

MICHIGAN

W380



MICHIGAN W380 – HIGH PRODUCTIVITY, HIGH CAPACITY

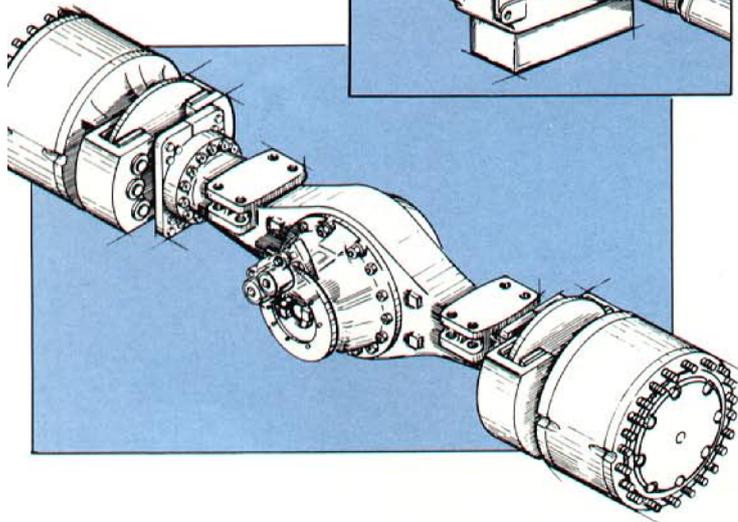
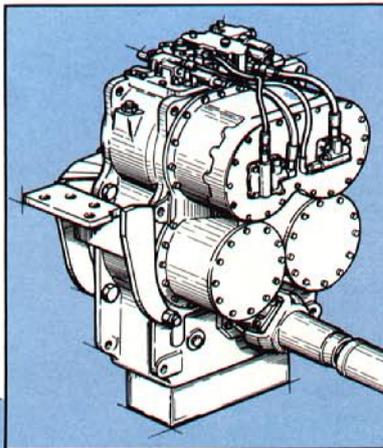
The Michigan W380 wheel dozer is built with Michigan's years of experience and state-of-the-art technology. Rated with blade capacities from 10,2 m³ (13.3 yd³) to 29,8 m³ (39 yd³), with 427 kW (572 FWHP), and operating weights up to 69 400 kg (153,000 lb), the W380 is ideally suited to its working environment. Shovel clean-up, haul-road maintenance, and stockpiling and reclamation of aggregates, ores, coal and woodchips are examples of

applications where the W380 is an excellent choice. An ideal balance of operating weight, engine, transmission and hydraulics results in excellent fuel consumption and power availability for traction. The operator controls the W380 from a state-of-the-art cab ergonomically designed to provide the conditions necessary for the operator to work at his highest efficiency.

DRIVETRAIN

Transmission – uncomplicated & reliable

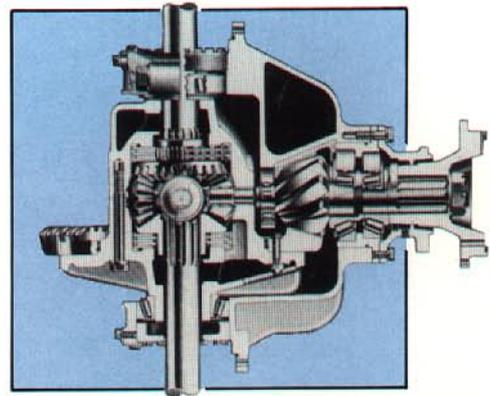
- Single lever control, electrically actuated
- 4 speeds forward – 4 reverse
- Constant mesh – countershaft design
- Full directional clutch modulation in forward & reverse for faster cycles
- Uncomplicated design – reliable and easy to maintain – clutch packs can be serviced without removing transmission from frame
- Isolation mounted to control sound and vibration



AXLES – STRONG AND PROVEN

- Single piece cast housings for high strength – long life
- Outboard mounted final drives with needle bearings to minimize friction and power loss

