



ISO 14001 Environmental Management System (for Komatsu Utility Tochigi Plant)



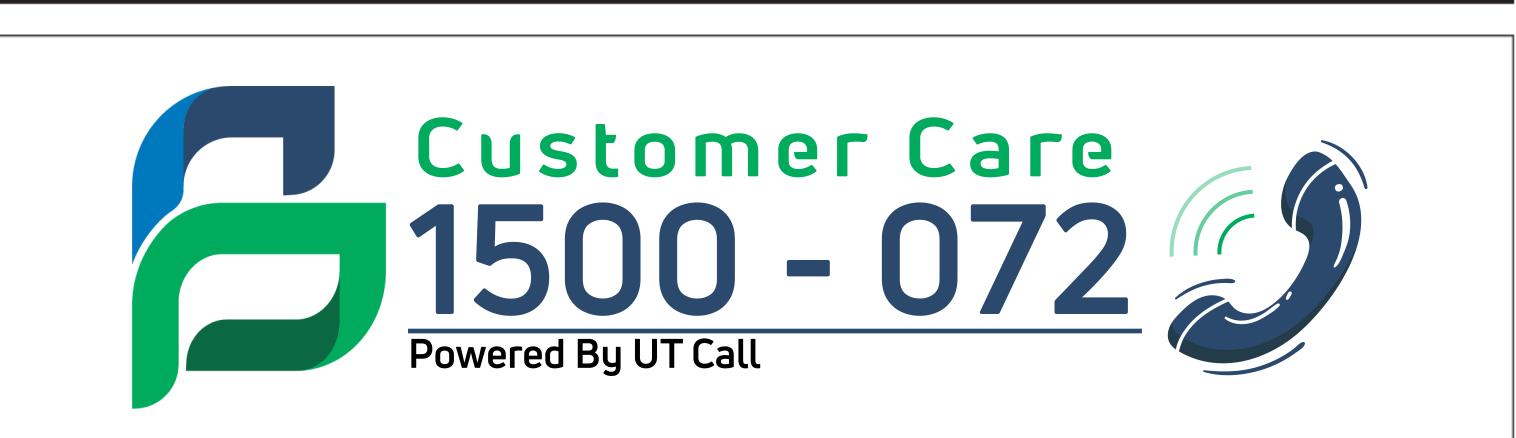


Certified by Lloyd's Register Quality Assurance Limited.

For other options and attachments, please consult with your Komatsu dealer. Features and specifications may vary in different countries and regions. Please contact your Komatsu dealer to confirm machine details in your region. Forklift trucks in this catalog may be shown with optional equipment. Komatsu products and specifications are subject to change without notice. The performance values indicated herein represent nominal values obtained under typical operating conditions.

# Komatsu Utility Co., Ltd. FORKLIFT COMPANY

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Environment & Economy is the word for the next generation.

EX50 Series is our answer for it.

Komatsu put its technologies and know-how into the design and construction of a new engine,

which is a proof of our careful consideration of the next step.

With its new cutting edge four key technologies,

the new engine provides reliable power with better fuel efficiency

for maximum productivity and lowered operating cost while being environment-friendly.

