

SHOP MANUAL

FD100/115-6

FD135/150E/160E-6

MACHINE MODEL

SERIAL NO.

FD100/115

5001 and up

FD135/150E/160E

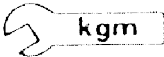
5001 and up

PRECAUTIONS WHEN PERFORMING THE SERVICE WORK

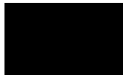
Always pay attention to "Safety" before starting any work - this is important.
Never attempt any work where danger to yourself or to other persons.
Whenever work requiring safety precautions are described in this manual, a flag mark  inserted, always make double sure that safety measures are taken.
Other 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
	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

SECTION INDEX

00.	FOREWORD	
10.	GENERAL AND SPECIFICATIONS	
20.	TESTING AND ADJUSTING	
30.	REMOVAL AND INSTALLATION	
40.	DISASSEMBLY AND ASSEMBLY	
50.	MAINTENANCE STANDARD	
60.	STRUCTURE AND FUNCTION	
70.	TROUBLESHOOTING	
80.	CONVERSION TABLE	

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10. GENERAL AND SPECIFICATIONS

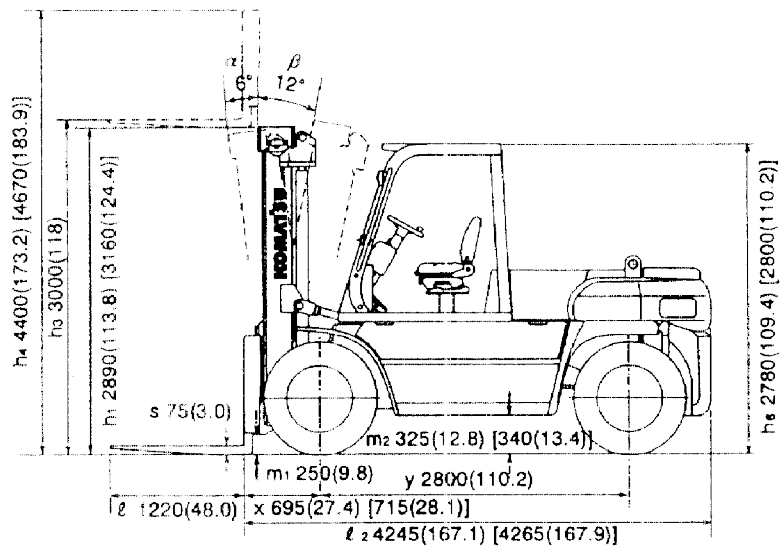
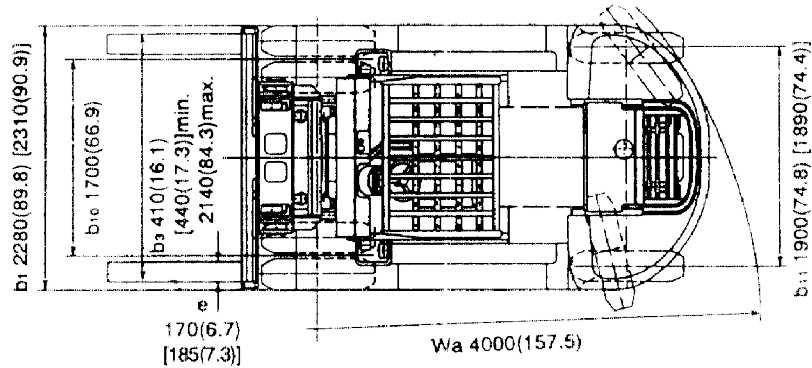


Specifications	10- 2
Periodic replacement of consumable parts	10- 8
Safety items for maintenance	10- 9
Standard tightening torque for bolts	10-17
Standard tightening torque of pipe	10-18

