3. Scheduled Maintenance

Frame
•Front brake lever free play: 10-20mm
•Rear brake lever free play: 10-20mm

Tire unit: kg/cm^2

	1 Person	2 Persons
Front	1.5, 17 psi	1.75, 19 psi
Rear	2.0, 23 psi	2.2, 28 psi

Tire type
•Front: 3.00 x10
•Rear: 3.00 x10

Torque:
•Front wheel axle nut 4.0-5.0kg/m
•Rear wheel axle nut 8.0-10.0kg/m

3. Scheduled Maintenance

Maintenance Chart
Perform regular maintenance, according to maintenance handbook.

I: Inspect, clean, lubricate, add fix or replace when necessary.
A: Adjust B: Clean C: Replace D: Tighten

Frequency / Item	Whichever comes first	Mileage (Km)											
		km 1000 / mi 620	km 2000 / mi 1240	km 3000 / mi 1860	km 4000 / mi 2480	km 5000 / mi 3100	km 6000 / mi 3720	km 7000 / mi 4340	km 8000 / mi 4960	km 9000 / mi 5580	km 10000 / mi 6200	km 11000 / mi 6820	km 12000 / mi 7440
Engine oil		the first 300km/ 186 mi	R	R	R	R	R	R	R	R	R	R	R
Engine oil filter		300km/ 186 mi			C				C				
Fuel filter screen										R			
Gear oil	Note 3	new R 300km/ 186 mi				R				R			
Valve gap			A		A				A				A
Carburetor					I				I				I
Air filter	Note 2, 3	I				R					R		
Spark plug		Clean every 3000Km Replace when necessary											
Brake system			I	I	I	I	I	I	I	I	I	I	I
Drive belt									I				
Suspension					I				I				I
Screws and nusts									I				
Tire					I								I
Steering stem bearing		I					I						I

•For safety reasons, it is recommended that service be performed by a dealer.

Note:
1. For mileage higher than what is specified in the chart, the maintenance should be repeated at the same interval listed.

2. More frequent maintenance is required if the vehicle is used in dusty areas or in rain.

3. More frequent replacement is required if the vehicle is subjected to sever use, such as heavy load operation, long trips or operation in rain.

3. Scheduled Maintenance

Fuel Filter

1. Remove luggage box (2-2)

2. Check fuel line for ageing or damage.

3. Replace with a new one in case damaged or leaking.

Throttle Lever Operation

1. Check throttle for proper operation.

2. Check throttle grip free play.
   Free play: 2-6mm (.078 in.-.236 in.).

3. Adjust free play using the adjusting nut in the throttle cable and the adjuster at the carburetor.

•Major adjustment should be made at carburetor.

•Adjust it by loosening the jam nut and rotating adjusting nut.

•Fine adjustment should be made at the throttle grip.

•Remove outer cover, loosen jam nut and rotate adjusting nut to adjust it.

3. Scheduled Maintenance

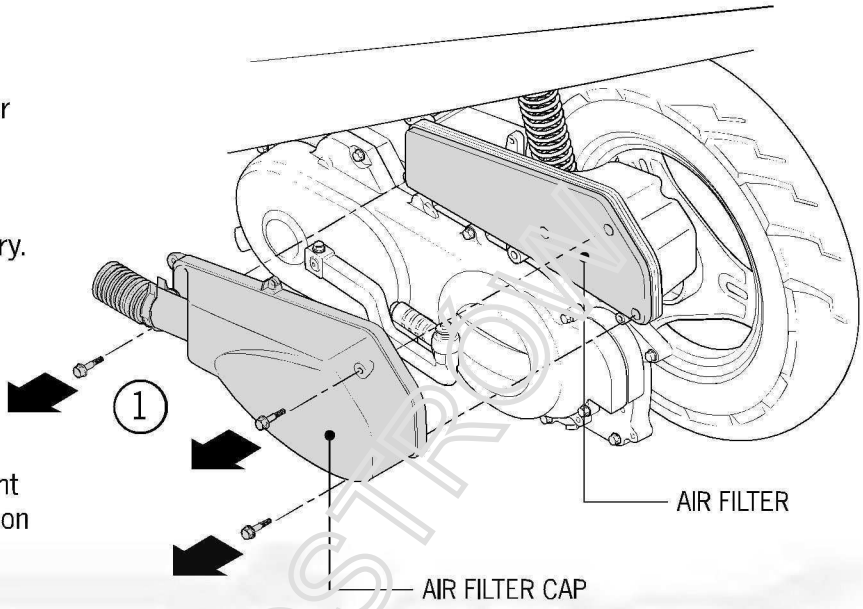
Air Filter

Filter Replacement

1. Remove air filter cap, fix screw and remove the air filter cap.

2. Check filter for dirt or damage. Replace as necessary.

Do not attempt to clean the filter element.



Replacing Frequency

1. More frequent replacement is required if vehicle is driven on dusty roads or in the rain.

2. Make sure the air filter cover is securely in place.

Spark Plug

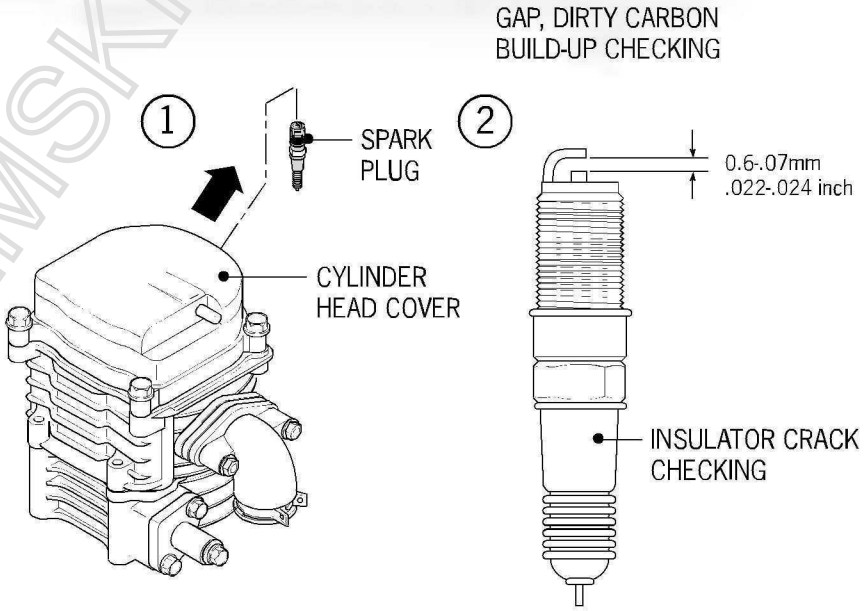
1. Remove spark plug.

2. Check spark plug for burning, dirt or deposit.

3. Clean it with a spark-plug cleaner or steel brush in case of dirt or carbon deposits.

Specified spark plug:
NGK: C7HSA Champion
Check spark plug gap
Gap: 0.6-.07mm (.022-.024 in.)

4. Check plug for dirt, carbon build-up or cracking of insulator.



3. Scheduled Maintenance

Valve Adjustment

Always check and adjust with engine temperature lower than 35˚C (95˚F)

1. Remove cylinder head cover.

2. Rotate cooling fan to camshaft. Locate mark at center top, aligning magneto fly wheel mark with that on crankcase. Magneto "T" mark and box crankshaft mark.

   Valve gap checking and adjustment valve gap:
   IN: 0.05mm (.00197 in.)
   EX: 0.05mm (.00197 in.)

3. To adjust the valve gap, loosen am nut and rotate adjusting nut.

Valve Adjustment Wrench

Be sure to check valve gap again, after locking jam nut.

Carburetor Idle Speed

Idle adjustment should be made with the engine warmed up.

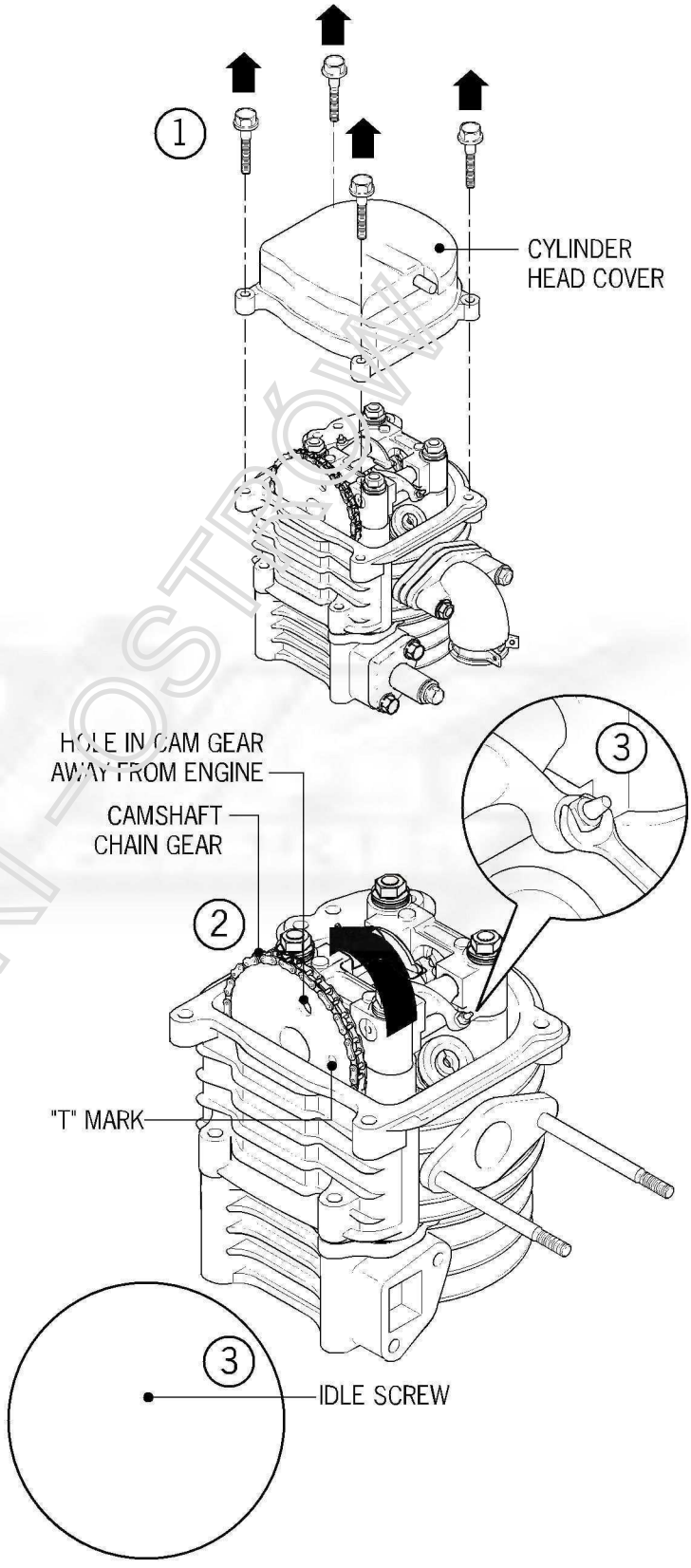
1. Remove cover.

2. After the engine warms up, connect it to an engine revolution counter.

3. Adjust idle screw until specified revolution is obtained.

   Minimum idling speed: 1900+190rpm

4. Readjust the screw if the idle speed is not steady or fuel cannot be properly applied.



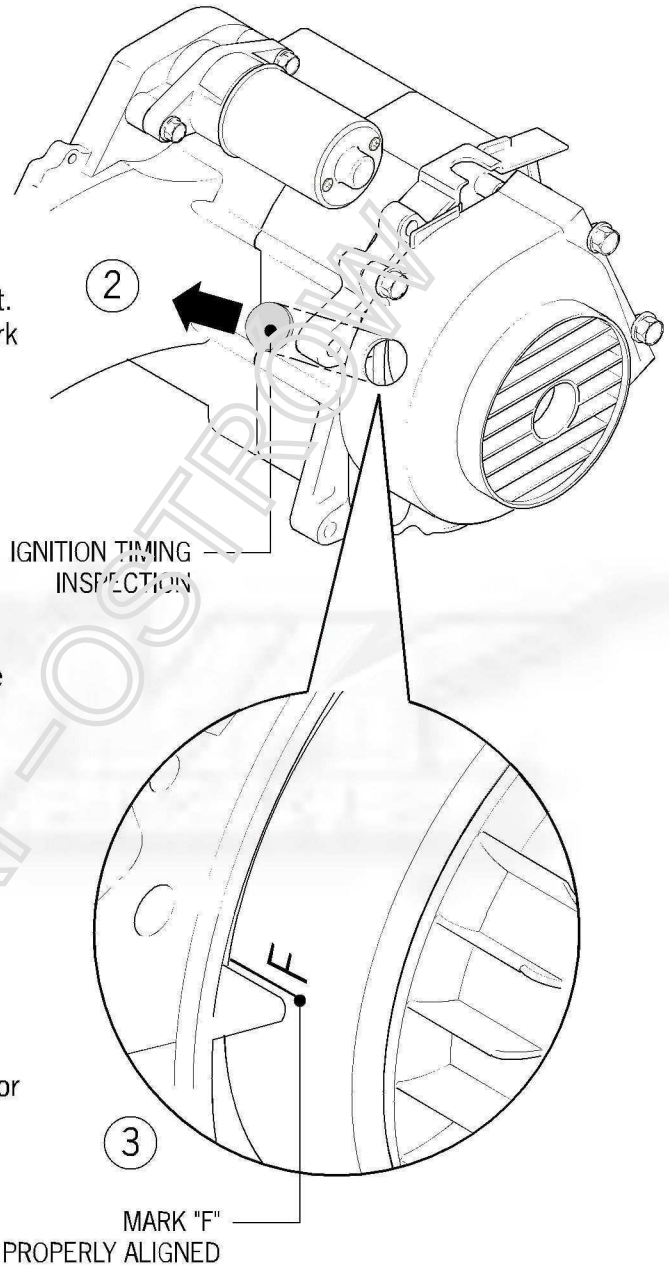
3. Scheduled Maintenance

Ignition Time

- Equipped with CDI, there is no need for ignition setting.
- Check ignition system if ignition time is incorrect.

