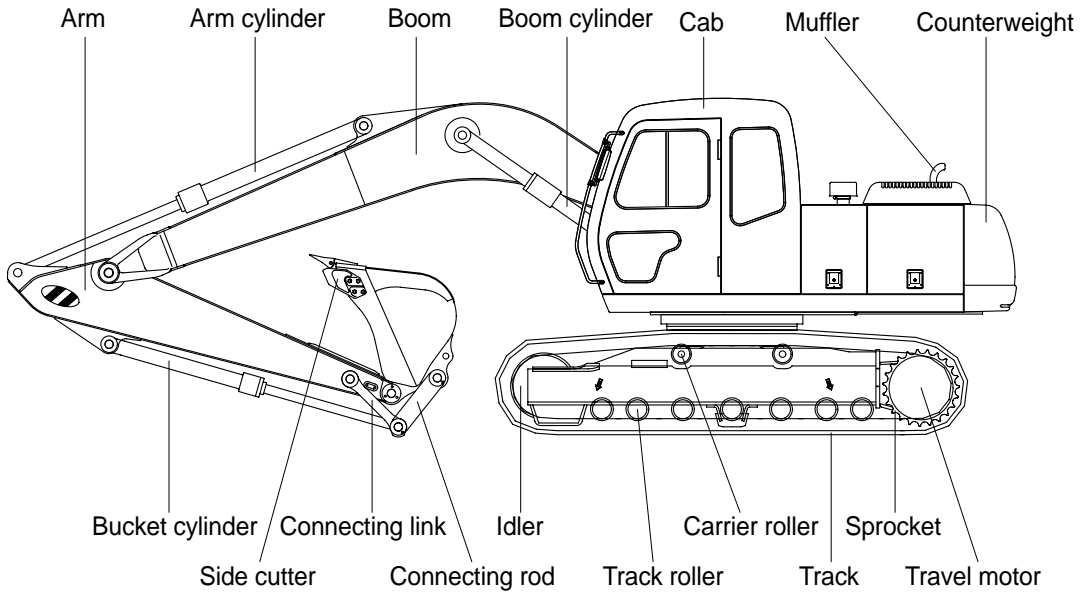
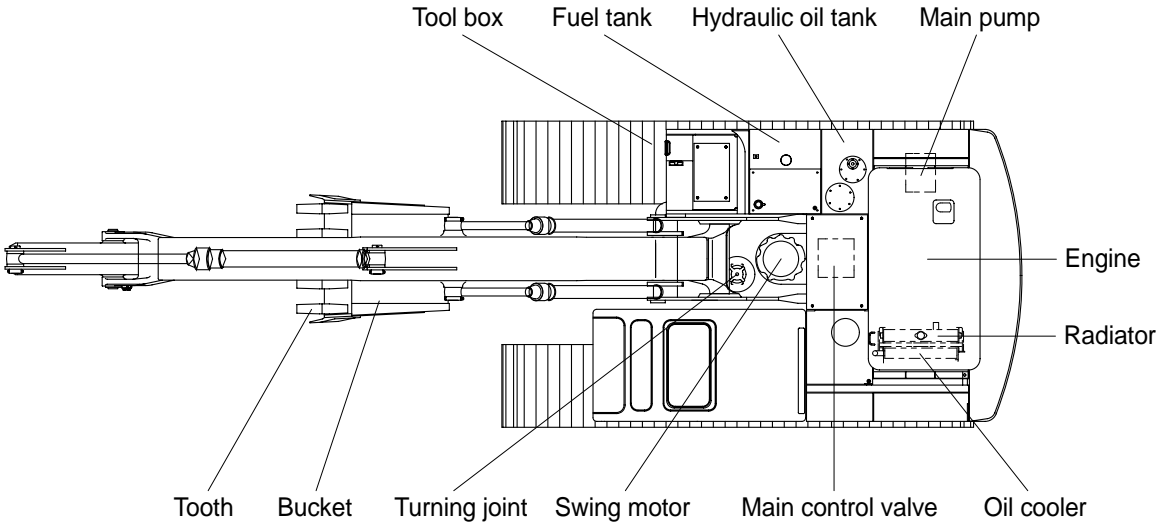


