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T300-LGE7-A2**

PREFACE

This Service Manual describes the technical features and servicing procedures for the KYMCO **People GT 125i**.

Section 1 contains the precautions for all operations stated in this manual. Read them carefully before any operation is started.

Section 2 is the removal/installation procedures for the frame covers which are subject to removal/installation frequency during maintenance and servicing operations.

Section 3 describes the inspection/adjustment procedures, safety rules and service information for each part, starting from periodic maintenance.

Sections 5 to 12 give instructions for disassembly, assembly and adjustment of engine parts. Section 13 is the AFI system. Section 14 to 15 is the removal/ installation of chassis. Section 16 to 19 states the testing and measuring methods of electrical equipment.

Most sections start with an assembly or system illustration and troubleshooting for the section. The subsequent pages give detailed procedures for the section.

The information and contents included in this manual may be different from the motorcycle in case specifications are changed.

KWANG YANG MOTOR CO., LTD.
QUALITY TECHNOLOGY DEPT.
EDUCATION SECTION

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1. GENERAL INFORMATION



GENERAL INFORMATION

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1. GENERAL INFORMATION

SERIAL NUMBER



Location of Frame Serial Number



Location of Engine Serial Number

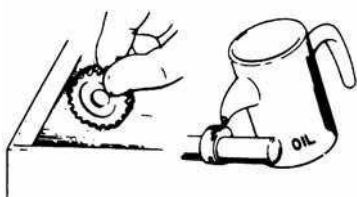
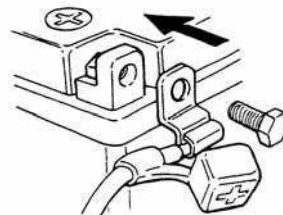
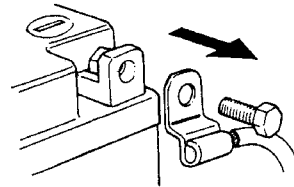
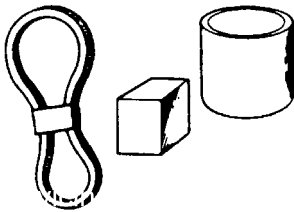
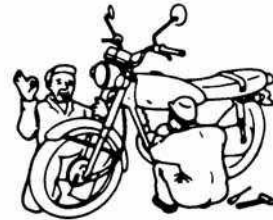
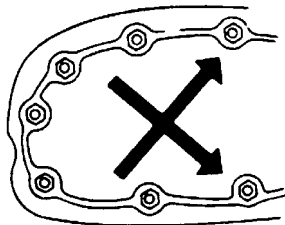
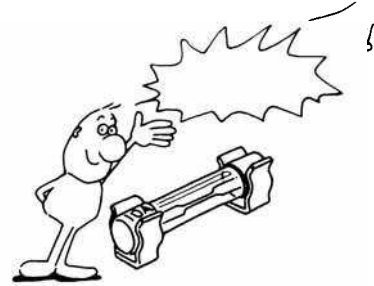
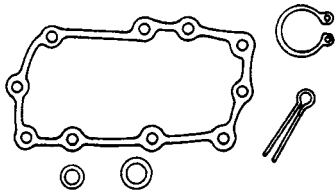
1. GENERAL INFORMATION

SPECIFICATIONS

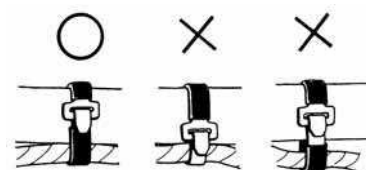
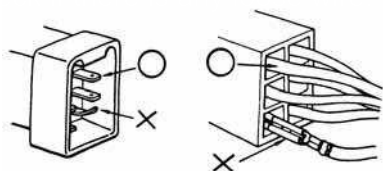
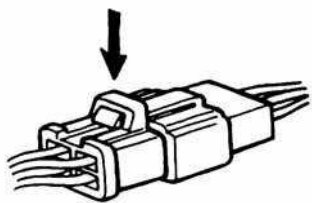
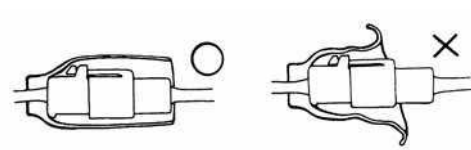
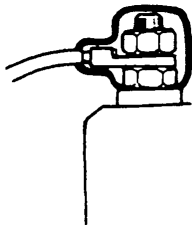
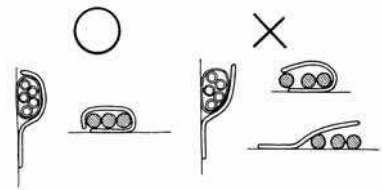
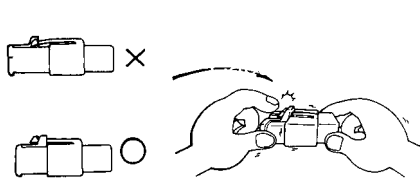
| | | |
|--|----------------------------|----------|
| Name | People GT 125i | |
| Model No. | BF25AA | |
| Overall length | 2130 mm | |
| Overall width | 750 mm | |
| Overall height | 1280 mm | |
| Wheel base | 1450 mm | |
| Engine type | 4 stroke O.H.C. | |
| Displacement | 124.8 cc | |
| Fuel Used | 92# nonleaded gasoline | |
| Dry weight (kg) | 152.2 | |
| Ground clearance (mm) | 150 | |
| Braking distance (m) | 7.9m / 40 km/hr | |
| Min. turning radius (mm) R/L | 2250/2170 | |
| Engine part | | |
| Starting system | Starting motor | |
| Type | Gasoline 4-cycle | |
| Cylinder arrangement | Single cylinder | |
| Combustion chamber type | Semi-sphere | |
| Valve arrangement | O.H.C.-4V | |
| Bore x stroke (mm) | φ 54 * 54.5 | |
| Compression ratio | 11.7:1 | |
| Compression pressure (kg/cm ² -rpm) | 15-570 rpm | |
| Max. output (ps/rpm) | 15 / 9000 | |
| Max. torque (kg-m/rpm) | 1.17 / 8500 | |
| Intake Timing | Open | -8° BTDC |
| | Close | 31° BTDC |
| Exhaust Timing | Open | 32° BTDC |
| | Close | 6° BTDC |
| Valve clearance | Intake | 0.10 |
| | Exhaust | 0.10 |
| Idle speed (rpm) | 1760±100 rpm | |
| Cooling Type | Liquid cooling | |
| Lubrication type | Forced pressure & wet sump | |
| Oil pump type | Inner/outer rotor | |

| | | |
|-------------------------------------|----------------------|-----------------------|
| Oil filter type | Full-flow filtration | |
| Oil capacity | 1.2 liter | |
| Exchanging capacity | 1.0 liter | |
| Fi injection system | | |
| Air cleaner type & No | Paper element, wet | |
| Fuel capacity | 9 liters | |
| Brand | Synerjet M3A | |
| Throttle Body | Butterfly type | |
| Venturi diameter (mm) | 27 | |
| Fuel pump pressure | 2.5 bar | |
| Electrical system | | |
| Ignition type | ECU | |
| Ignition timing | ECU control | |
| Spark plug | CR7E (NGK) | |
| Spark plug gap | 0.6~0.7mm | |
| Battery Capacity | 12V12AH | |
| Transmission system | | |
| Clutch type | Dry multi-disc | |
| Transmission type | CVT | |
| Operation type | Auto centrifugal | |
| Reduction gear type | Two-stage reduction | |
| Reduction ratio | Primary | 0.83~2.2 |
| | Final | 10.41 |
| Moving device | | |
| Tire type | Tubeless | |
| Tire spec. | Front wheel | 110/70-16 |
| | Rear wheel | 140/70-16 |
| Tire pressure (kg/cm ²) | Front wheel | 1.75 |
| | Rear wheel | 2.25 (with passenger) |
| Wheel material | Aluminium | |
| Turning angle | Left | 45°±5 |
| | Right | 45°±5 |
| Brake type | Front | Disk brake |
| | Rear | Disk brake |
| Damping Device | | |
| Suspension type | Front | Telescope |
| | Rear | Swing arm |
| Shock absorber stroke | Front | 110 mm |
| | Rear | 100 mm |

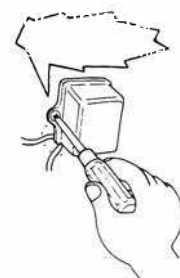
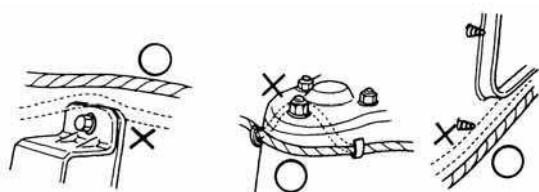
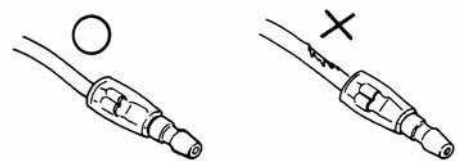
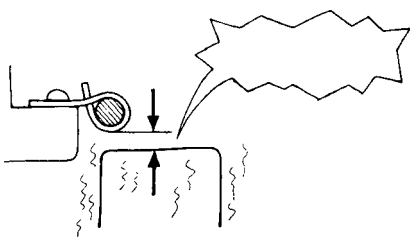
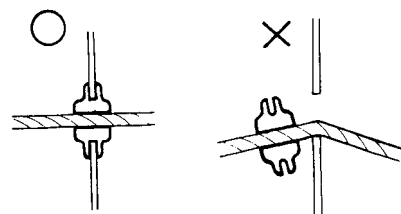
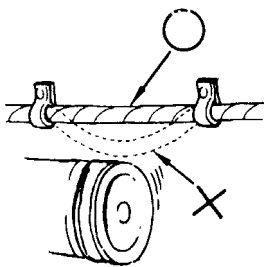
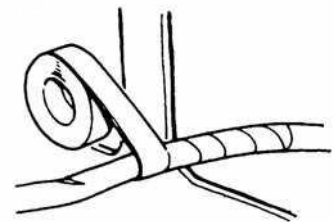
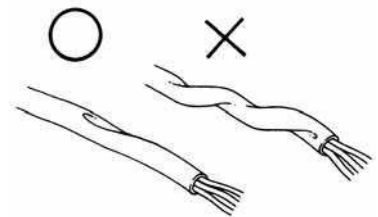
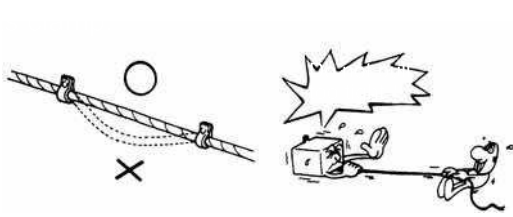
1. GENERAL INFORMATION



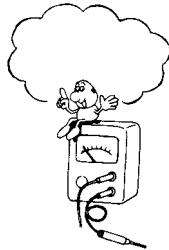
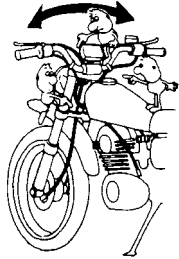
1. GENERAL INFORMATION



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1. GENERAL INFORMATION



1. GENERAL INFORMATION



1. GENERAL INFORMATION

TORQUE VALUES

Standard Torque Values

| Item | Torque (kgf-m) | Item | Torque (kgf-m) |
|----------------|----------------|-----------------------|----------------|
| 5mm bolt, nut | 0.45~0.6 | 5mm screw | 0.45~0.6 |
| 6mm bolt, nut | 0.8~1.2 | 6mm screw, SH bolt | 0.7~1.1 |
| 8mm bolt, nut | 1.8~2.5 | 6mm flange bolt, nut | 1.0~1.4 |
| 10mm bolt, nut | 3.0~4.0 | 8mm flange bolt, nut | 2.4~3.0 |
| 12mm bolt, nut | 5.0~6.0 | 10mm flange bolt, nut | 3.0~4.5 |

Torque specifications listed below are for important fasteners.

Engine

| Item | Thread dia.(mm) | Torque (kgf-m) |
|-----------------------------|-----------------|----------------|
| Cylinder head bolt A | 6 | 0.7~1.1 |
| Cylinder head bolt B | 6 | 0.7~1.1 |
| Oil filter screen cap | 30 | 2.0~3.0 |
| O2 sensor | 12 | 0.7~1.1 |
| Cylinder head cover | 6 | 0.8~0.9 |
| Tappet adjusting hole cap | 30 | 1.0~2.0 |
| Cam chain set plate | 6 | 1.0~1.4 |
| Engine oil drain bolt | 12 | 2.0~3.0 |
| Clutch outer nut | 12 | 5.0~6.0 |
| Clutch drive plate nut | 28 | 5.0~6.0 |
| Starter motor mounting bolt | 6 | 0.8~1.2 |
| Oil pump bolt | 6 | 0.7~1.1 |
| Drive face nut | 12 | 5.5~6.5 |
| Spark plug | 10 | 1.0~1.4 |
| A.C. Generator flywheel | 12 | 5.0~6.0 |
| Cam chain tensioner pivot | 6 | 0.8~1.2 |

1. GENERAL INFORMATION

TORQUE VALUES

FRAME

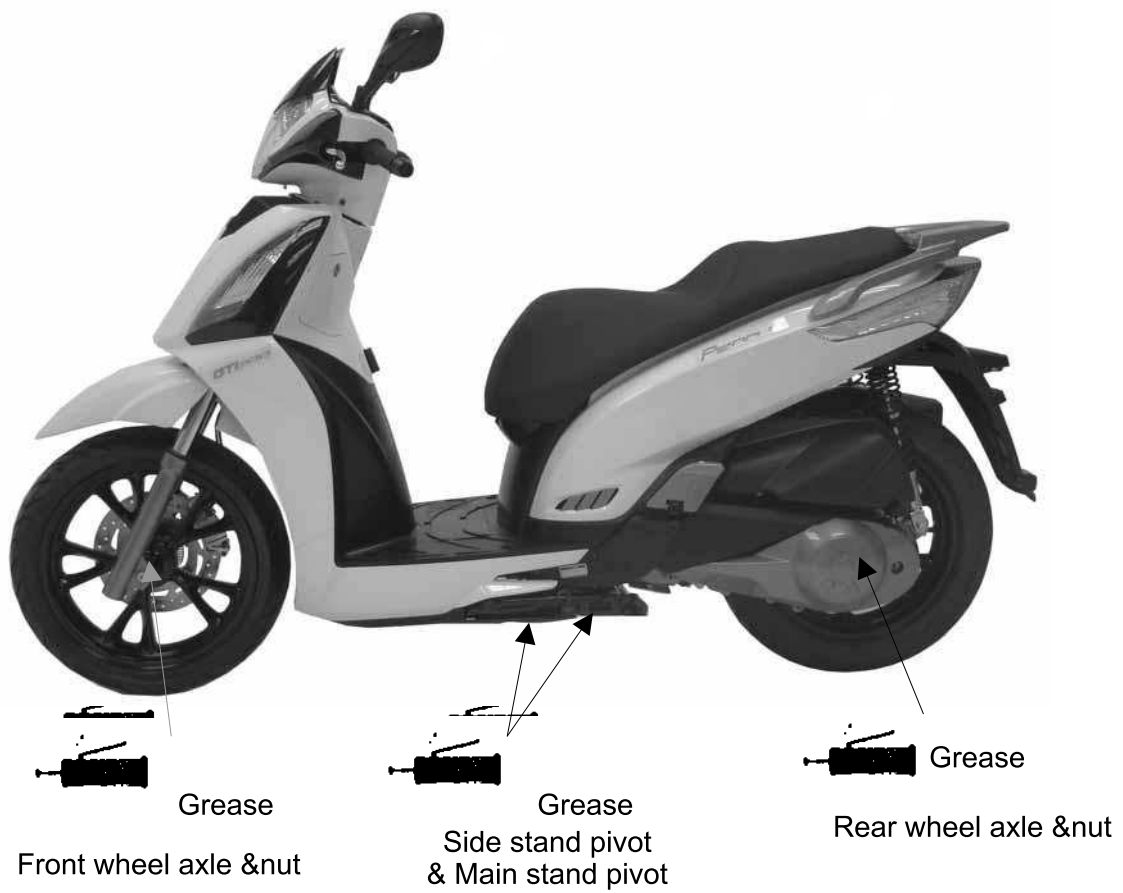
| No. | ITEM | | TORQUE | | | REMARK | THREAD | DWG. NO. | |
|-----|--------------------|----------|-----------|---------|------|-------------|--------------------|----------|--|
| | | | Kgf-m | N-m | | | | | |
| 1 | STEERING | | | | | | | | |
| | HANDLE POST | M10x1.25 | 4.0~5.0 | 40~50 | 4.5 | U NUT | 90106-GEN5-9000 | A | |
| | BRIDGE BOLT | M8x1.25 | 2.4~3.0 | 24~30 | 2.7 | — | 95801-08040-08 | A | |
| | STEM LOCK | BC1 | 6.0~6.5 | 60~65 | 6.3 | — | 50306-1F96-0010 | A | |
| | RACE NUT(HEAD) | BC1 | 1.8~2.2 | 18~22 | 2.0 | — | 53220-LBA2-E000 | B | |
| 2 | WHEEL | | | | | | | | |
| | FRAXLE | M14x1.5 | 1.5~2.5 | 15~25 | 2.0 | — | 44301-LLJ3-E000 | A | |
| | RRAXLE NUT | M16x1.5 | 11~13 | 110~130 | 12 | U NUT | 90305-KKAK-9000 | A | |
| 3 | SUSPENSION | | | | | | | | |
| | FR FORK BOLT | M6x1.0 | 1.0~1.4 | 10~14 | 1.2 | — | 96600-06020-06 | A | |
| | RR. CUSH. UP | M10x1.25 | 3.5~4.5 | 35~45 | 4.0 | — | 95801-10035-00 | A | |
| | RR. CUSH. LWR. | M10x1.25 | 3.5~4.5 | 35~45 | 4.0 | — | 95801-10035-00 | A | |
| 4 | BRAKE | | | | | | | | |
| | FR CALIPER R | M10x1.25 | 3.0~4.0 | 30~40 | 3.5 | — | 90122-LEA7-E000 | A | |
| | RR CALIPER | M10x1.25 | 3.0~4.0 | 30~40 | 3.5 | — | 90122-LEA7-E000 | A | |
| | BRK OIL BOLT | M10x1.25 | 3.0~4.0 | 30~40 | 3.5 | — | 90145-MS9-6120-M1 | A | |
| | M/C HOLDER | M6x1.0 | 1.0~1.4 | 10~14 | 1.2 | — | 96001-06028-06 | C | |
| | M/C CAP SCREW | M4x0.7 | 0.12~0.2 | 1.2~2.0 | 0.16 | — | 96000-04012-1A | B | |
| | C/P BLEEDER | M8x1.25 | 0.4~0.7 | 4.0~7.0 | 0.55 | — | 43352-5H68-0040 | B | |
| | DISK BOLT | M8x1.25 | 3.2~3.8 | 32~38 | 3.5 | — | 90105-KCR3-0010 | A | |
| 5 | ENG HANGER | | | | | | | | |
| | FRAME SIDE | M14x1.5 | 6.0~7.0 | 60~70 | 6.5 | U NUT | 90305-LBD4-9000 | A | |
| | ENG SIDE | M10x1.25 | 4.5~5.5 | 45~55 | 5.0 | U NUT | 90304-GLW0-9020-M1 | A | |
| 6 | MUFFLER | | | | | | | | |
| | EX-H PIPE | M8x1.25 | 1.8~2.2 | 18~22 | 2.0 | — | 90033-GFY6-9000 | B | |
| | MUFF. BRKT/RR FORK | M10x1.25 | 3.2~3.8 | 32~38 | 3.5 | FLANGE BOLT | 95801-10060-06 | A | |
| 7 | RR FORK/ENG CASE | M10x1.25 | 3.0~4.0 | 30~40 | 3.5 | — | 95801-10060-06 | A | |
| 8 | IGN COIL | | | | | | | | |
| 8 | SPDWT SENSOR CABLE | M6x1.0 | 1.0~1.4 | 10~14 | 1.2 | — | 96001-06012-06 | C | |
| | IGN COIL | M6x1.0 | 0.25~0.35 | 2.5~3.5 | 0.3 | — | 94050-06080 | B | |
| | O2 SENSOR | M12x1.25 | 2.0~3.0 | 20~30 | 2.5 | — | — | B | |
| | RR CARRIER | M8x1.25 | 2.0~2.8 | 20~28 | 2.4 | — | 90106-KKC4-9000 | C | |

1. GENERAL INFORMATION

SPECIAL TOOLS

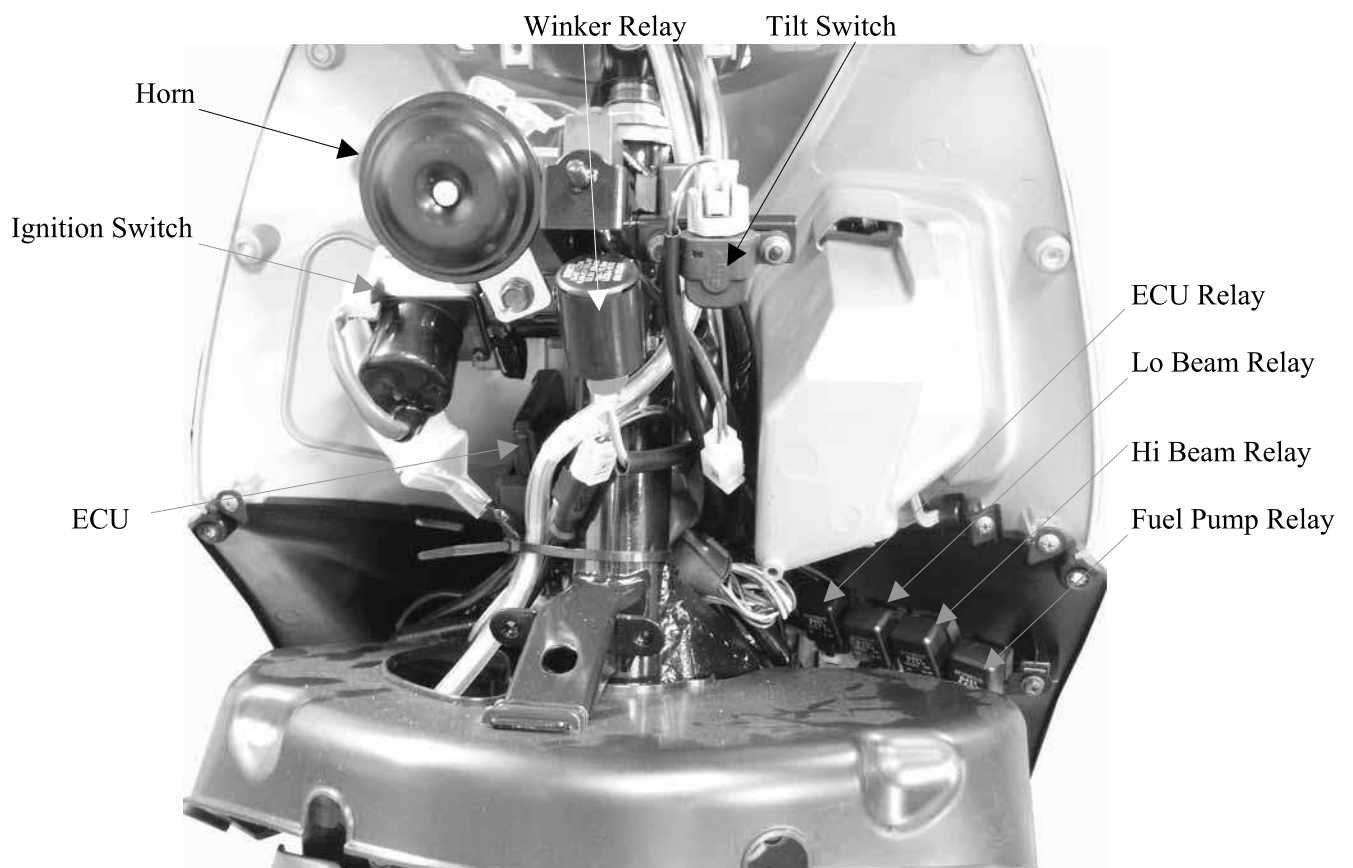
| Tool Name | Tool No. | Remarks | Ref. Page |
|------------------------------------|----------|--|-----------|
| Flywheel puller | E003 | A.C. generator flywheel removal | 4.10 |
| Tappet adjuster | E012 | Tapper adjustment | 3.7 |
| Oil seal & bearing installer | E014 | Oil seal & bearing install | 9.10.11 |
| Flywheel holder | E021 | A.C. generator flywheel holding | 4.10 |
| Clutch spring compressor | E034 | Clutch disassembly | 9 |
| Thread protector | E029 | Protect the crankshaft's thread | 10 |
| Bearing puller 10,12,15,18mm | E037 | Bearing removal | 10 |
| Valve cotter installer | E051 | Valve cotter installation | 7 |
| Lock nut socket wrench | F002 | Steering stem removal or install | 12 |
| Steering Stem Top Thread Wrench | F023 | Steering Stem Top Thread Removal & Installation | 14 |