# **Engine Technologies**

**Key Technology-1** 

**Electronic Control System** 

Key Technology-2

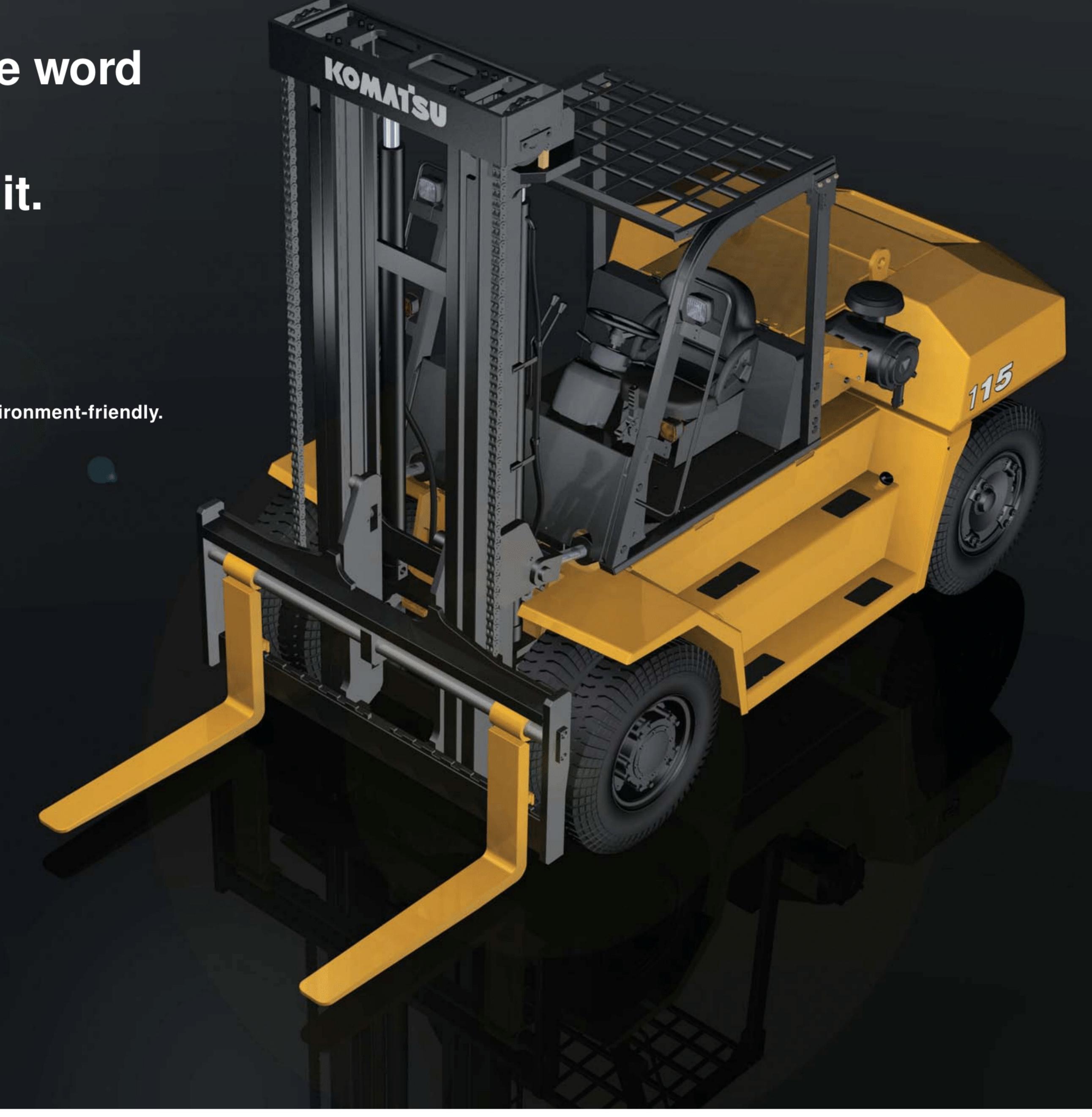
**Heavy duty HPCR System** 

**Key Technology-3** 

**New Combustion System** 

Key Technology-4

Air to Air Charge Air Cooling System



# Born of the unsurpassed technologies Shaped from the deep thoughtfulness for environment.

# **ENVIRONMENTAL SAFETY**

# The new engine adopts the latest technologies that supports both reliable power and environment-friendliness

EPA Tier 3/ Euro IIIA compliant SAA6D107E-1 engine adopts Komatsu's latest engine technologies, and dramatically reduces NOx and PM in exhaust. Also, each system successfully interacts for better fuel efficiency and lowered running noises. Reliable fuel filters keep systems performance high and protect components. The engine offer full performance and power even in severe conditions.

: 122kw @ 2,200rpm Maximum Torque : 575nm @ 1,600rpm

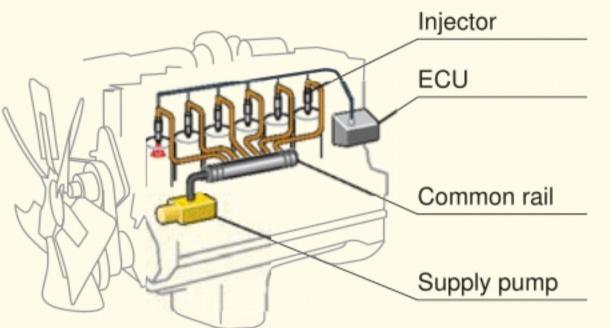


#### Key Technology-1: Electronic Control System

The center control unit quickly processes signals from various sensors on the vehicle in order to produce a maximum power in any condition, eliminating possible loss in engine performance.

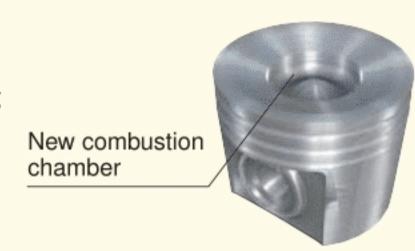
#### Key Technology-2: Heavy duty HPCR System

High pressure compressed fuel stored in a accumulator chamber, so-called common rail, is injected into each cylinder sufficiently at a proper timing by an ECU (Electric Controlled Unit). This HPCR (High Pressure Common Rail) system promises optimized fuel burning and reduced fuel consumption.



#### **Key Technology-3: New Combustion System**

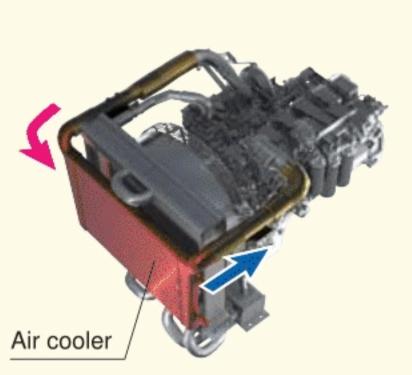
A unique shape of the combustion chamber on the top surface of each piston facilitates complete fuel burning by optimizing conditions, timings and amounts of fuel injection, which helps reduce NOx and PM in exhaust, as well as fuel consumption.



#### Key Technology-4: Air to Air Charge Air Cooling System

This system cools high temperature air blown by the turbocharger and supplies it to cylinders.

As a result, the system maximizes combustion efficiency and emission performance, facilitating high output while reducing NOx and fuel consumption.

