

### 3. INSPECTION/ADJUSTMENT

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### INSPECTION/ADJUSTMENT

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### 3. INSPECTION/ADJUSTMENT

#### SERVICE INFORMATION

##### GENERAL

##### WARNING

- Before running the engine, make sure that the working area is well-ventilated. Never run the engine in a closed area. The exhaust contains poisonous carbon monoxide gas which may cause death to people.
- Gasoline is extremely flammable and is explosive under some conditions. The working area must be well-ventilated and do not smoke or allow flames or sparks near the working area or fuel storage area.

##### SPECIFICATIONS

###### ENGINE

- Throttle grip free play : 1\_ 4mm
- Spark plug gap : 0.6\_ 0.7mm
- Spark plug: Standard : NGK: BR8HAS
- Idle speed : 2000±100rpm
- Gear oil capacity :
  - At disassembly : 120cc
  - At change : 90cc
- Cylinder compression : 12kg/cm\_
- Ignition timing : BTDC 22°/2000rpm

###### CHASSIS

- Front brake free play: 10\_ 20mm
- Rear brake free play: 10\_ 20mm

###### TIRE PRESSURE

	1 Rider
Front	0.35kgf/cm_
Rear	0.35kgf/cm_

###### TIRE SIZE:

- Front : 20\*7-8
- Rear : 22\*10-8

###### TORQUE VALUES

- Front wheel nut 6.0\_ 8.0kgf-m
- Rear wheel nut 6.0\_ 8.0kgf-m

### 3. INSPECTION/ADJUSTMENT

#### MAINTENANCE SCHEDULE

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable vehicle operation and a longer service life. The need for costly overhaul work will be greatly reduced. This information applies to vehicles already in service as well as new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

Item	Remarks	Initial			Every	
		1 month	3 month	6 month	6 month	1 year
<b>Spark plug</b>	Check condition. Clean or replace if necessary.	○ <sub>✓</sub>				
<b>Air clearance</b>	Clean. Replace if necessary.		○ <sub>✓</sub>	○ <sub>✓</sub>	○ <sub>✓</sub>	○ <sub>✓</sub>
<b>Carburetor</b>	Check idle speed/starter operation. Adjust if necessary.		○ <sub>✓</sub>	○ <sub>✓</sub>	○ <sub>✓</sub>	○ <sub>✓</sub>
<b>Fuel line</b>	Check fuel hose for cracks or damage. Replace if necessary.			○ <sub>✓</sub>	○ <sub>✓</sub>	○ <sub>✓</sub>
<b>Engine oil</b>	Replace (Warm engine before draining).	○ <sub>✓</sub>		○ <sub>✓</sub>	○ <sub>✓</sub>	○ <sub>✓</sub>
<b>Engine oil filter screen</b>	Clean. Replace if necessary.	○ <sub>✓</sub>				○ <sub>✓</sub>
<b>Transmission oil</b>	Check oil leakage. Replace every 12 months.	○ <sub>✓</sub>				○ <sub>✓</sub>
<b>Brake system</b>	Check operation. Adjust if necessary.	○ <sub>✓</sub>				
<b>Drive belt</b>	Check operation/replace if damage or excessive wear.	○ <sub>✓</sub>				○ <sub>✓</sub>
<b>Wheels</b>	Check balance/damage/runout. Replace if necessary.	○ <sub>✓</sub>		○ <sub>✓</sub>	○ <sub>✓</sub>	○ <sub>✓</sub>
<b>Wheel bearings</b>	Check bearings assembly for looseness/damage. Replace if damaged.	○ <sub>✓</sub>		○ <sub>✓</sub>	○ <sub>✓</sub>	○ <sub>✓</sub>
<b>Steering system</b>	Check operation/replace if damage. Check toe-in/adjust if necessary.	○ <sub>✓</sub>				
<b>Knuckle shafts</b>	Lubricate every 6 months.			○ <sub>✓</sub>	○ <sub>✓</sub>	○ <sub>✓</sub>
<b>Fitting/Fasteners</b>	Check all chassis fittings and fasteners. Correct if necessary.	○ <sub>✓</sub>				

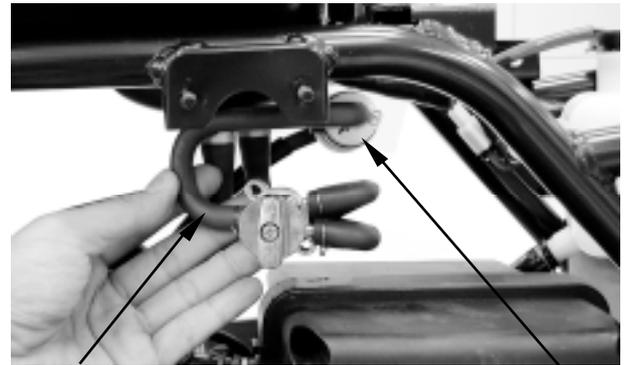
- In the interest of safety, we recommend these items should be serviced only by an authorized KYMCO motorcycle dealer.