1. Dismount right body cover.
2. Remove ignition timing inspection.
3. Check ignition timing using the timing light. Crankcase mark must be aligned with mark "F" on flywheel while engine is at idle speed. The timing should advance as the RPM is increased.

   The timing mark should align with the crankcase mark at 3000 RPM.



Cylinder Pressure

1. Measure cylinder pressure with the engine warmed up.
2. Dismount middle luggage box and middle cover (2-2).

Remove spark plug.

1. Install cylinder pressure gauge.
2. With throttle valve fully open, start starter motor to measure cylinder pressure. (213psi)
3. Compression pressure: 15kg/cm2 -600rpm.
4. If the pressure is excessively low, check for the following:

   - •Valve leakage
   - •Valve gap too tight
   - •Cylinder head gasket damaged
   - •Piston ring worn
   - •Piston or cylinder worn

5. Check combustion chamber and piston top for excessive deposit if compression pressure is too high.

3. Scheduled Maintenance

Final check of gear engine oil reduction

◎ Checking oil volume, build up main foot rest so that build up body becomes vertical on plain ground.

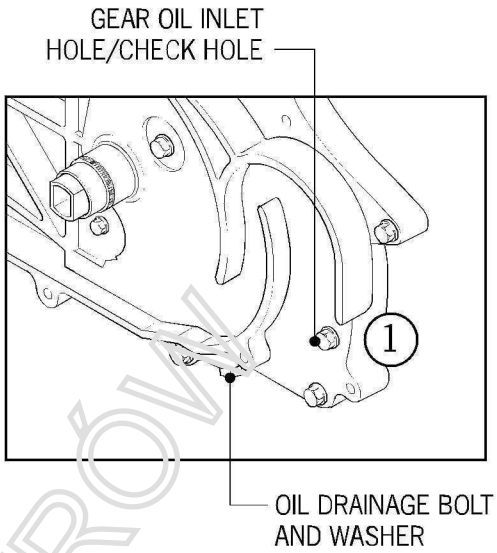
1. Dismount gear oil adjusting bolt after stopping engine.

2. The oil level should be just under the regulation screw bolt hole. Add gear oil when oil level is too low.

   •Gear oil recommended: SAE 90W

3. Build up gear oil regulator screw bolt.

4. Confirm whether or not the packing washer is broken.



Changing Gear Oil

1. Remove gear oil adjusting bolt and drain oil.

2. Confirm whether or not packing washer is broken.

3. Add recommended gear oil.

   •Gear oil capacity: 0.12l-40ES
   •Bolt torque: 0.9kg-m 780 lbs.

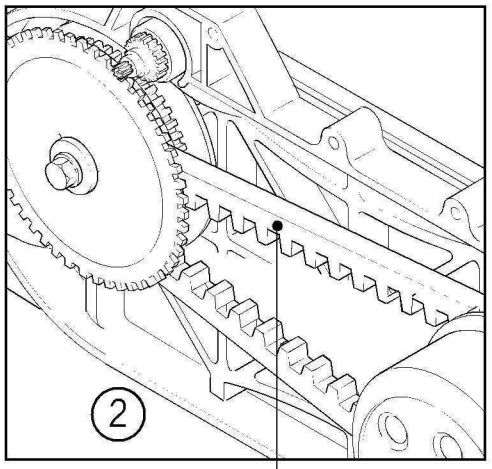
4. Check if there is any leakage after work is performed.

Transmission Belt

1. Detach the left crankcase cover (9-2).

2. Check whether there is wear and tear of transmission belt.

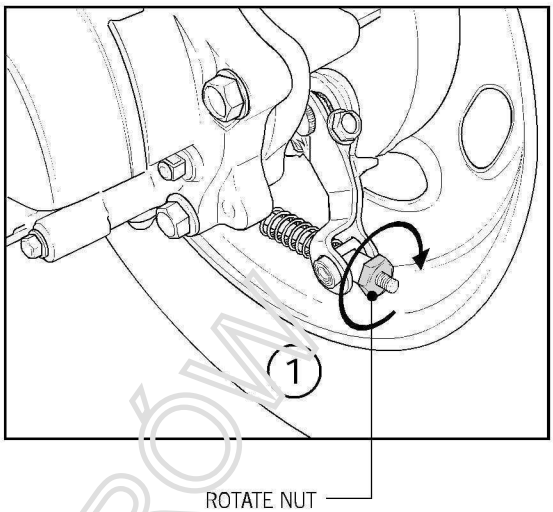
3. Change with new one when necessary or during timely maintenance.



3. Scheduled Maintenance

Rear Brake Arm

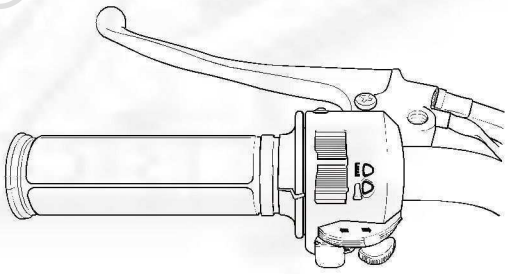
1. Change new pedal when brake bar is pulled to stopping position and the sparrow of brake arm is in alignment with the brake plate mark.



Brake System-Front Brake

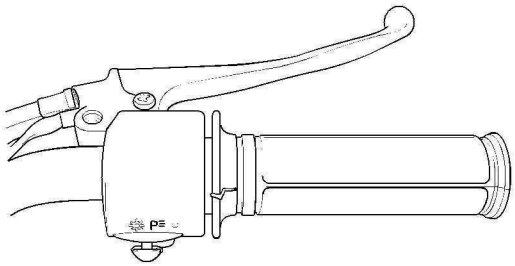
1. Check free gap of front brake bar.
   •Free gap: 10-20mm (0.5 in.).

2. Rotate adjusting nut to regulate free gap of brake bar.



Rear Brake

•Check free gap of rear brake bar.
•Free gap: 10-20mm (0.5 in.).



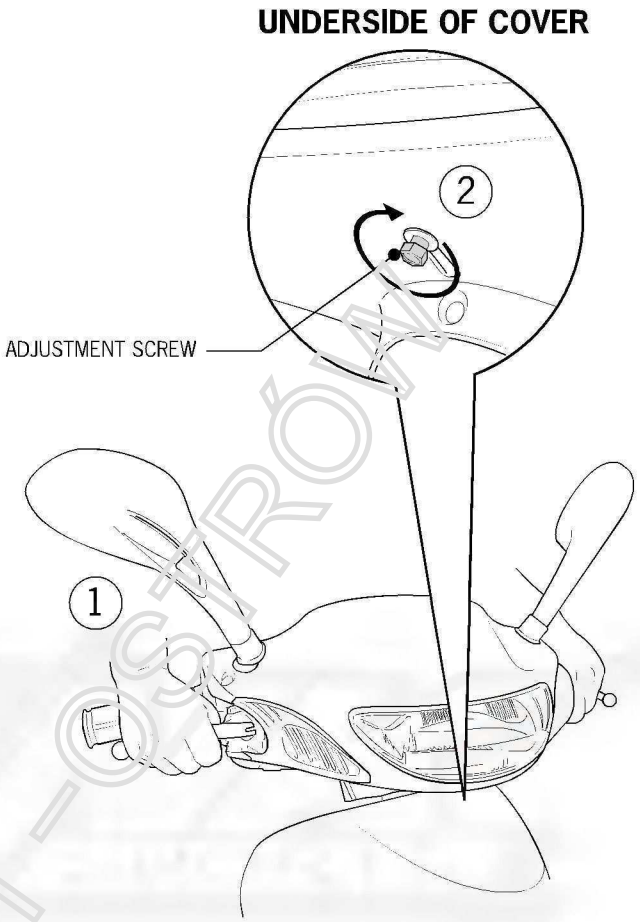
3. Scheduled Maintenance

Front Lamp Adjustment

1. Rotate nut to adjust free gap when it exceeds proper adjustment.

2. Turn main switch to “on” and start engine.

3. Rotate adjusting screw of front lamp to aim the light.



Clutch Engagement

1. Start engine and increase RPM slowly to check performance of clutch.

- Clutch should engage at 2200 RPM.
- Service and replace clutch as necessary should slippage occur.

Front Suspension

1. Pull front brake bar tightly and compress front for up and down to check its performance.

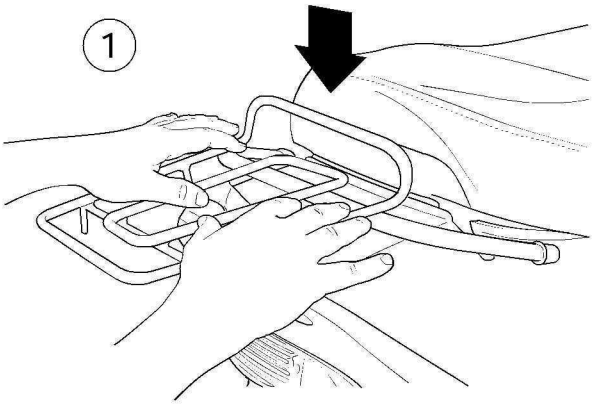
2. Check for leakage of front fork and/or soft springs.

Rear Suspension

1. Compress rear shocks up and down to check performance.

2. Check for leakage of rear shock or soft springs.

3. Suspend rear wheel and push it left and right to check engine suspension sleeve for wear.



3. Scheduled Maintenance

Nut and Bolt Tightness

1. Check all nuts and bolts for proper tightness.

2. Adjust torque as necessary.

Collar Rim Tire

1. Check tire pressure.

Measure tire pressure when tire is cold.

Air Pressure

Front Tire	1.75kg/cm	17psi
Rear Tire	2.00kg/cm	23psi

Tire Standards

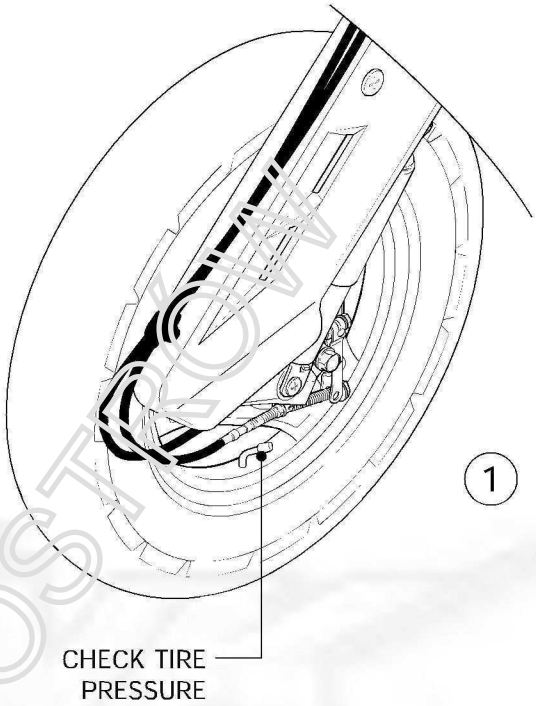
•Front tire: 3.00 x 10
•Rear tire: 3.00 x 10

1. Check if front wheel axle has slack.

2. Check if rear wheel axle nut has slack.

3. Tighten when necessary to stipulated torque if there is slack.

Torque:
•Front wheel axle nut 4.0-5.0 kg-m 28-32 ft lbs
•Rear wheel axle nut 8.0-10.0 kg-m 55-65 ft lbs



