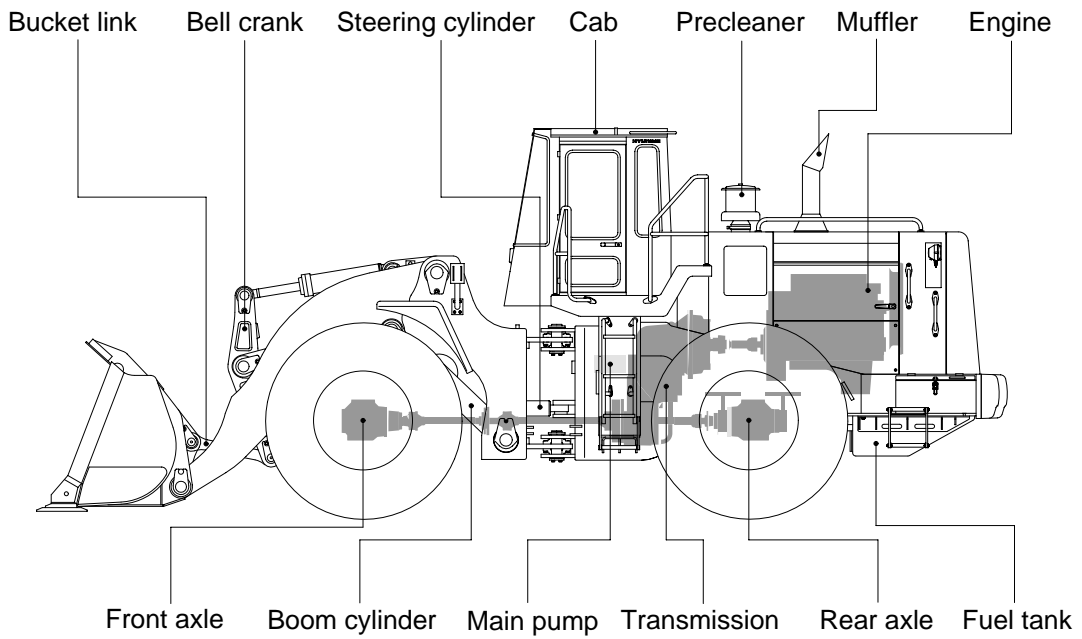
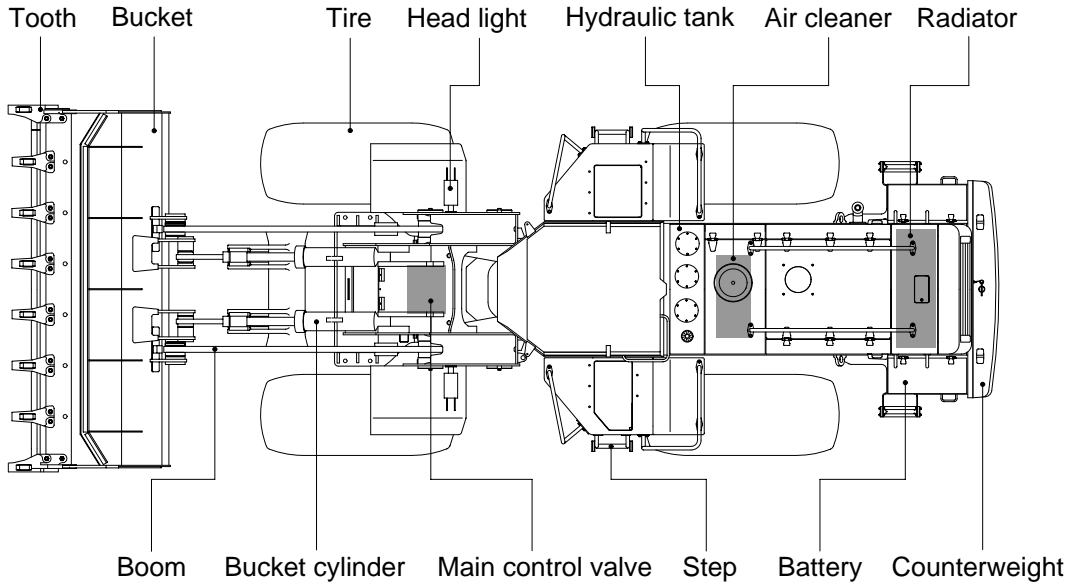


