KAYO MOTO

K6-R

Service Manual

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Manufacturer has the right to improve and update the model's structure and spare parts without notice.
The model in the image may differ slightly from production models.

Preface

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Notification and Warning

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The images in this manual may differ from the actual model.

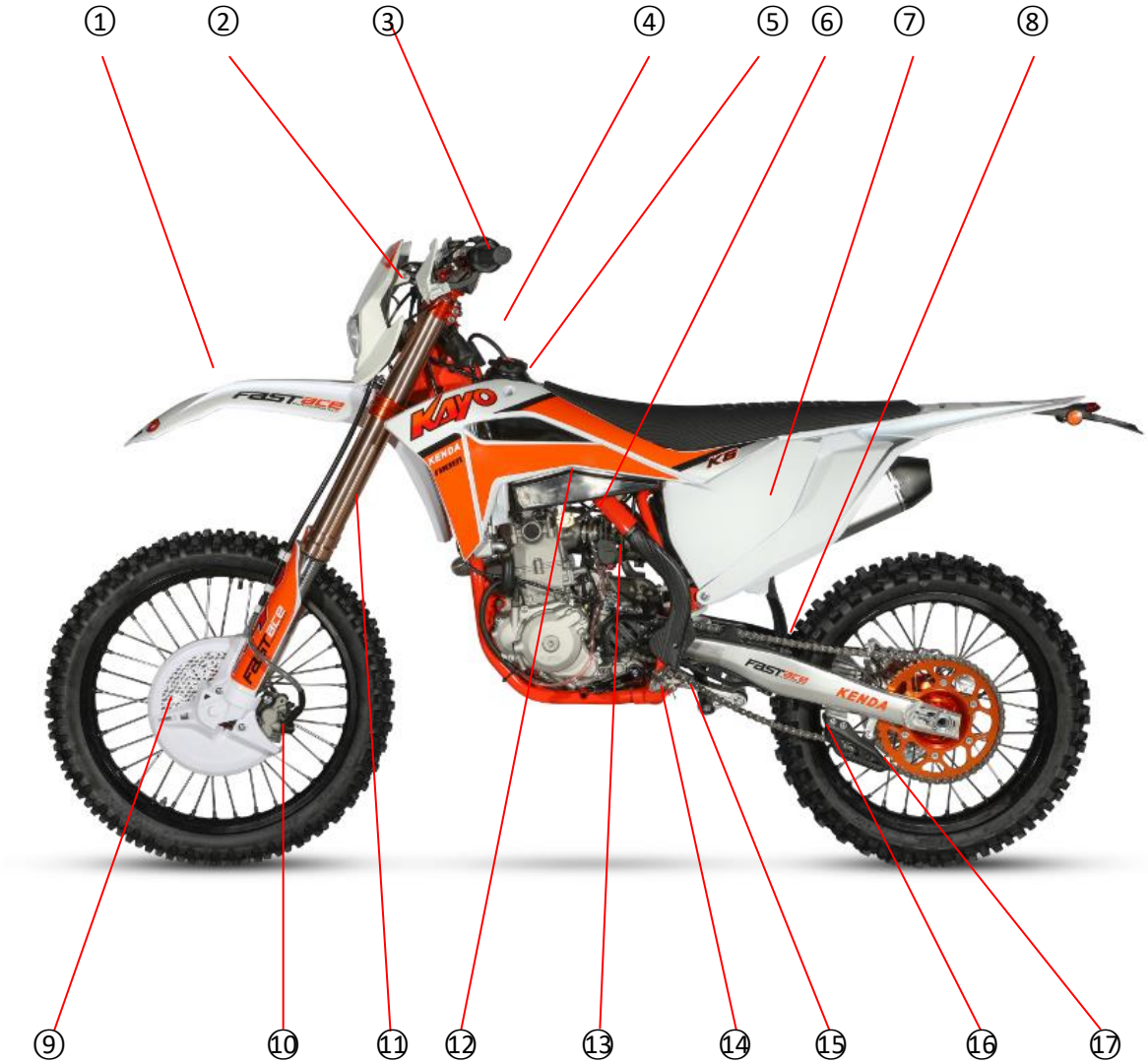
This manual, contains words like "Danger/Warning/Caution", please read the manual carefully and follow the instructions closely when performing inspections and repairs, this will increase the reliability, performance and overall lifespan of the vehicle. The meanings of "DANGER", "WARNING" and "CAUTION" are as follows:

Danger: you should pay attention on the dangers that may cause severe injuries or death.
Warning: you should notice of the dangers that may cause injuries or vehicle damage.
Caution: you should focus on the dangers that may cause you uncomfortable or vehicle lifespan decrease.

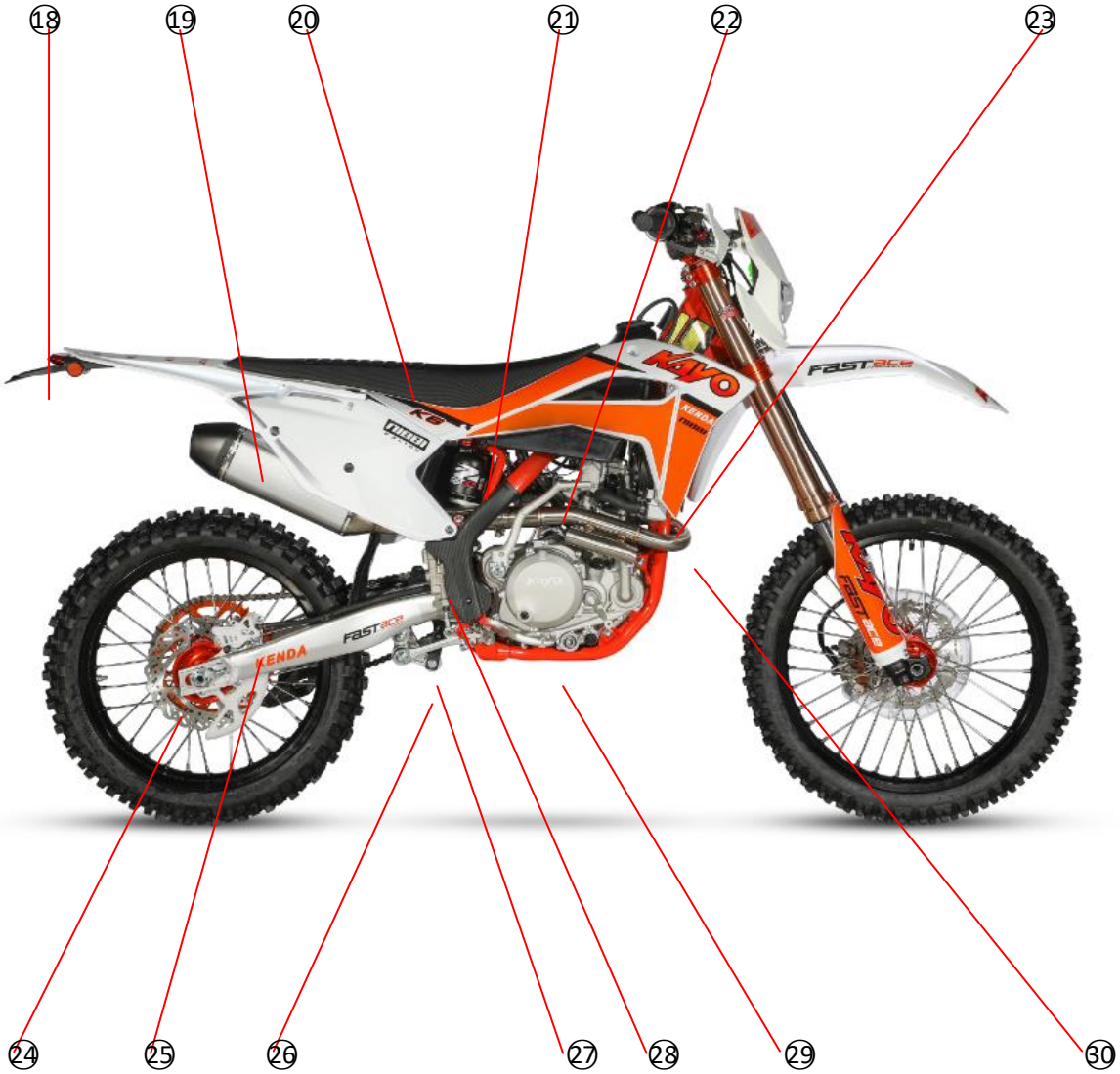
Contents

Vehicle profile

Vehicle component and location

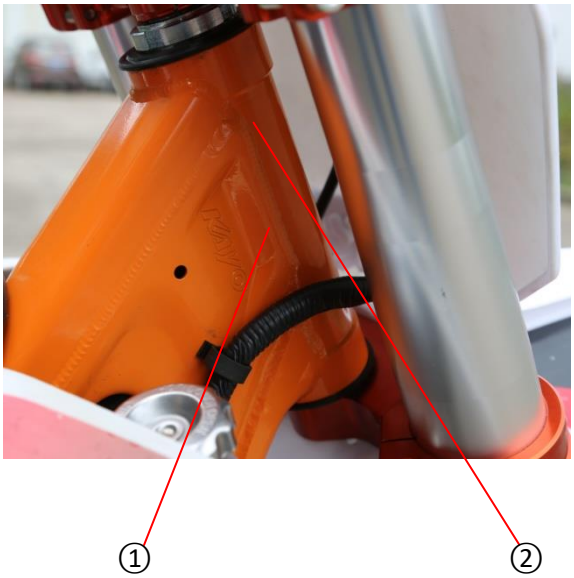


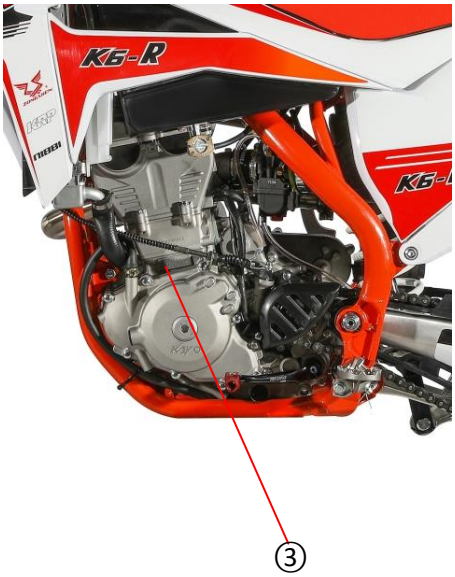
No.	Name	No.	Name
1	Front fender	10	Front brake caliper
2	Headlight	11	Front fork
3	Handlebar	12	Fuel tank
4	Vent pipe	13	Carburetor
5	Fuel tank cap	14	Gear shift lever
6	Fuel tank petcock	15	Pedal
7	Air filter	16	Chain
8	Chain slider	17	Chain guide
9	Front brake disc	18	



No.	Name	No.	Name
18	Taillight	25	Rear brake caliper
19	Muffler	26	U-shape rocker arm
20	Seat	27	Triangle rocker arm
21	Rear shock	28	Rear brake oil cup
22	Start lever	29	Brake pedal
23	Radiator	30	Muffler pipe
24	Rear brake disc		

VIN number





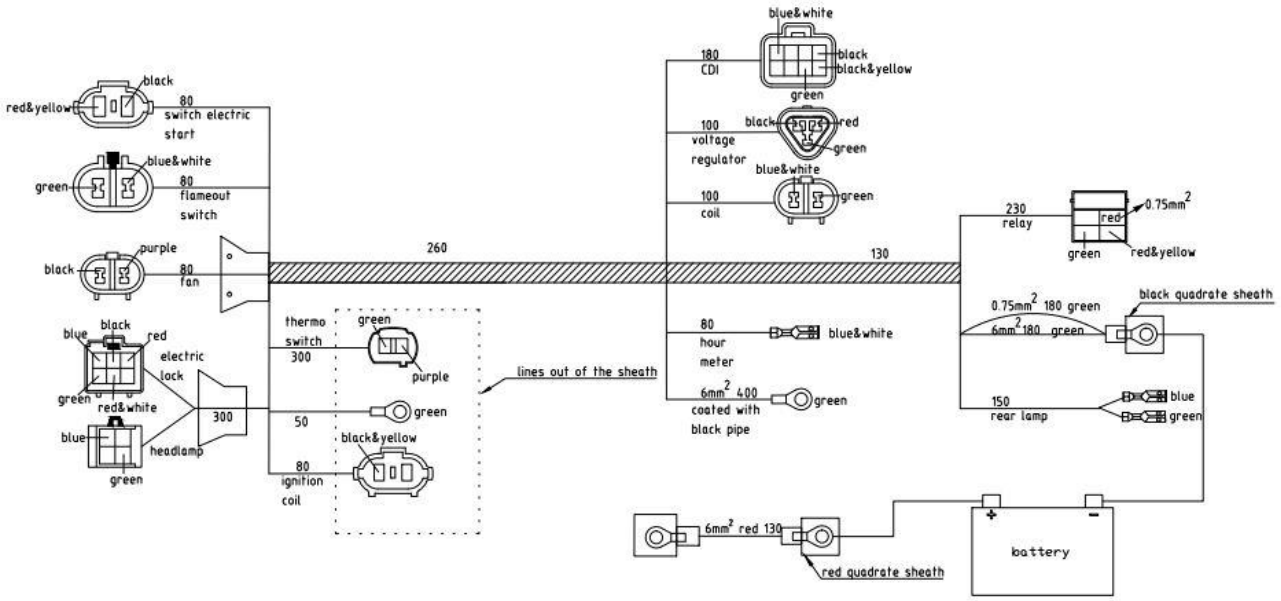
①	VIN number
②	Frame plate
③	Engine number

Specifications

Vehicle dimension and mass parameter	
Length×Width×Height（mm）	2180×820×1254
Wheelbase（mm）	1488
Curb weight（kg）	111
Tire type	Front 80/100-21；Rear 100/90-19
Seat height（mm）	955
Ground clearance（mm）	340
Fuel capacity（L）	7.5
Engine	
Engine type	Single cylinder, 4-stroke, water cooling, 4 valves, SOHC, w/ balance shaft
Clutch type	Wet multiple disc
Bore×Stroke	77×53.6mm
Lubrication method	Forced, splash
Engine oil capacity	1500ml
Oil make	SJ 5W-40
Displacement	249.6cc
Max power（kw/r/min）	19/9000
Max torque（N•m/r/min）	23/7000
Compression ratio	11.6:1
Transmission type	Constant mesh, double-stage driving, 6-speed, international gear 1-N-2-3-4-5-6
Start type	Electric/kick
Fuel control system	PWK racing version carburetor
Battery	12V/7Ah Lithium
Chain	#520；13T/51T
Chassis/Suspension/Braking/Wheel	
Frame type	Center double cradle type, high strength steel pipe frame
Front fork	L=950mm，travel 300mm USD double-adjustable
Rear shock	L=480mm，travel 110mm double-adjustable
Swing arm	High strength forging alloy, L=595mm
Handlebar	7075 alloy fat bar, Φ28.6mm

Rim	Front 1.60×21，rear 2.15×19；7050 alloy，forging CNC hub
Front brake	Double piston pump hydraulic brake system，disc Φ240mm，CNC lever
Rear brake	Single piston pump hydraulic brake system, disc Φ240mm，forging brake pedal
Others	
Air filter type	Sponge filter type
Person capacity	1 person（driver）

Circuit diagram



Fasteners torque table

Caution: please apply anti-rust grease on the thread and joint surface before installing the thread.

