CRAWLER EXCAVATOR

SERVICE MANUAL

R500LC-7

HYUNDAI

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3) GEAR PUMP

Item	Specification
Type	Fixed displacement gear pump single stage
Capacity	15cc/rev
Maximum pressure	35kgf/cm²(498psi)
Rated oil flow	28.5 ℓ/min(7.5U.S. gpm/6.3U.K. gpm)

4) MAIN CONTROL VALVE

Item	Specification
Type	9 spools
Operating method	Hydraulic pilot system
Main relief valve pressure	330kgf/cm²(4690psi) [360kgf/cm²(5120psi)]
Overload relief valve pressure	380kgf/cm²(5400psi)

[ ]: Power boost

5) SWING MOTOR

Item	Specification
Type	Fixed displacement axial piston motor
Capacity	148.5cc/rev
Relief pressure	285kgf/cm²(4050psi)
Braking system	Automatic, spring applied hydraulic released
Braking torque	63kgf · m(456lbf · ft)
Brake release pressure	23~50kgf/cm²(327~711psi)
Reduction gear type	2 - stage planetary
Swing speed	10.0rpm

6) TRAVEL MOTOR

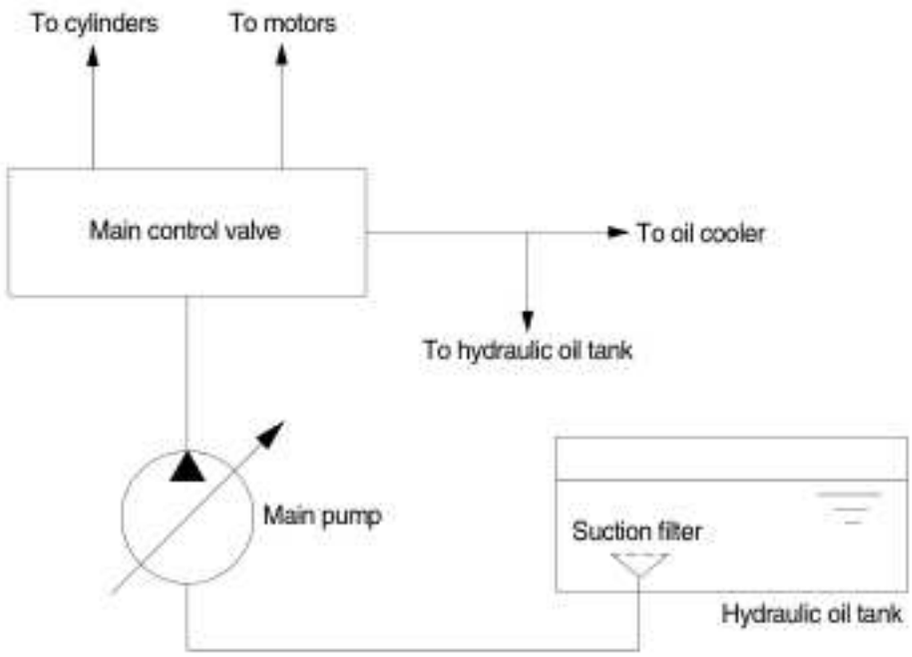
Item	Specification
Type	Variable displacement axial piston motor
Relief pressure	345kgf/cm²(4910psi)
Capacity(max / min)	160/100cc/rev
Reduction gear type	3-stage planetary
Braking system	Automatic, spring applied hydraulic released
Brake release pressure	17~50kgf/cm²(242~711psi)
Braking torque	103kgf · m(745lbf · ft)

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GROUP 2 MAIN CIRCUIT

The main hydraulic circuit consists of suction circuit, delivery circuit, return circuit and drain circuit.
The hydraulic system consists of one main pump, one control valve, one swing motor, four cylinders and two travel motors.
The swash plate type variable displacement tandem axial piston pump is used as the main pump and is driven by the engine at ratio 1.0 of engine speed.

1. SUCTION AND DELIVERY CIRCUIT



3-02 (210-7)

The pumps receive oil from the hydraulic tank through a suction filter. The discharged oil from the pump flows into the control valve and goes out the tank ports.
The oil discharged from the main pump flows to the actuators through the control valve.
The control valve controls the hydraulic functions.
The return oil from the actuators flows to the hydraulic tank through the control valve and the oil cooler.

