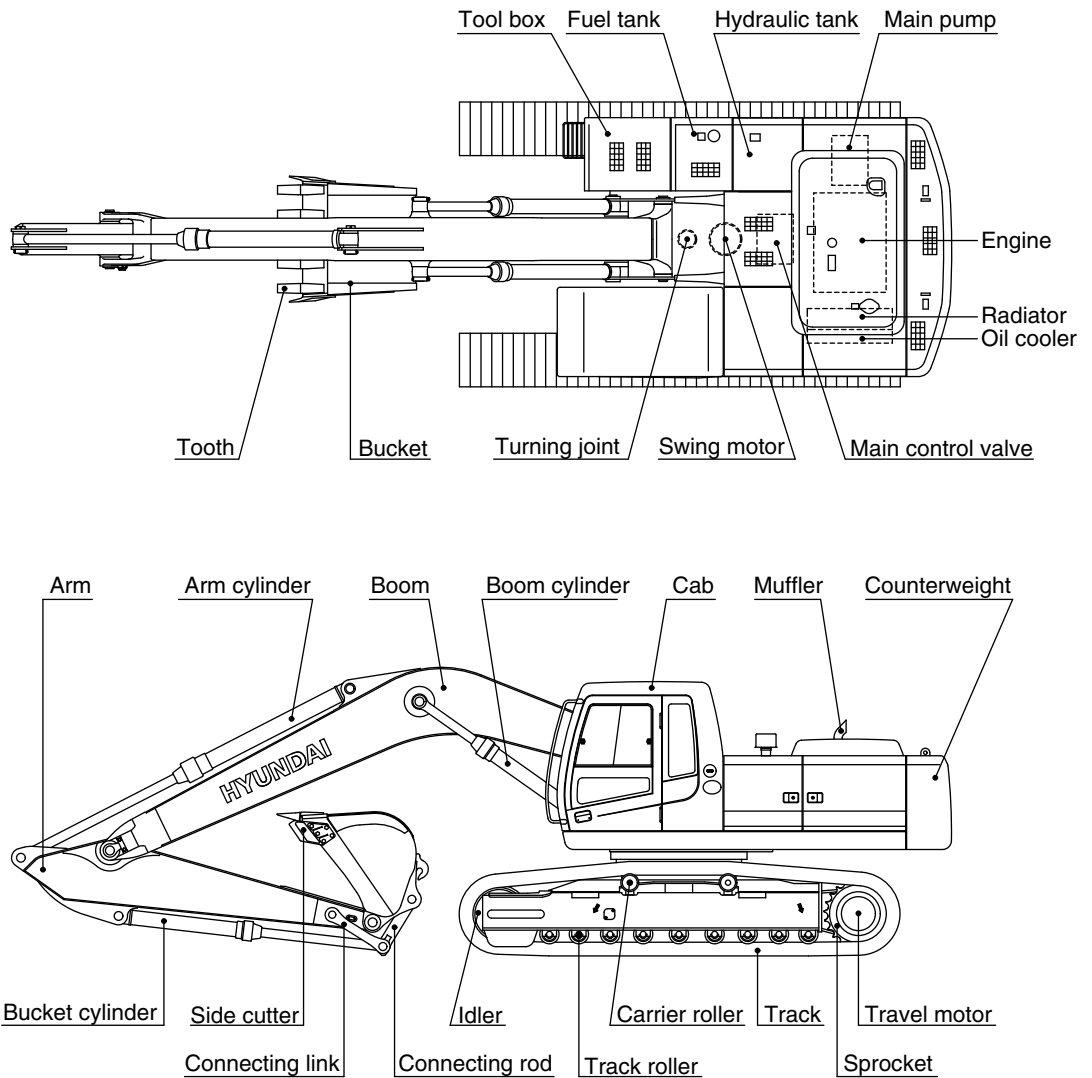


SPECIFICATIONS

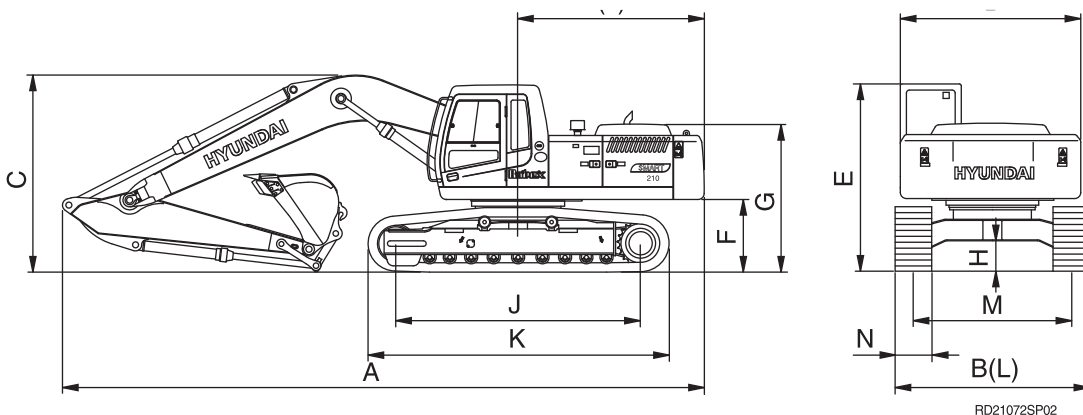
1. MAJOR COMPONENT



RD21072SP01

2. SPECIFICATIONS

1) R 210

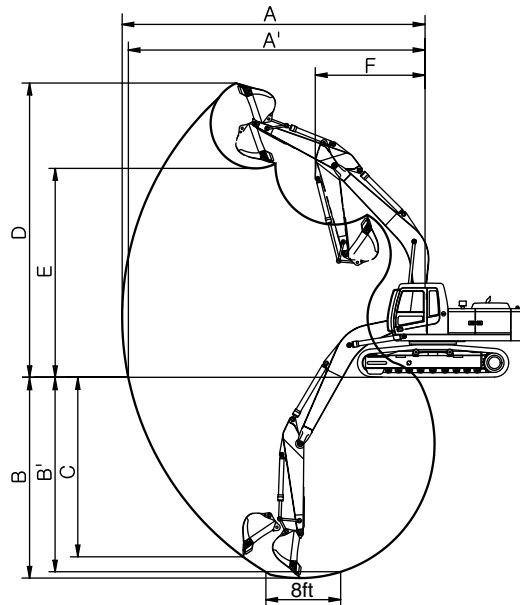


RD21072SP02

Description		Unit	Specification
Operating weight		kg(lb)	21200(47111)
Bucket capacity(SAE heaped), standard		m ³ (yd ³)	0.92(1.20)
Overall length	A	mm(ft-in)	9570(31' 5")
Overall width, with 500mm shoe	B		2700(8' 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		3370(11' 1")
Undercarriage length	K		4160(13' 8")
Undercarriage width	L		2700(8' 10")
Track gauge	M		2200(7' 3")
Track shoe width, standard	N		500(20")
Travel speed(Low/high)		km/hr(mph)	3.5/5.2(2.2/3.2)
Swing speed		rpm	11.0
Gradeability		Degree(%)	35(70)
Ground pressure(500mm shoe)		kgf/cm ² (psi)	0.54(7.68)

3. WORKING RANGE

1) R210[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 kN	133 kN	133 kN	133 kN
		13600 kgf	13600 kgf	13600 kgf	13600 kgf
		29980 lbf	29980 lbf	29980 lbf	29980 lbf
	ISO	152 kN	152 kN	152 kN	152 kN
		15500 kgf	15500 kgf	15500 kgf	15500 kgf
		34170 lbf	34170 lbf	34170 lbf	34170 lbf
Arm digging force	SAE	135 kN	113 kN	97 kN	79 kN
		13800 kgf	11500 kgf	9900 kgf	8100 kgf
		30420 lbf	25350 lbf	21830 lbf	17860 lbf
	ISO	142 kN	118 kN	101 kN	85 kN
		14500 kgf	12000 kgf	10300 kgf	8700 kgf
		31970 lbf	26460 lbf	22710 lbf	19170 lbf

