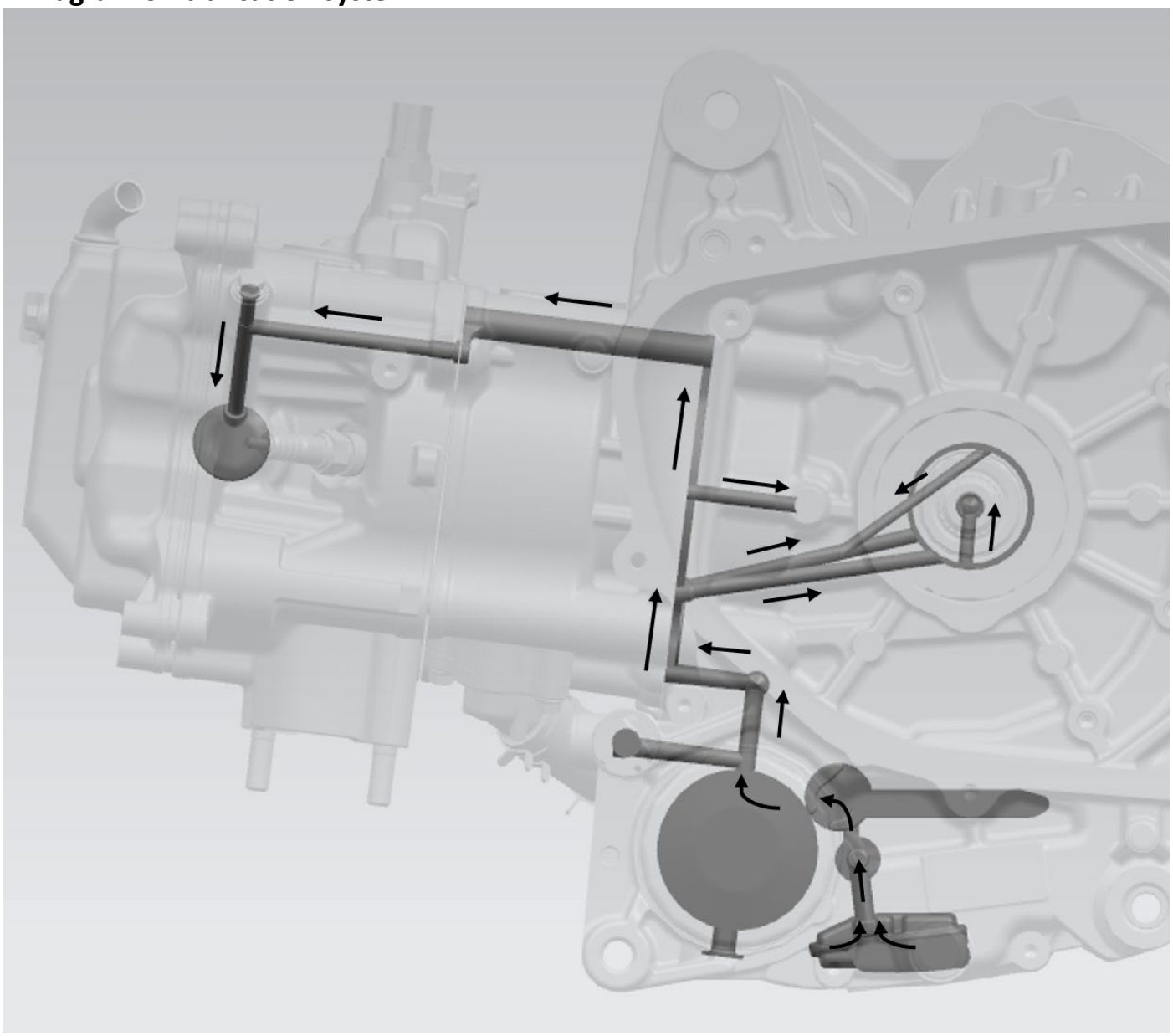
