

SM024
FD50/80.5-BE2

FORKLIFT TRUCK

FG50/60/70-5

FD50/60/70-5

FD50E/60E/70-5

FD60H/70H/80H-5

KOMATSU FORKLIFT USA

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FOREWORD

Proper operation, maintenance, troubleshooting and repairs are necessary to preserve the performance of vehicles and engines (engine-powered forklift trucks) over a long period of time and to ensure that fault and breakdowns do not occur.

The object of this Shop Manual is to provide the information necessary especially in connection with the performance of inspections and repairs mainly in the maintenance areas.

For this purpose, it includes sections on "General Specifications", "Checks and Adjustments", "General Disassembly and Assembly", "Disassembly and Assembly of Components" and the "Electrical System".

Maintenance data necessary for the performance of maintenance on the machines is also included, but reference should be made to the Operation and Maintenance Manual for further details.

Reference should also be made to this manual in connection with correct operation of the machine.

The content of the items mentioned above is as follows.

General and Specifications

This chapter indicates the name of each part of the machine, and the installation positions of the operating devices and instruments.

Checks and Adjustments

This chapter gives the details required for the disassembly and reassembly of machines such as tightening torque, allowances, as well as the wear limits of the parts. However, when necessary, data in line with the procedure mentioned in the following sections, "General Disassembly and Assembly" and "Disassembly and Assembly of Components" is indicated.

General Disassembly and Assembly

The procedure when disassembling a machine comes within one of the two following categories. In the first, the machine, including the frame, is made up roughly of seven component parts, i.e.: a mast section, a cylinder section, a reach leg, a transfer section, a motor section, a pump section and a frame.

This chapter contains details of how to disassemble and assemble these components. The other category of disassembly and assembly is the disassembly and assembly of component parts referred to in the following chapter.

Disassembly and Assembly of Components

This chapter provides additional explanation concerning those of the seven component parts, as touched upon in the preceding chapter, whose disassembly procedure is particularly complicated and for which special care is needed when adjusting. Mention is also made of the functions and structures of the component parts.

Electrical system

Explanation is provided in this chapter of the electrical parts used inside the machine. Troubleshooting when a breakdown occurs is also described.

Reference should be made to the "General Shop Manual" for safe operating and working methods which serve as the basis for the performance of repair and inspection works on machines.

STANDARD TIGHTENING TORQUE FOR BOLTS

TIGHTENING TORQUE when using torque wrench or spanner shall be in accordance with Table. This torque shall be used when TIGHTENING TORQUE of especially narrow range is required.

1. In the case of using of impact wrenches or spanners

Unit: kg.m

				
Thread dia.	Width across flats		S43C, SMn34CH, SMn40CH, SCM3H or superior ones	
	Conventional threads	ISO threads	Range	Target
6	10	10	0.9 ~ 1.5	1.2
8	14	13	1.5 ~ 3.5	2.5
10	17	17	3.5 ~ 7.5	5.5
12	19	19	5.5 ~ 12.5	9.0
14	21	22	8.5 ~ 20.0	14.0
16	23	24	15.0 ~ 31.5	23.5
18	26	27	20.5 ~ 43.5	32.0
20	29	30	32.5 ~ 62.0	47.0
22	32	32	48.0 ~ 84.5	66.5
24	35	36	60.0 ~ 105	82.5
27	41	41	90.0 ~ 150	120
30	46	46	115 ~ 195	155
33	50	50	150 ~ 250	200
36	54	55	190 ~ 310	250
39	58	60	230 ~ 370	300

2. In the case of using of torque wrenches

Unit: kg.m

				
Thread dia.	Width across flats		S43C, SMn34CH, SMn40CH, SCM3H or superior ones	
	Conventional threads	ISO threads		
			Range	Target
6	10	10	1.2 ~ 1.5	1.35
8	14	13	2.8 ~ 3.5	3.2
10	17	17	6 ~ 7.5	6.7
12	19	19	10 ~ 12.5	11.5
14	21	22	16 ~ 20.0	18
16	23	24	25 ~ 31.5	28.5
18	26	27	35 ~ 43.5	39
20	29	30	50 ~ 62.0	56
22	32	32	67.5 ~ 84.5	76
24	35	36	84 ~ 105	94.5
27	41	41	120 ~ 150	135
30	46	46	155 ~ 195	175
33	50	50	200 ~ 250	225
36	54	55	250 ~ 310	280
39	58	60	295 ~ 370	335

This table does not apply to the bolts with which nylon packings or other non-ferrous metal washers are to be used, or which require to be tightened to an otherwise specified torque.



