WHEELED EXCAVATOR

SERVICE MANUAL

HW210

HYUNDAI

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CONTENTS

SECTION 1 GENERAL

Group 1 Safety Hints 1-1
Group 2 Specifications 1-9

SECTION 2 STRUCTURE AND FUNCTION

Group 1 Pump Device 2-1
Group 2 Main Control Valve 2-21
Group 3 Swing Device 2-48
Group 4 Travel Motor 2-59
Group 5 RCV Lever 2-65
Group 6 Accelerator Pedal 2-72
Group 7 Brake Pedal 2-73
Group 8 Transmission 2-75
Group 9 Travel Control Valve 2-82
Group 10 Steering Valve 2-84
Group 11 Axle 2-86

SECTION 3 HYDRAULIC SYSTEM

Group 1 Hydraulic Circuit 3-1
Group 2 Main Circuit 3-2
Group 3 Pilot Circuit 3-5
Group 4 Single Operation 3-14
Group 5 Combined Operation 3-29

SECTION 4 ELECTRICAL SYSTEM

Group 1 Component Location 4-1
Group 2 Electrical Circuit 4-3
Group 3 Electrical Component Specification 4-24
Group 4 Connectors 4-33

SECTION 5 MECHATRONICS SYSTEM

Group 1 Outline 5-1
Group 2 Mode selection System 5-3

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Group 3 Automatic Deceleration System 5-6
Group 4 Power Boost System 5-7
Group 5 Travel Speed Control System 5-8
Group 6 Automatic Warming Up Function 5-9
Group 7 Engine Overheat Prevention Function 5-10
Group 8 Variable Power Control System 5-11
Group 9 Attachment Flow Control System 5-12
Group 10 Boom Floating Control System 5-13
Group 11 Intelligent Power Control System 5-14
Group 12 Anti-Restart System 5-16
Group 13 Self-Diagnostic System 5-17
Group 14 Engine Control System 5-53
Group 15 EPPR Valve 5-54
Group 16 Monitoring System 5-59
Group 17 Fuel Warmer System 5-94

SECTION 6 TROUBLESHOOTING

Group 1 Before Troubleshooting 6-1
Group 2 Hydraulic and Mechanical System 6-4
Group 3 Electrical System 6-25
Group 4 Mechatronics System 6-41

SECTION 7 MAINTENANCE STANDARD

Group 1 Operational Performance Test 7-1
Group 2 Major Components 7-19
Group 3 Track and Work Equipment 7-28

SECTION 8 DISASSEMBLY AND ASSEMBLY

Group 1 Precautions 8-1
Group 2 Tightening Torque 8-4
Group 3 Pump Device 8-7
Group 4 Main Control Valve 8-30
Group 5 Swing Device 8-52
Group 6 Travel Motor 8-82
Group 7 Transmission 8-106
Group 8 Steering Valve 8-160

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Group 9 Front Axle 8-185
Group 10 Rear Axle 8-256
Group 11 RCV Lever 8-298
Group 12 Turning Joint 8-312
Group 13 Boom, Arm, Bucket, Dozer and Outrigger Cylinders 8-318
Group 14 Work Equipment 8-339

