CRAWLER EXCAVATOR

SERVICE MANUAL

R110-7

HYUNDAI

MidWestTech | Hyundai R110-7 Crawler Excavator Service Manual | Publication R110-7

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 2-19
Group 3 Swing Device 2-42
Group 4 Travel Device 2-54
Group 5 RCV Lever 2-68
Group 6 RCV Pedal 2-75

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 3-24

SECTION 4 ELECTRICAL SYSTEM

Group 1 Component Location 4-1
Group 2 Electrical Circuit 4-3
Group 3 Electrical Component Specification 4-23
Group 4 Connectors 4-35

SECTION 5 MECHATRONICS SYSTEM

Group 1 Outline 5-1
Group 2 Mode Selection System 5-3
Group 3 Power Boost System 5-4
Group 4 Travel Speed Control System 5-5
Group 5 Automatic Warming Up Function 5-6
Group 6 Engine Overheat Prevention Function 5-7
Group 7 Anti-Restart System 5-8
Group 8 Self-Diagnostic System 5-9

MidWestTech | Hyundai R110-7 Crawler Excavator Service Manual | Publication R110-7 Order the manual at mid-west-tech.com >

Group 9 Engine Control System 5-11
Group 10 EPPR(Electro Proportional Pressure Reducing) Valve 5-17
Group 11 Prolix Switch 5-20
Group 12 Monitoring System 5-21

SECTION 6 TROUBLESHOOTING

Group 1 Before Trobleshooting 6-1
Group 2 Hydraulic and Mechanical System 6-4
Group 3 Electrical System 6-24
Group 4 Mechatronics System 6-41

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 8-29
Group 5 Swing Device 8-43
Group 6 Travel Device 8-65
Group 7 RCV Lever 8-103
Group 8 Turning Joint 8-118
Group 9 Boom, Arm and Bucket Cylinder 8-123
Group 10 Undercarriage 8-140
Group 11 Work Equipment 8-152

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 9-10
Group 6 Structure 9-11
Group 7 Work Equipment 9-14

MidWestTech | Hyundai R110-7 Crawler Excavator Service Manual | Publication R110-7 Order the manual at mid-west-tech.com >

3) GEAR PUMP

Item	Specification
Type	Fixed displacement gear pump single stage
Capacity	15cc/rev
Maximum pressure	35kgf/cm²(500psi)
Rated oil flow	29.3 ℓ /min(7.7U.S.gpm/6.4U.K.gpm)

4) MAIN CONTROL VALVE

Item	Specification
Type	11 spools mono-block
Operating method	Hydraulic pilot system
Main relief valve pressure	330kgf/cm²(4695psi) [360kgf/cm²(5120psi)]
Overload relief valve pressure	380kgf/cm²(5550psi)

