CRAWLER EXCAVATOR

SERVICE MANUAL

R55-9

HYUNDAI

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4. WEIGHT

Item	kg	lb
Upperstructure assembly	2710	5970
Main frame weld assembly	600	1320
Engine assembly	280	620
Main pump assembly	30	70
Main control valve assembly	40	90
Swing motor assembly	80	180
Hydraulic oil tank assembly	90	200
Fuel tank assembly	60	130
Boom swing post	110	240
Counterweight	235	520
Cab assembly	350	770
Lower chassis assembly	2150	4740
Track frame weld assembly	700	1540
Swing bearing	90	200
Travel motor assembly	80	180
Turning joint	30	70
Track recoil spring	20	45
Idler & tension body	60	130
Carrier roller	10	20
Track roller	10	20
Sprocket	20	40
Track-chain assembly (380 mm standard triple grouser shoe)	320	710
Dozer blade assembly	210	460
Front attachment assembly (3.0 m boom,1.6 m arm, 0.18 m^3 SAE heaped bucket)	790	1740
3.0 m boom assembly	240	530
1.6 m arm assembly	130	290
0.18 m^3 SAE heaped bucket	170	370
Boom cylinder assembly	70	155
Arm cylinder assembly	60	130
Bucket cylinder assembly	35	80
Bucket control link assembly	40	90
Dozer cylinder assembly	40	90
Boom swing cylinder assembly	40	90

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5. LIFTING CAPACITIES

1) 3.0 m (9' 10") boom, 1.6 m (5' 3") arm equipped with 0.18 m³ (SAE heaped) bucket and 380 mm (15") triple grouser shoe.

· : Rating over-front · : Rating over-side or 360 degree

Load point height		Load radius								At max. reach		
		2.0 m (7 ft)		3.0 m (10 ft)		4.0 m (13 ft)		5.0 m (16 ft)		Capacity		Reach
												m (ft)
5.0 m (16 ft)	kg									*950	*950	4.12
	lb									*2090	*2090	(13.5)
4.0 m (13 ft)	kg					*1020	*1020			*980	780	5.08
	lb					*2250	*2250			*2160	1720	(16.7)
3.0 m (10 ft)	kg					*1090	*1090			*1010	650	5.60
	lb					*2400	*2400			*2230	1430	(18.4)
2.0 m (7 ft)	kg	*3060	*3060	*1690	*1690	*1320	1100	*1170	760	*1050	590	5.84
	lb	*6720	*6720	*3730	*3730	*2910	2430	*2580	1680	*2310	1300	(19.2)
1.0 m (3 ft)	kg			*2360	1610	*1600	1040	*1280	740	*1100	580	5.85
	lb			*5200	3550	*3530	2290	*2820	1630	*2430	1280	(19.2)
Ground Line	kg	*2360	*2350	*2700	1540	*1790	1000	*1350	720	*1140	610	5.63
	lb	*5180	*5180	*5950	3400	*3950	2200	*2980	1590	*2510	1340	(18.5)
-1.0 m (-3 ft)	kg	*3600	3020	*2670	1530	*1800	990			*1180	700	5.13
	lb	*7940	6660	*5890	3370	*3970	2180			*2600	1540	(16.8)
-2.0 m (-7 ft)	kg	*3770	3060	*2300	1540					*1140	960	4.23
	lb	*8310	6750	*5070	3400					*2510	2120	(13.9)
-3.0 m (-10 ft)	kg	*2040	*2040									
	lb	*4500	*4500									

Note 1. Lifting capacity are based on SAE J1097 and ISO 10567.
2. Lifting capacity of the ROBEX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
3. The load point is a hook located on the back of the bucket.
4. *indicates load limited by hydraulic capacity.

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2) 3.0 m (9'10") boom, 1.6 m (5' 3") arm equipped with 0.18 m³ (SAE heaped) bucket and 380 mm (15") triple grouser shoe.