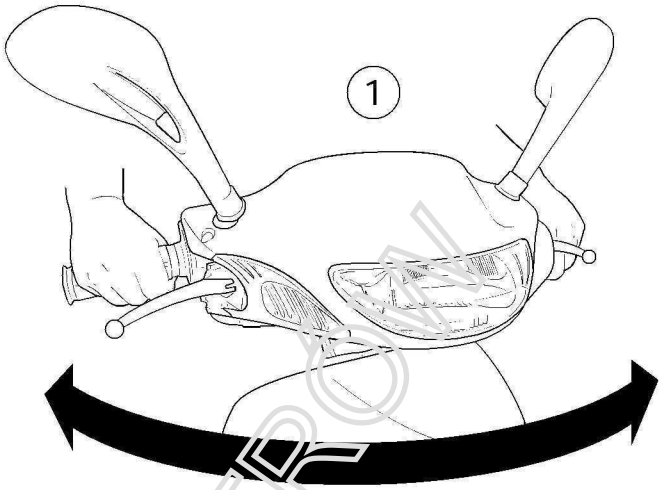
3. Scheduled Maintenance

Steering

1. Swing handlebars left and right to check if there is interference from the wires.

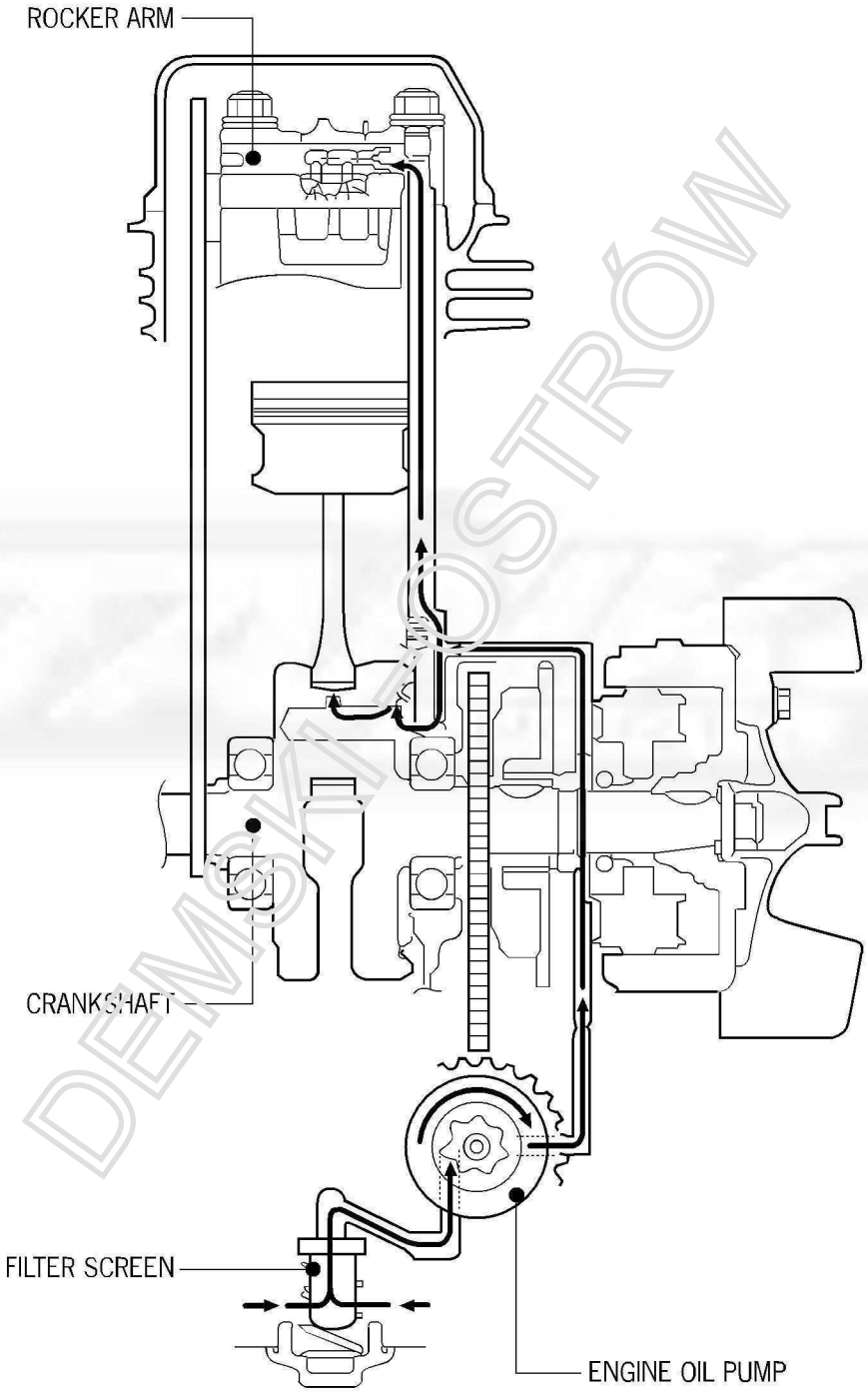
2. Grasp handlebars and rotate from left to right while holding the front wheel straight. There should be slippage.

3. Check steering bearing adjustment. Fork should turn freely with play in bearing.



4. Lubricating System

Lubricating System



4. Lubricating System

Overall Engine Requirements

Special Attention

Use proper motor oil SAE 10W 30.
Use only clean, fresh oil.
Do not rebuild oil pump. Replace with a new pump when needed.
Check for leakage after replacing pump.

Basic Material

Item		Nunmul value	Replace at
Engine oil pump	Gap between inner rotator and external rotor	–	0.12mm .005in
	Gap between external rotor and pump body	–	0.12mm .005in
	Gap between and surface of rotor and pump body	0.05-0.10mm .001-.004in	0.2mm .008in

Problem Diagnosis

Loss of engine oil

- Engine oil natural consumption.
- Engine oil leakage.
- Piston ring wear, bad assembly.
- Valve guide oil seal is worn.

No oil pressure

- Pump worn.
- Use of wrong oil.
- Oil level low.

Engine burning excessive oil

- Blocked oil passage.
- Use of wrong oil.
- Worn rings.
- Valves worn or damaged.

4. Lubricating System

Engine Oil/Filter Screen

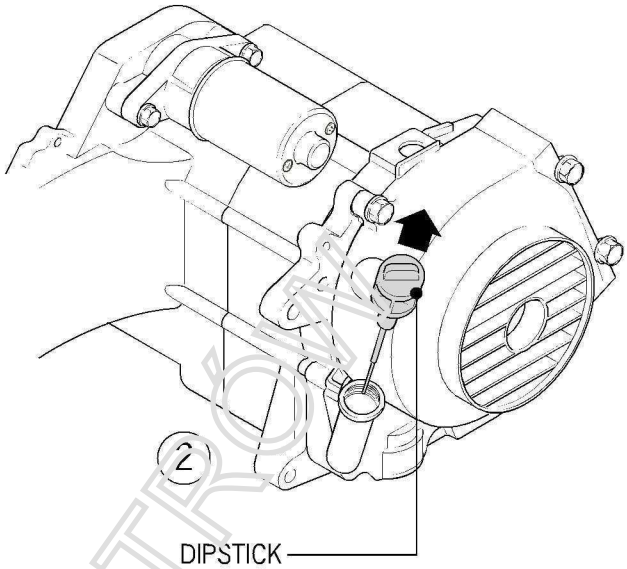
Oil Volume

1. Check oil with scooter parked on level ground on center stand.

◎ Scooter must be on center stand when oil volume is checked.

◎ Run engine for two or three minutes and then turn it off. After two to three minutes, check the oil level.

2. Check the oil level when the oil dipstick is unscrewed and out.
3. Add oil to upper limit level on the dipstick.



Oil Changed

◎ It is easier to drain oil when motor is warm.

1. Remove drain bolt to completely drain oil.
2. Disassemble the oil filter screen cover and take off the oil filter screen. Use high-pressure air to clean the filter screen. Wash with solvent and dry before reinstalling.

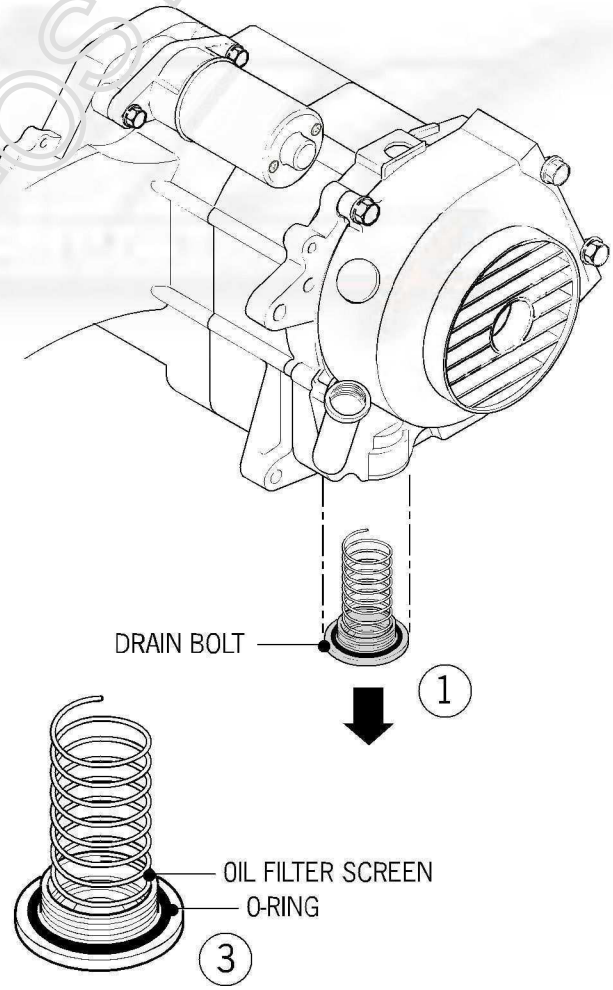
3. Check o-ring for damage. Replace if necessary.
4. Assemble engine oil filter screen and filter screen cover.

   •Torsion value: 1.4kg-m
   1300 ft lbs

5. Add assigned oil to determined volume.

   •Engine oil capacity: 0.8L
   •320ES

6. Check for oil leaks.
7. Run engine for 1-2 minutes at idle speed.
8. Turn engine off and check oil level. Add oil if needed.



4. Lubricating System

Oil Pump Removal

1. Remove engine right outer cover fan magnetor.

2. Remove alternator rotor.

3. Remove stator pules coil.

4. Remove eight bolts of right crankshaft case cover and take off crankshaft case cover.

5. Remove washer and fixed pin.

6. Remove the fixed nut of the gear in the oil pump.

7. Take off the gear of the oil pump.

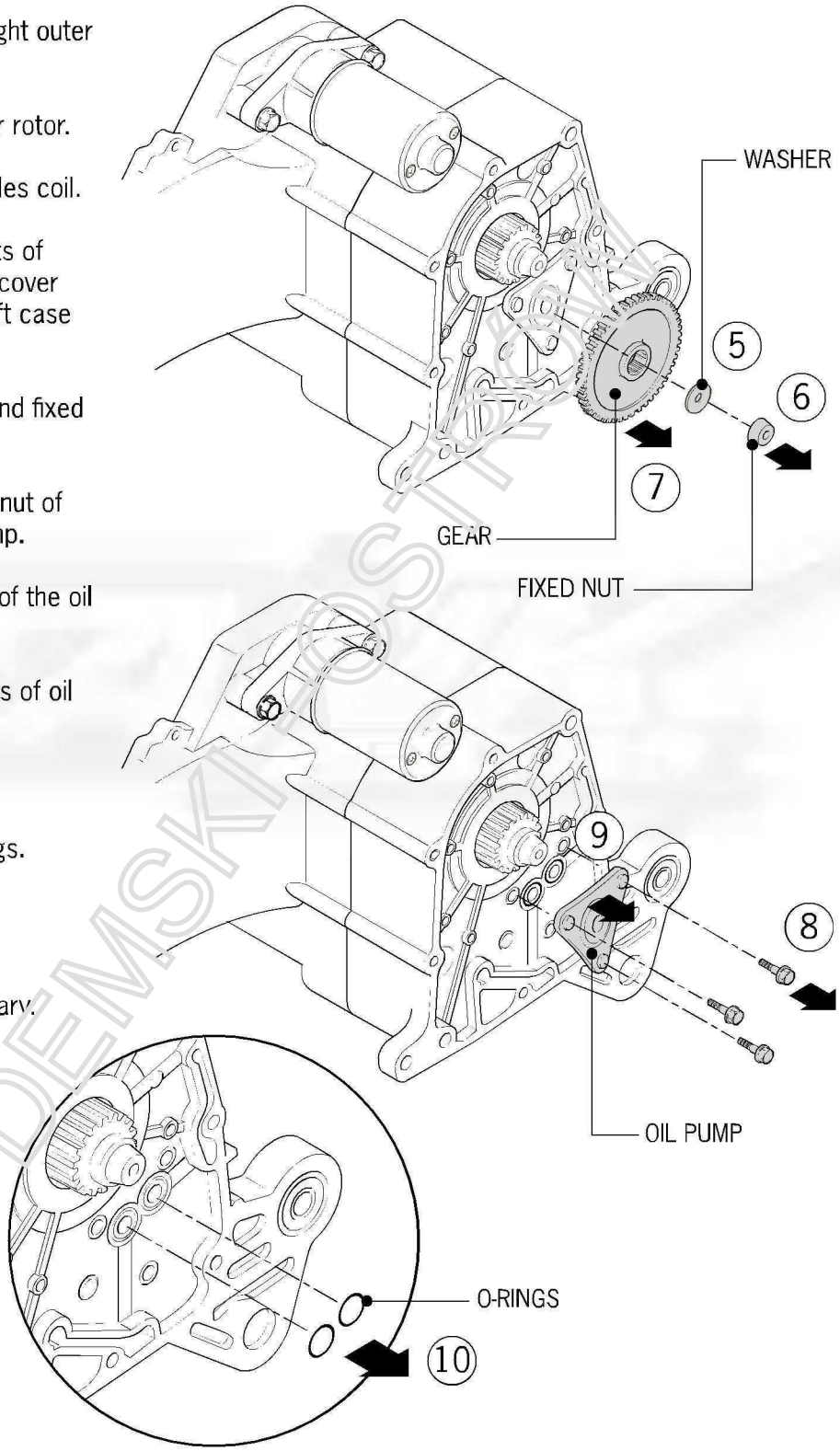
8. Remove fixed bolts of oil pump module body.

