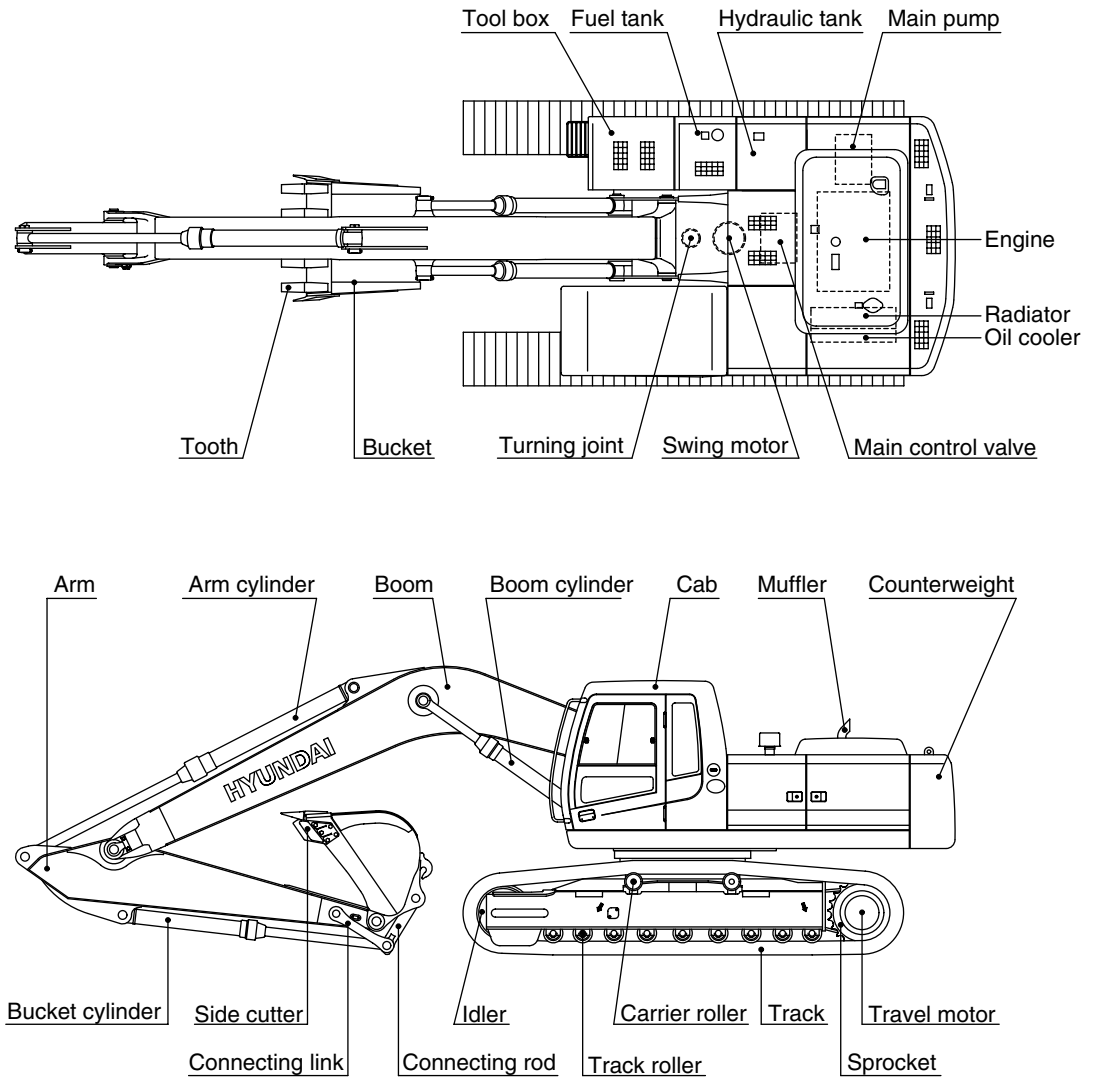


# SPECIFICATIONS

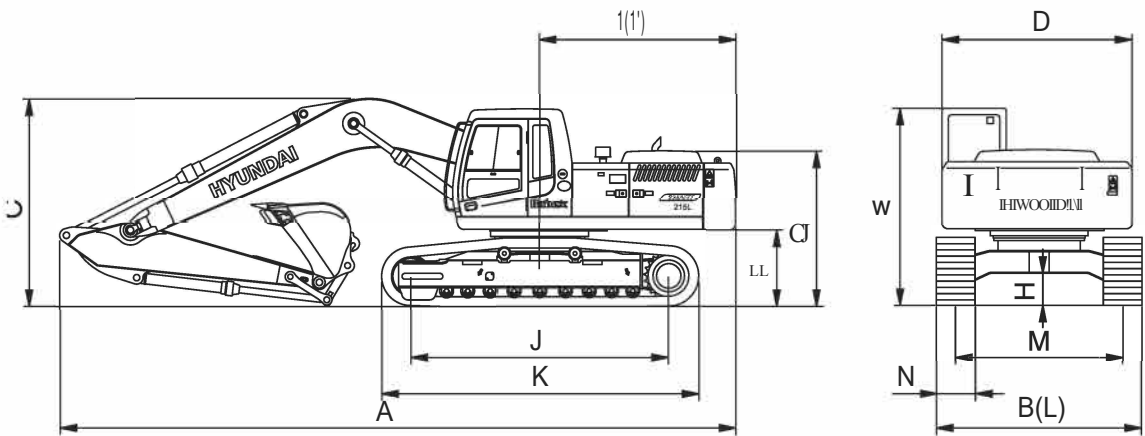
## 1. MAJOR COMPONENT



RD21072SP01

## 12. SPECIFICATIONS

### 1) R215L

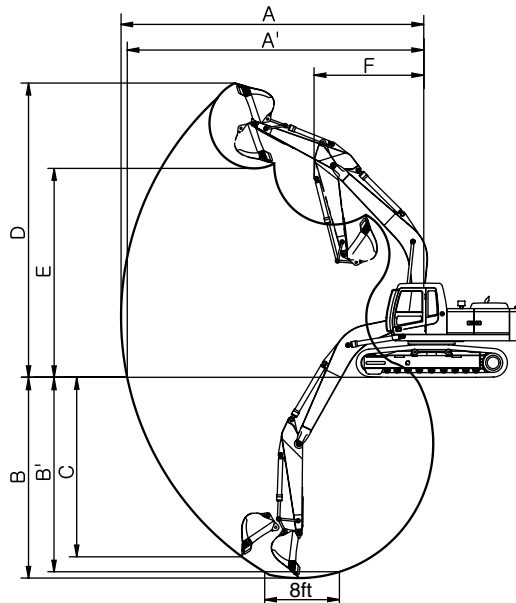


RD22072SP02

Description		Unit	Specification
Operating weight		kg(lb)	21700(47840)
Bucket capacity(SAE heaped), standard		m <sup>3</sup> (yd <sup>3</sup> )	1.05(1.37)
Overall length	A	mm(tt-in)	9570(31' 5")
Overall width, with 600mm shoe	B		2990( 9' 10")
Overall height	C		3110( 10' 2")
Superstructure width	D		2700( 8' 10")
Overall height of cab	E		2920( 9' 7")
Ground clearance of counterweight	F		1060( 3' 6")
Engine cover height	G		2320( 7' 7")
Minimum ground clearance	H		480( 1' 7")
Rear-end distance	I		2770( 9' 1")
Rear-end swing radius	I'		2830( 9' 3")
Distance between tumblers	J		3650(12' 0")
Undercarriage length	K		4440(14' 7")
Undercarriage width	L		2990( 9' 10")
Track gauge	M		2390( 7' 10")
Track shoe width, standard	N		600(24")
Travel speed(Low/high)		km/hr(mph)	3.4/5.3(2.1/3.3)
Swing speed		rpm	13.0
Gradeability		Degree(%)	35(70)
Ground pressure(600mm shoe)		kgf/cm <sup>2</sup> (psi)	0.46(6.54)

