WHEEL LOADER

SERVICE MANUAL

HL975 Tier 3

HYUNDAI

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CONTENTS

SECTION 1 GENERAL

Group 1 Safety Hints 1-1
Group 2 Specifications 1-10
Group 3 Operational Checkout Record Sheet 1-25

SECTION 2 ENGINE

Group 1 Structure and Function 2-1
Group 2 Engine speed and Stall rpm 2-8

SECTION 3 POWER TRAIN SYSTEM

Group 1 Structure and Function 3-1
Group 2 Operational Checks and Troubleshooting 3-71
Group 3 Test and Adjustments 3-83
Group 4 Disassembly and Assembly 3-84

SECTION 4 BRAKE SYSTEM

Group 1 Structure and Function 4-1
Group 2 Operational Checks and Troubleshooting 4-32
Group 3 Tests and Adjustments 4-39
Group 4 Disassembly and assembly 4-41

SECTION 5 STEERING SYSTEM

Group 1 Structure and Function 5-1
Group 2 Operational Checks and Troubleshooting 5-16
Group 3 Tests and Adjustments 5-24
Group 4 Disassembly and Assembly 5-31

SECTION 6 WORK EQUIPMENT

Group 1 Structure and Function 6-1
Group 2 Operational Checks and Troubleshooting 6-40
Group 3 Tests and Adjustments 6-51
Group 4 Disassembly and Assembly 6-63

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SECTION 7 ELECTRICAL SYSTEM

Group 1 Component Location 7-1
Group 2 Electrical Circuit 7-3
Group 3 Electrical Component Specification 7-22
Group 4 Connectors 7-29
Group 5 Troubleshooting 7-52

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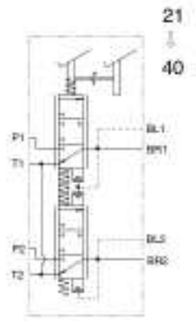
Fault code J1939 SPN J1939 FMI	Reason	Effect (only when fault code is active)
3321 3246 4	Aftertreatment diesel particulate filter outlet temperature sensor circuit - Voltage below normal or shorted to low source. Low signal voltage detected at the aftertreatment diesel particulate filter outlet temperature sensor circuit.	Possible reduced engine performance.
3322 3246 2	Aftertreatment diesel particulate filter outlet temperature - Data erratic, intermittent, or incorrect. The aftertreatment diesel particulate filter outlet temperature is not changing with engine operating conditions.	Possible reduced engine performance.
3326 91 9	SAE J1939 Multiplexed accelerator pedal or lever sensor system - Abnormal update rate. The ECM expected information from a multiplexed accelerator pedal or lever sensor but did not receive it soon enough or did not receive it at all.	Engine will only idle.
3328 191 9	Transmission output shaft speed - Abnormal update rate. No communication or an invalid data transfer rate has been detected on the J1939 data link between the ECM and the transmission output shaft speed sensor.	None on performance.
3342 4752 18	Engine exhaust gas recirculation cooler efficiency - Data valid but below normal operating range - Moderately severe level. The EGR cooler is not cooling the recirculated exhaust gas sufficiently.	None on performance.
3343 5285 18	Engine charge-air cooler efficiency - Data valid but below normal operating range - Moderately severe level. The engine charge air cooler is not cooling the intake air flow sufficiently.	None on performance.
3361 102 10	Intake manifold 1 pressure - Abnormal rate of change. The VGT position reading is stuck.	Possible reduced engine performance.
3366 111 18	Coolant level - Data valid but below normal operating range - Moderately severe level. Very low engine coolant level detected.	None on performance.
3374 1818 31	Roll over protection brake control active - Condition exists. The ECM received a message from the anti-lock braking (ABS) controller, inhibiting cruise control operation.	Cruise control could possibly not operate.
3375 5397 31	Aftertreatment diesel particulate filter regeneration too frequent - Condition exists. The system has detected the need for an active regeneration has occurred too soon following the last active regeneration.	None on performance.
3376 5319 31	Aftertreatment diesel particulate filter incomplete regeneration - Condition exists. The system has detected that the aftertreatment diesel particulate filter differential pressure is too high following an active regeneration.	Possible frequent need for aftertreatment regeneration.

