CX260CCrawler Excavator

SERVICE MANUAL

Part number 47877014 English July 2015 © 2015 CNH Industrial Italia S.p.A. All Rights Reserved.





SERVICE MANUAL

CX260C Crawler excavator LC version (TIER 3) - CHINA Market

Contents

INTRODUCTION

Engine	10
[10.001] Engine and crankcase	10.1
[10.102] Pan and covers	10.2
[10.101] Cylinder heads	10.3
[10.105] Connecting rods and pistons	10.4
[10.103] Crankshaft and flywheel	10.5
[10.216] Fuel tanks	10.6
[10.206] Fuel filters	10.7
[10.218] Fuel injection system	10.8
[10.250] Turbocharger and lines	10.9
[10.254] Intake and exhaust manifolds and muffler	10.10
[10.501] Exhaust Gas Recirculation (EGR) - Diesel Particulate Filter treatment	
[10.400] Engine cooling system	10.12
[10.414] Fan and drive	10.13
[10.310] Aftercooler.	10.14
[10.304] Engine lubrication system	10.15
Hydraulic systems	35
[35.000] Hydraulic systems	35.1
[35.300] Reservoir, cooler, and filters	35.2
[35.106] Variable displacement pump	35.3
[35.102] Pump control valves	35.4
[35.304] Combination pump units	35.5
[35.359] Main control valve	35.6
[35.357] Pilot system	35.7
[35 355] Hydraulic hand control	35.8

[35.356] Hydraulic foot control	35.9
[35.352] Hydraulic swing system	35.10
[35.353] Hydraulic travel system	35.11
[35.354] Hydraulic central joint	35.12
[35.736] Boom hydraulic system	35.13
[35.737] Dipper hydraulic system	35.14
[35.738] Excavator and backhoe bucket hydraulic system	35.15
[35.360] Hammer and rotating bucket hydraulic system	35.16
Frames and ballasting	39
[39.140] Ballasts and supports	39.1
Tracks and track suspension	48
[48.130] Track frame and driving wheels	48.1
[48.100] Tracks	48.2
[48.134] Track tension units	48.3
[48.138] Track rollers	48.4
Cab climate control	50
[50.100] Heating	50.1
[50.200] Air conditioning	50.2
Electrical systems	55
[55.000] Electrical system	55.1
[55.100] Harnesses and connectors	55.2
[55.015] Engine control system	55.3
[55.201] Engine starting system	55.4
[55.301] Alternator	55.5
[55.302] Battery	55.6
[55.202] Cold start aid	55.7
[55.010] Fuel injection system	55.8
[55.014] Engine intake and exhaust system	55.9

	[55.989] Exhaust Gas Recirculation (EGR) electrical system	55.10
	[55.012] Engine cooling system	55.11
	[55.013] Engine oil system	55.12
	[55.640] Electronic modules	55.13
	[55.512] Cab controls	55.14
	[55.036] Hydraulic system control	55.15
	[55.051] Cab Heating, Ventilation, and Air-Conditioning (HVAC) controls	55.16
	[55.050] Heating, Ventilation, and Air-Conditioning (HVAC) control system	55.17
	[55.416] Swing control system	55.18
	[55.417] Travel control system	55.19
	[55.950] Hammer electric system	55.20
	[55.530] Camera	55.21
	[55.518] Wiper and washer system	55.22
	[55.404] External lighting	55.23
	[55.514] Cab lighting	55.24
	[55.408] Warning indicators, alarms, and instruments	55.25
	[55.992] Anti-theft system	55.26
	[55.DTC] FAULT CODES	55.27
Е	Booms, dippers, and buckets	. 84
	[84.910] Boom	. 84.1
	[84.912] Dipper arm	. 84.2
	[84.100] Bucket	. 84.3
F	Platform, cab, bodywork, and decals	. 90
	[90.150] Cab	. 90.1
	[90.156] Cab glazing	
	[90.120] Mechanically-adjusted operator seat	
	[90 100] Engine hood and panels	90 4



INTRODUCTION

Contents

INTRODUCTION

Foreword - Important notice regarding equipment servicing	
Safety rules	
Safety rules – General information	5
Safety rules – Personal safety	6
Safety rules – Cab protective structure	8
Torque – Bolt and nut	9
Torque – Special torque settings	
Basic instructions - Shop and assembly	
General specification	
General specification – Main equipment	20
Weight	27
Dimension	
Conversion factors	
Consumables	43
Capacities	46
Abbreviation	47
Product identification	50
Product identification - Machine orientation	52

Foreword - Important notice regarding equipment servicing

All repair and maintenance work listed in this manual must be carried out only by qualified dealership personnel, strictly complying with the instructions given, and using, whenever possible, the special tools.

