CX260C
Crawler Excavator

SERVICE MANUAL

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English
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CASE
CONSTRUCTION

SERVICE MANUAL

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

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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.

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.

Safety rules – Personal safety

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.

WARNING:

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.

WARNING:

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

WARNING:

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.

WARNING:

Check hydraulic equipment.

Work according to the procedure.

Do not change the procedure.

WARNING:

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

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.

WARNING:

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.

WARNING:

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.

WARNING:

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

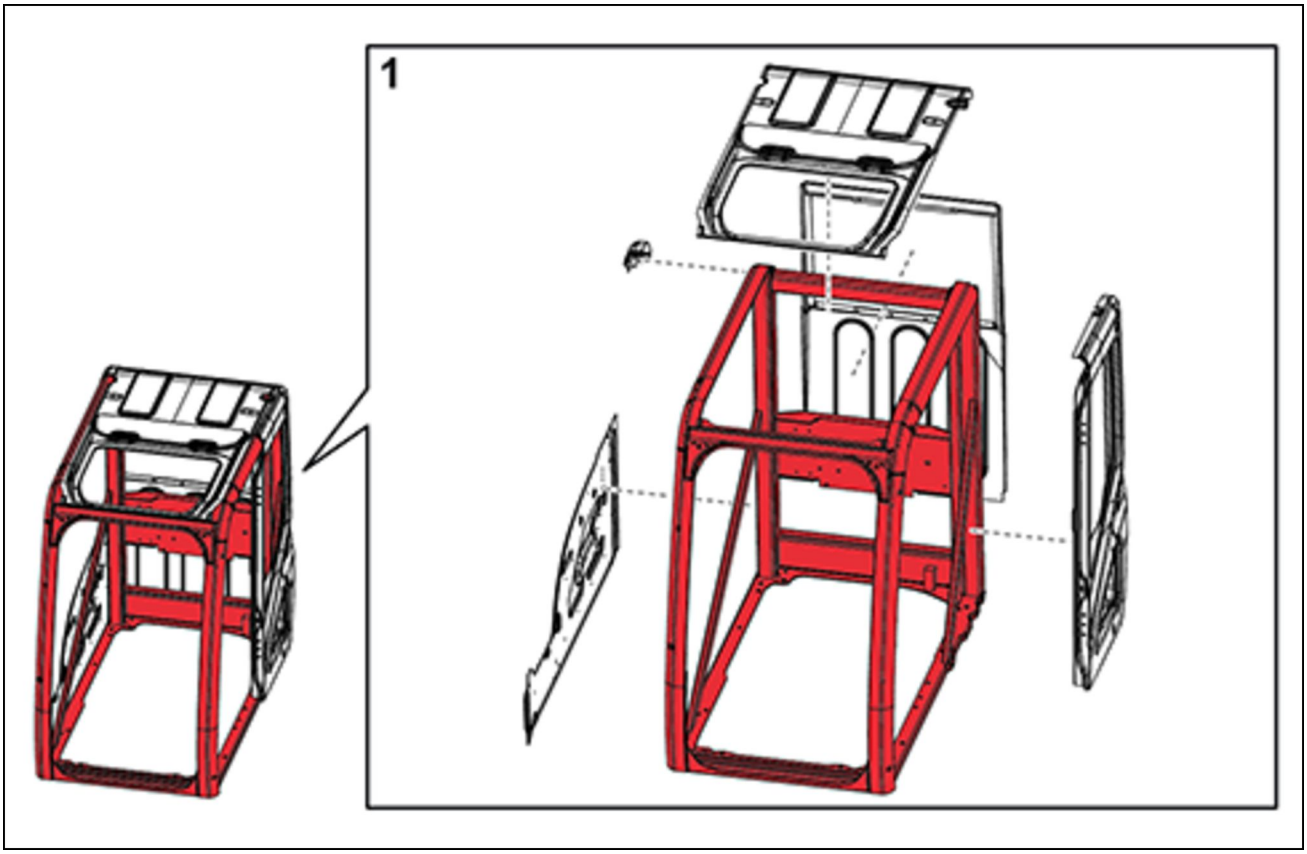
Modifying the cab main components is prohibited in order to protect the operator.

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.

