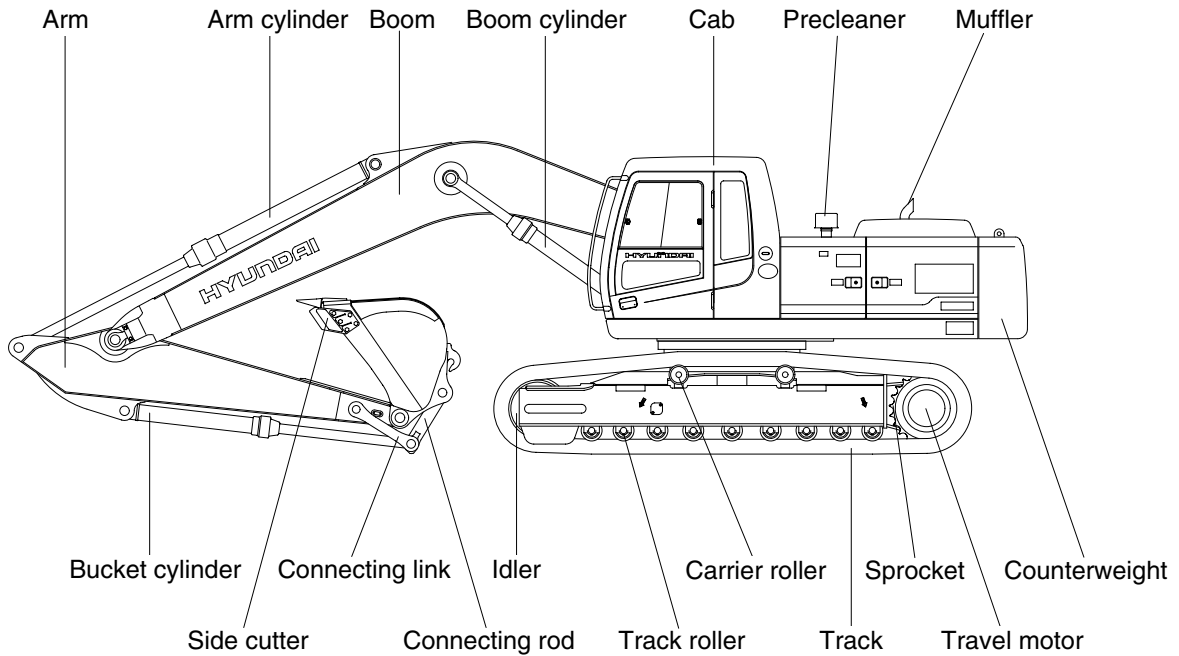
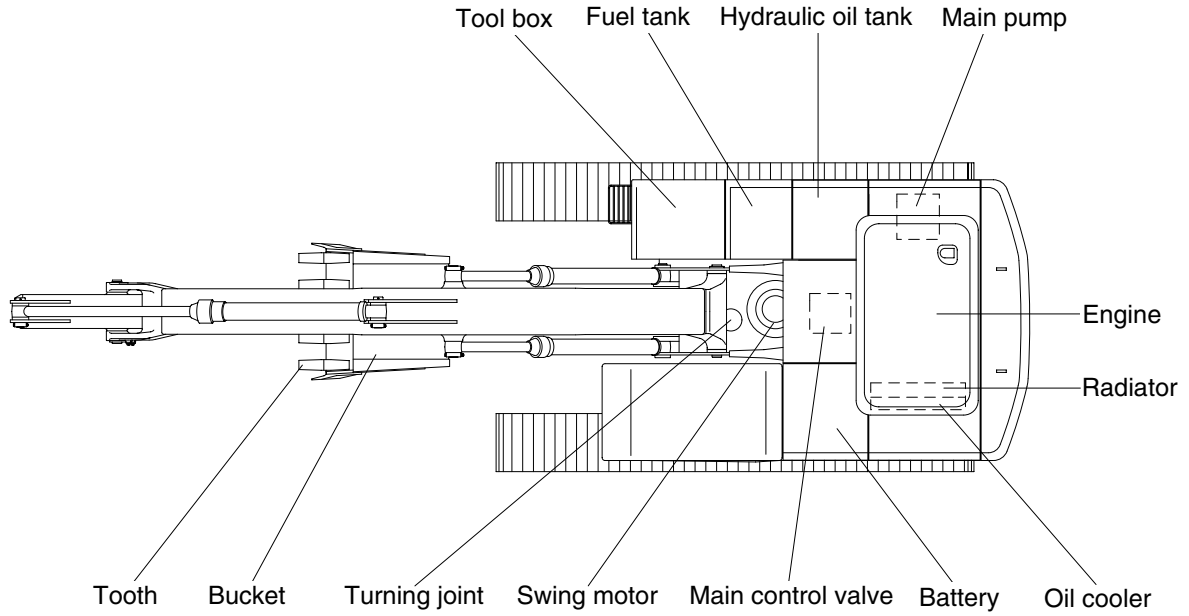


