SKID STEER LOADER

SERVICE MANUAL

HSL650-7A

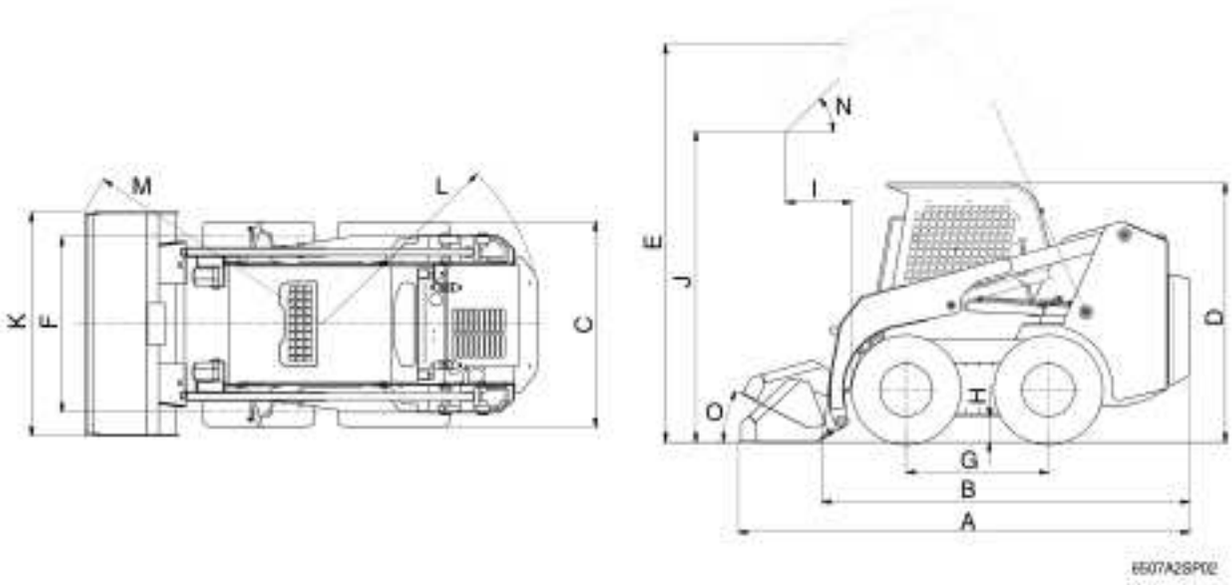
HYUNDAI

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2. SPECIFICATIONS

· WITH STANDARD BUCKET AND CANOPY



Description			Unit	Specification
Operating weight			kg(lb)	2690(5790)
Bucket capacity		Struck	m³(yd³)	0.25(0.33)
		Heaped		0.31(0.41)
Overall length		A	mm(ft-in)	3270(10' 9")
Overall length(Without bucket)		B		2625(8' 7")
Overall width(Except bucket)		C		1515(5' 0")
Overall height		D		1965(6' 5")
Overall height(To hinge pin)		E		2915(9' 7")
Tread		F		1255(4' 1")
Wheelbase		G		990(3' 3")
Ground clearance		H		183(0' 7")
Dump reach		I		550(1' 10")
Dump height		J		2240(7' 4")
Bucket width		K		1625(5' 4")
Clearance circle(Rear)		L		1560(5' 1")
Clearance circle(Front / bucket)		M		1920(6' 4")
Dump angle		N	Degree(°)	45
Roll back angle(Carry position)		O		27
Cycle time	Boom	Up	sec	3.9
		Down		2.3
	Bucket	Dump		1.9
		Roll back		1.3
Maximum travel speed			km/hr(mph)	11.1(6.9)
Minimum turning radius(Without bucket)			mm(ft-in)	1300(4' 3")
Gradeability			Degree(°)	20