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

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



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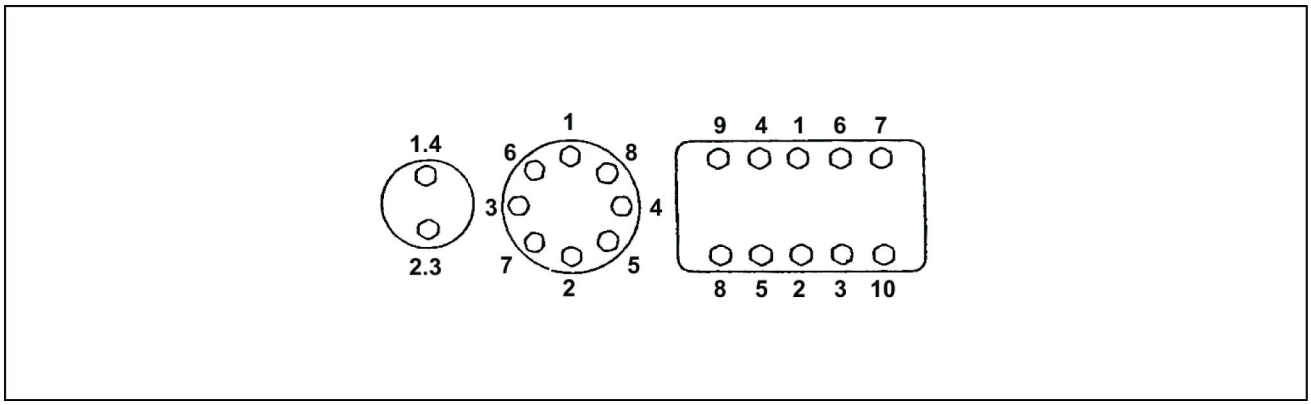
Torque – Bolt and nut

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



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- 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.