Conventional screw threads



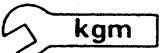
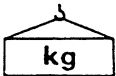
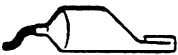
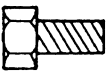
ISO screw threads

PRECAUTIONS WHEN PERFORMING THE SERVICE WORK

Always pay attention to 'Safety' before starting any work — this is important.
 Never attempt any work where there is danger to yourself or to other persons.
 Whenever work requiring safety precautions are described in this manual, a flag mark  is inserted, so always make doubly 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
	Safety	Special safety precautions are needed to perform the work.
	Note	Special technical precautions are needed to perform the work.
	Tightening Torque	Fastening parts that require specified tightening force when assembling.
	Weight	Weight of parts or systems
	Coat	Places to be coated with adhesives, etc. when assembling.
	Bolt	Quantity of bolts when disassembling or assembling.

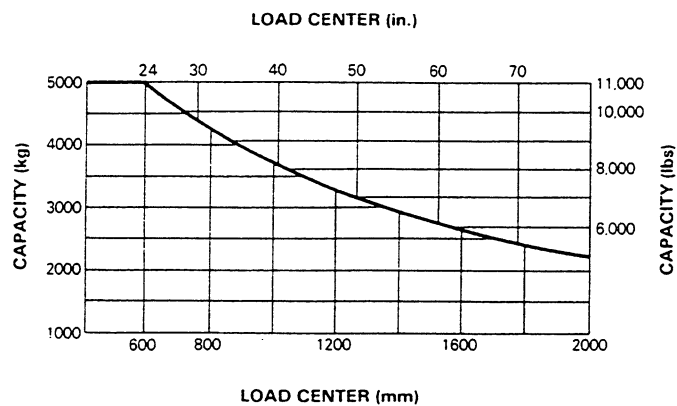
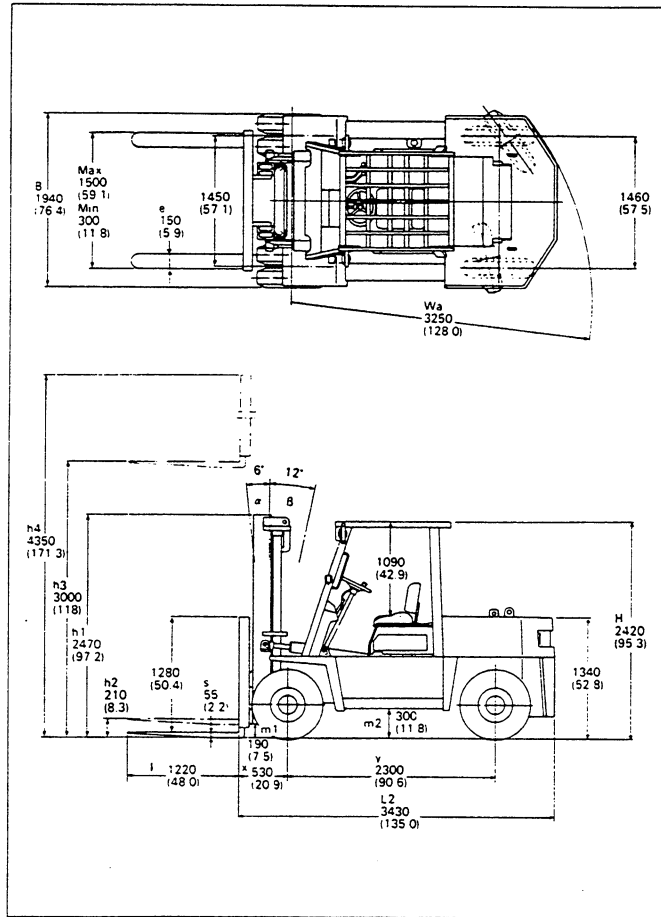
01. GENERAL AND SPECIFICATIONS

Overall dimensions and specifications 01- 2



OVERALL DIMENSIONS AND SPECIFICATIONS

FD50E-5



Capacities shown are for trucks equipped with 2-stage view mast up through 5000mm (197in.) maximum fork height, 1500mm (59.1in.) carriage, 1220mm (48in.) forks. Contact your distributor or dealer for capacity information with other equipment.

