CRAWLER EXCAVATOR

SERVICE MANUAL

R350LVS (China)

HYUNDAI

MidWestTech | Hyundai R350LVS (China) Crawler Excavator Service Manual | Publication...

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

CONTENTS

SECTION 1 GENERAL

Group 1 Safety Hints 1-1
Group 2 Specifications 1-10

SECTION 2 STRUCTURE AND FUNCTION

Group 1 Pump Device 2-1
Group 2 Main Control Valve 2-20
Group 3 Swing Device 2-46
Group 4 Travel Device 2-56
Group 5 RCV Lever 2-65
Group 6 RCV Pedal 2-72

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 3-12
Group 5 Combined Operation 3-22

SECTION 4 ELECTRICAL SYSTEM

Group 1 Component Location 4-1
Group 2 Electric 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 System 5-9
Group 7 Engine Overheat Prevention System 5-10
Group 8 Variable power Control System 5-11
Group 9 Attachment Flow Control System 5-12

MidWestTech | Hyundai R350LVS (China) Crawler Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

Group 10 Anti-restart System 5-13
Group 11 Self-Diagnostic System 5-14
Group 12 Engine Control System 5-27
Group 13 EPPR (Electro Proportional Pressure Reducing) Valve 5-28
Group 14 Monitoring System 5-33
Group 15 Fuel Warmer System 5-56

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 7-18
Group 3 Track and Work Equipment 7-26

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 8-54
Group 6 Travel Device 8-78
Group 7 RCV Lever 8-111
Group 8 Turning Joint 8-125
Group 9 Boom, Arm and Bucket Cylinder 8-130
Group 10 Undercarriage 8-147
Group 11 Work Equipment 8-159

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 R350LVS (China) Crawler Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

3) CAPACITY CONTROL MECHANISM

Figure typically shows the capacity control mechanism.

When high speed pilot line is charged with the pressure P_A that overcome the spring (52), the spring (52) is compressed and spool (48) shifts to the right to connect the port P and port C.

Then, the highest pressure is selected by the check valve (56) from inlet and outlet pressure of the motor and high speed pilot line pressure and pushes shifter piston (7). As a result, swash plate (17) turns around the line L which connect the two pivots (16) as shown by dotted lines. The turn stops at the stopper (1-1) of casing and swash plate (17) keeps the position.

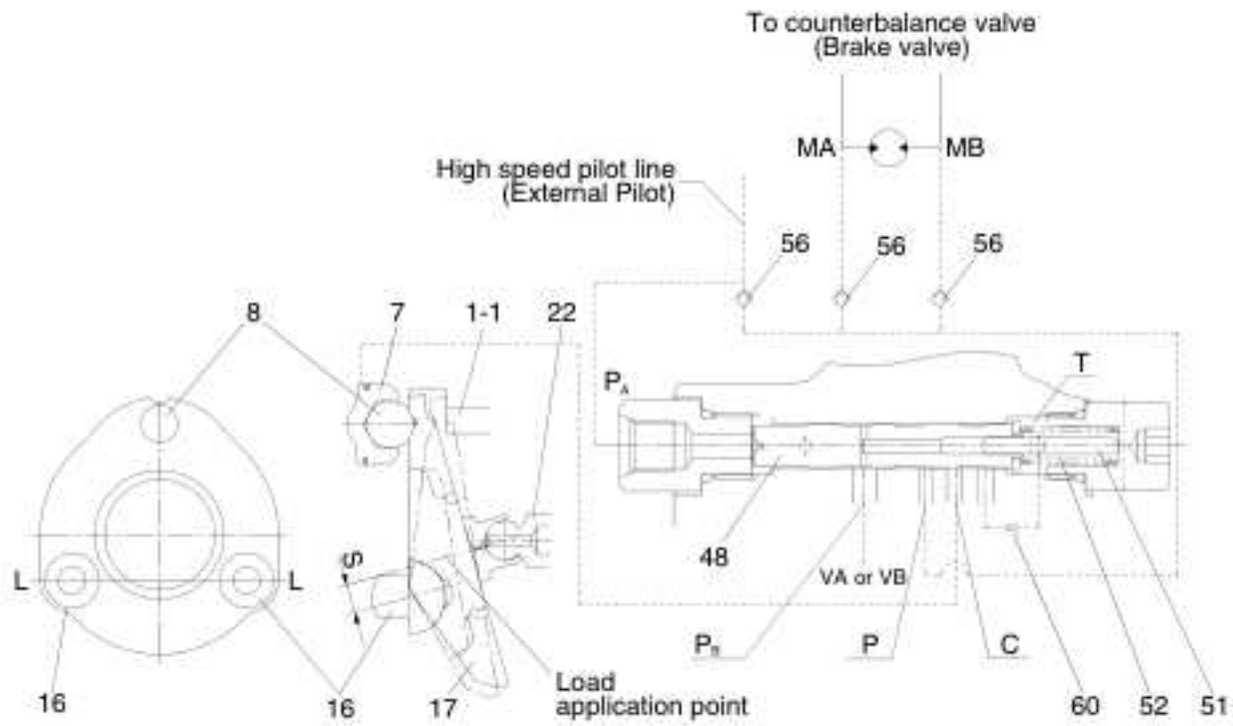
In this case, the piston stroke become shorter and motor capacity become smaller and motor rotates faster, around 1.60 times, by the same volume of oil.