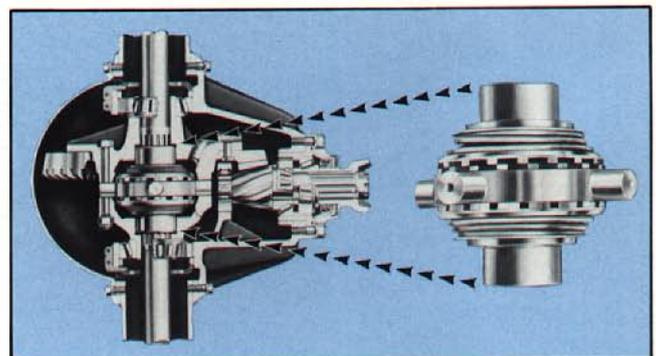
LIMITED SLIP DIFFERENTIAL – FRONT

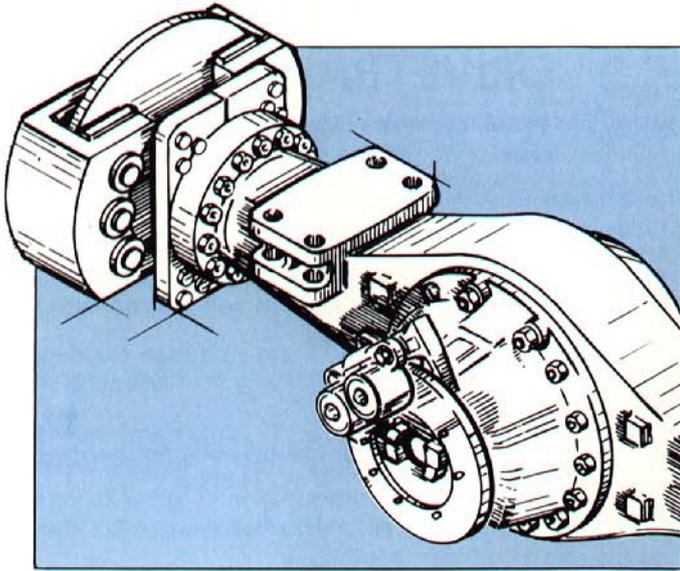


The limited slip differential in the front axle divides torque so that the wheel with the best traction receives more torque during a turn, or in slippery conditions.

NO-SPIN DIFFERENTIAL – REAR

The no-spin differential in the rear disengages the outside wheel during a turn or if one wheel spins due to loss of traction. Working together, the differentials assure that torque is delivered to at least three wheels for easier steering and to minimize wheel spin.





BRAKES

Service brakes are outboard mounted, fully hydraulic, dry disc type. Secondary braking is provided by an axle-by-axle split system. Dead engine braking capability is provided by nitrogen charged accumulators.

The parking brake is mounted on the front axle input shaft. It is spring-applied, hydraulically released. Audible and visual alarms warn the operator against attempting to move the machine with the parking brake applied.

Transmission interlock applies the service brakes if shifted into forward or reverse to prevent moving the machine when the parking brake is applied.



CAB

SOUND INSULATED AND COMFORTABLE

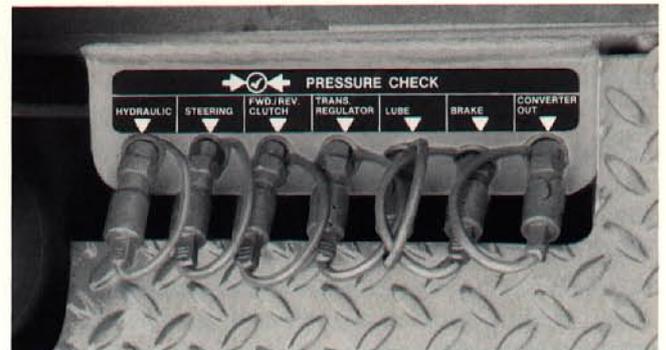
The non-ROPS cab is ergonomically designed to provide high operator comfort and efficiency. A six-way adjustable air suspension seat, air conditioner, heater and defroster are standard equipment for maximum operator comfort. A ROPS canopy fits closely over the cab.



INSTRUMENTS & CONTROLS

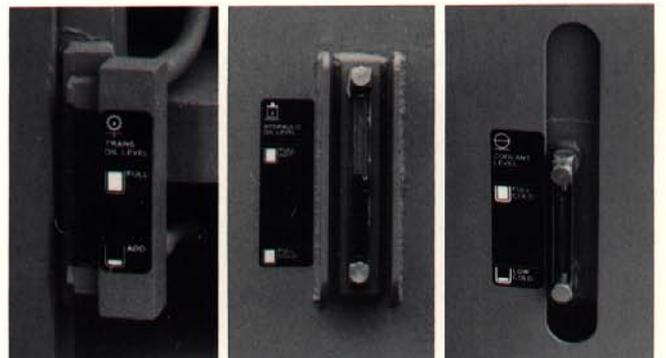
VISIBLE & ACCESSIBLE

The instrument panel locates the major instruments and controls in front of the operator. Gauges include engine oil pressure, engine coolant temperature, transmission oil temperature, fuel level, electrical system voltage and engine hourmeter. Blade controls, within easy reach to the operator's right, are mounted to the seat and maintain the same relative position to the operator. The ignition switch and parking brake control are located on the right side of the steering wheel.