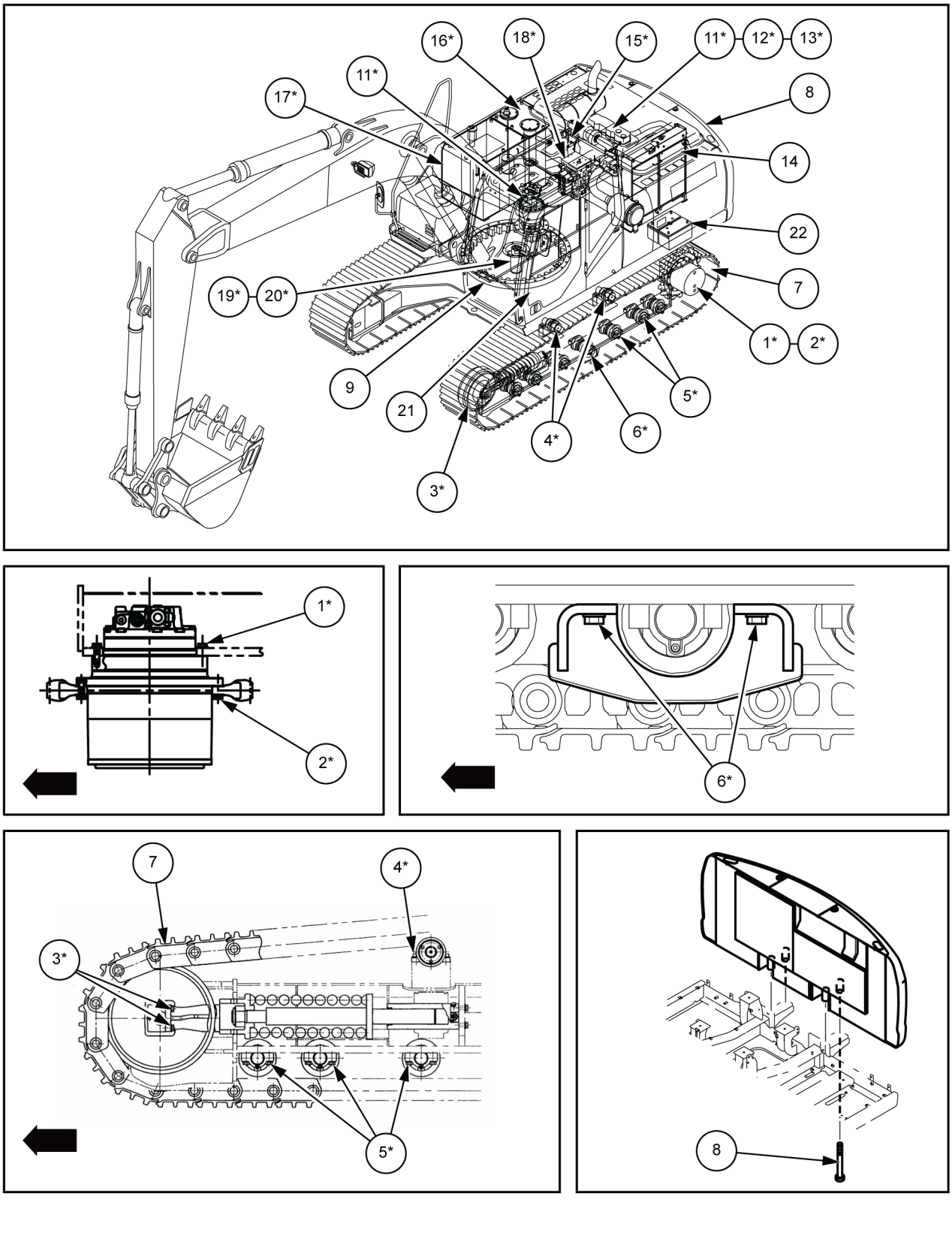
Torque table

Bolt nominal diameter (size)		M6	M8	M10	M12	M14	M16	M18	M20
Hexagon bolt	Wrench	10 mm	13 mm	17 mm	19 mm	22 mm	24 mm	27 mm	30 mm
	Tightening 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 (115.723 lb ft)	196.1 N·m (144.636 lb ft)	294.2 N·m (216.991 lb ft)
Hexagon socket head bolt	Wrench	5 mm	6 mm	8 mm	10 mm	12 mm	14 mm	14 mm	17 mm
	Tightening 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)	78.5 N·m (57.899 lb ft)	117.7 N·m (86.811 lb ft)	176.5 N·m (130.180 lb ft)	245.2 N·m (180.850 lb ft)	343.2 N·m (253.131 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 sprocket		**M16**	**24 mm**	**267 - 312 N·m** (**196.93 - 230.12 lb ft**)
3*	Take-up roller		**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	Counterweight		**M33**	**50 mm**	**1862 - 2058 N·m** (**1373.34 - 1517.90 lb ft**)
9	Turntable bearing		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*	Engine	Mount	**M16**	**24 mm**	**264.9 - 313.9 N·m** (**195.38 - 231.52 lb ft**)
12*		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 tank		**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 Joint	Lock bar	**M12**	**19 mm**	**88.3 - 107 N·m** (**65.13 - 78.92 lb ft**)
20*		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).



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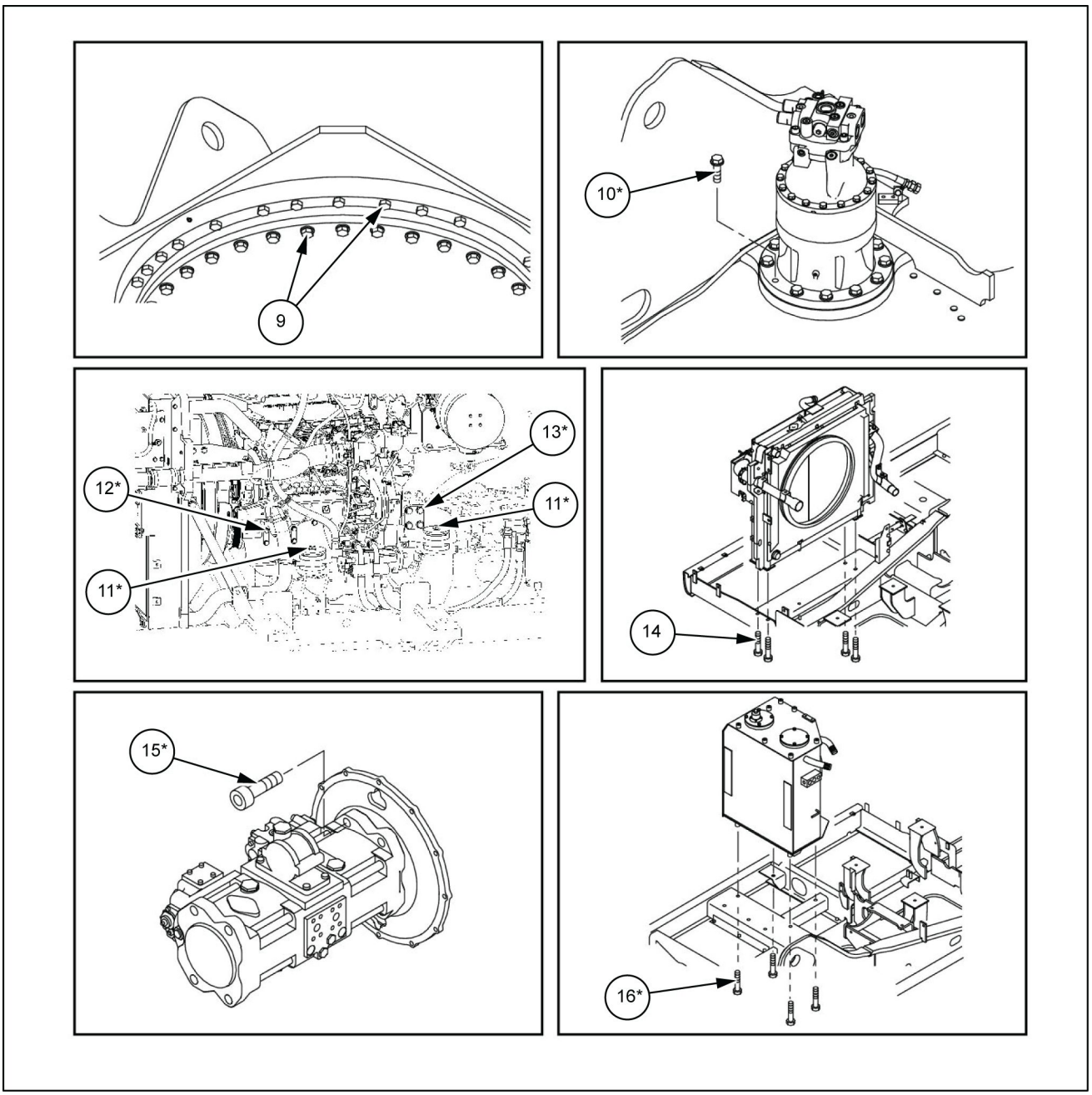