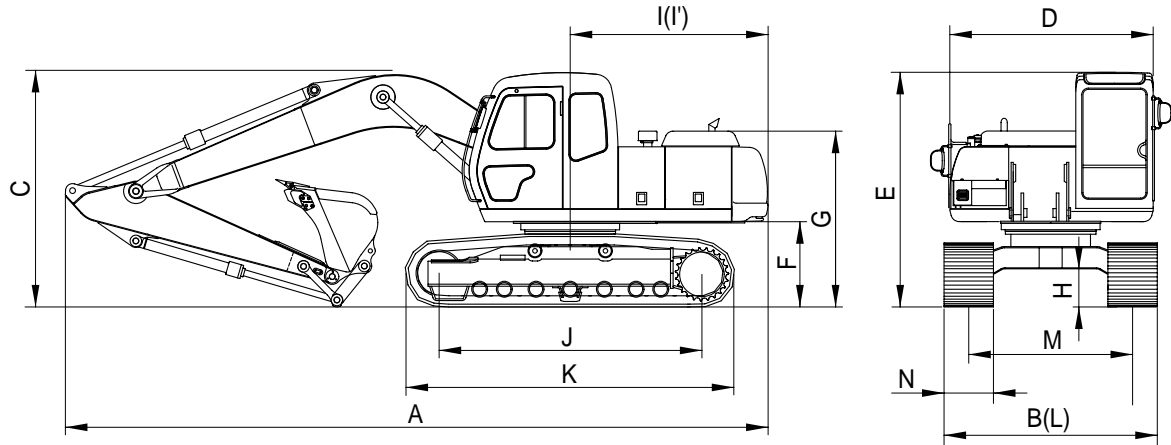
GROUP 2 SPECIFICATIONS

1. MAJOR COMPONENT



2. SPECIFICATION

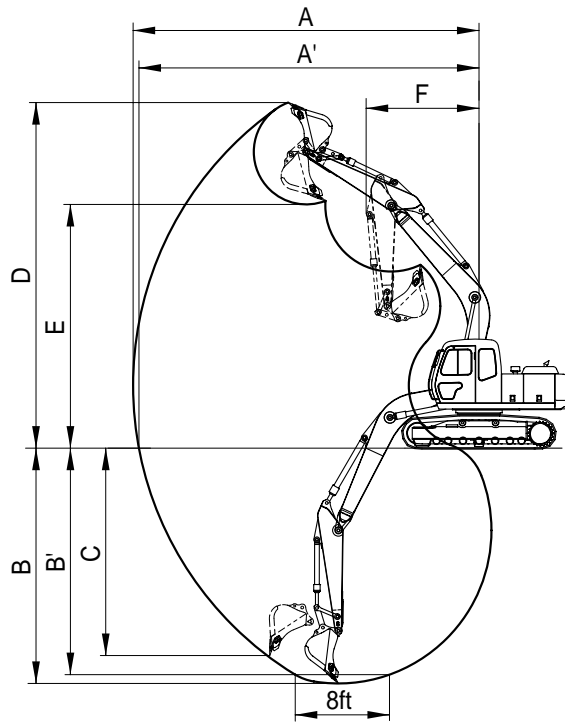
1) ROBEX 160LC-3



Description		Unit	Specification
Operating weight		kg(lb)	16600(36600)
Bucket capacity(PCSA heaped), standard		m ³ (yd ³)	0.65(0.85)
Overall length	A	mm(ft-in)	8530(28' 0")
Overall width, with 600mm shoe	B		2590(8' 6")
Overall height	C		2870(9' 5")
Superstructure width	D		2470(8' 1")
Overall height of cab	E		2850(9' 4")
Ground clearance of counterweight	F		1035(3' 5")
Engine cover height	G		2135(7' 0")
Minimum ground clearance	H		460(1' 6")
Rear-end distance	I		2400(7'10")
Rear-end swing radius	I'		2490(8' 2")
Distance between tumblers	J		3190(10' 6")
Undercarriage length	K		3980(13' 1")
Undercarriage width	L		2590(8' 6")
Track gauge	M		1990(6' 6")
Track shoe width, standard	N		600(24")
Travel speed(Low/high)		km/hr(mph)	3.5/5.5(2.2/3.4)
Swing speed		rpm	12.1
Gradeability		Degree(%)	35(70)
Ground pressure(600mm shoe)		kg/cm ² (psi)	0.40(5.69)

3. WORKING RANGE

1) 5.10m(16' 9") BOOM



Description		2.25m(7' 5") Arm	2.60m(8' 6") Arm	3.10m(10' 2") Arm
Max digging reach	A	8630mm (28' 4")	8950mm (29' 4")	9340mm (30' 8")
Max digging reach on ground	A'	8470mm (27' 9")	8800mm (28'10")	9200mm (30' 2")
Max digging depth	B	5740mm (18'10")	6090mm (20' 0')	6590mm (21' 7")
Max digging depth (8ft level)	B'	5480mm (18' 0")	5860mm (19' 3")	6360mm (20'10")
Max vertical wall digging depth	C	4930mm (16' 2")	5370mm (17' 7")	5580mm (18' 4")
Max digging height	D	8750mm (28' 8")	8940mm (29' 4")	9000mm (29' 6")
Max dumping height	E	6120mm (20' 1")	6310mm (20' 8")	6400mm (21' 0")
Min swing radius	F	2960mm (9' 9")	2920mm (9' 7")	2940mm (9' 8")