* : Standard

4. WEIGHT

1) R210

Item	R210	
	kg	lb
Upperstructure assembly	8950	19730
Main frame weld assembly	1720	3790
Engine assembly	430	950
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	8380
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(500mm standard triple grouser shoe)	1190	2620
Front attachment assembly(5.68m boom, 2.4m arm, 0.92m³ SAE heaped bucket)	4025	8870
5.68m boom assembly	1530	3370
2.4m arm assembly	670	1480
0.92m³ SAE heaped bucket	765	1690
Boom cylinder assembly	180	400
Arm cylinder assembly	290	640
Bucket cylinder assembly	175	390
Bucket control link assembly	170	370

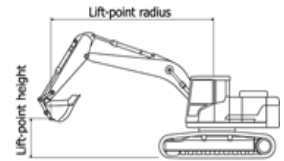
5. LIFTING CAPACITIES

1) R 210

(1) 5.68m(18' 8") boom, 2.4m(7'10") arm equipped with 1.05m³(SAE heaped) bucket, 500mm(20") 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	3100	6.91
19.7ft	lb					*8600	*8600			*8640	6830	(22.7)
4.5m	kg			*5070	*5070	*4320	3910	*4010	2560	*3950	2470	7.64
14.8ft	lb			*11180	*11180	*9520	8620	*8840	5640	*8710	5450	(25.1)
3.0m	kg			*6630	5760	*5020	3630	4060	2450	3610	2150	8.02
9.8ft	lb			*14620	12700	*11070	8000	8950	5400	7960	4740	(26.3)
1.5m	kg			*8060	5200	5640	3360	3920	2320	3450	2020	8.11
4.9ft	lb			*17770	11460	12430	7410	8640	5110	7610	4450	(26.6)
0.0m	kg	*6120	*6120	8700	4920	5440	3180	3830	2230	3520	2040	7.90
0.0ft	lb	*13490	*13490	19180	10850	11990	7010	8440	4920	7760	4500	(25.9)
-1.5m	kg	*11080	9730	8640	4870	5370	3110			3900	2260	7.39
-4.9ft	lb	*24430	21450	19050	10740	11840	6860			8600	4980	(24.2)
-3.0m	kg	*11680	9970	*8120	4970	5440	3180			4830	2840	6.49
-9.8ft	lb	*25750	21980	*17900	10960	11990	7010			10650	6260	(21.3)
-4.5m	kg	*8970	*8970	*6300	5260					*5510	4480	5.00
-14.8ft	lb	*19780	*19780	*13890	11600					*12150	9880	(16.4)

- 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 a hook (standard equipment) located on the back of the bucket.
 4. (*) indicates load limited by hydraulic capacity.

