

SUZUKI

GD110

SERVICE MANUAL

SUZUKI GD110



FOREWORD

This Service Manual is mainly prepared for the distributors and maintenance technicians of Haojue motorcycles for the convenience of the repair and maintenance of GD110 motorcycles. This Service Manual excludes the general repair knowledge of motorcycles, so it is suitable for the people who have known the basic repair knowledge of Haojue motorcycles and can offer helpful references for repair of the motorcycles of similar models.

All materials, illustrations, pictures and parameters collected in this Service Manual are the latest when it is published. However, the motorcycles reaching you may differ slightly with the content herein due to the continuous improvement and technical upgrade of products. Our company will promptly inform the distributors of Haojue motorcycles about this. If necessary, you may consult with them directly.

We shall have the right to conduct product improvement at any time without prior notice and will assume no responsibilities about this.

No reproduction of any contents of this Service Manual without permission.























JIANGMEN DACHANGJIANG GROUP CO., LTD.
JUNE 2010
(The First Edition)

GROUPINDEX

GENERAL INFORMATION	1
PERIODIC MAINTENANCE AND TUNE-UP PROCEDURES	2
ENGINE	3
FUEL AND LUBRICATION SYSTEM	4
CHASSIS	5
ELECTRICAL SYSTEM	6
SERVICING INFORMATION	7

SYMBOL

The following symbols are instructions and necessary information for maintenance.

SYMBOL	DEFINITION	SYMBOL	DEFINITION
	Torque control required. Data beside it indicates specified torque.		APPLY OR USE FRONT DAMPER OIL
	APPLY oil. Use engine oil unless otherwise specified.		APPLY THREAD LOCK "1322"
	APPLY MOLYBDENUM OIL SOLUTION. Mix engine oil and MOLY PASTE at a ratio of 1:1.		APPLY THREAD LOCK SUPER "1342"
	APPLY SUPER GREASE "A"		APPLY THREAD LOCK SUPER "1303"
	APPLY SUPER GREASE "C"		APPLY THREAD LOCK SUPER "1360"
	APPLY SUPER SILICONE GREASE		APPLY OR USE BREAK FLUID
	APPLY MOLY PASTE		MEASURE IN VOLTAGE RANGE
	APPLY HEAT TRANSFER OIL		MEASURE IN RESISTANCE RANGE
	APPLY SEALANT THREE BOND "1215"		MEASURE IN CURRENT RANGE.
	APPLY SEALANT THREE BOND "1216"		MEASURE THE TESTING RANGE OF THE DIODE
	APPLY SEALANT THREE BOND "1207B"		MEASURE THE BREAK OVER RANGE
	Apply BOND No.4		USE SPECIAL TOOL
	APPLY OR USE COOLANT		It refers to the date of maintenance.

Note:

All symbols are shown in the table above, including those not used in this Service Manual.


GENERAL INFORMATION

1

CONTENTS

WARNING/CAUTION/NOTICE/NOTE	1-1
GENERAL PRECAUTIONS	1-1
SERIAL NUMBER LOCATIONS	1-2
FUEL AND OIL RECOMMENDATIONS	1-3
BREAK-IN PROCEDURE	1-3
SPECIFICATIONS	1-4

WARNING/CAUTION/NOTICE/NOTE

Please read this manual and follow its instructions carefully. To emphasize special information, the symbol  and the words WARNING, CAUTION, NOTICE AND NOTE have special meanings. Pay particular attention to messages highlighted by these signal words:

WARNING

Indicates a potential hazard that could result in death or serious injury.

CAUTION

Indicates a potential hazard that could result in minor or moderate injury.

NOTICE

Indicates a potential hazard that could result in vehicle or equipment damage.

NOTE:

Indicates special information to make maintenance easier or instructions clearer.

Please note, however, that the warnings and cautions contained in this manual cannot possibly cover all potential hazards relating to the servicing, or lack of servicing, of the motorcycle. In addition to the WARNINGS and CAUTIONS stated, you must use good judgment and basic mechanical safety principles. If you are unsure about how to perform a particular service operation, ask a more experienced mechanic for advice.

GENERAL PRECAUTIONS

WARNING

- Proper service and repair procedures are important for the safety of the service mechanic and the safety and reliability of the vehicle.
- When 2 or more persons work together, pay attention to safety of each other.
- When it is necessary to run the engine indoors, make sure that exhaust gas is forced outdoor.
- When working with toxic or flammable materials, make sure that the area you work in is well-ventilated and that you follow all of the material manufacturer's instructions.
- Never use gasoline as a cleaning solvent.
- To avoid getting burned, do not touch the engine, engine oil or exhaust system during or for a while after engine operation.
- After servicing fuel, oil, exhaust or brake system, check all lines and fittings related to the system for leaks.

NOTICE

- If parts replacement is necessary, replace the parts with HAOJUE GENUINE PARTS or their equivalent.
- When removing parts that are to be reused, keep them arranged in an orderly manner so that they may be reinstalled in the proper order and orientation.
- Be sure to use special tools when instructed.
- Make sure that all parts used in reassembly are clean, and also lubricated when specified.
- When use of a certain type of lubricant, bond, or sealant is specified, be sure to use the specified type.
- When performing service to electrical parts, if the service procedures not require used of battery power, disconnect the positive terminal.
- When removing the battery, disconnect the negative cable first and then the positive cable.
- When reconnecting the battery, connect the positive cable first and then the negative cable, and replace the terminal cover on the positive terminal.
- Tighten cylinder head and case bolts and nuts, beginning with larger diameter and ending with smaller diameter, from inside to outside diagonally, to the specified tightening torque.
- Whenever you remove oil seals, gaskets, packing, O-rings, locking washers, cotter pins, circlips, and certain other parts as specified, be sure to replace them with new ones. Also, before installing these new parts, be sure to remove any left over material from the mating surfaces.
- Never reuse a circlip. When installing a new circlip, take care not to expend the end gap larger than required to slip the circlip over the shaft. After installing a circlip, always ensure that it is completely seated in its groove and securely fitted.
- Do not use self-locking nuts a few times over.
- Use a torque wrench to tighten fasteners to the torque values when specified. Wipe off grease or oil if a thread is smeared with them.
- After reassembly, check parts for tightness and operation.

NOTE:

- To protect environment, do not unlawfully dispose of used motor oil and other fluids, batteries and tires.
- To protect Earth's natural resources, properly dispose of used vehicles and parts.

SERIAL NUMBER LOCATIONS

The frame serial number ① is stamped on on the steering stem. The engine serial number ② is located on the right side of the crankcase.

These numbers are required especially for registering the machine and ordering spare parts.



FUEL AND OIL RECOMMENDATION

FUEL

Use unleaded gasoline with a rating of 90-97.

NOTE:

Using unleaded gasoline can extend the life of spark plug.

ENGINE OIL

Oil quality is a major contributor to your engine's performance and life. Always select good quality engine oil. Use oil with an API classification of SF/SG or SH/SJ, or with JASO classification of MA.

SAE	API	JASO
10W-40	SF/SG	-
10W-40	SH/SJ	MA

API :American Petroleum Institute

JASO: Japanese Automobile Standards Organization

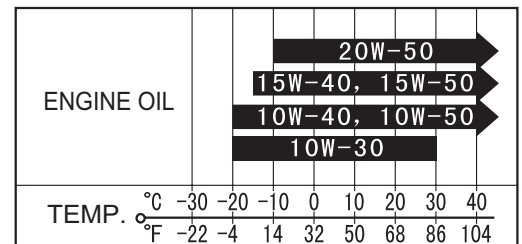
SAE ENGINE OIL VISCOSITY

Suzuki recommends the use of SAE 10W-40 engine oil. If SAE 10W-40 engine oil is not available, select an alternative according to the following chart.

NOTE:

Dispose used engine oil properly to avoid environment pollution. We suggest you to collect the used oil in a sealed container and take it to a nearby recycling facility.

Do not place it into a trash bin and do not pour it onto the ground.



BREAK-IN PROCEDURES

During manufacture only the possible materials are used and all machined parts are finished to a very high standard but it is still necessary to allow the moving parts to "BREAK-IN" before subjecting the engine to maximum stresses. The future performance and reliability of the engine depends on the care and restraint exercised during its early life. The general rules are as follows.

- The break-in mileage is 500 km.
- The throttle must not be opened to the full during the new motorcycle's break-in period. Throttle opening should be limited to $\cong 3/4$ of its maximum, while snap-acceleration should be avoided.

SPECIFICATIONS

DIMENSIONS AND CURB WEIGHT

Overall length	1900mm
Overall width	750mm
Overall height	1050mm
Wheelbase	1215mm
Ground clearance	140mm
Curb weight	108kg

ENGINE

Type	four-stroke, air-cooled, Single-cylinder vertical type
Number of cylinders	1
Bore	51mm
Stroke	55.2mm
Piston displacement	112.8ml
Compression ratio	9.5: 1
Carburetor	Vacuum diaphragm type
Air cleaner	Polyurethane foam and paper filter
Starter system	Kick starting
Lubrication system	Pressure splash lubrication

TRANSMISSION

Clutch	Wet multi-plate
Transmission	4-speed gear transmission
Primary reduction	3.666
Final reduction	2.500
Gear ratios, low	3.000
2nd	1.923
3rd	1.375
4th	1.052
Drive chain	428H, 104 Nodes

ELECTRICAL

Ignition type	DC-CDI
Ignition timing	15°B.T.D.C. Below 1500r/min and 35°B.T.D.C. above 4000r/min
Spark plug	NGK CR6HSA
Battery	12V 5Ah
Fuse	15A
Headlight	12V,35W/35W
Tail/Brake light	12V,5W/21W
Turn signal light	12V,10W
Position light	12V,5W
Speedometer light	12V,3W
High beam indicator light	12V,2W
Turn signal indicator light	12V,2W
Gear position indicator light	12V,2W
Gear indicator light	12V,2W

CHASSIS

Front suspension	Telescopic, coil spring, oil dampened
Rear suspension	Swing arm, oil dampened spring 5-way adjustable
Turning radius	1840mm
Front brake	Drum
Rear brake	Drum
Front tire size	2.50-17 38L
Rear tire size	2.75-17 41P
Stroke of front absorber	100mm

CAPACITIES

Fuel tank including reserve	9.2L
reserve	1.8L
Engine oil	1 100mL
Front shock absorber oil	106mL

PERIODIC MAINTENANCE

CONTENTS

PERIODIC MAINTENANCE	2-1
MAINTENANCE PROCEDURES	2-3
BATTERY/TUBE FUSE (FUSE)	2-3
AIR CLEANER ELEMENT	2-4
MUFFLER BOLTS AND NUTS	2-5
BOLTS/NUTS OF THE CYLINDER HEAD & CYLINDER	2-5
VALVE CLEARANCE	2-6
SPARK PLUG	2-7
ENGINE OIL	2-7
ENGINE OIL FILTER	2-8
OIL SUMP FILTER	2-8
CLUTCH CABLE	2-8
CARBURETOR (IDLE SPEED)	2-8
THROTTLE CABLE PLAY	2-9
FUEL HOSE AND 2ND AIR HOSE	2-9
FUEL FILTER	2-9
DRIVE CHAIN	2-10
BRAKES	2-10
TIRES	2-12
STEERING	2-13
FRONT/REAR SUSPENSION	2-13
ILLUMINATION AND SIGNAL	2-13
CHASSIS AND ENGINE MOUNTING BOLTS AND NUTS	2-14
COMPRESSION PRESSURE INSPECTION	2-16

PERIODIC MAINTENANCE

The chart below lists recommended intervals for all the required periodic service work necessary to keep the motorcycle operating at peak performance and economy. Mileages are expressed in terms of kilometer, miles and time for your convenience.

NOTE:

More frequent servicing may be performed on motorcycles that are used under severe conditions.

PERIODIC MAINTENANCE CHART

ITEM	INTERVAL	1000	3000	6000	PAGE
	Km month	3	6	12	
Battery/tube fuse (fuse)		Inspect	Inspect	————	2-3
Air filter (filter element)		Clean after the first 1,000 km and every 2,000-3,000 km afterwards			2-4
Muffler bolts and nuts		Inspect	Inspect	————	2-5
Bolts and nuts of cylinder head and cylinder		Inspect	Inspect	————	2-5
Valve clearance (cold engine)		Inspect	Inspect	————	2-5
Spark plug		Inspect	Inspect	————	2-6
		Replace every 10 000 km			
Engine oil		Initial replacement after the first 500 km, the second replacement at 1,000km total mileage, while further replacement for every 2,000-3,000 km (adjust according to driving conditions)			2-7
Engine oil filter		Replace	Replace		2-7
Oil sump filter		Clean every 12000 km			2-8
Clutch cable		Inspect	Inspect	————	2-8
Carburetor (idle speed)		Inspect	Inspect		2-8
Throttle cable play		Inspect	Inspect	————	2-9
Fuel hose and 2nd air hose		Inspect	Inspect	————	2-9
		Replace every four years			
Fuel filter		Inspect	Inspect	————	2-9
Drive chain		Clean & lubricate for every 1,000 km			2-10
Brake		Inspect	Inspect	————	2-10
Tires		Inspect	Inspect	————	2-12
Steering		Inspect	Inspect	————	2-13
Front and rear suspension		————	Inspect	————	2-13
Illumination and signal		Inspect	Inspect	————	2-13
Chassis and engine mounting bolts and nuts		Inspect	Inspect	————	2-14
Compression pressure		————	————	Inspect	2-16

LUBRICATION CHART

The following is a basic lubrication requirement for a motorcycle operated in an economical manner and based on the mileage displayed by the odometer.

ITEM	INTERVAL		Initial and every 5000 km	Every 10000 km
	km	month	6	12
Throttle cable			Motor oil	–
Throttle grip			–	Grease
Clutch cable			Motor oil	–
Brake cable			Motor oil	–
Soft axle for speedometer			–	Grease
Gear box for speedometer			–	Grease
Transmission Chain			Motor oil every 1000 km	
Brake pedal axle			Grease or oil	–
Brake camshaft			–	Grease
Steering bearing			Grease every 2 years or 20000 km	
Bearing bush for rear rocker arm				

NOTE:

“-”stands for not required

 WARNING

Do not apply too much lubrication grease on the brake cam to prevent the brake from slipping.

When driving on wet roads or under rainy conditions, lubricate the parts with engine oil or grease to avoid rust. Be sure to remove oily contamination or rust.

MAINTENANCE PROCEDURES

This section introduces the maintenance and adjustment methods of each part during regular maintenance.

BATTERY/TUBE FUSE (FUSE)

Inspect Initial 1 000 km and Every 3 000 km

BATTERY

- Inspect the electrolyte's level and specific gravity, the battery must be removed.
 - Dismount the right cover.
 - Dismount the “-” negative pole of the battery.
 - Dismount the “+” positive pole of the battery.
 - Dismount the band of the battery.
 - Take the battery down from the battery holder.
- Inspect the electrolyte level. If necessary, add some distilled water to make the electrolyte level higher than the “LOWER LEVERL” ① and lower than the “UPPER LEVERL” ②. Use a hydrometer to inspect the electrolyte's specific gravity to see the charging situation of the battery. If the data is below 1.28 (20°C), it means that the battery should be charged now. During charge, the battery should be dismantled and charged with a charger. If not, the rectifier may be damaged.

Standard specific gravity	1.28 0.01 20°C
---------------------------	----------------

TOOL 09900-28403 : HYDROMETER

- Assemble the battery in the opposite order of the disassembly.

NOTICE

When assemble the battery, fix the “+” positive pole first and the “-” negative pole then.

TUBE FUSE (FUSE)

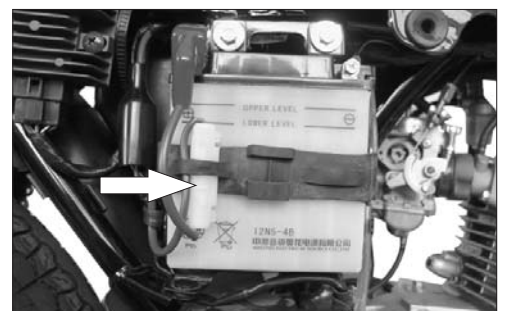
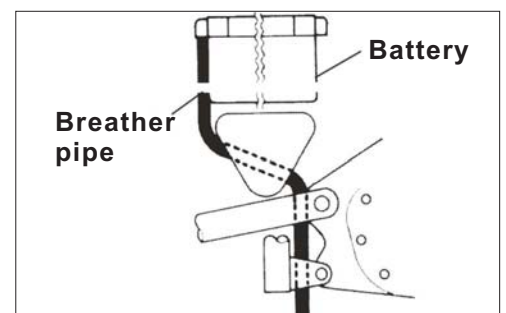
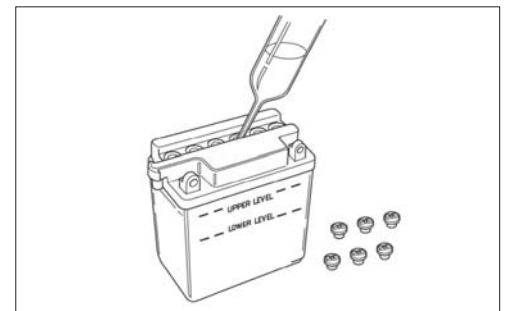
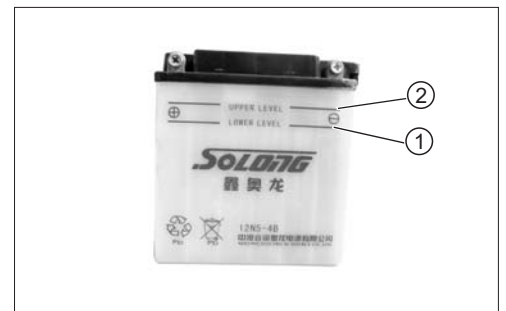
- The tube fuse (fuse) box locates on the band of the battery. In case of engine stop suddenly or the circuit non-through, the tube fuse (fuse) must be inspected.

WARNING

Do not use fuses without the specified specification; otherwise it will have ill effect on the electric system, or even result in fire, burn the motorcycle or loss power of the engine, which is very dangerous.

NOTICE

Do use the tube fuse (fuse) with the specified rated current (15A) and do not use substitutes like aluminum foil, iron wire and so on. In case of fusing, it suggests that the electric system has malfunction and should be inspected.



AIR CLEANER ELEMENT

Clean after the first 1,000 km and every 2,000-3,000 km afterwards

If the air cleaner is clogged with dust, intake resistance will be increased with a resultant decrease in power output and an increase in fuel consumption.

The air filter should be inspected and cleaned according to the following order:

- Take off the left cover.
 - Unscrew the bolts from the cover and take off the cover.
 - Take out the straining sponge.
-
- Unscrew the fastening screw of the air filter and take off the air filter.

- Blow the dust on the air filter with an air hose.

NOTE:

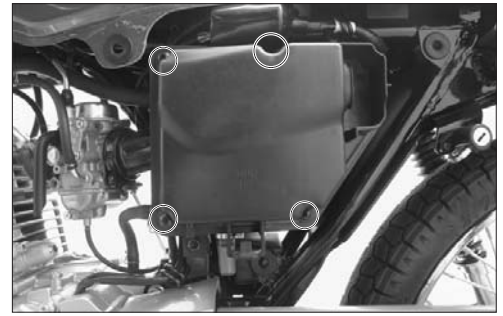
Blowing air should be from the interior of the air filter, otherwise the dust will be blown into the pores of the air filter, and block the air filter.

If paper filter is damaged or the filtration pores have become bigger, the air filter should be replaced.

- Assemble the cleaned air cleaner or a new one in reverse order of disassembly.

NOTICE

When riding in a dusty environment, should replace the air cleaner more frequently to avoid premature abrasion of the engine.

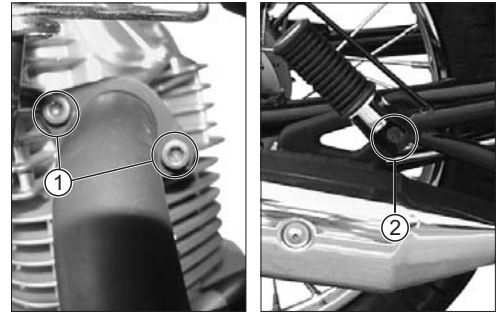


MUFFLER BOLTS AND NUTS

Inspect Initial 1 000 km and Every 3 000 km

- Tighten the muffler bolts ① and ② with the specified torque.

 Muffler bolt① : 20~24N m
Muffler bolt② : 40~45N m



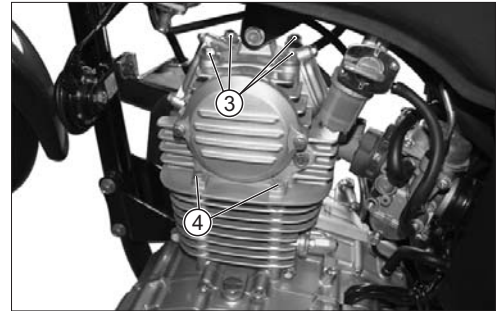
BOLTS/NUTS OF THE CYLINDER HEAD & CYLINDER

Inspect Initial 1 000 km and Every 3 000 km

NUTS OF THE CYLINDER HEAD

- Take off the seat and the fuel tank (see content on page 3-2).
- Tighten the four M10 nuts ③ with the specified torque through a torque wrench under cool engine conditions.

 Nuts on the cylinder head : 23~27N m



BOLTS OF THE CYLINDER

- Tighten the bolts ④ on side of the cylinder head with the specified torque.

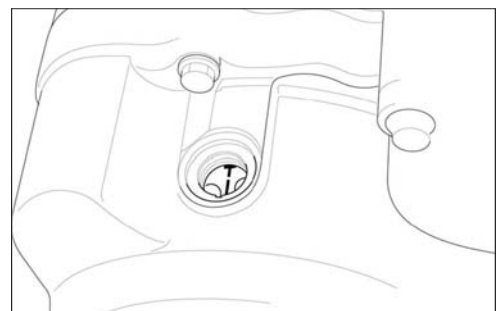
 Bolts on the cylinder : 8~12N m


VALVE CLEARANCE

Inspect Initial 1 000 km and Every 3 000 km

Too big valve clearance will result in valve noise; and too small valve clearance will lead to valve damage and power output decrease. The valve clearance should be inspected at the mileages mentioned above, and adjusted by following order.

- Remove spark plug, valve timing inspection plug and inlet/exhaust valve plug.
- Unscrew the plug of the generator cover, and rotate the generator rotor anticlockwise with a box wrench till the "T" scribed line on the generator rotor aligns with the center (the position pointed by the arrow) of the valve timing inspection plug hole on the crankcase, to set the piston at TDC of compression stroke.
- Insert the thickness gauge of the standard specification into the space between the valve end and the adjusting screw of the rocker arm.



 **09900-20803: Thickness gauge**

Valve clearance

Inlet valve	0.03-0.08mm
Exhaust valve	0.08-0.13mm

- If the valve clearances are not between the dimensions above, it should be adjusted with special tools.

 **11F14-016 : Adjustment wrench**

- Remount the screw plugs on the spark plug and on the magneto electric generator cover.

NOTE:

The valve clearance should be inspected and adjusted when the engine is cold. The inspection and adjustment of both the inlet valve and the exhaust valve should be done when they are at the TDC of compression stroke.



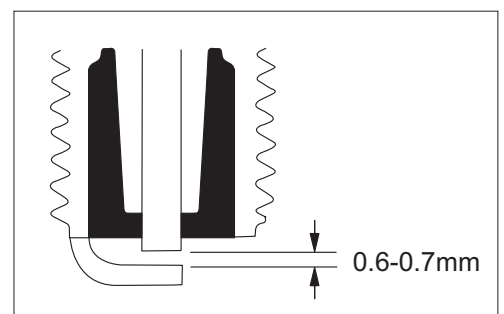
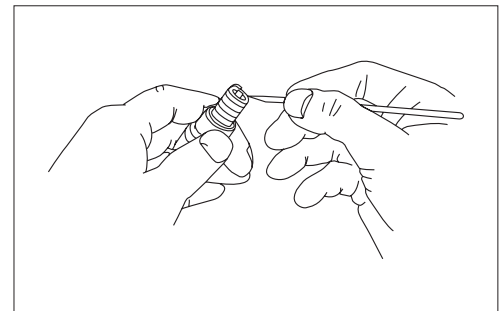
SPARK PLUG

Inspect Initial 1 000 km and Every 3 000 km

Remove the carbon on the spark plug with the help of a wire or needle, adjust the spark plug clearance to 0.6-0.7mm and measure with thickness gauge.

When removing carbon, pay attention to the color of the ceramic and the electrode of the spark plug. The status of the spark plug can be determined by observing its color. If the standard spark plug looks wet and black, use a hard plug instead. If the spark plug looks white, it means that the spark plug has overheated and should be replaced with a soft plug.

KIND	TYPE
HOT TYPE	NGK CR5HSA
STANDARD	NGK CR6HSA
COLD TYPE	NGK CR7HSA



ENGINE OIL

Initial replacement after the first 500 km, the second replacement at 1,000km total mileage, while further replacement for every 2,000-3,000 km (adjust according to driving conditions)

Engine oil replacement should be made when the engine is warm as follows:

- Support the motorcycle with the main stand.
- Unscrew the oil drain bolt ① and the dip stick/ oil filler cover ② to drain out the old engine oil.
- Tighten the oil drain bolt ① and fill 1 000ml of new engine oil.
- * Use the engine oil with API SF or SG grade and a viscosity of SAE 10W-40.
- It is recommended to use the dedicated engine oil appointed by Jiangmen Dachangjiang Group Co., Ltd., namely Haojue Four-stroke Engine Oil for Motorcycles with API SG grade and a viscosity of SAE 10W-40. Start the engine and make it run at the idle speed for couple minutes.
- Stop the engine around one minute, take off the dip stick/oil filler cover and wipe it up before inserting it again. Take out the dip stick to check the engine oil level. If the engine oil level is lower than the lower limit marker, fill some engine oil till reaching the upper limit marker. Remount the dip

ENGINE OIL FILTER

Replaced Initial 1 000 km and Every 3 000 km

The oil filter elements should be replaced according to the order below:

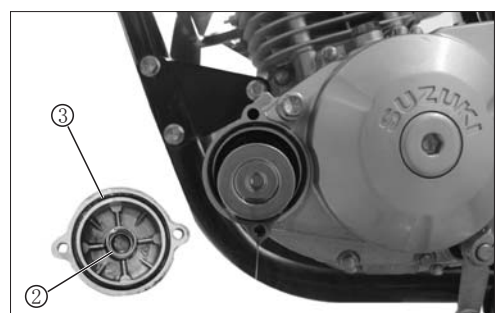
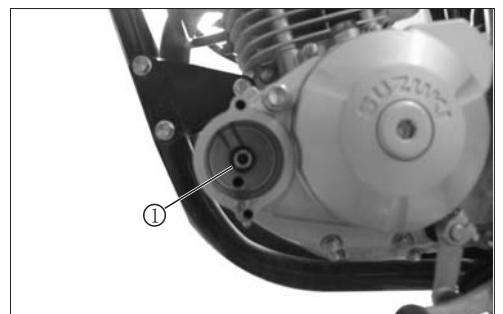
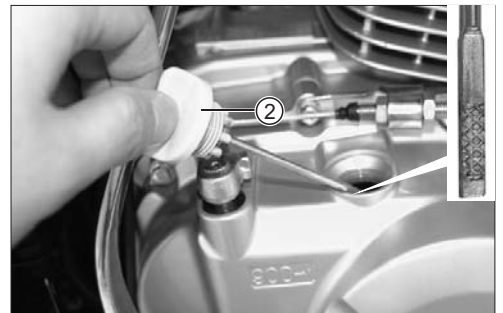
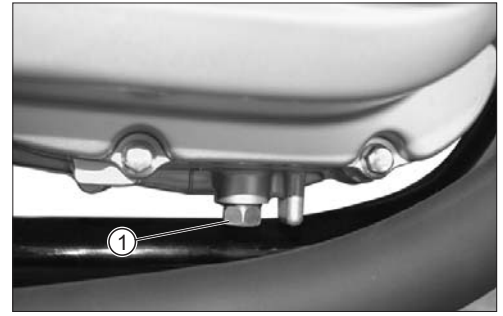
- Unscrew the oil drain bolt to drain out the engine oil.
- Unscrew the two bolts of the oil filter cover.
- Unscrew the oil filter cover and take out the filter.
- Replace a new filter.
- Make sure the O-ring ① has been installed well before reassembling the new filter.
- Make sure the spring ② and the O-ring ③ have been installed correctly before reassembling the oil filter.
- Install the oil filter cover and fasten the bolts.
- Fill proper engine oil and inspect the dip stick.

NOTE:

If the engine oil and the oil filter element are replaced at the same time, 1 100ml of engine oil should be fed. If an overhaul of the engine, 1 350ml of engine oil should be fed.

NOTICE

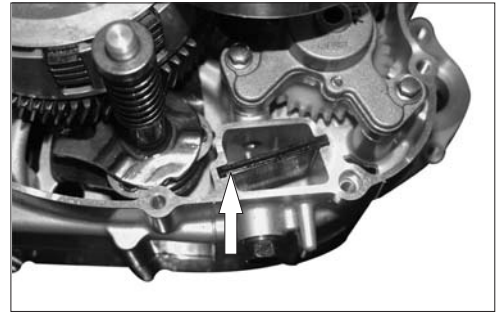
The oil filter element should be installed in strict line with the requirements above; otherwise the engine will be seriously damaged.



OIL SUMP FILTER

Clean Every 12 000 km

- Take off the clutch cover and the gasket (Refer to page 3-19).
- Clean the oil strainer to remove the deposits. Check whether the oil strainer is damaged and, if it is, replace it

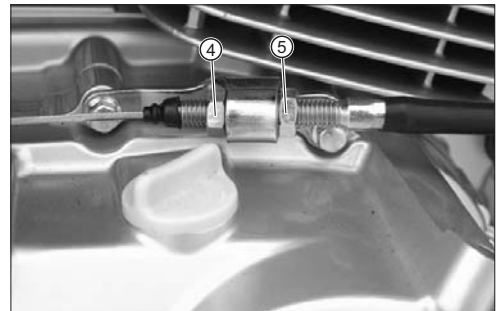


CLUTCH CABLE

Inspect Initial 1 000 km and Every 3 000 km

The adjustment of the clutch is realized through adjustment of the clutch cable free play ①. There should be a 4mm free play before you grasp the clutch handle and feel that friction disc is cut off. If the free play is improper, it may be adjusted according to the methods below:

- Take off the protecting cover of the clutch cable.
- Loosen the nut ② and rotate clockwise the adjusting screw ③ till the end.
- Loosen the clutch cable regulator, and fasten the nut ⑤.
- Rotate the adjusting screw ④, and adjust the handle opening ① to be around 4mm.
- The adjusting screw ③ may be used for inching. After all items are properly adjusted, fasten the nut ⑤ and nut ②, and lubricate the clutch cable with engine oil.

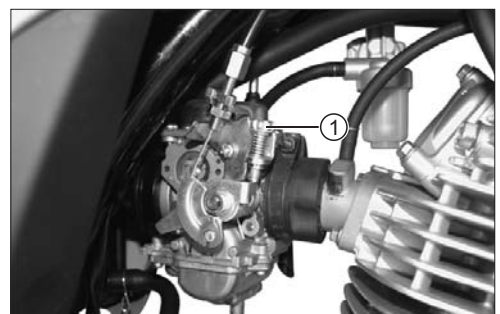


CARBURETOR (IDLE SPEED)

Inspect Initial 1 000 km and Every 3 000 km

IDLING ADJUSTMENT

- Start the engine; let it run idle until it is fully pre-heated,
- Once the engine has pre-heated release the throttle; turn the adjusting screw ① right and left to keep the speed within 1400~1600 r/min.



Idle speed of the engine	1500 100r/min
--------------------------	---------------

NOTE:

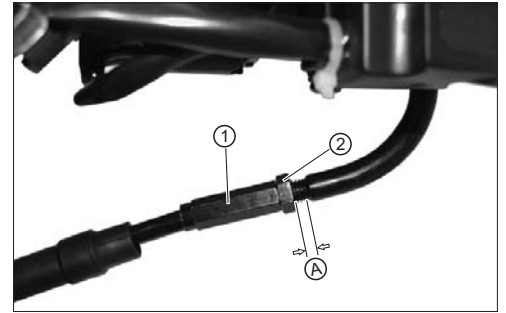
Adjusting the idle speed of the engine should be done when the engine has fully pre-heated.

THROTTLE CABLE PLAY

Inspect Initial 1 000 km and Every 3 000 km

As shown in the picture, adjust the throttle cable free play (A) to be 0.5-1.0mm.

- The regulator of the throttle cable may be used for adjusting the free stroke of the throttle grip.
- Take down the dust cover, loosen the nut ① and rotate the regulator ② to reach the needed free stroke.
- After adjustment, tighten the nut ① and remount the dust cover.
- Recheck whether the throttle grip can work smoothly, no matter which direction it is on.



Throttle cable play	0.5~1.0 mm
---------------------	------------

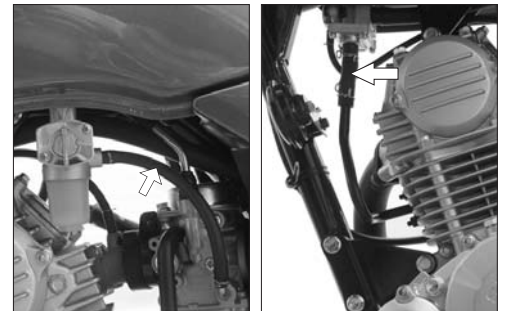
⚠ WARNING

After the adjustment of throttle cable is done, check the throttle grip movement. Make sure that adjusting the throttle has not raised the engine idle speed. In the meantime, the throttle grip position should be able to return freely.

FUEL HOSE AND 2ED AIR HOSE

Inspect the first 1 000km and every 3 000km afterward and replace every four years.

Inspect whether the joint of the fuel hose and the secondary air hose is damaged or fuel leakage. If it is, replace the fuel hose.



FUEL FILTER

Inspect Initial 1 000 km and Every 3 000 km

The fuel filter is installed under the fuel cock. The fuel filter element should be replaced or cleaned at regular intervals. During its replacement or cleaning, pay attention to its direction of installation.



DRIVE CHAIN

Clean & lubricate for every 1,000 km

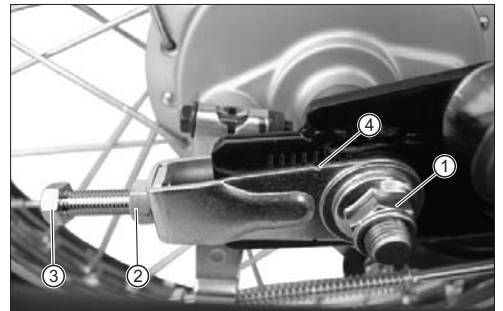
Check (eyeballing) whether the drive chain has the following defects (support the motorcycle with the main stand to make the rear wheel leave the ground. Pull out the access hole plug at the neutral position, and rotate the rear wheel slowly by hand to check).



1. The chain pins are loose;
2. The roller is damaged;
3. The chain links are rusty;
4. The chain links are twisted or block;
5. The wear is excessively serious.

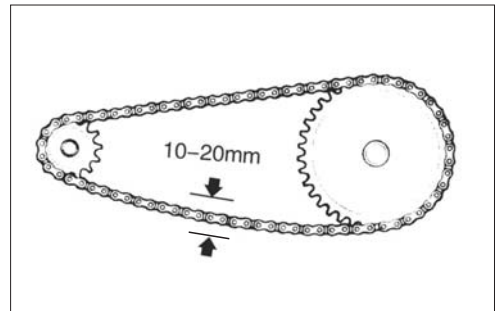
If any defect above, please replace the drive chain.

