ZT152MI&155MJ Engine Euro V

Service manual

2021/11/16

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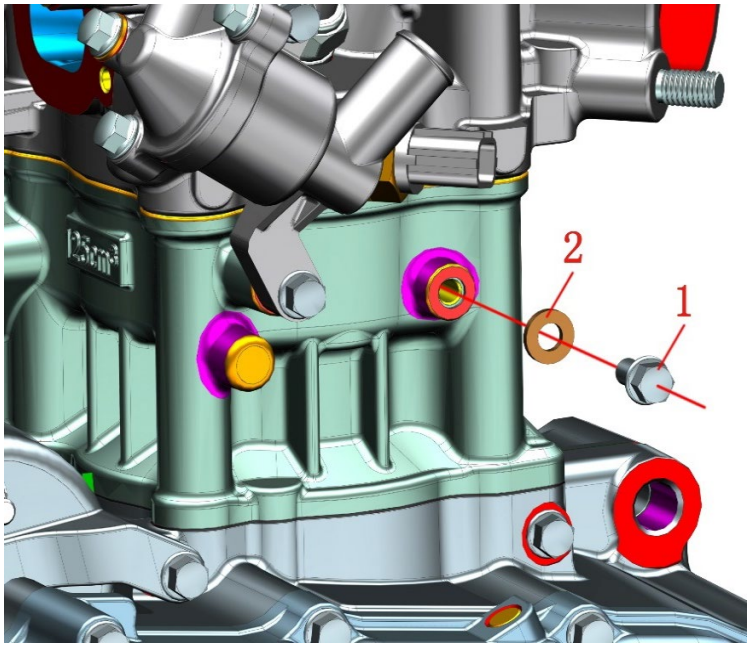
This manual is suitable for ZT125 series engines. All the materials, illustrations, photos, etc. collected in this manual are compiled according to the latest products. However, due to continuous product improvement and other changes, there may be some inconsistencies between your engine and this manual.For colors or upgrades, please refer to the part codes on the official website. This manual will not be listed in detail; If the part names in this manual are inconsistent with the official website, the official website shall prevail.



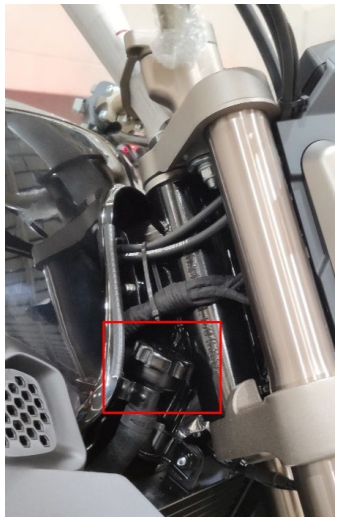


Fig.1 STEPS TO DRAIN ANTIFREEZE		Steps to drain antifreeze	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251100-067093	M6×10 top pin bolt (color zinc)	1	12±1.5N.m
2	1251513-001019	6.3×12×1.6 copper gasket	1	

PROCEDURE:

●As shown in the figure, find the bolt (1) on the right side of the engine, use an 8#T sleeve to unscrew and remove the copper gasket (2), place a container under the drain hole, and prepare to receive antifreeze.

● Locate the main water tank filling port on the right side of the vehicle steering column, press down and turn it counterclockwise to remove the water filling port cap, the antifreeze will be discharged from the drain hole into the container.

CAUTION:

●After the gasket(2) is removed, it is best to replace it with a new one to avoid water leakage.

●The tightening torque of bolt (1) is 12±1.5N.m.

●Antifreeze is corrosive to a certain extent, so be careful not to contaminate the engine and other parts, body, clothing, etc. when discharging the antifreeze. If parts are accidentally contaminated with antifreeze, immediately wipe them with a clean lint-free cloth. If clothing or skin is stained with antifreeze, immediately rinse with clean water. If the antifreeze is splashed into the eyes, immediately rinse with plenty of water and observe to decide whether to seek medical attention.

●The disassembly of the engine should be carried out when the engine is cold. The first is to prevent burns. The second is that most of the oil is in the crankcase when the engine is cold. At this time, there is no need to drain the oil when removing the cylinder head assembly and the cylinder block assembly.

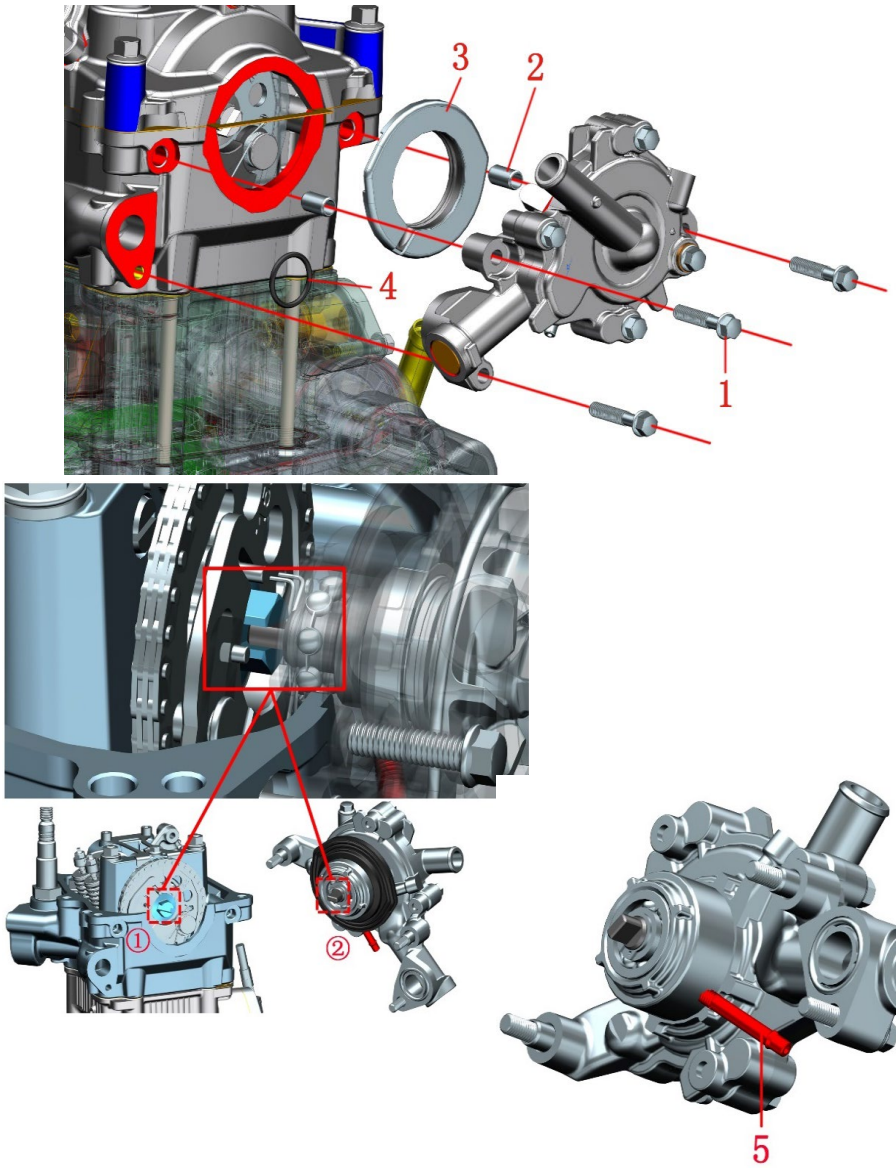


Fig.1 CYLINDER HEAD ASSEMBLY		Water pump assembly-1	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251112-002093	M6×30 Hexagon flange bolts (color zinc)	3	12±1.5N.m
2	1251401-001000	φ8×14 hollow positioning pin	2	
3	1051656-002000	ZT158MJ water pump sealant	1	
4	1051468-011000	18.2×2.4 EPDM O-ring	1	
5	1051956-002000	ZT158MJ water pump leaking pipe	1	

PROCEDURE:

●Use 8#T rod sleeve to remove the three bolts (1), remove the water pump, positioning pin (2), sealant (3) and O-ring (4).

●Leaking pipe (5) can be removed by turning counterclockwise.

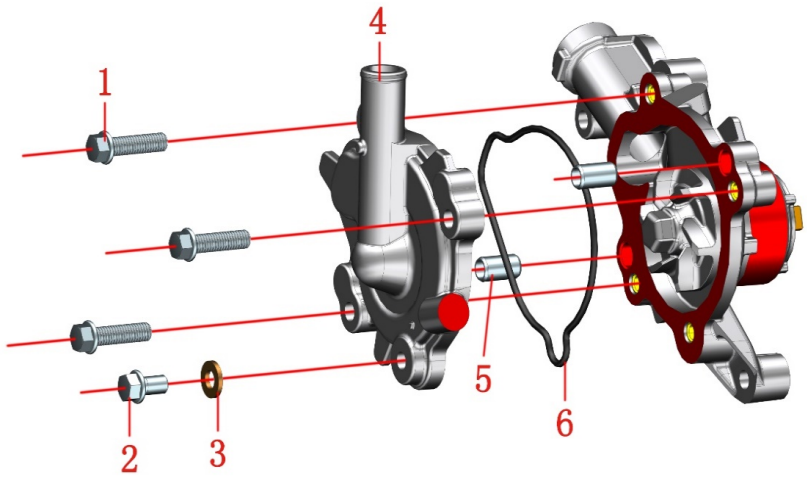
●Clean up the remaining sealant on the bonding surface.

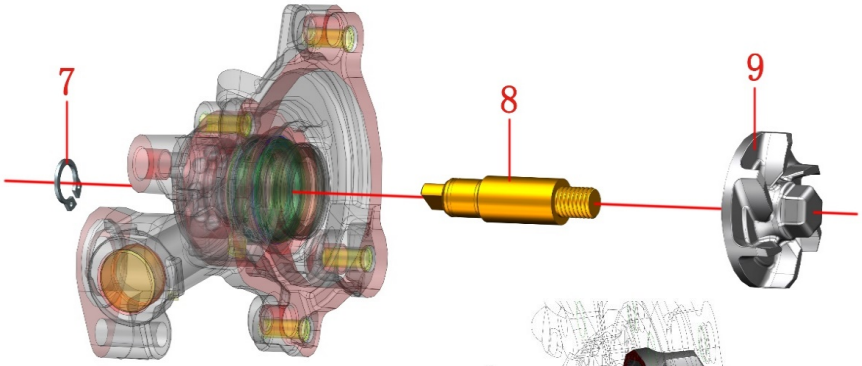
CAUTION:

●There is still a part of antifreeze in the water pump. When disassembling, place a rag under the water pump to prevent the antifreeze from directly contaminating the surface of the engine.

●When cleaning the remaining sealant, be careful not to allow foreign matter to enter the engine.

●The matching relationship between the position shown in the water pump shaft ② and the camshaft mounting bolt ① is shown in the figure. The camshaft also serves as the driving tooth of the water pump.





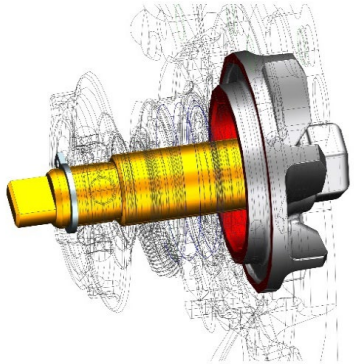


Fig.2 CYLINDER HEAD ASSEMBLY		Water pump assembly-2	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251100-061093	M6×22 Hex flang bolt thread level 8.8 (color zinc)	3	12±1.5N.m
2	1251100-067093	M6×10 top pin bolt (color zinc)	1	
3	1251513-001019	6.3×12×1.6 copper gasket	1	
4	4050968-001000	ZT1P58MJ water pump cover	1	
5	1251401-001000	φ8×14 hollow positioning pin	2	
6	1051468-013000	ZT1P58 water pump cover sealing ring	1	
7	1051154-003000	GB894.1 Circlip for shaft φ10 (Dacromet plated)	1	
8	1051968-009000	ZT1P58MJ water pump shaft	1	
9	1051968-010000	ZT1P58MJ Water Pump Blade	1	20±1.5N.m

PROCEDURE:

●Use 8#T rod sleeve to remove the three bolts (1) and then take off the water pump cover, positioning pin (5) and sealing ring (6).

●Use 8#T rod sleeve to remove the drain bolt (2), and remove the gasket (3).

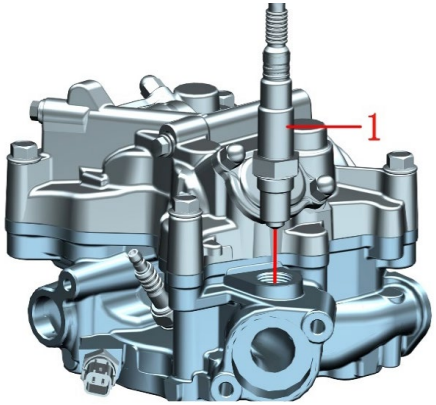
●Use circlip pliers to remove the opening retaining ring (7), fix the water pump shaft (8), and rotate the water pump blade (9) counterclockwise to remove the blade.

CAUTION:

●Open retaining ring (7) is for one-time use, and must be replaced after disassembly, so as to avoid plastic deformation caused by disassembly, which may cause the fixation to fall off.

●The sealing ring (6) needs to be replaced after disassembly, otherwise it may cause the seal to not be in place and cause water leakage.

●When installing the water pump blade, it is necessary to apply a proper amount of thread fastening glue evenly on the threads of the water pump shaft, and a proper amount of silicone oil on the contact surface of the water pump blade and the water seal.



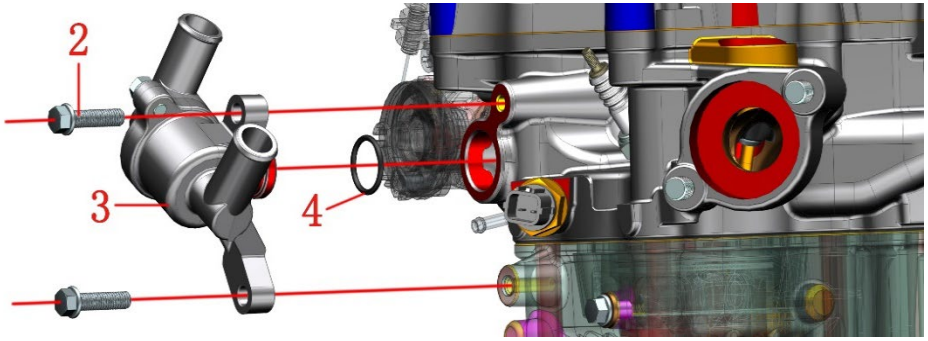


Fig.3 CYLINDER HEAD ASSEMBLY		Cylinder head outer parts	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1050954-026000	LSF oxygen sensor	1	
2	1251100-061093	M6×22 Hex flang bolt thread level 8.8 (color zinc)	2	12±1.5N.m
3	1051956-001000	ZT158MJ thermostat sub-assembly	1	
4	1051468-010000	16.5×1.95 EPDM O-ring	1	

PROCEDURE:

●Use 22# open-end wrench to remove the oxygen sensor (1).

●Use 8#T rod sleeve to remove the two bolts (2), and remove the thermostat (3) and the sealing ring (4).

CAUTION:

●The sealing ring (4) is for one-time use. It is recommended to replace it after disassembly to avoid leakage due to improper sealing.

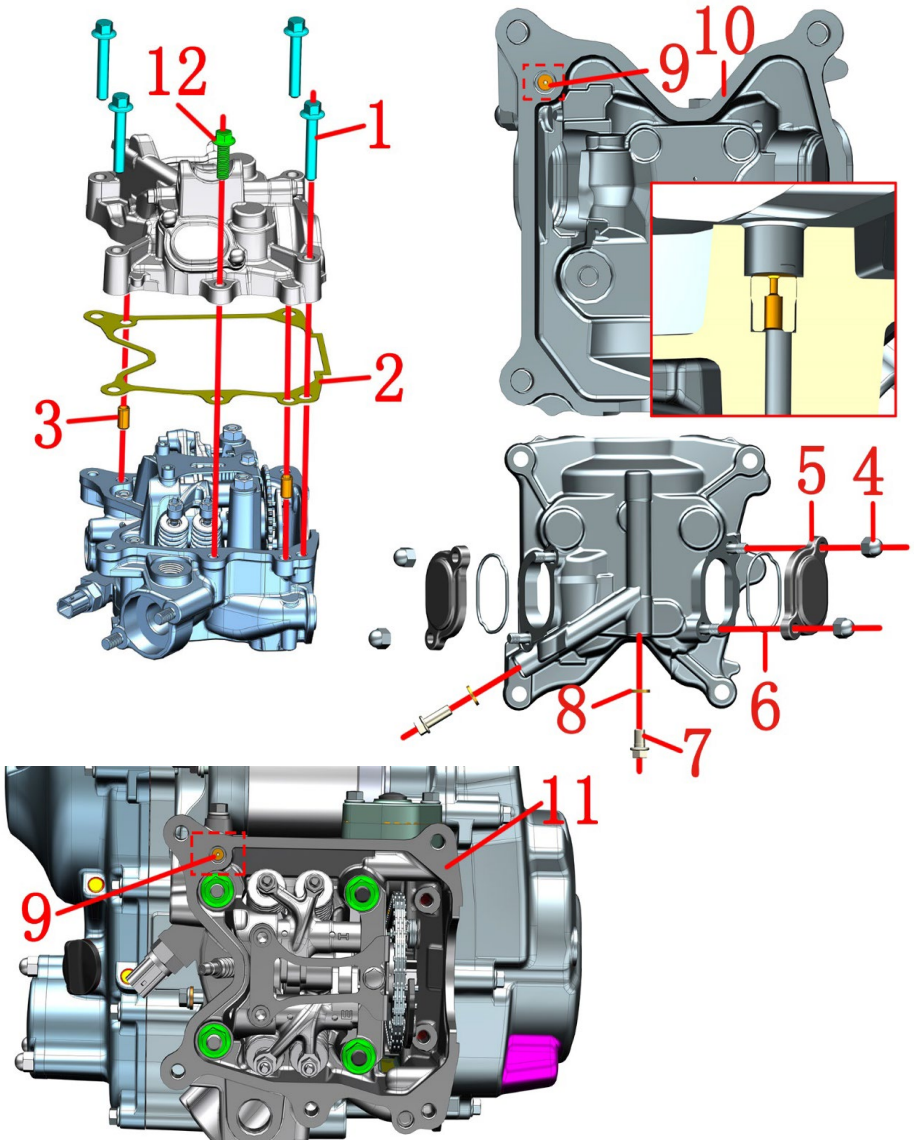


Fig.4 CYLINDER HEAD ASSEMBLY		Cylinder head cover assembly	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1250101-076093	GB16674 M8×45 (environmental protection color zinc)	4	25±3N.m
2	1051656-001000	ZT158MJ cylinder head cover gasket	1	
3	1251401-001000	φ8×14 hollow positioning pin	2	
4	1251300-056093	M6 cap type 9 grade nut (color zinc)	4	10±1.5N.m
5	4050956-002000	ZT158MJ valve cover	2	
6	1051468-008000	φ36×1.9 Acrylic O-ring	2	
7	1251100-067093	M6×10 top pin bolt (color zinc)	1	10±1.5N.m
8	1251513-001019	6.3×12×1.6 copper gasket	3	
9	1051754-002000	1.2×6×7 oil pin	1	
10	4050756-002000	ZT158MJ cylinder head cover	1	
11	4050656-004000	ZT158MJ cylinder head	1	
12	1250101-058093	GB16674M8×25	1	

PROCEDURE:

●Use the 12#T rod sleeve to remove the four bolts (1) to remove the cylinder head cover, cylinder head cover gasket (2) and positioning pin (3).

●Clean up the remaining sealant on the joint surface, and be careful not to drop foreign matter into the engine.

●Use a 10#T rod sleeve to disassemble the cover nut (4), and remove the valve chamber cover (5) and the sealing ring (6).

●Use 8#T rod sleeve to remove two bolts (7), and remove two washers (8).

CAUTION:

●The cylinder head cover gasket (2) is a one-time use, and must be replaced after disassembly, otherwise it will cause a series of problems such as improper sealing and oil leakage.

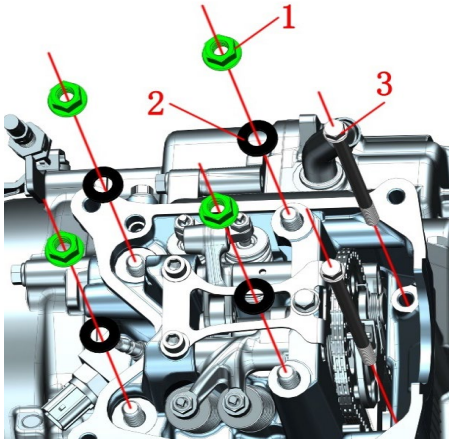
●When cleaning residual sealant and other impurities, avoid foreign matter from entering the engine.

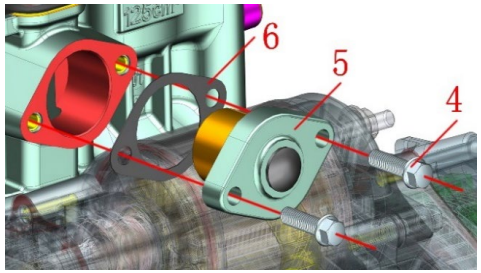
●The oil passing pin (9) is one of the passages of the oil circuit, which cannot be blocked, and there is an interference fit with the cylinder head cover (10). Removing the oil pin may cause damage to the joint surface.

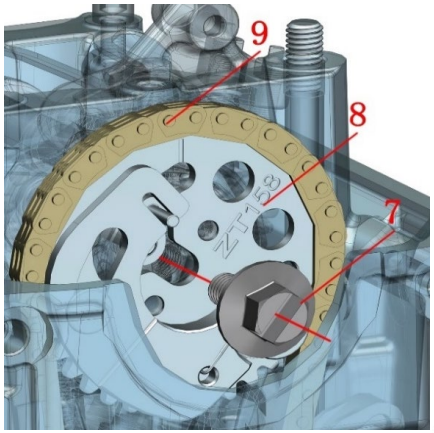
● Both bolts (7) can be screwed out when the engine is running to check if there is oil leakage, as one of the ways to check whether the oil is on the cylinder.

●Subsequent production will switch the oil passing pin (9) on the cylinder head cover (10) to the cylinder head (11).

●Star ting from July 2021, a new bolt(12) will be added to the cylinder head, For vehicles with through holes at the cylinder head in early production, bolts(12) can be added by themselves, but not for vehicles without through holes.







