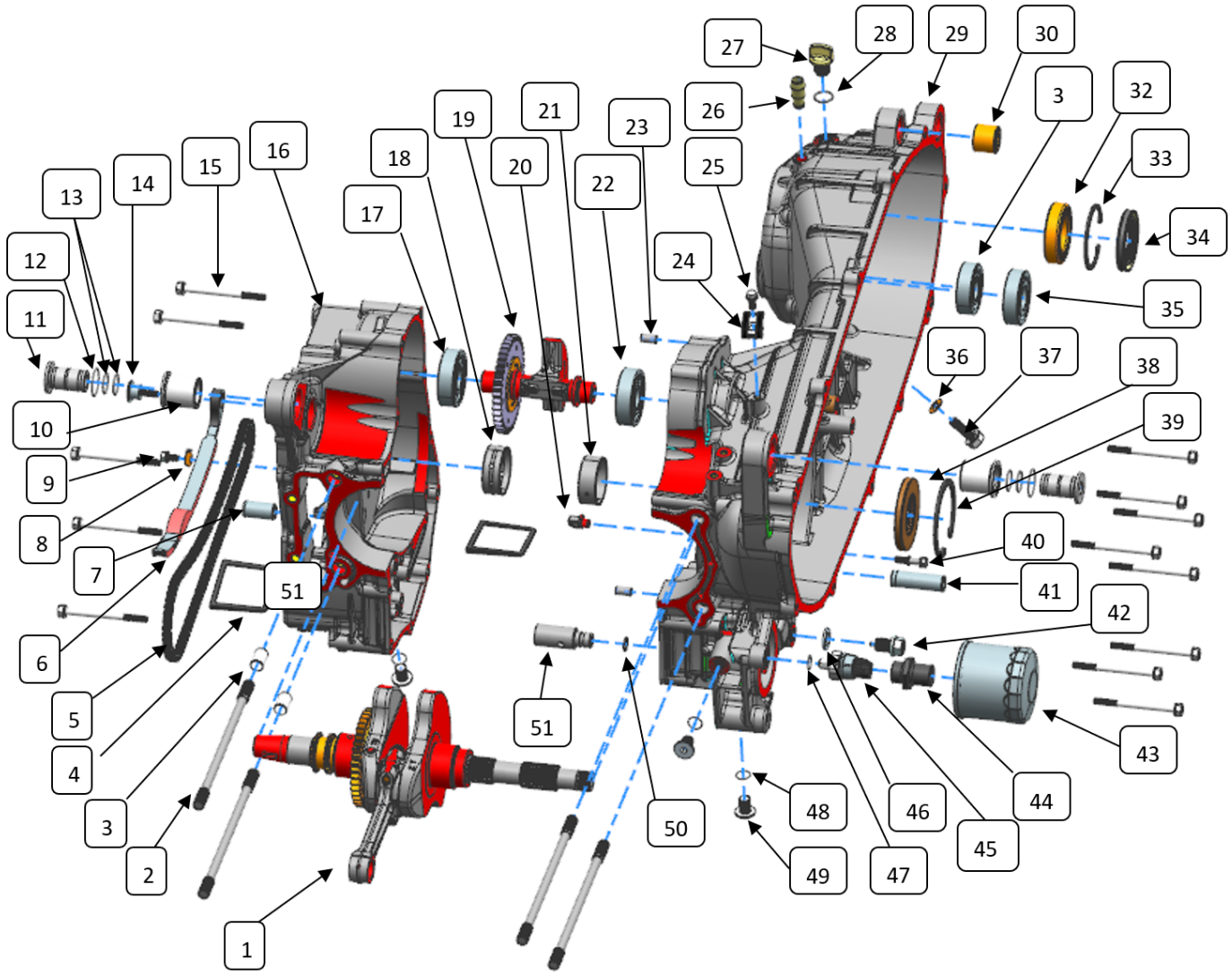
Crankcase

1. System components



Parts information

Serial number	Name	Quantity	Serial number	Name	Quantity
1	ZT1P79MP crankshaft connecting rod assembly	1	29	ZT1P77MP left crankcase B	1
2	YM10×1.25 - M10×1.25×190 stud	4	30	ϕ 10×ϕ25×22 shock-absorbing lifting hole bushing	1
3	Locating pin 12×20	2	31	GB276-6204/P5C3 deep groove ball bearings	1
4	53×50.5 trapezoidal strainer	2	32	GB276-6006-2RS/P5C3 deep groove ball bearings	1
5	6.35×7×110 toothed chain	1	33	GB893.1 circlip ϕ55 for holes	1
6	ZT1P72MN tension strip	1	34	FB38×56×7 hydrogenated nitrile oil seal	1
7	ϕ 10×ϕ15×28.2 main bracket bushing	1	35	GB276 - 62/22/P5C3 deep groove ball bearings	1
8	ZT1P72MN guide bar pressure plate	1	36	8.3×16×1.5 copper gasket	1
9	M6×10 top pin bolt	1	37	Non-standard bolt M8×25 (environmental protection color)	1
10	Hanging bush press assembly	2	38	FB35×66×7 fluorine rubber oil seal	1
11	ϕ 12.2×ϕ20×35.3 upper hanging bushing	2	39	GB893.1 circlip for holes ϕ68	1

12	ϕ 23×ϕ2 nitrile rubber O-ring	2	40	ZT1P58MJ main support return spring column	1
13	ϕ 15.3×ϕ2.2 nitrile rubber O-ring	4	41	ϕ 10×ϕ15×47.5 main bracket bushing	1
14	M6×16 - 13.8×8.7 pivot bolt	1	42	M12×1.5×15 oil drain bolt (environmental protection color zinc)	1
15	GB16674M6×75 hexagon flange bolts	13	43	ϕ 65×65 oil filter (external)	1
16	ZT1P77MP right crankcase B	1	44	M20×1.5 hexagonal hollow 14 stud bolts	1
17	6304C3 deep groove ball bearings	1	45	M10×1 oil pressure switch	1
18	ZT1P79MP right box bearing bush	2	46	Combined gasket 12×ϕ20×2	1
19	ZT1P79MP balance shaft assembly	1	47	9.8×2.4 hydrogenated nitrile rubber O-ring	1
20	ZT1P79MP fuel injector	1	48	ϕ 11.11×ϕ1.78 fluorine rubber O-ring	3
21	ZT1P79MP left box bearing bush	2	49	M10×1.25×10 oil plug bolt	3
22	6304C3 deep groove ball bearings	1	50	9.8×2.4 hydrogenated nitrile rubber O-ring	1
23	Φ 8×14 hollow positioning pin	2	51	ZT1P72MN pressure relief valve subassembly	1
24	ϕ8 clip(L=73)	1			
25	GB16674M6×12 (chromed/HH)	1			
26	ZT1P58MJ cylinder head cover air balance tube	1			
27	M14×1.5 oil filler nut	1			
28	13.8×2.5 Acrylic glue O-ring	1			

