

SM141

# SHOP MANUAL

## DX-7 AND DX-8 FORKLIFT TRUCKS

**DX-7: FG50/60/70-7**

**DX-8: FD50/60/70/80-8**

**S/N 40001-45999**

**S/N 46001~**

# DX20



## WARNING

Read and observe all warnings on this unit before operating it.

**DO NOT** operate this equipment unless all factory installed guards and shields are properly secured in place.

# KOMATSU®

ISSUED: MAY 2005

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## INTRODUCTION

This Service Manual has been developed as an information resource to help the reader learn about, understand, repair and maintain the DX20 Series forklift trucks, and the various equipment, systems, inspections, sensors, diagnostic procedures and diagnostic equipment utilized to maintain, adjust and troubleshoot these systems. Although reference is made to maintenance procedures necessary to perform servicing of this vehicle, you should refer to the applicable *Operation and Maintenance Manual* for these lift trucks for more complete maintenance information.

Read this manual carefully, refer to it often and learn the repair, testing and adjustment procedures to the best of your ability. Please note that some illustrations are generic and may not look exactly like your unit in every detail.

Ensure that, when you are working on or around industrial trucks, **Safety is priority Number One**. Read, understand and obey all **WARNINGS** and **CAUTIONS**.

Follow the instructions and procedures presented in this manual when working on these lift trucks and their systems. Damage to the equipment, and possible injury to yourself or others, may result if these procedures are not adhered to carefully.

Keep this manual nearby and accessible for use when necessary. If this book becomes dirty, worn or illegible, contact Komatsu for a replacement. The procedures outlined in this manual will be updated periodically. Be sure that you have the latest revision in order to learn the newest information available. Revision dates will be clearly displayed on the lower left hand corner of the cover page.

This will aid in maintaining your equipment in excellent condition and in ensuring that these lift trucks will operate safely at maximum efficiency.

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# FOREWORD


For a machine and its components to maintain their performance for a long time, it is necessary to carry out appropriate operation, preventive maintenance, troubleshooting, and service to prevent failures or problems before they occur.

Of these operations, this shop manual gives information mainly on operations carried out at a repair shop. These include an outline needed for service and maintenance operations, together with details of the structure and function, inspection and maintenance, installation and removal, disassembly and assembly, maintenance standards, troubleshooting, and periodic inspection and adjustment of components for the machine. The units given for tightening torques in this manual use the SI units as the standard, so a conversion table is given at the end of the section 10.

This shop manual has been prepared with the target of making materials that will help you to gain proper knowledge of the product, its structure and function, and proper methods for maintenance, to use proper judgement and remedies when there is a failure or problem with the machine, and to improve the quality of maintenance.






Always be sure that you fully understand the contents of this manual together with the Operation and Maintenance Manual, and make full use of it when handling the machine.

## PRECAUTIONS WHEN PERFORMING THE SERVICE WORK

Always pay attention to "Safety" before starting any work – this is important.  
Never attempt any work where danger to yourself or to other persons.  
Whenever work requiring safety precautions are described in this manual, a flag mark  inserted, always make double sure that safety measures are taken.  
Other unmarked work, should always be performed after studying and using your common sense to prevent accidents.

## DESCRIPTION OF THE SYMBOLS

The symbols described below are used in this manual for convenience and better understanding

Symbol	Item	Description
	<b>Safety</b>	Special safety precautions are needed to perform the work.
	<b>Note</b>	Special technical precautions are needed to perform the work.
	<b>Tightening torque</b>	Fastening parts that require specified tightening force when assembling.
	<b>Weight</b>	Weight of parts or systems.
	<b>Coat</b>	Places to be coated with adhesives, etc. When assembling.

