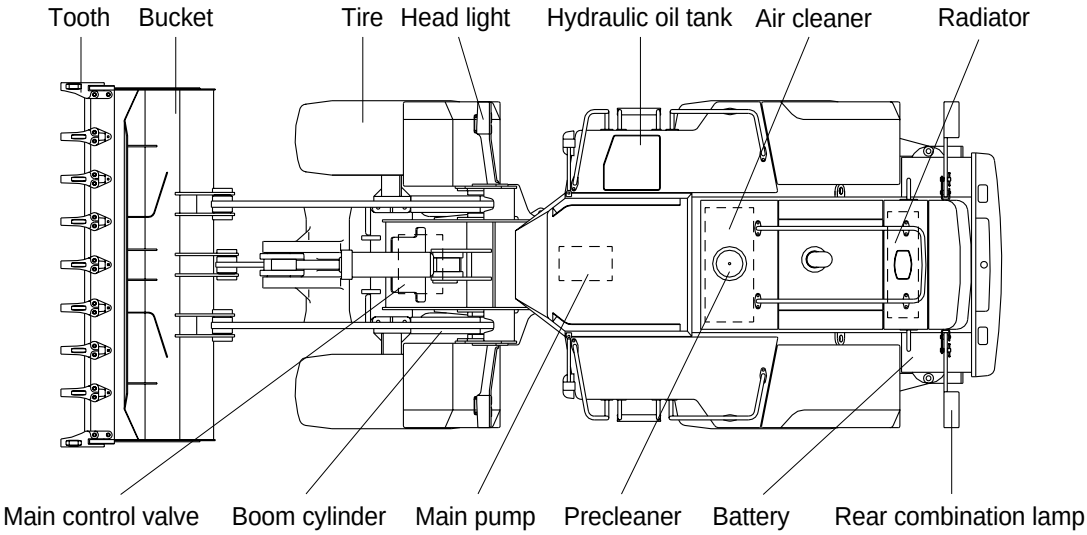
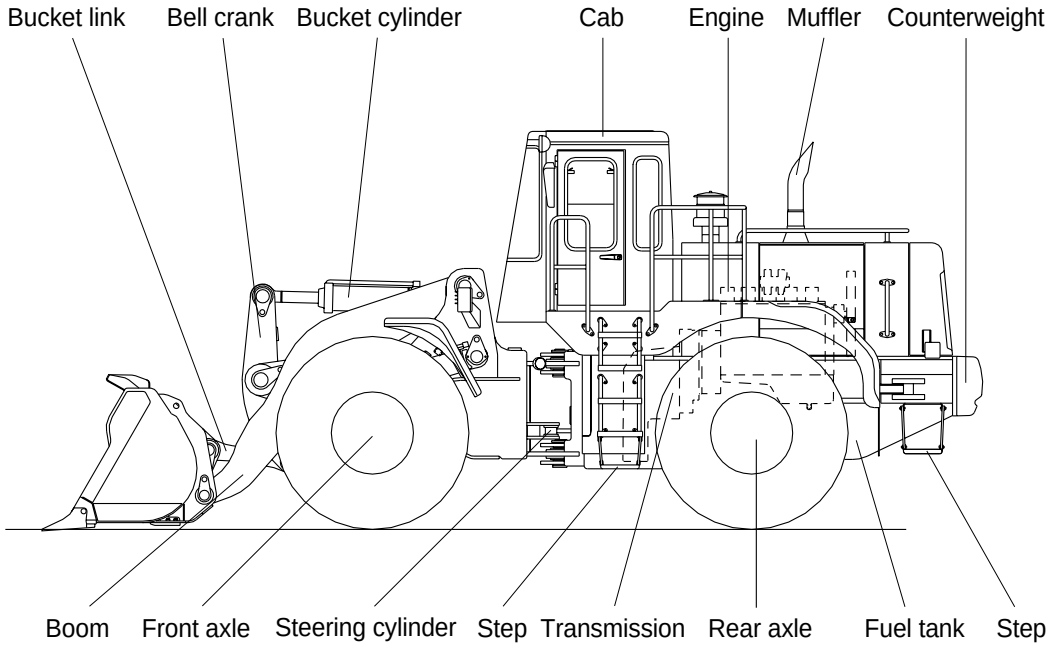
GROUP 2 SPECIFICATION

