

# PC4000 Super Shovel

## KOMATSU®



### Operating Weight

370 t to 385 t  
816,000 lb to  
849,000 lb

### Shovel Capacity

21 m<sup>3</sup> 28 yd<sup>3</sup>  
SAE 2:1 heaped

### Backhoe Capacity

22 m<sup>3</sup> 29 yd<sup>3</sup>  
SAE 1:1 heaped

### Main Drive

**Diesel**  
1400 kW 1875 HP

### Electric

1350 kW



# PC4000 Super Shovel

SPECIFICATIONS

HYDRAULIC MINING SHOVEL



# PC4000 Super Shovel

## **Front End Productivity**

Designed for sustained production.

- Powerful digging forces.
- Ease of bucket filling.
- Proven attachment design.
- All cylinders mounted under attachment for additional protection.
- Buckets and Wear Packages to suit all densities and ground conditions.

## **VHMS Vehicle Health Monitoring System**

Provides real time and stored information about the operating status of the machine.

- Touch sensitive color monitor screen with continuous display.
- Service messages in data, snap-shot and trend analysis format with battery back-up security.
- Automatic engine shut-down for critical malfunctions.
- Data download capable, either to a laptop computer or by wireless link.

## **In-house Design and Manufacture**

Components are designed to combine high production, easy maintenance, and extended reliability.

- In-house experience and quality control confirmed by ISO 9001 certification.
- Robotic and numerically controlled machine tools ensure consistent quality.
- Continuous high investment in manufacturing tools, control and personnel skills.



## **Time-proven Structures**

Extended structural reliability is proven.

- Robust structural design developed from field experience and finite analysis expertise.
- Optimum use of castings at key points throughout the structure of the machine.



### ***Operator Comfort***

New large operator's cab.

- Low internal noise level to 68 db (A).
- New generation viscous cab mounts.
- Comprehensive climate control with pressurised filtered air ventilation and air conditioning.
- High specification multi-adjustable air suspension seat incorporates variable lumbar control.

**Matched for  
165 to 255 ton  
trucks**

**SHOVEL BUCKET**  
21 m<sup>3</sup> 28 yd<sup>3</sup>

**BREAKOUT FORCE**  
1250 kN 280,000 lb

**CROWD FORCE**  
1330 kN 300,000 lb



### ***Powerful Diesel Engine***

Single Komatsu SDA 16V 160.

- Rated 1400 kW 1875 HP at 1800 rpm.
- Electronic engine management.
- Time saving options fitted as standard;  
**Centinel** Engine Oil Management System  
Engine **Reserve** Oil Supply System  
**Eliminator** Oil Filter System.
- Low engine emission levels meet EPA Tier 1.

### ***Extended Life Undercarriage***

Lower operating costs.

- Big diameter rollers, idlers, and sprockets.
- Large surface area and detailed hardening reduces wear.
- Hardened track link pin bores.

### ***Ease of Service***

Simple, common-sense design provides quick easy access to all major components.

- Generous walk-through gangways throughout the platform and around the power train.
- Enclosed, internally lit, engine house
- Automatic central lubrication.
- Swing-out hydraulic oil coolers ensure complete and regular service.
- Ground-level access to Wiggins hydraulically powered swing-down service arm.

# SPECIFICATIONS



## DIESEL DRIVE

Model	Komatsu SDA 16V 160
Type	4-cycle, water-cooled, direct injection
Aspiration	Turbocharged and aftercooled
Number of cylinders	16
Rated power	1400 kW 1875 HP @ 1800 rpm (SAE 1995/J1349)
Governor	All-speed, electronic

The integrated engine oil and filter system extends service intervals. This combines the oil stabilising systems, Reserve and Centinel, with the Eliminator self cleaning oil filter to extend, with oil analysis, the oil change interval to 4000 hours.