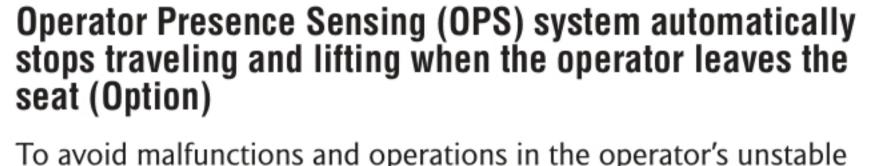


# SAFETY

#### Wet disc brake that safely stop the vehicle in any working conditions (Option)

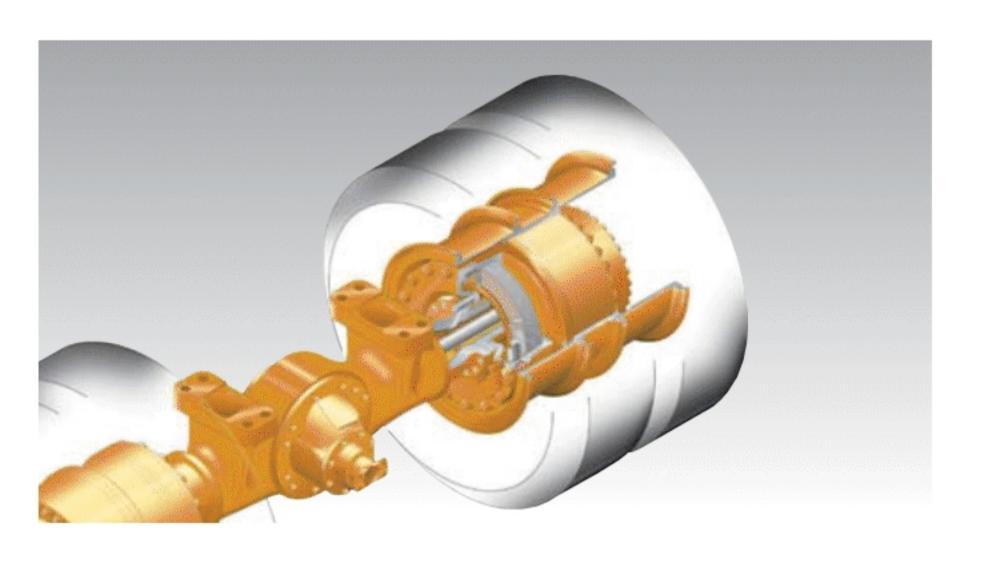
The EX50 features komatsu's original wet disc braking system that eliminates weakness of traditional drum brakes. With its built-in waterproof and dustproof mechanism, the braking system also delivers high durability with less brake shoe wearing. Because the braking system is enclosed, it does not require part replacement or overhauls for maintenance.\* Regardless of your working conditions, it offers added reliability and safety of the EX50.

\*Oil replacement and regular inspections are required.



To avoid malfunctions and operations in the operator's unstable positions, the OPS system automatically prevents driving and loading when the operator is unseated. Indicators on the display panel inform the vehicle condition when it stops by the interlock. This mechanism conform with ISO3691-1, one of the worldwide safty standards.

\*This system is to safely stop the driving and loading function, and not intended to forcedly brake the vehicle.







What about ISO3691-1

ISO3691 refers to a series of safety standards for industrial trucks to facilitate safe working.

# Good view, comfort seating and operability. All designed to deliver the higher level of workability.



# **MANEUVERABILITY**

Exceptionally high travel speed achieved through use of electrically controlled forward/reverse lever and 3-speed transmission (or optional automatic transmission)

A best-of-breed combination of high-power new engine and powershift 3-speed transmission (or optional automatic transmission) with forward/reverse lever ensures excellent maneuverability and the optimum high-performance combination of travel speed, acceleration, lift speed, and gradability.

Traveling Speed (at the third gear, unloaded)

Gradability (FD 100)

: **38**% (21 degrees)

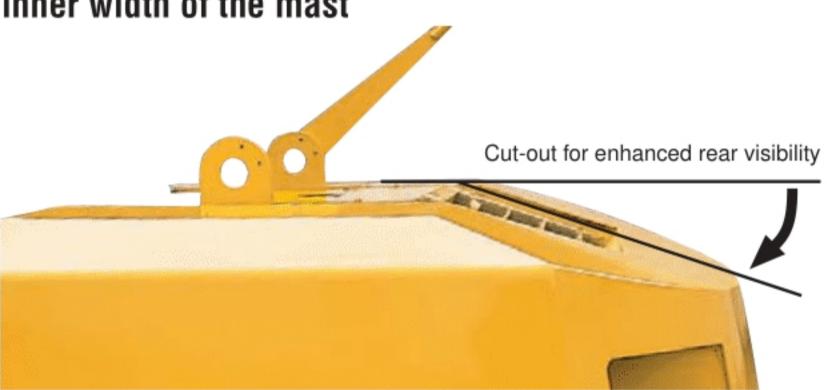
#### Top-of-class rated lift speed ensures speedy and efficient work

A top-of-class lift speed can be achieved in both loaded and unloaded states through optimization of the oil-level efficiency of the large-capacity tandem hydraulic pump (common to 10-ton to 16-ton models) as well as use of the new hydraulic circuit (loadsensing valve).

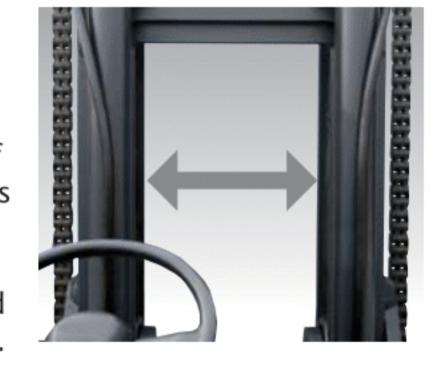
: 470mm/s Lifting Speed (Loaded/FD100)

# COMFORT

Greatly enhanced front/rear visibility achieved by improved top of the counter weight shape and expanded inner width of the mast



Improvement in the shape of the back portion of the rear weight enhances rearward visibility, which has been a blind spot for the operator. Moreover, arrangement of the chains outside of the mast allows the inner width of the mast to be expanded to 642 mm [25.3 inches] (FD100), ensure the good frontward visibility essential for safe operation.



