

KOMATSU

SHOP MANUAL

ELECTRIC LIFT TRUCK

AE50/AM50 Series

FB15U/15FU-12

837898 and up

FB18U/18FU/20AU/20AFU-12

837898 and up

FB15MU/15MFU-12

826828 and up


FB18MU/18MFU/20MU/20MFU-12

826828 and up

PRECAUTIONS WHEN PERFORMING THE SERVICE WORK

Always pay attention to “Safety” before starting any work — this is important.




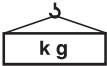

Never attempt any work where danger to yourself or to other persons.

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. YEARLY INSPECTION CRITERIA

90. CONVERSION TABLE

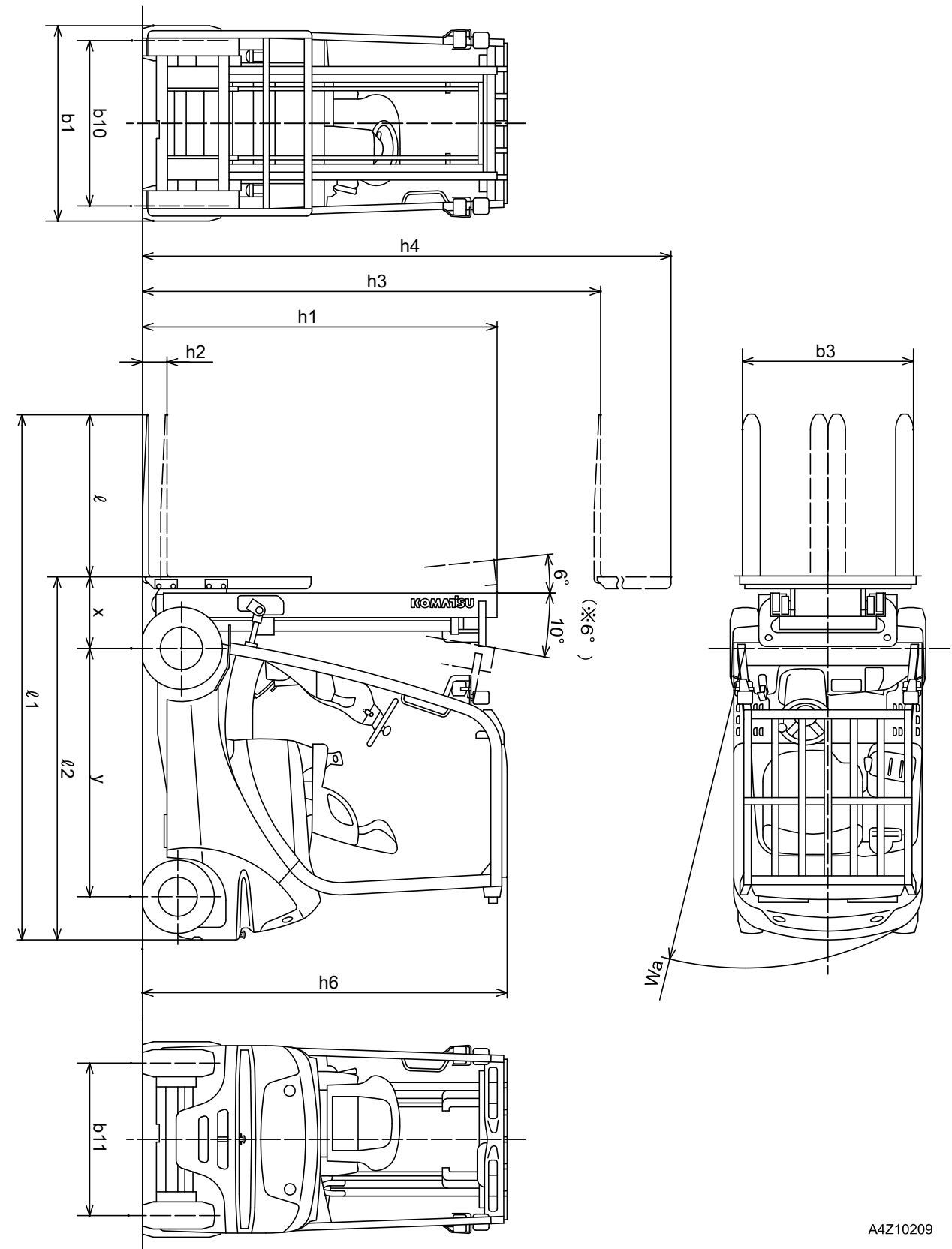
APPENDIX

10. GENERAL AND SPECIFICATIONS

OUTSIDE VIEW	10-2
SPECIFICATIONS	10-4
PERIODIC REPLACEMENT OF CONSUMABLE PARTS	10-8
SAFETY ITEMS FOR MAINTENANCE	10-9
STANDARD TIGHTENING TORQUE FOR BOLTS	10-15
STANDARD TIGHTENING TORQUE FOR PIPE JOINTS	10-16
HOW TO USE LOCTITE	10-17

