WHEELED EXCAVATOR

SERVICE MANUAL

R140W-7

HYUNDAI

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7) POWER TRAIN

Item	Description		Specification
Transmission	Type		2 speed power shift transmission
	Gear ratio	1st	5.35
		2nd	1.39
Parking brake	Type		Multi disc brake integrated in transmission
	Maximum braking torque		156kgf· m(1128lb· ft)
Axle	Type		4 wheel drive with differential
	Gear ratio		13.714
	Brake		Multi disc brake

8) REMOTE CONTROL VALVE

Item		Specification
Type		Pressure reducing type
Operating pressure	Minimum	6.5kg/cm²(92psi)
	Maximum	26kg/cm²(370psi)
Single operation stroke	Lever	82.7mm(3.3in)

9) CYLINDER

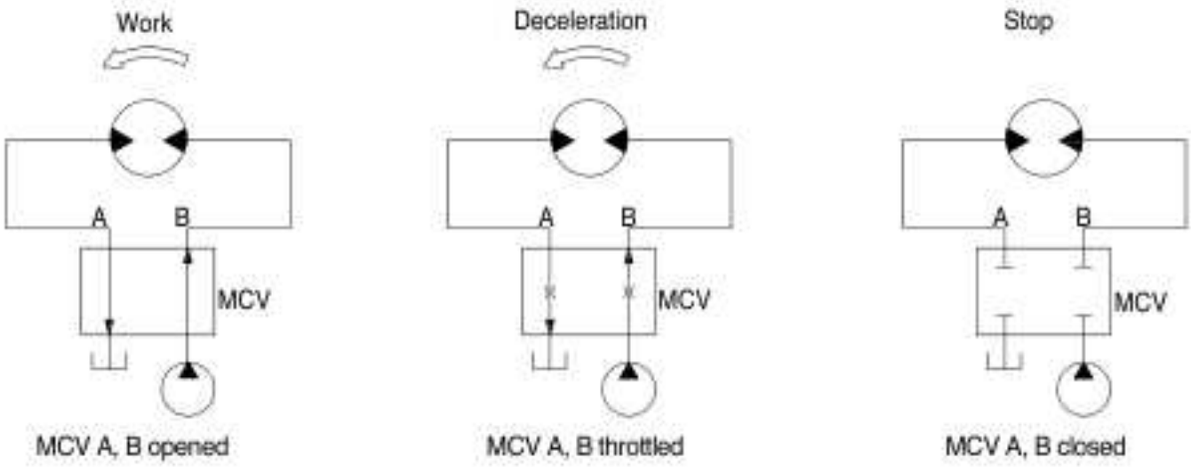
Item		Specification
Boom cylinder	Bore dia× Rod dia× Stroke	Ø 105× Ø 75× 1075mm
	Cushion	Extend only
Arm cylinder	Bore dia× Rod dia× Stroke	Ø 115× Ø 80× 1188mm
	Cushion	Extend and retract
Bucket cylinder	Bore dia× Rod dia× Stroke	Ø 100× Ø 65× 855mm
	Cushion	Extend only
Dozer cylinder	Bore dia× Rod dia× Stroke	Ø 100× Ø 65× 236mm
	Cushion	Extend only
Outrigger cylinder	Bore dia× Rod dia× Stroke	Ø 110× Ø 75× 475mm
	Cushion	-
2 Piece boom Adjust cylinder	Bore dia× Rod dia× Stroke	Ø 145× Ø 90× 613mm
	Cushion	Extend only

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4) BRAKE SYSTEM

(1) Control valve swing brake system

This is the brake system to stop the swing motion of the excavator during operation.
In this system, the hydraulic circuit is throttled by the swing control valve, and the resistance created by this throttling works as a brake force to slow down the swing motion.

