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## TO THE READER

This manual has been printed for a skilful engineer to supply the necessary technical information to carry out service operations on this machine.

Carefully read this manual to obtain correct information regarding repair procedures.

For any question or remark, or in case of any error in the contents of this manual, please contact:

**CNH ITALIA S.p.A.**  
Via Plava, 80  
10135 TORINO - Italia

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## REFERENCE

Beyond this Service Manual, also refer to the documents listed below:

- Operator's Manual
- Parts Catalogue

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## COMPLETE SERVICE MANUAL

The Service Manual consists of one volume:

- E45B SR - E50B SR - Service manual for "Hydraulic Mini Excavators"

The Service Manual for "Hydraulic Mini Excavators" contains the necessary technical information to carry out maintenance and repair operations on the machine, the necessary tools to carry out maintenance operations, the information on service standards, the procedures for removal, installation, disassembly and reassembly.

The Service Manual relevant to the excavator models **E45B SR - E50B SR** consists in the following volume, which is identified through the relevant print no. as reported below:

VOLUME	MACHINE TYPE	PRINT NUMBER
Service Manual for "Hydraulic Mini Excavators"	E45B SR E50B SR	84526500A

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### **AVOID ACCIDENTS**

Most of the accidents and injuries occurring in the factory, at home or on the road are caused by the failure to follow simple and fundamental safety rules or precautions. For this reason, **MOST ACCIDENTS CAN BE PREVENTED** by recognizing the real cause and taking the necessary precautions before the accident occurs.

With any type of machine, although well designed and constructed, it is not possible to absolutely exclude any possibility of accidents.

A careful and cautious operator and/or technician is the best insurance against accidents. The scrupulous observance of this one simple rule would prevent many thousands of serious injuries each year.

This precaution is: never attempt to clean, lubricate or service a machine with the engine running.

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### **WARNING**

Before carrying out any maintenance, adjustment or repair operation on machines equipped with attachments, controlled hydraulically or mechanically, make sure that the attachment is lowered and safely set on the ground. If it is necessary to have the attachment partially or fully raised to gain access to certain items, make sure the attachment is suitably supported by means other than the hydraulic lifting cylinders, the cables and/or the mechanical devices used for controlling the attachment.

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# **SAFETY PRECAUTIONS**

## GENERAL SAFETY INFORMATION

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### **⚠ WARNING**

Do not operate or perform any maintenance on this machine until all instructions found in the **OPERATOR'S MANUAL** have been thoroughly read and understood.

Improper operation or maintenance of this machine may cause accidents and could result in serious injury or death.

Always keep the manual in storage.

If it is missing or damaged, place an order with an authorized dealer/distributor for a replacement.

If you have any questions, please consult an authorized dealer/distributor.

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- (1) Most accidents occurring during operation are due to negligence of precautionary measures and safety instructions. Sufficient care should be taken to avoid these accidents. Erroneous operation, lubrication or maintenance services are very dangerous and may cause injury or death of personnel. Therefore all precautionary measures, NOTES, DANGERS, WARNINGS and CAUTIONS contained in this manual and on the machine should be read and understood by all personnel before starting any work with or on the machine.
- (2) Operation, inspection, and maintenance should be carefully carried out, and first priority must be given to safety. Messages of safety are indicated with marks. The safety information contained in this manual is intended only for supplement of safety codes, insurance requirements, local laws, rules and regulations.
- (3) Messages of safety appear in the manual and on the machine: All messages of safety are identified by the words "DANGER", "WARNING" and "CAUTION".
  - 1) **DANGER**- Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury and is represented as follows:

### **⚠ DANGER**

- 2) **WARNING**- Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury and is represented as follows:

### **⚠ WARNING**

- 3) **CAUTION**- Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against possible damage to the machine and its components and is represented as follows:

### **⚠ CAUTION**

- (4) It is very difficult to forecast every danger that may occur during operation. However, safety can be guaranteed by fully understanding the operating procedures for this machine according to the methods recommended by the Manufacturer.
- (5) While operating the machine, be sure to perform work with great care, so as not to damage the machine, or allow accidents to occur.
- (6) Continue studying this manual until all Safety, Operation and Maintenance procedures are completely understood by all persons working with the machine.

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## SAFETY PRECAUTIONS

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### **▲ WARNING**

The proper and safe lubrication and maintenance for this machine, recommended by Manufacturer, are outlined in the OPERATOR'S MANUAL for the machine.

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

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The serviceman or mechanic may be unfamiliar with many of the systems on this machine. This makes a careful use of the systems very important when performing maintenance operations. Sound knowledge of the system and or components is important before the removal or disassembly of any component.

Because of the 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. Weight of components table is shown in the section: TECHNICAL SPECIFICATIONS.

The following is a list of basic precautions that must always be observed.

- (1) Read and understand all Warning plates and decals on the machine before Operating, Maintaining or Repairing this machine.
- (2) Always wear protective glasses and protective shoes when working around machines. In particular, wear protective glasses when using hammers, punches or drifts on any part of the machine or attachments. Use welders gloves, hood/goggles, apron and the protective clothing appropriate to the welding job being performed. Do not wear loose fitting or torn clothing. Remove all rings from fingers, loose jewellery, confine long hair and loose clothing before working on this machinery.
- (3) Disconnect the battery and hang a "Maintenance in Progress" tag in the operator's seat. Remove starter key.
- (4) If possible, make all repairs with the machine parked on a level and firm surface. Block the machine so it does not roll while working on or under the machine. Hang a "Maintenance in Progress" tag in the operator's seat.

- (5) Do not work on any machine that is supported only by lift, jacks or a hoist. Always use blocks or stops for the jack before carrying out any disassembly operation.

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### **▲ WARNING**

**Do not operate this machine unless you have read and understood all instructions contained in this manual. Improper machine operation is dangerous and could result in injury or death.**

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- (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 under pressure.
- (7) Lower the bucket, dozer or other attachments to the ground before performing any work on the machine. If this cannot be done, make sure the bucket, blade or other attachment is blocked correctly to prevent it from dropping unexpectedly.
- (8) Use steps and grab handles when mounting or dismounting a machine. Remove any debris or mud from steps, walkways or work platforms before using them. Always face the 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 or more. Make sure all chains, hooks, slings, etc., are in good condition and are 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 and surfaces immediately after stopping the machine such as hot fluids in lines, tubes and compartment covers.
- (11) Be careful when removing cover plates. Gradually back off the last two capscrews or nuts located at opposite ends of the cover or device and carefully pry the cover loose to relieve any spring or other pressure, before removing the last two capscrews or nuts completely.

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