## ELECTRIC SYSTEM

System	24 V
Batteries (series/parallel)	4 x 12 V
Alternator	225 A
Standard working lights	8 Xenon lights
Standard service lights	11 lights

Optional lighting upon request



## UNDERCARRIAGE

Undercarriage consists of one center carbody and two track frames, each attached by four large diameter hardened pins.

Center frame	H-type
Track frames	Steel box-section



## CRAWLER ASSEMBLY

Track adjustment	Automatic hydraulic type
Number of track shoes	47 each side
Number of top rollers	3 each side
Number of bottom rollers	7 each side



## TRAVEL AND BRAKE SYSTEMS

Travel control	2 foot pedals
Gradeability	Up to 70%
Travel speed (maximum)	2.1 km/h 1.3 mph
Service brake	Hydraulic brake
Parking brake	Wet, multiple-disc



## SWING SYSTEM

Hydraulic motors and drives	2
Swing brake, service	Hydraulic brake
Swing brake, parking	Wet, multiple-disc
Swing ring teeth	External
Swing speed (maximum)	4.0 rpm



## ELECTRIC DRIVE

Type	Squirrel-cage induction motor
Power output	1350 kW
Voltage	6600 V*
Amperage (approximate)	150 A
Frequency (standard)	50 Hz @ 1500 rpm
Optional frequency	60 Hz @ 1800 rpm

\*Other voltages available on request



## HYDRAULIC SYSTEM

The power train consists of one main drive. Diesel engine or electric motor can be supplied. One gearbox drives four identical pumps which draw hydraulic oil from an unpressurized hydraulic tank. Open circuit hydraulics provide maximum cooling and filtering efficiency.

Rated flow (total output)	4140 ltr/min 1,094 gpm
Relief valve setting	310 bar 4,495 psi
Swing flow rate	1590 ltr/min 420 gpm

High pressure in line filters . . . . . 200 µm  
one per pump located at the valve blocks

Full flow return line filters (5 double) . . . . . 10 µm  
at head of hydraulic tank

The four-circuit system features a load-limiting governor with oil delivery summation to the working circuits and incorporates pressure cut-off control. Hydropilot prioritizes hydraulic flow giving smooth hydraulic response, simple hydraulic system layout, and a reduced number of components.



## COOLING SYSTEM

The high capacity engine radiator is cooled by a hydraulically driven fan for superior cooling efficiency and requiring little maintenance. The hydraulic system includes two large swing-out vertical air-to-oil hydraulic coolers with temperature-regulated hydraulically driven fans.



## AUTOMATIC CENTRALISED LUBRICATION

Two hydraulically powered Lincoln single line automatic lubrication systems are provided as standard, complete with time and volume variable controls. Activity and malfunction events are linked to the VHMS. The central lube grease system is supplied from a refillable 200 litre 53 gal. barrel. A second, identical system supplies open gear lubricant to the swing ring teeth through a lube pinion. Replenishment of the barrels is through the Wiggins service arm.



## SERVICE CAPACITIES

Hydraulic oil tank	3900 ltr 1,030 U.S. gal
Hydraulic system	5900 ltr 1,560 U.S. gal
Fuel	6400 ltr 1,690 U.S. gal
Engine coolant	475 ltr 125 U.S. gal
Engine oil (sump)	290 ltr 76 U.S. gal
Centinel engine oil make up tank	580 ltr 153 U.S. gal





CAB

The large operator's cab is constructed in steel and conforms to ISO 3449 as a FOPS structure. It is mounted on 10 viscous pads to reduce vibration and noise. The operator's eye is at 7.56 m 24'10". The cab is pressurised with filtered air, fitted with an air conditioner and a window de-mister. A deluxe weight compensating, adjustable air suspension operator's seat with unique variable lumbar support is fitted as well as a fold-away auxiliary seat. Low effort joy stick controls are electric over hydraulic and foot controls are for front shovel, crawler and swing brake. Full instrumentation and VMHS are provided. Space in the console is provided for an additional monitor. AM/FM radio is fitted. The windshield wash wiper has two speed and intermittent operation. (Water reservoir 7 litres 1.8 gal.) Amenities include a wash basin with running water, water reservoir, (50 litres 13 gal.), refrigerator and storage cabinets. Working lights and powered mirrors are adjusted from inside the cab. There are left and right hand sliding windows. All windows are tinted parsol green.



