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 : 1～4 mm (0.04～0.16 in)
Spark plug gap : 0.6～0.7 mm (0.002～0.003 in)
Spark plug: Standard : DPR7EA-9
Valve clearance : IN: 0.1 mm (0.004 in)
EX: 0.1 mm (0.004 in)
Idle speed : 1500±100 rpm
Engine oil capacity:
At disassembly : 1.6 liter (1.4 lmp qt, 1.7 Us qt)
At change : 1.4 liter (1.23 lmp qt, 1.48 Us qt)
Gear oil capacity :
At disassembly : 400 cc (0.35 lmp qt, 0.42 Us qt)
At change : 300 cc (0.26 lmp qt, 0.32 Us qt)
Cylinder compression : 15±2 kg/cm²
Ignition timing : BTDC 5°±1°/2000 rpm

TIRE PRESSURE

	1 Rider
Front	0.28 kgf/cm² (28 Kpa, 3.2 psi)
Rear	0.28 kgf/cm² (28 Kpa, 3.2 psi)

TIRE SIZE:
Front : 22*7-10
Rear : 22*10-10

TORQUE VALUES

Front wheel nut 4.5 kgf-m (45 Nm, 32 lbf-ft)
Rear wheel nut 4.5 kgf-m (45Nm, 32 lbf-ft)

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 ad well as new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

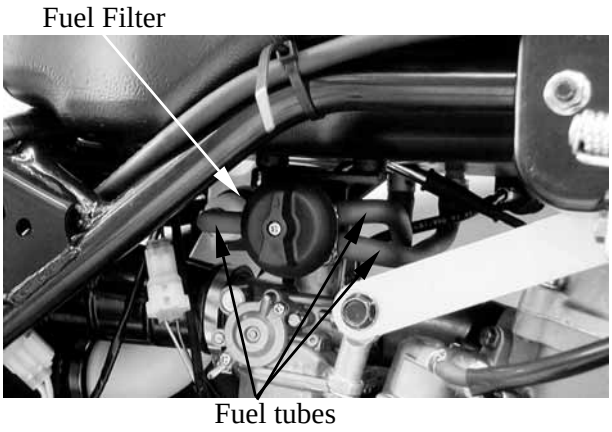
ITEM	ROUTINE / WHICHEVER COMES FIRST		INITIAL	EVERY	
		mi	100	600	1200
		Km	150	1000	2000
		MONTH	1	6	12
Engine oil	•Replace (Warm engine before draining).		○	○	○
Oil strainer	•Clean. •Replace if necessary.		○	○	○
Transmission oil	•Check oil level/oil leakage •Replace every 12 months.		○		○
V-belt	•Check operation. •Replace if damage or excessive wear.		○		○
Air filter element (for engine and *V-belt compartment)	•Clean. •Replace if necessary.	Every 20~40 hours (150~300km, 100~200mi) (More often in wet or dusty areas.)			
Carburetor	•Check idle speed/starter operation. •Adjust if necessary.		○	○	○
Cylinder head cover breather system	•Check breather hose for cracks or damage. •Replace if necessary.			○	○
Spark plug	•Check condition. •Adjust gap and clean. •Replace if necessary.		○	○	○
Fuel line	•Check fuel hose for cracks or damage. •Replace if necessary.			○	○
Valves	•Check valve clearance. •Adjust if necessary.		○	○	○
Brake	•Check operation and brake fluid. •Replace brake pad if necessary.		○	○	○
Coolant	•Check coolant leakage. •Replace if necessary. •Replace coolant every 24 months.		○	○	○
Battery	•Check specific gravity. •Check breather hose for proper operation. •Correct if necessary.		○	○	○
Exhaust system	•Check leakage. •Retighten if necessary. •Replace gasket if necessary.			○	○
Drive chain	•Check and adjust slack/alignment/clean/lube.		○	○	○
Wheels	•Check balance/damage/runout. •Replace if necessary.		○	○	○
Wheel bearings	•Check bearing assembly for looseness/damage. •Replace if damaged.		○	○	○
Steering system	•Check operation. •Replace if damaged. •Check toe-in. •Adjust if necessary.		○	○	○
Knuckle shafts/ Steering shaft	•Lubricate every 6 months.			○	○
Fittings and Fasteners	•Check all chassis fittings and fasteners. •Correct if necessary.		○	○	○
Spark arrester (OFF ROAD)	•Clean			○	○

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

FUEL LINE

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

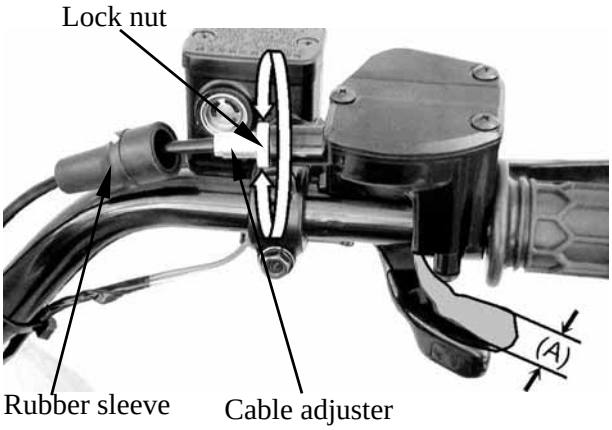
* Do not smoke or allow flames or sparks in your working area.



THROTTLE OPERATION

Check the throttle to swing for smooth movement.
Measure the throttle to swing free play.
Free Play (A): 1～4 mm (0.04～0.16 in)

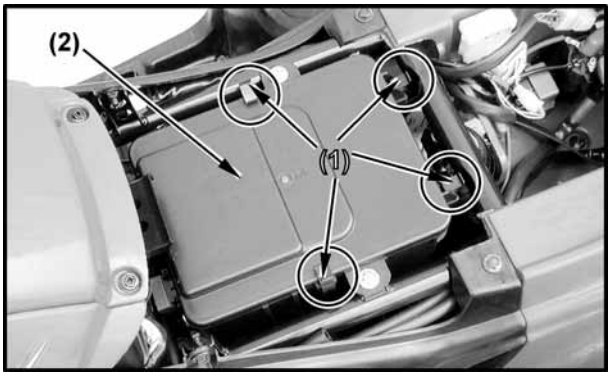
To adjust throttle free play:
Slide the rubber sleeve back to expose the throttle cable adjuster.
Loosen the lock nut, then turn the adjuster to obtain the correct free play. (1~4 mm or 0.04~0.16 in)
Tighten the lock nut and reinstall the sleeve.



