CRAWLER EXCAVATOR CX700B SERVICE MANUAL

TABLE OF CONTENTS

** Consult the Engine Service Manual*

Section

1001

SAFETY, GENERAL INFORMATION AND TORQUE SPECIFICATIONS

Printed in France
February 2006

CNH

Lep 7-27691EN

TABLE OF CONTENTS

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.*

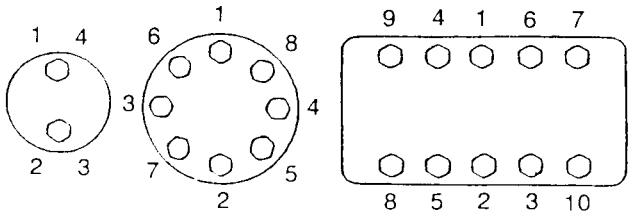
WARNING: *Engine exhaust fumes can cause death. If it is necessary to start the engine in a closed place, remove the exhaust fumes from the area with an exhaust pipe extension. Open the doors and get outside air into the area.*

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 loght 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

TABLE OF CONTENTS

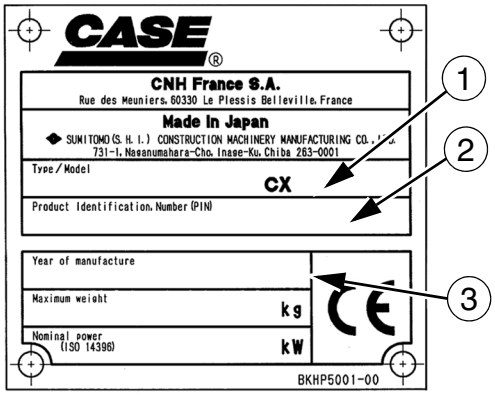
WARNING: *This symbol is used in this manual to indicate important safety messages. Whenever you see this symbol, carefully read the message which follows. Your safety depends on it.*

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).

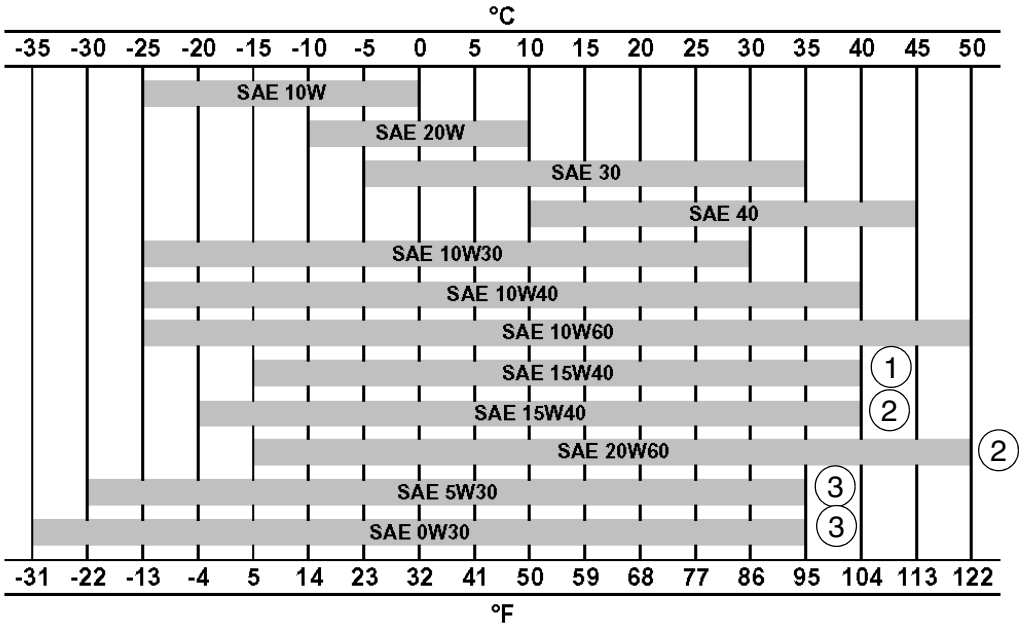
Engine Oil

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 : *It you use diesel fuel which contains much sulfur content more than 2500 ppm, be sure to fol- low 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 Recircultion

