

# HYDRAULIC EXCAVATOR

## SHOP MANUAL

## model SK100W-2

This is the shop manual for KOBELCO hydraulic excavator. Contained is the necessary technical data concerning the maintenance and repair of this model. The manual is divided into the following four major sections; GENERAL, SYSTEM, COMPONENTS and PROCEDURE.

### \*GENERAL

- YE01. Specifications  
Operation (Refer to Operator's Manual)
- YE03. Location and Weight of components
- YE04. Maintenance Standard and Test Procedure  
Maintenance (Refer to Operator's Manual)
- YE07. Work Standard

### \*SYSTEMS

- |                            |                               |
|----------------------------|-------------------------------|
| YE11. Drive system         | YE21. Attachment              |
| YE12. Hydraulic system     | YE22. Control system          |
| YE15. Slewing system       | YE23. Upper frame             |
| YE17. Steering system      | YE24. Pneumatic system        |
| YE18. Travel system        | YE25. Electrical system       |
| YE19. Brake control system | YE26. Air-conditioning system |

### \*COMPONENTS

- |                   |                    |
|-------------------|--------------------|
| 12. Pump          | 17. Cylinder       |
| 13. Control valve | 21. Reduction unit |
| 14. Other valves  | 22. Transmission   |
| 15. Motor         | 34. Axle           |
| 16. Swivel joint  | 50. Engine         |

### \*PROCEDURE

When checking or repairing the machine we suggest that you refer to this manual carefully. We hope that reference to this manual will help to maintain a high level of working efficiency and reliability. For further details on maintenance and checks refer to the "OPERATORS MANUAL" which has been supplied with the machine.

Although all data was correct at the time of printing, due to continual design changes and improvements, some contents may not conform to the actual machine. Take special care to order parts only after confirming the validity of the part number in the "PARTS MANUAL".

If you notice any explanatory discrepancies, after consulting one of our representatives, please update your manual according to the latest data. However, in the event of any specification changes, we will issue revised edition.

## INDEX

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# KOBELCO

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Book code No. S5YE0002E

**⚠ WARNING**  
**SAFETY**

**⚠ WARNING**

The proper and safe lubrication and maintenance for this machine, recommended by KOBELCO are outlined in the OPERATORS MANUAL for this machine.

Improper performance of lubrication or maintenance procedure is dangerous and could result in injury or death. Read and understand the OPERATORS MANUAL before performing any lubrication or maintenance.

The serviceman or mechanic may be unfamiliar with many of the systems on this machine. This makes it important to use caution when performing service work. A knowledge of the system and or components is important before the removal or disassembly of any component.

Because of the different size of some of the machine components, the serviceman or mechanic should check the weights noted in this Manual. Use proper lifting procedures when removing any components.

Following is a list of basic precautions that should always be observed.

1. Read and understand all Warning plates and labels on the machine before operating, lubricating or repairing this product.
2. Always wear protective glasses and protective shoes when working around machines. In particular, wear protective glasses when pounding on any part of the machine or its attachments with a hammer or sledge. Use welders gloves, hood/goggles, apron and other protective clothing appropriate to the welding job being performed. Do not wear loose-fitting or torn clothing. Remove all rings from fingers when working on machinery.
3. Disconnect battery and discharge any capacitors before starting to work on machine. Hang "Do Not Operate" tag in the Operator's Compartment.
4. If possible, make all repairs with the machine parked on a level, hard surface. Block machine so it does not roll while working on or under machine.
5. Do not work on any machine that is supported only by lift jacks or a hoist. Always use blocks or jack stands to support the machine before performing any disassembly.

**⚠ WARNING**

Do not operate this machine unless you have read and understand the instructions in the OPERATORS MANUAL. Improper machine operation is dangerous and could result in injury or death.