### 3. WORKING RANGE

#### 1) 5.68m(18' 8") BOOM



21072SP03

Description		2.0m(6' 7") Arm	*2.40m(7' 10") Arm	2.92m(9' 7") Arm	3.90m(12' 10") Arm
Max digging reach	A	9140mm (30' 0")	9500mm (31' 2")	9940mm (32' 7")	10910mm (35' 10")
Max digging reach on ground	A'	8960mm (29' 5")	9330mm (30' 7")	9780mm (32' 1")	10770mm (35' 4")
Max digging depth	B	5820mm (19' 1")	6220mm (20' 5")	6740mm (22' 1")	7720mm (25' 4")
Max digging depth(8ft level)	B'	5580mm (18' 4")	6010mm (19' 9")	6550mm (21' 6")	7580mm (24' 10")
Max vertical wall digging depth	C	5280mm (17' 4")	5720mm (18' 9")	6120mm (20' 1")	7240mm (23' 9")
Max digging height	D	9140mm (30' 0")	9340mm (30' 8")	9470mm (31' 1")	10110mm (33' 2")
Max dumping height	E	6330mm (20' 9")	6520mm (21' 5")	6670mm (21' 11")	7290mm (23' 11")
Min swing radius	F	3750mm (12' 4")	3740mm (12' 3")	3640mm (11' 11")	3650mm (11' 12")
Bucket digging force	SAE	133 [146] kN	133 [146] kN	133 [146] kN	133 [146] kN
		13600 [14840] kgf	13600 [14840] kgf	13600 [14840] kgf	13600 [14840] kgf
		29980 [32710] lbf	29980 [32710] lbf	29980 [32710] lbf	29980 [32710] lbf
	ISO	152 [166] kN	152 [166] kN	152 [166] kN	152 [166] kN
		15500 [16910] kgf	15500 [16910] kgf	15500 [16910] kgf	15500 [16910] kgf
		34170 [37280] lbf	34170 [37280] lbf	34170 [37280] lbf	34170 [37280] lbf
Arm digging force	SAE	135 [148] kN	113 [123] kN	97 [106] kN	79 [87] kN
		13800 [15050] kgf	11500 [12550] kgf	9900 [10800] kgf	8100 [8840] kgf
		30420 [33190] lbf	25350 [27650] lbf	21830 [23810] lbf	17860 [19480] lbf
	ISO	142 [155] kN	118 [128] kN	101 [110] kN	85 [93] kN
		14500 [15820] kgf	12000 [13090] kgf	10300 [11240] kgf	8700 [9490] kgf
		31970 [34880] lbf	26460 [28870] lbf	22710 [24770] lbf	19170 [20910] lbf

[ ] : Power boost

\* : Standard

## 4. WEIGHT

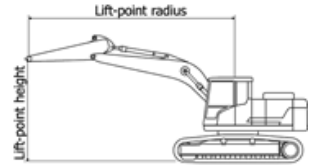
Item	R215L	
	kg	lb
Upperstructure assembly	8950	19730
Main frame weld assembly	1720	3790
Engine assembly	530	1170
Main pump assembly	120	265
Main control valve assembly	200	440
Swing motor assembly	190	420
Hydraulic oil tank assembly	240	530
Fuel tank assembly	195	430
Counterweight	3800	8377
Cab assembly	310	680
Lower chassis assembly	8700	19180
Track frame weld assembly	2720	6000
Swing bearing	260	570
Travel motor assembly	305	670
Turning joint	55	120
Track recoil spring	140	310
Idler	170	370
Carrier roller	20	45
Track roller	50	110
Track-chain assembly(600mm standard triple grouser shoe)	1400	3090
Front attachment assembly(5.68m boom, 2.4m arm, 1.05m³ SAE heaped bucket)	4025	8870
5.68m boom assembly	1530	3370
2.4m arm assembly	670	1480
1.05m³ SAE heaped bucket	810	1790
Boom cylinder assembly	180	400
Arm cylinder assembly	290	640
Bucket cylinder assembly	175	390
Bucket control link assembly	170	370











## 5. LIFTING CAPACITIES

### 1) R215L

(1) 5.68m(18' 8") boom, 2.4m(7'10") arm equipped with 1.05m³(SAE heaped) bucket, 600mm(24") triple grouser shoe and 3800kg counterweight.



