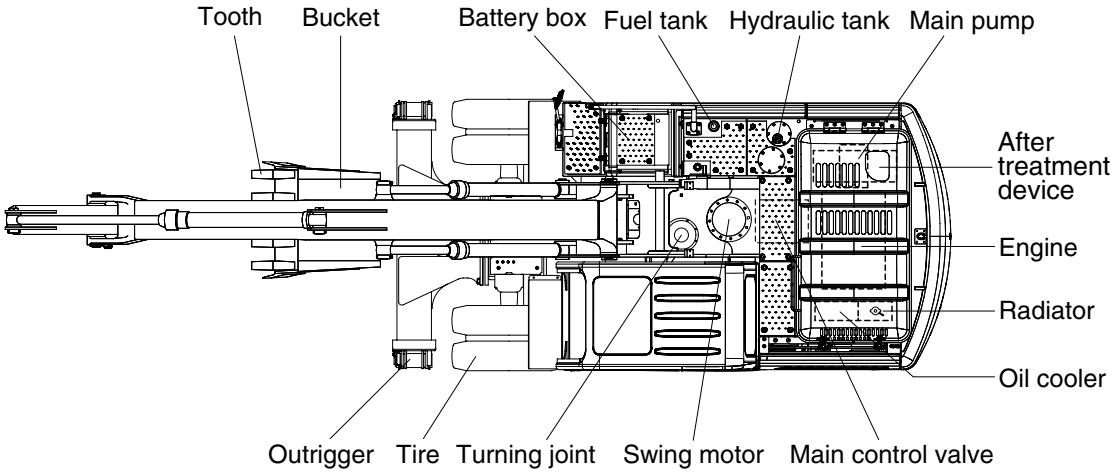
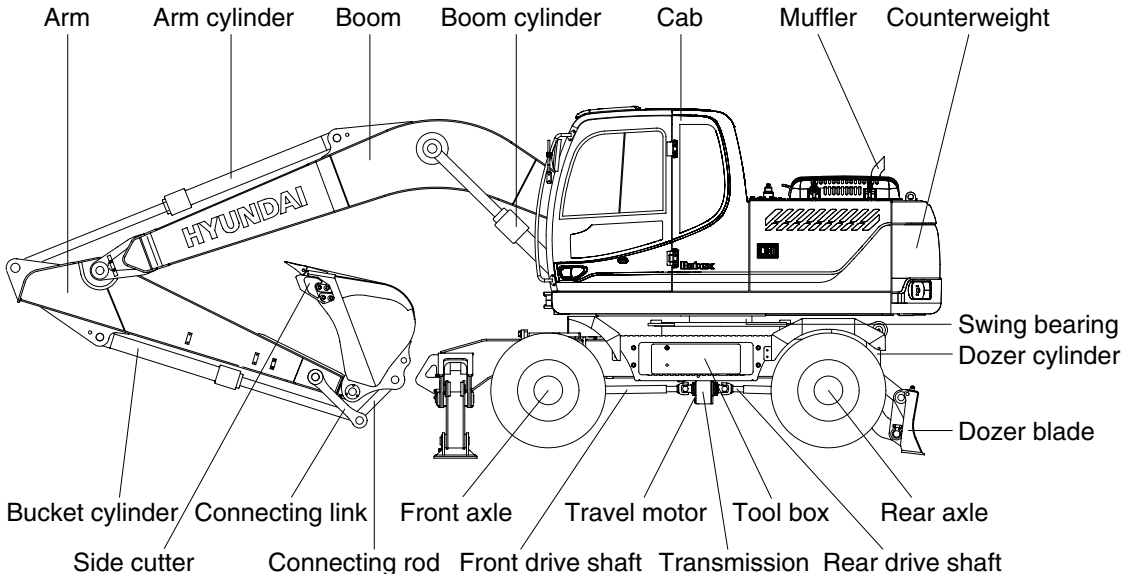
1. MAJOR COMPONENTS

