

JIS

JAPANESE INDUSTRIAL STANDARD

Fork Lift Trucks

JIS D 6001—1988

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

JAPANESE INDUSTRIAL STANDARD

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Fork Lift Trucks

D 6001-1988

1. Scope

This Japanese Industrial Standard specifies the operator driven type fork lift trucks of not more than 10 t in rated capacity which are driven by power, hereinafter referred to as the "fork lifts".

2. Definitions

For the purposes of this Standard, definitions in JIS D 6201 apply.

3. Classification

3.1 Classification by Functional Type The classification by the functional type shall be as given in the following:

- (1) Counterbalanced fork lift truck
- (2) Reach fork lift truck
- (3) Straddle fork lift truck
- (4) Side fork lift truck
- (5) Order picking truck

3.2 Classification by Power-Source Type

3.2.1 Internal Combustion Engine Types The internal combustion types shall be as follows:

- | | |
|----------------------------------|-----------|
| (1) Gasoline type | Symbol FG |
| (2) Diesel type | Symbol FD |
| (3) Liquefied petroleum gas type | Symbol FL |

3.2.2 Storage Battery Type The storage battery type shall be as follows:

Storage battery type Symbol FB

4. Structures and Functions

4.1 Standard Lifting Height The standard lifting height specified for determining the rated capacity shall be 3000 mm. However, regarding the fork lift trucks of which rated capacity is under one ton, this shall be 2500 mm.

4.2 Maximum Lifting Heights The maximum lifting heights shall generally be as given in Table 1.

Applicable Standards, Corresponding International Standard and Reference Standards: See page 22.

Table 1

Unit: mm

Maximum height	2500, 2700, 3000, 3300, 3500, 3700, 4000, 4300, 4500, 5000, 5500, 6000
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4.3 Rated Load Centres The rated load centres shall be as given in Table 2.

Table 2

Rated capacity t	Under 1	1	Over 1 to 3 incl.	Over 3 to 5 excl.	5	Over 5 up to 10 incl.
Rated load centre mm	400	500 (400)	500	500 (600)	600 (500)	600

Remark: The numerical values in the parentheses can be used as required.

4.4 Lengths and Maximum Thickness of Forks The lengths and the maximum thickness of the forks shall generally be as given in Table 3, according to the types of the permissible capacities at rated load centre.

Table 3

Permissible capacity at rated load centre t		0.5	1	1.5	2	2.5	3	3.5	5	10
Maximum thickness of fork mm		30	40	40	50	55	60	65	80	90
Length of fork mm	770	○	○							
	(850)	○	○	○						
	920	○	○	○	○	○				
	1 070	○	○	○	○	○	○	○		
	1 220		○	○	○	○	○	○	○	○
	1 370		○	○	○	○	○	○	○	○
	1 520			○	○	○	○	○	○	○
	1 670				○	○	○	○	○	○
	1 820						○	○	○	○
	1 970							○	○	○
	2 120							○	○	○
	2 270								○	○
	2 420								○	○

Remark: The numerical values in the parentheses can be used as required.

4.5 Mounting Dimensions for Hook-on Type Forks and Finger Bars
The mounting dimensions for the hook-on type forks and finger bars shall be in accordance with JIS D 6024.

4.6 Strength of Fork The safety factor⁽¹⁾ of the static strength of the fork shall be not less than 3.

Note ⁽¹⁾ The safety factor shall be that value obtained by dividing the yield point of the material used for a fork by the stress when the maximum load is applied to the load centre of the fork.

4.7 Tilting Angles of Mast or Fork The tilting angles of the mast or fork, under dismounted condition of attachments, shall generally be as given in Table 4.

Table 4

		Unit: degree	
Tilting angles of mast or fork	Classification		
	Counterbalanced fork lift truck	Pneumatic tyre	Forward tilting angle
		Solid tyre	Backward tilting angle
	Reach and straddle fork lift truck		
	Side fork lift truck	Pneumatic tyre	
		Solid tyre	
	Order picking truck		

Remark: Where the maximum lifting height exceeds 3500 mm, the tilting angles of the mast or the fork may be decreased.

4.8 Brake Performance The brake performance shall be in accordance with 3. of JIS D 6023.

4.9 Structures, Dimensions and Strengths of Head Guards The structures, dimensions and strengths of head guards shall be in accordance with JIS D 6021.