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 sup- plying 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 ..... CX700B Hydraulic Excavator
Operating weight ..... 68900 kg (151898 lbs)
Engine output ..... 345 kW / 1800 rpm

Performance

Swing speed ..... 6.5 Tr/min.
Travel speed:
  Low Speed ..... 3.0 km/h (1.86 mph)
  High Speed ..... 4.1 km/h (2.55 mph)
Maximum drawbar pull ..... 462 kN (103862 lbf)
Grade ability ..... 70% (35°)
  Ground pressure
  ..... 102 kPa (650 mm (25.59 in) grouser shoe)
  ..... 88 kPa (750 mm (29.53 in) grouser shoe)
  ..... 73 kPa (900 mm (35.43 in) grouser shoe)

Main body dimensions

Main body width ..... See machine overall dimensions
Main unit length ..... 6910 mm (272.05 in)
Main unit width ..... 4140 mm (162.99 in
Upper swing body width ..... 3990 mm (157.09 in)
Cab width ..... 1005 mm (39.57 in)
Main unit height ..... 3790 mm (149.21 in)
Swing radius (rear end) ..... 4000 mm (157.48 in)
Swing body rear end distance ..... 3970 mm (156.30 in)
Swing body rear section bottom height ..... 1510 mm (59.45 in)
Distance between tumblers ..... 4700 mm (185.04 in)
Overall track length ..... 5880 mm (231.49 in)
Overall track width ..... 3900 mm (153.54 in) (during retraction 3390 mm (113.46 in))
Distance between tracks ..... 3250 mm (127.95 in) (during retraction 2740 mm (107.87 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) ..... 825 mm (32.48 in)

Engine

Name ..... ISUZU, 6WG1
Type: 4-cycle, water-cooled, overhead camshaft, vertical in-line, direct injection type (electric control), with turbo-charger, without cooling fan.
No. of cylinders - bore x stroke ..... 6-dia. 147 mm x 154 mm (5.79 x 6.06 in)
Displacement ..... 15700 cc (958 cu.in)
Compression ratio 16
Rated output ..... 345 kW / 1800 min^{-1}
Maximum torque ..... 1980 Nm (1460 lb-ft) / 1500 min^{-1}
Engine dimensions (LxWxH) ..... 1462 x 1017 x 1422 mm (57.56 x 40.04 x 55.98 in)
Oil pan ..... All direction 35°, inclinable
Starter, reduction type ..... .24 V, 7 kW
Alternator, AC type ..... 24 V, 50 A
Battery ..... 2x 12V/24V,140 Ah/5 Hr

Cooling system

Fan type ..... Hydraulic drive, diameter 1016 mm (40 in), suction type-6blades plastic & steel
Pulley ratio ..... . -
Direction of rotation ..... Right (viewed from fan side)
Radiator
  Fin type ..... wavy
  Fin space ..... 2.0 mm (0.08 in)
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) ..... 15 L (3.96 gal)
Lubricant for swing reduction gear (per side) ..... 13.5 L (3.57 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)

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 µm
Pre-filter ..... 7 µm

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

- Lighting

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

- 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 volume ..... 242 cm^3 (14.77 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 discharge flow ..... 448 L/min (118.35 gpm) x 2 at 1850 min^{-1}

Pilot pump

- Pump type ..... Gear pump
- Displacement volume ..... 15 cm^3 (0.91 cu in)/rev
- Operating pressure ..... 4.4 MPa (638 psi)
- Maximum flow ..... 27.8 L/min (7.34 gpm) (at 1850 min^{-1})

Control method

- Hydraulic simultaneous constant output control.
- Maximum flow adjustment control through external commands (negative control).
- Setting horsepower adjustment control through external command milli-amp.

