SKYTEAM

SKYMAX

ST125-6 E4 approved

使用维修手册

WORKSHOP MANUAL

前　　言

PREFACE

该维修手册为欧四 ST125-6 型摩托车的正确保养和维修工作提供必要的参考和帮助。

This workshop manual is to supply the reference and help for the correct maintenance and repair of SKYTEAM SKYMAX ST125-6 MODEL.

ST125-6 型摩托车能够适应摩托车客户广泛要求，从事摩托车维修工作人员在进行修理或保养之前应研读该手册.

SKYTEAM SKYMAX ST125-6 MODEL can suit the general needs of the motorcycle users, so the mechanics should read and study this manual carefully before processing the maintenance or repair.

维修手册上的内容如与说明书的内容有出入，以本维修手册的内容为准。

If the information on this workshop manual is different from the user's manual, please take this workshop manual as standard.

章节索引 CONTENT GUIDE

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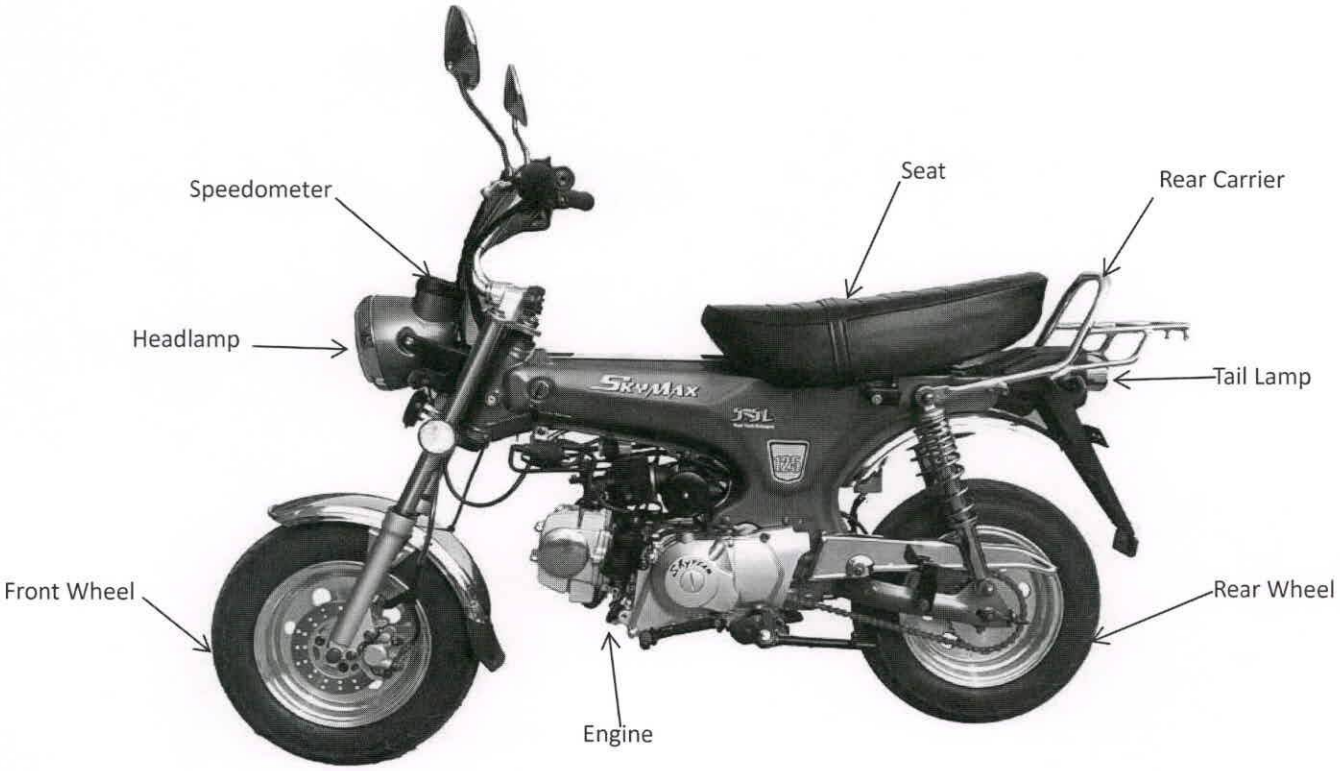
第一章：概述
PART 1 GENERAL INFORMATION

ST125-6 外观 APPEARANCE



ST125-6 系列号位置 VIN NUMBER POSITION

车身右侧

On the right side of the vehicle

VIN：

VIN 码打刻在车头管右侧

VIN number is engraved on the right side of the steering pipe

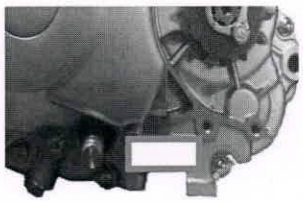
车身左侧

On the left side of the vehicle

发动机号码：

发动机号码打刻在左曲轴箱体下方。

Engine number is engraved under the left crankcase

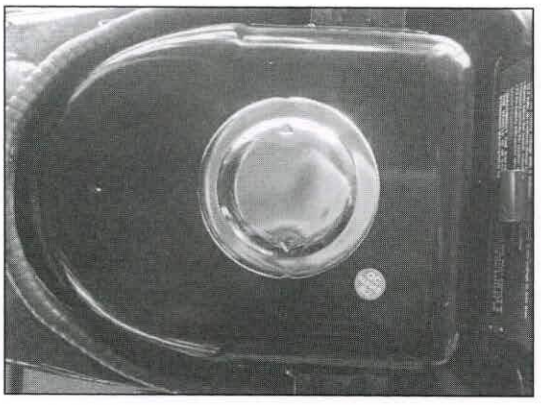


推荐使用的燃油和机油牌号
RECOMMENDED FUEL AND MACHINE OIL TYPE

注意使用规定的燃油、机油和液压油。

Please pay attention to using the appointed fuel, machine oil and hydraulic fluid

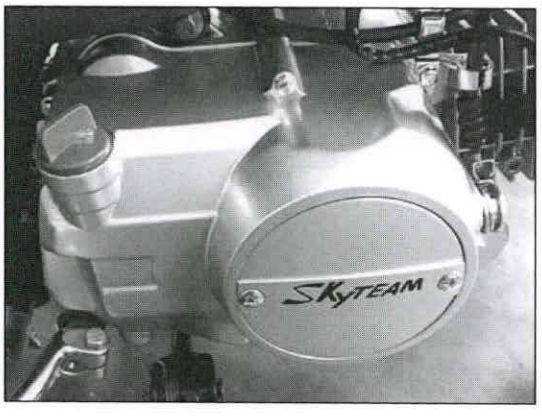
燃油 FUEL:



推荐使用 90＃以上的无铅汽油，使用推荐的无铅汽油，可延长火花塞和发动机使用寿命，且减少尾气排放的污染物。

Suggest using 90# or above lead-free fuel, so the life time of spark plug and engine can be extended, and the pollution caused by emission can be reduced.

发动机机油 ENGINE OIL:



推荐使用品质较好的机油：夏季 15W40

冬季 10W40

使用推荐的机油可减少磨损，延长发动机寿命。

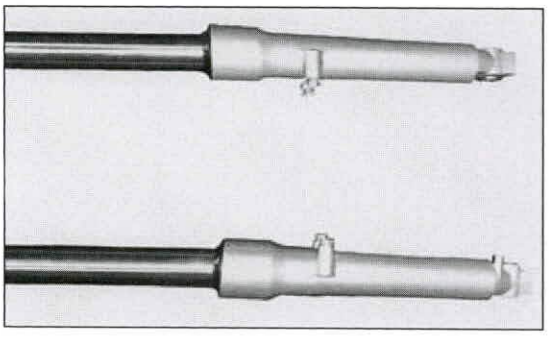
Suggest using the engine oil with good quality:

SUMMER 15W40

WINTER 10W40

With recommended engine oil, the wear can be reduced and the life time of engine can be extended

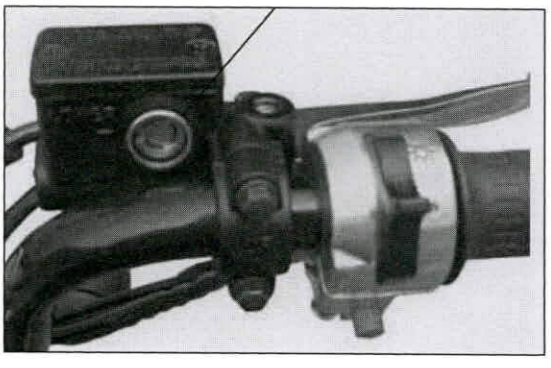
前减震油 FRONT SHOCK FLUID:



推荐使用 SS8 或 46＃液压油。

Suggest using SS8 or 46# hydraulic fluid

碟刹油 BRAKE FLUID:



推荐使用 Mobil 牌 DOT3 或 DOT4 的制动液压油

Suggest using DOT 3 or DOT 4 brake fluid (better with Mobil braned)

ST125-6 技术参数 PARAMETER

尺寸和重量 SIZE AND WEIGHT:

总长 LENGTH	1630mm
总宽 WIDTH	660mm
总高 HEIGHT	965mm
轴距 WHEEL BASE	1060mm
最小离地间隙 MINIMUM GROUND CLEARANCE	130mm
整车干质量 DRY WEIGHT	84kg
最大载重量 MAX.LOADING	234kg

主要参数 MAIN PARAMETER:

经济油耗 ECONOMIC FUEL CONSUMPTION	2.1 L/100km
最大功率 MAX.POWER	6.2KW/7500rpm
最大扭距 MAXIMUM TORQUE	9.2N.m / 4500r/min
怠速转速 IDING SPEED	1400r/min

发动机 ENGINE:

型号 MODEL	1P52FM
型式 TYPE	单缸风冷四冲程 Air-Cooled, 4 stroke, single cylinder
排量 DISPLACEMENT	124cm^3
缸径行程 BORE*STROKE	52.4×57mm
压缩比 COMPRESSION RATIO	9.5:1
启动方式 STARTER SYSTEM	电/脚启动 Electric & Kick
空滤型式 AIR FILTER TYPE	油浸海绵 Oil filled foam
润滑方式 LUBRICATION SYSTEM	压力和飞溅 Pressure and splash lubrication

传动系统

TRANSMISSION SYSTEM:

离合 CLUTCH TYPE 湿式多片 Wet, multiple disc

档位及操作 GEARS 4 档手动 4 speed manual

传动比 TRANSMISSION RATIO 单缸风冷四冲程

Air-Cooled, 4 stroke, single cylinder

一档 1st gear	2.833
二档 2nd gear	1.706
三档 3rd gear	1.238
四档 4th gear	0.958
小链轮 front sprocket	Z15
大链轮 rear sprocket	Z32

电气系统 ELECTRICAL SYSTEM:

点火 IGNITION SYSTEM	ECU
磁电机 MAGNETOR	12VQZ-C8
电瓶 BATTERY	12V-4Ah
火花塞 SPARK PLUG	NGK/CR6HSA
前照灯 FRONT LAMP	12V35W/35W
转向灯 TURNING LIGHT	12v LED
尾灯/牌照灯 TAIL LAMP/LISENCE PLATE LIGHT	12V21W/5W
前位置灯 FRONT POSITION LIGHT	12V LED
仪表灯 SPEEDOMETER LIGHT	12V LED
油位指示灯 FUEL INDICATOR LIGHT	12V LED
喇叭 HORN	12V 1.5A 95±5dB(A)
保险丝 FUSE	10A
油位计 FUEL LEVEL GAUGE	磁感 MAGNETIC INDUCTION

行走系统 RUNNING SYSTEM:

轮胎 TIRE 前轮胎 FRONT TIRE 3.5-10 51J

后轮胎 REAR TIRE 3.5-10 51J

胎压 TIRE PRESSURE 单人 SINGLE:

前轮 FRONT TIRE 220kpa

后轮 REAR TIRE 220kpa

双人 DOUBLE : 前轮 FRONT TIRE 230kpa

后轮 REAR TIRE 240kpa

悬挂 SUSPENSION 弹簧液压 SPRING&HYDRAULIC

制动 BRAKE 前：盘式 后：盘式 F&R DISC

容量 CAPACITY:

燃油箱 FUAL TANK CAPACITY	5.5L±0.5L
机油量 OIL TANK CAPACITY	1000ml
前减油量 FRONT SHOCK FULID CAPACITY	75ml

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第二章：定期保养和调整程序
PART 2 REGULAR MAINTENANCE AND CHECK

磨合期及保养期限 BREAKING-IN PERIOD AND MAINTANENCE PERIOD

磨合期 BREAKING-IN PERIOD:

- ST125-6 摩托车磨合期为 1000km；1000km for 125-6
- 磨合期内 300km 及 1000km 时需各更换一次机油；

Need to change the machine oil at 300km and 1000km within the breaking-in period

- 磨合期内车速不得超过 60km/h，禁止油门全开。

The max. speed cannot be over 60km/h during the breaking-in period, full throttle is not allowed.

保养间隔 MAINTENANCE INTERVALS:

- 每 1000km 或 6 个月需要对本车进行保养，以先到者为准。

The vehicle should be maintained every 1000km or 6 months, take the earlier one as the standard

定期保养周期表 REGULAR MAINTANENCE PERIOD CHART

部 件 PARTS 周 期 PERIOD	1000km	3000km	5000km	10000kn
机油 ENGINE OIL	更换 CHANGE	-	-	-
	一年两次 2 TIMES EVERY YEAR			
空滤 AIR FILTER	-	清洁 CLEAN	-	-
燃油滤 FUEL FILTER	-	--更换 CHANGE	-	
离合器 CLUTCH	-	-	调整 ADJUST	-
火花塞 SPARK PLUG	-	-	-	检查、清洁 CHECK, CLEAN
燃油管 FUEL HOSE	-	检查 CHECK	检查 CHECK	更换 CHANGE
	2 年更换一次 CHANGE EVERY 2 YEARS			
传动链条 TRANSMISSION CHAIN	调整 ADJUST	润滑 LUBRICATE	-	-
轮胎 TIRE	-	-	检查 CHECK	-
	3 年更换一次 CHANGE EVERY 3 YEARS			
转向机构 STEERING SYSTEM	-	-	检查、调整 CHECK, ADJUST	-
整车紧固件 VEHICLE FASTNERS	-	-	检查、调整 CHECK, ADJUST	-
制动液 BRAKE FLUID	-	-	-	检查 CHECK
	2 年更换一次 CHANGE EVERY 2 YEARS			
后制动器 REAR BRAKE	-	-	检查、调整 CHECK, ADJUST	-

保养和调整程序 MAINTENANCE AND ADJUSTING PROCESS

发动机机油 ENGINE OIL

磨合期行驶达 300、1000km 时进行更换，以后每间隔 1000km 时进行更换，一年至少两次。

Change at 300km and 1000km riding during breaking-in period, afterwards change every 1000km, at least 2 times per year

在长时间行驶后，发动机机油将变质而加快发动机的磨损。按照下列程序更换机油：

After long driving, the engine oil may go deteriorate and result in the quicker wear of the engine, please change the machine oil as the following steps,

- 起动发动机，使发动机升温 80℃，这会使放油容易进行，关闭发动机，撑起中撑。

Start the engine, warm up till 80℃,so it is easy to drain the oil; stop the engine, kick on the central stand.

① 拧开右曲轴箱盖上的机油尺；

release the oil dipstick on the right crankcase ；

② 用 M17 的扳手拆下发动机下方的放油螺钉；

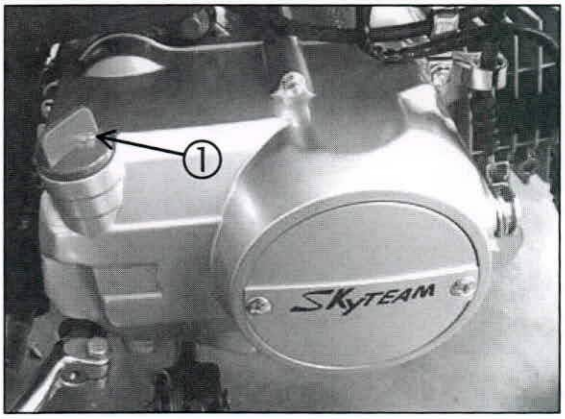
disassemble the drain screw under the engine with M17 wrench

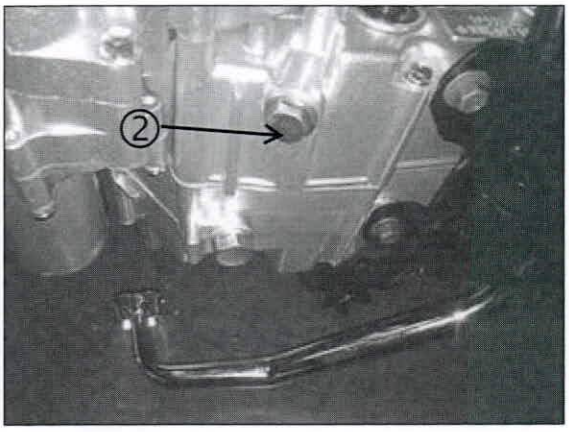
- 放油持续 10min 左右，使机油完全放出。

drain the oil until 10mins, so the oil can be drained completely

- 拧上放油螺钉，并紧固。

tight the drain screw





保养时机油容量 ENGINE OIL CAPACITY DURING MAINTENANCE	850 ml
机油总容量 ENGINE OIL CAPACITY IN TOTAL	1000ml
螺钉②扭力 SCREW② TORQUE	28 N.m

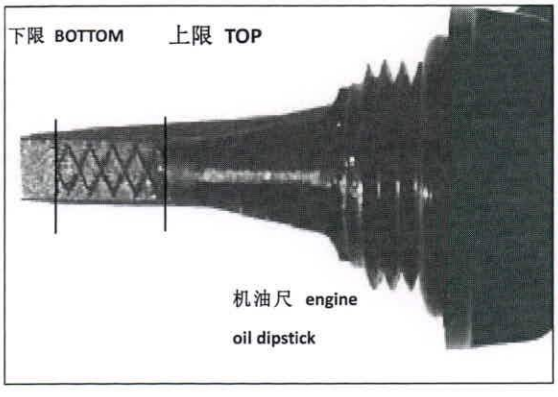
● 机油加油量检查 OIL ADDING AMOUNT INSPECTION：

① 测量机油时，使摩托车熄火 5 分钟且整车垂直于地面保持水平放置；将机油尺取出后 擦干净，测量时机油尺直接放到底，无需拧进去测量；

When check the oil, turn off the motorcycle for 5 mins and keep the vehicle in a upright position on level ground; remove the oil dipstick and wipe it clean. Check the oil level by inserting the oil filler cap/dipstick into the oil filler hole without screwing it in.

② 油量应在机油尺网格刻度线中间。

Oil level should be in the middle of the tick marks on the oil dipstick.

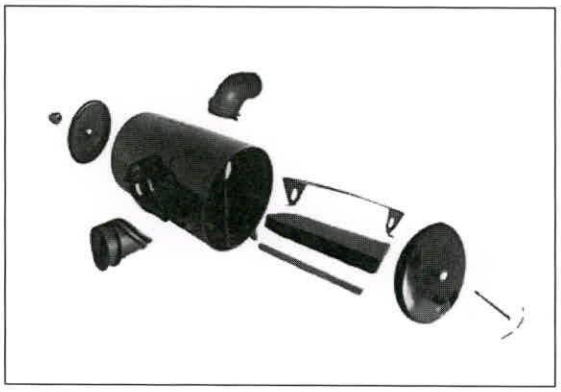


空气滤清器 AIR FILTER

每 3000km 进行检查并清洁。
Check and clean every 3000km

如空气滤清器被灰尘堵塞，进气阻力将变大，会导致输出功率降低、燃油消耗增大，对大气造成污染。

If the air filter is stuck by the dust, then the resistance of air inlet will be increased, which will result in low output power, increased fuel consumption and air pollution.



请按下列方法检查并清洗零件：

Please check and clean the parts as follows,

- 松开空滤卡箍螺钉，取下空气滤清器。

Loosen the screw of the air filter clip, remove the air filter

- 松开固定螺钉，取下空气滤清器壳。

Loosen the screw, and remove the air filter cover

① 在清洗盘中加入不燃的清洗剂 A，

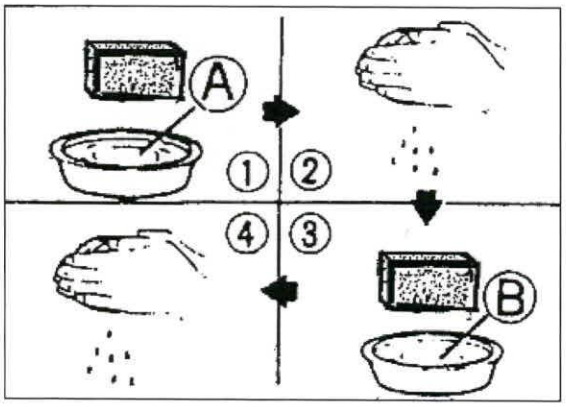
Fill the incombustible detergent A in the washing plate

将海绵滤芯浸在清洗剂中清洗。

Immerse the foam filter core in the detergent and wash

② 用两手掌压挤海绵滤芯，不要拧绞滤芯， 否则可能会造成滤芯撕裂。

Press the foam filter core by the two palms instead of twisting, otherwise, the filter core will be damaged



③ 将滤芯浸在机油中。Immerse the filter core in the engine oil

③ 压挤滤芯中的机油，使其轻微的潮湿带油。

Press the engine oil from the filter core, and keep the core slightly wet with oily

注意 WARNING:

* 清洗后，检查滤芯看看它有无断裂或龟裂，如有断裂或龟裂应更换；
After washing, please check whether the filter core is broken or cracked, if so, please change the filter core.

* 装配时应正确定位，以免空气不经过滤芯过滤，灰尘进入缸内从而加快活塞和气缸的磨损。
Fix the filter core correctly, so the air can go through the filter core, and the dust will not enter the cylinder to quicken the wear of the piston and cylinder.

油门钢索调节 Throttle Cable adjustment

油门钢索应有 1~2mm 的自由间隙，下列方法调节油门钢索操纵间隙。

1-2mm free play should be kept for throttle cable, please adjust the cable free play as follows:

- 轻轻转动油门转把，检查自由间隙量；

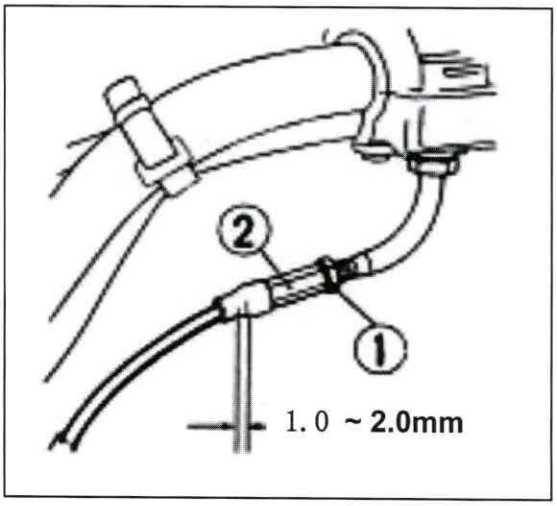
Check the free play by rotating the throttle grip slightly

- 松开锁止螺母①，并向内或向外转动调节螺母②，使自由间隙调节至规定值；

Loosen the locking nut①, and turn the adjusting nut ② inwards or outwards until get a suitable free play

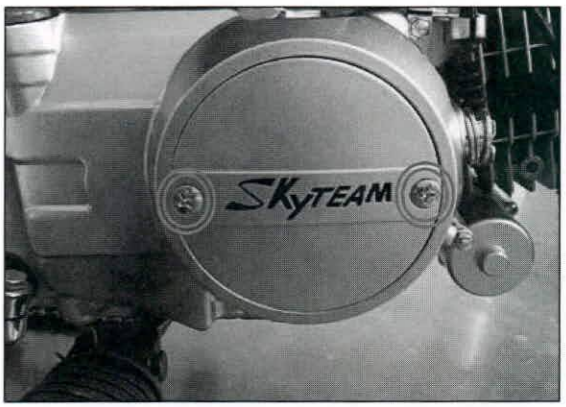
- 保持调节器位置，固定锁紧螺母①。

Keep the position of the adjuster, and fix the locking nut ①



离合器 CLUTCH

每 5000km 进行检查并调整。
CHECK EVERY 5000KM AND ADJUST



- 拆下离合器盖 remove the clutch cover;
- 松开离合钢索上的调节器锁止螺母①，旋转调节母②使调节器螺纹在 3mm 左右；

Loosen the clutch adjuster lock nut on the clutch cable①, turn the adjusting nut② until the adjuster screw at around 3mm

- 松开离合器锁止螺母③，用平口螺丝刀旋转调节螺栓④直至感到阻力，再旋松 1/4~1/2 圈；

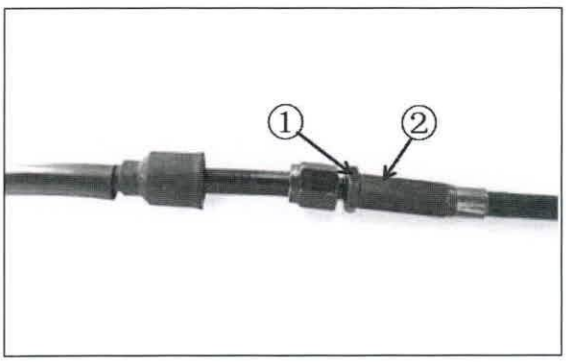
Loosen the clutch lock nut③, turn the adjusting bolt ④ until resistance is felt by flat-blade screw driver, then loosen 1/4~1/2 turn

- 锁紧锁止螺母③ tighten the locking nut③
- 再次调节离合钢索上的调节器，使离合器操纵手柄的自由间隙至 3mm 左右；

Fix the free play of the clutch lever to 3mm by the adjuster on the clutch cable

- 再锁紧离合钢索上的调节器锁止螺母。

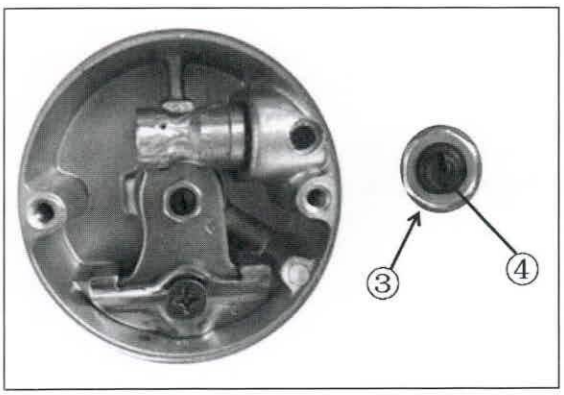
Tighten the adjuster lock nut on the clutch cable

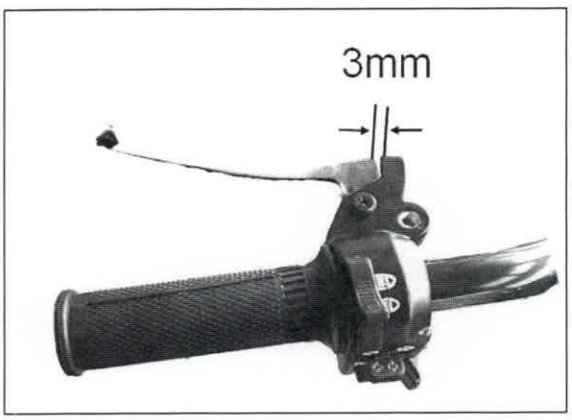


注意 WARNING：

离合器没有自由间隙，可能离合会处于轻微分离状态，会加快离合片的磨损，甚至烧坏离合片，导致动力降低、油耗增大。

If there is no free play of the clutch, then the clutch may separate slightly, which will result in the quicker wear of the clutch, even burning the clutch plate, and consequently decrease the power and increase the fuel consumption





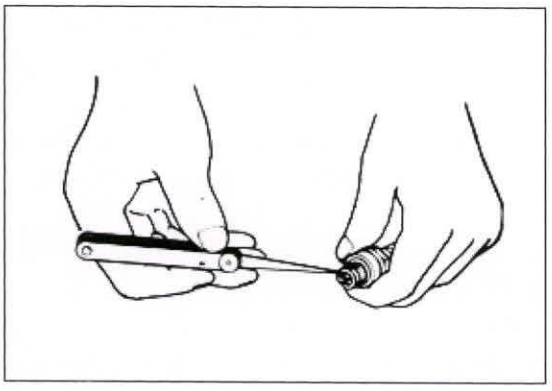
火花塞 SPARK PLUG

每 10000km 进行检查并调整或更换。

Check, adjust and change every 10000km

如果忽视火花塞，可能会导致起动困难和性能不良。火花塞长期使用，电极逐渐烧损，会存在内部积碳。根据定期检查表，应拆卸火花塞检查，清洗并调整间隙。

If ignore the spark plug, the vehicle will be difficult to get started and perform badly. After using the spark plug for some while, the electrodes will be burned gradually and thus produce the carbon inside. According to the regular check list, the spark plug should be removed, inspected, washed and adjusted(clearance).

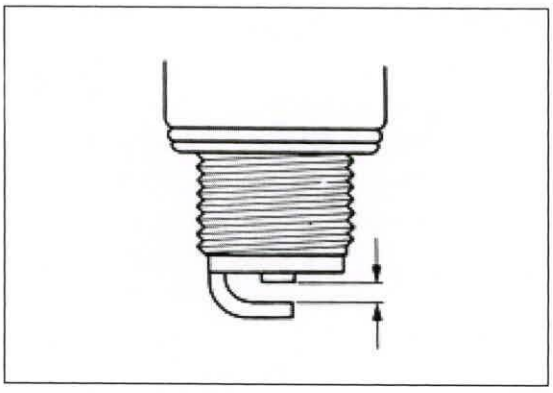


- 火花塞的积碳会阻碍良好火花，并导致点火不良或失火，请定期清除积碳；

The carbon inside can stop the good spark, and result in bad ignition or burning, so please clean the carbon regularly

- 如果中央的电极磨损严重，应更换火花塞，并用厚度尺规将间隙调整为规定间隙。

If the electrodes in the middle are damaged badly, please change the spark plug, and use the depth ruler to adjust the clearance correctly



火花塞型号 SPARK PLUG	NGK CR6HSA
火花塞间隙 SPARK PLUG CLERANCE	0.6~0.7mm

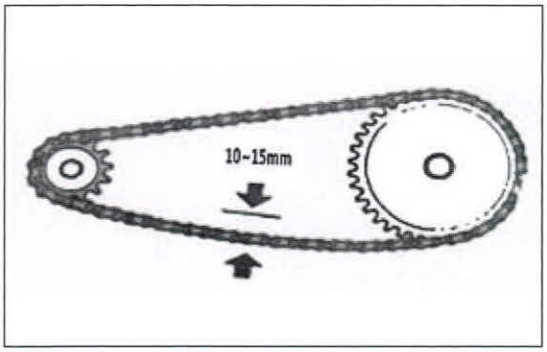
传动链条 DRIVE CHAIN

每 1000km 进行检查并调整。CHECK EVERY 1000KM AND ADJUST

链条松驰度 CHAIN SLACK

链条长期使用，会逐渐拉伸变长，过度松驰会碰触到其它零件产生异响，也可能会链条脱落。

After long using, the chain may extend; excessive chain slack may touch other parts and cause strange noise, or result in the chain dropping.



按下列方法检查和调整链条 Inspect and adjust the chain as the following steps：

- 支起中撑 kick on the central stand；
- 轻轻转动后轮，使链条在松驰度最大的位置停止转动；检查链条松驰度；

Turn the rear wheel slightly, and make sure the chain stops at the biggest slack point; check the slack

- 松开后轮轴螺母①和调链器锁止螺母②；

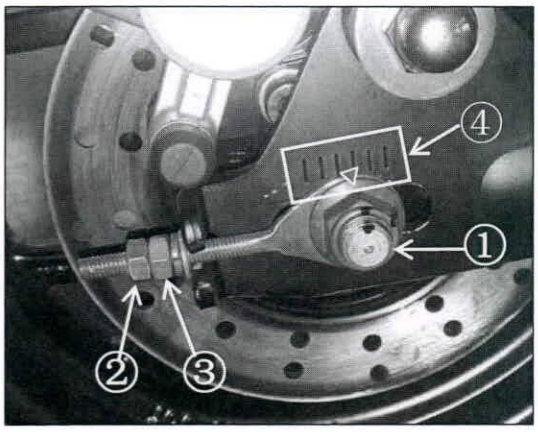
Loose the rear axle nut①and adjuster lock nuts②

- 调节两侧调整螺母③，使链条松驰度在 10~15mm 范围内，调链器上的标记对应平叉刻度④位置两侧应相同；

Turn both adjusting nuts③ an equal number of turn until the correct drive chain slack 10-15mm is obtained; make sure the index marks on both adjusters are aligned with the index lines on the swing arm④

- 拧紧后轮轴螺母①，再依次锁紧调链器螺母③和 ②。

Tighten rear axle nut①, adjuster locking nuts③ and ② accordingly



链条松驰度 CHAIN SLACK	10～15mm
后轮轴螺母①扭力 TORQUE OF REAR AXLE NUT①	54～66N.m

链条清洗、润滑 CHAIN CLEANING AND LUBRICATION

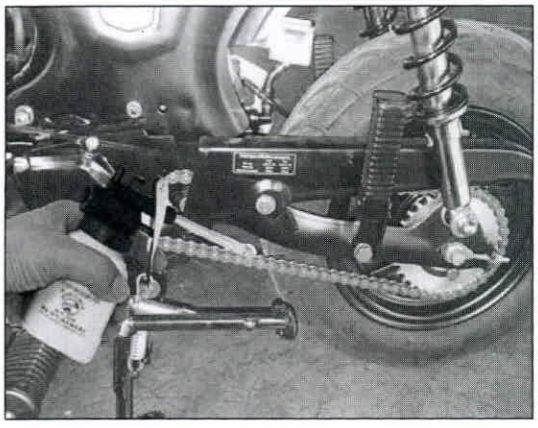
每 5000km 进行检查、清洗或更换。Inspect, clean or change every 5000km

●链条长期使用，会缺少润滑油，会产生大量灰尘、污渍堆积在上面，造成链条生锈、卡滞、转动时异响，导致链条加快磨损；

after long using, chain will be lack of lubrication oil and make lots of dirt on it, which will result in the rust, stuck, strange noise of the chain,and quicken the wear;

- 用柴油或煤油清洗链条，如链条有生锈迹象，应缩短维修保养的间隔。

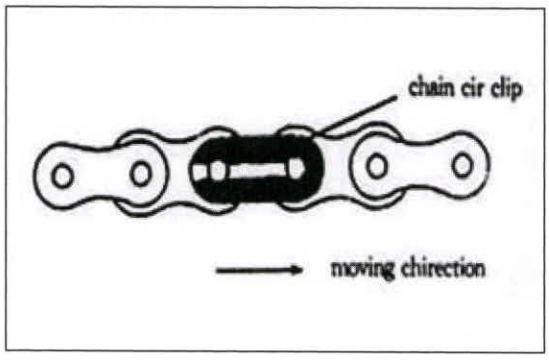
Use diesel oil or kerosene to clean the chain; if there is rust on the chain, the maintenance intervals should be shortened.



- 在清洗并擦干后，用机油或齿轮油进行充分的润滑。

Be sure the chain has dried completely after cleaning, and then use machine oil or gear oil to fully lubricate

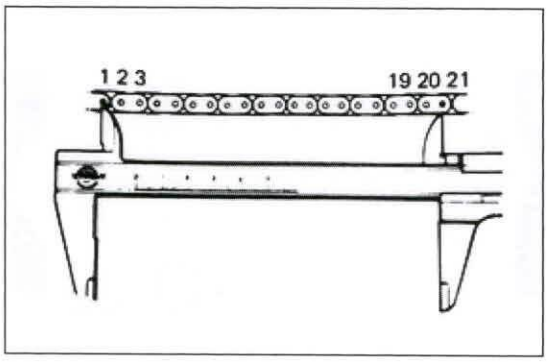
注意 WARNING:
如图所示，链条锁片安装时，锁片开口方向应与行驶方向相反。
As the photo shows, install the circlip so that its open end is opposite the normal rotation of the chain.



按下列方法检查链条是否需要更换 check whether the chain should be changed according to the following steps:

- 将链条放在平面操作台上，使链条在同一直线上；

fix the chain on the flatform, and make sure the chain is aligned;
数 21 个滚珠（相当于 20 节），用游标卡尺测量之间的长度，如长度超过 259.0mm，应更换链条。
Check the length of the 21 rolling balls(equal to 20 links) by the vernier caliper, if the length is over 259.0mm, then the chain should be replaced



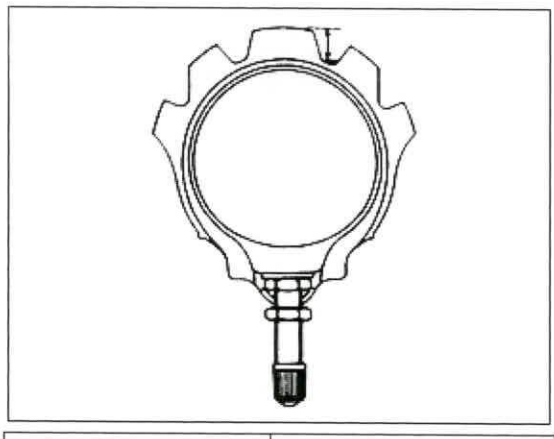
- 链条如有：滚珠损坏变形、严重生锈、多节链条严重卡滞、过度磨损时，应更换链条。

If the chain is with distorted or damaged rolling balls, or rusty badly, or stuck by several links, over worn, then it should be replaced.

轮 胎 TIRES

每 5000km 进行一次检查。CHECK EVERY 5000KM

使用过度磨损的轮胎，会降低行驶的稳定性，增危险的风险。
If use over worn tire, the driving stability will be reduce, and result in dangerous driving
如胎压过高或过低，转向机构会受到影响，也会增大轮胎的磨损，因此需保持正确的胎压，以保证行驶的稳定性和安全性。
If the tire pressure is too high or too low, the steering system will be influenced badly, and the tire will be also worn more quickly; Therefore, we should keep the correct tire pressure to ensure the stability and safety of the driving.
出现下列情形之一，应更换轮胎 Please change the tire if any of the following situation happens:
1.轮胎花纹深度低于规定值；the depth of the tire thread is below the limit;
2.轮胎侧面有裂纹 crack at the side of the tire;
3.轮胎鼓包 bump on the tire;
4.内胎修补超过 3 次 the inner tube has been repaired for 3 times;
5.轮胎使用超过 3 年 the tire has been used for more than 3 years。

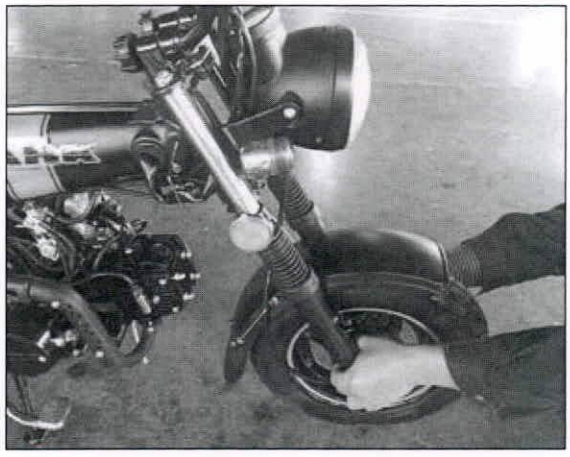


前轮胎 FRONT TIRE	1.6 mm
后轮胎 REAR TIRE	2.0 mm

轮胎规格 TIRE SIZE	3.50-10
最大承载气压 MAX. LOADING PRESSURE	250kpa

转向机构 STEERING SYSTEM

每 5000km 进行检查，10000km 进行润滑。
Check every 5000km, and lubricate every 10000km



为了能灵活的操纵方向和安全的行驶，应正确调整转向机构。
To handle easily and drive safely, the steering system should be adjusted correctly.

- 检查要求：前叉无松动，转向灵活无阻涉。

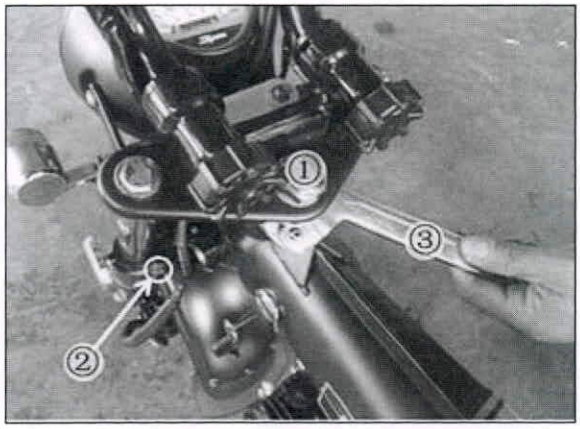
Check requirement: the front fork is tightened correctly, and the steering moves freely from side to side.

- 检查方法：支起中撑，双手握住前减下方，前后方向推动，手感检查是否有松动现象。

Check method: kick on the central stand, grab the lower part of the front shock absorber, and then move front and rear, to check whether it's loose.

- 调整方法 Adjusting steps:

1.松开上联板大螺母①和下联板螺栓②；
Loosen the steering head nut① and the steering stem bolt②
2.利用专用扳手③紧固下联板锁紧螺母④；
Use professional wrench③ to tight the steering stem self-lock nut④
3.依次紧固大螺母①和下联板螺栓②。
Then tighten the nut① and steering stem bolt② in sequence.



- 将螺栓紧固到如下扭矩：

Tighten the bolt to the following torque value,

大螺母① Nut①	81 ～ 99 N.m
下联板螺栓② Steering stem bolt②	22.5～27.5 N.m

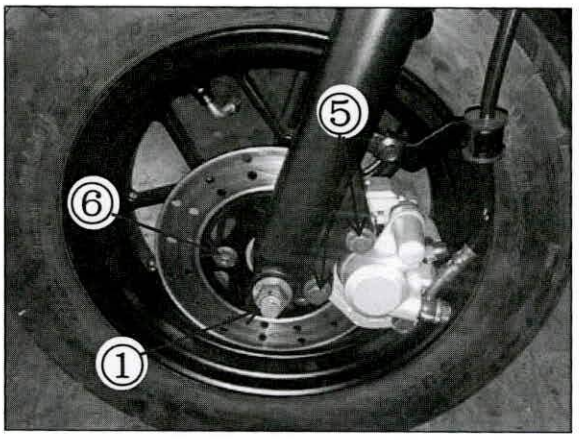
紧固件 FASTENERS

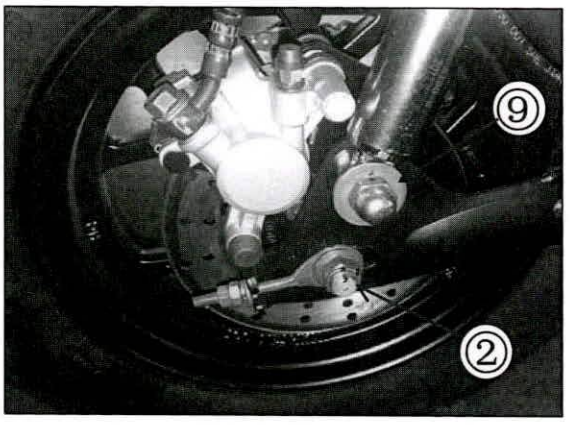
每 5000km 进行一次检查并紧固。Check and tighten every 5000km

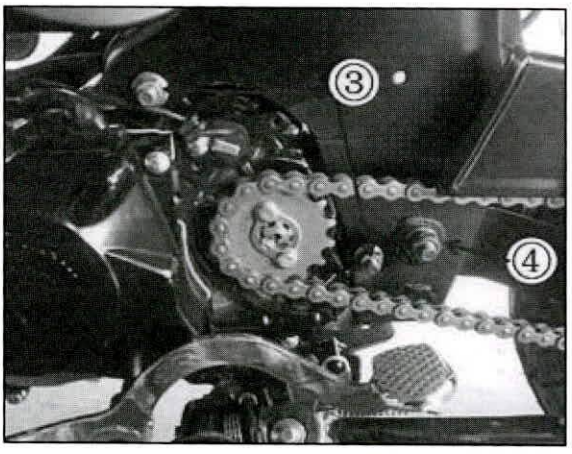
下列螺栓和螺母为重要部件的紧固件，为确保行车安全，它们应紧固无松动。
The following bolts and nuts are the fasteners for important parts; to ensure the driving safety, they should be tightened and properly secured.

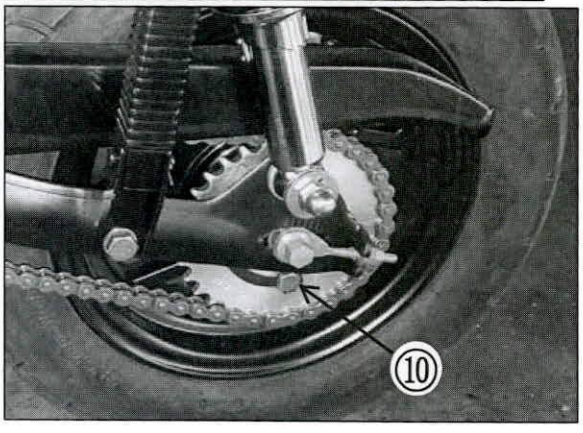
应用扭力扳手紧固为规定扭力。
Should use the torque wrench and tight to the correct torque value.

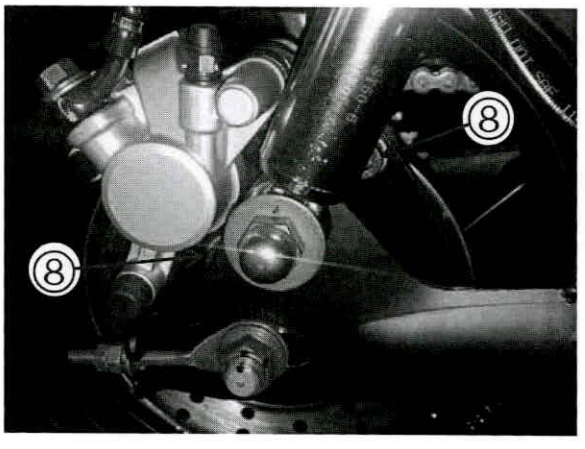
项 目 ITEM	零件名称 DESCRIPTION	扭力 TORQUE N.m
①	前轮轴螺母 front axle nut	54~66
②	后轮轴螺母 rear axle nut	54~66
③	发动机螺栓 bolt, engine	32.5~37.5
④	平叉轴螺母 nut, rear swing arm axle	45~55
⑤	前后碟刹螺栓 bolt, front&rear disc brake	22.5~27.5
⑥	碟刹盘螺栓 bolt, brake disc	22.5~27.5
⑦	- - -	- - -
⑧	后碟刹螺栓 bolt, rear disc brake	22.5~27.5
⑨	后减螺母 nut, rear shock absorber	45~55
⑩	大链轮螺栓 bolt, rear sprocket	45~55
◘	方向柱顶螺母 steering nut	81~99
◘	前减螺栓 bolt, front shock absorber	45~55
◘	下联板螺栓 bolt, steering stem	22.5~27.5











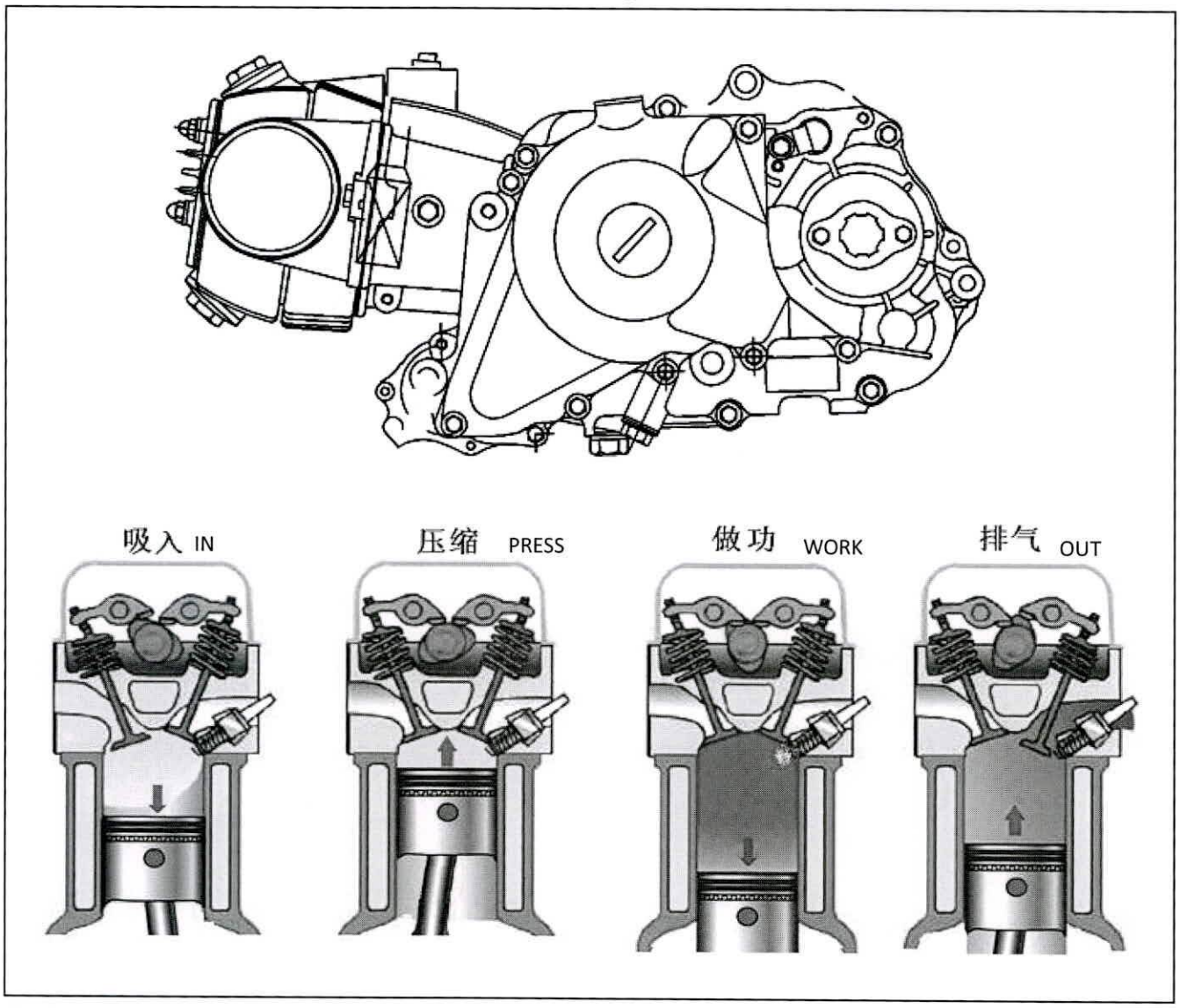
3

第三章：发动机维修 PART 3 ENGINE REPAIR

发动机工作原理 ENGINE WORKING PRINCIPLE

本车采用的是单缸风冷四冲程发动机。

This model uses the single cylinder, air cooled, 4 stroke engine.



1、发动机是摩托车的动力源，其主要原理是将燃油与空气混合后输入缸内燃烧后产生热能，热能驱使活塞做往复运动，再通过曲轴连杆机构将往复运动转化为旋转运动，也称内燃机。

Engine is the power source of motorcycle; its main principle is to mix the fuel and air first, send to the cylinder and burn to produce heat; the heat can keep piston reciprocating, and then change the reciprocating motion to rotation motion through crankshaft rod, so it's also called "internal combustion engine"

2、在发动机第一次将热能转化为机械能，都必须经过吸气、压缩、燃烧、排气四个过程，称作为一个工作循环。

When the engine first change the heat to mechanic power and ever since, it must go through "in, press, combustion, out" , a working circle.

3、四冲程发动机的一个工作循环由四个工作过程组成，即曲柄旋转两圈，活塞在缸内往返两次，完成吸气、压缩、燃烧、排气四个过程，称着为四冲程。

The working circle of 4 stroke engine includes crankshaft turning by 2 circles, piston reciprocating in cylinder by twice, finish the "in, press, combustion, out" these 4 processes, so called "4stroke".

4、发动机由机体组件、曲轴连杆机构、配气机构、供给系统、点火系统、润滑系统、起动装置和传动装置等八大系统组成。

Engine consists of cylinder assy., crankshaft assy., valve system, supplying system, ignition system, lubrication system, starting equipments and transmission equipments, these eight main parts.

发动机拆卸和重新安装 ENGINE DISMENTALING AND INSTALLATION

拆卸发动机 Dismantle the engine

放掉发动机内的机油（见 2-2 页）。
Drain the machine oil in engine (please refer to page 2-2)

- 拆除消音器 Remove the muffler assy.：

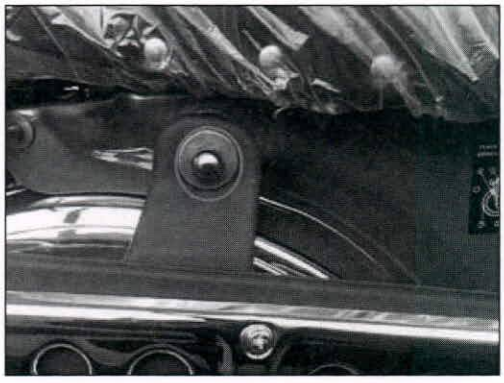
  用 M8 套筒拆除氧传感插件支架；

  Remove the lambda sensor bracket with M8 sleeve

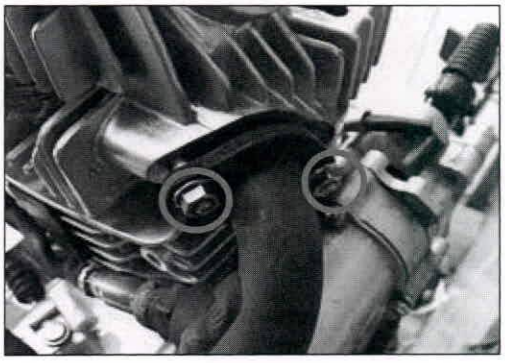
  断开氧传感谢器插件；

  Cut the lambda sensor plug-in unit

用 M17 套筒拆下消音器与后减上方处的 M10 盖形螺母；
Remove the M10 cap nut on the top of the muffler and rear shock by M17 sleeve

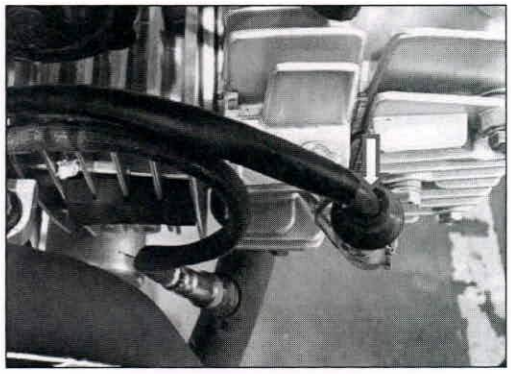


用 M10 扳手拆下缸头连接处的两个 M6 螺母。
Remove the two M6 nuts at the cylinder head connecting point by M10 wrench



- 拔出火塞高压帽。

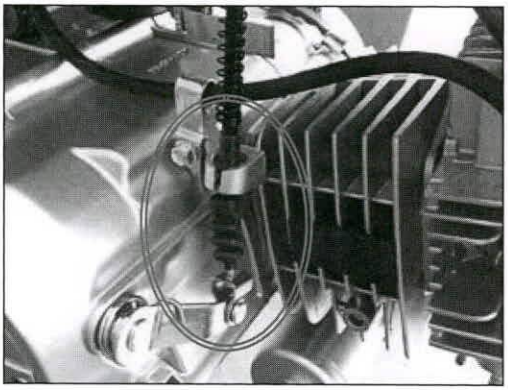
Take out the spark plug cap



- 拆除离合线钢索：Remove the clutch cable

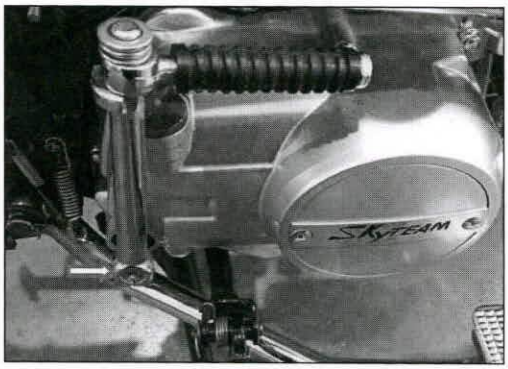
用手拉住离合线钢索向上拉，即可轻松拆卸。

Pull the clutch cable upwards by hand, then can remove the clutch cable easily



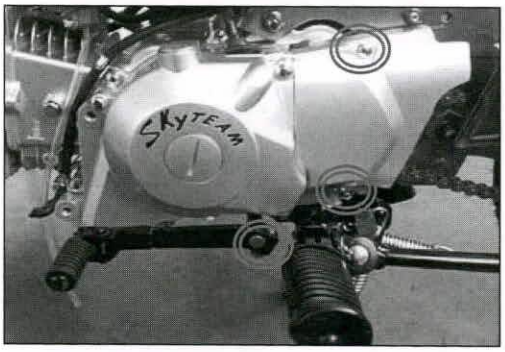
- 用 M10 扳手拆除起动杆。

Remove the kick starter by M10 wrench



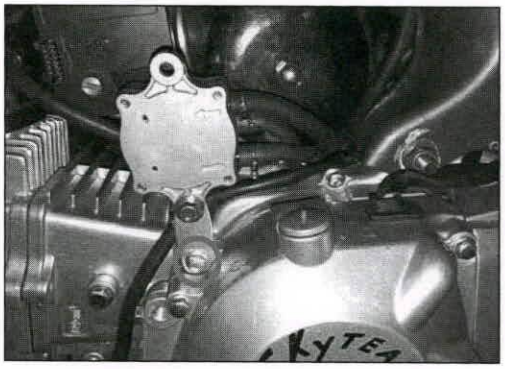
- 拆除变档杆。Remove the gear shifter
- 拆除发动机左后盖

Remove the rear left cover of the engine



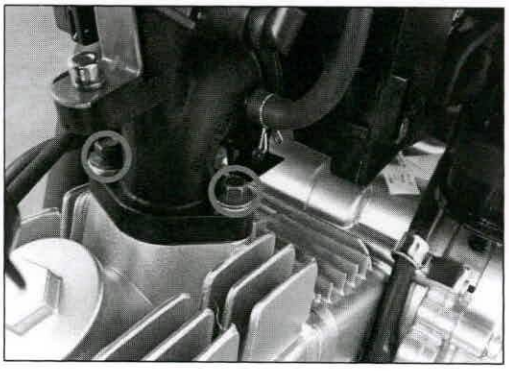
- 用 M8 套筒拆除负压燃油泵固定螺栓。

Remove the bolt of pressure fuel pump by M8 sleeve



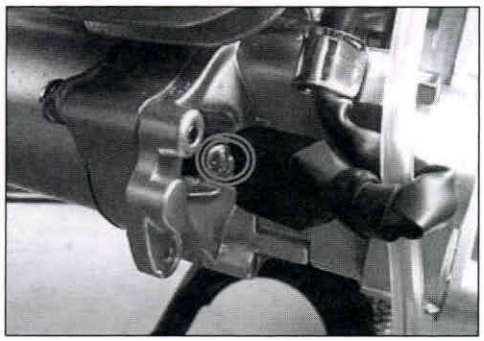
- 用专用扳手拆除发动机进气管固定螺栓。

Remove the bolt of pipe inlet by professional wrench



• 断开起动马达正极线。

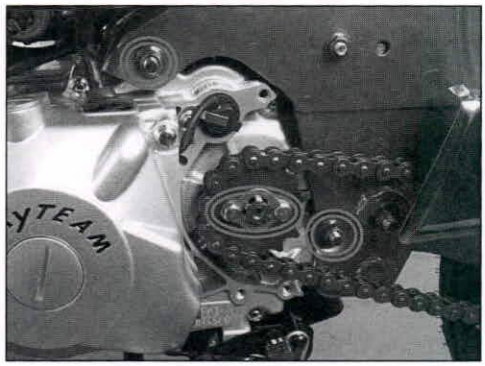
disconnect the wire of starting motor positive pole



• 拆除发动机小链轮 Remove the front sprocket. ：

先将档位挂至 1 档档位上，再用 M10 套筒拆除链轮螺栓。

Change to the first gear, then remove the sprocket bolt by M10 sleeve



● 拆除发动机安装螺栓和螺母。

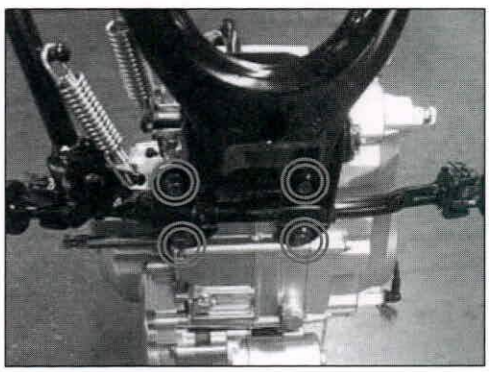
Loosen the engine mounting bolt and nut

• 拆下发动机 Remove the engine。

• 用 M8 套筒拆除发动机接地线 Remove the engine earth wire by M8 sleeve。

• 断开磁电机线和档显开关线 Disconnect the magneto wire and gear indicator switch wire。

• 断开单撑熄火开关线 Disconnect the side stand switch wire。



• 将发动机倒立；

Put the engine upside down

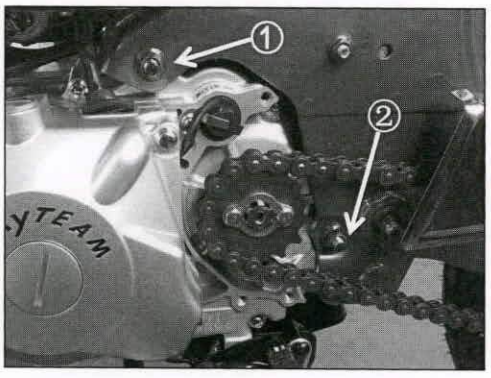
• 用 M10 套筒拆除前搁脚支架组件

Remove the front footrest assy by M10 sleeve

重新安装发动机 ENGINE INSTALLATION

发动机的安装顺序与拆卸相反

The assembly sequence is contrary to dismantling



- 发动机安装螺栓和螺母。Engine mounting bolts and nuts

  螺栓长度 Length of bolt：① M8×136mm

  ② M8×125mm

  安装扭力为 Mounting torque value：35N.m（32.5~37.5N.m）

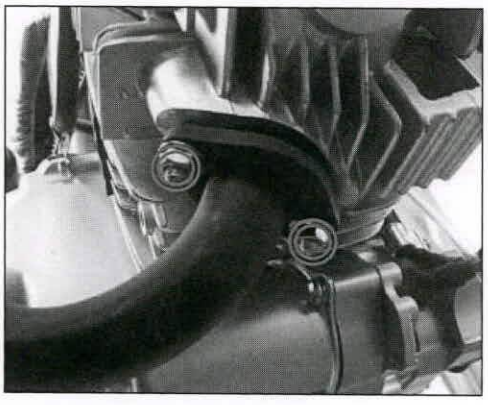
- 安装消音器时 When mount the muffler：

  先将与缸头连接的螺母交互紧固。

First cross fix the nuts connecting with the cylinder head

  然后再拧紧消音器后固定螺母。

Then tighten the muffler rear fixing nut



- 安装完毕，向发动机内注入机油。

After assembly, pour in engine oil

- 检查发动机机油量（详见 2-2 页）。

Check the engine oil level(details please check page 2-2)

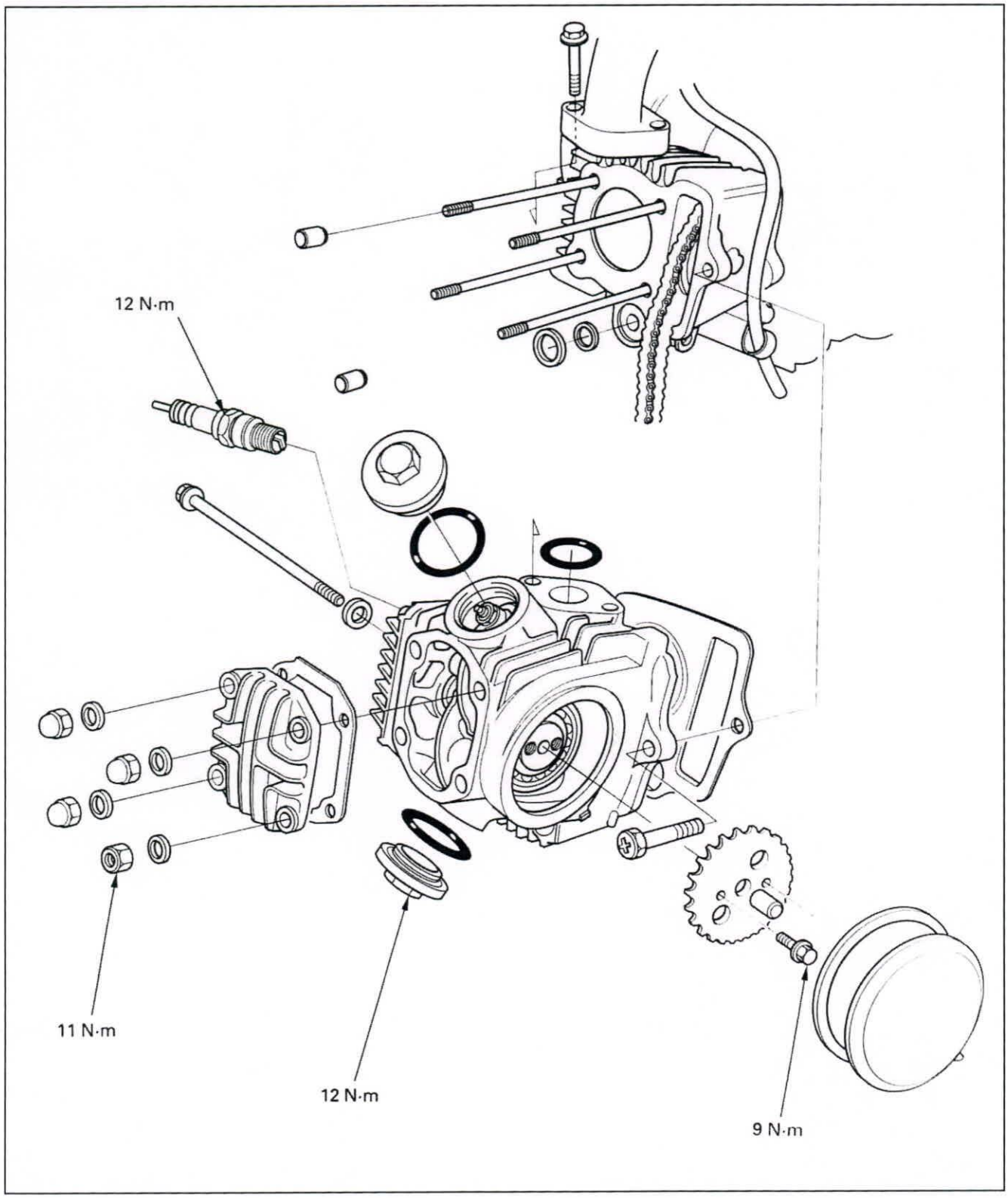
分解发动机 ENGINE PARTS

1.发动机的分解过程按下列步骤进行。Engine decomposition process is as following steps.

