SHOP MANUAL

SEBMA2050508
(SEBM02050508)

KOMATSU®

PC200,200LC-5
PC200,200LC-5 MIGHTY
PC220,220LC-5

MACHINE MODEL	SERIAL NO.
PC200-5	45001 and up
	A70001 and up
PC200-5 MIGHTY	58019 and up
PC200LC-5	45001 and up
	A70001 and up
PC200LC-5 MIGHTY	58019 and up
PC220-5	35001 and up
PC220LC-5	35001 and up
	A70001 and up

- Open Serial Numbers references (i.e. 45001 and up) apply to all machine Serial Numbers listed above. Closed Serial Numbers references (i.e. 45001-45003) apply only to those machine Serial Numbers.

- 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. Material and specification are subject to change without notice.

- PC200, 200LC-5, MIGHTY mount the S6D95L engine;
  PC220, 220LC-5 mount the SA6D95L engine.
  For details of the engine, see the 95 Series Engine Shop Manual.

FEB 92

MidWestTech | Komatsu PC200-5, PC200-5 Mighty, PC200LC-5, PC200LC-5 Mighty, PC220-5, PC220LC-5 Hydraulic Excavator Service Manual | Publication SEBMA2050508
Order the manual at mid-west-tech.com >

CONTENTS

No. of page

10 STRUCTURE AND FUNCTION 10-1

20 TESTING AND ADJUSTING 20-1

30 DISASSEMBLY AND ASSEMBLY 30-1

40 MAINTENANCE STANDARD 40-1

020505

Not to be reproduced in whole or in part without the prior written permission of KOMATSU, Tokyo, Japan.

MidWestTech | Komatsu PC200-5, PC200-5 Mighty, PC200LC-5, PC200LC-5 Mighty, PC220-... Order the manual at mid-west-tech.com >

The affected pages are indicated by the use of the following marks. It is requested that necessary actions be taken to these pages according to the table below.

Mark	Indication	Action required
○	Page to be newly added	Add
●	Page to be replaced	Replace
( )	Page to be deleted	Discard

Pages having no marks are those previously revised or made additions.

020505

LIST OF REVISED PAGES

Mark	Page	Time of revision	Mark	Page	Time of revision	Mark	Page	Time of revision	Mark	Page	Time of revision	Mark	Page	Time of revision
●	00- 1	⑧		10- 1	⑤		10-23			10-45-6	⑧		10-69	⑥
●	00- 2	⑧		10- 2	④		10-24	④	○	10-45-7	⑧	●	10-69-1	⑧
●	00- 2-1	⑧	●	10- 3	⑧		10-25	④	○	10-45-8	⑧		10-69-2	⑥
●	00- 2-2	⑧	○	10- 3-1	⑧		10-26	④	○	10-45-9	⑧		10-69-3	⑥
●	00- 2-3	⑧		10- 4			10-27	④	○	10-45-10	⑧		10-69-4	⑥
●	00- 2-4	⑧		10- 4-1	④		10-28	④	○	10-45-11	⑧		10-70	⑤
●	00- 3			10- 4-2	⑥		10-29	④	○	10-45-12	⑧		10-71	⑥
●	00- 4		●	10- 5	⑧		10-30	④		10-46	⑧		10-72	⑤
●	00- 5		●	10- 6	⑧		10-31	④		10-47	⑤	●	10-73	⑧
●	00- 6			10- 7			10-32	④		10-48	⑤	●	10-74	⑥
●	00- 7			10- 8	②		10-33	④		10-49	⑤		10-75	⑥
●	00- 8			10- 9			10-34	④		10-49-1	⑤		10-76	⑤
●	00- 9			10-10			10-35	④		10-50	④	●	10-77	⑧
●	00-10			10-11			10-36	④		10-51			10-77-1	⑥
●	00-11			10-12		●	10-37	⑥		10-52		●	10-77-2	⑧
●	00-12		●	10-13	⑧	●	10-38	⑥		10-53	③	●	10-77-3	⑧
●	00-13		○	10-14	⑧		10-39			10-54	②		10-77-4	⑥
●	00-14			10-15	⑧	●	10-40	⑧		10-56		●	10-78	⑧
●	00-15		●	10-16	⑧		10-41	②		10-57		●	10-79	⑧
●	00-16		●	10-17	⑧		10-42			10-58			10-80	⑧
○	00-17	⑧	●	10-18	⑧		10-43	④		10-59			10-81	⑥
○	00-18	⑧		10-19	⑧		10-44	③		10-60	③		10-82	⑤
○	00-19	⑧	○	10-19-1	⑧		10-45			10-61			10-83	⑧
○	00-20	⑧		10-20		●	10-45-1	⑥		10-62		●	10-84	⑧
○	00-21	⑧		10-20-1	④		10-45-2	⑥		10-65	②		10-85	⑥
○	00-22	⑧		10-20-2	④		10-45-3	⑥	●	10-66	③	●	10-86	⑧
○	00-23	⑧		10-21	④		10-45-4	⑥		10-67			10-87	④
○	00-24	⑧		10-22	④		10-45-5	⑥		10-68	⑥	●	10-88	⑧

