CRAWLER EXCAVATOR

SERVICE MANUAL

R300LC-7

HYUNDAI

MidWestTech | Hyundai R300LC-7 Crawler Excavator Service Manual | Publication R300L...

Order the manual at mid-west-tech.com >

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 2-44
Group 4 Travel Device 2-55
Group 5 RCV Lever 2-64
Group 6 RCV Pedal 2-71

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 3-13
Group 5 Combined Operation 3-23

SECTION 4 ELECTRICAL SYSTEM

Group 1 Component Location 4-1
Group 2 Electrical Circuit 4-3
Group 3 Electrical Component Specification 4-20
Group 4 Connectors 4-28

SECTION 5 MECHATRONICS SYSTEM

Group 1 Outline 5-1
Group 2 Mode selection System 5-3
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 Anti-Restart System 5-11
Group 9 Self-Diagnostic System 5-12

MidWestTech | Hyundai R300LC-7 Crawler Excavator Service Manual | Publication R3... Order the manual at mid-west-tech.com >

Group 10 Engine Control System 5-15
Group 11 EPPR(Electro Proportional Pressure Reducing) Valve 5-21
Group 12 Monitoring System 5-24
Group 13 Fuel System 5-37

SECTION 6 TROUBLESHOOTING

Group 1 Before Troubleshooting 6-1
Group 2 Hydraulic and Mechanical System 6-4
Group 3 Electrical System 6-24
Group 4 Mechatronics System 6-40

SECTION 7 MAINTENANCE STANDARD

Group 1 Operational Performance Test 7-1
Group 2 Major Components 7-21
Group 3 Track and Work Equipment 7-29

SECTION 8 DISASSEMBLY AND ASSEMBLY

Group 1 Precaution 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 8-41
Group 6 Travel Device 8-65
Group 7 RCV Lever 8-98
Group 8 Turning Joint 8-113
Group 9 Boom, Arm and Bucket Cylinder 8-118
Group 10 Undercarriage 8-135
Group 11 Work Equipment 8-147

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 Undercarriage 9-9
Group 6 Structure 9-10
Group 7 Work equipment 9-14

MidWestTech | Hyundai R300LC-7 Crawler Excavator Service Manual | Publication R3... Order the manual at mid-west-tech.com >

8. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	HYUNDAI D6AC-C
Type	4-cycle turbocharged diesel engine
Cooling method	Water cooling
Number of cylinders and arrangement	6 cylinders, in-line
Firing order	1-5-3-6-2-4
Combustion chamber type	Direct injection type
Cylinder bore × stroke	130 × 140mm(5.12" × 5.51")
Piston displacement	11149cc(680cu in)
Compression ratio	17 : 1
Rated gross horse power(SAE J1995)	217Hp at 1900rpm(162kW at 1900rpm)
Maximum torque	96.9kgf · m(701lbf · ft) at 1400rpm
Engine oil quantity	27.3 ℓ (7.2U.S. gal)
Dry weight	920kg(2028lb)
High idling speed	2050 ± 20rpm
Low idling speed	800 ± 50rpm
Rated fuel consumption	157.5g/Hp · hr at 1900rpm
Starting motor	MANDO 24V-5.5kW
Alternator	VALEO MANDO 24V-70A
Battery	2 × 12V × 160Ah

2) MAIN PUMP

Item	Specification
Type	Variable displacement tandem axis piston pumps
Maximum pressure	330kgf/cm² (4690psi)[360kgf/cm² (5120psi)]
Rated oil flow	2 × 260 ℓ /min (68.7U.S. gpm/ 57.2U.K. gpm)

[ ]: Power boost

MidWestTech | Hyundai R300LC-7 Crawler Excavator Service Manual | Publication R3... Order the manual at mid-west-tech.com >

GROUP 2 HYDRAULIC AND MECHANICAL SYSTEM

1. INTRODUCTION

1) MACHINE IN GENERAL

(1) If even a minor fault is left intact and operation is continued, a fatal failure may be caused, entailing a large sum of expenses and long hours of restoration.
Therefore when even a small trouble occurs, do not rely on your intuition and experience, but look for the cause based on the troubleshooting principle and perform maintenance and adjustment to prevent major failure from occurring. Keep in mind that a fault results from a combination of different causes.

(2) The following lists up commonly occurring faults and possible causes with this machine. For the troubleshooting of the engine, refer to the coming troubleshooting and repair.

(3) When carrying out troubleshooting, do not hurry to disassemble the components.
It will become impossible to find the cause of the problem.

(4) Ask user or operator the following.
① Was there any strange thing about machine before failure occurred?
② Under what conditions did the failure occur?
③ Have any repairs been carried out before the failure?

