

MICHIGAN

380 B



- **Engine output:**
SAE J1349 Net 427 kW (572 hp)
- **Operating weight:**
50,8-65,9 t (111 950-145 300 lb)
- **Blades:**
10,2-29,8 m³ (13,3-39,9 yd³)
- **Ideal weight distribution for different applications** - wide selection of blades, tires and counterweights

Genuine, robust and reliable wheel dozer - optimized for maximum productivity

- High rimpull
- Direct-injected, turbocharged and after-cooled Cummins diesel
- Countershaft transmission - quick and smooth shifting between forward and reverse
- Limited slip differential on front axle
- No-spin differential on rear axle

ENGINE



The engine is a direct-injection, 4-stroke, turbocharged and aftercooled diesel engine.

Make		Cummins	
Model		VTA-28-C	
Max. rating* at	r/s (r/min)	35	(2100)
SAE J1349	kW (hp)	474	(635)
Flywheel rating** at	r/s (r/min)	35	(2100)
SAE J1349	kW (hp)	427	(572)
Max. torque at	r/s (r/min)	22	(1300)
SAE J1349	Nm (lbf ft)	2800	(2065)
Number of cylinders		12	
Displacement, total	l (in ³)	28,0	(1710)
Bore	mm (in)	140	(5,50)
Stroke	mm (in)	152	(6,00)

* **Max. rating** - Rating of engine equipped only with components essential for engine function, such as injection pump, oil pump and water pump.

** **Flywheel rating** - Net rating measured with fan, intake and exhaust system, cooling system and alternator mounted.

ELECTRICAL SYSTEM



The electrical system is well protected by circuit breakers. Pre-wired for optional equipment.

Voltage	V	24
Alternator	A	100

SERVICE REFILL CAPACITIES



Cooling system	l (US gal)	208,0	(55,0)
Crankcase	l (US gal)	102,2	(27,0)
Torque converter/ transmission	l (US gal)	124,9	(33,0)
Front differential	l (US gal)	92,4	(24,4)
Rear differential	l (US gal)	92,4	(24,4)
Front & rear wheel hubs (each)	l (US gal)	40,1	(10,6)
Fuel tank	l (US gal)	757,1	(200,0)
Hydraulic reservoir	l (US gal)	757,1	(200,0)
Midmount bearing	l (US gal)	4,2	(1,1)
Brake reservoir	l (US gal)	1,3	(0,35)

DRIVE TRAIN



Torque converter: Clark high-efficiency, single-stage.

Transmission: Clark countershaft-type powershift transmission with directional clutch modulation.

Axes: Clark fully-floating axle shafts with planetary-type hub reductions. Single-piece cast axle housing. Fixed front axle and oscillating rear axle.

Differential: Clark limited slip differential on front; no-spin differential on rear.

Hub reduction: Clark planetary drive with low-friction bearings in each wheel hub.

Tires: Alternative tires available for different applications.

Torque multiplication		2,22:1
Speeds		
forward/reverse		
1	km/h (mile/h)	6,4 (4,0)
2	km/h (mile/h)	9,7 (6,0)
3	km/h (mile/h)	19,3 (12,0)
4	km/h (mile/h)	28,5 (17,7)
With tires		37,25-35 (30PR) E-3
Oscillation	± °	14,5
	mm (in)	721 (28,4)

BRAKE SYSTEM



(SAE J1152) (ISO 3450)

Service brakes: Four wheel dry disc type; two self-adjusting calipers per wheel; air-over-hydraulic actuation.

Secondary: Axle-by-axle system. Automatically actuated by low air pressure or manually applied through dash-mounted control; audible and visual alarm.

Parking: Dry disc type mounted on front differential input shaft; spring-on, air-off with dash-mounted hand valve actuation.

Air compressor		Cummins	
Capacity	l/min (cfm)	850	(30,0)
Pressure governed	MPa	0,69-0,83	(100-120)
	(psi)		
Air/hydraulic ratio		1:23,0	
Service brake disc			
Outside diameter	mm (in)	724	(28,5)
Thickness	mm (in)	16	(0,625)
Park brake disc			
Outside diameter	mm (in)	457	(18,0)
Thickness	mm (in)	13	(0,50)

STEERING SYSTEM



Articulated frame. Fully hydraulic steering system with pressure sensing hydraulics.