### 3. INSPECTION/ADJUSTMENT

#### FUEL LINE

Check the fuel tubes and replace any parts, which show signs of deterioration, damage or leakage or leakage.

⚠ Do not smoke or allow flames or sparks in your working area.



Fuel tube

Fuel Filter

#### THROTTLE OPERATION

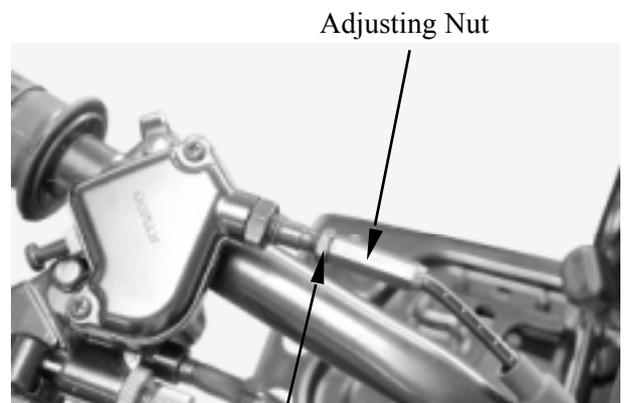
Check the throttle to swing for smooth movement.

Measure the throttle to swing free play.

**Free Play:** 1\_ 4mm



Minor adjustment is made with the adjusting nut at the throttle to swing above. Slide the rubber cover out and adjust by loosening the lock nut and turning the adjusting nut.



Adjusting Nut

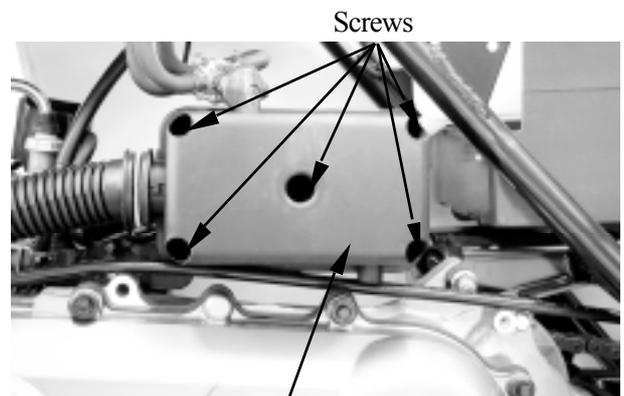
Lock Nut

#### AIR CLEANER

##### AIR CLEANER REPLACEMENT

Remove five screws on the air cleaner case cover and the cover.

Check the element and replace it if it is excessively dirty or damaged.



Screws

Air Cleaner Case Cover

### 3. INSPECTION/ADJUSTMENT

#### CLEAN AIR FILTER ELEMENT

Wash the element gently, but thoroughly in solvent.

- ° Use parts cleaning solvent only. Never use gasoline or low flash point solvents which may lead to a fire or explosion.

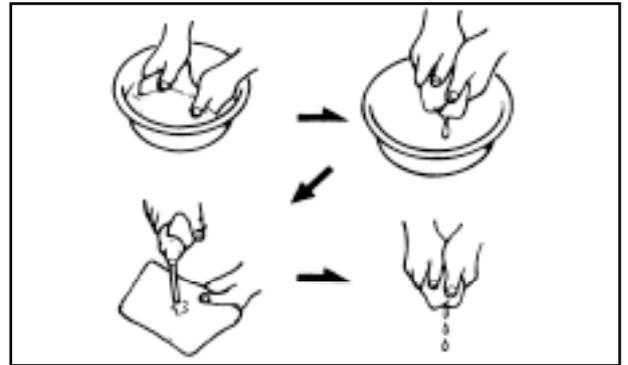
Squeeze the excess solvent out of the element and let dry.

- ° Do not twist or wring out the foam element. This could damage the foam material.

Apply the engine oil.

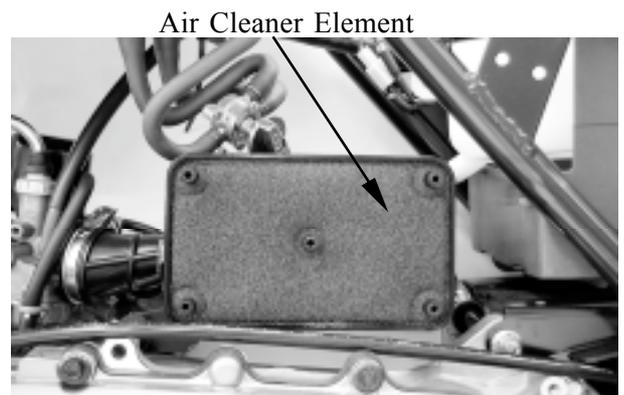
Squeeze out the excess oil.

- ° The element should be wet but not dripping.



#### CHANGE INTERVAL

More frequent replacement is required when riding in unusually dusty or rainy areas.



### 3. INSPECTION/ADJUSTMENT

#### SPARK PLUG

Remove the spark plug  
 Check the spark plug for wear and fouling deposits.  
 Clean any fouling deposits with a spark plug cleaner or a wire brush.