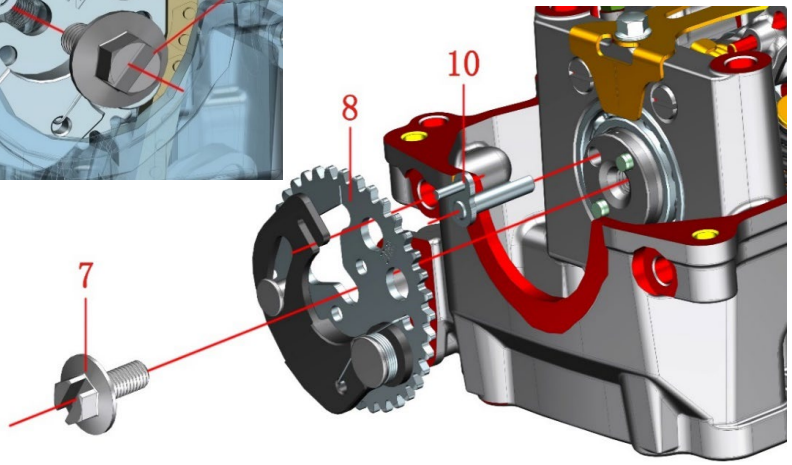


Fig.5 CYLINDER HEAD ASSEMBLY		Cylinder head cover assembly-1	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251300-080094	black)	4	25±3N.m
2	1251500-079000	φ8.3×φ17×2 iron gasket	4	
3	1251112-007093	M6×105 Hexagon flange bolts (color zinc)	2	12±1.5N.m
4	1251100-061093	M6×22 Hex flang bolt thread level 8.8 (color zinc)	2	12±1.5N.m
5	1051256-005000	ZT158MJ tensioner sub-components (6-8N)	1	
6	1051668-006000	ZT1P58MJ Tensioner Gasket	1	
7	1251100-164093	ZT1P58MJ camshaft bolt M8×1.25×20-10.9 grade	1	30±3N.m
8	1050156-002000	ZT158MJ timing driven sprocket decompression sub－component	1	
9	1050156-005000	ZT158MJ timing chain 96 links SCZ-0404SV	1	
10	1050168-001000	ZT1P58MJ decompression lever	1	

PROCEDURE:

●Use 8#T rod sleeve to remove two bolts (3).

●Use a 12#T rod sleeve to remove four nuts (1) and four washers (2).

●Use a 8#T rod sleeve to remove the two bolts (4) on the cylinder block, and remove the tensioner (5) and gasket (6) to loosen the toothed chain (9).

●Use a 14#T rod sleeve to remove the bolt (7), remove the sprocket (8) and the decompression component (10), and put the toothed chain (9) back into the engine.

●Pull up the cylinder head and remove the sub-components of the cylinder head.

CAUTION:

●To disassemble the cylinder head, you must first disassemble the bolt (3) and then disassemble the nut (1), and vice versa during assembly.

●The bolt (3) is recommended to be replaced after disassembly. Because the bolt (3) is relatively long and bears a large torque, it is recommended to replace it every time it is removed.

●If you need to take out the toothed chain later, just take it out with a magnetic tool.

●Be careful not to fall into the engine when disassembling bolts, nuts and other parts. If you accidentally fall into the engine, try to suck it out with a magnetic tool, otherwise you need to further disassemble the engine to take it out.

●The gasket (6) is for one-time use, it is recommended to replace it after disassembly.

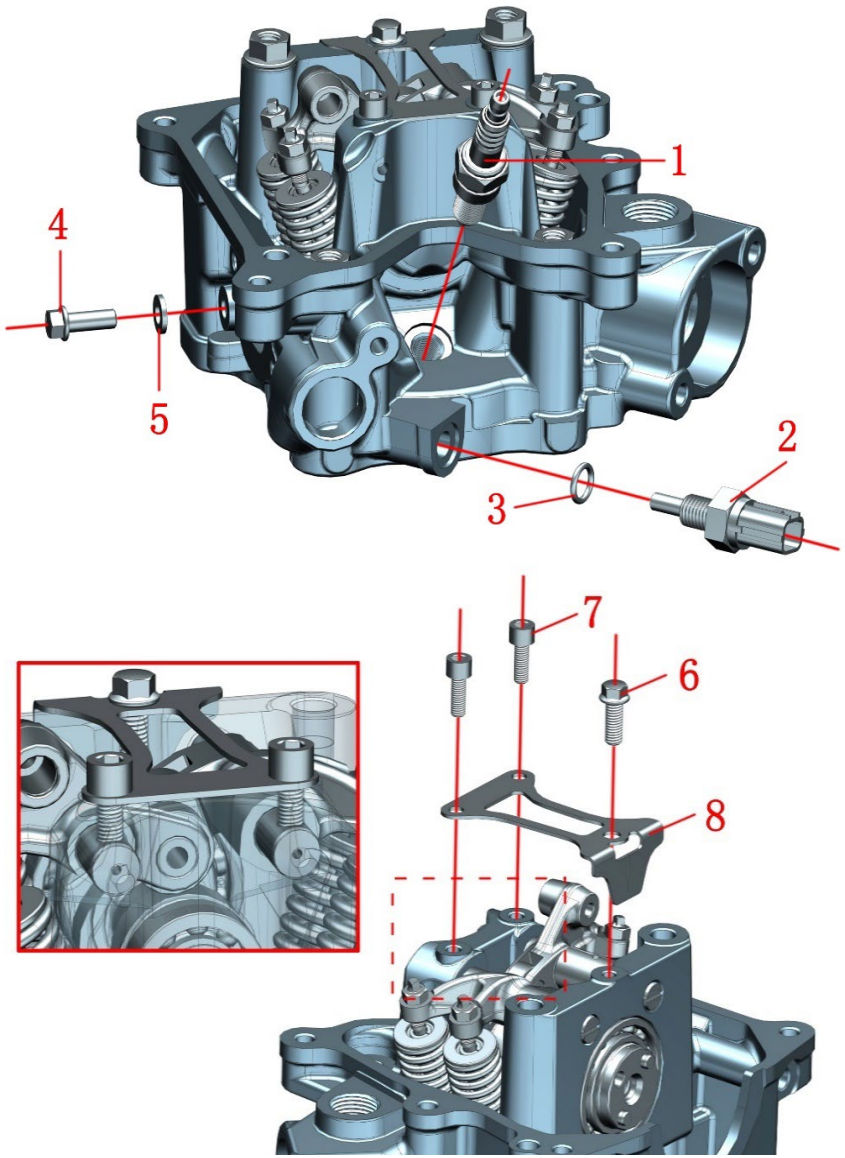


Fig.6 CYLINDER HEAD ASSEMBLY		Cylinder head cover assembly-2	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1050968-009000	CPR8EA-9 spark plug	1	14±1.5N.m
2	1050954-003000	Water and oil shared sensor	1	13±1.5N.m
3	1051454-009000	9×2 EPDM rubber O-ring	1	
4	1251112-001093	M6×16 Hexagon flange bolts (color zinc)	1	12±1.5N.m
5	1251513-001019	6.3×12×1.6 copper gasket	1	
6	1251100-067093	M6×10 top pin bolt (color zinc)	1	12±1.5N.m
7	1251201-001094	Internal hexagonal round screw	2	10±1.5N.m
8	1051368-003000	ZT1P58MJ camshaft bearing pressure plate	1	

PROCEDURE:

●Use a 16# spark plug socket wrench to disassemble the spark plug (1), be careful not to drop the gasket on the spark plug.

●Use 17#T rod sleeve to remove the water and oil shared sensor (2), and remove the sealing ring (2).

●Use 8#T rod sleeve to remove bolt (4), and remove gasket (5).

●Use 8#T rod sleeve to remove bolt (6), use 5# Allen wrench to remove two bolts (7), then bearing pressure plate (8) can be removed.

CAUTION:

●Spark plug is a consumable part. It is recommended to check the gap and color of the spark plug every 10,000 kilometers. The normal gap range is 0.7mm-0.8mm. The normal color is light brown. If the gap or color is abnormal, replace the spark plug. The replacement should not exceed 30,000 kilometers at the latest .

●Both bolts (6) and bolts (7) need to be coated with appropriate thread fastening glue.

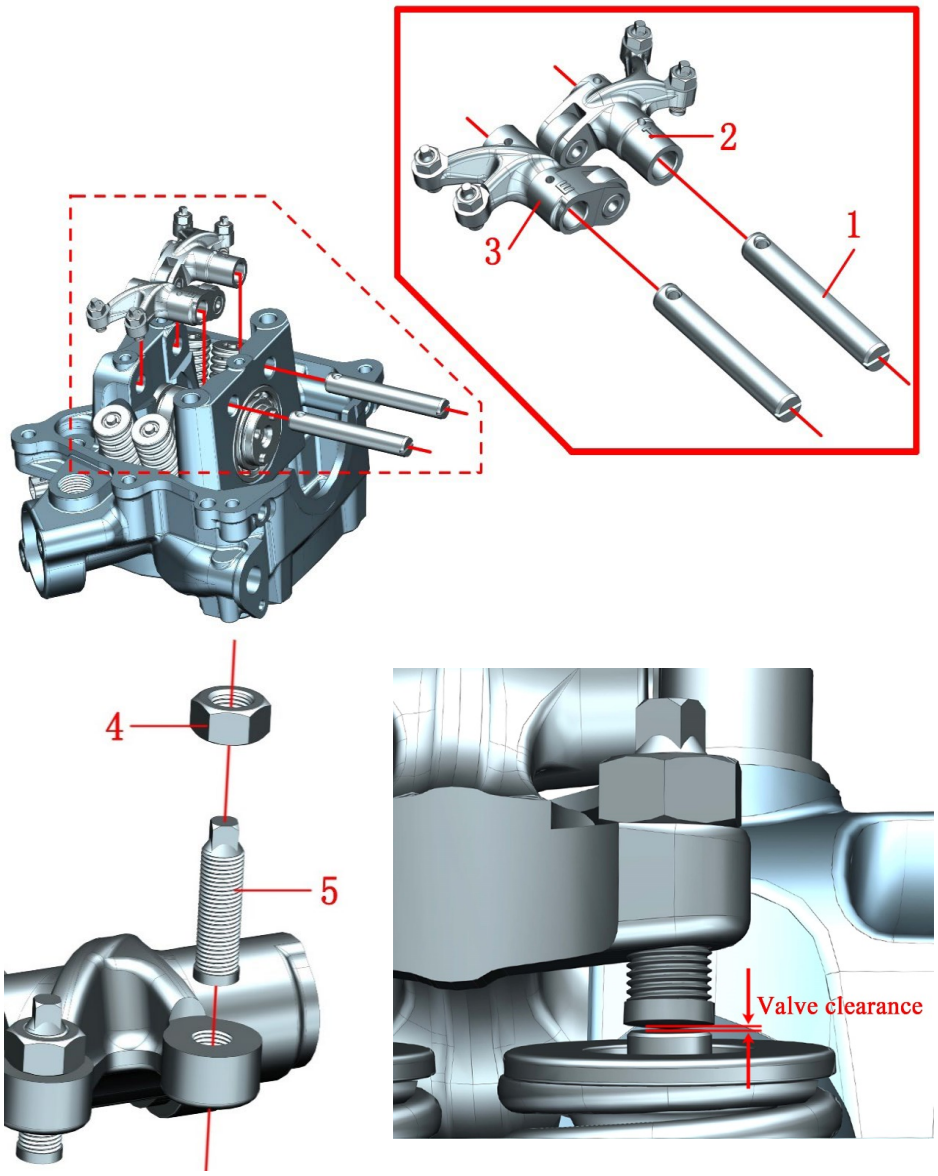


Fig.7 CYLINDER HEAD ASSEMBLY		Cylinder head cover assembly-3	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1050168-007000	ZT1P58MJ intake and exhaust rocker arm shaft	2	
2	1050168-033000	ZT1P58MJ intake rocker arm sub-assembly-B	1	
3	1050168-034000	ZT1P58MJ Exhaust Rocker Arm Sub-assembly-B	1	
4	1251100-225000	M5×0.5 valve clearance adjusting nut	4	9±1N.m
5	1251100-222000	M5×0.5×SR12 valve clearance adjustment screw	4	

PROCEDURE:

● Pull out the two intake and exhaust rocker arm shafts (1) to remove the intake rocker arm (2) and exhaust rocker arm (3).

●Adjust valve clearance

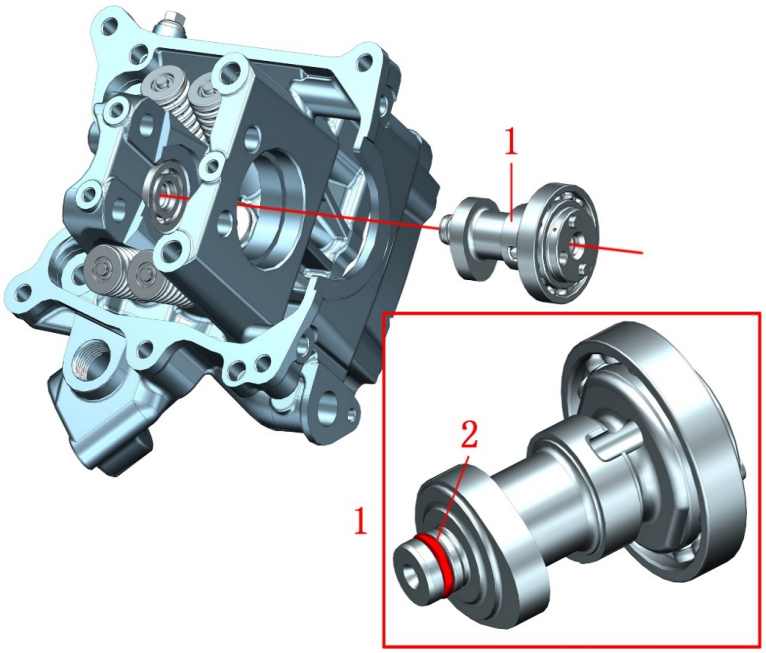
Use 8# torx wrench to loosen the nut (4), then use 3# open-end wrench to adjust the screw (5), use a feeler gauge to measure the valve clearance, after adjusting to the corresponding clearance range, 3# open-end wrench to fix the screw (5), 8# torx wrench lock Tighten the nut (4), tighten the torque to 9±1N.m, and finally measure the gap again.

Intake valve clearance: 0.12±0.02mm, two intake valve clearance difference ≤0.02mm, exhaust valve clearance: 0.20±0.02mm, two exhaust valve clearance difference ≤0.02.

CAUTION:

●Be sure to tighten the nut (4) according to the torque requirements, otherwise it may cause the screws and nuts to loosen or damage the threads.

●When assembling the intake and exhaust rocker arm, spray an appropriate amount of engine oil to lubricate the contact surface with relative movement.



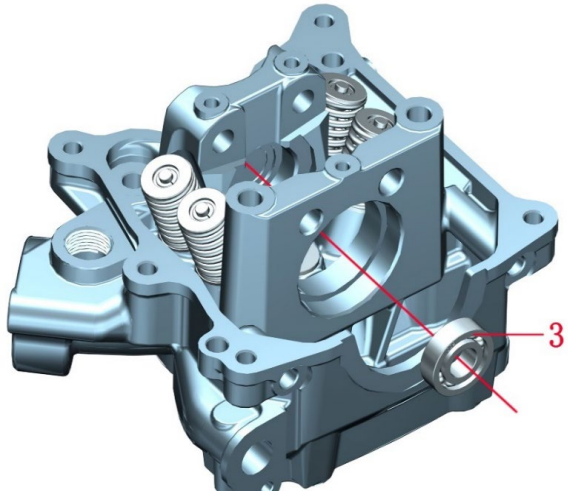


Fig.8 CYLINDER HEAD ASSEMBLY		Cylinder head cover assembly-4	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1050168-023000	ZT1P58MJ camshaft sub-component-B	2	
2	1051468-001000	8.8×1.9 fluorine rubber O-ring	1	
3	1250601-128000	GB276-6001/P5C3 deep groove ball bearing	1	

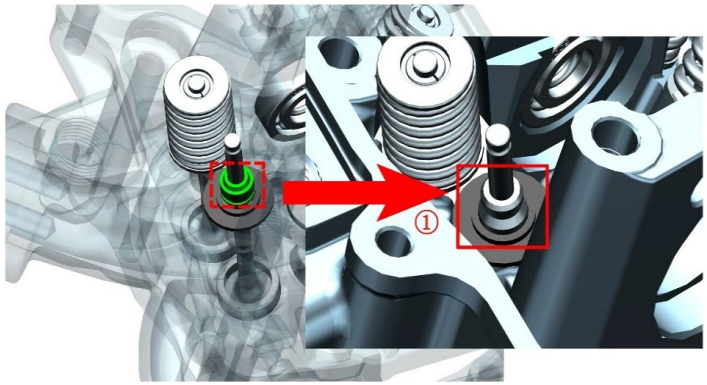
PROCEDURE:

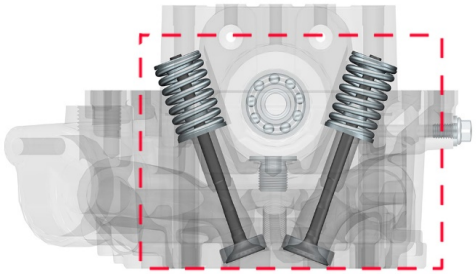
●Just pull out the camshaft sub-part (1) directly.

CAUTION:

●When assembling the camshaft, it is necessary to spray a proper amount of oil for lubrication, and check the O-ring to avoid omissions.

●Bearing (3) is an interference fit. Generally, it is not recommended to disassemble if there is no fault.





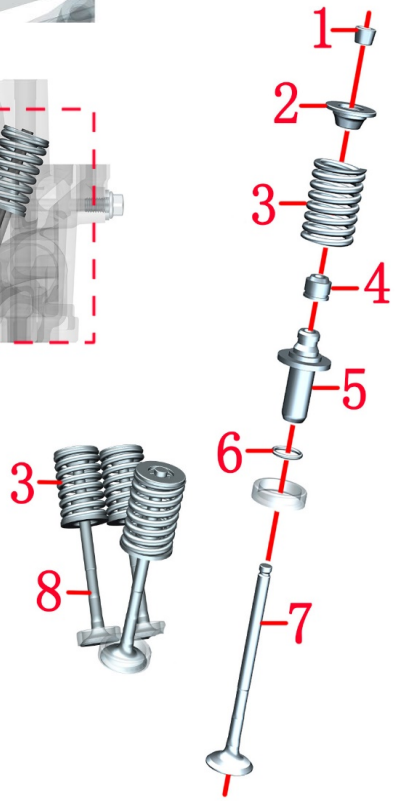


Fig.9 CYLINDER HEAD ASSEMBLY		Cylinder head cover assembly-5	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1050168-016000	ZT1P58MJ valve lock clip	8	
2	1050168-015000	ZT1P58MJ valve spring retainer	4	
3	1050168-014000	ZT1P58MJ exhaust valve spring	4	
4	1051553-001000	φ5.0 valve stem diameter oil seal	4	
5	1051356-015000	13.2×20.8×0.5 valve spring base	4	
6	1050168-018000	ZT1P58MJ valve spring base	4	
7	1050168-011000	ZT1P58MJ intake valve	2	
8	1050168-012000	ZT1P58MJ exhaust valve	2	

PROCEDURE:

●Remove the valve:

Use a hollow sleeve (diameter 15±4mm can be used) to press down the valve spring retainer (2), after the valve lock clip (1) is released, use a magnet to suck out the valve lock clip (1), then the valve spring retainer (2), valve spring can be removed (3), pull out the valve(7)/(8) from below, use needle-nose pliers to clamp out the oil seal (4) 、 the valve spring base (5) and the valve spring base(6).

●Assemble the valve:

Brush the intake and exhaust valves evenly with a layer of clean engine oil and insert them into the original position of the cylinder head from bottom to top. Pay attention to distinguish the intake and exhaust. Place the cylinder head on a clean, lint-free, soft cloth to prevent the installation joint surface from being scratched and the seal is not in place to leak oil. Put the four valve spring bases(6) and the four valve spring bases (5) into the four valve rods respectively to make them fall to the bottom. Put the four new oil seals (4) on the four valve stems respectively, and use an 8# sleeve to push them into place, as shown in Figure ①. Put the exhaust spring (3) into the corresponding positions respectively, put the four valve spring retainers (2) into the valve stem respectively, press the valve spring retainer (2) with the hollow sleeve, and clamp a pair of valve locks (1) Put it into the gap between the valve spring retainer (2) and the valve stem, loosen the sleeve, and the valve lock clamps the valve stem under the action of the spring and the valve spring retainer (2).

CAUTION:

●Oil seal (4)It is recommended to replace it after disassembly, so as to avoid the damage caused by the disassembly process and the seal is not in place, so that the oil enters the combustion chamber and burns.

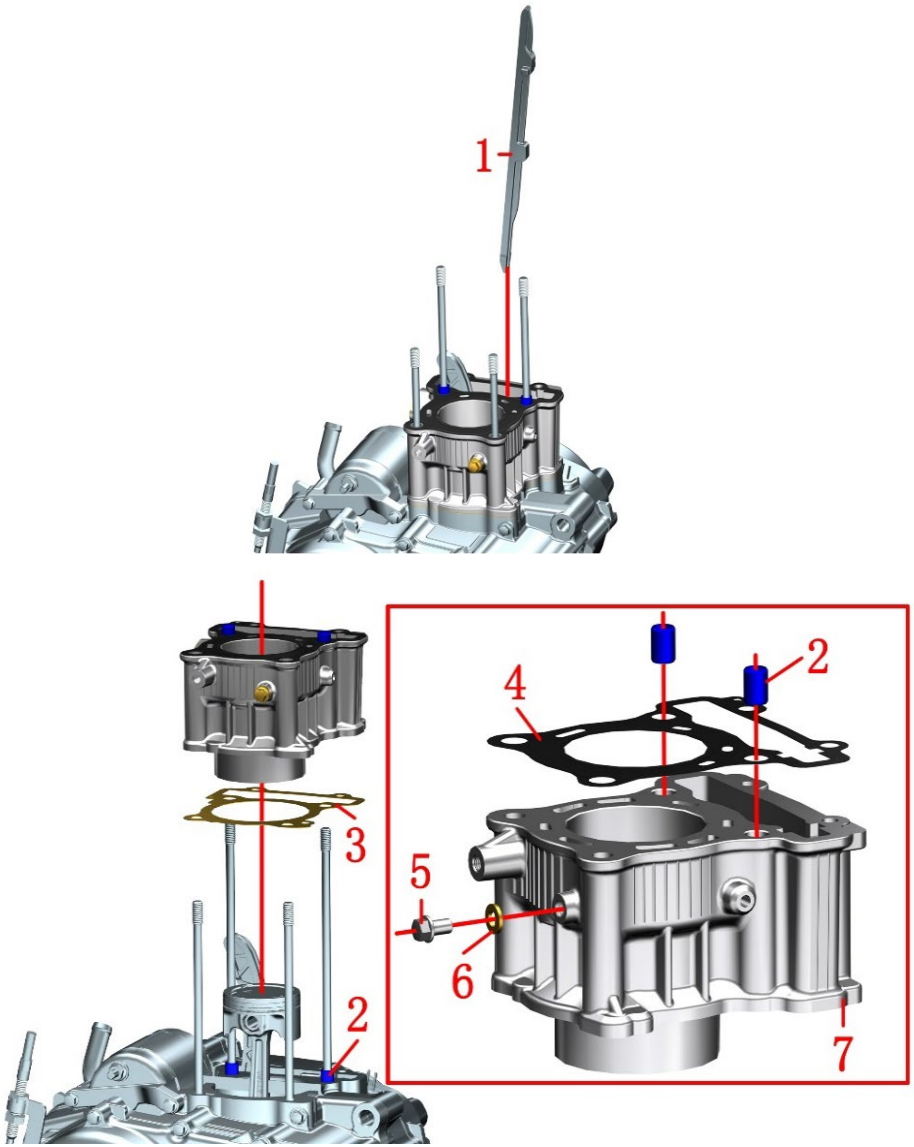


Fig.1 CYLINDER BLOCK ASSEMBLY		Cylinder assembly-1	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1051256-002000	ZT158MJ guide strip	1	
2	1251401-001000	φ10×14 hollow positioning pin	4	
3		Cylinder block box gasket	1	
4	1051655-001000	ZT1P52MI cylinder block cylinder head gasket	1	
5	1251100-067093	M6×10 top pin bolt (color zinc)	1	
6	1251513-001019	6.3×12×1.6 copper gasket	1	
7		Cylinder block	1	

PROCEDURE:

●Pull the guide bar (1) upwards.