SPECIFICATIONS

FD100-6, FD100T-6

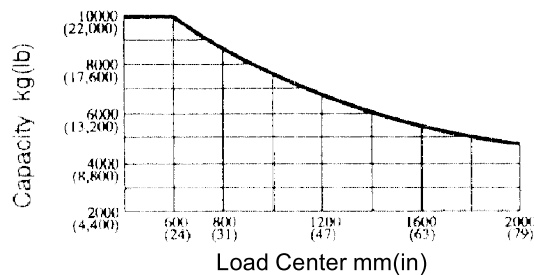
FD115-6, FD115T-6



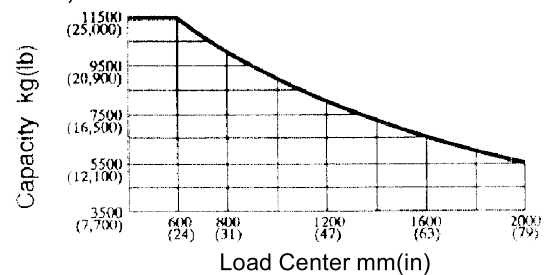
* []: FD115-6, FD115T-6

CAPACITY CHART

FD100-6, FD100T-6



FD115-6, FD115T-6



Characteristics	1.2	Model	Manufacturer's Designation		FD100-6	FD115-6	
	1.3	Power type	Electric, Diesel, Gasoline, LPG, Cable		Diesel	Diesel	
	1.4	Operation Type	Pedestrian, Driver Standing, Sitting, Order Picking		Sitting	Sitting	
	1.5	Rated Capacity	Q	Rated Capacity	kg(lb)	10000(22,000)	11500(25,000)
	1.6	Load Center	c	Rated Load Center	mm(in)	600(24)	600(24)
	1.6.2	Max. Fork Height, Rated Capacity			mm(in)	3000(118)	3000(118)
	1.8	Load distance	x	Front Aisle Center to Fork Face	mm(in)	695(27.4)	715(28.1)
	1.9	Wheelbase	y		mm(in)	2800(110.2)	2800(110.2)
	Weight	2.1	Service Weight			kg(lb)	12620(27,820)
2.2		Axle Loading	Loaded	Front	kg(lb)	20545(45,290)	23180(51,100)
2.2.1				Rear	kg(lb)	2075(4,570)	2270(5,000)
2.3			Unloaded	Front	kg(lb)	5920(13,050)	6280(13,840)
2.3.1				Rear	kg(lb)	6700(14,770)	7670(16,910)
Tyres	3.1	Tyre Type	Cushion, Elastic Cushion, Pneumatic, Polyurethane		Pneumatic	Pneumatic	
	3.2	Tyre Size	Front		9.00-20-14PR(I)	10.00-20-14PR(I)	
	3.3		Rear		9.00-20-14PR(I)	10.00-20-14PR(I)	
	3.5	Number of Wheel	Front/Rear(x=driven)		4x/2	4x/2	
Basic Measurement	3.6	Tread, Front	b10		mm(in)	1700(66.9)	1700(66.9)
	3.7	Tread, Rear	b11		mm(in)	1900(74.8)	1890(74.4)
	4.1	Tilting Angle	α/β		degree	6/12	6/12
	4.2	Mast Height, Lowered	h1		mm(in)	2890(113.8)	3160(124.4)
	4.3	Std. Free Lift	h2		mm(in)	0(0.0)	0(0.0)
	4.4	Std. Lift Height	h3		mm(in)	3000(118)	3000(118)
	4.5	Mast Height, extended	h4		mm(in)	4400(173.2)	4670(183.9)
	4.7	Height, Overhead Guard	h6		mm(in)	2780(109.4)	2800(110.2)
	4.19	Length, with Std. Forks	L1		mm(in)	5465(215.2)	5485(215.9)
	4.20	Length, to Fork Face	L2		mm(in)	4245(167.1)	4265(167.9)
	4.21	Width, at Tyre	b1		mm(in)	2280(89.8)	2310(90.9)
