UEBM002500

SHOP MANUAL

KOMATSU®

PW160-7K

MACHINE MODEL
PW160-7K

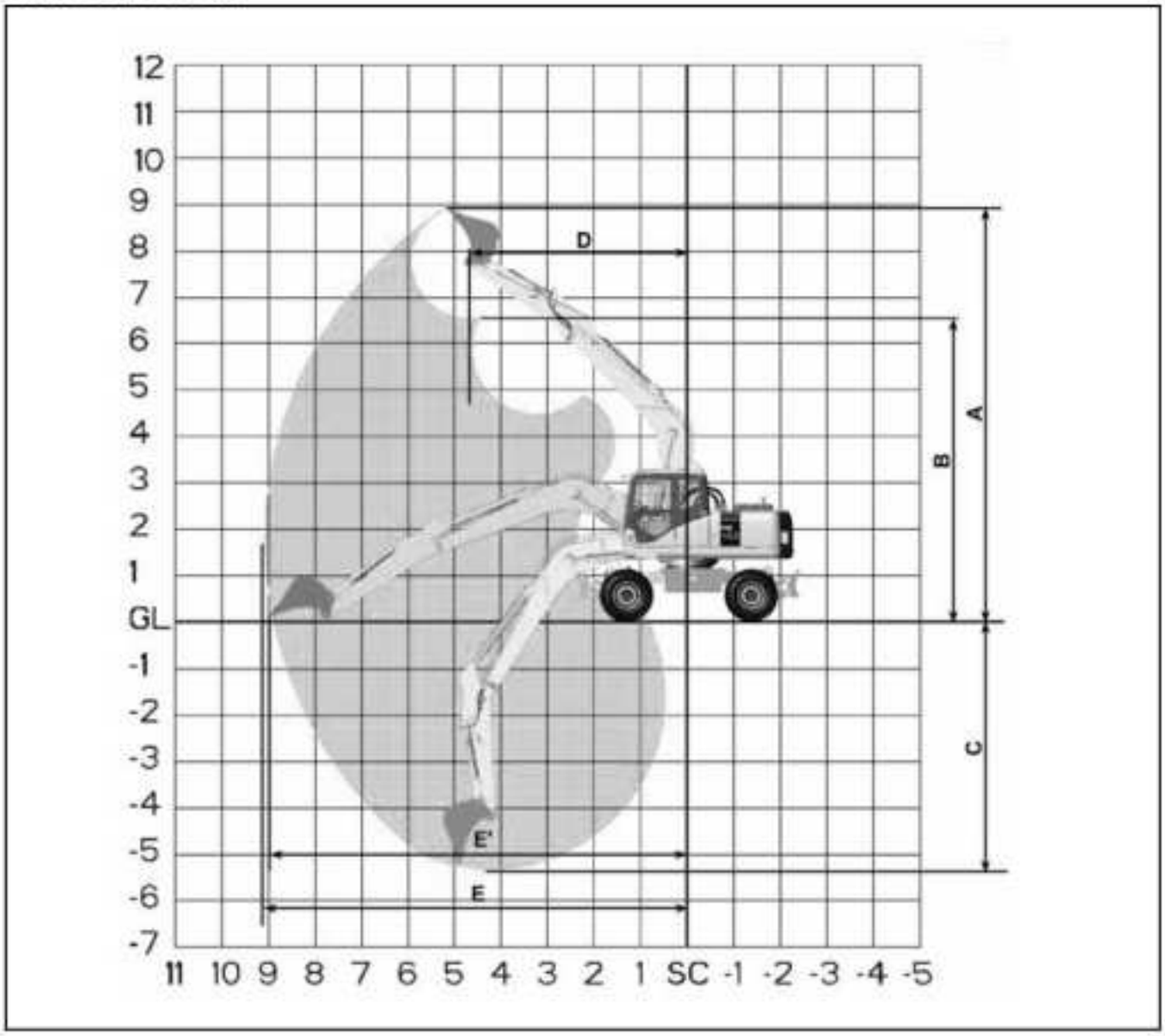
SERIAL NUMBER
K40001 AND UP

- This shop manual may contain attachments and optional equipment that are not available in your area. Please consult your local Komatsu distributor for those items you may require.
  Materials and specifications are subject to change without notice.
- PW160-7K mount the SAA4D102E-2 engine.
  For details of the engine, see the 102 Series Engine Shop Manual.