MidWestTech | Komatsu PC200-5, PC200-5 Mighty, PC200LC-5, PC200LC-5 Mighty, PC220-... Order the manual at mid-west-tech.com >

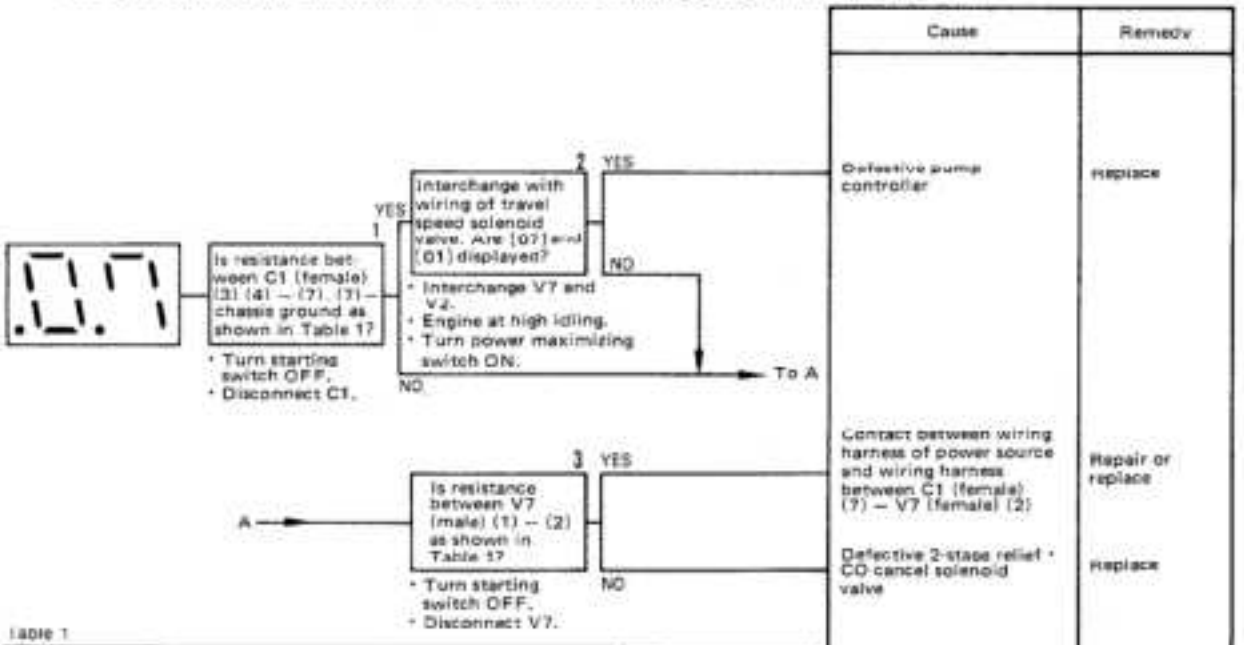
Mark	Page	Time of revision
	10-89	④
•	10-89-1	③
	10-89-2	④
•	10-89-3	③
	10-89-4	①
	10-89-5	④
•	10-89-6	⑤
○	10-89-8	⑤
	10-90	⑤
•	10-91	⑤
•	10-92	⑤
	10-93	⑥
	10-94	⑤
	10-95	⑤
	10-96	⑤
	10-97	⑤
	10-97-1	⑤
	10-97-2	⑤
•	10-97-3	⑤
	10-98	⑥
•	10-99	⑧
•	10-99-1	⑧
•	10-99-2	⑧
	10-100	②
•	10-101	⑧
•	10-102	⑧
•	10-103	⑧
•	10-104	⑧
	10-105	②
	10-106	④
•	10-107	⑧
	10-109	②
	10-110	②
	10-111	②
	10-112	②
	10-113	②
•	10-114	⑤
•	10-115	③
	10-116	③
	10-117	④
•	10-118	⑧
	10-118-1	④
	10-118-2	④
•	10-119	⑧
•	10-120	⑧
•	10-121	⑧
	10-122	⑥
	10-123	⑥
	10-124	⑤
	10-124-1	⑤
	10-124-2	⑤
	10-124-3	⑤
	10-124-4	⑤
	10-125	⑤
	10-126	⑤
•	10-127	⑧
•	10-128	⑧
	10-129	②
	10-130	
	10-131	
	10-132	
	20- 1	④
	20- 2	⑦
	20- 3	⑦
	20- 4	④
	20- 5	②
•	20- 6	⑧
•	20- 7	⑧
	20- 9	③
	20- 9	
	20-10	⑦
	20-11	⑦
	20-12	⑦
	20-13	⑦
	20-14	⑦
•	20-15	⑦
	20-16	④
	20-18	④
	20-19	⑦
•	20-20	⑧
•	20-21	⑧
•	20-22	⑧
	20-23	⑦
•	20-24	⑧
•	20-25	⑧
	20-26	⑦
	20-27	⑦
•	20-28	⑧
