KOBELCO

SERVICE MANUAL

COMPACT CRAWLER EXCAVATOR

27SR ACERA

TIER 4

S5PV0018E01 NA

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HYDRAULIC CIRCUITS AND COMPONENT MODELS

STANDARD SPECIFICATION			PM01Z00028P1E	27SR ACERA
No.	NAME		PART No.	MODEL No.
1	PUMP ASSY		PM10V00017F1	AP2D12LV3RS7
2	CONTROL VALVE		PM30V00051F2	BCV35-JAB10-2
3	SLEWING MOTOR		PM15V00020F1	MSG-27P-10E-17
4	TRAVEL MOTOR		PM15V00021F1	MSG-18VP-220F-1
5	BOOM CYLINDER	CANOPY	PV01V00061F1	ø70-ø40-471
		CAB	PV01V00064F1	ø70-ø40-455
6	ARM CYLINDER		PV01V00062F1	ø70-ø40-502
7	BUCKET CYLINDER		PV01V00063F1	ø60-ø35-417
8	SWING CYLINDER		PM01V00056F2	ø75-ø45-385
9	DOZER CYLINDER		PV01V00047F2	ø85-ø45-135
10	SWIVEL JOINT		PM55V00012F2	YV-7104
11	PILOT VALVE (ATT)		PX30V00043F1	PV48M2042
12	PILOT VALVE (TRAVEL)		PM30V00019F6	PVD6P4042
13	SOLENOID VALVE		PX35V00003F1	2KWE5G-30/G12WS-249A
14	PILOT VALVE (DOZER)		PB30V00002F2	PV6P1075
15	SHUTTLE VALVE		PH26V00001F1	
16	CONTROL VALVE		PX30V00060F1	
17	ELEMENT FILTER		PW52V01001F2	
18	SUCTION STRAINER		PW50V00015F2	
19	INLINE FILTER		YN50V00020F1	Y-457400
20	CHECK VALVE		PW21V00003F1	Y-2389
21	OIL COOLER		PM53V00001P1	
22	HYDRAULIC OIL TANK		–	
23	STOP VALVE		PF25V00001F2	
24	SELECTOR VALVE		PA30V00005F1	
28	BREATHER ASSY		YN57V00002F4	AB0210GA001B
52	RELIEF VALVE		PM22V00005F3	
53	SOLENOID VALVE		PW35V00002F1	2KWE5A-30/G12R-278

NOTE: *This is for reference only, because the model number might be changed due to improvement.*

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Classification	Group No.		Trouble / Cause	Engine dealer																
				Lubrication system			Cooling		Mechanical											
				Oil gets into comb. chamber through piston / valve guide	Check relief valve	Fuel mixed	Check thermostat	Oil cooler element damaged	Compression pressure low	Control rack movement not smooth	Governor spring fatigue	Crank shaft oil seal defective	Piston liner worn	Piston ring worn	Valve spring fatigue	Internal part seizure	Check fuel feed	Defective head gasket	Flywheel gear damaged
Starting trouble	1	(1)	Starter not rotate																	
		(2)	Starter rotates but hard to start				X		X				X	X	X		X	X	X
Rotation trouble	2	(1)	Idling not smooth				X		X	X	X			X	X		X	X	
		(2)	Medium speed hunting																
		(3)	High speed not smooth							X	X								
			Not reach max. speed								X								
Output drops down	3	(1)	Engine output not enough				X		X					X					
			Overheat		X	X	X	X										X	
		(2)	Knocking at high temperature	X					X										
Other trouble	4	(1)	Large amount of black exhaust gas				X							X	X	X		X	
			White exhaust gas	X					X										
		(2)	Excessive oil consumption	X								X	X	X					
		(3)	Excessive fuel consumption						X										
		(4)	Engine not stop when key turned OFF																
		(5)	When key is turned OFF, power supply disconnected but engine not stop																