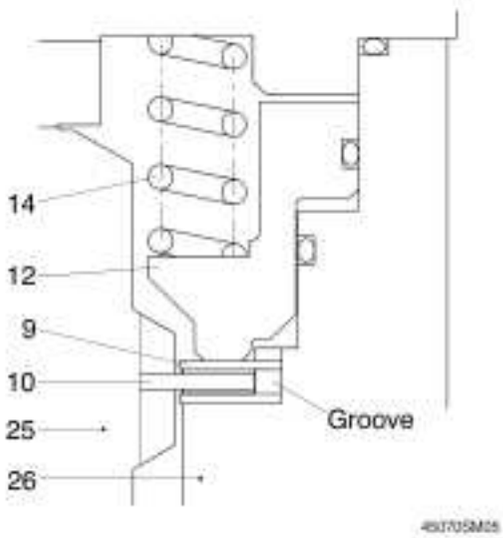


(2) Mechanical swing parking brake system

The mechanical swing parking brake system is installed to prevent the upper structure from swinging downhill because of its own weight when the excavator is parked on a slope since it completely eliminates the hydraulic drift of swing motion while the excavator is on a slop, work can be done more easily and safely.

① **Brake assembly**

Circumferential rotation of separate plate(9) is constrained by the groove located at housing(26). When housing is pressed down by brake spring(16) through lining plate(10), separate plate(9) and brake piston(12), friction force occurs there.
Cylinder(25) is constrained by this friction force and brake acts, while brake releases when hydraulic force exceeds spring force.



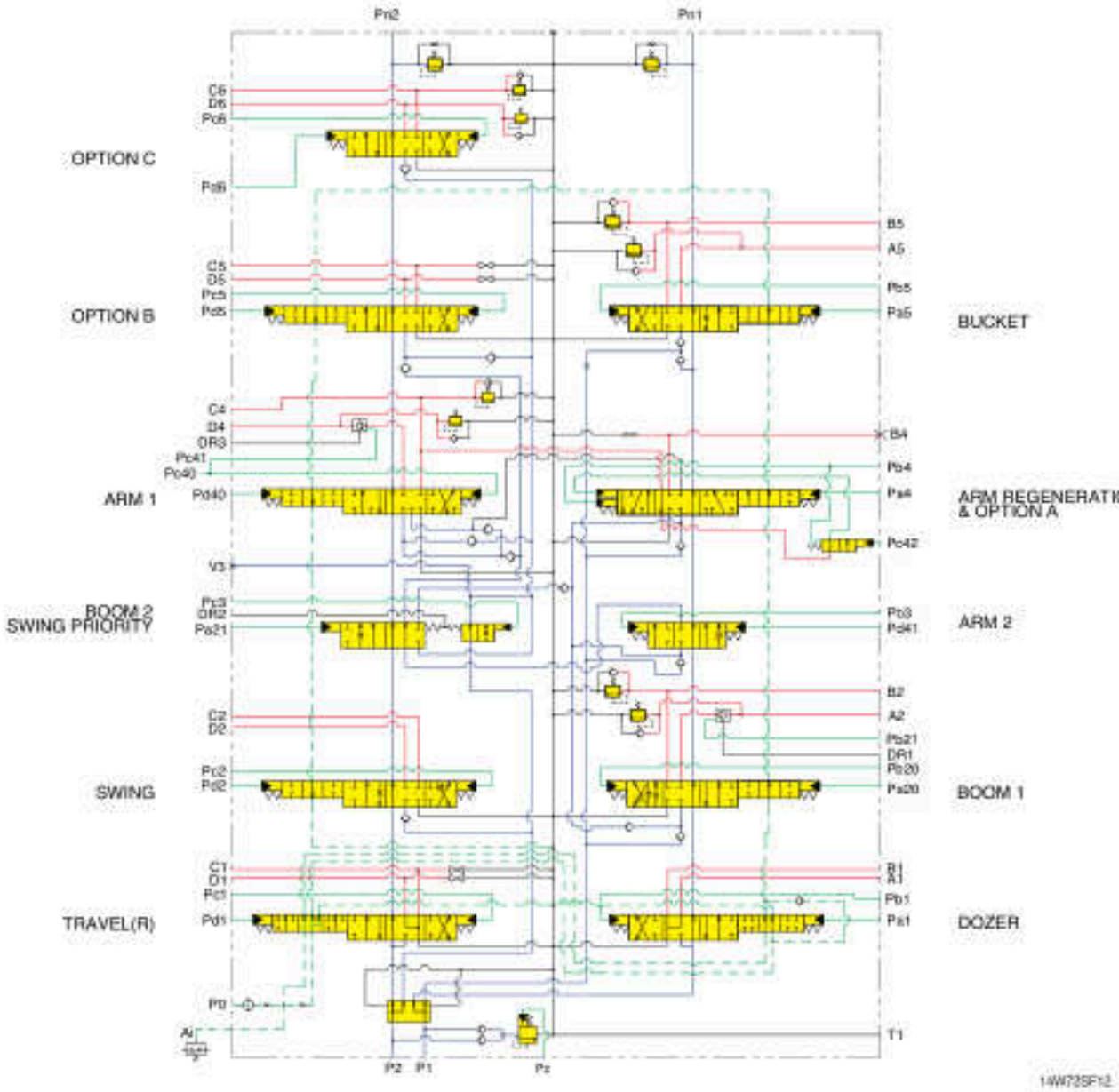
9	Separate plate	14	Spring
10	Lining plate	25	Cylinder
12	Brake piston	26	Housing

