Service Manual

JS330 - Tier II and Tier III Auto

Section 1 - General Information

Section 2 - Care and Safety

Section 3 - Routine Maintenance

Section B - Body & 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
About this Manual 1-1
Identifying Your Machine 1-3

Torque Settings
Zinc Plated Fasteners and Dacromet Fasteners 1-5
Hydraulic Connections 1-9

Service Tools
Numerical List 1-13
Tool Detail Reference 1-16

Service Consumables
Sealing and Retaining Compounds 1-37

Terms and Definitions
Colour Coding 1-39

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Contents **Page No.**

Routine Maintenance

Service Requirements 3-1
Health and Safety 3-3
Service Schedules 3-7
Fluids, Lubricants and Capacities 3-16
Tools 3-28
Prepare the Machine for Maintenance 3-29
Cleaning the Machine 3-30
Checking for Damage 3-32
Daily Checking 3-34
Greasing 3-36
Electrical System 3-39
Bolt and Nut Torque Specifications 3-47
Engine 3-56
Fuel System 3-74
Hydraulic System 3-80
Slew Gearbox 3-92
Tracks and Running Gear 3-93
Bucket 3-96
Windscreen Washer 3-97
Fire Extinguisher (If fitted) 3-98
Troubleshooting 3-99

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Contents Page No.

Technical Data
Static Dimensions B-1
Shipping Weight B-4
Dig Depth Chart B-5
Air Conditioning (option) B-8

Basic Operation
Air Conditioning System B-9

Fault Finding
Air Conditioning B-19

Service Procedures
HVAC/Air Conditioning Unit B-31
Air Conditioning Compressor B-33
Cab Structure B-34

Cab Panels
Cab Panel Removal B-43

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Fault Diagnosis (General)

Note: *The method of testing the EMS, and ECU-1 input and output voltages is shown in Section C Service procedures.*

Note: *K Connector Identification (T C-176).*

Permanent Battery Supply (Ignition Off)

ECU-1 permanent battery supply can be measured at harness Connector B, Pin 6 (24 v+).

EMS permanent battery supply can be measured at the harness Connector, Pin 13 (24 v +).

Ignition On

E.CU-1 ignition supply can be measured at harness Connector B, Pin 5 (24 v +).

E.CU-1 output voltages can be measured at harness Connector B, Pins 1, 2, 7, 8, 13, 14, 19, 20.

EMS ignition supply can be measured at the harness Connector, Pin 16 (24 v +).

Ground Tests.

E.CU-1 grounds can be tested at harness Connector B, Pins 11,17, 23, and harness Connector C, Pins 9, 10.

E.MS grounds can be tested at the harness Connector, Pins 14, 17, 18.

Can - Bus Network Tests.

If all 3 travel mode symbols flash together, this would indicate a Can - Bus Network problem, use the Harness Tests and the Unit Tests to identify the faulty component.

Harness Tests.

Check for continuity between:

EMS harness Connector Pin 6 and ECU1. harness Connector B, Pin 21.

Check for continuity between EMS harness Connector Pin 7 and ECU1 harness Connector B, Pin 15.

Check the resistance between Pin 7 and Pin 8 at the - Diagnostic Connector where the Data Link Adaptor Service Tool connects to the machine **71-B**. The value should be 60 ohms, + / - 5 ohms.

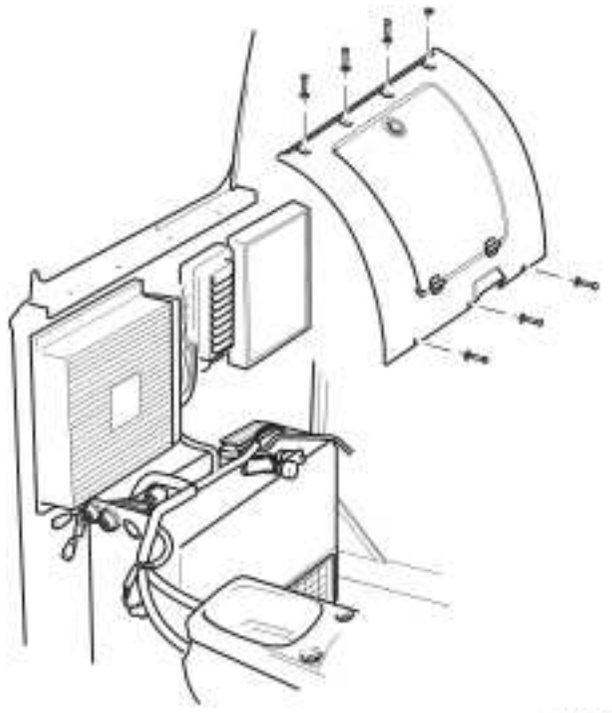


Fig 70.