When no pressure is in the high speed pilot line P_A, spool (35) is pushed back by the spring (52) and pressure that pressed the shifter piston (7) is released to the hydraulic tank through restrictor (60).

Here, nine pistons are there and they equally spaced on the swash plate (17). The force that summed up those of pistons comes to almost the center of the swash plate (17) as shown. Since the pivots (16) are off-set by S from the center, the rotating force of product S and the force moves swash plate (17) to the former position and the speed returns to low.

When the power demand exceeds the engine power, such as in steep slope climbing or turning at high speed mode, the system step down to the low speed automatically. The mechanism is that: pump pressure is led to the port P_B and this pressure activate on pin (51). When the pressure at P_B exceeds predetermined value, spool (48) returns to the left by the counter-pressure against pin (51) and the pressure on the shifter piston (7) through port C is released to the tank and the motor comes to low speed.

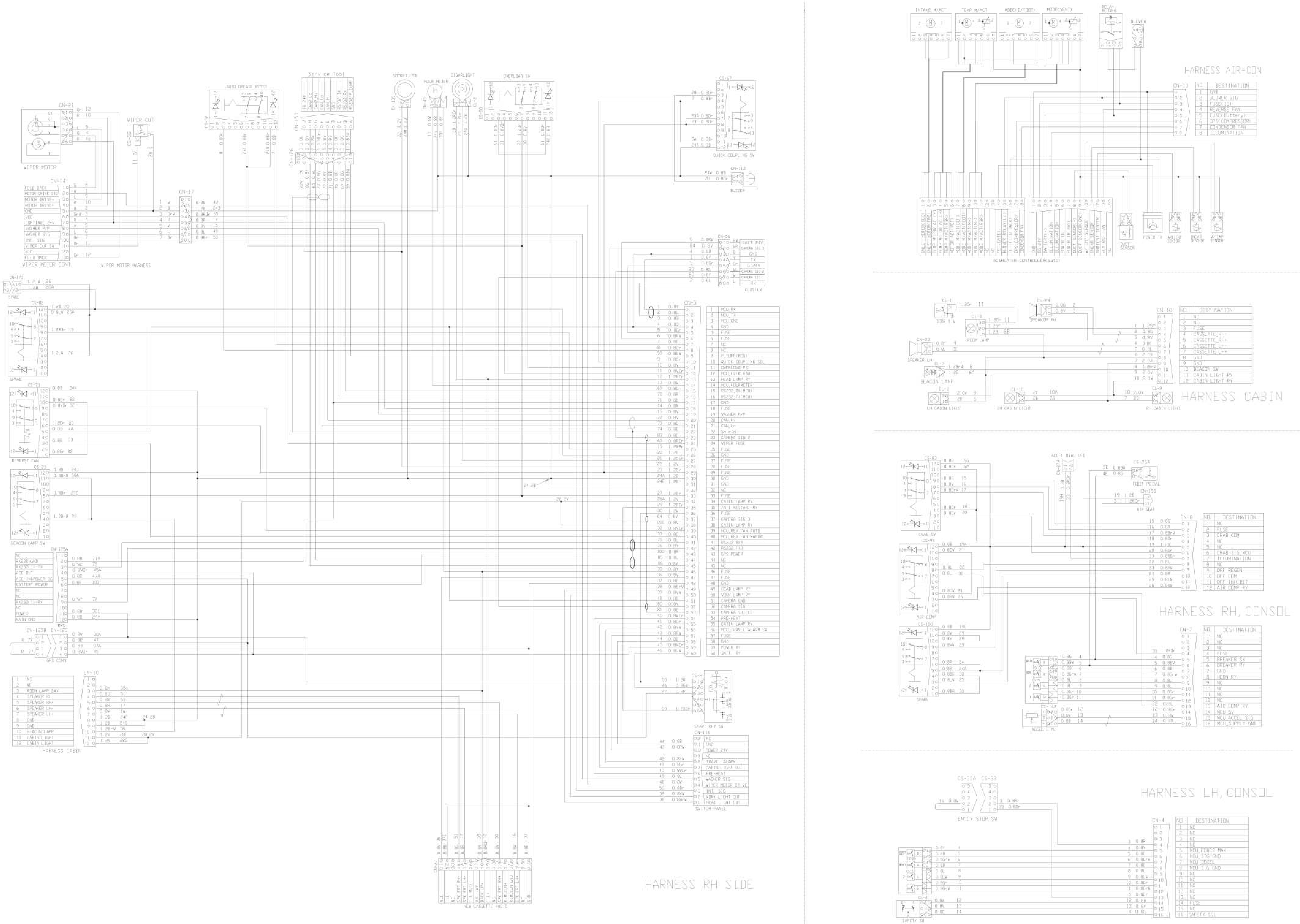
When P_B goes down, the spool (48) moves to the right and the speed become high.