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 ..... 448 L / min (118.35 gpm) at 1850 min^{-1}
- Main relief set pressure ..... standard; 31.4 MPa (4555 psi), power boost 34.3 MPa (4975 psi)
- Overload set pressure ..... when boom down; 27.5 MPa (3988 psi)
  ..... other: 36.3 MPa (5265 psi)
- Foot relief set pressure ..... 3.3 MPa (478.6 psi)
- 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 rectriction of bucket)
  - Boom-up priority (speed rectriction of swing)
  - Swing priority variable orifice (for arm operation)
  - Reserve 2 pumps flow

Hydraulic Cylinders

Boom cylinder (x2)

- Cylinder bore ..... Ø190 mm (Ø7.48 in)
- Rod diametre ..... Ø130 mm (Ø5.12 in)
- Maximum retracted lenghth ..... 2535 mm (99.80 in)
- Stroke ..... 1805 mm (71.06 in)

Arm (dipper) cylinder

- Cylinder bore ..... Ø200 mm (Ø7.87 in)
- Rod diametre ..... Ø140 mm (Ø5.51 in)
- Maximum retracted lenghth ..... 2810 mm (110.63 in)
- Stroke ..... 2025 mm (79.72 in)

Bucket cylinder

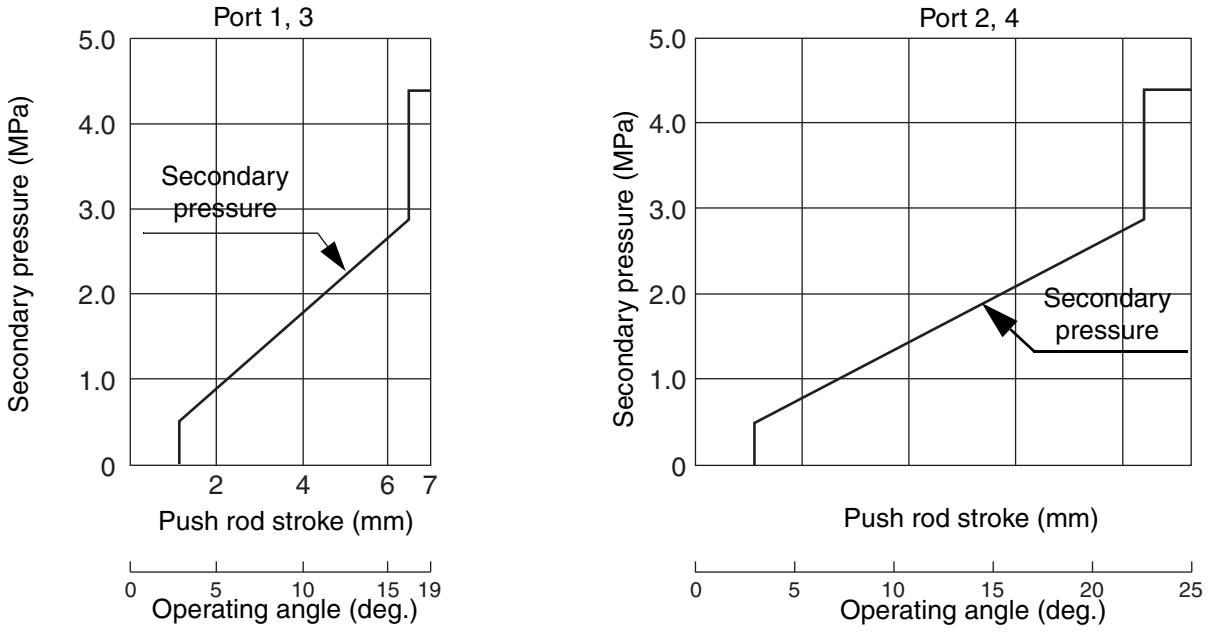
- Cylinder bore ..... Ø180 mm (Ø7.09 in)
- Rod diametre ..... Ø125 mm (Ø4.92 in)
- Maximum retracted lenghth ..... 2225 mm (87.60 in)
- Stroke ..... 1465 mm (57.68 in)

