SEBM025118

SHOP MANUAL

KOMATSU®

PC78UU-6
PC78US-6

MACHINE MODEL	SERIAL NUMBER
PC78UU-6	**22832 and up**
PC78US-6	**4001 and up**
PC78US-6	**4809 and up (For Norway & EU)**

- 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.
- PC78UU-6, PC78US-6 mounts the 4D95LE-2 and S4D95LE-3-A engine.
  For details of the engine, see the 95-2 Series and 95-3 Series Engine Shop Manual.
- For the PC78US-6 for Norway (Serial No. 4809 and up), the parts which different from the standard model have been put together and added as Section 50. For the common parts, see this manual.

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TVC VALVE CURRENT ADJUSTMENT TABLE

Adjustment code (Left 2 positions of display unit)	Set value (Right 1 position of display unit)	Initial value	Contents	Exhaust gas color
20	0		Increase pump absorption torque by +2.0 kgm (-100 mA).	
	1		Increase pump absorption torque by +1.5 kgm (-75 mA).	
	2		Increase pump absorption torque by +1.0 kgm (-50 mA).	
	3		Increase pump absorption torque by +0.5 kgm (-25 mA).	
	4	○	Initial value	
	5		Decrease pump absorption torque by -0.5 kgm (+25 mA)	
	6		Decrease pump absorption torque by -1.0 kgm (+50 mA)	
	7		Decrease pump absorption torque by -1.5 kgm (+75 mA)	
	8		Decrease pump absorption torque by -2.0 kgm (+100 mA)	

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DISASSEMBLY AND ASSEMBLY OF TRAVEL MOTOR

GM09VN2

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Unit: mm

No.	Item	Criteria					Remedy
		Basic dimensions			Allowable limit		
53	Lift check valve spring	Free length x Outside diameter	Installed length	Installed load	Free length	Installed load	
		58.1 X 17.0	36	59.6 N {5.8 kg}	—	47.7 N {4.64 kg}	
54	Cooler bypass valve spring	34.5 X 17.7	25	73.5 N {7.5 kg}	—	58.8 N {6.0 kg}	
55	Spool return spring (Swing)	29.2 X 17.5	28.5	28.3 N {2.89 kg}	—	22.6 N {2.31 kg}	
56	Spool return spring (Travel)	29.0 X 17.5	28.5	22.6 N {2.3 kg}	—	18.1 N {1.84 kg}	
57	Spool return spring (Arm in)	41.1 X 19.3	40.5	43.1 N {4.4 kg}	—	34.5 N {3.52 kg}	
58	Spool return spring (Work equipment)	41.1 X 19.3	40.5	34.3 N {3.5 kg}	—	27.4 N {2.8 kg}	
59	Spool return spring (Arm out)	42.3 X 19.2	40.5	54.9 N {5.6 kg}	—	43.9 N {4.49 kg}	
60	Unload valve spring	40.9 X 15.1	33.5	129 N {13.2 kg}	—	103 N {10.6 kg}	If damaged or deformed, replace spring.
61	LS selector valve spring	16.6 X 13.0	13	11.2 N {1.14 kg}	—	8.96 N {0.91 kg}	
62	Pressure compensation valve spring	15.4 X 6.0	8	7.45 N {0.76 kg}	—	5.96 N {0.61 kg}	
63	Pump merge-divider valve spool return spring	33.2 X 14.2	22.5	49.0 N {5.0 kg}	—	39.2 N {4.0 kg}	
64	Pressure compensation valve spring	30.9 X 5.2	20	27.7 N {2.82 kg}	—	22.2 M {2.26 kg}	
65	Pressure compensation valve spring	28.0 X 14.4	14.5	13.7 N {1.4 kg}	—	11.0 N {1.12 kg}	
66	Pressure compensation valve spring	33.4 X 14.4	21.5	55.9 N {5.7 kg}	—	44.7 N {4.56 kg}	
67	Pressure compensation valve spring	20.0 X 8.4	12	6.86 N {0.7 kg}	—	5.49 N {0.56 kg}	
68	Pressure compensation valve spring	23.0 X 8.4	15	6.86 N {0.7 kg}	—	5.49 N {0.56 kg}	
69	Check valve spring	12.3 X 11.4	10.5	3.92 N {0.4 kg}	—	3.14 N {0.32 kg}	
70	Check valve spring	27.2 X 6.9	22	3.92 N {0.4 kg}	—	3.14 N {0.32 kg}	

(PC78US-6 blade-less and with 1 service valve)

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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 coolant 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, an important point is to understand the structure and function of the machine. 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 after a 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 man hours, parts, or oil and grease. At the same time, it 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 the 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.