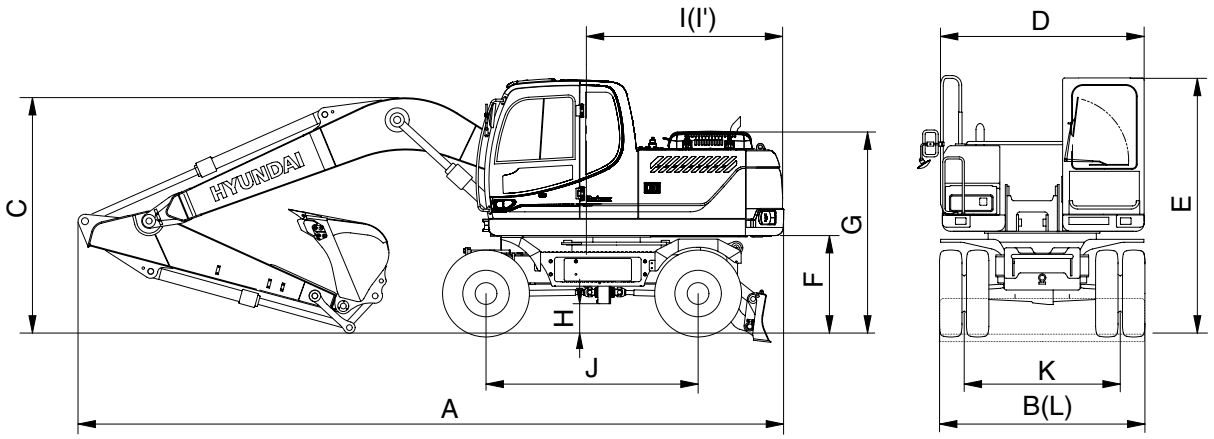




180W9A2SP01

2. SPECIFICATIONS

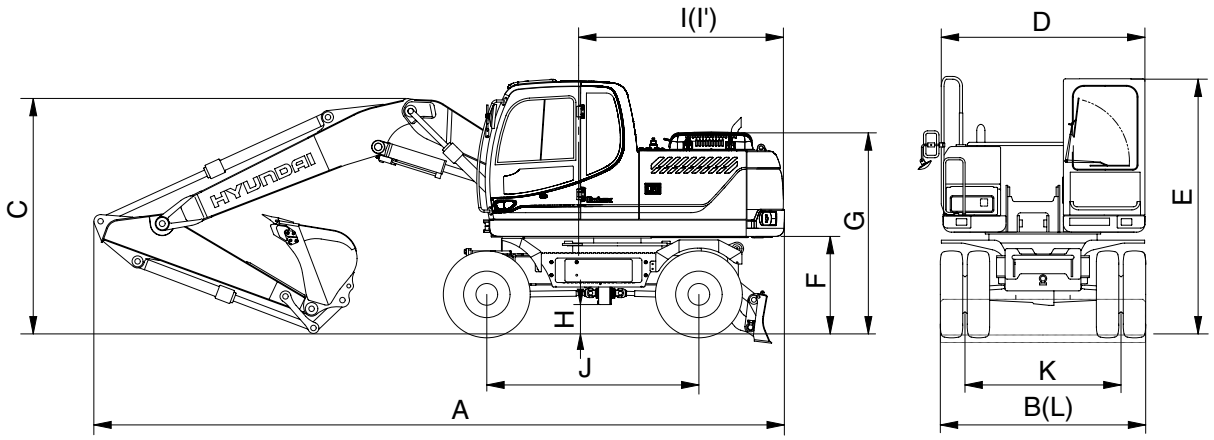
1) 5.2 m (17' 1") ONE PIECE BOOM, 2.6 m (8' 6") ARM AND REAR DOZER BLADE



17W92SP02

Description		Unit	Specification
Operating weight		kg (lb)	17280 (38100)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)	0.76 (0.99)
Overall length	A	mm (ft-in)	8650 (28' 5")
Overall width	B		2500 (8' 2")
Overall height	C		3060 (10' 0")
Upperstructure width	D		2475 (8' 1")
Cab height	E		3190 (10' 6")
Ground clearance of counterweight	F		1270 (4' 2")
Engine cover height	G		2610 (8' 7")
Minimum ground clearance	H		340 (1' 1")
Rear-end distance	I		2480 (8' 2")
Rear-end swing radius	I'		2480 (8' 2")
Wheel base	J		2600 (8' 6")
Tread	K		1914 (6' 3")
Dozer blade width	L		2500 (8' 2")
Travel speed	Low	km/hr (mph)	9.5 (5.9)
	High		35 (21.7)
	Creep		3.0 (1.9)
Swing speed		rpm	9.1
Gradeability		Degree (%)	30 (58)
Max traction force		kgf (lbf)	11000 (24250)