•	20-28-1	⑧
	20-28-2	⑦
	20-28-3	⑦
	20-29	⑦
	20-30	②
	20-31	
	20-32	④
	20-33	④
	20-33-1	⑦
	20-34	③
	20-35	③
	20-36	③
	20-37	④
	20-38	②
	20-39	②
	20-40	④
	20-41	③
	20-42	③
	20-43	⑦
	20-44	
	20-45	③
	20-46	④
	20-47	②
	20-47-1	⑦
•	20-47-2	⑧
•	20-48	⑧
•	20-49	⑧
•	20-49-1	⑧
•	20-49-2	⑧
	20-50	
	20-51	③
	20-52	
	20-53	
	20-54	④
	20-55	④
	20-56	③
	20-57	②
	20-58	
	20-59	
	20-60	
	20-61	②
	20-62	
	20-63	②
	20-64	
	20-65	
	20-66	
	20-67	
•	20-68	⑧
•	20-69	⑧
•	20-70	⑧
•	20-71	⑧
•	20-72	⑧
•	20-73	⑧
•	20-74	⑧
•	20-75	⑧
•	20-76	⑧
	20-77	⑦
•	20-78	⑧
	20-79	⑦
	20-90	④
	20-91	③
	20-92	
	20-93	
	20-94	
	20-95	
	20-96	
	20-97	④
	20-97-1	③
•	20-98	⑧
•	20-99	⑧
•	20-100	⑧
•	20-101	⑧
	20-102	③
•	20-103	⑧
	20-104	③
•	20-104-1	⑧
	20-105	⑦
•	20-106	③
	20-107	
•	20-107-1	⑧
	20-107-2	⑦
	20-108	⑦
	20-109	
	20-110	
	20-111	
	20-113	②
•	20-114	③
	20-115	②
•	20-116	⑧
•	20-117	⑧
•	20-117-1	⑧
•	20-117-2	⑧
•	20-117-3	⑧
•	20-117-4	⑧
	20-118	③
•	20-119	⑧
•	20-120	⑧
	20-121	⑦
	20-122	③
	20-123	②
	20-124	②
	20-126	⑦
	20-127	
•	20-128	⑧
	20-129	⑦
•	20-129-1	⑧
	20-129-2	⑦
•	20-130	⑧
	20-131	③
	20-132	②

