

CRAWLER EXCAVATOR CX800B SERVICE MANUAL

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NOTE: CNH France S.A. Company reserves the right to make changes in the specification and design of the machine without prior notice and without incurring any obligation to modify units previously sold.

The description of the models shown in this manual has been made in accordance with the technical specifications known as of the date of design of this document.

All data given in this manual is subject to production variations. Dimensions and weights are provided with approximate values and the machine fitting shown in the illustrations may not correspond with standard models. For precise information on specific machine models and versions, please contact your CASE dealer.

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Section

1001

**SAFETY, GENERAL INFORMATION
AND TORQUE SPECIFICATIONS**

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WARNING : *This symbol is used in this manual to indicate important safety messages. Whenever you see this symbol, carefully read the message that follows, as there is a risk of serious injury.*

GENERAL INFORMATION

Cleanning

Clean all metal parts except bearings, in a suitable cleaning solvent or by steam cleaning. Do not use caustic soda for steam cleaning. After cleaning, dry and put oil on all parts. Clean oil passages with compressed air. Clean bearings in a suitable cleaning solvent, dry the bearings completely and put oil on the bearings.

Inspection

Check all parts when the parts are disassembled. Replace all parts that have wear or damage. Small scoring or grooves can be removed with a hone or crocus cloth. Complete a visual inspection for indications of wear, pitting and the replacement of parts necessary to prevent early failures.

Bearings

Check bearings for easy action. If bearings have a loose fit or rough action replace the bearing. Wash bearings with a suitable cleaning solvent and permit to air dry. **DO NOT DRY BEARINGS WITH COMPRESSED AIR.**

Needle bearings

Before you press needle bearings in a bore always remove any metal protrusions in the bore or edge of the bore. Before you press bearings into position put petroleum jelly on the inside and outside diameter of the bearings.

Gears

Check all gears for wear and damage. Replace gears that have wear or damage.

Oil seals, O-rings and gaskets

Always install new oil seals, O-rings and gaskets. Put petroleum jelly on seals and O-rings.

Shafts

Check all shafts that have wear or damage. Check the bearing and oil seal surfaces of the shafts for damage.

Service parts

Always install genuine Case service parts. When ordering refer to the Parts Catalog for the correct part number of the genuine Case replacement items. Failures due to the use of other than genuine Case replacement parts are not covered by warranty.

Lubrication

Only use the oils and lubricants specified in the Operator's or Service Manuals. Failures due to the use of non-specified oils and lubricants are not covered by warranty.

SAFETY



This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death.

To prevent injury always follow the Warning, Caution and Danger notes in this section and throughout the manual.

Put the warning tag shown below on the key for the keyswitch when servicing or repairing the machine. One warning tag is supplied with each machine. Additional tags Part Number 331-4614 are available from your service parts supplier



WARNING: *Read the operator's manual to familiarize yourself with the correct control functions.*



WARNING: *Operate the machine and equipment controls from the seat position only. Any other method could result in serious injury.*



WARNING: *This is a one man machine, no riders allowed.*



WARNING: *Before starting engine, study Operator's Manual safety messages. Read all safety signs on machine. Clear the area of other persons. Learn and practice safe use of controls before operating.*

It is your responsibility to understand and follow manufacturers instructions on machine operation, service and to observe pertinent laws and regulations. Operator's and Service Manuals may be obtained from your Case dealer.



WARNING: *If you wear clothing that is too loose or do not use the correct safety equipment for your job, you can be injured. Always wear clothing that will not catch on objects. Extra safety equipment that can be required includes hard hat, safety shoes, ear protection, eye or face protection, heavy gloves and reflector clothing.*



WARNING: *When working in the area of the fan belt with the engine running, avoid loose clothing if possible, and use extreme caution.*



WARNING: *When doing checks and tests on the equipment hydraulics, follow the procedures as they are written. DO NOT change the procedure.*



WARNING: *When putting the hydraulic cylinders on this machine through the necessary cycles to check operation or to remove air from a circuit, make sure all people are out of the way.*



WARNING: Use insulated gloves or mittens when working with hot parts.



WARNING: Lower all attachments to the ground or use stands to safely support the attachments before you do any maintenance or service.



WARNING: Pin sized and smaller streams of hydraulic oil under pressure can penetrate the skin and result in serious infection. If hydraulic oil under pressure does penetrate the skin, seek medical treatment immediately. Maintain all hoses and tubes in good condition. Make sure all connections are tight. Make a replacement of any tube or hose that is damaged or thought to be damaged. **DO NOT** use your hand to check for leaks, use a piece of cardboard or wood.



WARNING: When removing hardened pins such as a pivot pin, or a hardened shaft, use a soft head (brass or bronze) hammer or use a driver made from brass or bronze and a steel head hammer.



WARNING: When using a hammer to remove and install pivot pins or separate parts using compressed air or using a grinder, wear eye protection that completely encloses the eyes (approved goggles or other approved eye protectors).



WARNING: Use suitable floor (service) jacks or chain hoist to raise wheels or tracks off the floor. Always block machine in place with suitable safety stands.



WARNING: When servicing or repairing the machine, keep the shop floor and operator's compartment and steps free of oil, water, grease, tools, etc. Use an oil absorbing material and/or shop cloths as required. Use safe practices at all times.



WARNING: Some components of this machine are very heavy. Use suitable lifting equipment or additional help as instructed in this Service Manual.



WARNING: Engine exhaust fumes can cause death. If it is necessary to start the engine in a closed place, remove the exhaust fumes from the area with an exhaust pipe extension. Open the doors and get outside air into the area.

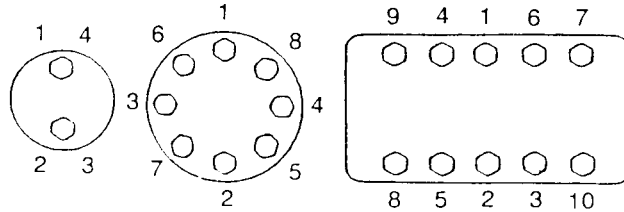


WARNING: When the battery electrolyte is frozen, the battery can explode if (1), you try to charge the battery, or (2), you try to jump start and run the engine. To prevent the battery electrolyte from freezing, try to keep the battery at full charge. If you do not follow these instructions, you or others in the area can be injured.