VEHICLE HEALTH  
MONITORING SYSTEM

VHMS is designed for Komatsu mining equipment to provide real time and stored information about the status of the operating machine. A touch sensitive flat screen color monitor gives a continuous display or can be activated to provide operator or service data. Non serious and critical faults are automatically announced, whilst for major malfunctions the engine is also shut down. The integrated digital storage provides a full event history, which can be down loaded by laptop computer or by wireless link. The ability to provide real time service information as messages, snap-shot or trend data automatically to mine control programmes can improve mechanical utilisation and reduce costs. The comprehensive diagnostic data will assist in predicting or reducing downtime.



OPERATING WEIGHTS

PC 4000 Backhoe:

Operating weight including 9750 mm 32'0" boom, 4500 mm 14'9" stick, 22 m<sup>3</sup> 29.0 yd<sup>3</sup> backhoe bucket, operator, lubricant, coolant, full fuel tank and standard equipment.

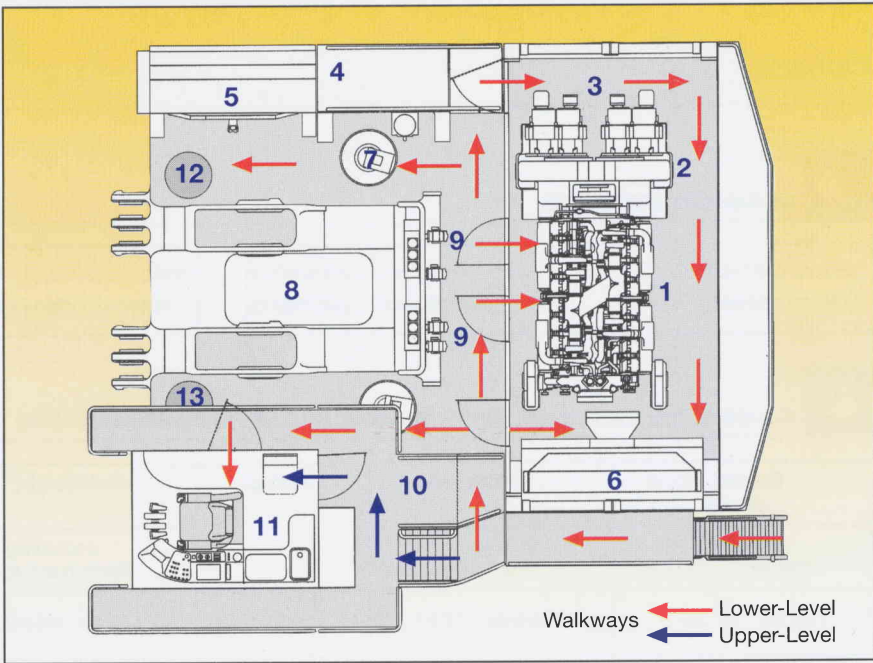
Shoe Width	Operating Weight	Ground Pressure
1200 mm 47"	380 t 839,000 lb	22.5 N/cm <sup>2</sup> 32.6 psi
1500 mm 59"	385 t 849,000 lb	18.2 N/cm <sup>2</sup> 26.4 psi

PC 4000 Front Shovel:

