Document Title:	Function Group:	Information Type:	Date:
Description, general	**900**	**Service Information**	**2014/8/11**
Profile: **EXC, EC240B LR [GB]**			

Description, general

The machine is equipped with a negative flow control system with variable flow. With this system, the working pump can deliver flow according to demand. A variable flow from the pump allows precision work even with high engine speed.
The hydraulic system, also known as the "Automatic Sensing Work Mode," is designed for high-productivity, high-digging capacity, high-maneuvering precision and excellent fuel economy. The summation system, boom, arm and swing priority along with boom and arm regeneration provides optimum performance.

The following important functions are included in the system:

- Summation system: Combines the flow of both hydraulic pumps to ensure quick cycle times and high productivity.
- Boom priority: Gives priority to the boom operation for faster raising when loading or performing deep excavations.
- Swing priority: Gives priority to swing functions for faster simultaneous operations.
- Regeneration system: Prevents cavitation and provides flow to other movements during simultaneous operations for maximum productivity.
- Power boost: All digging and lifting forces are increased.
- Holding valves: Boom and arm holding valves prevent the digging equipment from creeping.

The following functions are included in the main control valve :

- Boom
- Dipper arm
- Bucket
- Slew
- Travel
- Optional equipment, X1

The optional control valve has the following functions:

- Adjustable boom, X2
- Optional equipment, X3
- line rupture for boom and arm

Document Title: **Hydraulic system, description**	Function Group: **900**	Information Type: **Service Information**	Date: **2014/8/11**
Profile: **EXC, EC240B LR [GB]**			

Hydraulic system, description

The machine's hydraulic system is divided into two subsystems - the working hydraulic system and servo hydraulic system.

All power transmission is via hydraulic oil in the **working hydraulic system**.

A working pump supplies the main valve block with oil. The main valve block distributes the oil to the digging equipment's four (five split boom) hydraulic cylinders and the two hydraulic motors for travel and slew. The flow of oil to the different movements is controlled with valve spools in directional valves.

The **servo hydraulic system** is used for control.

A servo pump supplies the control levers and pedals with servo pressure. When the machine is operated, the control pressure valves reduce the servo pressure to a control pressure, which activates the directional valves.

Document Title:	Function Group:	Information Type:	Date:
Hydraulic oil, description	**900**	**Service Information**	**2014/8/11**
Profile: **EXC, EC240B LR [GB]**			

Hydraulic oil, description

The oil contains selected additives that provide good oxidation stability, corrosion protection and good lubricating characteristics as well as compatibility with bearings containing lead alloys.

The ester base gives the oil a very high viscosity index and good characteristics at low temperatures.

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Construction Equipment

Service Information

Document Title:	Function Group:	Information Type:	Date:
Hydraulic system, repair of hydraulic components in workshop	**900**	**Service Information**	**2014/8/11**
Profile: **EXC, EC240B LR [GB]**			

Hydraulic system, repair of hydraulic components in workshop

- Always wear clean coveralls and be strict about personal cleanliness.
- Work on hydraulic components should be performed separate from other work in a so-called "clean room". The room must have good ventilation and the floor must be coated with a binding material. Machining, grinding and similar work is not allowed in the "clean room".
- The workplace must be equipped with thoroughly cleaned tools and suitable containers for cleaning hydraulic components.
- Containers for cleaning hydraulic components must not be used for other cleaning. The containers must be cleaned frequently and filled with new fluid. The containers must be equipped with a removable grating on the bottom, which separates the component from any sludge on the bottom.
- Always clean components that are going to be handled in the "clean room". If an alkaline detergent is used, it should contain anti-corrosion agent.
- Always plan work on the hydraulic system so that it can be completed without any longer interruptions.
- When cleaning during repairing – use dry and clean compressed air for drying, do not use cotton waste or rags.
- Always plug a component when work is completed, use clean plastic plugs of the correct dimensions, and pack the component.
- When cleaning in the "clean room" – use methods that do not stir up dust or dirt.

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Construction Equipment

Service Information

Document Title:	Function Group:	Information Type:	Date:
Hydraulic oil, storage and handling	**900**	**Service Information**	**2014/8/11**
Profile: **EXC, EC240B LR [GB]**			

Hydraulic oil, storage and handling

- Hydraulic oil should be stored in tightly sealed tanks or barrels.
- Only containers used for transporting hydraulic oil should be used for this purpose.
- Oil should be stored under cover or in temperature-controlled premises. If oil is stored outdoors, the barrels should be stored horizontally so that water cannot enter and the barrel markings are not eradicated.
- Oil must not be stored at temperatures exceeding 60 °C, or be exposed to direct sunlight or freezing temperatures.