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WORKING RANGES

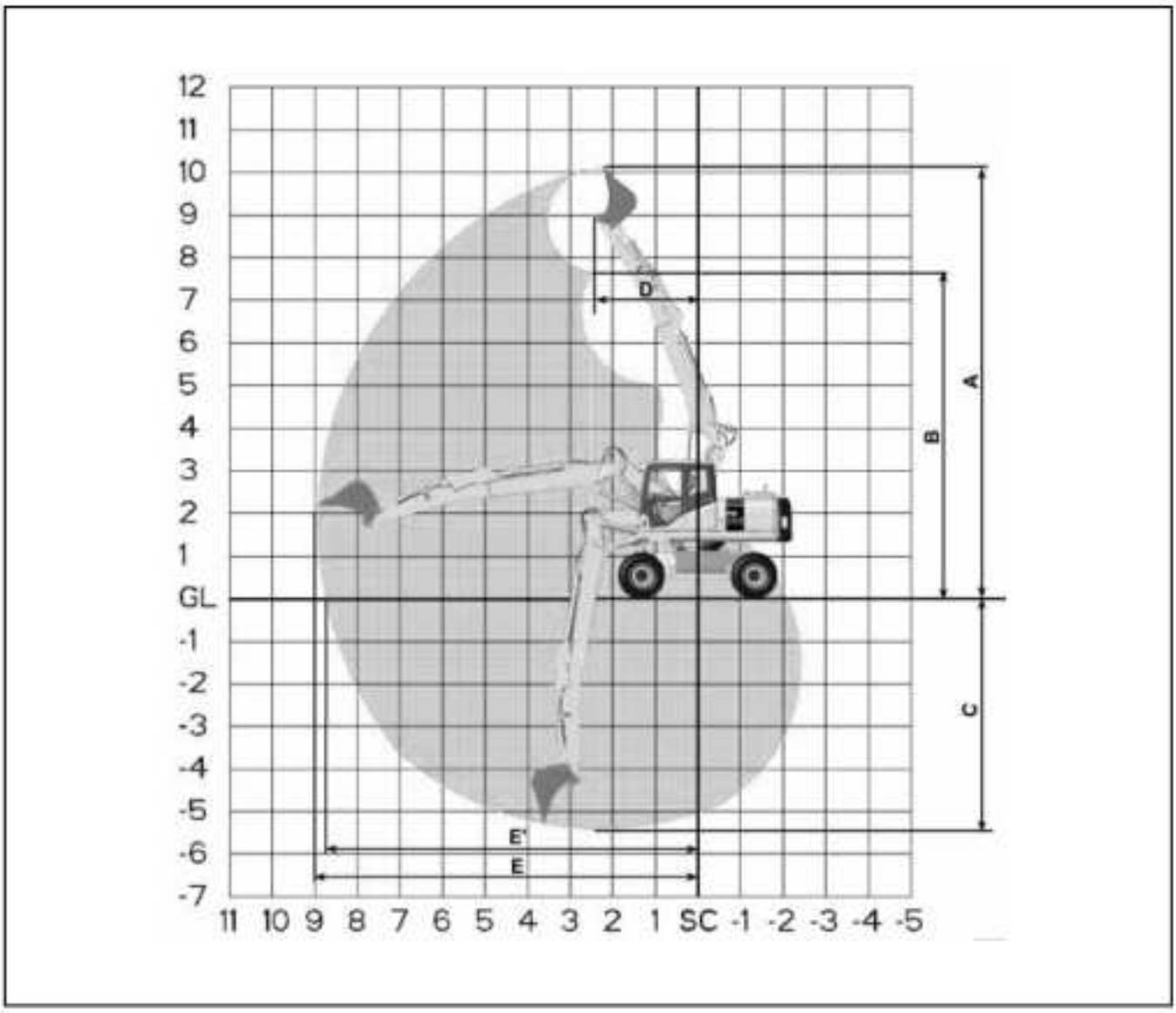
1 PIECE BOOM



Arm length mm (Tt/In)		2100	2500	3000
A	Max. digging height	8730	8930	9285
B	Max. dumping height	6335	6555	6911
C	Max. digging depth	4925	5320	5600
D	Min. swing radius	3205	3160	3180
E'	Max. digging reach ay GL	8620	8885	9315
E	Max. digging reach	8640	9070	9485