STANDARD TORQUE DATA FOR CAP SCREWS AND NUTS

Tightening of cap screws, nuts

Tighten alternately so that tightening torque can be applied evenly. The numbers in the figure below indicate the order of tightening.



JS00481A

Cap screws which have had Loctite used (white residue remains after removal) should be cleaned with light oil or suitable cleaning solvent and dried. Apply 2-3 drops of Loctite to the thread portion of the cap screw and then tighten.

Torque table

Tighten cap screws and nuts according to the table below if there are no other special instructions.

Cap Screw Name Size (Size)			M6	M8	M10	M12	M14	M16	M18	M20
Cap Screw	Spanner	[mm]	10	13	17	19	22	24	27	30
		[in.]	0.39	0.51	0.67	0.75	0.87	0.95	1.06	1.18
	Tightening torque	[Nm]	6.9	19.6	39.2	58.8	98.1	156.9	196.1	294.2
		[lb-ft]	5.1	14.5	28.9	43.4	72.3	115.7	144.6	217
Socket Head Cap Screw	Spanner	[mm]	5	6	8	10	12	14	14	17
		[in.]	0.20	0.24	0.32	0.39	0.47	0.55	0.55	0.67
	Tightening torque	[Nm]	8.8	21.6	42.1	78.5	117.7	176.5	245.2	343.2
		[lb-ft]	6.5	15.9	31.1	57.9	86.9	130.2	181	253.2

Section 1002

SPECIFICATIONS AND SPECIAL TORQUE SETTINGS

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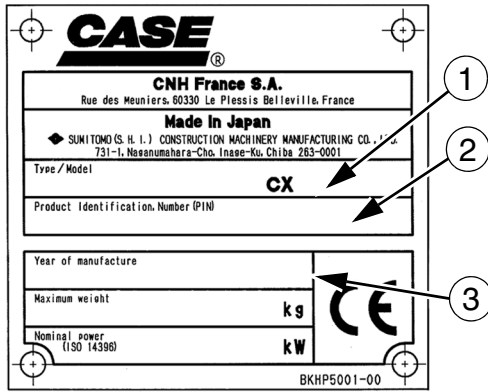
CX800B MASS Short attachment (7.25 m boom)38

TYPE, SERIAL NUMBER AND YEAR OF MANUFACTURE OF THE MACHINE

For all part orders, request for information or assistance, always specify the type and the serial number of the machine to your Case dealer.

Fill in the following lines with the required information: Type, serial number, year of manufacture of the machine and the serial numbers of the hydraulic and mechanical components.

Machine



CT04A171A

(1) Type

(2) Serial number

(3) Year of manufacture.....

Engine

Make and type.....

Serial number.....

Serial numbers of the components

Hydraulic pump

Swing reduction gear

Travel reduction gears.....

Control valve

FLUIDS AND LUBRICANTS

Lubricants must have the correct properties for each application.



WARNING: The conditions of use for individual fluids and lubricants must be respected.

Hydraulic fluid

CASE/AKCELA hydraulic fluid is specially designed for high pressure applications and for the CASE hydraulic system. The type of fluid to be used depends on the ambient temperature.

Temperate climates: -20°C to +40°C (-4° to 104° F)

CASE/AKCELA: HYDRAULIC EXCAVATOR FLUID (MS 1230. ISO VG 46. DIN 51524 PART 2 HV)

Hot climates: 0°C to +50°C (32° to 122° F)

CASE/AKCELA: AW HYDRAULIC FLUID 68 HV (MS 1216. ISO VG 68. DIN 51524 PART 3 CATEGORY HVLP)

Cold climates: -25°C to +20°C (-13° to 68° F)

CASE/AKCELA: AW HYDRAULIC FLUID 32 (MS 1216. ISO VG 32. DIN 51524 PART 2)

Biodegradable fluid: -30°C to +40°C (-22° to 104° F)

This yellow-colored fluid is miscible with standard fluid. If used to change standard fluid, it is advised to drain the circuit completely before refilling with this fluid.

CASE/AKCELA: HYDRAULIC EXCAVATOR FLUID BIO (MS 1230. ISO VG 46. DIN 51524 PART 2 HV)

Transmission component oil

Extreme pressure oil used for enclosed transmission components.

CASE/AKCELA: GEAR 135H EP (SAE 80W-90. API GL 5. MIL-L-2105 D. MS 1316. ZF TE-ML 05A)

Grease

CASE/AKCELA: MOLY GREASE 251H EP-M (251H EP-M. NLGI 2)

"Extreme Pressure" multipurpose grease with lithium soap and molybdenum disulphide.

CASE/AKCELA: MULTIPURPOSE GREASE 251H EP (251H EP. NLGI 2)

"Extreme Pressure" multipurpose grease with lithium soap and calcium.

CASE/AKCELA: PREMIUM GREASE EP2 (NLGI 2)

"Extreme Pressure" multipurpose grease with lithium soap.

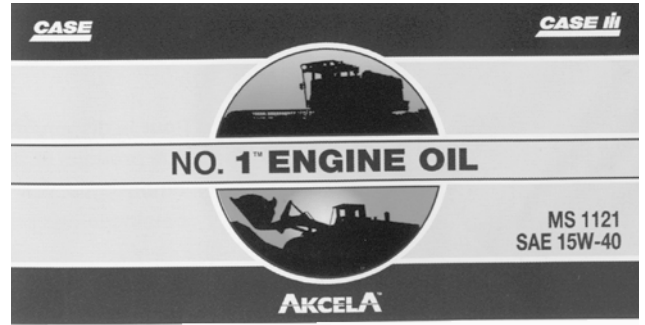
Hydraulic breakers

CASE/AKCELA: MULTIPURPOSE GREASE 251H EP (NLGI 2).