MidWestTech | Hyundai R350LVS (China) Crawler Excavator Service Manual | Publica... Order the manual at mid-west-tech.com >

GROUP 2 ELECTRICAL CIRCUIT

· ELECTRICAL CIRCUIT (1/2)



MidWestTech | Hyundai R350LVS (China) Crawler Excavator Service Manual | Publication R350LVS (China)
Order the manual at mid-west-tech.com >

Fault code J1939 SPN J1939 FMI	Reason	Effect (only when fault code is active)
554 157 2	Injector metering rail 1 pressure - Data erratic, Intermittent, or incorrect. The ECM has detected that the fuel pressure signal is not changing.	Either the engine will not start or the engine will not have starter lockout protection.
559 157 18	Injector metering rail 1 pressure - Data Valid but Below Normal Operational Range - Moderately Severe Level. The ECM has detected that fuel pressure is lower than commanded pressure.	The engine will not have starter lockout protection.
584 677 3	Starter relay driver circuit - Voltage above normal, or shorted to high source. Open circuit or high voltage detected at starter lockout circuit.	Engine power derate. The ECM uses an estimated turbocharger speed.
585 677 4	Starter relay driver circuit - Voltage below normal, or shorted to low source. Low voltage detected at starter lockout circuit.	Amber lamp will light until high battery voltage condition is corrected.
595 103 16	Turbocharger 1 speed - Data valid but above normal operational range - Moderately severe level. High turbocharger speed has been detected.	Amber lamp will light until high battery voltage condition is corrected.
599 640 14	Auxiliary commanded dual output shutdown - Special instructions.	None or possible engine noise associated with higher injection pressures (especially at idle or light load). Engine power is reduced.
687 103 18	Turbocharger 1 speed - Data valid but below normal operational range - Moderately severe level. Low turbocharger speed detected by the ECM.	Engine power derate.
689 190 2	Engine crankshaft speed/position - Data erratic, intermittent, or incorrect. Loss of signal from crankshaft sensor.	Engine power derate.
691 1172 3	Turbocharger 1 compressor inlet temperature circuit - Voltage above normal, or shorted to high source. High signal voltage detected at turbocharger compressor inlet air temperature circuit.	Engine will run derated. Excessive black smoke, hard start, and rough idle possible.
692 1172 4	Turbocharger 1 compressor inlet temperature circuit - Voltage below normal, or shorted to low source. Low signal voltage detected at turbocharger compressor inlet air tempera	Possible no noticeable performance effects, engine dying, or hard starting.
731 723 7	Engine speed / position camshaft and crankshaft misalignment - Mechanical system not responding properly or out of adjustment. mechanical misalignment between the crankshaft and camshaft engine speed sensors.	Possible poor starting. Engine power derate.
757 611 31	Electronic control module data lost - Condition exists. Severe loss of data from the ECM.	Possible poor starting. Engine power derate.
778 723 2	Engine camshaft speed / position sensor - Data erratic, intermittent, or incorrect. The ECM has detected an error in the camshaft position sensor signal.	Possible no noticeable performance effects or engine dying or hard starting. Fault information, trip information, and maintenance monitor data may be inaccurate.
779 703 11	Auxiliary equipment sensor input 3 - Root cause not known.	Engine will shut down.

MidWestTech | Hyundai R350LVS (China) Crawler Excavator Service Manual | Public... 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 : 7 kgf · m (50.63 lbf · ft)



MidWestTech | Hyundai R350LVS (China) Crawler Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

③ Disassemble drive shaft sub assy by using the press machine.