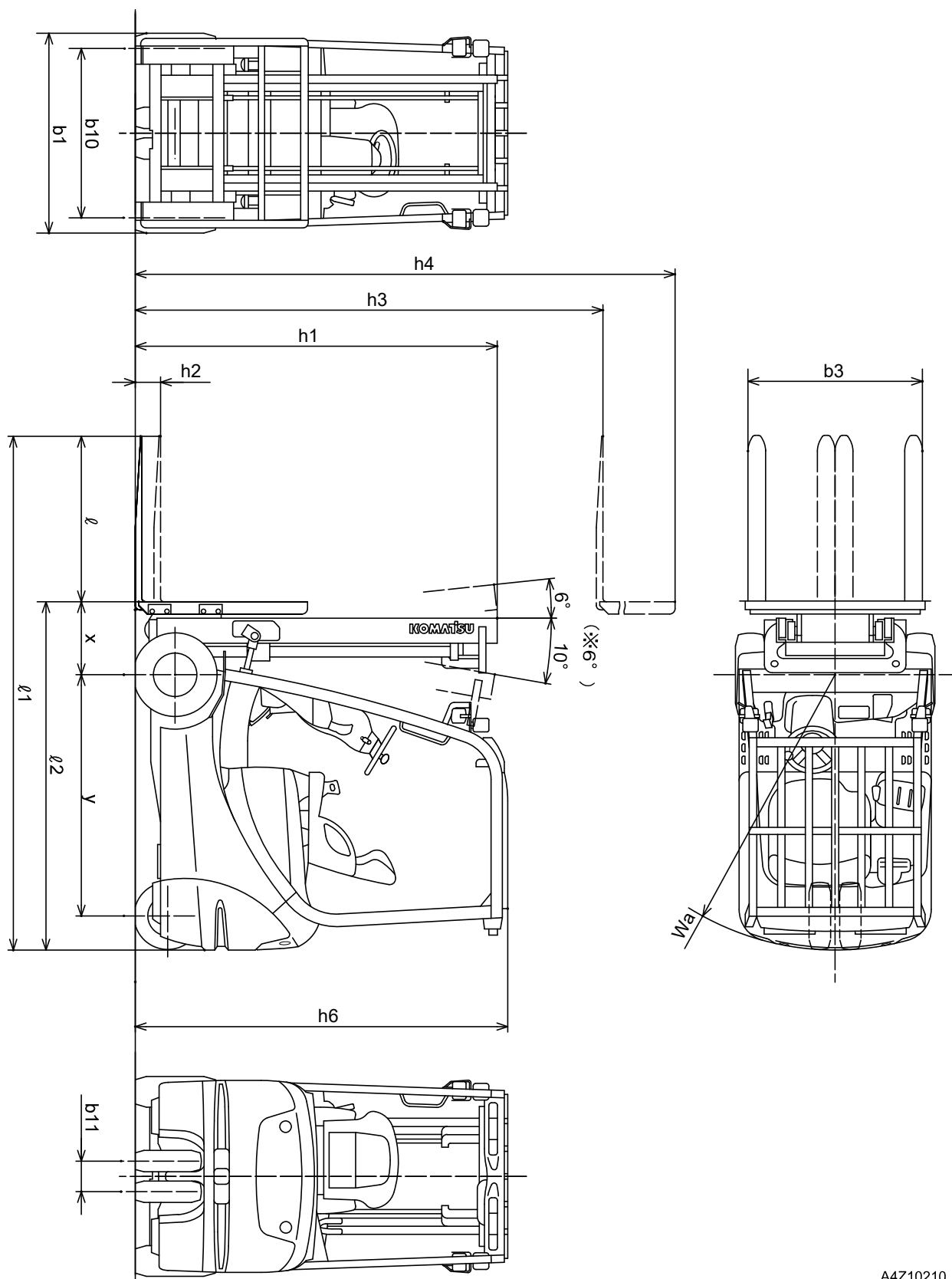
OUTSIDE VIEW

4-wheel vehicle



A4Z10209

3-wheel vehicle



A4Z10210

SPECIFICATIONS

4-wheel vehicle

Characteristics	1.2	Model	Manufacturer's Designation		FB15U-12
	1.3	Power Type	Electric, Diesel, Gasoline, LPG, Cable		Electric
	1.4	Operation Type			Sitting
	1.5	Rated Capacity	Q	Rated Capacity	kg [lb] 1350 [2976]
	1.6	Load Center	c	Rated Load Center	mm [in] 600 [23.6]
	1.8	Load Distance	x	Front Axle Center to Fork Face	mm [in] 405 [15.9]
	1.9	Wheelbase	y		mm [in] 1410 [55.5]
Weight	2.1	Service Weight	Including Max. Capacity Battery		kg [lb] 3130 [6900]
	2.2	Axle Loading	Loaded	Front	kg [lb] 3840 [8466]
	2.2.1			Rear	kg [lb] 640 [1411]
	2.3		Unloaded	Front	kg [lb] 1590 [3505]
	2.3.1			Rear	kg [lb] 1540 [3395]
Tires	3.1	Tire Type	Cushion, Elastic Cushion, Pneumatic, Polyurethane		Elastic Cushion
	3.2	Tire Size	Front		18x7-8
	3.3		Rear		16x6-8
	3.5	Number of Wheel	Front/Rear (x=driven)		2*/2
	3.6	Tread, Front	b10	mm [in]	940 [37.0]
	3.7	Tread, Rear	b11	mm [in]	865 [34.1]
Dimensions	4.1	Tilting Angle	a/b	Forward/Backward	degree 6/10
	4.2	Mast Height, Lowered	h1	2-stage Mast	mm [in] 2145 [84.4]
	4.3	Std. Free Lift	h2	2-stage Std. Mast, from Ground	mm [in] 140 [5.5]
	4.4	Std. Lift Height	h3	2-stage Std. Mast, from Ground	mm [in] 3300 [130.0]
	4.5	Mast Height, Extended	h4	2-stage Std. Mast	mm [in] 4255 [167.5]
	4.7	Height, Overhead Guard	h6		mm [in] 2070 [81.5]
	4.19	Length, with Std. Forks	l1		mm [in] 3130 [123.2]
