CHAPTER ONE
Common instruction ................................................................................................................. 1
● Main specification (NAC12) ● Failure Diagnose:
● Operation notice items Eninge unusal after starting few minutes
● Torque standard value No power, no speed under high speed status
● Chasis Idle speed running, bad in low speed
● Tools Generator no good when medium, high speed running
● Lubricated parts breakdow No spark
                No good charge (battery out of electricity or over charge)

CHAPTER TWO
NAC12 Inspection & Adjustment--------------------------------------------------------------- 10
● Methods of inspection & adjustment
  Steering Device Gearing
  Braking device Lubrication Device
  Wheel device Engine
  Cushion device Fuel device

CHAPTER THREE
Engine--------------------------------------------------------------------------------------- 18
● Maintain notice
● Engine knock down, installation
● Torque
  1. carburator 7. clutch
  2. magneto knock down and installation 8. oil pump
  3 rocker base 9. shift gears installation and disassemble
  4. camshaft installation and disassemble 10. crankshaft installation and remove
  5. cylinder head remove and installation 11. engine lubrication system chart
  6. cylinder body 12. engine cooling system chart
● Engine Maintain
● Engine Overhauling
Knock down of the engine
Installation of engine

CHAPTER FOUR
Electric device --------------------------------------------------------------------------------- 31
● Maintain notice
● Faults Diagnose
  voltage low engine runs unnormaly
  un steady electric current ignition system second loop
  poor connection of charging system ignition time
  no spark by spark plug light dim
  start motor does not work
  start motor poor power
  engine does not work while start motor is okay pointer of fuel gauge unsteady
● Battery
● Charge
CHAPTER FIVE
Cooling system

- Maintain notice
- Failure diagnose
  - Water temperature rises too high
  - Water temperature no up or difficulty in rising
  - Leakage
- Maintain standard
- Radiator
- Thermostat

CHAPTER SIX
Front wheel, front suspension device, steering device

- Maintain notice
- Fixture torque
- Failure diagnose
  - Hard in controlling the handlebar
  - Over tighten on the steering adjustment nut
  - Steering axle damaged
  - Twist when steering by the cables and operating wires.
  - Low tire pressure
  - Impossible to operate the handlebar
  - Fork bent
  - Rim out of shape
- Handle bar
- Front wheel
- Front suspension
- Steering post

CHAPTER SEVEN
Rear wheel. Rear fork. Rear shock absorber

- Maintain notice
- Failure diagnose
  - Rear wheel swing
  - Rear shock absorber too hard
  - Too soft of the rear shock absorber
- Regualted torque
- Rear wheel
- Rear shock absorber
- Rear fork

CHAPTER EIGHT
Braking system

- Maintain notice
- Failure diagnose
  - Poor function of brake
  - Brake noise
  - Brake shank difficulty in handling or low function of brake
  - Low function of one brake
- Lay down the brake oil pump flatly, check the level of liquid
Common instruction

Serial locations

Engine number

chasis number

Main specification (NAC12)

<table>
<thead>
<tr>
<th>Item</th>
<th>standard</th>
<th>limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lubrication device</td>
<td>Engine oil capacity</td>
<td>1.9L</td>
</tr>
<tr>
<td>Suggested engine oil fuel device</td>
<td>fuel capacity</td>
<td>total</td>
</tr>
<tr>
<td>Air filter</td>
<td>type</td>
<td>original resistance</td>
</tr>
<tr>
<td>Transmission controls</td>
<td>front and rear wheel rim</td>
<td>radius</td>
</tr>
<tr>
<td></td>
<td>type of brake liquid</td>
<td>DOT3</td>
</tr>
<tr>
<td></td>
<td>thickness of brake liquid gasket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>thickness of disc brake</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>off-center disc brake</td>
<td></td>
</tr>
<tr>
<td></td>
<td>thickness of brake liquid washer</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>thickness of disc brake</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>disc brake off center</td>
<td></td>
</tr>
<tr>
<td>Spark plug</td>
<td>standard</td>
<td>A6RTC</td>
</tr>
<tr>
<td></td>
<td>clearance of spark plug</td>
<td>0.6-0.7mm</td>
</tr>
<tr>
<td>Lubrication style</td>
<td>oil pump style</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cooling style</td>
<td></td>
</tr>
<tr>
<td>Fuel device</td>
<td>fuel tank capacity</td>
<td>18.5L</td>
</tr>
<tr>
<td></td>
<td>fuel tank spare oil</td>
<td>2.7L</td>
</tr>
<tr>
<td>Clutch</td>
<td>style</td>
<td>multi-plate wet</td>
</tr>
<tr>
<td></td>
<td>model</td>
<td>five gears transmission</td>
</tr>
</tbody>
</table>
### Inspection Report

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front, rear wheel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheel rim jump</td>
<td>radial</td>
<td></td>
</tr>
<tr>
<td>Wheel axle bent</td>
<td>horizontal</td>
<td></td>
</tr>
<tr>
<td>Tire air pressure front wheel</td>
<td>0.225MPa</td>
<td></td>
</tr>
<tr>
<td>Tire air pressure rear wheel</td>
<td>0.225MPa</td>
<td></td>
</tr>
<tr>
<td>Tire size front wheel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tire size rear wheel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tire air pressure front wheel</td>
<td>90/90-8</td>
<td></td>
</tr>
<tr>
<td>Tire air pressure rear wheel</td>
<td>130/90-15</td>
<td></td>
</tr>
<tr>
<td>Brake</td>
<td>DOT3 or DOT4</td>
<td></td>
</tr>
<tr>
<td>Ignition loop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance value (20℃)</td>
<td>0.36-0.4Ω</td>
<td></td>
</tr>
<tr>
<td>2nd test without spark plug cap</td>
<td>5kB</td>
<td></td>
</tr>
<tr>
<td>Charging system, DC generator</td>
<td>DC</td>
<td>12V</td>
</tr>
<tr>
<td>DC generator style</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lighting, switch, meter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lighting, electric bulb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front light</td>
<td>12V-35W/35W</td>
<td></td>
</tr>
<tr>
<td>Brake light, taillight</td>
<td>12V-21W/5W</td>
<td></td>
</tr>
<tr>
<td>Indicator light</td>
<td>12V-10W/4</td>
<td></td>
</tr>
<tr>
<td>Fuse</td>
<td>15A</td>
<td></td>
</tr>
<tr>
<td>Battery capacity</td>
<td>12V-9AH</td>
<td></td>
</tr>
<tr>
<td>Charging current (standard)</td>
<td>13.0-13.2V(20℃)</td>
<td></td>
</tr>
<tr>
<td>Voltage ends</td>
<td>0.9A/5h</td>
<td></td>
</tr>
</tbody>
</table>

**Operation Notice Items**

- Cylinder gasket, O ring, clip hoop, open pin etc disassembled, you should replace the new one.
- When tighten the screw, screw cap, bolt, please follow the first big then small, first side then outside, per the specified fixture torque, on the cross.
- Please use special currency tool.
- When parts disassembled, please clean it before checking and measuring, please apply the grease on friction side when assembling.
- Please apply the special butter on special part.
- Please check every fixture and action status after assembled.
- Please remove the battery cathode before operation.
- Please check the connection, fixing and assembly status when done, please connect the anode when install the battery, please apply the butter after anoding, please cover ends completely.
- Please check the reason and repair it when fuse is burned, then replace the same spec fuse.
- Please hold the connection peg to disassemble it, no pulling.
the wires.

please check the ends is bent, broken before connecting the plug. the ends are over long or fallen off.

The connection plug must be connected tightly. please check if the lock up is totally fixed because connection plug is with lock up. please check if the wires are fallen off.

do not nip the wire when installing the part.