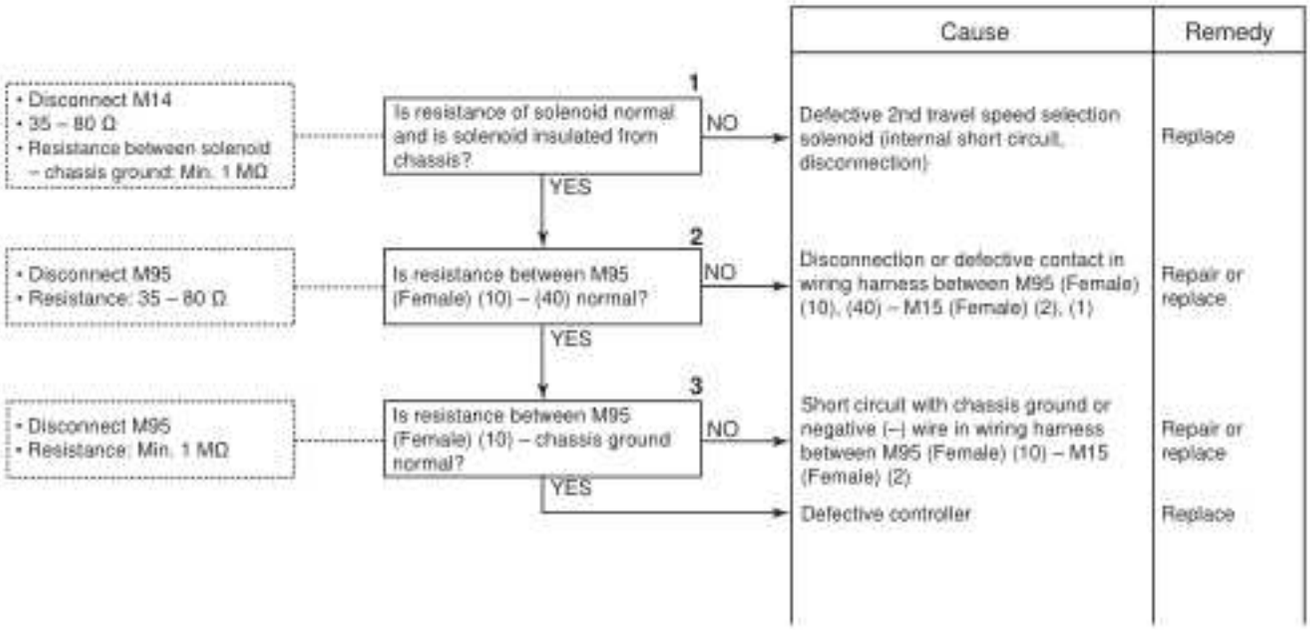
4. Confirming the failure.
   Confirm the extent of the failure yourself, and judge whether to handle it as a real failure or as a problem with the method of operation, etc.
   ★ When operating the machine to re-enact the troubleshooting symptoms, do not carry out any investigation or measurement that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

5. Troubleshooting
   Use the results of the investigation and inspection in Steps 2 – 4 to narrow down the causes of the 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.

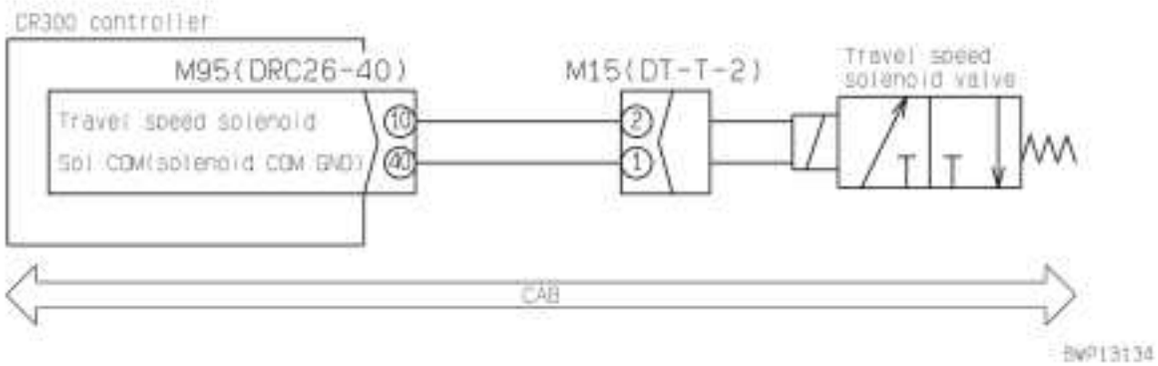
6. Measures to remove root cause of failure.
   Even if the failure is repaired, if the root cause of the failure is not repaired, the same failure will occur again.
   To prevent this, always investigate why the problem occurred. Then, remove the root cause.

