



**OPERATION & MAINTENANCE
MANUAL**

FOREWORD

TO OWNER, USERS, and OPERATORS:

The purpose of this manual is to give you a complete understanding of Tailift 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.

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 : Tailift 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 !

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台勵福堆高機的相關資訊, 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:

- * 接操作堆高機前, 應先了解堆高機性能、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。

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。

ENGLISH CONTENTS

FOREWORD	001	3. OPERATION PROCEDURES	058
ENGLISH CONTENTS	005	3.1 Inspection before operation	058
		3.2 Adjustments	063
		3.3 Operation techniques	067
1. MODEL DESCRIPTION	007	4. MAINTENANCE	088
1.1 General	007	4.1 General	088
1.2 How to use L.P.G (Liquefied Petroleum Gas) safety	008	4.2 How to move a disable lift truck	089
2. DESCRIPTION OF THE TRUCK	013	4.3 How to tow the lift truck	090
2.1 The normal use of the truck	013	4.4 How to put a lift truck on blocks	091
2.2 The main components	018	4.5 How to raise the drive tires	092
2.3 Dimensions	019	4.6 How to raise the steering tires	093
2.4 The safety related components	022	4.7 Maintenance schedule	094
2.5 Stability and center of gravity	023	4.8 How to make the checks with the engine stopped	098
2.6 Capacity (weight and load center)	025	4.9 How to make the checks with the engine running	111
2.7 Warning Labels	027	4.10 How to add fuel to the lift truck	117
2.8 Marking	028	4.11 Wheels and tires	119
2.9 Instruments and Controls	034	4.12 Safety inspection	125
2.10 Noise and vibrations	054	4.13 Engine	126
2.11 Truck hoisting method	056	4.14 L.P.G CARBURETION SYSTEM	126
		4.15 Electrical circuit diagram	127

中文目錄索引

前言	003	3. 操作程序	059
中文目錄索引	006	3.1 操作前檢查	059
1. 機種描述	008	3.2 調整	063
1.1 概述	008	3.3 操作技術	067
1.2 如何安全使用液化瓦斯方法	010	4. 保養	088
2. 車台的概述	013	4.1 概述	088
2.1 一般正常使用方法	013	4.2 如何移動拋錨的堆高機	089
2.2 主要零件	018	4.3 如何拖吊堆高機	090
2.3 安全裝配	019	4.4 如何將堆高機固定在木塊上	091
2.4 載重中心及穩定性	022	4.5 如何舉起驅動輪胎	092
2.5 性能(重量及負荷中心)	023	4.6 保養時程表	093
2.6 警告標誌	025	4.7 如何檢測熄火的引擎	094
2.7 註解	027	4.8 如何檢測運轉中的引擎	098
2.8 儀表板和控制桿	028	4.9 如何加入汽油	111
2.9 噪音和震動	034	4.10 輪子及輪胎	117
2.10 車台舉昇方法	054	4.11 安全檢查	119
2.11	056	4.12 引擎	125
		4.13 液化瓦斯系統	126
		4.14 電路圖	126
			127

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.

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 Tailift 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 heart or open flame.
Do not park the lift truck near hear 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

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

台勵福 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。

當你要使用混合動力車時，請參閱當地請法規標準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

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。

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.

危險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

4. 使用液化瓦斯系統前，駕駛必須確認瓦斯統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. 改變燃料使用

液化瓦斯轉到汽油：

- (1) 加速引擎並將轉換開關轉到汽油一邊
- (2) 引擎運轉順暢後關掉瓦斯桶開關

汽油轉到液化瓦斯：

- (1) 打開瓦斯桶開關
- (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。

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 to provide loading. The lift mechanism 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.

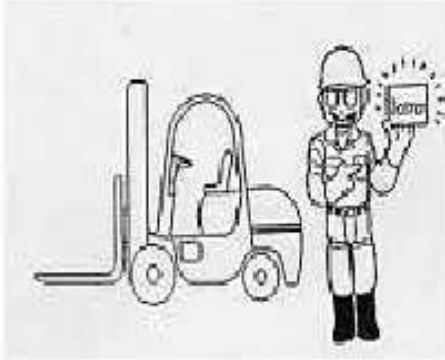
2.1 車輛的正常使用

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。

The following discussion lists basic requirements to forklift operation:

下列討論為堆高機的操作基本需求：



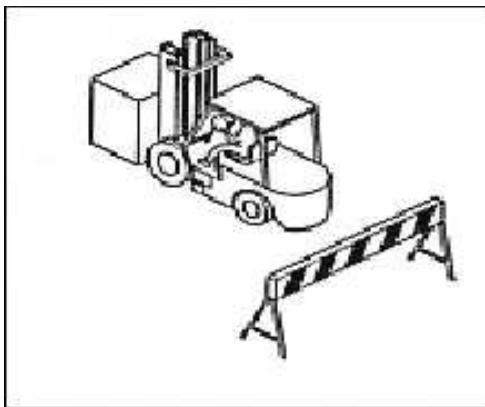
2.1.1 AUTHORIZED AND TRAINED OPERATOR ONLY.

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，這些的基本教育是為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。

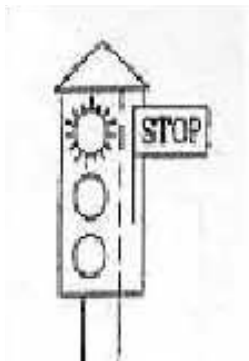


2.1.3 不能承載人員。堆高機是只用來承載駕駛一人而已，任何在貨叉上或其他的其他地方搭乘的人是相當危險的事。

Warning

This lift truck is designed and intended for handing 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。請如果車承載人員，除非沒有其他實際選擇，例如：舉起的平台、吊車或液壓車。本堆高機可以執行必要的工作。請如果車承載人員，除非沒有其他實際選擇，例如：舉起的平台、吊車或液壓車。

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昇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 cantered 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 knitted clothes to keep warm when operating it in outdoor where the working environment is cold.