**Specified Spark Plug:** NGK: BR8HAS

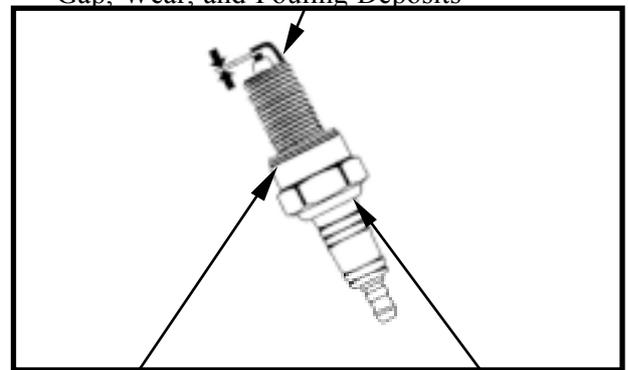


Measure the spark plug gap.

**Spark Plug Gap:** 0.6\_ 0.7mm

◦ When installing, first screw in the spark plug by hand and then tighten it with a spark plug wrench.

Gap, Wear, and Fouling Deposits



Washer Deformation

Cracks, Damage

#### LUBRICATION SYSTEM

◦ Oil Filter Cleaning ◦  
 Disconnect the oil tube at the oil pump side and allow oil to drain into a clean container.  
 Remove the tube clip at the oil tank side and disconnect the oil tube.  
 Remove the oil filter.

Clip



Oil Filter

### 3. INSPECTION/ADJUSTMENT

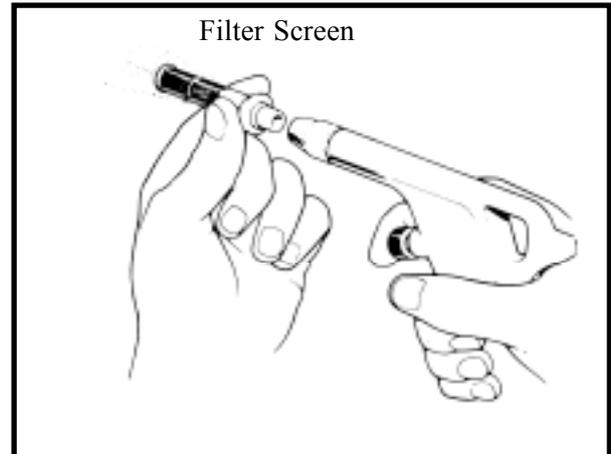
Clean the oil filter screen with compressed air.

Install the oil filter in the reverse order of removal and fill the oil tank with specified oil up to the proper level.

Bleed air from the oil pump and oil lines.



- Connect the oil tubes securely.
- Install the tube clip at the oil tank side and also install the clip to the lower oil tube that goes to the oil pump.
- Check for oil leaks.



#### Oil Pump Condition



Adjust oil pump control cable after the throttle grip free play is adjusted.

Open the throttle valve fully and check that the index mark on the pump body aligns with the aligning mark on the oil pump control lever.

Reference tip alignment within 1mm of index mark on open side is acceptable.

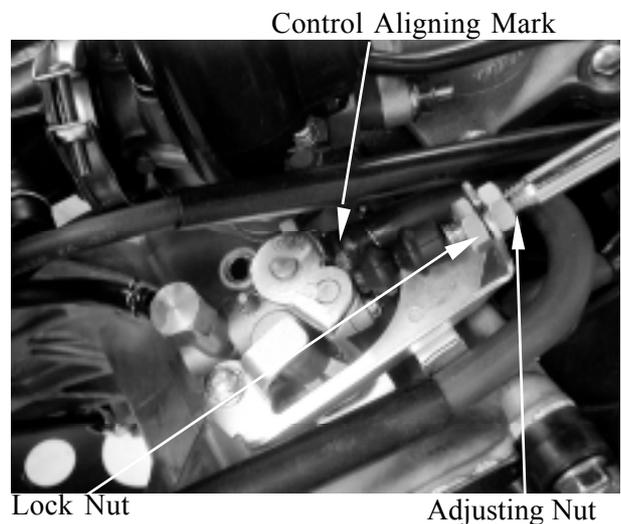
Start and idle the engine, then slowly open the throttle to increase engine rpm and check the operation of the oil pump control lever.

If adjustment is necessary, adjust the oil pump control cable by loosening the control cable lock nut and turning the adjusting nut.

After adjustment, tighten the lock nut.



Reference tip alignment within 1mm of index mark on open side is acceptable. However, the aligning mark on the control lever must never be on the closed side of the index mark, otherwise engine damage will occur because of insufficient lubrication.



If the oil pump is not synchronized properly, the following will occur:

- Excessive white smoke or hard starting due to pump control lever excessively open
- Seized piston due to pump control lever insufficiently open.