GROUP 2 SPECIFICATION

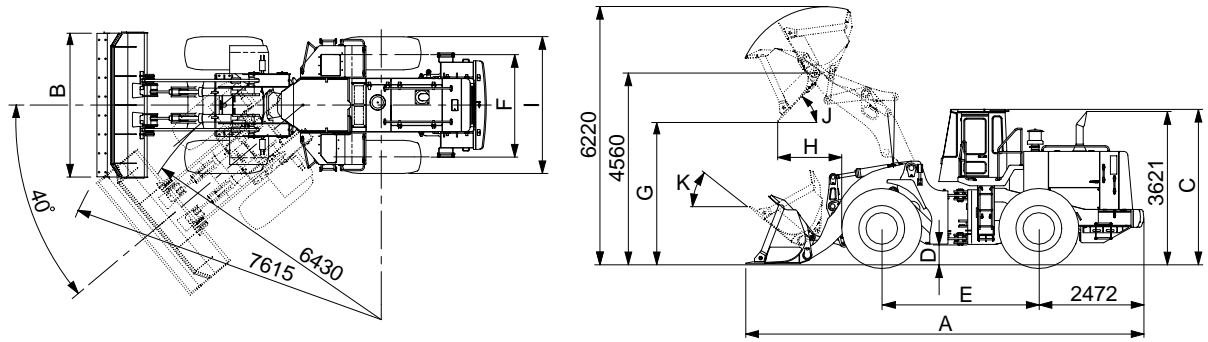
1. MAJOR COMPONENTS



7803ASE01

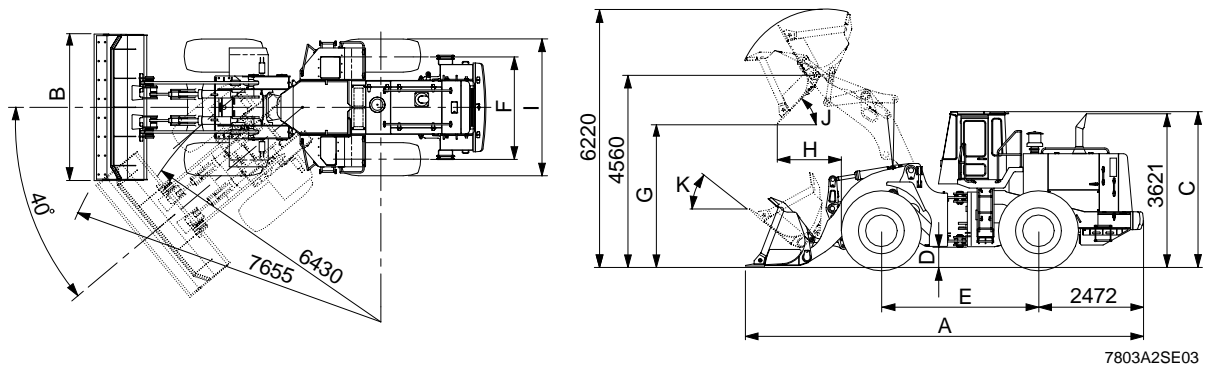
2. SPECIFICATIONS

1) WITHOUT TOOTH AND CUTTING EDGE TYPE BUCKET



Description		Unit	Specification
Operating weight		kg(lb)	28880(63670)
Bucket capacity	Struck	m ³ (yd ³)	4.1(5.4)
	Heaped		4.8(6.3)
Overall length	A	mm(ft-in)	9280(30' 5")
Overall width	B		3450(11' 4")
Overall height	C		3750(12' 4")
Ground clearance	D		475(1' 7")
Wheelbase	E		3700(12' 2")
Tread	F		2440(8' 0")
Dump clearance at 45 ^o	G		3434(11' 3")
Dump reach at 45 ^o	H		1407(4' 7")
Width over tires	I		3220(10' 7")
Dump angle	J		Degree (°)
Roll back angle(Carry position)	K	48	
Cycle time	Lift(With load)	sec	6.3
	Dump(With load)		1.3
	Lower(Empty)		3.5
Maximum travel speed		km/hr(mph)	34.7(21.6)
Braking distance		m(ft-in)	12(39' 4")
Minimum turning radius(Center of outside tire)			6.43(21' 1")
Gradability		Degree (°)	30
Travel speed	Forward	First gear	7.1(4.4)
		Second gear	12.5(7.8)
		Third gear	19.7(12.3)
		Fourth gear	34.7(21.6)
	Reverse	First gear	7.1(4.4)
		Second gear	12.5(7.8)
Third gear		23.3(14.5)	

