CRAWLER EXCAVATOR

SERVICE MANUAL

R16-9

HYUNDAI

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3) GEAR PUMP

Item	Specification
Type	Fixed displacement gear pump single stage
Capacity	4.5/2.7 cc/rev
Rated oil flow	10.4/6.2 ℓ /min (2.7/1.6 U.S. gpm / 2.3/1.4 U.K. gpm)

4) MAIN CONTROL VALVE

Item	Specification
Type	Sectional, 9 spools (12 blocks)
Operating method	Hydraulic pilot system
Main relief valve pressure	210 kgf/cm² (2990 psi)
Overload relief valve pressure	230 kgf/cm² (3270 psi)

5) SWING MOTOR

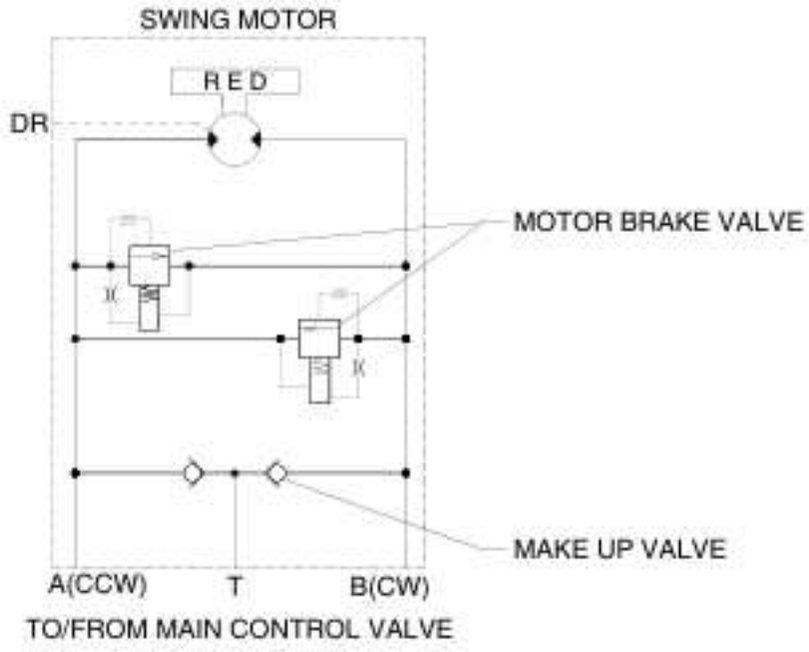
Item	Specification
Type	Fixed displacement axial piston motor
Capacity	18.1 cc/rev
Relief pressure	165 kgf/cm² (2350 psi)
Reduction gear type	1 - stage planetary

6) TRAVEL MOTOR

Item	Specification
Type	Variable displacement axial piston motor
Relief pressure	210 kgf/cm² (2990 psi)
Reduction gear type	2-stage planetary

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SWING CIRCUIT OPERATION



1) MOTOR BRAKE VALVE

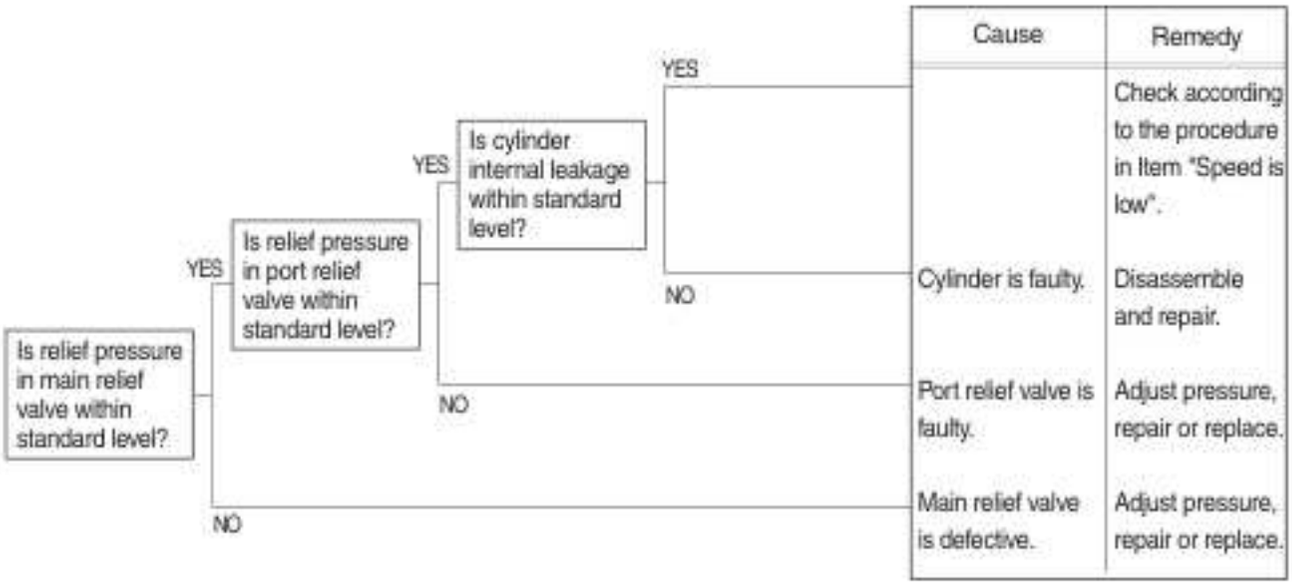
Motor brake valve for the swing motor limits to cushion the starting and stopping pressure of swing operation.