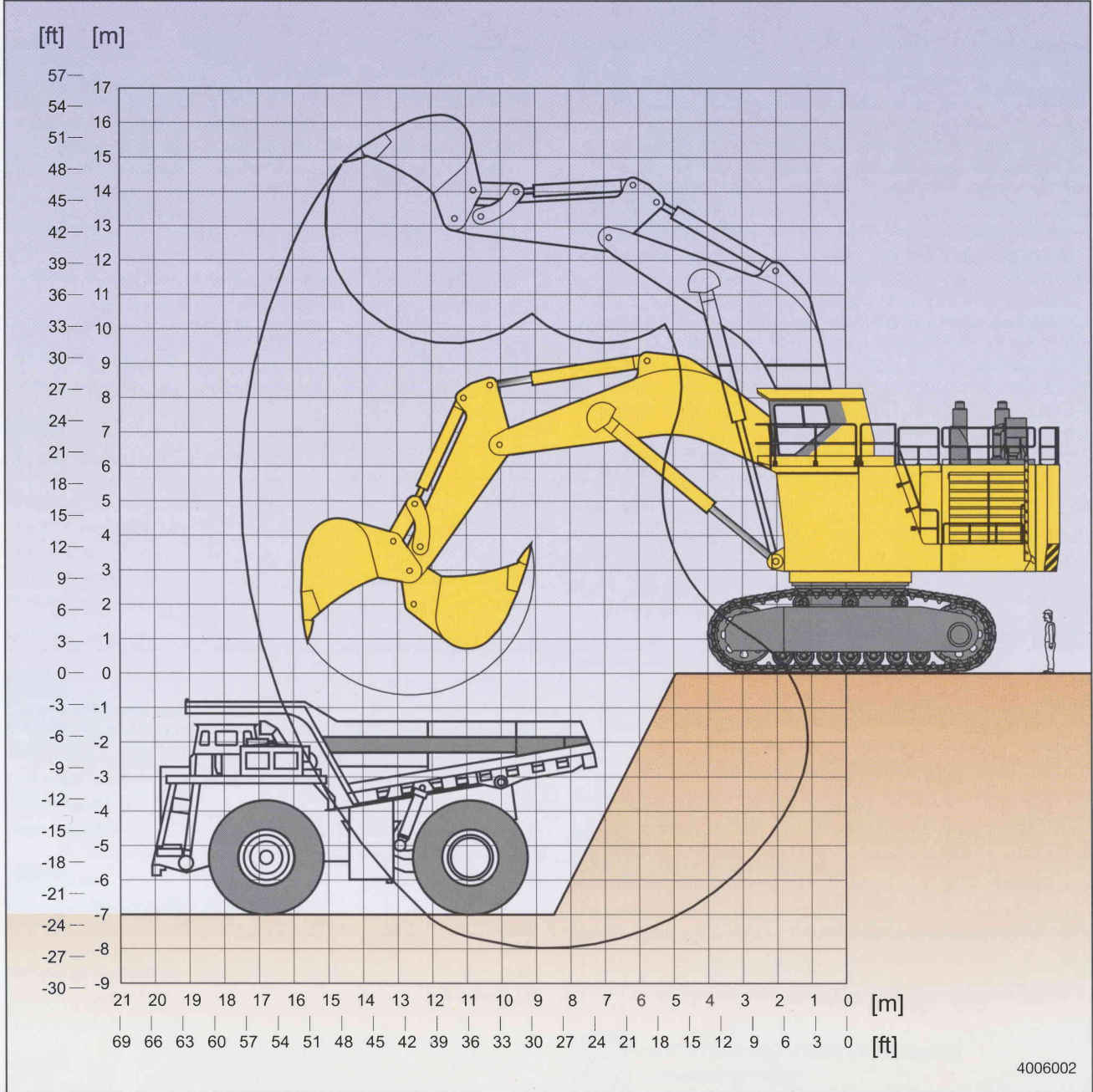
Operating weight including 7150 mm 23'6" boom, 4900 mm 16'1" stick, 21 m<sup>3</sup> 28.0 yd<sup>3</sup> shovel bucket, operator, lubricant, coolant, full fuel tank and standard equipment.