No.	Item	Fasteners specification	Qty	Torque（N•m）
1	Front brake caliper screw	M8×40 full thread	2	20～32
2	Front brake guard screw	M6×16	2	7～11
3	Steering stem screw	Aluminum, silvery	1	/
4	Upper raisers assembly screw	M8×30	4	20～32
5	Front brake disc screw	M6×16	6	7～11
6	Front wheel axle nut	M16×1.5×H14	1	175～218
7	Pedal bracket bolt	M8×20 full thread	2	20～32
8	Gearshift bolt	M6×25	1	7～11
9	Engine upper assembly bolt	M8×60	3	20～32
10	Engine assembly nut	M10×1.25	2	40～70
11	Cooling tank screw	M6×25	4	7～11
12	Muffler pipe nut	M8	2	20～32
13	Chain slider screw	M6×12	3	7～11
14	Swing arm axle nut	M16×1.5×H14.8	1	175～218
15	Triangle rocker arm nut	M12×1.25	3	68～85
16	Chain adjuster bolt	M10×40×1.25 S14	2	36～55
17	Chain adjuster nut	M10×1.25	2	40～70
18	Rear shock & frame joint bolt	M10×50×1.25	1	40～70
19	Oval-head bolt	M10×42×1.25+Φ10×28	1	40～70

20	Rear disc bolt	M6×16	4	7～11
21	Rear sprocket screw	M8×31 10.9 level	6	27～35
22	Rear wheel axle nut	M22×1.5	1	452～550
23	Rear brake disc guard bolt	M6×12	4	7～11
24	Brake pedal head screw	M5×10 full thread	2	4～7
25	Brake limit bolt	M8×20 full thread	1	20～32
26	Rear brake pump bolt	M6×16 full thread	2	7～11
27	Brake pedal bolt	M6×25 full thread	1	7～11
28	Ignition coil bolt	M6×20	2	7～11
29	Plastics bolt	M6×16 full thread	10	7～11
30	CDI bolt	M6×16 full thread	2	7～11
31	Voltage regulator bolt	M6×25 full thread	2	7～11
32	Key bracket bolt	M6×12	2	7～11
33	Fuel tank petcock screw	M5×12 full thread	2	4～7
34	Front fender bolt	M6×12	4	7～11
35	Left/right fender & fuel tank joint screw	M5×10 full thread	6	4～7
36	Phillips pan head tapping screw	ST 4.2×12	10	/
37	Phillips large flat head machine screw	M6×10	4	/
38	Spark plug	/	1	25～30

Operating instruction

Check before use

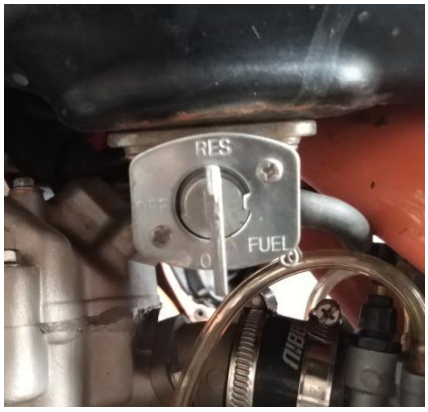
Please check the following items each time.

1.Fuel level

Open the tank cap and shake the handlebars, and observe the fuel the level of the tank. If fuel is low, please add fuel.

2. Fuel tank switch

There are three positions of the fuel tank switch in this motorcycle, from top to bottom: RES (the auxiliary fuel tank is open), OFF (the fuel tank switch is closed), ON (the fuel tank switch is open).If the fuel tank switch is OFF, there is no fuel in the carburetor and the engine cannot run. If fuel is low in the tank, switch the tank to the RES position and refuel immediately. If fuel is sufficient and the motorcycle is in good condition, switch to ON.



Note: when the engine is turned off, turn the tank switch to OFF.

3.Engine Oil level.

Engine Oil capcity:1500ml. To check oil level run the vehicle for a few minutes until it reaches operating temperature. Then stand the bike up vertically and check the sight glass on the lower right side of the engine case.

4. Coolant level

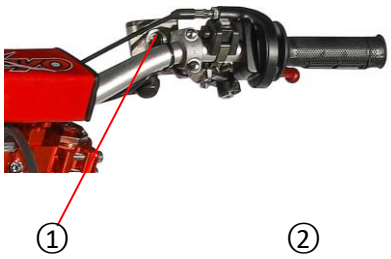
2、 The coolant quantity is sufficient or not.

Open the coolant tank cover and shake the handle bar. Observe the coolant level in the tank. If the level is too low, add coolant. Add the coolant close to or slightly below②.

Warning: do not open the tank cover while the engine is working to avoid serious burns.

5. **Brake fluid level**.

Through the brake fluid sight glass (①and②), checking the brake fluid in the brake master cylinder. If brake fluid level is lower than half of the observation hole, or "LOWER" position, then add brake fluid.



Note: brake fluid should be replaced annually even if the motorcycle has not been used for a long time.

Note: please check the brake fluid level frequently. Check the brake line and connecting points for damage or wear. If any, please replace. Check the master cylinder/calipers for damage or wear, if any, please replace.

Note: Do not leave .brake reservoirs open for extended periods of time

Note: Always use brake fluid from an unopened container

6.Brake pads

Check the caliper brake pad's thickness, if the brake pad's thickness is less than the minimum thickness, the brake pad must be replaced. Check the caliper brake pad for damage or crack. If there is damage or crack, a new brake pad should be replaced.

Minimum thickness of brake pad:

Front MIN = 1 mm

Rear MIN = 1 mm

Note: brake pads should be replaced as a set.

7. Brake rotors

Check for damage to the brake disc surface, (scratches, gouges, warping, bluing) and check the thickness, if the brake disc is less than the limit thickness, the brake disc must be replaced immediately.

Limit thickness of brake disc:

Front MIN=2.5mm

Rear MIN=3.5mm

8、check tire pressure

Use the pressure gauge to check whether the tire pressure level is in line with the standard of this motorcycle, if there is often a small pressure problem, check the tire flats and any punctures .

recommended pressure

Front :1 bar（15PSI） rear :1bar（15PSI）。

Note: the check of the tire pressure should be done under cool conditions.

9. Check spoke tension

Pinch the two adjacent spokes with your fingers to check whether there is a lack of tension in the spokes. If the spokes are found loose wheel truing and tightening may need to be performed..

NOTE: spoke tensioning and truing should be performed by a professional

10. Check the chain and its supporting parts

Check chain tension. If the chain is too loose, it can be adjusted by loosening the rear axle and adjusting the chain adjusters. Do not make the chain too tight.

Note: if the chain needs to be tensioned frequently, or if you find any signs of wear on the front sprocket, rear sprocket and chain replace immediately.

11、Check whether the front shock needs to vent.

When the environment temperature is high, the gas in the shock is heated and expands. At this time, it is necessary to conduct the exhaust operation. Otherwise, damage the oil seal may occur, which will affect the use of the shock.

12、Inspection of the remaining components

Visually inspect the entire motorcycle for loose parts. Tighten any loose bolt or parts

. Check the battery charge.

check the lights.

Note: these pre ride checks won't take much time, but it can help you develop good riding habits and make your daily riding easier and safer.

Check whether the seat cushion is comfortable, check whether the battery is sufficient, check whether the water tank is shaking.

Note: if there is a large number of problems, please contact the KAYO distributor.

The checking before riding will be very quick and won't take you much time, but it can help you develop good riding habits and make your daily riding easier and safer.

Note: when the vehicle starts, the brake should be applied to prevent the vehicle from starting in gear.

Starting steps

The steps to kick start as follows (if with kickstart lever)

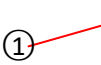
1. Switch the fuel tank to the "ON" position;

2, the left hand pull in clutch handlebar;

3, the right hand pull in the brake handle;

4. kick the kickstart lever down in a smooth rapid motion

5.once the engine starts up, release the kickstart lever and fold back to its regular position.



The electric starting steps are as follows:

1. Switch the fuel tank to the "ON" position;

2. turn the key switch on;

3, the left hand pull in clutch lever;

4, the right hand pull in front brake lever;

5. push the start switch with the right thumb;

6. once then engine starts make sure you are in neutral and release clutch and brake levers

Engine break-in period

Motorcycle engines have many parts that make relative movements, such as pistons, piston rings, cylinder blocks, and meshing transmission gears. Therefore, in the initial stage of use, the engine must be regularly run-in. The running-in can adapt the moving parts to each other, correct the working gap, and form a good smooth friction surface that can withstand large loads. After the engine break-in is complete. Engine will have excellent performance and reliability.

The recommended running-in steps are as follows:

1. 0 ~ 4.5h stage: when using a motorcycle at 50% ~ 75% throttle, the speed should be changed frequently to avoid the motorcycle running at the same throttle for a long time; after each hour of running, let the engine cool for 5 ~ 10 minutes; Avoid rapid acceleration, and deceleration.
2, 4.5 ~ 7h stage: work under 50% ~ 75% throttle, at this time, the motorcycle can run at the same throttle for longer times. While running, the throttle can reach 100%, but for no longer than 5-10 seconds;
3, 7 ~ 10h stage: Use motorcycles at 75% ~ 100% throttle.
4. Above 10h: Increase the speed to 60 ~ 80km / h, until the engine's performance is fully utilize.

Danger: when driving, please do not accelerate recklessly, this behavior can easily lead to engine damage, accident and injury.

Vehicle cleaning

Vehicle cleaning is also an important part of the daily use and maintenance of motorcycles. Regular cleaning of your motorcycle can keep your vehicle in good motion and prolong its service life. Here are the steps you can take to clean your motorcycle:

1. Plug the exhaust system to prevent water from entering;
2. Seal the switches and connectors with tape;
3. Use low-pressure water spraying device to remove mud and dirt on the surface;
4. Clean especially dirty parts with special motorcycle cleaner;
5. Rinse with low pressure water;
6. Let the motorcycle air dry naturally;
7. Drive the motorcycle for a short time until the engine reaches the working temperature;
8. Lubricate the chain and all other components that need lubrication.

Warning: Never use high pressure water to clean the vehicle. Avoid direct contact of water flow with coils, pipe plugs, carburetor or any electrical components.

Warning: do not use high pressure water to clean it. Avoid making the water directly touch with coils, pipe plugs, carburetors or any electrical components.

Storage and use of vehicles

When you plan to store your vehicle for long periods of non-use, follow these steps:
1. Block the exhaust pipe;
2. Thoroughly clean the motorcycle;
3. Wait for the motorcycle to air dry naturally;
4. Start the engine for about 5 minutes to heat the lubricating oil, and then empty the oil from the engine;
5. Add new engine lubricant to the engine;
6. Empty the fuel tank (if it is not used for a long time, the gasoline will deteriorate);
7. Lubricate the chain;
8. Apply oil to all unpainted metal surfaces to avoid rusting;
9. Keep motorcycle wheels floating when storing motorcycles. If this condition cannot be met, cardboard or padding can be used under motorcycle tires.
10. Cover the motorcycle to prevent dust and dirt from adhering.

Note: when applying anti-rust oil, please do not splash oil on the brake and rubber parts, This may cause rubber parts to deteriorate. .

After the motorcycle is stored for a long time, please follow these steps before putting it into use:
1. Remove the obstruction in the exhaust pipe;
2. Tighten the spark plug;
3. Fill the fuel tank with fuel;
4. Check the inspection items before daily driving;
5, conventional lubrication of motorcycles.

Routine Maintenance

	Once after 1 operating	Every 10 hours operating/after every race	Every 20 hours operating	Every 30 hours operating
Check and charge the battery		●	●	●
Check the front brake linings		●	●	●
Check the rear brake linings		●	●	●
Check the brake discs		●	●	●
Check the brake lines for damage and leakage		●	●	●
Check the rear brake fluid level		●	●	●
Check the free travel of the foot brake lever		●	●	●
Check the frame and swingarm		●	●	●
Check the swingarm bearing for play			●	
Check the heim joints at the top of the shock absorber		●	●	●
Check the shock absorber linkage		●	●	●
Check the tire condition	○	●	●	●
Check the tire air pressure	○	●	●	●
Check the wheel bearing for play		●	●	●
Check the wheelhubs		●	●	●
Check the rimrun-out	○	●	●	●
Check the spoke tension	○	●	●	●
Check the chain, rear sprocket, engine sprocket, and chain guide		●	●	●
Check the chain tension	○	●	●	●
Grease all moving parts (e.g., hand lever, chain, ...) and check for smooth operation		●	●	●
Check the front brake fluid level		●	●	●
Check the free travel of the hand brake lever		●	●	●
Check the steering head bearing play	○	●	●	●
Check the valve clearance	○			●
Check the clutch			●	
Change the cover seal and shaft seal rings of the water pump				●
Change the engine oil and oil filter, clean the oil screen	○	●	●	●
Check all hoses (e.g. fuel, cooling, bleeder, drainage, etc.) and sleeves for cracking, leaks, and incorrect routing.	○	●	●	●
Check the antifreeze and coolant level	○	●	●	●
Check the cables for damage and routing without sharp bends		●	●	●
Check that the throttle cables are undamaged, routed without sharp bends, and set correctly	○	●	●	●
Clean the air filter and air filter box		●	●	●

Check the screws and nuts for tightness	○	●	●	●
Change the fuel screen	○	●	●	●
Check idle	○	●	●	●
Final check: Check the vehicle for safe operation and take a test ride	○	●	●	●

○ One-time interval ● Periodic interval

Note: this table is for reference only. Please adjust the period according to the usage of motorcycle.

Warning: the inspection, adjustment and replacement of the engine parts should be carried out after consulting KAYO service center to avoid damage to the engine.

Specific maintenance content

1.Clutch handle

The clutch handle can be adjusted according to your actual needs:

By adjusting the nut, the pull of clutch lever can be changed.

This adjustment does not change the internal structure of the clutch, so it will not affect the normal use of the clutch.

Note: The clamping force of the clutch handle should not be adjusted too much, otherwise the clutch line will be easily broken.

2.Clutch disc:

For the inspection, adjustment and replacement of this item, please refer to the engine maintenance manual below for details

3. Throttle:

Turn the throttle handle by hand to checking if it is smooth and snaps back quickly.

Check whether the throttle cable has a free play of 10-20mm;

If the free play is too little, adjust as follows:

Loosen the lock nut at the end of the throttle cable,

Rotate the adjuster until free play is correct,

Then tighten the lock nut.

4.Spark plug:

Engine spark plug torque is 25-30N • m.

The spark plug must be removed regularly to check the gap (0.6 to 0.7 mm) between the electrodes. If the spark plug contains oil or carbon, clean with a wire brush or similar. Measure the distance between the electrodes with a measuring instrument and adjust it to prevent abnormal bending of the external electrodes. If the spark plug electrode is rusted, damaged, or the insulator is broken, the spark plug must be replaced.

Note: The spark plug should be checked every 10 hours and replaced every 20 hours.

Note: If engine performance decreases, replace spark plug to restore normal performance

Note: if engine performance degrades, replace ignition plugs to restore normal performance

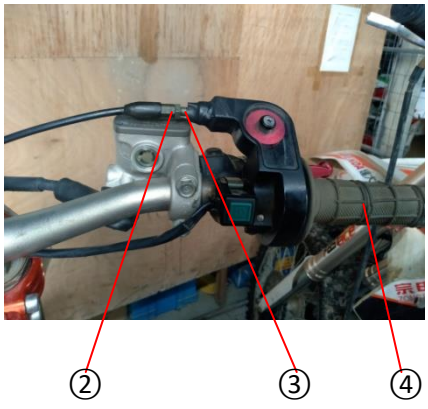
5、air filter

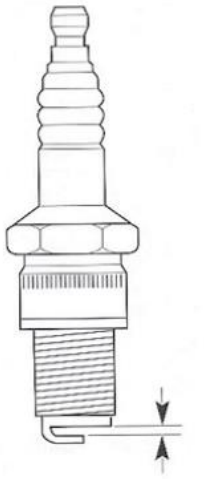
Remove the seat⑤;

Remove the side panel⑥;

Checke the air filter。

Installation and restoration shall be carried out in reverse order of removal.





5.Air filter

The air filter should be checked on time, as follows:
Remove the seat cushion;
Remove the air filter cover;
Check the air filter.

Installation is performed in the reverse order of removal.

Danger: The air filter should be cleaned regularly to prevent dust or dirt from entering the engine, which may cause engine wear or even damage. Filters should be cleaned in a well-ventilated area and ensure that there are no sparks, flames, or strong heat sources in the workplace. Never use gasoline to clean the filter.