· : Rating over-front · : Rating over-side or 360 degree

Load point height		Load radius								At max. reach		
		2.0 m (7 ft)		3.0 m (10 ft)		4.0 m (13 ft)		5.0 m (16 ft)		Capacity		Reach
												m (ft)
5.0 m (16 ft)	kg									*950	*950	4.12
	lb									*2090	*2090	(13.5)
4.0 m (13 ft)	kg					*1020	*1020			*980	740	5.08
	lb					*2250	*2250			*2160	1630	(16.7)
3.0 m (10 ft)	kg					*1090	1080			890	610	5.60
	lb					*2400	2380			1960	1340	(18.4)
2.0 m (7 ft)	kg	*3050	*3050	*1690	1630	*1320	1030	1040	710	810	550	5.84
	lb	*6720	*6720	*3730	3590	*2910	2270	2290	1570	1790	1210	(19.2)
1.0 m (3 ft)	kg			2250	1510	1430	980	1010	690	800	540	5.85
	lb			4960	3330	3150	2160	2230	1520	1760	1190	(19.2)
Ground Line	kg	*2350	*2350	2170	1440	1390	940	990	670	840	570	5.63
	lb	*5180	*5180	4780	3170	3060	2070	2180	1480	1850	1260	(18.5)
-1.0 m (-3 ft)	kg	*3600	2780	2150	1420	1370	930			970	660	5.13
	lb	*7940	6130	4740	3130	3020	2050			2140	1460	(16.8)
-2.0 m (-7 ft)	kg	*3770	2830	2170	1440					*1140	900	4.23
	lb	*8310	6240	4780	3170					*2510	1980	(13.9)
-3.0 m (-10 ft)	kg	*2040	*2040									
	lb	*4500	*4500									

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8. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Yanmar 4TNV98-EPHYBU
Type	4-cycle diesel engine, low emission
Cooling method	Water cooling
Number of cylinders and arrangement	4 cylinders, in-line
Firing order	1-3-4-2
Combustion chamber type	Direct injection type
Cylinder bore×stroke	98 × 110 mm (3.85" × 4.33")
Piston displacement	3319 cc (203 cu in)
Compression ratio	18.5 : 1
Rated gross horse power (SAE J1995)	57.8 Hp at 2400 rpm (42.5 kW at 2400 rpm)
Maximum torque at 1550 rpm	20.5 kgf · m (148 lbf · ft)
Engine oil quantity	11.6 ℓ (3.1 U.S. gal)
Dry weight	270 kg (595 lb)
High idling speed	2400+50 rpm
Low idling speed	1050 ± 100 rpm
Rated fuel consumption	175.6 g/Hp · hr at 2400 rpm
Starting motor	12 V-3.0 kW
Alternator	12 V-80 A
Battery	1 × 12 V × 100 Ah

2) MAIN PUMP

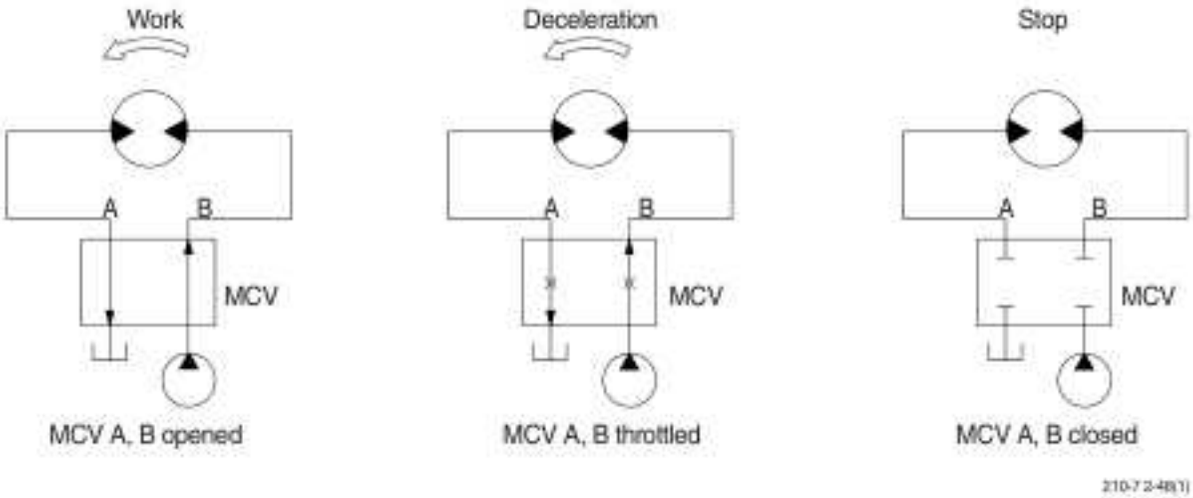
Item	Specification
Type	Variable displacement tandem axis piston pumps
Capacity	2 × 27.5 cc/rev
Maximum pressure	220 kgf/cm² (3130 psi)
Rated oil flow	2 × 57.8 ℓ /min (15.3 U.S. gpm / 12.7 U.K. gpm)
Rated speed	2100 rpm

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4) BRAKE SYSTEM

(1) Control valve swing brake system

This is the brake system to stop the swing motion of the excavator during operation.
In this system, the hydraulic circuit is throttled by the swing control valve, and the resistance created by this throttling works as a brake force to slow down the swing motion.