### 3. INSPECTION/ADJUSTMENT

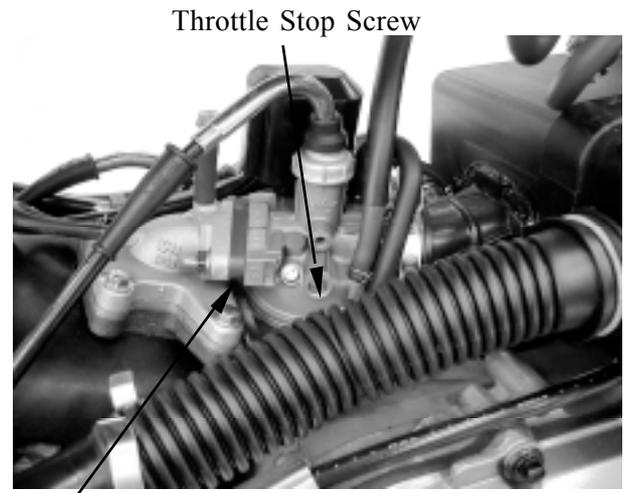
#### CARBURETOR IDLE SPEED

- The engine must be warm for accurate idle speed inspection and adjustment.

Warm up the engine before this operation. Start the engine and connect a tachometer. Turn the throttle stop screw to obtain the specified idle speed.

**Idle Speed:** 2000±100rpm

When the engine misses or run erratic, adjust the air screw.



Air Screw

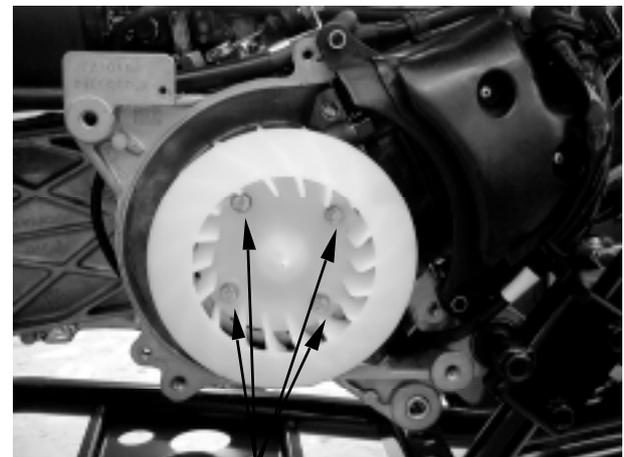
#### Ignition Apparatus

- The CDI ignition timing is not adjustable. If the timing is incorrect, check the CDI unit, ignition coil and A.C. generator and replace any faulty parts.

Remove the A.C. generator fan cover. (⇒8-3)

Remove the four bolts attaching the fan and then remove the fan.

Warm up the engine and check the ignition timing with a timing light.

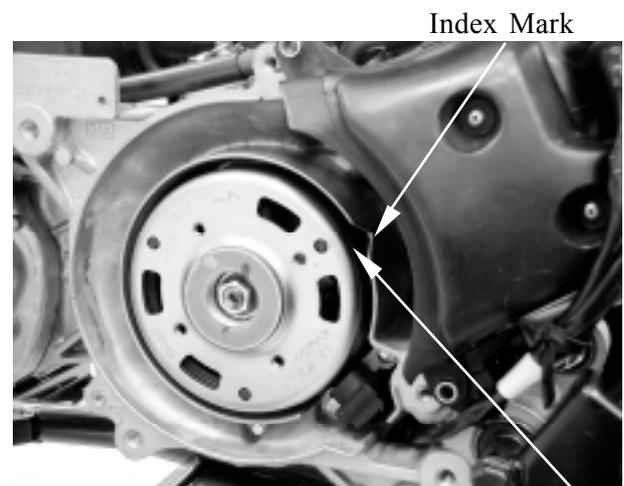


Bolts

When the engine is running at the specified rpm, the ignition timing is correct if the "F" mark on the flywheel aligns with the index mark on the crankcase within ±1.5°.

**Ignition Timing:**

22°±1.5°BTDC/2000rpm



"F" Mark

### 3. INSPECTION/ADJUSTMENT

#### CYLINDER COMPRESSION

Warm up the engine before compression test.

Remove the spark plug.

Insert a compression gauge.

Open the throttle valve fully and push the starter button to test the compression.

**Compression:** 12kg/cm<sub>2</sub>

If the compression is low, check for the following:

- Leaky valves
- Valve clearance too small
- Leaking cylinder head gasket
- Worn piston rings
- Worn piston/cylinder

If the compression is high, it indicates that carbon deposits have accumulated on the combustion chamber and the piston head.



Compression Gauge

#### FINAL REDUCTION GEAR OIL

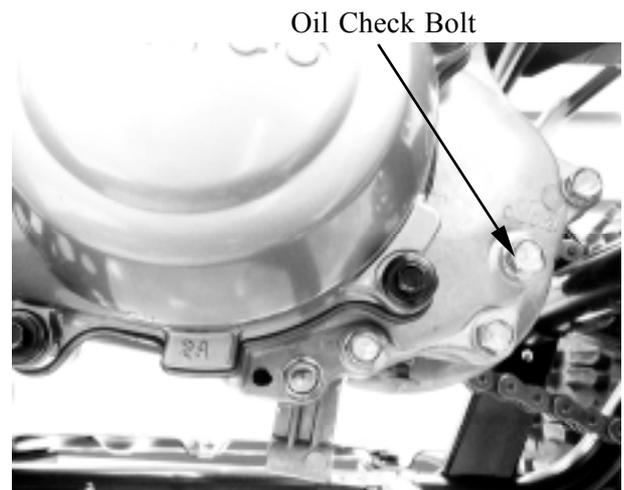
The gear oil level shall be at the oil check bolt hole. If the oil level is low, add the specified oil to the proper level.