Warning: If the filter is damaged, it must be replaced immediately, otherwise dirt can enter the carburetor. When installing the air filter lubricate all connections and threads

6.Carburetor

Throttle screws and air screws allow idle sp
carburetor. The steps are as follows:
Turn the air screw clockwise until it reaches t
reverse one and a quarter turns;
Adjust the throttle screw to ensure that the engine
when the throttle is fully relaxed;
Adjust the throttle screw to reduce the engine spee
Adjust the air screw to make the engine speed as h
Repeat the above steps until a satisfactory speed is
Check if the throttle cable is working properly.
Danger: Driving a motorcycle with a damaged thr
a very dangerous behavior. A normal throttle cable
of at least 10mm. Start the engine and turn the ha
the engine stalls or accelerates due to the movem
throttle cable is not adjusted properly or damage
cable is normal before driving the motorcycle.
◆Check whether the throttle cable is working properly.
Danger: driving a motorcycle with a damaged throttle cable is

undoubtedly a very dangerous behavior.Normal throttle cable should have at least 10mm free travel.Start the engine and turn the handlebars, if the engine stops or accelerates due to handlebar's movement, then the throttle cable is not properly adjusted or damaged.Make sure the throttle cable is OK before driving the motorcycle.

7. Engine oil

Lubricating oil is a very important part of the normal working process of an engine.Insufficient lubricating oil, deterioration or pollution can lead to engine wear and even damage.

Oil level check

Lubricating oil is a very important part of normal engine operation. Insufficient lubricant, deterioration or pollution can cause engine wear and damage.

Oil level check

If the motorcycle has just been used, wait for a few minutes after the engine has stopped to check;

Observe the amount of lubricating oil in the engine through the oil dipstick. The oil level can be observed through the oil level hole;

The level of lubricating oil in the engine should be between the maximum and minimum values, that is, between "H" and "L";

If the oil level is too high, remove excess oil through the drain bolt;

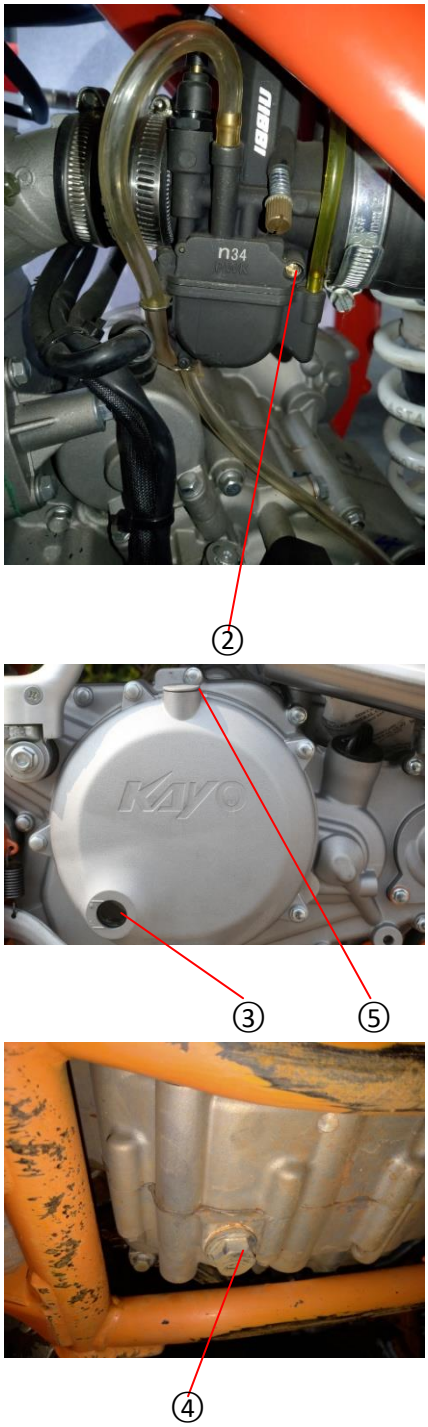
If the oil level is too low, add oil through the cap.

Note: The added lubricant should be the same as the original organic oil grade in the engine.

Recommended oil brands and brands are:

Shell lubricants SJ 10W-40

Maximum oil capacity: 1000ml



①

Oil Change

Lubricants need to be changed regularly to ensure the life of the engine. The replacement steps are as

follows:
Start the engine and let it run for 5 minutes to mix any sediment with the oil;
Stop the engine and place the container under the engine;
Unscrew the oil drain bolt and place the motorcycle above the container, so that all the oil can be smoothly discharged;
Open the oil dipstick hole so that the engine can vent;
Clean the oil drain bolt;
Tighten the oil drain bolt, the torque is 68 ～ 84N • m;
Pour new oil through the oil filling hole;
Start the engine and observe the oil level. If the oil is low, shut down the engine, continue to pour in the lubricant, and repeat the operation 3 to 4 times until the oil level meets the requirements;
Close the oil fill hole and tighten the oil cap.

8.Piston and piston ring

For the inspection, adjustment and replacement of this project, please refer to the engine maintenance manual for details.

9.Cylinder, cylinder head and exhaust valve

For the inspection, adjustment and replacement of this item, please refer to the engine maintenance manual for details.

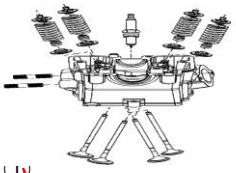
10. Exhaust system inspection

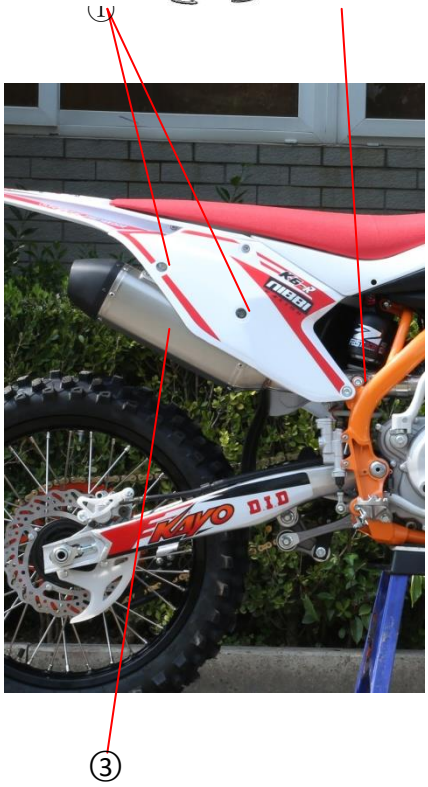
Exhaust pipe and muffler can guide gas emission and reduce noise.
If the exhaust pipe is rusted or damaged due to impacts, please replace it with a new one immediately. If the noise is too high or the engine performance is reduced, replace the muffler.

If you need to replace the muffler, follow these steps:
Unscrew the lower right protective plate fixing screw;
Unscrew the upper right protective plate fixing screw;
Unscrew the connecting bolt between the muffler and the rear subframe
Pull out the muffler backward;
Replace the muffler and replace the fasteners;
Muffler is installed in the reverse order of removal.

11.Crankshaft connecting rod and bearing

For the inspection, adjustment and replacement of this item, please refer to the engine maintenance manual for details.





12、Start, shift and brake pedal
Using oil or grease to lubricate the movement and joint parts will be ok, because excessive lubrication may

cause the boots to slip on the pedal, affect riding.

13、Coolant liquid

The coolant absorbs excess heat from the engine and transfer to the air through the radiator. If there is not enough liquid in the coolant tank to cool the engine, the engine will be damaged due to overheating.Therefore, before each use, must check the level of the coolant to ensure the normal cooling.

To protect metal parts of the cooling system from rust or corrosion because of the coolant, the coolant should contain chemical inhibitors.The use of coolant without added chemical inhibitors is easy to make the metal part of the cooling system rust, hinder the cooling pipe, affect the cooling effect.

Note: the company initially used Volkswagen Baishun coolant for this model, with a freezing point of -25 ℃.

Danger: the coolant is a chemical that may be harmful to humans. Please read the manufacturer's instructions carefully when using it.

Warning: improper use of coolant may cause damage to engines and cooling systems.Please follow the instructions to select the coolant containing the inhibitor.

Check of the coolant level

When checking the coolant level, follow these steps:

◆After the motorcycle cooling off, park well the motorcycle;

◆Rotate the water tank cover①,after the hot steam in the water tank overflow, then open the water tank cover①,complete the disassembly;

◆Shaking the motorcycle, check the liquid level of the coolant, which should be below②;

◆If the amount of liquid is insufficient, adding the required amount through the hole.

Replacement of coolant

The coolant shall be replaced regularly to extend the service life of the engine. The replacement steps are as follows:

◆Park the motorcycle and wait for the engine to cool down.

◆Remove the tank cover;

◆Place a container under the drain screw③,which is located under the pump cover and is used for discharging the coolant from the engine and the water tank.

◆Screw out the drain screw③;

◆When the coolant is fully exhausted, turn the screw back.

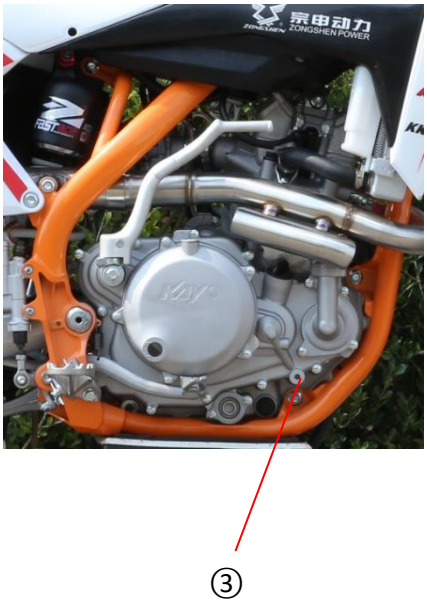
◆Add a small amount of coolant through the water tank hole to check whether there is leakage in the cooling system;

◆Add coolant to appropriate level;

◆Start the engine, heat it for 5 minutes, then shut it off.

◆After the engine is cooled, check the liquid level. If the level drops, add it to the appropriate level.

Tighten the tank cover.



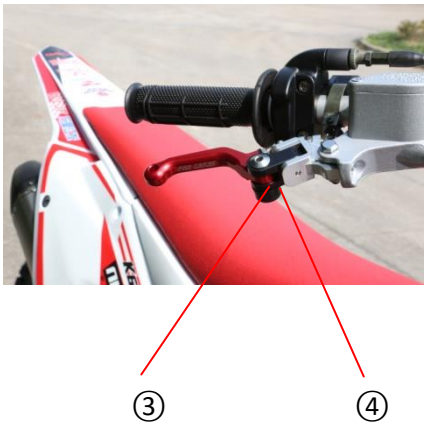
Danger: to avoid burns, do not remove the water tank cover and drain screw when the engine is hot. Operate after the engine cools down.

Danger: if the coolant falls on the tire, it is easy to make the tire slip, thus causing an accident.Therefore, the coolant falling into the chassis and wheels should be cleaned. Check the replaced coolant, iIf there are white spots in the coolant, it means that the aluminum-containing part of the cooling system has been corroded. If

the liquid is brown, the steel or iron part of the cooling system is corroded.Beyond these, the cooling system is normal.
Warning: check the sealing ring in the cooling system. If it is damaged, it should be replaced.

14、Tank tube and fin strip
Check whether the coolant water tank pipe①is cut or damaged and whether there will be leakage after connection.
Check whether the outer fin②of the tank is blocked, with low pressure water to clean the dirt.
Warning: do not use high pressure water to clean the fins. This may damage the fins and affect the cooling effect of the cooling system.In addition, do not install unauthorized accessories, which will interfere with the cooling system, and this interference may cause overheating engine damage.

15、Check the control part of the brake system
Front brake handle:
The front brake handle can be adjusted to suit the operating habits of different groups of people.The adjustment steps are as follows:
◆Loosen retaining nut③;
◆Rotate the adjusting nut④ to adjust the handlebar angle to your satisfactory position;
◆Turn back the retaining nut③
Rear brake lever:
Normally, the brake lever should have a free travel of 4 ~ 5 mm.Check the brake lever and make sure the travel is correct.



Danger: please test the braking system (including front brake and rear brake) before each start. If you feel soft when pinching the brake handle or pressing the brake pedal, there may be air in the corresponding pump or oil circuit, or one or more parts of the corresponding braking system are not in good condition. In case of any of the above, please check the brake system and contact the KAYO dealer immediately.

16. Brake system wear inspection
Check the thickness of the front and rear brake calipers, which shall not be less than 1mm. If the thickness of the brake calipers is less than or equal to the minimum thickness, the whole set of brake calipers shall be replaced immediately.
Check the thickness of the front and rear brake disc, if the measured result is less than the limit thickness of brake disc.The brake disc should be replaced immediately.
Limit thickness of brake disc: front MIN=2.5mm;rear MIN = 3.5 mm
Danger: if the brake system is found to be worn too much, the corresponding accessories should be replaced immediately to avoid safety

①

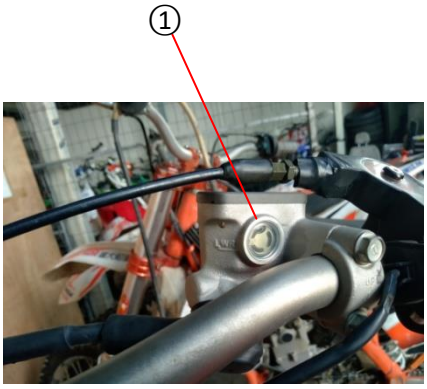
accidents. The replacement should be carried out after consulting the dealer of KAYO.

17、brake fluid

The brake fluid must be checked and replaced periodically. If the brake fluid is mixed with water, soil or other particles, the brake fluid should also be replaced.

DOT4 brake fluid is recommended.

Danger: do not mix different types of brake fluid into the brake system for use. Brake fluid must be used to meet braking requirements. Please do not use brake fluid from an unsealed container, as the brake fluid is susceptible to deterioration due to exposure to air, thus affecting the braking effect. Do not use used brake fluid.

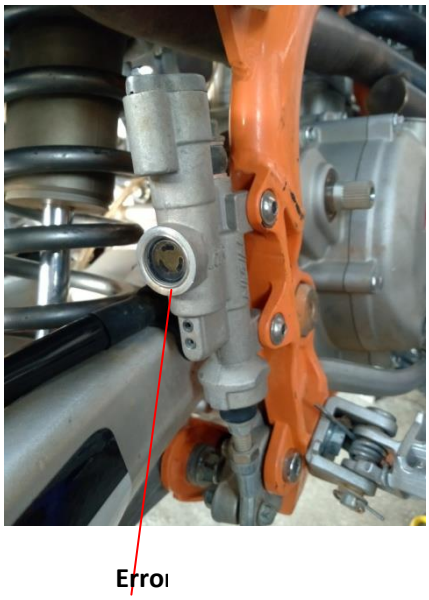


18、brake fluid quantity inspection

Observe hole①and hole②,check the brake fluid level.The level should be more than half of the observation hole, i.e. the level should be higher than "LOWER".If the brake fluid is insufficient, it should be added immediately.

Note: do not let brake fluid splash on the paint surface, easy to cause corrosion.

Danger: please pay attention to check the leakage of brake fluid and the damage of brake fluid pipe.If there is any leakage problem, please contact the distributor of KAYO.



19、Check brake pump piston and dust cover

Regarding the inspection, adjustment and replacement of this project, please consult with the distributor of KAYO.

20、Spokes and wheels

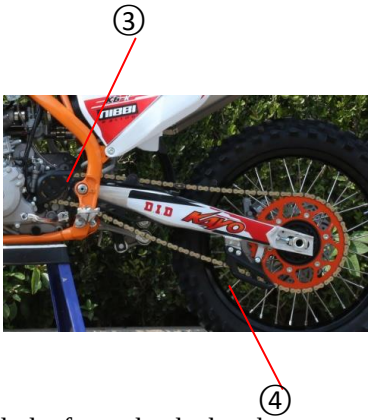
The spokes should be tightened to avoid tyre centre deviation.If the tire center is deviated, it will elongate the spokes, easy to make it deformation or even fracture.