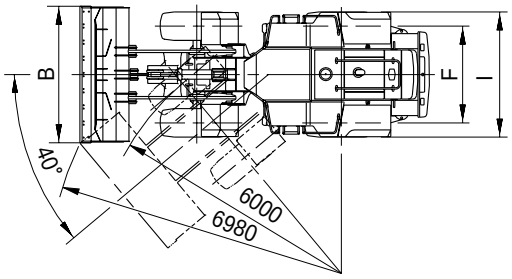
1. MAJOR COMPONENTS

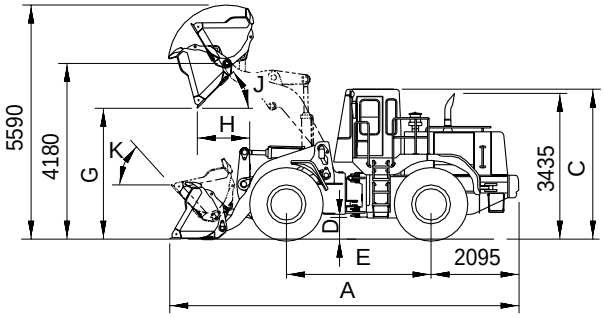




2. SPECIFICATIONS

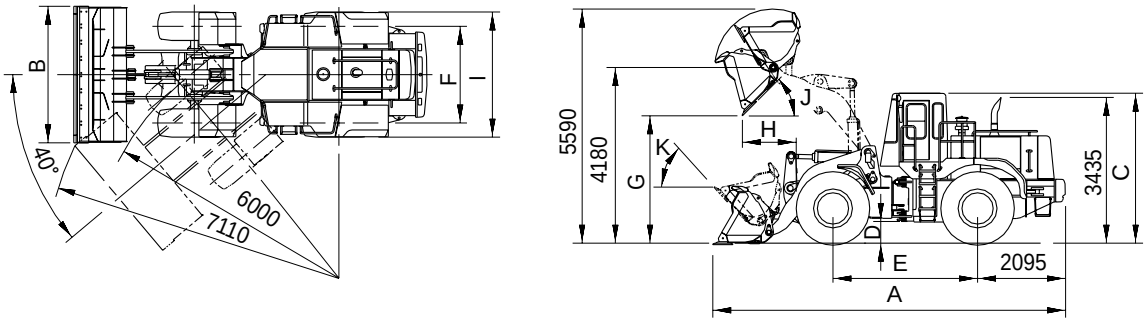
1) WITHOUT TOOTH AND CUTTING EDGE TYPE BUCKET





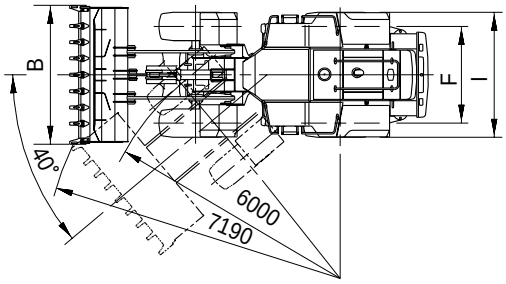
Description			Unit	Specification
Operating weight			kg(lb)	22150(48830)
Bucket capacity		Struck	$m^3(yd^3)$	3.1(4.1)
		Heaped		3.6(4.7)
Overall length		A	mm(ft-in)	8310(27' 3")
Overall width		B		3250(10' 8")
Overall height		C		3500(11' 5")
Ground clearance		D		505(1' 8")
Wheelbase		E		3440(11' 3")
Tread		F		2300(7' 7")
Dump clearance at 45°		G		3112(10' 3")
Dump reach		H		1245(4' 1")
Width over tires		I		2975(9' 9")
Dump angle		J	Degree (°)	45
Roll back angle(carry position)		K		48
Cycle time		Lift(with load)	sec	5.9
		Dump(with load)		1.6
		Lower(empty)		3.0
Maximum travel speed			km/hr(mph)	37(23)
Braking distance			m(ft-in)	11.5(37' 9")
Minimum turning radius				7(23' 0")
Gradability			Degree (°)	30
Travel speed	Forward	First gear	km/hr(mph)	7.5(4.7)
		Second gear		12.5(7.8)
		Third gear		26.7(16.6)
		Fourth gear		37.0(23.0)
	Reverse	First gear		7.5(4.7)
		Second gear		12.5(7.8)
		Third gear		26.7(16.6)

