VEHICLE SERVICE AND MAINTENANCE MANUAL

(MOTORCYCLE AND SCOOTER)

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Chapter 1 knowledge about driving

PHASE THE FIRST ENTRY of driving

I、SAFETY ITEMS

1、 Before driving, be sure to make a practice of checking the motorcycle to avoid accidents or machine damages.

2、 Many accidencts happen for the lack of driving experience. So you should be qualified in the examination sponsored by the department of communication and administration and get a driver's license. No lending your motorcycle to those without license.

3、 Auto and motorcyle collided often because the driver of auto did not "see" driver of motorcycle. So please pay the following special attention:

（1）、Make yourself sufficient appearance

（2）、Wear color and reflected clothes

（3）、Don't move into "dead angle" of other auto driver.

4、Speeding often brings incident. So it is necessary for every one to run in specifiedd limit speed. When turning or changing a road, turn on the indicating lamp to arouse other's attention in case of frightening others and affecting driving.

5、When other drives nearly, keep calmness. Pay special attention at road crossing and pavement.

6、During driving, hold handlebar with double hands and place feed on the footrest.

7、drinking, over loading and speeding, which are all forbidden to operate motorcycle.

II、operating manual(Scooter series)

Starting and driving

- Inspect the motorcycle before starting.
- Lay down main stand after starting.

Warning:

- Hold rear brake handlebar and step on rear braking lever tightly for fear that your motorcycle rush out suddenly.
- Rear brake system should be adjusted well; otherwise it will affect its braking effect.

1、 How to start engine.

（1）Turn main switch on "ON" position.

（2）lock rear wheel.

（3）No raise throttle, and press starting button.

Attention:

··Don't put your hands on the button after starting.

·Don’t press the button during rotating in case of damaging engine.

·If having pressed the starting button for 3-4 seconds, the motorcycle still could not be started, you might try to turn throttle grip one eighth to one fourth cicle to get some gasoline.

·If you have parked for some long time or there is not oil in the fuel tank, then it is not easy to start the motorcycle. At this time you can turn then throttle grip slightly and press starting button some times, then you can start the motorcycle.

·To save your electicity quantity, please don’t have the button being pressed up 5 seconds.

·If having pressed the button for 5 seconds, it still can’t start, and then re-start it after 10 seconds.

（4）kick starter

·Use start shaft to start engine.

Warning:

·After having started please kick the start shaft in original position.

·When engine can’t start for cold situation; you should turn throttle handlebar one-eighth to one-fourth rounds to start it.

（5）Keep the engine operating for 2 to 3 minutes when you start in cold situation.

Pay attention to:

·Don’t play up oil or quicken rotating speed of engine

2、 Normal driving means

（1）：place main stand in correct position

·Grasp rear braking handlebar or step on rear braking lever and push your motorcycle，then the main stand is going to return in its normal positon automatically

pay attention to：

·After just starting engine，do not play up throttle or quicken rotating speed，otherwise the motorcycle is going to rush out at high speed，you know，which is extremely dangerous.

（2）riding

·After sitting, keep your feet touching ground to avoid slipping.

（3）Grasp rear-braking handlebar or step on rear braking footrest, and press starting button, then the engine starts.

Warning: Don’t play up throttle suddenly after releasing the braking, otherwise your motorcycle is going to rush out suddenly.

（4）Loose rear braking and play up throttle, and then your motorcycle is going to start slowly.

·Play up throttle step by step in the beginning. Peelling tires, as we all know, which may

make your motorcycle rush out at high speed, which is very dangerous.

3、How to park

（1）：While it is close to parking location:

·Observe rear mirror, pay attention to vehicle going and coming, and drive slowly.

·Shut off throttle, grasp front and rear braking grip, then rear braking light is going to light, which give rear vehicles a caution.

Pay attention to:

·During riding don't turn off main switch. With main switch on "OFF" or "LOCK" That means the circuit is cut off, which may cause accident.

（2）after parking

·Turn main switch on "OFF" position to shut off engine.

（3）how to park main stand on flat road

·Park main stand on flat road and be sure not to block traffic business. Otherwise if you park it on accidented road, it may overturn your motorcycle.

·Hold handlebar by your left hand, grasp rear luggage by your right hand, and step main stand, finally pull motorcycle to back direction by right hand.

（4）Be sure to lock handlebar and take out key to avoid being stolen.

Warning:

·Don't park your motorcycle on busy place, which maybe block road.

PHASE THE SECOND TECHNIQUE OF DRIVING

I、driving on ordinary road

Only when you understand its characters of handiness, agility and flexibility, the motorcycle will provide you a pleasant and comfortable riding. In addition, for the reason of low stability of turning right-hand bend, it is forbidden to turn right suddenly in the situation of high speed.

In good road surface, in order to ride on economy speed we often shift on high gear (30 km/h for scooter, 40-45 km/h for big exhausting capacity). When some warning mark appears, or when the line of sight is not very good for you, or while you are passing busy street, you'd better keep your speed below 20 km/h.

Driving on flat road, abide by traffic rules. When some opposite vehicle is coming

toward you or someone is trying to overtake you, you'd better slow down and drive along the right. Judging from the trends of nearby passerbys and vehicles you must take some corresponding measures during driving.

When driving on crooked road, firstly you should make full use of inertia to change direction. Before entering into crooked road, you need to play down throttle, shift on correct gear and choose good angle to change direction, at the same time don't grasp clutch handlebar and keep your motorcycle some little incline, it is forbidden to run too fast or change direction at overspeed. Secondly you should make use of accelerating to change direction. Before rotating you need to control its speed and choose correct gear or driving angle, then play up throttle step by step, which is more efficient than the first. Through the second ways, the stability of your motorcycle and running speed will get more efficient because it may strengen the adhesion on the rear wheel through playing up throttle, in this way the radius is smaller.

II、driving on special road

1、driving on accidented road

When driving on accidented road, for its big shaking and hard to control handlebar you may lose its balance.

Therefore, when driving into accidented road, first of all you should control your speed and shift on corresponding gear according to the accidented decree of road, slow down your speed, decrease its shaking, at the same time you must step on the footrest by feet to keep your motorcycle some power, clamp fuel tank with your knees, with haunch a little distance way from seat, which is just like the posture of half squatting. At the same time you can decrease shaking through extending and bending of your knees and elbow joint. Grasp handlebar with hands and control the balance with swing of your waist.

While you are driving through concave road, first of all you must slow down your vehicle. As front wheel is close to concave hole, be sure to play down throttle to control your speed and stroll toward the hole through its inertia. Here, keep the barycenter of you body backwards. As front wheel is moving up, keep the barycenter of your body forwards rapidly, at the same time play up throttle step by step, after rear wheel passed through the

concave hole, play back little throttle and shift on corresponding gear, keep correct sitting, play up throttle step by step to go on.

While you are driving through some big frusta, you also need to advance to slow down your vehicle, shift on low gear. While front wheel is close to the frusta, keep body leaving from seat and incline you a little, lift handlebar, play up throttle and keep your vehicle driving forward stably. After rear wheel run onto the top of slope, you need to play back little throttle, press handlebar with hands to pass stably.

2、driving on track road

You should try to avoid driving on track road. For the channel of track it may be some difficult for driver to control handelbar, which may result in slipping. If wheel runs into deep channel unfortunately, be sure not to drive out of it hurrily, but control your barycenter and keep balance to drive along the channel. If you feel difficult to control, you can touch ground by feet and proceed to go ahead. When channel of track is very shallow, you can decidedly drive out of it.

3、driving on sandy road

Sandy road is loose and soft, so you need to shift on proper gear and try to drive on the line in this sitiution. If both close gears are useful, you can choose the low gear in order to guarantee enough power. It is difficult to shift on gears when parking on sandy road. If there is no enough power to run on the first gear, to avoid to get into sand you can get off seat rapidly and use the power in engine to push forwards combined with clutch and throttle control, which can prevent your vehicle shutting off.

It is more difficult to change direction on sandy road, which may resuly in slipping. Therefore, you need to change direction with big turning radian, with inboard foot leaving from footrest and extend foot, touch ground by heel so as to keep balance.

On sandy road, you’d better choose clutch to brake or combine clutch and arrester to brake, which can shorten braking distance, avoit to clip rear wheel completely and sideslip. If vehicle sideslips and tumbles on sandy road, you must stand it immediately in case that some sands go into cylinder through air cleaner. After passing sandy road, remember to check whether there are some sands. If there are, you have to clean air cleaner and carburetor, then go on.

4、driving on carpolite road

For carpolite road characters are not smooth, easy to slip, which bring that front wheel often sideslips, rear wheel often rocks. At the same time, it is difficult to control its handlebar and barycenter, and then lose your balance and slip.

Before driving into carpolite, you need to shift on appropriate gear. Don’t play up throttle suddenly but slowly and evenly; otherwise rapid changing may result in racing for

rear wheel and ehen sideslip. During dring, don't only stare at front carpolite, but expand your line of sight, otherwise it maybe give you nervous and tired. Keep sharp reaction, extend your arms towards and grasp handlebar a little, change your direction according to the rolling of front wheel.

Try to drive on line. When you have to changing dirction, keep little incline and do it with big radian, you can also get one foot to touch ground to avoid to horizontalslip. Choose combined braking to brake, control your diretion well and keep vehicle's balance.

When driving into carpolite road, you can decrease air pressure in tire in order to reduce shaking. Moreover, air pressure in rear wheel is lower than that of front wheel, which can reduce resitance imposed on front wheel and add adhesion to rear wheel.

5、driving on mountainous region and tableland

Their characters are rolling road, bad line of sight, thin air and low air pressure. Especial for upgrade and down grade, you need to pay attention to its skills. Upgrade: correctly judging from the status of slope, shift on mediau or low gear before going on upgrade to keep enough power, don't slowdown gear after inertia disappears. Downgrade: make use of its braking system, it is forbidden to hold cluthch handlebar and declutches.

Notes: it is difficult to drive for steep slope and bending road; caution brings safety and inattention results in accidents.

6、driving on creek and shallow

The characters are slipping road, big resistance and bad surface. If water is beyond pipe, engine may be shut off for sweat goes into carburetor or exhaust is not smooth. When water goes into drum, braking may lose its effect.

Therefore, before you pass creek or shallow, first of all, you need to prove up riverway, master the flowing and the situation of water level. When driving into shallow, you need to shift on low gear and go into water to avoid spattering spray, which results in short circuit or blocks its oil guidance. Play up throttle slow, neither suddenly nor hurry, otherwise rear wheel may slip and race it. Choose flat and shallow surface (the level of water cann't be beyond pipe nozzle), at the same time be sure not to touch mass stone and concave hole. Try to avoid parking during driving. When you think the power is not enough, you need tight cluthch handlebar to play up throttle, after rotating of engine rises, release clutch handlebar.

If your vehicle stops unfortunately, you need get off it to pull your vehicle to near shore, don't start it in water less water goes into your carburtor. After passing into creep or shallow, you should inspect carburetor, cylinder and so on to see whether there is water in them or not. If there is, you need to clear carburetor and spark plug. Only after you clear the water completely, you can restart engine.

After driving through river, drug with water may affect braking. Therefore, you need to drive on low speed for some distance, at same time step on braking slightly to vaporize moisture. Until braking effect comes back, you can run on normal speed.

7、driving on loblolly, slurry and ice-snow road

The characters are big resitance, little adhesion, asy racing (slipping) and horizontalslip, which bring difficult driving and accident. So don't use braking sysltem too sudden or change dirction too rapid

Drving on ice-snow road, first of all you need to stabilize the barycenter of vehicle and keep its balance, run on medium and low speed (within 20km/h or so normaly), try to avoid shifting on gears on midway. If you have to shift on gears, you need choose combined braking to keep even speed and drive on line with big bending radius and little lean, you can touch ground by one foot to avoid slipping and falling. It need deep and thick tire veins, you can also get tyre chain to add adhesion in north. When driving on snowy road, spread some branches and weeds on the road to avoid racing.

When horinzontalslip happens, you need to slowdown your speed, and turn handlebar to slipping direction of rear wheel to correct its driving direction, which will stop horizontalslipping.

It is forbidden to brake urgently when your vehicle horizontalslips, otherwise it is going to horizontalslips more serious, even result in accident.

8、driving on crooked road

It often affects your line of sight on crooked road. Moreover, it often sideslips for big swerve angle. It is important to do slowdown, alert and run on the right.

There are two modes to hold down your vehicle to keep its balance. One is used in big swerve radian, when you can drive at a little quick speed with both your vehicle and youself inclining to inside. The other is used in small swerve radian, when you drive slowly with you inclining to outside or vetical to ground but vehicle to inside. Don't use brake in normal (use intermittent braking in especial situation)). If the speed is too rapid, you need to do slowdown to pass there, don't drive on overspeed.

PHASE THE THIRD ESSENTIALS ON DRIVING

I、FOR MOTORCYCLE

1、START

The basic process is the following: operate combined throttle and clutch handlebar, then the power of engine is going to drive wheel stably through clutch and transimission system. It spends 3-5 minutes on make warm-up for engine, then start to run. The warm-up is necessary, especial when surrounding temperature is very low. Start to run when the warm-up is not enough, which will result in damage cylinder, piston, crank and its lever.

Before starting to drive, you need to observe your front and surrounding situation and press electric horn button; and then turn on small throttle, hold clutch handlebar to come away it; finally place down stand and touch ground by feet.

For beginner two kinds of situation often happens: firstly, when you loose cluthch handlebar, motorcycle rush out for playing up throttle too much; secondly, the power of engine is not enough to drive for playing up throttle too little, which result in flameout. Here you need cooperate your hands, when left hand looses cluthch handlebar, right hand need to play up throttle step by step. You can judge whether it is correct to control your throttle or not from voice of engine. If the voice is very big, which means you play up throttle too much, and then you need to decrease it. When engine shuts off suddenly and it is too late to play up throttle to start it, you can declutch decidedly, and then restart it. After several times, you can master its starting process.

Pay attention to the following two points:

A、You need to play up throttle and loose clutch at the same time, but in your mind play up throrttle firstly, and then loose cluthch.

B、Before driving, you need to know its gears' position well. In the beginning, how to play up throttle and loose cluthch is different in the situation of upgrade, downgrade or roadblock. In the situation of upgrade, don't play up throttle too much and loose clutch a little rapid; for downgrade, do it in opposite mean. In a word, a smooth ride is very important, it is forbidden to shut off engine.

2、shift on gears

When speed is 10-15 kms/h, shift on second gear. Do it as the following:

A、 Tight cluthch handlebar rapidly to come the clutch away.

B、At the same time, turn forth throttle handlebar.

C、Step on pedal by left sole or heel to shift on second gear.

D、Loose clutch hanlebar evenly (you can do it quicker than that of beginning) and play up throttle.

E、When you play up throttle, the voice of engine may become very loud, but the speed doesn't become fast, which result from incorrect operation. In this case, shut off small throttle, come away clutch and shift on second gear. When speed is too slow to provide enough power, you need to shift on first gear, after the speed gets a little higher, and then shift on second gear.

F、When speed is 20 kms/h on second gear, you can shift on third gear as the above saying. After accelerating your motorcyle appropriately, you can shift on fourth gear.

G、If it needs to use low gear to run for the power of engine is not enough or there is roadblock. At this time, you can shift from high gear to low gear as the following:

（a）、Tight clutch handlebar and shut off small throttle.

（b）、Step on front ifting gears pedal by left foot's top, shift from high gear to low gear.

(c)、Play up throttle and loose clutch handlebar.

H、When you want to stop your motorcycle, you can shut off small throttle and step on braking pedal, come away clutch to empty gear, and then stop vehicle through front braking and rear one. When you want to slowdown, you can do it as point 3.

3、brake

A、Use detent to brake. Fistly, shut off small throttle and come away clutch, and then choose front or rear braking or intermittent braking (we also call it point braking) according to the landform in order to get a smooth ride.

B、Use engine braking. Shut off small throttle. Use the pulling power of engine to slowdown. In a certain speed, the pulling power is stronger if the gear is lower.

C、Combined braking. Combining pulling power and braking to brake, you can stop or slowdown your motorcycle. This kind of braking is normally used on downgrade to enhance braking effect.

D、Combined braking can also be used as urgent braking. in this case, you need to shut off small throttle to come away clutch, step on shifting gear pedat continuously to shift on frist gear, and then joint clutch. At the same time, use hand and foot braking to park your motorcyle. But you must know that urgent braking is to damage each parts, so don't choose this king of braking in normal. In its brakinig process, front braking is very important, but only after you master the skills, you can use this kind of braking, otherwise you may slip and fall. Therefore, it is forbidden to use this kind of braking on ice-snow surface and in the process of changing direction. When you have to use front braking, you need to keep its balance with your body.

II、 Driving on stepless shiftijng grears vehicle (scooter series)

The basic operation are starting, swerve and parking for this king of motorchcle.

1、starting

After starting engine, make a warm-up for 3 minutes or so, observe the surrounding and road situation, and press horn button. When you are sure that enging is in the situationg of idle and rear wheel stops, drop down main stand, touch ground by feet, observe your frontage, and then trurn throttle grip by the ritht hand, scooter is going to go on, now you can put feet on footplate, that is for starting.

2、For its swerve, you need to slowdown, alret and ride on the right. In the situation of bad line of sight, big angle slope, very sudden swerve, loblolly or sandy surface road, you must

slowdown your scooter. Moreover, you must finish up operation on linear road. At the same time, it is necessay to incline barycenter of driver to the center of crooked road, the inclining angle needs to be appropriate to speed and its swerve radius, which is to decreae acentric effect from inertia. Therefore it is forbiddin to do it at high speed, otherwise resulting from its acentric effect, scooter may rush out of road or horizontalslip and bring accident.

3、**parking**

Try to keep its balance, you can advance to shut off throttle slowdown it slowly. Only in especial situatin, you can use urgent parking. During riding, when you find something wrong happens, you need to advance to slowdown it till parking, which is safe and economical.

Balanced parking method is: firstly, shut off throttle, make use of the resistance of engine to brake rear wheel, which will slowdown your scooter, and then use rear braking system smooth to park it stably.

4、Urgent parking method is:

Grasp left lever, and play down throttle by right hand, at the same time tight right lever to park it urgently. Urgent parking not only damages some parts, but also let you sideslip and fall, so you need to try to avoid using this urgent parking.

III、ready of driving

RECHECKING

Inspection before driving: it is an important measure to assure safety. Specific items is written in point I, PHASE the second, charpter 2.

CHARPTER 2 BASCI KNOWLEDGE ABOUT MAINTENANCE

PHASE THE FIRST DAILY MAINTENANCE SCHEDULE FOR QIANJIANG MOTORCYCLE

Interval / Item	mileage (Km)									Remark
	500	1000	2000	3000	5000	8000	10000	15000	20000	
engine oil	filter			I	R	I	R	R	R	Remark 1
gearcase oil			R		R		R	R	R	Remark 2
oil filter	C				C				C	Remark 3
air cleaner	Do one replacing per 5000 kms and one cleaning per 500-800 kms							R		Remark 4
valve clearance	A			A		A		A	A	
spark plug	C			I	R	I	R	R	R	
fuel tube				I			R		R	
driving chain	Cleaning, lubricating per 2000 kms; replac it when chain node is blocked or chain is too long or it is damaged too serious.									Remark 5
driving chain wheel、driving chain disk	When the top of gear is crooked and damaged badly, replace them together with chain									Remark 5
Carburetor	A	C	A		I	C	A	I	Overhaul it	
Clutch		I			I		I	I	I	
Oil pump	Check for new vehicle				I			I		
Braking liquid	Replace it per 2 years									
Tyre	I				I			I	I	Remark 6
Front absorber			I		I			I	I	
Rear absorber	A				I			I		
Clearance between each brake cable					Replace them when some blocking happens, or they are abraded and broken, or extended too much.					
Nut, bolt	T				T			T		
Battery storage	Charge			I	Charge		I	Charge	I	
Controlling switch for electric parts	A			I	I	I	I	I	I	
Transition system	I		I		I				I	

●I: Check, when necessary clear, lubricate, complement, amend or replace.
A: adjust; C: clear; R: replace; T: Fix;

●When you need some parts to replace, please choose them manufactured by QIANJIANG GROUP.

NOTES:

1、The up items are the same with QIANJIANG motorcycle filled with special

QIANJIANG black oil.for those motorcycles filled with common oil, you need to replace engine oil per 500 kms for new one, then do it per 1500 kms.

2、

It is the same with QIANJIANG scooter series; use special QIANJIANG gearcase engine oil.

3、The adjustment is the same with steel-made filter. Once some parts are damaged, you need to replace them. Replace them per 500 kms for new motorcyle with paper-made filter, and then replace them per 4000 kms.

4、Driving on dusty area or on a rainy day, you must check and replace them ahead of time.

5、 Advance to replace them for heavy load or long-distance driving.

6、When the deepness of tyre vain is 1.6 mm or less, you need to replace it.

PHASE THE SECOND DAILY MAINTENANCE

It is mainly to maintain its clearness, find and exclude its trouble to assure your safety. It includes checking and maintenance before driving, inspection on the runway and clearing, adjusting, fixing and so on after parking.

I、checking and maintenance before driving

It is very important measure to assure your safety. Driver needs to be used to check his or her motorcycle before driving, try to decrease or avoid wrong and accident.

1、check driver’s defend goods and certificate

2、check motorcycle

(1)、Inspect whether last problem had been solved or not.

(2)、check braking system

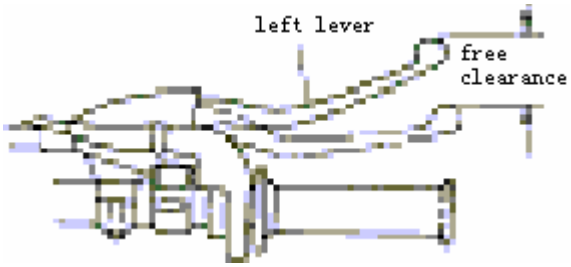
●、10-20mm。Free clearance of brake grip is 10-20mm.

●、20-30mm。Free clearance of braking pedal is 20-30mm.

●、For brake grip, some clearance and smooth operation are necessary.

●、After adjusting free clearance of brake, grasp and losse the lever or step pedal for several times to check wheel’s rotating. You can also slowdown your motorcycle to judge its braking effect on dry road.

●、For those motorcycles equipped with disc brake, you need to check whether the braking liquid in master cyclinder body is between upper limit and lower limit or not. When you find the storage is less than upper limit, you must fill the body with oil and inspect whether brake pad kit is abraded or the liquid is leaked out.



Warn:

●After adjusting the free distance, adjust the concave part of nut at swing arm pin to avoid accident.

● Only replace the original brake shoe, which is provided by our company. If you need to maintain or replace it, please contact with local oppointed service department.

(3) Inspect light (headlight/taillight/trans-direction light/trans-direction indication light/neutral gear indicationg light) and horn: Unlock power switch.

●Grasp braking lever or step on braking pedal to inspect whether the braking light lights or not, and inspect whether the lamp-chimney is damaged or dirty.

●Turn on trans-direction light switch to check whether rear, front and left, right trans-light flash, and inspect if the chimney is damaged or dirty.

●Start engine, inspect whether headlight chimney is damaged or dirty. Turn on headlight switch and changing beam switch to check whether the bulbs light or not, and check irradiation distance and angle.

●Observe fuel indicator, engine oil warning light, trans-direction indication light.

●Turn on electrical horn switch, listen carefully to judge whether its voice is accorded with specifications.

(4) inspece tyre

●Inspect whether there are scratch, nail or little stone embed in their surface.

●Inspect groove, replace it if tyre is abraded too much.

●Inspect whether the air pressure accords with its requirement.

Warning:

●Crack, damage, incorrect air pressure or exceeding abrasion can cause that tyre is staved, which may result in loss of handlebar control.

●Mever try to repair damaged tyre, otherwise you will lose the balance and security of tyre, which could result in serious injury or death.

(5) inspect engine oil(2 strokes engine)

Inspect whether engine oil in 2 strokes engine oil tank is full or not. If not, refill special GRADE FC oil for 2 strokes engine and inspect whether engine oil leaks out.

Warning:

●when alarm light lights, please refill engine oil, otherwise the engine may burn out.

●It is forbidden to mix dust or eyewinker into oil when refilling.

●Be sure to screw down oil tank cap after refilling.

●Don’t refill oil too much.

●Frequently check oil tank capacity.

(6) inspect lubrication(4 strokes)

Before starting, it is necessary to inspect oil level. With vehicle stand-up on flat surface to check the level, oil level should be between upper limit and lower limit of gauge. If necessary, refill specified engine oil to its upper limit.

Warning:

●If the oil level exceeds its upper limit, it will increase rotating resistance of crooked shaft, which leads to degrade its power.

●If the oil level is below lower limit, it will result in bad lubricating, too hot for engine and so on.

●It is forbidden to mix dust or eyewinker into oil when refilling.

●Be sure to screw down bolt for gauge after refilling.

(7) inspect fuel

Inspect whether fuel is full or not.fuel indicationg needle is on “E” position, which means there is only 0.8l in fuel tank, please refill low-leaded or unleaded gasoline with a minimum octane number of 90, then screw down fuel tank cap.inspect whether fuel leaks out: including whether there is leakage or blocking for fuel switch, carburetor and hose from fuel tank

to carburetor etc.

Warning:

●Pay attention to smoke when refilling.

●Shut off engine.

●Don’t refill too much gasoline.

It is forbidden to mix dust or eyewinker into oil when refilling.

(8) inspect gear oil(scooter series)

Park your scooter, after engine has stopped for 2 to 3 minutes, open the bolt and inspect gear oil.if oil is not enough, refill gear oil to the bottom of hole, and then screw down adjusting bolt. At the same time check whether there is leakage for gear tank.

Warning:

● There is 0.1l oil in gear chamber, more or less can affect engine’s performance.

●It is necessary to refill gear oil from adjusting bolt hole.

●It is forbidden to mix dust or eyewinker into oil when refilling.

●never subsititute oil brands or use bad oil.

●Be sure to inspect and replace gear oil per 5000kms.

(8) adjust chain.

Adjust chains according with actual road situation.

●Use main stand to stand up scooter.

●Loose rear axle nut.

●Loose locking nut for chain adjustor.

●Turn adjusting bolt to the left or right to adjust chain’s degree of tightness between 10mm and 20mm, at the same time keep front wheel and rear wheel with a line.

●After adjusting chain, refix nut of rear wheel and lock adjusting nut.

Warning:

●With chain stopped rotating to inspect and adjust its degree of tighten.

●It is necessary to keep chain clean and lubricated. Never adhere dirt on surface.

(8) adjust clutch

The free distance of clutch outside handlebar is 10 to 20mm;if it is not at the range, adjust the clutch following with manual.

(9) other items

●inspect handlebar

Inspect whether handlebar turning is flexible. If not, please contact with local appointed QJ service department.

●inspect rear mirror

Sit on seat to inspect whether rear mirror is on the position of the most

excellent line of sight.

●inspect licence plate

To see whether the screw of licence is tightened and whether is dirty or damaged.

●inspect reflector

Judge whether reflector is damaged or dirty.

●Inspect whether there is leakage about fuel switch, crankcase, absorber, braking pump, braking clamp and braking hose etc. if there is, exclude it asap.

●After warmup engine, play up throttle to inspect whether there is abnormal voice. If necessary, do some adjusting.

●Inspect whether each connector, fixing parts is tightened. If necessary, do some fixing.

●Inspect whether tools and spare parts is complete or not.

II、inspect during driving

It is crucial to abide traffic rules and operate regularly.centralize your energy, observe front road and pay attention to the working condition of meter, discover question in time and assure safety. Never drive with sigle hand, over loading or drive after drinking,.

1. Working condition about meter

Whether meter rotates evenly along with playing up throttle, whether fuel gauge indicator is normal, whether trans-direction indication light lights.

2. Whether throttle handlebar rotates evenly or not

Throttl cable blocks or rusts, which may result in its rotating is not flexible. At this time you need professional technologist to inspect it at once.

3. Whether handlebar rotates flexibly

Checke handlbar, if it is not flexible, you need to ask for professional technologist to repair it.

4. Whether braking is normal or not

Observe whether front and rear brakes work well. If you fell spongy, you need to exclude it at once.

5. Inspect air pressure. If the air pressure is too high or low, ask for professional technologist to repair it.

6. Inspect whether there is abnormal voice or stange smell. If there is, be sure to desolve it at once.

7. When parking, observe whether engine and brake is too hot or there is leakage. If happen, you need to inspect and eliminate it.

8. Inspect whether bolt or nut is loosened. Be sure to connect fixing parts well.

III maintance after driving

The main items include cleaning, supplement, repairing and fixing.

(1) Wash complete scooter (special for rainy days), dry it(special for painting,chromeplate and galvanization parts),and then start engine for several miniutes. If necessary, get some wax to renew your scooter.

(2) Inspect fuel, engine oil and lubricant etc. if it is not enough, refill it till specified level.

(3) Resolve trouble happened during driving, tighten connect bolt (nut).

(4) Stand up main stand. If you don't need to use your scooter for one month or longer time, be sure to exhaust fuel in carburetor to avoid blocking it. And disassemble battery to keep its longer lifespan.

(5) Lock and have an anti-dust cover.

Phase the third maintenance in break-in time

I specification in break-in time

1. Limit speed

When speed becomes faster and faster, the load of engine and transmission parts also becomes more and more, and then surface pressure increases, which can damage lubricant film and accelerate parts to be abraded and affect its break-in.therefore, be sure to slow your scooter in break-in time.commonly, keep the engine rotaing speed with percent forty to fifty of the highest one in the first 500kms.keep percent 50-60 during 500-1000kma, Keep precent 60-70 during 1000-1500kms, only when odometer is 1600kms or more, engine can be play up throttle fully, try not to ride at near speed approached its upper limit.

Warning:

- Don't rotate too long at some speed in break-in time.
- play up throttle or play down throttle lightly, never do it suddenly.

1. Limit loading

In break-in time, engine power is limited, so it is necessary to limit its load.it is forbidden to load heavy or climb steep slope.limited load is half of its max load in break-in time. For examble, for 50-100ml vehicle it only allows one driver without cargo.for 125ml vehicle it only allows one driver with a little goods. For above 500ml vehicle it only allows to load percent 75 of its max load.

Warning:

- It is forbidden to drive with over loading(above 140-150kg), especially it is more dangerous for low speed with over loading.
- Actually, over speed is also a kind of over loading.

1. Forbid to brake suddenly

In break-in time, be sure to play down throttle before braking, slow vehicle fully (to 25km/h). For motorcycle, use front and rear brake evenly. It is forbidden to brake suddenly before slowdown (above 30km/h), which is not only extremely dangerous, but also easy to damage parts.

1. Warm-up for engine

Before riding, you need to start engine warm-up for 3-5 minutes (water, oil cooled, longer in winter).on the one hand, make each part with lubricant and get full lubricating, on the other hand, increase temperature on cylinder, which is good to get full burning and work with excellent status with favorable driving and economical character. Never play up throttle suddenly as soon as engine starts, never force to start engine in cool situation, never rotate with high speed in bad lubrication.

1. Good lubrication

In order to form complete oil film, get good lubricating effect, make abraded metal bits swept easily and warm steamed rapidly, you need to use lubricant with low adhension, good physical and chemical characters, but without acidity and moisture, it is supposed to use the lubricant specified by our manual.

II items of maintenance in break-in time

1. Do well daily maintenance according to usual rules.

2. Maintenance after 500kms

After the first 500kms, each part is basically broken well and is on proper position. At this time it is necessary to do a maintenance mainly including washing air cleaner, fixing connector, cleaning engine oil filter.

