Service Manual

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

Section 1 - General Information

Section 2 - Operator's Manual

Section B - Body and Framework

Section C - Electrics

Section E - Hydraulics

Section F - Transmission

Section J - Track and Running Gear

Section K - Engine



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Contents Page No.

Introduction
Identifying Your Machine 1-1

Safety
Introduction 1-3

Use
Introduction 1-5
Scope 1-6
Format 1-7
Left Side, Right Side 1-8
Hydraulic Schematic Codes 1-9

Routine Maintenance
Maintenance Schedules 1-11

General Procedures
Introduction 1-13
Parking the Machine and Making it Safe 1-14
Venting the Hydraulic Pressure 1-15
Connecting/Disconnecting Hydraulic Hoses 1-16
Battery Disconnection/Connection 1-17
Removing and Replacing Components 1-18
Battery Charging System Precautions 1-19
Gas Hydraulic Bladder Accumulators 1-20

Service Consumables
Introduction 1-23
Sealing and Retaining Compounds 1-24

Torque Settings
Introduction 1-25
Zinc Plated Fasteners and Dacromet Fasteners 1-26
Hydraulic Connections 1-30
'Positional Type' Hydraulic Adaptors 1-34

Service Tools
Numerical List 1-35
Tool Detail Reference 1-38

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Contents **Page No.**

Acronyms Glossary viii

Introduction
About this Manual
Model and Serial Number 1
Using the Manual 1
Left-Hand Side, Right-Hand Side 1
Cross References 1
Safety
Safety - Yours and Others 2
Safety Warnings 2
General Safety 3
Clothing and Personal Protective Equipment (PPE) 4

About the Product
Introduction
General 5
Name and Address of the Manufacturer 5
Product Compliance 5
Description
General 6
Intended Use 6
Log Moving/Object Handling 6
Optional Equipment and Attachments 6
Danger Zone 6
Main Component Locations 7
Product and Component Identification
Machine 8
Engine 9
Operator Protective Structure 10
Safety Labels
General 12
Safety Label Identification 12
Operator Station
Component Locations 15
Console Switches
General 16
Work Lights 16
Beacon 16
Seat Heater 16
Seat Ventilation 17
Control Locks 17
Excavator Arm Quickhitch 17
Radio Mute 17
Engine Stop Switch 17
Manual Regeneration 17
Slew Lock 17
Cushion 18
Window Washer 18
Window Wipers 18

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Front Lower Window Wiper 18
Interior Switches
Ignition Switch 19
Cab Interior Light 19

Operation
Introduction
General 21
Operating Safety
General 22
Worksite Safety 24
Risk Assessment 25
Walk-Around Inspection
General 27
Entering and Leaving the Operator Station
General 28
Emergency Exit 30
Doors
Operator Door 31
Windows
Front Window 33
Side Window 34
Sun Visor/Sunblind
Sunblind 36
Before Starting the Engine
General 38
Operator Seat
General 40
Suspension Seat 40
Heated Seat Controls 42
Seat Ventilation Controls 42
Seat Belt
General 43
Inertia Reel Seat Belt 43
Static Seat Belt 44
Mirrors
General 47
Starting the Engine
General 52
Immobiliser 53
Warming Up 54
Stopping and Parking
General 56
Preparing for Travel
General 57
Preparing for Worksite Travel 57
Beacon 58
Locks
General 59
Control Lock 59
Drive Controls
Track Controls 61

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Fluids, Lubricants and Capacities

General

JCB recommend that you use the JCB lubricants shown as they have been verified by JCB for use on JCB machines. However, you could use other lubricants that are equivalent to the JCB standards and quality or offer the same machine component protection.

Table 60. Fluids, Lubricants and Capacities

Item	Capacity	Fluid/Lubricant	JCB Part Number	Container Size [1]
Fuel Tank	590L	Diesel	-	-
Engine (Oil)[2]	51L	JCB Ultimate Performance 15W40 API CJ-4, ACEA E6, E9, JASO DH-2[3]	4001/2905	20L
Cooling System	45L	JCB Antifreeze HP/Coolant	4006/1120	20L
Track Gearbox (each)	5L	JCB HD90 Gear Oil	4001/0301	5L
Slew Gearbox	14.5L	JCB HD90 Gear Oil	4000/0305	20L
Track Rollers and Idler Wheels		JCB HD90 Gear Oil	4000/0305	20L
Recoil Spring Cylinder		JCB Special HP Grease	4003/2017	0.4kg
Hydraulic System	430L	JCB Hydraulic Fluid HP32-20°C (-4°F) to 15°C (59°F)	4002/1024	200L
		JCB Hydraulic Fluid HP46-10°C (14°F) to 30°C (86°F)	4002/0803	200L
		JCB Hydraulic Fluid HP680°C (32°F) to 40°C (104°F)	4002/0701	200L
Slew Ring Bearings		JCB Special HP Grease	4003/2017	0.4kg
Slew Ring Gear Teeth		JCB Special HP Grease	4003/2017	0.4kg
All Other Grease	As required	JCB Special HP Grease	4003/2006	12.5kg

(1) For information about the different container sizes that are available (and their part numbers), contact your local JCB dealer.
(2) Do not use ordinary engine oil.
(3) Failure to use oil of the correct specification will decrease the life of the engine and the diesel particulate filter.