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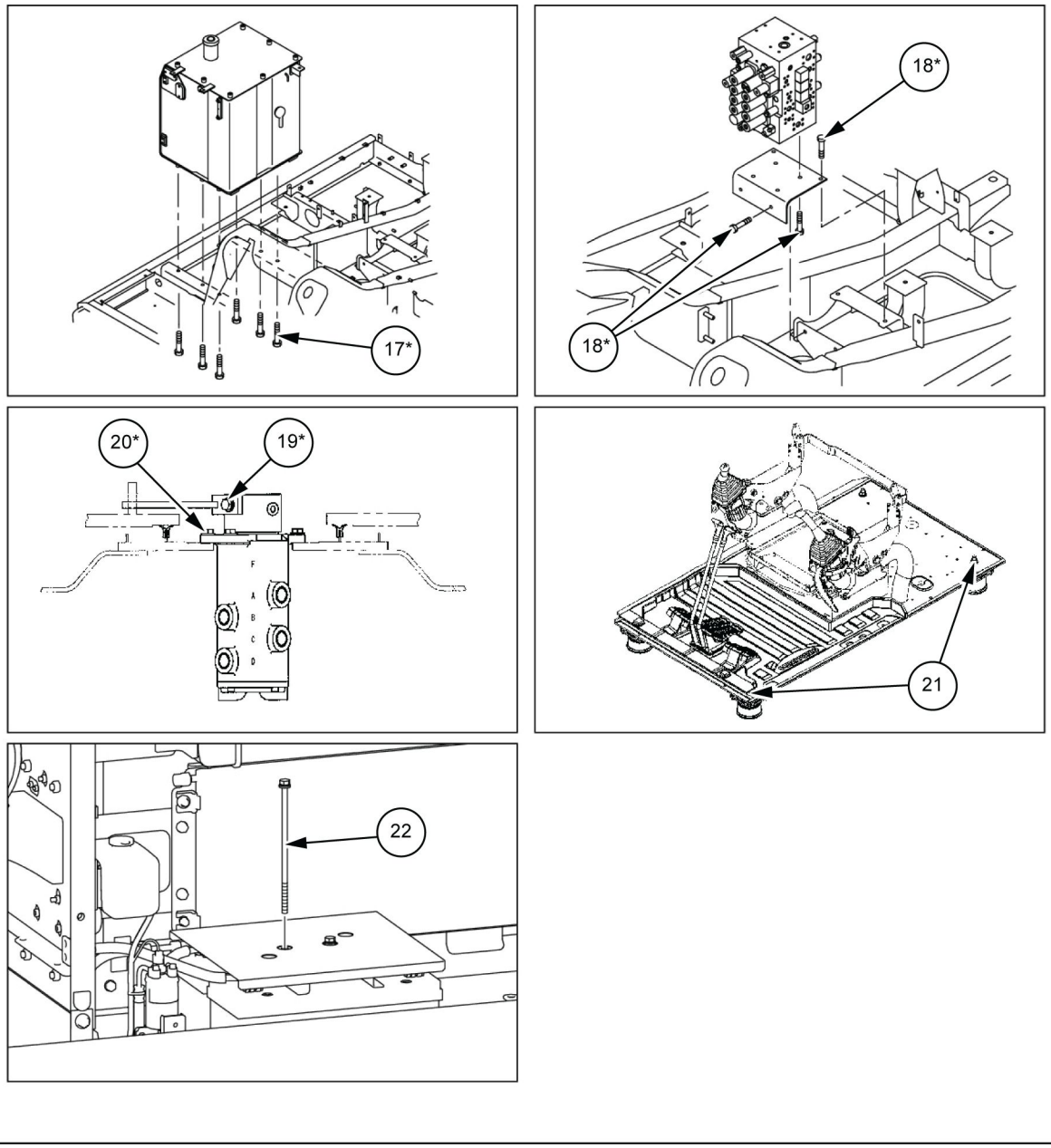