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℃ ; Lowest ambient temperature: -20℃.
- * 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 4m².
- * 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

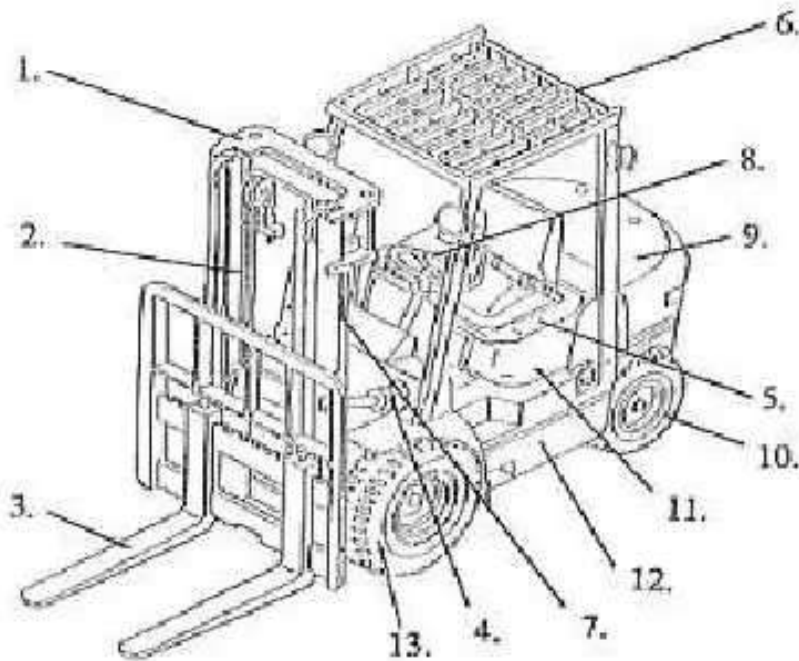
一般情形，車輛可以再下列天氣條件下操作：

持續工作時，最高溫 40℃；最低溫-20℃。

- * 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。

在可雨天的區域禁止用堆高機。預期在當機濕氣使用壽命是 7 年。如堆高機要在更嚴厲的條件下使用，請接洽業者。

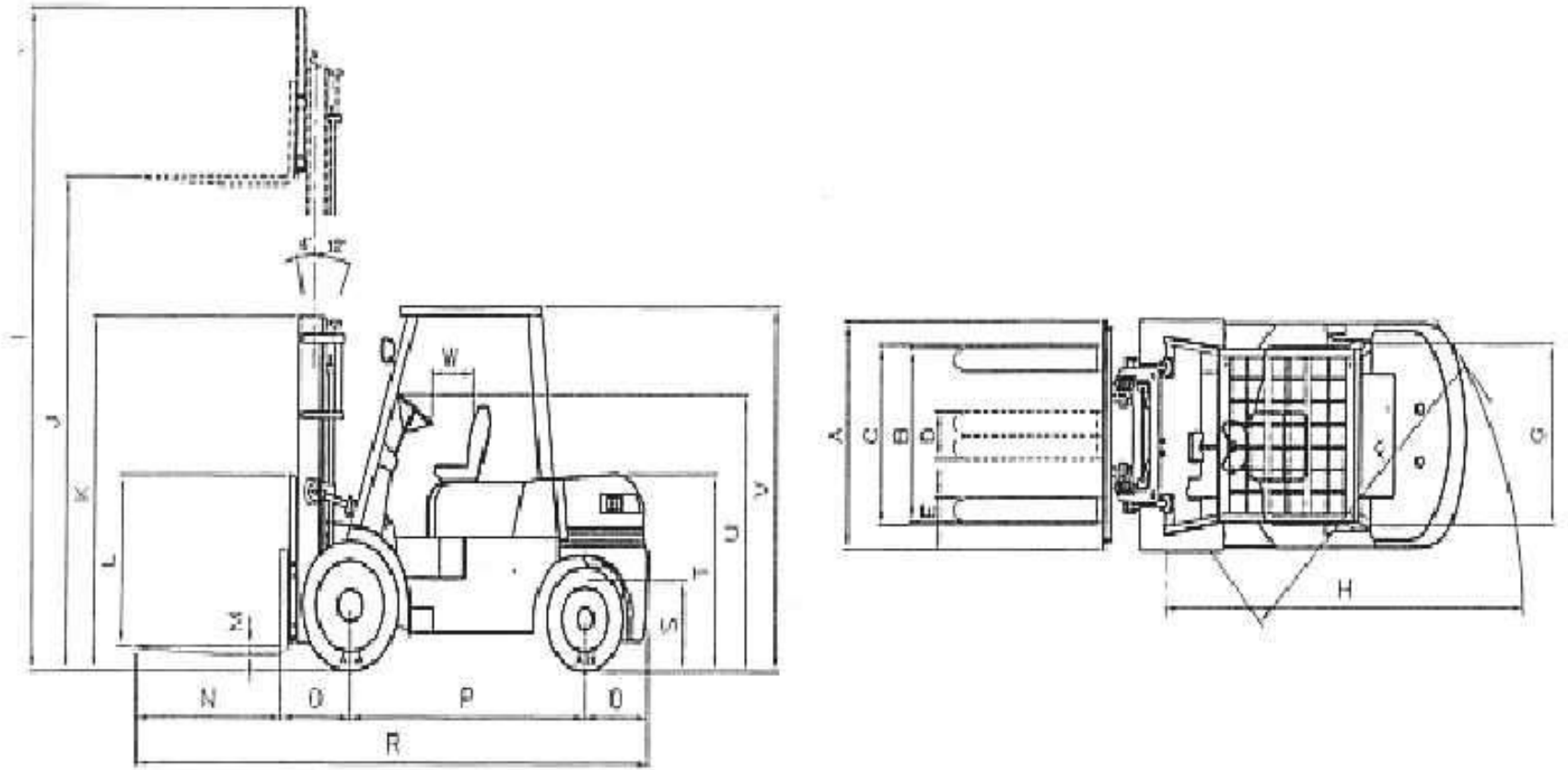
2.2 The main components 主要零件



1.Mast	1. 桅桿
2.Chain	2. 鍊條
3.Fork	3.
4.Tilt cylinder	4. 傾缸
5.Operator's seat	5. 駕駛座
6. Overhead guard	6. 頂護駕
7.Lift cylinder	7. 升降缸
8.Steering wheel	8.
9.Counter weight	9. 配重盤
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