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(6) 4TNV84T

Engine name		Unit	4TNV84T							
Engine specification class		-	CL	VM						
Type		-	Vertical, in-line, 4-cycle, water-cooled diesel engine							
Combustion chamber		-	Direct injection							
Number of cylinders		-	4							
Cylinder bore×stroke		mm×mm	84×90							
Displacement		L	1.995							
Continuous rating	Revolving speed	Min^{-1}	1500	1800	-					
	Output	KW (hp)	19.1 (26.0)	24.3 (33.0)	-					
Rated output	Revolving speed	Min^{-1}	1500	1800	2000	2200	2400	2600	2800	3000
	Output	KW (hp)	21.3 (29.0)	26.9 (36.5)	27.9 (38.0)	30.5 (41.5)	33.5 (45.5)	35.7 (48.5)	38.6 (52.5)	41.2 (56.0)
Max. no-load speed (±25)		min^{-1}	1600	1895	2180	2400	2590	2810	2995	3210
Ignition order		-	1-3-4-2-1(No.1 cylinder on flywheel side)							
Power take off		-	Flywheel							
Direction of rotation		-	Counterclockwise (viewed from flywheel)							
Cooling system		-	Radiator							
Lubrication system		-	Forced lubrication with trochoid pump							
Starting system		-	Electric							
Applicable fuel		-	Diesel oil-ISO 8217 DMA, BS 2869 A1 or A2 (Cetane No.45 min.)							
Applicable lubricant		-	API grade class CD or CF							
Lubricant capacity (oil pan) *	Total	L	7.4							
	Effective	L	3.4							
Coolant water capacity (engine only)		L	2.7							
Engine dimensions **	Overall length	mm	683	649						
	Overall width	mm	498.5							
	Overall height	mm	713							
Engine mass (dry) ** (with flywheel housing)		kg	183	170						
Cooling fan (std.)		mm	370 mm O/D, 6 blades pusher type							
Crankshaft V pulley diameter & Fun V pulley diameter (std.)		mm	120×90	110×110						

* Engine oil capacity may differ from the above depending on an engine installed on a machine unit.
** Engine mass and dimensions without radiator

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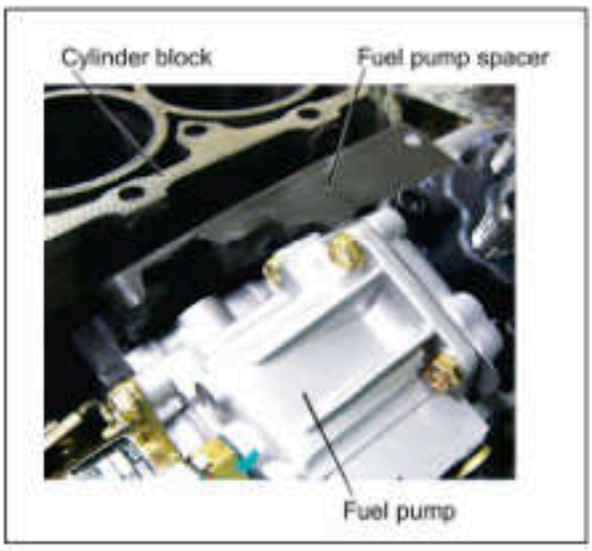
Point 3

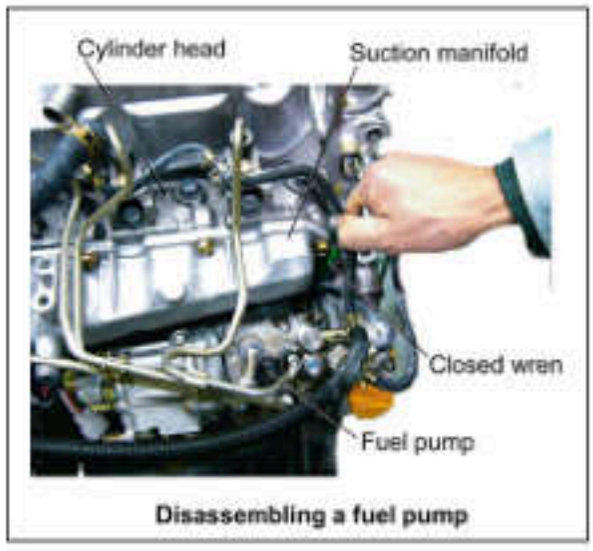
[Disassemble]

There is an acoustic material part to name as fuel pump spacer between the fuel pump and the cylinder block. Loosen fuel pump installation bolts with a closed wrench when disassembling a fuel pump.

[NOTICE]

An intake manifold may obstruct the disassembly of the fuel pump by the engine model. Remove the fuel pump after removing the intake manifold first.