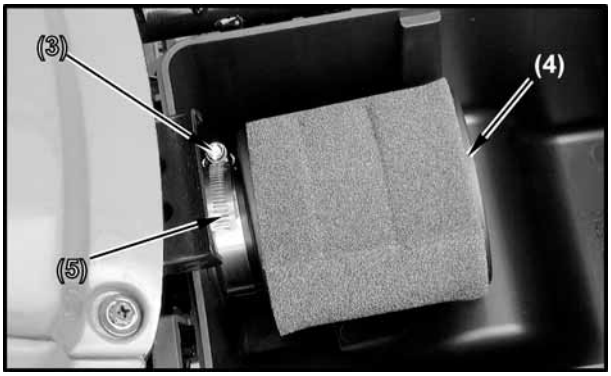
AIR CLEANER

AIR CLEANER REPLACEMENT

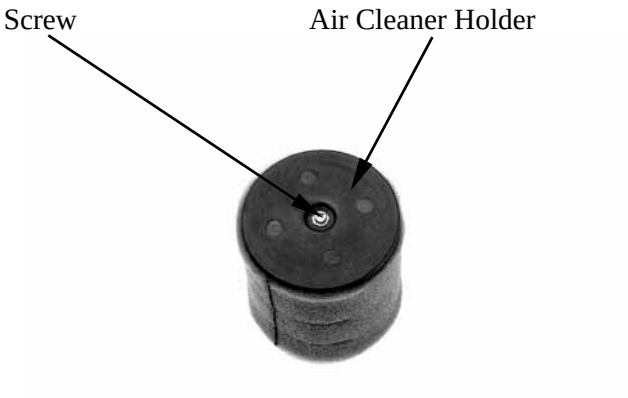
Remove the seat. (See page 2-3)
Unlatch the four retainer clips (1) and remove the air cleaner housing cover (2).



Unscrew (3) the clamp (5) and remove the air cleaner assembly (4) from the air cleaner housing.

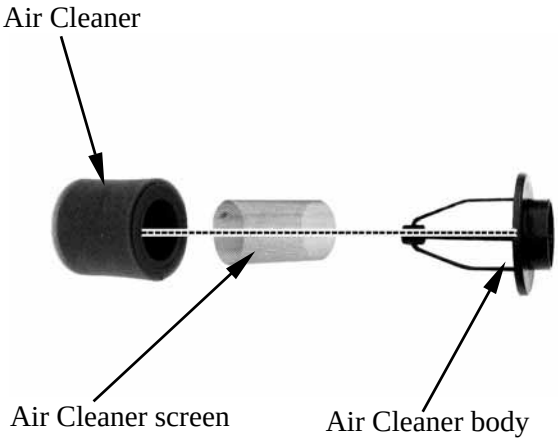


Remove the screw and remove the air cleaner assembly from the air cleaner holder.



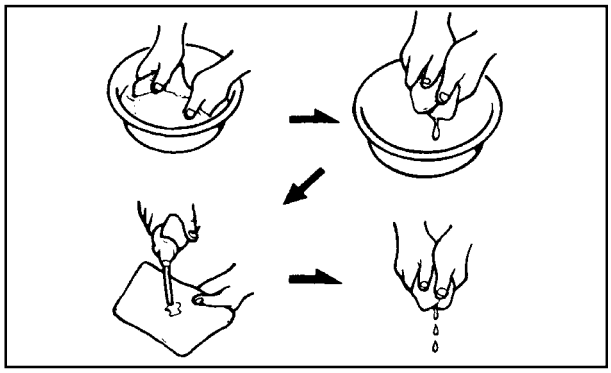
Remove the air cleaner and air cleaner screen from the air cleaner body.
Remove the air cleaner net from the air cleaner.

Reassemble by reversing the disassembly sequence.



CLEAN AIR FILTER ELEMENT

Wash the element gently, but throughly 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.

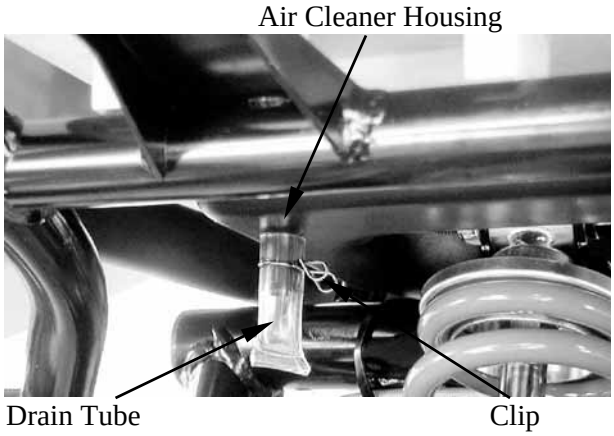
More frequent replacement is required when riding in unusually dusty or rainy areas.

AIR CLEANER HOUSING DRAIN

Remove the drain tube (under air cleaner case) by removing the clip.

Drain the deposits.

Reinstall the drain tube, securing it with the clip.



AIR FILTER FOR DRIVE BELT

To clean the air filter:

Remove front center cover. (See page 2-7)

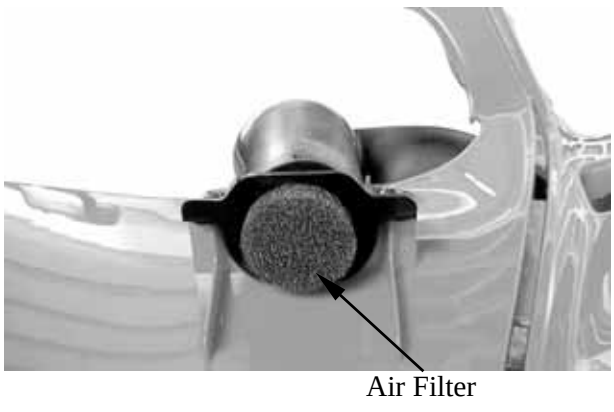
Remove air filter.

Tap the element lightly to remove most of the dust and dirt.

Blow out the remaining dirt with compressed air.

Installation is in the reverse order of removal.