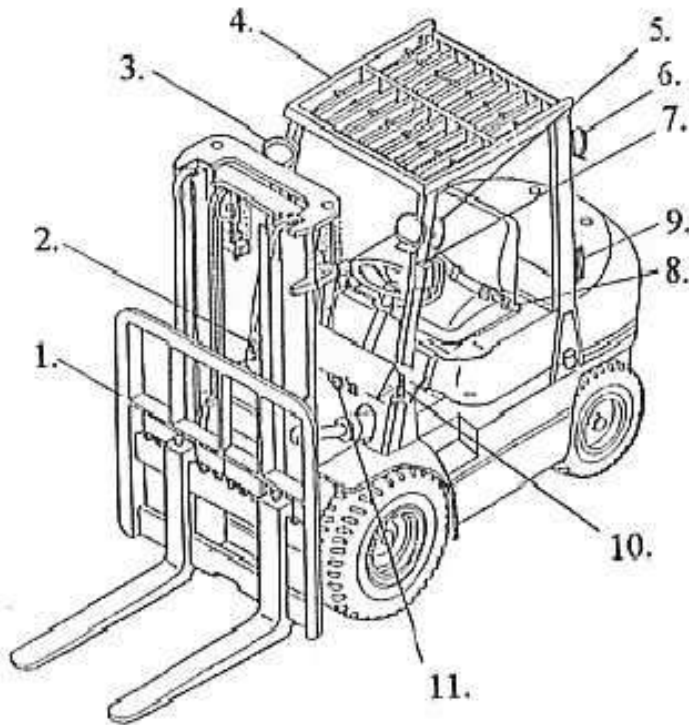


ITEMS項目		MODEL機種	FD/FG 15	FD/FG 18	FD/FG 20	FD/FG 25	FD/FG 30	FD/FG 35
Overall width	全車寬	A	1065	1065	1158	1158	1290	1290
Outside width between forks	差距寬(外)	B	950	950	1025	1025	1150	1150
Front wheels tread	前軸距	C	885	885	970	970	1055	1055
Width of two forks	雙叉寬	D	200	200	250	250	250	250
Width one forks	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		R	3305	3350	3530	3575	3670	3930
Ground clearance 距地面高度	At lowest point 全車最低點	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.	

ITEMS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.

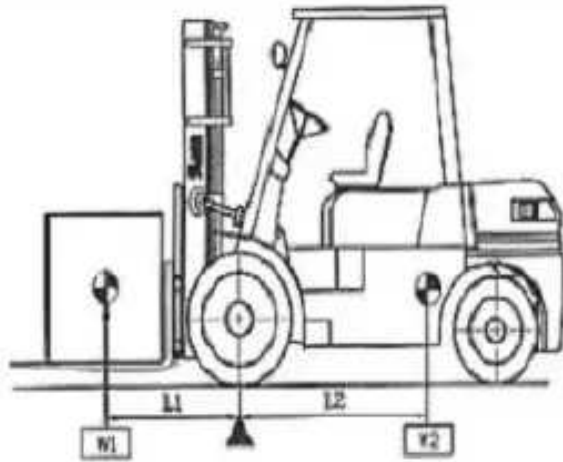
2.4 The safety related components 安全零件描述

2.4.1 For 1.5T-5.0T



1. Load bracket	1.
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.

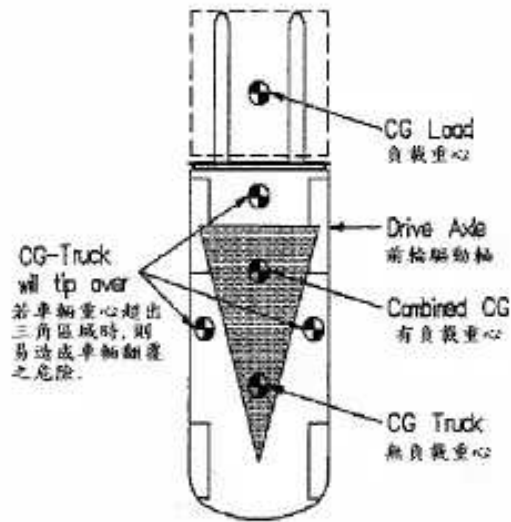
This basic principle is used for picking up a load. Every object has a CG. When the lift truck picks up a load, the truck and load have a new combined CG. The stability of the lift truck is determined by the location of its CG, or if the truck is loaded, the combined CG.

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



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.