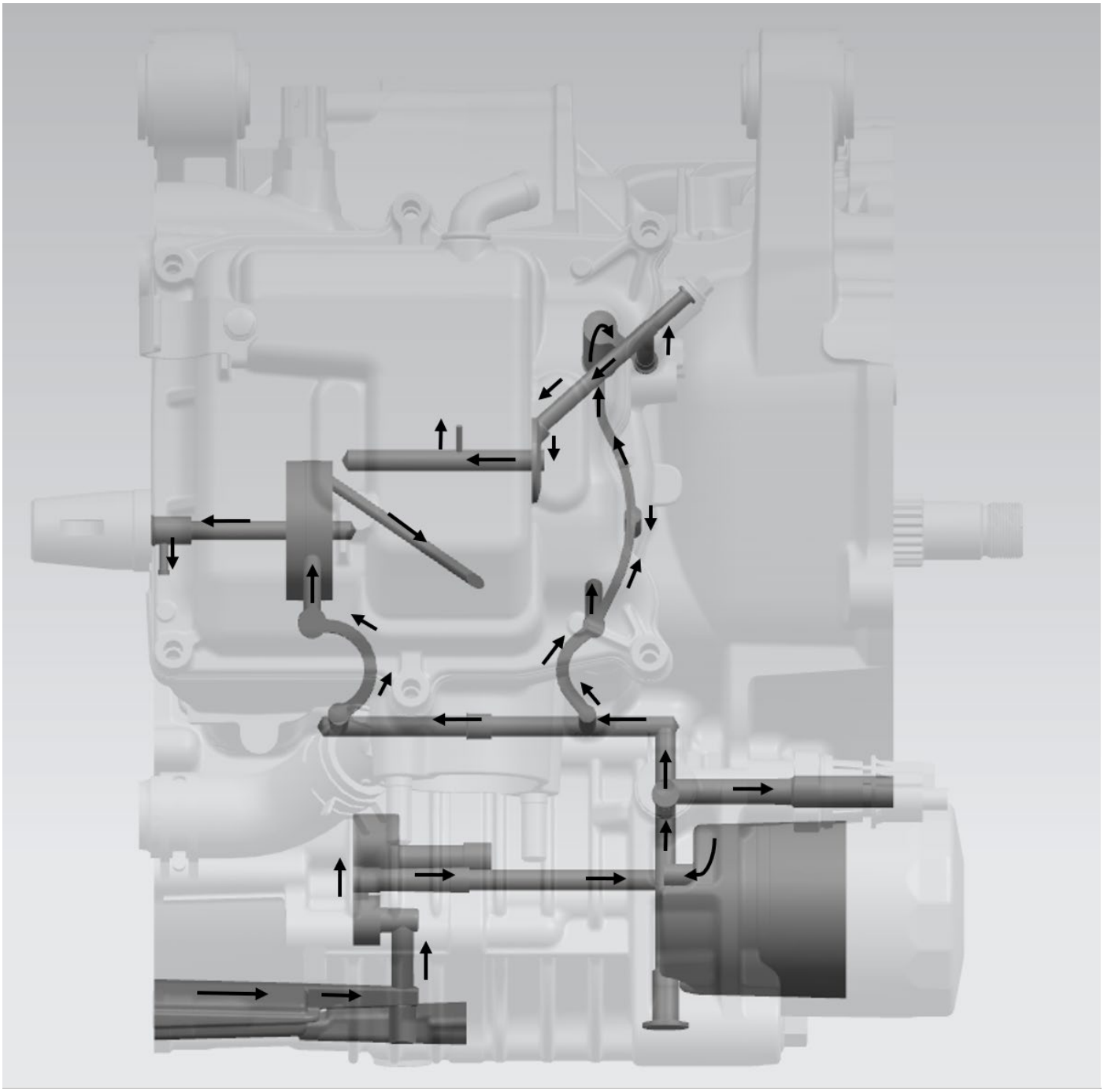
Lubrication system