Do not fix the wire on the over heat part

Please remove the lock up when disassemble the connection plug with lock up.

Do not bend or over move the tightwire,because the bad tightwire will cause the bad movement.

<table>
<thead>
<tr>
<th>Torque standard value</th>
<th>Type</th>
<th>torque value (N.m)</th>
<th>type</th>
<th>torque value (N.m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5mm bolt , nut</td>
<td>4.5~6.0</td>
<td>5mm screw</td>
<td>3.5~5.0</td>
</tr>
<tr>
<td></td>
<td>6mm bolt , nut</td>
<td>8~12</td>
<td>6mm screw , bolt</td>
<td>7~11</td>
</tr>
<tr>
<td></td>
<td>8mm bolt , nut</td>
<td>18~25</td>
<td>6mm screw , bolt</td>
<td>10~14</td>
</tr>
<tr>
<td></td>
<td>10mm bolt , nut</td>
<td>30~40</td>
<td>8mm screw , bolt</td>
<td>24~30</td>
</tr>
<tr>
<td></td>
<td>12mm bolt , nut</td>
<td>50~60</td>
<td>10mm screw , bolt</td>
<td>35~45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engine item</th>
<th>number</th>
<th>screw thread diameter (mm)</th>
<th>torque(N.m)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>flywheel nut</td>
<td>1</td>
<td>10</td>
<td>39.2</td>
<td></td>
</tr>
<tr>
<td>mounting oil pump bolt</td>
<td>1</td>
<td>10</td>
<td>39.2</td>
<td></td>
</tr>
<tr>
<td>cylinder cove bolt</td>
<td>4</td>
<td>6</td>
<td>9.8</td>
<td></td>
</tr>
<tr>
<td>spark plug</td>
<td>1</td>
<td>14</td>
<td>13.4</td>
<td></td>
</tr>
<tr>
<td>oil pump bolt</td>
<td>3</td>
<td>4</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>driven bolt</td>
<td>1</td>
<td>28</td>
<td>53.9</td>
<td></td>
</tr>
<tr>
<td>clutch outer nut</td>
<td>1</td>
<td>10</td>
<td>39.2</td>
<td></td>
</tr>
<tr>
<td>oil adjuster bolt</td>
<td>1</td>
<td>10</td>
<td>17.6</td>
<td></td>
</tr>
<tr>
<td>carburator mounting bolt</td>
<td>2</td>
<td>6</td>
<td>9.8</td>
<td>flange bolt</td>
</tr>
<tr>
<td>intake bolt</td>
<td>4</td>
<td>8</td>
<td>9.8</td>
<td>special bolt</td>
</tr>
<tr>
<td>transmission bolt</td>
<td>8</td>
<td>10</td>
<td>13.7</td>
<td>flange bolt</td>
</tr>
<tr>
<td>cooling fan bolt</td>
<td>2</td>
<td>6</td>
<td>9.8</td>
<td></td>
</tr>
</tbody>
</table>
### Chassis

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Screw Thread Diameter (mm)</th>
<th>Torque (N.m)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handle mounting bolt</td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steering shank mounting nut</td>
<td>1</td>
<td>25.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roundness top washer</td>
<td>1</td>
<td>25.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front axle nut</td>
<td>1</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear axle nut</td>
<td>1</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disc brake bolt</td>
<td>3</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Torque shank bolt</td>
<td>1</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Torque shank nut(side fork legs)</td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exhaust pipe</td>
<td>1</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slip loop bolt</td>
<td>1</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brake tube bolt</td>
<td>2</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear brake arm bolt</td>
<td>1</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front transmission top bolt</td>
<td>1</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front transmission base bolt</td>
<td>1</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front suspension locknut</td>
<td>1</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front transmission arm mounting nut</td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear transmission top bolt</td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmission base bolt</td>
<td>1</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear shock lock nut</td>
<td>1</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil pump cable support bolt</td>
<td>2</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine mounting bolt</td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muffler mounting bolt</td>
<td>2</td>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Tools

<table>
<thead>
<tr>
<th>Tool</th>
<th>Code</th>
<th>Part (install or remove)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside handle</td>
<td>0774-0010000</td>
<td>Bearing</td>
</tr>
<tr>
<td>Sleeve wrench 39×41mm</td>
<td>07GMA-0010000</td>
<td>Clutch, driven belt sprocket</td>
</tr>
<tr>
<td>Clutch spring compressor</td>
<td>0796-0010000</td>
<td>Engine driven belt sprocket</td>
</tr>
<tr>
<td>Bearing drive into tool</td>
<td>0794-0010000</td>
<td>Engine driven belt sprocket</td>
</tr>
<tr>
<td>*Trunk puller</td>
<td>0735-0010000</td>
<td>Engine exterior mounting lock nut</td>
</tr>
<tr>
<td>Movement slip-proof</td>
<td>0772-0030000</td>
<td>Engine exterior mounting lock nut</td>
</tr>
<tr>
<td>Pile driver 24×26mm</td>
<td>0774-0010000</td>
<td>For driven belt axle bearing drive into</td>
</tr>
<tr>
<td>Handle wrench</td>
<td>0774-0010000</td>
<td>Bearing</td>
</tr>
<tr>
<td>Pile driver 32×35mm</td>
<td>0774-0010000</td>
<td>Crankcase(side), crankcase side cover</td>
</tr>
<tr>
<td>Flat reamer 17mm</td>
<td>0774-0040000</td>
<td>Engine crankcase(side), bearing, drive belt bearing</td>
</tr>
<tr>
<td>Flat reamer 15mm</td>
<td>0774-0040000</td>
<td>Rear crankcase(side) cover bearing</td>
</tr>
<tr>
<td>Flat reamer 12mm</td>
<td>0774-0040000</td>
<td>Engine crankcase(side) cover bearing</td>
</tr>
<tr>
<td>Crankshaft mounting bearing</td>
<td>0796-0000000</td>
<td>Engine crankshaft</td>
</tr>
<tr>
<td>Crankshaft mounting base</td>
<td>0796-0000000</td>
<td>Engine crankshaft</td>
</tr>
<tr>
<td>Case puller</td>
<td>0793-0010000</td>
<td>Crankshaft bearing</td>
</tr>
<tr>
<td>Case puller</td>
<td>0793-0010000</td>
<td>Crankcase divide up</td>
</tr>
<tr>
<td>Movement bearing puller</td>
<td>0763-0010000</td>
<td>Crankshaft bearing</td>
</tr>
<tr>
<td>Bearing protector</td>
<td>07931-0010000</td>
<td>Replace crankshaft bearing</td>
</tr>
<tr>
<td>Outside handle 52×75mm</td>
<td>0746-0010000</td>
<td>Install the left bearing seal of crankshaft</td>
</tr>
<tr>
<td>Flat reamer 20mm</td>
<td>0746-0010000</td>
<td>Crankshaft bearing</td>
</tr>
<tr>
<td>Mounting base</td>
<td>0796-0000000</td>
<td>Crankshaft bearing</td>
</tr>
<tr>
<td>Crankshaft mounting bearing</td>
<td>0796-0000000</td>
<td>Crankshaft bearing</td>
</tr>
<tr>
<td>Crankshaft protector</td>
<td>0796-0000000</td>
<td>Crankshaft mounting bearing</td>
</tr>
<tr>
<td>Outside handle A</td>
<td>0794-0010000</td>
<td>Replace crankshaft bearing</td>
</tr>
<tr>
<td>Locknut wrench A</td>
<td>0796-0010000</td>
<td>Top bearing base installation</td>
</tr>
<tr>
<td>Locknut wrench B</td>
<td>0796-0010000</td>
<td>Top bearing base installation and remove</td>
</tr>
<tr>
<td>Wheel bearing base separator</td>
<td>0746-0010000</td>
<td>Top bearing base installation and remove</td>
</tr>
<tr>
<td>Bumper compressor accessory</td>
<td>0796-0010000</td>
<td>Disassemble front bumper</td>
</tr>
<tr>
<td>Bumper accessory A</td>
<td>0796-0010000</td>
<td>Disassemble front bumper</td>
</tr>
<tr>
<td>Bumper compressor</td>
<td>0796-0010000</td>
<td>Disassemble rear bumper</td>
</tr>
<tr>
<td>*Bumper compressor accessory</td>
<td>0796-0010000</td>
<td>Disassemble rear bumper</td>
</tr>
<tr>
<td>Movement slip-proof</td>
<td>0772-0010000</td>
<td>Flywheel disassemble and installation</td>
</tr>
<tr>
<td>Flywheel protector</td>
<td>07733-0010000</td>
<td>Remove flywheel</td>
</tr>
</tbody>
</table>