1. GENERAL INFORMATION



1. GENERAL INFORMATION

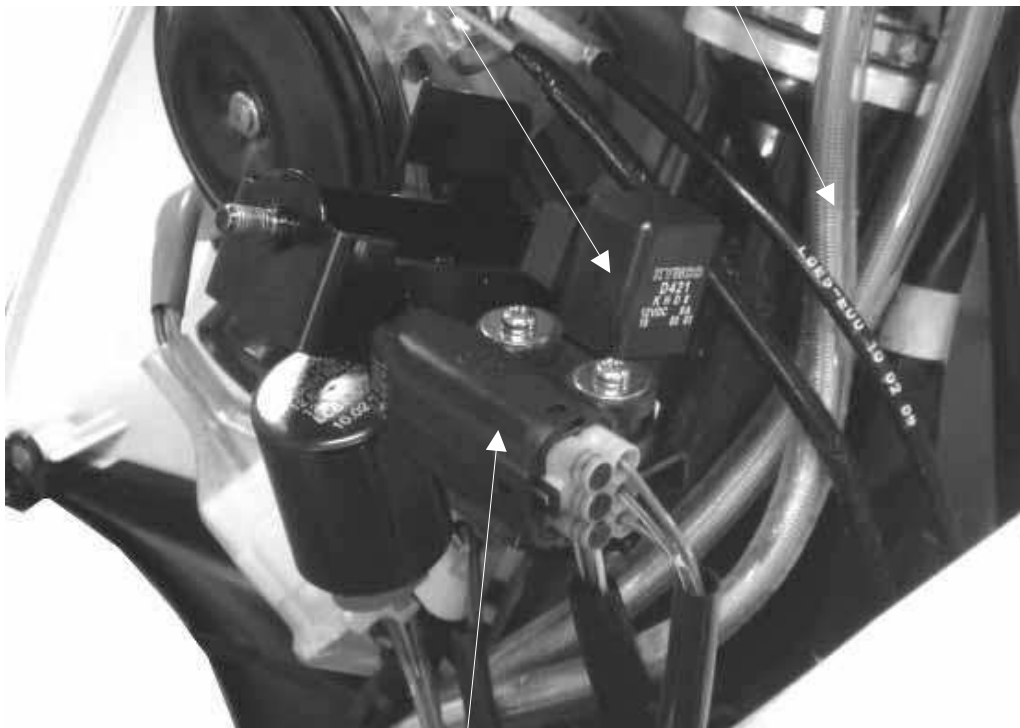
CABLE & HARNESS ROUTING



1. GENERAL INFORMATION

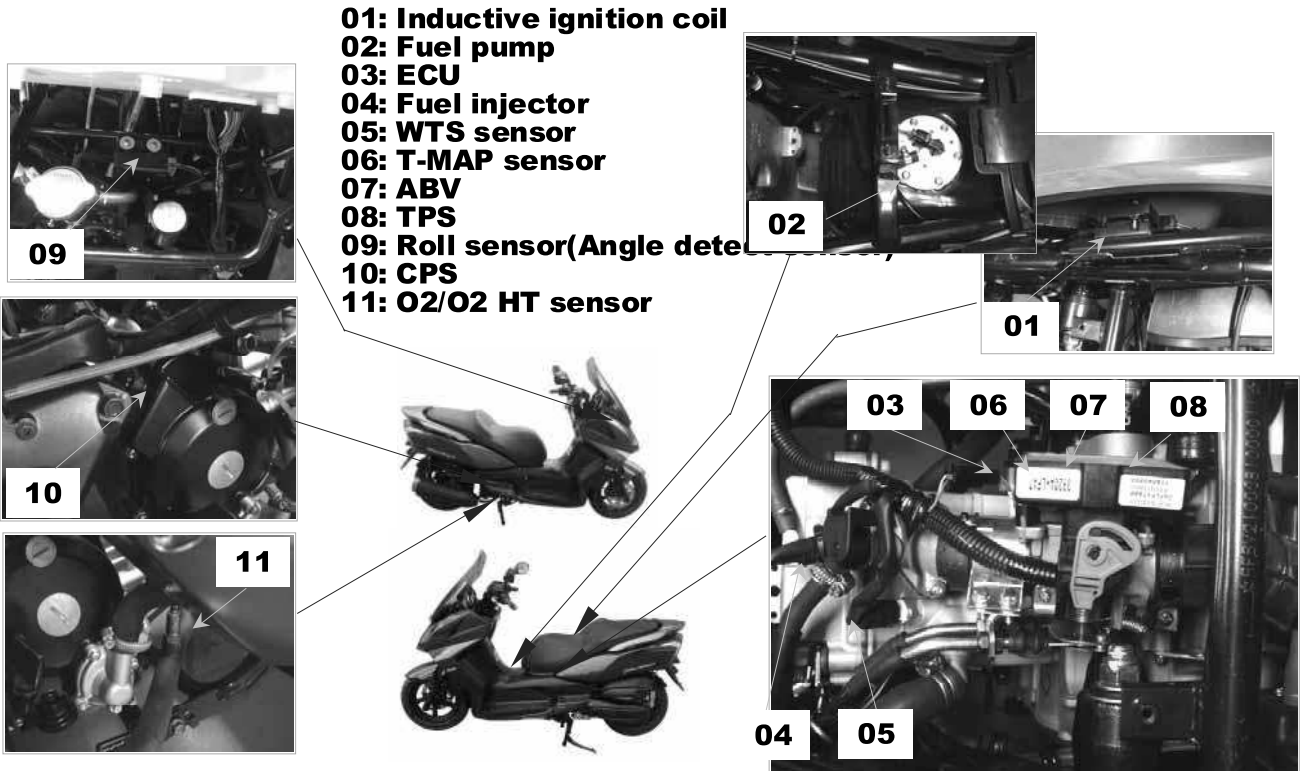
Oil Controller

Front Brake Hose

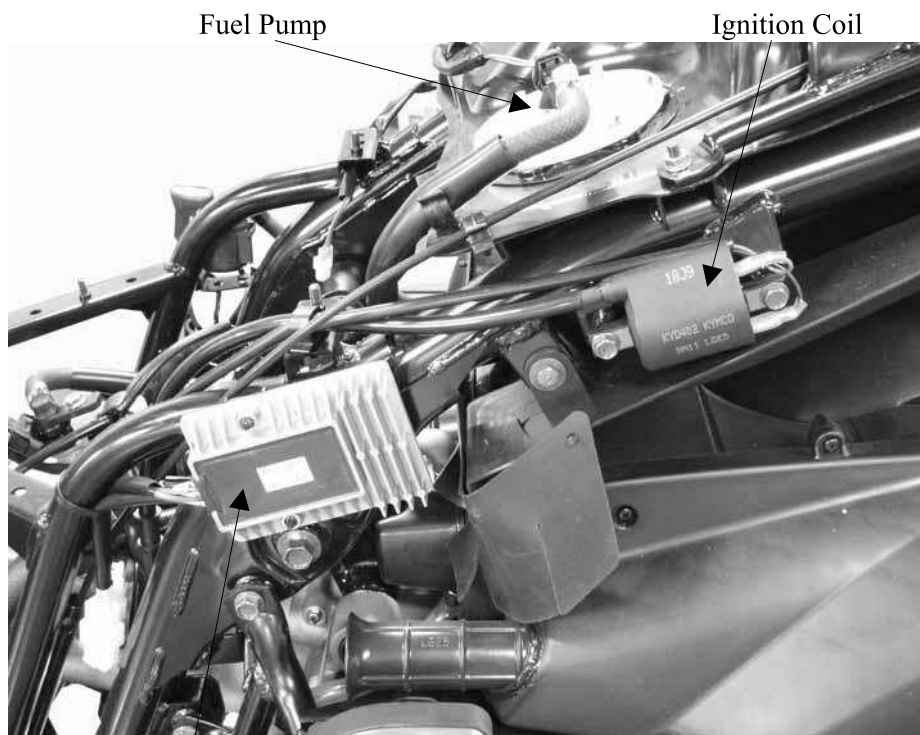


Tilt Switch

1. GENERAL INFORMATION



1. GENERAL INFORMATION

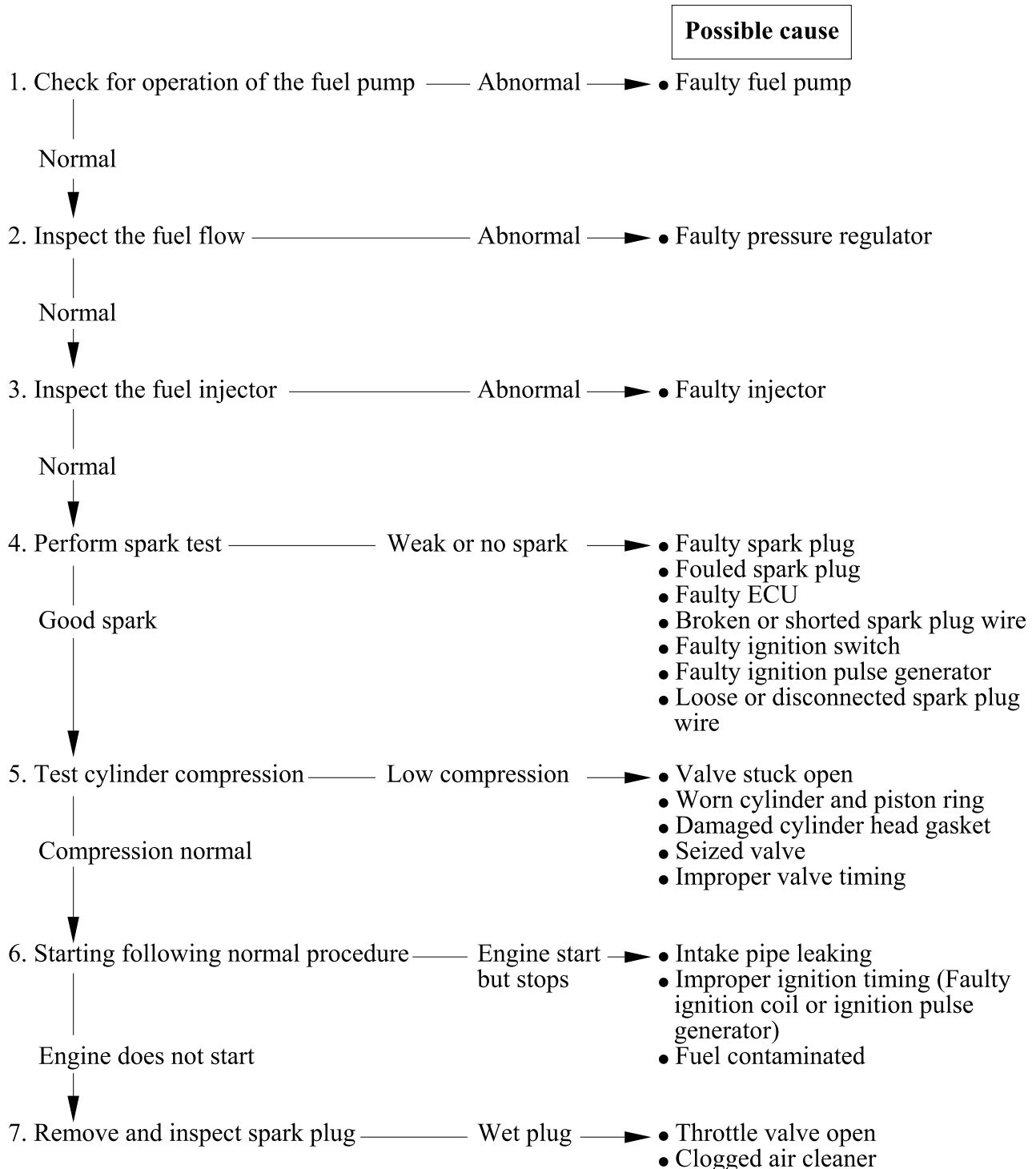


Regulator/Rectifier

1. GENERAL INFORMATION

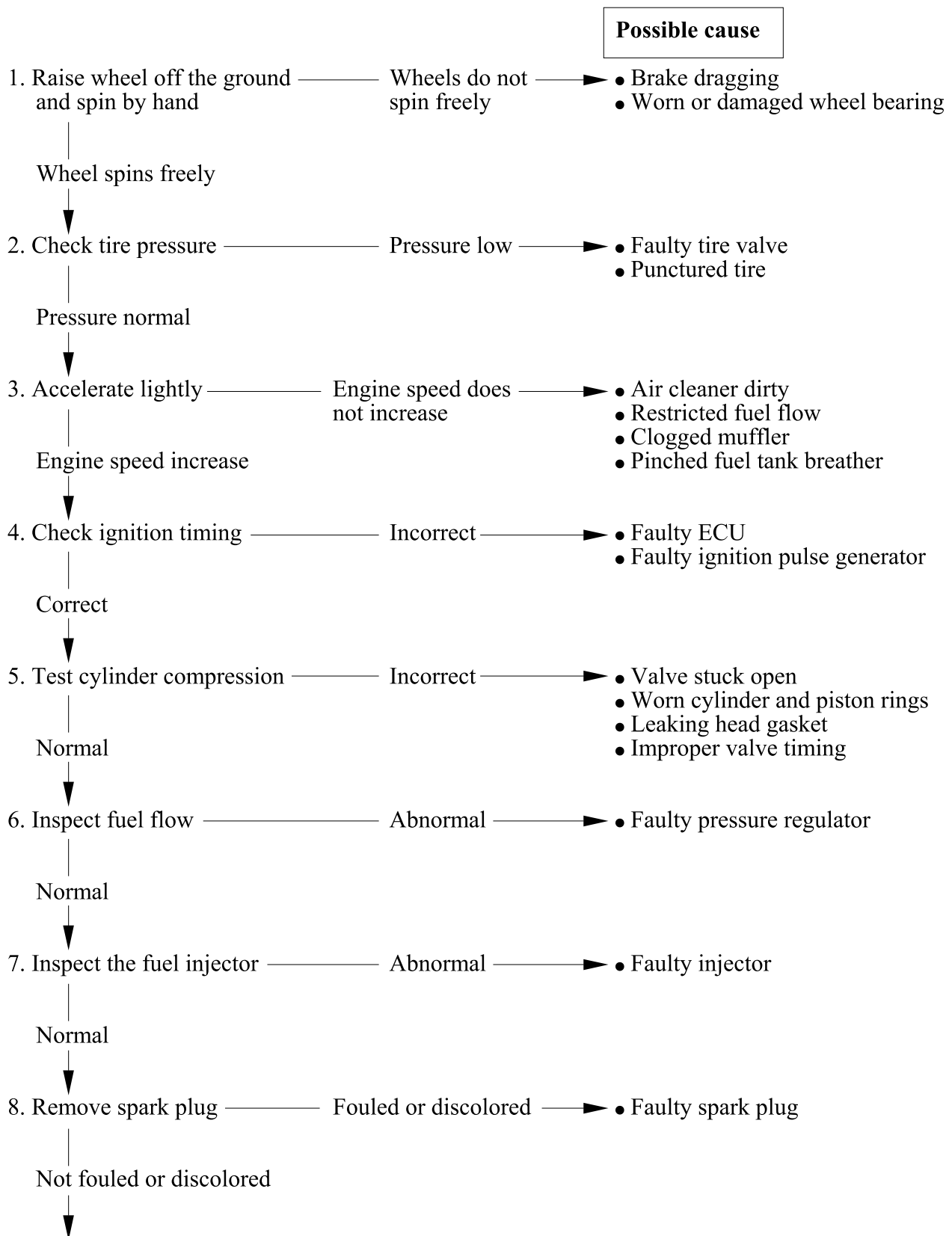
TROUBLESHOOTING

ENGINE WILL NOT START OR IS HARD TO START

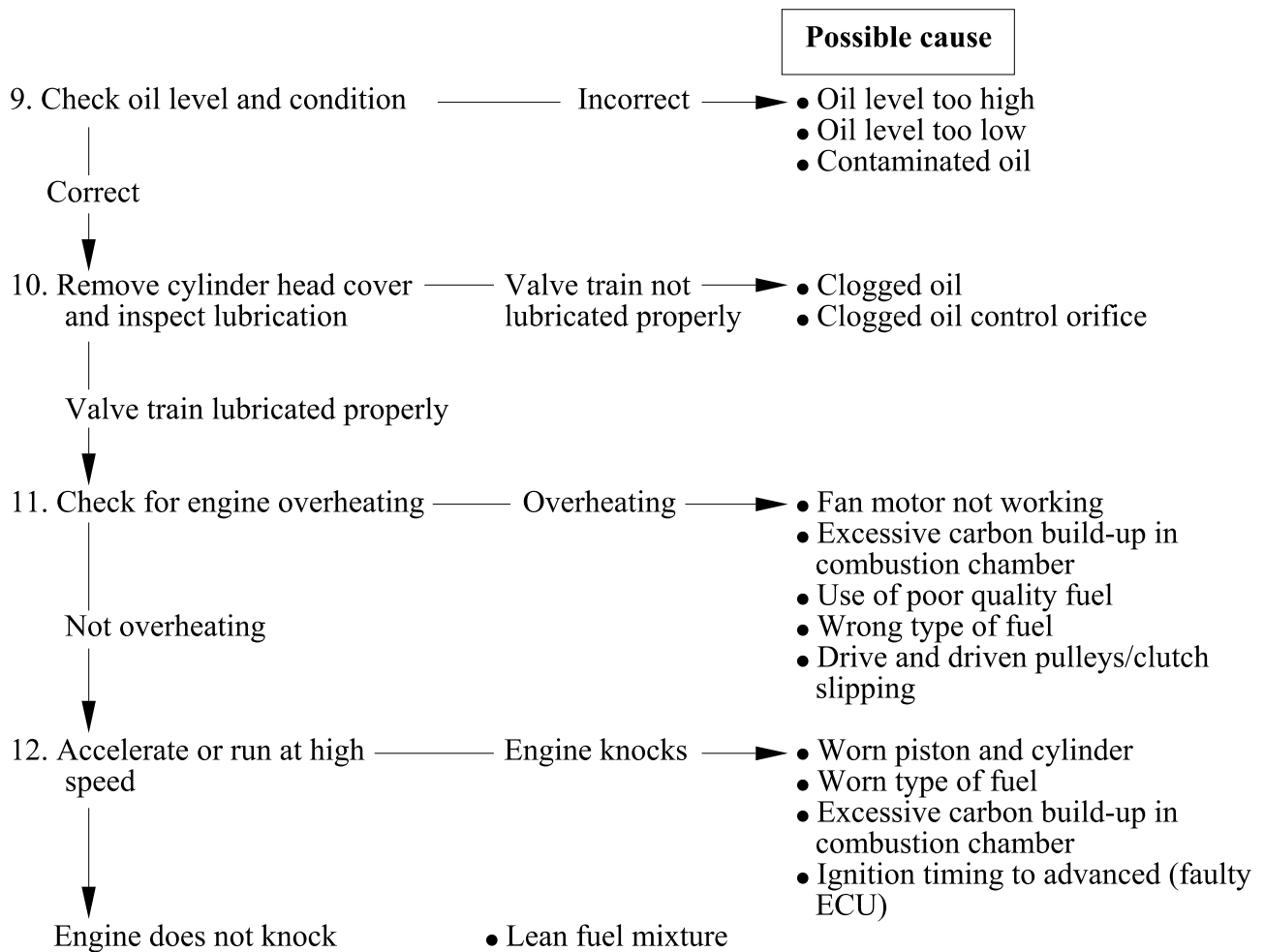


1. GENERAL INFORMATION

ENGINE LACKS POWER

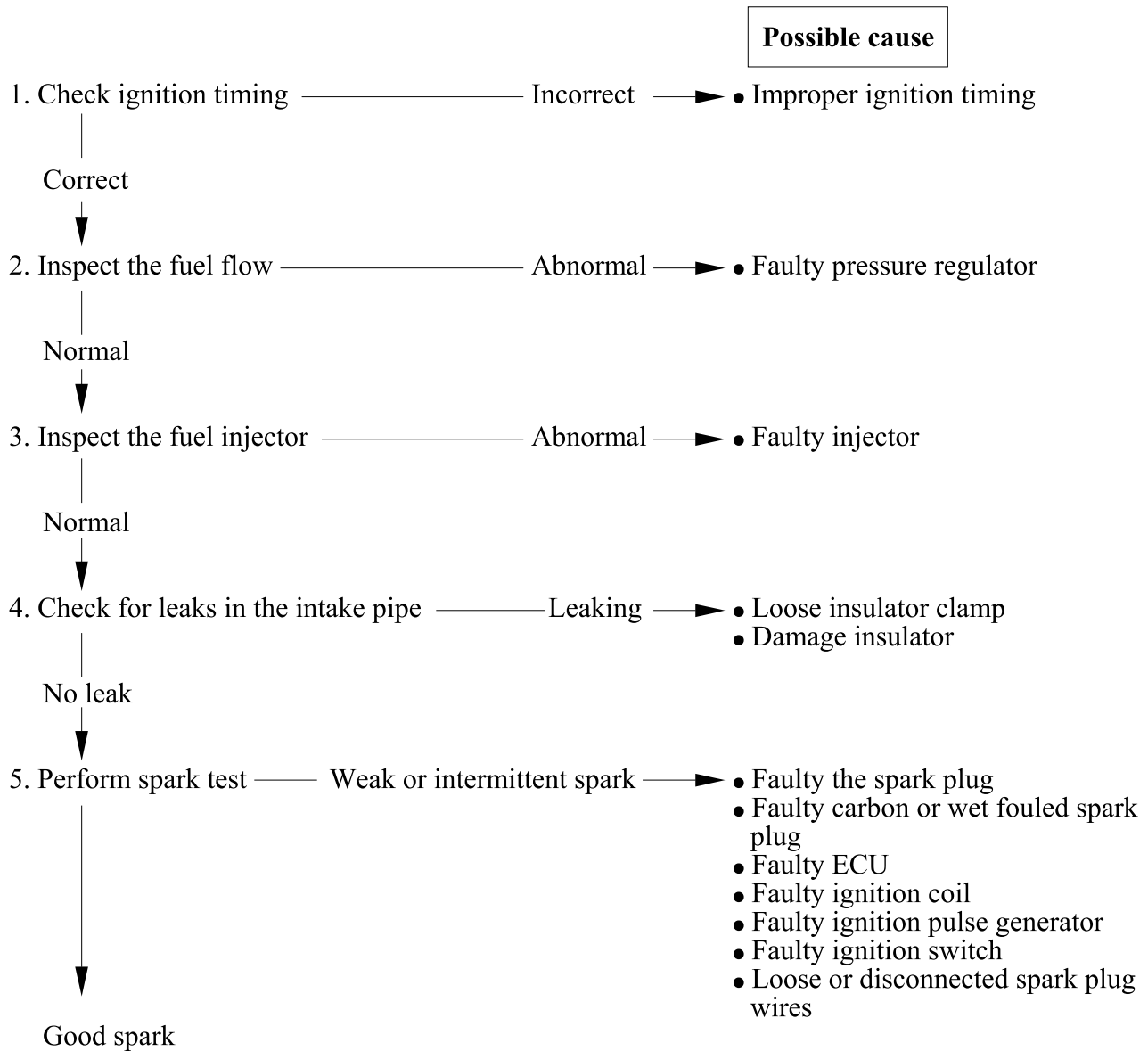


1. GENERAL INFORMATION



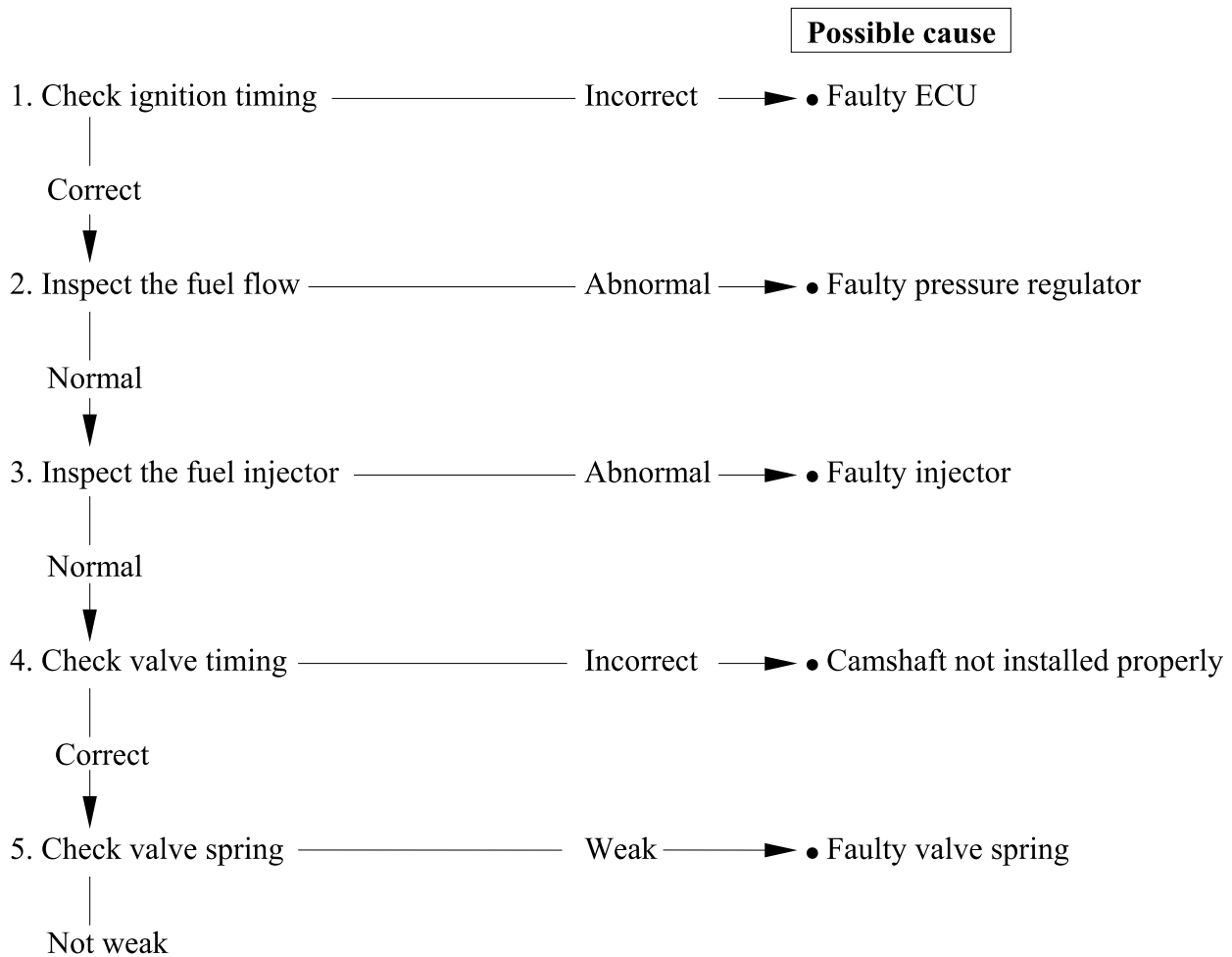
1. GENERAL INFORMATION

POOR PERFORMANCE AT LOW AND IDLE SPEED

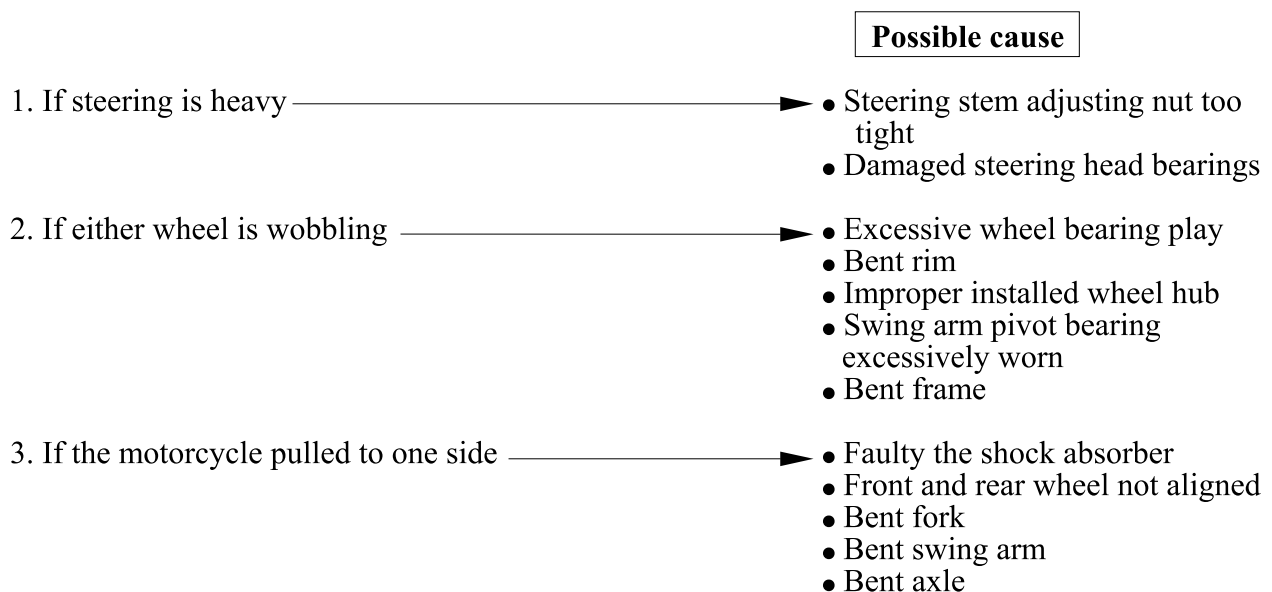


1. GENERAL INFORMATION

POOR PERFORMANCE AT HIGH SPEED



POOR HANDLING



2. EXHAUST MUFFLER/FRAME COVERS

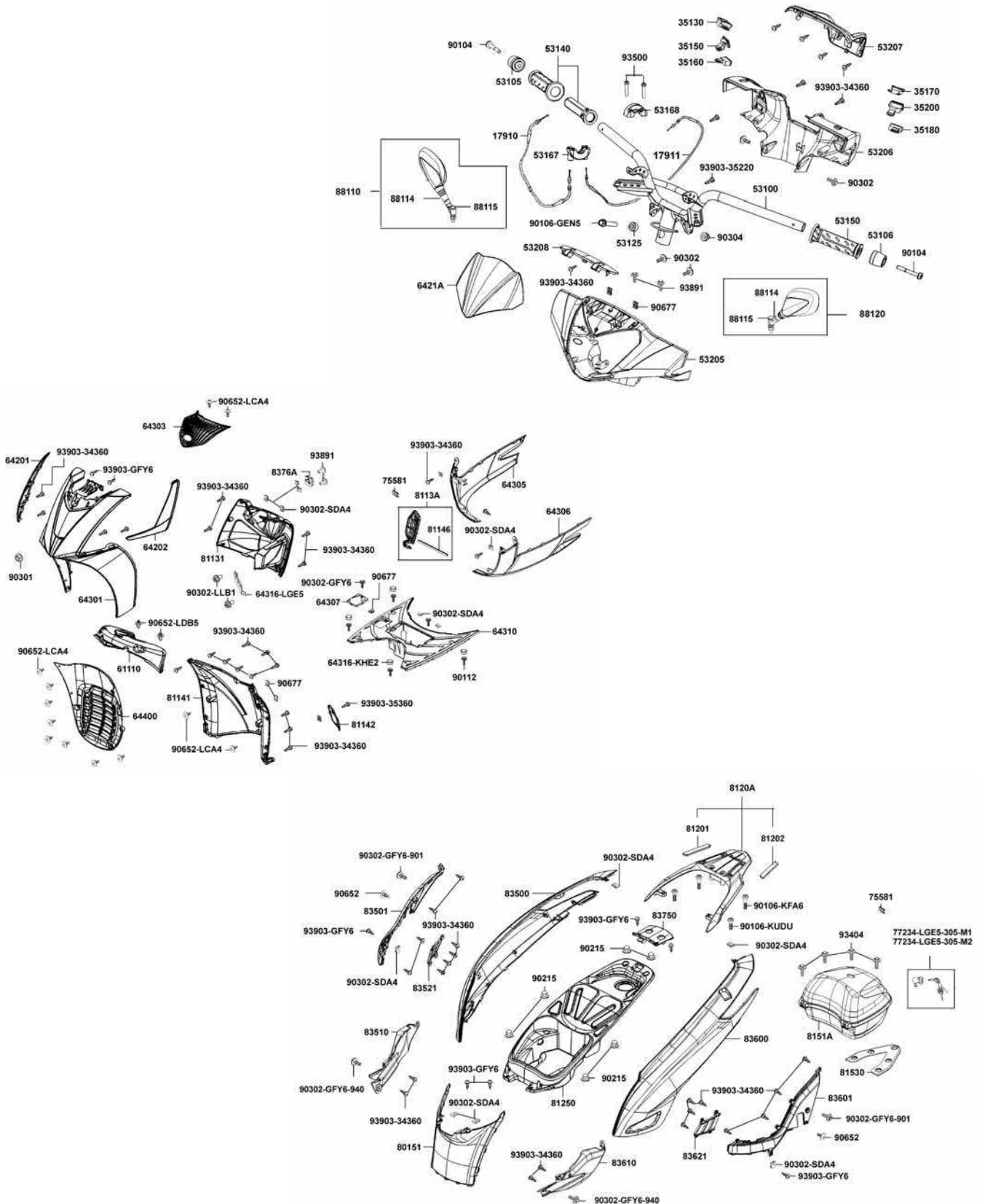
2

EXHAUST MUFFLER/FRAME COVERS

| | |
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| SCHEMATIC DRAWING | 2-1 |
| SERVICE INFORMATION | 2-2 |
| TROUBLESHOOTING | 2-2 |
| FRAME COVERS REMOVAL..... | 2-3 |
| EXHAUST MUFFLER REMOVAL | 2-6 |

2. EXHAUST MUFFLER/FRAME COVERS

SCHEMATIC DRAWING



2. EXHAUST MUFFLER/FRAME COVERS

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- When removing frame covers, use care not to pull them by force because the cover joint claws may be damaged.
- Make sure to route cables and harnesses according to the Cable & Harness Routing.

TORQUE VALUES

| | |
|--------------------------------|--------|
| Exhaust muffler lock bolt | 35 N-m |
| Exhaust muffler joint lock nut | 20 N-m |

TROUBLESHOOTING

Noisy exhaust muffler

- Damaged exhaust muffler
- Exhaust muffler joint air leaks

Lack of power

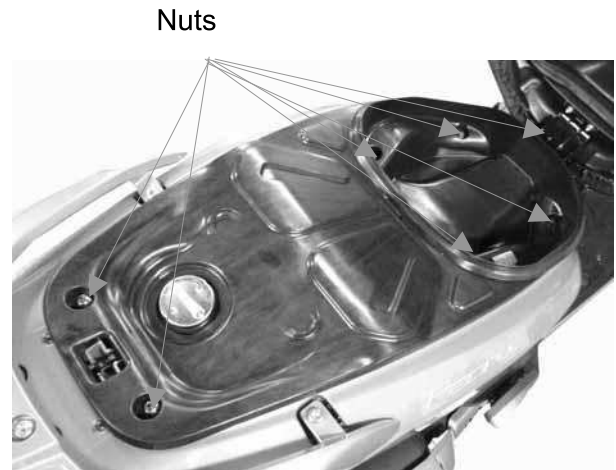
- Caved exhaust muffler
- Clogged exhaust muffler
- Exhaust muffler air leaks

2. EXHAUST MUFFLER/FRAME COVERS

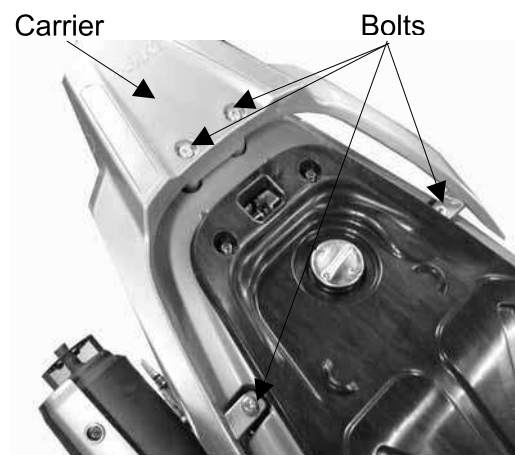
FRAME COVERS REMOVAL

REAR CARRIER

Remove the met-in box.
First remove the eight nuts attaching the met-in box.
Remove the met-in box.

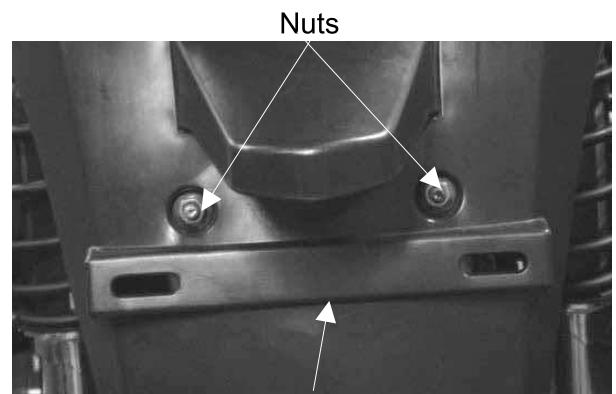


Remove the four bolts attaching the rear carrier.
Remove the rear carrier.

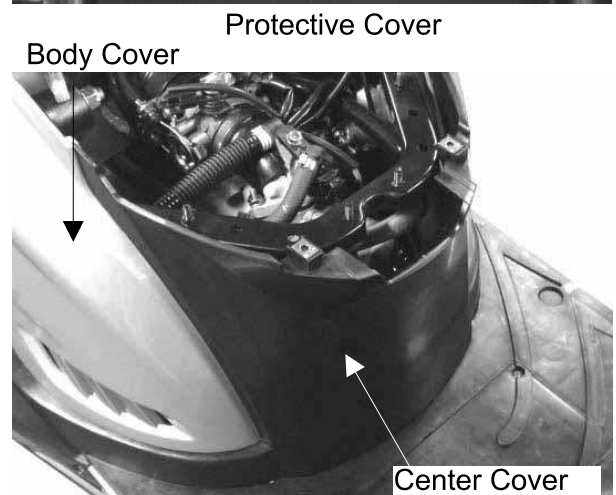


FRAME BODY COVER REMOVAL

Remove the two nuts attaching the rear protective cover.
Remove the rear protective cover.



Remove the center cover.
Remove the body cover.



2. EXHAUST MUFFLER/FRAME COVERS

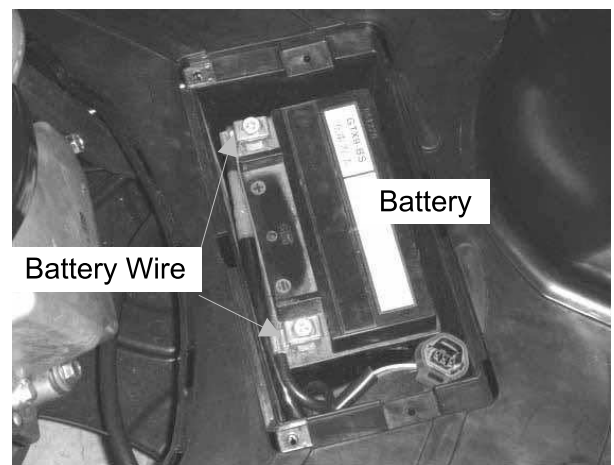
FLOOR-FOOT REMOVAL

Remove the screws attaching the right and left side covers.
Remove the right and left side covers by pulling them outward.

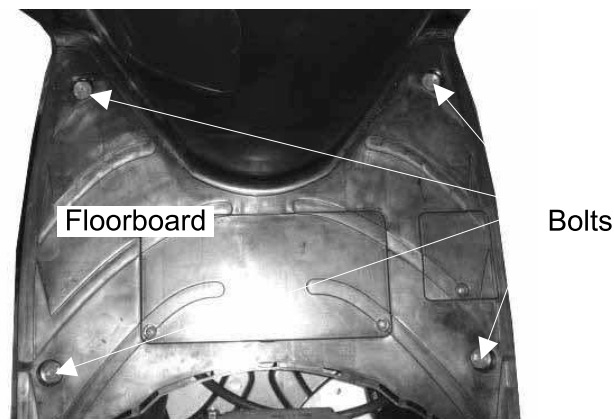


Screws

Disconnect the battery wire.
Remove the battery.

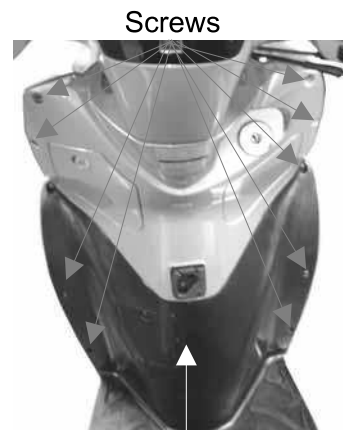


Remove the floor mat.
Remove the center cover. (⇒2-3)
Remove the four bolts attaching the floorboard.
Remove the floorboard.
The installation sequence is the reverse of removal.



LEG SHIELD REMOVAL

Remove the met-in box.
Remove the body cover.
Remove the floorboard.
Remove the front upper cover.
Remove the screws attaching the leg shield low.
Disconnect the leg shield low with the cowl under cover.
The installation sequence is the reverse of removal.



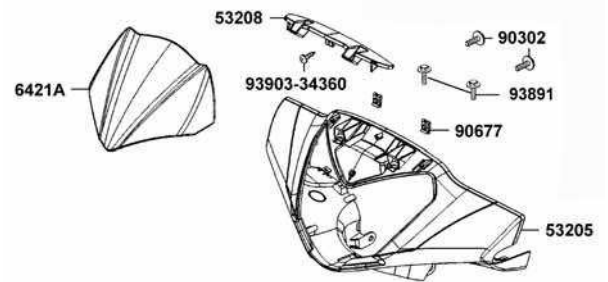
Leg Shield Low

2. EXHAUST MUFFLER/FRAME COVERS

WINDSHIELD REMOVAL

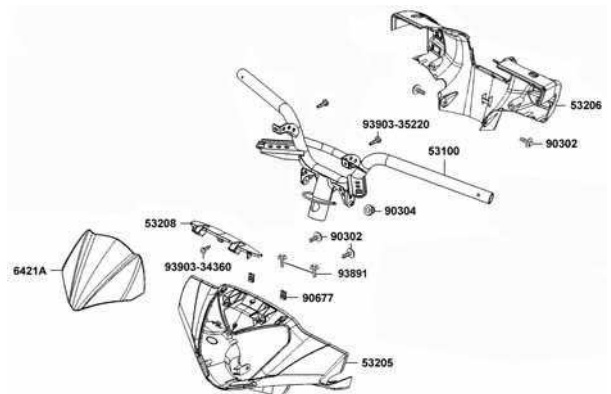
Remove the two bolts attaching the front windshield.
 Remove the windshield cover.
 Remove the windshield.

- 6421A-LGE5-E00 Windshield*1
- 53208-LGE5-E00 Windshield Cover*1
- 90302-GFY6-940 Bolt 5*16mm*2

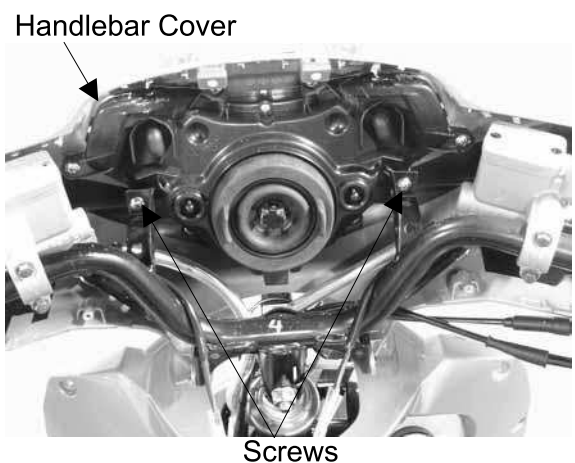


HANDLEBAR COVER REMOVAL

First remove the two bolts attaching the windshield.
 Remove the two screws and four bolts attaching the handlebar rear cover.
 Remove the handlebar rear cover.
 The installation sequence is the reverse of removal.

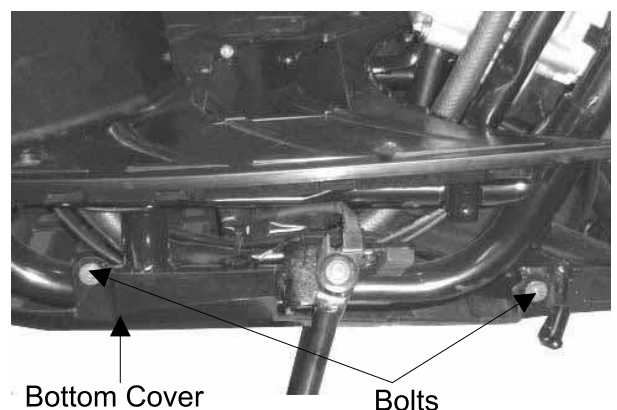


Remove the two screws attaching the handlebar cover
 Remove the handlebar cover.
 The installation sequence is the reverse of removal.



BOTTOM COVER REMOVAL

Remove the four bolts attaching the bottom cover.
 Remove the bottom cover.



2. EXHAUST MUFFLER/FRAME COVERS

EXHAUST MUFFLER REMOVAL

Remove three lock nuts from joint in the exhaust muffler.

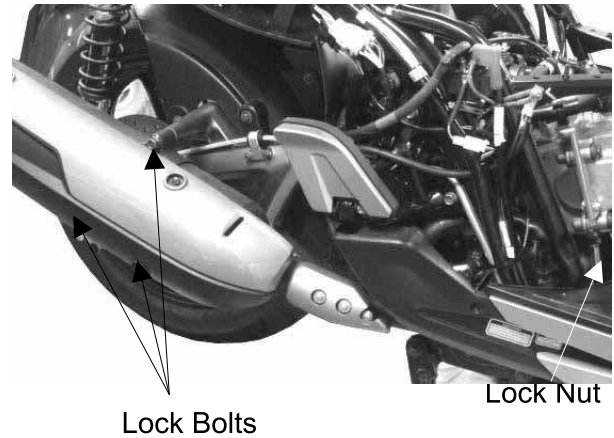
Remove the exhaust muffler two lock bolts to remove the exhaust muffler.

Remove the exhaust muffler joint packing collar.

The installation sequence is the reverse of removal.

Torque:

| | |
|--------------------------------|--------|
| Exhaust muffler lock bolt | 35 N-m |
| Exhaust muffler joint lock nut | 20 N-m |



3. INSPECTION/ADJUSTMENT



INSPECTION / ADJUSTMENT

| | |
|--------------------------------|-------|
| SERVICE INFORMATION----- | 3- 1 |
| MAINTENANCE SCHEDULE----- | 3- 2 |
| THROTTLE OPERATION ----- | 3- 3 |
| ENGINE OIL ----- | 3- 4 |
| RESERVE TANK ----- | 3- 5 |
| AIR CLEANER ----- | 3- 6 |
| SPARK PLUG ----- | 3- 6 |
| VALVE CLEARANCE----- | 3- 7 |
| CYLINDER COMPRESSION ----- | 3- 7 |
| FINAL REDUCTION GEAR OIL ----- | 3- 8 |
| DRIVE BELT ----- | 3- 8 |
| BRAKE SYSTEM ----- | 3- 9 |
| CLUTCH SHOE WEAR ----- | 3- 10 |
| SUSPENSION----- | 3- 10 |
| NUTS/BOLTS/FASTENERS----- | 3- 11 |
| WHEELS/TIRES ----- | 3- 11 |
| STEERING HANDLEBAR ----- | 3- 11 |
| SIDE STAND ----- | 3- 12 |

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 : 2~6 mm
 Spark plug : NGK: CR7E
 Spark plug gap : 0.6 mm ~ 0.7 mm
 Valve clearance : IN: 0.10 mm EX: 0.10 mm
 Idle speed : 1800±100 rpm

Engine oil capacity:

Cylinder compression: 15 kg/cm²
 At disassembly : 1.2 Liter Ignition timing : ECU
 At change : 1.0 Liter Coolant type : Liquid Cooling

Gear oil capacity :

At disassembly : 0.13 Liter
 At change : 0.12 Liter

TIRE

| | 1 Rider | 2 Riders |
|-------|-------------------------|-------------------------|
| Front | 1.75 kg/cm ² | 2.00 kg/cm ² |
| Rear | 1.75 kg/cm ² | 2.25 kg/cm ² |

TIRE SPECIFICATION

Front : 110/70-16
 Rear : 140/70-16

TORQUE VALUES

Front axle nut : 20 N-m
 Rear axle nut : 120 N-m

SPECIAL TOOL

Tappet Adjuster E012

3. INSPECTION/ADJUSTMENT

Maintenance schedule

Perform the pre-ride inspection (see page 21) at each scheduled maintenance period. This interval should be judged by odometer reading or months, whichever comes first.

Maintenance schedule legend

I: INSPECT AND CLEAN, ADJUST, LUBRICATE OR REPLACE IF NECESSARY

C: CLEAN R: REPLACE A: ADJUST L: LUBRICATE

The maintenance schedule on the following two pages specifies the maintenance required to keep your **DOWNTOWN 300i** scooter in peak operating condition. Maintenance work should be performed in accordance with KYMCO standards and specifications by properly trained and equipped technicians. Your KYMCO dealer meets all of these requirements.

- * Should be serviced by your KYMCO dealer, unless you have the proper tools, service data and are technically qualified.
- ** In the interest of safety, we recommend these items be serviced only by your KYMCO dealer. KYMCO recommends that your KYMCO dealer road test your scooter after each periodic maintenance service is completed.

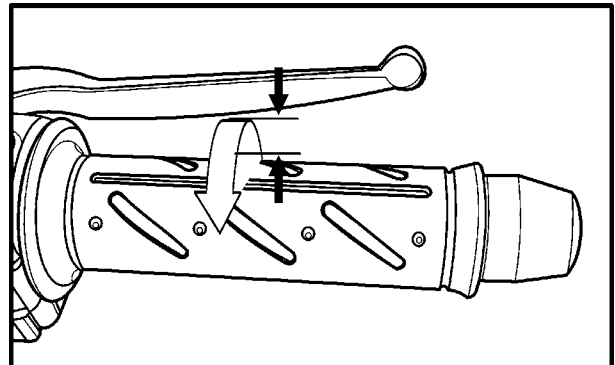
| ITEM | | FREQUENCY | WHICHEVER COMES FIRST | ODOMETER READING | | | | | | | |
|------|------------------------|-----------|-----------------------|---|----|----|----|----|----|---|--|
| | | | |  | | | | | | | |
| | | X 1000 km | 1 | 5 | 10 | 15 | 20 | 25 | 30 | | |
| | | X 1000 mi | 0.6 | 3 | 6 | 9 | 12 | 15 | 18 | | |
| | | MONTH | 1 | 6 | 12 | 18 | 24 | 30 | 36 | | |
| * | AIR CLEANER | | | R | R | R | R | R | R | R | |
| | SPARK PLUGS | | | I | R | I | R | I | R | | |
| * | THROTTLE OPERATION | | | I | I | I | I | I | I | | |
| * | VALVE CLEARANCE | | | I | A | I | A | I | A | | |
| * | FUEL LINE | | | | I | | I | | I | | |
| | CRANKCASE BREATHER | | C | C | C | C | C | C | C | | |
| * | ENGINE OIL | | R | R | R | R | R | R | R | | |
| * | ENGINE OIL SCREEN | | | C | R | C | R | C | R | | |
| * | ENGINE OIL FILTER | | R | R | R | R | R | R | R | | |
| * | ENGINE IDLE SPEED | | | | I | | I | | I | | |
| * | TRANSMISSION OIL | | R | R | R | R | R | R | R | | |
| * | DRIVE BELT | | | I | I | I | I | I | I | | |
| ** | CLUTCH SHOE WEAR | | | | I | | I | | I | | |
| | BRAKE FLUID | | | I | R | I | R | I | R | | |
| | BRAKE PAD WEAR | | | I | I | I | I | I | I | | |
| | BRAKE SYSTEM | | | I | I | I | I | I | I | | |
| * | BRAKE LIGHT SWITCH | | | I | I | I | I | I | I | | |
| ** | STEERING BEARINGS | | | I | I | I | I | I | I | | |
| * | HEADLIGHT AIM | | | I | I | I | I | I | I | | |
| * | NUTS, BOLTS, FASTENERS | | | I | I | I | I | I | I | | |
| ** | WHEELS/TIRES | | | I | I | I | I | I | I | | |
| ** | COOLANT | | | I | R | I | R | I | R | | |

3. INSPECTION/ADJUSTMENT

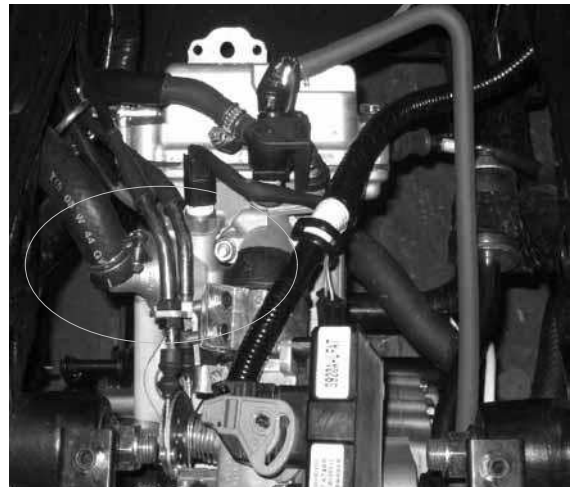
THROTTLE OPERATION

Check the throttle grip for smooth movement.
Measure the throttle grip free play.

Free Play: 2~6 mm

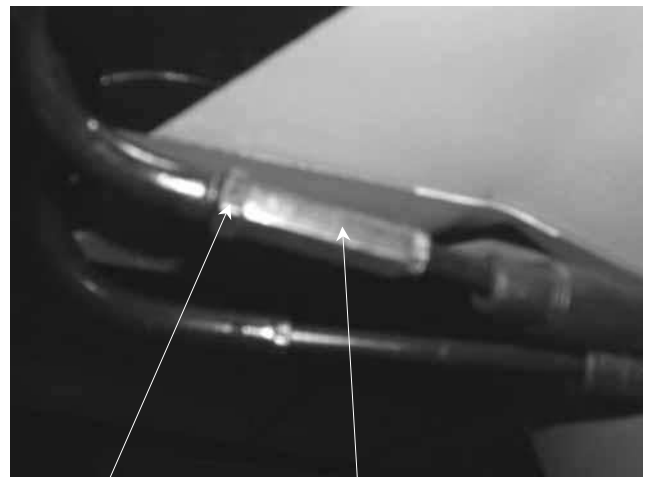


Major adjustment of the throttle grip free play is made with the adjusting nut at the throttle body side. Adjust by loosening the lock nut and turning the adjusting nut.



Minor adjustment is made with the adjusting nut at the throttle grip side.

Slide the rubber cover out and adjust by loosening the lock nut and turning the adjusting nut.



Lock Nut

Adjusting Nut

3. INSPECTION/ADJUSTMENT

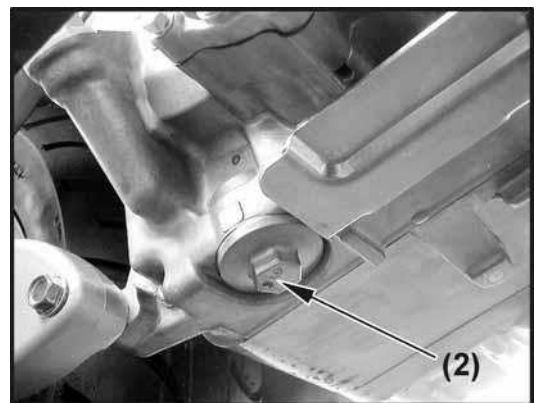
*



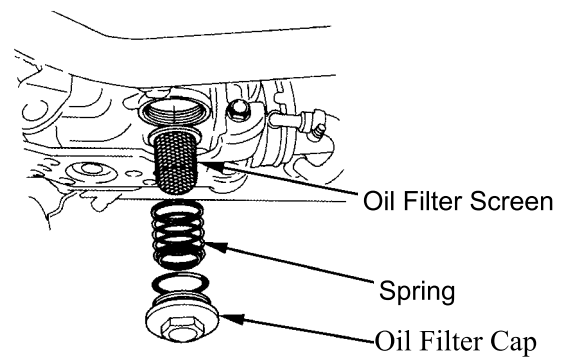
Dipstick



Oil Drain Bolt



(2) Oil Filter Screen



3. INSPECTION/ADJUSTMENT

OIL FILTER REPLACEMENT

Remove the oil filler cap attaching the right-under crankcase cover.

Place a drain pan under the crankcase.

Remove three bolts and then remove the oil filter cap and O-ring

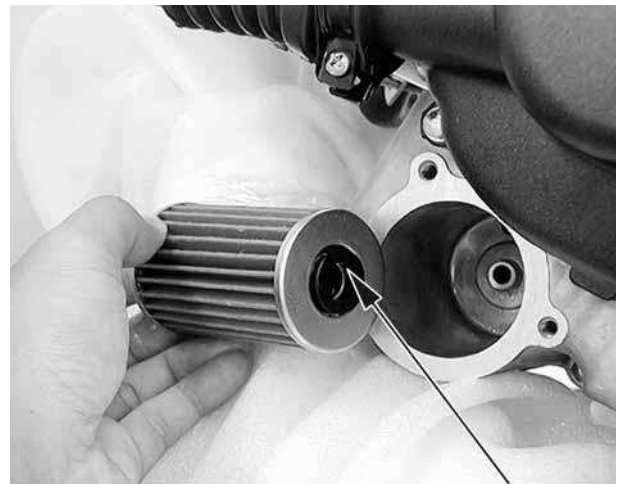
The spring will come out when the filter cap is removed.

Let the engine oil drain out.

Check that the O-ring is in good condition.

Install a new oil filter.

* Make sure the rubber seal on the oil filter facing the left crankcase.



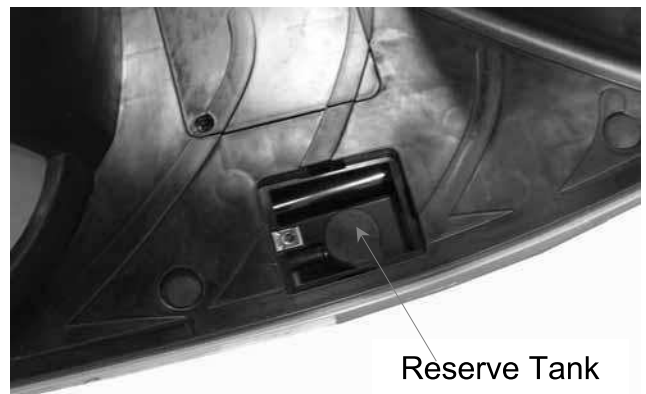
Rubber Seal

RESERVE TANK COOLANT LEVEL INSPECTION

The reserve tank is under left floorboard. Check the coolant level through the inspection window at the left side skirt while the engine is at the normal operating temperature, with the scooter in an upright position.

If the coolant level is below the LOWER level mark, remove the left floor mat, remove the lid screw, the reserve tank lid, and then the reserve tank cap to add coolant mixture until it reaches the upper level mark.

* Add coolant to the reserve tank only. Do not attempt to add coolant by removing the radiator cap. Coolant in the radiator is under pressure and is very hot and can cause serious burns.



Reserve Tank

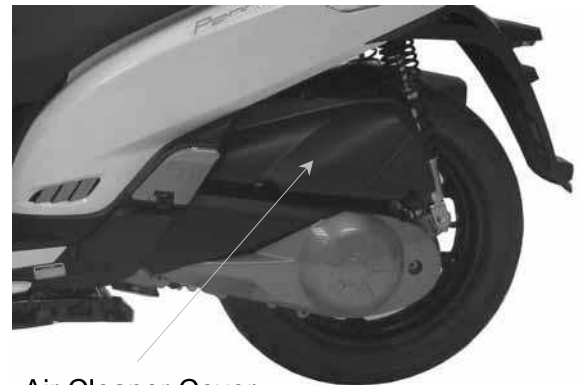


3. INSPECTION/ADJUSTMENT

AIR CLEANER

AIR FILTER REPLACEMENT

Remove the body cover.
 Remove seven screws attaching to the air cleaner cover.
 Remove six screws attaching to the filter.
 Check the filter and replace it if it is excessively dirty or damaged.



Air Cleaner Cover

CHANGE INTERVAL

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

- *
 - The air cleaner element has a viscous type paper element. Do not clean it with compressed air.
 - Be sure to install the air cleaner element and cover securely.



SPARK PLUG

Remove the spark plug 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: NGK-CR7E

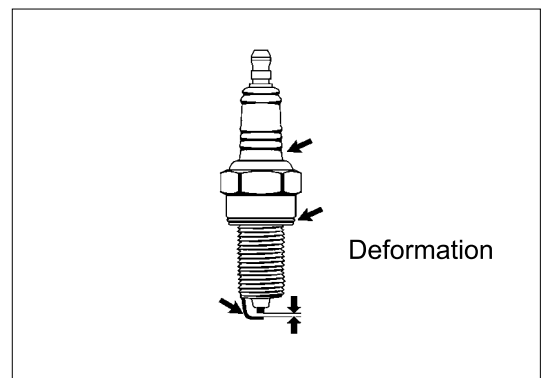
Measure the spark plug gap.

Spark Plug Gap: 0.6 – 0.7 mm



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

Torque: 17.2 N-m



3. INSPECTION/ADJUSTMENT

VALVE CLEARANCE

- * • Inspect and adjust valve clearance while the engine is cold (below 35°C).

Remove the seat assy and luggage box.
Remove the four bolts and then cylinder head cover.

Top Dead Center Mark

Turn the A.C. generator flywheel to the top dead center (TDC) on the compression stroke so that the "T" mark on the flywheel aligns with the index mark on the left crankcase cover.

Inspect and adjust valve clearance.

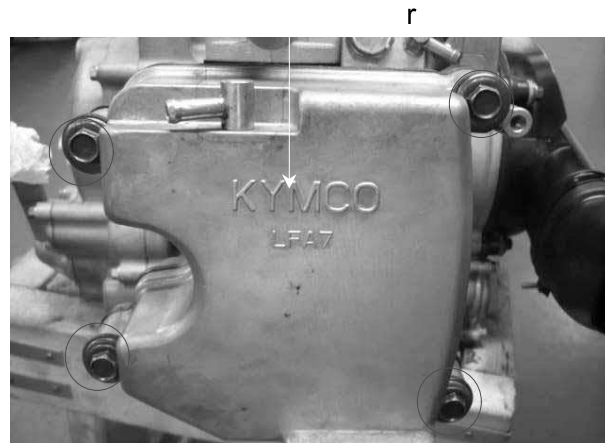
Valve Clearance: IN: 0.10 mm
EX: 0.10 mm

Loosen the lock nut and adjust by turning the adjusting nut



Valve Adjuster E012
Feeler Gauge

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



Bolts
Timing hole cap



Crankshaft hole cap

CYLINDER COMPRESSION

Warm up the engine before compression test.

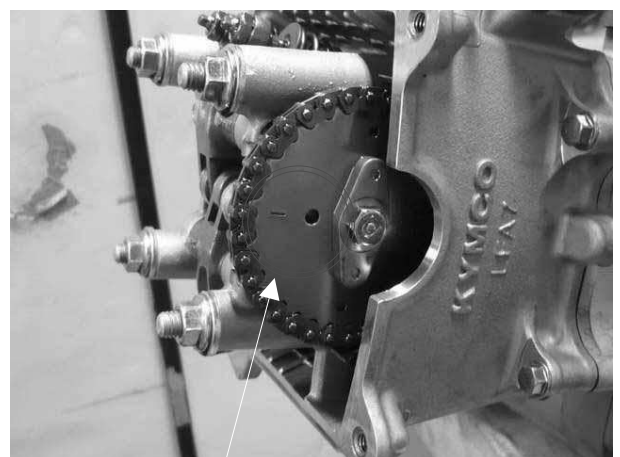
Remove the center cover and luggage box.
Remove the spark plug.
Insert a compression gauge.
Open the throttle fully and push the starter button to test the compression.

Max. Compression: 15 kg/cm² - 570 rpm

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.



Punch Mark

3. INSPECTION/ADJUSTMENT

FINAL REDUCTION GEAR OIL

- * • Place the scooter on its main stand on level ground.

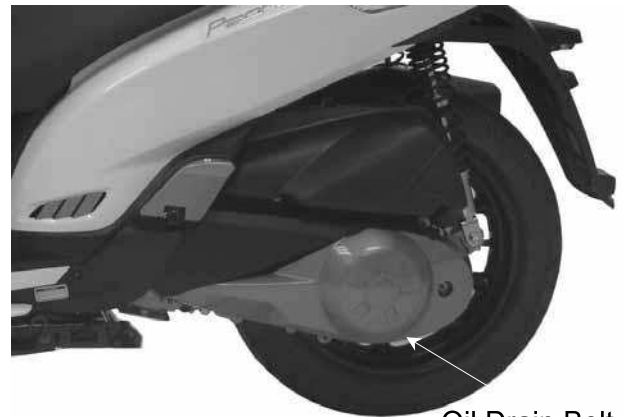
Remove the transmission fluid drain bolt. Remove the transmission fluid filler bolt, then slowly rotate the rear wheel to drain the fluid. Fill the transmission with the recommend fluid to the capacity listed below.

Transmission fluid type: SAE 90#

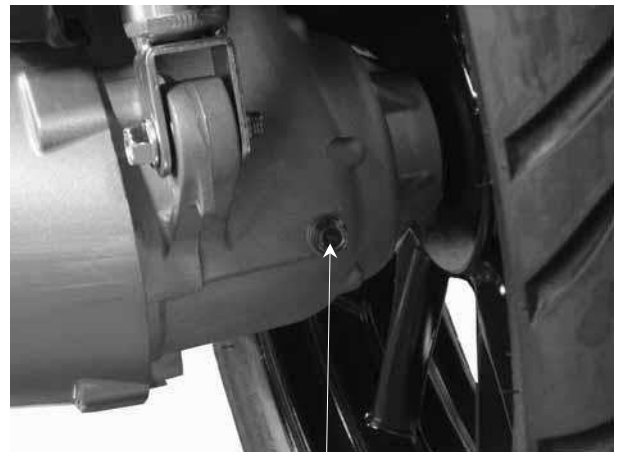
Transmission fluid capacity: 0.13 L

Transmission fluid exchanging capacity: 0.12 L

Install the transmission filler bolt and tighten it to the specified torque.



Oil Drain Bolt

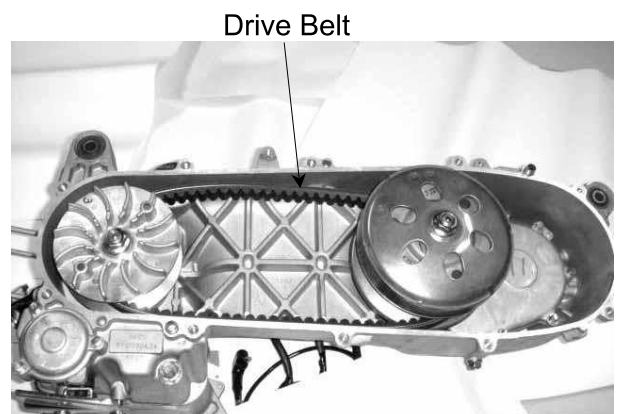


Oil Filler Bolt

DRIVE BELT

Remove the left crankcase cover. Inspect the drive belt for cracks or excessive wear.

Replace the drive belt with a new one if necessary and in accordance with the Maintenance Schedule.



Drive Belt

3. INSPECTION/ADJUSTMENT

BRAKE SYSTEM

BRAKE DISK/BRAKE PAD

Check the brake disk surface for scratches, unevenness or abnormal wear.

Check if the brake disk runout is within the specified service limit.

Check if the brake pad wear exceeds the wear indicator line.

* Keep grease or oil off the brake disk to avoid brake failure.

<Front Brake>



<Rear Brake>



BRAKE FLUID

Turn the steering handlebar upright and check if both brake fluid levels is at the upper limit. If the brake fluid is insufficient, fill to the upper limit.

Specified Brake Fluid: DOT-4

* The brake fluid level will decrease if the brake pads are worn.



3. INSPECTION/ADJUSTMENT

CLUTCH SHOE WEAR

Start engine and check the clutch operation by increasing the engine speed gradually. If the motorcycle tends to creep or the engine stop, check the clutch shoes for wear and replace if necessary.



SUSPENSION

FRONT

Check the action of the front shock absorbers by compressing them several times.

Check the entire shock absorber assembly for oil leaks, looseness or damage.

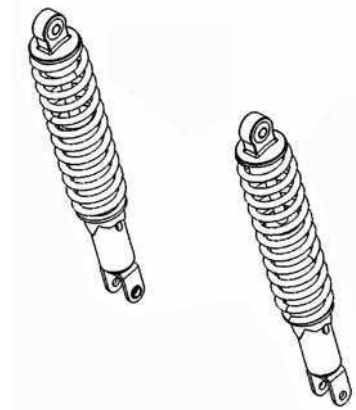


REAR

Each shock absorber(4) on your scooter has 5 spring preload adjustment positions for different load or riding conditions.

Use a pin spanner(5) to adjust the rear shock spring preload. Position 1 is for light loads and smooth road conditions. Position 3 to 5 increase spring preload for a stiffer rear suspension and can be used when the scooter is heavily loaded.

Be certain to adjust both shock absorbers to the same spring preload positions.



3. INSPECTION/ADJUSTMENT

NUTS/BOLTS/FASTENERS

Check all important chassis nuts and bolts for looseness.
Tighten them to their specified torque values if any looseness is found.

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 | 1 Rider (with passenger) |
|-------|-------------------------|--------------------------|
| Front | 1.75 kg/cm ² | 2.00 kg/cm ² |
| Rear | 1.75 kg/cm ² | 2.25 kg/cm ² |

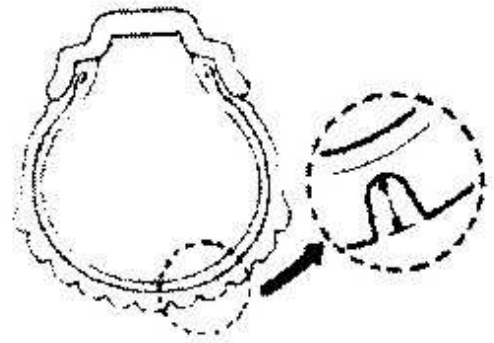
Tire Size:

Front 110/70-16
Rear 140/70-16

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 torques.

Torque:

Front axle nut 20 N-m
Rear axle nut 120 N-m



Front Axle Nut



Rear Axle Nut

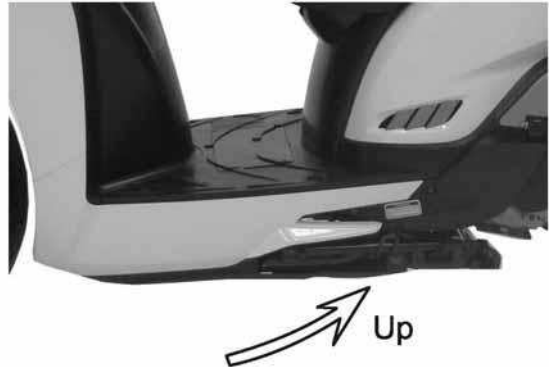
STEERING HANDLEBAR

Raise the front wheel off the ground and check that the steering handlebar rotates freely.
If the handlebar moves unevenly, binds, or has vertical movement, adjust the steering head bearing.

3. INSPECTION/ADJUSTMENT

SIDE STAND

Your scooter's side stand is not only necessary when you park, but it contains an important safety feature. This feature cuts-off the ignition if you try to ride the scooter when the side stand is down. Perform the following side stand inspection.



INTERLOCK FUNCTION CHECK

Check the side stand ignition cut-off system,

1. Place the scooter on its center stand.
2. Put the side stand up and start the engine.
3. Lower the side stand. The engine should stop as you put the side stand down.



* If the side stand system does not operate as described, see your KYMCO dealer for service.