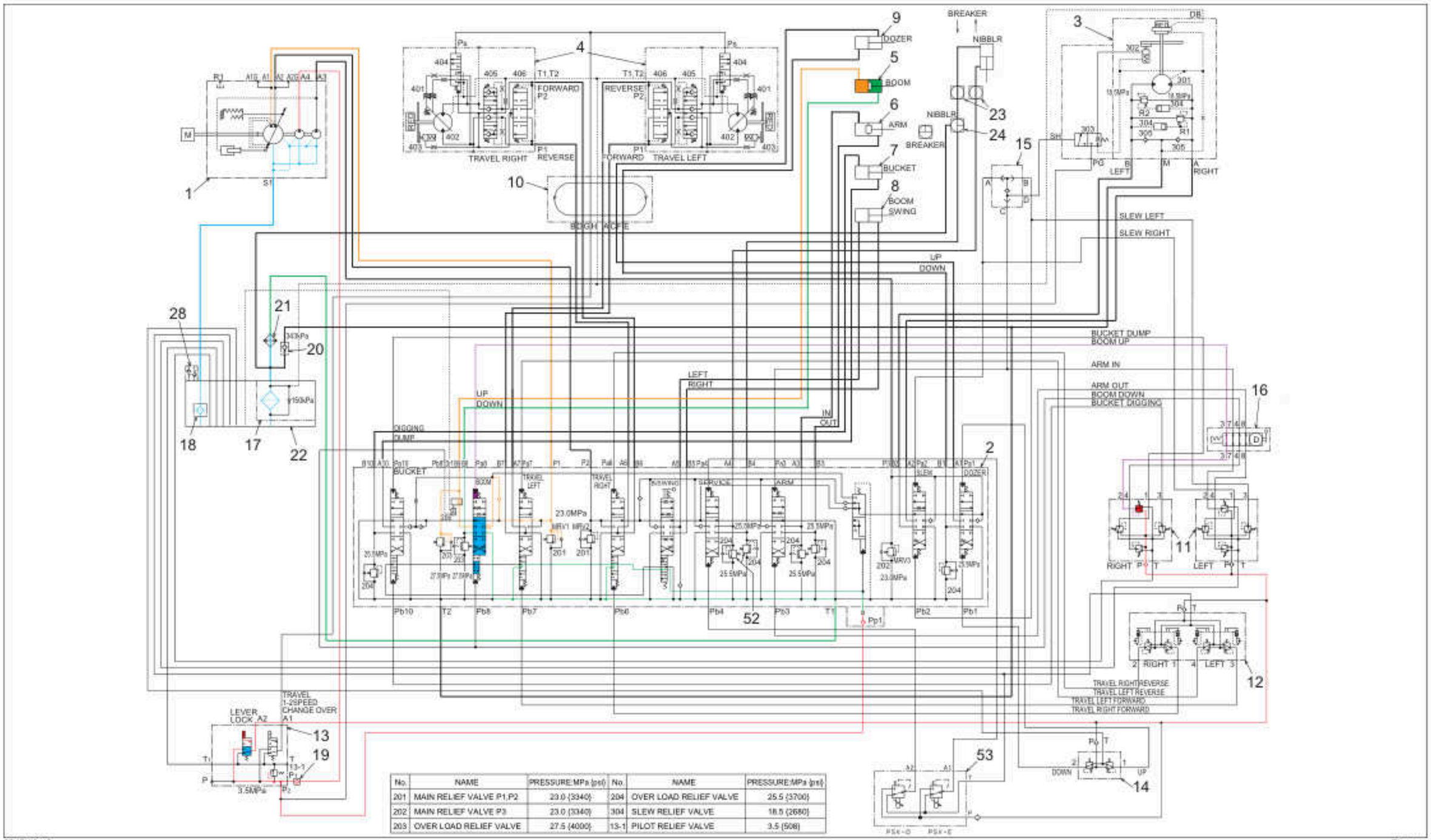
Disassembling a fuel pump

[Reassemble]

When installing a fuel pump on the gear case, put a fuel pump spacer between the cylinder blocks, and install it .

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SECTION 3 - SYSTEMS
CHAPTER 1 - HYDRAULIC SYSTEM



No.	NAME	PRESSURE:MPa {psi}	No.	NAME	PRESSURE:MPa {psi}
201	MAIN RELIEF VALVE P1,P2	23.0 {3340}	204	OVER LOAD RELIEF VALVE	25.5 {3700}
202	MAIN RELIEF VALVE P3	23.0 {3340}	304	SLEW RELIEF VALVE	18.5 {2680}
203	OVER LOAD RELIEF VALVE	27.5 {4000}	13-1	PILOT RELIEF VALVE	3.5 {508}

GRAPHIC_10

Figure 6

BOOM CIRCUIT : BOOM UP OPERATION

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