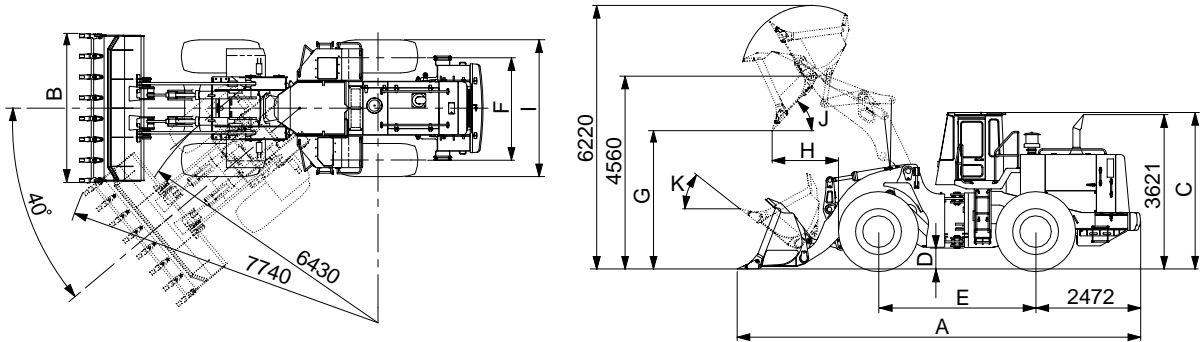
2) BOLT-ON CUTTING EDGE TYPE BUCKET



7803A2SE03

Description		Unit	Specification	
Operating weight		kg(lb)	29300(64600)	
Bucket capacity	Struck	m ³ (yd ³)	4.3(5.6)	
	Heaped		5.1(6.7)	
Overall length	A	mm(ft-in)	9390(30' 10")	
Overall width	B		3450(11' 4")	
Overall height	C		3750(12' 4")	
Ground clearance	D		475(1' 7")	
Wheelbase	E		3700(12' 2")	
Tread	F		2440(8' 0")	
Dump clearance at 45 ^o	G		3347(11' 0")	
Dump reach at 45 ^o	H		1440(4' 7")	
Width over tires	I		3220(10' 7")	
Dump angle	J		Degree (°)	47
Roll back angle(Carry position)	K			48
Cycle time	Lift(With load)	sec	6.3	
	Dump(With load)		1.3	
	Lower(Empty)		3.5	
Maximum travel speed		km/hr(mph)	34.7(21.6)	
Braking distance		m(ft-in)	12(39' 4")	
Minimum turning radius(Center of outside tire)			6.43(21' 1")	
Gradability		Degree (°)	30	
Travel speed	Forward	First gear	7.1(4.4)	
		Second gear	12.5(7.8)	
		Third gear	19.7(12.3)	
		Fourth gear	34.7(21.6)	
	Reverse	First gear	7.1(4.4)	
		Second gear	12.5(7.8)	
Third gear		23.3(14.5)		

3) WITH TOOTH TYPE BUCKET



7803A2SE04

Description		Unit	Specification	
Operating weight		kg(lb)	29170(64310)	
Bucket capacity	Struck	m ³ (yd ³)	4.1(5.4)	
	Heaped		4.8(6.3)	
Overall length	A	mm(ft-in)	9555(31' 4")	
Overall width	B		3500(11' 6")	
Overall height	C		3750(12' 4")	
Ground clearance	D		475(1' 7")	
Wheelbase	E		3700(12' 2")	
Tread	F		2440(8' 0")	
Dump clearance at 45°	G		3198(10' 6")	
Dump reach at 45°	H		1568(5' 2")	
Width over tires	I		3220(10' 7")	
Dump angle	J		Degree (°)	47
Roll back angle(Carry position)	K			48
Cycle time	Lift(With load)	sec	6.3	
	Dump(With load)		1.3	
	Lower(Empty)		3.5	
Maximum travel speed		km/hr(mph)	34.7(21.6)	
Braking distance		m(ft-in)	12(39' 4")	
Minimum turning radius(Center of outside tire)			6.43(21' 1")	
Gradability		Degree (°)	30	
Travel speed	Forward	First gear	7.1(4.4)	
		Second gear	12.5(7.8)	
		Third gear	19.7(12.3)	
	Reverse	First gear	34.7(21.6)	
		Second gear	7.1(4.4)	
		Third gear	12.5(7.8)	
		km/hr(mph)	23.3(14.5)	