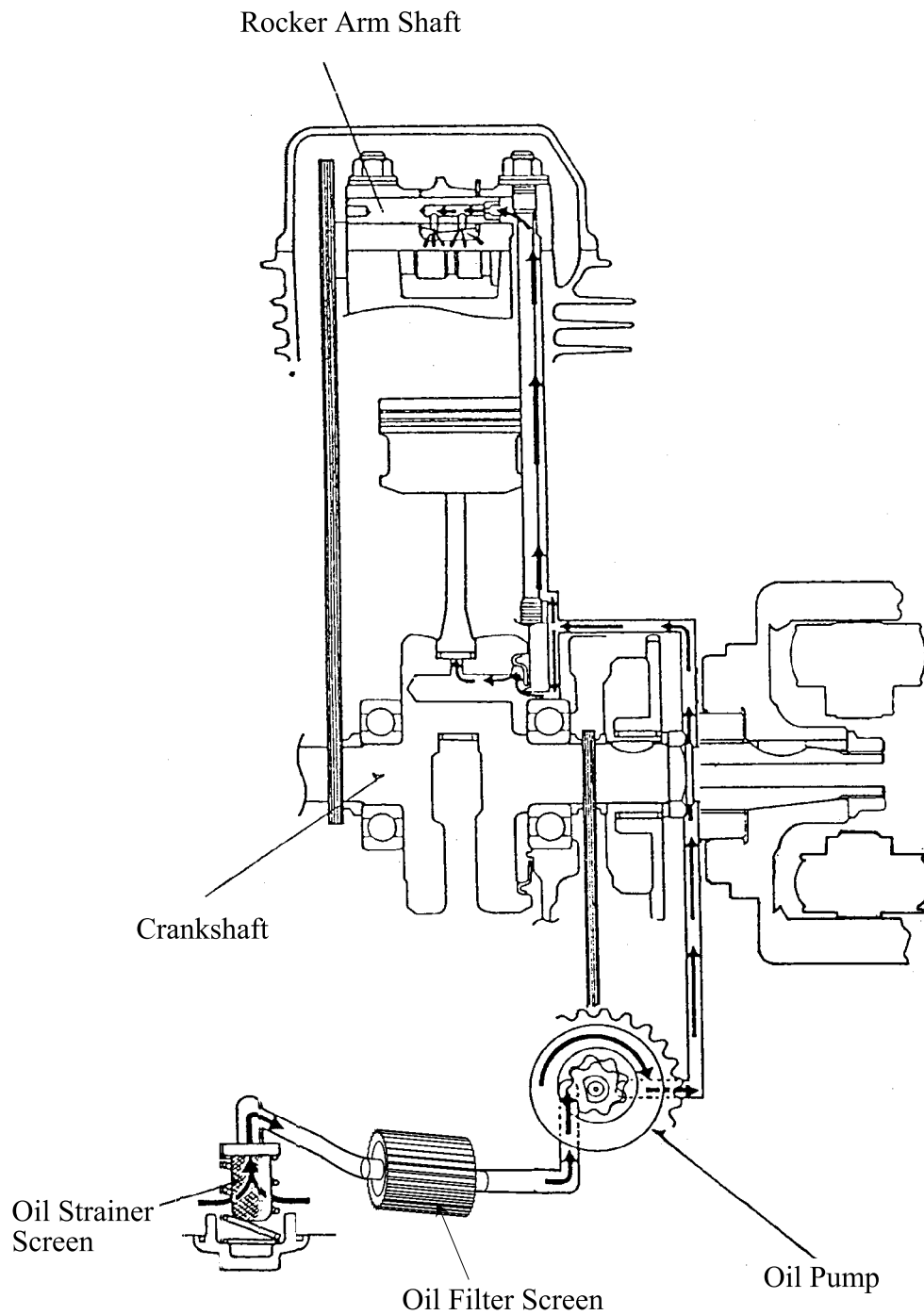
4. LUBRICATION SYSTEM



LUBRICATION SYSTEM

| | |
|----------------------------------|-----|
| LUBRICATION SYSTEM DIAGRAM ----- | 4-1 |
| SERVICE INFORMATION----- | 4-2 |
| TROUBLESHOOTING----- | 4-2 |
| OIL PUMP ----- | 4-3 |

4. LUBRICATION SYSTEM



4. LUBRICATION SYSTEM

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- The maintenance of lubrication system can be performed with the engine installed in the frame.
- Drain the coolant before starting any operations.
- Be careful when removing and installing the oil pump not to allow dust and foreign matters to enter the engine and oil line.
- Do not attempt to disassemble the oil pump. The oil pump must be replaced as a set when it reaches its service limit.
- After the oil pump is installed, check each part for oil leaks.

SPECIFICATIONS

| Item | | Standard (mm) |
|--------------------------------------|-----------------|------------------|
| Inner rotor-to-outer rotor clearance | | 0.15 |
| Outer rotor-to-pump body clearance | | 0.15~0.2 |
| Rotor end-to-pump body clearance | | 0.04~0.09 |
| Engine Oil Capacity | At disassembly: | 1.2 liter |
| | At change: | 1.0 liter |
| Recommended Oil | | SAE15W40 API: SJ |

TROUBLESHOOTING

Oil level too low

- Natural oil consumption
- Oil leaks
- Worn piston rings
- Worn valve guide
- Worn valve guide seal

Oil contamination

- Oil not changed often enough
- Faulty cylinder head gasket
- Loose cylinder head bolts

Poor lubrication pressure

- Oil level too low
- Clogged oil filter or oil passage
- Faulty oil pump

4. LUBRICATION SYSTEM

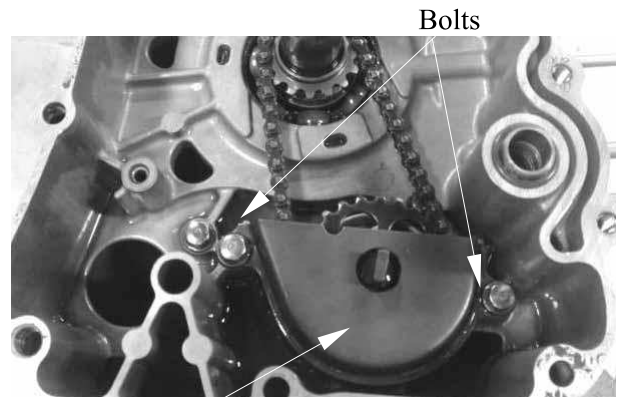
OIL PUMP

REMOVAL

Remove the flywheel and driven gear (refer to the “**Starter Clutch**” section in the chapter 10).

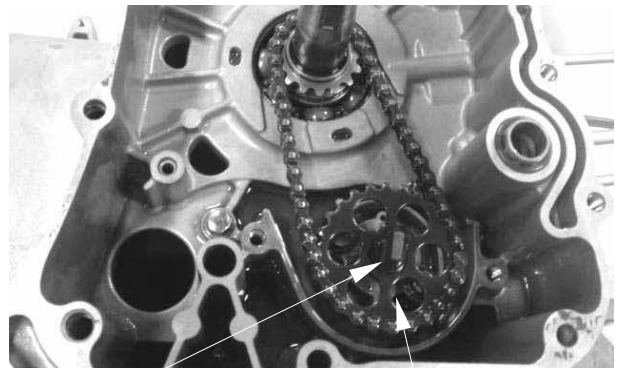
Remove the bolt and then oil separator cover.

* When removing and installing the oil pump, be careful not to allow dust or dirt to enter the engine.



Oil Separator Cover

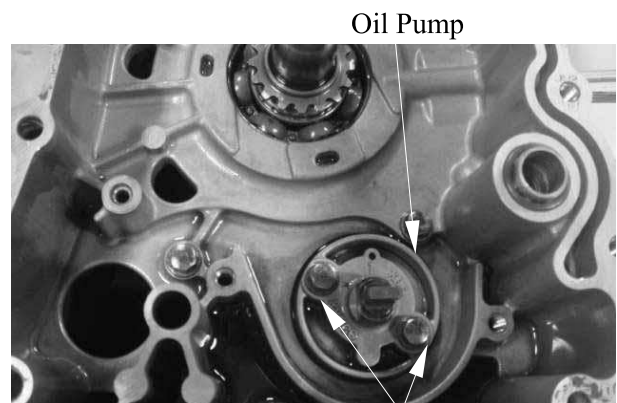
Pry the snap ring off and remove the oil pump driven gear, then remove the oil pump drive chain.



Snap Ring

Oil Pump Driven Gear

Remove the two oil separator bolts to remove the oil pump.



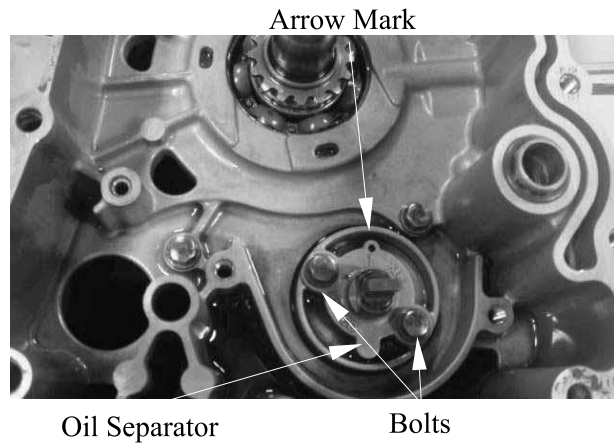
Oil Separator Bolt

4. LUBRICATION SYSTEM

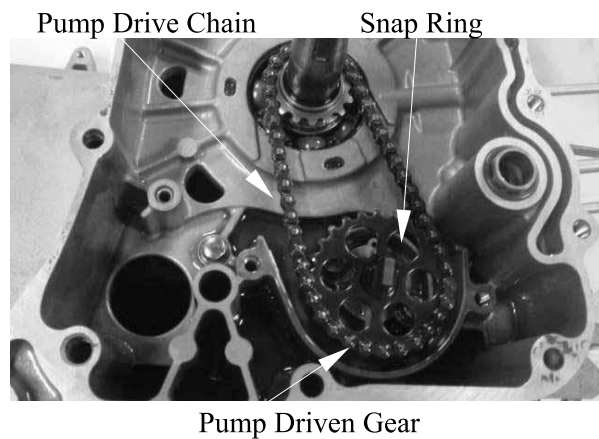
INSTALLATION

Install the oil pump and oil separator and tighten the two bolts.
The arrow mark must be keep upward.

* Make sure the pump shaft rotates freely and arrow on the oil pump is upside.



Install the pump drive chain and driven gear, then set the snap ring securely on the pump shaft.



Install the oil separator cover properly.

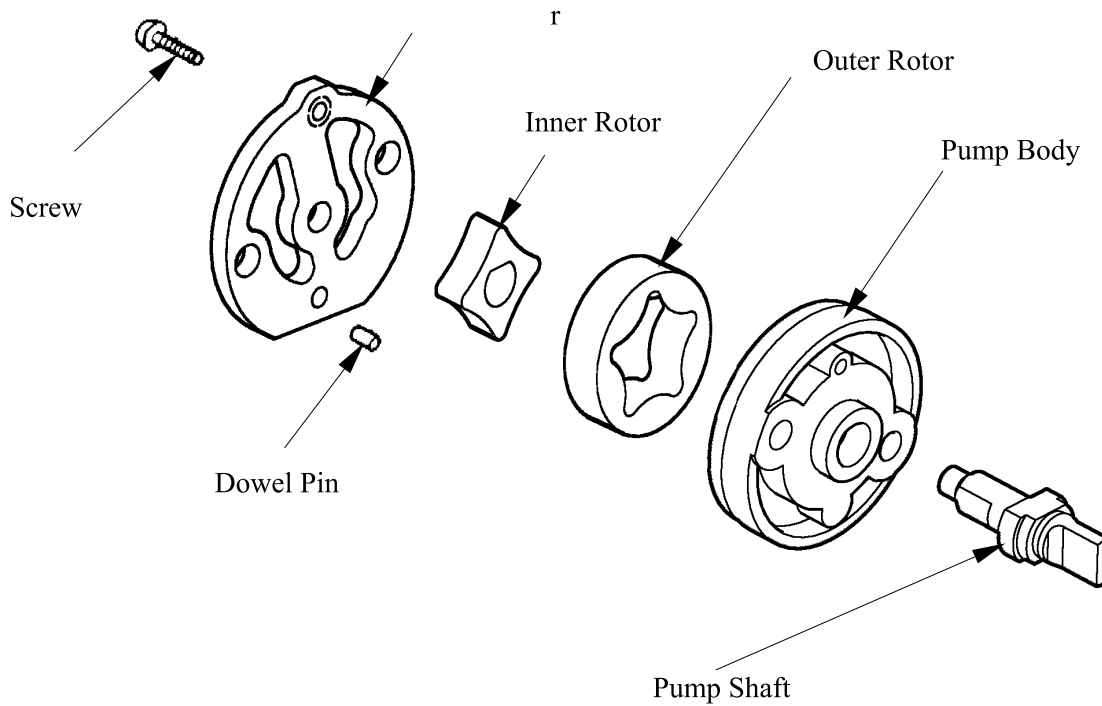
* Fit the tab of the separator cover into the slit in the separator.



4. LUBRICATION SYSTEM

DISASSEMBLY

Remove the screw and disassemble the oil pump as shown.



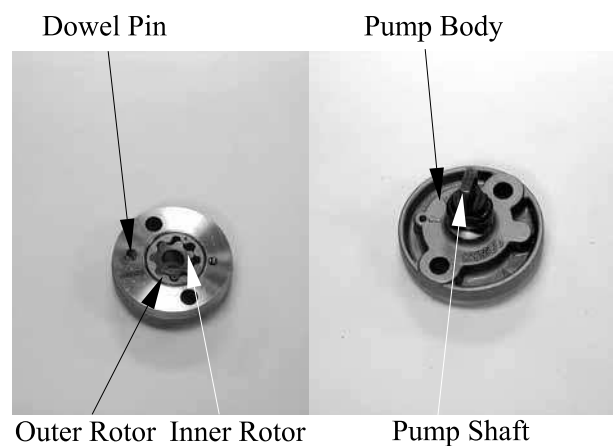
ASSEMBLY

Install the outer rotor, inner rotor and pump shaft into the pump body.

* Insert the pump shaft by aligning the flat on the shaft with the flat in the inner rotor. Install the dowel pin.

There is one punch mark on the surface of the inner rotor and outer rotor.

The mark is upside.



5. ENGINE REMOVAL/INSTALLATION

People GT 125i

5

ENGINE REMOVAL/INSTALLATION

| | |
|----------------------------------|-----|
| SERVICE INFORMATION----- | 5-1 |
| ENGINE REMOVAL/INSTALLATION----- | 5-2 |
| ENGINE HANGER ----- | 5-6 |

5. ENGINE REMOVAL/INSTALLATION

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- A floor jack or other adjustable support is required to support and maneuver the engine. Be careful not to damage the scooter body, cables and wires during engine removal.
- Use shop towels to protect the scooter body during engine removal.
- Drain the coolant before removing the engine.
- After the engine is installed, fill the cooling system with coolant and be sure to bleed air from the water jacket. Start the engine to check for coolant leaks.
- Before removing the engine, the rear brake caliper must be removed first. Be careful not to bend or twist the brake fluid tube.

SPECIFICATIONS

Engine oil capacity: at disassembly: 1.2 L
: at change: 1.0 L

Coolant capacity:

Radiator capacity : 0.87 liter

Reserve tank capacity : 0.49 liter

TORQUE VALUES

Engine hanger (Engine side) 5.0 kgf-m (50 N-m)

Engine hanger (Frame side) 6.5 kgf-m (65 N-m)

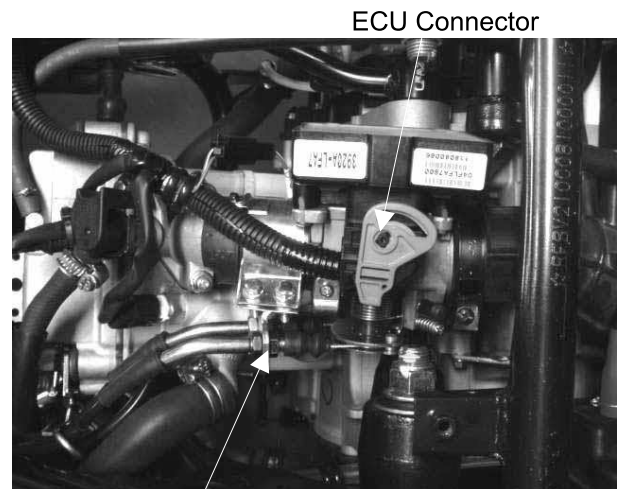
5. ENGINE REMOVAL/INSTALLATION

People GT 125i

ENGINE REMOVAL/INSTALLATION

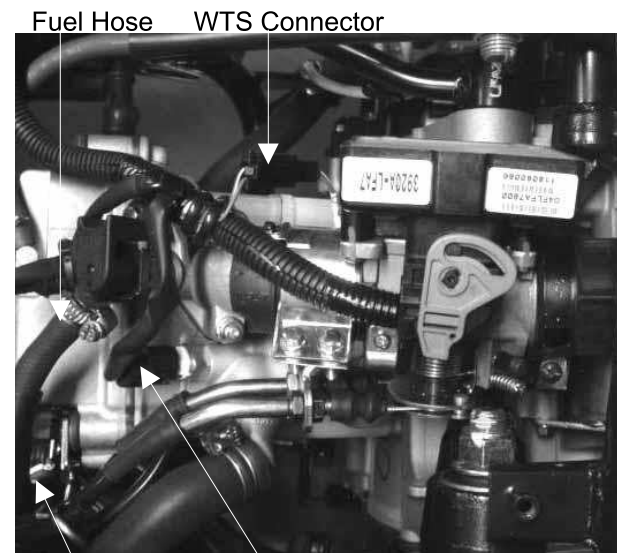
REMOVAL

Remove the air cleaner
 Disconnect the ECU connector
 Disconnect the O2 heater/O2 sensor connector
 Disconnect the throttle cable.

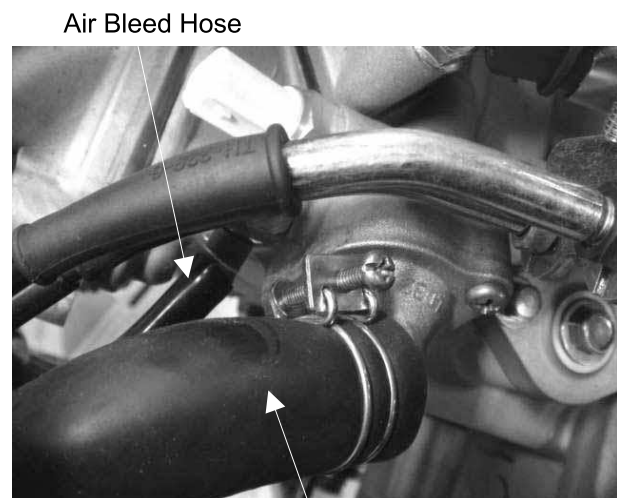


ECU Connector
 Throttle Cable

Remove a bolt from fuel hose guide.
 Disconnect the fuel hose from fuel injector.
 Disconnect the WTS connector from WTS.
 Disconnect the coolant temperature sensor connector from coolant temperature sensor.
 Disconnect the fuel injector connector
 Disconnect the output water hose
 Disconnect the air bleed hose



Fuel Hose WTS Connector
 Fuel Hose Guide WTS

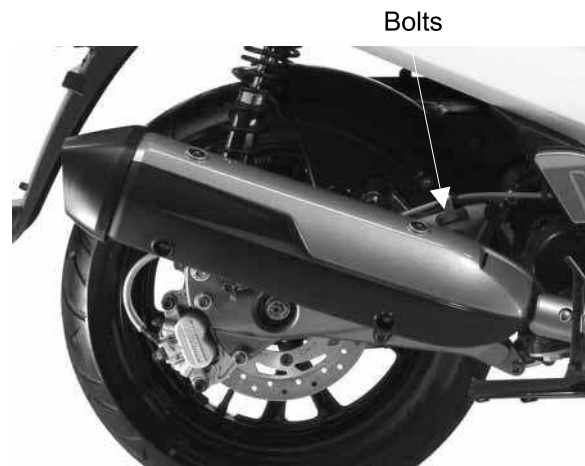


Air Bleed Hose
 Output Water Hose

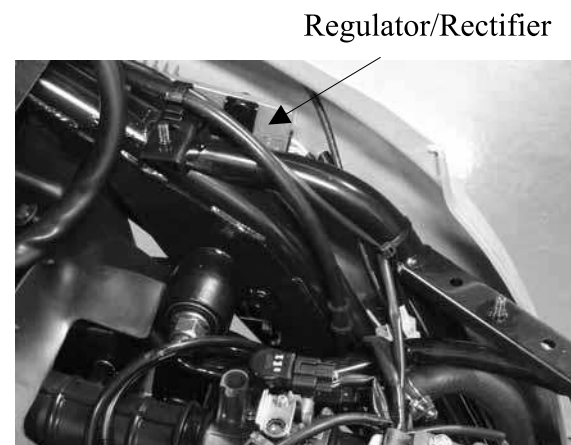
5. ENGINE REMOVAL/INSTALLATION

Loosen the rear axle nut.
Support the scooter securely on its main stand.

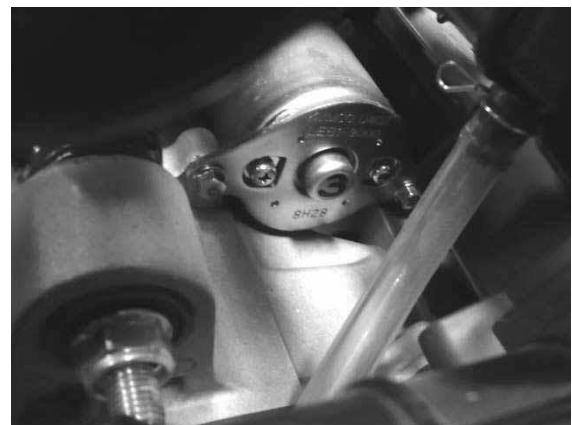
Remove three bolts attaching to rear brake hose clamps.
Remove the two bolts, then remove the rear brake caliper.



Disconnect the Regulator/Rectifier connector.
Disconnect the ignition pulse generator connector.



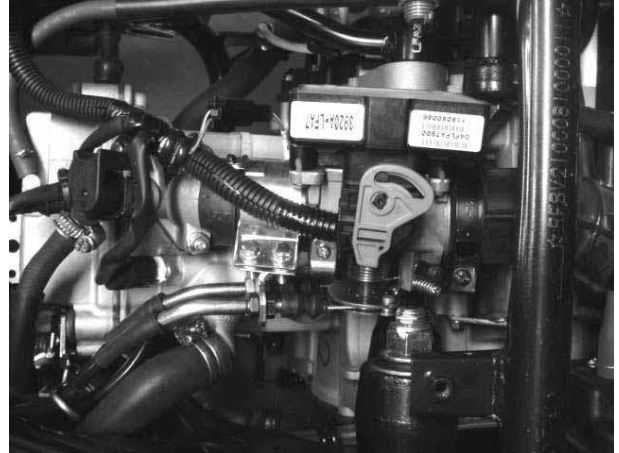
Release the rubber cap and remove the terminal screw to disconnect the start motor cable from the start motor.
Remove the bolts and engine ground cable.



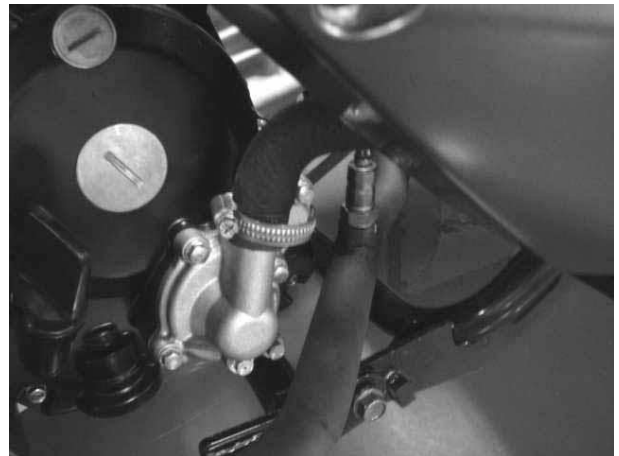
5. ENGINE REMOVAL/INSTALLATION

People GT 125i

Remove the spark plug cap.



Disconnect the lower radiator hose from lower radiator pipe.



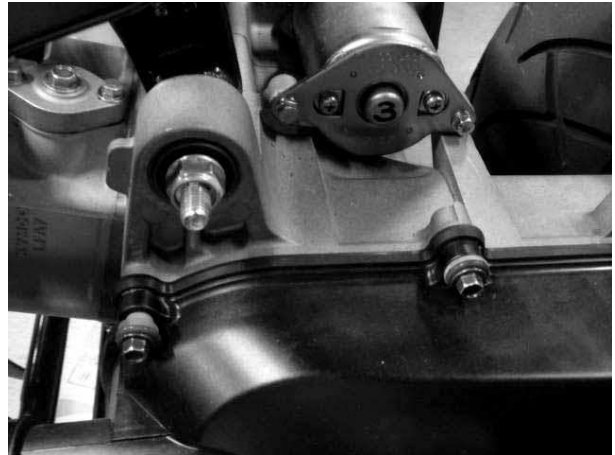
Remove the right and left rear shock absorber lower mount bolts.



5. ENGINE REMOVAL/INSTALLATION

Remove the engine mount nut
Pull out the engine mount bolt.
Remove the engine from the frame.

At removing the engine, be careful not to catch your hand or finger between the engine hanger and crankcase.



INSTALLATION

Installation is in the reverse order of removal.

Tighten the engine mounting bolt/nut to the specified torque.

Torque: 5 kgf-m (50 N-m)

Tighten the right and left rear shock absorber lower mount bolts to the specified torque.

Torque: 4.0kgf-m (40N-m)

Install the rear brake caliper and tighten the mount bolts to the specified torque.

Torque: 3.2 kgf-m (32 N-m, 23 lbf-ft)

After installation, inspect and adjust the following:

- Throttle grip free play
 - Fill the cooling system with coolant and start the engine to bleed air from the system.
- API/ABV Reset(Refer to chapter14)

5. ENGINE REMOVAL/INSTALLATION

ENGINE HANGER

REMOVAL

Remove the engine mount nut.
Pull the engine mount bolt out.

Be careful to put the engine down.

Remove the left engine hanger mount bolt.
Remove the right engine hanger mount bolt and collar.
Remove the engine from frame.



INSTALLATION

Installation is in the reverse order of removal.

Tighten the engine hanger mount bolts to the specified torque (Engine side).

Torque: 5 kgf-m (50 N-m)

Tighten the engine mount bolt/nut to the specified torque. (Body Frame side)

Torque: 5 kgf-m (50 N-m, 36 lbf-ft)

CYLINDER HEAD/VALVES

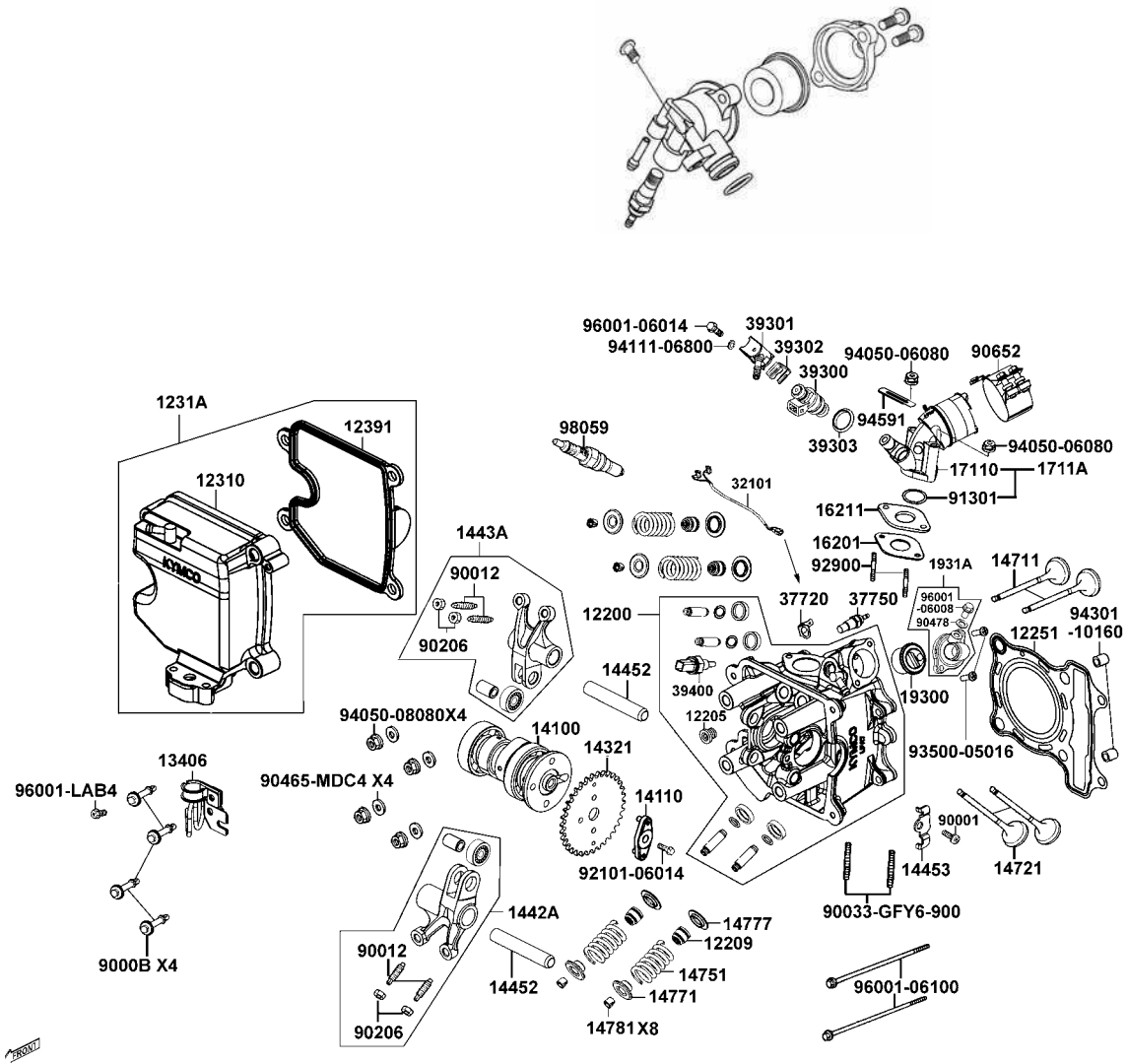


| | |
|--------------------------|------|
| SCHEMATIC DRAWING ----- | 6- 1 |
| SERVICE INFORMATION----- | 6- 2 |
| TROUBLESHOOTING----- | 6- 3 |
| CYLINDER HEAD COVER----- | 6- 4 |
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| CAMSHAFT ----- | 6- 8 |
| CYLINDER HEAD----- | 6-13 |

6. CYLINDER HEAD/VALVES

People GT 125i

SCHEMATIC DRAWING



6. CYLINDER HEAD/VALVES

People GT 125i

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- The cylinder head can be serviced with the engine installed in the frame. Coolant in the radiator and water jacket must be drained first.
- When assembling, apply molybdenum disulfide grease or engine oil to the valve guide movable parts and valve arm sliding surfaces for initial lubrication.
- The valve rocker arms are lubricated by engine oil through the cylinder head engine oil passages. Clean and unclog the oil passages before assembling the cylinder head.
- After disassembly, clean the removed parts and dry them with compressed air before inspection.
- After removal, mark and arrange the removed parts in order. When assembling, install them in the reverse order of removal.

SPECIFICATIONS

| Item | | Standard (mm) |
|------------------------------------|----|----------------------|
| Valve clearance (cold) | IN | 0.1 |
| | EX | 0.1 |
| Cylinder head compression pressure | | 15kg-cm ² |
| Cylinder head warpage | | — |
| Camshaft cam height | IN | 25.965 |
| | EX | 25.810 |
| Valve rocker arm I.D. | IN | 10.0~10.015 |
| | EX | 10.0~10.015 |
| Valve rocker arm shaft O.D. | IN | 9.972~9.987 |
| | EX | 9.972~9.987 |
| Valve stem O.D. | IN | 4.975~4.970 |
| | EX | 4.975~4.970 |
| Valve guide I.D. | IN | 5.0~5.012 |
| | EX | 5.0~5.012 |
| Valve stem-to-guide clearance | IN | 0.010~0.037 |
| | EX | 0.030~0.057 |

TORQUE VALUES

| | |
|--------------------------|----------------|
| Cylinder head cover bolt | 0.8~0.9 kgf-m |
| Tensioner mounting bolt | 0.9 kgf-m |
| Tensioner sealing bolt | 0.9 kgf-m |
| Cylinder head cap nut | 2.0 kgf-m |
| Cylinder head bolt | 0.7~1.1~ kgf-m |

SPECIAL TOOLS

| | |
|-------------------------|------------|
| Valve spring compressor | A120E00040 |
|-------------------------|------------|

6. CYLINDER HEAD/VALVES

TROUBLESHOOTING

- The poor cylinder head operation can be diagnosed by a compression test or by tracing engine top-end noises.

Poor performance at idle speed

- Compression too low

Compression too low

- Incorrect valve clearance adjustment
- Burned or bent valves
- Incorrect valve timing
- Broken valve spring
- Poor valve and seat contact
- Leaking cylinder head gasket
- Warped or cracked cylinder head
- Poorly installed spark plug

Compression too high

- Excessive carbon build-up in combustion chamber

White smoke from exhaust muffler

- Worn valve stem or valve guide
- Damaged valve stem oil seal

Abnormal noise

- Incorrect valve clearance adjustment
- Sticking valve or broken valve spring
- Damaged or worn camshaft
- Worn cam chain tensioner
- Worn camshaft and rocker arm

6. CYLINDER HEAD/VALVES

CYLINDER HEAD COVER

REMOVAL

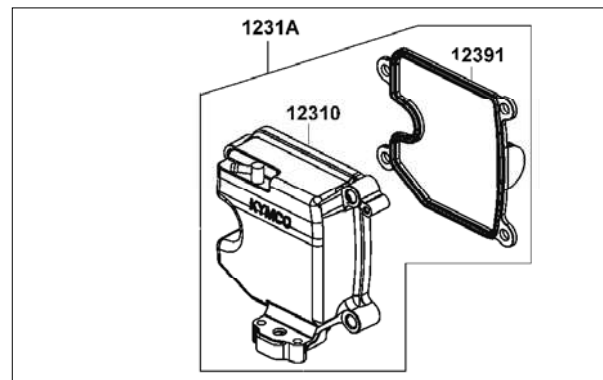
Remove the four bolts, then remove the cylinder head cover.



INSTALLATION

Install a new cylinder head cover O-ring and install the cylinder head cover.

* Be sure to install the O-ring into the groove properly.



Install and tighten the cylinder head cover bolts to the specified torque in a crisscross pattern.

Torque: 0.8~0.9kgf-m



6. CYLINDER HEAD/VALVES

CAMSHAFT HOLDER

REMOVAL

Turn the A.C. Generator Flywheel so that the T mark on the flywheel aligns with the index mark on the crankcase.

Hold the round hole on the camshaft gear facing up and location is the top dead center on the compression stroke.

Remove the two bolts attaching the tensioner
 Remove the four cap nuts and cylinder two bolts washers from camshaft holder and cylinder two bolts then remove the cam shaft Bolt.



Remove the camshaft gear and holder Bolt.



INSTALLATION

Install the camshaft gear, Holder bolt and holder washers and nuts.
 Tighten the four cylinder head nuts to the specified torque.

Torque:

- 0.7~1.1 kgf-m (Holder nuts)
- 1.0~1.4 kgf-m (Cam shaft set plate)
- 1.8~2.2 kgf-m (Cylinder head M8 *1.25)

- *
 • Install the camshaft holder with the “EX” mark face exhaust valve side.
 • Apply engine oil to the threads of the cylinder head cap nuts.
 • Diagonally tighten the cylinder head cap nuts in 2~3 times.



6. CYLINDER HEAD/VALVES

People GT 125i

DISASSEMBLY

Take out the valve rocker arm shafts.
Remove the valve rocker arms.

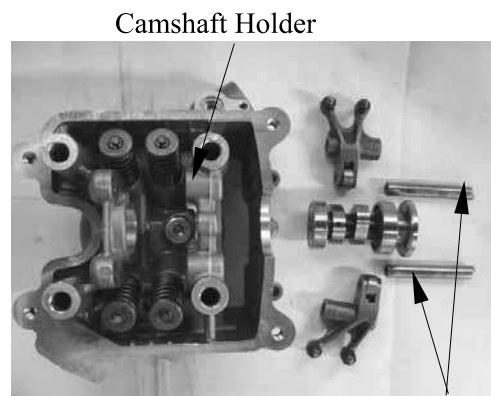


Rocker Arm Shafts

INSPECTION

Inspect the camshaft holder, valve rocker arms and rocker arm shafts for wear or damage.

* If the valve rocker arm contact surface is worn, check each cam lobe for wear or damage.

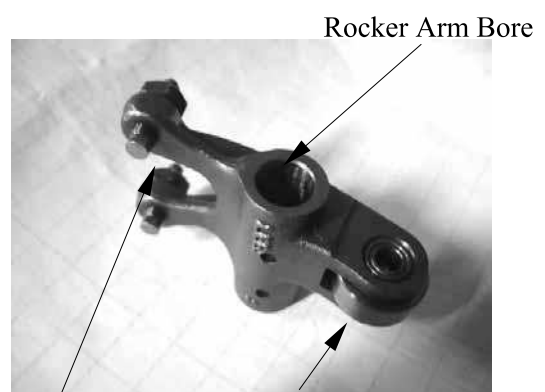


Camshaft Holder

Rocker Arm Shafts

Inspect the rocker arm bore, cam lobe contact surface and adjuster surface for wear/pitting/scratches/blue discoloration.

If any defects are found, replace the rocker arm shaft with a new one, then inspect lubrication system.



Adjuster Surface

Contact Surface

6. CYLINDER HEAD/VALVES

Measure the I.D. of each valve rocker arm.

Service Limits:

IN: 10.1 mm

EX: 10.1 mm

Measure each rocker arm shaft O.D.

Service Limits:

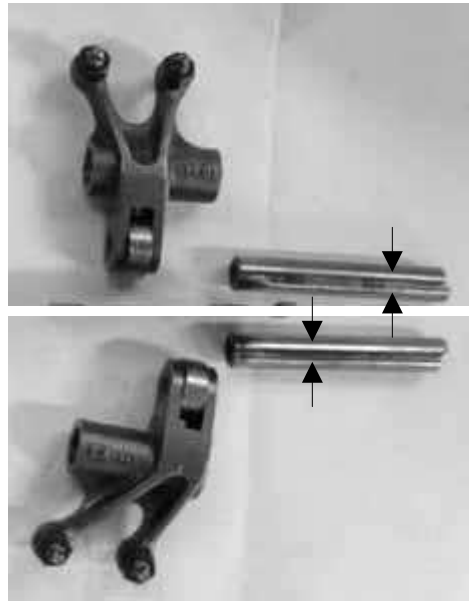
IN: 9.9 mm

EX: 9.9 mm

Measure arm to shaft clearance.

Replace as a set if out of specification.

Service limits: 0.1 mm



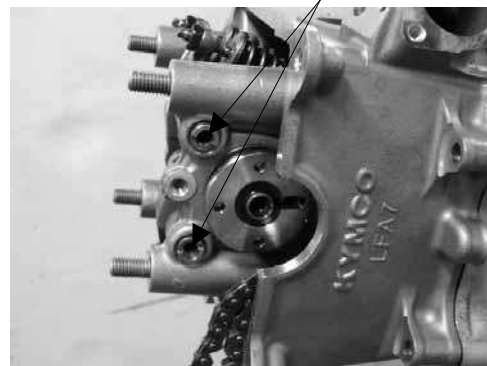
ASSEMBLY

Apply engine oil to the rocker arms and rocker arm shafts.

Install the rocker arms and shafts into the camshaft holder.

- *
- Install the exhaust valve rocker arm shaft on the “EX” side of the camshaft holder and the exhaust rocker arm shaft is shorter.
 - Clean the intake valve rocker arm shaft off any grease before installation.
 - Align the cutout on the exhaust valve rocker arm shaft with the bolt of the camshaft holder.

Rocker Arm Shafts



6. CYLINDER HEAD/VALVES

CAMSHAFT

REMOVAL

Turn the A.C. Generator Flywheel so that the “T” mark on the flywheel aligns with the index mark on the crankcase.

Hold the round hole on the camshaft gear facing up and the location is the top dead center on the compression stroke.

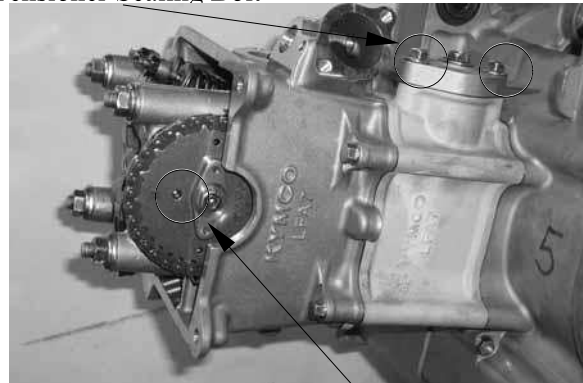
Remove the tensioner sealing bolt and spring. Remove the two bolts from cam chain tensioner and then remove the tensioner and gasket.

Remove the camshaft holder (refer to the “**Camshaft Holder**” section in this chapter).

Remove the camshaft gear and holder bolt.

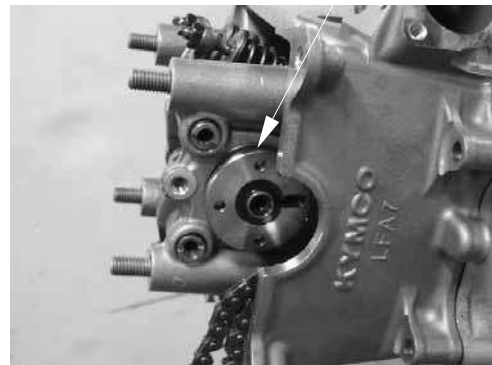
Remove the camshaft from the cam chain.

Tensioner Sealing Bolt



Round Hole

Camshaft



6. CYLINDER HEAD/VALVES

INSPECTION

CAMSHAFT

Inspect camshaft lobes for pitting/scratches/blue discoloration.

Measure the cam lobe height.

Service Limits:

DT 125: IN : 25.57 mm
EX: 25.41 mm

If any defects are found, replace the camshaft with a new one, then inspect lubrication system.

Check each camshaft bearing for play or damage. Replace the camshaft assembly with a new one if the bearings are noisy or have excessive play.



Camshaft Bearings



6. CYLINDER HEAD/VALVES

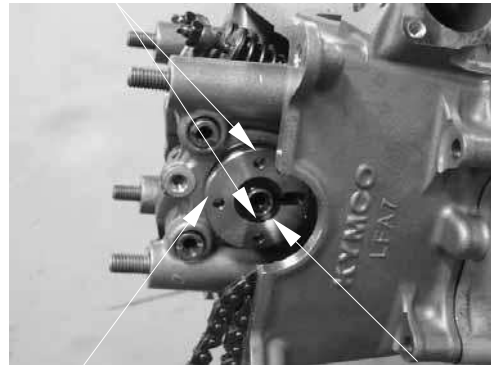
People GT 125i

INSTALLATION

Turn the A.C. Generator Flywheel so that the "T" mark on the flywheel aligns with the index mark on the crankcase.

Keep the round hole on the camshaft gear facing up and align the punch marks on the camshaft gear with the cylinder head surface (Position the intake and exhaust cam lobes down.) and install the cam chain over the camshaft gear.

Punch Marks



Round Hole

Cam shaft

Install the rocker arms shafts bolt .



Bolt

Install the camshaft gear

Camshaft Gear



6. CYLINDER HEAD/VALVES

People GT 125i

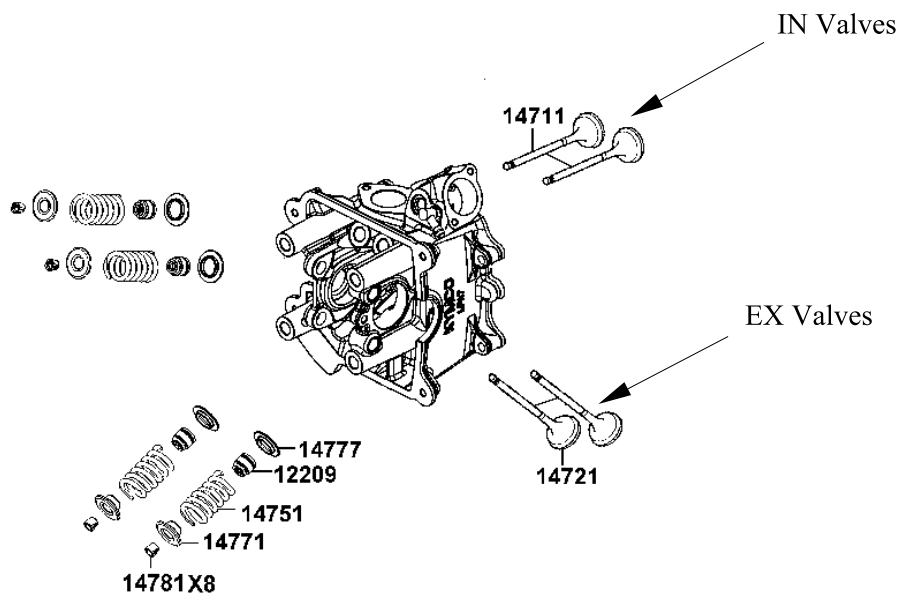
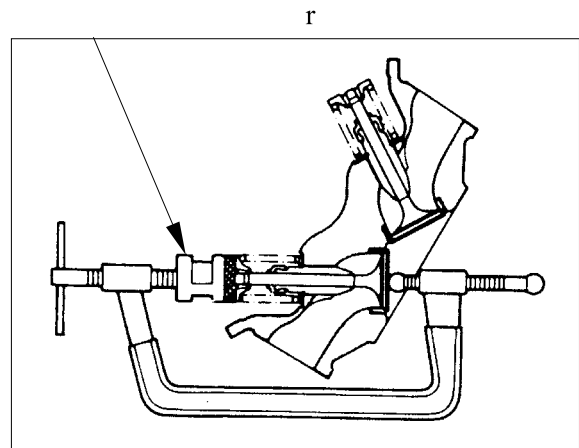
DISASSEMBLY

Remove the valve spring cotters, retainers, springs, spring seats, oil seals and valves using a valve spring compressor.

- *
- Be sure to compress the valve springs with a valve spring compressor.
 - Mark all disassembled parts to ensure correct reassembly.

Special tool:

Valve Spring Compressor A120E00040

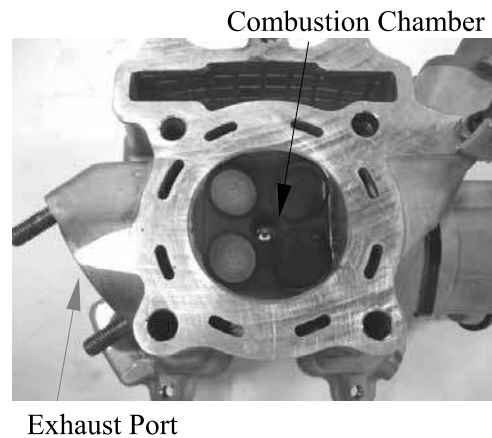


6. CYLINDER HEAD/VALVES

INSPECTION

Remove carbon deposits from the exhaust port and combustion chamber.

- * Be careful not to damage the cylinder head mating surface.



VALVE /VALVE GUIDE

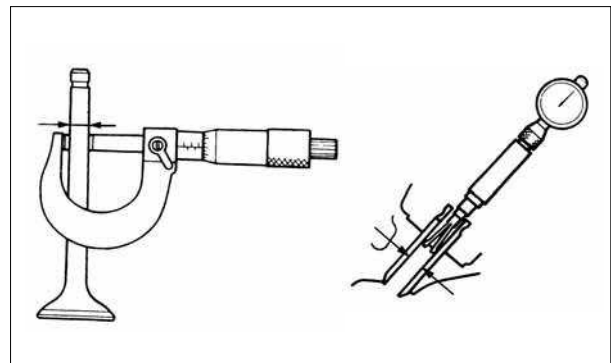
Inspect each valve for bending, burning, scratches or abnormal stem wear. If any defects are found, replace the valve with a new one.

Check valve movement in the guide.

Measure each valve stem O.D.

Measure each valve guide I.D.

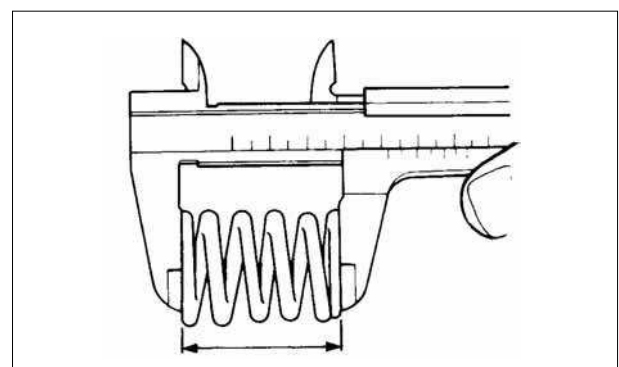
Subtract each valve stem O.D. from the corresponding guide I.D. to obtain the stem-to-guide clearance.



- * If the stem-to-guide clearance exceeds the service limits, replace the cylinder head is necessary.

Valve spring

Measure the free length of the inner and outer valve springs.