（1）. Washing air cleaner

Disassemble the cap of air cleaner and take out filter core.for plastic foam core, dip it into cleansing liquid and dry the liquid, then dip it into engine oil and extrude redundant lubricant. For pailform filter core made of paper, blow it from inner to outer with high-pressure air gun along with librating until all dust is gone. Mop up air cleaner and its cap with clean rag, reassemble filter core, and then assemble the cap of air cleaner.

（2）. Recharge for battery

Drive vehicle without enough electrolyte, which can result in sulfuration and damage the poles.when rapid exhausition of electrolyte or the power becomes faint, please contact with local appointed service department.

● The level of electrolyte should be between upper limit and lower limit. If it is below upper limit, take down refilling cover of battery, refill distilled water to its middle level with plasitic filler, and connect pipe with vent of battery, never bend or twist it.

● Measure its proportion with electrolyte densimeter. If the proportion is below 1.23

or the voltage is below 6v/12v, you must recharge in time. Adjust current to one tenth of battery capacity, charge for 8-10 hours with DC charger and the cap of air hole open. After charged fully, check the proporation of electrolyte again, stardard volume is 1.27-1.29, measure voltage on battery, the volume should expeed rated voltage (6v or 12v).

警告：Warning:

- **Only refill distilled water, tap water may shorten battery' s lifespan.**
- **Be careful of spark and flame for battery is highly flammable and explosive.**
- **There is vitriol liquid in battery, which is posinous and can cause serious injury, don' t get vitriol liquid on your skin or clothing.**
- **Electrolyte is posinous. Don' t let children touch it.**

(3) inspect connecting nut and bolt

Inspect and screw down each nut and bolt, especially for bolt or nut on cylinder cap. Tighten them to specified volume with wrench.

3. Maintenance after 1000kms

After the first 1000kms, break-in time is almost over, the abrasion and break-in of each parts have been formed. At this time it is necessary to do some maintenance following as requirements specified by manual. They are mainly adjustment of clearance, replacement of engine oil and washing.

(1) wash air cleaner

Do as the foregoing requiremtns. Do it more frequently in serous sand blown by wind or big dust area.

(2) replace engine oil(4 strokes)

With engine rotating for 3-5 minutes, and then turn off it, when the engine is heat. Give out engine oil in crankase.take out gauge, and then place an empty tank down engine, open the bolt on the top of crankase and step footrest pedal or press electrical button, which can mix round oil and give out the oil or scrap iron. We use black oif from Dow corning, which can supply for 5000kms after filtrating.refill our special black engine oil from Dow corning to certain level specified by manual. Screw down the cap and inspect the bolt to see whether there is leakage or not.

(3) replacing lubricant in rear gearcase

The engine oil may turn bad for a long distance, which could decrease its lubricating effect. It is necessary to replace lubricant after the first 1000kms.

(4) adjustment

Include valve clearance, idle speed, throttle grip, clutch handlebar, free distance of braking petal, and the drooping extent of driving chain, axle of spoke wheel, radial movement and the clearance of turning bear.

(5) maintenance on electric

It is necessary to complement electrolyte, recharge etc for battery, eliminate accumulated carbon for spark plug.

(6) bolts and nuts

Inspect all bolts or nuts, the ones for cylinder cover in particular. Screw down them by wrench.

PHASE THE FOURTH MANTENANCE FOR PARKING

If parking for a long time, it is necessaryt to take some measures to slow down the influence of quality. Besides, it is necessary to repair your vehicle before parking. Otherwise, you may forget to do repairing when the time is over.

I. Maintenance items

1. Replacing engine oil

2. Drain oil in fuel tank and carburetor

If it has parked for one month or more, it is important to drain the oil in carbutor for normal capability.

WARNING:

Gasoline is highly flamable and explosive under certain condition. Don’t smoke or allow spark in or near the area.

3. Disassemble spark plug and add one teaspoon (about 15-20cm3) of clean oil in cylinder , step petal for several times to steam the oil, and then assemble the spark plug.

Note: when engine runs, you must positon ignition switch on “OFF”, which make spark plug inserted in cable and touch the ground to avoid damagomg ignition system.

4. Disassemble battery and store it in the area where is escaped of freezing and irradiating. Inspeck electrolye level per month and recharge it slowly.

5. Wash and dry your motorcycle, cere the whole surface of vehicle.

6. Charge tyre with standard air pressure. Place motorcycle on some mat to leave two wheels from ground, which will decrease load on tyres and absorber.

7. Cover motorcyle with certain good, which is not made of plastic or coat material, and store it in the area where there is no central heating or humidity and the change of temperature is small. Don’t park in sun.

8. Step star-up shaft for above 10 times per half month, which can lubricate each bearing, gear and cylinder side.

1. Take the cover and wash motorcycle. You need to replace engine oil if it has parked for above 4 month.

2. Inspect the level of electrolyte, be sure to charge battery and assemble it.

3. Refuel new gasoline.

4. Do all inspectiong befor riding, run in safe area wher is a littlt far away from road with low speed.

Phase the fifth maintenance for season changing

The changing of seasons can affect the function of motorcycle. Low temperature may result in difficult start in winter.

1. Clean fuel tank.

2. Replace lubricant in crankcase and gearcase to different seasons.

3. Clean battery. Adjust the proporation of electrolyte and charge battery.

4. Adjust gasoline for carburetor to different season.

PHASE THE SIXTH PERIODIAL MAINTENANCE

Do first class, second class and third class maintenance after the first 1000kms.

1. First class technical maintenance

When mileage reaches 4000kms, it is necessary to do first class maintenance mainly including inspection, adjustment and lubricating.

（1）Daub soft cable of odometer with lubricant

(Common saying butter)

（2）Inspect carburetor, fuel switch, filter and filting core of air cleaner etc.

（3）Inspect and adjust clearance of valve, spark plug, and reed valve to the number required.

（4）Inspect abrasion of braking pad kit, and replace it if necessary. Inspect the level of braking fluid, and refill it if necessary.

（5）Inspect and adjust throttle grip, clutch handlebar, braking handlebar and free distance of pedal to their specified numbers, and then daub steel cable with lubricant.

（6） Tighten tie-in of cable and keep it touch full and electric. Inspect and fix clip of cable, bind up then if damaged to avoid creepage or short circuit.

2. Second class maintenance

Do a second-class maintenance including inspecting and adjusting after 8000kms.

Besides first class maintenance, do the following items:

（1）Wash air cleaner or replace filting core.

（2）Inspect and adjust engine pump.

（3）Replace spark plug.

（4）Inspect voltage and charge battery if necessary.

（5）Inspect the movement of radial and axle about rim, adjust or replace it if necessary.

3．Third class technical maintenance

When odometer reaches 15000kms, adbrasion of parts (belong to normal abrasion) becomes serious and more wrong happens, so it is necessary to do a third-class maintenance mainly including disassembling, cleaning, checking every assembly and resolving wrong.

Besides the items required for second-class maintenance, do following items:

（1）Disassemble cylinder cap, cylinder body, inhale and exhale system and spark plug. Clean cylinder cover, the top of piston, piston rings, valve of 4 strokes, valve ring, vent of 2 strokes for carbon deposit. Wash every part and inspect their sealing degree. Skive valve for 4 strokes engine to its sealing requirement if necessary.

（2）Disassemble turning parts, turning bearing, wash each part and daub them with lubricant, adjust tight.

（3） Disassemble and start motor, inspect its lever of carbon. Replace it if the lever is below limit number.

（4）Disassemble braking, brake capilier, and inspect the deepness of brake pad kit. Repair or replace them if necessary.

（5）Replace engine oil in gearbox.

Note: items of periodical maintenance for each kind of vehicle are different, so it is necessary to do it following as requirements specified by manual. You have to be responsible for the results, which happens for your onw wrong operation.

PHASE THE SEVENTH INTENTION AND MAIN ITEMS FOR VEHICLE MAINTENANCE

I. Main items

The items are very much. We can classify them according to the character of operation maily including cleaning, fixing, adjusting, lubricating and replacing.

1. Cleaning

This job is to advance efficiency of maintenance, decrease abrasion of parts and consumption of gasoline. Without ofen cleaning more fault may happen for you vehicle: engine will become too hot for mud deposit on its surface; more exhaustion will go and the power of driving will appear faint for dirty in air cleaner. Resistance of exhale will become bigger and output power will decrease for blocking in muffler.

2. Tightening

During driving, for shaking, impact, distortion for difference in temperature tight parts may become loose, even without reliability. So you need to tighten every connector of parts and keep them sealing and reliable to operate. Tightening is the main work for maintenance, which requires: all bolts and nuts can be

loose, all spring gaskets, flat gaskets, hatch pin and lock slice must be assembled firmly; all bolts and nuts with the requirement of tightening must be tightened by wrench following as the requiremtns.

3. Adjustment

Which is to get each part's gap right and recover their operation. Good adjustment may decrease abrasion for each parts and guarantee safety, reliability and economical operation. For examble: it is very close for you to keep proper valve gap and free distance of front and rear brake handlebar.

4. Lubricating

Which is to decrease friction and abrasion of parts. Correct lubricating can prolong your vehicle's lifespan. The requirements for lubricating include: use specified lubrication; refilled lubrication cannot be more or less, less will accelerate the abrasion of parts even result in accident, more will increase resitance, consume power and result in leakage. For the reason it is necessary to do it in daily and periodic maintenance. Refill or replace them when you find oil is lack or the oil becomes bad, otherwise it may affect parts' lifespan.

5. Replacement

For natual and man-made factors, during the long time driving, we have to replace many parts: including oil seal, lubrication, tyres, chain, chain wheel, brake shoe, transmission belt, spark plug, many kinds of cables and so on. Expeeding operation may result in bad effect to vehicle's capability.

III. Notes for maintenance

1. Be carefutl of safety.
2. Place vehicle on flat ground, and stand up main stand.
3. Prepare all tools for maintenance.
4. Only after you have shut off engine, you can do your maintenance.
5. When engine stops just now, its body and pipe are very hot and be careful not to be scalded.

Phase the eighth standard for good status of technology

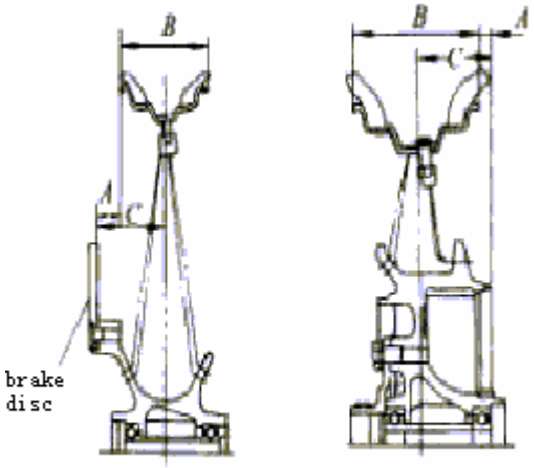
1. Easy start for engine, even rotating, good power, economy and accelerated capacity, without abnormal noise, normal temperature and oil pressure.
2. Complete separation for clutch, stable and reliable combination, and without abnormal noise.
3. Proper adjustment for turning set. Litht, flexble, and reliable control, requirements that accord with the orientation for front wheel.
4. Good effect and proper adjustment for manual and foot brake, which accord with technical requirements.
5. Good lubricating for each gearcase and transimission part, without abnormal noise and excessive hot phenomenon, reliable operation.
6. Complete starting set, meter, lighting, siginal sets and their accessories, good capability, regular circuit and reliable joint, fastness.
7. Clean and good air cleaner and fuel filter.
8. Full lubricating for whole vehicle
9. Normal air pressure and reansonable assembly
10. Clean and complet battery, reliable fastness, and starting voltage, the proporation of electrolyte and its level accord with their requirements.
11. Good capability for absorber.
12. Good capability for its slide.
13. Clean body, without leakage of air and oil, reliable connect for each part.
14. Complete tools and accessories without damage and rust

Chapter 3 inspectiong for main parts

Phase the first parts' name

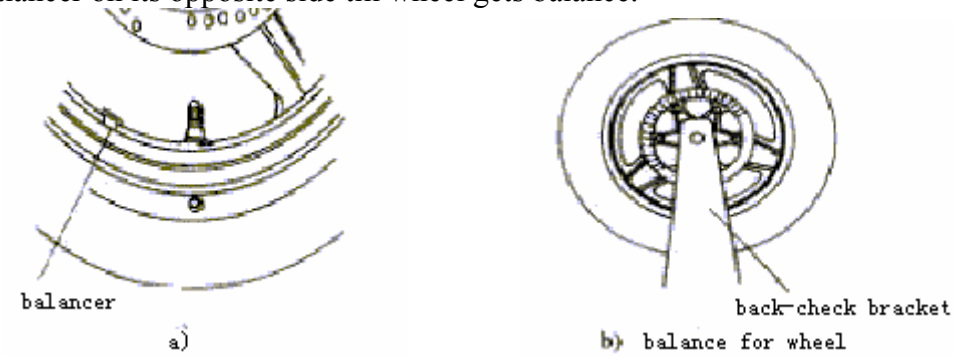
I. Wheel

For spoke wheel, you have to adjust the spoke after replacing spoke and wheel. See the following fig. Commonly we think number A which marks the position between rim and rub as index to do the adjustment. A means the distance from the end of rim to datum plane, C means the distance from the centre plane of rim to its datum plane, B means the width of rim (measured actually). From fig., A=C-B/2. After getting A, adjust the spoke according with the difference between actual A and required number.



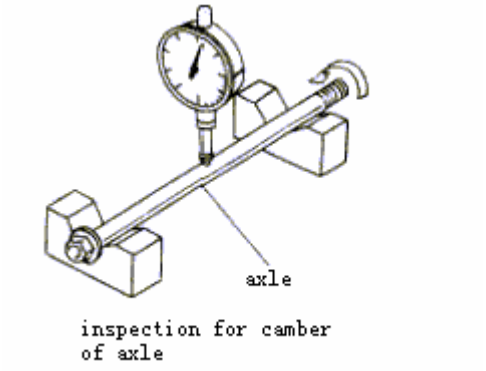
adjustment for spoke

If tyres have been disassembled, or you have tyres repaired, wheel may operate in badness, which can result in swing at high speed. Measurement: remove wheel, place wheel on back-check bracket where the wheel can freely move through axes. Run wheel and keep it stop natually, then make a mark with chalk at the lowest point of rim. Do it twice to three times, if the marked position is different, which means the balance of wheel is eligible. Otherwise the marked lowest point is wheel's heaviest point. Means: place a balancer on its opposite side till wheel gets balance.



a)　　b) balance for wheel

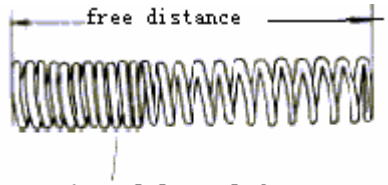
Measure for axle (see the following fig.): place disassembled wheel on the two V model mass, measure it with equipment. Half of the reading is camber of axle. The camber can be more than 0.2mm; otherwise you have to replace it.



inspection for camber
of axle

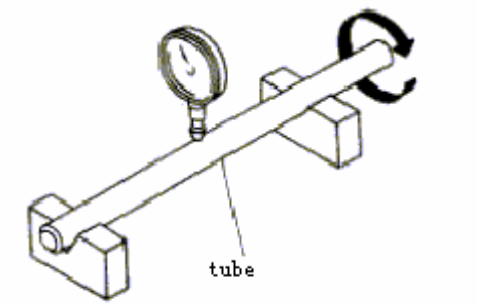
II. Front fork

Different kinds of vehicles have different conficuration for front fork, but its basical principle is same, and checking means for main parts is almost same. Check spring of front fork (see the following fig.), flatly place front fork and measure its free distance. If the distance is out of its limit, replace it.



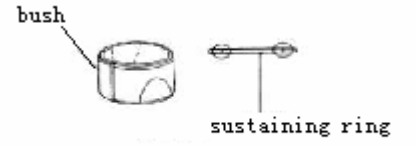
inspection for spring of front fork

Inspect the tube (see the following fig.): place tube on V model mass, measrue it in centesimal instrument. Half of the reading means the camber of tube. Replace the tube when its camber is over 0.2mm. if there is scratch on its surface you also need to replace it.



inspection for tube of front fork

Bush and sustaining ring (see the following fig.): inspect slippy side of bush, if for bottom copper surface which has been daubed with four-fluorin ethene there are three fourth of parts which exposed or clear scratch appears, you have to replace them.



inspection for bush

Other parts of front fork (see the following fig.): bushing, piston and so on. Inspect every part to see whether there is scratch, bend, crack or abrasion etc. or not, replace them if necessary.

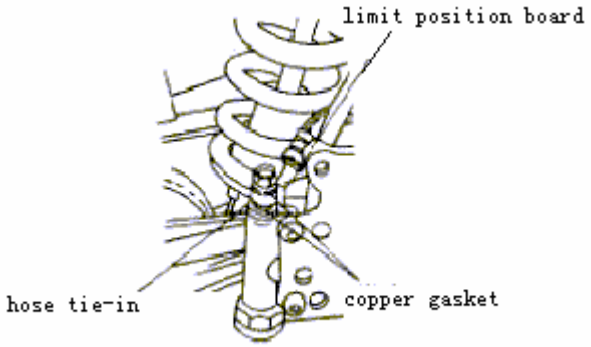
inspection for piston and other parts of front fork

1-rebounding spring 2-piston for front fork

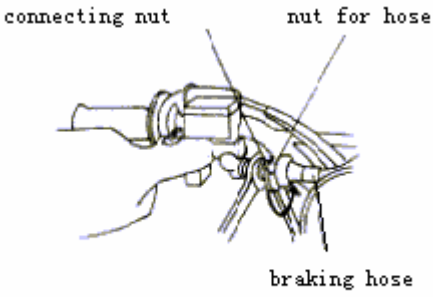
3-tube 4-oriented tube

III connect for pipeline

The liquid pressure brake is controled through braking hose. When you assemble braking hose, for front part you need to assure handlebar and suspension parts not to be tightened excessively, for second half part you need avoid not to affect the movement of handlebar when assembling the hose. Cover a protector on the hose and avoid forming a sharp angle for the hose when hose gets into fixing clip. Small tie-in for connecting pipeline (see the following fig.). When connecting it again, replace gaskets on the two sides and assure oil route is smooth. If there is a board to limit position, pay attention to its angle and position.for one board be opposite to the board to assemble it, for two boards assemble it between the two boards.



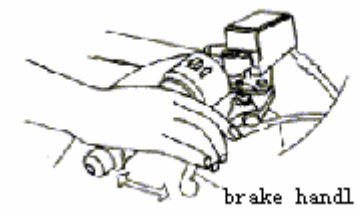
tie-in for small aperture of pipeline

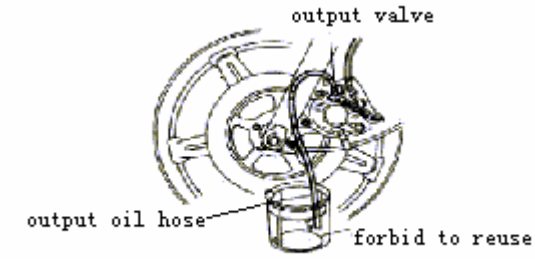


connect for tie-in of middle aperture pipeline

IV. Oil pressure disc arrester

If any air is mixed into its transmission system, its capability may fall down. After having repaired brake hose circuit, it is necessary to do exhausition to exclude air in it. In this process, first of all refill oil in main pump house to its upper limit level. See the following figure, connect output valve of slow pump with oil hose, tighten brake handlebar, loose the output valve half round, and then screw down it. Release brake handelbar slowly and keep it complete restoration for several minutes. Do it for some times untill air bubble beside output valve of slow pump is all out. In the process of exhaust, disassemble the cover of main pump and its clapboard and refill braking liquid if necessary. After having exhausted complete air, refill oil in main pump house to its upper limit level, and then assemble cap.



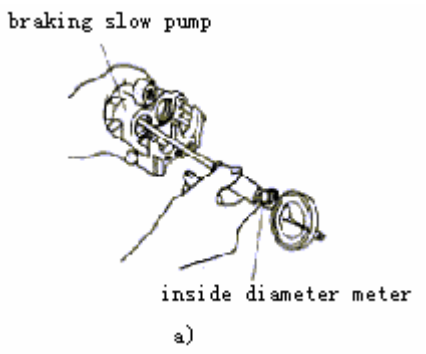


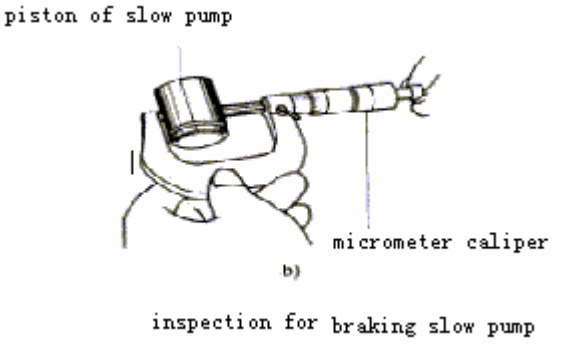
exhaust for brake system

Replace braking liquid following as the above figure. Remove main pump cover and

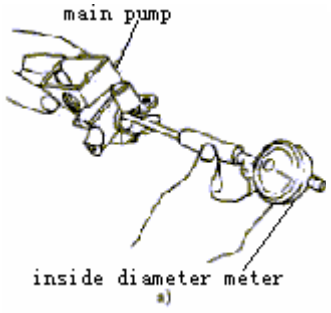
clapboard, inhale oil in oilroom with sucker. refill oil in braking main pump, and insert a tube into the output valve as the means of exhaust. Release the valve of braking slow pump half round, grasp brake handlebar and release it, do it some times untill oil is completely outputted. Never reuse worn oil.

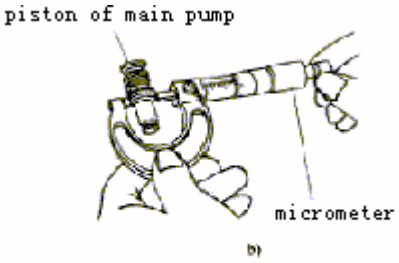
After having removed liquid pressure braking clamp, inspect caliper body and piston. Inspect its inner surface to see whether there is scratch, damage or step abrasion, measure the inside diameter of the pump body with inside centesimal meter to get several parts' diameter (Direction X AND Y). If one diameter is out of its limit, replace it. Measure the outside diameter of slow pump' s pistion (DIRECTION X AND Y) as the following fig. Shown with micrometer caliper. If one diameter is out of its limit, replace the piston.

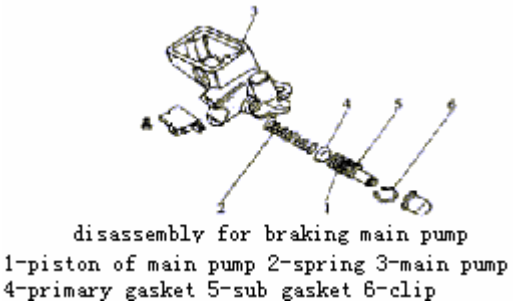




Disassembled configuratin of braking main pump as shown, inspect its body and piston after disassembling it including damage, scratch and step abrasion on its surface, and replace them if necessary. Measure main pump's inside diameter for several times with centesimal meter and measure the outside diameter of piston of main pump for several times with micrometer as shown. If one diameter is out of its limit, replace it.

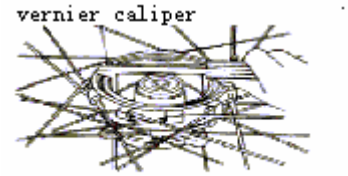






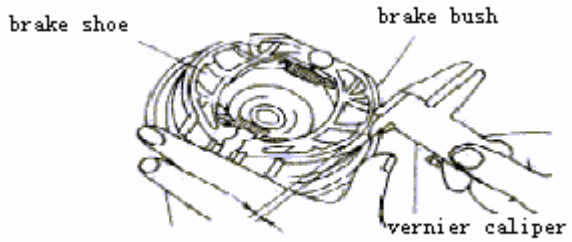
V. Drum arrester

Remove wheel, and then inspect drum arrester including drum brake bush. measure drum' s inside diameter as show, measure the max inside diameter of drum with vernier caliper (DIRECTION X AND Y), if the diameter is out of its limit, replace the hub.



inspection for drum

Measure the deepness of brake bush as shown. Measure the deepness of brake shoe with vernier caliper and find out the most abraded position. If measured deepness is below its limit or there is oil dirty on brake shoe, you have to replace both shoes.



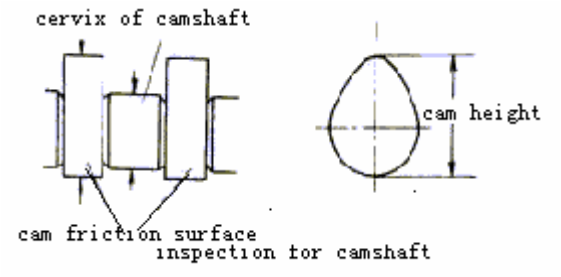
inspection for the deepness of brake bush

PHASE THE SECOND engine parts

I. Cylinder cap and valve

1. Measure pressure for the compression of cylinder. Warm up engine to get its normal temperature and disassemble the spark plug of cylinder, then assemble cylindr gauge on the hole of spark plug without atmosphere leaked out. For kick starter or electric starter, open throttle completely and shut off fuel switch, then get the reading of compression for cylinder. On this process, if measured pressure is above specified number, inspect carbon deposit on the top of piston and cylinder cap. If the measured pressure is below specified number, you can add a little engine oil fron the hole of spark plug and then measure it again, inspect cylinder and piston ring if pressure rises, inspect cylinder cap, valve etc. if pressure has no change.

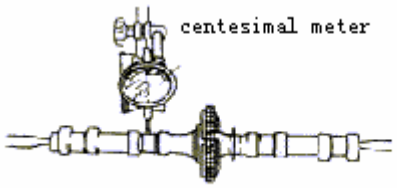
2. Inspection for camshaft. Inspect its appearance and combined clearance. You have to disassemble camshaft and clean it to measure its appearance and dimension. first of all inspect the cervix of camshaft to see whether there is damage or not. If there is, go on inspecting whether lubricationg is checkless, whether bracket is damaged. Inspect whether there is damage on touch surface, if there is, go on inspecting the surface of swing arm.



inspection for camshaft

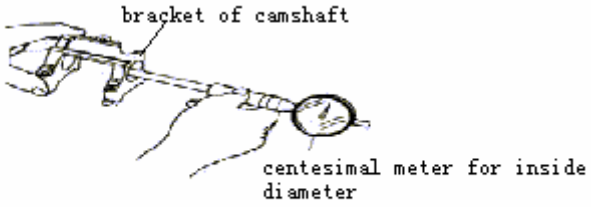
Including the following outer dimension: outside diameter of axes cervix, height of

cam, swing movement of camshaft. You can measure outside diameter of axes cervix and height of cam with vernier caliper or micrometer. For swing movement of camshaft you can get it with centesimal meter. Replace camshaft when the measured dimension is out of its limit.



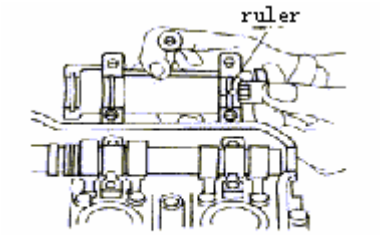
inspection for swinging movement of camshaft

The combined clearance of camshaft is the difference between the inside diameter of axle bracket and the outside diameter of axle cervix. If bracket of camshaft is one part, you can measure it with centesimal meter.



inspection for inside diameter of camshaft bracket

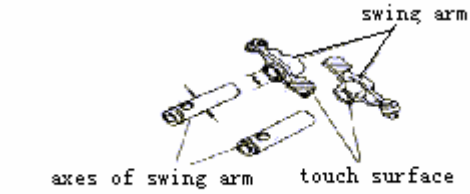
If camshaft is not one part but fission, place camshaft on cylinder cap, insert a ruler on axes cervix to measure their clearance, which is defined as combined clearance, see picture:



inspection for combined clearance

Replace cam if combined clearance is out of its limit, at this time you need to calculate whether the clearance is at the standard range. If not, replace cam, bracket of camshaft and cylinder cap.

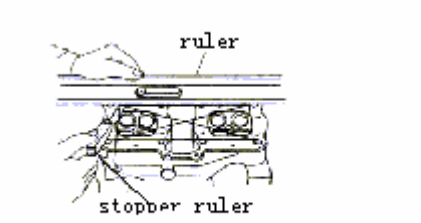
3. Inspection for swing arm and its axes as shown. Inspect the status of abrasion on touch surface between camshaft and swing arm, replace it if axes of swing arm or swing arm is abraded abnormally.



inspection for swing arm and axes of swing arm

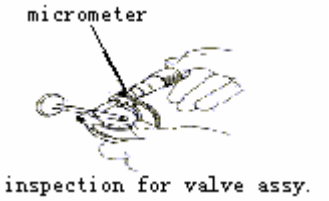
Measure the inside diameter of swing arm and the outside diameter of sliding sect of swing arm axes, at the same time calculate the clearance between swing arm and its axes. If the dimension is out of its limit, replace it.

3. Inspection for cylindr cap. Befor inspecting cylingdr cap clear carbon deposit in firebox when you should aoid damaging combined surface of cylinder and valve seat. For the appearance of cylinder cap inspect if crack or serious damage exists, especially inspect the hole of spark plug, the chap near valve seat, replace it if chap exists.



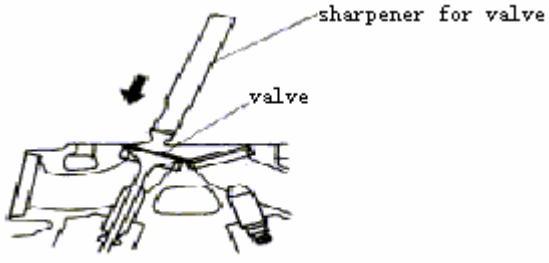
inspection for cylinder cap

4. Inspection for valve assembly. Valve assy. for 4-storke engine includes valve, valve spring, valve pipe and valve seat. The main inspection for valve spring is to inspect the free distance of inside and outside spring, replace it if the distance is below its limti. The inspection for the appearance of valve is to inspect the camber of valve, the status of burning and its damage, replace it if obvious bend or damage appears. You can insert valve into valve pipe to validate this status (see fig.), measuring the dimension of valve is to measure the distance from valve to the sliding position of valve pipe, replace it if measured distance is below its limit.



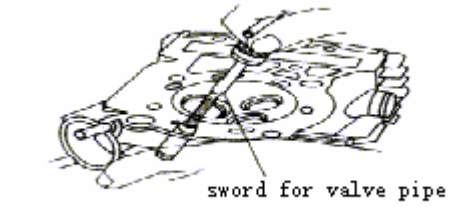
inspection for valve assy.

When inspecting valve and seal of valve seat, clear out carbon deposit on valve and daub valve seat with a flat of thin red inkpad, and then slightly knock on valve with sharpener, see the following picture: knock on valve nicely and never rotate it. Disassemble valve, and judge the status of combination for valve and valve seat from the status of adhension for read inkpad on the surface of valve. If there is damage for valve, repair valve seat. If valve is wry, inspect the clearance of valve pipe and valve handspike, replace valve pipe if the clearance is normal. If interface is too wide or too narrow, too high or too low, repair valve seat.



inspection for valve seat

When inspecting valve pipe, insert a sword into the pipe to clear out carbon deposit. See picture: turn right to insert sword into or take it out of the pipe to avoid damaging inside surface of pipe. Measure the inside diameter of valve pipe with centesimal meter, and calculate the distance from valve handspike to pipe. If measured distance is over its limit, replace it.