Engine Oil

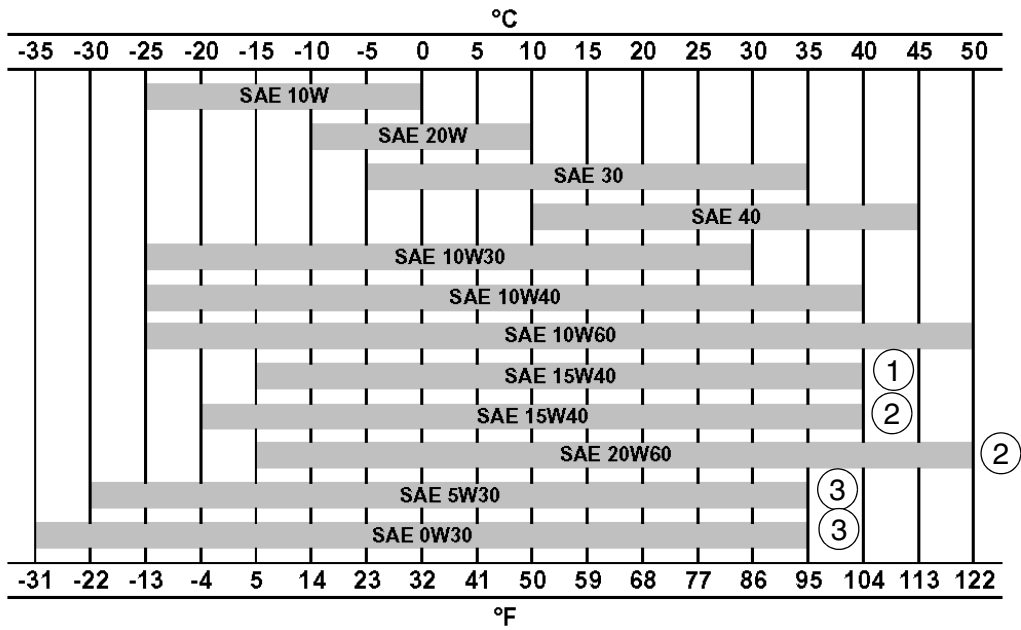
THE CASE/AKCELA No. 1 engine oil is recommended for your engine. This oil ensures proper lubrication of your engine for all operating conditions.

If the CASE/AKCELA Multigrade "No. 1 ENGINE OIL" cannot be obtained, use the oil corresponding to one of the following categories: ACEA E7. API CI-4.



CP02N001

Oil viscosity / Oil range



CT02M001

- 1) With mineral base
- 2) With semi-synthetic base
- 3) With synthetic base

Engine fuel, maintenance of fuel filters and fuel storage

In order to meet the emission control regulation of 3rd-stage, the engine components have been made precisely and they are to be used under high-pressure conditions.

Therefore, the specified fuel must be used for the engine.

As a matter of course, not only the guarantee will not be given for the use of a fuel other than the specified but also it may invite a serious breakdown.

In addition, since suitable specifications for the fuel filter elements have been established for this engine, use of the genuine filter is essential.

The following describes the specifications and the requirements of the fuel to be applied, and maintenance of the fuel and the fuel elements.

Fuel to be applied

Selection of fuel

Following conditions must be met for the diesel engines, that is the one;

- 1 In which no dust even fine one is mixed,
- 2 With proper viscosity,
- 3 With high cetane rating,
- 4 With good flow properties in lower temperature,
- 5 With not much sulfur content, and
- 6 With less content of carbon residue

Applicable standards for diesel fuel

Applicable Standard	Recommendation
JIS (Japanese Industrial Standard)	NO.2
DIN (Deutsche Industrie Normen)	DIN 51601
SAE (Society of Automotive Engineers)	
Based on SAE-J-313C	NO. 2-D
BS (British Standard) Based on BS/2869-197	Class A-1
EN590	

If a standard applied to the fuel for the diesel engine is stipulated in your country, check the standard for details.

Requirements for diesel fuel

Although conditions required for the diesel fuel are illustrated above, there are other requirements exerting a big influence on its service durability and service life.

Be sure to observe the following requirements for selecting fuel.

Sulfur content.....	2500 ppm or less
HFRR*.....	460 mm or less
Water content.....	0.05 wt% or less

* HFRR (High-Frequency Reciprocating Rig.): An index showing lubricating properties of the fuel.

Sulfur content reacts to moisture to change into sulfuric acid after combustion.

Use of a fuel containing much sulfur content allows it to accelerate internal corrosion and wear.

In addition, much sulfur content quickens deterioration of engine oil allowing its cleaning dispersive property to be worse which results in acceleration of wear of sliding portions.

HFRR is an index that indicates lubricating property of a fuel.

Large value of the index means poor lubrication so that seizure of the machine components may result if such a fuel is used.

Since a fuel with high HFRR value also has lower viscosity, it can easily be leaked out.

If the fuel is mixed with the engine oil, the oil is diluted to deteriorate its lubricating property resulting in acceleration of wear.

Water content allows inside of the fuel tank to rust which in turn blocking the fuel line and the fuel filter.

IMPORTANT : *In cold weather, fill the fuel tank at the end of the day's work, in order to prevent the formation of condensation.*

This may also cause wear and seizure of the machine components.

If atmospheric temperature goes below the freezing point, moisture content in the fuel forms fine particle of ice allowing the fuel line to be clogged.

IMPORTANT : *Obtain table of analysis for the fuel you are using from the fuel supplier to confirm that it meets the criteria described above.*

IMPORTANT : *If a fuel which does not meet the specifications and the requirements for the diesel engine, function and performance of the engine will not be delivered. In addition, never use such a fuel because a breakdown of the engine or an accident may be invited.*

Guarantee will not be given to a breakdown caused by the use of a improper fuel.

Some fuels are used with engine oil or additives mixed together with diesel engine fuel.

In this case, do not use these fuels because damage to the engine may result as the fuel has been contaminated.

It is natural that the emission control regulation of 3rd-stage will not be cleared in case where a fuel that does not meet the specifications and the requirements is used.

Use the specified fuel for compliance of the exhaust gas control.

IMPORTANT : *If you use diesel fuel which contains much sulfur content more than 2500 ppm, be sure to follow the items below for the engine oil selection and maintenance of engine parts. Guarantee will not be given to breakdowns caused by not to follow these items.*

1 Selection of engine oil

Use API grade CF-4 or JASO grade DH-1.

2 Exchange the engine oil and engine oil filter element by the periodical interval reported on the Operator's Manual.

3 Inspect and exchange the EGR (*)parts and fuel injector parts of engine every 3000 hour of use.

* EGR: Exhaust Gas Recirculation

Maintenance of fuel filters

Be sure to use the genuine fuel filters.