SECTION 9 COMPONENT MOUNTING TORQUE

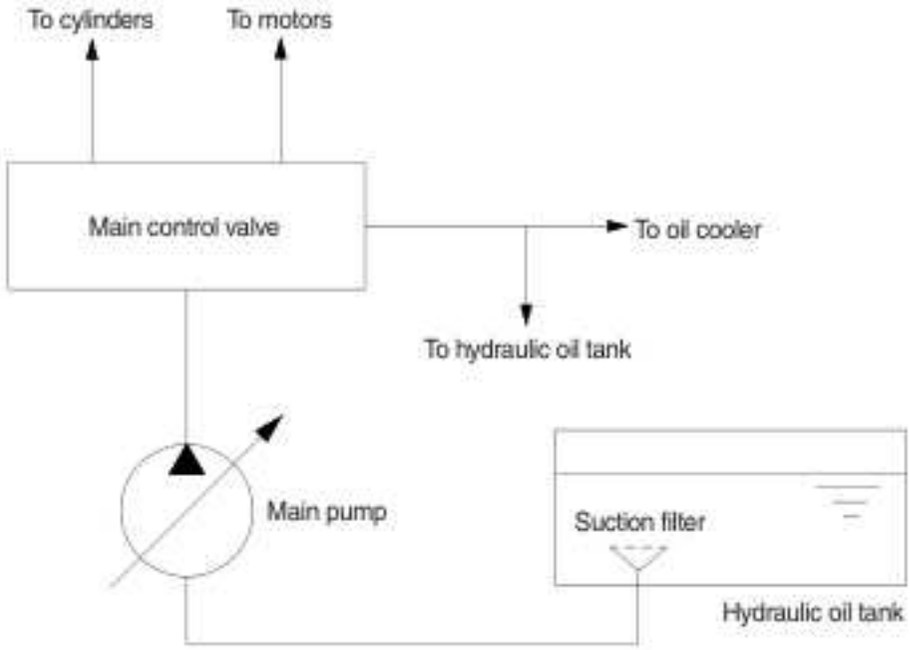
Group 1 Introduction Guide 9-1
Group 2 Engine System 9-2
Group 3 Electric System 9-4
Group 4 Hydraulic System 9-6
Group 5 Power train System 9-9
Group 6 Structure 9-11
Group 7 Work Equipment 9-15

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GROUP 2 MAIN CIRCUIT

The main hydraulic circuit consists of suction circuit, delivery circuit, return circuit and drain circuit.
The hydraulic system consists of one main pump, one control valve, one swing motor, four cylinders and two travel motors.
The swash plate type variable displacement axial piston pump is used as the main pump and it is driven by the engine at ratio 1.0 of engine speed.

1. SUCTION AND DELIVERY CIRCUIT



3-2 (290LC-7)

The pumps receive oil from the hydraulic tank through a suction filter. The discharged oil from the pump flows into the control valve and goes out the tank ports.
The oil discharged from the main pump flows to the actuators through the control valve.
The control valve controls the hydraulic functions.
The return oil from the actuators flows to the hydraulic tank through the control valve and the oil cooler.

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Fault code J1939 SPN J1939 FMI	Reason	Effect (only when fault code is active)
4691 5585 18	Engine injector metering rail 1 cranking pressure - Data valid but below normal operating range - Moderately severe level. The fuel rail pressure during cranking is too low for the engine to start.	Engine may not start or may be difficult to start.
4713 5357 31	Engine fuel injection quantity error for multiple cylinders - Condition exists. A malfunction of all fuel injectors has been detected.	Engine may run rough, may stop running, may not start, or may be difficult to start.
4726 1239 16	Engine fuel leakage - Data valid but above normal operating range - Moderately severe level. Fuel rail pressure decay has been detected.	Engine may run rough, may stop running, may not start, or may be difficult to start.
4727 157 15	Injector metering rail 1 pressure - Data valid but above normal operating range - Least severe level. A self pumping condition has been detected in the fuel system.	Possible reduced engine performance.
4731 3031 13	Aftertreatment diesel exhaust fluid tank temperature sensor - Out of calibration. The received datalink message was not valid.	Possible reduced engine performance.
4732 1761 13	Aftertreatment diesel exhaust fluid tank level sensor - Out of calibration. The received datalink message was not valid.	None on performance.
4739 1761 11	Aftertreatment 1 diesel exhaust fluid tank level sensor - Root cause not known. An unknown error has been detected with the aftertreatment diesel exhaust fluid tank level sensor.	Possible reduced engine performance.
4769 1761 10	Aftertreatment 1 diesel exhaust fluid tank level sensor - Abnormal rate of change. A valid diesel exhaust fluid tank level reading has NOT been received.	Possible reduced engine performance.
4865 6303 3	Engine coolant level 2 sensor circuit - Voltage above normal, or shorted to high source. High signal voltage detected at the engine coolant level 2 circuit.	None on performance.
4866 6303 4	Engine coolant level 2 sensor circuit - Voltage below normal, or shorted to low source. Low signal voltage detected at the engine coolant level 2 circuit.	None on performance.
4956 520750 13	Engine variable geometry turbo (VGT) software - Out of calibration. VGT software does not match application.	Possible reduced engine performance.
4957 520750 31	Engine variable geometry turbo (VGT) software - Condition exists. The VGT actuator and ECM software is not compatible.	Possible reduced engine performance.