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

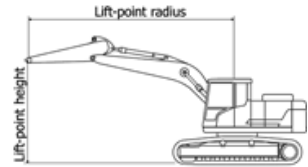












Lift-point height (m/ft)		Lift-point radius								At max. reach		
		3.0m (9.8ft)		4.5m (14.8ft)		6.0m (19.7ft)		7.5m (24.6ft)		Capacity		Reach
												m(ft)
7.5m	kg									*3970	*3970	5.70
24.6ft	lb									*8750	*8750	(18.7)
6.0m	kg					*3900	*3900			*3920	3470	6.91
19.7ft	lb					*8600	*8600			*8640	7650	(22.7)
4.5m	kg			*5070	*5070	*4320	*4320	*4010	2890	*3950	2780	7.64
14.8ft	lb			*11180	*11180	*9520	*9520	*8840	6370	*8710	6130	(25.1)
3.0m	kg			*6630	6490	*5020	4080	*4280	2770	*4150	2440	8.02
9.8ft	lb			*14620	14310	*11070	8990	*9440	6110	*9150	5380	(26.3)
1.5m	kg			*8060	5910	*5740	3810	4540	2640	3990	2310	8.11
4.9ft	lb			*17770	13030	*12650	8400	10010	5820	8800	5090	(26.6)
0.0m	kg	*6120	*6120	*8790	5630	*6240	3620	4440	2550	4090	2340	7.90
0.0ft	lb	*13490	*13490	*19380	12410	*13760	7980	9790	5620	9020	5160	(25.9)
-1.5m	kg	*11080	*11080	*8810	5570	6250	3560			4520	2590	7.39
-4.9ft	lb	*24430	*24430	*19420	12280	13780	7850			9960	5710	(24.2)
-3.0m	kg	*11680	11570	*8120	5670	*5870	3620			*5250	3230	6.49
-9.8ft	lb	*25750	25510	*17900	12500	*12940	7980			*11570	7120	(21.3)
-4.5m	kg	*8970	*8970	*6300	5970					*5510	5080	5.00
-14.8ft	lb	*19780	*19780	*13890	13160					*12150	11200	(16.4)

- Note :
1. Lifting capacity are based on 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 Lift-point is a hook (standard equipment) located on the back of the bucket.
  4. (\*) indicates load limited by hydraulic capacity.

(2) 5.68m(18' 8") boom, 2.40m(7' 10") arm equipped with 1.05m³(SAE heaped) bucket, 600mm(24") triple grouser shoe and 3800kg counterweight.

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

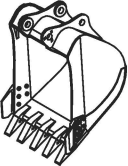
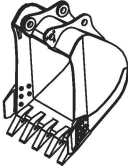
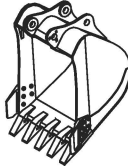


Lift-point height (m/ft)		Lift-point radius								At max. reach		
		3.0m (9.8ft)		4.5m (14.8ft)		6.0m (19.7ft)		7.5m (24.6ft)		Capacity		Reach
												m(ft)
7.5m	kg									*5020	*5020	5.57
24.6ft	lb									*11070	*11070	(18.3)
6.0m	kg					*4800	*4800			*4860	4000	6.80
19.7ft	lb					*10580	*10580			*10710	8820	(22.3)
4.5m	kg			*6130	*6130	*5200	4810	*4880	3350	*4880	3320	7.54
14.8ft	lb			*13510	*13510	*11460	10600	*10760	7390	*10760	7320	(24.7)
3.0m	kg			*7740	6960	*5900	4570	*5090	3270	4730	2990	7.92
9.8ft	lb			*17060	15340	*13010	10080	*11220	7210	10430	6590	(26.0)
1.5m	kg			*9110	6500	*6590	4350	5060	3170	4580	2880	8.01
4.9ft	lb			*20080	14330	*14530	9590	11160	6990	10100	6350	(26.3)
0.0m	kg			*9660	6300	6910	4210	4990	3100	4710	2940	7.81
0.0ft	lb			*21300	13890	15230	9280	11000	6830	10380	6480	(25.6)
-1.5m	kg	*9870	*9870	*9480	6280	6870	4170			5200	3230	7.29
-4.9ft	lb	*21760	*21760	*20900	13850	15150	9190			11460	7120	(23.9)
-3.0m	kg	*11810	*11810	*8570	6400	*6270	4260			*5700	3950	6.37
-9.8ft	lb	*26040	*26040	*18890	14110	*13820	9390			*12570	8710	(20.9)
-4.5m	kg			*6180	*6180					*5530	*5530	4.84
-14.8ft	lb			*13620	*13620					*12190	*12190	(15.9)