[ ]: Pooer boost

5) SWING MOTOR

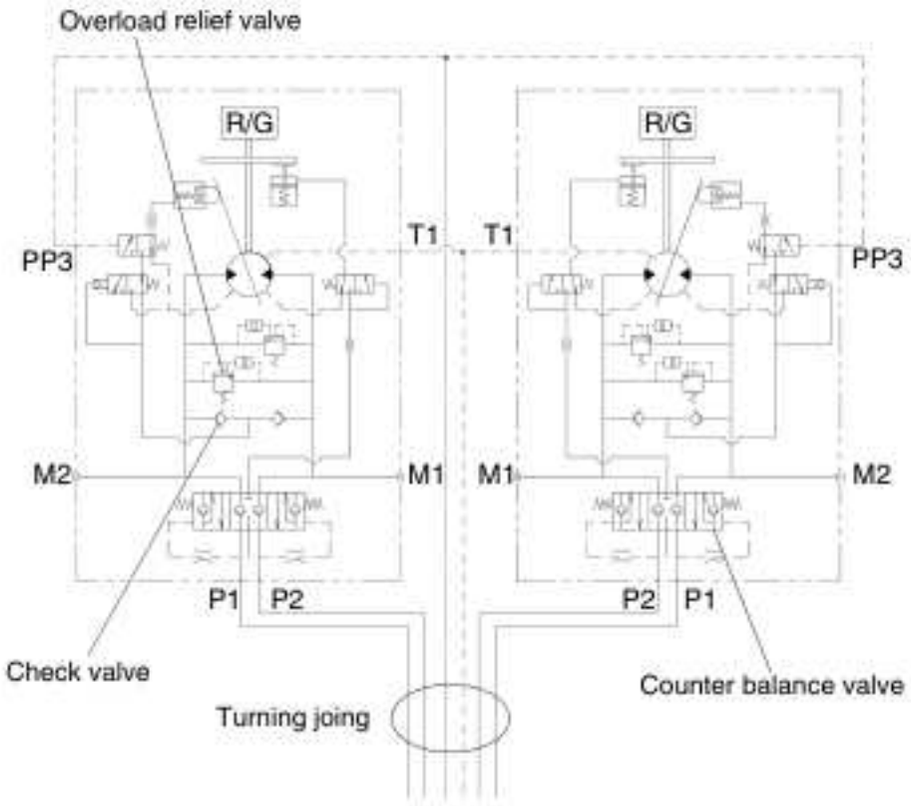
Item	Specification
Type	Axial piston motor
Capacity	64.3cc/rev
Relief pressure	240kgf/cm²(3414psi)
Braking system	Automatic, spring applied hydraulic released
Braking torque	25kgf · m²(181lbf · ft)
Brake release pressure	33–50kgf/cm²(469–711psi)
Reduction gear type	2 - stage planetary
Swing speed	13.0rpm

6) TRAVEL MOTOR

Item	Specification
Type	Variable displacement axial piston motor
Relief pressure	330kgf/cm²(4695psi)
Reduction gear type	2 stage planetary
Braking system	Automatic, spring applied hydraulic released
Brake release pressure	Less then 9kgf/cm²(128psi)
Braking torque	24.36kgf · m²(176lbf · ft)

MidWestTech | Hyundai R110-7 Crawler Excavator Service Manual | Publication R110-7 Order the manual at mid-west-tech.com >

TRAVEL CIRCUIT OPERATION



1107SHC17A

Valves are provided on travel motors to offer the following functions.

1) **COUNTER BALANCE VALVE**

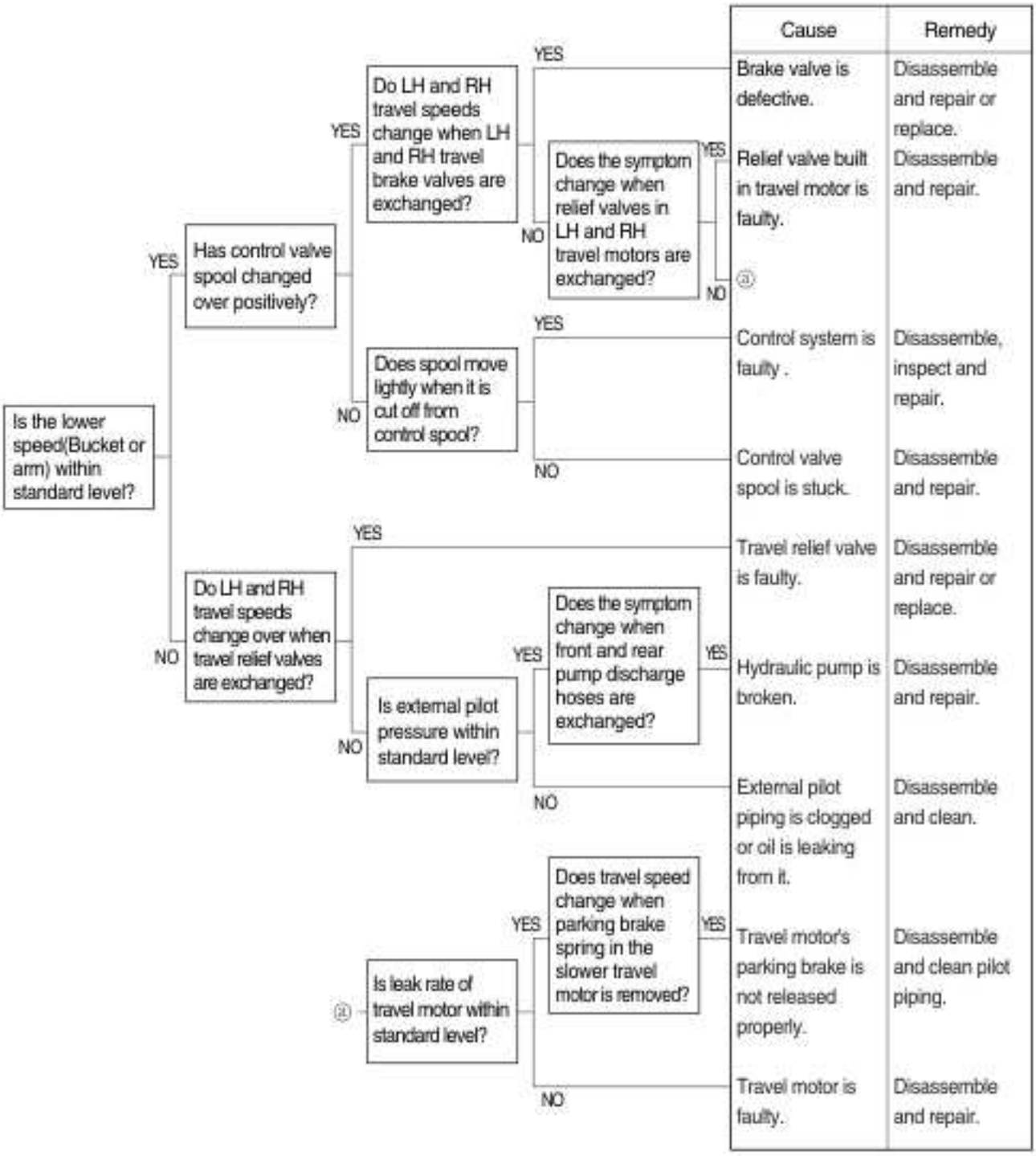
When stopping the motor of slope descending, this valve to prevent the motor over run.