GENERAL AND SPECIFICATIONS

FD50E-5

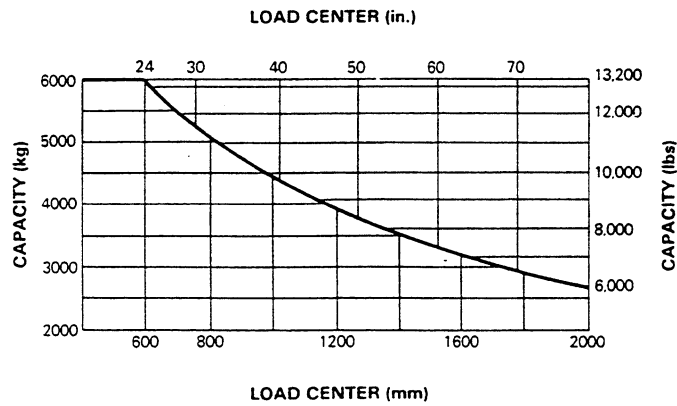
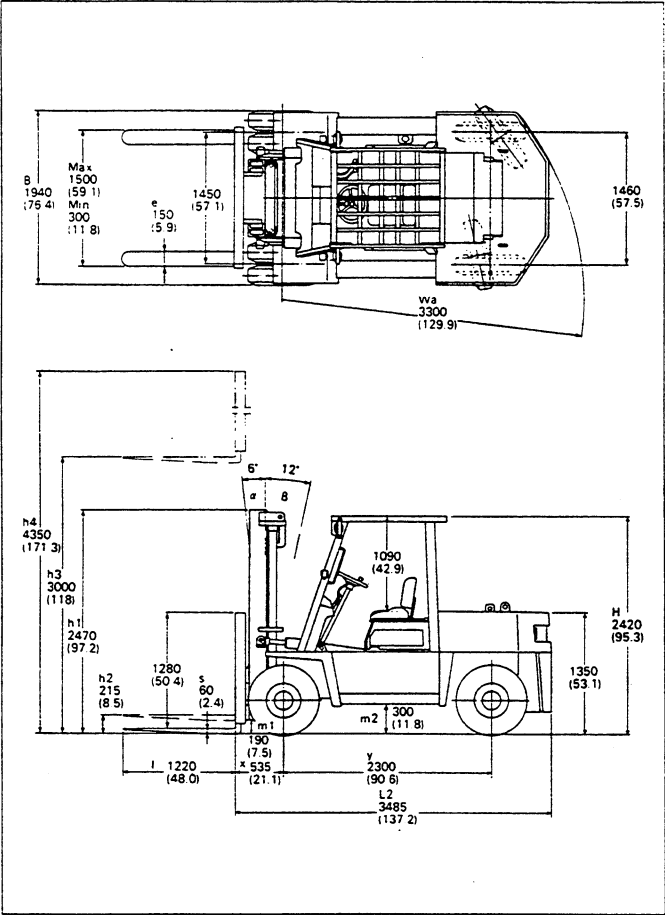
Characteristics	1	Model	Manufacturer's designation			FD50E-5
	2	Capacity	Capacity at 600mm (24in.) Load Center			kg (lbs)
	3	Power Type	Diesel, Gasoline, LPG			5000 (11,000)
	4	Tire Type	Solid, Pneumatic			Diesel
	5	Operator Type	Driver Standing, Sitting			Pneumatic
	6	Wheels (* = driven)	Number front/rear			Sitting
Dimensions	7	Lift	h ₁	Max. Fork Height	mm (in.)	4' / 2
	8	Lift	h ₂	Free Lift	mm (in.)	3000 (118)
	9	Forks	s.e.l.	Thickness x Width x Length	mm (in.)	210 (8.3)
	10	Tilting Angle	α / β	Forward/Backward	-	55x150x1220 (2.2x5.9x48.0)
	11	Overall Dimensions	H	Height, Overhead Guard	mm (in.)	6/12
	12		L ₂	Length to face of forks	mm (in.)	2420 (95.3)
	13		B	Width	mm (in.)	3430 (135.0)
	14		h ₁	Height, Mast lowered	mm (in.)	1940 (76.4)
	15		h ₁	Height, Mast extended	mm (in.)	2470 (97.2)
	16	Turning Radius	W _a	Outside	mm (in.)	4350 (171.3)
	17	Load Distance	X	From Center of front axle	mm (in.)	3250 (128.0)
	18	Right Angle Stacking Aisle	Plus Load Length			530 (20.9)
				mm (in.)		3780 (148.8)
Performance	19	Speeds	Travel	Forward	Loaded 1st/2nd km/h (mph)	10/25 (6.2/15.5)
	20			Unloaded 1st/2nd km/h (mph)		10/27 (6.2/16.8)
	21		Reverse	Loaded 1st/2nd km/h (mph)		10/25 (6.2/15.5)
	22			Unloaded 1st/2nd km/h (mph)		10/27 (6.2/16.8)
	23	Lifting	Loaded/Unloaded			mm/s (fpm)
	24		Lowening Loaded/Unloaded			mm/s (fpm)
	25					400/400 (79/79)
	26	Max. Drawbar Pull				kg (lbs)
Weights	27	Gradeability	Loaded/Unloaded			%
	28	Service Weight				53/26
	29	Axle Loading	Loaded front/rear			kg (lbs)
	30	Axle Loading	Unloaded front/rear			10620/1080 (23,410/2,380)
Chassis & Wheels	31	Tire Size	Front			kg (lbs)
	32	Tire Size	Rear			3170 3530 (6,990 7,780)
	33	Wheelbase	y		mm (in.)	7.50-15-12PR (I)