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2 PIECE BOOM



	Arm length mm (Tt/In)	2100	2500	3000
A	Max.digging height	9745	10118	10575
B	Max.dumping height	7285	7655	8117
C	Max digging depth	4960	5465	5770
D	Min. swing radius	2215	2385	2590
E'	Max. digging reach ay GL	8310	8745	9225
E	Max. digging reach	8505	8930	9410

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SPECIFICATIONS

Machine model				PW160-7K
Serial Number				K40001 and up
Bucket capacity		Arm size (m)	m^3	0.55
Operating weight			kg	15,800
Performance	Max. digging force (using power max. function)	2.1	kN {kg}	102.0 {10,400}
		2.5		
		3.0		
	Swing speed		rpm	11.5
	Swing max. slope angle		deg.	21.5
	Travel speed		km/h	Cr : 0-2.5 Lo : 0-10 Hi : 10-35 (Germany :10-20)
	Gradeability		deg. kPa {kg cm^2}	35 36.3 {0.37}
	Standard Tyre Width		mm	10.00 - 20

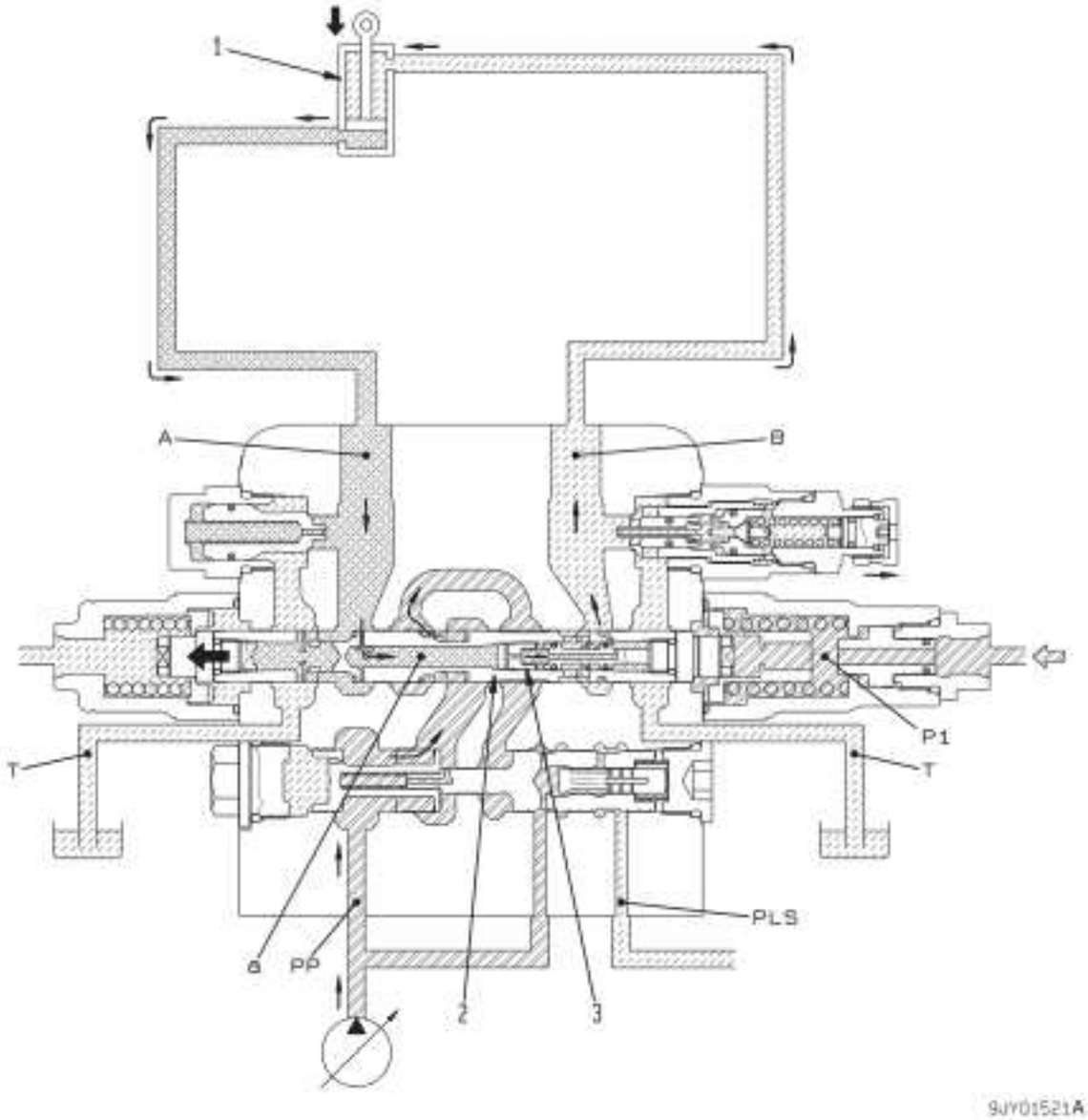
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6. Boom regeneration circuit