The fuel injection system is precisely constructed and the genuine filter employs finer mesh than conventional filters to improve protection of machine equipment.

If a filter with coarse mesh is used, foreign object passing through the filter enters into the engine so that machine equipment can wear out in a short period of time.

IMPORTANT : *If a fuel filter other than the genuine filter is used, guaranty will not be applied to a fault caused by the use of a wrong filter.*

Two kinds of fuel filter, the pre-filter and the main filter, are mounted on the machine.

Be sure to use the genuine fuel filters and replace them at the periodic intervals reported on the operator's Manual.

IMPORTANT : *Since the pre-filter also has a function of water separation, discharge water and sediment when the float reaches lower part of the filter elements. CHECK EVERY DAY before to start the engine.*

Time to replace filters may be advanced according to properties of the fuel being supplied.

- Therefore, take measures to prevent dust or water from being entered in the fuel tank when supplying fuel.
- When supplying fuel directly from a fuel drum can, leave the drum as it stands for a long period of time to supply clean fuel standing above a precipitate.
- If it is hard to leave the drum for a long period of time, install a fuel strainer and a water separator before the fuel tank of the machine to supply clean fuel.

Water drain cock is provided on the bottom side of the fuel tank.

- Drain water before starting the engine every morning.
- In addition, remove the cover under the tank once a year to clean up inside of the tank.

Fuel storage

Long storage can lead to the accumulation of impurities and condensation in the fuel. Engine trouble can often be traced to the presence of water in the fuel.

The storage tank must be placed outside and the temperature of the fuel should be kept as low as possible. Drain off water and impurities regularly.

Anti-freeze/Anti-corrosion

Use anti-freeze in all seasons to protect the cooling system from corrosion and all risk of freezing.

CASE/AKCELA: PREMIUM ANTI-FREEZE (MS 1710)

For areas where the temperature goes down to -38°C (-36.4°F), mix 50/50 with water.

IMPORTANT : *Do not mix products of a different origin or brand. The same product must be used when topping up the system.*

Environment

Before carrying out any maintenance operation on this machine and before disposing of used fluids or lubricants, always think of the environment. Never throw oil or fluid on the ground and never place it in leaking receptacles.

Contact your local ecological recycling centre or your CASE Dealer to obtain information on the correct method of disposing of these lubricants.

Plastic and resin parts

When cleaning plastic parts, the console, the instrument panel, the indicators etc... avoid using petrol, kerosene, paint solvents etc... Use only water, soap and a soft cloth.

The use of petrol, kerosene, paint solvents etc... causes discoloration, cracks or deformation of these parts.

SPECIFICATIONS

Main data

Model name CX800B Hydraulic Excavator, CX800B MASS Hydraulic Excavator
 Operating weight CX800B 68900 kg (151898 lbs), CX800B MASS 80400 kg (177251 lbs)
 Engine output 397 kW / 1800 rpm

Performance

Swing speed 6.4 Tr/min.
 Travel speed:
 Low Speed 2.9 km/h (1.80 mph)
 High Speed 4.2 km/h (2.60 mph)
 Maximum drawbar pull 565 kN (127017 lbf)
 Grade ability 70% (35°)
 Ground pressure
 110 kPa (650 mm (25.59 in) grouser shoe)
 95 kPa (750 mm (29.53 in) grouser shoe)
 79 kPa (900 mm (35.43 in) grouser shoe)

Main body dimensions

Main body width See machine overall dimensions
 Main unit length 7460 mm (293.69 in)
 Main unit width 4360 mm (171.65 in)
 Upper swing body width 4250 mm (167.32 in)
 Cab width 1005 mm (39.57 in)
 Main unit height 3880 mm (152.75 in)
 Swing radius (rear end) 4300 mm (169.29 in)
 Swing body rear end distance 4280 mm (168.50 in)
 Swing body rear section bottom height 1590 mm (62.59 in)
 Distance between tumblers 5070 mm (199.60 in)
 Overall track length 6360 mm (250.39 in)
 Overall track width 4360 mm (171.65 in) (during retraction 3740 mm (147.24 in))
 Distance between tracks 3450 mm (135.82 in) (during retraction 2830 mm (111.41 in))
 Width of track shoe 650 mm (25.59 in) (Option: 750 mm (29.53 in), 900 mm (35.43 in))
 Minimum ground clearance (To bottom of lower frame) 890 mm (35.03 in)

Engine

Name ISUZU, 6WG1
 Type: 4-cycle, water-cooled, overhead camshaft, vertical in-line, direct injection (electric control),
 with turbocharger, without cooling fan.
 No. of cylinders - bore x stroke 6-dia. 147 mm x 154 mm (5.78 x 6.06 in)
 Displacement 15.7 L (4.15 gal)
 Compression ratio 16
 Rated output 397 kW / 1800 min⁻¹
 Maximum torque 2250 N•m (1659.51 lb-ft) / 1500 min⁻¹ (without fan-pump)
 Fuel consumption ratio 222.6 g/kWh max.
 Engine dimensions (LxWxH) 1462.5 x 1036 x 1432.2 mm (57.57 x 40.78 x 56.38 in)
 Oil pan All direction 35°, inclinable
 Coolant capacity 36 L (9.51 gal)
 Oil pan capacity Maximum: 52 L (13.73 gal) Minimum: 37 L (9.77 gal) (excluding oil filter)
 Direction of rotation Right (viewed from fan side)
 Starter, reduction type 24 V, 7.0 kW
 Alternator, AC type 24 V, 50 A
 Battery 2x 12V, 140 Ah/5 Hr

Cooling system

Fan drive system Hydraulic drive
 Fan type diameter 1016 mm (40 in), 6 vanes, suction, plastic and steel
 Radiator
 Fin type wavy
 Fin space 2.0 mm (0.08 in)

1002-12

Oil cooler	
Fin type	plate
Fin space	3.0 mm (0.12 in)
Inter-cooler	
Fin type	triangular straight
Fin space	2.0 mm (0.08 in)
Fuel cooler	
Fin type	wavy
Fin space	2.25 mm (0.09 in)

Capacity of coolant and lubricants

Coolant	108 L (28.53 gal)
Fuel	900 L (237.75 gal)
Lubricant for engine.....	52 L (13.74 gal)
Lubricant for travel reduction gear (per side).....	13.8 L (3.64 gal)
Lubricant for swing reduction gear (per side)	4.7 L (1.24 gal)
Hydraulic oil.....	650 L (171.71 gal)
Capacity of hydraulic oil tank.....	310 L (81.89 gal)

Air conditioning

R134 gas load	1Kg (2.20 lbs)
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Hydraulic oil filter

Suction filter (inside tank)	105 μ m
Return filter (inside tank)	6 μ m
Pilot line filter (inside housing).....	8 μ m

Fuel filter

Main filter	4 μ m
Pre-filter	7 μ m

Operating devices

Operator's seat

Location: left side

Structure: Adjustable forward and back and up and down, reclining mechanism, with seat suspension.