SERVICEABILITY

- Quick-connect hydraulic test ports permit easy checking of machine functions.
- Grouping of lube points permits ground level lubrication of all lube points at the recommended intervals.
- Sight gauges permit easy checking of oil levels.





ENGINE (SAE J1349)

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

Make	Cummins			
Model	VTA-28-C			
Max. rating* at	rps	rpm	35	2100
	kW	hp	474	635
Flywheel rating** at	rps	rpm	35	2100
	kW	hp	427	572
Max. torque at	rps	rpm	22	1300
	Nm	lbf ft	2929	2160
Number of cylinders	12			
Displacement, total	dm ³ , 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.



BRAKE SYSTEM (SAE J1152) (ISO 3450)

Service brakes: Full hydraulic system. Outboard mounted dry disc brakes with two calipers on each wheel.

Secondary: Dual circuit axle-by-axle system. Actuated by service brake pedal. Audible and visual low pressure alarm. Dead engine braking capability provided by two nitrogen-charged accumulators.

Parking brake: Dry disc type mounted on front axle input shaft. Spring applied, hydraulically released; actuated by dash-mounted hand valve.

Transmission interlock applies service brakes if shifted into forward or reverse to prevent moving machine when parking brake is applied.

Pump: Piston pump, pressure compensated.

Filtration: Full flow, 10 micron filter.

Pressure setting	MPa	psi	20,7	3000
Service brake, disc dia.	mm	in	724	28.5
	thickness	mm	in	15,9 0.625
Parking brake, disc dia.	mm	in	508	20
	thickness	mm	in	12,7 0.5



DRIVETRAIN

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

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

Axles: Clark full-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: Tubeless with nylon cord for wheel loaders/dozers. Other tires available for different applications.

Torque converter make, model	Clark, C-16912-11			
Torque multiplication	2.48:1			
Transmission make, model	Clark, 8425-H-200			
Speeds, forward/reverse				
1	km/h	mph	8,2	5.1
2	km/h	mph	12,2	7.6
3	km/h	mph	24,5	15.2
4	km/h	mph	36,0	22.4
Measured with tires	37.25-35 (30PR) E-3			
Front axle make, model	Clark, 25D 7060			
Rear axle make, model	Clark, 25D 7060			
Rear axle oscillation, total	deg		29	
	mm	in	681	26.8



STEERING SYSTEM

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

Pump: Tandem gear-type, mounted on the torque converter.

System supply: The system is served by both sections of the pump.

Angle of steer: Each direction 45°; total of 90°

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

Steering cylinders, no.	2			
Bore	mm	in	177,8	7.00
	Stroke	mm	in	760,7 29.95
Relief pressure	MPa	psi	17,2	2500
Pump output (steer)	dm ³ , l/min	US gal/min	420	111
	at pressure	MPa	psi	6,9 1000
and engine speed	rps	rpm	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. Self-locking, sliding windows, Tinted safety glass.

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

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

Noise level in cab, max.	dB(A)		86.0
Heating capacity	kW/h BTU/h	11,0	37,500
Air conditioning	kW/h BTU/h	5,9	20,000



ELECTRICAL SYSTEM

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

Voltage	V		24
Alternator	A		100
Batteries (12 volt)			8
Battery capacity, total	CCA	1250	
Cranking capacity, ea.	CCA	625	



SERVICE REFILL CAPACITIES

Cooling system	dm ³ , l	US gal	220,0	58.0
Crankcase	dm ³ , l	US gal	102,2	27.0
Torque converter/ transmission	dm ³ , l	US gal	124,9	33.0
Front differential	dm ³ , l	US gal	92,4	24.4
Rear differential	dm ³ , l	US gal	92,4	24.4
Front & rear wheel hubs (ea.)	dm ³ , l	US gal	40,1	10.6
Fuel tank (usable)	dm ³ , l	US gal	776,0	205.0
Hydraulic reservoir	dm ³ , l	US gal	492,0	130.0
Midmount bearing	dm ³ , l	US gal	4,2	1.1



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: Tandem gear-type pump mounted on torque converter.

System supply: The front section supplies the tilt and pitch cylinders. The rear section powers the blade lift cylinders.

Valve: Three-spool valve with built-in pressure relief cartridge is operated by pilot control valves.

