SUZUKI

GS550

SERVICE MANUAL

99500-35010-03E
(英)

SUZUKI MOTOR CO., LTD. PRINTED IN JAPAN JUNE, '83 Ⓣ

FOREWORD

The SUZUKI GS550 has been developed as a companion motorcycle to the GS models. It features highly advanced design concepts including a forged one piece crankshaft assembly, a new highly efficient combustion system (TSCC), an anti-dive device, full-floating suspension system and fully-transistorized ignition system. The GS550 provides excellent performance, precise control and handling plus outstanding riding comfort.

This service manual has been produced primarily for experienced SUZUKI mechanics. Apprentice and do-it-yourself mechanics will also find this manual to be an extremely useful repair guide. This manual contains the most up-to-date information at the time of publication. The rights are reserved to update or make corrections to this manual at any time.

IMPORTANT

All GS model SUZUKI motorcycles that were manufactured after January 1, 1978 are subject to Environmental Protection Agency emission regulations. These regulations set specific standards for exhaust emission output levels as well as particular servicing requirements. This manual includes specific information required to properly inspect and service the GS550 in accordance with all EPA regulations. It is strongly recommended that the chapter on Emission Control, Periodic Servicing and Carburetion be thoroughly reviewed before any type of service work is performed.

Further information concerning the EPA emission regulations and U.S. SUZUKI's emission control program can be found in the U.S. SUZUKI EMISSION CONTROL PROGRAM MANUAL/SERVICE BULLETIN.

SUZUKI MOTOR CO., LTD.
Administration Department
Overseas Service Division

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VIEW OF SUZUKI GS550E



RIGHT SIDE



LEFT SIDE

VIEW OF SUZUKI GS550ES



RIGHT SIDE



LEFT SIDE

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GENERAL INFORMATION

1

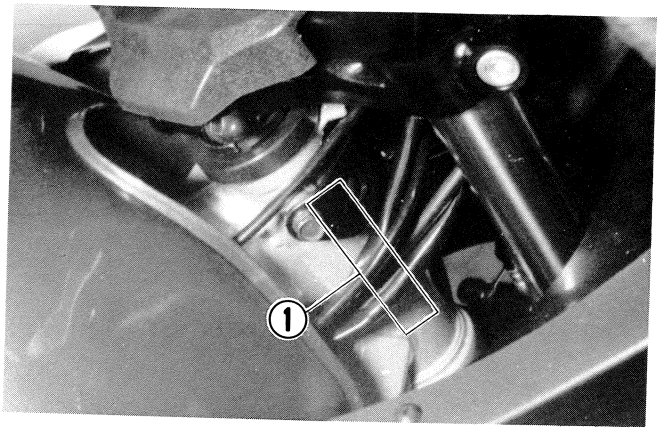
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SERIAL NUMBER LOCATIONS

The VIN (Vehicle Identification Number) ① is stamped on the steering head pipe. 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.





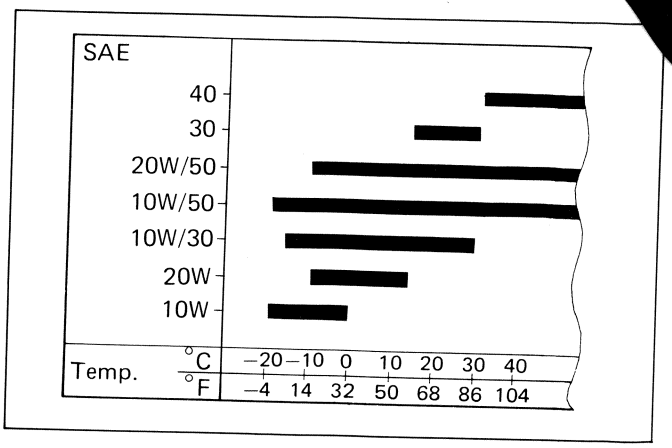
FUEL AND OIL RECOMMENDATIONS

FUEL

Use only unleaded or low-lead type gasoline of at least 85 – 95 pump octane ($\frac{R + M}{2}$ method) or 89 octane or higher rated by the Research Method.

ENGINE OIL

Be sure that the engine oil you use comes under API classification of SE or SF and that its viscosity rating is SAE 10W/40. If SAE 10W/40 motor oil is not available, select the oil viscosity according to the following chart:



BRAKE FLUID

Specification and classification:	DOT3 or DOT4

WARNING:

- **Since the brake system of this motorcycle is filled with a glycol-based brake fluid by the manufacturer, do not use or mix different types of fluid such as silicone-based and petroleum-based fluid for refilling the system, otherwise serious damage will result.**
- **Do not use any brake fluid taken from old or used or unsealed containers.**
- **Never re-use brake fluid left over from the previous servicing and stored for a long period.**

FRONT FORK OIL

Fork oil #15

BREAKING-IN PROCEDURES

During manufacture only the best 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:

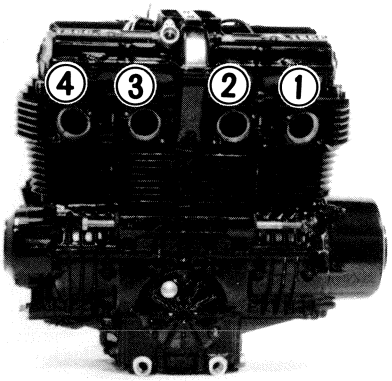
- Keep to these breaking-in engine speed limits:

Initial 800 km (500 mi)	Below 4 000 r/min
Up to 1 600 km (1 000 mi)	Below 6 000 r/min
Over 1 600 km (1 000 mi)	Below 10 000 r/min

- Upon reaching an odometer reading of 1 600 km (1 000 miles) you can subject the motorcycle to full throttle operation.
  However, do not exceed 10 000 r/min at any time.
- Do not maintain constant engine speed for an extended time period during any portion of the break-in. Try to vary the throttle position.

CYLINDER IDENTIFICATION

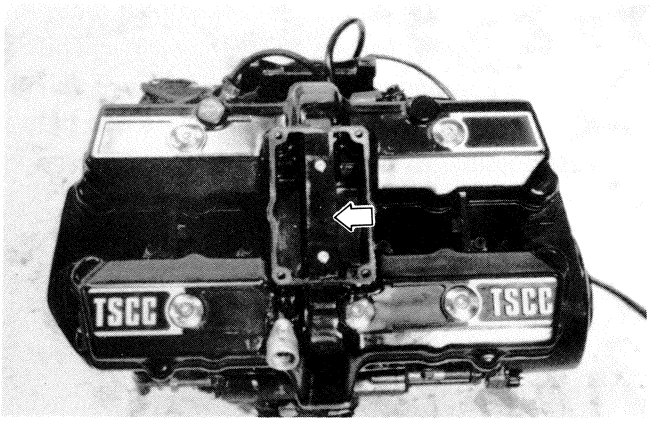
The four cylinders of this engine are identified as No. 1, No. 2, No. 3 and No. 4 cylinder, as counted from left to right (as viewed by the rider on the seat).

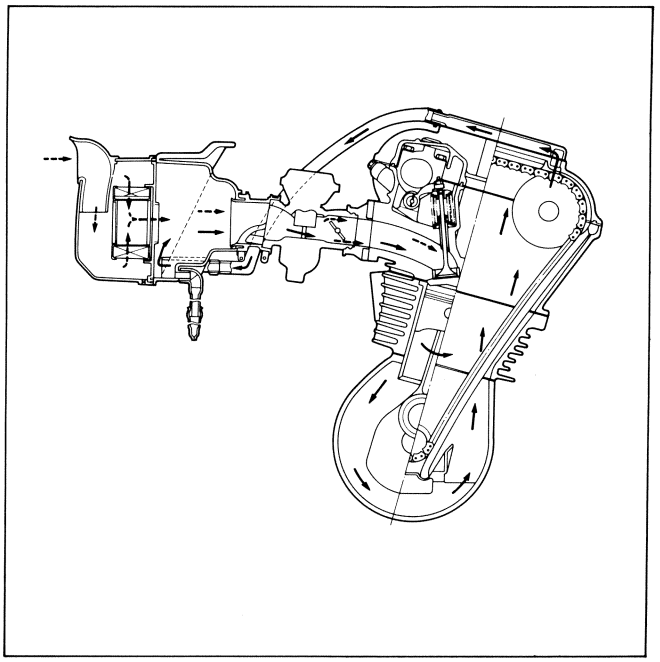


SPECIAL FEATURES

BLOWBY GAS RECYCLING

Blowby gases in the crankcase are constantly drawn into the chain chamber provided in the middle section of the cylinder block. The top section of this chamber is connected with the air chamber assembly through a rubber tube. In the air chamber, the gases merge with incoming air and thus are recycled to the engine through the normal intake system.





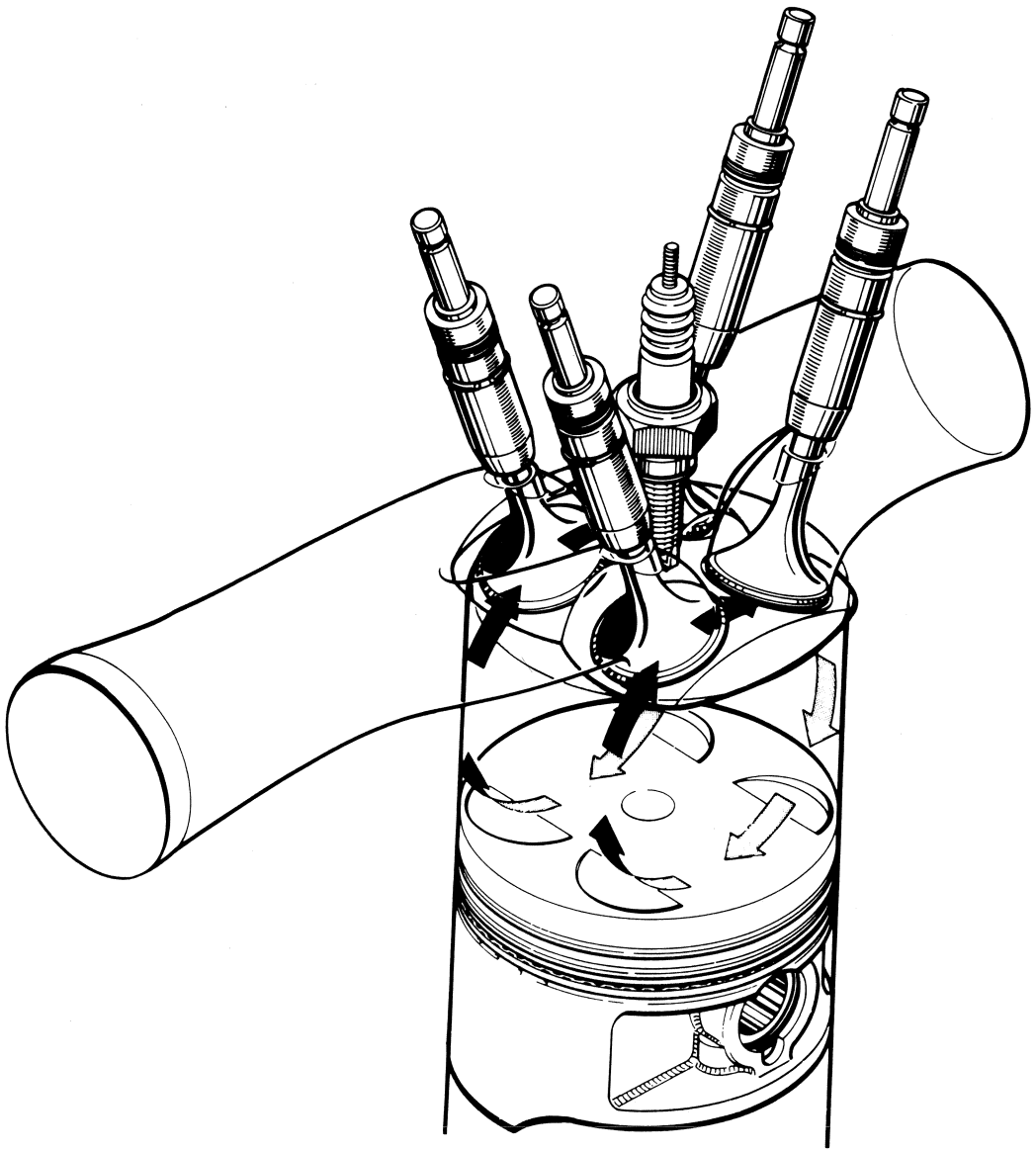
TSCC (TWIN SWIRL COMBUSTION CHAMBER)

SUZUKI has introduced a new breed of 4-valves-per-cylinder high-performance 4-stroke engines--the TSCC series. TSCC describes the heart of the engine, the Twin Swirl Combustion Chamber.

What the TSCC engine series does better than conventional 4-stroke engines, either 2-valve or 4-valve, is to improve on the two major factors which affect engine performance, charge burning efficiency and intake charging efficiency.

First, charge burning efficiency. The TSCC* system consists of a subtle, yet unique shape into the head. Each of the two intake valves is set into adjoining semi-hemispherical depressions in the head. During the intake stroke these depressions channel the incoming fuel/air mixture to form two separate high-speed swirls. During the compression stroke the squish areas in the front and the rear of the cylinder head's combustion chamber accelerate the speed of the swirls. Thus, when the spark plug ignites the mixture, the flame spreads rapidly and completes the combustion more quickly.

To further aid burning efficiency, the spark plug is centrally located, the ideal location. This results in the shortest possible path for the flame to travel.



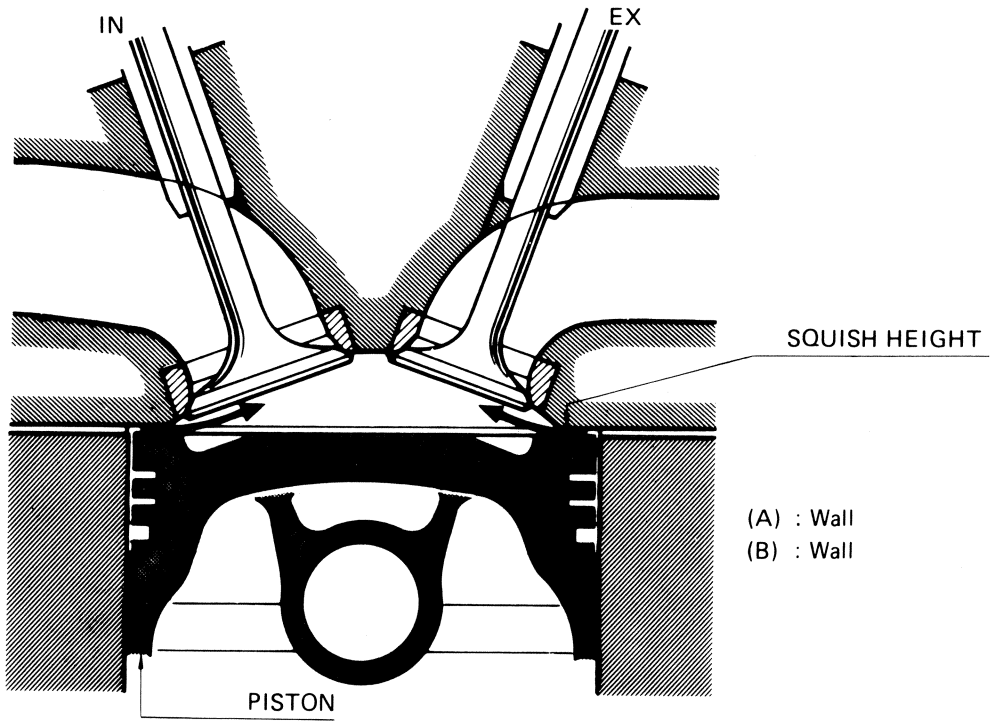
*U.S. PATENT NO. 3633577

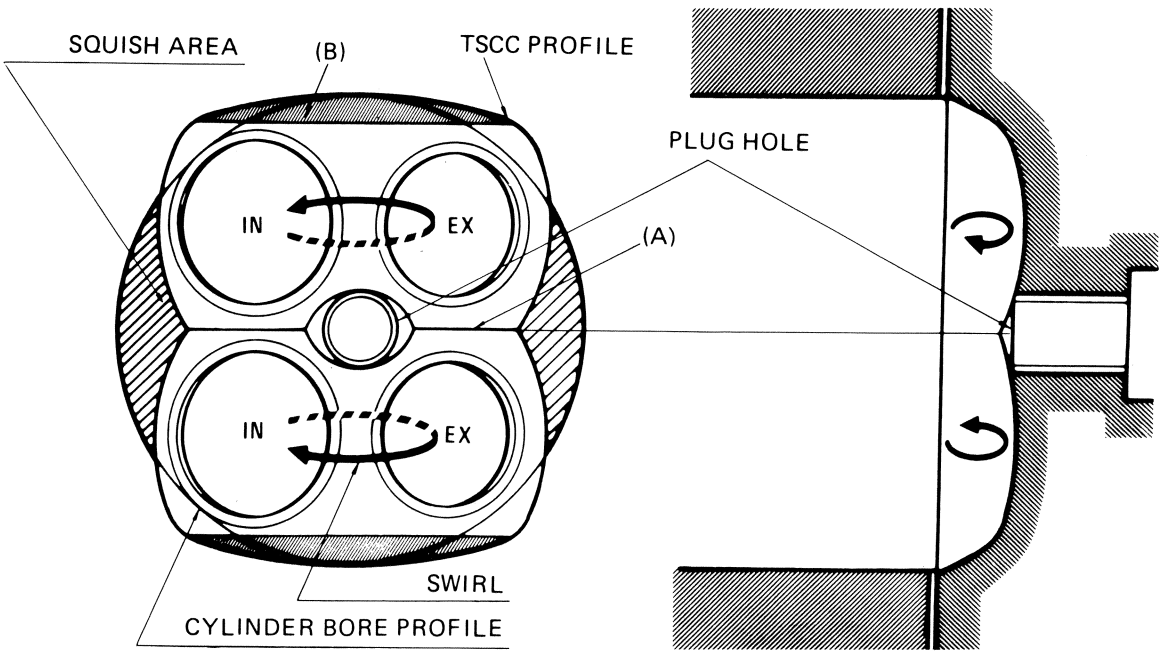
The quick completion of burning results in more energy being developed while the piston is in position to transmit maximum power to the crankshaft.

High burning efficiency results in more power, improved throttle response at all rpm's, more complete combustion of the air/fuel mixture (cleaner combustion) and less chance of detonation.

Second, charging efficiency. The benefits of increased burning efficiency are further multiplied if intake charging efficiency is also increased. Basically, increasing the charging efficiency results in more fuel and air being drawn into the engine during each intake stroke. Thus, greater energy potential.

To achieve this, the four valve head was adopted. Two smaller diameter intake valves can flow more than one large valve. Additionally, two smaller valves run cooler due to increased valve seat area and two valve guides to increase heat transfer.





*U.S. PATENT NO. 3633577

But, SUZUKI went one step further. The valves are set in at a much shallower angle than other engines. The result is a smoother intake tract with less valve guide protrusion than in conventional cylinder heads. Therefore, increased flow, and smoother, less turbulant flow which contributes to more power and improved throttle response at all engine speeds.

There are several other benefits. This design is more efficient and will flow more air/fuel mixture than a conventional 4-valve head. Therefore, even smaller, lighter valves can be used with no decrease in power. Also, the valves can be shorter due to the placement angle. This allows more precise valve control since shorter, lighter valves are more easily controlled--especially at higher rpm's.

Yet another benefit of valves set at shallower angles is that the volume of the cylinder head combustion area is decreased. This allows the use of racing type flat-topped pistons since the desired compression ratio can be achieved without resorting to domed pistons. Flat-topped pistons offer no restriction to the incoming air/fuel mixture and a flat-topped piston exposes the minimum amount of surface area to the hot burning mixture. This means that the flat piston absorbs less heat and therefore has to dissipate less heat through the rings and to the oil than a conventional domed piston. The result is a cooler running engine. Flat-topped pistons can also be made lighter resulting in less vibration and stress.

Increased burning efficiency. Increased charging efficiency. The result is more power throughout, from idle to redline. Throttle response is instant and clean. Displacement for displacement, no conventional engine, 2-valve or 4-valve, can compare. This could be enough, but SUZUKI went even further to ensure reliability and ease of maintenance.

A direct acting rocker arm is utilized to activate the valves. Each rocker arm, when depressed by the cam lobe, directly activates two valves at one time. With this system, engine height is reduced and tappets are not necessary. This system allows more room for cooling air flow and allows the use of larger valve springs which increases spring life by reducing stress. Valve adjustment is accomplished quickly and easily.

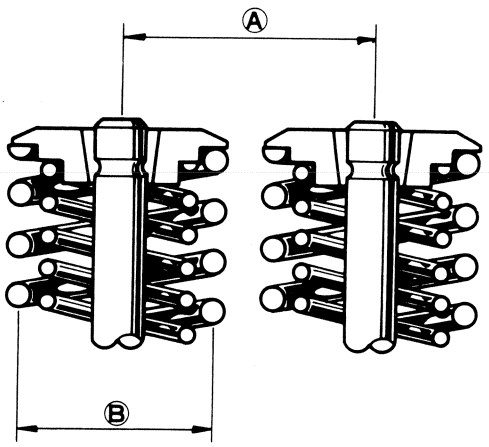
Special sintered steel valve seats are incorporated, manufactured from premium alloys to ensure even more reliability under higher heat loads.

The patented TSCC combustion system combined with SUZUKI's high efficiency charging design results in power and throttle response found only in this new generation 4-stroke engine.

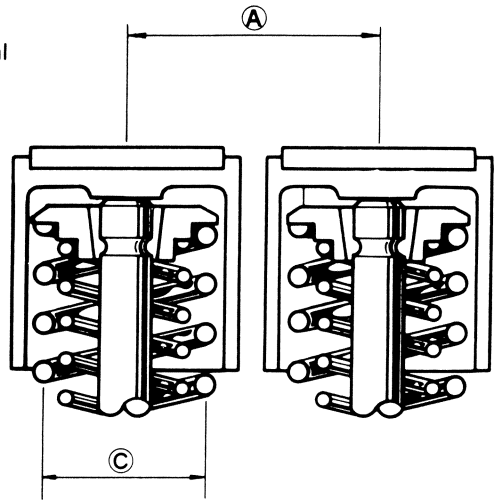
The SUZUKI TSCC engine series--performance without compromise.

If valve pitch Ⓐ is the same, spring diameter Ⓑ is larger than Ⓒ

TSCC
4-valve



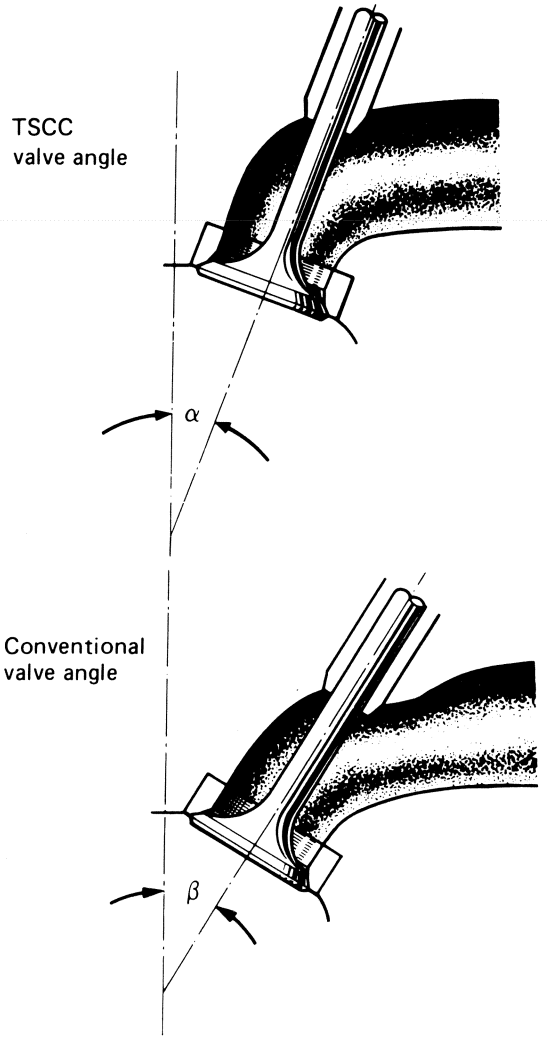
Conventional
4-valve



TSCC valve angle α is smaller than β.

TSCC
valve angle

Conventional
valve angle



*U.S. PATENT NO. 3633577

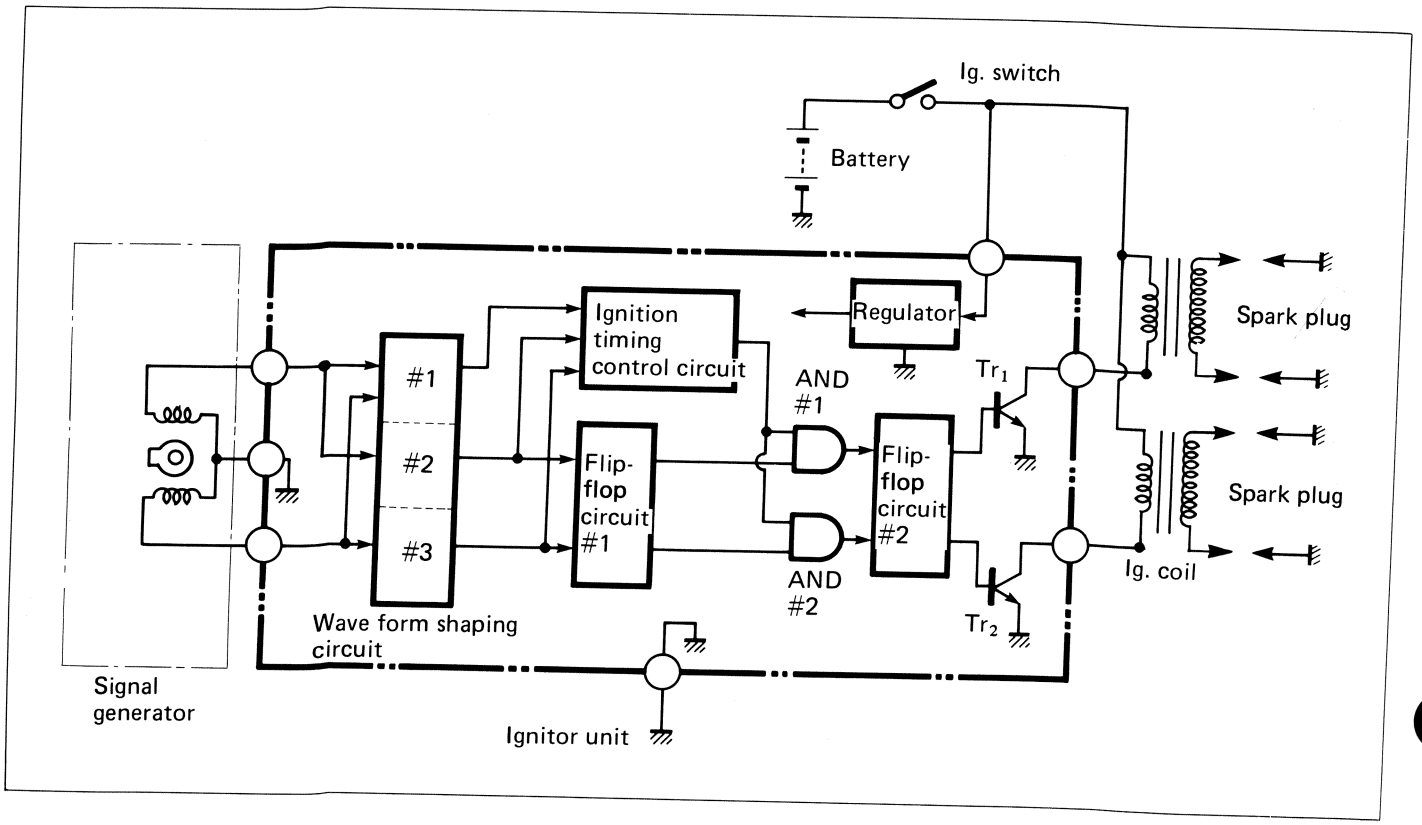
FULLY-TRANSISTORIZED IGNITION SYSTEM WITH ELECTRONIC ADVANCE

DESCRIPTION

In former fully-transistorized ignition systems, a mechanical advance system incorporating a centrifugal advance governor was utilized, but mechanical advance systems had problems in the accuracy of the ignition timing advance angle and durability of the advance angle mechanism. In the GS550 ignition system, an electronic advance system has been incorporated in the ignitor in place of the mechanical advance system. This ignition system is made up of the signal generator, ignitor, ignition coil, and spark plugs.