- Notes:
1. Lifting capacity are based on 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 Lift-point is bucket pivot mounting pin on the arm(without bucket mass).
  4. (\*) indicates load limited by hydraulic capacity.


## 16. BUCKET SELECTION GUIDE

### 1) GENERAL BUCKET


		
0.92m' SAE heaped bucket	* 1.05m' SAE heaped bucket	1.20m' SAE heaped bucket

Capacity		Width		Weight	Recommendation		
					5.68m (18' 8") boom		
SAE heaped	CECE heaped	Without side cutter	With side cutter		2.0m arm (6' 7")	2.4m arm (7' 10")	2.92m arm (9' 7")
0.92m' (1.20yd')	0.80m' (1.05yd')	1150mm (45.3")	1270mm (50.0")	770kg (1700lb)			
* 1.05m' (1.37yd')	0.90m' (1.18yd')	1250mm (49.2")	1370mm (53.9")	810kg (1790lb)			
1.20m' (1.57yd')	1.00m' (1.31yd')	1400mm (55.1")	1520mm (59.8")	850kg (1870lb)			

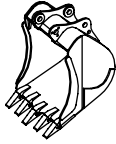
\* : Standard bucket

 Applicable for materials with density of 2000kgVm<sup>3</sup> (3370lbf/ycl<sup>3</sup>) or less

 Applicable for materials with density of 1600kgVm<sup>3</sup> (2700lbf/ycl<sup>3</sup>) or less

 Applicable for materials with density of 1100kgVm<sup>3</sup> (1850lbf/ycl<sup>3</sup>) or less




## 2) ROCK-HEAVY DUTY BUCKET



⊙ 0.87, 0.95m<sup>3</sup> SAE heaped bucket

Capacity		Width		Weight	Recommendation		
					5.68m (18' 8") boom		
SAE heaped	CECE heaped	Without side cutter	With side cutter		2.0m arm (6' 7")	2.4m arm (7' 10")	2.92m arm (9' 7")
⊙ 0.87m <sup>3</sup> (1.14yd <sup>3</sup> )	0.75m <sup>3</sup> (0.98yd <sup>3</sup> )	1140mm (44.9")	-	900kg (1980lb)			
⊙ 0.95m <sup>3</sup> (1.25yd <sup>3</sup> )	1.83m <sup>3</sup> (1.09yd <sup>3</sup> )	1240mm (44.9")	-	983kg (2187lb)			

⊙: Rock-Heavy duty bucket

-  Applicable for materials with density of 2000kgf/m<sup>3</sup> (3370lbf/yd<sup>3</sup>) or less
-  Applicable for materials with density of 1600kgf/m<sup>3</sup> (2700lbf/yd<sup>3</sup>) or less
-  Applicable for materials with density of 1100kgf/m<sup>3</sup> (1850lbf/yd<sup>3</sup>) or less

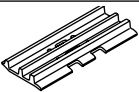


## 7. UNDERCARRIAGE

### 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	
				
R215L	Shoe width	mm(in)	600(24)	500(20")
	Operating weight	kg(lb)	22200(49332)	22110(48740)
	Ground pressure	kgf/cm <sup>2</sup> (psi)	0.46(6.54)	0.55(7.82)
	Overall width	mm(ft-in)	2990(9' 10")	2700(8' 10")

### 3) NUMBER OF ROLLERS AND SHOES ON EACH SIDE

Item	Quantity
Carrier rollers	2EA
Track rollers	9EA
Track shoes	49EA

### 4) SELECTION OF TRACK SHOE

Suitable track shoes should be selected according to operating conditions.