※ Some fault codes are not applied to this machine.

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(2) Read dimension II (pinion dimension).

Dim. II e.g. . . . . 116.00 mm

In case of a + or - deviation of the pinion dimension for production reasons, the respective value is marked by hand on the pinion.

Pinion dim. (without + or – deviation) = 116.0 mm

Pinion dim. with + 0.1 deviation value = 116.1 mm

Pinion dim. with - 0.1 deviation value = 115.9 mm



17W99PA0078

(3) Determine dimension III (bearing width).

* Make sure that the rollers are located without any play (rotate bearing inner ring several times in both directions roller setting).

Since the installed roller bearing is subject to a preload in installation position, deduct an experience value of 0.1 mm.

Dimension III, e.g. 36.60 mm - 0.1 mm = 36.50 mm

(S) Gage blocks 5870 200 066



17W99PA0079

(4) Calculation example :

Dimension I . . . . . 154.05 mm
Dimension X . . . . . - 152.50 mm
Difference = shim s = 1.55 mm

Place the determined shim (e.g. thickness = 1.55 mm) into the inner bearing hole.



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3) ASSEMBLING PINION GEAR SUB ASSY

(1) Prepare drive shaft pinion gear vertical with ground.

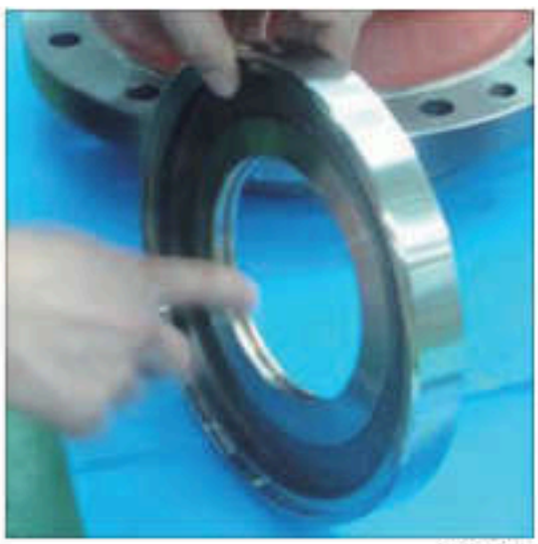


2209A03M21

(2) Fully apply grease (albania EP02) to O-ring groove of sleeve.

※ Be sure to maintain it vertical with ground when assembling it.

(3) Put O-ring into O-ring groove of sleeve. Fully apply grease on O-ring.



2209A03M22

(4) Assemble taper bearing and sleeve into drive shaft using press jig.
Use special jig for pressing. Leave no space between sleeve and taper bearing.



2209A03M23

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3) DISASSEMBLY

The figure in ( ) shown after the part name in the explanation sentence shows its number in the structure figures (8-31~32).

(1) Place control valve on working bench.

※ Disassemble it in clean place and pay attention not to damage flange faces and plate faces.



(2) Disassembling of main spools

- Travel (301), dozer (312), bucket (304), swing (305), option (308), arm 2 (306), boom 2 (307), swing priority (311).

① Loosen the hexagon the socket head bolts (273) and remove the spring cover (201, 202) and the O-ring (261).