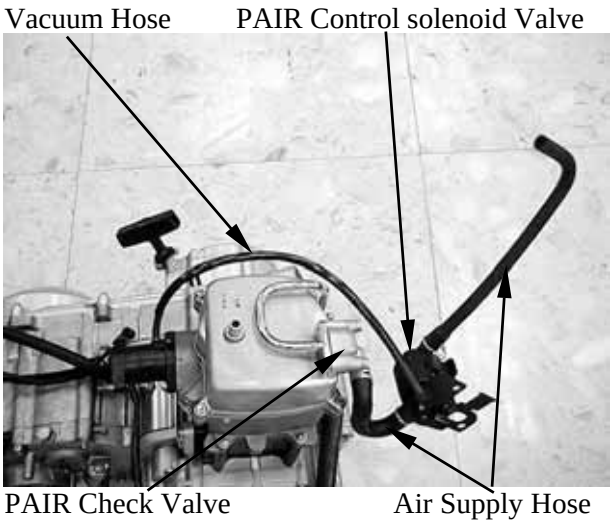
If necessary replace the air filter.



SECONDARY AIR SUPPLY SYSTEM

This model is equipped with a built-in secondary air supply system. The pulse secondary air supply system is located on the cylinder head cover.

The secondary air supply system introduces filtered air into exhaust gases in the exhaust port. The secondary air is drawn into the exhaust port whenever there is negative pressure pulse in the exhaust system. This charged secondary air promotes burning of the unburned exhaust gases and changes a considerable amount of hydrocarbons and carbon monoxide into relatively harmless carbon dioxide and water.



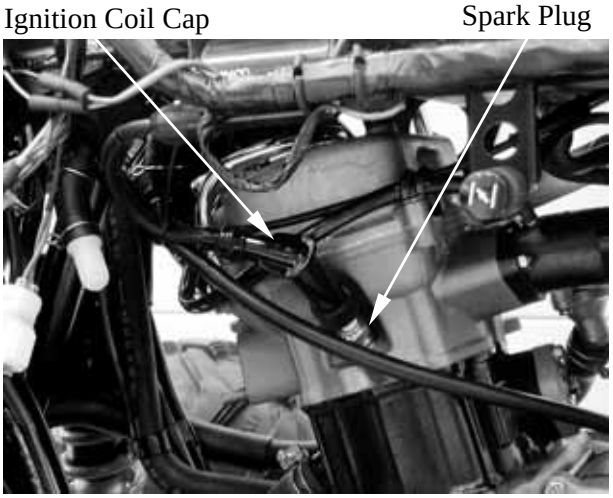
Check the PAIR (pulse secondary air injection) hoses between the PAIR control solenoid valve and cylinder head cover for deterioration, damage or loose connections. Make sure the hoses are not cracked.

If the hoses show any signs of heat damage, inspect the PAIR check valve in the PAIR reed valve cover damage.

SPARK PLUG

Remove ignition coil cap and 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: DPR7EA-9

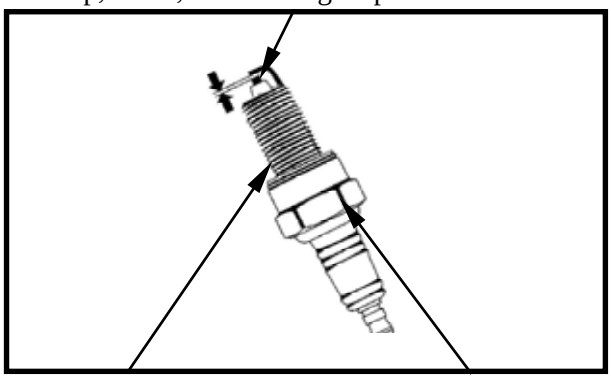


Measure the spark plug gap.

Spark Plug Gap: 0.6～0.7 mm (0.002～0.003 in)

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

Gap, Wear, and Fouling Deposits

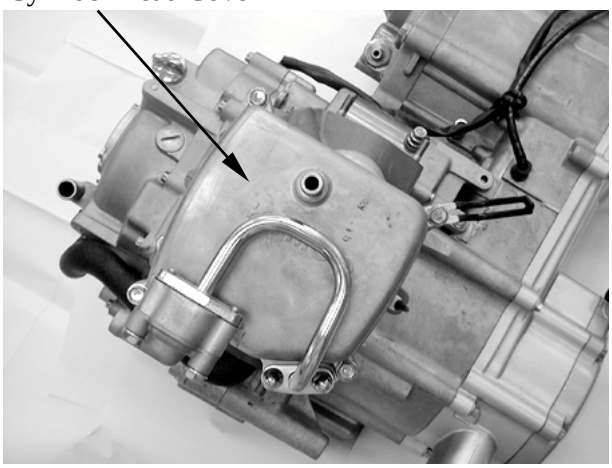


VALVE CLEARANCE

* Inspect and adjust valve clearance while the engine is cold (below 35℃).

Remove the cylinder head cover. (See chapter 7)

Cylinder Head Cover



Turn the flywheel clockwise so that the “T” mark on the flywheel aligns with the index mark on the right crankcase cover to bring the round hole on the camshaft gear facing up to the top dead center on the compression stroke.

Inspect and adjust the valve clearance.

Valve Clearance: IN: 0.1 mm (0.004 in)
EX: 0.1 mm (0.004 in)

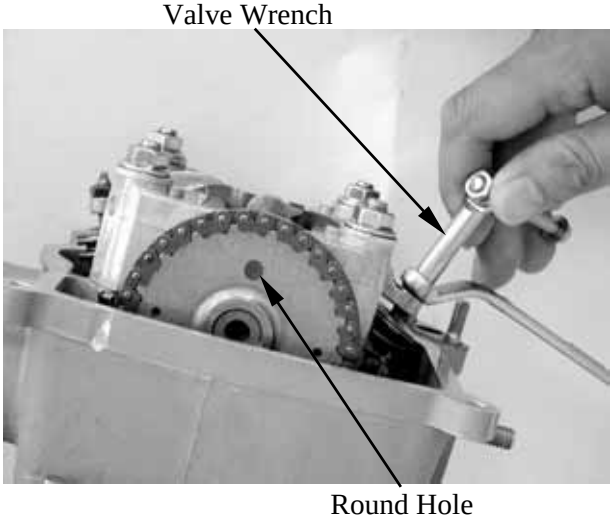
Index Mark “T” Mark

Loosen the lock nut and adjust by turning the adjusting nut

Special

Tappet adjuster E012

* • Check the valve clearance again after the lock nut is tightened.