※ Some fault codes are not applied to this machine.

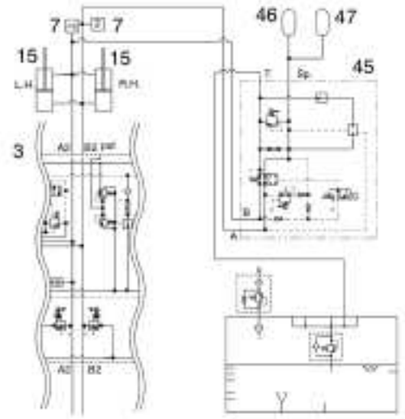
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HYDRAULIC CIRCUIT (2/2)

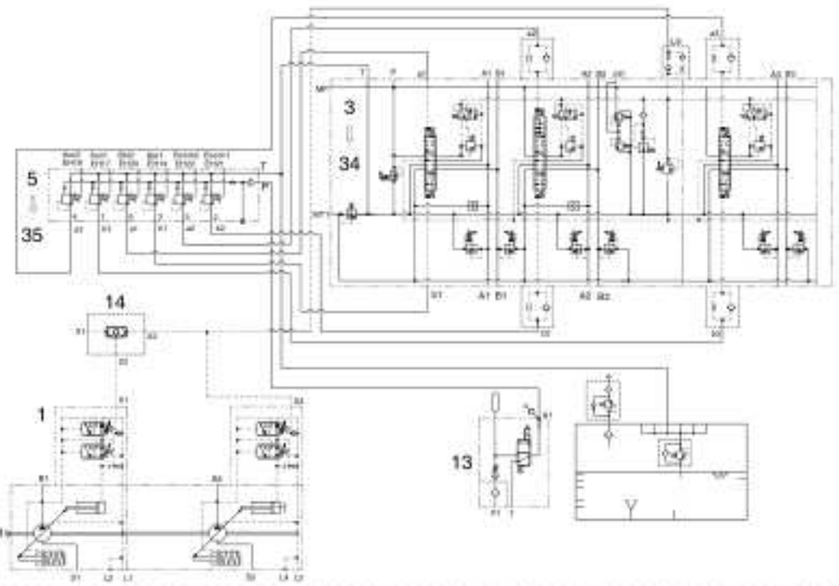
<DUAL BRAKE PEDAL>



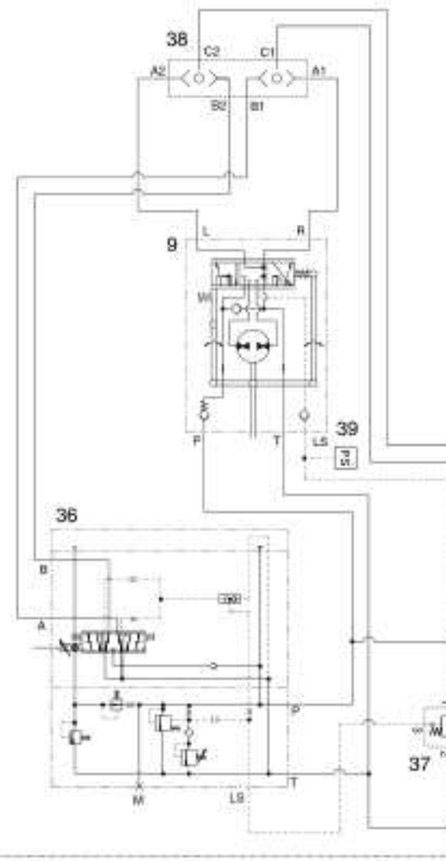
<RIDE CONTROL>



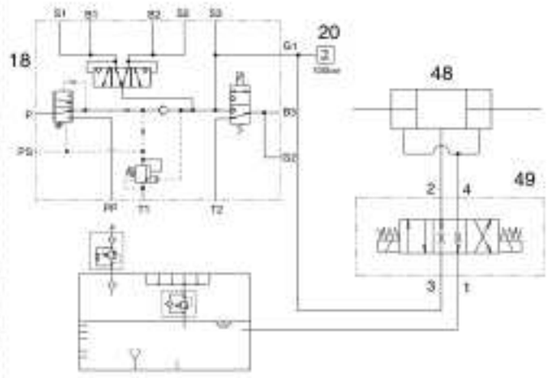
<3-SPOOL>



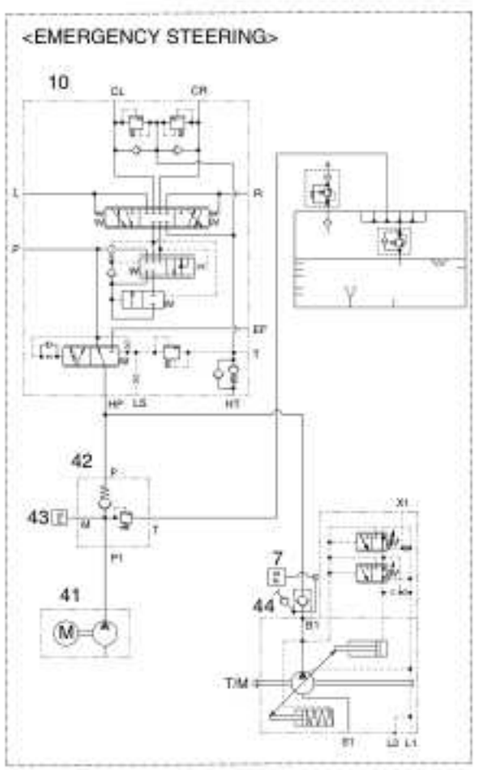
<JOYSTICK STEERING>



<QUICK COUPLER>



<EMERGENCY STEERING>



34 Main control valve-3 spool
35 Remote control block
36 Proportional valve
37 LS compensating valve
38 Shuttle valve
39 Pressure sensor
40 Brake valve-dual
41 Motor pump assy
42 Check valve
43 Pressure sensor
44 Check valve
45 Ride control valve
46 Accumulator
47 Accumulator
48 Quick coupler cylinder
49 Solenoid valve

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6. LOADER SYSTEM AND PORT RELIEF VALVE PRESSURE TEST

- SPECIFICATION

Oil temperature (40~50°C)

Relief valve	Engine speed	Relief pressure
System (M)	Low	280±5 kg/cm² (3980±70 psi)
Boom raise (U)	Low	340±10 kg/cm² (4840±140 psi)
Boom down (W)	Low	340±10 kg/cm² (4840±140 psi)
Bucket rollback (R)	Low	340±10 kg/cm² (4840±140 psi)
Bucket dump (D)	Low	310±10 kg/cm² (4410±140 psi)

- Gauge and tool

Gauge 0~35 MPa (0~350 bar, 0~5000 psi)