#### Method of selecting shoes

Confirm the category from the list of applications in **table 2**, then use **table 1** to select the shoe. Wide shoes(Categories B and C) have limitations on applications. Before using wide shoes, check the precautions, then investigate and study the operating conditions to confirm if these shoes are suitable.

Select the narrowest shoe possible to meet the required flotation and ground pressure. Application of wider shoes than recommendations will cause unexpected problem such as bending of shoes, crack of link, breakage of pin, loosening of shoe bolts and the other various problems.

※ **Table 1**

Track shoe	Specification	Category
600mm triple grouser	Standard	A
500mm triple grouser	Option	B

※ **Table 2**

Category	Applications	Precautions
A	Rocky ground, river beds, normal soil	<ul style="list-style-type: none"> <li>Travel at low speed on rough ground with large obstacles such as boulders or fallen trees</li> </ul>
B	Normal soil, soft ground	<ul style="list-style-type: none"> <li>These shoes cannot be used on rough ground with large obstacles such as boulders or fallen trees</li> <li>Travel at high speed only on flat ground</li> <li>Travel slowly at low speed if it is impossible to avoid going over obstacles</li> </ul>
C	Extremely soft ground (Swampy ground)	<ul style="list-style-type: none"> <li>Use the shoes only in the conditions that the machine sinks and it is impossible to use the shoes of category A or B</li> <li>These shoes cannot be used on rough ground with large obstacles such as boulders or fallen trees</li> <li>Travel at high speed only on flat ground</li> <li>Travel slowly at low speed if it is impossible to avoid going over obstacles</li> </ul>

## 8. SPECIFICATIONS FOR MAJOR COMPONENTS

### 1) ENGINE

Item	Specification
Model	Cummins 6BTA5.9 (Cummins-India)
Type	4-cycle turbocharged diesel engine, low emission
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	102 × 120mm(4.02" × 4.72")
Piston displacement	5880cc(359cu in)
Compression ratio	17.4 : 1
Rated gross horse power (SAE J1995)	148Hp at 2000rpm(110kW at 2000rpm)
Maximum torque at 1300rpm	62.9kgf · m(456lbf · ft)
Engine oil quantity	17 l (4.49U.S. gal)
Dry weight	432kg(952lb)
High idling speed	2200+ 50rpm
Low idling speed	1000 ± 100rpm
Rated fuel consumption	166.3g/Hp · hr at 2000rpm
Starting motor	24V-4.5kW
Alternator	Lucas TVS(24V-4.5A)
Battery	2 × 12V × 100Ah

### 2) MAIN PUMP

Item	Specification
Type	Variable displacement tandem axis piston pumps
Capacity	2 × 113cc/rev
Maximum pressure	330kgf/cm <sup>2</sup> (4694psi)
Rated oil flow	2 × 210 l /min (55.5U.S. gpm/ 46.2U.K. gpm)

### 3) GEAR PUMP

Item	Specification
Type	Fixed displacement gear pump single stage
Capacity	10cc/rev
Maximum pressure	35kgf/cm <sup>2</sup> (500psi)
Rated oil flow	19.5 l /min(5.2U.S. gpm/4.2U.K. gpm)

### 4) MAIN CONTROL VALVE

Item	Specification
Type	9 spools mono-block
Operating method	Hydraulic pilot system
Main relief valve pressure	330kgf/cm <sup>2</sup> (4695psi)
Overload relief valve pressure	390kgf/cm <sup>2</sup> (5550psi)