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

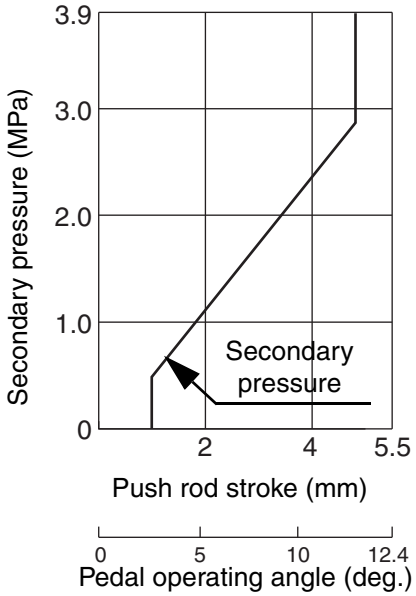
Solenoid Valve
- Maximum flow....P -> B: 25 L/min (6.60 gpm) Other: 5 L/min (1.32 gpm)
- Rated pressure.... 4.5 MPa (652.67 psi)
- Port size
  - P, T, B port....G3/8
  - C1, C2, C3, C4, C5 ports....G1/4
- Solenoid specifications
  - Operating voltage....DC 20 to 32 V
  - Power consumption.... 17 W max.

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....19°
  - Ports 2, 4....25°



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 ..... 27.9 MPa (4047 psi)
- Operating flow ..... 224L/min (59.17 gpm)
- Mechanical brake torque ..... 1161 - 1504 Nm
- Brake off pressure ..... 2.6 MPa max. (377.10 psi)
- Relief valve set pressure ..... 27.9 MPa (4047 psi)

Reduction gears ..... planetary gear 2-stage reduction system
- Reduction ratio 23.247

Swing parking brake; mechanical lock (operational lever linkage type)

Travel lower body

Travel hydraulic motor (x2) ..... Variable displacement piston motor, automatic 2-speed switchover with parking brake
- Displacement ..... 337.2/228.6 cm^3 (20.58/13.95 cu in)/rev
- Operating pressure ..... 34.3 MPa (4975 psi)
- Operating flow ..... 448 L/min (118.35 gpm)
- Brake torque ..... 1120 KNm (826068 lb-ft) min. (including reduction gear)
- Relief valve set pressure ..... 35.3 MPa (5120 psi)
- Automatic 2-speed switch-over pressure (with parking brake) ..... 25.5 MPa (3698 psi)

Reduction gear ..... Planetary gear 2-stage reduction gear
- Reduction ratio 74.853

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) 47
- 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) 8

Track belt tension adjuster ..... Grease cylinder type (with cushion spring)
Mounting length of spring ..... 1080 mm (42.52 in)

Work Unit

Model ..... Backhoe attachment

CX700B	Standard Boom 7700 mm (303.15 in)				Short boom 6580 mm (259.05 in)
	Standard arm	Short arm	Long arm	Super long arm	Short arm
Arm (dipper) length	3550 mm (139.76 in)	3020 mm (118.90 in)	4110 mm (161.81 in)	5000 mm (196.85 in)	3020 mm (118.90 in)
Bucket radius	2100 mm (82.68 in)				2200 mm (86.61 in)
Bucket wrist angle	175°				170°
Maximum digging radius	13160 mm (518.11 in)	12870 mm (506.69 in)	13650 mm (537.40 in)	14600 mm (574.80 in)	11750 mm (462.60 in)
Maximum digging radius at ground line	12900 mm (507.87 in)	12600 mm (496.06 in)	13400 mm (527.56 in)	14300 mm (562.99 in)	11460 mm (451.18 in)
Maximum digging depth	8400 mm (330.71 in)	7870 mm (309.84 in)	8970 mm (353.15 in)	9850 mm (387.79 in)	7180 mm (282.68 in)
Maximum vertical straight wall digging depth	6870 mm (270.47 in)	6850 mm (269.68 in)	7360 mm (289.76 in)	8630 mm (339.76 in)	5100 mm (200.79 in)
Maximum digging height	11920 mm (469.29 in)	12400 mm (488.19 in)	12040 mm (474.01 in)	12700 mm (500.00 in)	11130 mm (438.19 in)
Maximum dump height	8020 mm (315.75 in)	8330 mm (327.95 in)	8160 mm (321.26 in)	8710 mm (342.91 in)	7040 mm (277.16 in)
Minimum swing radius at front	5810 mm (228.74 in)	5860 mm (230.71 in)	5680 mm (223.62 in)	5700 mm (224.41 in)	5210 mm (205.12 in)
Height for minimum swing radius at front	10040 mm (395.27 in)	9990 mm (393.31 in)	10030 mm (394.88 in)	10030 mm (394.88 in)	9070 mm (357.09 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			1750 ± 10
		No load H mode			1800 ± 10
		No load SP mode			1870 ± 10
2	Pressure in each section	Main relief	Standard	MPa	31.4 ± 2.0
			Boosted pressure		34.3 ± 2.0
		Boom relief	Up		37.0 ± 2.0
			Down		29.0 ± 2.0
		Arm relief	Out		37.0 ± 2.0
			In		
		Bucket relief	Open		37.0 ± 2.0
			Close		
		Swing relief	Left and right		28.0 ± 2.0
		Travel relief	Left and right, front and back		-
		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)