Fuel

⚠ **WARNING** Where low sulphur fuels are used it is important that lubricity additives are used.

CAUTION A combination of water and sulphur will have a corrosive chemical effect on fuel injection equipment. It is essential that water is eradicated from the fuel system when high sulphur fuels are used.

NOTICE Consult your fuel supplier or JCB dealer about the suitability of any fuel you are unsure of.

The quality and grade of fuel can seriously affect the service life of the fuel system. It is vitally important that the correct grade of fuel is used, a high standard of fuel storage is maintained and the use of old fuel is avoided.

Fuel Specification

Tier 4 Fuels

- JIS (Japanese Industrial Standard) Based on K2204 Type 2 or 3 (SPL).
- DIN (Deutsche Industrie Normen) Based on EN590:2009
- ASTM (American Society for Testing and Materials) Based on D975: 2009 NO, 1-D S15 or NO,2-D S15 (below 15 ppm)
- CGSB (Canada General Standards Board) Based on CGSB-3.515
- BS (British standard) Based on EN590:2009

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Table 10. Error Code 8 - Evaporator Temperature Sensor Error

Effect	Causes	Remedy
The unit cannot cool the cab The compressor disengages.	There is no temperature signal from the sensor to ATC control module.	Check the continuity between pin1 on the evaporator temperature sensor to pin 23 on ATC control module.
	There is a bad earth on the evaporator temperature sensor.	Check for good earth as shown on schematic.
	There is a defective sensor.	Make sure the sensor connections are correct. Replace the evaporator temperature sensor.

Table 11. Error Code 9 - Outlet Temperature Sensor Error

Effect	Causes	Remedy
The fan speed stays at maximum in AUTO mode. The manual mode blower operates as normal.	There is no temperature signal from the sensor to ATC control module.	Check the continuity between pin1 on the outlet temperature sensor to pin 22 on ATC control module.
	There is a bad earth on The outlet temperature sensor.	Check for good earth as shown on schematic.
	There is a defective sensor	Make sure the sensor connections are correct. Replace the outlet temperature sensor.

Table 12. Error Code E19 - No Communications Between User Interface / Control Panel and ATC Control Module.

Effect	Causes	Remedy
The unit cannot cool the cab / The compressor disengages.The ATC / Heater control does not operate.The fan speed stays at maximum in Auto mode / The fan speed operates as normal in Manual mode.	Wiring Error	Check power at pins on User Interface and ATC control module.
		Check Earth at pins on User Interface and ATC control module.
		Check the Continuity between the wires that connect the User Interface and the ATC control module.
	Connector Error	Check the connector plugs between User Interface and ATC control module are in good condition.
	Defective user interface / Control panel or ATC control unit	Replace the defective unit

Table 13. PWM Failure (No Fault Code Displayed)

Effect	Causes	Remedy
The unit cannot cool the cab / The compressor disengages.Fan speed unable to adjust in both auto and manual modes (fan speed defaults to max or min.) Temperature will be on maximum hot or maximum cold and unable to change.	Wiring Error	Check power and earths on PWM as shown on schematic.
		Expected readings for inputs to WM during normal operation.Pin 5 and Pin 6 Minimum 0.016 volts to maximum 11.18 volts