Torque value

Bolt model	Assembly position	Quantity	Torque (N.m)	Remark
M6× 75 hex flange bolts	Left and right box closing bolts	13	12 ± 1.5	-
M6× 10 hex flange bolts	Guide strip pressure plate bolts	1	10±1	Apply thread glue
M6× 22 hex flange bolts	starter motor lock bolt	1	12 ± 1.5	
M6× 35 hex flange bolts	starter motor lock bolt	1	12 ± 1.5	-
M20×1.5 hexagonal hollow 14 stud bolts	Oil filter mounting bolts	1	40± 4	Apply thread glue
ϕ 65×65 oil filter (external)	-	1	20-25	-

2. Maintenance information

General information

1. This chapter introduces the separation of the crankcase and the inspection and maintenance of the crankshaft and other parts.
2. The maintenance steps in this chapter can only be motorcycleried out after draining the engine oil and gear chamber oil.
3. The maintenance of the crankcase can only be motorcycleried out by disassembling the engine separately.
4. After the engine is disassembled from the vehicle, the following components must be removed before the crankcase is unpacked:

·Main bracket

·Cylinder head cover **(Refer to the ZT1P79MP engine maintenance manual for disassembly and assembly of the cylinder head cover--cylinder head cover, cylinder head)**

Tensioner **(Refer to ZT1P79MP engine maintenance manual for disassembly and assembly of the tensioner--cylinder head cover, cylinder head--tensioner)**

·Cylinder head assembly **(Refer to the ZT1P79MP engine maintenance manual for disassembly and assembly of the cylinder head assembly--cylinder head cover, cylinder head)**

·Cylinder and piston **(Refer to ZT1P79MP engine maintenance manual for disassembly and assembly of cylinder and piston - cylinder and piston)**

·Left crankcase cover **(refer to the ZT1P79MP engine maintenance manual for disassembly and assembly of the left crankcase cover--left crankcase cover, continuously variable clutch sub-assembly)**

CVT clutch **(refer to ZT1P79MP engine maintenance manual for disassembly and assembly of CVT clutch - left crankcase cover, CVT clutch sub-assembly)**

·Right crankcase cover **(Refer to ZT1P79MP engine maintenance manual for disassembly and assembly of the right crankcase cover -- right crankcase cover, magneto)**

Flywheel, reduction gear **(Refer to ZT1P79MP engine maintenance manual for disassembly and assembly of the right crankcase cover - right crankcase cover, magneto)**
·Electric starter big gear **(Refer to ZT1P79MP engine maintenance manual for disassembly and assembly of the right crankcase cover -- right crankcase cover, magneto)**
·Oil pump **(Refer to ZT1P79MP Engine Maintenance Manual--Lubrication System for oil pump disassembly and assembly)**

Specification

Unit: mm (in)

Project		Standard	Maintenance Limit Value
Crankshaft	Connecting rod large head backlash	0.10mm（0.0039 in）	**Crankshaft**
	Main journal oil gap	0.024-0.052mm（0.001-0.002 in）	0.075mm（0.003 in）
	Crankshaft runout	-	0.03mm（0.0012 in）
	Diameter of the main journal	39.988-40mm(1.5743、1.5748 in)	39.982mm(1.5741 in)
	Connecting rod small head inner diameter	18.510-18.517mm （0.7287-0.7290 in）	18.56mm（0.7307 in）

5. During the disassembly and installation of the crankcase, do not operate violently to prevent damage to the joint surface of the crankcase.

Tool

1. Torque wrench + 8#/10#/14#/24# sleeve/5# inner hexagon socket;
2. 8#/10# -T-shaped sleeve;
3. Circlip pliers for shaft;
4. Filter disassembly wrench

3. Common failure phenomenon/troubleshooting

3.1. Abnormal noise

·Crankcase bearing bush is abnormally worn.
·The bearing bush at the big end of the connecting rod is abnormally worn.
·The small end of the connecting rod is abnormally worn.
·The balance shaft bearing is abnormally worn.

3.2. The crankshaft does not rotate

· Crankshaft bearing shell damage.
·The big end bearing shell of the connecting rod is damaged.
.The small end of the connecting rod is abnormally worn.
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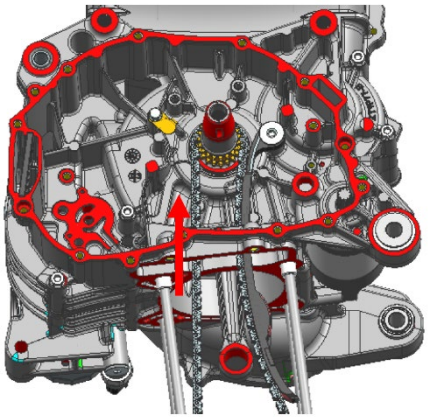
4. The decomposition of the crankcase

4.1. Remove the timing chain



4.1.1 Disassembly

Pull out in the direction shown by the arrow in the figure to remove the timing chain.

4.1.2 check

If the following problems exist, the timing chain and timing driven sprocket must be replaced together.

●cracking
●Severe wear and tear
●Obviously stuck in rotation

4.1.3 Assembly

Spray the surface of the chain with engine oil, still follow the method shown above to put one end of the chain on the teeth of the timing sprocket, pull the other end out of the sprocket cavity and straighten it to prevent the chain from falling off.

4.2. Remove the tension strip

Refer to the ZT1P79MP engine maintenance manual for disassembly and assembly of the tension strip - cylinder head cover, cylinder head - tension strip.