System supply: The system is served by a single pump, but a high pressure sensor sends main pump flow to the steering circuit when the main valve is in neutral.

Cylinders: Two double acting cylinders with chrome-plated piston rods.

Steering cylinders			2	
Bore	mm (in)	203	(8,00)	
Stroke	mm (in)	743	(29,25)	
Relief pressure	MPa (psi)	12,4	(1800)	
Pump output	l/min (US gal/min)	341	(90)	
at pressure and engine speed	MPa (psi) r/s (r/min)	6,9	(1000) 35	(2100)

CAB



Non-ROPS cab under separate ROPS canopy which meets SAE J1040 and ISO 3471. Sound-insulating lining. Floor mat.

Two lockable doors. Sliding self-locking windows. Tinted safety glass.

Heater and defroster: Heater provides filtered (10 µm) fresh air and has a three speed fan and a defroster for the front and side windows. Air conditioning is optional.

Operator's seat: Fully adjustable suspension seat with seat belt (SAE J386).

Noise level in cab, max.	dB (A)	85,0	
Heating capacity	kW (Btu/h)	11,0	(37 500)
Air conditioning (opt.)	kW (Btu/h)	5,9	(20 000)

HYDRAULIC SYSTEM



Closed and pressurized system with a sturdy plate-steel tank. Hydraulic fluid is fully filtered and cooled. An access hole is provided in the tank for easy cleaning. An in-tank magnet provides extra protection.

Pump: Single gear-type pump mounted on torque converter.

System supply: Main pump supplies only the main system.

Valve: Three-spool valve with built-in pressure relief cartridge; operated manually by control levers.

Blade pitch: Control has three positions - forward, hold and back. Lever is the inner of two mounted on floor to the right of operator's seat.

Combination blade lift & tilt: Lift control has four positions - raise, hold, lower (down pressure), and float. Tilt control has three positions - tilt left, hold, and tilt right. Blade lift and tilt lever is the outer of two mounted on floor to right of operator's seat.

Cylinders: Double-acting.

Filters: Full-flow 10 µm return filter (with two elements), located in hydraulic oil tank.

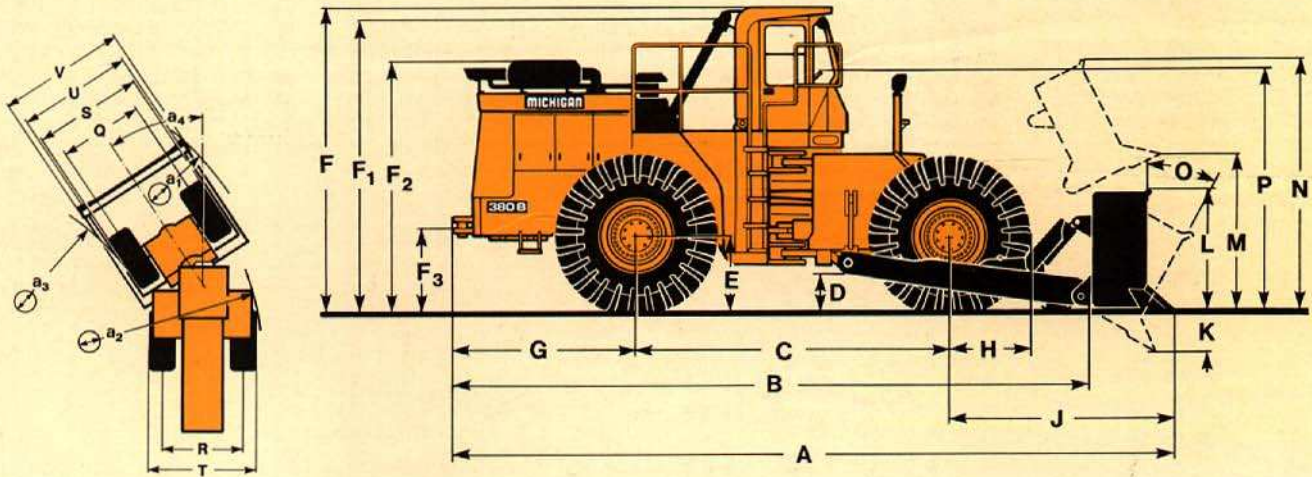
Relief pressure	MPa (psi)	13,8	(2000)
Output	l/min (US gal/min)	382	(101)
at pressure and engine speed	MPa (psi) r/s (r/min)	6,9	(1000) 35 (2100)
Lift cylinder		2	
Bore	mm (in)	152	(6,0)
Stroke	mm (in)	892	(35,13)
Pitch cylinder		2	
Bore	mm (in)	133	(5,25)
Stroke	mm (in)	446	(17,56)
Tilt cylinder		1	
Bore	mm (in)	152	(6,0)
Stroke	mm (in)	276	(10,88)
Blade raise time	s	4,2	
Blade lower time	s	2,0	
Blade pitch			
forward	s	2,2	
backward	s	1,8	
Blade tilt	s	0,9	