M : System (main) relief valve

R : Bucket rollback relief

D : Bucket dump relief

U : Boom raise relief

W : Boom down relief

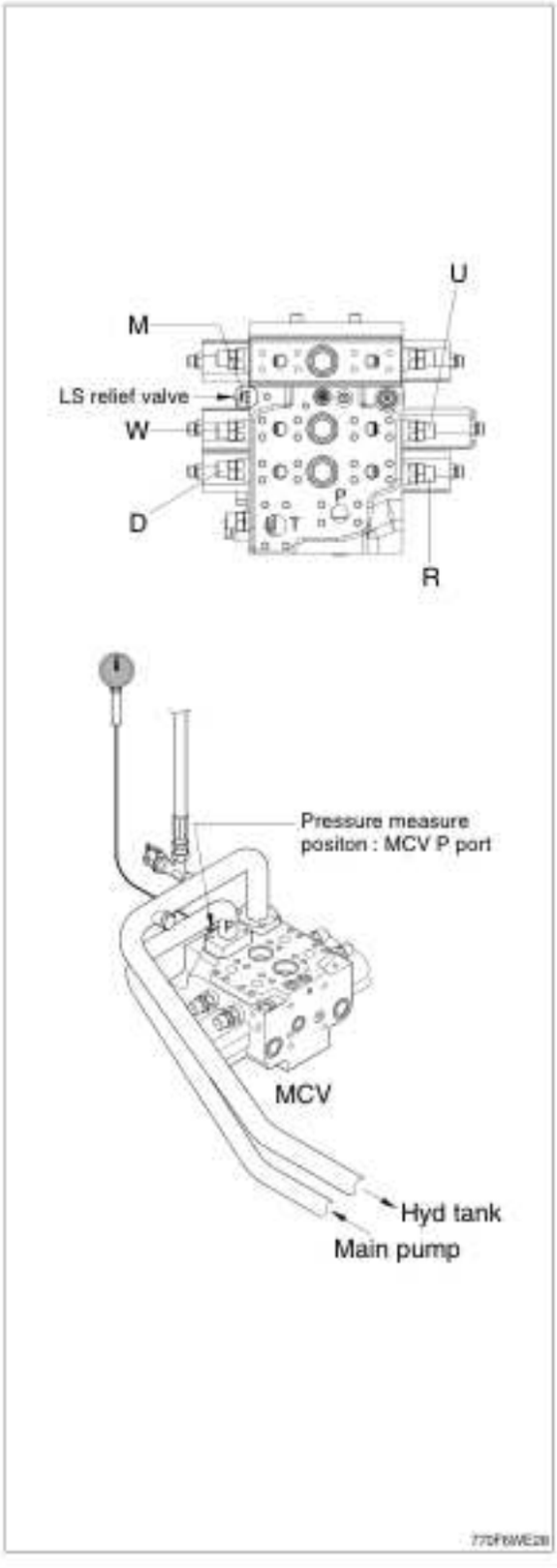
1) Install fitting and pressure gauge to test port in pump delivery line.

2) Install temperature reader. (see temperature reader installation procedure in this group)

3) Heat hydraulic oil to specifications. (see hydraulic oil warm up procedure in this group)

4) To check the system relief (M), run engine at low idle. Lower boom to bottomed position.
Slowly activate boom down function while watching pressure gauge. If pressure is not to specification, loosen lock nut on system relief valve (M) and adjust to specification.

※ Do not adjust the system relief valve above 280 kg/cm² (3980 psi). Damage to the pump will result from excessive pressure settings.



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5) DISASSEMBLY AND ASSEMBLY

(1) Spool

① Loosen the bolt (2EA).

- Tool : Wrench 5 mm
- Tightening torque : 0.85 kgf · m (6.1 lbf · ft)



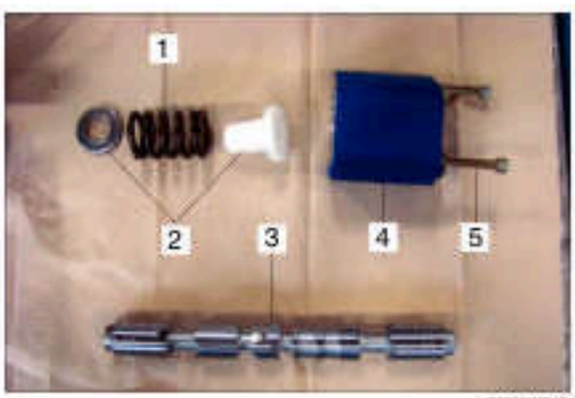
T6096WE40

② Remove the cover, spring retainer, spring and spool.



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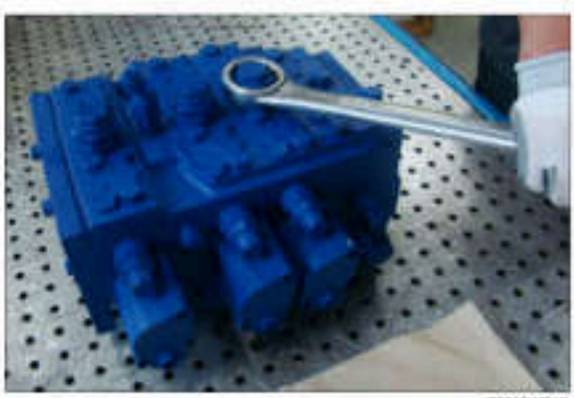
1 Spring
2 Spring ratainer
3 Spool
4 Cover
5 Bolt