020505

MidWestTech | Komatsu PC200-5, PC200-5 Mighty, PC200LC-5, PC200LC-5 Mighty, PC220-... Order the manual at mid-west-tech.com >

C-6 [07] [Short circuit in 2-stage relief · CO cancel solenoid valve, CO cancel system] is displayed

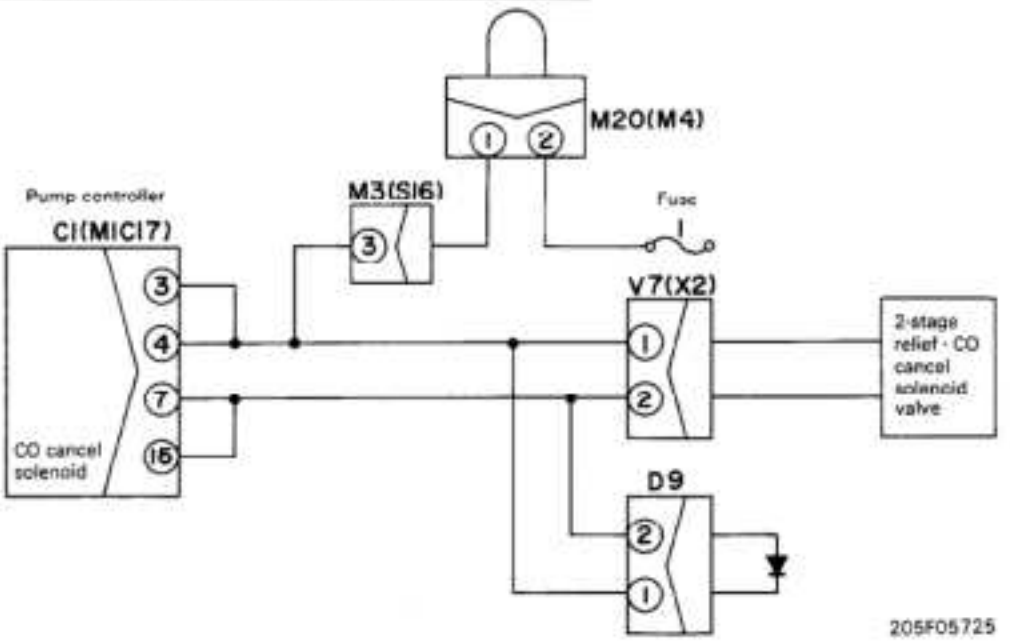
★ When an abnormality occurs [01] and [07] are displayed.
★ If the starting switch is turned OFF after the abnormality occurred, turn the starting switch ON, set the power max. switch to ON, and check that [01] and [07] are displayed. (If they are not displayed, the system has been reset.)
It is also possible to operate the travel lever (in this case, with the engine at high idling), or to turn the swing lock switch ON.
★ Before carrying out troubleshooting, check that all the related connectors are properly inserted.
★ Always connect any disconnected connectors before going on to the next step.