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

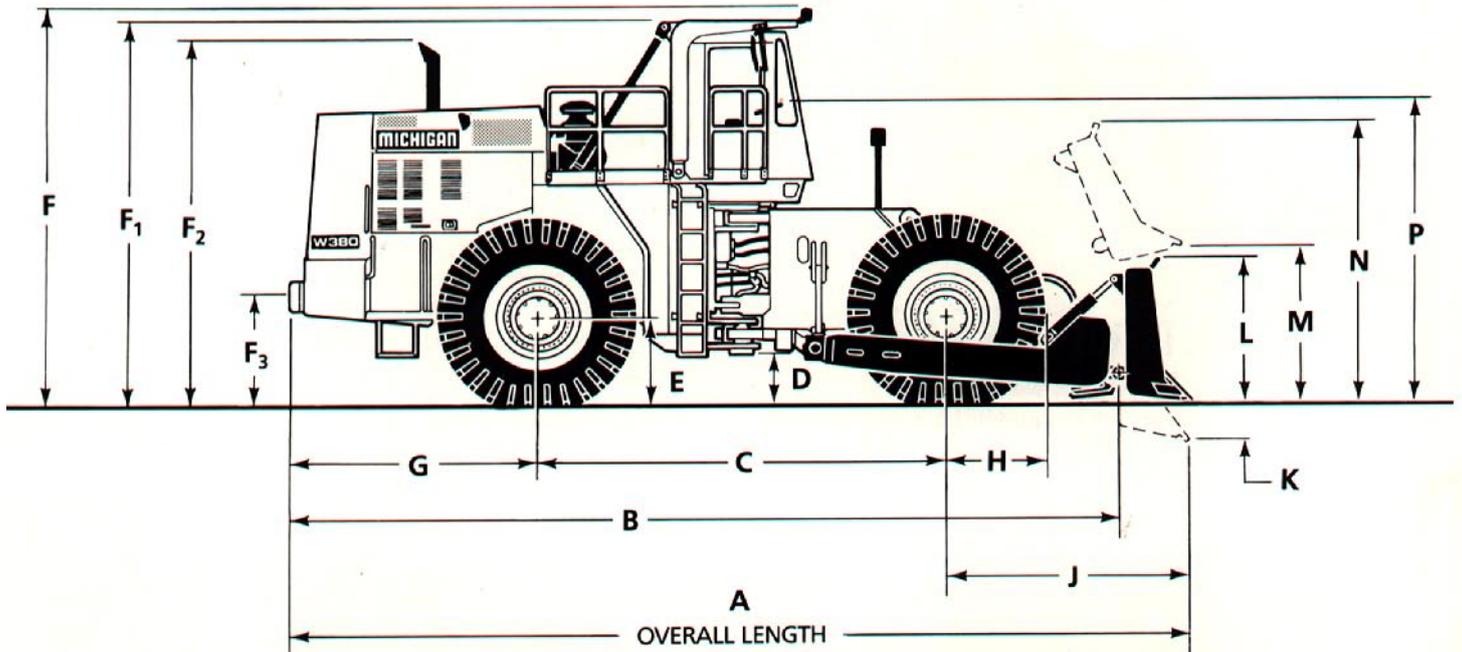
Combination blade lift & tilt: Lift control has four positions – raise, hold, lower (down pressure), and float. Tilt control has three positions – tilt left, hold, and tilt right. Blade lift and tilt lever is the inner of two mounted to right of operator's seat.

Cylinders: Double-acting.

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

Relief pressure	MPa	psi	17,2	2500
Pump output				
(front section)	dm ³ , l/min	US gal/min	212	56
at pressure	MPa	psi	6,9	1000
and engine speed	rps	rpm	35	2100
Pump output				
(rear section)	dm ³ , l/min	US gal/min	121	32
at pressure	MPa	psi	6,9	1000
and engine speed	rps	rpm	35	2100
Lift cylinder, no.			2	
Bore	mm	in	177,8	7.0
Stroke	mm	in	892,3	35.13
Pitch cylinder, no.			2	
Bore	mm	in	127	5.0
Stroke	mm	in	446	17.56
Tilt cylinder, no.			1	
Bore	mm	in	152,4	6.0
Stroke	mm	in	276,4	10.88
Blade raise time	s		4.8	
Blade lower time	s		2.4	
Blade pitch forward	s		5.4	
Blade pitch backward	s		4.3	
Blade tilt left	s		1.9	
Blade tilt right	s		2.4	

DIMENSIONS – MICHIGAN W380

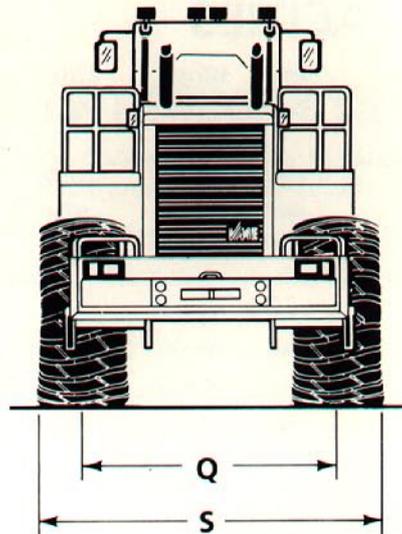


Tires: 37.25-35 (30PR) E-3

Whenever applicable, specifications are in accordance with SAE Standards J732 and J742.