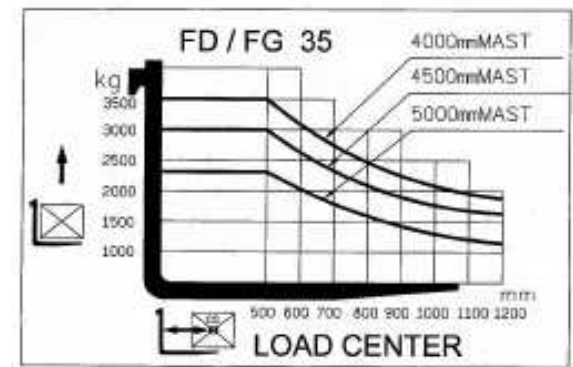
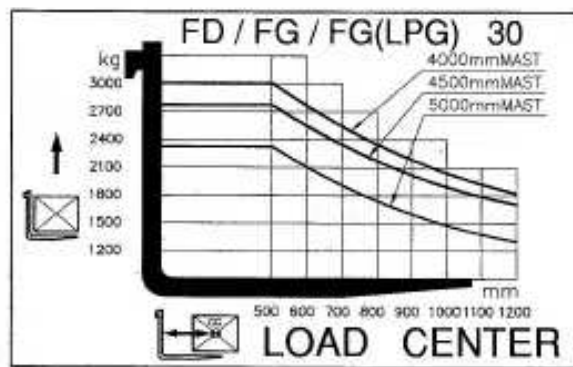
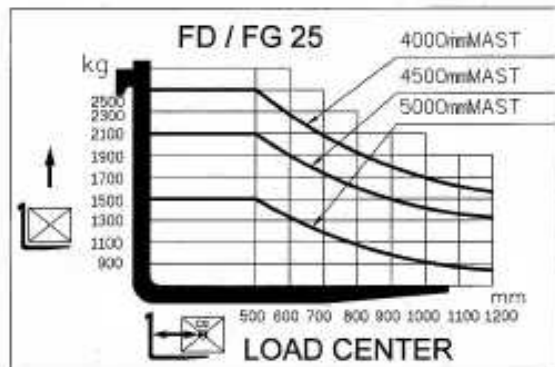
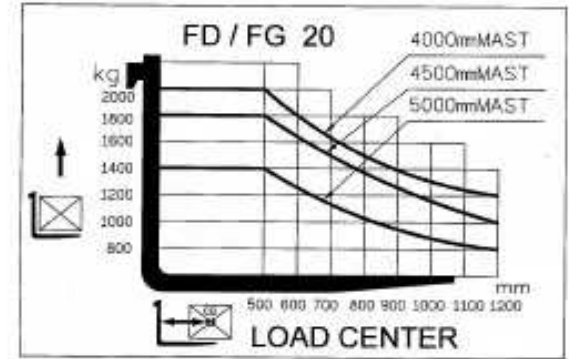
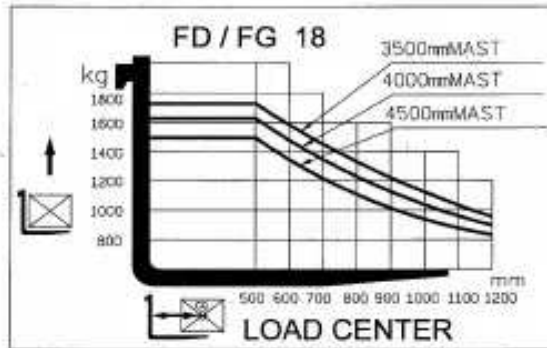
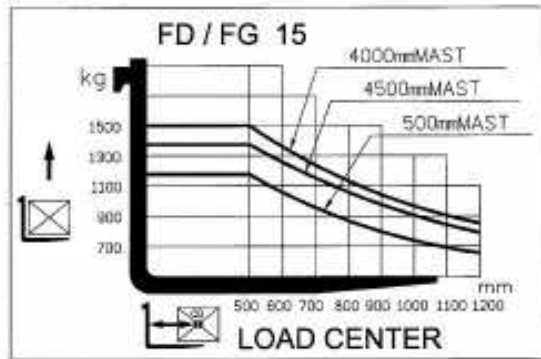
In order that the lift truck runs stably (no tipping to be stable over forward or to the side) the CG must stay within the area of the lift truck represented by a triangle drawn between the drive wheels and the pivot of the steering axle.

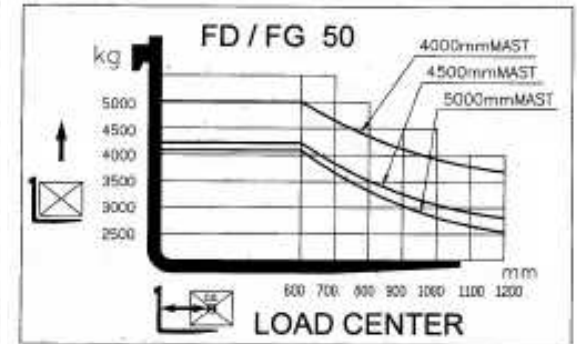
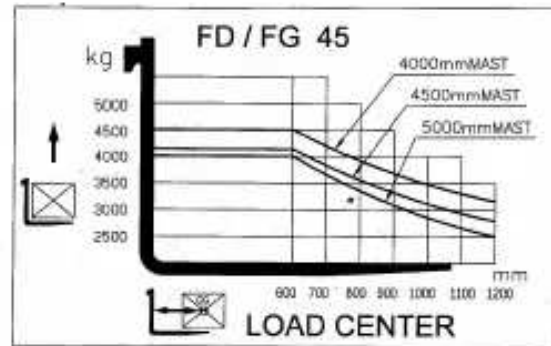
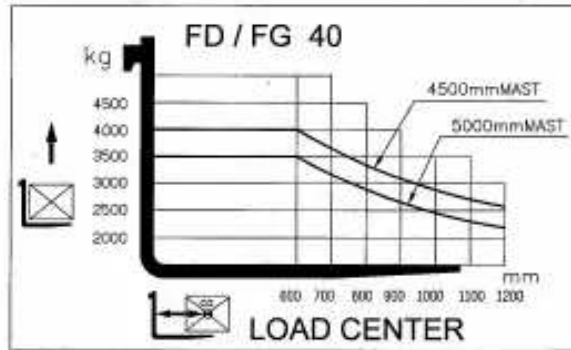
If the CG moves forward of the drive axle, the lift truck will tip forward. If the CG moves outside of the line represented by the lines drawn between the drive wheels and the steering axle pivot, the lift truck will tip to the side.

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。

爲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，如果重心超過車輛及控制軸間的直線時，堆高機就會傾斜。

