SEBM04240106

SHOP MANUAL

KOMATSU®

WA400-1

MACHINE MODEL SERIAL No.

WA400-1 **10001 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.

- WA400-1 mount the SA6D110-1 engine.
  For details of the engine, see the 110 Series Engine Shop Manual.

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Unit: mm

No	Check item	Criteria					Remedy
1	Clearance between FORWARD-REVERSE spool and body	Standard size	Tolerance		Standard clearance	Clearance limit	Replace
			Shaft	Hole			
		22	−0.035 −0.045	+0.013 0	0.035 – 0.058	0.08	
2	Clearance between 1st speed spool and body	22	−0.035 −0.045	+0.013 0	0.035 – 0.058	0.08	
3	Clearance between 2nd speed spool and body	22	−0.035 −0.045	+0.013 0	0.035 – 0.058	0.08	
4	Clearance between 3rd speed spool and body	22	−0.035 −0.045	+0.013 0	0.035 – 0.058	0.08	
5	Clearance between 4th speed spool and body	22	−0.035 −0.045	+0.013 0	0.035 – 0.058	0.08	
6	Clearance between pilot reducing valve and body	25	−0.035 −0.045	+0.013 0	0.035 – 0.058	0.08	
7	Clearance between lubrication valve plunger and body	22	−0.035 −0.045	+0.013 0	0.035 – 0.058	0.08	
8	FORWARD-REVERSE, No.1, No.2, No.3 and No. 4 speed spring	Standard size			Repair limit		
		Free length	Installation length	Installation load	Free length	Installation load	
		78	48	10.5 kg	75	9.5 kg	
9	Accumulator spring	162	125.6	40 kg	158	36 kg	
10	Pilot reducing valve spring (Outer)	62	43.7	16.7 kg	60.1	15 kg	
11	Pilot reducing valve spring (Inner)	26	19	0.58 kg	25.3	0.52 kg	
12	Lubrication valve spring	39.4	37	6.2 kg	39.2	5.6 kg	
13	Thickness of shim for pilot reducing valve	3 mm (pressure per 1 piece: 0.26 kg/cm²)					Adjust

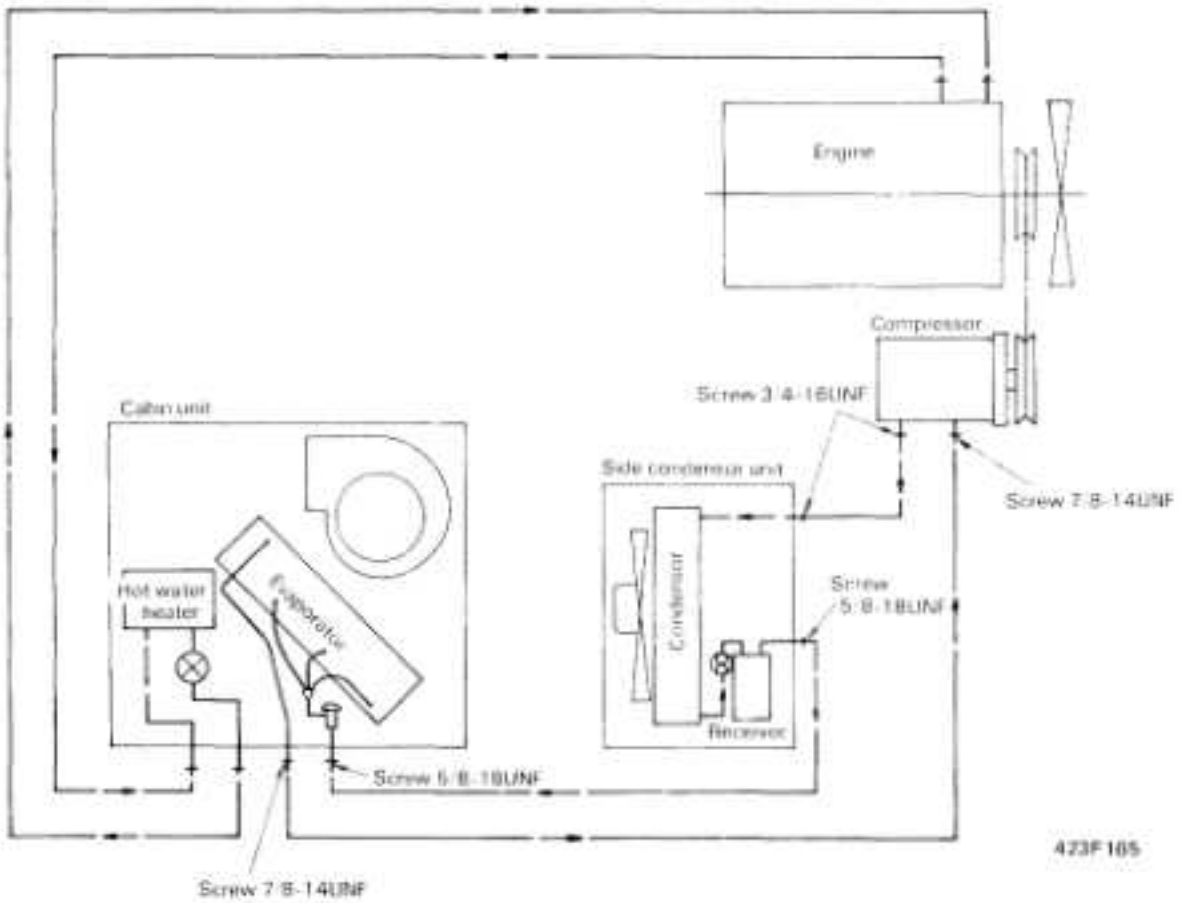
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CHECKS BEFORE TROUBLESHOOTING