●Pull the cylinder block directly upward, and remove the cylinder block (7), hollow positioning pin (2) and gasket (3) from the crankcase.

●Remove the positioning pin (2) and gasket (4) from the cylinder block (6) respectively.

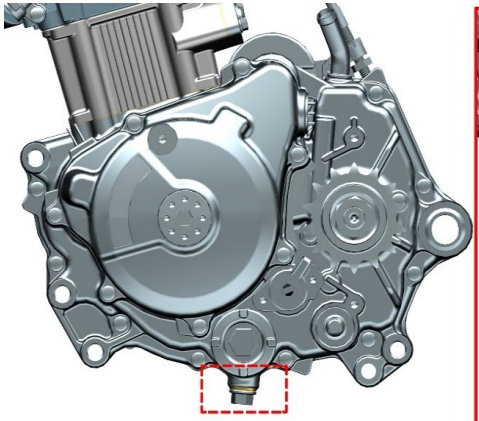
●Use 8# torx wrench to remove bolt (5), and remove washer (6).

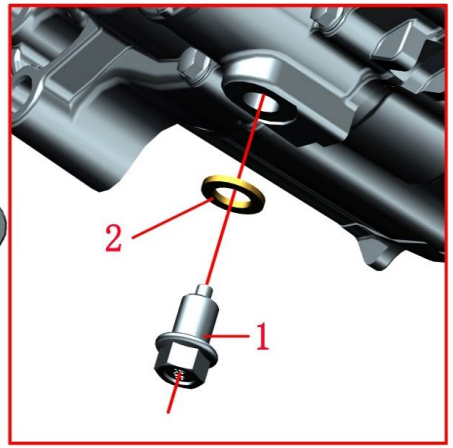
CAUTION:

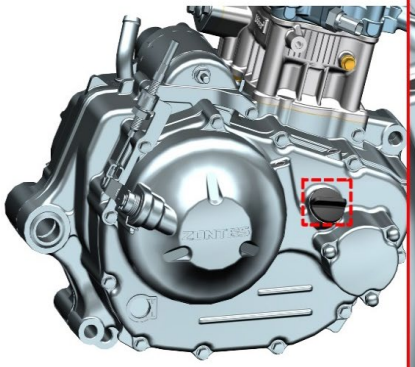
●Gasket (3) and gasket (4) are both disposable and must be replaced after disassembly.

●Guide bar (1) must be removed before disassembling the cylinder block (7). When assembling, the cylinder block (7) is assembled first and then the guide bar (1) is inserted.

●When installing the piston in the cylinder block, the "IN" on the piston faces the installation side of the engine tensioner.







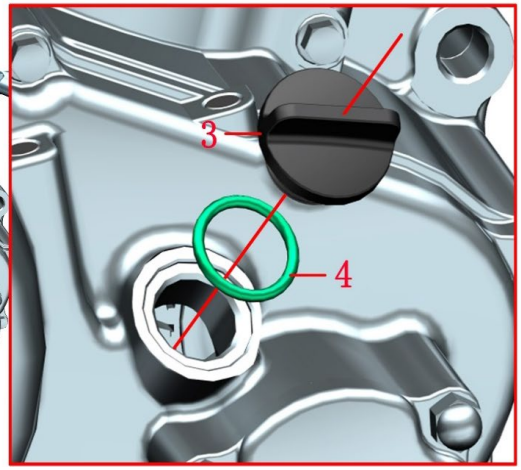


Fig.1 OIL DRAINING STEPS		Oil Draining	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251100-066093	M12×1.5×15 oil drain bolt (color zinc)	1	30±3N.m
2	1244100-033000	Combination gasket 12×φ20×2	1	
3	1251300-054000	M20×1.5 Fuel filler nut	1	
4	1051456-003000	φ19×φ2.65 Nitrile O-ring	1	

PROCEDURE:

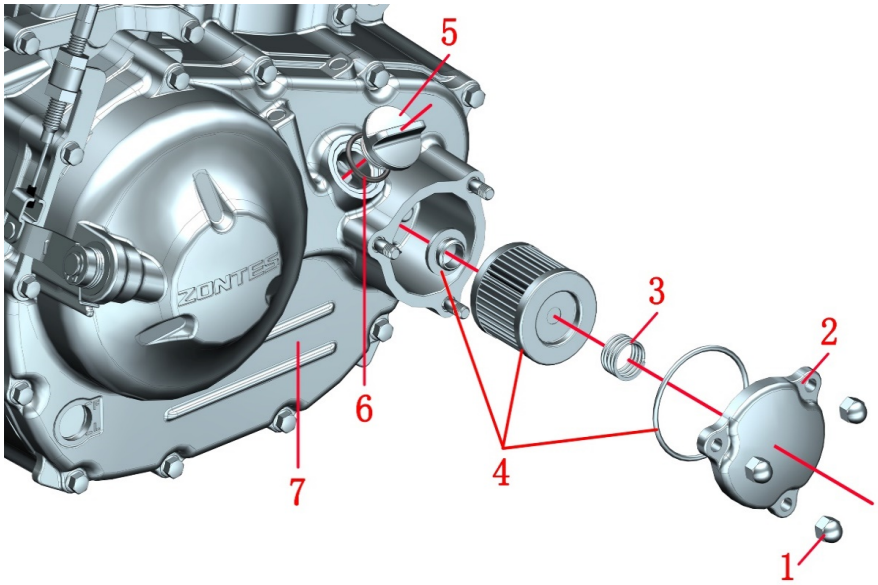
●Find the oil drain bolt (1) under the left crankcase body, place a container underneath to contain the oil, use a 14# torx wrench to remove the oil drain bolt (1), and remove the combined sealing gasket (2).

●Unscrew the oil filler nut (3) and the seal ring (4) on the right crankcase cover, and wait for the oil to drain from the oil drain.

CAUTION:

●Combined gasket (2)It is recommended to replace it after disassembly to avoid oil leakage and oil leakage due to damage caused by the disassembly process.

●After removing the oil drain bolt (1), check whether the magnet on the bolt has adsorbed iron filings. If there are many foreign objects or even parts adsorbed, check the inside of the engine. If there is only a small amount of metal chips, don't worry, just clean it up.



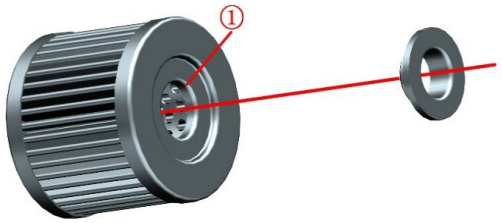


Fig.1 RIGHT CRANKCASE COVER ASSEMBLY		ZT158MJ right crankcase cover assembly-1	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251300-096000	Non-standard cover type 9 degree nut M6×13	3	10±1.5N.m
2		ZT158MJ oil filter cover	1	【1】
3	1050868-002000	φ18.5×13×1.6 fine filter spring	1	
4	4131200-002000	ZT152QMI fine filter seal assembly(carton packaging)	1	
5	1251300-054000	M20×1.5 Fuel filler nut	1	
6	1051456-003000	φ19×φ2.65 Nitrile O-ring	1	
7		ZT158MJ right crankcase cover	1	

PROCEDURE:

●Place a container under the fine filter cover for the oil.

●Use a 10#T rod sleeve to remove the three nuts (1), remove the fine filter cover (2), and remove the sealing ring on the fine filter cover.

●Take out the spring (3) and the fine filter sealing assembly (4).

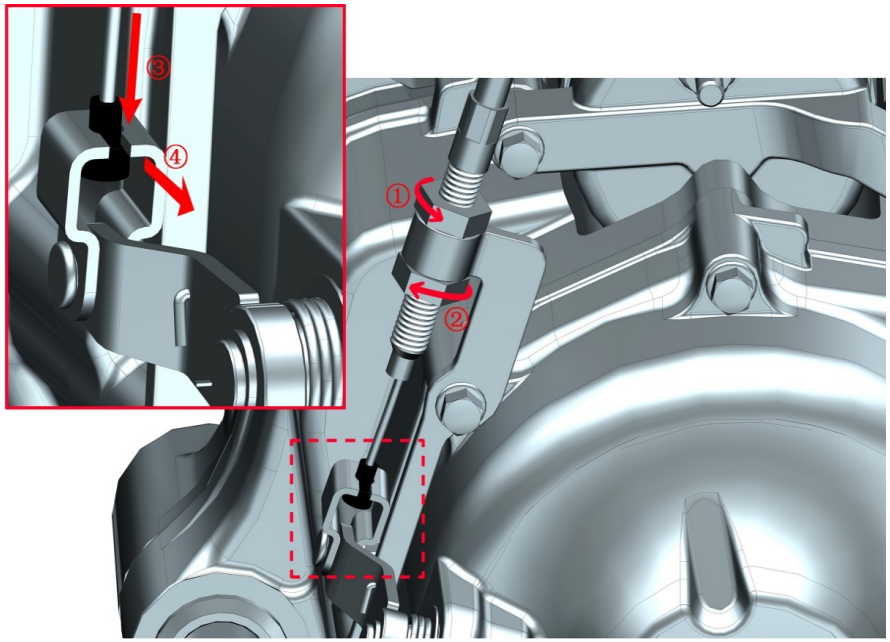
●Unscrew the filler nut (5) and remove the sealing ring (6).

CAUTION:

●The fine filter seal assembly (4) is for one-time use, please replace it after disassembly.

●When assembling the fine filter, make sure that the sealing ring is not installed reversely. The direction is as shown in position ① in the figure, and the side with the hole of the fine filter faces the engine.

●【1】If the part code is empty, it indicates that the part has multiple states or colors. For specific states, please find the corresponding state or color in the official website parts. Only the disassembly and assembly steps are explained here, and the color and status do not affect the disassembly and assembly process. This description will not be added if there is such a situation later in this manual.



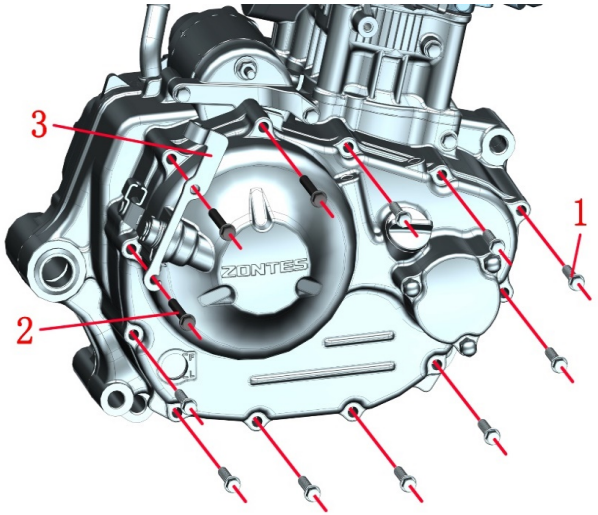


Fig.2 RIGHT CRANKCASE COVER ASSEMBLY		ZT158MJ right crankcase cover assembly-2	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251112-002093	M6×30 Hexagon flange bolts (color zinc)	9	12±1.5N.m
2	1251112-003093	M6×45 Hex flange surface 9.8 bolt (color zinc)	3	
3	1051356-009000	ZT158MJ clutch cable bracket	1	

PROCEDURE:

●Use a 14# open-end wrench to loosen the nuts marked by ① and ② on the clutch line in the direction of the arrow, pull the clutch line down in the direction of arrow ③, then take it out in the direction of arrow ④, and remove the clutch line from the right crankcase Remove the cover.

●Use 8#T rod sleeve to remove 9 bolts (1) and 3 bolts (2), take off the clutch cable bracket (3)

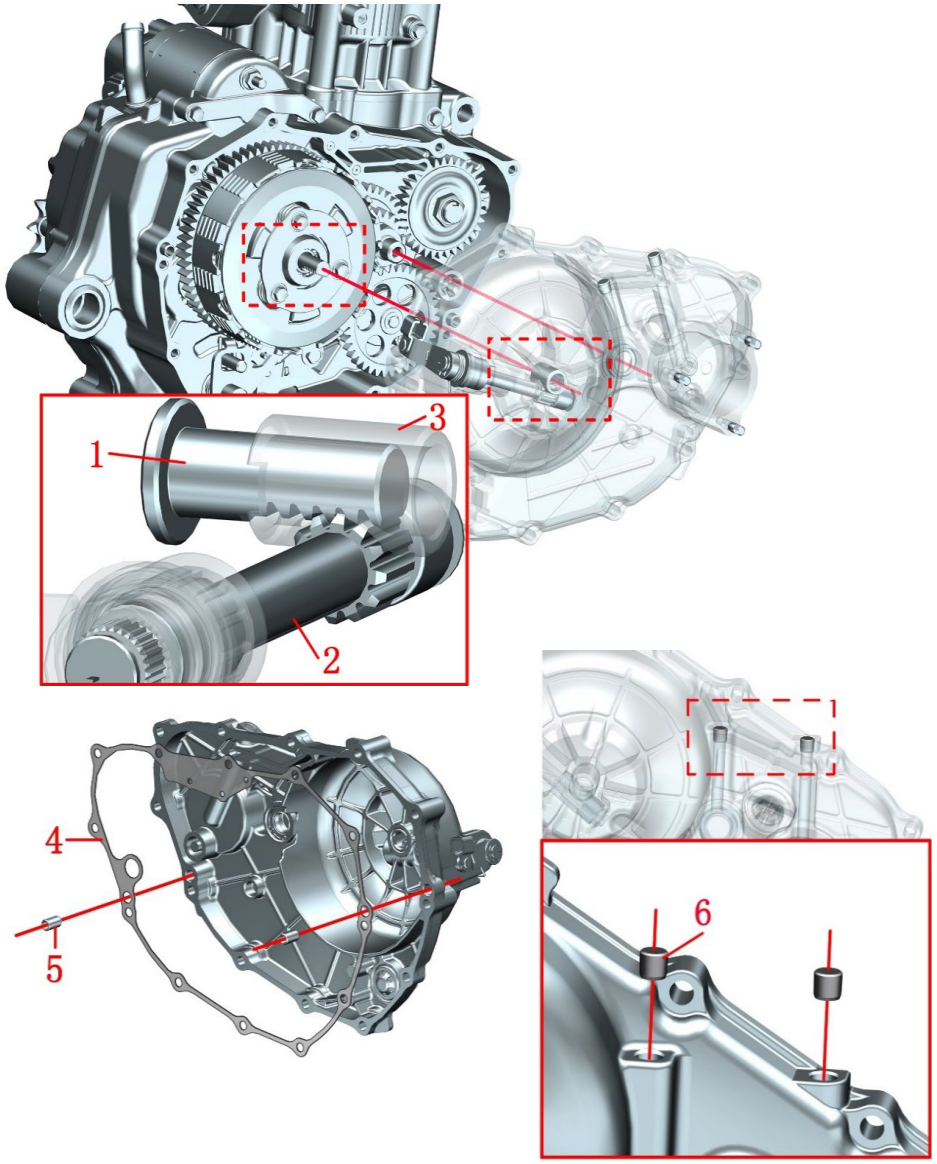


Fig.3 RIGHT CRANKCASE COVER ASSEMBLY		ZT158MJ right crankcase cover assembly-3	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1050756-015000	ZT158MJ clutch toothed rod	1	
2	1050756-014000	ZT158MJ clutch lever shaft	1	
3	1251700-141000	ZT158MJ toothed tie rod bushing	1	
4	1051656-004000	ZT158MJ right crankcase cover gasket	1	
5	1251401-001000	φ8×14 hollow positioning pin	2	
6	1050853-020000	φ8×7.5 oil plug	2	

PROCEDURE:

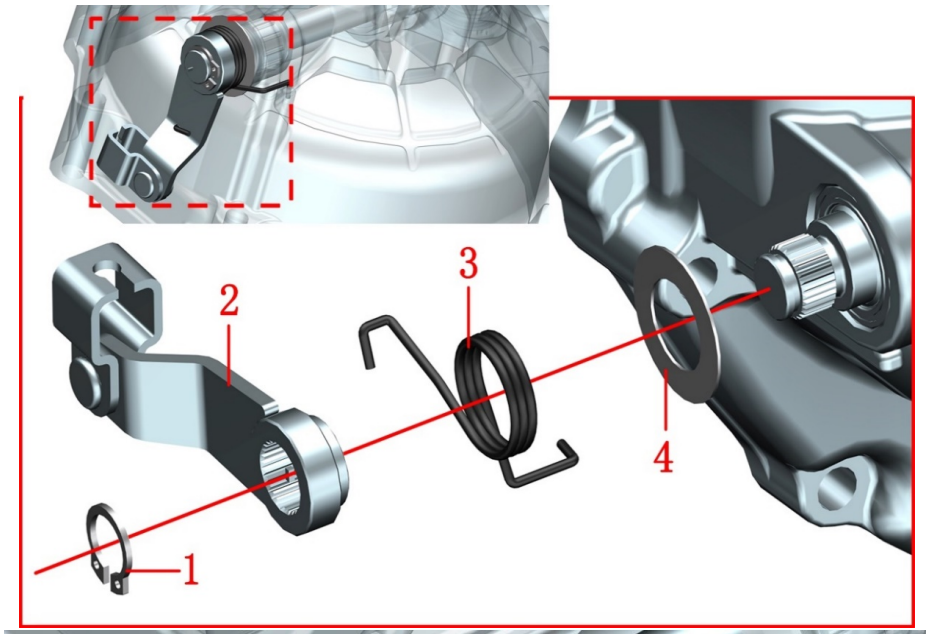
●The assembly relationship between the right crankcase cover and the clutch toothed lever is shown in the figure. Turn the clutch lever shaft (2) counterclockwise, and directly remove the right crankcase cover from the crankcase body.

●Remove the two positioning pins (5), remove the gasket (4), and clean the remaining sealant on the joint surface.

CAUTION:

●The oil plug (6) is an interference fit with the right crankcase cover. Removing it will damage the joint surface and affect the sealing performance. Generally, it is not recommended to remove it.

●Gasket (4) is for one-time use and must be replaced after disassembly, otherwise it may cause seal failure and oil leakage.



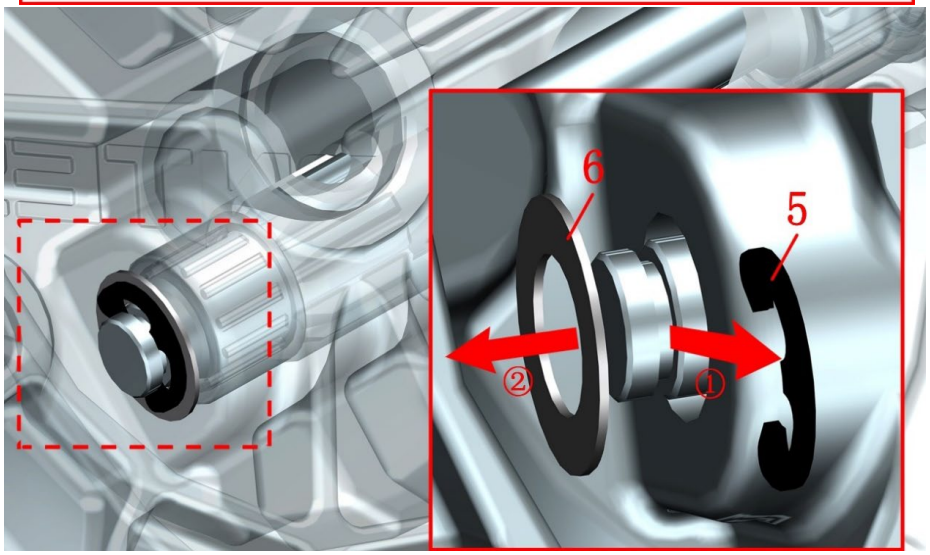


Fig.4 RIGHT CRANKCASE COVER ASSEMBLY		ZT158MJ right crankcase cover assembly-4	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1051154-003000	GB894.1 Circlip for shaft φ10 (Dacromet plated)	1	
2	1050756-013000	ZT158MJ clutch lever rocker arm assembly	2	
3	1050756-012000	ZT158MJ clutch handle torsion spring	3	
4	1251512-043000	φ14.2×φ24×0.5 thrust washer (galvanized)	4	
5	1250511-002000	GB896 open retaining ring φ6	1	
6	1251512-003000	8.2×14×0.5 thrust washer	1	

PROCEDURE:

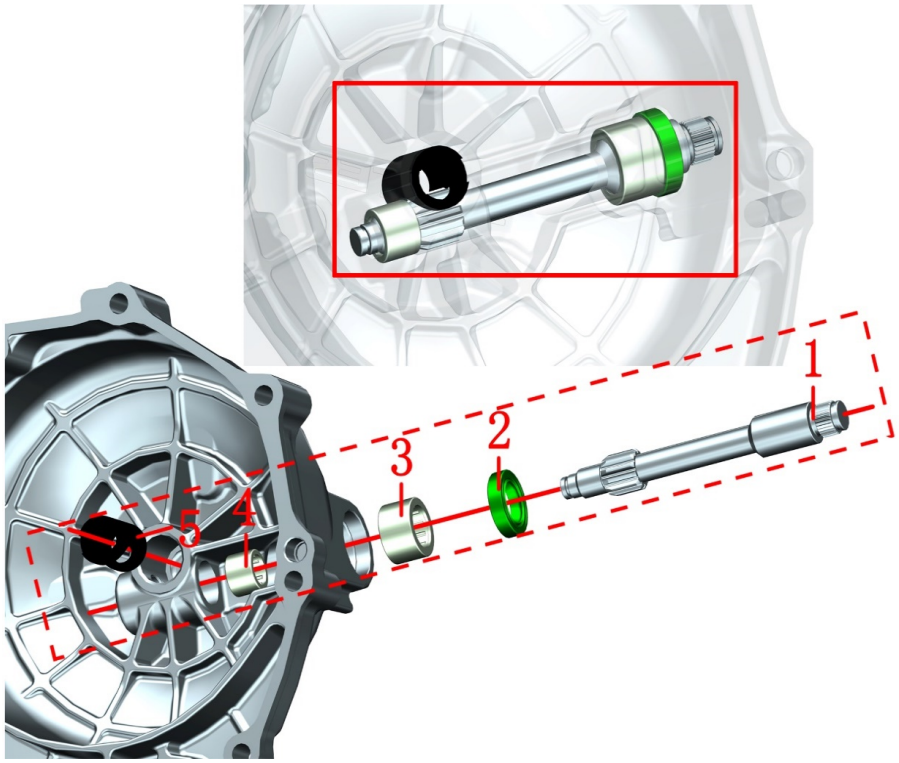
●Use circlip pliers to remove the retaining ring (1), and then take off the clutch lever rocker (2), torsion spring (3) and washer (4).

