CRAWLER EXCAVATOR

SERVICE MANUAL

R35Z-9A

HYUNDAI

MidWestTech | Hyundai R35Z-9A Crawler Excavator Service Manual | Publication R35Z-9A

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 2-6
Group 3 Swing Device 2-11
Group 4 Travel Device 2-19
Group 5 RCV Lever 2-37
Group 6 RCV Pedal 2-49

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 3-10
Group 5 Combined Operation 3-22

SECTION 4 ELECTRICAL SYSTEM

Group 1 Component Location 4-1
Group 2 Monitoring system 4-3
Group 3 Electrical Circuit 4-9
Group 4 Electrical Component Specification 4-25
Group 5 Connectors 4-31

SECTION 5 TROUBLESHOOTING

Group 1 Before Troubleshooting 5-1
Group 2 Hydraulic and Mechanical System 5-4
Group 3 Electrical System 5-24

MidWestTech | Hyundai R35Z-9A Crawler Excavator Service Manual | Publication R35... Order the manual at mid-west-tech.com >

SECTION 6 MAINTENANCE STANDARD

Group 1 Operational Performance Test 6-1
Group 2 Major Components 6-21
Group 3 Track and Work Equipment 6-31

SECTION 7 DISASSEMBLY AND ASSEMBLY

Group 1 Precaution 7-1
Group 2 Tightening Torque 7-4
Group 3 Pump Device 7-7
Group 4 Main Control Valve 7-21
Group 5 Swing Device 7-49
Group 6 Travel Device 7-65
Group 7 RCV Lever 7-92
Group 8 Turning Joint 7-116
Group 9 Boom, Arm and Bucket Cylinder 7-121
Group 10 Undercarriage 7-140
Group 11 Work Equipment 7-153

SECTION 8 COMPONENT MOUNTING TORQUE

Group 1 Introduction Guide 8-1
Group 2 Engine System 8-2
Group 3 Electric System 8-4
Group 4 Hydraulic System 8-5
Group 5 Undercarriage 8-7
Group 6 Structure 8-8
Group 7 Work Equipment 8-10

MidWestTech | Hyundai R35Z-9A Crawler Excavator Service Manual | Publication R35... Order the manual at mid-west-tech.com >

8. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

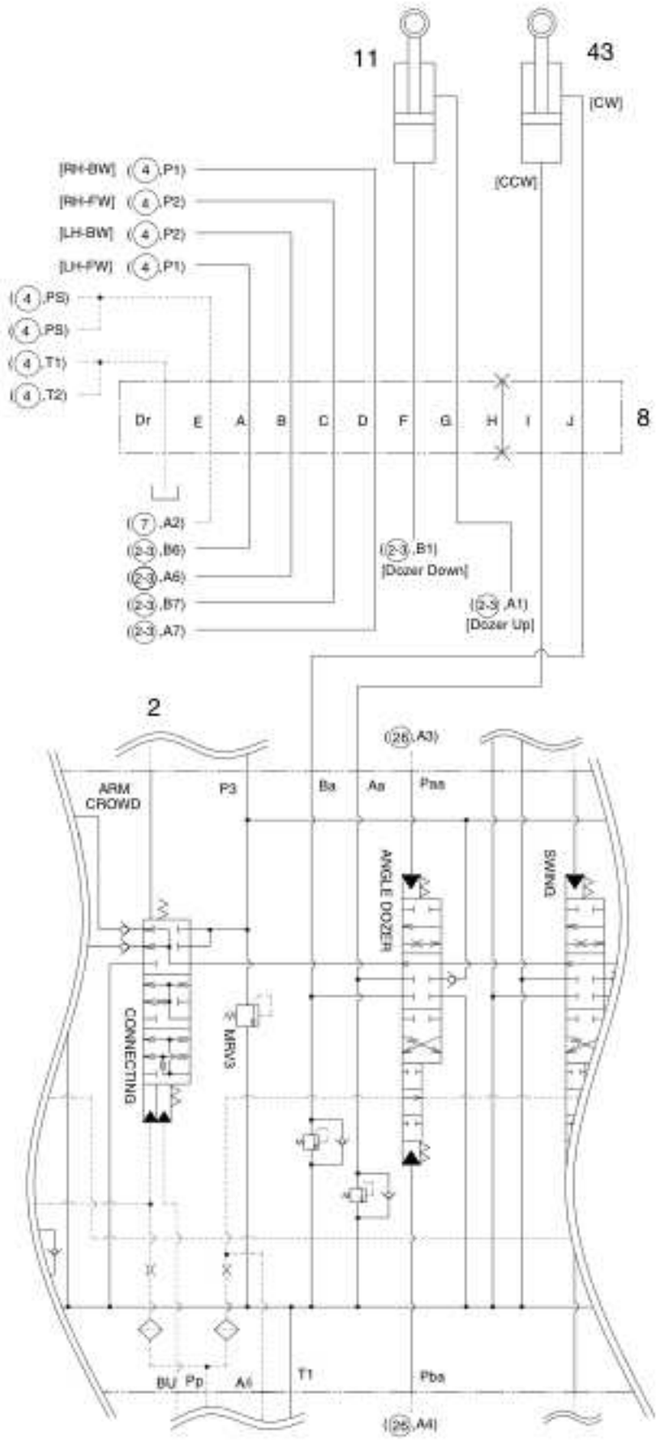
Item	Specification
Model	Yanmar 3TNV88F-ESHYB
Type	4-cycle diesel engine, low emission
Cooling method	Water cooling
Number of cylinders and arrangement	3 cylinders, in-line
Firing order	1-3-2
Combustion chamber type	Direct injection type
Cylinder bore × stroke	88 × 90 mm (3.46" × 3.54")
Piston displacement	1642 cc (100.2 cu in)
Compression ratio	19.1 : 1
Rated gross horse power (SAE J1995)	24.4 Hp at 2200 rpm (18.2 kW at 2200 rpm)
Maximum torque at 1320 rpm	9.6 kgf · m (69.3 lbf · ft)
Engine oil quantity	6.7 ℓ (1.8 U.S. gal)
Dry weight	172 kg (380 lb)
High idling speed	2350±30 rpm
Low idling speed	1200±30 rpm
Rated fuel consumption	177 g/Hp · hr at 2200 rpm
Starting motor	12V-2.3 kW
Alternator	12V-55 A
Battery	1 × 12 V × 70 Ah (20h rating)