1.Diagram of lubrication system





2. Maintenance information

General information

1. This chapter introduces the structural composition of the lubrication system and the maintenance of related parts.
2. The maintenance of the oil pump can be carried out on the vehicle without dismantling the engine separately.
3. The maintenance steps in this chapter must be carried out only after the engine oil has been drained.
4. When disassembling and installing the oil pump, be careful not to let dust and dirt enter the engine.
5. If the wear of any part of the oil pump exceeds the maintenance threshold, the entire oil pump assembly should be replaced.

Specification

Project		Standard	Remark
Engine Oil Capacity	Drain the oil for normal maintenance (replace filter element)	1.75L (1.85 US qt, 1.54 lmp qt)	
	Drain the oil for normal maintenance (without changing the filter element)	1.55L (1.64 US qt, 1. 36 lmp qt)	
	Drain the oil and remove the right cover for normal maintenance (replace the filter element)	1.8L (1.9 US qt, 1.5 8 lmp qt)	
	Drain the oil and remove the right cover for normal maintenance (without replacing the filter element)	1.6L (1.69 US qt, 1.41 lmp qt)	
	Disassembly and reassembly of the whole machine	2.0L (21 US qt, 1.76 lmp qt)	
recommended engine oil		API SN grade or higher motorcycle special motor oil	
Oil pump rotor	Terminal clearance	0.15 mm (0.006 in)	0.20 mm (0.008 in)
	Pump clearance	0.15-0.21 mm (0.006-0.008 in)	0.35 mm (0.014 in)
	End clearance	0.05-0.10 mm (0.002-0.004 in)	0.12 mm (0.005 in)

Torque value

Bolt model	Assembly position	Quantity	Torque (N.m)	Remark
M6×60 hex flange bolts	Oil pump locking bolt	2	11 ± 1.5 Nm	-

Tool

1. Torque wrench + 8# sleeve;
2. 8#-T-shaped socket wrench;

3. Common failure phenomenon/troubleshooting

3.1. Engine oil level is too low

·Engine oil leakage
Worn or improperly installed piston rings
·Cylinder wear
Abrasion of seals such as valve guides and valve rod diameter oil seals

3.2. The oil is dirty

·No regular oil change
·Poor gasoline quality
·Piston ring wear
·Oil oxidation

4. Oil pump

Disassemble

Before disassembling the oil pump, do the following:

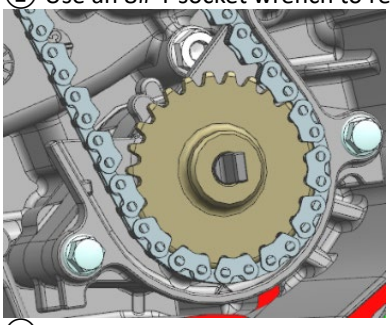
· Remove the muffler. **(Refer to the maintenance manual for disassembly and assembly-- 2. Maintenance-air filter (filter element)-bolts and nuts of the muffler)**

·Remove the right crankcase cover of the engine. **(Refer to ZT1P79MP engine maintenance manual for disassembly and Assembly--right crankcase cover, magneto-right crankcase cover, magneto stator)**

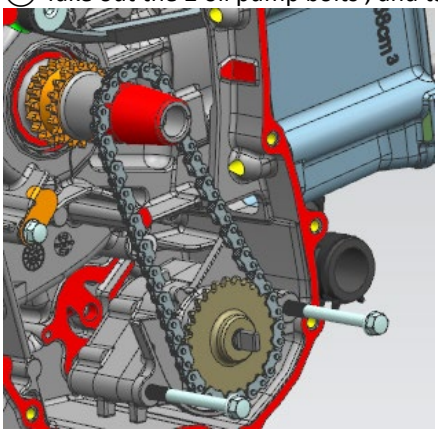
·Remove the magneto rotor. **(Refer to ZT1P79MP engine maintenance manual for disassembly and assembly - right crankcase cover, magneto - magneto rotor)**