IGNITION SYSTEM DIAGRAM AND OPERATION

The signal generator rotor attached to the right end of the crankshaft rotates and the protruding part of the rotor begins to come into opposition to the pick-up coil. When this happens, positive-side voltage is induced in the pick-up coil, and when the rotor opposition ends, negative-side voltage is induced in the coil. The voltage generated in the signal generator is shown in Fig. 1.



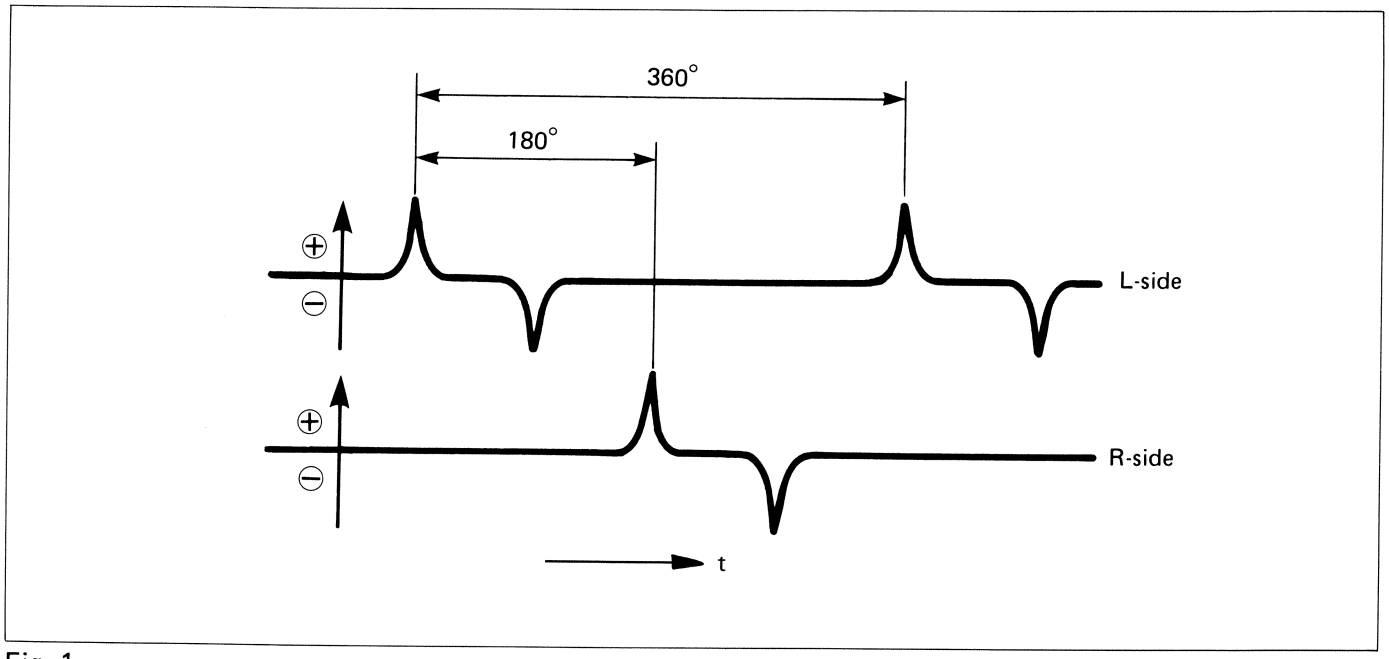


Fig. 1

The pick-up coils in the signal generator stator are mounted in 180° opposition to each other, thus the voltage generated by the respective pick-up coils has a 180° phase difference. The advance angle characteristics of the ignition timing are as shown in Fig. 2. When engine rpm is at or below N_1, ignition timing is θ_1. When engine rpm is between N_1 and N_2, the advance angle begins moving from θ_1 to θ_2, and when engine speed reaches N_2, the advance angle reaches θ_2 and stops there. In ignition timing θ_1, the voltage produced on the pick-up coil's negative ⊖ side passes through the waveform shaping circuit, and this output voltage causes the flip-flop circuit No. 1 to operate, and by the turning ON and OFF of the subsequent Tr, the ignition timing is set. On the other hand, in the most advanced ignition angle state θ_2, timing is controlled by the positive ⊕ side voltage generated in the pick-up coil.

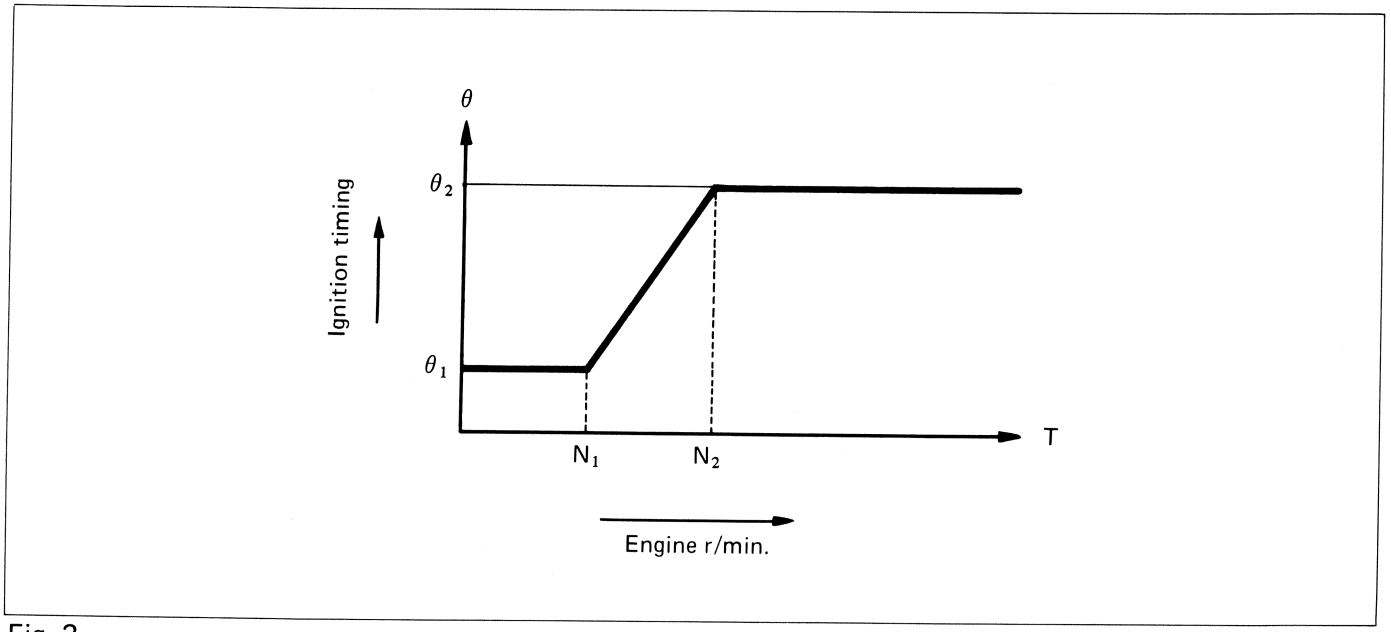


Fig. 2.

As can be seen from the Fig. 2, the distance between θ_1 and θ_2 is the advance angle range, and this space is calculated by the integrator circuit within the ignition timing control circuit, and the ignition timing is set as a result of this operation.

Namely, in the interval between the most retarded angle position θ_1 and the next cycle's most advanced angle position θ_2, the condenser is charged by a stabilized current and integration is performed. The No. 1 integrator preserves the voltage value at the time of θ_2 until θ_1 and the No. 2 integrator performs integration in the interval between angle θ_2 and angle θ_1. The voltages of these two integrators is compared by the voltage comparator, and ignition thus occurs at the point of intersection of the two (point T, see Fig. 3). When the rpm increases, the charge of No. 1 integrator is lowered, and thus intersection point T becomes T', resulting in a further advance angle (Fig. 3). In this way, the output voltage of the ignition timing control circuit causes the flip-flop circuits to operate by AND #1 and AND #2 circuits, thus causing Tr_2 to be OFF when Tr_1 is ON, inducing high voltage in the ignition coil, and generating spark to the spark plug gap.

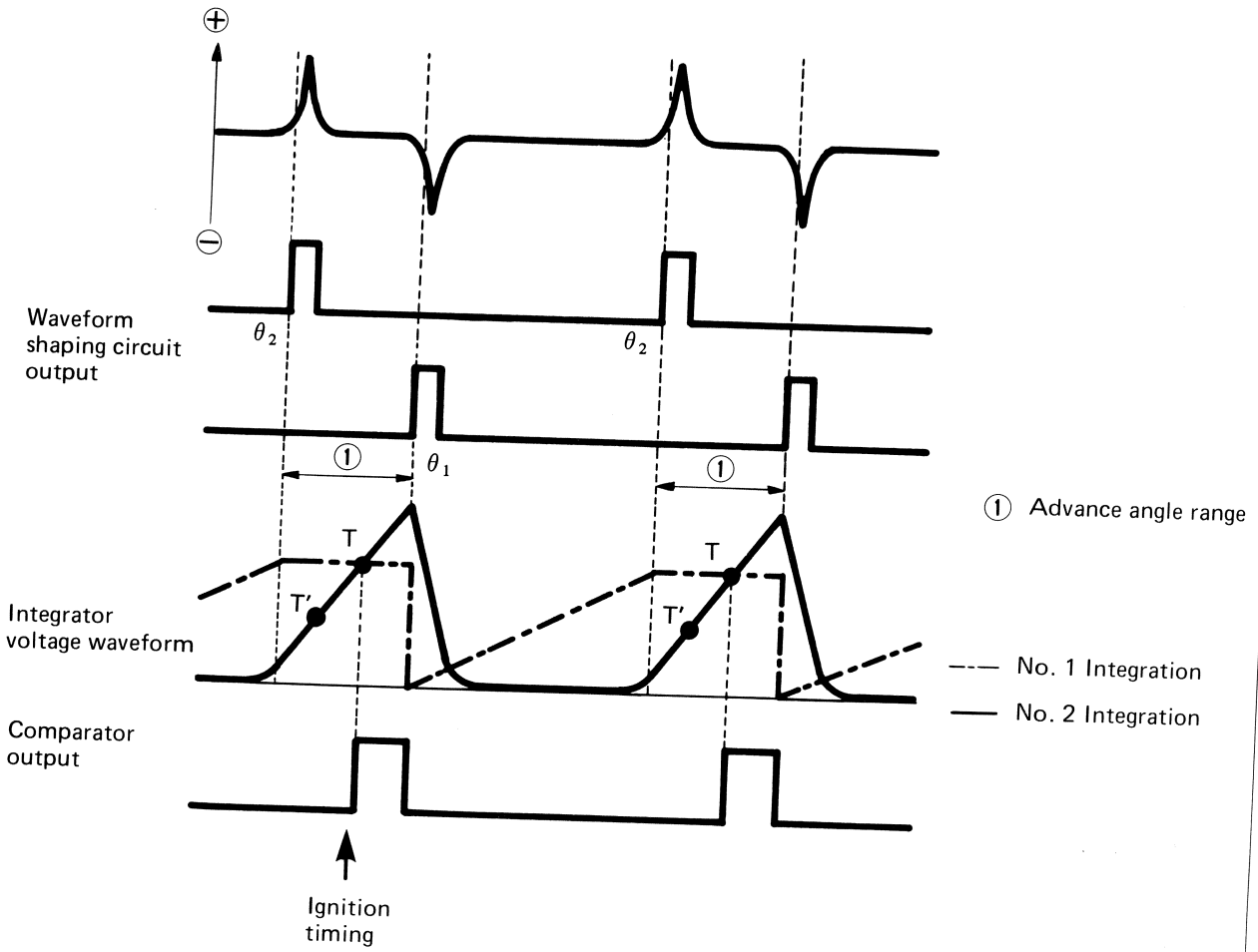
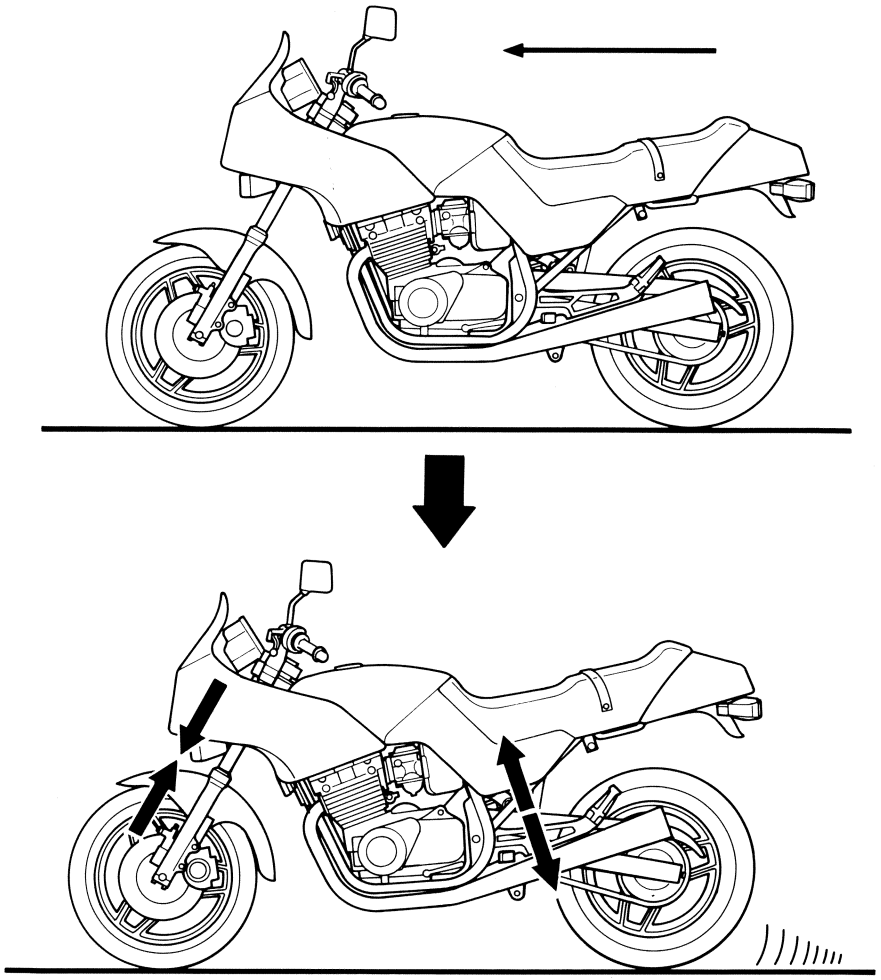


Fig. 3

ANTI-DIVE FRONT FORK

Consider the case of the motorcycle that is stopped suddenly. Excepting the rider, the machine itself cannot automatically counteract the momentum of its center of gravity moving forward to maintain its balance. At the point of "stoppage" the momentum continues its forward motion to exert its weight through the front fork on the point of contact of the front wheel. Simultaneously, the rear wheel tends to lift as the weight on it is reduced proportionately to the forward momentum. This has the effect of compressing the front fork and extending the rear shock absorber.

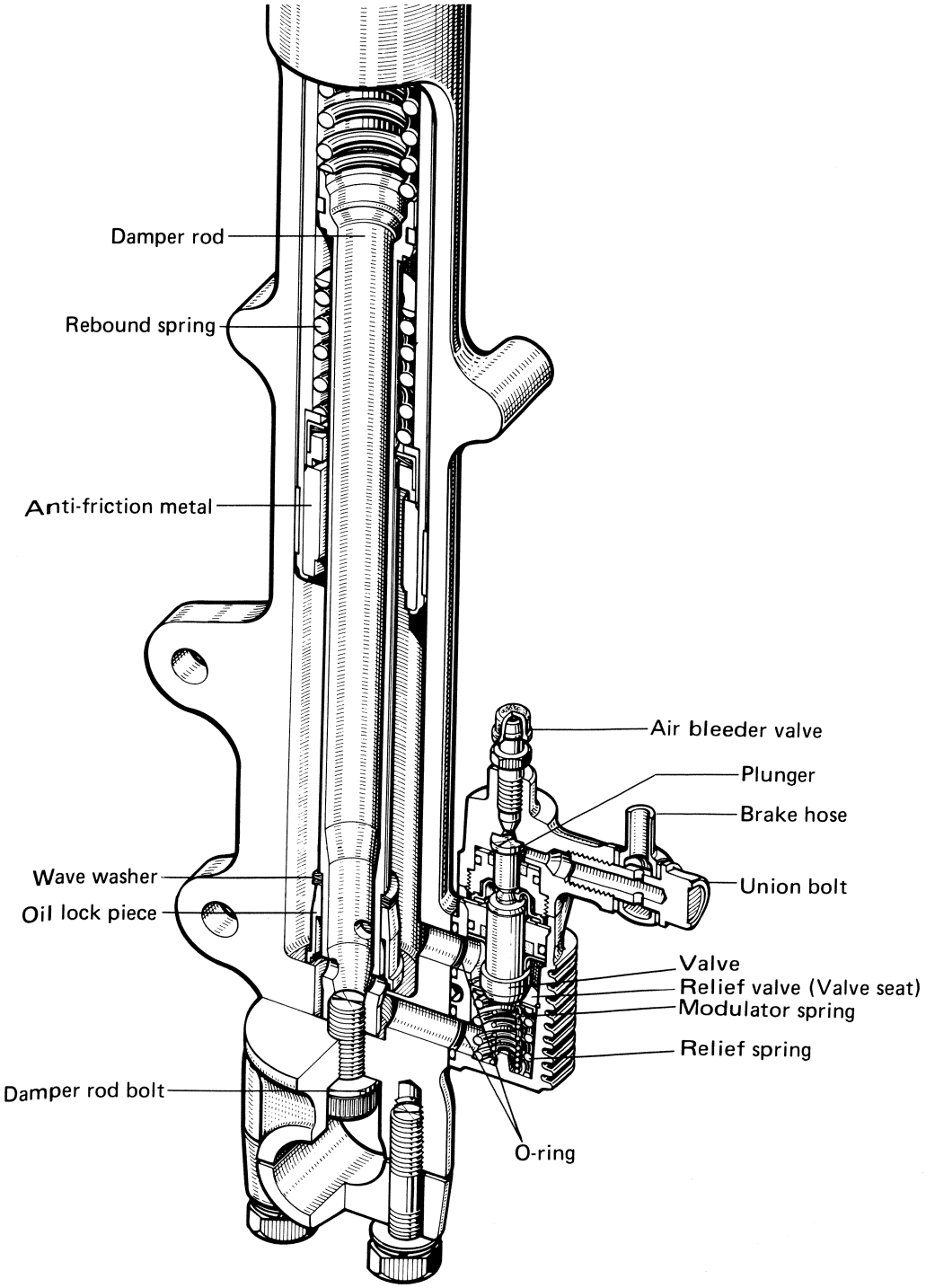


ANTI-DIVE DEVICE

When a speeding motorcycle is stopped, it is impossible to prevent the front fork dive because the momentum of the machine's center of gravity continues forward. The front fork is compressed and extended, as it is braked before cornering and full throttle applied coming out of the corner, which naturally changes its cornering clearance (motorcycle-to-ground clearance and balance). In order to minimize this change of the front fork length on a racing motorcycle, the spring of the front fork has to be stiffened, while the damping force of the rear shock absorber must be strengthened. However, the suspension system of the street motorcycle is generally set soft for absorbing the bump and shock of the road to ensure riding comfort. However, when the bike's cornering performance requires improvement, the suspension system must be reinforced. SUZUKI's hydraulic anti-dive fork was developed to provide exceptional handling performance and a smooth ride. It ensures the bike's stability during high-speed cornering by preventing the caster angle from being changed during braking and preventing loss of cornering clearance, while assuring riding comfort on the road.

ANTI-DIVE SYSTEM

SUZUKI's anti-dive system, developed from the feedback of racing technology, is now equipped on many of SUZUKI's 1982 models. The new system is attached to the outer tube of the front fork. The brake line of the front brakes master cylinder leading to the caliper is connected by a hose to the anti-dive device. When the master cylinder's hydraulic line functions to brake the front wheel, it simultaneously operates the anti-dive device's plunger, which regulates and limits the flow of oil in the front fork. This reduces the compression of the front fork, which also reduces the extension of the rear shock absorber. Hence, the device serves to counteract the change in the motorcycle's attitude during braking.

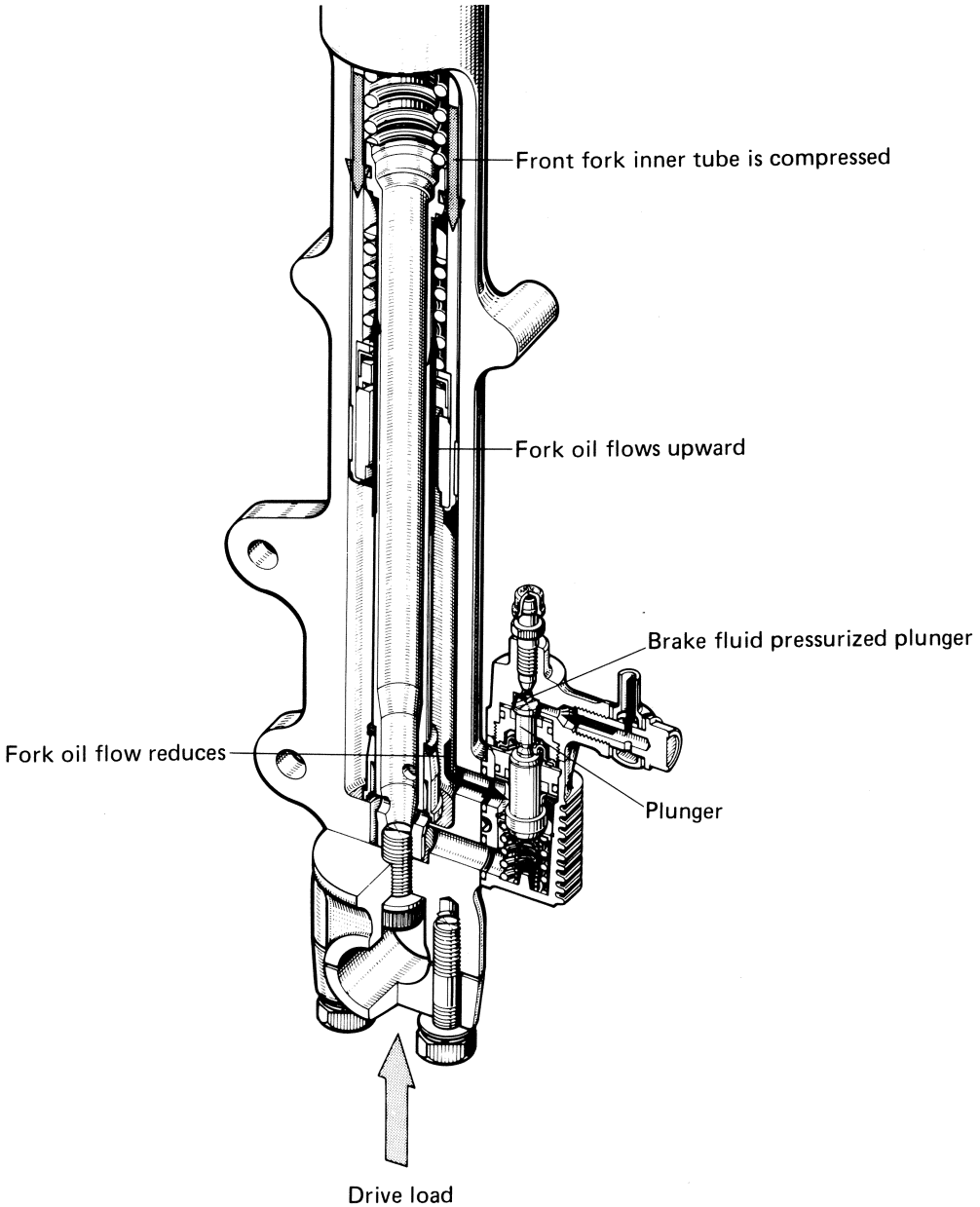


THE ANTI-DIVE SYSTEM IS INACTIVE, WHILE THE FRONT BRAKE IS INACTIVE

As long as the front brake remains inactive, the oil in the front fork passes through the clearance between the valve and valve seat (relief valve) without restriction. Consequently, the telescopic front fork functions normally.

WHEN THE ANTI-DIVE SYSTEM IS ACTIVATED

When the rider squeezes the lever of the front brake, pressure is exerted on the brake's master cylinder, then transmitted through the brake hose to pressurize the plunger of the anti-dive system. The plunger then lowers the valve, which reduces the clearance between the valve and the valve seat (relief valve). This in turn reduces the flow of fork oil, which reduces the allowable compression of the fork; stiffening it. As a result, the front fork is compressed less, while the extension of the rear shock absorber is also reduced. This stabilizes the motorcycle's braking attitude, and braking during cornering becomes much more controllable.