3. WEIGHT

Item	kg	lb
Front frame assembly	2825	6228
Rear frame assembly	3531	7785
Front fender(LH & RH)	42	93
Counterweight	1200	2646
Cab assembly	1000	2205
Engine assembly	984	2169
Transmission assembly	835	1841
Drive shaft(Engine to transmission)	14	31
Drive shaft(Front)	44	97
Drive shaft(Center)	46	101
Drive shaft(Rear)	27	60
Front axle(Include differential)	1550	3417
Rear axle(Include differential)	1550	3417
Tire(4EA)	430	948
Hydraulic tank assembly	253	558
Fuel tank assembly	500	1102
Main pump assembly	37	82
Steering pump assembly	24	53
Main control valve	94	207
Flow amplifier	29	64
Boom	2070	4564
Bell crank	263	580
Bucket link	55	121
5.1m ³ bucket, with bolt on cutting edge	2670	5886
4.8m ³ bucket, with tooth	2540	5600
4.7m ³ bucket, without tooth and cutting edge	2250	4960
Boom cylinder assembly(2EA)	290	639
Bucket cylinder assembly(2EA)	150	331
Steering cylinder assembly(2EA)	65	143
Seat	40	88
Battery	55	121

4. SPECIFICATION FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Cummins QSM 11-C
Type	4-cycle turbocharged, charge air cooled diesel engine
Control type	Electronic control
Cooling method	Water cooling
Number of cylinders and arrangement	6 cylinders, in-line
Firing order	1-5-3-6-2-4
Combustion chamber type	Direct injection type
Cylinder bore × stroke	125 × 147mm(4.92" × 5.79")
Piston displacement	10800cc(659cu in)
Compression ratio	16.3:1
Rated gross horse power	340ps at 2100rpm
Maximum gross torque at 1400rpm	174kgf · m(1255lb · ft)
Engine oil quantity	38 (10 U.S. gal)
Wet weight	984kg(2170lb)
High idling speed	2130 ± 50rpm
Low idling speed	800 ± 50rpm
Rated fuel consumption	147.8g/ps · hr
Starting motor	Delco Remy 42MT(24V)
Alternator	Delco Remy 22SI(24V-70Amp)
Battery	2 × 12V × 200Ah

2) MAIN PUMP(+BRAKE PUMP)

Item	Specification	
	Main pump	Brake pump
Type	Fixed displacement double vane pump	
Capacity	98.3cc/rev	15.9cc/rev
Maximum operating pressure	210kgf/cm ² (2987psi)	150kgf/cm ² (2130psi)
Rated oil quantity	193 /min(51U.S.gpm)	31.3 /min(8.3U.S.gpm)
Rated speed	2100rpm	

3) STEERING PUMP

Item	Specification
Type	Fixed displacement single vane pump
Capacity	136cc/rev
Maximum operating pressure	210kgf/cm ² (2987psi)
Rated oil quantity	280 /min(74U.S.gpm)
Rated speed	2100rpm

4) MAIN CONTROL VALVE

Item	Specification
Type	2 spool
Operating method	Hydraulic pilot assist
Main relief valve pressure	210kgf/cm ² (2987psi)
Overload relief valve pressure(Boom)	250kgf/cm ² (3556psi)
Overload relief valve pressure(Bucket)	230kgf/cm ² (3271psi)

5) REMOTE CONTROL VALVE

Item	Specification	
Type	Pressure reducing type	
Operating	Minimum	5.8kgf/cm ² (82.5psi)
	Maximum	19kgf/cm ² (270psi)
Single operation stroke	Lever	70mm(2.8in)

6) CYLINDER

Item	Specification
Boom cylinder	Bore dia × Rod dia × Stroke Ø200 × Ø110 × 863mm
Bucket cylinder	Bore dia × Rod dia × Stroke Ø160 × Ø80 × 580mm
Steering cylinder	Bore dia × Rod dia × Stroke Ø110 × Ø55 × 480mm