020505

Table 1

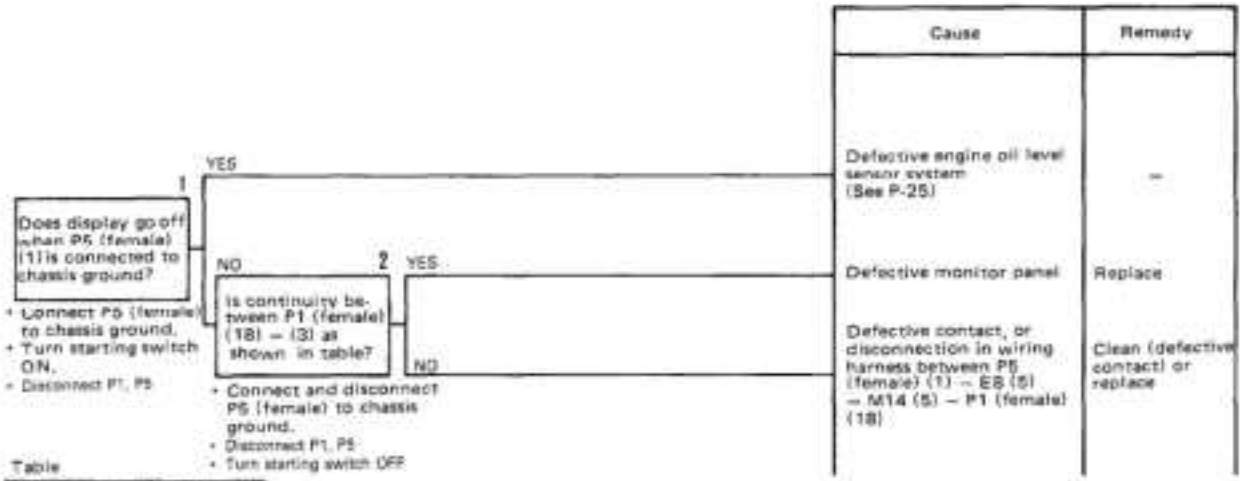
Serial No.	C1 (female)	V7 (male)	Resistance value
PC200: 45001 – 52783 PC220: 35001 – 36023	Between (3)(4) – (7)	Between (1) – (2)	50 – 100Ω
	Between (7) – chassis	Between (2) – chassis	Min. 1MΩ
PC200: 52784 and up PC200 MIGHTY PC220: 36024 and up	Between (3)(4) – (7)	Between (1) – (2)	24 – 48Ω
	Between (7) – chassis	Between (2) – chassis	Min. 1MΩ



MidWestTech | Komatsu PC200-5, PC200-5 Mighty, PC200LC-5, PC200LC-5 Mighty, PC220-... Order the manual at mid-west-tech.com >

b) (Engine oil level) flashes

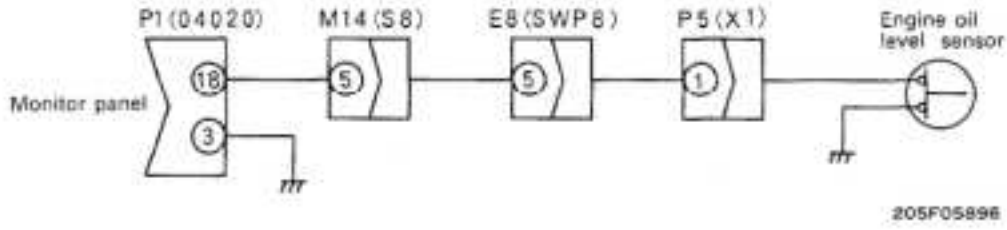
★ Use the dipstick to check that the engine oil is at the specified level before carrying out the troubleshooting.