	4.22	Forks	s/e/l	Thickness/Width/Length	mm(in)	75x170x1220(3.0x6.7x48.0)	75x185x1220(3.0x7.3x48.0)
	4.23	Fork Carriage Type			Pin mount	Pin mount	
	4.24	Width, Fork Carriage	b3		mm(in)	2140(84.3)	2140(84.3)
	4.31	Ground Clearance	m1	under Mast	mm(in)	250(9.8)	250(9.8)
	4.32	Ground Clearance	m2	at center of Wheelbase	mm(in)	325(12.8)	340(13.4)
4.33	Right Angle Stacking Aisle	Ast	plus load length	mm(in)	4695(184.8)	4715(185.6)	
4.35	Turning Radius	Wa		mm(in)	4000(157.5)	4000(157.5)	
4.36	Distance to Turning Center	b13	from chassis center	mm(in)	1480(58.3)	1480(58.3)	
Performance	5.1	Travel speed	loaded, 1st/2nd/3rd		km/h(mph)	8.5/18/28(5.3/11.2/17.4)	8.5/19/28(5.3/11.8/17.4)
	5.1.1		unloaded, 1st/2nd/3rd		km/h(mph)	9/20/32(5.6/12.4/19.9)	9/21/32(5.6/13.0/19.9)
	5.2	Lifting Speed	loaded/unloaded		mm/s(fpm)	460/485(91/95)	415/440(82/87)
	5.3	Lowering Speed	loaded/unloaded		mm/s(fpm)	400/430(49/85)	400/430(79/85)
	5.6	Max. Drawbar Pull	loaded, at 1.5km/h		kN(lb)	112(25,200)	108(24,300)
	5.8	Max. Gradeability	loaded, at 1.5km/h		%	38	32
	5.10	Service Brake	Operation/Control		Foot/Hydraulic, Powered [AIR]	Foot/Hydraulic, Powered [AIR]	
	5.11	Parking Brake	Operation/Control		Hand/Mechanical	Hand/Mechanical	
5.12	Steering			Hydraulic Power Steering	Hydraulic Power Steering		
I.C. Engine	6.4	Battery	Voltage/Capacity at 5-hour rating		V/Ah	24/80	24/80
	7.1	Make/Model				PERKINS/1006TW	PERKINS/1006TW
	7.2	Rated Output SAE gross			kW(HP)	118 (160)	118 (160)
	7.3	Rated RPM			min ⁻¹	2200	2200
	7.3.1	Max. Torque SAE gross			Nm(lb-ft)/min ⁻¹	588(434)@1400	588(434)@1400
	7.4	No. of Cylinder/Displacement			cm ³ (cu.in)	6/5982(365)	6/5982(365)
	7.6	Fuel Tank Capacity			Ltr(US Gal)	220(58)	220(58)
Others	8.2	Relief Pressure for Attachment			bar(psi)	215(3,100)	215(3,100)
	8.2.1	Tank Capacity			Ltr(US Gal)	150(39.6)	150(39.6)
	8.6	Clutch				T/C	T/C
	8.7	Transmission				TORQFLOW	TORQFLOW