6. Relieve all pressure in air, oil or water systems before any lines, fittings or related items are disconnected or removed. Always make sure all raised components are blocked correctly and be alert for possible pressure when disconnecting any device from a system that utilizes pressure.
7. Lower the bucket, blade, ripper or other attachments to the ground before performing any work on the machine. If this cannot be done, make sure the bucket, blade, ripper or other attachments is blocked correctly to prevent it from dropping unexpectedly.
8. Use steps and grab handles when mounting or dismounting a machine. Clean any mud or debris from steps, walkways or work platforms before using. Always face machine when using steps, ladders and walkways. When it is not possible to use the designed access system, provide ladders, scaffolds, or work platforms to perform safe repair operations.
9. To avoid back injury, use a hoist when lifting components which weigh 20 kg (44 lbs) or more. Make sure all chains, hooks, slings, etc., are in good condition and are in the correct capacity. Be sure hooks are positioned correctly. Lifting eyes are not to be side loaded during a lifting operation.
10. To avoid burns, be alert for hot parts on machines which have just been stopped and hot fluids in lines, tubes and compartments.
11. Be careful when removing cover plates. Gradually back off the last two bolts or nuts located at opposite ends of the cover or device and pry cover loose to relieve any spring or other pressure, before removing the last two bolts or nuts completely.
12. Be careful when removing filler caps, breathers and plugs on the machine. Hold a rag over the cap or plug to prevent being sprayed or splashed by liquids under pressure. The danger is even greater if the machine has just been stopped because fluids can be hot.

**⚠ WARNING**

13. Always use tools that are in good condition and be sure you understand how to use them before performing any service work.
  14. Reinstall all capscrews with same part number. Do not use a lesser quality capscrew if replacements are necessary.
  15. Repairs which require welding should be performed only with the benefit of the appropriate reference information and by personnel adequately trained and knowledgeable in welding procedures. Determine type of metal being welded and select correct welding procedure and electrodes, rods or wire to provide a weld metal strength equivalent at least to that of parent metal. Always disconnect battery during welding operations to protect sensitive electric equipment.
  16. Do not damage wiring during removal operations. Reinstall the wiring so it is not damaged nor will it be damaged in operation by contacting sharp corners, or by rubbing against some object or hot surface. Do not connect wiring to a line containing fluid.
  17. Be sure all protective devices including guards and shields are properly installed and functioning correctly before starting a repair. If a guard or shield must be removed to perform the repair work, use extra caution.
  18. Loose or damaged fuel, lubricant and hydraulic lines, tubes and hoses can cause fires. Do not bend or strike high pressure lines or install ones which have been bent or damaged. Inspect lines, tubes and hoses carefully. Do not check for leaks with your hands. Pin hole (very small) leaks can result in a high velocity oil stream that will be invisible close to the hose. This oil can penetrate the skin and cause personal injury. Use cardboard or paper to locate pin hole leaks.
  19. Tighten connections to the correct torque. Make sure that all heat shields, clamps and guards are installed correctly to avoid excessive heat, vibration or rubbing against other parts during operation. Shields that protect against oil spray onto hot exhaust components in event of a line, tube or seal failure must be installed correctly.
  20. Do not operate a machine if any rotating part is damaged or contacts any other part during operation. Any high speed rotating component that has been damaged or altered should be checked for balance before reusing.
  21. On track-type machines, be careful when servicing or separating tracks. Chips can fly when removing or installing a track pin. Wear safety glasses and long sleeve shirts. Track can unroll very quickly when separated. Keep away from front and rear of machine. The machine can move unexpectedly when both tracks are disengaged from the sprockets. Block the machine to prevent it from moving.
  22. Caution should be used to avoid breathing dust that may be generated when handling components containing asbestos fibers. If this dust is inhaled, it can be hazardous to your health. Components in KOBELCO products that may contain asbestos fibers are brake pads, brake band and lining assemblies, clutch plates and some gaskets. The asbestos used in these components is usually bound in a resin or sealed in some way. Normal handling is not hazardous as long as airborne dust which contains asbestos is not generated.
- If dust which may contain asbestos is present, there are several common sense guidelines that should be followed.
- a. Never use compressed air for cleaning.
  - b. Avoid brushing or grinding of asbestos containing materials.
  - c. For clean up, use wet methods or a vacuum equipped with a high efficiency particulate air (HEPA) filter.
  - d. Use exhaust ventilation on permanent machining jobs.
  - e. Wear an approved respirator if there is no other way to control the dust.
  - f. Comply with applicable rules and regulations for the work place.
  - g. Follow environmental rules and regulations for disposal of asbestos.
  - h. Avoid areas where asbestos particles may be in the air.