9. Take off oil pump.

10. Take off two o-rings.

11. Check o-rings for damage.

12. Replace if necessary.

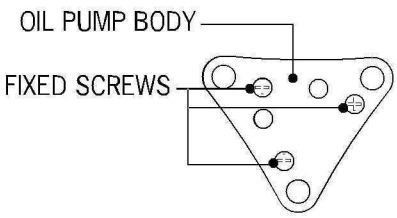


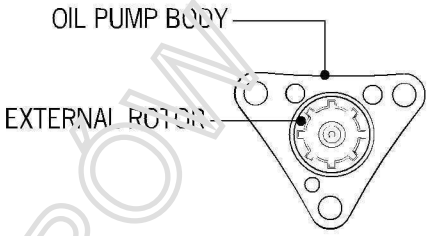
4. Lubricating System

Oil Pump Disassembly

1. Remove three fixed screws in oil pump body.

2. Disassemble oil pump.





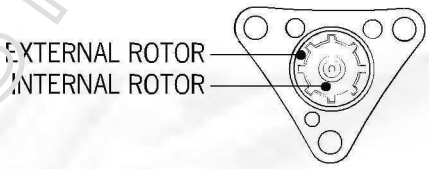
Checking

1. Check the gap between the oil pump module body and the external rotator.

   •Used limit: 0.12mm (.005 in.).

2. Check the gap between the surface of the rotator and the body.

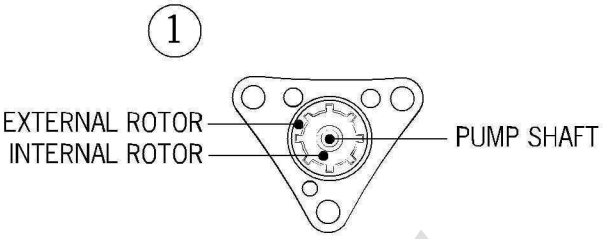
   •Used limit: 0.2mm (.008 in.).



4. Lubricating System

Assembling

1. Assemble inner and outer rotators and oil pump shaft.



◎ Be careful of alignment between pump bearing unfilled corner and inner rotator unfilled corner.

2. Assemble pump cover and tighten screws.

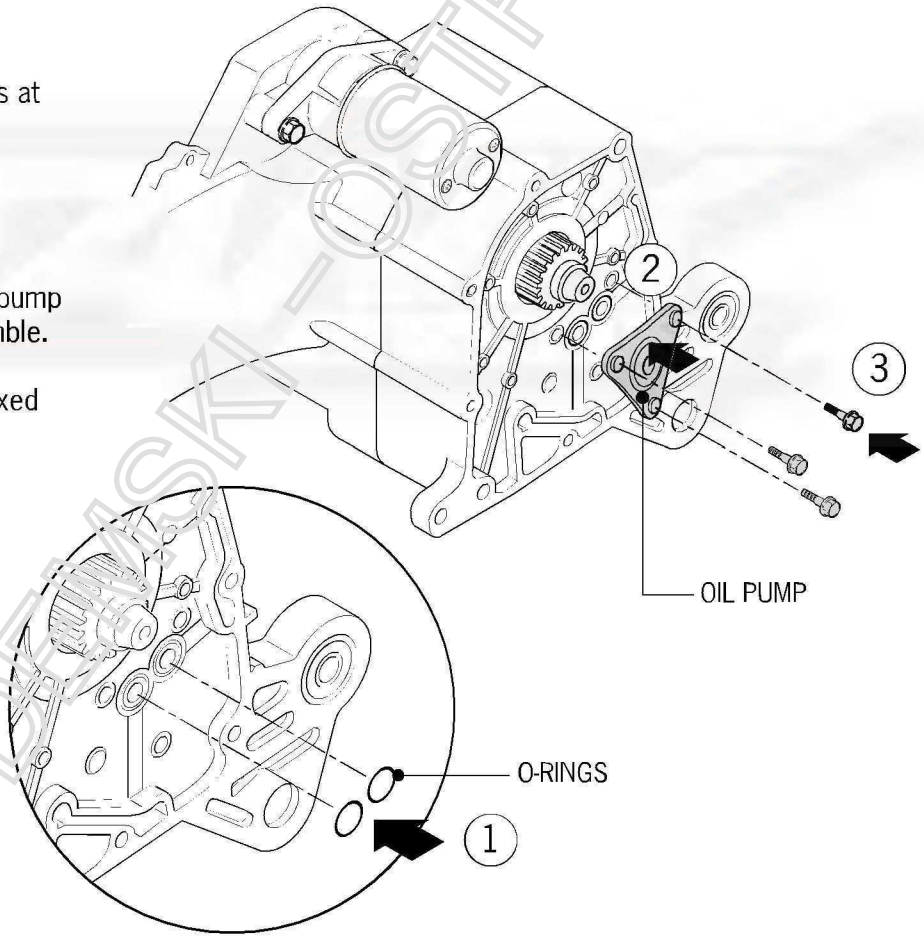
Installation

1. First put two o-rings at the oil pump seat.

2. Put oil pump in the crankshaft case.

◎ First add oil to pump and then assemble.

3. Tighten the three fixed screws.



4. Lubricating System

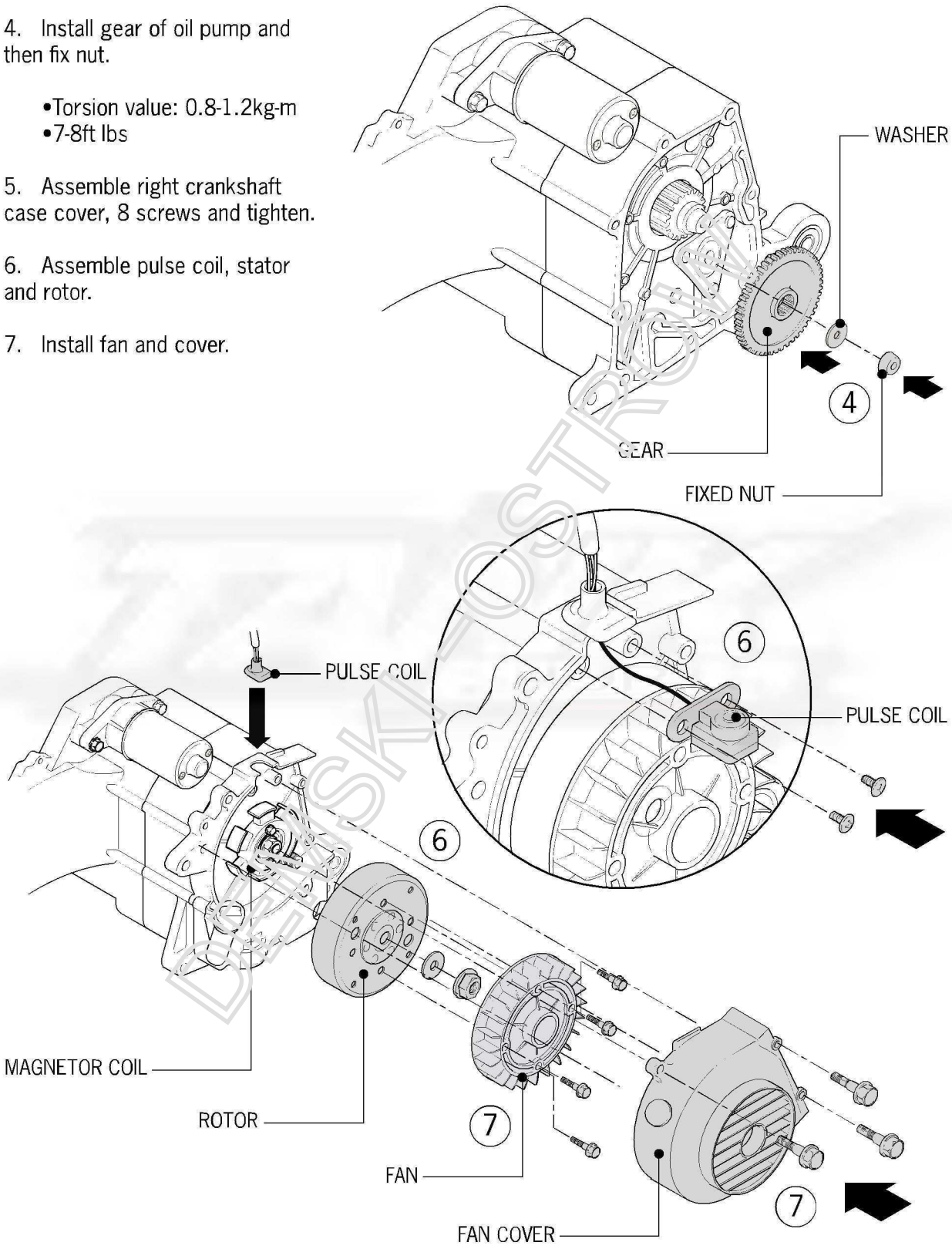
4. Install gear of oil pump and then fix nut.

- Torsion value: 0.8-1.2kg-m
- 7-8ft lbs

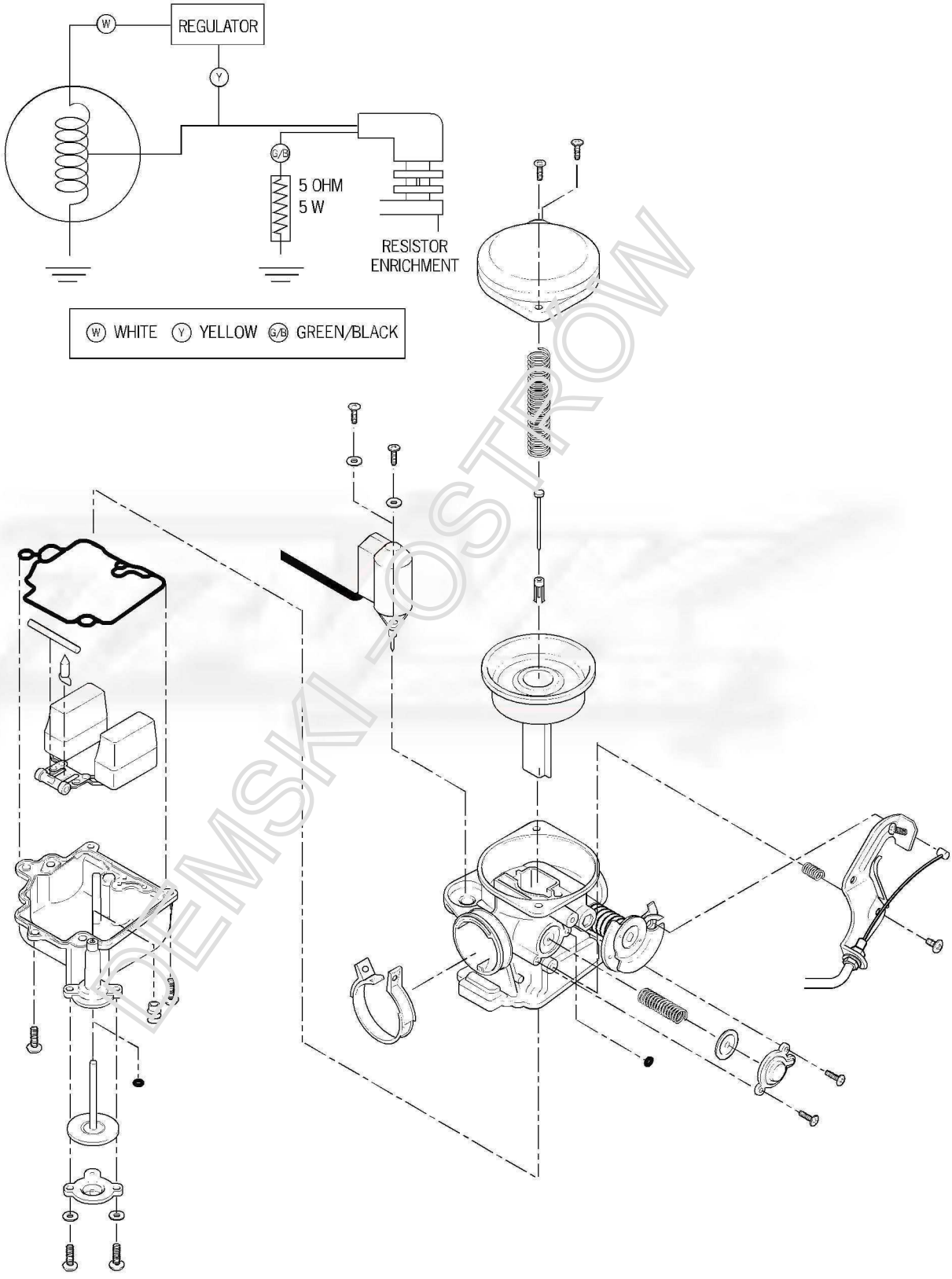
5. Assemble right crankshaft case cover, 8 screws and tighten.