- Clean the driven chain with kerosene. If the drive chain is rusty too fast, the cleaning interval should be shortened.
- After being cleaned and dried, the drive chain should be applied with chain oil or SAE #90 gear oil for lubrication.



ADJUSTMENT

- Loosen the rear wheel shaft nut ① and the lock nut ②.
- Loosen the regulator of drive chain ③ to adjust the drive chain carefully.
- Loosen the regulator to make 10-20mm chain sag between the engine and the rear chain wheel.
- The mark ④ on both sides of the regulator should be on the same position for centering of the front wheel and the rear wheel.
- After adjustment of the drive chain, tighten the rear wheel shaft nut.
- After adjustment, inspect the rear brake gap (Refer to page 2-11).



WEAR OF DRIVE CHAIN

There are 21 pins on the drive chain. Measure their lengths. If their length is over 259.0mm, the drive chain should be replaced.

Drive chain 20pitch length service limit	259.0mm
--	---------

 09900-20101: Slide caliper

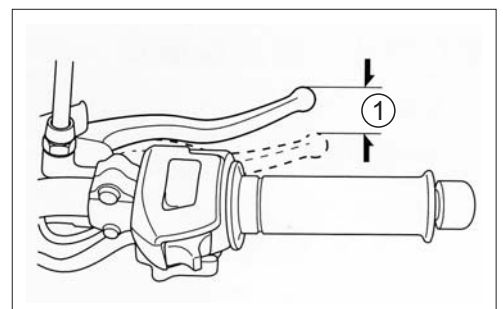
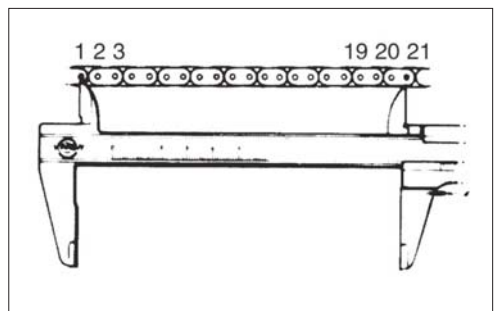
BRAKES

Inspect Initial 1 000 km and Every 3 000 km

FREE TRAVEL OF THE BRAKE GRIP

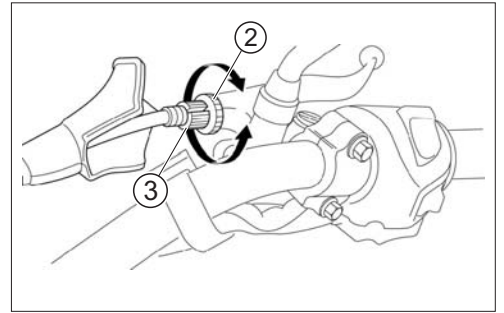
Measure the free travel of the front brake grip and the end of the brake grip.

Free travel	10-20mm
-------------	---------



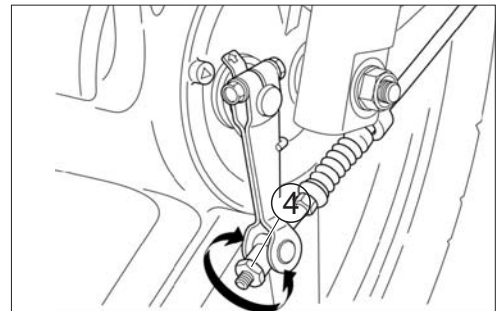
INITIAL ADJUSTMENT WITH THE UPPER REGULATOR

- Cover the sheath, loosen the nut ② and turn the regulator ③ for initial adjustment. Then fasten the bolts and the nuts.



ADJUSTING WITH THE LOWER REGULATOR

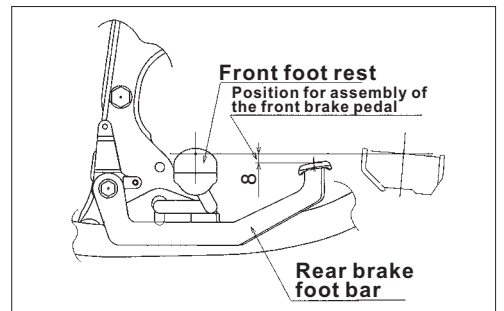
- Adjust by turning the adjusting nut ④. After adjustment, inspect the free stroke of the brake handle again.



REAR BRAKE

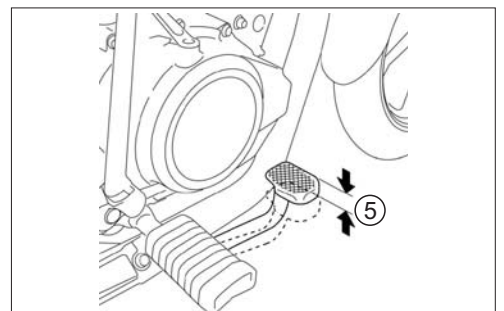
- Adjust the limit screw of the brake pedal to put the brake pedal at a position 8mm below the brake pedal. Finally fasten the nut.

Height of the rear brake pedal	8 mm
---------------------------------------	-------------

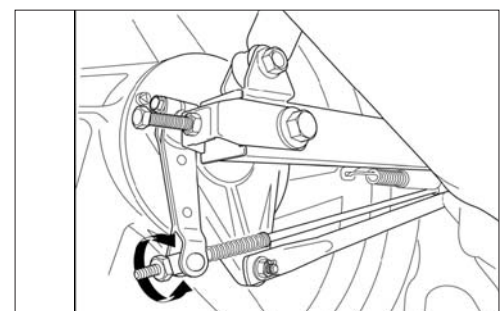


- After adjusting the height of the rear brake pedal, adjust its stroke to realize a free stroke ⑤ of 20-30mm.

Free travel	20-30mm
--------------------	----------------



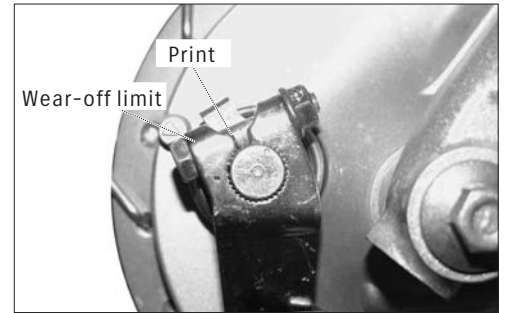
- Adjust the free stroke of the rear brake pedal by turning the adjusting nut. After adjustment, inspect the running state of the rear brake switch. If necessary, the rear brake switch should be adjusted.



BRAKE WEAR-OFF

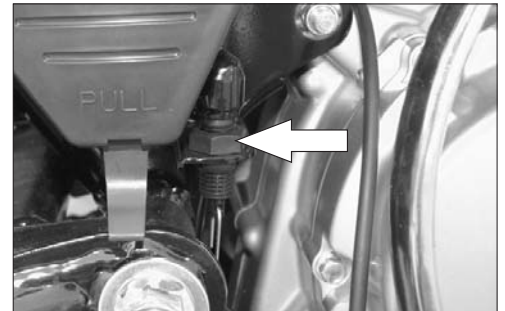
As shown in the right picture, the wear limitation of the brake shoe for a GD110HU motorcycle is carved on the brake drum. Under normal wear conditions, the extension line of the brake cam shaft should be within the range of the angle carved on the brake drum. Inspect the wear situation of the brake shoe by following the order.

- Inspect whether the brake system has been properly adjusted.
- After the adjustment, inspect whether the extension line is within the range of the angle carved on the brake drum when the braking-system is working.
- If the extension line is beyond the range of the angle carved on the brake drum (as shown in the right picture), the brake shoe should also be replaced.



BRAKE LIGHT SWITCH

Step on the rear brake pedal to inspect the brake light switch. If the brake light switch works inflexible, it may be adjusted by turning the adjusting nut of the brake switch.

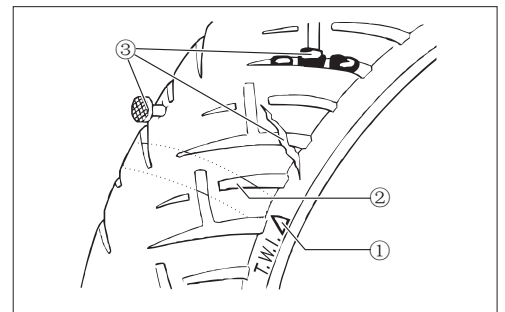


TIRES

Inspect Initial 1 000 km and Every 3 000 km

There are multiple indicators ① of the wear sign position on the peripheral direction of the tyre. Inspect the wear signs (the bosses in the grooves) ② near the indicators ①, to make sure the tread depth is enough and, if they have been worn, replace the tyre.

Eyeballing the worn conditions and the damages ③ (piercing or cracks) of the tires surfaces. Excessive wear of tires or too much damage on surfaces will lower the stability of riding. In this case, please replace the tires.



TIRE PRESSURE

Inspect the tyre pressure and check whether the valve cock has air leakage.

	SOLD RIDING	DUAL RIDING
FRONT	1.75kg/cm ² 175KPa	2.00 kg/cm ² 200KPa
REAR	2.00 kg/cm ² 200KPa	2.25 kg/cm ² 225KPa

STEERING

Inspect Initial 1 000 km and Every 3 000 km

Properly adjust the bearing of the steering to make the steering rotate flexibly and ensure safety during riding. Too tight steering will make the rotation of the steering inflexible.

Too loose steering will result in vibration and further damage to the bearing. Inspect the steering to make sure it has no shaking.

If the steering has shake, adjust it with the method stated in (Refer to page 5-12).



FRONT/REAR SUSPENSION

Inspect Every 3 000 km

FRONT SUSPENSION

- Grip the front brake, squeeze the front suspension to check its motion, check for leaks or damage.
- Replace damaged parts and tighten all bolts and nuts.



REAR SUSPENSION

- Press down the rear of the motorcycle repeatedly to check the performance of the rear suspension
- Check for leaks or damage; tighten all bolts and nuts.



ILLUMINATION AND SIGNAL

Inspect Initial 1 000 km and Every 3 000 km

Inspect the headlight, the left and right turn signal indicator lights, the taillights or the brake lights and the signal lights on the dashboard. If any problem, replace relevant light(s) in time (Refer to page 6-6).

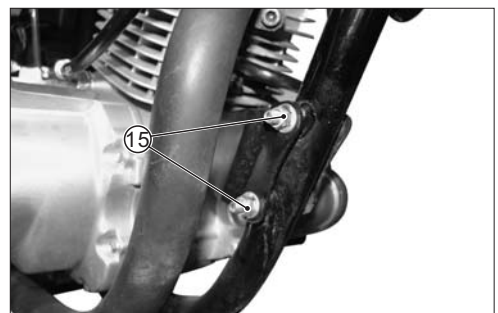
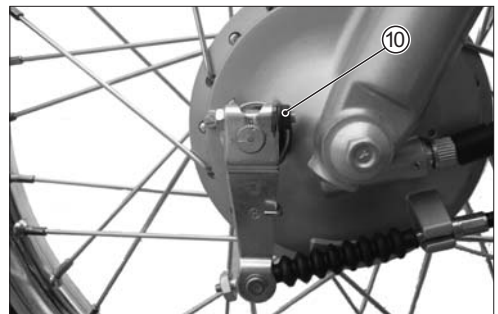
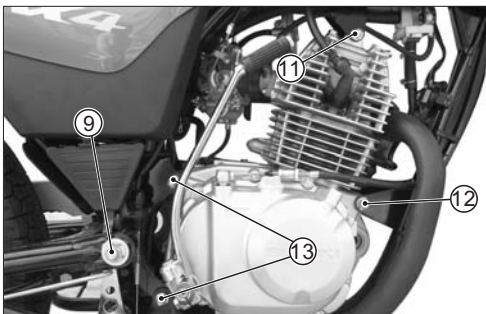
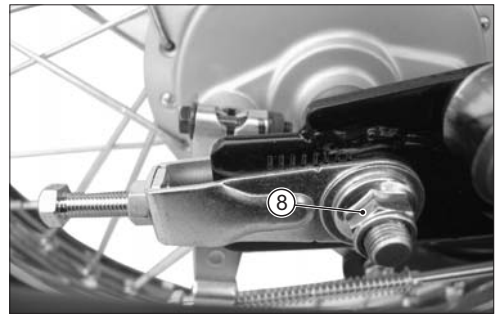
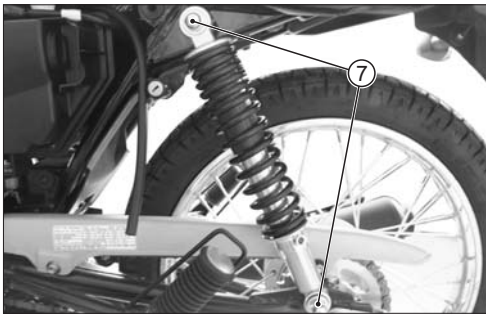
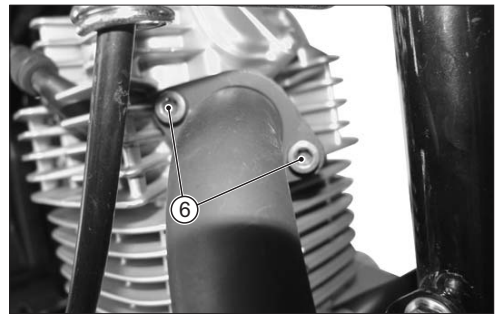
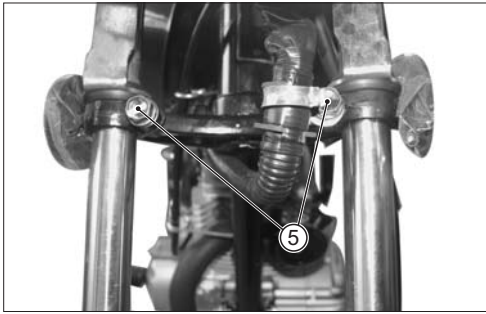
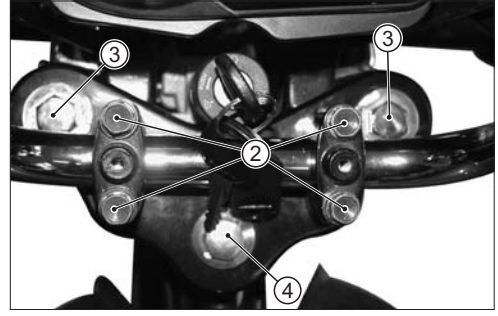
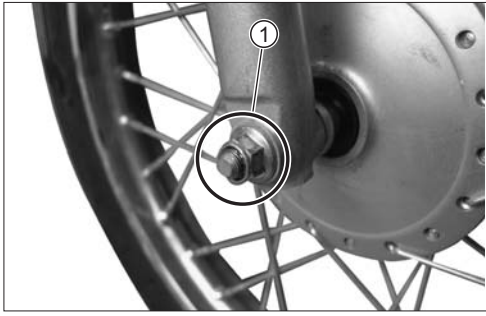
CHASSIS AND ENGINE MOUNTING BOLTS AND NUTS

Inspect Initial 1 000 km and Every 3 000 km

Check the tightening torque of the bolts and nuts for the motorcycle according to the table below:

ITEM		N m	Kg m
1	Front axle nut	36~52	3.6~5.2
2	Handlebar lock-up bolt/nut	12~20	1.2~2.0
3	Clamping bolt of the stem head	35~55	3.5~5.5
4	Steering bolt	60~100	6.0~10.0
5	Stem bolt (clamping bolt of the front absorber)	25~40	2.5~4.0
6	Bolt of the muffler cylinder head	20~24	2.0~2.4
7	Rear shock absorber bolt/nut	22-35	2.2-3.5
8	Rear axle nut	35~55	3.5~5.5
9	Bolt/nut of the rear swing arm shaft	45~70	4.5~7.0
10	Brake cam lever bolt/nut	6-8	0.6-0.8
11	Engine mounting bolt/nut	T	33-39
12		F	33-39
13		R	33-39
14	Bolt/nut of the engine plate	T	22~33
15		F	22~33

PERIODIC MAINTENANCE



COMPRESSION PRESSURE

Inspect Every 6 000 km

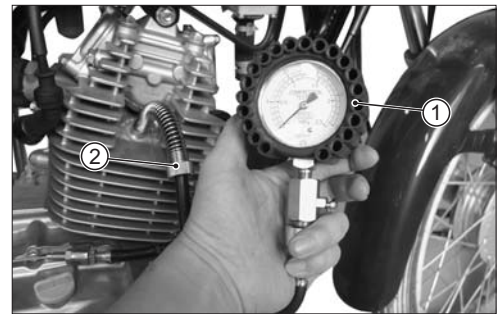
INSPECTION

NOTE:

Before testing the compression pressure of the engine, be sure that the nuts and bolts of the cylinder head are securely tightened with specified torque, and the air valve clearance is correct.

Keep the engine running idle for several minutes before carrying-out the test.

- Remove spark plug.
- Fit the compression gauge ① and adapter ② to the plug hole, taking care to make the connection absolutely tight.
- Twist the throttle grip into wide-open position.
- Crank the engine several times with the starter motor, and read the highest gauge indication as the compression of the cylinder.



09915-64510 : Compression gauge ①

09915-63210 : Adapter ②

Compression pressure

Standard	Limit
10-14kgf/cm ²	8 kgf/cm ²

A low compression pressure may indicate any of the following malfunctions:

- * Excessively worn cylinder wall.
- * Worn piston or piston rings.
- * Piston rings stuck in the grooves.
- * Poor seating contact of valves.
- * Defective cylinder head gasket.

When the compression pressure noted is down to or below the limit indication above, the engine must be disassembled, inspected and repaired as required.

ENGINE

CONTENTS

REMOVING ENGINE PARTS WITH ENGINE UN-REMOVED	3 - 1
ENGINE REMOVAL AND REMOUNTING	3 - 2
CYLINDER HEAD AND VALVE	3 - 6
CYLINDER AND PISTON	3-15
CLUTCH AND GEAR SHIFT MECHANISM	3-19
GENERATOR	3-26
CRANKSHAFT, TRANSMISSION AND KICK START DEVICE	3-29
SECONDARY AIR SYSTEM	3-37

REMOVING ENGINE PARTS WITH ENGINE UN-REMOVED

The following parts can be removed and remounted without removing the engine. Refer to sections about parts removing and remounting.

UPPER PART OF THE ENGINE

Engine sprockets cover	3-6
Cam chain tensioner	3-6
Engine sprocket	3-7

RIGHT SIDE OF ENGINE

Kick starter lever	3-19
Clutch cover	3-19
Clutch	3-19
Oil strainer	3-19
Gear shifting fork shaft	3-24

LIFT SIDE OF ENGINE

Gear lever	3-26
Oil filter	3-26
Generator cover	3-26
Generator rotor	3-26
Generator stator	3-27

ENGINE REMOVAL AND REMOUNTING

ENGINE REMOVAL

Before taking the engine out of the frame, thoroughly clean the engine with a suitable cleaner.

- Unscrew the fixing bolts of the seat first and then Remove the seat.
- Open the lock and Remove the left and right covers.
- Remove the leads of \ominus and terminals of \oplus the battery.

NOTICE

Remove the lead of \ominus terminal first.

- Put the fuel cock onto position “●”.
- Remove the fuel hose.

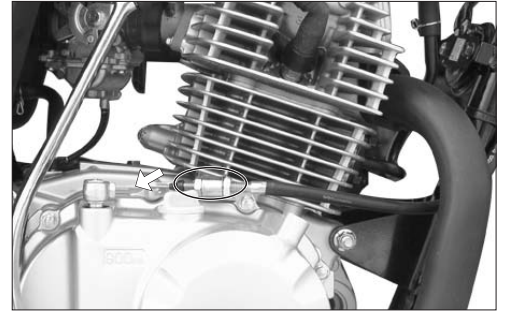
- Pull out the plug-terminals of the leads of the generator and the gear indicator.

- Unscrew the mounting bolts of the fuel tank, and disconnect the plug connector of the fuel gauge and take off the fuel tank.

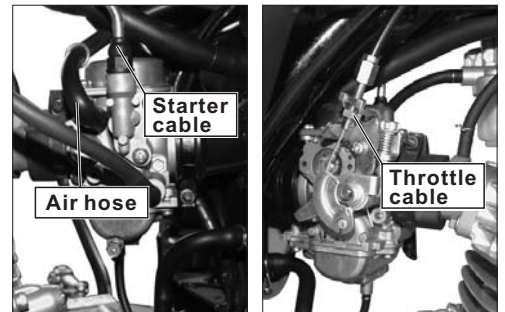


ENGINE

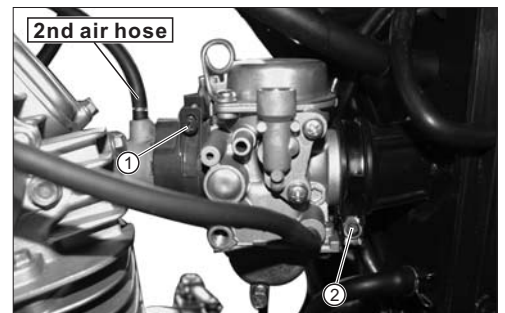
- Unscrew the fastening bolt of the clutch cable and the lock nut of the regulator. And then take off the clutch cable.



- Remove the starter cable and the air hose.
- Remove the throttle cable.



- Pull out the secondary air hose.
- Loosen the bolts ① and ② of the carburetor clip.



- Remove the engine sprocket cover.

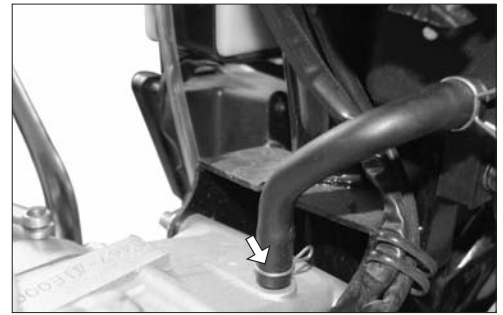


- Remove the pin of the drive chain and drive chain.
- Remove the bolt, circlip and the gear lever.

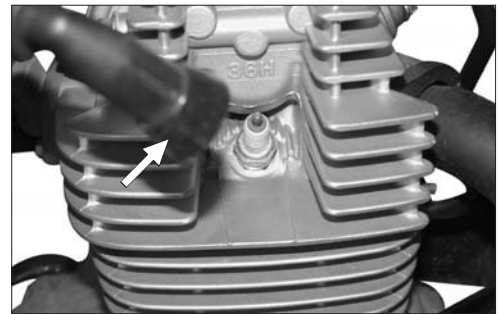


ENGINE

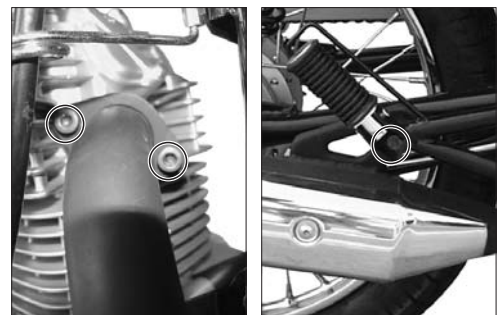
- Pull out the air hose of the engine crankcase.



- Pull out the spark plug cap.



- Remove the bolt of muffler and the muffler.



- Pull out the secondary air hose.



- Unscrew the mounting bolts and nuts of the engine.
- Take down the engine from the right side of the chassis.
- Unscrew the bolt of the engine and Remove the plate of the engine.

NOTE:

The engine must be taken out from the right side of the chassis.



ENGINE REMOUNTING

The mounting of the engine may follow the steps opposite the Removing steps.

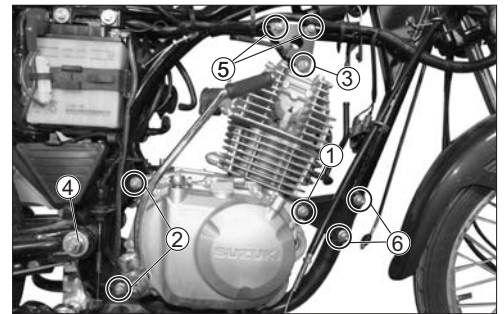
- Pre-fix the plate of the engine before inserting the mounting bolt.

NOTE:

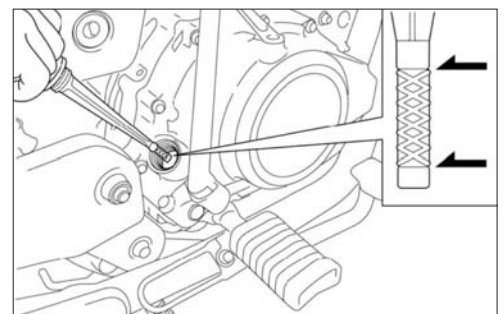
If Remove this mounting nut. Replace a new one, and tightened till the specified torques.

The tightening torques of the mounting bolts:

Mounting bolt (front) ①	33-39 N m
Mounting bolt (rear) ②	33-39 N m
Mounting bolt (top) ③	33-39 N m
Bolt of the rear swing arm shaft ④	45-70 N m
Overhang bolt (top) ⑤	22-33N m
Overhang bolt (front) ⑥	22-33N m



- Tighten the bolt and nut of the muffler.
- After an overhaul of the engine, fill 1.1L engine oil of grade SAE 10W-40, SF or SG into the crankcase.
- Start the engine and make it run at the idle for couple seconds.
- Stop the engine for about one minute, Remove the dip stick or the oil filler cover, and clean it before inserting it again. Take out the dip stick to check the engine oil level. If the engine oil level is lower than the lower limit, fill some engine oil till it reaches the upper limit. Remount the dip stick.
- After remounting the engine, inspections should be done for the following parts:
 - * Clutch cable (Refer to page 2-8)
 - * Throttle cable (Refer to page 2-9)
 - * Idle speed (Refer to page 2-8)
 - * Drive chain (Refer to page 2-10)



CYLINDER HEAD AND VALVE

CYLINDER HEAD REMOVAL

- Remove the engine (Refer to page 3-2).
- Drain out the engine oil.
- Remove the bolt of chain tensioner and the tensioner.

- Remove the timing inspection screw plug of valve and the screw plug of the generator rotor.

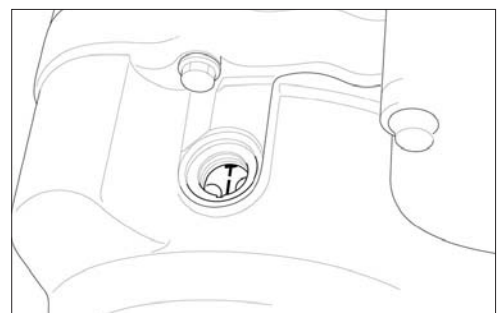
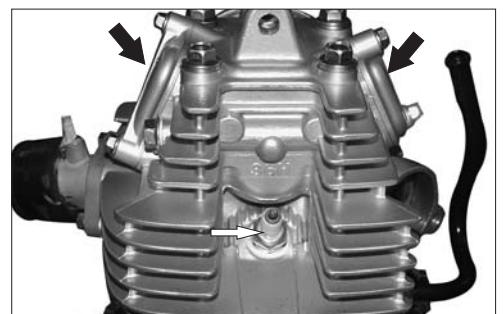
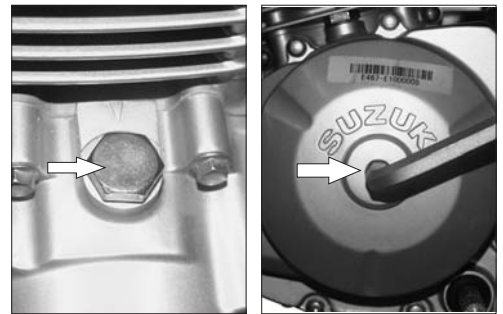
- Remove the bolts of the engine sprocket cover and the sprocket cover.

- Remove the access hole covers of the inlet valve and the exhaust valve as well as the spark plug.

- Raise the piston to the TDC (Refer to page 2-5).

NOTE:

When take down the cylinder head cover, the piston must locate at the TDC of the compressions stroke.

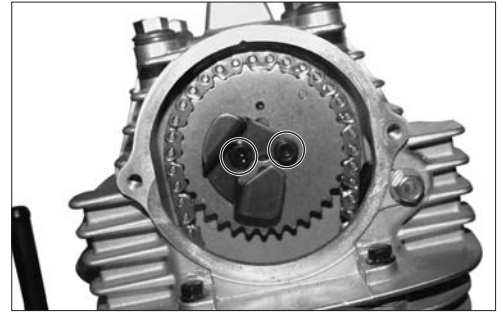


ENGINE

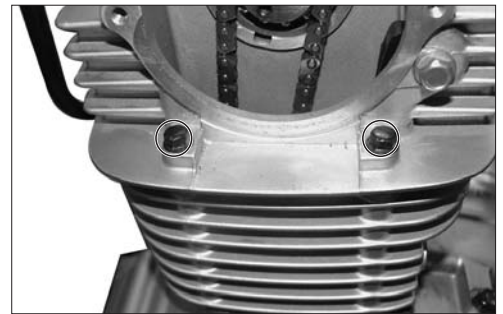
- Remove the bolts of engine sprocket and the fender.
- Remove the engine sprocket.

NOTICE

Do not make sprocket, chain and bolts drop into the crankcase.



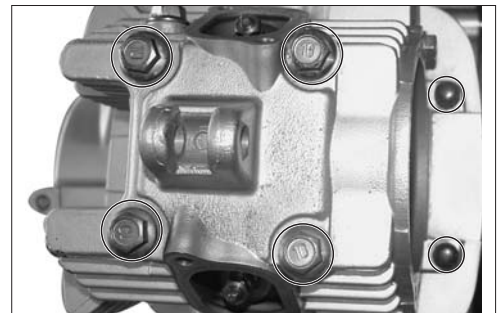
- Loosen the bolts of the sides of the cylinder head.



- Unscrew the bolts of the cylinder head and of the sides of the cylinder head.

NOTE:

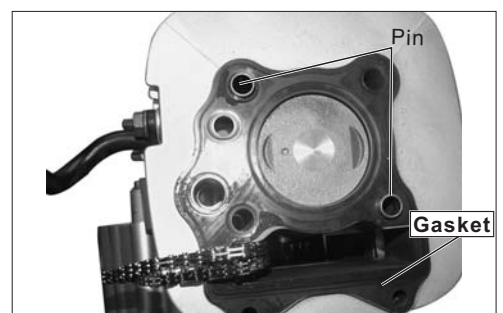
When unscrew the bolts of the cylinder head, the bolts should be diagonally loosened for two or three times.



- Remove the cylinder head.



- Remove the positioning pin and the gasket.



CYLINDER HEAD DISASSEMBLY

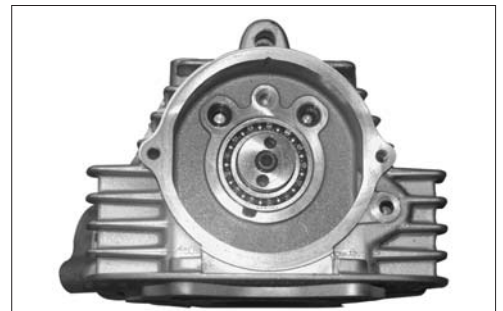
- Remove the bolt of the cam chain guide and the cam chain guide.



- Remove the camshaft, bolt of the swing arm shaft, and Remove the positioning plate.



- Pull out the camshaft, rocker arm shaft and then Remove the arm valve rocker.



- Remove the valve spring with specified tools.

TOOL 11F14-018 : Valve spring knocked-down tool



- Loosen the valve detacher and Remove the following parts:
 Spring seat
 Internal and external valve springs
 Spring retainers
 Inlet valve and exhaust valve
 Valve oil seals .



NOTE:

In order to make the mounting correct, all Removed parts should be marked.

- Remove the carbon deposit in the combustion chamber.

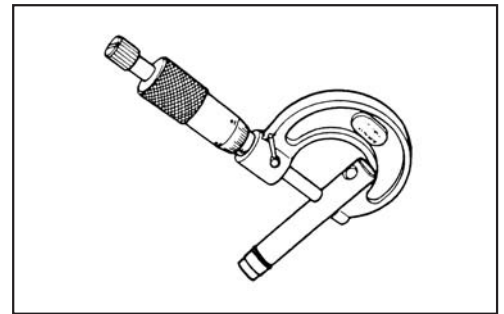


CYLINDER HEAD INSPECTION SWING ARM SHAFT

- Measure the outer diameter of the swing arm shaft.

Standard	9.981~9.990mm
----------	---------------

 09900-20205 : Micrometer (0-25mm)

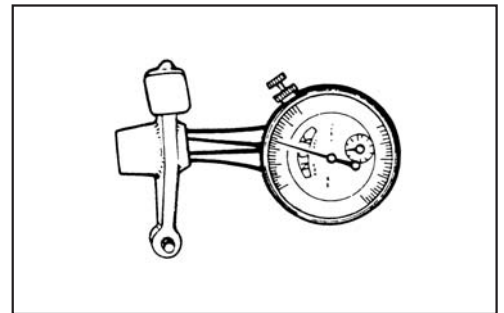


SWING ARM

- Measure the inner diameter of the swing arm, and inspect the wear situation of the swing arm contact surface with the cam.

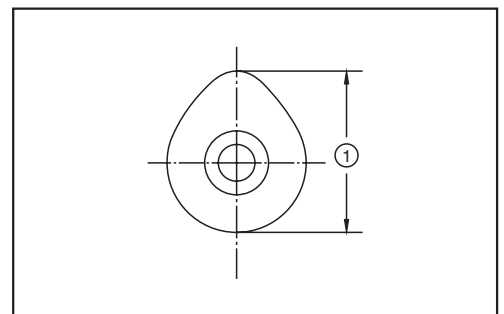
Standard	10.003~10.018mm
----------	-----------------

 09900-20605: Internal micrometer



CAMSHAFT

- If the engine has abnormal sound, shaking or insufficient output power, should inspect the cam wear situation and the camshaft run-out.
- The wear of the camshaft always results in the poor operation of the inlet valve and the exhaust valve and further declined engine power. The wear loss of the camshaft is determined by the heights ① of the inlet cam and the exhaust cam. If the wear losses of the cams exceed the limit values, please replace the camshaft.



Height ① (limit)	Inlet cam	27.54mm
	Exhaust cam	27.35mm

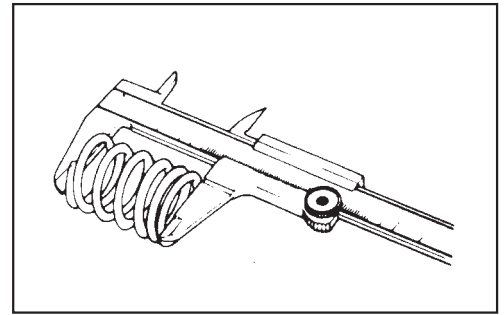
 09900-20202: Micrometer (25-50mm)

VALVE SPRING

- Measure the free lengths of the valve springs.

Service limit	IN	34.20 mm
	EX	34.20 mm


 **09900-20201: Slide caliper (150mm)**



CYLINDER HEAD

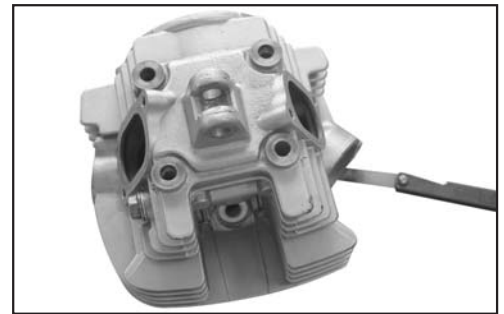
- Inspect whether the spark plug hole and the valve base have scratches.
- Inspect the cylinder head with a thickness gauge to see whether it has deformed.