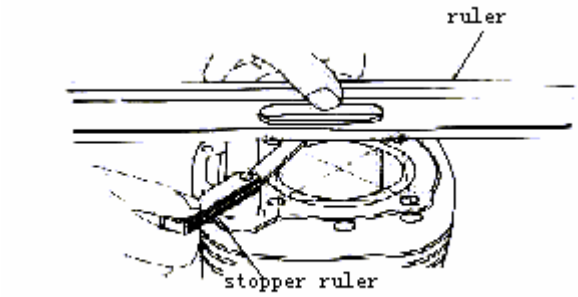


inspection for valve pipe

II. Cylinder and piston

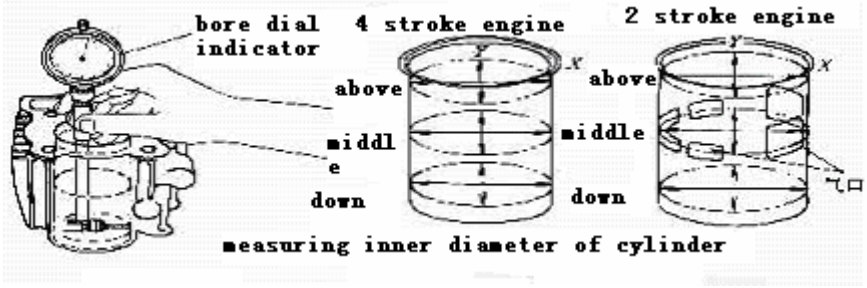
1. Inspection for cylinder

Inspection for cylinder is to inspect its appearance, its distortion and inspect degree of abrasion etc. inspects distortion (see fig.): clear out gasket and other sundries adhered on cylinder, inspect its distortion with ruler and stopper ruler. Replace it if the distortion for the top of cylinder is over its limit.



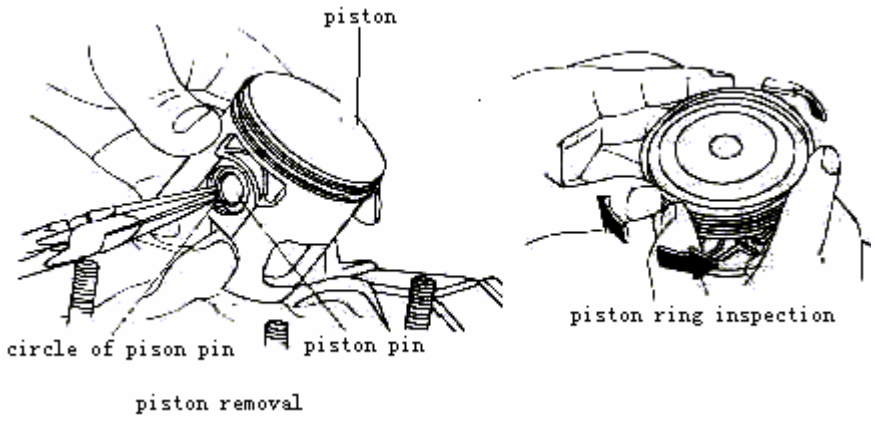
inspection for distortion of cylinder

For improper lubricating or burning pressure etc. the abrasion to cylinder is rather serious when cylinder moves near the top stopped position of cylinder. For this reason you have to measure six points including top, middle, and bottom part to get the inside diameter of cylinder with inside centesimal meter (see fig.): measure inside diametr of cylinder and note measured results (away from inlet port and vent), regard the max as its inside diameter, replace it if the max is over its limit. Inside diameter minus outside diameter of piston equals the clearance between cylinder and piston. Compare measured clearance, degree of round and column with their limits, replace it if they are over their limit.

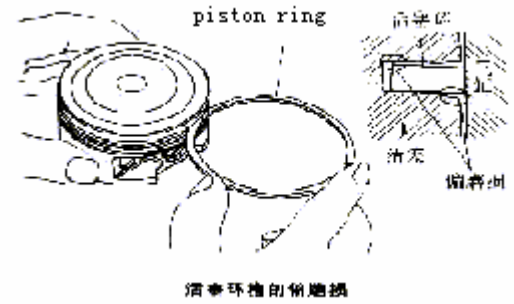


1. Pistion assembly inspection

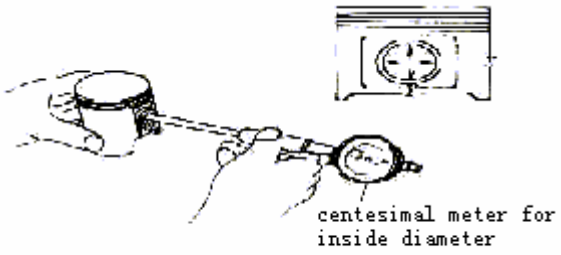
It is composed of piston, piston ring and pistion pin. Take down circle of piston pin and piston pin with certain tool for examble needle clamp, for two-stroke take down little roll bearing on the little port of connecting rod. Cover the bottom of piston with a clean cloth to prevent circle from falling into crankcase. Open the hatch of piston ring as show; take out the piston ring from reverse direction of hatch. Respectively note the first path ring and the second path ring. Replace complete piston ring when it is necessary to replace the piston ring.



When inspecting piston and piston ring, first of all clean out carbon deposit. It is admitted to use old piston ring to do it. Never use steel wire brush to clean out them, otherwise it may damage its groove. Inspect the top and bottom surface of pison ring groove, replace piston if any damage or wry sharpennig appears (see fig.).



Insert piston into piston ring from the side of piston and position it in corection location, measure the clearance between piston and pistion ring with plug ruler (see fig.).



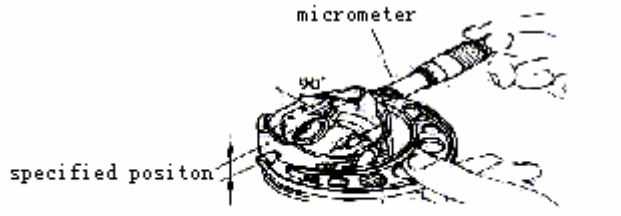
inspection for the hole of piston pin

Push piston ring into cylinder with the head and keep the pistion ring in level position. Inspect the clearance of piston ring hatch with plug ruler with the ring on the bottome of cylinder where damage is the least (see fig.).

inspection for end clearance of piston

If measured end clearance or side clearance is over its limit, replace piston ring.

Measure outside diameter of piston (see fig.): measure the outside diameter of piston on specified position, which is on the bottom of piston formed 90° from piston pin. Replace it if measured diameter is below its limit.

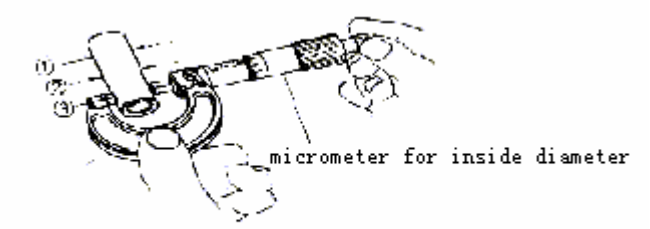


measure outside diameter of piston

Inspect the hole of piston pin (see fig.): measure it in direction X AND Y, regard the maximum as its inside diameter. Replace it if the maximum is over its limit.

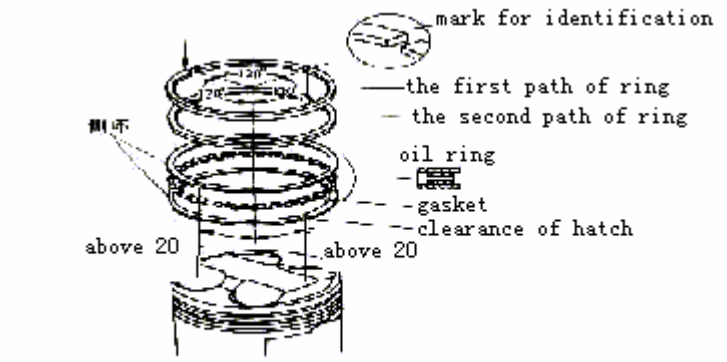
Inspect little top of connecting rod (see fig.). For 4-stroke engine replace it if measured inside diameter is over its limit. For 2-stroke engine inspect its tightness regarded as rolling needle bearing and piston pin are assembled on the little top of connecting rod.

Inspect piston pin (see fig.). Measure outside diameter of piston pin in three different positions, which are located in piston pin and little top of connecting rod. Replace it if measurd diameter is below its limit. The inside diameter of the hole of piston pin minus the outside diameter of piston pin equals clearance. Replace it if the clearance is over its limit. For 4-stroke engine the inside diameter of little top of connecting rod minus the outside diameter of piston pin equals the clearance, replace it if the clearance is over its limit.



inspection for piston pin

It is different for four-stroke engine and two-stroke engine to assemble piston assembly. Assemble piston ring of 4-stroke engine as shown. Don't damage piston ring for it is easily broken, more improtantly do not damage piston. Keep the surface of piston ring with remark up. At the same time be careful to assemble up and down surface of the first path and the second path of ring, wrong assembly may result in overflow for lubrication. The first path of ring is white chromeplated and the second path of ring is not electroplated and appears black, which is identified in principle, but sometimes exception may happen, so be careful to identify them. Interval angle of hatch of piston ring is 120° or so, avoid superposition. Stagger the hatch of two side rings on oil ring. You need to inspect whether piston ring moves freely after having assembled piston for four-stroke engine.



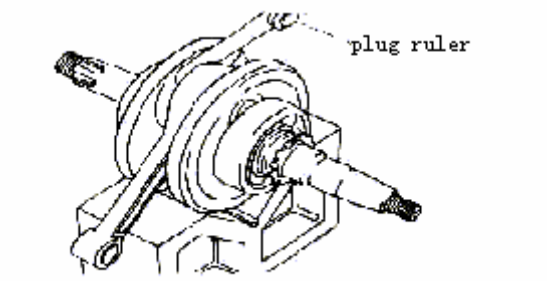
piston ring assembly for four-stroke engine

Assemble piston ring for two-stroke engine, both the first path of ring and the second path of ring are special ring. For piston passes throuth inlet port of cylinder, there is a stopper pin to limit its turning, be sure to aim the hatch of piston at stopper pin.

Spread special lubrication on rolling needle bearing (two-stroke engine) and piston pin in the process of assembling connecting rod, piston and pison pin and mark a direction on the top of piston. "。" means exhaust direction and "IN" means inlet direction.

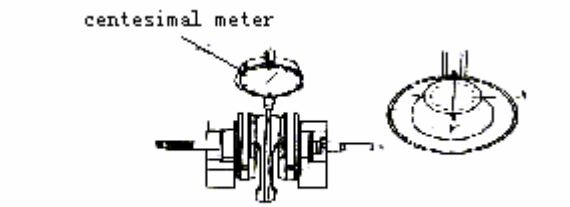
III. Crankshaft and connecting rod

Crankshaft inspection is to inspect the clearance of big top of connecting rod, radial movement of big top of connecting rod, crankshaft bearing and so on. Inspect the clearance of big top of connecting rod (see fig.).



crankshaft and connecting rod inspection

Measure the axial clearance of big top of connecting rod with plug ruler. Measure radial clearance (see fig.): measure the status of movement about the top of connecting rod in direction X and direction Y which is vertical to axial direction with centestimal meter. If measured clearance is over its limit, replace crankshaft. Inspect crankshaft bearing: measure outside track of bearing, inspect whether there is clearance between inside track and outside track of bearing. Replace crankshaft bearing if the clearance is over its limit or outside diameter of bearing is below its usable limit.



inspection for radial movement of big top of connecting rod

IV. Clutch

There are manul and auto types for wet multiplate clutch. Most of motorcylce is wet multiplate manual clutch. There are three kinds of structure for wet multiplate manual clutch. The first is that fixing cover of clutch connects with shift principal axis and clutch control framework is in the right side of engine. The second is that fixing cover of clutch connects with shift principal axis and the control framework in the left side of engine. The third is that clutch is assembled on crankshaft and control framework is in the right side of engine.

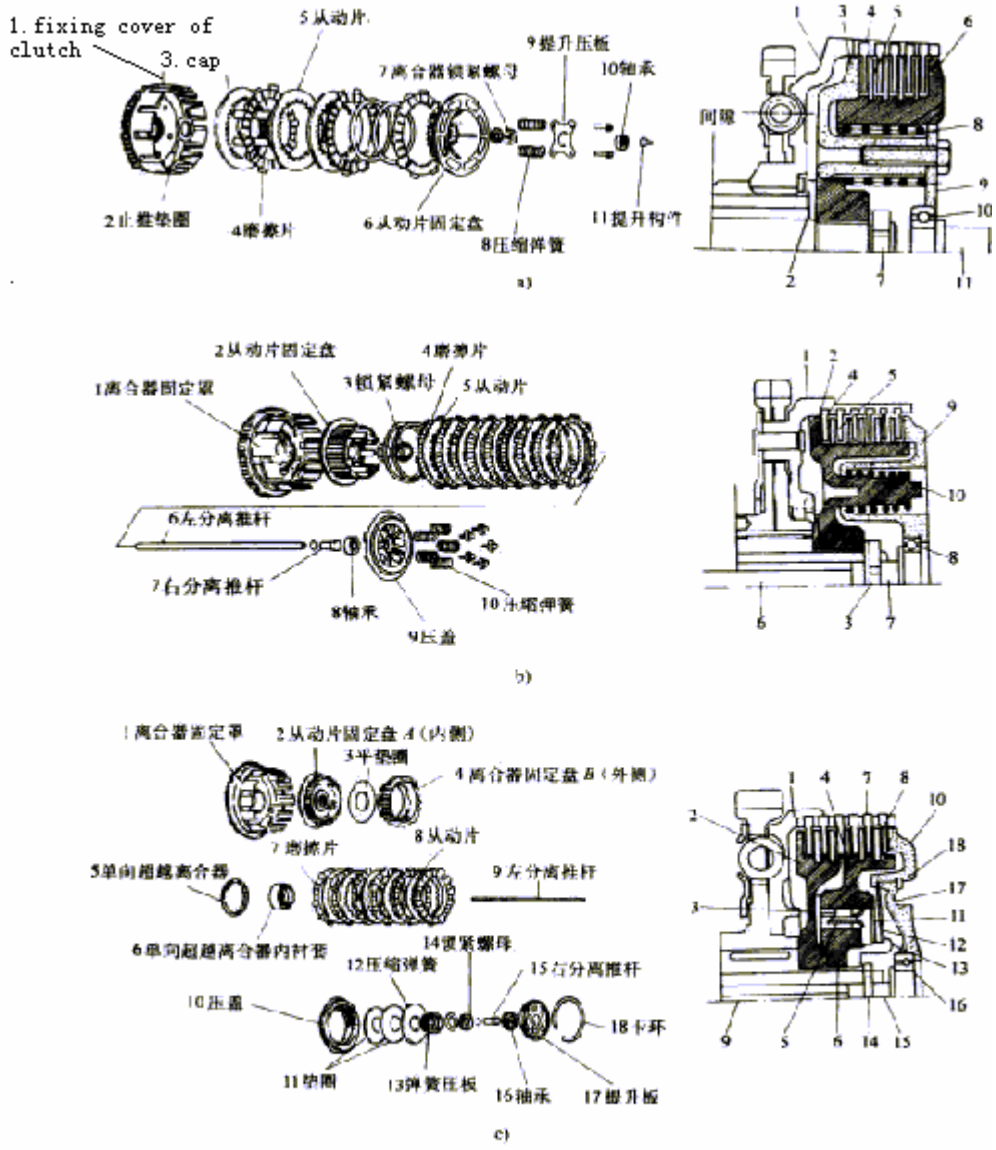
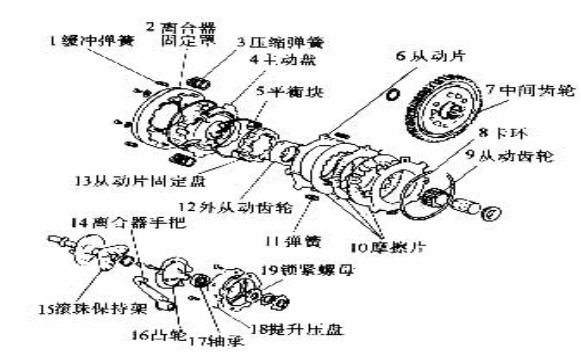
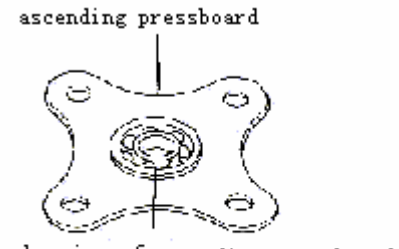


图 1-213 structure of wet multiplate manual clutch
a) the firs b) the second c)the third

There are two forms for wet multiplate acentric clutch. For the first form its basical structure and the route of drive transmission is the following picture, and for the second form its basical structure is following picture.



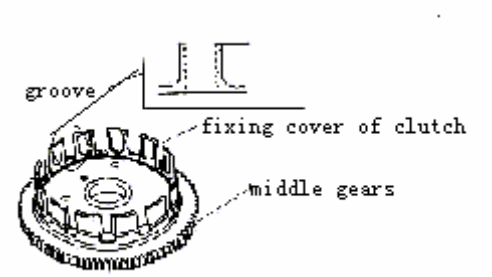
Clutch control system: disassemble and inspect it. If pullrod bends or rolling needle bearing looses, anti-dust cover is distorted or sping is damaged etc., replace it at once. Ascending pressboard and bearing of clutch is the following picture, this part is pulled and pressed by pullrod and bears much load when clutch separates. Turn inner side of bearing by hand to inspect if it becomes flexible or abnormal voice appears, and inspect if it becomes flexible between outer side of bearing and ascending pressboard.



pressboard inspection

Fixing cover of clutch(see fig.)

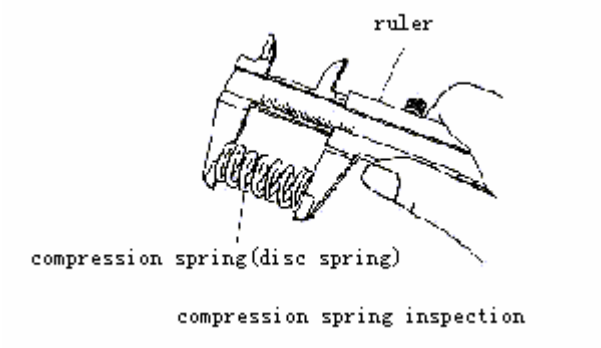
Be sure to inspect middle gear and groove of clutch fixing cover, replace it if engine gears are damaged or groove is abraded or damaged, chap appears.



fixing cover inspection

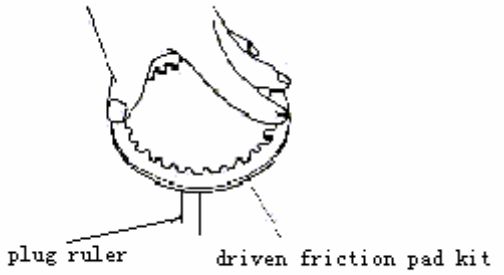
Bush of clutch fixing cover and bearing: if measured inside diameter of bush of clutch fixing cover or its outside diameter is over or below its limit dimension, replace it.

Measure the free distance of compression sping, replace it if measured distance is below its limit. Measure the deepness of friction pad kit, replace it if its deepness is below its limit. Measure the degree of distortion for driven friction pad kit, replace it if the measured is over its limit. If the pad kit is damaged or change color, replace it.

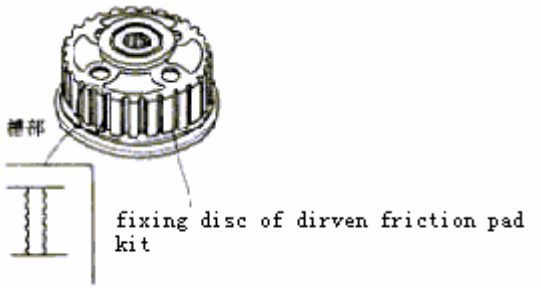


compression spring inspection

friction pad kit inspection



driven friction pad kit inspection

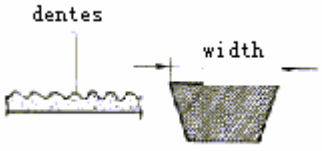


inspection for fixing disc of driven friction pad kit

For the clutch with seperating pushrod, be sure to inspect the separating pushrod. Replace it if the push rod is bending or damaged.

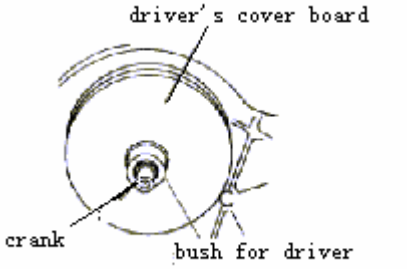
V. Belt stepless transmission

To inspect driving belt, firstly disassemble the left crankcase cover, remove fixing cover of clutch and remove clutch and driven wheel. If chap appears or dent falls off, and bush is peeled off or abnormal abrasion happens, replace it. Measure the width of driving belt, replace it if measured width is below its limit.

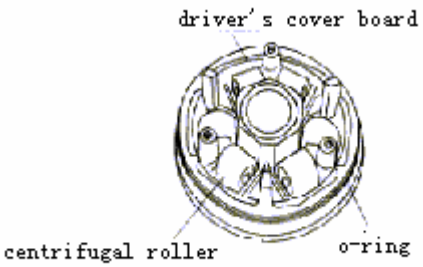


driving belt inspection

Remove driver, fix crank, remove the bolt for driver’s ventilative fan, and take down the fan (see fig.). Remove driver’s cover board and bush from crank. Take out driver’s right transmission board, remove centrifugal roller from driver’s cover board (see the following fig.).

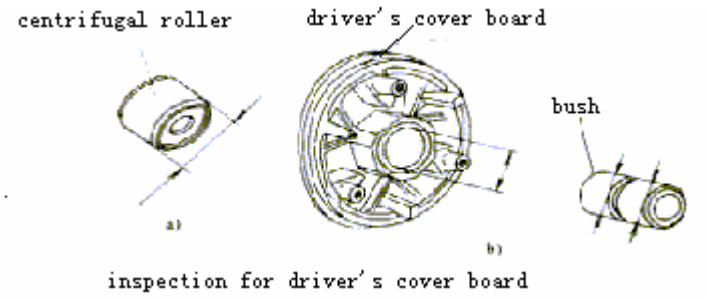


inspection for driver cover board



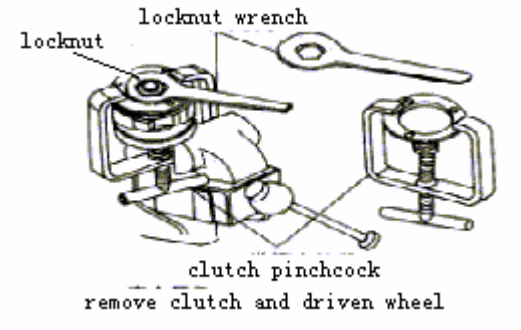
inner fructure of driver's cover board

Insepct driver’s centrifugal roller, cover board and bush (see fig.). If damaged or declining abraded, replace it. Measure outside diameter of centrifugal roller and bush, inside diameter of cover board. replace it if measured diameter is over its limit.



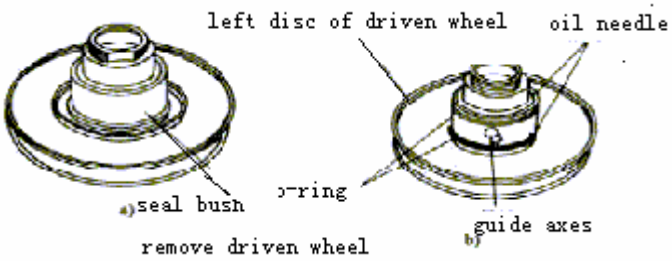
inspection for driver's cover board

More disassembled removed clutch and driven wheel, compress cluth and driven wheel with clutch pinchcock, fix the clutch pinchcock on table vice, remove lucknut with locknut wrench, and remove pinchcock, clutch and spring (see fig.): remove seal bush and guide pin, then remove the left disc of driven wheel.



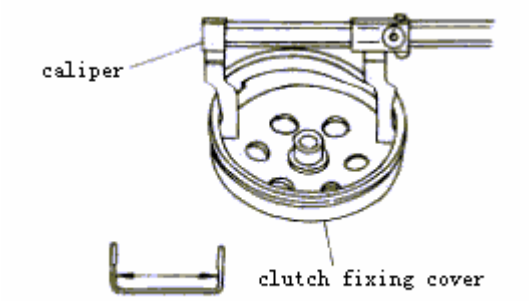
remove clutch and driven wheel

Measure inside diameter of fixing cover of clutch and the touching part of clutch shoe (see fig.), replace it if measured diameter is over its limit.



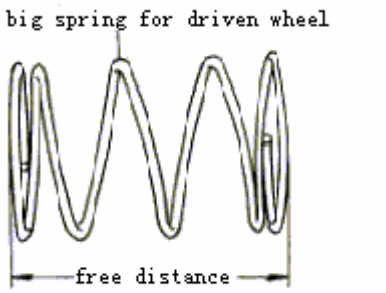
remove driven wheel

Measure the deepness of clutch shoe and the touching part of clutch cover; replace it if the measured deepness is below its limit (see fig.).

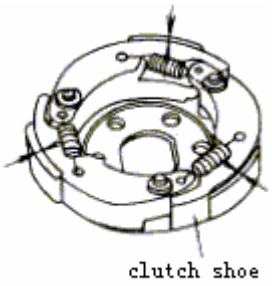


fixing cover inspection

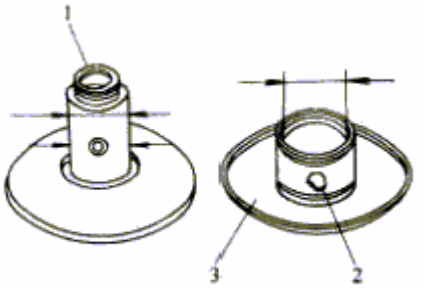
Measure outside diameter of driven wheel and the touching part of driven left disc, replace it if measured diameter is below its limit. Measure inside diameter of driven wheel left disc; replace it if measured diameter is below its limit. Inspect guide pin groove on driven wheel disc; replace it if abrasion like side step appears.



inspect big spring for driven wheel



clutch shoe inspection



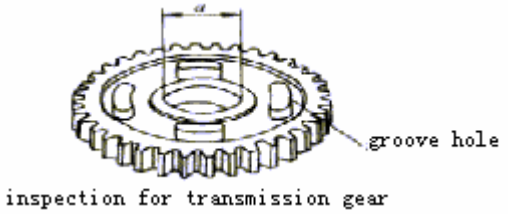
driven wheel inspection

VI. Transmission

For different kind of vehicle its configuration of transmission is different, but for vehicle with gearshift its configuration and principle of transmission are basically the same. The removal and diassembly of transmission are different for diffenent kinds of vehicle, but you need to note, store parts to avoid fault in assembling bush, ring and circle for gears. Keep circle vertical to axes; moreover, be careful not to leave stopping circle in crankcase.

Gear of transmission (see fig.)

Inspect exterior, abrasion or damage appears for gear, the hole of gear, and hole groove, shift groove and so on, replace it. Measure inside diameter of gear touching on axes (it is not necessary to measure inside diameter of gear with spline or rolling needle), replace it if measured diameter is over its limit.



inspection for transmission gear

Bush of transimisson (see fig.)

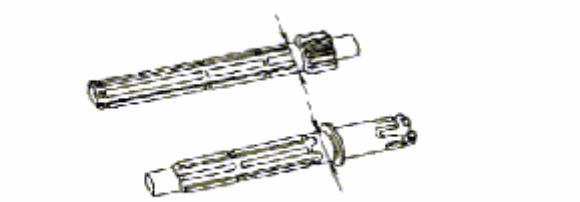
Measure inside diameter of the bush slipping along with axes (it is not necessary to measrue inside diameter of bush with spline), replace it if measured diameter is over its limit. Measure outside diameter of bush touching gear; replace it if measured diameter is below its limit. Calculate the clearance between bush and gear; replace it if measured

clearance is over its limit.

gear bush inspection

Principal axis and countershaft (see fig.)

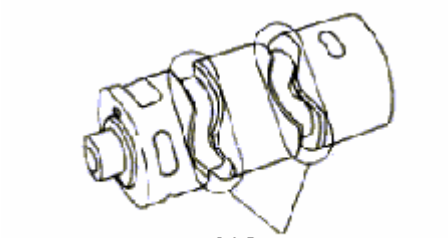
Measure outside diameter of axis, gear and the sliding part of bush (don't measure outside diameter with spline); replace it if measured diameter is below its limit. Calculate the clearance between gear and axis, bush and axis; replace it if measured clearance is over its limit.



inspection for principal axis and countershaft

Gearshift cam (see fig.)

Especially inspect gearshift groove of cam, replace it if serious sidelong abrasion appears.

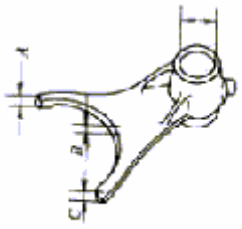


gearshift cam groove

gearshift cam inspection

Fork for transmission (see fig.)

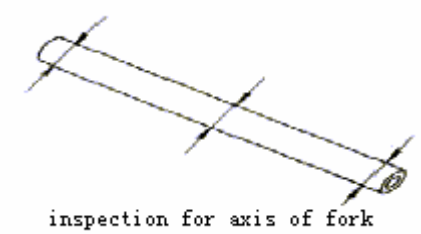
Observe the fork, if there is another touching point besides the touching part of moving gear, which means that distortion or deflection appears for fork, then replace it. Measure inside diameter of fork; replace it if measured diameter is over its limit. Measure the deepness of claw between fork and touching part of moving gear (for claw some measures the deepness from A to C, some measures the deepness from A to B), replace it if measured deepness is below its limit.



fork inspection

Axis of fork (see fig.)

Measure the outside diameter of axis and sliding part of fork, replace it if measured diameter is below its limit.

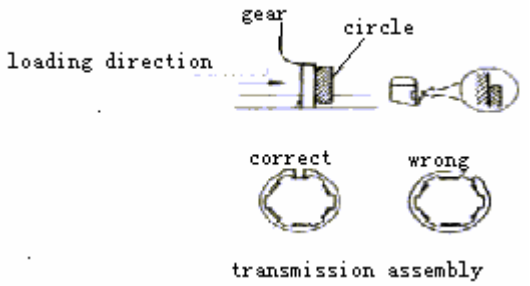


inspection for axis of fork

Assemble the transmission according to the noted direction and positon during removal. Pay attention to the following points:

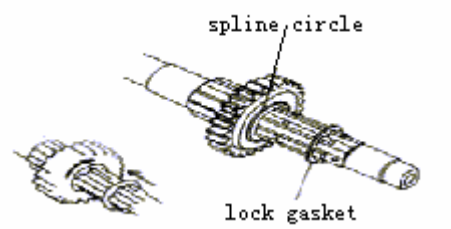
1. When assembling ring touching with circumgyrating part, be care to keep the side with downfallen angle dead against circumgyrating side. When the two side circumgyrates, downfallen angle should be exposed to the side with faster speed.