### Lubricated parts breakdown

- **4** -
Engine

<table>
<thead>
<tr>
<th>parts to use</th>
<th>name</th>
<th>remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>cylinder, piston &amp; crankshaft running and slipage</td>
<td>GP2 (separator oil supplier)</td>
<td></td>
</tr>
<tr>
<td>running and slipage inside the crankcase</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chassis part

Please supply the grease on the following parts.
You could use the normal butter on normal parts.
Please supply the lubricate or lubrication grease on the following unpointed parts in order to raise its service.

- Head steering bearing
- Counter teeth, side stand pivot, rear fork oil seal
- Transmission sprocket (chainsprocket)
- Headlight wiring
- Right indicator, left indicator
- Odometer wiring
- Clutch switch wiring
- Fuel sensor wiring
- Flameout switch wiring
- Stop accelerator cable, start accelerator cable
- Safe box, wrinkle
Failure Diagnose
Here we clarify the close judgement on failure diagnose with the engine. Please refer to the every instruction per the un mentioned items.

Unable to start or difficulty in starting

1. Take off spark plug & check it
   - Normal
     - Electrode is wet
     - Spark plug is covered, start style no good
     - Too much mixed air
     - Ignition system no good
     - Fuel supplement system no good
     - Cylinder cover no good

2. Loose the carburetor screw to check if enough gasoline inside the floater
   - With gasoline
     - No gasoline or few gasoline
     - Carburetor is block up
     - Do not start if find the explorer signal
     - Engine start no good
     - Less mixed air
     - Income the 2nd air
     - Galosone bad quality
     - Carburetor block
     - No stable spark when ignition
     - Overflow inside carburetor
     - No good engine start

3. Test the cylinder compression pressure
   -Compression pressure normal
     - No pressure or low pressure
     - Carburetor is block up
     - Hard blow
     - No good engine start

4. Restart after put few gasoline by taking off the spark plug
   - No explosion
     - Spark plug is dry
     - Carburetor is block up
     - Hard blow
     - No good engine start

5. Check the spark plug again
   - Spark plug is dry
     - Hard blow
     - No good engine start
**Engine unusual after starting few minutes**

- loose screw check if gasoline in the carburetor
  - has gasoline
    - remove the spark plug
      - good
        - check spark by applying cap on the spark plug
          - over strong spark
            - test cylinder compression pressure
              - pressure normal
                - adjust carburetor air bolt
                  - adjustment good
                    - check ignition time(use positive light)
                      - correct
                        - check transmit status by removing start motor connection wire
                          - connected
                            - connect start motor on battery 5 minutes, blow by mouth by connecting plastic tube on fuel loop
                              - hard blow
                                - carburetor block

- No power, no speed under high speed status
  - generator high speed run (test on smooth road)
    - running without stop
      - check radiation time(use positive light)
        - correct
          - test cylinder compression pressure
            - pressure normal
              - check if carburetor is blockup
                - no
                  - remove the spark plug
                    - no dirty, good color
                      - check the engine is over heat
                        - no over heat
                          - accelerate or high speed test
                            - explore

- Idle speed running, bad in low speed
  - no gasoline in fuel tank
  - block in fuel tube
  - floater valve block
  - fuel tank cap hole block
  - fuel filter block
  - carburetor dirty
  - spark plug heat no correct
  - spark plug no good
  - CDI set no good
  - direct current generator no good
  - ignition loop no good
  - high voltage loop short circuit or break
  - main switch no good
  - gasoline, piston damage
  - cylinder gasket out of place
  - compression leak
  - main valve worn, bad
  - crankshaft oil seal no good
  - over strong mix air (loose bolt)
  - low mix air (tighten bolt)
  - check CDI set
  - direct current generator no good
  - cylinder, piston abrasion
  - location of cylinder head gasket ring
  - main valve badness, no good
  - crankshaft oil seal no good
  - link tube out of place
  - air filter hull damaged
  - spark plug pollution
  - spark plug heat un conformity
  - over rate of mixed air
  - poor quality in gasoline
  - carbon inside the fuel room
  - too earlier of ignition time
  - carbon in fuel room
  - poor quality in gasoline
  - chalk slide down
  - over rate of mixed air
CDI set no good
no good direct current generator

over strong mix air
(low mix air)

in valve bad installation
carborater O ring abrasion

low mix air
(tighten bolt)

in valve bad installation

carborater O ring abrasion

spark plug dirty
direct current generator no good
high voltage loop ring break or short circuit
main switch no good
start motor loop ring break
start motor no good

Generator no good when medium, high speed running

CDI set no good
no good direct current generator

less gasoline in gasoline pump
tube and fuel filter block up
fuel tank cap hold block up
oil pump no good
negative gasoline tube damaged

air filter hull damaged
link tube out of place

start motor loop ring break
start motor no good

start motor no good
no spark

- replace new spark plug and check
- over strong spark
  - spark plug no good

weak spark, or no spark

- check if gap between spark plug and high voltage loop
- has gap
  - spark plug cap loose

no gap

- Check connection status by removing CDI set
- unusual
  - no good touch in connection
- no unusual

- Check connection status by removing CDI set
- unusual
  - check the related parts
  - main switch no good
  - pulse generator no good
  - no good ignition loop
  - wires break
  - no good touch in connection

Measure the ends electricity resistance data between the loop ends

- unusual
  - no good adjuster and rectifier

- unusual
  - battery lifetime

no good charge (battery out of electricity or over charge)

- run engine, test the control voltage between battery two ends
  - too high of voltage
    - no good adjuster and rectifier
  - standard level
    - battery lifetime
    - no good battery
  - no unusual

- measure the red/green wires voltage between adjuster and rectifier connector
  - no voltage
    - wires break
  - has battery voltage

- remove the adjuster, rectifier connector
  - check every device
  - normal
    - no good adjuster and rectifier
  - find unusual

- measure the resistance value of direct current generator loop
  - big difference than the standard
    - no good guider
    - yellow line break
    - no good touch in connection
  - unusual

- check the adjuster, rectifier
  - normal
    - battery lifetime
  - unusual

- no good of adjuster and rectifier
## NAC12 Inspection & Adjustment

Methods of inspection & adjustment

Notice:  
1. included detecting in high speed in inspections  
2. “●” marks the executed time by requested, “○” marks the proposed time by manufacture  
3. “☆” marks parts needs to be replaced in periodic time, the time points to motorcycles in common running not to some special cycles in special time then it will be adjusted following the status of travelling changed  
4. " high speed" and " in high speed" mark the speed reaches or over 80KM/ h