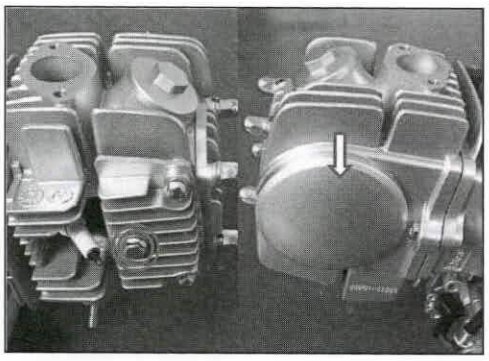
2.本部分描述的机型内容及图片为扩 125 型前置手离合发动机。

The engine mentioned here is for 125cc engine with clutch fixed in front

缸头部分 CYLINDER HEAD

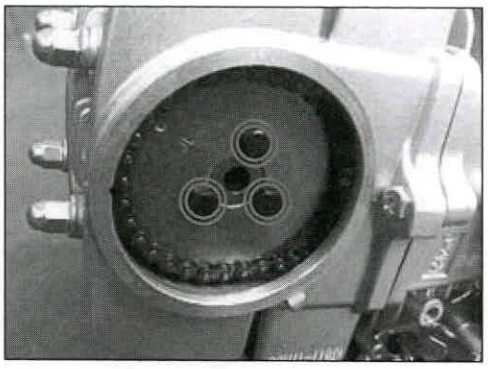


拆卸缸头 Remove the cylinder head



• 用 M10 套筒拆除正时链轮盖螺栓,取下正时链轮盖。

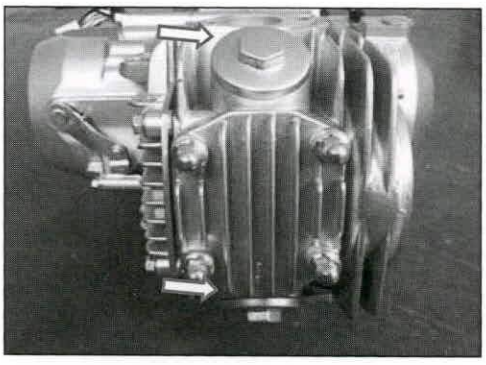
Loosen the bolt of timing sprocket cover by M10 sleeve, remove the timing sprocket cover.



● 用 M7 套筒拆除正时链轮螺栓，取出正时链轮。

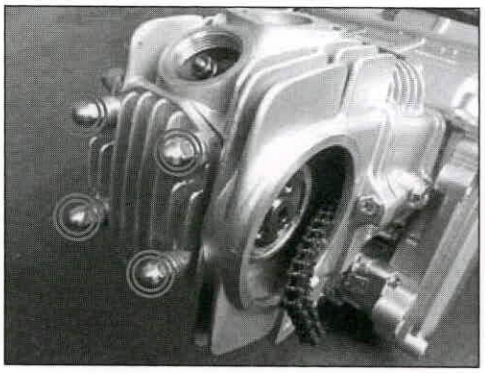
Loosen the bolt of timing sprocket by M7 sleeve, remove the timing sprocket

正时链轮齿数 TIMING SPROCKET(teeth)：Z=32



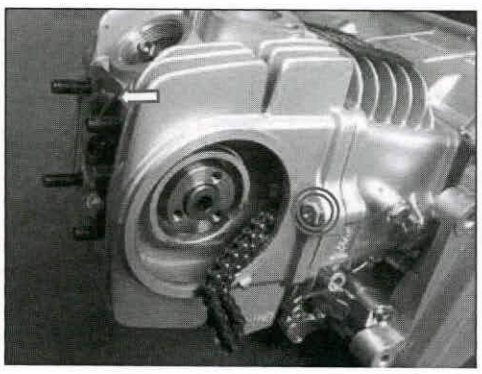
• 用 M17 套筒拆除进排气门室盖。

Remove the valve in&out cover by M17 sleeve



• 用 M10 套筒拆除缸头盖螺母，取出缸头盖。

Loosen the nut of cylinder head cover by M10 sleeve, remove the cylinder head cover



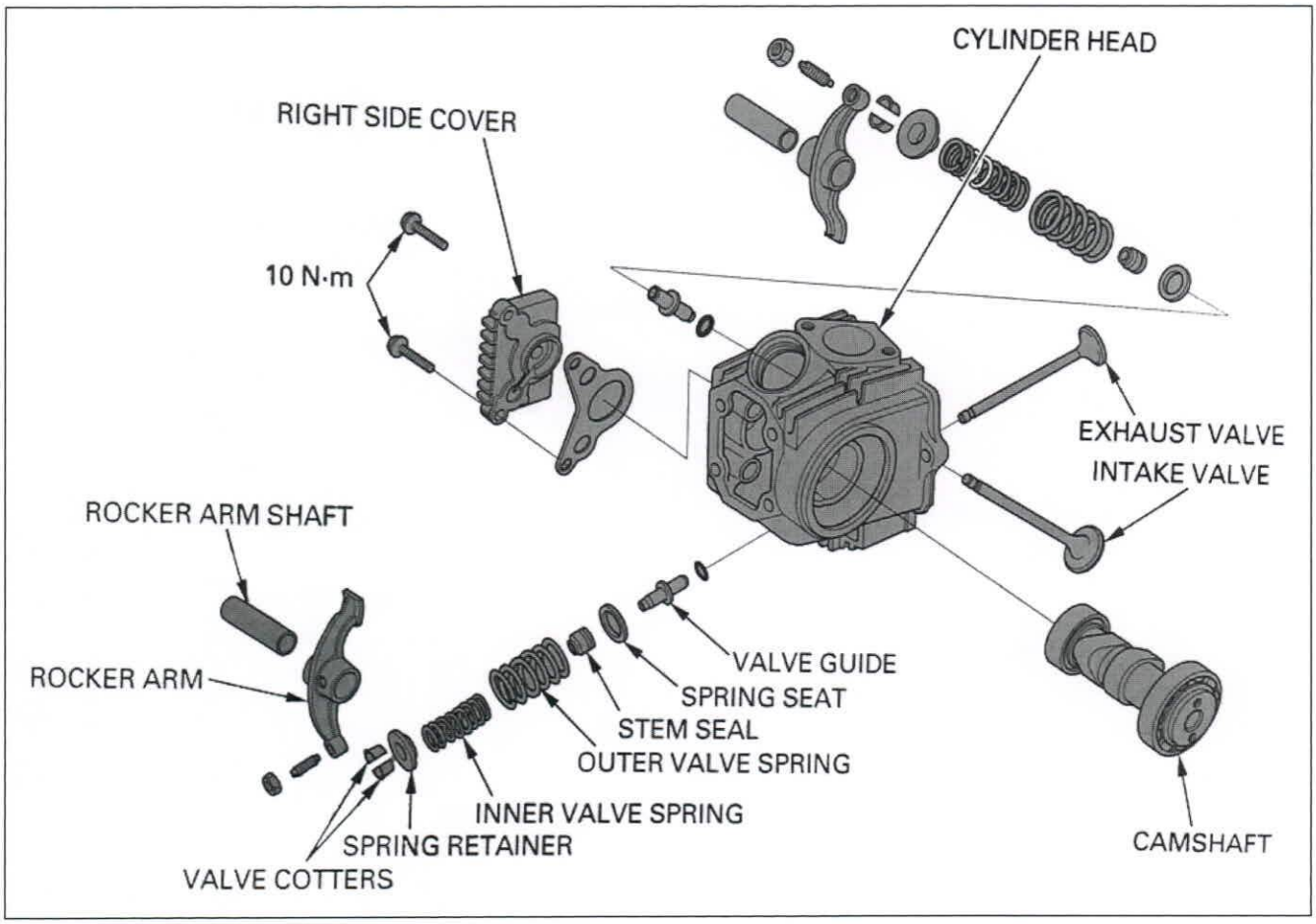
• 用 M10 扳手拆除缸头与缸体连接螺栓。

• 取出缸头总成，

Loosen the bolt between cylinder head and cylinder body by M10 wrench.

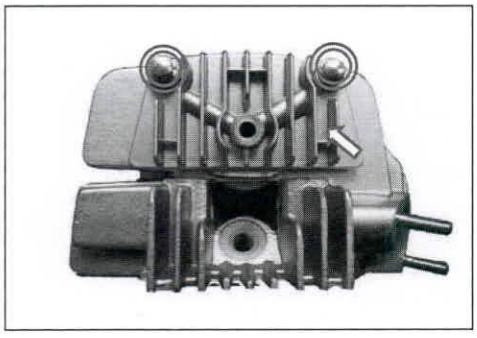
Remove the cylinder head.

缸头解刮 CYLINDER HEAD BREAKDOWN



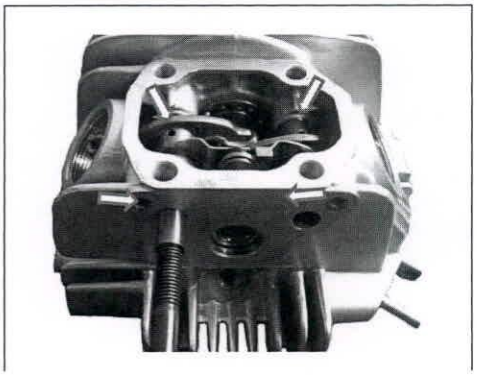
• 用 M8 套筒拆除气缸头右侧盖螺栓，取下右侧盖。

Loosen the bolt of cylinder head right cover by M8 sleeve, remove the right cover



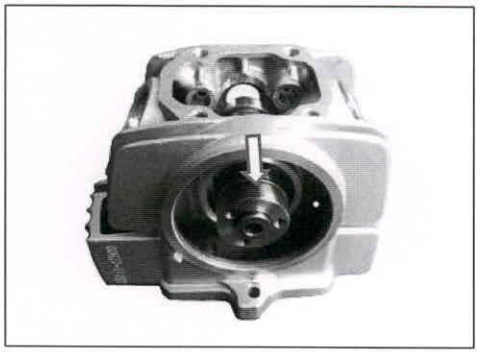
• 用 M8×1.25 螺栓拧入摇臂轴内，拔出摇臂轴，取出进排气门摇臂。

Twist M8×1.25 bolt into rocker arm shaft, pull out the shaft and take out the rocker arm.



• 取出凸轮轴。

Take out the camshaft.



• 利用气门拆卸工具 Use the valve dismantling tools

①进气门 valve in

②排气门 valve out

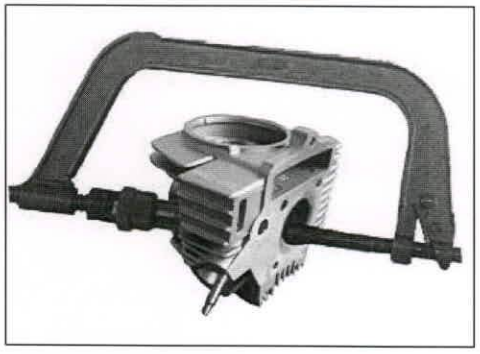
③气门外弹簧 spring, valve outer

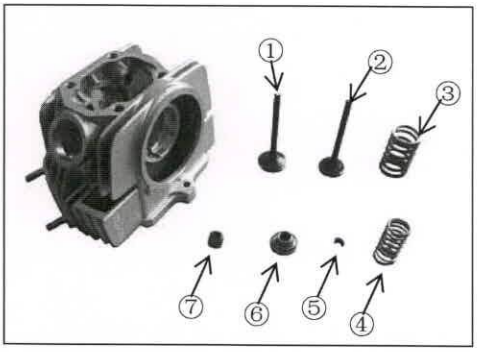
④气门内弹簧 spring, valve inner

⑤气门弹簧座锁夹 cotter, valve spring holder

⑥气门弹簧座 valve spring seat

⑦气门油封 valve oil seal





检查 INSPECTION

● 利用刀口尺，测量缸头的平面度，如图所示 6 个方向测量。

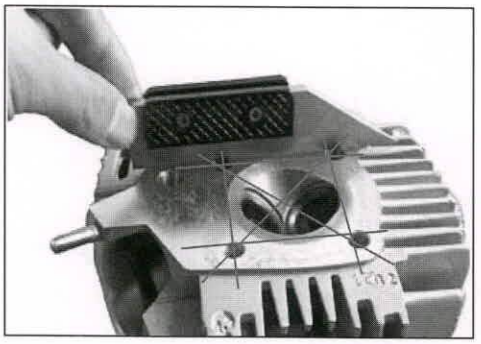
Measure the flatness of cylinder head by knife straight edge, from the 6 directions as shown on the attached drawing

用 0.01~0.1mm 塞尺测量刀口尺与缸头的间隙。

平面度最大限值：0.05mm。

Measure the clearance between knife straight edge and cylinder head by 0.01~0.1mm filler gauge

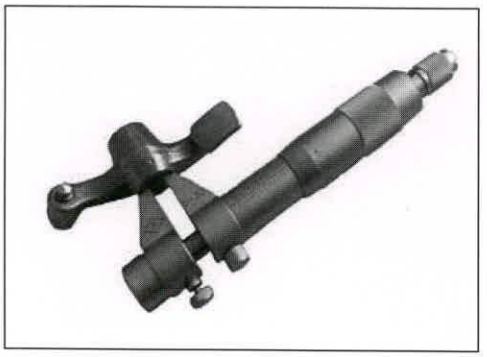
Service limit: 0.05mm



• 利用内径千分尺测量气门摇臂安装孔径。安装孔径最大限值：10.10 mm。

Measure the mounting diameter of valve rocker arm by inside micrometer

Service limit: 10.10 mm

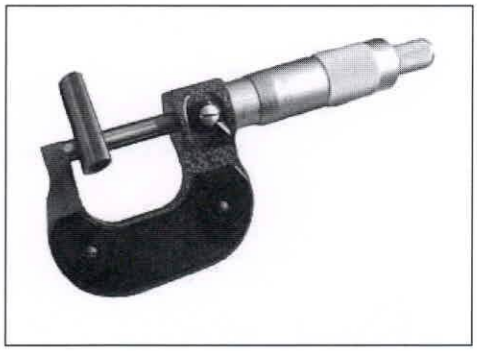


• 利用外径千分尺测量气门摇臂销外径。

摇臂销外径最小限值：：9.91 mm。

Measure the outer diameter of valve rocker arm pin by outside micrometer

Service limit: 9.91 mm



• 利用游标卡尺，测量气门弹簧的长度。

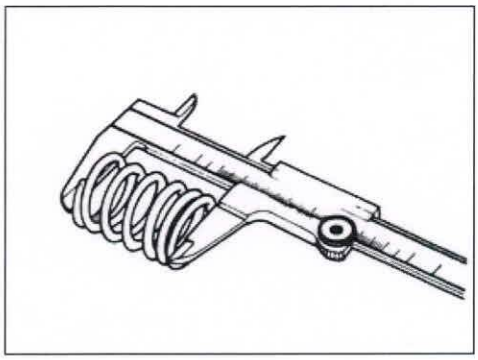
气门内弹簧最小限值：31..2 mm。

气门外弹簧最小限值：34.0 mm。

Measure the valve spring length by vernier caliper

Service limit(inner spring, minimum): 31.2 mm

Service limit(outer spring, minimum): 34mm



● 利用外径千分尺测量气门杆外径。

Measure the outer diameter of valve rod by outside micrometer

气门规格 Valve size： 进 IN ϕ5×ϕ24×65.9mm

排 EX ϕ5×ϕ21×65mm

气门杆直径最小限值：4.92 mm。

Service limit (minimum): 4.92 mm

• 利用外径千分尺测量凸轮轴凸轮高度。

凸轮高度最小限值：25.69 mm。

Measure the cam height of camshaft by outside micrometer

Service limit (minimum): 25.69 mm

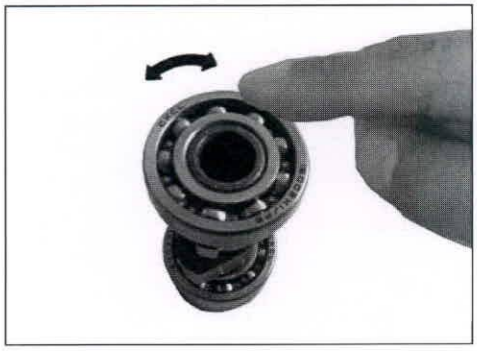
• 用手指慢慢来回旋转轴承外圈。如有以下故障请更换：

Turn the outer ring of bearing by finger slowly back and forth. Please change if have the following problems,

1、转动不灵活，有阻滞 Cannot turn flexibly, not smooth。

2、转动时异响 Have strange noise while turning。

3、轴承间隙过大 The clearance between bearings is over size。



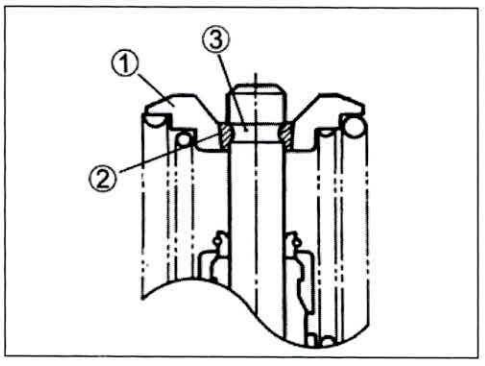
组装气缸头 INSTALL THE CYLINDER HEAD

组装缸头顺序与拆卸相反，请注意以下几点：
The sequence of cylinder head installation is contrary to dismantling. Please pay attention to

- 气门安装时应注意气门弹簧座和锁夹安装应牢固。

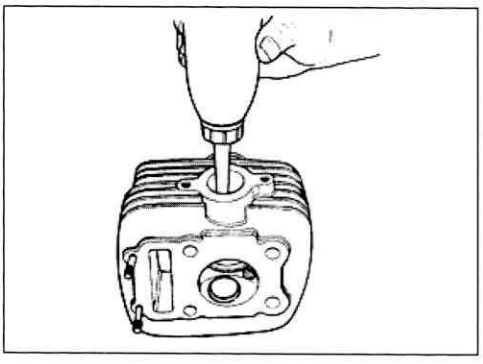
When fix the valves, please pay attention to the correct mounting of valve spring holder and cotter.

①-气门弹簧座 Valve spring holder
②-气门弹簧座锁夹 Valve spring holder clip
③气门。 Valve



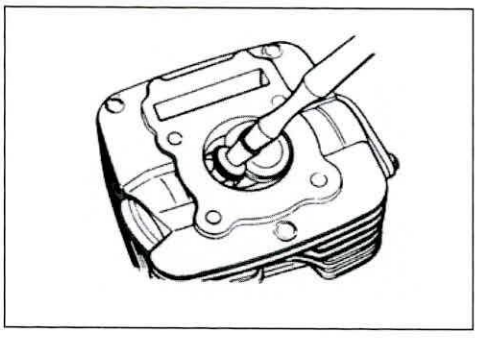
- 气门安装完毕后，检查气门与缸头的密封性能。
  分别从进、排气口处注入适量汽油，检查进排气门处是否有汽油渗出。

After fixing the valves, please check the seal performance of valve and cylinder head.
Fill the fuel into the valve in and valve ex with suitable amount, and check whether there is any leakage from valve in&valve ex.



- 如有局部潮湿，说明轻微渗漏，可用专用的研磨砂涂在气门座上，将气门杆插入气门座，并用专用工具夹住气门杆，使专用工具朝下，施加正确的拉力来回旋转，使气门与气门座之间处于旋转方向进行研磨。

If become wet partly, then it means there is slight leakage. Smear special abrasive sands on the valve seat, insert the valve rod into the holder, use special tool to clamp the valve rod, and the special tool should face down, rotate back and forth with correct power, so the valve and valve seat can grind in the rotating direction.

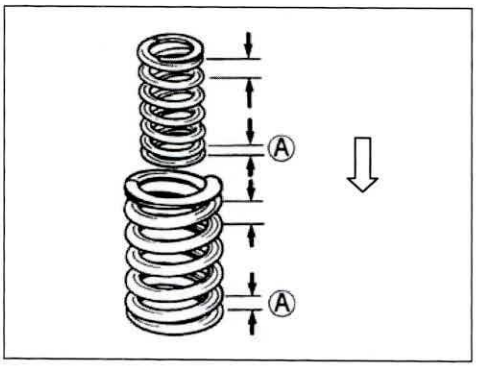


- 如渗漏严重请更换气门或缸头。

If leak heavily, please change the valve or cylinder head.

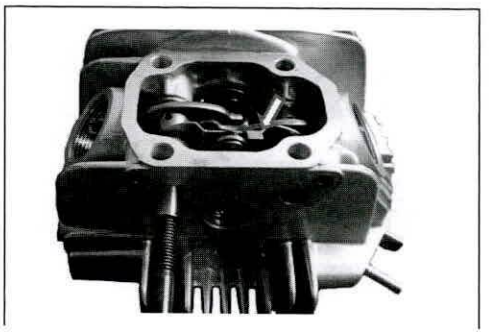
- 安装气门弹镀时将节距小的一端 A 朝向气缸头；

When fix the valve spring, please make sure the end A(with small distance) is facing the cylinder head



- 安装气门摇臂时靖注意：

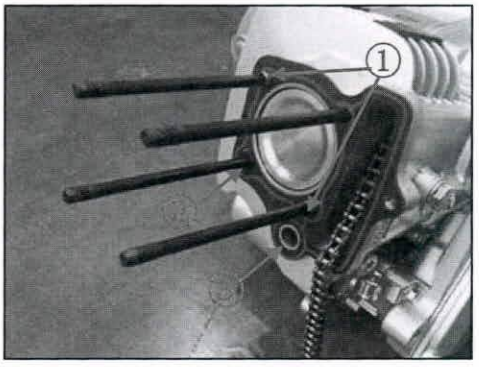
When fix the valve rocker arm, please pay attention to
1、止动板的方向 The direction of shift drum stopper。
2、摇臂销螺纹的一边朝外侧，便于下一次的拆卸。
One side of the arm pin screw should face outside, for easier dismantling next time.



重新安装气缸头组件 REINSTALL THE CYLINDER HEAD ASSY.

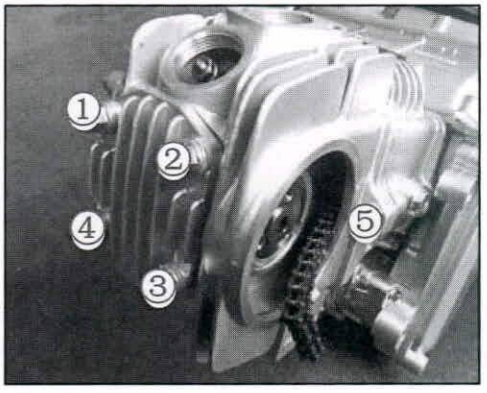
重新安装组件缸头顺序与拆卸相反。
The sequence of reassembly is contrary to dismantling.

• 将气缸头用抹布擦干净。
Clean the cylinder head by cloth



● 检查缸体的密封垫、定位销、密封圈等相关零件。
Check the gaskets, pins, seal rings and other parts of cylinder
① 缸头定位销 Cylinder head pinϕ8×14mm。
② 进油道密封圈 Seal ring of oil in route 9×11.7×1.5mm 和衬套 and spacer 7.2×8×10mm。
③ 回油道密封圈 Seal ring of oil out route14.5×18.5×2.4 和衬套 and spacer11.5×14.8×1.8。

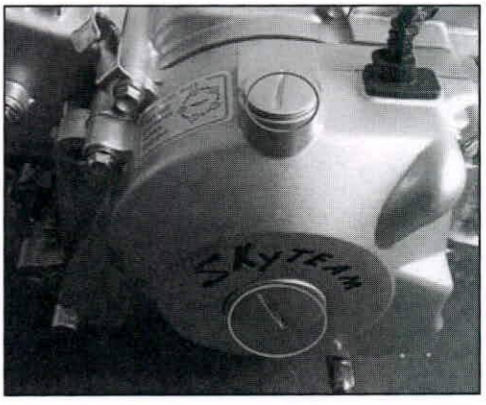
• 安装缸头螺母平垫片时：①②③位置装银色铝垫片，④位置装黄色铜垫片。
When fix the nut washer of cylinder head,
Silver aluminum washer at position ①②③,and yellow copper washer at position④



紧固缸头螺母时，先①③、②④对角预紧，至少有 2 次紧固的过程。When tighten the cylinder head nut, pre-tighten ①③、②④ on the cross, tighten at least twice

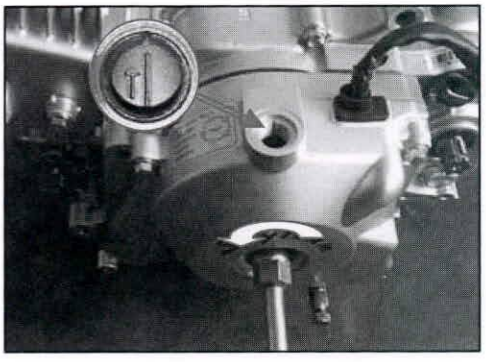
① ③、②④对角紧固完毕后再紧固螺栓⑤。
Then tighten bolt⑤

扭力值 Torque value：11 N.m



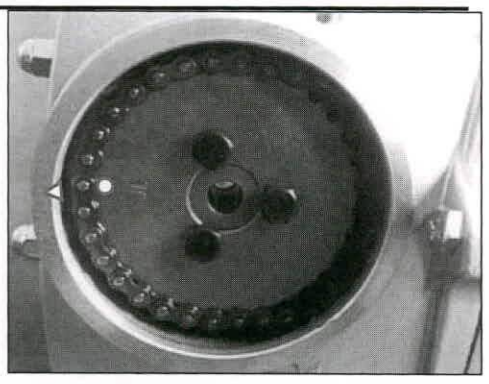
• 折除左前盖上的 2 个小圆盖，
Remove the 2 small round covers on the left front cover

• 用 M14 套筒逆时针旋转曲轴，使磁电机飞轮上的"T"刻度线与左前盖观察孔内的刻度线对齐。
Rotate the Crankshaft in counterclockwise by M14 sleeve, keep the"F"scale on the fly wheel aligned with the scale in the watching screen of left front cover



- 安装正时链轮时，使正时链轮上的“O”标记与缸头上的“△”刻度对齐。

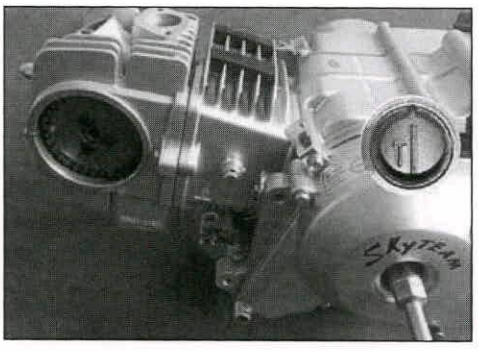
When mount the timing sprocket, please keep the “O”mark on the sprocket aligned with the “△”scale on the cylinder head



正时链轮螺栓扭力 Timing sprocket bolt torque：9 N.m。

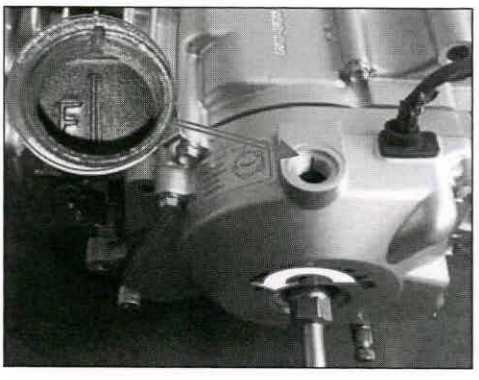
- 磁电机飞轮上的“T”刻度和正时链轮上的“O”标记对应时，此时为点火时间的位置。

When the “T” scale on the fly wheel points at the“O” mark on the timing sprocket, then it’s the ignition timing position



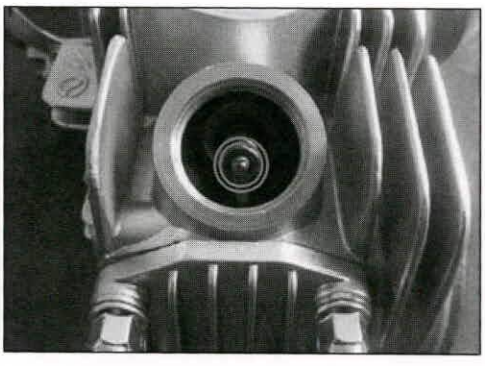
- 用 M14 套筒逆时针旋转曲轴，使磁电机飞轮上的“F”刻度线与左前盖观察孔内的刻度线对齐。

Rotate the crankshaft anticlockwise by M14 sleeve, keep the“F”scale on the fly wheel aligned with the scale in the watching screen of left front cover



- 用 M9 扳手松开气门摇臂调整锁紧螺母。

Loosen the adjusting lock nut of valve rocker arm by M9 sleeve



- 用 0.05mm 塞尺放在气门与摇臂调节螺钉之间。

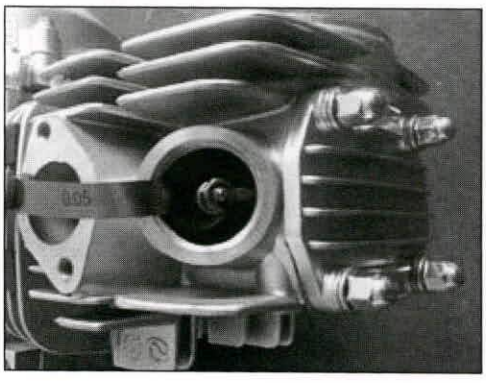
进气门摇臂间隙 0.03～0.05 mm。

排气门摇臂间隙 0.05～0.07 mm。

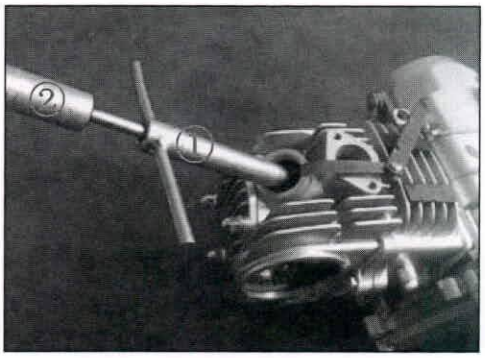
put the 0.05mm feeler between the valve and the adjusting screw of rocker arm

The intake valve rocker arm gap:0.03 ~ 0.05 mm.

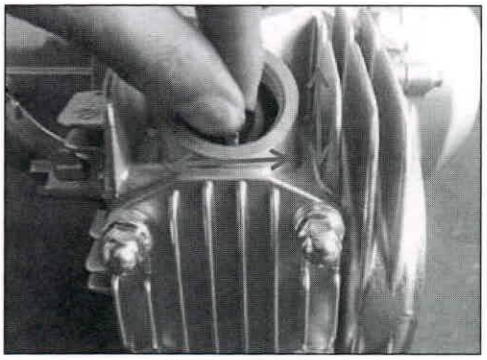
The Exhaust valve rocker arm gap:0.05 ~ 0.07 mm.



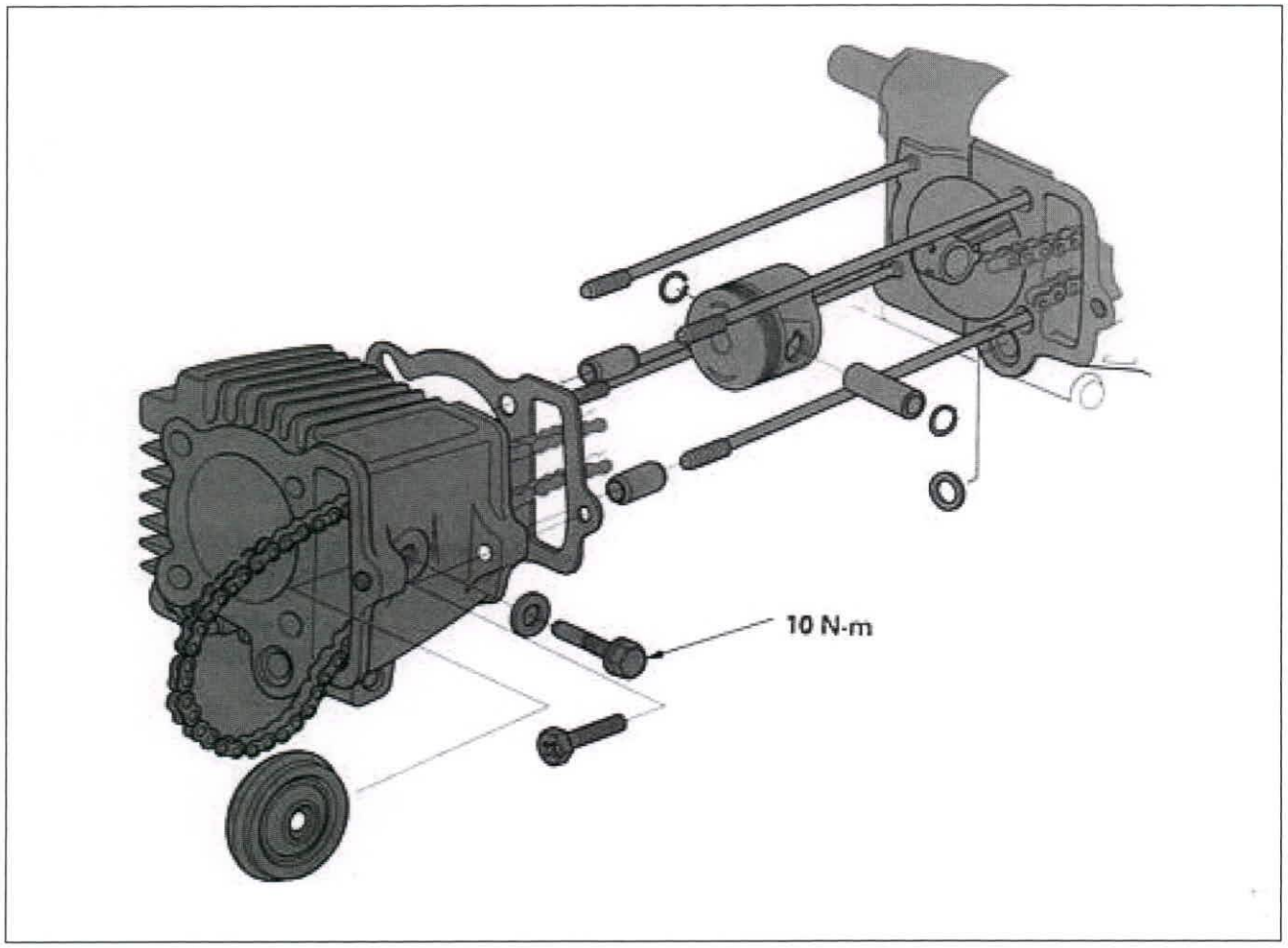
• 用气门调节工具①套在气门锁紧螺母上，工具②套在气门
调整螺钉上，轻轻旋转工具②感到有轻微阻力时停止，用
手锁住工具②，再用工具①紧固锁紧螺母。
Use valve adjusting tool① to cover the self-lock nut of valve, and tool② to cover the adjusting screw of valve, rotate the tool② slightly until feel small resistance, lock tool② by hand, and then use tool① to tighten the self-lock nut.



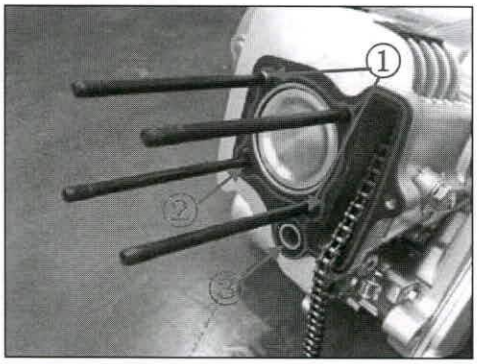
• 气门间隙调整完毕后，用手捏住摇臂螺钉上下拉动、左右晃动。
如上下无间隙左右能晃动，说明气门间隙调整正确。
After adjusting the valve clearance, move the rocker arm screw up and down & left and right by hand
If there is no clearance up and down, and can move left and right, then it means the valve clearance has been adjusted correctly.



气缸部分 CYLINDER



拆卸气缸 REMOVE CYLINDER

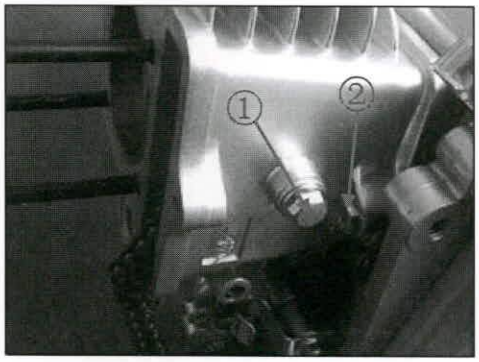


● 拆除缸的密封垫、定位销、密封圈等相关零件。
Remove the gaskets, pins, seal rings and other parts of cylinder

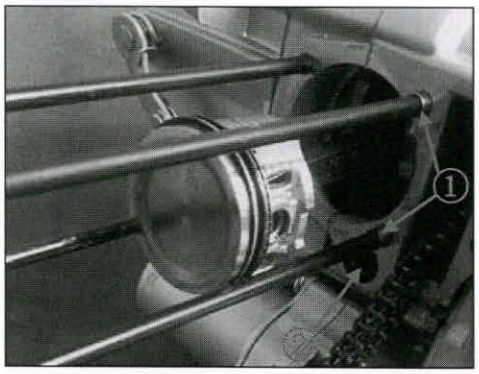
① 缸头定位销 cylinder head pinϕ8×14mm。

② 进油道密封圈 Seal ring of oil in route 9×11.7×1.5mm 和衬套 and spacer7.2×8×10mm。

③ 回油道密封圈 Seal ring of oil outroute 14.5×18.5×2.4 和衬套 and spacer11.5×14.8×1.8。



• 用 M10 套筒拆除正时链条导向轮螺栓①和缸体与箱体连接螺栓②。
Remove the cam chain guide roller pivot bolt① and the connecting bolt between the cylinder and crankcase by M10 sleeve

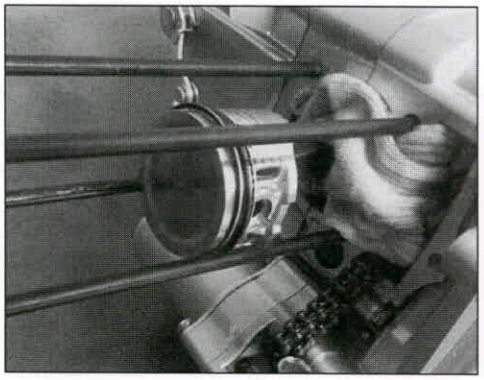


• 拆下气缸体。
Remove the cylinder

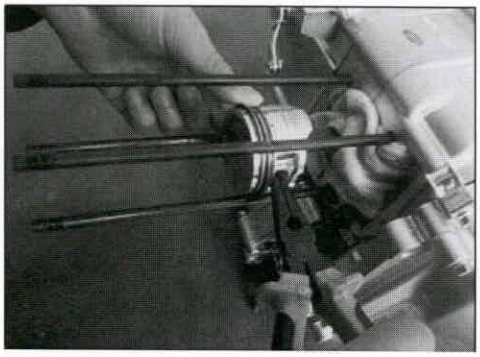
● 取出气缸定位销①和回油道密封圈②。
Take out the cylinder pin① and seal ring of oil out route②

① 缸头定位销 cylinder head pinϕ8×12mm。

② 回油道密封圈 seal ring of oil out route 11.5×19.7×2.4mm。



• 用抹布将曲轴箱孔堵住，防止活塞销挡圈拆卸时掉入箱体内。
Plug up the crankcase hole by cloth, so the piston pin clip will not drop into the crankcase during dismantling



• 用手捏住活塞，用尖嘴钳拆卸活塞销挡圈。
Pinch the piston by hand, and dismantle the piston pin clip by nipper pliers

• 拔出活塞销，取出活塞。
Pull out the piston pin, and remove the piston

• 用双手抵住活塞，用两个大拇指卡住活塞环开口向两侧掰开，拆下活塞环。

Press the piston by hand, and pull the piston ring opening position outside by two thumbs, then remove the piston ring.

检查 INSPECT

● 用内径百分表测量气缸内径磨损量。

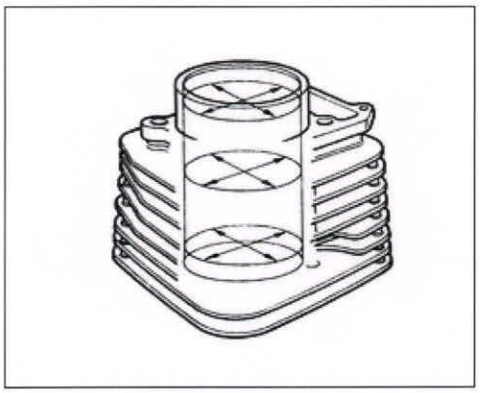
Inspect the cylinder bore for wear or damage by internal dial gage

气缸体内径 Inner diameter of Cylinder： 52.4 mm。

气缸体内径磨损限值 Wear limit of cylinder inner diameter：52.45 mm。

• 如图测量时应测量气缸上、中、下三个部位的尺寸。

Calculate the taper and out of round at three levels, as attached drawing shows



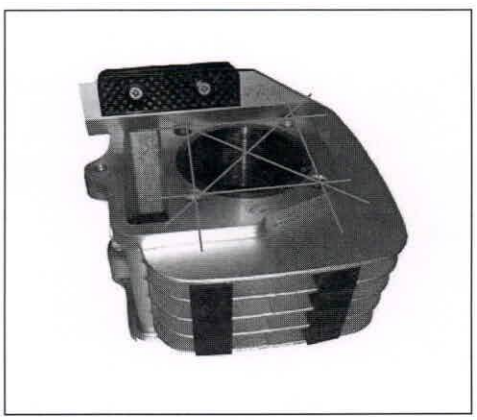
• 利用刀口尺，测量气缸的平面度，如图所示 6 个方向测量。

用 0.01~0.1mm 塞尺测量刀口尺与缸体的间隙。

平面度最大限值：0.05mm。

Measure the cylinder flatness by knife straight edge from 6 directions as the attached drawing shows; measure the clearance between the knife straight edge and cylinder by 0.01~0.1mm feeler gauge.

Flatness limit: 0.05mm



• 利用外径千分尺测量活塞裙部磨损程度。
Measure the wear of piston apron ring by outside micrometer

活塞裙部磨损最小限值 Service limit(min)：51.95 mm。

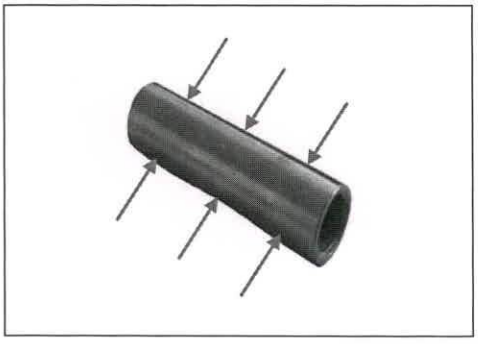
• 利用内径千分尺测量活塞安装孔径 Measure the piston installation bore by inside micrometer。

安装孔径最大限值 Service limit(max.)：13.06 mm。

• 利用外径千分尺如图测量三个部位的活塞销外径 Measure the outside diameter of piston pin from 3 levels as attached drawing shows.

活塞销规格 Piston pin size：ϕ13×31.2 mm

活塞销最小限值 Service limit(min.)：：12.98 mm。

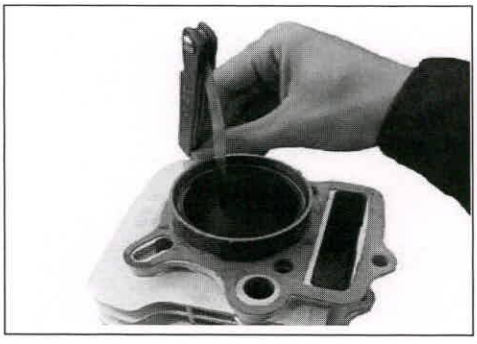


• 将活塞环分别放在气缸内，用活塞向下推动，使活塞环水平放置于气缸中，用塞尺测量活塞环开口的间隙。
Insert the piston ring squarely into the cylinder pushing by piston and measure the ring end gap by feeler gauge

开口的间隙限值 Service limit：第一道环 top ring：0.5 mm

第二道环 2nd ring：0.5 mm

油 环 oil ring：1.0 mm

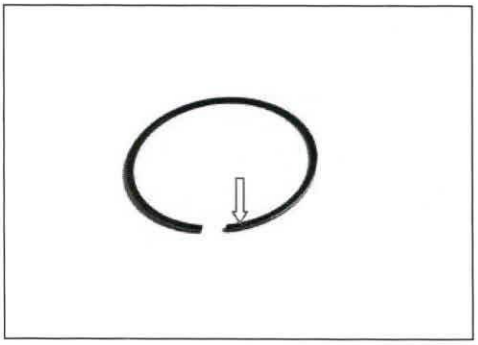


重新安装活塞和气缸 INSTALL THE PISTON AND CYLINDER AGAIN

重新安装活塞、气缸的顺序与拆卸相反。请注意以下几点：
The sequence is contrary to the dismantling.Please pay attention to:
• 活塞环外圈带有白圈的为第一道环 The outer circle of piston ring is the top ring with white circle 。

活塞环开口处印有标识的一端应朝着活塞正上方。

The end of the piston ring with mark should be right above the piston.



安装顺序：弹簧油环→油环→第二道气环→第一道气环。
Installation sequence： spring oil ring→spring ring→2nd ring→top ring

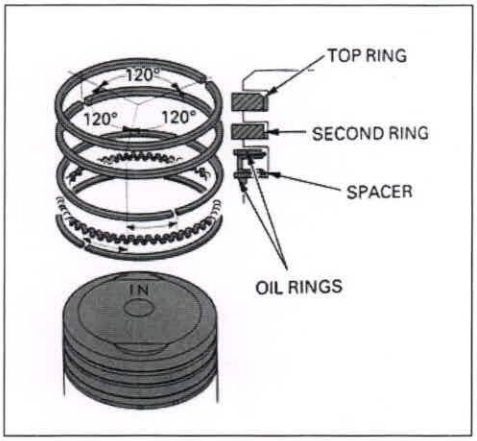
- 活塞环第一道气环与第二道气环的开口夹角保持在 120º。

  弹簧油环与两道气环开口夹角保持在 120º

  两道油环以弹簧油环的开口方向为中心分别向左或向右

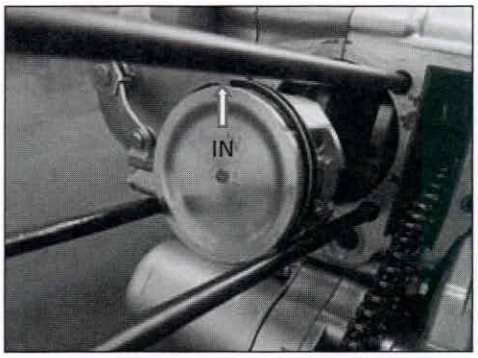
  保持夹角在 60º。

Space the piston ring end gaps 120 degrees apart.
The angle of two oil rings should keep at 60ºcentering on the spring oil rings end.



五道油环的之间的夹角分别为 60º，环与环之间的开口不得有重叠。

The angle between five oil rings should be 60º. Do not align the gaps in the oil rings (side rails)

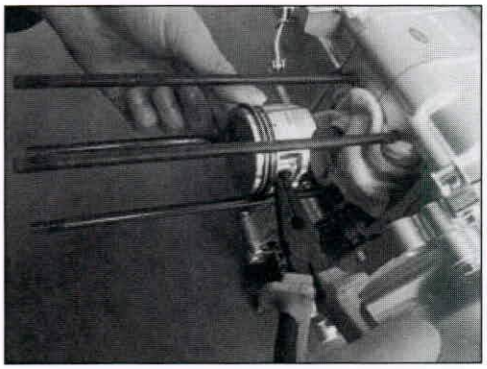


- 活塞上的"IN"标识应朝上（进气门方向）。

Install the piston with its "IN" mark facing the intake side.

- 用抹布将曲轴箱孔堵住，防止活塞销挡圈安装时掉入箱体内。

Seal the crankcase hole by cloth, so the piston pin clip will not fall into the crankcase during installation

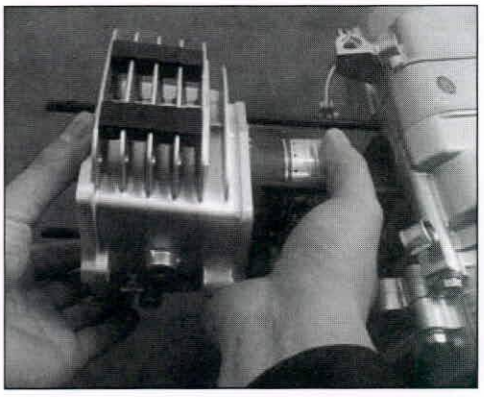


- 安装气缸时，在活塞环上加适量机油，在气缸内裙部抹适量机油。

  左手按住气缸，右手捏住活塞裙部上下摆动，使活塞顺利进入气缸内。

Apply engine oil to the piston ring during cylinder installation, and smear some engine oil on the apron part in the cylinder.

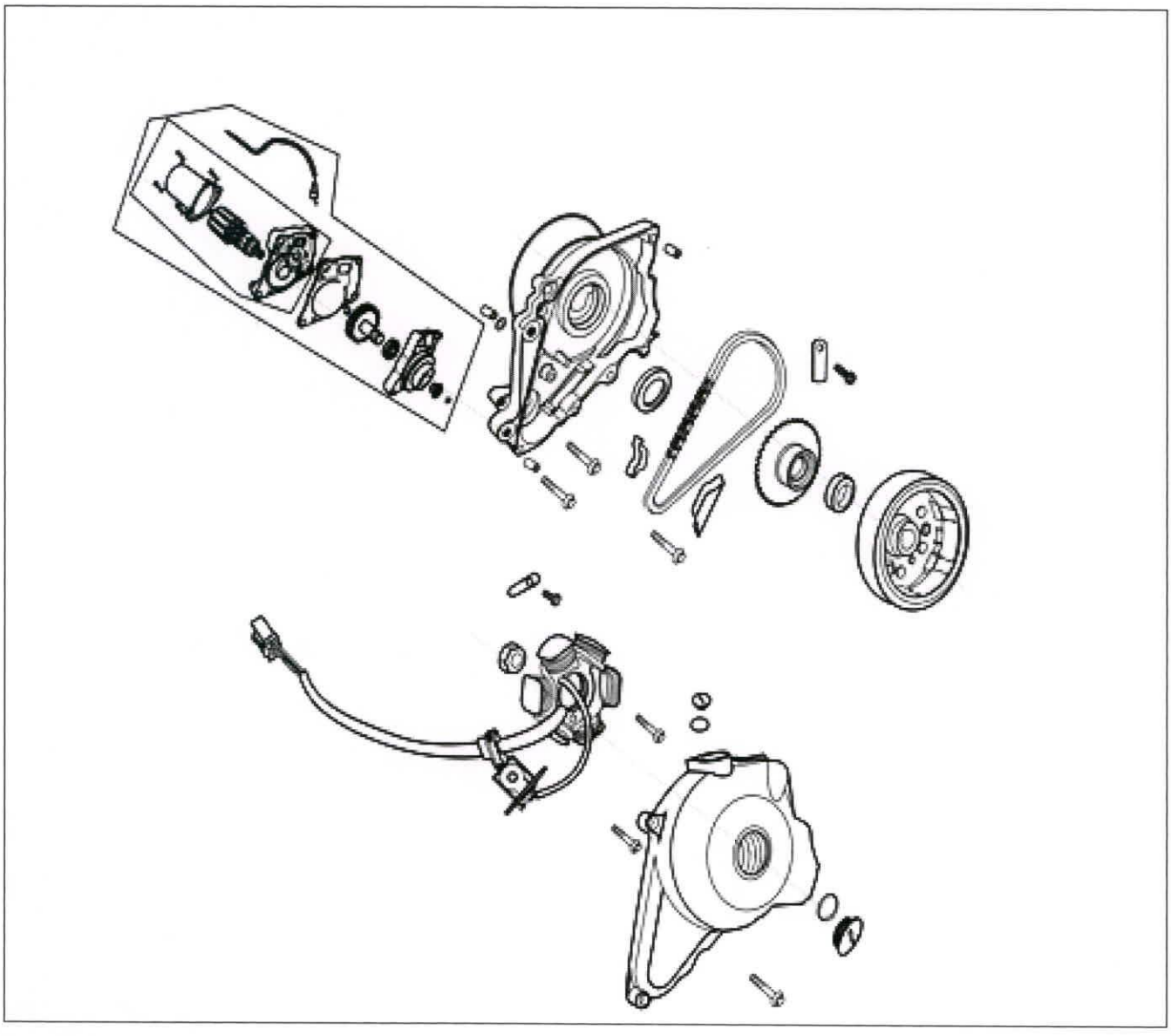
Press the cylinder by left hand, swing the piston apron part up and down by right hand, so the piston can enter cylinder smoothly.



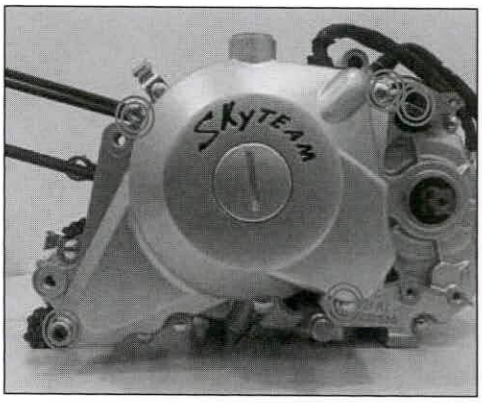
左曲轴箱盖部分 LEFT CRANKCASE COVER

左曲轴箱盖主要有磁电机总成、起动马达和起动离合器组成。

Left crankcase cover mainly includes magneto, starting motor and clutch.



拆卸左曲轴箱盖零件 Remove the left crankcase cover



- 拆除左前盖螺栓和空档开关螺栓。

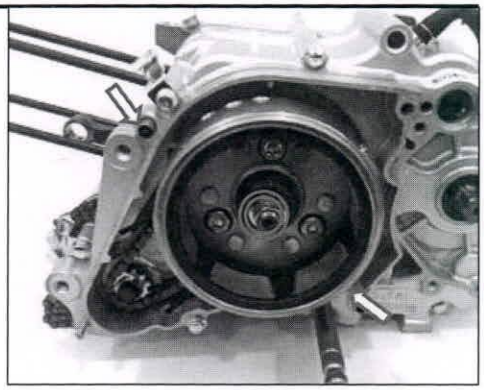
Loosen the bolts of left front cover and neutral switch.

• 取出左前盖两个 ϕ8×12mm 定位销。

Remove the two ϕ8×12mm pins on the left crankcase cover.

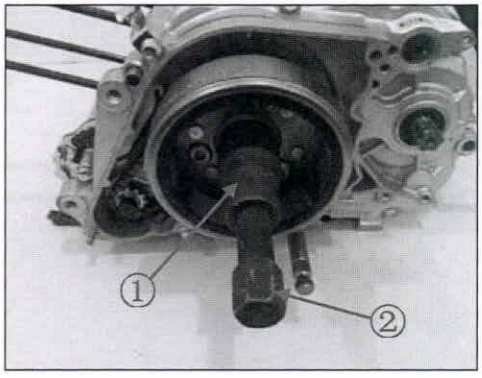
• 利用专用工具和 M14 套筒拆除磁电机飞轮螺母。

Remove the magneto flywheel nut by special tool and M14 sleeve.



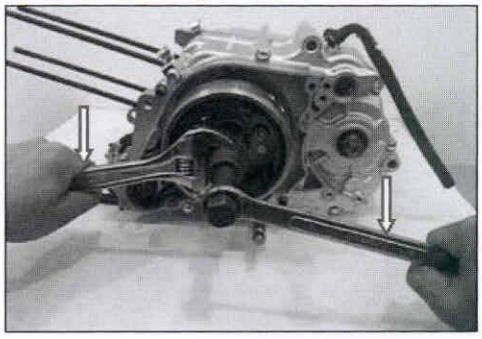
• 利用磁电机拆御工具，先将工具①顺时针拧入飞轮上，再顺时针拧上工具②。

Screw the magneto dismantling tool ① on the flywheel clockwise, and then screw the tool② clockwise.



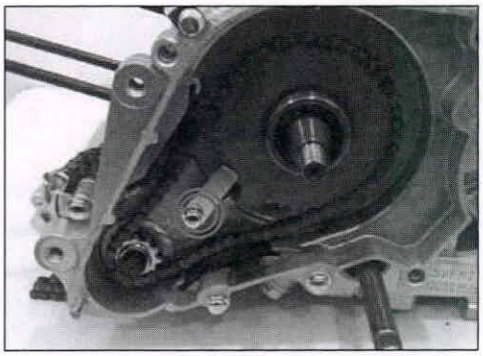
• 用 M27 扳手固定工具①，用 M19 扳手固定工具②，拆下磁电机飞轮。

Remove the flywheel by M27 wrench① and M19 wrench②



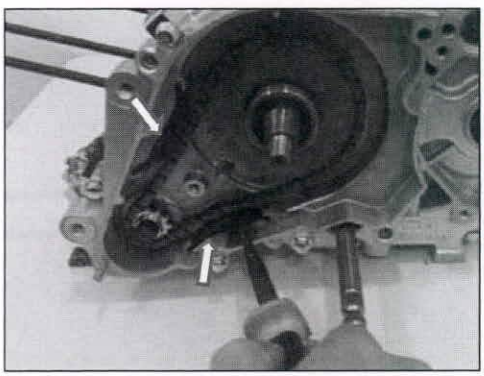
• 用 M8 套筒拆除起动链轮限位板螺栓。

Remove the bolt of starting sprocket fixing plate by M8 sleeve.



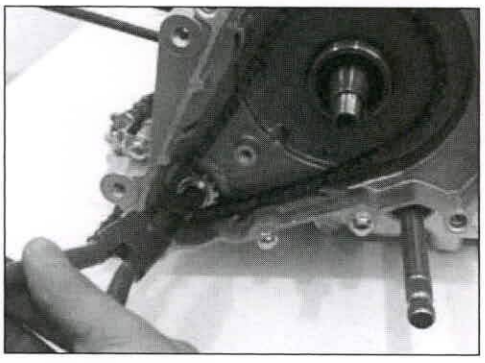
• 用尖嘴钳取出起动链条导向板和涨紧板。

Take out the starting chain guard plate and tensioner plate by nipper pliers



• 用外卡簧钳拆除起动主动链轮卡簧。

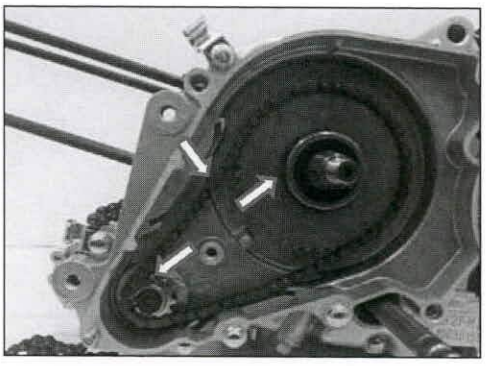
Remove the circlip of starting drive sprocket by external pliers.



• 取下起主动链轮、从动链轮和链条。

Remove the drive sprocket, driven sprocket and chain

起动链条节数 Links of starting chain： Z=62

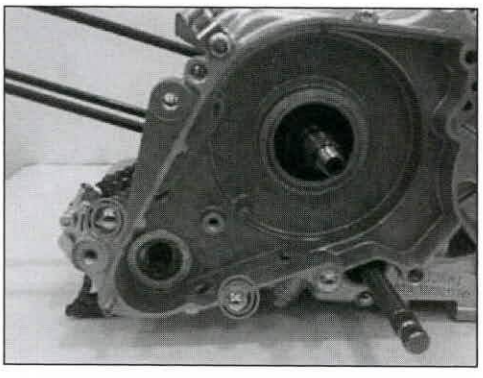


• 拆除起动马达螺栓。

Remove the bolt of starting motor

• 取出起动马达。

Remove the starting motor

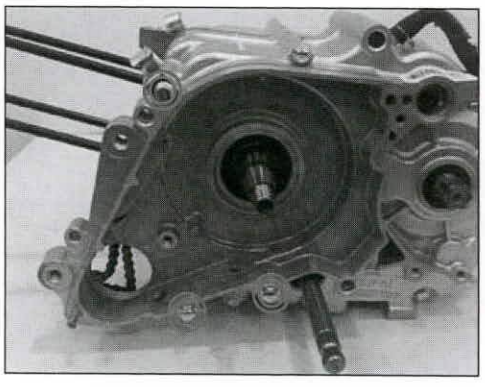


• 拆除隔油盘螺栓。

Remove the bolt of oil separator plate

• 取出隔油盘.

Remove oil separator plate

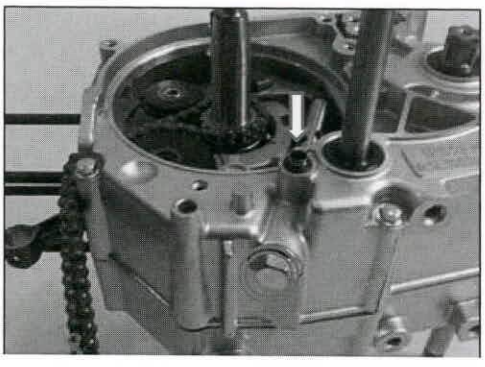


• 取出隔油盘 ϕ8×12mm 定位销和密封圈。

• 用 M14 套筒拆除正时链条涨紧器螺栓。

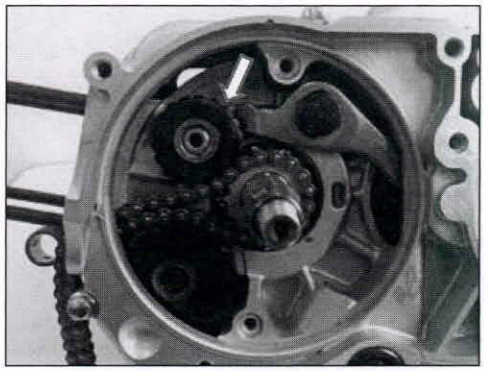
• 取出链条涨紧杆和弹簧。

Remove the oil separator plate ϕ8×12mm pin and gasket
Remove the bolt of Timing chain tensioner by M14 sleeve
Remove the chain tensioner rod and spring



• 取出链条涨紧轮。

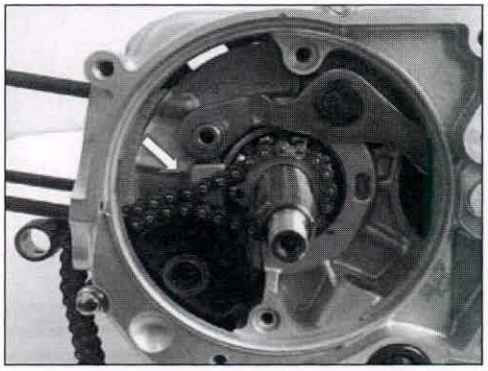
Remove the chain tensioner roller.



• 取出正时链条。

Take out the timing chain.