Changes in the standard configuration may change machine dimensions and operating data.

*Basic machine weight is approximate and includes blade listed, standard tires, 839 kg (1850 lb) rear bumper weight, ROPS canopy, cab, full fuel tank, and 79 kg (175 lb) operator.



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

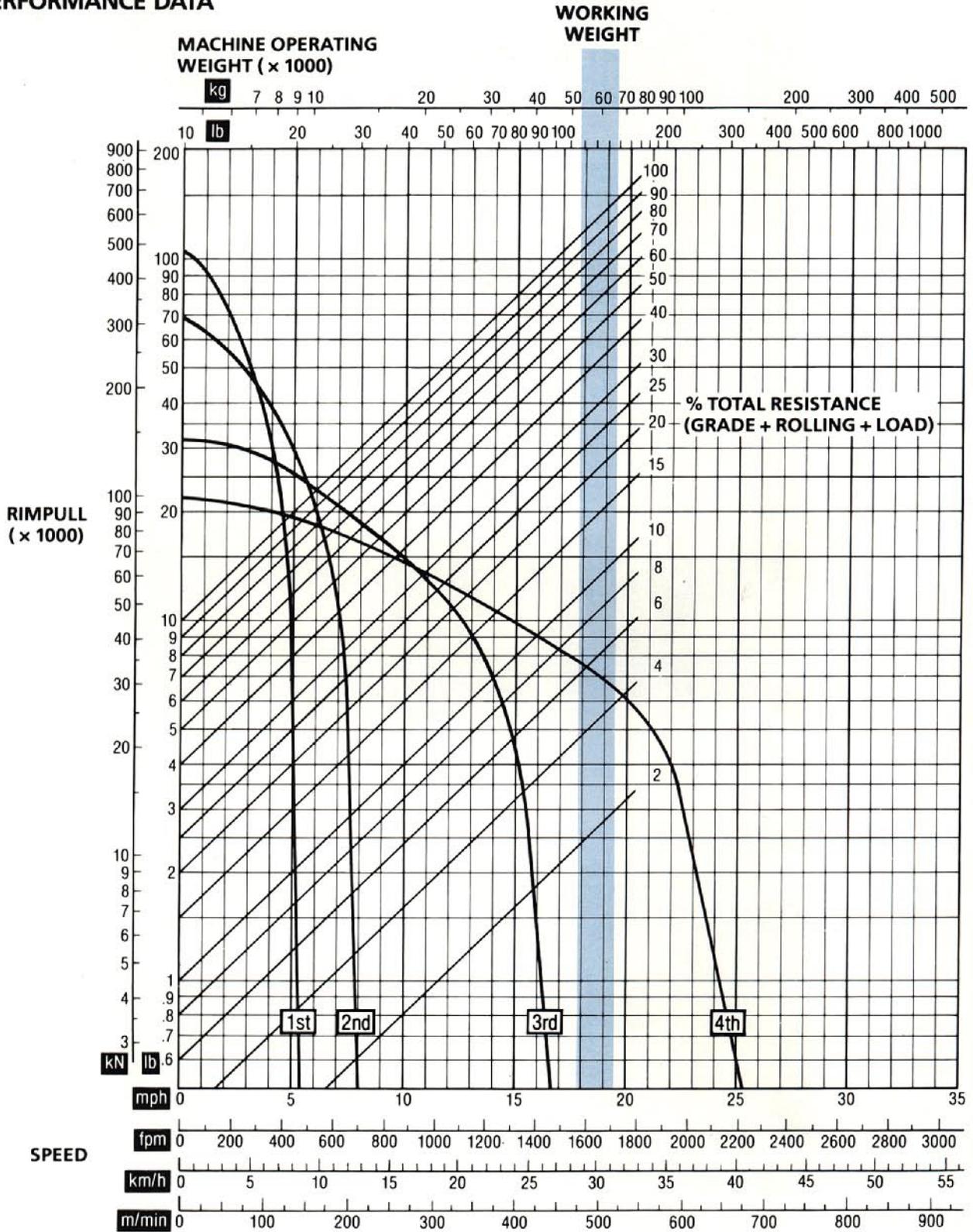
Blade type (SAE J1265)		Straight	U	Michigan coal	Young coal	Young woodchip
Capacity, rated	m ³	10,2	10,7	29,8	29,8	29,8
	yd ³	13.3	14.0	39.0	39.0	39.0
Blade weight	kg	4318	3538	3946	5103	5479
	lb	9520	7800	8700	11,250	12,080
Width over cutting edge	mm	4826	4928	6096	6096	6096
	ft in	15' 10"	16' 2"	20' 0"	20' 0"	20' 0"
"C" frame width	mm	4369	4369	4369	4369	4369
	ft in	14' 4"	14' 4"	14' 4"	14' 4"	14' 4"
Blade pitch angle, maximum	deg	27	27	27	27	27
Blade tilt, maximum	mm	286	292	362	362	362
	in	11.25	11.5	14.25	14.25	14.25
Blade raise speed, maximum	mm/s	366	335	427	427	396
	fps	1.2	1.1	1.4	1.4	1.3
A	mm	10 287	10 389	10 998	10 998	10 770
	ft in	33' 9"	34' 1"	36' 1"	36' 1"	35' 4"
B	mm	9474	9474	9474	9474	9474
	ft in	31' 1"	31' 1"	31' 1"	31' 1"	31' 1"
C	mm	4674	4674	4674	4674	4674
	ft in	15' 4"	15' 4"	15' 4"	15' 4"	15' 4"
G	mm	2845	2845	2845	2845	2845
	ft in	9' 4"	9' 4"	9' 4"	9' 4"	9' 4"
J	mm	2743	2845	3454	3454	3251
	ft in	9' 0"	9' 4"	11' 4"	11' 4"	10' 8"
K	mm	432	660	610	610	610
	ft in	1' 5"	2' 2"	2' 0"	2' 0"	2' 0"
L	mm	1651	1664	2261	2210	2210
	ft in	5' 5"	5' 5.5"	7' 5"	7' 3"	7' 3"
M	mm	1803	1626	1981	1981	1930
	ft in	5' 11"	5' 4"	6' 6"	6' 6"	6' 4"
N	mm	3251	3251	3810	3759	3658
	ft in	10' 8"	10' 8"	12' 6"	12' 4"	12' 0"
Machine weight, working (with counterweight & hydroinflation)	kg	66 780	66 000	66 407	67 564	67 940
	lb	147,220	145,500	146,400	148,950	149,780
Machine weight, working (with hydroinflation)	kg	63 241	62 461	62 869	64 026	64 402
	lb	139,420	137,700	138,600	141,150	141,980
Machine weight, working (with counterweight)	kg	59 467	58 687	59 095	60 252	60 628
	lb	131,100	129,380	130,280	132,830	133,660
Machine weight, working (basic*)	kg	55 929	55 149	55 557	56 714	57 090
	lb	123,300	121,580	122,480	125,030	125,860
Machine weight, shipping	kg	55 366	54 586	54 994	56 151	56 528
	lb	122,060	120,340	121,240	123,790	124,620
Turning radius Inside "C" frame	mm	3531	3531	3531	3531	3531
	ft in	11' 7"	11' 7"	11' 7"	11' 7"	11' 7"
Outside corner of blade	mm	8585	8484	9271	9195	9195
	ft in	28' 2"	27' 10"	30' 5"	30' 2"	30' 2"
Outside rear tire (curb to curb)	mm	7493	7493	7493	7493	7493
	ft in	24' 7"	24' 7"	24' 7"	24' 7"	24' 7"