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Basic instructions - Shop and assembly

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.
3. 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.

⚠ 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.

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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**
Travel speed	Low speed **3.5 km/h** (**2.175 mph**)
	High speed **5.5 km/h** (**3.418 mph**)
Maximum pulling force	**201 kN** (**45186.60 lb**)
Grade ability	**70 %** (**35 °**)
Ground pressure	**50 kPa** (**7.25 psi**) (**600 mm** (**23.622 in**) grouser shoe)
	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 l** (**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		

	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

Type		Backhoe attachment	
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** (**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	**175 °**	
	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	
	OVERHEAT (*) ALTERNATOR (*) ELEC PROBLEM (*) LOW FUEL (*) LOW OIL PRESS. (*) LOW COOLANT (*) ENG. PRE HEAT AUTO WARM UP AUR FILTER (*) SECURITY ON CHECK ENGINE (*) ENGINE STOP (*)	
Illumination equipment		

	Working light	Tank front surface	24V 70W x1
		Cab top	24V 70W x2 (option)
		Boom up	24V 70W x1
	Interior light		24V 70W x1
Horn			Electric horn x2
Other			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		
	Type	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		
	Type	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, swing, and operating machine	
Cylinder		No. of cylinders x tube bore - rod diameter - stroke	
	Boom cylinder	2 x **Ø130 mm** (**5.118 in**) - **Ø90 mm** (**3.543 in**) - **1335 mm** (**52.559 in**)	

	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

Upper component

Swing unit

Swing motor assembly		
Swing motor		
	Manufacturer	Kawasaki Heavy Industries, Ltd.
	Motor type	Fixed displacement piston motor
		With parking brake
	Intake amount	**148.5 cm³/rev** (**9.06 in³/rev**)
	Operating pressure	**28.9 MPa** (**4191.945 psi**)
	Operating flow	**214 L/min** (**56.533 US gpm**)
	Mechanical brake torque	**846 N·m** (**623.978 lb ft**) min.
	Brake off pressure	**2.9 MPa** (**420.645 psi**) or less
	Relief valve set pressure	**28.9 MPa** (**4191.945 psi**)
Swing reduction gear		
	Reduction gear type	Planetary gear 2-stage reduction gear
	Reduction ratio	21.75
Dry weight		**293 kg** (**645.954 lb**)
Turntable bearing		
	No. of teeth	92
	Weight	**373 kg** (**822.324 lb**)
Counterweight		
	Weight	**5250 kg** (**11574.269 lb**)

Engine-related

Engine

Engine model name	Isuzu 4HK1X diesel engine
Engine type	4-cycle, water-cooled, overhead camshaft type straight cylinder, direct fuel injection type (electronic control)
Number of cylinders-bore-stroke	4 - Æ**115 mm** (**4.53 in**) - **125 mm** (**4.92 in**)
Total displacement	**5.193 l** (**1.3718 US gal**)
Compression ratio	17.5
Rated output	**132.1 kW** (**179.61 Hp**) / **2000 RPM**
Maximum torque	**621.0 N·m** (**458.03 lb ft**) / about **1500 RPM**
Fuel consumption ratio	***** g/kWh** at **2000 RPM**
Engine dry weight	About **480 kg** (**1058.219 lb**)
Engine dimension	L **1020.4 mm** (**40.1732 in**) - W **829.0 mm** (**32.638 in**) - H **1011.8 mm** (**39.8346 in**)
Cooling fan	Æ**650 mm** (**25.591 in**) - suction type - 7 vanes, plastic
	With bell mouth-type fan guide
Pulley ratio	0.85 (reduction)
Charging generator	**24 V 50 A** AC type
Starter motor	**24 V 5 kW** (**6.8 Hp**) reduction type
Coolant capacity	**14.0 l** (**14.000 US gal**)
Oil pan capacity	Max: **20.5 l** (**5.416 US gal**) Min: **13.0 l** (**3.434 US gal**) (not including oil filter)
Direction of rotation	Right (viewed from fan side)
	Compliant with JISD 0006-2000