●Use needle-nose pliers or other sharp tools to pick out the retaining ring (5) in the direction of ①, and then remove the washer (6).

CAUTION:

●Retaining ring (1) and retaining ring (5) are prone to plastic deformation during disassembly. It is recommended to replace them after disassembly.

●When assembling the lever rocker arm (2), turn the lever rocker arm (2) clockwise by hand. When the resistance becomes large, the lever rocker arm (2) should be perpendicular to the mounting surface of the right crankcase cover.



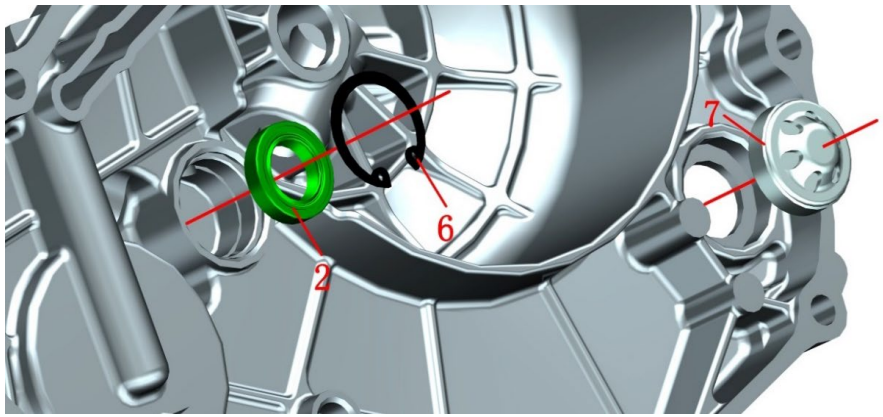


Fig.5 RIGHT CRANKCASE COVER ASSEMBLY		ZT158MJ right crankcase cover assembly-5	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1050756-014000	ZT158MJ clutch lever shaft	1	
2	1051553-002000	FB14×22×5 Hydrogenated Nitrile Rubber Oil Seal	2	
3	1250602-033000	GB290－HK1412 Needle Roller Bearing	1	
4	1250602-022000	GB290－HK1010 Needle Roller Bearing	1	
5	1251700-141000	ZT158MJ toothed tie rod bushing	1	
6	1051354-013000	Circlips for non-standard holes φ24×1	1	
7	1051551-004000	φ25 oil window sub-assembly	1	

PROCEDURE:

●Pull out the clutch lever shaft (1) directly.

●Use circlip pliers to remove the retaining ring (6), then the oil seal (2) can be removed. It is not recommended to remove the oil seal if it is not a malfunction.

CAUTION:

●The relative position and assembly relationship of the clutch lever shaft (1) and each bearing, bushing and oil seal are shown in the figure.

●Bearings are all interference fits, and have press-fitting accuracy requirements. Under normal circumstances, disassembly is not recommended.

●The oil seal is installed with the spring visible side facing the inside. When installing the oil seal, the oil seal should be press-fitted evenly to avoid deformation and flanging.

●Retaining ring (6) is prone to plastic deformation during disassembly, it is recommended to replace it after disassembly.

●It is recommended to replace the oil seal after disassembly to avoid oil leakage due to improper seal.

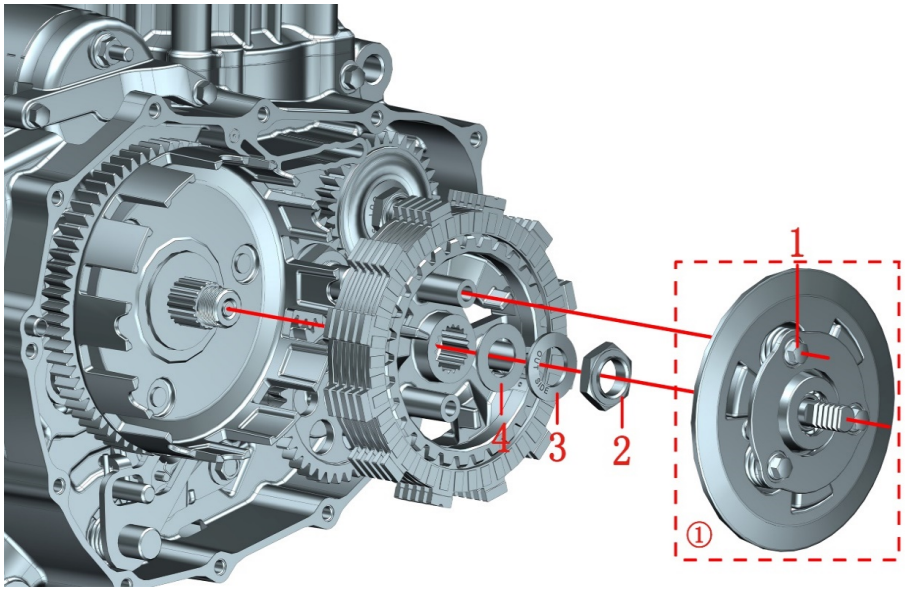


Fig.6 RIGHT CRANKCASE COVER ASSEMBLY		Clutch assembly-1	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1		M6×30 bolts	3	【1】
2	1251311-001094	M16×1 Hexagon Thin Nut (oxidized black)	1	95±10N.m
3	1251514-002000	φ16.2×φ28×2.4×2 lock washers	1	
4	1251512-039000	φ16.2×φ28×1 thrust washer	1	

PROCEDURE:

●Use 8#T rod sleeve to remove three bolts (1), then the whole set of pressure plate ① can be removed.

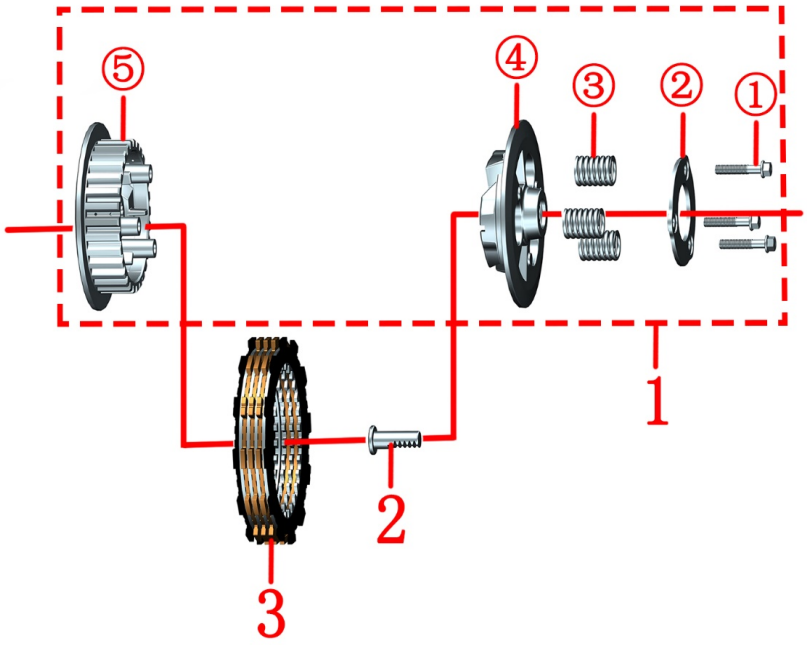
● 24# sleeve remove the nut (2), remove the lock washer (3) and washer (4), you can take off the entire clutch assembly.

CAUTION:

●When disassembling the bolts (1), you should loosen them one by one, try to keep the bolts from having too much height difference, otherwise the parts may bounce off under the action of the spring.

●Nut (2) is recommended to be replaced after disassembly.

● 【1】Parts not marked with codes are included in the parts assembly and are not sold separately.



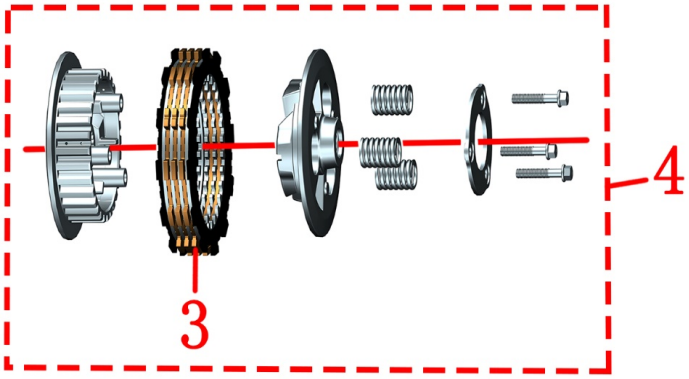


Fig.7 RIGHT CRANKCASE COVER ASSEMBLY		Clutch assembly-2	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1050756-049000	ZT158MJ driven disc assembly	1	
2	1050756-015000	ZT158MJ clutch toothed rod	1	
3	1050756-050000	ZT158MJ clutch friction plate assembly（CX）	1	
4	1050756-028000	ZT158MJ clutch driven hub grouping（CX）	1	

PROCEDURE:

●Use an 8#T sleeve to remove the three bolts ①, remove the cover ②, spring ③.

●Turn the clutch pressure plate assembly ④ slightly clockwise and lift it up to remove the clutch pressure plate assembly ④, and remove the pull-down lever (2).

●If you only need to replace the friction plate assembly, take out the friction plate assembly (3) and replace it. For the assembly sequence, refer to the content on the next page.

CAUTION:

●When disassembling the bolts ①, you should loosen them one by one, try to keep the bolts from having too much height difference, otherwise the parts may bounce off under the action of the spring.

●When the engine speed rises too fast and the vehicle speed rises slowly, the clutch friction plate may have slipped, and the friction plate assembly (3) needs to be replaced immediately, otherwise the vehicle will not be able to drive when the friction plate is completely ineffective.

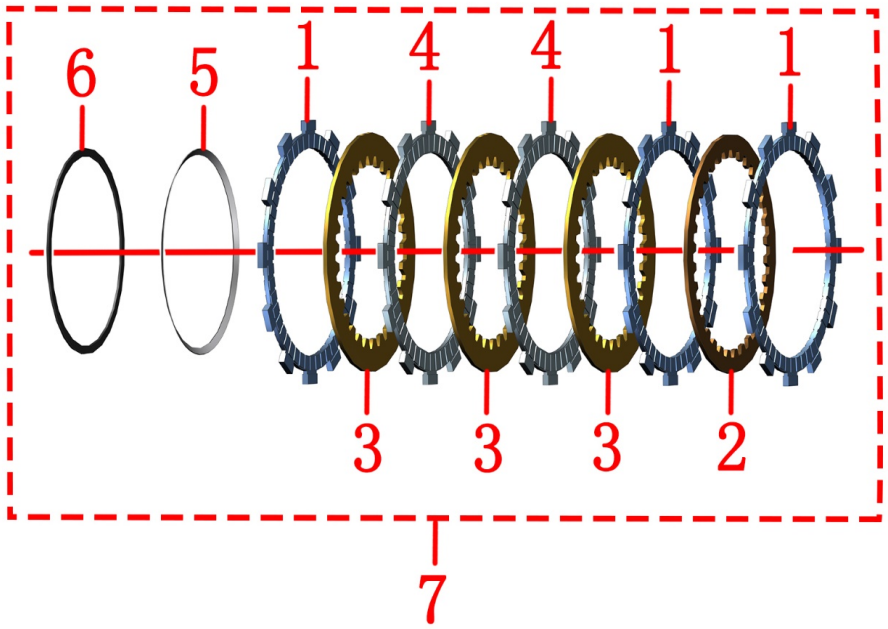


Fig.8 RIGHT CRANKCASE COVER ASSEMBLY		Clutch assembly-3	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1		Friction plate with large inner hole	3	【1】
2		Small inner hole driven plate	1	
3		Large inner hole driven plate	3	
4		Friction plate with large inner hole	2	
5		Thrust washer	1	
6		Check washer	1	
7	1050756-050000	ZT158MJ clutch friction plate assembly（CX）	1	

PROCEDURE:

●The assembly mode is shown in the figure.

CAUTION:

● 【1】Parts not marked with codes are included in the parts assembly and are not sold separately.

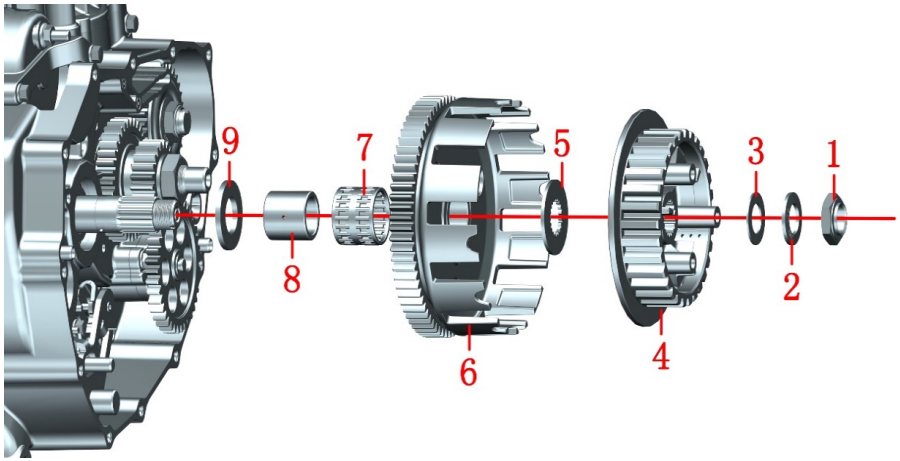
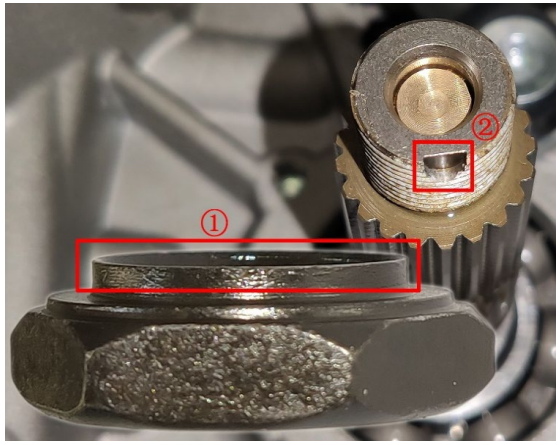


Fig.9 RIGHT CRANKCASE COVER ASSEMBLY		Clutch assembly-4	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251311-001094	M16×1 Hexagon Thin Nut (oxidized black)	1	95±10N.m
2	1251514-002000	φ16.2×φ28×2.4×2 lock washers	1	
3	1251512-039000	φ16.2×φ28×1 thrust washer	1	
4		ZT158MJ clutch driven disc	1	【1】
5	1251500-084000	ZT158MJ Clutch Spline Washer	1	
6	1050756-008000	ZT158MJ clutch active hub subassembly	1	
7	1251602-001000	263124 double row needle roller bearings	1	
8	1251700-148000	ZT158MJ clutch bushing	1	
9	1251512-038000	φ20.2×φ37×3 thrust washer	1	



PROCEDURE:

●Use a 24# sleeve to remove the nut (1), and remove the lock washer (2) and washer (3).

● Pull out the driven disk (4) from the driving hub sub-assembly (6), and remove the spline washer (5).

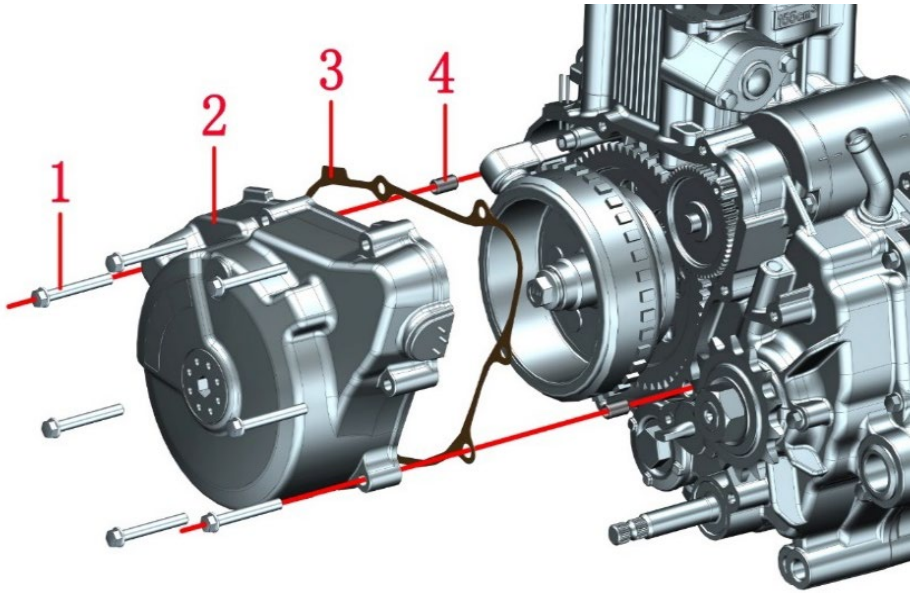
●Unplug the clutch driving hub subassembly (6) from the main shaft, and take out the bearing (7), bushing (8) and washer (9).

CAUTION:

●The driving disc and gear of the driving hub subassembly (6) are fixed by rivets. Please do not disassemble it without professional equipment.

●After the nut (1) is installed, use a flat-blade and rubber hammer to hit the top ① of the nut (1) and insert it into the notch ② of the spindle to achieve the purpose of preventing loosening.

● 【1】Parts not marked with codes are included in the parts assembly and are not sold separately.



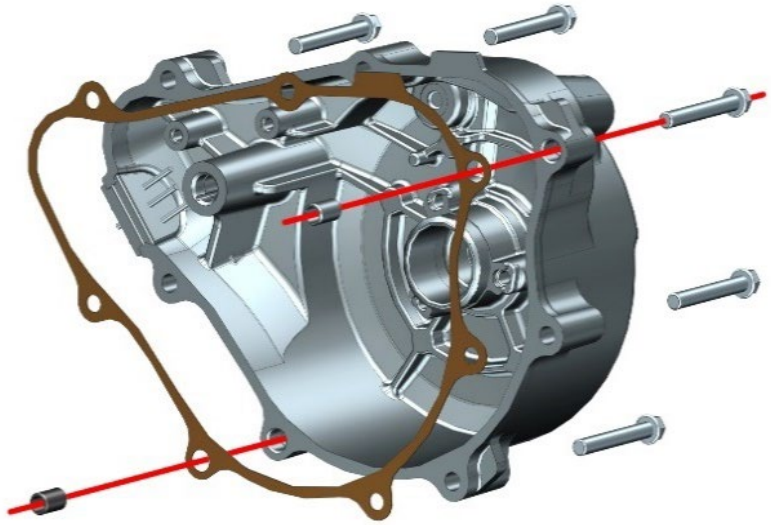


Fig.1 LEFT CRANKCASE COVER ASSEMBLY		Left crankcase cover assembly-1	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251112-003093	M6×45 Hex flange surface 9.8 bolt (color zinc)	7	12±1.5N.m
2		ZT158MJ left crankcase cover	1	
3	1051656-005000	ZT158MJ left crankcase cover gasket	1	
4	1251401-001000	φ8×14 hollow positioning pin	2	

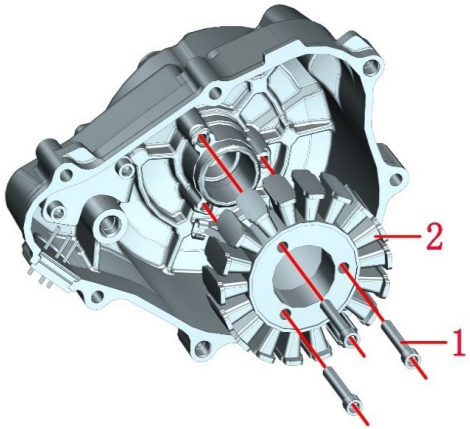
PROCEDURE:

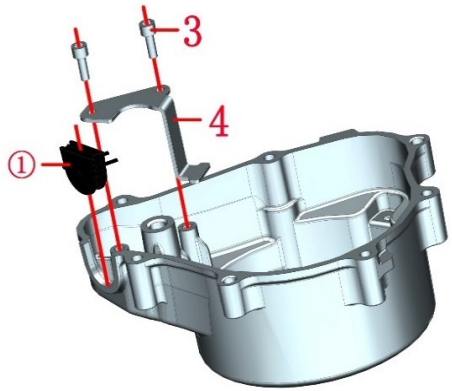
●Use 8#T rod sleeve to remove 7 bolts (1), pull out the left crankcase cover (2), remove the gasket (3) and positioning pin (4).

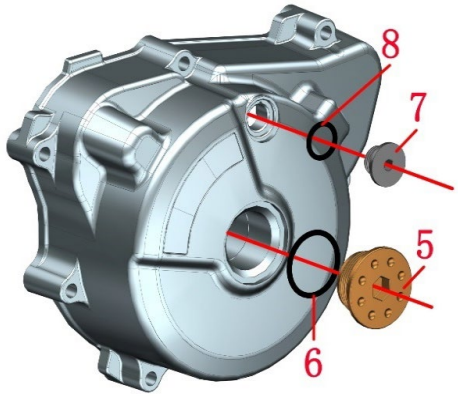
●Clean up the remaining sealant on the bonding surface.

CAUTION:

●The gasket (3) is for one-time use and must be replaced after disassembly.