1. At boom lower and own weight fall

Function

- When the boom is lowered and falls due to its own weight because the bottom pressure **A** in the cylinder (1) is higher than the head pressure **B**, this circuit brings the return flow on the bottom side to the head side to increase the cylinder speed.



Operation

- When the boom is lowered and falls due to its own weight, the bottom side pressure **A** in the boom cylinder (1) will rise above the head side pressure **B**.
- At the time, part of the return flow on the bottom side passes through the regeneration passage **a** of the boom spool (2), pushes the check valve (3) to open it and flows to the head side.
- This increases the boom lower speed.

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POINTS TO REMEMBER WHEN TROUBLESHOOTING

! Stop the machine in a level place, and check that the safety pin, blocks, and parking brake are securely fitted.
! When carrying out the operation with two or more workers, keep strictly to the agreed signals, and do not allow any unauthorized person to come near.
! If the radiator cap is removed when the engine is hot, hot water may spurt out and cause burns, so wait for the engine to cool down before starting troubleshooting.
! Be extremely careful not to touch any hot parts or to get caught in any rotating parts.
! When disconnecting wiring, always disconnect the negative (–) terminal of the battery first.
! When removing the plug or cap from a location which is under pressure from oil, water, or air, always release the internal pressure first. When installing measuring equipment, be sure to connect it properly.

The aim of troubleshooting is to pinpoint the basic cause of the failure, to carry out repairs swiftly, and to prevent reoccurrence of the failure.
When carrying out troubleshooting, and important point is of course to understand the structure and function.
However, a short cut to effective troubleshooting is to ask the operator various questions to form some idea of possible causes of the failure that would produce the reported symptoms.

1. When carrying out troubleshooting, do not hurry to disassemble the components.
If components are disassembled immediately any failure occurs:
- Parts that have no connection with the failure or other unnecessary parts will be disassembled.
- It will become impossible to find the cause of the failure.

It will also cause a waste of manhours, parts, or oil or grease, and at the same time, will also lose the confidence of the user or operator.
For this reason, when carrying out troubleshooting, it is necessary to carry out thorough prior investigation and to carry out troubleshooting in accordance with the fixed procedure.

2. Points to ask user or operator
1) Have any other problems occurred apart from the problem that has been reported?
2) Was there anything strange about the machine before the failure occurred?
3) Did the failure occur suddenly, or were there problems with the machine condition before this?
4) Under what conditions did the failure occur?
5) Had any repairs been carried out before the failure?
When were these repairs carried out?
6) Has the same kind of failure occurred before?

3. Check before troubleshooting
1) Check the oil level
2) Check for any external leakage of oil from the piping or hydraulic equipment.
3) Check the travel of the control levers.
4) Check the stroke of the control valve spool.
5) Other maintenance items can be checked externally, so check any item that is considered to be necessary.

4. Confirming failure
- Confirm the extent of the failure yourself, and judge whether to handle it as a real failure or as a problem with the method of operation, etc.
  - ★ When operating the machine to reenact the troubleshooting symptoms, do not carry out any investigation or measurement that may make the problem worse.

5. Troubleshooting
- Use the results of the investigation and inspection in Items 2 – 4 to narrow down the causes of failure, then use the troubleshooting flowchart to locate the position of the failure exactly.
  - ★ The basic procedure for troubleshooting is as follows.
    1)Start from the simple points.
    2)Start from the most likely points.
    3)Investigate other related parts or information.

6. Measures to remove root cause of failure
- Even if the failure is repaired, if the root cause of the failure is not repaired, the same failure will occur again.
To prevent this, always investigate why the problem occurred. Then, remove the root cause.

