WHEEL LOADER

SERVICE MANUAL

HL985A

HYUNDAI

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4. SPECIFICATION FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Cummins X12
Type	4-cycle turbocharged, charge air cooled electronic controlled diesel engine
Cooling method	Water cooled
Number of cylinders and arrangement	6 cylinders, in-line
Firing order	1-5-3-6-2-4
Combustion chamber type	Direct injection type
Cylinder bore × stroke	132 × 144 mm (5.2" × 5.7")
Piston displacement	11800 cc (720 cu in)
Compression ratio	17.0 : 1
Gross power	430 hp (321 kW) at 2100 rpm
Net power	420 hp (313 kW) at 2100 rpm
Maximum power	473 hp (353 kW) at 1700 rpm
Peak gross torque	235 kgf · m (1696 lbf · ft) at 1400 rpm
Engine oil quantity	34 ℓ (9.0 U.S. gal)
Wet weight	860 kg (1896 lb)
Starting motor	24 V - 7.5 kW
Alternator	28 V - 110 Amp
Battery	2 × 12 V × 220 Ah

2) MAIN PUMP

Item	Specification
Type	Load sensing hydraulic system
Pump	Variable displacement piston pump
Rated oil quantity	520 ℓ /min (137.4 U.S.gpm)
System pressure	315 kgf/cm² (4569 psi)

3) STEERING PUMP

Item	Specification
Type	Load sensing hydrostatic articulated steering
Pump	Variable displacement piston pump
Rated oil quantity	280 ℓ /min (74 U.S.gpm)
System pressure	210 kgf/cm² (3046 psi)

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2. TROUBLESHOOTING

※ Diagnose malfunction charts are arranged from most probable and simplest to verify, to least likely, more difficult to verify. Remember the following steps when troubleshooting a problem :

Step 1. Operational check out procedure (see group 3 in section 1)

Step 2. Operational checks (in this group)