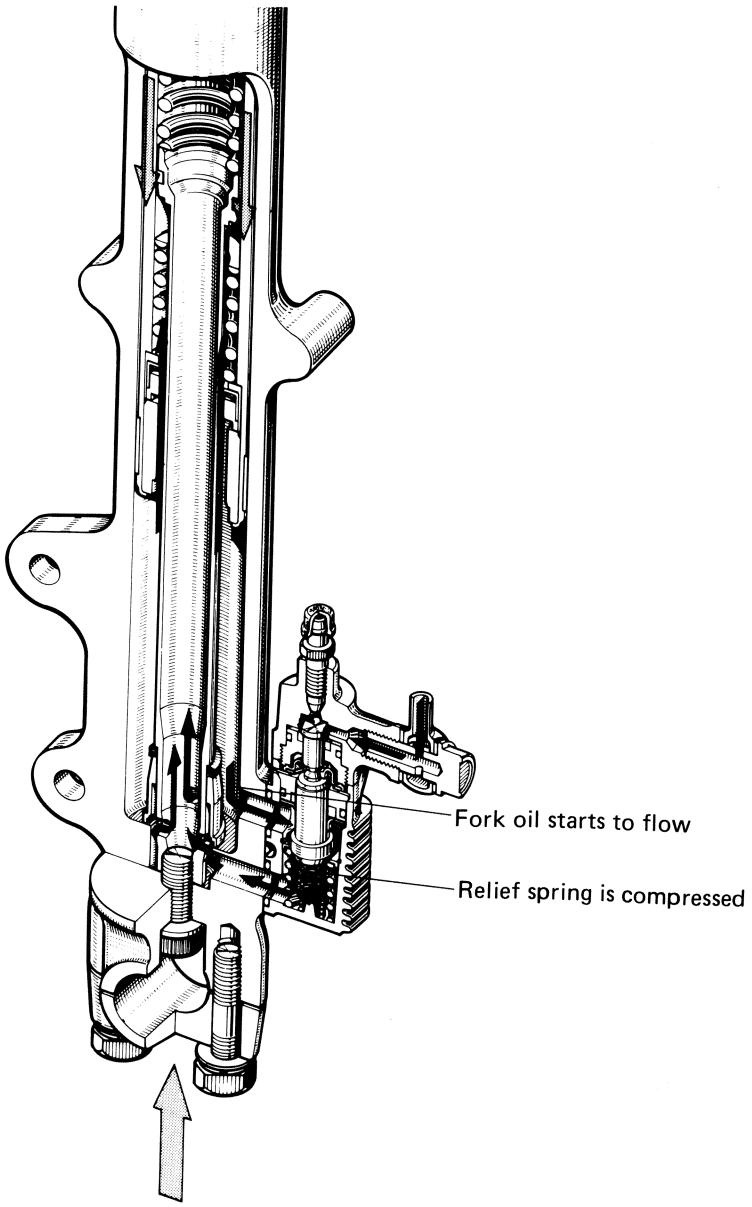


WHAT HAPPENS WHEN THE MOTORCYCLE RECEIVES A JOLT FROM THE ROAD, WHILE THE ANTI-DIVE DEVICE IS ACTIVE?

While the anti-dive device is restricting fork oil flow, any road shock could be directly transmitted to the chassis because the front fork would react as if it were equipped with very stiff springs.

However, the road shock is reduced by the following mechanism: The relief valve, mounted on a spring, is compresed and opened in direct proportion to the pressure on the front fork oil, permitting the oil to progressively flow through the clearance between the valve and valve seat. Hence the pressure of the fork oil is automatically redulated at a predetermined level. In other words, the clearance at the relief valve represents the difference of fork oil pressure developed by the upward load from the road and the strength of the relief valve's spring.

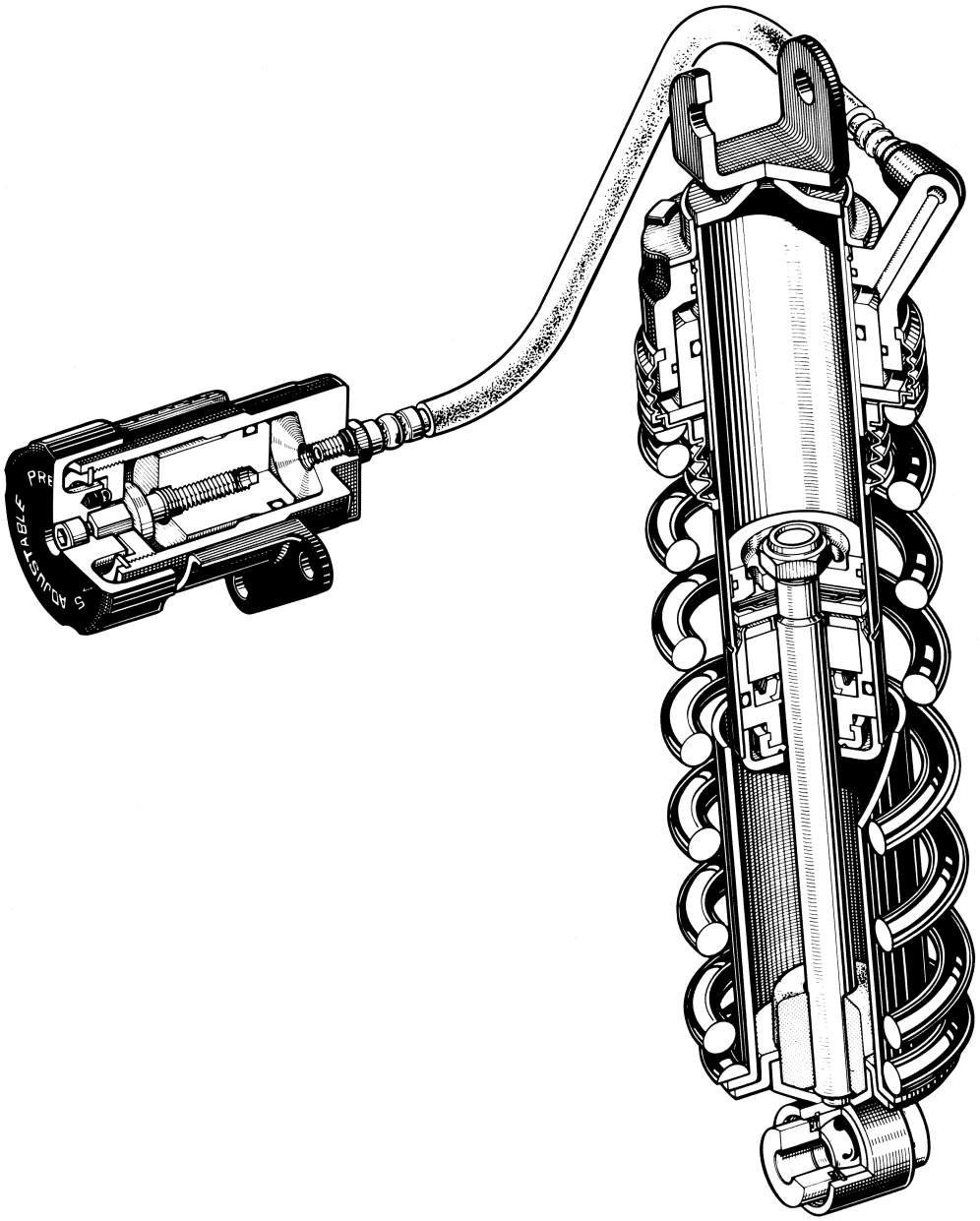
In order to ensure safety, separate chambers are provided for the fork oil and brake fluid to prevent their mixture.



FULL-FLOATING SUSPENSION SYSTEM

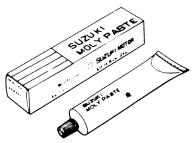
In order to ensure outstanding traction of the rear wheel, GS550E/ES are equipped with a full-floating suspension system, which is mounted in the enclosure of the rear unit.

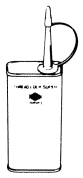
The spring's initial tension can be readily adjusted by turning. Adjustment the control knob on the subtank. Turned either clockwise or counterclockwise to vary the initial tension of the spring of the rear unit by means of hydraulic pressure.



SPECIAL MATERIALS

The materials listed below are needed for maintenance work on the GS550, and should be kept on hand for ready use. They supplement such standard materials as cleaning fluids, lubricants, emery cloth and the like. How to use them and where to use them are described in the text of this manual.

MATERIAL	PART	PAGE	PART	PAGE
 SUZUKI SUPER GREASE "A" 99000-25030	●Driveshaft oil seal ●Crankshaft oil seal ●Steering stem bearing ●Swing arm spacer and dust seal cover ●Cushion lever spacer ●Cushion lever rod spacer ●Rear brake camshaft ●Mounting drum bearing	3-60 3-62 7-31 7-62 7-67 7-69 9-41 9-42	●Oil pump O-ring ●Oil filter cap O-ring ●Wheel bearing ●Oil seal lip ●Brake pedal shaft ●Throttle grip ●Speed/Tachometer cable ●Clutch lever and cable ●Center stand spacer	
 SUZUKI MOLY PASTE 99000-25140	●Valve stem ●Cam chain tensioner push rod ●Conrod big end bearing ●Countershaft and driveshaft ●Crankshaft journal bearing ●Camshaft journal ●Rear shock absorber spherical ball bearing	3-34 3-39 3-48 3-59 3-62 3-76 7-68 7-69		
 SUZUKI BOND NO. 1207B 99104-31140	●Oil pressure switch ●Crankcase mating surface ●Mating surface of crankcase, generator cover and clutch cover ●Cylinder head cover ●Cam end cap ●Front fork damper rod bolt	3-65 9-21 3-63 3-66 3-70 3-81 3-81 7-23 9-28		
 THREAD LOCK SUPER "1361A" 99104-32020	●Rocker arm shaft stop bolt ●Cam chain guide screw	3-26 3-41		
 THREAD LOCK SUPER "1363A" 99104-32030	●Cam sprocket bolt ●Generator rotor allen bolt ●Oil pump case securing screw ●Generator rotor bolt	3-37 3-55 3-55 3-66		

MATERIAL	PART	PAGE	PART	PAGE
 THREAD LOCK CEMENT 99000-32040	●Throttle valve screw ●Carburetor set plate screw ●Oil filter cap nut ●Front fork damper rod bolt	4-14 4-14 2-8 7-23 9-28		
 THREAD LOCK "1363C" 99104-32050	●Generator stator set screw ●Generator lead wire guide screw ●Starter motor mounting bolt ●Oil pump securing bolt ●Countershaft bearing retainer screw ●Gear shifting cam guide screw ●Gear shifting pawl lifter screw ●Starter motor housing screw	3-55 3-55 3-65 6-4 3-67 3-68 3-68 3-68 6-4	●Anti-dive modulator valve screw	7-24

PRECAUTIONS AND GENERAL INSTRUCTIONS

Observe the following items without fail when disassembling and reassembling motorcycles.

☐ Be sure to replace packings, gaskets, circlips, O-rings and cotter pins with new ones.

CAUTION:
Never reuse a circlip after a circlip has been removed from a shaft, it should be discarded and a new circlip must be installed.
When installing a new circlip, care must be taken not to expand the end gap larger than required to slip the circlip over the shaft.
After installing a circlip, always insure that it is completely seated in its groove and securely fitted.

☐ Tighten cylinder head and case bolts and nuts beginning with larger diameter and ending with smaller diameter, and from inside to out-side diagonally, to the specified tightening torque.

☐ Use special tools where specified.

☐ Use genuine parts and recommended oils.

☐ When 2 or more persons work together, pay attention to the safety of each other.

☐ After the reassembly, check parts for tightness and operation.

☐ Treat gasoline, which is extremely flammable and highly explosive, with greatest care. Never use gasoline as cleaning solvent.

Warning, Caution and Note are included in this manual occasionally, describing the following contents.

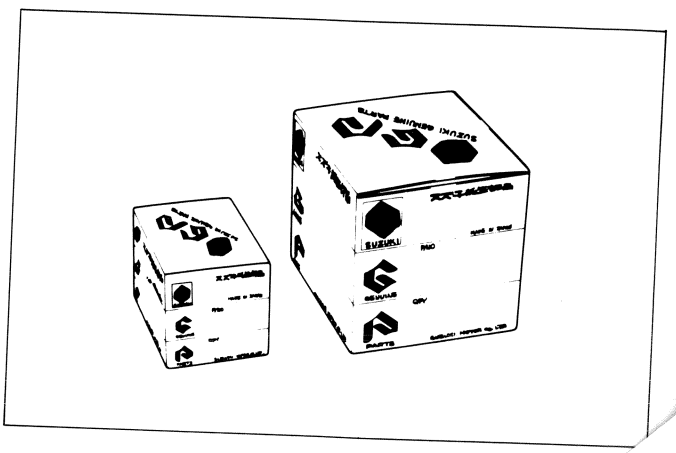
WARNING . . . . . When personal safety of the rider is involved, disregard of the information could result in injury.

CAUTION . . . . . For the protection of the motorcycle, the instruction or rule must be strictly adhered to.

NOTE . . . . . Advice calculated to facilitate the use of the motorcycle is given under this heading.

USE OF GENUIUE SUZUKI PARTS

To replace any part of the machine, use a genuine SUZUKI replacement part. Imitation parts or parts supplied from any other source than SUZUKI, if used to replace SUZUKI parts can reduce the machine's performance and, even worse, could induce costly mechanical troubles.



SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 120 mm (83.5 in)
Overall width	750 mm (29.5 in) . . . E
	770 mm (30.3 in) . . . ES
Overall height	1 110 mm (43.7 in) . . . E
	1 175 mm (46.3 in) . . . ES
Wheelbase	1 420 mm (55.9 in)
Ground clearance	155 mm (6.1 in)
Seat height	785 mm (30.9 in)
Dry mass	192 kg (423 lbs) . . . E
	194 kg (427 lbs) . . . ES

ENGINE

Type	4-stroke, air-cooled, DOHC
Number of cylinders	4
Bore	60.0 mm (2.362 in)
Stroke	50.6 mm (1.992 in)
Piston displacement	572 cm^3 (34.9 cu.in)
Compression ratio	9.8 : 1
Carburetor	MIKUNI BSW30, twin
Air cleaner	Paper element
Starter system	Electric
Lubrication system	Wet sump with oil cooler system

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	6-speed constant mesh
Gearshift pattern	1-down, 5-up
Primary reduction	1.977 (89/45)
Final reduction	3.428 (48/14)
Gear ratios, Low	2.666 (32/12)
2nd	1.777 (32/18)
3rd	1.380 (29/21)
4th	1.173 (27/23)
5th	1.045 (23/22)
Top	0.956 (22/23)
Drive chain	DAIDO D.I.D. 50HDL or TAKASAGO RK50SMO 112 links

CHASSIS

Front suspension	Telescopic, pneumatic/coil spring, oil dampened with ANTI-DIVE
Rear suspension	Full-floating suspension system, spring 5-way adjustable
Steering angle	33° (right & left)
Caster	62°45′
Trial	101 mm (3.98 in)
Turning radius	2.9 m (9.5 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	100/90-16 54H
Rear tire size	110/90-18 61H
Front fork stroke	150 mm (5.91 in)
Rear wheel travel	117 mm (4.61 in)
Front tire pressure	200 kPa (2.00 kg/cm², 28 psi) (Normal solo riding)
Rear tire pressure	225 kPa (2.25 kg/cm², 32 psi) (Normal solo riding)

ELECTRICAL

Ignition type	Transistorized
Ignition timing	11° B.T.D.C. below 1 650 r/min and 31° B.T.D.C. above 3 000 r/min
Spark plug	NGK: D9EA or NIPPON DENSO: X27ES-U
Battery	12V 43.2 kC (12 Ah)/10HR
Generator	Three-phase A.C. generator
Fuse	10/10/10/10/15A

CAPACITIES

Fuel tank including reserve	18 L (4.8 US gal)
reserve	3.5 L (3.7 US qt)
Engine oil	2.4 L (2.5 US qt)
Front fork oil (each leg)	321 ml (10.8 US oz)

These specifications are subject to change without notice.

PERIODIC MAINTENANCE AND TUNE-UP PROCEDURES

CONTENTS

PERIODIC MAINTENANCE SCHEDULE 2- 1

MAINTENANCE AND TUNE-UP PROCEDURES 2- 2

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- AIR CLEANER 2- 4
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- FUEL LINE 2- 8
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- CARBURETOR IDLE RPM AND THROTTLE CABLE PLAY 2- 9
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PERIODIC MAINTENANCE SCHEDULE

IMPORTANT: The periodic maintenance intervals and service requirements have been established in accordance with EPA regulations. Following these instructions will ensure that the motorcycle will not exceed emission standards and it will also ensure the reliability and performance of the motorcycle.

NOTE:
Vehicles operated under severe conditions may require more frequent servicing.

The chart below lists the recommended intervals for all the required periodc service work necessary to keep the motorcycle operating at peak performance and to maintain proper emission levels. Mileages are expressed in terms of kilometers, miles and time for your convenience.

Interval: This interval should be judged by odometer reading or months, whichever comes first.						
	miles	600	4 000	7 500	11 000	15 000
	km	1 000	6 000	12 000	18 000	24 000
	months	2	12	24	36	48
Battery (Specific gravity of electrolyte)		–	I	I	I	I
Cylinder head nuts & exhaust pipe bolts		T	T	T	T	T
Air cleaner element		Clean every 3 000 km (2 000 miles) and replace every 12 000 km (7 500 miles)				
Valve clearances		I	I	I	I	I
Spark plugs		–	C	R	C	R
Fuel line		I	I	I	I	I
		Replace every four years				
Engine oil and oil filter		R	R	R	R	R
Carburetor idle rpm		I	I	I	I	I
Clutch		I	I	I	I	I
Drive chain		I	I	I	I	I
		Clean and lubricate every 1 000 km (600 miles)				
Brake hoses		I	I	I	I	I
		Replace every four years				
Brake fluid		Change every two years				
Brakes		I	I	I	I	I
Tires		I	I	I	I	I
Steering stem		I	I	I	I	I
Chassis bolts and nuts		T	T	T	T	T
Front fork		–	–	I	–	I
		Check air pressure every 6 months				

NOTE: T = Tighten, C = Clean, I = Inspect, R = Replace

MAINTENANCE AND TUNE-UP PROCEDURES

This section describes the servicing procedures for each items of the Periodic Maintenance requirements.

BATTERY

Inspect Every 6 000 km (4 000 miles).

- Remove the seat.
- Remove the battery ⊖ and ⊕ lead wires from the battery terminals.
- Remove the battery from the frame.
- Check the electrolyte for level and specific gravity. Add distilled water, as necessary, to keep the surface of the electrolyte above the LOWER level line but not above the UPPER level line.
- For checking specific gravity, use a hydrometer to determine the charged condition.

09900-28403	Hydrometer

Standard specific gravity	1.28 at 20°C (68°F)

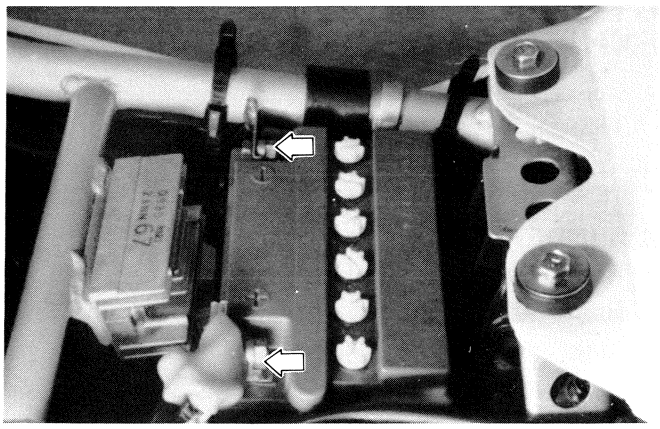
An S.G. reading of 1.22 (at 20°C) or under means the battery needs recharging. Remove the battery from the machine and charge it with a battery changer.

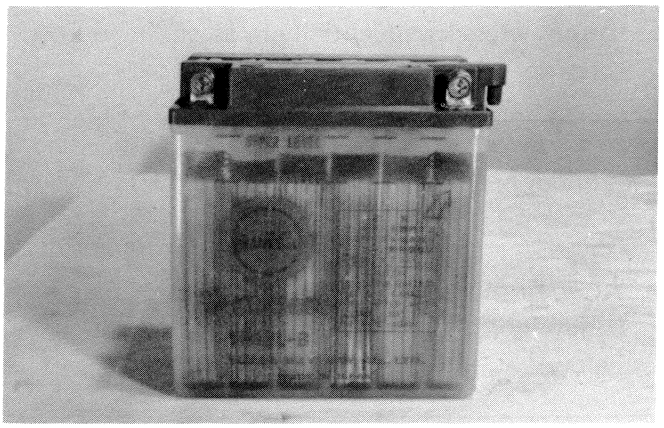
CAUTION:
Never charge a battery while still in the machine as damage may result to the battery or regulator/rectifier.

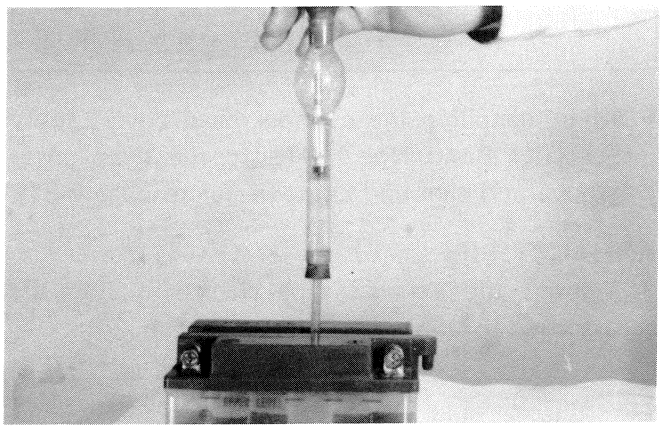
- Charge at a maximum of 1.4 amps.
- To install the battery, reverse the procedure described above.

WARNING:
When installing the battery lead wires, fix the ⊕ lead first and ⊖ lead last.

- Make sure that the breather pipe is tightly secured and undamaged, and is routed as shown in the figure.







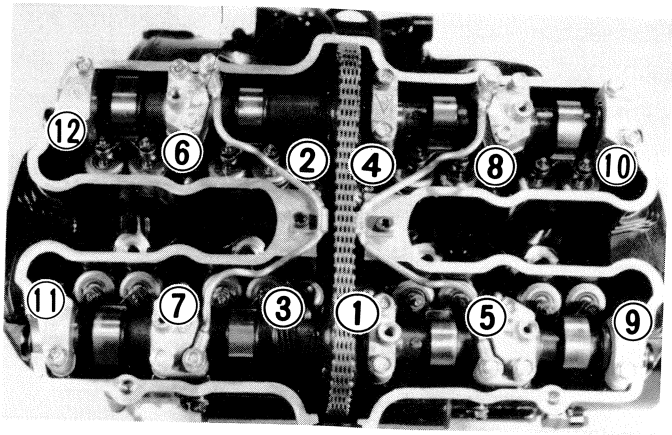


CYLINDER HEAD NUTS AND EXHAUST PIPE BOLTS

Tighten Initial 1 000 km (6 000 miles), and Every 6 000 km (4 000 miles).

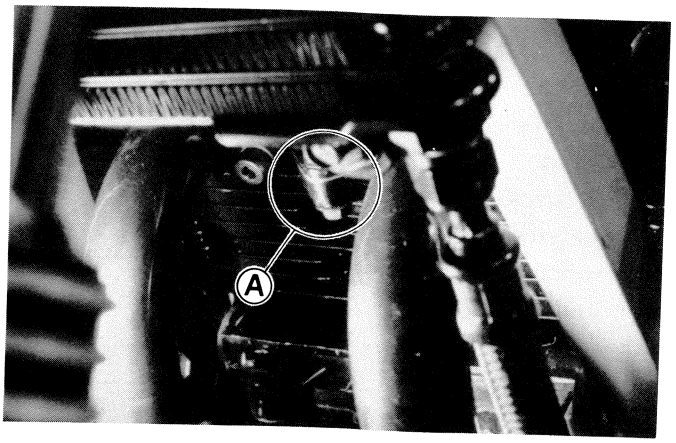
CYLINDER HEAD

- Remove the seat and frame covers.
- Remove the right and left fairing covers and fuel tank.
- Remove the cylinder head cover.
- First loosen and retighten the twelve 8 mm nuts (12 mm wrench) to the specified torque with a torque wrench sequentially in ascending numerical order with the engine cold.



Cylinder head nut	23 – 28 N·m (2.3 – 2.8 kg-m / 16.5 – 20.0 lb-ft)

- After firmly tightening the 12 nuts, tighten one 6 mm bolt (indicated as Ⓐ to the torque value below):

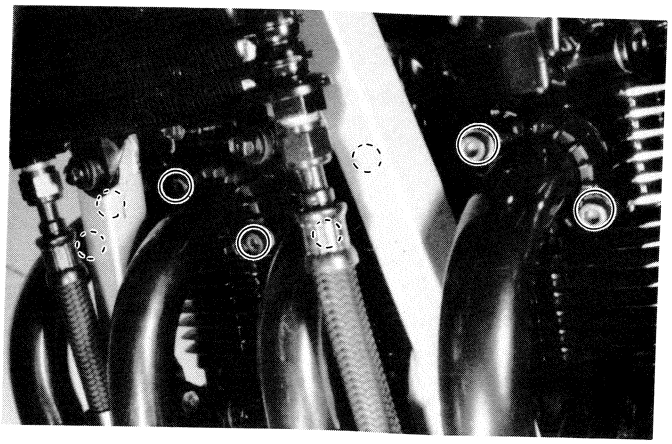


Cylinder head bolt Ⓐ	7 – 11 N·m (0.7 – 1.1 kg-m / 5.0 – 8.0 lb-ft)

- When installing the cylinder head cover, apply SUZUKI Bond No. 1207B to the head cover groove and cam end caps. (Refer to page 3-81).

EXHAUST PIPE

- Tighten the exhaust pipe clamp bolts to the specified torque with a torque wrench.

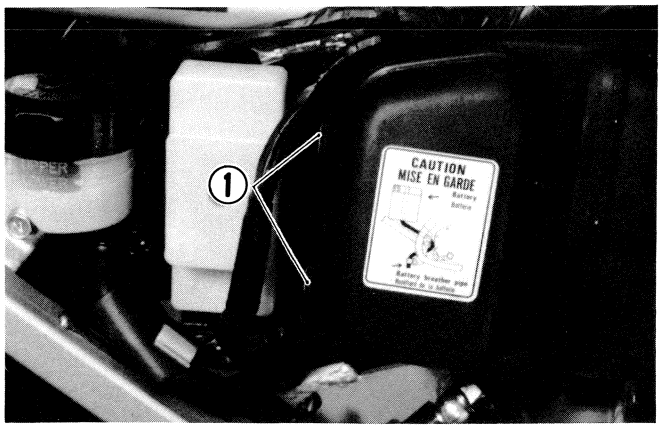


Exhaust pipe clamp bolt	20 – 25 N·m (2.0 – 2.5 kg-m / 14.5 – 18.0 lb-ft)

AIR CLEANER

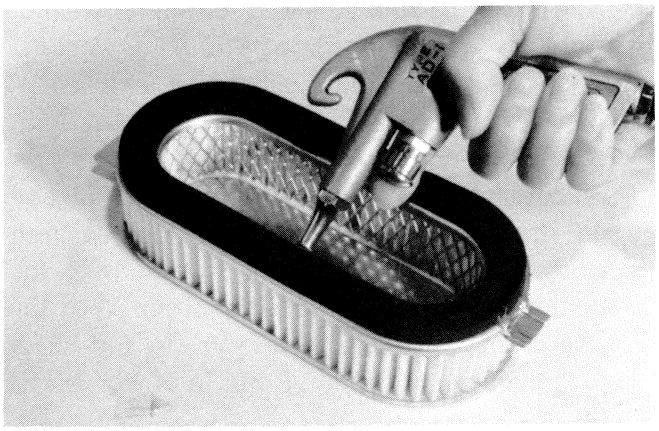
Clean Every 3 000 km (2 000 miles), and Replace Every 12 000 km (7 500 miles).