MCV A, B opened | MCV A, B throttled | MCV A, B closed

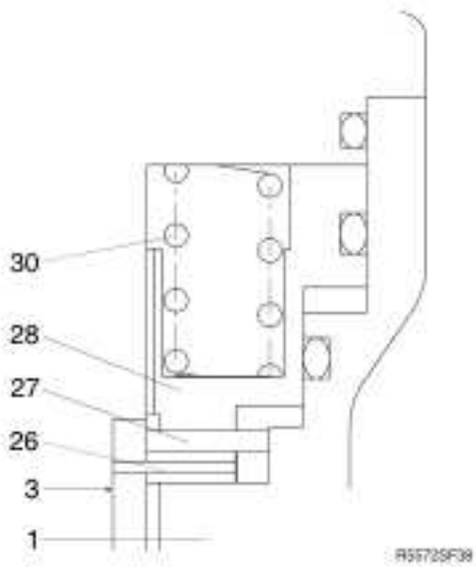
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(2) Mechanical swing parking brake system

The mechanical swing parking brake system is installed to prevent the upper structure from swinging downhill because of its own weight when the excavator is parked on a slope since it completely eliminates the hydraulic drift of swing motion while the excavator is on a slop, work can be done more easily and safely.

① Brake assembly

Circumferential rotation of separate plate (27) is constrained by the groove located at casing (1). When housing is pressed down by brake spring (30) through friction plate (26), separate plate (27) and brake piston (28), friction force occurs there.
Cylinder (3) is constrained by this friction force and brake acts, while brake releases when hydraulic force exceeds spring force.



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1	Casing	27	Separate plate
3	Cylinder	28	Brake piston
26	Friction plate	30	Brake spring

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SECTION 5 TROUBLESHOOTING

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

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(8) The following operations should be carried out if necessary.

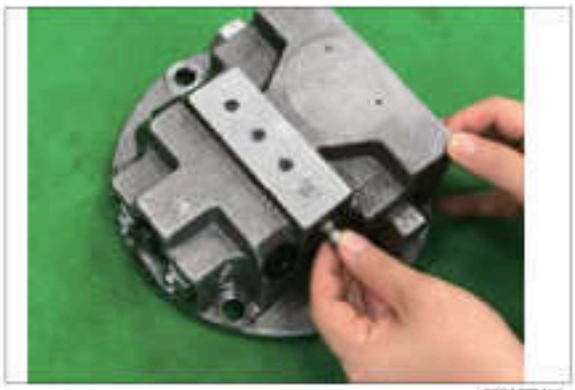
① Loosen the ROH plug (302) and remove the restrictor (310).

※ If there is no problem with the 1st / 2nd speed switching, no special disassembly is required.



② Release ROH plug (302) and disassemble in the following order: Seat casing (433) → steel ball (503) → seat (432).

※ If there is no problem with the 1st / 2nd speed switching, no special disassembly is required. Please be careful about the loss of the steel ball. Please be careful not to damage the inner diameter of the seat casing and seat.



(9) Loosen socket bolt (301) and remove valve casing (201) from casing (202).

※ (Due to the force of the brake spring E (117), when the socket bolt (301) is unscrewed, the valve casing (201) is raised from the casing (202). Further, remove the valve plate (108) from the valve casing (201).



Carefully work so that the valve plate does not fall off the valve casing.

※ In some cases, the valve plate is attached to the cylinder block.
Be careful not to scratch the sliding surface and mating surface when you disassemble the mating surface with a screwdriver or the like.



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(2) Cylinder block

① Disassemble set plate (17), piston assembly (18) from cylinder block assembly (11).



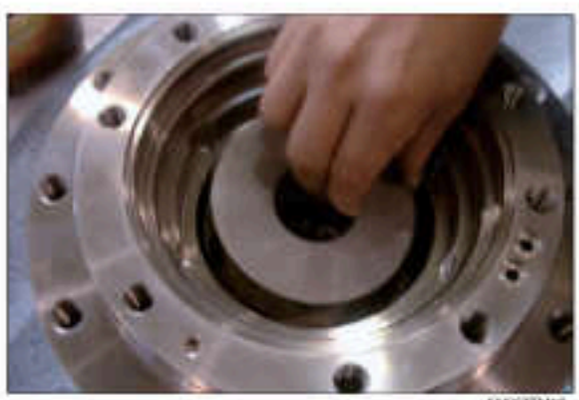
② Disassemble cylinder block (11), ball guide (16) and pin (15) in that order.