Cab

Sealed steel type, all reinforced glass.

Levers and pedals

For travel use: Lever and pedal type (hydraulic pilot type) (x2)

For operating machine use: Lever type (hydraulic pilot type) (x2)

Instruments and switches

Work mode select switch: 3 modes (SP / super power, H / heavy duty, A / automatic)

Travel mode select switch: Low-speed / high-speed switch type

One-touch idle: Knob switch type

Engine emergency stop: Switch type

Monitor device

Machine status display (full-dot liquid crystal)

Work mode selection status: SP / H / A

Instruments (full-dot liquid crystal, except for hour meter)

Fuel gauge: bar graph indicator

Engine coolant temperature gauge: bar graph indicator

Hydraulic oil temperature gauge: bar graph indicator

Hour meter: digital type

Machine Status and Warning Alarms (full-dot liquid crystal and warning tone) *Items have a warning alarm

Over heat*	Battery charge*	Faulty electrical system*
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Refill fuel*	Engine oil pressure*	Refill coolant*
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Engine preheat	Auto warm-up	Air cleaner clogged
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Anti-theft device triggered	Faulty engine system	Engine emergency stop*
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Fan reverse operation*

Lighting

Working light	Boom up:	24V, 70W (x2)
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Cab top:	24V, 70W (x2)
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Tank top surface	24V, 70W (x1)
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Interior light	24V, 10W (x1)
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Horn: electric horn (x2)

Other

Wiper with intermittent function, Window washer, Air conditioner, Rear view mirrors (left and right), Clock

Hydraulic system

Hydraulic pump drive system, directly coupled to the engine (no transmission)

Main pump

Manufacturer	Kawasaki
Pump type	double variable displacement piston pump
Displacement	278 cm ³ (16.96 cu in) X 2 /rev
Rated operating pressure	31.4 MPa (4555 psi)
Maximum operating pressure	34.3 MPa (4975 psi)
Input revolution speed	1850 min ⁻¹
Maximum flow	514 L/min (135.78 gpm) X 2 at 1850 min ⁻¹
.....	507 L/min (133.93 gpm) X 2 at 1850 min ⁻¹
Input horsepower	310.7 kW
Shaft input horsepower	314.3 kW at 1850 min ⁻¹
Shaft input torque	1622 N•m (1197 lb-ft) at 1850 min ⁻¹

Pilot pump

Pump type	Gear pump
Displacement	15 cm ³ (0.91 cu in)/rev
Operating pressure	4.4 MPa (638.16 psi)
Maximum flow	27.8 L/min (7.34 gpm) (at 1850 min ⁻¹) (1850 rpm ⁻¹)
Input horsepower	3.6 kW

Control characteristics; simultaneous output control of overall, negative control, electric horse power control

Control Valve

Model; 4-spool section: integrated (1) or 5-spool section: integrated (1)

Operation method: hydraulic pilot method: travel, swing and operating machine

Maximum flow	514.3 L / min (135.86 gpm) at 1850 min ⁻¹
Main relief set pressure .. standard; 31.4 MPa (4555 psi) at 485 L/min, power boost 34.3 MPa (4975 psi) at 435 L/min	
Overload set pressure	when boom down; 27.5 MPa (3988 psi)
Foot relief set pressure	3.3 MPa (478.6 psi) at 66 L/min

Functions

- Straight travel circuit
- Boom up / arm 2 pumps internal flow
- Boom and arm load holding circuit
- Boom-down regenerative circuit
- Bucket 2 pumps flow is joined in valve
- Arm-in forced regenerative circuit
- Boom-up priority (speed restriction of bucket)
- Boom-up priority (speed restriction of swing)
- Swing priority variable orifice (for arm operation)
- Reserve 2 pumps flow

Hydraulic Cylinders

Boom cylinder (x2)

Cylinder bore	Ø200 mm (Ø7.87 in)
Rod diameter	Ø140 mm (Ø5.51 in)
Maximum retracted length	2691 mm (105.94 in)
Stroke	1893 mm (74.52 in)

Arm (dipper) cylinder

Cylinder bore	Ø215 mm (Ø8.46 in)
Rod diameter	Ø150 mm (Ø5.90 in)
Maximum retracted length	3195 mm (125.78 in), CX800B MASS 3080 mm (121.25 in)
Stroke	2290 mm (90.15 in), CX800B MASS 2175 mm (85.62 in)

Bucket cylinder

Cylinder bore	Ø190 mm (Ø7.48 in), CX800B MASS Ø215 mm (Ø8.46 in)
Rod diameter	Ø130 mm (Ø5.11 in), CX800B MASS Ø150 mm (Ø5.90 in)
Maximum retracted length	2385 mm (93.89 in), CX800B MASS 2420 mm (95.27 in)
Stroke	1555 mm (61.22 in), CX800B MASS 1520 mm (59.84 in)

Cushion Valve

Port size

A-P ports	G3/8
Q-V ports	G1/4

Rotating Joint

Operating pressure

High pressure passage (ABCD)	34.4 MPa (4989 psi)
Drain port (T)	1.0 MPa (145 psi)
Pilot port (P)	3.9 MPa (566 psi)

Flow

High pressure passage (ABCD)	500 L/min (132.09 gpm)
Drain port (T)	50 L/min (13.21 gpm)
Pilot port (P)	27.8 L/min (7.34 gpm)

Port A; forward right	G1 1/4
Port B; forward left	G1 1/4
Port C; backward right	G1 1/4
Port D; backward left	G1 1/4
Port E; drain port	G3/4
Port F; pilot port	G1/4

Solenoid Valve

Maximum flow P -> B: 25 L/min (6.60 gpm) Other: 5 L/min (1.32 gpm)

Rated pressure 4.5 MPa (652.67 psi)

Port size

P, T, B port	G3/8
C1, C2, C3, C4, C5 ports	G1/4

Solenoid specifications

Operating voltage DC 20 to 32 V

Power consumption 17 W max.