### 5) SWING MOTOR

Item	Specification
Type	Two fixed displacement axial piston motor
Capacity	151cc/rev
Relief pressure	240kgf/cm <sup>2</sup> (3414psi)
Braking system	Automatic, spring applied hydraulic released
Braking torque	59kgf · m(427lbf · ft)
Brake release pressure	33~50kgf/cm <sup>2</sup> (470~711psi)
Reduction gear type	2 - stage planetary
Swing speed	11rpm

### 6) TRAVEL MOTOR

Item	Specification
Type	Variable displacement axial piston motor
Relief pressure	330kgf/cm <sup>2</sup> (4695psi)
Reduction gear type	2-stage planetary
Braking system	Automatic, spring applied hydraulic released
Brake release pressure	11kgf/cm <sup>2</sup> (156psi)
Braking torque	49.3kgf · m(357lbf · ft)

## 7) REMOTE CONTROL VALVE

Item		Specification
Type		Pressure reducing type
Operating pressure	Minimum	6.5kgf/cm <sup>2</sup> (92psi)
	Maximum	26kgf/cm <sup>2</sup> (370psi)
Single operation stroke	Lever	61mm(2.4in)
	Pedal	123mm(4.84in)

## 8) CYLINDER

Item		Specification
Boom cylinder	Bore dia × Rod dia × Stroke	ø 120 × ø 85 × 1290mm
	Cushion	Extend only
Arm cylinder	Bore dia × Rod dia × Stroke	ø 140 × ø 100 × 1510mm
	Cushion	Extend and retract
Bucket cylinder	Bore dia × Rod dia × Stroke	ø 125 × ø 85 × 1055mm
	Cushion	Extend only

※ **Discoloration of cylinder rod can occur when the friction reduction additive of lubrication oil spreads on the rod surface.**

※ **Discoloration does not cause any harmful effect on the cylinder performance.**

## 9) SHOE

Item		Width	Ground pressure	Link quantity	Overall width
R215L	Standard	600mm(24")	0.46kgf/cm <sup>2</sup> (6.54psi)	49	2990mm(9' 10")
	Option				
		500mm(20")	0.55kgf/cm <sup>2</sup> (7.82psi)	49	2700mm(8' 10")

## 10) BUCKET

Item		Capacity		Tooth quantity	Width	
		SAE heaped	CECE heaped		Without side cutter	With side cutter
R215L	STD	0.92m <sup>3</sup> (1.20yd <sup>3</sup> )	0.80m <sup>3</sup> (1.05yd <sup>3</sup> )	5	1150mm(45.3")	1270mm(50.0")
	OPT	0.80m <sup>3</sup> (1.05yd <sup>3</sup> )	0.70m <sup>3</sup> (0.92yd <sup>3</sup> )	5	1000mm(39.4")	1120mm(44.1")
		1.05m <sup>3</sup> (1.37yd <sup>3</sup> )	0.90m <sup>3</sup> (7.18yd <sup>3</sup> )	5	1250mm(49.2")	1370mm(53.9")
		1.20m <sup>3</sup> (1.57yd <sup>3</sup> )	1.00m <sup>3</sup> (1.31yd <sup>3</sup> )	6	1400mm(55.1")	1520mm(59.8")
		⊙0.87m <sup>3</sup> (1.14yd <sup>3</sup> )	0.75m <sup>3</sup> (0.98yd <sup>3</sup> )	5	1140mm(44.9")	-

◆ : Heavy duty bucket

⊙ : Rock-Heavy duty bucket

## 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	17.0(4.49)					SAE 30				
			SAE 10W								
			SAE 10W-30								
			SAE 15W-40								
Swing drive	Gear oil	5.0(1.3)		SAE 85W-140							
Final drive		5.8 × 2 (1.5 × 2)									
Hydraulic tank	Hydraulic oil	Tank; 150(3 .62)  System; 260(68.68)	ISO VG 32								
			ISO VG 46								
			ISO VG 68 LF* / ISO VG 68*								
Fuel tank	Diesel fuel	340(90)	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	35(9.2)		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

**ISO VG 68 LF** : Long Life Oil

**ISO VG 68** : Conventional Oil