2) MAIN PUMP

Item	Specification
Type	Variable displacement tandem axis piston pumps
Capacity	2 × 17 cc/rev
Maximum pressure	230 kgf/cm² (3270 psi)
Rated oil flow	2 × 37.4 ℓ/min (2 × 9.9 U.S. gpm / 2 × 8.2 U.K. gpm)
Rated speed	2200 rpm

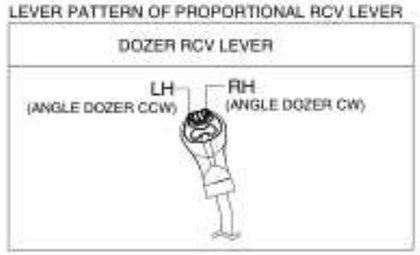
MidWestTech | Hyundai R35Z-9A Crawler Excavator Service Manual | Publication R35... Order the manual at mid-west-tech.com >

HYDRAULIC CIRCUIT (3/3)

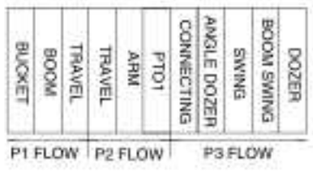


ANGLE DOZER-OPTION(R35Z-9A)

LEVER PATTERN OF PROPORTIONAL RCV LEVER

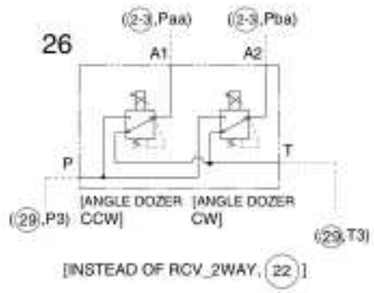


MCV SPOOL ARRANGEMENTS

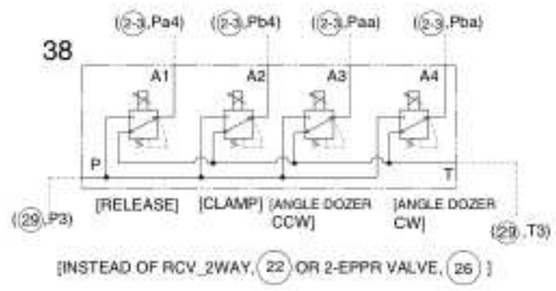


2	Main control valve(option)
8	Turning joint(option)
11	Dozer cylinder(option)
26	2-EPPR valve(option)
38	4-EPPR valve(option)
43	Angle dozer cylinder(option)