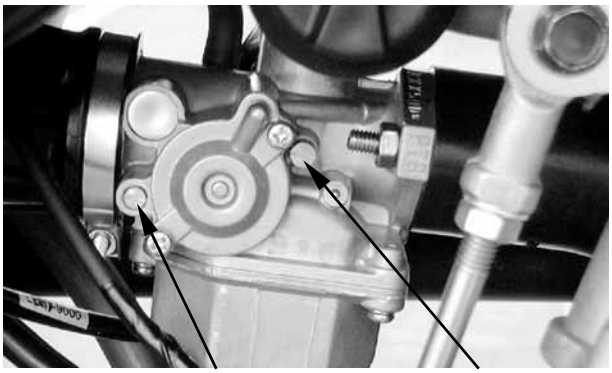
CARBURETOR IDLE SPEED

* • 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: 1500±100 rpm

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

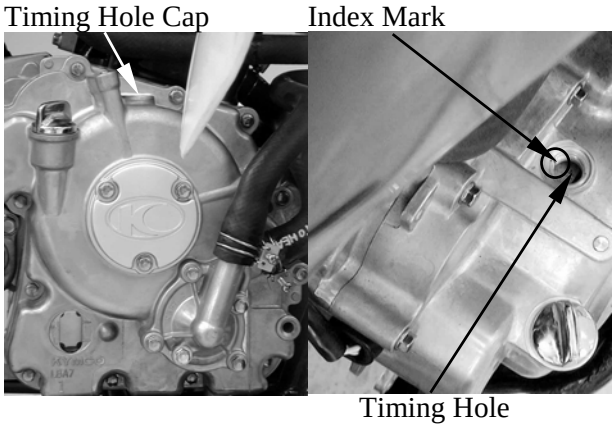


IGNITION TIMING

* The ignition unit is not adjustable. If the ignition timing is incorrect, check the ignition system.

Remove the timing hole cap.

Check the ignition timing with a timing light.
When the engine is running at idle speed, the ignition timing is correct if the “F” mark on the flywheel aligns with the index mark on the right crankcase cover.



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: 15±2 kg/cm^2

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

ENGINE OIL

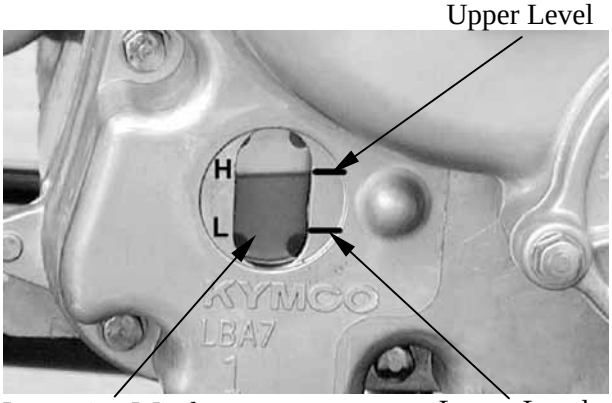
OIL LEVEL

Place the machine on a level place.
Warm up the engine for several minutes and stop it.

* Run the engine for 2～3 minutes and check the oil level after the engine is stopped for 2～3 minutes.

Check the oil level through the inspection window.
The oil level should be between the maximum (H) and minimum (L) marks. If the level is low, add oil to raise it to the proper level.

Upper Level



Inspection Window

Lower Level

ENGINE OIL REPLACEMENT

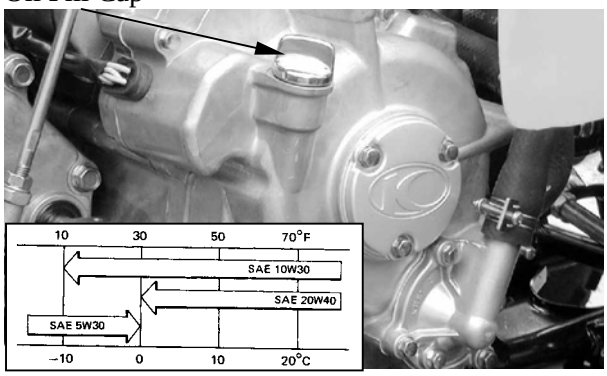
Place the machine on a level place.

Warm up the engine for several minutes and stop it.

Place a container under the engine.

Remove the oil fill cap and drain plug to drain the oil.

Oil Fill Cap

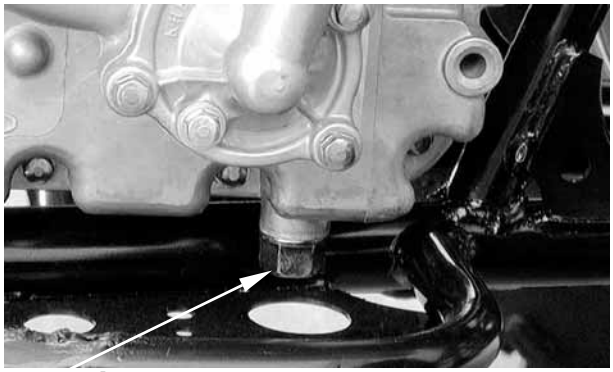


Reinstall the drain plug and tighten the drain plug to specification.

Torque: 2.5 kgf-m (25 Nm, 15 lbf-ft)

Fill the engine with oil and install the oil fill cap.

* The engine oil will drain more easily while the engine is warm.



Drain Plug

Oil Capacity:
At disassembly: 1.6 liter (1.4 lmp qt, 1.7 Us qt)
At change: 1.4 liter (1.23 lmp qt, 1.48 Us qt)

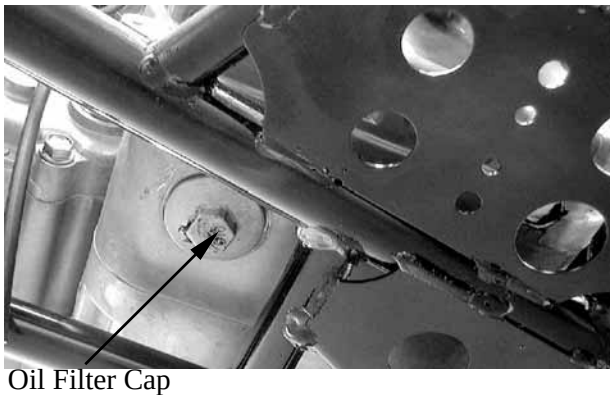
ENGINE OIL REPLACEMENT AND OIL FILTER CLEANING

Place the machine on a level place.

Warm up the engine for several minutes and stop it.

Place a container under the engine.

Remove the oil fill cap and oil filter cap to drain the oil.