Bucket digging force	SAE	90 [99] kN	90 [99] kN	90 [99]kN
		9200 [10060] kgf	9200 [10060]kgf	9200 [10060]kgf
		20280 [22180] lbf	20280 [22180]lbf	20280 [22180]lbf
	ISO	104 [113] kN	104 [113]kN	104 [113]kN
		10570 [11560] kgf	10570 [11560]kgf	10570 [11560]kgf
		23300 [25480] lbf	23300 [25480]lbf	23300 [25480]lbf
Arm crowd force	SAE	78 [85] kN	70 [76]kN	63 [69]kN
		7920 [8660] kgf	7110 [7780]kgf	6440 [7040]kgf
		17460 [19100] lbf	15670 [17140]lbf	14200 [15530]lbf
	ISO	81 [89] kN	73 [79]kN	65 [71]kN
		8260 [9030] kgf	7390 [8080]kgf	6650 [7270]kgf
		18210 [19920] lbf	16290 [17820]lbf	14660 [16030]lbf

[] : Power boost

4. WEIGHT

1) R160LC-3













Item	R160LC-3	
	kg	lb
Upperstructure assembly	7220	15920
Main frame weld assembly	1210	2670
Engine assembly	410	904
Main pump assembly	125	276
Main control valve assembly	135	298
Swing motor assembly	218	481
Hydraulic oil tank assembly	145	320
Fuel tank assembly	110	243
Counterweight	2900	6390
Cab assembly	275	610
Lower chassis assembly	6450	14220
Track frame weld assembly	2005	4420
Swing bearing	230	507
Travel motor assembly	210	463
Turning joint	36	79
Track recoil spring and idler	137	302
Idler	160	353
Carrier roller	21	46
Track roller	38	84
Track-chain assembly(600mm standard triple grouser shoe)	1183	2610
Front attachment assembly(5.10m boom, 2.60m arm, 0.65m ³ PCSA heaped bucket)	2930	6460
5.10m boom assembly	1035	2280
2.60m arm assembly	525	1157
0.65m ³ PCSA heaped bucket	510	1124
Boom cylinder assembly	135	298
Arm cylinder assembly	183	403
Bucket cylinder assembly	125	276
Bucket control link assembly	112	247

5. LIFTING CAPACITIES

1) ROBEX 160LC-3











(1) 5.10m(16' 9") boom, 2.60m(8' 6") arm equipped with 0.65m³(PCSA heaped) bucket and 600mm (24") triple grouser shoe.