Inner width of the mast (FD100 2-stage view mast) : 642mm [25.3in]

Ambient - and operator-friendly low-noise design; complete sound - insulating measures

Ouring low idle : 72dB (A)

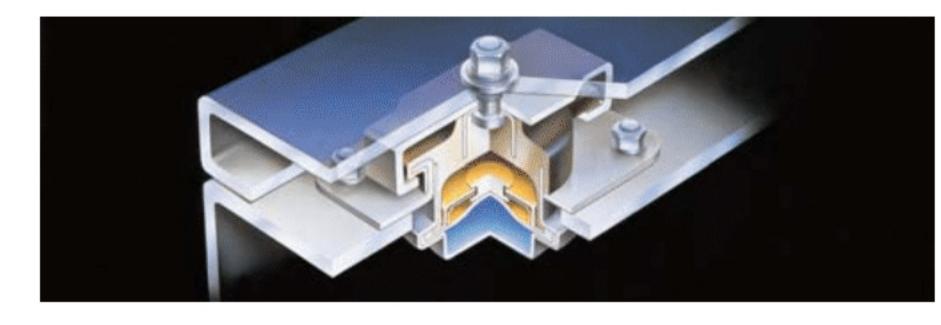
#### New operator's suspension seat

The new-design seat features a high-support structure that always balances and securely holds the operator's body, thus reducing fatigue during extended operation. It also provides retractable seat



#### Komatsu's original Hydraulic Suspension Cab (HSC) mount provides the ultimate in operator comfort even during extended operation

Komatsu's original HSC mount system raises the operator's cab from the vehicle body with a hydraulic suspension that absorbs most travel vibration, thereby helping to reduce operator fatigue.



#### Efficient design and functionalities for comfortable operations

- 1 Integrated, easy-to-Read meter panel to ensure safe operation
- Combination switch headlamp and directional Indicator (Auto-return)
- **3 Tiltable Steering wheel for operator comfort**



#### SERVICEABILITY

#### Large-capacity fuel tank for less frequent fueling; easy-to-see windows for fuel and oil tank inspection

A large-capacity tank reduces fueling frequency and enables extended non-stop operation. Easy-to-see inspection windows, mounted on both the fuel and oil tanks, permit reliable checking of oil and fuel levels as well as the degree of oil contamination.



Fuel Tank (FD100, FD115)

**260**L [68.7 USgal] **280**L [74.0 USgal] (FD135, FD150E, 160E)

High serviceability: non-bolted floor plates and side covers and quick-open/close engine hood

#### Air cleaner with automatic dust ejector to prolong replacement cycle

This air cleaner automatically exhausts air-borne dust to reduce clogging of the filter element, thus enhancing suction efficiency and prolonging the element's replacement cycle.

Reserve tank for maintaining Engine coolant at a constant level (thus eliminating troublesome refilling)



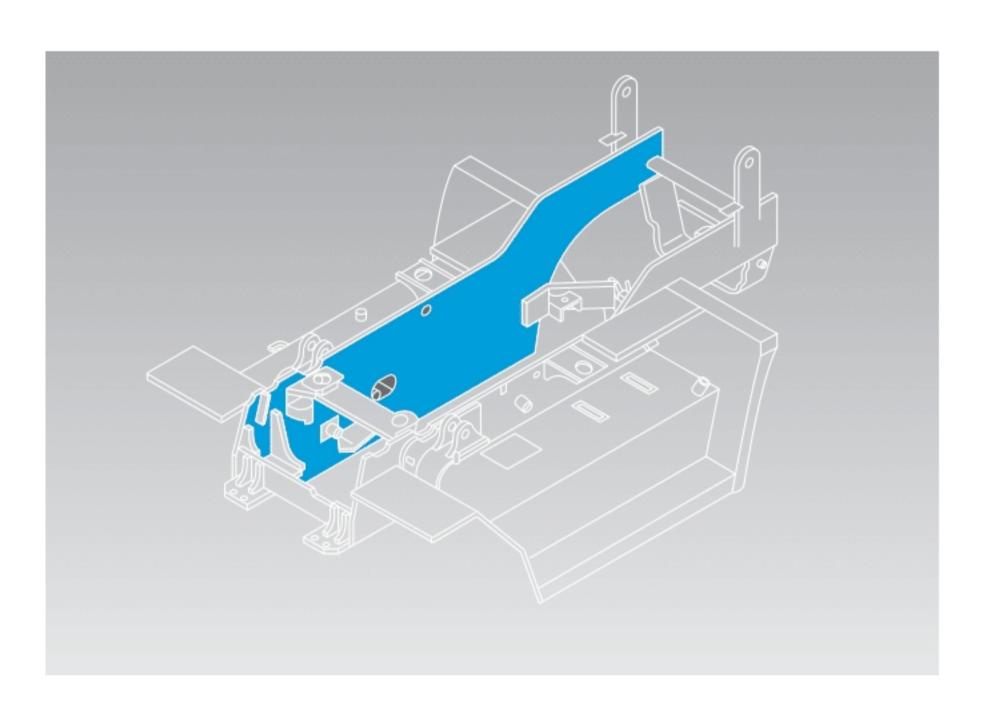
# STRENGTH

#### A high-rigidity frame for enhanced durability and load-handling performance

Use of a mainframe structure comprising a single, thick steel plate provides high rigidity against twisting caused by static steering, turning, or unevenness of the road surface, thus achieving excellent vehicle durability and load-handling performance.



Use of an outer mast of rolled steel rails as well as parts of sufficient strength at every portion of the forklift ensures high strength and durability.