正时链条节数 Links of timing chain：90 节



重新安装左曲轴箱盖

Installation of left crankcase cover

重新安装左曲轴箱盖的顺序与拆卸相反。请注意以下几点：

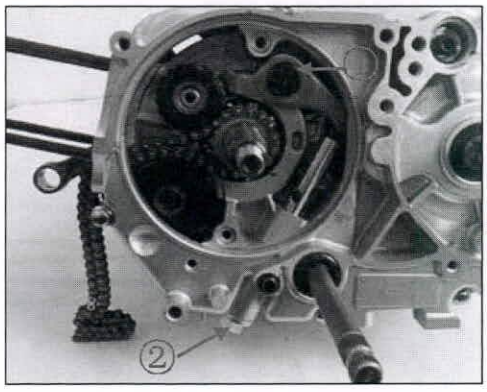
The sequence is contrary to dismantling. Please pay attention to:

• 链条涨紧臂螺栓①扭力：16 N.m。

torque of chain tensioner arm bolt① 16 N.m

• 链条涨紧器螺栓②扭力：23 N.m。

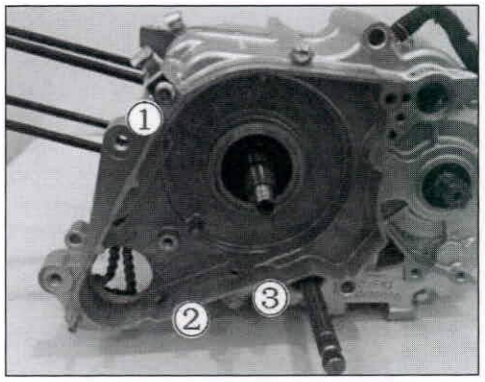
torque of chain tensioner bolt② 23 N.m



• 隔油盘螺栓： ①—M6×28

Bolt, oil separator plate ②—M6×105

③—M6×35 加铝平垫圈(plus aluminum washer)



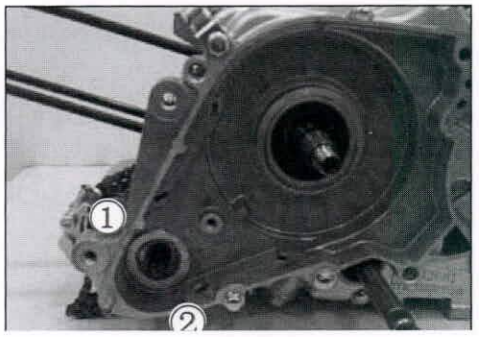
紧固顺序：③→①→②。

Tightening sequence：③→①→②。

• 起动马达螺栓 Starting motor bolt：

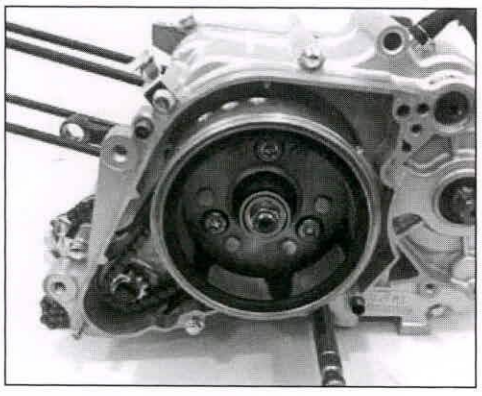
①—M6×28

②—M6×28



● 磁电机螺母扭力值; 41 N.m。

Torque of magneto nut 41 N.m



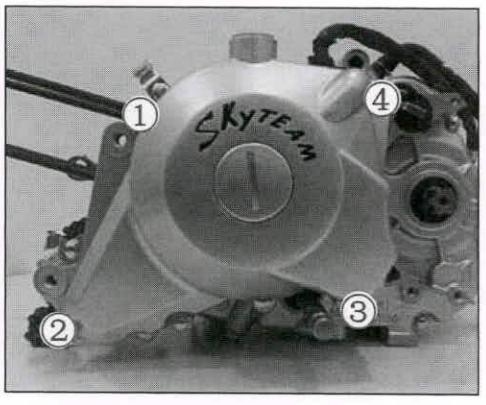
• 左前盖螺栓 bolt, left crankcase cover：①—M6×32

②—M6×28

③—M6×32

④—M6×50

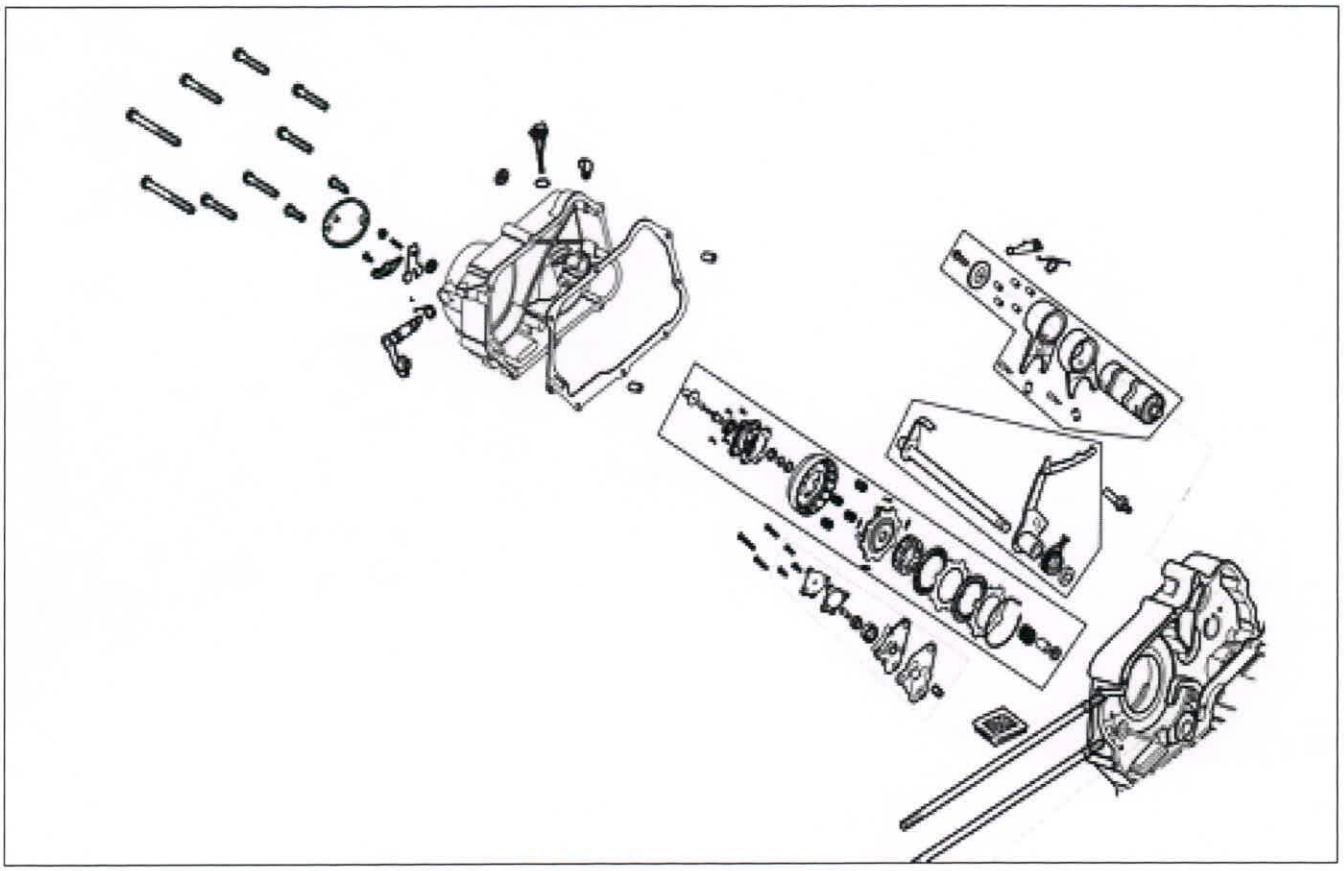
紧固顺序 Tightening sequence：①→③→④→②。



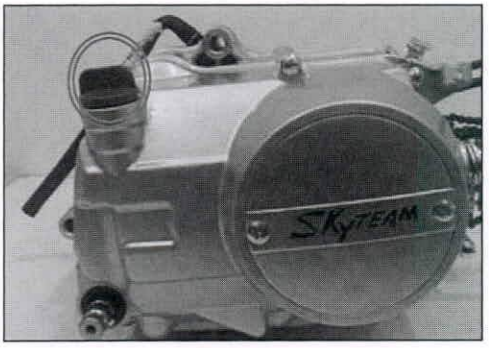
右曲轴箱盖部分 RIGHT CRANKCASE COVER

右曲轴箱盖主要有离合器、初级传动和机油泵组成。

Right crankcase cover mainly consists of clutch, primary transmission and oil pump.

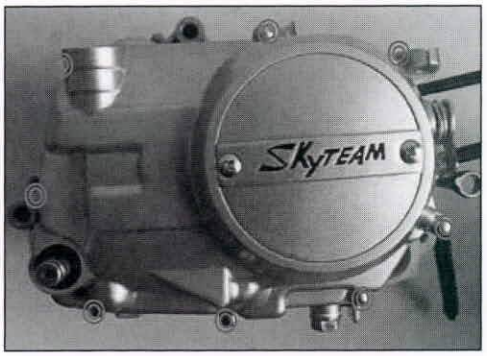


拆卸右曲轴箱盖零件 Remove the right crankcase parts



- 拆除右曲轴箱盖上的机油尺。

Remove the oil lever gauge on the right crankcase cover

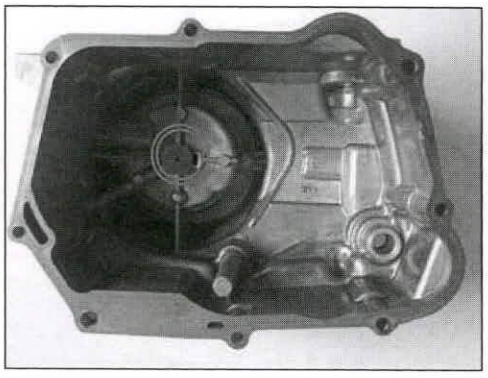


- 用 M8 套筒拆除右曲轴箱盖螺栓。

Remove the bolt on the right crankcase cover by M8 sleeve.

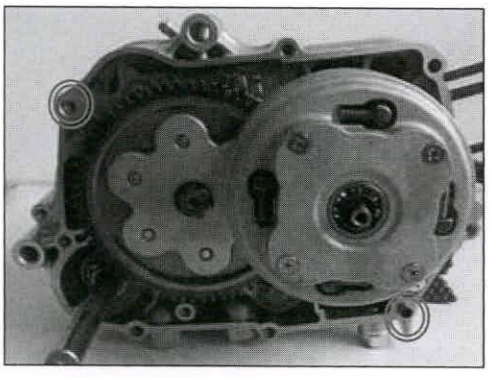
• 取出右曲轴箱盖上的离合器推杆。

Remove the clutch pushing rod on the right crankcase cover.



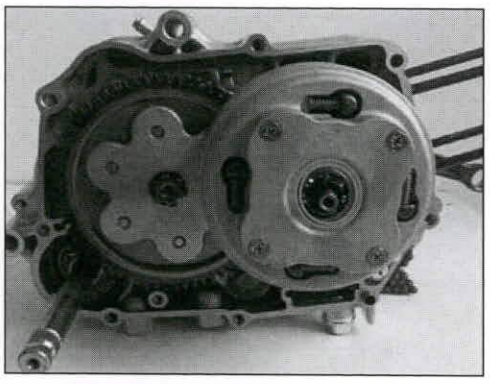
• 取出右曲轴箱盖两个 ϕ8×12mm 定位销。

Remove the two ϕ8×12mm pins on the right crankcase cover.



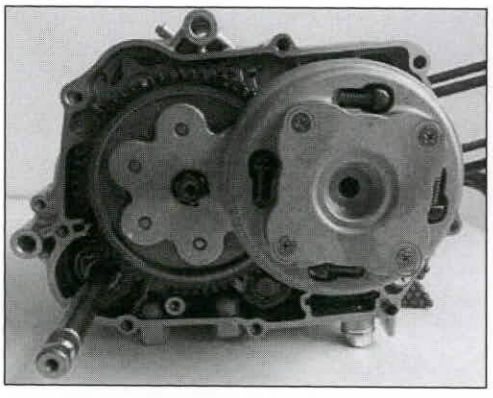
• 取出油通管、压簧、通管套管、轴承。

Remove the oil hose, spring, hose cover and bearing.



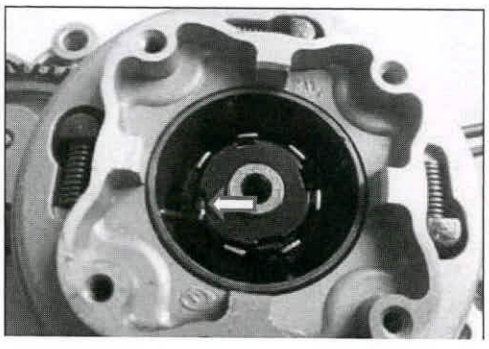
• 用十字螺丝刀拆除离合器盖上的 4 螺钉。

Remove the 4 screws on the clutch cover by cross screwdriver.



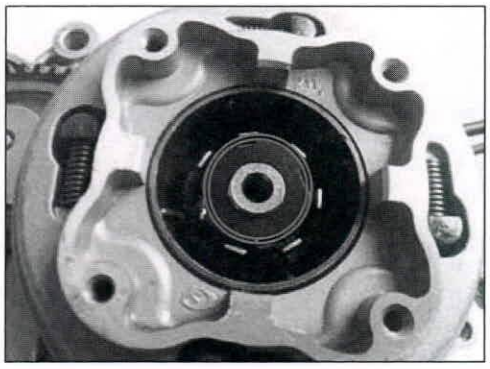
• 用一字螺丝刀将锁紧垫圈上与开槽螺母锁死的卡片撬开。

Pry the card locking the washer and notched nut by straight screwdriver.



• 用四爪套筒拆除离合器开槽螺母。

Remove the notched nut by clutch socket

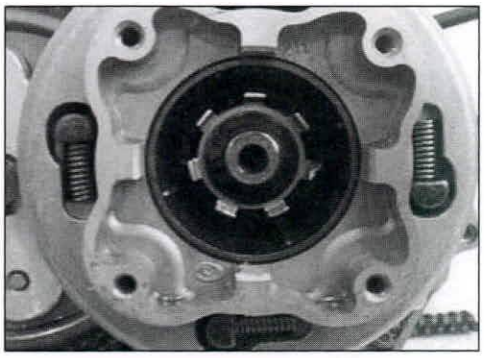


• 取出碟形垫圈和锁紧垫圈。

• 拆下离合器。

Remove the dish-washer and lock-washer

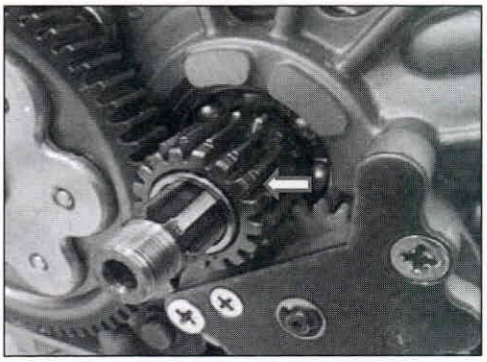
Remove the clutch comp



● 取出初级主动齿轮。

Remove the gear， primary drive

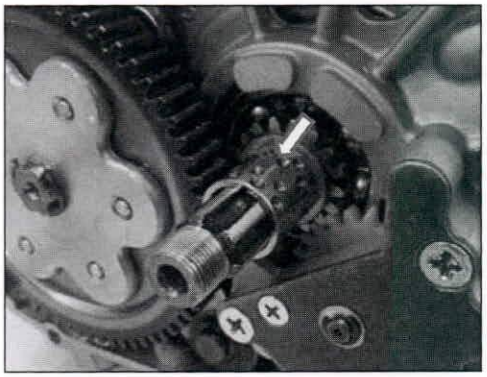
主动齿轮 Drive gear：Z=18



● 取出初级主动齿轮衬套。

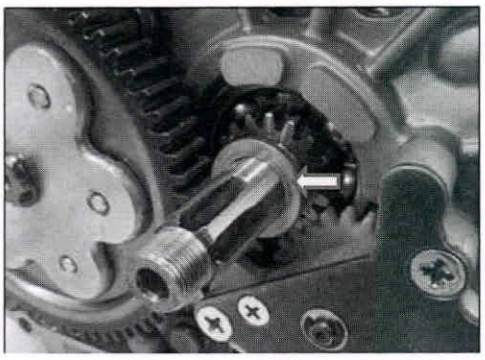
Remove the bushing of gear， primary drive

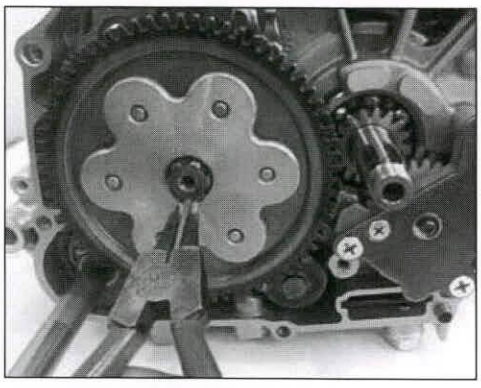
初级主动齿轮衬套 Bushing：ϕ17×21×20.5mm



• 取出初级主动齿轮衬套垫圈。

Remove the washer of gear spacer， primary drive





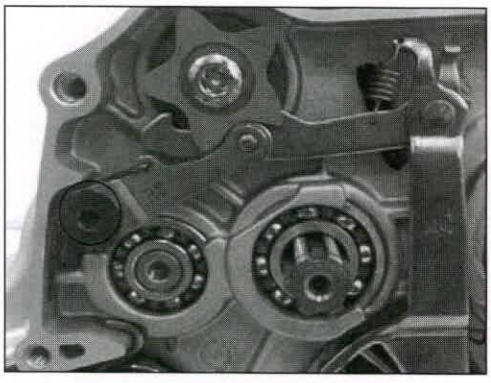
- 用外卡簧钳拆除初级从动齿轮卡簧挡圈。
- 取出初级从动齿轮。

初级从动齿轮：Z=67

Remove the circlip on gear， primary driven by circlip pliers

Remove the gear， primary driven

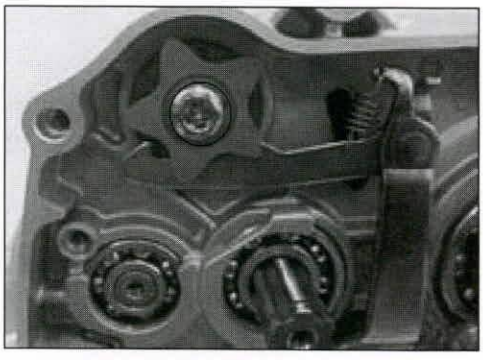
Gear， primary driven：Z=67



- 拆除止动板螺栓。
- 取出止动板和弹簧。

Remove the bolt on stopper comp., Gearshift drum

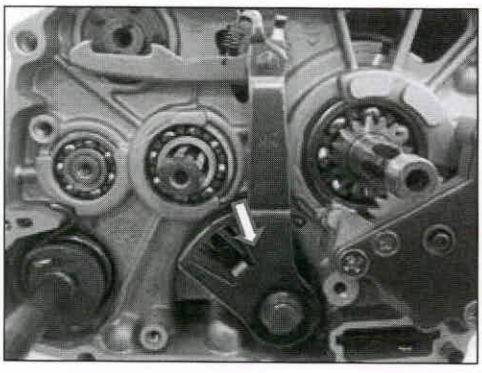
Remove the stopper comp., Gearshift drum and spring



- 拆除变档五星板螺栓。
- 取出五星板。

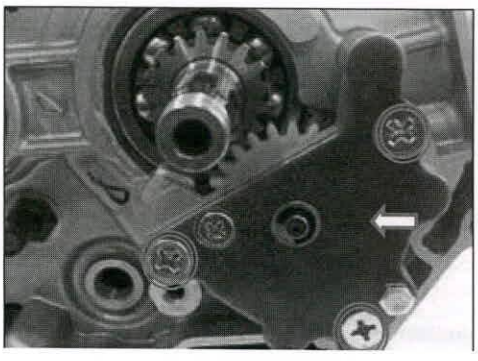
Remove the bolt on plate, drum stopper

Remove the plate, drum stopper



- 取出换档臂组件。

Remove the arm comp., gearshift

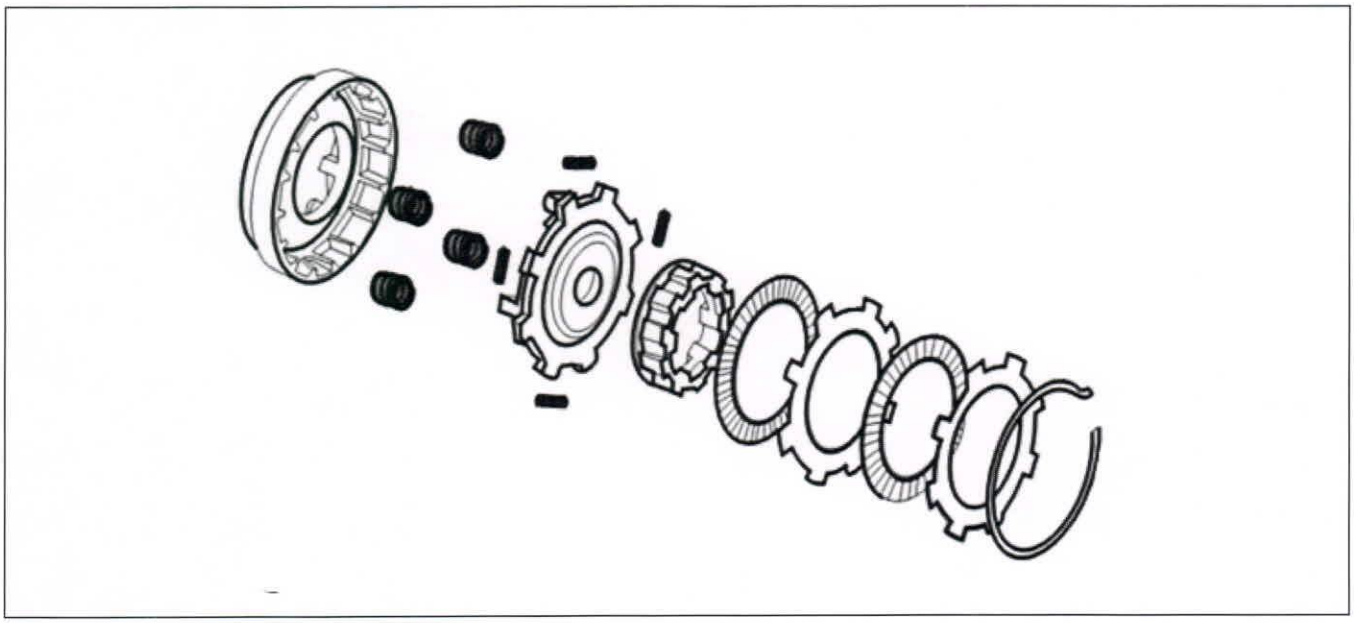


- 用十字螺丝刀拆除机油泵上的 3 螺钉。
- 取出机油泵组件。

Remove the 3 screws on oil pump by cross screwdriver.

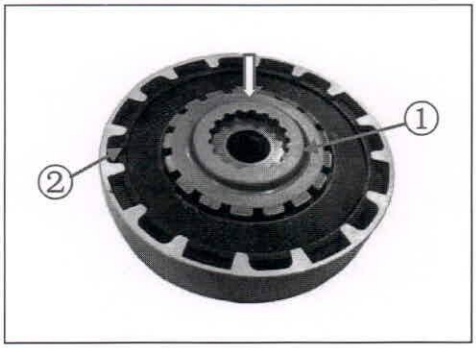
Remove the oil pump assy.

分解离合器组件 CLUTCH BREAKDOWN



- 将离合器主动齿轮外套①向下按压，用一字螺丝刀从弹性挡圈②开口处撬开挡圈②。

Press the coat of drive gear①,pry the circlip,external② by straight screwdriver

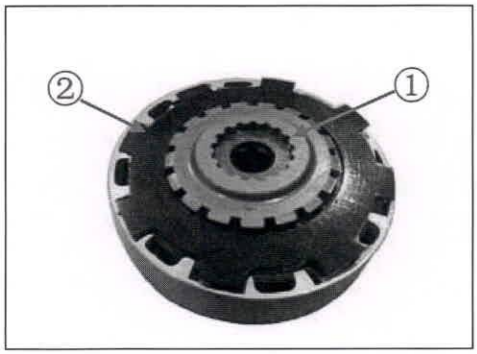


- 取出离合器主动齿轮外套①和离合片②。

离合器片：主动片 3 片、从动片 3 片

Remove the coat, drive gear① and clutch plate②.

clutch plate:friction plate, drive x3, friction plate, driven x3

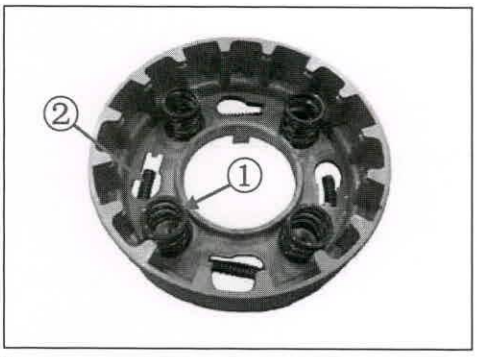


- 取出离合器中心套本体。

Remove the clutch body, center piece

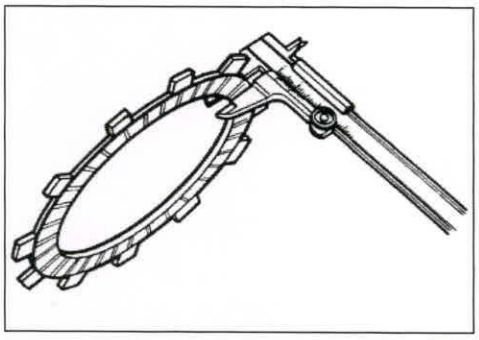
• 取出离合器主弹簧①和压簧②。

Remove the main spring①and clutch spring②

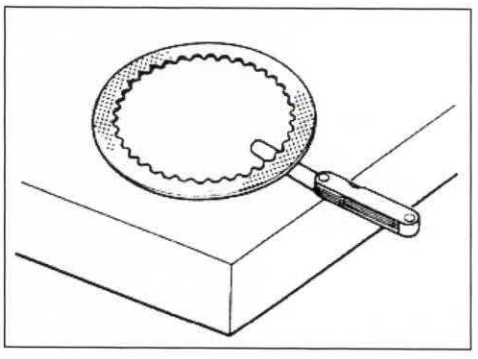


检 查 INSPECTION

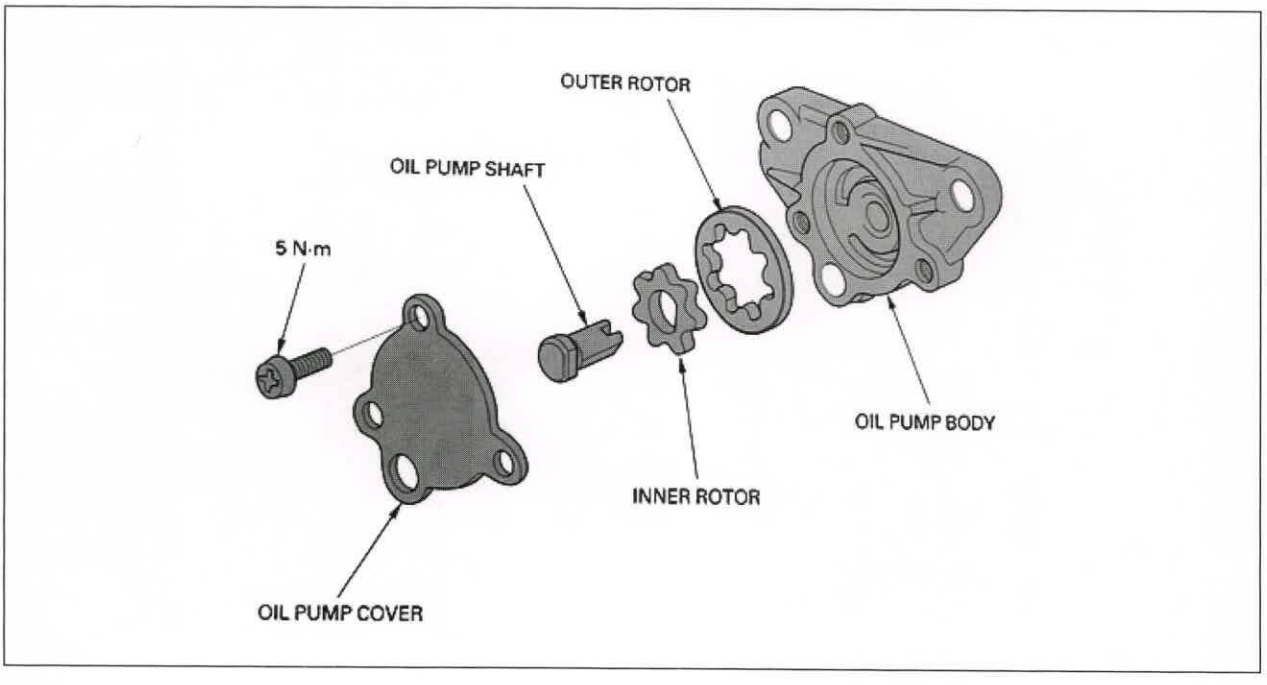
用游标卡尺测量主动磨擦片的厚度。
磨擦片厚度：3.5 mm
磨擦片磨损限值：3.0 mm
Measure the thickness of friction plate, drive by vernier caliper.
thickness of friction plate: 3.5mm
Service limit:3.0mm



将从动片放置于平台上，用两个手指按压在上方，用塞尺测量从动铁片与平台之间的间隙。
从动片的平面度限值：0.02mm。
从动片端面麻点状凹坑磨损到不能清晰可见时应更换。
Put the clutch driven plate on the platform, pressing it from the top with two fingers, check the clearance between the driven plate and platform by a feeler gauge.
Service limit: 0.02mm
Please replace if the pits on the driven plate end cannot be seen clearly because of wear



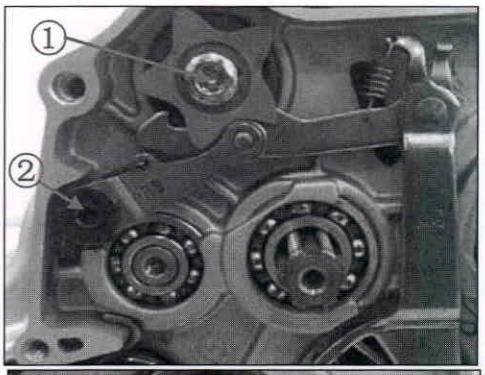
机油泵分解图 OIL PUMP BREAKDOWN



重新装配右曲轴箱盖 INSTALLATION OF RIGHT CRANKCASE COVER

重新安装右曲轴箱盖的顺序与拆卸相反。请注意以下几点：

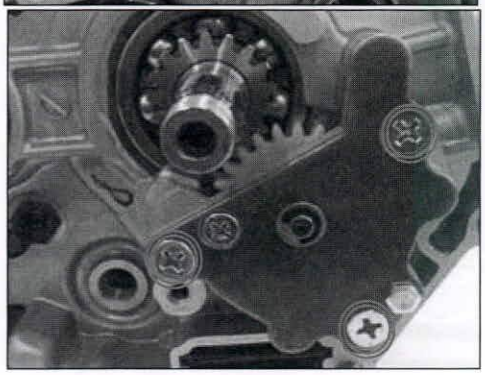
The assembly sequence is contrary to dismantling. Please pay attention to:



- 变档五星板螺栓①扭力值; 17 N.m。
- 变档止动板螺栓②扭力值; 14 N.m。

Torque of PLATE,GEARSHIFT DRUM STOPPER: 17 N.m.

Torque of STOPPER COMP.,GEARSHIFT DRUM: 14 N.m.

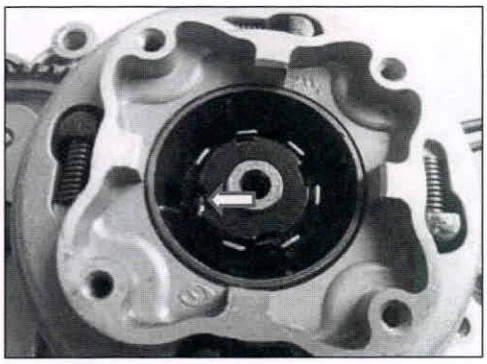


- 机油泵螺栓扭力值; 14 N.m。

Torque of bolt, OIL PUMP COMP: 14 N.m.

- 离合器开槽螺母拧紧时，使开槽凹槽对准锁紧垫圈的锁紧片位置。
  锁紧片拆卸后不得重复使用，重新装配时应选择未使用过的锁紧片。
  开槽螺母扭力值; 42 N.m。

When tighten the notched nut of clutch，the nut groove should be aligned with the lock washer tab.
Please do not use the lock washer repeatedly, installation requires a new lock washer.
Torque of notched nut：42 N.m

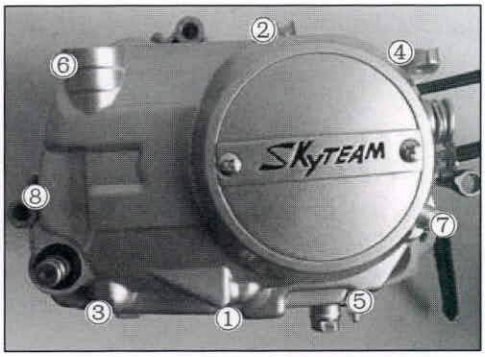


- 右曲轴箱盖螺栓 Bolts, right crankcase cover：

①—M6×40	②—M6×65
③—M6×40	④—M6×85
⑤—M6×40	⑥—M6×40
⑦—M6×80	⑧—M6×40

紧固顺序：①→②→③→④→⑤→⑥→⑦→⑧。

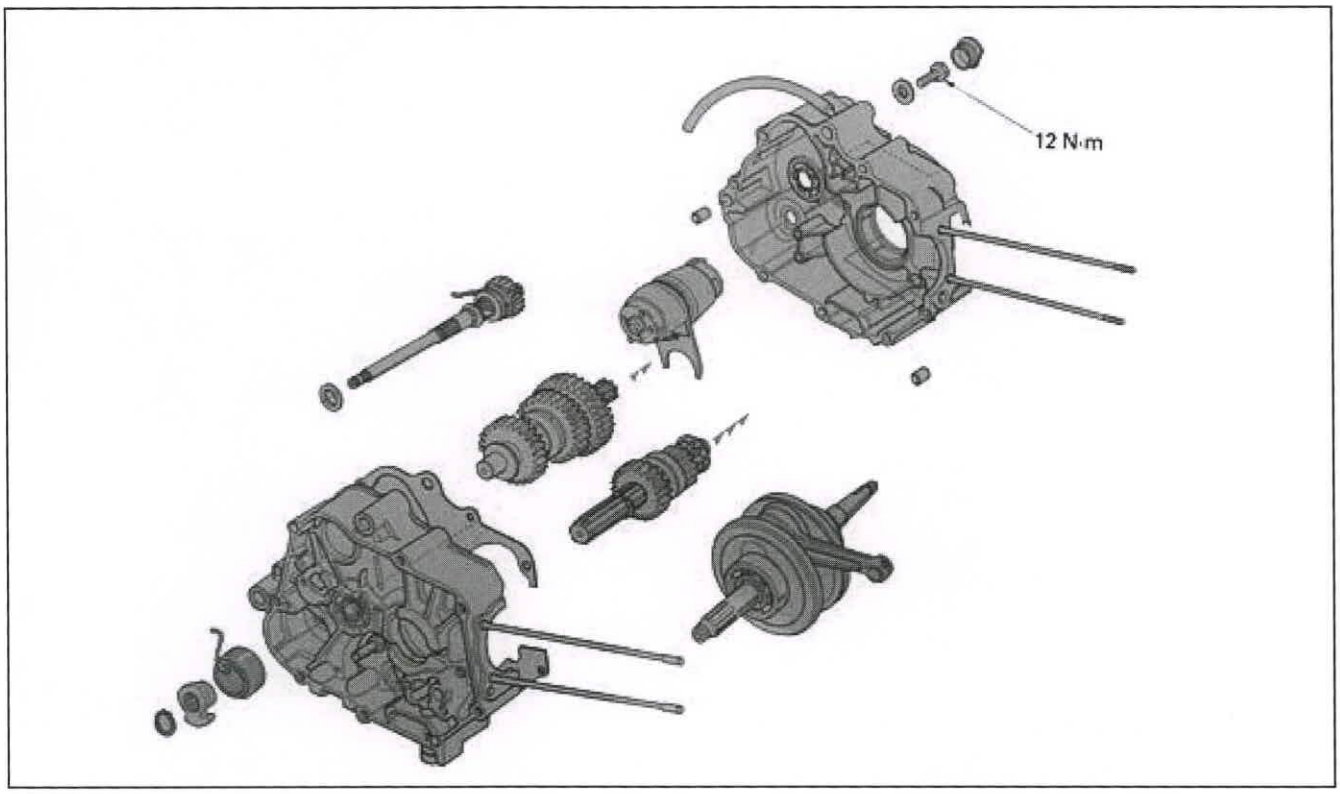
Tightening sequence：①→②→③→④→⑤→⑥→⑦→⑧



曲轴箱部分 CRANKCASE

右曲轴箱主要有曲轴、变档机构、起动装置组成。

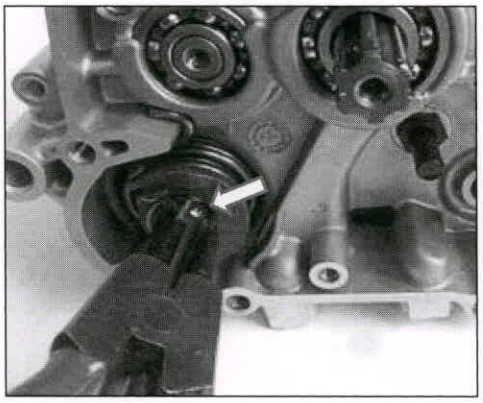
Right crankcase includes crankshaft、transmission and kick starter



拆卸右曲轴箱零件 Right crankcase disassembly

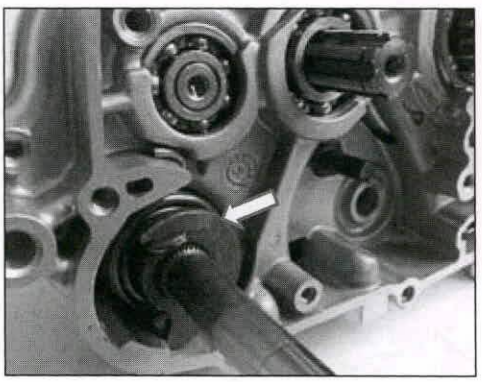
- 用外卡簧钳拆除起动轴卡簧挡圈。

Remove the circlip of Spindle comp,kick starter by circlip pliers



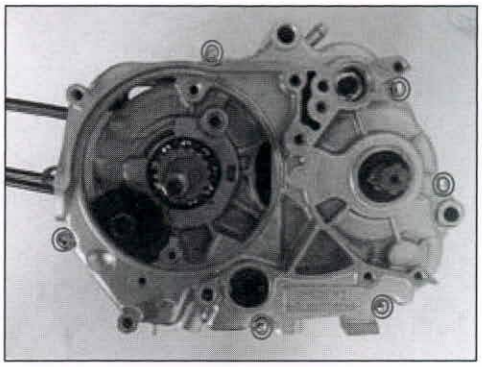
- 取出起动轴复位弹簧座和复位弹簧。

Remove the reset spring holder and spring of spindle, kick starter



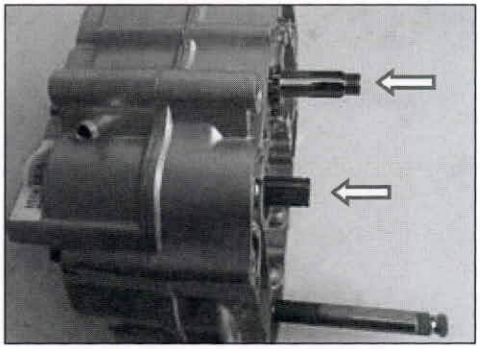
• 用 M8 套筒拆除曲轴箱螺栓。

Remove the bolt of the crankcase by M8 sleeve.



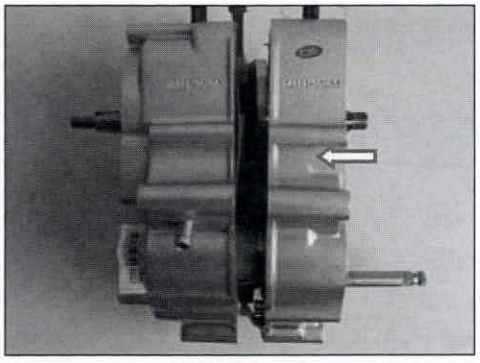
• 用木锤来回轻轻敲打主轴和副轴，使左右曲轴箱体分离。

Tap the mainshaft and countershaft gently by wooden hammer, separate the left crankcase and right crankcase



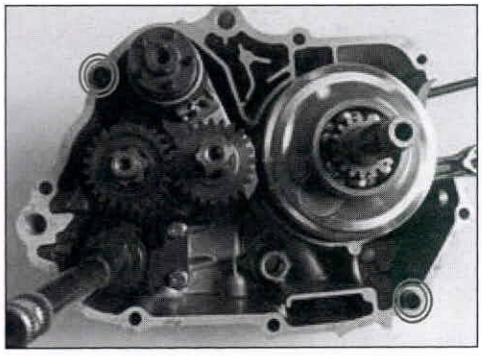
• 取出右轴箱盖，动作要轻轻的注意箱体内的齿轮掉落。

Remove the right crankcase cover gently to avoid the drop-off of the gear inside



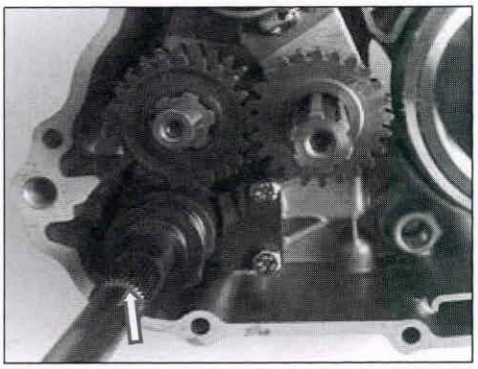
• 取出曲轴箱体两个 ϕ10×14mm 定位销。

Remove the two ϕ10×14mm pins from the crankcase



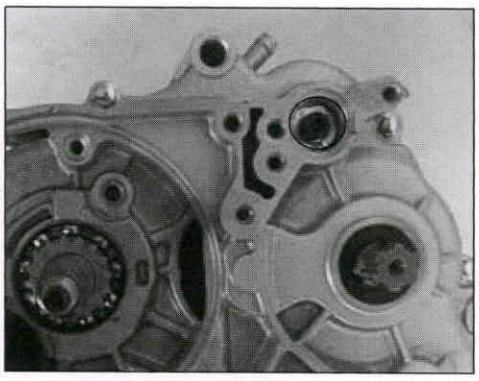
• 取出起动轴组件。

Remove the spindle, kick starter



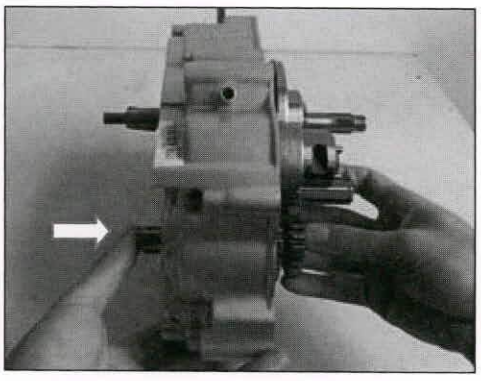
• 用 M5 内六角扳手拆除左曲轴箱上的变速鼓螺栓和档显开关接触片。

Remove the bolts of drum comp and gearshift indicator touch plate on the left crankcase by M5 wrench



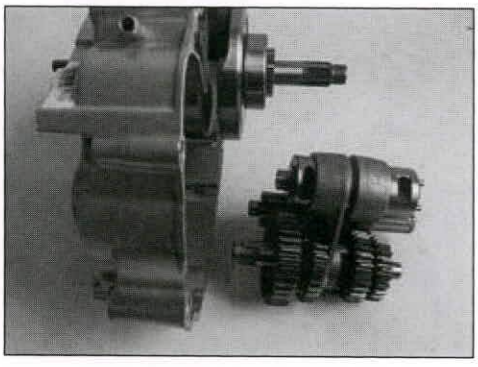
• 用右手捏住主副轴和变速鼓，左手轻轻向内侧推动副轴，使主副轴能顺利地与箱体分离。

Hold the main/countershaft and gearshift drum comp. by right hand, pushing the countershaft slightly inward by left hand, so that the main/countershaft can be separated from the crankcase smoothly.



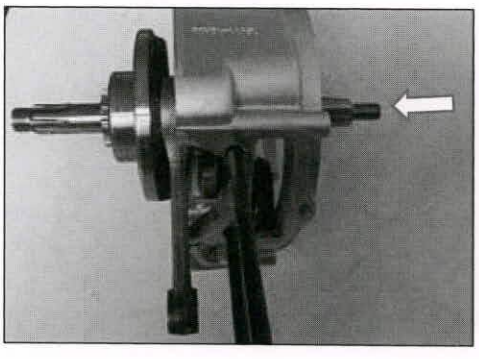
• 取出主副轴和变速鼓，注意不要将齿轮脱落。

Remove the main/countershaft and drum comp, gearshift, be careful of the gears

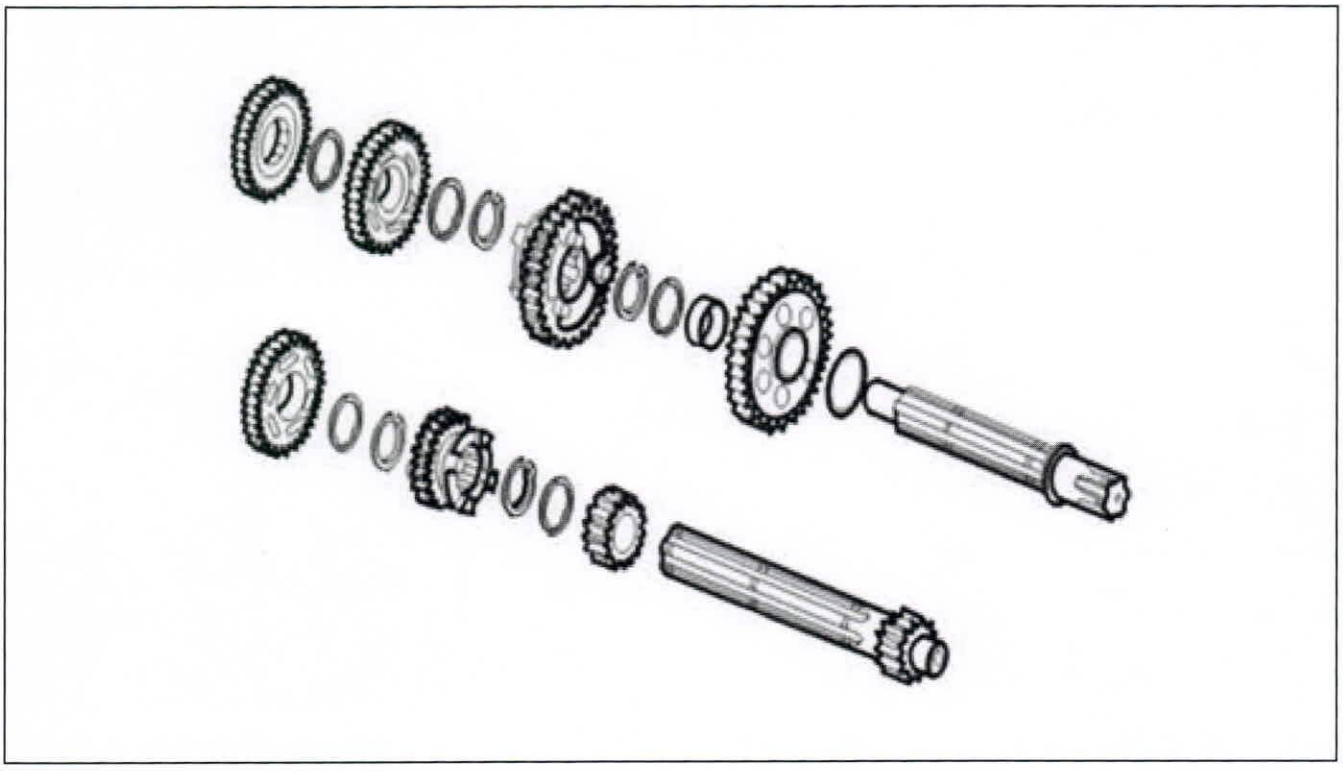


• 用木锤敲打曲轴左侧，取出曲轴。

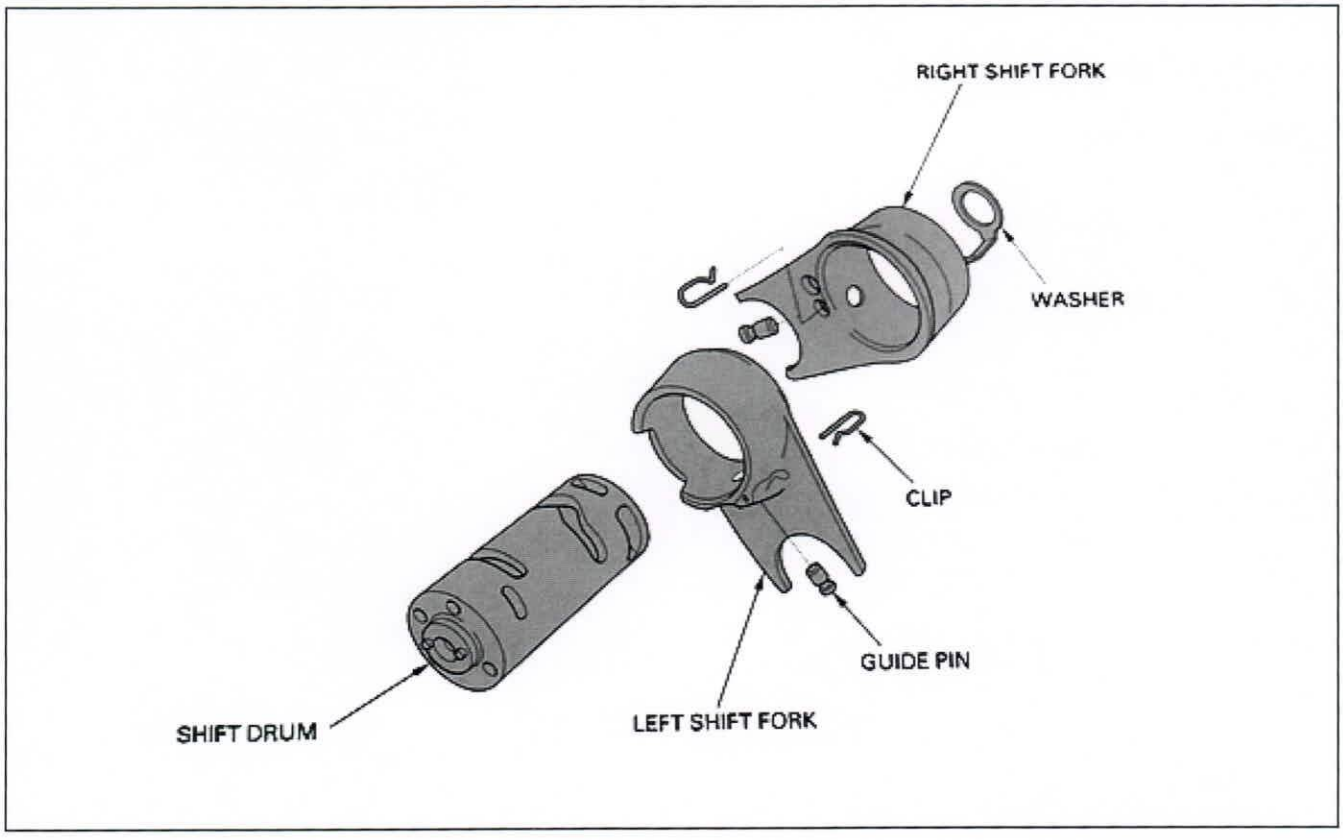
Tap the left side of crankshaft by wooden hammer, and remove the crankshaft



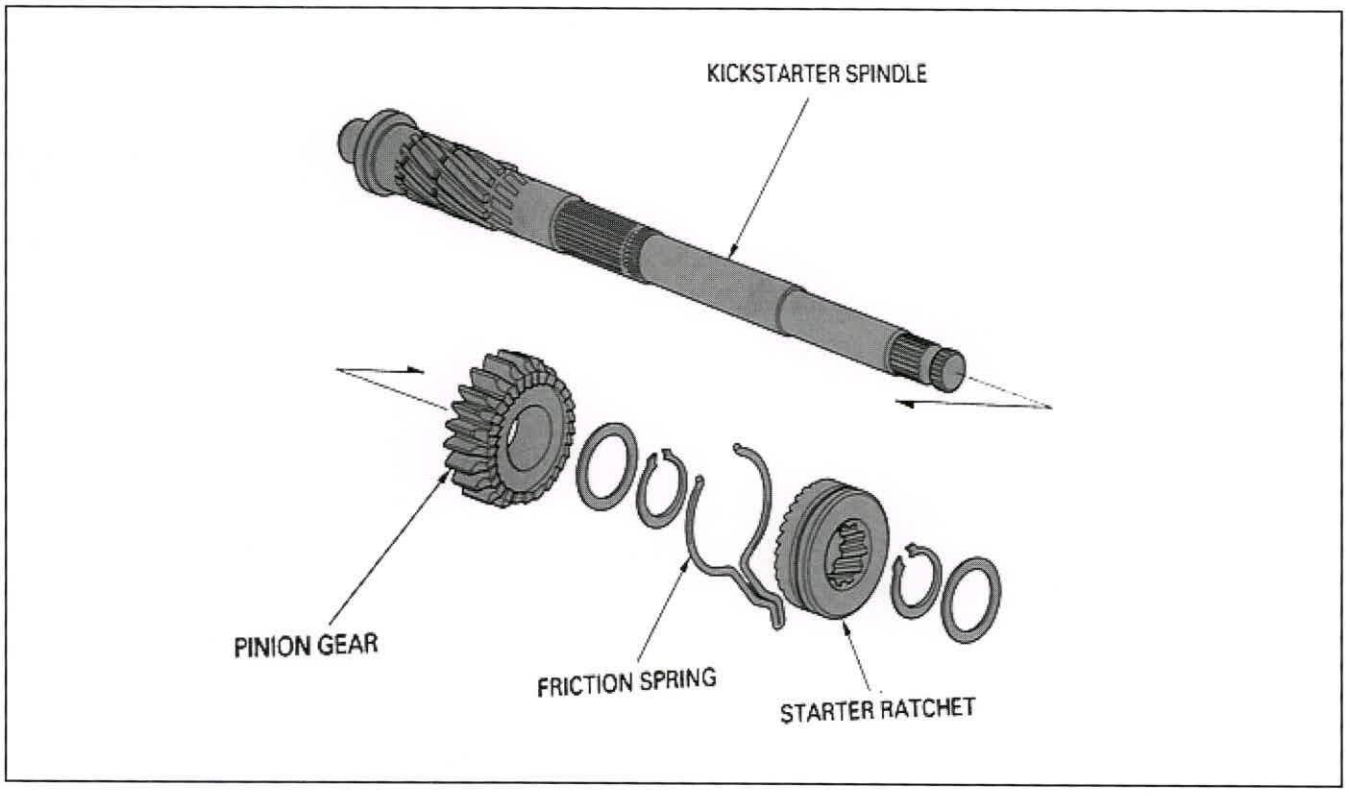
主、副轴分解图 **MAINSHAFT\COUNTERSHAFT BREAKDOWN**



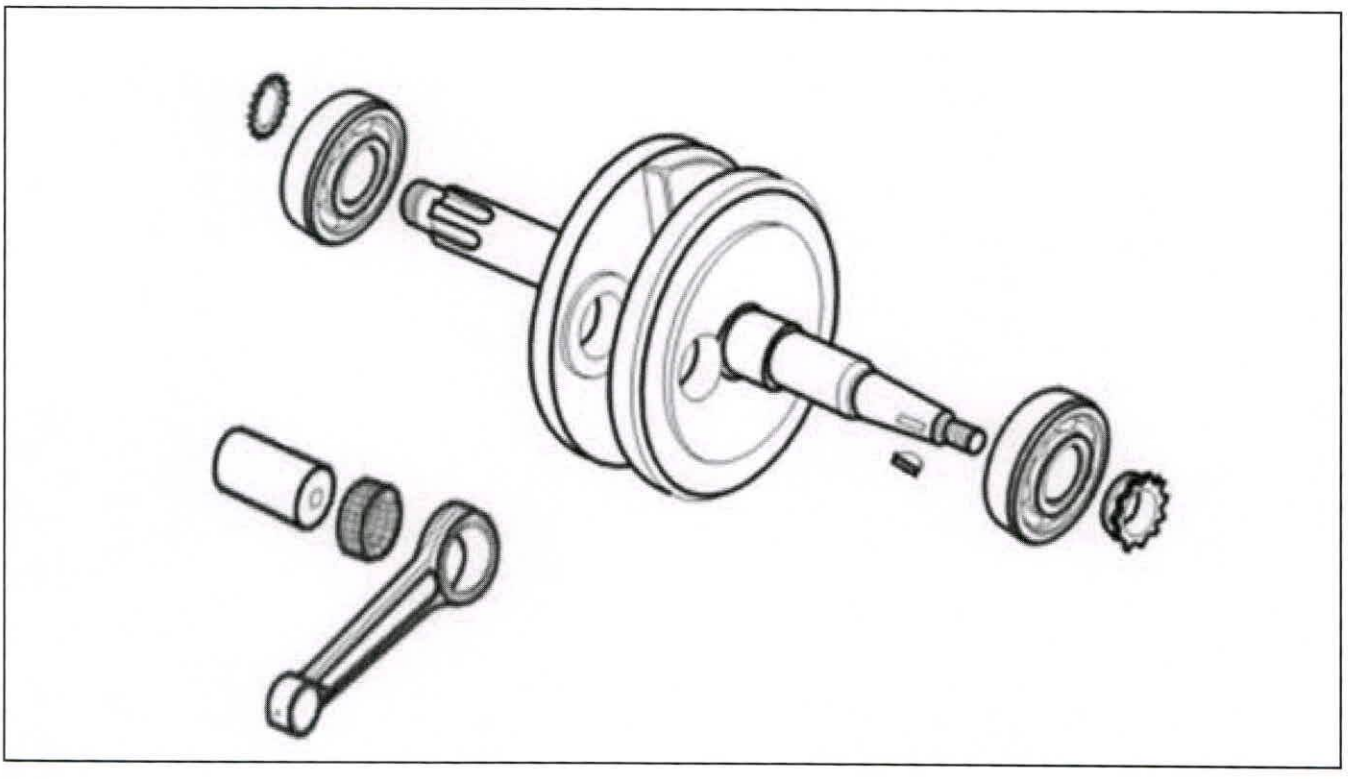
变速鼓分解图 **DRUM COMP,GEARSHIFT BREAKDOWN**



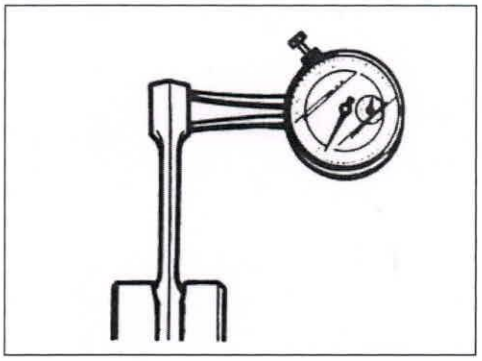
起动轴分解图 **SPINDLE COMP,KICK STARTER BREAKDOWN**



曲轴分解图 **CRANKSHAFT BREAKDOWN**



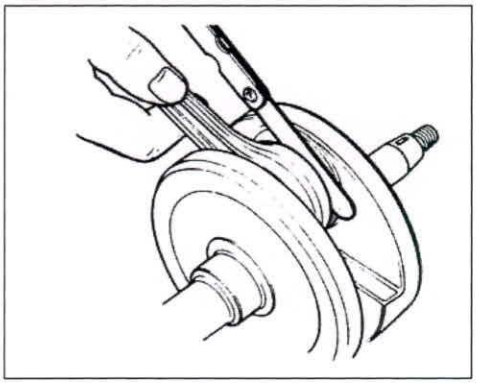
检查 INSPECTION



● 用内径百分表测量曲轴连杆上活塞销安装孔磨损量。

Inspect the wear of the piston pin mounting hole on the crankshaft rod by internal dialgauge

磨损限值 Wear limit：13.04 mm。



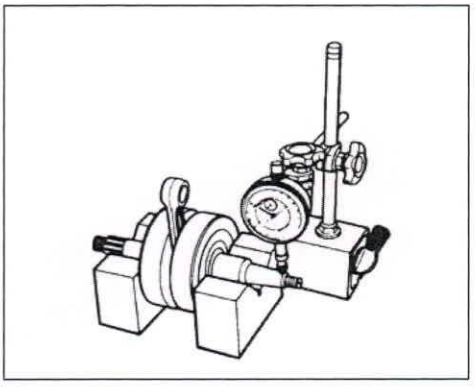
如测量值超出限值，则需曲轴连杆。

If over wear limit, then a new crankshaft rod is required

● 用塞尺测量连杆和曲柄之间的间隙。

Check the clearnace between crankshaft and crank by feeler

使用限度 Using Limit：1.00 mm。



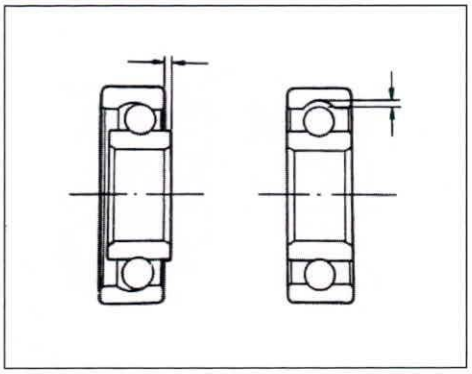
如测量值超出限值，则需曲轴连杆。

If over limit, then a new crankshaft is required

- 如图，用 V 形定位块支撑曲轴，两个轴径放在 V 形槽内，如图所示放置百分表，并缓缓旋转曲轴，以便读出径向跳动值。
  径向跳动限值：0.08mm。

如径向跳动大于限值，则需校正曲轴或更换曲轴。

Please check the drawing on the right, hold the crankshaft by V shaped retainer, and put the two shafts in the V shaped groove, then fix the dialgauge as drawing shows, rotate the crankshaft slowly so the jumping value can be read.
Jumping limit radially:0.08mm
If over the limit, then the crankshaft need to be calibrated or replaced.



- 当轴承在曲轴箱内，转动其内圈度看它是否转动平滑，如果轴承转动有异常声并且不平滑，或有任何不正常现象，则该轴承受损则立即更换。

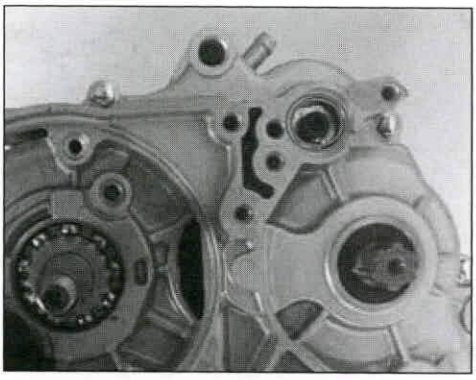
Rotate the inner circle of the bearing in the crankcase, if there is strange noise or it cannot rotate smoothly or any other unnormal phenomenon, then the bearing should get damaged and needs to be replaced

重新装配曲轴箱 CRANKCASE INSTALLATION

重新安装曲轴箱的顺序与拆卸相反。请注意以下几点：
The assembly sequence is contrary to dismantling.
Please pay attention to:

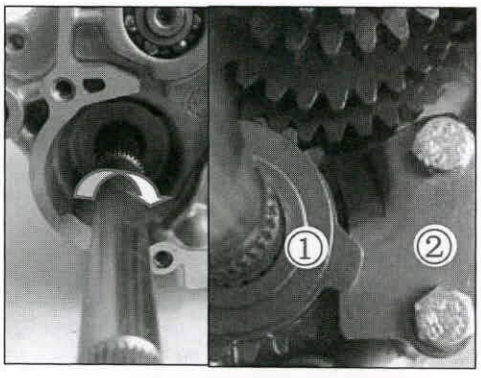
- 变速鼓螺栓扭力值; 14 N.m。

Torque of bolt, drum comp, gearshift: 14 N.m



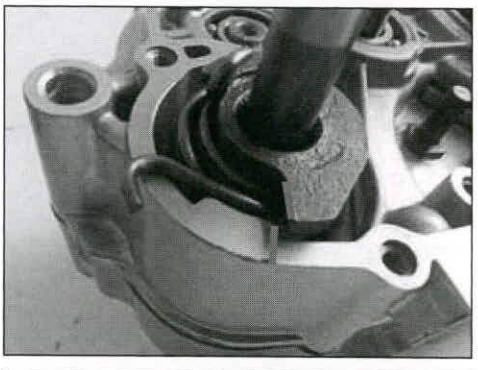
- 安装起动轴复位弹簧座和复位弹簧时：
  顺时针旋转起动轴，使起动轴上的棘轮①上的上凸台转至台阶板②的上方位置。

When install the the reset spring holder and spring of kick starter：Rotate the spindle, kick starter clockwise，so the upper boss of the ratchet wheel① can be turned to the top of step plate② as shown.