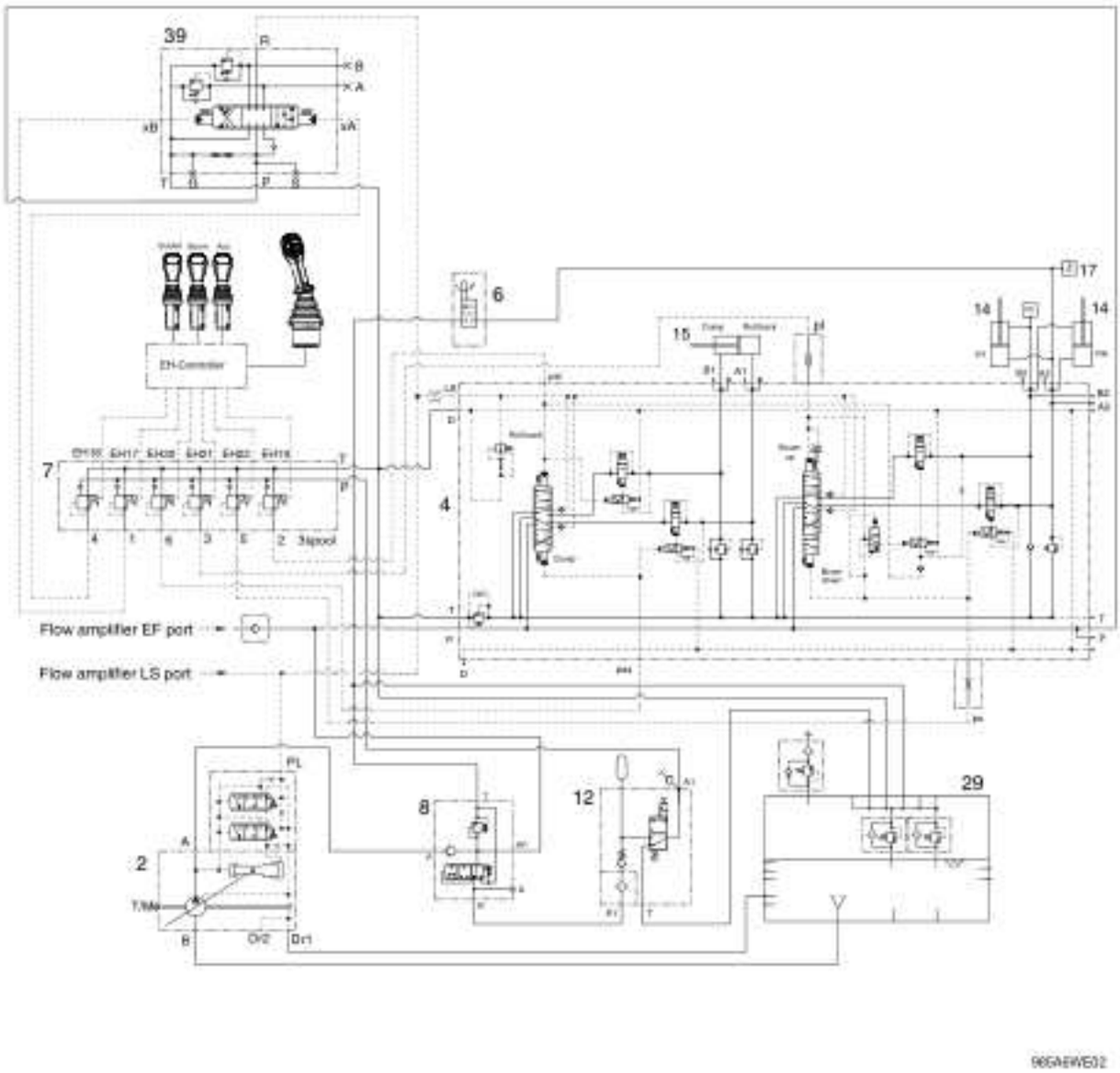
Step 3. Troubleshooting

Step 4. Tests and adjustments (see group 3)

Problem	Cause	Remedy
No steering	Low oil level.	Add recommended oil.
	Failed steering pump.	Remove and inspect return filter for metal pump particles.
	Failed main pump drive.	Do main pump flow test.
	Stuck priority valve spool.	Remove and inspect priority valve spool.
	Broken priority valve spring.	Remove and inspect spring.
	Relief valve in flow amplifier stuck open.	Do relief cartridge leakage test in group 3.
No hydraulic functions steering normal	Stuck open system relief valve.	Replace relief valve.
	Locked safety valve.	Unlock safety valve.
	Plugged pilot line filter.	Inspect and replace.
	Failed hydraulic pump.	Remove and inspect the pump.
	Low secondary pressure of RCV.	Check the pressure and replace if necessary.

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3. WORK EQUIPMENT HYDRAULIC CIRCUIT