※ The drive shaft sub assy fall all together, so becareful when removing it.



④ Disassemble sph. roller bearing (3), cover (7), oil seal (30), and sleeve (28) from the drive shaft (2).

※ Do not reuse oil seal (30).

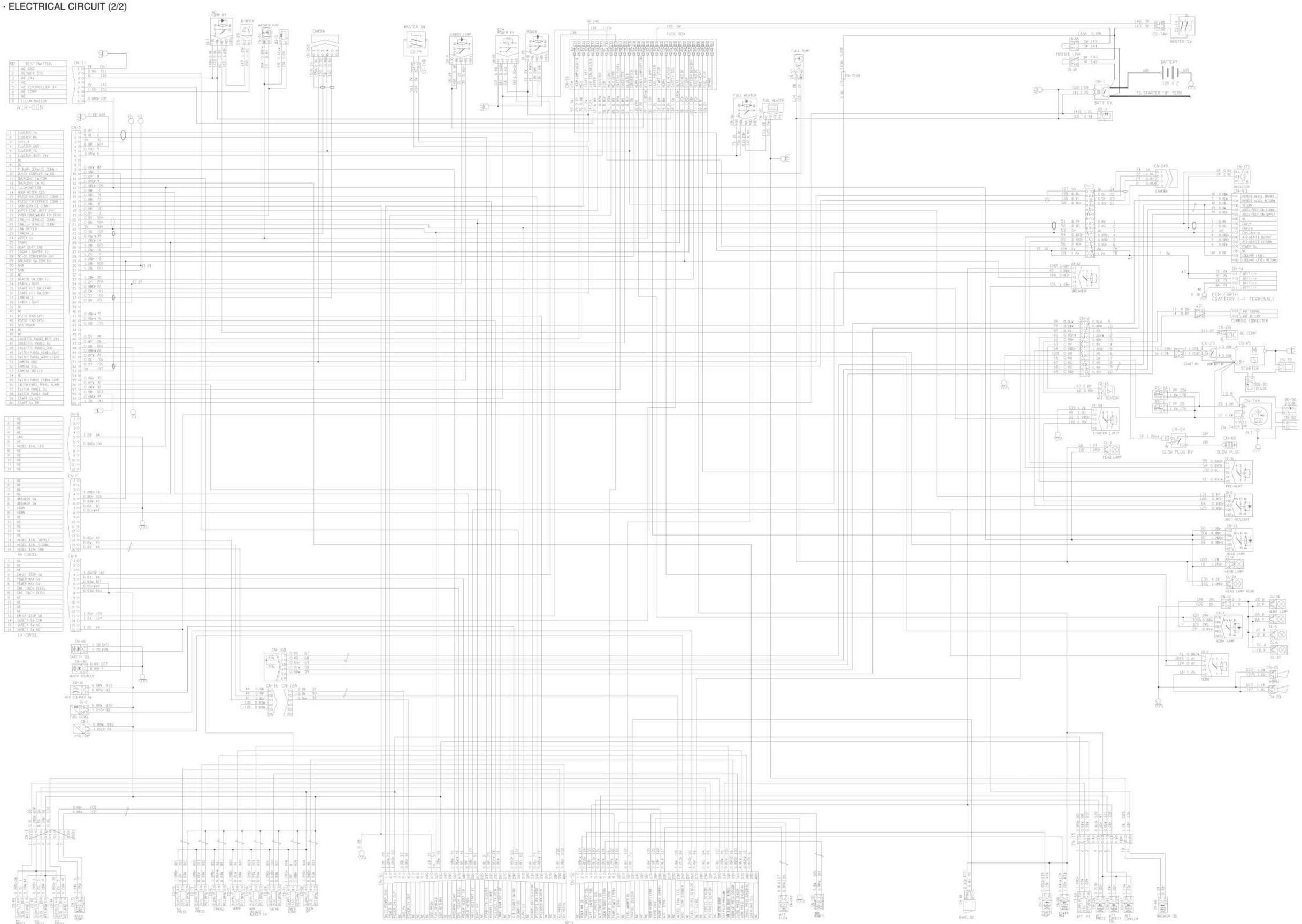


(8) Separate sph. roller bearing (4) from casing (9) by using the press machine.



MidWestTech | Hyundai R350LVS (China) Crawler Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

· ELECTRICAL CIRCUIT (2/2)



MidWestTech | Hyundai R350LVS (China) Crawler Excavator Service Manual | Publication R350LVS (China)

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