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

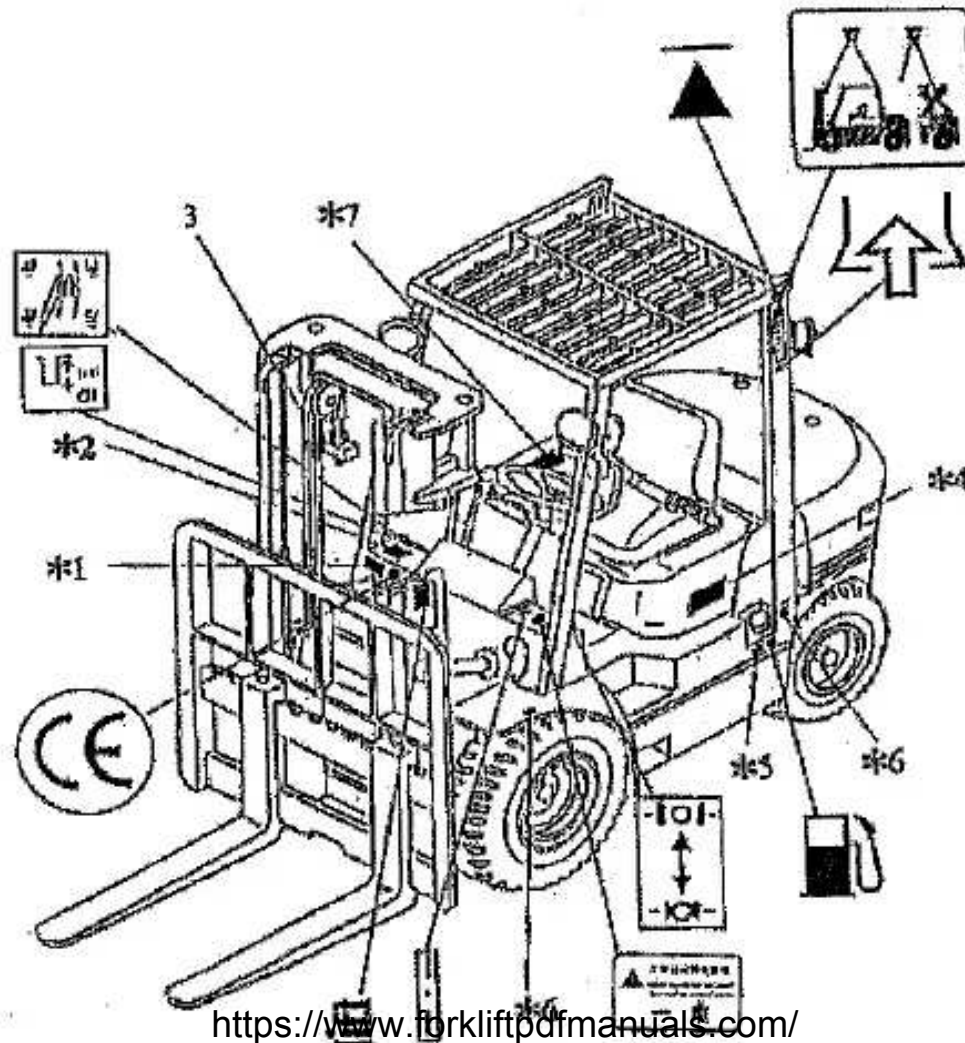




2.7 Warning Labels 警告標誌



2.8 Marking 註解



台勵福股份有限公司

TAILIFT CO., LTD.

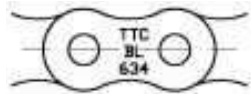
機 車 舉 荷 車	種 型 高 力 重	<input type="text"/>	製造日期 MFG. DATE	<input type="text"/>
	MODEL	<input type="text"/>	製造號碼 SERIAL NO.	<input type="text"/>
	OUT MODEL	<input type="text"/>	引擎號碼 ENG. NO.	<input type="text"/>
	LIFTING HEIGHT	<input type="text"/>	變速箱號碼 TRANSMISSION NO.	<input type="text"/>
	LOAD	<input type="text"/> KG	動力 ENG. POWER	<input type="text"/> KW
	WEIGHT	<input type="text"/> KG		

南投市南崗工業區成功3路170號
 NO. 170, CHENG KUNG 3 RD., NAN TOU TAIWAN
 TEL: (04) 5666100 FAX: (04) 5671670

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

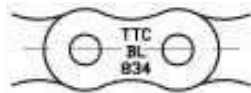
(3) CHAIN 鏈條

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



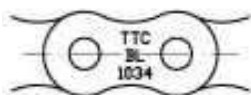
BL-634

FD/FG/FG(LPG)30,35



BL-834

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



BL-1034

(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

(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

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 regulations are available and understood.
 2. 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
 3. 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.
 4. Before using the LPG system the driver must confirm that the LPG tank is on the correct position of its bracket.
 5. The dimension of LPG tank must not over the truck specification.
- ### Change over of Fuel system
- #### LPG to Gasoline:
- (1) Rev up engine and turn change over switch to gasoline side.
 - (2) Switch off valve of gas cylinder after the engine runs smoothly.
- #### Gasoline to LPG:
- (1) Open valve of gas cylinder.
 - (2) Turn off change over switch, and then turn it to LPG side before the engine stops.

ignition sources. Stay at least 5 meters (15 feet) from LPG storage tanks.

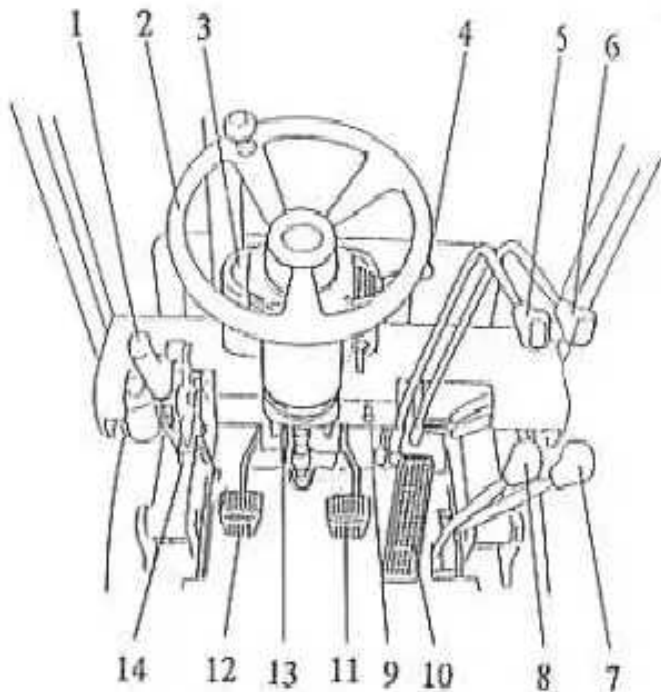
液化瓦斯的安全須知

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，請立即檢查系統。在裝填並設備止發動引擎，只有合格人員才准
 - 請在室外裝填，裝填位置至少離建物 1.5 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。

