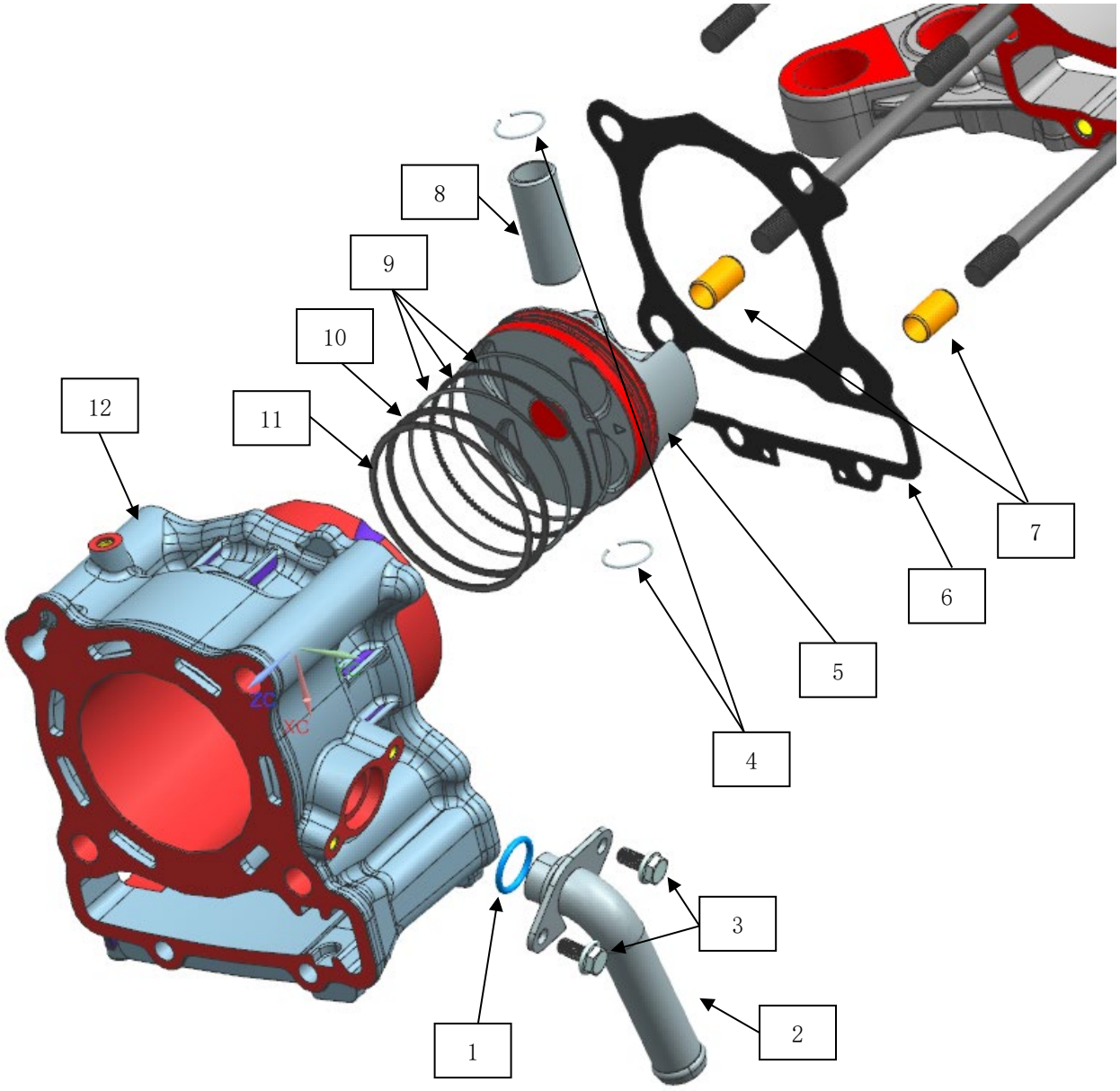
Cylinder, piston

1. System components



Parts information

Serial number	Part Name	Quantity	Serial number	Part Name	Quantity
1	19×2.65 EPDM O-ring	1	7	φ 12×20 hollow positioning pin	2
2	ZT1P77MP cylinder water inlet pipe joint	1	8	18×44×11 piston pin	1
3	GB5789M6×12 (environmental protection color)	2	9	ZT1P77MP oil ring combination	1
4	20.4×1.2 piston pin retaining ring	2	10	ZT1P77MP second gas ring	1
5	ZT1P77MP piston	1	11	ZT1P77MP first gas ring	1
6	ZT1P77MP cylinder body box gasket B	1	12	ZT1P77MP cylinder block	1