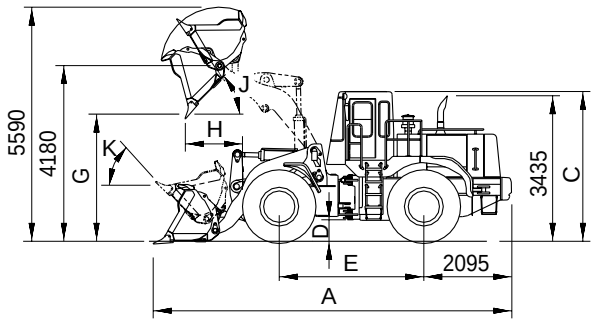
2) BOLT-ON CUTTING EDGE TYPE BUCKET



Description			Unit	Specification
Operating weight			kg(lb)	22500(49600)
Bucket capacity		Struck	$m^3(yd^3)$	3.3(4.3)
		Heaped		3.8(5.0)
Overall length		A	mm(ft-in)	8395(27' 7")
Overall width		B		3250(10' 8")
Overall height		C		3500(11' 5")
Ground clearance		D		505(1' 8")
Wheelbase		E		3440(11' 3")
Tread		F		2300(7' 7")
Dump clearance at 45°		G		3022(9' 11")
Dump reach		H		1273(4' 2")
Width over tires		I		2975(9' 9")
Dump angle		J	Degree (°)	45
Roll back angle(carry position)		K		48
Cycle time		Lift(with load)	sec	5.9
		Dump(with load)		1.6
		Lower(empty)		3.0
Maximum travel speed			km/hr(mph)	37(23)
Braking distance			m(ft-in)	11.5(37' 9")
Minimum turning radius				7.1(23' 4")
Gradability			Degree (°)	30
Travel speed	Forward	First gear	km/hr(mph)	7.5(4.7)
		Second gear		12.5(7.8)
		Third gear		26.7(16.6)
		Fourth gear		37.0(23.0)
	Reverse	First gear		7.5(4.7)
		Second gear		12.5(7.8)
		Third gear		26.7(16.6)

3) WITH TOOTH TYPE BUCKET





Description			Unit	Specification
Operating weight			kg(lb)	22400(49380)
Bucket capacity		Struck	$m^3(yd^3)$	3.1(4.1)
		Heaped		3.6(4.7)
Overall length		A	mm(ft-in)	8530(28' 0")
Overall width		B		3300(10' 10")
Overall height		C		3500(11' 5")
Ground clearance		D		505(1' 8")
Wheelbase		E		3440(11' 3")
Tread		F		2300(7' 7")
Dump clearance at 45°		G		2910(9' 7")
Dump reach		H		1359(4' 6")
Width over tires		I		2975(9' 9")
Dump angle		J	Degree (°)	45
Roll back angle(carry position)		K		48
Cycle time		Lift(with load)	sec	5.9
		Dump(with load)		1.6
		Lower(empty)		3.0
Maximum travel speed			km/hr(mph)	37(23)
Braking distance			m(ft-in)	11.5(37' 9")
Minimum turning radius				7.2(23' 7")
Gradability			Degree (°)	30
Travel speed	Forward	First gear	km/hr(mph)	7.5(4.7)
		Second gear		12.5(7.8)
		Third gear		26.7(16.6)
		Fourth gear		37.0(23.0)
	Reverse	First gear		7.5(4.7)
		Second gear		12.5(7.8)
		Third gear		26.7(16.6)