Anyone who performs repair and maintenance operations without complying with the procedures provided herein shall be responsible for any subsequent damages.

The manufacturer and all the organizations of its distribution chain, including - without limitation - national, regional, or local dealers, reject any responsibility for damages caused by parts and/or components not approved by the manufacturer, including those used for the servicing or repair of the product manufactured or marketed by the manufacturer. In any case, no warranty is given or attributed on the product manufactured or marketed by the manufacturer in case of damages caused by parts and/or components not approved by the manufacturer.

The manufacturer reserves the right to make improvements in design and changes in specifications at any time without notice and without incurring any obligation to install them on units previously sold. Specifications, descriptions, and illustrative material herein are as accurate as known at time of publication but are subject to change without notice.

In case of questions, refer to your CASE CONSTRUCTION Sales and Service Networks.

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.



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



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



A 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.

Safety rules - Personal safety



M WARNING:

This symbol indicates a precaution.

It gives information concerning the safety of the operator and those in the surroundings.

Read and understand these precautions thoroughly before performing the work.

Always comply with warnings and precautions so as to avoid any accidents.

This section covers information related to overall safety.

Check whether all warning labels are in place.

Additional labels can be ordered from Service Parts.



MARNING:

Read the operator's manual to gain a thorough understanding of machine control operations.



WARNING:

Perform any machine operations from the seating position.

Any other method may cause severe injuries.



MARNING:

Only the one operator is to ride on the machine. No one else is to ride on it.



MARNING:

Check the safety messages in the operator's manual before starting the engine.

Check all the warning labels on the machine.

Check that no one is within the machine's operating range.

Check the operating methods in a safe location before starting the actual work.

Understand the machine operations well, then operate in compliance with all service-related laws and regulations.

The operator's manual can be purchased at your CASE CONSTRUCTION dealer.



WARNING:

Working with sloppy clothes or clothes with which safety cannot be ensured leads to damage to the machine and injury to the operator.

Always wear clothes that ensures safety.

In order to work more safely, it is recommended to wear additional safety equipment.

Helmet, safety shoes, ear protection, goggles, work clothes, and gloves



WARNING:

Pay careful attention when working with the engine running.



MARNING:

Check hydraulic equipment.

Work according to the procedure.

Do not change the procedure.

MARNING:

Check that there is no one in the surroundings before draining the pressure from hydraulic circuits during machine hydraulic cylinder inspection.



M WARNING:

Use gloves when handling high-temperature parts.



WARNING:

Bring the lower parts or attachments in contact with the ground before inspecting or repairing them.



MARNING:

Check that hoses and tubes are securely connected.

If there is any damage to a hose or tube, replace it.

Do not check for oil leaks by hand. Use cardboard or wood.



WARNING:

When removing an attachment pin or other hardened pin, use a hammer that has a soft head.



WARNING:

Wear eye protection when using a hammer to install a pin or when working with a grinder.

At this time, use goggles or eye protectors that meet standards.



MARNING:

Park the machine in a safe location when repairing or inspecting it.



WARNING:

Use work site protection when repairing the machine.

Check the oil, coolant, grease, and tools.

Recover materials and parts as necessary.

Pay enough attention to safety.



WARNING:

Some of the machine's parts are extremely heavy.

Use an appropriate lifting equipment for such parts.

For weights and procedures, see the Service Manual.



MARNING:

Exhaust gases are toxic.

Always provide good ventilation when working indoors or in any other enclosed space.



WARNING:

If the electrolytic battery solution freezes, it may explode.