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Serial No.: 6501 and up



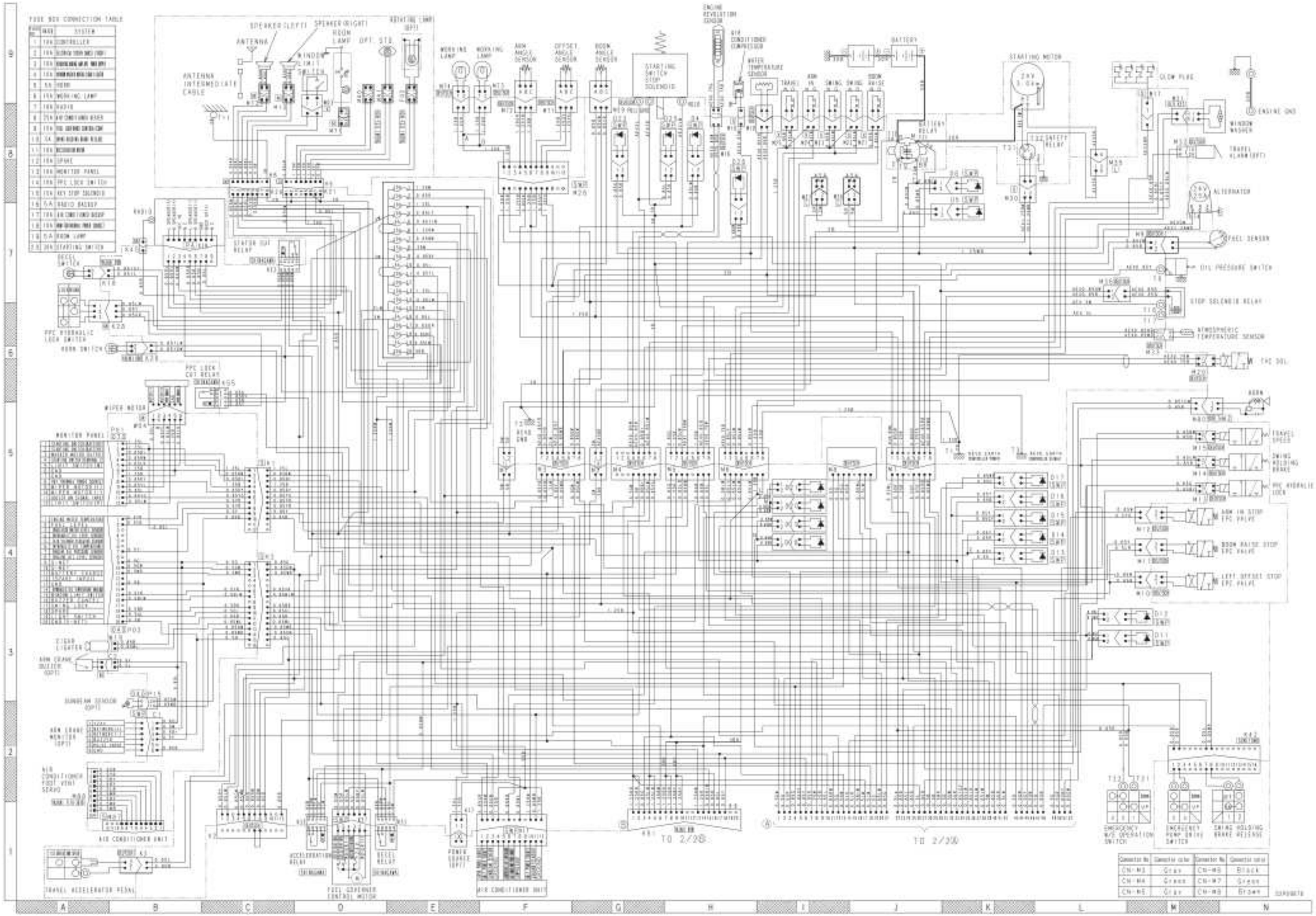
C-5, C-6 Electrical circuit diagram of each system



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ELECTRICAL CIRCUIT DIAGRAM

PC78UU-6 Serial No.: 23501 and up (1/2)



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