3. WEIGHT

Item	kg	lb
Front frame assembly	2022	4458
Rear frame assembly	2150	4740
Front fender	112	247
Rear fender	183	403
Counterweight	870	1918
Cab	580	1279
Engine assembly	936	2064
Transmission	750	1653
Drive shaft(T/M to F/D Front)	59	130
Drive shaft(T/M to F/D, Rear)	11	24
Front axle(include differential)	1165	2568
Rear axle(include differential)	1036	2284
Tire	2480	5467
Hydraulic tank	230	507
Fuel tank	346	763
Main pump assembly	34	75
Main control valve	73	161
Flow amplifier	29	64
Boom	1802	3973
Bell crank	425	937
Bucket link	68	150
3.8m^3 bucket, with bolt on cutting edge	2160	4762
3.6m^3 bucket, with tooth	2080	4586
3.6m^3 bucket, without tooth and cutting edge	1830	4034
Boom cylinder assembly	230	507
Bucket cylinder assembly	240	529
Steering cylinder assembly	44	97
Air tank	145	320
Seat	40	88
Battery	100	220

4. SPECIFICATION FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Cummins M11-C
Type	4-cycle turbocharged, after cooled diesel
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 × 147mm(4.92" × 5.79")
Piston displacement	10800cc(659cu in)
Compression ratio	15.7 : 1
Rated gross horse power	284ps at 2100rpm
Maximum gross torque at 1300rpm	131kgf · m(950lbf · ft)
Engine oil quantity	39 ℓ (10.3U.S. gal)
Dry weight	936kg(2064lb)
High idling speed	2270 ± 50rpm
Low idling speed	800 ± 50rpm
Rated fuel consumption	154g/ps · hr
Starting motor	Delco Remy 37MT(24V)
Alternator	DAC HC60(24V-60AMP)
Battery	2 × 12V × 200Ah

2) MAIN PUMP

Item	Specification
Type	Fixed displacement tandem gear pump
Capacity	2 × 100cc/rev
Maximum operating pressure	210kg/cm^2(2990psi)
Rated oil quantity	2 × 194 ℓ /min (51.3U.S. gpm/42.7U.K. gpm)
Rated speed	2100rpm

3) BRAKE PUMP

Item	Specification
Type	Fixed displacement tandem gear pump
Capacity	11.89cc/rev
Maximum operating pressure	150kg/cm^2(2130psi)
Rated oil quantity	24 ℓ /min (6.34U.S. gpm/5.28U.K. gpm)

4) MAIN CONTROL VALVE

Item	Specification
Type	2 spool
Operating method	Hydraulic pilot assist
Main relief valve pressure	200kg/cm^2(2840psi)
Overload relief valve pressure	230~250kg/cm^2(3270~3560psi)

5) REMOTE CONTROL VALVE

Item		Specification
Type		Pressure reducing type
Operating pressure	Minimum	5.8kg/cm^2(82.5psi)
	Maximum	19kg/cm^2(270psi)
Single operation stroke	Lever	70mm(2.8in)

6) CYLINDER

Item		Specification
Boom cylinder	Bore dia × Rod dia × Stroke	ø 180 × ø 100 × 765mm
Bucket cylinder	Bore dia × Rod dia × Stroke	ø 200 × ø 100 × 610mm
Steering cylinder	Bore dia × Rod dia × Stroke	ø 100 × ø 50 × 480mm