### (inspection/adjustment/ item )

<table>
<thead>
<tr>
<th></th>
<th>inspection/adjustment time</th>
<th>remark</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>before start</td>
<td>first month</td>
</tr>
</tbody>
</table>

### NAC12 Inspection & Adjustment

#### Steering device

**Handle bar**
- journey/ degree of tightness/ deflexion
- operating tightness

**F. wheel**
- steering angle in left or right

**Steering fork.w**
- fork/brake piston status
- damage
- Deflexion of the fork/piston bearing deflexion

### Brake Device

**Braking pedal**
- Pedal measure & mechanical status
- Brake setup status

**Sofle tube**
- leakage/damage/install status
- replace brake soft tube

**Brake cup/ flume**
- liquid capacity

**Wheel & Brake Caliper**
- enginery/abrasion/damage
- replace disc brake caliper, dustproof ring rubber parts

**Disc brake and brake abrasion plate**
- gap between disc brake & brake attrition plate
- brake attrition abrasion/harm

**Disc brake and usage limit**
- brake abrasion plate F-wheel 3mm R-wheel 3mm

**Brake liquid**
- Replace brake liquid

### Electric set

**Ignition device**
- spark plug status
- replacing spark plug

**battery**
- joint status of touch pot

**wiring**
- joint part in loose or harm

---
<table>
<thead>
<tr>
<th>Inspection/Adjustment Item</th>
<th>Inspection/Adjustment Time</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before Start</td>
<td>First Month</td>
</tr>
<tr>
<td>Wheel Device</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air pressure of F-Wheel &amp; R-Wheel</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Wheel damage</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Tire slot deep &amp; unexpected wheel damage</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Check if metal/stone/others on wheels</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Tightness of axle nut &amp; wheel bolt</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Rim, section of rim damage</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>Deflexion &amp; loose of F-W axle</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Deflexion &amp; loose of R-W axle</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Cushion Device</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock absorber spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Damage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suspension pole</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint loose &amp; pole damage</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Shock Absorber</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leakage &amp; damage</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Install part deflexion</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Clutch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handling distance function</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>Shifter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil leak &amp; oil capacity</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Deflexion of control set</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Oil box</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replacement gear-oil box</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmission Device</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chain &amp; chain sprocket</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tightness of chain</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>Chain sprocket installation status &amp; fixed &amp; wear</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>E brace</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fix status &amp; strange noise</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Low speed &amp; accelerate status</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>Exhaust status</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Filter parts status</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Engine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil smudge &amp; oil capacity</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Oil leak</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Oil capacity</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Filter block status</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Oil pump status</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Item</td>
<td>Inspection/Adjustment Time</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Before Start</td>
<td>First Month</td>
</tr>
<tr>
<td><strong>Eng ine</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel Device</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel leak</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Link rod of carburetor status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Throttle &amp; air valve status</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Fuel filter block status</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Fuel capacity</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Replacing fuel soft tube</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Water Capacity</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Water leak</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Radiator enginery</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Replacing cooling fluid</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Cooling Device</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lighting device</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Indicator</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Illume/dirty/damage</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Lock device</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Rearview mirror</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Reflect status</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Reflector &amp; Chasis</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Dirty/damage</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Vin no. license</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td><strong>Odometer</strong></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td><strong>Exhaust-pipe &amp; Muffler</strong></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Fix loosen &amp; damage status</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Muffler enginery</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td><strong>Chasis</strong></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Loose &amp; damage</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Inject lubricating grease of chassis status</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Clean out carbon in firebox and exhaust-pipe</td>
<td>○</td>
<td></td>
</tr>
</tbody>
</table>
Steering Device

Steering fork
Uplift the front wheel, check the fork flexible or deflexion by turning it up down and left-right sides
If deflexion up down side, check the bearing of the steering axle, replace it when problem
If deflexion left right side, check the handle bar and the fork to avoid by twisted by the cable, wires.

Braking device

Braking pedal
Routing
please draw out the gas first when you find the gas
mixed into the braking system after testing the
braking handle, rear brake pedal.

Adjust the pedal height
Loosen the fixture nut of the rear brake pump, turn
the pushing pole to adjust the height of the rear brake
pedal. Double check the running of rear braking light
please re adjust it if neccessory.

Liquid cup
Liquid capacity
Check the braking liquid capacity
If you find it lower than the min. limit line,
pls take away the septum of the front brake pump cover,
circle the rear brake pump cup cover, affux the liquid to
max. line.

Attention:
- Do not mix the dust and water inside when filling in the liquid
- Do not use the non-appointed liquid to avoid the chemical problem.
- Watch the liquid NOT to erode the paint, plastic & rubber. Do not defile the part
- When checking and supplement the liquid, please keep the level
Brake disc, brake plate

- Check the abrasion of the disc brake and brake plate
- Right replace it when over limit

Attention
- Should replace the brake plate in set.
- Check the slippage wear or damaged

Replace the brake liquid
- Should replace the brake liquid once per year

Wheel device

- Wheel
- Air pressure of the tires

Attention
- Must test it after the tire turns cold

Specified air pressure (unit: KPa)

<table>
<thead>
<tr>
<th></th>
<th>front</th>
<th>rear</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 person</td>
<td>225</td>
<td>225</td>
</tr>
<tr>
<td>2 persons</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Tire spec</td>
<td>90/90-1</td>
<td>130/90-15</td>
</tr>
</tbody>
</table>

Loosen of the wheel nut and bolt
- Should check the loosen status of both wheels nut
- Tighten them if necessary

Torque:
- Front wheel nut: 55–65N.m
- Rear wheel nut: 55–65N.m

Cushion device

- Suspension
- Leakage, damage

Hold the front wheel brake handle, Press hard the suspension fork repeatedly, check its function.
Check the oil leakage, loosen, damage instance

Press the rear suspension repeatedly, check its function
Check the oil leakage, loosen, damage instance
Gearing

Clutch

Distance of the clutch handle

Should check the distance of the end clutch handle

Distance: 10-20mm

Main methods-loosen the locknut of the controller location plank, adjust it by turning the nut.

Adjust slightly close to the clutch handle.

pls refer to the right drawing.

Lubrication Device

Oil leakage and measure oil capacity

Attention

· Uprightness the motorcycle when checking the oil measure
· Run the engine 2-3 minutes, then re-check it after cutoff

Do not insert the measure deeply to check the capacity please fill the recommend oil until max. limit from the sprue if oil is low.

Recommendation oil: SAE10W/40 API SG oil
How to replace the oil

- Should replace it until the engine is warm up.
- Release the oil by loosening the oil-exit bolt
- Please fill the recommended oil from the sprue
- Tighten the bolt by using the 3.0-4.0 kg.m torque
- Oil capacity: 1.9L
- Suggest to replace once every two years

Sprocket wheel and chain

**Warning**

- Cut-off the engine when checking
- Should replace immediately when finding the chain abrasion, damaged chain roller, loosening lock tack.
- Should cut off the engine, neutral it, and hold the motorcycle
- Please check the tolerance of the distance between two chain sprockets.
  - Tolerance: 1.5-25mm
- Loosen the rear wheel axle nut, move the adjusting nut.
- Please check the symmetry left and right sides after adjusted.
- Tighten the rear wheel axle nut, torque: 55-65 N.m

Engine

**Low speed and accelerated status**

**Attention**

- Adjust the idle speed by warming up the engine
- Please adjust the carburator after disassembled and repaired concurred with the carburator itself.
- Start the engine
- Make the engine in "neutral" shift, turn the throttle screw to the stated data.