Table

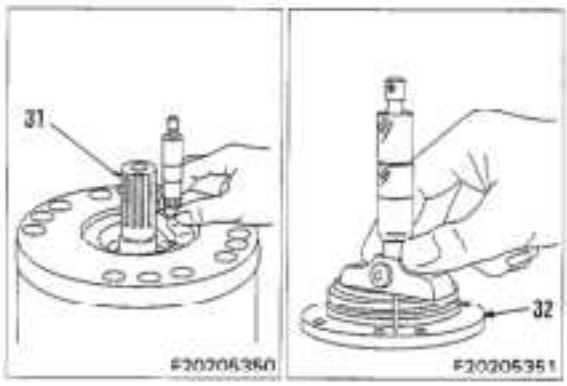
Chassis ground	Continuity
Connected	Yes
Disconnected	No

020505

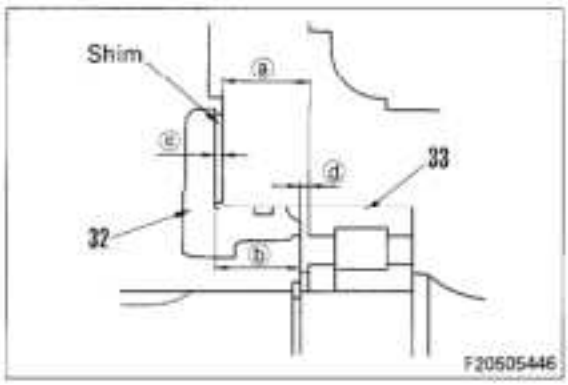


MidWestTech | Komatsu PC200-5, PC200-5 Mighty, PC200LC-5, PC200LC-5 Mighty, PC220-5... Order the manual at mid-west-tech.com >

9) Select shim for housing as follows.
   i) Push drive shaft (31) in completely, and measure dimension ⓐ of end face of bearing outer race (33) and cradle.
   ii) Measure dimension ⓑ of housing (32).



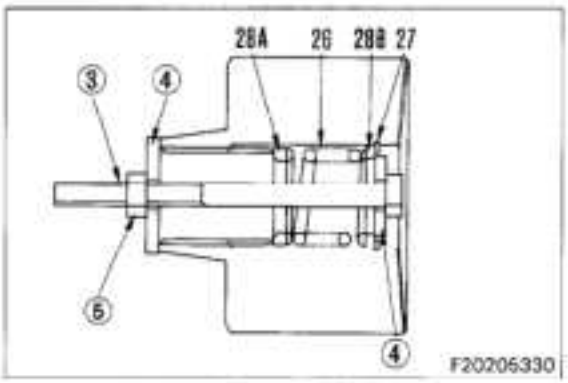
   iii) Select shim to give following thickness.
   * Shim thickness: ⓑ − ⓐ − ⓒ = 0.05 − 0.15 mm.
   * Therefore, there is a clearance of 0.05 − 0.15 mm at portion ⓓ.
   * There is no shim at the rear pump.



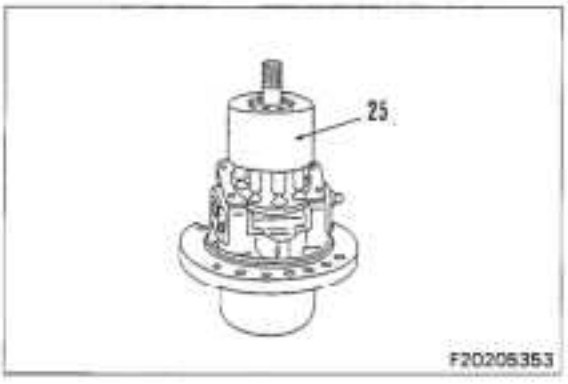
020505

3. Cylinder block

1) Assemble cylinder block as follows.
   i) Assemble washer (28A), spring (26) and washer (28B).
   * Assemble the washer facing in the direction shown in the diagram.
   ii) Using bolts ③ (10 mm or 12 mm), washers ④ and nut ⑤, compress spring (26).
   iii) Install snap ring (27).



2) Align with drive shaft and piston, and install cylinder block (25).
* Always install the valve plate (which forms a set with the cylinder) together with the cylinder, or makr a mark and be careful not to make any mistake.