Service limit	0.05 mm
---------------	---------

 **09900-20803: Thickness gauge**

NOTE:

Do not damage the gasket plane.



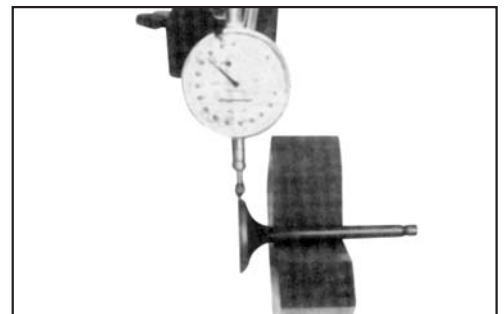
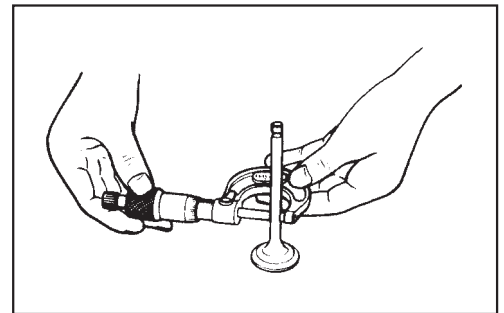
VALVES

- Inspect whether the valves suffer from bending, ablation, drag marks or abnormal abrasion.
- Measure the outer diameters of the valves.

Standard	IN	4.975-4.990mm
	EX	4.955-4.970mm

 **09900-20205 : Micrometer (0-25mm)**

- As shown in the right picture, support valves with a V-shaped block and measure its run-out with a dial indicator. If the measured value exceeds the limit value, the valves should be replaced.

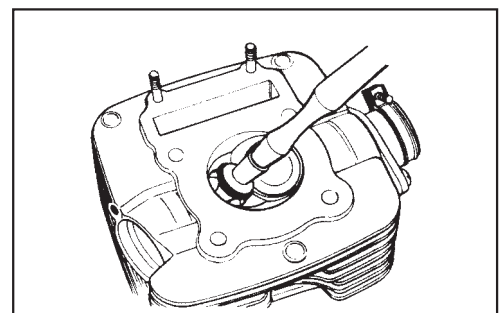


 **09900-20701: Magnetic stand**
09900-20606: Dial indicator
09900-21304: V-shaped block

Service limit	0.05 mm
---------------	---------

INSPECTION OF THE VALVE SEAT

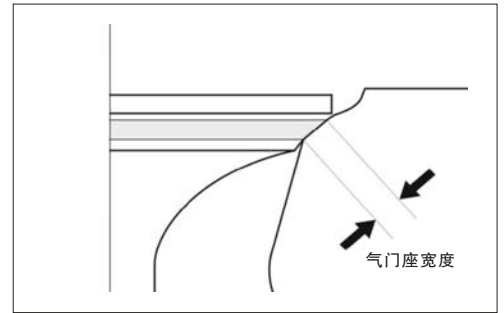
- Clean valve seat thoroughly to remove the carbon deposit.
- Apply gently a coat of Prussian blue onto the valve seats.
- Grind valves with a rubber stick or other tools.



- Remove valves to measure the widths of their seat.

Standard	0.9-1.1mm
-----------------	------------------

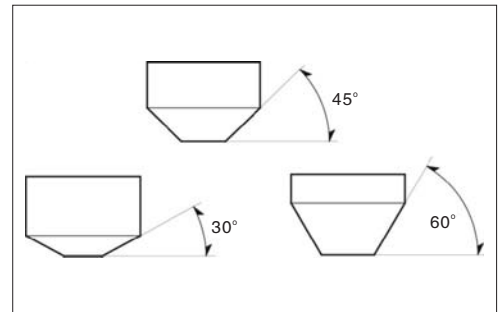
- If the width of valve seat is not in the specified range, the valve seat must be adjusted.



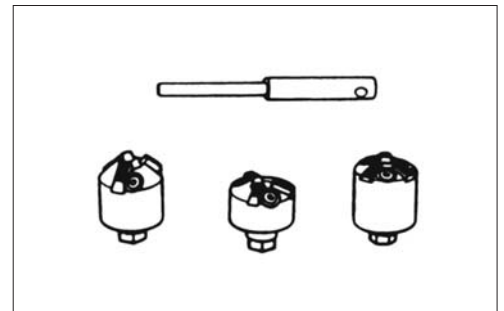
VALVE SEAT SERVICING

The inlet and exhaust valve seat should be machined into four different angles (the contact surface of valve seat should be cut into 45° angle).

	INTAKE SINDE		EXHAUST SINDE
45°	N-122	45°	N-122
	N116		N-120
30°	N126	15°	N-121
60°	N111		



- TOOL**
- 09916-20610 : Valve seat cutter (N121)
 - 09916-20620 : Valve seat cutter (N122)
 - 09916-20630 : Valve seat cutter (N126)
 - 09916-24311 : Solid pilot (N-100-5.0)
 - 09916-21110 : Valve seat cutter set



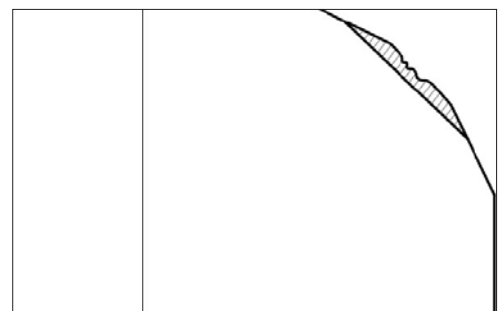
NOTE:

After cutting each time, the contact surfaces of the valve seats must be inspected.

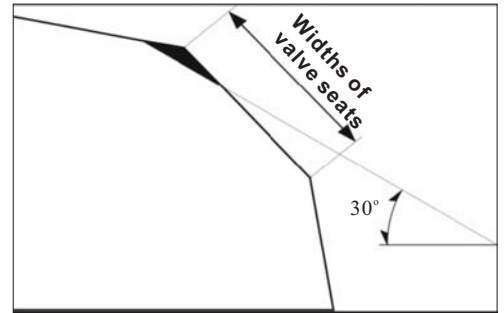
- Grind the uneven or irregular surface with 45° tooling.

NOTE:

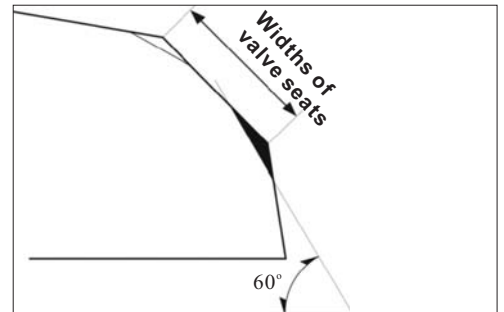
Finish the air valve seat surface with 45° tooling after the valve is replaced.



- Grind the top surface of the original valve seat by 1/4 of its width with 30° tooling.

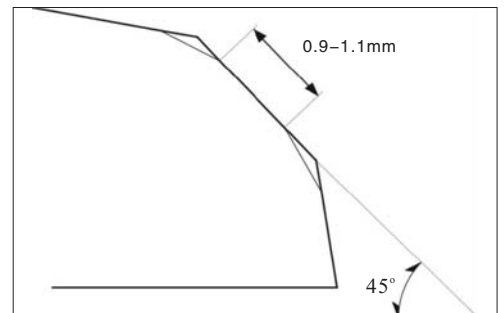


- Grind the bottom of the original valve seat by 1/4 of its width with 60° tooling.



- Process the valve seat surface to standard height with 45° tooling.
- Make sure all pitting and irregular surfaces have been cut. If necessary, adjust it again.

Standard	0.9 ~ 1.1mm
-----------------	--------------------

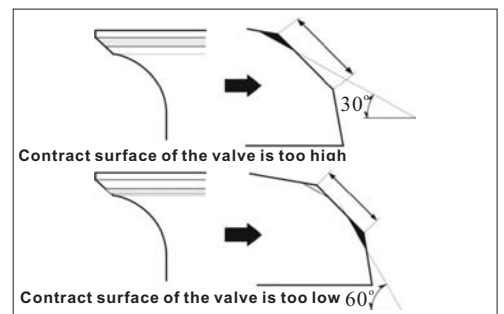


- Apply a thin coat of Prussian blue onto the valve seat.
- Press the valve onto the valve seat and make it rotate for couple times. After that, take out the valve and observe the contract surface of the valve seat. There should be clear traces on the contract surface.

NOTE:

The position of the valve seat has affect on the contract surface of the valve, which is of great significance for good sealing.

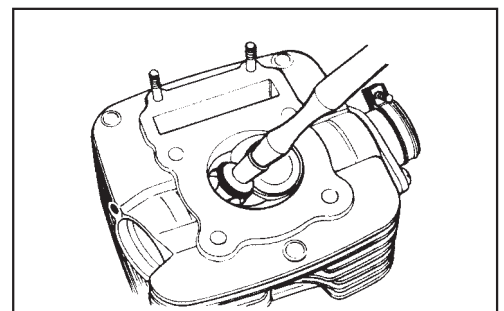
- If the contract surface of the valve is too high, cut it lower with a 30° angle milling cutter.
- If the contract surface of the valve is too low, adjust it with a 60° angle milling cutter.
- Cut the valve seat to the standard width with a 45° angle milling cutter.



- After cutting the valve seat, apply an abrasive coat onto the valve surface, and gently grind the valve. After grinding, clean all left abrasive of the cylinder head and the valve. Inspect the contact surface of the valve seat again.

NOTICE

Too big grinding force will possibly result in deformation or damage to the valve seat. Please change the working angle of the grinding tool frequently, in order to avoid uneven grinding of the valve seat. If the abrasive enters into the space between the valve stem and the valve guide pipe, it will possibly result in damage



CYLINDER HEAD ASSEMBLY

- Clean the cylinder head thoroughly with a cleaning liquid and blow all passages with compressed air.
- Mount a new valve oil seal.
- Lubricate all valves with molybdenum oil solution.
- Insert the valves into air guide pipes and mount spring washers, springs and spring bases for the valves.

 **99000-25140: Molybdenum oil solution**

NOTE:

When a valve spring is mounted, the seal ring side should face the combustion chamber. In order to avoid oil seal damage, the valve oil seal should be mounted while the valve is rotating slowly.

- Mount a valve lock clamp.

 **11F14-018 : Valve spring knocked-down tool**

- Mount a swing arm and a swing arm shaft for the valve.

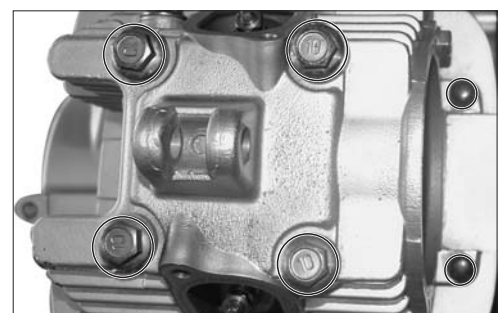
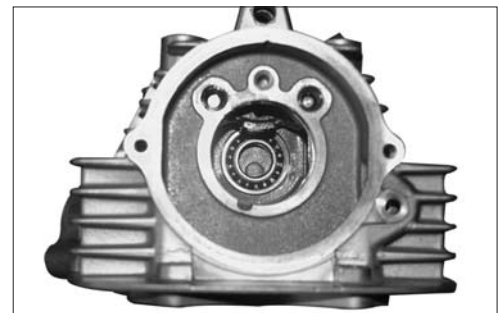
NOTE:

During mounting, do remember to mount the corrugated gasket of the inner side of the swing arm. When the swing arm shaft is mounted, the end near the oil passage hole of the swing arm should face inward.

- Mount the camshaft and firmly lock the baffle bolt.
- Mount the timing chain guide rod.

- Mount the cylinder head.
- Mount the bolts of the cylinder head and that of the side of the cylinder head, and tighten them with the specified torques.

 **Bolts of the cylinder head: 23-27N m**
Bolts of the side of the cylinder head: 8-12N m



ENGINE

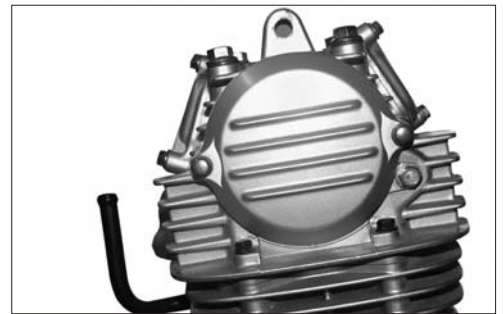
- Mount the timing chain and the sprocket and make the timing marks aligned.
- Apply a little thread lock super onto the bolt of timing sprocket and tighten the timing sprocket bolt with the specified torque.

 **Timing sprocket bolt: 3-6 N m**

 **99000-32030: Apply thread lock super "1303"**

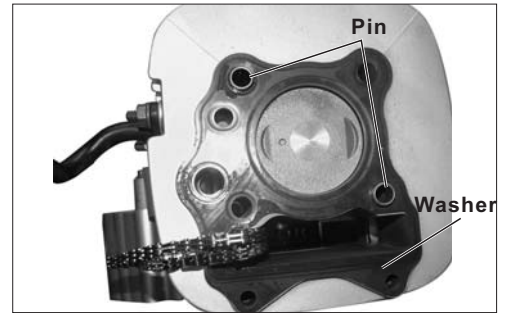
- Mount the timing sprocket cover and its bolts.
- Mount the timing access hole plug.

- Adjust the tensioner with screwdriver.
- Mount the chain tensioner and tighten its bolt.
- Mount the engine (Refer to page 3-6).



CYLINDER AND PISTON CYLINDER DISASSEMBLY

- Remove the cylinder head (see 3-6 Page).
- Remove the washer and the pin.
- Remove the cylinder .



- Remove the guide rod and the second air hose.



CYLINDER INSPECTION

- Remove the residual gasket of the cylinder surface.
- Inspect the plainness of the cylinder with a ruler and a thickness gauge

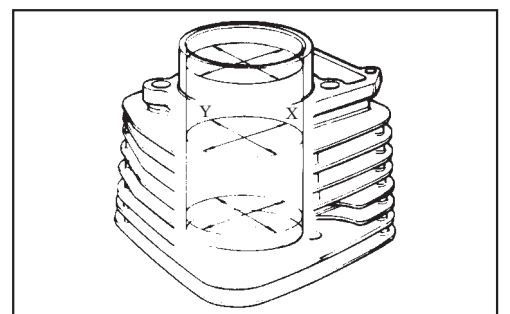
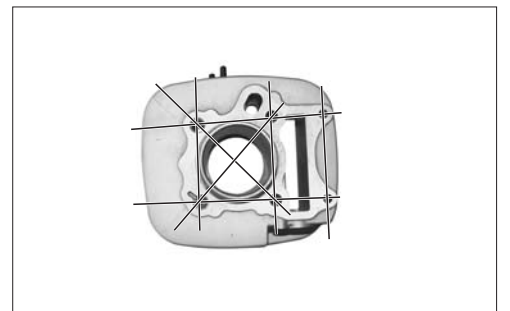
Service limit	0.05mm
----------------------	---------------

TOOL 09900-20803: Thickness gauge

- Inspect whether the inner part of the cylinder is worn or damaged.
- Measure the inner diameter of the cylinder along directions X and Y respectively. Three horizontal planes vertical to the axis should be selected for measurement. Using the maximum value as reference when judging whether the cylinder is worn.

Servicing limit	51.135mm
------------------------	-----------------

TOOL 09900-20508 : Cylinder gauge set



DISASSEMBLY AND INSPECTION OF THE PISTON DISASSEMBLY

NOTE:

Block the crankshaft plane with a piece of clean cloth lest the piston pin or other parts drop into the crankcase.

- Remove piston pin retainer with pliers.
- Remove piston pin and piston.



- Remove the piston ring.

NOTICE

Be careful not to damage the piston ring during disassembly.



- Remove the carbon in the piston ring slot with the old piston ring.



INSPECTION

- Push the piston ring into the slot, measure the clearance between the piston ring and the ring slot.

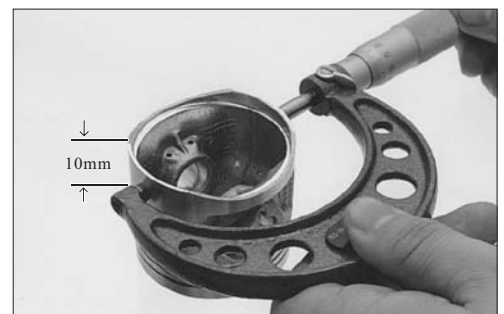
Piston ring	Servicing limit
1st	0.12mm
2nd	0.12mm



TOOL 09900-20803: Thickness gauge

- Check for damage or wearing of the piston.
- Measure the piston O.D. at 15mm along the vertical direction of the piston pin.

Servicing limit	50.840mm
-----------------	----------



TOOL 09900-20202 : Micrometer (25~50mm)

- Measure the hole inner diameter of the piston pin.

Servicing limit	14.038mm
-----------------	----------

- Measure the outer diameter of the piston pin.

Servicing limit	13.976mm
-----------------	----------

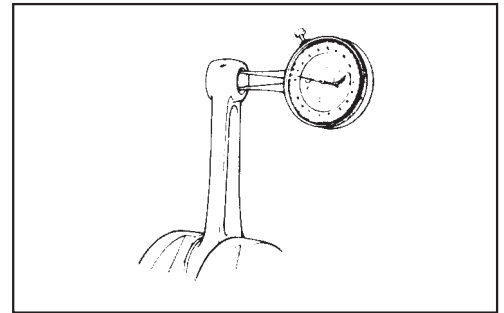


TOOL 09900-20605 : Dial calipers
09900-20205 : Micrometer (0~25mm)

- Measure the inner diameter of the smaller end of connecting rod.

Standard	14.006~14.024
-----------------	----------------------

TOOL 09900-20605 : Dial calipers



- Put the piston ring horizontally on the cylinder bottom to measure the opening clearance.

Piston ring	Servicing limit
1st	0.5mm
2nd	0.5mm

TOOL 09900-20803: Thickness gauge

NOTE:

When using the piston head to jack the piston rings into the cylinder, make sure they enter evenly.

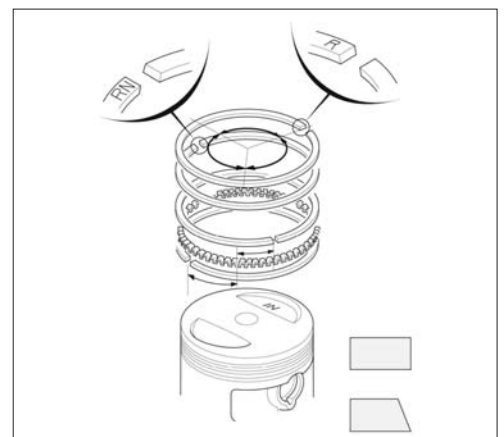
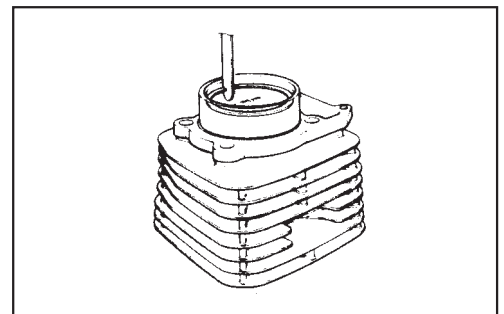
PISTON RING ASSEMBLY

- Clean the piston ring slot completely and assemble the piston ring.

NOTE:


Apply Molybdenum oil solution on all piston rings. Avoid damaging the piston and piston ring during assembly. Align the mark on the piston ring upward during assembly, pay attention to distinguish the marks of the top ring and the second ring.

- Keep the opening of each ring cross at 120°, do not leave the oil ring opening on the same line.
- The piston ring must be able to rotate freely in the ring slot after installation.



PISTON AND CYLINDER REASSEMBLY

- Remove the residual gasket of the surface of the crankcase and apply proper 1215 sealant at the adjoining plane.
- Install the positioning pin and a new gasket.

 99000-31110 : Apply sealant three bond “1215”

NOTE:

Do not damage the gasket surface.
Do not make impurities drop into the crankcase.

- Apply the proper Molybdenum oil solution to the outer surface of the piston pin.
- Block the crank plane with a piece of clean cloth to avoid the retainer ring drops into the crankcase. Make the “IN” sign of the piston face the inlet end. Install the piston pin and the retainer ring, with the sign facing the exhaust end.

 99000-25140: Molybdenum oil solution

NOTE:

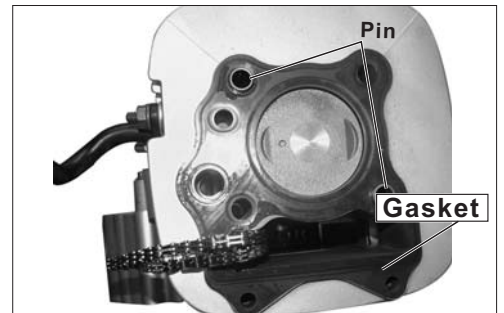
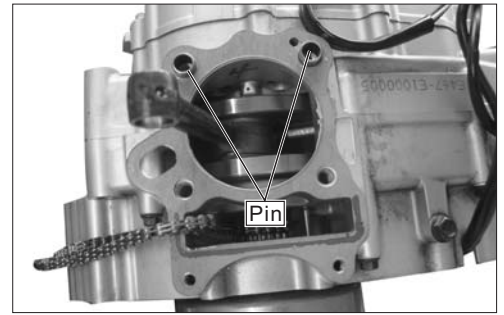
Replace a new retainer ring.
Do not make the opening of the piston's retainer ring opposite that of the piston pin hole.

- Apply proper amount of Molybdenum oil solution on the internal surface of the cylinder, the piston rings, the ring slot and the piston.
- Press the piston rings to mount the piston into the cylinder.
- Install the gasket, the positioning pin, the guide plate and the secondary air hose.

NOTE:

Do not damage the piston rings during installation.

- Install the cylinder head (Refer to page 3-13).



CLUTCH AND GEAR SHAFT MECHANISM

CLUTCH COVER DISASSEMBLY

- Drain out the engine oil completely.
- Loosen the adjusting bolts ① and ② of the clutch.
- Make the cable and the release swing arm separate.
- Unscrew the screw ③ and Remove the kick starter.



- Remove the bolts and the clutch cover then.

NOTE:

Diagonally loosen the bolts by two or three steps.



- Remove the gasket and the positioning pin.



DISASSEMBLY AND REASSEMBLY OF THE CLUTCH ARM

- Remove the cotter pin, the shaft and the clutch release swing arm.
- Inspect carefully to see whether the clutch release swing arm is bent or worn.
- Reassemblyl the clutch release swing arm onto the clutch cover in opposite order of Removing order.

NOTE:

Install the clutch arm at the position shown in the picture.

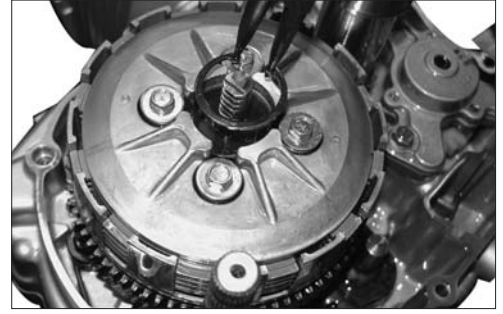


CLUTCH DISASSEMBLY

- Put the tooth stopper between the primary gear and the drive gear for fixing the crank. Remove the balancer retaining nut, the gasket, the balancer and the bush.
- Remove the oil strainer.



- Remove the push rod spring of the clutch.

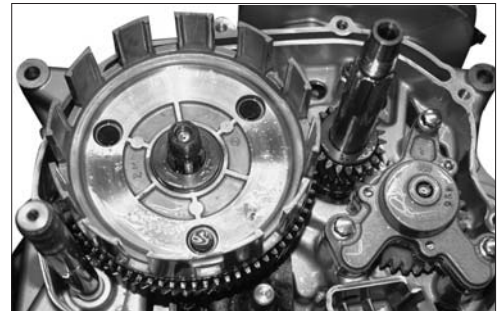


- Remove the clutch push rod and bearing and its lock nut and two gaskets then.

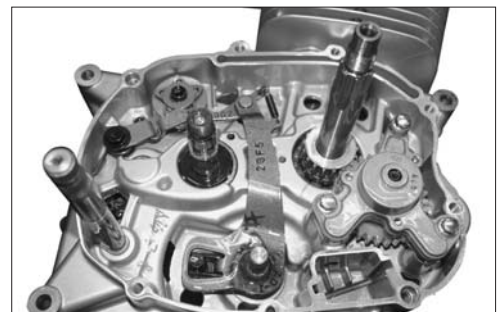
 **11F14-014 : Tooth stopper**



- Remove the clutch drive plates and driven plates.



- Remove the primary drive gear and the clutch hubs.



DISASSEMBLY AND INSPECTION CLUTCH

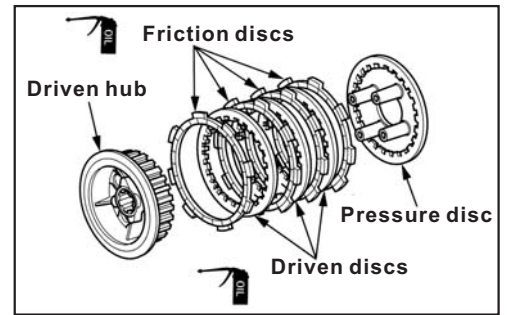
- Fix the clutch exterior with a rotor clamps first, and loosen and Remove the push plate bolts, the push plate and the spring in order.

 **11F14-001 : Rotor holder**



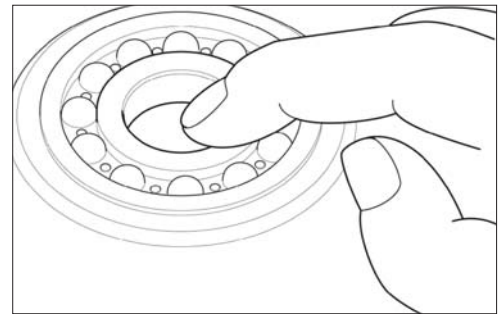
ENGINE

- Remove the clutch driven hub, friction discs and driven discs.
- Remove the pressure disc.



INSPECTION

- Inspect whether the bearing is damaged.
- Turn the bearing cone with a finger.
- Replace the bearing if necessary.



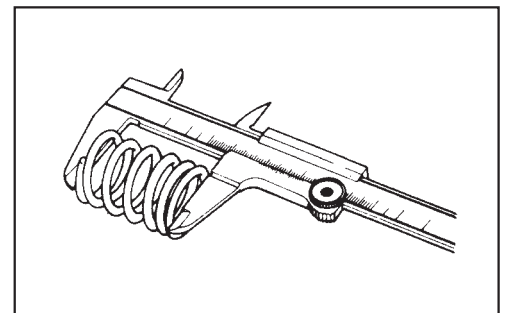
- Measure the free lengths of the clutch springs

Service limit	35.28mm
----------------------	----------------

 **09900-20101: slide caliper (150mm)**

NOTE:

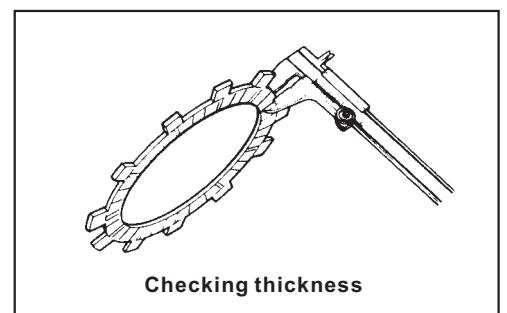
If one or more clutch springs exceed the use limit, the whole set springs must be replaced.



- If the drive friction discs of the clutch have scratches or discoloration phenomenon, they should be replaced.
- Measure the thicknesses of the friction discs.

Service limit	2.60mm
----------------------	---------------

 **09900-20101: slide caliper (150mm)**



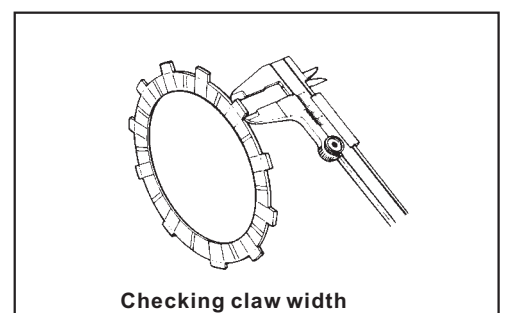
- Measure the thicknesses of the drive friction discs.

Service limit	11.00mm
----------------------	----------------

 **09900-20101: slide caliper (150mm)**

NOTE:


If the drive friction discs exceed the use limit, the whole set friction discs must be replaced.

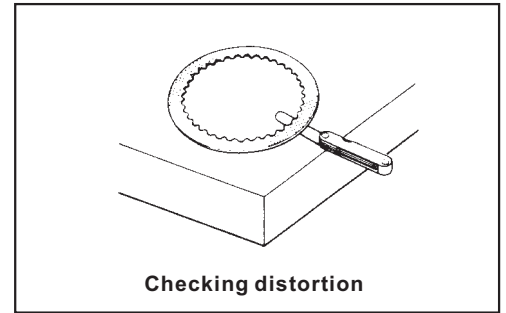


ENGINE

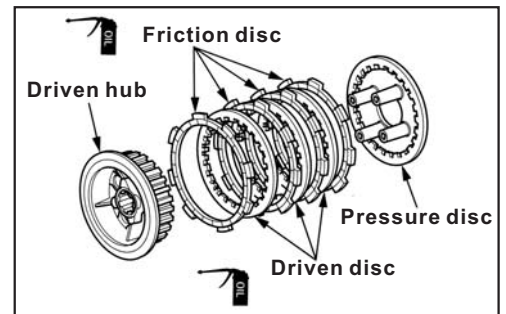
- Measure each driven disc for distortion with a thickness gauge. Replace driven disc which exceed the limit.

Service limit	0.10mm
----------------------	---------------

 **09900-20803 : Thickness gauge**



- Reassemble the drive friction disc and the driven friction disc.



REASSEMBLY

- Reassembly the balancer and the clutch.

NOTE:

Before reassembly the two clutch nuts, inspect whether the two gaskets have been correctly installed.

- Use special tools to fix the primary drive gear and the driving gear. Install the balancer and the clutch nuts with the specified torques.

 **11F14-014 : Tooth stopper**

 **Specified torque: 40~60 N m**

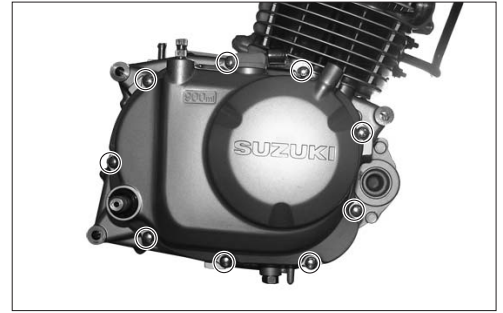
- Install the push rod onto the clutch and install the spring then.
- Install the positioning pin and new gaskets.



- Install the clutch cover.
- Install the bolts and tighten them with the specified torques.

 Specified torque: 8~12 N·m

NOTE:
Diagonally tighten the bolts by two or three steps.



- Install the kick starter and tighten the bolt.



- Connect the clutch cable with the release swing arm.
- Install the clutch cable and tighten the bolt.
- Fill engine oil into the crankcase till the marker line of the upper limit is reached.
- Inspect and adjust the clutch cable free play (Refer to page

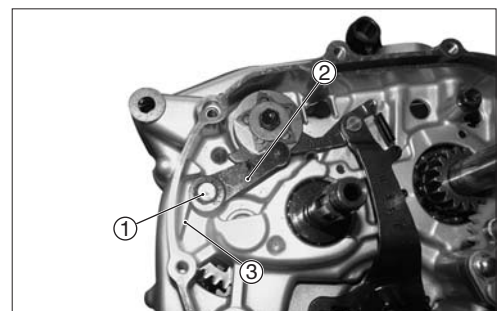


GEAR SHAFT MECHANISM DISASSEMBLY

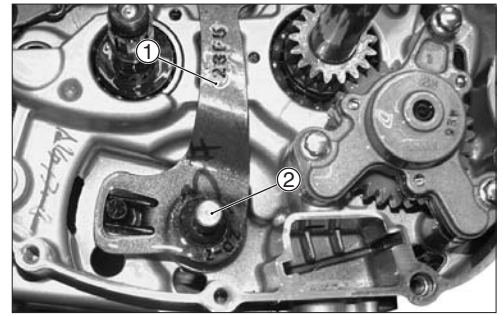
- Remove the bolts, the retainer rings and the gear shift pedal.
- Remove the clutch (Refer to page 3-19).



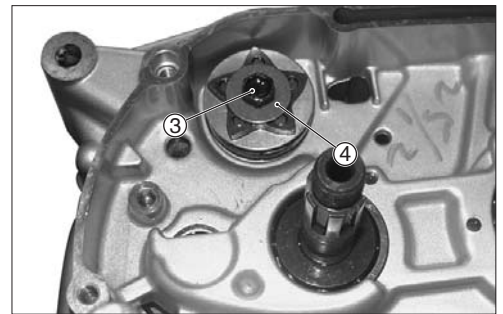
- Remove the bolt ①, the clamp arm ② and the return spring ③.



- Remove the gearshift arm ① and the gearshift shaft ②.

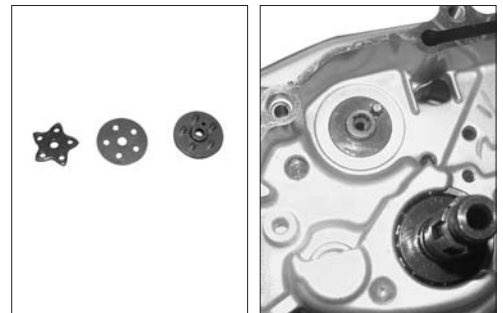


- Remove the bolt ③ and the gasket ④.



- Remove the five-star plate, the gaskets and the gearshift hub.

NOTE: Remove the gearshift pin of the shift drum and put it into the parts box.



INSPECTION

- Inspect whether the gearshift shaft is bent, worn or damaged.
- Inspect whether the gearshift arm spring and the return spring are damaged or fatigued.



REASSEMBLY

- Mount the positioning pin into the hole of the shift drum.
- Install the gearshift hub, the gaskets and the five-star wheel.
- Install the gaskets and the bolts and tighten the bolts with the specified torques.



Specified torque: 8~12 N·m



99000-32050 : Apply thread lock super "1342"



ENGINE

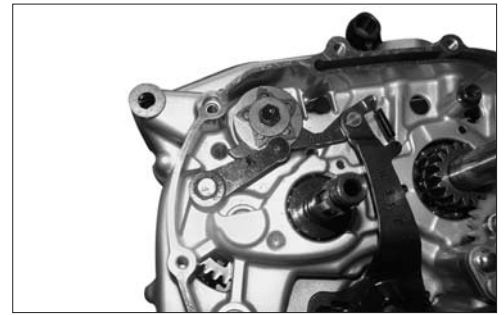
- Install the gearshift shaft and the gearshift arm spring.
- Install the spring of gearshift shaft swing arm, the gaskets, the swing arm and the bolts and tighten the bolts with the specified torques.