If the tire center is found to be slightly off-center on inspection, it can be adjusted by loosening or tightening some spokes with a tensioning wrench.If the tire is bent or severely deformed, replace the tire immediately.

Warning: the inspection and adjustment of spokes and wheels requires professional knowledge. We recommend that you consult with KAYO dealer or do it at dealer's place.

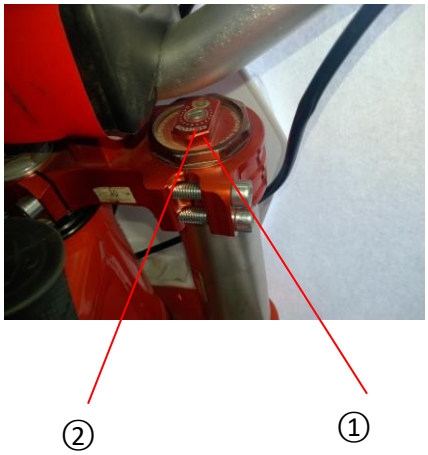
21、Check the chain guide

Check the wear of guide sleeve③and chain stopper④on the swing arm.Under normal condition, these two parts can guide the chain movement, if the wear is too much, it is not conducive to the normal movement of the chain, will affect its rotation.Therefore, the worn chain guide sleeve and chain stopper should be replaced in time to ensure the normal operation of the motorcycle.



22、Check the front shock absorber

Check the front shock absorber, if necessary, you can vent the front shock absorber through the exhaust screw①.
Note: when venting, pls place the motorcycle on a fixed bracket so that the front wheels can be completely suspended.



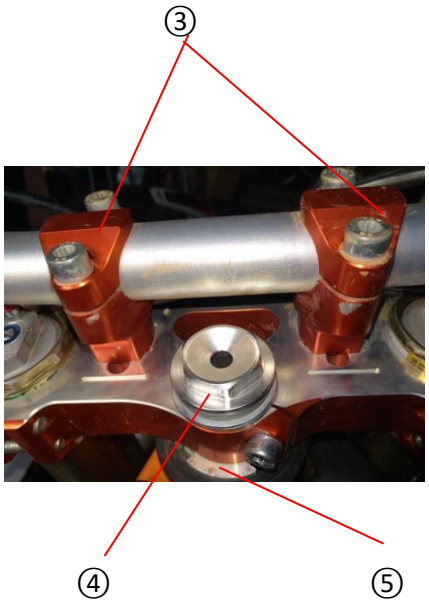
After putting the motorcycle on the ground, press the handlebar to test whether it is sensitive to rebound after pressing down.
FASTACE double adjustable front shock absorber are used on the motorcycle, its damping hardness can be adjusted by adjusting screw②.
If you want to replace the shock absorber, please contact the dealer of KAYO, which requires relevant professional knowledge and skills.

23、Check the gasoline pipe
Before each ride, please check whether the gasoline line is normal. If any gasoline pipe is found to contract or break, please replace the oil pipe immediately to avoid leakage.

Danger: riding a motorcycle with a broken pipe can cause a fire even by starting the engine, so if you find a problem with the pipe, do not start your motorcycle.When replacing the pipe, please use the matching equipment produced or authorized by KAYO.

24、Fuel system inspection
Check the oil tank, oil tank cover, oil tank switch, etc., and make sure the system has no oil leakage before driving.

25、Steering column adjustment
The steering column should be adjusted frequently so that the handlebars can rotate freely.
Place put the motorcycle on a fixed bracket so that the front shock can be completely suspended.Turn the handlebar to the middle position, if the handlebar still continue to move after release, then it means that steering column is not too tight.Hold the lower part of the shock, gently push and pull the shock, if there is free clearance, then it means that the column is too loose.
If the tightness of steering column needs to be adjusted, please follow the following steps:



Fix the motorcycle so that the front fork is completely suspended;
Remove the pressure block set screw③;
Take off the handlebars;
Unscrew the steering shaft nut④;
Turn adjusting nut⑤to proper position;
Tighten the steering shaft nut④;
Recheck steering and repeat if necessary;
Restore handlebars.

26、Conventional lubrication

Every part of the vehicle needs to be lubricated regularly. After cleaning the vehicle with pressure water, the motorcycle also needs to be lubricated. Before lubricating the components, the rusty components need to be cleaned with antioxidants and remove any remaining oil, grease and dirt.

Generally, the components that need to be lubricated are:

- Clutch handle ①;
- Brake lever ②;
- Rear brake pedal bearing ③;
- Rear brake pedal ④;
- Shift lever ⑤;
- Chain ⑥.

Use a tube spray to lubricate under pressure. Use grease in the throttle cable.

Note: After driving a motorcycle on wet roads, the chain must be lubricated even if the chain looks dry. Please use KAYO recommended products for lubrication.

27、Rear shock absorber inspection

We equipped this model with FASTACE dual adjustable nitrogen airbag rear shock absorbers. Check the rear shock absorber to see if the airbag is normal and whether the spring is cracked. If necessary, replace the rear shock absorber.

Please follow the steps below to disassemble the rear shock absorber:

Remove the muffler (see the exhaust system inspection section for details);

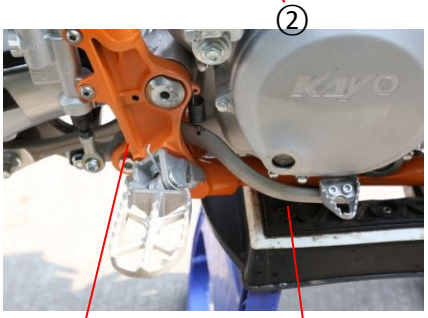
Remove the mounting bolts of the rear shock absorber and the frame;

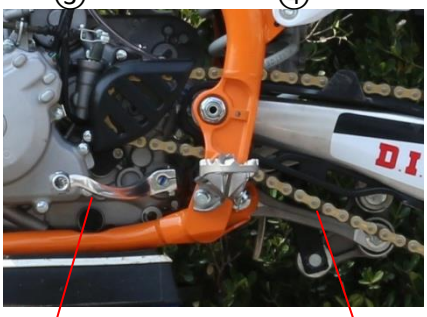
Loosen the U-shaped rocker arm and triangular rocker arm bolts (do not remove);

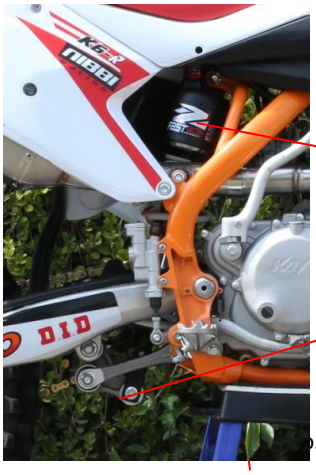
Remove the rear shock absorber and triangle rocker connecting bolt ⑧;

After confirming that there is no interference, remove the rear shock absorber from the side;

When installing the rear shock absorber, proceed in the reverse order of removal.







28、Chain inspection

The chain transmits the power output from the engine to the wheels, so that the motorcycle can move normally, which is an important part of the motorcycle. Therefore, the chain needs to be checked and maintained frequently to ensure its normal use.

The chain tension can be adjusted according to requirements, and the steps are as follows:

Fix the motorcycle so that the rear wheels are completely suspended;

Measure the distance between the back of the flat fork and the chain. The normal distance should be 30 ~ 36mm, which is about the distance between two fingers. This distance is close to the normal distance.

Loosen the rear axle nut ①;

Find the position where the tension on the chain is the largest;

Through the nut ②on the tensioner, use the score on the tensioner and the lug on the adjuster to align the two ends of the flat fork;

Tighten the tensioner nut②;

Tighten the rear axle nut ①;

Check the maximum tension point and readjust the tension if necessary.

When checking the chain tension, in addition to the chain, a visual inspection of the chain guide and sprocket is required.

When the chain is used excessively or the amount of stretching exceeds 2%, the chain should be replaced, and the corresponding guide rails and sprocket should also be replaced. If only the chain is replaced without other accessories, other components that are worn due to the old chain will shorten the service life of the new chain, and these accessories will soon reach the limit of use and have to be replaced. Therefore, even from an economic point of view, it is worthwhile to replace the entire chain drive system at the same time. Replacement parts should be manufactured or authorized by KAYO.

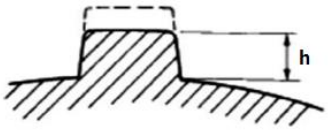
The chain needs to be lubricated regularly, see the General Lubrication section for details.

Note: The alternating wet and dry working environment will greatly reduce the service life of the chain and its surrounding accessories. Therefore, please use the proper lubricant to lubricate.

29、Tire inspection

The inspection of a tire involves the following two aspects:

Check the pattern: Check the tire pattern height. If it is less than the minimum height, replace the tire immediately.



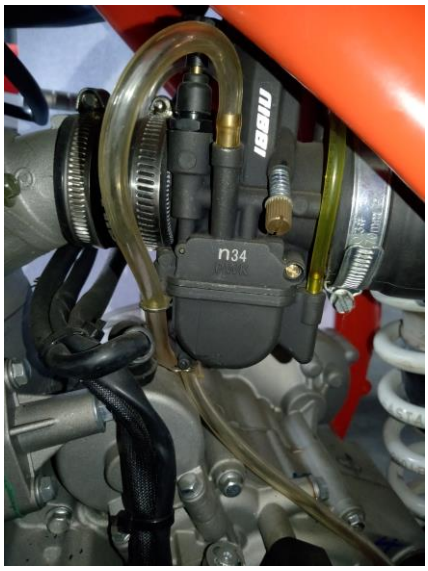
The minimum height of the pattern is 3 mm.
Checking the tire pressure: Use a barometer to check the pressure inside the tire. Our recommended tire pressure is: front 1.0bar; rear1.0 bar.

30、Battery check
Remove the motorcycle seat cushion and use a multimeter to check the voltage and output current of the positive and negative terminals of the battery. If the battery is insufficient, please charge it in time; if the battery is damaged, replace it immediately.

Note:Please use KAYO recommended products when replacing the battery.
If you do n't know about this product, please go to KAYO dealer

Vehicle settings

Specific settings and methods



Carburetor settings

The carburetor is an important factor that affects the performance of motorcycles. Our company chose the NIBBI racing version PWK carburetor. By changing the opening of the carburetor valve, the composition of the mixture can be adjusted, thereby affecting the performance of the engine.

After driving our motorcycle for a period of time, you must have some feeling for this vehicle. At this time, you can set the motorcycle through the carburetor to make it more suitable for your driving habits.

Second gear ratio setting

The secondary gear ratio can be changed by changing the gear ratio of the motorcycle sprocket.

The number of front and rear sprocket teeth:

Rear sprocket: 51 teeth

Front sprockets: 13 teeth

Note: Please consult the dealer before replacing the sprocket. Never change it without permission.

Warning: When replacing the sprocket, please decide whether to adjust or replace the chain according to the actual situation. Using a chain that is not compatible with the sprocket will cause the sprocket to wear faster, affect its service life, and may cause accidents.

If the gear ratio of the sprocket is reduced, the maximum speed of the motorcycle will be reduced. But the performance is better on acceleration, and it is easier to handle when moving at low speed. Low gear ratios are more conducive to rough terrain.

If the transmission ratio of the sprocket is increased, the maximum speed of the motorcycle will be increased. High-speed ratio motorcycles have poor acceleration performance and low-speed controllability.

Front shock absorber settings

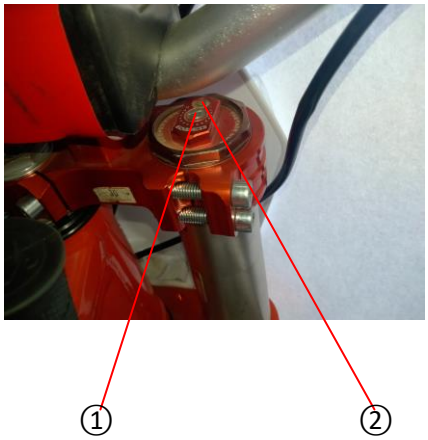
Frame, engine and shock absorber are three important factors that affect motorcycle performance. The frame and engine cannot be adjusted directly, but the shock absorber can be set according to the user's usage.

Our company chooses FASTACE inverted double adjustable front shock absorber, whose damping hardness can be adjusted. The adjustment device is as follows:

Compression adjustment screw②,located on the top;

Bleed screw ①,located at the top;

The rebound adjustment screw ③is located at the bottom.



Warning: Front fork adjustment requires simultaneous adjustment on both sides. Adjusting only one side will tend the motorcycle to one side, which is not conducive to maintaining balance and affecting driving safety.

Rear shock absorber settings

Regarding the rear shock absorber, our company chose the FASTACE dual adjustable nitrogen airbag rear shock absorber. The adjustment device is as follows:

Compression adjustment screw ④;

Spring preload adjustment ⑤;

Rebound adjustment ⑥,

Vehicle troubleshooting

Possible faults and troubleshooting methods

In the following, we will list the problems that occur during your use, find out their possible causes, and give general solutions.

Problems	Reasons	Solution
Engine crank does not turn	Crank stuck	Contact dealer
	Cylinder, piston, connecting rod stuck	Contact dealer
	Gearbox stuck	Contact dealer
The engine does not respond when I press the electric starter	Start relay fuse blown	Remove the seat cushion and check the fuse. If the fuse blows, replace the fuse
	Low battery	Remove the seat cushion and check the battery
Engine cannot start	The motorcycle has been parked for a long time and the fuel has deteriorated	Discharge old fuel and inject new fuel
	Dirt on spark plug or wet spark plug	Clean or dry the spark plug and replace it if necessary
	Water entered in to engine	First, drain the engine oil from the crankcase and remove it, clean it with a strong cleaning agent, then remove the spark plug, blow it dry with a fan (a machine that inflates tires), and then wipe the air filter element dry. Finally, remove the engine exhaust pipe and blow dry with a fan. After everything is completed, the owner should add new oil to the engine before driving. Because it is difficult to completely evaporate the water in the crankcase, the newly changed oil contains a small amount of water. Therefore, after the engine has entered the water and the car has run for 100 kilometers, the oil should be changed again, and then again within 500 kilometers. After three passes, the water in the carburetor was almost gone. If you want to test if the carburetor

		still has water, you can drain the oil in the crankcase and observe its color. If it is white, it means there is still water. If the cylinder enters water, step on the starter lever a few times with the flame off. If you step on it a few times, the accumulated water in the cylinder will be drained from the exhaust pipe, and then you can blow it to the oil adding port for a few minutes with a fan. WARNING: For safety's sake, wrap spark plugs with a dry cloth to avoid spark jumping.
	Incorrect air and fuel mixing	Clean the fuel tank vent pipe and adjust the air filter duct
	Exhaust valve open	Check exhaust valve and correct
The engine can start, but it will stop immediately	Incorrect air supply	Close the choke valve, clean the fuel tank ventilation pipe, and adjust the air filter air duct
	Lack of fuel	Refuel
Engine overheating	Lack of coolant	Refill the coolant and check the cooling system for leaks
	Blocked water tank fins	Clean the tank fins with a low pressure water stream and replace if necessary
Engine running unevenly	Dirt on the spark plug, damaged or incorrectly adjusted	Remove spark plug for cleaning and adjustment, and replace if necessary
	Defective spark plug cap	Check the condition of the spark plug cap, check whether the spark plug cap is in good contact with the cable itself, check the cable, and replace damaged accessories
	Ignition rotor damaged	Replace the rotor
	Water in the fuel	Empty the fuel and inject new fuel
Insufficient engine power or poor acceleration	Problems with fuel supply	Clean fuel system and check
	Dirt in the air filter	Clean the air filter and replace if necessary
	Damaged or leaking exhaust system	Inspect the exhaust system for damage and replace related accessories if necessary
	Dirt in the carburetor nozzle	Remove the carburetor and clean the nozzle