- Remove the seat and right frame cover and remove the air cleaner case cover by pressing the two lock levers ①. Take out the air cleaner element by removing the screw ②.



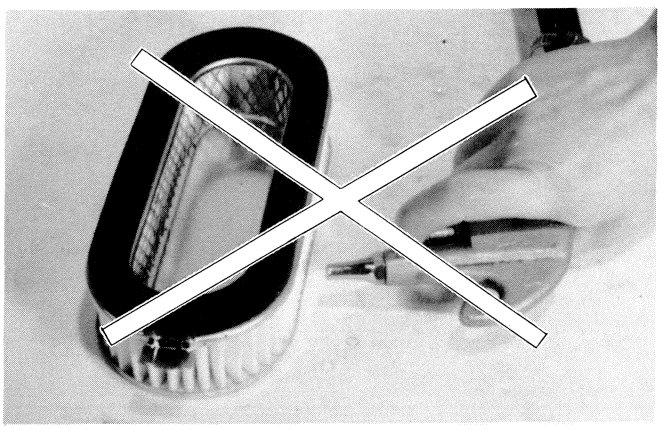


- Carefully use an air hose to blow the dust from the cleaner element inside.



CAUTION:
Always use air pressure on the inside of the cleaner element. If air pressure is used on the outside dirt will be force into the pores of the cleaner element thus restricting air flow through the cleaner element.

- Reinstall the cleaned or new cleaner element in the reverse order of removal.



CAUTION:
If driving under dusty conditions, clean the air cleaner element more frequently. The surest way to accelerate engine wear is to use the engine without the element or to use a ruptured element. Make sure that the air cleaner is in good condition at all times. Life of the engine depends largely on this component!.

VALVE CLEARANCE

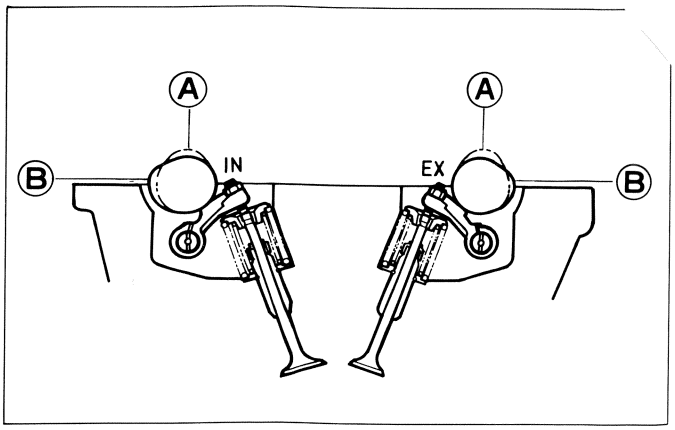
Inspect Initial 1 000 km (600 miles), and Every 6 000 km (4 000 miles).

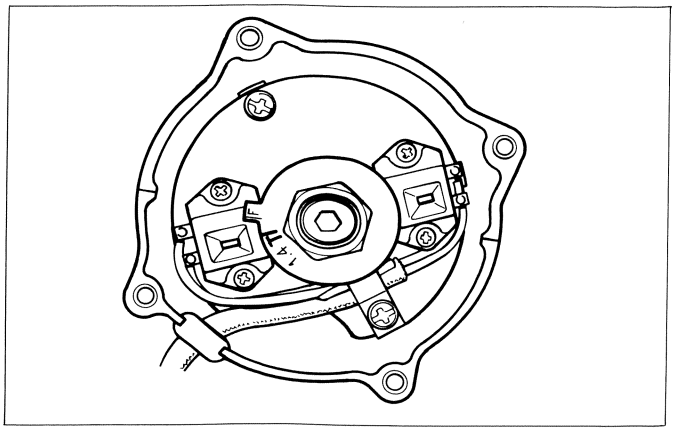
The valve clearance specification is the same for both intake and exhaust valves.
Valve clearance adjustment must be checked and adjusted 1) at the time of periodic inspection, 2) when the valve mechanism is serviced, and 3) when the camshafts are disturbed by removing them for servicing.

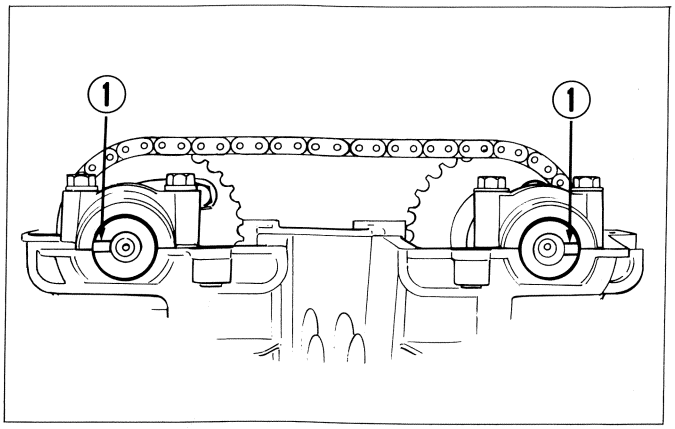
Valve clearance (when cold)	0.08 – 0.13 mm (0.003 – 0.005 in)

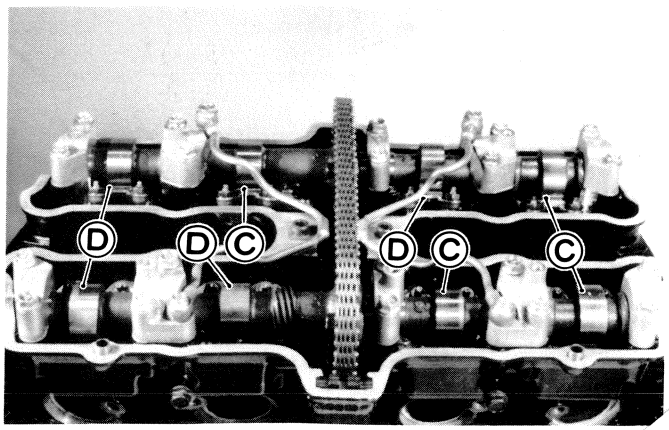
NOTE:
* **The cam must be at position Ⓐ or Ⓑ in order to check the valve clearance or to adjust valve clearance. Clearance readings should not be taken with the cam in any other position than these two positions.**
* **The clearance specification is for COLD state.**
* **To turn the crankshaft for clearance checking, be sure to use a 19-mm wrench and to rotate in normal running derection. All spark plugs should be removed.**

- Turn crankshaft to bring the "T" mark on the rotor to the center of left pick up coil and also to bring the notches ① in the both camshaft (Ex and In) of the right ends to the position as shown. In this condition, read the valve clearance at the valves Ⓒ (In and Ex of No. 1 cylinder, Ex of No. 2 and In of No. 3).



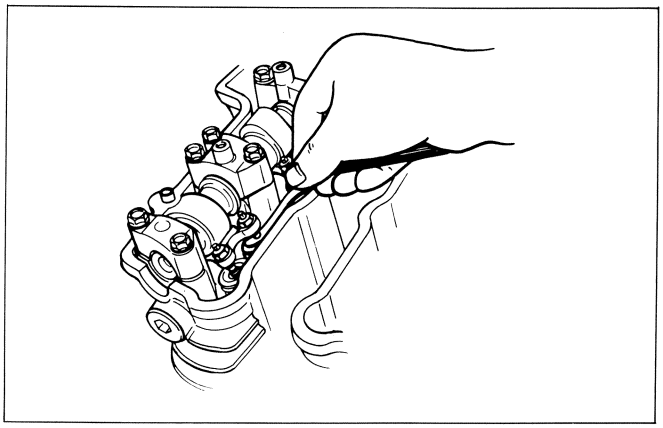


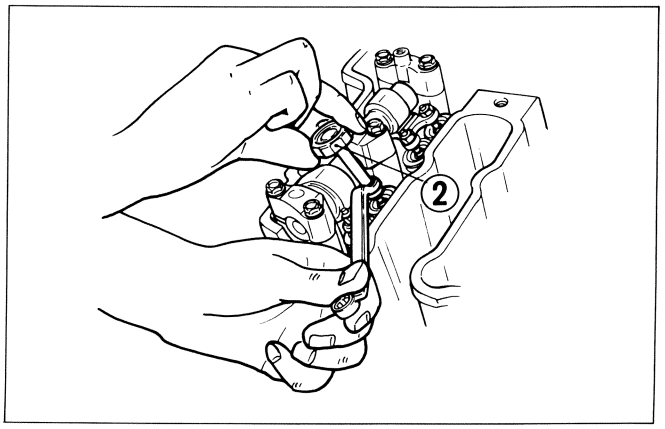




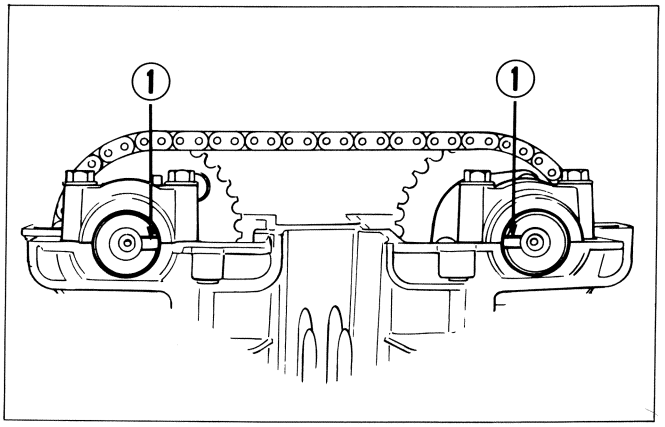
- Use thickness gauge between adjusting screw and valve stem end. If clearance is off the specification, bring it into the specified range by using the tappet adjusting driver ②.

09900-20803	Thickness gauge
09917-14910	Valve adjust driver





- Turn crankshaft by 360° (one rotation) to bring the "T" mark on the rotor to the center of left pick up coil and also to bring the notches ① to the position as shown.
- Read clearance at the valve Ⓓ and adjust the clearance if necessary.



Cam Position	Notch ① position	
	Intake Camshaft	Exhaust Camshaft
Ⓒ	◒	◓
Ⓓ	◓	◒

- When installing the cylinder head cover, apply SUZUKI Bond No. 1207B to the head cover groove and cam end caps. (Refer to page 3-81).

SPARK PLUG

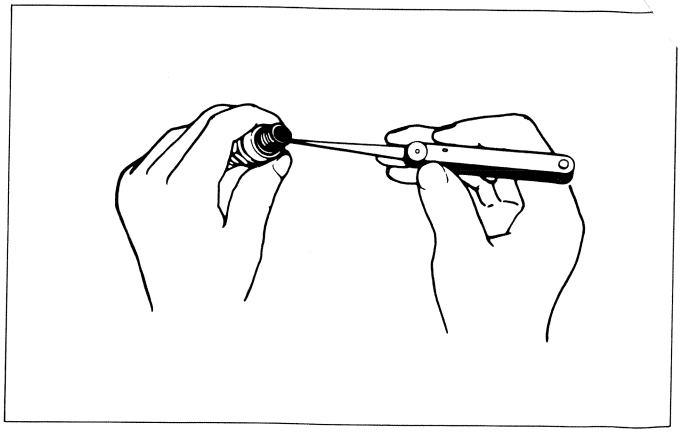
Clean Every 6 000 km (4 000 miles), and Replace Every 12 000 km (7 500 miles).

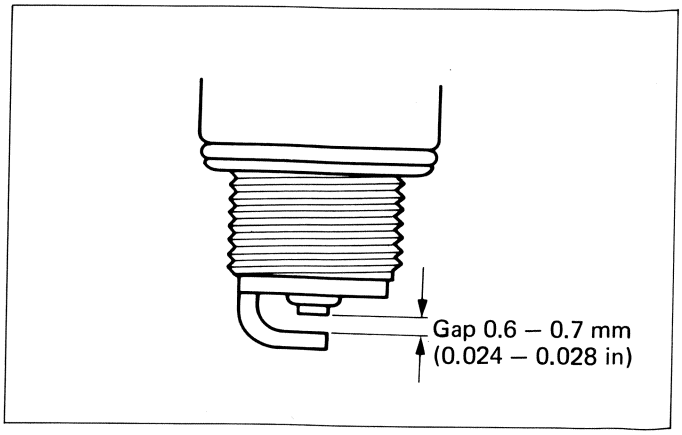
- Remove the seat and frame covers.
- Remove the right and left fairing covers and fuel tank.

The plug gap is adjusted to 0.6 – 0.7 mm (0.024 – 0.028 in) is correctly adjusted using a thickness gauge. When carbon is deposited on the spark plug, remove the carbon with a spark plug cleaning machine or by carefully using a tool with a pointed end. If electrodes are extremely worn or burnt, replace the plug. Also replace the plug if it has a broken insulator, damaged thread, etc..

NGK D9EA or NIPPON DENSO X27ES-U listed in the table should be used as the standard plug. However, the heat range of the plug should be selected to meet the requirements of speed, actual load, fuel, etc.. If the plugs need to be replaced, it is recommended that ones having a heat range closest to the standard plug in the table be selected. Remove the plugs and inspect the insulators. Proper heat range would be indicated if all insulators were light brown in color. If they are blackened by carbon, they should be replaced by a hot type NGK D8EA or NIPPON DENSO X24ES-U.

09930-13210	Spark plug socket wrench
09930-14530	Universal joint
09914-24510	T handle
09900-20803	Thickness gauge





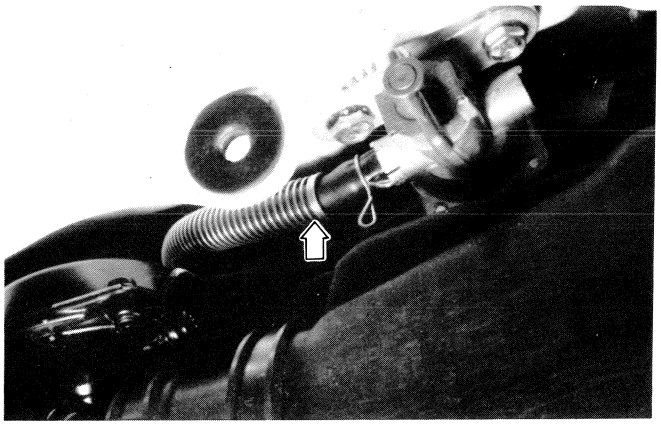
Recommended spark plug

NGK	D9EA
NIPPON DENSO	X27ES-U

CAUTION:
Confirm the thread size and reach when replacing the plug. If the reach is too short, carbon will be deposited on the screw portion of the plug hole and engine damage may result.

FUEL LINE

Inspect Initial 1 000 km (600 miles), and Every 6 000 km (4 000 miles).
Replace Every 4 years.



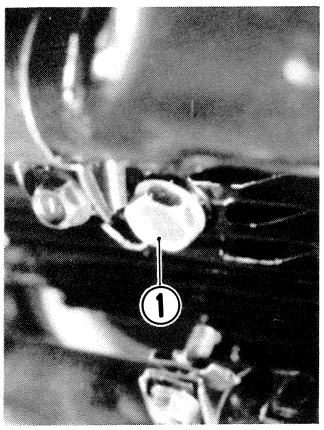
Inspect the fuel line and connections for damage and fuel leakage.
If any defects are found, the fuel line must be replaced.

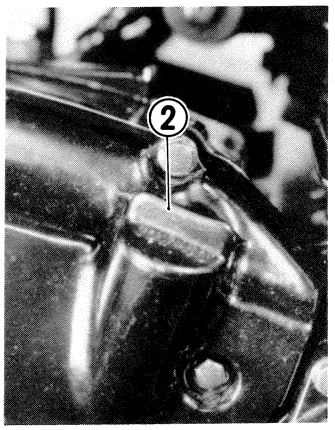
ENGINE OIL AND OIL FILTER

Replace Initial 1 000 km (600 miles), and Every 6 000 km (4 000 miles).

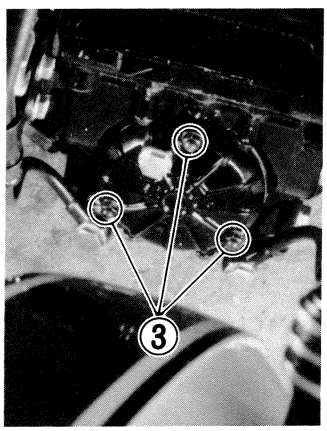
The oil should be changed while the engine is hot. Oil filter replacement at the above intervals should be done together with engine oil change.

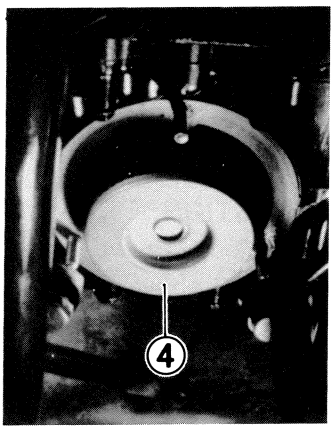
- Keep the motorcycle upright, supported on the center stand.
- Place an oil pan below the engine and remove the engine oil drain plug ① and oil filler cap ② to drain engine oil.
- Remove three nuts ③ and remove the filter cover.
- Pull out old filter ④ and replace with new one.
- Replace O-ring and filter cover, and secure nuts ③ with applying thread lock cement.



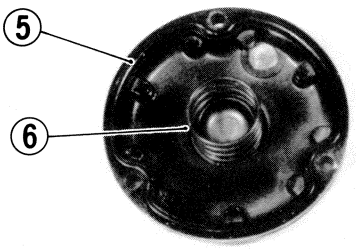


99000-32040	Thread lock cement



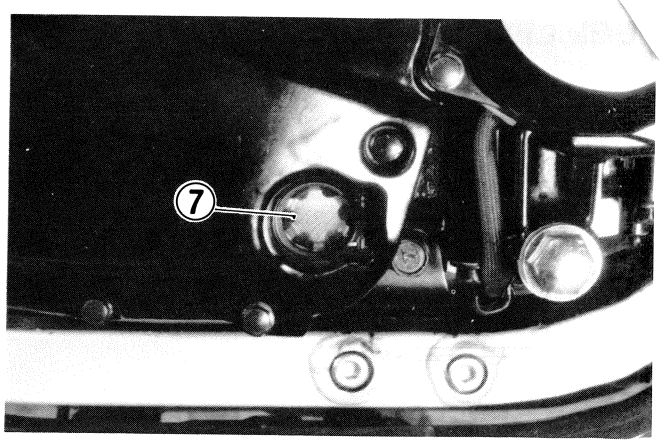


NOTE:
Be sure to take care of O-ring ⑤ to prevent any damage and be sure that filter spring ⑥ is properly in place.



- Fit drain plug ① securely, and add fresh oil through the filler. The engine will hold about 2 900 ml (3.1 qt) of oil.
  Use API classification of SE or SF oil with SAE 10W/40 viscosity.

- Start up the enine and allow it to run for several seconds at idling speed.
- Turn off the engine and wait about one minute, then check the oil level through the inspection window ⑦. If the level is below mark "F", add oil to that level.



NECESSARY AMOUNT OF ENGINE OIL

Oil change	2400 ml (2.5 US qt)
Filter change	2900 ml (3.1 US qt)
Overhaul engine	3100 ml (3.3 US qt)

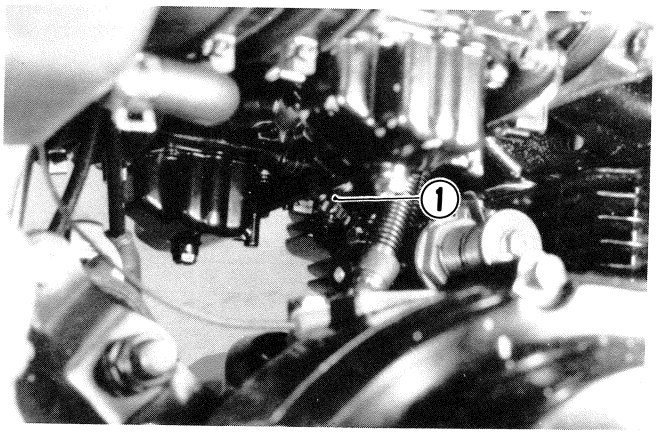
CARBURETOR IDLE RPM

Inspect Initial 1 000 km (600 miles), and Every 6 000 km (4 000 miles).

IDLING ADJUSTMENT

- Start up the engine and warm it up by running it at 2 000 r/min for 10 minutes in summer, (When ambient temperature is 30°C (86°F) or thereabout) or for 20 minutes in winter, (when ambient temperature is down to –5°C (23°F) or thereabout).

- After the engine warms up, turn the throttle stop screw ① in or out so that engine runs at 1 000 – 1 200 r/min.

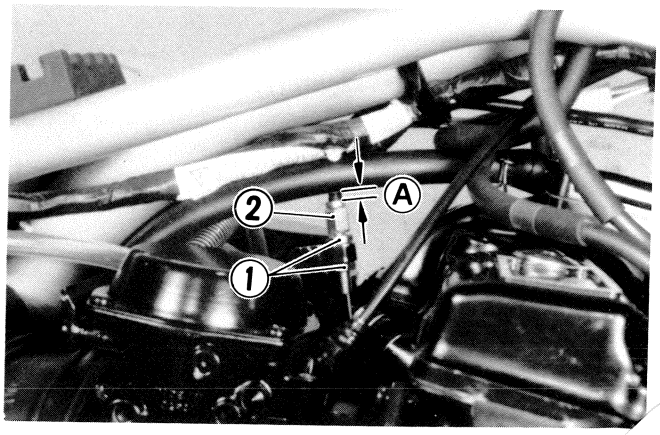


CAUTION:
No adjustment except the procedure mentioned above is necessary because calibration is performed by carburetor manufacturer.

THROTTLE CABLE PLAY

There should be 0.5 – 1.0 mm play Ⓐ on the throttle cable. To adjust the throttle cable play:

- Tug on the throttle cable to check the amount of play.
- Loosen the two lock nuts ① and slide the adjuster ② up or down until the specified play is obtained.
- Secure the lock nuts while holding the adjuster in place.



Throttle cable play Ⓐ	0.5 – 1.0 mm (0.02 – 0.04 in)

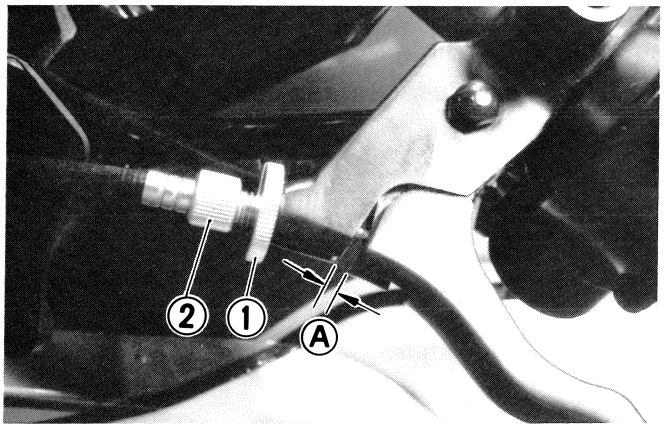
CLUTCH

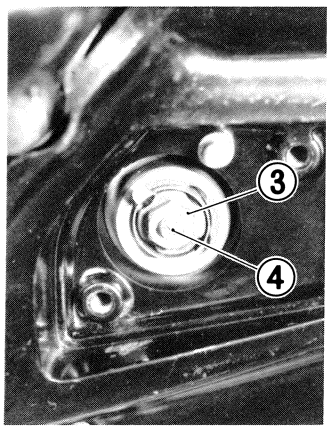
Inspect Initial 1 000 km (600 miles), and Every 6 000 km (4 000 miles).

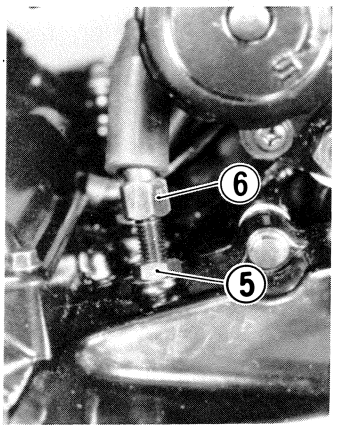
- Loosen the lock nut ① on the lever side of the clutch cable and screw the adjuster ② fully in on the clutch lever side.
- Remove the release cover by removing the two screws.
- Loosen the lock nut ③, and turn out the adjusting screw ④ two or three rotations.
- From that position, turn in the adjusting screw ④ to feel resistance.
- From this position, turn out the adjusting screw ④ 1/4 – 1/2 rotation, and tighten the lock nut ③.
- Loosen the lock nut ⑤, adjust the play of the cable with adjuster ⑥ until play Ⓐ of the clutch lever is 4 mm (0.16 in). Next, firmly secure lock nut ⑤.

Cable play Ⓐ	4 mm (0.16 in)

- If the specified play can not be obtained with adjuster ⑥, carry out the adjustment using the adjuster ② on the clutch lever side.

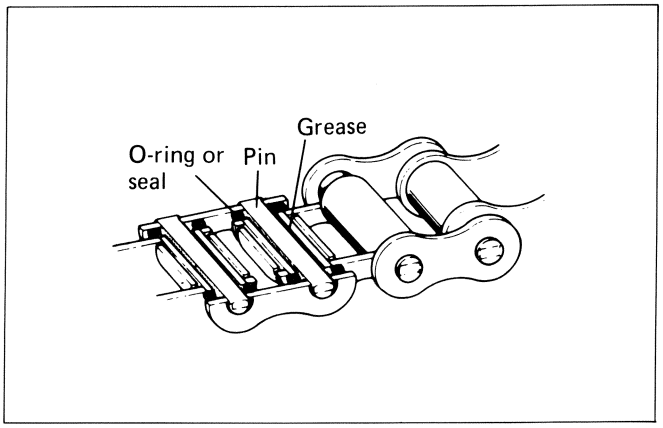






DRIVE CHAIN

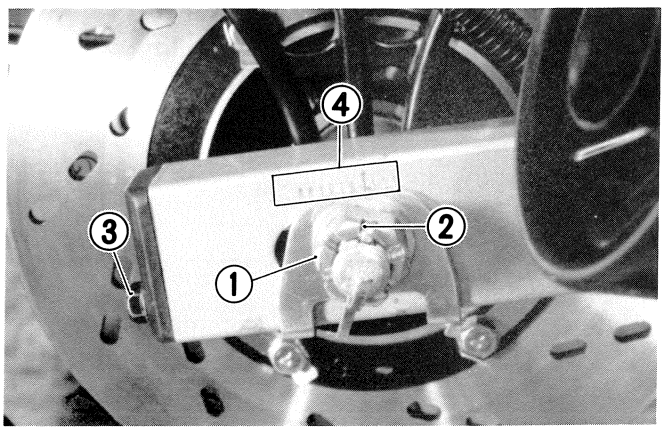
Inspect Initial 1 000 km (600 miles), and Every 6 000 km (4 000 miles).
Clean and Lubricate Every 1 000 km (600 miles).