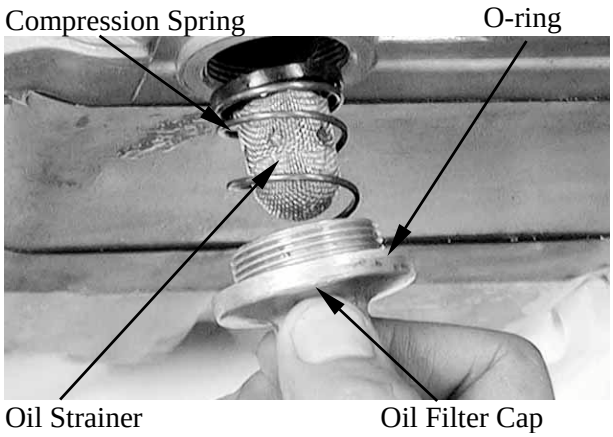
Oil Filter Cap

Clean the oil strainer with solvent.

Inspect the O-ring and replace if damaged.

Reinstall the O-ring, oil strainer, compression spring and oil filter cap. Tighten the oil filter cap to specification.

Torque: 1.5 kgf-m (15 Nm, 11 lbf-ft)



Fill the engine with oil and install the oil fill cap.

Oil Capacity:
At disassembly: 1.6 liter (1.4 lmp qt, 1.7 Us qt)
At change: 1.4 liter (1.23 lmp qt, 1.48 Us qt)

TRANSMISSION OIL REPLACEMENT

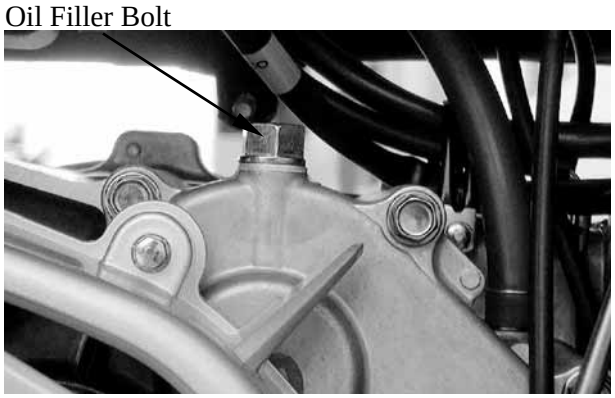
Place the machine on a level place.

Place a container under the engine.

Remove the oil filler bolt and drain plug to drain the oil.

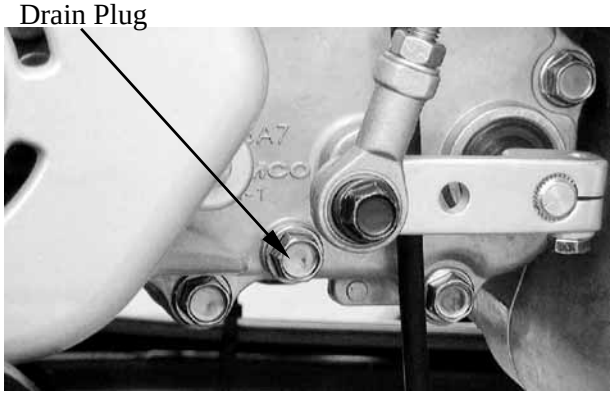
Reinstall the drain plug and tighten to specification.

Torque: 2.5 kgf-m (25 Nm, 18 lbf-ft)



Fill the engine with oil and install the oil filler bolt.

Oil Capacity:
At disassembly : 400 cc (0.35 lmp qt, 0.42 Us qt)
At change : 300 cc (0.26 lmp qt, 0.32 Us qt)



Start the engine and warm up for a few minutes. While warming up, check for oil leakage. If oil leakage is found, stop the engine immediately and check for the cause.

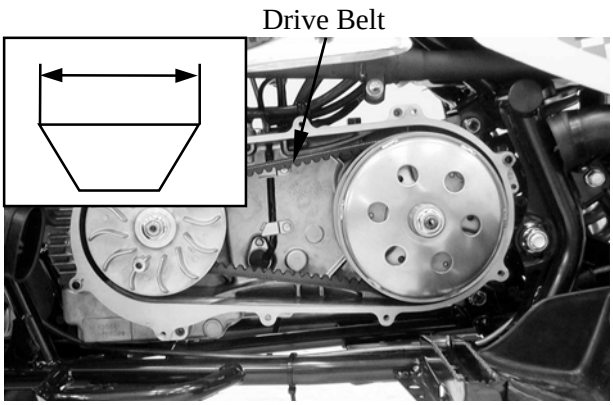
* Make sure that the sealing washer is in good condition.

DRIVE BELT

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

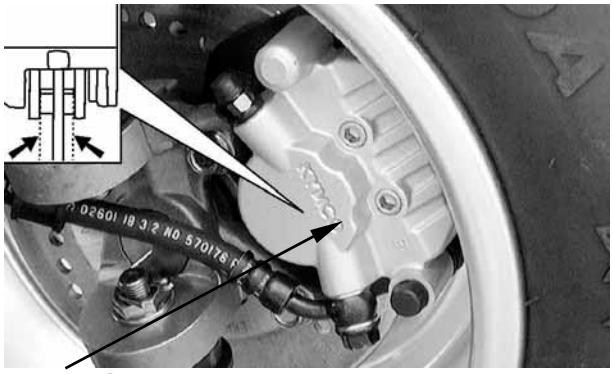
Service limit: 22 mm (0.88in)

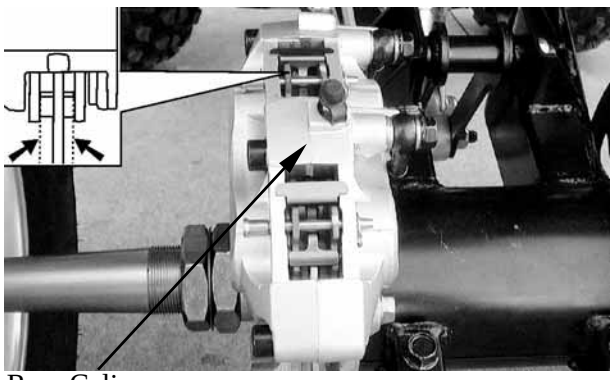
Replace the drive belt if out of specification.



BRAKE PADS INSPECTION

A wear indicator is provided on each brake. The indicators allows checking of brake pads wear. Check the position of the indicator. If the indicator reaches the wear limit line, to replace the pads.