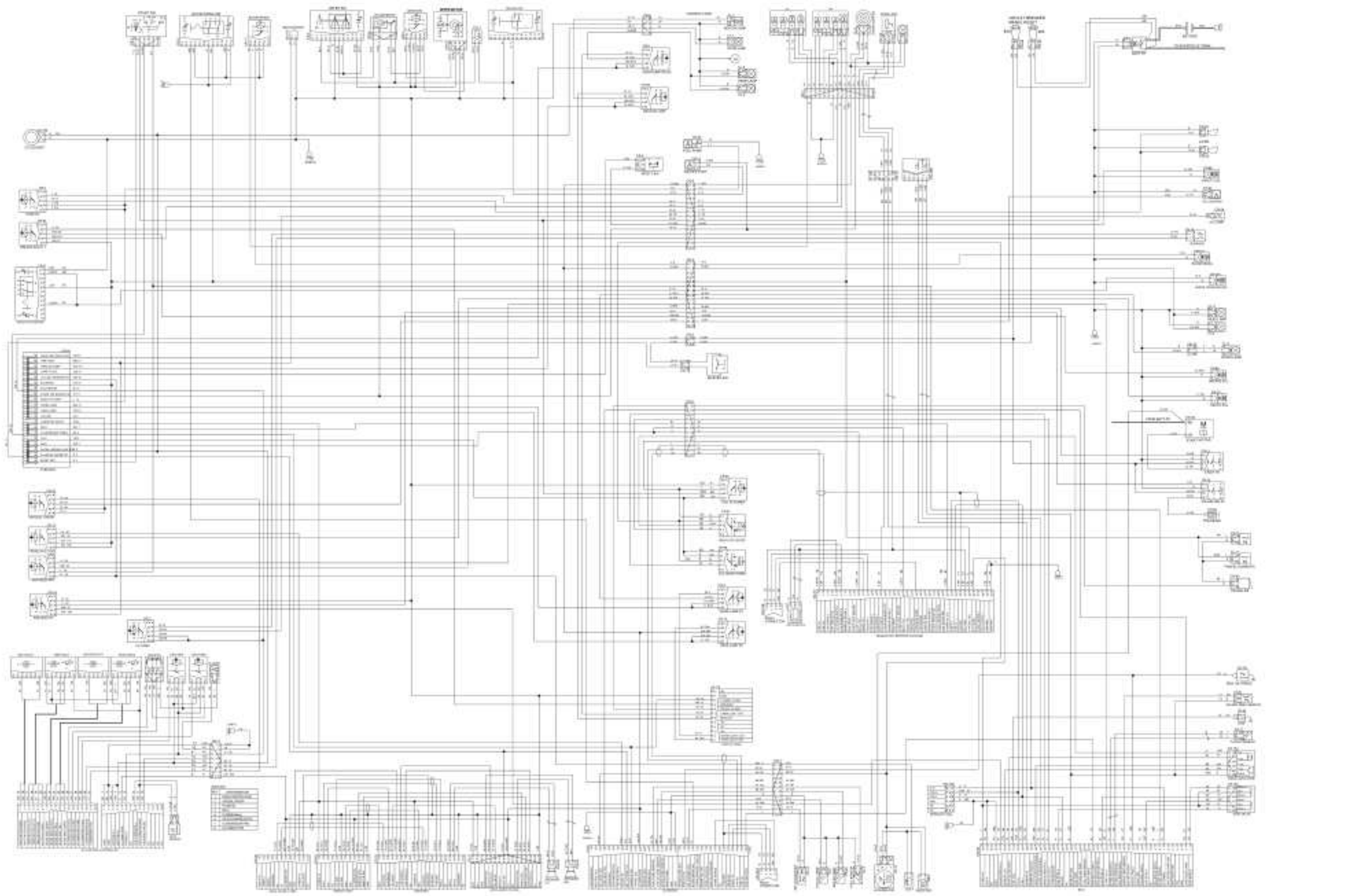
③ Put the cylinder block (11) on the air assembling jig and dissemble snap ring (14) by using a plier.
Dissemble spring seat (12), spring (13) and spring seat (12) in that order.



④ Disassemble shoe plate (10) from shaft casing (1).



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