MidWestTech | Komatsu PC200-5, PC200-5 Mighty, PC200LC-5, PC200LC-5 Mighty, PC220-... Order the manual at mid-west-tech.com >

TABLE OF FAILURE MODES AND CAUSES

Failure mode \ Parts causing failure			Pump						TVC		Control valve										J/S			Solenoid					Swing motor					Travel motor										Troubleshooting code
			CO • NC valve	Servo valve	Valve proper	Charging pump	Strainer	Damper	Solenoid	Spool	Spool	Main relief valve	Safety valve	Suction valve	Straight-travel valve	Arm throttle valve	Swing priority valve	Valve proper	Travel shuttle valve	Relief valve	Orifice	PPC valve	PPC shuttle valve	Swing joint	2-stage relief	Travel speed	CO cancel	Arm half-flow	Swing brake	Brake	Internal leakage	Safety valve	Suction valve	Valve proper	Safety valve	Valve proper	Internal leakage	Brake	Travel speed selector servo	Swing machinery	Final drive	Hydraulic cylinder	Boom holding valve	Lift check vlve	Engine system	
Work equipment, travel, swing system	Speeds of work equipment, travel, swing are all slow				○	○				○		○																														○	H-1
	There is excessive drop in engine speed, or engine stalls		○					○		○																																○	H-2
	Work equipment, travel, swing do not move					○		○																																				H-3
	Speed is extremely slow (if it is greatly outside permissible range)					○				○																																		
	Work equipment, travel, swing lack power		○									○													○		○																		H-4
	Power mode selection system does not switch								○	○																																		H-5
	Abnormal noise generated			○			○																																					H-6
	Auto-decelaration does not work																		○				○																						H-7
Work equipment system	Boom, arm speed is extremely slow														○				○																										H-8
	Boom speed is slow									○		○	○									○																				○	○		H-9
	Arm speed is slow									○		○	○									○						○														○			
	Bucket speed is slow									○		○	○									○																				○			
	When boom and arm are operated simultaneously, boom is slow															○																													H-10
	Work equipment (boom, arm, bucket) lacks power									○		○	○									○			○		○	○														○	◉		H-11
	Excessive hydraulic drift									○		○	○																													○	◉		H-12
	Excessive time lag												○																																H-13
	Does not enter finishing operation mode																											○																	H-14
	When arm and swing are operated simultaneously, arm is slow																○																												H-15
Travel system	Travel deviation: Deviates in same direction both in forward and reverse		○	○	○					○								○		○	○			○												○	○	○		○				H-16 (a)
	Travel deviation: Deviates in different direction in forward and reverse																					○		○										○										H-16 (b)
	Travel deviation: Excessive deviation during compound operations														○				○				○																					H-17
	Travel deviation: Excessive deviation when starting		○	○														○		○	○			○												○	○	○						H-18
	Lacks power (or speed is slow)		○									○													○		○																		H-19
	Travel speed does not switch																									○													○						H-20
	Machine does not move (one side only)																																			○	○		○			○				H-21
Swing system	Does not swing	Both left and right								○																		○	○			○							○						H-22
		One direction only																				○								○														
	Swing speed is slow or acceleration is poor	Both left and right	○							○																		○	○															H-23
		One direction only																				○								○														
	Excessive overrun when stopping swing	Both left and right																										○																H-24
		One direction only																										○																
	Excessive shock when stopping swing	Both left and right																										○	○															H-25
		One direction only																										○																
	Excessive abnormal noise when stopping swing																											○	○										○				○		H-26
	Excessive hydraulic drift of swing																											○	○															H-27
	When operated simultaneously with arm, swing speed is slow																○																											H-28

◉ Boom only

020505

MidWestTech | Komatsu PC200-5, PC200-5 Mighty, PC200LC-5, PC200LC-5 Mighty, PC220-5, PC220LC-5 Hydraulic Excavator Service Manual | Publication SEBMA2050508

Order the manual at mid-west-tech.com >