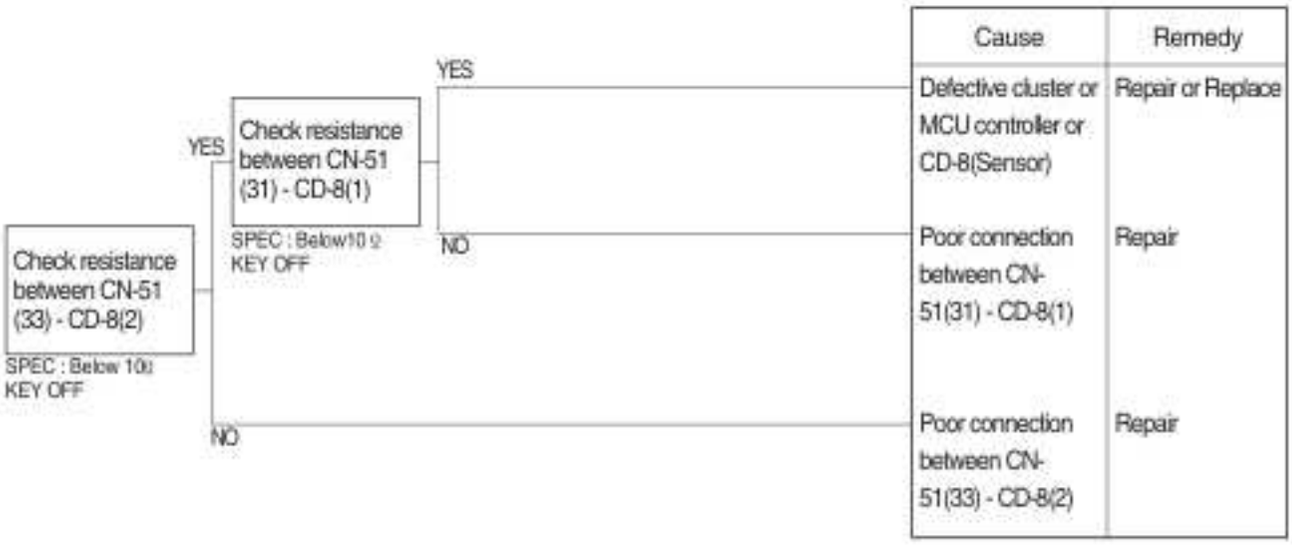
(5) Check before troubleshooting.
① Check oil and fuel level.
② Check for any external leakage of oil from components.
③ Check for loose or damage of wiring and connections.

MidWestTech | Hyundai R300LC-7 Crawler Excavator Service Manual | Publication R3... Order the manual at mid-west-tech.com >

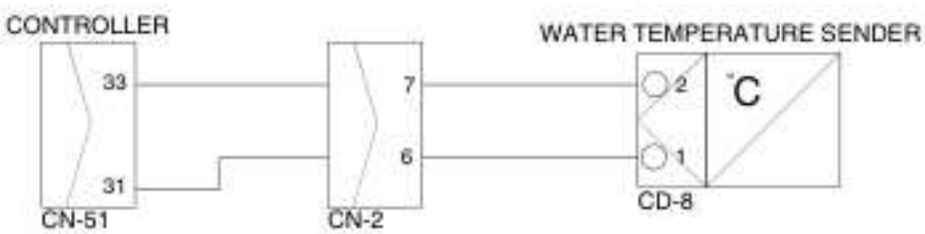
7. MALFUNCTION OF WARMING UP

※ Before carrying out below procedure, check all the related connectors are properly inserted.

1) INSPECTION PROCEDURE



Wiring diagram



MidWestTech | Hyundai R300LC-7 Crawler Excavator Service Manual | Publication R3... Order the manual at mid-west-tech.com >

(28)Assemble piston ring(30), piston ring 252(30) and 278(31) into brake piston(29).



(29)Assemble brake piston into shaft casing.

※ Be careful of the direction of assembling brake piston.



(30)Assemble brake spring(32).

※ Quantity : Spring-10pieces, Holes-11pieces

※ Do not assemble on the top of brake piston.



(31)Insert O-ring(69), after fastening orifice screw(4) with standard torque.

- Quantity and size : (4)2 pieces-ø 1.0
  (56)1pieces-ø 1.5
- Tightening torque : 7kgf · m (50.63lbf · ft)



MidWestTech | Hyundai R300LC-7 Crawler Excavator Service Manual | Publication R3... Order the manual at mid-west-tech.com >

3) Warning of main operation screen

(1) Warning display

① Engine coolant temperature



- This lamp blinks and the buzzer sounds when the temperature of coolant is over the normal temperature 105°C(221°F) .
- Check the cooling system when the lamp blinks.

② Fuel level



- This lamp blinks and the buzzer sounds when the level of fuel is below 40 ℓ (10.6 U.S. gal).
- Fill the fuel immediately when the lamp blinks.

③ Hydraulic oil temperature



- This warning lamp operates and the buzzer sounds when the temperature of hydraulic oil is over 105 °C(221 °F) .
- Check the hydraulic oil level when the lamp blinks.
- Check for debris between oil cooler and radiator.

④ All gauge



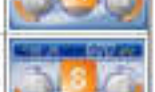
- This lamp blinks and the buzzer sounds when the all gauge is abnormal.
- Check the each system when the lamp blinks.