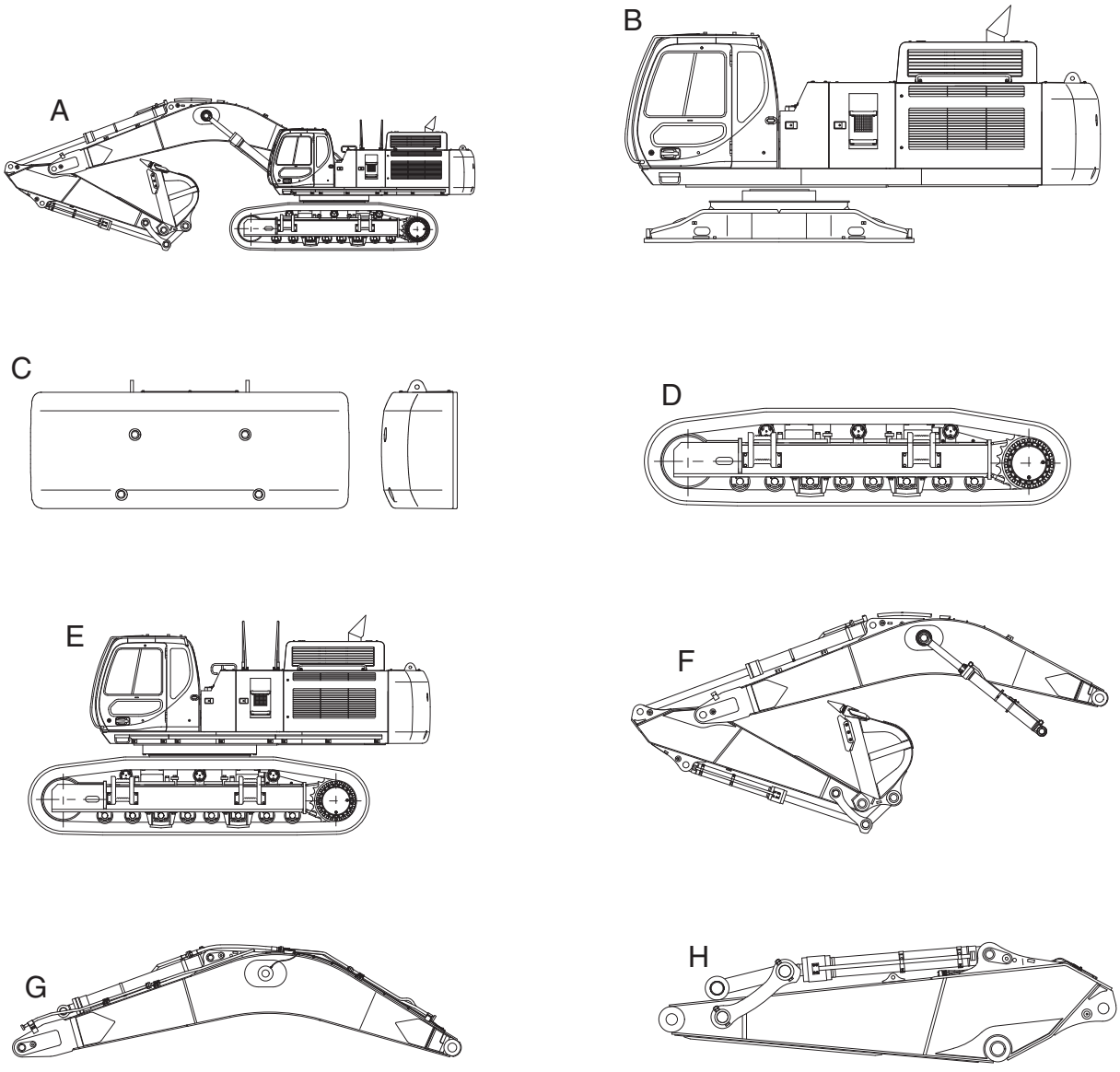
Item				Unit	Reference value
4	Attachment speed	Boom (bucket open)	Up (stroke 1080)	sec.	4.9 ± 0.6
			Down (stroke 1080)		4.0 ± 0.6
		Arm	Out		3.3 ± 0.6
			In		4.3 ± 0.6
		Bucket	Open		3.1 ± 0.6
			Close		
	Attachment speed (mass boom spec.)	Boom (bucket open)	Up (stroke 790)	sec.	5.3 ± 0.6
			Down (stroke 790)		4.6 ± 0.6
		Arm	Out		3.5 ± 0.6
			In		4.5 ± 0.6
		Bucket	Open		3.6 ± 0.6
			Close		