7) DYNAMIC POWER TRANSMISSION DEVICES

Item		Specification
Torque converter	Model	ZF 02G 072 24
	Type	Single-stage, single-phase
Transmission	Type	Semi-automatic power shift
	Gear shift	Forward fourth gear, reverse third gear
	Adjustment	Electrical single lever type, kick-down system
Axle	Drive devices	4-wheel drive
	Front	Front fixed location
	Rear	Oscillation 26° of center pin-loaded
Wheels	Tires	26.5-25, 20PR(L3)
Brakes	Travel	Four-wheel, wet-disc type, full hydraulic
	Parking	Spring applied, hydraulic released drum brake on T/M output shaft.
Steering	Type	Full hydraulic, articulated
	Steering angle	40° to both right and left angle, respectively

5. TIGHTENING TORQUE

The torques given are standard figures. Any figures specifically described in this manual has priority.

1) METRIC BOLT-coarse thread

Bolt size	8T		10T	
	kg · m	lb · ft	kg · m	lb · ft
M 6 × 1.0	0.85 ~ 1.25	6.15 ~ 9.04	1.14 ~ 1.74	8.2 ~ 12.6
M 8 × 1.25	2.0 ~ 3.0	14.5 ~ 21.7	2.73 ~ 4.12	19.7 ~ 29.8
M10 × 1.5	4.0 ~ 6.0	28.9 ~ 43.4	5.5 ~ 8.3	39.8 ~ 60
M12 × 1.75	7.4 ~ 11.2	53.5 ~ 79.5	9.8 ~ 15.8	71 ~ 114
M14 × 2.0	12.2 ~ 16.6	88.2 ~ 120	16.7 ~ 22.5	121 ~ 167
M16 × 2.0	18.6 ~ 25.2	135 ~ 182	25.2 ~ 34.2	182 ~ 247
M18 × 2.5	25.8 ~ 35.0	187 ~ 253	35.1 ~ 47.5	254 ~ 343
M20 × 2.5	36.2 ~ 49.0	262 ~ 354	49.2 ~ 66.6	356 ~ 482
M22 × 2.5	48.3 ~ 63.3	350 ~ 457	65.8 ~ 98.0	476 ~ 709
M24 × 3.0	62.5 ~ 84.5	452 ~ 611	85.0 ~ 115	615 ~ 832
M30 × 3.5	124 ~ 168	898 ~ 1214	169 ~ 229	1223 ~ 1655
M36 × 4.0	174 ~ 236	1261 ~ 1703	250 ~ 310	1808 ~ 2242

2) METRIC BOLT-fine thread

Bolt size	8T		10T	
	kg · m	lb · ft	kg · m	lb · ft
M 8 × 1.0	2.17 ~ 3.37	15.7 ~ 24.3	3.04 ~ 4.44	22.0 ~ 32.0
M10 × 1.25	4.46 ~ 6.66	32.3 ~ 48.2	5.93 ~ 8.93	42.9 ~ 64.6
M12 × 1.25	7.78 ~ 11.58	76.3 ~ 83.7	10.6 ~ 16.0	76.6 ~ 115
M14 × 1.5	13.3 ~ 18.1	96.2 ~ 130	17.9 ~ 24.1	130 ~ 174
M16 × 1.5	19.9 ~ 26.9	144 ~ 194	26.6 ~ 36.0	193 ~ 260
M18 × 1.5	28.6 ~ 43.6	207 ~ 315	38.4 ~ 52.0	278 ~ 376
M20 × 1.5	40.0 ~ 54.0	289 ~ 390	53.4 ~ 72.2	386 ~ 522
M22 × 1.5	52.7 ~ 71.3	381 ~ 515	70.7 ~ 95.7	512 ~ 692
M24 × 2.0	67.9 ~ 91.9	491 ~ 664	90.9 ~ 123	658 ~ 890
M30 × 2.0	137 ~ 185	990 ~ 1338	182 ~ 248	1314 ~ 1795
M36 × 3.0	192 ~ 260	1389 ~ 1879	262 ~ 354	1893 ~ 2561