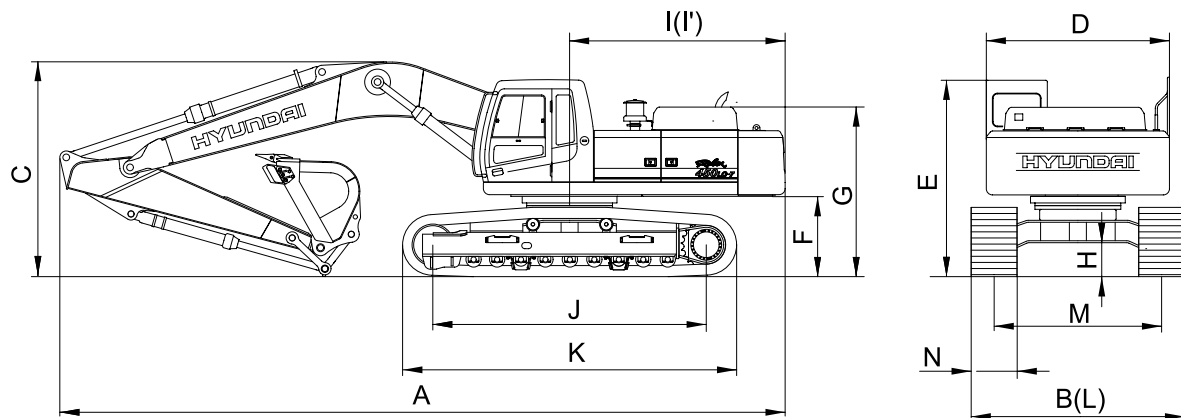
GROUP 2 SPECIFICATIONS

1. MAJOR COMPONENT



45072SP00

2. SPECIFICATIONS

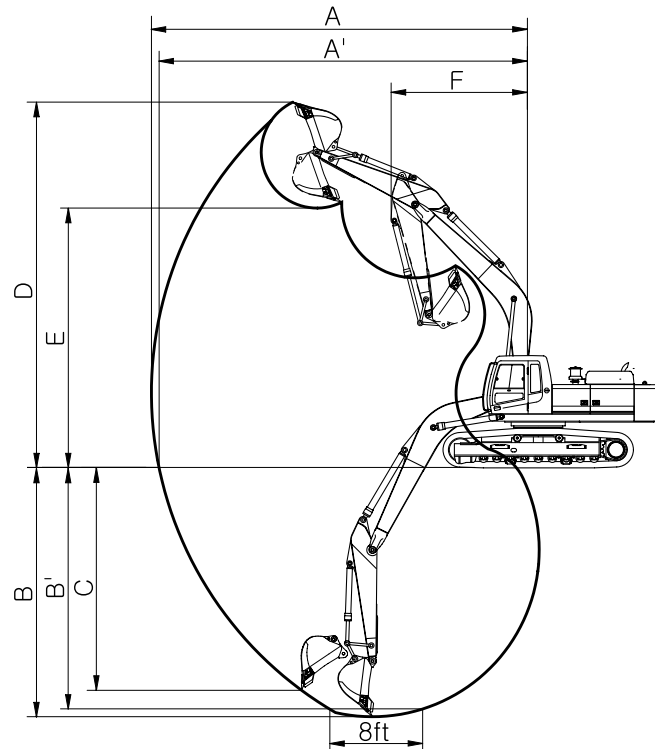


45072SP01

Description		Unit	Specification
Operating weight		kg(lb)	44900(99000,~#0463) 45200(99650,#0464~)
Bucket capacity(SAE heaped), standard		m ³ (yd ³)	2.15(2.81)
Overall length	A	mm(ft-in)	12000(39' 4")
Overall width, with 600mm shoe	B		3340(10'11")
Overall height	C		3600(11'10")
Superstructure width	D		2980(9' 9")
Overall height of cab	E		3250(10' 8")
Ground clearance of counterweight	F		1340(4' 5")
Engine cover height	G		2792(9' 2")
Minimum ground clearance	H		555(1'10")
Rear-end distance	I		3665(12' 0")
Rear-end swing radius	I'		3720(12' 2")
Distance between tumbler rollers	J		4470(14' 8")
Undercarriage length	K		5462(17'11")
Undercarriage width	L		3340(10'11")
Track gauge	M		2740(8'12")
Track shoe width, standard	N		600(24")
Travel speed(Low/high)		km/hr(mph)	3.2/5.3(2.0/3.3)
Swing speed		rpm	10.3
Gradeability		Degree(%)	35(70)
Ground pressure(600mm shoe)		kgf/cm ² (psi)	0.78(11.09)

