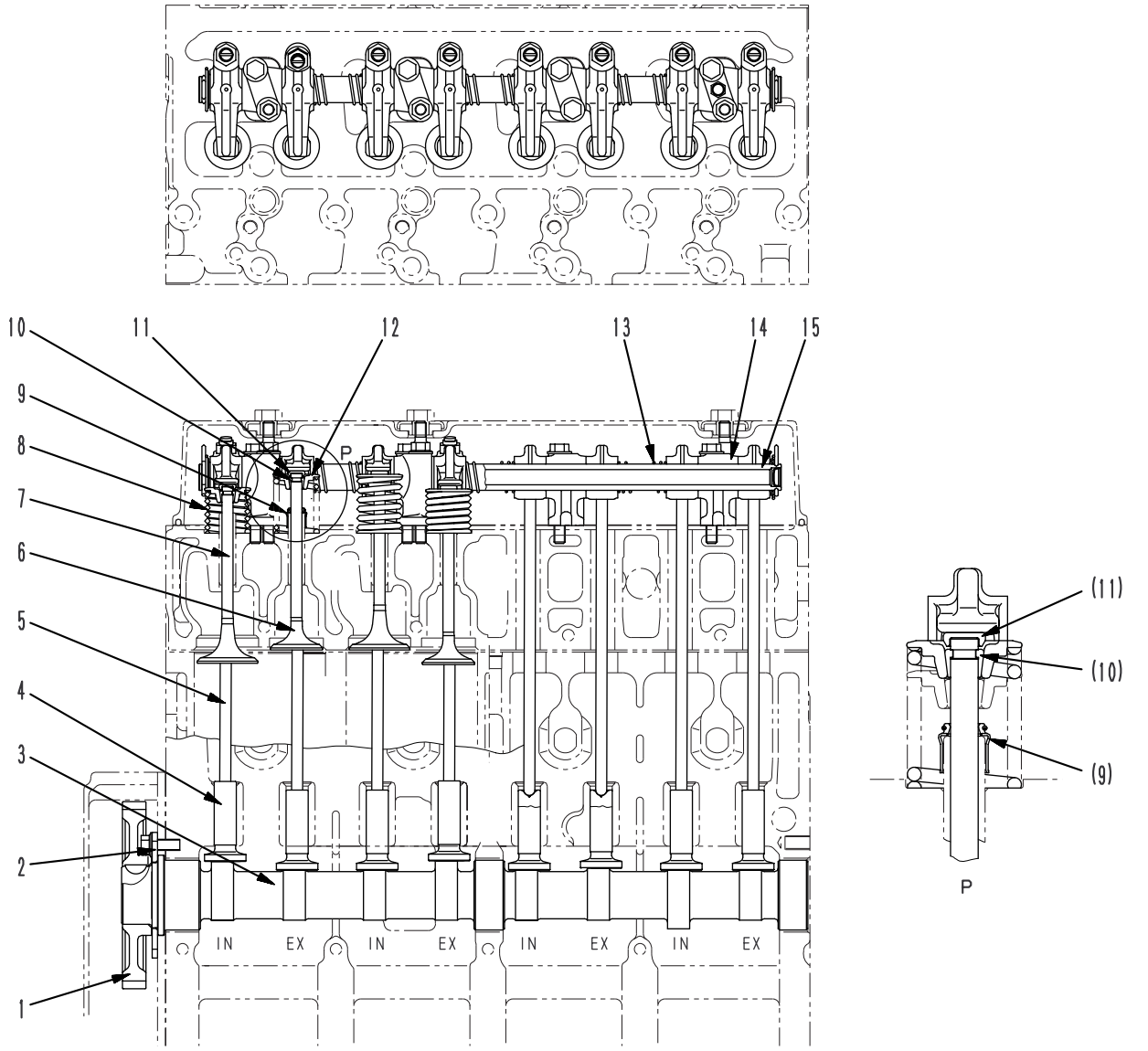
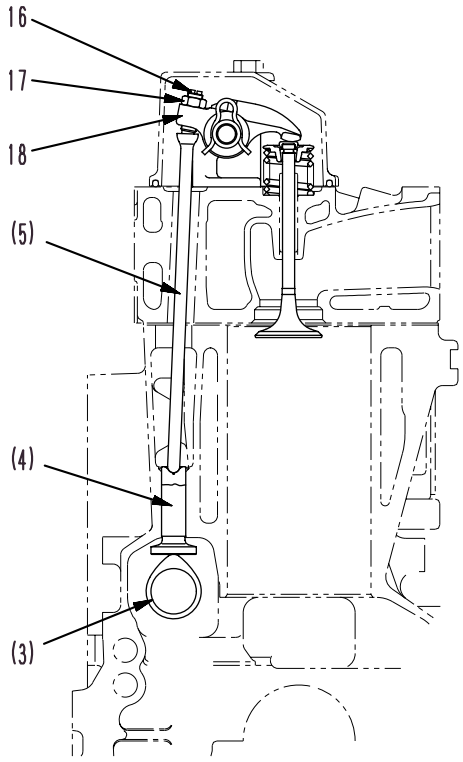
VALVE SYSTEM

S4D95LE-3
SAA4D95LE-3

★ The numbers in ( ) are used when indicating other parts of the same type or when explaining the same part when seen from a different angle.