4.3. Disassembly and assembly of the guide bar pressure plate

4.3.1 Disassembly

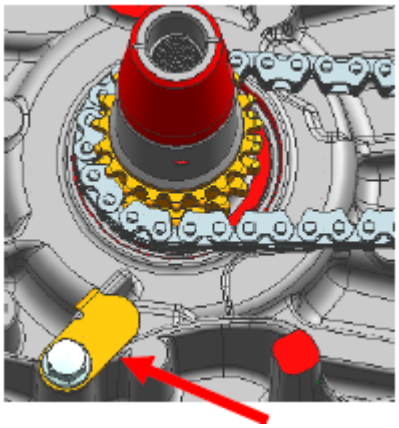
Use tool 1 or 2 to remove the pressure plate bolts and take out the pressure plate.

4.3.2 check

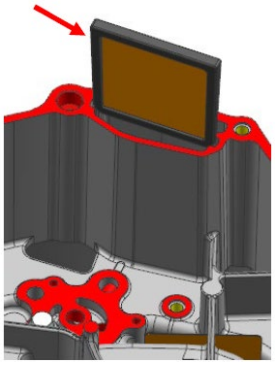
If the pressure plate is deformed or broken, it should be replaced.

4.3.3 Assembly

Install the pressure plate according to the position shown in the figure, apply an appropriate amount of thread glue to the bolts, screw them into the bolt holes of the pressure plate and tighten them with tool 1, the tightening torque is 10 ± 1 N.m.



4.4. Disassembly and assembly of the trapezoidal coarse filter



4.4.1 Disassembly

Use flat-nose pliers (or other tools with flat clamping function) to gently clamp (to prevent deformation and damage to the coarse filter) to remove the trapezoidal coarse filter, and clean the dirt with a mild solvent.

4.4.2 check

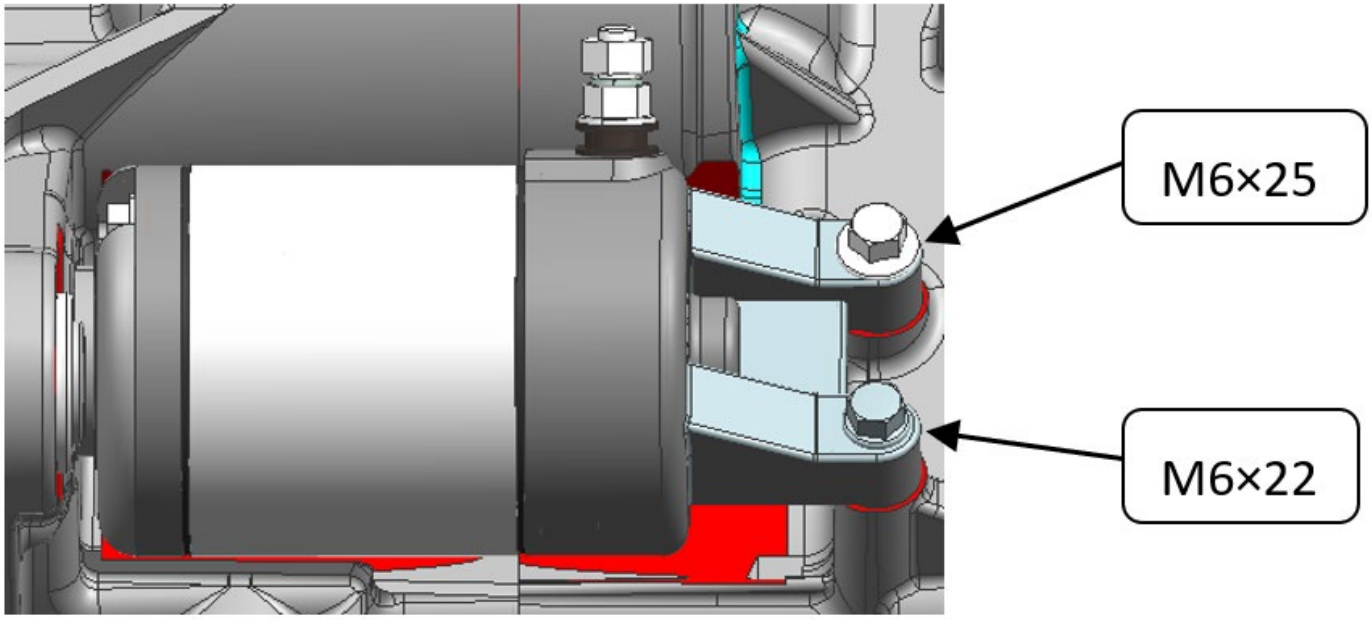
If the filter screen is damaged, it should be replaced.

4.4.3 Assembly

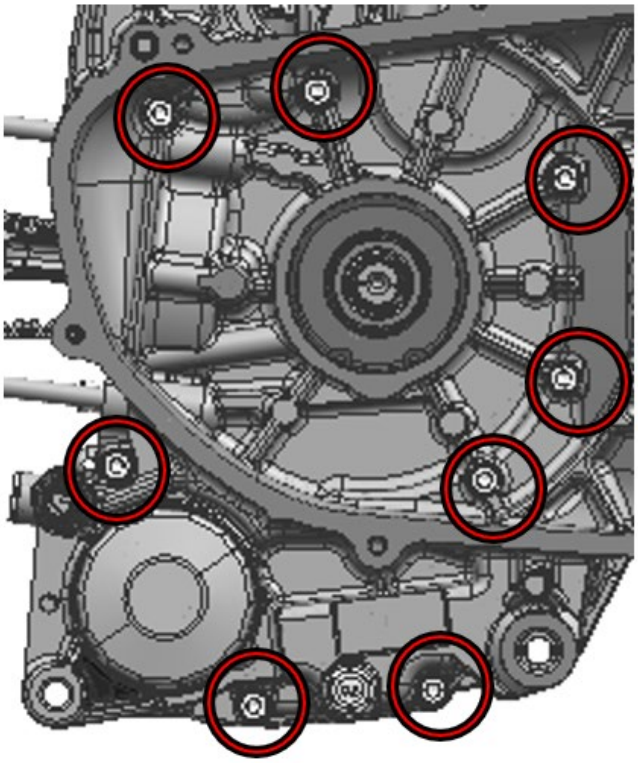
Put the coarse filter back into the box according to the picture, and press it in place (the side with the font logo is facing down, do not install it in the wrong direction).