3. WORKING RANGE

• 7.06m(23' 2") BOOM

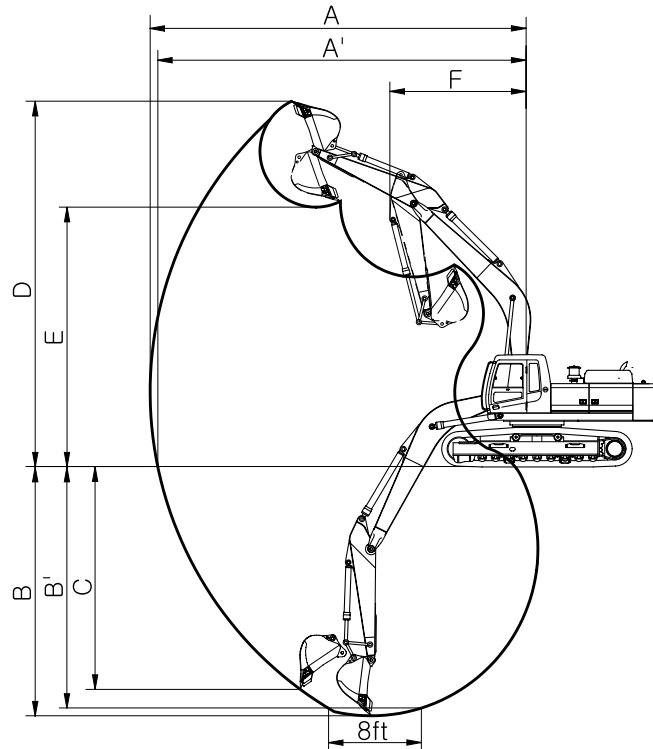


45072SP04

Description		2.40m(7'10") Arm	2.90m(9' 6") Arm	3.38m(11' 1") Arm	4.00m(13' 1") Arm	4.50m(14' 9") Arm
Max digging reach	A	11160mm (36' 7")	11550mm (37'11")	12100mm (39' 8")	12660mm (41' 6")	13150mm (43' 2")
Max digging reach on ground	A'	10940mm (35'11")	11340mm (37' 2")	11900mm (39' 1")	12470mm (40'11")	12960mm (42' 6")
Max digging depth	B	6810mm (22' 4")	7310mm (23'12")	7790mm (25' 7")	8410mm (27' 7")	8910mm (29' 3")
Max digging depth (8ft level)	B'	6620mm (21' 9")	7140mm (23' 5")	7640mm (25' 1")	8280mm (27' 2")	8790mm (28'10")
Max vertical wall digging depth	C	5990mm (19' 8")	5850mm (19' 2")	6560mm (21' 6")	7290mm (23'11")	7690mm (25' 3")
Max digging height	D	10600mm (34' 9")	10550mm (34' 7")	11030mm (36' 2")	11250mm (36'11")	11500mm (37' 9")
Max dumping height	E	7190mm (23' 7")	7240mm (23' 9")	7660mm (25' 2")	7880mm (25'10")	8120mm (26' 8")
Min swing radius	F	5090mm (16' 8")	4900mm (16' 1")	4780mm (15' 8")	4830mm (15'10")	4870mm (15'12")
Bucket digging force	SAE	224[244] kN	224[244] kN	224[244] kN	224[244] kN	224[244] kN
		22800[24870] kgf	22800[24870] kgf	22800[24870] kgf	22800[24870] kgf	22800[24870] kgf
		50270[54840] lbf	50270[54840] lbf	50270[54840] lbf	50270[54840] lbf	50270[54840] lbf
	ISO	256[279] kN	256[279] kN	256[279] kN	256[279] kN	256[279] kN
		26100[28470] kgf	26100[28470] kgf	26100[28470] kgf	26100[28470] kgf	26100[28470] kgf
		57540[62770] lbf	57540[62770] lbf	57540[62770] lbf	57540[62770] lbf	57540[62770] lbf
Arm crowd force	SAE	266[290] kN	216[235] kN	180[197] kN	164[179] kN	153[167] kN
		27100[29560] kgf	22000[24000] kgf	18400[20070] kgf	16700[18220] kgf	15600[17020] kgf
		59750[65180] lbf	48500[52910] lbf	40570[44260] lbf	36820[40170] lbf	34390[37520] lbf
	ISO	279[304] kN	226[246] kN	187[204] kN	170[185] kN	158[172] kN
		28400[30980] kgf	23000[25090] kgf	19100[20840] kgf	17300[18870] kgf	16100[17560] kgf
		62610[68300] lbf	50710[55320] lbf	42110[45940] lbf	38140[41610] lbf	35490[38720] lbf