2. Maintenance information

General information

·This chapter introduces the maintenance of cylinder and piston.

·The maintenance of cylinder and piston needs to remove the engine from the whole vehicle.

.Remove the cylinder head cover. **(Refer to ZT1P77MP engine maintenance manual for disassembly and assembly--cylinder head cover, cylinder head-cylinder head cover)**

·Remove the tensioner. **(Refer to ZT1P77MP engine maintenance manual for disassembly and assembly--cylinder head cover, cylinder head-tensioner)**

·Remove the cylinder head sub-assembly. **(Refer to ZT1P77MP engine maintenance manual for disassembly and assembly--cylinder head cover, cylinder head-cylinder head)**

When disassembling the cylinder, avoid scratching the joint surface of the cylinder and the box to cause damage.

·When the cylinder is separated from the piston, pay attention to protect the piston and connecting rod to prevent damage caused by the collision between the piston connecting rod and the box.

·After removing the piston, clean up the carbon deposition and dirt on the top, and be attention not to drop it into the box.

·Clean and dry the disassembled parts before checking.

Tool

1. Clamp pliers
2. Needle nose pliers

3. Troubleshooting

1. The compression pressure is too low when the engine is running at low speed, it is difficult to start or the performance is not good

·The cylinder wall is worn, the top of the piston is cracked or the wall of the cylinder block is scratched.

·Piston rings are worn or cracked.

·The connecting rod is bent.

·Cylinder head valve leakage.

2. The pressure is too high during the compression process of the engine, and there is a knocking sound during operation

· Excessive carbon deposit on the top of the piston or in the combustion chamber.

3. Engine abnormal sound

· The piston ring is broken.

· Piston ring wear or cylinder wall scratches.

· Piston ring carbon deposition or piston ring groove wear.

· Piston pin or piston pin hole wear.

· Piston ring sticks to the piston ring groove.

4. The engine produces obvious smoke

·Cylinder and piston pull the cylinder, the piston is damaged or the coating of the cylinder falls off.

· Cylinder, piston or piston rings are worn.

·The installation position of the piston ring is not correct.

4. Cylinder

Disassemble

1. After the cylinder head is disassembled, use clamp pliers to remove the clamp on the water pipe joint of the right crankcase cover, pull out the water pipe, and remove the cylinder block.
2. Remove the cylinder.

Remarks: ① Turn the piston to the top dead center before disassembly, and fix the crankshaft when pulling out the cylinder.

② Do not drop the timing chain into the crankcase.

③ When the cylinder is pulled out of the piston, fix the piston and connecting rod by hand or other auxiliary tools to avoid collision with the box and cause damage.

3. Remove the gasket of the cylinder block and clean the residual sealant on the joint surface of the cylinder block.

Remarks: ① Be careful when cleaning the joint surface to avoid scratches on the joint surface.

Examine

Check whether there are scratches and wear on the inner wall of the cylinder. If there are obvious scratches and wear, the defective parts must be replaced.