# Wide Variety of Attachment & Options to Meet All Your Work application & Environment Needs

#### Options

Automatic Transmission
Wet disc brake
Operator Presence Sensing (OPS) system
UL specification
Cold climate specification (-30 degree)
Rotating light
Rear working light
Speedometer
Load indicator
Special length forks
Extension forks
Air cleaner with pre-cleaner
Spark arrester
Rear view mirror
Rear under mirror
Steel cabin
Air conditioner
Heater
Rotating seat
Fuel cap with key

#### Steel Cabin



Wide visibility even under severe working conditions for a comfortable and quiet working environment

- Front and rear corners of glass for maximum visibility
- Quick-release door lock lever
- Cabin ceiling-mounted air conditioner for expanded operation space
- A high-mount cabin can be selected for an elevated view depending on the load
- Attachable wipers for front, rear and roof glasses (two wipers for the front glass, window washers for front and rear glasses)
- Built-in high-capacity alternator
- Room illumination

#### **Attachments**

Side shifter
Side shift fork positioner (Independent move)
Fork positioner (Independent move)
Fork positioner with side shift function (Simultaneous move)
Manipulator*
Ram*
Crane*
Pole carrier fork*
Furnace charger*
Tyre handler*
*Available upon request

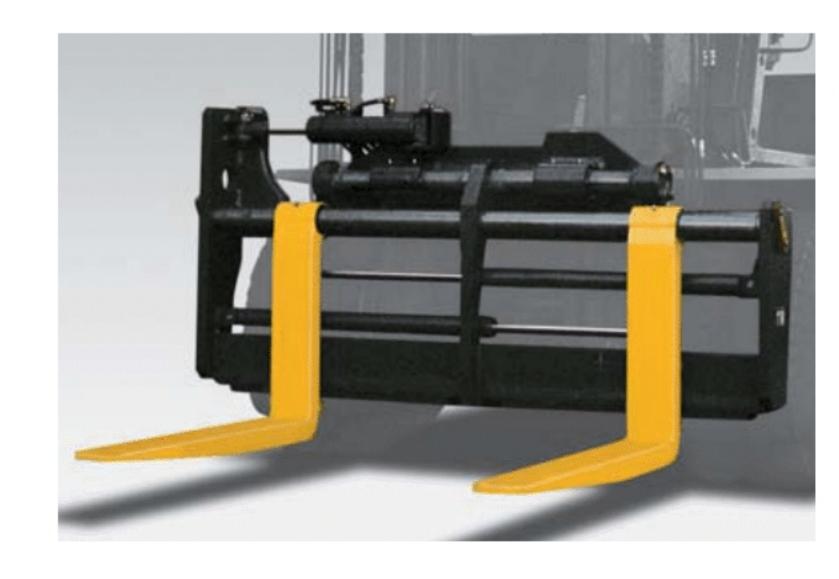
### Tyre Handler



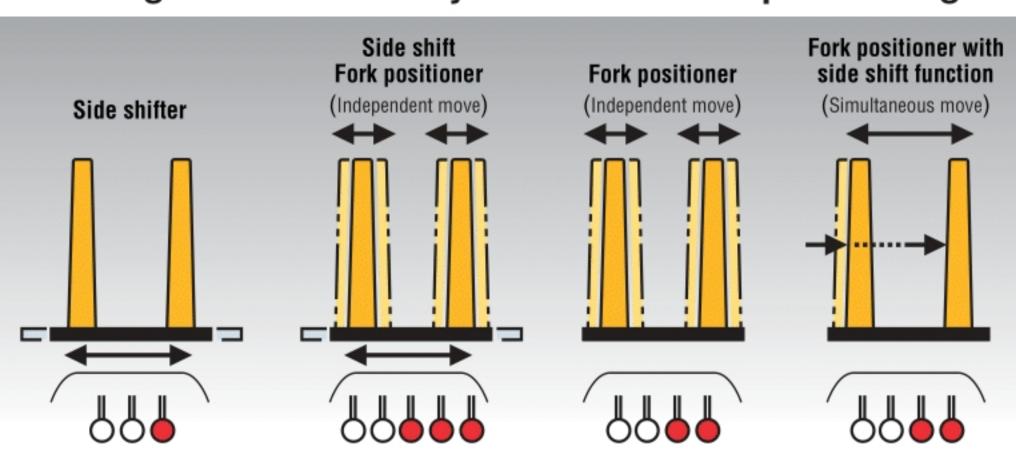
Komatsu's exclusive design provide reliability and versatility.

This attachment holds and rotates a huge construction machinery tyre, making the tyre exchange faster and smoother.

#### Side shifter · Fork positioner



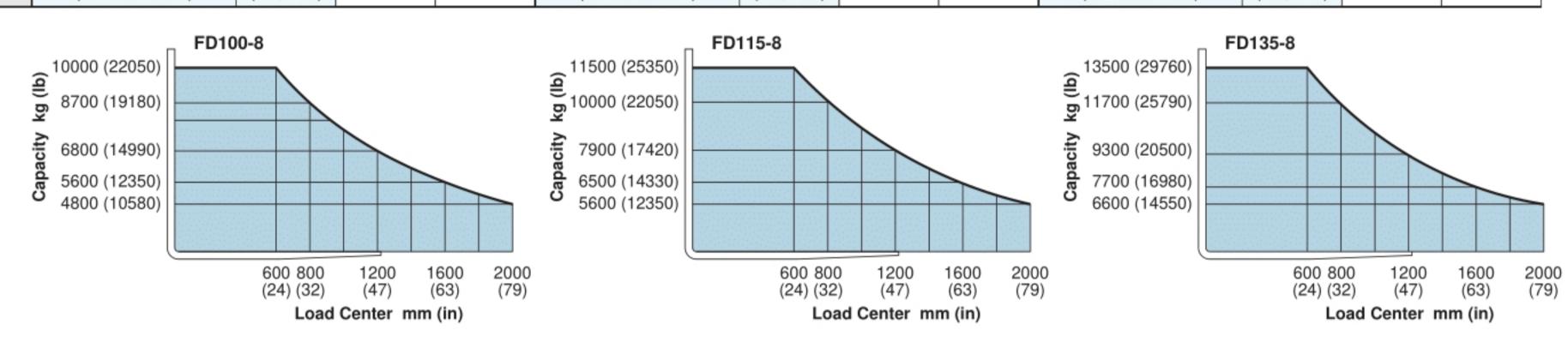
#### Enhancing forward visibility for smooth fork positioning



