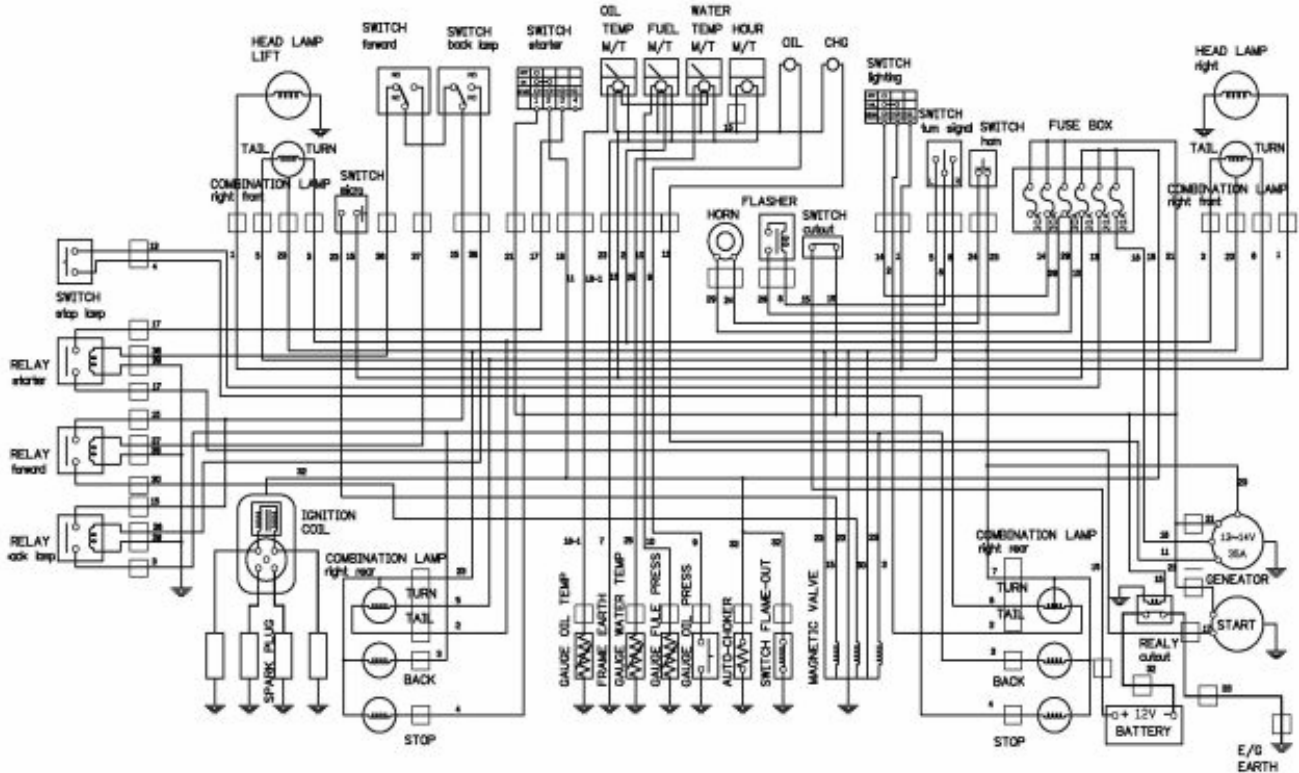
PERKINS 1104C-44 Diesel engine, Electric system



NISSAN TD-42 Diesel engine, Electric system



## ❏ NISSAN TB-42 Gasoline engine, Electric system



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No.	Wire color	Spec.	No.	Wire color	Spec.
1	GY	2.0	19	Y/W	1.25
2	BR/W	1.25	20	OR	1.25
3	LG/W	1.25	21	R	3.5
4	P/W	1.25	22	G	3.5
5	LG	1.25	23	B	1.25
6	R/W	1.25	24	PU/W	1.25
7	B	3.5	25	G	1.25
8	BR	1.25	26	SB	1.25
9	L/W	1.25	27	P	1.25
10	G/W	1.25	28	L	1.25
11	B/W	1.25	29	G	1.25
12	GY/W	1.25	30	W/B	1.25
13	OR/W	1.25	31	W/R	1.25
14	Y	3.5	32	R	2.0
15	R	1.25	33	B	2.0
16	BR	3.5	34	G	0.75
17	L	2.0	35	L/BR	0.75
18	W	1.25			