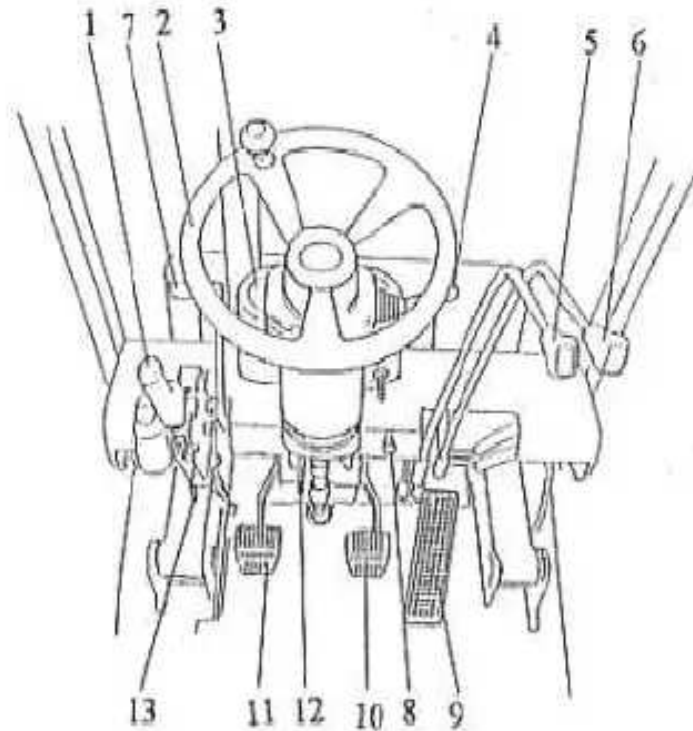
2.9 Instruments and Controls 儀表及控制

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)



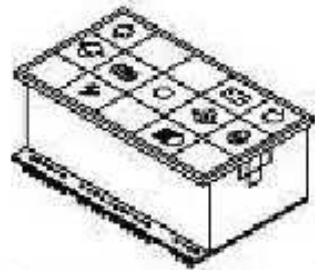
自排車(Automatic models)



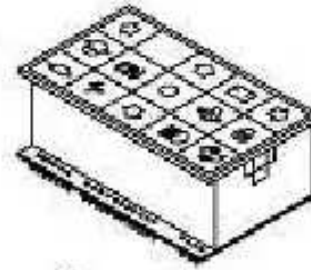
1. (Parking brake lever)
2. 手煞車 (Steering wheel)
3. 儀表面板 (Instrument panel)
4. 方向燈/喇叭 (Turning and Horn switch)
5. (Lift lever)
6. 升降控制桿 (Tilt lever)
7. 前進/後退桿 (Gear levers F/R)
8. 燈火開關 (Light switch)
9. (Accelerator pedal)
10. 油門踏板 (Brake pedal)
11. 剎車踏板 (Inching pedal)
12. 方向盤調整桿 (Tile steering adjust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

2.9.2 儀錶板

Instrument



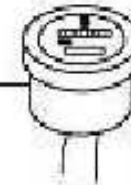
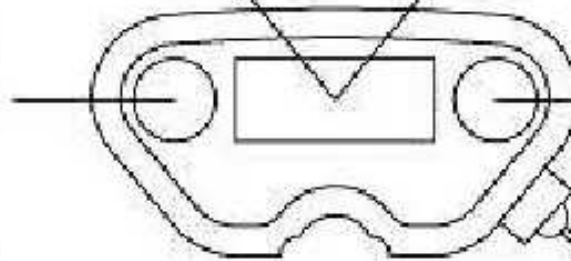
1.5T~5.0T 12V(LED面板)
1.5T~5.0T 12V(LED Dashborad)



4.0T~5.0T 24V(LED面板)
4.0T~5.0T 24V(LED Dashborad)

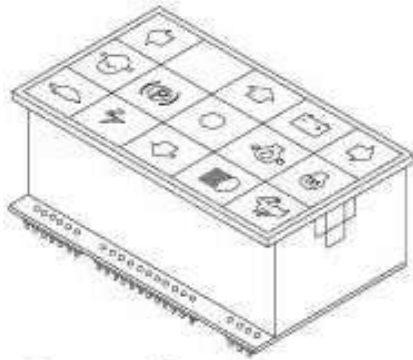


水溫錶
Water temperature gauag

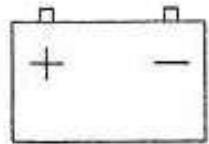


電子式計時與油量錶
Electric hour meter
and Fuel meter





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。
<http://www.borker.com/>



2.手剎車指示燈(Parking Brake display) :

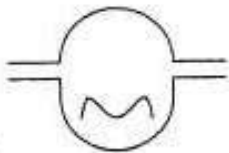
Show parking brake has pulled.
顯示手剎車已拉起。



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。



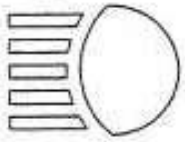
4.積水警告指示燈(Sediment warning lamp) :

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。

<https://www.forkliftpdfmanuals.com/>

5.大燈指示燈(Head light) :



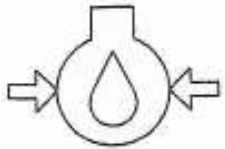
5. 大燈指示燈(Head light) :

To show head lamp has been turned on.

38

顯示大燈已開啓。

6. (Oil pressure warning lamp)



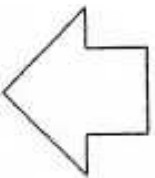
The **油壓警告指示燈** the engine oil pressure is in normal condition. When power supply is turned on, “OIL “will light until the engine is started and run a short period of time, which indicates that the oil pressure is normal. If oil pressure still lights, check to see if there is sufficient engine oil, and 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.
顯示堆高機已啓動。



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

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

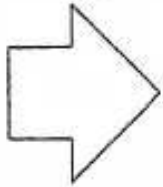
9.