MACHINE DIMENSIONS With Straight Blade		33.25-35				37.25-35			40/65-39	
		L-4	L-5	XRAT★★	RL2F★★	E-3	XRBT★★	RL2F★★	L-4	XRDNAT★
D	mm	610	635	533	533	610	584	584	610	584
	ft in	2'0"	2'1"	1'9"	1'9"	2'0"	1'11"	1'11"	2'0"	1'11"
E	mm	1072	1092	993	993	1074	1054	1054	1067	1044
	ft in	3'6.2"	3'7"	3'3.1"	3'3.1"	3'6.3"	3'5.5"	3'5.5"	3'6"	3'5.1"
F	mm	4699	4724	4623	4623	4699	4674	4674	4699	4674
	ft in	15'5"	15'6"	15'2"	15'2"	15'5"	15'4"	15'4"	15'5"	15'4"
F ₁	mm	4572	4597	4496	4496	4572	4547	4547	4572	4547
	ft in	15'0"	15'1"	14'9"	14'9"	15'0"	14'11"	14'11"	15'0"	14'11"
F ₂	mm	4242	4267	4166	4166	4242	4216	4216	4242	4216
	ft in	13'11"	14'0"	13'8"	13'8"	13'11"	13'10"	13'10"	13'11"	13'10"
F ₃	mm	1270	1295	1194	1194	1270	1245	1245	1270	1245
	ft in	4'2"	4'3"	3'11"	3'11"	4'2"	4'1"	4'1"	4'2"	4'1"
H	mm	1158	1158	1115	1115	1196	1184	1179	1189	1166
	ft in	3'9.6"	3'9.6"	3'7.9"	3'7.9"	3'11.1"	3'10.6"	3'10.4"	3'10.8"	3'9.9"
K	mm	434	414	516	513	432	452	442	434	462
	ft in	1'5.1"	1'4.3"	1'8.3"	1'8.2"	1'5"	1'5.8"	1'5.4"	1'5.1"	1'6.2"
M	mm	1803	1829	1727	1727	1803	1778	1778	1803	1778
	ft in	5'11"	6'0"	5'8"	5'8"	5'11"	5'10"	5'10"	5'11"	5'10"
N	mm	3251	3277	3175	3175	3251	3226	3226	3251	3226
	ft in	10'8"	10'9"	10'5"	10'5"	10'8"	10'7"	10'7"	10'8"	10'7"
P	mm	3477	3498	3396	3399	3480	3459	3470	3477	3449
	ft in	11'4.9"	11'5.7"	11'1.7"	11'1.8"	11'5"	11'4.2"	11'4.6"	11'4.9"	11'3.8"
Q	mm	2921	2921	2921	2921	2807	2807	2807	2807	2807
	ft in	9'7"	9'7"	9'7"	9'7"	9'2.5"	9'2.5"	9'2.5"	9'2.5"	9'2.5"
S	mm	3853	3828	3858	3838	3861	3843	3848	3874	3942
	ft in	12'7.7"	12'6.7"	12'7.9"	12'7.1"	12'8"	12'7.3"	12'7.5"	12'8.5"	12'11.2"