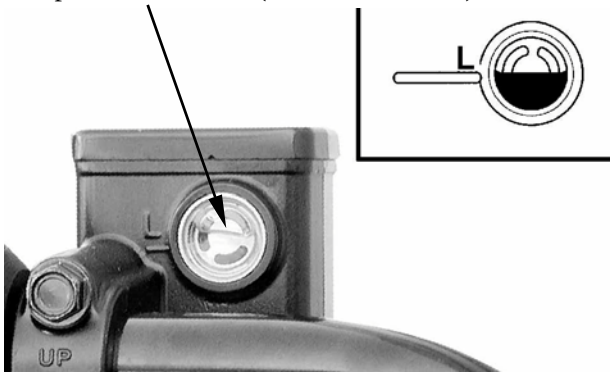

Front Caliper


Rear Caliper

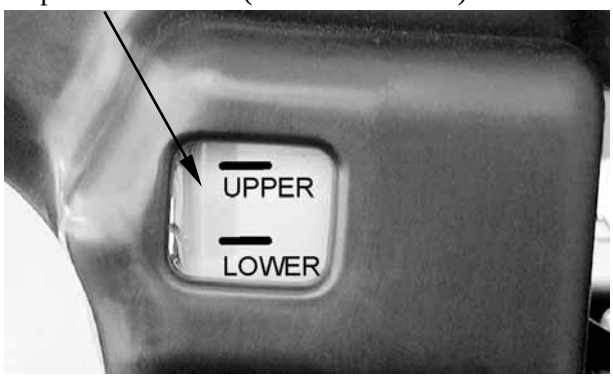
BRAKE FLUID INSPECTION

Check if the fluid level is below the lower level mark through the inspection window.

Inspection Window (R/L Brake Lever)



Inspection Window (Rear Brake Pedal)



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.

Adjust Screw

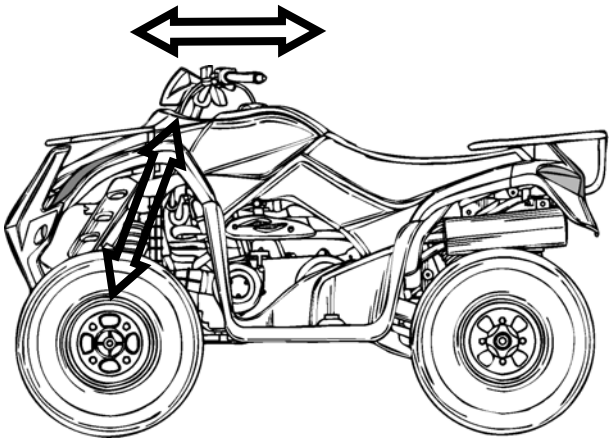
STEERING SYSTEM
INSPECTION

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

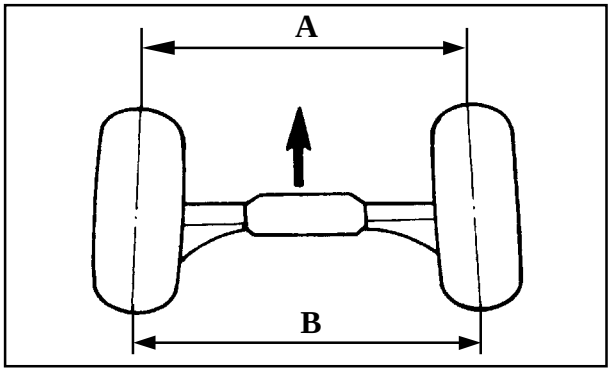
Raise the front end of the machine so that there is no weight on the front wheels.

Check ball joints and/or wheel bearings.

Move the wheels lately back and froth.

Replace the front arms and/or wheel bearings if excessive free play.

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.

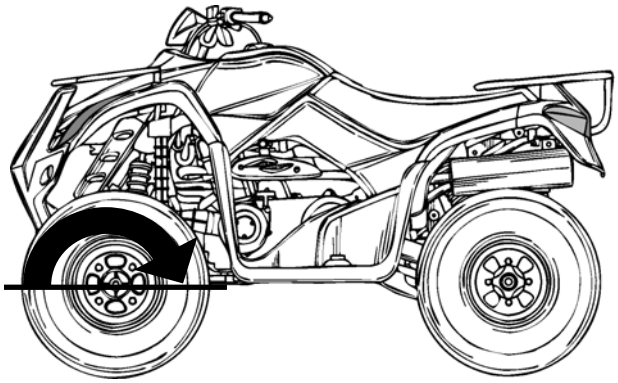
Measure the width B between the marks.

Calculate the toe-in using the formula given below.

Toe-in = B－A

Toe-in: 0～15 mm (0～0.6 in)

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



Adjust the toe-in step:

Mark both tie-rods ends.

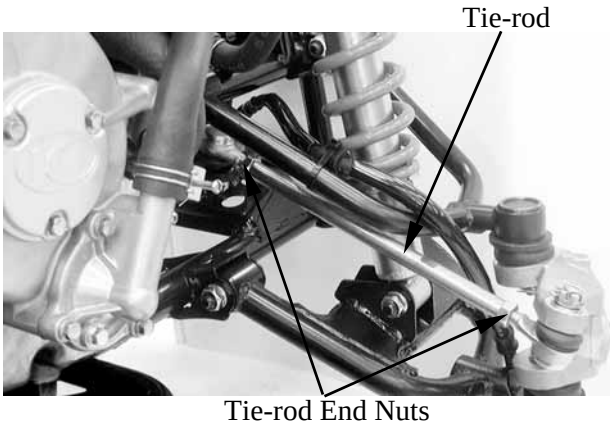
This reference point will be needed during adjustment.

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

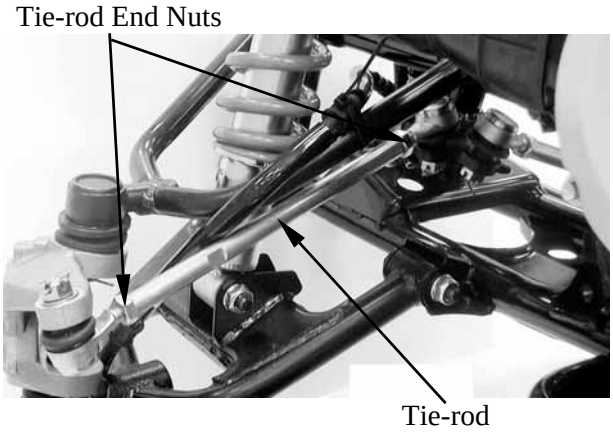
The same number of turns should be given to both tie-rods right and left until the specified toe-in is obtained, so that the lengths of the rods will be kept the same.

Tighten the rod end locknuts of both tie-rods

Torque: 3 kgf-m (30 Nm, 22 lbf-ft)



* • 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.