## GENERAL PRECAUTIONS FOR REPAIR WORK

During repair work, the highest priority must be given to safety in work operations.

Observe the following general precautions.

- The machine shall be operated by operator licensed by the government in the country the machine will be used.  
Further, before use, read Operator's Manual and the control system described in this manual, and understand the operating procedure thoroughly.
- With clothing appropriate to the work, and be sure to wear safety work shoes, safety helmet, goggles, etc.
- Read Operator's Manual carefully, and understand the contents thoroughly, and carry out safe and correct maintenance.
- Park the machine on the flat ground and be sure to put the attachment on the ground to repair the machine.
- Before inspection and maintenance of machine, hang a warning plate "Don't operate" on a door or operating lever, and make safety arrangements before starting work and don't fail to make sure of the signal.
- Provide fire extinguisher and first-aid kit for accidents and fire, and confirm the where to make contact in case of emergency.
- Be sure to stop the engine before carrying out inspection and maintenance which may cause being involved in accident.
- Every part of machine is heated immediately after the engine stops. Take care not to get burnt.
- Before removing piping parts for hydraulic oil, air, cooling water, etc. release the pressure.
- Use the specified tools, and change or repair the damaged tools.
- When it is required to lift machine and working units to carry out the work, there is a danger of being caught in it.  
Be sure to support the machine with supports and blocks.
- Be sure to start the engine of which the parts are being cleaned in the thoroughly ventilated area.
- In case of repair by welding, it may cause fire and failure of electrical equipment. Remove battery cable and authorized personal must weld it by the optimum procedure.
- To remove material of heavy weight (20kg or more), lift it with crane and slinging accessories.
- Before inspection and maintenance of electric system, turn the power off by disconnecting the battery cable.
- When the hardened parts like bearing, pin, tooth, etc. are required to be struck, be sure to wear clothes with long sleeves and goggles to guard workers from the fragments.
- When the tire used is wrong, it may cause bursting and fragmentation of rim.  
When checking the air pressure of tire, and it is required to fill with air, perform it behind the tread, keeping away from the front side of the rim.
- The battery liquid contains dilute sulfuric acid. It may cause loss of eyesight and burn. When it is splashed on, clean with water for 10 minutes or more and take medical treatment.
- Dispose of industrial waste like waste oil, waste liquid, battery liquid, etc. following the prescribed provision.
- Particles of asbestos may cause lung cancer. Be careful not to use compressed air and not to draw particles of asbestos in.  
Parts requiring care : Brake band, clutch band, gasket
- For spare parts, and oil and grease, use KOBELCO genuine parts.

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7. WORK STANDARD .....	<b>YE07</b>

\* How to index sections in this manual

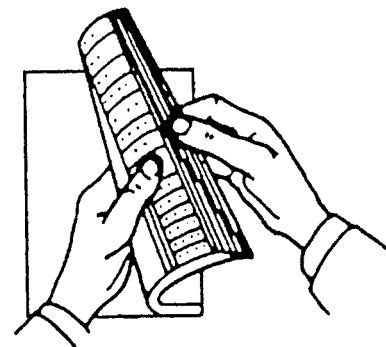
The general section in this manual is composed of 7 chapters as shown above, and every chapter can be indexed easily using the marks on the edge. This is useful for rapid reference.

### **⚠ WARNING**

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### **⚠ WARNING**

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# KOBELCO

# GENERAL

## SK100W-2 List of General Section in Manual

Index	Title	Book code No. Distribution date		
		LE01	SPECIFICATIONS	S5YE0102E 1999-8
—	OPERATION	Refer to Operators Manual S2YE1001E		
LE03	LOCATION AND WEIGHT OF COMPONENTS	S5YE0302E 1999-8		
LE04	MAINTENANCE STANDARDS AND TEST PROCEDURES	S5YE0402E 1999-8		
—	MAINTENANCE	Refer to Operators Manual S2YE1001E		
LE07	WORK STANDARD	S5YE0702E 1999-8		
	Applicable Machine	YE02001~		

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## SPECIFICATIONS

**YE01**

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Applicable Machines YE02001~

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