Shoe Width	Operating Weight	Ground Pressure
1200 mm 47"	370 t 816,000 lb	22.0 N/cm <sup>2</sup> 31.9 psi
1500 mm 59"	375 t 827,000 lb	17.9 N/cm <sup>2</sup> 26.0 psi

- 1 Diesel Engine
- 2 Pump Drive Gearbox
- 3 Hydraulic Pumps
- 4 Oil Tank
- 5 Oil Cooler
- 6 Engine Radiator
- 7 Swing Units
- 8 Main Rotating Joint
- 9 Control Valves
- 10 Fuel Tank
- 11 Operator's Cab
- 12 Central Lubrication Barrel
- 13 Pinion Grease Barrel



# PC4000 Backhoe



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## DIGGING FORCES

Break-out force	1155 kN	260,000 lb	Maximum reach at ground level . . . . .	16600 mm 54'6"
Tear-out force	1050 kN	236,000 lb	Maximum digging depth . . . . .	8000 mm 26'3"

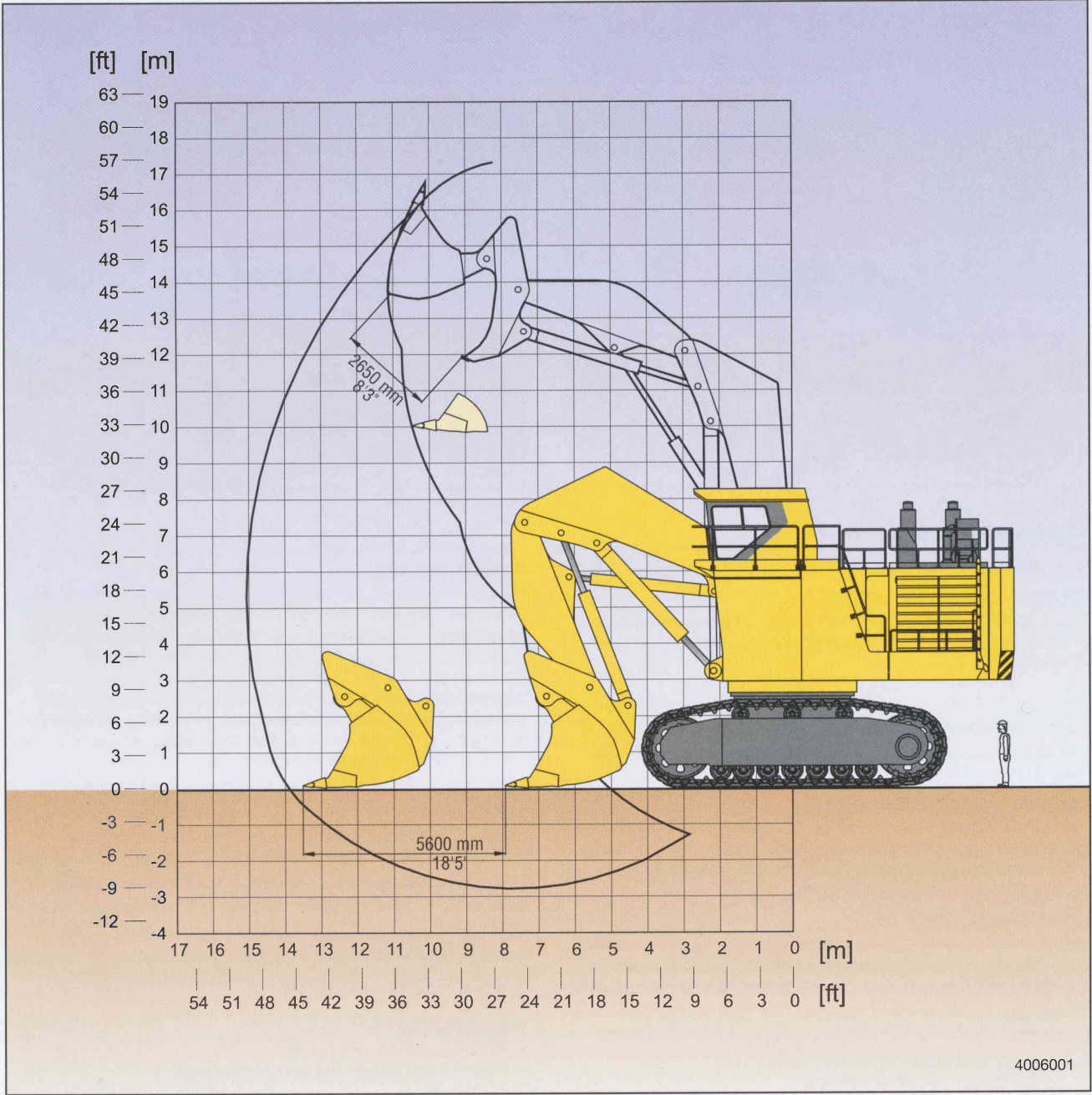
## BACKHOE BUCKET, STICK AND BOOM COMBINATION