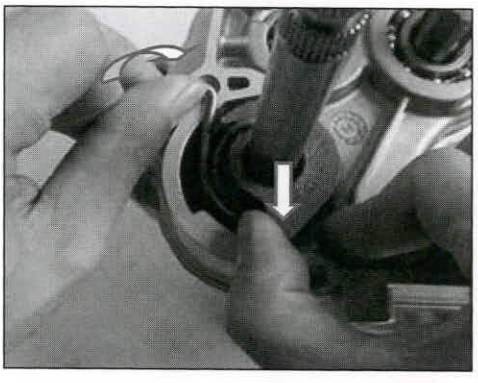
- 将复位弹簧座和复位弹簧轻轻套在起动轴上，使复位弹簧座与箱体的限位凸台相对齐，向下使弹簧座的花键落在起动轴花键内。

Fix the the reset spring holder and spring of kick starter on the spindle, kick starter, align the spring holder with the limit boss of crankcase. Release the spline of spring holder downwards to the spline of spindle



- 用右手大拇指抵住复位弹簧座，使弹簧座保持原位不动，用左手大拇指推动复位弹簧顺时针旋转，使弹簧挂在箱体上的卡口处，向下按压弹簧座，装上卡簧档圈。

Hold the reset spring holder by right thumb, and keep the position. Push the spring clockwise by left thumb, so the spring can be hung at the case bayonet, pressing down the spring holder, then fix the circlip.

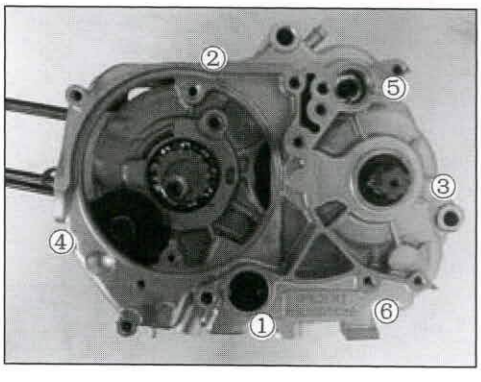


- 右曲轴箱盖螺栓 Bolts of right crankcase cover：

①—M6×65	②—M6×60
③—M6×50	④—M6×65
⑤—M6×60	⑥—M6×65

紧固顺序：①→②→③→④→⑤→⑥。

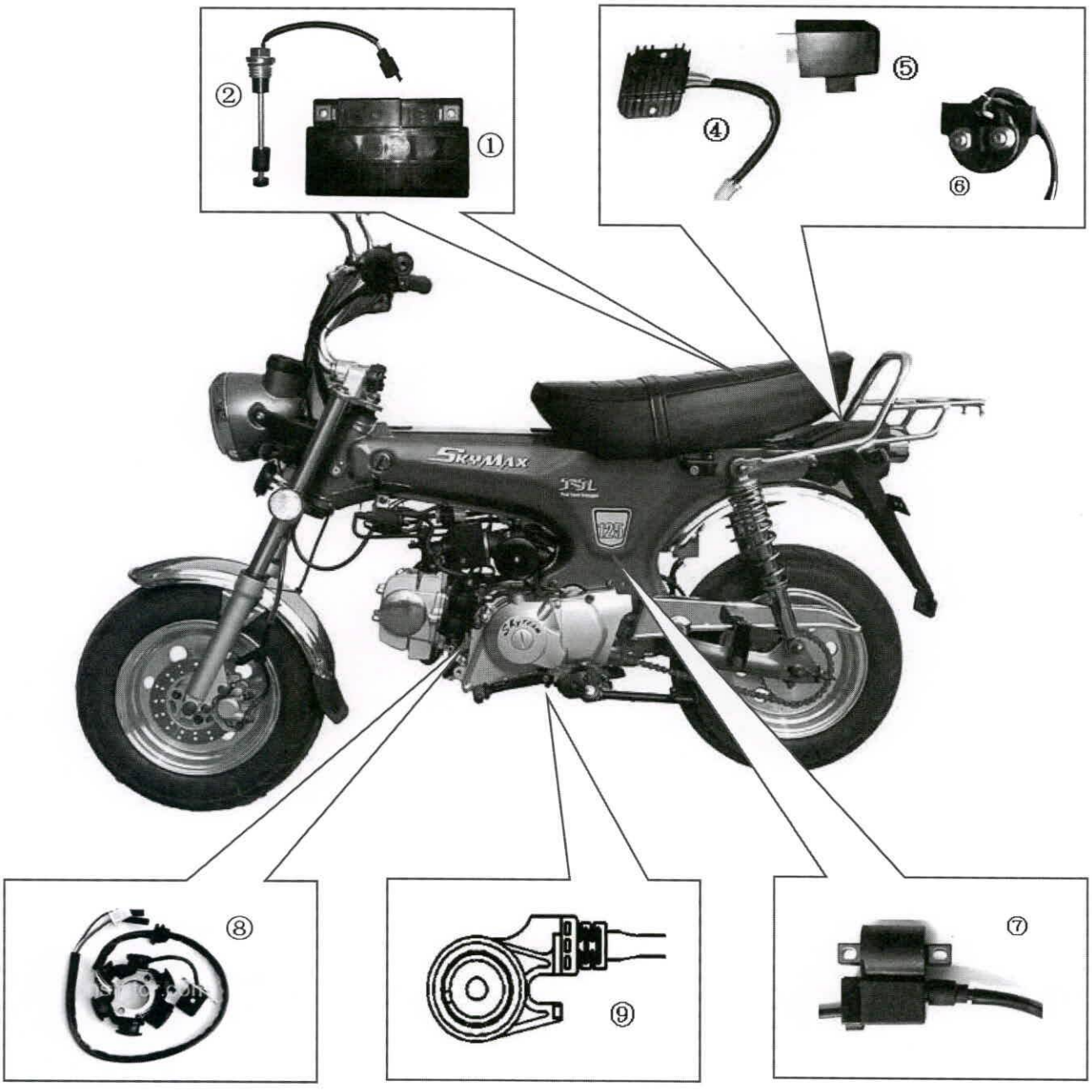
Tightening sequence: ①→②→③→④→⑤→⑥



4

第四章：电气系统
PART4 ELECTRICAL SYSTEM

电器部件的位置 POSITION OF ELECTRIC COMPONENTS



① Battery
② Fuel Level Gauge
③ ---
④ Rectifier
⑤ Flash Relay
⑥ Start Relay
⑦ Ignition Coil
⑧ Magnetic motor coil
⑨ Switch, Side Stand

电器部件的位置 POSITION OF ELECTRIC COMPONENTS

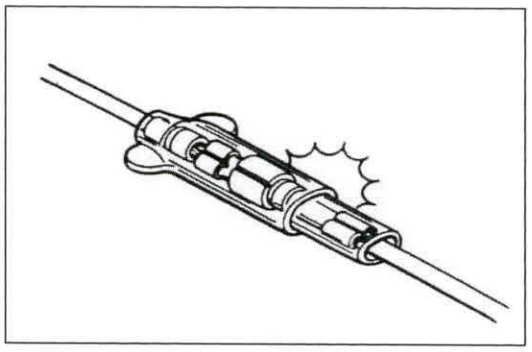
⑩ Horn

⑪ Brake Switch, Front

⑫ Brake Switch, Rear

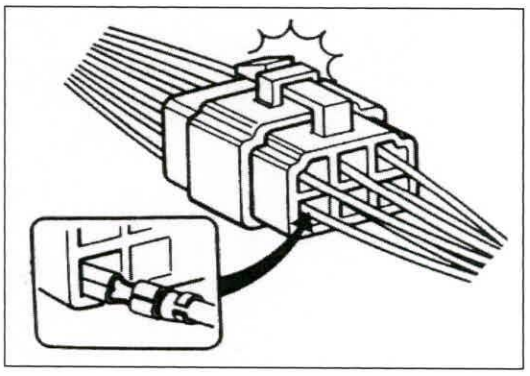
⑬ starting motor

维修注意事项 Maintenance Note



接插件 Plug-in unit

• 当打开一个接插件时，请捏住接头，不要拉导线。
When open a plug-in unit, please pinch the connector, do not pull the wire.
• 当连接一个接插件时，将插件上凸台卡在凹槽内。
When connect a plug-in unit, please fix the boss in the groove.
• 松查插件的松紧度、腐蚀和外套的损坏情况。
Check the tightness, corrosion and cover damage of the plug-in unit.



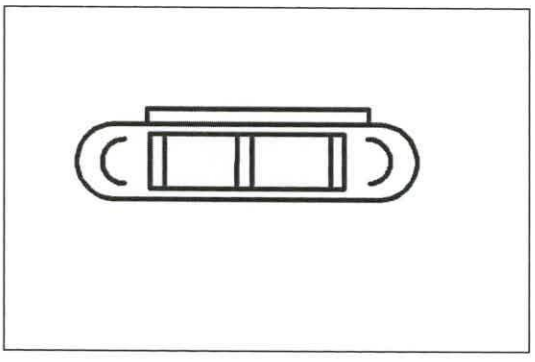
保险管 Protective Tube

• 保险管烧坏后必须查清其原因，纠正后换上新的保险管。
Please find out the reason if protective tube is broken, and replace it after solving the problem

• 不要使用负载不同的保险管。

Do not use a different load protective tube.

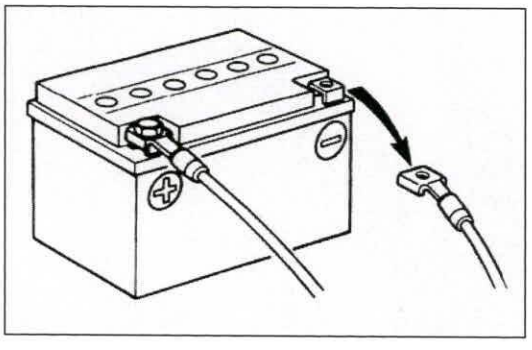
● 不得使用其它任何物品代替保险管。
Do not use any other items to replace the protector tube.

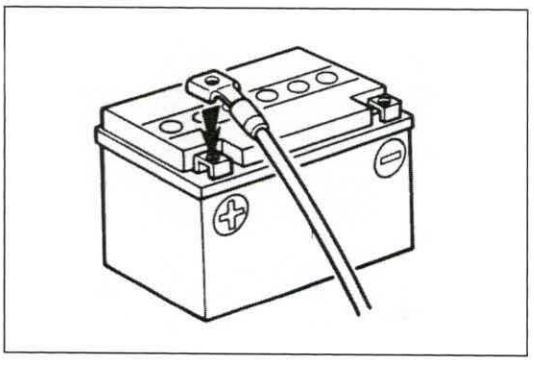


蓄电池的连接 Battery Connection

- 当维护或维修需要拆卸电池时，请先将负极接线柱拆除。
- 当安装电池时，请先安装正极接线柱。
- 如果接线柱发现腐蚀，用沙纸清理干净。
- 安装后在接线柱上涂适量凡士林或润滑脂，防止接线柱氧化、腐蚀。
- 接线柱的保护套必须遮掩严实、不得外露。
- 严禁将电池正负极短路、倒置放置。

• If the battery is required to get removed by maintanence or repair, please dismantle the negative terminal first.
• When install the battery, please install the positive terminal first.
• If the terminal has become corrosive, please clean it with sand paper.
• Please coat the terminal with Vaseline or grease to protect the terminal from oxidation、corrosion.
•Terminal protective cover must be enveloped fully, and can not be exposed.
Do not invert the positive and negative pole of battery,or put upside down.





维修说明 Maintenance instructions

• 电气系统主要有点火系统、充电和照明系统、起动系统、开关、灯具部分组成。

•The main electrical system consists of ignition system,charging and lighting system, starter systems, switches and lamps.

• 如电气出现故障时，利用万用表检查测量其部件的通断关系及电压和电流，确定故障原因。

•When electrical problem happens, use a multimeter to measure the conduction of the components , voltage and current,then fix the cause.

• 为了测量读数的准确性，测量电压、电流和电阻值时建议使用数显式万用表。

•For the reading accuracy, please measure voltage, current and resistance value by digital multimeter.

• 测量导通关系时可以使用指针式万用表。

• Can use pointer multimeter when measure the conduction.

下表为电气原理图中标注的线色标记相对应的用途及其极性：

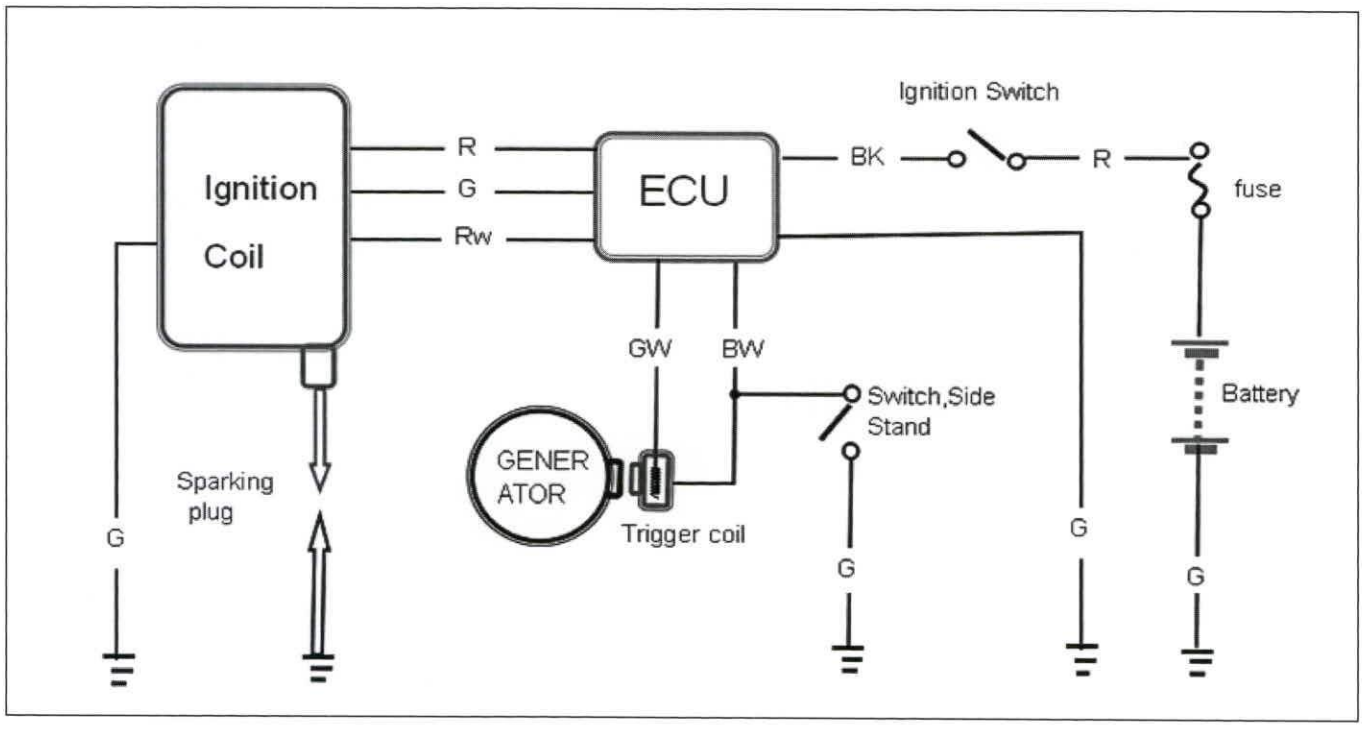
The following table shows the function of color mark for electrical schematic and polarity.

序 NO.	线色标记 COLOR MARK	线色名称 COLOR	功能/用途 FUNCTION	极性 POLARITY
1	R	Red 红	电池正极 BATTERY +	+
2	BK	Black 黑	电路正极 BATTERY -	+
3	G	Green 绿	导线负极 WIRING +	—
4	GBK	Green Black 绿黑	ECU 负极 ECU -	—
5	W	White 白	大灯近光 LOW BEAM	+
7	B	Blue 蓝	大灯远光 HIGH BEAM	+
8	Br	Brown 棕	前后位置灯 F&R POSTION LIGHT	+
9	Gr	Gray 灰	闪光器出线 FLASH RELAY WIRE	+
10	O	Orange 橙	左转向灯线 LEFT TURNING LIGHT WIRE	+
11	Lb	Light blue 浅蓝	右转向灯线 RIGHT TURNING LIGHT WIRE	+
12	Lg	Light Green 浅绿	喇叭线 HORN WIRE	—
13	YR	Yellow Red 黄红	继电器线 RELAY WIRE	+
14	GY	Green Yellow 绿黄	制动灯线 BRAKING LIGHT CBALR	+
15	BW	Blue White 蓝白	触发线圈线 TOUCH COIL WIRE +	+
16	GW	Green White 绿白	触发线圈线 TOUCH COIL WIRE—	—
17	Y	Yellow 黄	照明线圈线 LIGHTING COIL WIRE	+
18	P	Pink 粉红	充电线圈线 CHARGING COIL WIRE	+
19	Lg R	Light green Red 浅绿红	空挡线 NEUTRAL WIRE	—
20	BKW	Black White 黑白	熄火线 ON-OFF SWITCH WIRE	—
21	YW	Yellow White 黄白	油位计线 FUEL LEVEL GAUGE WIRE	—
22	V	Violet 紫	故障灯线 WARING LIGHT WIRE	—
23	YBK	Yellow Black 黄黑	档位显示 GEAR INDICATOR	—

点火系统 Ignition System

工作原理 Working Principle

点火系统由飞轮式磁电机、ECU、点火模块和火花塞组成。
Ignition system consists of fly-wheel type magnetor,ECU,ignition unit and spark plug.



如图所示 As the drawing shows：

1.当飞轮上的凸台转至触发线圈凸台位置时，触发线圈蓝/白色（BW）线和绿/白色（GW）线向 ECU 发出脉冲信号，ECU 经过处理后通过红/白线（RW）线向高压包发出点火信号。

When the boss on the fly wheel turns to trigger coil boss, the trigger coil wires BLUE/WHITE and GREEN/WHITE send the pulse signal to ECU, then ECU will send the ignition signal to ignition coil through wire RED/WHITE after treatment.

2.高压包将低电压脉冲转化为高压脉冲输出给火花塞。

Ignition coil will change the low voltage pulse into high voltage pulse output to the spark plug.

3.反复持续的高压脉冲通过火花塞间隙发出火花，从而点燃气缸内的混合气。

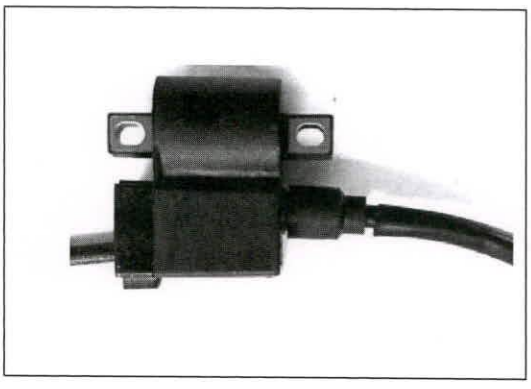
Sustained high voltage pulse comes out the spark from spark plug gap, igniting the mixed gas in the cylinder.

4.熄火方式 Cutoff method：电门锁 ON/OFF switch：断路熄火，断开 CDI 的电源 open circuit, Cut the CDI electricity

单撑熄火 Side stand switch：短路熄火，脉冲信号线与地线短路. short circuit, pulse signal wire and earth wire

点火模块 Ignition Unit

- 本车使用的是：集成式高压包； Integrated ingition coil
- CDI 和高压包集成于一体。CDI and ignition coil are integrated



注意 Warning:

* 该点火模块需要可靠的接地，否则会导致模块工作不良；
This ignition unit should touch the earth steadily, otherwise, it may not work well.
* 安装时一定要将导线上接地线固定在模块上。
While mounting, be sure to fix the earth wire on the unit

拆卸高压包 Remove the ignition coil

• 先拆卸油箱（详见 6-4）。

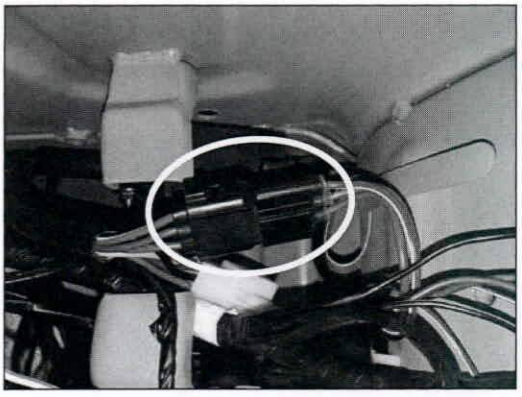
Remove the fuel tank first(details please check page 6-4)

• 用 M10 扳手拆除高压包支架螺母；

Remove the nut of the ignition coil bracket by M10 wrench

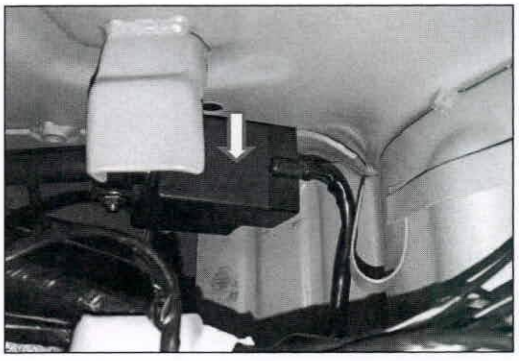
• 断开高压包与导线的插件；

Cut the ignition coil from the plug-in unit of the wiring harness



• 取出高压包；

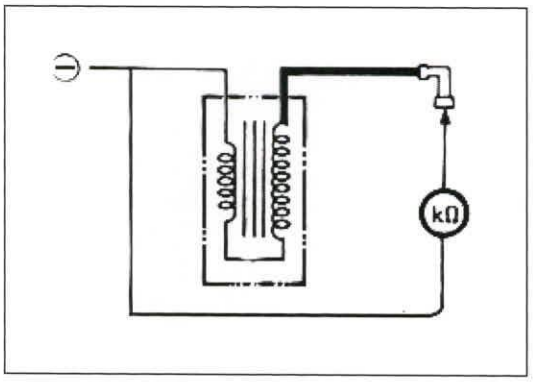
Remove the ignition coil



检查 Inspection

高压包电阻值 Ignition coil resistance value

• 拔出高压包。
Remove the ignition coil
• 万用表调至欧姆"KΩ"档位。
Adjust the multimeter to "KΩ"position
• 万用表正极与高压线一端相连；
负极与地线一端相连；
Connecting the positive pole of multimeter with one end of ignition coil wire, and negative pole with another end of earth wire

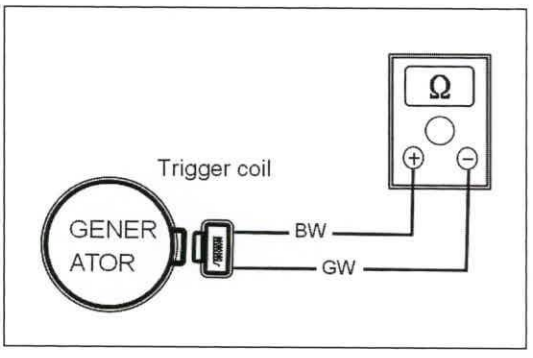


• 测量高压包电阻包括初级线圈和次级线圈的阻值。
Measure the resistance value of the primary coil and second coil

次级线圈阻值 resistance value of second coil	3.8 KΩ ±10%

触发线圈电阻 Trigger coil resistance

• 断开磁电机接插件。disconnect the plug-in unit of magnetor
• 万用表调至欧姆"Ω"档位。
Adjust the multimeter to "Ω"
• 万用表正极与触发线圈蓝/白色（BW）线相连，
负极与触发线圈绿/白色（GW）线相连。
测量出触发线圈的电阻。
Connect the positive pole of multimeter with trigger coil wire Blue/White, and the negative pole with trigger coil wire GREEN/WHITE.Then measure the value for Trigger coil resistance.

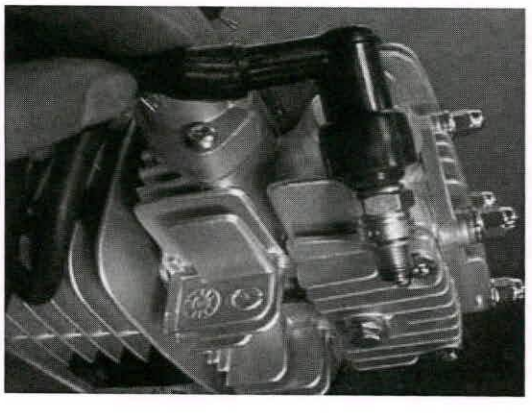


触发线圈电阻 resistance of trigger coil	102～160Ω

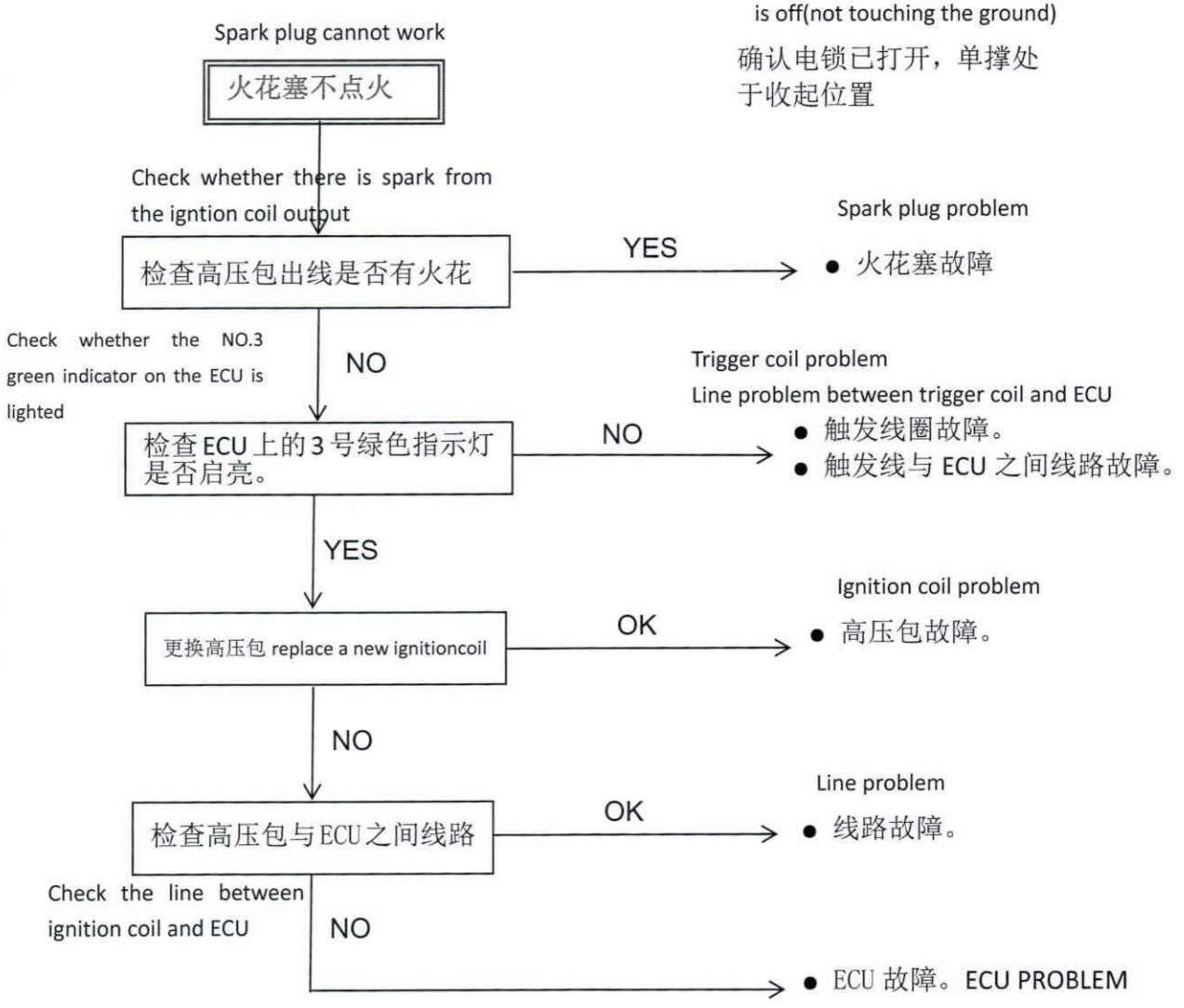
火花塞点火 Spark plug ignition

• 拆下火花塞。 Remove the spark plug
• 在火花塞帽连接上火花塞，并接触缸头。
Connect the spark plug with the spark plug cap, and touch the cylinder head.

• 按下电起动按钮，查看火花塞点火情况。
火花塞火花：应连续不间断且火花不能散开。
Press the e-starter button，check the spark plug ignition.
Spark of spark plug should keep consistent and cannot get loose



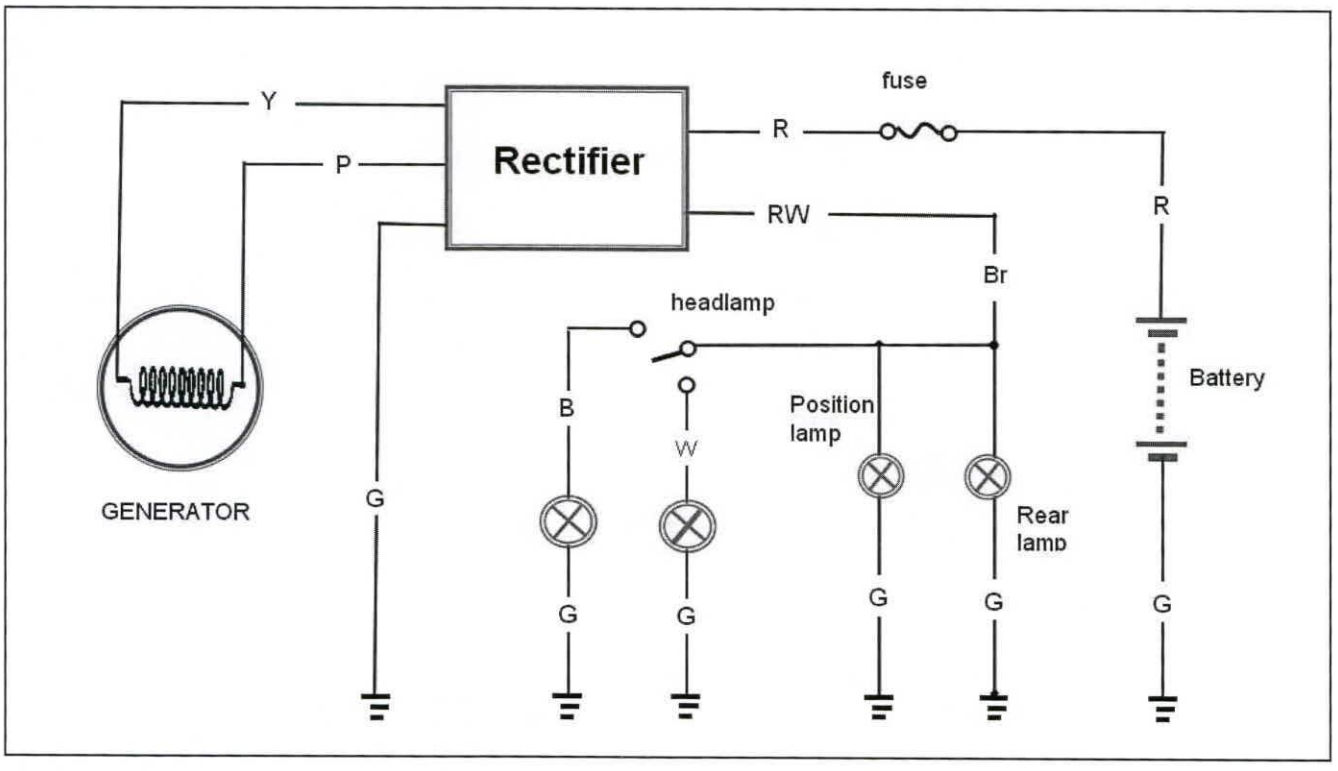
故障排除 Trouble shooting



充电和照明系统 Charging & Lighting System

工作原理 Working Principle

充电和照明系统由飞轮式磁电机、稳压器、蓄电池、照明灯具组成。
Charging and lighting system consists of flywheel magneto, rectifier, battery and lighting lamps



如图所示 As the drawing shows:

1.当磁电机飞轮转动时，磁场切割线圈产生直流电压。
When Magneto flywheel rotates, the magnetic field is cutting coil and producing DC voltage
2.充电照明线圈的粉色（P）线和黄色（Y）线将直流电压提供给稳压器稳压整流。
The Pink and Yellow wire of charging and lighting coil supply DC voltage to rectifier in order to regulate the voltage.
3.稳压器将稳压整流后电流通过：红色（R）线向蓄电池充电，红/白色（RW）线向照明系统供电。
Rectifier sends the current after regulating voltage to battery charging through Red wire and lighting system through Red/White wire.
4.当发动机运转时，前后位置灯和大灯会启亮且无法关闭。
When the engine is running, the front&rear position light and front lamp will work automatically and cannot be switched off

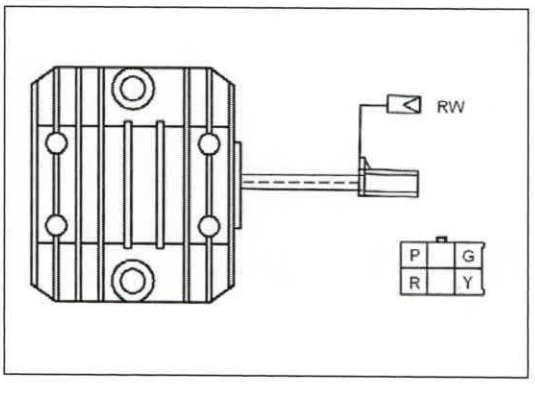
稳压器 Rectifier

- 本车使用的是：12V 直流双输出稳压器。

This model uses 12V DC double output rectifier

- 最大充电电压为 the Max. charging voltage：14.5±0.5V。
- 大灯常亮在稳压器中控制，红/白色（RW）线在发动机运转时才会产生电压和电流。

AHO(automatic headlamp on) is controlled by rectifier, the Red/White wire only produces voltage and current when the engine is running



检查 Inspection

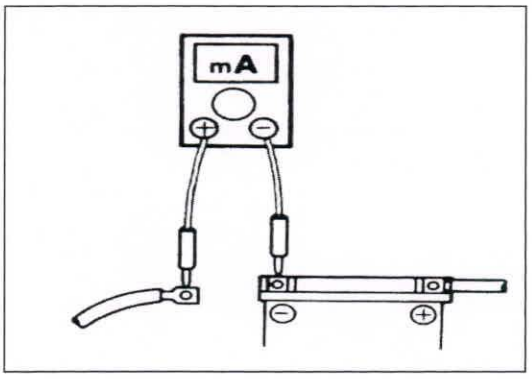
蓄电池泄漏电检查 Leakage of battery electricity

- 打开座垫。
- 将电锁转到 OFF 位置。
- 断开电池负极导线。
- 将万用表连接在电池和电池连接导线之间。

如读数超过 1mA 说明有明显的泄漏现象。

- Open the seat
- Turn off the ignition switch
- Disconnect the battery negative pole wire.
- Connect the multimeter between the battery and the battery wire.

If the reading exceeds 1mA, then it means there is obvious leakage



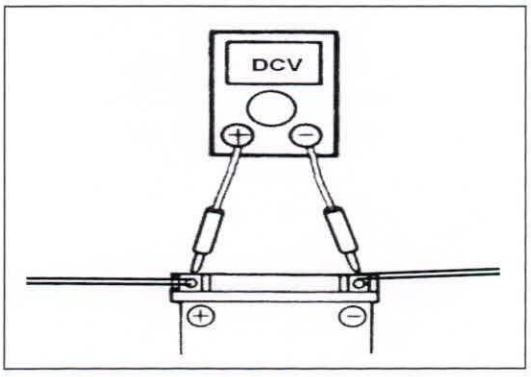
蓄电池放电检查 Battery discharge inspection

- 起动发动机并将转速保持在 5000r/min。
- 将大灯开关打开到 位置，远近光调至远光位置。
- 用万用表检查电池和间的直流电压。

如读数低于 13.5V 或高于 15.0V，检查磁电机线圈和稳压器。

- Start the engine and keep the RPM at 5000r / min.
- Turn on the headlight switch, adjust to high beam position.
- Check the DC voltage of battery between and by multimeter.

If the reading is less than 13.5V or higher than 15.0V, please check the magneto coil and rectifier.



5000r/min 时充电电压 5000r/min charging voltage	13.5V～15.0 V

线圈电阻 Coil resistance

- 断开磁电机接插件。

Disconnect the magneto plug-in units.

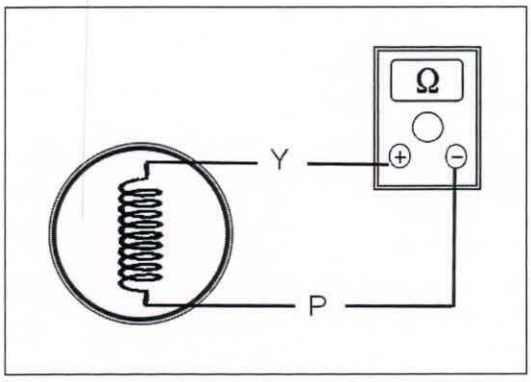
- 万用表调至欧姆"Ω"档位。

Turn the multimeter to"Ω"position.

- 万用表分别与线圈粉色（P）线和黄色（Y）线相连。

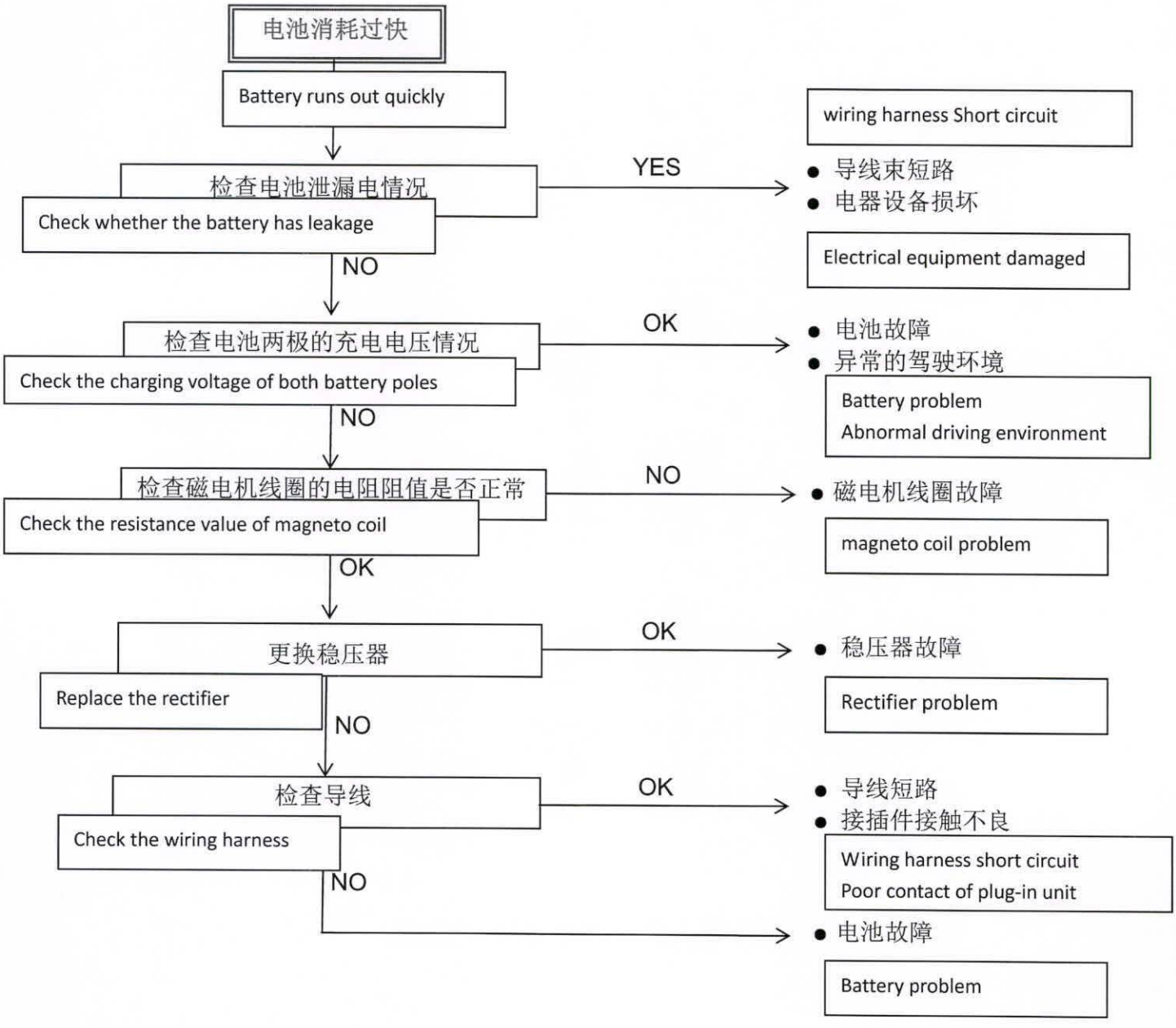
测量出充电和照明线圈的电阻。

Connect the multimeter with Pink wire and Yellow wire of the coil.Then measure the resistance of the charging and lighting coil.



线圈电阻值 Resistance value of coil	0.4～0.9Ω

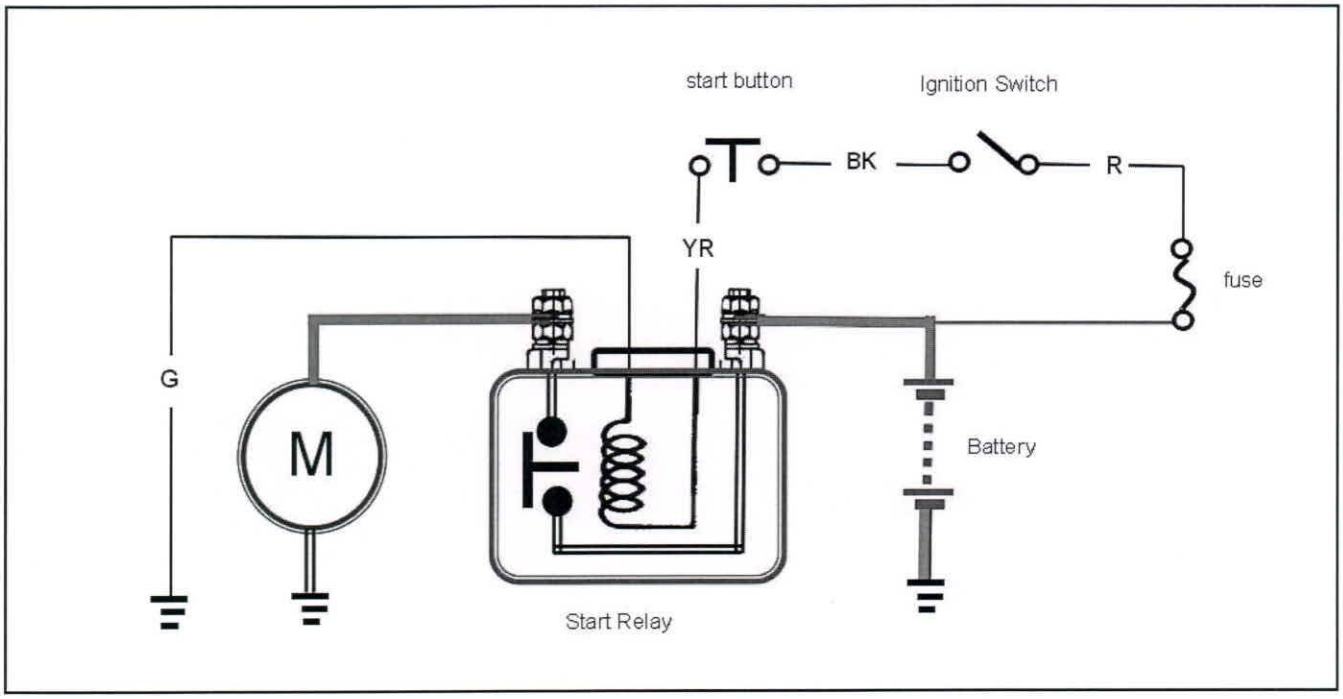
故障排除 Trouble shooting



起动系统 Starting System

工作原理 Working principle

起动系统由起动马达、蓄电池、继电器、起动开关组成。
Starting system consists of starting motor, battery, start relay and starting switch.



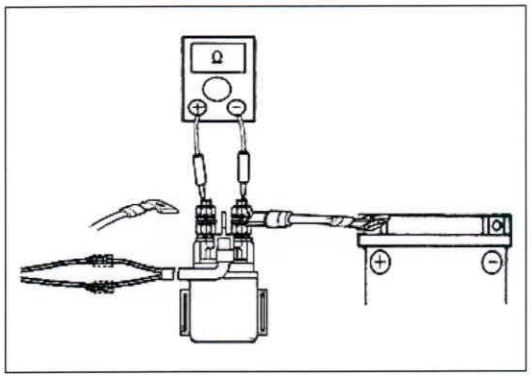
如图所示 As the drawing shows:
1、继电器是用低电流控制高电流的一种开关。
2、由起动按钮控制继电器吸合将继电器两个接线柱接通实现马达工作，起动发动机。
3、继电器黄红（YR）线是控制火线输入。
1, the relay is a switch which low current controls high current.
2, the start button controls start relay. Connect the two terminals , engine will be start.
3, Yellow-red (YR) wire of start reply controls the input of Fire wire.

检查 Inspection

起动继电器 Start Reply

- 断开起动马达红色正极线。
- 将电锁转到 ON 位置。
- 万用表调至欧姆"Ω"档位
- 将万用表连接在继电器接线柱之间。
- 按下起动按钮，检查接线柱的导通性。

如不导通，说明继电器故障，应更换继电器。
•Disconnect the red positive wire of starter motor.
•Turn the ignition switch to ON position.
•Turn the multimeter to "Ω" position.
•Connect the multimeter between the two terminals of relay.
•Press the start button, check the conduction of terminals.
•If it cannot get conductive,that means the start relay has problem and should be replaced



拆卸继电器 Remove start relay

• 用钥匙顺时针打开座垫锁；

Open the seat lock by key in the clockwise way

• 用力将座垫后部向上抬起，打开座垫；

Lift the rear part of seat with power and open the seat

• 先将电池⊖极接线柱拆除；

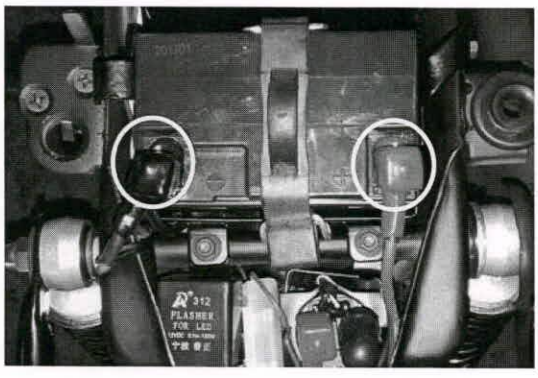
Remove the wire connecting terminal of battery ⊖ **pole**

• 再将电池⊕极接线柱拆除；

Remove the wire connecting terminal of battery ⊕ **pole**

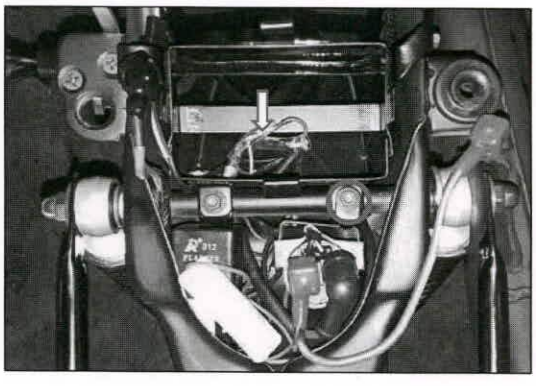
• 拆除电池攀带，取出电池。

Remove the battery band and take out the battery



• 用 M8 套筒拆除继电器支架固定螺栓；

Remove the bolt of relay bracket by M8 sleeve



• 拆除继电器与电池相连的红色线；

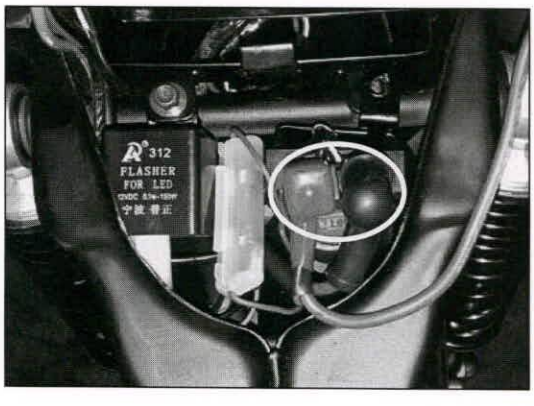
Disconnect the red wire connecting the relay and battery

• 拆除继电器与起动马达相连的红/白线；

Disconnect the Red/White wire connecting the relay and starting motor

• 取出继电器；

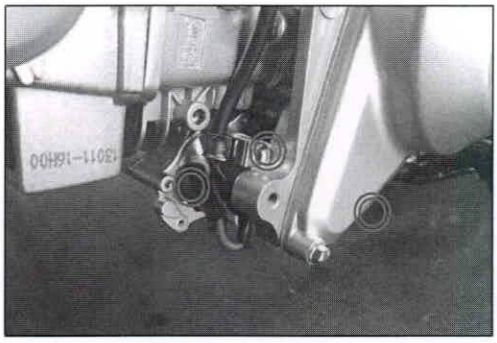
Remove the relay



起动马达 Starting motor

• 拆下左曲轴箱盖和起动齿轮卡簧挡圈（详见 3-18 页）。

Remove the circlip of the left crankcase cover and pinion kick start.(details please check the page 3-18)



• 拆下起动马达连接线。

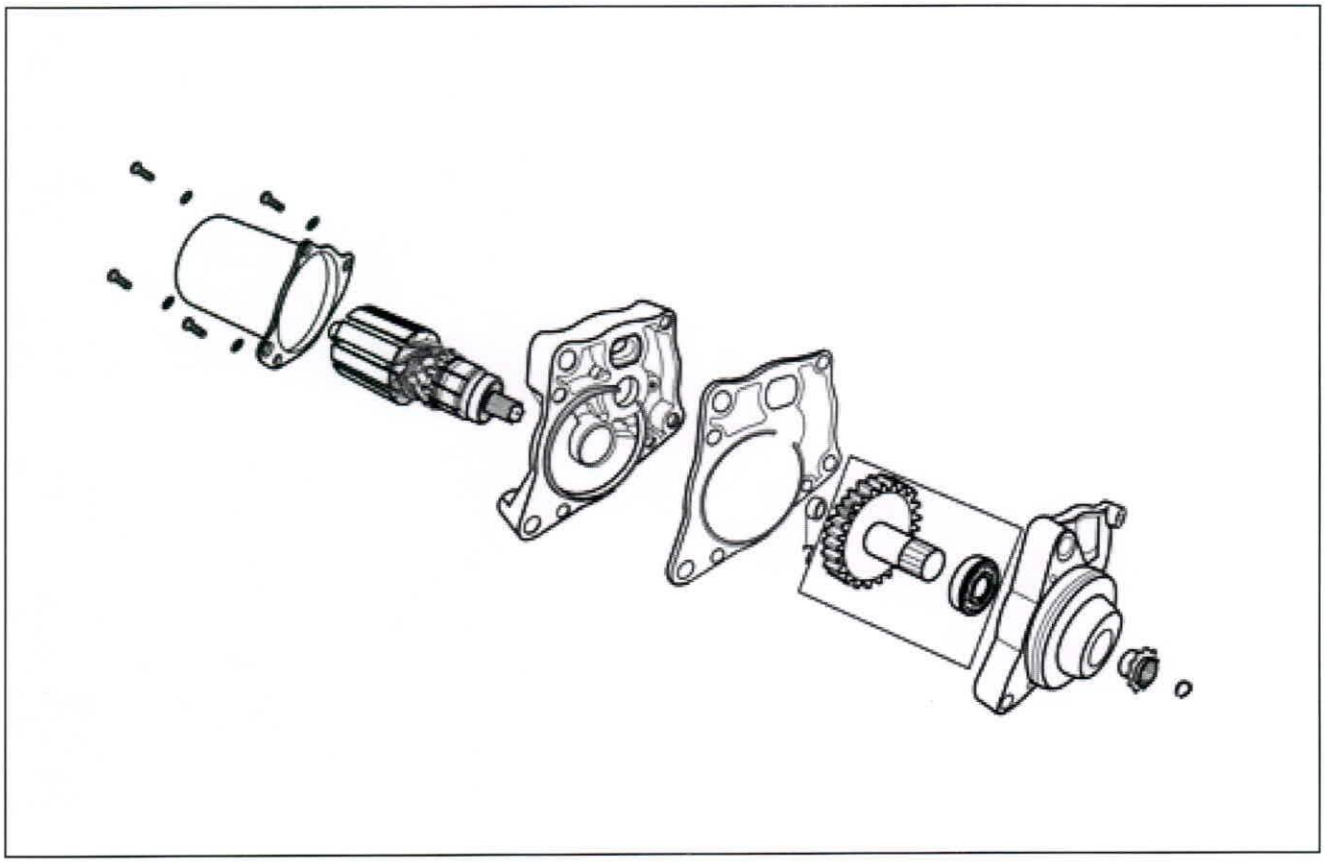
Remove the starting motor connecting wire.

• 拆下起动马达。

Remove the starting motor.

• 如下图所示分解起动马达。

Please check the following drawing for starting motor breakdown



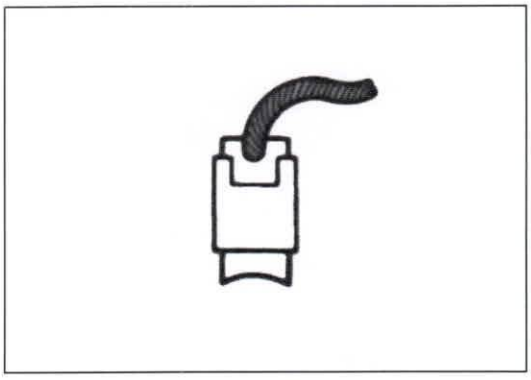
检查碳刷 Carbon brushes inspection

检查碳刷的非正常磨损、裂纹或端面的平滑度。

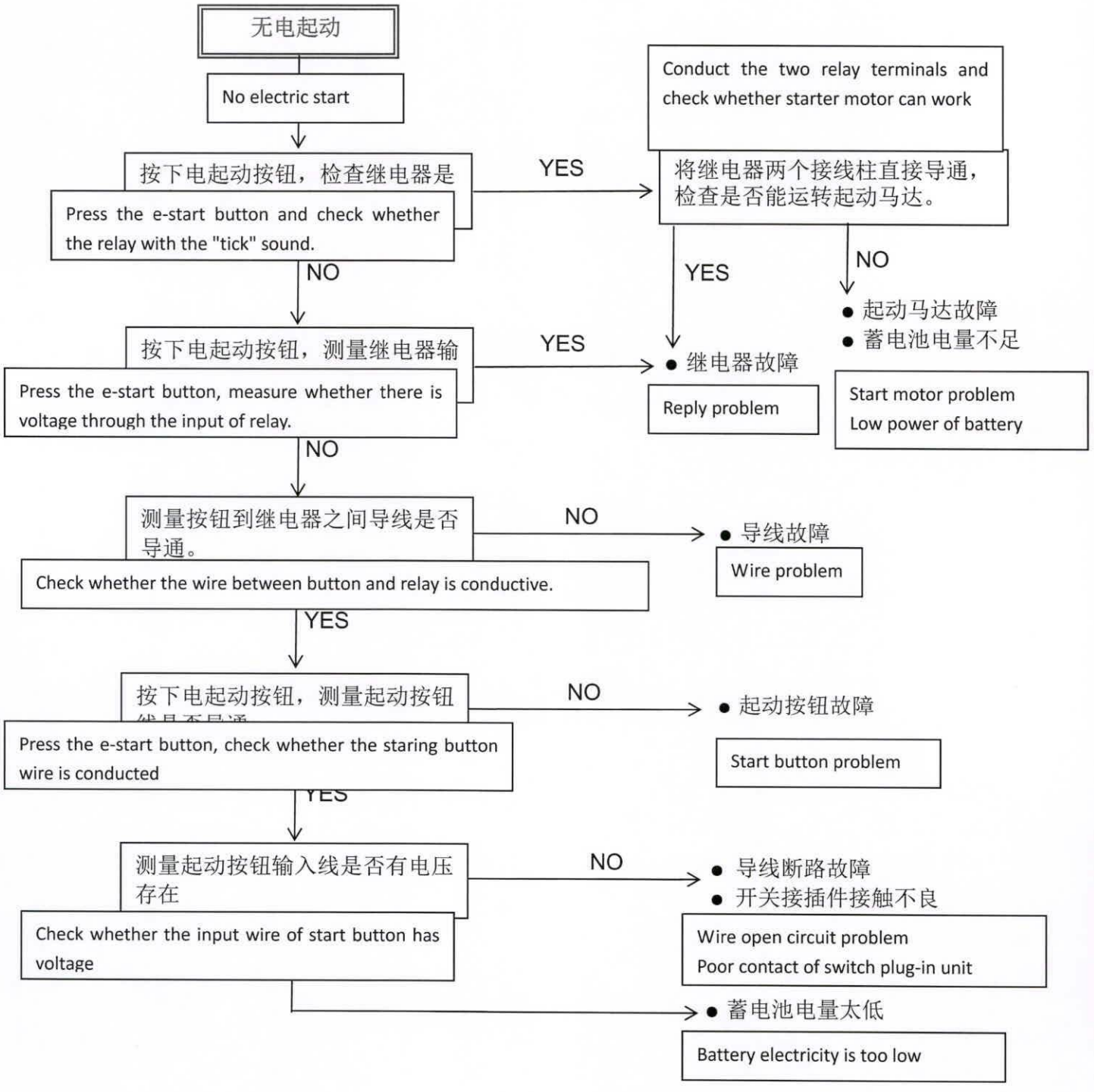
如发现碳刷破损或磨损严重，应予以更换。

Check the abnormal wear, cracks or smoothness of the end

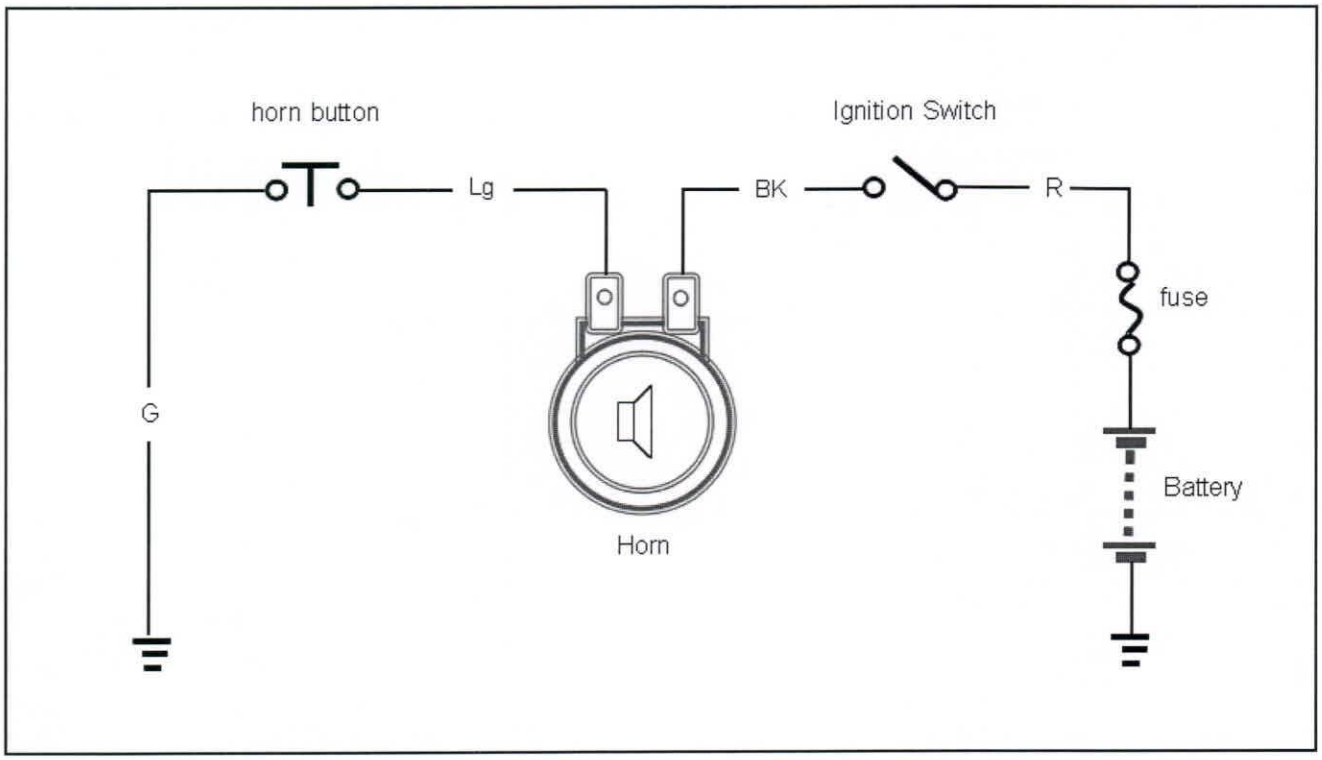
If carbon brushes are found with damage or overworn, then it should be replaced.



故障排除 Trouble shooting



喇叭 Horn



技 术 参 数 Parameter	
电压 Voltage	12V
电压范围 Voltage Range	9V ~ 14.5V
电流 Current	1.5A max
分贝值 dB	95 ~ 115 dB
频繁 Frequency	440Hz±30Hz

音质调整 Adjust the voice quality

- 松开喇叭调节螺钉锁紧螺母，

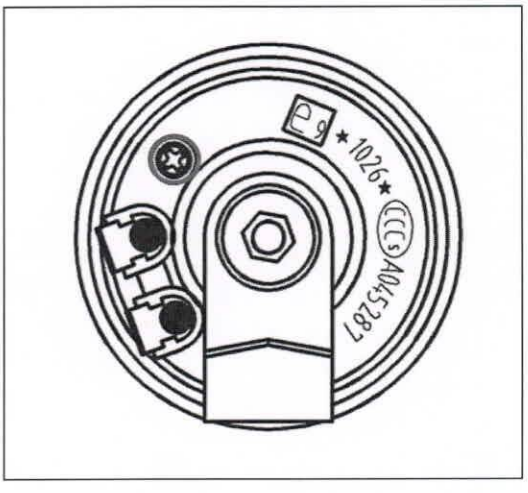
Loose the locking nut of horn adjusting screw

- 用十字螺丝刀轻轻旋转调节螺钉，边调节边按下喇叭按钮，使喇叭音质调至最佳状态后，停止旋转调节螺钉。

Adjust the screw by rotating the cross screwdriver gently, while adjusting, press the horn button, until get the best voice quality of the horn

- 调整完成后，锁紧调节螺钉锁紧螺母。

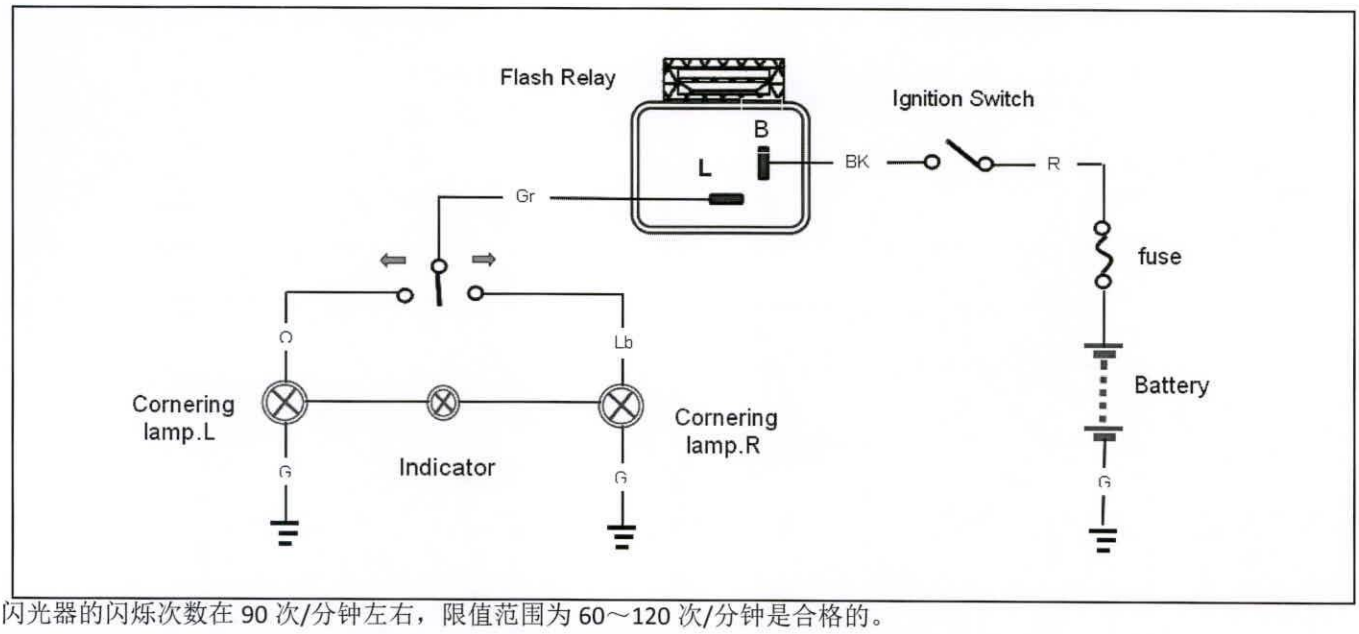
After adjusting, tighten the locking nut of the adjusting screw



闪光器 Flash Relay

闪光器是串联在转向信号灯线路中的一个闪烁装置。

Flash relay is a flash equipement in the series connection of turning signal line.