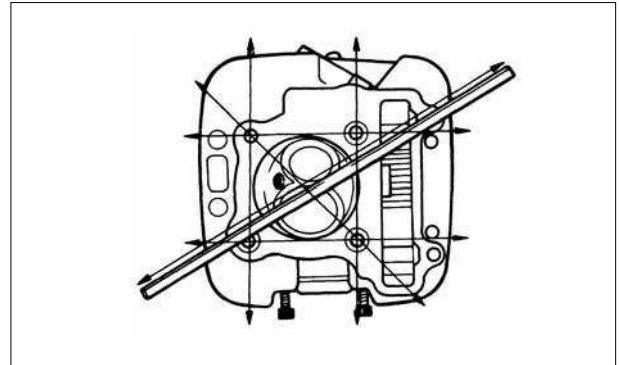
6. CYLINDER HEAD/VALVES

People GT 125i

CYLINDER HEAD

Check the spark plug hole and valve areas for cracks.

Check the cylinder head for warpage with a straight edge and feeler gauge.



ASSEMBLY

Install the valve spring seats and oil seal.

* Be sure to install new oil seal.

Lubricate each valve with engine oil and insert the valves into the valve guides.

Install the valve springs and retainers.

Compress the valve springs using the valve spring compressor, then install the valve cotters.

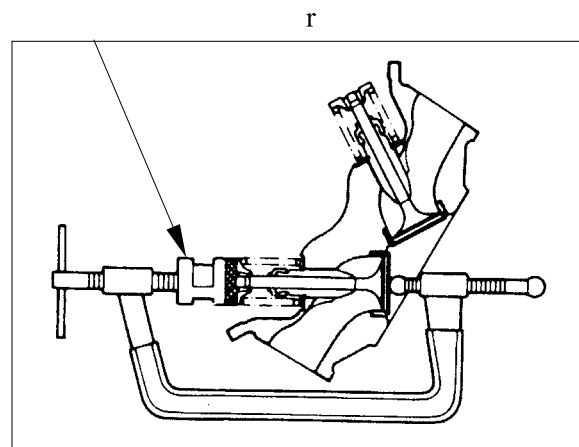
* •When assembling, a valve spring compressor must be used.
•Install the cotters with the pointed ends facing down from the upper side of the cylinder head.

Special tool:

Valve Spring Compressor A120E00040

Tap the valve stems gently with a plastic hammer for 2~3 times to firmly seat the cotters.

* Be careful not to damage the valves.



Cylinder Head

7. CYLINDER/PISTON



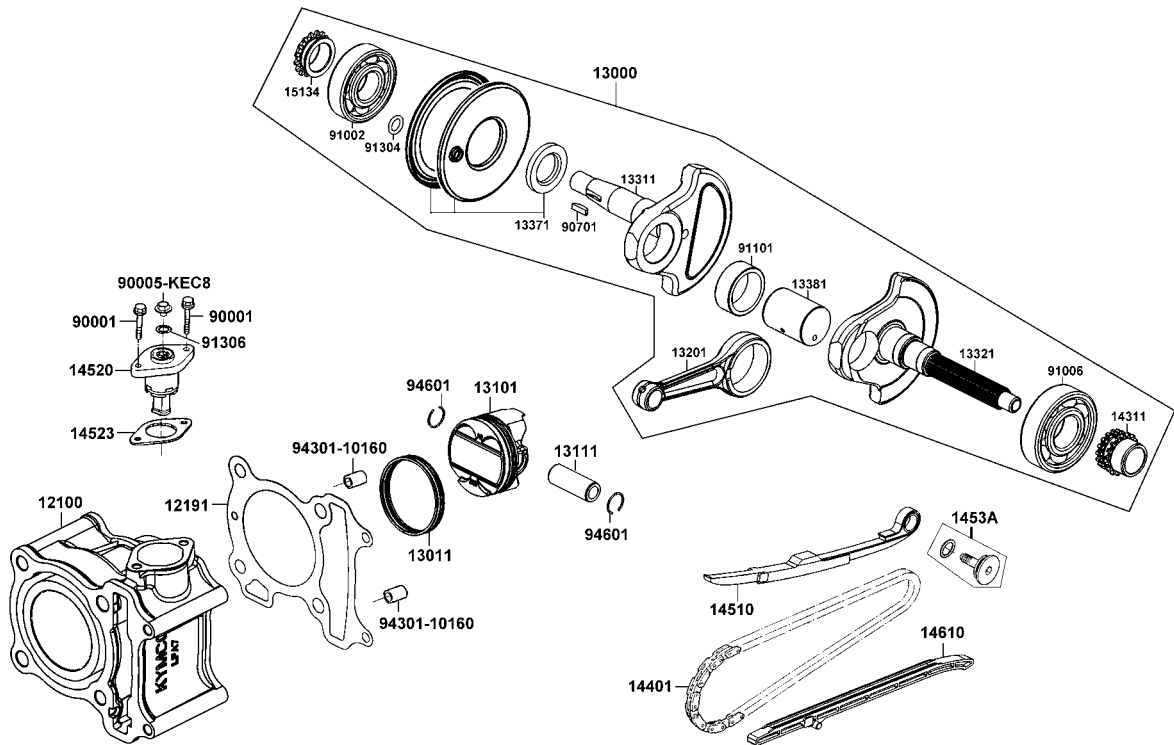
CYLINDER/PISTON

| | |
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| CYLINDER AND PISTON ----- | 7-4 |



7. CYLINDER/PISTON

SCHEMATIC DRAWING



7. CYLINDER/PISTON

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- The cylinder and piston can be serviced with the engine installed in the frame.
- When installing the cylinder, use a new cylinder gasket and make sure that the dowel pins are correctly installed.
- After disassembly, clean the removed parts and dry them with compressed air before inspection.

SPECIFICATIONS

| Item | | Standard (mm) | |
|------------------------------------|--------------------------------|---------------|---------------------------|
| Cylinder | I.D. | 52.4~52.41 | |
| Piston, piston ring | Ring-to-groove clearance | Top | 0.015~0.055 |
| | | Second | 0.015~0.055 |
| | Ring end gap | Top | 0.10~0.25 |
| | | Second | 0.10~0.25 |
| | | Oil side rail | 0.2~0.7 |
| | Piston O.D. | | 52.37~52.39 |
| | Piston O.D. measuring position | | 9 mm from bottom of skirt |
| | Piston-to-cylinder clearance | | 0.01~0.04 |
| Piston pin hole I.D. | | 15.002~15.008 | |
| Piston pin O.D | | 14.994~15 | |
| Piston-to-piston pin clearance | | 0.002~0.014 | |
| Connecting rod small end I.D. bore | | 15.016~15.034 | |

7. CYLINDER/PISTON

TROUBLESHOOTING

When hard starting or poor performance at low speed occurs, check the crankcase breather for white smoke. If white smoke is found, it means that the piston rings are worn, stuck or broken.

Compression too low or uneven compression

- Worn or damaged cylinder and piston rings
- Worn, stuck or broken piston rings

Compression too high

- Excessive carbon build-up in combustion chamber or on piston head

Excessive smoke from exhaust muffler

- Worn or damaged piston rings
- Worn or damaged cylinder and piston

Abnormal noisy piston

- Worn cylinder, piston and piston rings
- Worn piston pin hole and piston pin
- Incorrectly installed piston

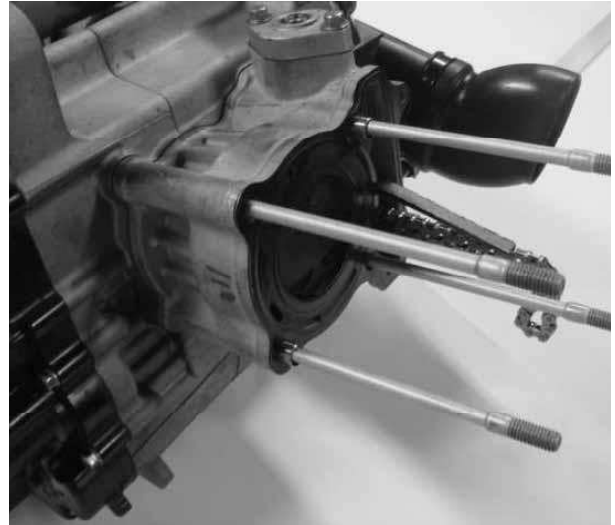
7. CYLINDER/PISTON

CYLINDER AND PISTON

REMOVAL

Remove the cylinder head (Refer to “Cylinder Head” section in the chapter 6).

Remove the water hose from the cylinder.
Remove the cylinder.



Remove the cylinder gasket and dowel pins.
Clean any gasket material from the cylinder surface.



Remove the piston pin clip

* Place a clean shop towel in the crankcase to keep the piston pin clip from falling into the crankcase.

Press the piston pin out of the piston and then remove the piston.

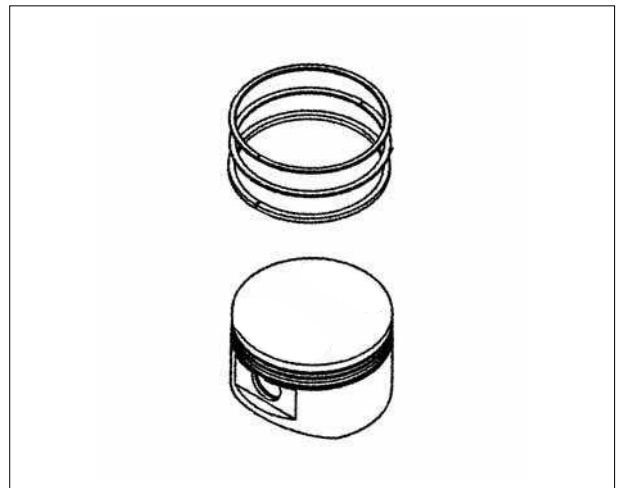


7. CYLINDER/PISTON

Spread each piston ring and remove it by lifting up at a point opposite the gap

- * Do not damage the piston ring by spreading the ends too far.

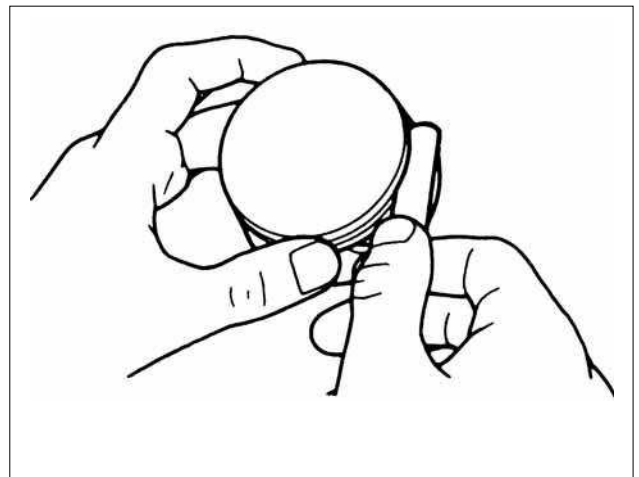
Clean carbon deposits from the piston ring grooves.



INSPECTION PISTON RING

Inspect the piston rings for movement by rotating the rings. The rings should be able to move in their grooves without catching.

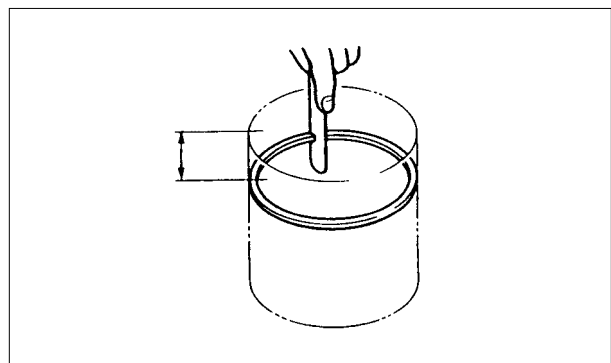
Push the ring until the outer surface of the piston ring is nearly flush with the piston and measure the ring-to-groove clearance.



Insert each piston ring into the bottom of the cylinder squarely.

- * Use the piston head to push each piston ring into the cylinder.

Measure the piston ring end gap.



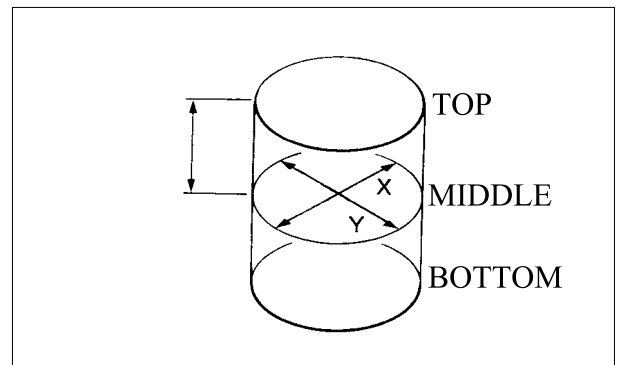
7. CYLINDER/PISTON

PISTON/PISTON PIN

Measure the piston O.D. at the point (A) from the bottom and 90° to the piston pin hole.

Calculate the cylinder-to-piston clearance.

Standard: 52.37~52.39 mm



CYLINDER

Check the cylinder for warpage with a straight edge and feeler gauge in the directions shown.

Check the cylinder wall for wear or damage. Measure and record the cylinder I.D. at three levels in an X and Y axis. Take the maximum reading to determine the cylinder wear.

Calculate the piston-to-cylinder clearance. Take a maximum reading to determine the clearance.

Calculate the taper and out-of-round at three levels in an X and Y axis. Take the maximum reading to determine them.



CONNECTING ROD

Measure the connecting rod small end I.D. Calculate the connecting rod-to-piston pin clearance.

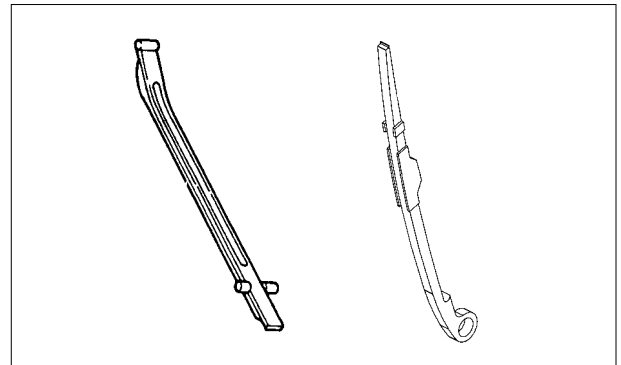
Service Limit: 0.02 mm (0.0008 in)



7. CYLINDER/PISTON

Inspect the exhaust side and intake side chain guides.

Wear/Damage → Replace.



INSTALLATION PISTON RING

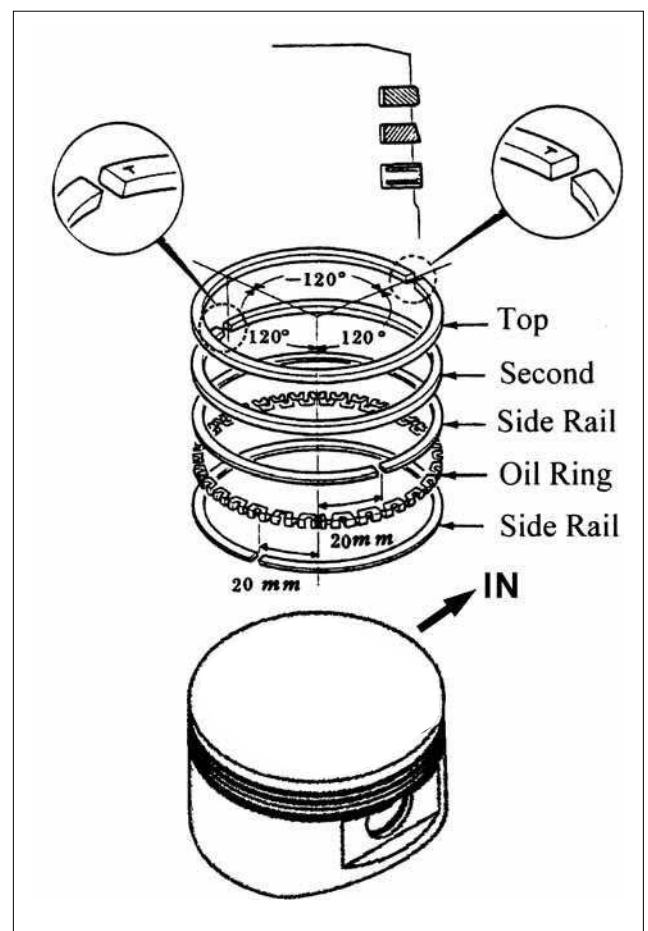
Carefully install the piston rings into the piston ring grooves with the markings facing up.

* Be careful not to damage the piston and rings.

- ♦ Do not confuse the top and second rings.
- ♦ To install the oil ring, install the oil ring and then install the side rails.

Stagger the piston ring end gaps 120° degrees apart from each other.

Stagger the side rail end gaps as shown.



7. CYLINDER/PISTON

CYLINDER/PISTON

Clean any gasket material from the cylinder mating surfaces of the crankcase and oil passage.

Apply engine oil to the piston pin.

Apply engine oil to the connecting rod small end and piston pin's hole.

Install the piston with the "IN" mark face intake side and piston pin.



Place a clean shop towel over the crankcase prevent the clip from falling into the crankcase.

Install the new pin clip.

- * ♦Make sure that the piston pin clips are seated securely.
- ♦Do not align the piston pin clip end gap with the piston cut-out



Install the dowel pins and gasket.



7. CYLINDER/PISTON

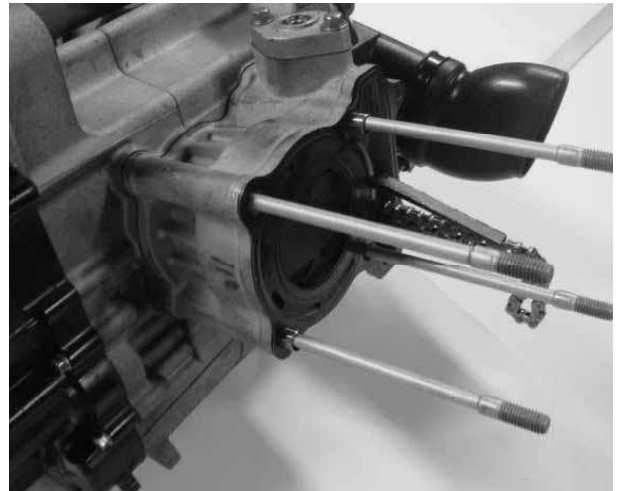
Apply engine oil to the cylinder wall, piston and piston ring outer surfaces.

Pass the cam chain through the cylinder and install the cylinder over the piston.

* Be careful not to damage the piston rings and cylinder walls.

Install the cylinder head and camshaft holder has installed (refer to the “**Cylinder Head**” section in the chapter 6).

Connect the water hose.



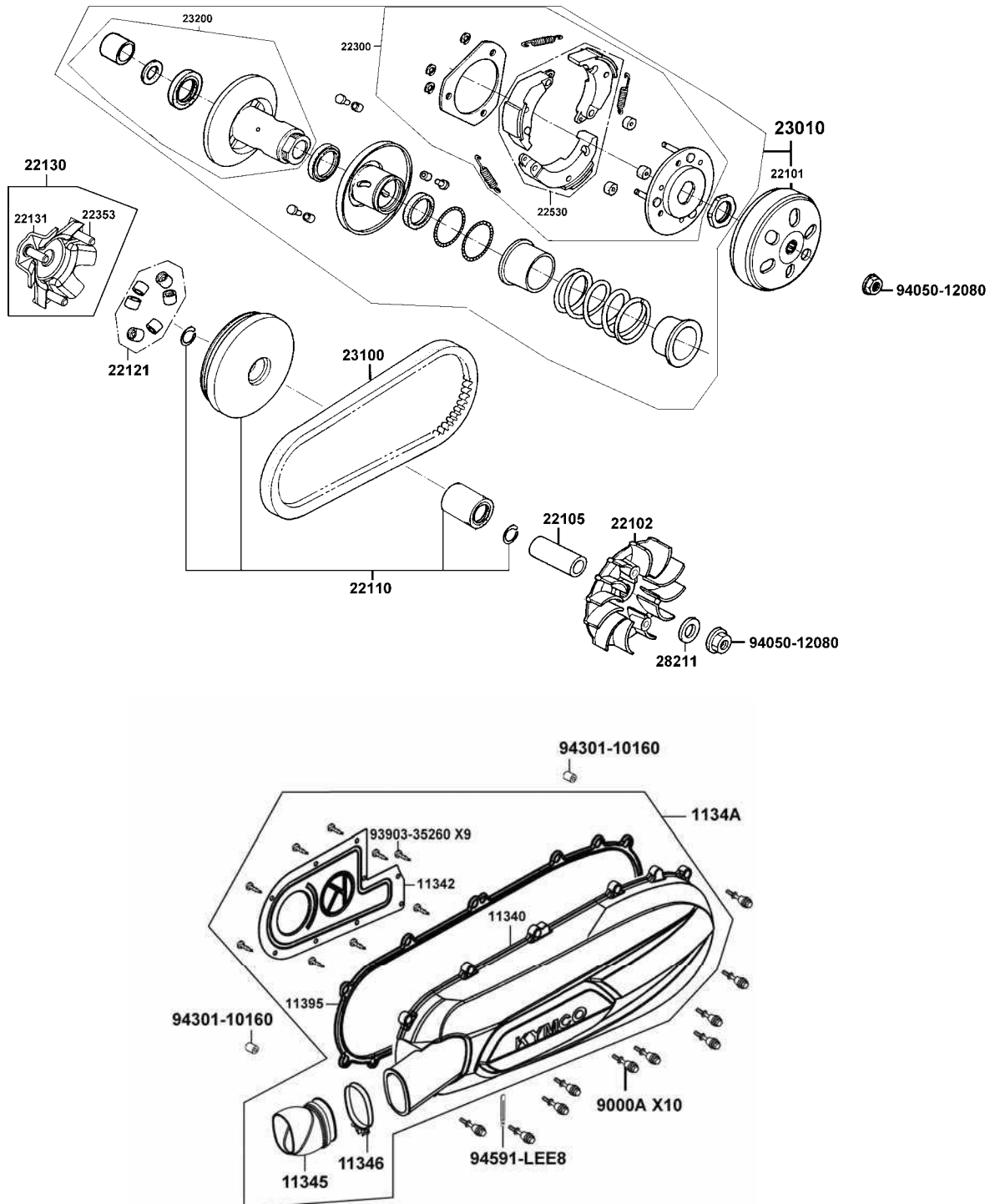
DRIVE AND DRIVEN PULLEYS

| | |
|--|------|
| SCHEMATIC DRAWING ----- | 8- 1 |
| SERVICE INFORMATION----- | 8- 2 |
| TROUBLESHOOTING----- | 8- 3 |
| LEFT CRANKCASE COVER ----- | 8- 4 |
| DRIVE PULLEY, DRIVE BELT AND DRIVEN PULLEY ----- | 8- 5 |



8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

SCHEMATIC DRAWING



8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- The drive pulley, clutch and driven pulley can be serviced with the engine installed.
- Avoid getting grease and oil on the drive belt and pulley faces. Remove any oil or grease from them to minimize the slipping of drive belt and drive pulley.

SPECIFICATIONS

| Item | Standard (mm) |
|---------------------------------|---------------|
| Movable drive face bushing I.D. | 24.011~24.052 |
| Drive face collar O.D. | 23.960~23.974 |
| Clutch lining thickness | 4.0 mm |
| Clutch outer I.D. | 130~130.2 |
| Driven face O.D. | 33.965~33.985 |
| Movable driven face I.D. | 34~34.025 |
| Weight roller O.D. | 17.920~18.080 |

TORQUE VALUES

| | |
|-------------------|---------------|
| Drive face nut | 5.5~6.5 kgf-m |
| Clutch outer nut | 5.0~6.0 kgf-m |
| Clutch plate comp | 5.0~6.0 kgf-m |

SPECIAL TOOLS

| | |
|--------------------------|------------|
| Universal holder | A120E00017 |
| Clutch spring compressor | A120E00034 |

8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER



People GT 125i

TROUBLESHOOTING

Engine starts but motorcycle won't move

- Worn drive belt
- Broken ramp plate
- Worn or damaged clutch lining
- Broken driven face spring

Engine stalls or motorcycle creeps

- Broken clutch weight spring

Lack of power

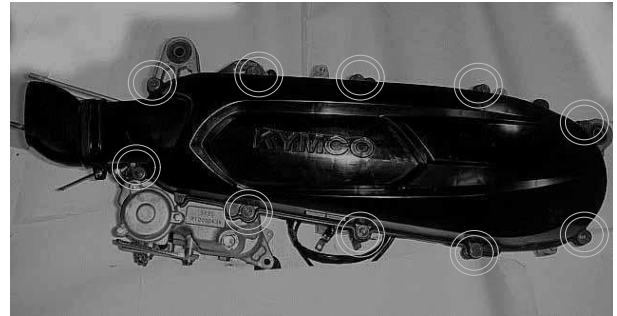
- Worn drive belt
- Weak driven face spring
- Worn weight roller
- Faulty driven face

8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

LEFT CRANKCASE COVER

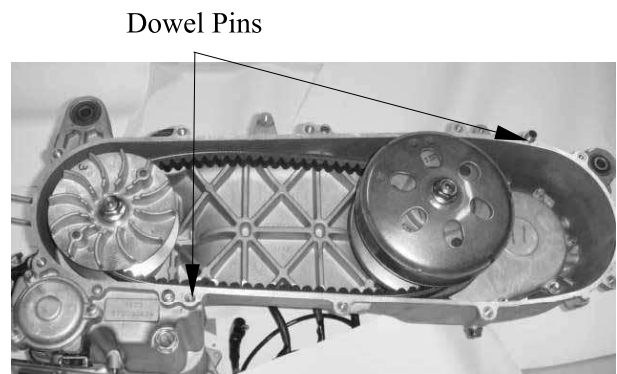
REMOVAL

Remove the ten left crankcase cover bolts and then remove the left crankcase cover. Remove the gasket and dowel pins.



INSTALLATION

Install the dowel pins and gasket.



Install the left crankcase cover.

* Do not pull out the kick starter spindle. Press in the kick starter spindle when installing the left crankcase cover.

Install and tighten the ten bolts diagonally to specified torque.



8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

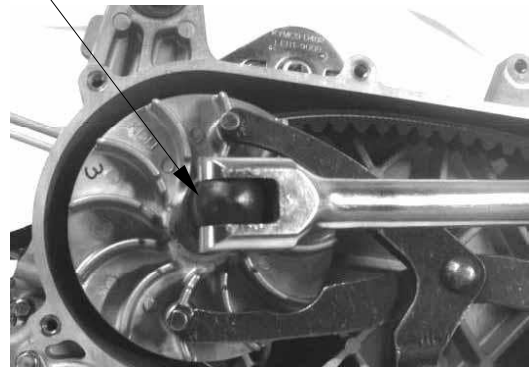
DRIVE PULLEY, DRIVE BELT AND DRIVEN PULLEY

REMOVAL

Remove the left crankcase cover (Refer to the “**Left Crankcase Cover**” section in this chapter).

Use the special tool to hold the drive pulley, then remove the nut and ratchet.

Nut/Ratchet



Drive Pulley Face

Special tool:

Universal holder A120E00017

Remove the drive pulley face and washer.

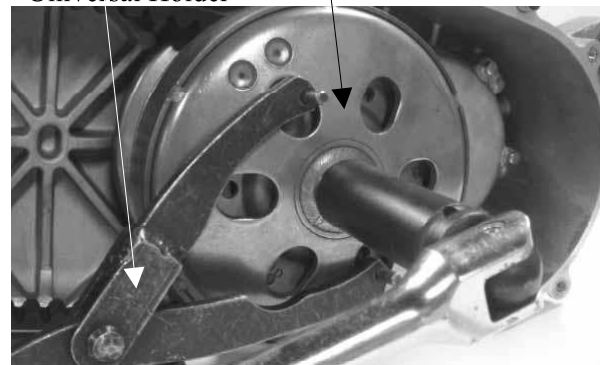
Hold the clutch outer with the universal holder and remove the clutch outer nut.

Special tool:

Universal Holder A120E00017

Clutch Outer/Driven Pulley Assembly

Universal Holder



Remove the clutch outer, driven pulley assembly and drive belt together.

8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

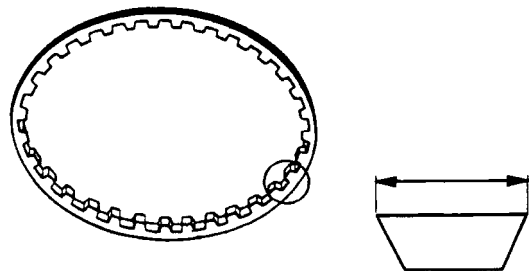
Remove the movable drive face assembly.



Movable Drive Face Assembly

DRIVE BELT INSPECTION

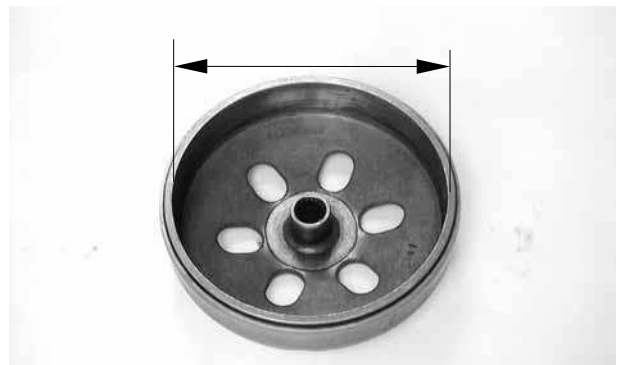
Check the drive belt for cracks, separation or abnormal or excessive wear.
Measure the drive belt width.



* Use specified genuine parts for replacement.

CLUTCH OUT INSPECTION

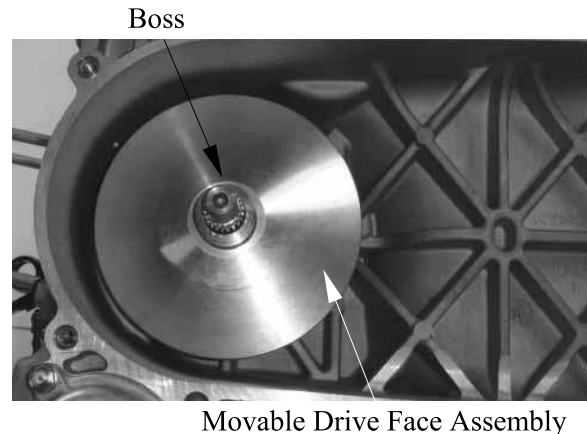
Inspect the clutch outer for wear or damage.
Measure the clutch outer I.D.



8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

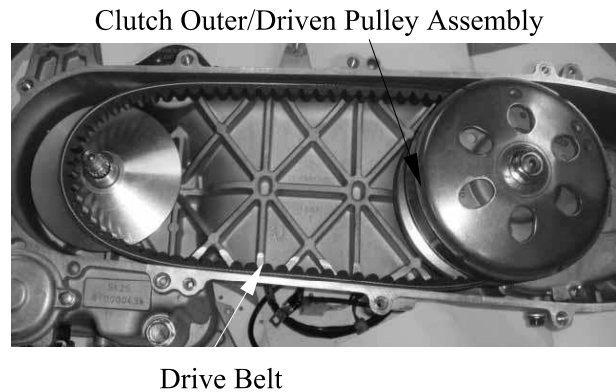
INSTALLATION

Apply lubricant to the drive face boss inner surface, then install the movable drive face assembly.



Install the clutch outer onto the driven pulley assembly.

Compress the driven pulley assembly by hand, then install the drive belt into the driven pulley assembly.



- *
 - The drive belt should be installed so that the arrows on the drive belt periphery point in the normal turning direction if the drive belt has arrow mark.
 - The drive belt contact surface of the driven face should be thoroughly cleaned.

Install the driven pulley assembly/clutch outer and drive belt together.

Use the special tool to hold clutch outer, then tighten the nut to the specified torque.

Torque: 5.0~6.0kgf-m (50 ~60N-m)

Special tool:

Universal holder A120E00017



8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

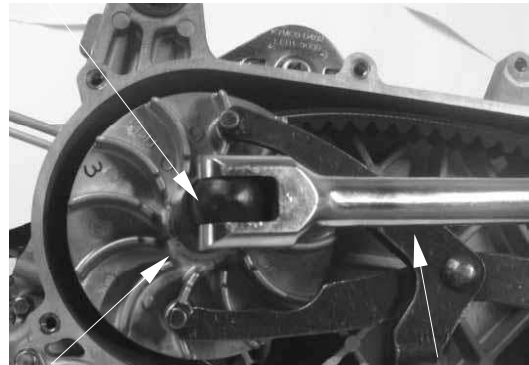
Install the drive pulley face and ratchet.
Use the special tool to hold drive pulley face,
then tighten the nut to the specified torque.

Torque: 5.5~6.5 kgf-m (55~65 N-m)

Special tool:

Universal holder A120E00017

Nut/Ratchet



Drive Pulley Face

Universal Holder

8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

DRIVE PULLEY DISASSEMBLY

Remove the drive face boss.



Boss

Remove the ramp plate

Ramp Plate



Remove the six weight rollers.



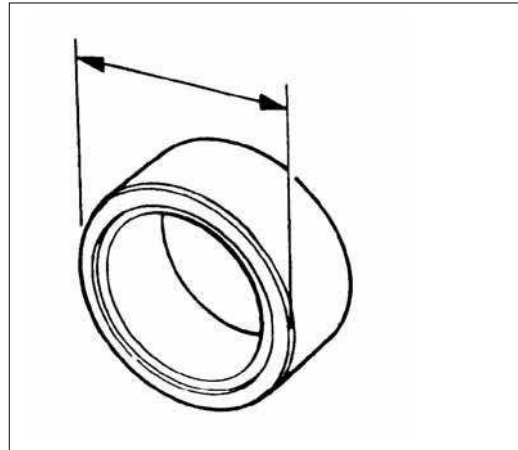
Weight Roller

8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

DRIVE PULLEY INSPECTION

WEIGHT ROLLERS

Check each roller for wear or damage.
Measure outside diameter.



MOVABLE DRIVE FACE/SLIDE PIECES/DRIVE PULLEY FACE

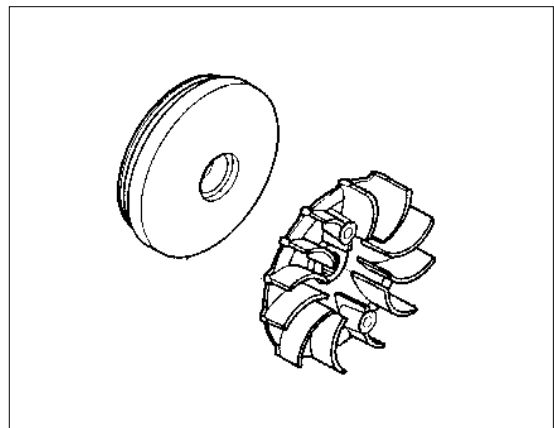
Check the movable drive face splines for
wear, cracks or damage.

Check the ramp plate for cracks or damage.

Ramp Plate



Check the movable drive face and drive
pulley face cracks or damage.



8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

DRIVE PULLEY ASSEMBLY

Clean the movable drive face, drive pulley face, weight rollers, slide pieces, ramp plate and drive face boss.

- * Remove any excess grease.



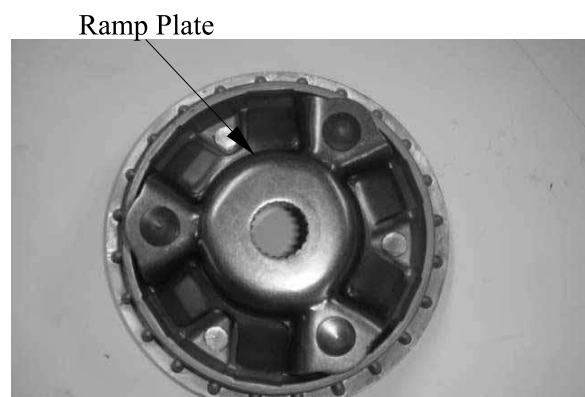
Install the weight rollers.

- * The direction of all weight rollers is the same. The thin side is towards to clockwise.



Weight Roller

Install the slide pieces and ramp plate.



Ramp Plate

8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

Install the drive face boss.



Boss

8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

DRIVEN PULLEY DISASSEMBLY

Hold the clutch/driven pulley assembly with the clutch spring compressor.

* Be sure to use a clutch spring compressor to avoid spring damage.

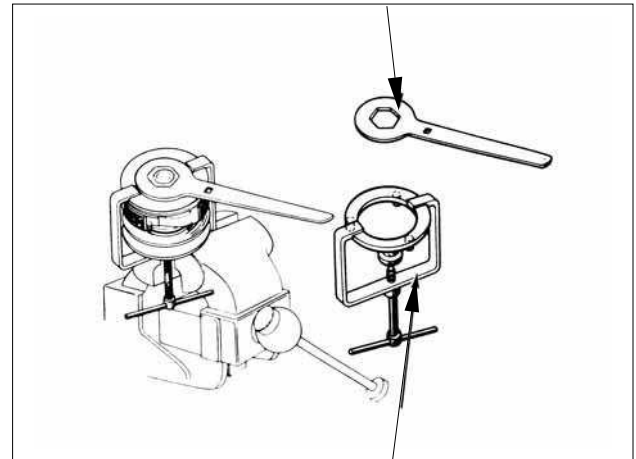
Special tool:

Clutch Spring Compressor A120E00034

Set the tool in a vise and remove the clutch drive plate nut.

Remove the clutch.

Lock Nut Wrench



Clutch spring compressor



8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

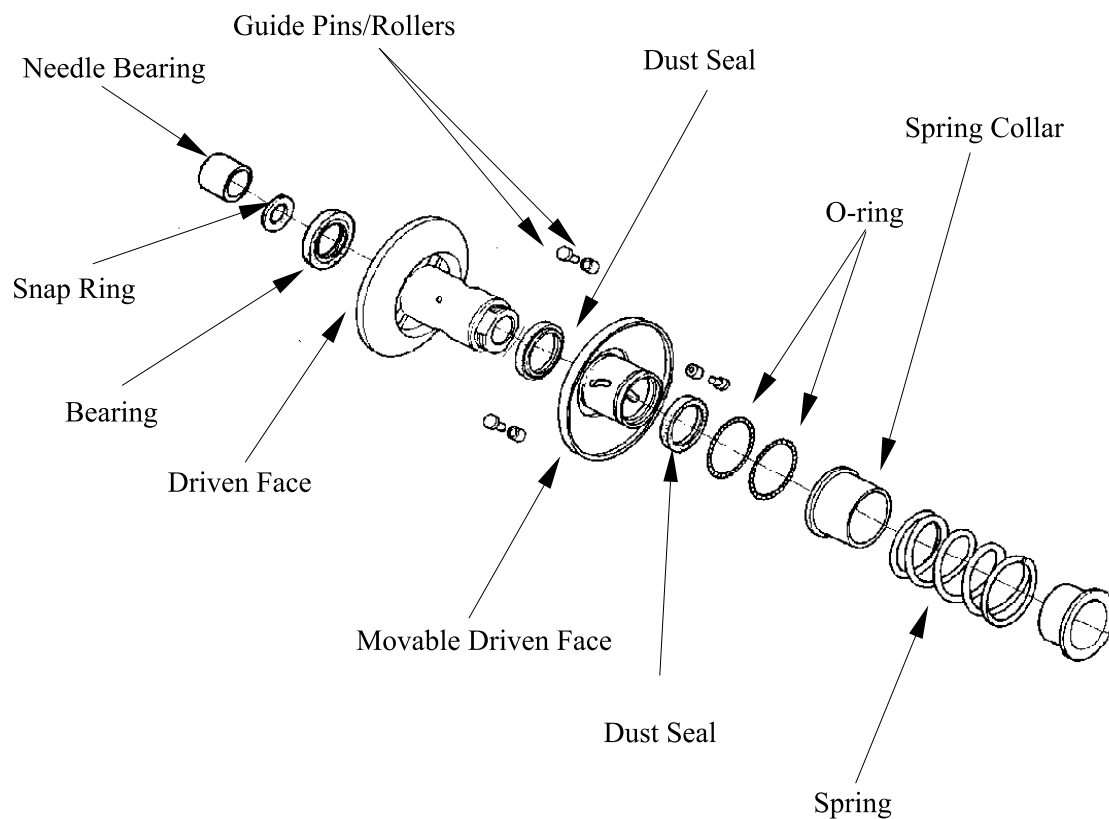
Remove the spring.

Remove the spring collar on the movable driven face.

Remove the three guide pins/rollers, then remove the movable driven face.

Remove the needle bearing from driven face.

Remove the snap ring, then remove the bearing from driven face.



8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

DRIVEN PULLEY INSPECTION

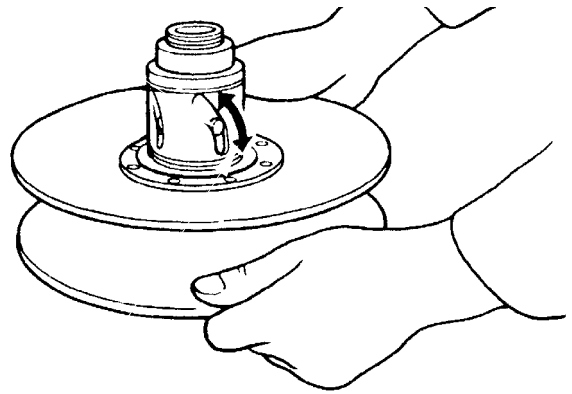
Check the driven pulley for smooth operation.

If any scratches or damage is found then replace as a set.

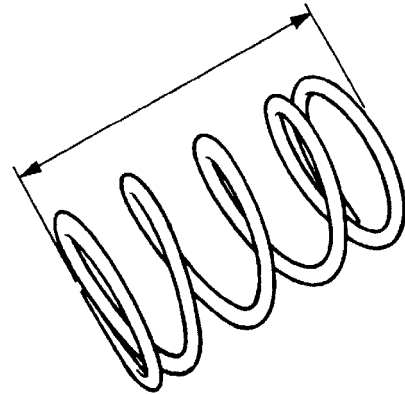
Check the torque cam grooves for wear or damage.

Check the guide pins and rollers for wear or damage.

If any scratches or damage is found then replace as a set.



Check the spring for damage.
Measure the spring free length.



Check the clutch shoe for heat damage.
Measure the clutch shoe thickness.

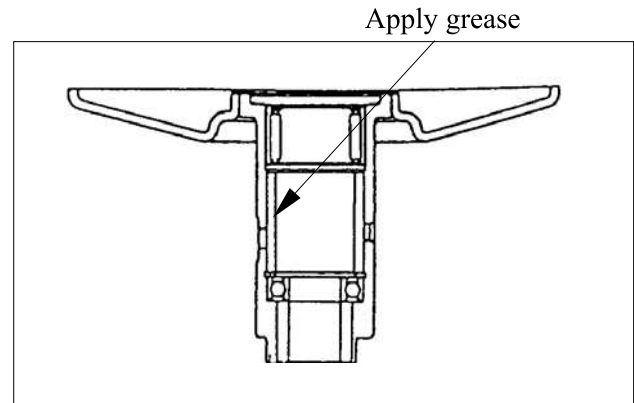


8. DRIVE AND DRIVEN PULLEYS/ KICK STARTER

DRIVEN PULLEY ASSEMBLY

Clean any oil from the drive belt sliding surfaces on the driven face.

Filling 12 g of grease to driven face inner side.



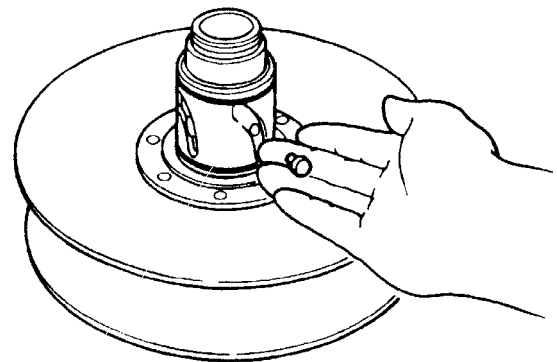
Apply grease to lips of the new dust seals and install into the movable driven face.

Coat new O-rings with grease and install them into the movable driven face grooves.

Install the movable driven face onto the driven face.

Install the guide rollers and guide roller pins.

Filling 5 g of grease to each guide groove.



Install the guide pins/rollers.

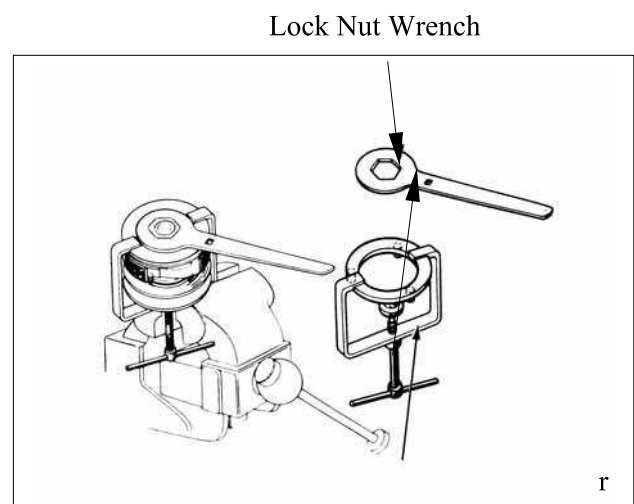
Install spring collar.

Use the special tool to install spring and clutch, then install and tighten the nut to the specified torque.

Torque: 5.5 ~6.5m (55~65N-m)

Special tool:

Clutch Spring Compressor A120E00034



9. FINAL REDUCTION

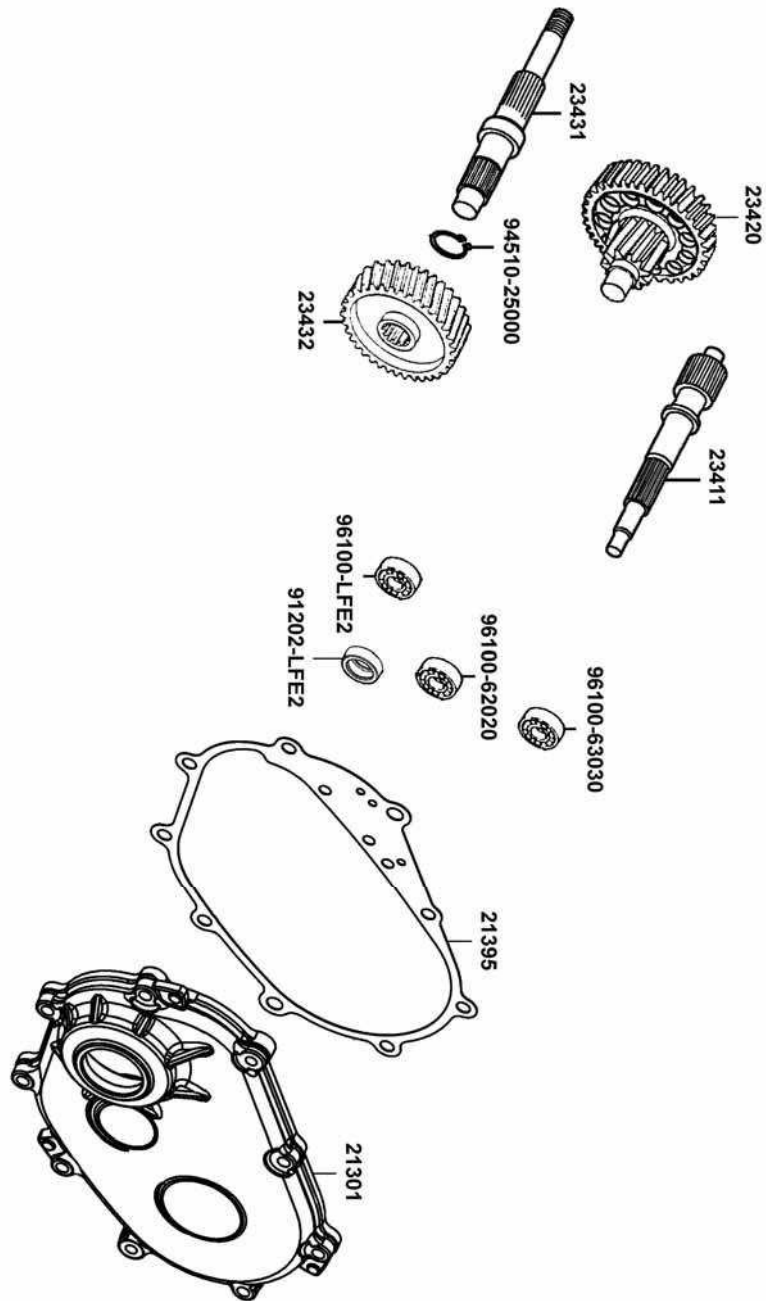
FINAL REDUCTION

| | |
|---------------------------|-----|
| SCHEMATIC DRAWING ----- | 9-1 |
| SERVICE INFORMATION----- | 9-2 |
| TROUBLESHOOTING----- | 9-2 |
| FINAL REDUCTION ----- | 9-3 |
| BEARING REPLACEMENT ----- | 9-7 |



9. FINAL REDUCTION

SCHEMATIC DRAWING



9. FINAL REDUCTION

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- The servicing operations of this section can be made with the engine installed.
- When replacing the drive shaft, use a special tool to hold the bearing inner race for this operation.