2) **OVERLOAD RELIEF VALVE**

Relief valve limit the circuit pressure below 365kgf/cm^2 to prevent high pressure generated at at time of stopping the machine. Stopping the motor, this valve sucks the oil from lower pressure passage for preventing the negative pressure and the cavitation of the motor.

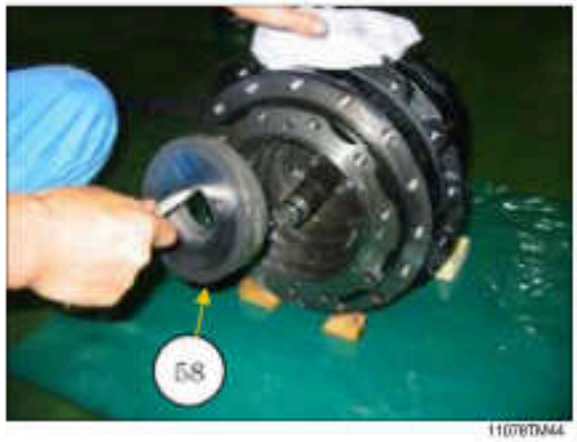
MidWestTech | Hyundai R110-7 Crawler Excavator Service Manual | Publication R110-7 Order the manual at mid-west-tech.com >

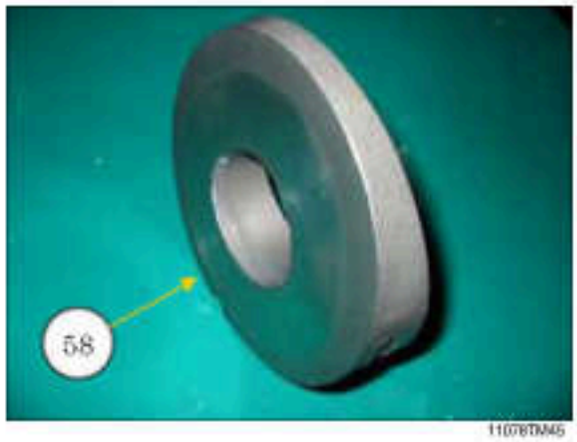
2) SPEED ON ONE SIDE FALLS AND THE MACHINE CURVES