SP Mode (with standard bucket)

Item				Unit	Reference value
5	Swing speed (one rotation)		Left and right	sec./rev.	9.0 ± 0.7
				min^{-1}	6.7 ± 0.5
6	Swing brake angle (180°)		Left and right	deg.	45 ° max.
	Swing brake angle (180°)	Mass boom spec.	Left and right	deg.	45 ° max.
7	Swing motor leakage amount			L/min	5.0
8	Travel speed (6 m travel speed)	Forwards and backwards	High speed	sec./6 m	5.3 ± 0.8
				km/h	4.1 ± 0.6
			Low speed	sec./6 m	7.7 ± 0.6
				km/h	2.8 ± 0.4
9	Travel sprocket speed (10 rotations)		High speed	sec.	23.5 ± 3.0
			Low speed		33.7 ± 3.0
10	Travel turning amount (20 m travel meandering amount)	Forwards and backwards	High speed	mm	1000 max.
			Low speed		
11	Shoe tension amount			mm	410 - 430
12	Travel motor leakage amount			L/min	6.5
13	Swing ball race bearing movement distance		Up and down	mm	2.5 max.
			Left and right		15.0 max.
14	Bucket tip movement amount		Left and right	mm	176 max.
15	Recoil spring dimensions		Compression ratio	mm	1080
			Free		1321
16	Coil resistance of each solenoid valve	Coil resistance temperature 20 °C	Travel high speed	Ω	40
			Boosted pressure		
			Swing brake		
			Lever lock		
			Power save		
17	Milli- amp for hydraulic pump electromagnetic proportional valve	No load	SP mode	mA	540 ± 20
			H mode		510 ± 20
			A mode		490 ± 20