## 10. GENERAL AND SPECIFICATIONS

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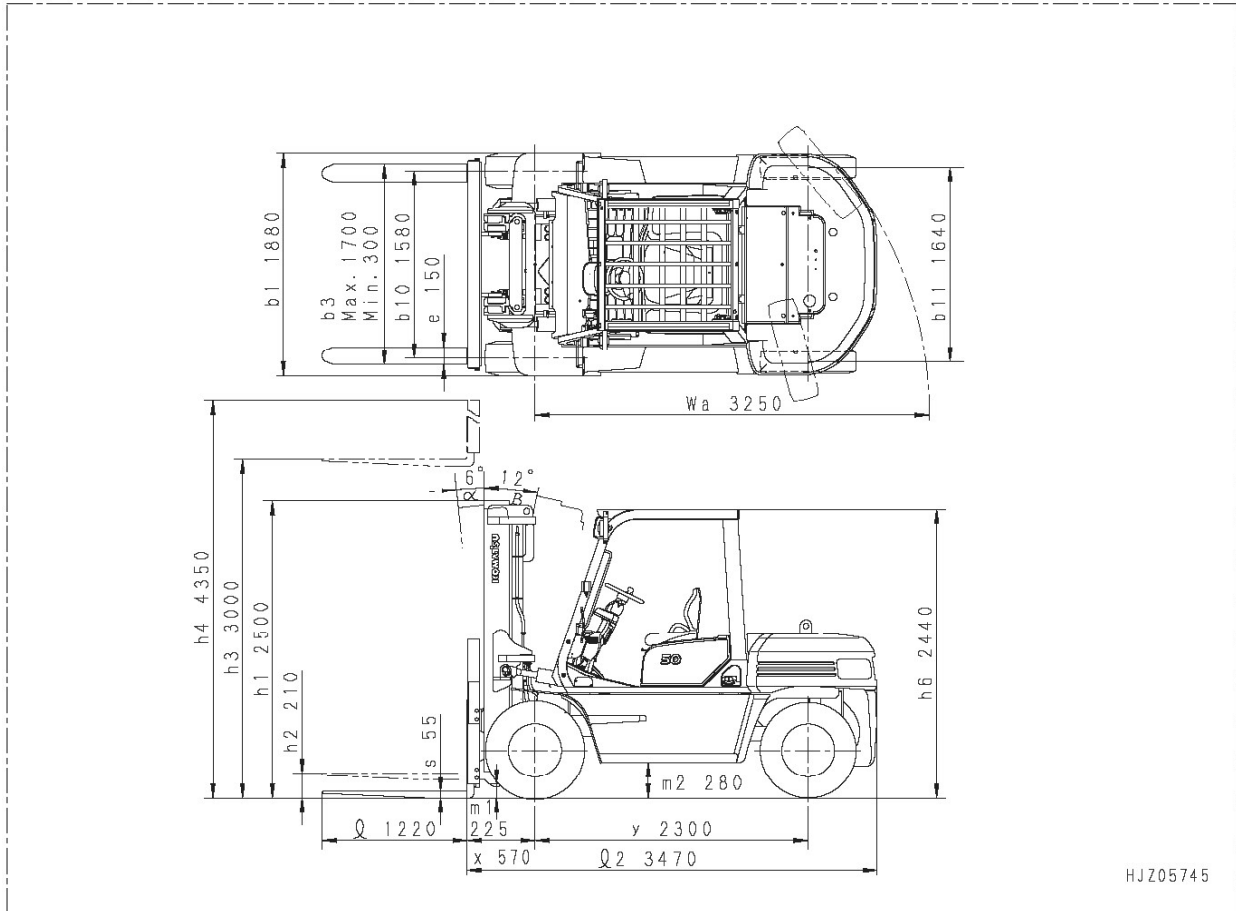
# SPECIFICATIONS (FG50-7, FD50-8)

## • SPECIFICATION TABLE

Characteristics	Model	Manufacturer's designation		FG50-7	FD50-8
	Power type	Electric, diesel, gasoline, LPG, cable		Gasoline	Diesel
	Operation type	Pedestrian, driver standing, sitting, order picking		Sitting	Sitting
	Rated capacity	Q	Rated capacity	kg	
	Load center	c	Rated load center	mm	
	Load distance	x	Front axle center to fork face	mm	
	Wheelbase	y		mm	
Weight	Service weight			kg	7,340
	Axle loading	Loaded	Front	kg	11,105
			Rear	kg	1,235
		Unloaded	Front	kg	3,560
			Rear	kg	3,780
Tyre	Tyre type	Cushion, elastic cushion, pneumatic, polyurethane		Pneumatic	
	Tyre size	Front		300-15-18PR(I)	
		Rear		8.25-15-12PR(I)	
	Number of wheel	Front/rear (x=driven)		2x/2	
	Tread, front	b10	mm	1,580	
	Tread, rear	b11	mm	1,640	
Basic measurement	Tilting angle	a/β	degree	6/12	
	Mast height, lowered	h1	mm	2,500	
	Std. free lift	h2	mm	210	
	Std. lift height	h3	mm	3,000	
	Mast height, extended	h4	mm	4,350	
	Height, overhead guard	h6	mm	2,440	
	Length, with Std. forks	ℓ1	mm	4,690	
	Length, to fork face	ℓ2	mm	3,470	
	Width, at tyre	b1	mm	1,880	
	Forks	s/e/ℓ	Thickness/width/length	mm	
	Fork carriage class			Class IV, Type A	
	Width, fork carriage	b3	mm	1,700	
	Ground clearance	m1	Under mast	mm	225
		m2	At center of wheelbase	mm	280
Performance	Right angle stacking aisle	Ast	With 1,000 x 1,200 pallet, lateral	mm	3,820
	Turning radius	Wa		mm	3,250
	Travel speed (FWD)	Loaded, 1st/2nd/3rd		km/h	11.0/28.0
		Unloaded, 1st/2nd/3rd		km/h	12.0/31.0
	Lifting speed	Loaded/unloaded		mm/s	420/430
	Lowering speed	Loaded/unloaded		mm/s	550/580
	Max. drawbar pull	Loaded at 1.5 km/h		kN{kgf}	55{5,610}
Engine	Max. gradeability	Loaded at 1.5 km/h		%	52
	Service brake	Operation/control		Foot/hydraulic	
	Parking brake	Operation/control		Hand/mechanical	
	Steering	Type		Hydraulic power steering	
	Battery	Voltage/capacity at 5-hour rating		V/Ah	12/48
	Make/model				NISSAN/TB42
	Rated output (SAE gross)			kW(HP)	66(88)
Others	Rated RPM			rpm	2,300
	Max. torque (SAE gross)			Nm{kgf·m}/rpm	275{28}/1,900
	No. of cylinder/displacement			No. of cyl./ℓ{cc}	6/4.169{4,169}
	Fuel tank capacity			ℓ	140
Transmission	Relief pressure for attachment			MPa{kgf/cm <sup>2</sup> }	17.5{178}
	Tank capacity			ℓ	70
	Clutch			Torque converter	
	Transmission			TORQFLOW	