6. Assemble pulse coil, stator and rotor.

7. Install fan and cover.



5. Fuel System



5. Fuel System

General Information

Warning!
Work on the fuel system in a well-ventilated area that is free of sparks or open flames. Do not breathe the vapors from the gasoline. Wear protective gloves to prevent skin irritation.

•Open the bowl drain and allow all gasoline in the carburetor to drain into an appropriate container prior to removing or servicing it.

•Remove control cables and wires carefully to prevent damage.

•Check all o-rings for damage. Replace as necessary.

•Remove carburetor from the scooter before attempting to service the fuel bowl or vacuum canister.

•When cleaning the carburetor, remove the vacuum diaphragm before using air or solvents for cleaning. This will prevent damage to the diaphragm.

•When storing the scooter for a period of time exceeding one month, use a quality fuel stabilizer to prevent deterioration of the fuel and damage to the carburetor.

Repairing material

Specification	Standard valve
Carburetor type	Constant velocity-CVK
Venturi Bore	17mm (.67 in.)
Fuel Level	mm
Main jet	
Idle jet	.27 mm (.12 in.)
Idle speed	1600 RPM
Throttle free play	5mm (.125 in.)
Mixture screw setting	3 turns out

5. Fuel System

Troubleshooting

Engine is hard to start
- •No spark
- •Low compression
- •No fuel in carburetor
  - -Blocked fuel line
  - -Blocked fuel filter
  - -Blocked vacuum line
  - -Leaky vacuum line
  - -Dirty float needle
  - -Float set too high

Too much fuel to engine
- -Blocked air filter
- -Manifold air leak
- -Bad auto choke
- -Blocked air passage in carburetor

Air/fuel mixture too rich or too lean
- •Bad auto choke
- •Plugged idle jet
- •Float needle stuck or dirty
- •Float height too high or too low
- •Blocked air passage in carburetor
- •Dirty air filter
- •Air leak at carburetor or manifold

Misfire under acceleration
- •Poor spark
- •Air mixture screw too lean
- •Bad accelerator pump

Poor drivability
- •Weak spark/bad ignition system
- •Blocked fuel line
- •Blocked fuel filter
- •Bad fuel
- •Water in fuel
- •Air leak at carburetor or manifold
- •Improper float level
- •Bad auto choke
- •Obstructed jet in carburetor
- •Vacuum slide stuck
- •Damaged vacuum diaphragm
- •Dirt in carburetor

5. Fuel System

Disassembly of carburetor

1. Remove seat and helmet storage tub.

2. Remove right side body panel.

3. Disconnect cable connector for auto choke.

4. Loosen carburetor drain screw and drain fuel from float bowl.

5. Loosen clumps in intake tube and main fold.

6. Loosen throttle cable and remove from support and from throttle control plate.

7. Remove fuel line from carburetor.

8. Remove air inlet tube from carburetor and pull carburetor straight back out of intake manifold.

9. Remove auto choke from carburetor.

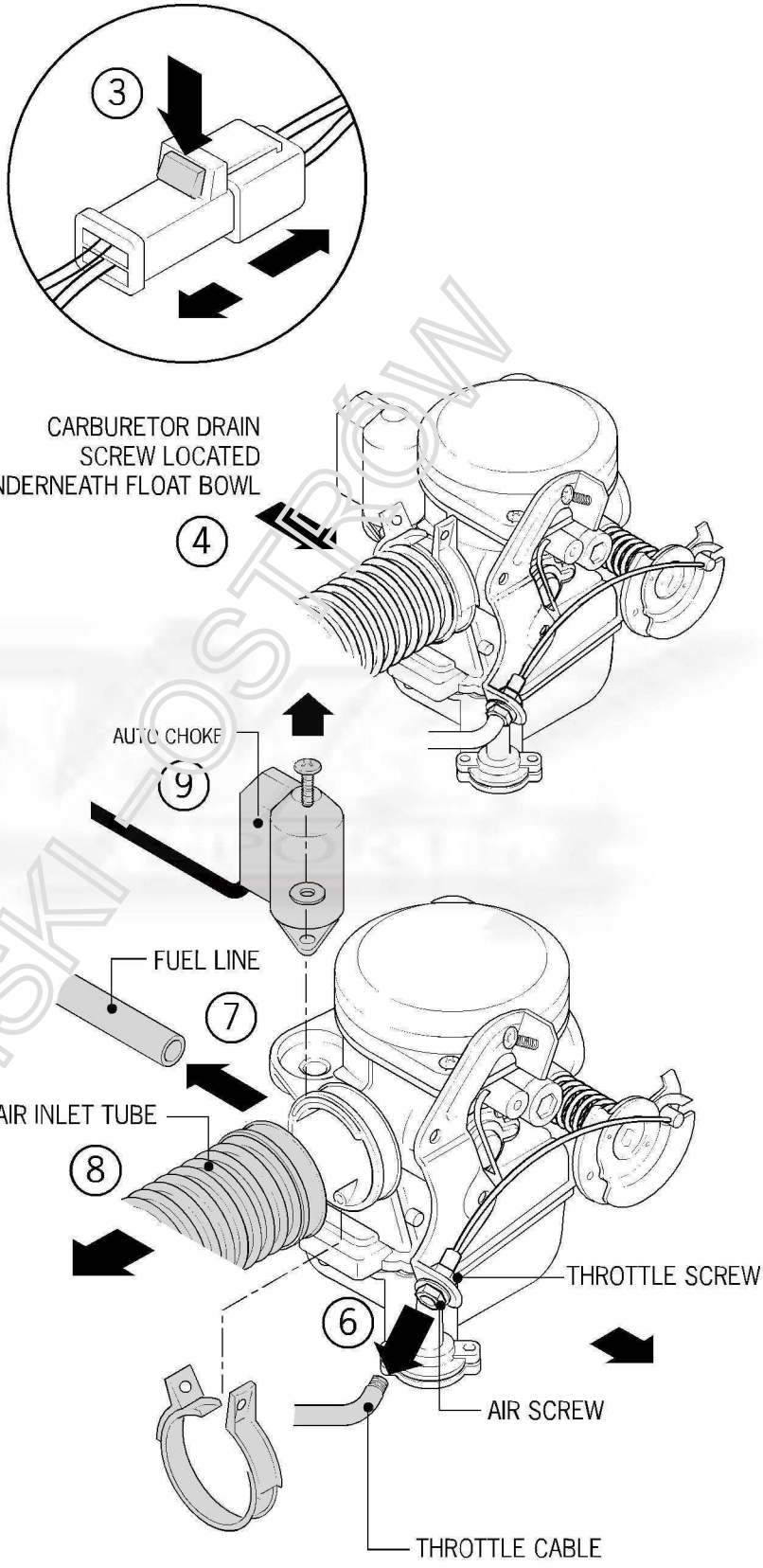
Checking Auto Choke

1. Check resistance volume.

2. Standard value below 5 when cold.

3. Connect auto choke to 12V battery.

4. Plunger should extend 3/8 inch in 5 minutes.



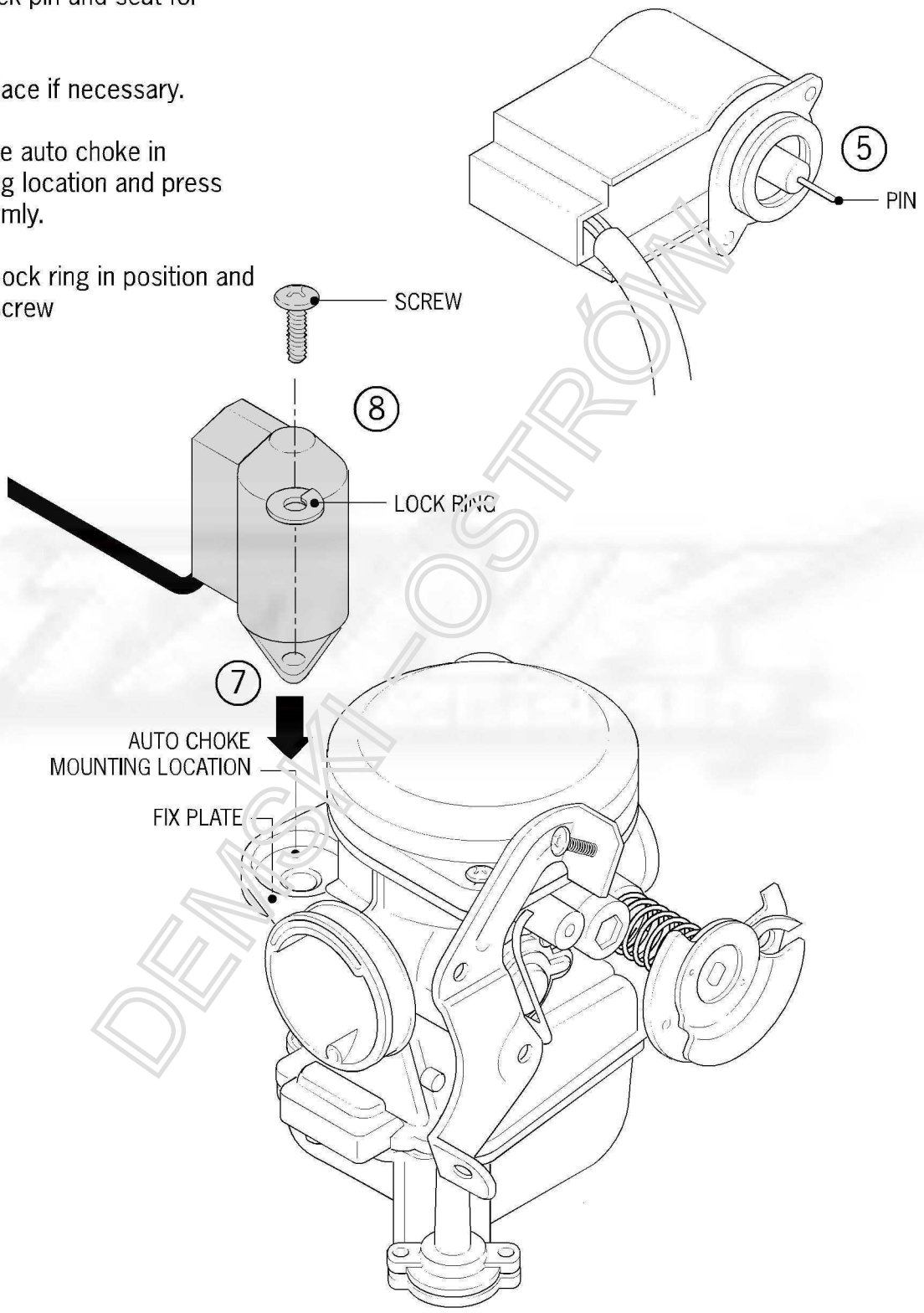
5. Fuel System

5. Check pin and seat for wear.

6. Replace if necessary.

7. Place auto choke in mounting location and press down firmly.

8. Put lock ring in position and fasten screw



5. Fuel System

Air Cut Off Valve

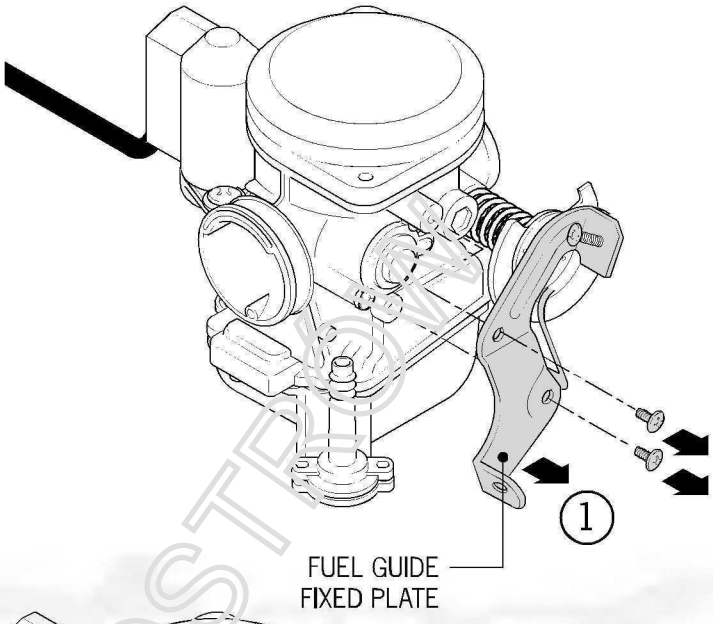
1. Disassemble two screws in fuel guide fixed plate and remove fixed plate.