Visually check the drive chain for the below-listed possible malconditions. (Set up the machine on its center stand, and turn the rear wheel slowly by hand with the transmission shifted to Neutral.)

* Loose pins
* Damaged rollers
* Dry or rusted links
* Kinked or binding links
* Excessive wear
* Improper chain adjustment
* Missing O-ring or seals

If any defects are found, the drive chain must be replaced.

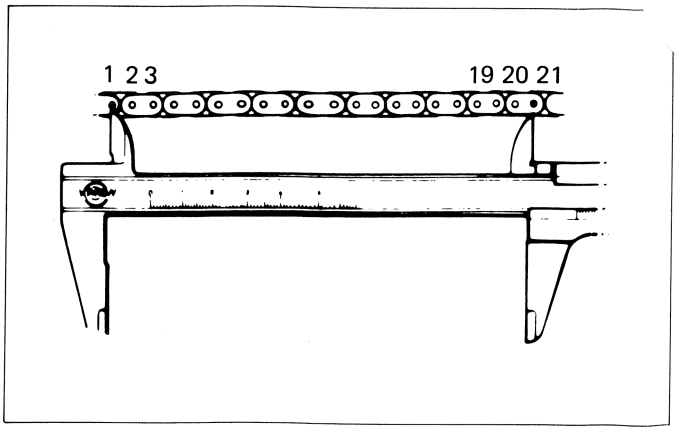


CHECKING

- Loosen axle nut ① after pulling out cotter pin ②.
- Tense the drive chain fully by tightening the adjusters ③.

- Count out 21 pins (20 pitch) on the chain and measure the distance between the two. If the distance exceeds following limit, the chain must be replaced.

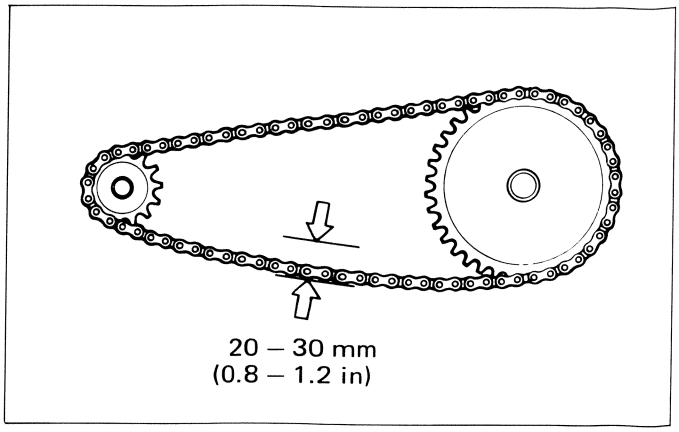
Service Limit	323.8 mm (12.75 in)



ADJUSTING

- Loosen the adjusters ③ until the chain has 20 – 30 mm (0.8 – 1.2 in) of sag at the middle between engine and rear sprockets. The mark ④ on both chain adjusters must be at the same position on the scale to ensure that the front and rear wheels are correctly aligned. Place on center stand for accurate adjustment.
- After adjusting the drive chain, tighten the axle nut ① securely, and lock with cotter pin ②. Always use a new cotter pin.
- Tighten the chain adjuster lock nuts securely.

Rear axle nut tightening torque	50 – 80 N·m (5.0 – 8.0 kg-m 36.0 – 58.0 lb-ft)



CLEANING AND LUBRICATING

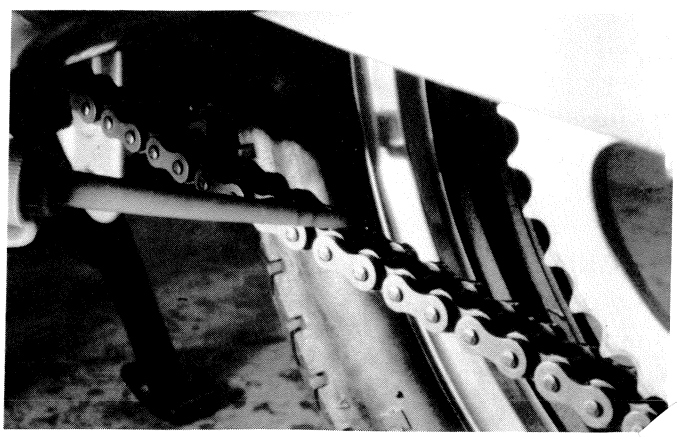
- Wash the chain with kerosene. If the chain tends to rust faster, the intervals must be shortened.

CAUTION:
Do not use trichlene, gasoline or any similar fluids: These fluids have too great a dissolving power for this chain and, what is more important, can spoil the "O" rings (or seals) confining the grease in the bush to pin clearance. Remember, high durability comes from the presence of grease in that clearance.

- After washing and drying the chain, oil it with a heavy-weight motor oil.

CAUTION:
Do not use any oil sold commercially as "drive chain oil". Such oil too can spoil the "O" rings (or seals).

CAUTION:
The standard drive chain is DAIDO DID50-HDL or TAKASAGO RK50SMO. SUZUKI recommends that the above-mentioned standard drive chain be used for the replacement.



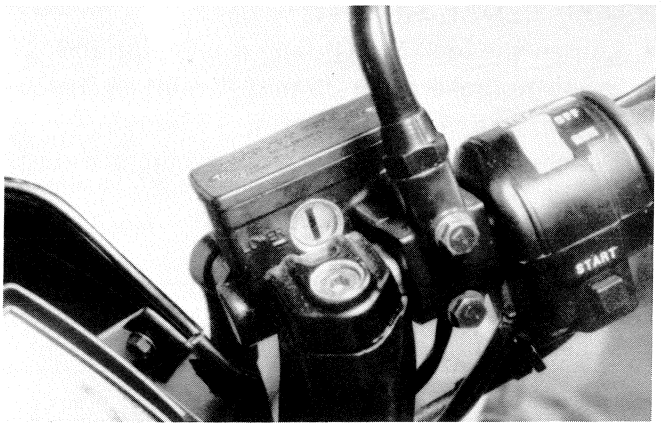
BRAKES

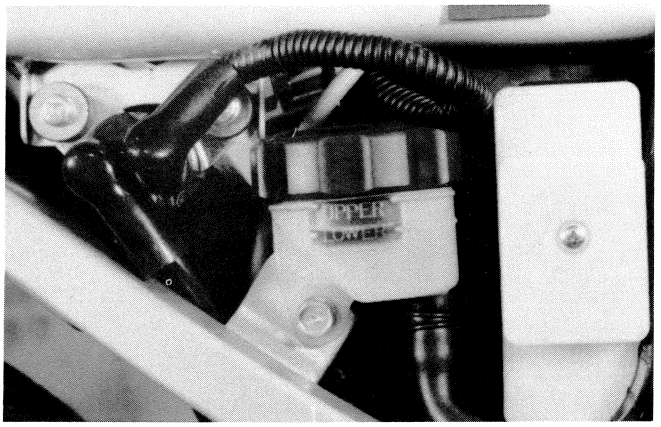
Inspect Initial 1 000 km (600 miles), and Every 6 000 km (4 000 miles).
Replace hoses Every 4 years.
Change fluid Every 2 years.

BRAKE FLUID LEVEL

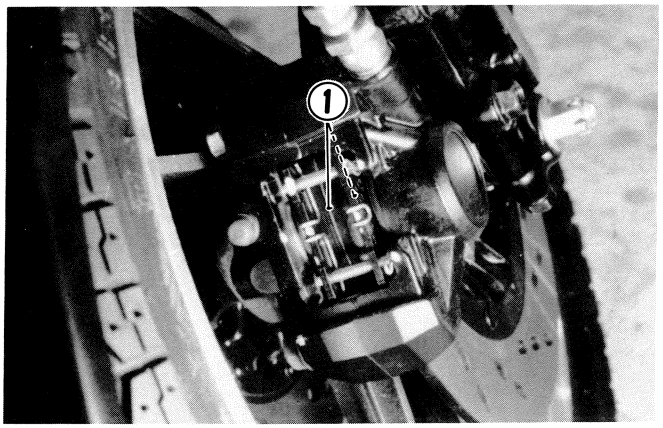
- Support the motorcycle on the center stand, and place the handlebars straight.
- Remove the right frame cover.
- Check the brake fluid level by observing the upper and lower limit lines on the brake fluid reservoirs, both front and rear.
- When the level is below the lower limit line, replenish with brake fluid that meets the following specification.

Specification and Classification	DOT3, DOT4

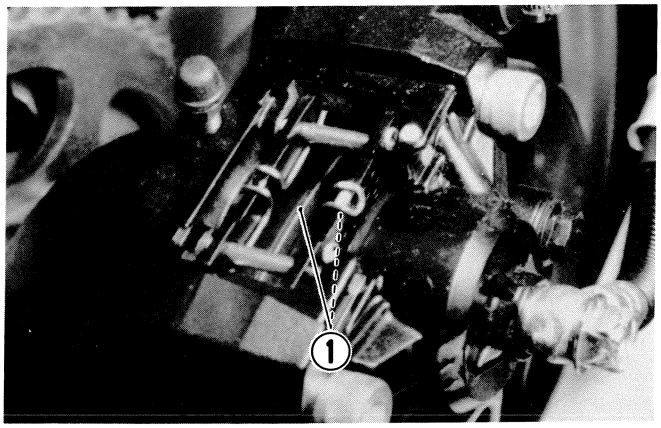




WARNING:
The brake system of this motorcycle is filled with a glycol-based brake fluid. Do not use or mix different types of fluid such as silicone-based and petroleum-based. Do not use any brake fluid taken from old, used or unsealed containers. Never re-use the brake fluid left over from the last servicing and stored for long periods.



WARNING:
Brake fluid, if it leaks, will interfere with safe running and immediately discolor painted surfaces.
Check the brake hoses for cracks and hose joints for leakage before riding.



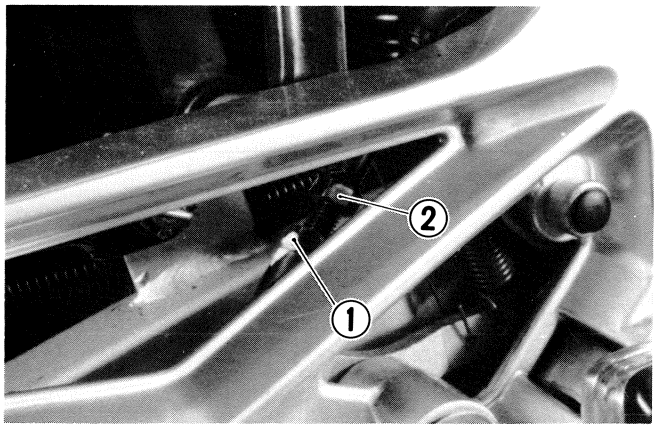
BRAKE PADS

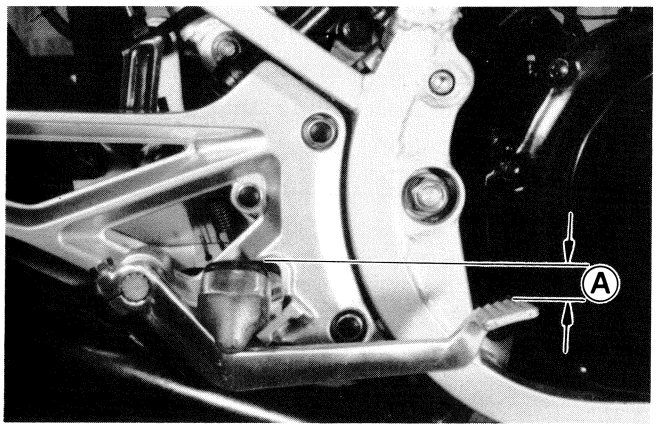
Wearing condition of brake pads can be checked by observing the limit line ① marked on the pad. When the wear exceeds the limit line, replace the pads with new ones. (see pages 7-35 and 7-51).

BRAKE PEDAL HEIGHT

- Loosen the lock nut ①, and rotate push rod ② to locate brake pedal 35 mm (1.4 in) Ⓐ below the top face of the footrest.
- Retighten the lock nut ① to secure the push rod ② in the proper position.

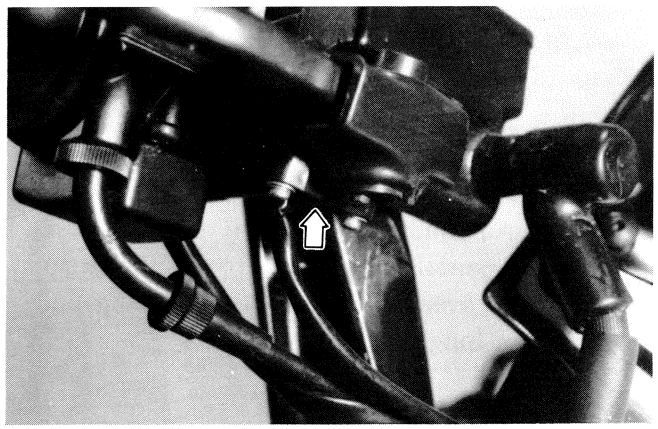
Brake pedal height Ⓐ	35 mm (1.4 in)

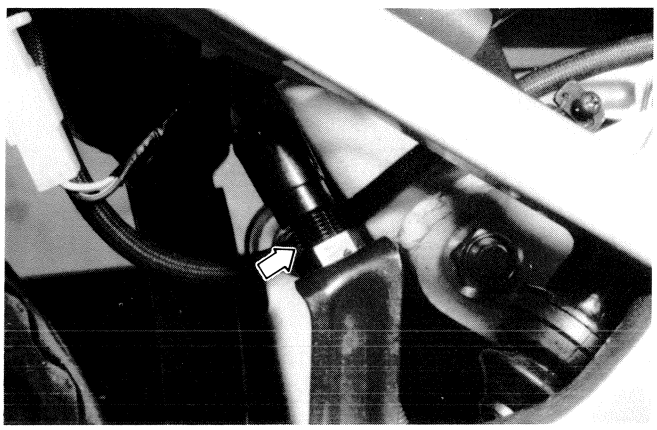




BRAKE LIGHT SWITCHES

Adjust both brake light switches, front and rear, so that brake light will come on just before a pressure is felt when the brake lever is squeezed, or the brake pedal is depressed.



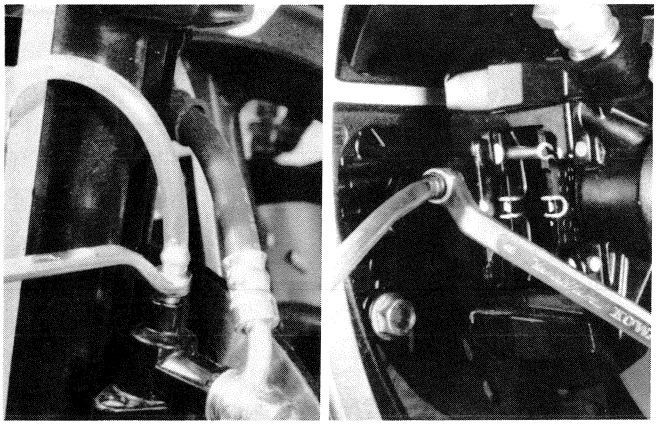


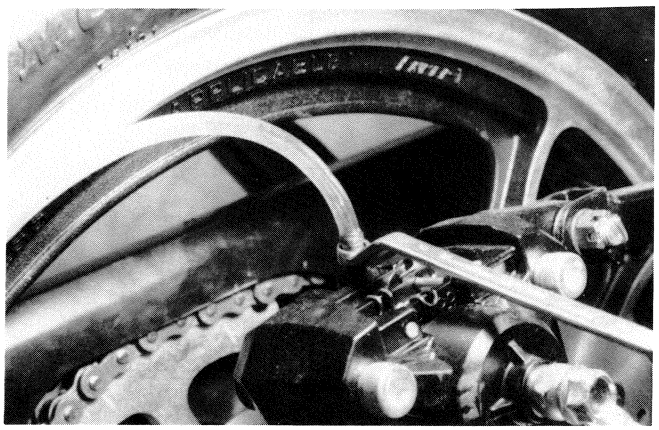
AIR BLEEDING THE BRAKE FLUID CIRCUIT

Air trapped in the fluid circuit acts like a cushion to absorb a large proportion of the pressure developed by the master cylinder and thus interferes with the full braking performance of the caliper brake. The presence of air is indicated by "sponginess" of the brake lever and also by lack of braking force. Considering the danger to which such trapped air exposes the machine and rider, it is essential that, after remounting the brake and restoring the brake system to the normal condition, the brake fluid circuit be purged of air in the following manner:

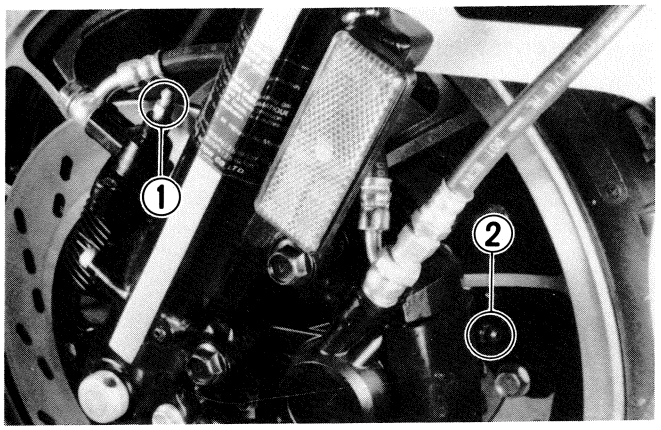
- Fill up the master cylinder reservoir to the "HIGH" level line. Replace the reservoir cap to prevent entry of dirt.
- Attach a pipe to the caliper bleeder valve, and insert the free end of the pipe into a receptacle.

Bleeder valve tightening torque	7 – 9 N·m (0.7 – 0.9 kg-m 5.0 – 6.5 lb-ft)





- Front brake: Bleed the air from the anti-dive components in an ascending order as shown in illustration. Always start with the left side.
  ① Left anti-dive device → ② Left caliper → ③ Right anti-dive device → ④ Right caliper

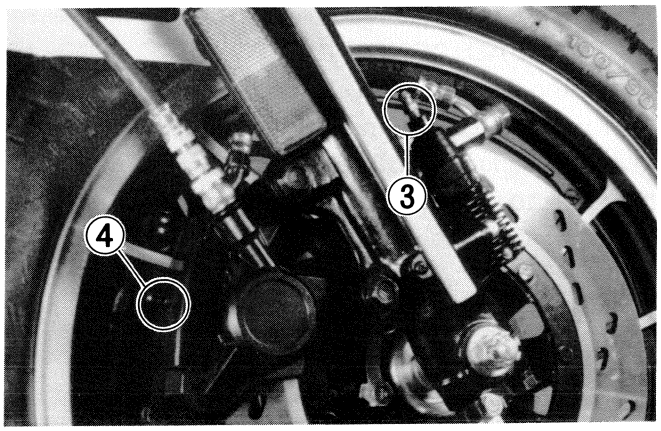


FRONT BRAKE AIR BLEEDING:

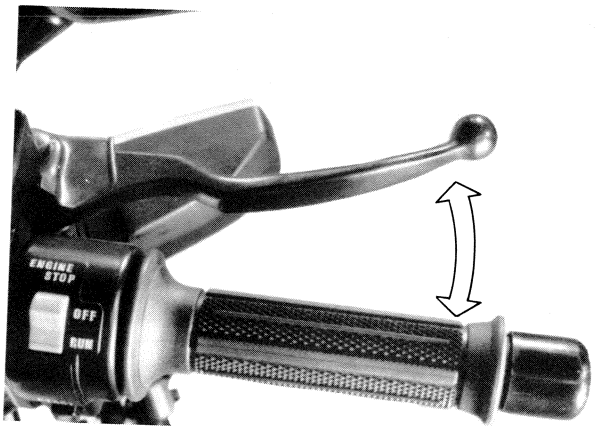
It is common for air to become "trapped" in the extra hoses or valves of the anti-dive system. Repeating the sequence of brake bleeding will remove most of this air. If the lever feel is still spongy after several bleeding sequences it may be necessary to remove the anti-dive modulator from the anti-dive assembly. This will allow the modulator to be "tipped" upwards, enabling the trapped air to be purged from the system.

CAUTION:
Be certain to retorque the modulator mounting bolts after remounting onto the anti-dive assembly body. Thread lock cement should be used when reinstalling the bolts.

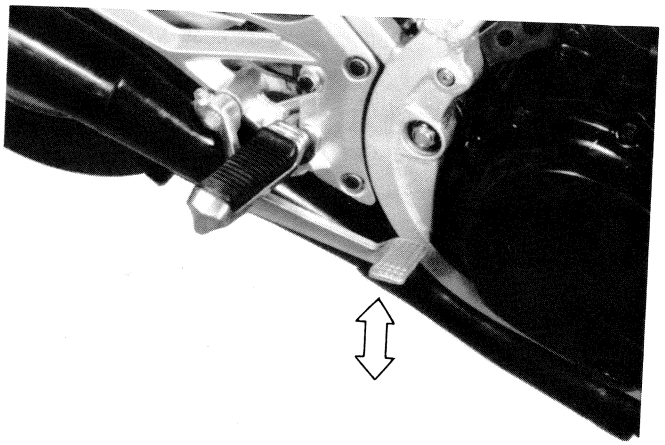
99000-32040	Thread lock cement



- Squeeze and release the brake lever several times in rapid succession, and squeeze the lever fully without releasing it. Loosen the bleeder valve by turning it a quarter of a turn so that the brake fluid runs into the receptacle; this will remove the tension of the brake lever causing it to touch the handlebar grip. Then, close the valve, pump and squeeze the lever, and open the valve. Repeat this process until the fluid flowing into the receptacle no longer contains air bubbles.



NOTE:
Replenish the brake fluid reservoir as necessary while bleeding the brake system.
Make sure that there is always some fluid visible in the reservoir.



- Close the bleeder valve, and disconnect the pipe. Fill the reservoir to the "HIGH" level line.

CAUTION:
Handle the brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials, etc.

- Differences between front and rear are that the master cylinder is actuated by a pedal.

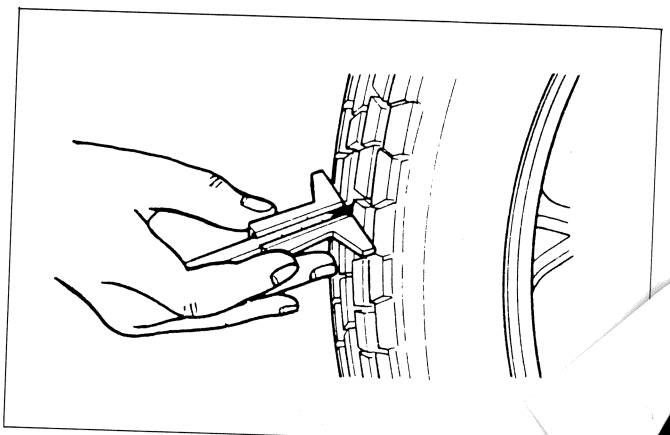
TIRES

Inspect Initial 1 000 km (600 miles), and Every 6 000 km (4 000 miles).

TIRE TREAD CONDITION

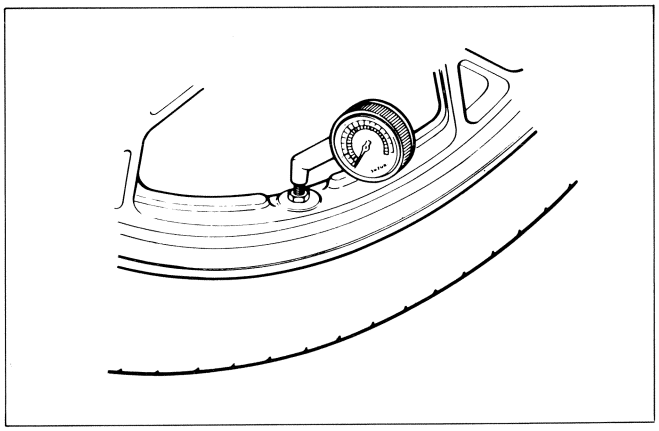
Operating the motorcycle with excessively worn tires will decrease riding stability and consequently invite a dangerous situation. It is highly recommended to replace the tire when the remaining depth of tire tread reaches the following specifications.

FRONT	REAR
1.6 mm (0.06 in)	2.0 mm (0.08 in)



TIRE PRESSURE

If the tire pressure is too high or too low, steering will be adversely affected and tire wear increased. Therefore, maintain the correct tire pressure for good roadability or shorter tire life will result. Cold inflation tire pressure is as follows.



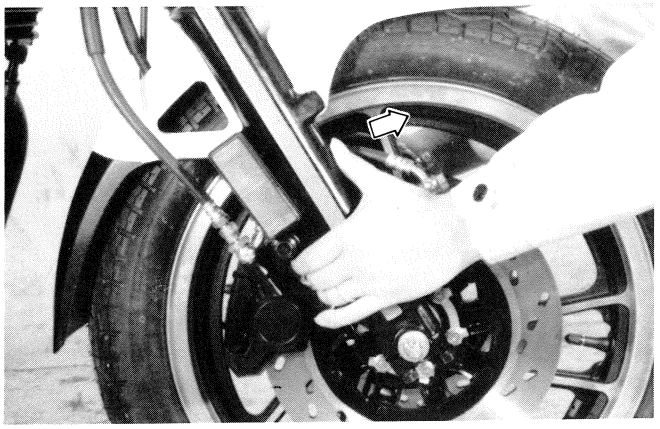
	FRONT		REAR	
	kg/cm^2	psi	kg/cm^2	psi
Solo riding	2.00	28	2.25	32
Dual riding	2.00	28	2.80	40

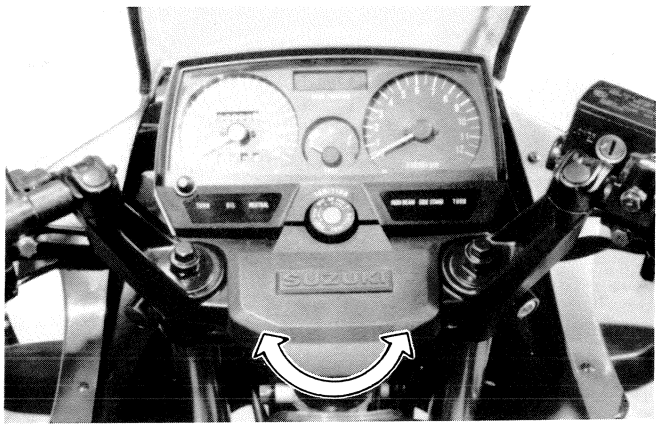
CAUTION:
The standard tire fitted on this motorcycle is 100/90-16 54H for front and 110/90-18 61H for rear. The use of a tire other than the standard may cause instability. It is highly recommended to use a SUZUKI Genuine Tire.

