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HYDRAULIC EXCAVATOR

Workshop Manual

Print No. 604.13.557 English
III-2005



THIS ALERT SYMBOL SIGNALS IMPORTANT MESSAGES INVOLVING YOUR SAFETY.

Read and heed carefully the safety instructions listed and follow the precautions recommended to avoid potential risks and to safeguard your health and your safety.

You will find this symbol in the text of this Manual referred to the following key words:

WARNING - Caution involving potential consequences for the safety of the operator or other persons directly or indirectly involved.

DANGER - These warnings involve the safety of the operator or other persons directly or indirectly involved.

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IMPORTANT NOTICE

All maintenance and repair interventions explained in this Manual **must be performed exclusively by the Service Organisation of the Manufacturer**, observing strictly the instructions explained using, whenever necessary, the recommended specific tools.

Whoever performs the operations reported without following exactly the precautions is responsible on his own, for the damages that may result.

Neither the Factory nor any Organisations in its Distribution Network, including but not limited to national, regional or local distributors, are responsible for any liability arising from any damage resulting from defects caused by parts and/or components not approved by the Factory for use in maintaining and/or repairing products manufactured or merchandised by the Factory.

In any case, no warranty of any kind is made or shall be imposed with respect to products manufactured or merchandised by the Factory, when failures are caused by the use of parts and/or components not approved by the Factory.

AVOID ACCIDENTS

Most accidents, whether they occur in industry, on the farm, at home or on the road, are caused by the failure of some individuals to follow simple and fundamental safety rules and precautions. For this reason **MOST ACCIDENTS CAN BE PREVENTED** by recognising the real cause and doing something about it before the accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are many conditions that cannot be completely safeguarded against without interfering in the reasonable accessibility and efficient operation.

A careful operator is the best insurance against an accident. The complete observance of one simple rule would prevent many serious accidents.

The rule is simple: never attempt to clean, lubricate or maintain a machine while it is in motion.



WARNING

Prior to engaging in any maintenance, adjustment or repair operation on machines having hydraulically, mechanically, and/or cable controlled equipment (such as shovels, loaders, dozers, excavators etc.) be certain the equipment is lowered to the ground.

If it is necessary to have the equipment partially or fully raised to gain access to certain items, be sure the equipment is suitably supported by means other than the devices used for controlling the equipment.

PREFACE

To the reader

This Workshop Manual is written for the **Repair-Technician**. It provides important information on how to perform skilful repairs.

We recommend to consult the **Workshop Manual** and also the Hydraulic Excavator Operation and Maintenance Instruction Manual before initiating any repair-work operation. Utilize the **Workshop Manual** as well as the **Operation and Maintenance Instruction Manual** and the **Parts Catalog** as a prompt-book and adviser, even if the Hydraulic Excavator technique is become familiar. By means of the Workshop Manual the expert technician will be able to carry out a skilful repair-work operation.

Use

The Workshop Manual refers to the initial Machine configuration. Structural changes or rebuilding operations are not described in this Handbook. In this Workshop Manual the following information can be found:

- Safety Instructions;
- Technical Data and Special Tools;
- Functional Description;
- Performance Testing;
- Troubleshooting and Failure Correction;
- Repair Instructions.

In the Section **Safety Instructions** the recommended procedures are described, so that through the relevant compliance with, a risk of accident for the User and for the personnel responsible of the maintenance operations on the machine can be avoided.

In the Section **Technical Data** the Service Data, the change tables and lists of the needed Special Tools and Maintenance materials are indicated.

In other Sections, for each mechanical group, when available can be found:

- a functional description with information concerning the operation of the essential devices and equipments;

- information for carrying out the performance tests on the machine;
- troubleshooting, information concerning the recognition and correction of failures on the machine,
- technical information necessary for carrying out the Service and Repair operations on the Machine, the equipment necessary for the maintenance operations, the information concerning the Standards to be applied in the Maintenance operations, the Procedures for the Removal and Installation operations as well as for Disassembly and Assembly operations.