2) 5.1 m (16' 9") HYDRAULIC ADJUSTABLE BOOM, 2.6 m (8' 6") ARM AND REAR DOZER BLADE

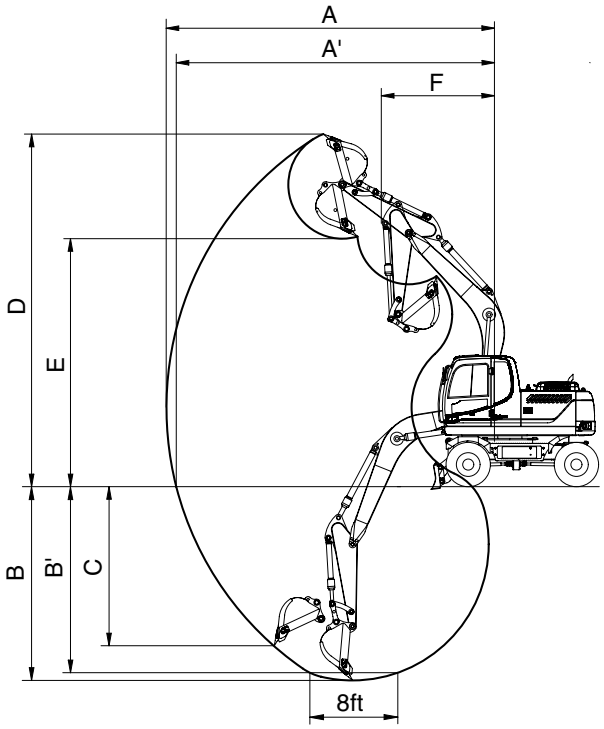


17W92SP03

Description		Unit	Specification
Operating weight		kg (lb)	17750 (39130)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)	0.76 (0.99)
Overall length	A	mm (ft-in)	8750 (28' 8")
Overall width	B		2500 (8' 2")
Overall height	C		2920 (9' 7")
Upperstructure width	D		2475 (8' 1")
Cab height	E		3190 (10' 6")
Ground clearance of counterweight	F		1270 (4' 2")
Engine cover height	G		2610 (8' 7")
Minimum ground clearance	H		340 (1' 1")
Rear-end distance	I		2480 (8' 2")
Rear-end swing radius	I'		2480 (8' 2")
Wheel base	J		2600 (8' 6")
Tread	K		1914 (6' 3")
Dozer blade width	L		2500 (8' 2")
Travel speed	Low	km/hr (mph)	9.5 (5.9)
	High		35 (21.7)
	Creep		3.0 (1.9)
Swing speed		rpm	9.1
Gradeability		Degree (%)	30 (58)
Max traction force		kgf (lbf)	11000 (24250)