Without 2-WAY PROPORTIONAL LEVER



With 2-WAY PROPORTIONAL LEVER

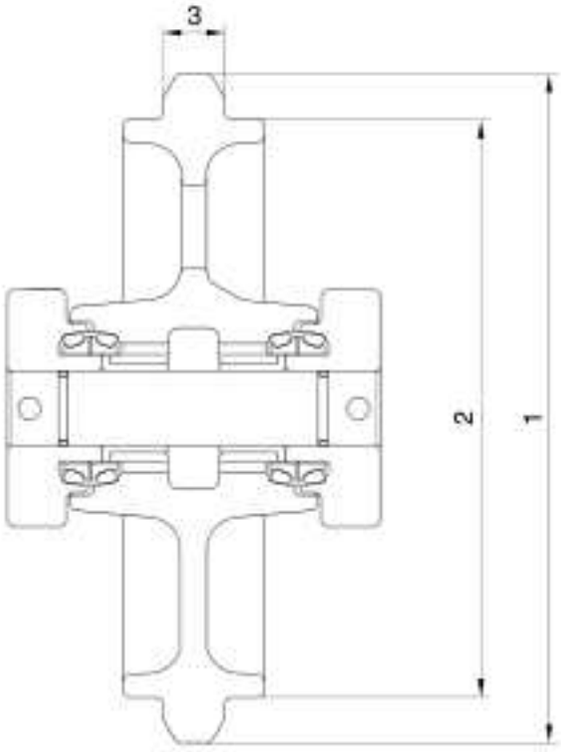


30MH-76610-08C

35ZMA3HC01C

MidWestTech | Hyundai R35Z-9A Crawler Excavator Service Manual | Publication R35Z-9A
Order the manual at mid-west-tech.com >

2. IDLER



35ZNA6MC18

Unit : mm

No	Check item		Criteria		Remedy
			Standard size	Repair limit	
1	Outside diameter of flange	Steel	309	-	Rebuild or replace
		Rubber	331	-	
2	Outside diameter of thread	Steel	285	263	
		Rubber	289	279	
3	Width of flange		26.2	20.2	

MidWestTech | Hyundai R35Z-9A Crawler Excavator Service Manual | Publication R35... Order the manual at mid-west-tech.com >

(4) Fit the O-ring (214) into the plug (221).



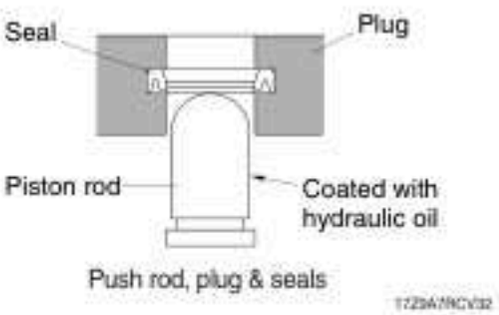
(5) Fit the seal (213) into the plug (211).

- Fit the lip of the seal (213) as shown right.



(6) Fit the push-rod (212) into the plug (211).

- Apply hydraulic oil to the surface of the push rod.



Push rod, plug & seals





MidWestTech | Hyundai R35Z-9A Crawler Excavator Service Manual | Publication R35... Order the manual at mid-west-tech.com >

⚠ Items under tension. The return spring (221), plate (151) and push-rod (212) will rise as joint (301) is loosened. Make sure the items do not fly out and damage personnel in the vicinity.

(5) Using the jig, turn the joint (301) counter-clockwise to loosen it.
The right illustration shows the jig attached.