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(2) Compensator valve

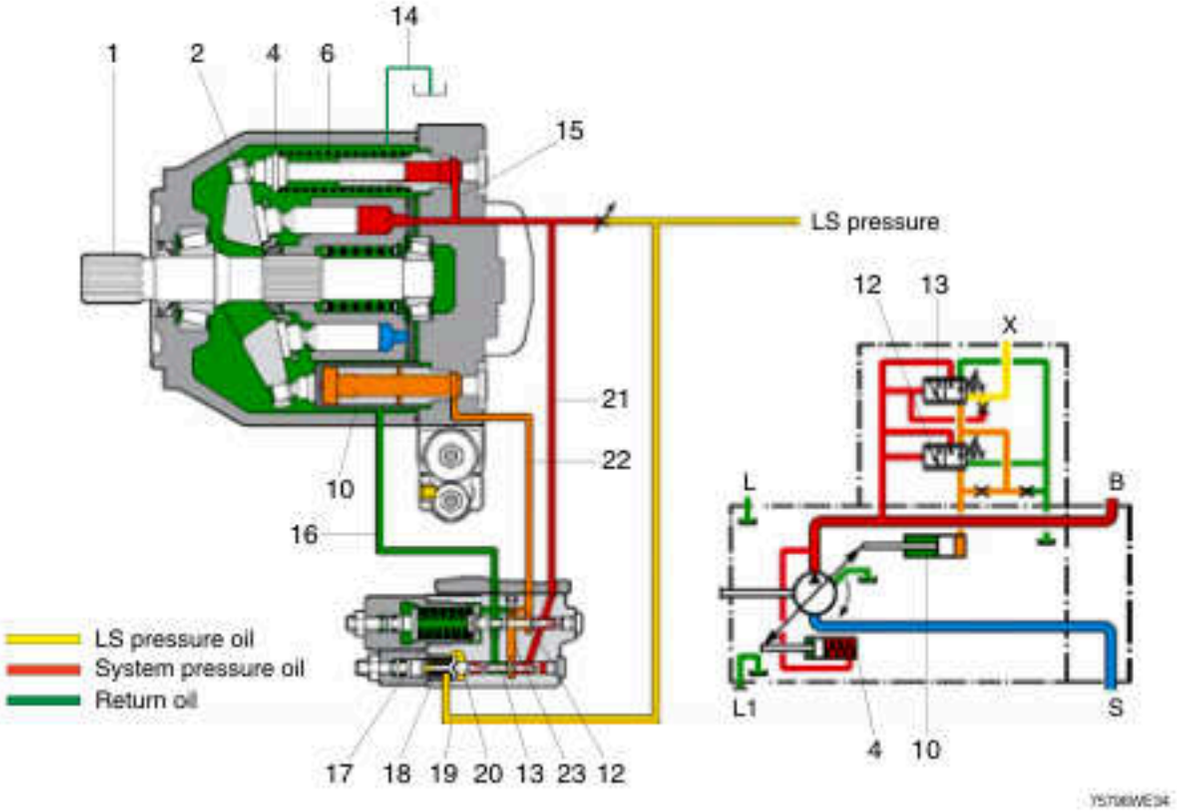
- Tool : Spanner 42 mm



T6096WE43

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(2) Destroking



1	Drive shaft	13	Flow compensator spool	19	LS line from the metering pump
2	Swash plate	14	Case drain	20	Cavity
4	Counter piston	15	Passage	21	Passage
6	Counter spring	16	Passage	22	Passage
10	Control piston	17	Spring	23	Cavity
12	Pressure compensator spool	18	Spring		

The decreased flow demand causes a LS pressure in line (19). The LS pressure in line (19) combines with the force of spring (18) in cavity (20).
This combination of LS pressure and of spring force is less than the pump pressure in passage (21). This causes flow compensator spool (13) to move left.
Pump oil now flows through passage (15). The oil then flows past flow compensator spool (13), through passage (22), and then to control piston (10).