Install

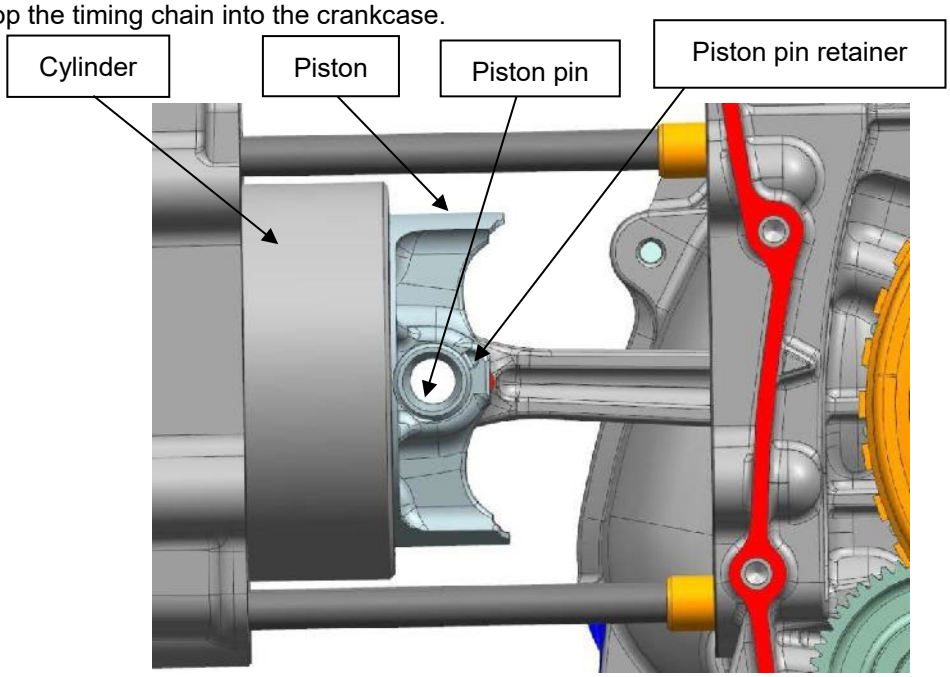
1. Apply an appropriate amount of sealant to the corresponding position of the joint surface of the cylinder block, install a new cylinder block gasket, and two 12 × 20 positioning pins.

2. Install the cylinder block, press the piston ring by hand to fit it into the cylinder block; stagger the openings of the piston ring, install the cylinder in place, and wipe off excess oil. (There is a 349cc logo and 3 ribs on the side of the cylinder)

Remarks: ① Before installing the cylinder block, apply an appropriate amount of engine oil evenly on the inner wall of the cylinder block.

③ Apply proper amount of engine oil to the piston skirt and piston ring.

④ Do not drop the timing chain into the crankcase.



3. Insert the water pipe into the water pipe joint of the water pump cover, and use clamp pliers to clamp the clamp on the water pipe joint.