7) DYNAMIC POWER TRANSMISSION DEVICES

Item		Specification
Torque converter	Model	ZF 40H005
	Type	Single-stage, single-phase
Transmission	Model	ZF 4WG310
	Type	Full-automatic power shift
	Gear shift	Forward fourth gear, reverse third gear
	Adjustment	Electrical single lever type, kick-down system, Automatic kick down from 2nd to 1st gear
Axle	Drive devices	4-wheel drive
	Front	Front fixed location
	Rear	Oscillation 13° of center pin-loaded
Wheels	Tires	29.5-25, 22PR(L3)
Brakes	Travel	Four-wheel, wet-disc type, full hydraulic
	Parking	Spring applied, hydraulic released brake on front axle
Steering	Type	Full hydraulic, articulated
	Steering angle	40° to both right and left angle, respectively

5. TIGHTENING TORQUE

The torques given are standard figures. Any figures specifically described in this manual has priority.

1) BOLT AND NUT

(1) Coarse thread

Bolt size	8T		10T	
	kgf · m	lbf · ft	kgf · m	lbf · ft
M 6 × 1.0	0.85 ~ 1.25	6.15 ~ 9.04	1.14 ~ 1.74	8.2 ~ 12.6
M 8 × 1.25	2.0 ~ 3.0	14.5 ~ 21.7	2.73 ~ 4.12	19.7 ~ 29.8
M10 × 1.5	4.0 ~ 6.0	28.9 ~ 43.4	5.5 ~ 8.3	39.8 ~ 60
M12 × 1.75	7.4 ~ 11.2	53.5 ~ 79.5	9.8 ~ 15.8	71 ~ 114
M14 × 2.0	12.2 ~ 16.6	88.2 ~ 120	16.7 ~ 22.5	121 ~ 167
M16 × 2.0	18.6 ~ 25.2	135 ~ 182	25.2 ~ 34.2	182 ~ 247
M18 × 2.5	25.8 ~ 35.0	187 ~ 253	35.1 ~ 47.5	254 ~ 343
M20 × 2.5	36.2 ~ 49.0	262 ~ 354	49.2 ~ 66.6	356 ~ 482
M22 × 2.5	48.3 ~ 63.3	350 ~ 457	65.8 ~ 98.0	476 ~ 709
M24 × 3.0	62.5 ~ 84.5	452 ~ 611	85.0 ~ 115	615 ~ 832
M30 × 3.5	124 ~ 168	898 ~ 1214	169 ~ 229	1223 ~ 1655
M36 × 4.0	174 ~ 236	1261 ~ 1703	250 ~ 310	1808 ~ 2242

(2) Fine thread

Bolt size	8T		10T	
	kgf · m	lbf · ft	kgf · m	lbf · ft
M 8 × 1.0	2.17 ~ 3.37	15.7 ~ 24.3	3.04 ~ 4.44	22.0 ~ 32.0
M10 × 1.25	4.46 ~ 6.66	32.3 ~ 48.2	5.93 ~ 8.93	42.9 ~ 64.6
M12 × 1.25	7.78 ~ 11.58	76.3 ~ 83.7	10.6 ~ 16.0	76.6 ~ 115
M14 × 1.5	13.3 ~ 18.1	96.2 ~ 130	17.9 ~ 24.1	130 ~ 174
M16 × 1.5	19.9 ~ 26.9	144 ~ 194	26.6 ~ 36.0	193 ~ 260
M18 × 1.5	28.6 ~ 43.6	207 ~ 315	38.4 ~ 52.0	278 ~ 376
M20 × 1.5	40.0 ~ 54.0	289 ~ 390	53.4 ~ 72.2	386 ~ 522
M22 × 1.5	52.7 ~ 71.3	381 ~ 515	70.7 ~ 95.7	512 ~ 692
M24 × 2.0	67.9 ~ 91.9	491 ~ 664	90.9 ~ 123	658 ~ 890
M30 × 2.0	137 ~ 185	990 ~ 1338	182 ~ 248	1314 ~ 1795
M36 × 3.0	192 ~ 260	1389 ~ 1879	262 ~ 354	1893 ~ 2561

2) PIPE AND HOSE

Thread size	Width across flat(mm)	kgf · m	lbf · ft
1/4"	19	3	21.7
3/8"	22	4	28.9
1/2"	27	5	36.2
3/4"	36	12	86.8
1"	41	14	101