STEERING

Inspect Initial 1 000 km (600 miles), and Every 6 000 km (4 000 miles).

Taper roller type bearings are applied on the steering system for better handling.
Steering should be adjusted properly for smooth manipulation of handlebars and safe running. Too stiff steering prevents smooth manipulation of handlebars and too loose steering will cause poor stability.
Check that there is no play in the front fork assembly by supporting the machine so that the front wheel is off the ground, with wheel straight ahead, grasp lower fork tubes near the axle and pull forward. If play is found, perform steering bearing adjustment as described in page 7-31 of this manual.



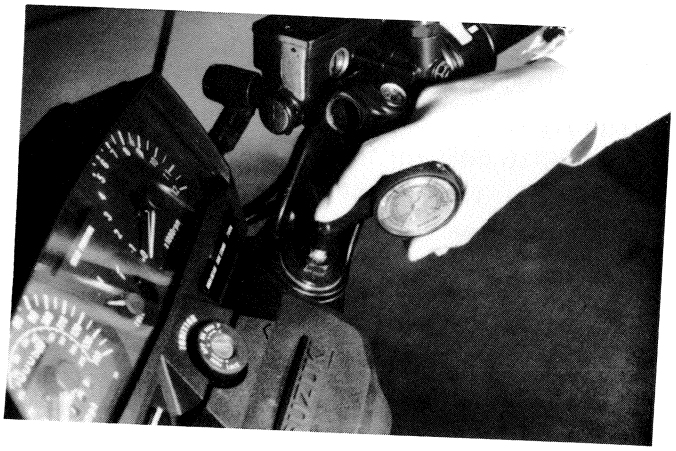


FRONT FORK

Inspect Every 12 000 km (7 500 miles), and Check air pressure Every 6 months

- Inspect the front fork oil leakage, scoring and scratches on the outer surface of the inner tube and replace the defective parts, if necessary. (See page 7-22).

- Check the front fork air pressure, when the fork is cold.
- Support the motorcycle on the center stand, and keep the front wheel off the ground.
- Measure the air pressure by pressure gauge on the valve.



Specified air pressure	0.3 kg/cm² (4.3 psi)

- Adjust the air pressure if necessary, use a hand type pump to raise the fork air pressure. (See page 7-25).

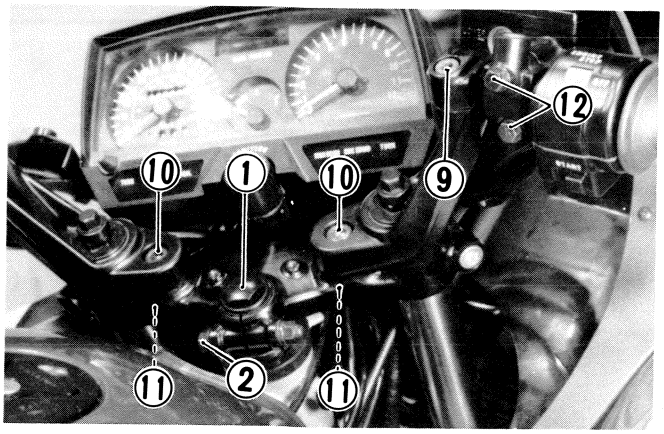
NOTE:
Before charging the air confirm that the valve is tight.

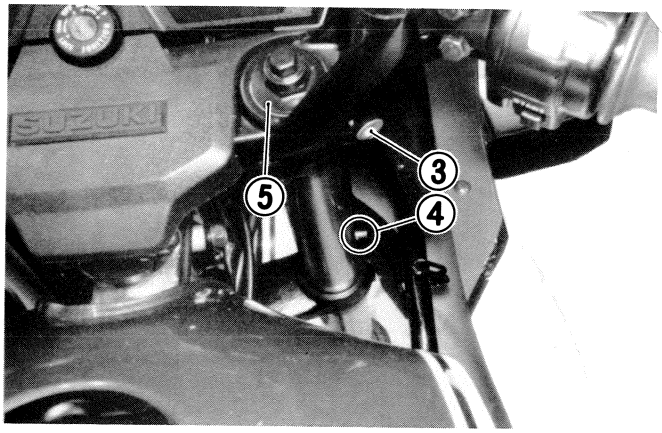
CHASSIS BOLTS AND NUTS

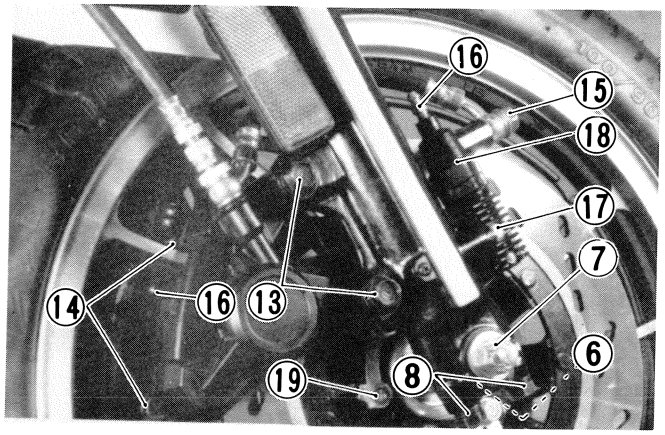
Tighten Initial 1 000 km (600 miles), and Every 6 000 km (4 000 miles).

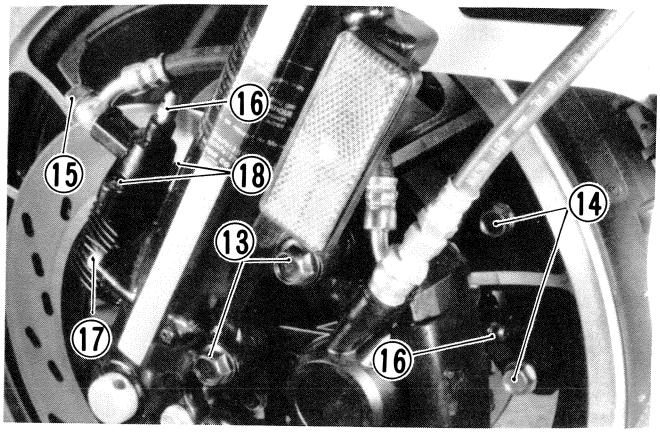
The nuts and bolts listed below are important safety parts. They must be retightened when necessary to the specified torque with a torque wrench. (Refer to pages 2-19 and 2-20 for the locations of the following nuts and bolts on the motorcycle.)

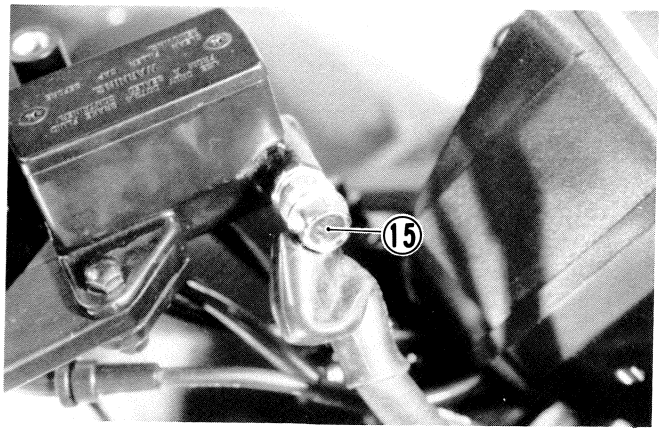
Item	kg-m	lb-ft
① Steering stem head bolt	2.0 – 3.0	14.5 – 21.5
② Steering stem head clamp bolt	1.5 – 2.5	11.0 – 18.0
③ Front fork upper clamp bolt	2.0 – 3.0	14.5 – 21.5
④ Front fork lower clamp bolt	1.5 – 2.5	11.0 – 18.0
⑤ Front fork cap bolt	1.5 – 3.0	11.0 – 21.5
⑥ Front fork damper rod bolt	2.0 – 2.6	14.5 – 19.0
⑦ Front axle nut	3.6 – 5.2	26.0 – 37.5
⑧ Front axle pinch nut	1.5 – 2.5	11.0 – 18.0
⑨ Handlebars set bolt	1.5 – 2.5	11.0 – 18.0
⑩ Handlebars holder bolt	5.0 – 6.0	36.0 – 43.5
⑪ Handlebars holder nut	2.0 – 3.0	14.5 – 21.5
⑫ Front master cylinder mounting bolt	0.5 – 0.8	3.5 – 6.0
⑬ Front caliper mounting bolt	2.5 – 4.0	18.0 – 29.0
⑭ Front caliper housing bolt	3.0 – 3.6	21.5 – 26.0
⑮ Brake hose union bolt	2.0 – 2.5	14.5 – 18.0
⑯ Air bleeder valve	0.7 – 0.9	5.0 – 6.5
⑰ Anti-dive modulator valve bolt	0.6 – 0.8	4.5 – 6.0
⑱ Anti-dive modulator plunger bolt	0.4 – 0.5	3.0 – 3.5
⑲ Front and rear disc bolt	1.5 – 2.5	11.0 – 18.0
⑳ Swing arm pivot nut	5.5 – 8.8	40.0 – 63.5
㉑ Rear unit fitting nut (Upper & Lower)	4.8 – 7.2	34.5 – 52.0
㉒ Rear cushion lever nut	8.4 – 10.0	60.5 – 72.5
㉓ Rear cushion rod-upper nut	4.8 – 7.2	34.5 – 52.0
㉔ Rear cushion rod-lower nut	8.4 – 10.0	60.5 – 72.5
㉕ Rear caliper mounting bolt	1.5 – 2.5	11.0 – 18.0
㉖ Rear caliper housing bolt	2.8 – 3.2	20.0 – 23.0
㉗ Rear torque link nut	2.0 – 3.0	14.5 – 21.5
㉘ Rear master cylinder mounting bolt	1.5 – 2.5	11.0 – 18.0
㉙ Rear axle nut	5.0 – 8.0	36.0 – 58.0

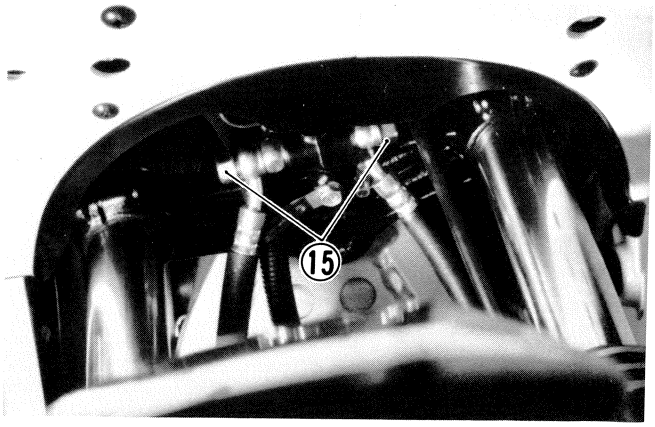

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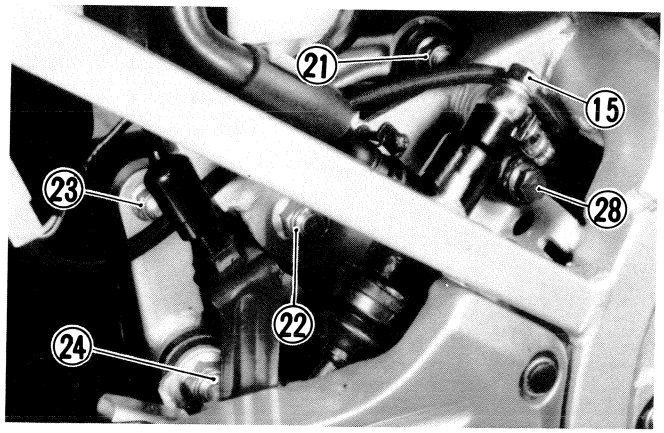

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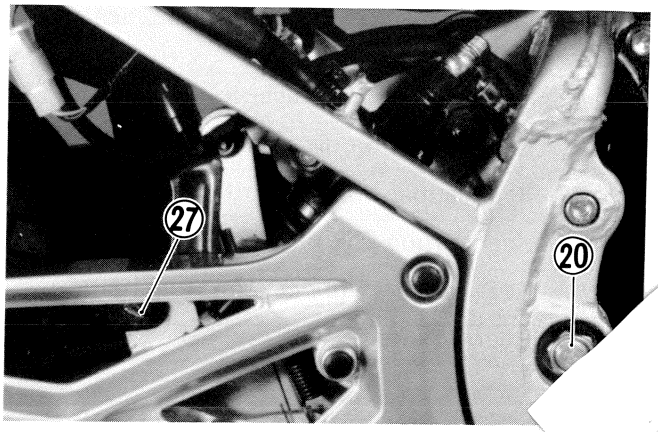

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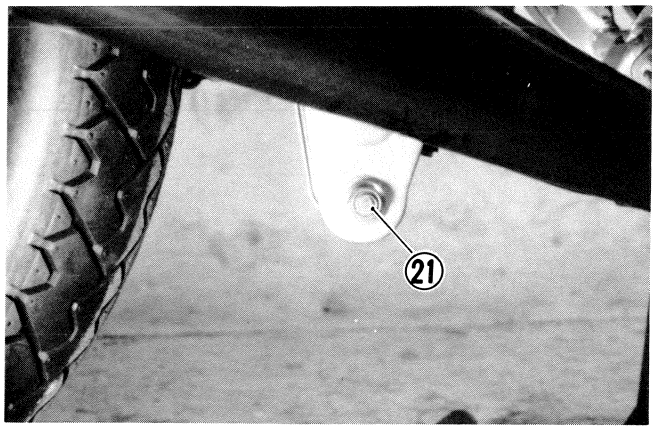

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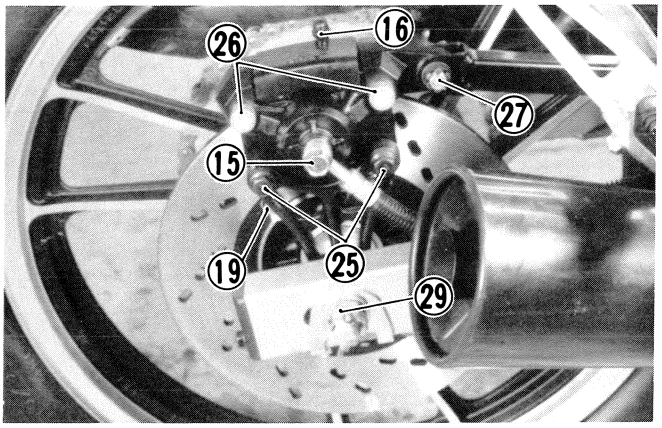

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SERVICING ENGINE

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COMPRESSION CHECK

The compression of a cylinder is a good indicator of its internal condition. The decision to overhaul the cylinders is often based on the results of a compression test. Periodic maintenance records kept at your dealership should include compression readings for each maintenance service.

COMPRESSION

Standard	Limit	Difference
1 000 – 1 400 kPa (10 – 14 kg/cm²)	800 kPa (8 kg/cm²)	200 kPa (2 kg/cm²)

Low compression pressure can indicate any of the following conditions:

* Excessively worn cylinder wall
* Worn-down piston or piston rings
* Piston rings stuck in the grooves
* Poor seating of valves
* Ruptured or otherwise defective cylinder head gasket

Overhaul the engine in the following cases:

* Compression pressure in one of the cylinders is less than 800 kPa (8 kg/cm²).
* Difference in compression pressure between any two cylinders is more than 200 kPa (2 kg/cm²).
* All compression pressure are below 1 000 kPa (10 kg/cm²) (standard) even when they measure more than 800 kPa (8 kg/cm²).

COMPRESSION TEST PROCEDURE

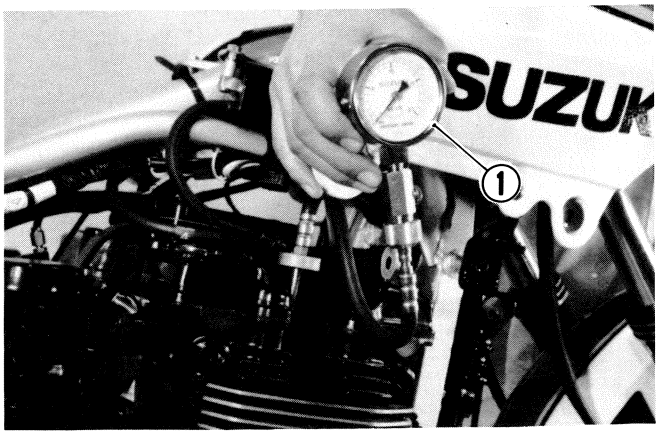
NOTE:

*** Before testing the compression of the engine, make sure that the cylinder head nuts and bolt are tightened to specified torque values and valves are properly adjusted.**

*** Warm up the engine before testing.**

- Remove the fuel tank. (Refer to page 3-3).
- Remove the all spark plugs.
- Fit the compression gauge ① in one of the plug holes, while taking care that the connection is tight.
- Twist the throttle grip full open.
- Crank the engine a few seconds with the starter, and record the maximum gauge reading as the compression of that cylinder.
- Repeat this procedure with the other cylinders.

09915-64510	Compression gauge
09915-63210	Adapter



The parts listed below can be removed and reinstalled without removing the engine from the frame. Refer to the page listed in this section for removal and reinstallation instructions.

ENGINE LEFT SIDE

	See page
Gearshift lever	3- 7
Engine sprocket cover	3- 7
Engine sprocket and drive chain	3- 7
Gear position indicator switch body	3-21
Generator cover	3-20
Generator rotor	3-20
Generator stator	3-55
Starter clutch	3-54
Starter clutch idle gear	3-20

ENGINE CENTER

	See page
Exhaust pipe and muffler	3- 6
Oil cooler	3- 8
Oil filter	2- 8
Oil pan	3-22
Oil pressure switch	3-65
Sump filter	3-22
Tachometer driven gear	3-13
Cylinder head breather cover	3- 8
Carburetor	3- 5
Throttle cable and starter cable	3- 5
Cam chain tensioner	3-13
Cylinder head cover	3-13
Camshaft	3-14
Cylinder head	3-15
Cylinder	3-15
Piston	3-15
Starter motor	3-19

ENGINE RIGHT SIDE

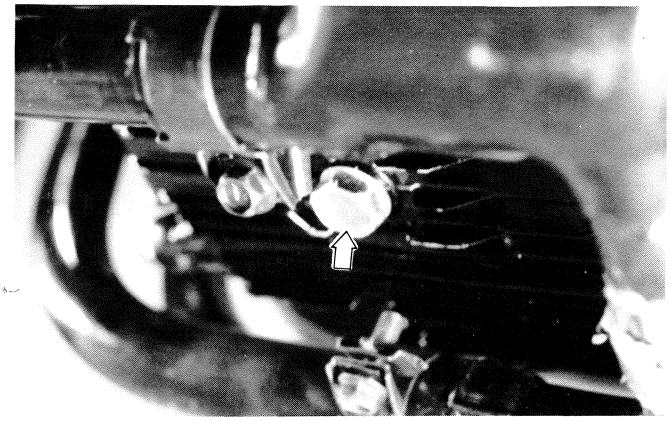
	See page
Signal generator	3-16
Clutch cover	3-17
Clutch pressure, drive and driven plates	3-17
Oil pump drive gear	3-69
Oil pump ass'y	3-19
Primary driven gear	3-18
Gear shifting shaft	3-18
Gear shifting pawl and cam driven gear	3-18

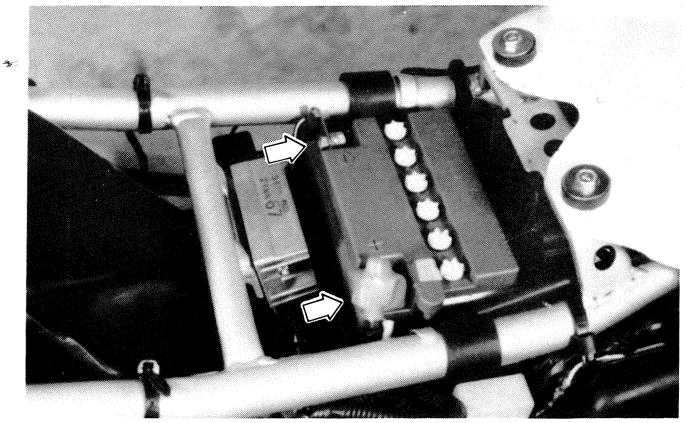
ENGINE REMOVAL AND REINSTALLATION

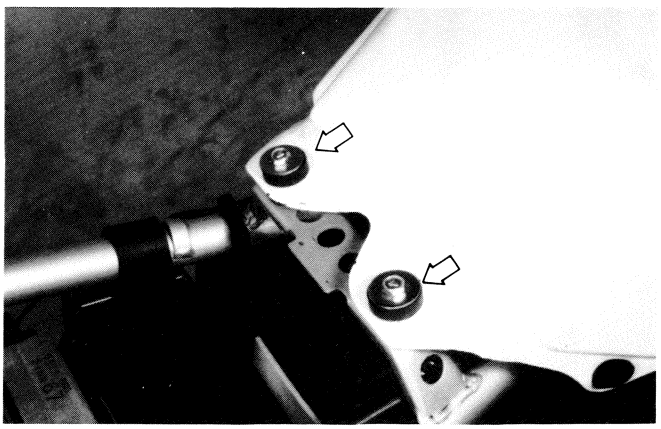
ENGINE REMOVAL

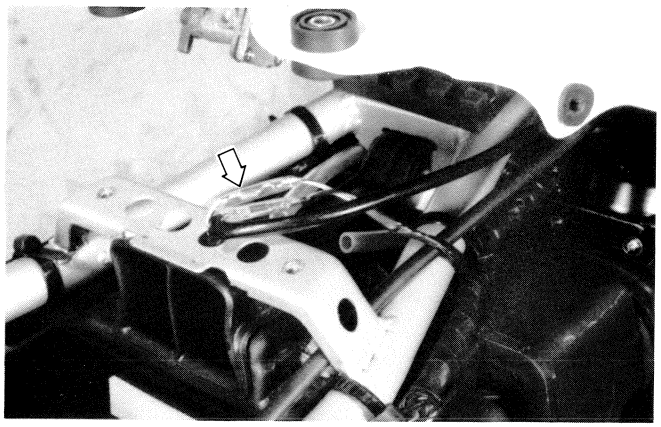
Before taking the engine out of the frame, wash the engine with a steam cleaner and drain engine oil, etc. The procedure of engine removal is sequentially explained in the following steps, and engine installation is effected by reversing the removal procedure.

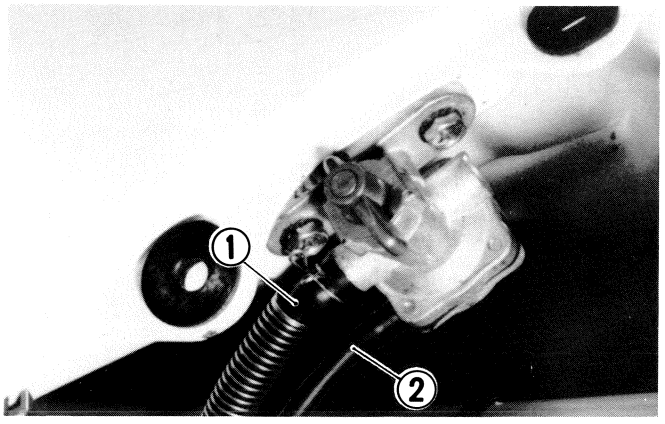
- Place an oil pan under the engine and remove the oil drain plug to drain out engine oil.
- Remove the seat and remove the left and right frame covers.
- Disconnect the battery ⊖ and ⊕ lead wires from the battery terminals.
- Remove the battery from the battery holder.
- Remove the two bolts at the rear of the fuel tank.
- Shift the fuel hose clip sideways and disconnect the two hoses (fuel ① and vacuum ②) from fuel cock.
- Disconnect the fuel level gauge sending unit lead wires, and draw the fuel tank backward.