## • OUTSIDE VIEW DRAWINGS



## SPECIFICATIONS (FG60-7, FD60-8)

### • SPECIFICATION TABLE

Characteristics	Model	Manufacturer's designation		FG60-7	FD60-8
	Power type	Electric, diesel, gasoline, LPG, cable		Gasoline	Diesel
	Operation type	Pedestrian, driver standing, sitting, order picking		Sitting	Sitting
	Rated capacity	Q	Rated capacity	kg	
	Load center	c	Rated load center	mm	
	Load distance	x	Front axle center to fork face	mm	
	Wheelbase	y		mm	
Weight	Service weight			kg	8,200
	Axle loading	Loaded	Front	kg	12,705
			Rear	kg	1,495
		Unloaded	Front	kg	3,640
			Rear	kg	4,560
Tyre	Tyre type	Cushion, elastic cushion, pneumatic, polyurethane		Pneumatic	
	Tyre size	Front		8.25-15-12PR(I)	
		Rear		8.25-15-12PR(I)	
	Number of wheel	Front/rear (x=driven)		4x/2	
	Tread, front	b10	mm	1,450	
	Tread, rear	b11	mm	1,640	
Basic measurement	Tilting angle	a/β	degree	6/12	
	Mast height, lowered	h1	mm	2,500	
	Std. free lift	h2	mm	215	
	Std. lift height	h3	mm	3,000	
	Mast height, extended	h4	mm	4,350	
	Height, overhead guard	h6	mm	2,440	
	Length, with Std. forks	ℓ1	mm	4,695	
	Length, to fork face	ℓ2	mm	3,475	
	Width, at tyre	b1	mm	1,960	
	Forks	s/efℓ	Thickness/width/length	mm	
	Fork carriage class			Class IV, Type A	
	Width, fork carriage	b3	mm	1,700	
	Ground clearance	m1	Under mast	mm	225
		m2	At center of wheelbase	mm	285
	Right angle stacking aisle	Ast	With 1,000 x 1,200 pallet, lateral	mm	5,225
	Turning radius	Wa		mm	3,250
Performance	Travel speed (FWD)	Loaded, 1st/2nd/3rd		km/h	11.0/28.0
		Unloaded, 1st/2nd/3rd		km/h	12.0/31.0
	Lifting speed	Loaded/unloaded		mm/s	420/430
	Lowering speed	Loaded/unloaded		mm/s	550/580
	Max. drawbar pull	Loaded at 1.5 km/h		kN(kgf)	54{5,510}
	Max. gradeability	Loaded at 1.5 km/h		%	44
	Service brake	Operation/control		Foot/hydraulic	
	Parking brake	Operation/control		Hand/mechanical	
	Steering	Type		Hydraulic power steering	
Engine	Battery	Voltage/capacity at 5-hour rating		V/Ah	12/48
	Make/model				NISSAN/TB42
	Rated output (SAE gross)			kW(HP)	66(88)
	Rated RPM			rpm	2,300
	Max. torque (SAE gross)			Nm(kgf·m)/rpm	275{28}/1,900
	No. of cylinder/displacement			No. of cyl./ℓ(cc)	6/4.169{4,169}
	Fuel tank capacity			ℓ	140
Others	Relief pressure for attachment			MPa(kgf/cm <sup>2</sup> )	17.5{178}
	Tank capacity			ℓ	70
	Clutch			Torque converter	
	Transmission			TORQFLOW	