[] : Power boost

• 6.55m(21' 6") BOOM

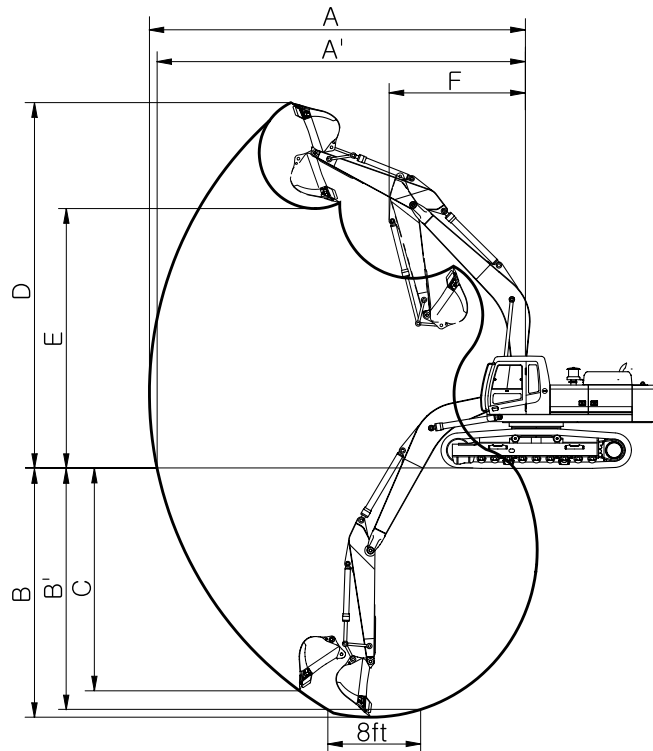


45072SP04

Description		2.40m(7' 10") Arm
Max digging reach	A	10610mm (34' 10")
Max digging reach on ground	A'	10370mm (34' 0")
Max digging depth	B	6330mm (20' 9")
Max digging depth (8ft level)	B'	6150mm (20' 2")
Max vertical wall digging depth	C	5430mm (17' 10")
Max digging height	D	10210mm (33' 6")
Max dumping height	E	6810mm (22' 4")
Min swing radius	F	4640mm (15' 3")
Bucket digging force	SAE	224[244] kN
		22800[24870] kgf
		50270[54840] lbf
	ISO	256[279] kN
		26100[28470] kgf
		57540[62770] lbf
Arm crowd force	SAE	266[290] kN
		27100[29560] kgf
		59750[65180] lbf
	ISO	279[304] kN
		28400[30980] kgf
		62610[68300] lbf

[]: Power boost

· 9.00m(29' 6") BOOM



45072SP04

Description		5.85m(19' 2") Arm
Max digging reach	A	16350mm (53' 8")
Max digging reach on ground	A'	16200mm (53' 2")
Max digging depth	B	11560mm (37'11")
Max digging depth (8ft level)	B'	11460mm (37' 7")
Max vertical wall digging depth	C	10320mm (33'10")
Max digging height	D	13840mm (45' 5")
Max dumping height	E	10440mm (34' 3")
Min swing radius	F	5940mm (19' 6")
Bucket digging force	SAE	224[244] kN
		22800[24870] kgf
		50270[54840] lbf
	ISO	256[279] kN
		26100[28470] kgf
		57540[62770] lbf
Arm crowd force	SAE	123[134] kN
		12500[13640] kgf
		27560[30070] lbf
	ISO	127[138] kN
		12900[14070] kgf
		28440[31030] lbf

[] : Power boost











4. WEIGHT

Item	R450LC-7	
	kg	lb
Upperstructure assembly	16790	37020
Main frame weld assembly	3520	7760
Engine assembly	940	2070
Main pump assembly	240	530
Main control valve assembly	420	930
Swing motor assembly	230	510
Hydraulic oil tank assembly	450	990
Fuel tank assembly	250	550
Counterweight	9200	20280
Cab assembly	310	680
Lower chassis assembly	19000	41890
Track frame weld assembly	7060	15570
Swing bearing	600	1320
Travel motor assembly	360	790
Turning joint	50	110
Track recoil spring and idler	300	660
Idler	250	550
Carrier roller	80	180
Track roller	80	180
Track-chain assembly(600mm standard triple grouser shoe)	6050	13330
Front attachment assembly(7.06m boom, 3.38m arm, 2.15m ³ PCSA heaped bucket)	8710	19200
7.06m boom assembly	3300	7360
3.38m arm assembly	1450	3200
2.15m ³ PCSA heaped bucket	1560	3440
Boom cylinder assembly	910	2010
Arm cylinder assembly	540	1190
Bucket cylinder assembly	300	660
Bucket control rod assembly	130	290

5. LIFTING CAPACITIES













1) 6.55m(21' 6") boom, 2.40m(7'10") arm equipped with 2.15m³(SAE 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		
		3.0m(10.0ft)		4.5m(15.0ft)		6.0m(20.0ft)		7.5m(25.0ft)		Capacity	Reach	
												m(ft)
6.0m (20.0ft)	kg lb					*12780 *28180	12740 28090	*11340 *25000	8630 19030	*9810 *21630	6110 13470	9.15 (30.0)
4.5m (15.0ft)	kg lb			*18830 *41510	*18830 *41510	*14310 *31550	12060 26590	*11990 *26430	8340 18390	9350 20610	5390 11880	9.65 (31.7)
3.0m (10.0ft)	kg lb					*15980 *35230	11290 24890	*12790 *28200	7970 17570	8850 19510	5040 11110	9.86 (32.3)
1.5m (5.0ft)	kg lb					*17140 *37790	10670 23520	*13390 *29520	7630 16820	8810 19420	4980 10980	9.80 (32.2)
Ground Line	kg lb			*23370 *51520	16020 35320	*17360 *38270	10320 22750	13260 29230	7400 16310	9240 20370	5210 11490	9.47 (31.1)
-1.5m (-5.0ft)	kg lb	*25360 *55910	*25360 *55910	*21560 *47530	16060 35410	*16520 *36420	10220 22530	*12770 *28150	7330 16160	*9630 *21230	5840 12870	8.83 (29.0)
-3.0m (-10.0ft)	kg lb	*22500 *49600	*22500 *49600	*18450 *40680	16320 35980	*14370 *31680	10350 22820			*8790 *19380	7250 15980	7.80 (25.6)
-4.5m (-15.0ft)	kg lb			*13260 *29230	*13260 *29230							

- 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) 7.06m(23' 2") boom, 2.40m(7' 10") arm equipped with 2.15m³(SAE heaped) bucket and 600mm (24") triple grouser shoe.