2. Disassemble two screws in air cut off valve.

3. Take off spring and vacuum plate.

4. Check for wear on plate, replace if necessary.

5. Clean the passage way to remove dirt or varnish.



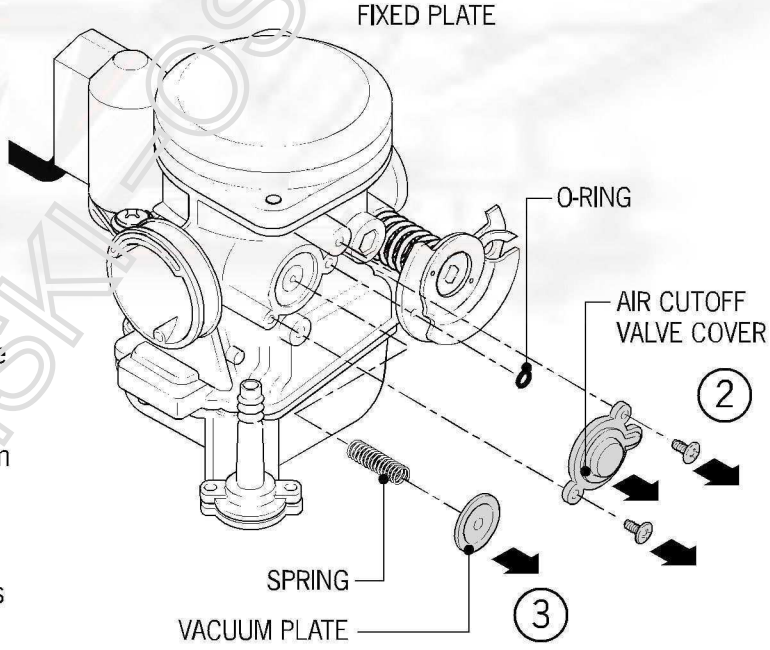
Assembling

1. Install plate to carburetor.

2. Install spring and cover of air cut-off valve.

3. Build up fuel guide line fixed plate and tighten two screws.

- Be sure that furrow of vacuum plate is aligned with the carburetor glove.
- Make sure that cover tightens into place.



5. Fuel System

Vacuum Chamber-Break down

1. Remove two screws and take off cover.

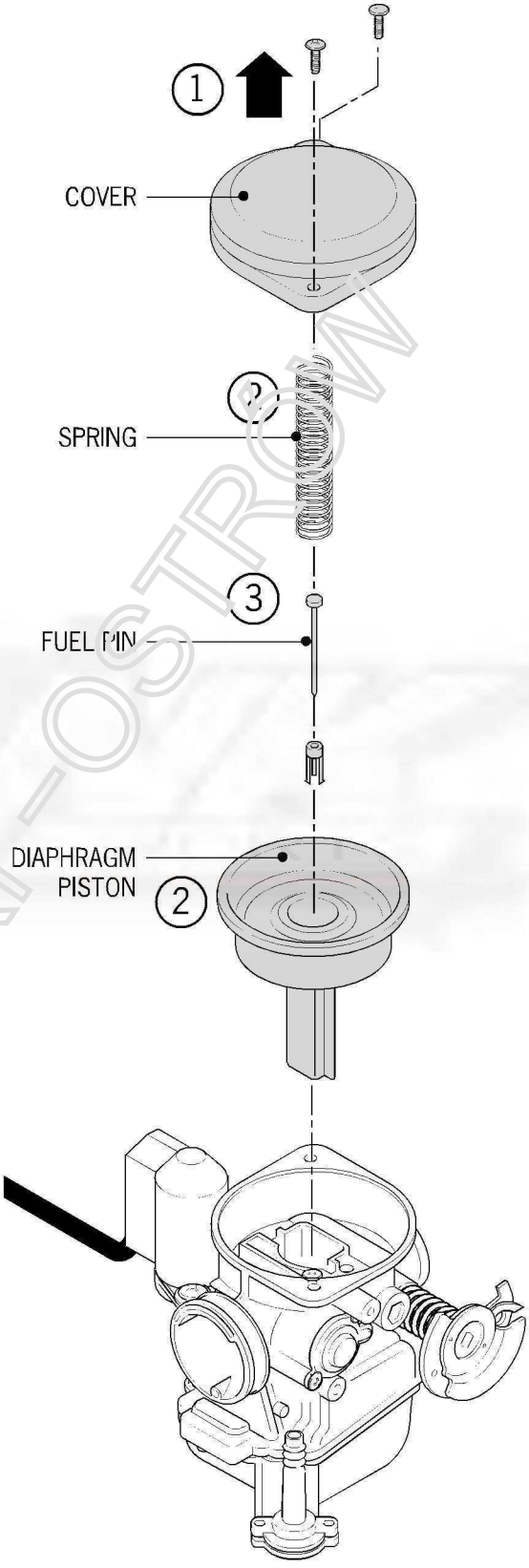
2. Remove spring, diaphragm piston.

3. Remove fuel pin and slide.

◉ Take special care not to damage diaphragm. Replace if damaged.

Checking

1. Check pin for wear and replace if necessary.



Assembling

1. Install piston or plate to body of carburetor.

2. Push the button of the piston to vacuum chamber side and keep open completely. Install spring and cover.

3. Install screw.

◉ Be sure to hold slide and piston in up position when installing cover and tighten screw.

5. Fuel System

Float Bowl

Disassembling

1. Disassemble three screws and take off float bowl.

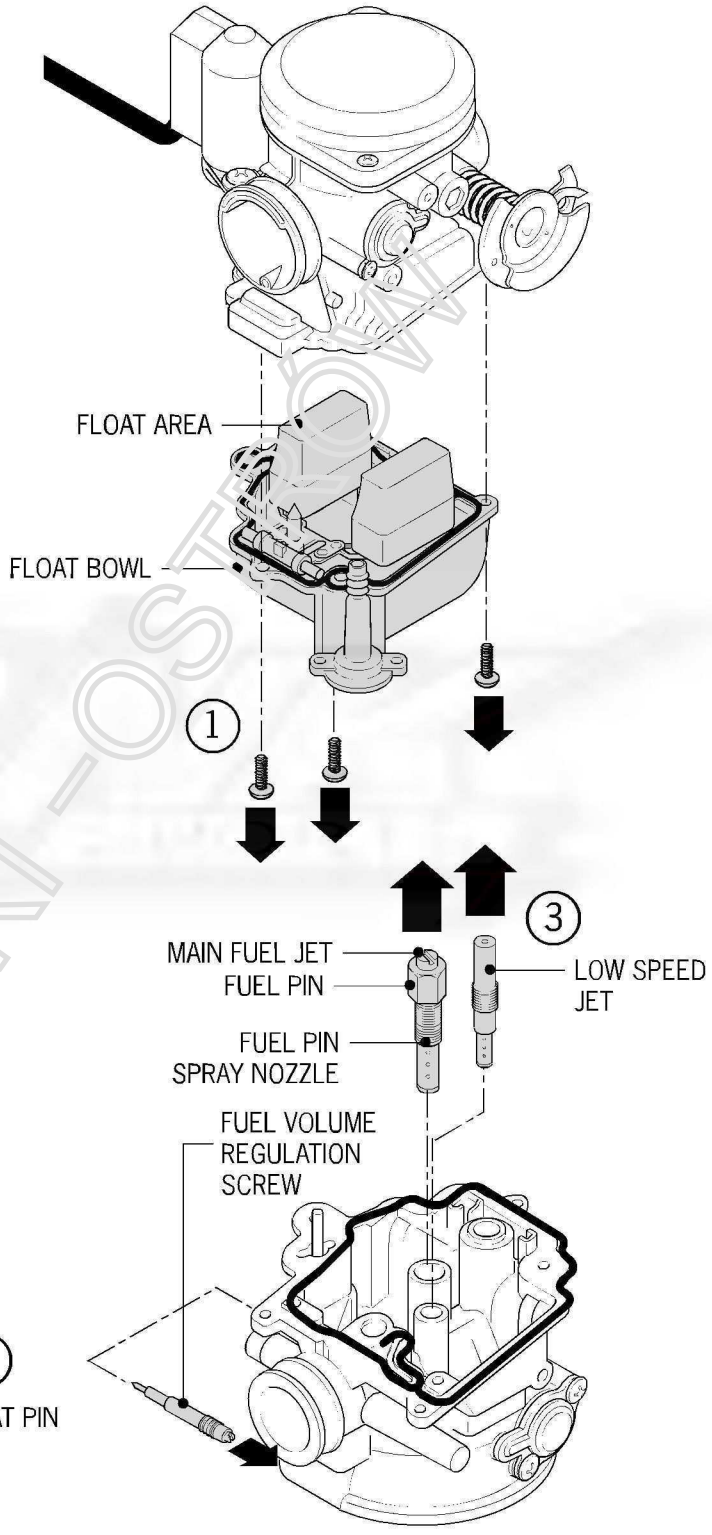
2. Remove float pin spring.

3. Remove high-speed jet, low-speed jet and fuel volume control screw.

- Be careful not to break the fuel jets and control screw.
- Count the turns when removing the fuel volume control screw.
- When reinstalling jets and screws, do not over tighten.

4. Clean jets with solvent and compressed air.

5. Clean body of carburetor by blowing air through all passages.



5. Fuel System

Checking

1. Check float valve and valve seat for damage.

2. Check float valve and valve seat wear, pitting or buildup of dirt.

3. Any leakage of the valve or a buildup of dirt will affect the fuel level in the float bowl and cause drivability problems.

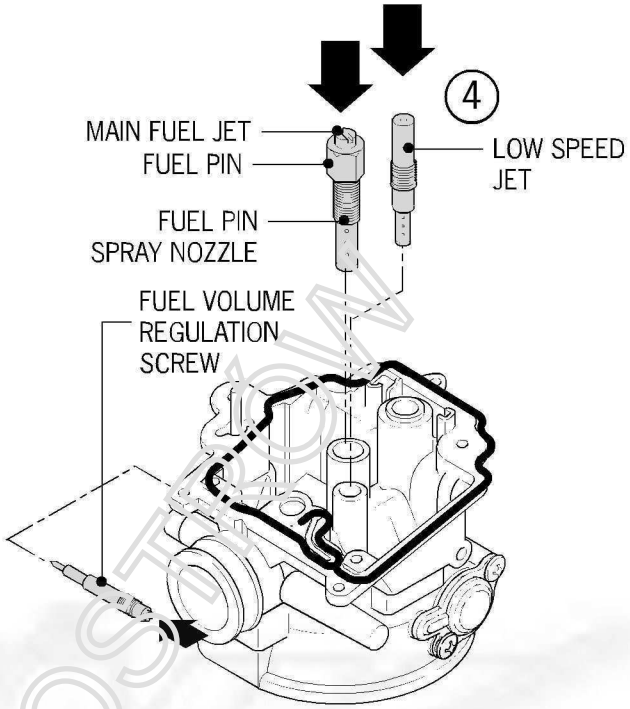
4. Assemble the low speed jet, fuel pin spray nozzle, fuel pin spray seat and main jet into the bottom of the carburetor housing.

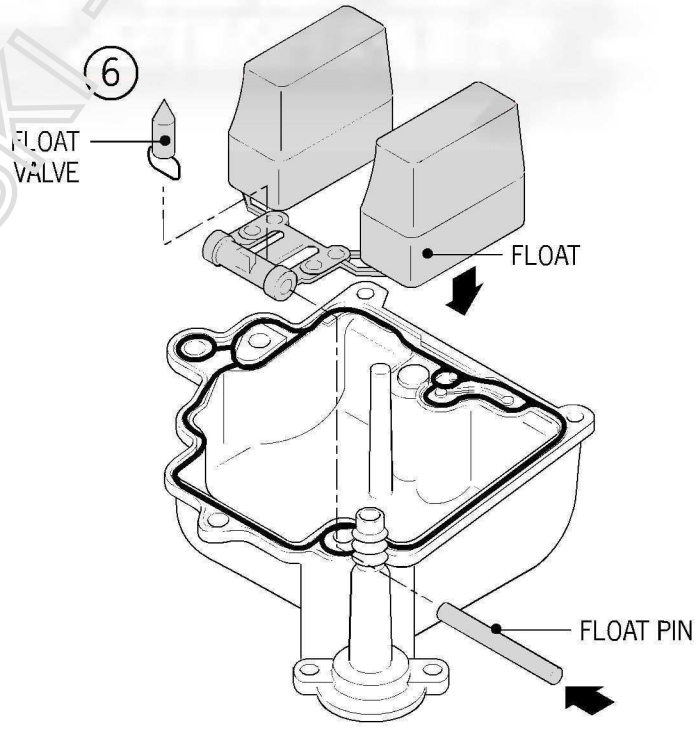
5. Set the fuel level in the bowl by adjusting the fuel regulation screw. The standard setting is 2 turns, plus or minus a 1/4 turn.