Muffler

Manufacturer	Sankei Giken Kogyo Co., Ltd.
Type	D 280 x 700 L
Maximum displacement	**31800 L/min** (**8400.7 US gpm**)
Weight	**15 kg** (**33.0693 lb**)

Air cleaner (double element)

Manufacturer	Nippon Donaldson, Ltd.
Element (outer)	
Element (inner)	
Weight	**7.5 kg** (**16.5347 lb**)

Radiator

Manufacturer		Zhejiang Yinlun Machinery Co., Ltd.
Oil cooler	Weight	**44.4 kg** (**97.8852 lb**)
	Oil volume	**10.84 L** (**2.8636 US gal**)
Radiator	Weight	**18.3 kg** (**40.3446 lb**)
	Coolant capacity	**10.2 L** (**2.6946 US gal**)
Air cooler	Weight	**10.3 kg** (**22.7076 lb**)
	Capacity	-
Fuel cooler	Weight	**1.2 kg** (**2.6455 lb**)
	Capacity	**0.34 L** (**0.0898 US gal**)

Hydraulic device

Hydraulic pump

Manufacturer			Kawasaki Heavy Industries, Ltd.
Main pump			
	Pump type		Double variable displacement piston pump
	Displacement capacity		**118.5 cm³/rev** (**7.231 in³/rev**) x 2
	Operating pressure	Rated	**34.3 MPa** (**4975 psi**)
		Maximum	**36.8 MPa** (**5337.84 psi**)
	Input revolution speed		**2000 RPM**
	Maximum discharge flow		**234 L/min** (**61.8163 US gpm**) x 2 (at **2000 RPM**)
Pilot pump			
	Pump type		Gear pump
	Displacement capacity		**10 cm³/rev** (**0.61 in³/rev**)
	Operating pressure		**3.92 MPa** (**569 psi**)
	Maximum discharge flow		**20 L/min** (**5.283 US gpm**) (at **2000 RPM**)
Control method			Hydraulic simultaneous constant output control
			Maximum flow adjustment control through external commands (negative control)
			Setting through external command milli-amp
			Horsepower adjustment control
Dry weight			**127 kg** (**279.9871 lb**)

Control-related

Control valve

Manufacturer		KYB Corporation
Maximum flow		**213 l/min** (**56.269 US gpm**) (at **1800 RPM**)
Overload set pressure		**29.4 MPa** (**4264 psi**) boom down
		38.7 MPa (**5613 psi**) other
Main relief set pressure		**34.3 MPa** (**4975 psi**)
	(at boosting)	**36.8 MPa** (**5338 psi**)
Foot relief set pressure		**2.55 MPa** (**370 psi**)
Function		Straight travel circuit
		Boom-up/arm 2 pumps internal flow
		Boom and arm load holding circuit
		Boom-down regenerative circuit
		Bucket-close regenerative circuit

	Arm-in forced regenerative circuit
	Swing priority variable orifice (for arm operation)
	2 pumps flow
	Variable foot relief
Weight	**199 kg** (**438.720 lb**)

Solenoid valve (5 stack)

Manufacturer		Yuken Kogyo Co., Ltd.	
Valve specifications			
	Maximum flow	P→B **25 l/min** (**6.604 US gpm**) Other **5 l/min** (**1.321 US gpm**)	
	Rated pressure	**4.5 MPa** (**652 psi**)	
	Port size	P.T.B port	**G3/8**
		C1, C2, C3, C4, C5 ports	**G1/4**
Solenoid specifications			
	Operating voltage	DC **20 - 32 V**	
	Power consumption	**17 W** max.	
Weight		**6.7 kg** (**14.7710 lb**)	