·Remove the 5×5.7×16 half-round key and the large electric starter gear. **(Refer to ZT1P79MP engine maintenance manual for Disassembly and assembly - magneto rotor)**

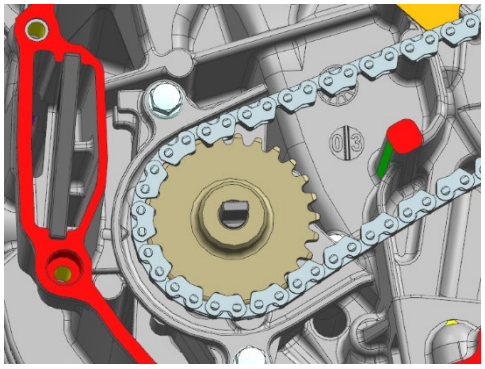
① Use an 8#-T socket wrench to remove the 2 oil pump locking bolts (rotate counterclockwise).

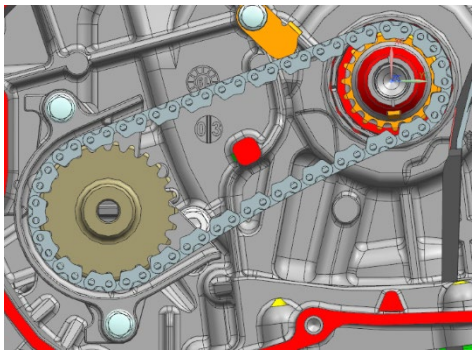


② Take out the 2 oil pump bolts , and take out the oil pump assembly and the oil pump chain together.



Install





Put one end of the oil pump chain on the driven sprocket of the oil pump, and the other end on the driving gear of the oil pump at the crankshaft end, align the oil pump shaft with the oil pump installation hole on the box body, and align the oil pump positioning pin with the box body. Install the oil pump on the upper positioning pin hole and press it in place (**Note** : spray oil on the chain, inner and outer rotors of the oil pump); then install 2 oil pump bolts, use a torque wrench (or air batch) and 8 #Tighten the bolt with the sleeve, and the bolt locking torque is 11±1.5N.

·Install 5×5.7×16 semicircle keys and large gear for electric starter. **(Refer to ZT1P79MP engine maintenance manual for installation - right crankcase cover, magneto - magneto rotor)**

·Install the magneto rotor. **(Refer to ZT1P79MP engine maintenance manual for installation - right crankcase cover, magneto - magneto rotor)**

·Install the right crankcase cover of the engine. **(Refer to ZT1P79MP engine maintenance manual for installation - right crankcase cover, magneto - right crankcase cover, magneto stator)**

·Install the muffler. **(Refer to the ZT1P79MP maintenance manual for installation -- 2. Maintenance-air filter (filter element)-bolts and nuts of the muffler)**