- B = Black / 黑色
- W = White / 白色
- R = Red / 紅色
- G = Green / 綠色
- L = Blue / 藍色
- Y = Yellow / 黃色
- LG = Light Green / 淺綠色
- BR = Brown / 棕色
- OR = Orange / 橘色
- P = Pink / 粉紅色
- GY = Gray / 灰色
- SB = Sky Blue / 天藍色
- BR/W = Brown w/white strip / 棕色及白色條
- LG/W = Light Green w/White strip / 淡綠色及白色條
- P/W = Pink w/White strip / 粉紅色及白色條
- R/W = Red w/White strip / 紅色及白色條
- G/W = Green w/white strip / 綠色及白色條
- B/W = Black w/white strip. / 黑色及白色條
- GY/W = Gray w/white strip / 灰色及白色條
- OR/W = Orange w/white strip / 橘色及白色條
- Y/W = Yellow w/white strip / 黃色及白色條
- PU/W = Purple w/white strip / 紫色及白色條
- W/B = White w/blue strip / 白色及藍色條
- W/R = White w/red strip / 白色及紅色條
- L/BR = Blue w/ brown strip / 藍色及棕色條

#### 4.16 SPARE PART LIST 易損件明細表

PART NAME	零件名稱	數量 Q'TY	更換週期 REPLACE PERIOD (YEAR)	備註 REMARK
BRAKE SHOES	剎車蹄片	2	1	
BRAKE SHOES(R,L.H)	剎車蹄片(后—左)	1	1	
BRAKE SHOES(F,R.H)	剎車蹄片(后—右)	1	1	
TYRE(F)	輪胎(前輪)	2	2	
TYRE(R)	輪胎(後輪)	2	2	
AIR FILTER ELEMENT	空濾器濾網	1	1	
OIL FILTER SCREEN	濾油網	1	1	
FUEL FILTER ELEMENT	燃油濾芯	1	1	
OIL WATER SEPARATOR ELEMENT	油水分离器芯	1	1	
ENGINE OIL FILTER ELEMENT	引擎機油濾芯	1	1	
OIL FILTER(AT)	濾油器(自排)	1	1	
OIL WATER SEPARATOR	油水分离器	1	1	
FUEL FILTER	燃油濾清器	1	1	
OIL TUBE,H.P.	高壓管	1	2	STEERING SYSTEM
OIL TUBE,H.P.	高壓管	1	1	
OIL TUBE,SUCTION	吸油管	1	1	
OIL TUBE,RETURN	回油管	1	1	HYDRAULIC SYSTEM
OIL TUBE,H.P.	高壓管	1	1	
OIL TUBE,RETURN	回油管	1	1	MAST SYSTEM

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WATER HOSE(UPPER)	水管(上)	1	1	
WATER HOSE(LOWER)	水管(下)	1	1	
OIL TUBE,HIGH TEMPERATURE	耐高溫油管	2	1	
ADAPTER,SUCTION	吸氣接管	1	1	
AIR TUBE	吸氣接管	1	1	
MAIN BRAKE CYLINDER	剎車總泵	1	1	
WHEEL BRAKE CYLINDER	剎車分泵	2	2	
CHAIN	鏈條	1	2	
STARTOR	鏈條	1	2	
BATTERY	蓄電池	1	2	
WIRE HARNESS	全車線	1	2	
F.A.T TRANSMISSION REPAIR KIT	F.A.T 變速箱修理包	1	2	
REPAIR KIT,STEER CYLINDER	轉向油缸修理包	1	2	
REPAIR KIT,BRAKE LINING	剎車襯板修理包	1	2	
REPAIR KIT,WHEEL CYLINDER	剎車分泵修理包	1	1	
REPAIR KIT,MAIN BRAKE CYLINDER	剎車總泵修理包	1	1	
REPAIR KIT,LIFT CYLINDER	升降油缸修理包	1	2	
REPAIR KIT,CONTAINER CYLINDER	貨櫃油缸修理包	1	2	
REPAIR KIT,TILT CYLINDER	傾斜油缸修理包	1	2	
REPAIR KIT,REDIRECTOR	全油壓方向機修理包	1	2	
REPAIR KIT,CONTROL VALVE	控制閥修理包	1	2	

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# **NOTES**

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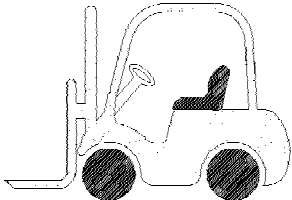
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**(Chinese 、 English version)** 

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