3) FITTING

Thread size	Width across flat(mm)	kgf · m	lbf · ft
1/4"	19	4	28.9
3/8"	22	5	36.2
1/2"	27	6	43.4
3/4"	36	13	94.0
1"	41	15	109

4) TIGHTENING TORQUE OF MAJOR COMPONENT

No.	Items	Size	kgf · m	lbf · ft	
1	Engine	Engine mounting bolt, nut(Rubber, 4EA)	M24 × 3.0	100 ± 15.0	723 ± 108
2		Engine mounting bolt(Fly wheel housing, 8EA)	M16 × 2.0	19.4 ± 3.0	140 ± 21.7
3		Engine mounting bolt(Gear housing, 6EA)	M10 × 1.5	4.6 ± 0.7	33.3 ± 5.1
4		Radiator mounting bolt	M12 × 1.75	12.3 ± 2.5	89.0 ± 18.1
5		Fuel tank mounting bolt, nut	M20 × 2.5	57.9 ± 8.7	419 ± 62.9
6	Hydraulic system	Main pump housing mounting bolt	M16 × 2.0	29.7 ± 4.5	215 ± 32.5
7		Steering pump housing mounting bolt	M16 × 2.0	29.7 ± 4.5	215 ± 32.5
8		Main control valve mounting bolt	M12 × 1.75	12.8 ± 3.0	92.6 ± 21.7
9		Steering unit mounting bolt	M10 × 1.5	6.9 ± 1.4	49.9 ± 10.1
10		Flow amplifier mounting bolt	M10 × 1.5	6.9 ± 1.4	49.9 ± 10.1
11		Brake valve mounting bolt	M8 × 1.25	2.5 ± 0.5	18.1 ± 3.6
12		Cut-off valve mounting bolt	M8 × 1.25	2.5 ± 0.5	18.1 ± 3.6
13		Remote control lever mounting bolt	M6 × 1.0	1.1 ± 0.2	8.0 ± 1.4
14		Pilot supply unit mounting bolt	M8 × 1.25	2.5 ± 0.5	18.1 ± 3.6
15		Safety valve	M8 × 1.25	2.5 ± 0.5	8.1 ± 3.6
16		Hydraulic oil tank mounting bolt	M20 × 2.5	57.9 ± 8.7	419 ± 62.9
17	Power train system	T/M bolt, nut(Rubber, 4EA)	M24 × 3.0	100 ± 15.0	723 ± 108
18		T/M bolt(Converter cover, 4EA)	M16 × 2.0	18.4 ± 2.0	133 ± 14.5
19		Front axle mounting bolt, nut	M33 × 2.0	225 ± 25.0	1627 ± 181
20		Rear axle support mounting bolt, nut	M33 × 2.0	225 ± 25.0	1627 ± 181
21		Tire mounting nut	M22 × 1.5	79 ± 2.5	571 ± 18
22		Drive shaft joint mounting bolt, nut	1/2-13UNC	12.3 ± 2	89.0 ± 14
23	Others	Counterweight mounting bolt	M30 × 3.5	199 ± 29.9	1439 ± 216
24		Operator's seat mounting bolt	M8 × 1.25	3.4 ± 0.8	24.6 ± 5
25		ROPS Cab mounting bolt(4EA)	1.25-12UNF	126	910

6. RECOMMENDED LUBRICANTS

Use only oils listed below or equivalent.

Do not mix different brand oil.

Service point	Kind of fluid	Capacity (U.S. gal)	Ambient temperature °C (°F)								
			-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)		
Engine oil pan	Engine oil	38(10.0)					SAE 30				
			SAE 10W								
			SAE 10W-30								
							SAE 15W-40				
Transmission	Oil	43(11.4)	SAE 10W-30								
							SAE 15W-40				
Axle	Gear oil	Front : 60(15.9) Rear : 60(15.9)	SAE 80W-90LSD/API GL-5								
Hydraulic tank	Hydraulic oil	Tank: 185(48.9) System: 235(62.1)	ISO VG 32								
						ISO VG 46					
						ISO VG 68					
Fuel tank	Diesel fuel	470(124)	ASTM D975 NO. 1								
						ASTM D975 NO. 2					
Fitting (Grease nipple)	Grease	As required	NLGI NO. 1								
						NLGI NO. 2					
Radiator	Mixture of antifreeze and water 50 : 50	65(17.2)	Ethylene glycol base permanent type								