By means of the index contents a desired information can be easily achieved.

For a better understanding the illustration of the part will be displayed.

Therefore differences in arrangement of the Hydraulic Excavator are possible, whenever the latter involves the univocal capability of the information.

REPAIR OPERATIONS

Carry out the necessary repair works as soon as possible. This procedure will avoid the maintenance costs while increasing the availability of your Hydraulic Excavator.

Pay always attention during all works to the Workshop Manual warnings and cautions and to the Operation and Maintenance Instruction Manual.

The Service Assistance will gladly carry out for you the works not described in the Workshop Manual.

Always utilize the **Original Spare Parts** only.

FURTHER INFORMATION MATERIAL

Please notice the supplementary information consulting the following Handbooks:

- **Operation and Maintenance Instruction Manual**;
- **Parts Catalog**.

Warnings and symbols

The following signs are used in the Workshop Manual to designate exceptionally important information:



Precautionary rules and measures designed to protect the operator and other persons from life-threatening hazards or injury and to prevent extensive damage to property.



Information and precautionary measures designed to prevent damage to the machine and other property.

Risks resulting from failure to observe the safety instructions



This hydraulic excavator has been built in accordance with state-of-the-art standards and recognized safety regulations.

Nevertheless, its use may constitute a risk if it continues to be operated despite damage being suspected or having occurred, or if it is inexpertly repaired.

There is then a risk of

- life-threatening injury
- irreparable damage to the machine and other assets.

The hydraulic excavator must be stopped immediately if suspected damage or damage that has occurred affects the safety of the operator, other persons at the excavator deployment site, or other assets. All components are carefully coordinated. Trouble-free operation and a long service life are assured only if original spare parts are used.

SUMMARY

| | |
|---|----------------|
| SAFETY INSTRUCTIONS | SECT. 0 |
| TECHNICAL DATA AND SPECIAL TOOLS | SECT. 1 |
| MACHINE STRUCTURE | SECT. 2 |
| ELECTRICAL SYSTEM | SECT. 3 |
| ELECTRONICS | SECT. 4 |
| HYDRAULICS | SECT. 5 |
| CALIBRATION | SECT. 6 |
| TROUBLESHOOTING | SECT. 7 |
| REPAIR INSTRUCTIONS | SECT. 8 |

SECTION 0
SAFETY INSTRUCTION

INDEX

| | Page |
|--|-------------|
| SAFETY INSTRUCTIONS..... | 0-1 |
| Personal safety instructions | 0-1 |
| Observe the safety instructions..... | 0-1 |
| Protection from noise | 0-1 |
| Preparing for emergencies..... | 0-1 |
| Wearing protective clothing..... | 0-2 |
| Safety instructions before starting work..... | 0-3 |
| Checking the machine..... | 0-3 |
| Keeping the working area clean..... | 0-3 |
| Using grab handles and steps | 0-4 |
| Adjusting the operator's seat | 0-4 |
| Applying the safety belt | 0-5 |
| Working from the operator's seat only..... | 0-5 |
| Never take passengers on the machine | 0-5 |
| Safety instructions for machine operation..... | 0-6 |
| Before setting off | 0-6 |
| Note the position of the working equipment..... | 0-6 |
| Taking care during operation..... | 0-6 |
| Taking care when trenching | 0-7 |
| Distance from overhead power lines..... | 0-7 |
| Accident Prevention when reversing and slewing | 0-8 |
| Rules for driving on the road | 0-9 |
| Recovering and towing the machine | 0-9 |
| Travelling uphill and downhill | 0-10 |
| Preventing the machine from overturning | 0-11 |
| Inspecting the deployment location..... | 0-11 |
| Parking the machine safely | 0-12 |
| Preventing accidents when the machine is moving | 0-12 |
| Confirming the direction of machine travel..... | 0-12 |
| Avoid caving out high banks | 0-13 |
| Protection from rockfall and landslides | 0-13 |
| Caving prevention | 0-14 |
| Never move the bucket above persons | 0-14 |
| Safety instructions, maintenance/servicing..... | 0-15 |
| Safety during transport..... | 0-15 |
| Safety during servicing operations..... | 0-16 |
| Warning instructions for servicing work | 0-17 |
| Correct machine support..... | 0-17 |
| Working at greater heights..... | 0-18 |
| Keeping clear of moving parts | 0-18 |
| Prestressed units | 0-19 |
| Never remove lead seals | 0-19 |