(6) Remove the plate (151).
- When the return spring (221) is strong

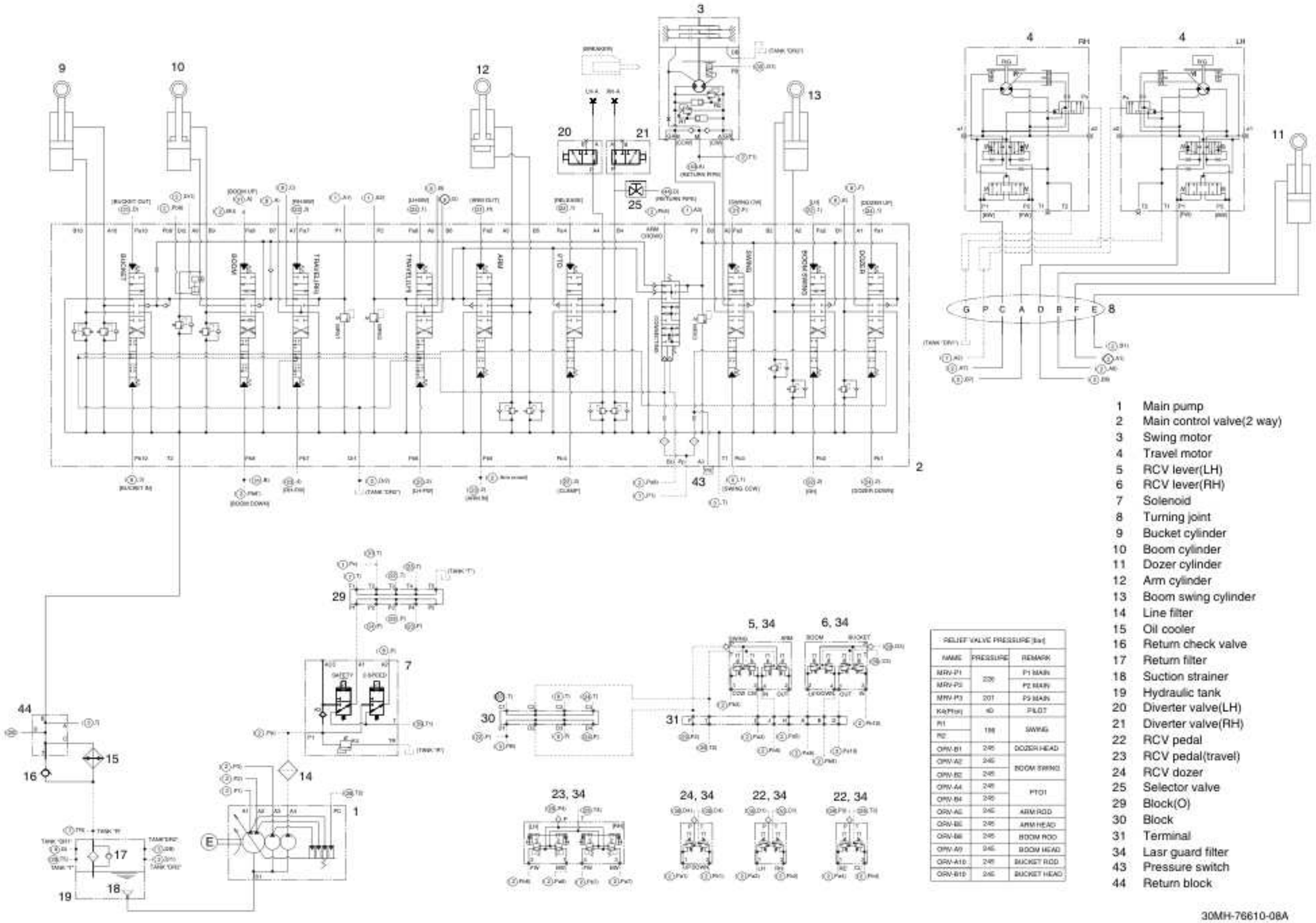


- When the return spring (221) is weak



MidWestTech | Hyundai R35Z-9A Crawler Excavator Service Manual | Publication R35... Order the manual at mid-west-tech.com >

GROUP 1 HYDRAULIC CIRCUIT (1/3)



RELIEF VALVE PRESSURE [bar]		
NAME	PRESSURE	REMARK
MRV-P1	220	P1 MAIN
MRV-P2		P2 MAIN
MRV-P3	207	P3 MAIN
KA(Pilot)	40	PILOT
P1	186	SWING
P2		
ORV-B1	245	DOZER HEAD
ORV-A2	245	BOOM SWING
ORV-B2	245	
ORV-A4	245	PTO1
ORV-B4	245	
ORV-AE	245	ARM ROD
ORV-BE	245	ARM HEAD
ORV-B6	245	BOOM ROD
ORV-A9	245	BOOM HEAD
ORV-A10	245	BUCKET ROD
ORV-B10	245	BUCKET HEAD

1 Main pump
2 Main control valve(2 way)
3 Swing motor
4 Travel motor
5 RCV lever(LH)
6 RCV lever(RH)
7 Solenoid
8 Turning joint
9 Bucket cylinder
10 Boom cylinder
11 Dozer cylinder
12 Arm cylinder
13 Boom swing cylinder
14 Line filter
15 Oil cooler
16 Return check valve
17 Return filter
18 Suction strainer
19 Hydraulic tank
20 Diverter valve(LH)
21 Diverter valve(RH)
22 RCV pedal
23 RCV pedal(travel)
24 RCV dozer
25 Selector valve
29 Block(O)
30 Block
31 Terminal
34 Lasr guard filter
43 Pressure switch
44 Return block

30MH-76610-08A

35ZSA3HC01A

MidWestTech | Hyundai R35Z-9A Crawler Excavator Service Manual | Publication R35Z-9A
Order the manual at mid-west-tech.com >