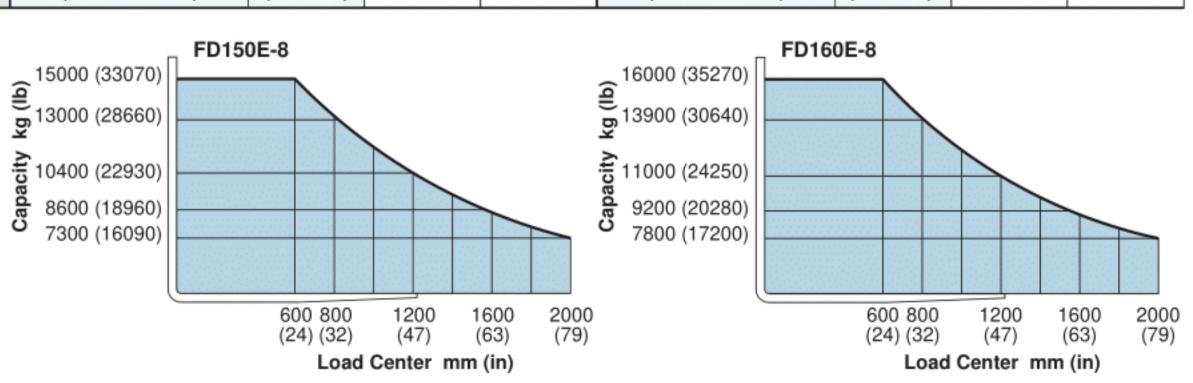
# **CAPACITY CHART**

#### Maximum Load and Overall Height of Mast by Lifting Height (Double mast, load center: 600mm)

Model		FD100-8			FD115-8				FD135-8			
2-stage view mast												
Maximum fork height mm (in)	Overall height mm (in) Lowered/Extended	Load capacity* kg (lb)	Free lift mm (in)	Back tilt restriction	Overall height mm (in) Lowered/Extended	Load capacity* kg (lb)	Free lift mm (in)	Back tilt restriction	Overall height mm (in) Lowered/Extended	Load capacity* kg (lb)	Free lift mm (in)	Back tilt restriction
3000 (118)	2890/4400 (113.8/173.2)	10000 (22,000)			3160/4670 (124.4/183.9)	11500 (25,000)			3170/4680 (124.8/184.3)	13500 (30,000)	0 (0)	
3300 (130)	3040/4700 (119.7/185.0)	10000 (22,000)			3310/4970 (130.3/195.7)	11500 (25,000)			3320/4980 (130.7/196.1)	13500 (30,000)		
3500 (138)	3140/4900 (123.6/192.9)	10000 (22,000)			3410/5170 (134.3/203.5)	11500 (25,000)			3420/5180 (134.6/203.9)	13500 (30,000)		
3700 (146)	3240/5100 (127.6/200.8)	10000 (22,000)		12°	3510/5370 (138.2/211.4) (	11500 (25,000)			3520/5380 (138.6/211.8)	13500 (30,000)		
4000 (157)	3390/5400 (133.5/212.6)	10000 (22,000)	0 (0)		3760/5770 (148.0/219.3)	11500 (25,000)	0 (0)	12°	3770/5780 (148.4/227.6)	13500 (30,000)		12°
4500 (177)	3740/6000 (147.2/236.2)	10000 (22,000)			4010/6270 (157.9/246.8)	11500 (25,000)			4020/6280 (158.3/247.2)	13500 (30,000)		
5000 (197)	4140/6650 (163.0/261.8)	10000 (22,000)			4460/6970 (175.6/274.4)	11500 (25,000)			4470/6980 (176.0/274.8)	13500 (30,000)		
5500 (217)	4440/7200 (174.8/283.5)	9000 (19,800)			4710/7470 (185.4/294.1)	10000 (22,000)			4720/7480 (185.8/294.5)	12000 (26,500)		
6000 (236)	4690/7700 (184.6/303.1)	8000 (17,600)			4960/7970 (195.3/313.8)	9000 (19,800)			4970/7980 (195.7/314.2)	11000 (24,300)		