Safety rules - Cab protective structure

Cab protective structure

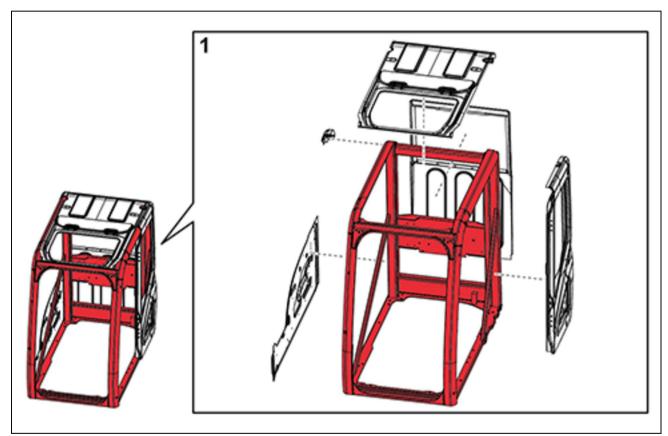
Modifying the cab main components is prohibited in order to protect the operator.

Prohibited items

- Modifications that reduce the strength of a platform that has a cab with a protective structure mounted on it. (Actions or modifications that reduce the functionality of the anchoring part at the left-rear of the cab)
- Modifications that effect the strength of the cab with a protective structure.

. , , ,	All modifications (grinding, welding, drilling holes, removing, etc.) are prohibited.
Modifications permitted under conditions (gray	Removal of parts is prohibited. Bar welding and making holes (up
part)	to diameter 20 mm (0.787 in)) by drilling are possible.

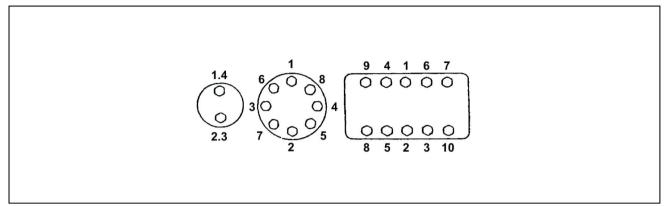
(CX130C/CX210C/CX220C/CX260C/CX300C/CX350C/CX380C)



SMPH15CEX6544FA

Torque - Bolt and nut

• Tighten alternating between left and right and top and bottom so that uniform tightening force is applied.



LPIL12CX00005EA

• If **LOCTITE**® was used on a removed bolt (there is something white sticking to the bolt when it is removed), clean the old **LOCTITE**® off with cleaning fluid, dry the bolt, then apply 2 - 3 drops of **LOCTITE**® to the thread section of the bolt.

Torque table

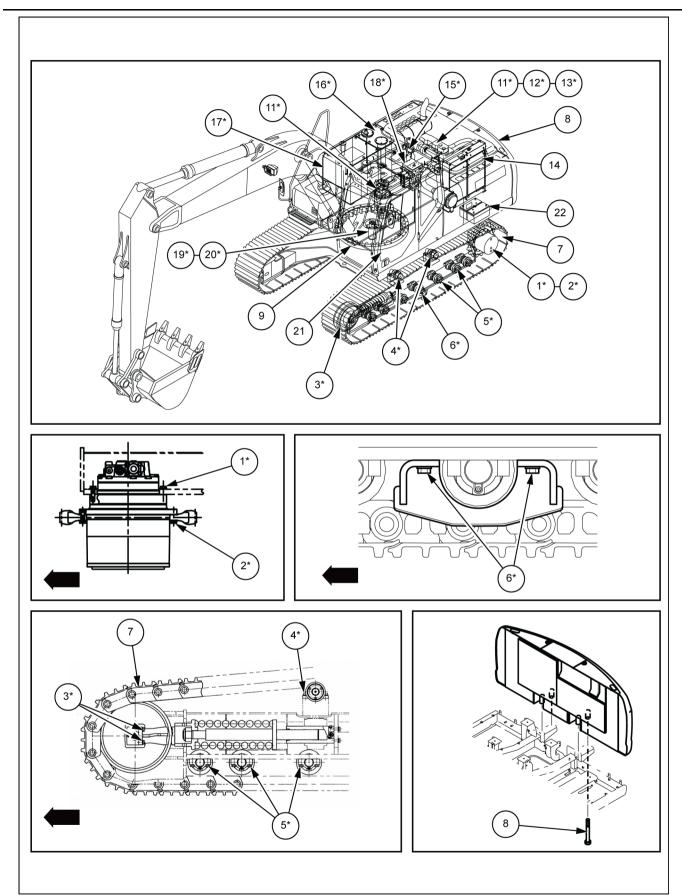
	ominal er (size)	M6	M8	M10	M12	M14	M16	M18	M20
	Wrench	10 mm	13 mm	17 mm	19 mm	22 mm	24 mm	27 mm	30 mm
Hexagon bolt	Tighten- ing torque	6.9 N·m (5.089 lb ft)	19.6 N·m (14.456 lb ft)	39.2 N·m (28.912 lb ft)	58.8 N·m (43.369 lb ft)	98.1 N·m (72.355 lb ft)	156.9 N· m (115.72 3 lb ft)	196.1 N· m (144.63 6 lb ft)	294.2 N· m (216.99 1 lb ft)
Llavagag	Wrench	5 mm	6 mm	8 mm	10 mm	12 mm	14 mm	14 mm	17 mm
Hexagon socket head bolt	Tighten- ing torque	8.8 N·m (6.491 lb ft)	21.6 N·m (15.931 lb ft)	42.1 N·m (31.051 lb ft)		117.7 N·m (86.811 lb ft)	176.5 N· m (130.18 0 lb ft)	245.2 N· m (180.85 0 lb ft)	343.2 N· m (253.13 1 lb ft)