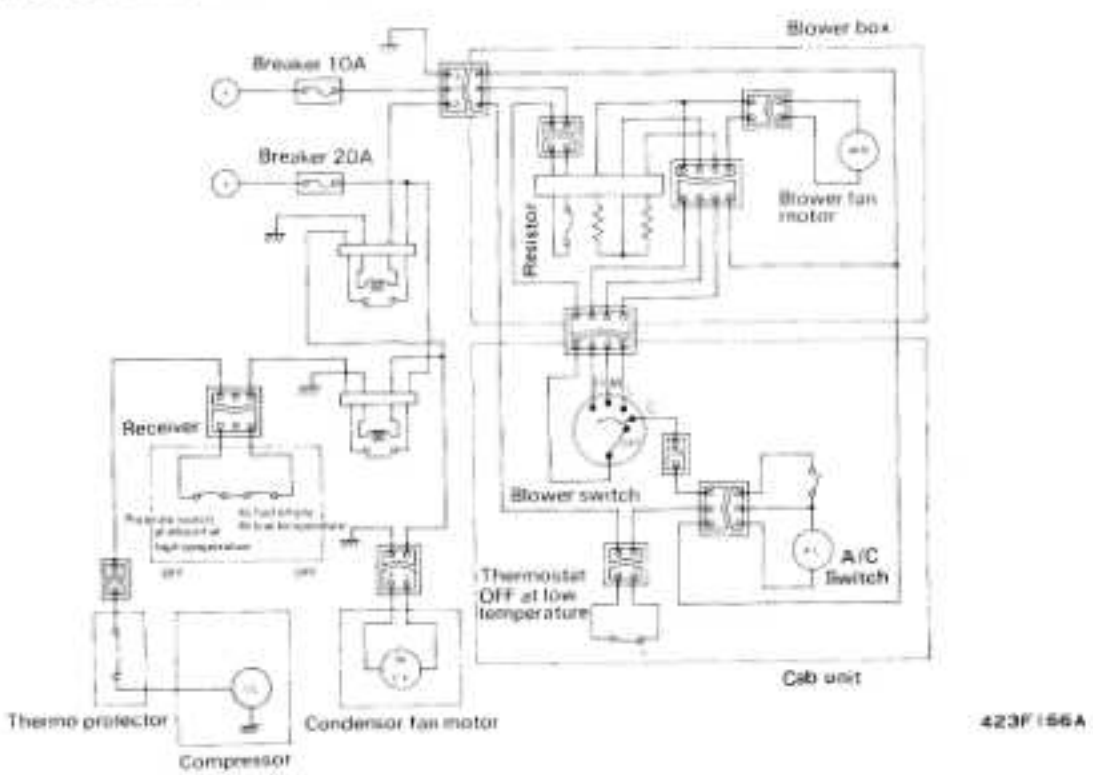
		Item	Standard value	Remedy
Checks before starting	Lubricating oil, cooling water	1. Check fuel level	–	Add fuel
		2. Check for dirt or water in fuel	–	Clean, drain
		3. Check hydraulic oil level	–	Add oil
		4. Check hydraulic oil strainer	–	Clean, drain
		5. Check brake oil level	–	Add oil
		6. Check engine oil level (Level of oil in oil pan)	–	Add oil
		7. Check cooling water level	–	Add water
		8. Check condition of dust indicator	–	Clean or replace
Item	Electrical equipment	9. Check for loose or corroded battery terminals	–	Tighten or replace
		10. Check for loose or corroded alternator terminals	–	Tighten or replace
		11. Check for loose or corroded starting motor terminals	–	Tighten or replace
Other check items	Hydraulic, mechanical equipment	12. Check for abnormal noise or smell	–	Repair
		13. Check for oil leakage	–	Repair
		14. Bleed air from system	–	Bleed air
	Electrical components	15. Check battery voltage (engine stopped)	20 – 30V	Replace
		16. Check level of battery electrolyte	–	Add or replace
		17. Check for discolored, burnt, or bare wiring	–	Replace
		18. Check for missing wiring clamps, hanging wires	–	Repair
		19. Checks for water leaking onto wiring (check carefully water leakage at connectors and terminals)	–	Disconnect connector and dry connection
		20. Check for broken or corroded fuses	–	Replace
		21. Check alternator voltage (engine running at over half throttle)	27.5 – 29.5 V	Replace
		22. Noise when battery relay is operated (switch starting switch from on to off)	–	Replace