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Group	Display	Name	Description
Group 2	CHECK Er : 03	Current error	It shows that current error of 03(Short circuit in pump EPPR valve system) is diagnosed by self diagnosis system in the CPU controller. If more than 2 errors, when pressing ▼ or ▲ switch, other error codes show. Range : 00~58
	TIME Er : 03	Recorded error	It shows recorded error code of 03 which is diagnosed before. If more than 2 error codes, when pressing ▼ or ▲ switch, other error codes show. Range : 00~58
	TIME Er : 00	Recorded error deletion	It shows all recorded error codes are removed in the CPU controller memory.
Group 3	PP : on or oFF	Pump prolix switch	**PP : on** Shows that pump prolix switch is turned on(At emergency position). **PP : oFF** Shows that pump prolix switch is turned off(At normal position).
	dP : on or oFF	Auto decel pressure switch	**dP : on** Shows that auto decel pressure switch is pressed on (No operation of control lever). **dP : oFF** Shows that auto decel pressure switch is released off (Operation of control lever).
	Pb : on or oFF	Power boost switch	**Pb : on** Shows that power boost switch is pressed on (Activated). **Pb : oFF** Shows that power boost switch is released off (Canceled).
	oP : on or oFF	Travel oil pressure switch	**oP : on** Shows that travel oil pressure switch is pressed on (No operation of travel control lever). **oP : oFF** Shows that travel oil pressure switch is released off (Operation of travel control lever).
	od : on or oFF	One touch decel switch	**od : on** Shows that one touch decel switch is pressed. **od : oFF** Shows that one touch decel switch is released.
	br : on or oFF	Travel alarm switch	**br : on** Shows that travel alarm function is selected. **br : oFF** Shows that travel alarm function is canceled.
	PH : on or oFF	Preheat switch	**PH : on** Shows that preheat switch is pressed. **PH : oFF** Shows that preheat switch is released.