2) MAKE UP VALVE

The make up valves prevent cavitation by supplying return oil to the vacuum side of the motor.

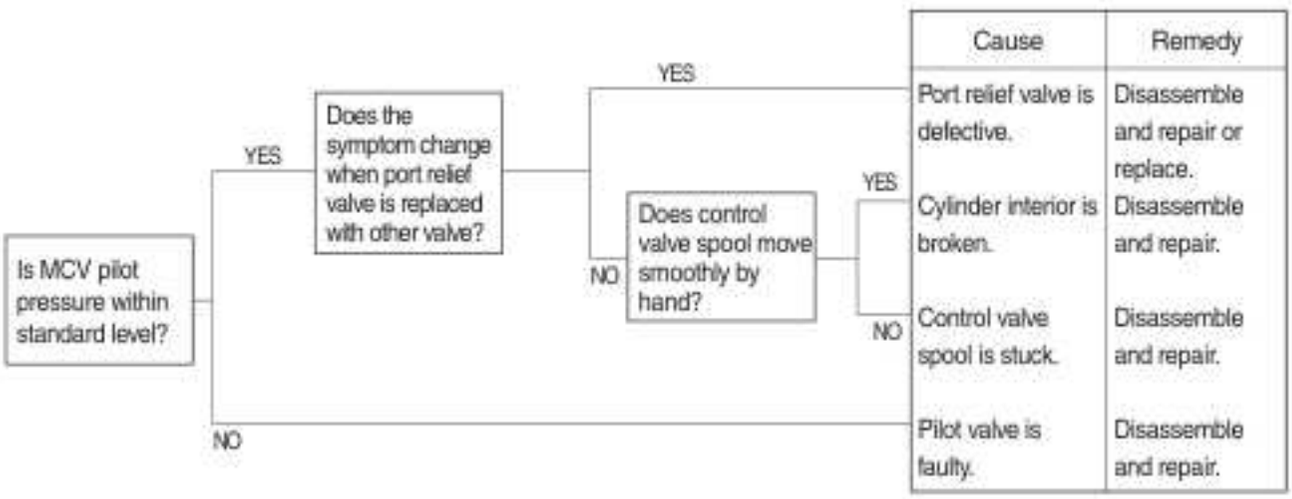
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4) BOOM, ARM OR BUCKET POWER IS WEAK



Cause	Remedy
	Check according to the procedure in Item "Speed is low".
Cylinder is faulty.	Disassemble and repair.
Port relief valve is faulty.	Adjust pressure, repair or replace.
Main relief valve is defective.	Adjust pressure, repair or replace.

5) ONLY BUCKET OPERATION IS TOTALLY IMPOSSIBLE



Cause	Remedy
Port relief valve is defective.	Disassemble and repair or replace.
Cylinder interior is broken.	Disassemble and repair.
Control valve spool is stuck.	Disassemble and repair.
Pilot valve is faulty.	Disassemble and repair.

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4) OLED display

(1) Main display



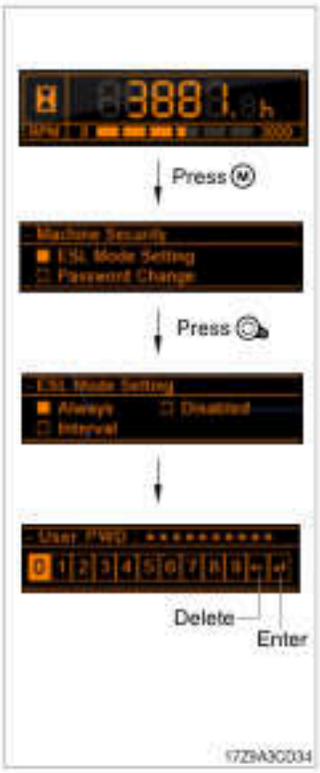
① Service meter : This meter shows the total operation hours of the machine.

※ Always ensure the operating condition of the service meter during the machine operation.