Load point height		Load radius										At max. reach		
		3.0m(10.0ft)		4.5m(15.0ft)		6.0m(20.0ft)		7.5m(25.0ft)		9.0m(30.0ft)		Capacity		Reach
														m(ft)
6.0m (20.0ft)	kg lb					*12300 *27120	*12300 *27120	*10680 23550	8520 18780			*8940 *19710	5330 11750	9.75 (32.0)
4.5m (15.0ft)	kg lb					*13990 *30840	11690 25770	*11480 *25310	8150 17970			8360 18430	4740 10450	10.21 (33.5)
3.0m (10.0ft)	kg lb					*15700 *34610	10860 23940	*12360 *27250	7730 17040	10100 22270	5710 12590	7960 17550	4450 9810	10.41 (34.2)
1.5m (5.0ft)	kg lb					*16810 *37060	10250 22600	*13030 *28730	7370 16250	9890 21800	5520 12170	7920 17460	4390 9680	10.36 (34.0)
Ground Line	kg lb					*16990 *37460	9940 21910	12980 28620	7140 15740			8260 18210	4580 10100	10.05 (33.0)
-1.5m (-5.0ft)	kg lb			*20830 *45920	15630 34460	*16280 *35890	9880 21780	*12760 *28130	7070 15590			*8940 *19710	5080 11200	9.46 (31.0)
-3.0m (-10.0ft)	kg lb	*21370 *47110	*21370 *47110	*18310 *40370	15910 35080	*14570 *32120	10010 22070	*11280 *24870	7170 15810			*8410 *18540	6140 13540	8.51 (27.9)
-4.5m (-15.0ft)	kg lb			*14290 *31500	*14290 *31500	*11310 *24930	10380 22880					*6750 *14880	*6750 *14880	7.04 (23.1)















3) 7.06m(23' 2") boom, 2.90m(9' 6") arm equipped with 2.15m³(SAE heaped) bucket and 600mm (24") triple grouser shoe.

Load point height		Load radius										At max. reach		
		3.0m(10.0ft)		4.5m(15.0ft)		6.0m(20.0ft)		7.5m(25.0ft)		9.0m(30.0ft)		Capacity		Reach
														m(ft)
6.0m (20.0ft)	kg lb							*10030 *22110	8630 19030			*8310 *18320	4930 10870	10.17 (33.4)
4.5m (15.0ft)	kg lb			*17510 *38600	*17510 *38600	*13150 *28990	11890 26210	*10900 *24030	8230 18140	*9570 *21100	5950 13120	7830 17260	4400 9700	10.62 (34.8)
3.0m (10.0ft)	kg lb			*21350 *47070	16840 37130	*15000 *33070	11000 24250	*11880 *26190	7770 17130	*10050 *22160	5710 12590	7460 16450	4120 9080	10.80 (35.4)
1.5m (5.0ft)	kg lb			*22470 *49540	15690 34590	*16360 *36070	10300 22710	*12690 *27980	7360 16230	9860 21740	5490 12100	7410 16340	4060 8950	10.75 (35.3)
Ground Line	kg lb			*23020 *50750	15360 33860	*16880 *37210	9890 21800	12930 28510	7080 15610	9680 21340	5320 11730	7680 16930	4200 9260	10.46 (34.3)
-1.5m (-5.0ft)	kg lb	*19180 *42280	*19180 *42280	*21760 *47970	15380 33910	*16500 *36380	9740 21470	12780 28180	6950 15320			8400 18520	4620 10190	9.89 (32.4)
-3.0m (-10.0ft)	kg lb	*24800 *54670	*24800 *54670	*19550 *43100	15590 34370	*15180 *33470	9810 21630	*11820 *26060	6980 15390			*8390 *18500	5480 12080	9.00 (29.5)
-4.5m (-15.0ft)	kg lb	*19830 *43720	*19830 *43720	*16030 *35340	*16030 *35340	*12570 *27710	10080 22220					*7400 *16310	7350 16200	7.65 (25.1)

4) 7.06m(23' 2") boom, 3.38m(11' 1") arm equipped with 2.15m³(SAE heaped) bucket and 600mm (24") triple grouser shoe.