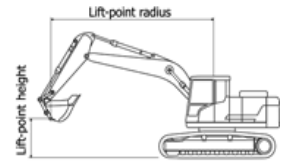
5. LIFTING CAPACITIES

1) R210

- (2) 5.68m(18' 8") boom, 2.4m(7'10") arm equipped with 1.05m³(SAE heaped) bucket, 500mm(20") 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	4510			*4860	3620	6.80
19.7ft	lb					*10580	9940			*10710	7980	(22.3)
4.5m	kg			*6130	*6130	*5200	4360	4640	3020	4600	3000	7.54
14.8ft	lb			*13510	*13510	*11460	9610	10230	6660	10140	6610	(24.7)
3.0m	kg			*7740	6230	*5900	4120	4550	2940	4170	2690	7.92
9.8ft	lb			*17060	13730	*13010	9080	10030	6480	9190	5930	(26.0)
1.5m	kg			*9110	5790	6180	3900	4440	2850	4030	2580	8.01
4.9ft	lb			*20080	12760	13620	8600	9790	6280	8880	5690	(26.3)
0.0m	kg			9380	5600	6030	3760	4370	2780	4140	2640	7.81
0.0ft	lb			20680	12350	13290	8290	9630	6130	9130	5820	(25.6)
-1.5m	kg	*9870	*9870	9370	5580	5990	3730			4560	2900	7.29
-4.9ft	lb	*21760	*21760	20660	12300	13210	8220			10050	6390	(23.9)
-3.0m	kg	*11810	10940	*8570	5690	6080	3820			5600	3550	6.37
-9.8ft	lb	*26040	24120	*18890	12540	13400	8420			12350	7830	(20.9)
-4.5m	kg			*6180	6000					*5530	5440	4.84
-14.8ft	lb			*13620	13230					*12190	11990	(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.

(2) 5.68m(18' 8") boom, 2.40m(7' 10") arm equipped with 0.92m³(SAE heaped) bucket, 500mm (20") triple grouser shoe and 3800kg counterweight.

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											*3450 *7610	*3450 *7610	7.15 (23.5)
6.0m (20ft)	kg lb							*3750 *8270	*3750 *8270			*3520 *7760	2630 5800	8.20 (26.9)
4.5m (15ft)	kg lb							*4190 *9240	*4190 *9240	*3940 *8690	2970 6550	*3630 *8000	2220 4890	8.82 (28.9)
3.0m (10ft)	kg lb					*6420 *14150	*6420 *14150	*4920 *10850	4190 9240	*4240 *9350	2860 6310	3560 7850	2020 4450	9.11 (29.9)
1.5m (5ft)	kg lb					*7960 *17550	6040 13320	*5690 *12540	3910 8620	*4620 *10190	2720 6000	3500 7720	1970 4340	9.10 (29.9)
Ground Line	kg lb			*8300 *18300	*8300 *18300	*8820 *19440	5730 12630	*6260 *13800	3710 8180	4670 10300	2620 5780	3670 8090	2060 4540	8.81 (28.9)
-1.5m (-5ft)	kg lb	*9220 *20330	*9220 *20330	*12750 *28110	11370 25070	*8970 *19780	5650 12460	*6460 *14240	3630 8000			4140 9130	2350 5180	8.18 (26.8)
-3.0m (-10ft)	kg lb	*13340 *29410	*13340 *29410	*12280 *27070	11580 25530	*8430 *18580	5730 12630	*6110 *13470	3670 8090			*4360 *9610	3020 6660	7.12 (23.4)
-4.5m (-15ft)	kg lb			*9840 *21690	*9840 *21690	*6850 *15100	5980 13180							

(3) 5.68m(18' 8") boom, 2.92m(9' 7") arm equipped with 0.92m³(SAE heaped) bucket, 500mm (20") triple grouser shoe and 3800kg counterweight.