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GROUP 9 SELF-DIAGNOSTIC SYSTEM

1. OUTLINE

When any abnormality occurs in the NEW CAPO system caused by electric parts malfunction and by open or short circuit, the CPU controller diagnoses the problem and sends the error codes to the cluster and also stores them in the memory.

The current or recorded error codes are displayed at the error display mode selected by touching **SELECT** switch 2 times while pressing **BUZZER STOP** switch.

2. CURRENT ERROR DISPLAY

Cluster displays **Co : Err** and makes buzzer sound itself to warn the communication error when communication problem caused by wire-cut or malfunction of the CPU controller occurs.

Cluster displays real time error codes received from CPU controller through communication. In case of no problem it displays CHECK **Err : 00**.

If there are more than 2 error codes, each one can be displayed by pressing ▲ and ▼ switch respectively.

Examples :

1) Communication Error

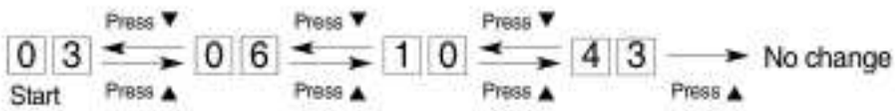
Co : Err & Buzzer sound

2) No problem

CHECK Er : 0 0

3) 4 Error codes(03, 06, 10, 43) display

CHECK Er : 0 3

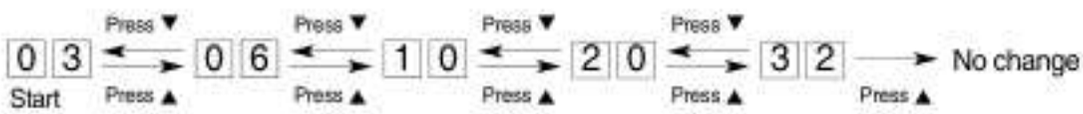


3. RECORDED ERROR DISPLAY

The recorded error can be displayed only when the key switch is at ON position.

Examples : 5 Recorded error codes(03, 06, 10, 20, 32) display

TIME Er : 0 3



4. DELETE ALL RECORDED ERROR CODES

Select recorded error(TIME **Er**) display and press and switch at the same time for 2 seconds or more. Cluster display changes to TIME **Er : 00**, which shows that CPU controller deleted all the recorded error codes in the memory.

5. ECM FAULT CODES DISPLAY

If any fault code is received from ECM, cluster turns ON the "Engine check" and sound the buzzer.

The fault codes are displayed on the cluster as the same as current error display.

ex) CHECK Er : 143

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④ Spool sub assy(5).



⑤ Spool sub assy(8).

- When disassemble the spool assembly, fix the spool with vise. On this occasion attach wood between vise blades to prevent the spool from damaging.
- Heat the outer race of spool with industrial drier and then loosen easily . (Temperature : 200~250℃)

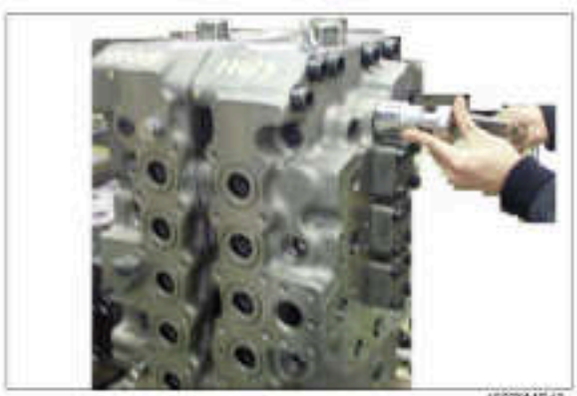


⑥ Loosen the socket head bolt(63) and remove the short cap(13, 81).
Pull out O-ring(14) from valve housing.