-  : Rating over-front
-  : Rating over-side or 360 degree













Load point height		Load radius										At max. reach		
		1.5m(5ft)		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		Capacity		Reach
														m(ft)
7.5m (25ft)	kg lb											*2800 *6170	*2800 *6170	6.20 (20.3)
6.0m (20ft)	kg lb						*2620 *5780	*2620 *5780				*2800 *6170	2040 4500	7.46 (24.5)
4.5m (15ft)	kg lb						*3220 *7100	2910 6420				2810 6190	1660 3660	8.20 (26.9)
3.0m (10ft)	kg lb			*6720 *14820	*6720 *14820	*4530 *9990	4420 9740	*3670 *8090	2760 6080	*2400 *5290	1840 4060	2550 5620	1470 3240	8.56 (28.1)
1.5m (5ft)	kg lb			*7670 *16910	7470 16470	*5690 *12540	4050 8930	*4210 *9280	2590 5710	3060 6750	1770 3900	2480 5470	1410 3110	8.61 (28.2)
Ground Line	kg lb			*7280 *16050	7100 15650	*6450 *14220	3800 8380	4270 9410	2450 5400	*2970 *6550	1710 3770	2570 5670	1460 3220	8.34 (27.4)
-1.5m (-5ft)	kg lb	*6100 *13450	*6100 *13450	*9750 *21500	7060 15560	*6600 *14550	3690 8140	4190 9240	2390 5270			2900 6390	1660 3660	7.73 (25.4)
-3.0m (-10ft)	kg lb	*9050 *19950	*9050 *19950	*9000 *19840	7170 15810	*6070 *13380	3720 8200	4220 9300	2410 5310			*3280 *7230	2160 4760	6.66 (21.9)
-4.5m (-15ft)	kg lb			*6610 *14570	*6610 *14570	*4370 *9630	3890 8580							

- Note
1. Lifting capacity are based on SAE J1097 and ISO 10567.
 2. Lifting capacity of the ROBEX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The load point is a hook located on the back of the bucket.
 4. *indicates load limited by hydraulic capacity.

(2) 5.10m(16' 9") boom, 2.25m(7' 5") arm equipped with 0.65m³(PCSA heaped) bucket and 600mm (24") triple grouser shoe.

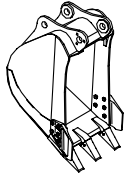
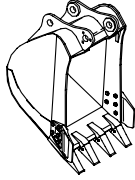
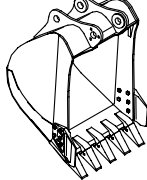
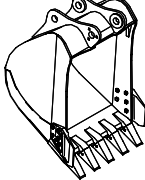
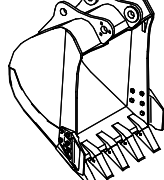
Load point height		Load radius								At max. reach			
		1.5m(5ft)		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		Capacity		Reach	
												m(ft)	
7.5m (25ft)	kg lb										*3040 *6700	*3040 *6700	5.71 (18.7)
6.0m (20ft)	kg lb										*3020 *6660	2260 4980	7.08 (23.2)
4.5m (15ft)	kg lb					*3870 *8530	*3870 *8530	*3490 *7690	2900 6390		3030 6680	1810 3990	7.86 (25.8)
3.0m (10ft)	kg lb			*7610 *16780	*7610 *16780	*4900 *10800	4390 9680	*3910 *8620	2760 6080		2740 6040	1610 3550	8.24 (27.0)
1.5m (5ft)	kg lb			*5740 *12650	*5740 *12650	*5990 *13210	4030 8880	*4410 *9720	2610 5750		2660 5860	1540 3400	8.28 (27.2)
Ground Line	kg lb			*6990 *15410	*6990 *15410	*6610 *14570	3820 8420	4300 9480	2490 5490		2780 6130	1610 3550	8.01 (26.3)
-1.5m (-5ft)	kg lb	*6620 *14590	*6620 *14590	*9920 *21870	7150 15760	*6600 *14550	3750 8270	4250 9370	2440 5380		3170 6990	1850 4080	7.37 (24.2)
-3.0m (-10ft)	kg lb	*10180 *22440	*10180 *22440	*8540 *18830	7300 16090	*5870 *12940	3800 8380				*3370 *7430	2470 5450	6.22 (20.4)
-4.5m (-15ft)	kg lb			*5730 *12630	*5730 *12630								