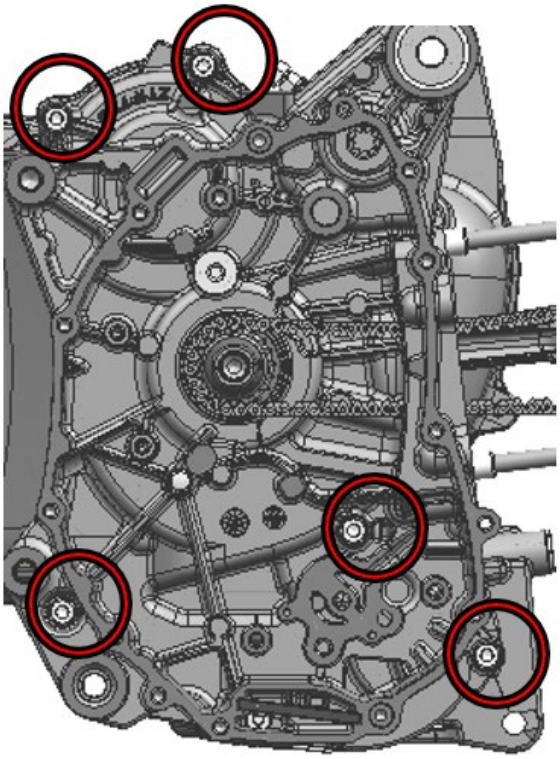
4.5. Disassemble the crankcase

4.5.1 As shown in the figure below, use tool 1 or tool 2 to remove the starter motor.

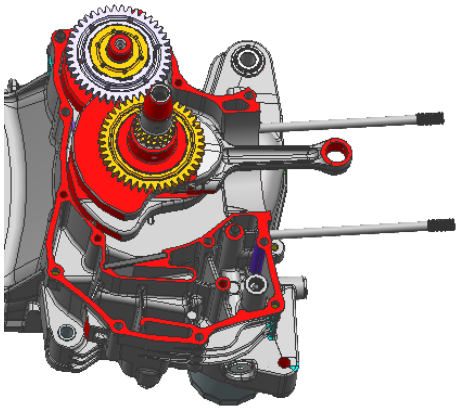


4.5.2 Use tool 1 or tool 2 to evenly remove the crankcase locking bolts diagonally, first remove the 8 M6× 75 hexagonal flange surface bolts on the left side, and then rotate the box to remove the 5 M6× 75 hexagonal flange surface bolts on the right side.





4.5.3 Place the left crankcase downwards, take a rubber hammer and tap the reinforcement holes or process bosses symmetrically (note: do not hit the crankcase joint surface or other assembly joint surfaces) to separate the crankcase evenly, and finally remove the right crankcase. Crankcase, balance shaft, crankshaft, positioning pin.



4.5.4 Clean the crankcase

Thoroughly clean the crankcase with a mild solvent to remove residual glue from assembly joints.

4.5. 5 Check the crankcase

●If the crankcase is found to have functional damage such as cracks or serious scratches on the joint surface, the corresponding crankcase should be replaced.

●Turn the inner rings of the balance shaft bearings of the left and right boxes by hand. If there is any sticking, abnormal noise, or loose inner rings, replace the corresponding bearings.

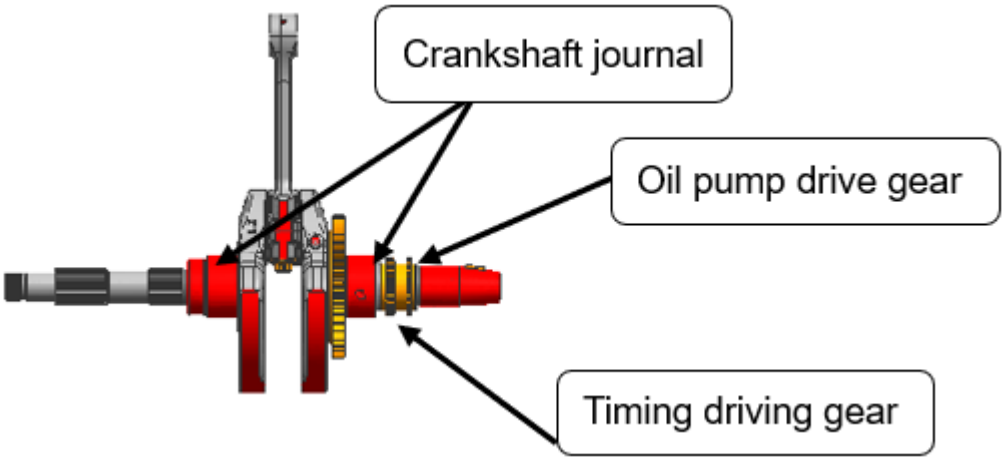
●Check the crankshaft bearing pads of the left and right casings, and replace the bearing pads if there is any abnormal wear.

●Check the crankshaft oil seal, and replace it if the main and auxiliary lips are severely worn.

4.6. Check the crankshaft

● Check the oil pump drive gear and timing drive gear for abnormal wear and damage;

Inspect the crankshaft journal surfaces for damage, discoloration or scratches, and replace the crankshaft if present.

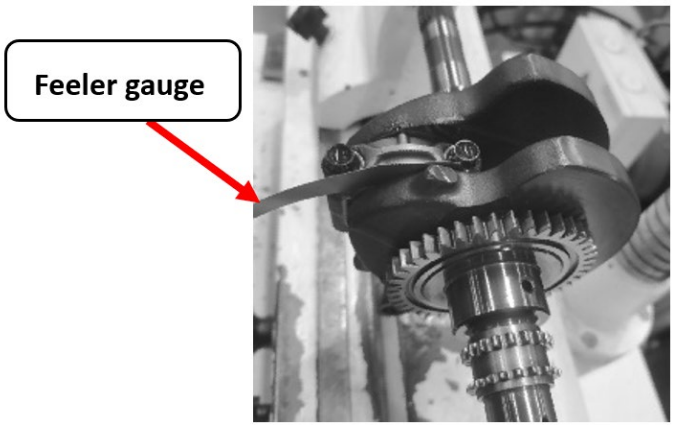


●Connecting rod small head inner diameter [supplementary translation] inspection (refer to the connecting rod small head inner diameter inspection ZT1P79MP engine repair manual - cylinder, piston - piston

●Connecting rod big end backlash inspection

Insert a feeler gauge between the crankshaft and the big end face of the connecting rod to measure the clearance.