3. WORKING RANGE

1) 5.2 m (17' 1") MONO BOOM

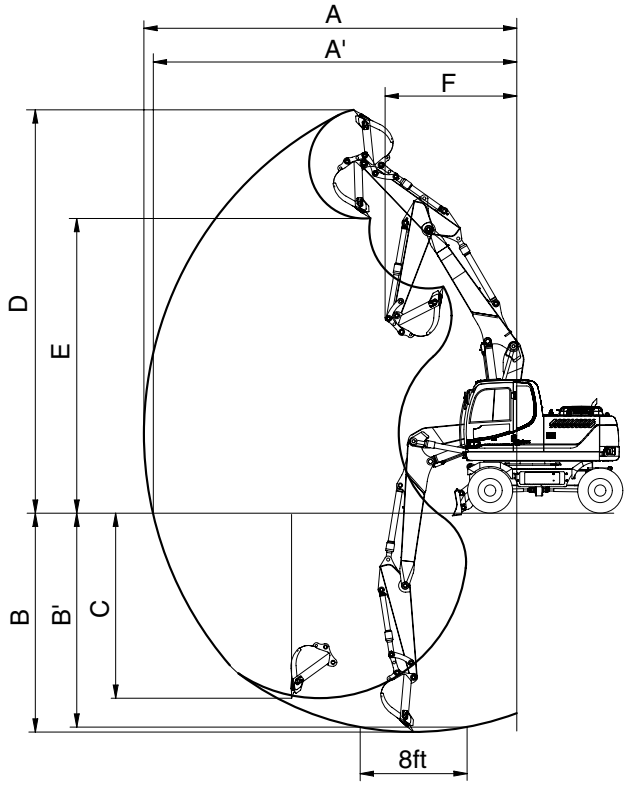


17W92SP05

Description		2.2 m (7' 3") Arm	2.6 m (8' 6") Arm	3.1 m (10' 2") Arm
Max digging reach	A	8820 mm (29' 1")	9200 mm (30' 3")	9450 mm (31' 0")
Max digging reach on ground	A'	8615 mm (28' 4")	9000 mm (29' 7")	9250 mm (30' 4")
Max digging depth	B	5500 mm (18' 2")	5900 mm (19' 5")	6320 mm (20' 9")
Max digging depth (8 ft level)	B'	5280 mm (17' 5")	5700 mm (18' 9")	6130 mm (20' 1")
Max vertical wall digging depth	C	4850 mm (16' 1")	5310 mm (17' 6")	5470 mm (17' 11")
Max digging height	D	9180 mm (30' 3")	9300 mm (30' 7")	9220 mm (30' 3")
Max dumping height	E	6520 mm (21' 5")	6660 mm (21' 10")	6620 mm (21' 9")
Min swing radius	F	3290 mm (10' 9")	3230 mm (10' 8")	3160 mm (10' 4")
Bucket digging force	SAE	107.9 [117.2] kN	107.9 [117.2] kN	107.9 [117.2] kN
		11000 [11940] kgf	11000 [11940] kgf	11000 [11940] kgf
		24250 [26330] lbf	24250 [26330] lbf	24250 [26330] lbf
	ISO	123.6 [134.2] kN	123.6 [134.2] kN	123.6 [134.2] kN
		12600 [13680] kgf	12600 [13680] kgf	12600 [13680] kgf
		27780 [30160] lbf	27780 [30160] lbf	27780 [30160] lbf
Arm digging force	SAE	87.2 [94.7] kN	77.3 [83.9] kN	69.0 [74.9] kN
		8890 [9650] kgf	7880 [8560] kgf	7030 [7630] kgf
		19600 [21280] lbf	17370 [18860] lbf	15500 [16830] lbf
	ISO	91.0 [98.8] kN	80.3 [87.2] kN	71.4 [77.5] kN
		9280 [10080] kgf	8190 [8890] kgf	7280 [7900] kgf
		20460 [22210] lbf	18060 [19600] lbf	16050 [17430] lbf

[ ] : Power boost

2) 5.1 m (16' 9") HYDRAULIC ADJUSTABLE BOOM



17W92SP06

Description		2.2 m (7' 3") Arm	2.6 m (8' 6") Arm
Max digging reach	A	8760 mm (28' 9")	9110 mm (29' 11")
Max digging reach on ground	A'	8550 mm (28' 1")	8910 mm (29' 3")
Max digging depth	B	5220 mm (17' 2")	5620 mm (18' 5")
Max digging depth (8 ft level)	B'	5120 mm (16' 10")	5520 mm (18' 1")
Max vertical wall digging depth	C	4430 mm (14' 6")	4780 mm (15' 8")
Max digging height	D	9630 mm (31' 7")	9820 mm (32' 3")
Max dumping height	E	6930 mm (22' 9")	7130 mm (23' 5")
Min swing radius	F	3100 mm (10' 2")	2970 mm (9' 9")
Bucket digging force	SAE	107.9 [117.2] kN	107.9 [117.2] kN
		11000 [11940] kgf	11000 [11940] kgf
		24250 [26330] lbf	24250 [26330] lbf
	ISO	123.6 [134.2] kN	123.6 [134.2] kN
		12600 [13680] kgf	12600 [13680] kgf
		27780 [30160] lbf	27780 [30160] lbf
Arm digging force	SAE	87.2 [94.7] kN	77.3 [83.9] kN
		8890 [9650] kgf	7880 [8560] kgf
		19600 [21280] lbf	17370 [18860] lbf
	ISO	91.0 [98.8] kN	80.3 [87.2] kN
		9280 [10080] kgf	8190 [8890] kgf
		20460 [22210] lbf	18060 [19600] lbf