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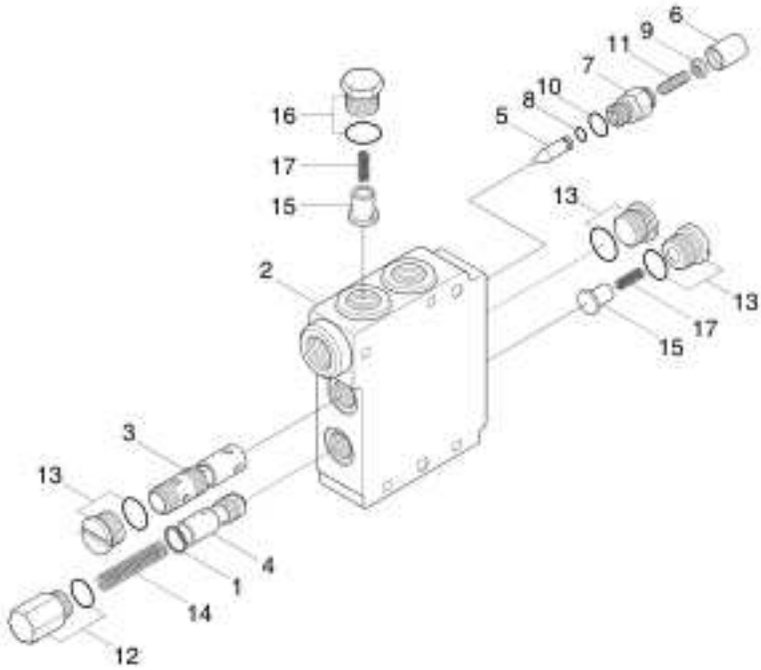
3. WEIGHT

Item	HSL650-7A	
	kg	lb
Frame assembly	760	1680
Canopy	164	362
Engine assembly	184	405
HST pump assembly (Pilot)	55	121
HST pump assembly (Mechanical)	45	99
Working pump	14	31
Main control valve	19	42
Travel motor	40	88
Boom	250	550
Bucket	170	375
Tire(10×16.5-6PR)	40	88
Boom cylinder	43	95
Bucket cylinder	24	53
Seat	9.6	21
Battery	20	44
Rear door assembly	58	128

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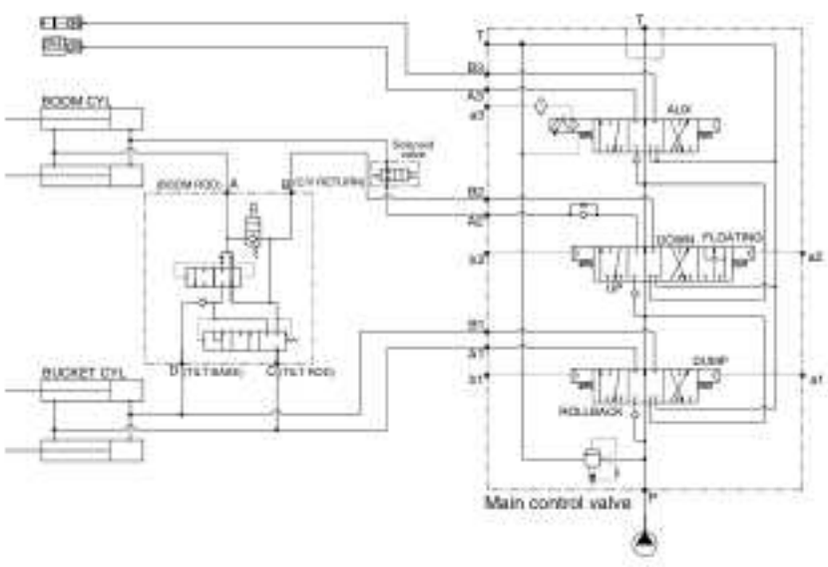
GROUP 3 SELF LEVEL VALVE(OPTION)

1. STRUCTURE



1	Retaining ring	7	Adjust cap	13	Plug
2	Body	8	O-ring	14	Spring
3	Spool	9	Jam nut	15	Load check plunger
4	Spool	10	O-ring	16	Plug
5	Pin	11	Set screw	17	Spring
6	Cover	12	Plug		