1. Cam gear (No. of teeth: 48)
2. Thrust plate
3. Camshaft
4. Tappet
5. Push rod
6. Exhaust valve
7. Intake valve
8. Valve spring
9. Valve seal
10. Valve cotter
11. Valve stem cap
12. Spring seat
13. Rocker arm spring
14. Rocker arm bracket
15. Rocker arm shaft
16. Adjustment screw
17. Locknut
18. Rocker arm



SJE02171

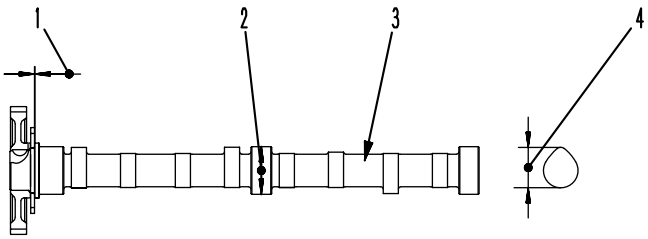
SPECIFICATIONS

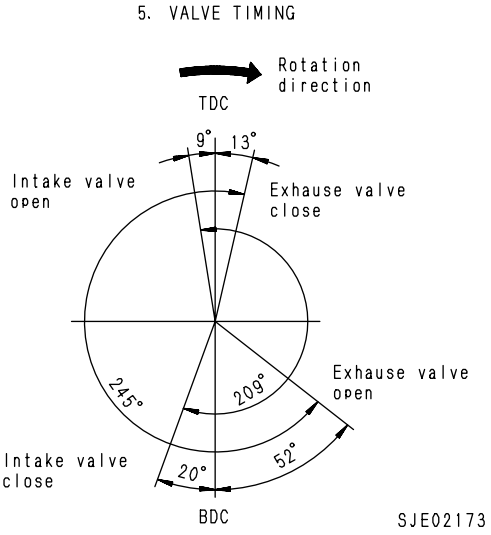
Valve lift

- Intake valve: 9.6 mm
- Exhaust valve: 10.6 mm

CAMSHAFT

(Bushing installed to journal No. 2 and 3)

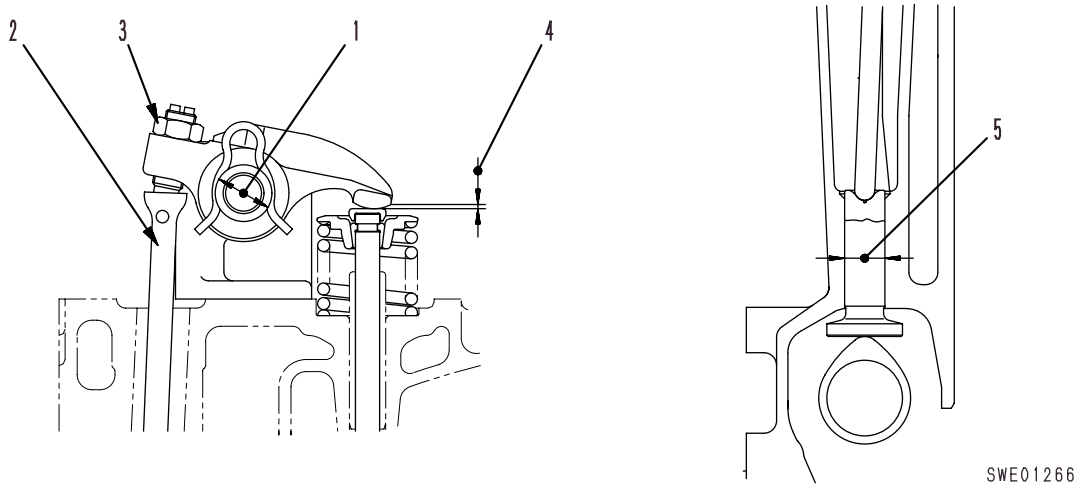




Unit: mm

No.	Check item	Criteria							Remedy
1	End play	Standard size			Repair limit				Replace thrust plate
		0.150 – 0.350			0.5				
2	Outside diameter of camshaft bearing journal	Journal	Standard size	Tolerance		Standard clearance	Clearance limit		Replace bushing
				Shaft	Hole				
		No.1 No.2 No.3	50.5	–0.080 –0.110	+0.030 –0.040	0.040 – 0.140	0.25		
3	Curvature of camshaft	Repair limit: 0.03 (Total deflection of indicator)							Replace
4	Height of camshaft	Standard size		Tolerance		Repair limit			
		Intake	42.69	±0.10		42.2			
		Exhaust	43.04			42.5			
5	Valve timing	Valve position	Crankshaft angle			When testing (Crankshaft angle when valve has gone down 1 mm)			Check for curvature or wear of valve, camshaft, push rod. Correct or replace
						Standard		Tolerance	
		Intake open	Before TDC	9º		Before TDC	8º	±3º	
		Intake closed	After BDC	20º		After BDC	4º		
		Exhaust open	Before BDC	52º		Before BDC	37º		
		Exhaust closed	After TDC	13º		After TDC	12º		