**Specified Gear Oil:** SAE10W90#

Install and tighten the oil check bolt.

**Torque:** 1.0\_ 1.5kgf-m

Start the engine and check for oil leaks.



Oil Check Bolt

#### GEAR OIL CHANGE

Remove the oil filler bolt.

Remove the oil drain bolt and drain the oil thoroughly.

Install the oil drain bolt.

**Torque:** 1.0\_ 1.5kgf-m

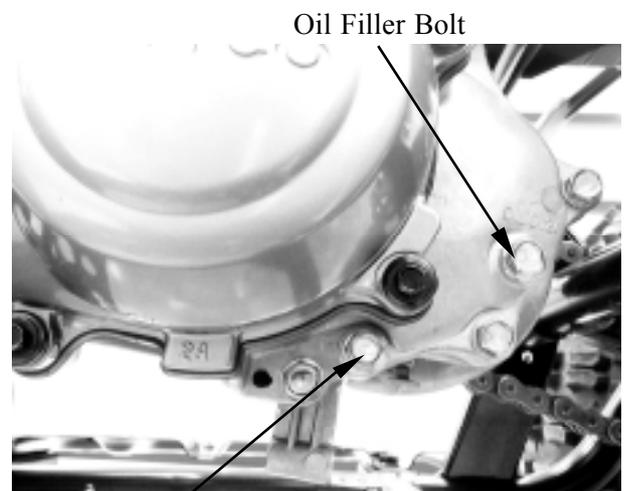
Ⓢ Make sure that the sealing washer is in good condition.

Fill with the recommended oil.

**Oil Capacity:** At disassembly : 0.12cc  
At change : 0.09cc

Reinstall the oil filler bolt and check for oil leaks.

**Torque:** 1.0\_ 1.5kgf-m



Oil Filler Bolt

Oil Drain Bolt/ Sealing Washer

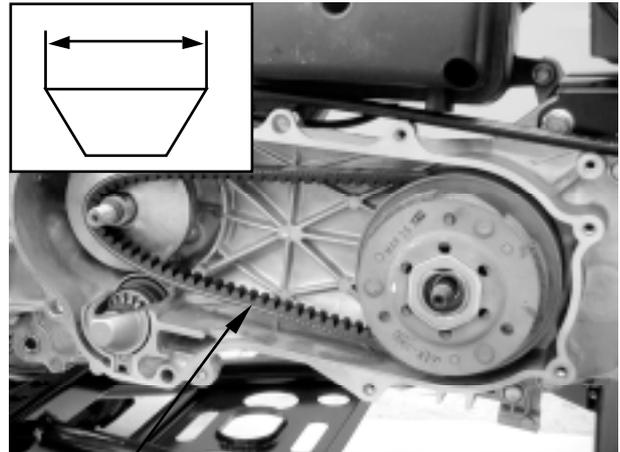
### 3. INSPECTION/ADJUSTMENT

#### DRIVE BELT

Remove the left crankcase cover.  
Inspect the drive belt for cracks, scaling,  
chipping or excessive wear.  
Measure the V-belt width

**Service limit:** 16.5mm

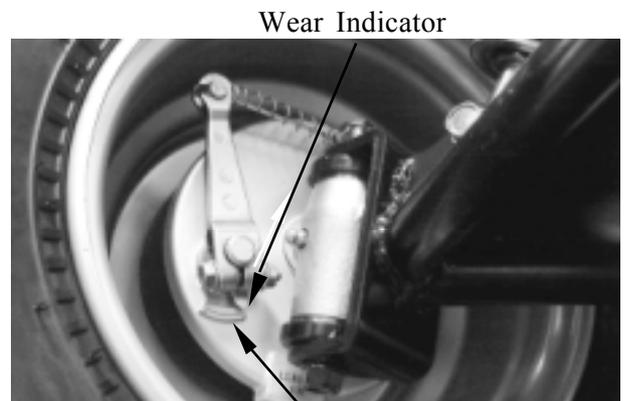
Replace the drive belt if out of specification.



Drive Belt

#### BRAKE SHOE

Replace the brake shoes if the arrow on the  
wear indicator plate aligns with the punch  
mark on the brake panel when the brake is  
fully applied.



Punch Mark

#### BRAKE SYSTEM

##### FRONT BRAKE

Measure the front brake lever free play.

**Free Play:** 10\_ 20mm

Adjust if out of specification.