2. Keep the side with downfallen angle to the side with bearing load to assemble circle. It is forbidden to reuse the circle with decreased spring. After having assembled circle, inspect the circle whether it has be assembled groove and whether the hatch of circle is dead against the bottom of spline groove.

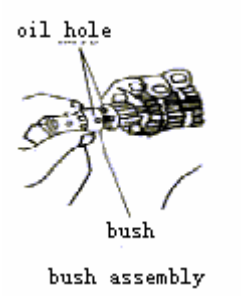


transmission assembly

3. Keep claw dead against spline circle (see fig.).



4. Assemble bush or gear with oil hole; keep the hole dead against the oil hole of axis (see fig.).



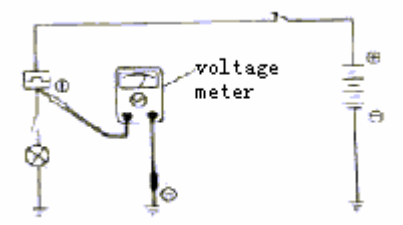
bush assembly

PHASE THE THIRD ELECTRICITY SYSTEM

I. Basic inspection for circuit

1. Voltage inspection

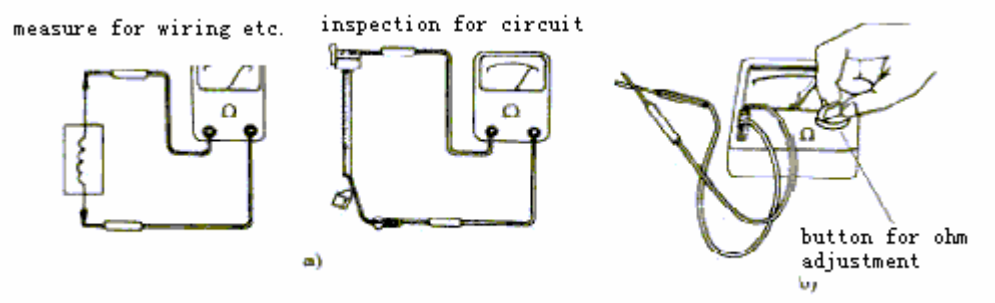
It is good means to inspect circuit, from which you can judge whether the circuit connects well or not. Here, only to confirm whether voltage exists or not, it is permitted to inspect it with little bulb instead of multimeter. If you want to get the numerical value of voltage and inspect whether electrical parts work well, you have to inspect it with multimeter, and the connection of multimeter sees the following picture. Turn measured position on voltage position, and pay attention to the permitted measuring range.with parallel connection, connect red measuring pen with “+” side and blace pen with “_” side, then you can get the voltage between measured part and ground.



measure voltage

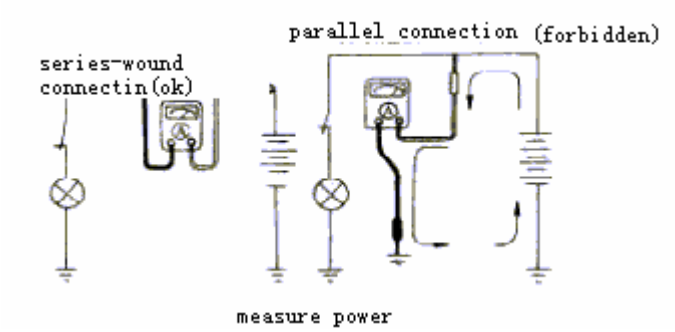
2. Resitance measuration

As the voltage measure, resitance measure is also a basic means to inspect circuit, from which you can inspect whether wiring is good and judge whether electrical parts connects well or not. Besides these, from resitance measure you can also confirn whether short circuit happens, and whether circuit is in high resitance when circuit is off. The connecting of multimeter sees the following picture. The measure of resitance has no relation with the limit of ohmmeter pen rod except the measure of diode. Different from voltage measure, remove relevant plut and connector to measure required system for restance measure. Measured result will be below its actual number if systems are not distinguished.



2. Current measuration

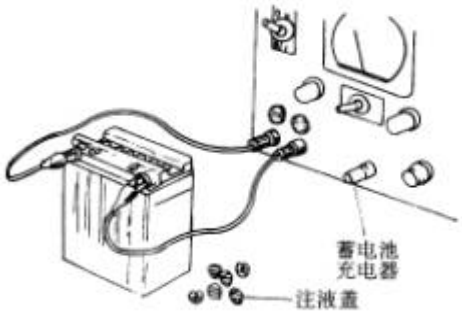
It is to judge whether the capability of circuit components is well or not, commonly it is not used to inspect circuit connection. Connect currentmeter in series-wound mode to circuit, and then measure the circuit (see fig.), connect red pen of currentmeter with “+” side, and connect cothode of currentmeter with “-” side, measured current can’t be over its arrange.



III. Inspect and repair battery, charge, lighting and AC generator device, and AC generator

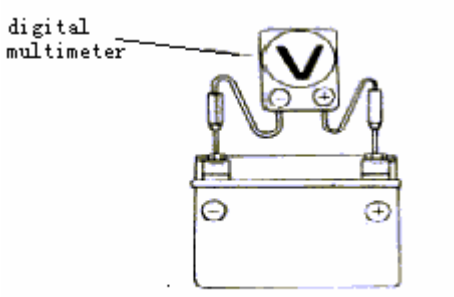
1. Battery

There are opening and sealing kinds of battery. Although their location are not the same, principle for assembly and disassembly are the same. First of all turn main switch to “OFF” position,



蓄电池的充电

open cover of connector, and remove negative pole, and then remove positive pole. For opening kind of battery, inpect the density of electrolyte to judge whether charge or maintenance is necessary. For sealing kind of battery (see fig.), measure the voltage on connector to judge if it needs to charge, recharge it if the voltage is not enough.

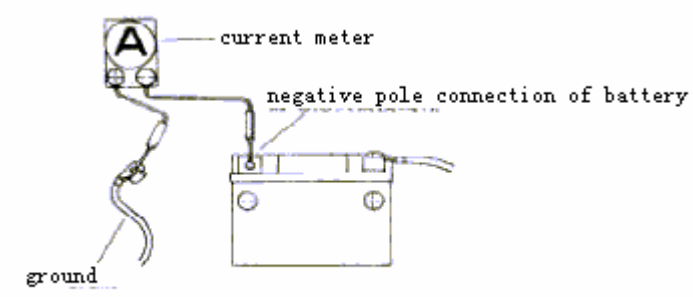


MF battery inspection

To recharge battery, remove the battery from frame and connect it with charger. Do as the following: connect positive pole of charger with positive pole of battery, connect negative pole of charger with negative pole of battery (see fig.), for opening kind of battery, remove pouring cap and inspect distilled water, refill it if necessary. Required current is one tenth of capacity for battery, for examble a 12N7 YUASA battery, its standard recharging current is 0.7A. After having finished recharging battery, the density of electrolyte is 1.27g/cm3-1.29g/cm3 (20 °C). For sealing kind of battery, it needn't remove the cap of electrolyte, recharge battery with proper charger and do it for proper time.

2. Charge device

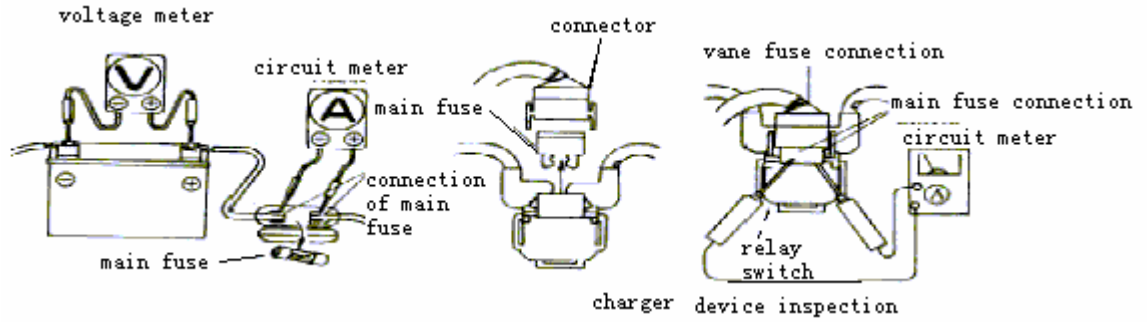
Firstly measure leaked current, if the current is over its limit, it may result from short circuit. At this time you can measure the current and at the same time remove cables and connection to find out the part of short circuit.



leaked current inspection

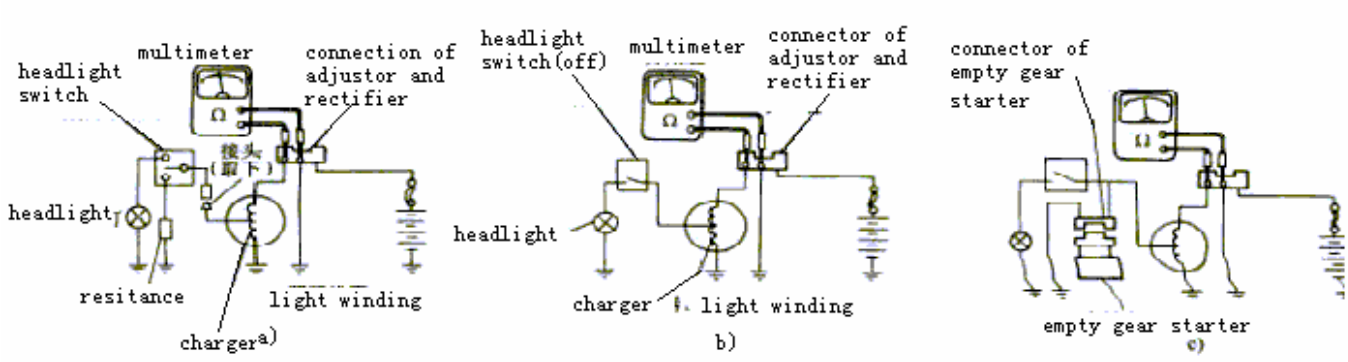
If charge is not ideal, inspect the status with engine warmed up (see fig.); place the battery on vehicle (for opening kind of battery with connection whose voltage is above 13.0v and density of electrolyte is 1.27cm3 (20℃)). Assemble digital voltage meter between between connections of

battery, remove main fuse, and assemble circuit meter between the connections. For vehicle without rotating speedometer, turn on headlight (high beam). Start engine (try to use kickstarter), when rotating speed reach some specified volume, read the current and voltage. In this process, you have to judge some kinds of abnormal status and inspect every part according to its order. If the voltage between the two connections of battery is not up, which means the circuit is on discharge. If the charging voltage, circuit is over its standard volume, which means that the power of bulb is over its specified volume, or electricity loading is too much or the capacity of battery degrades. If the voltage is normal but circuit is abnormal, which means that charge is not enough or the capacity of battery degrades, or the fuse of circuit meter is burnt out. If circuit is normal but voltage is abnormal, which means the fuse of voltage meter is burnt out.

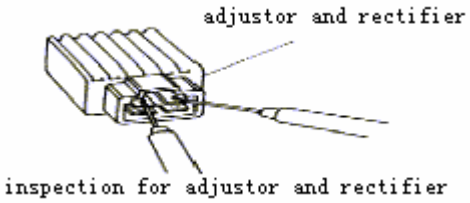


Electric adjustive voltage/rectifier are main charge device, inspect insulation of lead connector and its capability. To inspect insulation of lead connector, remove electric adjustive voltage/rectifier; make use of main lead connector to inspect its insulation (see fig.).

For vehicle with mutual charge and light wiring (see fig.), to correctly measure the resitance of winding, do some necessary operation. As model A shown, turn switch on “OFF” position, and remove the connecting plug of headlight switch or output voltage wire of AC generator. As model B shown, turn the switch on “OFF” position. As model C shown, it starts by auto empty gear, remove the connector of empty gear switch to measure it. Referring to the above inspection, do some necessary repairing or replacement if battery or lead is cutted off, ground or lead bundle is short, the resitance of charge winding or light winding is not enough.



If complete lead is normal, inspect the plug of electronic adjustive voltage/rectifier to judge whether it is connected well, and measure resistance between the connector of electronic adjustive voltage and rectifier (see fig.), if the resitance is abnormal, replace electronic adjustive voltage/rectifier. inpecting means: randomly choose two connector, measure the resistance with ohm position of multimeter. If measured resistance is infinite, alternate the pen of multimeter, if measured resistance is zero, it means circuity between the two connections is normal. Do it again and again, it is normal if the measured resitance of electronic adjustive voltage/rectifier acords with the above requirements. For AC adjustor, you have to measure headlight to judge whether electronic adjustive voltage/rectifier is normal or not. Remove headlight and start engine, and turn on the switch of headlight, then measure the voltage between the positvie pole of headlight and negative pole, play up the speed of engine step by step, read measured voltage at specified rotating speed. Replace the electronic adjustive voltage/rectifier if the gap is too much compared with standard volume.

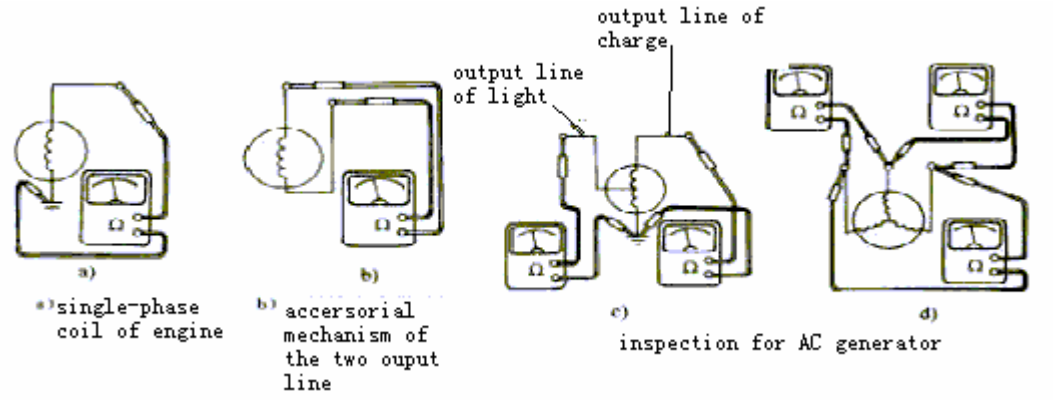


3. AC generator

The main inspection is to inspect charger or lighting coil. You don’t need to do it after removing AC generator from engine.

Remove lead of AC engine from lead bundles to measure the resistance of the leads (see fig. A): One end of single-phase coil is connected with ground, measure the resistance between output line and gound (if measured resistance cann’t reach its required volume, inspect the ground of starter or the ground of crankcase cover to judge whether ground connects well). See fig. B, measure the resistance between the two ends of lead, which is out of single-phase coil. Ensure the connection between ouput line of charge and light is not

electric. See fig. C, for charger and light device with mutual single-phase coil, measure the resistance between output lines of charge and light. See fig. D, for three-phase coil, respectively measure the resistance between each two output lines and ensure the connections of ground of engine and each output line are not electric.



4. Headlight mechanism inspection

With headlight switched on to inspect the voltage between positive pole of headlight and negative pole (see fig.), if the voltage is abnormally high, inspect AC adjustor and its connection. If Without light voltage, inspect the connection of light circuit, AC adjustor and lighting coil of AC generator. In the process of inspecing AC adjustor, first of all inspect whether plug or connector is connected well, and then measure the resistance between the terminal studs of adjustor (see fig.), replace AC adjustor if measured resistance is not normal.

III. Ignition equipment inspection

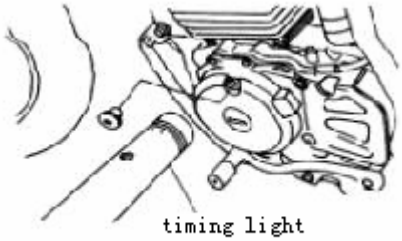
1. Inspect the capability of leaping spark

Take doen spark plug from cylinder head and assemble it on the cap of spark plug. Touch spark plug with cylinder body and turn on power switch, start engine by kick starter or electric starter to rotate engine, then observe the state of spark between the electrodes of spark plug, never touch it by hands during the process of testing to avoid getting an electric shock, if spark is stong, it means the state of spark plug is goo, replace it if not. Sometimes for spark plug leaping spark may happen in high air pressure, but it rarely happens in the situation of compressure pressure to cylinder, which mainly results from not enough voltage from ignition coil.

2. Ignition timing inspection

When inspecting ignition timing, you have to rotate engine to warm up it to connect timing light with high voltage wire, for the vehicle without rotate speed meter you have to connect one.take down the plug of timing light, and start engine to do the inspection (see fig.), operate engine with stated empty

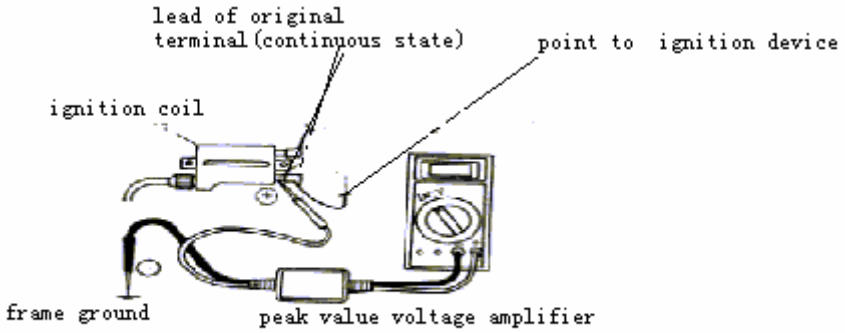
load, it means good if mark F matches the comparison mark on end cover of engine. Screw down iddle screw for carburetor appropriately, then rotating speed of engine goes up step by step and advanced angle begins to rotate (see fig.), for those vehicles without advanced angle for ingnition, only confirm it by mark F.



ignition timing inspection

3. Ignition device inspection

Use peak value of voltage to inspect the elementary voltage of igintion coil. Normally match spark plug cap with spark plug (peak value of voltage is higher if testing it after taking down spark plug), connect a peak value voltage amplifer between the terminal of elementary coil of ignition coil (any terminal between igintion coil and ignition device) and ground of frame (see fig.), turn on electric switch and start engine through kick starter or electric starter to measure the peak value of voltage on elementary coil of ignition coil.



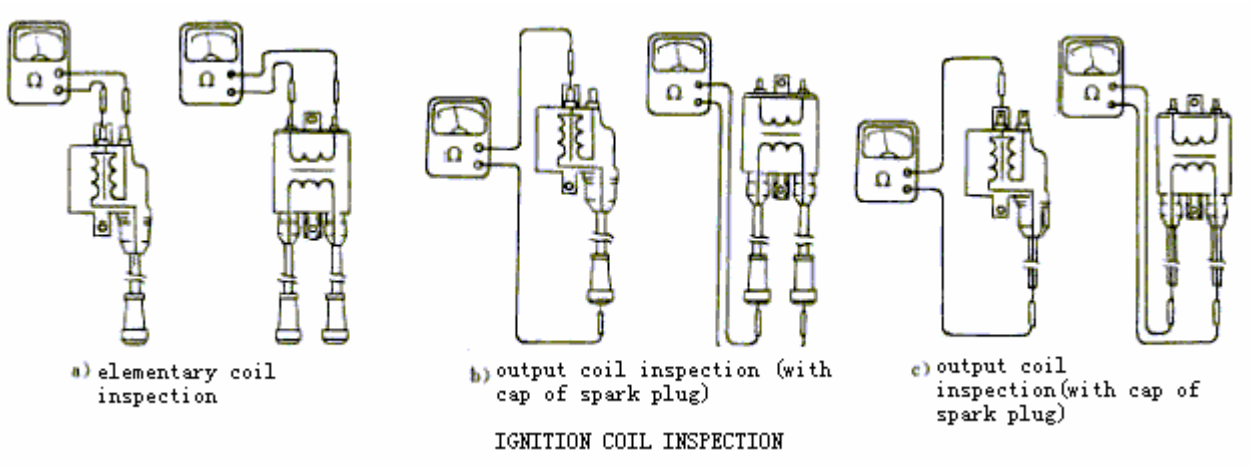
measure elementary voltage of ignition coil

When using peak votage to inspect ignition coil, take down plug from CDI device and connect the end of ignition coil with leak voltage amplifier. If the gap of spark plug is proper, turn crankshaft through starting motor, and then read the leak voltage of ignition coil.

4. Ignition coil inspeciton

First of all measure leak voltage of ingnition coil, for the resistance of elementary coil is so low that it is difficult to know it even short circuit happens, you can only mainly inspect it. Measure the resistance between the

tie-ins of elementary ignition coil. If measured resistance is in range of its specified value, that means good, replace the coil if measured restance is infinite (short circuit). Assemble the cap of spark plug to inspect output coil and measure the resistance between the cap of spark plug and the terminal of output coil. Measured resistance is in range of its specified value, that means good. If measured resistance is infinite (short circuit), take down the cap of spark plug and high voltage wire, and then measure the resistance of output coil. Replace it if measured resistance is still infinite (see fig.).

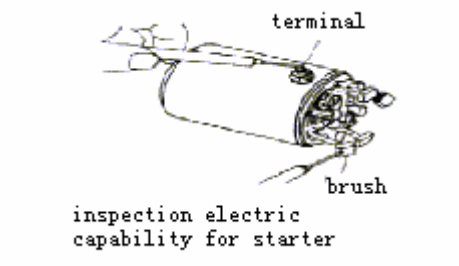


IGNITION COIL INSPECTION

IV. Inspection for starter and clutch

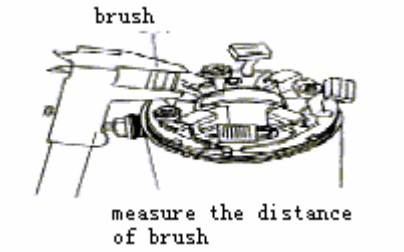
1. Inspection for starter

To position starter body and cover correctly, be sure to do some necessary mark before disassembling. Take down screws, and open its cover. Be sure to note the quantity of gaskets between armature and cover and their positions. Afte having disassembled starter, inspect its insulation, the distance of brush, appearance and so on. Insepct the insulation of terminals see fig.), it is normal for not electric conduction between terminal and starter body and for electric conduction between terminal and brush. Replace corresponding parts if abnormal state happens.



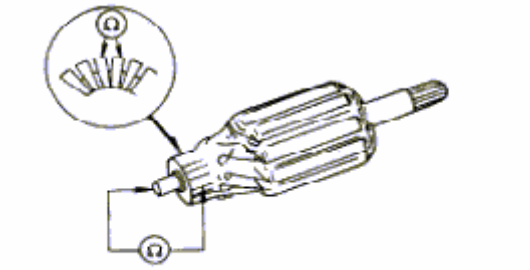
inspection electric capability for starter

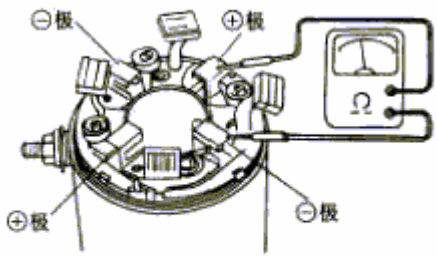
Measure the distance of brush (see fig.), inspect whether the degree of abrasion is over its limit or not, replace it if it is.



measure the distance of brush

Do some necessary inspections for armature commutator, replace it if the surface is not even, damaged or burnt. See the following picture, and inspect electri conduction capability of armature. It is normal for electric conduction between vanes of commutator and for unable electric conduction between vanes of commutator and armature.


inspection for electric conduction capability of armature

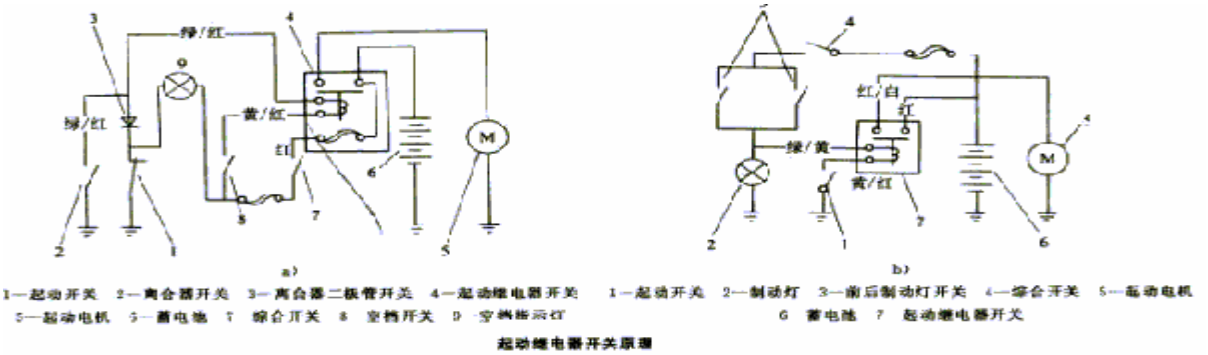


electric conduction capability for positive and negative poles

Inspect the bearing inside armature bush, replace it if the bearing skids or doesn’t run, inner or outer ring becomes flexible.

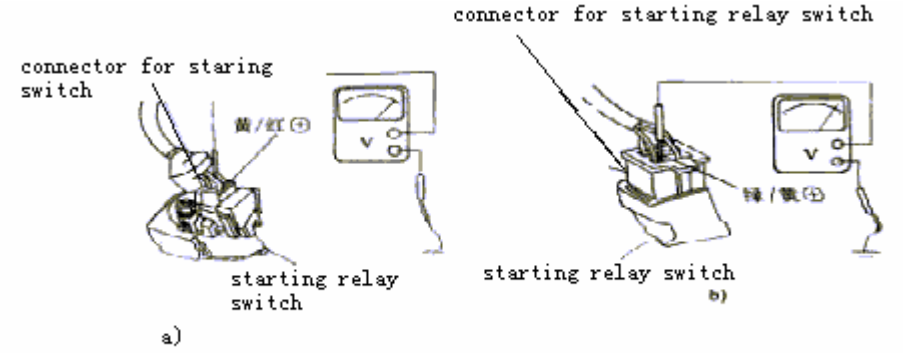
2. Start relay

There are two kinds of starting ciucuit diagrames, be sure to deal with them respectively before inspecting the circuit. For the first kind of starting circuit diagram the following figure is its elemetary circuit diagram: turn on the switch, and the voltage from storage battery acts on relay, at this time if the switch of empty gear connected with ground or clutch switch is on “ON” position, then relay conducts electricity and starter runs. This kind of circuit diagram is used as the vehicle with manual clutch. For the second kind of circuit diagram the following figure is its elemetary circuit diagram: when grasping grip, the voltage from braking light acts on the switch of relay, at this time if turn on the starting switch, then relay conducts electricity and starter begins to run. This kind of circuit diagram is mostly used as scooter series.



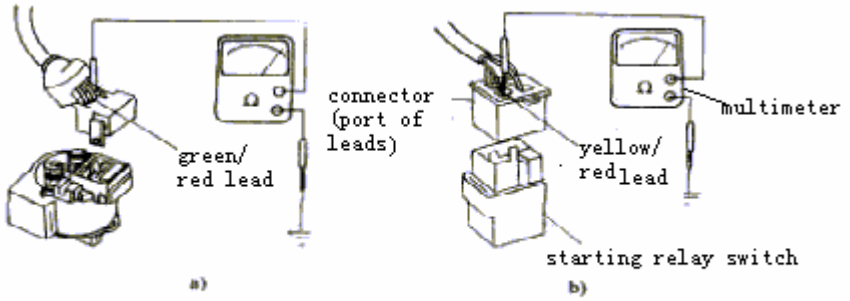
起动继电器开关原理

Inspect starting relay, and then you can get correct judgement from the state of switch starting. When switching on switch, you can hear “clatter” voice from starting relay. If there is no voice and cann’t start, then you have to inspect the switch of starting relay. Inspection the voltage of starting relay (see fig.): for the first kind of circuit diagram, measure the voltages between green lead and yellow lead of starting switch plug, press the starting switch, it means normal if there are voltages on storage battery. For the second kind of circuit diagram, measure the voltages between green lead and yellow lead, grasp front and rear braking lever, it means normal if there are voltages on storage battery.



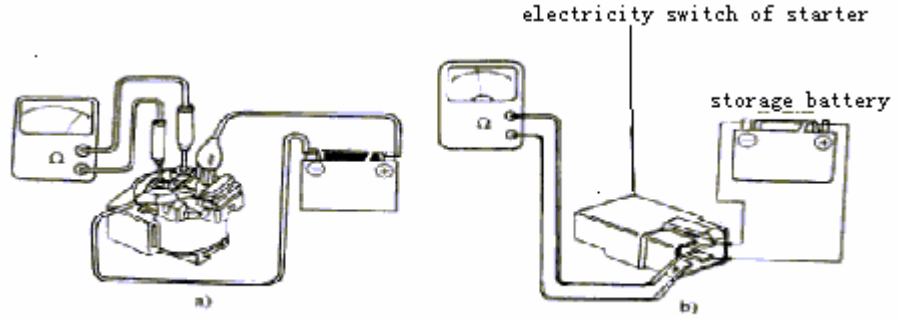
inspect the voltage of starting switch

Inspect grounded ciucuit of starting relay switch (see fig.): for the first kind one, inspect whether purple-grounded lead for the plug of starting switch puts through ground well. When transmission is positioned on empty position or when you grasp clutch lever, the grouned lead of relay puts through ground well, that means that this ciruit diagram is good. For the second kind one, inspection is essentially the same of the inspection for the first kind one.



INSPECTION FOR GROUNDED CIRCUIT OF STARTING RELAY

Assemble storage battery on the two ends of terminal of relay switch plug to inspect the electricity conduction between the terminal of storage battery and the terminal of starter through multimeter, electricity conducts well if the ohm value is zero, otherwise relay is damaged.

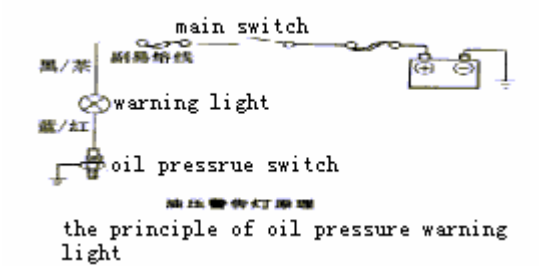


inspection for starting switch

V. Light, switch and meter inspection

1. Oil level indicator for 2-stroke, separated, lubrication vehicle

The dobber of oil level switch in oil tank floats upward or downward along with the change of oil volume. When engine oil volume degrades to some certain degreen, the dobber of engine oil also degrades to the bottom of oil lever indicator, and the connector of dobber puts through the circuit of oil lever indicator, when turn main switch on "ON" position, indication light is going to light. When filling with engine oil, indication light lights, then turn off eclectic switch and take down indicator of engine oil level from oil tank, at last cut off dobber and the contact of indicator and measure the resistance between base lines of indicator plug, if measured resistance is zero, that means oil level indicator runs abnormally. If it is normal, turn main switch on "ON" position and disassemble indicator and main cables, then inspect whether indicator lights or not, if it lights, be sure to inspect whether the circuit connects with audio pilot comp well or not.