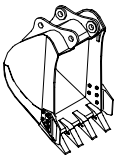
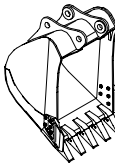
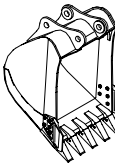
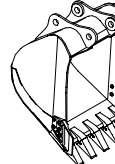
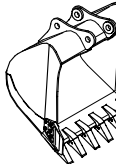
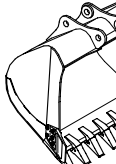
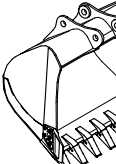
Load point height		Load radius										At max. reach		
		3.0m(10.0ft)		4.5m(15.0ft)		6.0m(20.0ft)		7.5m(25.0ft)		9.0m(30.0ft)		Capacity		Reach
														m(ft)
6.0m (20.0ft)	kg lb							*9550 *21050	8820 19440	*7560 *16670	6290 13870	*7870 *17350	4500 9920	10.76 (35.3)
4.5m (15.0ft)	kg lb					*12500 *27560	12190 26870	*10490 *23130	8420 18560	*9270 *20440	6090 13430	7230 15940	4060 8950	11.18 (36.7)
3.0m (10.0ft)	kg lb			*20340 *44840	17580 38760	*14490 *31940	11310 24930	*11570 *25510	7950 17530	*9840 *21690	5840 12870	6920 15260	3820 8420	11.35 (37.2)
1.5m (5.0ft)	kg lb			*22940 *50570	16230 35780	*16110 *35520	10570 23300	*12510 *27580	7520 16580	9970 21980	5590 12320	6880 15170	3770 8310	11.30 (37.1)
Ground Line	kg lb	*11840 *26100	*11840 *26100	*23480 *51760	15670 34550	*16930 *37320	10090 22240	13060 28790	7200 15870	9760 21520	5400 11900	7100 15650	3890 8580	11.03 (36.2)
-1.5m (-5.0ft)	kg lb	*17340 *38230	*17340 *38230	*22660 *49960	15550 34280	*16850 *37150	9870 21760	12860 28350	7030 15500	9640 21250	5300 11680	7680 16930	4220 9300	10.50 (34.4)
-3.0m (-10.0ft)	kg lb	*23020 *50750	*23020 *50750	*20790 *45830	15670 34550	*15850 *34940	9870 21760	*12340 *27210	7010 15450			*8000 *17640	4900 10800	9.67 (31.7)
-4.5m (-15.0ft)	kg lb	*23040 *50790	*23040 *50790	*17680 *38980	16000 35270	*13690 *30180	10050 22160	*10390 *22910	7170 15810			*7330 *16160	6270 13820	8.44 (27.7)
-6.0m (-20.0ft)	kg lb			*12600 *27780	*12600 *27780	*9460 *20860	*9460 *20860							

5) 7.06m(23' 2") boom, 4.00m(13' 1") arm equipped with 2.15m³(SAE heaped) bucket and 600mm (24") triple grouser shoe.

Load point height		Load radius											At max. reach			
		3.0m(10.0ft)		4.5m(15.0ft)		6.0m(20.0ft)		7.5m(25.0ft)		9.0m(30.0ft)		10.5m(35.0ft)		Capacity		Reach
																m(ft)
6.0m (20.0ft)	kg lb									*7910 *17440	6330 13960			7120 15700	3990 8800	11.35 (37.2)
4.5m (15.0ft)	kg lb							*9660 *21300	8480 18700	*8610 *18980	6100 13450	*4780 *10540	4460 9830	6570 14480	3600 7940	11.75 (38.5)
3.0m (10.0ft)	kg lb			*18460 *40700	18070 39840	*13420 *29590	11450 25240	*10820 *23850	7970 17570	*9260 *20410	5800 12790	*6430 *14180	4310 9500	6290 13870	3390 7470	11.91 (39.1)
1.5m (5.0ft)	kg lb			*21710 *47860	16420 36200	*15260 *33640	10590 23350	*11900 *26230	7480 16490	*9870 *21760	5510 12150	*7270 *16030	4160 9170	6240 13760	3330 7340	11.87 (38.9)
Ground Line	kg lb	*12610 *27800	*12610 *27800	*23080 *50880	15550 34280	*16410 *36180	9990 22020	*12650 *27890	7090 15630	9640 21250	5280 11640	*6780 *14950	4030 8880	6410 14130	3410 7520	11.61 (38.1)
-1.5m (-5.0ft)	kg lb	*16540 *36460	*16540 *36460	*22900 *50490	15240 33600	*16700 *36820	9670 21320	12690 27980	6850 15100	9470 20880	5130 11310			6870 15150	3680 8110	11.11 (36.5)
-3.0m (-10.0ft)	kg lb	*21150 *46630	*21150 *46630	*21550 *47510	15250 33620	*16100 *35490	9580 21120	*12490 *27540	6770 14930	9430 20790	5090 11220			*7560 *16670	4210 9280	10.34 (33.9)
-4.5m (-15.0ft)	kg lb	*26010 *57340	*26010 *57340	*19010 *41910	15490 34150	*14470 *31900	9690 21360	*11140 *24560	6850 15100					*7220 *15920	5230 11530	9.21 (30.2)
-6.0m (-20.0ft)	kg lb	*19460 *42900	*19460 *42900	*14810 *32650	*14810 *32650	*11280 *24870	10030 22110							*6010 *13250	*6010 *13250	7.55 (24.8)