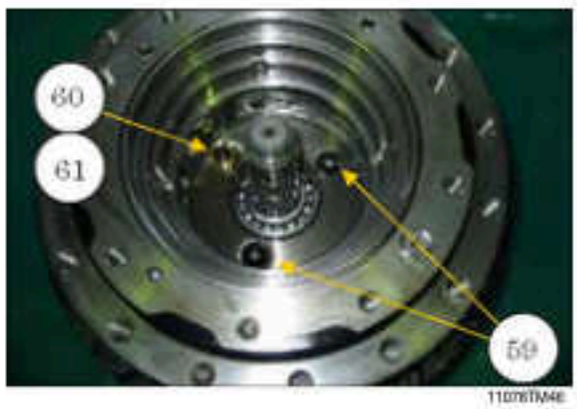
MidWestTech | Hyundai R110-7 Crawler Excavator Service Manual | Publication R110-7 Order the manual at mid-west-tech.com >

(31) Remove cam(58) from the body casing.





(32) Remove two steel balls(59) and piston(60) from the body casing. Remove the spring(61) behind the piston.



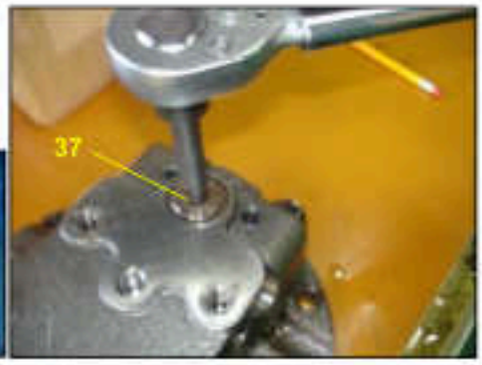


MidWestTech | Hyundai R110-7 Crawler Excavator Service Manual | Publication R110-7 Order the manual at mid-west-tech.com >

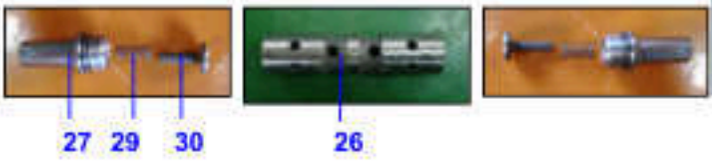
11) *Put Spring(36), Two Speed Control Spool(35) into*
Valve Casing(25) in regular sequence and assemble Plug(37) into Valve Casing(25) using torque wrench.

Tighten torque
: 1000 Kgf - cm





12) *Assemble* Check(30), Spring(29), Plug(27) ***into***
Main Spool(26) in regular sequence.

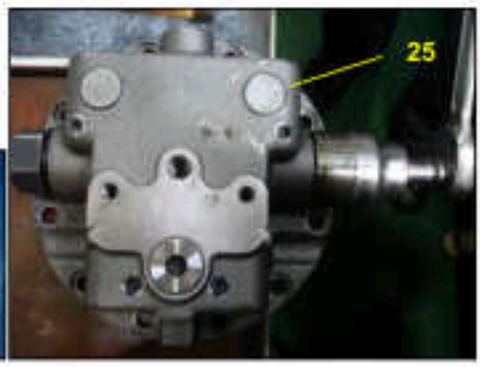




13) *Put the Main Spool(26) into* Valve Casing(25) and
assemble Plate (31), Spring(29) into it.
Tighten Main Spool Plug(32) using torque wrench.