SPECIFICATIONS

Specified Oil: SAE 90#

Oil Capacity:

- At disassembly : 0.13liter
- At change : 0.12 liter

TORQUE VALUES

Transmission case cover bolt 1.0~1.4kgf-m

SPECIAL TOOLS

Oil seal and bearing installer A120E00014
Bearing Puller A120E00037

TROUBLESHOOTING

Engine starts but motorcycle won't move

- Damaged transmission
- Seized or burnt transmission

Abnormal noise

- Worn, seized or chipped gears
- Worn bearing

Oil leaks

- Oil level too high
- Worn or damaged oil seal

9. FINAL REDUCTION

FINAL REDUCTION

REMOVAL

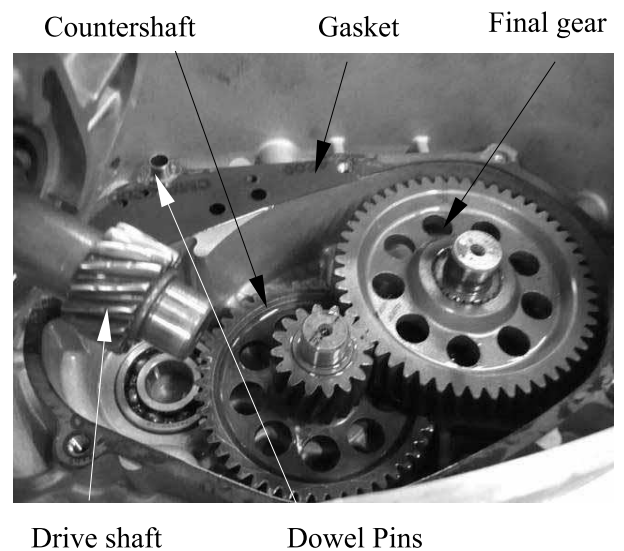
Drain the transmission gear oil into a clean container (refer to the “**Transmission Oil**” section in the chapter 3).

Remove the driven pulley (refer to the “**Drive Pulley, Drive Belt And Driven Pulley**” section in the chapter 8).

Remove the nine bolts from the transmission case cover, then remove the transmission case cover.



Remove the dowel pins and gasket.
Remove the final gear and shaft, then remove the countershaft .



9. FINAL REDUCTION

INSPECTION

Inspect the countershaft and gear for wear or damage.



Inspect the final gear and final gear shaft for wear, damage or seizure.



Check the driveshaft for wear or damage.

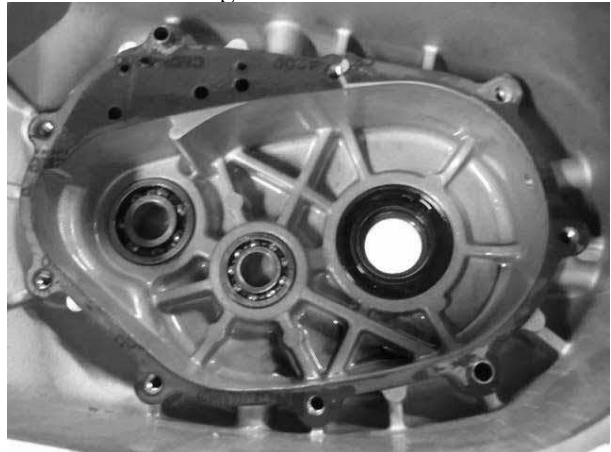
Check the left crankcase bearings for excessive play and inspect the oil seal for wear or damage.



9. FINAL REDUCTION

Check the transmission case cover bearings for excessive play and inspect the final shaft bearing oil seal for wear or damage.

Drive Shaft Bearing



Countershaft Bearing

Final Shaft Bearing

Final Gear Shaft Bearing



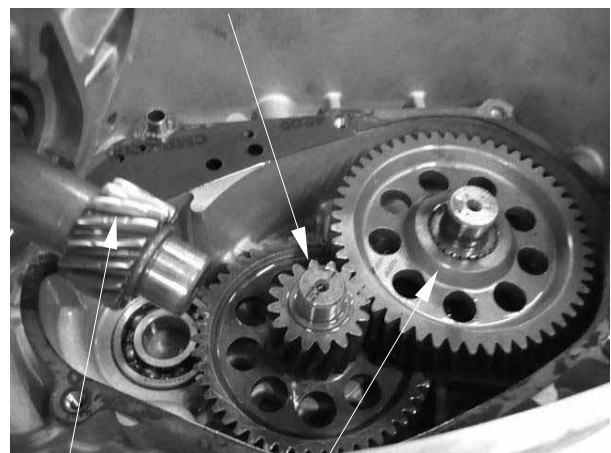
Drive Shaft Bearing

Countershaft Bearing

INSTALLATION

Install the final gear and final gear shaft.
 Install the Countershaft
 Install the driveshaft.

Countershaft



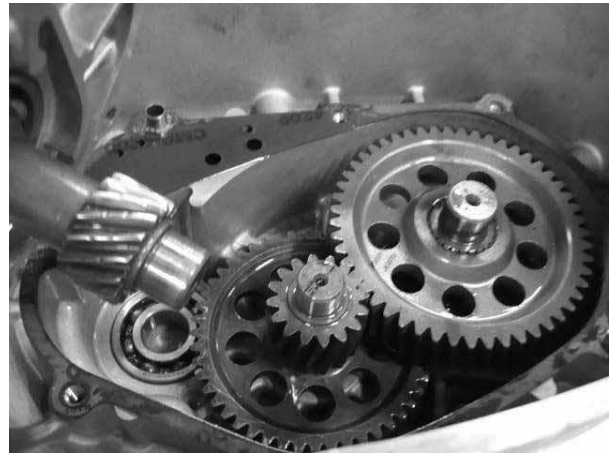
Driveshaft

Final Gear Shaft/Final Gear

9. FINAL REDUCTION

Install new gasket.

Install the two dowel pins.

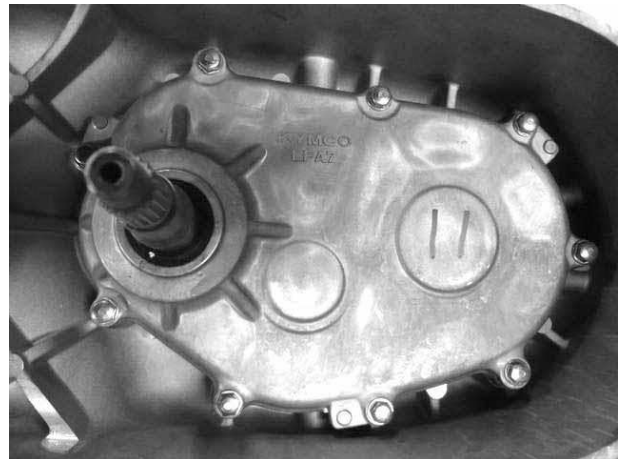


Install the transmission case cover.

Install and tighten the nine bolts to the specified torque in a crisscross pattern in 2 or 3 steps.

Torque: 1.0~1.4kgf-m

Fill the transmission case with the specified oil (refer to the “**Transmission Oil**” section in the chapter 3).



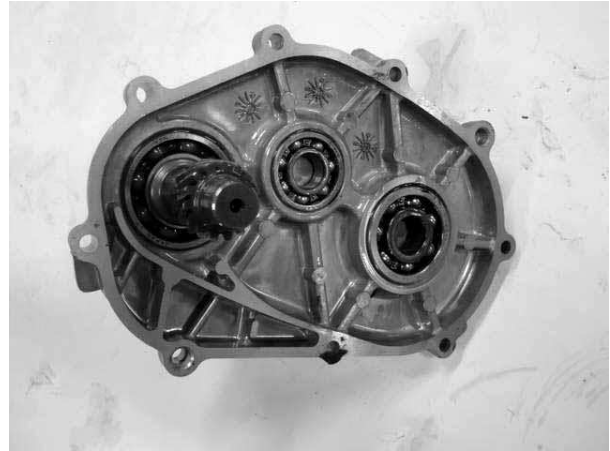
9. FINAL REDUCTION

BEARING REPLACEMENT TRANSMISSION CASE COVER

Remove the transmission case cover
Remove the transmission case cover
bearings by using the special tool.

Special tool:

Bearing puller A120E00037



Install the new bearings or new oil seal into
the transmission case cover by using the
special tool.

Special tool:

Oil seal and bearing installer A120E00014



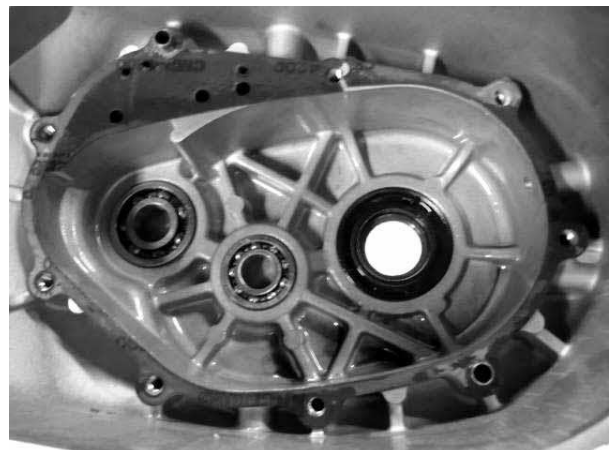
TRANSMISSION CASE

Remove the all transmission gears (refer to
the “**Final Reduction Removal/
Inspection/Installation**” section in this chapter).

Remove the transmission case bearings by
using the special tool.

Special tool:

Bearing puller A120E00037

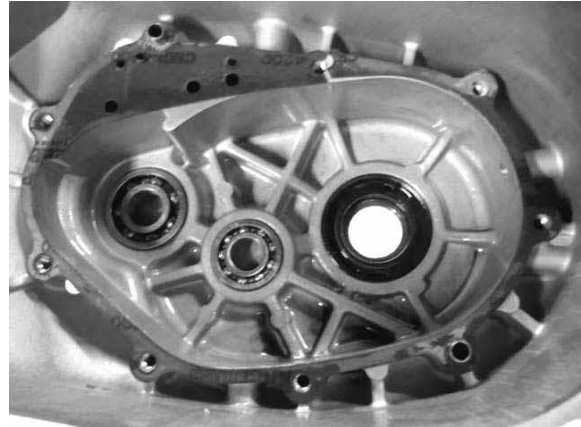


9. FINAL REDUCTION

Install the new bearings or new oil seal into the transmission case by using the special tool.

Special tool:

Oil seal and bearing installer
A120E00014



After installation, fill the transmission case with the specified oil.

Specified gear oil :SAE90#

Oil capacity:

At disassembly: 0.13 liter
At change: 0,12 liter

Install and tighten the oil check bolt.

Torque : 0.8~1.2kgf-m

Start the engine and check for oil leaks.



Drain Bolt



Oil Filler

10. A.C. GENERATOR/STARTER CLUTCH

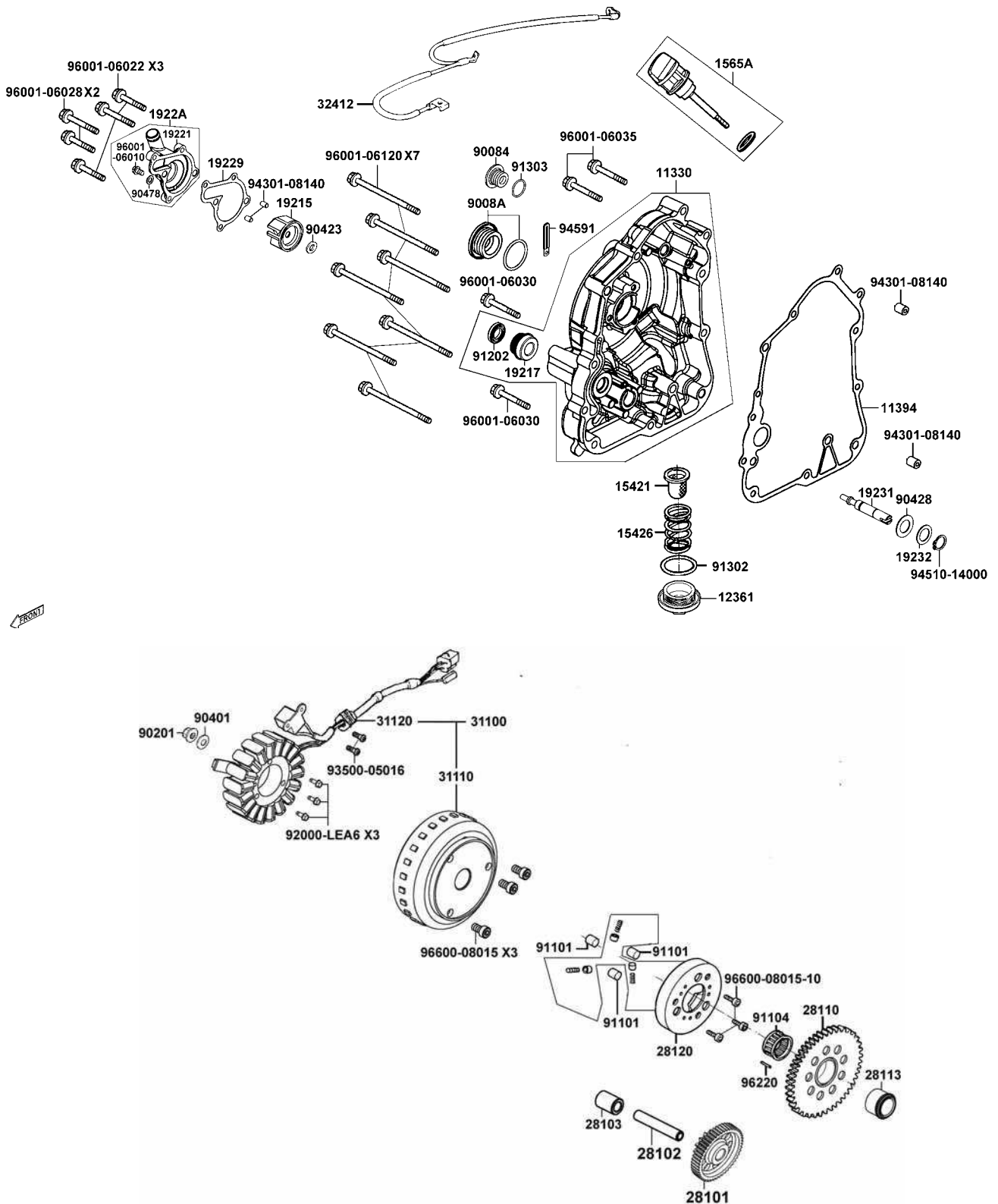
A.C. GENERATOR/STARTER CLUTCH

| | |
|--------------------------|------|
| SCHEMATIC DRAWING ----- | 10-1 |
| SERVICE INFORMATION----- | 10-2 |
| TROUBLESHOOTING----- | 10-2 |
| ALTERNATOR STATOR----- | 10-3 |
| STARTER CLUTCH----- | 10-6 |

10. A.C. GENERATOR/STARTER CLUTCH

People GT 125i

SCHEMATIC DRAWING



10. A.C. GENERATOR/STARTER CLUTCH

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- All servicing operations and inspections in this section can be made with the engine installed.
- Drain the coolant before removing the right crankcase cover.
- Be careful not to drain the coolant when the engine temperature is high. (Perform this operation when the engine is cold.)
- Drain the coolant into a clean container.
- Drain the engine oil into a clean container before removing the right crankcase cover.
- When the right crankcase cover is installed, fill with the recommended engine oil and coolant. Then, bleed air from the water jacket.
- Refer to Chapter 17 for A.C. generator inspection.

SPECIFICATIONS

Engine oil: SAE 15W/40#
API-SJ

Oil capacity at change: 1.0 liter

Coolant: distilled water + coolant concentrate

Coolant capacity: 0.87 liter

SPECIAL TOOLS

| | |
|-----------------|------------|
| Flywheel puller | A120E00003 |
| Flywheel holder | A120E00021 |

TORQUE VALUES

Flywheel nut : 5.0~6.0 kgf-m

TROUBLESHOOTING

Refer to page chapter 17 for A.C. generator troubleshooting.

Starter motor rotates but engine does not start

- Faulty starter clutch
- Starter motor rotates reversely
- Weak battery

10. A.C. GENERATOR/STARTER CLUTCH

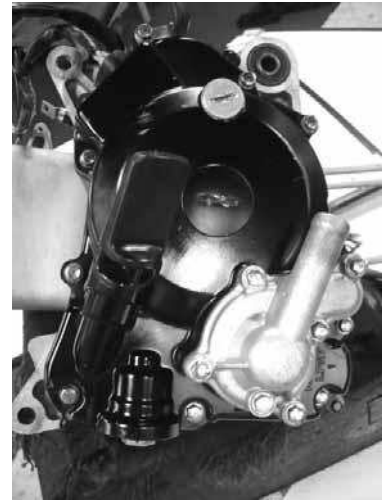
ALTERNATOR STATOR REMOVAL

Drain the engine oil (refer to the “**Engine Oil**” section in the chapter 3).

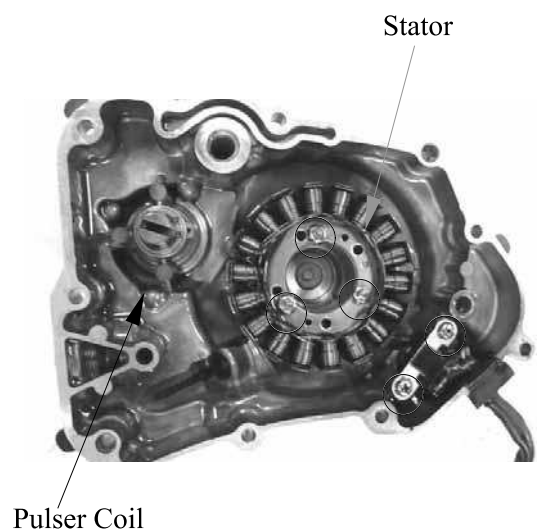
Disconnect the alternator stator connectors (refer to the chapter 17).

Remove the ten bolts from the right crankcase cover and then remove the cover.

Remove the two dowel pins and gasket.



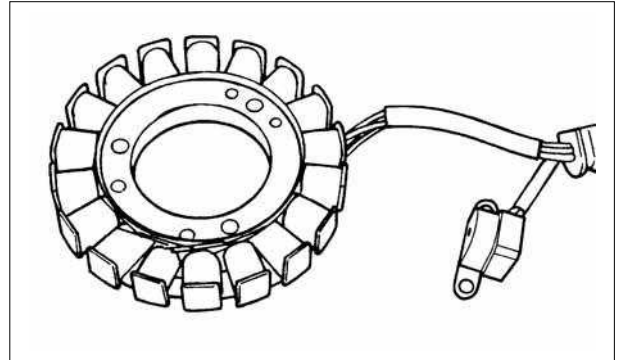
Remove the two pulse coil mount screws.
Remove the three stator mount bolts, grommet and the stator from the right crankcase cover.



10. A.C. GENERATOR/STARTER CLUTCH

INSPECTION

Check the stator and pulse coil for damage.



INSTALLATION

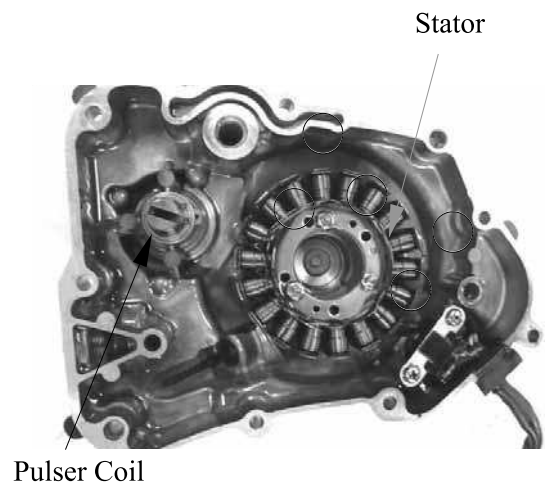
Install the stator and tighten the stator mount bolts to the specified torque.

Torque: 1 kgf-m

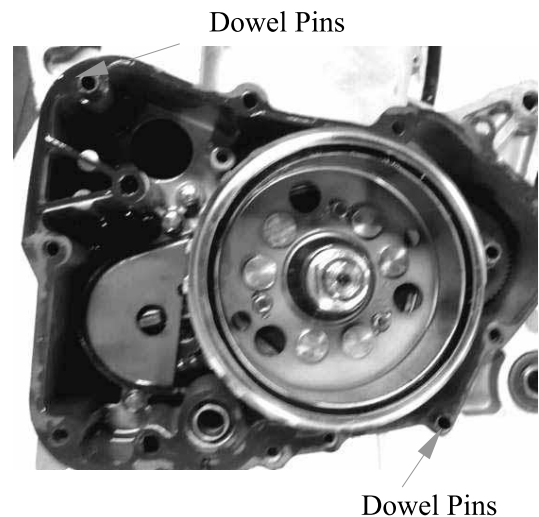
Apply sealant to the grommet seating surface and install it to the cover groove properly.

Install the pulse coil and tighten mount screws securely.

Clean the mating surfaces of the right crankcase and cover.



Pulser Coil



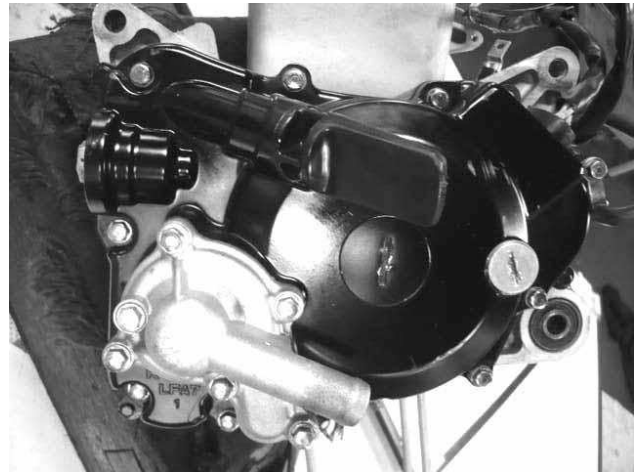
Dowel Pins

Dowel Pins

10. A.C. GENERATOR/STARTER CLUTCH

Install the dowel pins and gasket.

Install the right crankcase cover and tighten the bolts in a crisscross pattern in two or three times.



10. A.C. GENERATOR/STARTER CLUTCH

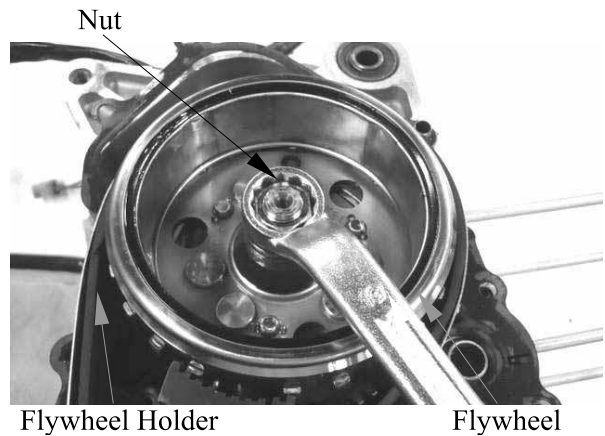
STARTER CLUTCH REMOVAL

Remove the right crankcase cover (refer to the “**Alternator Stator**” section in this chapter).

Hold the flywheel with a special tool and remove the flywheel nut.

Special tool:

Flywheel holder A120E00021



Remove the flywheel/driven gear by using the special tool.

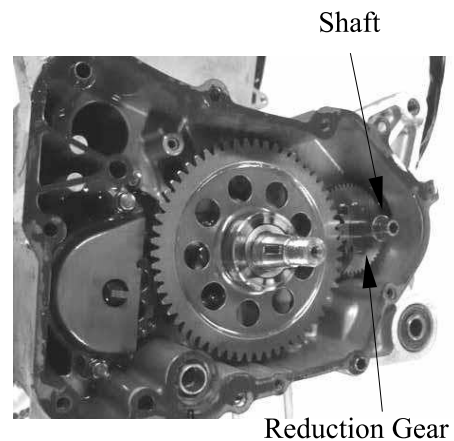
Special tool:

Flywheel puller A120E00003

Flywheel Puller



Remove the reduction gear shaft and reduction gear.



10. A.C. GENERATOR/STARTER CLUTCH

Remove the starter driven gear.



INSPECTION

Install the driven gear into the flywheel.

Check the operation of the sprag clutch by turning the driven gear.

You should be able to turn the driven gear clockwise smoothly, but the gear should not turn counterclockwise.

Remove the starter driven gear by turning the driven gear.

Check the starter driven gear teeth for wear or damage.

Measure the starter driven gear boss O.D.

Service limit: 41 mm (1.64 in)

Measure the starter driven gear bushing I.D.

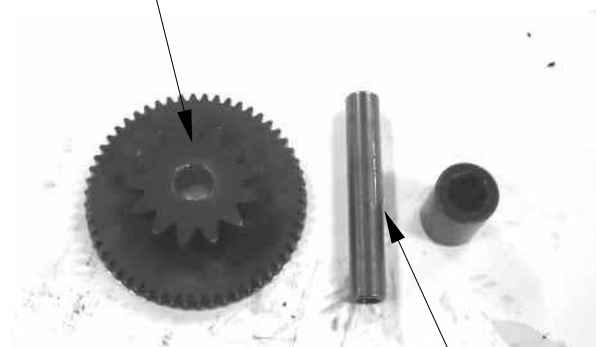
Service limit: 20.15 mm (0.806 in)

Check the starter reduction gear teeth and shaft for wear or damage.



Starter Driven Gear

Starter Idle Gear



Shaft

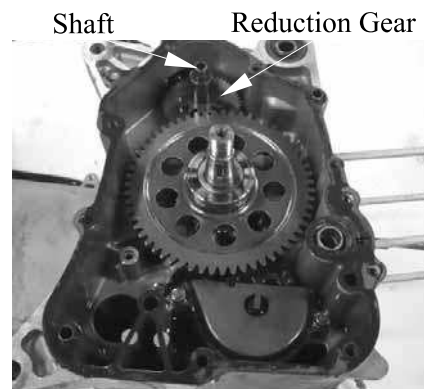
10. A.C. GENERATOR/STARTER CLUTCH

INSTALLATION

Install the starter driven gear onto the crankshaft.

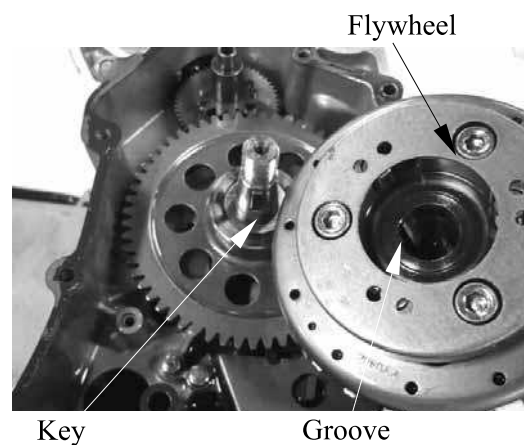


Apply oil to the starter reduction gear shaft.
Install the starter reduction gear and shaft to the right crankcase.



Install the flywheel onto the crankshaft by aligning the key on the crankshaft with the groove in the flywheel.

Before installation, check and make sure that the inside of the flywheel is not contaminated.



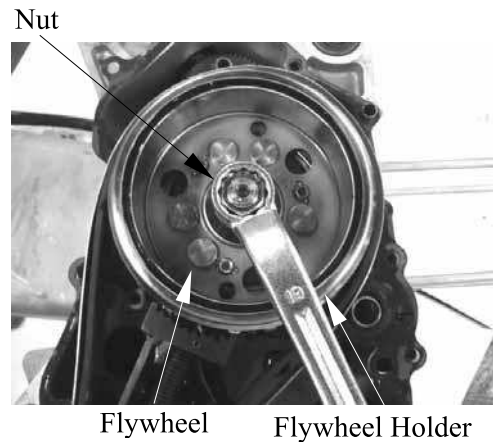
10. A.C. GENERATOR/STARTER CLUTCH

Hold the flywheel with the special tool and tighten the flywheel nut.

Torque: 5.0~6.0 kgf-m

Special tool:

Flywheel holder A120E00021



Install the dowel pins and gasket.

Install the right crankcase cover and tighten the bolts in a crisscross pattern in two or three times.



11. CRANKCASE/CRANKSHAFT

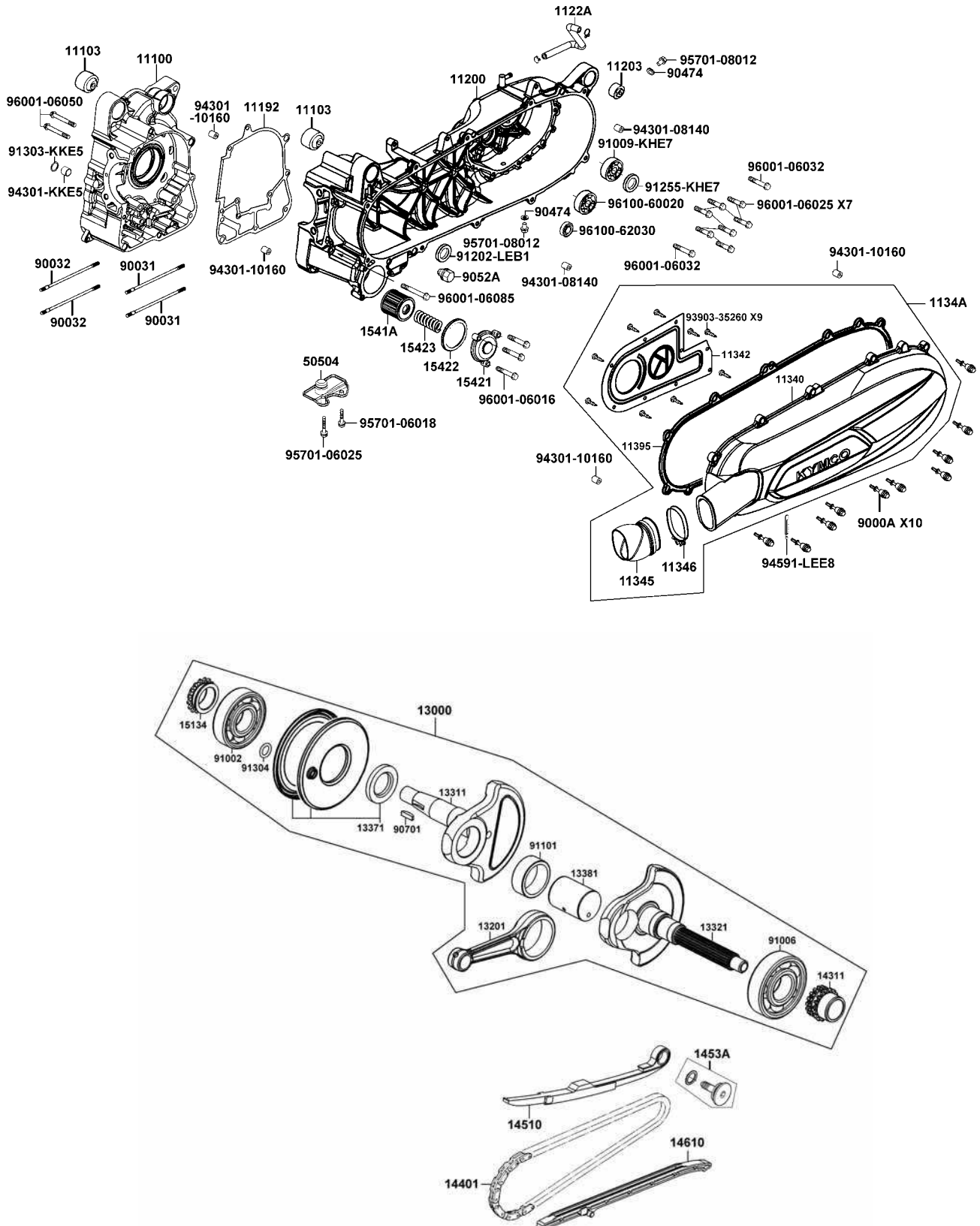
CRANKCASE/CRANKSHAFT

| | |
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| CRANKCASE ASSEMBLY ----- | 11-5 |

11. CRANKCASE/CRANKSHAFT

People GT 125i

SCHEMATIC DRAWING



11. CRANKCASE/CRANKSHAFT

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- This section covers crankcase separation to service the crankshaft. The engine must be removed for this operation.
- When separating the crankcase, never use a driver to pry the crankcase mating surfaces apart forcibly to prevent damaging the mating surfaces.
- When installing the crankcase, do not use an iron hammer to tap it.
- The following parts must be removed before separating the crankcase.
 - Cylinder head
 - Cylinder/piston
 - Drive and driven pulley
 - A.C. generator/starter clutch
 - Rear wheel/rear shock absorber
 - Starter motor
 - Oil pump

SPECIFICATIONS

| Part | Item | Standard (mm) |
|------------|---|---------------|
| Crankshaft | Connecting rod big end side clearance | 0.15~0.35 |
| | Connecting rod big end radial clearance | 0~0.008 |

TORQUE VALUES

| | |
|----------------------------------|-----------|
| Crankcase bolt | 1.0 kgf-m |
| Cam chain tensioner slipper bolt | 1.0 kgf-m |

TROUBLESHOOTING

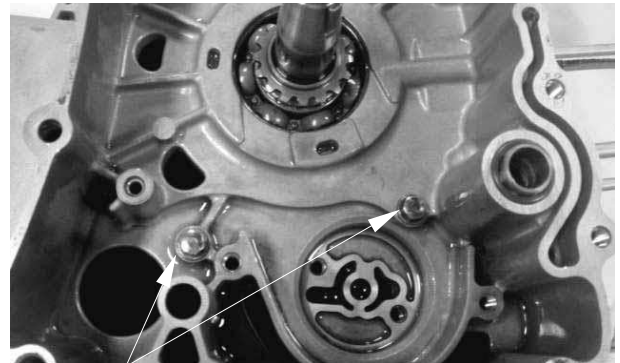
Excessive engine noise

- Excessive bearing play
- Excessive crankpin bearing play
- Worn piston pin and piston pin hole

11. CRANKCASE/CRANKSHAFT

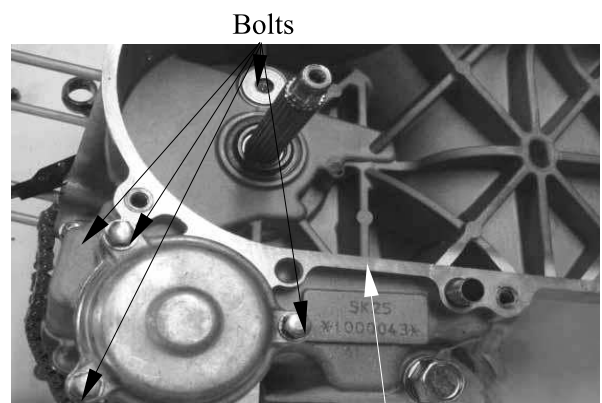
CRANKCASE SEPARATION

Remove the cam chain tensioner slipper bolt.
 Remove the cam chain tensioner slipper and cam chain.
 Remove the two right crankcase attaching bolts.



Bolt

Remove the left crankcase bolts.



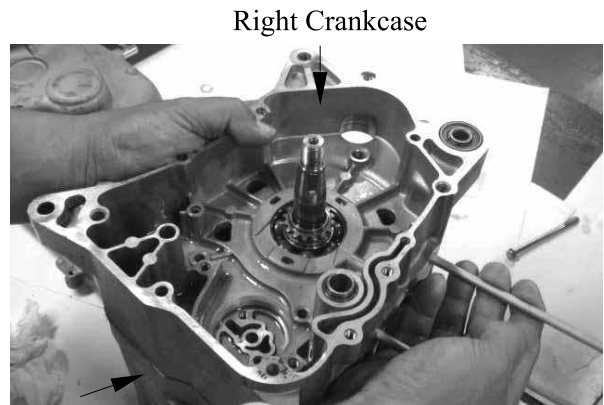
Bolts

Left Crankcase

Place the crankcase with the left crankcase down and remove the right crankcase from the left crankcase.

* Never use a driver to pry the crankcase mating surfaces apart.

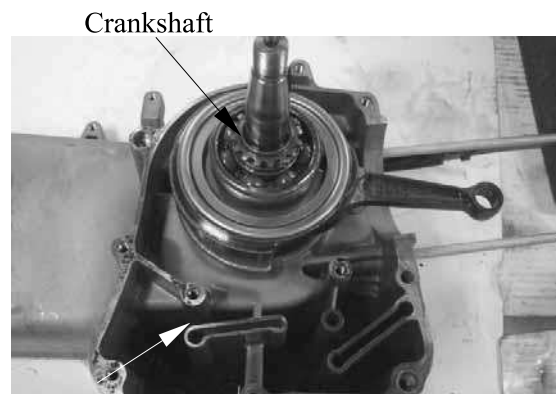
Remove the gasket and dowel pins.



Right Crankcase

Left Crankcase

Remove the crankshaft from the left crankcase.



Crankshaft

Left Crankcase

11. CRANKCASE/CRANKSHAFT

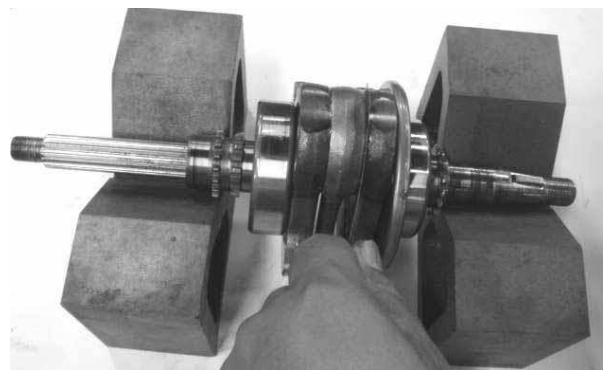
Remove the oil seal from the left crankcase.



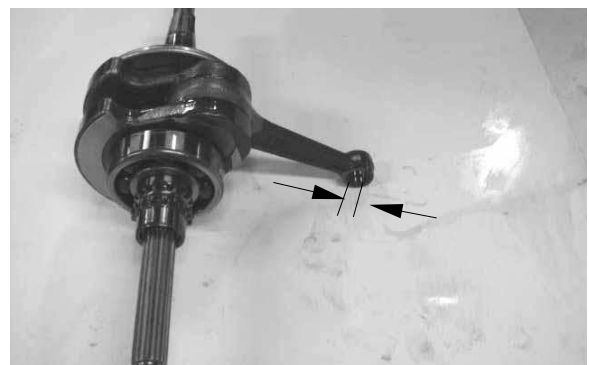
Left Crankcase

CRANKSHAFT INSPECTION

Measure the connecting rod big end side clearance.



Measure the connecting rod small end I.D.

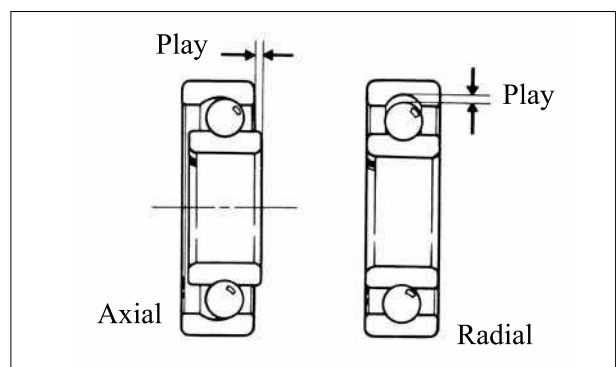


11. CRANKCASE/CRANKSHAFT

Measure the crankshaft runout.



Measure the crankshaft bearing play.



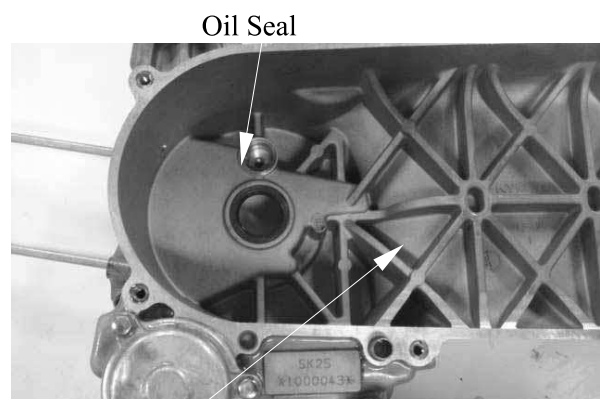
CRANKCASE ASSEMBLY

Clean off all gasket material from the crankcase mating surfaces.

* Avoid damaging the crankcase mating surfaces.



Install a new oil seal into the left crankcase.



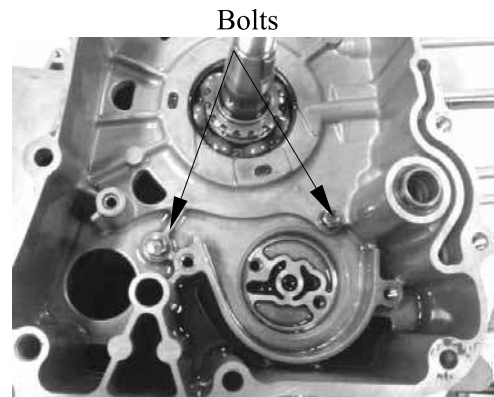
Left Crankcase

11. CRANKCASE/CRANKSHAFT

Place the left crankcase down and install the crankshaft into the left crankcase.

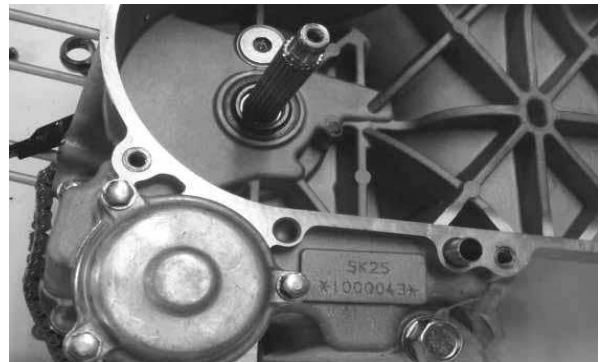
- *
 - Avoid damaging the oil seal.
 - Apply grease to the lip of the oil seal.

Install the two dowel pins and a new gasket.



Place the right crankcase over the crankshaft and onto the left crankcase.

- *
 - Install the right crankcase squarely and do not tap it with an iron or plastic hammer.



Install and tighten the right and left crankcase attaching bolts.

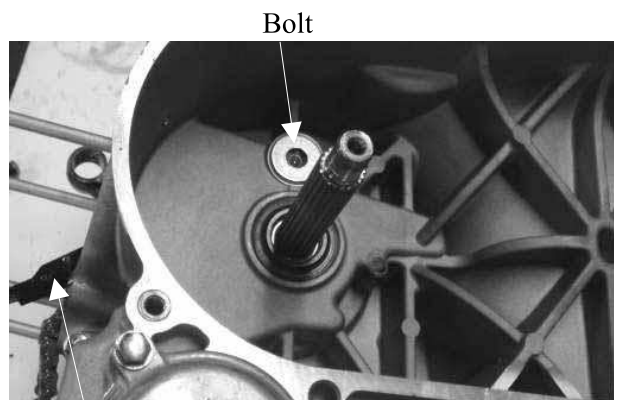
Torque: 1.0 kgf-m

Install the cam chain.

Install the cam chain tensioner slipper.

Install and tighten the cam chain tensioner slipper bolt.

Torque: 1.0kgf-m



Cam Chain Tensioner Slipper

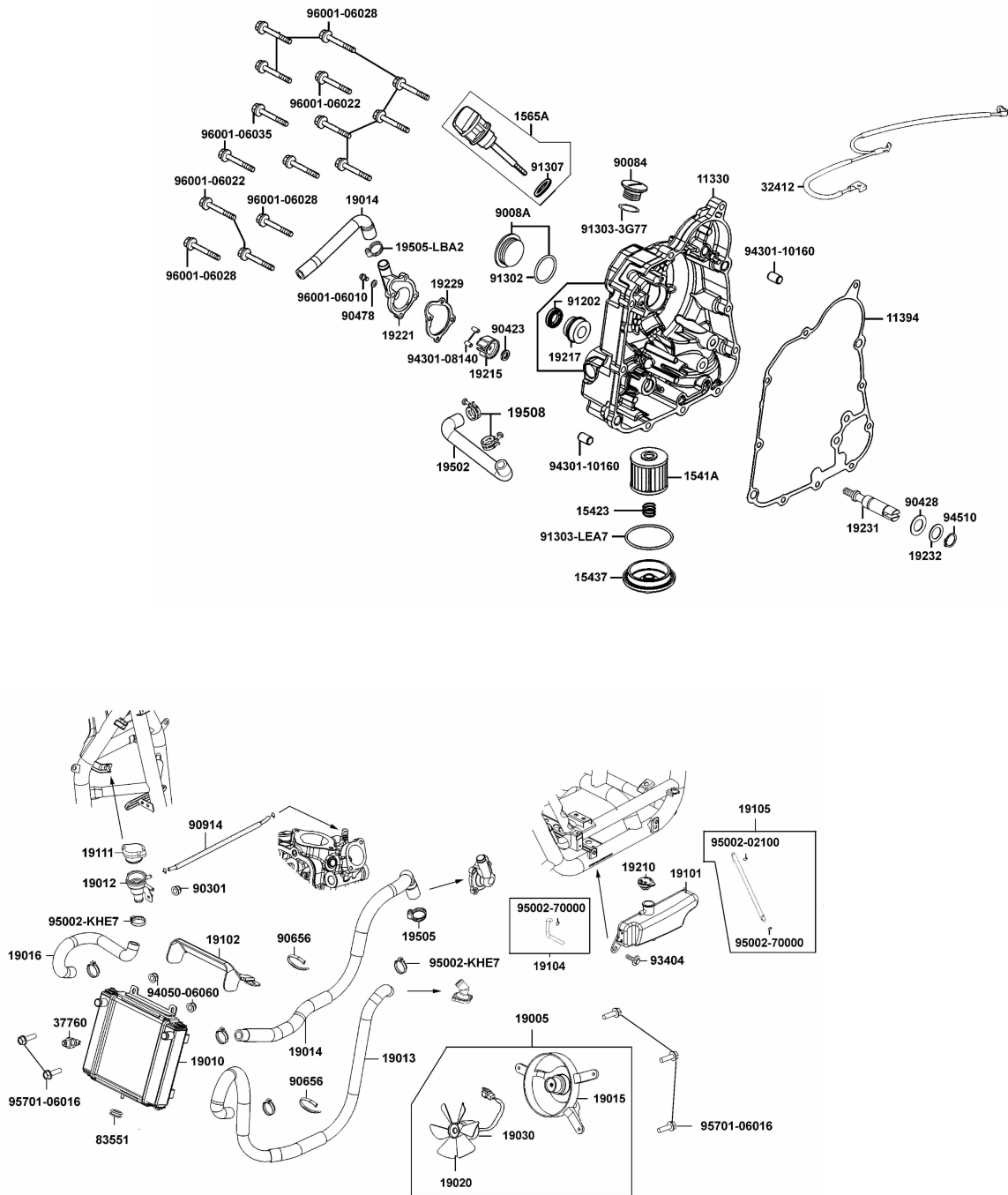
12. COOLING SYSTEM

COOLING SYSTEM

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| THERMOSTAT | 12-13 |

12. COOLING SYSTEM

SCHEMATIC DRAWING



12. COOLING SYSTEM

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- The water pump must be serviced after removing the engine. Other cooling system service can be done with the engine installed in the frame.
- The engine must be cool before servicing the cooling system.
When the coolant temperature is over 100□, never remove the radiator cap to release the pressure because the boiling coolant may cause danger.
- Avoid spilling coolant on painted surfaces because the coolant will corrode the painted surfaces. Wash off any spilled coolant with fresh water as soon as possible.
- After servicing the system, check for leaks with a cooling system tester.