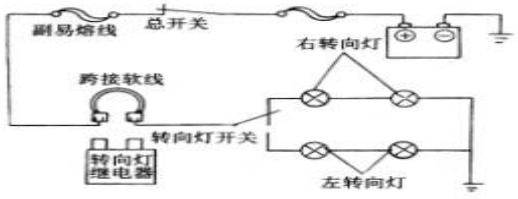


the principle of oil pressure warning light

2. Trans-direction light

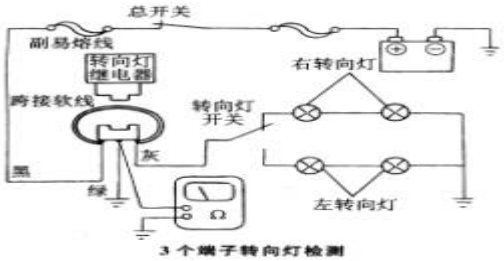
Turn on trans-direction light, do some necessay inspections if trans-direction light doesn't light or light but without flash for long time.

For the flash pilot comp with two terminals, take down connecting plug from flash pilot comp, and connect lead with the plug for main cables, then turn electric switch on "OFF" position, trans-direction light is put through, inspect whether trans-direction light lights or not. If it lights, that means flash pilot comp is normal or the connector is not connected well, otherwise that means lead bind is broken off.



2个端子转向灯检测

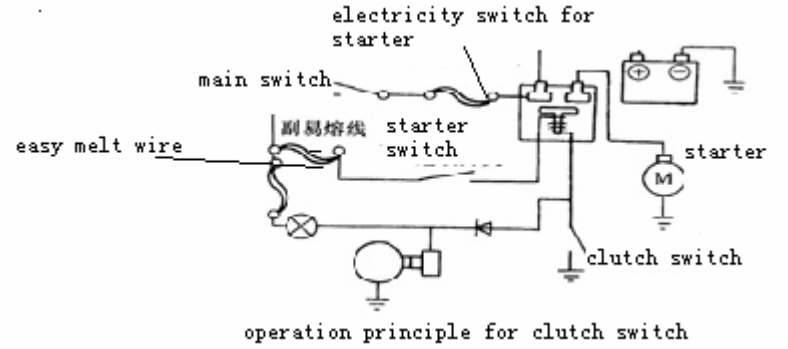
对于有三个插线的闪光器，其结构示意图如图；用跨接导线连接转向灯插头的红/白线和棕色线，接通电门琐及转向灯开关，检测转向灯是否亮灯。如果灯没亮，则说明导线束断路。如果灯亮，进一步检查闪光器的黑色线和地线间是否导通，如果不导通，说明地线不正常或接地线断路，如果导通则说明闪光器不正常。For flash pilot comp with three terminals, its structure (see fig.): connect red/white line of trans-direction light plug with its brown line through strding lead, switch on electirc lock and trans-direction switch to inspect whether trans-direction lignt lights or not. If not, it means open circuit happens. If it lights, go on inspecting whether the black line of flash pilot comp is well connected with ground, if not connected well, that means ground is not normal or open circuit happens for ground, if connected well, that means flash pilot comp is not normal.



3个端子转向灯检测

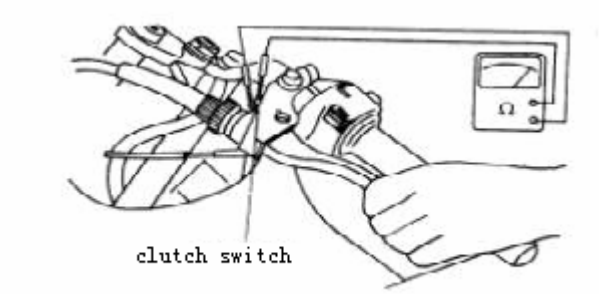
3. Clutch switch

When starting engine, if transmission is not on empty gear and clutch is on the state of separation, starter cann't go round and round, the switch acted as start and stop is clutch switch. Its principle figure (see the following one):



operation principle for clutch switch

Hang gears to control clutch and turn starter to inspect whether starter is normal or not, take down the connector of soft cable, then grasp and release clutch lever to inspect whether the terminals of clutch switch is connected well, see the following picture: when grasping handlebar grip, it must be not conducted. After knowing clutch switch is normal, you still need to inspect whether short circuit exsists for soft cable between relay switch and clutch switch or not and whether the switch of empty gear is normal or not.



inspection for clutch switch

4. Stop switch

Stop switch is to open stoplight when operating brake grip (scooter). To avoid vehicle suddenly runs forward, be sure to grasp braking grip tightly or step pedal. If stoplight does not light, take down the plug of stoplight, operate braking grip or pedal, at the same time inspect whether terminals conducts well or not. When operating it, the terminals conduct well, otherwise they does not conduct. After knowing stoplight is normal, inspect whether fuse is melt or electric lock switch is normal, whether electric lock switch is well connected with the plug of assistant fuse or short circuit exsits between assistant fuse and the connector of stoplight.

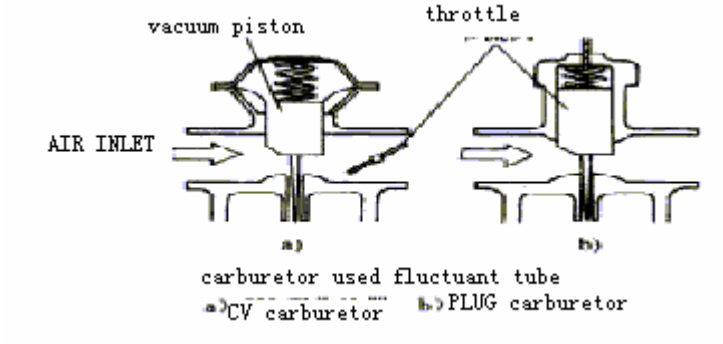
5. Gears display

When turning on electric lock switch, gears display displays the positon of gears, its structure is the following figure, and its principle is: gear sensor limits the position of cam, when shifting gears, the connector of shift arm touches gear sensor, and put through circuit, LCD display shows gear position. When LCD display does not show or show incornectly, take down the connector of LCD display, connect thrum of each gear with black line through LCD display, and then inspect its position. If it shows normal, inspect whether gear sensor connects well or not. If it shows abnormal, inspect electricity quantity in storage battery or whether short circuit exsists.

PHASE THE FOURTH FUEL SUPPLEMENT DEVICE

I. BRIEF INTRODUCTION ABOUT CARBURETOR STRUCTURE

For carbutetor used fluctuant tube, it includes CV carbutertor (vacuum film type) and PLUG carburetor.

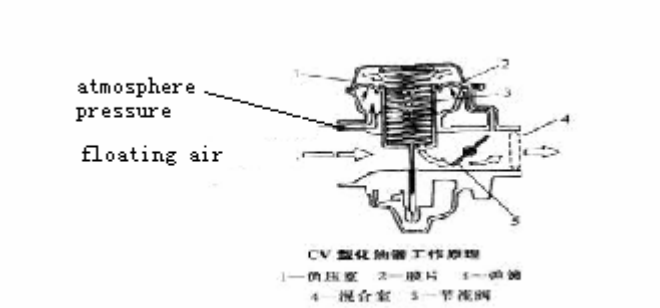


carburetor used fluctuant tube
a) CV carburetor b) PLUG carburetor

For PLUG carburetor, throttle handle grip control throttle to get your required operation (see fig.).

About working principle of CV carburetor (see the following fig.)

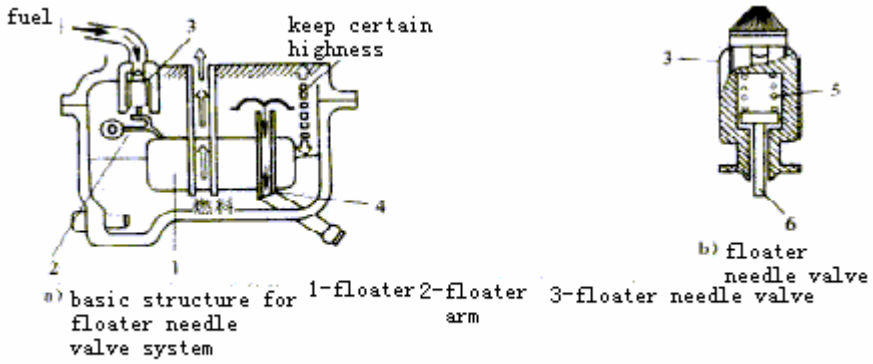
When opening throttle, in throat tube air flows, and rather stronger negative pressure appears on the bottom of vacuum piston, air in negative pressure chamber of carburetor is taken out and its negative pressure drops down, and then atmosphere pressure tops off film and tops off piston. Contrarily, vacucm piston drops down for the bearing of spring pressure.



According its function carburetor includes cool starting system, floater system, idle speed system and main supplement oil system. For different carburetor its system may be different, but its basic principle is the same.

1. Floater needle valve system

For floater needle valve system, its funtion is to keep oil level stable in floater chamber, and the following figure is its structure: there is a little spring assembled on floater needle valve which squeezes needle valve and keep oil level stable, and then makes needle valve cann’ t be opened or closed easily.

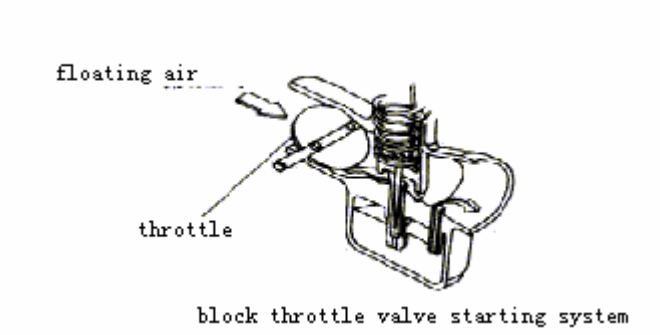


FLOATER NEEDLE VALVE SYSTEM

2. Coldstart system

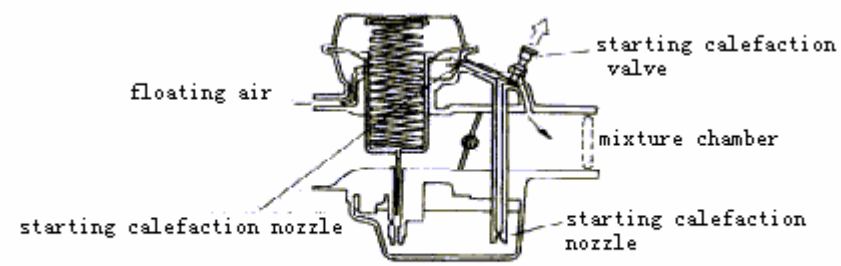
It needs rather thicker mixed air to increase its starting capability. So carburetor has a starting concentration system. The starting concentration system includes block valve, starting concentration manual type and starting concentration auto type.

For block valve starting system (see fig.): there is no lowering pressure structure, when some certain negative pressure appears, the lowering p ressure valve open a little to avoid mixed air too thick.



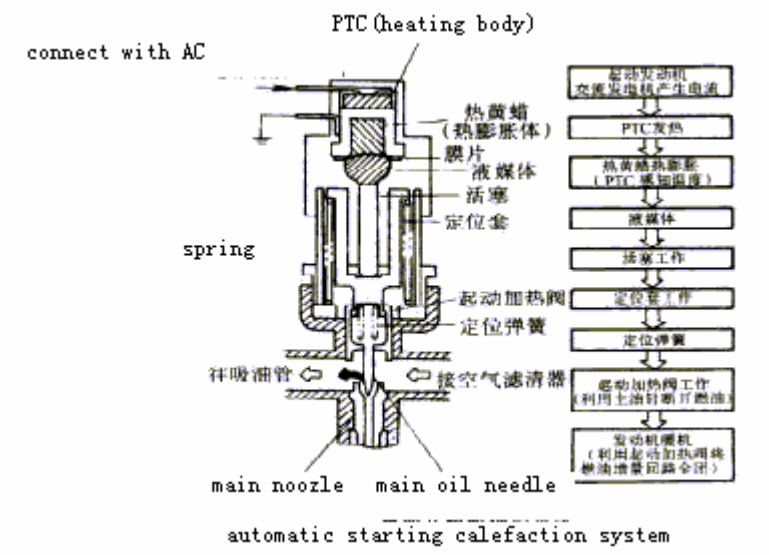
block throttle valve starting system

For manual starting concentration system the following figure is its basic structure. Open starting concentration valve and starting concentration system is connected with main jet. Breathe in air from starting concentration nozzle, and inhale fuel from starting calefaction nozzle, and then eject fuel into main jet to supple engine.



manual starting calefaction system

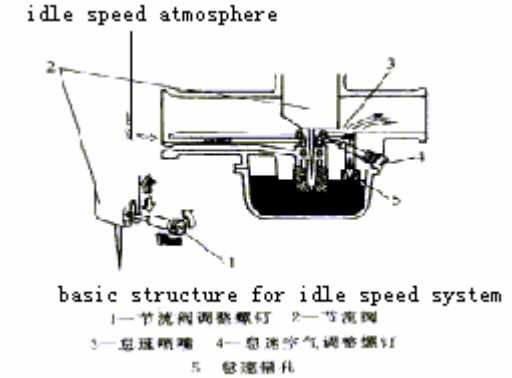
For automatic starting calefaction system its basic structure sees following picture: including PTC (heating body), heat expand part (wax yellow body), plug, starting concentration valve and so on. Its working principle is as follows: when there is no current conducting through PTC, spring sustains starting concentration valve, and fuel increment loop opens completely to get fuel at any necessary time. After starting engine, get fuel from fuel increment loop, at the same time PTC becomes hot and yellow wax part expands to put down starting concentration valve, and concentration valve main needle shuts off fuel increment loop to stop the supplement of fuel.



automatic starting calefaction system

3. Idle speed systme

For the idle speed system of caburetor, its basic structure sees the following fugure:



basic structure for idle speed system

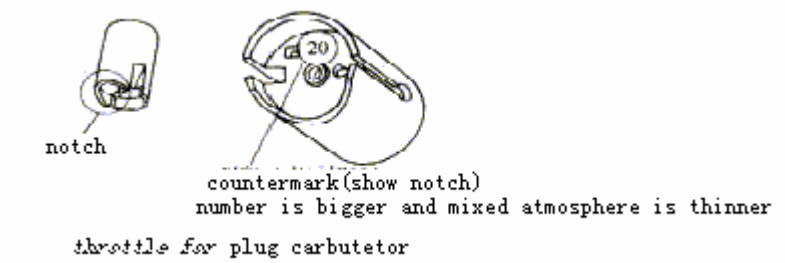
1—节流阀调整螺钉 2—节流阀

3—怠速喷嘴 4—怠速空气调整螺钉

5 怠速辅孔

For idle speed system it makes use of negative pressure resulted from engine operation to spray fuel from idle speed nozzle, which ensures the supplement of fuel. Commonly, there are throttle djusting screw and idle speed atmosphere screw. Throttle notch screw adjusts the lest open of throttle, and idle speed atmosphere screw adusts fuel capacity mixed atmosphere which is controlled by idle speed jet. Idle speed screw adjusts atomized fuel capacity gotten through idle speed jet.

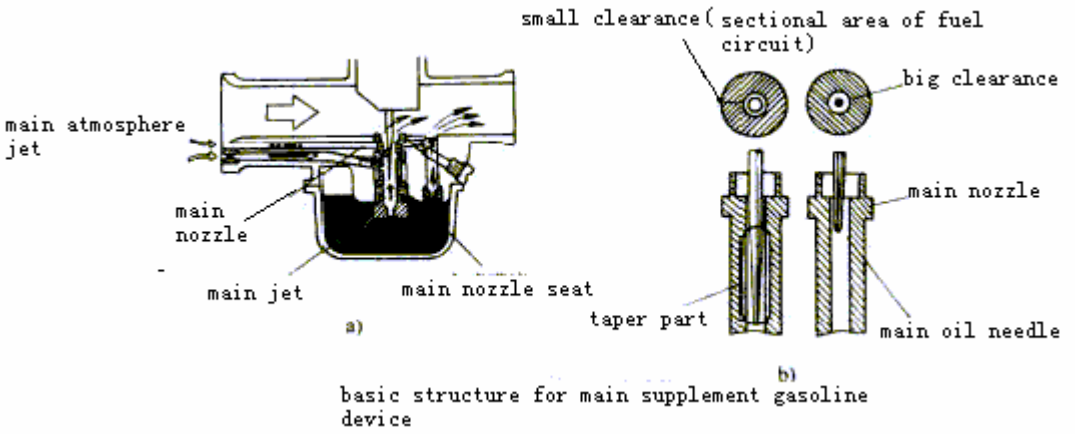
For plug throttle there is a hotch on the side of inlet port, hotch is bigger, atmosphere capacity is more at idle speed and mixed atmosphere is thinner.



throttle for plug carbutetor

4. Main supplement gasoline device

See figure. The whole system includes two grades according with its open of throttle. The first grade is 1/8～1/2 open of throttle, when gasoline capacity from main nozzle results from gasoline level surrounded by main needle and main nozzle.

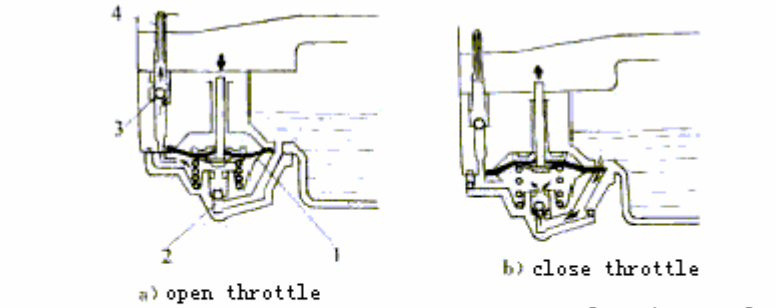


basic structure for main supplement gasoline device

5. Other structure

（1）accelerating pump

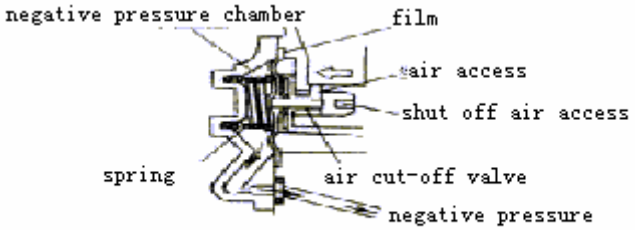
Its basic struture (see fig.): open throttle, and throttle pulls down the film of accelerating pump, then fuel spays into mixture chamber through hole of pump. Close throttle, and throttle pulls back file, open inlet unilateralism valve, then fuel in floater chamber goes into pump chamber.



operation principle for accelerating pump

（2）air cut-off valve

Its basic principle: when shutting off throttle and negative pressure in mixture chamber becomes big, negative in air cut-off valve also increases, then the movement of film shuts off air access. When negative pressure in mixture chamber becomes small, spring pulls film and open air access.

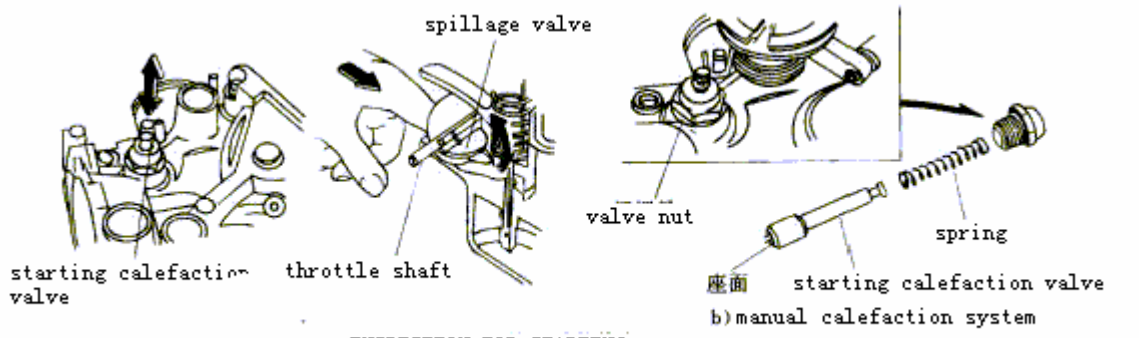


operation principle for air shut-off valve

II. Inspection and adjustment for carburetor

1. Inspection for cool starting concentration system

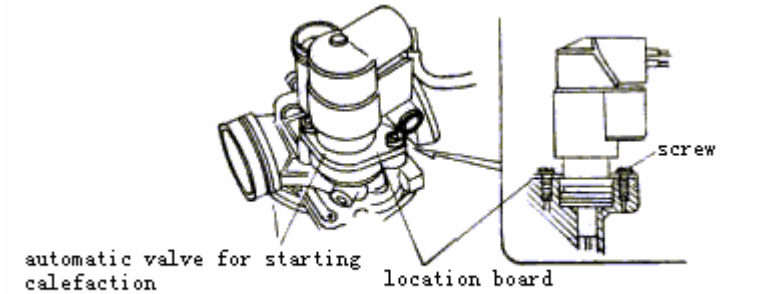
Inspection for throttle and manual concentration system is the following picture: dial each valve, and inspect whether there is block or move stably or not.



INSPECTION FOR STARTING CALEFACTION SYSTEM

For throttle, you also need to inspect whether moving shaft becomes flexible or not, pull spillage valve of throttle with finger to inspect whether it can be opened or closed. For manual starting concentration valve, you also need to disassemble it and inspect its surface, if there is damage, leaning abrasion or sidestep fray on the seat of valve, replace it.

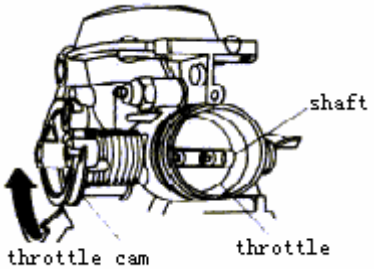
For automatic starting concentration valve, first of all measure resistance in terminals of its connector. When measured resistance is too much, replace starting concentration valve. When starting concentration valve becomes fully cold, connect soft hose with fuel increment loop and blow it, now it should be ventilated, otherwise automatic abates. Connect the terminal line of automatic concentration valve with battery, wait for about 5 minutes, and then connect soft hose with fuel increment loop, blow it, if it is not ventilated, it means that concentratin valve works well, otherwise replace automatic concentration valve. It cann't be disassembled for automatic concentration valve itself. The removal sequence is essentially the reverse of installation.



installation for starting calefaction automatic valve

2. Inspection for throttle device

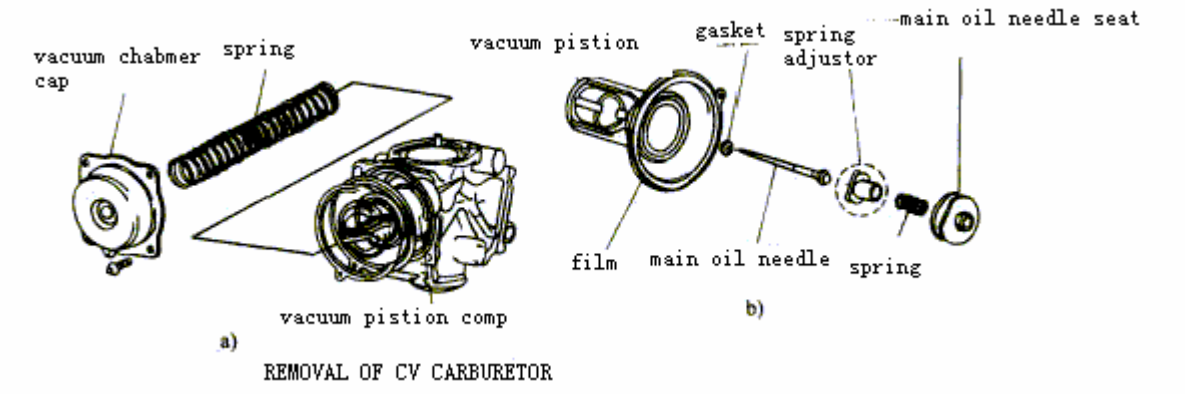
For CV type of carburetor its throttle is the following figure: stir throttle drum, and inspect whether throttle can rotate smoothy and inspect whether throttle shaft loosens or not: inspect the clearance between throttle and tube when throttle is shut off, replace throttle and shaft if clearance is too big.



throttle inspection

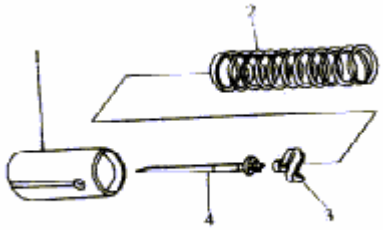
For CV type of carburetor its removal structure is the following figure: after removing it inspect whether vacuum tube can rotate smoothy in carbutetor. Inspect whether there

is sidestep abrasion for main oil needle. Inspect whether film is abraded and vacuum piston is scratched or not. If there is one unqualified item, replace corresponding part.



REMOVAL OF CV CARBURETOR

For plug throttle its structure is the following figure: after removing it, inspect whether its fluctuating movement is smooth and main oil needle is abraded or not.

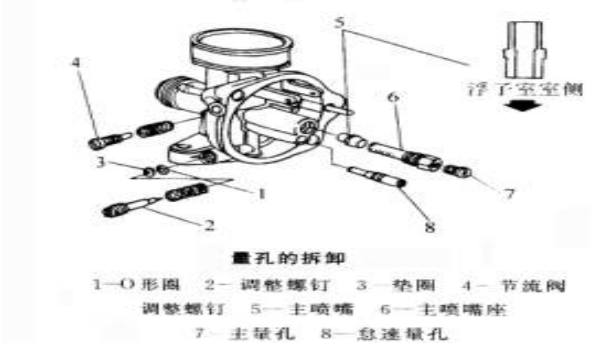


plug throttle

3. Removal and inspection for floater chamber

After removing floater chamber, first of all inspect floater and oil needle. Including: whether floater is damaged seriously, whether floater is distorted, whether floater is dipped into fuel, and interface for floater needle and throttle is scratched.

After removing floater chamber, inspect jet and adjuster device. See figure: remove main jet, main nozzle seat, main nozzle and idle speed jet, be careful not to remove those assorted parts, and note wresting circles for each jet to avoid that parts is fixed too tight even damage seat. For jet parts be sure to clean it with wash oil, and for block, dreggy oil guide or jet use compressor to clean them. For jet is precise part, never clean the access with wiriness or other spiculate tools, otherwise it may scratch jet and change proportion of fuel to air and result that engine works wrong.



量孔的拆卸

1—O形圈 2—调整螺钉 3—垫圈 4—节流阀
调整螺钉 5—主喷嘴 6—主喷嘴座
7—主量孔 8—怠速量孔

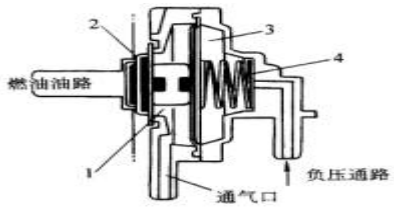
4. Adjustment for airscrew

Air scres has been premeasured and adjusted in factory, so it is not necessaty to adjust airscrew. If neceasayt do the following inspection: start engine, play up idle speed properly, and turn air screw from standard position to the left or right to find out the position where idle speed is highest, and the fasten it, then loosen idle speed adjusting screw until idle speed is standard rotate speed, do above inspection again until idle speed

becomes stable and continuous.

III. Negative pressure switch

Its structure is the following figure: inside it there are two films which move through negative pressue, and the two fils are linked by connecting circle. When engine runs and negative pressure acts on big film, the pressure also passes into little filem, then dredge fuel route and outflow fue. When stopping engine, spring pulls bace films to shut off fuel route.

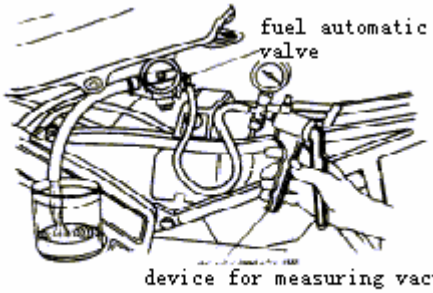


燃油自动活门的原理

1—连接环 2—小的膜片

3—大的膜片 4—弹簧

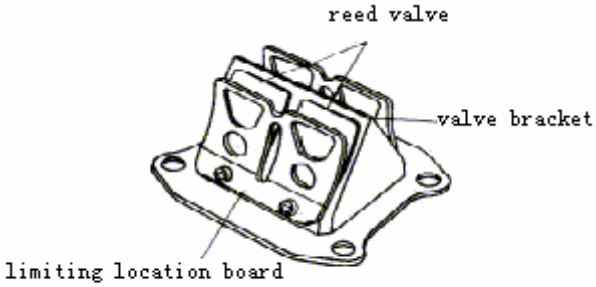
Negative pressure inspection: load vacuum tube with negative pressure, and inspect whether fuel swimmingly pours out. Inspect the state of preserved negative pressure, if it cann't preserve negative pressure, film may have not been assembled correctly or film has been damaged. If it can preserve negative pressure but fue can swimmingly pour out, inspect if the oil route of fuel tank has been blocked. If there is no negative pressure loaded on vacuum tube, but fuel still pours out, it must result from wrong assembly for film. For automatic negative pressure switch cann't be removed, replace negative pressure switch assy. once it works not well.



inspection for fuel automatic valve

IV. Reed valve inspection

It also calls inlet valve. Reed vave is assembled on inlet routeway between carburetor and crankcase to function unilateralism. The following figure is its structure, including unilateralism reed valve and V model of reed valve. When engine runs, some degree of damage and lapse for reed valve may result in blow-by or reverse pour out and so on, so inspect it periodically.



reed valve structure

1. Inspect staleness from reed valve

Remove reed valve from engine, and turn over it to keep reed valve downward, then refill a little coal oil, observe if coal oil leaks out or not. If it leaks out, reed valve leaks out gas, then respair rubber on reed valve bracket.

2. Rubber layer inspection

Remove reed from valve, and gently grind protuberant part resulted from aging on rubber layer, be sure not to grind it too much to result in scrap. If some part of rubber layer comes unglued or damaged, replace valve bracket. After finishing all inspection reistall leakage.

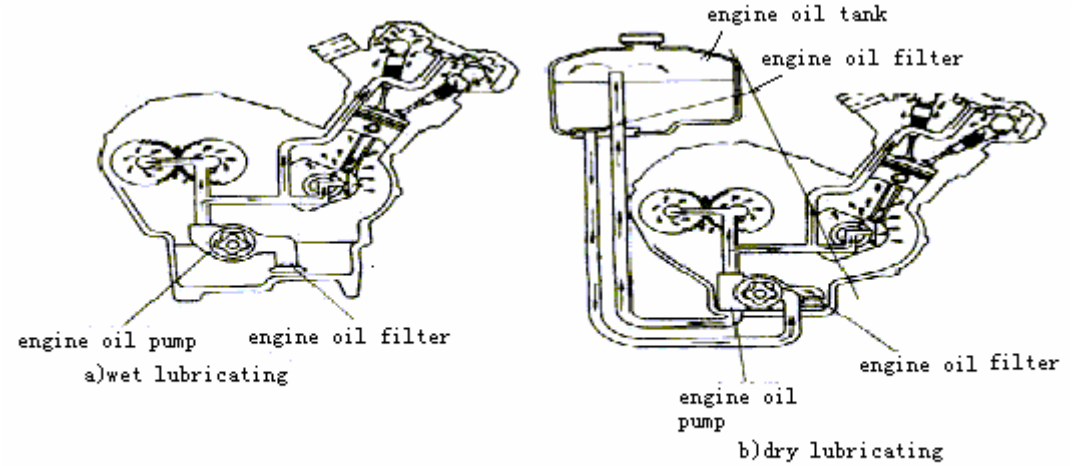
3. Inspect if limiting location slice is distorted, opening is proper or not, measure the clearance between limiting location slice and reed, if measured clearance is more than its limit, replace limiting location slice or rectify it.