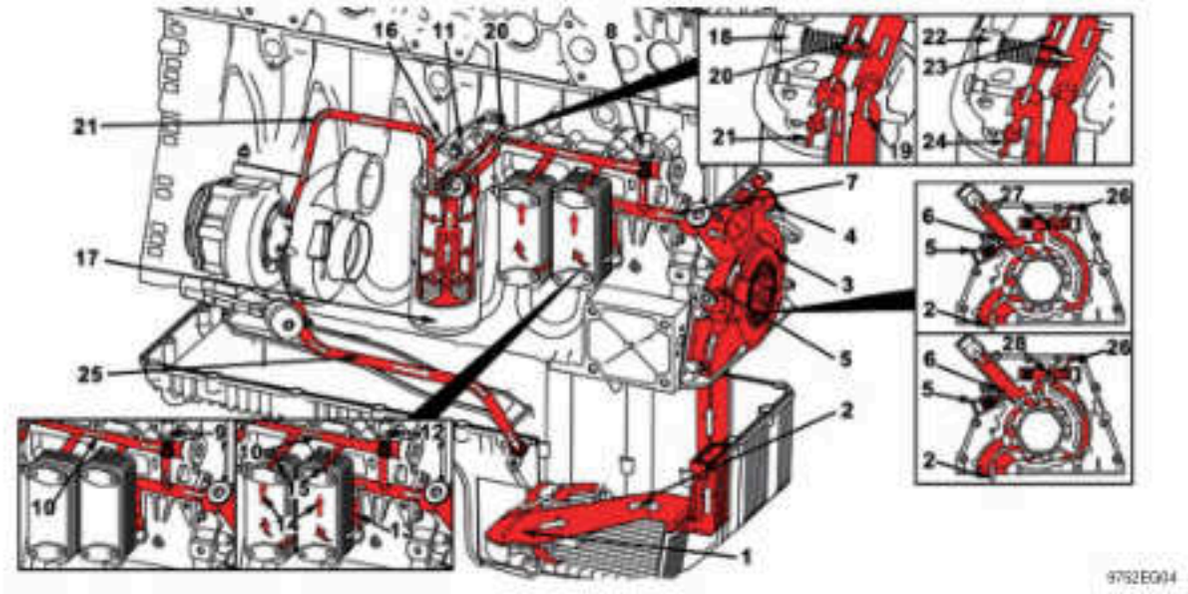


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2	Loader pump	14	Boom cylinder
4	Main control valve	15	Bucket cylinder
6	Boom lowering valve	17	Pressure sensor
7	EH control block	29	Hydraulic tank
8	Function valve	39	Auxiliary main control valve (opt)
12	Safety valve		

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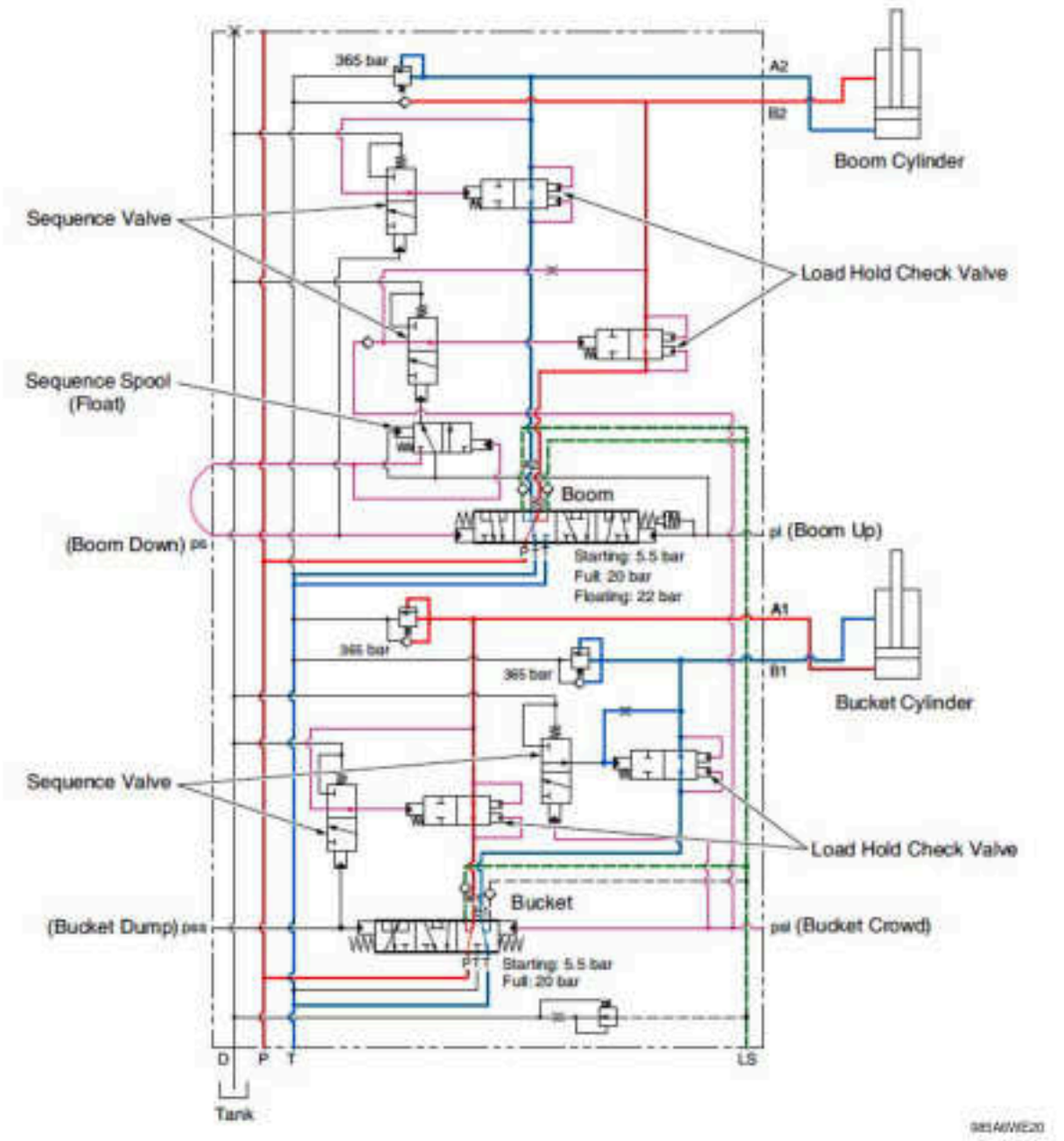
2. LUBRICATING OIL SYSTEM