Valve for left/right operations

Manufacturer		Kawasaki Heavy Industries, Ltd.
Operating pressure		**3.92 MPa** (**569 psi**)
Secondary pressure		**0.64 - 2.45 MPa** (**92.8320 - 355 psi**) primary short type
Operating angle	1,3 port	**19 °**
	2,4 port	**25 °**
Weight		**1.9 kg** (**4.1888 lb**)

Valve for travel operation

Manufacturer	Kawasaki Heavy Industries, Ltd.
Operating pressure	**3.92 MPa** (**569 psi**)
Secondary pressure	**0.64 - 2.45 MPa** (**92.8320 - 355 psi**) primary short type
Operating angle	**12.4 °**
Weight	**5.5 kg** (**12.1254 lb**)

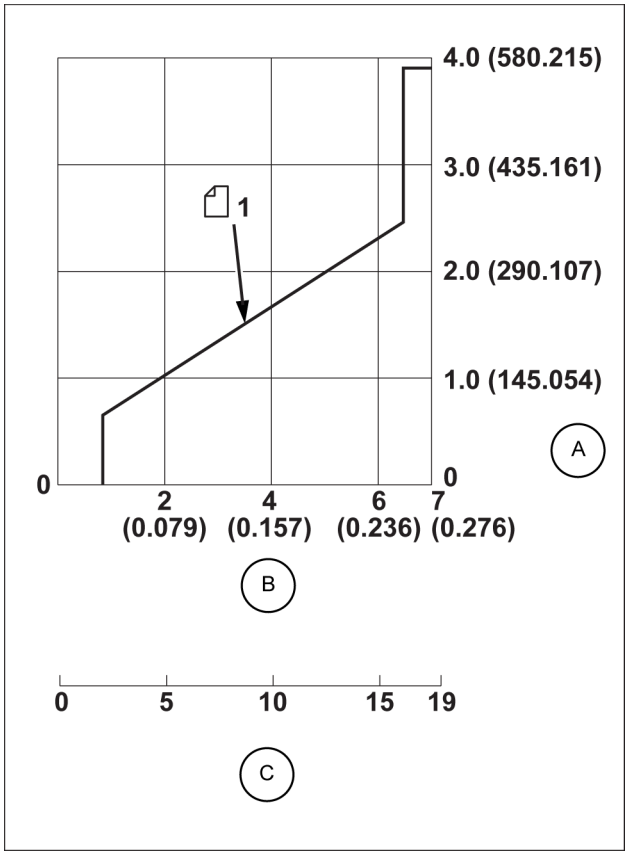
Remote control valve for option operations

Manufacturer	Nishina Industrial Co., Ltd.
Operating pressure	**39.2 bar** (**568.400 psi**)
Secondary pressure	**6.4 - 24.5 bar** (**92.800 - 355.250 psi**) primary short type
Operating angle	**11.4 °** – **12.6 °**
Port size	P, T, A, B, C1, C2 G1/4
Weight	**1.7 kg** (**3.748 lb**)

Remote control valve characteristic diagram

Operation remote control valve control diagram

A. Secondary pressure [MPa (psi)]
B. Push rod stroke [mm (in)]
C. Operating angle [deg.]
1 Secondary pressure



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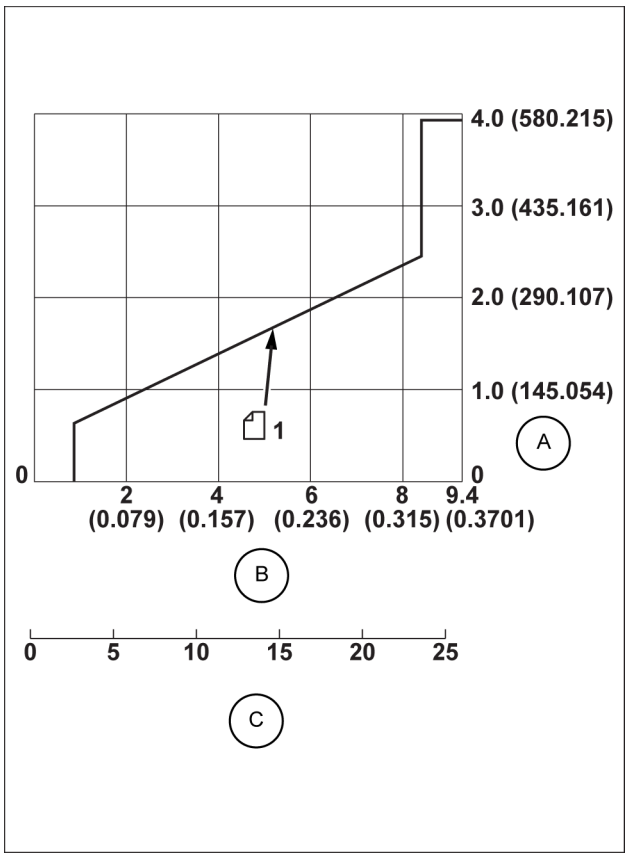
A. Secondary pressure [MPa (psi)]
B. Push rod stroke [mm (in)]
C. Operating angle [deg.]
1 Secondary pressure