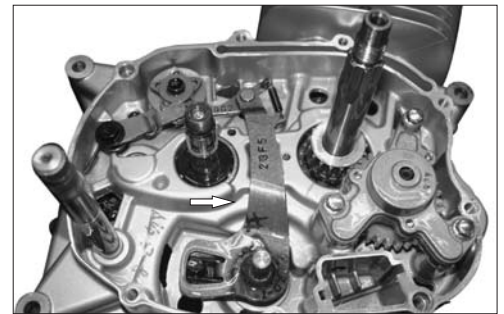
Specified torque: 15~23 N·m



99000-32050 : Apply thread lock super "1342"



- Install the detaching cam of the clutch.



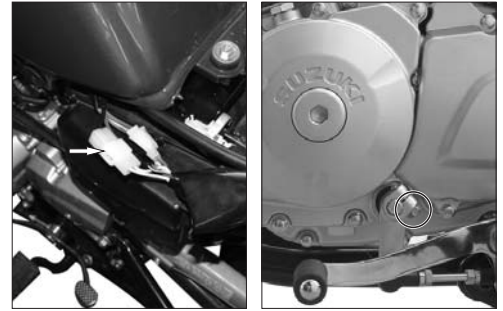
- Install the clutch subassembly (Refer to page 3-22).
- Install the gear lever.



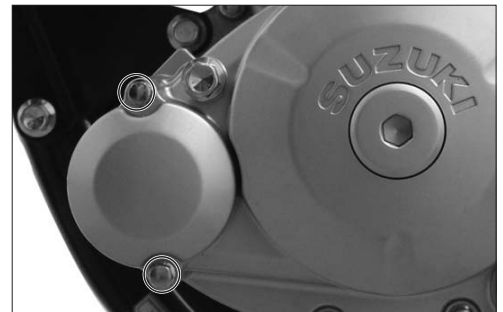
GENERATOR

DISASSEMBLY OF THE GENERATOR COVER

- Remove the generator connector, the induction coil connector and the gear switch connector.
- Remove the bolts of gearshift pedal lever and the gearshift pedal lever then.



- Remove the engine sprocket cover.
- Remove the bolts, the oil filter cover and the oil filter element in order.



- Remove the bolts of generator cover and the generator cover then.

NOTE:

Loosen the bolts of generator cover in a diagonal order.



- Remove the gaskets and the positioning pin.

NOTICE

The generator cover (mounted with a stator) and the rotor is magnetized. So Remove them carefully.



ROTOR

- Fix the rotor with the generator rotor fixture and Remove the bolts and gaskets of the rotor then.

 **11F14-001 : Rotor holder**

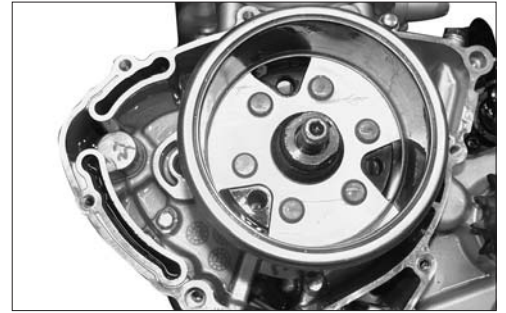


- Remove the generator rotor and keys.

 **11F14-005 : Rotor separator**

NOTE:

Be careful when Remove the keys; avoid damaging the key slot and the crank.



REASSEMBLY

- Install the keys into the crank key slot.

NOTE:

Be careful when installing the keys to make sure the key slot and the crank are not damaged.



- Make the key slot of the rotor align with the key of the crank to install the rotor.
- Install the bolt of the rotor of the generator and tighten it with the specified torque.

 **Bolts for the rotor : 50~70N m**

 **11F14-001 : Rotor holder**

 **99000-32050 : Apply thread lock super "1342"**



STATOR

DISASSEMBLY

- Remove the bolts, cable guide, the stator and the induction coil.



REASSEMBLY

- Install the stator and the cable guide, apply the proper amount of anti-loosening glue of the screws and finally tighten the screws.
- Install the induction coil, apply proper amount of anti-loosening glue on the screw heads and finally tighten the screws with the specified torque.

 **Bolts for the stator : 8~12N m**

 **99000-32050 : Apply thread lock super "1342"**

REASSEMBLY OF THE GENERATOR COVER

- Install new gaskets and the positioning pin.



- Install the generator cover and tighten the bolts.

NOTE:

Tighten the bolts of generator cover in a diagonal order.



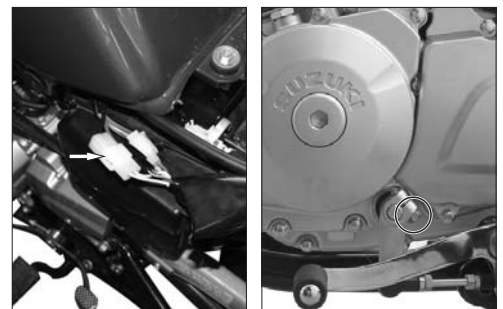
- Install new O-rings into the oil filter element and onto the oil filter cover.



- Install the filter cover and tighten the bolts.



- Connect the generator, the induction oil and the gear select switch connector.
- Install the gear lever and tighten the bolts.



CRANKSHAFT, TRANSMISSION AND KICK STARTER DEVICE

CRANKCASE DISASSEMBLY

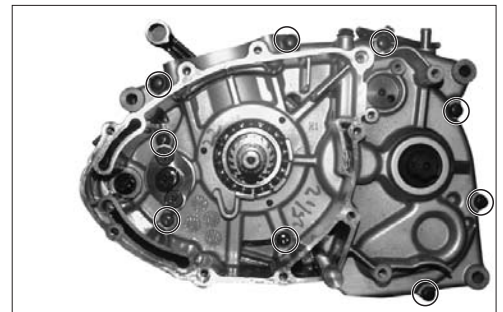
- Remove the cylinder head, the cylinder and the piston (Refer to page 3-6).
- Remove the clutch and the gear system (Refer to page 3-19).
- Remove the generator rotor and stator (Refer to page 3-29).



- Remove the left crankcase bolt.

NOTE:

Diagonally loosen the bolts by two or three steps.



- Remove the oil pump bolts.
- Integrally Remove the oil pump drive gear and the oil pump.



- Put the crankcase at the bottom and separate the left and right parts of the crankcase with special tools.

TOOL 11F14-002 : Crankcase separating tool



NOTICE

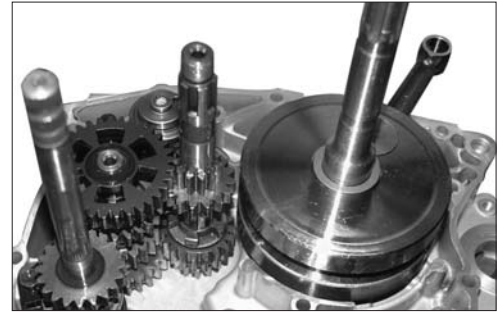
Do not try to prize up the crankcase with a screwdriver.

- Remove the positioning pin.



CRANKSHAFT

- Remove the crank from the crankcase.



INSPECTION

- Measure the gap of the connecting rod big end with a thickness gauge.

Service limit	0.3mm
---------------	-------

TOOL 09900-20803 : Thickness gauge

- The abrasion situation of the connecting rod big end may be estimated by inspecting the run-out situation of the connecting rod small end. This method can also be used for inspecting the degree of wear of other big-end parts.

Service limit	3.0mm
---------------	-------

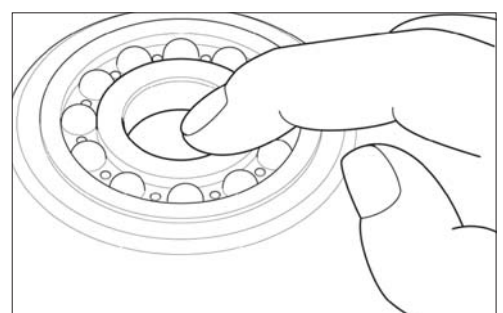
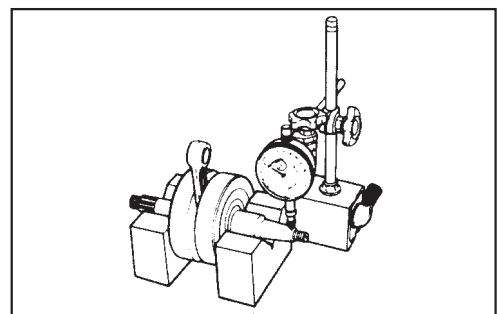
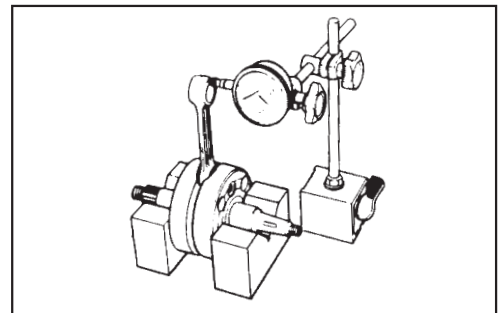
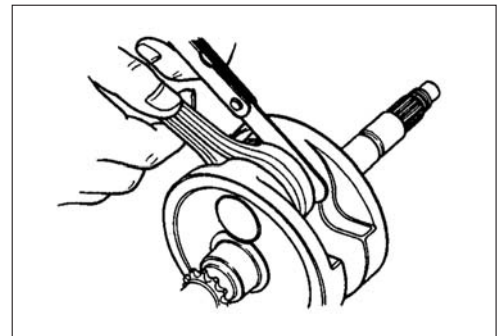
- Put the crank on the V-shaped block and measure its radial run-out with a dial indicator.

Standard	0.05mm
----------	--------

TOOL 09900-20606: dial indicator (1/100)
 09900-20701: magnet stand
 09900-21304: V-shaped block

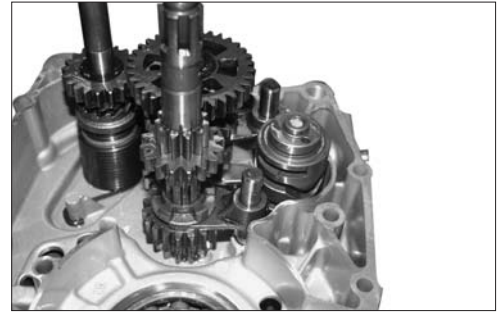
INSPECTION OF THE CRANK BEARING

- Turn the crank bearing cones with a finger.
- The crank bearing should turn smoothly.
- Inspect whether the crank bearing cups turn in the crankcase.
- If the crank bearing cones fail to turn smoothly or the crank bearing cups turn in the crankcase, the crank bearing should be replaced with a new one.

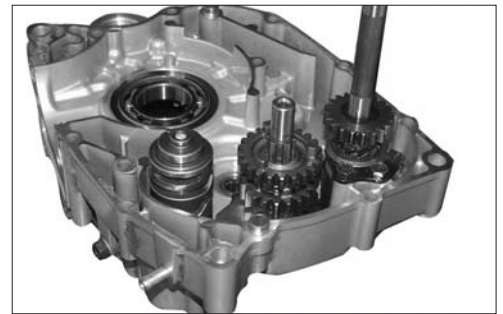


TRANSMISSION DISASSEMBLY

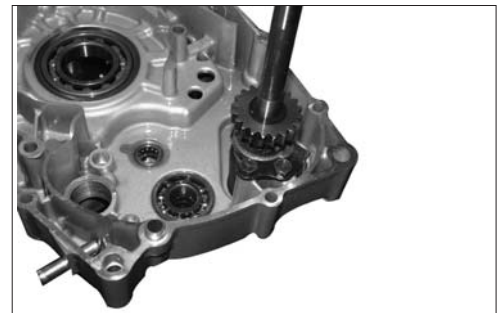
- Remove the shift fork shaft.



- Remove the shift forks.
- Remove the primary shaft, the gear and the secondary shaft first gear.



- Remove the secondary shaft and the shift cam.




INSPECTION

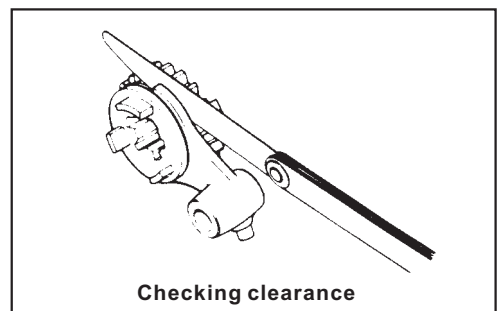
- Inspect the guide slot of the shift cam.
- If the guide slot of the shift cam is damaged, the shift cam should be replaced with a new one.



- Inspect the gaps between the shift forks and the tooth groove. If the gaps exceed the limit value, whether to replace the shift forks or the gear are according to measuring width of the tooth groove and the thicknesses of the shift forks.

Standard	0.10~0.30mm
Service limit	0.50mm

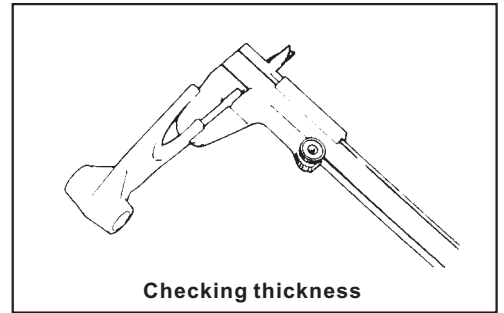
 **09900-20803 : Thickness gauge**



- Measure the thicknesses of the shift forks.

Standard	4.30-4.40mm
-----------------	--------------------

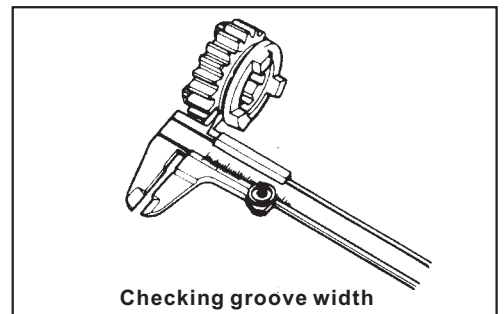
 **09900-20101: Vernier caliper**



- Measure the width of the shift fork groove.

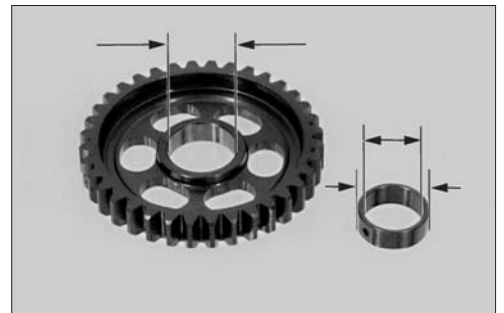
Standard	4.50~4.60mm
-----------------	--------------------

 **09900-20101: Vernier caliper**



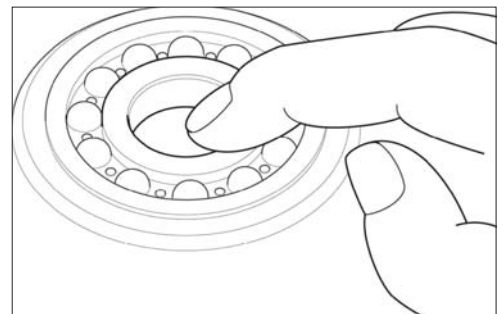
INSPECTION OF THE TRANSMISSION

- Inspect whether the inner surfaces of the bushes and gears as well as the tooth surfaces of the gears have abnormal abrasion or poor lubrication.



REPLACE OF THE TRANSMISSION BEAR

- Turn each bearing with a finger to inspect whether it turns smoothly. Inspect whether the bearing cups turn in the crankcase and, if they do, replacement is necessary.

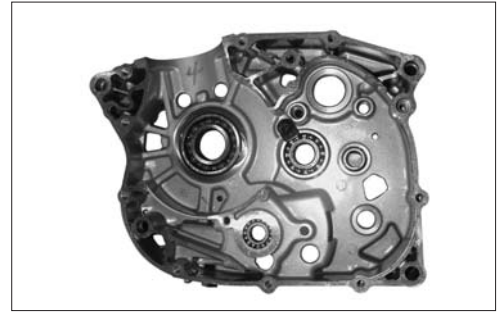


- Remove the secondary shaft oil seal.



- Remove the bolts of primary shaft bearing and fender from the right crankcase first and the bearing then.
- Remove the secondary shaft' needle roller bearing and crank bearing from the right crankcase with dedicated tools.

TOOL 09923-73210 : Bearing puller
09930-30102 : Rotor remove slide shaft



- Remove the secondary shaft bearing from the left crankcase.
- Remove the primary shaft bearing from the left crankcase with dedicated tools.

TOOL 09923-73210 : Bearing puller
09930-30102 : Rotor remove slide shaft



- Install new bearings with the following dedicated tools.

TOOL 09940-53311 : Bearing installer
09924-84510 : Bearing installer
09913-75820 : Bearing installer
09913-80112 : Bearing installer



REASSEMBLY OF THE TRANSMISSION

- Install the transmission gear, the primary shaft and the secondary shaft.
- Inspect whether the transmission gear moves smoothly and turns flexibly on the primary shaft and the secondary shaft.
- Inspect whether the retainer ring is in the groove.

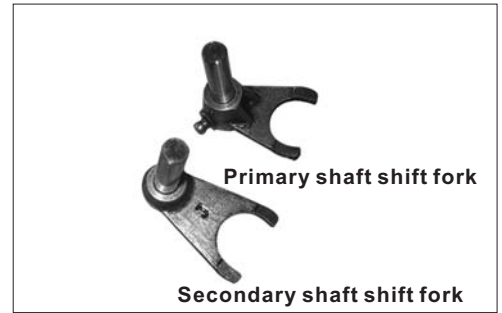


- Install the secondary shaft and the shift cam onto the crankcase.

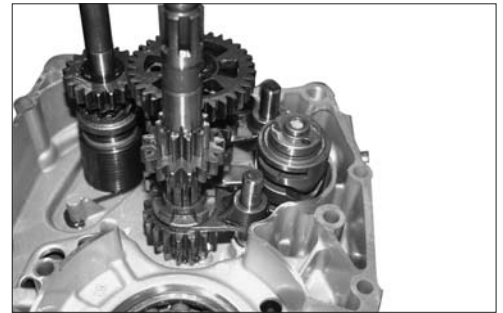


NOTE:

Install the shift forks with the method shown in the right picture.

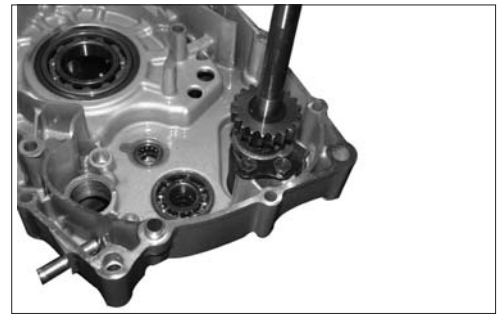


- Install the primary shaft, the shift forks and the shift fork shafts.
- After installation, inspect whether the transmission runs smoothly.



KICK START DEVICE DISASSEMBLY

- Loosen the ratchet positioning plate bolts and Remove the subassembly of the kick start assembly positioning plate and the kick start assembly.



- Disassemble the kick starter in the following order:
 - * Remove the spring bushing, the kick starting spring and a retainer ring.
 - * Remove the other retainer ring and the kick starting gear.
 - * Remove the ratchet and its spring.



REASSEMBLY

- Install the spring bushing, the kick starting spring and a retainer ring.
- Install the ratchet spring and the ratchet.
- Install the kick starting gear and the other retainer ring.

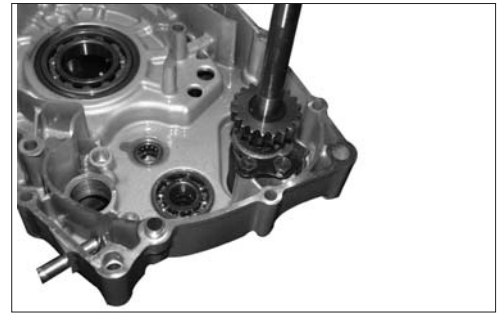


- Install the kick starter onto the left crankcase.

NOTE:

Make the tail end of the kick starting spring hook in the left crankcase hole.

- Grasp the kick starting shaft, turn the ratchet to the left crankcase boss side, install the positioning plate and tighten the bolts.



REASSEMBLY OF THE CRANKCASE

- Install the crank onto the left crankcase with a dedicated tool.

TOOL 09910-32812 : Crankshaft installer

NOTICE

Do not knock the crank into the crankcase with a plastic hammer with a dedicated tool; otherwise the concentricity of the left and right cranks will be affected.



- Install the positioning pin.
- Apply proper amount of sealant onto the adjoining plane of the left crankcase.

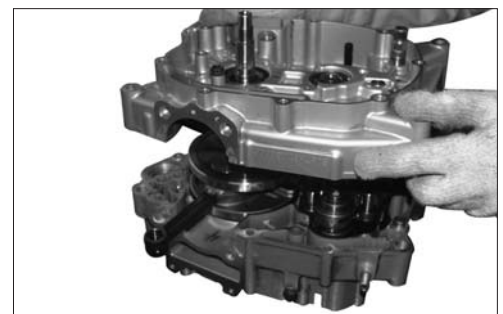
1215 99000-31110 : SUZUKI Bond No.1215



- Install the right crankcase onto the left crankcase.

NOTE:

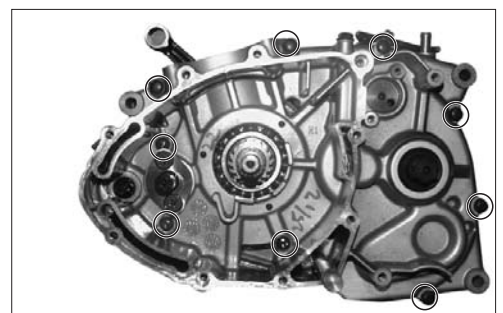
During operation, make sure the gasket has no dislocation.



- Install and tighten the crankcase fastening bolts.

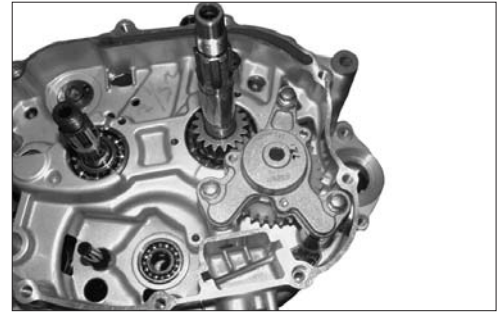
NOTE:

Tighten the bolts by two or three steps in a diagonal order.



ENGINE

- Integrally install the oil pump drive gear and the oil pump and tighten the oil pump bolts.



- Install the drive sprocket and the catch and tighten the bolts.



- Reinstall the clutch component (Refer to page 3-22).
- Reinstall the generator component (Refer to page 3-22).
- Reinstall the cylinder head and the cylinder (Refer to page 3-13 and page 3-18).
- Reinstall the engine (Refer to page 3-5).

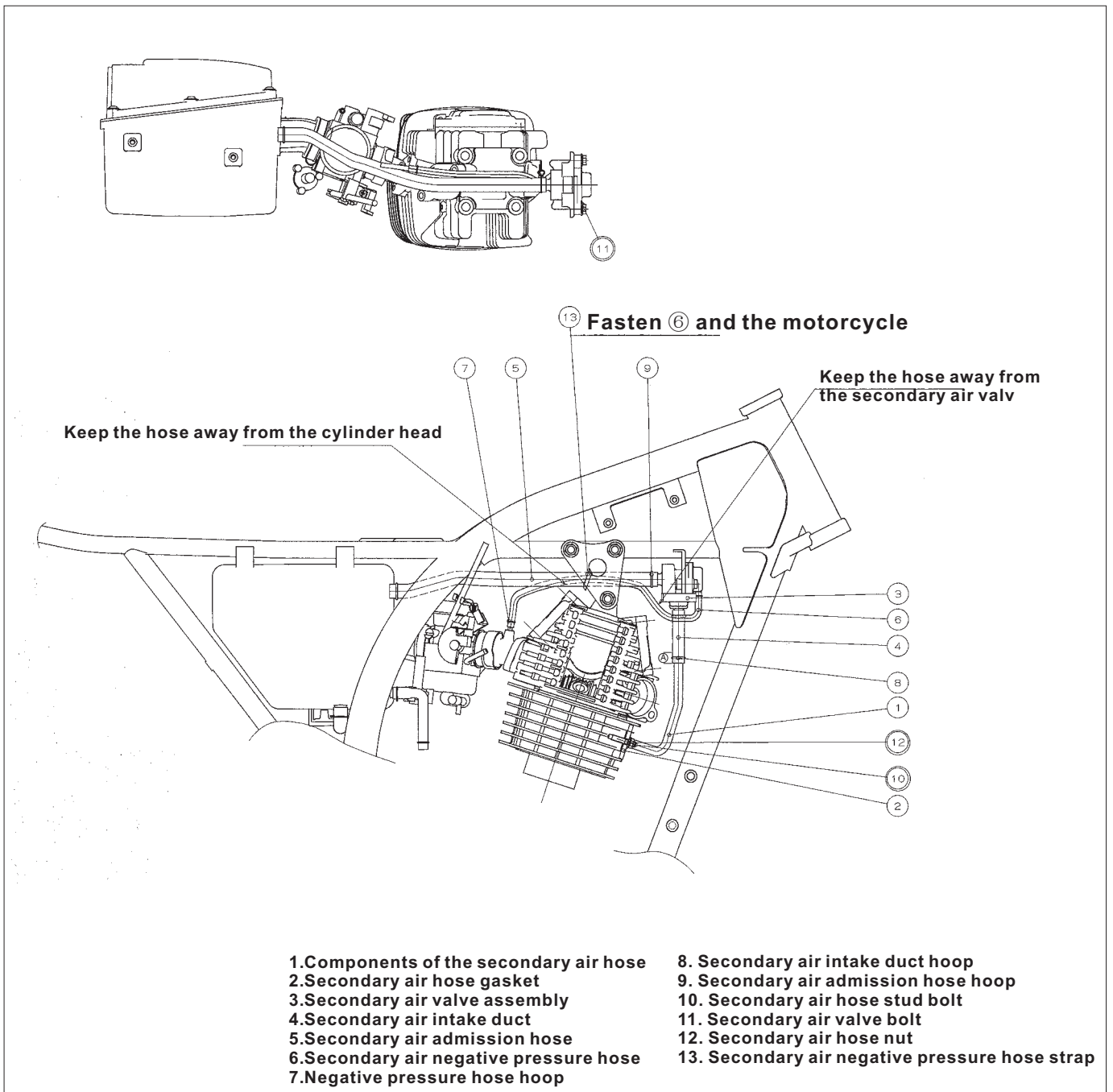
SECONDARY AIR SYSTEM

When the engine is started, fresh air will flow through the air filter, intake pipe, secondary air valve and secondary intake tube to blend with the exhaust gas generated by in-engine combustion for secondary combustion, and the exhaust gas will be expelled through the exhaust pipe.

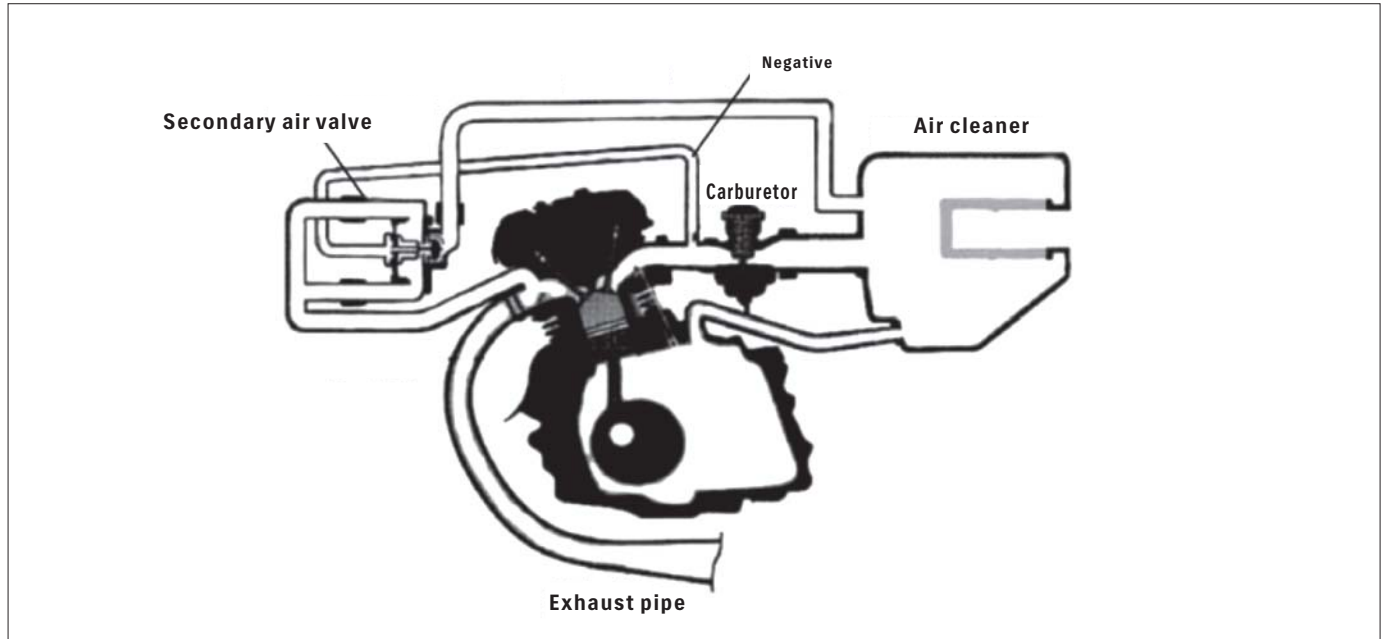
NOTE:

When the secondary air intake duct is inserted into the secondary air hose, avoid distortion of the secondary air intake duct.

The length (A) of the secondary air intake duct in the secondary air hose should be 15-20mm.

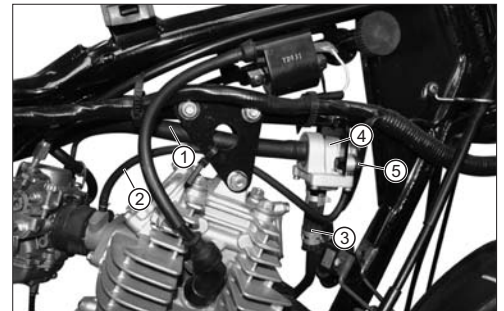


SCHEMATIC PLAN



REMOVAL AND INSPECTION

- Remove the fixing bolt ⑤ of secondary air valve.
- Pull out the admission hose ①, the negative pressure hose ② and the intake duct ③ and Remove the secondary air valve ④.
- Inspect whether the admission hose or the intake duct is damaged, distorted or ruffled and, if it is, it should be replaced with a new one.



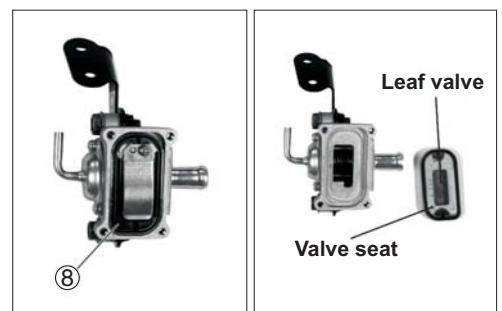
- Remove the four screws ⑥ and take down the leaf valve cover ⑦.



- Take down the leaf valve ⑧ and inspect whether its gasket is damaged and, if it is, replace the leaf valve.
- Inspect whether the leaf valve and the valve base fit each other firmly. Inspect whether the leaf is deformed and, if it is, replace the leaf valve.

REASSEMBLY

- Install the secondary air valve in opposite order of Removeing order.

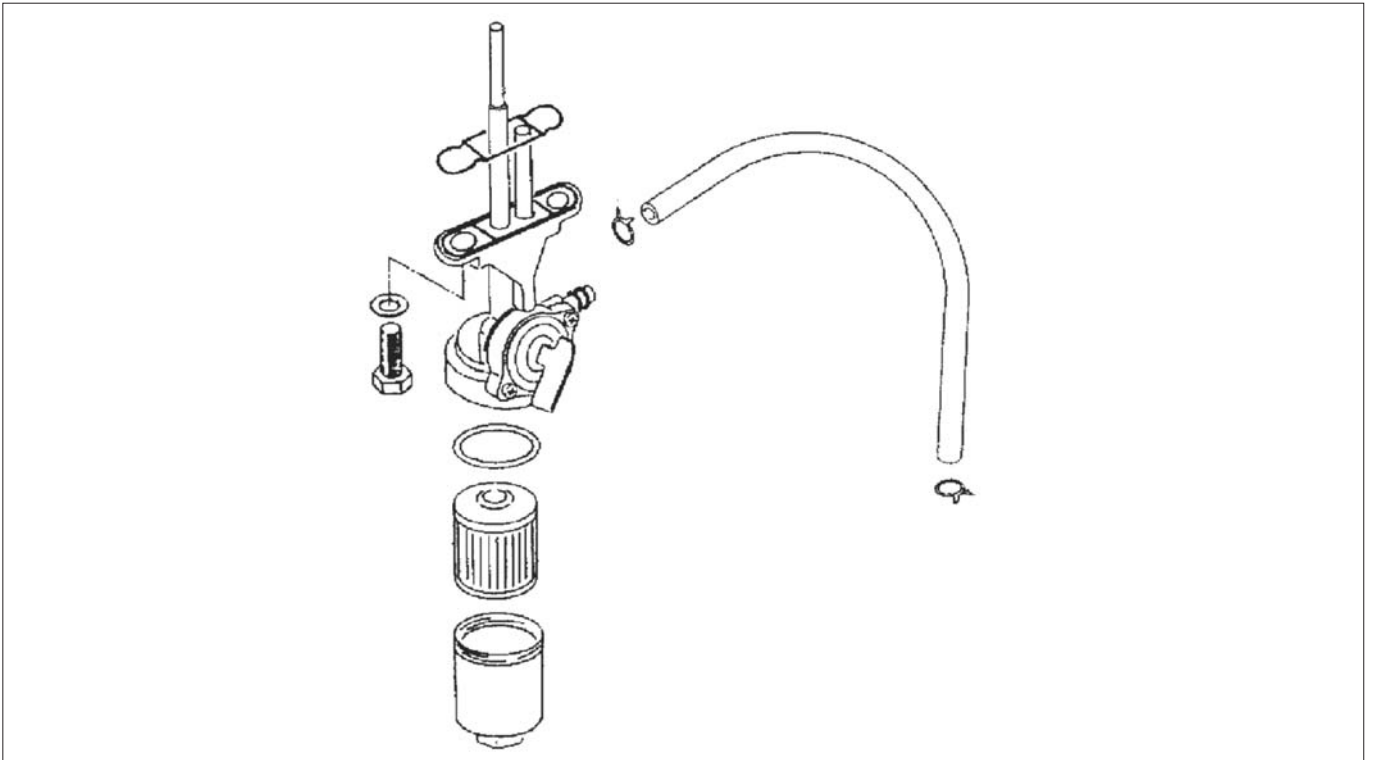


FUEL AND LUBRICATION

CONTENTS

FUEL COCK	4-1
CARBURETOR	4-3
LUBRICATION SYSTEM	4-7

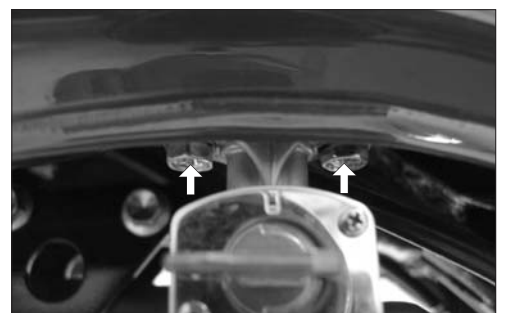
FUEL COCK



DISASSEMBLY

- Turn the fuel cock to position “●” first and Remove the fuel hose from the fuel cock then.