[ ] : Power boost

4. WEIGHT

Item	R180W-9A	
	kg	lb
Upperstructure assembly	4590	10120
Main frame weld assembly	1430	3150
Engine assembly	520	1150
Fan clutch assembly	45	100
Main pump assembly	90	200
Main control valve assembly	135	300
Swing motor assembly	240	530
Hydraulic oil tank assembly	165	360
Fuel tank assembly	130	290
Counterweight	3150	6940
Cab assembly	500	1100
Lower frame weld assembly	1640	3615
Swing bearing	260	570
Travel motor assembly	80	176
Turning joint	120	265
Transmission assembly	135	298
Front axle assembly	655	1444
Rear axle assembly	534	1177
Front attachment assembly (5.2 m boom, 2.6 m arm, 0.76 m^3 SAE heaped bucket)	3060	6750
5.2 m boom assembly	1060	2340
2.6 m arm assembly	535	1180
0.76 m^3 SAE heaped bucket assembly	570	1260
Boom cylinder assembly	155 × 2EA	340 × 2EA
Arm cylinder assembly	180	400
Bucket cylinder assembly	125	260
Bucket control link assembly	120	265
Oscillating cylinder assembly	30	70
Dozer blade assembly	830	1830
Blade cylinder assembly	55 × 2EA	120 × 2EA
Front outrigger assembly	1000	2200
Rear outrigger assembly	1010	2230
Outrigger cylinder assembly	80	180

5. LIFTING CAPACITIES

1) ROBEX 180W-9A

(1) 5.2 m (17' 1") boom, 2.6 m (8' 6") arm equipped with 0.76 m³ (SAE heaped) bucket, rear dozer blade down and 3150 kg (6940 lb) counterweight.

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

Load point height		Load radius										At max. reach		
		1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)		Capacity		Reach
														m (ft)
7.5 m (25.0 ft)	kg											*3340	2710	6.57
	lb											*7360	5970	(21.6)
6.0 m (20.0 ft)	kg							*3380	3130			*3320	1970	7.70
	lb							*7450	6900			*7320	4340	(25.3)
4.5 m (15.0 ft)	kg							*3800	3030	*1830	*1830	*3360	1640	8.35
	lb							*8380	6680	*4030	*4030	*7410	3620	(27.4)
3.0 m (10.0 ft)	kg			*8730	8720	*5560	4570	*4380	2860	*3290	1920	3320	1470	8.66
	lb			*19250	19220	*12260	10080	*9660	6310	*7250	4230	7320	3240	(28.4)
1.5 m (5.0 ft)	kg			*6780	*6780	*6840	4180	*4990	2680	*4070	1840	3270	1430	8.67
	lb			*14950	*14950	*15080	9220	*11000	5910	*8970	4060	7210	3150	(28.4)
Ground Line	kg			*7720	7470	*7540	3950	*5400	2550	*3830	1780	3430	1500	8.37
	lb			*17020	16470	*16620	8710	*11900	5620	*8440	3920	7560	3310	(27.5)
-1.5 m (-5.0 ft)	kg	*7000	*7000	*10750	7480	*7530	3880	*5400	2500			*3670	1730	7.73
	lb	*15430	*15430	*23700	16490	*16600	8550	*11900	5510			*8090	3810	(25.4)
-3.0 m (-10.0 ft)	kg	*10290	*10290	*9880	7620	*6750	3920	*4710	2540			*3540	2280	6.63
	lb	*22690	*22690	*21780	16800	*14880	8640	*10380	5600			*7800	5030	(21.8)
-4.5 m (-15.0 ft)	kg			*6890	*6890	*4530	4130							
	lb			*15190	*15190	*9990	9110							

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) 5.2 m (17' 1") boom, 2.2 m (7' 3") arm equipped with 0.76 m³ (SAE heaped) bucket, rear dozer blade down and 3150 kg (6940 lb) counterweight.