TORQUE VALUES

| | |
|-----------------------|--------------------------|
| Water pump impeller | 1.0~1.4 kgf-m (11.8 N-m) |
| Water pump cover bolt | 1.0~1.4 kgf-m (11.8 N-m) |

TROUBLESHOOTING

Engine temperature too high

- Faulty temperature gauge or thermosensor
- Faulty radiator cap
- Faulty thermostat
- Insufficient coolant
- Passages blocked in hoses or water jacket
- Clogged radiator fins
- Passages blocked in radiator
- Faulty water pump

Coolant leaks

- Faulty pump mechanical (water) seal
- Deteriorated O-rings
- Damaged or deteriorated water hoses

Temperature gauge shows the wrong temperature

- Faulty temperature gauge or thermosensor
- Faulty thermostat

SPECIFICATIONS

| | | |
|------------------------------|-----------------------------|---|
| Radiator cap relief pressure | 0.9±0.15 kg/cm ² | |
| Thermostat temperature | Begins to open | 71 □ |
| | Full-open | 80 □ |
| | Valve lift | 3.5□4.5 mm |
| Coolant capacity | Total 1250 cc | Radiator & Engine: 950 cc Reserve tank: 300 cc |

12. COOLING SYSTEM

COOLANT GRAVITY CHART

| Temp. □ Coolant concentration | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 5% | 1.009 | 1.009 | 1.008 | 1.008 | 1.007 | 1.006 | 1.005 | 1.003 | 1.001 | 0.009 | 0.997 |
| 10% | 1.018 | 1.107 | 1.017 | 1.016 | 1.015 | 1.014 | 0.013 | 1.011 | 1.009 | 1.007 | 1.005 |
| 15% | 1.028 | 1.027 | 1.026 | 1.025 | 1.024 | 1.022 | 1.020 | 1.018 | 1.016 | 1.014 | 1.012 |
| 20% | 1.036 | 1.035 | 1.034 | 1.033 | 1.031 | 1.029 | 1.027 | 1.025 | 1.023 | 1.021 | 1.019 |
| 25% | 1.045 | 1.044 | 1.043 | 1.042 | 1.040 | 1.038 | 1.036 | 1.034 | 1.031 | 1.028 | 1.025 |
| 30% | 1.053 | 1.051 | 1.051 | 1.049 | 1.047 | 1.045 | 1.043 | 1.041 | 1.038 | 1.035 | 1.032 |
| 35% | 1.063 | 1.062 | 1.060 | 1.058 | 1.056 | 1.054 | 1.052 | 1.049 | 1.046 | 1.043 | 1.040 |
| 40% | 1.072 | 1.070 | 1.068 | 1.066 | 1.064 | 1.062 | 1.059 | 1.056 | 1.053 | 1.050 | 1.047 |
| 45% | 1.080 | 1.078 | 1.076 | 1.074 | 1.072 | 1.069 | 1.056 | 1.063 | 1.062 | 1.057 | 1.054 |
| 50% | 1.086 | 1.084 | 1.082 | 1.080 | 1.077 | 1.074 | 1.071 | 1.068 | 1.065 | 1.062 | 1.059 |
| 55% | 1.095 | 1.093 | 1.091 | 1.088 | 1.085 | 1.082 | 1.079 | 1.076 | 1.073 | 1.070 | 1.067 |
| 60% | 1.100 | 1.098 | 1.095 | 1.092 | 1.089 | 1.086 | 1.083 | 1.080 | 1.077 | 1.074 | 1.071 |

COOLANT MIXTURE (WITH ANTI-RUST AND ANTI-FREEZING EFFECTS)

| Freezing Point | Mixing Rate | KYMCO SIGMA Coolant Concentrate | Distilled Water |
|----------------|-------------|------------------------------------|-----------------|
| -9□ | 20 % | 250cc | 1000cc |
| -15□ | 30 % | 375cc | 875cc |
| -25□ | 40 % | 500cc | 750cc |
| -37□ | 50 % | 625cc | 625cc |
| -44.5□ | 55 % | 688cc | 562cc |

-
- Use coolant of specified mixing rate 40%:60%. (The mixing rate of 500cc KYMCO SIGMA coolant concentrate + 750c distilled water)
 - Do not mix coolant concentrate of different brands.
 - Do not drink the coolant, which is poisonous.
 - The freezing point of coolant mixture shall be 5□ lower than the freezing point of the riding area.

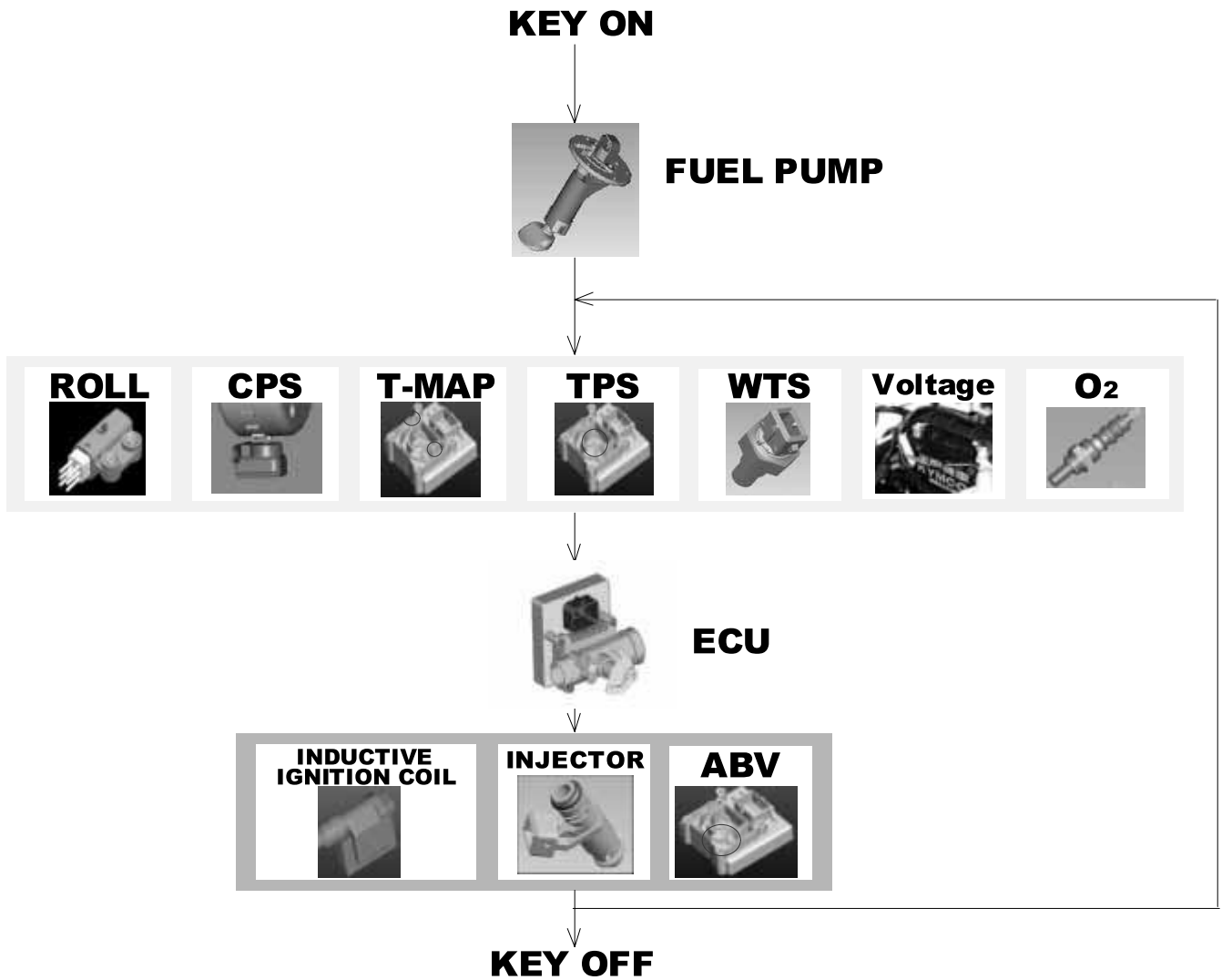
13. FUEL INJECTION SYSTEM

FUEL INJECTION SYSTEM

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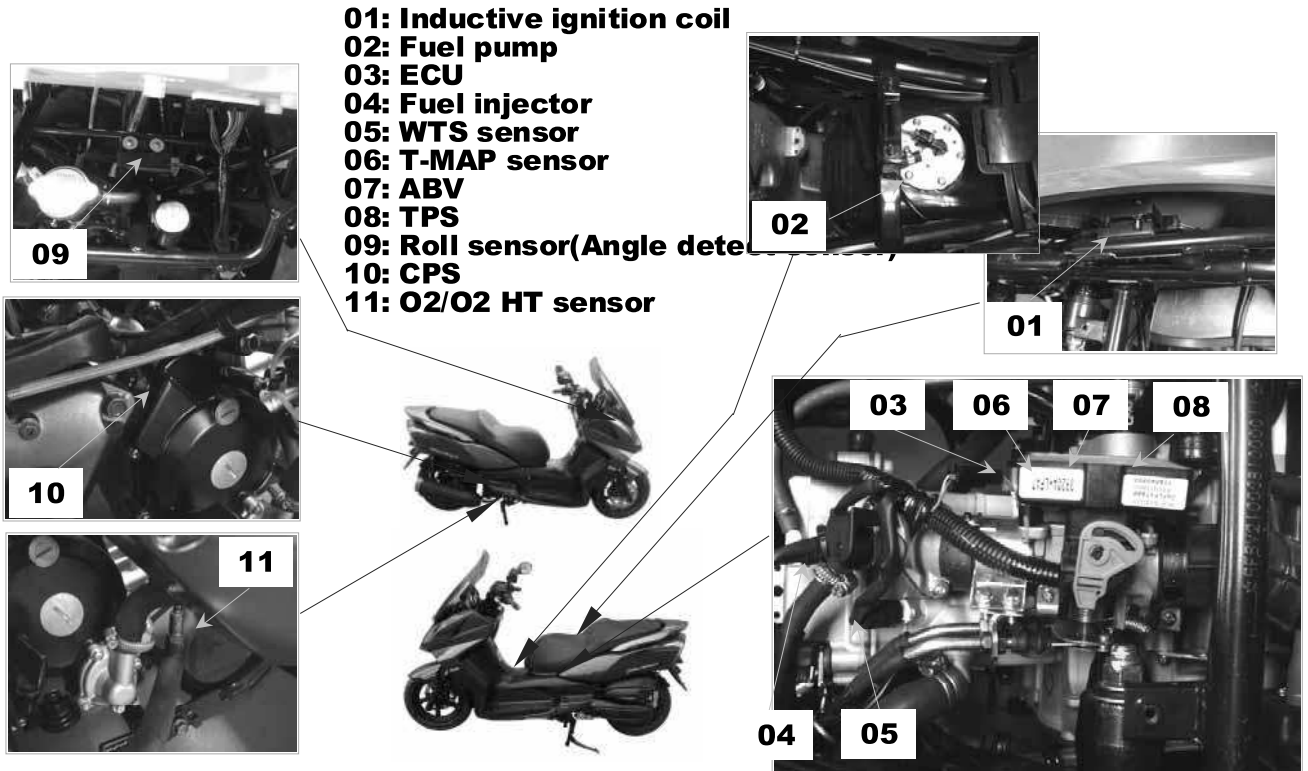
13. FUEL INJECTION SYSTEM

SYSTEM DIAGRAM



13. FUEL INJECTION SYSTEM

Parts Location



13. FUEL INJECTION SYSTEM

SERVICE INFORMATION

GENERAL INSTRUCTIONS

Gasoline is very dangerous. When working with gasoline, keep sparks and flames away from the working area.
Gasoline is extremely flammable and is explosive under certain conditions. Be sure to work in a well-ventilated area.

- Disconnect the cables of the battery when the engine is running, which could lead to ECU damage.
- Connect the harness positive (+) cable to the battery negative (-) terminal or connect the harness negative (-) to the battery positive (+) terminal, which could lead to ECU damage.
- Always keep fuel over 750 cc in fuel tank.

SPECIFICATIONS

| Item | | Standard | |
|--|-----------------------------|--|--------|
| Charging voltage of battery | | 13.5~14.5V | |
| Voltage from the ECU to sensor | | 5±0.1V | |
| Fuel injector resistance (20°C/68°F) | | 10.6~15.9Ω | |
| Water temperature sensor resistance | | 2.075±10 KΩ (20~30°C) | |
| Throttle position sensor voltage | | Idle (0°)=0.23±0.05V Throttle fully (90° /3.27V over) | |
| Fuel pump resistance (20°C/68°F) | | F: about 1100Ω E: about 100Ω | |
| O2 sensor | O2 sensor heater resistance | 6.7~9.5Ω | |
| | Voltage | Air/Fuel<14.7 (Rich) | >0.7V |
| | | Air/Fuel>14.7 (Lean) | <0.18V |
| Crank position sensor (Pulser) resistance | | 95~144Ω | |
| Inductive ignition coil resistance (20°C/68°F) | | 0.55~0.75Ω | |
| Roll sensor voltage (diagnostics) | | Normal: 0.3~1.4V Fall down (>65°): 3.5~4.7V | |
| Idle speed | | 1850±100 rpm | |

13. FUEL INJECTION SYSTEM

TROUBLESHOOTING

Engine won't start

- Battery voltage too low
- Fuel level too low
- Pinched or clogged fuel hose
- Faulty fuel pump operating system
- Clogged fuel filter (fuel pump)
- Clogged fuel injector
- Faulty spark plug or wrong type
- Cut by ECU due to angle detect sensor or incorrect function

Backfiring or misfiring during acceleration

- Ignition system malfunction

Poor performance (drive ability) and poor fuel economy

- Pinched or clogged fuel hose
- Faulty fuel injector

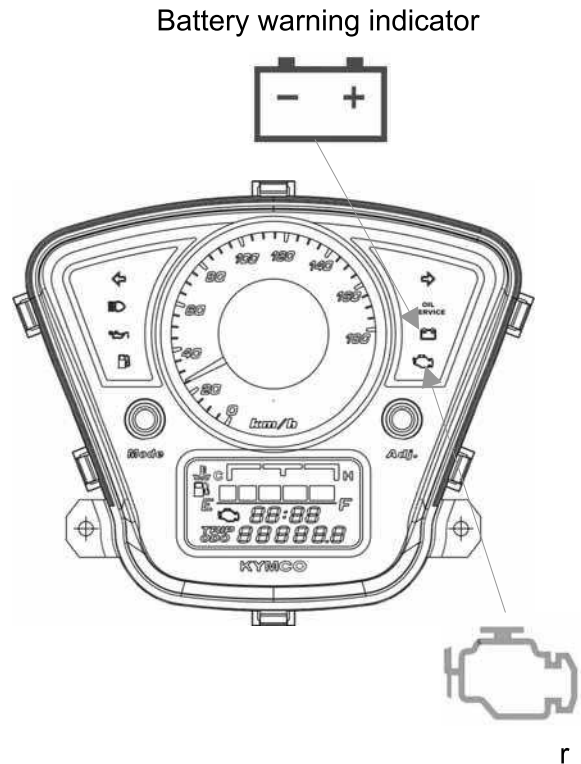
Engine stall, hard to start, rough idling

- Intake air leak
- Fuel contaminated/deteriorated
- Pinched or clogged fuel hose
- Idle speed misadjusted

13. FUEL INJECTION SYSTEM

FI INJECTION INDICATOR

- When turning on the switch, the lamp will be lighted for 2 seconds then off. Let user to know the lamp is available and connect to ECU.
- But after then or during riding, if the CELP start to blink or keep lighting, it means something wrong with this vehicle, you better do the further check to find out the failure code to know which part get trouble
- There are three kinds of priority grade let user to know what kind of trouble was happened.
- Priority grade 1: CELP blinks continuously. This is the most emergent situation like engine over heat. User should be slow down the riding and go to dealer for checking.
- Priority grade 2: CELP lights all the time. It means components gets trouble or circuit something wrong. Do the further check to find out the failure code to know which part get trouble.
- Priority grade 3: CELP just blinks once suddenly and then disappear. It sometimes just warning like the RPM was too high in a short term.

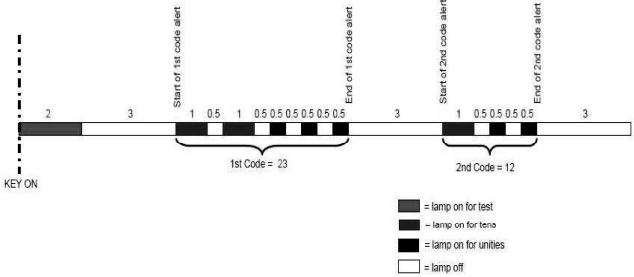


| PRIORITY | LAMP ACTION |
|----------|----------------------|
| 1 | <p>ON</p> <p>OFF</p> |
| 2 | <p>ON</p> <p>OFF</p> |
| 3 | <p>ON</p> <p>OFF</p> |

13. FUEL INJECTION SYSTEM

How To Show Failure Code

- You can read the failure code by as below :
- Turn switch on. The CELP will be lighted for 2 seconds then off. The CELP start to blink to show the failure codes
- (The number of blinks from 1 to 25).
- If vehicle got more than one failure code, the CELP will be shown from lower number failure code and then show the other higher number one after four seconds. All the failure codes would be shown repeatedly.



How To Reset Failure Code

- After repairing the trouble, you should clear the failure code or it will still exist in the ECU memory. When you do a next maintain, it will show again and you get confuse.
- Turn switch on. The CELP will be lighted for two seconds then off.
- The CELP begins to blink to show the failure codes.
- The self-diagnosis memory data will be erased when all the failure codes has showed for four cycles.

13. FUEL INJECTION SYSTEM**Failure Code Chart**

| Blink | Failure Codes | Fault description | Priority | Fault management |
|-------|---------------|---|----------|---|
| 1 | P0217 | Engine temperature overheat | 1 | 1.Slow down the vehicle and go to workshop for checking immediately. 2.Confirm if the engine temperature sensor or electric circuit is abnormality. |
| 2 | P0335 | Crankshaft position sensor or circuit malfunction | 2 | 1.Check if the connector of crankshaft position sensor is loosen. 2.Check if the Rotor is align with Crankshaft position sensor during the crankshaft running. |
| 3 | P1120 | Throttle position sensor setting value problem | 2 | 1.Make sure if the connector of Throttle position sensor is connected correctly. 2.Check if the Throttle position sensor is adjusted. |
| 4 | P1121 | Throttle position sensor output range problem | 2 | 1.Make sure if the connector of Throttle position sensor is connected correctly. 2.Check if the Throttle position sensor is adjusted. |

13. FUEL INJECTION SYSTEM

Failure Code

| Blink | Failure Codes | Fault description | Priority | Fault management |
|-------|---------------|--|----------|--|
| 5 | P1122 | Throttle position sensor movement speed problem | 2 | <ol style="list-style-type: none"> 1. Make sure if the connector of Throttle position sensor is connected correctly. 2. Check if the Throttle position sensor is adjusted. |
| 6 | P0560 | Battery voltage malfunction | 1 | <ol style="list-style-type: none"> 1. Check if the battery voltage is lower or higher. 2. Check if the charge system is malfunction. |
| 7 | P0110 | Inlet air temperature sensor or electric circuit malfunction | 2 | <ol style="list-style-type: none"> 1. Check if the connector of Inlet air temperature sensor loosen. 2. Check if the resistance of sensor is normal . |
| 8 | P0410 | Idle air valve or electric circuit malfunction | 2 | <ol style="list-style-type: none"> 1. Check if the connector of Idle air valve loosen. 2. Check if the resistance of valve is normal. |
| 9 | P0505 | Idle speed volume control range | 2 | <ol style="list-style-type: none"> 1. Check if the opening angle is over 180° for Idle air valve. 2. Check if the opening angle is malfunction. |
| 10 | P0251 | Injector or electric circuit | 2 | <ol style="list-style-type: none"> 1. Check if the connector of Injector is loosen. 2. Check if the ECU send signal to Injector. 3. Check if the power source and resistance of Injector are malfunction. |

13. FUEL INJECTION SYSTEM

Failure Code

| Blink | Failure Codes | Fault description | Priority | Fault management |
|-------|---------------|---|----------|---|
| 11 | P0350 | Ignition coil or electric circuit malfunction | 2 | <ol style="list-style-type: none"> 1. Check if the connector of ignition coil is loosen. 2. Check if the ECU send signal to Ignition coil. 3. Check if the power source and resistance is malfunction. |
| 12 | P0230 | Fuel pump relay or electric circuit malfunction | 2 | <ol style="list-style-type: none"> 1. Check if the connector of relay is loosen. 2. Check if the ECU send signal to relay. 3. Check the fuel pump relay resistance |
| 13 | P0219 | Engine speed is over than top speed | 2 | Check if the belt of CVT is broken. |
| 14 | P1560 | Sensor don't receive power source from ECU | 2 | <ol style="list-style-type: none"> 1. Check if ECU output DC5V to sensor. 2. Check if the power source of all sensor is DC5V. 3. Replace a new ECU if the CELP still blinks even the output power source of ECU is normal. |
| 15 | P0700 | Engine starting speed exceed CVT speed limited | 2 | <ol style="list-style-type: none"> 1. Check if the throttle wire locked. 2. Check if the position of throttle screw is correct. 3. Check if the belt of CVT is broken. |
| 16 | P0115 | Engine temperature sensor or electric circuit malfunction | 2 | <ol style="list-style-type: none"> 1. Check if the connector of sensor is loosen. 2. Check if ECU pin is broken. 3. Check if the resistance of sensor is malfunction. |
| 17 | P1561 | Temperature gauge electric circuit malfunction | 2 | Don't use it at present. |

13. FUEL INJECTION SYSTEM

Failure Code

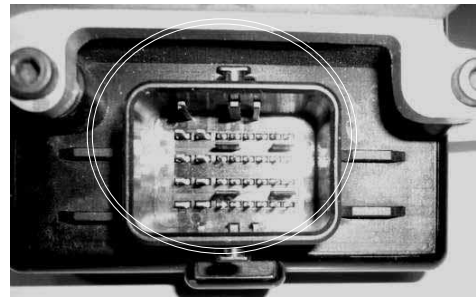
| Blink | Failure Codes | Fault description | Priority | Fault management |
|-------|---------------|---|----------|---|
| 18 | P0650 | CELP electric circuit malfunction | 3 | <ol style="list-style-type: none"> 1. Check if the lamp of CELP is broken. 2. Check if wires of CELP is broken. |
| 21 | P0105 | Atmospheric Pressure Sensor or electric Circuit Malfunction | 2 | <ol style="list-style-type: none"> 1. Check if the connector of sensor is loosen. 2. Check if ECU pin is broken. 3. Check if voltage of sensor is fit in specification. |
| 22 | P1110 | Roll sensor or electric circuit malfunction | 2 | <ol style="list-style-type: none"> 1. Check if the sensor installation direction is correct. 2. Check if voltage of sensor is fit in specification. 3. Check if ECU pin is broken. |
| 23 | P0136 | O2 sensor malfunction | 1 | <ol style="list-style-type: none"> 1. Check if the connector of sensor is loosen. 2. Check if ECU pin is broken. |
| 24 | P0141 | O2 sensor heater malfunction | 1 | <ol style="list-style-type: none"> 1. Check if the connector of sensor is loosen. 2. Check if ECU pin is broken. 3. Check if the resistance of sensor is malfunction. |
| 25 | P0171 | O2 sensor electric circuit malfunction | 1 | <ol style="list-style-type: none"> 1. Check if the connector of sensor is loosen. 2. Check if O2 sensor is blocked. 3. Don't follow a routine maintenance. |

13. FUEL INJECTION SYSTEM

ECU

There are 36 pins attaching the ECU.

Part number: 3620A-LFA7-E00

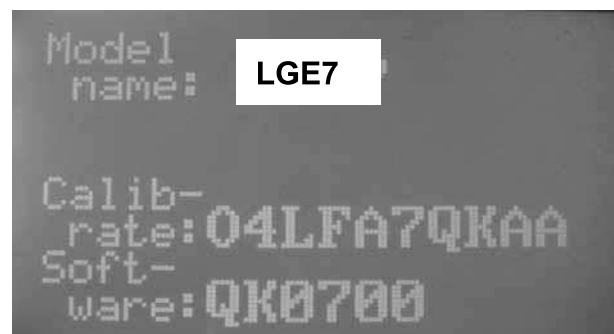


Voltage inspection

Connect the meter (+) probe to the F4(R/W) wire and the meter (-) probe to the H4(G/B) wire to measure the voltage.



MAP content (edition issue no.)



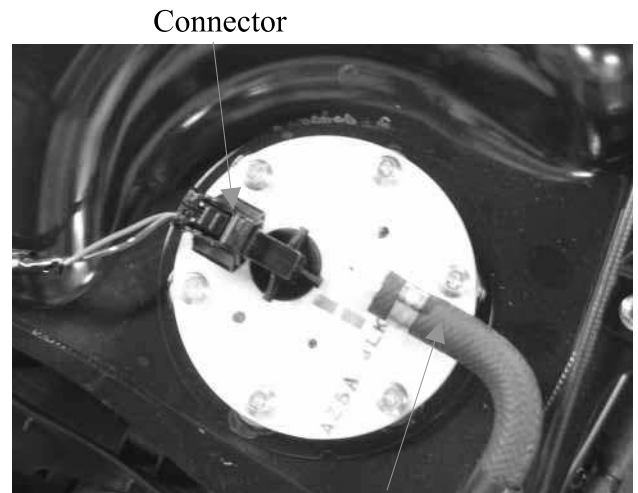
13. FUEL INJECTION SYSTEM

FUEL PUMP

Connect the meter (+) probe to the red/black wire and the meter (-) probe to the green wire to measure the voltage from the ECU input to fuel pump unit.

Standard : 8~16 V (Battery volt)

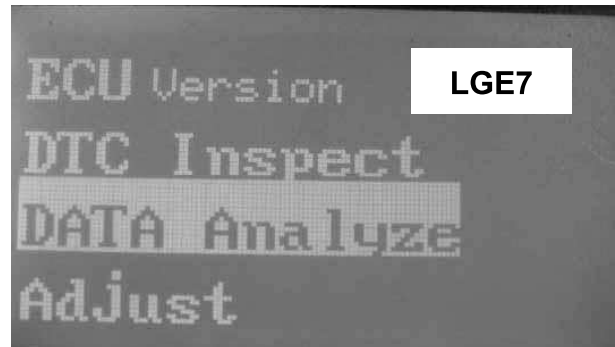
To measure the resistance of the fuel pump to see if it is short circuit or not.



13. FUEL INJECTION SYSTEM

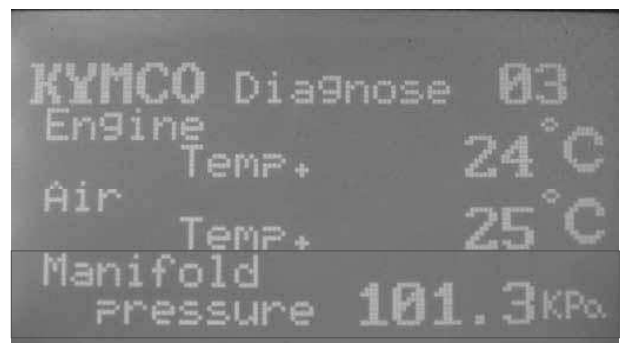
T-MAP(Manifold Air Temperature Pressure) Sensor

Connect the PDA or Fi diagnostic tool.
 Enter the Data Analyze
 Check if the manifold pressure data is malfunction.
 Turn the ignition switch to the “ON” position.
 If data is incorrect, and the T-map sensor is problem.



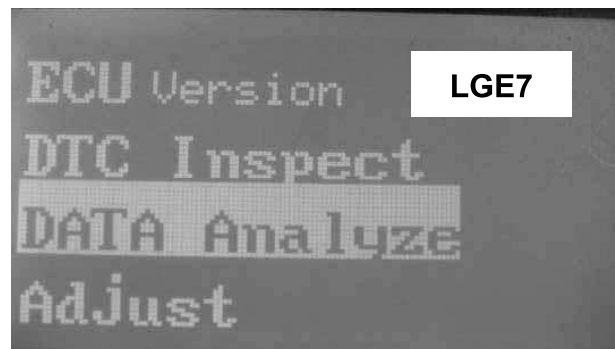
Standard : 101.3 ±3 kpa on sea altitude

The ambient pressure drop is about **12Kpa** according to the altitude raises.



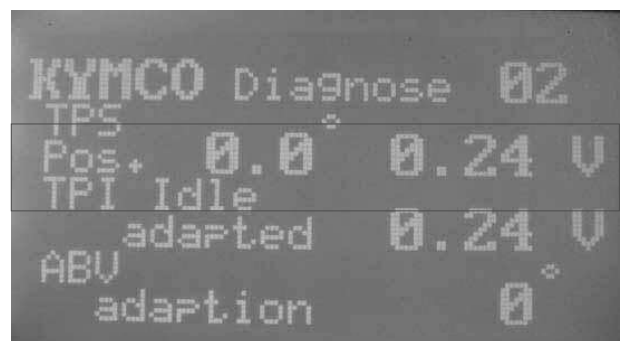
TPS (Throttle Position Sensor)

Enter the Data Analyze
 Check if the TPS position data is malfunction.
 Turn the ignition switch to the “ON” position.
 If data is incorrect even the Idle and throttle fully, the TPS is problem.



Standard :

Idle ~0° 0.23V ±0.05
Throttle fully ~90° > 3.27V



13. FUEL INJECTION SYSTEM

WTS (Water Temperature Sensor)

Connect the meter (+) probe to the V/G wire and the meter (-) probe to the G/L wire to measure the voltage

Standard : 5 ± 0.25 V

Measure the resistance of the WTS

Standard (20°C/68°F): $2.075\pm 10\%$ k Ω



INJECTOR

Measure the resistance of the Injector

Standard (20°C/68°F): 10.6~15.9 Ω



13. FUEL INJECTION SYSTEM

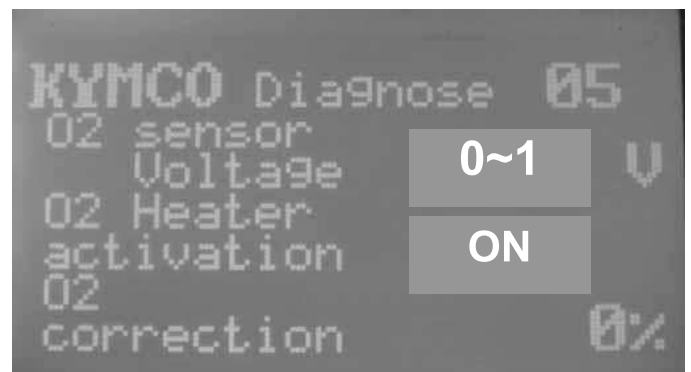
O2 SENSOR

Measure the resistance of the O2 sensor heater.
(2 white wire pin)

Standard (20°C/68°F): 6.7 ~9.5Ω



Connect the PDA or KYMCO Fi diagnostic tool.
Enter the Data Analyze
Check Page 05
Turn the ignition switch to the “ON” position.
Starting engine till the O2 heater activation is ON.
If data is incorrect, the O2 sensor is problem.



13. FUEL INJECTION SYSTEM

ROLL SENSOR

The engine should be stop when the vehicle incline over 65° for safety. When you place the vehicle back to normal position, you have to key-off and key-on the switch again, then it can be restarted.

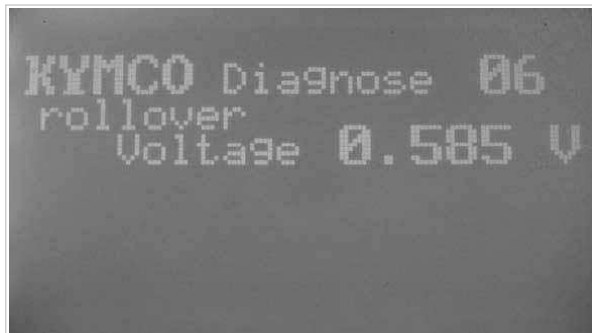
Standard:

Normal: 0.4~1.4V

Fall down > 65°: 3.7~4.4 V



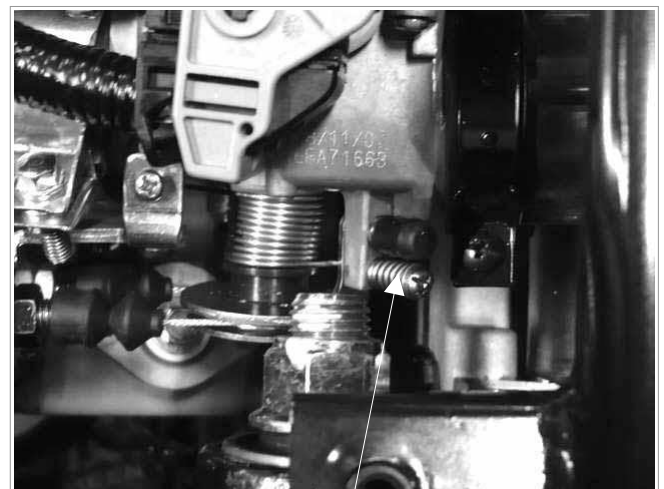
Roll sensor



TP SCREW

Don't adjust the TP screws, they should be adjusted by KYMCO.

If TP screw lost of the original position, it may cause to unstable problem.



TP screws

13. FUEL INJECTION SYSTEM

Connect the PDA or Fi diagnostic tool.

Enter the Data Analyze

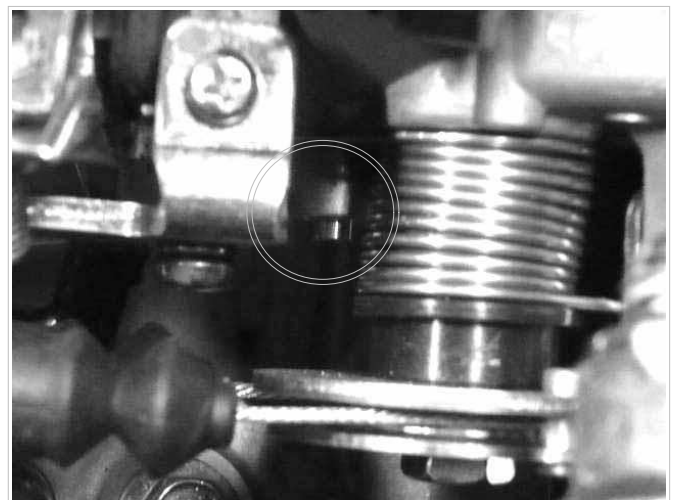
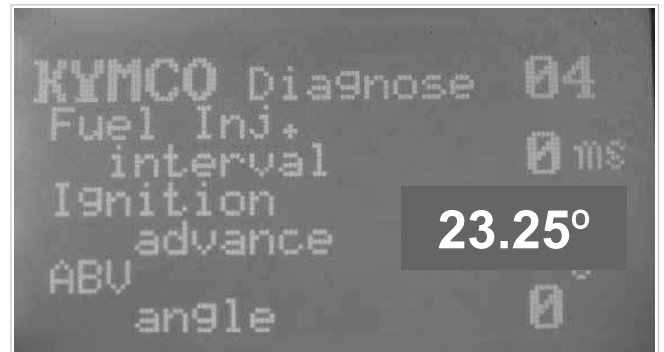
Check if the ignition advance data is malfunction.

Turn the ignition switch to the “ON” position.

Starting engine till the temperature up to 80°C.

If the figure is over **20°**, you should adjust the air bypass screw 1~1.5 turns in counterclockwise.

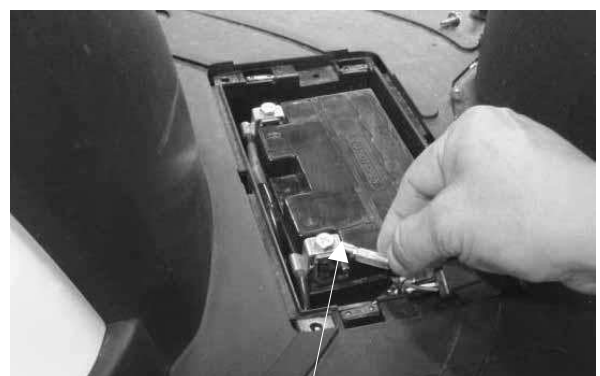
Don't adjust the air bypass adjustment screw over 1.5 circle.



TPI / ABV Initialization

After replacing throttle body or engine overhauled, it cause to the efficiency of air intake be changed, so should do the TPI/ABV initialization process.

1. When the scooter is working, turn off the ignition switch and turn on again (keep the engine is off).
2. Touch this pink wire to the negative point of battery or the earth of body frame to complete TPI ABV resetting.



Reset wire (Pink)

Attention

Disconnect the pink wire immediately after shorting.



KYMCO Diagnostic Report

LGE7

SF :
Production
Date :

Customer :
Service
Date :

Eng. No:
Mileage :

Reason of repair: maintenance breakdown

| Item | | Data | Reference | Memo |
|---------------------------|--------------------------------|----------------|-----------------------|---|
| ECU Version | ECU No | | --- | |
| | Hardware Ver | | --- | |
| | Software Ver | | QK0700 | |
| | Calibration Ver | | O4LGE7QKAB | |
| | Model Name | | LGE7 | |
| DTC | Active | | | |
| | Occurred | | | |
| | History | | | |
| (Cool Engine) EngineStop | Engine Temp.(Coiling) | | environ.temp ± 2 °C | |
| | Air Temp.(°C) | | environ.temp ± 2 °C | |
| | Atom. Pressure(Kpa) | | 101.3 ± 3 kPa | The ambient pressure drop about 12 kpa at the altitude every 1000m raised |
| | Throttle Position(%) | | 0° / 90° | Full Throttle: >90% |
| | Throttle Position Voltage (V) | | 0.23V ± 0.05 / >3.27V | Full Throttle Voltage: >3.27V |
| | TPI Idle Mean (V) | | 0.23 ± 0.05 V | |
| | Battery Voltage(V) | | >12 V | |
| | Idle speed setpoint (rpm) | | --- | |
| | ABV Adap Mean (°) | | --- | |
| | Roll Sensor State | | 0.4 ~ 1.44 V(stand) | |
| | Accumulated eng. run time (hr) | | --- | |
| (Hot Engine) BeforeRepair | EngineSpeed IDLE(rpm) | | 1760 ± 100 rpm | Following data Engine Temp. > 80°C |
| | Intake Pressure(Kpa) | | 50~62 kpa | |
| | Fuel Inject Interval(ms) | | 1.6 ~ 2.7 ms | |
| | Ignition Timing (°) | | 5 ~ 17 BTDC | |
| | Ign.Dwell duration (ms) | | 1.9 ~ 2.6 ms | |
| | Air Temp.(°C) | | environ.temp ± 2 °C | |
| | Engine Temp. (°C) | | >80°C | |
| | O2 sensor voltage (V) | | 0 ~ 1 V | |
| | O2 sensor heater (OFF/ON) | | ON | |
| | O2 sensor correct | | ± 20 | |
| | IDLE CO(%) | | 0.5~1.5% | |
| | ABVAngDurMech (°) | | 140° | |
| (Hot Engine) AfterRepair | EngineSpeed IDLE(rpm) | | 1760 ± 100 rpm | Following data Engine Temp. > 80°C |
| | Intake Pressure(Kpa) | | 50~62 kpa | |
| | Fuel Inject Interval(ms) | | 1.6 ~ 2.7 ms | |
| | Ignition Timing (°) | | 5 ~ 17 BTDC | |
| | Ign.Dwell duration (ms) | | 1.9 ~ 2.6 ms | |
| | Air Temp.(°C) | | environ.temp ± 2 °C | |
| | Engine Temp. (°C) | | >80°C | |
| | O2 sensor voltage (V) | | 0 ~ 1 V | |
| | O2 sensor heater (OFF/ON) | | ON | |
| | O2 sensor correct | | ± 20 | |
| | IDLE CO(%) | | 0.5~1.5% | |
| | ABVAngDurMech (°) | | 140° | |
| Repair description | | Repair Process | | |

Fi Diagnostic Tool Operation Instructions Part No. 3620A-LEB2-E00

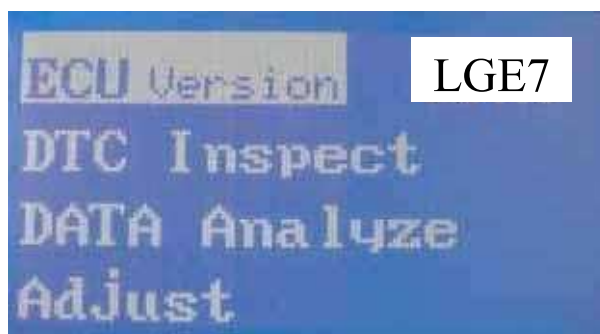


- | | |
|---------------------------------------|----------------|
| 1 Model No. | 8 DATA Analyze |
| 2 Down Button | 9 DTC Inspect |
| 3 DTC indicator (Failure codes) | 10 ECU Version |
| 4 Enter or Exit | |
| 5 Power indicator | |
| 6 UP Button | |
| 7 Adjust (TPI and ABV reset function) | |

DTC INSPECTION

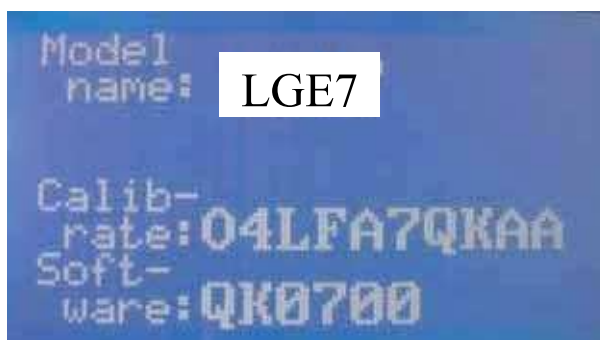
Connect Fi diagnostic tool with the connector of harness wire located beside the Battery.

Press the "Enter" button

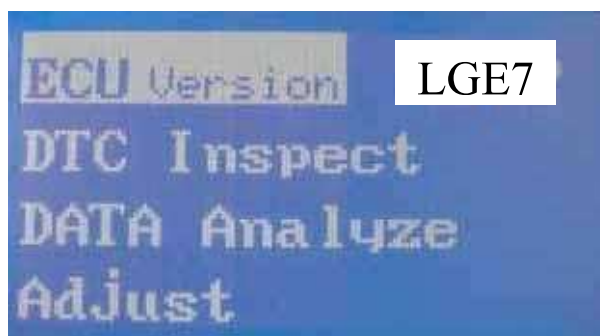


Check the software version

Press the "Enter" button and then turn to the first page.

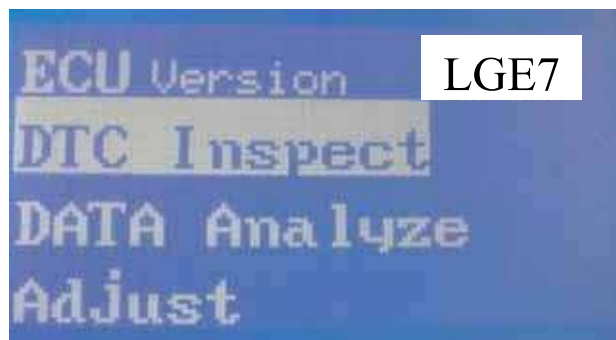


Press the "Down" button to enter the DTC Inspect.

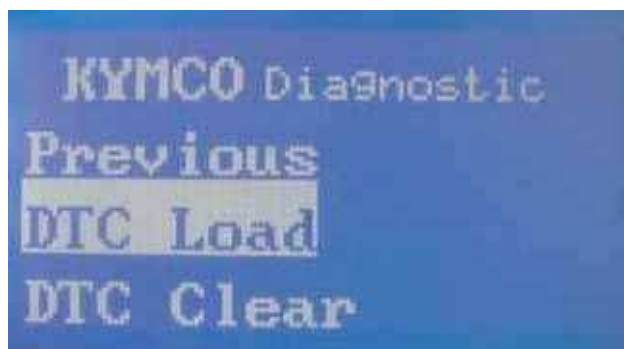


13. FUEL INJECTION SYSTEM

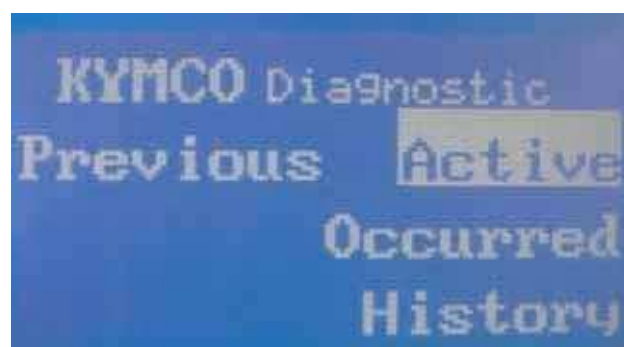
Press the "Enter" button to check the DTC number



Press the "Enter" button



Press the "Enter" button



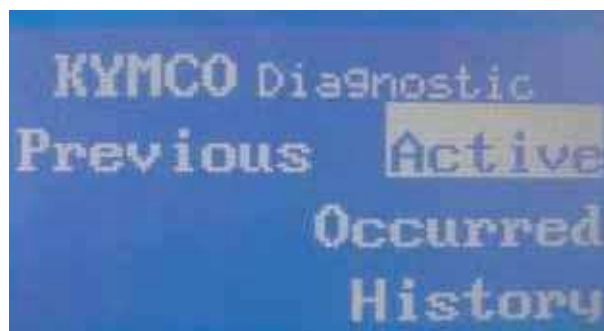
Display the DTC number of the DTC-List. Refer to DTC summary list.

Press the "Enter" button and then turn to the previous page

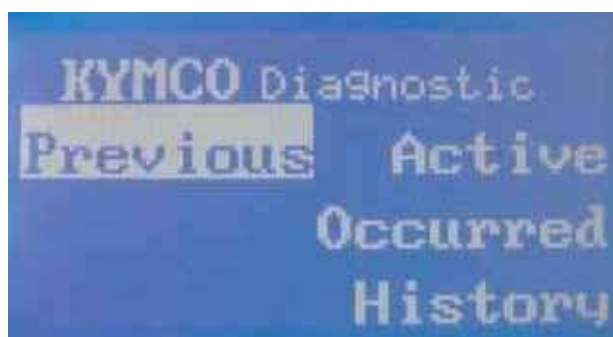


13. FUEL INJECTION SYSTEM

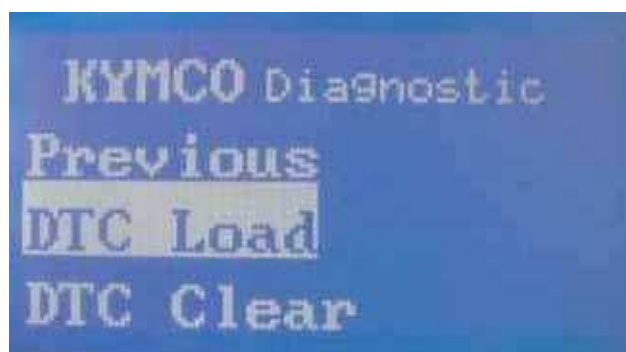
Press the "UP" button



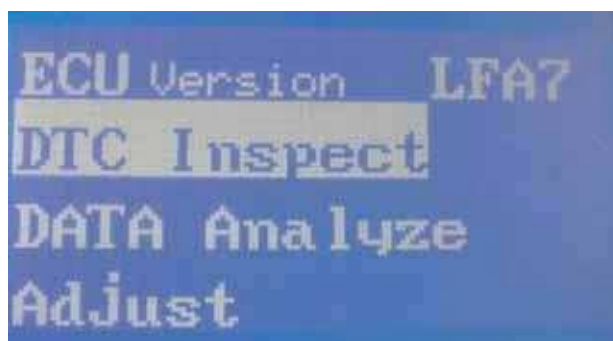
Press the "Enter" button and then turn to the previous page.



Press the "UP" button



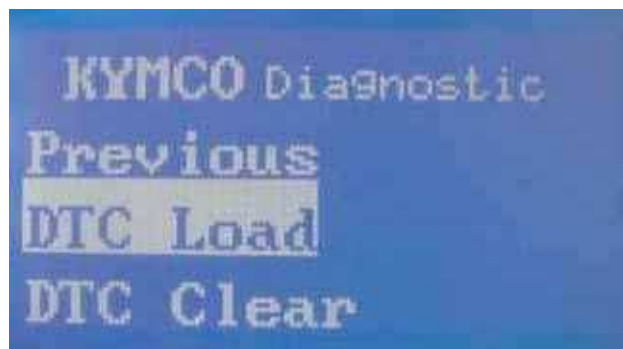
Press the "Enter" button and then turn to the first page.



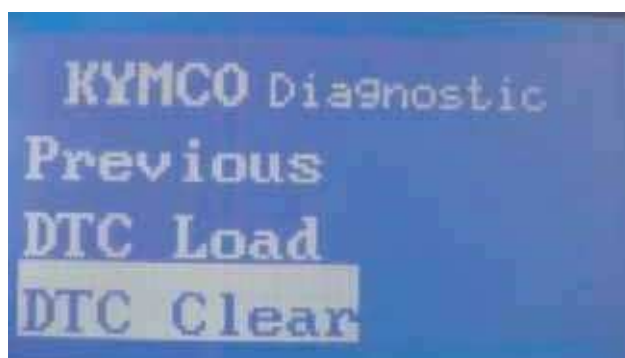
DTC CLEAR PROCEDURE

Choose "Load DTC"

Press the "Down" button



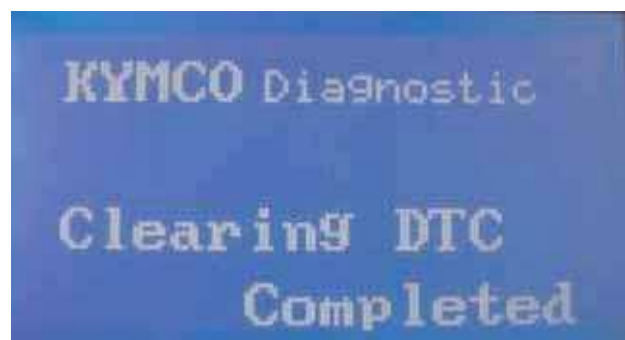
Press the "Enter" button



The DTC indicator is lighting at that time.