6. Assemble the float valve, float and float pin to the bottom of the carburetor using the retainer pin.

7. Check the operation of the float and valve. All parts should move freely and not bind.

8. After assembling the float, check for proper fuel level using a small ruler or a float gage. The proper fuel level is 20.5mm (.807 in.).





5. Fuel System

Accelerator Pump

1. Remove two screws on pump and take off cover.

2. Take off spring and acceleration pump plate.

Checking

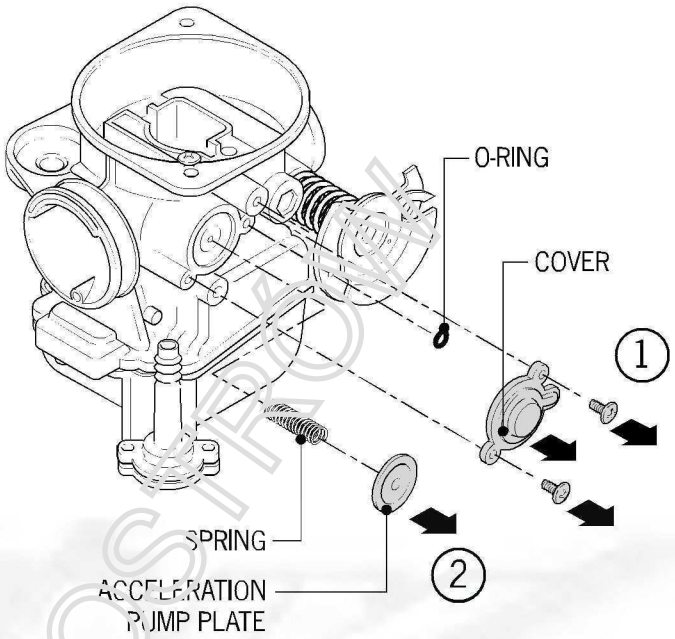
1. Check acceleration pump plate for cracks or hardening of the rubber. Replace as necessary.

2. Check for blocked fuel passages.

3. Clean by high pressure air.

4. Reverse steps to reassemble.

5. Take special care with the accelerator pump plate to avoid damage.



5. Fuel System

Assembly of Carburetor

1. Slide carburetor carefully into the manifold, making sure to align the tab on the manifold with the notch on the carburetor. Securely tighten the clamp screw to fix the carburetor in place. Do not over tighten the screws as this can cause damage to the manifold.

2. Attach the inlet pipe to the rear of the carburetor and tighten the clamp screw.

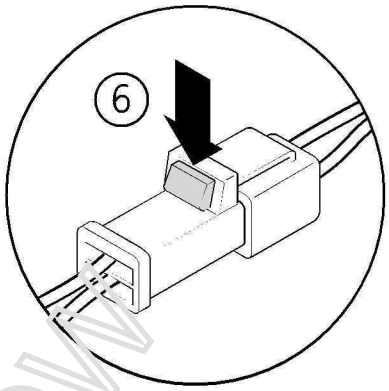
3. Attach the throttle cable to the throttle by installing the cable lug into the notch on the throttle plage. Insert the outer casing of the throttle cable into the cable support bracket. Make sure to align the "D" shape of the adjusting sleeve with the 'D" shape hole of the bracket.

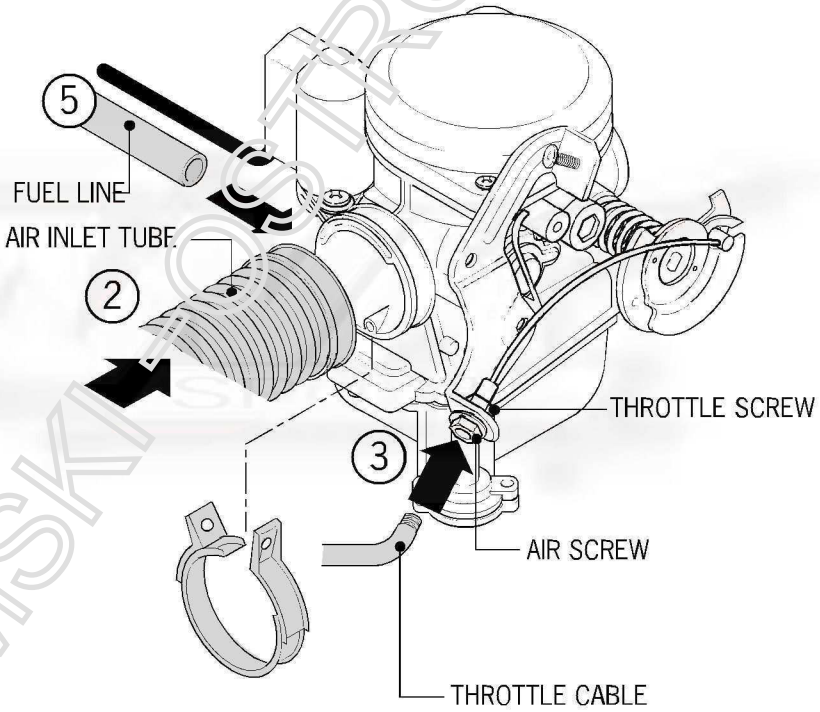
4. Use the adjusting nut and stop nut to set the cable tension. Correct adjustment should allow 1/4 inch of free play in the cable.

5. Attach the fuel line from the tank to the inlet on the carburetor and clamp securely.

6. Connect the wiring harness from the auto choke to the proper connection on the main wiring harness.

7. After starting the engine, set the idle speed using the idle adjusting screw.





5. Fuel System

Disassembling Fuel Tank

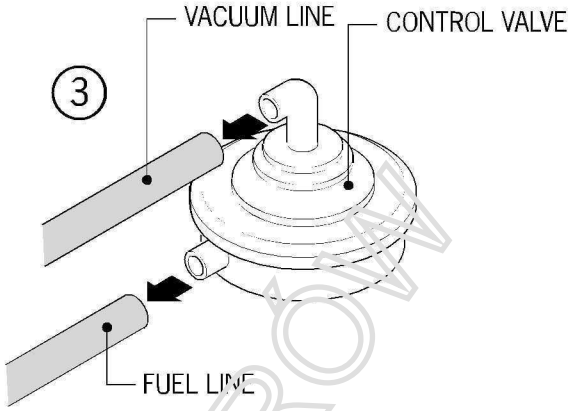
1. Disassemble the body cover.

2. Disconnect the wiring harness from the fuel level sending unit.

3. Disconnect the fuel line and vacuum line from the auto fuel valve.

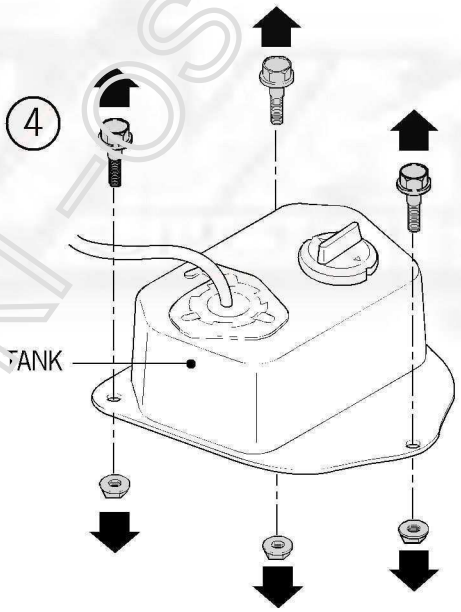
4. Remove three bolts and nuts to loosen the fuel tank.

5. Remove the fuel tank from the frame.



Assembly of Fuel Tank

1. Reverse steps for reassembly.



5. Fuel System

Carburetor Adjustment

It is generally not necessary to adjust the mixture screw on the side of the carburetor. This screw is preset at the factory and will have little effect on the performance of the carburetor.

1. If this screw has been removed for cleaning of the carburetor, it should be reset carefully. The standard setting is two turns out, plus or minus 1/4 turn.

2. To set this position, run the engine until warm and allow it to idle. Turn the screw in or out a little at a time and measure the idle RPM. The correct setting is achieved when the idle speed is maximized.

3. Adjust the idle speed of the engine once the engine has been warmed up.

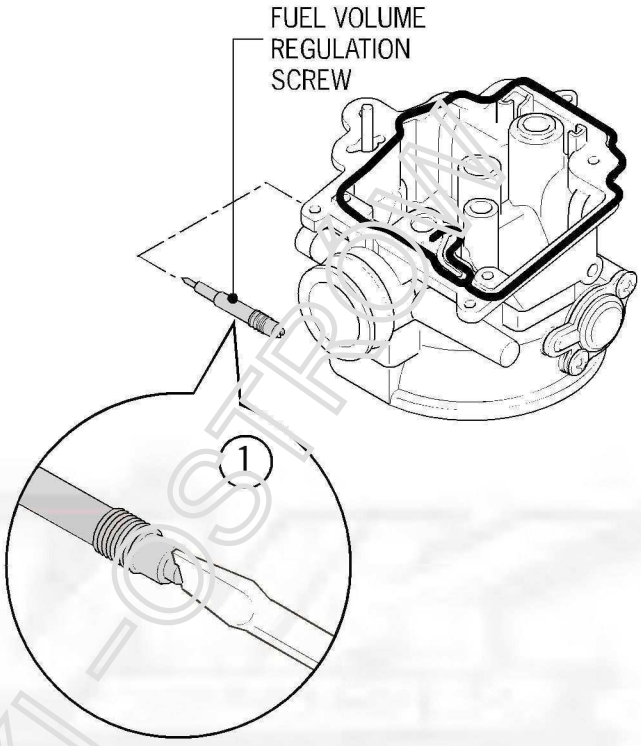
4. Set the warm idle speed to 1900RPM, plus or minus 100RPM.

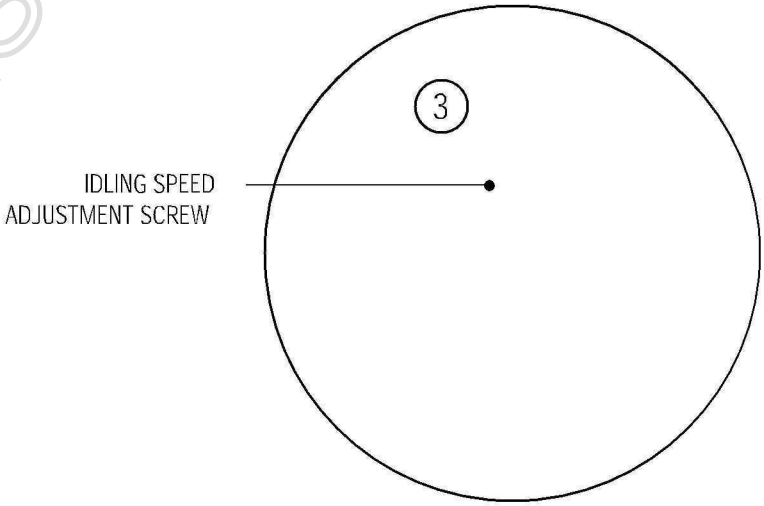
5. Check for engine return to idle speed after running at part throttle.

6. Make sure that the throttle cable allows the throttle control plate to return to the stop screw.

7. If needed, readjust the mixture screw to help stabilize idle performance.

NOTE: SOME COMPONENTS REMOVED FOR CLARITY.





5. Fuel System

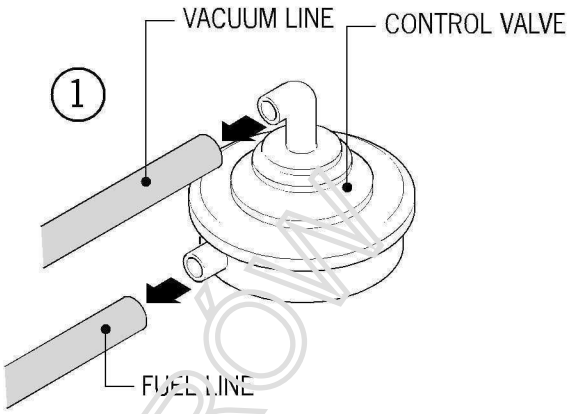
Automatic Fuel Valve

1. Disconnect the fuel line and the vacuum line from the control valve and from the carburetor and intake manifold. Carefully inspect these lines. Any blockage, deterioration, damage, or cracking of these lines can cause improper functioning of the fuel valve. Replace these lines as necessary.

2. Always make sure that the clamps work properly when replacing these lines in order to assure a tight seal of the lines at the fittings on the valve, carburetor and manifold.

3. To check the operation of the valve, apply a vacuum to the input fitting of the valve. Fuel should flow freely when the vacuum is applied and stop when it is removed.