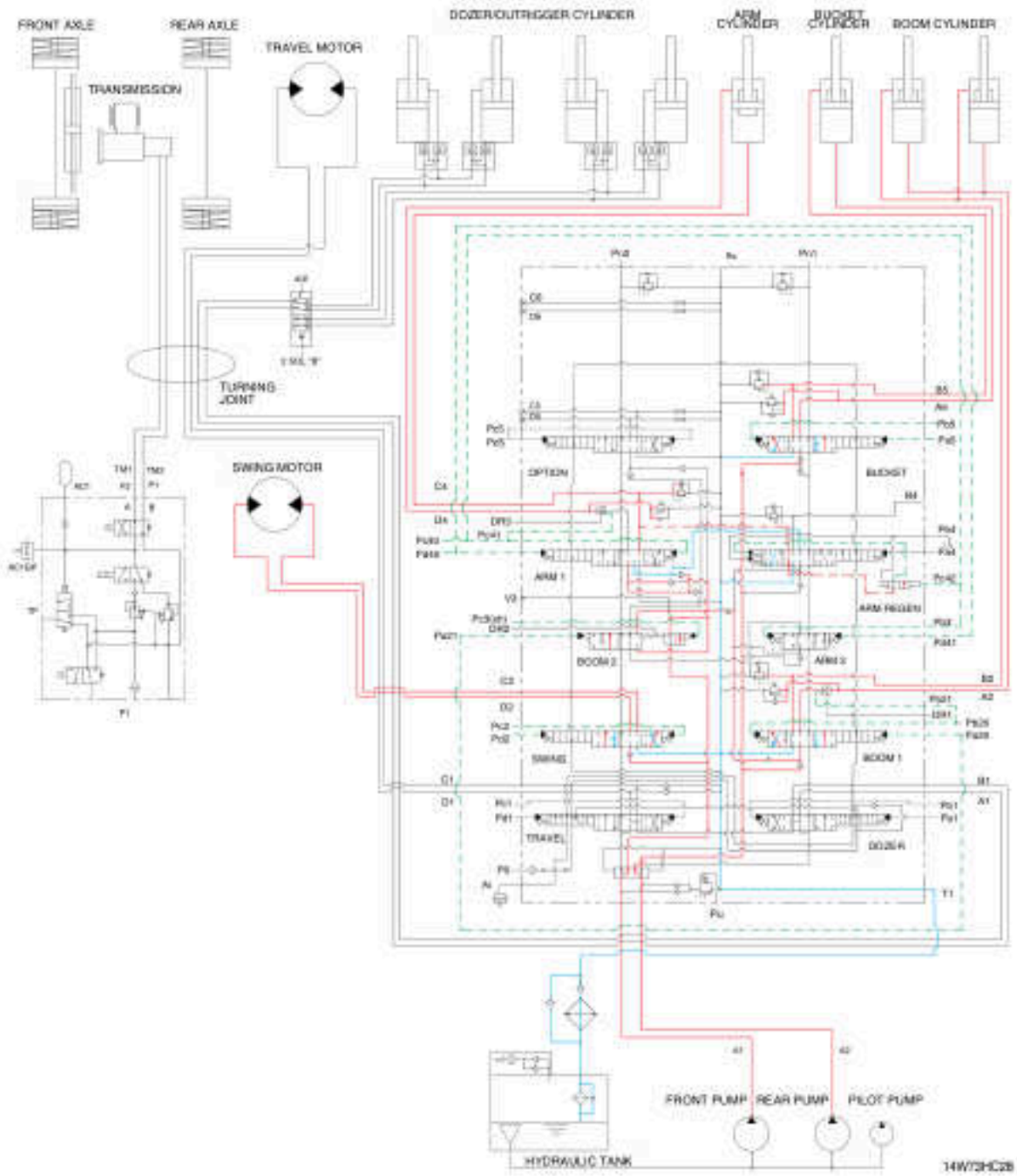
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2. HYDRAULIC CIRCUIT