1 Flow from oil pan through suction tube
2 Flow from suction tube to lubricating oil pump
3 Lubricating oil pump
4 Lubricating oil pressure regulator valve
5 Lubricating oil high-pressure relief valve
6 Lubricating oil return to oil pan
7 Lubricating oil flow from lubricating oil pump to lubricating oil cooler module
8 Lubricating oil thermostat
9 Flow with lubricating oil thermostat open
10 Lubricating oil flow from lubricating oil cooler module main oil rifle to lubricating oil filter head
11 Lubricating oil filter head
12 Flow with lubricating oil thermostat closed
13 Lubricating oil flow to oil cooler
14 Lubricating oil flow through oil cooler elements
15 Lubricating oil flow from lubricating oil cooler to lubricating oil cooler main oil rifle
16 Lubricating oil filter bypass valve
17 Lubricating oil filter
18 Flow with lubricating oil filter bypass valve closed
19 Lubricating oil flow from filter head to filter
20 Filtered lubricating oil flow to engine block main oil rifle
21 Filtered lubricating oil flow to turbocharger
22 Flow with lubricating oil filter bypass valve open
23 Unfiltered lubricating oil flow to engine block main oil rifle
24 Unfiltered lubricating oil flow to turbocharger
25 Lubricating oil drain from turbocharger
26 Block oil riffle pressure sensing channel
27 Flow with pressure regulator valve closed
28 Flow with pressure regulator valve open