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	0.28 kgf/cm² (28 Kpa, 3.2 psi)
Rear	0.28 kgf/cm² (28 Kpa, 3.2 psi)

TIRE SIZE
Front : 22*7-10
Rear : 22*10-10

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:

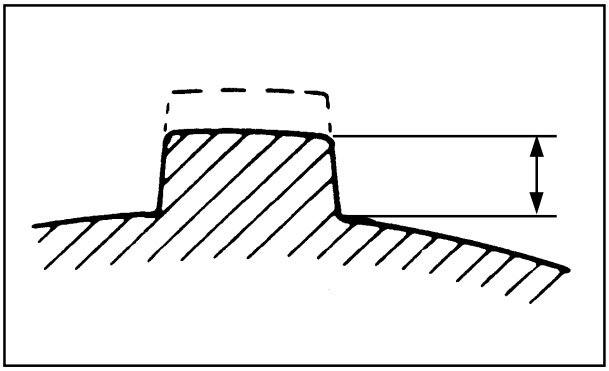
Front : 7 kgf-m (70 Nm, 50 lbf-ft)

Rear : 10 kgf-m (100 Nm, 72 lbf-ft)

Inspect the tire surfaces.

Replace if wear or damage.

Tire wear limit: 3 mm (0.12 in)



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

WHEEL INSPECTION

Inspect the wheel.

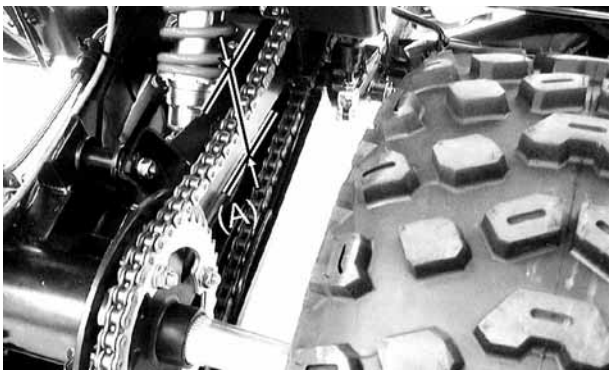
Replace if damage or bends

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.

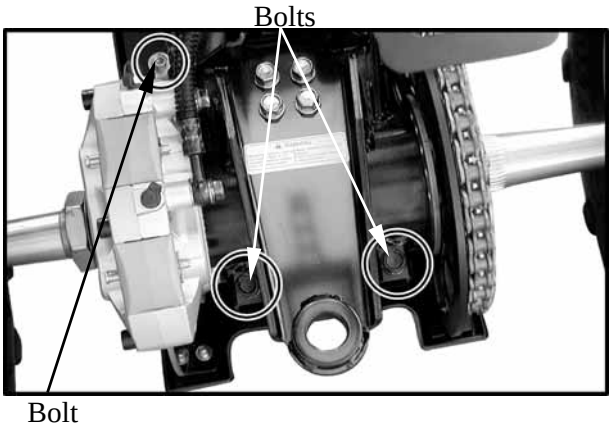
Adjust if out of specification.

Drive chain slack (A):

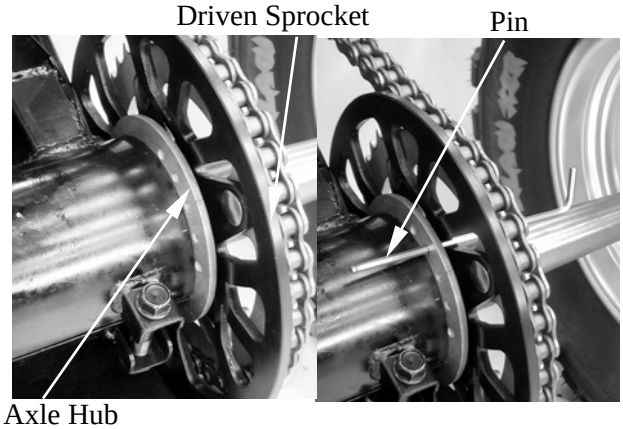
30 ~ 40 mm (1.2 ~ 1.6 in)

Adjust drive chain slack:

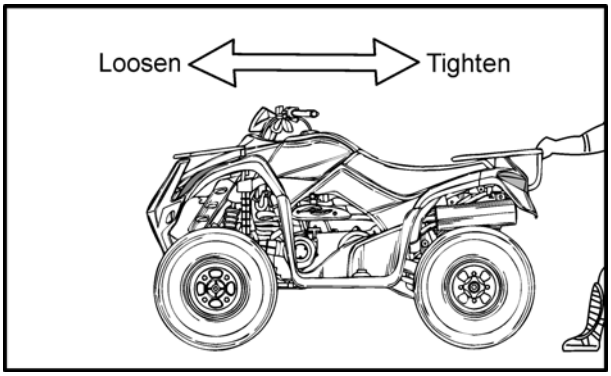
Loosen the caliper holder bolt and two axle hub holding bolt.



Provide a proper pin and pass the pin through the axle hub and driven sprocket.



To tighten the chain, push the ATV forward.
To loosen the chain, pull the ATV backward.



Retighten the two axle hub holder bolt and caliper holder bolt to the specification.

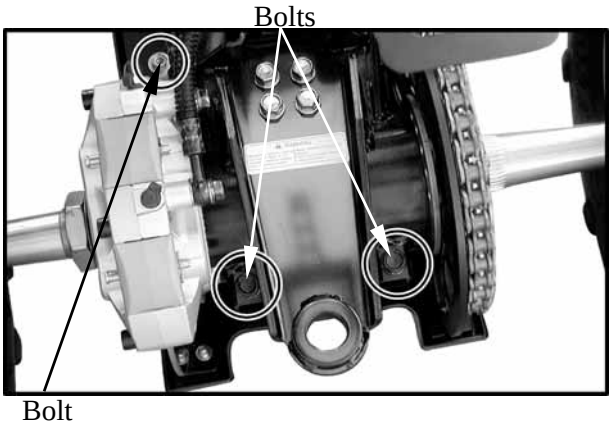
Torque:

Axle hub holding bolt:

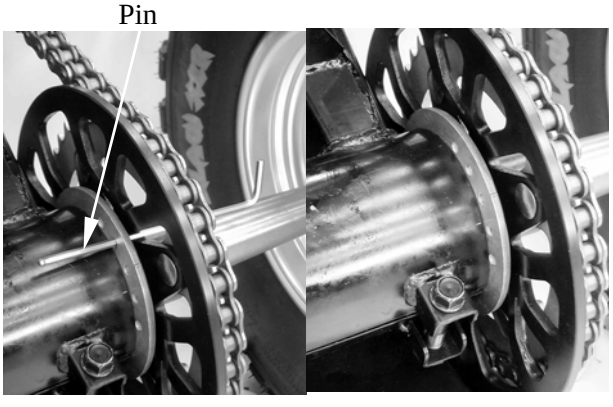
4 kgf-m (40 Nm, 29 lbf-ft)

Caliper holder bolt:

1 kgf-m (10 Nm, 7.2 lbf-ft)



Pull out the pin.