1、闪光器的闪烁次数在 90 次/分钟左右，限值范围为 60～120 次/分钟是合格的。

The flashing frequency is around 90 times per min, and the limit range is 60-120 times per min..

2、闪光器的功率为：普通灯为 10W×2（前转向灯＋后转向灯）。

LED 灯为 0.1~150W。

The power of flash relay is : normal lamp 10W×2（front turning light＋rear turning light）

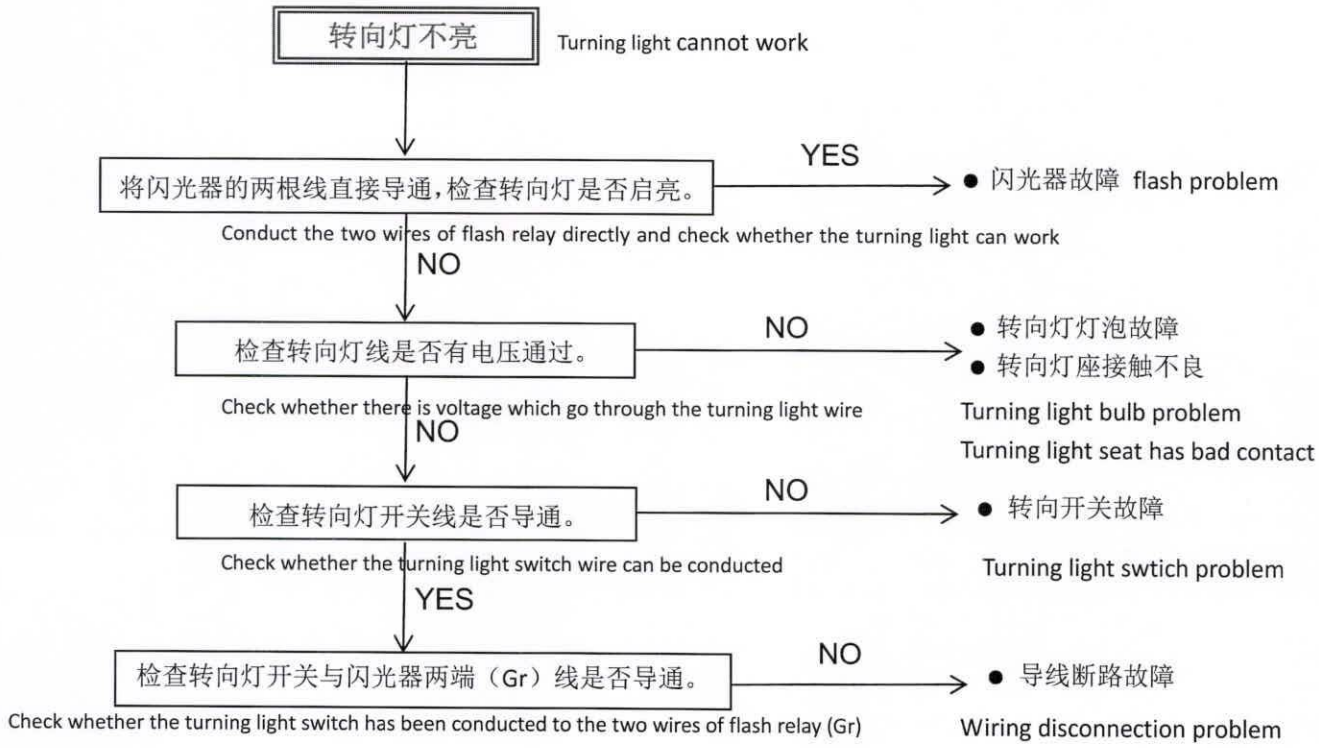
LED lamp 0.1~150W

3、闪光器随着功率变化，闪光频率会随之变化。功率变小闪光频率变大，功率变大闪光频率变小。

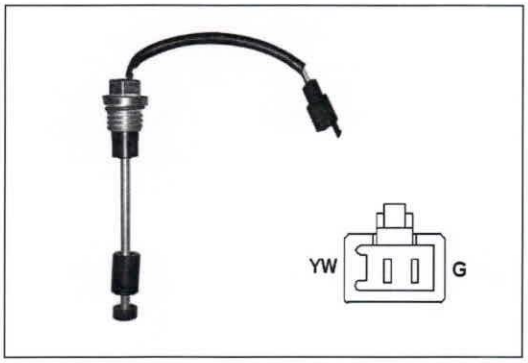
With the change of the power, the flashing frequency will change also. If the power is less then the flashing frequency is big, vice versa

故障排除 Trouble shooting

- 如转向灯或指示灯出现高频率闪烁，可能是其中一个转向灯灯泡损坏。
- If turning light or indicator flashes with high frequancy, most likely the bulb of one turning light is broken

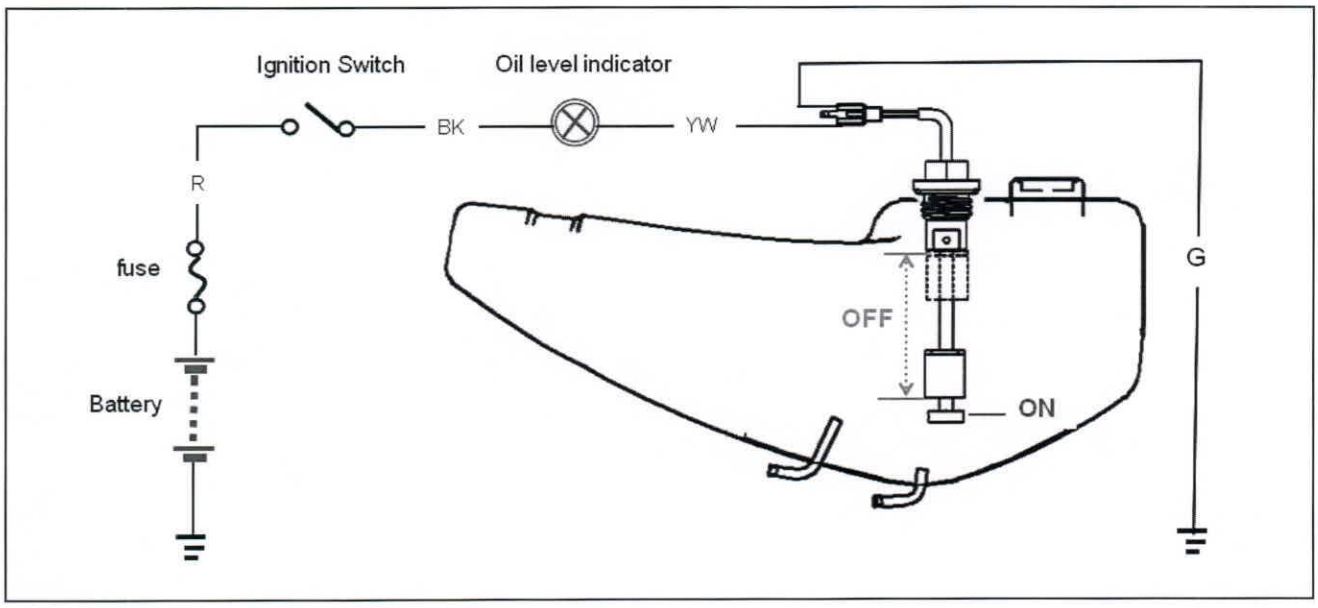


油位计 Fuel Level Gauge



1、油位计采用磁感应式。
2、浮子在底部 2mm 范围内接通，点亮油位指示灯。
3、油位指示灯为 LED12V20mA，油位计负载不得超过 3W。

1.the fuel level gauge is magnetic induction type.
2.the float is conduced within 2mm at bottom, lighting the fuel level indicator.
3.the fuel level indicator is LED12V20mA, and the load of fuel level gauge should not exceed 3W.



检查油位计 Fuel Level Gauge Inspection

- 打开座垫、拆下油位计。

Open the seat, remove the fuel level gauge.

- 断开油位计线接插件。

Disconnect the wire plug-in unit of fuel level gauge.

- 万用表调至欧姆"Ω"档位

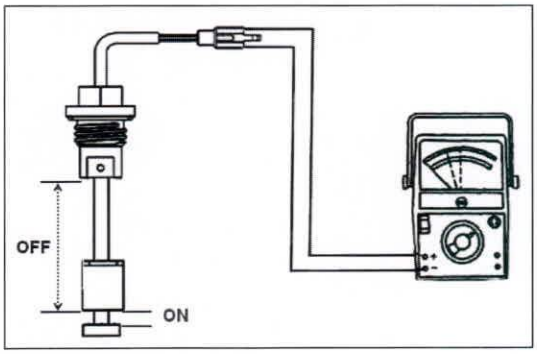
turn the multimeter to "Ω" position. .

- 将万用表连接在油位计的两根导线之间。

Connect a multimeter between the two wires of fuel level gauge.

- 将油位计如图所示方向放置。

Fix the fuel level gauge as the direction on the attached drawing here



- 用手上下移动浮子，检查其导通性
- move up and down the float by hand, check the conduction.

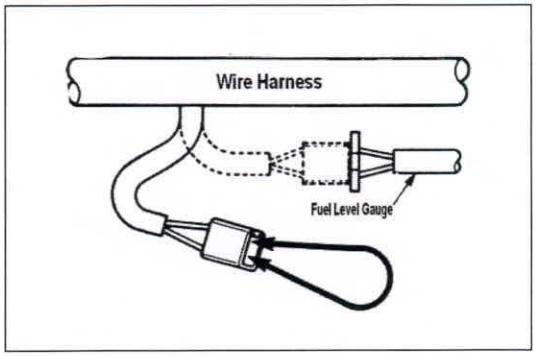
如浮子在底部 2mm 范围内有不导通现象，或浮子在底部 2mm 以上范围内有导通现象，说明油位计存在故障，应更换油位计。

If the float cannot get conducted within 2mm at the bottom， or the float is conducted above 2mm from the bottom, then it means the fuel level gauge has problem, and needs to be replaced.

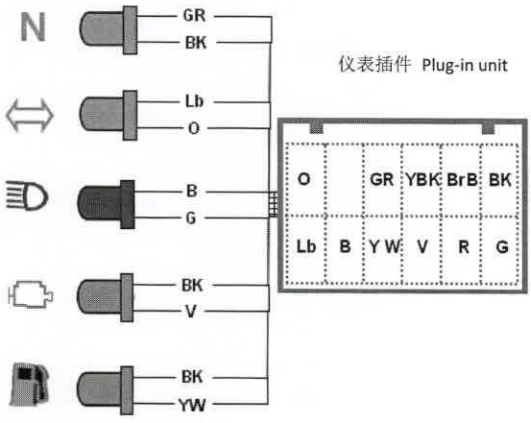
故障排除 Trouble shooting

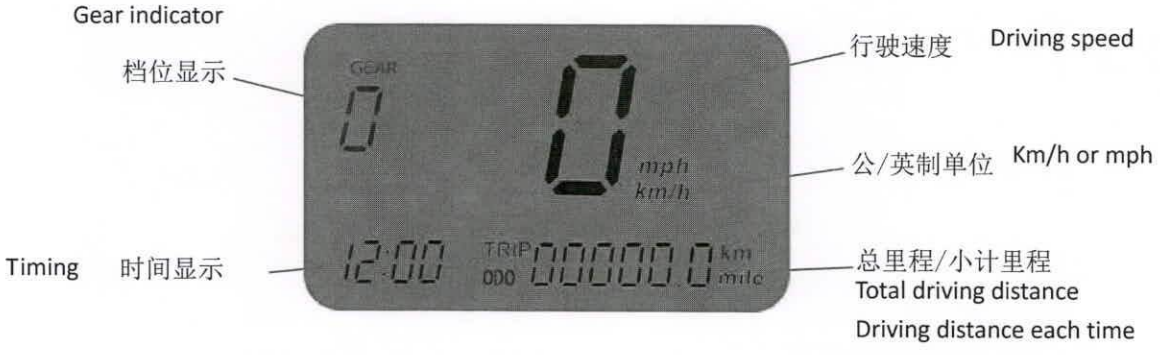
断开油位计连接线，如图将导线束上的油位计两根线导通，检查油位指示灯是否被点亮。如指示灯点亮说明指示灯线路正常，油位计存在故障。如指示灯未点亮，请更换灯泡或检查修理线路连接。

Disconnect the fuel level gauge wire, and connect the two wires of fuel level gauge as the drawing shows here, check whether the fuel level indicator is lighted.If the indicator can be lighted, that means,the wiring can work well,and the problem is from the fuel level gauge; otherwise, please replace the bulb or check the wiring connection



仪表总成 Speedometer Assy.





符号 signal	功 能 function	线 色 cable color	线色标记 color mark	极 性 Polarity
⇔	转向指示灯 Turning lights	L：Orange 橙	O	+
		R：Light Blue 浅蓝	Lb	+
	远光指示灯 high beam	Blue 蓝	B	+
N	空档指示灯 Neutral	Green Red 绿红	GR	—
	故障指示灯 Fault indicator	Violet 紫	V	—
	油位指示灯 fuel indicator	Yellow White 黄白	YW	—
-	档显信号 gear indicator	Yellow Black 黄黑	YBK	—
-	计速信号 speed signal	Brown Blue 棕蓝	BrB	—
-	电池电源 battery electricity source	Red 红	R	+
-	工作电源 working electricity source	Black 黑	BK	+

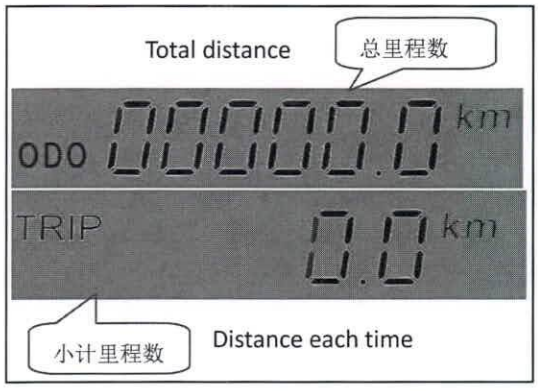
1、远光指示灯、转向指示灯：控制火线（＋）进入，实现点亮功能。
High beam indicator,turning indicator: control the entrance of fire wire (+), so the lighting function can be available
2、空档指示灯、油位指示灯、故障指示灯：控制地线（—）进入，实现点亮功能。
Neutral indicator,fuel indicator,fault indicator: control the entrance of ground wire(-),so the lighting function can be available
3、切换公英制单位时，车速和里程自动同步切换。
When change KM/H / MPH, both speed and driving distance will be changed at the same time
4、当拆下蓄电池时或保险丝损坏后，时间将会复位到时零位。
When remove the battery or after the fuse gets damaged, the time will be reset to 0

调整按钮 Adjusting button

将钥匙使电门锁打开至"ON"档,利用按钮可以进行以下操作
When the main switch is turned to "ON" position by key, the following operation is available through the button:

- 小计里程调整 adjustment of the distance each time:

短按按钮一下，进入总里程"ODO"和小计里程"TRIP"切换模式。
Press the button quickly, and enter the change mode of total distance"ODO" or distance each time"TRIP"
在小计里程"TRIP"模式下，常按按钮可置零。
Under the mode of distance each time"TRIP", the speedometer can be reset to 0 on long pressing



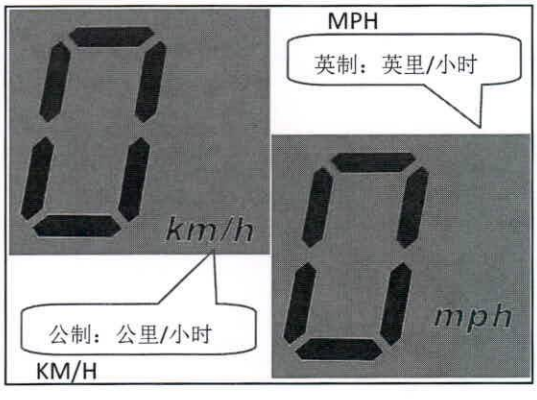
- 时间调整 Timing adjustment:

常按按钮，待时钟数闪烁后松开按钮，此时每短按一下按钮数字会增加"1"。时钟调整完毕后再常按按钮，待分钟数闪烁后松开按钮，，此时每短按一下按钮数字会增加"1"，以此类推。
Press the button for a while, unitl the hour reading is flashing, then release the button. At this time, the digit can be increased by "1" with each quick press. After adjusting the hour reading, then press the button again, until the minute reading is flashing, then release the button, and the digit can be increased by "1" with each quick press, and so on.

- 公/英制单位调整 Adjustment of Km/h and MPH ：

常按按钮等 km/h 或 mph 闪烁时松开按钮，此时再短按一下按钮可来回切换 km/h 或 mph 模式。
Press the button for a while, unitl KM/H or MPH is flashing, then release the button. At this time, KM/H and MPH can be changed by quick press

里程数将自动随之变换。
And the unit for distance will be changed accordingly



拆卸仪表 how to disassemble the speedometer

• 用十字螺丝刀拆下大灯壳上的 3 个固定螺栓:。

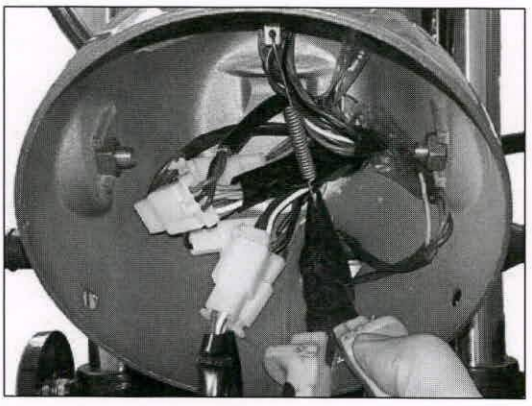
螺栓规格：十字沉头 M5×16。

Remove the 3 fixing bolts on the front lamp cover by cross screwdirver

Bolt size: cross recessed countersunk head M5×16

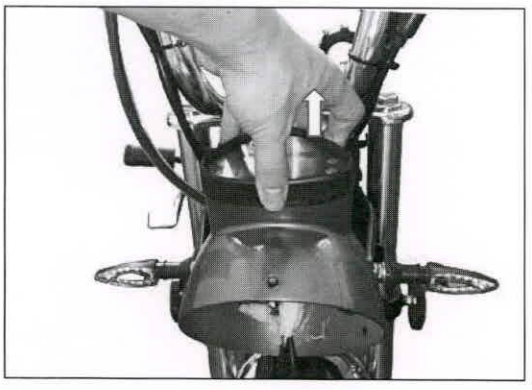
• 用尖钳拆下仪表固定拉簧。

Remove the fixting spring by sharp nose pliers



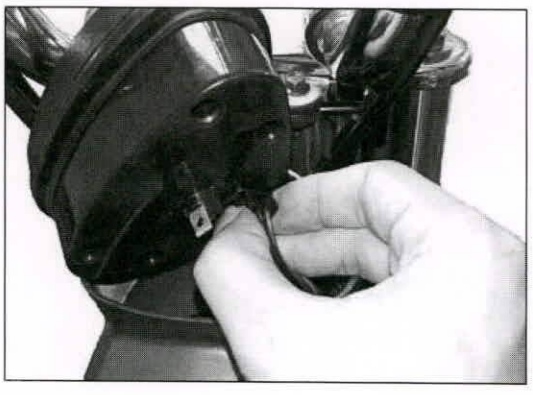
• 用手捏住仪表向上拔出仪表。

Hold the speedometer by fingers and pull out



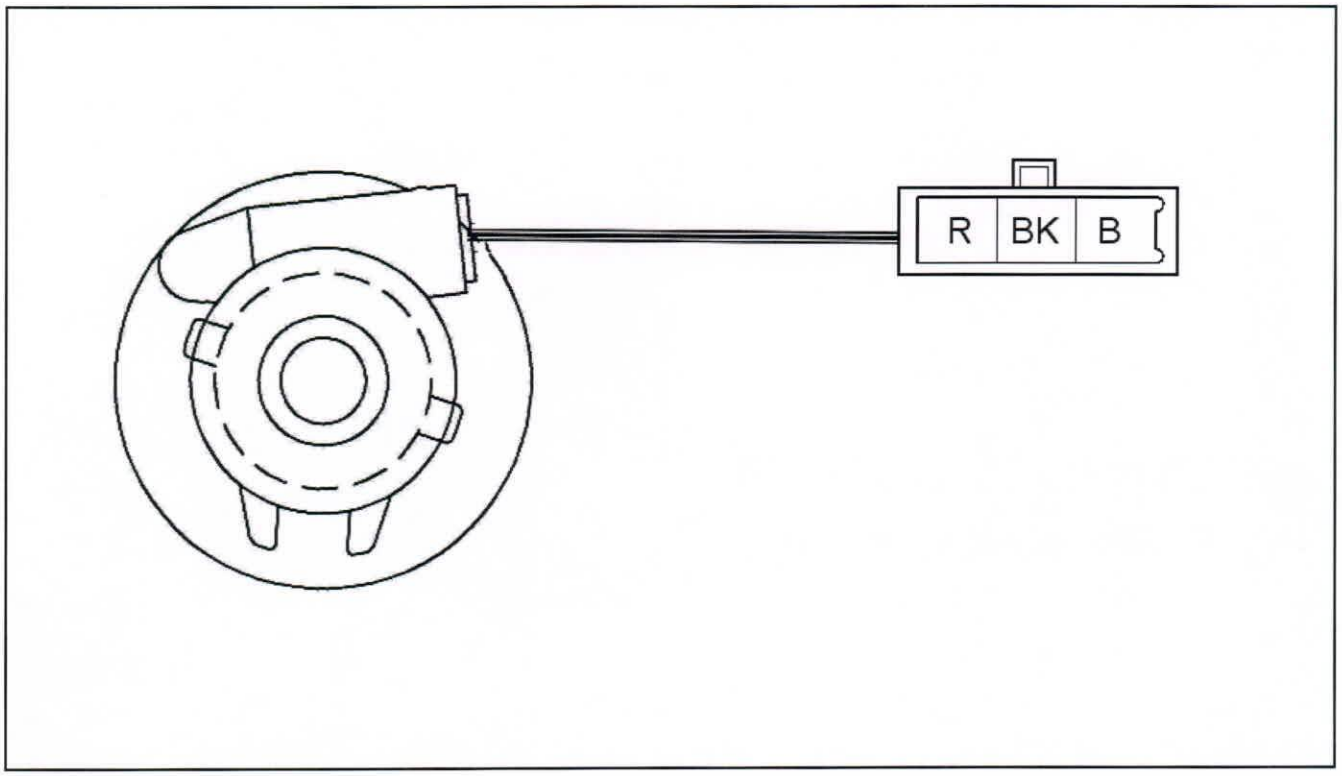
• 拔掉仪表连接线插件。

Disconnect the plug-in unit of speedometer cable



计速传感器 Speed sensor

本车型采用的是霍尔传感器计速传感器 This model uses the Hall sensor type



线色标记 cable color mark	线 色 cable color	功 能 function
R	Red 红	电源 electricity source＋
BK	Black 黑	电源 electricity source —
B	Blue 蓝	信号线 signal cable

计速传感器的工作原理 Working principle of speed sensor：

1，计速器内部的塑料转轮上有 4 个磁性方块，传感器通过感应转轮上方块的磁场，将其转化为脉冲电压输出。

There are 4 magnetic square pieces on the plastic rotating wheel inside the sensor, and the sensor transfers the pulse voltage output through the induction of the magnatic file on the top of the rotating wheel.

注意 Warning:

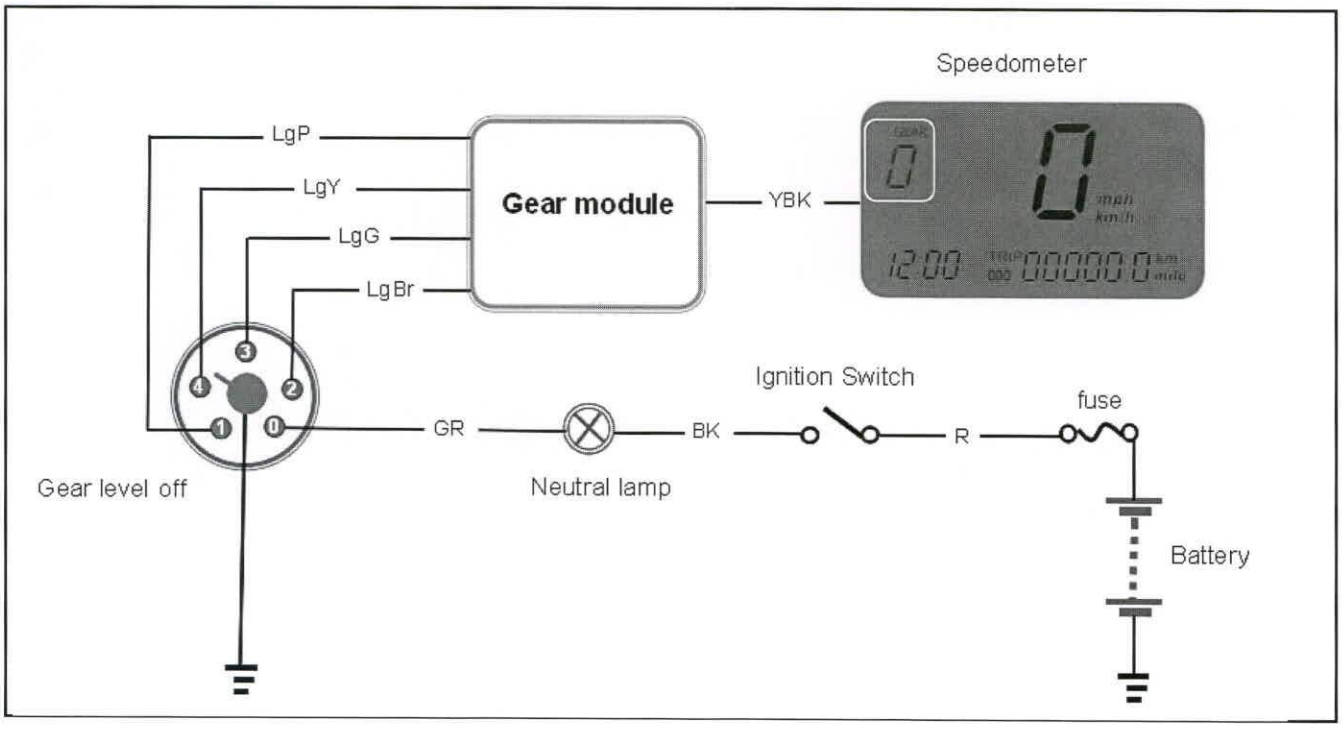
* 该电子计速器为 12V 供电。
This speed sensor is with 12V power supply

档位显示 Gear Display

工作原理 Working Principle

档位显示是由：档位开关、档位模块、仪表组成。

The gear display consist of gear switch, gear module and speedometer.



1、档位开关位于发动机小链轮上方的位置。
2、档位开关触头与变速豉相连接，换档时触头上的触点与开关上的触点相通。
3、档位开关将档位接地信号传递给档位模块。
4、档显模块将接地信号转化为电阻信号上传给仪表，从而实现档显功能。
5、仪表显示屏上显示：1、2、3、4 档位数字，没有档位信号时为空白显示。
6、当档位开关位于空档位置时，空档指示灯启亮。

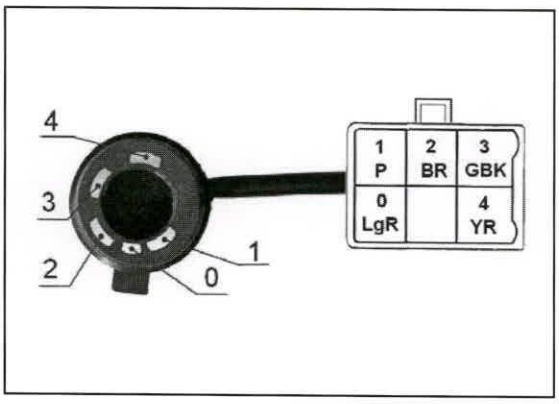
1. The gear switch is located in top of the front sprocket on engine.
2. The gear switch contact are connected to durm comp,gearshift. The contact point on the contact is connected to the contact point on the switch when shifting.
3. The gear switch passes the gear ground-connected signal to the gear module.
4. In order to achieve the file display function, the module module converts the ground-connected signal into a resistance signal to the speedmeter
5. The display screen shows the gear: 1, 2, 3, 4. And it is blank when there is no gear signal.
6. The neutral indicator is working when gear switch in the neutral position.

检查 CHECK

档位开关检查 check gear switch

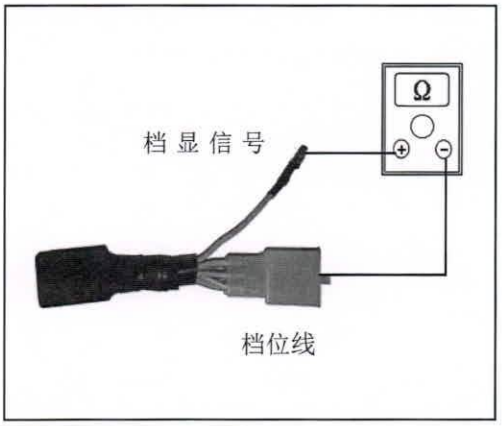
- 断开档位开关接插件。
- 万用表调至欧姆“Ω”档位。
- 万用表分别测量：档位开关触点与对应的 1、2、3、4 档位的线是否接通。

- Disconnect the gear switch connector.
- Turn the multimeter to "Ω" position.
- Measured the gear switch contact point whether connected by multimeter: on the lines of 1,2,3,4 gears.



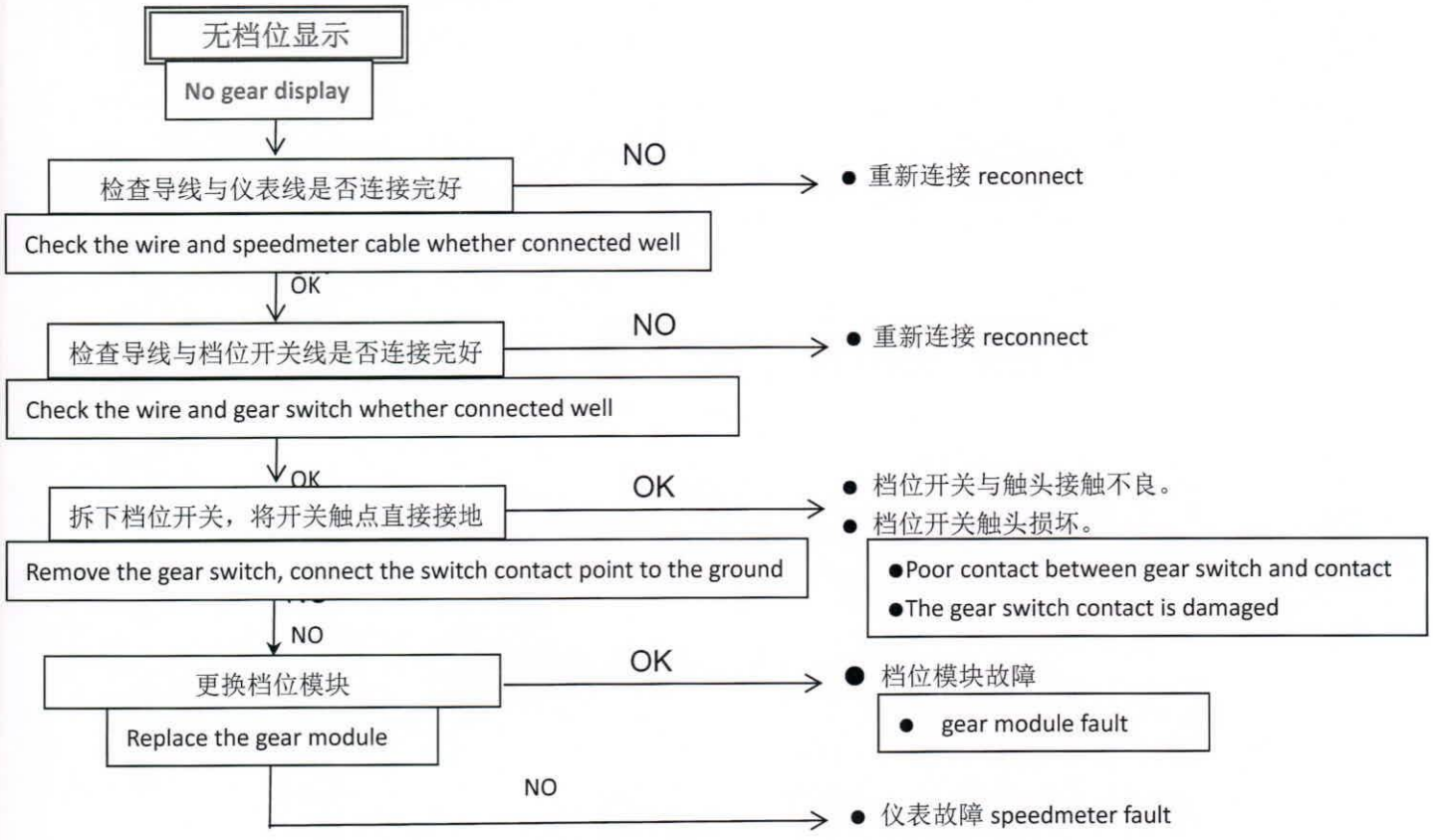
档显模块 Gear Module

- 断开档显模块接插件。
- 电子万用表调至欧姆“Ω”档位。
- 万用表测量：档显信号线分别与1、2、3、4档线之间的电阻值。
- Disconnect the gear switch connector.
- Turn the multimeter to "Ω" position.
- Measured the resistance by multimeter: between gear signal line and 1,2,3,4 gear position lines.



档位线 Gear position line	线色标记 Color mark	电阻型号 Resistance model	电阻值 Resistance value
1档：浅绿粉线 Gear 1: Light green powder line	Lg P	1001	1000Ω
2档：浅绿棕线 Gear 2: light green brown line	Lg Br	2001	2000Ω
3档：浅绿绿线 Gear 3: Light green green line	Lg G	332	3300Ω
4档：浅绿黄线 Gear 4: Light green yellow line	Lg Y	5101	5100Ω

故障排除 Trouble shooting

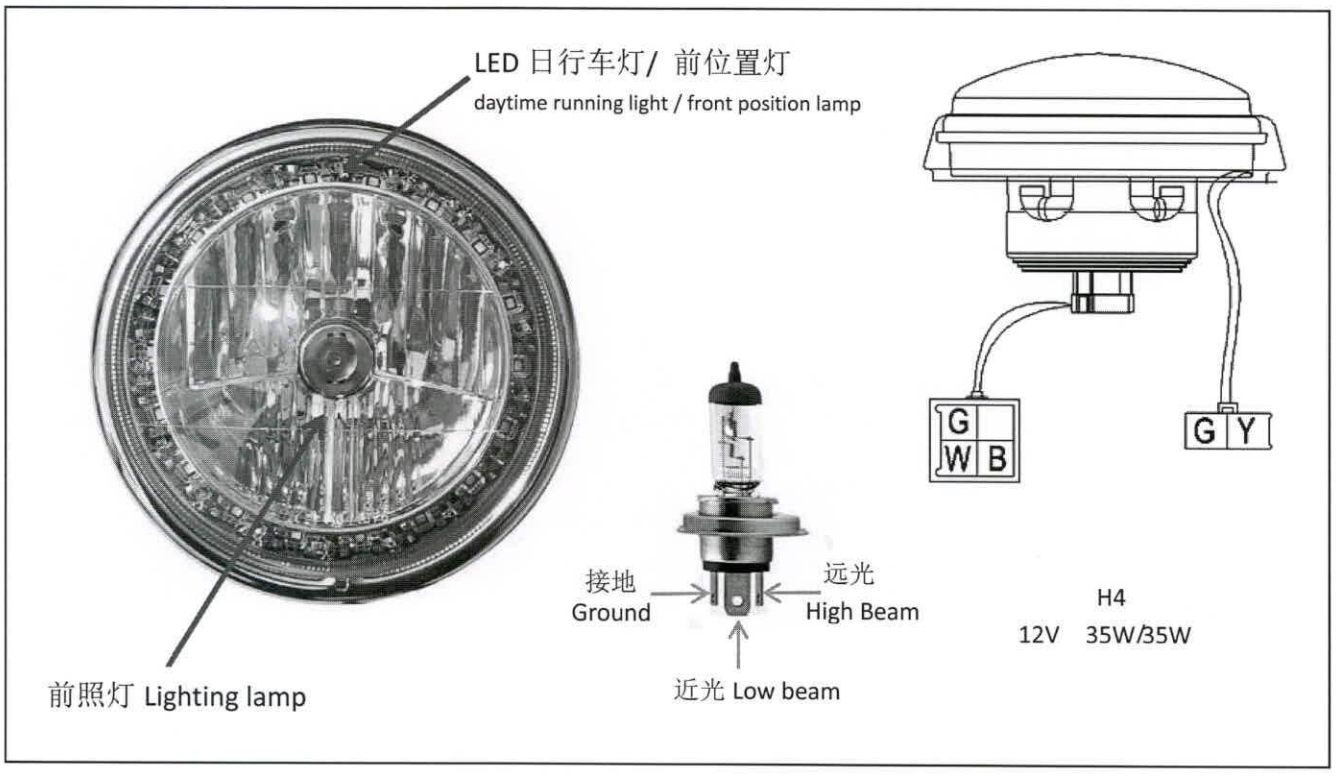


灯具部分 Lamps Component

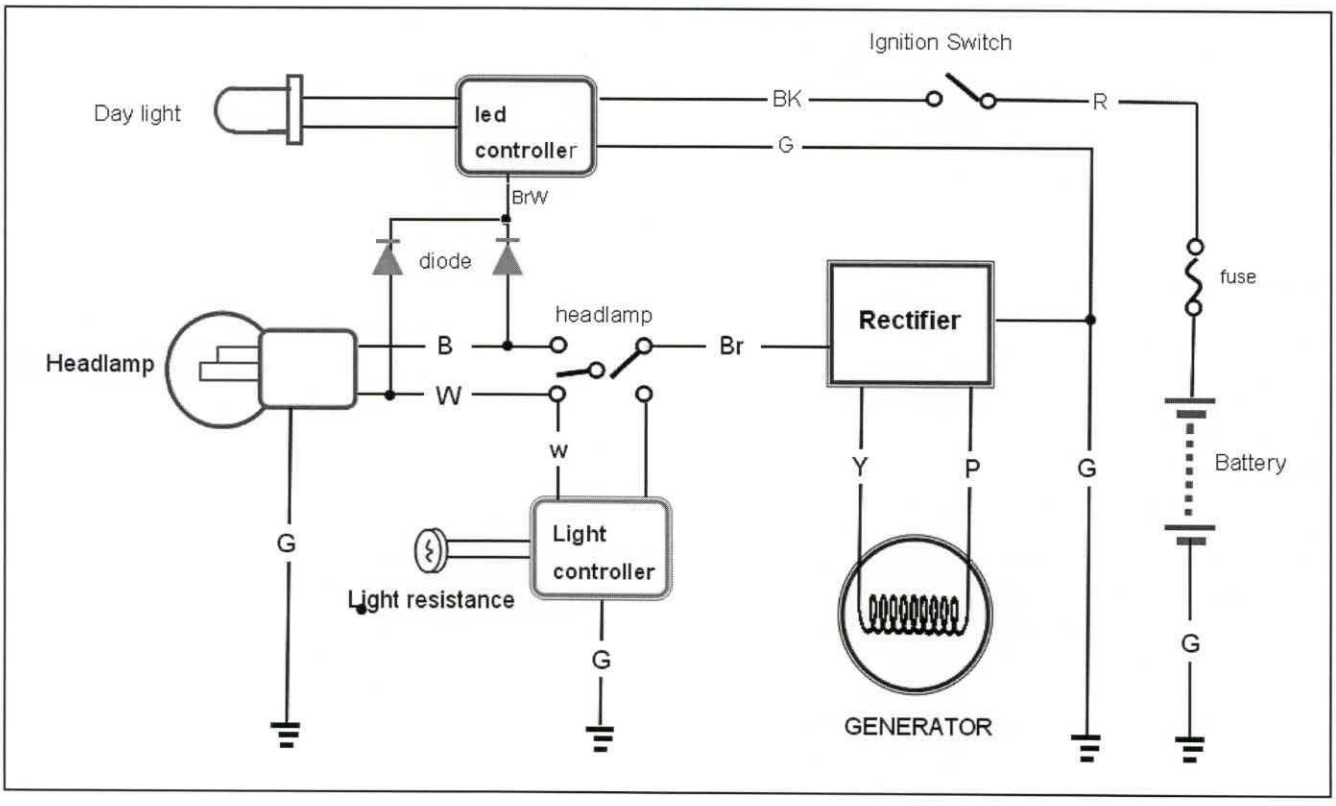
前大灯（带 LED 日行灯为例）Headlight (with LED daytime running light as an example)

带 LED 日行灯的前大灯是由：远光灯、近光灯、前位置灯、日行车灯组成。

The headlight with LED daytime running light consist of high beam, low beam, front position light and day running light.



工作原理图 OPERATION PRINCIPLE

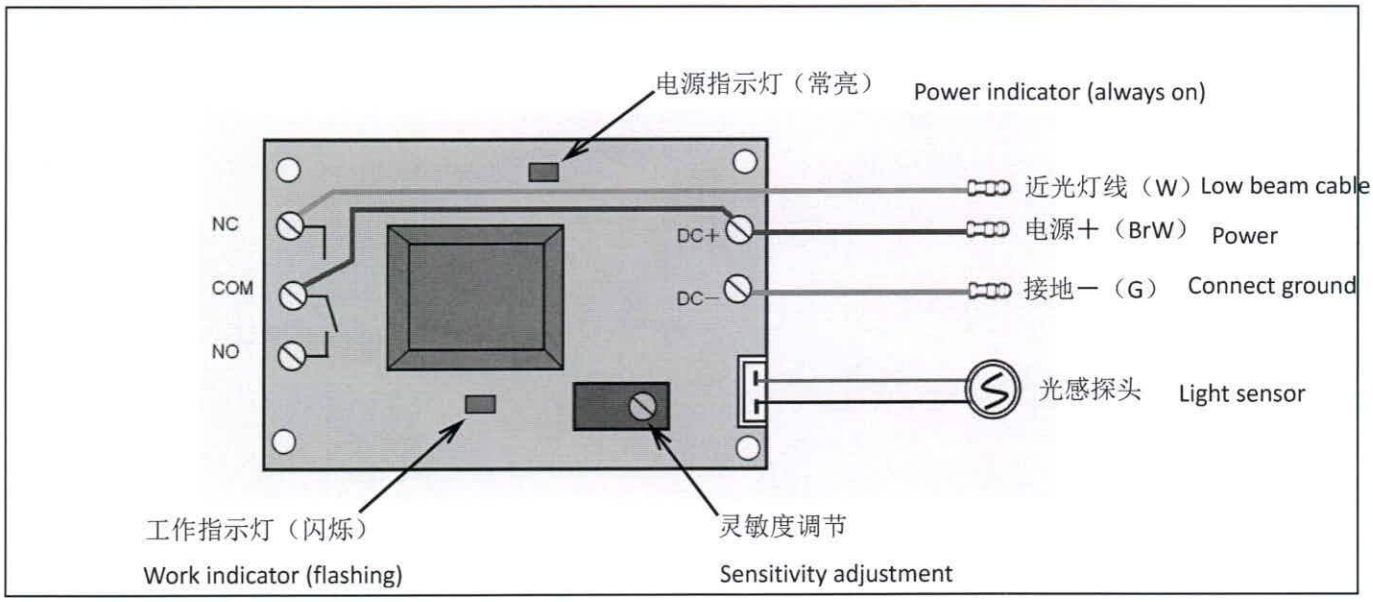


如图所示：As the photo shows：

1、大灯：发动机启动后稳压器工作，红/白（RW）/棕（Br）线经过大灯开关分别给大灯和光控控制器供电。
2、日行灯：当接通电源后，LED 灯启亮为强光模式。
3、前位置灯：当大灯启亮时，LED 灯切换为弱光模式。
4、当大灯启亮时：电流从远光灯蓝（B）线或近光灯白（W）线经过二极管到棕/白（BrW）线到达 LED 控制器，控制器将日行灯电流降低，使日行灯灯光变暗当作前位置灯使用。
5、增加二极管是为了：开启远光或近光时都能有电源信号到 LED 控制器，且远近光互不干涉。
6、大灯开启有两种模式：
手动模式—利用远近光开关操作；
自动模式—当光线变弱或进入涵洞时大灯近光会自动启亮。
当大灯开关拉于“●”关闭档位上，大灯自启才会起效。

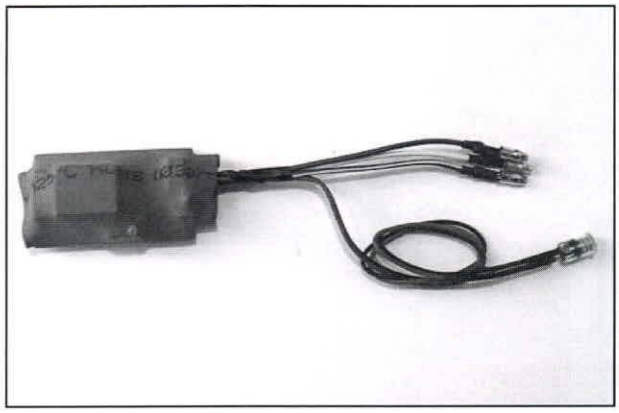
1. Headlamps:the regulator begin to work after engine star,Red White line/Brown line supply the power to the headlamps and light control controller respectively through the headlamp switch.
2. Daytime running light: When the power has been connected, the LED light switch to high light mode.
3. Front position lamp: When the headlights light on, the LED lights switch to low light mode.
4. when the headlight is on, current from the high beam blue (B) line or low beam white (W) line to the brown/white (BrW) line through the diode,reach the LED controller.The controller will reduce the current of daytime running light, so that the daytime light will be dim, and to be a front position light.
5. The reason for increase the diode: in order to have power signal in LED controller no matter open the high beam light or low beam light, and the high beam or low beam do not interfere with each other.
6. there are two modes of headlight on: Manual mode - operation by high/low beam switch; Automatic mode - When the light becomes weak or enters the culvert, the headlight will automatically turn on. When the headlamp switch on "●" close the gear, headlight automatic system will start work.

光感控制器（自动大灯控制器）Light sensor controller (automatic headlight controller)

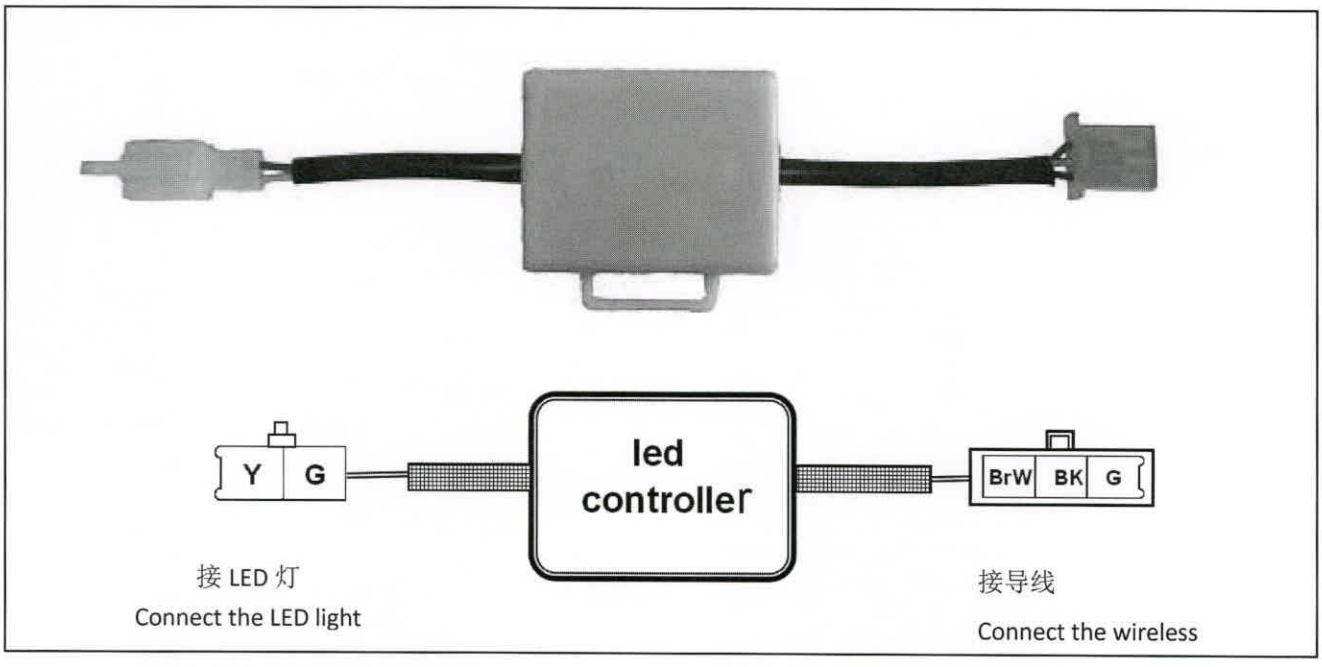


● 光控接收探头位于大灯壳正上方。
● 光控模块位于大灯壳内。
● 灵敏度调节：逆时针旋转为减少感光阀值，顺时针旋转为增加感光阀值。
● 延时：为了避免感光阀值在零界点时近光频繁的开启或关闭，当光线变亮时近光延时 5S 后才会熄灭。

• Light-operated sensor on the top of the headlamp housing.
• Light-operated module in the headlamp housing.
• Sensitivity adjustment: rotate it in counterclockwise to reduce the value of light-sensitive valve, rotate it in clockwise to increase the value of light-sensitive valve.
• Delay: In order to avoid the low beam light turned on/off frequently when light-sensitive valve at the zero boundary. The low beam light will be turn off delayed for 5 seconds when the light becoming brighter.



日行灯控制器 daytime running light controller



1、棕白(BrW）线：为位置灯，即为弱光模式；
2、黑色（BK）线：为日行车灯，即为强光模式
3、当大灯启亮时，日行灯自动切换为位置灯。
1. brown white (BrW) line: the position light, that is, weak light mode;
2. black (BK) line: the day running light, that is, strong light mode
3. when the headlight on, the daytime running light automatically switch to position light.

故障排除 Trouble shooting

故障一：
Fault one

大灯不亮
Headlight does not work

★ 确认车辆已启动
Make sure the bike is activated

拆下大灯，检查灯泡是否烧坏。
Remove the headlight and check whether the lamp bulb burn out

YES
- 大灯泡故障。
- Light bulb with problem

NO

检查远/近光线是否有电压产生。
Check the voltage whether through the high/low beam light

YES
- 灯座与灯泡接触不良。
- 灯座线路故障。
- Poor contract of lamp holder
- Line of light holder with problem

NO

检查稳压器红/白（RW）线是否有电压产生。
Check the regulator red / white (RW) line whether have voltage

NO
- 稳压器故障。
- Regulator with problem

YES
- 远近光开关故障。
- 导线电路故障。
- High/low beam light with problem
- Wire circuit with problem

故障二：
Fault Two

日行灯不亮
Daytime running light does not work

★ 确认钥匙已打开，电源已接通。
★Make sure the turn on the key and the power is on

检查控制器黑（BK）线是否有电压产生。
Check the controller black (BK) line whether have voltage

NO → ● 电路故障。 ● Circuit with problem

YES

检查控制器出线是否有电压产生。
Check the controller line whether have voltage

NO → ● LED 控制器故障。 ● LED controller with problem

YES → ● LED 日行灯故障。 ● LED daytime running with problem

故障三：
Fault Three

大灯开启时日行灯不变暗
When the headlight on, the daytime running light do not darkend

★ 确认车辆已启动。
★Make sure the bike is activated

确认大灯远/近光灯能启亮。
Make sure turn on the high/low beam light

NO → ● 大灯电路故障。按照大灯不亮方法排除，
● Headlight Circuit problem excluded according to the headlight does not work

YES

检查控制器进线的棕白（BrW）线是否有电压产生。
Check the controller's line of brown (BrW) line whether have voltage.

YES → ● LED 控制器故障。 ● LED controller problem

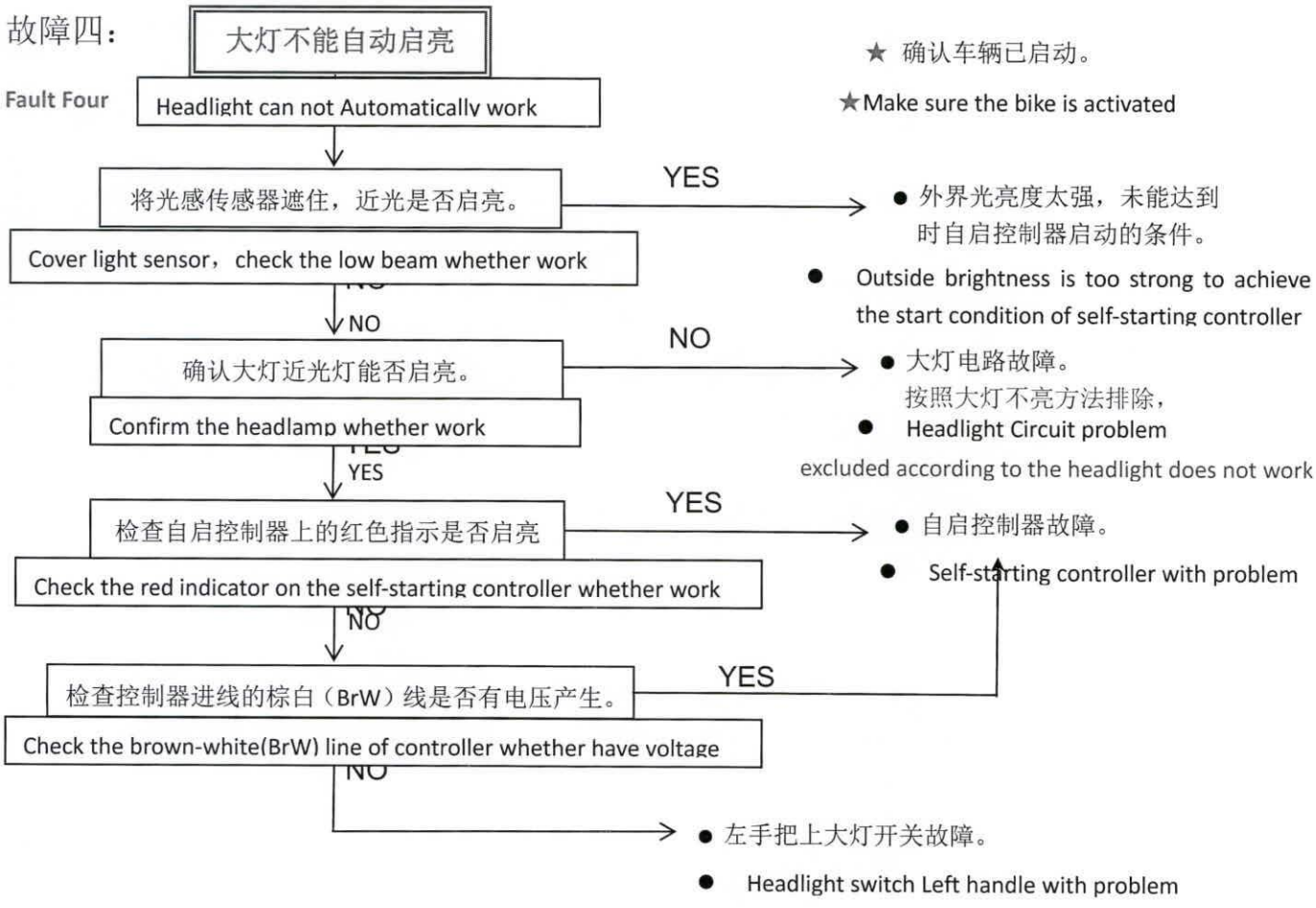
NO → ● 导线中远光灯蓝色（B）线或近光灯白色（W）线与棕白色（BrW）线中串连的二极管故障。
● High beam light Blue (B) line or low beam light White (W) line in wireless and diode in brown white (BrW) have problem.

导线上的二极管故障会导致以下问题出现：A diode fault on the wire can caused the following problems:

	故障现象 Trouble Description	故障排除 Trouble shooting	故障原因 Trouble Reason
1	开启远光灯时，位置灯不启亮 turn the high beam light on, the position light does not work	远光灯蓝色（B）线与棕白色（BrW）线中串连的二极管故障。Diode prblem on In series of Blue(B) line of high beam light and brown-white(BrW) line	二极管断路 Diode open circuit
2	开启近光灯时，远光同时启亮 turn the low beam light on, the high beam light is turn on at the same time		二极管双向导通 Diode Two-way conduction
3	开启近光灯时，位置灯不启亮 turn the low beam light on, the position light does not work	近光灯白色（W）线与棕白色（BrW）线中串连的二极管故障。 Diode problem on In series of White(W) line of low beam light and brown-white(BrW) line	二极管断路 Diode open circuit
4	开启远光灯时，近光同时启亮 turn the high beam light on, the low beam light is turn on at the same time		二极管断路 Diode open circuit

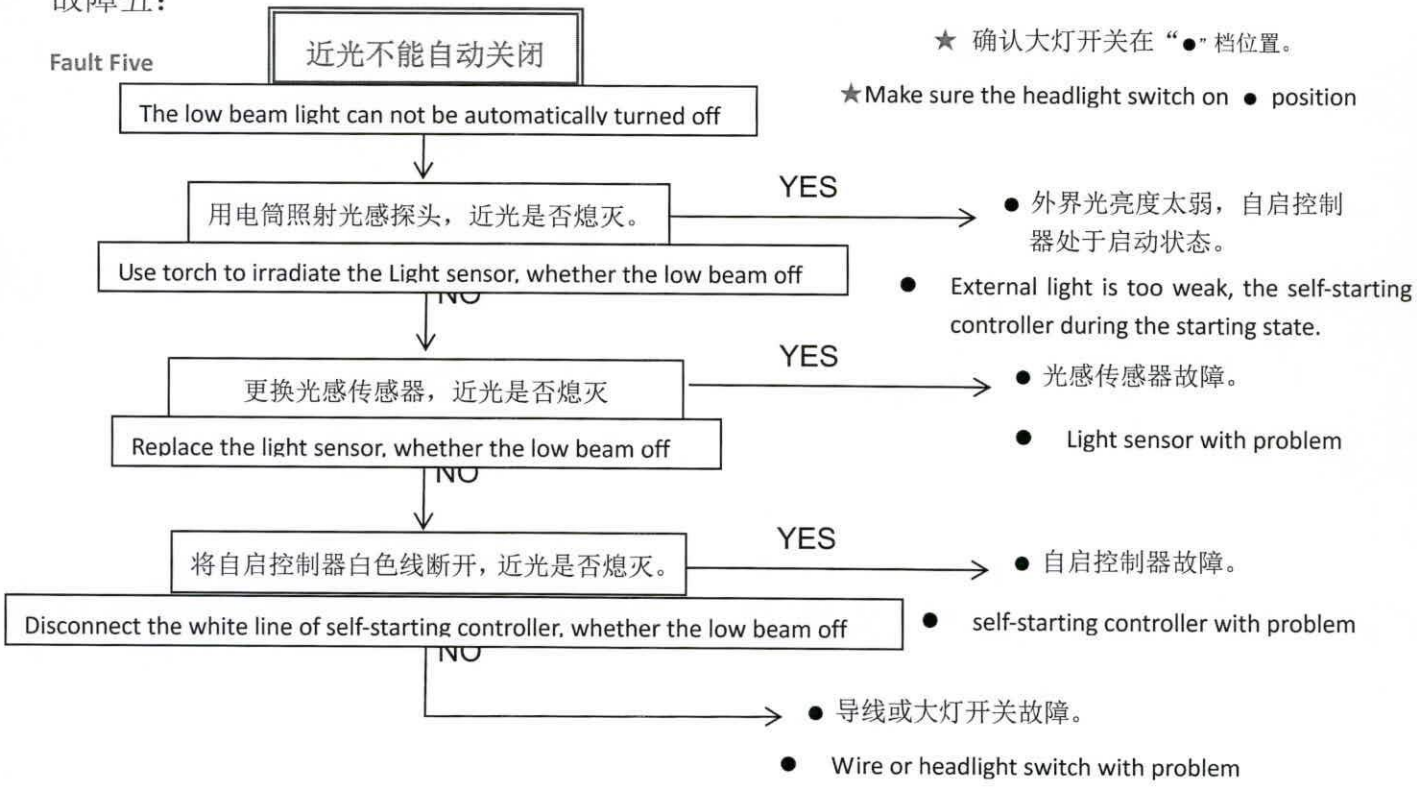
故障四：

Fault Four



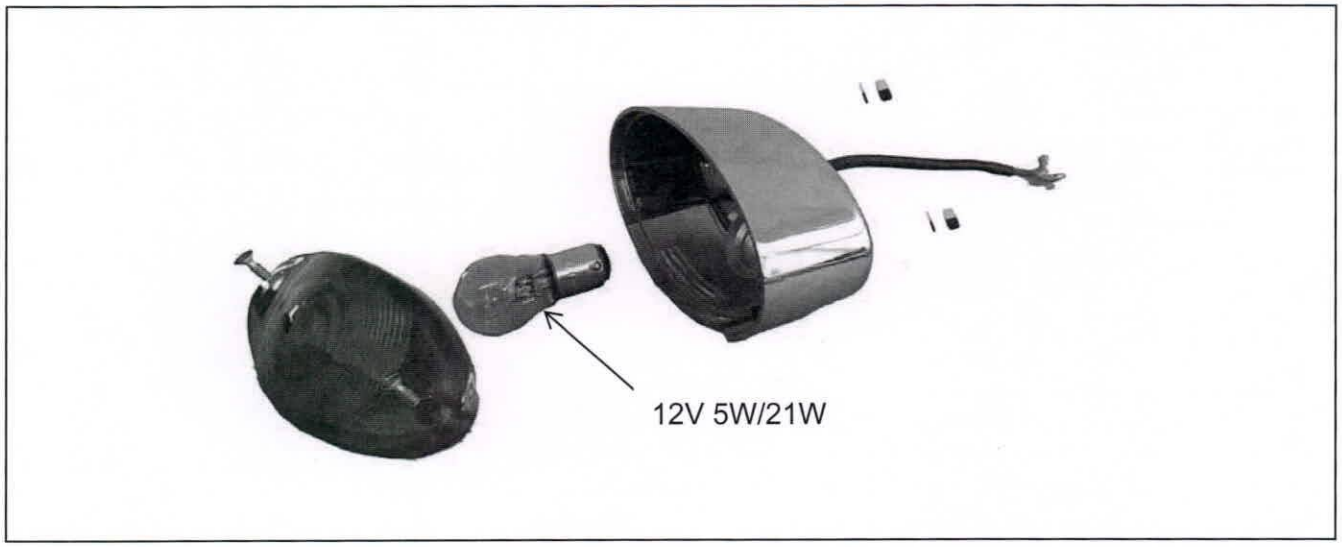
故障五：

Fault Five

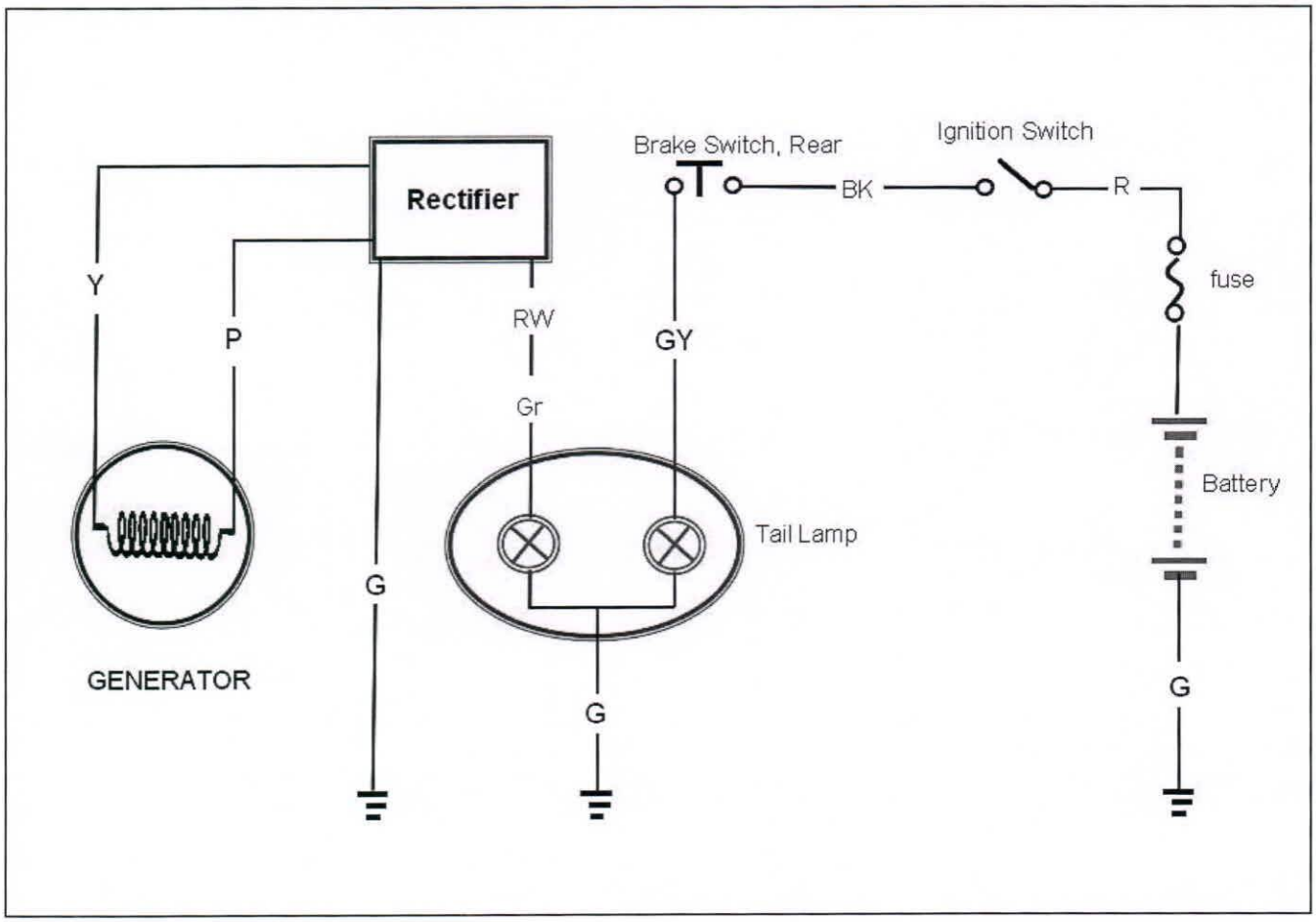


尾灯Taillight

后尾灯是由：后位置灯、刹车灯、后牌照灯组成。
The tail light is comsist of: rear position light, brake light,and light for license plate.



