SERVICE MANUAL

LOADER
422ZX

EN - 9813/8400 - ISSUE 3 - 09/2018

This manual contains original instructions, verified by the manufacturer (or their authorized representative).

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Foreword

The Operator's Manual

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You and others can be killed or seriously injured if you operate or maintain the machine without first studying the Operator's Manual. You must understand and follow the instructions in the Operator's Manual. If you do not understand anything, ask your employer or JCB dealer to explain it.

Do not operate the machine without an Operator's Manual, or if there is anything on the machine you do not understand.

Treat the Operator's Manual as part of the machine. Keep it clean and in good condition. Replace the Operator's Manual immediately if it is lost, damaged or becomes unreadable.

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Check (Operation)

The EMS (Electronic Monitoring System) will display an error code in the event of any fault in the transmission system. The code will be displayed on the top line of the EMS display panel in the following format.

ZFCB ERROR?

Table 182. ZF Error Codes

Fault Code	Serial Parameter No.	Failure Mode Indicator	Description of Fault Code	Reaction of the gearbox ECU (Electronic Control Unit)	Repair Procedures
10	5001	12	A logical error at direction select signal 3rd shift lever		
			• The gearbox ECU senses an incorrect signal combination for the direction • A cable from the shift lever to the gearbox ECU is broken. • A cable is defective, it has a short circuit to the battery or earth. • The shift lever is defective.	• Gearbox ECU shifts the transmission to neutral • OP Mode: Transmission shutdown	• Check the cables from the gearbox ECU to the shift lever 3. • Check the signal combinations at the shift lever positions F-N-R. • If the shift lever is a CAN (Controller Area Network) shift lever check CAN cable/shifter/device.
11	5000	12	A logical error for the selected gear range		
			• The gearbox ECU senses an incorrect signal combination for the selected gear range: • A cable from the shift lever to the gearbox ECU is broken. • A cable is defective, it has a short circuit to the battery or earth. • The shift lever is defective.	• Gearbox ECU shifts the transmission to neutral • OP Mode: Transmission shutdown	• Check the cables from the gearbox ECU to the shift lever • Check the signal combinations at the shift lever positions for the gear range. • Make a note that a failure can not be detected in a system with a DW2/DW3 shift lever. The fault is reset if the gearbox ECU senses the correct signal for that shift lever position.
12	5010	12	A logical error for the selected direction		
			• The gearbox ECU senses an incorrect signal combination for the selected gear range: • A cable from the shift lever to the gearbox ECU is broken. • A cable is defective. It has a short circuit to the battery or earth. • The shift lever is defective.	• Gearbox ECU shifts the transmission to neutral • OP Mode: Transmission shutdown	• Check the cables from the gearbox ECU to the shift lever. • Check the signal combinations at the shift lever positions F-N-R. • Make a note that the fault is reset if the gearbox ECU senses the correct signal for that shift lever position.
13	5020	12	A logical error at the engine derating device		

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Introduction

Complex hydraulic components and circuits can be described to the engineer by using graphical symbols. The tables illustrate and give a brief description for some of the more common symbols used.

There are many symbols in use and it would be impossible to include them all here. However it should be noted that most are only variations or refinements on the basic principles explained here. If more detailed information is required you are recommended to obtain a copy of BS2917 or IS01219.

Once familiar with the symbols, the engineer can use hydraulic circuit diagrams as an aid to fault finding. It will be possible to see the complete hydraulic circuit and decipher the relationship between hydraulic components.

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Technical Data

Table 295.

Fluid/Lubricant	Capacity	International Specifications	Service Interval	JCB Part No.
Fuel System				
Diesel (Main tank)	125L	Refer to (PIL 75-18).	As required	
Diesel (Auxiliary tank)	75L	Refer to (PIL 75-18).	As required	
Fuel additive	0.09L per 80L of fuel	FAST Exocet X01236D	As required	4005/0801[1]
Engine				
Engine oil[3]	14L	SAE 15W40 API CI4+	Every 500h	4001/3200[2]
		JCB Engine Oil FE 5W30		4001/3300[1]
Coolant	23L	JCB Coolant ready to use JIS K2234 class II (Non Aminic)	Every 2,000h	4006/1115[1, 2]
Transmission				
Transmission oil[2, 4]	21L	UTTO oil (JCB HP Gear oil plus)	First 100h/Every 1,000h	4000/2200[1, 2]
		JCB HP Universal ATF		4000/2300[1, 2]
		ZF TE-MIL 06, 11, 12, 14		
		API-GL-3 SAE 10W30		
Axle				
Axle oil	23L per axle	UTTO oil (JCB HP Gear oil plus)	First 100h/Every 1,000h	4000/2200[1, 2]
		JCB HP Universal ATF		4000/2300[1, 2]
		ZF TE-MIL 06, 11, 12, 14		
		API-GL-3 SAE 10W30		
Hydraulic System				
Hydraulic oil[3]	125L	HVI Hydraulic oil ISO VG46	Every 2,000h	229/00024[2]
		JCB Hydraulic oil HP 32, ISO grade 32		4002/1000[1]
Grease Points				

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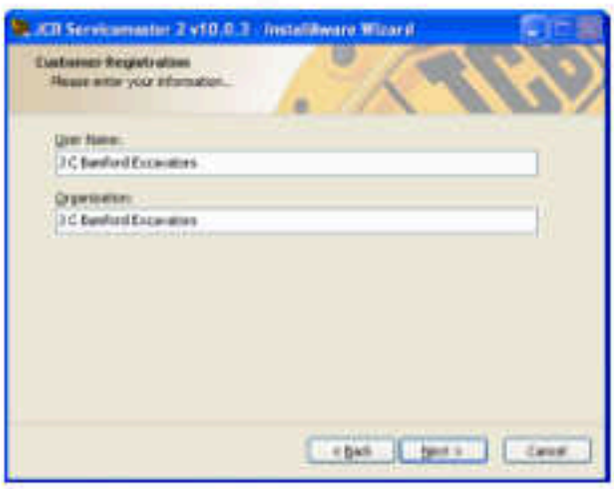
Figure 926.