<https://www.forkliftpdfmanuals.com/>
(Idle indicator)



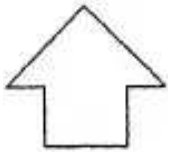
空檔指示燈
To show gear lever is in idle position. :
顯示變速桿位於空檔位置。

39



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

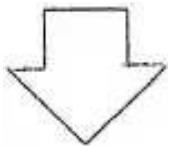
To show Right indicator has been turn on.
顯示右方向燈已開啓。



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.
<https://www.forkliftmanuals.com/>

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。

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。



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。返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 :

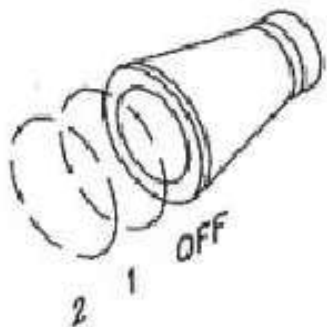


The steering wheel is operated in the conventional manner. That is, when the wheel is turned right, the truck will turn to the right; when the wheel is turned left, the truck will turn to the left. The steel wheels are located at the rear of the truck. These cause the rear of the truck to swing out when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

左右轉為傳統的操作方法。就是當右左轉右左時，右左轉右左時，右左轉右左時。



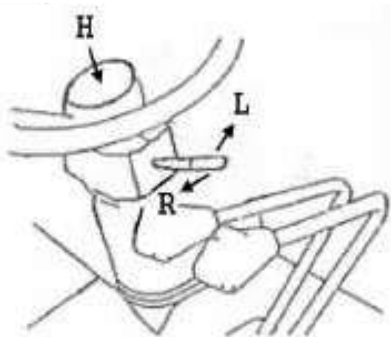
方向盤為傳統的操作方法。就是當方向轉向右時，車輛轉向右邊；而方向盤轉向左時，車輛轉向左邊。方向的控制輪在車台的後方，這造成轉彎時會有甩尾的現象。因此作些練習將可以輕易操控使用它。



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

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

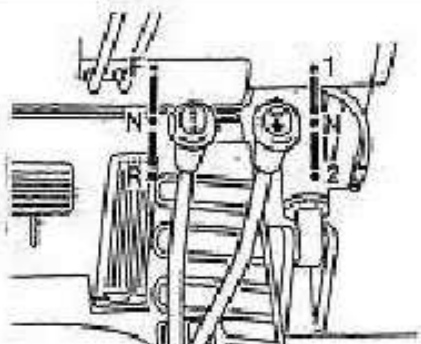
手排機種變速桿有 2 種：

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)

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

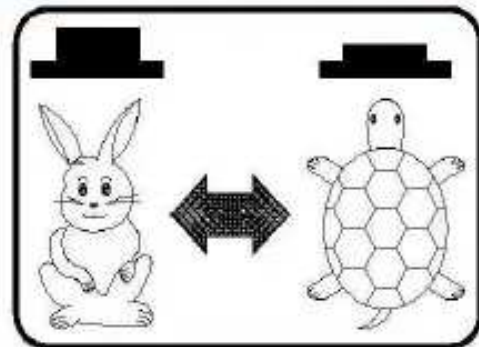
The engine cannot be actuated unless the lever is at idle position.

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

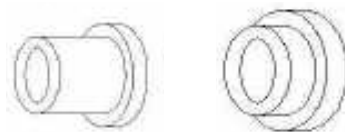
排檔桿若非至於空檔，則引擎將無法啓動。

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)

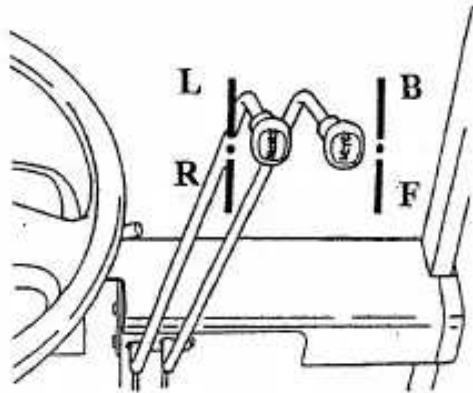
<https://www.forkliftpdfmanuals.com/>

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，否則引擎無法啓動。

**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。

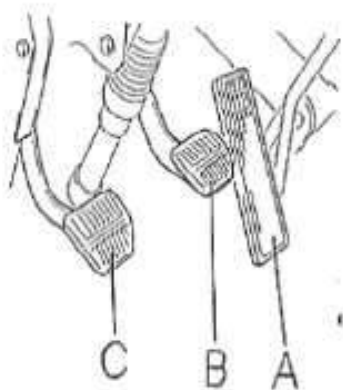
Forks tilt lever (B):

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。

46



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。

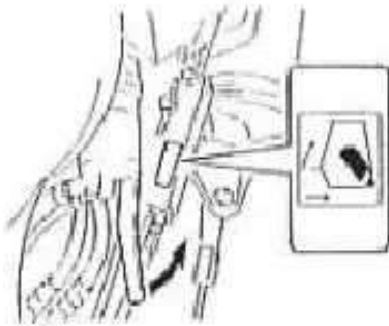
- **C** 踏板是手排的離合器踏板。其目的是允許操控者接合或分離引擎及變速箱，踏下時引擎與變速箱分離，釋

放後會盡量不要只踏離合器動力經由離合器傳到變速箱損壞離合器片。

- **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

 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。

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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。

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 <https://www.forkliftpdfmanuals.com/>

IEC 225

ISO/DIS 2712 2-1995

IEC 624

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 ²
PERKINS 1104C	2.3 m/s ²
NISSAN TB-42	2.0 m/s ²

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 ²
PERKINS1104C	0.4 m/s ²
NISSAN TB-42	0.2 m/s ²

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

<https://www.forkliftpdfmanuals.com/>

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 overhead guard for the rear position as shown in the illustration.