② Engine rpm : This displays the engine speed.

③ Engine run status : This displays the engine run ststus.

(2) Machine security



① ESL (Engine Starting Limit) mode setting

- ESL mode is designed to be a theft deterrent or will prevent the unauthorized operation of the machine.
- If the ESL mode was selected Always, the password will be required when the start switch is turned ON.
- Disable : Not used ESL function.

  Always: The password is required whenever the operator start engine.

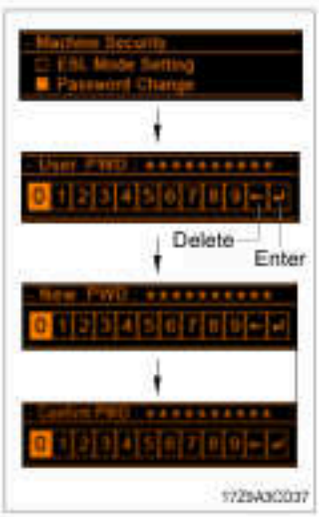
  Interval : The password is required when the operator start engine first. But the operator can restart the engine within the interval time without inputting the password.

  The interval time can be set maximum 2 days.

Interval time

- If set interval time to 5 minutes, ESL system is activated after 5 minutes. Therefore, the password does not need to restart engine within 5 minutes.

※ Default password : 00000

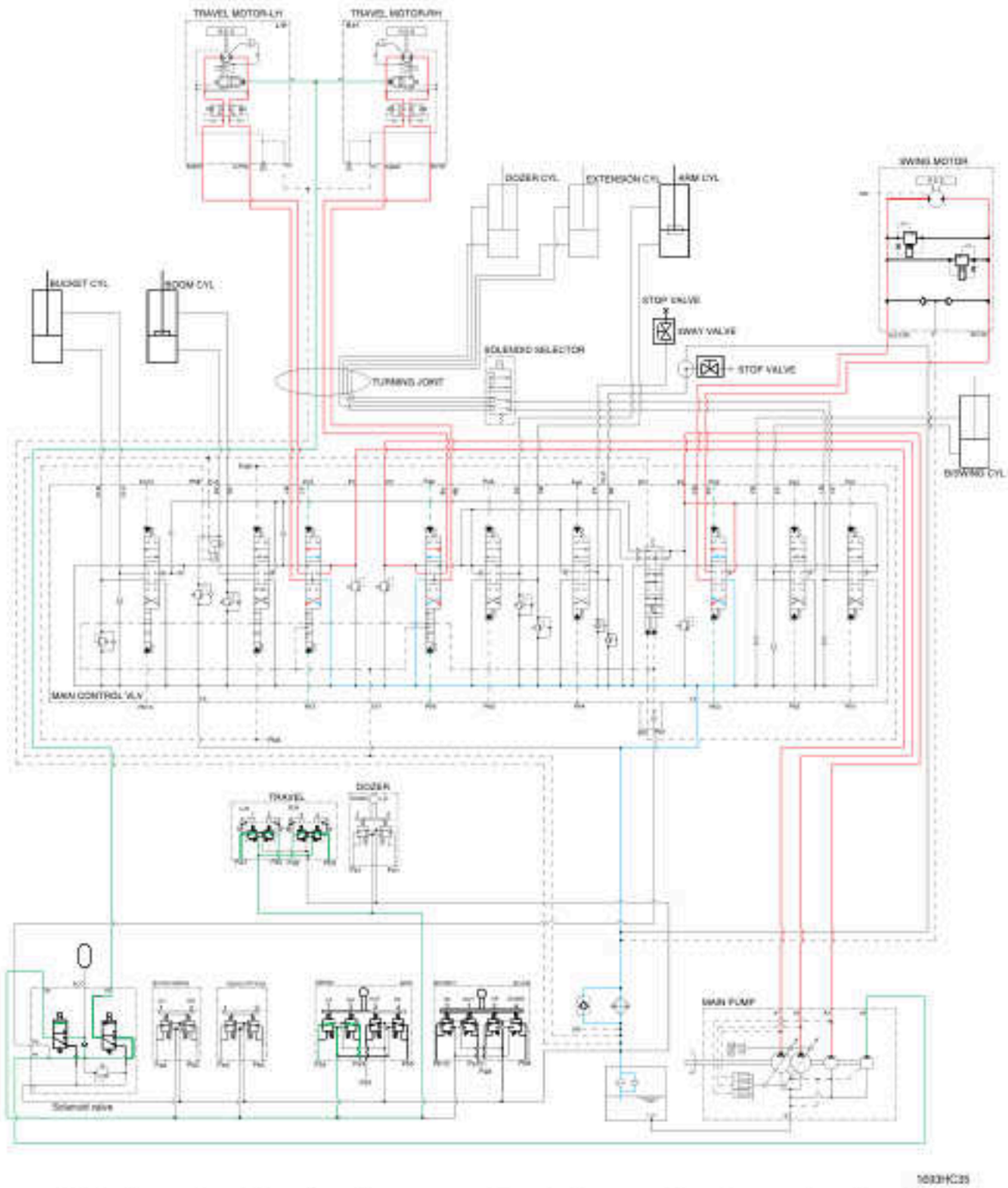


② Password change

- Input 5 to 10 digits and press Enter.