MACHINE DIMENSIONS WITH OPTIONAL TIRES

With straight blade	33.25-35			37.25-35			40/65 R 39	
	L-4	L-5	XRAT**	RL2F**	XRBT**	RL2F**	XRDNAT*	
D	mm (ft in)	734 (2'4,9")	754 (2'5,7")	655 (2'1,8")	655 (2'1,8")	716 (2'4,2")	726 (2'4,6")	706 (2'3,8")
E	mm (ft in)	1072 (3'6,2")	1092 (3'7")	993 (3'3,1")	993 (3'3,1")	1054 (3'5,5")	1064 (3'5,9")	1044 (3'5,1")
F	mm (ft in)	4569 (14'11,9")	4590 (15'0,7")	4491 (14'8,8")	4491 (14'8,8")	4552 (14'11,2")	4562 (14'11,6")	4542 (14'10,8")
F ₁	mm (ft in)	4341 (14'2,9")	4361 (14'3,7")	4262 (13'11,8")	4262 (13'11,8")	4323 (14'2,2")	4333 (14'2,6")	4313 (14'1,8")
F ₂	mm (ft in)	3807 (12'5,9")	3828 (12'6,7")	3729 (12'2,8")	3729 (12'2,8")	3790 (12'5,2")	3800 (12'5,6")	3780 (12'4,8")
F ₃	mm (ft in)	1267 (4'1,9")	1288 (4'2,7")	1189 (3'10,8")	1189 (3'10,8")	1250 (4'1,2")	1260 (4'1,6")	1240 (4'0,8")
H	mm (ft in)	1158 (3'9,6")	1158 (3'9,6")	1115 (3'7,9")	1115 (3'7,9")	1184 (3'10,6")	1179 (3'10,4")	1166 (3'9,9")
K	mm (ft in)	434 (1'5,1")	414 (1'4,3")	513 (1'8,2")	513 (1'8,2")	452 (1'5,8")	442 (1'5,4")	462 (1'6,2")
M	mm (ft in)	1801 (5'10,9")	1821 (5'11,7")	1722 (5'7,8")	1722 (5'7,8")	1783 (5'10,2")	1793 (5'10,6")	1773 (5'9,8")
N	mm (ft in)	3249 (10'7,9")	3269 (10'8,7")	3170 (10'4,8")	3170 (10'4,8")	3231 (10'7,2")	3241 (10'7,6")	3221 (10'6,8")
P	mm (ft in)	3376 (11'0,9")	3396 (11'1,7")	3297 (10'9,8")	3297 (10'9,8")	3358 (11'0,2")	3368 (11'0,6")	3348 (10'11,8")
Q	mm (ft in)	2921 (9'7")	2921 (9'7")	2921 (9'7")	2921 (9'7")	2807 (9'2,5")	2807 (9'2,5")	2807 (9'2,5")
S	mm (ft in)	3853 (12'7,7")	3828 (12'6,7")	3835 (12'7,9")	3838 (12'7,1")	3843 (12'7,3")	3848 (12'7,5")	3942 (12'11,2")

DIMENSIONS MICHIGAN 380B

Tires: 37.25 - 35 (30PR) E-3



Whenever applicable, specifications are in accordance with SAE Standards J732 and J742. Basic machine weight is approximate and includes blade listed, standard tires, ROPS cab, full fuel tank, and 79 kg (175 lb) operator. Changes in the standard configuration may change machine dimensions and operating data.