Load point height		Load radius										At max. reach		
		1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)		Capacity		Reach
														m (ft)
7.5 m (25.0 ft)	kg											*3680	3080	6.09
	lb											*8110	6790	(20.0)
6.0 m (20.0 ft)	kg							*3630	3080			*3610	2180	7.30
	lb							*8000	6790			*7960	4810	(24.0)
4.5 m (15.0 ft)	kg					*4750	*4750	*4130	3010			*3630	1790	8.00
	lb					*10470	*10470	*9110	6640			*8000	3950	(26.2)
3.0 m (10.0 ft)	kg					*6020	4520	*4660	2860	*2670	1920	3560	1610	8.32
	lb					*13270	9960	*10270	6310	*5890	4230	7850	3550	(27.3)
1.5 m (5.0 ft)	kg					*7180	4170	*5210	2700	*3480	1860	3520	1570	8.33
	lb					*15830	9190	*11490	5950	*7670	4100	7760	3460	(27.3)
Ground Line	kg			*7120	*7120	*7680	3990	*5510	2590			3720	1660	8.01
	lb			*15700	*15700	*16930	8800	*12150	5710			8200	3660	(26.3)
-1.5 m (-5.0 ft)	kg	*7410	*7410	*10980	7610	*7470	3950	*5370	2560			*3810	1940	7.34
	lb	*16340	*16340	*24210	16780	*16470	8710	*11840	5640			*8400	4280	(24.1)
-3.0 m (-10.0 ft)	kg	*11630	*11630	*9190	7790	*6420	4030					*3510	2650	6.15
	lb	*25640	*25640	*20260	17170	*14150	8880					*7740	5840	(20.2)

(3) 5.1 m (16' 9") hydraulic adjustable boom, 2.6 m (8' 6") arm equipped with 0.76 m³ (SAE heaped) bucket, rear dozer blade down and 3150 kg (6940 lb) counterweight.

Load point height		Load radius										At max. reach		
		1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.0 m (25.0 ft)		Capacity		Reach
														m (ft)
6.0 m (20.0 ft)	kg											*3410	2000	7.63
	lb											*7520	4410	(25.0)
4.5 m (15.0 ft)	kg											*3410	1650	8.29
	lb											*7520	3640	(27.2)
3.0 m (10.0 ft)	kg							*4420	2870	*3380	1910	3400	1480	8.60
	lb							*9740	6330	*7450	4210	7500	3260	(28.2)
1.5 m (5.0 ft)	kg			*6600	*6600	*6800	4200	*4980	2680	*4050	1830	3350	1440	8.61
	lb			*14550	*14550	*14990	9260	*10980	5910	*8930	4030	7390	3170	(28.2)
Ground Line	kg	*6550	*6550	*7410	*7410	*7460	3950	*5340	2550	*3830	1780	3530	1520	8.31
	lb	*14440	*14440	*16340	*16340	*16450	8710	*11770	5620	*8440	3920	7780	3350	(27.3)
-1.5 m (-5.0 ft)	kg	*10160	*10160	*10600	7470	*7390	3870	*5290	2490			*3520	1760	7.66
	lb	*22400	*22400	*23370	16470	*16290	8530	*11660	5490			*7760	3880	(25.1)
-3.0 m (-10.0 ft)	kg			*9480	7640	*6500	3930	*4440	2550			*3240	2350	6.54
	lb			*20900	16840	*14330	8660	*9790	5620			*7140	5180	(21.5)
-4.5 m (-15.0 ft)	kg			*6100	*6100	*3870	*3870							
	lb			*13450	*13450	*8530	*8530							

Note 1. Lifting capacity are based on SAE J1097 and ISO 10567.

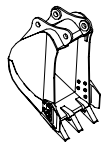
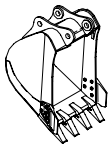
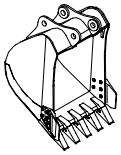
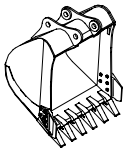
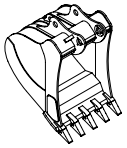
2. Lifting capacity of the ROBEX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The load point is a hook located on the back of the bucket.

4. * indicates load limited by hydraulic capacity.