Torque - Special torque settings

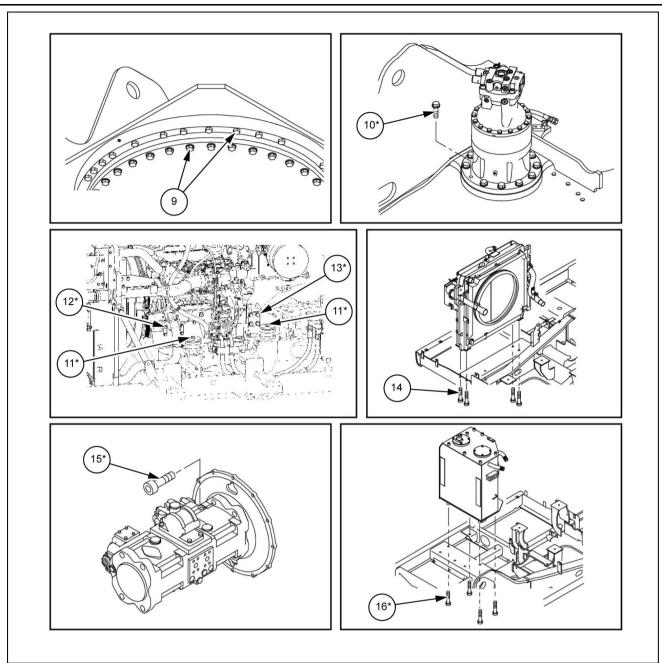
Code	Retightening location		Bolt nominal diameter	Wrench	Tightening torque
1*	Travel motor		M16	24 mm	267 - 312 N·m (196.93 - 230.12 lb ft)
2*	Drive sprock	æt	M16	24 mm	267 - 312 N·m (196.93 - 230.12 lb ft)
3*	Take-up rolle	er	M16	24 mm	267 - 312 N·m (196.93 - 230.12 lb ft)
4*	Upper roller		M20	30 mm	521 - 608 N·m (384.27 - 448.44 lb ft)
5*	Lower roller		M18	27 mm	371 - 432 N·m (273.64 - 318.63 lb ft)
6*	Track guard		M18	27 mm	400 - 462 N·m (295.02 - 340.75 lb ft)
7	Shoe		M20	30 mm	755 - 853 N·m (556.86 - 629.14 lb ft)
8	Counterweig	jht	M33	50 mm	1862 - 2058 N·m (1373.34 - 1517.90 lb ft)
9	Turntable be	earing	M24	36 mm	784 - 914 N·m (578.25 - 674.13 lb ft)
10*	Swing unit		M24	36 mm	784 - 914 N·m (578.25 - 674.13 lb ft)
11*		Mount	M16	24 mm	264.9 - 313.9 N·m (195.38 - 231.52 lb ft)
12*	Engine	Front bracket	M10	17 mm	63.8 - 73.6 N·m (47.06 - 54.28 lb ft)
13*		Rear bracket	M16	24 mm	205.9 - 247.1 N·m (151.86 - 182.25 lb ft)
14	Radiator		M16	24 mm	147.2 - 176.6 N·m (108.57 - 130.25 lb ft)
15*	Hydraulic pump	Pump	M20	17 mm hexagon socket head	367 - 496 N·m (270.69 - 365.83 lb ft)
16*	Hydraulic tai	nk	M16	24 mm	232.4 - 276 N·m (171.41 - 203.57 lb ft)
17*	Fuel tank		M16	24 mm	232.4 - 276 N·m (171.41 - 203.57 lb ft)
18*	Control valve		M16	24 mm	267 - 312 N·m (196.93 - 230.12 lb ft)
19*	Center	Lock bar	M12	19 mm	88.3 - 107 N·m (65.13 - 78.92 lb ft)
20*	Joint	Joint	M12	19 mm	109 - 127 N·m (80.39 - 93.67 lb ft)
21	Cab		M16	24 mm	149 - 173 N·m (109.90 - 127.60 lb ft)
22	Battery		M10	17 mm	19.6 - 29.4 N·m (14.46 - 21.68 lb ft)