### 3. INSPECTION/ADJUSTMENT

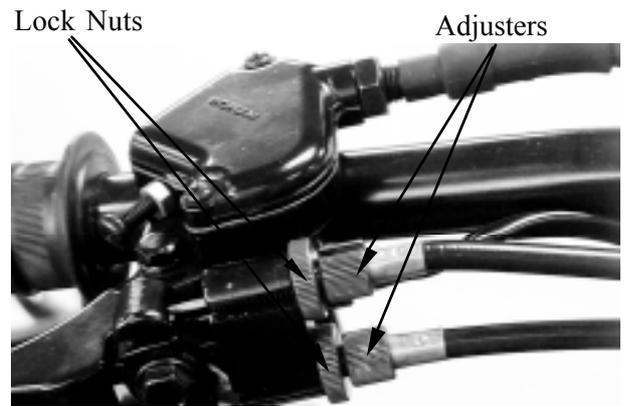
Adjust brake lever free play:

Loosen the lock nuts.

Turn the adjusters in or out until the specified free play is obtained.

Turning adjusters in that the free play is increased.

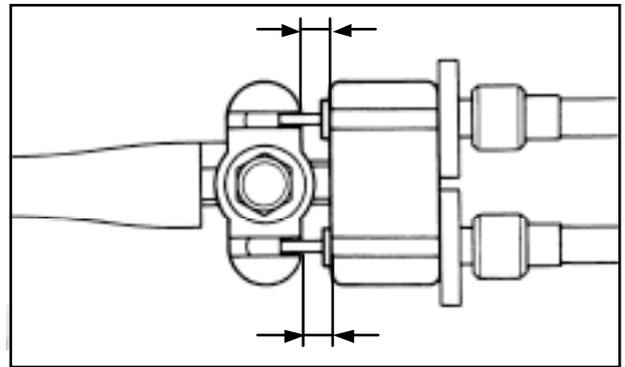
Turning adjusters out that the free play is decreased.



The difference between both clearances should be 2 mm or less when front brake is applied.

Tighten the lock nuts.

ⓘ Make sure that the brake does not drag after adjusting.



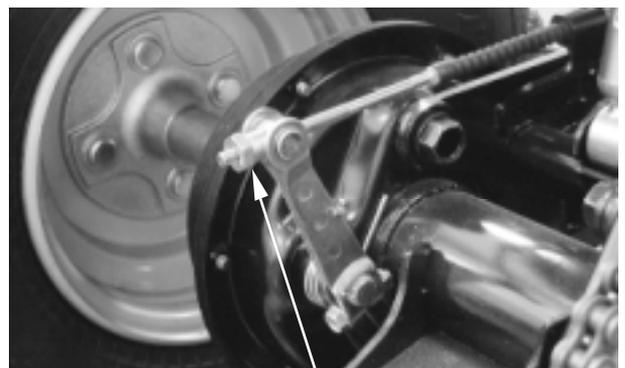
#### REAR BRAKE

Measure the rear brake lever free play.

**Free Play:** 10\_ 20mm



If the free play do not fall within the limit, adjust by turning the adjusting nut.



Adjusting Nut

### 3. INSPECTION/ADJUSTMENT

#### HEADLIGHT AIM

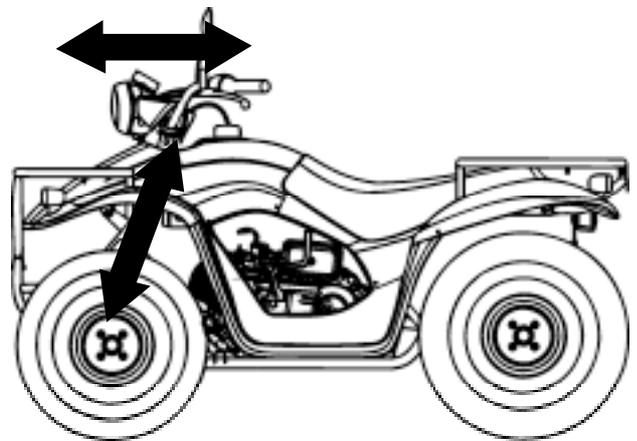
Turn the ignition switch ON and start the engine.  
Turn on the headlight switch.  
Adjust the headlight aim by turning the headlight aim adjusting screw.



Adjusting Screw

#### STEERING SYSTEM INSPECTION

Place the machine on a level place.  
Check the steering column bushings and bearings:  
Move the handlebar up and down, and/or back and forth.  
Replace the steering column bushings and or bearings if excessive play



Check the tie-rod ends  
Turn the handlebar to the left and/or right until it stops completely, then slightly move the handlebar from left to right.  
Replace the tie-rod ends if tie-rod end has any vertical play.



Tie-rod Ends

Raise the front end of the machine so that there is no weight on the front wheels.  
Check ball joints and/or wheel bearings.  
Move the wheels laterally back and forth.  
Replace the front arms and/or wheel bearings if excessive free play.



### 3. INSPECTION/ADJUSTMENT

#### TOE-IN ADJUSTMENT

Place the machine on a level place.

Measure the toe-in

Adjust if out of specification.

Toe-in measurement steps:

Mark both front tire tread centers.

Raise the front end of the machine so that there is no weight on the front tires.

Fix the handlebar straight ahead.

Measure the width A between the marks.