4. Inspect whether valve is distorted ruptured, if distorted or ruptured, replace reed valve assy.

PHASE THE FIFTH LUBRICATINTG DEVICE

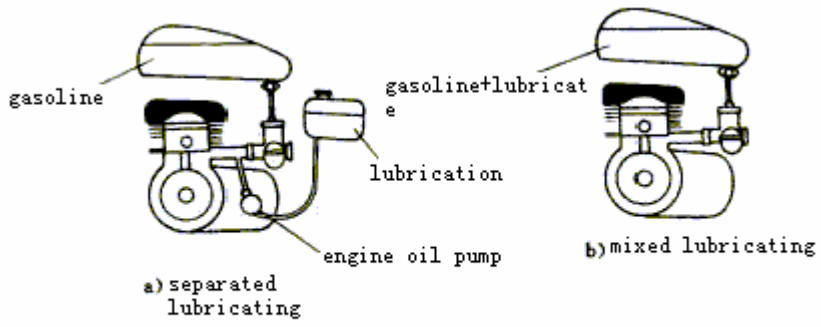
I. BRIEF INTRODUCTION FOR CONFIGURATION

Often use wet plate for 4-stroke engine



basic configuration for lubricating system

For 2-stroke engine it uses the inside of crankcase as inspiration and adding pressure chamber, so it cann’ t install bottome shuck of engine oil like 4-stoke engine. Mis engine oil and gasoline and use atomized lubrication to lubricate cylinder and rotating part of crankshaft bearing. For QJ 2-stroke motorcycle it mostly uses separated lubricating mode.

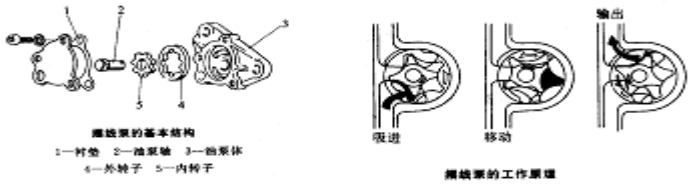


2-stroke engine lubricating system

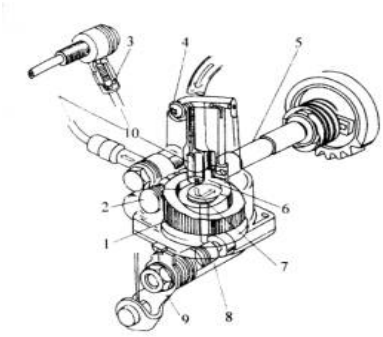
Engine oil pump is main part of lubricating device, for 4-stroke engine its engine oil pump uses trochoid gear pump and for 2-stroke engien it uses plug enginge pump.

The following figure is trochoid gear pump, its basic principle: inner rotor is assembled driving axes, when inner rotor rotates around axes, outside rotor also rotates, then the empty capacity formed between the two rotors may change. Lubrication can be gotten

from largened capacity and pass it into another side, with capaciy becomes smaller and smaller, lubrication is extruded.



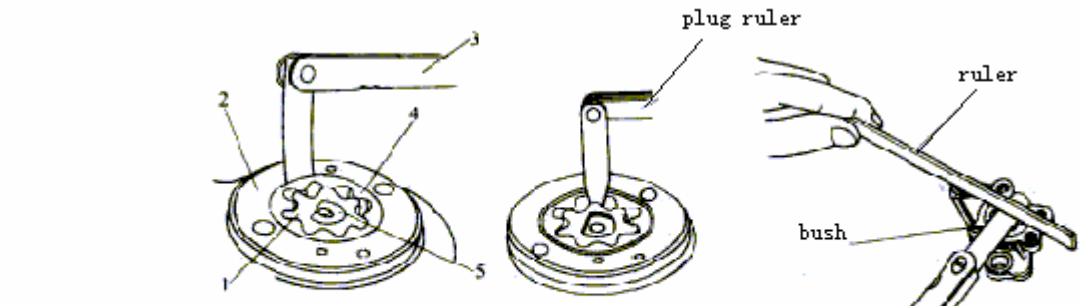
For plug engine oil pump used as 2-stroke engine, its basic principle sees the following figure. Engine pump assy. for 2-stroke engine is made up of exact parts, forbidden to remove them. If removing them, it is fobidden to reinstall them, you have to use new engine oil pump assy.



柱塞泵的结构

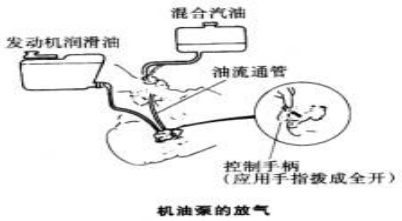
1—凸轮齿轮 2—凸轮驱动齿轮 3—调压阀 4—调压阀螺钉 5—机油泵齿轮轴 6—柱塞 7—控制杆 8—控制凸轮 9—控制手柄 10—阀

Remove trochoid gear pump, and clear it with clean lubrication. Assemble inner rotor, outside rotor and oil pump axes on pump body. Inspect: clearance between pump body and outside rotor, clearance between inner rotor and the top of outside rotor gear, side clearance between end surface of rotor and oil pump body.



1-inner rotor 2-engine oil pump 3-plug ruler 4-outside rotor 5-oil pump axes

Plug engine oil pump inspection: turn pump axes and inspect if it turns smooth, then inspect whether gear part is abraded, damaged or lubrication leaks out from seal. For 2-stroke separated lubricating pump it is necessary to drain air. Otherwise engine oil may be not expidite and affect its operation. When removing oil pipe or atmosphere is mixed into engine oil pump, you need to exhaust oil pipe and oil pump. When exhausting, the sequence is to exhaust inlet tube and oil pump, then do outlet tube, at this time be sure to embowel oil pump with a cloth, and remove its inlet hose and exhaust air bubber in the hose, refill hose with lubrication, and then connect engine oil hose with oil pump. Or unscrew oil pump. When air bubble disappears in outletted lubrication, fasten the screw. Remove outlet oil hose, assemble it on oil pump after refilling the hose with lubrication.



机油泵的放气

Chapter 4 cases for motorcycle maintenance and service

There are two types for common service: scooter and motorcycle. We respectively explain them.

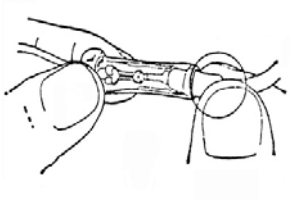
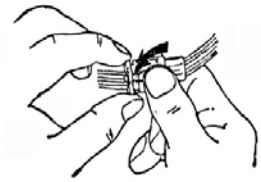
PHASE THE FIRST SCOOTER SERIES

I. ENGINE FAULT

1. It cann’ t start engine or difficult to start it in the status of cooling.

（1）cause: Each connector of ignition system touches not well.

Cause and service: bad connection or smudge may lead that ignition system works bad, therefore, first of all inspect whether circuit works well or not. Do inspection as the following sequence: A. inspect whether connection-peg jointing lead binds of magneto and main calbes looses or becomes dirty, and whether the connection-ped jointing electric ignition and main cables looses, whether plug lead for coil looses or becomes dirty. B. Wash smudges on every connector, and fasten connector, get rid of fault.

see figure

（2）cause: Electric ignition is damaged.

Cause and service: when it is -10℃, start engine by continuously kicking starting shaft for more 10 times, or engine cann’ t start by electronic starter for even 3 times (not exceeding 5 seconds every time), both of them mean difficult starting. Inspection: A. replacement: get the same type of ignition with good capability to replace old one, if it works normal, it means old ignition has fault. B. place multimeter on the gear of 0-500 voltages, then connect red pen with fan-out (to ignition coil terminal), and connect black pen with ground, then gently kick starting shaft, when pressure indicator should swing. Otherwise it means ignition device is wrong.

(3) Cause: short circuit happens or contact not well for elementary secondary coil of high pressure bundle.

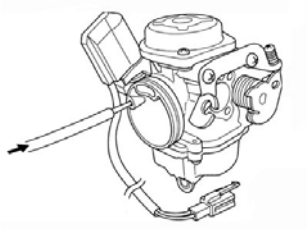
Cause and service: when it is -10℃, only after continuously kick starting shaft for 10 times or more engine starts, or after continuously start engine for 3 times (not exceeding 5 seconds every time) it cann’ t still start, both of them mean that cooling system is difficult. Inspection means: refer to point III-4 in phase the third of chapter 3.

（4）cause: Idle speed of carburetor is too low.

Cause and service: commonly, too low idle speed may lead that engine starts difficultly, and you can readjust its idle speed to its specified rotate speed.

（5）、**故障原因：**化油器电阻风门长期处于开放状态 cause: Resistance throttle of carburetor opens for long time.

Cause and service: please refer to point II-1 in phase fourth of chapter 3.



See fig.

（6）cause: Flammable mixed gas is too thin or too thick.

Cause and service: if mixed gas is too thick in carburetor, it may lead that supplement fuel for engine is too much and cann't be burnt out completely, and result in waste. If mixed gas is too thin in carburetor, it may lead that accelerating capability decreases and prolong speedup process, then can run at economic speed and result in its exhausition too much. If this fault happens, readjust the chroma of mixed gas to specified volume. A.inspect oil level in carburetor, if oil lever is too low, adjust gasoline floater to its specified highness. B. Insepct whether gas leaks out from take-over of air cleaner and inlet hose of carburetor, if it does, it is necessary to repair it, or replace it if necessary. C: Inspect whether idle airscrew for carburetor is located on proper position or not, readjust it to proper position if necessary. Corresponding measures: (A). Oil lever adjustment: remove floater chamber, and turn over carburetor and keep needle valve shut off. With vernier caliper to measure the highness of gasoline floater, if highness of floater is over its specified value, adjust it to its specified value. (B). Idle air screw has been measured and adjusted in factory, so it is not necessary to adjust it again as long as you don't replace idle air adjusting screw. Loosen the same circles as recording ones during removal. Adjust idle airscrew only after engine warms up. Detailed steps are the following: a.wring idle airscrew in proper position, then screw back it for standard circles. b. Start engine, and adjust idle adjusting screw properly to keep engine rotate at high speed. Slowly turn idle airscrew to find out its high-speed position. c.turn idle air screw 1/4 circle and fasten it. d.then adjust idle airscrew to slow down its rotating speed to its specified rotating speed. e.do step c and d again until getting most position.

（7）cause: Piston circle is abraded too much and hotch turns together.

Cause and service: A.inspect over abraded piston circle or hotch is rotated to one directio: when starting compressing, it may lead that flammable mixed gas flees to crankcase and pressure for cylinder body is not enough, and engine may be difficult to start. B.remove spark plug, refill cylinder with a little engine oil and restart engint, if the capability of start is better, you can get a result that piston circle brings the fault. Remove cylinder cap and cylinder, reassemble pistion circle, and keep the angle between the first circle of pistion and the second circle is 120°.

See figure.

（8）cause: Piston draws cylinder or connecting pod is blocked.

Cause and service: for burning pressure, leakage of engine oil, olding of engine oil or drop of engine oil viscosity in crankcase may all lead that piston is not lubricated not good so as to draw cylinder which may bring that burning chamber is not shut off tightly and mixed gas may leak out so as to start engine difficultly for not enough pressure in cylinder. Inspection: please refer to point II in phase the second of chapter 3.

(9) Cause and service: for valve is not shut off tightly, mixed gas in cylinder may leak out so as to difficultly start engine for not enough pressure in cylinder. Inspection: please refer to point II-5 in phase the second of chapter 3.

See fig.

（10）cause: Gasoline cann’t go into carburetor.

Cause and service: A. inspect whether the air hole on fuel tank cap is blocked or not, you have to repair fuel tank cap if it is not ventilated. B. remove oil tube and vacuum tube from carburetor, and then connect vacuum gun with vacuum tube and turn on vavuum gun to see if gasoline leaks out, it means fuel tank switch is blocked or broken out if any gasoline leaks out, and you have to remove fue tank switch and inspect it. C. inspect gasoline filter of fuel tank switch, if it is blocked by impurity, wash it and reinstall it. D. inspect the connection of vacuum tubes, replace it or reinstall it if it is broken out or falls off. E. remove carburetor and inspect whether inlet oil needle valve and oil floater is blocked, adjust or replace it if it is blocked completely.

See fig.

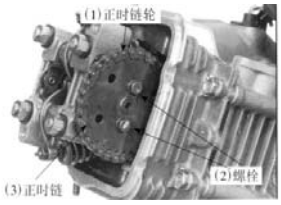
（11）cause: Camshaft and timing chain is blocked completely.

Cause and service: A. if stopper of camshaft is blocked completely or camshaft is blocked completely for the bearing of camshaft is damaged, replace camshaft or repair the stopper.

See fig.

（12）Cause: Rocker arm is blocked for leakage of lubrication.

Cause and service: A. remove cylinder head and start engine, then observe whethr there is engine oil on rocker arm seat or not, it is necessary to inspect lubrication path and the operation of oil pump if engine oil is less on oil path. B. if rocker arm is blocked for leakage of lubrication, repair or replace it, and inspect if oil pump works well and if the hole of lubrication path is blocked. if oil pump works abnormal, repair or replace it. if the hole of oil path is blocked, clear it to make it smooth.



See fig.

2. It cann’ t start or start difficultly when engine warms up.

（1）cause: Bearing of exceeding clutch is burnt out.

Cause and service: if rolling needle bearing of exceeding clutch is burnt out, starting motor cann’t rotate for its load is too big when starting engine by electronic starter. When starting engine by kick-starter, crank drives starting motor to rotate and result in drag, which makes resistance go up so as to difficult to start engien. If this kinde of fault happens, replace rolling neddle bearing of exceeding clutch.

（2）cause: Fault on ingition coil

Cause and service: flameout happens during engine runs and cann't start again, or each starting time is too long, or only after continuously kick starter for 10 times or more engine starts.

（3）cause: Expanding cylinder of engine or bearing of crank connecting rod is damaged.

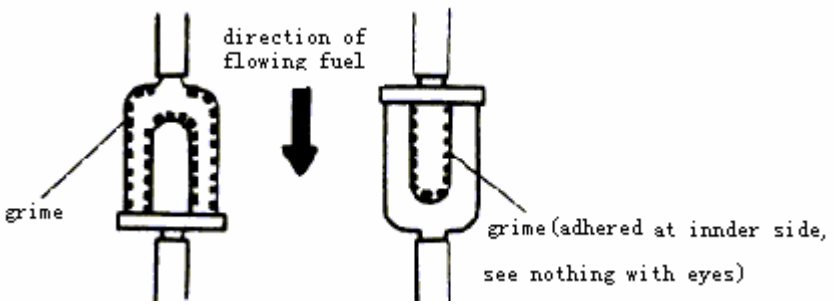
Cause and service: A.if vehicle runs without enough power and engine feels serious hot, then suddenly stops, expanding cylinder of pistion may be drawed completely. At this time first of all inspect oil reservoir. If it is not enough or has been exhausted, refill specified lubrication, and exhaust the gas in engine oil tube and oil pump. Aften engine is cooling, if it can rotate, then remove spark plug, and refill cylinder with proper lubrication along with the hole of spark plug, slowly kick starting shaft to rotate crank, install spark plug when engine rotates completely normal, at last restart engine. If engine cann't still rotate or its rotating resistance is very big after engine is cooling, it means that there is melt adhesion on some part of wall between piston and cylinder or big rod rolling needle bearing of cranke has been burnt out, you have to remove engine to do some examining and repairing. B.if there are some voices like knocking on metal before parking vehicle, it is possible that connecting rod bearing is damaged, or piston ring is broken out, or pistion pin runs out of drawing lever. For those faults, you have to remove engine to replace or inspect it.

（4）cause: Fault about spark plug

Cause and service: A.heat insulation of spark plug is low. Any type of spark plug has definite temperature arrange, and match corresponding type of engine. If some type of spark plug, which falls short of its requirement, is assembled, or heat insulation of assembled spark plug is low, electricity may leak out when temperature of engine is too hot and lead that engine cann't start. At this time replace specified type of spark plug for this kind of vehicle. B.pole of spark plug is linked for deposited carbon. If mixed gas is too thick, electrolyte of spark plug is easy to be deposited and block the clearance of spark plug so as to bring shor t circuit. At this time be sure to clean out it. C.observe its color: (a). After remove spark plug, first of all observe its flambe color, normal color is earth brown or iron red (earth red). (b). Observe whether iguration of electrolyte and side electrolyte is normal, whether electrolyte has been cauterized, or china on central electrolyte is broken up, deformed or chapped, observe whether electrolyte is loosened and whether it has been crazed or miss to weld on the bottom weld of side electrolyte or not, replace it if above wrong exists. (c). Inspect the clearance between central pole of spark plug and side pole, normal clearance must be 0.6mm-0.8mm, engine may run not normal for lower or higher clearance. (d). Inspect whether sealing gasket is plat and smooth, whether deformity or groove exists or not, otherwise it may result in leakage of gas when engine runs. (e). Inspect deposited carbon and leaved oil and on poles and warm chamber are too much.

（5）cause: Fuel is exhausted or oil route is blocked.

Cause and service: suddenly vehicle has not enough power to drive in normal situation, and then flameout, diffitcult to start engine again, which is mostly for fuel is exhausted or oil route is blocked. At this time first of all inspect whether fuel in tank is exhausted, and whether fuel tank switch is on, and then unplug output pipe and air pipe and try to inhale air pipe to inspect whether oil route is smooth or not, clean it if it is not smooth. If it is smooth, remove carburetor, and inspect whetehr each jet and gas path in carburetor is blocked or not, wash it if necessary.

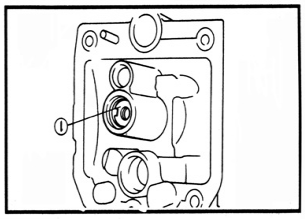


See fig.

3. Engine idle speed

（1）cause: Idle speed jet, idle oil path or gas path is blocked.

Cause and service: after adjusting carburetor, fault cann’t still excluded, then you have to inspect whether idle speed jet, idle speed oil path and gas path are blocked. Measures: A. if they are blocked, remove carburetor, and clean on inner grime on inner wall of every hole with wash for carburetor. B. for biggish mpurity in the hole, clean it with air gun.



See fig.

（2）cause: Ignition coil or touching off coil is damaged.

Cause and service: A. please refer to point III-4 in phase the third of chapter 3.

B. Examine electri capability of touching off coil with multimeter. If measured resistance is infinite, open circuit exsists on the coil. If measured value is less than standard value (510Ω), it means that short circuit exsists.

See fig.

（3）cause: Electronic ignition device is damaged.

Cause and service: please refer to point I-1-(2) in phase the first of chapter one.

（4）cause: Enging timing is incorrect.

Cause and service: A.if engine timing is incorrect, ignition time will be advanced or delayed, which leads that mixed gas is not burnt fully. B.inspect whether igniton timing is correct: first of all open timing hole cap, and then keep “T” mark dead agaist protruding desk in timing abserving hole on right cover of crankcase. Then take down cylinder cover and keep timing mark on camshaft chain parallel with cyliner head, install timing chain, rocker arm, rocker arm bracket and screw blots.

See fig.

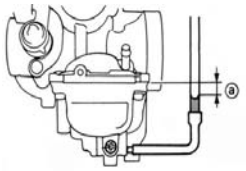
（5）cause: Improperly adjust idle screw of carburetor.

Cause and service: improper adjustment for idle air speed of carburetor results in no idle speed for engine, at this time readjust idle screw of carburetor. Adjusting means: please refer to point I-1-(6) in phase the first of chapter 4.

See fig.

（6）cause: Oil level is too low in floater chamber of carburetor.

Cause and service: A. inspect oil level in floater chamber of carburetor, if oil level is too low, you have to adjust the level to its stated level.



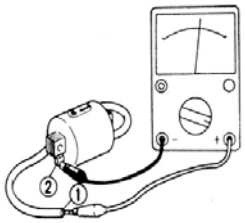
See fig.

（7）cause: Pistion circle is abraded too much.

Cause and service: A.inspect whether pistion circle is abraded or not. If it is abraded too much and the clearance between pistion circle and cylinder body gets bigger, which leads that mixed gas in cylinder jumps into crankcase with high pressure and pressure in burning chamber falls so as to run unstably or run without idle speed. B.remove cyliner cover and cylinder body, and then remove pistion circle to inspect it, if pistion circle is abraded too much, replace it.

（8）cause: Spark plug is burnt or open circuit exsists for igniton coil.

Cause and service: if fuel supplement system is ok but enging is still without idle speed, inspect ignition system. A. inspect spark plug, replace the spark plug if it is burnt. B. replace it if open circuit exists for ignition coil. Inpection means: please refer to point III-4 in phase third of chapter 3.



See fig.

(9) Cause: Valve is not shut off completely.

Cause and service: please refer to point III-1-(9) in phase the first of chapter 4.

（10）cause: Electricity is leaked out on controlling flameout circuit

Cause and service: cut off ignition switch to its flameout line, and start engine, if fault is eliminated, it means that fault exists on controlling flameout line. At this time remove ignition switch to inspect its inner parts and connector of electronic igniton device whether there is smudge, replace it if ignition switch is short circuit, for smudge on the connector wash it.

4. Too high idle speed

（1）cause: Improperly adjust idle speed.

Cause and service: if idle speed is too high for improper adjustment, readjust it to its proper idle speed.

（2）cause: Idle jet is too big.

Cause and service: A.idle jet of carburetor becomes bigger for repairing. B.measure idle jet with flux principle: join together jet and soft tube with a little filler, and fill the filler with water, then measure dripping time about the water in filler with stopwatch. Compare dripping time of every jet. The time is more, and the fluid of jet is smaller. C.replace it if idle jet becomes biger for repairing.

（3）cause: Fault on spark plug

Cause and service: please refer to point I-2-(4) in phase the first of chapter 4.

（4）cause: Air cleaner is blocked.

Cause and service: if air cleaner is blocked, less air goes into carburetor which results in thicker mixed gas in cylinder and rotating speed goes up, consumed fuel is more. Therefore it is necessaryt to wash air cleaner following as product manual and shortern maintenance mileage in the area with more dust. Maintaining means: A.remove left rear regula and screw for air cleaner, then loosen locking screw for inlet tube, and then remove air cleaner. B.disassemble air cleaner, respectively remove first grade filter core and second grade filter core. C.clean first grade filter core and blow it, and blow second grad filter core from inner to outer side with high-pressure air gun. D. Install air cleaner following as the reverse of removal on vehicle.

See fig.

（5）cause: Throttle cable is blocked.

Cause and service: A.inspect whether throttle cable is blocked completely or cann't move freely in its coat, do some adjustment and lubricating if necessary. B.if inner part of throttle cable is rusted or with smudge which results in moving not free, in this situation imbite lubrication following as fig. If throttle calbe cann't still move freely, replace a new throttle cable.

See fig.

5. Unstable idle speed

（1）cause: Clearance of spark plug is too little or too big.

Cause or service: A.if the clearance of spark plug poles is too little, which affecst its ignition reliability and results in unstable idle speed. At this time adjust the clearance to 0.6-0.8mm. B.if the clearance is too big, which spark voltage goes up too much for two poles and exceeds bearing range of ignition system, which leads that spark plug cann't brings stable electric spark and engine rotates unstably.

（2）cause: Flammalbe mixed gas is too thin or too thick.

Cause and service: please refer to point I-1- (6) in phase the first of chapter 4.

（3）cause: Air cleaner is blocked.

Cause and service: please refer to point I-4-(4) in phase the first of chapter 4.

（4）cause: Valve is not shut off completely.

Cause and service: please refer to point I-1- (9) in phase the first of chapter 4.

6. Engine is too hot.

（1）cause: Transimission strap runs for long time in the situation of skidding.

Cause and service: A.inspect whether transimission strap skids for adhered grease or too much abrasion, which lead that engine runs with exceeding load and becomes too hot. Do more inspection for cause of skidding. B.possible cause of skidding: a) main cause is that stap is abraded too much. Measure the width of stap surface with mark with vernier caliper, and then replace it if measurd stap is below its limit. b) Strap is with smear. Wash smears ASAP with dishcloth soared gasoline, replace strap if its effect is not good. c)if driven clutch spring is too hose, above fault also happens. Measue free distance for big spring of driven disc, replace big spring if measurd distance is below stated value.

See fig.

（2）cause: Bad ignition results in ignition delayed and bad burning of engine is serious.

Cause and service: A.inspect whether engine is ignited bad, which delays ignition and back burns out it seriously and make engine too hot. Do more inspection for its ignition system if it is. B.remove magnet cylinder and inspect whether it becomes flexible or not. C.inspect whether semicircle key and its groove are disturbed or not. Replace crankshaft assy. if crankshaft cann't be repaired for its key groove is damaged. D.capacitor of C.D.I is damaged. Corresponding means: replace magnet cylinder and C.D.I.

（3）Cause: cover for forcing air-cooling system is not sealed completely.

Cause and service: inspect whether it is for the cover of air-cooling system is not sealed completely that its cooling effect goes down and engine becomes too hot. Corresponding means: inspect or replace the cover.

See fig.

（4）cause: Octane number of fuel is too low or mixed gas is too thin or too thick.

Cause and service: A. if fuel in tank is stored for too long time or its octance number is too low which bring that engine is too hot, replace it with stated number fuel (above 90#) to test it, if fault disappears, it means that the fuel is not good. B. please refer to point I-1- (6) in phase the first of chapter 4.

（5）cause: Bad lubrication

Cause and service: lubrication doesn't accord with corresponding regulation or engine is not lubricated fully which leads that cylinder, piston circle part and so on are abraded too much and brings too much heat, even cylinder is drawn.

（6）cause: Muffle is blocked seriously and exhausting resistance goes up.

cause and service: Cause and service: muffle is blocked seriously and exhausting resistance goes up which result in too much heat on engine.

（7）cause: Vehicle runs on bad road for long time and operates with big power.

Cause and service: A.for all incorrect driving, include that engine runs with big power for long time, operates with expeeding load or bad condition for radiator which result in too much hot on engine, at this time only park your vehicle and control speed, or clean dirty, then fault may disappear. B.if having shut off ignition switch, engine still doesn't stop, at this time stop up muffle completely to shut off engine. If having cooled engine or washed dirty, fault is still the same as before, at this time remove cylinder cover and cylinder head and clean deposited carbon in burning chamber.

7. Engine runs normal without load but runs powerless with load.

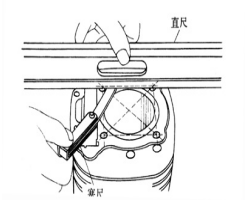
（1）cause: The clearance between touching off coil and magnet cyliner is too big.

Cause and service: inspect the clearance between touching off coil and protruding of magnet cylinder, if meased clearance is too big, adjust it to regulated clearance (0.2-0.4mm).

See fig.

（2）cause: Gas leaks out from bush of cylinder head.

Cause and servicea: if gas leaks out from bush of cylinder head, first of all you have to inspect whether fixing bolt is fastened or not. If fixing bolt is loosened, screw it following as relevant specifications. If bolt is fastened, maybe bush of cylinder head or connecting surface is not flat. At this time repair and abrade cylinder cover and replace bush of cylinder head. Means: flatly place oil grit on cylinder cover and with hands press it, and then grit cylinder cover around font like "8" to the flexibility according with regulated value.



See fig.

（3）cause: oil level in floater chamber of carburetor is too low.

Cause and service: please refer to point I-1-(6) in phase the first of chapter 4 about oil lever adjustment.

（4）cause: Hotches of the first piston circle and the second pistion circle are rotated together.

Cause and service: please refer to point I-1-(7) in phae the first of chapter 4.

（5）cauese: Gas leaks out from inlet tube.

Cause and service: A.there is crack or leakage on inlet tube which leads that mixed gas becomes thin and “fuel lack” happens B.carefully inspect whether there is cracke or yellow mark around inlet tube (resulted in steam of gasoline).

（6）cause: Mixed flammable gas is too thin or too thick.

Cause and service: please refer to point I-1- (6) in phase the first of chapter 4.

（7）air cleaner is blocked.

Cause and service: please refer to point I-4- (4) in phase the first of chapter 4.

（8）cause: Strap skids.

Cause and service: it is mainly because that stap is abraded too much or with too much lubricating grease. Please refer to point I-6- (1) in phase the first of chapter 4.

（9）cause: Valve is not shut off completely.

Cause and service: please refer to point I-3-(9) in phase the first of chapter 4.

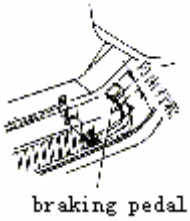
（10）cause: Octane numbe of gasoline is too low.

Cause and service: please refer to point I-6-(4) in phase the first of chapter 4.

（11）cause: Braking shoe and braking drum cann’t separate (dirving with brake)

Cause and service: step on rear braking pedal, free distance of rear braking pedal is too small or zero, or when releasing rear braking pedal and pulling vehicle, it feels difficult to do it or impossible to do it, which means that braking shoe and braking drum are not separated. A. If free distance of rear braking is too small, you have to adjust it to porper distance. B. Braking cam is abraded so much that braking cam turns ove and braking shoe cann’t return back when braking, at this time replace cam. C.braking shoe is broken off or its flexibility disappears, replace the spring. D.for the lack of lubrication braking camshaft and braking camshaft assembling hole are locked, at this time wash the braking camshaft and daub it with some lubrication grease.

See fig.



8. Run normal with light load but drive slowly and lack power with weight load.

（1）cause: Clearance between touching off coil and magnet cylinder is too big.

Cause and service: please refer to point I-7- (1) in phase the first of chapter 4.

（2）cause: Mixed gas in carburetor is too thin.

Cause and service: please refer to point I-1- (6) in phase the first of chapter 4.

（3）cause: Clearance of spark plug is too small.

Cause and service: please refer to point I-5- (1) in phase the first of chapter 4.

（4）cause: Air cleane is blocked.

Cause and service: please refer to point I-4- (4) in phase the first of chapter 4.

（5）cause: Stap skits on driving clutch.

Cause and service: please refer to point I-6- (1) in phase the first of chapter 4.

（6）cause: Pressure in cylinder is too small.

Cause and service: measure pressure in cylinder with pressure meter, commonly it is 10.5-11MPA/600R/MIN, if measured pressure is below the range, it means that pressure is too small, cause: piston circle or cylinder body is abraded, or fixing nut of cable, cylinder cover is loosened, corresponding means: repair and mill cylinder body, and choose new piston or piston circle to replace old one.

See fig.

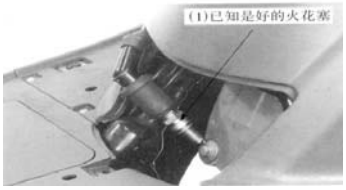
（7）cause: Oil level is too low.

Cause and service: please refer to point I-1- (6) in phase the first of chapter 4, phase oil level adjustment.

9. Engine runs unstably and without enough power.

（1）cause: Flameout happens intermittently for ignition system.

cause and service: Flameout happens intermittently for ignition system.



See fig.

（2）cause: There is smudge on main jet or idle jet of carburetor.

Cause and service: for main jet or idle jet of carburetor is blocked or smudge on them, rotating speed is stable. When having adjusted carburetor, fault still exists, then you have to inspect whether idle jet, main jet, idle oil path and air path ard blocked. Means: please refer to point I-3 in phase the fourth of chapter 3.