6. BUCKET SELECTION GUIDE


1) GENERAL BUCKET


						
1.38m ³ SAE heaped bucket	1.65m ³ SAE heaped bucket	1.84m ³ SAE heaped bucket	※ 2.15m ³ SAE heaped bucket	2.56m ³ SAE heaped bucket	2.79m ³ SAE heaped bucket	3.03m ³ SAE heaped bucket

Capacity		Width		Weight	Recommendation							
SAE heaped	CECE heaped	Without side cutter	With side cutter		7.06m (23' 2") boom					6.55m(21' 5") boom	9.00m(29' 6") boom	
					2.4m arm (7' 10")	2.9m arm (9' 6")	3.38m arm (11' 1")	4.0m arm (13' 1")	4.5m arm (14' 9")	2.4m arm (7' 10")	5.85m arm (19' 2")	
1.38m ³ (1.80yd ³)	1.20m ³ (1.57yd ³)	1100mm (43.3")	1250mm (49.2")	1360kg (3000lb)								
1.65m ³ (2.16yd ³)	1.44m ³ (1.88yd ³)	1350mm (53.1")	1500mm (59.1")	1550kg (3420lb)								
1.84m ³ (2.41yd ³)	1.60m ³ (2.09yd ³)	1420mm (55.9")	1570mm (61.8")	1590kg (3510lb)								
※ 2.15m ³ (2.81yd ³)	1.85m ³ (2.40yd ³)	1610mm (63.4")	1760mm (69.3")	1740kg (3840lb)								
2.56m ³ (3.35yd ³)	2.20m ³ (2.90yd ³)	1870mm (73.6")	2020mm (79.5")	1970kg (4340lb)								
2.79m ³ (3.65yd ³)	2.40m ³ (3.14yd ³)	2020mm (79.5")	2170mm (85.4")	2100kg (4630lb)								
3.03m ³ (3.96yd ³)	2.60m ³ (3.40yd ³)	2170mm (85.4")	2320mm (91.3")	2140kg (4720lb)								

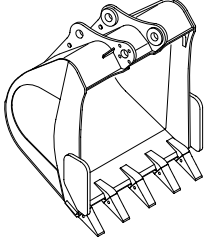
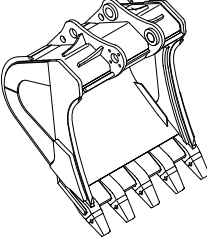
※ : Standard bucket

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

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

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

2) ROCK AND HEAVY DUTY BUCKET

	
<p>◆ 2.2m³ SAE heaped bucket</p>	<p>⊙ 1.8m³ SAE ⊙ 2.2m³ SAE ⊙ 2.43m³ SAE ⊙ 3.20m³ SAE heaped bucket</p>

Capacity		Width		Weight	Recommendation					
					7.06m (23' 2") boom					6.55m boom
SAE heaped	CECE heaped	Without side cutter	With side cutter		2.4m arm (7' 10")	2.9m arm (9' 6")	3.38m arm (11' 1")	4.0m arm (13' 1")	4.5m arm (14' 9")	2.4m arm (7' 10")
◆ 2.20m ³ (2.88yd ³)	1.80m ³ (2.35yd ³)	1840mm (72.4")	-	2140kg (4720lb)						
⊙ 1.80m ³ (2.35yd ³)	1.50m ³ (1.96yd ³)	1560mm (61.4")	-	2090kg (4610lb)						
⊙ 2.20m ³ (2.88yd ³)	1.80m ³ (2.35yd ³)	1810mm (71.3")	-	2190kg (4830lb)						
⊙ 2.43m ³ (3.18yd ³)	2.10m ³ (2.75yd ³)	1860mm (73.2")	-	2330kg (5140lb)						
⊙ 3.20m ³ (4.19yd ³)	2.80m ³ (3.66yd ³)	2080mm (81.9")	-	2790kg (6150lb)						

◆ : Heavy duty bucket

⊙ : Rock 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

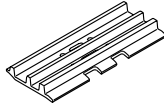
Applicable for materials with density of 1100kgf/m³ (1850lbf/yd³) or less

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				
							
R450LC-7	Shoe width	mm(in)	600(24)	700(28)	750(30)	800(32)	900(36)
	Operating weight	kg(lb)	44900(99000)	45400(100100)	45700(100800)	46000(101400)	46500(102500)
	Ground pressure	kgf/cm ² (psi)	0.78(11.09)	0.67(9.53)	0.63(8.96)	0.60(8.53)	0.54(7.68)
	Overall width	mm(ft-in)	3340(10' 11")	3440(11' 3")	3490(11' 5")	3540(11' 7")	3640(11' 11")

3) NUMBER OF ROLLERS AND SHOES ON EACH SIDE

Item	Quantity
Carrier rollers	2EA
Track rollers	9EA
Track shoes	53EA

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
700mm triple grouser	Option	B
750mm triple grouser	Option	B
800mm triple grouser	Option	C
900mm triple grouser	Option	C