6. BUCKET SELECTION GUIDE

1) GENERAL BUCKET

				
0.39 m³ SAE heaped bucket	0.50 m³ SAE heaped bucket	0.64 m³, ※0.76 m³ SAE heaped bucket	0.89 m³, 1.05 m³ SAE heaped bucket	◈0.69 m³ SAE heaped bucket

Capacity		Width		Weight	Recommendation				
					5.1 m (16' 9") Mono boom			5.1 m (16' 9") Hyd adjustable boom	
SAE heaped	CECE heaped	Without side cutter	With side cutter		2.2 m arm (7' 3")	2.6 m arm (8' 6")	3.1 m arm (10' 2")	2.2 m arm (7' 3")	2.6 m arm (8' 6")
0.39 m³ (0.51 yd³)	0.34m3 (0.44yd3)	620 mm (24.4")	740 mm (29.1")	410 kg (900 lb)					
0.50 m³ (0.65 yd³)	0.44 m³ (0.58 yd³)	760 mm (29.9")	880 mm (34.6")	470 kg (1040 lb)					
0.64 m³ (0.84 yd³)	0.55 m³ (0.72 yd³)	920 mm (36.2")	1040 mm (40.9")	510 kg (1120 lb)					
*0.76 m³ (0.99 yd³)	0.65 m³ (0.85 yd³)	1060 mm (41.7")	1180 mm (46.5")	570 kg (1260 lb)					
0.89 m³ (1.16 yd³)	0.77 m³ (1.01 yd³)	1220 mm (48.0")	1340 mm (52.8")	610 kg (1340 lb)					
1.05 m³ (1.37 yd³)	0.90 m³ (1.18 yd³)	1400 mm (55.1")	1520 mm (59.8")	680 kg (1500 lb)					
◈0.69 m³ (0.9 yd³)	0.62 m³ (0.81 yd³)	990 mm (39.0")	-	700 kg (1540 lb)					

※ : Standard bucket

◈ : Heavy duty bucket

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

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

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

7. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Cummins QSB 6.7
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	107 × 124 mm (4.2" × 4.9")
Piston displacement	6700 cc (409 cu in)
Compression ratio	17.3 : 1
Rated gross horse power (SAE J1995)	165 Hp (123 kW) at 2200 rpm
Maximum torque	74.7 kgf · m (540 lbf · ft) at 1500 rpm
Engine oil quantity	23.7 ℓ (6.3 U.S. gal)
Dry weight	520 kg (1145 lb)
High idling speed	2200 ± 50 rpm
Low idling speed	850 ± 100 rpm
Rated fuel consumption	167.0 g/Hp · hr at 2200 rpm
Starting motor	Nippon densor (24 V - 4.8 kW)
Alternator	Delco remy (24 V - 95 A)
Battery	2 × 12 V × 100 Ah

2) MAIN PUMP

Item	Specification
Type	Variable displacement tandem axis piston pumps
Capacity	2 × 80 cc/rev
Maximum pressure	350 kgf/cm^2 (4980 psi) [380 kgf/cm^2 (5400 psi)]
Rated oil flow	2 × 172 ℓ /min (45.4 U.S. gpm / 37.8 U.K. gpm)
Rated speed	2150 rpm

[ ]: Power boost

3) GEAR PUMP

Item	Specification
Type	Fixed displacement gear pump single stage
Capacity	15cc/rev
Maximum pressure	40 kgf/cm^2 (570 psi)
Rated oil flow	32.3 ℓ /min (8.5 U.S. gpm/7.1 U.K. gpm)

4) MAIN CONTROL VALVE

Item	Specification
Type	11 spools two-block
Operating method	Hydraulic pilot system
Main relief valve pressure	350 kgf/cm^2 (4980 psi) [380 kgf/cm^2 (5400 psi)]
Overload relief valve pressure	400 kgf/cm^2 (5690 psi)

[ ]: Power boost

5) SWING MOTOR

Item	Specification
Type	Fixed displacement axial piston motor
Capacity	117.8 cc/rev
Relief pressure	285 kgf/cm^2 (4050 psi)
Braking system	Automatic, spring applied hydraulic released
Braking torque	59 kgf · m (427 lbf · ft)
Brake release pressure	33~50 kgf/cm^2 (469~711 psi)
Reduction gear type	2 - stage planetary

6) TRAVEL MOTOR

Item	Specification
Type	Variable displacement bent-axis axial piston motor
Relief pressure	380 kgf/cm^2 (5400 psi)
Counter balance valve	Applied
Capacity	140 cc/rev