COMPONENT WEIGHT

Major component weight



WK01013-001

Weight information is approximate

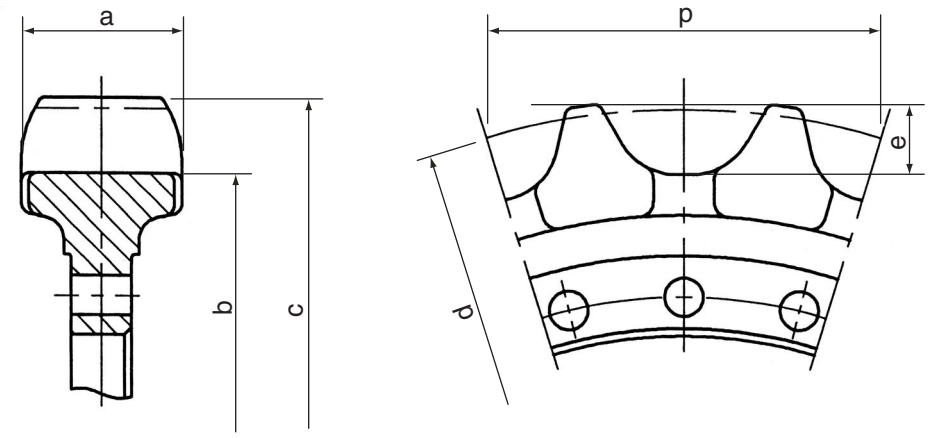
- A) Operating weight ..... 68900 kg (151898 lbs)
- B) Upper mechanism (including counterweight and turntable bearing) ..... 26440 kg (58290 lbs)
- C) Counterweight ..... 10450 kg (23038 lbs)
- D) Lower mechanism (with standard grouser shoe) ..... 23600 kg (52029 lbs)
- E) Main Unit Weight ..... 54350 kg (119821 lbs)
- F) Attachments ..... 14480 kg (31923 lbs)
- G) Boom (including cylinders) ..... 7980 kg (17593 lbs)
- H) Arm (dipper) (including cylinders and linkage) ..... 3570 kg (7870 lbs)

Other component weight

Engine	Approximately 1214 kg (2676 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	463 kg (1021 lbs)
Travel motor and reduction gear assembly	761 kg (1678 lbs)
Rotary joint	107 kg (236 lbs)
Turtable 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	7.8 kg (17.20 lbs)
Cab	255 kg (562 lbs)
Muffler	21 kg (46.30 lbs)
Radiator total weight	680 kg (1499 lbs)
Oil cooler	215 kg (474 lbs)
Radiator	24 kg (53 lbs)
Air cooler	35 kg (77 lbs)
Fuel cooler	16 kg (35.27 lbs)
Idler wheel	611 kg (1347 lbs)
Upper roller	64 kg (141 lbs)
Lower roller	137 kg (302 lbs)
Tension damper assembly	710 kg (1565 lbs)
Recoil spring assembly	552 kg (1217 lbs)
Grease cylinder assembly	154 kg (340 lbs)
Track chains	
650 mm (25.59 in) (47 shoe)	3820 kg (8422 lbs)
750 mm (29.53 in) (47 shoe)	4230 kg (9326 lbs)
900 mm (35.43 in) (47 shoe)	4630 kg (10207 lbs)
Boom cylinder	598 kg (1318 lbs)
Arm (dipper) cylinder	757 kg (1669 lbs)
Bucket cylinder	479 kg (1056 lbs)
Fuel tank	510 kg (1124 lbs)
Hydraulic oil tank	427 kg (941 lbs)
Standard arm	2174 kg (4793 lbs)
Short arm	2115 kg (4663 lbs)
Long arm	2367 kg (5218 lbs)
Super long arm	2759 kg (6083 lbs)

DIMENSIONS AND WEAR LIMIT OF THE TRACK ASSEMBLY

Sprocket



Part name	Code	Measured dimensions (mm)	Standard value (mm)	Usage limit (mm)	Judgment	Solution
Sprocket	a		106	92	Acceptable/Unacceptable	Cladding by welding or replacement
	b	Ø	Ø797.2	-	Acceptable/Unacceptable	
	c	Ø	Ø897.1	-	Acceptable/Unacceptable	
	d	Ø	Ø883.28	-	Acceptable/Unacceptable	
	p		45.8	50.8	Acceptable/Unacceptable	
	p		260.35	-	Acceptable/Unacceptable	

Gauge

unit in mm