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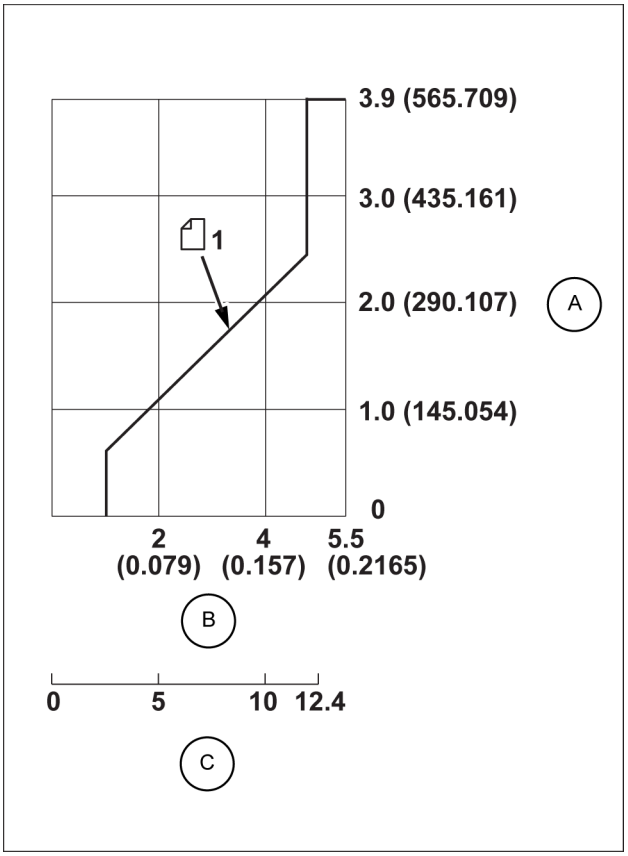
Travel remote control valve control diagram

A. Secondary pressure [MPa (psi)]
B. Push rod stroke [mm (in)]
C. Pedal operating angle [deg.]
1 Secondary pressure



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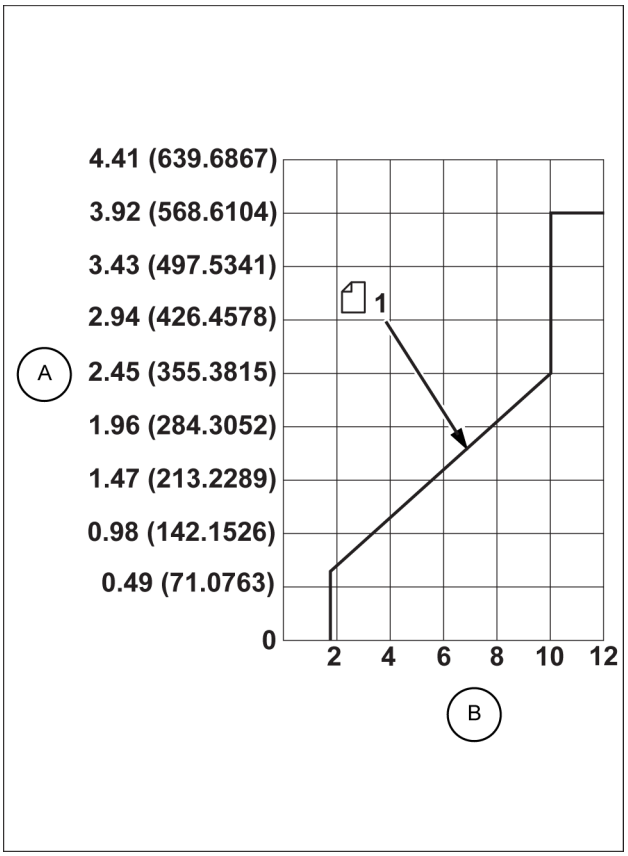
Option remote control valve control diagram

A. Secondary pressure [MPa (psi)]
B. Operating angle [deg.]
1 Secondary pressure



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