(3) 5.10m(16' 9") boom, 3.10m(10' 2") arm equipped with 0.65m³(PCSA heaped) bucket and 600mm (24") triple grouser shoe.

Load point height		Load radius										At max. reach				
		1.5m(5ft)		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		Capacity		Reach		
														m(ft)		
7.5m (25ft)	kg lb												*2480 *5470	*2480 *5470	6.76 (22.2)	
6.0m (20ft)	kg lb							*2580 *5690	*2580 *5690					*2530 *5580	1850 4080	7.92 (26.0)
4.5m (15ft)	kg lb							*2880 *6350	*2880 *6350	*1840 *4060	*1840 *4060		2590 5710	1520 3350	8.61 (28.2)	
3.0m (10ft)	kg lb					*4030 *8880	*4030 *8880	*3370 *7430	2800 6170	*2750 *6060	1870 4120		2360 5200	1350 2980	8.95 (29.4)	
1.5m (5ft)	kg lb			*8730 *19250	7710 17000	*5280 *11640	4120 9080	*3960 *8730	2610 5750	3070 6770	1780 3920		2290 5050	1290 2840	9.00 (29.5)	
Ground Line	kg lb			*8130 *17920	7110 15670	*6200 *13670	3810 8400	4270 9410	2450 5400	2990 6590	1700 3750		2370 5220	1330 2930	8.75 (28.7)	
-1.5m (-5ft)	kg lb	*5830 *12850	*5830 *12850	*9570 *21100	6970 15370	*6550 *14440	3660 8070	4160 9170	2360 5200				2620 5780	1480 3260	8.17 (26.8)	
-3.0m (-10ft)	kg lb	*8220 *18120	*8220 *18120	*9510 *20970	7020 15480	*6270 *13820	3640 8020	4150 9150	2350 5180				*3230 *7120	1870 4120	7.18 (23.6)	
-4.5m (-15ft)	kg lb	*11360 *25040	*11360 *25040	*7600 *16760	7240 15960	*5090 *11220	3750 8270									

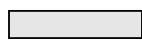
6. BUCKET SELECTION GUIDE


1) GENERAL BUCKET


				
0.39m ³ PCSA heaped bucket	0.57m ³ PCSA heaped bucket	※ 0.65m ³ PCSA heaped bucket	0.70m ³ PCSA heaped bucket	0.80m ³ PCSA heaped bucket

Capacity		Width		Weight	Recommendation		
PCSA heaped	CECE heaped	Without side cutter	With side cutter		5.10m (16' 9") boom		
					2.25m arm (7' 5")	2.60m arm (8' 6")	3.10m arm (10' 2")
0.39m ³ (0.51yd ³)	0.35m ³ (0.46yd ³)	620mm (24")	740mm (29")	410kg (900lb)			
0.57m ³ (0.75yd ³)	0.50m ³ (0.65yd ³)	840mm (33")	960mm (38")	490kg (1080lb)			
※ 0.65m ³ (0.85yd ³)	0.55m ³ (0.72yd ³)	930mm (37")	1050mm (41")	510kg (1120lb)			
0.70m ³ (0.92yd ³)	0.60m ³ (0.78yd ³)	990mm (39")	1110mm (44")	540kg (1190lb)			
0.80m ³ (1.05yd ³)	0.70m ³ (0.92yd ³)	1080mm (43")	1200mm (47")	570kg (1260lb)			