※ Table 2

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

8. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Cummins QSM 11
Type	4-cycle turbocharged diesel engine
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 × 147.1mm(4.92" × 5.79")
Piston displacement	10800cc(505cu in)
Compression ratio	16.3 : 1
Rated gross horse power(SAE J1349)	325ps at 1900rpm(320Hp / 239kw at 1900rpm)
Maximum torque	182.5kgf · m(1320lb · ft) at 1300rpm
Engine oil quantity	37.85 l (10U.S. gal)
Dry weight	942kg(2077lb)
High idling speed	1950 ± 50rpm
Low idling speed	950 ± 50rpm
Rated fuel consumption	144g/Hp · hr at 1900rpm
Starting motor	Delco remy 42MT (24V-7.2kW)
Alternator	Delco Remy 24V-50A
Battery	2 × 12V × 160Ah

2) MAIN PUMP

Item	Specification
Type	Variable displacement tandem axis piston pumps
Capacity	2 × 200cc/rev
Maximum pressure	330kgf/cm ² (4690psi)[360kgf/cm ² (5120psi)]
Rated oil flow	2 × 380 l /min (100.4U.S. gpm/83.6U.K. gpm)
Rated speed	1900rpm

[]: Power boost

3) GEAR PUMP

Item	Specification
Type	Fixed displacement gear pump single stage
Capacity	15cc/rev
Maximum pressure	35kgf/cm ² (498psi)
Rated oil flow	28.5 l /min(7.5U.S. gpm/6.3U.K. gpm)

4) MAIN CONTROL VALVE

Item	Specification
Type	9 spools
Operating method	Hydraulic pilot system
Main relief valve pressure	330kgf/cm ² (4690psi) [360kgf/cm ² (5120psi)]
Overload relief valve pressure	380kgf/cm ² (5400psi)

[]: Power boost

5) SWING MOTOR

Item	Specification
Type	Fixed displacement axial piston motor
Capacity	148.5cc/rev
Relief pressure	285kgf/cm ² (4050psi)
Braking system	Automatic, spring applied hydraulic released
Braking torque	63kgf · m(456lb · ft)
Brake release pressure	23~50kgf/cm ² (327~711psi)
Reduction gear type	2 - stage planetary
Swing speed	10.3rpm

6) TRAVEL MOTOR

Item	Specification
Type	Variable displacement axial piston motor
Relief pressure	345kgf/cm ² (4910psi)
Capacity(max / min)	160/100cc/rev
Reduction gear type	3-stage planetary
Braking system	Automatic, spring applied hydraulic released
Brake release pressure	17~50kgf/cm ² (242~711psi)
Braking torque	103kgf · m(745lb · 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	∅ 170 × ∅ 120 × 1570mm
	Cushion	Extend only
Arm cylinder	Bore dia × Rod dia × Stroke	∅ 185 × ∅ 125 × 1820mm
	Cushion	Extend and retract
Bucket cylinder	Bore dia × Rod dia × Stroke	∅ 160 × ∅ 110 × 1370mm
	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
R450LC-7	Standard	600mm(24")	0.78kgf/cm ² (11.09psi)	53	3340mm(10' 11")
	Option	700mm(28")	0.67kgf/cm ² (9.53psi)	53	3440mm(11' 3")
		750mm(30")	0.63kgf/cm ² (8.96psi)	53	3490mm(11' 5")
		800mm(32")	0.60kgf/cm ² (8.53psi)	53	3540mm(11' 7")
		900mm(36")	0.54kgf/cm ² (7.68psi)	53	3640mm(11' 11")

10) BUCKET

Item		Capacity		Tooth quantity	Width	
		PCSA heaped	CECE heaped		Without side cutter	With side cutter
R450LC-7	Standard	2.15m ³ (2.81yd ³)	1.85m ³ (2.40yd ³)	5	1610mm(63.4")	1760mm(69.3")
	Option	1.38m ³ (1.80yd ³)	1.20m ³ (1.57yd ³)	4	1100mm(43.3")	1250mm(49.2")
		1.84m ³ (2.41yd ³)	1.60m ³ (2.09yd ³)	5	1420mm(55.9")	1570mm(61.8")
		◆2.20m ³ (2.88yd ³)	1.80m ³ (2.35yd ³)	5	1810mm(71.3")	-
		2.20m ³ (2.88yd ³)	1.80m ³ (2.35yd ³)	5	1810mm(71.3")	-
		2.56m ³ (3.35yd ³)	2.20m ³ (2.90yd ³)	6	1870mm(73.6")	2020mm(79.5")
		2.79m ³ (3.65yd ³)	2.40m ³ (3.14yd ³)	7	2020mm(79.5")	2170mm(85.4")
		3.03m ³ (3.96yd ³)	2.60m ³ (3.40yd ³)	7	2170mm(85.4")	2320mm(91.3")

◆ : Heavy duty bucket

◆ : Rock bucket(Esco type)

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	38(10)					SAE 30				
			SAE 10W								
			SAE 10W-30								
			SAE 15W-40								
Swing drive	Gear oil	5.0 × 2 (1.3 × 2)		SAE 85W-140							
Final drive		5.0 × 2 (1.3 × 2)									
Hydraulic tank	Hydraulic oil	Tank; 250(66) System; 380(100)	ISO VG 32								
			ISO VG 46								
			ISO VG 68								
Fuel tank	Diesel fuel	610(161)	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	50(13.2)	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