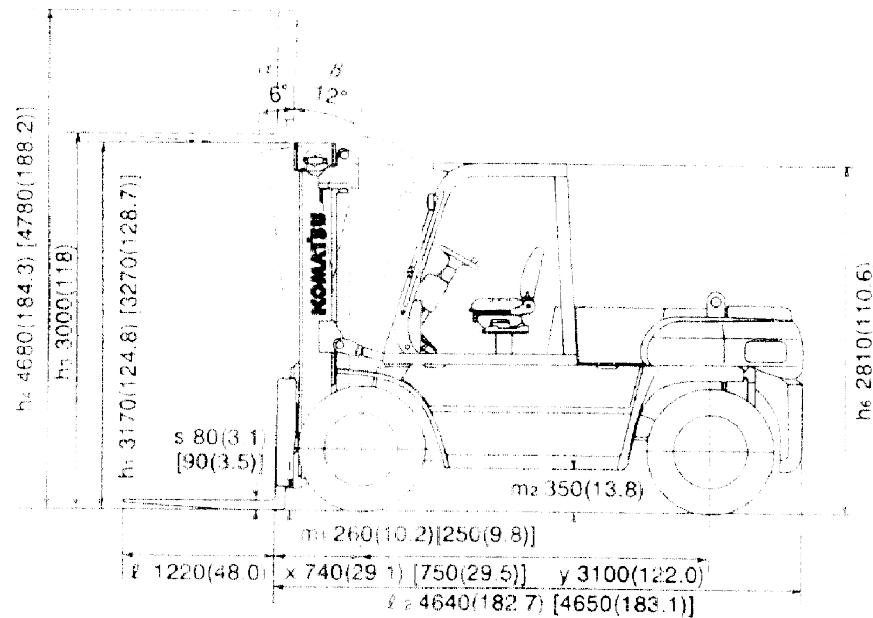
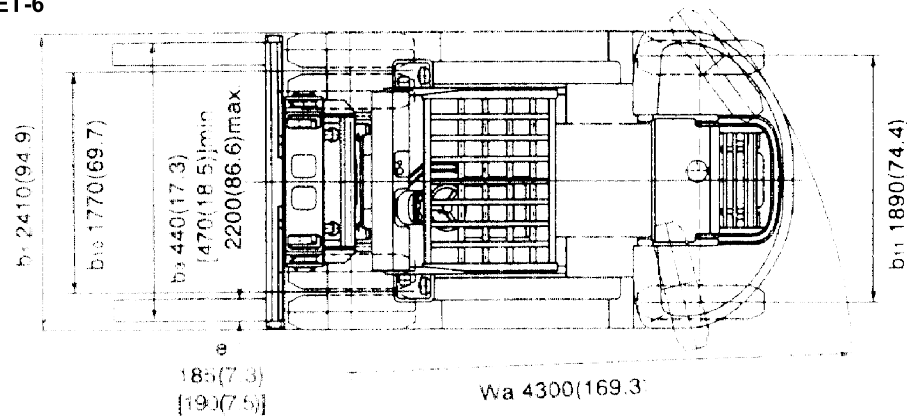
Performance may vary due to operating conditions. The performance shown represents nominal values under typical operating conditions. Specifications are subject to improvements and changes without notice.