- Hexagon key wrench : 6 mm



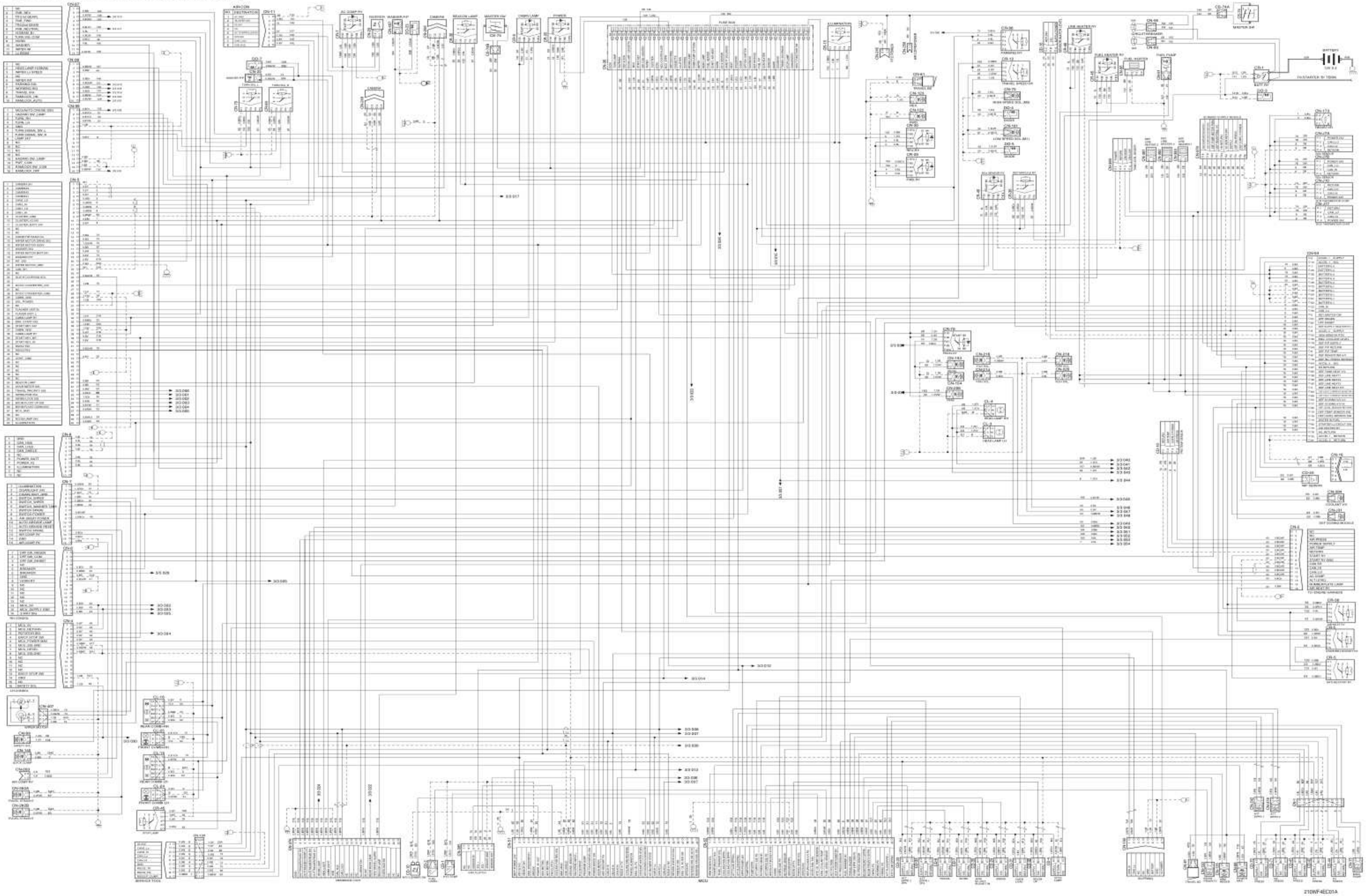
② Pull out the spool, spring, spring seats (322), stopper (335 or 339) and spacer bolt (336) in the spool assembly condition from the casing.

※ When pulling out the spool assembly from housing, pay attention not to damage the housing.



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ELECTRICAL CIRCUIT (1/6, SERIAL NO. : -#0230)



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