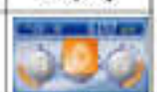
⑤ Communication error



- Communication problem between MCU controller and cluster makes the lamp blinks and the buzzer sounds.
- Check if any fuse for MCU burnt off. If not check the communication line between them.

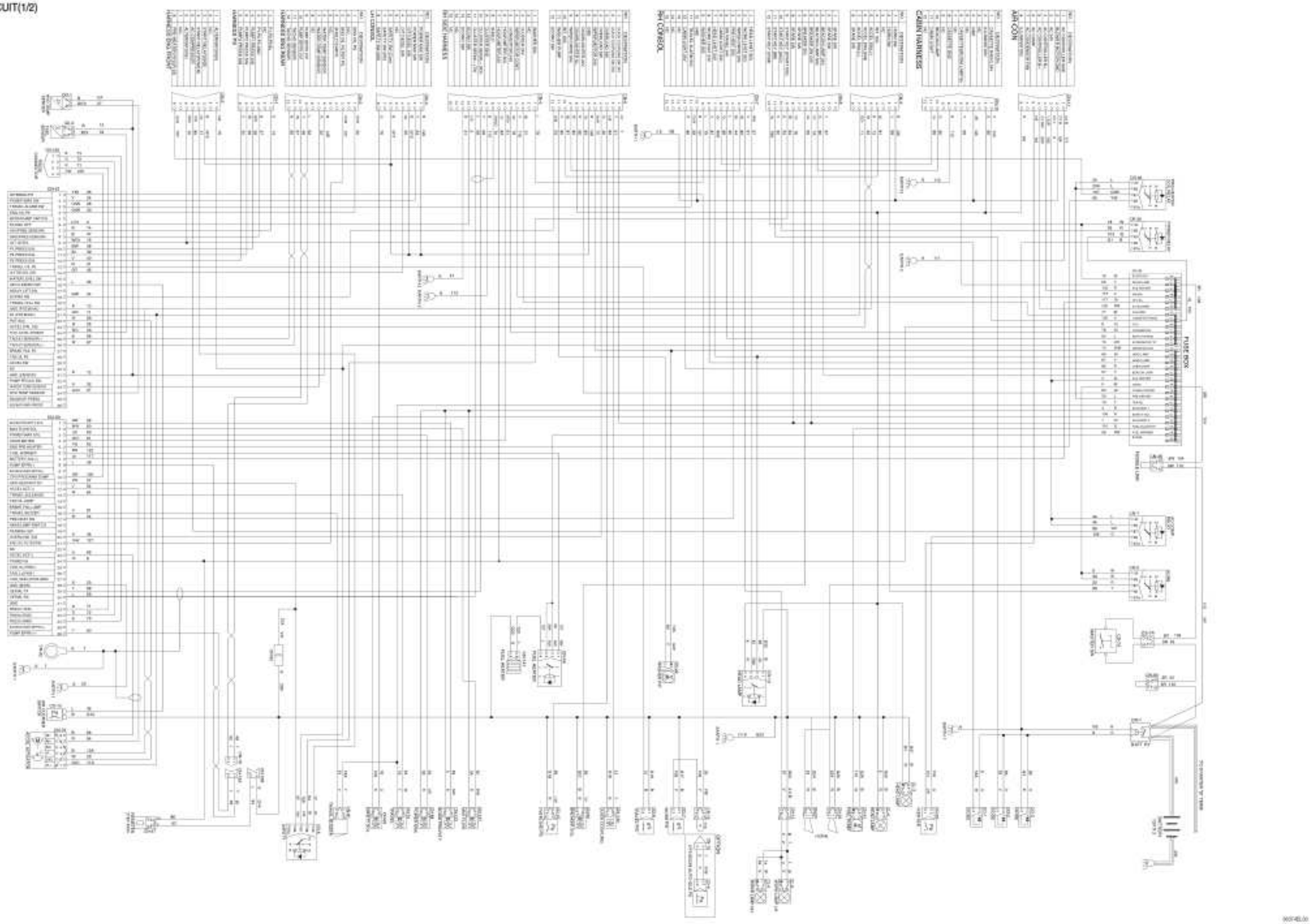
(2) Pop-up icon display

No	Switch	Selected mode	Display
1	Work mode switch	General work mode	
		Heavy duty work mode	
		Breaker operation mode	
2	Power mode switch	High power work mode	
		Standard power work mode	

No	Switch	Selected mode	Display
3	Auto deceleration switch	Light ON	
		Light OFF	
4	Travel speed control	Low speed	
		High speed	

MidWestTech | Hyundai R300LC-7 Crawler Excavator Service Manual | Publication R3... Order the manual at mid-west-tech.com >

· ELECTRICAL CIRCUIT(1/2)



MidWestTech | Hyundai R300LC-7 Crawler Excavator Service Manual | Publication R300LC-7

Order the manual at mid-west-tech.com >