	4.20	Length, to Fork Face	l2		mm [in] 2060 [81.1]
	4.21	Width, at Tire	b1	Single	mm [in] 1110 [43.7]
	4.22	Forks	s/e/l	Thickness / Width / Length	mm [in] 35x100x1070 [1.4x3.9x42.1]
	4.23	Fork Carriage Class	ISO 2328, Type A/B/no		Class 2, Type A
	4.24	Width, Fork Carriage	b3	mm [in]	970 [38.2]
	4.31	Ground Clearance	m1	Under Mast	mm [in] 95 [3.7]
	4.32		m2	at Center of Wheelbase	mm [in] 125 [4.9]
	4.33	Right Angle Stacking Aisle	Ast	with L1000 x W1200 pallet	mm [in] 3155 [124.2]
	4.34		Ast	with L1200 x W800 pallet	mm [in] 3355 [132.1]
	4.35	Turning Radius	Wa	mm [in]	1750 [68.9]
Performance	5.1	Travel Speed (FWD)	Loaded / Unloaded		km/h [mph] 15.0/17.0 [10/11]
	5.2	Lifting Speed	Loaded / Unloaded		mm/s [fpm] 340/600 [67/118]
	5.3	Lowering Speed	Loaded / Unloaded		mm/s [fpm] 450/550 [89/108]
	5.6	Max. Drawbar Pull	Loaded, 3 min. rating		N [lbf] 9560 [2150]
	5.8	Max. Gradeability	Loaded, 3 min. rating/1.5/h		% 19
	5.10	Service Brake	Operation/Control		Foot/Hydraulic
	5.10.1	Parking Brake	Operation/Control		Hand/Mechanical
	5.10.2	Steering	Type		FHPS
Drive	6.1	Drive Motor (AC)	60 min. rating		kW 4.5x2
	6.2	Pump Motor (AC)	5 min. rating		kW 9.0
	6.4	Battery Voltage			V 48
	6.4.2	Battery Capacity, Max.			Ah/6hr 600
	6.5	Battery Weight	Max. Capacity Battery		kg [lb] 950 [2094.4]
Others	8.1	Drive Motor Control			Transistor
	8.2	Relief Pressure Attachment			bar [MPa, kg/cm ² , PSI] 176 [17.6, 180, 2560]
	8.2.1	Reservoir Capacity			Ltr [U.S. gal] 23 [6.1]