工作原理图 Working Principle



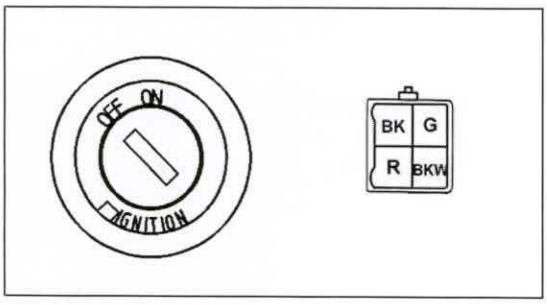
开关部分Switch Component

点火开关 Ignition Switch

熄灭方式：断电熄火。

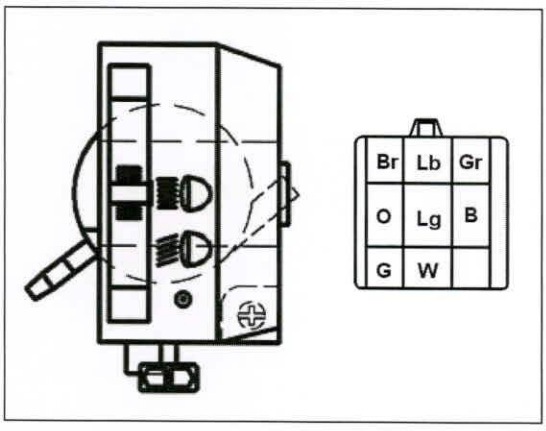
Flameout type: Short circuit flameout.

	R	BK
OFF		
ON	○——	——○



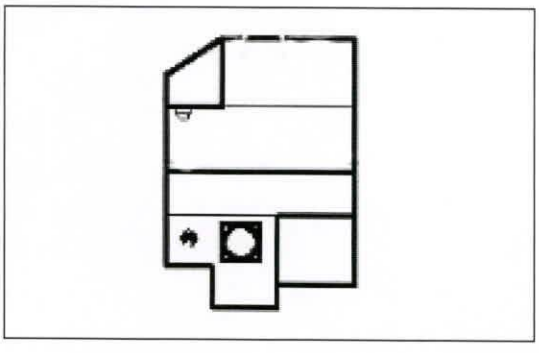
左手把开关 left handle switch

	Brw	Br	B	W	O	Grw	Lb	G	Lg
≡D		○——	——○						
≡D		○——		——○					
•	○——	——○							
⇦					○——	——○			
⇨						○——	——○		
								○——	——○



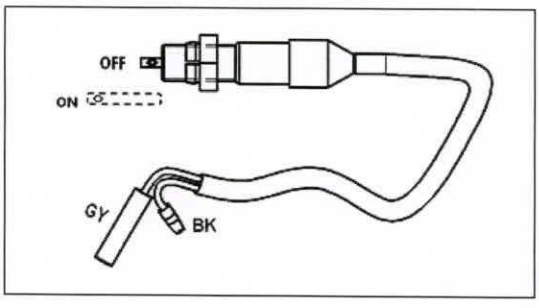
右手把开关 right handle switch

	BK	YR
OFF		
	○——	——○



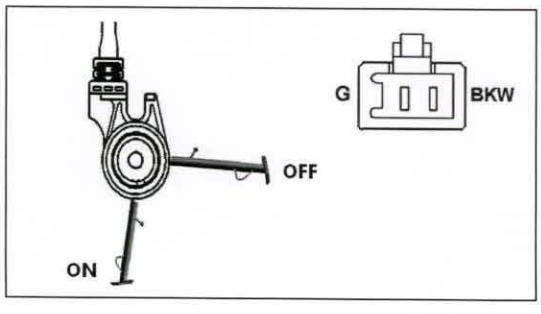
制动开关 brake switch

	BK	GY
OFF		
ON	○——	——○



单撑熄火开关 Single support flameout

	G	BKW
OFF		
ON	○——	——○

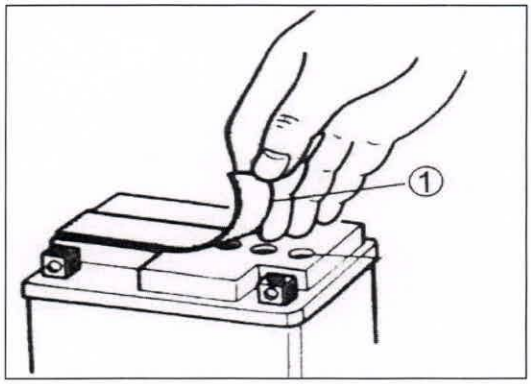


蓄电池 Battery

初次使用 Initial use

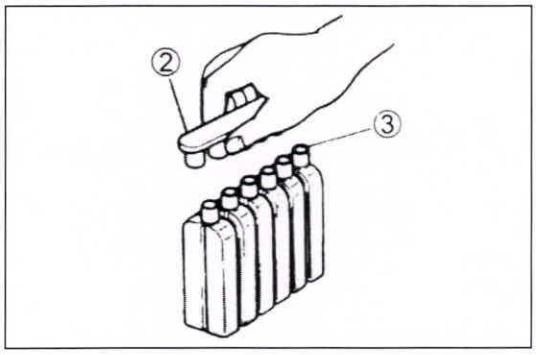
本部分以免维护铅酸电池为例。

As non- maintain lead-acid battery for example.



● 取下密封蓄电池注液孔的铝条①。

●Remove the aluminum seal ①of injection hole for battery

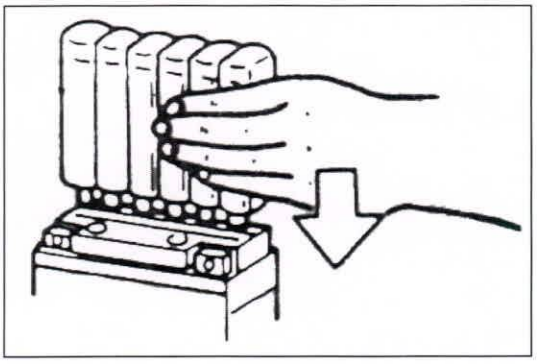


● 从电解液瓶子上取下蓄电池注液孔密封盖②。

＊ 注意：不要撕下或刺穿电解液瓶上的密封铝条③。

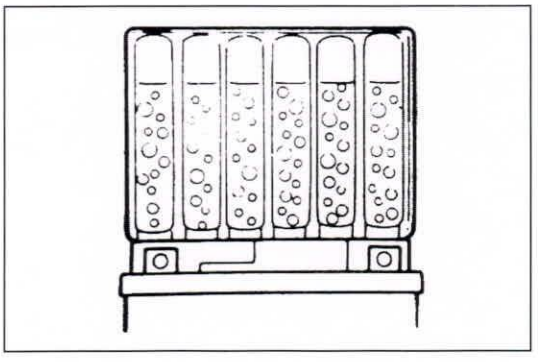
●Remove the sealing cap② of battery injection hole from the electrolyte bottle.

＊Note: Do not tear or puncture aluminum seal③ of electrolyte bottle.



● 将电解液瓶子①瓶口朝下对准蓄电池加液口，用力向下按压。

● Put down the electrolyte bottle①, align with the port of battery, press down firmly.

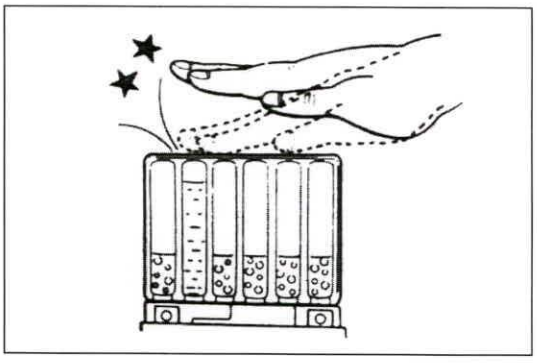


● 保持这个位置 10 分钟左右，确认每个电解液小格中的电解液全部注入蓄电池内。

● Hold this position for about 10 minutes,
Make sure that all the electrolyte of each cell injected into the battery.

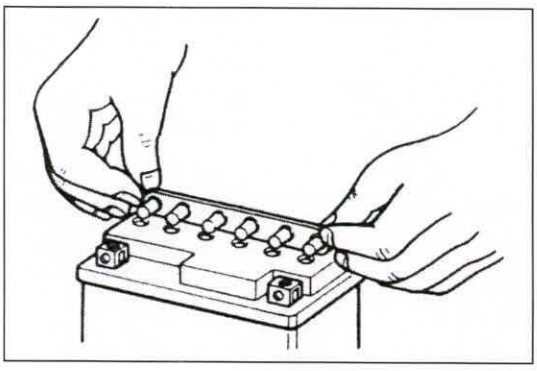
• 如果其中任意一个小格中的电解液没有注入蓄电池，则需要用手拍打瓶子底部，促使电解液能顺利流入蓄电池内。

• If any of them not injected into the battery. We need to flapping bottom of the bottle by hand, so that can make the electrolyte into the battery smoothly.



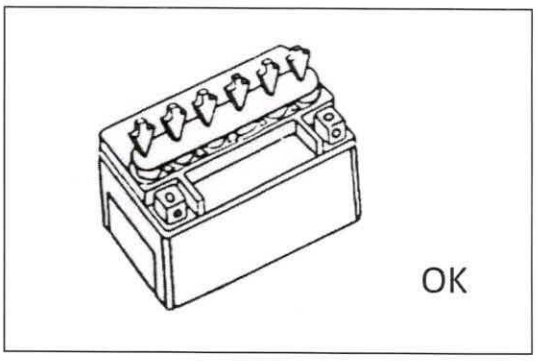
• 待所有的电解液全部注入蓄电池。
• 等待 20 分钟左右，取下电解液瓶子。
• 将密封盖②安装在蓄电池上。

•All the electrolyte injected to battery.
•Wait for 20 minutes, remove the electrolyte bottle.
•Install the sealing cap ② on the battery.



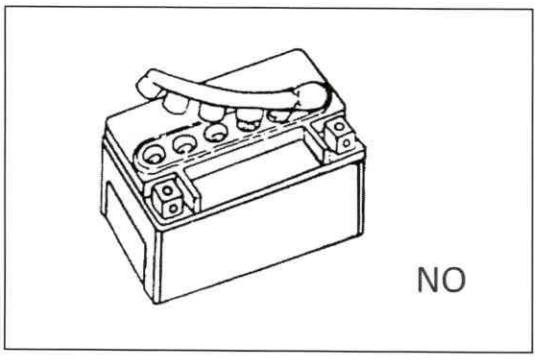
• 安装密封盖时应将 6 个塞子同时向下按压。
• 如果加液过程中不慎有电解液碰触在蓄电池上，用水冲洗后擦干净。

• When installing sealing cap, it should be press down six plugs all simultaneously.
• If some electrolyte touch the battery, clean it by water.



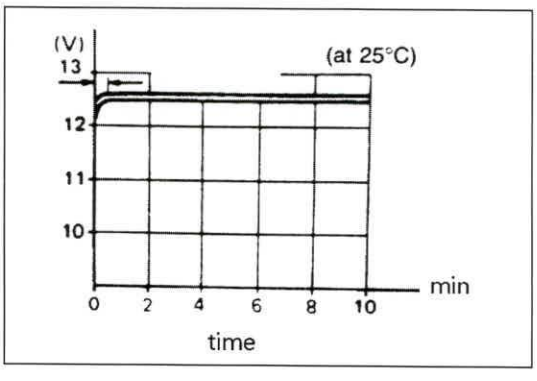
注意：
* 该方法只适用于免维护铅酸电池，一旦加液后无需再补充加液
* 胶体电池和锂电池无需加液。

Note:
* This method only use to non-maintenance lead-acid battery, without refill once added the electrolyte.
* Gel battery and lithium battery without add electrolyte.



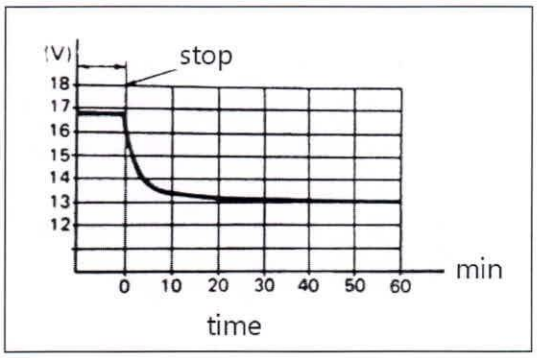
• 用万用表测量蓄电池的电压，如图所示，蓄电池电压应超过 12.5V（DC）。
如果蓄电池电压低于规定值，请充电。

•Measured the voltage of battery by multimeter, as shown, the voltage value should exceed 12.5V (DC). If the voltage value less than value limit, please charge it.



维护 maintenance

检查蓄电池壳体表面，如壳体存在污损或电解液泄漏，请更换蓄电池。
如果发现接线柱有白色酸性粉状物质，请用砂纸清理。
Check the surface of battery housing case, if the case with defacement or electrolyte-leak, please replace the battery.
If you find the white acidic powdery substance in the terminal, please clean it by sand paper.

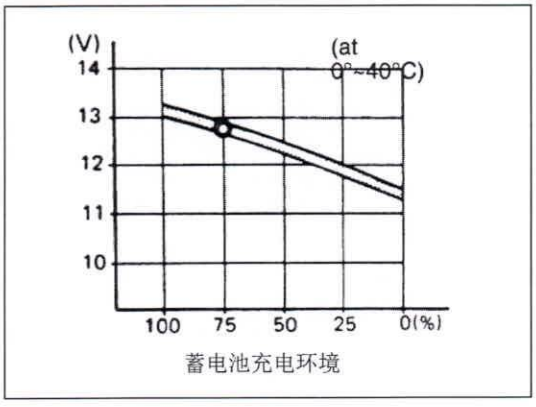


补充电操作 charging operation

● 用万用表测量蓄电池的电压，如蓄电池电压低于 12V（DC），则需要补充充电。
充电时间：0.6A 电流充电 5～10 小时，
3A 电流补电 1 小时。
Measured the voltage of battery by multimeter, if the voltage less than 12V (DC), you need to charge it.
Charging time: 0.6A current, charging 5 to 10 hours,3A current, charing for 1 hour.

注意：NOTE:
* 当需要补充充电时，请从摩托车上取下蓄电池。
* 充电时，不要取下蓄电池密封盖。
* 在任何时候不允许充电电流超过 3A。
* When you need charge the battery, please remove the battery from the motorcycle.
* When charging the battery, do not remove the sealing cap of battery.
* the charge current cannot over 3A in any time.

● 充电后至少 30 分钟后，用万用表测量蓄电池的电压。
● 如蓄电池电压低于 12.5V（DC），请重新充电。
● 再次重新充电后，蓄电池电压低于 12.5V（DC），请更换蓄电池。
● 当蓄电池长期不用时，请定时测量它的电压，当摩托车超过一个月不使用时（特别是冬季），请测量蓄电池电压，至少一个月一次。



蓄电池充电环境

• measure the voltage by multimeter after 30 minutes of charge the battery.
•If the voltage less than 12.5V (DC), please recharge the battery.
•If the voltage less than 12.5V (DC) after charged the battery, please replace the battery.
•For the long-term non-use of battery, please measure the voltage regularly. if the motorbike not use for one month(especially in winter),please measure the voltage at least once a month.

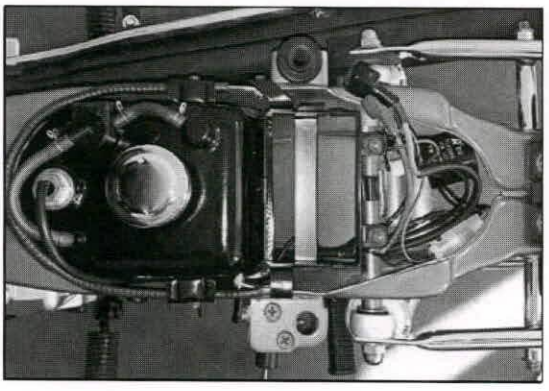
安装蓄电池 Install the battery

• 用钥匙顺时针打开座垫锁；

- Open the seat lock by key in the clockwise way

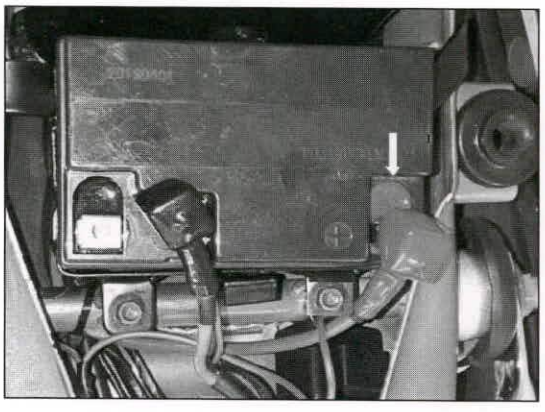
• 用力将座垫后部向上抬起，打开座垫；

- Lift the rear part of seat with power and open the seat



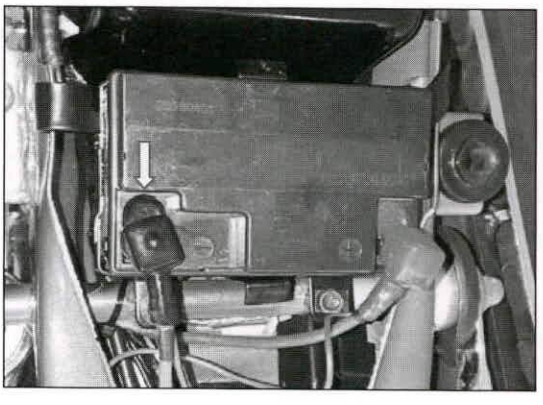
• 装上电池，并将接线柱朝后方向；
• 先将导线上红色电源正极线与电池红色“＋”极相连接；
• 将红色保护套装好；

- Install the battery and move the wire connecting terminal of battery to backward direction;
- Connect the red power positive wire and battery red“＋”pole;
- Put on the red protection case

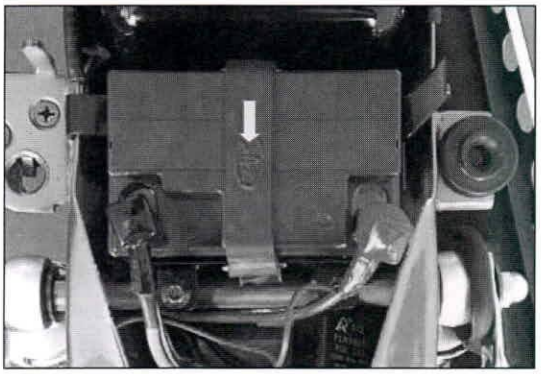


• 再将导线上绿色电源负极线和起动马达绿色负极线与电池黑色“－”极相连接；
• 将黑色保护套装好；
• 装上电池攀带

- then connect the green power negative wire, starting motor green negative wire and battery black“－”pole;
- Put on the black protection case



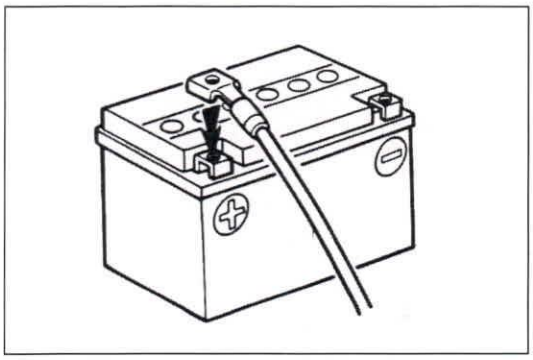
- 装上电池攀带；
- Put on the battery band.



注意：NOTE:

* 当安装电池时，请先安装正⊕极接线柱，再安装负⊖极接线柱，
* 安装后可以在接线柱上涂适量凡士林或润滑脂，防止接线柱氧化、腐蚀。

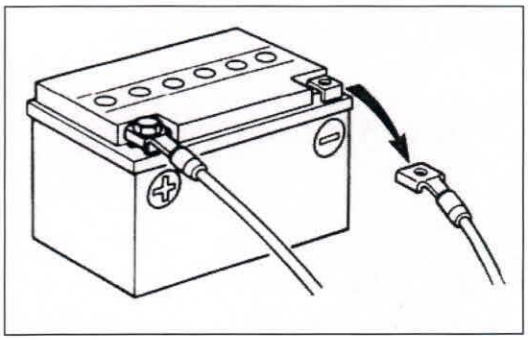
* When installing the battery, please install the positive ⊕, then install the negative ⊖ pole ;
* Please coated the terminal with Vaseline or grease, to protect the terminal from oxidation and corrosion.



注意：NOTE:

* 当维护或维修需要拆卸电池时，请先将负⊖极接线柱拆除，然后再拆除⊕极接线柱。

* When maintenance or need to remove theremove the battery please disconnect the wire connecting terminal of battery ⊖ pole first,then disconnect the wire connecting terminal of battery ⊕ pole.

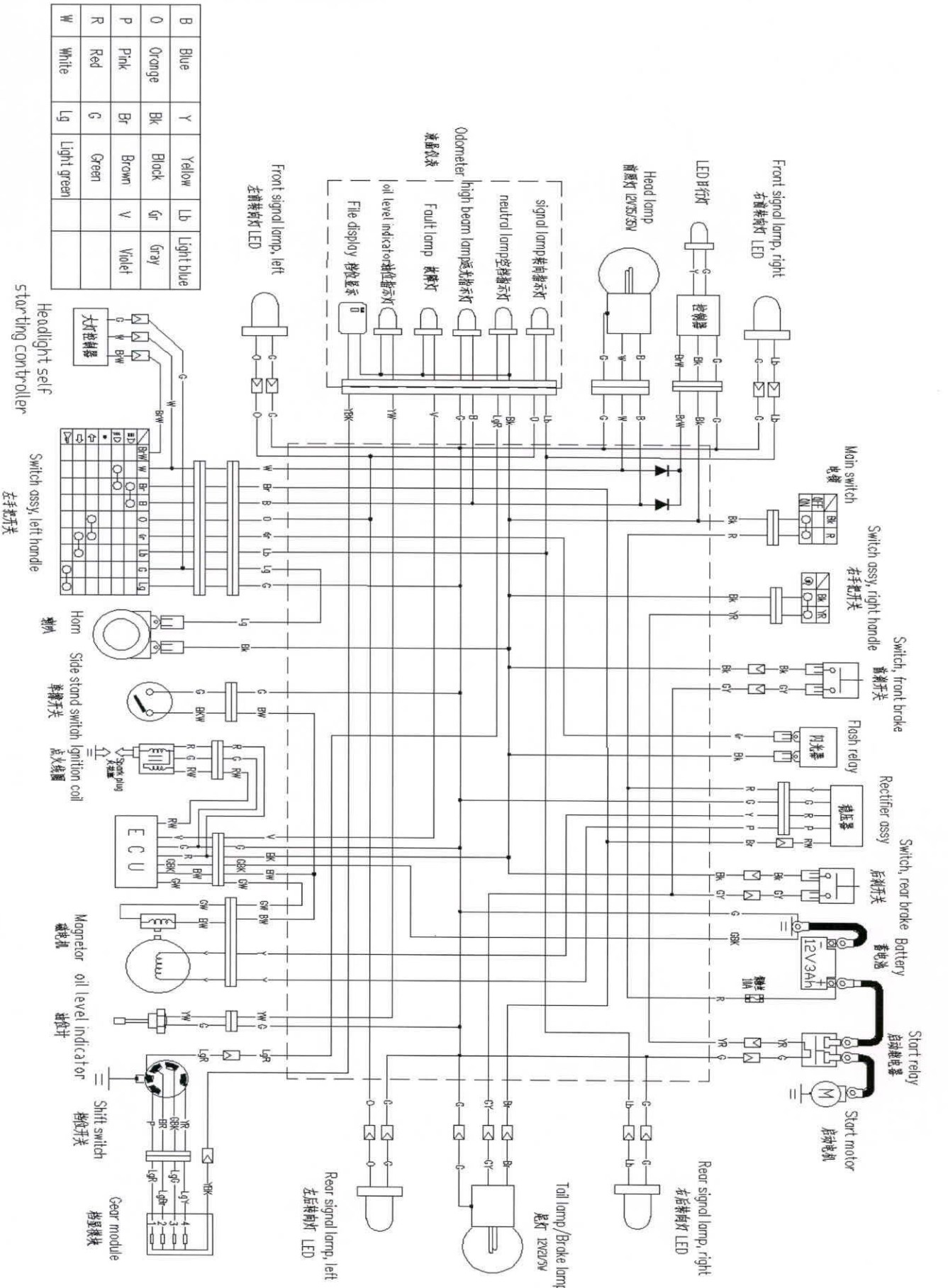


警告：Warning:

* 禁止将电池⊕极和⊖极直接导通，会对电池造成极大的伤害，也可能会导致起火。

* Do not connect the battery ⊕ pole to ⊖ pole directly, it will damage to the battery and cause a fire.

电器原理 Electrical schematic diagram



5

第五章:电喷系统 PART5: EFI SYSTEM

电喷简介 Introduction of Fuel Injection

电喷也主就是电子燃油喷射控制系统（简称 EFI 或 EGI 系统），以一个电子控制装置（又称电脑或 ECU）为控制中心，利用安装在发动机不同部位上的各种传感器，测得发动机的各种工作参数，按照在电脑中设定的控制程序，通过控制喷油器，精确地控制喷油量，使发动机在各种工况下都能获得最佳浓度的混合气。

Fuel injection is Electronic fuel injection control system(is short for EFI or EGI system),use an electronic control device (also known as computer or ECU) as a control center, and variety of sensors on different parts of the engine, to measured the various operating parameters of engine, according to the control program setting in the computer, through controlling the injector, adjust the fuel injection precisely, so that the engine can get the best concentration of the mixture in a variety of conditions.

电喷系统的优势 Advantages of EFI system

1、达到排放要求 to meet the emission requirement

精确控制喷油量，从而控制空燃比,为触媒提供最佳废气浓度,满足法规限值的要求。

Precisely control the fuel injection, thereby controll the air-fuel ratio, provide the best exhaust gas concentration for catalyst, so that to meet the requirements of the limits of the regulation.

各种传感器的数据保证了电喷系统可以适应发动机在不同工况下，确保废气在最佳状态。

A variety of sensor data keep that the EFI system adapt to the engine in different conditions, to ensure that the exhaust under the best condition

电喷系统可以随发动机和车辆老化进行自动修正，保证排放耐久性达标。

The EFI system can be modified automatically with the aging of the engine and vehicle, to ensure the durability of emissions standards.

2、改善使用性能 Improve the performance

对各种工况精确补偿(低温启动、急加急减速、海拔高度等),使用性更好,容易启动,加速顺畅,过度平滑；可以适应高寒、高温和高海拔地区的使用。

Compensation for various conditions accurately(Low temperature start, emergency acceleration and emergency deceleration, altitude, etc.), so that make it better to use, easy to start, smooth to accelerate, over-smoothing;

可以根据不同需要对车辆的动力性、经济性进行控制。

It can be controlled according to the different demands of the vehicle's dynamic,economy.

3、提高经济性 Improve the economy

合理给油，降低油耗。Reasonable to supply the fuel, reduce fuel consumption.

本车使用的电喷系统 EFI system on this bike

SKYTEAM 自 2013 年就开始与朗杰电子有限公司开展战略性合作，共同开发摩托车电喷系统，该系统主要特点有：SKYTEAM started strategic cooperation with this EFI Electronics Co., Ltd. Since 2013, to developing the motorcycle EFI system together, the main features of this system are:

(1)高集成度，连接简化，系统可靠性提高，可以耐极端恶劣环境，是目前国内唯一能用于越野赛车的电喷系统。

(1)high integration, simplified connection, improved system reliability, it can bear the extremely harsh environment,it is the only one EFI sytem can be used for off-road racing motorcycles in the domestic market;

（2）超低功耗，即使断开蓄电池，电喷系统也能照常工作；

（2）Ultra-low power consumption, even if disconnect the battery, EFI system can be work as usual;

（3）操控性能刚柔并济，将驾驶平顺性和加速瞬间爆发力做到完美统一；

（3）Control performance is couple hardness with softness, to make the ride smoothly and explosive of acceleration perfect unified;

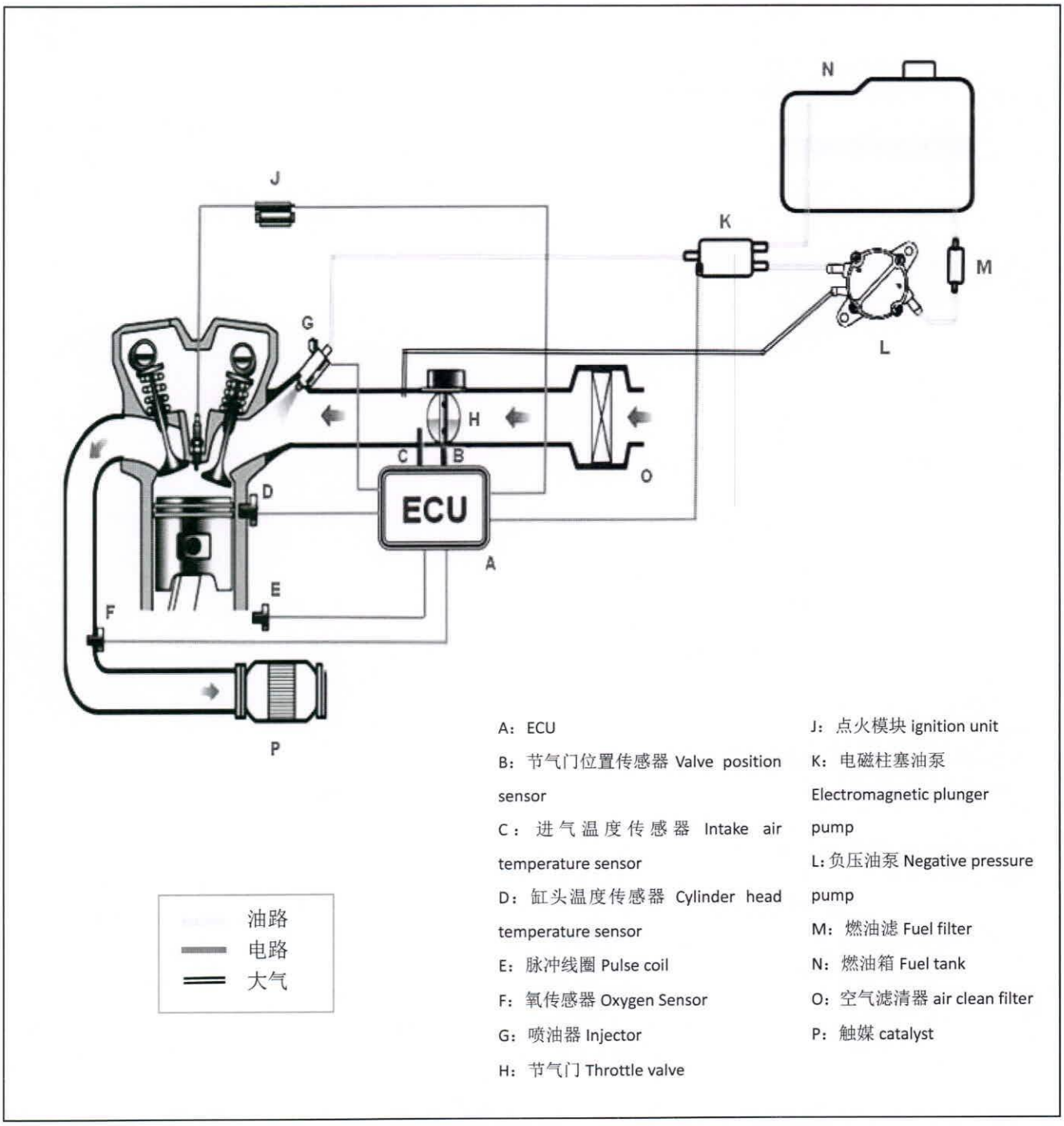
（4）超低油耗，比化油器节油 20%以上；

（4）Ultra-low fuel consumption, more than 20% fuel savings than carburetor;

（5）满足欧洲 IV 和未来的排放法规的要求；

（5）Meet the requirements of Euro IV and regulations of emission in the future.

电喷系统工作原理图 EFI system working principle diagram



- 本电喷系统采用了开环和闭环两种工作模式。The EFI system uses open-loop and closed-loop two modes of operation.
- 开环模式：当发动机起动时系统采用开环工作模式，也就是 ECU 匹配时所设定的参数数据，当氧传感起效后，ECU 自动切换到闭环模式。●Open- loop mode: the system uses open-loop mode of operation when the engine started, that is the setting parameters for ECU matched , the ECU automatically switches to closed-loop mode when the oxygen sensing star the work.
- 闭环模式：闭环模式下氧传感器起着至关重要的作用，氧传感器实时监测排放中的氧含量并上传 ECU 分析，判断空燃比是否过浓还是过稀来控制喷油器的喷油量，使空燃比处于最佳的状态。●Closed-loop mode: oxygen sensor plays a vital role, the oxygen sensor monitors the oxygen value constantly in the emissions and upload to ECU for analysis, Control the fuel injection of the injector by determining the air-fuel ratio whether too thick or too thin.
- 当氧传感器失效时，ECU 自动切换到开环模式，使车辆能够继续行驶至维修站。●When the oxygen sensor does not work, the ECU automatically switches to open-loop mode, So that the bike will continue to ride to the maintenance station.

电喷系统基本结构 Basic structure of EFI system

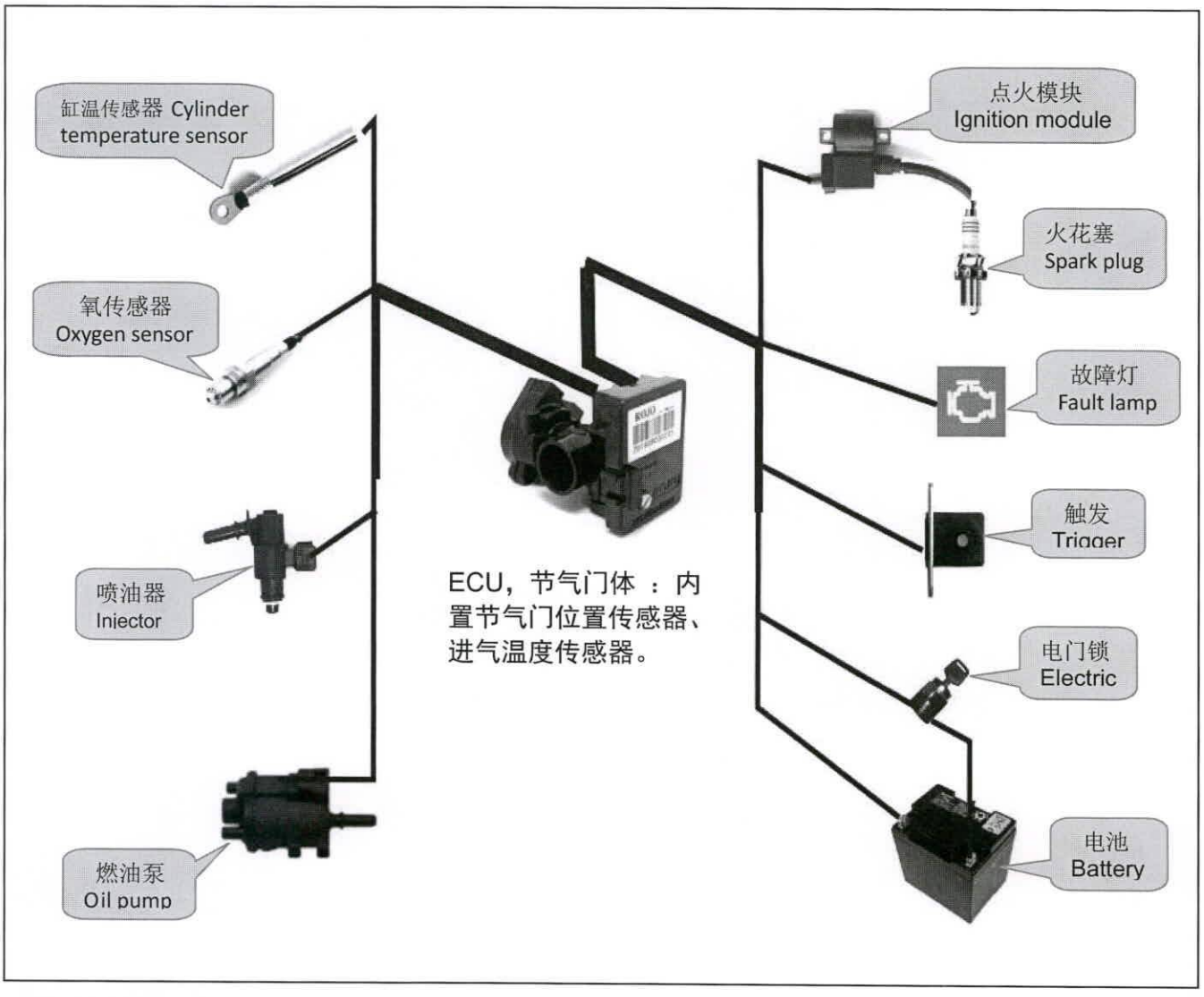
电喷系统主要有三个部分：EFI system has three main parts:

1、控制器：ECU。1.Controller: ECU

2、传感器：节气门位置传感器、缸头温度传感器、进气温度传感器、氧传感器、触发传感器。

2.Sensors: Throttle Position Sensors, Cylinder Head Temperature Sensors, Intake Temperature Sensors, Oxygen Sensors, Trigger Sensors

3、执行器：喷油器、燃油泵、点火模块。3.Actuator: injector, fuel pump, ignition module.



电喷系统部件的作用：The function of EFI components:

1、控制器：系统运作、数据采集、数据分析运算、执行器控制，在系统中好比人的“大脑”。

2、传感器：对相关部位的工作环境实时监控、采集数据上传 ECU，在系统中好比人的“耳目”。

3、执行器：替 ECU 执行相关部件的喷油和点火操作，在系统中好比人的“四肢”。

1. Controller: System operation, data acquisition, data analysis operations, actuator control, in the system like people's "brain."

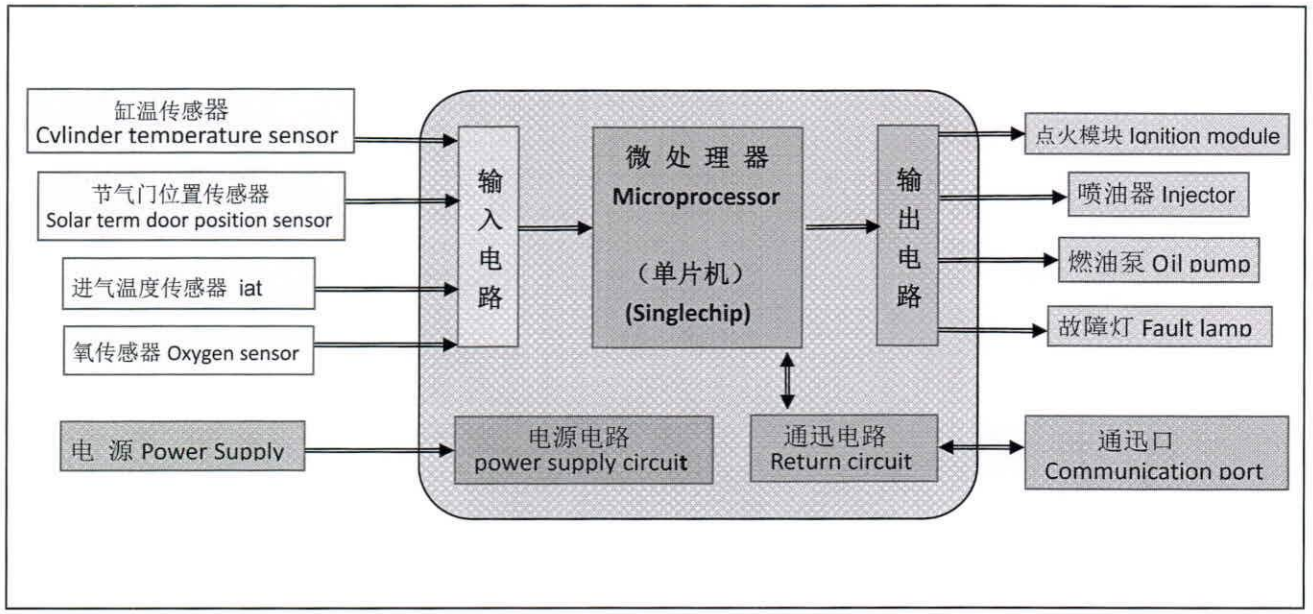
2. Sensor: the relevant monitoring the parts of the working environment constantly, data collection and upload to ECU, in the system like people's "eyes and ears."

3. Actuator: take ECU to implement the fuel injection and ignition operation for related components, in the system like people's "limbs."

ECU

ECU 是发动机的燃油喷射系统里的一个电子控制单元（Electronic Control Unit），它是由输入电路、微处理器和输出电路等三部分组成。

ECU is an electronic control unit that in the fuel injection system of an engine. It consists of three parts, an input circuit, a microprocessor, and an output circuit.



ECU 的原理及功能 The principle and function of ECU

1、输入电路接受传感器和其它装置输入的信号，对信号进行过滤处理和放大，然后转换成一定伏特的输入电流。从传感器送到 ECU 输入电路的信号既有模拟信号也有数字信号，输入电路中的转换器可以将模拟信号转换为数字信号，然后传递给微处理器。

1.The input circuit accepts sensors and signals from other devices, filtered and amplified the signals, and then converted into a certain volt of the input current. The signals sent from the sensor to the ECU input circuit have both analog and digital signals, the converter in the input circuit converts the analog signal into a digital signal, then pass it to the microprocessor.

2、微处理器将上述已经预处理过的信号进行运算处理，并将处理数据送至输出电路。

2. The microprocessor processes the already processed signal and sends the processing data to the output circuit.

3、ECU 具有运算与控制的功能，发动机在运行时，它采集各传感器的信号，进行运算，并将运算的结果转变为控制信号，控制执行器的工作。

3. ECU has the function of operation and control,when the engine is working,it collects the signal of each sensor,to perform operations, and transforms the result of the operation into a control signal,control the work of the actuator.

4、ECU 实行对存储器（ROM、、RAM）、输入/输出接口和其它外部电路的控制；存储器 ROM 中存放的程序是经过精确计算和大量实验取的数据为基础，这个固有程序在发动机工作时，不断地与采集来的各传感器的信号进行比较和计算。把比较和计算的结果控制发动机的点火、空燃比、怠速等多项参数的控制。

4. The ECU performs control the memory (ROM, RAM), the input / output interface and other external circuits; The program stored in the memory ROM is based on accurate calculations and a large number of experimental data, when the engine is in operationing, this inherent program is continually compared and calculated with the signals collected by the sensors. It control the ignition, air-fuel ratio, idle and many other parameters of the engine after comparison and calculation.

5、ECU 具有故障自诊断和保护功能，当系统产生故障时，它还能在 RAM 中自动记录故障代码并采用保护措施从上述的固有程序中读取替代程序来维持发动机的运转，使车辆能开到修理厂。

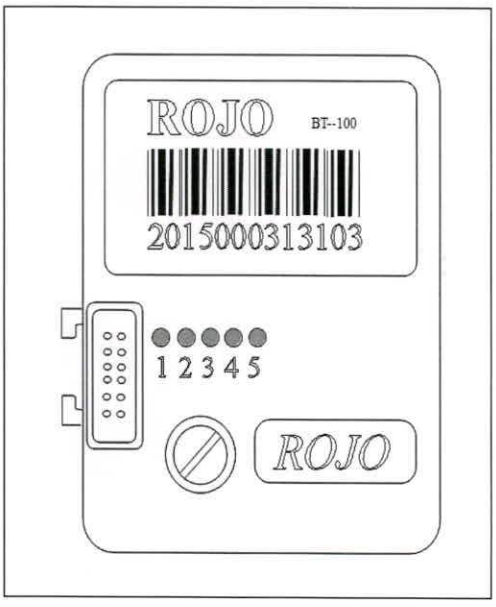
5. ECU has self-Trouble shooting and Protective function, when the system problem, it can automatically record the fault code in RAM, read the replacement procedure from the inherent program to keep the the engine working by Protective function, so that the bike can ride to the repair shop.

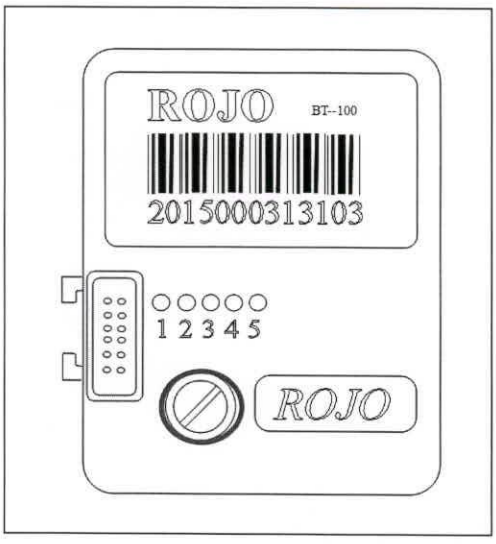
ECU 端口 ECU port

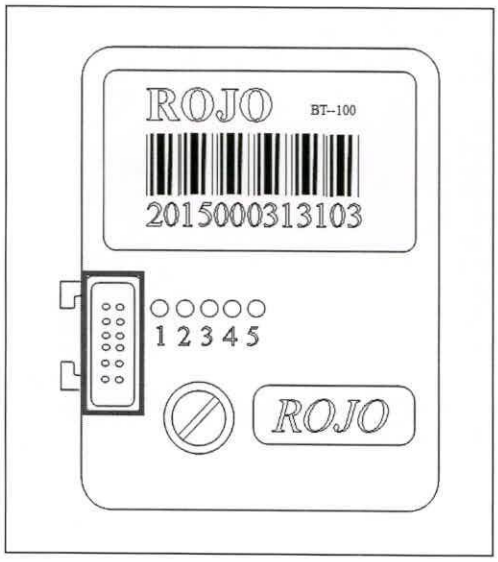
指示灯 Indicator

ECU 面板共有 5 个指示灯，前面的 4 个绿色灯为信号指示灯，后面的 1 个黄色为故障指示灯。ECU panel totally has five lights, in front of the four green lights are signal indicators, the last yellow one is a fault indicator.

灯 light	指示内容 indicator content	正常表现 Correct performance	灯灭表现 light off
1	油泵驱动信号 Oill pump drive signal	发动机每两转闪一次；高速时不能分辨闪烁，但有亮度 The engine flashes once every two rounds. It can not distinguish flashing at high speed but there is brightness	驱动信号不能到达油泵 The drive signal can not reach the Oil pump
2	喷油器驱动信号 Injector drive signal	发动机每两转闪一次；高速时不能分辨闪烁，但有亮度 The engine flashes once every two rounds. It can not distinguish flashing at high speed but there is brightness	驱动信号不能到达喷油器 The drive signal can not reach the Injector
3	点火信号 Ignition signal	发动机转一圈闪一次；高速时不能分辨闪烁，但有亮度 The engine flashes once every one round. It can not distinguish flashing at high speed but there is brightness	说明没有点火信号输出 it means no ignition signal is output
4	氧传感器信号 Oxygen Sensor signal	发动机热机之后，明暗交替，一秒钟 1～3 次 After the engine warming, bright and dark alternately, one to three times a second	说明发动机不能闭环控制 The engine can not be closed-loop control
5	故障信号 Fault signal	电门锁开启亮 5 秒后熄灭 lighting after 5 seconds by open the ignition	灯启亮说明系统存在故障 system problem







怠速进气量调节螺钉 Idle intake air adjustment screw

- 通过手机 APP 观察怠速时的点火提前角（详见 5-16），合理值应在 8º~-13º 之间。to observe the idle angle of the ignition through the mobile phone APP (see 5-16), a reasonable value should be between 8º ~ -13º.
- 如果过于提前（比如 5º），逆时针旋转调整螺钉，加大怠速进气量；If it is too early (such as 5º), rotate the adjustment screw in counterclockwise to increase the idle intake value.
- 如果过于置后（比如-15º），顺时针旋转怠速调整螺钉，减小怠速进气量。

If it is too late (such as -15 º), rotate the adjustment screw in clockwise to decrease the idle intake value.

通讯口 Communication port

- 连接电脑可以软件升级、参数修改、数据读取。

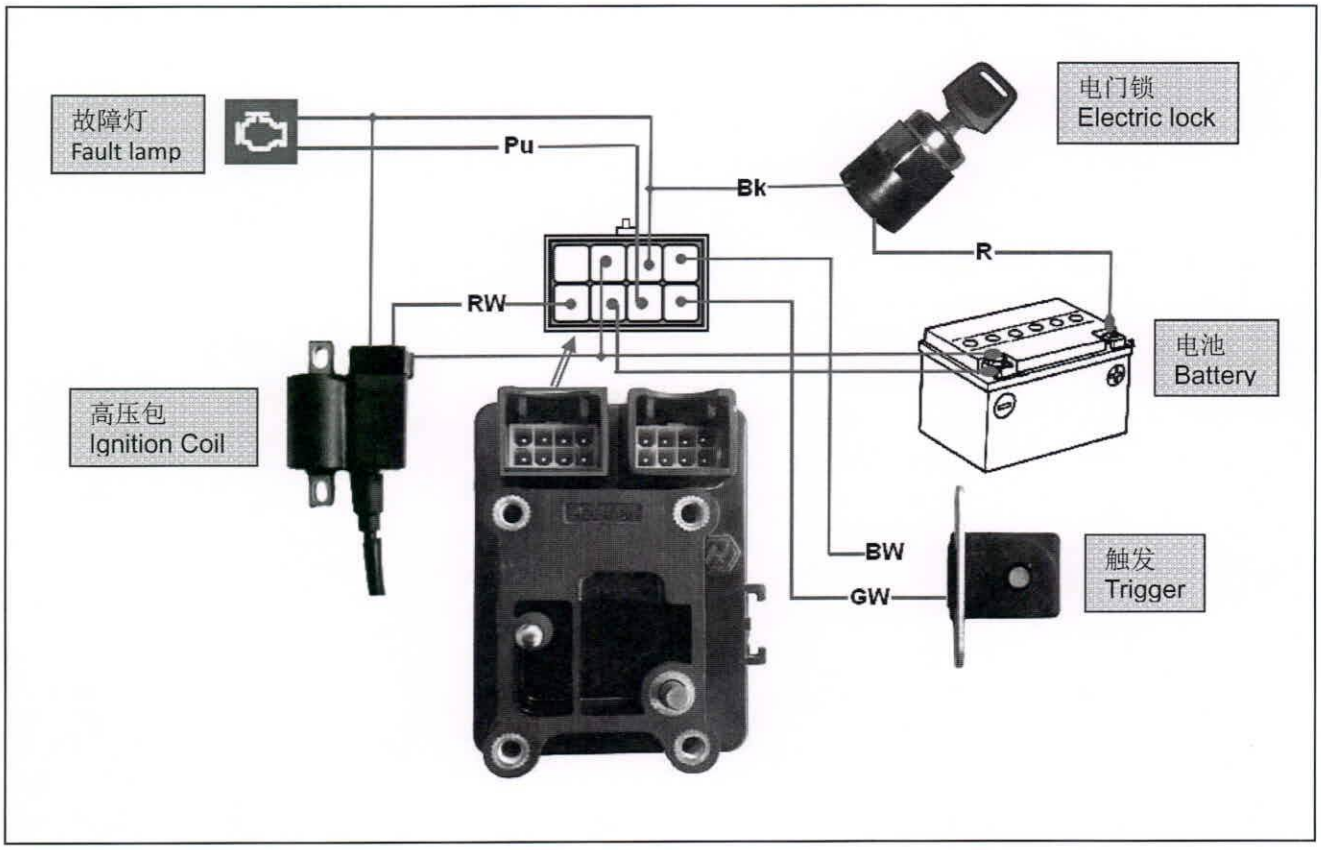
Connected the computer can be upgrade the software, modified parameters, read the data.

- 连接诊断仪可以查看实时数据、故障诊断、读取和消除故障代码。

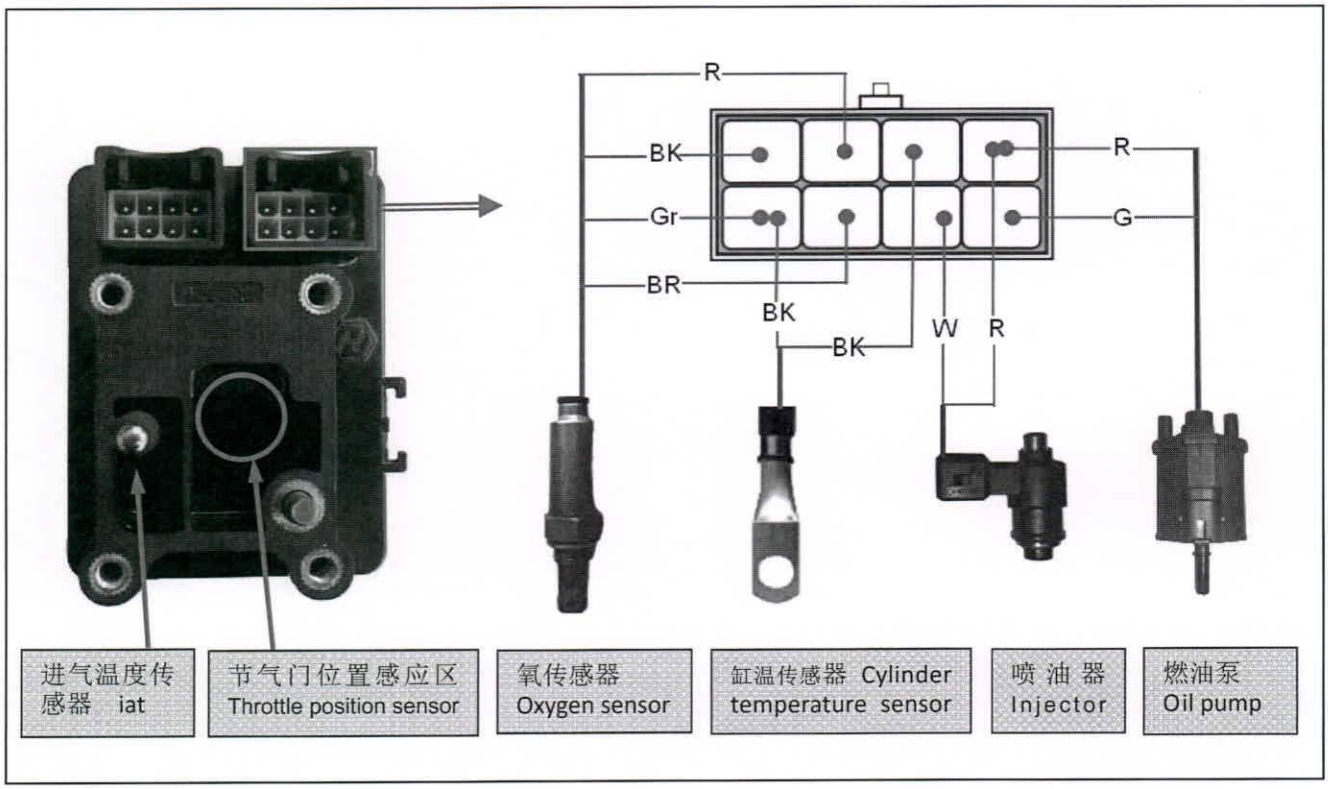
Connected the diagnostic tool to check the real-time data, trouble shooting, read and eliminate fault codes.

ECU 接线端口 ECU wiring port

导线连接口 Wire connection port



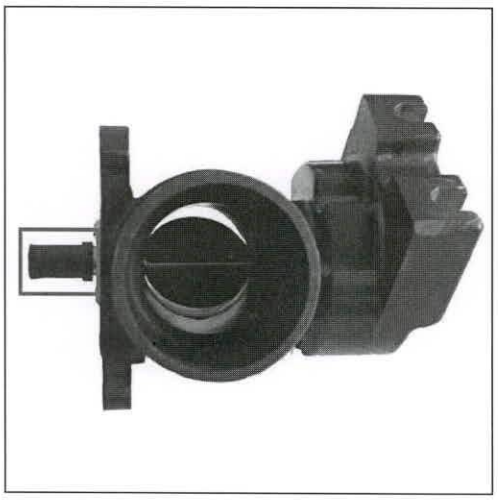
传感器、执行器连接口 Sensor, actuator connection port



传感器 sensor

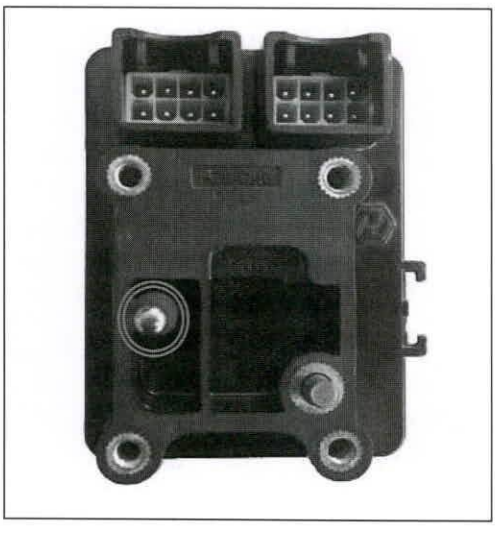
传感器主要有：节气门位置传感器、进气温度传感器、缸头温度传感器、氧传感器、触发传感器组成。
在系统中好比人的“耳目”，对相关部位的工作环境实时监控、采集数据上传 ECU。
The sensors consist of throttle position sensor, intake air temperature sensor, cylinder head temperature sensor, oxygen sensor, trigger sensor.

节气门位置传感器 Throttle position sensor



• 传感器磁性探头位于节气阀左侧。
The sensor magnetic probe is located on the left side of the throttle valve.
• 实时监控节气门开度位置，ECU 通过节气门开度分析、判断此时的进气流量，使 ECU 能够精确的控制喷油量。
Constantly monitor throttle opening position, ECU will analyze, determine the intake air flow through the throttle opening angle, so that the ECU can accurately control the value of fuel injection.

进气温度传感器 Intake air temperature sensor



• 进气温度传感器集成于 ECU 中。是能感受温度并转换成可用输出信号的传感器。
The intake air temperature sensor is integrated in the ECU. It is a sensor that can sense the temperature and convert it into an available output signal.
• 实时监控使用环璋是否在高温或低温状态下，将温度转换成数字信号传递给 ECU 分析、判断，使 ECU 能够精确的控制喷油量。
Constantly monitor the use of the environment whether at high temperature or low temperature condition,converts the temperature into a digital signal to the ECU , ECU will analyze, judge it, so that the ECU can accurately control the value of fuel injection.

缸头温度传感器 Cylinder head temperature sensor

• 缸头温度传感器位于缸头上方左铡位置，是能感受温度并转换成可用输出信号的传感器。
The cylinder head temperature sensor is located in the left position of the cylinder head, which feel the temperature and convert it into usable output signal.
• 实时监测发动机温度，并转化为数字信号传递给 ECU 分析、判断引擎是否处于冷起动状态，使 ECU 能够精确的控制喷油量，获得最佳的启动性能。
constantly monitor of the engine temperature, and converted it to digital signals to the ECU, ECU will analyze, judge it whether the engine is in a cold start situation, so that the ECU can accurately control the value of fuel injection, get the best start performance.

氧传感器 Oxygen Sensor

• 氧传感器是闭环电喷中必不可少的最要元件。它对环保有着具大的供献。
Oxygen sensor is the most important element in closed-loop EFI. It has a great contribution to environmental protection.
• 由于混合气的空燃比一旦偏离理论空燃比，三元催化器对 CO、HC 和 NOx 的净化能力将急剧下降，故在排气管中安装氧传感器，用以检测排气中氧的浓度，并向 ECU 发出反馈信号，再由 ECU 控制喷油器喷油量的增减，从而将混合气的空燃比控制在理论值附近。
once the air-fuel ratio of the mixture is deviated from the theoretical air-fuel ratio, the purification capacity of three-way catalytic converter for CO, HC and NOx will drop sharply, so install the oxygen sensor in the exhaust pipe, used to detect the concentration of oxygen in the exhaust, and sent the feedback signal to the ECU, then ECU control the fuel injection volume of injector whether increase or decrease, Thereby it control the air-fuel ratio of the mixture close to the theoretical value.
• 电喷为获得高排气净化率，降低排气中（CO）一氧化碳、（HC）碳氢化合物和（NOx）氮氧化合物成份，必须利用三元催化器。但为了能有效地使用三元催化器，必须精确地控制空燃比，使它始终接近理论空燃比。催化器安装在排气管与消声器之间。In order to obtain high exhaust gas purification rate, reduce the exhaust (CO) carbon monoxide, (HC) hydrocarbons and (NOx) nitrogen oxide components,EFI must use the three-way catalyst converter. However, in order to be use the three-way catalyst effectively, it is necessary to precisely control the air-fuel ratio so that it is always close to the theoretical air-fuel ratio. The catalyst is installed between the exhaust pipe and the muffler.
• 氧传感器具有一种特性，在理论空燃比（14.7：1）附近它输出的电压有突变。这种特性被用来检测排气中氧气的浓度并反馈给 ECU，以控制空燃比。当实际空燃比变高，在排气中氧气的浓度增加而氧传感器把混合气稀的状态（小电动势：O 伏）通知 ECU。当空燃比比理论空燃比低时，在排气中氧气的浓度降低，而氧传感器的状态（大电动势：1 伏）通知（ECU）电脑。
The oxygen sensor has a characteristic that there is a sudden change in the output voltage near the theoretical air-fuel ratio (14.7: 1). This characteristic is used to detect the concentration of oxygen in the exhaust gas and feed back to the ECU to control the air-fuel ratio. When the actual air-fuel ratio becomes higher, the concentration of oxygen in the exhaust gas been increased, the oxygen sensor informs the rare mixed gas situation to the ECU (small electromotive force: 0 volt). When the air-fuel ratio is lower than the theoretical air air-fuel ratio, the oxygen concentration in the exhaust gas is reduced, so the oxygen sensor informs the situation (large electromotive force: 1 volt) to ECU.
• ECU 根据来自氧传感器的电动势差别判断空燃比的低或高，并相应地控制喷油持续的时间。但是，如氧传器有故障使输出的电动势不正常，（ECU）电脑就不能精确控制空燃比。所以氧传感器还能弥补由于机械及电喷系统其它部件磨损而引起空燃比的误差。可以说是电喷系统中唯一有"智能"的传感器。
According to the difference of electromotive force from the oxygen sensor, ECU to determine the air-fuel ratio whether low or high, and control the duration of the fuel injection accordingly. However, if the oxygen transmitter has problem,the the output of the electromotive force will be not normal, then the computer(ECU)can not accurately control the air-fuel ratio. So the oxygen sensor can make up for the air-fuel ratio error, which caused by wear of mechanical and other parts of the EFI system. It can be said the only "smart" sensor in EFI system.
• 传感器的作用是测定发动机燃烧后的排气中氧是否过剩的信息，即氧气含量，并把氧气含量转换成电压信号传递到发动机计算机，使发动机能够实现以过量空气因数为目标的闭环控制；确保三元催化转化器对排气中的碳氢化合物（HC）、一氧化碳（CO）和氮氧化合物（NOX）三种污染物都有最大的转化效率，最大程度地进行排放污染物的转化和净化。
The function of the sensor is to measure the oxygen in the exhaust gas whether excess after combustion of the engine, is oxygen value. The oxygen content is converted into a voltage signal and send it to computer. So that the engine can achieve the closed-loop control by excessive air factor as the goal. To ensure that the three-way catalytic converter have the greatest conversion efficiency for (HC), carbon oxide (CO) and nitrogen oxides (NOX) in the exhaust gas. It can maximize the conversion and purification to emissions of pollutants.