B	mm (ft in)	9322	(30'7")	H	mm (ft in)	1196	(3'11,1")
C	mm (ft in)	4674	(15'4")	O	°	27	
D	mm (ft in)	737	(2'5")	P	mm (ft in)	3378	(11'1")
E	mm (ft in)	1074	(3'6,3")	Q	mm (ft in)	2807	(9'2,5")
F	mm (ft in)	4572	(15'0")	S	mm (ft in)	3861	(12'8")
F ₁	mm (ft in)	4343	(14'3")	U	mm (ft in)	4407	(14'5,5")
F ₂	mm (ft in)	3810	(12'6")	a ₂	mm (ft in)	3531	(11'7")
F ₃	mm (ft in)	1270	(4'2")	a ₃	mm (ft in)	7493	(24'7")
G	mm (ft in)	2962	(8'10")	a ₄	°	± 45	

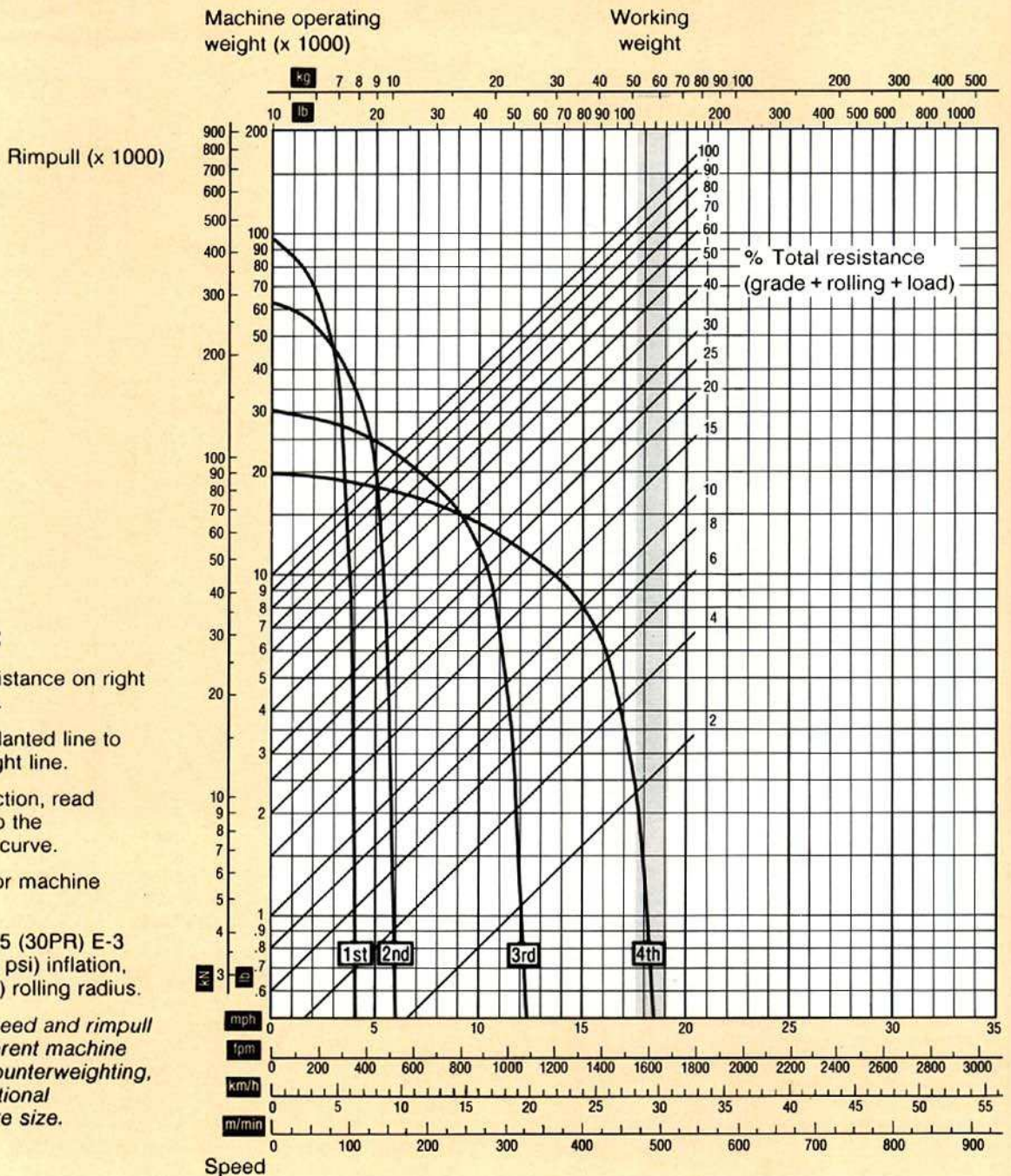
Blade type (SAE J1265)		Straight	U	Michigan coal	Young coal	Wood chip
Capacity, rated	m ³ (yd ³)	10,2 (13,3)	10,7 (14,0)	29,8 (39,0)	29,8 (39,0)	29,8 (39,9)
Blade weight	kg (lb)	4318 (9520)	3538 (7800)	3946 (8700)	5130 (11,250)	5479 (12,080)
Blade tilt, maximum	mm (in)	286 (11,25)	292 (11,5)	362 (14,25)	362 (14,25)	362 (14,25)
Blade raise speed, maximum	mm/s (ft/s)	427 (1,4)	335 (1,1)	488 (1,6)	488 (1,6)	488 (1,6)
A	mm (ft in)	10 122 (33'2,5")	10 223 (33'6,5")	10 719 (35'2")	10 820 (35'6")	10 820 (35'6")
J	mm (ft in)	2743 (9'0")	2845 (9'4")	3353 (11'10")	3454 (11'4")	3454 (11'4")
K	mm (ft in)	432 (1'5")	660 (2'2")	610 (2'0")	610 (2'0")	610 (2'0")
L	mm (ft in)	1651 (5'5")	1664 (5'5,5")	2260 (7'5")	2210 (7'3")	2210 (7'3")
M	mm (ft in)	1803 (5'11")	1626 (5'4")	1981 (6'6")	1981 (6'6")	1981 (6'6")
N	mm (ft in)	3251 (10'8")	3251 (10'8")	3810 (12'6")	3759 (12'4")	3759 (12'4")
V	mm (ft in)	4813 (15'9,5")	4928 (16'2")	6069 (20'0")	6096 (20,0")	6096 (20'0")
a ₁	mm (ft in)	8585 (28'2")	8496 (27'11")	9195 (30'2")	9195 (30'2")	9195 (30'2")
Machine weight, working (with counterweight & hydroinflation)	kg (lb)	64 742 (142 730)	63 962 (141 010)	64 370 (141 910)	65 527 (144 460)	65 904 (145 290)
Machine weight, working (with hydroinflation)	kg (lb)	58 891 (129 830)	58 110 (128 110)	58 519 (129 010)	59 676 (131 560)	60 052 (132 390)
Machine weight, working (with counterweight)	kg (lb)	57 412 (126 570)	56 632 (124 850)	57 040 (125 750)	58 197 (128 300)	58 573 (129 130)
Machine weight, working (basic)	kg (lb)	51 560 (113 670)	50 780 (111 950)	51 189 (112 850)	52 345 (115 400)	52 722 (116 230)
Machine weight, shipping	kg (lb)	50 998 (112 430)	50 218 (110 710)	50 626 (111 610)	51 783 (114 160)	52 159 (114 990)