Rotate the front tires 180 degrees until the marks come exactly opposite.

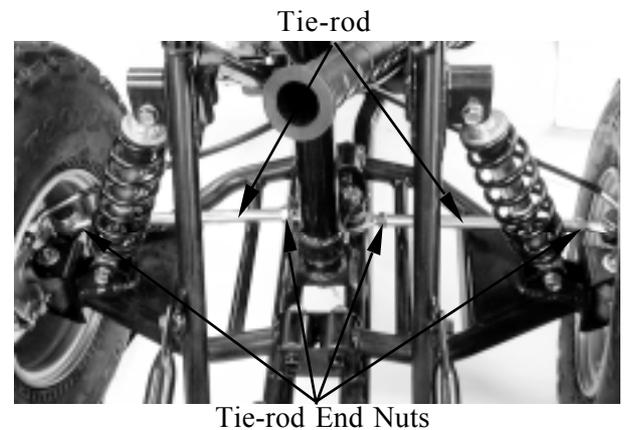
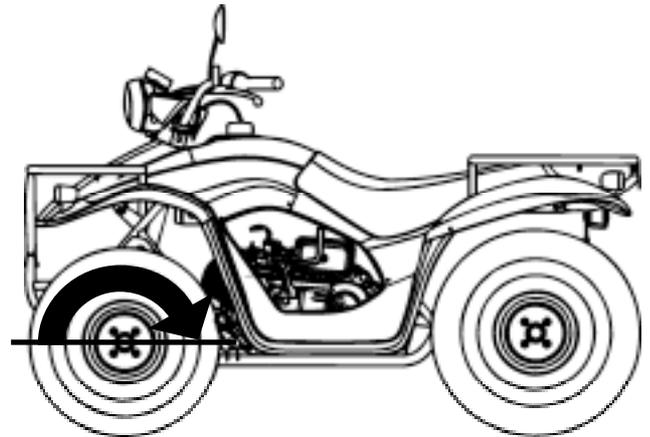
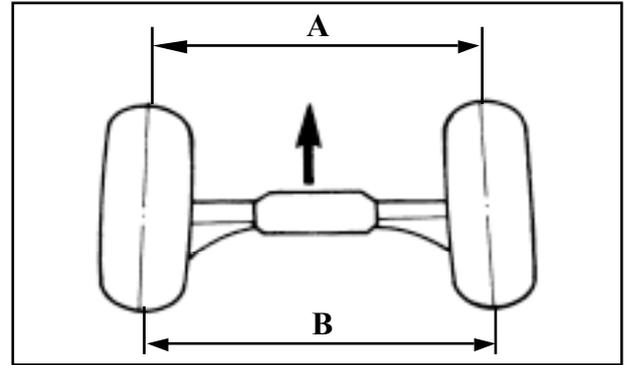
Measure the width B between the marks.

Calculate the toe-in using the formula given below.

Toe-in =  $B^{\circ} - A$

Toe-in: 0\_ 10mm

If the toe-in is incorrect, adjust the toe-in



Tie-rod

Tie-rod End Nuts

Adjust the toe-in step:

Mark both tie-rod ends.

This reference point will be needed during adjustment.

Loosen the lock nuts (tie-rod end) of both tie-rods

The same number of turns should be given to both tie-rods right and left until the specified toe-in is obtained, so that the lengths of the rods will be kept the same.

**Torque:** 2.5\_ 3.5kgf-m



- Be sure that both tie-rod are turned the same amount. If not, the machine will drift tight or left even though the handlebar is positioned straight which may lead to mishandling and accident.
- After setting the toe-in to specification, run the machine slowly for some distance with hands placed lightly on the handlebar and check that the handlebar responds correctly. If not, turn either the right or left tie-rod within the toe-in specification.

### 3. INSPECTION/ADJUSTMENT

#### WHEELS/TIRES

Check the tires for cuts, imbedded nails or other damages.  
Check the tire pressure.

⊖ Tire pressure should be checked when tires are cold.



#### TIRE PRESSURE

	1 Rider
Front	0.35kgf/cm <sub>2</sub>
Rear	0.35kgf/cm <sub>2</sub>

#### TIRE SIZE

**Front** : 20\*7-8  
**Rear** : 22\*10-8

Check the front axle nut for looseness.  
Check the rear axle nut for looseness.  
If the axle nuts are loose, tighten them to the specified torque.

**Torque: Front** : 6.0\_ 8.0kgf-m  
**Rear** : 6.0\_ 8.0kgf-m

Front Axle Nut



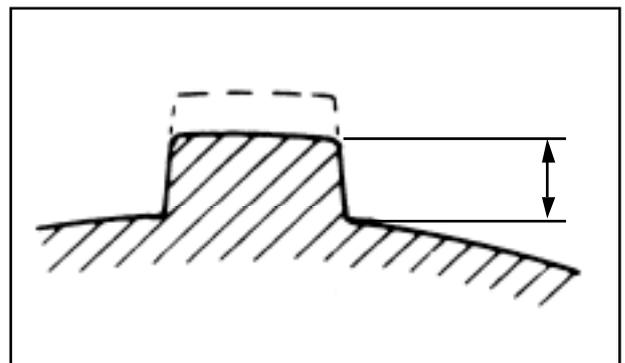
Rear Axle Nut



#### WHEEL INSPECTION

Inspect the tire surfaces.  
Replace if wear or damage.  
**Tire wear limit:** 3.0mm

⊖ It is dangerous to ride with a worn out tire. When a tire wear is out of specification, replace the tire immediately.