- Put a clean container (an oil-proof type) below the fuel cock first and turn the fuel cock to position “ON” then to drain out the fuel from the fuel tank.
- Unscrew the two bolts of the fuel cock first and Remove the fuel cock.
- Remove the fuel filter and its element.



CLEANING

If the corrosion materials of the fuel tank accumulate in the fuel filter and are not cleaned for a long time, they will hinder the flow of fuel. The dirt on the filter screen may be blown with compressed air.

⚠ WARNING

Gasoline is an inflammable and explosive material and must be operated carefully.

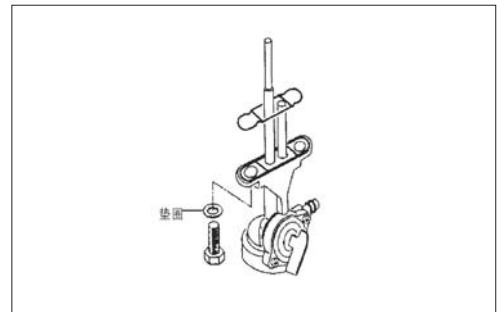
NOTICE

Replace the gasket with a new one to avoid fuel leakage.

Inspect and clean the fuel filter element. If it is damaged or is full of cracks, replace it with a new one. Reinstall the fuel filter.

NOTE:

When the fuel filter is reinstalled, a new O-seal ring should be used.



CARBURETOR

REMOVING OF THE CARBURETOR

⚠ WARNING

Gasoline is a highly inflammable and explosive material under normal temperature and must be operated carefully.

- Remove the left side cover.
- Close the fuel cock and take off the fuel hose from it.
- Remove the carburetor starting excess fuel valve from the carburetor.
- Remove the air hose of carburetor.

- Remove the throttle cable.

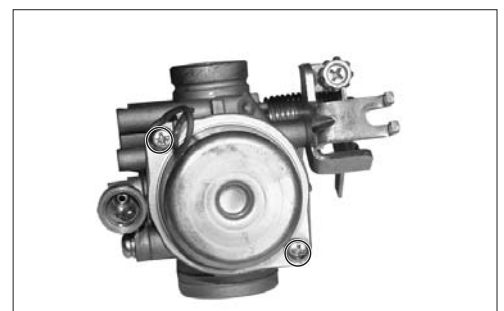
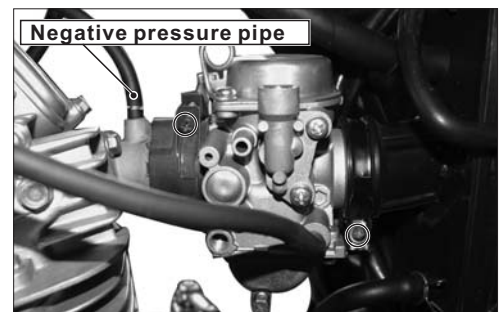
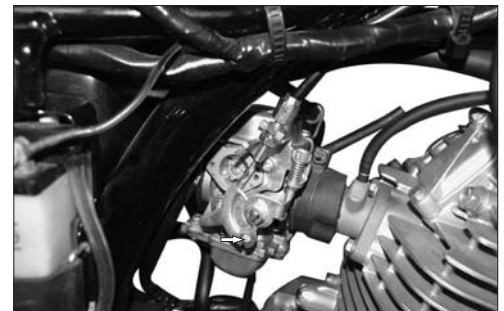
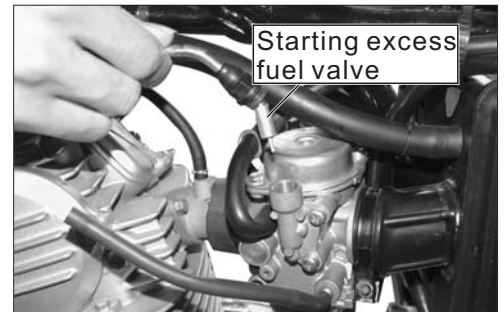
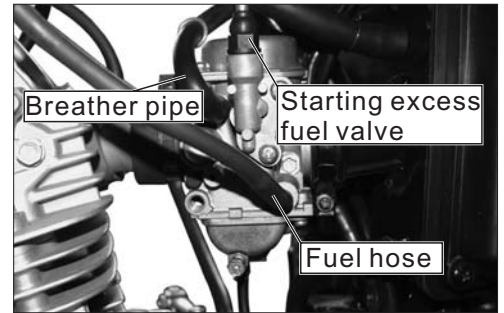
⚠ WARNING

Gasoline is a highly inflammable and explosive material under normal temperature, so please ensure good ventilation condition for the working area and keep the working area apart from fires.

- Loosen the hoops connecting the carburetor and the engine admission hose and the air cleaner.
- Remove the carburetor.

DISASSEMBLY

- Remove the top cover of the carburetor.



- Remove the spring and the plunger.



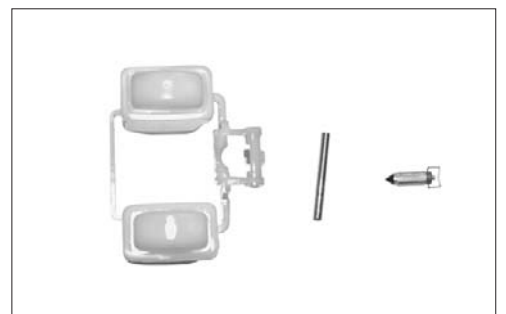
- Remove the screws and the float chamber.



- Take off the fastening screw of the float pin.
- Take off the float pin, the float and the needle valve.



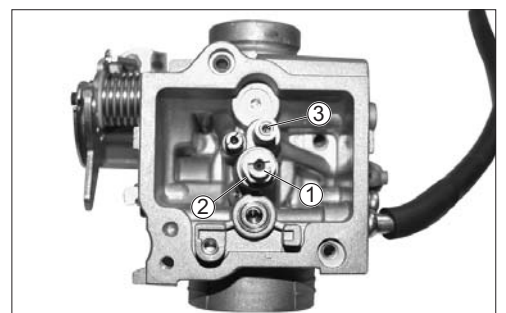
- Inspect whether the needle valve and the float chamber base have scratches, blockage or damage.
- If the needle valve is damaged, it should be replaced with a new one.
- Blow the air vents and the fuel oil way of the carburetor with compressed air.
- Inspect each part to see whether it is worn and, if it is, replace it with a new one.



- Remove the following parts:
 - * Main jet ①;
 - * Main nozzle ②;
 - * Idle jet ③.

NOTE:

When Removing the idle speed screw, screw up it first. Keep in mind the rotating circles. Then unscrew it and take it off gently.



ASSEMBLY

- Reassembly the carburetor in opposite order of Removing order.

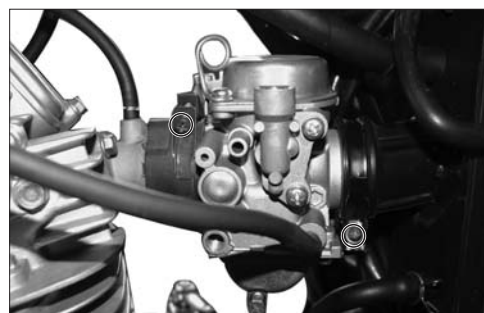
NOTICE

When reinstalling the oil pan, the O-ring should be replaced with a new one.

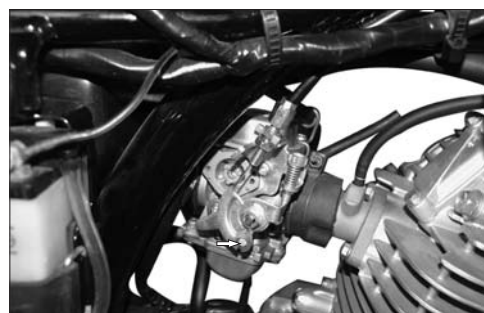


INSTALLATION OF THE CARBURETOR

- Install the carburetor between the engine admission hose and the air cleaner and fix the hoop.



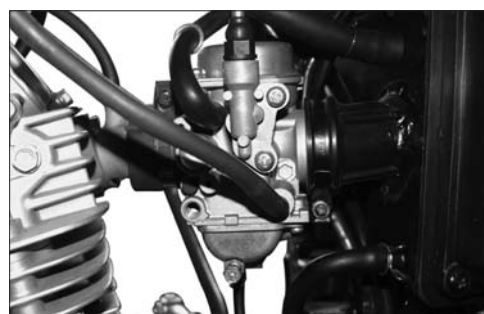
- Connect the throttle cable with the carburetor.



- Install the starting excess fuel valve, the air hose and the fuel hose.

NOTE:

After installation, turn the fuel cock to "ON" position to inspect whether there is a fuel leakage.



- Adjust the free stroke of the throttle grip.
- Adjust the idle speed.



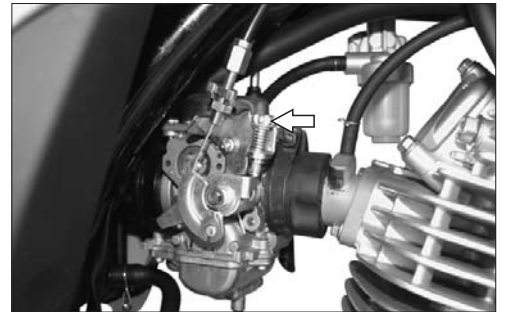
IDLE AIR ADJUSTMENT

⚠ WARNING

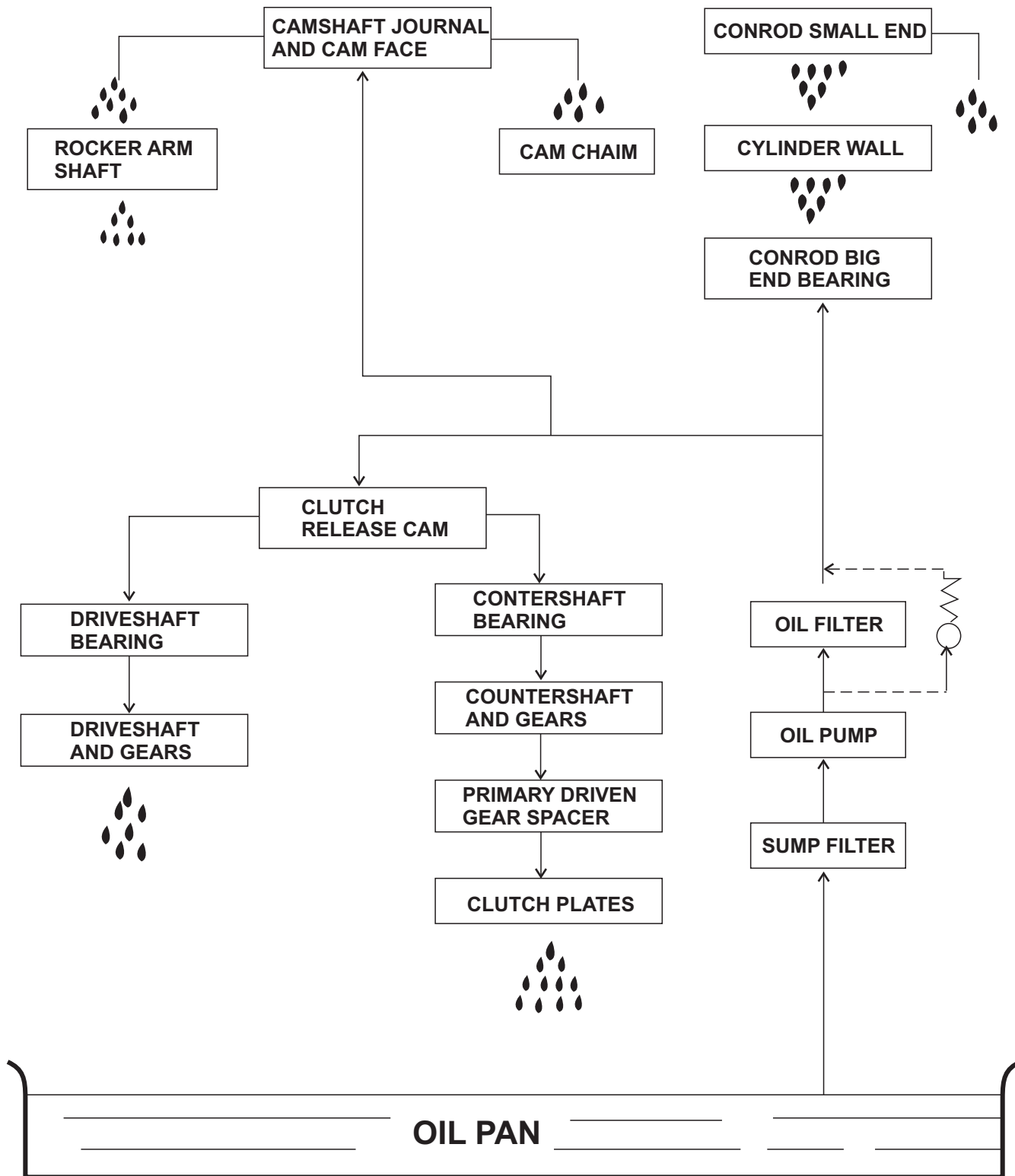
If it is necessary to make the engine run during work, good ventilation condition must be ensured for the working area. Do not make the engine run in a closed space as the gas exhausted by the engine contains CO which will possibly make people lose consciousness or even die. The engine should run at a well ventilated place or a closed place with a waste gas exhaust system.

- Start the engine and make it preheated at the idle speed for couple minutes.
- Adjust the idle speed with the idle speed screw.

Idle r/min	1500 100 r/min
-------------------	-----------------------



LUBRICATION SYSTEM

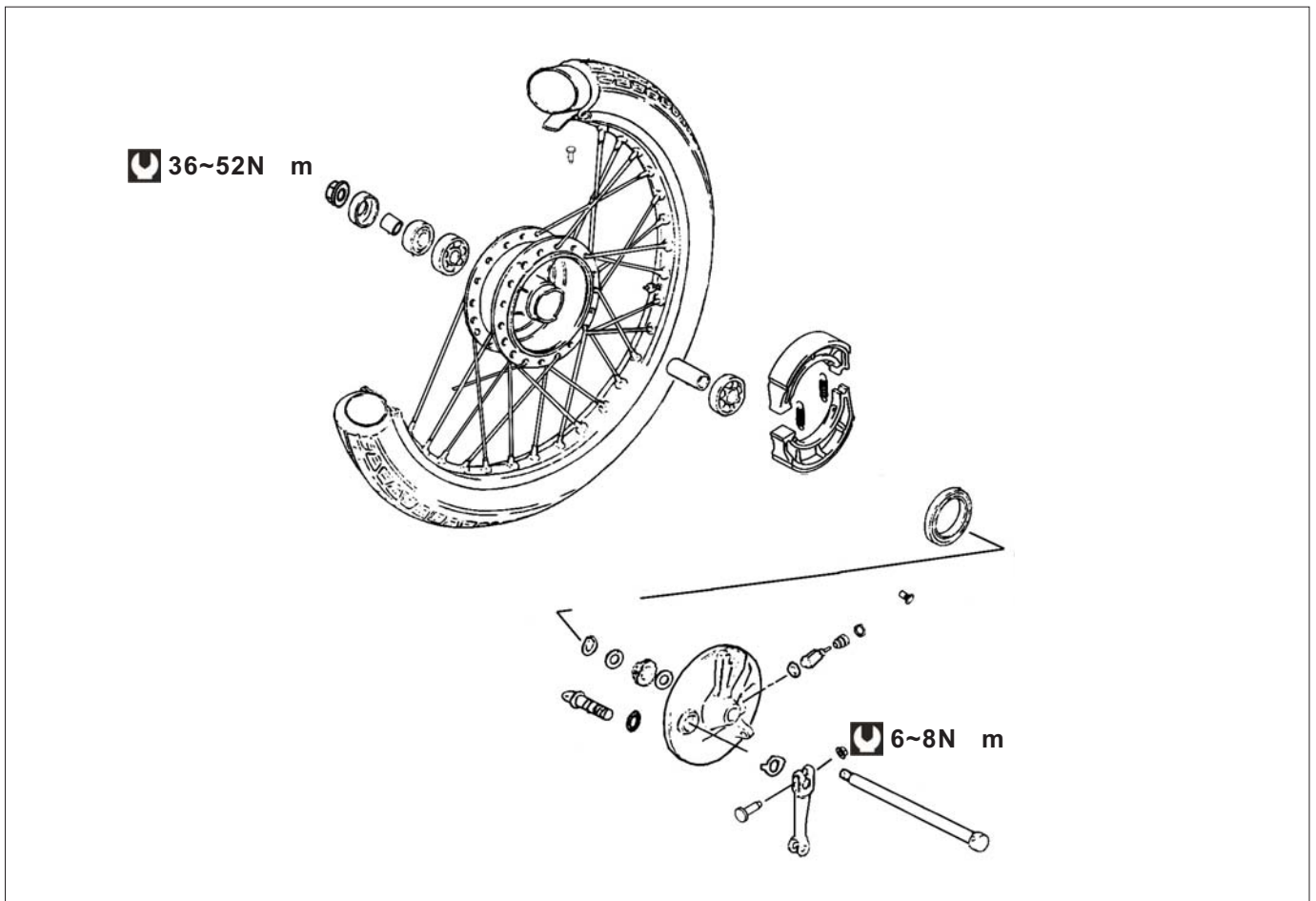


CHASSIS

CONTENTS

FRONT WHEEL AND FRONT BRAKE	5-1
FRONT ABSORBER	5-5
STEERING STEM	5-12
REAR WHEEL AND REAR BRAKE	5-16
REAR SWING ARM	5-22

FRONT WHEEL AND FRONT BRAKE



REMOVAL AND DISASSEMBLY

FRONT WHEEL

- Support the motorcycle with the main stand.
- Remove the front brake cable and the odometer flexible shaft.
- Remove the nut of front wheel shaft
- Pull out the front wheel shaft, take down the front wheel and remove the rear brake drum cover from the front wheel.



- Remove the oil seal and the front wheel bearing with proper tools.

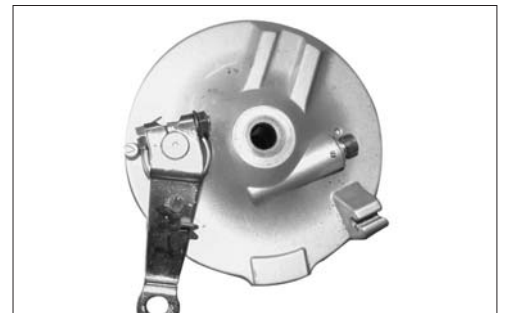


FRONT BRAKE

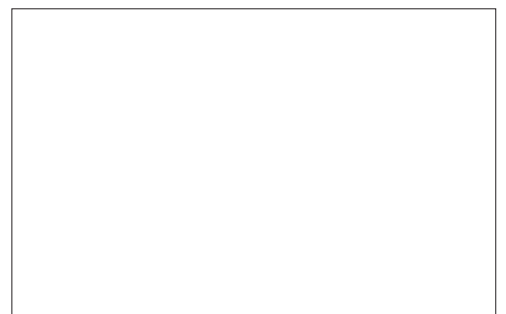
- Remove the brake shoes.



- Unscrew the bolt and nut of the brake cam swing arm.



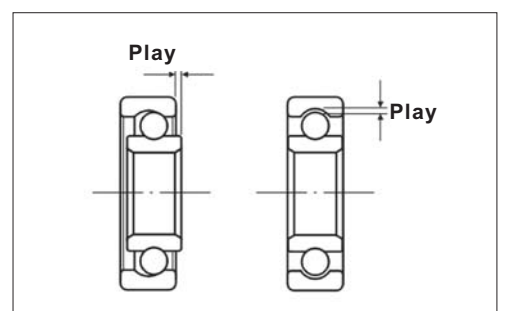
- Remove the brake cam, the gasket, the O-ring and the brake cam swing arm.



INSPECTION

WHEEL BEARING

When installing the hub bearing, inspect the axial and radial free plays of the bearing cone with hand and check whether the bearing is making abnormal sounds or turning flexibly. In case of any abnormal phenomena, replace the bearing with a new one.



AXLE SHAFT

- Inspect the radial run-out of the front wheel shaft with dedicated tools. If it exceeds the limit value, the front wheel shaft should be replaced.

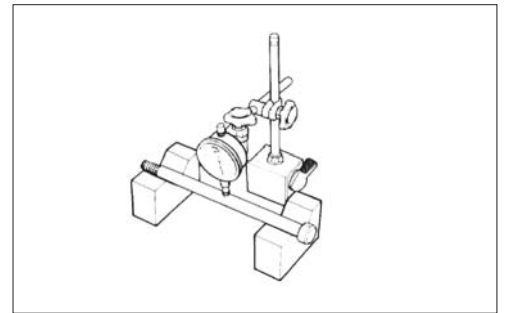


09900-20606 : Dial gauge (1/100)

09900-20701 : Magnetic stand

09900-21304 : V-block (100mm)

Service limit	3mm
---------------	-----

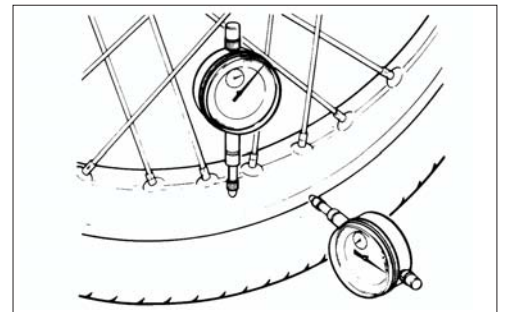


RIM

NOTE:

The run-out of the rim measured with the method in the right picture must not exceed the repair limit, or the bearing should be replaced. If the run-out of the rim is not decreased after bearing replacement, adjust the spoke tension. If the adjustment still fails to decrease the run-out, the rim should be replaced.

Service limit (axial and radial)	2.0mm
----------------------------------	-------

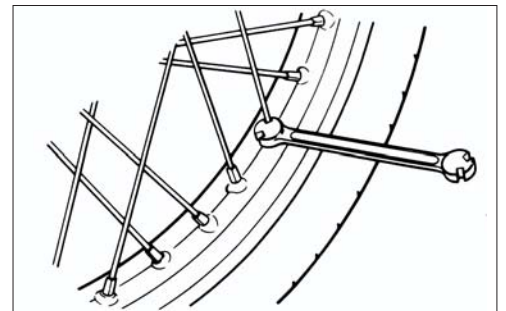


09900-20606 : Dial gauge (1/100)

09900-20701 : Magnetic stand

SPOKE NIPPLE

- Inspect and make sure all spoke nipples are firm. If necessary, fasten them again with dedicated tools.



TIRE

(Refer to 2-15)

FRONT BRAKE DRUM

- Measure the inner diameter of the front brake drum and judge its abrasion situation. If exceeds the limit value, the front wheel drum should be replaced (the use limit is carved on the inner surface of the front wheel drum).

Service limit	110.0mm
---------------	---------



09900-20101 : Vernier calipers (0-150mm)



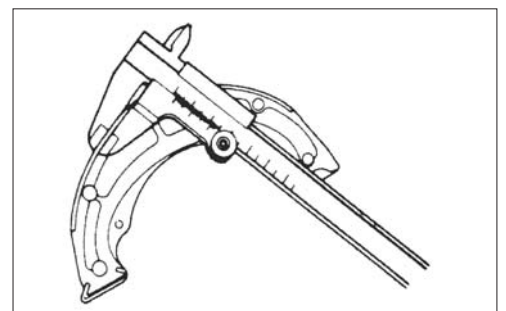
BRAKE SHOES

- Measure the thicknesses of the friction plates of the brake shoes to see whether it is necessary to replace the friction plates.

Service limit	1.5mm
---------------	-------

NOTICE

The brake shoes must be replaced by pairs; otherwise the brake effect will be seriously affected.



ASSEMBLY

Reassemble the front wheel and the front brake in opposite order of Removing order. Meanwhile, pay attention to the following steps.

WHEEL BEARING

- Apply grease to the front wheel bearing before assembling it.

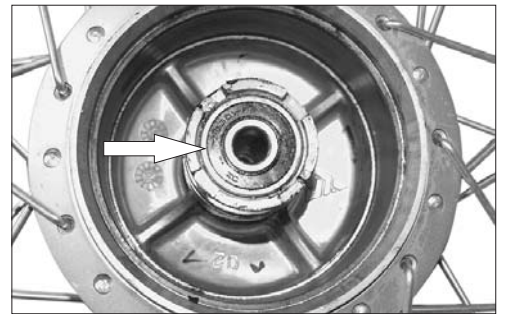
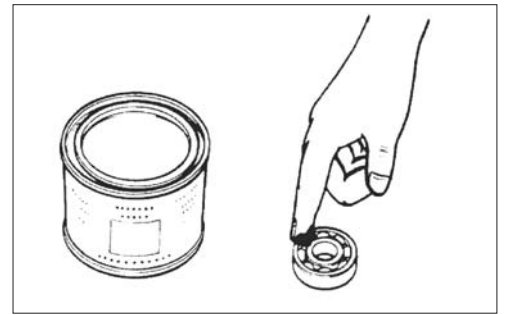
 **99000-25010 : SUZUKI SUPER GREASE "A"**

- Install the front wheel bearing with dedicated tools.

NOTE:

Install the right bearing first.

 **09913-80112 : Bearing installer**



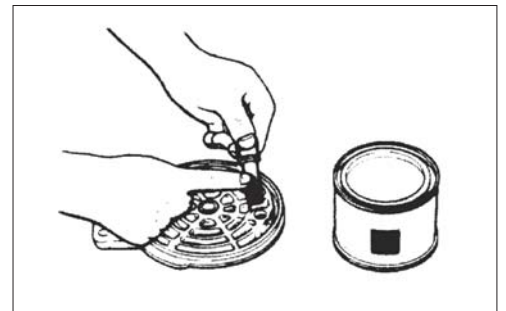
BRAKE CAM

- Apply proper grease to the brake cam.

 **99000-25010 : SUZUKI SUPER GREASE "A"**

CAUTION

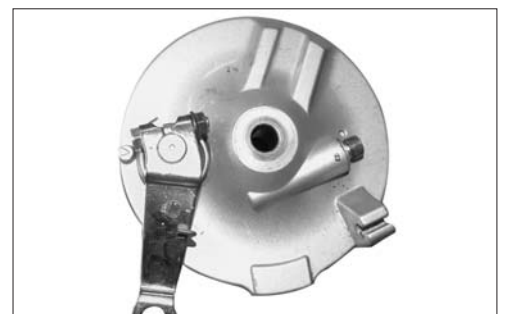
The grease applied should not be too much; otherwise slip will happen during braking.



BRAKE CAM'S SWING ARM

- Install the brake cam swing arm and tighten the clamping bolt of the brake cam swing arm with the specified torque.

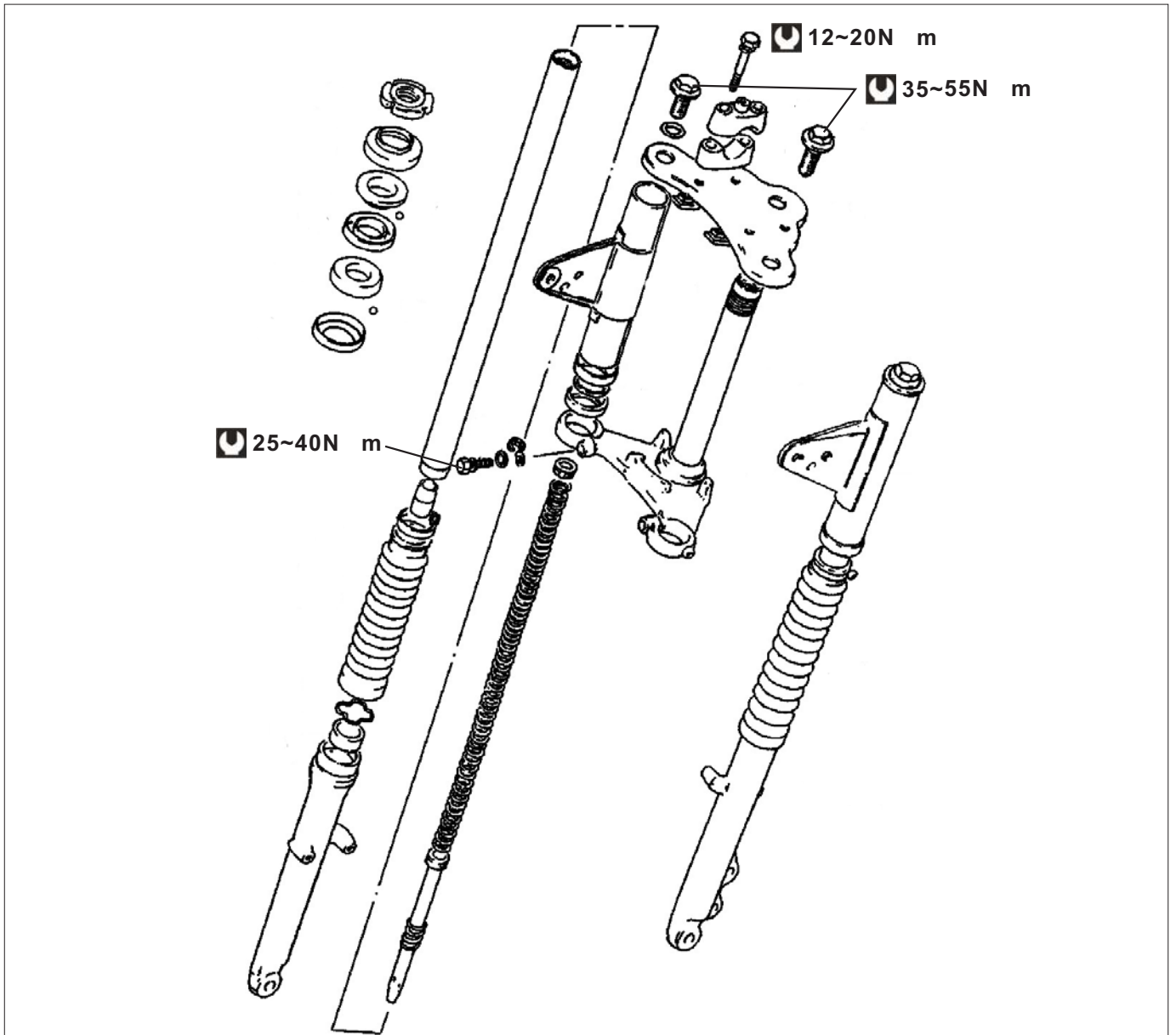
 **Bolt for the brake cam swing arm : 6~8N m**



REASSEMBLY

- Reassembly the front wheel and the front brake in opposite order of their disassembly and Removing order.

FRONT ABSORBER



REMOVING AND DISASSEMBLY

- Remove the front wheel (Refer to 5-1).



CHASSIS

- Remove the four bolts and the front fender.



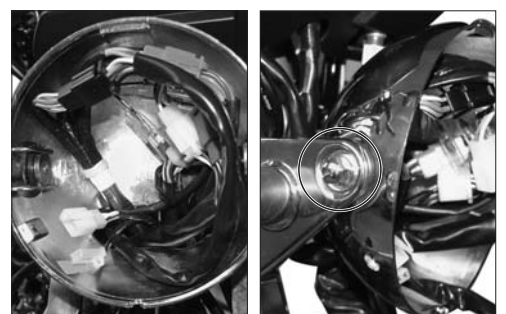
- Remove the screws of the steering joint cover and the steering joint cover.



- Remove the screws of the headlights, disconnect the lead connectors and Remove the headlights.



- Pull away the connectors in the headlight covers and remove the fixing bolts of the headlight covers and the headlight covers then.

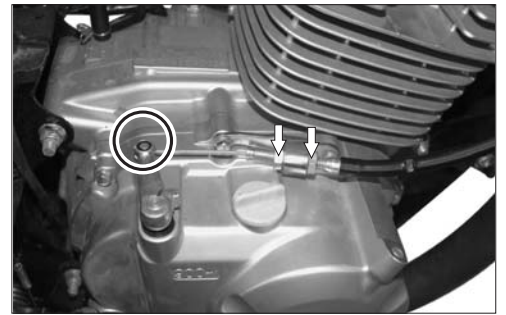


- Take apart the speedometer flexible shaft and loosen the hoop bolt of the flexible shaft.



CHASSIS

- Loosen the clutch adjusting nut and Remove the clutch cable.



- Loosen the throttle adjusting nut and Remove the throttle cable.



- Remove the starter cable.



- Remove the four bolts and take down the handlebar stem assembly and the permanent base.

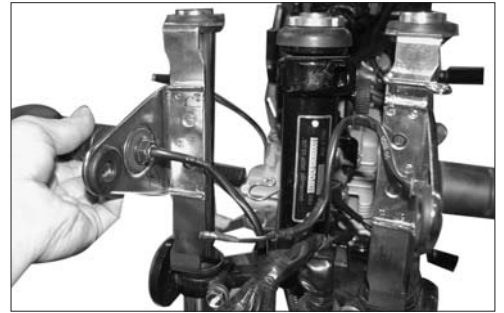


- Loosen the bolts of the front absorber and the bolts of the steering and Remove the upper and lower plates, the dashboard assembly and the ignition switch assembly.

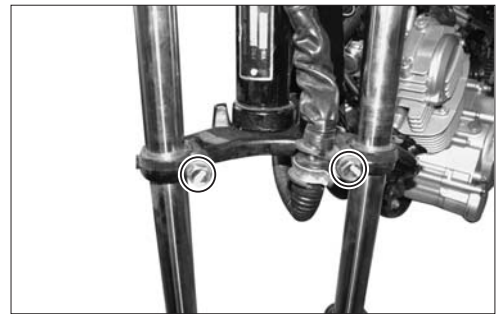


CHASSIS

- Remove the left turn light support and the right turn light support, left turn light and the right turn light then.



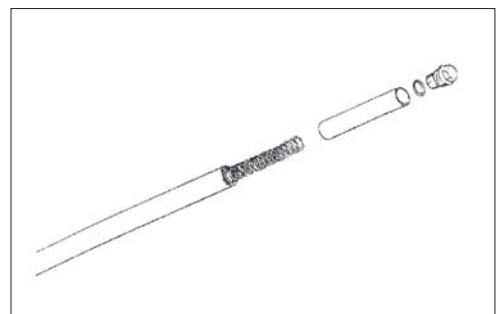
- Loosen the clamping bolts of the lower plate.



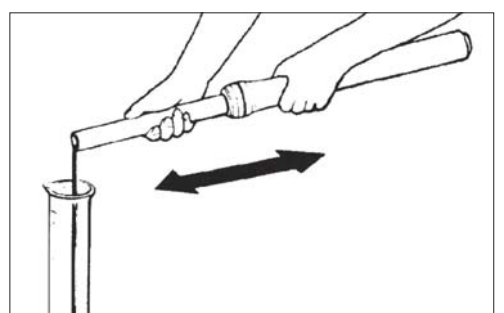
- Pull out the left front absorber and the right front absorber.



- Remove the screw plugs of the heads of the front absorber and take out the bushes and springs of the front absorber.