Unit Tests.

Check the resistance between Pin 6 and Pin 7 on the EMS. unit, the reading should be 120 ohms + / - 10 ohms.

Check the resistance between Pin 15 and Pin 21 on the ECU-1 unit connector **71-B**, the reading should be 120 ohms + /- 0 ohms.

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Regulator

Specifications

Displacement	97.2 (96.5) cm^3
Revolving Speed Range	Rated 2070 (2200) rev/min
Pressure	Rated 318 bar (4608 lb/in^2) Max. 343 bar (4978 lb/in^2)
Maximum Flow Rate	201 (211) l/min (44.2 (46.4) UK gal/min) Rated revolution load pressure 78.5 bar (1138 lb/in^2)
Minimum Flow Rate	50 (50) l/min (11 (11) UK gal/min) Rated revolution load pressure 78.5 bar (1138 lb/in^2)
Input Horsepower	91.9 (113) kW (125 (154) PS)
Maximum Input Torque	426 (482) Nm (314 (356) lb/ft)
Control Function	Full horsepower control
	Power shift control
	Negative flow control
	Q max. cut control
Other	KHI 10 cm^3/rev (0.61 in^3/rev) with gear pump
	Proportional pressure reducing valve (KDRDE5PR-10/40C04)

Proportional Pressure Reducing Valve

Max. primary pressure	39.2 bar (569 lb/in^2)
Max. back pressure (allowable pressure)	9.79 bar (142 lb/in^2)
Secondary pressure setting range	39.2 bar (0-569 lb/in^2) at primary press.= 39.2 bar (569 lb/in^2)
Max. flow rate	6 l/min (1.32 UK gal/min)
Electrical specifications:	
Rated current	800 mA
Coil resistance (at 20°C)	13.5 +/-0.7 Ω
Recommended fluctuation of proportional solenoid current	70 ~ 75 Hz, 400 ~ 600 mA

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Main Control Valve

Table 1.

Symptoms	Possible Causes	Countermeasures
Spool sticking	1. Oil temperature is abnormally high.	Remove the obstruction.
	2. Hydraulic oil is dirty	Replace the hydraulic oil and clean the circuit at the same time.
	3. Port connector is tightened too much	Check the torque.
	4. Valve housing is deformed due to installation	Loosen the installation bolt and check.
	5. Pressure is too high	Attach pressure gauge to pump port and ram port and check the pressure.
	6. Spool is bent	Replace the valve assembly.
	7. Return spring is damaged	Replace the damaged parts.
	8. Spring or cap is not on straight	Loosen the cap and after aligning, tighten.
	9. Temperature inside valve is not even.	Warm up the circuit.
Spool does not stroke	1. Valve is clogged inside with dirt	Remove the dirt (flushing).
Load cannot be maintained	1. Oil leakage from the ram	Check the ram.
	2. Oil is by-passing from the valve spool	Replace the valve assembly.
	3. Oil leakage from the port relief valve	Remove the port relief from the housing and clean the housing seat and relief valve seat.
	4. Oil leakage from the lock valve	Disassemble the lock valve and clean the poppet seat and sleeve, plug seat. If the seat is damaged, replace the poppet, or lap the poppet and seat.
When the spool is selected from neutral to raise position, the load falls.	1. Foreign matter in load check valve	Disassemble the check valve and clean.
	2. Check valve poppet or seat damaged	Replace the poppet or lap the poppet and seat part.

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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-143)*.



Fig 9.

9 Lift out 2nd Reduction Planet gear assembly.



Fig 10.

10 Remove ring gear ⇨ *Fig 11. (E-144)*.

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Fig 1.

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