5. Piston

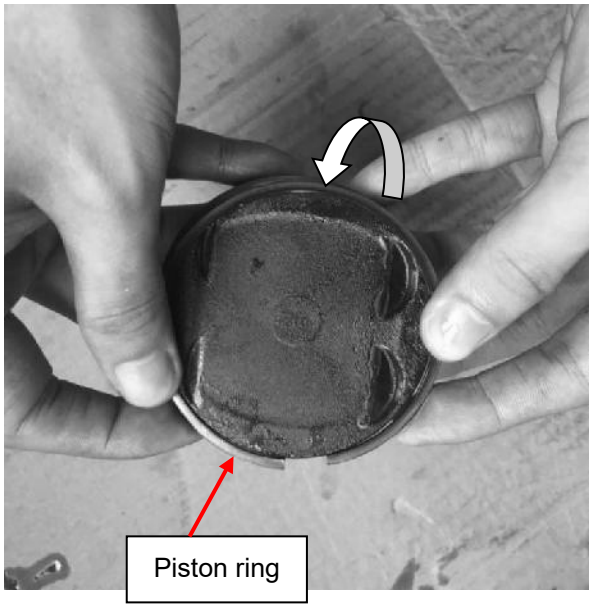
Disassemble

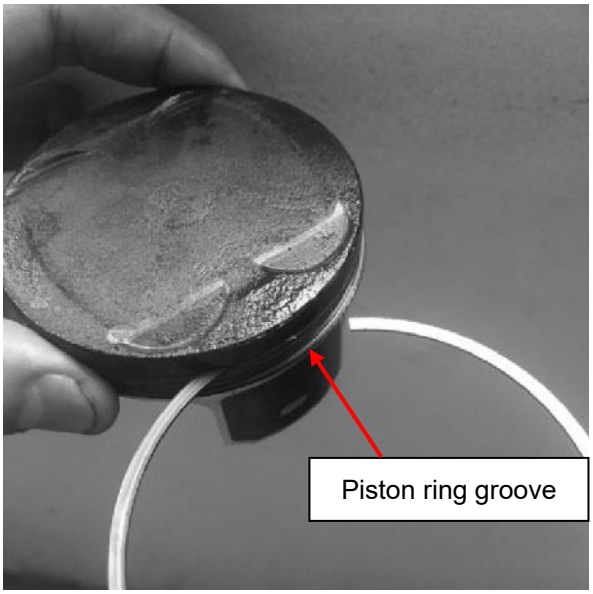
1. After the cylinder is removed, use needle-nose pliers to remove the piston pin retaining ring, push the piston pin out of the piston and connecting rod, and then remove the piston.

Remarks: ① Do not scratch the piston and piston ring when removing the piston pin retaining ring.

② Use cloth or other objects to block the opening of the crankcase to prevent the piston pin retaining ring from falling into the casing during disassembly.

2. Pull off each piston ring and remove it by lifting it to a position directly above the gap, use an old piston ring that has been used or other suitable objects to remove the carbon deposits on the piston ring groove.





Examine

1. Check whether the outer surface of the piston is scratched or damaged, and replace it if there is any obvious scratch or damage.
2. Check whether the three piston rings are abnormally worn, turn the piston rings, and check the rotation of the piston rings. The piston rings should be able to rotate freely in the groove without the feeling of being stuck. If there is abnormal wear or abnormal rotation, the corresponding parts need to be replaced.

Install

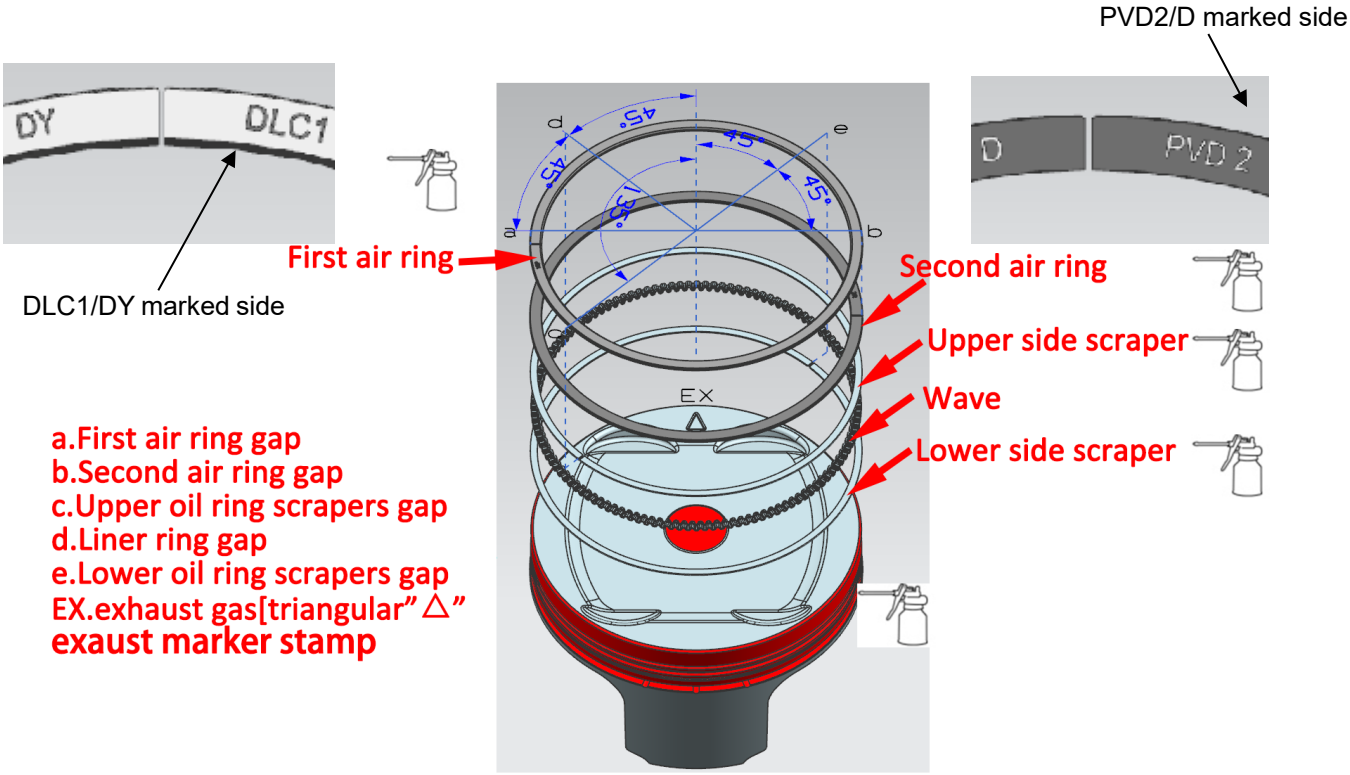
1. Apply an appropriate amount of engine oil to each piston ring and piston ring groove, and install the piston ring to the corresponding groove.