CHANGE IN WORKING WEIGHT

		Tire & wheel change only	Front tire & wheel with hydro	Rear tire & wheel with hydro	Total tire & wheel with hydro
Tire Size					
37.25-35 (30PR) E-3 STD	kg (lb)	0 (0)	3665 (8080)	3665 (8080)	7330 (16 160)
33.25-35 (26PR) L-5	kg (lb)	980 (2160)	3121 (6880)	3121 (6880)	6242 (13 760)
33.25-35 (32PR) L-4	kg (lb)	159 (350)	2882 (6355)	2882 (6355)	5765 (12 710)
33.25 R 35 XRAT™	kg (lb)	- 1179 (- 2600)	2592 (5715)	2592 (5715)	5185 (11 430)
33.25 R 35 RL2F™	kg (lb)	- 1243 (- 2740)	2560 (5645)	2560 (5645)	5121 (11 290)
37.25 R 35 XRBT™	kg (lb)	- 494 (- 1090)	4010 (8840)	4010 (8840)	8020 (17 680)
37.25 R 35 RL2F™	kg (lb)	- 283 (- 625)	4114 (9070)	4114 (9070)	8228 (18 410)
40/65 R 39 XRDNAT*	kg (lb)	665 (1465)	4720 (10 405)	4720 (10 405)	9439 (20 810)

* Not approved with front and rear counterweights

PERFORMANCE DATA



Instructions:

- 1 Find total resistance on right vertical scale.
- 2 Read down slanted line to machine weight line.
- 3 From intersection, read horizontally to the performance curve.
- 4 Read down for machine speed.