Characteristics	1.2	Model	Manufacturer's Designation		FD100T-6	FD115T-6		
	1.3	Power Type	Electric, Diesel, Gasoline, LPG, Cable		Diesel	Diesel		
	1.4	Operation Type	Pedestrian, Drive Standing, Sitting, Order Picking		Sitting	Sitting		
	1.5	Rated Capacity	Q	Rated Capacity	kg(lb.)	10000(22000)	11500(25000)	
	1.6	Load Center	c	Rated Load Center	mm(in.)	600(24)	600(24)	
	1.8	Load Distance	x	Front Axle Center to Fork Face	mm(in.)	695(27.4)	715(28.1)	
	1.9	Wheel Base	y		mm(in.)	2800(110.2)	2800(110.2)	
Weight	2.1	Service Weight			kg(lb.)	12630(27840)	13960(30780)	
	2.2	Axle Loading	Loaded	Front	kg(lb.)	20800(45410)	23195(51140)	
	Rear			kg(lb.)	2030(4475)	2265(4990)		
	2.3		Unloaded	Front	kg(lb.)	5975(13170)	6295(13880)	
	2.3.2			Rear	kg(lb.)	6655(14670)	7665(16900)	
Tyres	3.1	Tyre Type	Cushion, Elastic Cushion, Pneumatic, Polyurethane		Pneumatic	Pneumatic		
	3.2	Tyre Size	Front		9.00-20-14PR(I)	10.00-20-14PR(I)		
	3.3		Rear		9.00-20-14PR(I)	10.00-20-14PR(I)		
	3.5	Number of Wheel	Front/Rear (x=driven)		4x2	4x2		
	3.6	Tread, Front	b10		mm(in.)	1700(66.9)	1700(66.9)	
	3.7	Tread, Rear	b11		mm(in.)	1900(74.8)	1890(74.4)	
	Basic Measurement	4.1	Tilting Angle	α / β	Forward/Backward	degree	6/12	6/12
4.2		Mast Height, Lowered	h1	2-stage std. Mast	mm(in.)	2890(113.8)	3160(124.4)	
4.3		Std. Free Lift	h2	2-stage std. Mast from Ground	mm(in.)	0	0	
4.4		Std. Lift Height	h3	2-stage std. Mast from Ground	mm(in.)	3000(118)	3000(118)	
4.5		Mast Height, Extended	h4	2-stage std. Mast	mm(in.)	4400(173.2)	4670(183.9)	
4.7		Height, Overhead Guard	h6		mm(in.)	2780(109.4)	2800(110.2)	
4.19		Length, with Std. Forks	l1		mm(in.)	5465(215.2)	5485(215.9)	
4.20		Length, to fork face	l2		mm(in.)	4245(167.1)	4265(167.9)	
4.21		Width, at tyre	b1	Single	mm(in.)	2280(89.8)	2310(90.9)	
4.22		Forks	a/e/l	Thickness/Width/Length	mm(in.)	75x170x1220(3.0x6.7x48.0)	75x185x1220(3.0x7.3x48.0)	
4.23		Fork Carriage Class	ISO 2328, Type A/B/no		Pin Mount	Pin Mount		
4.24		Width, Fork Carriage	b3		mm(in.)	2140(84.3)	2140(84.3)	
4.31		Ground Clearance	m1	Under Mast	mm(in.)	250(9.8)	250(9.8)	
4.32			m2	at center of wheelbase	mm(in.)	325(12.8)	345(13.6)	
4.33		Right Angle Stacking Aisle	Ast	plus load length	mm(in.)	6115(240.7)	6135(241.5)	
4.35	Turning Radius	Wa		mm(in.)	4000(157.5)	4000(157.5)		
Performance	5.1	Travel Speed (FWD)	Loaded, 1st/2nd/3rd		km/h(mph)	8.5/18/28(5.3/11.2/17.4)	8.5/19/28(5.3/11.8/17.4)	
	5.1.1		Unloaded, 1st/2nd		km/h(mph)	9/20/32(5.6/12.4/19.9)	9/21/32(5.6/13.0/19.9)	
	5.2	Lifting Speed	Loaded/Unloaded		mm/s(fpm)	460/485(91/95)	415/440(82/87)	
	5.3	Lowering Speed	Loaded/Unloaded		mm/s(fpm)	400/430(79/85)	400/430(79/85)	
	5.6	Max. Drawbar Pull	Loaded		kN(lb)	112(25200)	106(24300)	
	5.8	Max. Gradeability	Loaded 1.5km/h, 3 min, rating		%	38	32	
	5.10	Service Brake	Operation/Control		Foot/Hydraulic, Powered	Foot/Hydraulic, Powered		
	5.11	Parking Brake	Operation/Control		Hand/Mechanical	Hand/Mechanical		
	5.12	Steering	Type		Hydraulic Power Steering	Hydraulic Power Steering		
	I.C. Engine	6.4	Battery	Voltage/Capacity at 5-hour rating		V/Ah	24/80	24/80
		7.1	Maker/Model				ISUZU 6BG1T	ISUZU 6BG1T
		7.2	Rated Output, SAE gross			kW(HP)	118(160)	118(160)
7.3		Rated RPM			min-1	2200	2200	
7.3.1		Max. Torque, SAE gross			NM(lbft)@min-1	588(434)@1600	588(434)@1600	
7.4		No. of Cylinder/Displacement			cm3(cu.in)	6-6494(396)	6-6494(396)	
Others	7.6	Fuel Tank Capacity			Ltr(US gal)	220(58)	220(58)	
	8.2	Relief Pressure for Attachment			bar(psi)	215(3100)	215(3100)	
	8.2.1	Tank Capacity			Ltr(US gal)	180(47.6)	180(47.6)	
	8.6	Clutch				Torque Converter	Torque Converter	
	8.7	Transmission				Torqflow	Torqflow	