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AIR CONDITIONER WIRING DIAGRAM



AIR CONDITIONER ELECTRIC CIRCUIT



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TROUBLESHOOTING TABLE (ELECTRONIC VEHICLE MONITORING SYSTEM)

No	Trouble phenomena \ Principal causal position or unit	Harness	Module group						Electrical parts group							Sensor group											
			Checks	Caution 1	Caution 2	Gauge	Service meter	Speedo meter	Alternator	Working lamp switch	Transmission cut-off switch	Electrical air intake heater	Diode	Lamp buzzer	Auxiliary controller	Engine oil level	Brake oil level	Coolant level	Engine oil pressure	Parking brake	Emergency steering	Engine water temperature	Air pressure	Brake line failure	Fuel level	Speed	Torque converter temperature
1	Even when engine is stopped, and there is no abnormality in machine, (Brake oil level) flashes.	○	○													○											
2	Even when engine is stopped, and there is no abnormality in machine, (Engine oil level) flashes.	○	○														○										
3	Even when engine is stopped, and there is no abnormality in machine, (coolant level) flashes.	○	○						○									○									
4	(Battery charge) flashes at engine running.	○		○																							
5	(Fuel level) flashes.	○		○		○																					
6	Even when engine is stopped, and there is no abnormality in machine, (Failure in brake line) flashes.	○		○																							
7	Even when engine is stopped, and there is no abnormality in machine, (Engine oil pressure) flashes.	○			○														○								
8	Even when engine is stopped, and there is no abnormality in machine, (coolant level) flashes.	○	○						○																		
9	Even when engine is stopped, and there is no abnormality in machine, (Drop in air pressure) flashes.	○			○	○																					
10	Even when engine is stopped, and there is no abnormality in machine, (Coolant temperature) flashes.	○			○	○																					
11	Even when engine is stopped, and there is no abnormality in machine, (Torque converter oil temperature) flashes.	○			○	○																					
12	(Parking brake) lights up abnormally, or does not light up.	○			○															○							
13	(Working lamp) lights up abnormally, or does not light up.	○			○					○																	
14	(Preheat) lights up abnormally.	○			○							○															
15	(Failure in main steering) lights up abnormally, or does not light up (If equipped)	○		○																	○						
16	(Emergency steering normal) lights up abnormally, or does not light up. (If equipped)	○		○																	○						
17	(Transmission cut-off) lights up abnormally, or does not light up.	○	○								○																
18	Turn signal lamps, high beam light up abnormally, or do not light up.	○						○																			
19	Speedometer display does not work normally.	○						○																		○	
20	Servicemeter does not work normally.	○					○												○								
21	All or part of monitor panel does not work normally. If any fuse is broken, replace after checking.	○	○	○	○	○									○												
22	Even when engine is stopped, (Engine oil pressure) flashes, or (Battery charge) flashes.	○	○	○	○	○			○										○								
23	No lamps on monitor light up (Immediately after turning starting switch to "ON", engine stopped)	○	○	○	○	○			○																		
24	Central warning lamp does not go out.	○		○	○									○	○												
25	Central warning buzzer does not stop.	○		○	○									○	○												
26	None of panel lamps on monitor light up.	○								○			○	○													
27	Some of panel lamps on monitor do not light up.	○	○	○	○	○	○							○													
28	Emergency item is flashing, but alarm buzzer does not sound.	○	○	○	○	○								○	○												
29	Emergency item or non-emergency item is flashing, but warning lamp does not flash.	○	○	○	○	○								○	○												
30	Abnormality in (Fuel gauge)	○				○																			○		
31	Abnormality in (Air pressure gauge)	○				○																	○				
32	Abnormality in (Coolant temperature gauge)	○				○																○					
33	Abnormality in (Torque converter oil temperature gauge)	○				○																					○

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