ROCKER ARM SHAFT, PUSH ROD AND TAPPET

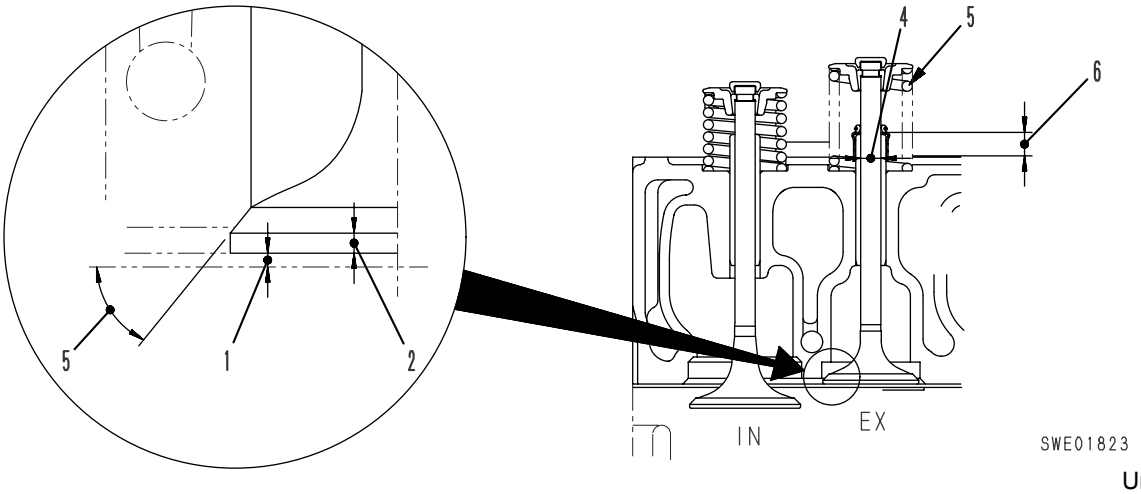


Unit: mm

No.	Check item	Criteria			Remedy
1	Outside diameter of rocker arm shaft	Standard	Tolerance		Replace rocker arm shaft
		19	0 –0.020		
	Inside diameter of rocker arm shaft hole	19	+0.030 +0.010		Replace rocker arm
	Clearance between rocker arm and rocker arm shaft	Standard clearance	Clearance limit		Replace rocker arm or rocker arm shaft
		0.010 – 0.050	0.12		
	Bend of rocker arm shaft	Repair limit: 0.20 (Total indicated runout)			Replace rocker arm shaft
2	Bend of push rod	Repair limit: 0.30 (Total indicated runout)			Replace push rod
3	Tightening torque of adjustment nut of rocker arm	Target Nm {kgm}	Range Nm {kgm}		Retighten
		44 {4.5}	39 – 49 {4 – 5}		
4	Valve clearance (at warm and cold)	Valve	Standard	Tolerance	Adjust
		Intake	0.35	±0.02	
		Exhaust	0.50	±0.02	
5	Outside diameter of tappet	Standard	Tolerance		Replace tappet
		16	–0.015 –0.030		
	Inside diameter of tappet hole	16	+0.018 0		Replace cylinder block
	Clearance between tappet and tappet hole	Standard clearance	Clearance limit		Replace tappet or cylinder block
		0.015 – 0.048	0.12		

VALVE, VALVE GUIDE

★ Details may differ according to the machine model.



Unit: mm

No.	Check item	Criteria						Remedy
1	Sinking of valve	Tolerance				Repair limit		Repair valve or valve seat
		Intake	1.0 ± 0.18			1.00		
		Exaust	0.9 ± 0.18					
2	Thickness of valve head	15 ± 1.0				1.00		Replace
3	Valve seat angle	Standard		Tolerance		Repair limit		Correct valve or valve seat, or replace
		45º		± 15’		Judge contact surface condition with vacuum test		
4	Clearance between valve guide and valve stem	Standard size		Tolerance		Standard clearance	Clearance limit	Replace either valve or valve guide or both
				Shaft	Hole			
		Intake	8	–0.035 –0.050	+0.015 0	0.035 – 0.065	0.20	
		Exhaust	8	–0.050 –0.065	+0.015 0	0.050 – 0.080	0.20	
5	Free length of valve spring	Part No. (distinguishing feature)		Standard size		Repair limit		Replace
		6204-41-4410 (Peach-color)		49.2		48.5		
		6204-41-4431 (Red)		56.0		55.0		
	Installed load of valve spring	Part No. (distinguishing feature)		Installed length		Standard load N {kg}	Load limit N {kg}	
		6204-41-4410 (Peach-color)		40.5		181 ± 8.8 {18.5 ± 0.9}	162 {16.5}	
		6204-41-4431 (Red)		40.5		153 ± 14.7 {15.6 ± 1.5}	127 {13.0}	
	Out-of-square of valve spring	Repair limit: 18.5º						
6	Driving-in height of valve guide	Standard size				Tolerance		Correct
		14.5				± 0.2		