Hand control valve

Manufacturer Kawasaki

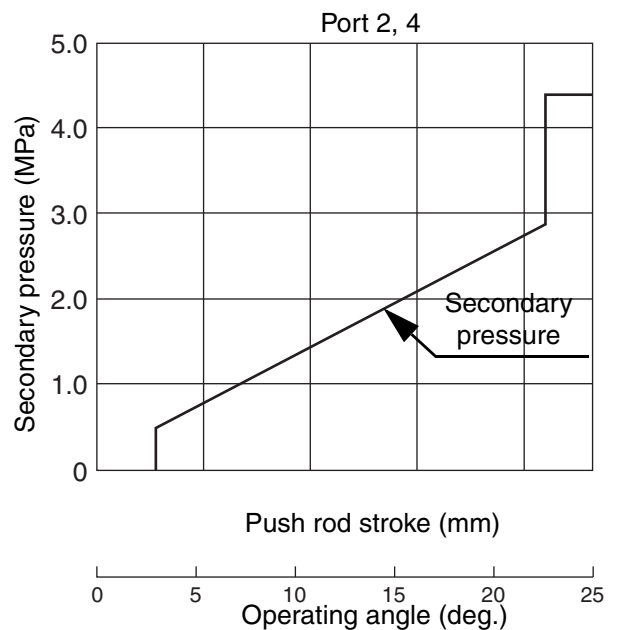
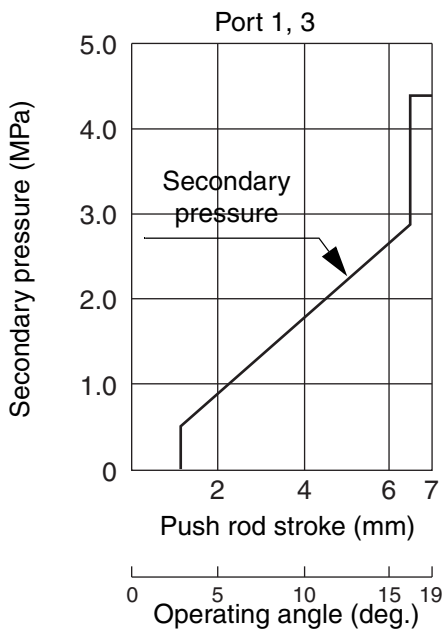
Operating pressure 3.92 MPa (569 psi)

Secondary pressure, primary short type 0.49 to 2.89 MPa (71.07 to 419.16 psi)

Operating angle

Ports 1, 3

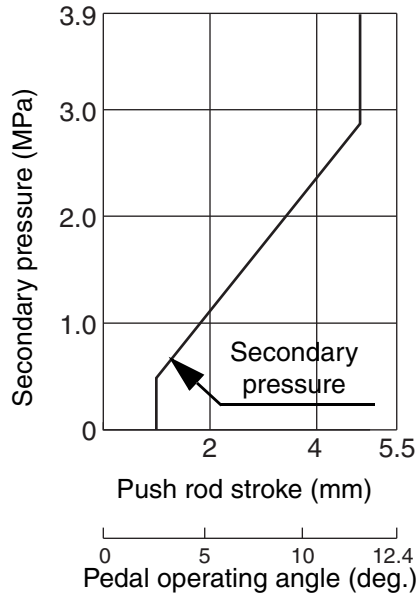
Ports 2, 4



WC01014-004

Foot control valve

Manufacturer	Kawasaki
Operating pressure	3.92 MPa (569 psi)
Secondary pressure, primary short type	0.49 to 2.89 MPa (71.07 to 419.16 psi)
Operating angle	12.4°



WC01014-005

Swing unit

Swing circle; swing bearing type (with internal gears)

Swing hydraulic motor (x2)	fixed displacement piston motor (with parking brake).
Intake amount	210 cm ³ /(12.81 cu in)/rev
Operating pressure	26.5 MPa (3844 psi)
Operating flow	257L/min (67.89 gpm)
Mechanical brake torque	1161 - 1504 Nm
Brake off pressure	2.6 MPa max. (377.10 psi)
Relief valve set pressure	26.5 MPa (3844 psi) at 250/mn (66.04 gpm)
Reduction gears	planetary gear 2-stage reduction system
Reduction ratio	27.143
Swing parking brake; mechanical lock (operational lever linkage type)	

Travel lower body

Travel hydraulic motor (2); variable displacement piston motor, automatic 2-speed switch-over with parking brake

Displacement	337.2 / 228.6 cm ³ (20.57/13.95 cu in)/rev
Operating pressure	34.3 MPa (4975 psi)
Operating flow	500 L/min (132.08 gpm)
Brake torque	1120 N•m (826.06 lb-ft) or over (excluding reduction gear)
Relief set pressure	35.3 MPa (5120 psi) at 40 L/min (10.56 gpm)
2-speed control pressure	25.5 ± 1 MPa (3698 psi)
Reduction gears; planetary gear 3-stage reduction system	
Reduction ratio	94.358
Travel brake	Hydraulic lock
Parking brake	Mechanical lock (travel lever linkage type)
Track shoe	
Model	Assembly type double grouser shoe
Number of shoes (per side)	51
Shoe width	650 mm (25.59 in), (optional 750 mm (29.53 in), 900 mm (35.43 in))
Grouser height	50 mm (1.97 in)
Link pitch	260.35 mm (10.25 in)

Roller

Number of upper rollers (per side)	3
Number of lower rollers (per side)	9
Track belt tension adjuster	Grease cylinder type (with cushion spring)
Mounting length of spring	1310 mm (51.57 in)