	Damaged or worn crankshaft bearings	Contact KAYO dealer
Engine sound abnormal	Ignition problem	Contact KAYO dealer
	overheat	See”engine over heating”part
Tempering of the exhaust pipe	Carbon deposits in the combustion chamber	Contact KAYO dealer
	Gasoline not good quality	Change fuel
	The spark plug is in poor condition or has incorrect specifications	Replace with new correct spark plug
	Exhaust system gasket	Check the exhaust system for damage, check the gaskets are intact, and replace the gaskets if they are old
White smoke from exhaust pipe	Moisture in fuel	Change fuel
Black smoke from the exhaust pipe	Air filter clogged	Remove and clean the air filter
	Combustible mixture is too rich	Adjust the carburetor valve
Transmission gears are not meshing	Clutch abnormal	Contact KAYO dealer
	The fork is bent or stuck	Check and adjust the fork
	Gearshift damaged	Change the gear lever
	Damaged shift drum	Replace the shift drum
	Damaged ratchet	Replace ratchet
	Speed selector position spring is loose or broken	Replace speed selector position spring
The gears are not engaged.	Fork wearing	Replace the fork
	Alveolar wear	Check the gears and replace if necessary
	Gear damage	Change gear
	Damaged displacement drum groove	Replace the shift drum
	fork shaft wearing	Check the fork shaft and replace if necessary
	Defective selector spring	Replace speed selector position spring
Clutch slip	Clutch disk wearing	Replace clutch disc
	Clutch pressure plate spring is too soft or damaged	Replace clutch spring
	Clutch distance too small	Adjust clutch free distance
Difficult to turn motorcycle	Cables make it difficult to turn the handlebars	Move cables to reduce their interference
	Steering shaft nut is too tight	Adjusting steering shaft nut
	Steering bearing wearing or damaged	Check steering bearings and replace if necessary
	Steering shaft bent	Contact KAYO dealer
Damping too hard	Fork oil level is too high	Lower the fork oil level to a suitable

		position
	Fork oil viscosity is too high	Change the viscosity of the fork oil
	Fork bend	Contact KAYO dealer
	Excessive tire pressure	Check tire pressure and adjust to proper air pressure
	adjustment error	Readjust shock absorption
Damping too soft	Fork oil level is insufficient	Add the right amount of fork oil **Note: add the same oil**
	Fork oil viscosity is too low	Replace with fork oil of suitable viscosity
	Tire pressure is too low	Check whether the tire is leaking. If the tire is full, inflate to a suitable pressure.
	adjustment error	Readjust shock absorption
Abnormal noise when driving a motorcycle	Improper chain adjustment	Re-adjust the chain tension
	Chain wearing	Replace the chain and front and rear sprockets
	Back sprocket tooth wearing	Replace the rear sprocket
	Inadequate chain lubrication	Lubricate the chain according to the manual
	Rear wheel off-center	Check spokes and adjust spoke tension center if necessary
	Fork spring is soft or broken	Replace front fork spring
	Wearing of brake discs	Inspect the brake disc and replace it if it is less than the limit thickness
	Damaged cylinder head	Contact KAYO dealer
	Brackets, nuts, and bolts are not tight	Inspection and torque adjustment of corresponding fasteners
	Gaskets are incorrectly installed, worn, or too smooth	Readjust the pads and replace if necessary
Motorcycle front wheel wobble	Tire wearing	Change tire
	Flange offset	Contact KAYO dealer
	Whether the front wheel bearings are worn	Inspect bearings and replace if necessary
	Vehicle misalignment	Check spokes and adjust spoke tension if necessary
	Steering shaft tolerance is too large	Check steering shaft pressure bearing clearance
	Steering shaft nut loosened, handlebar not fixed	Check and re-tighten
Motorcycles lean towards one side	Curved chassis	Contact KAYO dealer
	Incorrect steering adjustment	Check and readjust
	Steering shaft bent	Contact KAYO dealer

	Problems with the fork	Contact KAYO dealer
	Vehicle misaligned	Readjust the spoke tension and contact KAYO dealer if necessary
Brake failure	brake discs wearing	Replace the brake disc
	Insufficient brake fluid	Replenishing brake fluid
	Brake fluid deterioration	Change the brake fluid
	Damaged piston	Contact KAYO dealer
	Wear of brake pads	Check the brake pads, if the thickness is less than the minimum friction thickness, replace the brake pads

Engine maintenance manual

Cylinder head and valve

Maintenance instructions

Precautions:

● The lubrication of the camshaft is lubricated through the oil passage on the cylinder head and the oil hole on the rocker shaft. The oil passage on the cylinder head must not be allowed to enter, and it is required to keep smooth.

● Before installing the cylinder head, the cylinder head positioning pin must be assembled.

● The camshaft must not be scratched. Lubricate with oil before assembly.

Maintenance parameters of each component

Item			Standard mm	Maintanence Limit mm
Axial clearance between rocker arm and cylinder head cover rocker			0.05～0.3	0.5
Radial clearance between rocker arm and rocker shaft			0.016～0.045	0.08
Valve spring free length			48.35	47.5
Valve clearance			0.04～0.06	------
Camshaft base circle runout			0.02	0.04
valve	Valve stem outer diameter	Intake	φ4.972～φ4.987	φ4.96
		exhaust	φ4.96～φ4.975	φ4.94
	Inner diameter of valve guide	Intake	φ5～φ5.012	φ5.035
		exhaust	φ5～φ5.012	φ5.035
	Valve stem and catheter clearance	Intake	0.013～0.04	0.07
		Intake	0.25～0.052	0.08
	Valve seal width		1.5	----
Cylinder head	Flatness		0.04	0.05
	Valve seat working surface width		0.8	----

Troubleshooting

Low air pressure in the cylinder: 1.Valve ---------- Incorrect valve clearance adjustment ---------- the valve is not tight ---------- Incorrect timing of gas distribution ---------- Broken valve spring 2.Cylinder head ---------- The spark plug is not tightly connected to the cylinder head ---------- Cylinder head pad is damaged ---------- Crack or trachoma in the cylinder head 3.Cylinder block, piston, piston ring ---------- Piston ring clearance is too large or broken ---------- Piston is cracked or excessively worn ---------- Cylinder diameter is too large or trachoma	Exhaust smoke: 1. Worn valve guides 2. Oil hood leaks or is damaged 3. Cylinder head pad leakage 4, the piston ring gap is too large Excessive noise or abnormal noise: 1.Incorrect valve adjustment 2.The valve is stuck or the valve spring is broken. 3.Excessive wear on the upper rocker arm 4.Insufficient timing of gas distribution 5, camshaft wear

Cylinder head cover disassemble

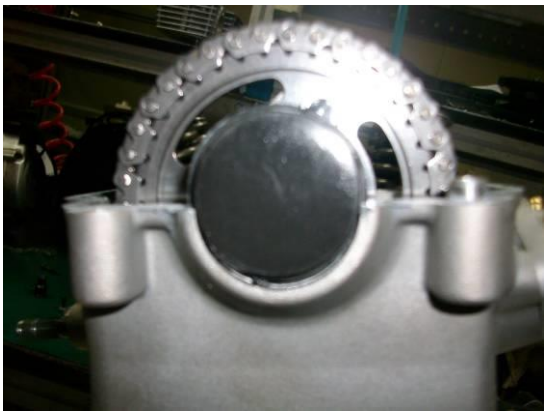
1. Remove the four GB / T16674 small disk M6 × 20 faster bolts of the valve head cover on the intake and exhaust sides c cylinder head cover;

2. Remove the valve cover on both the intake and exhaust s of the cylinder head;

3. Remove the two GB / T16674 small disk bolts that fasten the cylinder head cover
M6 × 60, 2 GB / T16674 small disk bolts, M6 × 35, 4 GB / T16674 small disk bolt M6 × 30, remove 2 A88 air intakes
Pipe washer and install it on M6 × 60 bolts;

4. Remove the cylinder head cover.

cylinder head disassemble

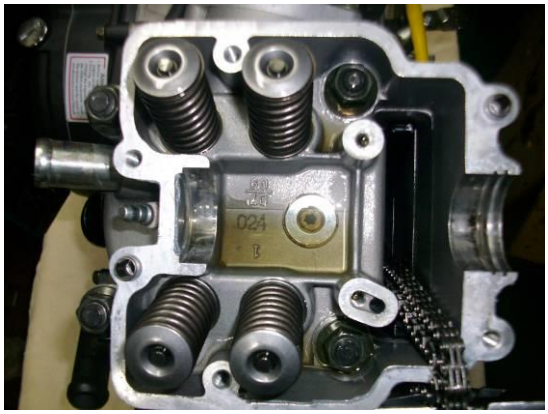


1Remove NC250 cylinder head sealing rubber sleeve,
NC250 camshaft baffle plate;
2. Remove GB / T16674 small plate bolt M6 × 16 and ZS50
Bit plate washer 6.5 × 1.5 × 18;

3. Remove 2 GB / T16674 small disk bolts for tightenir
tensioner
M6 × 20, then remove the tensioner bolt, tensioner combir
tension
Device gasket
4. Remove the timing chain from the timing driven sprocket;
5. Remove the camshaft assembly;

6. Remove the GB / T16674 small plate M6 × 25 connected
cylinder head and cylinder block bolt;

7. Remove four ZS500A and B bolt nuts M10 × 1.25, then
remove 4 ZS500A, B bolt nut washers 10.5 × 2 × 20;
8. Remove the cylinder head.

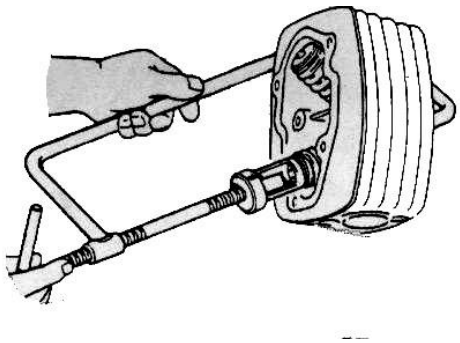


Disintegrate cylinder head cover

1. Remove the two NC250 rocker shaft positioning plate bolts M14 × 1 from the cylinder head cover.
2. Remove the inlet and exhaust rocker arm shafts and the inlet and exhaust rocker arms.

Disintegrate cylinder head

Use the valve remover to press down the valve spring and remove the valve lock clip; then relax the valve remover and remove the valve spring seat, valve spring and valve.



Note:

1. In order to prevent permanent deformation of the valve spring, do not compress the valve spring excessively, as long as the valve lock clip can be removed;
2. All the removed parts should be marked to ensure that the original assembly position is reached during assembly.

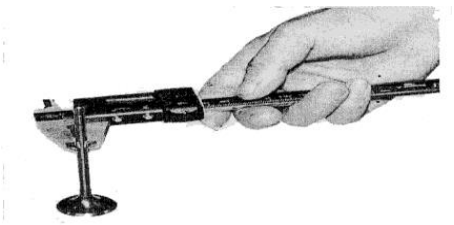
Inspection of valves and valve springs

Check the valve for bending, burns, or abnormal wear on the valve stem, and measure the valve stem outer diameter.

Maintenance limit value:

Intake: φ4.96mm

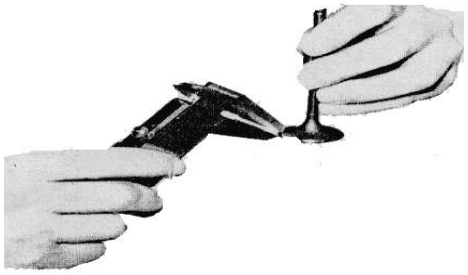
Exhaust: φ4.94mm



Contact surface width maintenance limit value: 1.5mm

Note:

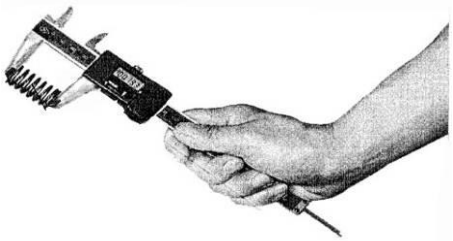
If the valve contact surface is rough, the abrasion is uneven, or the valve seat is not in proper contact, the sealing performance cannot be guaranteed, and the valve should be replaced.



Measure the free length of the valve spring：48.35mm

Maintenance limits (air intake and output)

spring： 47.5 mm



Inspection of swing arm and swing arm shaft

Check the swing arm and axial clearance. If it worn and tear seriously or swing arm roller axial clearance is too large, please replace new swing arm.

Check swing arm axle, if it worn seriously, replace new axle.

Inspection of camshaft components

1.check the camshaft surface condition and bearing at both end, if surface has severe worn or damage or bearing works inflexible, replace new components.

2.Check if NC250 camshaft pressure relief valve block combination has cracks, fracture etc, and whether the pressure relief valve centrifugal block and the pressure relief valve spindle shaft are loosen, if yes replace pressure relief valve block combination.

Inspection of cylinder head

1. Check whether the cylinder head is well sealed. If poorly sealed, replace a new cylinder head or valve.
2. Check if spark plug hole and valve seat has cracks
3. Check the cylinder head for deformation. Measure the flatness with a knife edge ruler and a plug ruler.

Inspection and grinding of valve seat

Clean the carbon deposits in the combustion chamber completely, then smear a thin layer of red printing oil evenly on the valve seat. Put the valve on the valve seat and knock the valve gently without rotate, later pull out the valve, if the trace on the valve work surface is intermittent, valve seat need grinding.
First, remove the carbon deposits from intake and exhaust valve seat, second smear grinding agent on the valve seat, and then suck the valve with the rubber head grinding tool, grind the valve seat.

Inspection of valve pipe

Measure the inner diameter of each valve pipe with a dial indicator and record them.
Maintenance limits：
Air intake：φ5.035 mm
Exhaust：φ5.035 mm

Note：
Clean up carbon deposit before measuring pipe inner diameter.

If replace the valve pipe, the valve seat shall be re-ground and each valve shall be inserted into the pipe to observe its movement. Finally, the gap between the valve stem and the valve pipe shall be calculated.
Maintenance limits：Air intake：0.07mm
Exhaust：0.08mm

Replacement of valve guide

Heat cylinder head to 100 ~ 150 ℃ in an incubator, take out and prop up the cylinder head (be careful burn), and use the valve disassembly tool to shoot the valve tube towards the side of the swing arm chamber.

note： Do not damage the cylinder head when removing the valve guide.

Press the new valve tube into place and rehole the newly installed valve tube after the cylinder head is cooled.

note：
When reaming, the reamer shall be coated with cutting oil. When loading or taking out the reamer, it shall be rotated..

Finally, clean cylinder head with cleaning agent and remove metal chips on the cylinder head by compressed air.

Measure the width of valve seat contact surface

Maintenance limits：1.5 mm
If the valve seat is too wide, narrow or dented, grind the valve seat until proper sealing.
When grinding the valve, apply the rubber hose on the electric gun sleeve (tight fit), then put the valve rod on the rubber hose, apply a little graphite paste used for grinding on the valve seal belt, and then attach it to the valve seat seal line, start the electric gun, turn the valve, and grind the valve with the seat ring.
After grinding, check whether the sealing line of valve and seat ring has been ground out, otherwise it should be reground. Replace valve or cylinder head if grinding is not in place.

Cylinder head assembly

Error!

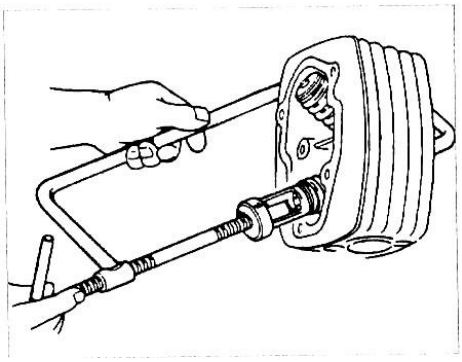
1. Install valve spring seat and oil shield on valve pipe.
2. After the inlet and exhaust valve lever is coated with lubricating oil, loaded into the valve pipe. Install valve spring, valve spring upper seat and the air lock clamp.