4. Never attempt to clean the valve with high-pressure air. This will damage the valve and require replacement.



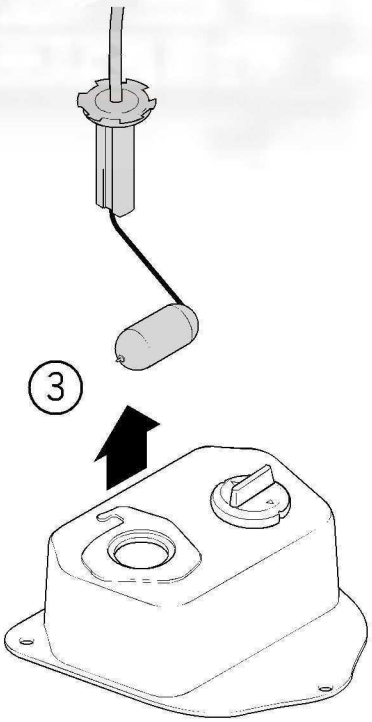
Fuel Meter Sending Unit

1. Disconnect the sending unit wiring harness.

2. Disconnect four mounting screws.

3. Lift and turn the sending arm to allow the float arm and float to be removed from the fuel tank. Take care not to bend or damage the float arm as this can cause improper readings.

4. Check the movement of the arm. It should move freely without binding or hesitation. Check the continuity of the coil. If it is open, the unit needs replacement. When reassembling the sending units, make sure that the gasket is not damaged to avoid leakage.



5. Fuel System

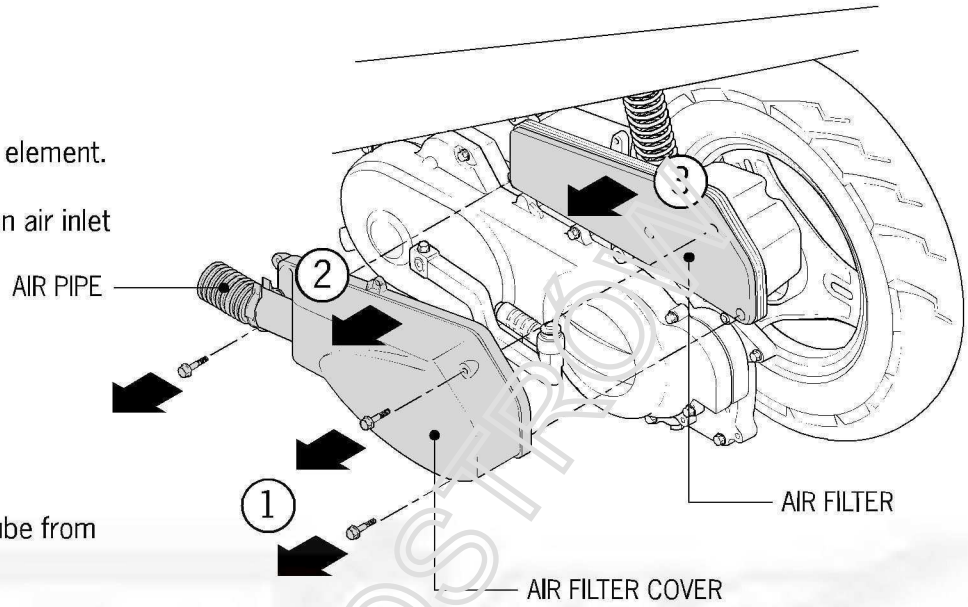
Air Filter Inspection

1. Remove air filter cover screws.

2. Remove cover.

3. Remove air filter element.

4. Remove clamp on air inlet tube.



5. Disconnect air tube from carburetor.

6. Remove air box. Make sure that the element is clean and free of dirt and oil. Excessive dirt and oil on the element can reduce engine performance.

7. During reassembly, make sure that the cover and tube connections are tight and do not leak. Air filter box leakage can reduce engine performance.

6. Engine Removal and Installation

Special Requirements

- Remove all body panels carefully to provide ease of access to the engine.
- Use care when disconnecting the battery cables and fuel lines.
- Use protective clothing such as gloves and safety glasses to protect your body.

6. Engine Removal and Installation

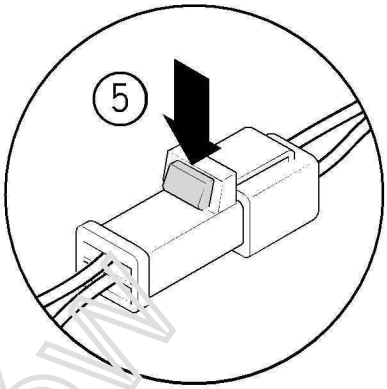
Engine Removal

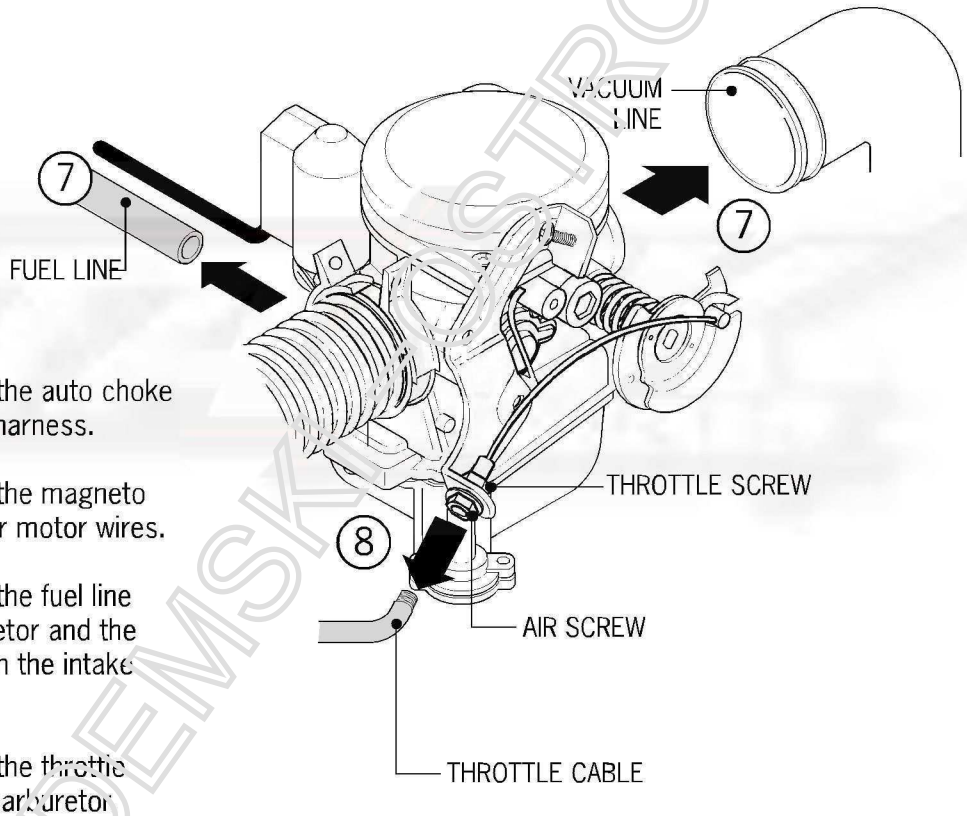
1. Disconnect the battery ground wire.

2. Remove body panels to expose engine.

3. Disconnect the engine ground wire.

4. Remove the spark plug cable from the spark plug and the ignition coil.





5. Disconnect the auto choke from the wiring harness.

6. Disconnect the magneto wires and starter motor wires.

7. Disconnect the fuel line from the carburetor and the vacuum line from the intake manifold.

8. Disconnect the throttle cable from the carburetor.

9. Remove the air filter box.

6. Engine Removal and Installation

10. Disassemble the brake control cable from the brake control arm.

11. Remove the rear shock absorber.

12. Remove the engine support bolt and move the chassis up the forwards.

13. Support the chassis in position temporarily.

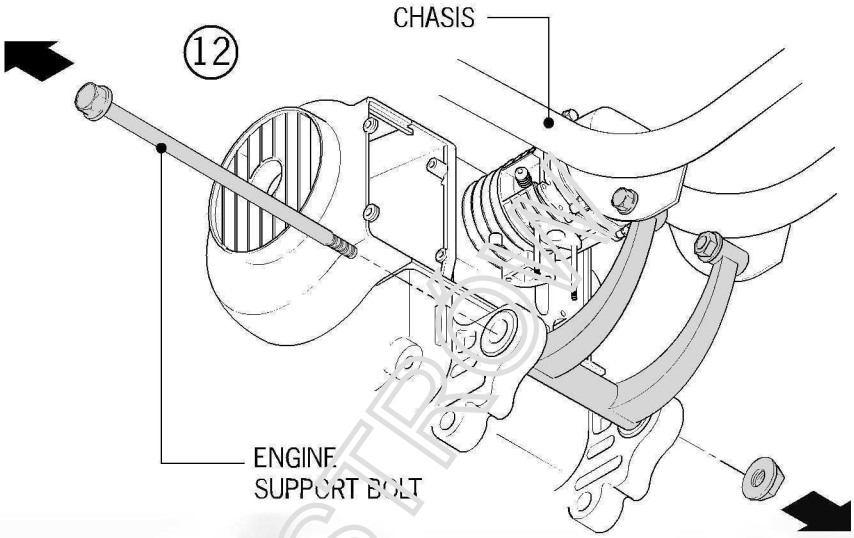
14. Remove the side stand spring and side stand.

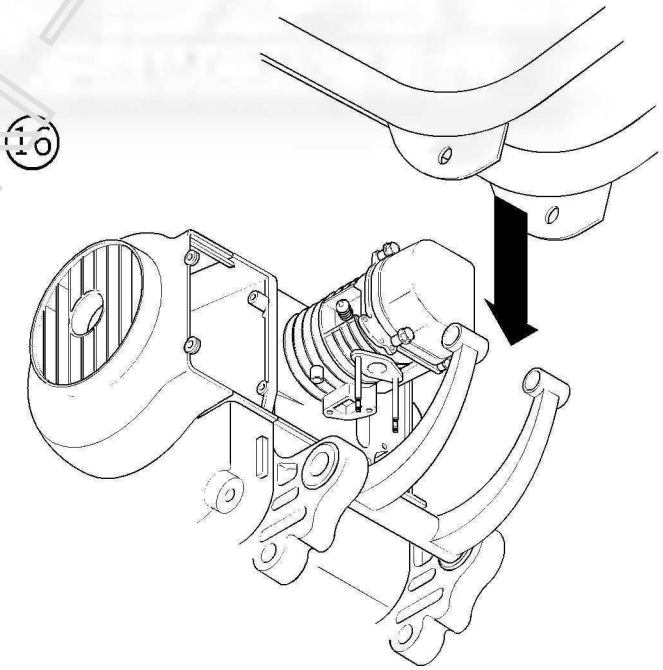
15. Remove the front engine support bolt to disconnect the engine from the chassis.

16. Separate the engine from the chassis.

17. Check the condition of the engine support isolation mounts. If they are worn or damaged, replace them during the engine installation process.

UNDERSIDE OF SCOOTER





6. Engine Removal and Installation

Engine Installation

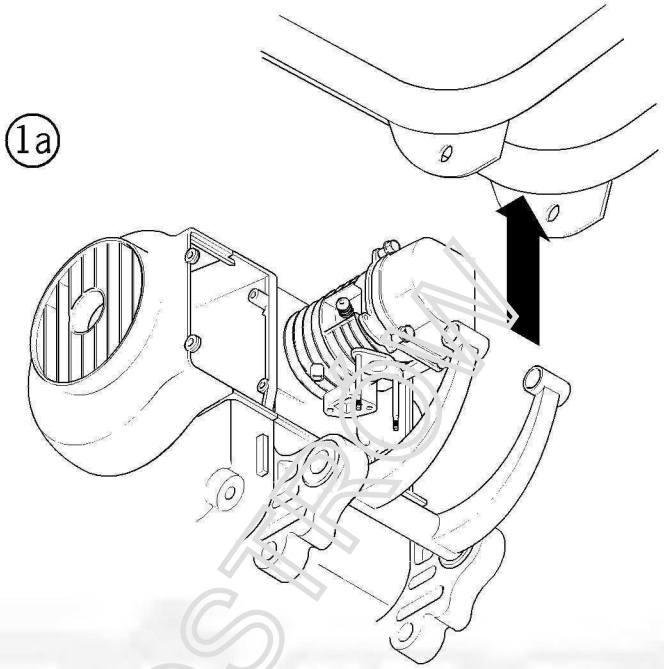
1. Attach front engine support bolt into position and tighten to 5kg-m (35 ft-lbs).

2. Slide chassis to the rear to align the rear mount and install the mounting bolt. Tighten to 5 kg-m (35 ft-lbs).

3. Attach the rear shock absorber and tighten to 4 kg-m (28 ft-lbs).

4. Complete the remainder of the assembly process in reverse order of the disassembly.

5. When assembly is complete, make sure to check the throttle adjustment and brake adjustment before attempting to ride the scooter.



UNDERSIDE OF SCOOTER