Work Unit

Model Backhoe attachment

	Standard Boom (CX800B) 8400 mm (330.70 in)			Short boom (CX800B MASS) 7250 mm (285.43 in)
	Standard arm	Long arm	Super long arm	Short arm
Arm (dipper) length	3660 mm (144.09 in)	4440 mm (174.80 in)	5620 mm (221.25 in)	2980 mm (117.32 in)
Bucket radius	2200 mm (86.61 in)			2200 mm (86.61 in)
Bucket wrist angle	167°			162°
Maximum digging radius	14120 mm (555.90 in)	14940 mm (588.18 in)	16110 mm (634.25 in)	12310 mm (484.64 in)
Maximum digging radius at ground line	13840 mm (544.88 in)	14680 mm (577.95 in)	15860 mm (624.40 in)	11990 mm (472.04 in)
Maximum digging depth	8690 mm (342.12 in)	9470 mm (372.83 in)	10660 mm (419.68 in)	7030 mm (276.77 in)
Maximum vertical straight wall digging depth	6440 mm (253.54 in)	7750 mm (305.11 in)	9110 mm (358.66 in)	4250 mm (167.32 in)
Maximum digging height	12910 mm (508.26 in)	13600 mm (535.43 in)	14300 mm (562.99 in)	11760 mm (462.99 in)
Maximum dump height	8920 mm (351.18 in)	9510 mm (374.40 in)	10170 mm (400.39 in)	7890 mm (310.62 in)
Minimum swing radius at front	6270 mm (246.84 in)	6130 mm (241.33 in)	6210 mm (244.48 in)	5390 mm (212.20 in)
Height for minimum swing radius at front	10960 mm (431.49 in)	10880 mm (428.34 in)	10950 mm (431.10 in)	10170 mm (400.39 in)

New Machine Performance

Reference Values

SP Mode (with standard bucket)

		Item	Unit	Reference value
1	Engine speed	Idling	min ⁻¹	900 ± 10
		No load A mode		1700 ± 10
		No load H mode		1750 ± 10
		No load SP mode		1800 ± 10
2	Pressure in each section	Main relief	Standard	31.4 ± 2.0
			Boosted pressure	34.3 ± 2.0
		Boom relief	Up	38.0 ± 2.0
			Down	42.0 ± 2.0
		Arm relief	Out	38.0 ± 2.0
			In	
		Bucket relief	Open	38.0 ± 2.0
			Close	
		Swing relief	Left and right	30.0 ± 2.0
		Travel relief	Left and right, front and back	46.0 ± 2.0
		4th pump relief		-
		Pilot pump		4.4 ± 0.5
Option relief	For crusher	-		
	For breaker	-		
3	Natural fall distance (position change) for each cylinder with no load (in 10 min.)	Boom cylinder retraction	mm	15 max.
		Arm cylinder extension		20 max.
		Bucket cylinder retraction		20 max.
		Overall bucket tip falling		250 max.
	Natural fall distance (position change) for each cylinder with no load (in 10 min.) (mass boom spec.)	Boom cylinder retraction	mm	15 max.
		Arm cylinder extension		20 max.
		Bucket cylinder retraction		20 max.
		Overall bucket tip falling		250 max.

SP Mode (with standard bucket)

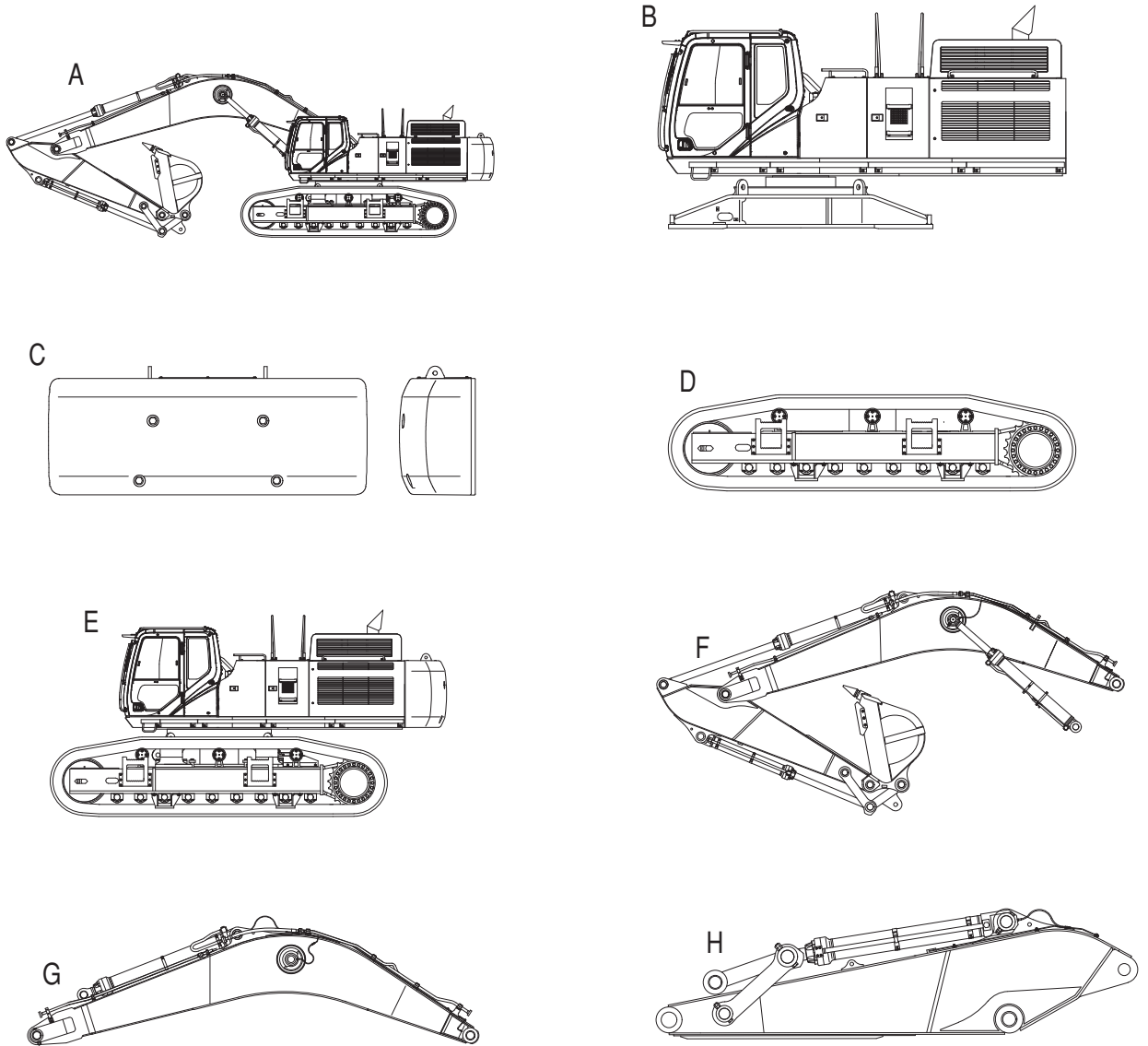
Item				Unit	Reference value
4	Attachment speed	Boom (bucket open)	Up (stroke 1170)	sec.	5.4 ± 0.8
			Down (stroke 1170)		4.3 ± 1.1
		Arm	Out		3.9 ± 0.6
			In		5.4 ± 0.6
		Bucket	Open		3.3 ± 0.6
			Close		3.2 ± 0.6
	Attachment speed (mass boom spec.)	Boom (bucket open)	Up (stroke 790)	sec.	5.4 ± 0.6
			Down (stroke 790)		4.3 ± 0.6
		Arm	Out		3.9 ± 0.6
			In		5.4 ± 0.6
		Bucket	Open		4.0 ± 0.6
			Close		4.2 ± 0.6