FB18U-12	FB20AU-12
Electric	Electric
Sitting	Sitting
1570 [3461]	1800 [3968]
600 [23.6]	600 [23.6]
405 [15.9]	425 [16.7]
1410 [55.5]	1470 [57.9]
3370 [7430]	3800 [8378]
4210 [9281]	4800 [10582]
740 [1631]	790 [1742]
1600 [3527]	1830 [4034]
1780 [3924]	1970 [4343]
Elastic Cushion	Elastic Cushion
18x7-8	200/50-10
16x6-8	16x6-8
2*/2	2*/2
940 [37.0]	950 [37.4]
865 [34.1]	865 [34.1]
6/10	6/10
2145 [84.4]	2260 [89.0]
140 [5.5]	150 [5.9]
3300 [130.0]	3300 [130.0]
4255 [167.5]	4270 [168.1]
2070 [81.5]	2070 [81.5]
3165 [124.6]	3250 [128.0]
2095 [82.5]	2180 [85.8]
1110 [43.7]	1160 [45.7]
35x100x1070 [1.4x3.9x42.1]	36x122x1070 [1.4x4.8x42.1]
Class 2, Type A	Class 2, Type A
970 [38.2]	970 [38.2]
95 [3.7]	95 [3.7]
125 [4.9]	125 [4.9]
3190 [125.6]	3275 [128.9]
3390 [133.5]	3475 [136.8]
1785 [70.3]	1850 [72.8]
15.0/17.0 [10/11]	14.0/16.0 [9/10]
320/600 [63/118]	280/500 [55/98]
450/550 [89/108]	370/440 [73/87]
9560 [2150]	9045 [2033]
16	14
Foot/Hydraulic	Foot/Hydraulic
Hand/Mechanical	Hand/Mechanical
FHPS	FHPS
4.5x2	4.5x2
9.0	9.0
48	48
600	600
950 [2094.4]	950 [2094.4]
Transistor	Transistor
176 [17.6, 180, 2560]	176 [17.6, 180, 2560]
23 [6.1]	23 [6.1]

