Service Manual

JS300, JS330, JS370 - Tracked Excavators - Tier 4i Isuzu Engine

Publication No.

9813/5100-1

Issued by JCB Technical Publications, JCB Aftermarket Training, Woodseat, Rocester, Staffordshire, ST14 5BW, England. Tel +44 1889 591300 Fax +44 1889 591400

World Class
Customer Support

Section 1

General Information

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Introduction

Identifying Your Machine

For information about identifying your machine and its main components, refer to ***Section 2, About the Machine, Machine and Component Identification***.

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Safety

Introduction

In this manual and on the machine there are safety notices.

The safety notices have different signal words as follows:

- DANGER
- WARNING
- CAUTION
- Notice

For an explanation of the safety notice signal words, refer to ***Section 2, Introduction, Safety***.

For general safety notices, refer to ***Section 2, Introduction, Safety***.

For maintenance safety notices, refer to ***Section 2, Maintenance, Maintenance Safety***.

For safety notices specific to maintenance procedures, refer to the relevant procedure.

If you do not fully understand a safety notice ask your employer to explain it.

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Use

Introduction

This topic contains information about the structure of the manual and how to use the manual.

Scope

Personnel

This manual is designed for the benefit of JCB Distributor Service Engineers who are receiving, or have received, training by JCB Technical Training Department.

These personnel should have a sound knowledge of workshop practice, safety procedures, and general techniques associated with the maintenance and repair of hydraulic earthmoving equipment. Finally, please remember above all else SAFETY MUST COME FIRST!

Applications

This manual contains data relevant to a range of machines. Make sure you reference the data for the correct machine.

Newest Data

From time to time new machines, systems or devices require the manual to be re-issued. Make sure you have the newest issue.

Always check the on-line JCB data system for relevant technical information.

Format

The manual is compiled in sections, the first two are numbered and contain information as follows:

1 **General Information** - The section includes general information such as torque settings and service tools.

2 **Operator Manual** - The section contains a copy of the applicable machine Operator Manual. Refer to this section when necessary for information about the main machine components and controls. Refer also to the safety and daily / weekly maintenance information.

The remaining sections are alphabetically coded and deal with dismantling, overhaul etc. of specific components, for example:

A **Attachments**

B **Body and Framework**...etc.

Each section contains data such as technical data, descriptions, fault finding and test procedures.

Some sections contain **procedures and specifications for different variants**. This happens because of market requirements, or when the machine specification changes after a period of time. Where applicable, a table contains information to help you identify the correct data and procedures.

Left Side, Right Side

In this manual, 'left' **A** and 'right' **B** mean your left and right when you are seated correctly in the machine.

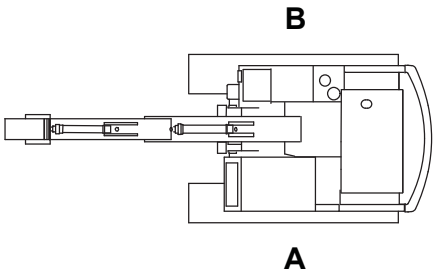

Fig 1.

Hydraulic Schematic Codes

Colour Codes

The following colour coding, used on illustrations to denote various conditions of oil pressure and flow, is standardised throughout JCB Service Publications.

Red	**Full Pressure**: Pressure generated from operation of a service. Depending on application this may be anything between neutral circuit pressure and LSRV operating pressure.
Pink	**Pressure:** Pressure that is above neutral circuit pressure but lower than that denoted by Red.
Orange	**Pilot:** Oil pressure used in controlling a device (Pilot).
Blue	**Neural:** Neutral circuit pressure.
Green	**Exhaust:**
Light Green	**Cavitation:** Oil subjected to a partial vacuum due to a drop in pressure (cavitation).
Yellow	**Lock Up:** Oil trapped within a chamber or line, preventing movement of components (lock up).

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Routine Maintenance

Maintenance Schedules

This publication contains procedures for carrying out the routine maintenance tasks listed on the maintenance schedules. Refer to ***Section 2, Maintenance Schedules***.

Operator tasks are given in ***Section 2, Maintenance***.

Additional service engineer tasks are given in the related sections of this publication. For example the procedures for engine related tasks are given in Section K.

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General Procedures

Introduction

When work is done on the machine it is important that the correct care is taken. This will help to prevent personal injury and reduce the risk of component failure.

As part of the procedures in this manual you will need to do some general procedures. Two examples of these general procedures are; parking the machine and making it safe, and venting hydraulic pressure.

These procedures are given here as an alternative to again and again in the manual. Where applicable you will see a cross reference to this section so that you can refer to the detailed procedures.

Parking the Machine and Making it Safe

For the correct procedures to park and make the machine safe, refer to ***Section 2, Maintenance, Maintenance Positions***.

Venting the Hydraulic Pressure

⚠ WARNING

Hydraulic Pressure

Hydraulic fluid at system pressure can injure you. Before disconnecting or connecting hydraulic hoses or couplings, vent the pressure trapped in the hoses in accordance with the instructions given in this publication.

HYD-1-5

For the correct procedures to vent the hydraulic pressure, refer to ***Section 2, Maintenance, Hydraulic System, General, Discharge***.

Connecting/Disconnecting Hydraulic Hoses

⚠ WARNING

Hydraulic Pressure

Hydraulic fluid at system pressure can injure you. Before disconnecting or connecting hydraulic hoses or couplings, vent the pressure trapped in the hoses in accordance with the instructions given in this publication.

HYD-1-5

For the correct procedures to connect/disconnect hydraulic hoses, refer to ***Section 2, Attachments, Connecting/Disconnecting Hydraulic Hoses***.