Tighten torque
: 4500 Kgf - cm

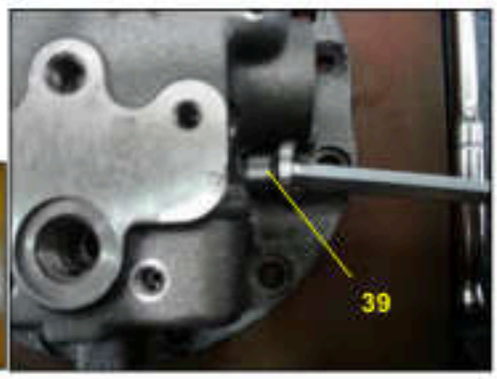




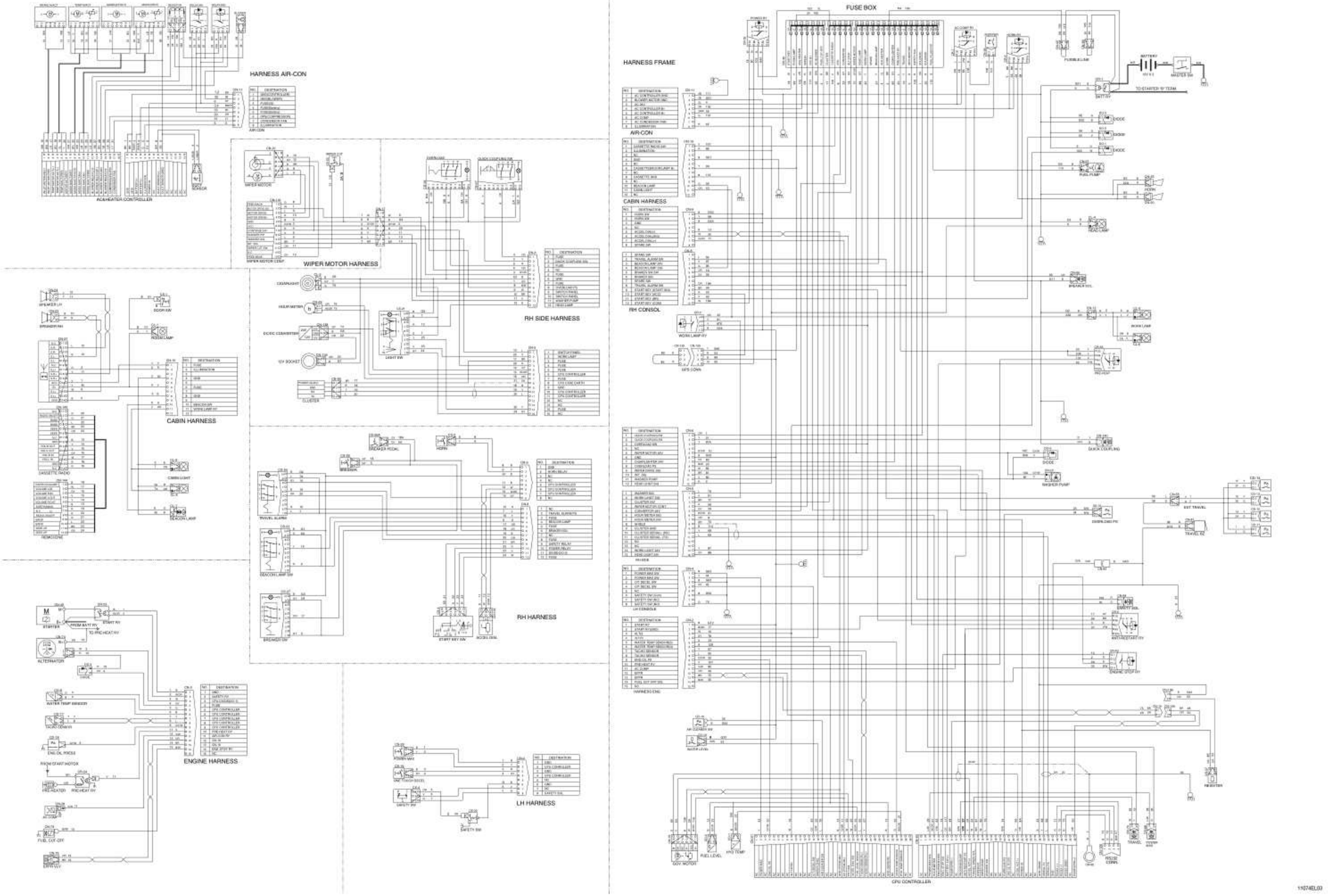
14) *Put Relief Valve damping Piston(38) into* Valve Casing(25)
and assemble Plug(39) into Valve Casing(25)

Tighten torque
: 600 Kgf.cm





MidWestTech | Hyundai R110-7 Crawler Excavator Service Manual | Publication R110-7 Order the manual at mid-west-tech.com >



MidWestTech | Hyundai R110-7 Crawler Excavator Service Manual | Publication R110-7
Order the manual at mid-west-tech.com >