CAUTION: For items marked with *, always apply **LOCTITE® 262™** or the equivalent and tighten to the specified torque.

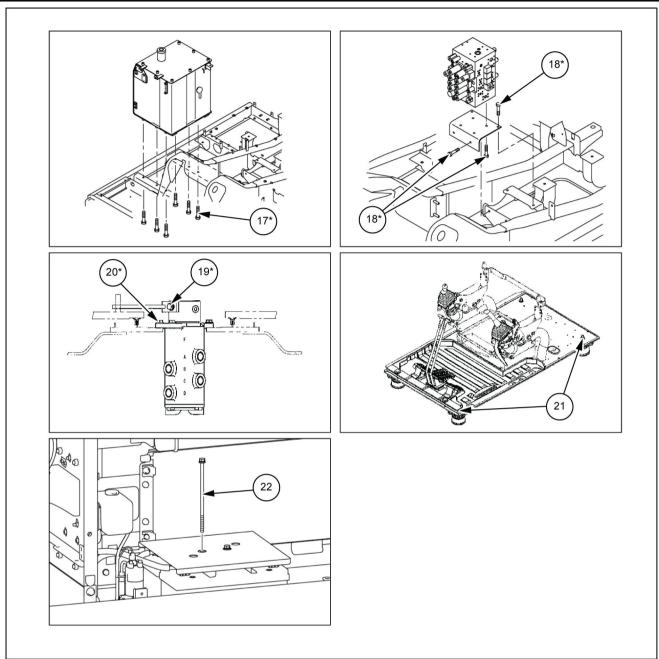
The tightening torque in kgf•m is determined with N· m ÷ 9.8 (lbf· ft ÷ 7.2).



SMIL14CEX6819HB 1



SMIL13CEX1312GB



SMIL13CEX1313GB 3

Basic instructions - Shop and assembly

Shimming

For each adjustment operation, select adjusting shims and measure the adjusting shims individually using a micrometer, then add up the recorded values. Do not rely on measuring the entire shimming set, which may be incorrect, or the rated value shown on each shim.

Rotating shaft seals

For correct rotating shaft seal installation, proceed as follows:

- 1. Before assembly, allow the seal to soak in the oil it will be sealing for at least thirty minutes.
- 2. Thoroughly clean the shaft and check that the working surface on the shaft is not damaged.
- 3. Position the sealing lip facing the fluid.

NOTE: With hydrodynamic lips, take into consideration the shaft rotation direction and position the grooves so that they will move the fluid towards the inner side of the seal.

- 4. Coat the sealing lip with a thin layer of lubricant (use oil rather than grease). Fill the gap between the sealing lip and the dust lip on double lip seals with grease.
- 5. Insert the seal in its seat and press down using a flat punch or seal installation tool. Do not tap the seal with a hammer or mallet.
- 6. While you insert the seal, check that the seal is perpendicular to the seat. When the seal settles, make sure that the seal makes contact with the thrust element, if required.
- 7. To prevent damage to the seal lip on the shaft, position a protective guard during installation operations.