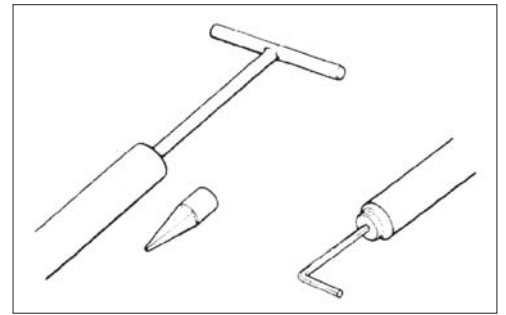


- Topple over the front absorber and push them a couple times to pour the oil.
- Make the front absorber upside down for 30 minutes.

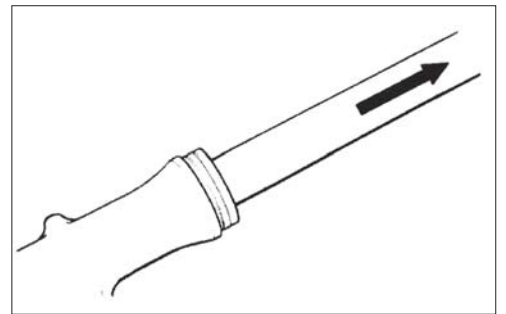


- Remove damper rod bolt by using the special tools and 8mm hexagon wrench.

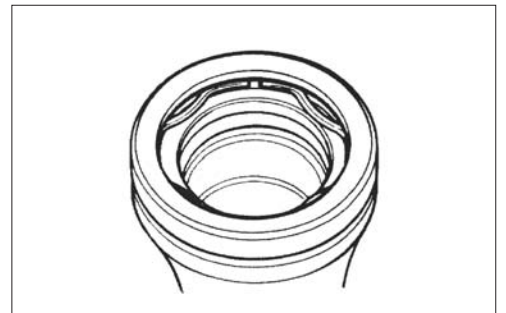
TOOL 09940-34520 : "T" handle
09940-34561 : Attachment "D"



- Remove the oil lock piece and damper rod with rebound spring.
- Separate the inner tube from the outer tube.

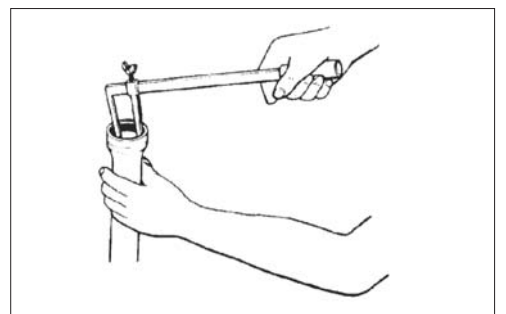


- Remove the stopper ring.



- Remove the oil seal by using the special tool.

TOOL 09913-50121 : Oil seal remove

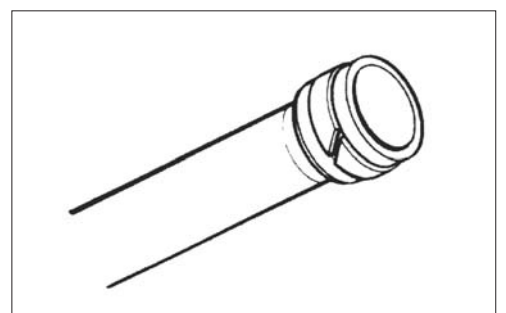


⚠ WARNING

The oil seal removed should be replaced with a new one.

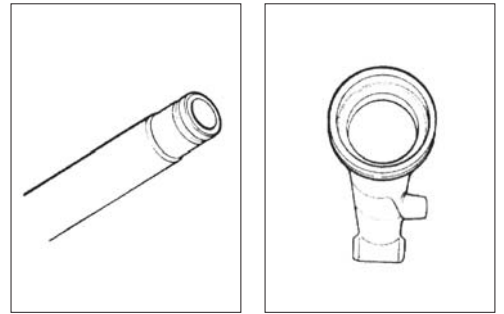
INSPECTION
DAMPER ROD RING

- Inspect the damper rod ring for wear and damage.



INNER TUBE AND OUTER TUBE

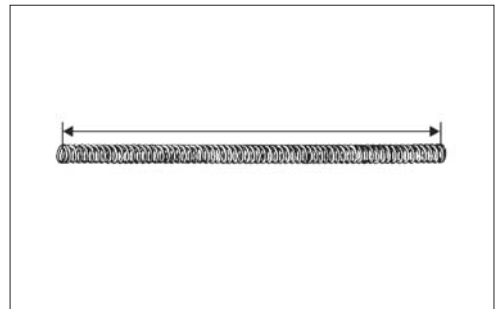
- Inspect the inner tube and outer tube sliding surfaces for any scuffing or flaws.



FORK SPRING

- Measure the fork spring free length. If it is shorter than the service limit, replace it.

Service limit	426.3 mm
----------------------	-----------------

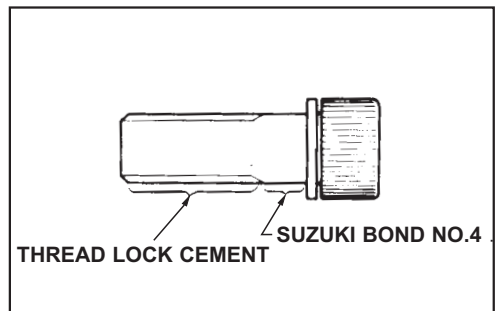


REASSEMBLY

Reassemble and remount the front fork in the reverse order of disassembly and removal, and also carry out the following steps:

DAMPER ROD BOLT

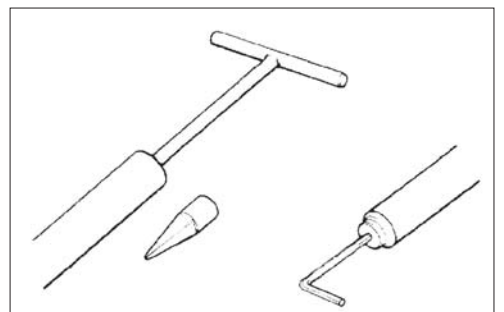
- Apply SUZUKI BOND No.4 and THREAD LOCK CEMENT to the damper rod bolt and tighten the bolt by using the 8 mm hexagon wrench.



 **99100-31030 : SUZUKI BOND NO.4**

 **99000-32040 : THREAD LOCK CEMENT**

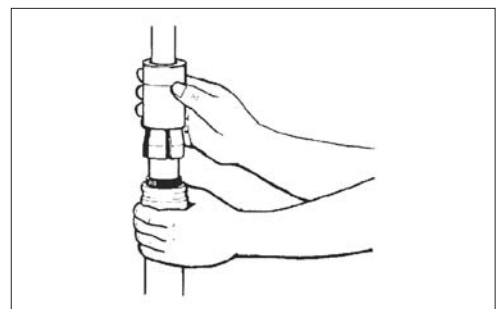
 **11F14-010 : Shock absorber separating/
installer tool**



OIL SEAL

- Install the oil seal to the outer tube by using the special tool as shown.

 **09940-50112 : Oil seal installer**



FORK OIL

- For the fork oil, be sure to use a front fork oil whose viscosity rating meets specifications below.

FORK Fork oil type : special absorber oil

Capacity (each leg)	106 ml
-----------------------	--------

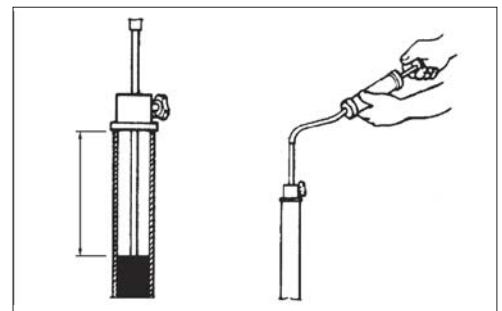
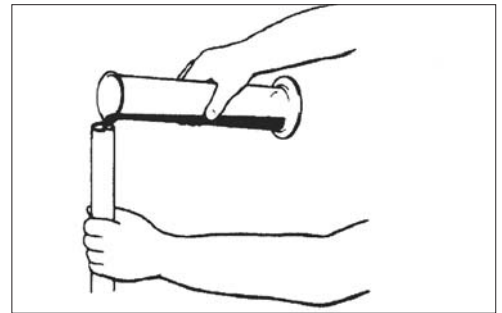
- Hold the front fork vertical and adjust the absorber oil level with the special tool.

NOTE:

When adjusting oil level, remove the absorber spring and compress the inner tube fully.

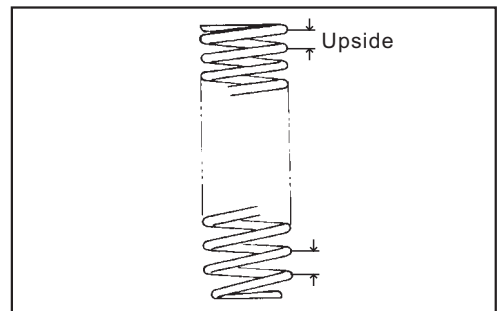
TOOL 09943-74111 : Absorber oil level gauge

Oil level	145mm
-----------	-------



FORK SPRING

- When installing the front fork spring, the closepitch end should position upside.



REASSEMBLY

- Make the absorber go through the lower bracket first and install the left turn light support and the right turn light support then.
- Install the assembly consisting of the dashboard, the ignition switch and the upper bracket first and pre-tighten the bolts and nuts of the upper bracket then.

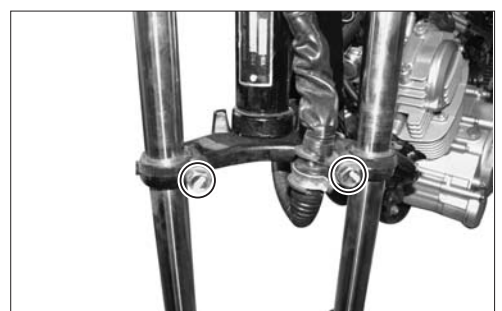


- Tighten the clamping bolts of the lower bracket.

Tightening torque : 25~40N m

NOTE:

Before fastening the lower bracket, well locate the lead bundle hoop first.



- Tighten the bolts and nuts of the upper bracket of the front absorbers with the specified torques.

 **Tightening torque : 35~55N m**



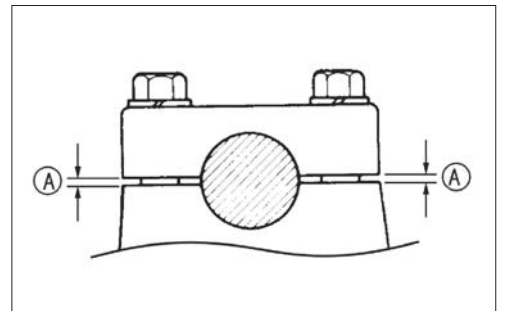
- Set the handlebars to match its punched mark to the mating face of the holder.
- Tighten the fastening bolt of the handlebar stem.

 **Tightening torque : 12~20N m**



- Tighten the handlebar clamping frame and make its front spacing (A) and rear spacing (A) even.
- Reconnect the clutch cable, the throttle cable and the starting excess fuel cable and adjust the gap between the clutch cable and the throttle cable (Refer to 2-8).

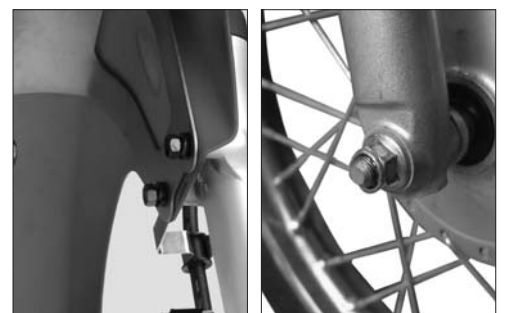
NOTE:
The wiring harness and the cables should be rearranged according to the motorcycle's wiring diagram.



- Install the headlight covers and insert all connectors.
- Install the headlights.
- Install the handlebar stem shield.



- Install the front fender and the front wheel.



STEERING STEM REMOVAL AND DISASSEMBLY

- Remove the front wheel (Refer to 5-1).
- Remove the front absorbers (Refer to 5-5).
- Remove the lower steering lock nut and bearing base, the upper steering bearing race and the lower bracket assembly.

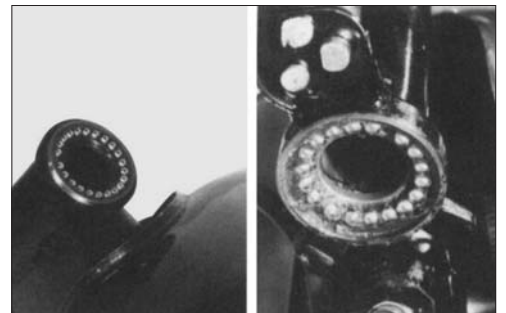


NOTE:

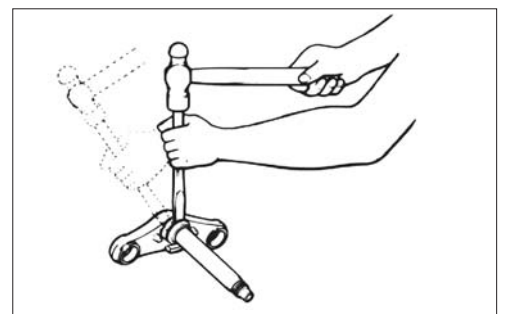
Support the lower bracket with a hand to keep it from dropping. When remove the lower bracket, place a piece of rag below it to keep the balls from dropping and getting lost.

- Taken out the upper balls and the lower balls.

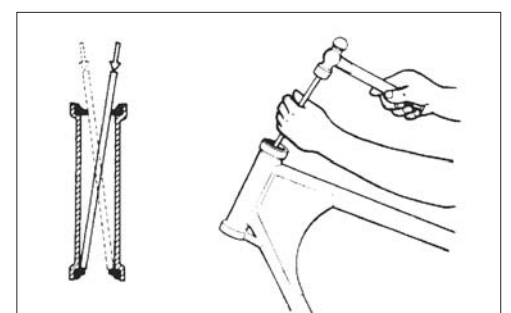
Number of balls	Upper	22
	Lower	22



- Remove the outer bearing race on the lower bracket assembly through a chisel.



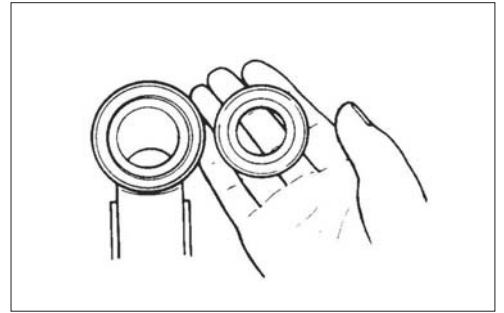
- Knock out the inner bearing races at the upper and lower ends of the frame.



INSPECTION

Inspect the Removed parts to see whether they have the following abnormal phenomena:

- The handlebar is deformed;
- The handlebar clamping frame is damaged;
- The bearing races are worn or corroded;
- The balls are worn or damaged; or
- The steering is deformed.



REASSEMBLY

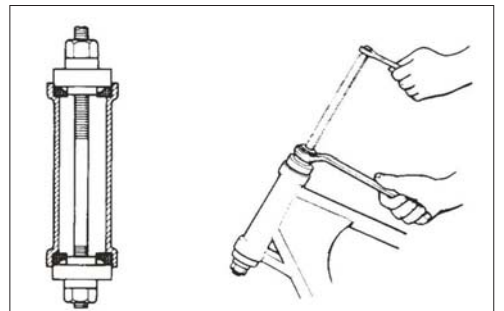
Install the steering in opposite order of disassembly and the Removing order.



INNER RACES

- Press both upper and lower inner races with a dedicated tool.

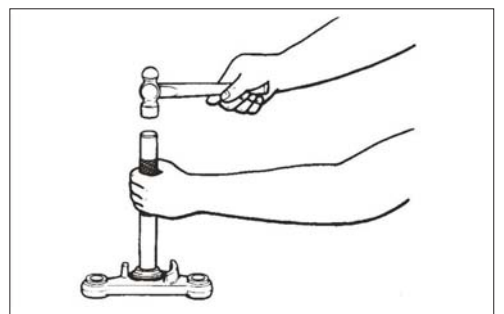
 **09941-34513 : Steering race installer**



OUT RACE

- Press the outer race with a dedicated tool.

 **09941-74910 : Steering bearing installer**

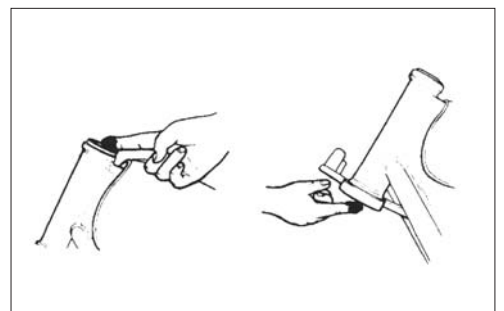


STEEL BALL

- When installing the balls, apply a proper grease on both upper and lower inner bearing races.

 **99000-25010 : SUZUKI SUPER GREASE "A"**

Number of balls	Upper	22
	Lower	22



STEERING STEM NUT

- Tighten the steering stem nut to 40-50N m by using the special tool.

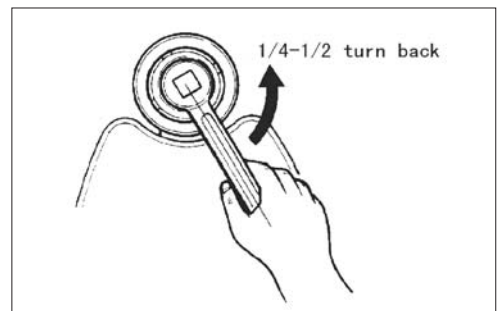
Steering nut socket wrench	09940-14911
---------------------------------------	--------------------



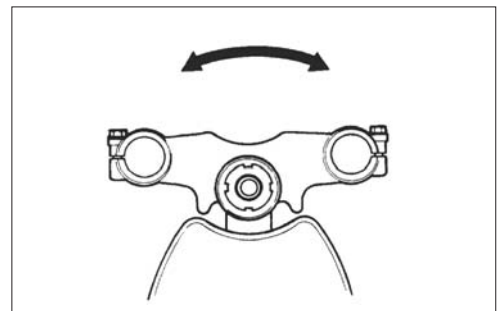
- Turn back the stem nut by 1/4-1/2 turn.

NOTE:

This adjustment will vary from motorcycle to motorcycle.



- Turn the steering stem right and left, lock-to-lock, five or six times to “seat” the ball bearings.



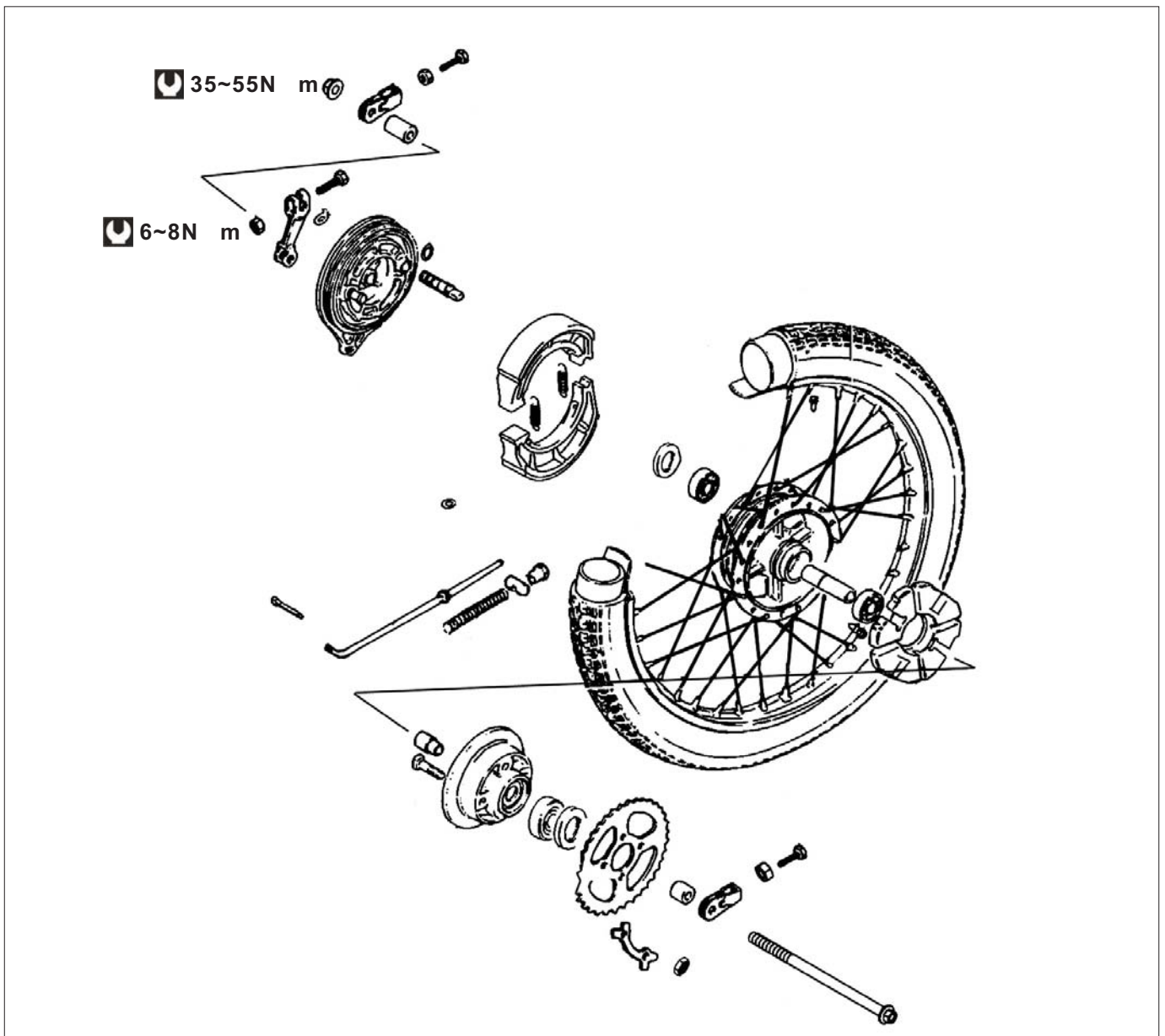
- Install the upper bracket and the steering (Refer to 5-10).

⚠ WARNING

After adjustment and assembly of the upper bracket of the steering, shake the front wheel up and down to make sure there is no play. After that, inspect and make sure the steering is able to turn left and right freely under the action of gravity. If the degree of play and the turn flexibility are improper, readjust the nut of the steering.

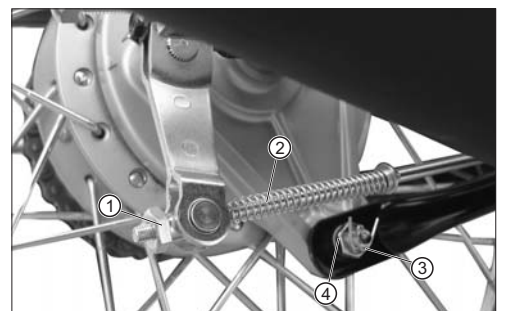


REARWHEEL AND REAR BRAKE

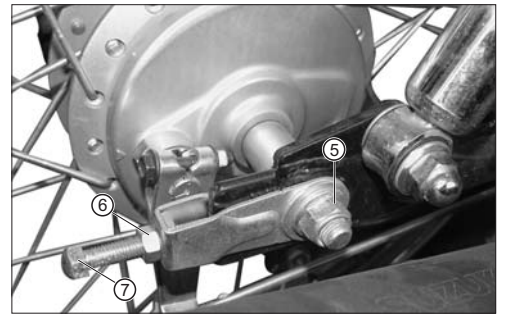


REMOVAL

- Support the motorcycle with the main stand.
- Remove the adjusting nut ① of the rear brake and take down the rear brake pull rod ②.
- Pull out the cotter pin ③ and Remove the torque rod nut ④.



- Remove the nut ⑤ of the rear wheel shaft.
- Loosen the chain left and right adjusting nut ⑥ and the regulator ⑦.
- Take out the rear wheel shaft and Remove the chain from the drive sprocket.



- Remove the rear wheel and take down the rear brake drum cover from the rear wheel.



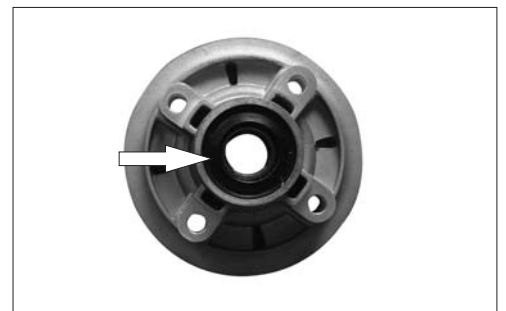
DISASSEMBLY REAR WHEEL

- Make the lock washer flat and unscrew the four bolts used for fixing the sprocket.
- Remove the sprocket hub first and the sprocket then.

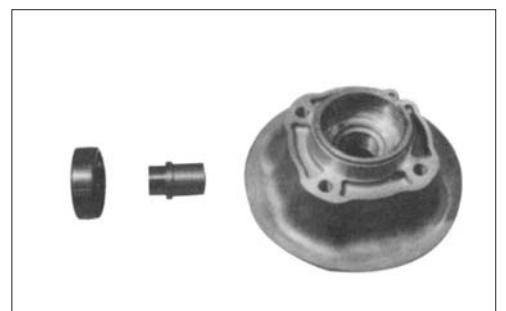


- Take out the oil seal with a dedicated tool.

 **09913-50121 : Oil seal remover**



- Remove the bearing and the bush from the sprocket hub.



- Remove the cushion from the wheel.



- Remove the left and right bearings of the rear wheel hub.

NOTE:

It will be easier to remove the left bearing first.

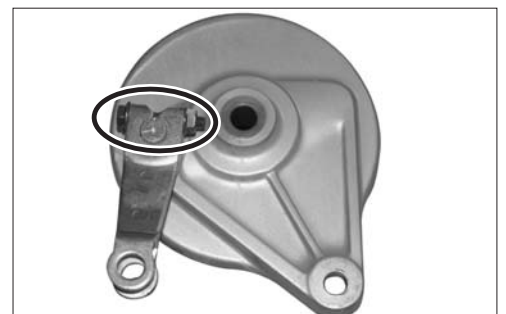


REAR BRAKE

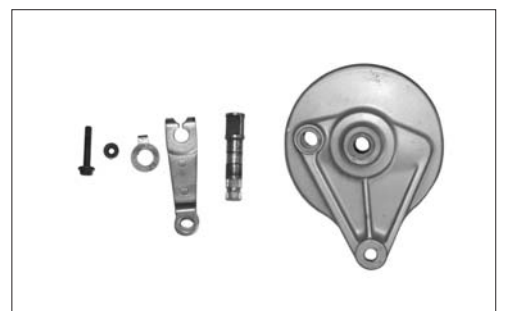
- Remove the brake shoes.



- Remove the nut and bolt of the brake cam swing arm.



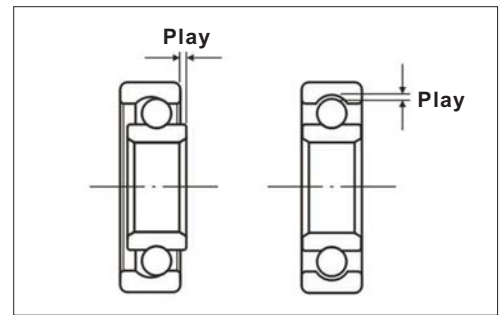
- Remove the brake cam, the gasket and the brake cam swing arm.



INSPECTION

WHEEL BEARING

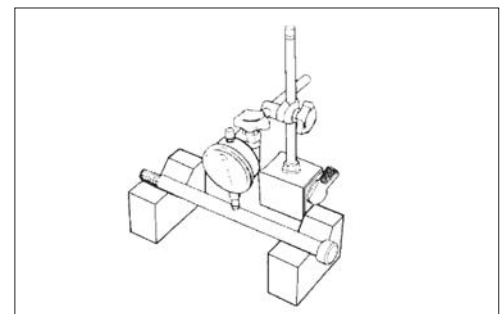
- As shown in the picture, inspect the free play of the rear wheel bearing. Turn the bearing core to inspect whether the bearing is turning flexibly and whether it is making abnormal sound and, if it is, replace it.



AXLE SHAFT

- Inspect the radial run-out of the rear wheel shaft with some inspection tools. If the radial run-out exceeds the limit value, the rear wheel shaft should be replaced.

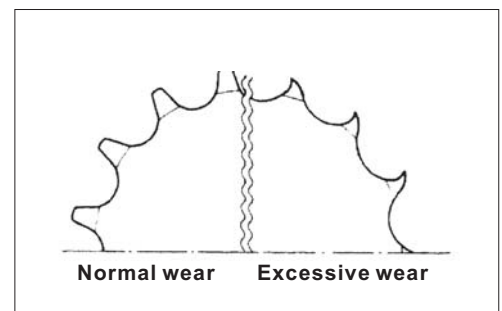
- TOOL** 09900-20606 : Dial gauge(1/100)
 09900-20701 : Magnetic stand
 09900-21304 : V-block



Service limit	3mm
----------------------	------------

SPROCKET

- Inspect the degree of wear of the teeth of the sprocket. If they have been seriously worn as shown in the picture, both the sprocket and the transmission chain should be replaced.



REAR BRAKE DRUM

- Measure the inner diameter of the rear brake drum and judge its degree of abrasion. If the abrasion exceeds the limit value, the rear wheel hub should be replaced (the use limit is carved on the inner surface of the rear wheel hub).

Service limit	110.0mm
----------------------	----------------



BRAKE SHOE

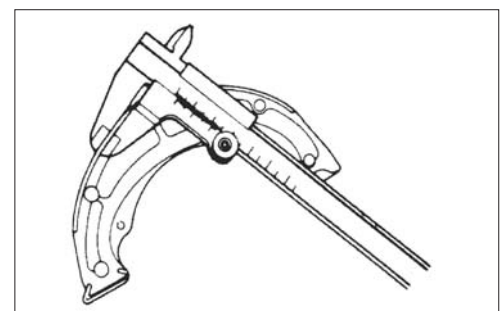
- Measure the thicknesses of the friction plates of the brake shoes to see whether it is necessary to replace the friction plates.

Service limit	1.5mm
----------------------	--------------

- TOOL** 09900-20101 : Vernier calipers (0-150mm)

⚠ WARNING

The brake shoes must be replaced by pairs; otherwise the brake effect will be seriously affected.



CUSHION

- Inspect the abrasion and damage of the hub shock absorber.



REASSEMBLY


Reassemble the rear wheel and the rear brake in opposite order of removing order. Meanwhile, pay attention to the following steps.

WHEEL BEARING

- Apply a proper grease of the rear wheel bearing before assembling it

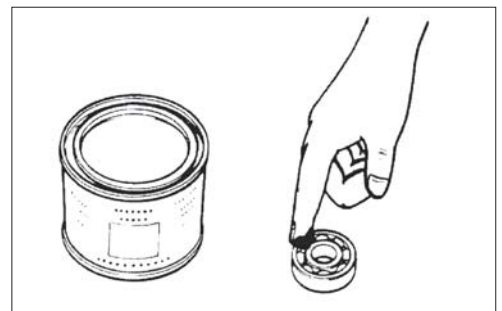
 99000-25010 : SUZUKI SUPER GUEASE "A"

- Install the rear wheel bearing with dedicated tools.

 09913-80112 : Bearing installer

NOTE:

Install the right bearing first.



MOUNTING DRUM

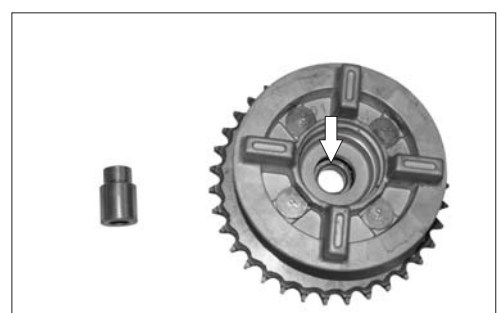
- Insert the bearing by using the special tool.

 09940-53311 : Bearing installer



- Apply grease to the mounting drum as shown.

 99000-25010 : SUZUKI SUPER GUEASE "A"



SPROCKET

- Tighten the four bolts.
- Make the lock washer bend toward the bolts.



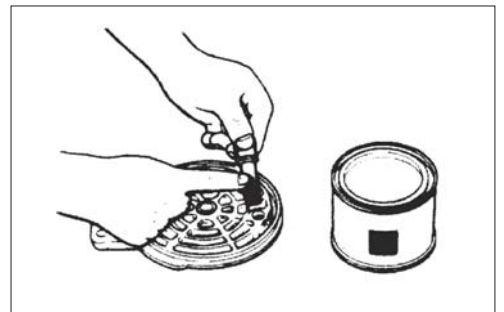
BRAKE CAM

- Apply a proper grease onto the brake cam.

 99000-25010 : SUZUKI SUPER GREASE "A"

WARNING

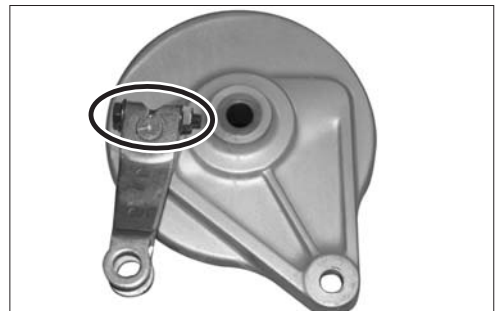
The grease applied should not be too much; otherwise slip will happen during braking.