3.Then press down the valve spring with the valve discharger, and then put the air lock clamp into the valve spring seat.

note：
In order to prevent the valve spring from permanent deformation, the spring cannot be compressed excessively.

4.Check whether the air lock clamp assembly is in right place

5.Check the air tightness of the assembled cylinder head. If there is no leakage, go on next procedure.



Cylinder head cove assembly

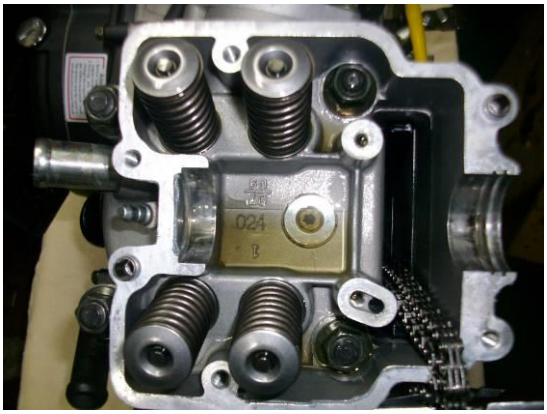
Firstly, put the inlet and exhaust swing arms into the cylinder head cover, and then assemble the inlet and exhaust swing arm shafts through the cylinder head cover and the inlet and exhaust swing arm shaft holes in place. Finally, install the NC250 swing arm shaft positioning plate bolts into the corresponding holes on the cylinder head cover and tighten them.

note：
1. When installing swing arm shaft, keep trimming side faced the suspension hole of cylinder head cover.
2. After the cylinder head cover is installed, rotate the swing arm. Make sure it works well.
3. shaft locating plate bolt fastening torque：16～20N·m。

Cylinder head assembly

1. Replace new cylinder head seal, then install locating pin.

2.Install the cylinder head on bolts A and B, then place the nut washers of ZS500A and B bolts on bolts A and B, and then install the nuts of ZS500A and B bolts on bolts A and B and tighten them.



note：

1.keep cylinder clean.

2. bolts A、B nut fastening torque：55～60N.m。

3.Install GB/T16674 small plate bolt M6×25 into the connection hole of cylinder head and cylinder block, tighten it. The tightening torque is 11 ~ 13 N.m.

4.Install the camshaft to the cylinder head, then install the timing chain to the timing driven sprocket of camshaft. Keep engine in timing position, if not readjust..

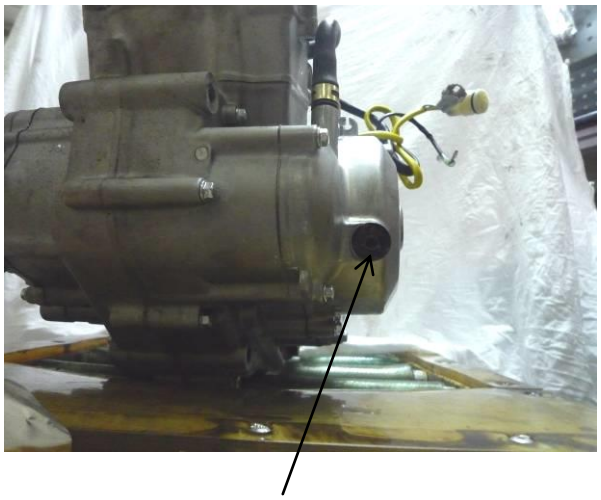
NC250 engine timing adjustment：

（1）Remove the large viewing hole cover of front left cover and the NC250 rocker shaft.

（2）Rotate the NC250 magneto lock nut with a special tool, and observe whether the timing calibration line "-" on the magneto rotor is in alignment with the timing mark on the left front cover through the bolt hole of the swing shaft positioning plate on the left front cove.

（3）check whether the timing mark on driven sprocket is on the same level as the cover surface after the timing mark is positive; Only when both (2) and (3) are satisfied the engine is in the correct timing position.

NC250 front left cover hole cover

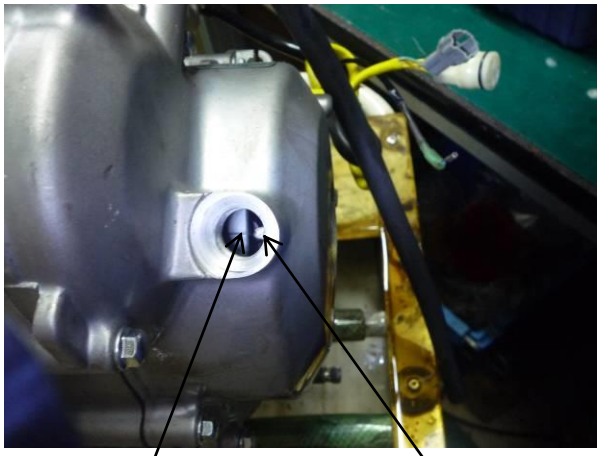


NC250 swing arm shaft locating bolt

After adjusting the timing position, assemble the bolts and front left cover.

5.Install the tensioner into the corresponding hole on the cylinder block, and tighten it with 2 GB/T16674 bolts M6×20. Finally, assemble the

tensioner spring, seal and bolts in place.
6.Put the ZS500 positioning plate washer on the GB/T16674 bolt M6×16, tighten the bolt to the camshaft, install the NC250 camshaft baffle into the baffle groove of the cylinder head, and finally put the NC250 cylinder head sealant set into the sealant groove of cylinder head..



NC250 Magneto rotor timing mark

NC250 front left cover timing mark

Timing driven sprocket timing mark

Cylinder head cover assembly

1.Smear a layer of silicone rubber surface sealant evenly to the cylinder head cover joint surface.
2.Install the cover on cylinder head.
3.put 2 A88 washers to GB/T16674 bolts M6×60, then install them into the cylinder head cover oil channel hole, then install 2 GB/T16674 bolts M6×35 and 4 GB/T16674 bolts M6×30 through the hole on cylinder head cover and tighten, tightening torque: 11 ~ 13N.m.
4.Adjust the clearance of inlet and exhaust valves. Clearance value: 0.04 ~ 0.06mm.
5.Install valve chamber cover on cylinder head cover and tighten with GB/T16674 bolt M6×20, tightening torque: 11 ~ 13 N.m.

Cylinder and piston

Maintenance instructions

General

Note:

- Make sure the oil hole near left body AB bolt is working well before installing cylinder.
- Keep dust away from crankcase.

Maintenance parameters

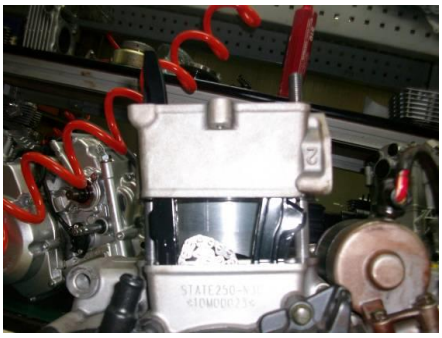
Item			Standard mm	Maintenance limit mm
Cylinder	Inner diameter		φ77～φ77.01	φ77.018
	out-of-roundness		0.05	0.01
	Face flatness		0.03	0.05
Piston Piston ring Piston pin	Piston outer diameter		φ76.96～φ76.97	φ76.94
	Inner diameter of piston pin hole		φ16.001～φ16.006	φ16.015
	Clearance between piston pin and pin hole		0.001～0.012	0.025
	Piston ring closing clearance	Top ring/ second ring	0.2～0.35	0.5
		Oil ring	0.2～0.7	1.4
	Piston ring and piston ring groove clearance	Top ring	0.03～0.07	0.08
		Second ring	0.02～0.06	0.08
	Clearance of cylinder and piston		0.035～0.045	0.07
	Outer diameter of piston pin		φ15.994～φ16	φ15.99
small end of connecting rod	Inner diameter		φ16.015～φ16.025	φ16.04
	Clearance between small end of connecting rod and piston pin		0.015～0.03	0.05

Trouble shooting

Low or unstable compression force： 1.Cylinder or piston ring is worn Remove excess black smoke： 1.Cylinder, piston or piston ring worn 2.Incorrect piston ring mounting 3.The piston or cylinder walls are scratched or scratched	Overheat： 1.too much carbon deposits in piston Knock or abnormal noise： 1.piston or cylinder is worn 2.too much carbon deposits

Disassembly of cylinder

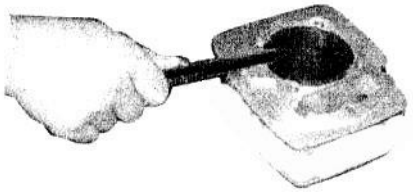
Remove chain guide plate and cylinder body.



Clean the remaining gaskets on the cylinder surface with a spatula

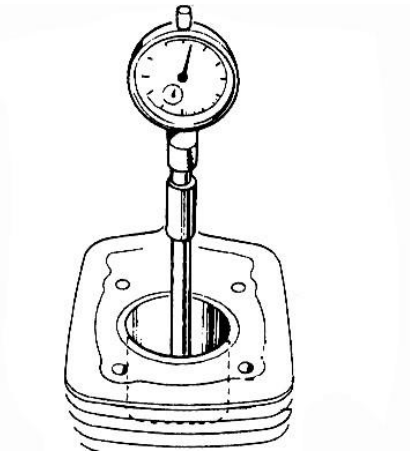
note：

If gasket is immersed in gasoline, it is easy to open. Do this without damaging the cylinder contact surface.



Inspection of cylinder body

Check if cylinder body worn or broken.
To measure the inner diameter of the cylinder, three positions shall be measured, the top, middle and bottom of the piston stroke. Measurements should be made in two directions at right angles to each other.
Maintenance limit：φ77.018mm



Disassembly of piston

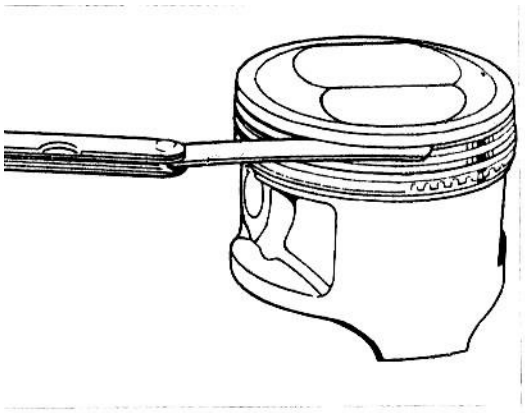
Remove piston pin washer with needle-nose pliers and remove piston pin and piston.

note：
Do not drop the piston pin washer into the crankcase while removing it.

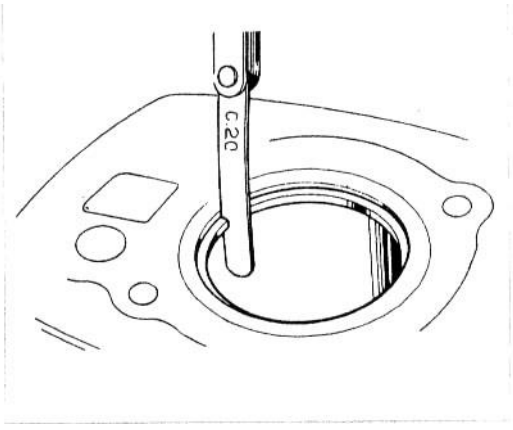
Inspection of piston and piston pin

Remove piston ring；

note：do not damage piston ring



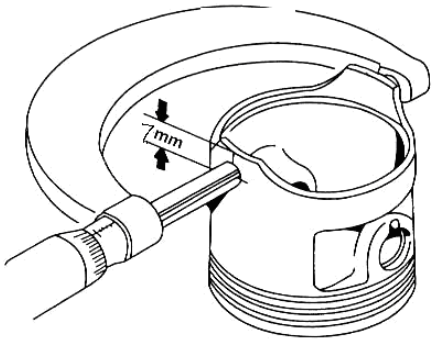
Measure the clearance between piston ring and piston ring groove
Maintenance limit：first ring： 0.08mm
Second ring：0.08 mm
Oil ring：0.08 mm
Check the piston for wear and tear and the piston ring grooves for wear and tear.



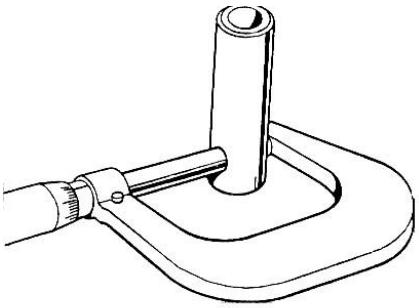
Insert the piston ring into the cylinder and measure the end gap.
Maintenance limit：
first ring：0.5mm
Second ring：0.5mm
Oil ring：1.4 mm

Measure inner diameter of piston pin hole
Maintenance limit：φ16.015 mm

Measure the outer diameter at a height of 7 mm from the piston skirt
Maintenance limit：φ76.94 mm
Calculate the clearance between cylinder and piston.
Maintenance limit：0.1mm

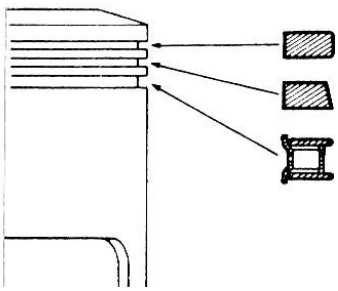


Measure outer diameter of piston pin
Maintenance limit：15.99 mm
Calculate the clearance between piston pin and piston.
Maintenance limit：0.025 mm



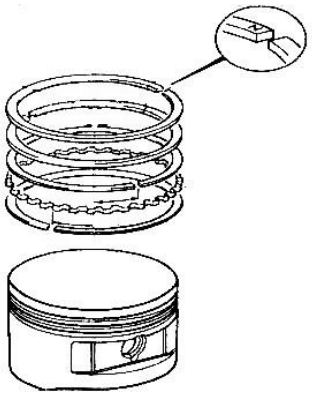
Piston ring assembly

1.Clean the piston ring grooves thoroughly.
2. install piston ring.



note：
1.do not damage piston and piston ring when installing.
2.install first and second rings in sequence. Ring face with mark face to piston top.
3. the piston ring should rotate flexibly after installation.

3.The gap between the rings in the oil ring shall be matched with the gap between the rings. When installing the oil ring, install the baffle ring first and then install the side guide.

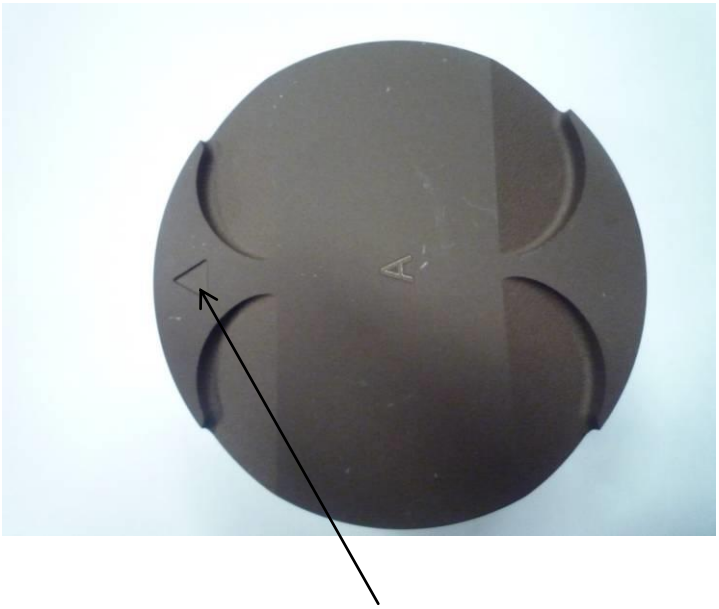


Piston assembly

Install piston, piston pin and new piston pin ring.

Note：

1.Mark face“ ◄ ”toward engine exhaust side, when installation.
2.The opening of the end clearance of the piston pin ring shall be downward.
3.If the piston pin ring is sever deformed, replace it.
4.Do not let the piston pin ring fall into the crankcase.