3-wheel vehicle

Characteristics	1.2	Model	Manufacturer's Designation		FB15MU-12
	1.3	Power Type	Electric, Diesel, Gasoline, LPG, Cable		Electric
	1.4	Operation Type			Sitting
	1.5	Rated Capacity	Q	Rated Capacity	kg [lb] 1350 [2976]
	1.6	Load Center	c	Rated Load Center	mm [in] 600 [23.6]
	1.8	Load Distance	x	Front Axle Center to Fork Face	mm [in] 405 [15.9]
	1.9	Wheelbase	y		mm [in] 1340 [52.8]
Weight	2.1	Service Weight	Including Max. Capacity Battery		kg [lb] 3180 [7011]
	2.2	Axle Loading	Loaded	Front	kg [lb] 3850 [8488]
	2.2.1			Rear	kg [lb] 680 [1499]
	2.3		Unloaded	Front	kg [lb] 1550 [3417]
	2.3.1			Rear	kg [lb] 1630 [3594]
Tires	3.1	Tire Type	Cushion, Elastic Cushion, Pneumatic, Polyurethane		Elastic Cushion
	3.2	Tire Size	Front		18x7-8
	3.3		Rear		15x4 1/2-8
	3.5	Number of Wheel	Front/Rear (x=driven)		2*/2
	3.6	Tread, Front	b10	mm [in]	940 [37.0]
	3.7	Tread, Rear	b11	mm [in]	170 [6.7]
Dimensions	4.1	Tilting Angle	a/b	Forward/Backward	degree 6/10
	4.2	Mast Height, Lowered	h1	2-stage Mast	mm [in] 1995 [78.5]
	4.3	Std. Free Lift	h2	2-stage Std. Mast, from Ground	mm [in] 140 [5.5]
	4.4	Std. Lift Height	h3	2-stage Std. Mast, from Ground	mm [in] 3300 [130.0]
	4.5	Mast Height, Extended	h4	2-stage Std. Mast	mm [in] 4255 [167.5]
	4.7	Height, Overhead Guard	h6		mm [in] 2070 [81.5]
	4.19	Length, with Std. Forks	l1		mm [in] 3005 [118.3]
	4.20	Length, to Fork Face	l2		mm [in] 1935 [76.2]
	4.21	Width, at Tire	b1	Single	mm [in] 1110 [43.7]
	4.22	Forks	s/e/l	Thickness / Width / Length	mm [in] 35x100x1070 [1.4x3.9x42.1]
	4.23	Fork Carriage Class	ISO 2328, Type A/B/no		Class 2, Type A
	4.24	Width, Fork Carriage	b3	mm [in]	970 [38.2]
	4.31	Ground Clearance	m1	Under Mast	mm [in] 95 [3.7]
	4.32		m2	at Center of Wheelbase	mm [in] 125 [4.9]
	4.33	Right Angle Stacking Aisle	Ast	with L1000 x W1200 pallet	mm [in] 2935 [115.6]
	4.34		Ast	with L1200 x W800 pallet	mm [in] 3135 [123.4]
	4.35	Turning Radius	Wa	mm [in]	1530 [60.2]
Performance	5.1	Travel Speed (FWD)	Loaded / Unloaded		km/h [mph] 15.0/17.0 [10/11]
	5.2	Lifting Speed	Loaded / Unloaded		mm/s [fpm] 340/600 [67/118]
	5.3	Lowering Speed	Loaded / Unloaded		mm/s [fpm] 450/550 [89/108]
	5.6	Max. Drawbar Pull	Loaded, 3 min. rating		N [lbf] 9560 [2150]
	5.8	Max. Gradeability	Loaded, 3 min. rating/1.5/h		% 19
	5.10	Service Brake	Operation/Control		Foot/Hydraulic
	5.10.1	Parking Brake	Operation/Control		Hand/Mechanical
	5.10.2	Steering	Type		FHPS
Drive	6.1	Drive Motor (AC)	60 min. rating		kW 4.5x2
	6.2	Pump Motor (AC)	5 min. rating		kW 9.0
	6.4	Battery Voltage			V 48
	6.4.2	Battery Capacity, Max.			Ah/6hr 600
	6.5	Battery Weight	Max. Capacity Battery		kg [lb] 950 [2094.4]
Others	8.1	Drive Motor Control			Transistor
	8.2	Relief Pressure Attachment			bar [MPa, kg/cm ² , PSI] 176 [17.6, 180, 2560]
	8.2.1	Reservoir Capacity			Ltr [U.S. gal] 23 [6.1]