CHANGE IN WORKING WEIGHT		Tire & Wheel Change Only (4 Tires)		*Hydro Weight (Per Tire)		Hydro Front or Rear (2 Tires)		Hydro Front and Rear (4 Tires)	
Tire Size									
37.25-35 (30PR) E-3 STD	kg lb	0	0	1828	4030	3656	8060	7312	16,120
33.25-35 (32PR) L-4	kg lb	163	360	1393	3070	2785	6140	5570	12,280
33.25-35 (32PR) L-5	kg lb	1297	2860	1315	2900	2631	5800	5262	11,600
33.25R35 XRAT★★ Michelin	kg lb	- 553	- 1220	1592	3510	3184	7020	6369	14,040
33.25R35 RL2F★★ Goodyear	kg lb	- 363	- 800	1569	3460	3139	6920	6278	13,840
37.25R35 XRBT★★ Michelin	kg lb	136	300	2127	4690	4255	9380	8510	18,760
37.25R35 RL2F★★ Goodyear	kg lb	494	1090	2082	4590	4164	9180	8328	18,360
40/65-39 (30PR) L-4	kg lb	2613	5760	2077	4580	4155	9160	8310	18,320
40/65R39 XRDNAT★ Michelin	kg lb	1293	2850	2193	4835	4386	9670	8773	19,340

*Hydroinflation is the addition of C_aCl₂ solution of 75% by volume.

PERFORMANCE DATA



Instructions:

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

Based on 37.25-35 (30PR) E-3, 241 kPa (35 psi) inflation, 1113 mm (43.8 in) rolling radius.

NOTE: Vehicle speed and rimpull will vary with different machine weights due to counterweighting, hydro-inflation, optional equipment and tire size.