  - Idle speed: 1200±100 r/min
  - If non-steady idle will cause the rotational creeping problem, so it needs to adjusted as well.
  - 1200±100 r/min

**Air filter core status**

- Please disassemble the left side cover
- Loosen the bolt, take the core out.
- Clean the core if found very dirty; replace it when damaged.
- Put the core back to the box of air filter, tighten the bolt
Fuel device

Status of the control fuel throttle cable
Check its sensitive of the fuel throttle cable
Turn back the grip around 2-6mm space

Adjust the distance on the carburator
Take off the cover of the carburator, adjust the nut to control the distance

Adjust the distance on the control cable
Loosen the fixture nut, adjust it by the adjuster

Check the damage or bent status of the handle tightwire
Check its smoothly while opening or close

Adjust it on carburator
Loosen the clip, adjust the location of the tightwire

Jam in the fuel filter
Open the fuel switch, check if it is jammed, replace the new one if necessary.
Tighten the nut, torque 20–25N.m
Engine knock down, installation

Knock down the parts according to the following steps:

1. (1) Exhaust mufflers
2. (2) Spark plug cable (left & right)
3. (3) 2nd air supplement pipe (left & right)
4. (4) Thermostat in
5. (5) Ex hose of radiator
6. (6) Accelerator and clutch wires
7. (7) Shifter
8. (8) Left side cover
9. (9) Untie the chain
10. (10) Clip hoop
11. (11) Connection plug of right cover

Installation:
- Engine front side: washer 2, screw cap 2
- Rear side: washer 2, screw cap 2

Fixing torque: 20–30 N·m
Engine knock down, installation

Cylinder head, cylinder, piston, valve system

Maintain manual

checklist

<table>
<thead>
<tr>
<th>Check item</th>
<th>request</th>
<th>List</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder inner diameter</td>
<td>44~44.01mm</td>
<td>44.10mm</td>
</tr>
<tr>
<td>Piston outer diameter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piston pin outer diameter</td>
<td>12.95-13.00</td>
<td></td>
</tr>
<tr>
<td>Piston pin hole outer diameter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gap of piston ring side</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gap of piston ring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness of piston ring 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness of piston ring 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free distance of inner valve spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free distance of outer valve spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outer diameter of valve in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outer diameter of valve ex</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Torque

Torque on both bolt heads on cylinder head : 18~22N·m
1. carburator

Loosen the clip bolt on carburator, the carburator can be taken off. When installation on carburator, please make the intake towards the manifold, then tighten the clip bolt.

Engine knock down, installation

2. Magneto knock down and installation

remove the left crankcase cover, take off the crank bolt, remove the flywheel (do not knock the flywheel while removing, when install the flywheel, follow the slot and the crankcase end). Please refer to drawing E2.

Note:

- Check if any dust inside
- do not knock by sinker
- Install torque for crankcase bolt is 60~65N·m
Engine knock down, installation

3. Rocker base

Take off the two impact bolt on cylinder head cover, remove the cylinder head cover.

Remove the tensioner bolt, take down the tensioner.

Remove the 8 nuts, take off the rocker base. Torque of the 7 nut is 18~22N·m. Gap between valve: (cold) in valve 0.05~0.07mm; exhaust valve 0.06~0.08mm.

4. Camshaft installation and disassemble

Remove the main chain and sprocket wheel, take out the camshaft.
Note:
When install the sprocket wheel and camshaft; piston is located at the end of compression stroke, please refer to drawing E10 at right side, the reticle at positive time of sprocket wheel is flat aligned with the cam platform of cylinder head.
Please refer to drawing E11, the reticle of flywheel should be alignment with the threaded slot of the left cylinder cover.
The pin of the shaft sleeve of camshaft should be set into the pin slot.

5. Cylinder head remove and installation
Remove the cylinder head by taking out the camshaft,
Disassemble the bolt on cylinder body and cylinder head
When installation, do not forget to put the washer, Oriented pin and O ring
6. Cylinder body
Cylinder head can be removed by removing the cylinder head, take the oriented plank out.

Remove the piston pi ring (E15) by pincer, push out the Piston pin, Remove the piston out.
When installation, please block the intake by clean cloth
To avoid the ring falling down into the cylinder body.
The “IN” mark means intake

7. Clutch
First please exclude the oil in the crankcase, remove the right crankcase cover
When installation the right crankcase cover, pay attention
To the same direction of the water pump spindle and the Oil pump spindle and do not fall down the ex-oil pipe (E16, E17, E18.)
Engine installation and disassemble

Remove the hexagon nut, primary transmission gears, remove the clutch pusher tray, remove the clutch by special tool (E19-1, E20). Before installation, check the scar and color of clutch friction. Replace it when necessary. Please make sure that the smaller round nut end outwards by using the torque 50-56N.m

8. oil pump
Remove the oil pump(E18), pay attention to the O ring, please clean the filter screen before installing the oil pump, and also the O ring

Oil pump assy.

Oil pump driven gears

oil pump driven gears

oil filter screen (clean it before installation)
9. Shift gears installation and disassembly

Remove the gear supporting roller, gear cam in turn, take out Gear shank, loose the mounting bolt, remove the right crankcase (drawing E21, E22)

Note: turning spring of gear supporting roller should be in right place; the gear cam pin should be aimed at when installing the gear cam.

10. Crankshaft installation and remove

Remove mainshaft set, side shaft set, gear fork, gear fork shaft and cam shift kettle, loose the crankshaft mounting bolt, then the crankshaft could be taken off.

Please clean the mainshaft and sideshaft before installation. Pay attention not forget to put the washer.
11. Engine lubrication system chart
Engine cooling system

12、engine cooling system chart
Engine cooling system

water pump breakdown chart:

Oil filter how to change

Remove the right crankcase cover, loose
The 3 oil pump bolt, remove the whole oil pump,
Open the oil pump rubber, clean the oil filter
Electric device

Faults Diagnose

- voltage low
  - lacks battery voltage
  - plug connect is not sensitive
- charging system poor work
- voltage regulation and rectifier poor work

un steady electric current

- poor connection of battery
- poor connection of charging system
- poor connection of ignition system or short circuit

poor connection of charging system

- fuse open circuit
- poor connection of insert plug, open circuit or short circuit
- voltage regulation & rectifier work
- generator poor work

start motor poor power

- less charged on battery
- poor connection of lead wire
- others in motor or gear wheel

Engine does not work while start motor is okay

- start pinion poor work
- start motor works in reverse

pointer of fuel gauge unsteady

- plug loosening
- combination parts in bad condition
- meter failure

fuel gauge pointer failure

- connect plug failure
- wiring harness breaks off
- bobber acts failure
- meter failure
- meter poor work

battery

Battery disassemblable and fixing
- loose fixture bolt on left side cover, remove the left side cover

- no spark by spark plug
  - spark plug damage
- poor connection of circuit wire, open circuit or short circuit
- ignition switch poor work
- ignition wire poor work
- CDI damager
- generator poor work

start motor does not work

- fuse turn off
- battery less charge
- ignition switch poor work
- F/R brake switch poor work
- start relay poor work
- poor connection of lead or short circuirt
- start motor poor works
- start switch poor work

engine runs unnormaly

- ignition system stair loop
  - ignition loop poor work
- poor connection of circuit
- poor connection of main switch

ignition system second loop

- ignition loop poor work
- spark plug damage
- ignition loop damage
- high voltage cap creepages

ignition time

- generator poor work
- guide system poor fixing
- CDI poor work

light dim

- battery discharge
- over resistance of layout and switch

headlight can not be changed to high beam or dipped headlight
- switch poor

---

fixture bolt
remove parts in turn
- strap
- fixture bolt
- positive/negative wire
- battery

Note
Please disconnect the negative wire before the positive wire. When installation, do it conversely.

charge

connection method: positive side of charger connects the positive of battery; negative side connects the negative of battery.
charging current: less 0.9A

Notice
Forbidden fire nearby battery.
On and off of charging must be controlled by on/off of charger, to avoid ignition fire damage when disconnect and connects.