9. Put "User Name" and "Organization" details into the "Customer Registration" screen. Refer to Figure 927.

   9.1. Click the "Next" option when you inserted details.

Figure 927.



10. Select all the "Setup Type" screen options for the complete installation. Refer to Figure 928.

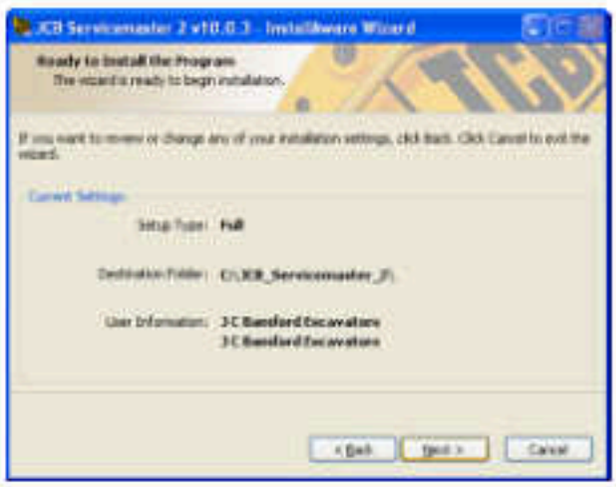
Figure 928.



11. The "Ready to Install this Program" screen will show you its setup location in your computer. Refer to Figure 929.

   11.1. Click the "Next" option to start installation.

Figure 929.



12. The language "Error" windows will appear on the screen during the installation process. Refer to Figure 930.

   12.1. Click the "Ignore" option to skip the error windows.

   12.2. These language "Error" windows will be installed after through the web update of Servicemaster.

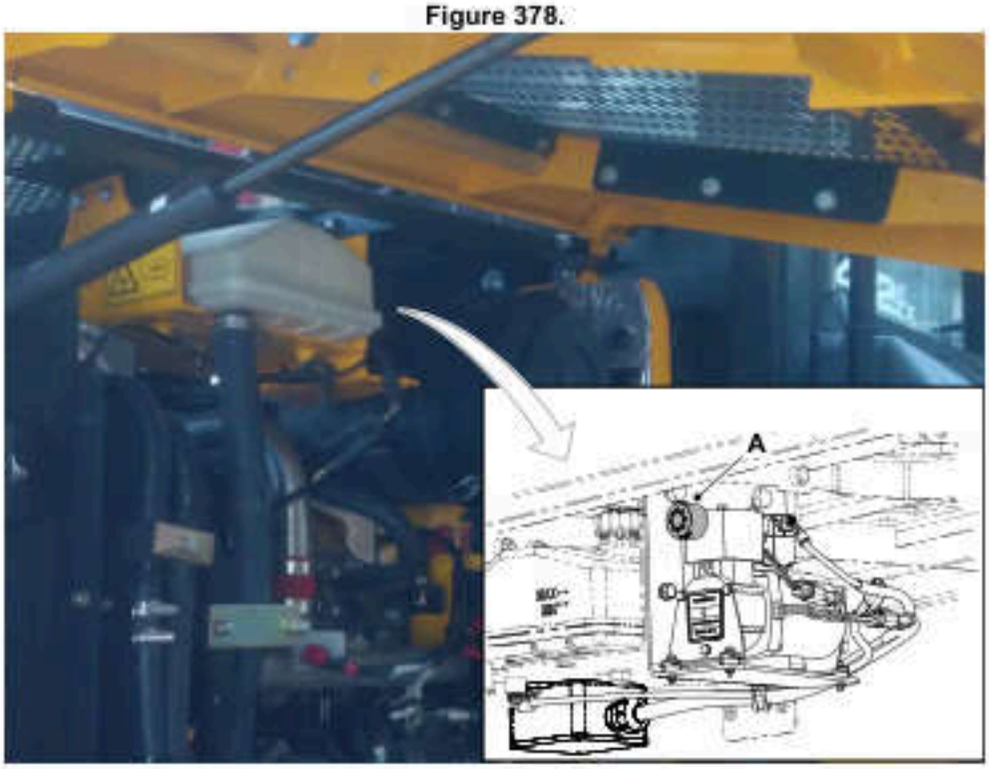
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Remove and Install

Remove

1. Make the machine safe. Refer to (PIL 01-03).
2. Isolate the battery. Refer to (PIL 33-03).
3. Make sure that the engine is safe to work on. If the engine has been running, let it cool before you start the service work.
4. Open the engine compartment cover. Refer to (PIL 06-06).
5. Remove and discard the compressor air filter.

Figure 378.



A Compressor air filter

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