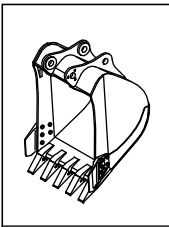
Load point height		Load radius										At max. reach		
		1.5m(5ft)		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		Capacity		Reach
														m(ft)
7.5m (25ft)	kg lb											*3120 *6880	3080 6790	7.72 (25.3)
6.0m (20ft)	kg lb											*3210 *7080	2390 5270	8.69 (28.5)
4.5m (15ft)	kg lb							*3770 *8310	*3770 *8310	*3590 *7910	3040 6700	*3340 *7360	2040 4500	9.27 (30.4)
3.0m (10ft)	kg lb			*9160 *20190	*9160 *20190	*5760 *12700	*5760 *12700	*4530 *9990	4270 9410	*3950 *8710	2900 6390	3300 7280	1860 4100	9.55 (31.3)
1.5m (5ft)	kg lb			*8660 *19090	*8660 *19090	*7430 *16380	6180 13620	*5380 *11860	3960 8730	*4390 *9680	2750 6060	3240 7140	1810 3990	9.54 (31.3)
Ground Line	kg lb			*9310 *20530	*9310 *20530	*8550 *18850	5780 12740	*6060 *13360	3730 8220	4670 10300	2620 5780	3370 7430	1870 4120	9.26 (30.4)
-1.5m (-5ft)	kg lb	*8550 *18850	*8550 *18850	*12160 *26810	11240 24780	*8950 *19730	5630 12410	*6400 *14110	3610 7960	4590 10120	2560 5640	3740 8250	2100 4630	8.67 (28.4)
-3.0m (-10ft)	kg lb	*11700 *25790	*11700 *25790	*13020 *28700	11400 25130	*8680 *19140	5640 12430	*6280 *13850	3600 7940			*4230 *9330	2610 5750	7.69 (25.2)
-4.5m (-15ft)	kg lb			*11040 *24340	*11040 *24340	*7560 *16670	5820 12830					*4140 *9130	3950 8710	6.09 (20.0)

(4) 5.68m(18' 8") boom, 3.90m(12' 10") arm equipped with 0.92m³(SAE heaped) bucket, 500mm(20") triple grouser shoe and 3800kg counterweight.

Load point height		Load radius												At max. reach		
		1.5m(5ft)		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		9.0m(30ft)		Capacity		Reach
																m(ft)
9.0m (30ft)	kg lb													*2590 *5710	*2590 *5710	7.66 (25.1)
7.5m (25ft)	kg lb									*1870 *4120	*1870 *4120			*2640 *5820	2340 5160	8.94 (29.3)
6.0m (20ft)	kg lb									*2670 *5890	*2670 *5890			*2720 *6000	1890 4170	9.77 (32.1)
4.5m (15ft)	kg lb									*2910 *6420	*2910 *6420	*1930 *4250	*1930 *4250	*2830 *6240	1640 3620	10.28 (33.7)
3.0m (10ft)	kg lb							*3710 *8180	*3710 *8180	*3340 *7360	2970 6550	*2750 *6060	2060 4540	2760 6080	1500 3310	10.52 (34.5)
1.5m (5ft)	kg lb			*10430 *22990	*10430 *22990	*6230 *13730	*6230 *13730	*4640 *10230	4050 8930	*3860 *8510	2770 6110	*3260 *7190	1960 4320	2710 5970	1460 3220	10.52 (34.5)
Ground Line	kg lb	*4950 *10910	*4950 *10910	*9990 *22020	*9990 *22020	*7720 *17020	5850 12900	*5490 *12100	3740 8250	*4360 *9610	2600 5730	*3340 *7360	1870 4120	2790 6150	1490 3280	10.27 (33.7)
-1.5m (-5ft)	kg lb	*7060 *15560	*7060 *15560	*10980 *24210	10970 24180	*8560 *18870	5540 12210	*6070 *13380	3540 7800	4520 9960	2470 5450	*2240 *4940	1820 4010	3030 6680	1640 3620	9.75 (32.0)
-3.0m (-10ft)	kg lb	*9410 *20750	*9410 *20750	*13520 *29810	10960 24160	*8760 *19310	5440 11990	*6270 *13820	3460 7630	4470 9850	2430 5360			3530 7780	1940 4280	8.91 (29.2)
-4.5m (-15ft)	kg lb	*12210 *26920	*12210 *26920	*12480 *27510	11190 24670	*8250 *18190	5520 12170	*5920 *13050	3500 7720					*3770 *8310	2610 5750	7.62 (25.0)
-6.0m (-20ft)	kg lb			*9890 *21800	*9890 *21800	*6620 *14590	5790 12760									

6. BUCKET SELECTION GUIDE

1) GENERAL BUCKET



※ 0.92m³ 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 ³ (1.20yd ³)	0.80m ³ (1.05yd ³)	1150mm (45.3")	1270mm (50.0")	770kg (1700lb)			