Check on charger system
Take off the terminal of battery, measure the voltage between positive and negative terminal in battery.
Completely charge: 13.0 to 13.2V
Poor charge: less 12.3V

Regulating rectifier system test
Cut regulating rectifier
Check the plug parts loosen or corrosion
Test items as following:

<table>
<thead>
<tr>
<th></th>
<th>pointer (positive)</th>
<th>pointer (negative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>positive direction: connect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>yellow line</td>
<td>green line</td>
</tr>
<tr>
<td>2</td>
<td>red line</td>
<td>yellow line</td>
</tr>
<tr>
<td>negative direction: not connect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>pointer (negative)</td>
<td>pointer (negative)</td>
</tr>
<tr>
<td>2</td>
<td>green line</td>
<td>yellow line</td>
</tr>
</tbody>
</table>

CDI Inspection
Loop system inspection
Remove fuel tank
Remove plug from CDI assy., test it on wiring harness

<table>
<thead>
<tr>
<th>item</th>
<th>test point</th>
<th>standard scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignition switch</td>
<td>black/white / green</td>
<td>turn on light on/off, not guide</td>
</tr>
<tr>
<td>Ignition loop</td>
<td>double ends</td>
<td>0.36–0.4 O</td>
</tr>
<tr>
<td>Original loop</td>
<td>green- lead of high voltage</td>
<td>3–3.4 KΩ</td>
</tr>
<tr>
<td>Inferior loop</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

check on fuel supplying system
Remove fuel tank
Let bobber move up and down fully, test the resistance in each end parts.

<table>
<thead>
<tr>
<th>lead end</th>
<th>bobber location (upper)</th>
<th>bobber location (down)</th>
</tr>
</thead>
<tbody>
<tr>
<td>green-yellow/white</td>
<td>6–10 O</td>
<td>94–108 O</td>
</tr>
</tbody>
</table>
Check on ignition switch
remove the plat handle bar and the brackets for odometer
Remove plug of ignition switch, according to the drawing of electric layout to test it if it is got through

Replacement
Replace it when the ignition switch does not work
remove the brackets and remove the kickstand and inset parts
remove the fixture bolt: remove fastness bolt and onoff of light fire
installation way is the in opposition method of disassembly as fix

Check on handle bar
(refer to the chapter 10)
remove the cable plug of the handlebar onoff, check if each ends are connected.
if any problem, please check them according to the right next drawing.
Fuction list of the left onoff

Fuction list of the right onoff
please check them according to the right next drawing.

Neutral onoff

Remove the plug of the engine ex wire, test the connect between the light green/red
In neutral: connect
others: not connect

clutch onoff
remove the connection loop of clutch onoff
Try the clutch bar, check the connection between in two end parts
hold hard of the clutch bar: connect
release clutch bar: no connect
Rear brake light onoff
remove the right side cover, remove the plug of the braking onoff
Try the rear brake peg, check the connection between two leads
step on the rear brake peg: connect
release the rear brake peg: not connect

Front brake light onoff
remove the connection loop of brake onoff
try the brake bar, check the connection between two leads
hold hard of the brake bar: connection
release the brake bar: no connection

Replace bulb
Headlight
remove the fixture bolt of the front light
take the front light from the lamp cover

remove the bulb holder, remove lamp holder of headlamp
replace the bulb if necc replacing lamp if possible

Installation procedures is conversed than the removing procedures.
Note
Hold the bolt to the bolt slot in the front light
collect the wires after installation

Odometer light
remove the bearing nut
loosen the fork nut and the fixture bolt of handlebar
loosen the fixture bolt on flat handlebar
take out the handle bar
remove the flat hanldebar and odometer

take out bulb holder, and replace new bulb
installation procedure is conversed as the removing procedures
Cooling system

● failure diagnose

● water temperature rises too high
  (1) check if calculator or heat sensor problem
  (2) check if radiator cover problem
  (3) check if thermostat problem
  (4) check if not enough coolant
  (5) check if the water pipe or water pipe cover is blocked up.
  (6) check if the radiator slice is bent or out of shape
  (7) check if the water tank is blocked up.
  (8) check if the water pump is problem

● water temperature no up or difficulty in rising
  (1) check if temperature meter and related parts is not good
  (2) check if thermostat is not good

● Maintain Notice

● Notes

The maintain on cooling system can be adjust on the motor. However, the water pump parts need to be removed. The maintain must be under the cold engine. It is dangerous to open the radiator cover when it is hot then you must wait until the temperature goes down.

if the coolant touches the paint, it would corrot the painting. So you must wash it by water immediately.

After inspection and maintenance, please check the connection and seals to avoid leakage.

● Maintain standard

<table>
<thead>
<tr>
<th>Item</th>
<th>standard value</th>
</tr>
</thead>
<tbody>
<tr>
<td>fan switch general temperature</td>
<td>88°C</td>
</tr>
<tr>
<td>sensor general temperature</td>
<td>125°C</td>
</tr>
<tr>
<td>cooling water content</td>
<td>full around 1.6L(water bottle around 0.4L)</td>
</tr>
</tbody>
</table>

Notice of usage coolant:
You must use the 3500 anti-rust &freeze liquid if suppling the coolant. Do not mix with the other coolant harmful of coolant, do not drink it.
do not open the radiator cover when the engine is in hot
● Radiator

● remove of the radiator

Remove the water release bolt, please eject to the clean content.
Loosen the clip hoop after the coolant is ejected remove the water pipe

remove the fan motor and inductor connection

Remove the 4 fixture bolt
Dismove the radiator cover from the chasis

Loosen the clip hook of thermostat water pipe loosen the clip hook of the water bottle hosing, and depart from the radiator

— 36 —
Remove the upper fixture bolt and lower fixture bolt
remove the radiator

**do not damage the cooling fin**

**● radiator breakdown**

remove the 2 bolts, take out the fan completely.

please screw out the sensor, loosen the fan switch sensor nut

**● check on fan switch**

please put the fan switch sensor to a testing case, heat it to 88°C, then measure the heat sensor resistance at that time the fan switch heat sensor is connected.
Check on the radiator and soft pipes, etc.
check the core of radiator blocked up or not, the cooling fin is bent or not please adjust it by a screwdriver

if the block is 20% than the total cooling area, please repair the radiator or replace it immediately.

check if the soft pipe and its clip is aged and damaged

Installation of radiator
please install it conversed procedures as knock down inject the coolant( refer to chapter 3)
check any leakage on the soft pipe, every connectors, lower of water pump

thermostat

remove the thermostat
eject the coolant( refer to the last chapter)
fold the senser wire

Loosen the clip hoop of the water pipe of thermostat remove the thermostat
installation of thermostat

please install it conversed procedures as knock down
inject the coolant( refer to chapter 3)

heat sensor knock down

take off the heat sensor from the thermostat hull

check on the heat sensor

please put the heat sensor to a testing case, heat it to 125℃, then measure the heat sensor resistance at that time the heat sensor is connected.