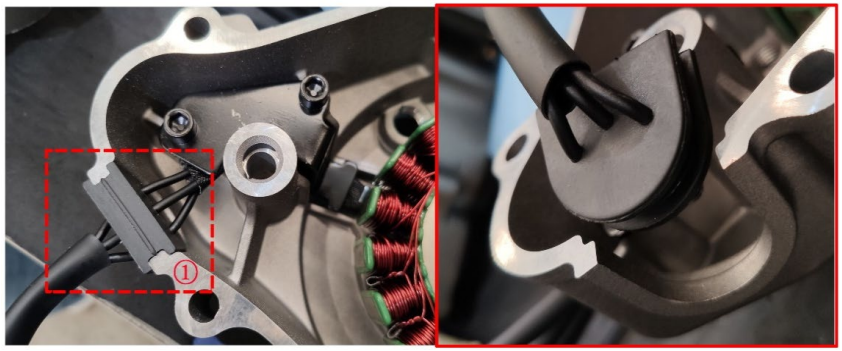


Fig.2 LEFT CRANKCASE COVER ASSEMBLY		Left crankcase cover assembly-2	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251201-002094	M6×35 hexagon socket screw (oxidized black)	3	12±1.5N.m
2	1051056-001000	ZT158MJ magneto stator sub-components	1	
3	1251201-001094	M5×15-5# Hexagon socket screw (oxidized black)	2	5±1.5N.m
4	1051356-008000	ZT158MJ stator wire pressure plate	1	
5		M30×1.5 aluminum screw plug	1	16±1.5N.m
6	1051453-003000	27.4×2.65 Acrylic O-ring	1	
7		M14×1.5 screw plug	1	12±1.5N.m
8	1051453-009000	13×2.8 Acrylic O-ring	1	

PROCEDURE:

●Use a 5# Allen wrench to remove three bolts (1), two bolts (3), and take off the crimping plate (4).

●Remove the waterproof rubber sleeve ① of the output wire of the magneto stator (2) from the left crankcase cover to remove the magneto stator (2).

●Clean the sealant on the joint surface.

●Use a 10# Allen wrench to remove the screw plug (5), and remove the sealing ring (6).

●Use a 5# Allen wrench to remove the screw plug (7), and remove the sealing ring (8).

CAUTION:

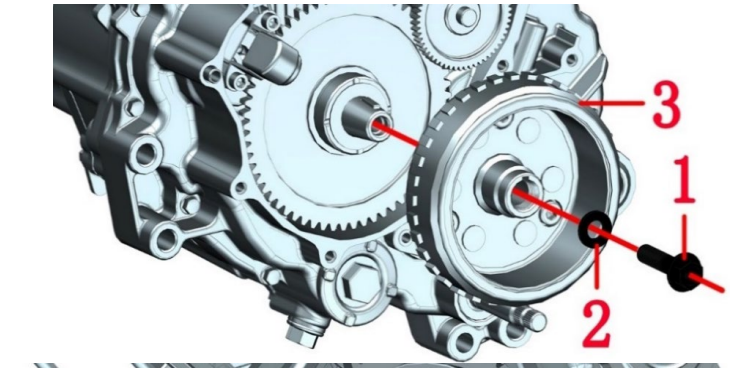
●When installing bolt (1) and bolt (3), evenly apply thread fastening glue on the threads.

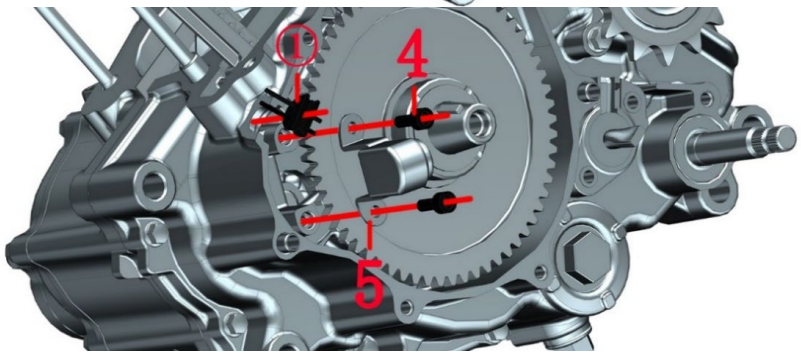
●The waterproof rubber sleeve on the output wire of the magneto stator ① should be assembled after applying sealant on the mounting joint surface.

●When installing the crimping plate (4), pay attention to the bolt (3) not to press on the wire to prevent short circuit or open circuit of the crimped wire.

●The screw plug (5) and the screw plug (7) can be removed when the valve timing needs to be adjusted. The position of the magneto rotor can be adjusted through the installation hole of the screw plug (7), and the position of the magneto rotor can be observed through the installation hole of the screw plug (7).

●It is recommended to replace the sealing ring (6) and the sealing ring (8) after disassembly to avoid oil leakage due to improper sealing.





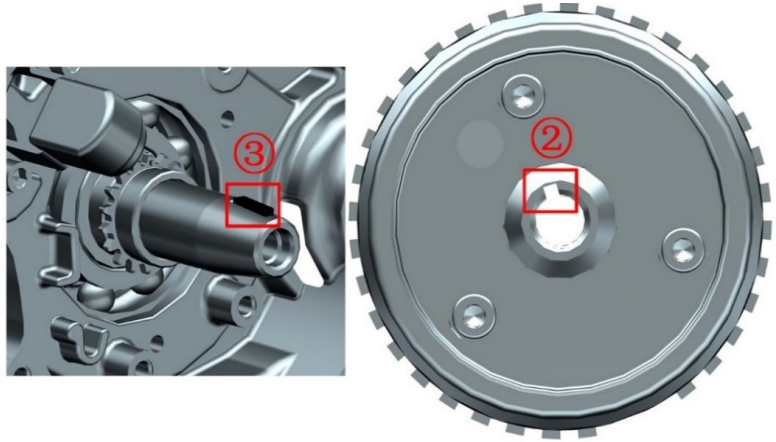


Fig.1 LEFT CRANKCASE ASSEMBLY		ZT158MJ magneto rotor, crankshaft position sensor	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251100-064094	M10×1.25×45 hex flange bolt(10.9 grade / black oxide)	1	60±5N.m
2	1251500-041000	10.3×20×2 gasket	1	
3	1051056-002000	ZT158MJ magneto rotor clutch parts	1	
4	1251201-001094	M5×15－5# Hexagon socket screw(oxidized black)	2	5±1.5N.m
5	1050956-001000	ZT158MJ crankshaft position sensor	1	

PROCEDURE:

●Fix the magneto rotor (3), use a 14# sleeve to remove the bolt (1), remove the washer (2), use M16, 1.5mm pitch, 40mm length to pull out the magneto rotor (3).

●Use a 5# Allen key to remove the two bolts (4), and remove the waterproof rubber sleeve ① on the crankshaft position sensor (5) line from the box, and then the crankshaft position sensor (5) can be removed.

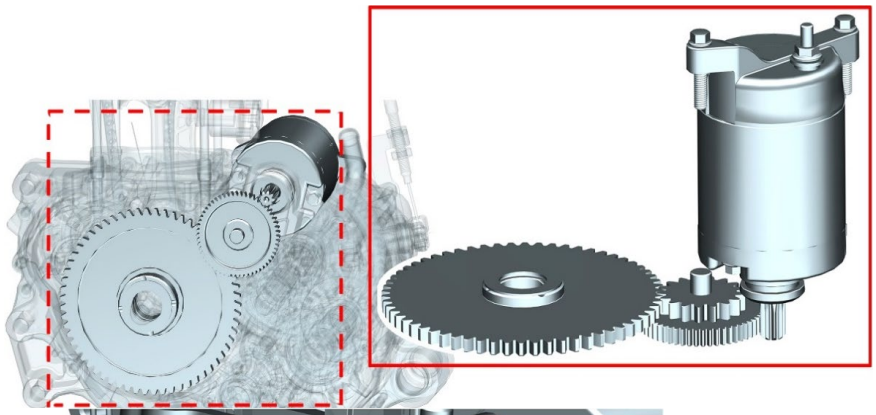
●Clean up the remaining sealant on the joint surface.

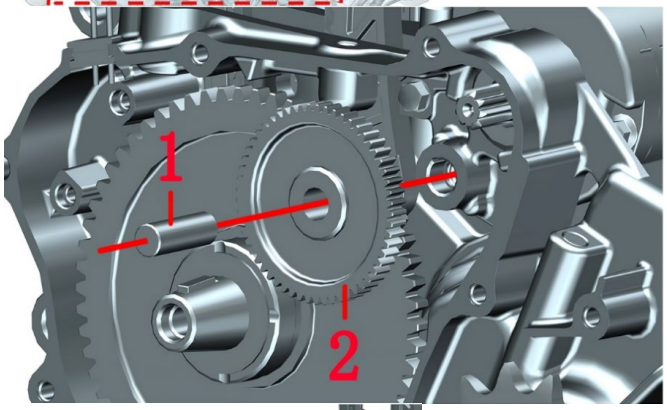
CAUTION:

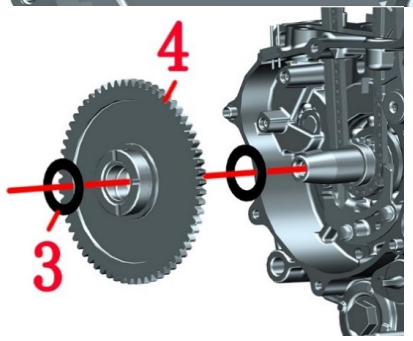
●When installing the bolt (4), apply thread fastening glue evenly on the thread.

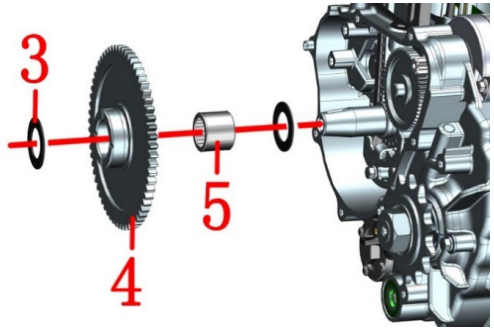
●The waterproof rubber sleeve on the crankshaft position sensor (5) line should be coated with sealant on the mounting joint surface.

●When installing the magneto rotor(3), the key slot ② should be aligned with the semicircular key ③ on the crankshaft.









Old New

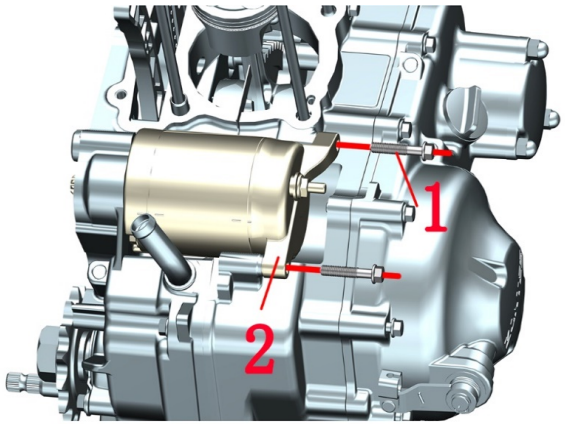
Fig.2 LEFT CRANKCASE ASSEMBLY		ZT158MJ electric starter assembly -1	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1051068-012000	ZT1P58MJ electric starter reduction gear shaft	1	
2	1051056-004000	ZT158MJ electric start reduction gear assembly	1	
3	1251512-025000	22.2×40×1 Thrust Washer	2	
4	1051056-007000	ZT158MJ electric start gear	1	
5	1251602-002000	K22×28×23 needle roller bearing	1	

PROCEDURE:

- Remove the reduction gear shaft (1) from the box body, and remove the reduction gear (2).
- Remove the washer(3), and then remove the large starting gear(4) and the other washer(3) from the crankshaft.

CAUTION:

- Subsequent old state will switch to new state.



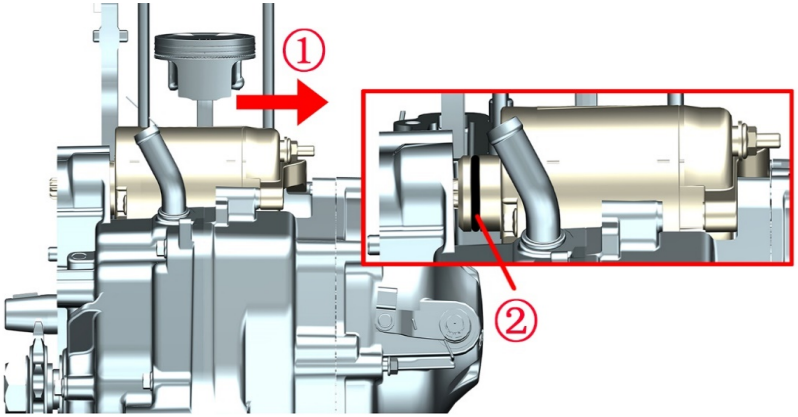


Fig.3 LEFT CRANKCASE ASSEMBLY		ZT158MJ electric starter assembly-2	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251112-002093	M6×30 Hexagon flange bolts(color zinc)	2	12±1.5N.m
2	1051056-005000	ZT158MJ starting motor parts	1	

PROCEDURE:

●Use 8#T rod sleeve to remove the two bolts (1).

●Push the starting motor (2) in the direction of arrow ① to remove it.

CAUTION:

●The starter motor (2) comes with a sealing ring ②, whether the NoteInspection is missing before installation.

●Before installing the starter motor (2), apply a proper amount of engine oil to the seal ring ② to make the installation smoother.

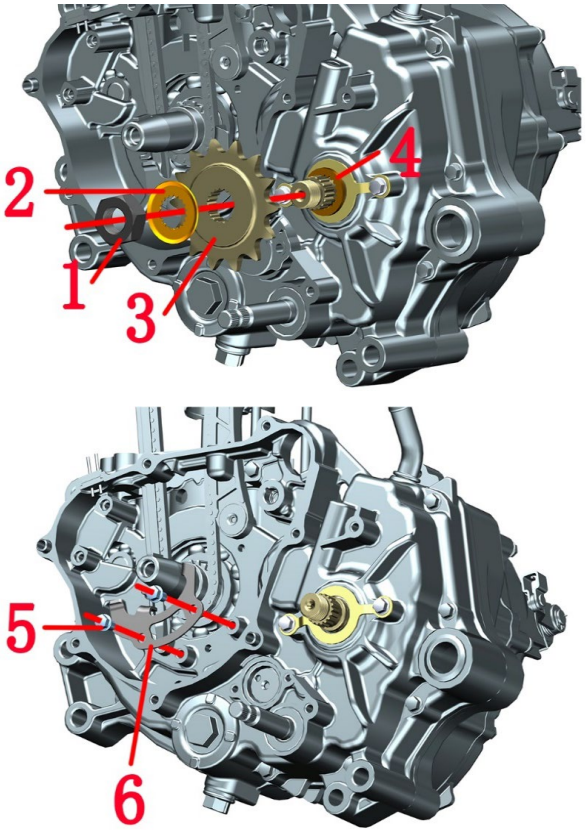


Fig.4 LEFT CRANKCASE ASSEMBLY		ZT158MJ Left crankshaft box assembly-1	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251300-033094	GN sprocket nut M16×1.5-6h(color zinc)	1	95±5N.m
2	1251500-088000	ZT158MJ sprocket lock gasket	1	
3	1050356-002000	ZT158MJ countershaft output sprocket	1	
4	1251500-089000	19Z×1M×37.5×3×φ28 involute spline washer	1	
5	1251100-067093	M6×10 top pin bolt(color zinc)	2	12±1.5N.m
6	1051256-003000	ZT158MJ Tension Guide Plate	1	

PROCEDURE:

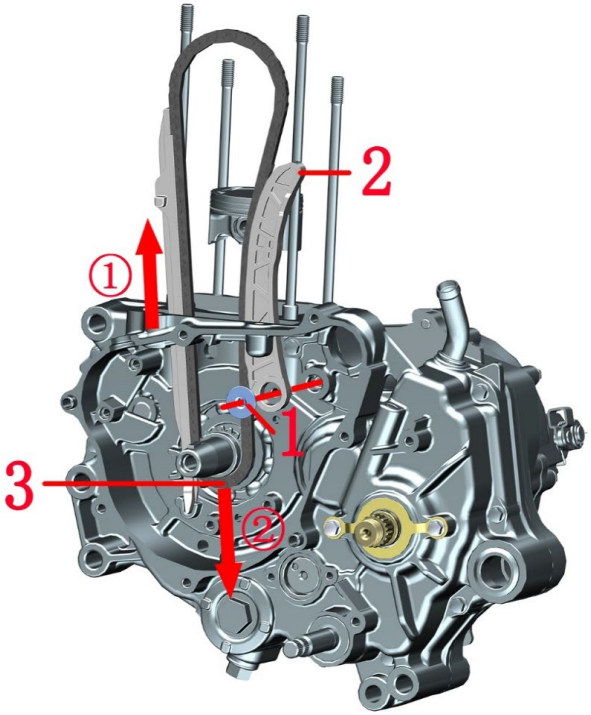
●Before disassembling the nut (1), first align the part of the washer (2) bent over the nut (1), then use a 27# sleeve to disassemble the nut (1), remove the washer (2), output sprocket (3) and spline washer (4).

●Use 8#T rod sleeve to remove the two bolts (5), and remove the pressure plate (6).

CAUTION:

●The output sprocket(3) is best to be disassembled on the whole vehicle. After using the brake to lock the rear wheel, you can directly use the tool to remove the nut(1).

●When installing bolts(5), apply proper amount of thread fastening glue evenly on the threads.



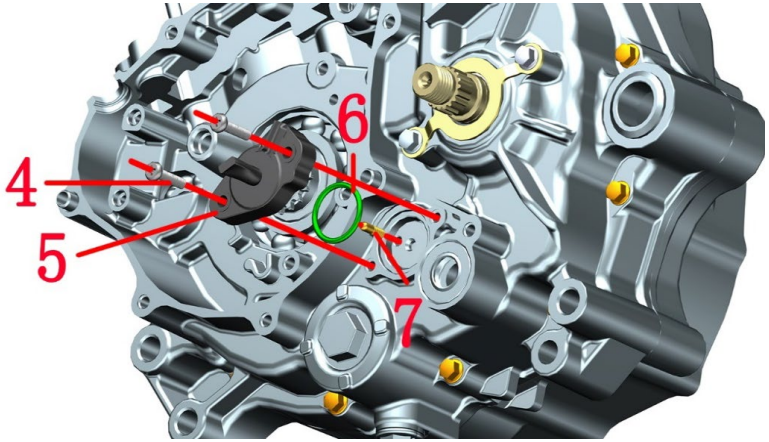


Fig.5 LEFT CRANKCASE ASSEMBLY		ZT158MJ Left crankshaft box assembly-2	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251100-165000	M6×16－13.8×8.7 pivot bolt	1	12±1.5N.m
2	1051256-001000	ZT158MJ Tension Strip	1	
3	1050156-005000	ZT158MJ timing chain 96 links SCZ-0404SV	1	
4	1250201-034093	GB818M5×20(environmental protection color)	2	
5	1050656-010000	ZT158MJ file display component	1	
6	1051454-011000	22.5×2.5 fluorine rubber O-ring	1	
7	1050654-007000	ZT180MN gear display contact assembly	1	

PROCEDURE:

●Use a 6# Allen key to remove the bolt (1), and remove the tension bar (2) in the direction of the arrow ①.

● Pull the toothed chain (3) in the direction of arrow ② to remove it.

●Use a cross batch to remove the two bolts (4), and remove the gear display assembly (5), sealing ring (6) and gear display contact assembly (7).

CAUTION:

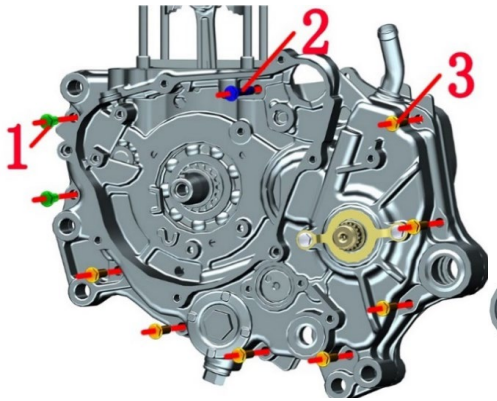
●When installing the bolts, apply a proper amount of thread fastening glue on the threads.

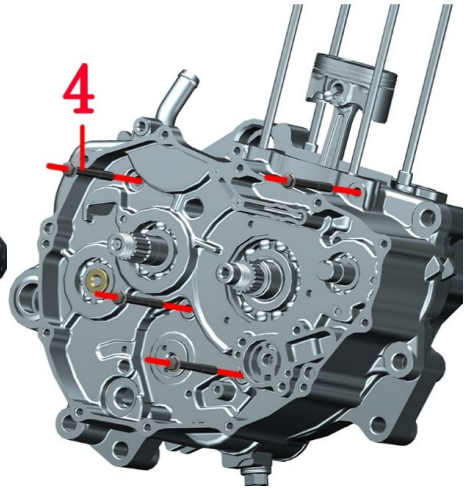
●The toothed chain(3) should mesh with the drive gear of the crankshaft during installation.

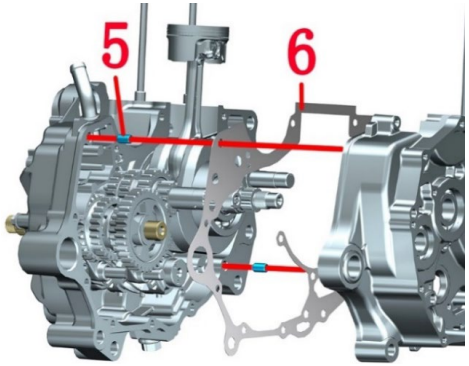
● Gear display contact assembly (7) When installing, the spring faces the engine side and needs to be sprayed with proper amount of oil for lubrication.

●The sealing ring (6) is recommended to be replaced after disassembly to avoid oil leakage due to poor sealing.

●When installing the gear display assembly (5), check whether the sealing ring is displaced, trimmed, etc., and confirm that there is no problem before tightening the bolt (5).







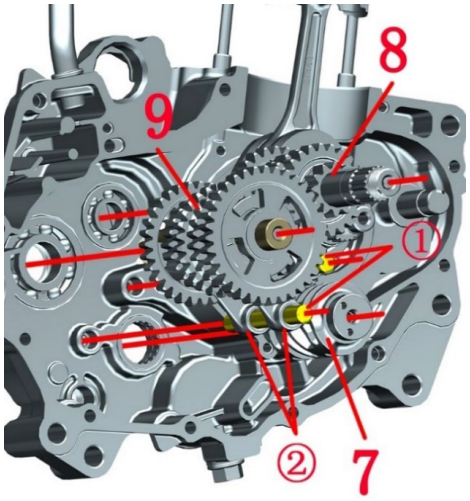


Fig.6 LEFT CRANKCASE ASSEMBLY		ZT158MJ Left crankshaft box assembly-3	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251112-002093	M6×30 Hexagon flange bolts(color zinc)	2	12±1.5N.m
2	1251112-005093	M6×75 hexagon flange bolts(color zinc)	1	
3	1251112-003093	M6×45 Hex flange surface 9.8 bolt(color zinc)	7	
4	1251112-004093	M6×60 Hexagon flange bolts(color zinc)	4	
5	1251401-001000	φ8×14 hollow positioning pin	2	
6	1051656-003000	ZT158MJ crankcase gasket	1	
7	1050656-012000	ZT158MJ transmission mechanism sub-components	1	
8	1050256-003000	ZT158MJ drive spindle sub-components	1	
9	1050256-004000	ZT158MJ transmission countershaft sub-components	1	

PROCEDURE:

●Use 8#T rod sleeve to remove two bolts(1), one bolt(2), and seven bolts(3) on the left box body.