Bucket Capacity	Width	Teeth	Weight	Boom Length 9750 mm 32'0"
SAE Heaped 1 : 1			including Wear package -2	Stick Length 4500 mm 14'9"
22 m <sup>3</sup> 29 yd <sup>3</sup>	3800 mm 12'6"	6	23.3 t 51,400 lb	<div>□</div> Material density to 1.8 t/m <sup>3</sup> 3000 lb/yd <sup>3</sup>

Alternative buckets/wear packages are available



PC4000 Shovel



DIGGING FORCES

Break-out force	1250 kN	280,000 lb
Crowd force	1330 kN	300,000 lb

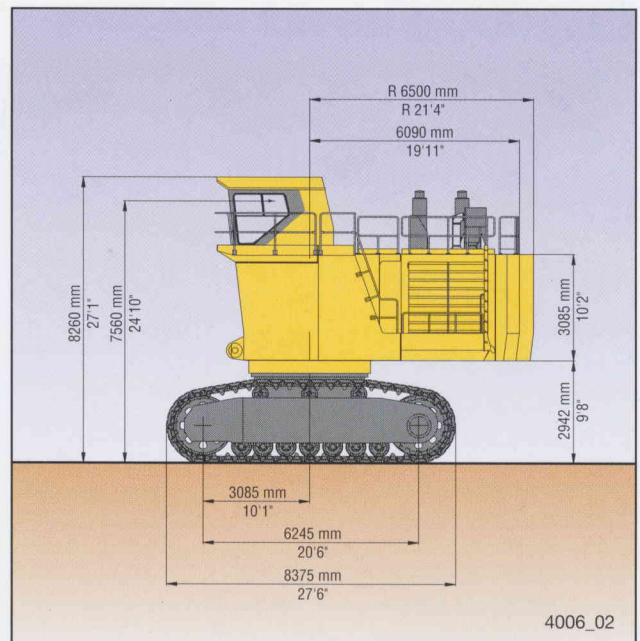
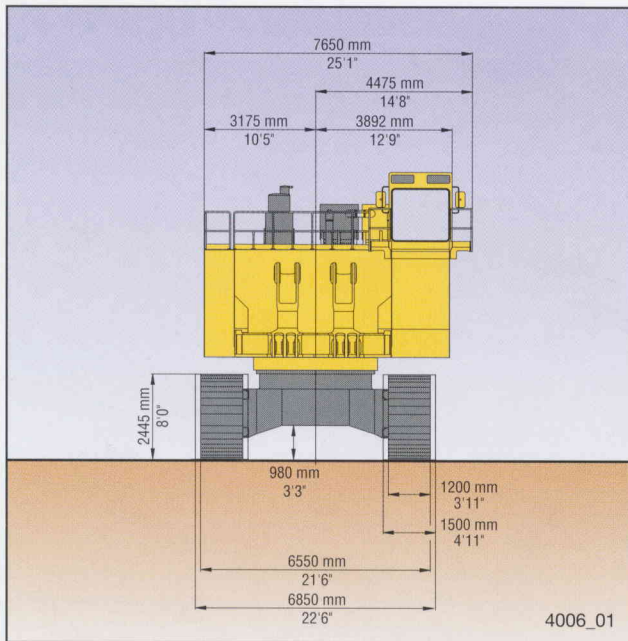
Level crowd at ground level	5600 mm 18'5"
Maximum dumping height	12000 mm 39'3"