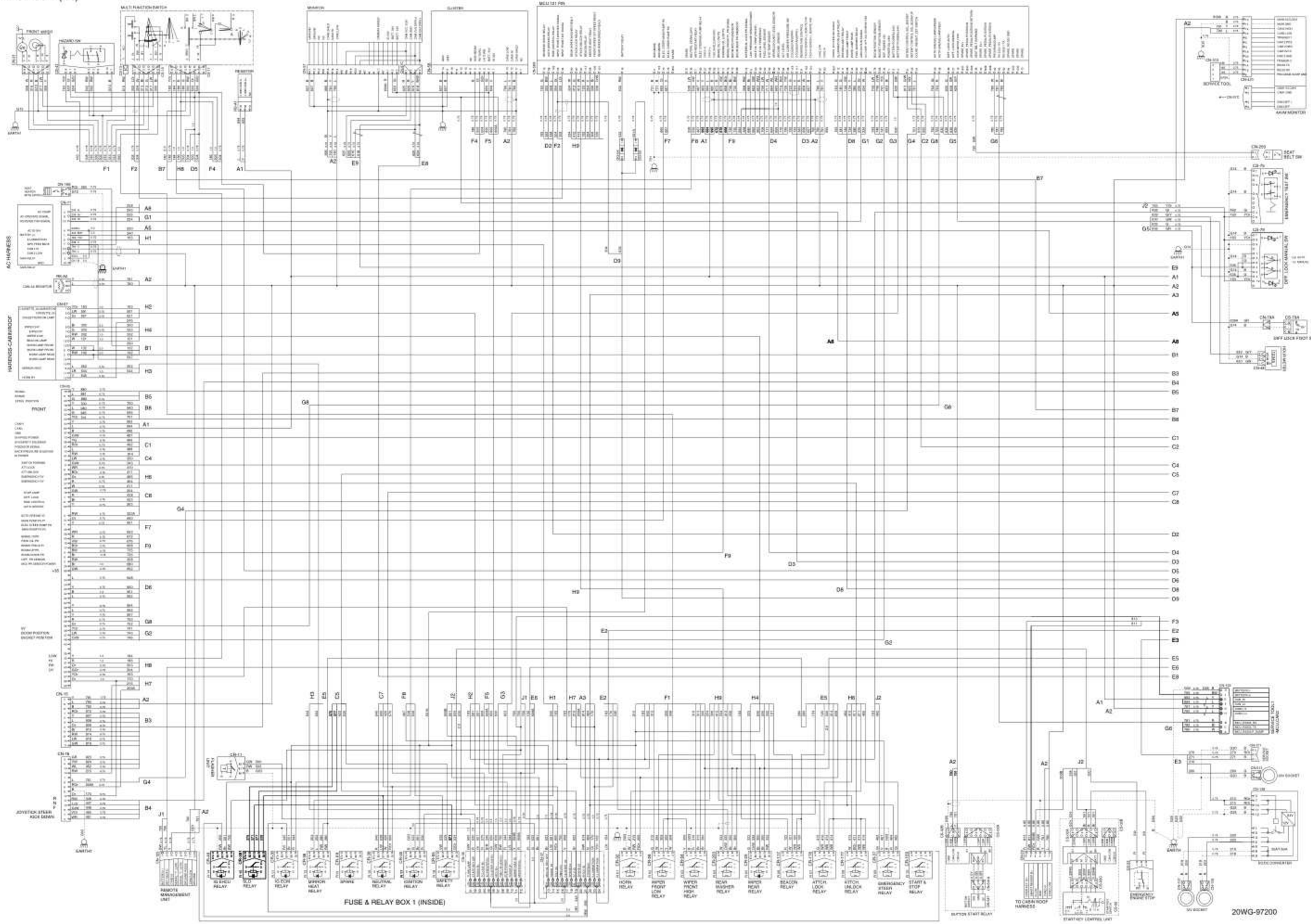
The pump pressure behind control piston (10) is now greater than the combined force of counter piston(4) and of counter spring (6). The angle of swash plate (2) decreases.
This decreases the pump output and the system pressure.

When the lower flow requirements are met, flow compensator spool (13) moves right up to the balanced position. Swash plate (2) maintains an angle that is sufficient to provide the lower required pressure. If the operator does not turn the steering wheel and does not move RCV, then the pump will return to low pressure standby.

※ Control piston → Changes pump displacement ; influenced by controller.
Counter piston → Helps to change pump displacement but no possible to control this piston.

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· ELECTRICAL CIRCUIT (1/3)



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