●Use 8#T rod sleeve to remove the four bolts (4) on the right box.

●Place the box body upright, with the double-headed stud facing upwards, fix the left box body, use a rubber hammer to gently knock the right box body loose, then put the crankcase body on a clean non-woven fabric, the left crankshaft The box is on the bottom and the right crankcase is on the top. Remove the right crankcase.

●Remove the two positioning pins (5) and gasket (6) to remove the remaining sealant on the joint surface.

●Unplug the two fork shafts ① of the transmission mechanism sub-component (7), and remove the three shift forks ②, then the transmission mechanism sub-assembly (7), main shaft sub-component (8), and counter shaft sub-component (9) can be removed from the left case .

CAUTION:

●Do not damage the joint surface when the glue hammer hits the box.

●When the right box is removed, the main shaft sub-component (8) and the counter shaft sub-component (9) should be left on the left box.

●For the assembly relations of transmission mechanism sub-assembly (7), main shaft sub-assembly (8), counter shaft sub-assembly (9), crankshaft, and balance shaft, see page 43.

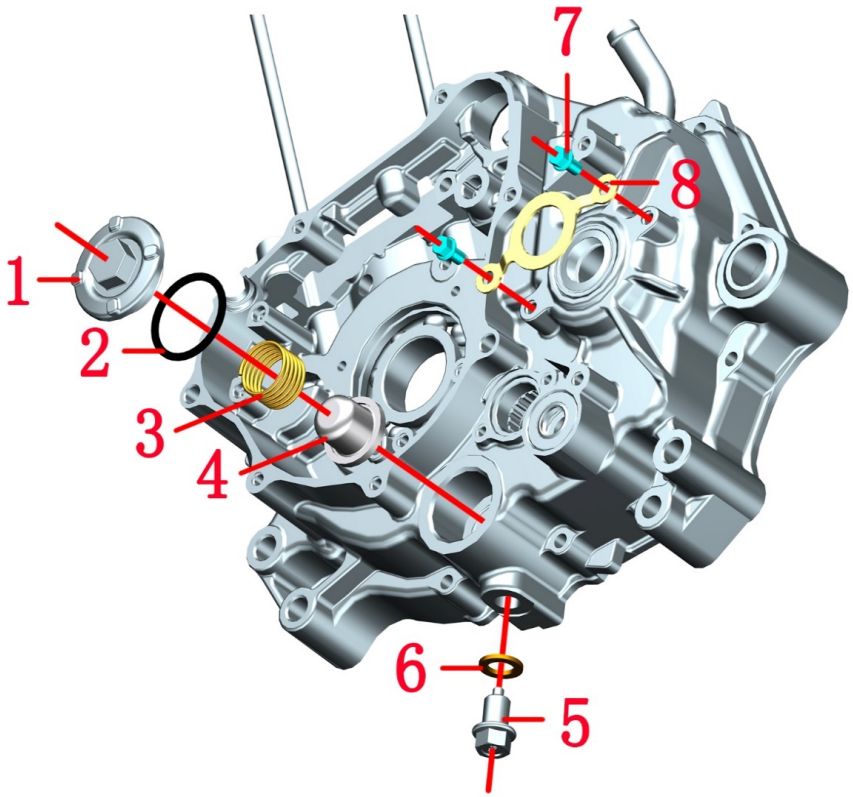


Fig.7 LEFT CRANKCASE ASSEMBLY		ZT158MJ Left crankshaft box assembly-4	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251112-002093	M6×30 Hexagon flange bolts(color zinc)	2	12±1.5N.m
2	1251112-005093	M6×75 hexagon flange bolts(color zinc)	1	
3	1251112-003093	M6×45 Hex flange surface 9.8 bolt(color zinc)	7	
4	1251112-004093	M6×60 Hexagon flange bolts(color zinc)	4	
5	1251401-001000	φ8×14 hollow positioning pin	2	
6	1051656-003000	ZT158MJ crankcase gasket	1	
7	1050656-012000	ZT158MJ transmission mechanism sub-components	1	
8	1050256-003000	ZT158MJ drive spindle sub-components	1	

PROCEDURE:

●Use a 24# sleeve to disassemble the coarse filter cover (1), and remove the sealing ring (2), spring (3), and coarse filter (4).

●Use a 14# sleeve to remove the oil drain bolt (5), and remove the combined sealing gasket (6).

●Use 8#T rod sleeve to remove the two bolts (7) and remove the oil seal cover (8).

CAUTION:

●It is recommended to replace the sealing ring (2) and the combined sealing gasket (6) after disassembly to avoid oil leakage due to improper sealing.

●After removing the coarse filter, wipe it with a clean, lint-free dry cloth, and no debris can be left behind.

(7)When installing the bolts, the threads should be evenly coated with appropriate thread fastening glue.

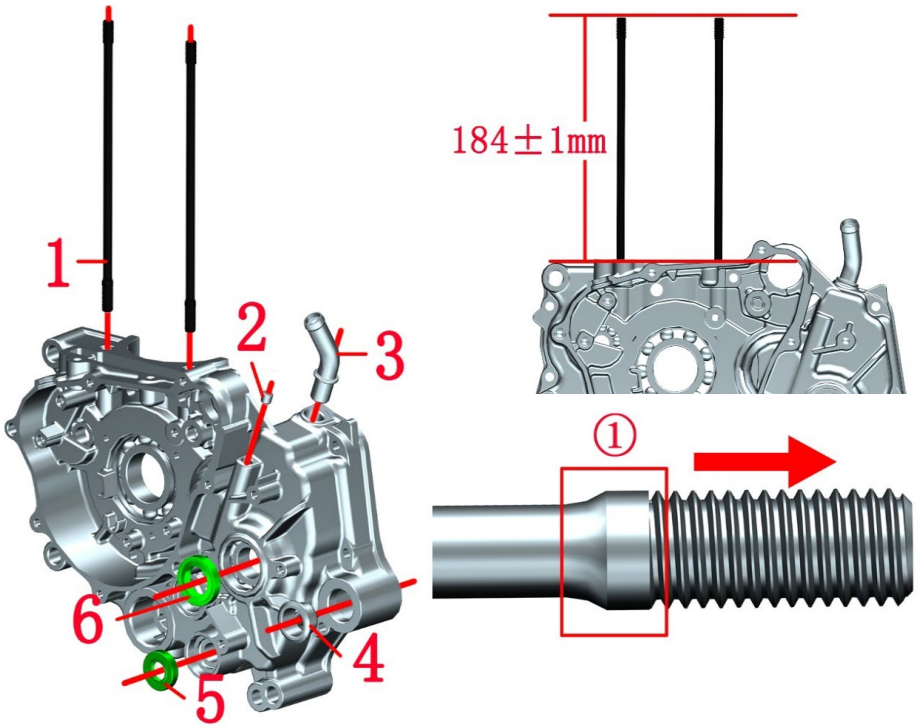


Fig.8 LEFT CRANKCASE ASSEMBLY		ZT158MJ Left crankshaft box assembly-5	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251112-002093	M6×30 Hexagon flange bolts(color zinc)	2	12±1.5N.m
2	1251112-005093	M6×75 hexagon flange bolts(color zinc)	1	
3	1251112-003093	M6×45 Hex flange surface 9.8 bolt(color zinc)	7	
4	1251112-004093	M6×60 Hexagon flange bolts(color zinc)	4	
5	1251401-001000	φ8×14 hollow positioning pin	2	
6	1051656-003000	ZT158MJ crankcase gasket	1	

PROCEDURE:

●Double-headed studs are generally not disassembled. For disassembly, weld an M8 nut on the exposed end and then unscrew it with a sleeve.

●The oil plug (2) is generally not disassembled. If it needs to be disassembled, use a drill to destroy it and then take it out.

●The vent pipe(3) is generally not disassembled. If it needs to be disassembled, use a small hammer to slowly loosen it, and then pull it out.

●Use a single-type batch to directly eject the lifting hole bushing (4) at the other end.

●The oil seal (5) and oil seal (6) can be removed directly.

CAUTION:

●Double-ended studs(1) One end with boss faces the box, as shown in ① in the figure.

●Double-headed stud (1)After driving into the box, the height of the top relative to the joint surface is 84±1mm.

●Double-headed stud (1)Generally, it is not disassembled. If it must be removed, a new double-headed stud should be replaced. When installing double-ended studs, apply a proper amount of thread fastening glue evenly on the threads.

●Snorkel (3) When installing, apply sealant evenly on the joint surface.

●Double-headed studs(1), oil plug(2), and vent pipe(3) are all dismantled and discarded. When disassembling the vent pipe(3), be careful to break in the box.

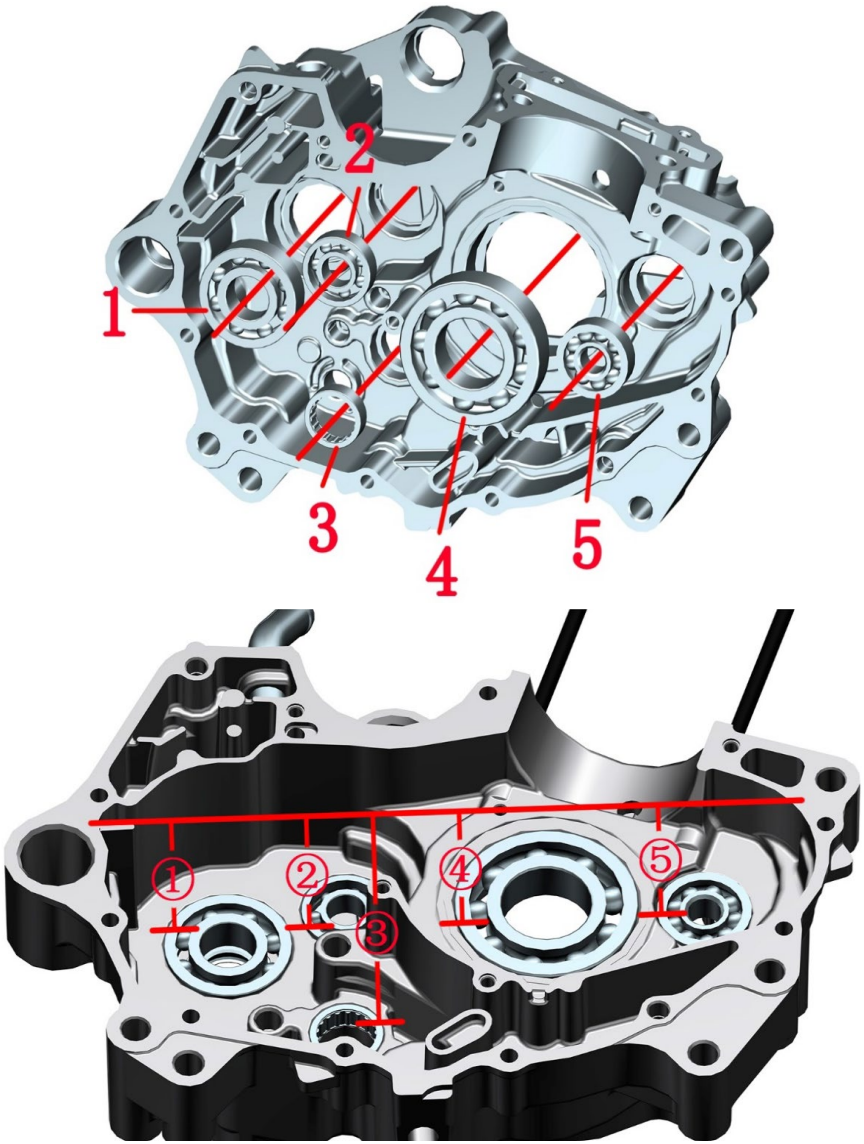


Fig.9 LEFT CRANKCASE ASSEMBLY		ZT158MJ Left crankshaft box assembly-6	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1250601-097000	GB276－62/22RS/P6 deep groove ball bearing	1	
2	1250601-036000	GB276－6202RS/P6 deep groove ball bearing(nitride)	1	
3	1250602-020000	HK222910 needle roller bearings	1	
4	1250601-060000	GB276-6207/P5C3 deep groove ball bearing	1	
5	1251601-001000	63/13/P5 deep groove ball bearing(6301/13 nitriding)	1	old
	1250601-098000	GB276－6202RS/P5 deep groove ball bearing (nitriding)		new

CAUTION:

●Bearings are all press-fit, disassembly is not recommended.

●The depth of the bearing compared to the joint surface of the box is shown in the figure and the data below, unit: mm

①57.9(0~+0.1)

②58.1(0~+0.1)

③47.5(0~+0.1)

④27.25(0~+0.1)

⑤32.25(0~+0.1)

●Please confirm te original bearing model on the engine before purchasing the bearing 5,and then place an order to purchase it ,The two are not compatible.

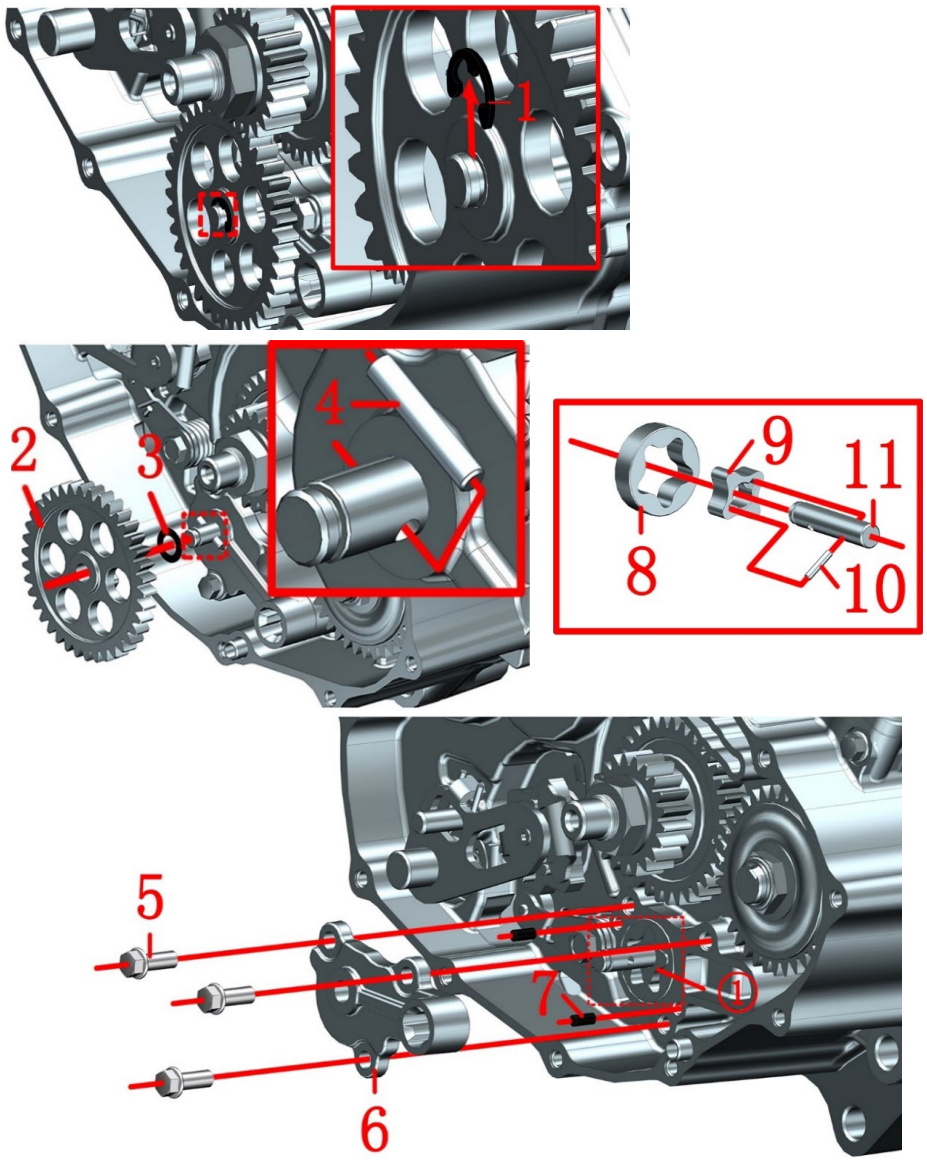


Fig.1 RIGHT CRANKCASE ASSEMBLY		ZT158MJ oil pump assembly	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1		Φ6 open retaining ring	1	Not for sale
2	1050356-001000	ZT158MJ oil pump driven gear	1	
3		8.2×14×0.5 thrust washer	1	Not for sale
4		Needle roller 12×2.5	1	
5	1251112-001093	M6×16 hexagon flange bolts(color zinc)	3	12±1.5N.m
6		ZT158MJ oil pump cover	1	Not for sale
7	1250404-004000	GB119.2φ4×10 cylindrical pin	2	
8		JBZ29×8.2 outer rotor	1	Not for sale
9		JBZ29×8.2 inner rotor	1	
10		Needle roller 16×3	1	
11		ZT158MJ oil pump shaft	1	
12	1050856-001000	ZT158MJ oil pump assembly	1	After sales

PROCEDURE:

●Use needle-nose pliers to clamp out the retaining ring (1), and remove the oil pump driven gear (2), washer (3), and needle (4).

●Use 8#T rod sleeve to remove three bolts (5), take off the oil pump cover plate (6) and two cylindrical pins (7).

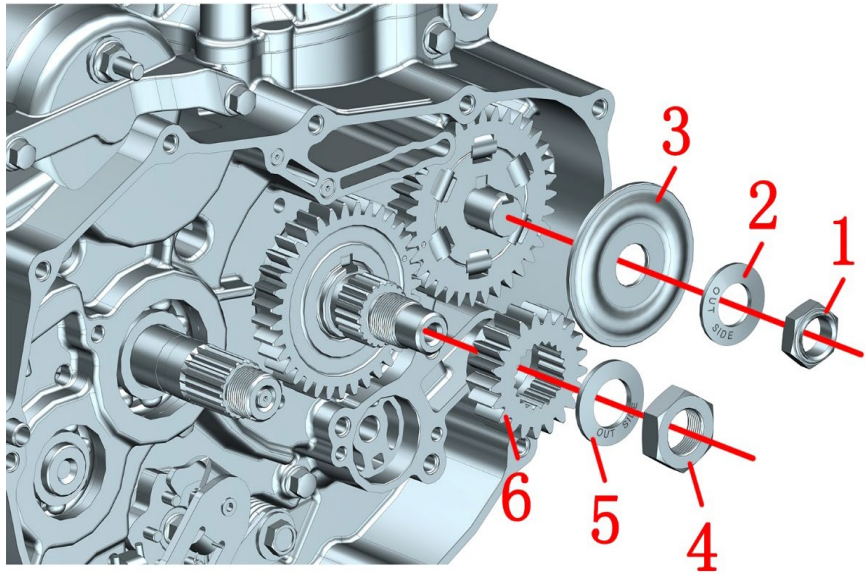
●Remove the oil pump shaft (11) and outer rotor (8) from the box, remove the inner rotor (9) from the oil pump shaft, and pull out the needle (10).

CAUTION:

●The side of the outer rotor (8) with marking points faces the engine.

●When assembling the oil pump, spray proper amount of oil on each part.

●The oil pump parts are not sold separately. If you need to replace the oil pump, please purchase the 1050856-001000 ZT158MJ oil pump assembly.



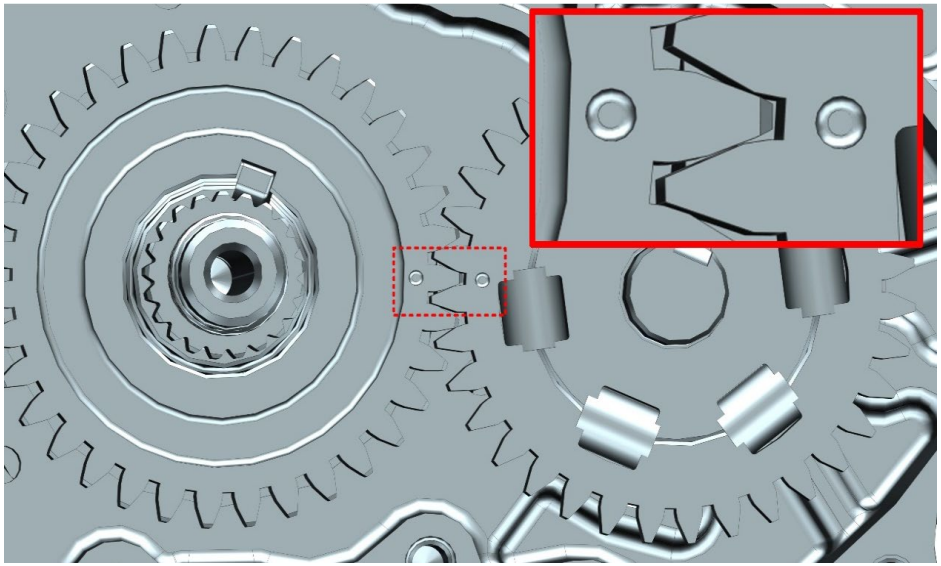


Fig.2 RIGHT CRANKCASE ASSEMBLY		ZT158MJ balance shaft assembly-1	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251311-004094	M14×1 Hexagon Thin Lock Nut(oxidized black)	1	70±10N.m
2	1251514-001000	14.2×27×2.1×1.5 lock washers	1	
3	1050556-001000	ZT158MJ balance shaft gear cover	1	
4	1251311-001094	M16×1 Hexagon Thin Nut(oxidized black)	1	95±10N.m
5	1251514-002000	16.2×28×2.4×2 lock washers	1	
6	1050356-014000	ZT158MJ primary drive gear	1	

PROCEDURE:

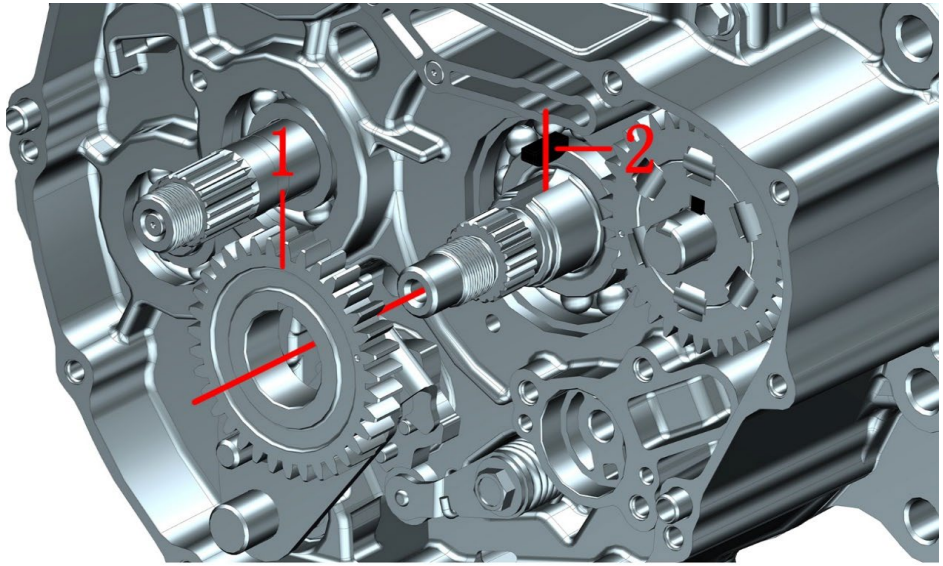
●Use a 19# sleeve to disassemble the nut(1), and remove the lock washer(2) and the cover(3).