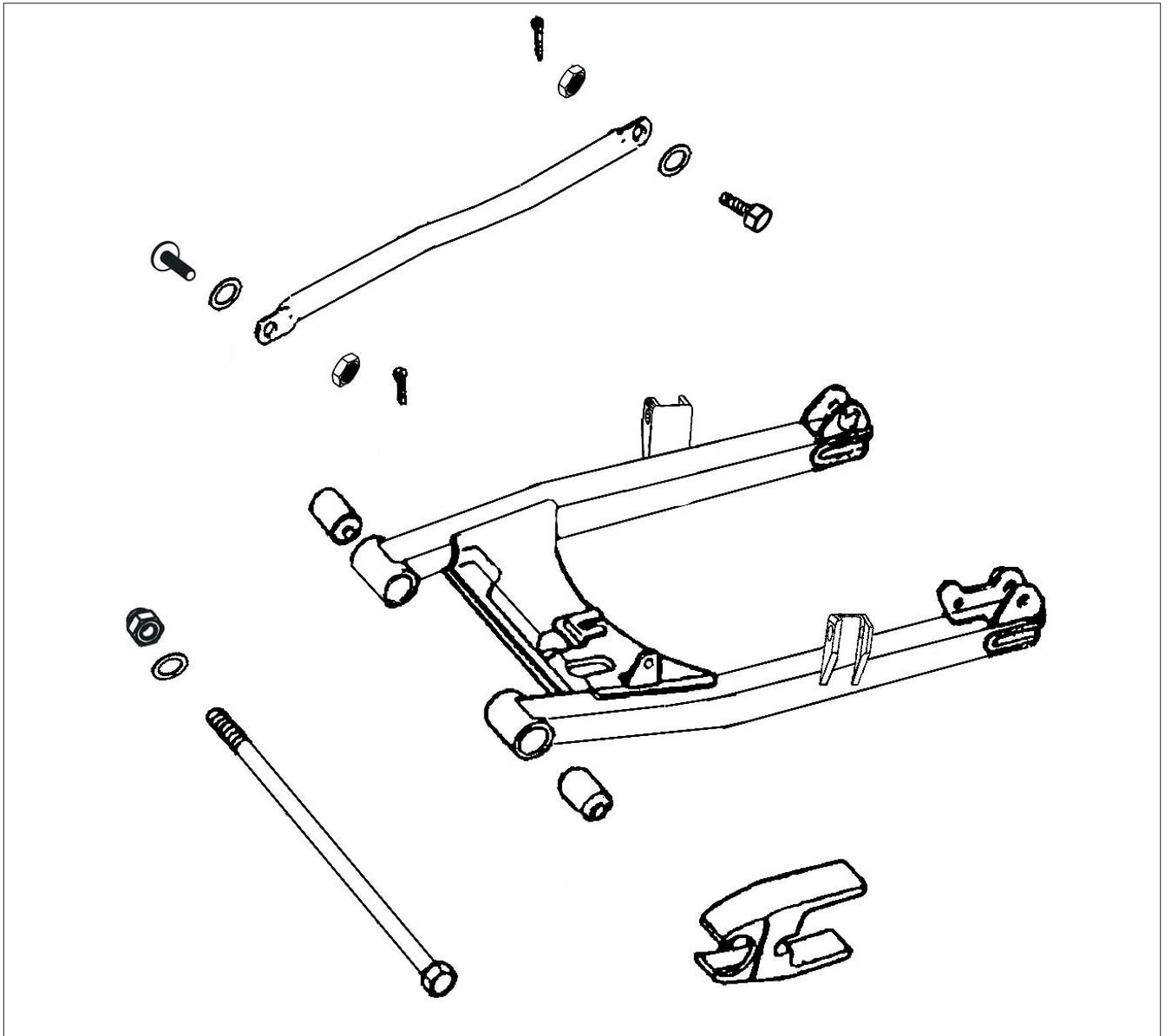
BRAKE CAM LEVER

- Install the brake cam swing arm and tighten the clamping bolt of the brake cam swing arm with the specified torque.

 Tightening torque : 6~8N m



REAR SWING ARM



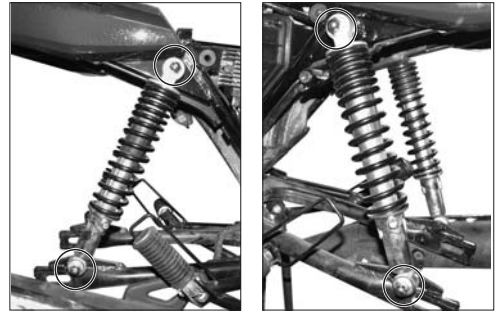
REMOVAL AND DISASSEMBLY

- Remove the rear wheel (Refer to 5-16).
- Remove the screws of the upper chain case first and the chain case then.



CHASSIS

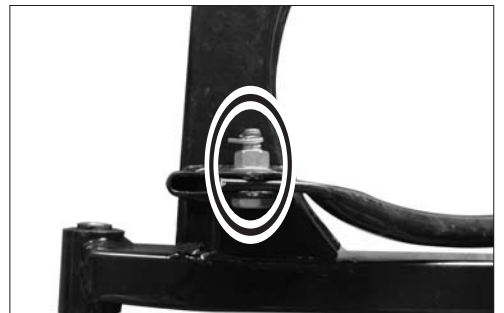
- Remove the nuts of the left and right rear absorbers first and the rear absorber assembly then.



- Remove the nut of the rear swing arm shaft, pull out the rear swing arm shaft and Remove the rear swing arm.



- Pull out the cotter pin and unscrew the bolts and the nuts.
- Remove the torque rod.



- Remove the cushion pad of the chain.



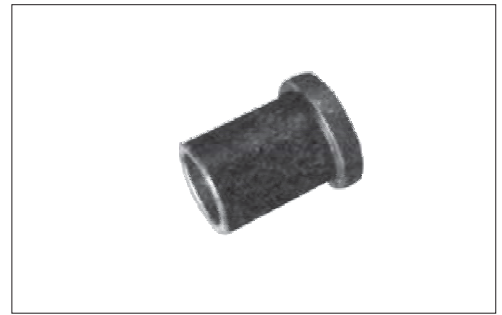
- Take out the neck bush with dedicated tools.

- **TOOL** 09923-73210 : Bearing puller
- 09930-30102 : Rotor remover slide shaft



INSPECTION BUSHING

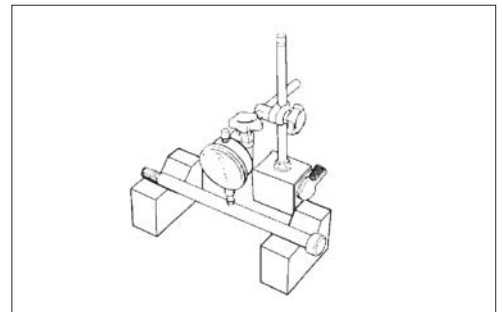
- Inspect the abrasion of the neck bush.



SWING ARM PIVOT SHAFT

- Measure the radial run-out of the rear swing arm with a dial indicator. If the radial run-out exceeds the limit value, the swing arm should be replaced.

TOOL 09900-20606 : Dial gauge(1/100)
 09900-20701 : Magnetic stand
 09900-21304 : V-block



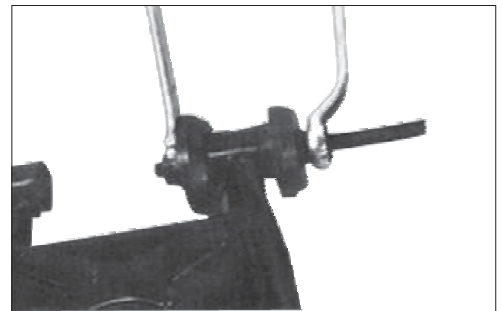
Service limit	0.6 mm
---------------	--------

REASSEMBLY

Reassemble the rear swing arm in opposite order of the removing order. Meanwhile, pay attention to the following steps.

- Press the neck bush into the mounting hole for the neck bush of the rear swing arm with a dedicated tool.

TOOL 09924-84510 : Bearing installer set



ELECTRICAL

CONTENTS

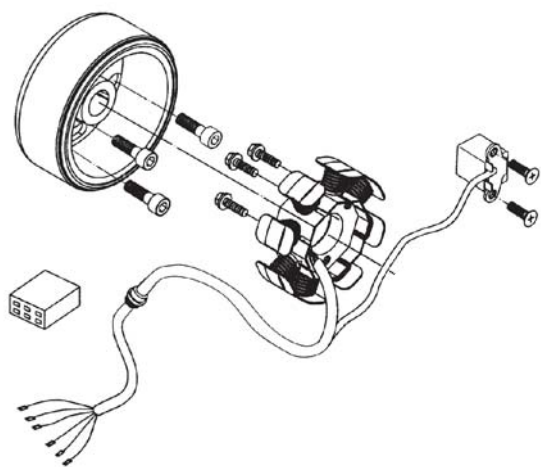
IGNITION SYSTEM	6-1
CHARGING SYSTEM	6-3
COMBINATION METER	6-4
LIGHTS	6-4
SWITCHES	6-5
BATTERY	6-7

IGNITION SYSTEM

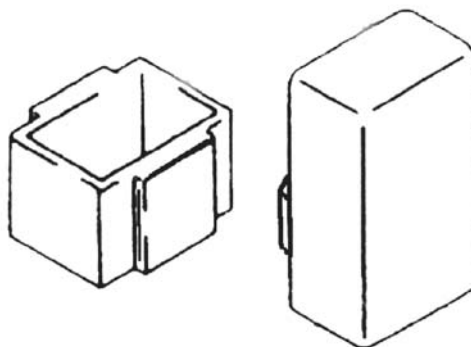
DESCRIPTION

In a capacitor discharge ignition system, the battery supplies power for CDI components and charge the capacitor. At a specific time of ignition, the pulse generated by the generator trigger coil triggers SCR and makes the energy in the capacitor release via the primary coil of the ignition coil. As a result, high-voltage current is induced on the primary coil and intense sparks are generated between the spark plug's electrodes.

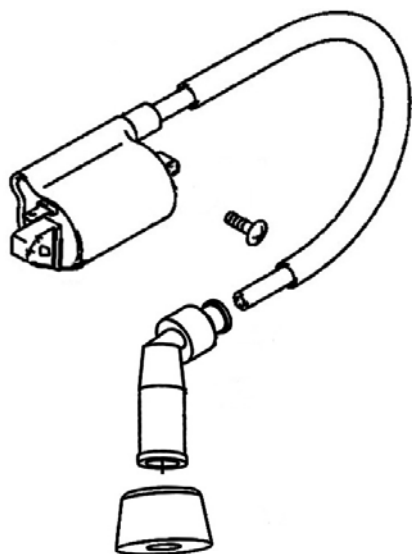
MAGNETO



IGNITOR



IGNITION COIL



SPARK PLUG



INSPECTION

PICK-UP

- Using the pocket tester (RX1 Ω range), measure the resistance between the lead wires in the following table.



09900-25002 : Pocket tester

Pick-up coil resistance	L-G Approx. 120–200 Ω
Charging coil resistance	Y-Y Approx. 0.5–2.0 Ω



WIRE COLOR

L : Blue
G : Green
Y : Yellow



99000-32050 : THREAD LOCK "1342"

NOTE:

When mounting the stator on the generator cover, apply a small quantity of THREAD LOCK "1342" to the threaded parts of screws.

IGNITION COIL

- Check the ignition coil with pocket tester.



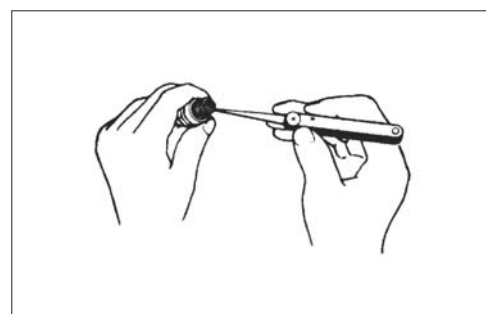
09900-25002 : Pocket tester

Ignition coil resistance	
Primary	O/W -W Approx. 3.5-4.5 Ω
Secondary	Plug cap-O/W Approx. 16-30k Ω



SPARK PLUG

Clean the plug with a wire brush and pin. Use the pin to remove carbon, taking care not to damage the porcelain.

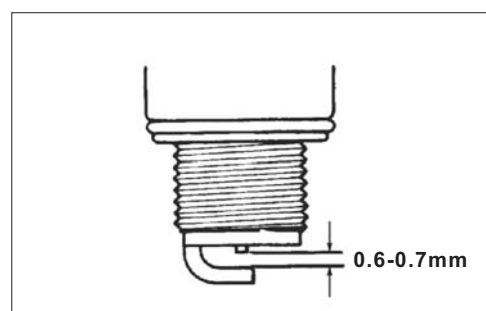


- Check the gap with a thickness gauge.



09900-20803 : Thickness gauge

Spark plug gap	0.6-0.7mm
----------------	-----------



CHARGING SYSTEM

INSPECTION

CHARGING OUTPUT CHECK

Start the engine and keep it running at 5 000r/min. Using the pocket tester, measure the DC voltage between the battery terminal \oplus and \ominus .

If the tester reads under 13.5V or over 16.0V, check the AC generator no-load performance and regulator/rectifier.

NOTE:

When making this test, be sure that the battery is full-charged condition.



STD charging output
13.5V-16.0V at 5 000r/min



09900-25002 : Pocket tester

AC GENERATOR NO-LOAD PERFORMANCE

Disconnect the three lead wires from the AC generator terminal.

Start the engine and keep it running at 5 000r/min.

Using the pocket tester, measure the AC voltage between the three lead wires.

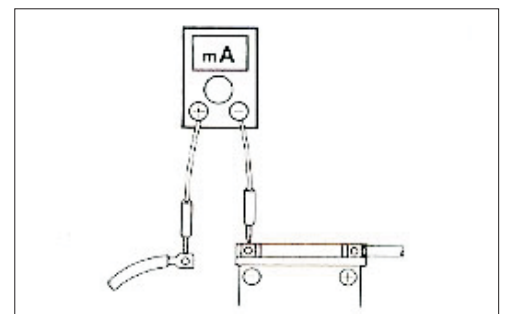
If the tester reads under 70V, the AC generator is faulty.

STD No-load performance
More than 70V (AC) at 5 000r/min



LEAK DETECTION OF THE BATTERY

- Turn the ignition switch to position "OFF".
- Remove the lead of the battery's negative pole.
- As shown in the right figure, connect one end of the multimeter on the negative terminal and the other end on the negative pole lead. If the pointer of the milliammeter swings, it means there is leakage of electricity.



NOTICE

Current leakage is of high likelihood. Therefore, it is necessary to adjust the multimeter to its maximum measuring range when an ammeter is connected.

When measuring the current, never turn the ignition switch on position "ON".

- If leakage of electricity is discovered, use the connector to find out the part where the pointer does not swing and Remove the joints one by one.

COMBINATION METER

- Remove the combination meter (Refer to page 5-6).



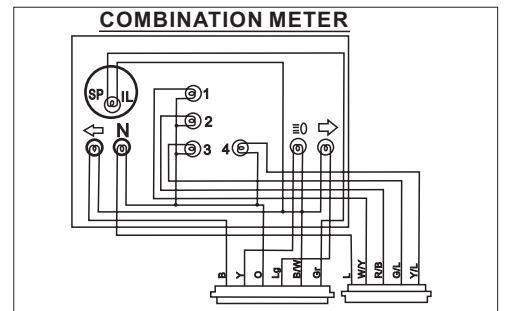
INSPECTION

- Using the pocket tester, check the continuity between lead wires in following diagram.
- If the continuity measured is incorrect, replace the respective part.

 09900-25002 : Pocket tester

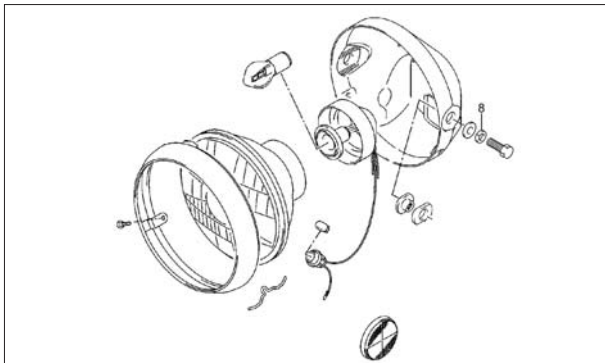
NOTE:

When making this test, it is not necessary to remove the combination meter.

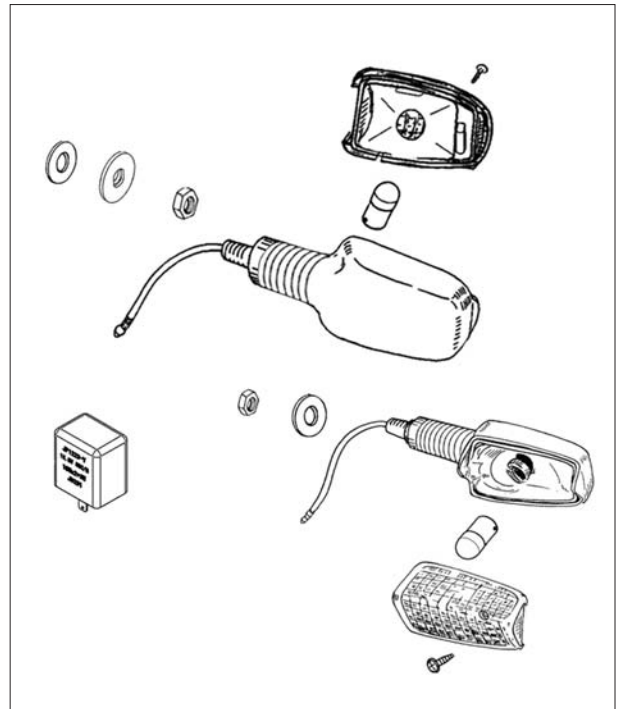


LIGHTS

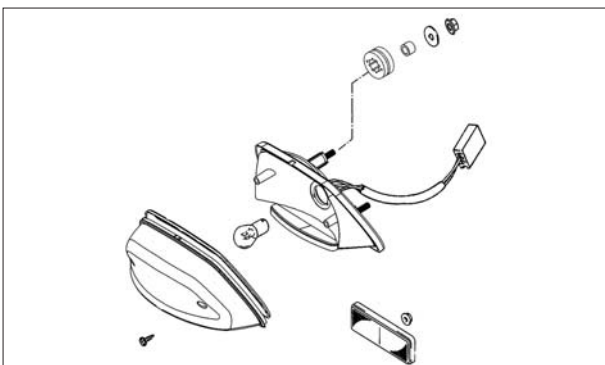
HEADLIGHT



TURN SIGNAL LIGHT



TAIL/BRAKE LIGHT



SWITCHES

Inspect each switch for continuity with the pocket tester referring to the chart. If it is found any abnormality, replace the respective switch as-sembly with new one.



09900-25002 : Pocket tester



IGNITION SWITCH ①

	R	O	O/Y
OFF			
ON	○	○	○



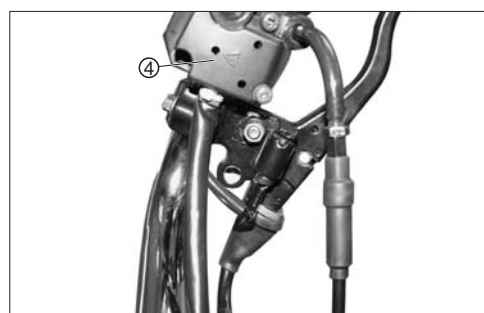
LIGHTING SWITCH ②

	O	Gr	Y/W
●			
☰☱	○	○	
☀	○	○	○



ENGINE KILL SWITCH ③

	O	O/W
⊗		
⊘	○	○



FRONT BRAKE LIGHT SWITCH ④

	B	B
OFF		
ON	○	○

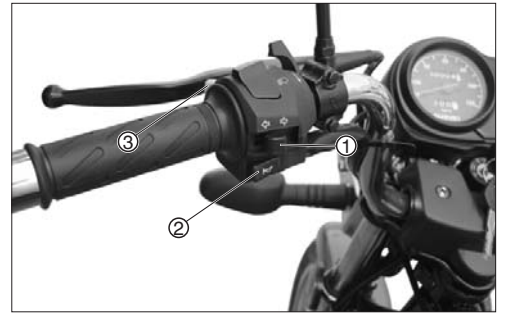


DIMMER SWITCH ⑤

	Y/W	W	Y
☰○	○	○	
☱○	○		○

TURN SIGNAL LIGHT SWITCH ①

	B	Sb	Lg
⇒		○ — ○	○
•			
⇐	○ — ○		



HORN SWITCH ②

	B/L	B/W
OFF		
	○ — ○	○

PASSING SWITCH ③

	Y	O
PASS	○ — ○	○

REAR BRAKE LIGHT SWITCH ④

	O	W/B
OFF		
ON	○ — ○	○



GEAR POSITION INDICATOR LIGHT SWITCH

	Ground	L	W/Y	R/B	G/L	Y/L
Neutral	○ — ○					
Low	○		○			
2nd	○			○		
3rd	○				○	
4th	○					○



WIRE COLOR

B	Black	B/W	Black with White tracer
Br	Brown	Br/R	Brown with Red tracer
G	Green	G/L	Green with Blue tracer
Gr	Gray	O/W	Orange with White tracer
L	Blue	R/B	Red with Black tracer
Lg	Light green	W/B	White with Black tracer
O	Orange	W/Y	White with Yellow tracer
R	Red	Y/B	Yellow with Black tracer
P	Pink	Y/G	Yellow with Green tracer
Sb	Light blue	Y/L	Yellow with Blue tracer
W	White	Y/W	Yellow with White tracer
Y	Yellow	O/Y	Orange with yellow tracer

BATTERY SPECIFICATIONS

Type designation	12N5-4B
Capacity	5Ah
Standard electrolyte S.G.	1.28 0.01 20°C

- In fitting the battery to the motorcycle, connect the breather tube to the battery vent.

INITIAL CHARGING

Filling electrolyte

Remove short sealed tube before filling electrolyte.

Fill battery with electrolyte (dilute sulfuric acid solution with acid concentration of 35.0% by weight, having a specific gravity of 1.28 at 20°C (68°F) up to indicated UPPER LEVEL. Filling electrolyte should be always cooled below 30°C (86°F) before filling into battery. Leave battery standing for half an hour after filling. Add additional electrolyte if necessary.

Charge battery with current as described in the tables shown below.

Maximum charging current	0.7A
--------------------------	------

Charging time

The charging time for a new battery is determined by the number of months that have elapsed since the date of manufacture.

Confirmation for date of manufacture

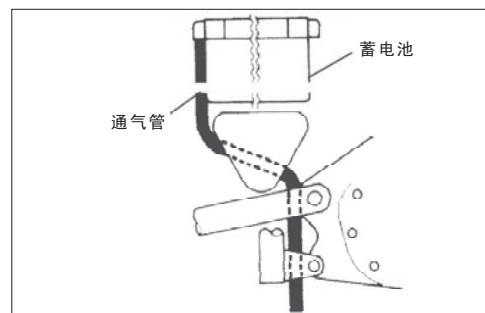
Date of manufacture is indicated by a three-part number ϕ , as follows. The first number indicating year, the second and the third indicating month.

Near the end of charging period, adjust the specific gravity of electrolyte to value specified. After charging, adjust the electrolyte level to the UPPER LEVEL with DISTILLED WATER.

Servicing

Visually inspect the surface of the battery container. If any signs of cracking or electrolyte leakage from the sides of the battery have occurred, replace the battery with a new one.

If the battery terminals are found to be coated with rust or an acidic white powdery substance, then this can be cleaned away with sandpaper.



Check the electrolyte level and add distilled water, as necessary, to raise the electrolyte to each cell's UPPER LEVEL.

Check the battery for proper charge by taking an electrolyte S.G. Reading. If the reading is 1.22 or less, as corrected to 20°C(68°F), it means that the battery is still in a run-down condition and needs recharging.

NOTE:

First, remove the \ominus lead wire.



BASED ON S.G. READING RECHARGING OPERATION

To correct an S.G. reading 20°C (68°F), use following table.

To read the S.G. on the hydrometer , bring the electrolyte in the hydrometer to eye level and read the graduations on the float scale bordering on the meniscus (curved-up portion of electrolyte surface), as shown in figure.

Check the reading (as corrected to 20°C) with chart to determine the recharging time in hours by constant-current charging at a charging rate of 0.8 amperes (which is a tenth of the capacity of the present battery).

Be careful not to permit the electrolyte temperature to exceed 45°C (113°F), at any time, during the recharging operation. Interrupt the operation, as necessary, to let the electrolyte cool down. Recharge the battery to the specification.

TOOL 09900-28403 : Hydrometer

Electrolyte specific gravity	1.28 0.01 20oC
------------------------------	----------------

NOTICE

Constant-voltage charging, otherwise called "quick" charging, is not recommendable for it could shorten the life of the battery.
Before charging the battery, take off the seal cap of each unit. Keep the battery during charging from opening fires and sparks. When taking off the battery from the motorcycle, do take off \ominus pole first.

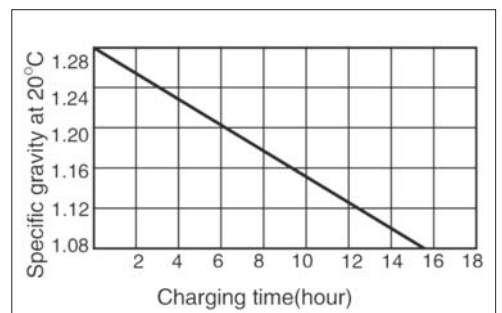
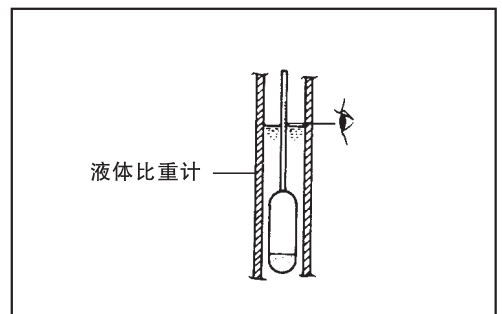
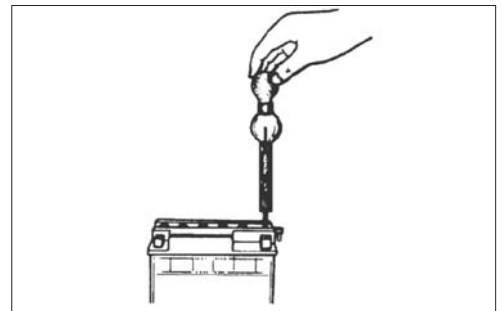
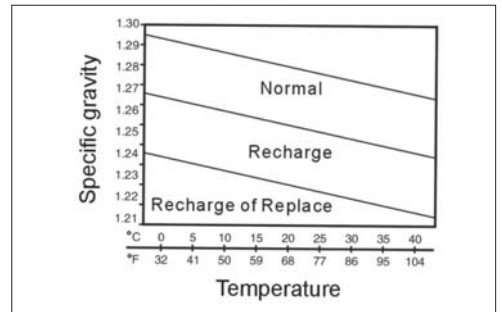
NOTE:

The lead oxide applied on the battery will disappear with time on.

If the bottom of the battery is full of deposits, the battery must not be used any longer.

If the duration of charging of the battery is insufficient, lead sulfate will accumulate on surfaces of the plate electrodes and further affect the performance. In this case, the battery should be replaced.

If the battery is not in use for a long time, sulphating will possibly happen. If the motorcycle will not be used for over one month (particularly in winter), the battery should be charged once each month at least.



SERVICING INFORMATION

CONTENTS

TROUBLESHOOTING	7-1
SPECIAL TOOLS	7-7
TIGHTENING TORQUE	7-12
SERVICE DATA	7-13
WIRE AND CABLE ROUTING	7-19
WIRING DIAGRAM	7-20

TROUBLESHOOTING ENGINE

Complaint	Symptom and possible causes	Remedy
<p>Engine will not start or is hard to start.</p>	<p>Compression too low</p> <ol style="list-style-type: none"> 1. Valve clearance out of adjustment 2. Worn valve guides or poor seating of valves. 3. Valves mistiming. 4. Piston rings excessively worn. 5. Worn-down cylinder bore. 6. Poor seating of spark plug. 7. Starter motor cranks but too slowly. <p>Plug not sparking</p> <ol style="list-style-type: none"> 1. Fouled spark plug. 2. Wet spark plug. 3. Defective pick up coil. 4. Defective ignitor unit. 5. Defective ignition coil. 6. Open or short circuit in high-tension cord. <p>No fuel reaching the carburetor</p> <ol style="list-style-type: none"> 1. Clogged hole in the fuel tank cap. 2. Clogged or defective fuel cock. 3. Defective carburetor float valve. 4. Clogged fuel pipe. 5. Clogged fuel filter. 	<p>Adjust. Repair or replace. Adjust. Replace. Replace or rebore. Retighten. Consult "electrical complaints"</p> <p>Clean or replace. Clean and dry. Replace. Replace. Replace. Replace.</p> <p>Clean. Clean or replace. Replace. Clean or replace. Clean or replace.</p>
<p>Engine stalls easily.</p>	<ol style="list-style-type: none"> 1. Fouled spark plug. 2. Defective pick up coil. 3. Defective ignitor unit. 4. Clogged fuel pipe. 5. Clogged jets in carburetor. 6. Valve clearance out of adjustment. 7. Clogged fuel filter. 	<p>Clean. Replace. Replace. Clean. Clean. Adjust. Clean or replace.</p>
<p>Noisy engine.</p>	<p>Excessive valve chatter</p> <ol style="list-style-type: none"> 1. Valve clearance too large. 2. Weakened or broken valve springs. 3. Worn down rocker arm or rocker arm shaft. <p>Noise appears to come from piston</p> <ol style="list-style-type: none"> 1. Piston or cylinder worn down. 2. Combustion chamber fouled with carbon. 3. Piston pin or piston pin bore worn. 4. Piston rings or ring groove worn. <p>Noise seems to come from clutch</p> <ol style="list-style-type: none"> 1. Worn splines of countershaft or hub. 2. Worn teeth of clutch plates. 3. Distorted clutch plates, driven and drive. 4. Clutch damper weakened. <p>Noise seems to come from crankshaft</p> <ol style="list-style-type: none"> 1. Worn or burnt bearings. 2. Big-end bearings worn and burnt. 3. Thrust clearance too large. 	<p>Adjust. Replace. Replace.</p> <p>Replace. Clean. Replace. Replace.</p> <p>Replace. Replace. Replace. Replace.</p> <p>Replace. Replace. Replace.</p>

SERVICE INFORMATION

Complaint	Symptom and possible causes	Remedy
Noisy engine.	Noise seems to come from transmission 1. Gears worn or rubbing. 2. Badly worn splines. 3. Primary gears worn or rubbing. 4. Badly worn bearings.	Replace. Replace. Replace. Replace.
Slipping clutch.	1. Clutch control out of adjustment or loss of play. 2. Weakened clutch springs. 3. Worn or distorted pressure plate. 4. Distorted clutch plates, driven and drive.	Adjust. Replace. Replace. Replace.
Dragging clutch.	1. Clutch control out of adjustment or too much play. 2. Some clutch springs weakened while others are not. 3. Distorted pressure plate or clutch plates.	Adjust. Replace. Replace.
Transmission will not shift.	1. Broken gearshift cam. 2. Distorted gearshift forks. 3. Worn gearshift pawl.	Replace. Replace. Replace.
Transmission will not shift back.	1. Broken return spring on shift shaft. 2. Shift shafts are rubbing or sticky. 3. Distorted or worn gearshift forks.	Replace. Repair. Replace.
Transmission jumps out of gear.	1. Worn shifting gears on driveshaft or countershaft. 2. Distorted or worn gearshift forks. 3. Weakened stopper pawl spring on gearshift cam. 4. Worn gearshift pawl.	Replace. Replace. Replace. Replace.
Engine idles poorly.	1. Valve clearance out of adjustment. 2. Poor seating of valves. 3. Defective valve guides. 4. Worn rocker arm or arm shaft. 5. Defective pick up coil. 6. Defective ignitor unit. 7. Spark plug gap too wide. 8. Defective ignition coil resulting in weak sparking. 9. Clogged jets.	Adjust. Replace. Replace. Replace. Replace. Replace. Adjust or replace. replace. Clean.
Engine runs poorly in high speed range.	1. Valve springs weakened. 2. Valve timing out of adjustment. 3. Worn cams or rocker arms. 4. Spark plug gap too narrow. 5. Defective ignition coil. 6. Clogged air cleaner element. 7. Clogged fuel pipe, resulting in inadequate fuel supply to carburetor. 8. Defective pick up coil or ignitor unit.	Replace. Adjust. Replace. Repair. Replace. Clean. Clean and prime. Replace.
Dirty or heavy exhaust smoke.	1. Too much engine oil in the engine. 2. Worn piston rings or cylinder. 3. Worn valve guides. 4. Cylinder wall scored or scuffed. 5. Worn valves stems. 6. Defective stem seals. 7. Worn side rails.	Check with inspection window, drain out excess oil. Replace. Replace. Replace. Replace. Replace.

SERVICE INFORMATION

Complaint	Symptom and possible causes	Remedy
Engine lacks power.	<ol style="list-style-type: none"> 1. Loss of valve clearance. 2. Weakened valve springs. 3. Valve timing out of adjustment. 4. Worn piston ring or cylinder. 5. Poor seating of valves. 6. Fouled spark plug. 7. Worn rocker arms or its shafts. 8. Sprak plug gap incorrect. 9. Clogged jets in carburetor. 10. Clogged air cleaner element. 11. Too much engine oil. 12. Suck air intake pipe. 	Adjust. Replace. Adjust. Replace. Repair. Clean or replace. Replace. Adjust or replace. Clean. Clean. Drain out excess oil. Retighten or replace.
Engine overheats.	<ol style="list-style-type: none"> 1. Heavy carbon deposit on piston crown. 2. Not enough oil in the engine. 3. Defective oil pump or clogged oil circuit. 4. Air leak from intake pipe. 5. Use of incorrect engine oil. 	Clean. Add oil. Repair or clean. Retighten or replace. Change.

CARBURETOR

Complaint	Symptom and possible causes	Remedy
Trouble with starting.	<ol style="list-style-type: none"> 1. Starter jet is clogged. 2. Starter pipe is clogged. 3. Air leaking from a joint between starter body and carburetor. 4. Starter plunger is not operating properly. 	Clean. Clean. Check starter body and carburetor for tightness, adjust and replace gasket. Check and adjust.
Idling or low-speed trouble.	<ol style="list-style-type: none"> 1. Pilot jet, pilot air jet are clogged or loose. 2. Pilot outlet or bypass is clogged. 3. Starter plunger is not fully closed. 	Check and clean. Check and clean. Check and adjust.
Medium or high-speed trouble.	<ol style="list-style-type: none"> 1. Main jet or main air jet is clogged. 2. Needle jet is clogged. 3. Throttle valve is not operating properly. 4. Filter is clogged. 	Check and clean. Check and clean. Check throttle valve for operation. Check and clean.
Overflow and fuel level fluctuations.	<ol style="list-style-type: none"> 1. Needle valve is worn or damaged. 2. Spring in needle valve is broken. 3. Float is not working properly. 4. Foreign matter has adhered to needle valve. 	Replace. Replace. Check and adjust. Clean.

ELECTRICAL

Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking.	<ol style="list-style-type: none"> 1. Defective ignition coil. 2. Defective spark plug. 3. Defective pick up coil or ignitor unit. 	Replace. Replace. Replace.
Spark plug soon become fouled with carbon.	<ol style="list-style-type: none"> 1. Mixture too rich. 2. Idling speed set too high. 3. Incorrect gasoline. 4. Dirty element in air cleaner. 5. Spark plug too cold. 	Adjust carburetor. Adjust carburetor. Change. Clean. Replace by hot type plug.