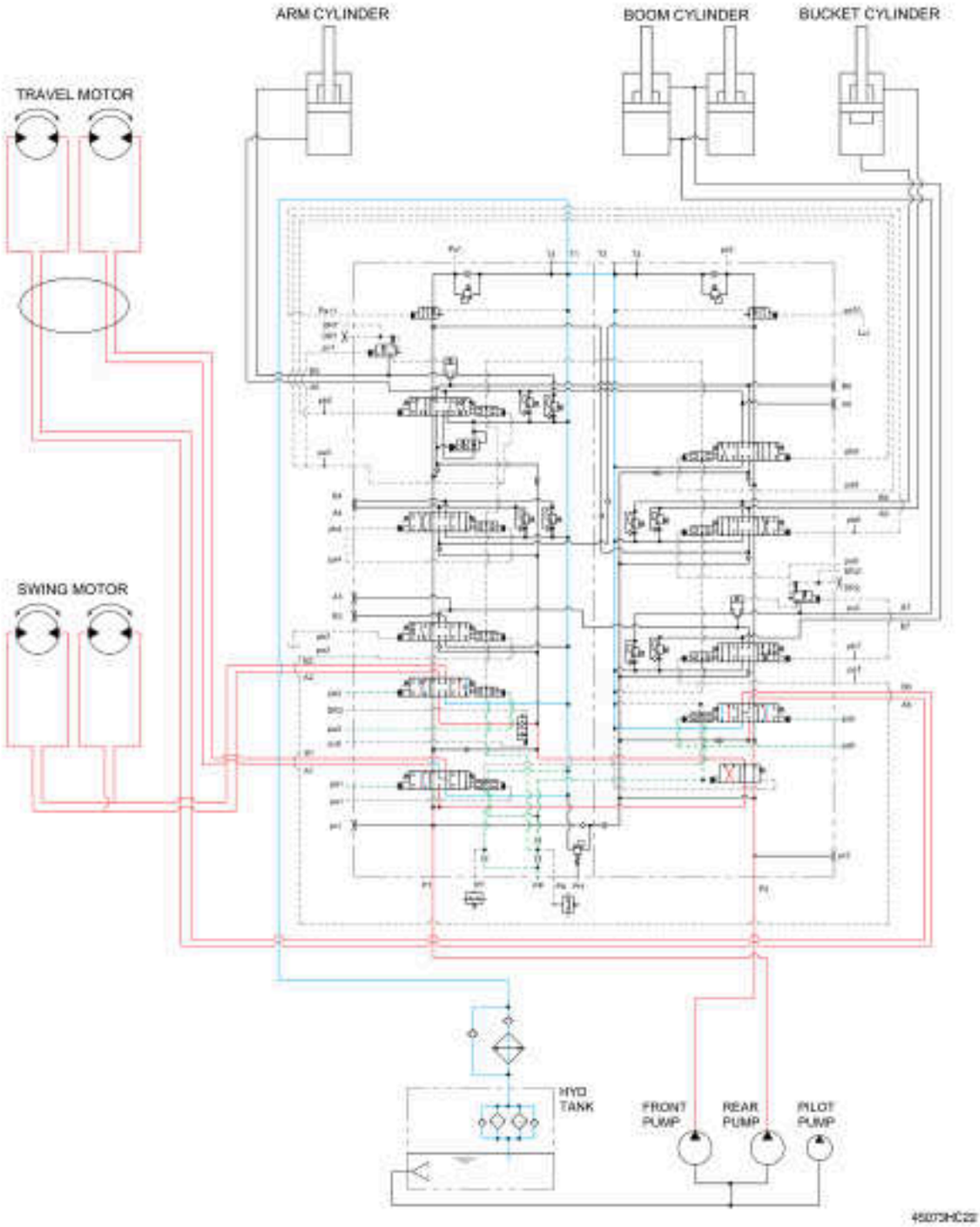
(3) Center bypass cut spool assy(24)

① Loosen the plug(27) and remove spring(25), spring seat(21) and the spool(24).