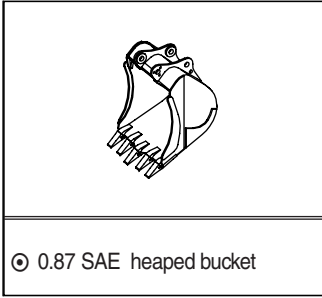
※ : Standard bucket

 Applicable for materials with density of 2000kgf/m³ (3370lbf/yd³) or less

 Applicable for materials with density of 1600kgf/m³ (2700lbf/yd³) or less

 Applicable for materials with density of 1100kgf/m³ (1850lbf/yd³) or less

2) ROCK-HEAVY DUTY BUCKET

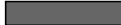


Capacity		Width		Weight	Recommendation			
					5.68m (18' 8") boom			
SAE heaped	CECE heaped	Without side cutter	With side cutter		2.0m arm (6' 7")	2.4m arm (7' 10")	2.92m arm (9' 7")	
⊙ 0.87m³ (1.14yd³)	0.75m³ (0.98yd³)	1140mm (44.9")	-	900kg (1980lb)				

⊙: Rock-Heavy duty bucket

 Applicable for materials with density of 2000kgf/m³ (3370lbf/yd³) or less

 Applicable for materials with density of 1600kgf/m³ (2700lbf/yd³) or less

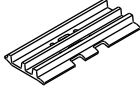
 Applicable for materials with density of 1100kgf/m³ (1850lbf/yd³) or less

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
			
R210	Shoe width	mm(in)	500(20)
	Operating weight	kg(lb)	21200(47111)
	Ground pressure	kgf/cm ² (psi)	0.54(7.68)
	Overall width	mm(ft-in)	2700(8' 10")

3) NUMBER OF ROLLERS AND SHOES ON EACH SIDE

Item	Quantity
Carrier rollers	2EA
Track rollers	7EA
Track shoes	46EA

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.

※ **Table 1**

Track shoe	Specification	Category
500mm triple grouser	Standard	A

※ **Table 2**

Category	Applications	Precautions
A	Rocky ground, river beds, normal soil	• Travel at low speed on rough ground with large obstacles such as boulders or fallen trees

8. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Cummins 6BT5.9
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)	139Hp at 2000rpm(104kW at 2000rpm)
Maximum torque at 1600rpm	57.6kgf · m(416lbf · 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 ² (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 ² (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 ² (4695psi)
Overload relief valve pressure	390kgf/cm ² (5550psi)

5) SWING MOTOR

Item	Specification
Type	Two fixed displacement axial piston motor
Capacity	151cc/rev
Relief pressure	240kgf/cm ² (3414psi)
Braking system	Automatic, spring applied hydraulic released
Braking torque	59kgf · m(427lbf · ft)
Brake release pressure	33~50kgf/cm ² (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 ² (4695psi)
Reduction gear type	2-stage planetary
Braking system	Automatic, spring applied hydraulic released
Brake release pressure	11kgf/cm ² (156psi)
Braking torque	49.3kgf · m(357lbf · ft)

7) REMOTE CONTROL VALVE

Item		Specification
Type		Pressure reducing type
Operating pressure	Minimum	6.5kgf/cm ² (92psi)
	Maximum	26kgf/cm ² (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
R210	Standard	500mm(20")	0.54kgf/cm ² (7.68psi)	46	2700mm(8' 10")

10) BUCKET

Item		Capacity		Tooth quantity	Width	
		SAE heaped	CECE heaped		Without side cutter	With side cutter
R210	STD	0.92m ³ (1.20yd ³)	0.80m ³ (1.05yd ³)	5	1150mm(45.3")	1270mm(50.0")
	OPT	⊙0.87m ³ (1.14yd ³)	0.75m ³ (0.98yd ³)	5	1140mm(44.9")	-

⊙ : 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; 180(48)	ISO VG 32						
		System; 290(77)		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