O-ring seals

Lubricate the O-ring seals before you insert them in the seats. This will prevent the O-ring seals from overturning and twisting, which would jeopardize sealing efficiency.

Sealing compounds

Apply a sealing compound on the mating surfaces when specified by the procedure. Before you apply the sealing compound, prepare the surfaces as directed by the product container.

Spare parts

Only use CNH Original Parts or CASE CONSTRUCTION Original Parts.

Only genuine spare parts guarantee the same quality, duration, and safety as original parts, as they are the same parts that are assembled during standard production. Only CNH Original Parts or CASE CONSTRUCTION Original Parts can offer this guarantee.

When ordering spare parts, always provide the following information:

- · Machine model (commercial name) and Product Identification Number (PIN)
- · Part number of the ordered part, which can be found in the parts catalog

Protecting the electronic and/or electrical systems during charging and welding

To avoid damage to the electronic and/or electrical systems, always observe the following practices:

- 1. Never make or break any of the charging circuit connections when the engine is running, including the battery connections.
- 2. Never short any of the charging components to ground.
- Always disconnect the ground cable from the battery before arc welding on the machine or on any machine attachment.
 - Position the welder ground clamp as close to the welding area as possible.
 - If you weld in close proximity to a computer module, then you should remove the module from the machine.
 - Never allow welding cables to lie on, near, or across any electrical wiring or electronic component while you
 weld.
- 4. Always disconnect the negative cable from the battery when charging the battery in the machine with a battery charger.

NOTICE: If you must weld on the unit, you must disconnect the battery ground cable from the machine battery. The electronic monitoring system and charging system will be damaged if this is not done.

5. Remove the battery ground cable. Reconnect the cable when you complete welding.

A WARNING

Battery acid causes burns. Batteries contain sulfuric acid.

Avoid contact with skin, eyes or clothing. Antidote (external): Flush with water. Antidote (eyes): flush with water for 15 minutes and seek medical attention immediately. Antidote (internal): Drink large quantities of water or milk. Do not induce vomiting. Seek medical attention immediately. Failure to comply could result in death or serious injury.

W0111A

Special tools

The special tools that CASE CONSTRUCTION suggests and illustrate in this manual have been specifically researched and designed for use with CASE CONSTRUCTION machines. The special tools are essential for reliable repair operations. The special tools are accurately built and rigorously tested to offer efficient and long-lasting operation.

By using these tools, repair personnel will benefit from:

- Operating in optimal technical conditions
- · Obtaining the best results
- · Saving time and effort
- · Working in safe conditions

General specification

Main data

Operating weight	25210 kg (55578.54 lb)
Engine output	132.1 kW (179.61 Hp) / 2000 RPM
Bucket capacity	Heaped 1.10 m³ (38.8 ft³)
	Leveled 0.76 m³ (26.84 ft³)

Performance

Standard weight	13.5 kN (3034.921 lb)
Swing speed	10.6 RPM
Traval and	Low speed 3.5 km/h (2.175 mph)
Travel speed	High speed 5.5 km/h (3.418 mph)
Maximum pulling force	201 kN (45186.60 lb)
Grade ability	70 % (35 °)
Craund nagacina	50 kPa (7.25 psi) (600 mm (23.622 in) grouser shoe)
Ground pressure	38 kPa (5.51 psi) (800 mm (31.496 in) grouser shoe)

Main unit dimensions

Main unit length	5260 mm (207.087 in)
Main unit width	3190 mm (125.591 in)
Upper swing body width	2770 mm (109.055 in)
Cab width	1000 mm (39.370 in)
Main unit height	3020 mm (118.898 in)
Swing radius (rear end)	2950 mm (116.142 in)
Swing body rear end distance	2950 mm (116.142 in)
Swing body rear section bottom height	1100 mm (43.307 in)
Distance between tumblers	3840 mm (151.181 in)
Overall track length	4640 mm (182.677 in)
Overall track width	3190 mm (125.591 in)
Distance between tracks	2590 mm (101.969 in)
Track shoe width	600 mm (23.62 in) option: 800 mm (31.50 in)
Minimum ground clearance	440 mm (17.323 in) (to bottom of lower frame)