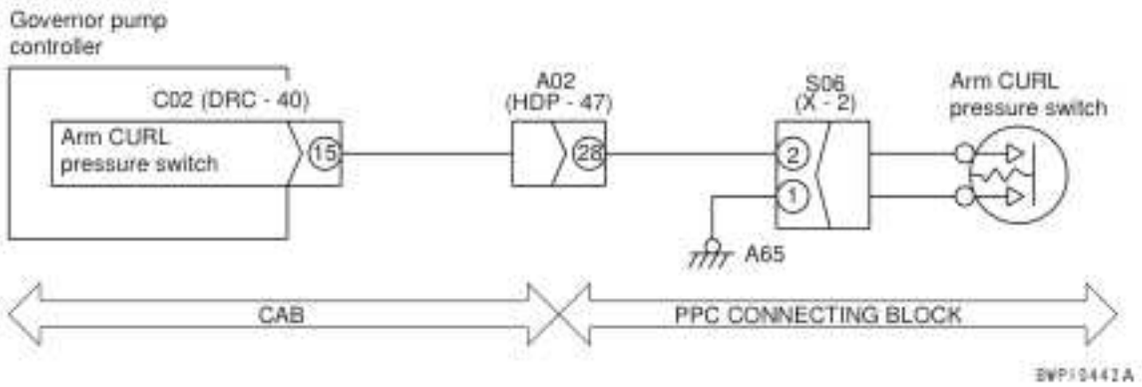
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E-23 "Arm DIGGING" is not correctly displayed in monitor function

Failure information	• "Arm DIGGING" is not correctly displayed in the monitor function (special function) on the monitor panel.
Relative information	—

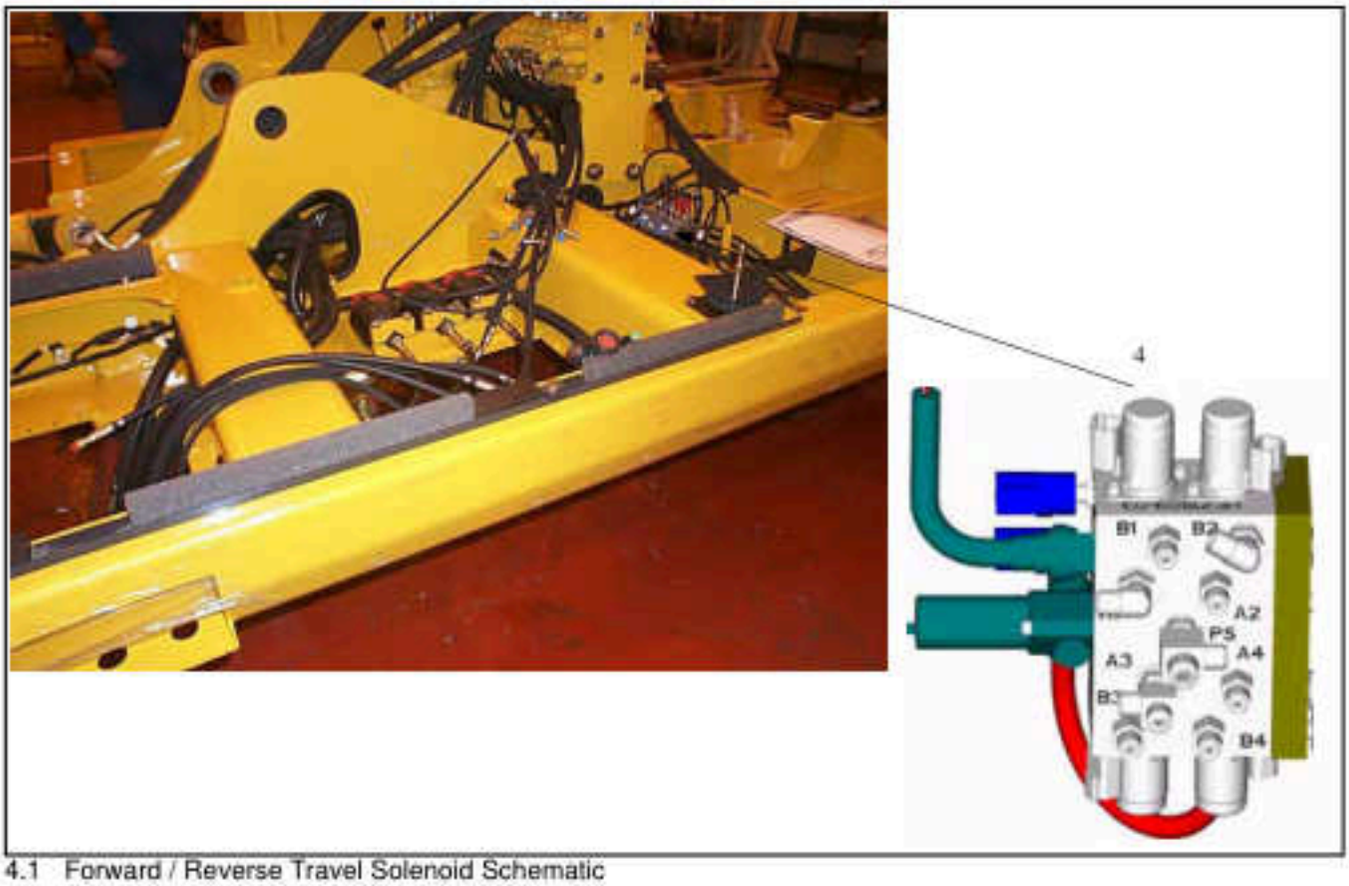
Presumed cause and standard value in normal		Cause	Standard value in normal and references for troubleshooting			
	1	Arm DIGGING PPC hydraulic switch fault (Internal disconnection or short-circuiting)	★Turn the engine starting switch OFF for the preparations, and keep the engine running during the troubleshooting.			
			S06 (male)	Arm control lever	Resistance value	
			Between ① and ②	NEUTRAL	Above 1 MΩ	
				DIGGING	Below 1 Ω	
	2	Disconnection of wiring harness (Disconnection or defective contact with connector)	★Turn the engine starting switch OFF for the preparations, and hold it in the OFF position during the troubleshooting.			
			Wiring harness between C02 (female) ⑮ and S06 (female) ①		Resistance value	Below 1 Ω
			Wiring harness between S06 (female) ② and grounding		Resistance value	Below 1 Ω
	3	Grounding fault of wiring harness (Contact with grounding (GND) circuit)	★Turn the engine starting switch OFF for the preparations, and hold it in the OFF position during the troubleshooting.			
			Between wiring harness between C02 (female) ⑮ and S06 (female) ① and grounding		Resistance value	Above 1 MΩ
	4	Short-circuiting of wiring harness (Contact with 24 V circuit)	★Turn the engine starting switch OFF for the preparations, and hold it in the ON position during the troubleshooting.			
			Between wiring harness between C02 (female) ⑮ and S06 (female) ① and grounding		Voltage	Below 1 V
	5	Governor • pump controller defective	★Turn the engine starting switch OFF for the preparations, and hold it in the ON position during the troubleshooting.			
			C02	Arm control lever	Voltage	
			Between ⑮ and grounding	NEUTRAL	20 – 30 V	
				DIGGING	Below 1 V	