SHOVEL BUCKET, STICK AND BOOM COMBINATION

Bucket Capacity		Width	Teeth	Weight	Boom Length 7150 mm 23'6"
SAE/CECE Heaped 2 : 1	Heaped 1 : 1			including Wear package-3	Stick Length 4900 mm 16'1"
21 m <sup>3</sup> 28 yd <sup>3</sup>	23.5 m <sup>3</sup> 30.7 yd <sup>3</sup>	4000 mm 13'2"	5	32.5 t 71,600 lb	□ Material density to 1.8 t/m <sup>3</sup> 3000 lb/yd <sup>3</sup>

Alternative buckets/wear packages are available



## STANDARD EQUIPMENT

Hydraulic Mining Shovel with Diesel Drive will comprise:

### FRONT SHOVEL ATTACHMENT

7.15 m 23'6" boom and 4.9 m 16'1" stick complete with cylinders. 21.0 m<sup>3</sup> 28.0 yd<sup>3</sup> (SAE 2:1) shovel bucket with ESCO teeth and lip system.

OR

### BACKHOE ATTACHMENT

9.75 m 32'0" boom and 4.5 m 14'9" stick with 22.0 m<sup>3</sup> 29.0 yd<sup>3</sup> (SAE 1:1) bucket.

### CRAWLER UNDERCARRIAGE

Heavy-duty shovel type undercarriage consisting of a center carbody and 2 heavy box-type track frames, each having 7 bottom rollers, 3 top rollers, and 1200 mm 47" cast steel track shoes. Hydraulic track adjustment and parking brake provided.

### SUPERSTRUCTURE

Main frame mounted over an externally toothed swing circle carries the main drive module, including Komatsu SDA 16V 160 diesel engine, oil and fuel reservoirs, counterweight, operator's cab and base.

### LIGHTING

8 Xenon high-performance working lights. 11 service lights throughout platform.

### OPERATOR'S CAB

Fully enclosed steel cab which incorporates the ISO 3449 standard FOPS structure and CARRIER SUTRAK air-conditioning unit. Mounted on viscous pads. GRAMMER fully suspended seat with lap belt. Fold-away auxiliary seat. Full selection of controls, switches, and VHMS (Vehicle Health Monitoring System). Joystick and pedal-operated controls are electric over hydraulic. Windshield wash wiper with two-speed and intermittent operation (reservoir 7 ltr 1.8 gal). AM-FM radio. Washbasin with running water (reservoir 50 ltr 13 gal). Refrigerator and storage cabinets. Left and right hand sliding windows. All windows tinted parsol green.

### LUBRICATION

LINCOLN central lubrication for basic machine, attachment, and bucket. 200 ltr 53 gal refillable barrel.

LINCOLN automatic pinion lubrication system for swing circle teeth with 200 ltr 53 gal refillable barrel.

WIGGINS service center mounted on a hydraulically powered swing-down arm for fill of fuel, engine oil and coolant, hydraulic oil, grease, cab water, and the evacuation of coolant, and hydraulic and engine oils.

### ACCESSORIES

- Acoustic reverse travel alarm
- Hydraulically actuated ground access ladder
- Electric air horn

## OPTIONAL EQUIPMENT

1500 mm 59" trackshoes	Extra or alternative, lighting	Generator set	Low temperature package
Electric drive	Cable reel (Electric Version)	Service crane	Fire suppression system

Reference 4000-6B

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