Maintenance limit value: 0.40mm (0.016in)

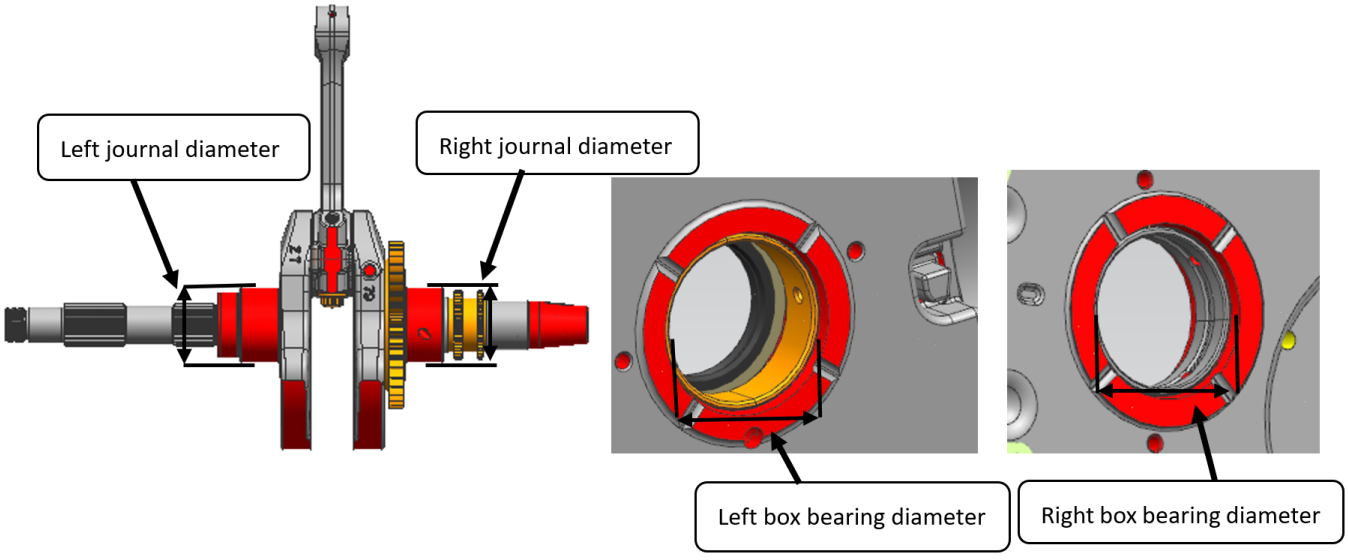


Check the fit clearance between crankshaft main journal and bearing bush

Measure the diameters of the left and right journals of the crankshaft and the left and right bearing bushes of the box respectively, and subtract the diameter of the bearing bushes from the diameter of the main journal of the crankshaft to calculate the fit clearance between the left and right main journals of the crankshaft and the bearing bushes.

Maintenance limit value: 0.075mm (0.003in)

Note: When the fitting clearance between the main journal and the bearing bush exceeds the maintenance limit value, please evaluate and replace the parts with a large amount of wear, and judge whether the fit clearance is within the maintenance limit value, if yes, replace the corresponding parts, if not, replace it Brand new crankshaft and bearing bush.

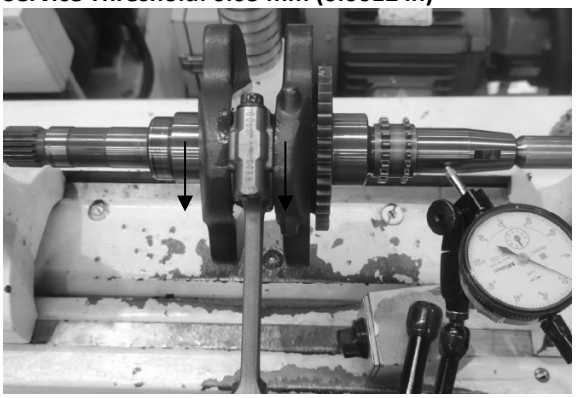


●Crankshaft runout inspection

Put the crankshaft on the V-shaped block or bracket, and measure the jump value of the corresponding point with a dial gauge.

Note: When the runout of the crankshaft exceeds the maintenance threshold, a new crankshaft needs to be replaced.

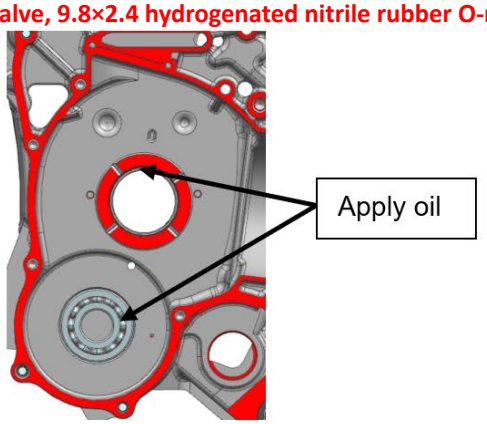
Service Threshold: 0.03 mm (0.0012 in)

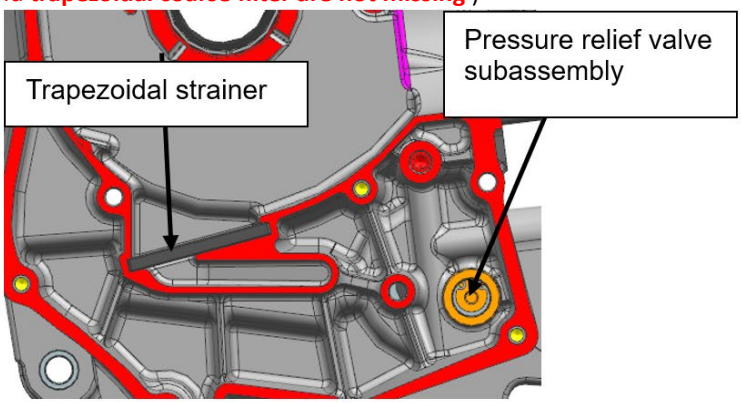


5. Assembly of the crankcase

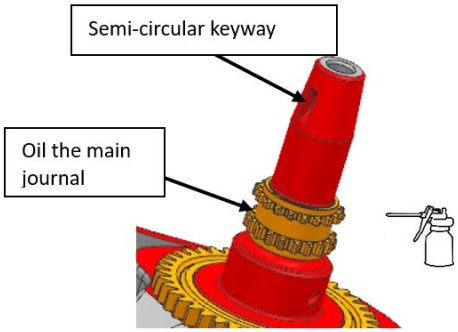
Before assembly, clean the interior of the crankcase and all mating surfaces, and check for cracks or other damage.