Installation of heat sensor

wipe the screw antiloose and put it on the thermostat hull.
connect the down-lead

water pump

check on mechanism seal

check if any leakage on the testing hole underneath the water pump. If yes, please replace the mechanism seal

Remove the water pump

eject the coolant

loosen the clip hoop, remove the soft water pipe from the water pump
loosen the 5 bolts, remove the water pump
Thermostat

1. open the thermostat cover

2. take out the thermostat (see arrow)
3. Pressure seal (remove this rubber seal ring, put it outside of the \( \Phi 30 \times \Phi 20 \times 1 \) flat washer

4. Please put the seal washer in the hull of thermostat, mount the thermostat cover.
Front wheel, front suspension device, steering device

Maintain information

Notes:
1. Do not press over-load on the wheels and put anything on the wheel. Pay attention not to damage the wheel during maintaining.
2. Pay attention not to damage the tire and rims due to no inner tube inside
3. Please use the special "Off-tire pole" and rim protector when removing the tire out rim and avoid of damaged wheel.
4. Please remove the disc when replacing the tire. Otherwise, please do not load any on the disc plate but hold the rim with the wood board.

Maintain standard

<table>
<thead>
<tr>
<th>Item</th>
<th>standard</th>
<th>limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bent radius of front wheel</td>
<td></td>
<td>0.2mm</td>
</tr>
<tr>
<td>Jumpiness of front wheel</td>
<td>vertical</td>
<td>2.0mm</td>
</tr>
<tr>
<td></td>
<td>horizontal</td>
<td>2.0mm</td>
</tr>
<tr>
<td>Bent radius of fork leg</td>
<td></td>
<td>0.2mm</td>
</tr>
<tr>
<td>Oil capacity of fork</td>
<td>standard</td>
<td>257ml</td>
</tr>
</tbody>
</table>

Fixture torque

| Handlebar mounting bolt     | 24-30N.m |
| Fork bushing bolt           | 15-25N.m |
| Brake disc nut              | 14-16N.m |
| Fork leg bolt               | 15-30N.m |
| Front axle nut              | 55-65N.m |

<table>
<thead>
<tr>
<th>Item</th>
<th>standard</th>
<th>limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brake pump mounting bolt</td>
<td>24-30N.m</td>
<td></td>
</tr>
<tr>
<td>Steering adjustment nut</td>
<td>23-27N.m</td>
<td></td>
</tr>
<tr>
<td>Braking seat bolt</td>
<td>10-14N.m</td>
<td></td>
</tr>
<tr>
<td>Steering pole nut</td>
<td>90-120N.m</td>
<td></td>
</tr>
<tr>
<td>Clutch seat</td>
<td>7-11N.m</td>
<td></td>
</tr>
</tbody>
</table>

Failure diagnose

- hard in controlling the handlebar
- loose on front wheel axle
- over tighten on the steering adjustment nut
- tire no good
- steering axle damaged
- related mounting parts no well tightened
- low tire pressure
- related to the front wheel axle
- too soft of the front suspension
- twist when steering by the cables and operating wires.
- balance of wheels no good
- Impossible to operate the handlebar
- over work on the spring
- fork bent
- a little leftover of oil capacity
- related to the front wheel axle
- touch on the fork leg and bottom
- balance of wheels no good
- less oil capacity
- air pressure of fork no good
- noise in the front suspension
- no usage of stickness oil
- Related of mounting parts no well tightened
- oil no good quality inside the fork leg
- front wheel shaking
- no good adjustment of air pressure
- rim out of shape
- fork legs bent
- block-up of the oil passageway
- no usage of stickness proper oil

Handle bar

- brake pump
- fuel accelerator handle grip
- remove
- remove the following parts from right handle bar
1. brake pump
2. handle switch
3. fuel accelerator handle grip

Handle switch

- handle switch
- clutch bar holder

- remove the following parts
1. clutch bar holder
2. handle switch
loosen the mounting bolt, remove the handle bar.

Installation

install the handle bar on the fork (make sure that the loop is in the slot of both fork) mounting bolt fixed is aligned with faceplate.

Note:
check if the faceplate is well connected with handlebar, make sure the tightness of the loop from up to down side.
if any problem, loosen the steering bolt, move the fork down wards to make it well installed.

tighten the faceplate bolt
 torque: 9-13N.m

tighten the handlebar mounting bolt
 torque: 24-30N.m

use the lubrication grease on the slipping side, then install fuel accelerated grip

Please insert the fuel accelerated cable into the grip.
alignment the right handle switch convex into the handle bar,
tighten the switch by two small bolts

Note:
first tighten the front small bolt, then the back one

mark the "UP" of the holder, install the brake pump on the handlebar alignment the handlebar mark and the face of brake pump and holder
first tighten the upper bolt, then the under bolt
 torque: 10-14N.m
connect the front brake light switch by wire
adjust the gap of the installed fuel accelerated grip
air valve switch on the handlebar

install the air valve operatin cable on the air valve pole

clean the dirt or oil grease on the left grip and connect side of handlebar

align the bulgy of left bar switch with the hold on handlebar

tighten the handle switch by the 2 small bolts

Note
First tighten the frontier bolt, then the back one
install the clutch bar, tighten it by bolt
torque : 7-11N.m

Note
align the mark with handlebar and the face of bar holder
"UP" mark face up
First tighten the upper bolt, then the under one

Front wheel
remove
remove the soft axle bolt , remove the odometer soft axle

remove the mounting bolt of brake pump
Hold the front wheel up by holding the chasis
loosen the front wheel axle nut
pull the axle out , remove the front wheel

note
Do not damage the disc brake and brake plate

Turn the inner ring of the wheel bearing by finger,
if any loosing gap or noise, replace it

Make sure that the outer loop of bearing is pressed into the rim , replace it when any problem

Note
Replace the bearing left and right together

Next
remove the 6 bolt, remove the disc brake

Warning
pay attention to the oil grease. It will reduce the braking function
make sure to remove the grease completely when find it.
Installation

Attention
Do not touch the brake disc.

Install the wheel axle from left side.
Align the odometer gears with the right side of the left fork ends.
Put the bushing on the right side, put axle on the rim.
Tighten the wheel axle, tighten the mounting bolt from left side.
Torque: 15-20N.m

Install the wheel axle nut, tighten it.
Torque: 55-65N.m
Tighten the right mounting bolt of wheel axle.
Torque: 15-20N.m

Connect the soft axle of odometer to the speed gears, tighten it by the small screw.
Install the brake pump.

Note
Do not damage the disc brake plate.

Try the brake bar several times in order to check each gap between the brake pump and disc brake.

Note
The main reason is because the too small gap between the brake pump and disc brake.

Front suspension

Remove
Remove the front wheel.
Loose the brake pump mounting bolt, remove the brake pump.

Note
Protect the brake pump by using cotton, put it on the working table.
Do not bend the brake soft pipe.
After taking out the brake pump, do not operate on the front brake bar.

Remove the mounting fender bolt, remove the front fender, remove the brake soft pipe from the front suspension.

Note
Do not bend or twist the brake soft pipe.

Loose the face plate bolt.

Loose the steering bolt.
Downward move the fork leg, remove the fork.

Note
Lay down, caution, do not damage the surface of fork.
Installation

Reversed procedure as the remove.

Tighten the face plate bolt
Torque 9-13N.m

tighten the steering bolt
torque: 45-55N.m

steering post

remove

remove the front suspension (see above steps)
remove the nut and washer from the steering post
loose the bolt of face plate, take the face plate off

loose the steering axle bearing nut
take out the steering post from the chassis stem

Note
Make sure to protect the nut screw threads of steering post
do not damage the steering post

remove the dust proof ring
please put the new dust proof ring into the steering post
press the inner ring

Installation

lay on the lubrication grease completely in the chassis stem
replace the new steel ball
install the steering post into the head stem
install the upper bearing

Tighten the steering adjust nut
torque: 23-27N.m
Then tighten the steering adjust nut per specific torque

Note
Repeat turning to left and right 5-6 times after installation
if no sensitive, please re adjust the steering axle bearing nut.
Rear wheel. Rear fork. Rear shock absorber

● failure diagnose

● rear wheel swing
  (1) rim out of shape
  (2) loose of rear wheel bearing
  (3) poor tire
  (4) poor mounted parts related to the bearing
  (5) less pressure in the tire

rear shock absorber too hard
  over oil fluid in the cushion
  noise of rear shock absorber
  poor problem on the rear shock absorber
  loose in the mounting parts

too soft of the rear shock absorber
  less oil fluid in the cushion

● Maintain notices

● Notes
  pay attention not to damage the alloy rim
  Do not damage the tire, rim because of the no tube tire.
  to avoid damage the wheel, please use the special tommy bar and wheel protecter to remove the tire.