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5. COMBINED SWING, BOOM, ARM AND BUCKET OPERATION

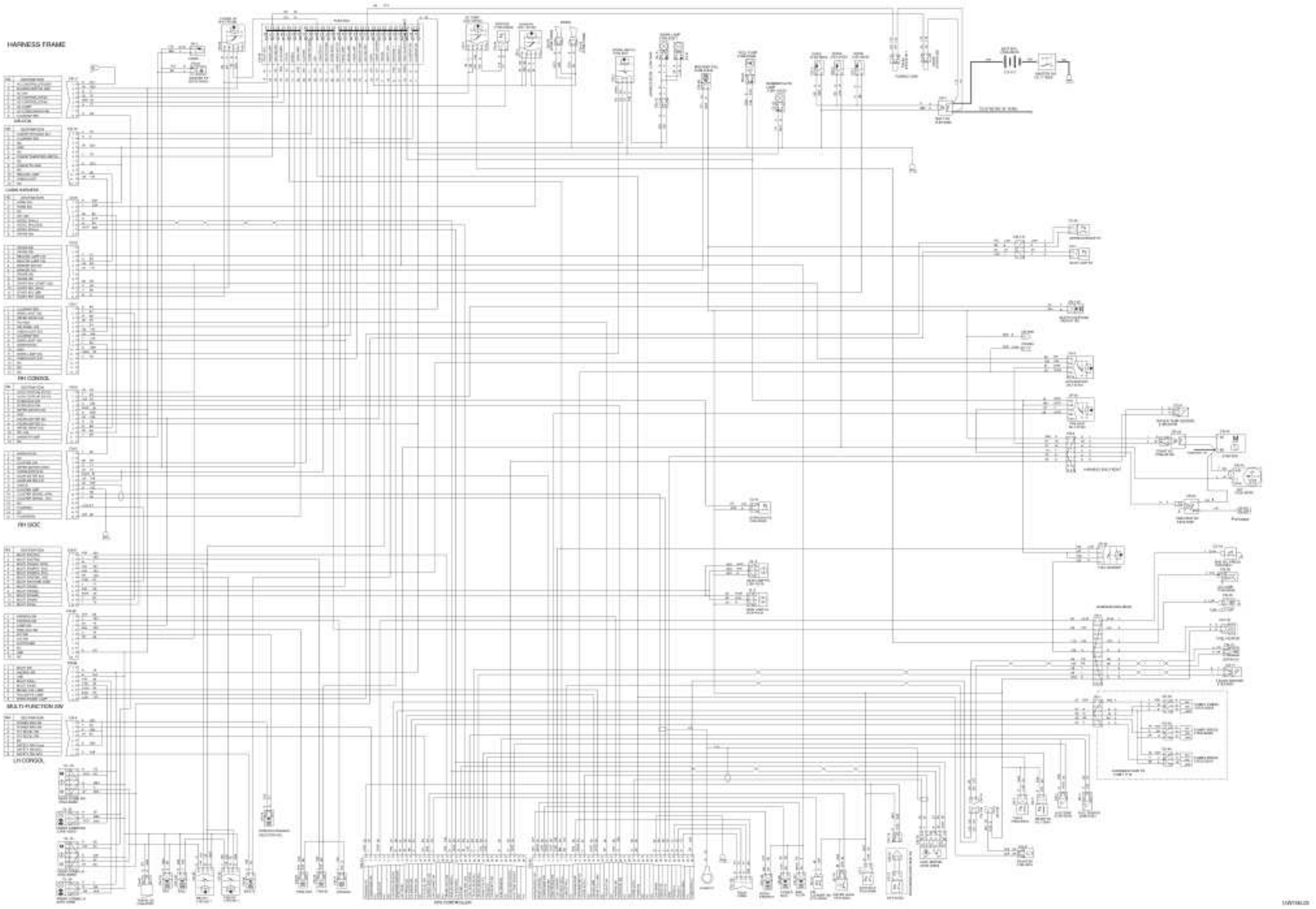


When the swing, boom, arm and bucket functions are operated, simultaneously each spool in the main control valve is moved to the functional position by the pilot oil pressure from the remote control valve.

The oil from the front pump flows into the swing motor, boom cylinders and arm cylinder through the swing spool, boom 2 spool, arm 1 spool, and the parallel and confluence oil passage in the left control valve. The oil from the rear pump flows into the boom cylinders, arm cylinder and bucket cylinder through the boom 1 spool, arm 2 spool, bucket spool and the parallel and confluence oil passage in the right control valve.

The superstructure swings and the boom, arm and bucket are operated.

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