●Use a 24# sleeve to disassemble the nut (4), remove the lock washer (5) and the primary drive gear (6).

CAUTION:

●The lock washer is literally facing the nut.

●Note The meshing of the balance shaft drive gear and the balance shaft gear needs to point to point, with the dotted surface facing the nut, as shown in the figure.



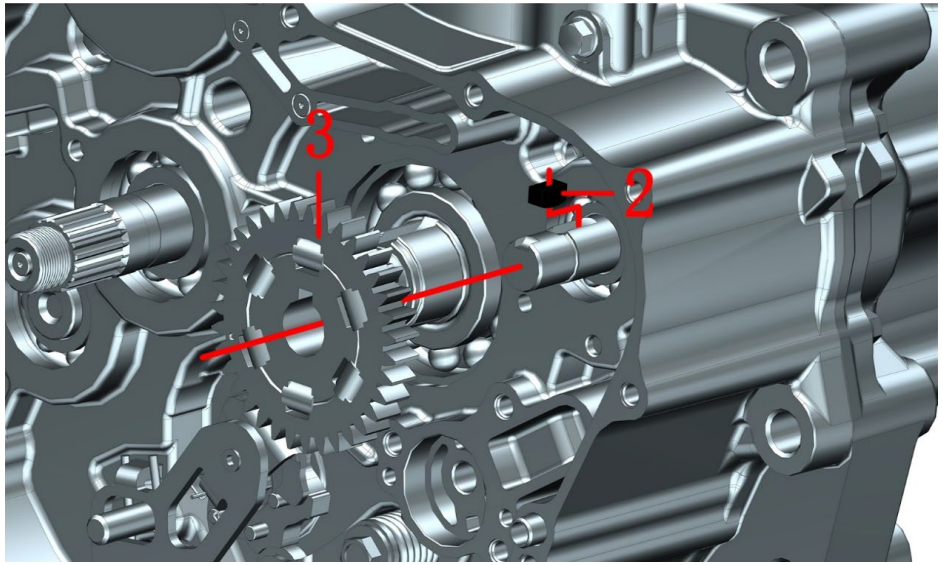
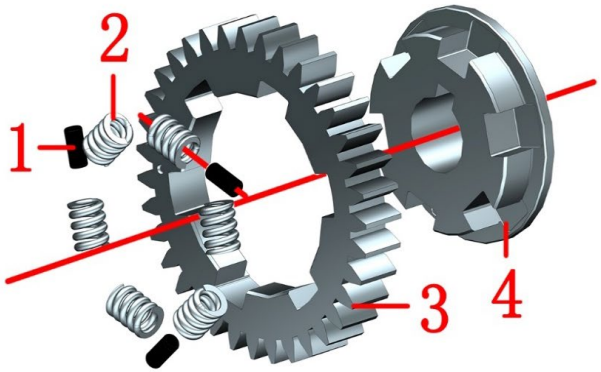


Fig.3 RIGHT CRANKCASE ASSEMBLY		ZT158MJ balance shaft assembly-2	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1050356-013000	ZT158MJ balance shaft drive gear	1	
2	1251802-004000	5×5.5×26×9 half-round key	1	
3	1050556-004000	ZT158MJ balance shaft gear assembly assembly	1	

PROCEDURE:

●Pull out the balance shaft drive gear (1) from the crankshaft, and remove the half-circle key (2).

●Remove the balance shaft gear(3) from the balance shaft, and remove the half-circle key(2).



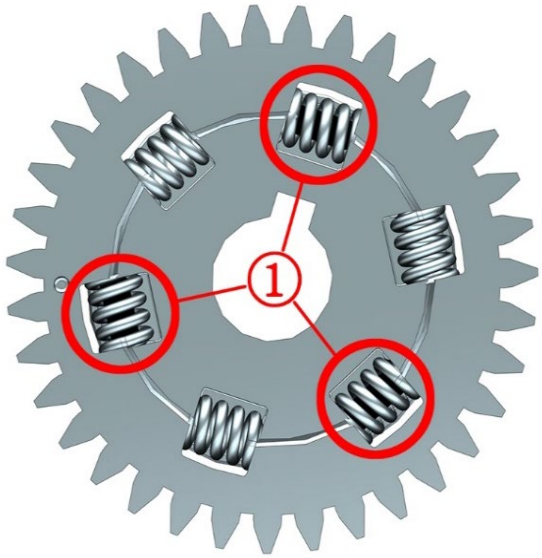


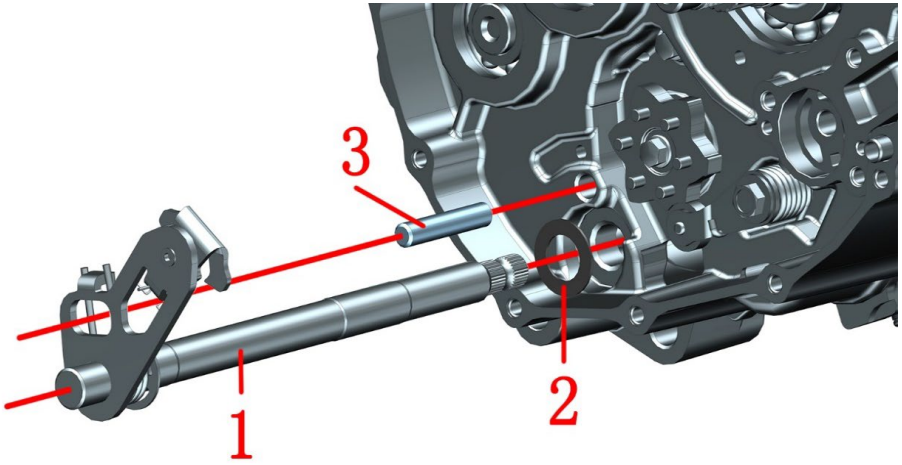
Fig.4 RIGHT CRANKCASE ASSEMBLY		ZT158MJ balance shaft gear assembly -1	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1		ZT154FMI balance shaft tooth buffer spring column	3	Not for sale
2		ZT158MJ balance shaft buffer spring	6	
3		ZT158MJ balance shaft gear	1	
4		ZT158MJ balance shaft tooth skeleton	1	After sales assembly
5	1050556-004000	ZT158MJ balance shaft gear assembly assembly	1	

PROCEDURE:

●Take off the frame (4) directly, you can remove all the buffer spring posts (1) and buffer spring (2).

CAUTION:

●A total of six springs (2), three buffer spring posts, every other spring (2) install a buffer spring post (1), as shown in the figure ①.



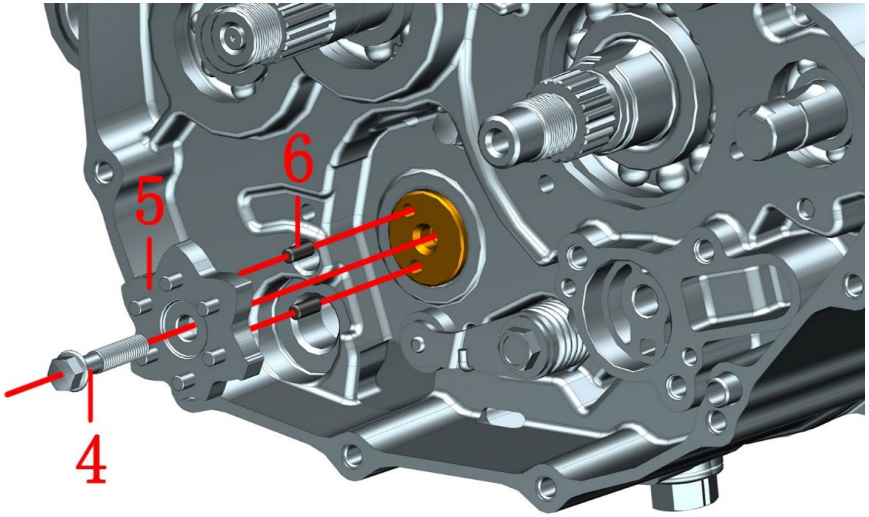


Fig.5 RIGHT CRANKCASE ASSEMBLY		ZT158MJ shift mechanism assembly-1	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1050656-004000	ZT158MJ shift shaft sub-assembly	1	
2	1251512-009000	φ15.2×φ25×1 thrust washer	1	
3	1050656-005000	ZT158MJ shift lever limit spring column	1	
4	1251112-002093	M6×30 hexagon flange bolts(environmental protection color zinc)	2	12±1.5N.m
5	1050651-003000	ZT154FMI shift star cam subassembly	1	
6	1250404-004000	GB119.2φ4×10 cylindrical pin	2	

PROCEDURE:

●Pull out the shift shaft sub-assembly (1) directly, and remove the washer (2) and the spring post (2).

●Use 8#T rod sleeve to remove bolt (4), remove the shift star cam sub-assembly and cylindrical pin (6).

CAUTION:

●Cylinder pin (6)Note do not fall into the engine box.

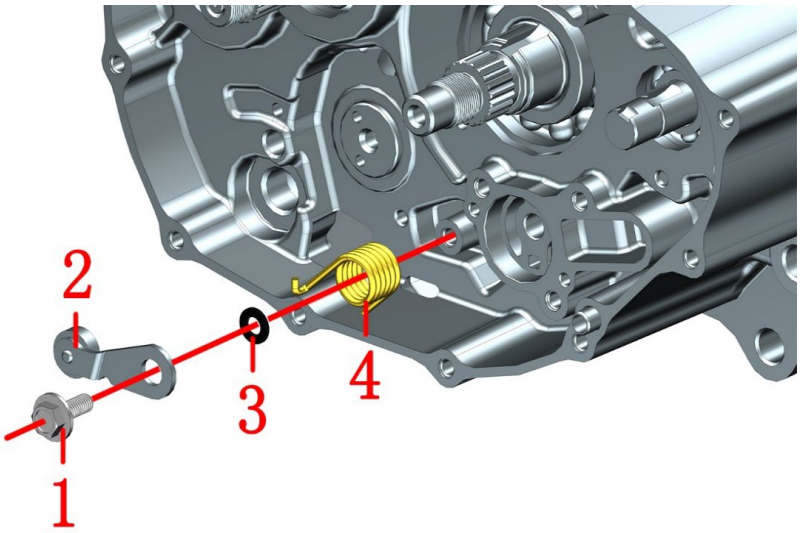
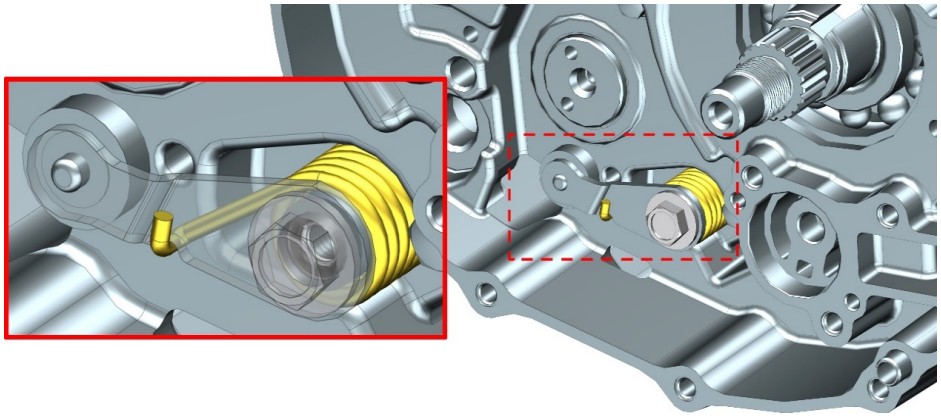


Fig.6 RIGHT CRANKCASE ASSEMBLY		ZT158MJ shift mechanism assembly-2	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251100-068093	M6×14-9×2.6 pivot bolt(color zinc)	1	12±1.5N.m
2	1050656-014000	ZT158MJ stopper(NMB R-1450ZZ bearing)	1	
3	1251500-091000	φ6.3×φ12×1 thrust washer	1	
4	1260100-246000	ZT158MJ limit stop wheel torsion spring	1	



PROCEDURE:

●Use 10#T rod sleeve to remove bolt (1), remove stopper (2), washer (3), torsion spring (4).

CAUTION:

● Bolt (1) When installing, apply thread fastening glue evenly on the threads.

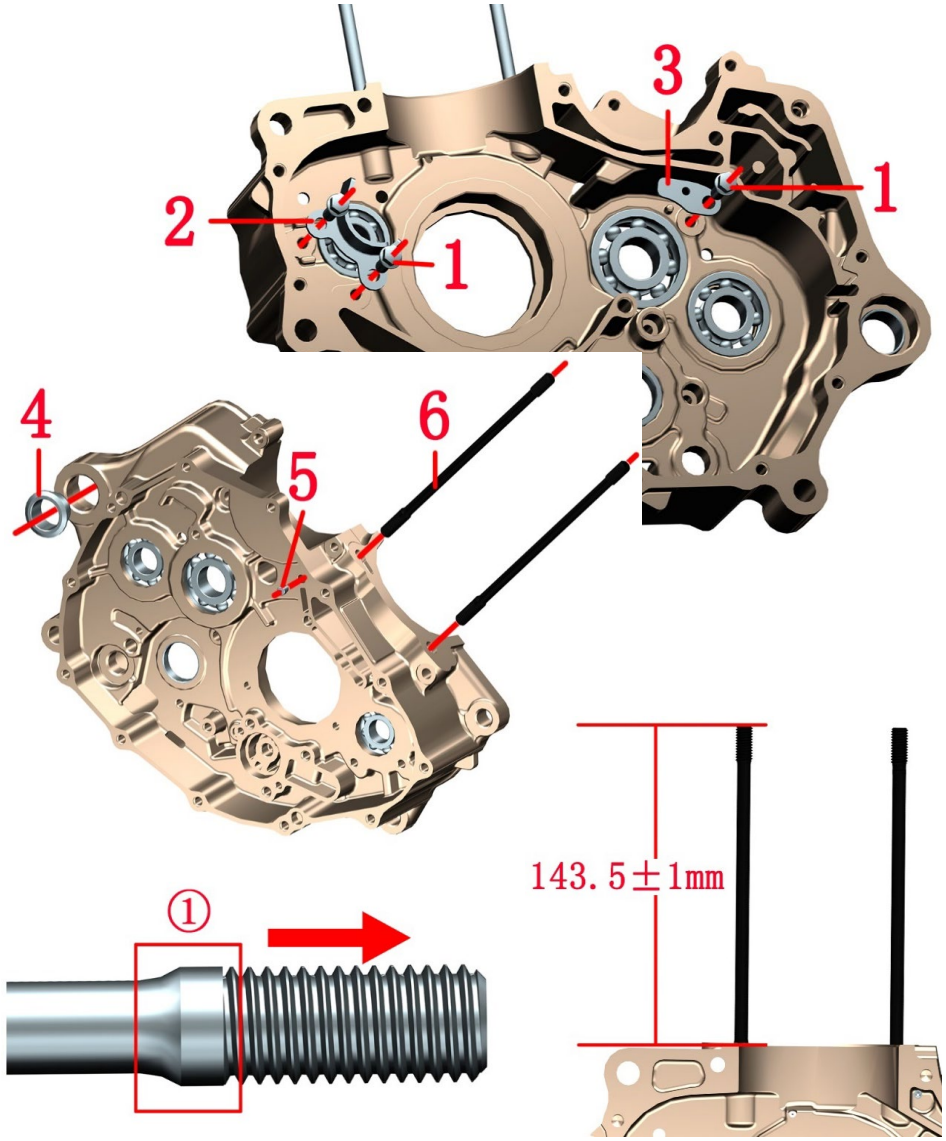


Fig.7 RIGHT CRANKCASE ASSEMBLY		ZT158MJ Right crankshaft box assembly-1	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1251112-001093	M6×16 hexagon flange bolts(color zinc)	3	12±1.5N.m
2	1051356-013000	ZT158MJ right box balance shaft bearing pressure plate	1	
3	1051356-006000	ZT158MJ spindle bearing pressure plate	1	
4	1051353-014000	ZT173YMM rear hoisting hole bushing(single rocker arm)	1	
5	1051754-001000	1.0×5.5×6 oil pin	1	
6	1251111-008000	YM8×1.25－M8×1.25×166 double-ended stud	2	20±2N.m

PROCEDURE:

●Use 8#T rod sleeve to remove the two bolts (1), and remove the pressure plate (2).

●Use 8#T rod sleeve to remove a bolt (1), and remove the pressure plate (3).

●Use a single-type batch to directly eject the lifting hole bushing (4) at the other end.

●The oil pin (5) is generally not disassembled. If it needs to be disassembled, use a drill to destroy it and then take it out.

●Double-headed stud (6) is generally not disassembled. If it needs to be disassembled, weld an M8 nut on the exposed end and then unscrew it with a sleeve.

CAUTION:

●Three bolts(1) When installing, apply thread fastening glue evenly on the threads.

●Double-headed stud (6) one end with boss faces the box, as shown in ① in the figure.

●After the double-headed stud (6) is driven into the box, the height of the top relative to the joint surface is 143.5±1mm.

●Double-headed studs (6) generally do not disassemble, if it must be removed, new double-headed studs must be replaced. When installing double-ended studs, apply a proper amount of thread fastening glue evenly on the threads.

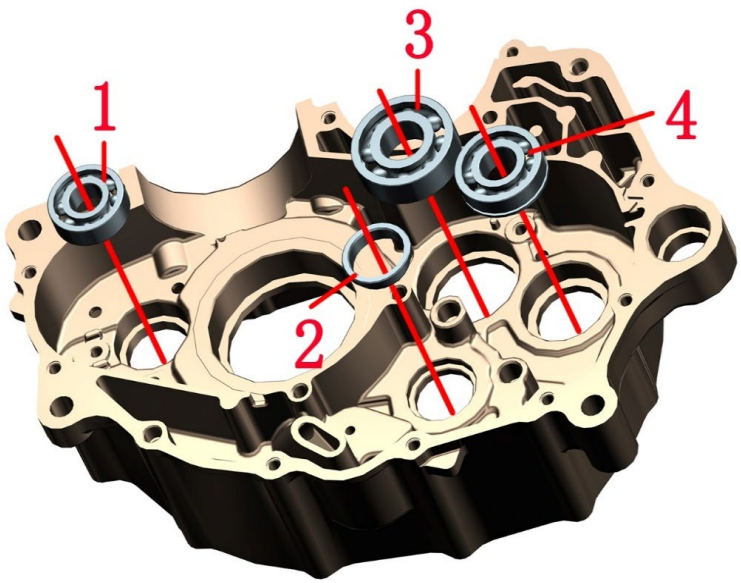


Fig.8 RIGHT CRANKCASE ASSEMBLY		ZT158MJ Right crankshaft box assembly-2	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1250601-098000	GB276-6202/P5 deep groove ball bearing(nitriding)	1	
2	1250601-099000	6705 thin wall bearing(P6)	1	
3	1250601-043000	GB276-6204/P6 deep groove ball bearing	1	
4	1250601-039000	GB276－6203/P6 deep groove ball bearing	1	

CAUTION:

●Bearings are all press-fit, disassembly is not recommended.

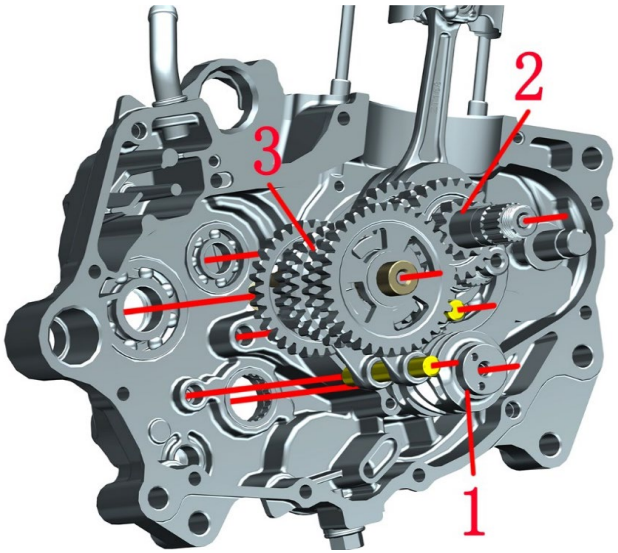
●The depth of the bearing compared to the joint surface of the box is shown in the figure and the data below, unit: mm

①32.45(0~+0.1)

②28.5(0~+0.1)

③44.7(0~+0.1)

④44.7(0~+0.1)



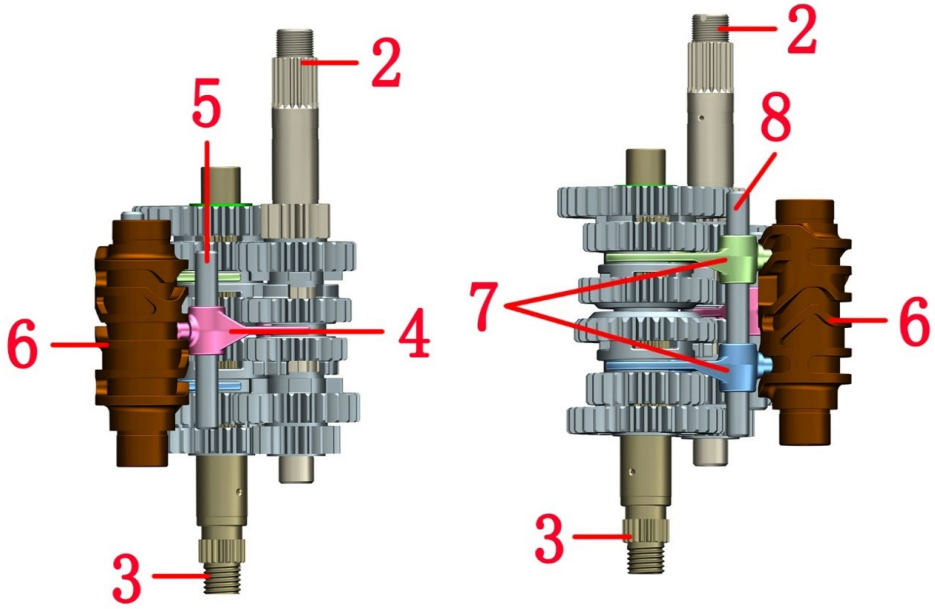


Fig.1 TRANSMISSION ASSEMBLY		Gear shifting and transmission mechanism components-1	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1		ZT158MJ transmission mechanism sub-components	1	
2	1050256-003000	ZT158MJ drive spindle sub-components	1	
3	1050256-004000	ZT158MJ transmission countershaft sub-components	1	
4	1050656-001000	ZT158MJ variable speed spindle fork	1	
5	1050651-006000	ZT154FMI variable speed spindle fork shaft	1	
6	1050656-003000	ZT158MJ shift drum	1	
7	1050656-002000	ZT158MJ shift fork	2	
8	1050656-011000	ZT158MJ shift fork shaft	1	

PROCEDURE:

●Remove the main shaft shifting shaft (5) and the counter shaft shifting shaft (8) of the transmission mechanism sub-component (1), remove the main shaft shifting fork (4) and the two counter shaft shifting forks (7), then the transmission mechanism can be divided into components (1), main shaft sub-components (2) , The secondary shaft sub-component(3) remove from the left box.