Electrical Circuit Diagram for Arm DIGGING PPC Hydraulic Switch

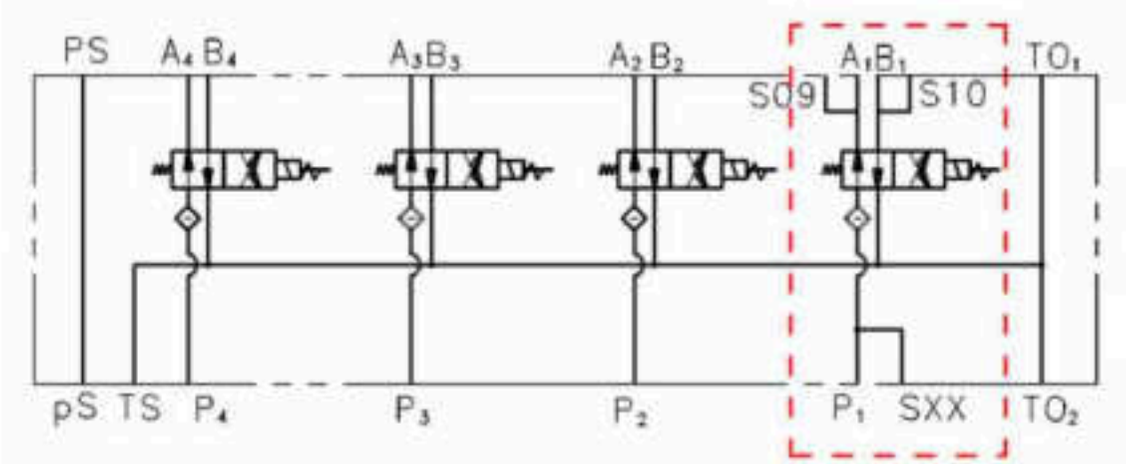


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4. Forward / Reverse Travel Solenoid