Disassembly/installation

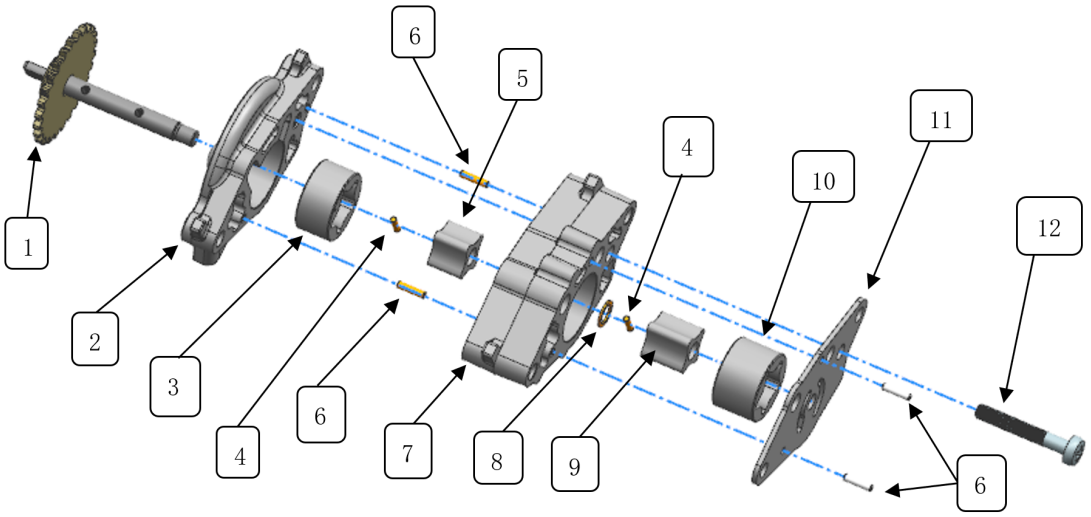
Disassemble in the following order

· M6×40 cross recessed pan head screw
· ZT1P72MN oil pump cover
·Inner rotor JBZ-29-18
·Outer rotor JBZ-29-18
· 2.5×12 cylindrical pin
· 8.6×11.5×1 thrust washer
· ZT1P72MN oil pump lower case
· 3×12 cylindrical pins
·Inner rotor JBZ-29-11
·Outer rotor JBZ-29-11
· 2.5×12 cylindrical pin
· ZT1P72MN oil pump upper casing
· ZT1P72MN oil pump shaft assembly

Please assemble in the reverse order of disassembly

(Note: During assembly, oil should be applied to the inner and outer rotors to fully lubricate the inner cavity of the oil pump)

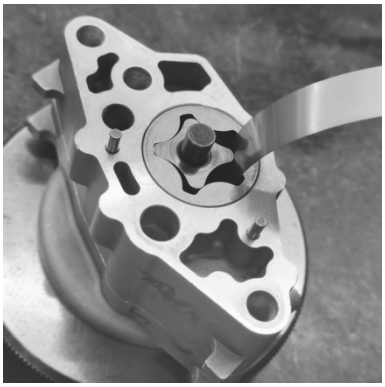
Bolt: M6×40 cross recessed pan head screw (tighten with a cross screwdriver or air batch + cross batch head) Torque: 5 ~ 7N.m



No.	Name	Quantity
1	ZT1P72MN oil pump shaft assembly	1
2	ZT1P72MN oil pump upper housing	1
3	External rotor JBZ-29-11	1
4	Internal rotor JBZ-29-11	1
5	2.5x12 cylindrical pin	2
6	3x12 cylindrical pin	4
7	ZT1P72MN oil pump lower housing	1
8	86x11.5x1 thrust spacer	1
9	External rotor JBZ-29-18	1
10	Internal rotor JBZ-29-18	1
11	ZT1P72MN Oil Pump Cap	1

Check

The inner rotor JBZ-29-11 and the outer rotor JBZ-29-11 are installed into the upper casing of the oil pump. The inner rotor JBZ-29-18 and the outer rotor JBZ-29-18 are installed into the upper casing of the oil pump. (Before measuring the clearance, the oil pump shaft assembly should be installed separately into the corresponding internal rotor.)
End Clearance a.
Measure a few points and compare them with the maximum reading and the service limit value.
Measure the gap between the inner and outer rotors with a feeler gauge.
Maintenance Limit Value: 0.2mm (0.008in)



Pump body clearance b
Use a feeler gauge to measure the gap between the outer rotor of the oil pump and the oil pump body.
Service Limit Value: 0.35mm (0.014in).

End face clearance
Use ruler gauges and plug gauges to measure face clearance.
Service Limit Value: 0.12mm (0.005in)

Check the oil pump chain
If the chain is broken, jammed, or has a crack defect on the surface of the chain, the chain should be replaced.