See fig.

（3）cause: Air cleaner is blocked.

Cause and service: please refer to point I-4- (4) in phase the first of chapter 4.

（4）cause: Muffle is blocked seriously and exhausting resistance goes up.

Please refer to point I-6- (6) in phase the first of chapter 4.

10. Rotate normal at slow speed but speed is not stable at high or common speed.

（1）cause: Creepage exists in igniton system.

Cause and service: engine rotates normal at low speed, but there is pause at common and high speed, which mainly results in intermittent flameout in ignition system. A.first of all inspect whether there is something wrong with each line of igniton system and whether theer is smudge on each connector. B.for it is not obvious to examine spark plug, high-pressure cap, ignition coil, electronic ignition device, ignition coil, you can inspect the above parts with replacement means. Means: replace wrong parts.

（2）cause: Supplying fuel system is not smooth.

Cause and service: please refer to point I-1- (9) in phase the first of chapter 4.

（3）cause: Clearance between electrodes of spark plug is too big or too small.

Cause and service: please refer to point I-5- (1) in phase the first of chapter 4.

（4）muffle is blocked.

Cause and service: please refer to point I-6- (6) in phase the first of chapter 4.

11. Engine runs without enough power suddenly or step by step.

（1）cause: Suddenly run abnormal for ignition system.

Cause and service: please refer to point I-10- (1) in phase the first of chapter 4.

（2）cause: Supplying oil system is not smooth.

Cause and service: please refer to point I-10- (10) in phase the first of chapter 4.

（3）spark plug is punctured or it becomes flexible.

Cause and service: A.choosen type is not according with relevant specifications or its heat value is not correct which leads that spark plug is punctureed, at this time replace it. B.spark plug has not been screwed according with relevant specifications, which leads that gas leaks out from spark plug and cylinder body, at this time screw spark plug.

12. Carburetor backfires, engine cann't start or driving power is seriously not enough.

（1）cause: Electronic ignition device runs inordinately.

Cause and service: Electronic ignition device runs inordinately which results in too early ignition. If this fault happens, first of all it may result in bad operation about capacitance of C.D.I (electronic ignition device). Relevant means: replace C.D.I

（2）caues: Engine timing is not correct which results in too late ignition for engine.

Cause and service: ignition is too late, burning of flammable mixed gas becomes very slow, when buring is close to inlet port, backfire apprears in inlet path. When this kind of fault happens, recorrect its timming. Please refer to point I-3- (4) in phase the first of chapter 4.

（3）Cause: Spark plug is too hot or carbon deposited on cylnder is burnt too early.

Cause and service: spark plug is too hot or carbon deposited on cylinder is too much, when inlet valve of engine is on, flammalbe mixed gas meets broiling spark plug or deposited carbon, before shutting off inlet valve, burn flammable gas with its blaze in inlet path to form backfire. For this fault, replace spark plug or clean carbon deposited on cylinder inside.

（4）cause: Inlet valve is not shut off completely or its clearance is too small.

Cause: it may lead that carburetor backfires. Please refer to point I-1-(9) in phase the first of chapter 4.

13 muffle sounds abnormal or power for engine is not enough.

（1）cause: C.D.I works abnormal.

Cause and service: C.D.I works abnormal.

（2）cause: Mixed gas is too thick..

Cause and service: when engine rotates at low speed, it sounds heavy but not stable. When engine rotates at high speed, it sounds normal. Commonly, it is for mixed gas is too thick. At this time readjust mixed gas. Steps to adjust its thickness: please refer to point I-1- (6) in phase the first of chapter 4.

（3）Cause: Spark plug is blocked.

Cause and service: when engine runs, abnormal voce gives out from vent-pipe, at the same time fuel spays conversely on inlet port of carburetor, which means that jumping fire happens for spark plug and lead that unlit mixed gas is exhausted to vent-pipe, and it is ignited in the situation of meeting high temperature wasting gas in next circle, and then result in abnormal voice. When it happens, replace spark plug or clear carbon deposited on electrodes of spark plug.

（4）cause : Pressure in cyliner is too small.

Cause and service: the lack of pressure in cylinder leads that flammable mixed gas is not burnt out completely, remainer flammable mixed gas is exhausted to vent-pipe and meets high temperature, then is burnt and abnormal voice gives out. Possible cause: please refer to point I-8- (6) in phase the first of chapter 4.

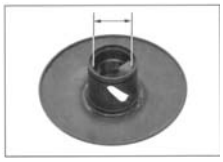
（5）cause: Octane number of gasoline is too low or its quantity is very bad.

Cause and service: please refer to point I-6- (4) in phase the first of chapter 4.

14. It sounds abnormal at idle speed but normal at high speed.

（1）cause: The clearance between driven clutch sliding disc and sliding bush is too big.

Cause and service: the clearance is too big, and then when engine starts in the state of idle speed, it sounds abnormal. At this time replace sliding disc or sliding bush.

See fig.  

（2）cause: Clearance between piston circle and cylinder wall is too big.

Cause and service: push piston circle into the bottom of cylinder, and inspect interface of piston and cylinder body with photic means. Measure clearance of piston circle hatch, and replace piston circle and cylinder body if measured clearance is over its limit (0.03mm).

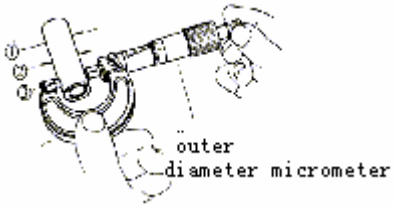
See fig.

（3）cause: Piston circle is broken off.

Cause and service: it may result from bad quantity for piston circle, besides that it may be result from too small clearance of its hatch which keeps piston circle and cylinder body too tight and piston circle is broken off when engine rotates at high speed. if piston circle is broken off, it is necessary to investigate its cause and replace piston circle or piston if necessary. If cylinder body is pulled, repair it or replace cylinder body.

（4）cause: Piston pin is assembled too tight and pin for connecting rod and piston is assembled too tight.

Cause and service: commonly, it may result from using incorrect parts which falls short of relevant specification, replace piston pin.



See fig. 

（5）cause: Clearance between piston and cylinder is too big.

Cause and service: pleae refer to point II in phase the second of chapter 3.

（6）cause: Stap is stretched, and strap knocks on left crankcase cover at idle speed.

Cause and service: clearance between driven clutch sliding disc and sliding bush is too big, engine sounds abnormal at idle speed. At this time replace sliding disc or sliding bush.

（7）cause: Valve spring breaks off.

Cause and service: if valve spring breaks off or valve lock slice falls off, engine sounds “clink, clink” at each kind of speed and gives off bump voice between piston and valve. Open cylinder cover, and you can find out it.

15. It sounds normal at idle speed, but sounds abnormal with moderate or heavy load.

（1）cause: Clearance of each gear in gear case is too big.

Cause and service: measure clearance of each gear in the state of normal conglutination, if measured value is over 0.03mm, or the clearance seems too big when shaking gears. At this time rechoose proper gear.

See fig.

（2）cause: Driven clutch sounds abnormal.

Cause and service: A. driven clutch is not assembled properly, and then reassemble it. B.fixing bolt for driven disc is not fastenned completely, refasten it. C.principal axis bearing of driven clutch is

damaged, shake clutch principal axis with hands, if there is gap between principal axis and principal axis bearing, replace principal axis bearing of clutch.

（3）cause: Clearance between piston circle and cylinder body is too big.

Cause and service: please refer to point I-14- (2) in phase the first of chapter 4.

（4）cause: Clearance between piston circle and its groove is too big.

Cause and service: assemble piston circles in respective circle groove and keep piston circle move freely, and then measure clearance between piston circle and upper or lower level of circle groove. Replace piston circle if measured value is over its stated limit.

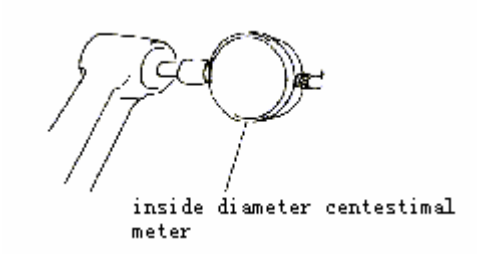
See fig.

（5）cause: Clearance between middle part of piston and cylinder is too big.

Cause and service: please refer to point II in phase the second of chapter 3.

（6）cause: Clearance between piston pin and connecting rod is too big.

Cause and service: push piston pin into connecting rod, if any restance doesn't exsist or windage exsists when pulling piston pin up and down, which means that piston pin or connecting rod is abraded, replace it.



See fig.

（7）cause: Piston pin moves axially.

Cause and service: it mainly results from replacing inregulated piston pin, at this time replace regulated piston pin.

See fig.

16. Engine sounds abnormal when it speeds up and abnormal voice still exists at high speed.

（1）cause: Super-speed clutch sounds abnormal.

Cause and service: A.there is trace of scraggy abrasion on balls of super-clutch, when replacing it. B.the capability of tension spring is not well or damaged, when replacing it.

（2）cause: Fixing nut for magnet cylinder is loosened.

Cause and service: if the fixing nut is loosened, engine sounds the voice like "click, click" when it rotates, at this time screw it.

（3）cause: Driven clutch sounds abnormal.

Cause: A.driven clutch is not assembled in desinated position, reassemble it. B.fixing bolt for driven disc is not fastened completely, refasten it. C.bearing of driven clutch principal axis is damaged, shake clutch principal axil, if clearance between principal axis and bearing of clutch principal axis exists, replace the bearing.

（4）cause: Clearance between pistion circle and cylinder wall is too big.

Cause and service: please refer to point I-14-(2) in phase the first of chapter 4.

（5）cause: Clearance between piston pin and connecting rod is a bit big.

Cause and service: please refer to point I-15-(6) in phase first of chapter 4.

（6）axial movement exists for pistion pin.

Cause and service: please refer to point I-15-(7) in phase the first of chapter 4.

（7）radial clearance of connecting big rod is a bit big.

Cause and service: fasten crankshaft and connect a micrometer with connecting little rod, and then push and pull connecting rod along diametical direction of crankshaft to measure radial windage of connecting big rod. If measured windage is over its limit, which means that the hole of connecting big rod, rolling needle bearing, or crankshaft is abraded seriously, replace it.

See fig.

（8）cause: Cylinder is damaged for pull.

Cause and service: cylinder is damaged serioulsy and it is necessary to grind, repair and enlarge dimension of pistion or replace cylinder.

（9）cause: Core of muffle inner tube is flaken off.

Cause and service: engine sounds abnomal when rotating, and it will be more seriously when engine rotates with heavy load or when engine accelerates suddenly, replace muffle.

17. Engine sounds abnormal at each rotating speed.

（1）cause: Fixing screw for magnet cylinder is loosened.

Cause and service: please refer to point I-16-(2) in phase the first of chapter 4.

（2）Magnet cylinder collides with touching off rod.

Cause and serviec: when the clearance between magnet cylinder and touching off coil is too big, magnet cylinder protruding is going to collide with touching off rod and sounds the voice like “click, click”, moveover, this voice exists at each rotating speed. readjust the clearance between magnet cylinder and touching off coil to its stated value.

See fig.

（3）radial clearance of connecting big rod is too big.

Please refer to point I-16-(7) in phase the first of chapter 4.

（4）cause: Connecting little rod and the hole of pistion pin is abraded too serious.

Cause and service: please refer to point I-15-(6) in phase the first of chapter 4.

（5）cause: There is voice resulted from knock of valve configuration.

Cause and service: if valve clearace is too big, it sounds like “click, click” when engine rotates at idle speed, and the voice is faint but is the same big when engine rotates at middle or high speed, rejust valve clearance. If valve spring breadks off or valve lock falls off, engine sounds “嗒, 嗒”, replace valve spring or reassemble valve lock slice.

（6）cause: Timing chain is too long, and chain node is blocked completely or too tight.

Cause and service: as a result of long time using, rotating at overspeed, cam chains may be abraded, lengthened and its tension descends, and it sounds big noise, to eliminate the noise from chains and irrelugar change of valve timing, it is necessay to inspect and adjust tensioner. Often inspect degree of tightness and the state of abrasion. If chain is too loose or tight, adjust tensioner to its specified degree. Replace timing chain if it is abraded too much or chain is too long or blocked completely.

（7）cause: Axial or radial clearance is too big for timing camshaft (camshaft becomes flexible).

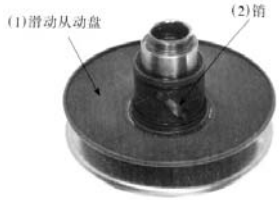
Cause and service: it is mainly because timing chain works long time. Inpect touching surface between the bearing of camshaft and fixing seat of camshaft, replace camshaft if abrasion happens.

See fig.

18. It sounds abnormal voice at idle speed and abnormal voice raises up at sudden acceleration.

（1）cause: Gliding pin of driven clutch is abraded.

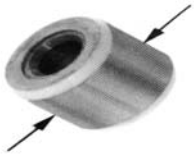
Cause and service: gliding pin of driven cluth is abraded, which may result in abnormal voice during working, so it is necessary to replace gliding pin or disc.



See fig.

（2）cause: Sidestep on centrifugal rolling pole is abraed.

Cause and service: when rolling pole is abraed or damaged, driver doesn't work normal. Measure its outside diameter; replace it if measured value is below its limit.



See fig.

（3）cause: Belt is abraed, chapped or ruptured.

Cause and service: it may lead that engine glides, power is not enough or cannot drive your vehicle. At this time replace transimision belt.

（4）cause: Valve spring is too soft.

Cause and service: Measure free distance of valve spring with caliper. If free distance is below its limit value, replace valve spring.

（5）cause: Valve clearance is too big.

Cause and service: It sounds "嗒，嗒" at idle speed, and at middle or high speed the voice is faint but its intension is the same. It is more evident when examing on cylinder head, which mainly results from too big valve clearance, readjust valve clearance.

（6）cause: Radial clearance of bearing on big end of connecting rod is too big.

Cause and service: please refer to point I-16- (7) in phase the first of chapter 4.

（7）cause: Radial clearance of upper rocker is too big or gasket is missed in assembling.

Cause and servicel: Measure radial cleanrance of rocker with tapeline, replace rocker if measured cleanrace is over its limit value.

（8）cause: Timing chain is too long or tensioner of chain is damaged.

Cause and service: please refer to see point I-17- (6) in phase the first of chapter 4.

（9）cause: Radial clearance of timing camshaft is too big (camshaft becomes flexible).

Cause and service: please refer to point I-17- (7) in phase the first of chapter 4.

19. It sounds abnormal voice in cooling state and abnormal voice slows down in hot state.

（1）cause: Engine oil in crankcase or gearcase is too dense.

Cause and service: at this time you need to inspect mucosity of engine oil and gear oil, replace specified engine oil and gear oil if they are too dense.

（2）cause: Pistion circle is abraded.

Cause and service: please refer to point I-14- (2) in phase the first of chapter 4.

（3）cause: Clearance between pistion and cylinder is too big.

Cause and service: please refer to point I-14- (2) in phase the first of chapter 4.

20. It gives off voice following as temperature raises up, and the voice slows down until it disappears when tempetature goes down.

（1）cause: Piston is distorted and cann't be used (for examble the degree of ellipse is too little).

Cause and service: at this time replace specified piston.

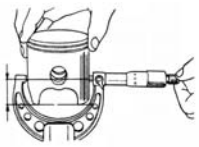
（2）cause: Clearance between pistion circle and its groove is too small.

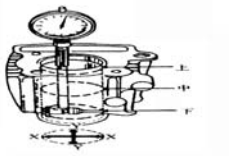
Cause and service: assemble pistion circle in respective groove and keep them move free, measure the clearace between the two surfaces of piston circle and circle groove. If measured clearance is too small, inspect whether deposited carbon exsits in circle groove, clean up them if necessary. Measure the clearance between two hatch ends of pistion cicle, replace cicle if measured cleanrace is below its specified limit value.

See fig.

（3）cause: Clearance between pistion and cylinder wall is too small.

Cause and service: be sure to choose the same type of piston as cylinder.





See fig.

21. It sounds abnormal voice when starting by electricity starter and "嗡嗡" at idle speed.

（1）cause: Idle wheel of exceeding clutch is abraded.

Cause and service: there is scratch, abrasion or damage on the surface of clutch rolling role, replace it.

（2）cause: Sidestep abrasion exsits on unilateralism gear.

Cause and service: replace it when there is abrasion or the traces of sidestep abrasion on working face of unilateralism gear and exceeding clutch.

（3）cause: Flexibility of tension spring for idler wheel disappears.

Cause and service: replace it if the free distance of tension spring is not at range of its limit value.

（4）cause: Rolling needle bearing is burnt out which drives alone starting motor, and it sounds abnormal voice.

Cause and service: please refer to point I-2- (1) in phase the first of chapter 4.

22. It sounds abnormal voice from gearcase.

（1）Cause: There is damage, abrasion or rupture on the surface of gear.

Cause and service: if gear oil has not been maintained according to specified maintenance schedule, the surface of gear may be damaged, ruptured or sounds abnormal voice for impurity like slag. At this time replace damaged and ruptured gear.

See fig.

（2）cause: Clearance between gears of rear gearcase is too big.

Cause and service: please refer to point I-15- (1) in phase the first of chapter 4.

（3）cause: Bearing is abraed or damaged.

Cause and service: bearing is abraded or damaged, which may lead that it sounds cacophony from gearcase during riding. At this time inspect whether each bearing is damaged or abraded, means: A. turn inside track and outside track of bearing with finger to judge whether it rotates smooth. If not smooth, wash it with abstersion oil. Replace bearing if it is still not smooth. B.replace it if the clearance between bearing and its ventical direction is too big.

23. Engine knocks at cylinder when sudden accelerating or wih big loading.

（1）cause: Mix gas in carburetor is too thin.

Cause and service: please refer to point I-1- (6) in phase the first of chapter.

（2）cause: Pistion circle is abraded too much and loosen its flexibility.

Cause and service: A. measure the spring of pistion circle with special inspecting machine. B. If you have not inpecting machine, you can cursorily estimate its spring in contrastive means: compare old pistion circle with new one, replace it if there is evident difference between them.

（3）cause: Cleanrance between pistion circle and cylinder is too big.

Cause and service: please refer to point I-14- (2) in phase the first of chapter 4.

（4）cause: Clearance between middle part of pistion and cylinder is too big.

Cause and service: please refer to point II in phase the second of chapter 3.

（5）cause: Compression ratio in cylinder is too big.

cause and service: A. There is too much carbon deposition, which decreases its capacity, at this time open cylinder cap and cleans out the deposition. B. Replace specified cylinder gasket.

（6）cause: The character of choosed gasoline is too bad or its grade number is too low.

Cause and service: see point I-6- (4) in phase the first of chapter 4.

24. It sounds abnormal voice from cylinder cover in each state.

（1）cause: Anti-reverse device is damaged.

Cause and service: Stopper board is distorted or damaged, which lead that axial clearance of rocker is too tight or stopper board and camshaft collide. At this time correct or replace stopper board.

See fig.

（2）cause: Valve spring is broken off.

Cause and service: please refer to point I-14- (7) in phase the first of chapter 4.

（3）cause: Valve clearance is too big.

Cause and service: please refer to point I-18- (5) in phase the first of chapter 4.

（4）cause: Valve lock slice falls off or breaks up.

cause and service: valve spring slice falls off or breaks up, which may lead that it sounds “当，当” from engine at each rotating speed. Replace it and reassemble valve spring slice.

（5）cause: Valve is dragged.

Cause and service: A. valve rod is bended and distorted. B.there is carbon carbon deposition on valve guide tube. C.clearnance between valve and its guide tube is too small. D. valve spring is too faint or broken off.

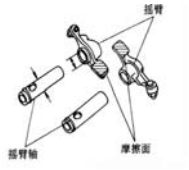
（6）cause: Clearance between valve and valve guide rod is too big.

Cause and service: it may result in “ 嗒，嗒” from engine at idle speed, the voice slows down or disappears when rotating speed raises up, and the voice is more evident when listenging on the side of valve chamber. Replace valve or valve guide tube.

See fig.

（7）cause: rocker is blocked.

Cause and service: rocker is blocked, which may result in abnormal voice from rocker. A. There are sundries on rocker and rocker shaft, clean out them. B. Incorrect lubricating results in block inspect whether oil path hole is blocked or engine pump doesnot works normal. If oil path hole is blocked, clean out it. If engine pume works abnormal, replace or inspect it.



See fig.

II. Failure for valve timing system.

1. It sounds abnormal noise from upper rocker.

（1）cause: Valve clearance is too big.

Cause and service: please refer to point I-18- (5) in phase the first of chapter 4.

（2）cause: Working surface of rocker is abraded too much.

Cause and service: it may result in abnormal voice when rocker works along cam, you should replace rocker. At this same time inspect the working surface of camshaft. If it is abraded seriously, replace it.

See fig.

（3）cause: Axial learance between rocker and its shaft is too big.

Cause and service: axial clearance between rocker and its shaft is too big, replace rocker or add a proper gasket.

（4）cause: Rocker and its shaft is blocked or burnt out(for it is not lubricated fully).

Cause and service: please refer to point I-24- (7) in phase the first of chapter 4.

2. It sounds abnormal voice from camshaft.

（1）cause: Working surface of cam is abraded excessively.

Cause and service: if working surface of cam is damaged, replace it. be careful: you should also inspect friction surface of rocker when working surface of cam is damaged.

See fig.

（2）cause: Cam rocker structure is short of lubrication.

Cause and service: it may accelerate abrasion and result in abnormal voice from engine. At this time look for fault, which results in absence of lubrication for cam structure, and eliminate it. See the phase of " not lubricate cylinder head with engine oil ".

（3）cause: There are axial clearance and radial clearance for camshaft.

Cause and service: please refer to point I-17- (7) in phase the first of chapter 4.

（4）cause: Stopper of camshaft is damaged.

Cause and service: stopper of camshaft is damaged, which may lead that stopper and camshaft collide and sounds abnormal voice, and then lead that the axial clearnce of rocker is too big. At this time replace the stopper.

（5）cause: Camshaft bearing is damaged.

Cause and service: inspect whether camshaft bearing turns smooth, or whether shaking exists or not. If there is shaking, replace it. Inspect radial and axial clearance of bearing, replace it if clearace is too big.

3. Timing system is not timing.

（1）cause: Mark "T" on magnet cylinder is not dead against timing mark.

Cause and service: please refer to point I-3- (4) in phase the first of chapter 4.

（2）cause: Chain is too loose, which leads that gears on chain leap off.

Cause and service: please refer to poing I-17- (6) in phase the first of chapter 4.

（3）cause: Half-roundness key of crank and its groove alternates, magnet cylinder and the circle becomes flexible.

Cause and service: when assembly is not correct, which may lead that ignition is not timing, reassemble it. When magnet cylinder and its connecting seat becomes flexible, which may result in incorrect ignition time, replace flywheel assy.

4. Timing chain sounds abnormal voice.

（1）cause: Tensioner of chain is damaged or its tension is not enough.

Cause and service: timing chain is too loose and sounds abnormal voice. A. When its tension is too loose, replace its spring. B. Tensioner is damaged, replace it.

See fig.

（2）cause: Tension bar is abraded excessively or broken off.

Cause and service: chain tension bars are abraded excessively or broken off, which may lead that chain cann't be impacted, and timing chain becomes flexible and sounds abnormal voice, replace chain tension bars.

See fig.

（3）cause: Timing chain is extended.

Cause and service: timing chain becomes longer and longer during using, replace ti when it exceeds its limit.

（4）cause: Timing chain is blocked completely.

Cause and service: timing chain is blocked completely, wash up the chain or replace it.

III. Failure for lubricating system

1. It gives off blue smoke from muffler.

（1）oil leaks out of inlet and outlet valve.

Cause and service: valve oil seal has been aged, ruptured, or there is scratch on valve rod, all that may lead that valve is not sealed completely and lubrication on cylinder head flows into combustion chamber just valve is open. And then blue smoke gives off from exhausting pipe. Replace valve seal and valve rod.

See fig.

（2）cause: Cylinder is pulled.

Cause and service: cylinder is damaged seriously for pull, it is necessary to bore cylinder to increase the dimension of piston or replace cylinder body.

（3）cause: Add engine oil into muffler.

Cause and service: add some lubrication into muffler to prolong its lifespan. When engine works, the lubrication meets hot gas from engine and forms oil fog, then exhausted from muffler. Commonly, it will disappear after a while.

2. It is difficult to lubricate on cylinder head.

（1）cause: Oil pump doesn't work.

Cause and service: A. inpect whether chain of oil pump is damaged, replace it if necessary. B. Inspect whether sprocket wheel of oil pump is not connected well with oil pump bearing, replace oil

pump bearing or sprocket wheel if necessary. C. Inspect whether outter rotor or inner rotor is damaged, replace them if necessary.

See fig.

（2）cause: Oil filter is blocked.

Cause and service: inspect whether oil filter is blocked which leads that oil cannot be provided from oil pump. Remove oil filter cap to see if the filter is blocked, clean this filter and eliminate impurity on filter.

See fig.

（3）cause: Oil path hole is blocked.

Cause and service: if the hole is blocked, you can wash it through compressing atmosphere.

（4）cause: Paper mat for right crankcase is ruptured.

Cause and service: if oil pump works normal, but cylinder head still cann't get lubrication, then inspect whether pater mat is ruptured and there is no enough pressure in oil path, which leads that engine oil cannot flow into cylinder head. Replace paper mat for right crankcase.

3. Cause and service: engine oil for emulsification and colloid.

（1）cause: Exhausting pipe is ruptured.

Cause and service: it may lead that water flows into crankshaft. Replace pipe to avoid that water flows into crankcase.

See fig.

（2）cause: Clearance of pistion circle hatch is too big.

Cause and service: the clearance is too big, mixed gas jumps into crankcase in the action of high pressure. There is moisture in leaked flammalbe gas, and becomes condensation on crankcase. Inspect clearance of pistion circle hatch, the clearance between pistion circle and cylinder body, if the cleanrance is too big, replace pistion circle or cylinder body.

（3）cause: For engine oil anti-water is not good, which results in emulsification.

Cause and service: use QIANJIANG special engine oil or specified oil.

（4）cause: Engine oil is bad.

Cause and service: use specified oil. The requirements: proper viscidity and high exponent, high flash point and low solidifying point, high chemical stability and good anti-oxidation, little causticity, easy to clean up and little carbon deposition produced.

IV. Fault about transmission system

1. Clutch skids

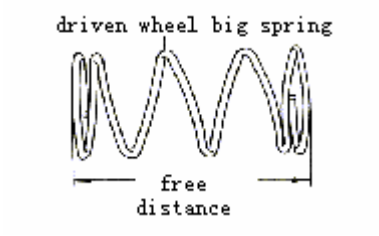
（1）Cause: The clutch of driven clutch skids.

Cause and service: measures: A.first of all, inspect whether there is oil on brake pad kits or not, wipe it with a little gasoline if there is; and then inspect it. B.inspect whether gasket for brake pad kits falls off, replace brake pad kits if it has fallen off, then measure diameter of brake pad kits and compare measured diameter with standard value, replace brake pad kits if measured diameter is less than standard value. B. Measure inside diameter of clutch braking disc, replace the disc if measured diameter is over its limit value.

See fig.

（2）cause: Driven clutch spring is too soft.

Cause and service: means: inspect driven clutch spring. Measure the free distance and inspect whether the spring is too soft through tool. Means: if free distance is less than its limit value, or its spring is too small, replace the spring.



See fig.

（3）cause: Strap skids.

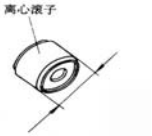
Cause and service: please refer to point I-6- (1) in phase the first of chapter 4.

（4）cause: Strap is abraded too much.

Please refer to point I-6- (1) in phase the first of chapter 4.

（5）cause: Driver disc centrifugal hammer is abraed or rolling blocked.

Cause and service: means: A. First of all, inspect whether sidestep abrasion happens on driver disc centrifugal hammer or rolling is blocked. B. Measure outside diameter of centrifugal hammer with micrometer. Means: replace it if measured diameter of hammer is less than its limit value; replace buffer if buffer is ruptured or blocked which leads that centrifugal hammer is not smooth.



See fig.

2. Pause exists and engine shuts off when parking.

（1）cause: Driven disc centrifugal spring doesn’t turn back or difficlult to turn back.

Cause and service: means: inspect the sping. Removal means: place clutch spring impactioner on driven clutch/driven disc, keep convex head dead against center hole of driven clutch, turn handle grip, and compact clutch spring: fix the spring on table vice, and remove clutch nut with a wrench; remove three E model clips and gaskets, and take out clutch centrifugal spring. Measure free distance of cutch spring with vernier caliper; replace clutch spring if measured distance is over its limit value in time. Means: replace centrifugal spring if measured distance is over its limit.

（2）cause: Driver disc centrifugal hammer is abraded and rolling blocked.

Please refer to point IV-1- (5) in phase the first of chapter 4.

3. It sounds abnormal noise from transmission and the noise becomes more nosisy when accelerating.

（1）cause: Gearcase input axes bearing

Cause and service: inspecting means: A. inspect whether gearcase input beraring is damaged or not: remove driven clutch, slightly shake gearcase input axes, remove rear gearcase cover and input axes if you feel that shaking exists, and replace the bearing. B.measure the diameter of bearing seat hole and outside diameter of bearing, replace gearcase cover or bearing at once if bearing outside doesn’t turn freely after having assembled (commonly means turning outside round).

（2）cause: Transmission trap is damaged or ruptured.

Cause and service: measuring means: remove left cover, from the whole inspect whether transmission trap is damaged, if it is good, remove it to carefully inspect whether transmission trap is ruptured or abraded. Means: if the trap is damaged or ruptrured, replace the same type of trap, and find

out the cause, which results in rupture, and resolve the problem. Possible hidden trouble: A. driven clutch spring is too soft. B.guide groove is abraded exceedingly, when engine runs with great load, gear part of trap is going to rub bush too serioust, which results in rupture. C.driver clutch assy., driven clutch and trap is not specified.

（3）Cause and service: means: remove left side cover, inspect whether driven clutch is assembled correctly and whether driven clutch fixing bolt is fastened or not. Means: if driven clutch is assembled in correct position, reassemble driven clutch; if fixing bolt has not been assembled in correct position, refasten driven clutch fixing bolt to its specified torque.

See fig.

（4）cause: Driver disc centrifugal hammer is abraded and rolling blocked.

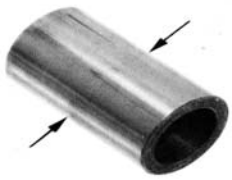
Cause and service: please refer to point IV-1- (5) in phase the first of chapter 4.

（5）cause: Driver disc is assembled in correct position.

Cause and service: means: remove left side cover, inspect whether driven disc is assembled in proper position, and inspect whether driver disc fixing bolt is fastened correctly. Means: if driver disc is not assembled correctly, reassemble driver disc; if fixing blot is not fastened in proper position, refasten driver disc fixing bolt to its specified torque.

（6）cause: The clearance between driver disc and sliding bush is too wide.

Cause and service: inspect the clearance between driver disc and sliding bush, replace sliding bush if the clearance is too wide.



See fig.

4. It sounds abnormal noise from gearcase.

（1）cause: Maintenance has not been done as specificated schedule.