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Construction Equipment

Service Information

Document Title:	Function Group:	Information Type:	Date:
Hydraulic system, cleanliness when handling hydraulic components	**900**	**Service Information**	**2014/8/11**
Profile: **EXC, EC240B LR [GB]**			

Hydraulic system, cleanliness when handling hydraulic components

WARNING

Hot hydraulic oil and hydraulic oil under pressure may result in severe personal injuries

NOTICE

It is very important to keep the hydraulic system free from any impurities, as these can cause abnormal wear and may lead to expensive downtime. Greatest possible cleanliness should be maintained during all handling of hydraulic components and hydraulic oil.

NOTE!

A vacuum pump should be used for work on the hydraulic system, see 900 Vacuum pump, connection.

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Construction Equipment

Service Information

Document Title:	Function Group:	Information Type:	Date:
Hydraulic components, storage and transport	**900**	**Service Information**	**2014/8/11**
Profile: **EXC, EC240B LR [GB]**			

Hydraulic components, storage and transport

- All hydraulic components must be stored in plastic bags or film and they must be plugged. The packaging must not be opened before use of the component.
- Service vehicles should be equipped with an interior which facilitates good order and cleanliness.
- Each service vehicle should carry a roll of plastic film, plastic plugs of the most common sizes and plastic containers for components. Plugs and film should be of the disposable type.

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Construction Equipment

Service Information

Document Title:	Function Group:	Information Type:	Date:
Hydraulic system, work instructions	**910**	**Service Information**	**2014/8/11**
Profile: **EXC, EC240B LR [GB]**			

Hydraulic system, work instructions

- Always wear clean coveralls and be strict about personal cleanliness.
- Perform thorough troubleshooting to avoid unnecessary repair work.
- If necessary, move the machine, to as dust-free an environment as possible.
- If possible, do not dismantle components in the field. Use exchange components.
- Protect both replaced components and components that are to be reused by wrapping them in plastic film.
- If the tank is to be drained, and the oil has been found to be free of discolouration and impurities – drain the oil into clean containers, and seal securely. Refilling of this oil or filling of new oil should always be performed by removing the hydraulic oil filter cap and then filling through the filter.
- Use a suitable fluid when cleaning and pour it into a thoroughly cleaned container.

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Construction Equipment

Service Information

Document Title: **Hydraulic components, description**	Function Group: **910**	Information Type: **Service Information**	Date: **2014/8/11**
Profile: **EXC, EC240B LR [GB]**			

Hydraulic components, description

This machine incorporates the features and functions described below in its hydraulic circuit in order to provide easier operation, greater safety, higher productivity, and better fuel economy.

Function of components

Purpose	Component	Function	Feature
Ease of operation and safety	Travel	• Controlled by servo hydraulic pressure • Straight travel • Low speed, low/high speed automatic shift	• Straight travel during simultaneous operations. • Automatic shifting between low and high speed.
	Slew	• Slew priority circuit (during simultaneous slew and arm in) • Automatic slew parking brake • Rebound damping function	• Easier digging due to the use of simultaneous slew and arm in. • Delayed slew parking brake application during slew to allow for inertia. • Damping by rebound damping valve.
	Digging units	• Controlled by servo hydraulic pressure • Boom, arm regenerating circuit • Holding valve (boom, arm lock) • Heavy lift and heavy duty digging	• Fine operation. • Changing the balance between boom, arm and bucket functions. • Decreasing the amount of natural fall of boom when the boom is at rest. • Increasing the working pressure by increasing the pressure of main relief valve.
	Others	• Closed and semi automatically pressurized hydraulic tank • Suction strainer • Return line: filter and drain filter • Servo hydraulic circuit: line filter • Hydraulic oil cooled by oil cooler • Emergency circuit	• Contamination of hydraulic oil prevented, suction ability of pump improved. • Damage of hydraulic components prevented. • Contamination of hydraulic oil prevented. • Servo hydraulic operated circuit failure prevented. • Deterioration of hydraulic oil prevented. • If engine stopped, movable by weight of digging units.

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