※ Standard bucket

 Applicable for materials with density of 2000kg/m³ (3370lb/yd³) or less

 Applicable for materials with density of 1600kg/m³ (2700lb/yd³) or less

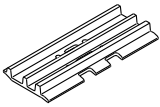
 Applicable for materials with density of 1100kg/m³ (1850lb/yd³) or less

7. UNDERCARRIAGE

1) TRACKS

X-leg type center frame is integrally welded with reinforced box-section track frames. The design includes dry tracks, lubricated rollers, idlers, sprockets, hydraulic track adjusters with shock absorbing springs and assembled track-type tractor shoes with triple grousers.

2) TYPES OF SHOES

Model	Shapes		Triple grouser			
						
R160LC-3	Shoe width	mm(in)	500(20)	600(24)	700(28)	800(32)
	Operating weight	kg(lb)	16360(36070)	16600(36600)	16970(37410)	17240(38010)
	Ground pressure	kg/cm ² (psi)	0.47(6.68)	0.40(5.69)	0.35(4.98)	0.31(4.41)
	Overall width	mm(ft-in)	2490(8' 2")	2590(8' 6")	2690(8' 10")	2790(9' 2")

3) NUMBER OF ROLLERS AND SHOES ON EACH SIDE

Item	Quantity
Carrier rollers	2EA
Track rollers	7EA
Track shoes	49EA

8. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Cummins B3.9-C
Type	4-cycle turbocharged, after cooled and low emission diesel engine
Cooling method	Water cooling
Number of cylinders and arrangement	4 cylinders, in-line
Firing order	1-3-4-2
Combustion chamber type	Direct injection type
Cylinder bore × stroke	102 × 120mm(4.02" × 4.72")
Piston displacement	3900cc(238cu in)
Compression ratio	16.5 : 1
Rated gross horse power(SAE J1349)	110Hp at 2200rpm(82kW at 2200rpm)
Maximum torque at 1500rpm	45.9kgf · m(332lbf · ft)
Engine oil quantity	11 l (2.9U.S. gal)
Dry weight	329kg(725lb)
High idling speed	2450+50rpm
Low idling speed	950 ± 100rpm
Rated fuel consumption	169.9g/Ps · hr
Starting motor	Delco Remy 28MT(24V)
Alternator	DAC(24V - 60AMP)
Battery	2 × 12V × 100Ah

2) MAIN PUMP

Item	Specification
Type	Variable displacement tandem axis piston pumps
Capacity	2 × 64cc/rev
Maximum pressure	320kgf/cm ² (4550psi)[350kgf/cm ² (4980psi)]
Rated oil flow	2 × 140 l /min (40U.S. gpm/ 30.8U.K. gpm)
Rated speed	2200rpm

[] : Power boost

3) GEAR PUMP

Item	Specification
Type	Fixed displacement gear pump single stage
Capacity	10cc/rev
Maximum pressure	40kgf/cm ² (570psi)
Rated oil flow	22 l /min(5.8U.S. gpm/4.8U.K. gpm)

4) MAIN CONTROL VALVE

Item	Specification
Type	9 spools two-block
Operating method	Hydraulic pilot system
Main relief valve pressure	320kgf/cm ² (4550psi) [350kgf/cm ² (4980psi)]
Overload relief valve pressure	380kgf/cm ² (5405psi)