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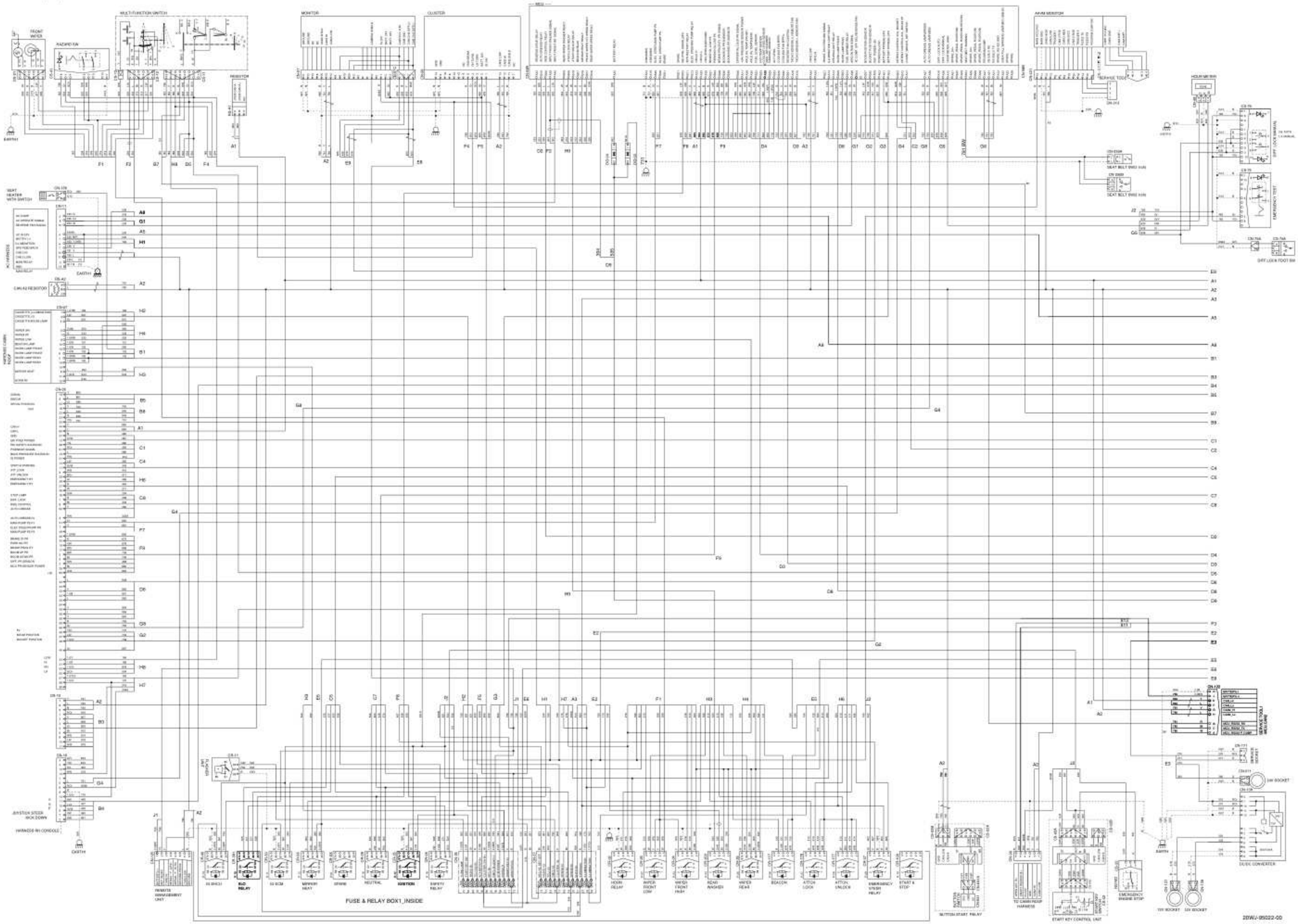
6) COMBINED BUCKET ROLL BACK AND BOOM DOWN



- When the operator activates the joystick lever to operate 'Bucket roll back' and 'Boom down' at the same time, the boom spool (ps port) and the bucket spool (psl port) of the main control valve begin to move, and hydraulic power from the main pump (P port) is supplied to the boom cylinder rod (B2 port) and the bucket cylinder head (A1) by the load hold valve.
- The hydraulic pilot flowed in the bucket spool (psl port) passes through the sequence valve and the boom load hold valve in adjusting the flow to the boom cylinder rod and supplying hydraulic power to the bucket cylinder head for efficient bucket crowd operation on the ground (combined movements).

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· ELECTRICAL CIRCUIT (1/3)



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