Based on 37.25-35 (30PR) E-3 tires, 241 kPa (35 psi) inflation, 1128 mm (44.4 in) rolling radius.

Note: Machine speed and rimpull will vary with different machine weights due to counterweighting, hydroinflation, optional equipment and tire size.

STANDARD EQUIPMENT

Safety & comfort

Cab access steps & handrails (SAE J185)
 ROPS canopy (SAE J 1040) (ISO 3471)
 Cab, (non-ROPS)
 Acoustical lining
 Air ducting, built-in
 Doors (2) lockable with self-locking sliding glass windows
 Door hold-open struts (2)
 Environmental control:
 Heater, defroster, pressurizer with three-speed blower fan, filtered air
 Floor mat
 Interior dome lights, red & white
 Safety glass, tinted
 Seat belt, (SAE J386)
 Seat, suspension, 6-way adjustable
 Windshield washer, front
 Windshield wipers, front & rear
 Drive shaft guard, converter to transmission

Instruments/gauges:
 Air cleaner restriction indicator
 Air pressure gauge
 Engine coolant temperature
 Engine oil pressure gauge
 Hourmeter
 Voltmeter
 Transmission/torque converter fluid temperature gauge
 Warning & monitoring lights / Audible alarms:
 Horn, air operated
 Low air pressure
 Parking brake applied
 Reverse alarm (SAE J994)
 Secondary brake applied
 Sight gauges:
 Hydraulic fluid level
 Transmission fluid level
 Mirrors, rearview (2) exterior
 Central lube centers
 Vandalism lock, provision for:
 Engine coolant
 Fuel
 Hydraulic fluid
 Transmission/torque converter fluid

Drawbar with pin
 Brakes, 4-wheel air-over-hydraulic, dry disc
 Brake system, secondary
 Brake system air dryer
 Pitch cylinder guards
 Side panels, engine hood
 Steering frame lock
 Engine compartment acoustical lining
 Grille, rear swing-out
 Lifting lugs

Engine & Electrical system

Electrical system: 24 V circuit breaker, protected, pre-wired for optional accessories
 Battery disconnect, lockable
 Alternator, 100 A
 Lights:
 Work (150 W) 4 front & 2 rear
 Stop & tail combination
 Cold start aid, ether Injection
 Neutral start feature
 Air cleaner, exhaust-aspirated precleaner
 Radiator surge tank

Drive train

Differentials:
 Front, limited slip
 Rear, no-spin
 Tires: 37.25-35 (30PR) E-3

Hydraulic system

"C" frame, hydraulic cylinders & controls
 Hydraulic fluid-to-air cooler, swing-out
 Hydraulic piping guards on "C" frame
 Hydraulic pressure test ports, quick-connect

OPTIONAL EQUIPMENT (Standard on certain markets)

Blade related equipment

Push plate, use with straight blade
 Rock guard

Service and maintenance equipment

Automatic lube system

Engine equipment

Engine oil evacuation (Wiggins)
 Engine shutdown to idle kit for high coolant temp
 low engine oil pressure
 Engine water & oil pre-heater 220 V
 External starting receptacle
 Radiator sand grid kit
 Radiator shutters
 includes sucker fan
 Sucker fan

Electrical equipment

Lights, flood lamp kit, total 6 lights

Cab equipment

Air conditioner
 Spinner Knob (steering wheel)
 Warning system (A.I.D.)
 High water temperature
 low oil pressure

External equipment

Counterweight, front
 Counterweight, rear
 Push plate rear, swivel type
 Fenders, front
 Fenders, rear

Protection equipment

Secondary steering kit, electric
 Crankcase guard
 Transmission pan guard

Under our policy of continuous product improvement, we reserve the right to change specifications and design without prior notice. The illustrations do not necessarily show the standard version of the machine.

Volvo BM Company

S-63185 ESKILSTUNA SWEDEN