① Apply an appropriate amount of engine oil to the inner ring of the left crankcase bearing, the cage, the inner diameter of the bearing bush, and the lip of the oil seal. (**Note: Before installation, check that the subassembly of the left crankcase pressure relief valve, 9.8×2.4 hydrogenated nitrile rubber O-ring** , and **trapezoidal coarse filter are not missing**)

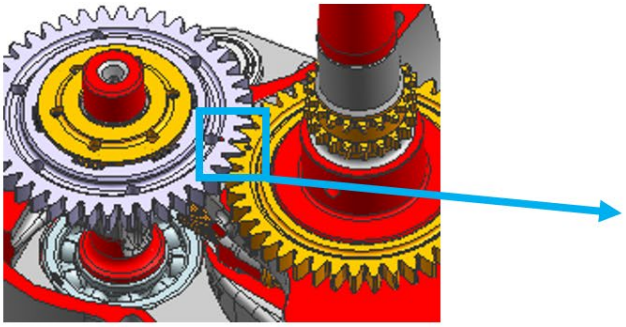


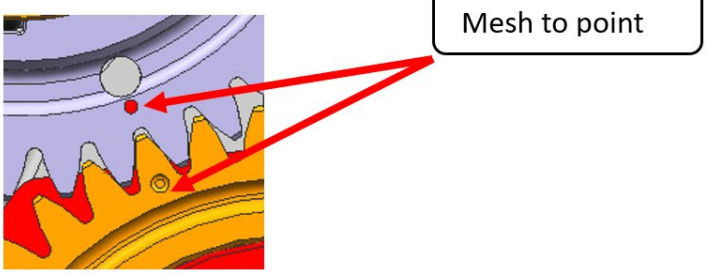


② Apply an appropriate amount of engine oil to the left and right main journals of the crankshaft, as shown in the figure below, and put the crankshaft into the left crankcase (Note: The semicircular keyway of the crankshaft is upward, and when putting the crankshaft, do not scratch the bearing bush of the left crankcase and the crankshaft oil seal).

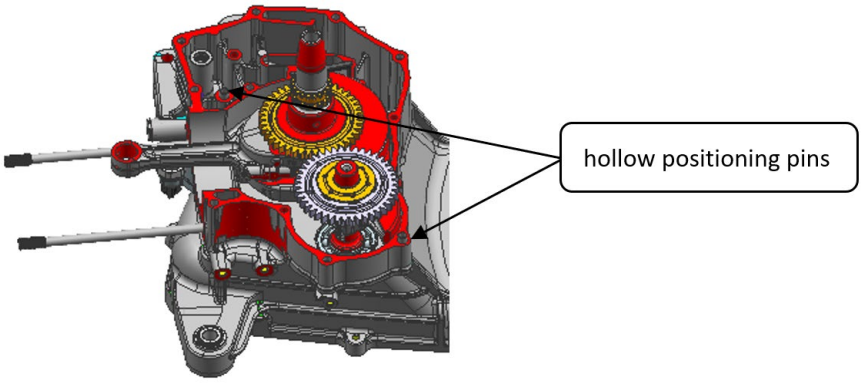


③ Apply an appropriate amount of engine oil to the balance shaft journal, align the balance shaft with the balance shaft bearing hole and install it into the left crankcase. **(Note: The balance shaft teeth and the drive teeth of the balance shaft on the crankshaft must be properly meshed!)**

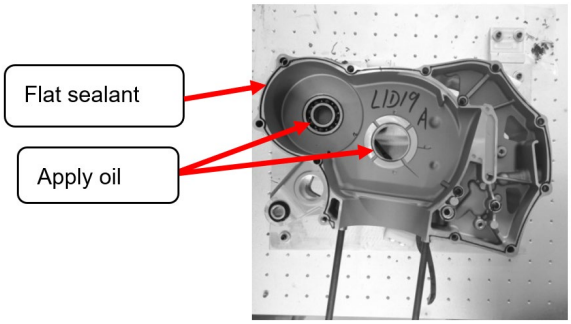




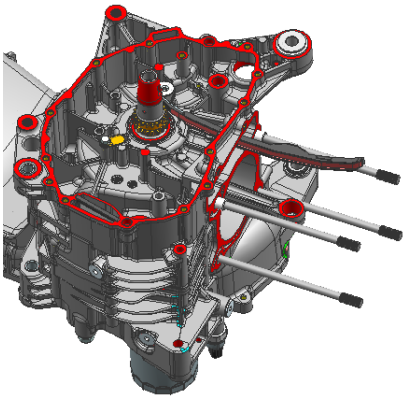
④ Install 2 ϕ 8×14 hollow positioning pins into the positioning pin holes of the left crankcase.



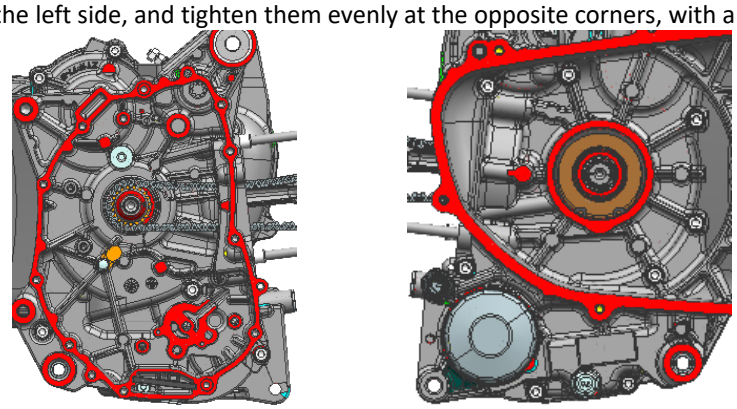
⑤As shown in the figure, apply a layer of flat sealant on the joint surface of the right crankcase, and apply an appropriate amount of engine oil on the inner ring of the bearing, the cage, and the inner diameter of the bearing bush.