● Maintain standard

<table>
<thead>
<tr>
<th></th>
<th>standard</th>
<th>limit (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>wheel axle bend radius</td>
<td>——</td>
<td>0.2</td>
</tr>
<tr>
<td>jump of rear wheel axle direction</td>
<td>——</td>
<td>2.0</td>
</tr>
<tr>
<td>radial</td>
<td>——</td>
<td>2.0</td>
</tr>
</tbody>
</table>

● Regualted torque

rear shock absorber (upside)  18-25N.m
( downside)  30-40N.m
rear wheel axle nut  80-100N.m
drive sprocket nut  60-70N.m

● remove rear wheel

hold the motor by jack, take the rear wheel out of ground
loose the rear braking pump mounting bolt, remove
the rear brake pump.
remove the rear wheel axle nut.

loose the adjuster nut
push hard on the adjuster forwards
push hard on the wheel forward to remove the chain out of the
chain sprocket

Hold the rear wheel up
Remove the rear wheel axle, take the bushing and rear wheel out

Note  Do not hang the brake caliper assy by the brake soft tube, you could hang it by tightware or lay down on the table
check on the bent of wheel bearing
wheel bearing bent data
limit: 0.2mm above, please replace asap.

check damage of the rear wheel bearing
turning the rear wheel, if found the bearing boose
or noise, please replace the new one asap.

check the jump of rear wheel
limit axle direction jump: 2.0 above, please replace
jump radial side: 2.0 above please replace
the whole style wheel can not be repaired

● check the driven sprocket
replace new if the driven sprocket abrasion, out of shaped

Note
meanwhile check the driven sprocket&main sprocket

● check the cushion pad
replace the new one if the cushion pad is aged or damaged

● rear wheel installation

Please install the rear wheel on the rear wheel per above steps
cushion

Note
left side sleeve length is 26, right side is 12, do not mix them
put lubrication oil on the oil seals and cushion before installation
Adjust the adjuster nut to make sure the proper chain length (refer to the check and adjustment chapter).

Install the wheel axle nut
Mount the rear disc brake on the mounting plate by bolt

- **rear wheel axle nut torque**: 80-100N.m
- **bolt torque**: 18-25N.m

**● rear shock absorber**

- **remove rear shock absorber**

  - **remove the up and down mounting bolt**
  - **remove the rear shock absorber from the outside chassis**

**Installation**

Conversed steps than the remove steps.

**Note**

- Put the lubrication oil on the rear absorber head sleeve before installation

**● check rear fork**

Check the rear fork damaged or chapped
- **check chain protector abrasion or damaged**

**● remove rear fork**

- **remove the rear wheel and rear shock absorber**
- **remove the rear fork axle nut, remove the rear fork axle**
install the rear fork on the chassis, tighten the nuts according to the above steps in the drawing. 
Tighten the nut, regulated torque: 80-100N.m

Install the rear fork and rear shock absorber (see above steps)
1. Forbidden to mix dust or water when supplying the brake liquid
2. Do not use the different brand brake liquid to avoid the chemical change.
3. Please use the DOT3 brake liquid
4. No use of the extracted brake liquid
5. Please clean it by cotton material because the brake liquid will damage the paint, plastic, rubber, etc.
6. Please well connect the soft pipe end to avoid the brake liquid be outflowed
7. Please clean the removed parts by brake liquid and check the aeration every interfaces by compressed air.
8. Please tidy up the removed parts to avoid of dust and other things.
9. Install the parts after making sure there is no dust on them.
10. Must replace the necessary appointed parts
11. Please disassemble them if you want to replace the brake soft pipes.
12. Please take out the air before removing the brake soft pipe
13. Pay attention not to bend the brake.

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>thickness of disc brake (rear)</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>jump of disc brake</td>
<td>front</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>rear</td>
<td>0.3</td>
</tr>
<tr>
<td>Inner diameter of front brake oil pump</td>
<td>12.7</td>
<td></td>
</tr>
<tr>
<td>Inner diameter of rear brake oil pump</td>
<td>12.7</td>
<td></td>
</tr>
<tr>
<td>inner diameter of caliper oil pump</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>outer diameter of caliper oil pump</td>
<td>34</td>
<td></td>
</tr>
</tbody>
</table>

Braking system

1. Low function of one brake
2. Low function of one brake
3. Low function of one brake
4. Low function of one brake
5. Low function of one brake

Brake noise

1. dirt or abrasion of brake slice
2. disc brake swing, abrasion, and dirty
3. poor installation of brake caliper
4. difference between the disc brake and wheels
5. less lubrication on the connection point of brake slice and hanger pin

Brake shank difficulty in handling or low function of brake

1. block in piston caliper
2. block in brake system
3. block in main piston

Brake oil pump

Lay down the brake oil pump flatly, check the level of liquid

Note:
1. Do not mix the dust and water when filling in the liquid
2. Do not use the different brand liquid to avoid chemical change
3. Do not damage the paint, plastic, and rubber
4. Remove the right side cover first before removing the rear storage liquid lid
5. Use DOT3 brake liquid on front wheel, use DOT3 or DOT4 on rear wheel

Remove the cover of extraction valve, lay the pump flatly
Install the clear plastic pipe into the extraction valve
Loose the brake pump extraction valve, handle the brake bar
Repeatly handling until all liquid has been out from the extraction valve
remove the cover of extraction valve, lay the pump flatly
install the clear plastic pipe into the extraction valve
loose the brake pump extraction valve, handle the brake bar
repeatly handling until all liquid has been out from the extraction valve

Note
do not make it dirty on the disc brake and brake plate
replace the brake plate and clean the dirt on the disc brake if neccessory

Note
1. please make sure the level of the brake liquid before action
2. if the level is close to the mini. Limit, first please fill in the brake liquid
close the extraction valve, fill in the brake liquid to max. limit.
put the film

extracting air from the separator by handling the brake shank,
until no air from the pump
remove

Note

1. Do not damage the paint, plastic, rubber by brake liquid
2. Wrap the connection point of soft tube by cotton to avoid the brake liquid out.

1. Extract the brake liquid
2. Remove the brake soft tube bolt, remove the soft tube
3. Remove the braking light wire
4. Remove the soft tube of liquid box
5. Take the liquid box out of the brake oil pump by removing the bolts.

Remove the braking light wires
remove the lid, ring loop, take out the soft tube heads from the pump

install the brake oil pump on the handle bar

note

1. Face up the UP mark at the countermark on the handlebar
2. First tighten the upper bolts
torque: 10-14N.m
connect the braking list wire to the switch
fill in the brake liquid, then extract the air

extract the brake liquid
Remove the brake pump mounting bolt
Loose the braking oil tube bolt
Take the pump out
Remove the braking soft tube bolt

Note
do not damage the paint, plastic rubber parts by the brake liquid
wrap the soft tube heads by cotton to avoid the liquid flow out

check on the disc brake
same disc brake as front and rear
limit: below 3.0mm

Check the gap between disc brake
measure the jump of the disc brake
limit: front disc: below 0.4mm
rear disc brake: below 0.3mm