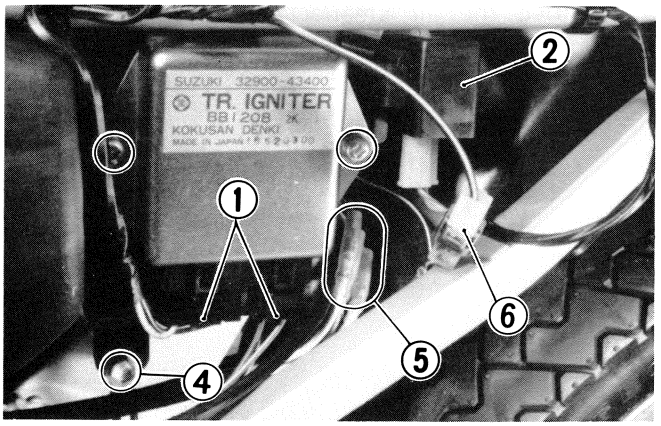


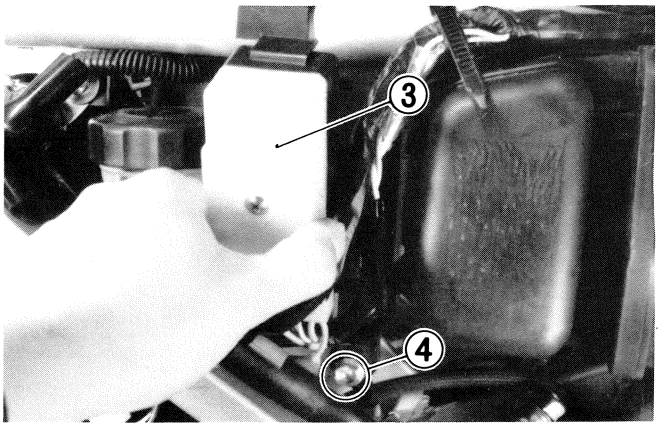


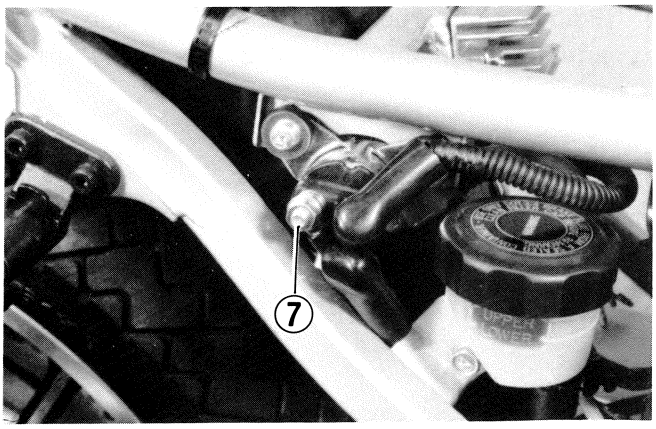


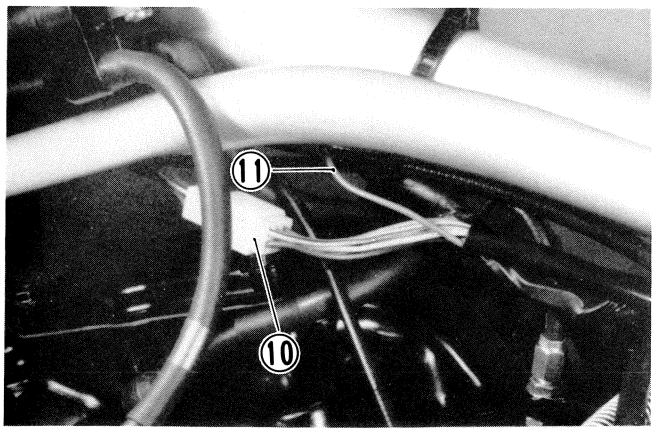


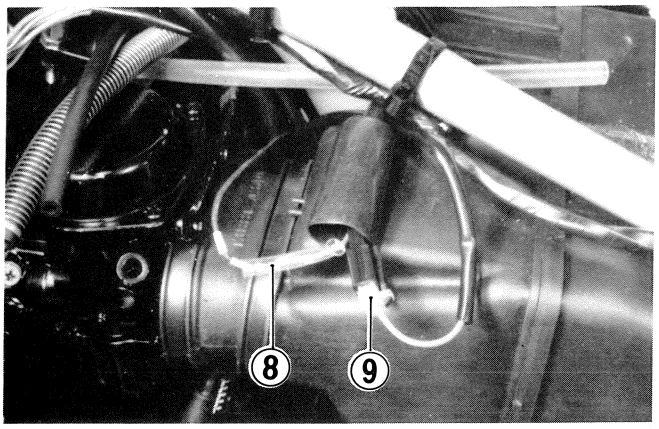
- Disconnect the igniter couplers ①, then remove the igniter by removing the screws.
- Disconnect the turn signal relay ② and fuse box ③ from battery holder.
- Loosen the two bolts ④ and remove the battery holder upward.
- Disconnect various lead wires.
  * Generator lead wires (yellow) ⑤.
  * Battery ⊖ lead wire (coupler) ⑥.
  * Starter relay ⊖ lead wire ⑦.
  * Oil pressure switch lead wire ⑧.
  * Side stand check switch lead wires (coupler) ⑨.
  * Gear position indicator switch lead wires (coupler) ⑩ and neutral indicator switch lead wire ⑪.



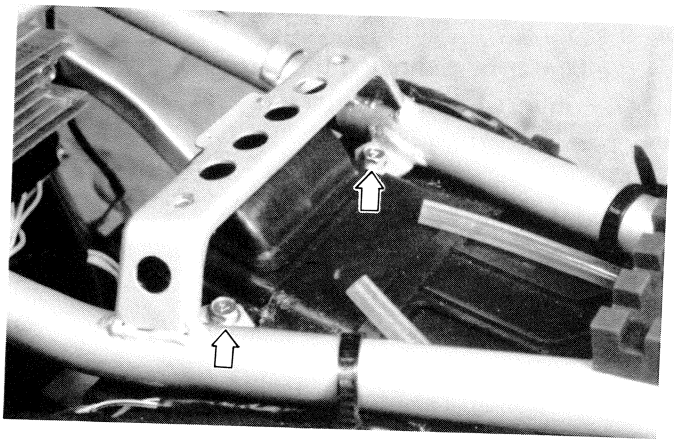




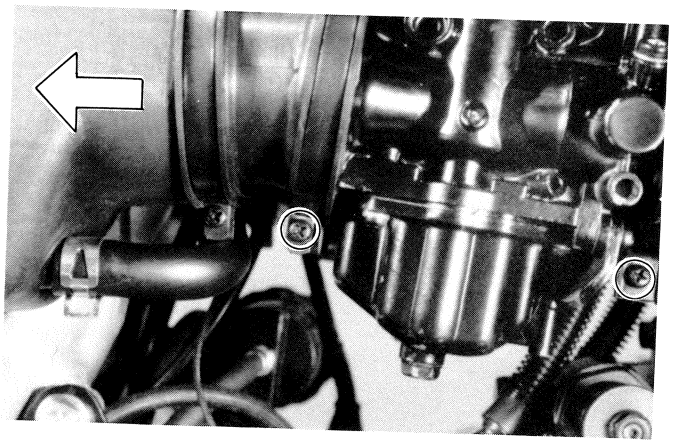




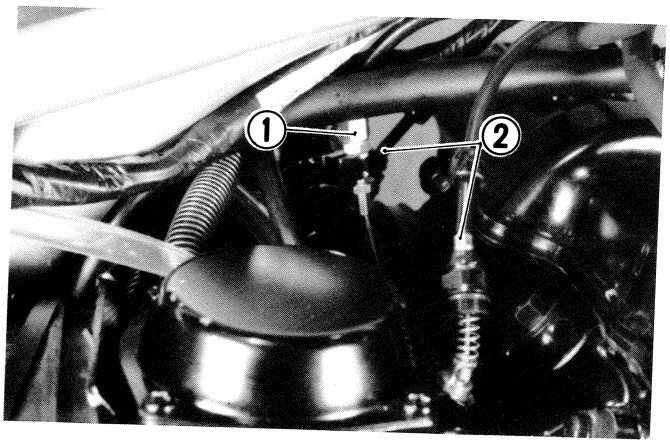
- Remove the air cleaner case mounting bolts.



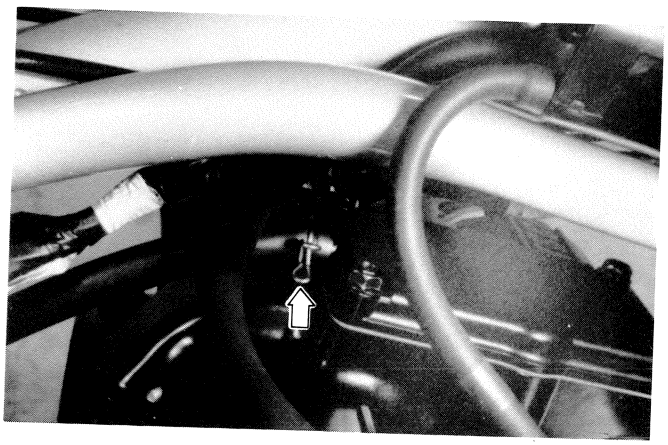
- Loosen the respective clamps for right and left carburetors.
- Shift the air cleaner case backward.



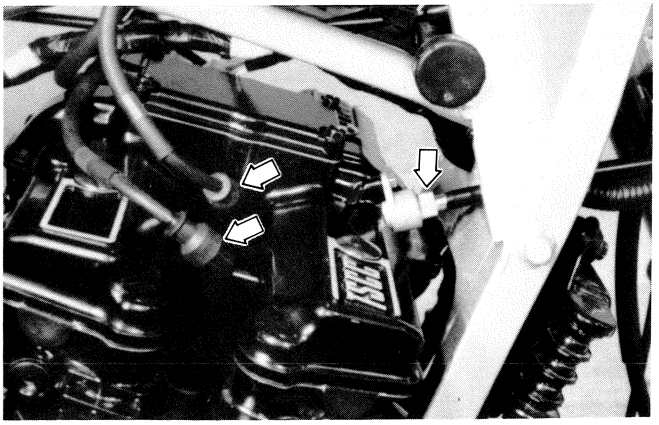
- Remove the carburetors from right side after removing the throttle cable ① and starter cables ②.



- Shift the breather hose clip sideways and disconnect the hose from cylinder head breather cover.

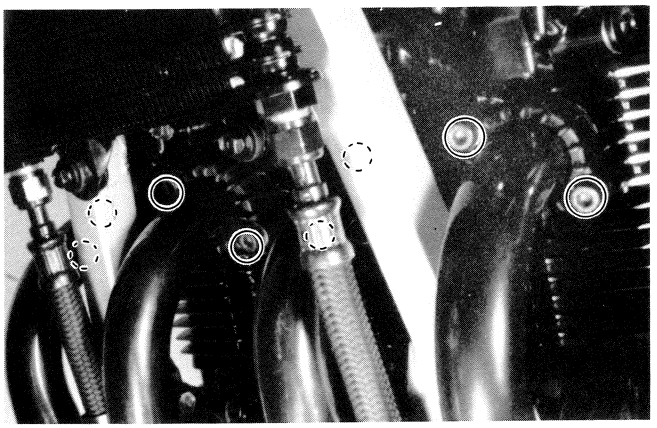


- Pull out the spark plug caps.
- Remove the tachometer cable from cylinder head cover.
  (Only for GS550E)



- Remove the eight exhaust pipe clamp bolts with 6-mm hexagon wrench.

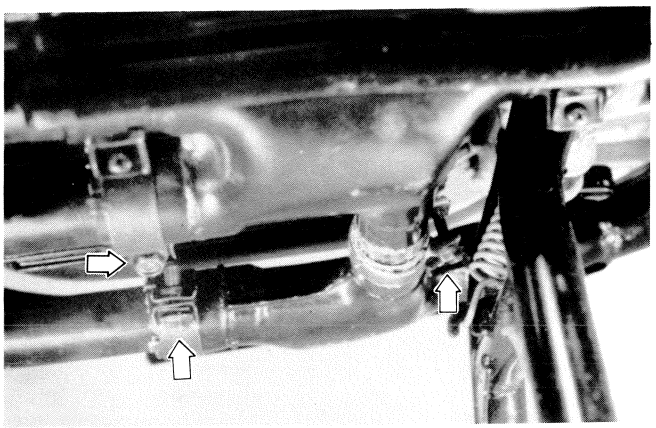
09914-25811	6 mm "T" type hexagon wrench



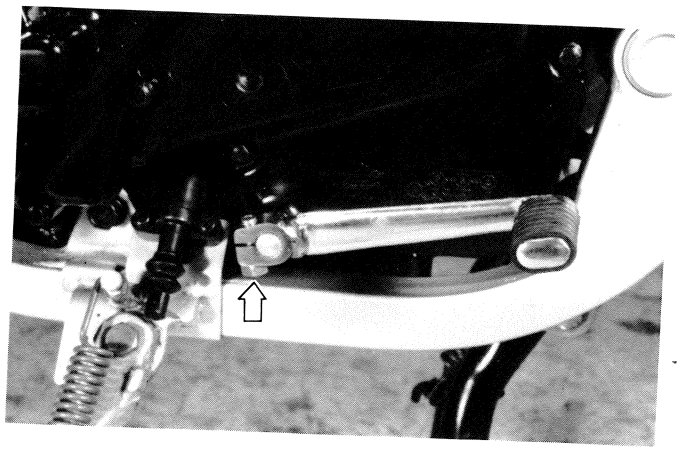
- Remove the left and right muffler mounting bolts with 8-mm hexagon wrench.



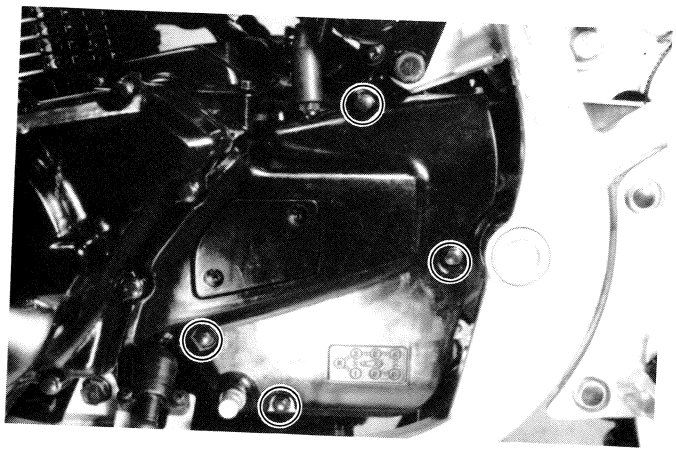
- Remove the exhaust pipe connector bolts.
- Remove the exhaust pipes with mufflers.



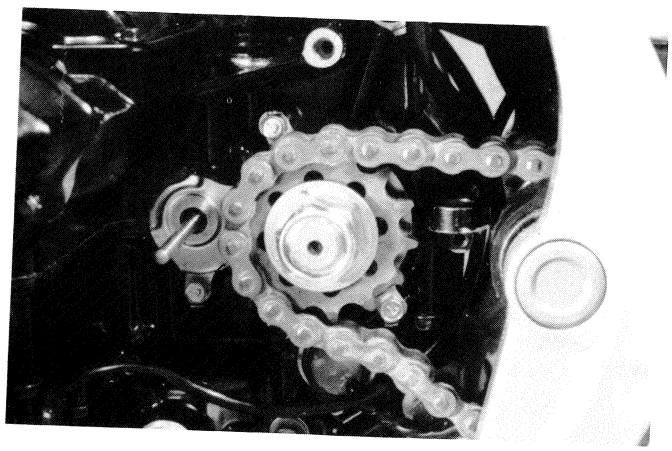
- Remove the gearshift lever by removing the bolt.



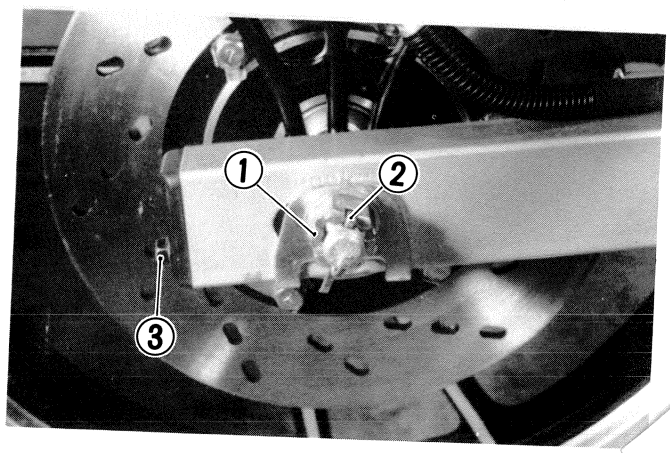
- Remove the engine sprocket cover by removing bolts.



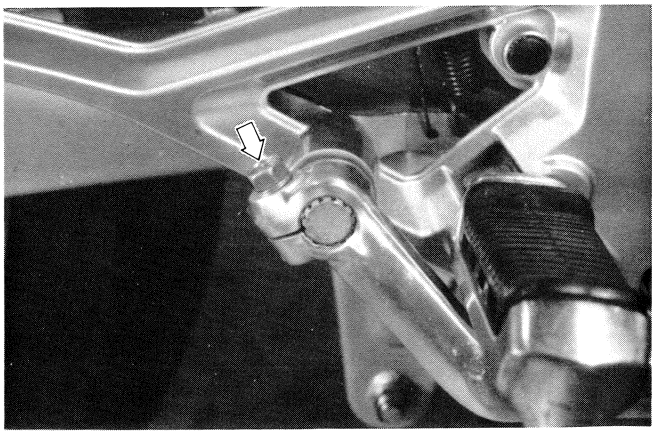
- Flatten the engine sprocket lock washer and remove the engine sprocket nut while depressing the rear brake pedal.



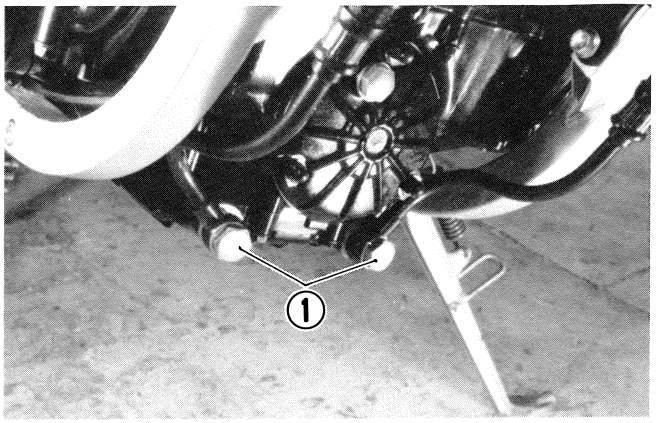
- Loosen the rear axle nut ① after pulling out the cotter pin ②, then loosen the chain adjuster bolts ③.
- Push the rear wheel forward and disengage the drive chain and engine sprocket from the drive shaft.



- Remove the rear brake pedal by removing the bolt.

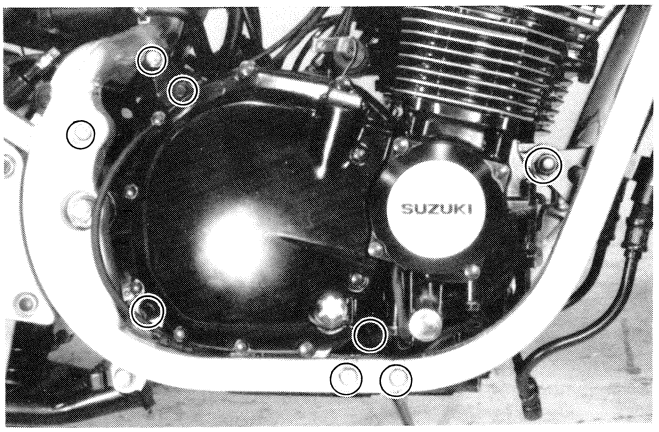


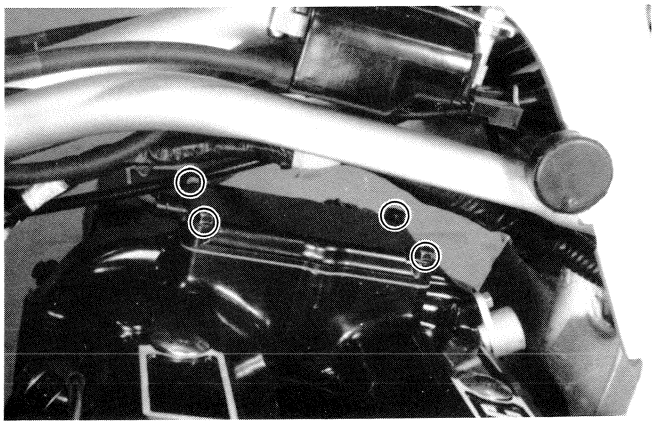
- Place an oil pan under the engine and remove the two oil cooler hoses by removing union bolts ①.



- Remove the engine mounting bolts and brackets.
- Gradually lift up the engine and lower the engine assembly on the right side making sure that it does not make contact with the frame. Remove the engine through the right side of the frame.

NOTE:
If it is difficult to remove the engine, remove the cylinder head breather cover to provide additional clearance.





ENGINE REINSTALLATION

Reinstall the engine in the reverse order of engine removal.

- After inserting the engine mounting bolts, tighten the engine mounting bracket bolts and engine mounting bolts.
  Insert the all three long bolts from left side. Install the brackets, spacer, bushes, bolts and nuts properly as shown in the following illustration.

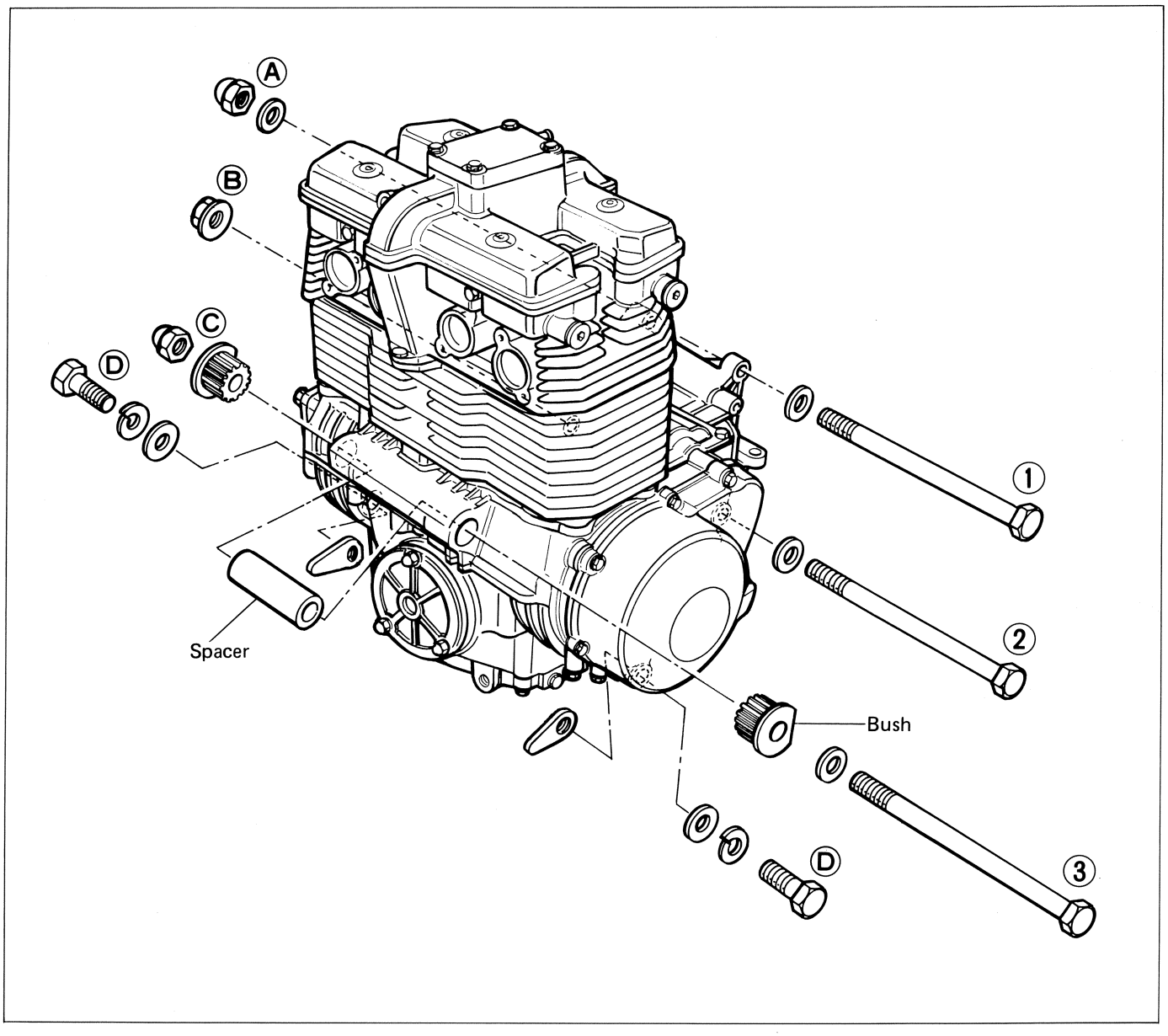
NOTE:
The engine mounting nuts are self-lock nuts. Once the nut has been removed, it is no longer of any use. Be sure to use new nuts and tighten them to the specified torque.