Model		FD150E-8		FD160E-8				
2-stage view Maximum fork height mm (in)	Overall height mm (in) Lowered/Extended	Load capacity* kg (lb)	Free lift mm (in)	Back tilt restriction	Overall height mm (in) Lowered/Extended	Load capacity* kg (lb)	Free lift mm (in)	Back tilt restriction
3000 (118)	3270/4780 (128.7/188.2)	15000 (33,000)			3290/4800 (129.5/189.0)	16000 (35,300)		
3300 (130)	3420/5080 (134.6/200.0)	15000 (33,000)			3440/5100 (135.4/200.8)	16000 (35,300)		
3500 (138)	3520/5280 (138.6/207.9)	15000 (33,000)			3540/5300 (139.4/208.7)	16000 (35,300)		
3700 (146)	3620/5480 (142.5/215.7)	15000 (33,000)	0 (0)		3640/5500 (143.3/216.5)	16000 (35,300)	0 (0)	12°
4000 (157)	3770/5780 (148.4/227.6)	15000 (33,000)		12°	3790/5800 (149.2/228.3)	16000 (35,300)		
4500 (177)	4020/6280 (158.3/247.2)	15000 (33,000)			4040/6300 (159.1/248.0)	16000 (35,300)		
5000 (197)	4470/6980 (176.0/274.8)	15000 (33,000)			4490/7000 (176.8/275.6)	16000 (35,300)		
5500 (217)	4720/7480 (185.3/294.5)	13500 (29,800)			4740/7500 (186.6/295.3)	14500 (32,000)		
6000 (236)	4970/7980 (195.7/314.2)	12000 (26,500)			4990/8000 (196.5/315.0)	13000 (28,700)		



Standard mast is shown in broad frame. \*Load capacity at 600mm (24in.) load center.

Capacities shown are for trucks equipped with 2-stage view mast up through 5000mm (197in.) maximum fork

Performance specifications are affected by the conditions of the vehicle and how it is equipped as well as the nature and conditions of the operating area. If these specifications are critical, please discuss the proposed application with your distributor or dealer.