Performance may vary due to operating conditions. The performance shown represents nominal values under typical operating conditions.

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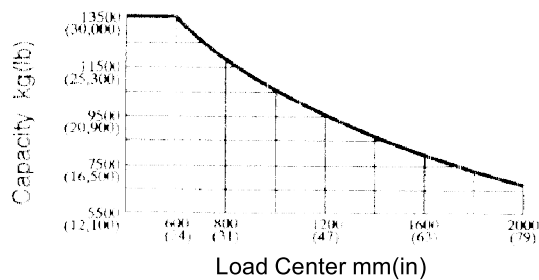
FD135-6, FD135T-6
FD150E-6, FD150ET-6



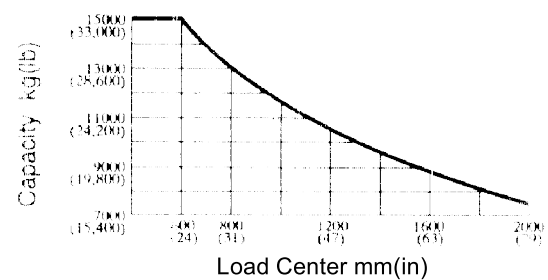
FD150-6, FD150ET-6

CAPACITY CHART

FD135-6, FD135T-6



FD150E-6, FD150ET-6



Characteristics	1.2	Model	Manufacturer's Designation		FD135-6	FD150E-6	
	1.3	Power type	Electric, Diesel, Gasoline, LPG, Cable		Diesel	Diesel	
	1.4	Operation Type	Pedestrian, Driver Standing, Sitting, Order Picking		Sitting	Sitting	
	1.5	Rated Capacity	Q	Rated Capacity	kg(lb)	13500(30,000)	15000(33,000)
	1.6	Load Center	c	Rated Load Center	mm (in)	600(24)	600(24)
	1.6.2	Max. Fork Height, Rated Capacity			mm (in)	3000(118)	3000(118)
	1.8	Load distance	x	Front Axle Center to Fork Face	mm (in)	740(29.1)	750(29.5)
	1.9	Wheelbase	y		mm (in)	3100(122.0)	3100(122.0)
	Weight	2.1	Service Weight			kg(lb)	15240(33,600)
2.2		Axle Loading	Loaded	Front	kg(lb)	26285(57,950)	28520(62,880)
Rear				kg(lb)	2455(5,410)	2760(6,080)	
2.3			Unloaded	Front	kg(lb)	6950(15,320)	6990(15,410)
Rear				kg(lb)	8290(18,280)	9290(20,480)	
Tyres	3.1	Tyre Type	Cushion, Elastic Cushion, Pneumatic, Polyurethane		Pneumatic	Pneumatic	
	3.2	Tyre Size	Front		11.00-20-14PR(I)	11.00-20-16PR(I)	
	3.3		Rear		11.00-20-14PR(I)	11.00-20-16PR(I)	
	3.5	Number of Wheel	Front/Rear(x=driven)		4x/2	4x/2	
	3.6	Tread, Front	b10		mm (in)	1770(69.7)	1770(69.7)
	3.7	Tread, Rear	b11		mm (in)	1890(74.4)	1890(74.4)
	Basic Measurement	4.1	Tilting Angle	a / B		degree	6/12
4.2		Mast Height, Lowered	h1		mm (in)	3170(124.8)	3270(128.7)
4.3		Std. Free Lift	h2		mm (in)	0(0.0)	0(0.0)
4.4		Std. Lift Height	h3		mm (in)	3000(118)	3000(118)
4.5		Mast Height, extended	h4		mm (in)	4680(184.3)	4780(188.2)
4.7		Height, Overhead Guard	h6		mm (in)	2810(110.6)	2810(110.6)
4.19		Length, with Std. Forks	ℓ1		mm (in)	5860(230.7)	5870(231.1)
4.20		Length, to Fork Face	ℓ2		mm (in)	4640(182.7)	4650(183.1)