SP Mode (with standard bucket)

Item				Unit	Reference value	
5	Swing speed (one rotation)		Left and right	sec./rev.	9.4 ± 0.7	
				min ⁻¹	6.4 ± 0.5	
6	Swing brake angle (180°)		Left and right	deg.	50 ° max.	
	Swing brake angle (180°)	Mass boom spec.	Left and right	deg.		
7	Swing motor leakage amount			L/min	13.7	
8	Travel speed (6 m travel speed)	Forwards and backwards	High speed	sec./6 m	5.1 ± 0.8	
				km/h	4.2 ± 0.6	
			Low speed	sec./6 m	7.4 ± 0.6	
				km/h	2.9 ± 0.4	
9	Travel sprocket speed (10 rotations)			sec.	High speed	22.0 ± 2.5
					Low speed	15.0 ± 2.5
10	Travel turning amount (20 m travel meandering amount)	Forwards and backwards		mm	High speed	1000 max.
					Low speed	
11	Shoe tension amount			mm	430 - 470	
12	Travel motor leakage amount			L/min	15.2	
13	Swing ball race bearing movement distance			mm	Up and down	2.1 max.
					Left and right	13.5 max.
14	Bucket tip movement amount		Left and right	mm	188 max.	
15	Recoil spring dimensions			mm	Compression ratio	1155
					Free	1553
16	Coil resistance of each solenoid valve	Coil resistance temperature 20 °C		Ω	Travel high speed	40
					Boosted pressure	
					Swing brake	
					Lever lock	
					Power save	
17	Milli- amp for hydraulic pump electromagnetic proportional valve	No load		mA	SP mode	565 ± 20
					H mode	530 ± 20
					A mode	510 ± 20

COMPONENT WEIGHT

Major component weight



UK01015-001

Weight information is approximate

A) Operating weight	80300 kg (177031 lbs)
B) Upper mechanism (including counterweight and turntable bearing)	25300 kg (55776 lbs)
C) Counterweight	12500 kg (27557 lbs)
D) Lower mechanism (with standard grouser shoe)	12600 kg (27778 lbs)
E) Main Unit Weight	63000 kg (138891 lbs)
F) Attachments	17100 kg (37699 lbs)
G) Boom (including cylinders)	8260 kg (18210 lbs)
H) Arm (dipper) (including cylinders and linkage)	4260 kg (9391 lbs)

Other component weight

Engine	Approximately 1185 kg (2612 lbs)
Air cleaner	40.3 kg (88.85 lbs)
Hydraulic pump	300 kg (661 lbs)
Control valve	430 kg (948 lbs)
Cushion valve	12.5 kg (27.56 lbs)
Swing motor and reduction gear assembly	482 kg (1062 lbs)
Travel motor and reduction gear assembly	1052 kg (2319 lbs)
Rotary joint	106 kg (233.68 lbs)
Turntable bearing	1196 kg (2637 lbs)
5 solenoid valve bank	6.7 kg (14.67 lbs)
Hand control valve	1.9 kg (4.19 lbs)
Foot control valve	5.5 kg (12.12 lbs)
Cab	255 kg (562 lbs)
Muffler	21 kg (46.30 lbs)
Radiator total weight	720 kg (1587 lbs)
Oil cooler	215 kg (474 lbs)
Radiator	29.5 kg (65 lbs) x 3
Air cooler	35.5 kg (78.26 lbs)
Fuel cooler	6 kg (13.22 lbs)
Idler wheel	694 kg (1530 lbs)
Upper roller	76 kg (167.5 lbs)
Lower roller	187 kg (412 lbs)
Tension damper assembly	815 kg (1796 lbs)
Recoil spring assembly	662 kg (1459 lbs)
Grease cylinder assembly	154 kg (340 lbs)
Track chains	
650 mm (25.59 in) (51 shoe)	4451 kg (9812 lbs)
750 mm (29.53 in) (51 shoe)	4872 kg (10740 lbs)
900 mm (35.43 in) (51 shoe)	5271 kg (11620 lbs)
Boom cylinder	715 kg (1576 lbs)
Arm (dipper) cylinder	1055 kg (2326 lbs), CX800 MASS 1025 kg (2260 lbs)
Bucket cylinder	600 kg (1323 lbs), CX800 MASS 790 kg (1741 lbs)
Fuel tank	511 kg (1126 lbs)
Hydraulic oil tank	427 kg (941 lbs)
Boom	6530 kg (14396 lbs)
Standard arm	2645 kg (5831 lbs)
Short arm	2532 kg (5582 lbs)
Long arm	2853 kg (6290 lbs)
Super long arm	3408 kg (7513 lbs)