Mark face“ ◄ ”toward engine exhaust side

Cylinder body assembly

1.Install cylinder block locating pin and new cylinder block gasket.
2.Apply oil evenly on the surface of cylinder body, piston and piston ring.
3.First stagger the openings between the piston rings by 120°, then assemble the cylinder body in position slightly.
4.Assemble the chain guide plate in place.

note： When installing the cylinder body, avoid damaging the piston ring.

Clutch, drive tooth, overrunning clutch, oil pump and shift mechanism

Maintenance instructions

note:

After the right crankcase cover is removed, disassembly, installation and maintenance of the clutch, oil pump and gear shifter can be carried out without removing the engine.

Maintenance parameters

Item		Standard mm	Maintenance limits mm
Clutch	Spring free length	32.3～33.3	32.3
	Friction active plate free thickness	2.95～3.05	2.85
	Flatness of clutch driven disc	0.1	0.14
	Clearance between clutch cover and friction plate	0.1～0.3	0.6
Oil pump	Inner and outer rotors radial clearance	0.06～0.15	----

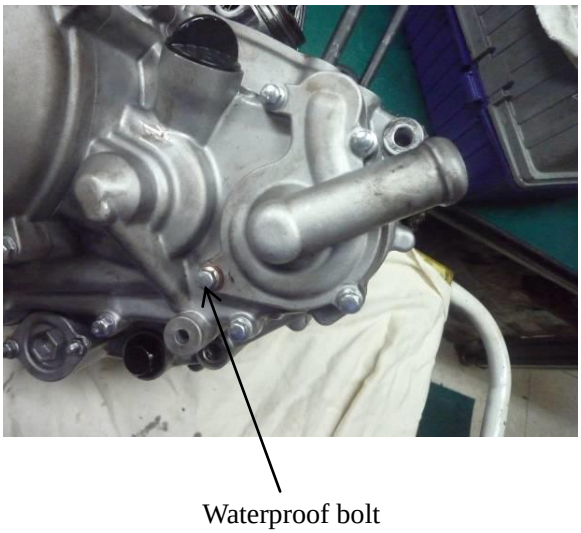
	End clearance between rotor assembly and cover plate	0.04～0.1	----

Troubleshooting

clutch slips when accelerating： 1.Insufficient free travel 2.Disc worn 3.Clutch plate bending Handle bar with too much pressure： 1.Clutch cable is bonded, damaged or unclean 2.lifting mechanism failure oil pressure is too low： 1.Clutch cable is bonded, damaged or unclean 2.lifting mechanism failure shift pedal does not spring back： 1.spring broken 2.gear shaft interferes with the crankcase cover clutch： 1.if there is a clutch failure, usually can be adjusted by the clutch hand free travel.	The bike will move slowly when the clutch is released： 1. Large free travel. 2.bent clutch plate Clutch operation difficulty： 1. Spurs in clutch cover spout. Shift difficulty： 1.stop plate bent or worn 2. incorrect clutch adjustment. Shift gear is trip over： 1.spring broken and loosen elastic. Cylinder overheat： 1.something wrong with impeller Electrical starting difficulty： 1.something wrong with start motor.

Disassembly of water pump impeller

Remove the drain bolt from pump cover and drain out water in engine. Finally, remove pump cover and impeller.



Waterproof bolt

Disassembly of right crankcase cover

1. First drain the oil (remove the oil filter cover on left and right sides, take out the combination of oil filter in the box, and wait for the oil in the box to run out);
2. Remove the right cover connection screw and remove the right crankcase cover.

Disassembly of water pump shaft, water seal components and oil seal

1.First remove the GB/T893.1washer 22from pump shaft groove, then remove the pump shaft.
2.remove water seal components and oil seal from pump shaft hole。

Disassembly of clutch

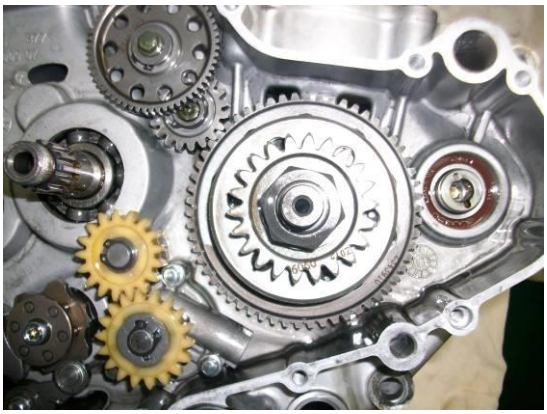
1. Remove the spring and bolts, from clutch, pay attention to loosen bolts, should be divided into two or three times into the way of cross loosen.
2. Remove clutch plate, roller and friction plate.
3. Remove fasten nuts and washer.
4. Remove center sleeve, outer cover, axle sleeve and washer.

Take out push rod from axle center hole.

Disassembly of drive tooth, overrun clutch and big starter gear

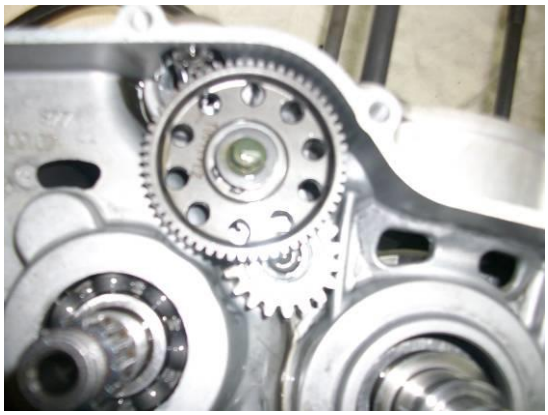
1. Remove drive tooth nuts and washers.
2. Remove overrun clutch and big starter gear.

note:
When remove starter gear, remove washers together and take care of washers.



Disassembly of right oil pump

1. Remove carrier gear and gear combination washers from oil pump.
2. Remove carrier gear washer, carrier gear and gear combination from oil pump.
Remove three GB/T16674 bolt M5*18 from oil pump plate, then remove plate combination and rotors combination.



note:
There are two washers on carrier gear, keep washers, rings, and pins safe after removing.

Disassembly of duplicate gear

First remove GB/T894.4 closing ring15, then gear washer and duplicate gear.

Disassembly of start motor

Remove the fasten bolts and start motor.

Disassembly of gear shifting mechanism

1. remove bolts GB/T70.1 M6×35 and five-star plate.
2. Remove the gear shifting arm components.
3.Remove the fixed plate combination screw, fixed plate washer and fixed plate combination..

Inspection of right crankcase

1. If the crankshaft oil seal of right crankcase worn, replace it.

note：
1. Oil seal should with “TCV” mark.
2. Keep the mark face outward.

2. if the start shaft oil seal worn, replace it.

Inspection of Pump shaft, pump impeller, water seal components and oil seal

1.check if the pump impeller has cracks or parts loose, replace it.
2.if the water seal components broken, pump shaft sever worn or bend, replace them.

note：
1. Apply an appropriate amount of oil in the shaft hole, then press the oil seal in place with special tooling, keep oil seal mark outward.
2. Use special tooling to press water pump shaft water seal in place, lower than the end face 0.5mm. Keep water seal mark is inwards .
3. Smear some grease to the water seal main lip (grease model no. MYSTIK JT-6).
4. Press the new pump shaft into place with special tooling.
Install GB/T893.1 closing ring 22 into the groove of the pump shaft hole, make sure assembled pump shaft rotate flexibly.

Inspection of start shaft

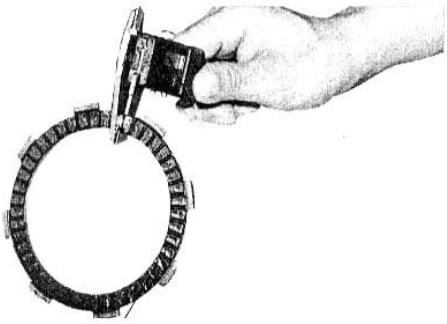
Check wear condition of the start shaft gear.

Inspection of clutch spring

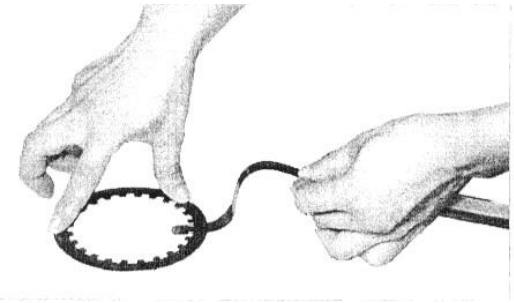
Measure the free length of the clutch spring
Maintenance limits：32.3mm

Inspection of clutch friction disc

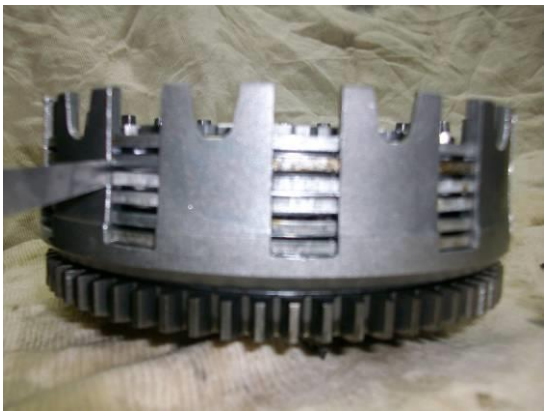
If the clutch friction disc appears scratch or fade marks, it should be replaced. Measure the thickness of each clutch friction disc.
Maintenance limit: 2.85mm



Check if there is any distortion on the surface of the clutch follower, check with the feeler gauge.
Maintenance limit: 0.14mm



Check the gap between clutch cover and friction disc.
Maintenance limit: 0.6mm



Inspection of clutch cover

Check that the groove on the drum typed outer cover if notched and scarred due to the friction of the clutch disc, and replace the outer cover if serious

Inspection of active teeth

Check if the active teeth was damaged, if the wear and damage is serious, need to replace the new active teeth.

Inspection of free wheel device

Remove the wedge at the end of the free wheel device and check for wear and damage condition of the wedge.

Cover of the free wheel device wedge

Inspection of the starting gear

Check if there are any wear or damage for the starting big gear.

Inspection of the right body oil pump

1. check whether the rotor inside and outside of the oil pump is worn and damaged, if the wear and damage is serious, it is necessary to replace the assembly parts ;
2, check if the oil pump bridge gear and oil pump gear combination have rupture, if there is any please replace it.
3.Check whether the right machine oil pump cover plate is worn and damaged, if there is any please replace it.

Right oil pump cover

right oil pump rotor inside and outside

Inspection of starting motor and double gear

Check whether the gear slot of the starting motor and the double gear are damaged

Inspection of change gear device

Check whethe the positioning plate roller is worn and if the roller rotation is inflexible.

Assembly of the starting shaft

Install the starting shaft into the corresponding starting shaft hole of the right body.If only electric start without this step.

Assembly of Double Gear

1. Mount the double gear into the right double gear shaft.
2. Mount the double gear washer into the double gear end surface
3. Mount the GB/T894.1 gear ring 15 into the clamping groove on the double gear shaft.

Assembly of the starting shaft

1. Assemble the positioning plate to the right body and fasten it ;
2. Put the five star plate on the variable speed drum, pay attention to the notch alignment should aim to the variable speed drum pin, install the fastening screw and fasten ;
3. Install the variable arm, after assembly the variable arm, please check whether the change gear is correct, then continue to install the machine.

Assembly of Right Body Oil Pump

1. first install the oil pump pin into the pin hole on the oil pump shaft.
2. install the rotor combination into the hole of the right box; fasten the oil pump cover plate combination to the oil pump rotor with 3pcs of GB/T16674 small disc screws M5×18;

Note:

1. When assemble the oil pump rotor, the inside and outside rotor with mark should face to the same direction;
2. oil pump cover bolt tightening torque :7~9 N.m;
3. After the cover plate is assembled, make sure the oil pump shaft can rotate flexibly.

3. Assemble the oil pump gear to the oil pump shaft and mount the GB/T894.1 bead flange 10 to the clamping groove on the oil pump shaft ;
4. First,install the oil pump bridge gear washer on the oil pump bridge gear shaft. Second,install the oil pump bridge gear on the oil pump bridge gear shaft. Third,install the oil pump bridge gear washer on the oil pump bridge gear. And finally install the GB/T894.1 bead flange 10 on the groove of the oil pump bridge gear shaft.

Assembly of free-wheeling clutch

Install the wedge on the outer cover of the free-wheeling clutch. When assembling, please note not to reverse the wedge.

Installation of starting gear and overrunning clutch

1. Install the big gear washer to the right crank.
2. 2. Install the big gear and free-wheeling clutch to the right crank.

Note:
Daub a layer of grease evenly on the inner hole of the starting gear before installing the starting gear.

Installation of active teeth

1. Install the active tooth to the right crank ,
2, Install the active tooth locking nut washer to the active tooth ,
3.Daub 3~4 thread fastening glue to the active tooth locking nut then install it to the right crank and fasten it.

Note:
Fastening torque of active tooth locking nut: 150～160N·m

Installation of clutch

1. Install the clutch cover washer, clutch shaft sleeve, clutch cover and clutch center sleeve washer to the spindle;

Note:
Daub grease evenly on inner ring of clutch sleeve

2. First,install the clutch center sleeve, clutch lock nut washer into the spindle, then,daub the 3~4 thread fastening glue on the clutch lock nut, mount it on the spindle and fasten it;

Note:
Fastening torque of clutch locking nut：80～90N·m

3. First, put the clutch friction disc into the clutch center sleeve and clutch outer cover. Then mount the clutch push rod into the center hole of the spindle. Third,install the clutch pull rod into the center hole of the spindle, and mount the thrust bearing and the pull rod washer into the pull rod,

4. Install the clutch press disc, clutch press disc spring and pressure plate screw,fasten the screw with a torque spanner. Fastening torque：8～10N·m

Assembly of starting motor

Assemble the starting motor in place after evenly applying oil to the slot end of the starting motorand fasten with 2pcs of GB/T16674 small plate boltsM6×25.Fastening torque 11～13N·m

Installation of right crankcase cover

1. Remove the old right crankcase gasket, install the new gasket, mount the right crankcase cover in place and fasten with 10pcs of GB/T16674 small disc bolts M6×30.Fastening torque：11～13N·m
2. Mount the pump impeller to the pump shaft and fasten it.Fastening torque：2～4N·m；
3. Mount the pump cover seal pad and assemble the pump cover in place, then fasten with 3 pcs of GB/T16674 M6×35 and 1 pc of GB/T16674 M6×35 small disc bolts.

Magnetors and balancing main and driven Gear

Maintenance instructions

This section describes the removal and installation of the magneto and balance main and slave teeth, as long as the left crankcase cover is removed without removal of the engine.

For magnetic motor inspection, please refer to the battery charging system section.

Removal of the left crankcase cover

Remove the left front cover fastening bolt and remove the left crankcase cover.

Removal of the stator of the magneto

1. Remove 2pcs of GB/T818 sensing screws M5×10(color zinc) ML35-HIPERfastening screws ;
2, Remove the 2pcs of GB/T70.1 screws of the stator coil M5×30 fastening screws, then remove the magneto stator combination from the left crankcase cover.

Removal of the motor rotor

Remove the magnet motor rotor locking nut and remove the magnet motor rotor with special tools.

Note:

1. The motor rotor can only be removed with a special tool, do not allow tapping the motor rotor.

2. The magneto rotor is accidentally impacted during disassembly and assembly. If the magneto rotor falls to the ground or is struck by foreign objects, the new magneto rotor should be replaced.