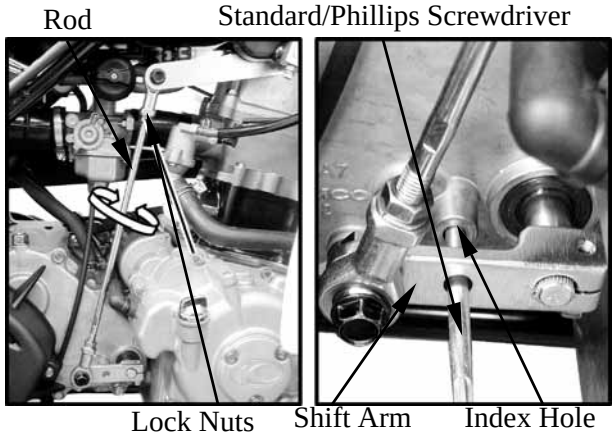
DRIVE SELECT LEVER ADJUSTMENT

Turn the ignition switch is ON and make sure the engine stop switch in the OFF position.

Loosen the lock nuts of rod.

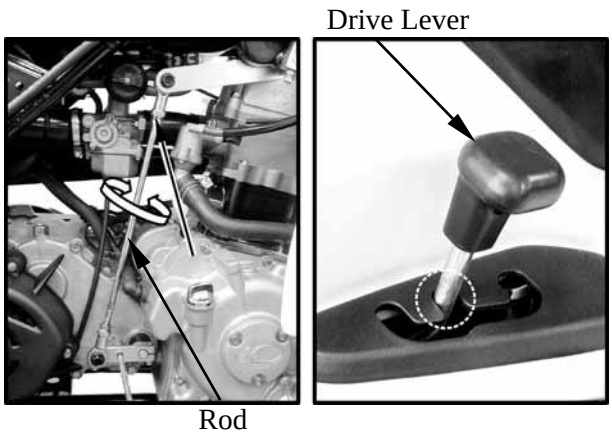
Shift the gear to neutral by moving the shift lever and/or turn the rod. (The neutral indicator lamp comes on.)

Provide standard/phillips screwdriver and pass the standard/phillips screwdriver through the shift arm into the index hole at the transmission case cover.



Turn the rod clockwise or counterclockwise until the drive select lever into the "N" position of the shift guide and tighten the lock nuts, then pull out the standard/phillips screwdriver.

After adjustment, start the engine and test to ride the ATV to be sure the drive select lever is operating properly.



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.

REAR 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

COOLING SYSTEM

COOLANT LEVEL INSPECTION

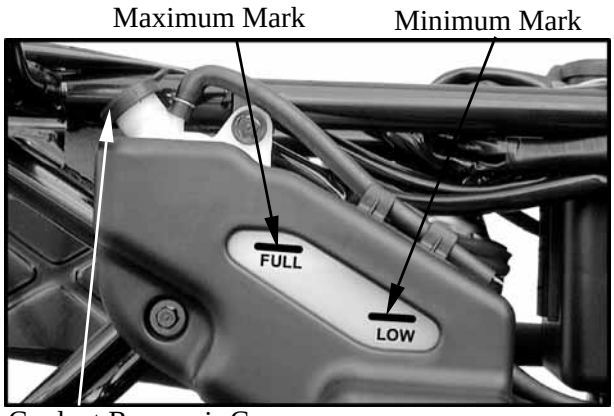
Place the machine on the level ground.

Check the coolant level in the coolant reservoir when the engine is cold as the coolant level will vary with engine temperature. The coolant level should be between the maximum and minimum marks.

If the level is low, remove the coolant reservoir cap, and then add coolant or distilled water to raise it to the specified level.

Recommended Coolant: SIGMA Coolant
(Standard Concentration 30%)

* The coolant level does not change no matter the engine is warm or cold. Fill to the maximum mark.



Coolant Reservoir Cap

COOLANT REPLACEMENT

* Perform this operation when the engine is cold.

Remove the front fender. (⇨2-8)

Remove the radiator cap.

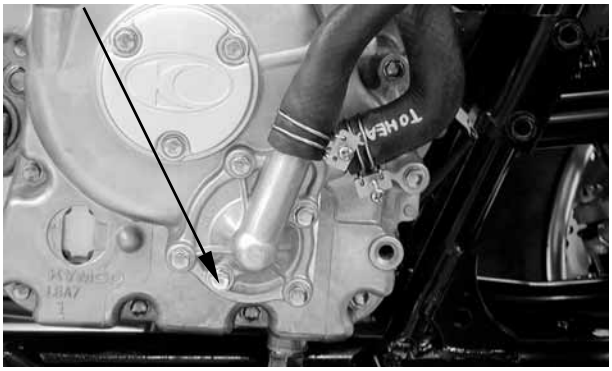
Remove the drain bolt to drain the coolant.

Drain the coolant in the reserve tank.

Reinstall the drain bolt.

* The coolant freezing point should be 5 °C lower than the temperature of the riding area.

Drain Bolt



Coolant capacity:
1400 cc (1232 lmp qt, 1484 Us qt)
Radiator capacity:
1100 cc (968 lmp qt, 1166 Us qt)
Reserve tank capacity:
300 cc (264 lmp qt, 318 Us qt)

Start the engine and check if there are no bubbles in the coolant and the coolant level is stable. Reinstall the radiator cap.

If there are bubbles in the coolant, bleed air from the system.

Fill the reserve tank with the recommended coolant up to the maximum mark.

SPARK ARRESTER CLEANING (OFF ROAD)

Be sure the exhaust pipe and muffler are cool before cleaning the spark arrester.

1. Remove the bolt (1).

2. Remove the tailpipe (2) by pulling it out of the muffler.
3. Tap the tailpipe lightly, then use a wire brush to remove any carbon deposits from the spark arrester portion of the tailpipe.
4. Insert the tailpipe into the muffler and align the screw holes.
5. Install the bolt and tighten it.