	34	Tread	front/rear		mm (in.)	7.50-15-12PR (II)
	35	Ground Clearance	m ₁	Lowest point	mm (in.)	2300 (90.6)
	36	Ground Clearance	m ₂	Center of frame	mm (in.)	1450/1460 (57.1/57.5)
	37	Brakes	Service			190 (7.5)
	38	Steering	Parking			300 (11.8)
Drive	39	Battery	Voltage/Capacity 20-hour rating			Hydraulic, Powered
	40	Internal Combustion Engine	Make/Model			Mechanical
	41	Internal Combustion Engine	Rated Horsepower/RPM			Power Steering
	42	Internal Combustion Engine	Max. Torque/RPM			24/60
	43	Internal Combustion Engine	Number of cylinders/Displacement			KOMATSU 5D95L
	44	Internal Combustion Engine	Cylinder Bore x Stroke			82/2150
	45	Internal Combustion Engine	Fuel Tank Capacity			28 (203)/1500
	46	Internal Combustion Engine	Air Cleaner			6/4890 (298)
	47	Clutch	Type			95x115 (3.7x4.5)
	48	Transmission	Type			120 (32)
Hydraulic	49	Hydraulic	Max. Pressure			Cyclone
	50	Hydraulic	Tank Capacity			Torque Converter

ANSI AND INSURANCE CLASSIFICATION

Overhead guard on standard truck meets all applicable mandatory requirements of Part II-ANSI-B 56.1 1969-1975 Safety Standard for Powered Industrial Trucks. Underwriters Laboratories requirements as to fire hazard only for D classification available.

Performance may vary due to operating conditions. The performance shown represents nominal values under typical operating conditions. Most values shown in this publication are rounded. Therefore, direct conversion between metric and imperial may be slightly different from those shown. Specifications are subject to improvements and changes without notice.

FD60E-5



Capacities shown are for trucks equipped with 2-stage view mast up through 4500mm (177in.) maximum fork height, 1500mm (59.1in.) carriage, 1220mm (48in.) forks. Contact your distributor or dealer for capacity information with other equipment.