7) POWER TRAIN

Item	Description		Specification
Transmission	Type		2 speed power shift transmission
	Gear ratio	1st	4.87
		2nd	1.20
	Clutch pressure		30~32 kgf/cm^2 (427~455 psi)
Parking brake	Type		Multi disc brake integrated in transmission
	Maximum braking torque		3044 kgf · m (22020 lbf · ft)
Axle	Type		4 wheel drive with differential
	Gear ratio		16.0
	Brake		Multi disc brake
	Brake pressure		80 kgf/cm^2 (1140 psi)
	Steering pressure		180 kgf/cm^2 (2560 psi)

8) CYLINDER

Item		Specification
Boom cylinder	Bore dia × Rod dia × Stroke	ø 115 × ø 80 × 1090 mm
	Cushion	Extend only
Arm cylinder	Bore dia × Rod dia × Stroke	ø 120 × ø 85 × 1355 mm
	Cushion	Extend and retract
Bucket cylinder	Bore dia × Rod dia × Stroke	ø 110 × ø 75 × 995 mm
	Cushion	Extend only
Dozer cylinder	Bore dia × Rod dia × Stroke	ø 110 × ø 65 × 235 mm
	Cushion	Extend only
Outrigger cylinder	Bore dia × Rod dia × Stroke	ø 125 × ø 75 × 475 mm
	Cushion	-
Adjust boom cylinder	Bore dia × Rod dia × Stroke	ø 115 × ø 80 × 960 mm
	Cushion	Extend only

9) BUCKET

Item	Capacity		Tooth quantity	Width	
	SAE heaped	CECE heaped		Without side cutter	With side cutter
R180W-9A	0.76 m^3 (0.99 yd^3)	0.65 m^3 (0.85 yd^3)	5	1060 mm (41.7")	1180 mm (46.5")
	0.39 m^3 (0.51 yd^3)	0.34 m^3 (0.44 yd^3)	3	620 mm (24.4")	740 mm (29.1")
	0.50 m^3 (0.65 yd^3)	0.44 m^3 (0.58 yd^3)	4	760 mm (29.9")	880 mm (34.6")
	0.64 m^3 (0.84 yd^3)	0.55 m^3 (0.72 yd^3)	5	920 mm (36.2")	1040 mm (40.9")
	0.89 m^3 (1.16 yd^3)	0.77 m^3 (1.01 yd^3)	6	1220 mm (48.0")	1340 mm (52.8")
	1.05 m^3 (1.37 yd^3)	0.90 m^3 (1.18 yd^3)	6	1400 mm (55.1")	1520 mm (59.8")
	◈0.69 m^3 (0.90 yd^3)	0.62 m^3 (0.81 yd^3)	5	990 mm (39.0")	-

◈ : Heavy duty bucket

8. 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) -50 (-58) -30 (-22) -20 (-4) -10 (14) 0 (32) 10 (50) 20 (68) 30 (86) 40 (104)
Engine oil pan	Engine oil	23.7 (6.3)	★SAE 5W-40 SAE 30 SAE 10W
Transmission case	Engine oil	3.0 (0.79)	SAE 10W-30 SAE 15W-40
Swing drive	Gear oil	5.0 (1.3)	★SAE 75W-90 SAE 85W-140
Swing drive	Grease	1.2 (0.3)	★NLGI NO.1 NLGI NO.2
Front axle	Gear oil	Center : 10.5 (2.8) Hub : 2.5×2 (0.7×2)	SAE 85W-90 LSD or UTTO
Rear axle	Gear oil	Center : 12.5 (3.3) Hub : 2.5×2 (0.7×2)	SAE 85W-90 LSD or UTTO
Hydraulic tank	Hydraulic oil	Tank: 160 (42.3) System: 270 (71.3)	★ISO VG 15 ISO VG 32 ISO VG 46 ISO VG 68
Fuel tank	Diesel fuel★1	260 (68.7)	★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 soft water★2	19.5 (5.2)	Ethylene glycol base permanent type (50 : 50) ★Ethylene glycol base permanent type (60 : 40)

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 Materia
UTTO : Universal Tractor Transmission Oil

★1 : Ultra low sulfur diesel
- sulfur content ≤ 15 ppm

★2 : Soft water
City water or distilled water

★ : Cold region
Russia, CIS, Mongolia