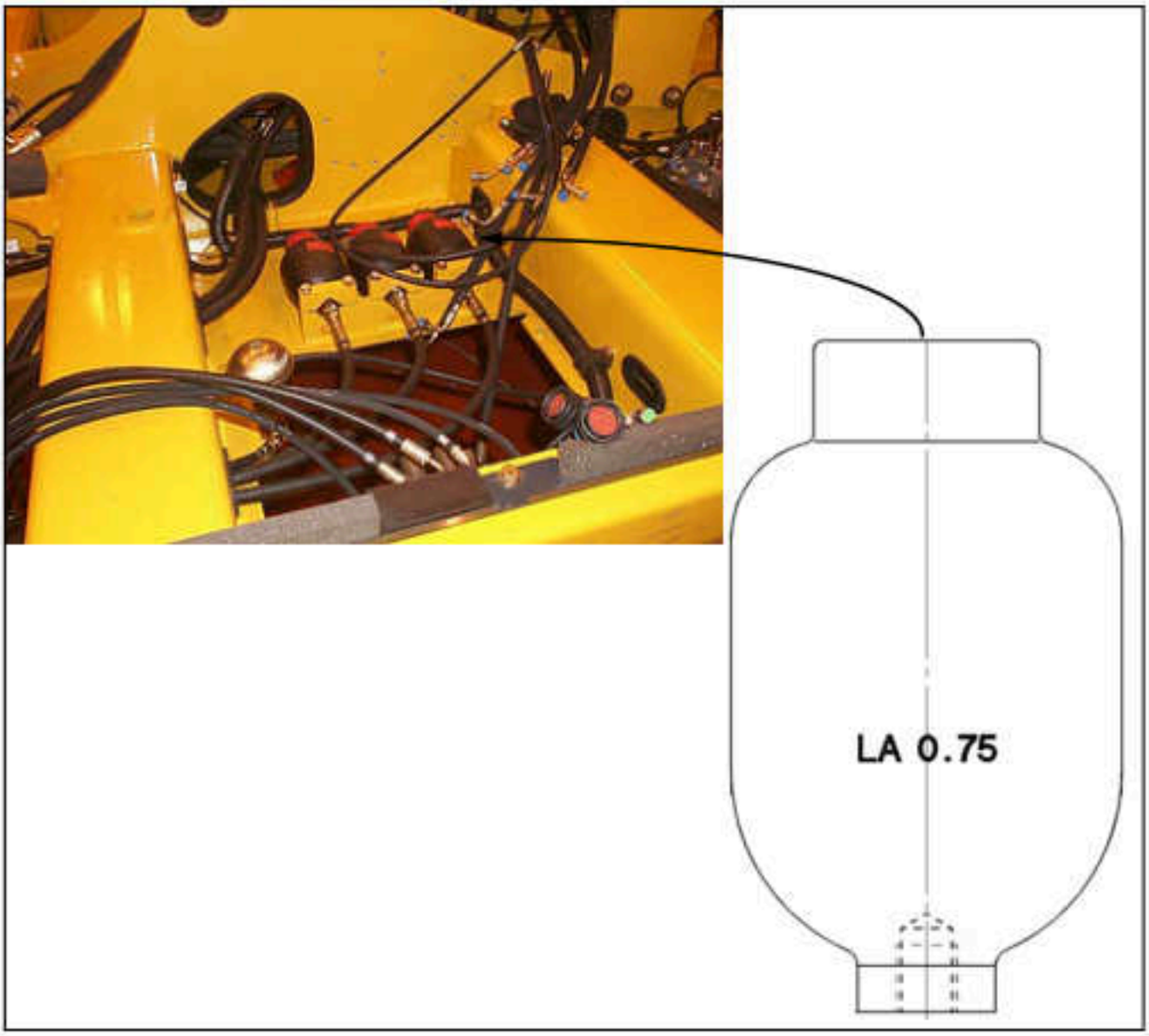
4.1 Forward / Reverse Travel Solenoid Schematic



4.2 Forward / Reverse Travel Solenoid: Located on the 4-stage solenoid block in the service compartment at the rear of the operators cab. This device controls the travel motor direction (forward or reverse) by a signal from the F-N-R switch. Solenoid energised ~Forward or Reverse. Travel is engaged, this is interlocked with the travel neutral solenoid. If travel Reverse is selected, controller drives this valve and travel PPC pressure spool is reversed.