3) PIPE AND HOSE

Thread size	Width across flat(mm)	kg · m	lb · ft
1/4"	19	3	21.7
3/8"	22	4	28.9
1/2"	27	5	36.2
3/4"	36	12	86.8
1"	41	14	101

4) FITTING

Thread size	Width across flat(mm)	kg · m	lb · ft
1/4"	19	4	28.9
3/8"	22	5	36.2
1/2"	27	6	43.4
3/4"	36	13	94.0
1"	41	15	109

5) TIGHTENING TORQUE OF MAJOR COMPONENT

No.	Items		Size	kg · m	lb · ft
1	Engine	Engine mounting bolt, nut	M20 × 2.5	57.9 ± 8.7	419 ± 62.9
2		Radiator mounting bolt, nut	M12 × 1.75	12.3 ± 2.5	89 ± 18.1
3	Hydraulic system	Main pump housing mounting bolt	M14 × 2.0	19.6 ± 2.9	142 ± 21
4		Main control valve mounting socket bolt	M16 × 2.0	17.3 ± 1.1	125 ± 8
5		Brake pump mounting bolt	M10 × 1.5	6.9 ± 1.4	49.9 ± 10.1
6		Brake valve mounting bolt	M 8 × 1.25	2.5 ± 0.5	18.1 ± 3.6
7		Cut off valve mounting bolt	M 8 × 1.25	2.5 ± 0.5	18.1 ± 3.6
8		Flow amplifier	M10 × 1.5	6.9 ± 1.4	49.9 ± 10.1
9		Fuel tank mounting bolt	M24 × 3.0	100 ± 15	723 ± 109
10		Hydraulic oil tank mounting bolt	M20 × 2.5	57.9 ± 8.7	419 ± 62.9
11		Air tank mounting bolt	M20 × 2.5	29.7 ± 4.5	215 ± 33
12	Power train system	Transmission mounting bolt	M20 × 2.5	46.3 ± 7	335 ± 50.6
13		Front axle mounting bolt	M30 × 2.0	120 ± 15	868 ± 108
14		Rear axle support mounting bolt, nut	M36 × 3.0	308 ± 46.2	2228 ± 334
15		Tire mounting nut	M22 × 1.5	60 ± 2	434 ± 14.5
16		Drive shaft joint mounting bolt, nut	1/2-20UNF	15.5 ± 0.5	112 ± 3.6
17	Others	Counterweight mounting bolt	M30 × 3.5	199 ± 29.9	419± 62.9
18		Operator's seat mounting bolt	M 8 × 1.25	2.5 ± 0.5	18.1 ± 3.6
20		ROPS Cab mounting bolt(12EA)	1-14UNS	86	620
		ROPS Cab mounting bolt(4EA)	1 1/4-12UNF	126	911

6. RECOMMENDED LUBRICANTS

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 ℃(°F)
			-20 (-4) / -10 (14) / 0 (32) / 10 (50) / 20 (68) / 30 (86) / 40 (104)
Engine oil pan	Engine oil	39(10.3)	SAE 30 SAE 10W SAE 10W-30 SAE 15W-40
Torque conventer Transmission	Oil	43(11.4)	SAE 10W-30
Axle	Oil	Front : 70(18.5) Rear : 57(15.1)	SAE 80W-90LSD/APIGL-5
Hydraulic tank	Hydraulic oil	Tank: 210(55.5) System: 310(81.9)	ISO VG 32 ISO VG 46 ISO VG 68
Fuel tank	Diesel fuel	331(87.5)	ASTM D975 NO. 1 ASTM D975 NO. 2
Fitting (Grease nipple)	Grease	As required	NLGI NO. 1 NLGI NO. 2
Radiator	Mixture of antifreeze and water 50 : 50	52(13.7)	Ethylene glycol base permanent type