2. HYDRAULIC CIRCUIT



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7. TROUBLESHOOTING

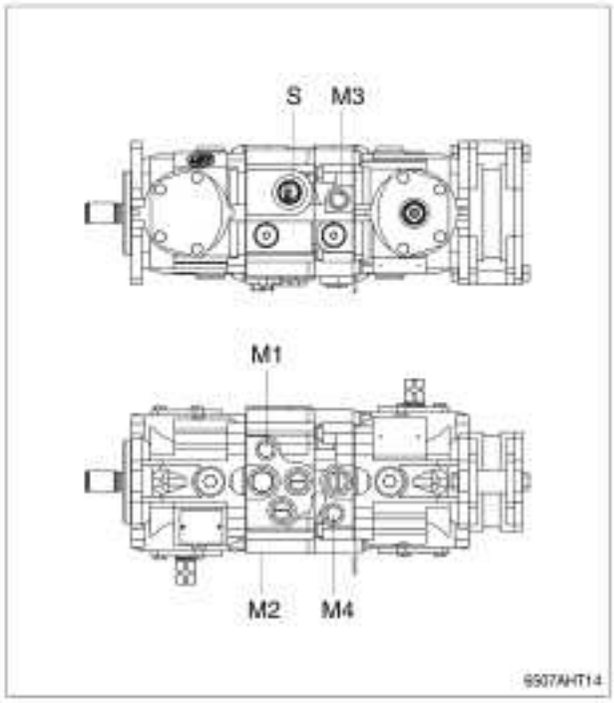
1) GAUGE INSTALLATION

(1) Various pressure and vacuum gauge readings can be a great asset in troubleshooting problems with this transmission or support system.

(2) It will be necessary to install a high pressure gauge into the system pressure gauge ports to check the setting of the high pressure relief valve.

(3) Measuring the charge pump inlet vacuum will help locate restrictions in the inlet lines, filter, etc.

(4) Case pressure readings can help locate restrictions in the return lines, oil cooler and return filter.



Port		Description
M1	System pressure port M1	5700psi or 400bar gauge
		9/16 - 18 O-ring fitting
M2	System pressure port M2	5700psi or 400bar gauge
		9/16 - 18 O-ring fitting
M3	Charge pressure	500psi or 35bar gauge
		Suction filtration 7/8 - 14 O-ring fitting Pressure filtration : Tee into charge Pressure filter outlet line
M4	Case pressure	500psi or 35bar gauge
		1-1/16 - 12 O-ring fitting (PV, PT, MV) 7/8 - 14 O-ring fitting (MF)
S	Charge pump inlet vacuum	Vacuum gauge
		Tee into charge pump inlet line

※ Tandem pumps have two (2) additional system pressure gauge ports (for system ports "M3" and "M4" in the rear section.

※ Snubbers are recommended to protect pressure gauge. Frequent gauge calibration is necessary to insure accuracy.

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GROUP 3 ELECTRICAL COMPONENT SPECIFICATION

<table>
<tr><th>No.</th><th>Part name</th><th>Specifications</th><th>Remark</th></tr>
<tr><td>1</td><td>Battery</td><td>MF90EH(300×172×203), CCA : 720A
5HR : 72AH</td><td></td></tr>
<tr><td>2</td><td>Start motor</td><td>12V, 2.0kW</td><td></td></tr>
<tr><td>3</td><td>Alternator</td><td>12V, 70A</td><td></td></tr>
<tr><td>4</td><td>Stop solenoid</td><td>12V, Hold : 0.8A
Pull : 33A</td><td></td></tr>
<tr><td>5</td><td>Safety solenoid valve</td><td>12V, 1.3A, On/Off operating</td><td></td></tr>
<tr><td>6</td><td>Fuel sender</td><td>12V
<table><tr><td>Empty warning</td><td>E</td><td>1/2</td><td>F</td></tr><tr><td>200±5Ω</td><td>100±2</td><td>32.5</td><td>5±1</td></tr></table></td><td></td></tr>
<tr><td>7</td><td>Master switch</td><td>6-36V, In rush : 1000A
Continuous : 180A</td><td>Option</td></tr>
<tr><td>8</td><td>Engine oil pressure switch</td><td>12V, 0.4A, 0.5kgf/㎠, Normal close type</td><td></td></tr>
<tr><td>9</td><td>Hydraulic oil temp switch</td><td>12V, 0.4A, 110-121°C, Normal open type</td><td></td></tr>
<tr><td>10</td><td>Micro switch</td><td>12V, 10A, Normal close type</td><td></td></tr>
<tr><td>11</td><td>Thermostat switch</td><td>12V, 1A
· On : 110°C
· Off : Under 105°C</td><td>Water temp switch</td></tr>
<tr><td>12</td><td>Start key</td><td>OFF : ∞ Ω (For each terminal)
ON : 0 Ω (For terminal 1-3)
∞ Ω (For terminal 1-5)
START : 0 Ω (For terminal 1-3 and 1-5)</td><td></td></tr>
<tr><td>13</td><td>Reset switch</td><td>12V, 16A</td><td></td></tr>
<tr><td>14</td><td>Light switch</td><td>12V, 16A</td><td></td></tr>
<tr><td>15</td><td>Room lamp switch</td><td>12V, 16A</td><td></td></tr>
<tr><td>16</td><td>Rotary lamp switch</td><td>12V, 16A</td><td>Option</td></tr>
<tr><td>17</td><td>Horn switch</td><td>12V, 3A</td><td></td></tr>
<tr><td>18</td><td>Indicator lamp</td><td>12V, 3W</td><td></td></tr>
<tr><td>19</td><td>Horn</td><td>12V, 3.5A, 110±5dB</td><td></td></tr>
<tr><td>20</td><td>Fuel gauge</td><td>12V, 3W
<table><tr><td>Position</td><td>E</td><td>1/2</td><td>F</td></tr><tr><td>RΩ</td><td>95</td><td>32.5</td><td>7</td></tr></table></td><td></td></tr>
</table>