CAUTION:

●When installing the shift fork, the side with letters on the shift fork faces the right crankcase.

● One end of the spindle shift fork is placed in the slot of the third and fourth gears of the spindle, and the other end is placed in the groove of the transmission drum profile. The specific position is shown in Picture.

●The countershaft shift fork near the right crankcase is placed in the countershaft fifth gear slot, and the countershaft shift fork near the left crankcase is placed in the countershaft sixth gear slot.

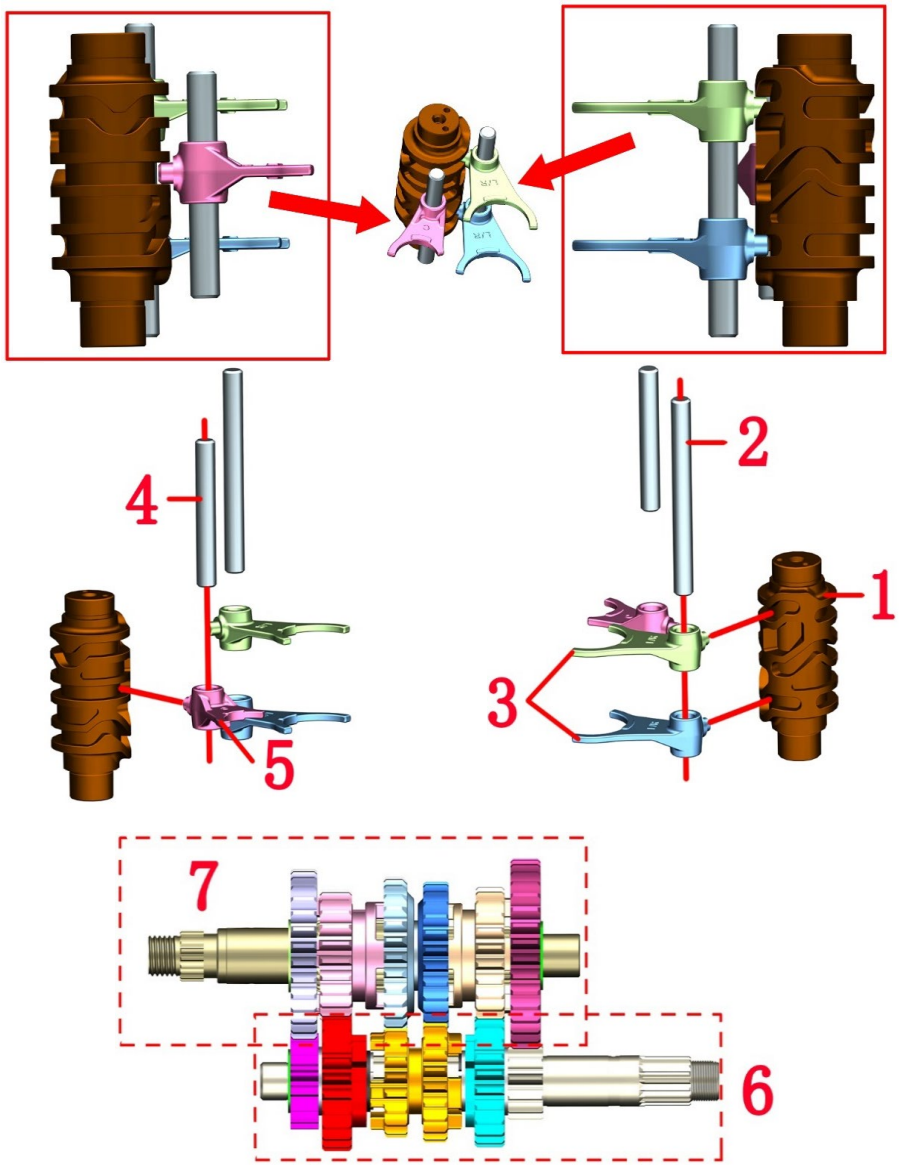


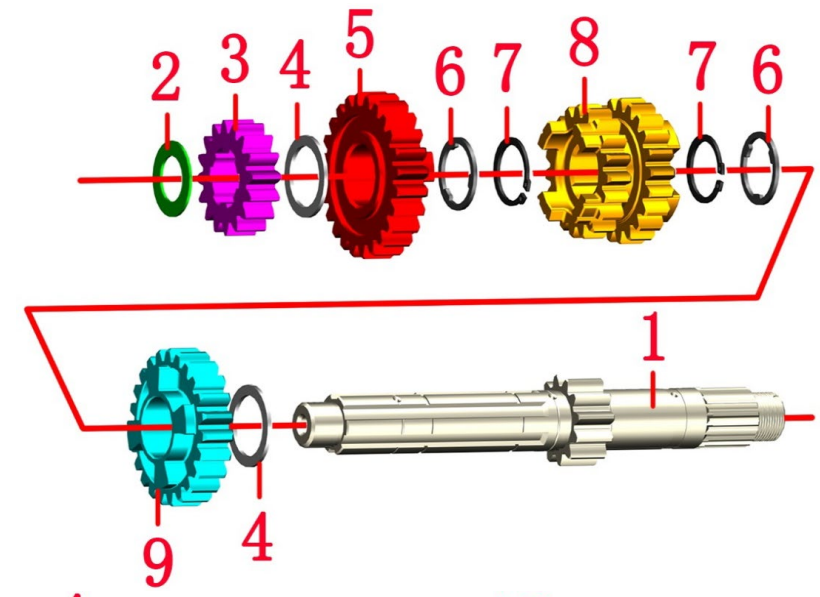
Fig.2 TRANSMISSION ASSEMBLY		Gear shifting and transmission mechanism components-2	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1050656-003000	ZT158MJ shift drum	1	
2	1050656-011000	ZT158MJ shift fork shaft	1	
3	1050656-002000	ZT158MJ shift fork	2	
4	1050651-006000	ZT154FMI variable speed spindle fork shaft	1	
5	1050656-001000	ZT158MJ variable speed spindle fork	1	
6	1050256-003000	ZT158MJ drive spindle sub-components	1	
7	1050256-004000	ZT158MJ transmission countershaft sub-components	1	

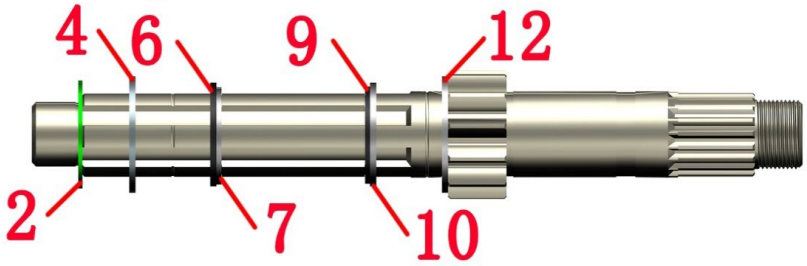
PROCEDURE:

- Pull out the countershaft fork shaft (2), and remove the countershaft fork (3).
- Pull out the spindle (4), and remove the spindle (5).
- Remove the variable speed drum (1) from the box.

CAUTION:

- When assembling the shift fork, first assemble the spindle shift fork (5), then assemble the gear shift drum (1), and then insert the spindle shift fork shaft (4).
- The gear matching relationship between the main shaft sub-component (6) and the counter shaft sub-component (7) is shown in the figure.





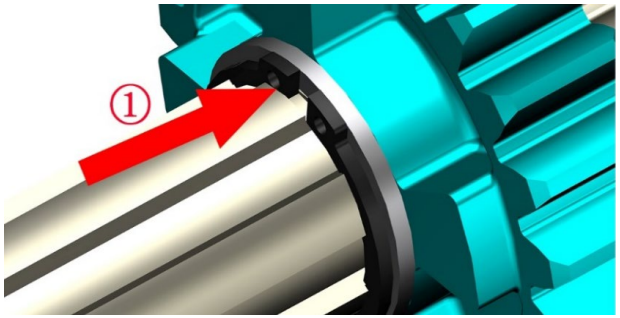


Fig3 TRANSMISSION ASSEMBLY		Gear shifting and transmission mechanism components-3	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1		ZT158MJ drive spindle	1	Not for sale
2		15.2×25×1.0 Thrust Washer	1	
3		ZT158MJ main shaft second gear	1	
4		20.2×27×1.5 Thrust Washer	2	
5		ZT158MJ main shaft six-speed gear	1	
6		6×17×20×5×1.5×24 rectangular spline washer	2	
7		GB894.1 Circlip for shaft φ20×1.2	2	
8		ZT158MJ main shaft third and fourth gear	1	
9		ZT158MJ main shaft five-speed gear	1	

PROCEDURE:

●As shown in the picture, remove the washer (2), gear (3), washer (4), gear (5), washer (6) in sequence, use circlip pliers to remove the retaining ring (7), remove the gear (8), and again use circlip pliers to remove the other retaining ring (7), remove washer (6), gear (9) and washer (4).

CAUTION:

●Do not install the gear in the reverse direction, the specific direction is shown in Picture.

●The opening retaining ring must be stuck in the card slot, as shown in Picture ①.

●If the main shaft is removed from the engine and stored, the main shaft components should be sprayed with oil evenly and kept sealed.

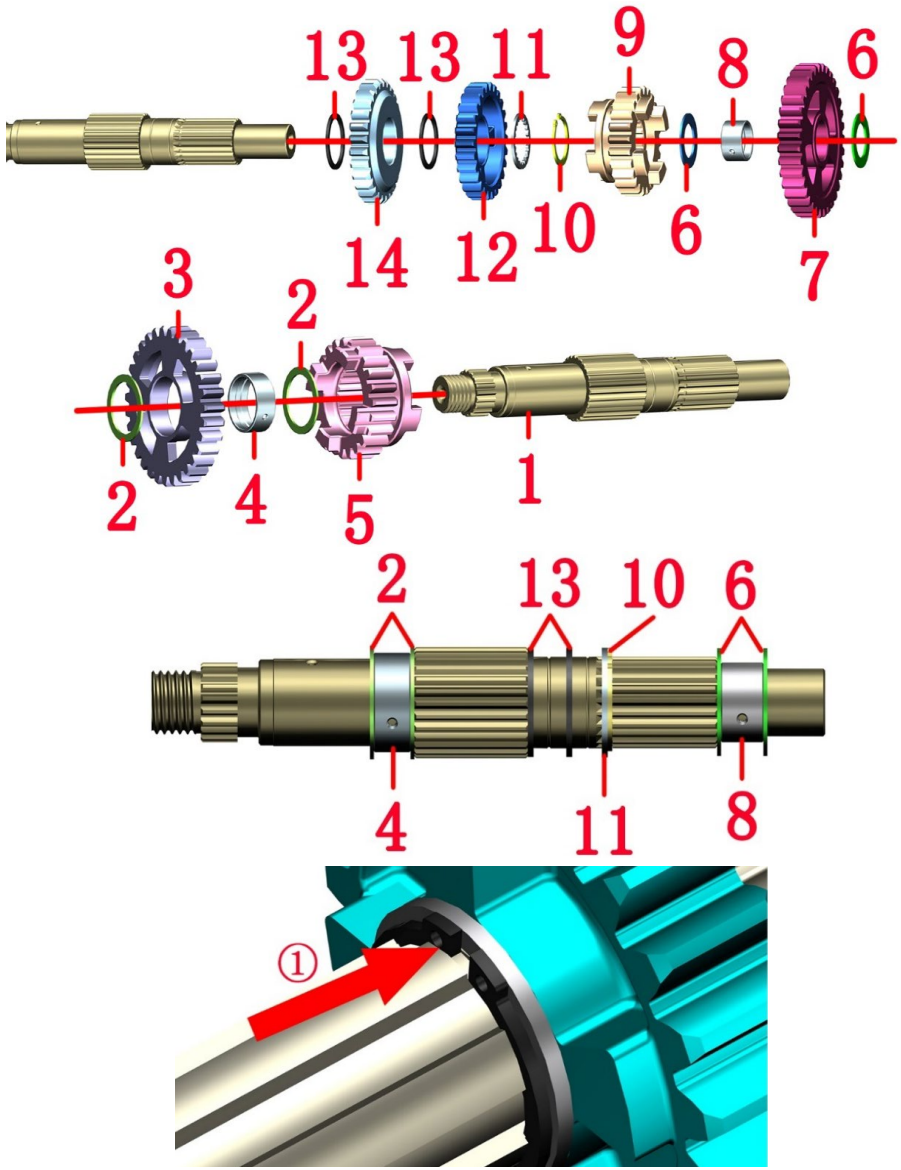


Fig4 TRANSMISSION ASSEMBLY		Gear shifting and transmission mechanism components-4	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1		ZT158MJ transmission countershaft	1	Not for sale
2		φ22.2×φ28.5×1 thrust washer	2	
3		ZT158MJ secondary shaft second gear	1	
4		ZT158MJ secondary shaft second gear sleeve	1	
5		ZT158MJ counter shaft six-speed gear	1	
6		17.2×27×1 Thrust Washer	2	
7		ZT158MJ counter shaft first gear	1	
8		ZT158MJ counter shaft first gear sleeve	1	
9		ZT158MJ counter shaft fifth gear	1	
10		Circlip for 22×1.2 shaft 90602-SR150	1	
11		22Z×1M×37.5×1.5×27.5 involute spline washer	1	
12		ZT158MJ counter shaft four-speed gear	1	
13		φ23.2×φ27.5×1.5 thrust washer	3	
14		ZT158MJ counter shaft third gear	1	

PROCEDURE:

●As shown in the figure, starting from the output sprocket end, remove the washer (2), gear (3), bushing (4), washer (2), gear (5) in sequence.

●Remove washer (6), gear (7), shaft sleeve (8), washer (6), gear (9), retaining ring (10), washer (11), gear (12), washer (13), gear (14), washer (13).

CAUTION:

●Do not install the gear in the reverse direction, the specific direction is shown in Picture.

●The gear sleeve is a clearance fit and can be directly installed and removed.

●The opening retaining ring must be stuck in the card slot, as shown in Picture ①.

●If the countershaft is removed from the engine for storage, the countershaft components must be sprayed with engine oil evenly and kept sealed.

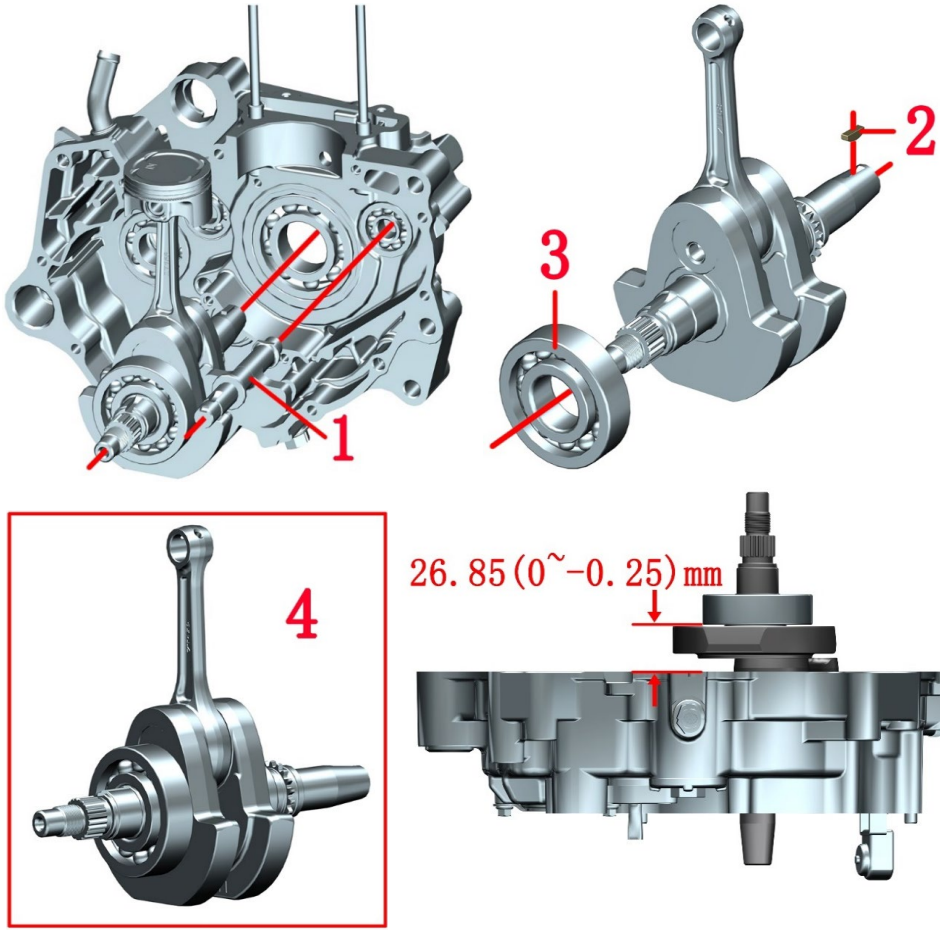


Fig5 TRANSMISSION ASSEMBLY		Gear shifting and transmission mechanism components-5	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1		Balance shaft	1	
2	1251802-003000	4×4.6×25×14 half-round key	1	
3		GB/T 276 63/28/P5 deep groove ball bearing	1	Contained in (4)
4	1050469-001000	ZT158MJ crankshaft connecting rod parts	1	

PROCEDURE:

●Remove the balance shaft (1) directly from the left crankcase.

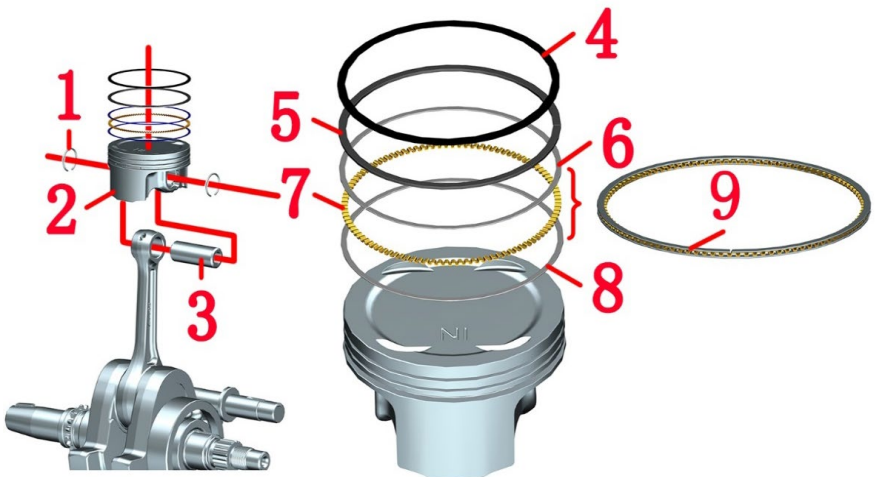
CAUTION:

●The height of the connecting surface between the upper plane of the crankshaft installation and the left crankcase body is required to be 26.85(0~-0.25) mm. When measuring, take three different points to measure, and they can only be used if they are qualified.

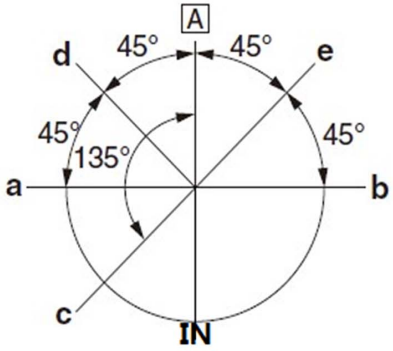
●The crankshaft connecting rod component and the GB276-6207/P53 deep groove ball bearing on the left crankcase body are interference fit, so disassembly is not recommended.

●The bearing(3) is included in the crankshaft connecting rod part (4), which is an interference fit, so disassembly is not recommended.

●The semicircular key (2) and the crankshaft connecting rod part (4) are interference fit, so disassembly is not recommended.



a.First air ring gap
b.Second air ring gap
c.Upper oil ring scrapers gap
d.Liner ring gap
e.Lower oil ring scrapers gap



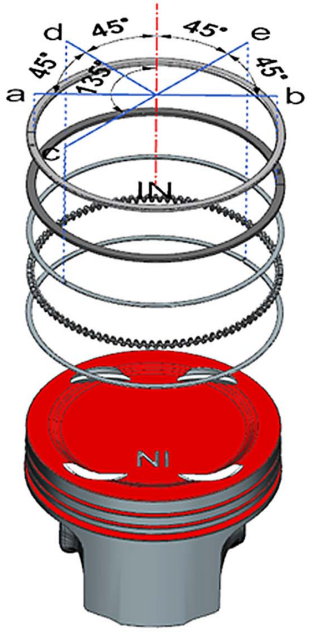


Fig6 TRANSMISSION ASSEMBLY		Gear shifting and transmission mechanism components-6	CHK ADJ	
NO.	PART NO.	PART NAME	QTY	CAUTION
1	1050468-001000	16×1 piston pin retaining ring	2	
2		Piston	1	
3	1050468-002000	14×37×8.5 Piston pin	1	
4		First air ring	1	
5		Second air ring	1	
6		Oil ring combination	1	

PROCEDURE:

●Use needle-nose pliers or other sharp tools to pick out the piston pin retaining ring (1), pull out the piston pin (3), and remove the piston (2) from the crankshaft.

●Find the gap of the first air ring (4) and remove it from the piston.

●Find the gap of the second air ring (5) and remove it from the piston.

●There are two oil ring scrapers and a liner ring in the oil ring assembly (6), and take them out after finding the gaps.

CAUTION:

●Piston pin retaining ring (1) must be replaced after disassembly, because piston pin retaining ring (1) may undergo plastic deformation during disassembly. If the piston pin retaining ring (1) falls off in the engine, it may cause cylinder pulling in severe cases.

●Piston pin(3), crankshaft and piston(2) are in clearance fit, and they can move with each other. If they become stuck, they need to be replaced.

●Be careful not to scratch the surface of the piston when disassembling the gas ring and oil ring combination.

●Distinguish between the first air ring and the second air ring:

There is an "R" mark on the first air ring, and a "2R" mark on the second air ring. When the two are assembled, the marked side faces up.

●The gap between each ring must be staggered, as shown in Picture.

●When installing the piston (2) into the cylinder block, the "IN" on the piston (2) faces the installation side of the engine tensioner.