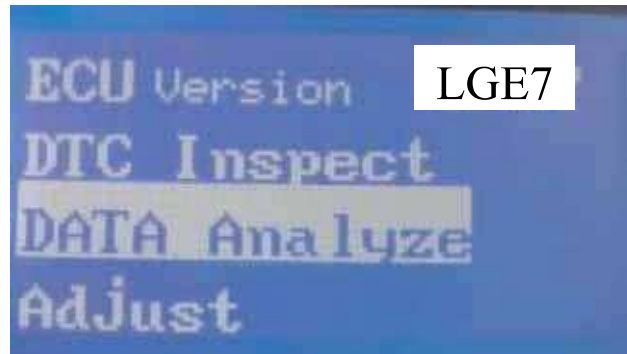
Clearing DTC until the DTC indicator is off.



DATA ANALYSIS

Choose "Data Analyze"

Press the "Enter" button to enter page 01.



The figure includes the engine speed, idle speed and the battery voltage.

Refer to standard specification.

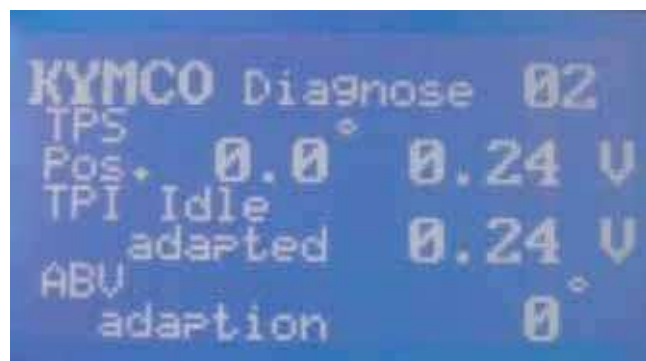
Press the "Down" button to enter page 02.



The figure includes TPS position, TPI idle adapted voltage and TPI WOT adapted (Throttle grip fully opened).

Refer to standard specification.

Press the "Down" button to enter page 03.



The figure includes engine working temperature, atmosphere pressure and Manifold pressure.

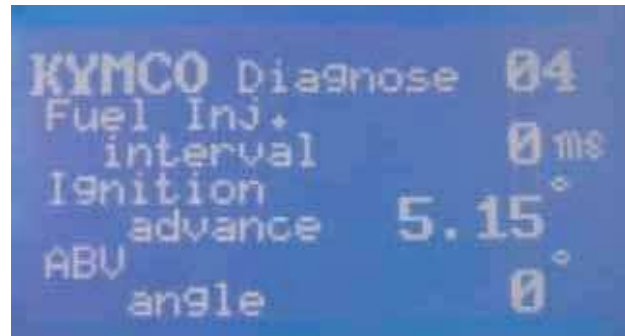
Refer to standard specifications on page 18-9.

Press the "Down" button to enter page 04.



13. FUEL INJECTION SYSTEM

The figure includes fuel injector interval, ignition advance angle and ABV angle. Refer to standard specification. Press the "Down" button to enter page 05.



The figure includes O2 sensor voltage, O2 heater working condition and O2 correction.

Refer to standard specification.

Press the "Down" button to enter page 06.



The figure includes rollover voltage.

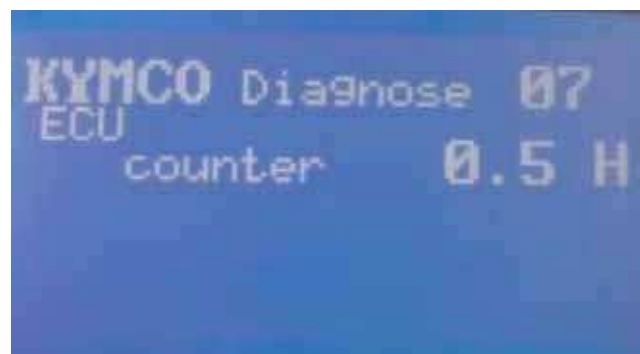
Refer to standard specification.

Press the "Down" button to enter page 07.



The figure includes ECU counter hours.

Press the "UP" button to the first page.



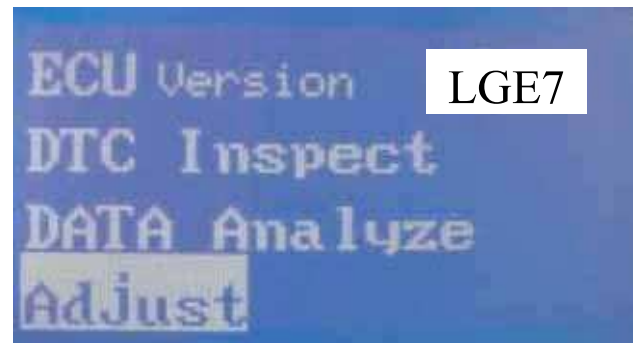
13. FUEL INJECTION SYSTEM

ADJUST

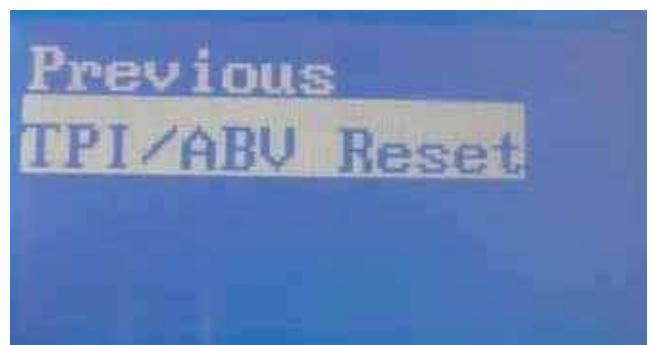
Need to process the TPI/ABV reset after replacing a new ECU or clean Throttle Body.
To make ECU set up and set up initially

Choose "Adjust"

Press the "Enter" button to TPI/ABV Reset

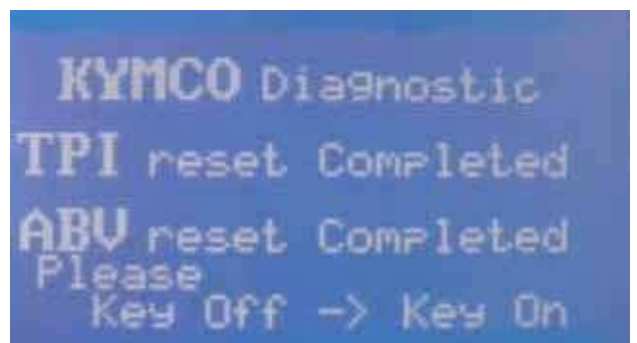


Press the "Enter" button



Please turn the ignition switch to the "OFF" position and then switch ON.

TPI/ABV reset is completed.



**14. STEERING HANDLEBAR/FRONT WHEEL/FRONT
BRAKE/FRONT SHOCK ABSORBER/FRONT FORK**



People GT 125i

**STEERING HANDLEBAR/FRONT WHEEL/FRONT
BRAKE/FRONT SHOCK ABSORBER/FRONT FORK**

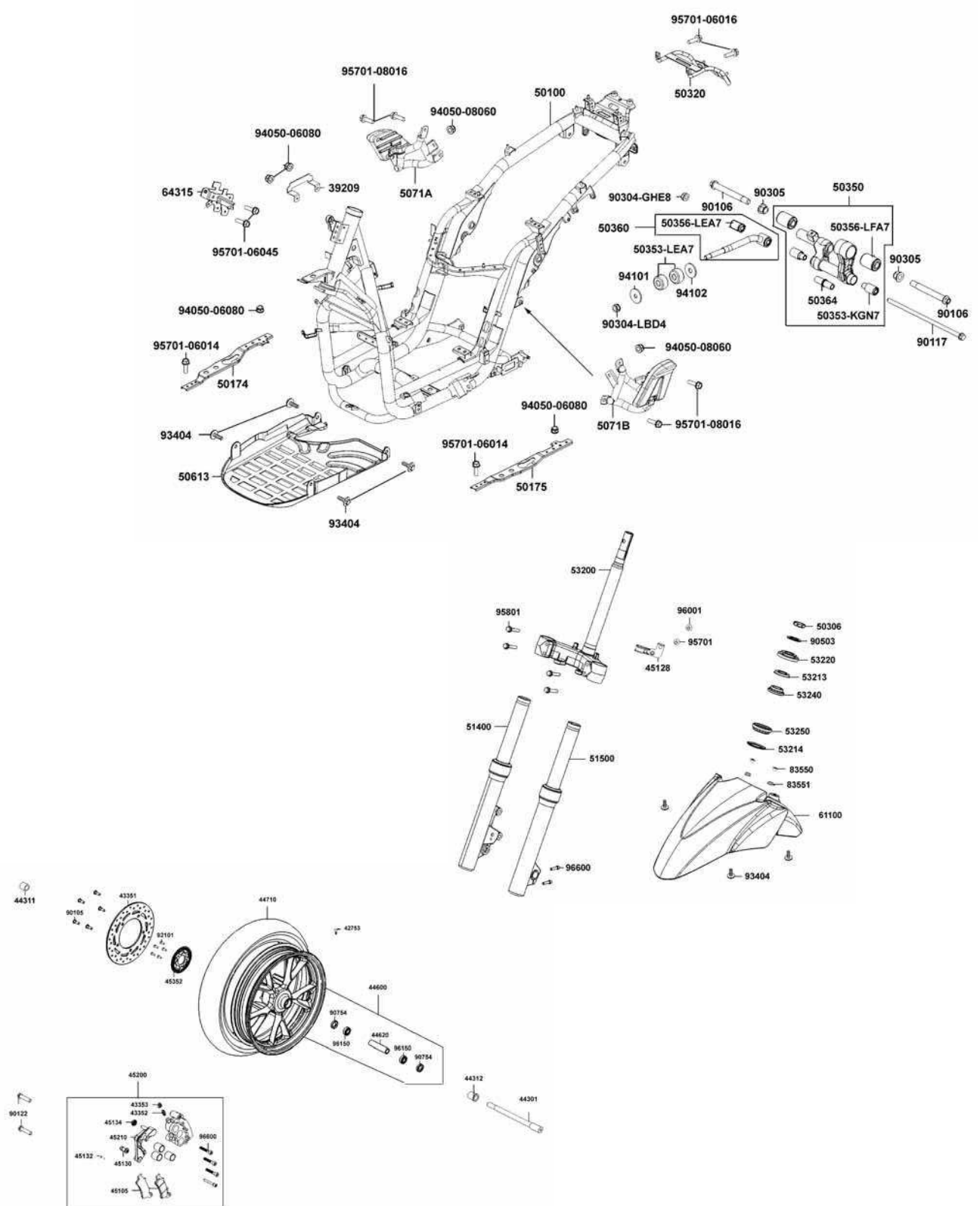
| | |
|----------------------------|-------|
| SCHEMATIC DRAWING----- | 14- 1 |
| SERVICE INFORMATION----- | 14- 2 |
| TROUBLESHOOTING ----- | 14- 3 |
| STEERING HANDLEBAR ----- | 14- 4 |
| FRONT WHEEL----- | 14- 5 |
| FRONT BRAKE ----- | 14- 8 |
| FRONT SHOCK ABSORBER ----- | 14-12 |
| FRONT FORK----- | 14-13 |

14. STEERING HANDLEBAR/FRONT WHEEL/FRONT BRAKE/FRONT SHOCK ABSORBER/FRONT FORK



People GT 125i

SCHEMATIC DRAWING



14. STEERING HANDLEBAR/FRONT WHEEL/FRONT BRAKE/FRONT SHOCK ABSORBER/FRONT FORK



People GT 125i

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- Remove the motorcycle frame covers before removing the front wheel, steering handlebar, front shock absorber and front fork. Jack the motorcycle front wheel off the ground and be careful to prevent the motorcycle from falling down.
- During servicing, keep oil or grease off the brake pads and brake disk.

SPECIFICATIONS

| Item | | Standard (mm) | Service Limit (mm) |
|-----------------------------|--------|---------------|--------------------|
| Axle shaft runout | | — | 0.2 |
| Front wheel rim runout | Radial | — | 2.0 |
| | Axial | — | 2.0 |
| Brake disk thickness | | 5.0 | 4.0 |
| Brake disk runout | | — | 0.30 |
| Brake caliper piston O.D. | | 25.33~25.36 | 25.3 |
| Brake caliper cylinder I.D. | | 25.4~25.45 | 25.45 |
| Brake master cylinder O.D. | | 13.95~13.98 | 13.94 |
| Brake master cylinder I.D. | | 14.0~14.04 | 14.05 |

TORQUE VALUES

| | |
|---------------------------|--------|
| Steering Handle Post Bolt | 45 N-m |
| Steering Stem Lock | 63 N-m |
| Steering Head Race Nut | 20 N-m |
| Front Suspension Bolt | 27 N-m |
| Brake caliper holder bolt | 35 N-m |

SPECIAL TOOLS

| | |
|---------------------------|------|
| Lock Nut Wrench | F002 |
| Oil seal & Bearing Driver | E014 |

TROUBLESHOOTING

Hard steering (heavy)

- Excessively tightened steering stem top cone race
- Broken steering balls
- Insufficient tire pressure

Steers to one side or does not track straight

- Uneven front shock absorbers
- Bent front fork
- Bent front axle or uneven tire

Poor brake performance

- Worn brake pads
- Contaminated brake pad surface
- Deformed brake disk
- Air in brake system
- Deteriorated brake fluid
- Worn brake master cylinder piston oil seal
- Clogged brake fluid line
- Unevenly worn brake caliper

Front wheel wobbling

- Bent rim
- Loose front axle
- Bent spoke plate
- Faulty tire
- Improperly tightened axle nut

Soft front shock absorber

- Weak shock springs
- Insufficient damper oil

Front shock absorber noise

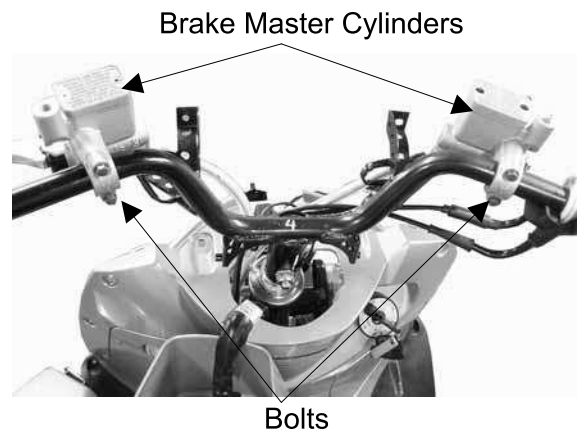
- Slider bending
- Loose fork fasteners
- Lack of lubrication

14. STEERING HANDLEBAR/FRONT WHEEL/FRONT BRAKE/FRONT SHOCK ABSORBER/FRONT FORK

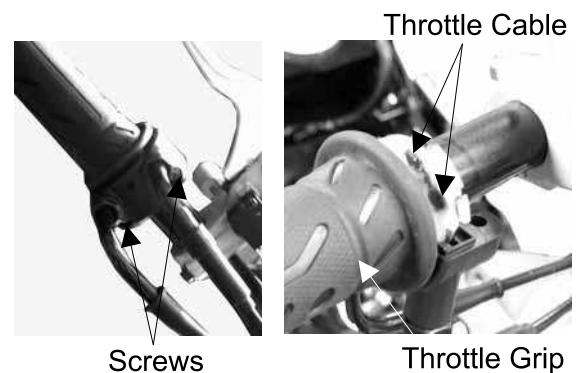
STEERING HANDLEBAR

REMOVAL

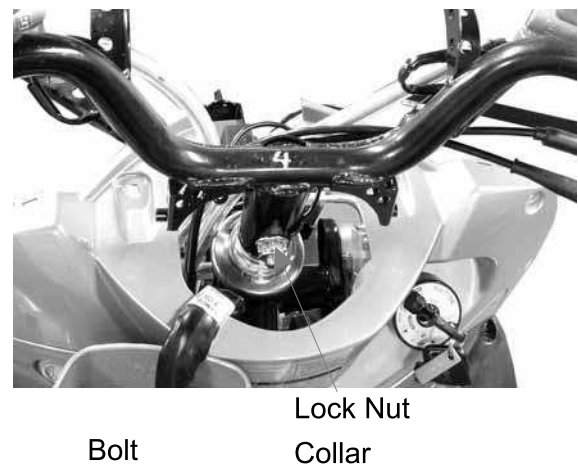
Remove the handlebar front and rear covers.
(⇒2-3)
Remove the front and rear brake master cylinder attaching bolts.



Remove the four screws attaching the right and left handlebar switches.
Disconnect the throttle cable from the throttle grip and remove the throttle grip from the handlebar.



Remove the handlebar lock nut, then take out the bolt and collar.
Remove the handlebar.



INSTALLATION

Install the handlebar onto the steering stem and install the handlebar collar, lock nut and bolt.
Tighten the handle post bolt to the specified torque.

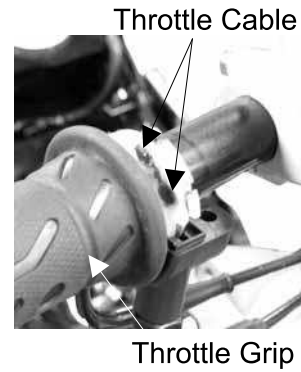
Torque: 45 N-m



14. STEERING HANDLEBAR/FRONT WHEEL/FRONT BRAKE/FRONT SHOCK ABSORBER/FRONT FORK

Lubricate the throttle grip front end with grease and then install the throttle grip. Connect the throttle cable to the throttle grip. Install the right and left handlebar switches and tighten the screws.

- * Adjust the throttle grip free play to the specified range of 2~6mm.



Install the front and rear brake master cylinders.

- * Install the brake master cylinders by aligning the index marks.



FRONT WHEEL REMOVAL

Disconnect the speed wire from the front right suspension unit. Remove the front axle to pull out the axle. Remove the front wheel.

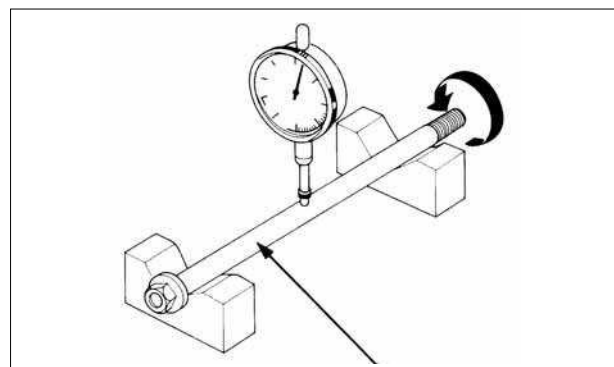


INSPECTION

AXLE RUNOUT

Set the axle in V blocks and measure the runout using a dial gauge. The actual runout is $\frac{1}{2}$ of the total indicator reading.

Service Limit: 0.2 mm replace if over



14. STEERING HANDLEBAR/FRONT WHEEL/FRONT BRAKE/FRONT SHOCK ABSORBER/FRONT FORK

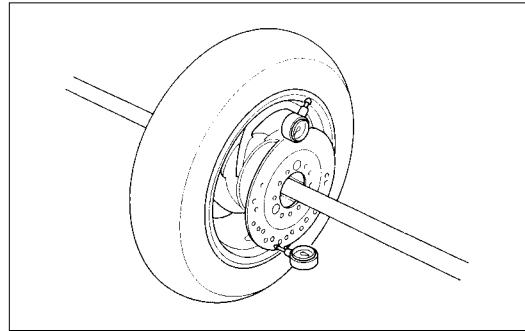
WHEEL RIM

Check the wheel rim runout.

Service Limits:

Radial: 2.0 mm replace if over

Axial: 2.0 mm replace if over



FRONT WHEEL BEARING

Remove the side collar and dust seal.

Dust Seal r



Turn the inner race of each bearing with your finger to see if they turn smoothly and quietly. Also check if the outer race fits tightly in the hub.

Replace the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the hub.

Wheel Bearing



BEARING REPLACEMENT

Remove the front wheel bearings and distance collar.

14. STEERING HANDLEBAR/FRONT WHEEL/FRONT BRAKE/FRONT SHOCK ABSORBER/FRONT FORK

Pack all bearing cavities with grease.
Drive in the left bearing.
Install the distance collar.
Drive in the right bearing.

- * • Do not allow the bearings to tilt while driving them in.
• Drive in the bearing squarely with the sealed end facing out.

Special Tools

Oil seal & Bearing Driver E014



Outer Driver

INSTALLATION

Insert the axle and tighten the axle nut.

- * When installing the front wheel, take the brake disk among the two brake pads.

Torque: 65 N-m



Axle

FRONT BRAKE

BRAKE MASTER CYLINDER

REMOVAL

Remove the handlebar covers. (⇒2-3)
Drain the brake fluid from the hydraulic brake system.
Disconnect the front stop switch wire connector.
Remove the brake fluid tube bolt.
Remove two bolts attaching the brake master cylinder
Remove the brake master cylinder.

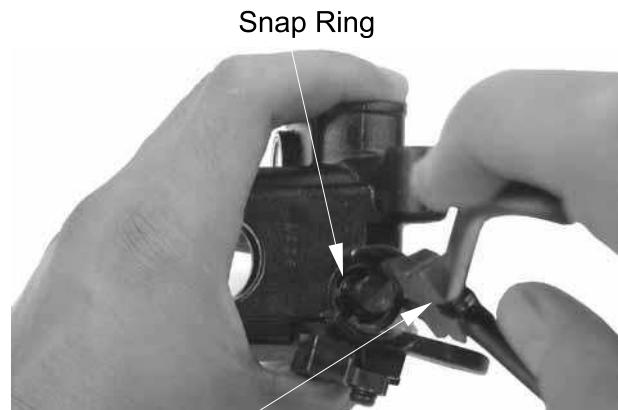


Holder

- * • When servicing the brake system, use towels to cover rubber and plastic parts and coated surfaces to avoid being contaminated by brake fluid.
- When removing the brake fluid tube bolt, be sure to plug the tube end to avoid brake fluid leakage.

DISASSEMBLY

Remove the brake lever bolt and the brake lever.
Remove the piston rubber cover and snap ring from the brake master cylinder.

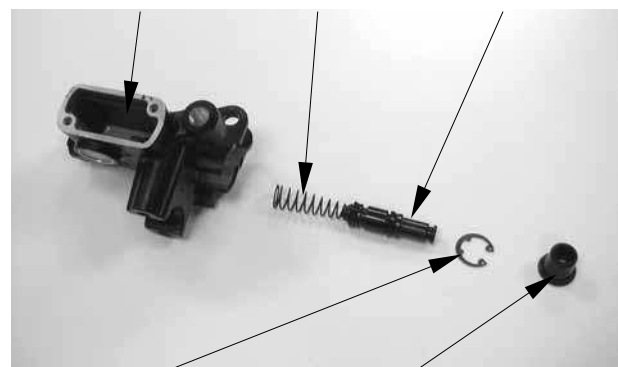


Snap Ring

Snap Ring Pliers (Close)

Master Cylinder Spring Main Piston

Remove the washer, main piston and spring from the brake master cylinder.
Clean the inside of the master cylinder and brake reservoir with brake fluid.



Snap Ring

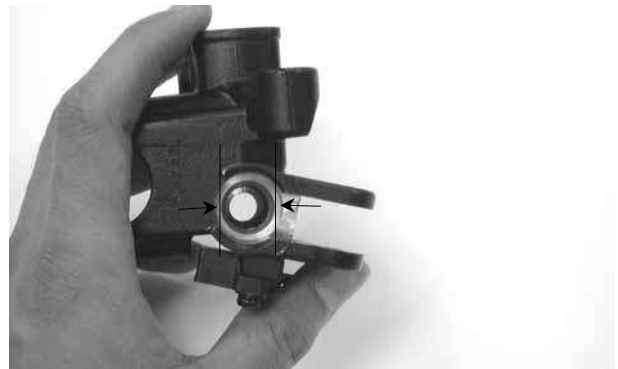
Rubber Cover

14. STEERING HANDLEBAR/FRONT WHEEL/FRONT BRAKE/FRONT SHOCK ABSORBER/FRONT FORK

INSPECTION

Measure the brake master cylinder I.D.
Inspect the master cylinder for scratches or cracks.

Service Limit: 14.05 mm



Measure the brake master cylinder piston O.D.

Service Limit: 13.94 mm

Before assembly, inspect the 1st and 2nd rubber cups for wear.



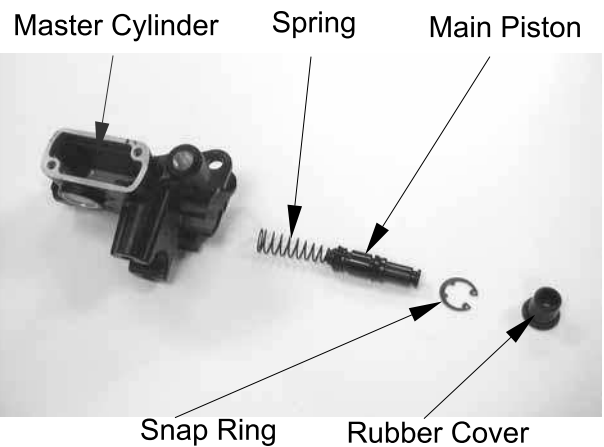
ASSEMBLY

Before assembly, apply brake fluid to all removed parts.

Install the spring together with the 1st rubber cup.

- *
- During assembly, the main piston and spring must be installed as a unit without exchange.
 - When assembling the piston, soak the cups in brake fluid for a while.
 - Install the cups with the cup lips facing the correct direction.

Install the main piston, spring and snap ring.
Install the rubber cover.
Install the brake lever.



14. STEERING HANDLEBAR/FRONT WHEEL/FRONT BRAKE/FRONT SHOCK ABSORBER/FRONT FORK

Place the brake master cylinder on the handlebar and install the holder with the "up" mark facing up. Also align the punch mark with the holder joint seam.

First tighten the upper bolt and then tighten the lower bolt.

Torque: 12 N·m

Install the brake fluid tube with the attaching bolt and two sealing washers, then tighten the fluid tube bolt.

Connect the front stop switch wire connector. Install the handlebar covers. (⇒2-3)



Bolts

BRAKE FLUID REFILLING

Keep the handlebar upright and remove the brake reservoir cover and diaphragm.

Add DOT-4 brake fluid to the brake reservoir.

- * • When bleeding, be careful not to allow air in the brake reservoir flowing into the brake system.
- When using a brake bleeder, follow the manufacturer's instructions.
- Never use dirty or unspecified brake fluid or mix different brake fluids because it will damage the brake system.

BRAKE FLUID BLEEDING

Keep the handlebar upright and remove the brake reservoir cover and diaphragm. Add the specified brake fluid to the upper limit.

- * • Do not allow dust or water to enter the brake system during refilling.
- When servicing the brake system, use towels to cover plastic parts and coated surfaces to avoid damage caused by splash of brake fluid.

In order to avoid spilling brake fluid, connect a transparent hose to the bleed valve.

Warning

Brake fluid spilled on brake pads or brake disk will reduce the braking effect. Clean the brake pads and brake disk with a high quality brake degreaser.

Fully apply the brake lever and then loosen the brake caliper bleed valve to drain the brake fluid until there is no air bubbles in the brake fluid. Then, tighten the bleed valve.

Repeat these steps until the brake system is free of air.

Stop Switch Wire Connector



Washer

Bleed Valve



BRAKE CALIPER

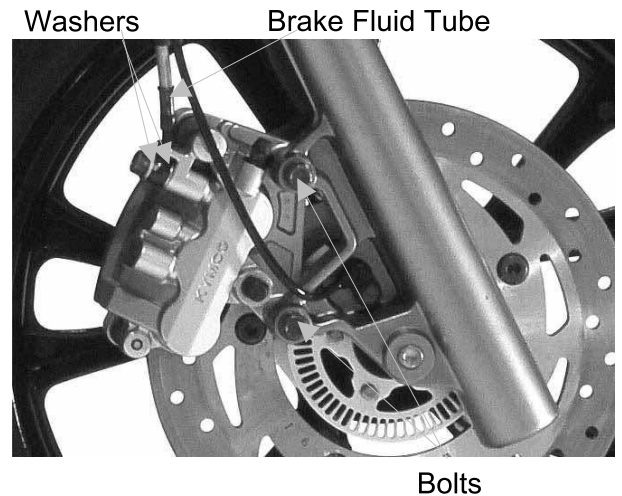
REMOVAL

First drain the brake fluid from the hydraulic brake system.

Remove the brake fluid tube bolt.

Remove the two bolts attaching the brake caliper.

Remove the brake caliper.



INSTALLATION

Install the two brake pads.

Install the two brake pad dowel pin and tighten them.

* When installing the brake caliper, be sure to position the brake disk between the two brake pads.

Install the brake caliper to the shock absorber and tighten the two bolts.

Torque: 35 N-m

Connect the brake fluid tube with the attaching bolt and two sealing washers to the brake caliper and tighten the fluid tube bolt.

Torque: 35 N-m

Fill the brake reservoir with the specified brake fluid and bleed air from the brake system. (⇒14-10)

* When installing the brake fluid tube, be sure to install the two sealing washers.

14. STEERING HANDLEBAR/FRONT WHEEL/FRONT BRAKE/FRONT SHOCK ABSORBER/FRONT FORK

FRONT SHOCK ABSORBER

REMOVAL

Remove the front cover. (⇒2-5)
Remove the front wheel. (⇒15-5)
Remove the front brake caliper. (⇒15-11)
Remove the front shock absorber upper mount bolts.
Loosen the lower mount bolts to remove the front shock absorbers.

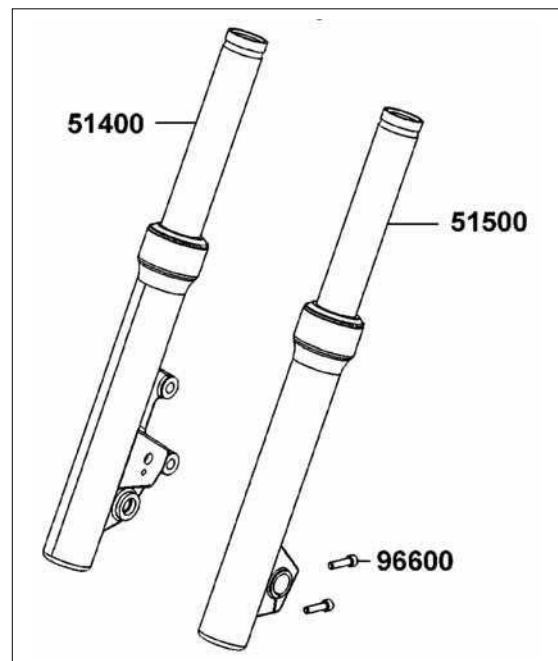
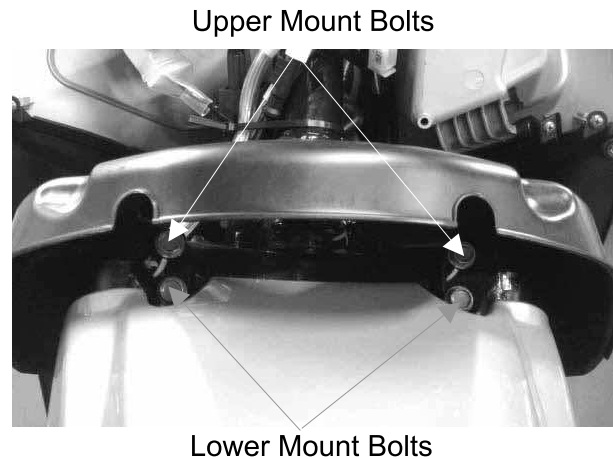
INSTALLATION

Install the front shock absorbers onto the front fork.
Install and tighten the front shock absorber upper mount bolts.
Tighten the lower mount bolts.

Torque: 27 N-m

* Align the hole of upper mount bolt with the groove on the front fork.

Install the front wheel. (⇒15-7)



Front Shock Absorber

FRONT FORK

REMOVAL

Remove the handlebar covers. (⇒2-3)
Remove the steering handlebar. (⇒15-4)
Remove the front cover. (⇒2-5)
Remove the front fender cover. (⇒2-6)
Remove the front wheel. (⇒15-5)
Remove the front brake caliper. (⇒15-11)
Remove the front shock absorbers.
Hold the steering stem top cone race and remove the steering stem lock nut.
Remove the top cone race and remove the front fork.

* Be careful not to lose the steel balls (26 on top race and 19 on bottom race).

Inspect the ball races, cone races and steel balls for wear or damage. Replace if necessary.

BOTTOM CONE RACE REPLACEMENT

Remove the bottom cone race using a chisel.

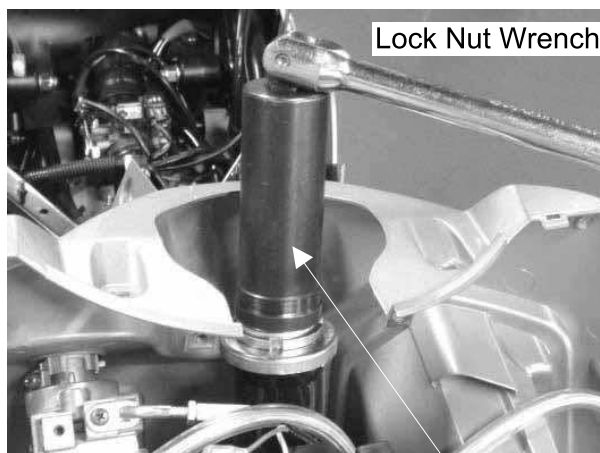
Drive a new bottom cone race into place with a proper driver.

* Be careful not to damage the steering stem and front fork.

BALL RACE REPLACEMENT

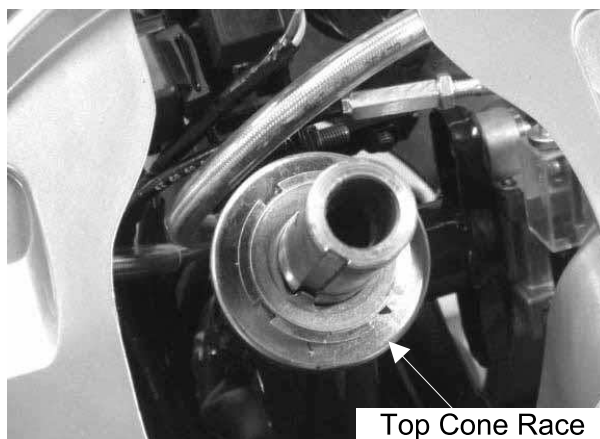
Drive out the ball races.
Drive in new ball races.

* Be sure to drive the ball races into place completely.

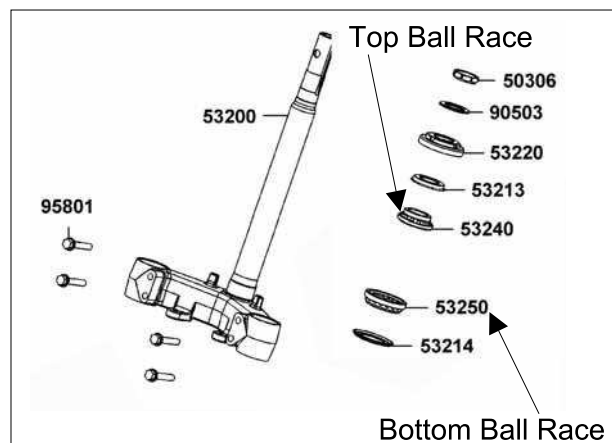


Lock Nut Wrench

Lock Nut Socket



Top Cone Race



Top Ball Race

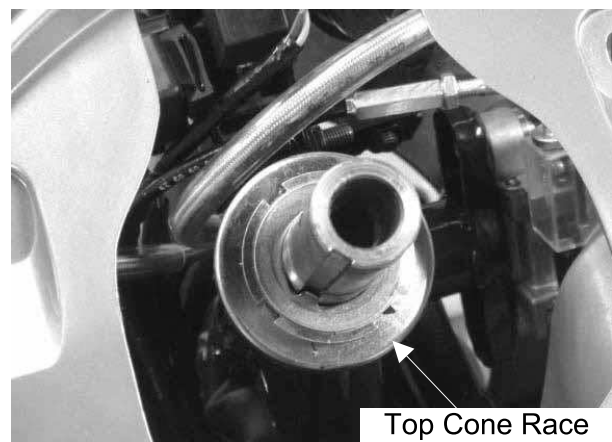
Bottom Ball Race

INSTALLATION

Apply grease to the top and bottom ball races and install 26 steel balls on the top ball race and 19 steel balls on the bottom ball race. Install the front fork.

Apply grease to the top cone race and install it. Tighten the top cone race and then turn the steering stem right and left several times to make steel balls contact each other closely.

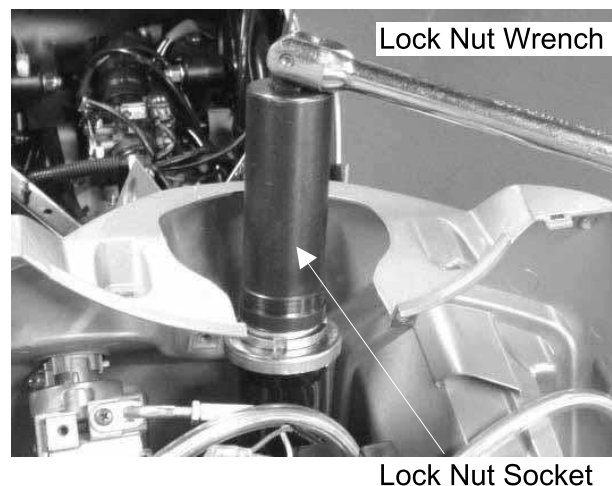
* Make sure the steering stem rotates freely without vertical play.



Install the steering stem lock nut and tighten it while holding the top cone race.

Torque: 63 N-m

- Install the front wheel. (⇒15-7)
- Install the front brake caliper. (⇒15-12)
- Install the front fender cover. (⇒2-6)
- Install the throttle grip and the right and left handlebar switches. (⇒15-5)
- Install the right and left brake master cylinders. (⇒15-5)



**14. STEERING HANDLEBAR/FRONT WHEEL/FRONT
BRAKE/FRONT SHOCK ABSORBER/FRONT FORK**



People GT 125i

15. REAR BRAKE/REAR FORK/REAR WHEEL/REAR SHOCK ABSORBER



People GT 125i

REAR BRAKE/REAR FORK/REAR WHEEL/ REAR SHOCK ABSORBER

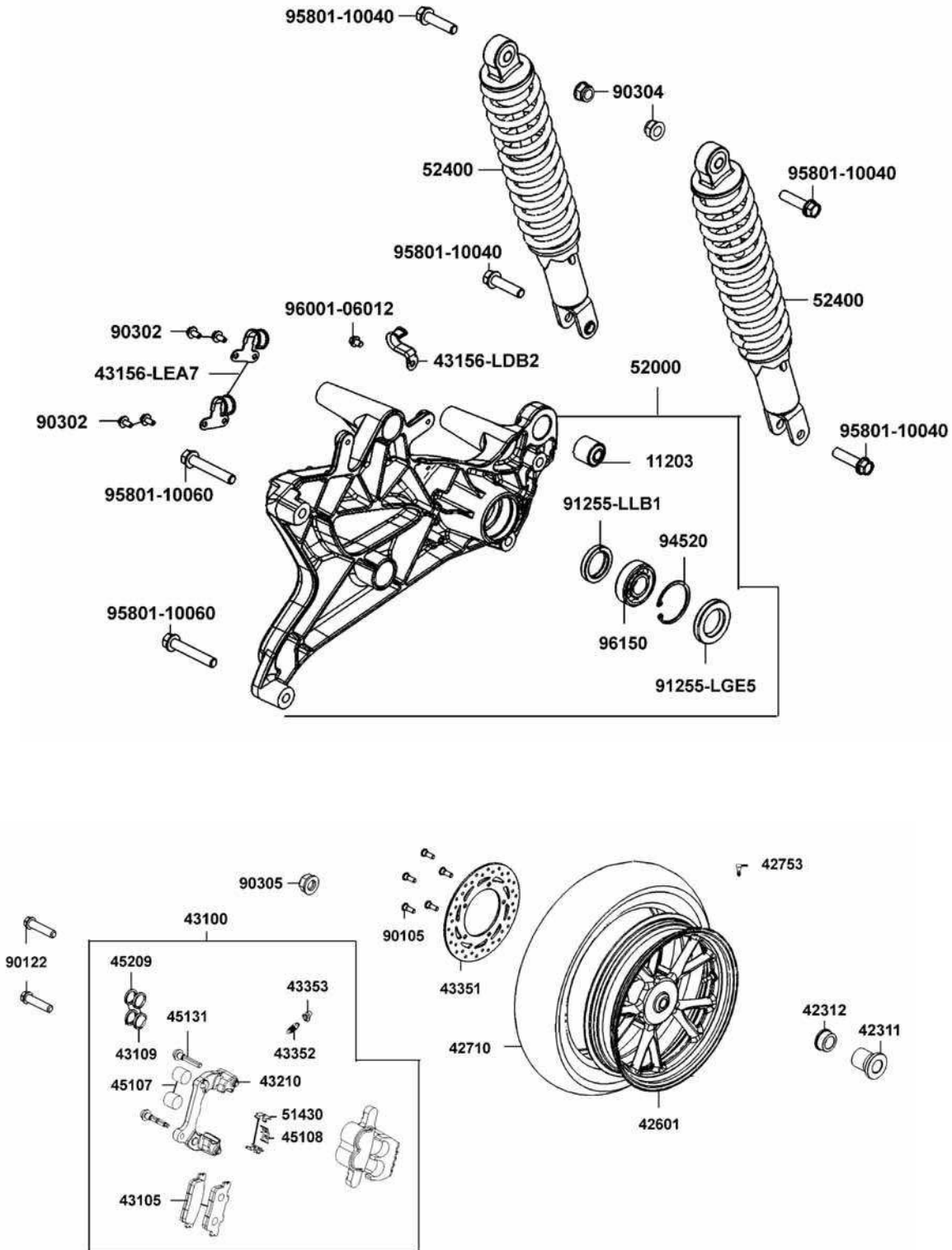
| | |
|---------------------------|------|
| SCHEMATIC DRAWING----- | 15-1 |
| SERVICE INFORMATION----- | 15-2 |
| TROUBLESHOOTING ----- | 15-2 |
| REAR BRAKE ----- | 15-3 |
| REAR FORK ----- | 15-4 |
| REAR WHEEL----- | 15-5 |
| REAR SHOCK ABSORBER ----- | 15-5 |

15. REAR BRAKE/REAR FORK/REAR WHEEL/REAR SHOCK ABSORBER



People GT 125i

SCHEMATIC DRAWING



15. REAR BRAKE/REAR FORK/REAR WHEEL/REAR SHOCK ABSORBER



People GT 125i

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- When performing the services stated in this section, the engine and exhaust muffler must be cold to avoid scalding.
- During servicing, keep oil or grease off the brake pads and brake disk.

SPECIFICATIONS

| Item | Standard (mm) | Service Limit (mm) |
|--|---------------|--------------------|
| Rear wheel rim runout | — | 2.0 |
| Rear brake disk thickness | 5.0 | 4.0 |
| Rear brake disk runout | — | 0.30 |
| Rear brake master cylinder I.D. | 27.00 | 27.05 |
| Rear brake master cylinder piston O.D. | 26.95 | 26.90 |

TORQUE VALUES

| | |
|--------------------------------------|---------|
| Exhaust muffler lock bolt | 35 N-m |
| Exhaust muffler pipe nut | 20 N-m |
| Rear axle nut | 140 N-m |
| Rear shock absorber lower mount bolt | 40 N-m |
| Rear shock absorber upper mount bolt | 40 N-m |
| Rear brake caliper holder bolt | 35 N-m |

TROUBLESHOOTING

Rear wheel wobbling

- Bent rim
- Faulty tire
- Axle not tightened properly

Soft rear shock absorber

- Weak shock absorber spring
- Damper oil leaks

Rear wheel noise

- Worn rear wheel axle bearings
- Worn rear fork bearings
- Deformed rear fork

Poor brake performance

- Air in brake system
- Deteriorated brake fluid
- Contaminated brake pad surface
- Worn brake pads
- Clogged brake fluid line
- Deformed brake disk
- Unequal worn brake caliper

15. REAR BRAKE/REAR FORK/REAR WHEEL/REAR SHOCK ABSORBER

REAR BRAKE

REAR BRAKE CALIPER REMOVAL

First remove the exhaust muffler. (⇒2-10)
Remove the rear brake fluid tube bolt and disconnect the brake fluid tube.
Remove two bolts attaching the rear brake caliper.
Remove the rear brake caliper.

When removing the brake fluid tube, use shop towels to cover plastic parts and coated surfaces to avoid damage.

Fluid Tube Bolt



Brake Caliper

Bolts

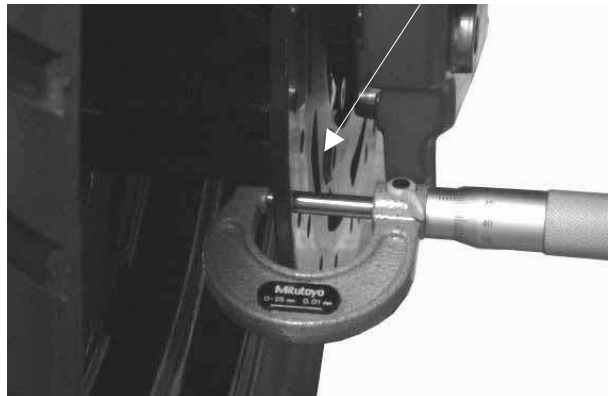
Brake Disk

INSPECTION

Inspect the brake pads and brake disk.

Measure the brake disk thickness.

Service Limit: 4.0 mm replace if below



Visually check the brake pad thickness and it should not exceed the wear indicator mark.

Dowel Pin



Brake Pads

DISASSEMBLY

Remove two brake pads dowel pins and three bolts from the brake caliper.

Remove the brake pads.

15. REAR BRAKE/REAR FORK/REAR WHEEL/REAR SHOCK ABSORBER

INSTALLATION

Install the brake caliper to the rear fork and tighten the two bolts.

Torque: 35 N-m

Connect the brake fluid tube to the brake caliper and install fluid tube bolt, copper washers and tighten the fluid tube bolt.

Fill the brake reservoir with the specified brake fluid and bleed air from the brake system. (⇒14-10)

When installing the brake fluid tube, be sure to install the two copper sealing washers.

Fluid Tube Bolt



Brake Caliper Bolts

REAR FORK

REMOVAL

Remove the exhaust muffler. (⇒2-10)

Remove the rear brake caliper. (⇒16-3)

Remove the right rear shock absorber lower mount bolt.

Remove the rear axle nut and remove the collar.

Remove the rear fork.

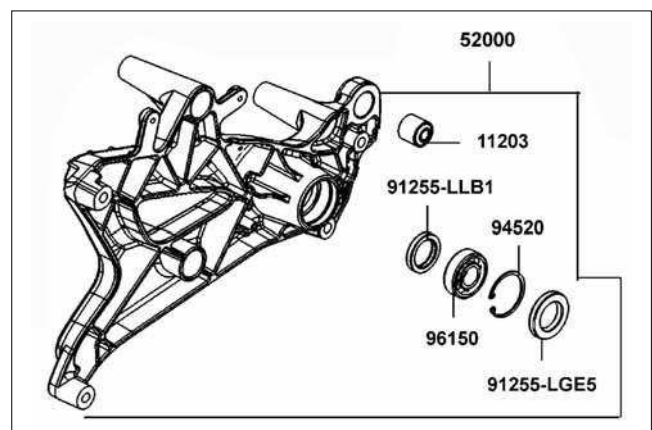


Bolt

The installation sequence is the reverse of removal.

Turn the inner race of each bearing with your finger to see if they turn smoothly and quietly. Also check if the outer race fits tightly in the hub.

Replace the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the hub.



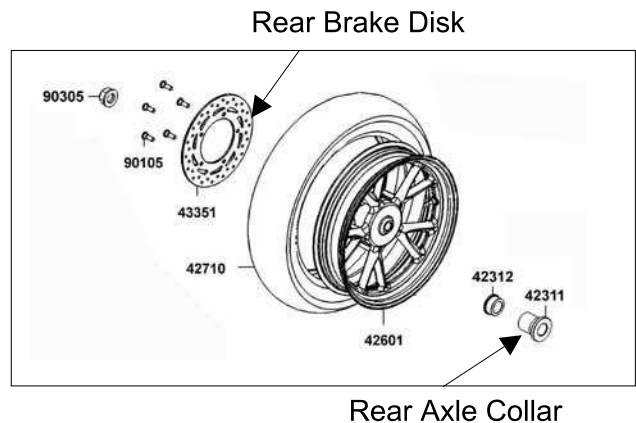
15. REAR BRAKE/REAR FORK/REAR WHEEL/REAR SHOCK ABSORBER



People GT 125i

REAR WHEEL REMOVAL

- Remove the exhaust muffler. (⇒2-10)
- Remove the rear brake caliper. (⇒16-3)
- Remove the rear fork. (⇒16-6)
- Remove the rear axle collar.
- Remove the rear wheel.