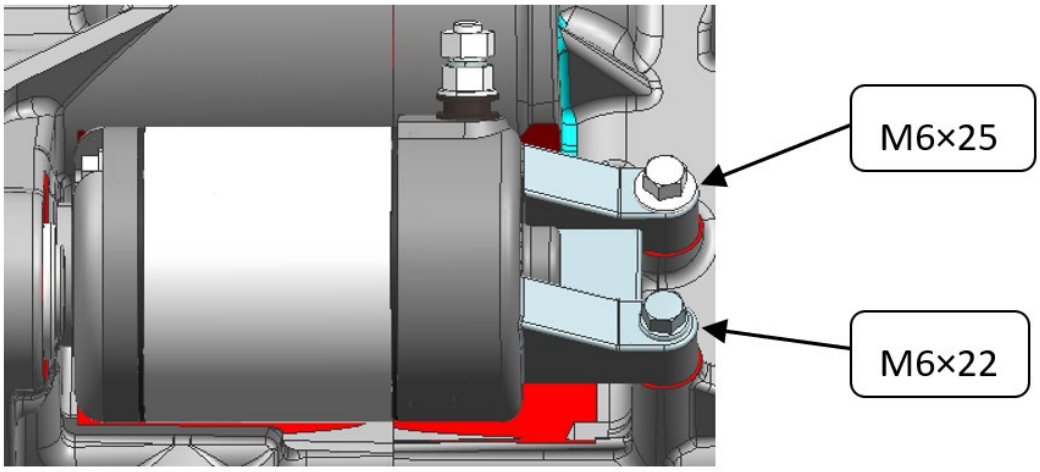
⑥ Align the right crankcase with the two positioning pins, and complete the box assembly vertically downward.
(Note: When placing the right crankcase in the box, do not scratch the bearing bush of the right crankcase, and do not operate violently when closing the box, so as to avoid bumping and scratching of parts and joint surfaces)



⑦ Put 5 M6× 75 hexagonal flange face bolts into the crankcase from the right side, pre-tighten them diagonally from the position of the positioning pins and fix the torque, the torque is 12±1.5Nm, rotate the box, and put 8 M6 × Install the 75 hexagon flange bolts into the crankcase from the left side, and tighten them evenly at the opposite corners, with a fixed torque of 12±1.5Nm.



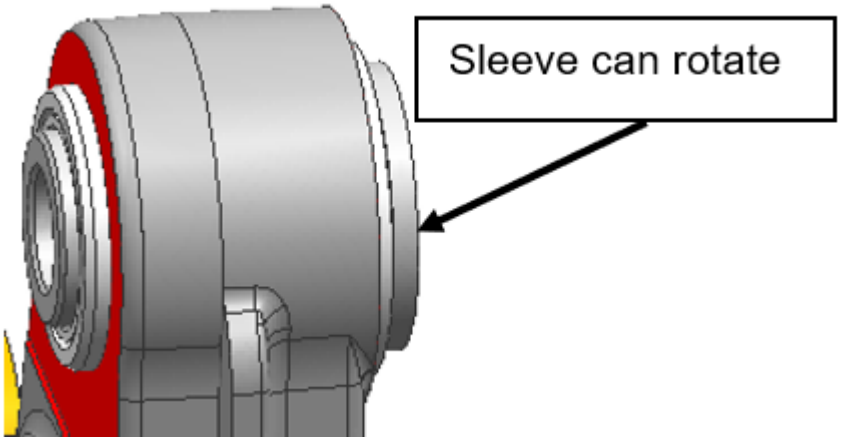
⑧ After installing the starter motor in place according to the diagram, put in M6×22 and M6×25 hexagon flange bolts, pretighten and tighten with a fixed torque, the torque is 12±1.5N.m.



6. Left and right crankcase suspension disassembly, inspection

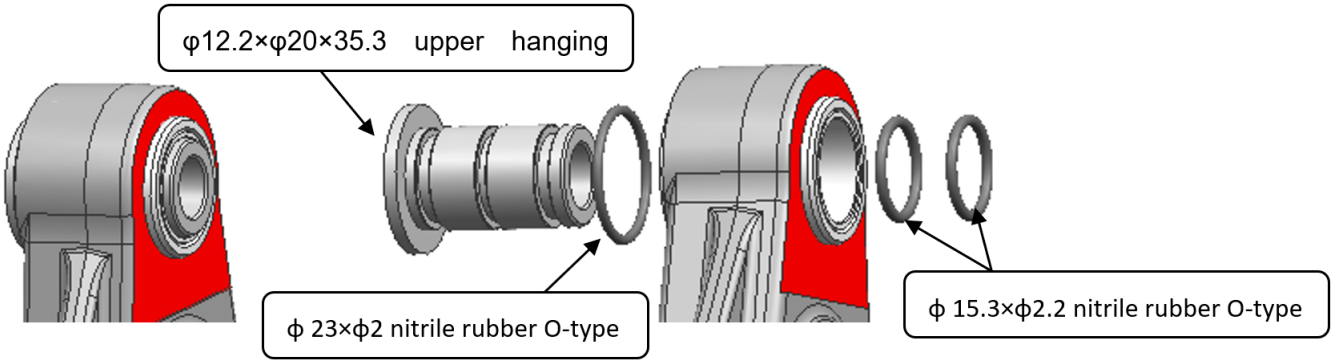
Hanging inspection

1. As shown in the picture, hold the two ends of the ϕ 12.2×ϕ20×35.3 upper suspension bush by hand , and turn it back and forth. If it can rotate, it is qualified. **(Note: If the hanging bush is stuck and cannot be rotated, it needs to be disassembled and added an appropriate amount of high temperature resistant and high load resistant grease.)**