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ACCUMULATOR FOR BRAKE SYSTEM



SPECIFICATIONS

1.	Nominal capacity	0.75L
2.	Max working pressure	210 bar
3.	Max p dynamic	175 bar
4.	Working temperature	- 30° to 125° C
5.	Diaphragm	NBR
6.	Fluid	Mineral oil
7.	Body	Forged steel
8.	Surface finish	Rust preventative coating

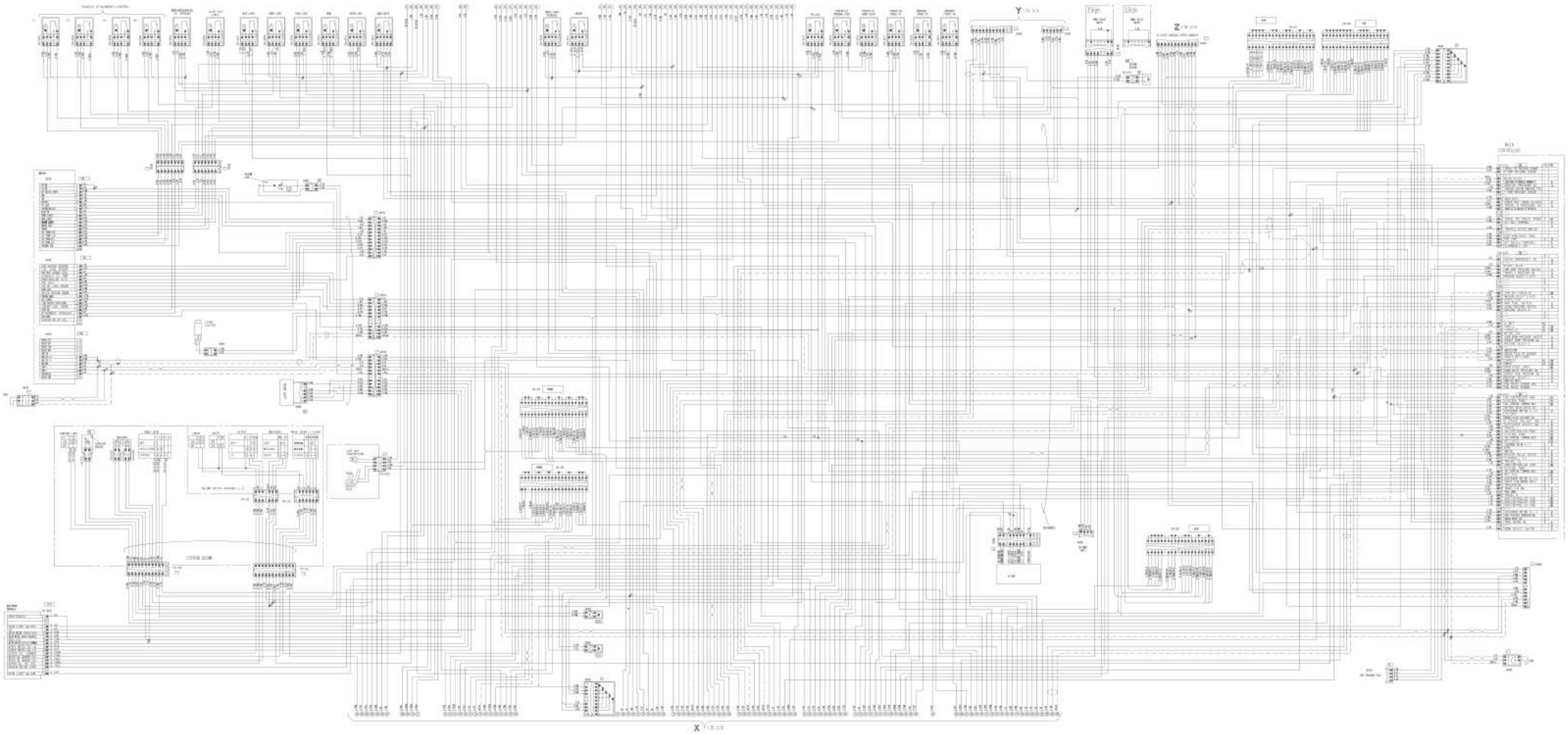
Structure and Function

- The accumulators are installed below the operators cab accessible from the undercovers.
- Installed into the brake circuit the accummulators provide pressure to the brakes in the event of a power failure ensuring the machine is stopped safely.

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ELECTRICAL CIRCUIT DIAGRAM (1/3)

PW160-7K



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