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5) ASSEMBLY

(1) Preassemble

Thrust plates for 1st working section

① Locate O-ring into the groove on the thrust plate.

② Locate backup ring upon the O-ring.

③ Smear clean grease on the O-ring & backup ring to fix their position while moving.



Thrust plates for 2nd working section

① Repeat same procedure.



1st working body

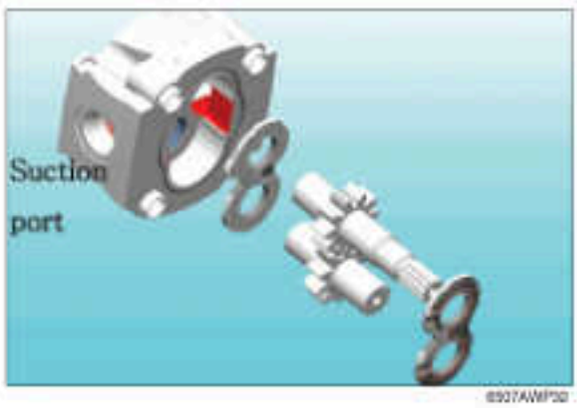
① Insert square O-rings into the groove and 4 guide tubes.

② Smear clean grease on the square O-ring to fix its position while moving.



③ Put one of preassembled thrust plates into the body and locate two gears, then load another plate upon the gears.

※ Pay attention the positions of gears and directions of thrust plates.



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5) ASSEMBLY

(1) Pre-assemble

Thrust plates

① Locate O-ring into the groove on the aluminum thrust plate.

② Locate backup ring upon the O-ring.

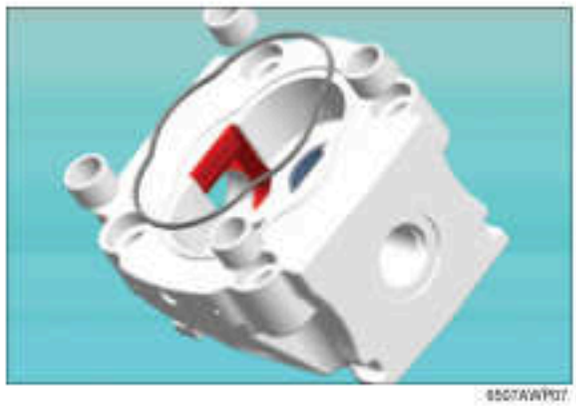
③ Smear clean grease on the O-ring & backup ring to fix their position while moving.



Working body

① Insert square O-rings into the grooves. Shape of square O-ring is different depend on type of bodies.

② Insert the guide tubes into the body.

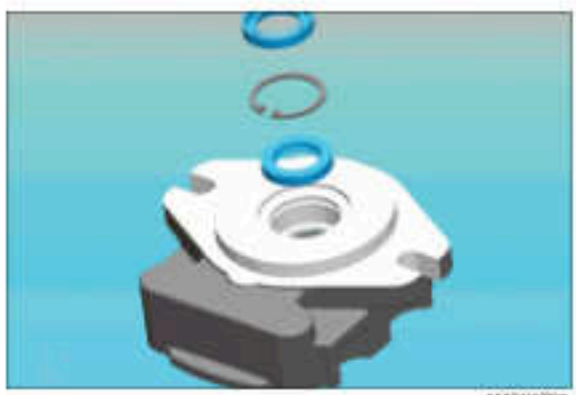


Front cover

① Locate shaft seal inside shaft hole to the end.

