CX210D
CX230D
CX210D Long Reach
Crawler Excavator

SERVICE MANUAL

Part number 47961275
English
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CASE
CONSTRUCTION

SERVICE MANUAL

CX210D Crawler excavators LC triple articulation version (TIER4 FINAL) - EU Market, CX210D Crawler excavators LC version (TIER4 FINAL) - EU Market, CX210D Crawler excavators NLC triple articulation version (TIER4 FINAL) - EU Market, CX210D Crawler excavators NLC version (TIER4 FINAL) - EU Market, CX210D Long Reach Crawler excavators LC Long Reach (TIER4 FINAL) - EU Market, CX230D Crawler excavators NHD Triple Articulation version (TIER 4 FINAL) - EU Market, CX230D Crawler excavators NHD version (TIER 4 FINAL) - EU Market

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INTRODUCTION

Safety rules

Personal safety



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

⚠ DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

⚠ WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

⚠ CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: *Notice indicates a situation that, if not avoided, could result in machine or property damage.*

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: *Note indicates additional information that clarifies steps, procedures, or other information in this manual.*

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

Safety rules – General information

Cleaning

Clean the metal parts with cleaning solution that meets the standard and steam cleaning. (except for bearings)

After cleaning, dry well, and inject oil in all parts.

Also inject oil into the bearings after drying.

Inspection

When disassembling parts, check all the parts.

If there are any worn or damaged parts, replace them.

Inspect carefully to prevent initial breakdowns.

Bearing

Replace any loose bearings.

Air dry bearings before installing them.

Needle bearing

When inserting needle bearings, be very careful not to damage them.

Apply grease to the section where the needle bearing will be inserted.

Gear

Check that there is no wear and no damage.

Oil seal, O-ring, gasket

Always install new oil seals, O-rings, and gaskets.

Apply grease to sections where oil seals and O-rings will be inserted.

Shaft

Check that there is no wear and no damage.

Check the bearings and check for damaged oil seals on the shaft.

Service parts

Install CASE CONSTRUCTION genuine service parts.

When placing an order, check the parts catalog. It contains the CASE CONSTRUCTION genuine part numbers.

Any breakdowns arising from the installation of non-genuine parts are not covered by the warranty.

Lubricants (fuel, hydraulic oil)

Use the oil from the specified company or specified in the operator's manual or service Manual.

Any breakdowns arising from any fuel or hydraulic oil other than those specified are not covered by the warranty.

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Engine

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Engine - General specification

Engine main specifications

Item		Engine model 4HK1
Type		Diesel/4-cycle/water-cooled, inline 4 cylinder OHC
Shape of combustion chamber		Direct injection type
Cylinder liner type		Dry type
Cylinder bore x stroke		**115 mm** (**4.53 in**) x **125 mm** (**4.92 in**)
Displacement		**5.193 L** (**317 in³**)
Compression ratio		16.5
Compression pressure		**3.23 MPa** (**469 psi**) **200 RPM**
Idling speed		**800 RPM**
Valve clearance	Intake	**0.4 mm** (**0.016 in**) While cool
	Exhaust	**0.4 mm** (**0.016 in**) While cool
Ignition method		Compression ignition
Injection order		1, 3, 4, 2
Lubrication system		
Lubrication type		Compression type
Oil pump type		Gear type
Lubrication oil amount		**19.5 - 27 L** (**5.2 - 7.1 US gal**)
Oil filter type		Full-flow/partial flow integrated filter (Cartridge type)
Oil cooling type		Built-in type, water cooling
Cooling system		
Cooling type		Water cooling
Radiator type		Corrugated fin (Pressure type)
Water pump type		Centrifugal type, belt type
Thermostat type		2-wax type unit
Thermostat valve open valve temperature	Type 1	**76.5 °C** (**170 °F**) With jiggle valve
		82 °C (**180 °F**) Without jiggle valve
	Type 2	**85 °C** (**185 °F**) With jiggle valve
		82 °C (**180 °F**) Without jiggle valve
Coolant capacity		**14.5 L** (**3.8 US gal**)
Fuel system		
Injection pump type		Electronic control common rail (fuel rail) type
Governor type		Electronic type
Timer type		Electronic type
Injection nozzle type		Multi-hole type 7 holes, inner diameter Ø **0.14 mm** (**0.0055 in**)
Charging system		
Generator type		AC type
Output		**24 V 50 A**
Regulator type		IC
Starter system		
Starter type		Reduction type
Output		**24 V 5.0 kW**
Preheat system type		Glow plug
Glow plug standard voltage/current		**23 V 3.5 A**

Cooling system main specifications

Item		Specifications
Water pump		Centrifugal impeller method
Pulley ratio		0.85
Thermostat		Wax pellet type
Full open temperature	Type 1	**90 °C** (**194 °F**) With jiggle valve
		95 °C (**203 °F**) Without jiggle valve
	Type 2	**100 °C** (**212 °F**) With jiggle valve
		95 °C (**203 °F**) Without jiggle valve

Electrical system main specifications

Generator	
Item	**Data**
Isuzu parts number	8980921161
Nominal output	**24 V**/ **50 A**
Rated speed	**5000 RPM**
Regulator type	IC type
Regulated voltage	**27.5 - 29.5 V**
Weight	**9.5 kg** (**20.9 lb**)

Starter		
Type (Manufacturer)		Nikko
Rated	Voltage	**24 V**
	Output	**5 kW** (**6.8 Hp**)
	Time	**30 s**
No. of pinion gears		13
Direction of rotation (toward pinion)		Clockwise
Weight (approx.)		**8.0 kg** (**17.6 lb**)
No-load characteristics	Current/voltage	**85 A** or less/ **24 V**
	Speed	**3300 RPM** or more
Load characteristics	Current/voltage	**400 A**/ **18.5 V**
	Torque	**28.4 N·m** (**20.95 lb ft**) or more
	Speed	**1250 RPM** or more
Locking characteristics	Current/voltage	**1400 A** or less/ **9 V**
	Torque	**88.2 N·m** (**65.05 lb ft**) or more

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