Engine

Name	Isuzu 4HK1X diesel engine
Model	4-cycle, water-cooled, overhead camshaft type, common rail system (electronic control), cooled EGR, with turbocharger
No. of cylinders - bore x stroke	4 - Ø115 mm (4.528 in) x 125 mm (4.921 in)
Total stroke volume	5.193 I (1.3718 US gal)
Maximum torque	621 N·m (458.03 lb ft) / 1800 RPM
Starter	24 V 5.0 kW reduction type
Charging generator	24 V 50 A AC type
Battery	12 V 92 A· h / 5 h x 2

Cooling system

Fan type	Ø650 mm (25.591 in), 7 blades, suction
Radiator	
Fin type	Wavy
Fin pitch	1.75 mm (0.06890 in)
Oil cooler	

INTRODUCTION

Fin type	Wavy
Fin pitch	1.75 mm (0.06890 in)
Intercooler	
Fin type	Wavy
Fin pitch	1.75 mm (0.06890 in)
Fuel cooler	
Fin type	Wavy
Fin pitch	2.0 mm (0.07874 in)

Upper side work system

Туре	Backhoe a	ttachment
Components, dimensions, working dimensions		
Standard bucket capacity	Heaped 1.10 m³ (38.8 ft³)	(Leveled 0.76 m³ (26.8 ft³)
Boom length	5850 mm (2	230.315 in)
Arm type	Standard (HD) 3.00 m (9.8425 ft)	Short (HD) 2.50 m (8.2021 ft)
Arm length	3000 mm (118.110 in)	2500 mm (98.425 in)
Bucket radius	1570 mm ((61.811 in)
Bucket wrist angle	179	5°
Maximum digging radius	10280 mm (404.724 in)	9820 mm (386.614 in)
Maximum digging radius at ground line	10100 mm (397.638 in)	9630 mm (379.134 in)
Maximum digging depth	6900 mm (271.654 in)	6400 mm (251.969 in)
Maximum vertical straight wall digging depth	6140 mm (241.732 in)	5700 mm (224.409 in)
Maximum digging height	9760 mm (384.252 in)	9560 mm (376.378 in)
Maximum dump height	6760 mm (266.142 in)	6550 mm (257.874 in)
Minimum swing radius at front	3950 mm (155.512 in)	3980 mm (156.693 in)
Height for minimum swing radius at front	7750 mm (305.118 in)	7820 mm (307.874 in)

Operating device

Operator's seat	
Position	Left side
Structure	Adjustable forward, back, 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) x 2
For operating machine use	Lever type (hydraulic pilot type) x 2
Instruments and switches	
Work mode switchover	3 modes (SP/H/A)

Travel mode switchover	Low-speed/high-speed switch type
One-touch idle	Knob switch type
Engine emergency stop	Switch type
Monitor device	
Machine status display (full color liquid crystal)	
Work mode select status	SP/H/A
Instruments (full color liquid crystal)	
Fuel gauge	Bar graph and indicator
Engine coolant temperature gauge	Bar graph and indicator
Hydraulic oil temperature gauge	Bar graph and indicator
Hour meter	Digital type
Machine status and warnings (full color liquid crystal and warning alarm) * has warning alarm	
) LOW FUEL (*) LOW OIL PRESS. (*) LOW COOLANT •) SECURITY ON CHECK ENGINE (*) ENGINE STOP (*)
Illumination equipment	

	Maral Com Polis	Tank front surface	24V 70W x1
	Working light	Cab top	24V 70W x2 (option)
		Boom up	24V 70W x1
	Interior light		24V 70W x1
Ho	rn		Electric horn x2
Ot	ner		Wiper with intermittent function, window washer, air conditioner, clock, rear view mirrors (left and right, total of 2), DC converter, AM/FM radio, feed pump (option), rear view camera/side camera (option)

Swing units

Swing circle	Swing bearing type (with inner gear)
Swing hydraulic motor	Fixed displacement piston motor x 1
Reduction gear	Planetary gear 2-stage reduction gear
Swing parking brake	Mechanical lock (operational lever linkage type)