[] : Power boost

5) SWING MOTOR

Item	Specification
Type	Fixed displacement axial piston motor
Capacity	99.2cc/rev
Relief pressure	260kgf/cm ² (3911psi)
Braking system	Automatic, spring applied, hydraulic released
Braking torque	42kgf · m(304lbf · ft)
Brake release pressure	4.5~20kgf/cm ² (64~284psi)
Reduction gear type	2 - stage planetary
Swing speed	12.1rpm

6) TRAVEL MOTOR

Item	Specification
Type	Variable displacement axial piston motor
Relief pressure	350kgf/cm ² (4980psi)
Capacity(max / min)	87.3/55.5cc/rev
Reduction gear type	3-stage planetary
Braking system	Automatic, spring applied, hydraulic released
Brake release pressure	11kgf/cm ² (156psi)
Braking torque	1060~1780kgf · m(7667~12874lbf · ft)

7) REMOTE CONTROL VALVE

Item		Specification
Type		Pressure reducing type
Operating pressure	Minimum	5.5kgf/cm ² (78psi)
	Maximum	19.5kgf/cm ² (277psi)
Single operation stroke	Lever	82.7mm(3.3in)
	Pedal	123mm(4.8in)

8) CYLINDER

Item		Specification
Boom cylinder	Bore dia × Rod dia × Stroke	∅ 110 × ∅ 80 × 1180mm
	Cushion	Extend only
Arm cylinder	Bore dia × Rod dia × Stroke	∅ 120 × ∅ 85 × 1320mm
	Cushion	Extend and retract
Bucket cylinder	Bore dia × Rod dia × Stroke	∅ 105 × ∅ 75 × 1005mm
	Cushion	Extend only

9) SHOE

Item	Width	Ground pressure	Link quantity	Overall width
STD	600mm(24")	0.40kgf/cm ² (5.69psi)	49	2590mm(8' 6")
OPT	500mm(20")	0.47kgf/cm ² (6.68psi)	49	2490mm(8' 2")
	700mm(28")	0.35kgf/cm ² (4.98psi)	49	2690mm(8' 10")
	800mm(32")	0.31kgf/cm ² (4.41psi)	49	2790mm(9' 2")

10) BUCKET

Item	Capacity		Tooth quantity	Width	
	PCSA heaped	CECE heaped		Without side cutter	With side cutter
STD	0.65m ³ (0.85yd ³)	0.55m ³ (0.72yd ³)	5	930mm(37")	1050mm(41")
OPT	0.39m ³ (0.51yd ³)	0.35m ³ (0.46yd ³)	3	620mm(24")	740mm(29")
	0.57m ³ (0.75yd ³)	0.50m ³ (0.65yd ³)	4	840mm(33")	960mm(38")
	0.70m ³ (0.92yd ³)	0.60m ³ (0.78yd ³)	5	990mm(39")	1110mm(44")
	0.80m ³ (1.05yd ³)	0.70m ³ (0.92yd ³)	5	1080mm(43")	1200mm(47")

9. RECOMMENDED OILS

Use only oils listed below or equivalent.

Do not mix different brand oil.

Service point	Kind of fluid	Capacity l (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	11(2.9)					SAE 30				
			SAE 10W								
			SAE 10W-30								
			SAE 15W-40								
Swing drive	Gear oil	3.4(0.9)	SAE 85W-140								
Final drive		4.4 × 2 (1.2 × 2)									
Hydraulic tank	Hydraulic oil	Tank; 120(31.7) System; 210(55.5)	ISO VG 32								
			ISO VG 46								
			ISO VG 68								
Fuel tank	Diesel fuel	250(66.1)	ASTM D975 NO.1								
			ASTM D975 NO.2								
Fitting (Grease nipple)	Grease	As required	NLGI NO.1								
			NLGI NO.2								
Radiator (Reservoir tank)	Mixture of antifreeze and water 50 : 50	24(6.3)	Ethylene glycol base permanent type								

SAE : Society of Automotive Engineers

API : American Petroleum Institute

ISO : International Organization for Standardization

NLGI : National Lubricating Grease Institute

ASTM : American Society of Testing and Material