4.10 Strength of Lifting Chain The safety factor⁽²⁾ of the static strength of the chain used for the lifting mechanism shall be not less than 5.

Note ⁽²⁾ The safety factor shall be that value obtained by dividing the breaking load of a chain by the load being applied to the chain at the time when loaded with the permissible capacity at rated load centre.

4.11 Stability of Fork Lift Truck The stability of the fork lift truck shall be as given in Table 5.

Table 5

Classification	Number of Standard
Counterbalanced fork lift truck	JIS D 6011
Reach fork lift truck and straddle fork lift truck	JIS D 6012
Side fork lift truck	JIS D 6013
Order picking truck	JIS D 6014

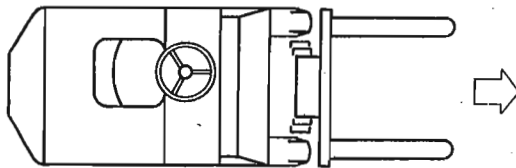
4.12 Tyres and Rims The tyres shall be in accordance with JIS D 6401 or JIS D 6405. The rims shall be in accordance with JIS D 6402.

4.13 Operating Devices

4.13.1 Forward Direction The forward direction of the fork lift truck shall be that direction of an operator. Those arrow mark directions given in Figs. 1 and 2 are the forward directions.

Fig. 1. Fork Lift Trucks Operated by Sitting Operator

(a) Counterbalanced Fork Lift Truck



(b) Side Fork Lift Truck

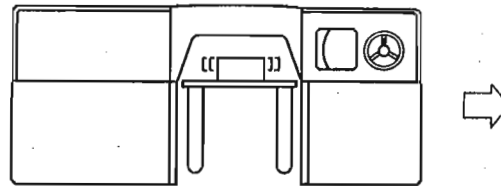
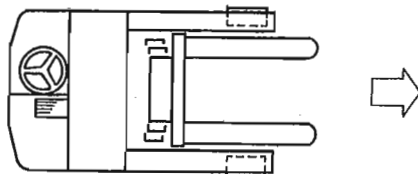
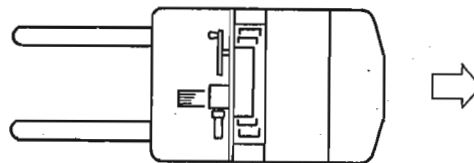


Fig. 2. Fork Lift Trucks Operated by Standing Operator

(a) Reach Fork Lift Truck and Straddle Fork Lift Truck

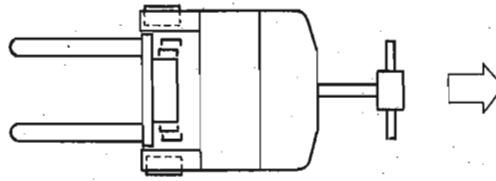


(b) Order Picking Truck



Informative Reference: Fork Lift Truck Operated by Walking Operator
The mounting side of the steering device is defined as forward direction. The arrow mark direction given in Informative Reference Fig. 1 is the forward direction.

Informative Reference Fig. 1. Pedestrian Controlled Truck



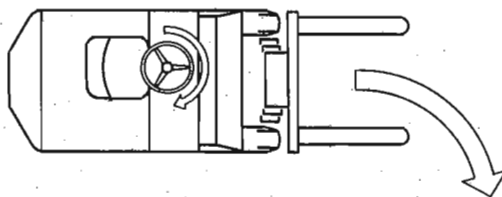
4.13.2 Steering Devices The steering devices shall be as follows:

(1) A Fork Lift Truck, Operated by a Riding Operator

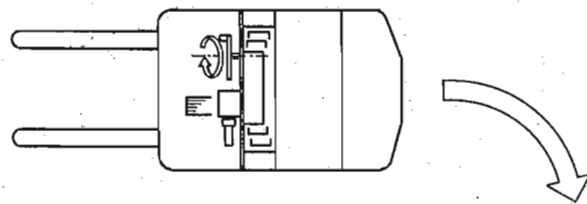
- (a) All of the steering devices shall be mounted within the ranges of the external shape lines of the fork lift trucks.
Furthermore, the operator, shall be protected from being injured when passing through the sides of obstacle, wall, pillar and others while operating a fork lift truck.
- (b) The vehicle of which steering operation is carried out with single hand shall be provided with a knob.
- (c) All of the fork lift trucks which are steered by means of the steering wheel shall be steered to the right in the forward direction by rotating the steering wheel in the right direction (see Fig. 3).