② Insert snap ring and locate it into the groove prearranged on the front cover.

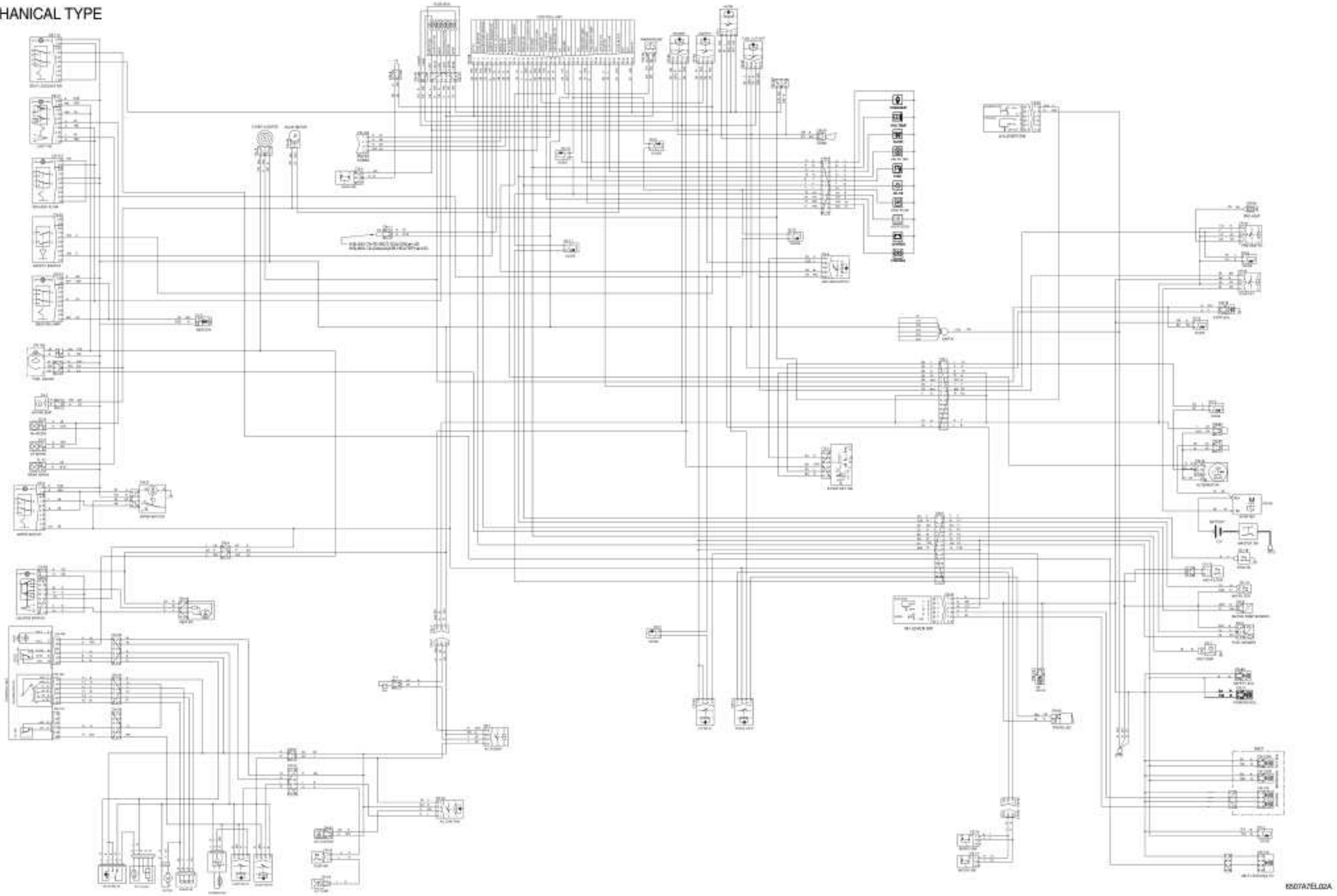
③ Locate shaft seal again but different direction.



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GROUP 2 WIRING DIAGRAM

MECHANICAL TYPE



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