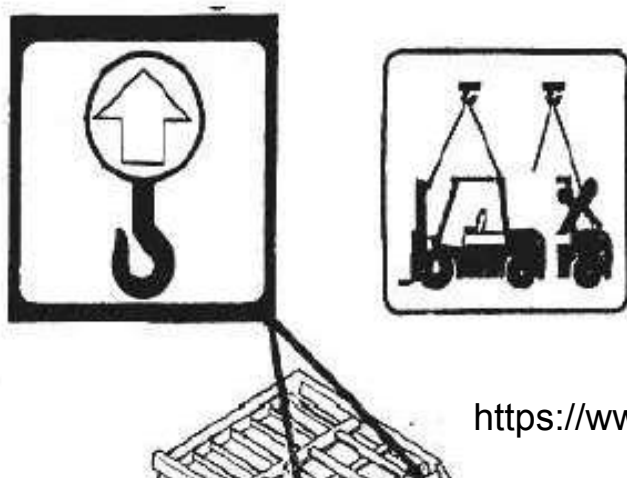
Caution : * Use wire cable which is sufficiently strong.

* Never use the holes on the upper side of the counterweight to hoist the vehicle.

* The net 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，及護頂架上的孔作為後面的吊孔。
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





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 :

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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.

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。
- * 費叉、費架、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。

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。

55

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。

2.9

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 柴汽引擎的啟動程序

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。

56

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.

57

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：

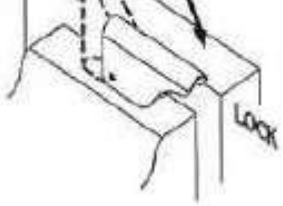
請不要在空間狹窄的地方發動引擎（如車庫或室內）不夠移動或配備的狹窄地方發動引擎，因為放出的引擎廢棄含有一氧化碳，這種氣體無色無味，它是一種危險的氣體會造成休克，並且可能危及生命。

3.2 Adjustments 調整

3.2.1 Forks 貨叉 www.forkliftpdfmanuals.com/

The position of the fork can be adjusted to suit various load dimensions by pulling up the fork stopper, then moving left and right, and along the fork support to the





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.

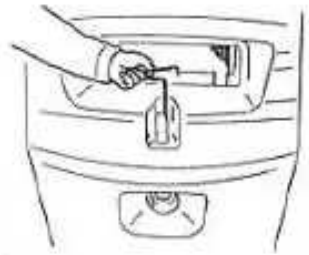
* **WARNING:** Make sure the forks are locked before picking up a load.

58

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



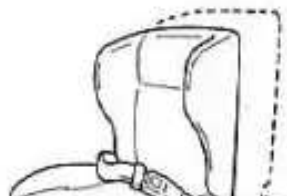
The tug bar is located at the back of the counterweight, and is used to pull the truck should its tires drop into a gutter or should the truck get stuck in mud. It can also be used for loading the forklift onto a truck or another vehicle.

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

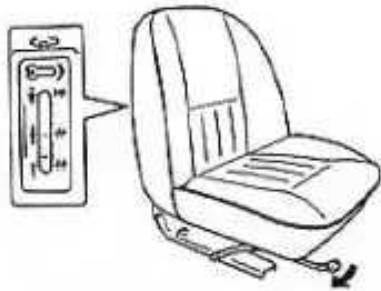


the seat after adjustment, to see if it is fixed on the gliding rail.

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。

Suspension seat adjustment-Option 選購一可調整式座椅

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侧拉，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

Fastening method 椅帶

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 <https://www.forkliftpdfmanuals.com/>

1. Push the button in the center to the buckle





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.

60

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。

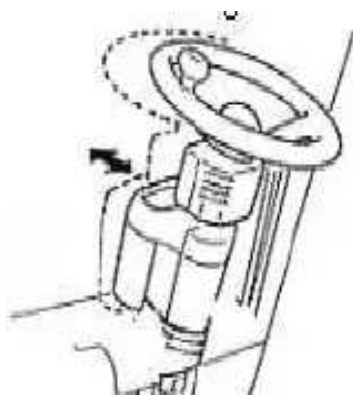
卸開的方法：


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：必須在啓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。

61

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.

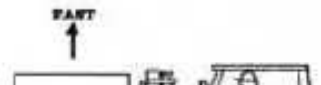
***CAUTION: The drive train can be damaged if the lift truck is traveling too fast when the controls are changed to the opposite direction.**

3.3.1 駕駛及轉彎

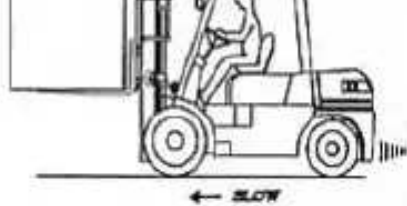
下列章節描述操作變速箱的技術。

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。

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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。

62

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.

<https://www.forkliftpdfmanuals.com/>

Most lift trucks steer by the rear wheels and the rear of the lift truck can move





Most lift trucks steer by the rear. While 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.

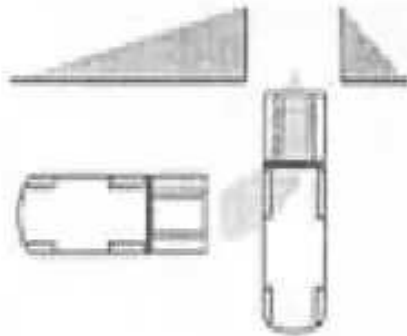
***WARNING :** Failure to observe the tail swing area when making a turn can injure or kill someone.

63

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，爲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。

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*** 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

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



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.

65

***警告：**

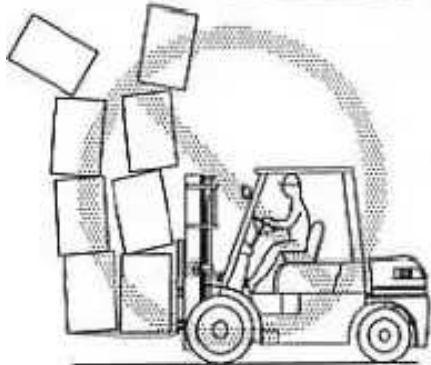
請繫好安全帶以免車子翻覆，造成危險。

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。

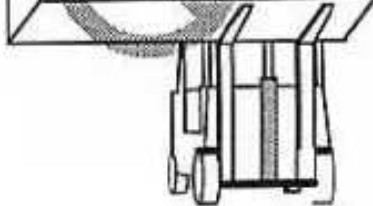
3.3.4 Handling load, general 處理負荷的一般原則

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

<https://www.forkliftpdfmanuals.com/>
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

66

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.

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