Fig. 3. Figures of Steering Direction

Counterbalanced Fork Lift Truck



Order Picking Truck



Informative Reference: A Fork Lift Truck Operated by a Walking Operator

- (a) The handle on the steering tongue is to be guarded from injuries to the hands of the operator due to the open and close doors, walls, pillars, etc.
- (b) When the steering tongue has been turned in the right direction, the fork lift truck travels to the right in the forward direction.

4.13.3 Travel Control Device The travel control device shall be as follows:

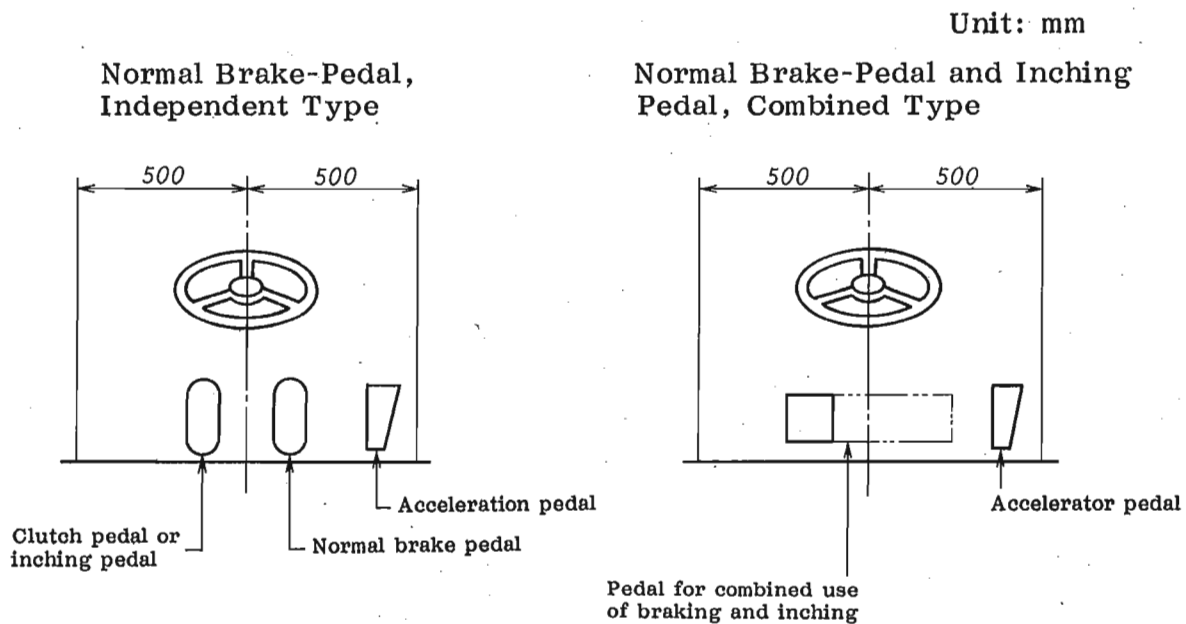
(1) Internal Engine Type Fork Lift Truck Operated by a Sitting Driver

(1.1) Pedals (Brake Pedal, Accelerator Pedal, Clutch Pedal)

(1.1.1) Arrangement The pedals for the travel controls, being arranged as given in Fig. 4, shall satisfy the following items:

- (a) These shall be arranged within 500 mm each in the right and left from the centre of the steering wheel so that the operator can operate easily at a fixed position.
- (b) The interval between the pedals or the interval between the pedals and surroundings shall be arranged suitably so that there is no impediment in operation.

Fig. 4. Arrangement Diagrams of Pedals



(1.1.2) Operating Mechanism

- (a) The normal brake pedal shall be actuated by depressing the pedal with operating by the right foot.
- (b) The acceleration pedal shall function to increase speed by depression, with operating by the right foot.
- (c) The clutch pedal shall function to release the clutch by depression, with operating by the left foot.
- (d) Regarding the fork lift truck which uses an inching pedal, the clutch shall be released at the first half depression, and the brakes shall function at the last half depression, with operating by the left foot.

(1.2) Gear Change Lever

(1.2.1) Arrangement The arrangement of the gear change lever shall be in accordance with (1.1.1) (a), as appropriate.