4.21		Width, at Tyre	b1		mm (in)	2410(94.9)	2410(94.9)
4.22		Forks	s/ℓ/ℓ1	Thickness/Width/Length	mm (in)	80x165x1220(3.1x7.3x48.0)	85x190x1220(3.3x7.5x48.0)
4.23		Fork Carriage Class				Pin mount	Pin mount
4.24		Width, Fork Carriage	b3		mm (in)	2200(86.6)	2200(86.6)
4.31		Ground Clearance	m1	under Mast	mm (in)	260(10.2)	250(9.8)
4.32		Ground Clearance	m2	at center of Wheelbase	mm (in)	350(13.8)	350(13.8)
4.33		Right Angle Stacking Angle	Ast	plus load length	mm (in)	5040(198.4)	5050(198.8)
4.35		Turning Radius	Wa		mm (in)	4300(169.3)	4300(169.3)
4.36	Distance to Turning Center	b13	from chassis center	mm (in)	1555(61.2)	1555(61.2)	
Performance	5.1	Travel speed	loaded, 1st/2nd/3rd		km/h(mph)	9/19.5/27.5(5.6/12.1/17.1)	9/19.5/27.5(5.6/12.1/17.1)
	5.1.1		unloaded, 1st/2nd/3rd		km/h(mph)	9.5/21/32.5(5.9/13.0/20.2)	9.5/21/32.5(5.9/13.0/20.2)
	5.2	Lifting Speed	loaded/unloaded		mm/s(fpm)	345/365(68/72)	340/360(67/71)
	5.3	Lowering Speed	loaded/unloaded		mm/s(fpm)	400/430(79/85)	400/430(79/85)
	5.6	Max. Drawbar Pull	loaded at 1.5km/h		kN(lb)	105(23,600)	105(23,600)
	5.8	Max. Gradeability	loaded at 1.5km/h		%	27	24
	5.10	Service Brake	Operation/Control		Foot/Hydraulic, Powered	Foot/Hydraulic, Powered	
	5.11	Parking Brake	Operation/Control		Hand/Mechanical	Hand/Mechanical	
5.12	Steering			Hydraulic Power Steering (AIR)	Hydraulic Power Steering (AIR)		
I.C. Engine	6.4	Battery	Voltage/Capacity at 5-hour rating		V/Ah	24/80	24/80
	7.1	Make/Model				PERKINS/1006TW	PERKINS/1006TW
	7.2	Rated Output SAE gross			kW(HP)	118 (160)	118 (160)
	7.3	Rated RPM			min ⁻¹	2200	2200
	7.3.1	Max. Torque SAE gross			Nm(lb-ft)@min ⁻¹	588(434)@1400	588(434)@1400
	7.4	No. of Cylinder /Displacement			cm ³ (cu.in)	6/5982(365)	6/5982(365)
	7.6	Fuel Tank Capacity			Ltr(US Gal)	260(69)	260(69)
Others	8.2	Relief Pressure for Attachment			bar(psi)	215(3,100)	215(3,100)
	8.2.1	Tank Capacity			Ltr(US Gal)	150(39.6)	180(47.6)
	8.6	Clutch				T/C	T/C
	8.7	Transmission				TORQFLOW	TORQFLOW

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