- 本车采用四线加热型氧传感器。The car bike use four-wire heating type oxygen sensor.
- 安装螺纹为 M14×1.25。The mounting thread is M14 × 1.25.

警告：Warning:
* 严禁私自拆除氧传感，
否则会导致发动机性能不稳定、油耗增大等现象。
Do not remove the oxygen sensor, otherwise it will lead to unstable engine performance, increased fuel consumption and so on.

执行器 Actuator

执行器主要有：喷油器、燃油泵、点火器组成。

The actuator mainly consists of fuel injector, fuel pump, ignition component.

在系统中好比人的"四肢"替 ECU 完成相关部件喷油和点火操作。

In the system like people's "limbs", to complete the fuel injection and ignition operation of relevant parts for ECU.

喷油器 Injector

- 喷油器在发动机每转两圈工作一次。

The injector works once every two rounds of the engine.

- 喷油器也就是常闭型电子流量阀，是由 ECU 送达的脉冲信号通过控制开启的时间来精确控制喷油量。
- The injector is a normally closed type electronic flow valve, it is pulse signal which delivered by the ECU, precisely control the value of fuel injection by controlling the opening time.
- 喷射供油的最大优点就是燃油供给控制十分精确，让引擎在任何状态下都能有正确的空燃比，不仅让引擎保持运转顺畅，也使其尾气排放能符合环保法规的要求。

The biggest advantage of fuel injection supply is very accurate for fuel supply control, so that the engine in any condition can be correct air-fuel ratio, not only keep the engine running smoothly, but also to make its emissions to meet the requirements of environmental regulations.

警告：Warning:

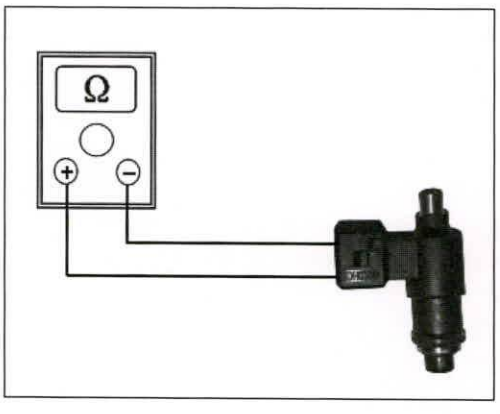
* 严禁私自更换喷油器，必须使用同型号的喷油器。

It is strictly forbidden to replace the injector, it must be use the same type of injector.

检查 Inspection

喷油器电阻值 Injector resistance

- 拔掉喷油器插件。
- 万用表调至欧姆“Ω”档位。
- 测量出喷油器的电阻。
- Disconnect the injector plug-in unit
- Adjust Multimeter to "Ω"
- Measure the injector resistance



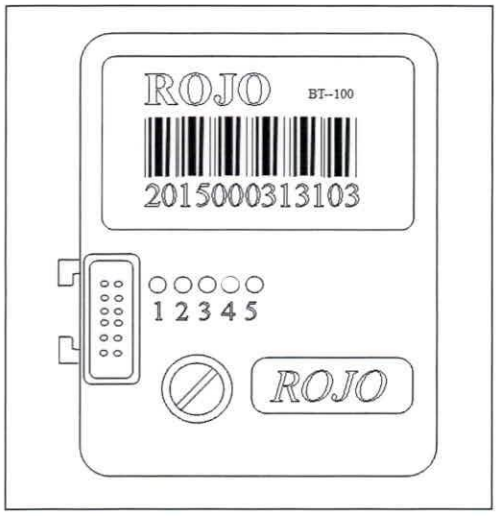
喷油器电阻值 Injector resistance	12 ～ 17 Ω

标定油门开度 Calibrated throttle opening

1、 标定油门开度的目的：是为了让节气阀体的阀门开度位置与 ECU 记忆的开度位置相匹配。
the purpose of calibrating the throttle opening:to match the throttle body valve opening position and ECU memory opening position.
2、节气门开度的大小控制着进量的大小，为了让 ECU 精确的掌握进量的信息从而来实时的控制喷油量。因为油门开度标定的准确性直接影响电喷系统的稳定性，所以准确的油门标定是至关重要的。
the size of the throttle opening control the size of the volume, in order to allow the ECU to get information of intake volume and constantly control volume of fuel injection. Because the accuracy of the throttle opening calibration directly affects the stability of the EFI system.
3、油门开度的标定在出厂前已完成标定程序，在系统正常情况下无需做油门开度的标定。
Calibration of throttle opening has been completed calibration process before leaving the factory. In the normal system, it does not need to do the throttle opening calibration.
4、当车辆出现高怠速，拉油门熄火的现象时，应检查油门位置是否正确。
5、When the vehicle appears high idle, flameout after pull the throttle, please check the throttle position whether correct.

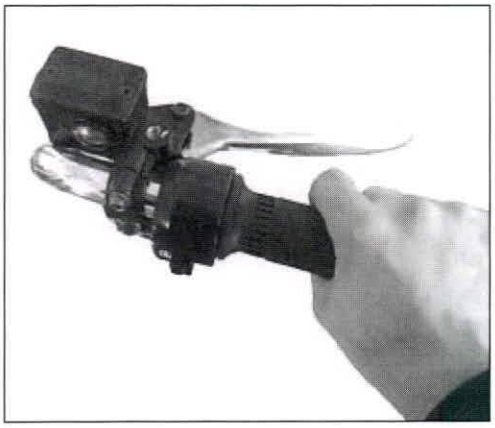
油门开度的确认方法 Confirmation of throttle angle

. 用钥匙使电门锁打开至"ON"档；
Turn on the ignition switch to "ON" by key;
. 不起动发动机，油门在复位状态，ECU 上 4 号灯是点亮的；
Does not start the engine, the throttle in the reset state, No.4 light on ECU is lighting;
. 在油门全开的情况下，ECU 上 4 号灯也是点亮的；
In the case of throttle fully open, No.4 light on ECU is lighting too;
. 如果有不亮的现情况，则油门需要重新标定，
If there is no light on the situation, the throttle need to re-calibration.



油门开度的标定方法 Calibration method of throttle angle

. 用钥匙使电门锁关闭至"OFF"档。
Turn off the ignition switch to "OFF" by key.
. 将油门手柄旋转至最大开度时保持不动。
Rotate the throttle grip to the biggest angle and keep it
. 再将电门锁打开至"ON"档。
Turn on the ignition switch to "ON" by key
. 待故障灯熄灭或电子燃油泵停止发出"吱...吱...吱..."声音后，松开油门手柄到最小开度。
When the fault light off or the electronic fuel pump stopped and sending "squeak ... squeak ..." ,loose the throttle grip to the smallest angle.
. 然后使电门锁关闭至"OFF"档，即标定结束。
Then turn off the ignition switch to "OFF", that is calibration end.



注意：Warning

1.标定前得检查油门拉线有无空行程，能否放到底，能否拉到底。
Before the calibration,it need to check the throttle cable whether no empty trip,pull it well.
2.在拉油门到底时要固定不能动，否则标定无法进入。
Keep Rotate the throttle to the end without any move, otherwise it can not enter the calibration.
3.油门标定动作同时也是恢复出厂设置动作，因此做完此动作后要安排做一次快速自习，这样发动机性能才能达到最佳。Throttle calibration action is also the factory reset, so make a quick self-learning after doing this action, the engine performance could be the best.

恢复出厂设置 Factory reset

1、重新标定油门开度也就是恢复出厂设置。
Re-calibration throttle angle is to be factory reset.
2、恢复出厂设置后要安排做一次快速自学习，这样发动机性能才能达到最佳。
make a quick self-learning after factory reset, the engine performance could be the best.

快速自学习 Quick self-learning

1、当电喷车出现油耗高，动力差，容易熄火现象时，可尝试进行一次快速自学习。
When the EFI bike become high fuel consumption, poor power, easy to flameout, try a quick self-learning.
2、高海拔地区用户，使用前，建议安排一次快速自学习。
if in the high altitude area, it is recommended that to make a quick self-learning before it may used.
3、学习成功后，此时动力应该是最佳状态，如果感觉还有问题，可以重复学习，直至达到理想状态。
the power should be the best condition after the successful learning, if there is another problem, you can repeat the learning until it reach the ideal condition.
4、快速自学习有两种学习方式：There are two ways of quick self-learning:
一种是利用电脑调试软件上学习（详见 **5-22** 页）
One is learning on computer by debugging software.(see 5-22)
另一种为调试模式下学习，进入调试模式如下：
The other is learning under the debug mode, enter the debug mode is as follows:

- 拉油门到最大开度，然后打开电门锁，两秒钟左右放开油门，此时仪表故障灯点亮，表示成功进入调试模式。
Rotate the throttle to the biggest angle, and turn on the ignition switch, then release the throttle grip after 2 seconds. When the fault indicator keeps lighting, it means successfully entered the debug mode.
- 启动发动机，拉油门热机 10 秒左右，然后放油门到怠速位置，此时怠速自学习开始，学习完毕后仪表故障灯会熄灭。
Start the engine, rotate the throttle for warming the machine about 10 seconds, and rotate the throttle to the idle position, then begin to idling self-learning, the fault indicator will be off after learning.
- 拉油门进入下一个学习点，学习点共 5 个，对应的油门开度（百分比表示）分别是 0、8%、25%、50%、100%，油门在学习点附近仪表故障灯会亮起，此时稳住油门不动，直至学习完毕灭灯。
Rotate the throttle into the next learning point, totally 5 point, the corresponding throttle angle (percent presentation) is 0,8%, 25%, 50%, 100%, the fault indicator will lighting when throttle near the learning point,keep the throttle without any move at this time until the learning light completely off.
- 依次学完 5 个点，最后关电门锁，快速学习完毕。
Learn the 5 points in sequence, and finally turn off the ignition switch, fast learning is completed.

5、注意事项 Note

- 在怠速学习过程中观察发动机转速，应该在 1400 到 1800 转之间，如果太低则逆时针调整怠速气量螺钉，太高则顺时针调整气量螺钉，边调整边观察转速的变化。见图
Observe the engine speed in the idle learning process, it should be between 1400 rpm to 1800 rpm, adjust the idle air volume screw in counterclockwise if it is too low, adjust the idle air volume screw in clockwise if it is too high, adjusting the screw as well as observationing the speed.
- 学习时排气管较热，最好有风机冷却，在没有风机冷却的情况下，可以中间安排停机冷却，学学停停，直至把全部点学完。
Exhaust pipe is hot when learning, it is better to have a fan for cooling. You can arrange the short break if without the fan. Learn alternates with rest until finish all the 5 points.

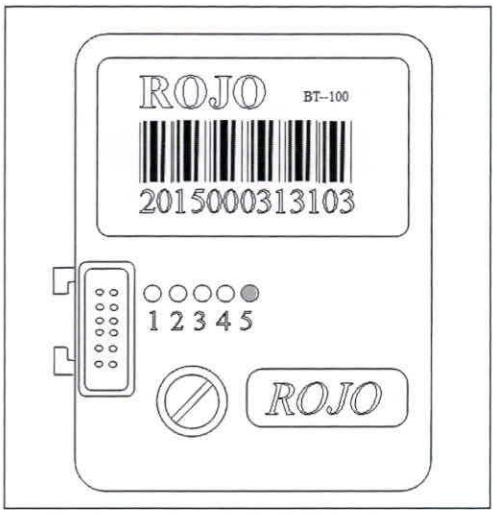
注意：Warning
因为恢复出厂设置要安排做一次快速自学习，所以在系统没有出现异常时，不要随意的进入恢复出厂设置模式。Because to factory reset needs a quick self-learning. Do not enter the factory reset at random if there is no system problem.

故障灯 fault indicator

• 本系统有两个故障灯，分别位于仪表盘右侧和 ECU 面板上的第 5 个红包指示灯。
The system has two fault indicators, one on the right side of the speedometer, other one is the fifth red indicator on the ECU panel.
• 当电喷系统检测到执行器和传感器出现故障时，故障灯将会启亮。
When the EFI system detects that the actuator and sensor are fault, the fault indicator will lighting.
• 本系统中故障灯存在两种亮灯模式：正常模式、诊断模式：
There are two lighting modes in the system: normal mode, diagnostic mode:

1.正常模式也就是不闪亮模式，当接通电源时故障灯启亮 5-6 秒，然后熄灭，当出现故障时故障灯常亮。
Normal mode is not flashing mode, the fault indicator lighting for 5-6 seconds when connect the power, and then light off. The fault indicator lighting when there is problem.

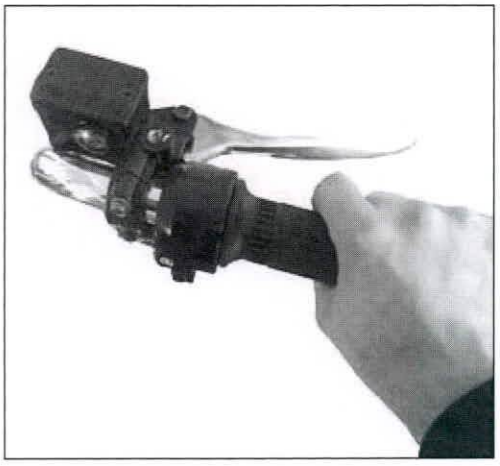
2.诊断模式也就是闪灯模式，当出现故障时故障灯会闪烁，根据闪灯次数判断相应的故障内容。
The diagnostic mode is flashing mode, the fault light will flash ing when there is problem. To determine the fault content according to the number of flashing.



诊断模式 Diagnosis mode

当故障灯常亮，且没有 OBT 诊断仪时，可以进入诊断模式判断相应的故障问题：
When the fault indicator keeps lighting, and there is no OBD diagnosis tool, we can diagnose the fault by entering diagnosis mode:
• 用钥匙使电门锁打开至“ON”档。
• Turn on the main switch to “ON” by key

• 在 1 秒内将油门手柄旋转到最大开度 2 次，进入诊断模式，
• Rotate the throttle grip to the biggest angle twice within 1 second, then enter the diagnosis mode



故障灯闪烁相对应的故障内容 Fault Check List(based on the indicator flashes)

根据仪表盘或 ECU 上的故障灯闪烁次数判定故障内容：

存在单个故障时，重复闪相同故障码：比如闪 5 下，停 1 秒，又闪 5 下，停 1 秒，不停重复，则属于“角标传感器”故障；同时存在多个故障时，循环闪故障码，不断重复，比如闪 5 下，停 1 秒，闪 8 下，停 1 秒，又闪 5 下，停一秒，再闪 8 下，不停重复，则说明同时有“角标传感器”故障，和“喷油器”故障。

Fix the fault by the flashes of the indicator on speedometer or ECU:

Single fault, flash the same fault code repeatedly, e.g., flash 5 times, stop for 1 second, then flash 5 times again, stop for 1 second, repeatedly, then that means it's angle sensor fault ; multi fault, flash the fault codes in circle repeatedly, e.g., flash 5 times, stop for 1 second, flash 8 times, stop for 1 second, then flash 5 times again, stop for 1 second, then flash 8 times, repeatedly, that it means “angle sensor” fault and “injector” fault

闪灯次数 flash times	故障对象 Fault	故障内容 Fault content	故障排除 Solution
2	怠速进气量过低 air is too little at idling	怠速流通面积过小 idling flow area is too small	清洗节气门阀片和怠速旁通孔，或者调整怠速螺钉 clean the throttle valve plate and the idling pass, or adjust the idling bolt
3	干扰 interference	系统受到电磁波干扰或者电源干扰 the system is interfered by eletro wave or electricity source	检查火花塞和火花帽电阻，检查整流器是否损坏 check the resistance of spark plug and spark plug cap, check whether the rectifier is damaged
4	角标传感器 angle sensor	角标信号异常 abnormal angle sensor	检查插头，调整磁电机凸台间隙到 0.5-0.8mm 范围内 check plug, adjust the clearance of magnetor boss to 0.5-0.8mm
5	电池电压 battery voltage	过高 too high	检查整流器插头，换整流器 check the plug of rectifier, replace rectifier
6	氧传感器 O2 sensor	氧加热开路或者短路，氧浓度信号异常 O2 sensor short circuit or open circuit, abnormal O2 concentration signal	检查插头，或换氧传感器 check plug, or replace O2 sensor
7	缸头温度 cylinder head temparetur	开路或者短路，或者高温 open circuit or short circuit, or high temperature	观察是否有冷却系统故障，检查插头，或换温度传感器 check whetheit's the cooling system fault, check plug, or replace temperature sensor
8	喷油器 injector	开路或者短路 open circuit or short circuit	检查插头，测量喷油器电阻是否在 12-17 欧姆之间，异常则更换 check plug, check whether the resistance of injector is between 12-17 Ω, if not, replace
9	油泵 fuel pump	开路或者短路 open circuit or short circuit	检查插头，测量油泵电阻是否在 1.2-1.7 欧姆之间，异常则更换 Check the plug, check whether the resistance of fuel pump is between 1.2-1.7 Ω; if not, replace
10	点火输出 ingnition output	开路 open circuit	检查插头，或换点火模块 check plug, or replace the ignition unit
11	节气门位置 throttle valve	节气门标定出错 wrong fixture	重新标定（拉油门到头，开钥匙，10 秒内松油门，关钥匙），或换 ECU Fix again(pull the throttle to the end, open by key, release the throttle within 10 seconds, close the key), or replace ECU
12	ECU	软件损坏 software damage	检查火花塞和火花帽电阻，换 ECU check the resistance of spark plug or spark plug cap, replace ECU
13	进气温度 air in temperature	开路或者短路 open circuit or short circuit	换 ECU replace ECU

故障诊断 Fault Diagnosis

当故障灯启亮时，则说明电喷系统出现故障，需要进行检查和维修，方法如下：

When the fault indicator is lighted, then it means the fuel injection system has problem, which requires check and repair. The methods are as follows(totally 3 methods),

故障诊断一共有 3 种方法，1. 通过 OBT 诊断端口：用故障诊断仪读出故障代码；

2. 通过手机 APP 诊断：用外置蓝牙连接手机 APP 读出故障代码；

3.进入诊断模式诊断：观察故障灯闪烁次数，对照检查表找出故障内容。

1. Use the diagnosis tool to read the fault code through OBD diagnosis end.

2. Use bluetooth plus the mobile phone APP to reach the fault code.

3. After entering the diagnosis mode, then we should check the flash frequency of the fault indicator, and find out the fault on the check list.

- 用钥匙使电门锁关闭至“OFF”档；
- Turn off the main switch to “OFF” by key

- 将诊断仪用连接线使之与 ECU 通讯端口相连接（如图）；
- Connect the diagnosis tool with ECU communications end by connecting wire

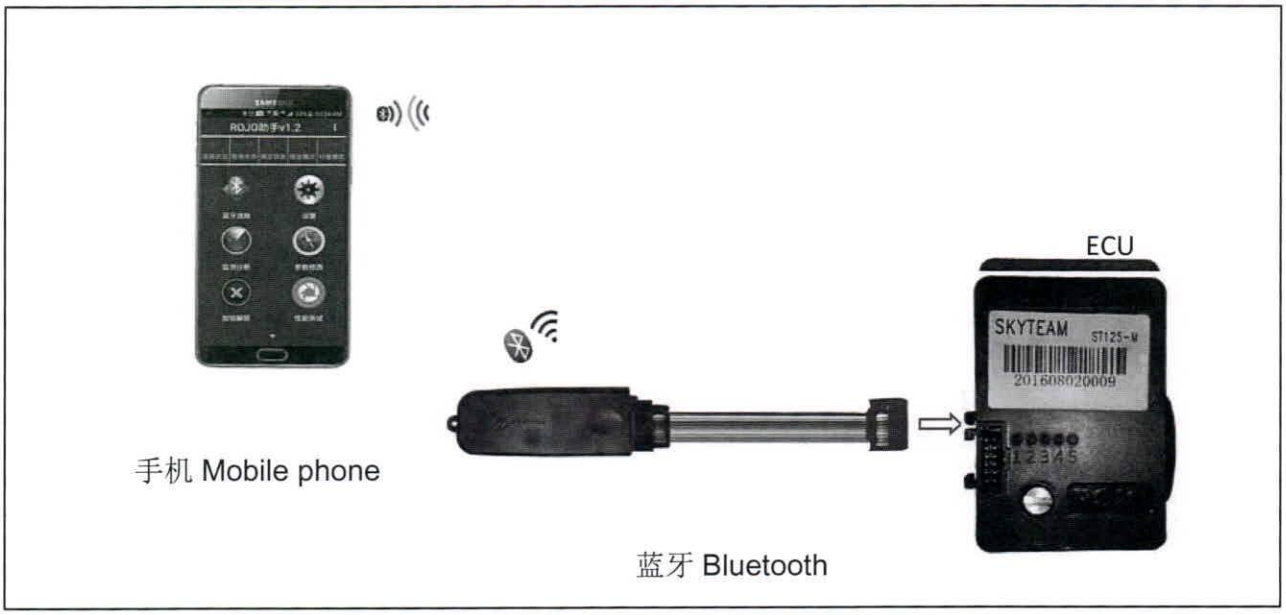
- 打开电门锁至“ON”档；
- Turn on the main switch to “ON”

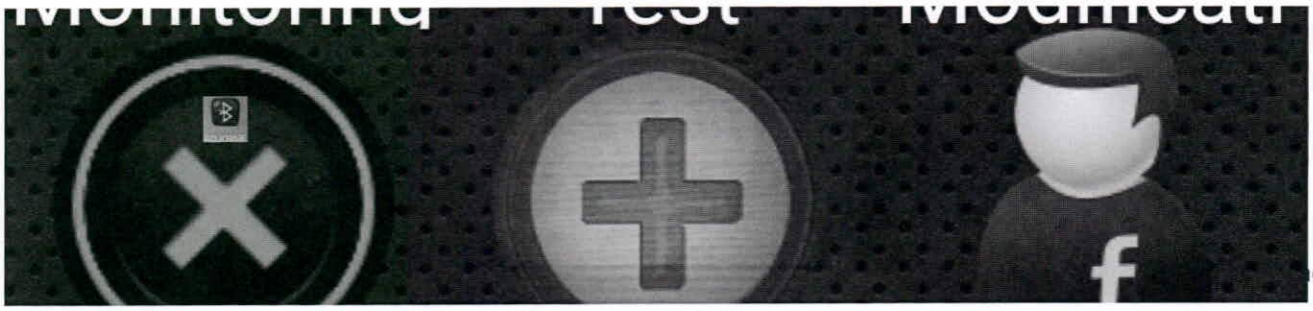
- 诊断仪的使用步骤详见“诊断仪说明书”。
- The detailed using steps of diagnosis tool please check the user’s manual of diagnosis tool

故障代码对照表 **Fault Code Check**

Fault code 故障码	DTC naming 故障名称	Fault detection criteria 故障检测标准
P0110	Intake Air Temperature Sensor 1 Circuit 进气温度电路故障	The signal voltage is more than the specified value 1 or less than specified value 2. 信号电压大于指定值1，或者小于指定值2
P0115	Engine Coolant Temperature Sensor 1 Circuit 缸头温度传感器电路故障	The signal voltage is more than the specified value 1 or less than specifiedvalue 2 信号电压大于指定值1，或者小于指定值2
P0118	Engine Coolant Temperature Sensor 1 Circuit High 缸头温度信号过高	The signal voltage is more than the specified Value. 信号电压大于指定值
P0121	Throttle Position Sensor Circuit Range 节气门位置传感器信号信号超范围	TPS 信号大于 4.95V，或者小 0.05V
P0132	O2 Sensor Circuit High Voltage 氧传感器信号过高	The signal voltage is more than the specified value. 氧信号电压大于指定值
P0133	Slow reaction from O2 Sensor 氧传感器响应慢	The time from low voltage to high voltage is more than the specified value. 从低电压到高电压所用的时间大于指定值
P0335	Crankshaft Position Sensor “A” Circuit 曲轴位置传感器电路故障	Resistance between input and ground is greater than the specified value 输入端与地之间的电阻大于指定值
P0336	Crankshaft Position Sensor “A” Circuit Performance 曲轴位置传感器信号性能置传感器信号性能	positive pulses numbs are not equal to negative pulses numbers. 正脉冲个数不等于负脉冲个数

手机 APP 诊断 **diagonose by Mobile phone**





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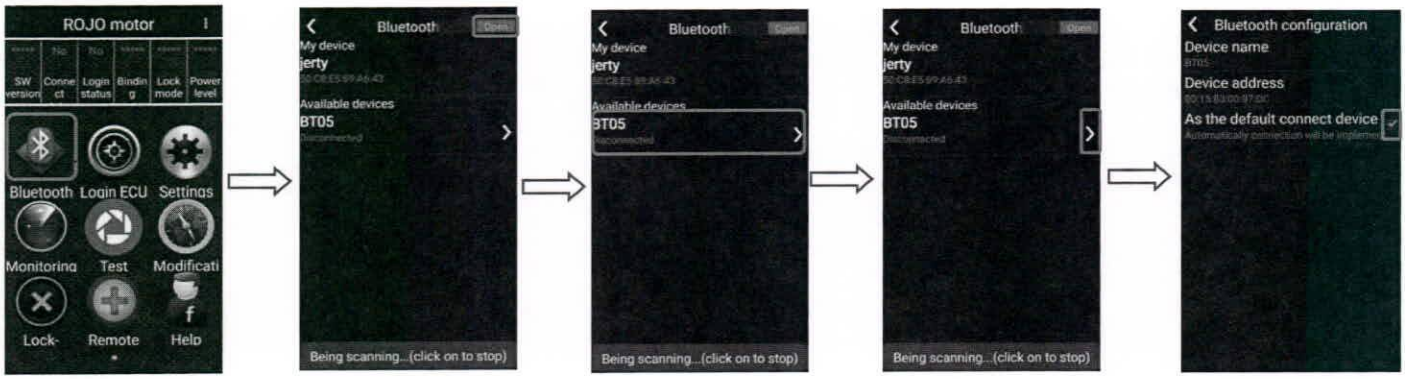
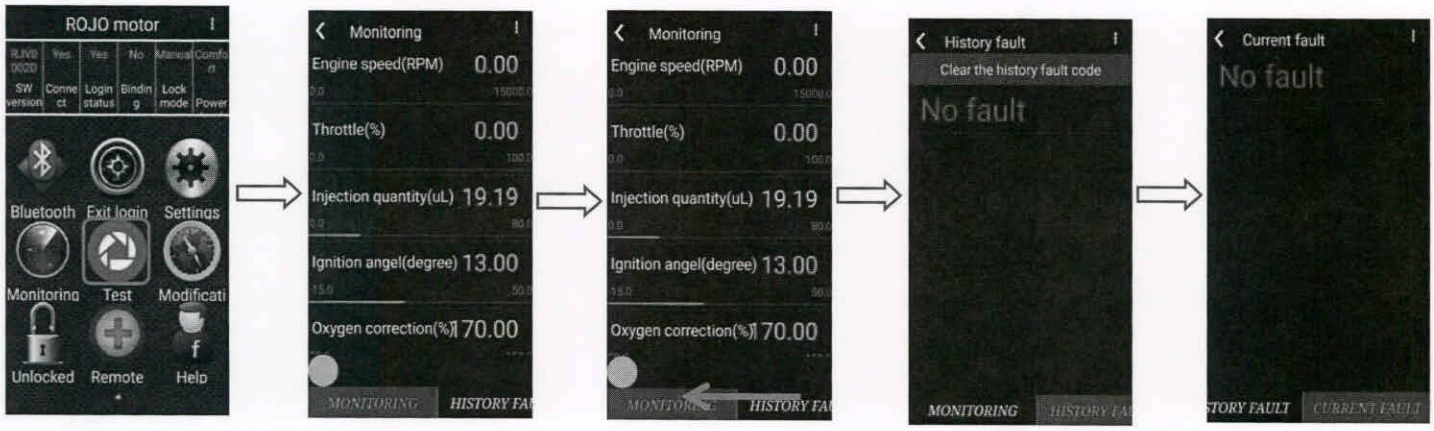
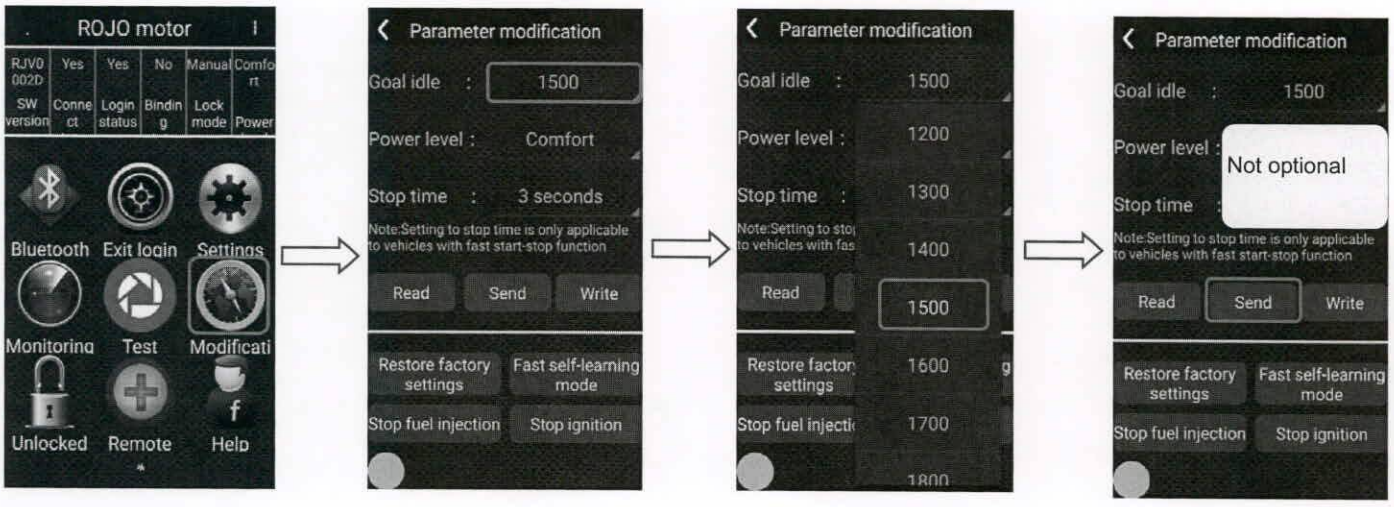


字体灰色变为绿色表示已成功登陆 **ECU**

When the color of the letters changes from grey to green, then it means the mobile phone has logged in ECU successfully


ROJO motor
SW version
Connect
Login status
Binding
Lock mode
Power
Bluetooth
Exit login
Settings
Monitoring
Test
Modificati
Unlocked
Remote
Help
Monitoring
Engine speed(RPM) 0.00
Throttle(%) 0.00
Injection quantity(uL) 19.19
Ignition angel(degree) 13.00
Oxygen correction(%) 70.00
MONITORING
HISTORY FA
History fault
Clear the history fault code
No fault
Current fault
No fault


ROJO motor
Fuel consume
Engine speed (*1000r/min)
Start
Reset
Mileage :
0.000 Km
Current fuel : –L/100Km
Average fuel : –L/100Km
FUEL CONSUME
ACCELERAT


ROJO motor
Parameter modification
Goal idle : 1500
Power level : Comfort
Stop time : 3 seconds
Note:Setting to stop time is only applicable to vehicles with fast start-stop function
Read
Send
Write
Restore factory settings
Fast self-learning mode
Stop fuel injection
Stop ignition
1200
1300
1400
1500
1600
1700
Not optional

主要故障速查表 Fault check list

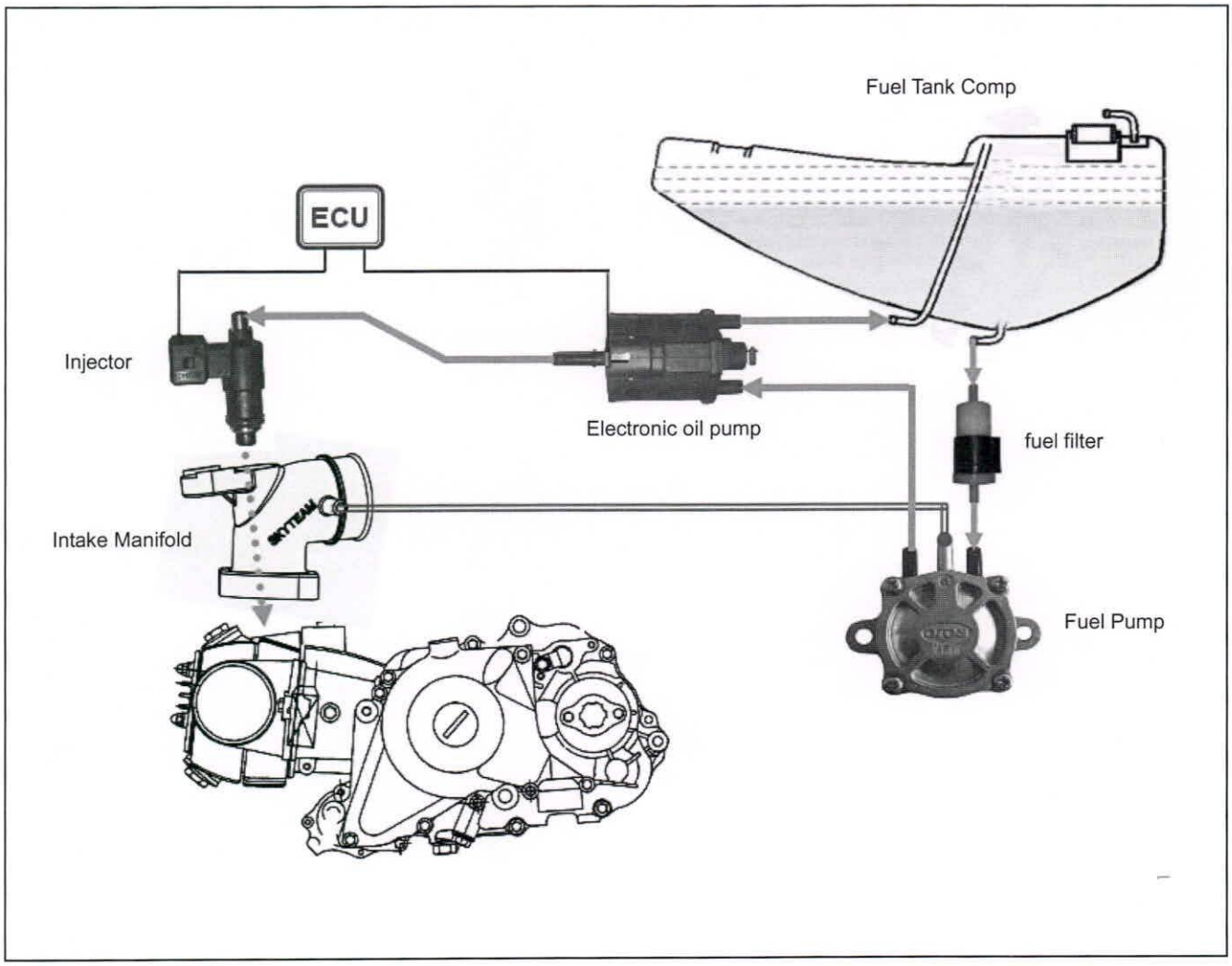
分类 category	故障源 Fault source	故障现象 Fault phenomenon	故障灯 Fault indicator	故障机理和排除方法 Cause and Solution
气路 Air supply	怠速气量过低 air volumn is too low at idling	容易熄火 easy cutoff	Fault indicator flashes twice, idle speed is too low	idle pass is blocked, wash by detergent
	进气管螺钉松动 screw of pipe inlet is loose	容易熄火 easy cutoff		too much air, thin fuel and air mixture, tight
油路 Fuel supply	油泵压力不足 pressure of fuel pump is not enough	容易熄火 easy cutoff 加速无力 weak accelaration		insufficient injecting volumn, fuel atomization is not good, replace the pump
	负压泵供油量不足 fuel supply from the vacuum pump is not enough	容易熄火 easy cutoff 加速无力 weak accelaration		fuel pump is hard to get cool, air blocked, replace the vacuum pump
	管路弯折不通畅 the hose is bended and the fuel cannot go through smoothly	容易熄火 easy cutoff 加速无力 weak accelaration		air blocked during engine warming, elimincate the bend
	喷油器滴漏或者长喷 Injector drips or spays for a long time	启动困难 hard to start 加速无力 weak accelaration		fuel and air mixture is too thick, replace the injector
	喷油器喷孔或滤网堵塞 Block in the injector hole or filter net	启动困难 hard to start off 容易熄火 easy cutoff 加速无力 weak accelaration		Injecting volumn is too small, replace the fuel filter, wash or replace the injector
点火 Ignition	点火模块故障 ignition unit fault	启动困难 hard to start off 容易熄火 easy cutoff 加速无力 weak accelaration		no spark or weak spark, replace
	火花塞失效 spark plug is invalid	启动困难 hard to start off 容易熄火 easy cutoff		no spark or weak spark, replace
	火花塞或火花帽无电阻 no resistance on the spark plug or spark plug cap	容易熄火 easy cutoff	故障灯闪 13 下 fault indicator flashes 13 times	interfere with the working of ECU, replace the spark plug or spark plug cap with resistance
电路 Electricity supply	电瓶接线端子接触不良 bad contact of battery connecting terminal	启动困难 hard to start off 容易熄火 easy cutoff		unsteady electricity supply by ECU, tight
	线束和接插件故障 fault of wiring harness and plug-in unit		故障灯闪烁 fault indicator flashes	Influence the receiving and sending of signal, eliminate the loose problem
	整流器故障 rectifier fault	容易熄火 easy cutoff 加速无力 weak accelaration	故障灯闪 7 下 fault indicator flashes 7 times	Voltage fluctuates too much, which interferes or damage ECU and battery, replace
发动机 Engine	气门间隙过小 the vavle clearance is too small	启动困难 hard to start off 容易熄火 easy cutoff		The valve cannot get fully closed, and the pressure in the cylinder is low, enlarge the clearance
传感器 Sensor	缸头温度传感器失效 the cylinder head temperature sensor is invalid	启动困难 hard to start off	故障灯闪 2 下 fault indicator flashes 2 times	Fuel is not enough by cool start, check plug or replace
	氧浓度传感器失效 O2 concentrations is invalid	容易熄火 easy cutoff 加速无力 weak accelaration	故障灯闪 4 下 fault indicator flashes 4 times	the closed loop of injecting volumn is invalid, result in the fault injectin volumn, chech the plug, replace the sensor
	磁电机间隙大于 1mm magnetor clearance is over 1mm	启动困难 hard to start off	故障灯闪 5 下 fault indicator flashes 5 times	insufficient voltage at low speed angle signal , reduce the clearance
	磁电机间隙小于 0.5mm magnetor clearance is less than 1mm	容易熄火 easy cutoff 加速无力 weak accelaration	故障灯闪 5 下 fault indicator flashes 5 times	noise wave of high speed Crank angle signal, enlarge clearance
ECU	自学错误 Memory fault	启动困难 hard to start off 容易熄火 easy cutoff 加速无力 weak accelaration		because of abnormal O2 sensor, reset
	软件或硬件损坏 damage on software and hardware		故障灯闪 12 下 fault indicator flashes 12 times	spark plug cap, spark plug or rectifier is not qualified, which results in the damage of ECU software or hardware

6

第六章：燃油供给系统 PART 6: Fuel supply system

燃油供给系统 Fuel Supply System

电喷燃油供给系统主要有：油箱、燃油滤清器、负压燃油泵、电子恒压燃油泵、喷油器组成。
EFI fuel supply system mainly consist of: fuel tank, fuel filter, negative pressure fuel pump, electronic constant pressure fuel pump, fuel injector.



电喷燃油供给系统的原理：The principle of EFI fuel supply system:

- 燃油箱中的燃油经过→高压燃油过滤器→负压燃油泵。

Fuel in the fuel tank through → high pressure fuel filter → negative pressure fuel pump.

- 发动机工作状在态下，进入缸内的气流产生负压，使负压燃油泵工作，将进入负压燃油泵的燃油加压后供给电磁燃泵。

When the engine is working, the air flow into the cylinder produces the negative pressure, then the negative pressure fuel pump is working, pressurized the fuel of the negative pressure fuel pump and supply to electromagnetic fuel pump.

- ECU 控制电磁燃泵：ECU control electromagnetic pump:

1.将负压燃油泵提供的燃油加压后供给喷油器。The fuel of negative pressure fuel pump was pressurized and supplied to the injector.

2.并且将燃油中的气体过滤后返回到燃料油箱内。filter the gas in the fuel and return to the fuel tank.

- ECU 控制喷油器，使喷油器阀体打开，喷油器喷射的高压燃油在进气管内和吸入的空气混合后进入发动机内燃烧。ECU control the injector, open the valve body of injector, the injector injects the high pressure fuel in the intake pipe, mixed with the inhaled air and burning into the engine.

燃油泵 Fuel pump

本系统采用了负压泵和电磁泵两种外置式油泵;
The system uses a negative pressure pump and electromagnetic pump two kinds of external pumps;

负压燃油泵 Negative pressure fuel pump

- 负压泵①用于增大燃油的供油压力。

The negative pressure pump ① is used to increase the fuel supply pressure of the fuel.

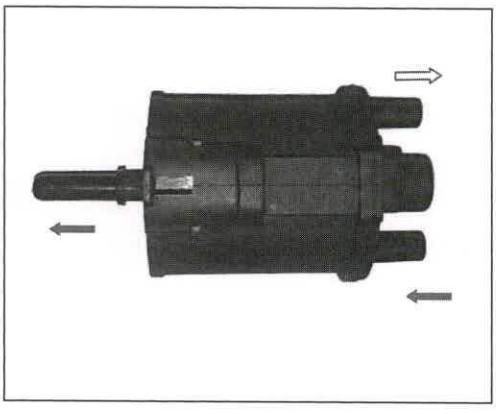
- 负压泵在发动机运转吸气时产生的负压后才进入工作状态，所以新车第一次加油时和油箱燃油耗尽时，必须先用脚起杆起动 10 次以上，使负压燃油泵工作数次后才能正常供油

Negative pressure pump star the working after running engine produces the negative pressure. So when the first time to fill up the fuel and run out of fuel, you must start with kick star more than 10 times, the negative pressure fuel pump will normally supply oil after work several times.

注意：Note:

* 在正常使用时请勿将燃油箱中的燃油耗尽。

Do not run out of fuel in the fuel tank during normally use.



电磁燃油泵 Electromagnetic fuel pump

- 用于解决燃油气阻，且恒压输出。

Used to solve the fuel gas resistance, and constantly pressure output.

- 电磁燃油泵在发动机每转两圈工作一次。

The electromagnetic fuel pump works every two rounds of the engine.

- 正常情况下，每次打开钥匙，油泵会发出 5 秒左右的“吱...吱...吱...”的振动声，然后停止。

Under normal situation, every time you turn it on by key, the pump will emit a vibrating sound of "squeak ... squeak" for about 5 seconds and then stop.

- .如果之后每间隔 5 秒左右出现“嗒...嗒...”声，则代表如下故障：

After that if every 5 seconds then appear the sound"da...da", it means following faults:

①缸头及进气温度传感器故障。Cylinder head and intake air temperature sensor problem.

②节气门位置传感器故障。Throttle position sensor problem.

- .电磁燃油泵尾部的“UP↑”应朝上方，使回油嘴 RETURN 处于最高点位置。The "UP ↑" on the end of the electromagnetic fuel pump should be facing upwards. So that the return nozzle "RETURN" at the highest position.

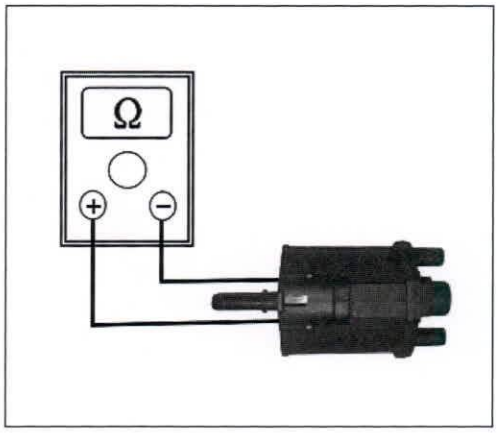
警告：Warning:

* 本泵为卧式泵，严禁将泵倒置或竖式安装，否则会导致发动机工作不良。The pump is a horizontal pump, it is forbidden to install the pump upside down or vertical, otherwise it will cause the engine to badly work.

检查 Inspection

电磁燃油泵电阻值 Resistance of Electromagnetic Pump

- 拔掉电磁燃油泵插件。
- 万用表调至欧姆“Ω”档位。
- 测量出电磁燃油泵的电阻。
- Disconnect the plug in unit of electromagnetic fuel pump
- Adjust Multimeter to "Ω"
- Measure the resistance of electromagnetic fuel pump



电磁燃油泵电阻值 Resistance of electromagnetic	1.2 ～ 1.7 Ω

故障排除 Trouble shooting

不供油
No fuel

检查油箱内燃油是否充足
Check the fuel in tank whether enough

NO → ● 燃油不足，添加燃油。
Fuel shortage, fill up the fuel.

拔出电磁泵出油管，按电启动，检查电磁泵是否有油喷出。
Pull out the tube of electromagnetic pump, press the electric start, and check the electromagnetic pump whethe spray the fuel.

OK → ● 喷油器故障。
● 电路故障。
● ECU 故障。
● Injector problem.
● circuit problem.
● ECU problem.

拔出电磁泵进油管，按电启动，检查进油管是否有油喷出。
Pull out the tube of electromagnetic pump, press the electric start, and check the tube whethe spray the fuel.

OK → ● 电磁泵故障。
● 电路故障。
● ECU 故障。
●Electromagnetic pump problem.
● circuit problem.
● ECU problem

拔出负压泵出油管，按电启动，检查负压泵出油嘴是否有燃油喷出。
Pull out the tube of negative pressure pump, press the electric start, and check the nozzle of n egative pressure pump whethe spray the fuel.

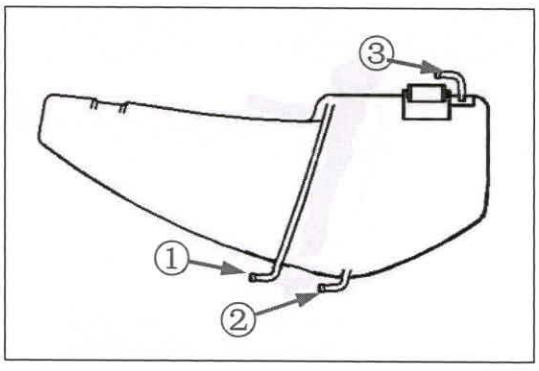
OK → ● 高压燃油过滤器堵塞。
High pressure fuel filter is blocked

拔出负压泵进油管，检查是否有燃油流出。
Pull out the tube of negative pressure pump, and check whethe spray the fuel.

NO → ● 油路故障。I
Line of fuel problem.

OK → ● 负压泵故障。
● 负压管弯曲打折或破损。
● Negative pressure pump problem.
● negative pressure pipe been bent or damaged.

燃油箱 Fuel tank

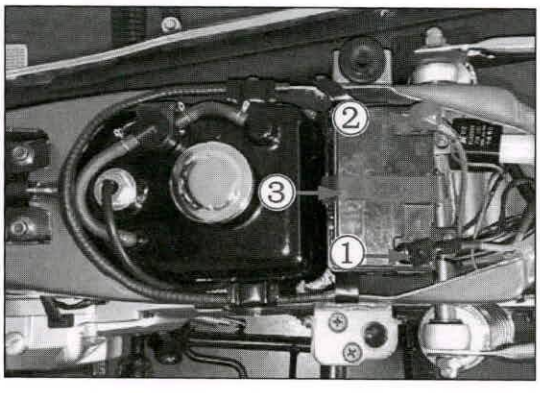


- 接口①为回油嘴，连接电磁油泵；
- 接口②为燃油输出，连接燃油过滤器。
- 接口③为油汽分离器，连接碳罐。

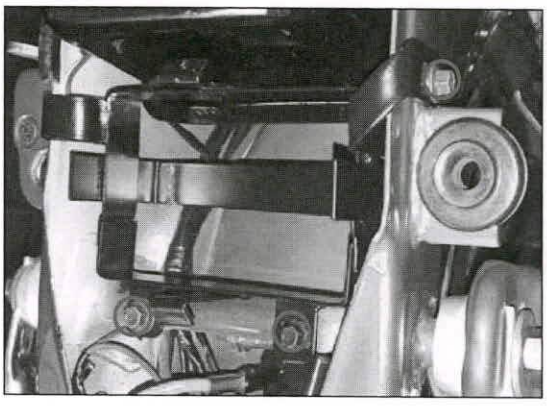
•Interface①for the oil nozzle, connected to the electromagnetic pump;
•Interface ② for the fuel output, connecting with the fuel filter.
•Interface ③ for the oil and gas separator, connecting with the carbon canister.

拆卸燃油箱 Remove the fuel tank

- 用钥匙顺时针打开座垫锁；
- 用力将座垫后部向上抬起，打开座垫；
•Open the seat lock by key in the clockwise way
•Lift the rear part of seat with power and open the seat;

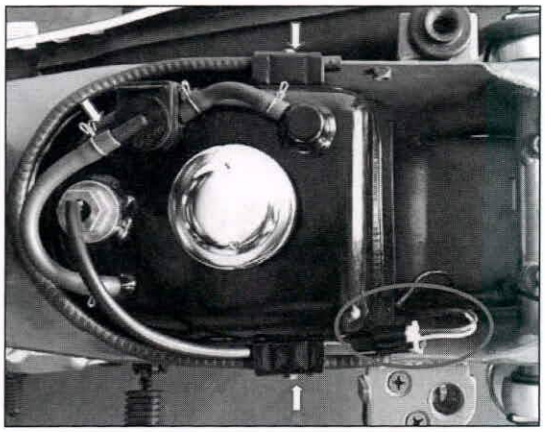


- 拆除电池；先将电池⊖极接线柱①拆除，再将电池⊕极接线柱②拆除；
- 拆下电池攀带③；
•Remove the battery, remove the wire connecting terminal of battery ⊖ pole①, then remove the wire connecting terminal of battery ⊕ pole②;
•Remove the battery band ③ and take out the battery

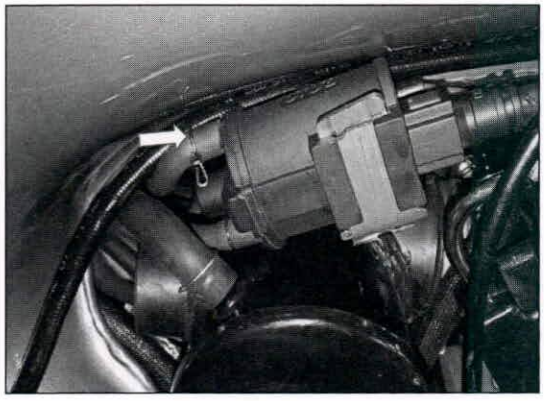


- 用 M8 套筒拆除电池支架的 3 个螺栓：螺栓规格：法兰 M8×12。
•Remove the 3 x bolt of relay bracket by M8 sleeve
Bolt Specifications: Flange M8 × 12.

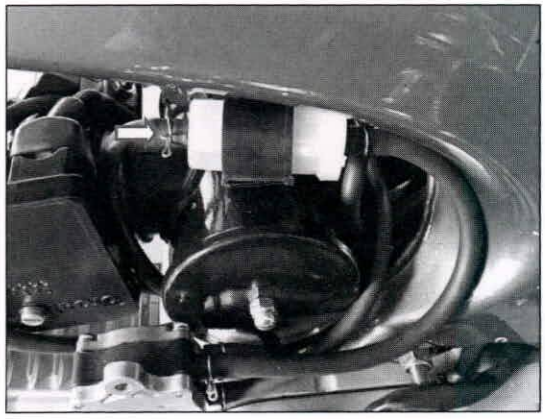
• 将油位计接插件断开；
• 用 M8 套筒拆除油箱 2 只螺栓：
螺栓规格：法兰 M8×12。
• 断开碳罐与倾倒阀连接油管；
Disconnect the oil level gauge connector;
Remove the 2 x bolt of fuel tank by M8 sleeve
Bolt Specifications: Flange M8 × 12.
Disconnect the carbon canister from the Dump valve with the connection oil pipe



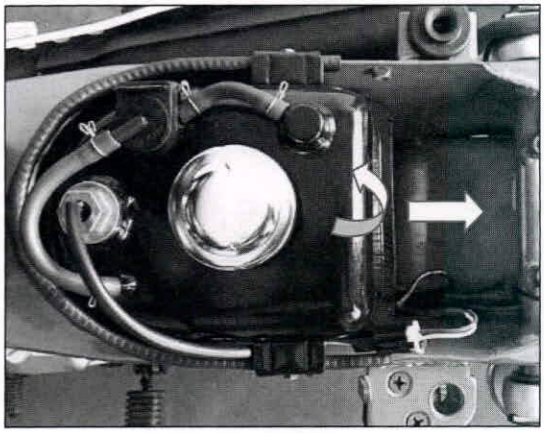
• 断开电磁燃油泵与油箱连接油管；
Disconnect the electromagnetic fuel pump from the tank connection oil pipe



• 断开燃油过滤器与油箱连接油管；
Disconnect the fuel filter from the tank connection oil pipe;

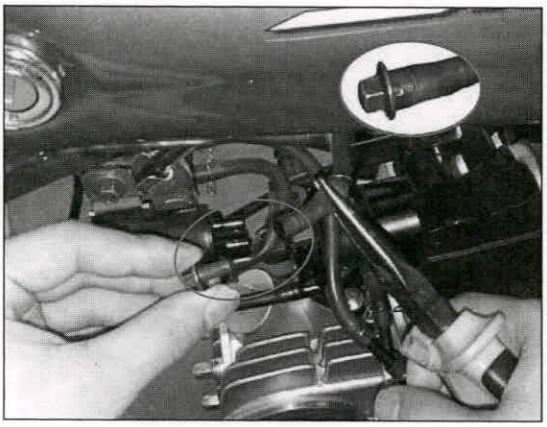


• 将油箱先向后方抽出，然后再向上方取出油箱。
Take the fuel tank out backwards, and then remove the tank from the top.



注意：NOTE:
* 断开油管时，先用尖嘴钳夹住油管，然后再拔出油管，再用螺栓堵塞油管，使燃油流不出来；
* 断开油管时，请做好相应标识，以防止装配时造成错装。

When you disconnect the oil pipe, firstly use the needle nose clamp to clamp the pipe, and then pull out the pipe, and then block the pipe with the bolt, so that the fuel will not come out;
When disconnect the pipe, make the mark on it to prevent the mistake during assembly.



重新安装燃油箱 Reinstall the fuel tank

重新安装燃油箱的顺序与拆卸相反。

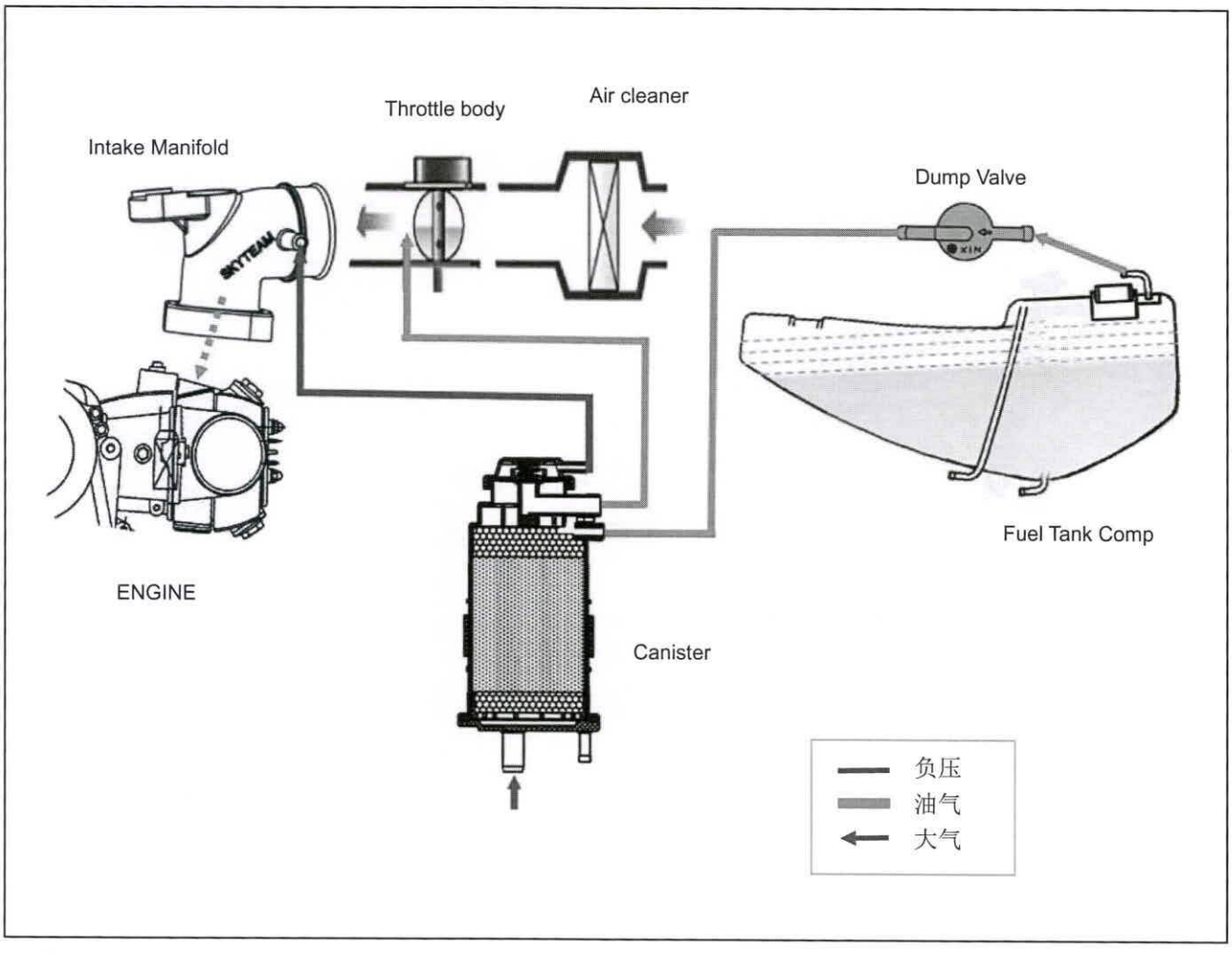
The assembly sequence is contrary to dismantling.

7

第七章：燃油蒸发系统 PART 7: Fuel Evaporation System

燃油蒸发系统原理 Principle of Fuel Evaporation System

燃油蒸发系统的目的：为了避免燃油中的气体挥发到时大气中，减少对大气的污染。
燃油蒸发系统主要有：油箱（密闭）、碳罐、倾倒阀组成。
The purpose of the fuel evaporation system: in order to avoid the gas in the fuel volatilize to the atmosphere, reduce the pollution of the atmosphere.
Fuel evaporation system consist of: fuel tank (closed), carbon canister, dump valve.



燃油蒸发系统的原理：The principle of fuel evaporation system:

- 燃油在运动或气温升高时会产生大量的气体，泄漏到空气中会对空气造成污染。
- 燃油产生的大量气体聚集在密闭的燃油箱里的燃油上方。
- 燃油气体通过燃油箱上方的油气分离器经过→倾倒阀→进入碳罐，碳罐中的活性碳将燃油气体吸附。
- 在发动机工作状态下，进入缸内的气流产生负压，将碳罐上的负压阀打开，使碳罐中的活性碳吸附的燃油气体通过负压阀→进入节气阀体→进入缸内燃烧。
- 倾倒阀是为了防止车辆侧倾或摔倒时燃油箱中的液体流入碳罐中，造成碳罐淹死。

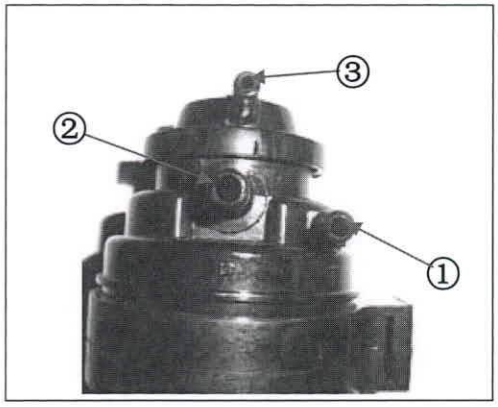
- Fuel in the movement or high temperature will produce a lot of gas, leak to the air and will cause air pollution.
- The large amount of gas produced by the fuel accumulates above the fuel sealed in the fuel tank
- The fuel gas passes through the oil and gas separator above the fuel tank through the → dump valve → into the canister, the activated carbon in the canister adsorbs the fuel gas
- Fuel gas through the oil and gas separator above the fuel tank through→dump valve → into the carbon canister, the activated carbon of carbon canister adsorbs fuel gas
- When the engine working, the air flow into the cylinder produces negative pressure, open the negative pressure valve on the carbon canister, so that fuel gas adsorbed by activated carbon of carbon canister through negative pressure valve → into the throttle body →combustion into the tank
- The dump valve is designed to prevent the liquid in fuel tank flowing into the canister when the vehicle rolls or falls, lead to carbon canister problem.

碳罐 carbon canister

碳罐是燃油蒸发控制系统中重要的一部分，该系统是为了避免燃油蒸汽泄漏到空气中造成污染。
碳罐中的主要成份为活性碳。

Carbon cans are an important part of the fuel evaporation control system, which is designed to avoid fuel vapor leak to the air and cause air pollution.
The main component of the canister is activated carbon.

- 接口①为输入端口，连接油箱。
- Interface ① is the input port, connecting the fuel tank.
- 接口②为输出端口，连接进气阀体。
- interface ② is the output port, connecting the inlet valve body.
- 接口③为负压阀端口，连接进气管。
- Interface ③is the negative pressure valve port, connecting the intake pipe.



注意：NOTE:
* 禁止使碳罐内进入液态燃油，否则会造成燃油蒸发系统失效或导致发动机无法正常运作。
Do not allow the tank to enter the liquid fuel, otherwise it will cause the fuel evaporation system fail or cause the engine can not work properly.

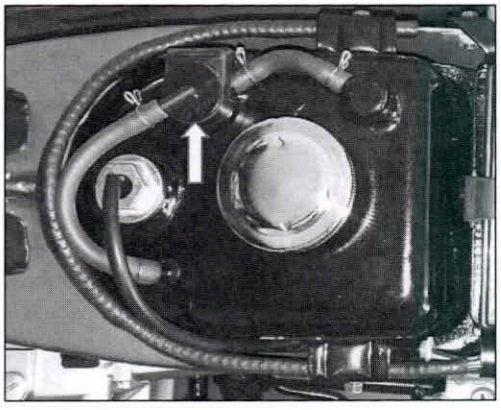
倾倒阀 Dump valve

该阀门控制燃油蒸汽管的接通和关闭，当整车倾斜大于等于 60 度时，该阀门关闭，燃油蒸汽管被阻断，使得油箱内部形成真空状态，停止供油，导致车辆熄火。当扶正车身后，即可恢复正常。

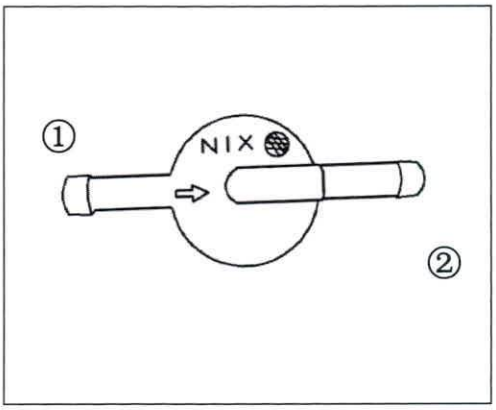
The valve controls the opening and closing of the fuel steam pipe, when the vehicle tilt angle more than or equal to 60 degrees, the valve will closed, the fuel steam pipe is blocked,so the internal fuel tank becomes vacuum state，stop the fuel supply, cause the vehicle power off. When the right the vehicle body, everything back to normal.

检查 Inspection

- 如图，将倾倒阀水平放置。
- 从①端用力吹气，倾倒阀有堵塞现象；
  从①端轻轻吹气，②端应有气流流出。若无，则工作不良，需更换。
  从①端吸气，②端应有气流通过。若无，则工作不良，需更换。将倾倒阀翻转 90 度。
  从①端吹气，②端应无气流流出。若有，则工作不良，需更换。
  从②端吹气，①端应无气流流出。若有，则工作不良，需更换。



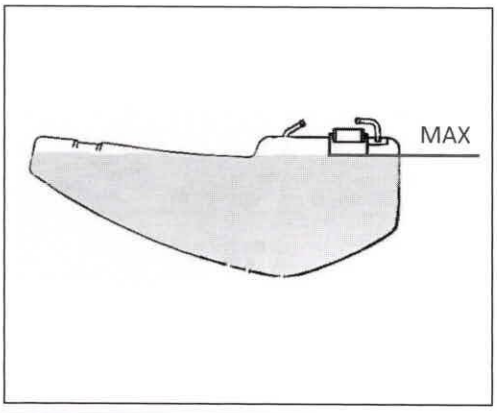
As the photo shows,keep the Dump valve in an upright position.
Blowing from the port① with power, dumping valve is blocked;
Blowing from the port① gently, port②should has air flow. If not, then the working is not good, it should be replaced.
Blowing form the port①, should be air through port②. If not, then the work ing is not good it should be replaced. Turn the dump valve over 90 degrees.
Blowing from the port①, port②should be no air flow. If yes then the working is not good, it should be replaced.
Blowing from the port②, port①should be no air flow. If yes then the working is not good, it should be replaced.