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Load Assist Valve

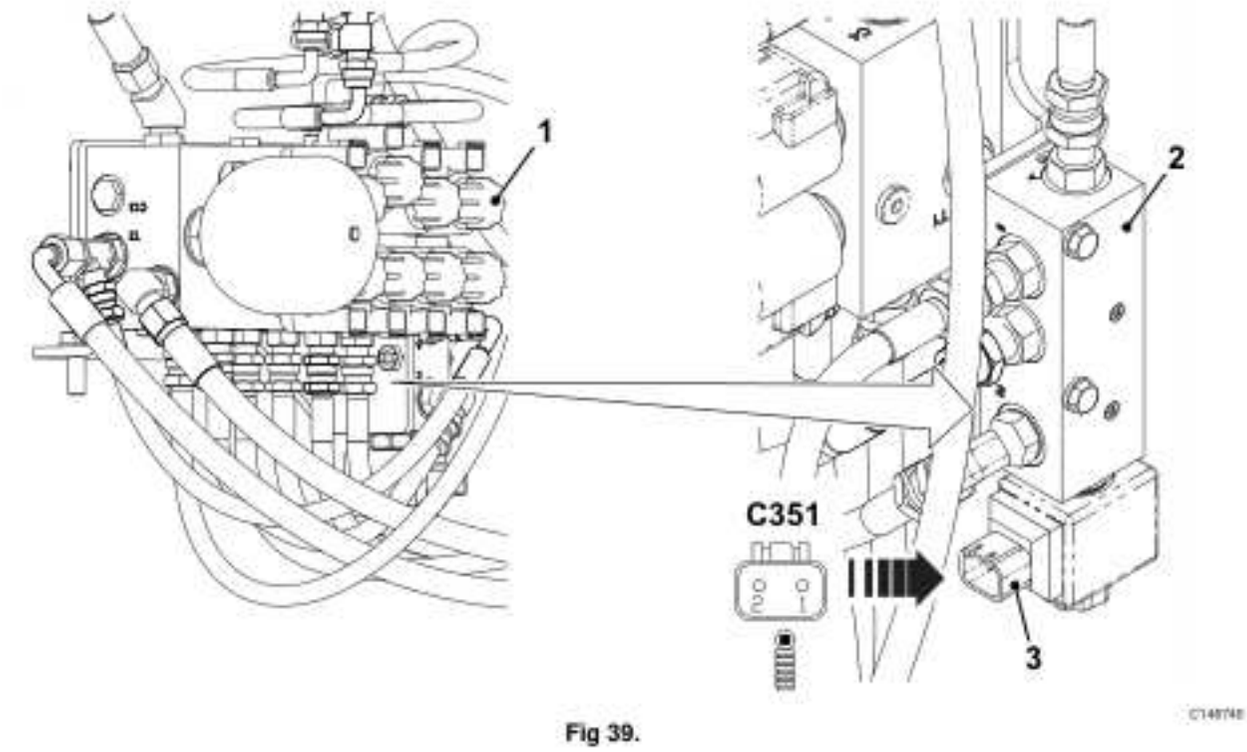


Fig 39.

⇨ *Load assist valve - hydraulic schematic (C-100)*

⇨ *Load assist valve - electrical schematic (C-101)*

The load assist solenoid valve **2** is located next to the 8 station solenoid valve block **1**.

The solenoid **3** is connected to the MECU via harness connector C351. The MECU energises and de-engergises the solenoid in response to a CANbus message from the engine ECU. The solenoid will automatically energise during manual or forced regeneration of the DPD particle filter.

The valve is connected in the hydraulic negative control line from the main control valve to pump 2. During normal operation the solenoid is de-energised and it allows free flow of the control signal to pass to pump 2 from Ps2 on the main control valve. The pump regulation system operates normally.

When the solenoid **9** energises, oil at servo pressure flows to the poppet valve **15A** via the 8 station valve block **60**. The poppet valve spool moves and blocks the negative control line connected to port Pi2 at pump 2. The pump control pressure decays and brings the pump onto full flow.

With the pump on full flow the engine load increases, this has the effect of raising the exhaust gas temperature to enable effective regeneration of the particle filter in the DPD.

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Fig 7.

7 Lift out 2nd Reduction Sun Gear.



Fig 8.

8 Remove the O-ring from the ring gear. ⇨ *Fig 9. (E-155)*.



Fig 9.

9 Lift out 2nd Reduction Planet gear assembly.



Fig 10.

10 Remove ring gear ⇨ *Fig 11. (E-156)*.

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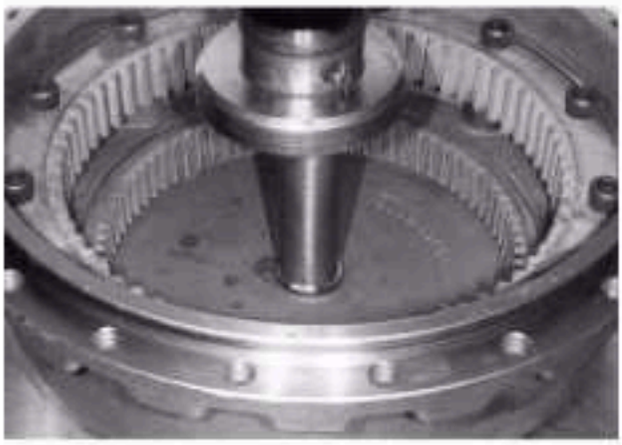


Fig 108.

22 Install Bonfig tool 6689969020 on the end cover (6) and using lifting tackle place the end cover (6) on the gearbox housing (13).



Fig 109.

23 Tighten the 20 M12 x 35 socket head screws (1), with a torque wrench to 130 Nm.



Fig 110.

24 Insert the M22 x 1,5 plugs (3) and the washers (2) into the oil draining-filling holes of the end cover (6).Tighten the plugs with a torque wrench to 60-70 Nm.



Fig 111.

25 Use pliers to assemble the circlip (20) into its seat in the coupling (19).

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