Cause and service: gearcase has been maintained following as specified schedule, which results in inpurity bite or gear broken off for slag on gear surface. Inspecting means: A.inspect the quality of lubrication in gearcase, if lubrication is burnt up or too less, dry friction may happen, which results in exceeding abrasion or bad lubricating which leads that gears may be bited. B.remove gearcase, inspect whether gear surface is bited or broken off, replace gear if necessary.

（2）cause: Transmission gear is abraded, which results in too big clearance between gears.

Cause and service: remove gearcase cover, measure the clearance between each gear in normal situation with a tapeline. If measured clearance is over 0.03mm, or when shaking gear, you feel cleanrace is a little bigger, at this time you should rechoose gear till it accords with its specifications.

（3）Cause: Clearance between each ball bearing is too big.

Cause and service: please refer to point I-22- (3) in phase the first of chapter 4.

（4）重 Cause: Rear gearcase is dry for lack of lubrication and noise is very serious.

Cause and service: A. inspect the quantity of lubrication in gearcase, if lubrication is burnt up or too less, dry friction between gears may happen, which results in exceeding abrasion on the surface of gear; or not enough lubrication may result in bite. B.remove gearcase, inspect whether gear surface is bited or there is impurity or broken gear, replace gear if necessary.

（5）cause: Clearance is too bit for abrasion from rear ouput shaft bearing.

Cause and service: A. push and pull rear whee, inspect whether rear wheel is in correct position, if clearance for rear wheel is too big, remove rear gearcase, for rear wheel output shaft and bearing:B. first of all remove outout shaft oil seal, remove bearing with

disassembling machine. Please refer to point I-22- (3) in phase the first of chapter 4.

V. Fault on kick-starter system

1. Kick starter device cannot return to original position.

(1) cause: Gears are bited mutullly.

Cause and service: step on starting shaft, it feels very heavy and starting shaft cannot return back. A. starting system surface is bited which results in bad occlude on the surface, and it is very hearvy to start. B. remove left gearcase cover, take out starting system, and place starting shaft, starting gears, starting transition gears, each bush and so on into gasoline or coal oil, clean smudge on the surface with brush. C. inspec whether each gear surface is bited, specially inspect starting the surface of transition gears and starting gears, replace bad parts if there is some bited part.

See fig.

(2) cause: Start instituation is dirty (gear surface, every bush)

Cause and service: A. starting instuation is dirty, which leads that bevel wheel is blocked and starting shaft cannot return back. B. remove left cover and take out starting organ, place starting shaft, starting transition gears, starging gears, every bush and so no into gasoline or coal oil, and clean smudge on the surface with a brush and air it; daub gear surface and moving part with lubrication (butter), reassemble it. C. inspect whether sign like arrow is dead against starting gear surface. The sign is a little higher, which may lead that starting shaft cannot step on; The sign is a little lower, which may result too big free distance for starting shaft and starting shaft slides or it cannot return back.

Refer to fig.

2. Kick starting device cannot be step down.

(1) cause: starting gears are bited completely.

Cause and service: step on starting shaft, it feels vey heary and starting shaft cannot return back. Please refer to point V-1- (1) in phase the first of chapter 4.

(2) cause: Limitter on starting shaft is abraded.

Cause and service: please refer to point V-1- (2) in phase the first of chapter 4.

3. Kicking start device slides.

(1) cause: Starting middle gear is not dead against specified mark.

Cause and service: A. inspect whether starting middle gears are assembled dead against mark, reassemble it if not. B. mark of starting middle gear should be dead against starting gear. If the mark is a little higher, starting shaft may not be stepped on; if the mark is a little lower, the free distance of starting shaft may be too big, which leads that starting shaft slides or starting shaft cannot return back.

(2) Cause: gear surfaces of starting middle gear and prick gear are abraded seriously.

Cause and service: A. wrong operation leads that starting shaft slides, which results in friction and noise for starting gear doesn’t work normal. 2. put starting shaft, starting transition, start gear, every bush and so on into gasoline or coal oil, and then

clean the dirty on the surface with brush. 3. Inspect whether gear surfaces of starting middle gear and prick gear are abraded seriously, replace them if seriously.

4. It sounds “嘎嘎” from starter when starting with kicker.

（1）cause: Friction spring has not been tightened.

Caution and service: inspect whether friction spring is tightened, if starting middle gear and prick gear cannot turn back, it explains that friction spring has not been tightened, replace the spring.

（2）cause: Starting organ is not assembled well.

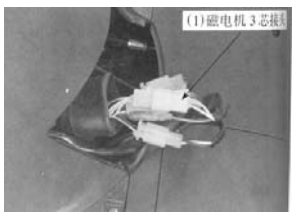
Cause and service: it results in collide between starting middle gears and turning prick gears, when starting engine, it sounds harsh clash and grating. Inspectment and means: A. inspect whether it is assembled well, if starting middle gears collide with turning prick gears, it indicates that they are not assembled well, reassemble them. B. after having assembled, reinspect whether
arrow mark of starting middle gears is dead against the surface of starging gears. If the mark is a little higher, it may be difficult to step on starting shaft; it the mark is a little lower, the free distance of starting level may be too big, which leads that starting shaft slides or cannot turn back.

VI. Fault for lighting system

1. All lighting bulbs does not light.

（1）cause: There is not voltage from magnetoelectric motor lighting winding.

Cause and service: turn on lighting switch, all bulbs don’t light. Inspecting means: A.turn off magnetoelectric motor lead binds and cable plug, connect one end of tested light with white line of magnetoelectric motor lead bind, and another end with ground. Step on starting shaft, if tested light doesnot light, it explains that lighting coil or output line is broken out or short circuit, you need to inspect it; if tested light lights, it explains that magnetoelectric coil output is normal, do other inspections. B.measure lighting coil with multimeter: turn off the lead bind and calbe coil, measure the resistance between white line and ground in magnetoelectric motor lead bind or the resistance between engine parts, if measured resistance is zero, it explains that coil is well; if resistance is too much or infinite, it explains that coil doesnot work well circuit of coil is open. Means: if welding point is loose, reweld it, replace coil if there is open circuit in coil.



See fig.

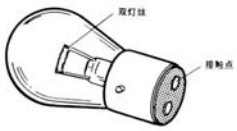
（2）Cause: All bulbs are burnt out.

Cause and service: turn on light switch, all lighting bulbs don’t light. Inspecting means: turn on headlight chimney and taillight chimney, inspect headlight fuse and taillight fuse to see whether they has been burnt out. Means: replace taillight bulb and headlight bulb.

2. All lighting bulb doesn’t light.

（1）cause: Bulb is burnt out.

Caues and service: start engine and turn on lighting switch, in lighting system some bulbs lights, but some bulbs don't light. Inspecting means: A.turn on the chimney of wrong light, inspect whether the fuse is burnt out. Replace it if fuse is burnt out; do another inspection if fuse is not burnt out. B.inspect whether headlight bulb is correctly jointed with lamp holder. If it works normal, do next inspection. C.remove front cover of meter, disconnect headlight switch and calbe, start engine; use a soft lead to connect green/red line of joint thrum with yellow lead, see whether taillight or meter indicator lamp lights, if bulb doesnot light, it means that bulb is damaged. Means: with section principle to find out where open circuits is, and joint them.



See fig.

(2) Control switch is not well connected.

Cause and service: start engine; turn on lighting switch, some bulbs donot light in lighting system. Inspecting means: A. remove front cover of meter, disconnect headlight switch and cable, start engine, at the same time joint green/red line to yellow one with a soft line, if headlight still doesn't light, do the next inspection. B. with a soft lead to connect yellow line of joint thrum with weak bule line (dipped headlight), yellow and blue line (high beam), observe whether dipped headlight and high beam light or not, if they light, trans-light switch is damaged; replace it. Means: replace trans-light switch or headlight switch.

3. Headlight is too weak.

(1) Cause: There is smudge or distortion on spotlight glass.

Cause and service: inspect the spotlight mirror; replace it if there is smudge or distortion.

(2) Cause: There is creepage on lighting system.

Cause and service: maily inspect whether there is smudge in headlight holder or creepage. With a new holer to replace old one, if it lights, there is creepage on lighting system.

VII. Something wrong with beaconage

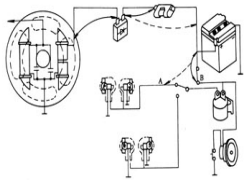
1. High beam indicator doesn't light.

(1) Cause: Headlight switch is not well connected.

Cause and servcie: phenomena: open high beam switch, but high beam indicator doesn't light. Means: A. remove meter cover, cut off the connection-peg of lighting switch and cable, with a stride soft lead to connect gree/red line (electrical source line) with yellow line, and then start engine. B.inspect whether headlight indicator lights or not, if indicator lights, headlight switch is damaged, repair it in time.

(2) Cause: Power line of indication lamep (yellow line and black line) is open.

Cause and service: phenomena: turn on high beam, but high beam indicator doesn't light. A.judging from phenomena, you can know that the wiring road of meter indicator is damaged or meter indicator is damaged. B.remove meter cover and decompose meter, and then inspect bulb, if bulb is normal, place emphase on wiring road. C.shut off the connection of headlight switch and main wiring, with a multimeter to measure whether yellow line on headlight switch is connected correctly to yellow line on headlight indictor. If it is not leaded, refer to working diagram of headlight to inspect it. D.with a multimeter to test whether black line on headlight indicator is connected correctly to frame, if it is not leaded, directly connect the black line to blace line of cables with a soft lead and fault is resolved.



See fig.

2. It sounds abnormal noise from odometer.

（1）Cause: Odometer wire is too long.

Cause and service: phenomena: during the course of riding, it sounds “hoot” abnormal voice from odometer. Means: A. the specification of milemeter wire is not correct or the calbe is too long, which results friction from high rotating speed and abnormal voice gives off. B. Remove odometer wire, and then replace the same type of qualified wire.

（2）Cause: It is absence of lubrication for worm wheel and worm.

Cause and service: phenomena: during the whole course of riding, it sounds “hoot” abnormal voice from odometer. Means: A. for lack of lubrication, it produces dry friction between worm wheel and worm, which results in abnormal voice from mechanism transmission organ of odometer. B. decompose meter, daub worm wheel and worm with adequate lubrication. If it is still inefficient, replace it.

See fig.

3. Odometer needl cann’t turn freely.

（1）Cause: Odometer wire is broke off.

Cause and service: phenomena: during the course of riding, odometer needle doesn’t indicate its speed and mileage. Means: A. remove odometer wire and front hub, take out of wire core, inspect whether some wire is broken off. B. If mileage wire is ruptured, remove the joint between mileage wire and front left cover of meter, and then replace the odometer with new one. Notice: if odometer wier is ruptured, replace the whole odometer wire assy.

（2）Cause: Front speedometer gearcase is blocked.

Cause and service: phenomena: during the whole course of riding, odometer needle doesn’t indicate its speed and mileage. Inspecting means: A.remove odometer wire and front hub, take out of wire core, and then inspect whethr the wire is broken off. B. Remove front whee, inspect front hub cover, turn calculating worm wheel, and then inspect if it turns freely, inspect whether the surface of worm wheel shaft is bited. C. Remove worm wheel shaft, wash worm wheel shaft and its seat hole, and dry it, daub corresponding moving parts with some lubrication, reassemble it. Replace worm wheel shaft, which is bited.

4. Odometer needle shakes continuously.

（1）Cause: There is ablation for induction plate.

Cause and service: phenomena: during the whole course of riding, odometer needle shakes uninterrupted, its indicating read is not correct. Means: A. inspect whether there is short circuit in odometer wiring. B. Remove fuel gauge, inspect if needle induction place is ablated. Replace it if necessary.

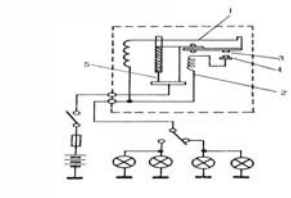
（2）odometer wiring is too short.

Cause and service: phenomena: during the whole course of riding, odometer needle shakes uninterrupted, its indicating read is not correct or doesn’t show its read. Means: remove odometer wire, inspect the length of odometer, and measure if wiring core is enough to bring along odometer to turn. If odometer wiring is too short, replace proper spec of odometer wiring.

5. The frequency of Flash is too slow.

（1）Cause: Lead is not connected well.

Cause and service: turn on trans-direction switch, inspect trans-direction lamp. The frequency of flash is a little slower than that of normal fasher. Inspect whether various leads is connected well, if they is not connected well, reconnect or repair them.



See fig.

（2）Cause: The power of choosen trans-direction lamp is too small.

Cause and service: turn on trans-direction lamp switch to inspect it. The frequency of flasher is too slower compared with its normal state. Means: rated power of bulb doesn't meet that of flasher. Replace bulb if the power if too small or big.

Phase the second motorcyle

For driving motorcycle's fault, cause and phenomena are maily same as those of scooter, so we only explain their different points, and for other same points, refer to the cause of fault of scooter and service cases.

I. Fault for engine system

1. Engine cannot start or difficult to start in cooling situation.

For cause and service of fault, please refer to point I-1 in phase the first of chapter 4.

2. Engine cannot start or difficult to start in warm situation.

（1）Cause: Sundries or iron penetrates into shifting gears, which leads that shifting gears are blocked completely.

Cause and service: during driving, it sounds clash suddenly, and engine shuts off. It is mainly because some iron goes into shifting gears or gears are blocked. When it happens, you need to uncover engien tank to repair it.

（2）Cause: There is iron or impurity between transmission gears of clutch which is blocked completely.

Cause and service: during the process of operation, it sounds noise and engine shuts off, and engine cannot start again. Means: A. it is maily for gears of gearcase are blocked completely and engine cannot rotate. When it happnes, uncover right tank cover, eliminate impurity on gears and inspect the degree of bited surfacce of gears, replace corresponding parts if necessary.

See fig.

（3）For cause and service of other faults, please refer to various factors of point I-2 in phase the first of chapter 4.

3. No idle speed for engine.

Please refer to various factors of point I-3 in phase the first of chapter 4.

4. Idle speed is too high.

Please refer to various factors of point I-4 in phase the first of chapter 4.

5. Idle speed is not stable.

For cause and service, please refer to various factors of point I-5 in phase the first of chapter 4.

6. Engien is too hot.

Please refer to various factors of item (2) to item (7) of point I-6 in phase the first

of chapter 4.

7. Engine rotates normal without load, but it is absence of power with load.

(1) Cause: Clutch skids.

Cause and service: please refer to point I-6- (1) in phase the first of chapter 4.

(2) Please refer to point I-7 in phase the first of chapter 4.

8. Engine sounds abnormal noise at various rotating speeds.

(1) Axial clearance and radial clearance of timing camshaft are a little bigger (cam is loosened).

Cause and service: A. if axial clearance of camshaft is too big, inspect if cam board is pressed vertically or the borad spring is damaged. Repress the board or replace the board sping if necessary. 2. inspect if gasket of camshaft is abraded too much or ruptured, replace camshaft gasket if necessary. Inspect if the clearance between camshaft and box is too big. If it is too big, replace camshaft. If radial clearance is too big, inspect if o-ring of camshaft is abraded, the clearance between cam and timing gears is too big. If O-ring is abraded, replace it. If the clearance of timing cam and crank is too big, rechoose it. Measure the clearance of cam and camshaft, if measured clearance is too big, rechoose it.

(2) For causes and services of other faults, please refer to various factors of point I-17 in phase the first of chapter 4.

9. Shifting gearcase sounds abnormal noise.

(1) Cause: Clearance between gears is too big.

Cause and service: too big clearance between gears maily results in too big abrasion between gears, and leads that abnormal noise sends off when engine rotates. A. when accelerating or decelerateing engine, crankcase gives out crash, which sounds that gears fall apart, and more apparent at sudden acceleration or hurry deceleration, which is maily for the clearance of shifting gears in crankcase is too big. B. Remove crankcase and shifting machine, decompose and principal axis and countershaft, and inspect gears, gears hole, groove hole, shifting groove and so on to see if there are abrasion, damage, replace them if necessary. Measure inner diameter of bush, replace it if measured valume is over its limit; measure outer diameter of bush, replae it if measured valume is below its limit. Calculate the clearance between bush and gear; replace it if the clearance is over its limit.

(2) Cause: Gears are ruptured or their surface is bited.

Cause and service: fault phenomena: stand main stand, start engine, hang on some gearshift, engine gearcase gives out abnormal noise. Thereout, you can judge that some gearshift is bung up. Means: if gearshift gear of gearcase is ruptured or gear surface is bited, engine is going to give out abnormal noise when rotating, more seriously cause shifting gear organ is blocked, when you have to replace gearshift gears.

(3) Cause: Clearance of various gears and principal axis, various gears and coutershaft is too big.

Cause and service: measure the clearance between principal axis and various gears, countershaft and various gears, replace principal axis, countershaft or various gears.

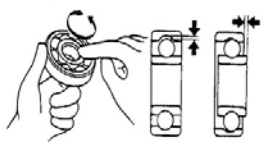
See fig.

(4) Cause: Various bearing is abraded or damaged.

Cause and service: phenomena: when engine operates, gearcase gives out “clamout,

clamout", which happens at each rotating speed, when you should inspect if various bearings are damaged.

Judgement: stand main stand, start engine and hang up gearshift. When playing up throttle, engine gives out abnormal noise. Grasp clutch, brake rear wheel, and the noise disappears, we can draw a conclusion that gearshift organ is damaged. If engine gives out "clamour, clamour", we can conclude that gearshift bearing is damaged. Means: decompose middle crankcase, take out gearshift, and inspect if countershaft bearing, principal axis bush is damaged or their clearance is too big. Replace them if bearing or bush is damaged.



See fig.

(5) Cause: Bush of principal axis or counter shaft is loosened or ablated.

Cause and service: if principal axis and countershaft are loosened, they may sway when engine rotates and gives out abnormal noise, even gears bashes. If bush of principal axis or countershaft is ablated, they may be blocked when engine rotates and gives out abnormal noise. Replace them in time.

I. Fault for lubraicating system

1. Muffler exhausts blue smoke.

(1) Cause: Scratching oil circle works abnormal.

Cause and service: A. for abrasion scratching oil circle loses its performance, and lubrication in cylinder jumps up when piston moves up and down with high rotating speed, which results in blue smoke from engine, replace scratching oil circle if it happens. B. Much hot gas leaks out from hatch, and scratching oil circle, top bush circle and bottom one may burn out, and then engine consumes oil. C.replace scratching oil circle, top bush circle and bottom one.

(2) Cause: Cylinder is pulled.

Cause and service: A. engine adds bad oil, or oil has not been replenished, or remained oil is too little, which may result in pull. When the pulling trace is too clear, piston scratching oil ring may work abnormal and results in burning oil. B. when pull happens for cylinder, find out cause and resolve it, or repair, replace cylinder.

SEE FIG.

2. Cylinder head cover cannot get oil.

(1) Oil pump doesn't work.

Cause and service: means: A. inspect if plastic transmission gear of oil pump is abraded, replace it if the gear is abraded. B. Place oil pump end side on one surface, inspect distortion degree of oil pump end side with a ruler, replace it if distorting degree is over its range (MM). C. Inspect the clearance between the top of oil pump rotor gear and outside rotor, replace it if its clearance is over its specified range. D. Inspect outer diameter of outside rotor and inner diameter of oil pump shell, one minus other is the

clearance of outer rotor and oil pump; if the clearance is too big, oil pump may also get oil. E. Inspect O-seal ring for inlet and exhaust oil hole of oil pump, if it is abraded, oil leaks out, replace it at once.

（2）Cause: Oil filter is blocked.

Cause and service: please refer to point III-2- (2) in phase the first of chapter 4.

（3）Cause: Oil path hole is blocked.

Cause and service: add oil path hole with gasline, observe guding capability of oil path. If oil path is blocked, wash or dredge it with compressed air.

（4）Cause: right crankcase paper mat is ruptured.

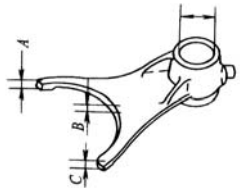
Cause and service: please refer to point III-2- (4) in phase the first of chapter 4.

III. Fault for transmission system

1. Gears cannot shift.

（1）Cause: Shifting fork is distorted or its guide pin is ruptured.

Cause and service: open gearbox: inspect if the fork is distorted and if its guide pin is ruptured, at the same time replace it if necessary.



SEE FIG.

（2）Cause: Shifting gear localizer is not firm.

Cause and service: if screw for shifting gear localizer is loosened, it may be difficult to shift gear. Means: remove left crancase to inspect if screw for shifting gear localizer is loosened; fasten loosened screw and resolve exsisting fault.

（3）Cause: Shifting gear shaft tension spring lose its performance.

Cause and service: open left crankcase, remove shifting gear shaft, inspect if tension spring of shifting gear shaft is enough or loses its performance. Replace tension spring if spring lose its performance or is not enough.

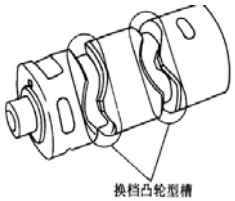
2. It is difficult to shift gears.

（1）Cause: Shifting gear shaft is rusted or blocked, which leads that it cannot turn freely.

Cause and service: inspect if shifting gear shaft is rusted, clean it with sand paper if it is rusted, and daub the shaft with lubricant (butter), and reinstall it.

（2）Cause: Groove part of shifting gear cam is blocked.

Cause and service: inspect the state of abrasion of shifting gear cam groove part, if there is sidestep abrasion on curve part, it maynot turn freely or be blocked for supporting hole of shifting gear hole endures force. Means: A. inspect if there is the trace of block on shifting gear cam groove, repair it with file and grind it with thin sand if there is slight trace. B. for precision is very high for cam, replace the cam if its trace is big.



SEE FIG.

（3）Cause: idle speed is too high.

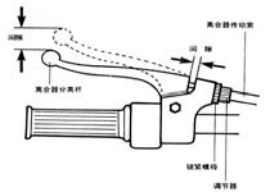
Cause and service: insepct if idle speed is too high, adjust it to its specified speed if idle speed is too high.

（4）Cause: the performance of shifting gears is not unisonous.

Cause and service: it is very skilled to operate throttle, cluch, shift gears. Means: do some exercise in shifting gears according with correct performance.

（5）Cause: Clutch is not released completely.

Cause and service: if shifting gears without shutting off engine, endured load on gear change mechanism may be too much, which results in difficulty in shifting gears. Means: A. Do correct operation in shifting gears, if it is still difficult to shift gears, do the following operation. B. Inspect if clutch is released completely, please refer to diagnose and resolvent for it if cluch is not released completely.



SEE FIG.

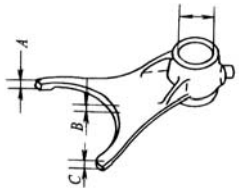
（6）Cause: Reinstall principal axis and countershaft, countershaft is too tight and cannot turn freely.

Cause and service: close crankcase and turn gear cam, at the same time turn principal axis and coutershaft, if they cannot turn or can not turn freely, it means that derailleur is not installed in proper position. B. Shock principal axis and countershaft in the left and right sides with rubber hammer or wood hammer, inspect if they are cooperated properly, reassemble them if their cooperation is still too tight; if not, inspect if there is some one gear or gasket, which is not installed correctly.

3. Doffing gears

（1）Cause: Shifting gears organ is abraded too much.

Cause and service: cause: 变挡拨叉 shifting gears fork, 变速鼓 shifting gears drug or fork fixing shaft is abraded, the free range of gear axis is too wide and doff. Means: A. measure thickness and inner diameter of shifting gears fork with inner diameter centesimal meter, if thickness is abraded to be below its limit volume or abraded inner diameter is over its limit volume, replace it. B. Measure the inner diameter of fork with centesimal meter, and measure outer diameter of fork axis with micrometer, then calculater their difference (配合间隙 cooperating clearance). If the clearance is over its limit volume, replace the fork and fork axis. C. Measure inner diameter of shifting gear and outer diameter of its axis, and then calculater their cooperating clearance. If the cooperating clearance is over its limit volume, replace shifting gears or bush. D. inspect shifting cam fork groove, replace shifting gears or bush if the surface of fork groove is abraded to be round angle.



SEE FIG.

（2）Cause: The fork of gears or joint bush is abraded seriously.

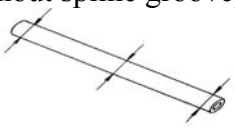
Cause and service: measssure the width of clip groove of shifting gears with vernier caliper, replace the shifting gears if it is abraded too much.

（3）Cause: Combined claw of shift gears is abraded.

Cause and service: if gear pawl is abraded into round angle, which leads that gears release for axial force, inspect abrasion degree of combined claw and joint hole.

（4）Joint hole of shifting gears (without spline groove) is abraded.

Cause and service: A. joint hole of shifting gears (without spline groove) is abraded into round angle, when gears work, it prodces axial force and goes out of gearshift. B. inspect the abrasion degree of joint hole of gear (without spline groove), replace sliding gears if joint hole is abraded into round angle.



See fig.

（5）Cause: Camshaft or position shaft is abraded seriously.

Cause and service: measure inner diameter of fork with inner centesimal meter and measure outer

diamter of fork axis with micrometer, and then calculate their difference (ASSORTING CLEARANCE). If the clearance is over its limnit volume, replace fork or fork axis.

4. Clutch skids.

（1）Cause: Clutch brake pad kit is too thin or abraded seriously.

Cause and service: being used for too long time, clutch brake pad kit is abraded excessively, which may results in too thin brake pad kit. Means: remove clutch assy. measure the degrdd of clutch brake pad kit with vernier caliper. Replace the clutch brake pad kit if measured degree is below its limit volume.

See fig.

（2）Cause: Flinching radian of clutch friction iron slice is too big so that clutch skids.

Cause and service: place clutch iron slice on flat roof, measure distortion degree with thickness compass, replace it if its distortion degree is over its limit.

（3）Cause: There is sidestepping extrusion trace on clutch outside cover or holder groove.

Cause and service: open clutch, inspect if there is sidestep extrusion trace on clutch outside cover or clutch center holder groove, if the trace of sidestep blocks brake pad kits, remove clutch and file the trance with file.

（4）Cause: Spring of clutch becomes small or permanent distortion happens for clutch spring.

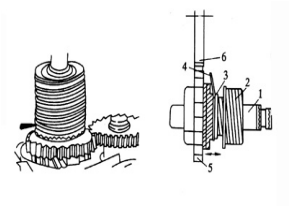
Cause and service: for heat clutch brake pad spring loses its spring, or permanent distortion happens for long time compression. Means: A. the pressure of clutch spring is not even, which results in different clearance from brake pad kit to clutch slice, and then the force of friction becomes smaller, which leads that clutch skids. B. Remove clutch, and measure the free distance of clutch spring to see if the free distance is essentially the same as its standard value. Replace it if some free distance is not same. C.inspect clutch brake pad kit, inspect if brake pad kit is flaked, replace brake pad kit or friction iron slice if clutch brake slice is burnt into yellow or flaked.

IV. Fault for kick-starter system.

1. Starting shaft skids.

（1）Cause: Ratchet wheel gears are abraded or clip is not tightened enough, and wheel disc skids.

Cause and service: remove starting shaft, desconnect gearcase covre, respectively inspect various parts of starting organ. If starting ratchet wheel gears are abraded, limit clip may fall off or kick starting ratchet wheel spring may be broken off or its spring is not enough. Means: replace corresponding parts with fault.

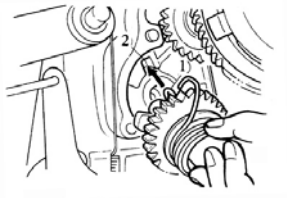


See fig.

1. Starting shaft doesn’t turn back.

（1） Cause: tension spring is not installed correctly, without ad-tightness.

Cause and service: starting shaft doesn’t turn back, commonly there is some wrong with starting shaft tension spring. If tension spring is not installed correctly, decompose and reinstall it.



See fig.

（2） Cause: Starting shaft tension spring is broken off or loosened.

Cause and service: A. starting shaft cannot turn back; conmmonly there is some fault with tension spring. If tension spring is loosened or it is not installed correctly, decompose and reassemble it, replace it if tension spring is broken off. B. The bush of kick starting shaft is blocked, which may lead that starting spring doesn't turn back. Means: replace starting shaft tension spring or bush.

Ⅴ. Fault for electric starting system

1. Electric starter cannot start engine.

（1）Cause: fault for starting button.

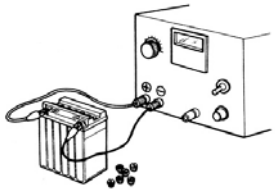
Cause and service: remove the joint of starting button switch, press starting button switch, and measure the resistance between red/white lead and green/yellow lead with multimeter, if the resistance is zero, leads are short circuit. Connect the two joints of starting button switch, if engine can start, there is some wrong with starting button. Resoleve it if necessary.

（2）Crankshaft is blocked completely.

Cause and service: turn crankshaft, if it only rotates half of circle, which shows: A. touching head point collides with touching part of magnet cylinder. Adjust the clearance between touching head point and touching part of magnet cylinder. B.crankshaft bearing is damaged, uncover crankcase, and replace crankshaft bearing. Rolling needle bearing of big head of connecting rod is damaged, uncover crankcase, and then replace crankshaft connecting rod assy. C. other moving parts, for example super-clutch, starting lazy gears and so on are blocked completely, which may results in complete block to crankshaft. So it is necessary to do some inspection to corresponding parts, means of examine and repair refer to corresponding means for faults.

（3）Cause: The quality of battery electricity is not enough or its joint has not been connected well.

Cause and service: turn on ignition switch, press horn button, at the same time press electric starting switch, if the voice of horn is abnormal or hoarse, it shows that the voltage of battery storage is not enough or is not connected well. If the voltage of battery storage is not enough, recharge battery or replace it. if battery storage is not connected well, clear dirty on connecting pole and fasten bolt.



See fig.

2. When straring engine by electricity starter, power is not enough along with abnormal noise.

（1）Causea: Fault on starting motor.

Cause and service: please refer to point Ⅴ-1- (2) in phase the second of chapter 4.

（2）Cause: Starting clutch skids and is damaged.

Cause and service: inspect if rolling pole of super-clutch is abraded and if tension spring of rolling pole is damaged. If there is sidestep abrasion on rolling pole of super-clutch, replace rolling pole. Replace spring if tension spring looses its effect or is damaged.

See fig.

3. Starting motor rotates endless.

（1）Cause: Touching point of relay is melt and felt.

Cause and service: if above fault happens, commonly the fault is from relay. Cut connecting lead of battery storage; connect the two leads of multimeter with connection pole of relay. If the read is zero, there is sinter on touching point inside relay, replace relay.

See fig.

（2）Cause: Starting button spring cannot turn back.

Cause and service: remove right handle switch, replace button spring.

4. FAULT FOR STARTING MOTOR RACING

（1）CAUSE: Exceeding clutch skids.

Service and cause: inspect if rolling pole of exceeding cluch is abraded, and if tension spring of rolling pole is damaged or not. Replace rolling pole if there is step abrasion on the rolling pole of super-clutch. Replace spring if tension spring does not work or has been damaged.

See fig.

（2）Cause: Wrong assembly, which results in leakage of lazy gear assembly.

Cause and service: uncover right box, inspect if lazy gears have been assembled, redecompose electric starting organ and correctly assemble it if lazy gears have not been assembled.

（3）Cause: Storage battery is connected in reverse.

Cause and service: A. battery is connected in reverse, which may result in reverse rotating of motor, and exceeding clutch looses unilateralism performance of cluch, and results in racing. B. it is maily because positive and negative pole of barter are connected in reverse, reconnect the lead of battery.