| | |
|--|-------------|
| Safety instructions for accumulators | 0-19 |
| Dismantling components..... | 0-20 |
| After repair work..... | 0-20 |
| Correct waste disposal..... | 0-20 |
| Welding operations | 0-21 |
| Starting the engine with starter batteries | 0-22 |
| Prevention of acid-induced burns | 0-22 |
| Prevention of scalding..... | 0-23 |
| Safe handling of fluids..... | 0-23 |
| Fire prevention | 0-24 |
| Evacuation in case of fire..... | 0-25 |
| Risks from exhaust gases..... | 0-25 |
| Risks from fluids in pressure systems..... | 0-26 |
| Preventing heat build-up close to pressure systems | 0-27 |
| Preventing heat build-up in lines carrying combustible fluids | 0-27 |
| Removing paint before welding..... | 0-28 |
| Risks from breaking-away components | 0-29 |
| Use appropriate tools | 0-29 |
| Warning and instruction signs..... | 0-30 |
| Signs | 0-30 |
| Positioning of signs | 0-31 |
| Organizational measures | 0-32 |
| Selection and qualification of personnel; basic responsibilities | 0-33 |
| Safety instructions governing specific operational phases | 0-33 |
| Warning of special dangers | 0-35 |

SAFETY INSTRUCTIONS

Personal safety instructions

Observe the safety instructions



- Read carefully through all safety instructions attached to the machine and observe them; read all safety instructions in this manual in addition.
- Safety instruction stickers/plates must be affixed, maintained and replaced when necessary.
- If a safety instruction sticker/plate or this manual is damaged or missing, obtain a replacement from your dealer. The procedure is the same as when ordering spare parts (it is essential to quote the machine type and the serial number).
- Familiarize yourself with the correct, safety-oriented procedure for operating the machine and its control elements.
- Allow only trained, qualified and authorized persons to operate the machine.
- Keep the machine in good working order.
- Unauthorized modifications to the machine may affect its efficiency and/or safety and reduce its service life.
- The instructions given in this Safety Instructions section are designed to show the fundamental safety procedures for the machine. However, they cannot cover all hazardous situations with which you may be confronted. If in doubt, consult your immediate superior before operating the machine or carrying out servicing work.

Protection from noise



Sustained effects of noise may lead to impaired hearing or deafness.

Wear appropriate ear protectors such as earplugs or muffs for protection from disturbing or intolerable noise.

Preparing for emergencies



Be prepared for the event of a fire breaking out or an accident occurring.

Keep the first-aid box and the fire extinguisher readily accessible at all times.

Read the instructions for operating the fire extinguisher and learn how to use it properly.

Stipulate emergency procedures for the event of fire or accidents.

Keep the emergency numbers of doctors, emergency services, hospitals and the fire service in the immediate vicinity of the phone.

Wearing protective clothing



Wear close-fitting clothing and protective equipment suited to the work.

You need:

- a safety helmet
- safety footwear
- goggles or face guard
- protective gloves
- ear protectors
- reflective clothing
- waterproof clothing
- respirator or filtering mask.

Ensure that you wear the right equipment and clothing for the job.

- Never take risks.
- Never wear loosely fitting clothing, jewellery or other objects that might get caught on operating levers or other machine components.

Safe operation demands the operator's complete attention. Never wear headphones to listen to the radio or to music while operating the machine.



Thank you very much
for your reading.
Please click here
to get more information.