## Specifications

1.2	Model	Manı	ıfacturer's Designations		FD100-8	FD115-8	FD135-8	FD150E-8	FD160E-8	1.2
<b>"</b> 1.3	Power Type	Elect	ric, Diesel, Gasoline, LPG, Cable		Diesel	Diesel	Diesel	Diesel	Diesel	1.3
. <u>o</u>	Operation Type		strian, Drive Standing, Sitting, Order Pic	ickina	Sitting	Sitting	Sitting	Sitting	Sitting	1.4
<u> </u>	Rated Capacity	Q	***	kg (lb)	10000 (22,000)	11500 (25,000)	13500 (30,000)	15000 (33,000)	16000 (35,000)	1.5
a a	Load Center	С		nm (in)	600 (24)	600 (24)	600 (24)	600 (24)	600 (24)	1.6
4 6	Load Distance	X	Front Axle Center to Fork Face m	` '	695 (27.4)	715 (28.1)	740 (29.1)	750 (29.5)	750 (29.5)	1.8
	Wheelbase	v		nm (in)	2800 (110.2)	2800 (110.2)	3100 (122.0)	3100 (122.0)	3100 (122.0)	1.9
	Service Weight	,		kg (lb)	12980 (28,620)	14360 (31,660)	15480 (34,130)	16570 (36,530)	17200 (37,920)	2.1
0.0	- Corrior Worging	Load		kg (lb)	20860 (45,990)	23490 (51,790)	26450 (58,310)	28740 (63,360)	30140 (66,450)	2.2
2.2.1		Loud		kg (lb)	2120 (4,670)	2370 (5,220)	2530 (5,580)	2830 (6,240)	3060 (6,750)	2.2.1
2.3	Axle Loading	Unlo		kg (lb)	6230 (13,730)	6590 (14,530)	7110 (15,670)	7210 (15,900)	7170 (15,810)	2.3
2.3.2				kg (lb)	6750 (14,880)	7770 (17,130)	8370 (18,450)	9360 (20,640)	10030 (22,110)	2.3.2
	Tyre Type		ricai	Ng (Ib)	Pneumatic	Pneumatic	Pneumatic	Pneumatic	Pneumatic	3.1
	Tyre Size	Front			9.00-20-14PR (I)	10.00-20-14PR (I)	11.00-20-14PR (I)	11.00-20-16PR (I)	12.00-20-16PR (I)	3.2
	1910 0120	Rear			9.00-20-14PR (I)	10.00-20-14FR (I)	11.00-20-14FR (I)	11.00-20-16PR (I)	12.00-20-16PR (I)	
¥	Number of Wheel		/Rear (x=driven)		4x/2	4x/2	4x/2	4x/2	4x/2	3.3
		b10	, ,	nm (in)						
	Tread, Front			nm (in)	1700 (66.9)	1700 (66.9)	1770 (69.7)	1770 (69.7)	1770 (69.7)	3.6
	Tread, Rear	b11		nm (in)	1900 (74.8)	1890 (74.4)	1890 (74.4)	1890 (74.4)	1870 (73.6)	4.1
	Tilting Angle	α/β		degree	6/12	6/12	6/12	6/12	6/12	
	Mast Height, Lowered	111		nm (in)	2890 (113.8)	3160 (124.4)	3170 (124.8)	3270 (128.7)	3290 (129.5)	4.2
	Std. Free Lift	H2		nm (in)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	4.3
	Std. Lift Height	h3		nm (in)	3000 (118)	3000 (118)	3000 (118)	3000 (118)	3000 (118)	4.4
	Mast Height, Extended	n4		nm (in)	4400 (173.2)	4670 (183.9)	4680 (184.3)	4780 (188.2)	4800 (189.0)	4.5
	Height, Overhead Guard	h6		nm (in)	2780 (109.4)	2800 (110.2)	2810 (110.6)	2810 (110.6)	2830 (111.4)	4.7
4.19	Length, with Std. Forks	11		nm (in)	5465 (215.2)	5505 (216.7)	5860 (230.7)	5920 (233)	6020 (237)	4.19
	Length, to fork face	12		nm (in)	4245 (167.1)	4285 (168.7)	4640 (182.7)	4700 (185)	4800 (189)	4.20
<u> </u>	Width, at tyre	b1		nm (in)	2280 (89.8)	2310 (90.9)	2410 (94.9)	2410 (94.9)	2480 (97.6)	4.21
4.22		s/e/l		nm (in)	75x170x1220 (3.0x6.7x48.0)	75x185x1220 (3.0x7.3x48.0)	80x185x1220 (3.1x7.3x48.0)	85x190x1220 (3.3x7.5x48.0)	85x210x1220 (3.3x8.3x48.0)	4.22
	Fork Carriage Class		2328, Type A/B/no		Pin Mount	Pin Mount	Pin Mount	Pin Mount	Pin Mount	4.23
	Width, Fork Carriage	b3		nm (in)	2140 (84.3)	2140 (84.3)	2200 (86.6)	2200 (86.6)	2200 (86.6)	4.24
	Ground Clearance	m1		nm (in)	250 (9.8)	250 (9.8)	260 (10.2)	250 (9.8)	270 (10.6)	4.31
4.32		m2		nm (in)	325 (12.8)	345 (13.6)	350 (13.8)	350 (13.8)	370 (14.6)	4.32
	Right Angle Stacking Aisle	Ast		nm (in)	6115 (240.7)	6145 (241.9)	6460 (254.3)	6520 (256.7)	6670 (262.6)	4.33
	Turning Radius	Wa		nm (in)	4000 (157.5)	4010 (157.9)	4300 (169.3)	4350 (171.3)	4500 (177.2)	4.35
	Travel Speed (FWD)			(mph)	8.5/18/28 (5.3/11.2/17.4)	8.5/19/28 (5.3/11.8/17.4)	9/19.5/27.5 (5.6/12.1/17.1)	9/19.5/27.5 (5.6/12.1/17.1)	9.5/20/28 (5.9/12.4/17.4)	5.1
5.1.1				(mph)	9/20/32 (5.6/12.4/19.9)	9/21/32 (5.6/13.0/19.9)	9.5/21/32 (5.9/13.0/20.2)	9.5/21/32 (5.9/13.0/20.2)	10/21.5/32 (6.2/13.4/20.5)	5.1.1
Φ ———	Lifting Speed			s (fpm)	470/500 (93/98)	430/450 (85/89)	350/375 (69/74)	325/350 (64/69)	320/345 (63/68)	5.2
<u>e</u>	Lowering Speed			s (fpm)	400/500 (78.7/98.4)	400/500 (78.7/98.4)	400/500 (78.7/98.4)	400/400 (79/79)	400/400 (79/79)	5.3
0	Max. Drawbar Pull	Load		kN (lb)	105 (23,800)	103 (23,300)	101 (22,700)	94 (21,350)	94 (21,170)	5.6
۵ 🗕	Max. Gradeability		ed 1.5km/h, 3min rating	%	38	32	27	23	22	5.8
	Service Brake	<u> </u>	ation/Control		Foot/Hydraulic, Powered	Foot/Hydraulic, Powered	Foot/Hydraulic, Powered	Foot/Hydraulic, Powered	Foot/Hydraulic, Powered	5.10
	Parking Brake	Oper	ation/Control		Hand/Mechanical	Hand/Mechanical	Hand/Mechanical	Hand/Mechanical	Hand/Mechanical	5.11
	Steering	Type			Hydraulic Power Steering	Hydraulic Power Steering	Hydraulic Power Steering	Hydraulic Power Steering	Hydraulic Power Steering	5.12
	Battery	Volta	ge/Capacity at 5-hour rating	V/Ah	24/80	24/80	24/80	24/80	24/80	6.4
	Maker/Model				Komatsu SAA6D107E-1	Komatsu SAA6D107E-1	Komatsu SAA6D107E-1	Komatsu SAA6D107E-1	Komatsu SAA6D107E-1	7.1
Φ —	Rated Output, SAE net		kV	W (HP)	122 (164)	122 (164)	122 (164)	122 (164)	122 (164)	7.2
$\Box$	Rated Speed			min <sup>-1</sup>	2200	2200	2200	2200	2200	7.3
	Max Torque, SAE net		N-m (lbft)	,	575 (424)@1600	575 (424)@1600	575 (424)@1600	575 (424)@1600	575 (424)@1600	7.3.1
7.4	No. of Cylinder/Displacen	nent	cm <sup>3</sup>	(cu.in)	6/6690 (408)	6/6690 (408)	6/6690 (408)	6/6690 (408)	6/6690 (408)	7.4
	Fuel Tank Capacity		Ltr (l	US gal)	260 (68.7)	260 (68.7)	280 (74.0)	280 (74.0)	280 (74.0)	7.6
8.2	Relief Pressure for Attach	ment	ba	ar (psi)	215 (3,118)	215 (3,118)	215 (3,118)	215 (3,118)	215 (3,118)	8.2
8.2.1	Hydraulic Tank Capacity		Ltr (l	US gal)	180 (48)	180 (48)	210 (55)	210 (55)	210 (55)	8.2.1
8.6	Clutch				Torque Converter	Torque Converter	Torque Converter	Torque Converter	Torque Converter	8.6

#### Specifications are subject to change without notice.

The performance values indicated herein represent nominal values obtained under typical operating conditions.

# Standard Equipment

Headlights
Turn signal lamps
Charge warning lamps
Safety checker
Hourmeter
Fuel gauge
Torque converter oil temperature gauge
Water temperature gauge
Neutral safety swich
Brake oil pressure warning buzzer
Torque converter oil cooler
Tiltable steering column
Hydraulic power brake
Horn
Overhead guard
Drawbar pin
Cyclonic air cleaner
Notch-release parking brake
Back-up buzzer
Rear view mirror





Full-open steps

Notch-release parking brake



Head guard with front/rear gutters

# **Dimensional Drawing**