SERVICE INFORMATION

Complaint	Symptom and possible causes	Remedy
Spark plug become fouled too soon.	<ol style="list-style-type: none"> 1. Worn piston rings. 2. Pistons or cylinder worn. 3. Excessive clearance of valve stems in valve guides. 4. Worn stem oil seals. 	<p>Replace. Replace. Replace. Replace.</p>
Spark plug electrodes overheat or burn.	<ol style="list-style-type: none"> 1. Spark plug too hot. 2. The engine overheats. 3. Defective pick up coil or ignitor unit. 4. Spark plug loose. 5. Mixture too lean. 	<p>Replace by cold type plug. Tune up. Adjust. Retighten. Adjust carburetor.</p>
Generator does not charge.	<ol style="list-style-type: none"> 1. Open or short in lead wires, or loose lead connections. 2. Shorted, grounded or open generator coils. 3. Shorted or punctured regulator/rectifier. 	<p>Repair or replace or retighten. Replace. Replace.</p>
Generator charges, but charging rate is below the specification.	<ol style="list-style-type: none"> 1. Lead wires tend to get shorted or open-circuited or loosely connected at terminals. 2. Grounded or open-circuited stator coils of generator. 3. Defective regulator/rectifier. 4. Not enough electrolyte in the battery. 5. Defective cell plates in the battery. 	<p>Repair or retighten.</p> <p>Replace. Replace. Add distilled water between the level lines. Replace the battery.</p>
Generator overcharges.	<ol style="list-style-type: none"> 1. Internal short-circuit in the battery. 2. Resistor element in the regulator/rectifier damaged or defective. 3. Regulator/rectifier poorly grounded. 	<p>Replace the battery. Replace. Clean and tighten ground connection.</p>
Unstable charging.	<ol style="list-style-type: none"> 1. Lead wire insulation frayed due to vibration, resulting in intermittent shorting. 2. Generator internally shorted. 3. Defective regulator/rectifier. 	<p>Repair or replace.</p> <p>Replace. Replace.</p>
Starter button is not effective.	<ol style="list-style-type: none"> 1. Battery run down. 2. Defective switch contacts. 3. Brushes not seating properly on commutator in starter motor. 4. Defective starter relay. 	<p>Recharge or replace. Replace. Repair or replace. Replace.</p>

BATTERY

Complaint	Symptom and possible causes	Remedy
"Sulfation", acidic white powdery substance or spots on surfaces of cell plates.	<ol style="list-style-type: none"> 1. Not enough electrolyte. 2. Battery case is cracked. 3. Battery has been left in a run-down condition for a long time. 4. Contaminated electrolyte (Foreign matter has entered the battery and become mixed with the electrolyte.) 	<p>Add distilled water, if the battery has not been damaged and "sulfation" has not advanced too far, and recharge. Replace the battery. Replace the battery.</p> <p>If "sulfation" has not advanced too far, try to restore the battery by replacing the electrolyte, recharging it fully with the battery detached from the motorcycle and then adjusting electrolyte S.G.</p>

SERVICE INFORMATION

Complaint	Symptom and possible causes	Remedy
Battery runs down quickly	<ol style="list-style-type: none"> 1. The charging method is not correct. 2. Cell plates have lost much of their active material as result of over-charging. 3. A short-circuit condition exists within the battery due to excessive accumulation of sediments caused by the high electrolyte S.G. 4. Electrolyte S.G. is too low. 5. Contaminated electrolyte. 6. Battery is too old. 	<p>Check the generator, regulator/rectifier and circuit connections, and make necessary adjustments to obtain specified charging operation. Replace the battery, and correct the charging system.</p> <p>Replace the battery.</p> <p>Recharge the battery fully and adjust electrolyte S.G. Replace the electrolyte, recharge the battery and the adjust S.G. Replace the battery.</p>
Reversed battery polarity.	The battery has been connected the wrong way round in the system, so that it is being charged in the reverse direction.	Replace the battery and be sure to connect the battery properly.
Battery "Sulfation"	<ol style="list-style-type: none"> 1. Charging rate too low or too high. (When not in use, batteries should be recharged at least once a month to avoid sulfation.) 2. Battery electrolyte excessive or insufficient, or its specific gravity too high or too low. 3. The battery left unused for too long in cold climate. 	<p>Replace the battery.</p> <p>Keep the electrolyte up to the prescribed level, or adjust the S.G. by consulting the battery maker's directions. Replace the battery, if badly sulfated.</p>
Battery discharges too rapidly	<ol style="list-style-type: none"> 1. Dirty container tap and sides. 2. Impurities in the electrolyte or electrolyte S.G. is too high. 	<p>Clean.</p> <p>Change the electrolyte by consulting the battery maker's directions.</p>

CHASSIS

Complaint	Symptom and possible causes	Remedy
Steering feels too heavy or stiff.	<ol style="list-style-type: none"> 1. Steering stem nut overtightened. 2. Worn bearing or race in steering stem. 3. Distorted steering stem. 4. Not enough pressure in tires. 	<p>Adjust.</p> <p>Replace.</p> <p>Replace.</p> <p>Adjust.</p>
Steering oscillation.	<ol style="list-style-type: none"> 1. Loss of balance between right and left front suspensions. 2. Distorted front fork. 3. Distorted front axle or crooked tire. 	<p>Replace.</p> <p>Repair or replace.</p> <p>Replace.</p>
Wobbly front wheel.	<ol style="list-style-type: none"> 1. Distorted wheel rim. 2. Worn-down front wheel bearings. 3. Defective or incorrect tire. 4. Loose nut on axle. 	<p>Replace.</p> <p>Replace.</p> <p>Replace.</p> <p>Retighten.</p>
Front suspension too soft.	<ol style="list-style-type: none"> 1. Weakened springs. 2. Not enough fork oil. 	<p>Replace.</p> <p>Refill.</p>
Front suspension too stiff.	<ol style="list-style-type: none"> 1. Fork oil too viscous. 2. Too much fork oil. 	<p>Replace.</p> <p>Remove excess oil.</p>
Noisy front suspension.	<ol style="list-style-type: none"> 1. Not enough fork oil. 2. Loose nuts on suspension. 	<p>Refill.</p> <p>Retighten.</p>

SERVICE INFORMATION

Complaint	Symptom and possible causes	Remedy
Wobbly rear wheel.	<ol style="list-style-type: none"> 1. Distorted wheel rim. 2. Worn-down rear wheel bearings. 3. Defective or incorrect tire. 4. Loose nut on axle. 5. Worn swing arm bushings. 6. Loosen nuts on the rear shock. 	Remedy Replace. Replace. Retighten. Replace. Retighten.
Rear suspension too soft.	<ol style="list-style-type: none"> 1. Weakened springs. 2. Rear suspension adjuster improperly set. 	Replace. Adjust.
Rear suspension too stiff.	<ol style="list-style-type: none"> 1. Rear suspension adjuster improperly set. 2. Worn swing arm bushings. 	Adjust. Replace.
Noisy rear suspension.	<ol style="list-style-type: none"> 1. Loose nuts on suspension. 2. Worn swing arm bushings. 	Retighten. Replace.

BRAKES

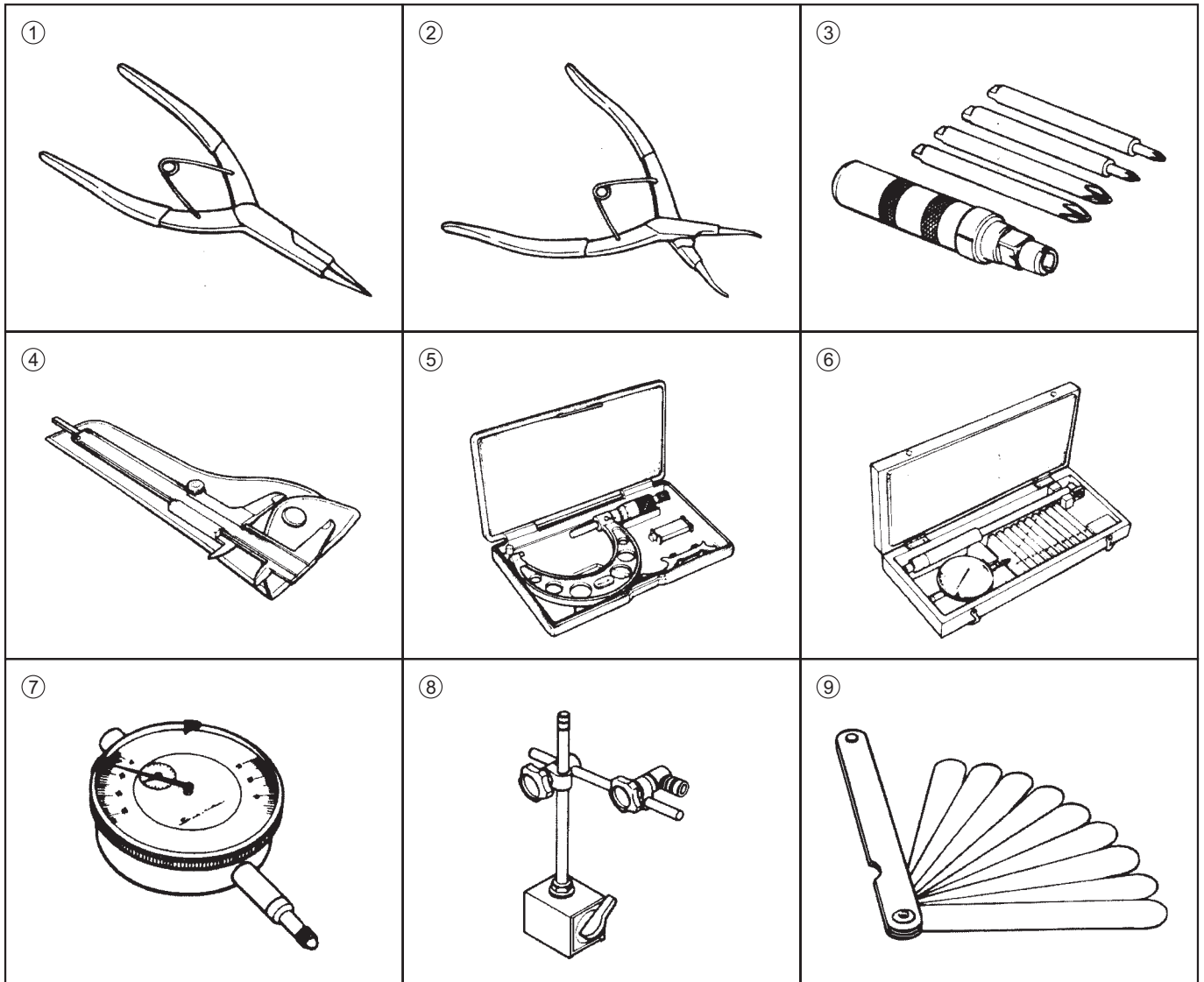
Complaint	Symptom and possible causes	Remedy
Poor braking.	<ol style="list-style-type: none"> 1. Not enough brake fluid in the reservoir. 2. Air trapped in brae fluid circuit. 3. Pads worn down. 4. Top much play on brake lever or pedal. 5. Linings worn down. 	Refill to level mark. Bleed air out. Replace. Adjust. Replace.
Insufficient brake power.	<ol style="list-style-type: none"> 1. Leakage of brake fluid from hydraulic system. 2. Worn pads. 3. Oil adhesion on engaging surface of pads. 4. Worn disc. 5. Air in hydraulic system. 	Repair or replace. Replace. Clean disc and park Replace Bleed air
Brake squeaking.	<ol style="list-style-type: none"> 1. Carbon adhesion on pad surface. 2. Tilted pad. 3. Damaged wheel bearing. 4. Loose front-wheel axle or rear-wheel axle. 5. Worn pads. 6. Foreign material in brake fluid. 7. Clogged return port of matter cylinder 	Repair surface with sandpaper. Modify pad fitting. Replace. Tighten to specified torque. Replace. Replace brake fluid. Disassemble and clean master cylinder.
Excessive brake lever stoke.	<ol style="list-style-type: none"> 1. Air in hydraulic system. 2. Worn brake lever cam. 3. Insufficient brake fluid. 4. Improper quality of brake fluid. 	Bleed air. Replace brake lever. Replenish fluid to specified lever; bleed air. Replace with correct fluid.
Leakage of brake fluid.	<ol style="list-style-type: none"> 1. Insufficient tightening of connection joints. 2. Cracked hose. 3. Worn piston and/or cup. 	Tighten to specified torque. Replace. Replace piston and/or cup.

SPECIAL TOOLS

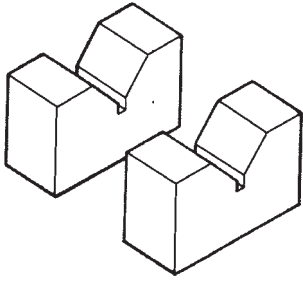
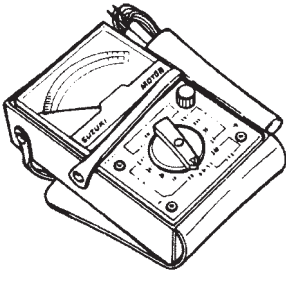
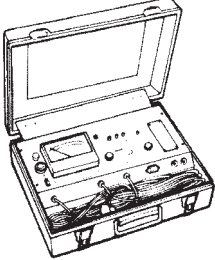
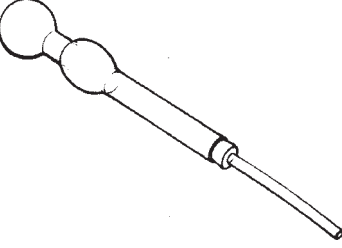

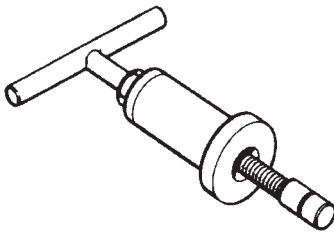
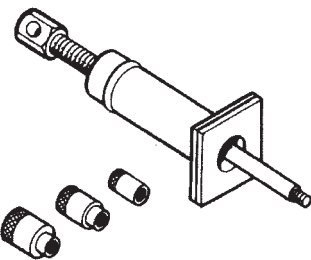
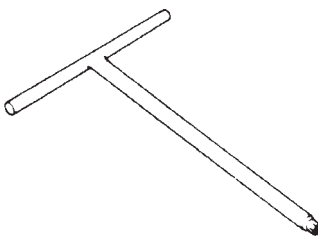
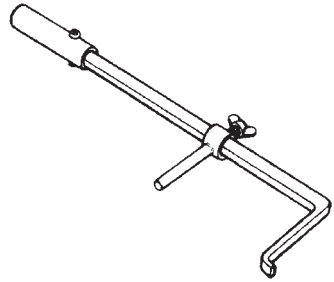
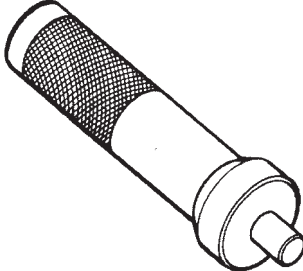
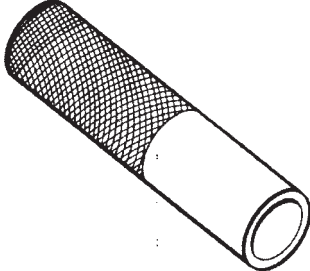
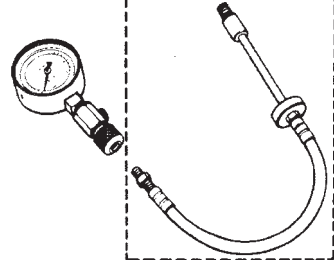
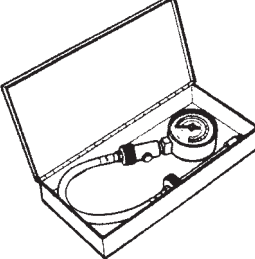
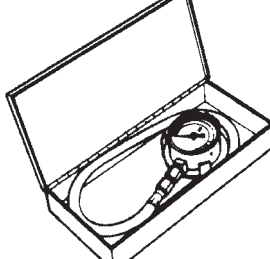

ITEM	PART NO.	PART NAME
1	09900-06107	Snap ring pliers (opening type)
2	09900-06108	Snap ring pliers (closing type)
3	09900-09003	Impact driver set
4	09900-20101	Vernier calipers (150 mm)
5	09900-20202	Micrometer (25-50 mm)
	09900-20203	Micrometer (50-75 mm)
	09900-20205	Micrometer (0-25 mm)
6	09900-20508	Cylinder gauge set
7	09900-20606	Dial gauge (1/100)
8	09900-20701	Magnetic stand
9	09900-20803	Thickness gauge
10	09900-21304	V-block
11	09900-25002	Pocket tester
12	09900-28106	Electro tester
13	09900-28403	Hydrometer
14	11F14-1019	Conrod holder
15	09910-32812	Crankshaft installer
16	09910-34510	Piston pin puller
17	09911-73730	"T" type hexagon wrench (5 mm)
18	09913-50121	Oil seal remover
19	09913-75820	Bearing installer
20	09913-80112	Bearing installer
21	09915-63310	Compression pressure adapter
22	09915-64510	Compression gauge
23	09915-74510	Oil pressure gauge
24	11F14-018	Valve spring knocked-down tool
25	09916-21110	Valve seat cutter set
26	09916-24311	Solid pilot (N-100-5.0)
27	09916-24610	Valve seat cutter 15° (N-121)
28	09916-20620	Valve seat cutter 45° (N-122)
	09916-20630	Valve seat cutter 30° (N-126)
29	09916-34542	Reamer handle
30	09916-34570	5.0mm reamer
31	09916-34580	10.8 mm reamer
32	11F14-012	Clutch stem nut socket wrench
33	11F14-011	Clutch stem nut socket wrench
34	11F14-019	Valve adjust tool
35	11F14-002	Crankcase separating tool/crankshaft remover
36	11F14-009	Clutch sleeve hub holder
37	09923-73210	Bearing puller
38	09924-84510	Bearing installer set
39	09930-30102	Rotor remover slide shaft

SERVICE INFORMATION

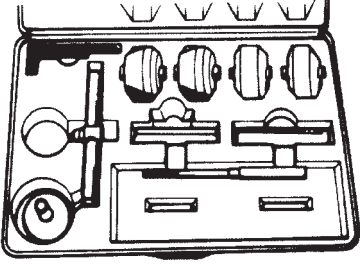
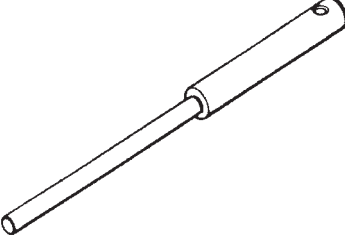
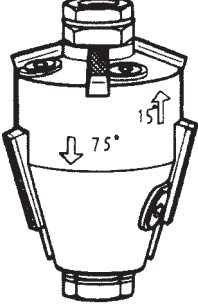
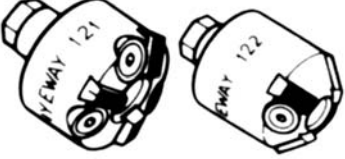






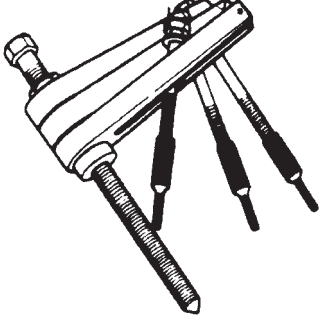
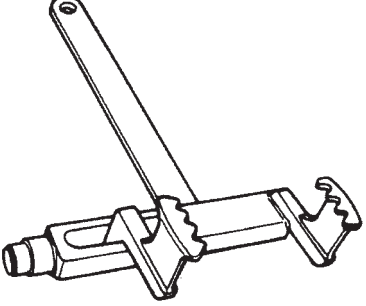
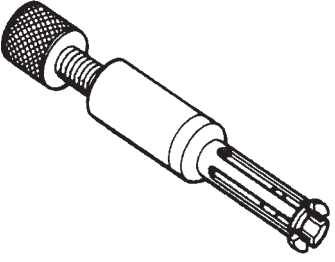
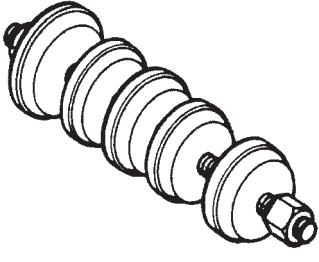
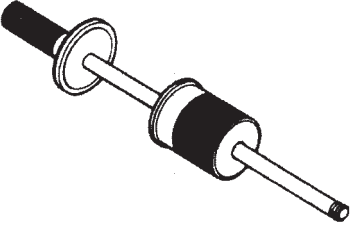
ITEM	PART NO.	PART NAME
40	11F14-004	Rotor separator
41	11F14-008	Rotor and sprocket holder
42	11F14-005	Rotor separator
43	09940-14911	Steering stem nut socket wrench
44	11F14-010	Shock absorber separating/installer tool
45	11F14-003	Rotor separator bolt
46	09940-50112	Fork oil seal installer
47	09940-53311	Bearing installer
48	09941-34513	Steering race installer
49	09943-74111	Fork oil level gauge
50	11F14-001	Rotor holder
51	11F14-007	Finally driven gear separating tool






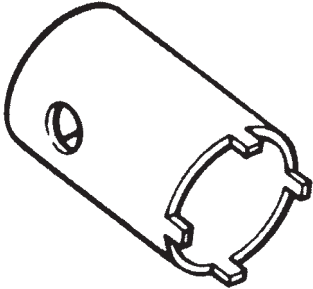


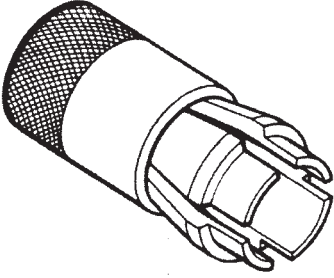
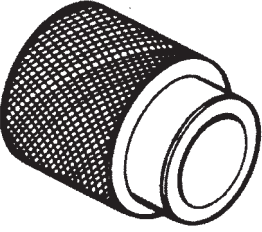
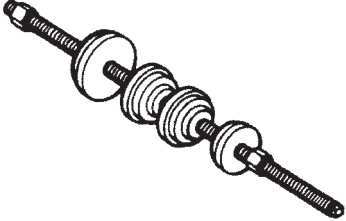
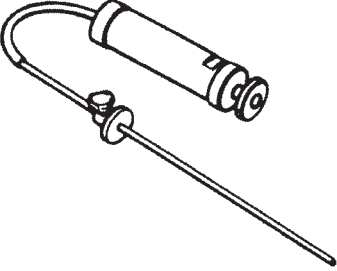
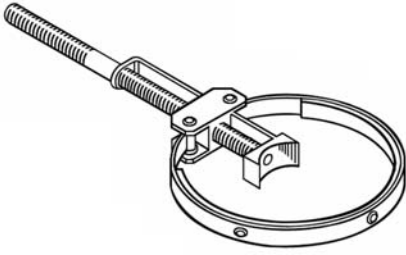

SERVICE INFORMATION

<p>10</p> 	<p>11</p> 	<p>12</p> 
<p>13</p> 	<p>14</p> 	<p>15</p> 
<p>16</p> 	<p>17</p> 	<p>18</p> 
<p>19</p> 	<p>20</p> 	<p>21</p> 
<p>22</p> 	<p>23</p> 	<p>24</p> 

SERVICE INFORMATION

<p>25</p> 	<p>26</p> 	<p>27</p> 
<p>28</p> 	<p>29</p> 	<p>30</p> 
<p>31</p> 	<p>32</p> 	<p>33</p> 
<p>34</p> 	<p>35</p> 	<p>36</p> 
<p>37</p> 	<p>38</p> 	<p>39</p> 

SERVICE INFORMATION

<p>40</p> 	<p>41</p> 	<p>42</p> 
<p>43</p> 	<p>44</p> 	<p>45</p> 
<p>46</p> 	<p>47</p> 	<p>48</p> 
<p>49</p> 	<p>50</p> 	<p>51</p> 

TIGHTENING TORQUE

ENGINE

ITEM	Kg m	N m
Cylinder head nut	2.3-2.7	23-27
Cylinder head side bolt	0.8-1.2	8-12
Bolts of the air hose	0.8-1.2	8-12
Nut on the generator rotor	5.0-7.0	50-70
Bolts on the starting clutch hub	1.9-2.3	19-23
Adjusting nut for valve clearance	0.9-1.1	9-11
Nut on the clutch hub	4.0-6.0	40-60
Mounting bolt for the engine (front)	3.3-3.9	33-39
Mounting bolt for the engine (rear)	3.3-3.9	33-39
Mounting bolt for the engine (top)	3.3-3.9	33-39

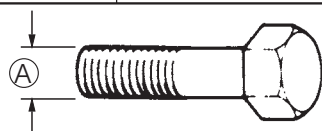
CHASSIS

ITEM	Kg m	N m
Front axle nut	3.6-5.2	36-52
Bolts on the upper bracket	3.5-5.5	35-55
Bolts on the lower bracket (clamping bolts of the front absorbers)	2.5-4.0	25-40
Clamping bolt on the handle pipe	1.2-2.0	12-20
Bolt on the muffler cylinder head	2.0-2.4	20-24
Bolt/nut on the overhang of the engine (top and front)	2.2-3.3	22-33
Nuts on the rear absorbers (upper and lower)	2.2-3.5	22-35
Nut on the rear axle	3.5-5.5	35-55
Bolt/nut on the swing arm of the shift cam (front and rear)	0.6-0.8	6-8
Nut of side bracket installer	3.0-5.0	30-50
Bolt/nut on the rear swing arm	4.5-7.0	45-70

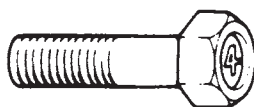
TIGHTENING TORQUE CHART

For other bolt and nuts whose torque is not listed, refer to this chart:

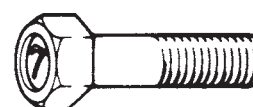
Bolt Diameter (mm)	Conventional or "4" marked bolt		"7" marked bolt	
	kg m	N m	kg m	N m
4	0.1-0.2	1.0-2.0	0.15-0.3	1.5-3.0
5	0.2-0.4	2.0-4.0	0.3-0.6	3.0-6.0
6	0.4-0.7	4.0-7.0	0.8-1.2	8.0-12.0
8	1.0-1.6	10.0-16.0	1.8-2.8	18.0-28.0
10	2.2-3.5	22.0-35.0	4.0-6.0	40.0-60.0
12	3.5-5.5	35.0-55.0	7.0-10.0	70.0-100.0
14	5.0-8.0	50.0-80.0	11.0-16.0	110.0-160.0
16	8.0-13.0	80.0-130.0	17.0-25.0	170.0-250.0
18	13.0-19.0	130.0-190.0	20.0-28.0	200.0-280.0



Conventional bolt



"4" marked bolt



"7" marked bolt

SERVICE DATA CYLINDER + VALVE

Unit: mm

ITEM		STANDARD	LIMIT
Valve diam	IN	24	---
	EX	22	---
Valve clearance (when cold)	IN	0.03-0.08	---
	EX	0.08-0.13	---
Valve guide to valve stem clearance	IN	0.010-0.037	---
	EX	0.030-0.057	---
Valve guide I.D.	IN&EX	5.000-5.012	---
Valve stem O.D.	IN	4.975-4.990	---
	EX	4.955-4.970	---
Valve stem runout	IN&EX	---	0.05
Valve stem deflection	IN&EX	---	0.35
Valve head thickness	IN&EX	---	0.03
Valve seat width	IN&EX	0.9-1.1	---
Valve spring free length	IN	---	34.2
	EX	---	34.2
Compression pressure		10-14kg/cm ²	8kg/cm ²
Cylinder head distortion		---	0.05

SERVICE INFORMATION

CAMSHAFT

Unit: mm

ITEM	STANDARD		LIMIT
Cam height	IN	27.84-27.94	27.54
	EX	27.65-27.75	27.35
Camshaft runout	---		0.10
Rocker arm I.D.	10.003-10.018		---
Rocker arm shaft O.D.	9.981-10.018		---

CYLINDER + PISTON + PISTON RING

Unit: mm

ITEM	STANDARD		LIMIT
Cylinder bore	51.000-51.015		51.135
Piston diam	50.965-50.980 (Measure at 10 mm from the skirt end)		50.840
Cylinder distortio	---		0.05
Piston ring end gap	1st	---	0.50
	2nd	---	0.50
Piston ring groove clearance	1st	---	0.180
	2nd	---	0.180
Piston ring groove width	1st	1.01-1.03	---
	2nd	1.01-1.03	---
	Oil ring	2.01-2.03	---
Piston ring thickness	1st	0.97-0.99	---
	2nd	0.97-0.99	---
Piston pin bore	14.002-14.008		14.038
Piston to pin clearance	0.002-0.014		---
Piston pin O.D.	13.996-14.000		13.976

CONROD + CRANKSHAFT

Unit: mm

ITEM	STANDARD	LIMIT
Conrod small end I.D.	14.006-14.024mm	14.064mm
Conrod deflection	---	3.0mm
Conrod big end width	16.995-17.000mm	---
Crankshaft web to web width	41.9-42.1mm	---
Crankshaft runout	---	0.05mm

CLUTCH

Unit: mm

ITEM	STANDARD	LIMIT
Clutch cable play	4	---
Drive plate thickness	2.90-3.10	2.6
Drive plate claw width	11.8-12.0	11.0
Driven plate distortion	---	0.10
Clutch spring free length	---	35.28

TRANSMISSION + DRIVE CHAIN

Unit: mm

ITEM	STANDARD	LIMIT
Primary reduction ratio	3.667(77/21)	---
Final reduction ratio	2.714(35/14)	---
Gear ratio	Low	3.000(33/11)
	2nd	1.923(25/13)
	3rd	1.375(22/16)
	4th	1.053(20/19)
Shift fork thickness	4.3-4.4 mm	---
Drive chain	Type	KMC 428H
	Links	104
	20-pitch length	---
Drive chain slack	10-20 mm	---

SERVICE INFORMATION

CARBURETOR

ITEM	SPECIFICATION	ITEM	SPECIFICATION
Carburetor type	MIKUNI	Needle jet (N,J)	E-3M
Bore size	22mm	Pilot jet (P,J)	#15
I.D.No.	36H1	Pilot screw (P,S)	PRE-SET (1, 3/4turn out)
Idle r/min	1500 100	Jet needle (J,N)	4DN29
Main jet (M,J)	#106.3	Throttle cable play	0.5-1.0mm

ELECTRICAL

ITEM	SPECIFICATION		NOTE
Ignition timing	15° B.T.D.C. below 1 500 r/mim 55° B.T.D.C. above 4 000 r/min		
Spark plug	Type	NGK CR6HSA	
	Gap	0.6mm-0.7mm	
Spark performance	Over 8mm at 1atm		
Ignition coil resistance	Primary	0.2-0.4 Ω	W-B/W
	Secondary	4.0-6.5K Ω	Plug cap-B/W
Generator no-load voltage	More than 70V (AC) at 5000 r/min		
Regulated voltage	13.5-16.0V at 5 000 r/min		
Battery	Type designation	12N5-4B	
	Capacity	5Ah	
	Standard electrolyte S.G.	1.28 0.01 (20oC)	
Fuse	15A		

WATTAGE

ITEM	SPECIFICATION	ITEM	SPECIFICATION
Headlight	HI	Neutral indicator light	2W
	LO	Speedometer light	3W
Taillight/brake light	5/21W	High-beam indicator light	2W
Turn light	10W	Turn signal indicator light	2W
Position light	5W	Gear indicator light	2W

SERVICE INFORMATION

BRAKE + WHEEL

ITEM	STANDARD		LIMIT
Rear brake pedal free travel	20-30mm		---
Rear brake pedal height	8mm		---
Brake drum I.D.	---		110.0mm
Wheel rim runout	Front	---	2.0mm
	Rear	---	2.0mm
Wheel axle runout	Front	---	0.25mm
	Rear	---	0.25mm
Tire size	Front	2.50-17 38L	---
	Rear	2.75-17 41P	---

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	NORMAL RIDING					
	SOLO RIDING			DUAL RIDING		
	kpa	kg/cm ²	psi	kpa	kg/cm ²	psi
FRONT	175	1.75	25	175	1.75	25
REAR	200	2.00	29	225	2.25	53

SUSPENSION

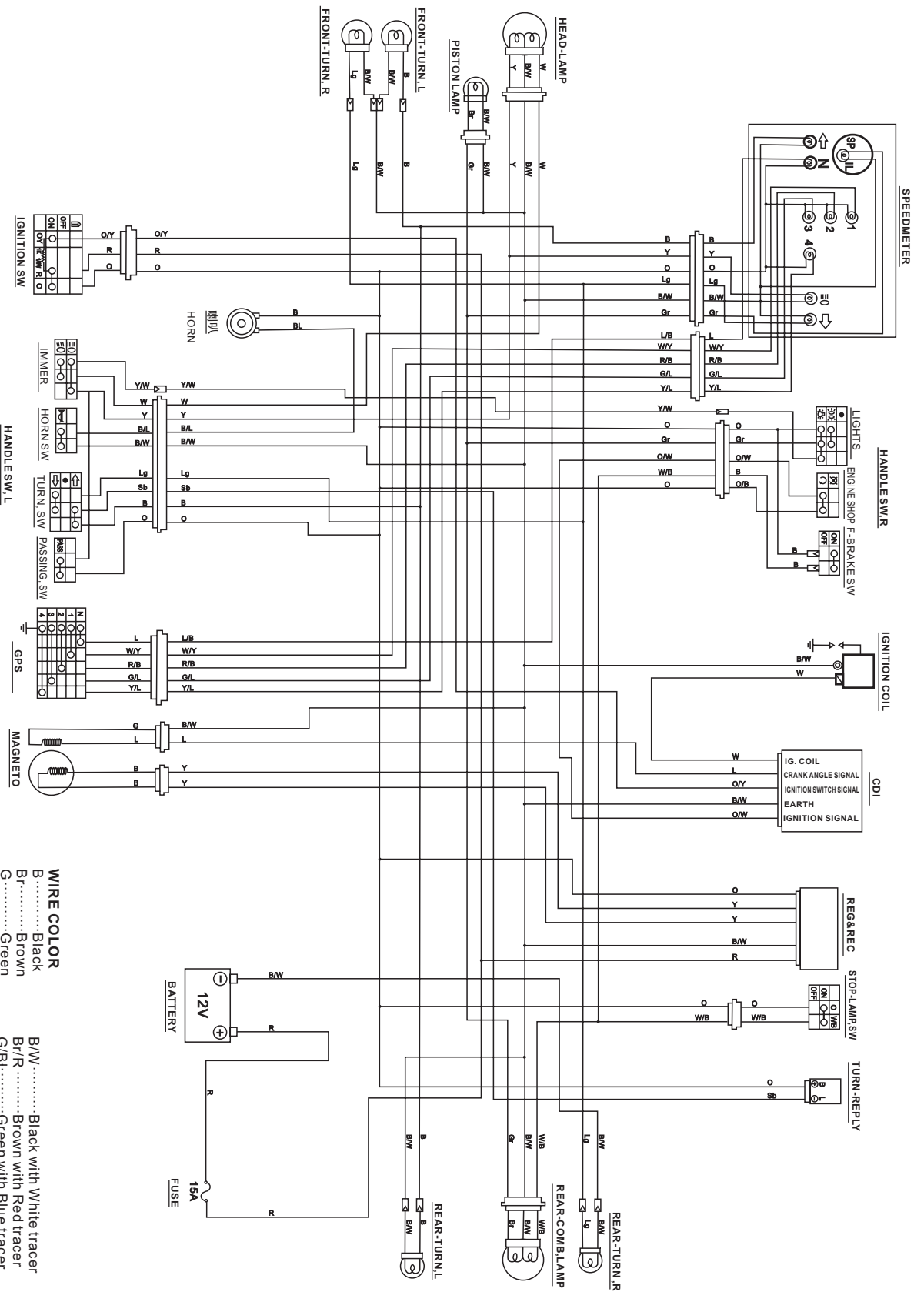
Unit: mm

ITEM	STANDARD	LIMIT	NOTE
(Front absorber) stroke	100	---	
Front absorber spring free length	435	426.3	
Front absorber oil level	145	---	
Front absorber oil type	32# Fork oil	---	
Rear absorber spring free length	211	---	
Swingarm pivot shaft runout	---	0.3	

FUEL + OIL

ITEM		SPECIFICATION	NOTE
Fuse type		Use gasoline with an octane number of 90-97 (Research Method), preferably unleaded.	
Fuel tank	Including reserve	9.2L	
	Reserve	1.8L	
Engine oil type and grade		SAE10W/40,API SF orSG	
Engine oil capacity	Change	0.9L	
	Filter change	1.0L	
	Overhaul	1.1L	
Front shock absorber oil capacity (each leg)		106ml	

WIRING DIAGRAM



JIANGMENDACHANGJIANGGROUP.,LTD.

Address:No.5,JiandabeiRoad,JiangmenCity,GuangdongProviceP.R.C
Telephone:86-750-3288999 Fax:86-750-3288333 Postcode:529000