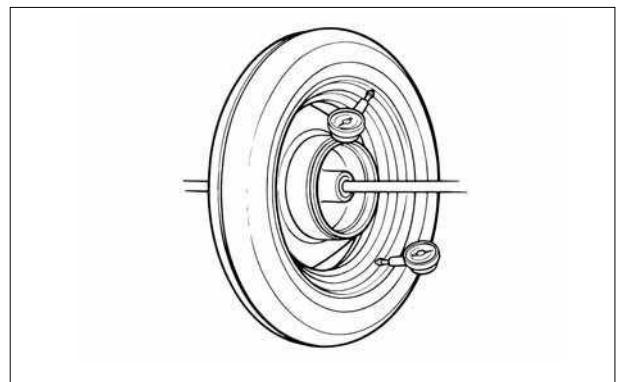


INSPECTION

Measure the rear wheel rim runout.

Service Limits:

- Radial:** 2.0mm replace if over
- Axial:** 2.0mm replace if over



INSTALLATION

The installation sequence is the reverse of removal.

Torque:

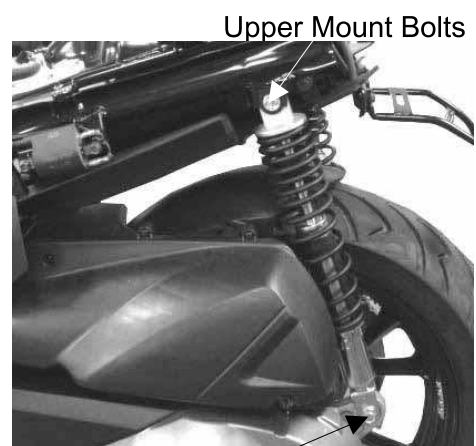
- Rear shock absorber lower mount bolt: 40 N-m
- Rear axle nut: 140 N-m



Bolt

REAR SHOCK ABSORBER REMOVAL

- Remove the met-in box and carrier. (⇒2-6)
- Remove the body cover, center cover and rear fender A together. (⇒2-6)
- Remove the right/left rear shock absorber upper and lower mount bolts.
- Remove the right and left rear shock absorbers.



Upper Mount Bolts

Lower Mount Bolts

15. REAR BRAKE/REAR FORK/REAR WHEEL/REAR SHOCK ABSORBER

INSTALLATION

Install the rear shock absorbers in the reverse order of removal.

Torque:

Upper Mount Bolt: 40 N-m

Lower Mount Bolt: 40 N-m

ADJUSTABLE REAR CUSHION

To suit scooter comfortable to load condition rear cushion could be adjusted in spring preload.

It is possible to adjust rear cushion in three positions:

A position “soft”

B position “medium”

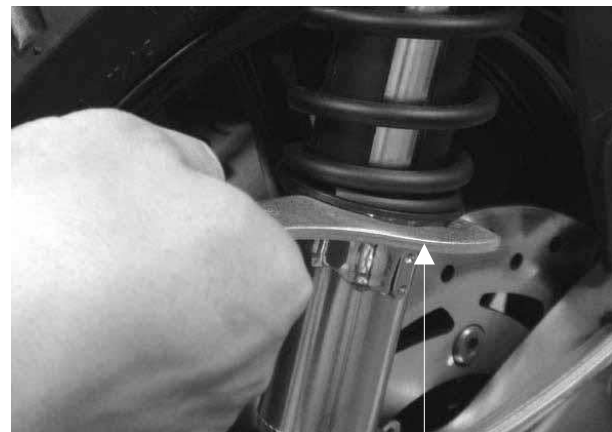
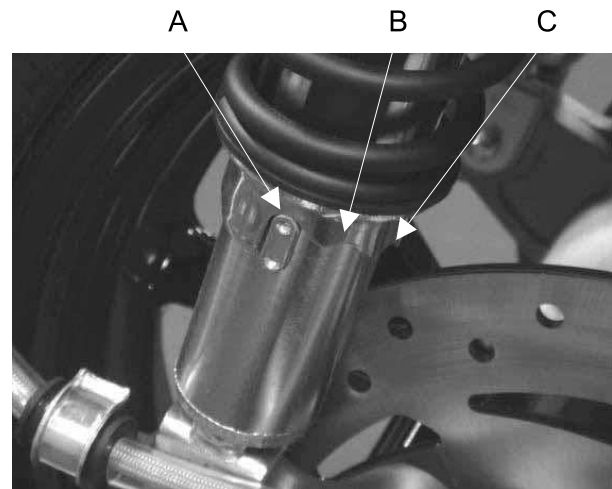
C position “hard”

When adjusting rear cushion, the spring preload of rear cushions must be the same.

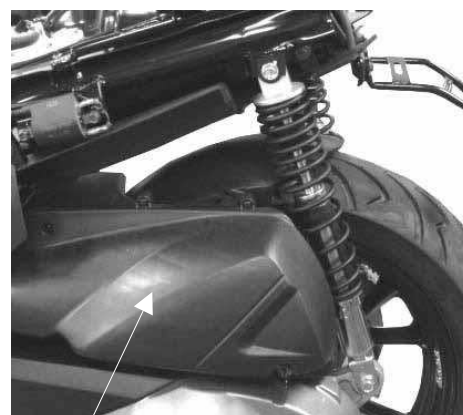
A cushion adjust wrench is provided with new scooter.

The rear right cushion can be adjusted directly with the wrench tool.

Disconnect the breather hose from air cleaner and keep air cleaner up to adjust rear left cushion with wrench tool.



Wrench



Air Cleaner

16. BATTERY/CHARGING SYSTEM

16

BATTERY/CHARGING SYSTEM

| | |
|------------------------------|------|
| CHARGING SYSTEM LAYOUT | 16-1 |
| CHARGING CIRCUIT | 16-1 |
| SERVICE INFORMATION..... | 16-2 |
| TROUBLESHOOTING..... | 16-3 |
| BATTERY CHARGING | 16-4 |
| CHARGING SYSTEM | 16-6 |
| REGULATOR/RECTIFIER | 16-6 |

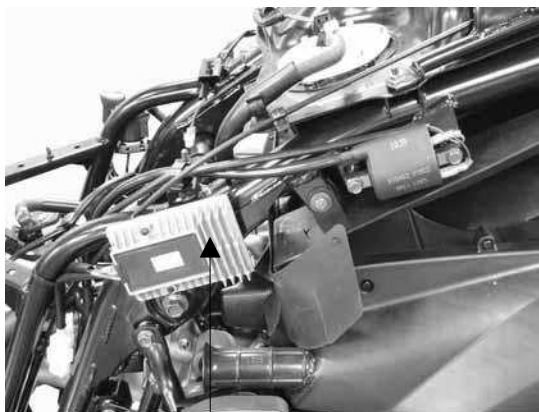
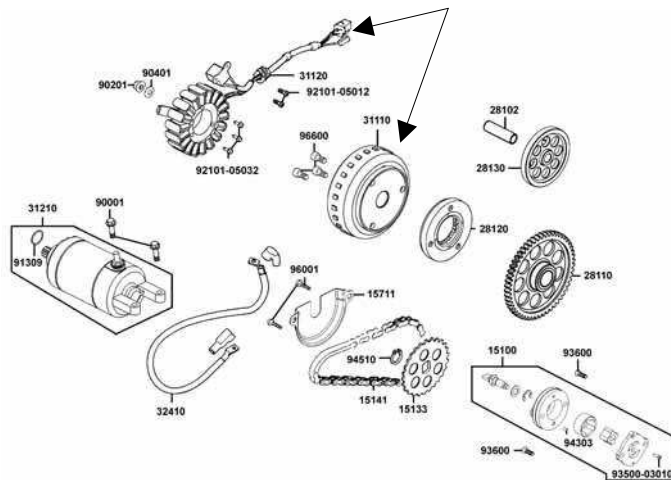
16. BATTERY/CHARGING SYSTEM

CHARGING SYSTEM LAYOUT



Battery

AC Generator



Regulator/Rectifier

16. BATTERY/CHARGING SYSTEM

SERVICE INFORMATION

GENERAL INSTRUCTIONS

* The battery electrolyte (sulfuric acid) is poisonous and may seriously damage the skin and eyes. Avoid contact with skin, eyes, or clothing. In case of contact, flush with water and get prompt medical attention

- The battery can be charged and discharged repeatedly. If a discharged battery is not used for a long time, its service life will be shortened. Generally, the capacity of a battery will decrease after it is used for 2~3 years. A capacity-decreased battery will resume its voltage after it is recharged but its voltage decreases suddenly and then increases when a load is added.
- When a battery is overcharged, some symptoms can be found. If there is a short circuit inside the battery, no voltage is produced on the battery terminals. If the rectifier won't operate, the voltage will become too high and shorten the battery service life.
- If a battery is not used for a long time, it will discharge by itself and should be recharged every 3 months.
- A new battery filled with electrolyte will generate voltage within a certain time and it should be recharged when the capacity is insufficient. Recharging a new battery will prolong its service life.
- Inspect the charging system according to the sequence specified in the Troubleshooting.
- Do not disconnect and soon reconnect the power of any electrical equipment because the electronic parts in the regulator/rectifier will be damaged. Turn off the ignition switch before operation.
- It is not necessary to check the MF battery electrolyte or fill with distilled water.
- Check the load of the whole charging system.
- Do not quick charge the battery. Quick charging should only be done in an emergency.
- Remove the battery from the motorcycle for charging.
- When replacing the battery, do not use a traditional battery.
- When charging, check the voltage with an electric tester.

SPECIFICATIONS

| Item | | Standard | |
|---------|-------------------|----------------------|---------|
| Battery | Capacity | 12V12AH | |
| | Voltage (20°C) | Fully charged | 13.2V |
| | | Insufficient charged | < 12.3V |
| | Charging current | 1.2A* 5~10H | |

16. BATTERY/CHARGING SYSTEM

TROUBLESHOOTING

No power

- Dead battery
- Disconnected battery cable
- Fuse burned out
- Faulty ignition switch

Low power

- Weak battery
- Loose battery connection
- Charging system failure
- Faulty regulator/rectifier

Intermittent power

- Loose battery cable connection
- Loose charging system connection
- Loose connection or short circuit in ignition system

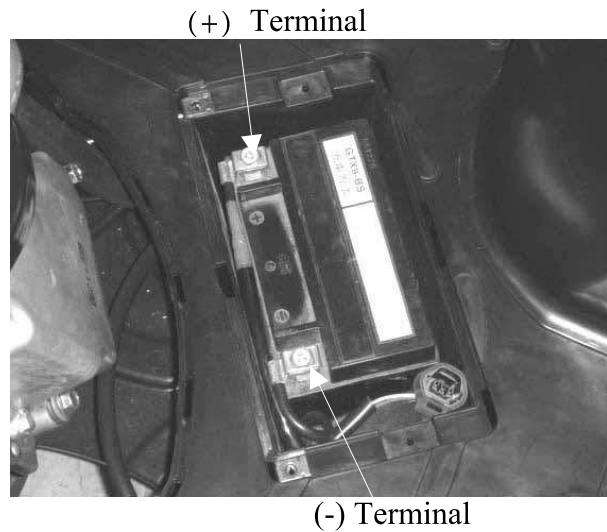
Charging system failure

- Loose, broken or shorted wire or connector
- Faulty regulator/rectifier
- Faulty A.C. generator

16. BATTERY/CHARGING SYSTEM

BATTERY REMOVAL

The battery is under the floorboard.
Remove the two screws attaching the battery cover.
Pull battery out to expose the terminal leads.
Disconnect the negative (-) terminal lead from the battery first, then disconnect the positive (+) terminal lead.
Remove the battery from the battery box.



BATTERY INSTALLATION

Install in the reverse order of the removal.

* When install the battery, first connect the positive (+) cable and then negative (-) cable to avoid short circuit.

VOLTAGE INSPECTION

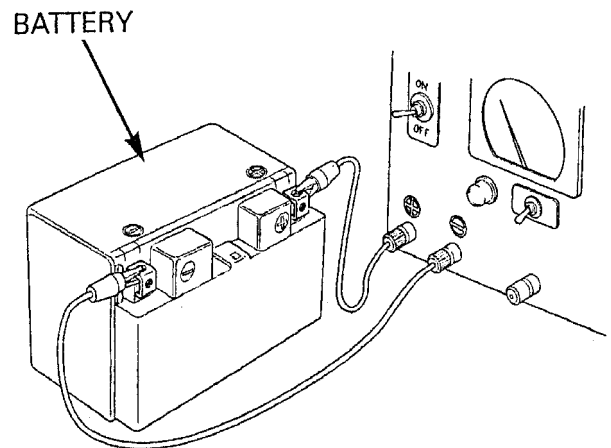
Remove the battery cover.
Measure the battery voltage by using a commercially available digital multimeter.

Voltage (20°C/68°F):

Fully charged: 13.0 ~ 13.2 V

Insufficient charged: < 12.3 V

16. BATTERY/CHARGING SYSTEM



*

* Do not disconnect the battery or any cable in the charging system without first switching off the ignition switch. Failure to follow this precaution can damage the tester or electrical

16. BATTERY/CHARGING SYSTEM

REGULATOR/RECTIFIER

WIRE HARNESS INSPECTION

Remove the luggage box
Disconnect the regulator/rectifier connectors.
Check the connectors for loose contacts of corroded terminals.



Regulator/Rectifier

BATTERY WIRE

Measure the voltage between the Red/White wire terminal and ground.
There should be battery voltage at all times.



GROUND WIRE

Check the continuity between the Green wire terminal and ground.
There should be continuity at all times.



CHARGING COIL WIRE

Measure the resistance between each Yellow wire terminals.

Standard: 0.4 ~ 0.6 Ω (20°C/68°F)

Disconnect the regulator/rectifier connector.
Check for continuity between each Yellow wire terminal regulator/rectifier side and ground.

There should be no continuity.



REMOVAL/INSTALLATION

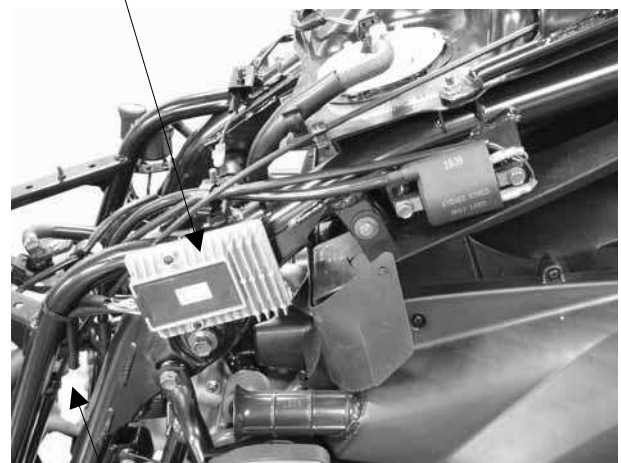
Remove the side body cover.

Disconnect the regulator/rectifier connectors.

Remove the two bolts, regulator/rectifier.

Installation is in the reverse order of removal.

Regulator/Rectifier



Connectors

17. IGNITION SYSTEM

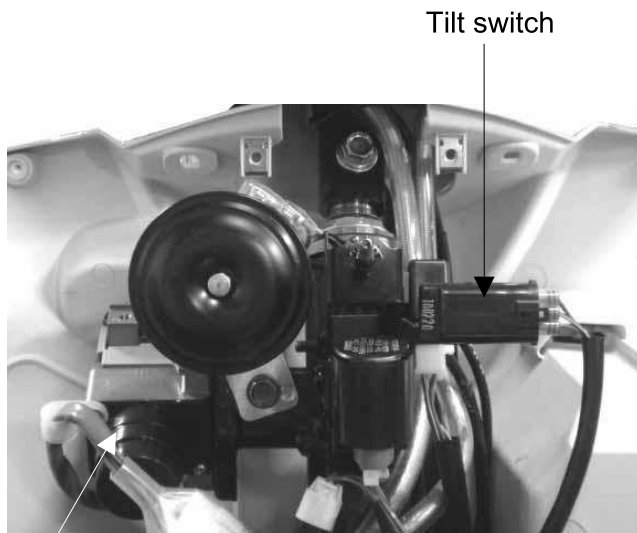
17

IGNITION SYSTEM

| | |
|--------------------------------|------|
| IGNITION SYSTEM LAYOUT ----- | 17-1 |
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| TROUBLESHOOTING ----- | 17-2 |
| SPARK PLUG ----- | 17-3 |
| IGNITION COIL INSPECTION ----- | 17-3 |
| A.C. GENERATOR INSPECTION----- | 17-4 |
| TILT SWITCH INSPECTION ----- | 17-4 |

17. IGNITION SYSTEM

IGNITION SYSTEM LAYOUT



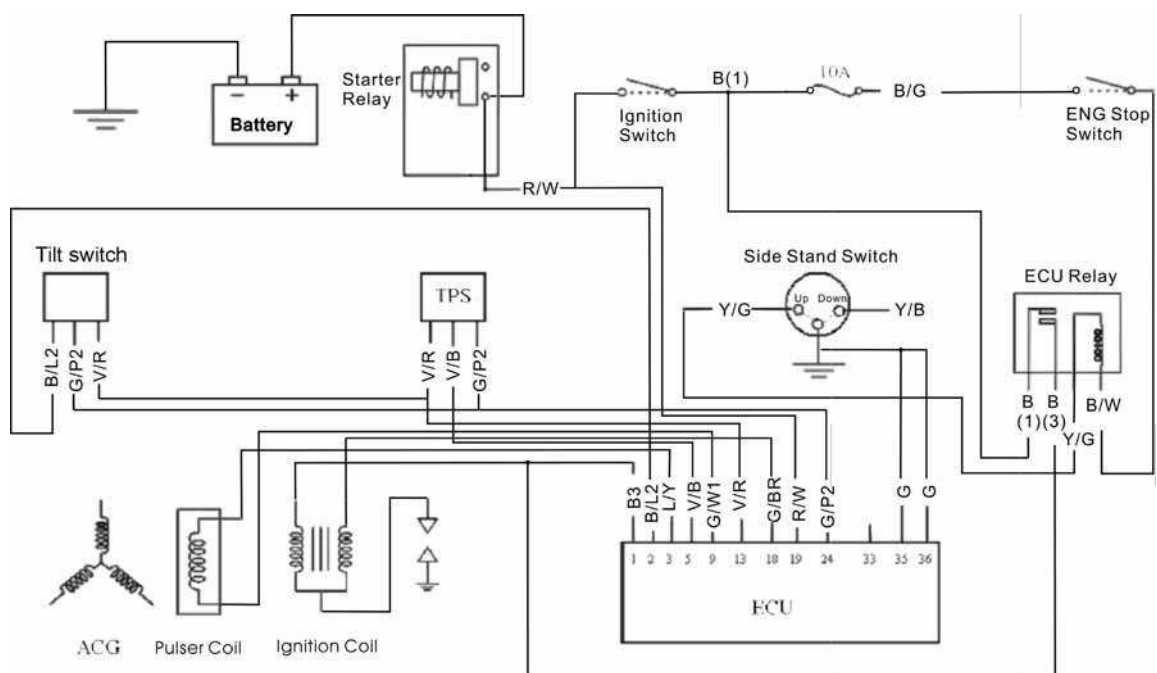
Tilt switch

Ignition Switch



Ignition Coil

IGNITION CIRCUIT



17. IGNITION SYSTEM

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is "ON" and current is present.
- When servicing the ignition system, always follow the steps in the troubleshooting on page 17-2.
- The ignition timing cannot be adjusted since the ignition control module is already adjusted in factory.
- The ignition control module or ECU maybe damaged if dropped or the connector is disconnected when the key is " ON " , the excessive voltage may damage the ignition control module or ECU. Always turn off the ignition switch before servicing.
- A faulty ignition system is often related to poor connections. Check those connections before proceeding.
- Make sure the battery is adequately charged. Using the starter motor with weak battery results in a slower engine cranking speed as well as no spark at the spark plug.
- Use a spark plug of the correct heat range. Using spark plug with an incorrect heat range can damage the engine.

SPECIFICATIONS

| Item | | Standard |
|--|---------------------------------|--|
| Spark plug | Standard type | NGK CR7E |
| Spark plug gap | | 0.6 ~ 0.7 mm |
| Inductive Ignition Coil | Primary coil | 3.57~4.83 Ω |
| | Secondary coil without plug cap | 10.42~14.49 KΩ |
| Throttle Position Sensor | | 3500~6500 Ω |
| Fuel Pump | | 1.9 Ω about |
| Fuel Injector | | 11.7±0.6 Ω |
| Water Temperature Sensor | | 2.076KΩ±10% (25°C) |
| Oxygen Sensor (engine warming condition) | | 6.7 Ω~9.5 Ω |
| Crank Position Sensor | | 115Ω±15Ω |
| Tilt Switch | | 0.4V~1.4V(normal) 3.7V~4.4V (fall down) |

TROUBLESHOOTING

No peak voltage

- Short circuit in engine stop switch or ignition switch wire.
- Faulty engine stop switch or ignition switch.
- Loose or poorly connected ignition control module connectors.
- Open circuit or poor connection in ground wire of the ignition control module.
- Faulty crank position sensor.
- Faulty ignition control module.

Peak voltage is normal, but no spark jumps at the plug

- Faulty spark plug or leaking ignition coil secondary current.
- Faulty ignition coil.

17. IGNITION SYSTEM

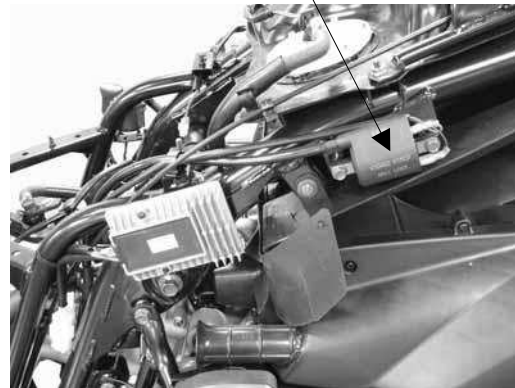
SPARK PLUG

For spark plug inspection and adjustment, refer to page 3-5.

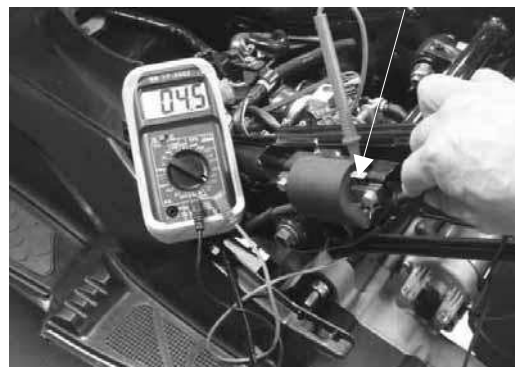
IGNITION COIL INSPECTION

Remove the seat and met-in box. (⇒2-6)
Remove the ignition coil.

Ignition Coil



Primary Coil



IGNITION COIL CONTINUITY TEST

Inspect the continuity of the ignition coil, primary coil and secondary coil.

* This is a general test. Accurate ignition coil test must be performed with an ignition unit tester.

Secondary Coil with plug cap



Secondary Coil without plug cap



Measure the ignition coil resistances at 20°C.

| | |
|---------------------------------|-------------|
| Primary coil | 3.57~4.83 Ω |
| Secondary coil with plug cap | 15 ~ 19 KΩ |
| Secondary coil without plug cap | 10 ~14 KΩ |

17. IGNITION SYSTEM

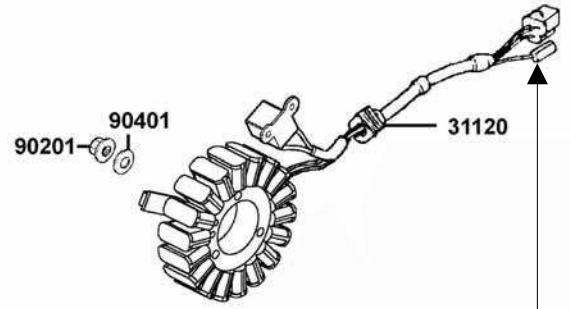
A .C. GENERATOR INSPECTION

CRANK POSITION SENSOR INSPECTION

* This test is performed with the stator installed in the engine.

Remove the seat and met-in box.
 Disconnect the Crank Position Sensor Wire Coupler.
 Measure the resistance between the blue/white and green/white wire terminals.

| | |
|---------------------------|----------|
| Blue/Yellow ~ Green/White | 115Ω±15Ω |
|---------------------------|----------|



Crank Position Sensor Wire Coupler

TILT SWITCH INSPECTION

Support the scooter level surface.
 Put the side stand up and engine stop switch is at "RUN".
 Turn the ignition switch to "OFF".
 Remove the screws, washers and tilt switch.

* Do not disconnect the tilt switch connector during inspection.
 The capacity of battery must be fully charged.

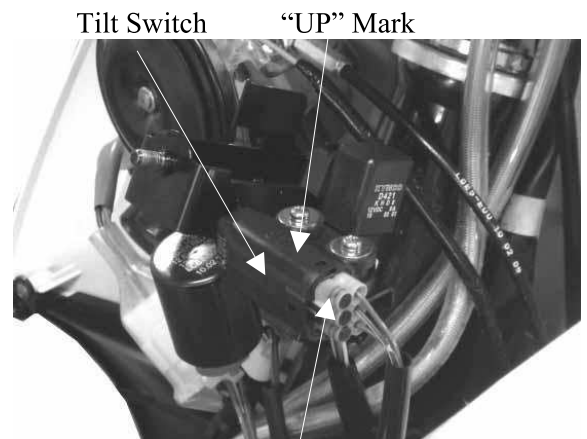
Place the tilt switch vertical as shown at the ignition switch "ON". Measure the voltage as below.

| Terminal | Standard |
|---------------------------------|-------------------|
| Violet/Red (+) – Green/Pink (-) | 5 V (ECU voltage) |
| Black/Blue (+) – Green/Pink (-) | 0.4 ~ 1.4 V less |

Incline the tilt switch 65±10 degrees to the left or right at the ignition switch "ON". Measure the voltage as below.

| Terminal | Standard |
|---------------------------------|-------------------|
| Violet/Red (+) – Green/Pink (-) | 5 V (ECU voltage) |
| Black/Blue (+) – Green/Pink (-) | 3.7 ~ 4.4 V |

If repeat this test, first turn the ignition switch to "OFF", then turn the ignition switch to "ON".



Connector

17. IGNITION SYSTEM

REMOVAL/INSTALLATION

Disconnect the connector and remove two screws, then remove tilt switch.

Installation is in the reverse order of removal.

*

| |
|---|
| Install the tilt switch with its “up” mark facing up. |
|---|

Tighten the mounting screws securely.

18. STARTING SYSTEM

18

STARTING SYSTEM

| | |
|-------------------------------|------|
| STARTING SYSTEM LAYOUT ----- | 18-1 |
| SERVICE INFORMATION----- | 18-2 |
| TROUBLESHOOTING ----- | 18-2 |
| STARTER MOTOR----- | 18-3 |
| STARTER RELAY INSPECTION----- | 18-4 |

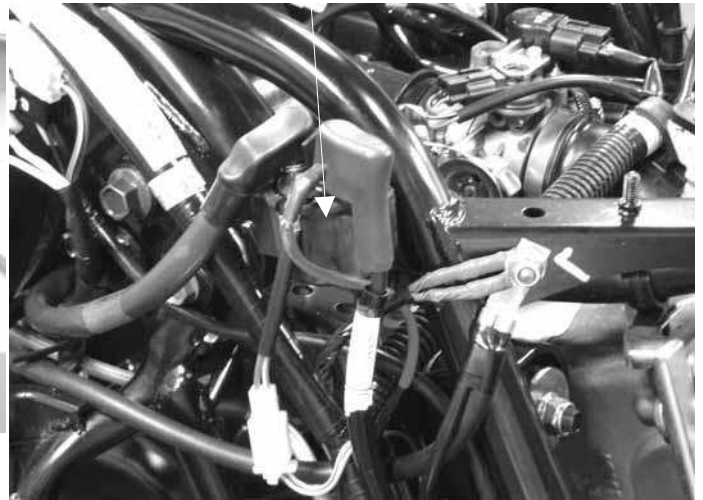
18. STARTING SYSTEM

STARTING SYSTEM LAYOUT

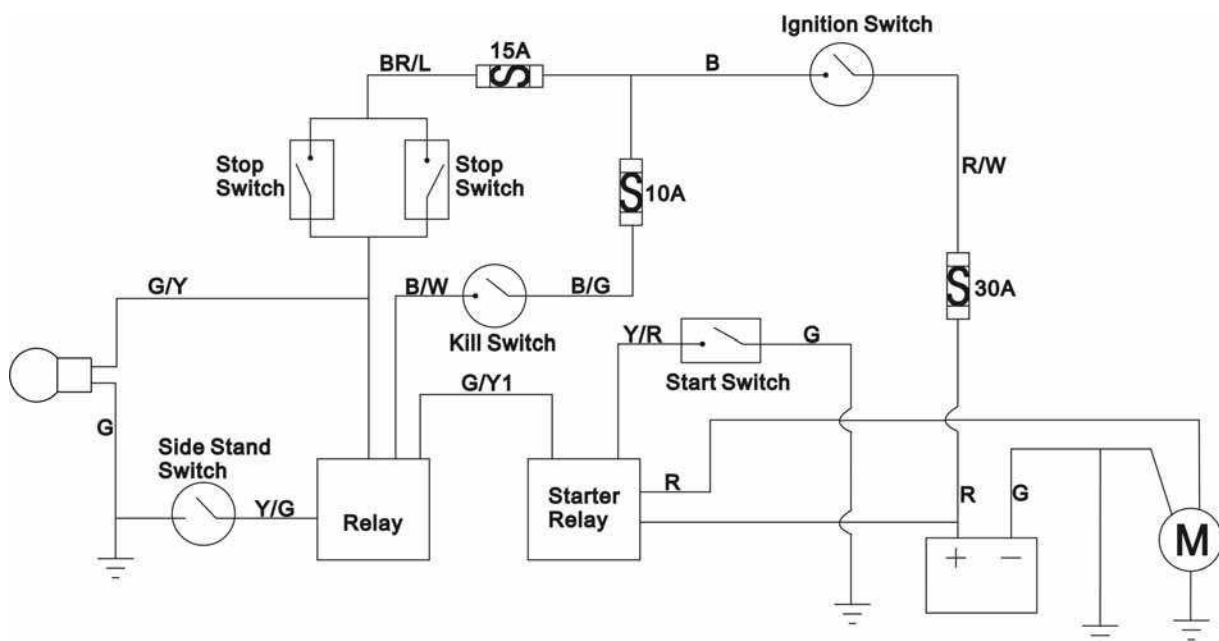


Ignition Switch

Starter Relay



STARTING CIRCUIT



18. STARTING SYSTEM

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- The removal of starter motor can be accomplished with the engine installed.
- After the starter clutch is installed, be sure to add the engine oil and coolant and then bleed air from the cooling system.

SPECIFICATIONS

| Item | Standard (mm) | Service Limit (mm) |
|----------------------------|---------------|--------------------|
| Starter motor brush length | 12.5mm | 8.5mm |

TORQUE VALUES

| | | |
|-----------------------------|----------|-----|
| Starter motor mounting bolt | 6.7~10.8 | N-m |
| Starter motor case screw | 2.9~4.9 | N-m |
| Starter clutch bolt | 9.8~13.7 | N-m |

SPECIAL TOOLS

| | |
|-----------------|------|
| Flywheel holder | E021 |
| Flywheel puller | E003 |

TROUBLESHOOTING

Starter motor won't turn

- Fuse burned out
- Weak battery
- Faulty ignition switch
- Faulty starter clutch
- Faulty front or rear stop switch
- Faulty starter relay
- Poorly connected, broken or shorted wire
- Faulty starter motor

Lack of power

- Weak battery
- Loosed wire or connection
- Foreign matter stuck in starter motor or gear

Starter motor rotates but engine does not start

- Faulty starter pinion
- Starter motor rotates reversely
- Weak battery

18. STARTING SYSTEM

STARTER MOTOR

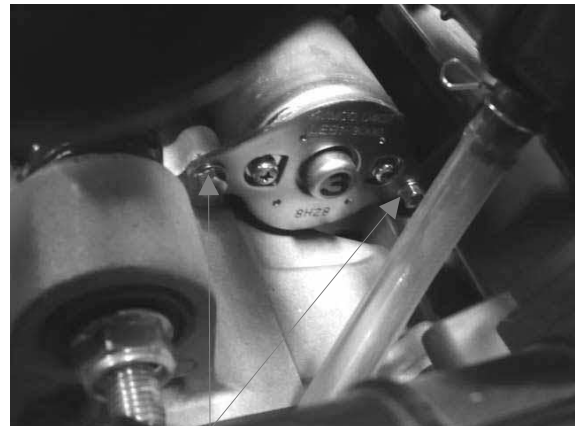
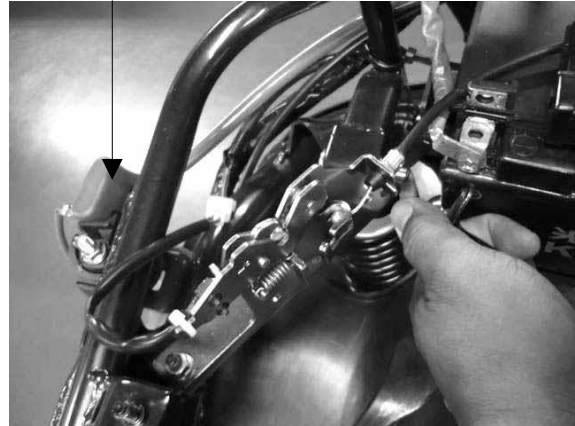
REMOVAL

* Before removing the starter motor, turn the ignition switch OFF and remove the battery ground. Then, turn on the ignition switch and push the starter button to make sure the starter motor can't operate securely.

Remove the seat, met-in box and carrier.
Remove the body cover, center cover and rear fender together.
Remove the nut goes to the starter relay and relax cable band to disconnect the starter motor cable.

Remove two start motor mounting bolts and the motor.

Starter Motor Cable



Bolts

18. STARTING SYSTEM

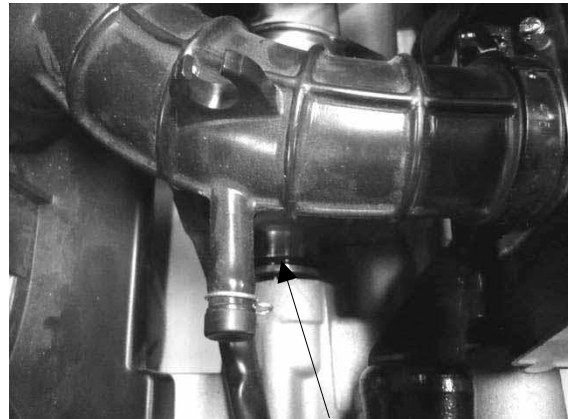
INSTALLATION

Connect the starter motor cable.

Check the O-ring for wear or damage and replace if necessary.

Apply grease to the O-ring and install it to the starter motor.

Tighten the two mounting bolts.



O-ring

Yellow/Red Wire And Green/Yellow Wire

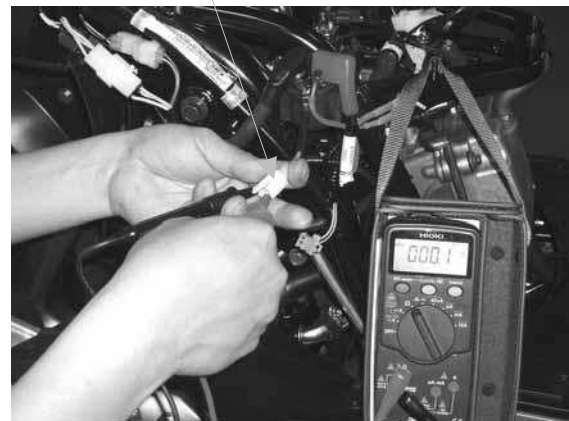
STARTER RELAY INSPECTION

Disconnect the starter relay wire connector.

Check for continuity between the yellow/red wire and green/yellow wire.

There should be continuity when the starter button is depressed.

If there is no continuity, check the starter button for continuity and inspect the wire.

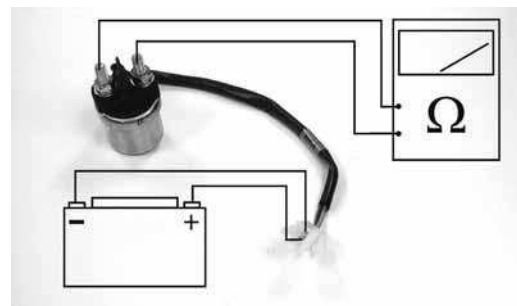


OPERATION TEST

Connect the electric meter to the starter relay terminals that connect to the battery positive cable and the starter motor cable.

Connect a fully charged battery across the starter relay yellow/red and green/yellow wire terminals.

Check for continuity between the starter relay large terminals. The relay is normal if there is continuity and hear sounds.



Starter Relay test chart

19. LIGHTS SWITCHES/ FUEL PUMP

LIGHTS/METERS/SWITCHES

| | |
|------------------------------|-------|
| SERVICE INFORMATION----- | 19- 1 |
| BULB REPLACEMENT ----- | 19- 3 |
| BRAKE LIGHT SWITCH----- | 19- 5 |
| IGNITION SWITCH ----- | 19- 5 |
| RIGHT HANDLEBAR SWITCH ----- | 19- 6 |
| LEFT HANDLEBAR SWITCH ----- | 19- 7 |
| AUXILIARY OUTLET----- | 19- 7 |
| FUEL PUMP ----- | 19- 8 |
| SIDE STAND SWITCH ----- | 19-10 |

19. LIGHTS SWITCHES/ FUEL PUMP

ELECTRICAL EQUIPMENT LAYOUT

Oil Controller



Winker Relay

Horn



Tilt Switch

Ignition Switch

Winker Relay

19. LIGHTS SWITCHES/ FUEL PUMP

SERVICE INFORMATION

GENERAL

A halogen head light bulb becomes very hot while the head light is on, and remains for a while after it is turned off. Be sure to let it cool down before servicing.

- Note the following when replacing the halogen headlight bulb
 - Wear clean gloves while replacing the bulb. Do not put finger prints on the headlight bulb, as they may create hot spots on the bulb and cause it to fail.
 - If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent its early failure.
 - Be sure to install the dust cover after replacing the bulb.
- Check the battery condition before performing any inspection that requires proper battery voltage.
- A continuity test can be made with the switches installed on the scooter.
- Route the wires and cables properly after servicing each component.

TROUBLESHOOTING

Lights do not come on when ignition switch is "ON"

- Burned bulb
- Faulty switch
- Poorly connected, broken or shorted wire

Temperature gauge does not register correctly

- Faulty temperature gauge
- Faulty thermosensor
- Broken or shorted wire between the temperature gauge and thermosensor

Fuel gauge does not work or wrong show figures

- Faulty fuel gauge
- Faulty fuel unit
- Poorly connected wire between fuel gauge and fuel unit
- Fuse burned out

SPECIFICATIONS

| | |
|------------------------|-------------------|
| Fuse | 10A/15A/30A |
| Headlight bulb | 12V 60W/55W |
| Turn signal light bulb | 12V 10W/ 2W (LED) |
| Stoplight/taillight | 12V 21/5W |

19. LIGHTS SWITCHES/ FUEL PUMP

BULB REPLACEMENT

LICENSE LIGHT

Disconnect the license bulb socket.
Remove the bulb and replace with a new one.



HEADLIGHT

A halogen headlight bulb becomes hot while the headlight is ON and remains for a while after it is turned OFF. Be sure to let it cool down before servicing.

REMOVAL

Remove the handle cover
Disconnect the headlight connector from the headlight bulb.



INSTALLATION

Install a new bulb into the headlight case.
Install the headlight and connect the headlight connector



Headlight Bulb

19. LIGHTS/METERS/SWITCHES

FRONT TURN SIGNAL LIGHT

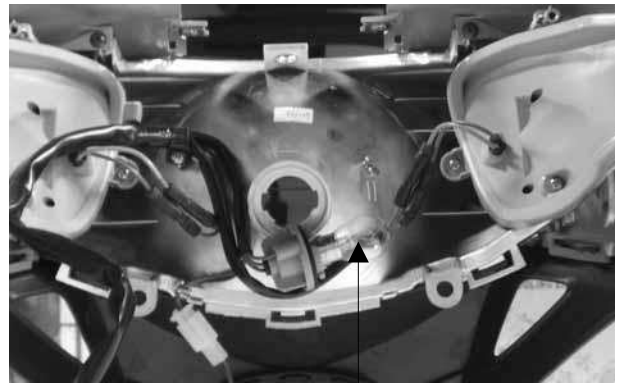
Remove the front cover.
Turn the bulb socket and then remove the front turn signal light.
Push and turn the bulb counterclockwise to remove it, then replace with a new one.
Installation is in the reverse order of removal.



Socket

TAILLIGHT/BRAKE LIGHT/REAR TURN SIGNAL LIGHT

Remove the seat and met-in.
Remove the body covers.
Remove the taillight bulb socket.



Taillight Bulb

REAR TURN SIGNAL LIGHT

Turn the bulb counterclockwise to remove it, then replace with a new one.

Installation is in the reverse order of removal.



Rear Turn Signal Light

19. LIGHTS/METERS/SWITCHES

BRAKE LIGHT SWITCH

Remove the handlebar cover.

Disconnect front or rear brake light switch connectors and check for continuity between the switch terminals.

There should be continuity with the front or rear brake lever squeezed, and there should be no continuity with the front or rear brake lever is released.



Brake Light Switch

IGNITION SWITCH

INSPECTION

Remove the front cover.

Disconnect the ignition switch connector and check the ignition switch for continuity at the switch side connector terminals.

Continuity should exist between the color code wires as follows:

COMB SW

| | BAT2 | IG | E | BAT1 | HA |
|-------|------|-----|---|------|-----|
| LOCK | | ○—○ | | | |
| OFF | | ○—○ | | ○—○ | |
| ON | ○— | | | ○—○ | |
| COLOR | B | B/W | G | R | B/L |



Ignition Switch

19. LIGHTS/METERS/SWITCHES

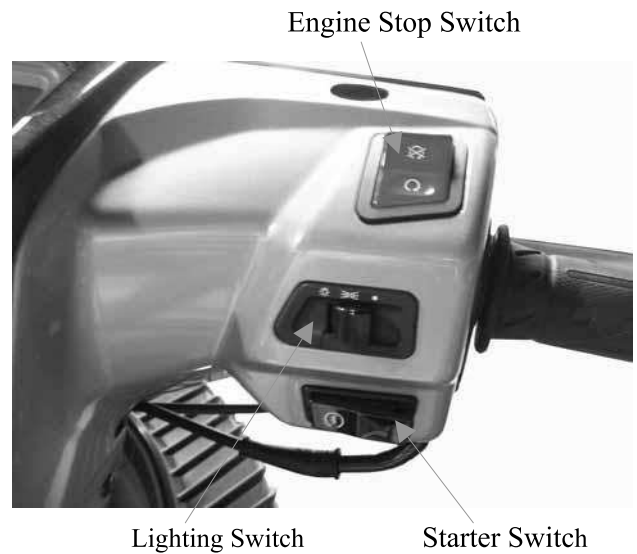
RIGHT HANDLEBAR SWITCH

INSPECTION

Remove the handle cover.

Disconnect the right handlebar switch connector and check for continuity at switch side connector terminals.

Continuity should exist between the color code wires as follows:



LIGHTING SW

| | BAT3 | PO | TL | HL |
|-------|------|------|----|-----|
| • | | | | |
| (N) | | | | |
| P | ○ | ○ | ○ | |
| (N) | ○ | ○ | ○ | ○ |
| H | ○ | | ○ | ○ |
| COLOR | BR/L | BR/W | BR | W/L |

STARTER SW

| | E | ST |
|-------|---|-----|
| FREE | | |
| PUSH | ○ | ○ |
| COLOR | G | Y/R |

ENGINE STOP SW

| | IG | BAT3 |
|-------|-----|------|
| OFF | | |
| RUN | ○ | ○ |
| COLOR | B/W | B/G |

19. LIGHTS/METERS/SWITCHES

LEFT HANDLEBAR SWITCH

INSPECTION

Disconnect the left handlebar switch connector and check for continuity at switch side connector terminals.

Continuity should exist between the color code wires as follows:

WINKER SW

| | | | |
|-------|----|----|---|
| | WR | R | L |
| R | ○ | ○ | |
| N | | | |
| L | ○ | | ○ |
| COLOR | GR | SB | O |

HORN SW

| | | |
|-------|------|----|
| | BAT4 | HO |
| FREE | | |
| PUSH | ○ | ○ |
| COLOR | BR/L | LG |

DIMMER SW

| | | | |
|-------|-----|----|----|
| | HL | HI | LO |
| LO | ○ | | ○ |
| (N) | ○ | ○ | ○ |
| HI | ○ | ○ | |
| COLOR | W/L | L | W |

PASSING SW

| | | |
|-------|------|----|
| | BAT4 | HI |
| FREE | | |
| PUSH | ○ | ○ |
| COLOR | BR/L | L |

Dimmer Switch



Horn Switch

Turn Signal light Switch

Passing Switch



AUXILIARY OUTLET

INSPECTION

Open the luggage box

Disconnect the auxiliary outlet connector and check for continuity between the switch terminals.

There should be no continuity with the luggage box light switch pushed, and there should be continuity with the luggage box light switch is released.

Auxiliary Outlet



19. LIGHTS/METERS/SWITCHES

FUEL PUMP REMOVAL

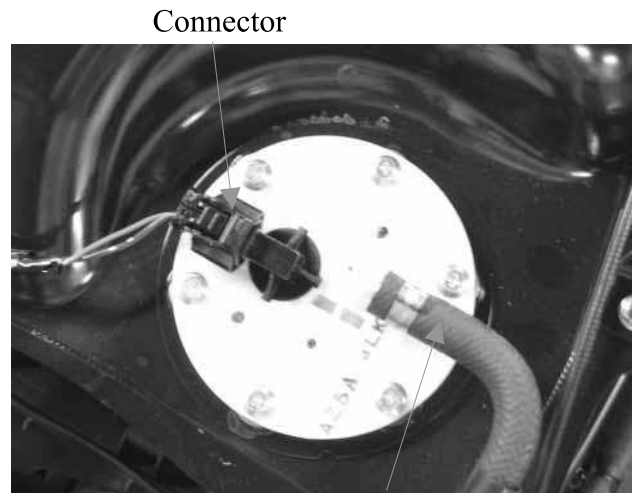
Remove the seat and met-in

Remove the center cover

Remove the fuel pump connector

Be sure to relieve the fuel pressure before removing fuel pump or fuel hose.

Remove the six nuts and fuel unit connectors then remove the fuel hose.



Fuel Hose

Check the fuel pump O-ring.

If was damage, replace a new one.

INSPECTION

Connect the fuel unit wire connectors and turn the ignition switch "ON".

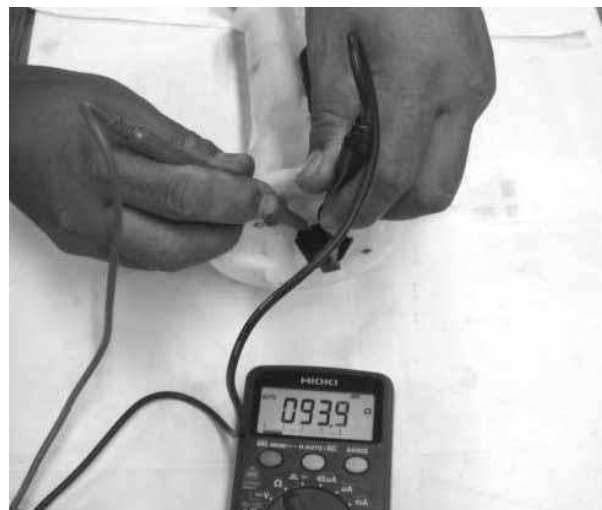
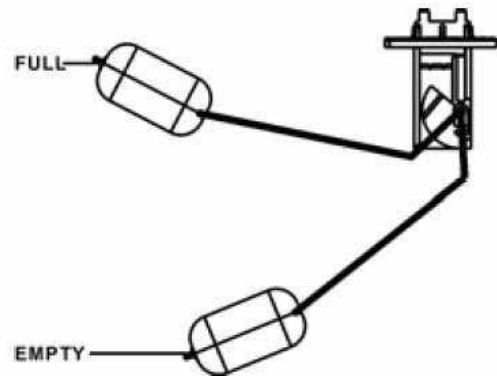
Before performing the following test, operate the turn signals to determine that the battery circuit is normal.

19. LIGHTS/METERS/SWITCHES

Measure the resistance between the Red/Black and Green wire of the fuel unit connector.

Standard (at 20°C/68°F):

| | |
|-------------------------|---------------------|
| Float at full position | About 1100 Ω |
| Float at empty position | About 100 Ω |



19. LIGHTS/METERS/SWITCHES

SIDE STAND SWITCH INSPECTION

Remove the luggage box.

The side stand switch is located on the side stand.

Disconnect the side stand switch connector.

There should be continuity between the Yellow/Green and Green with the side stand is up.

There should be continuity between the Yellow/Black and Green with the side stand is down.