### 3. INSPECTION/ADJUSTMENT

Inspect the wheel.

Replace if damage or bends

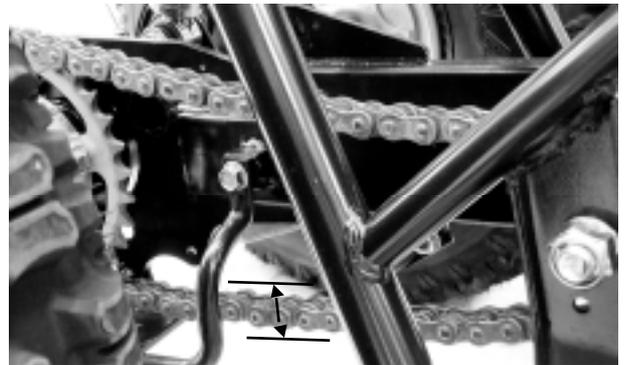
Always balance the wheel when a tire or wheel has been changed or replaced.

- - Never attempt even small repairs to the wheel.
  - Ride conservatively after installing a tire to allow it to seat itself properly on the rim.

#### DRIVE CHAIN SLACK ADJUSTMENT

Before checking and/or adjusting, rotate the rear wheels several revolutions and check slack at several points to find the tightest point. Check and/or adjust the chain slack with the rear wheels in this “tightest” position.

- Too little of chain slack will overload the engine and other vital parts; keep the slack within the specified limits.



Place the machine on a level place.

- Wheels should be on the ground without the rider on it.

Check drive chain slack.

Adjust if out of specification.

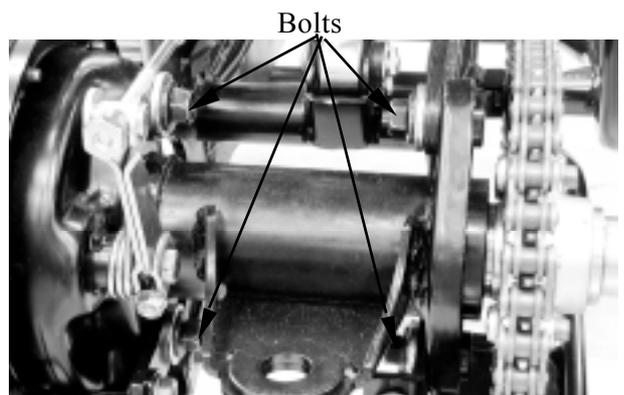
**Drive chain slack:** Approximately 30mm

Adjust drive chain slack:

Elevate the rear wheels by placing a suitable stand under the rear of frame.

- Support the machine securely so there is no danger of it falling over.

Loosen four bolts attaching rear axle hub.



### 3. INSPECTION/ADJUSTMENT

Turn the adjuster in or out until the specified slack is obtained.

Adjuster



**Turn in:** Slack is increased.

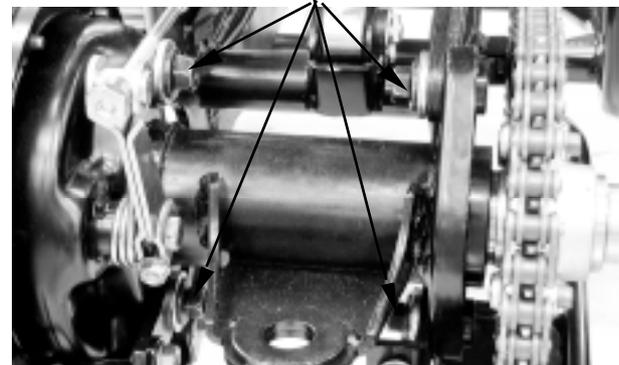
**Turn out:** Slack is decreased.



Tighten four bolts attaching rear axle hub to the specification. While pushing up or down on the chain to zero slack.

**Torque:** 6.0\_ 8.0kgf-m

Bolts



Tighten the adjuster.

**Torque:** 1.8\_ 2.5kgf-m

Adjuster



### 3. INSPECTION/ADJUSTMENT

#### CABLE INSPECTION AND LUBRICATION

- Damaged cable sheath may cause corrosion and interfere with the cable movement. An unsafe condition may result so replace such cable as soon as possible.

Inspect the cable sheath.

Replace if damage.

Check the cable operation.

Lubricate or replace if unsmooth operation.

- Hold cable end high and apply several drops of lubricant to cable.

#### LEVER LUBRICATION

Lubricate the pivoting parts of each lever.

#### FRONT SUSPENSION LUBRICATION

Inject grease into the nipples using a grease gun until slight over flow is observed from the thrust covers.

- Wipe off the excess grease.



Nipple