Undercarriage

Travel hydraulic motor	Variable displacement piston motor x2
Reduction gear	Planetary gear 2-stage reduction gear
Travel brake	Hydraulic lock
Parking brake	Mechanical lock (travel lever linkage type)
Track shoe	
Туре	Assembly-type triple grouser shoe
No. of shoe plates (per side)	49
Shoe width	600 mm (23.622 in) (option 800 mm (31.496 in))
Grouser height	26 mm (1.024 in)
Link pitch	190 mm (7.480 in)
Roller	
No. of upper rollers (per side)	2
No. of lower rollers (per side)	9
Track belt tension adjuster	Grease cylinder type (with cushion spring)

Hydraulic equipment

Hydraulic device

Hydraulic pump drive type	Direct engine link (no transmission)
Hydraulic pump	
Туре	Double variable displacement piston pump x 1
	Gear pump x 1
Discharge volume	Piston pump 2 x 234 L/min (61.816 US gpm)
	Gear pump 20 L/min (5.283 US gpm)
Pump control method	Simultaneous output full-horsepower control
Set pressure of main relief valve	34.3 MPa (4975 psi) [38 MPa (5512 psi) for pressure boost]
Set pressure of overload relief valve	29.4 MPa (4264 psi) (boom down) 38.7 MPa (5613 psi) (other)

Control valve and cylinder

Control valve			
Model	Quadruple spool Quintuple spool	One-piece type x 1	
Operating method	Hydraulic pilot type: Travel, s	Hydraulic pilot type: Travel, swing, and operating machine	
Cylinder	No. of cylinders x tube bore - rod diameter - stroke		
Boom cylinder	2 x Ø130 mm (5.118 in) - Ø90 mn	n (3.543 in) - 1335 mm (52.559 in)	

INTRODUCTION

Arm cylinder	1 x Ø145 mm (5.709 in) - Ø105 mm (4.134 in) - 1660 mm (65.354 in)
Bucket cylinder	1 x Ø130 mm (5.118 in) - Ø90 mm (3.543 in) - 1070 mm (42.126 in)

Filters

Hydraulic filters

Suction filter (inside tank)	105 μm
Return filter (inside tank)	10 μm
Pilot line filter (inside housing)	8 μm

Fuel filter

Main filter	2 μm
Pre-filter	5.5 μm

General specification – Main equipment

Lower component

Travel unit

Manufacturer	KYB Corporation	
Motor type	Variable displacement piston motor	
	Automatic 2-speed switchover with parking brake	
Intake amount	181.3 cm³/rev (11.1 in³/rev)	
Operating pressure	34.3 MPa (4975 psi)	
Operating flow	234 L/min (61.8163 US gpm)	
Brake torque	32700 N·m (24118 lb ft) min. (including reduction gear)	
Relief valve set pressure	35.3 MPa (5120 psi) at 40 l/min (10.57 US gpm)	
Automatic 2-speed switch over pressure	25.8 MPa (3742 psi)	
Reduction gear		
Reduction gear type Planetary gear 2-stage reduction gear		
Reduction ratio	43.246	
Dry weight	271 kg (597.453 lb)	

Take-up roller

Weight 99.3 kg (218.9190 lb)	
------------------------------	--

Upper roller

Weight 17.8 kg (39.2423 lb)	
-----------------------------	--

Lower roller

Weight	37.7 kg (83.1143 lb)	
--------	----------------------	--

Recoil spring

Item	Weight	Quantity
Yoke	25.7 kg (56.6588 lb)	1
Sems B M16 x 50	0.5 kg (1.1023 lb)	4
Threaded rod	28.5 kg (62.8317 lb)	1
Groove height N M48	1.3 kg (2.8660 lb)	1
SP pin 8 x 80	0.1 kg (0.2205 lb)	1
Recoil spring	69.9 kg (154.1031 lb)	1
Grease cylinder assembly	32.8 kg (72.3116 lb)	1
Sems B M16 x 60	0.3 kg (0.6614 lb)	2
Assembly (total)	160.9 mm (6.3346 in)	
Mounting length of spring	576 mm (22.677 in)	

Shoe

	Weight or Quantity	
600 grouser	1476 kg (3254.023 lb)	
Link	1 set	
Shoe	51	
Bolt	204	
Nut	204	
800 grouser	1776 kg (3915.410 lb)	
Link	1 set	
Shoe	51	
Bolt	204	
Nut	204	

Click on the image link below for the full version of the service manual