注意：NOTE：
* 禁止防倾倒阀装反、堵塞，油箱到碳罐的燃油蒸发管如果有弯折、压死的现象，会超成油箱内部形成真空，导致油路下油不畅。
* Do not reverse、clogging the anti-dump valve, if the fuel evaporation tube connecting the fuel tank to the carbon canister has a bend, crushed, the tank will be internal vacuum, causing the fuel flow not smooth.

燃油箱 Fuel tank

- 加油前请仔细阅读油箱口处的加油警告标贴。
- 本车安装了燃油蒸发系统，对油箱的加油量有严格的要求，每次加量不得超过加油口底部位置。
- 油箱加满会导致燃油从油箱的油气分离器进入碳罐内，淹没碳罐，超成燃油蒸发系统失效或导致发动机无法正常运作。
- Please read the fueling warning label at the fuel tank before fill the gasoline.
- The vehicle equipped with a fuel evaporation system, the fuel tank has a strict requirement, filling cannot exceed the bottom of the fuel tank cap. Full load will let the oil into carbon canister from the oil-gas separator of fuel tank, if canister is submerged, the fuel evaporation system will be problem or cause the engine stop working.



警告：Warning:

* 严禁油箱加满，否则有可能超成液态燃油进入碳罐，导致蒸发系统失效或导致发动机无法正常运作且污染环境。

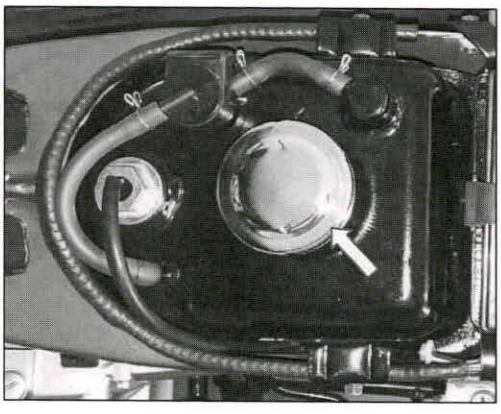
Do not fully fill up the tank, otherwise it may let the liquid fuel to enter the cans canister, it will causing the evaporation system problem or cause the engine stop working and environment pollution.

油箱盖 Fuel tank cap

- 本车使用的是全密闭的油箱盖。
- 油箱盖底部印有“GIII”字样，不得更换欧三状态无“GIII”字样的油箱盖

The vehicle uses a fully enclosed tank cap.

The bottom of the tank cap printed with "G III" words, do not replace the the cap without "G III" words.



警告：Warning:

* 禁止使用无“GIII”字样的油箱盖，否则燃油气体会进入大气，导致污染。

Do not use the cap without"G III" words, otherwise the fuel gas will enter the atmosphere, lead to the pollution.

8

第八章：CBS 联合制动 PART 8: CBS combined Brake System###

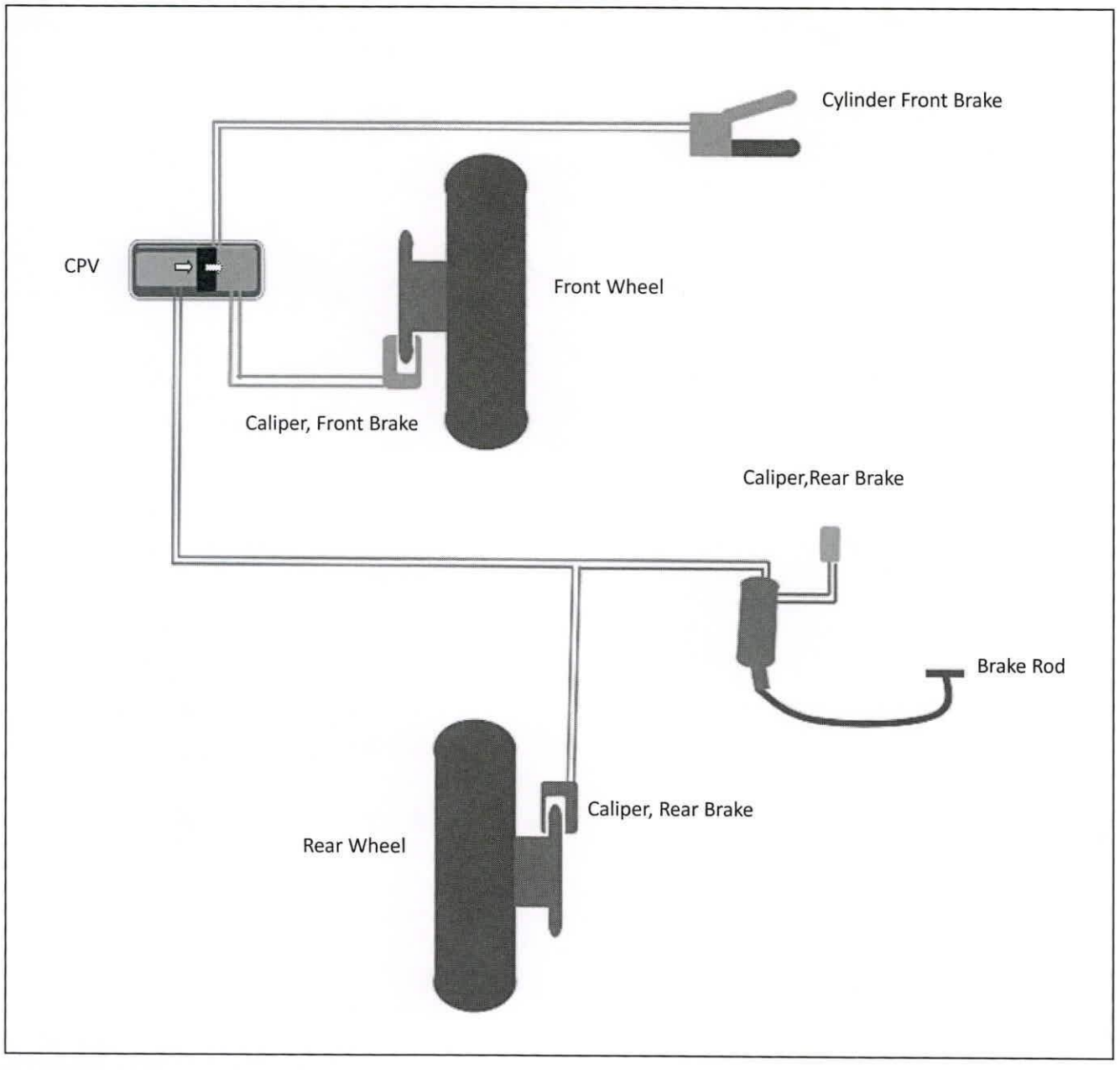
CBS 工作原理 Working principle of CBS

安装 CBS 联合制动的目的：是为了提高制动性能，保障行车安全。

CBS 联合制动主要有：CBS 主泵、前制动上泵、前制动卡钳、后制动上泵、后制动卡钳、油管组成。

The purpose of the installation of CBS （combined Brake System）is： improve the braking performance and ensure the safety on driving.

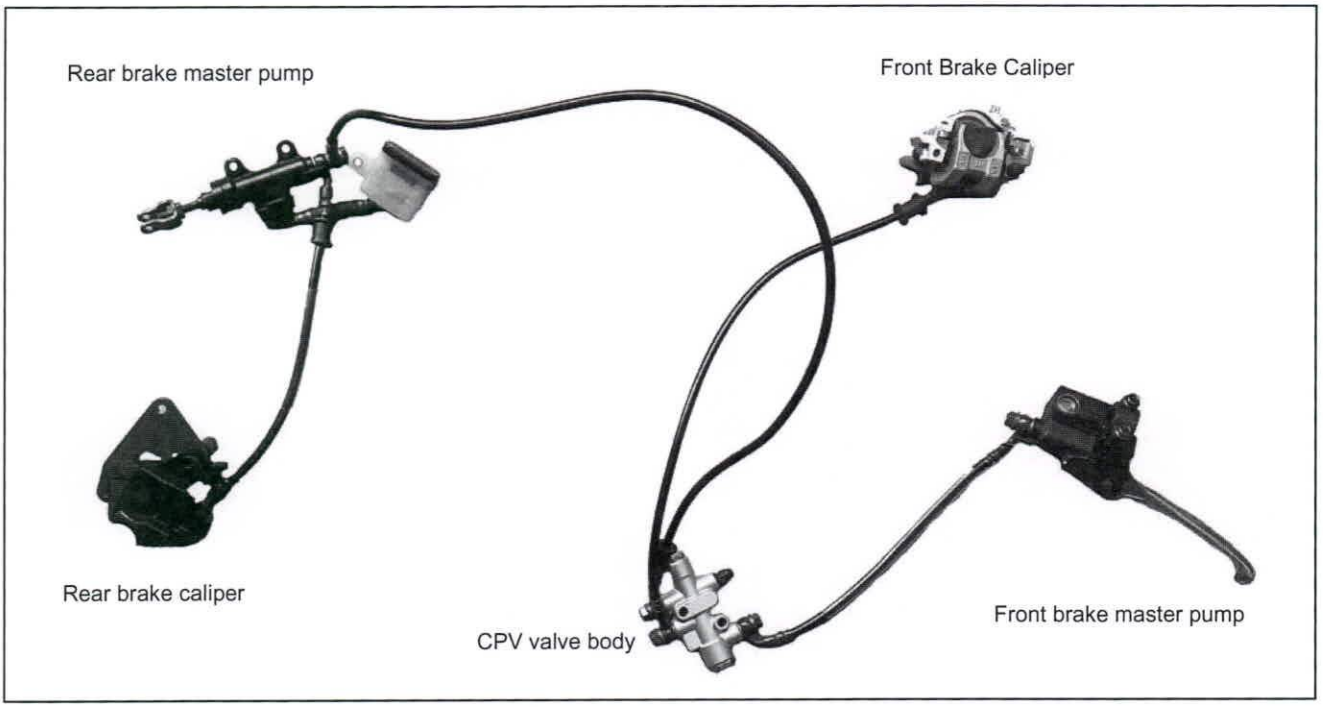
CBS consist of: CBS main brake pump、Master Cylinder, Front Brake、Caliper, Front Brake、Master Cylinder, Rear Brake、Caliper, Rear Brake、brake hose.



如图所示 as the picture shows

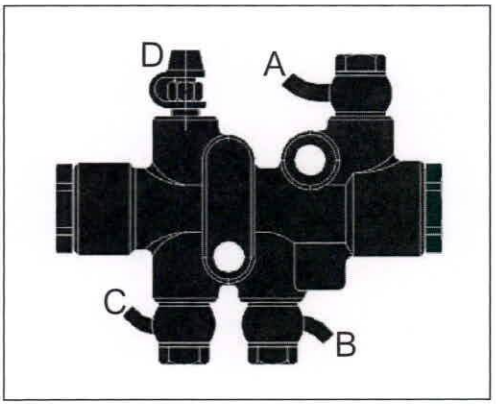
- 当前刹制动时，前轮制动卡钳起效。
- 当后刹制动时，前轮和后轮制动卡钳同时起效。
- 前后制动油路相对独立，其中任意一个出现故障，不会影响到另外一个。
- When the front brake is working, the Caliper, Front Brake is working too.
- When the rear brake is working, the Caliper, Front Brake and Caliper, Rear Brake is working at the same time.
- Front and rear brake oil circuit is relatively independent, any one of them is broken, will not affect the other one.

CBS 联合制动 Combined Brake System



CPV 阀体 valve body

CBS 阀体是控制前后联合制动的主要部件，
A 连接前制动上泵；B 连接前制动下泵；
C 连接后制动上泵；D 放油排气阀
CBS valve body is the main component for control the Combined Brake System
A .connected to the Front brake master pump; B . connected to the front brake caplier;
C. connected to the Rear brake master pump; D. oil drain valve

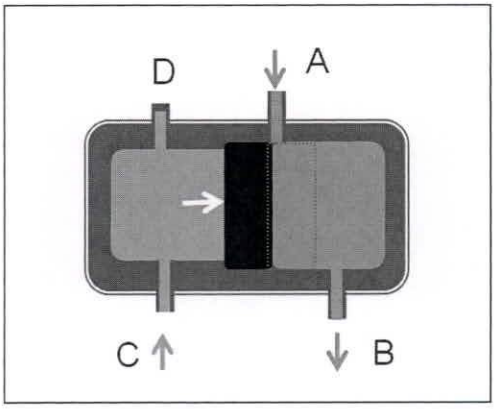


如图所示：as the picture shows:

- 当前刹制动时，前制动液由 A 方向推向 B 方向到达前制动下泵；
- 当后刹制动时，后刹制动液从 C 方向进入 CPV 中推动活塞：先将 A 方向油路堵住，再将制动液从 CPV 中推向 B 方向。

● When the front brake is working, the front brake fluid flow to Front Brake Caliper from direction A to direction B
from the A direction to the B direction
Brake under pump

● When the rear brake is working, the rear brake fluid push the piston from C flow to CPV: first to block the circuit on A direction, and then push the brake fluid from the CPV to B direction.



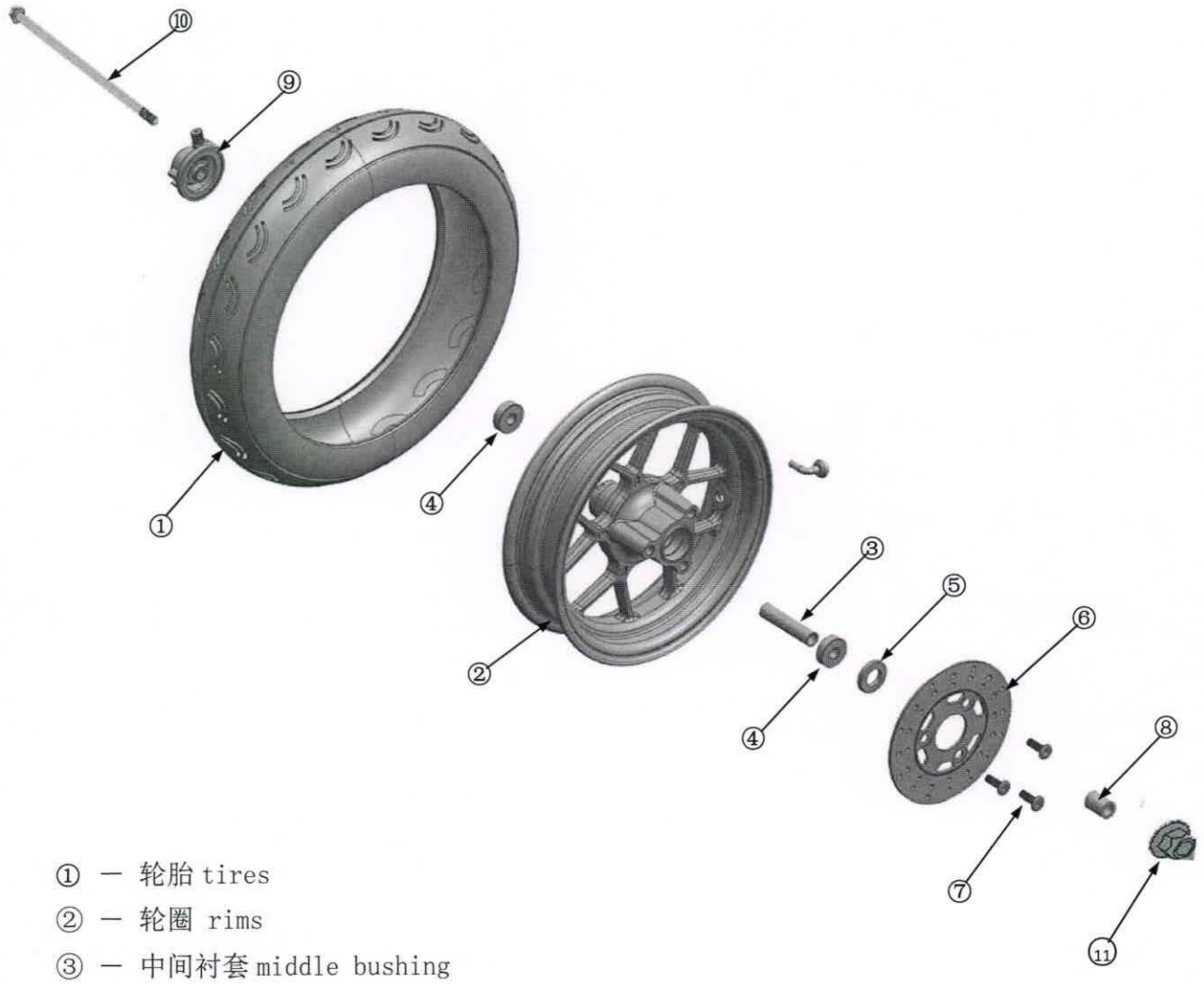
警告：Warning:
* 非专业人员严禁拆解 CBS 阀体。
Do not remove the CBS valve body if you are non-professional

9

第九章：整车部分 PART 9: Vehicle Parts

前轮 Front Wheel

结构图 Structure diagram



① — 轮胎 tires
② — 轮圈 rims
③ — 中间衬套 middle bushing
④ — 轴承 bearing
⑤ — 密封圈 Seal ring
⑥ — 碟刹盘 disc brake
⑦ — 碟刹盘螺栓 disc brakes bolts
⑧ — 前轮左衬套 bushing, front wheels Rh
⑨ — 计速器 speedometer
⑩ — 前轮轴 front axle
⑪ — 螺母 Nuts

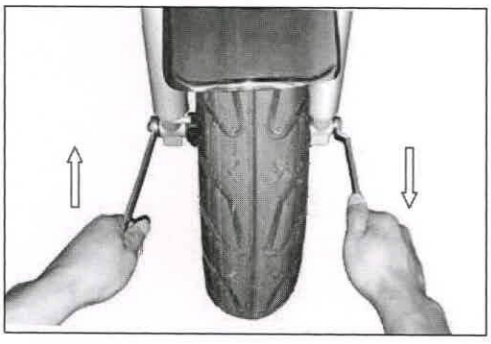
拆卸前轮 remove the front wheel

• 支起中撑；

• open the center stand

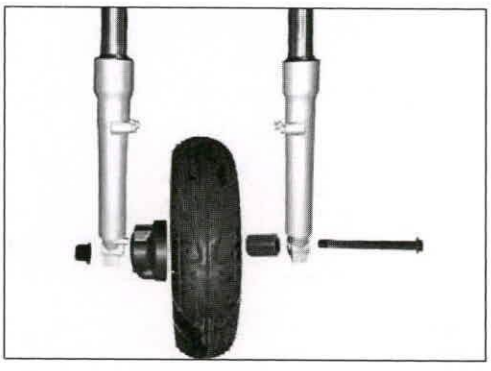
• 用 M14 扳手固定前轮轴：用 M17 扳手拆下前轮轴螺母；螺母规格：法兰自锁 M12×1.25

• Fix the front axle by M14 wrench: disassemble the nuts of front axle with M17 wrench; Nut size: Flange self-locking M12 × 1.25



• 拔出前轮轴，拆下前轮总成；

• Take out the front axle, disassemble the front wheel assy;

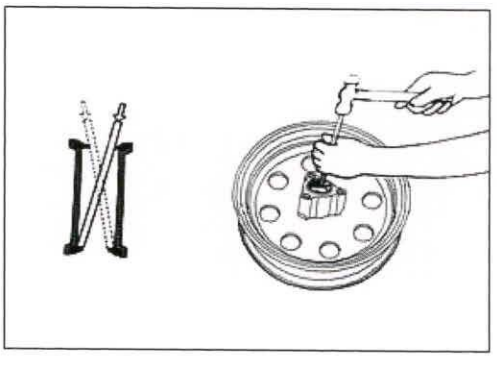


• 用 M6 内六角扳手拆下前碟刹盘螺栓；

• disassemble the bolts, front disc brake by M6 wrench

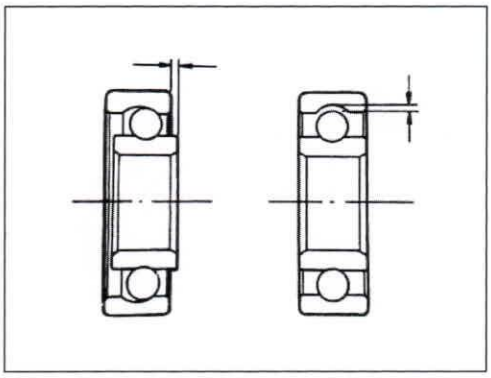
• 用合适的棒子 如图所示拆下前轮轴承；

•Use a suitable stick to remove the front wheel bearing as picture shown



检查 Inspection

• 转动其内圈度看它是否转动平滑，如果轴承转动有异常声并且不平滑，或有任何不正常现象，则该轴承受损则立即更换。
Rotate its inner circle to see whether turned smoothly,if the bearing rotates with an abnormal sound and it is not smooth,or any abnormal situation, then the bearing is damaged. It should be replaced immediately.



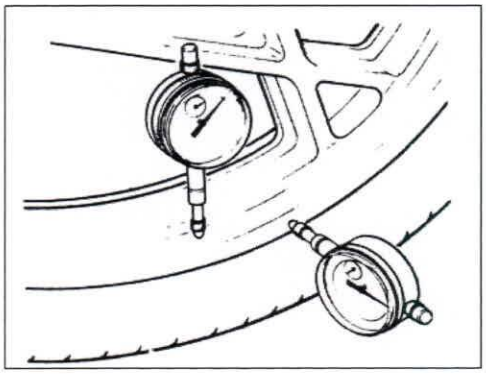
• 用偏摆仪将前轮固定，如图所示用百分表测量轮圈的径向和轴向跳动:Fixed the front wheel with pendulum instrument, and measure the radial and axial runout of the rim with a dial indicator：

使用限值：径向跳动 2.0 mm

轴向跳动 2.0 mm

Service limit: radial runout 2.0 mm

axial runout 2.0 mm



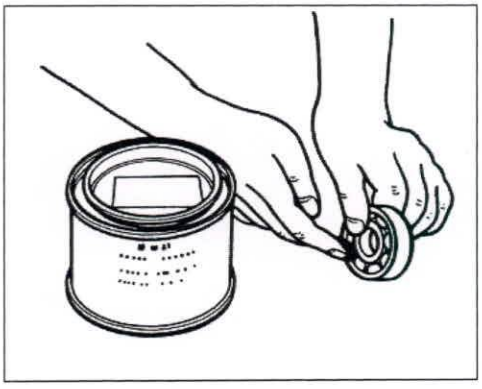
重新安装前轮 Re-install the front wheel

重新安装前轮的顺序与拆卸相反，注意以下几点：

The sequence of reassembly is contrary to dismantling. Please note the following points:

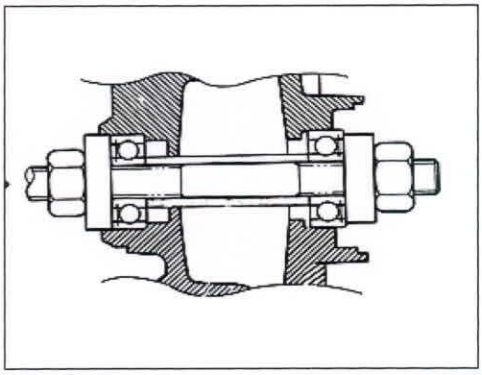
• 安装轴承前将轴承内涂抹适量的润滑脂；

Add an appropriate amount of grease inside the bearing before install it.



• 安装轴承时最好使用专用工具将轴承同时压进轮毂内（如图）；

When installing the bearing, it is best to use a special tool to press the bearing into the wheel at the same time (as picture shown);



• 安装碟刹盘时：When installing brake disc:

确保表面干净、无油脂；

Ensure that the surface clean, no grease;

• 碟刹盘螺栓：bolt, brakes disc:

①涂抹适量螺纹胶；

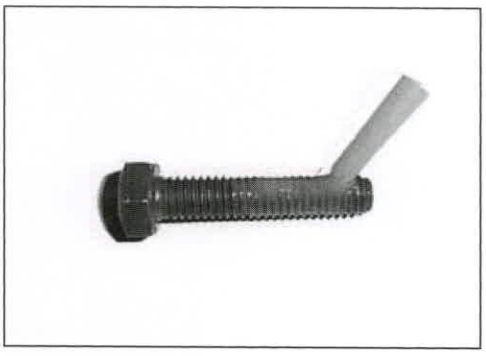
②至少有两次的紧固过程；

③扭力值：22.5~27.5N.m

smear the amount of thread glue;

fastening the bolt at least twice;

Torque value: 22.5 ~ 27.5N.m



• 装好前轮后转动前轮 2～3 圈，使计速器卡片落入轮毂的限位槽内，然后紧固；

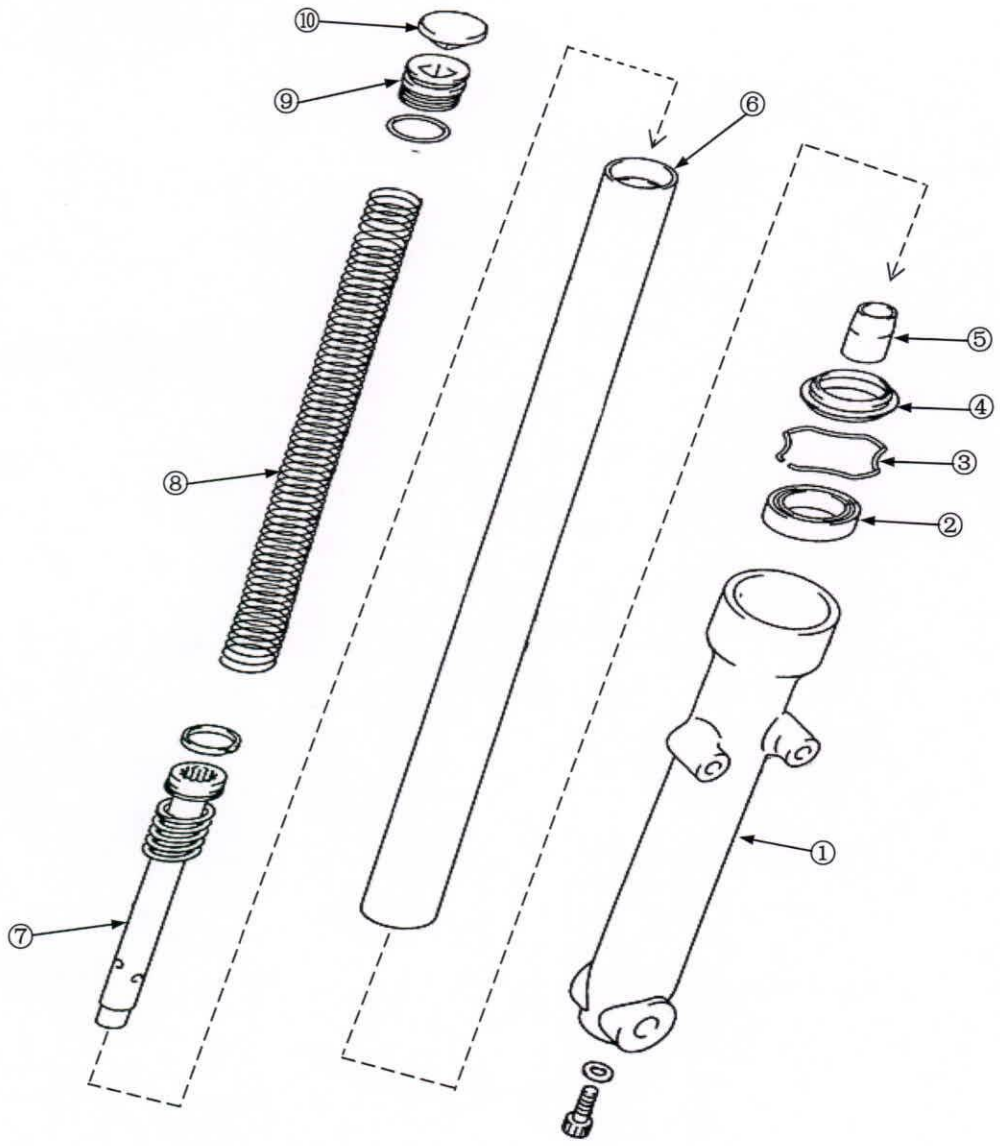
前轮轴扭力值：54~66N.m。

Install the front wheel after the rotate the front wheel 2 to 3 laps, so let the speedometer card into the limit slot of the hub, and then fastening;

Front axle torque: 54 ~ 66N.m.

前减震器 Front shock absorbers

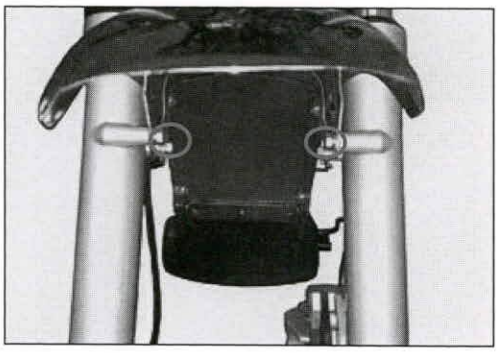
结构图 Structure diagram



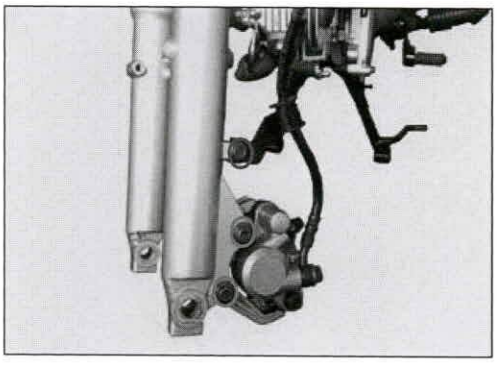
(1). — 铝筒 aluminum tube
② — 油封 oil seal
③ — 挡圈 retaining ring
④ — 防尘罩 dust cover
⑤ — 衬套 bushing
⑥ — 并管 tube
⑦ — 活塞杆 Piston rod
⑧ — 弹簧 spring
⑨ — 闷头螺椎 head screw
⑩ — 吊紧螺栓 bolt, tighten

拆卸前震器 Dismantle the front shock

拆卸前震器之前先拆除前轮（详见 9-2）。
Remove the front shock before removed the front wheel (see section 9-2).



• 用 M10 扳手拆除前泥板螺栓：
Remove the bolts,front fender with M10 wrench:
螺栓：六角 M6×10 4 只 Bolts: hexagonal M6 × 10 4pcs
平垫： Φ6×Φ12 4 只 Flat washer: Φ6 × Φ12 4pcs
弹垫： Φ6 4 只 Spring washer: Φ6 4pcs



• 用 M8 套筒拆除碟刹管夹支架：
Remove the bracket,brake disc hose with M8 sleeve:
螺栓规格：法兰 M6×12 1 只
Bolt Specifications: Flange M6 × 12 1pcs
• 用 M12 套筒拆碟刹下泵螺栓：
Remove the bolts, front Brake Caliper with M12 sleeve:
螺栓规格：法兰 M8×28 2 只
Bolt Specifications: Flange M8 × 28 2pcs

• 用 M17 套筒拆除上联板上的吊紧螺栓：
Remove the tighten bolts on Steering Head with the M17 sleeve:

• 用 M10 套筒松开下联板上减震螺栓，用左手握住减震，防止减震掉落；
螺栓：法兰 M8×30
release the flange bolts on steering stem with the M10 sleeve, holding the shock with the left hand, will not drop the shocks during the dismantling;

• 向下抽出减震。
Take out the shocks downward

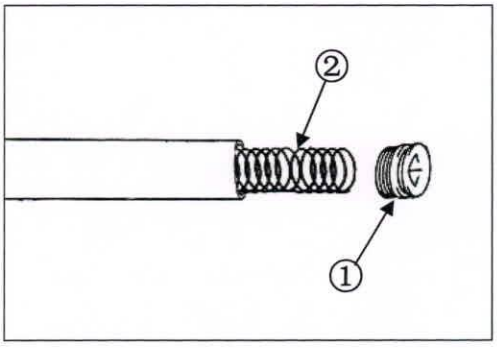
分解前震器 Dismantle the front shock

• 将前减并筒装在下联板上并锁紧下联板螺栓，松开前减上方闷头螺栓；

Install the tube on the steering stem and tighten the bolt, Then loosen head screw on the top of the front shock

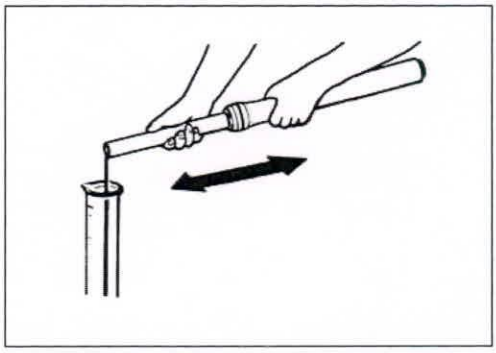
• 拆下并管上的闷头螺栓①和弹簧②；

Remove the head screw①and spring② on the head screw



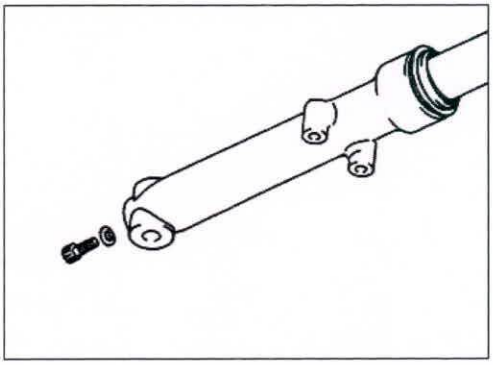
• 放出减震油：使减震倒置几分钟，并使并管来回抽拉，以便油快速的流出；

Release shock oil: inverted shock in few minutes, pull and back the tube,so that the oil can flow out quickly;



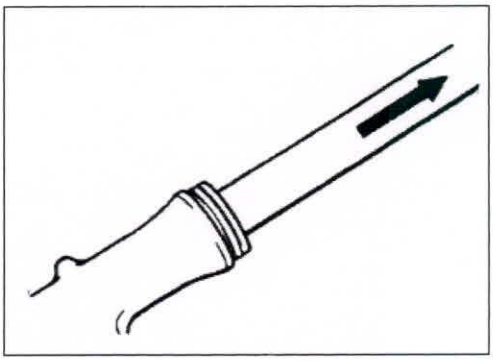
• 将并管固定不动，用 M6 内六角扳手拆下铝筒下方的固定螺栓；

fix the tube, to remove the fixing bolt of the aluminum tube by M6 hex wrench.



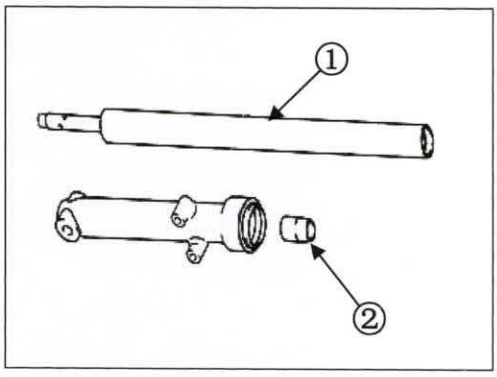
• 将并管从铝筒内抽出；

Take out the aluminum tube from tube



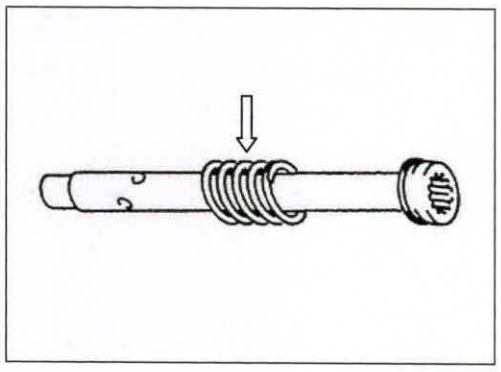
- 取出并管①和衬套②；

Take out the tube① and bushing②;



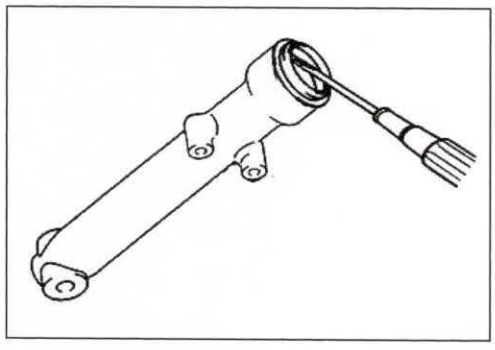
- 从活塞杆上取出弹黄；

Remove the spring from the piston rod



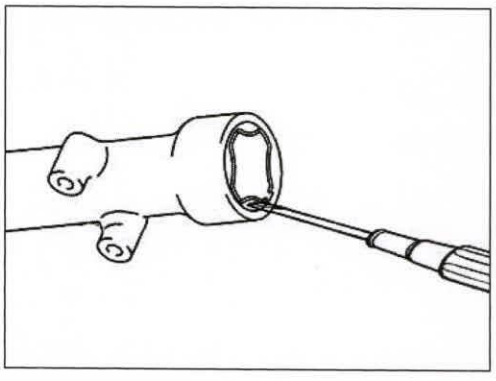
- 用一字螺丝刀沿开口方向撬开防尘圈；

Remove the dust ring by straight screwdriver



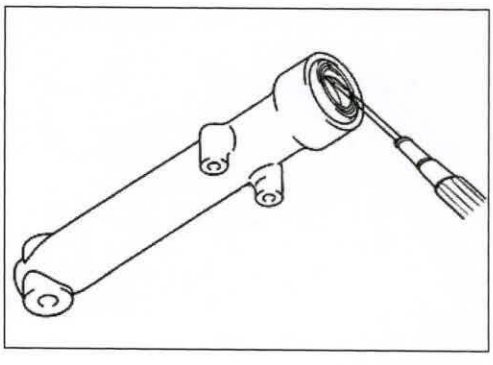
- 用一字螺丝刀撬开油封挡圈；

Remove the oil seal ring by straight screwdriver



- 用一字螺丝刀撬开油封；

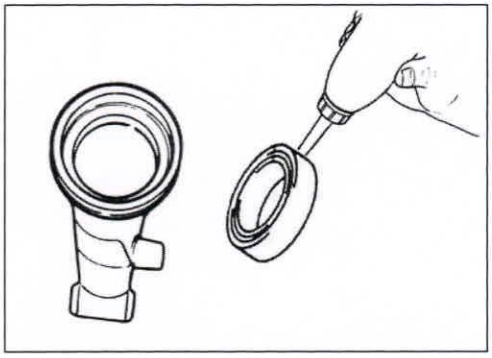
Remove the oil seal by straight screwdriver



重新组装前震器 Installation of the front shocker

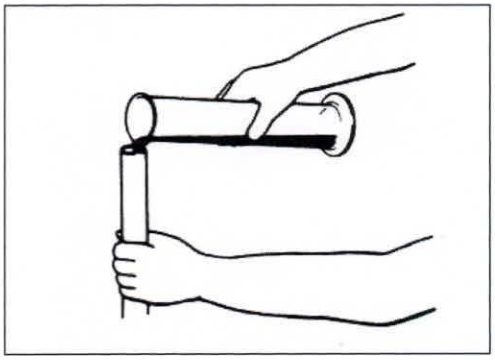
重新组装前减震器的顺序与拆卸相反，请注意以下几点：
The sequence of reassembly is contrary to dismantling.

> 注意：**NOTE:**
> * 在组装前应用清洁剂清洗所有的金属零件；
> * 切勿使用拆卸时放出的减震油；
> * 更换新的油封；
> clean all metal parts by cleaner before the installation;
> Do not use shock oil again after disassembled;
> Replace the new oil seal;



• 安装油封时，在油封内外圈上涂抹适量减震油，使之更容易装配，以防止在安装时挤压造成油封损坏；

When installing the oil seal, use right amount of shock oil in the ring of inside and outside the oil seals,making it easier to assembly, to avoid the damage to the oil seal during installation;



• 将推荐使用的减震油倒入并管内：

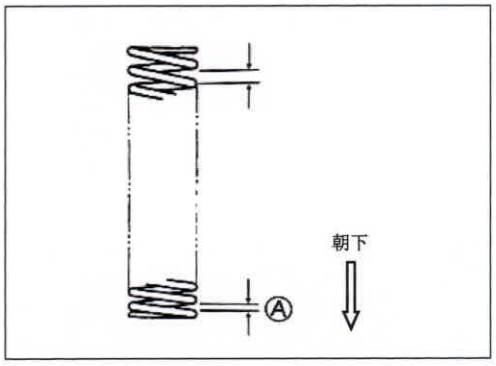
推荐使用的减震油：558 或 46＃液压油，

油的容量：75 ml。

use the recommend the shock oil into the tube:

Recommended shock oil: 558 or 46 # hydraulic oil

Oil capacity: 75 ml.

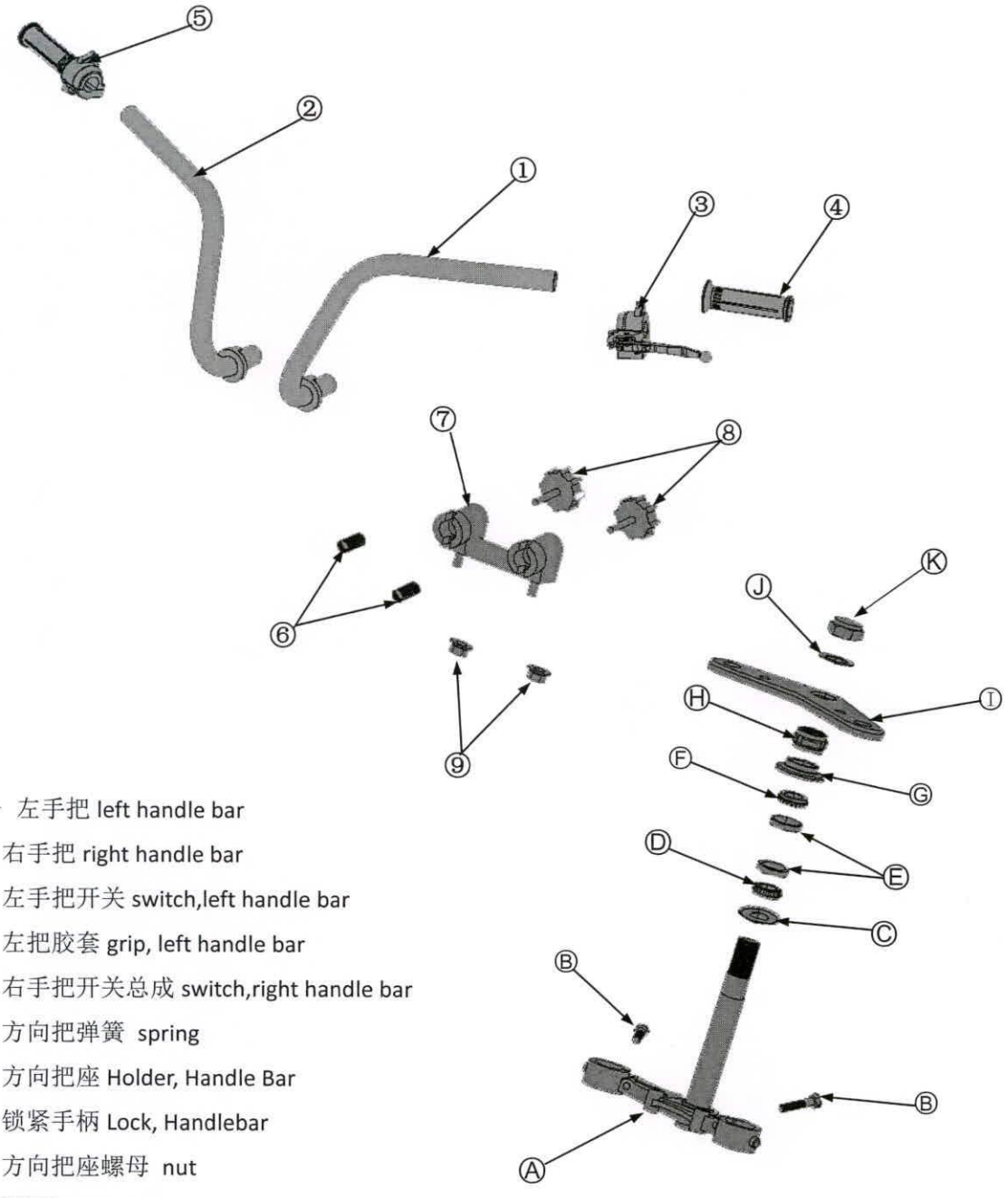


• 安装减震弹簧时，节距小的一端 **A** 应朝下：

When installing the shock spring, the side of small distance A should be downward:

方向把 handle bar

结构图 Structure diagram



① — 左手把 left handle bar
② — 右手把 right handle bar
③ — 左手把开关 switch,left handle bar
④ — 左把胶套 grip, left handle bar
⑤ — 右手把开关总成 switch,right handle bar
⑥ — 方向把弹簧 spring
⑦ — 方向把座 Holder, Handle Bar
⑧ — 锁紧手柄 Lock, Handlebar
⑨ — 方向把座螺母 nut
ⓐ — 下联板 Steering Stem
ⓑ — 下联板螺栓 Steering Nut
ⓒ — 大垫圈 Washer
ⓓ — 22.5 滚针轴承 Needle Bearing
ⓔ — 钢碗 steel bowl
ⓕ — 24 滚针轴承 Needle Bearing
ⓖ — 防尘罩 Seal Cap
ⓗ — 锁紧螺母 Steering Nut
ⓘ — 上联板 Steering Head
ⓙ — 大垫圈 big washer
ⓚ — 柱顶螺母 Steering Nut

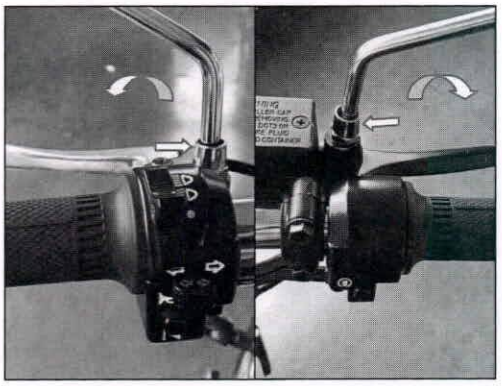
拆卸方向把 Remove the handle bar

• 拆除前轮（详见 9-2）。

Remove the front wheel (see section 9-2).

• 拆除前减（详见 9-6）。

Remove front shock (see section 9-6).

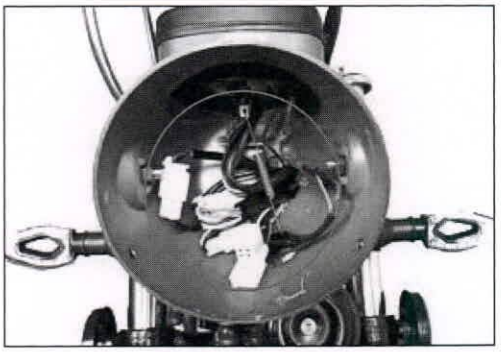


• 拆下左右后视镜，左为正牙、右为反牙；

Remove the left and right rearview mirror, left is positive thread, right is negative thread.

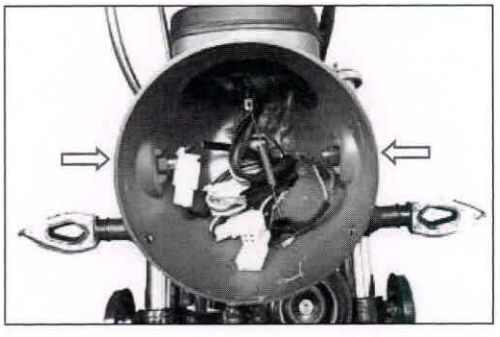
• 用十字螺丝刀拆下大灯壳上的 3 个固定螺栓，取出大灯；

Remove the three fixing bolts on the head lamp housing by cross screwdriver, then take the head lamp out.



• 断开大灯壳内的所有导线接插件；

Disconnect all wire connectors in the head lamp housing;

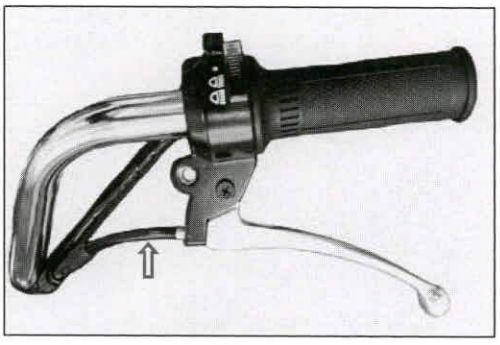


• 用 M6 内六角扳手拆除大灯壳固定螺栓，取出大灯壳；

Remove the headlamp housing bolts by M6 hex wrench,and take the headlamp out.

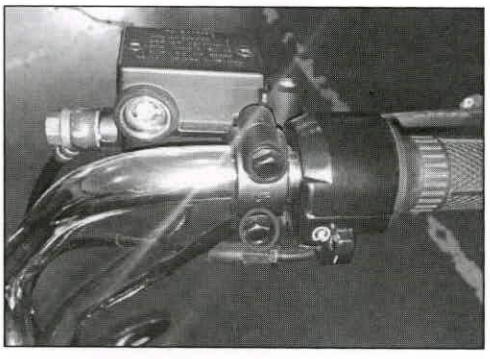
● 拆下离合器钢索；

Remove the clutch cable



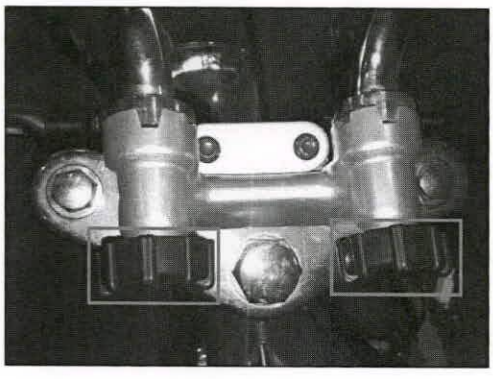
● 拆下碟刹上泵：

Remove the master cylinder, front brake



● 松开方向把锁紧螺母，取出左右分体方向把。

Loosen the lock nut on handle bar, remove the left and right handlebar



● 拆除大灯支架 2 只固定螺栓：

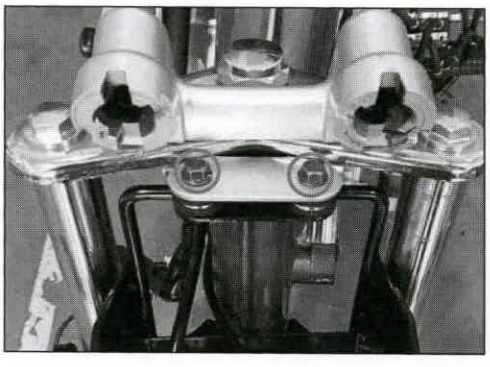
螺栓规格：法兰 M6×25。

● 取出大灯支架。

Remove the 2 fixing bolts on headlamp bracket:

Bolt Specifications: Flange M6 × 25.

● Remove the headlamp bracket.

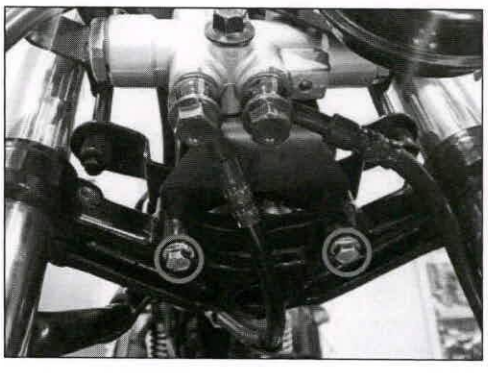


● 拆除下联板上的大灯支架下安装板螺栓：

螺栓规格：法兰 M6×35。

Remove the mounting bolts on headlamp bracket from the Steering Stem

Bolt Specifications: Flange M6 × 35.



• 拆除上联板上的前减螺栓和柱顶螺母。

• 取出上联板。

Remove the bolts and Steering Nuts on the Steering Head

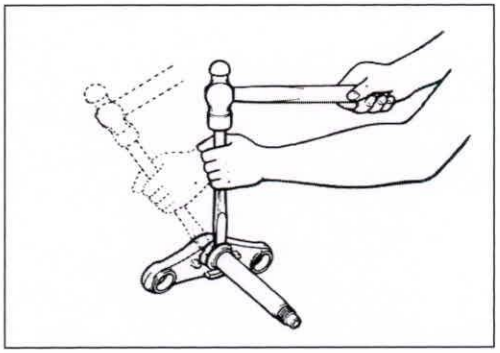
Remove the Steering Head

• 用专用扳手拆除下联板锁紧螺母，取出下联板。

remove the steering nut on Steering stem by special wrench, and then remove the Steering stem

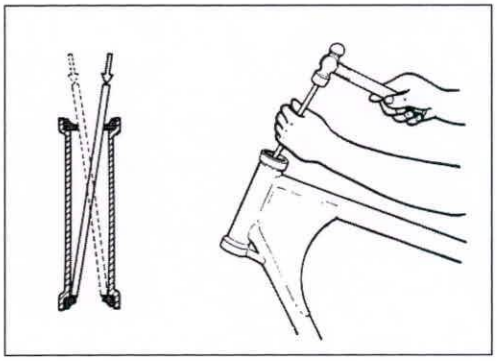
• 拆卸轴承；

Remove the bearing



• 拆卸钢碗；

Remove the steel bowl



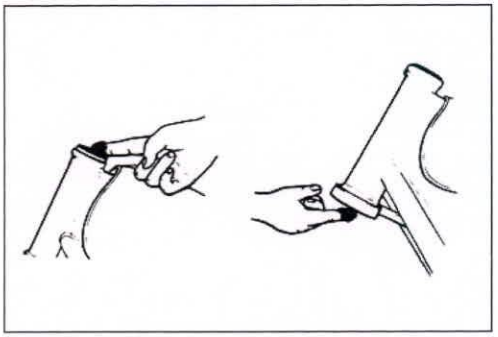
重新组装方向器 Installation of handlebar

重新组装方向器的顺序与拆卸相反。

The sequence of reassembly is contrary to dismantling.

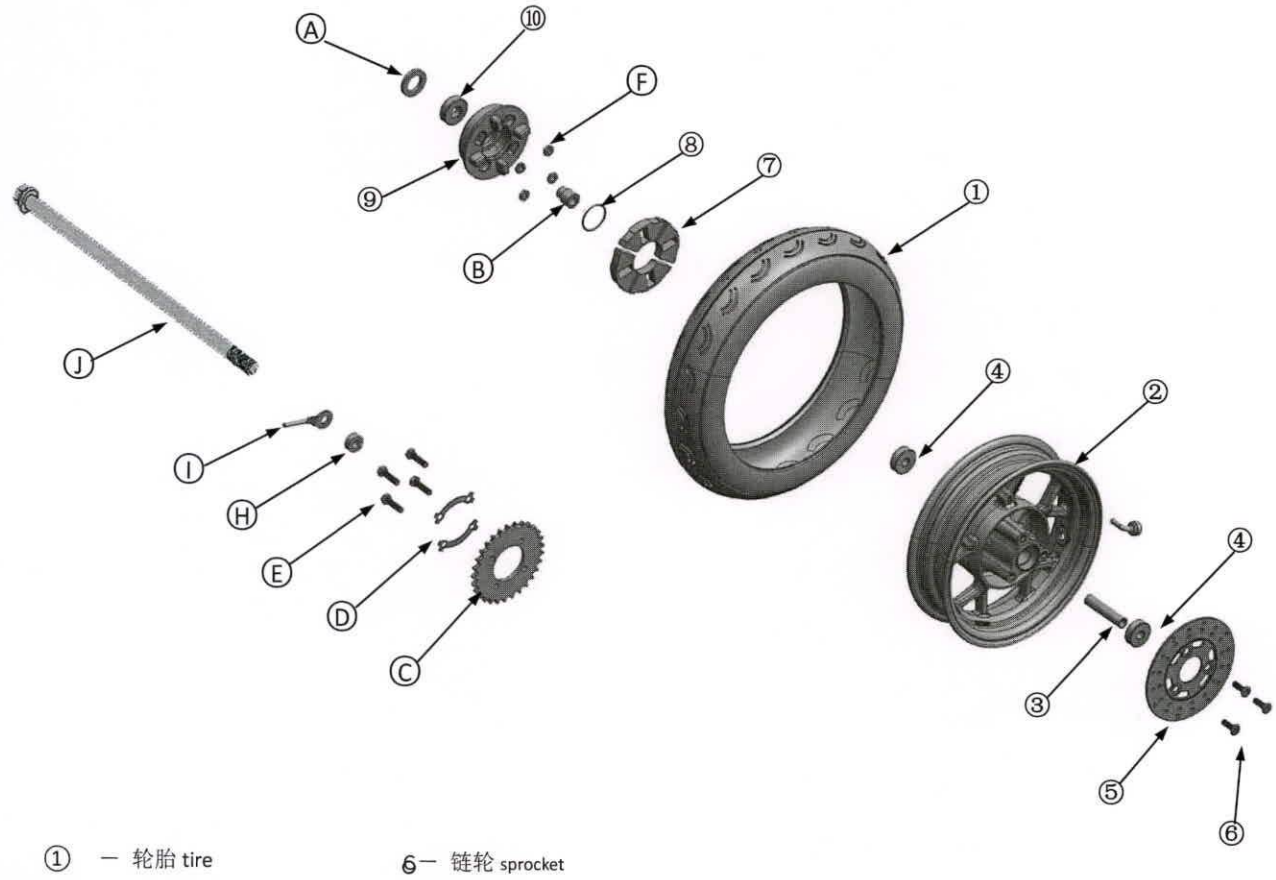
• 安装下联板时在钢碗内抹适量润滑脂。

When install the Steering Stem, add right amount of grease in steel bowl.



后轮 rear wheel

结构图 Structure diagram



① — 轮胎 tire

② — 轮圈 rim

③ — 中间衬套 middle bushing

④ — 轴承 bearing

⑤ — 碟刹盘 brake disc

⑥ —碟刹盘螺栓 bolt, brake disc

⑦ — 链轮缓冲块 Buffer Stopper

⑧ — 密封圈 Seal ring

⑨ — 链轮座 Base, Sproket

⑩ — 链轮座轴承 bearing

Ⓐ— 密封圈 Seal ring

Ⓑ— 链轮座内衬套 spacer

Ⓒ— 链轮 sprocket

Ⓓ— 链轮锁片 Locking plate

Ⓔ— 链轮螺栓 bolt

Ⓕ— 链轮螺母 nut

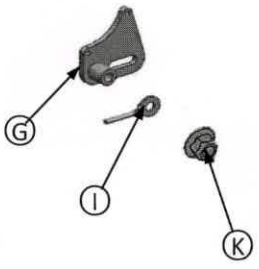
Ⓖ— 后钊钳体安装板 Bracket, Rear Brake calipe

Ⓗ— 后轮左衬套 Bushing, Rear Wheel, L

Ⓘ— 调链器 Adjuster, Chain

Ⓙ— 后轮轴 Axle, Rear Wheel

Ⓚ— 螺母 nut



拆卸后轮 Disassemble the rear wheel

• 支起中撑；

Open the Center Stand

• 用 M14 扳手固定后轮轴：用 M17 扳手拆下后轮轴螺母；

螺母规格：法兰自锁 M12×1.25

Fix the rear axle by M14 wrench:

Remove the rear axle nut by M17 wrench;

Nut size: flange self-locking M12 × 1.25

• 用 M10 扳手松开调链器螺母；

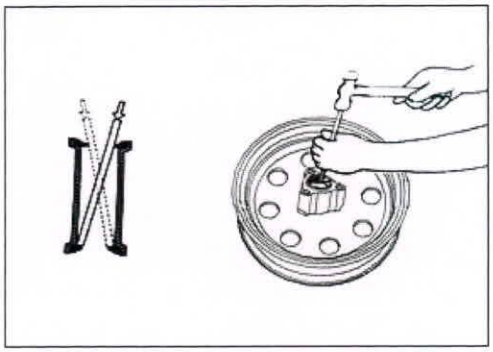
• 拔出后轮轴，拆下后轮总成；

Loosen the nut of chain adjuster by M10 wrench;

Pull out the rear axle, remove the rear wheel assembly;

• 用 M6 内六角扳手拆下后碟刹盘螺栓；

Remove the blots of rear disc brake by M6 hex wrench;



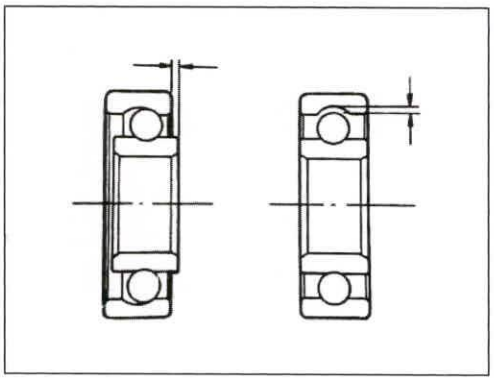
• 用合适的棒子 如图所示拆下前轮轴承；

Remove the bearing,front wheel bearing by the appropriate stick as picture shown;

检查 Inspection

• 转动其内圈度看它是否转动平滑，如果轴承转动有异常声并且不平滑，或有任何不正常现象，则该轴承受损则立即更换。

Rotate its inner circle to see whether smoothly,
If the bearing rotates with an abnormal sound and is not smooth,or any irregularities,the bearing should be replaced immediately.

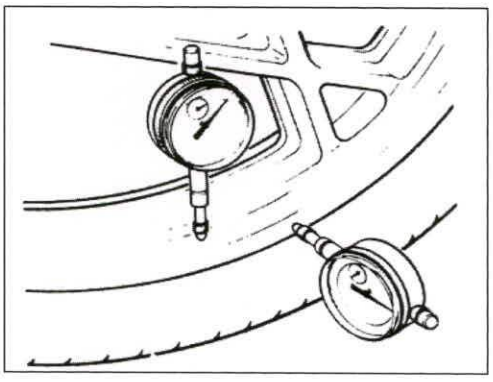


• 用偏摆仪将前轮固定，如图所示用百分表测量轮圈的径向和轴向跳动:

使用限值：径向跳动 2.0 mm
轴向跳动 2.0 mm

Fixed the front wheel by pendulum instrument, measure the radial and axial runout of the rim by a dial indicator as picture shown:

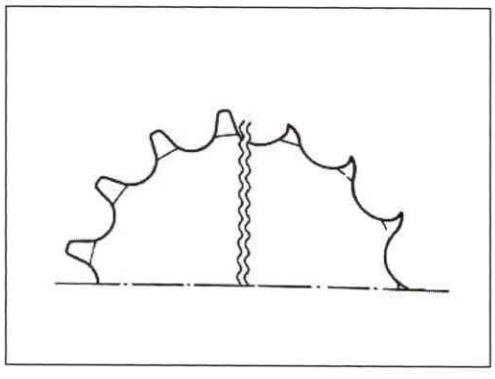
Service limit: radial runout 2.0 mm
axial runout 2.0 mm



• 链轮磨损过度会适成链条噪声，并且会有链条脱落的风险：

当拆链轮时，要检查链轮的磨损情况；
目测检查链轮齿，如图示的磨损，靖更换链轮。

Excessive wear of sprocket will make the chain noise and there is a risk of chain shedding:
Check the wear of sprocket when dismantle the sprocket;
Check the teeth of sprocket, if it is over worn as picture shown, then it should be replaced.

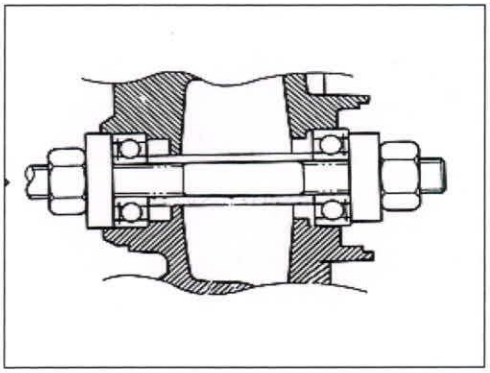


重新安装后轮 Installation of rear wheel

重新安装后轮的顺序与拆卸相反，注意以下几点：
The sequence of reassembly is contrary to dismantling.
• 安装轴承前将轴承内涂抹适量的润滑脂；
When install the bearing, add right amount of grease on it.

• 安装轴承时最好使用专用工具将轴承同时压进轮毂内（如图）；

When installing the bearing, it is best to use a special tool to press the bearing into the wheel hub at the same time (as picture shown)



• 安装碟刹盘时：

确保表面干净、无油脂；

When installing the brake disc:

To ensure that the surface is clean, no grease;

• 碟刹盘螺栓： brake disc bolt:

①涂抹适量螺纹胶；

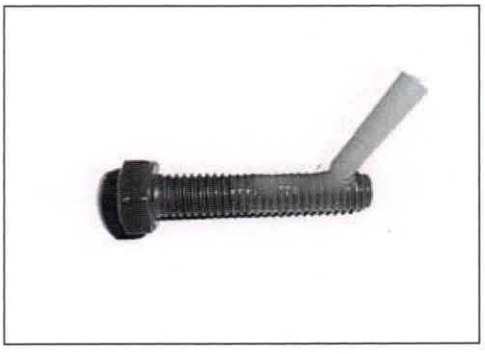
②至少有两次的紧固过程；

③扭力值：22.5~27.5N.m

add the right amount of thread glue;

fastening process at least twice the;

Torque value: 22.5 ~ 27.5N.m



• 安装链轮锁片时：When installing the lcok,sprocket:

1.将锁片与螺栓六角边平行的一边折起；

2.锁片与螺栓无缝隙。

1. Fold the locking plate with parallel side of hexagonal side of blot

2.there is no gap between locking plate and bolt

• 链条调节详见 2-6 页。

Chain adjustment please check page2-6