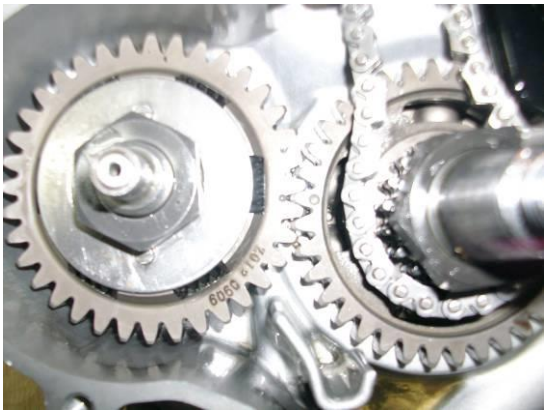
Disassembly of balancing main and driven gears

1. Remove the timing chain and the chain tensioning plate, and then remove the balancing active tooth locking nut and active tooth locking nut washer respectively;

2. Remove crank shaft timing active sprocket and balance active gear;

3. remove the balance driven tooth lock nut and CB125 clutch disc washer ;

4, remove the balance tooth driven wheel, NC250 the crankshaft sleeve, balance shaft flat key.



Removal of oil pump for left body machine

1. Remove 3 pcs of GB/T16674 small plate bolts M5×10 that fasten the cover plate of the left machine oil pump.

2. Remove the oil pump cover plate, remove the left oil pump rotor assembly, oil pump pin should be properly kept to avoid loss.

Inspection of left crankcase cover

Check that if the balance shaft oil seal of the left crankcase cover is damaged. If any, the balance shaft oil seal must be replaced.

Inspection of magnetic motor stator and rotor

1. Check if there are cracks or breakage of the magnetic tile of the magneto stator, if any, the new magneto rotor should be replaced.

2. Check if the magneto rotor is worn or damaged, and replace the new magneto rotor if any.

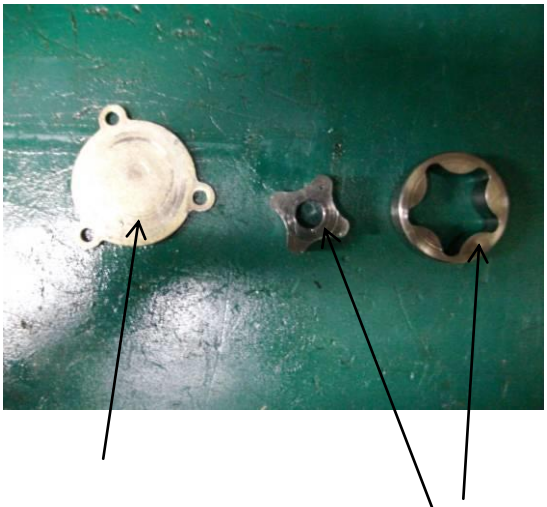
Inspection of main and driven gear

Check if the balance main and driven gears is worn or damaged.

Inspection of the left body oil pump

1. Check if the left body oil pump rotor assembly is worn or damaged ;

2. Check if the left body oil pump cover plate is worn or damaged.



Left oil pump cover　　Left Engine oil pump rotor combination

Installation of the left body oil pump

1. Install the left oil pump into the corresponding hole of the left body ;

2. Fasten the oil pump left cover M5×1 with 3pcs of GB/T16674 small plate bolts.

Note：

1.When install the oil pump rotor, the marked face of the inner and outer rotor should be in the same direction ;

2. Fastening torque of the bolt of the cover plate of the left machine oil pump :7~9 N.M;

3. After fastening, check whether the oil pump shaft rotates flexibly.

Installation of the main and driven gear

1. First install the NC250 crankshaft shaft to the balance shaft, in the keyway NC250 the balance shaft flat key 4×4 13 to the balance shaft, finally install the balance shaft from the moving gear to the balance shaft ;

2. First install the balance active tooth to the left crank, then install the NC250 crankshaft timing sprocket to the left crank;

Note：

When balancing the main and follower teeth, the timing marks of the positive balance main and follower teeth should be matched with each other.

3. Put the balance active tooth nut locking washer and the CB125 clutch disc washer on the crankshaft timing active sprocket and balance shaft driven gear, respectively. Daub 3~4 thread fastening glue M16M24×1 clutch locking nut on the balance shaft locking nut, install it to the crankshaft and balance shaft and fasten it.

Note：

Tightening torque of locking nut of balance main and follower teeth：80～90N·m。

Installation of the magneto rotor

Mount the magneto rotor to the left crank, then daub 3~4 thread fastening glue to the IB175-FC magneto nut and finally mount it into the left crank and fasten it.

Note：

Fastening torque of locking nut for magnetic motor rotor：85～90N·m.

Installation of the magneto stator

Tighten the magneto stator assembly to the left crankcase cover with 2 GB/T818M5×10 and 2 GB/T70.1 screws M5GB/T818M5×30, tightening torque：7～9N·m.

Installation of the left crankcase cover

1. Remove the old gasket and install the new gasket ;
2. Assemble the left crankcase cover in place and fasten it M6×35 with 8 plate bolts M6×35, fastening torque：11～13 N·m.

crankcase, crankshaft, variable speed drive, balance shaft

Maintenance instructions

This section introduces the installation, detection of transmission, crankshaft, balance mechanism, when doing the above work, the crankcase should be separated first, and the disassembly of other parts about the engine should be carried out before the crankcase is separated.

Work before crankcase separation

Removal of cylinder head
Removal of cylinder/piston
Removal of clutch, oil pump, shift mechanism, balance tooth
Removal of Magneto

Component maintenance parameters

Items			standard value mm	Maintenance threshold mm
selector fork	Inner diameter of right fork of secondary shaft / inner diameter of left fork of secondary shaft		φ14.016～φ14.043	φ14.045
	Inner diameter of spindle dial fork		φ12.016～φ12.043	φ12.045
	Claw thickness		4.8～4.9	4.8
Change fork shaft	Spindle fork shaft external diameter		φ11.973～φ12	φ11.95
	External diameter of fork shaft		φ13.973～φ14	φ13.95
	cylindricity		0.006	----
crankshaft	Inner diameter of connecting rod		φ16.015～φ16.025	φ16.04
	Large end gap of link rod	axial	0.15～0.4	0.6
		radial	0.008～0.016	0.02
balance shaft	diameter of axle		φ19.98～φ19.993	φ19.96

Trouble shooting

Shift difficulties	**Crankshaft noise**
1. shift fork bending	1. connecting rod large end bearing worn
2. shift fork shaft bending	2. connecting rod bent
Transmission jumper	3. crankshaft bearing worn
1. gear forepaw worn	**Noise from gear shift**
2. shift fork bent or worn	1. gear shift gear worn
3. shift fork shaft bent	2. spline shaft worn

Crankcase decomposition

1. Place the engine left crankcase upward;

2. Remove 8pcs of GB/T16674 small disc bolts M6×65 and 5pcs of GB/T16674 small disc bolts M6×45 fastening screws, separate the left crankcase from the right crankcase and remove 2pcs of positioning pins.

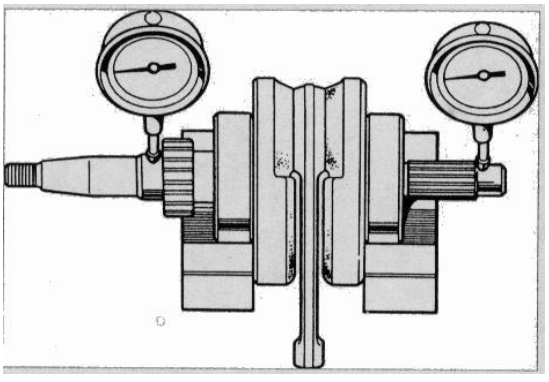
Crankshaft, balance shaft, main and counter shaft disassembly

Remove the crankshaft assembly, balance shaft, fork shaft, fork, variable speed drum, main and secondary shaft assembly from the box.

Note：

Make sure there are no spare parts left behind when assembling the main and counter shaft.

Inspection of crankshaft



Place the crankshaft on the v type iron.

Use a percentile to measure the radial clearance of the crankshaft shaft diameter.

The actual radial clearance of the crankshaft is 1/2 of total read value (TIR)

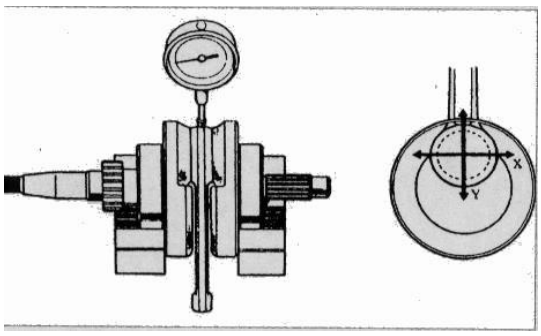
Maintenance threshold: 0.1mm

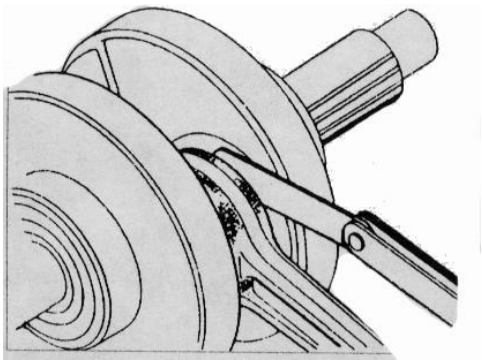
Measure radial clearance of two points in the X and Y direction of the connecting rod head.

Maintenance threshold：0.02 mm

Measure the large head clearance of connecting rod with thick gauge.

Maintenance threshold：0.7 mm

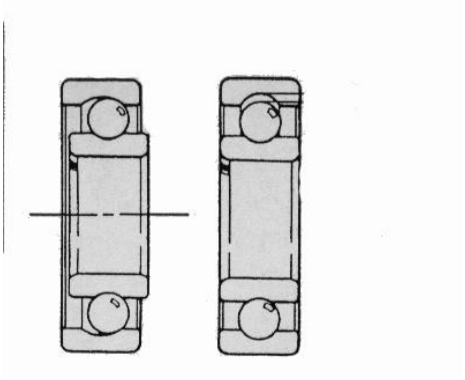




Inspection of left and right box bearing

1. Check that all bearings of left and right box are flexible in rotation; if the rotation is not flexible or there is a-issuing phenomenon, the same type of bearing should be replaced ;

2. Remove the crankshaft bearings of left and right box to check their diameter and end jumps, and replace new crankshaft bearings if noise or diameter jumps and end jumps are found to be too large.

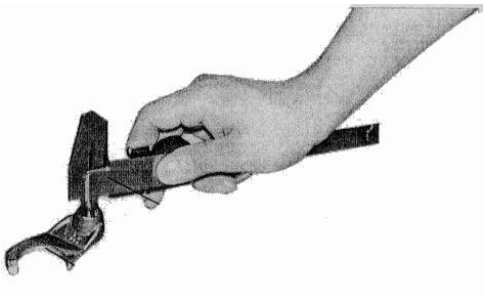


Inspection of shift fork, shift fork shaft, transmission hub

Check each shift fork for wear, bending or any other malfunction, measure the inner diameter of shift fork.

Maintenance thresholds for main shaft fork：φ12.45 mm

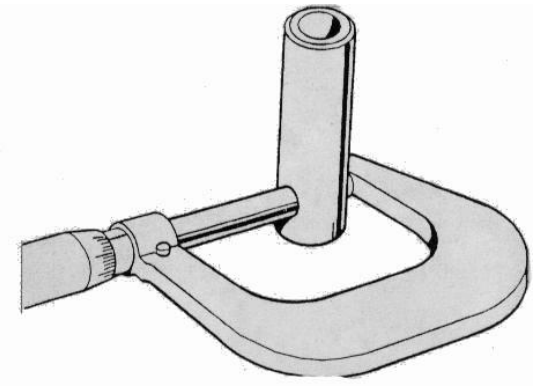
Maintenance thresholds for counter shaft fork：φ14.45 mm



Check the main and counter shaft fork for wear, damage or bending, measure the outer diameter.

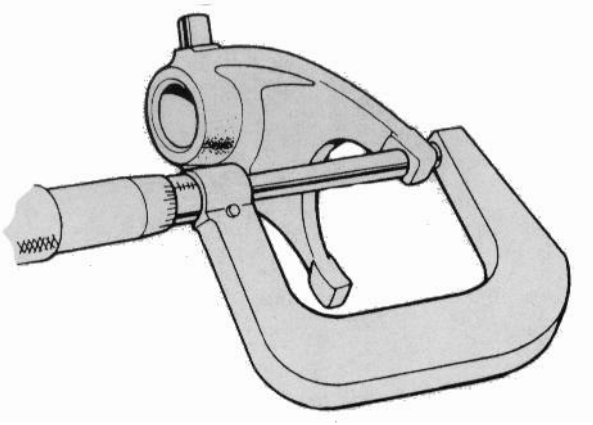
Maintenance thresholds for main shaft fork：φ11.95 mm

Maintenance thresholds for counter shaft fork：φ13.95 mm



Measure the thickness of the fork claw.

Maintenance thresholds：4.7 mm



Check for wear or damage to the surface and groove of the transmission hub.

Inspection the assembly of main and counter shaft

Check whether there is excessive or abnormal wear of each gear of the main and counter shaft assembly, and check whether there is deformation and shedding of each clamping ring between the gears.

Inspection of oil filter parts, oil filter

1. Check the cleanliness of oil filter parts, oil filter screen; for poor cleanliness of oil filter parts, oil filter screen should be washed with clean gasoline ;

2. Check the oil filter parts, oil filter screen there is damage phenomenon; if there is damage phenomenon need to replace the new oil filter parts, oil filter screen.

Assembly of transmission, crankshaft and balance shaft

1. The crankshaft and balance shaft are installed in the corresponding hole of the left body.

2. The main and counter shaft components are installed in the corresponding hole of the left body, and then the dial fork is assembled to the corresponding position.

Note：

1. The fork marked - R is mounted on the right side of the counter shaft ;

2. A The fork marked - L is mounted on the left side of the counter shaft ;

3. The fork marked - C is mounted on the main shaft.

3. Put the transmission hub into the corresponding hole of the left body, then assemble the other end of the fork into the corresponding slot of the variable speed drum, and finally install the fork shaft into the corresponding fork.

Note：

The long fork shaft passes through the fork marked - R、marked - L, and the short fork shaft passes through the fork marked - C.

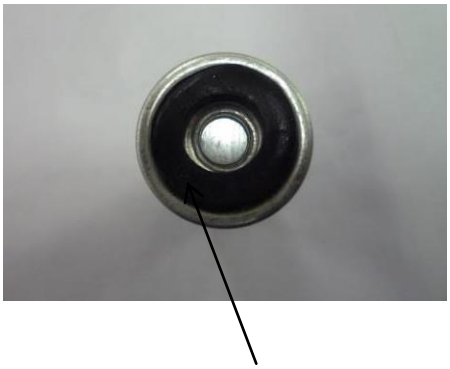
Assembly of box and oil Filter

1. Daub a layer of sealant evenly on the surface of the right box body, put the positioning pin into the corresponding hole of the left box body, close the right box body to the left box body.

Get 5pcs of GB/T1667416674 small plate bolts M6×45 and 8pcs of GB/T16674 small plate boltsM6×65 through the corresponding bolt holes in the left body and fasten them.

Fastening torque：11～13 N·m.

2. Mount the oil filter parts into the corresponding holes of the box.



Oil filter close end

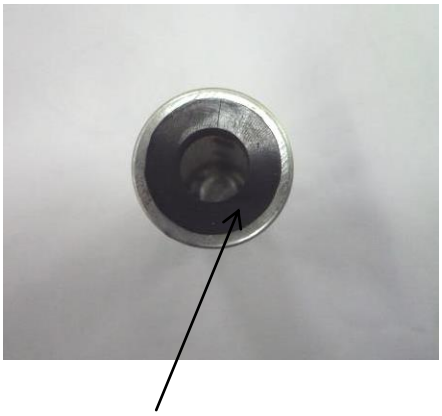
Note：

When install the oil filter, the opening end should face to the left box.

Then mount the oil filter cover on the double-headed bolt and then fastened M5 with 2pcs of GB/T6177.1 nuts.

Fastening torque：7～9 N·m.

Combine the oil filter into the corresponding holes in the left and right boxes, then fasten it with the oil filter cover. Fastening torque：11～13 N·m.



Open end of oil filter, facing left box when assembling

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