Battery Disconnection/Connection

For the correct procedures to disconnect/connect the battery, refer to ***Section 2, Maintenance, Electrical System, Battery***.

Removing and Replacing Components

Preparation

Before removing and replacing components do the following:

- To prevent contamination of the machine systems, clean the machines in the area of the applicable components. Refer to ***Section 2, Preservation and Storage, Cleaning the Machine***.
- Make sure that the correct maintenance procedures are available.
- Make sure that the correct tools and equipment are available.
- Make sure that the correct replacement parts, consumables, fluids and lubricants are available.

Original Components

Always Install new oil seals, gaskets, etc.

Components showing obvious signs of wear or damage should be replaced with new ones.

Before re-installing original components do the following:

- Clean components using the applicable cleaning materials.
- Inspect components for signs of excessive wear or defects.
- Check the component specifications such as wear limits where applicable.

New Components

Make sure that the correct new components are installed. Do not substitute components from another machine. Components may look the same but may not be interchangeable. Refer to the JCB parts systems.

Torques and Fixings

When replacing components always tighten the applicable fixings to the correct torque. For the torque setting to be effective do the following before installing the fixings:

- Make sure that all the applicable component assemblies are correct.
- Make sure that the applicable fixings are to the correct specification. If necessary discard the original fixings and replace them with new ones. The relevant procedures indicate when this is necessary.
- Make sure that the applicable fixings and threaded holes are free from contamination. This includes; dirt, debris, old sealants and compounds, fluids and lubricants.

This manual provides reference to the correct torque settings as follows:

- Where no torque setting is given in the applicable procedure, use the standard torque setting. To obtain the correct standard torque setting refer to ***Torque Settings*** in this section.
- Where torque settings are given in the applicable procedure use the settings given. These settings may be different to the standard torque settings in the case of special fixings for example.

Battery Charging System Precautions

Obey the procedures below to prevent damage to the alternator and battery.

- Ensure that the battery negative terminal is connected to the earthing cable.
- Never make or break connections to the battery or alternator, or any part of the charging circuit whilst the engine is running. Disregarding this instruction will result in damage to the regulator or rectifying diodes.
- Main output cables are 'live' even when the engine is not running. Take care not to earth connectors in the moulded plug if it is removed from the alternator.
- When arc welding on the machine, protect the alternator by removing the moulded plug (or if separate output cables fitted, remove the cables).
- Follow the correct procedures when jump starting the engine. Refer to ***Section 2***, ***Operation***, ***Moving a Disabled Machine***.

Gas Hydraulic Bladder Accumulators

Some hydraulic circuits and valve blocks are fitted with gas hydraulic bladder type accumulators.

Before removing accumulators make sure hydraulic pressure is vented. ⇒ *Venting the Hydraulic Pressure (1-15)*

Even when the hydraulic pressure is vented the accumulator still contains pressurised nitrogen gas. DO NOT attempt to discharge the gas pressure.

DO NOT transport accumulators charged with pressurised gas by air freight.

Replacement

Replacement accumulators are generally supplied in a discharged state with no nitrogen gas. A label attached to the accumulator indicates the gas charge state.

Charging

⇒ *Fig 1. (1-20)*

Important: *The following charging procedure is only applicable to accumulators supplied in a discharged state.*

To carry out the charging procedure the following is required:

- Pressurised bottle of nitrogen gas with a suitable pressure reducing valve (**3**).
- Correct gas bottle adaptor depending on territory.
- Charging kit 892/00239. Refer to ***Section 1***.

Operating charge pressures; accumulators are charged to different operating pressures depending on the application. For the correct charge pressure refer to the applicable system specifications.

Before fitting a replacement accumulator charge it with nitrogen gas as follows:

⚠ WARNING

Use only nitrogen gas to charge accumulators. The use of any other gas can cause the accumulators to explode. Remember that although nitrogen is not poisonous you can be killed by suffocation if it displaces the air in your workplace. Do not allow excessive quantities of nitrogen to be discharged into the atmosphere.

B-3-1-6

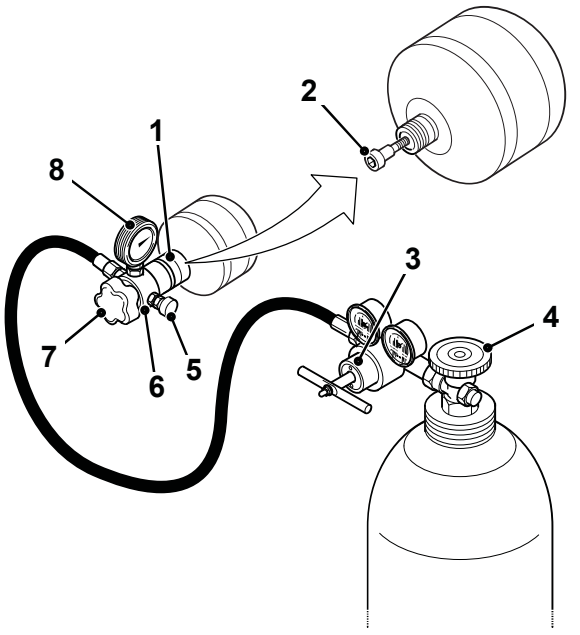

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Fig 1.

1 Hold the accumulator upright and remove the plastic cap from the top of the accumulator.

Note: *Some accumulators are supplied with a measured quantity of oil inside the gas chamber. Take care to prevent oil loss.*

2 Using a suitable allen key, slowly remove the filler plug **2**.

Lightly oil the sealing washer beneath. Replace the washer and plug. Loosen the plug by 1/8 of a turn.