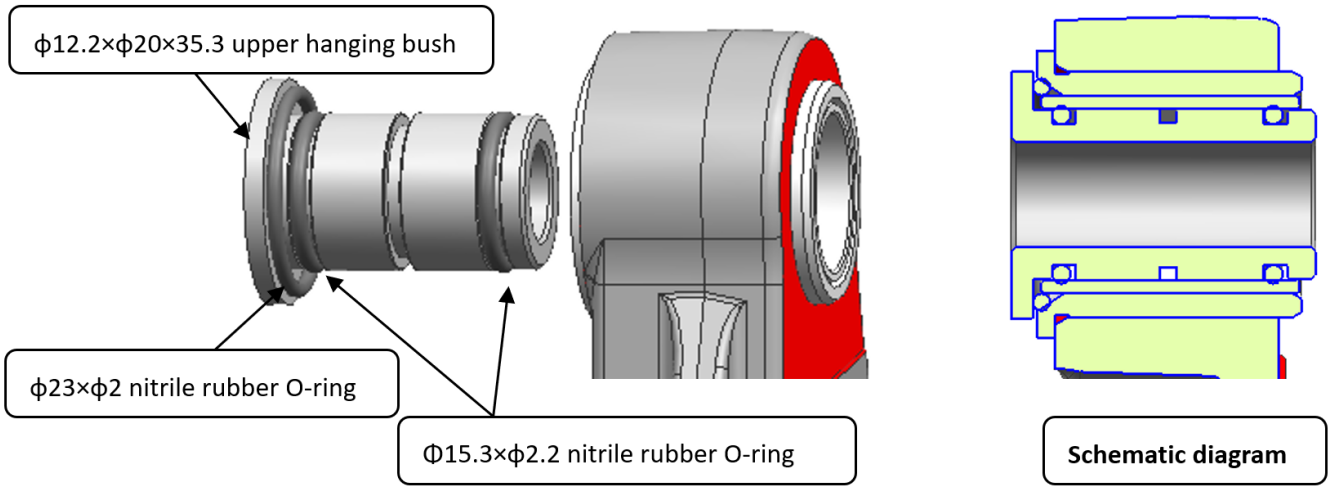
Hanging removal

1. As shown in the figure, remove the ϕ 12.2×ϕ20×35.3 upper hanging bushing and the ϕ 23×ϕ2 nitrile rubber O-type and the ϕ 15.3×ϕ2.2 nitrile rubber O-type (if the O ring is not damaged or cracked, do not need to remove it).



Hanging installation

As shown in the figure, Take 2 ϕ15.3× ϕ2.2 nitrile rubber O-snares into the groove of ϕ12.2×ϕ20×35.3 upper hanging bushing, take 1 ϕ23×ϕ2 nitrile rubber O-snares into the root of ϕ12.2×ϕ20×35.3 upper hanging bushing, apply an appropriate amount of grease on the surface of the upper hanging bushing and insert it into the upper hanging press-fitting assembly. **(Note: The grease needs to use high temperature resistant and high load resistant grease.)**

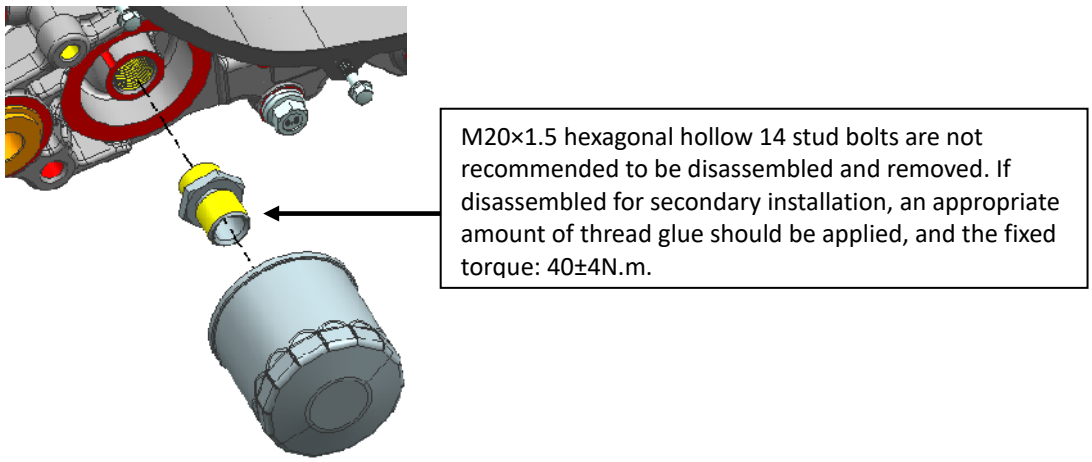


7.Fine filter

Disassembly, installation

1. Use the filter removal tool to rotate counterclockwise to remove the fine filter.
2. Apply an appropriate amount of engine oil on the surface of the O ring of the fine filter, rotate it clockwise, and tighten it with a fixed torque: 20-25N.m (Note: the fine filter There is no scratch or damage on the O ring, and no bump or scratch on the installation joint surface of the fine filter of the left box) .

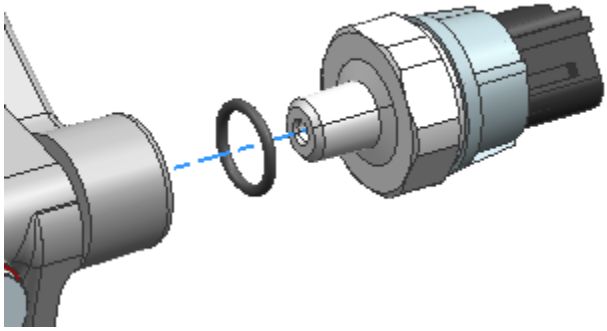
Note: Please refer to the maintenance manual for normal maintenance of the fine filter of the engine -- 2. Maintenance -- engine oil -- replace the fine filter.



8. Hydraulic switch

Removal/installation

1. Use the 24# extension sleeve to disassemble the hydraulic switch and remove the O-ring.



2. Put the O ring into the corresponding position of the left crankcase, apply an appropriate amount of pipe thread sealant + accelerator to the threaded section of the hydraulic switch, and fix the torque of 16±1N.m after screwing in. (Note: Do not leak the O ring, no trimming, and apply pipe thread sealant + accelerator for the hydraulic switch thread thread.)