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3. COMBINED SWING AND TRAVEL OPERATION



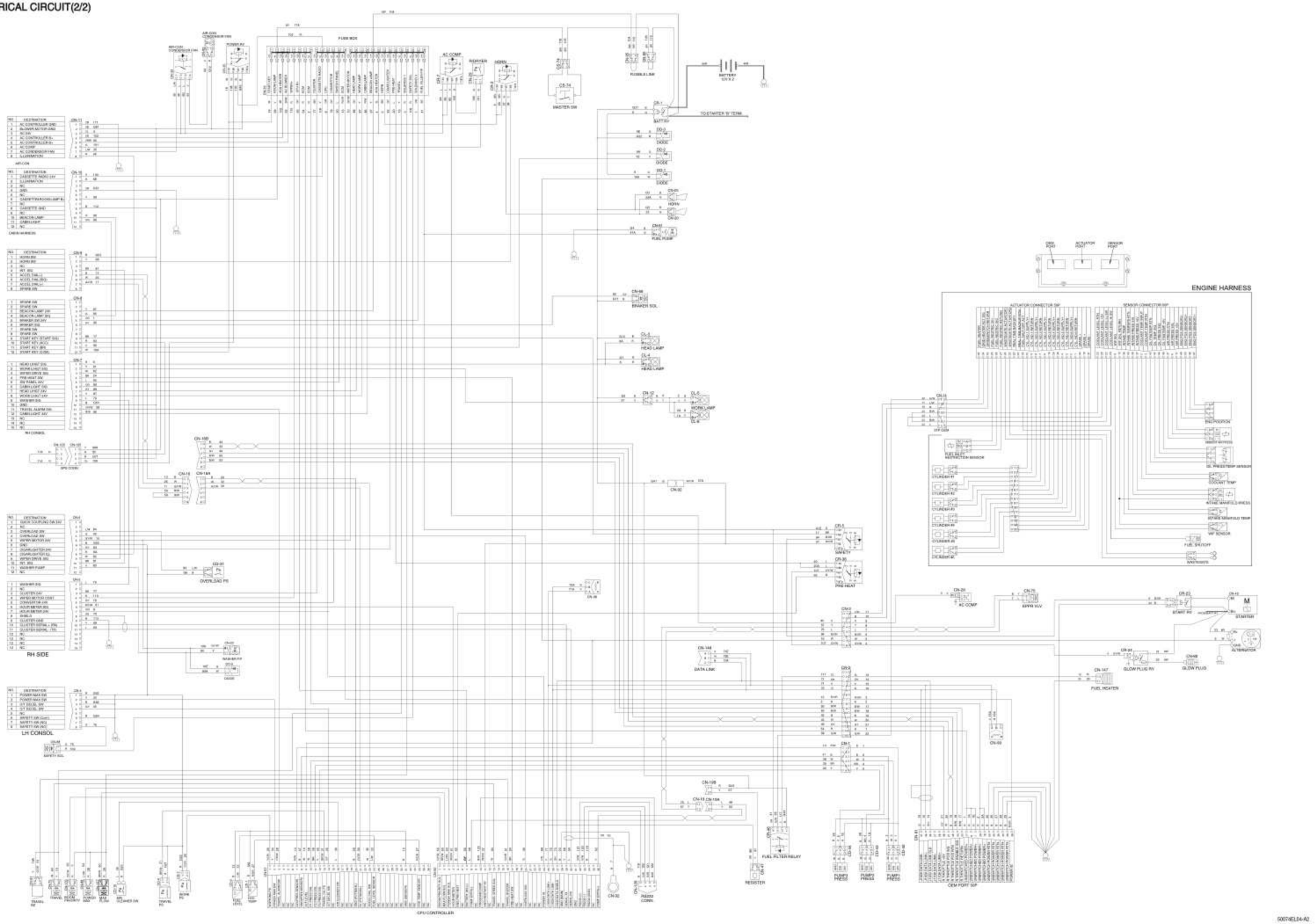
When the swing and travel functions are operated, simultaneously the swing spool and travel spools in the main control valve are moved to the functional position by the pilot oil pressure from the remote control valve. At the same time, the straight travel spool is pushed to the right by the pilot oil pressure(PP) from the pilot pump.

The oil from the rear pump flows into the swing motor through the swing spool. The oil from the front pump flows into the travel motors through the RH travel spool of the left control valve and the LH travel spool of the right control valve via the straight travel spool.

The superstructure swings and the machine travels straight.

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· ELECTRICAL CIRCUIT(2/2)



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