Remarks: ① Do not use the first air ring and the second air ring interchangeably.

② When installing the gas ring, the side with the marked face faces up (piston top).

③ Install the oil ring assembly, first install the corrugated lining ring, then install the lower side scraper ring, and finally install the side scraper ring.

④ The notch " a " of the first ring is on the left side of the "△" EX mark, along the axial direction of the piston pin; the notch " b " of the second ring is on the right side of the "△" EX mark, and the angle with " a " is 180 °; the notch " e " of oil ring scraper of the lower side is at 45 ° between "△" EX and " b " ; the angle between " c " and " e " of upper oil ring scraper is 180 °; the notch " d " of oil ring backing is a "△" on the left side of EX , perpendicular to the line connecting " c " and " e ". (As shown in the picture below)



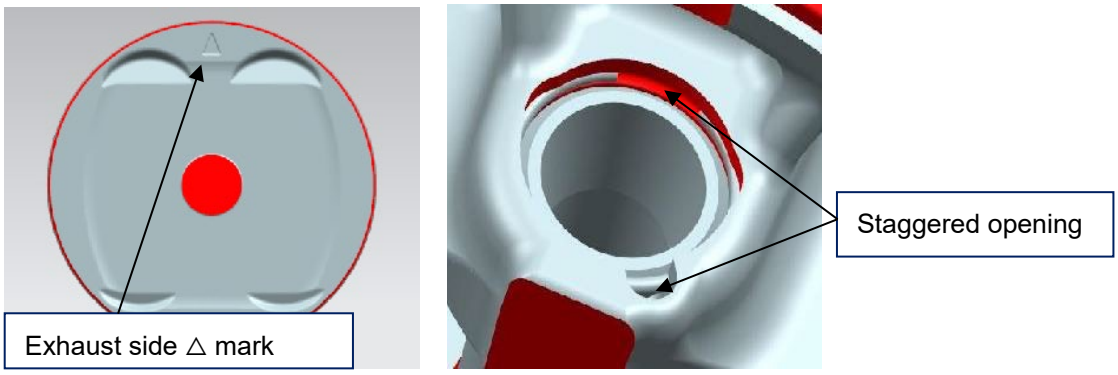
2. Insert the piston pin into the piston and install it on the connecting rod, and install the piston pin retaining ring into the ring groove with needle-nose pliers.

Remarks: ① Apply an appropriate amount of engine oil to the piston pin hole and the small end hole of the connecting rod.

② The opening of the piston pin retaining ring should be staggered with the circular arc groove of the piston.

③ Piston pin retaining ring is installed in place.

⑤ The direction of the arrow on the top of the piston points to the exhaust side, do not install it backwards.



Note: The cylinder and piston are divided into three groups: A, B and C. To ensure proper cylinder clearance, the cylinder and piston must be in the same group.