STANDARD EQUIPMENT

AIR CLEANERS (2), EXHAUST-ASPIRATED
PRECLEANER
ALTERNATOR, 24V, 100A
BATTERY DISCONNECT, LOCKABLE
BRAKES, 4-WHEEL, HYDRAULIC,
DRY DISC
BRAKE SYSTEM, SECONDARY
BRAKING, DEAD ENGINE
CAB ACCESS STEPS & HANDRAILS
(SAE J185)
CAB, (NON-ROPS)
Acoustical Lining
Air Ducting, Built-In
Doors (2), Lockable with Self-Locking,
Sliding Glass Windows
Door Hold-Open Struts (2)
Electrical System: 24V, Circuit Breaker
Protected, Prewired for Optional
Accessories
Environmental Control:
Air Conditioner 5,9 kW/h
(20,000 BTU/h)
Heater 11,0 kW/h (37,500 BTU/h),
Defroster, Pressurizer with Three-
Speed Blower Fan, Filtered Air
Floor Mat
Interior Lights, Red & White
Interior Mirror
Safety Glass, Tinted
Seat Belt, (SAE J386)
Seat, Air Suspension, 6-Way Adjustable
Sun Visor
Walk-In, Walk-Out Feature
Windshield Washers, Front & Rear
Windshield Wipers, Front & Rear

"C" FRAME, HYDRAULIC CYLINDERS
& CONTROLS
CENTRAL LUBE CENTERS
COLD START AID, ETHER INJECTION
DIFFERENTIALS:
Front, Limited Slip
Rear, No-Spin
DRAWBAR WITH PIN
ENGINE COMPARTMENT
Enclosed Underneath
GRILLE, REAR SWING-OUT
HYDRAULIC FLUID-TO-AIR COOLER,
ON SWING-OUT GRILLE
HYDRAULIC PIPING GUARDS
ON "C" FRAME
HYDRAULIC PRESSURE TEST PORTS,
QUICK CONNECT
INSTRUMENTS/GAUGES:
Air Cleaner Restriction Indicators (2)
Engine Coolant Temperature Gauge
Engine Oil Pressure Gauge
Fuel Gauge
Hourmeter
Transmission/Torque Converter
Fluid Temperature Gauge
Voltmeter
Sight Gauges:
Coolant Level
Hydraulic Fluid Level
Transmission Fluid Level
LIFTING LUGS

LIGHTS:
Work (70W Halogen) 6 Front,
2 Rear & 2 Hood Side
Stop & Tail Combination, 2 Rear
MIRRORS, REARVIEW (2), EXTERIOR
NEUTRAL START FEATURE
RADIATOR SURGE TANK
ROPS CANOPY (SAE J1040) (ISO 3471)
SIDE PANELS, ENGINE HOOD
STEERING FRAME LOCK
TIRES: 37.25-35 (30PR) E-3
(General Brand)
VANDALISM LOCK, PROVISION FOR:
Batteries
Engine Coolant
Fuel
Hydraulic Fluid
Transmission/Torque
Converter Fluid
WARNING & MONITORING
LIGHTS/AUDIBLE ALARMS:
Air Conditioner Pressure
Brake Pump/Differential Pressure
Brake System, Front
Brake System, Rear
Horn, Electric
Hydraulic Oil Temperature
Parking Brake Applied
Reverse Alarm (SAE J994)
Transmission Filter

OPTIONAL EQUIPMENT

Blade and Related Options:

Coal Blade, 29,8 m³ (39 yd³) Michigan
Coal Blade, 29,8 m³ (39 yd³) Young
Straight Blade, 10,2 m³ (13.3 yd³)
"U" Blade, 10,7 m³ (14 yd³)
Woodchip Blade, 29,8 m³ (39 yd³) Young
Pitch Cylinder Guards, Use with Straight
or U-Blades
Push Plate, Use with Straight Blade
Rock Guard

Cab & ROPS Canopy Options:

Cab, Non-ROPS (Delete)
ROPS Canopy (SAE J1040) (ISO 3471) (Delete)

General Optional Equipment:

Automatic Lube System
Counterweight, Front (3538 kg) (7800 lb)
Engine Oil Evacuation (Wiggins)

Engine Shutdown to Idle Kit

High Coolant Temperature,
& Low Oil Pressure
Engine Coolant & Oil Pre-Heater, 220 Volt
External Starting Receptacle
Fenders, Front
Fenders, Rear
Fuel Coupling, Fast Fill
Radiator Sand Grid Kit
Radiator Shutters, Includes Sucker Fan
Secondary Steering Kit, Electric
(with Warning Light)
Spinner Knob (Steering Wheel)
Sucker Fan
Transmission Declutch
Warning System (A.I.D.)
High Coolant Temperature,
& Low Oil Pressure

Guards:

Crankcase
Transmission Pan

Tire Options:

Less Standard Tires Only
Less Standard Tires & Wheels
33.25-35 (32PR) L-4 Rock
33.25-35 (26PR) L-5 Rock
33.25R35 XRAT★★ Michelin
33.25R35 RL2F★★ Goodyear
37.25R35 XRBT★★ Michelin
37.25R35 RL2F★★ Goodyear
40/65R39 XRDNAT★ Michelin
40/65-39 (30PR) L-4

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.

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