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6. 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 and the travel levers.

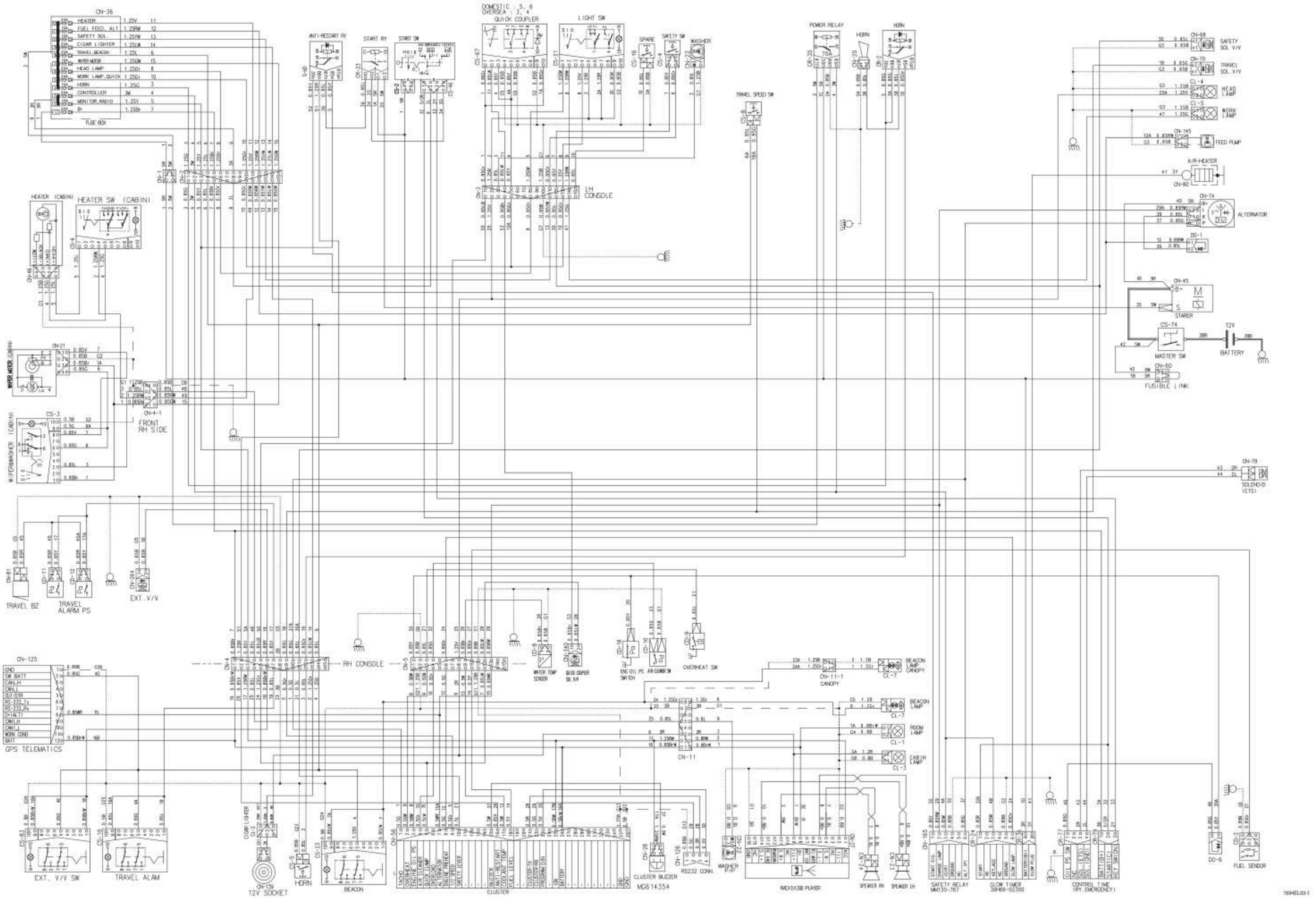
The oil from the A3 pump flows into the swing motor through the swing spool.

The oil from the A1 pump flows into the travel motor through the RH travel spool.

The oil from the A2 pump flows into the travel motor through the LH travel spool.

The superstructure swings and the machine travels straight.

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