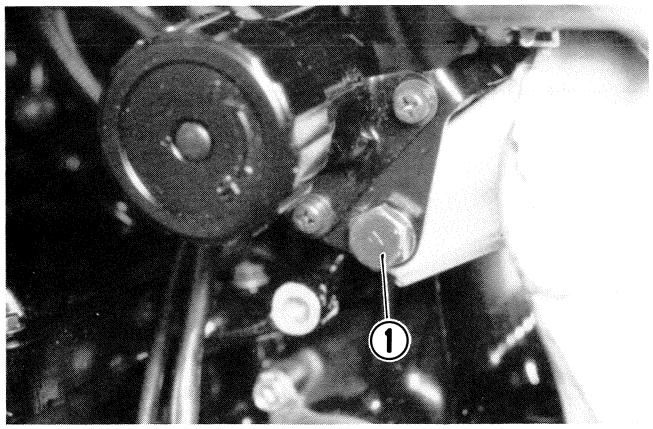
TIGHTENING TORQUE

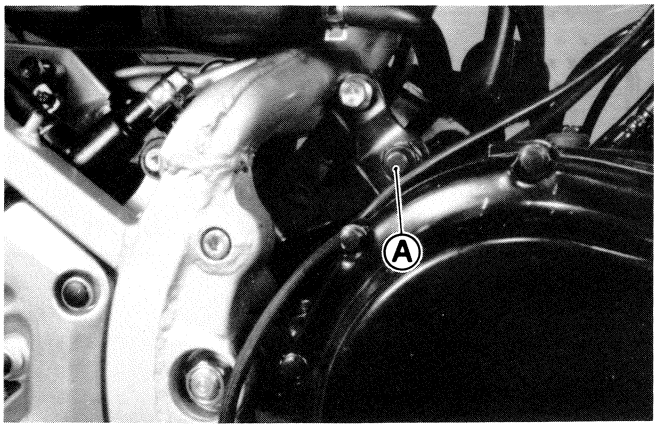
ITEM	kg-m	lb-ft
Ⓐ Ⓒ	6.7 – 8.0	48.5 – 58.0
Ⓑ Ⓓ	6.0 – 7.2	43.5 – 52.0

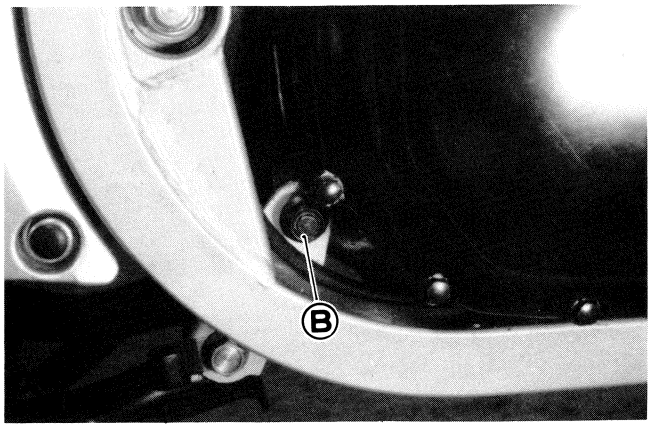
LENGTH

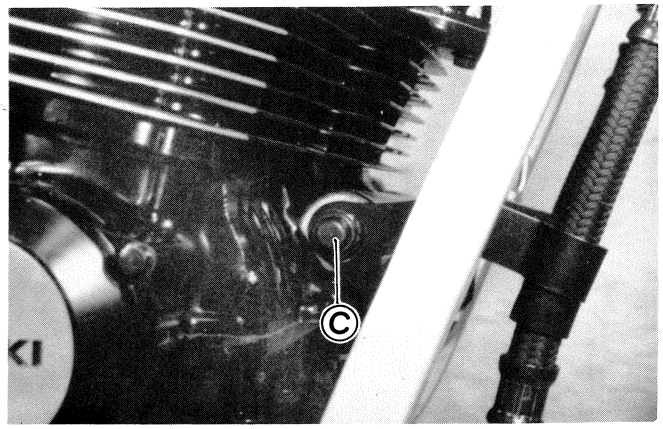
①	160 mm
②	165 mm
③	195 mm
Ⓓ	35 mm

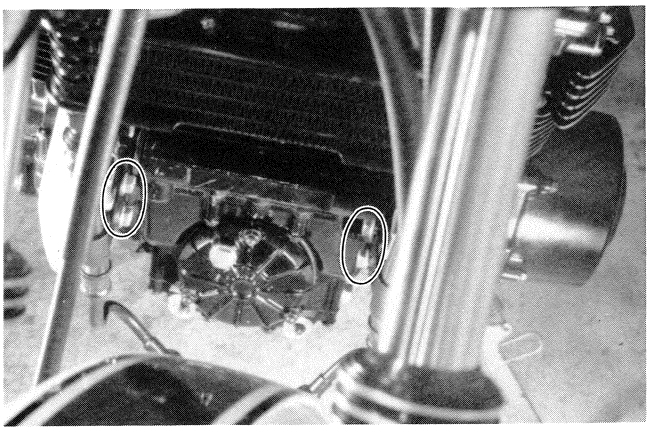


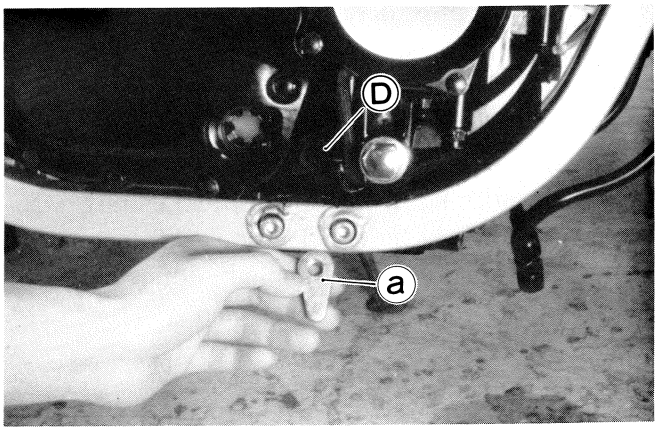




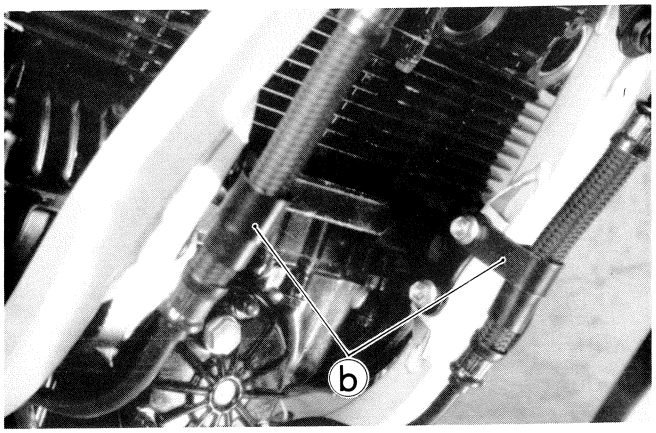






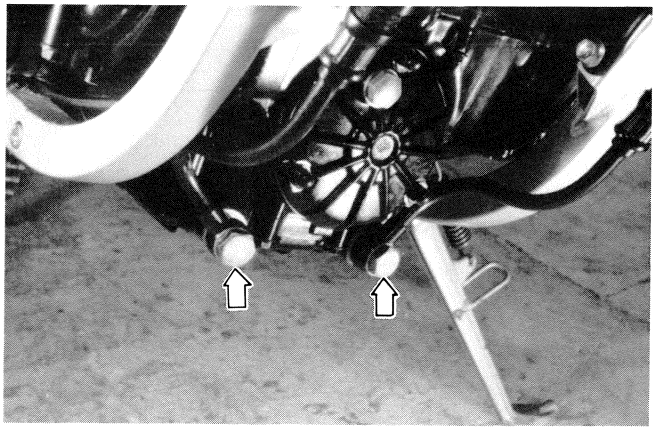


- The nut ⓐ takes its position in the place indicated.
- Oil cooler hose guides are installed on the front-upper engine mounting brackets ⓑ, as shown in the figure.

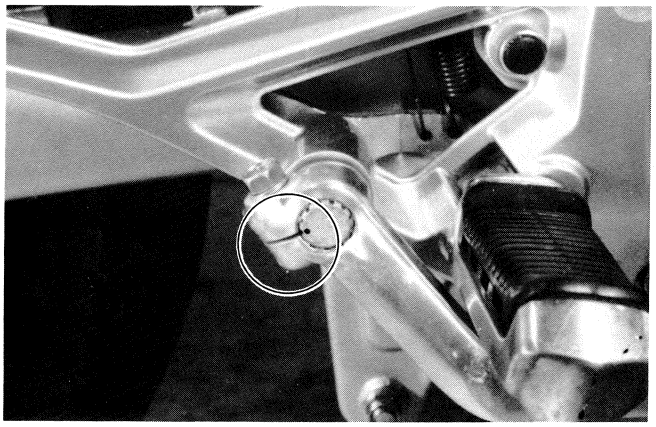


- Locate the copper washers on the both sides of union and tighten the union bolt to the specified torque.

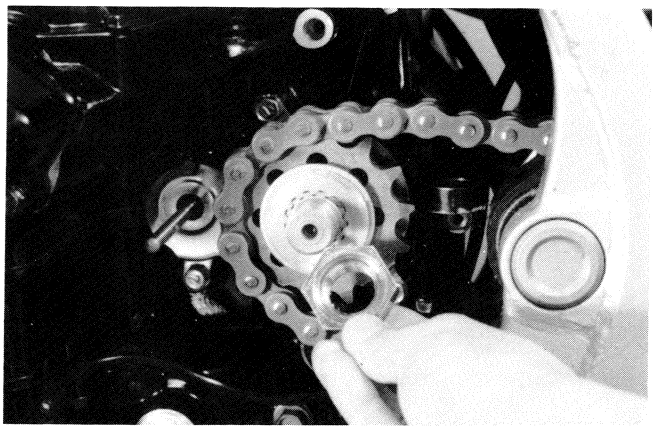
Tightening torque	25 – 30 N·m (2.5 – 3.0 kg-m 18.0 – 21.5 lb-ft)



- When installing the brake pedal, align the slit with the punched mark.



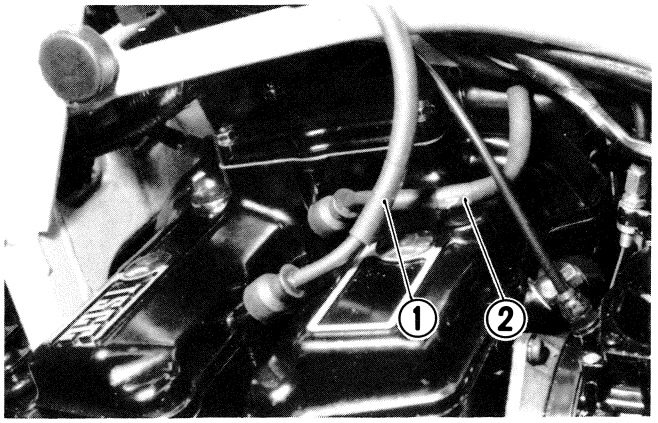
- The engine sprocket should be installed on the drive shaft as shown in the figure at the same time of the installation of drive chain. If it is difficult to assemble the engine sprocket, remove the rear axle cotter pin, loosen the axle nut and chain adjuster bolts to push the wheel forward, and give the drive chain some play. When replacing the engine sprocket nut, stepped side should be faced inside. After completing tightening of the engine mounting bolts, adjust free play of the drive chain.
(see page 2-11).

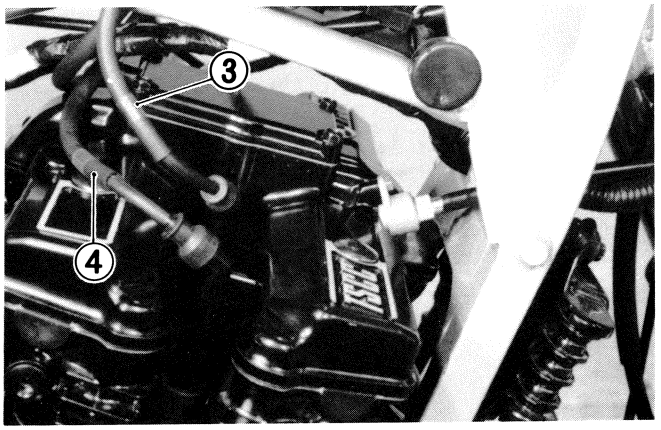


TIGHTENING TORQUE

ITEM	kg-m	lb-ft
Engine sprocket nut	10.0 – 15.0	72.5 – 108.5
Rear axle nut	5.0 – 8.0	36.0 – 58.0
Exhaust pipe bolt	0.9 – 1.2	6.5 – 8.5
Exhaust pipe connector bolt	0.9 – 1.2	6.5 – 8.5
Muffler mounting bolt	2.2 – 3.5	16.0 – 25.5

- Replace the plug caps on the spark plugs so that their code markings correspond to the cylinder numbers arranged in the order of ①, ②, ③ and ④ from the left.





- Install 3.1L of engine oil SAE10W/40 under API classification SF into the engine.
  Several minutes after starting and stopping engine, check that the oil level remains between the marks of oil inspection window.

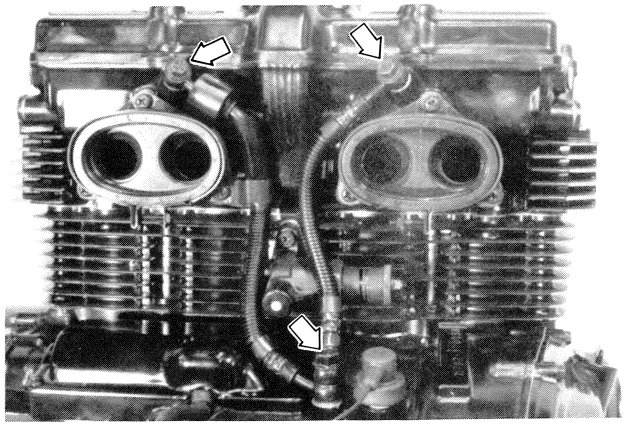
Change	2 400 ml (2.5 us qt)
Filter change	2 900 ml (3.1 us qt)
Overhaul	3 100 ml (3.3 us qt)

- After remounting the engine, route wiring harness, cables and hoses properly by referring to the sections, for wire routing, cable routing and hose routing. (see page 8-10, 14 and 16)
  Adjust the following items to the specification.

page
* Clutch cable 2-10
* Throttle cable 2-9
* Drive chain 2-11
* Idling adjustment 2-9
* Balancing carburetors 4-15

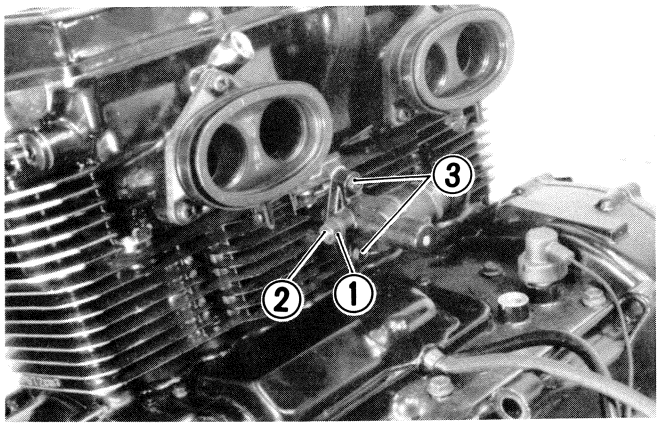
ENGINE DISASSEMBLY

- Remove the two oil hoses by removing the union bolts.

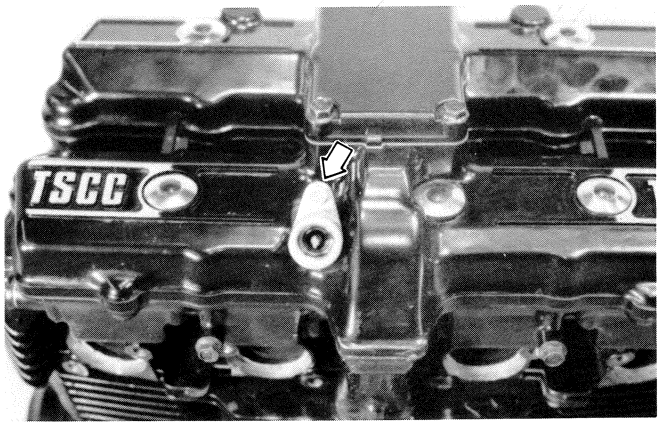


- Loosen the lock nut ① and tighten the stop screw ②, and then remove two cam chain tensioner mounting bolts ③.

NOTE:
Screw ② locks the spring loaded tensioner push rod inside.

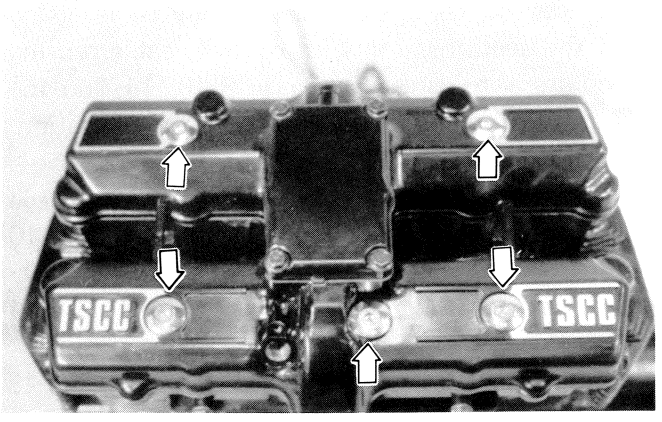


- Remove the tachometer sleeve securing bolt, and then pull out the tachometer driven gear shaft with sleeve.
(Only for GS550E)

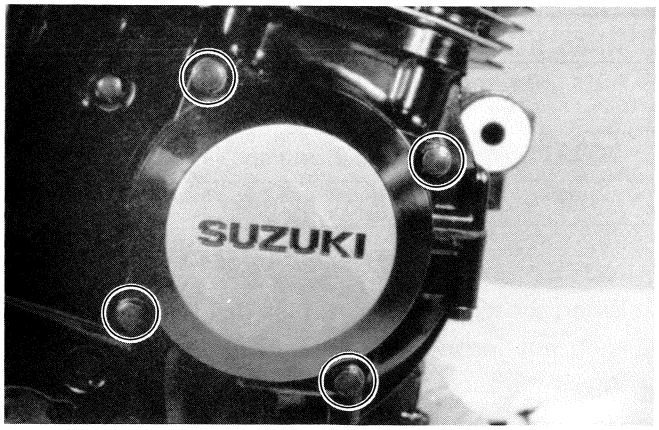


- Remove the cylinder head cover and its gasket.

09914-25811	6 mm "T" type hexagon wrench



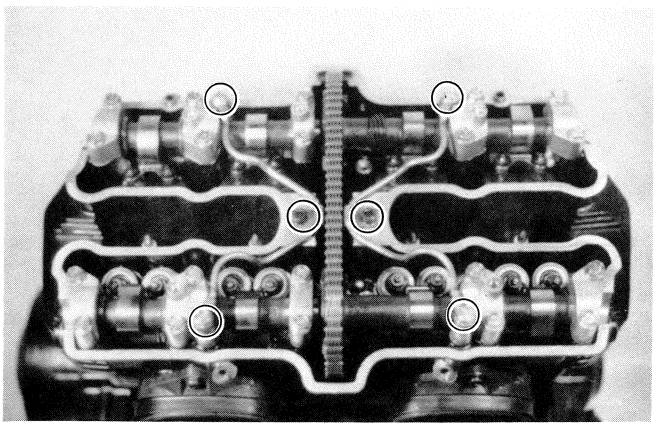
- Remove the signal generator cover.



- Remove the two oil pipes by removing the union bolts and allen bolts.

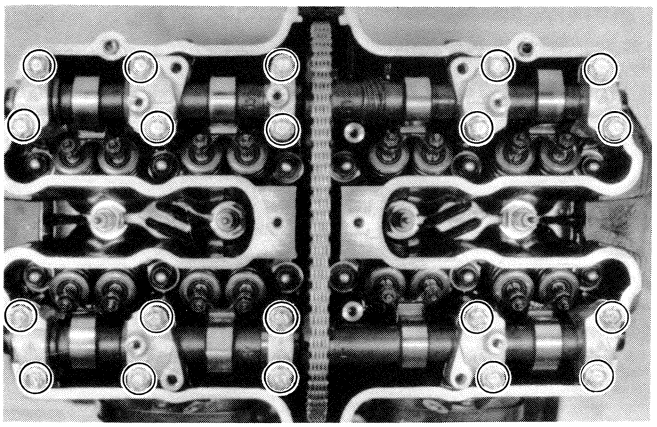
09911-73730	5 mm "T" type hexagon wrench

NOTE:
These two union bolts are different in shape, replace them in their original positions. (see page 3-79)



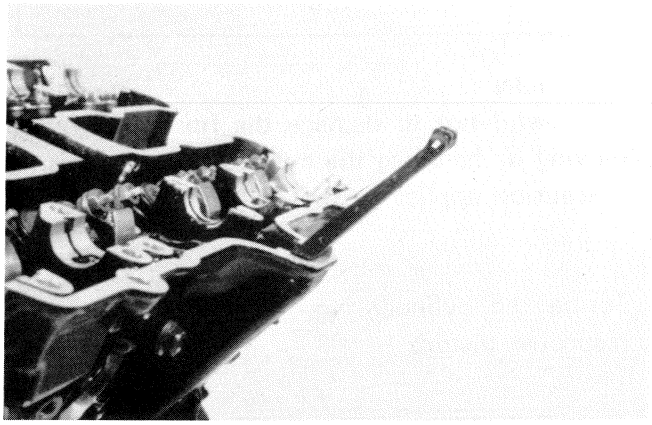
- Remove the ten camshaft holders by removing the bolts.

NOTE:
Be sure to loosen camshaft holder bolts evenly by shifting the wrench diagonally.



- Remove the two camshafts, intake and exhaust.

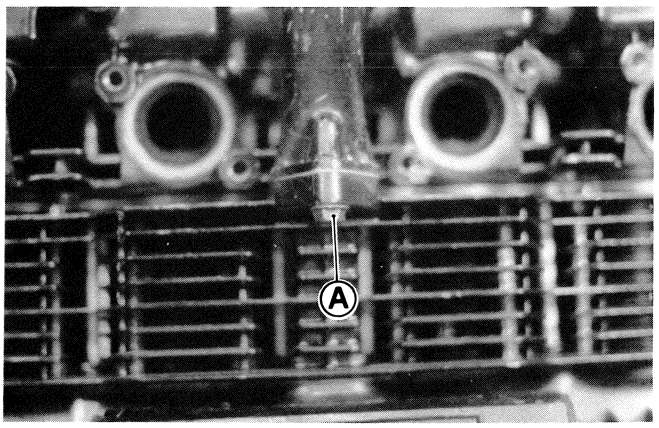
- Pull out the cam chain guide.

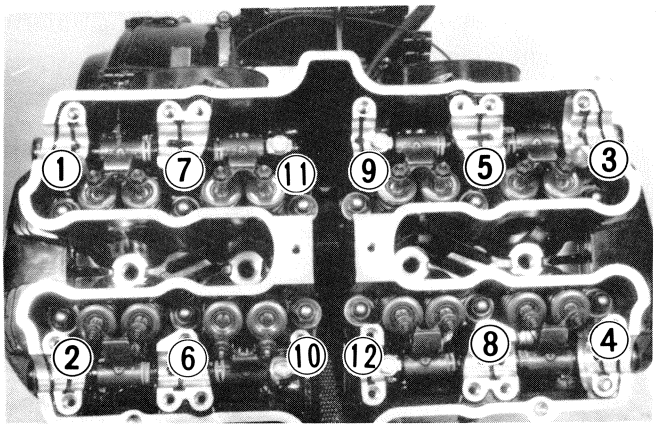


- The cylinder head becomes free for removal when its one 6-mm bolt Ⓐ and twelve 8-mm nuts are removed.

09911-74520	Long socket 12 mm
09914-24510	T handle

NOTE:
When loosening the cylinder head nuts, break each nut loose a little at a time in a descending order according to the numbers cast on a cylinder head.



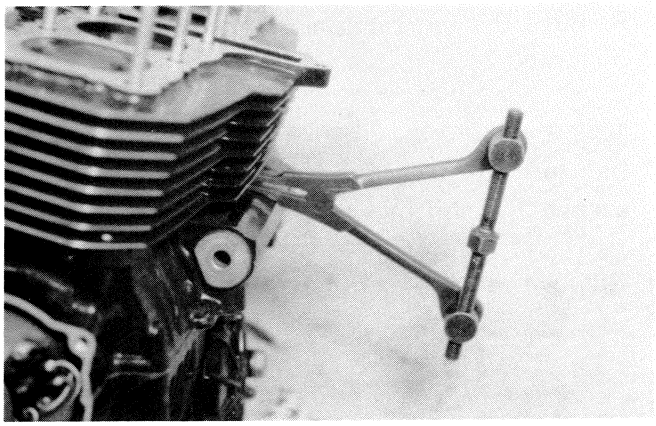


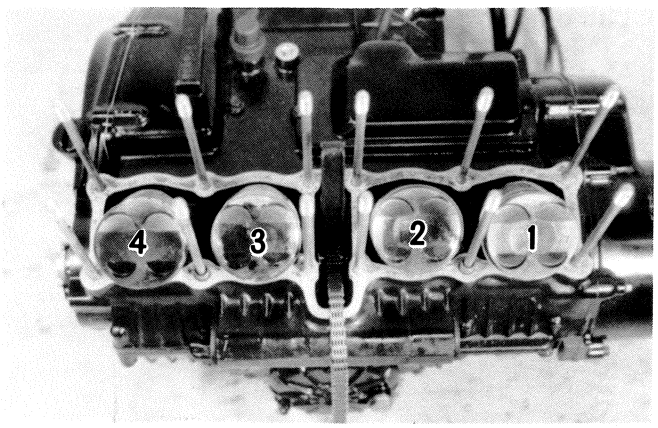
- Firmly grip the cylinder block at both ends, and lift it straight up. If the block does not come off, lightly tap on the finless portions of the block with a plastic mallet to shake the gasketed joint loose.

NOTE:
Cylinder removal from crankcase is made easier by the use of the cylinder disassembling tool.

09912-34510	Cylinder disassembling tool

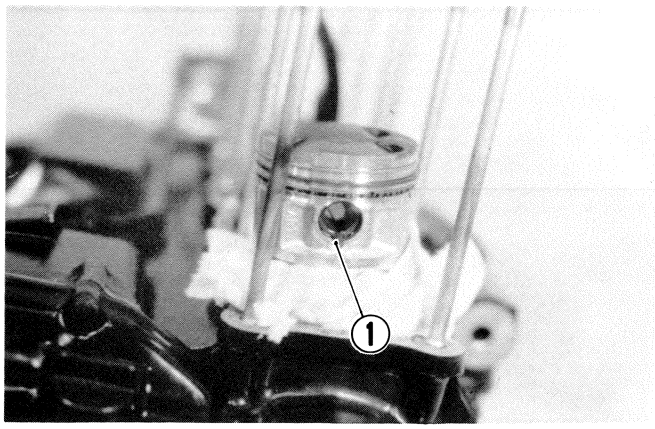
CAUTION:
Be careful not to damage the fins when removing or handling the cylinder block. This precaution applies to the cylinder head also.





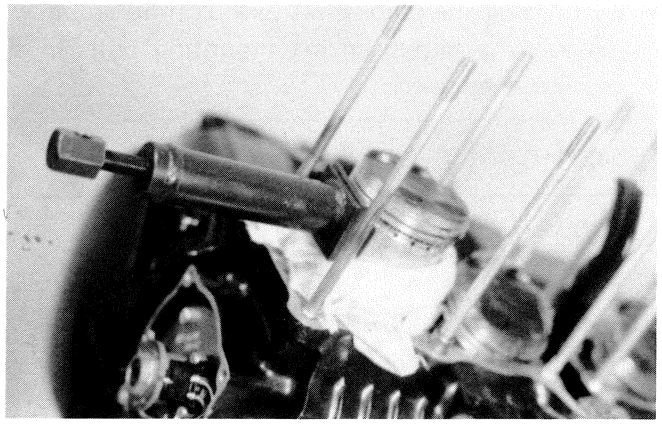
- Scribe the cylinder No. on the head of the respective pistons.

- Place a cloth beneath the piston so as not to drop the parts in the crankcase, and remove the circlip ① with pliers.



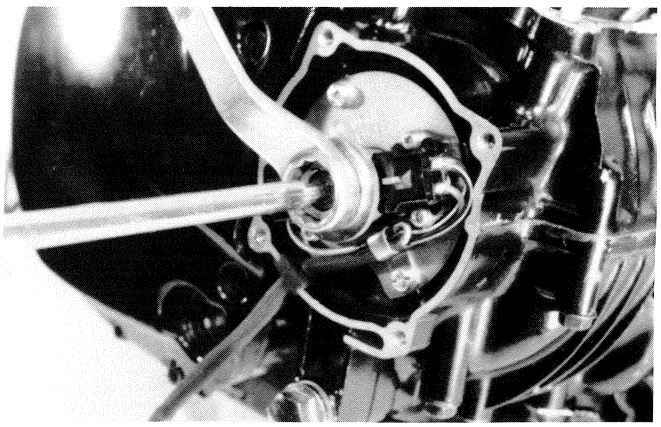
- Draw out the piston pin with the special tool. Place each piston pin in the same piston that it was removed from.

09910-34510	Piston pin puller

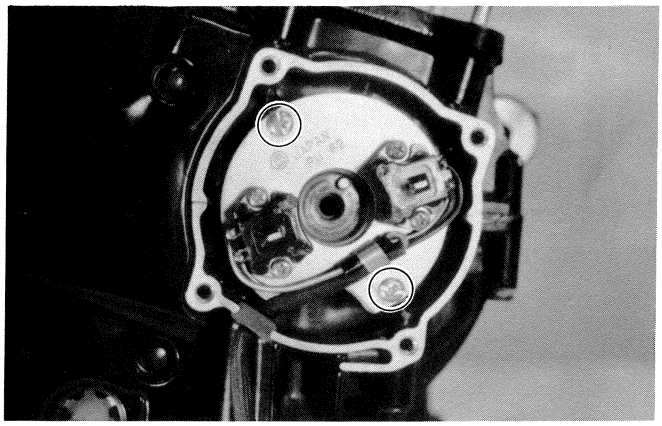


- Remove the rotor mounting bolt.
- Remove the signal generator rotor.

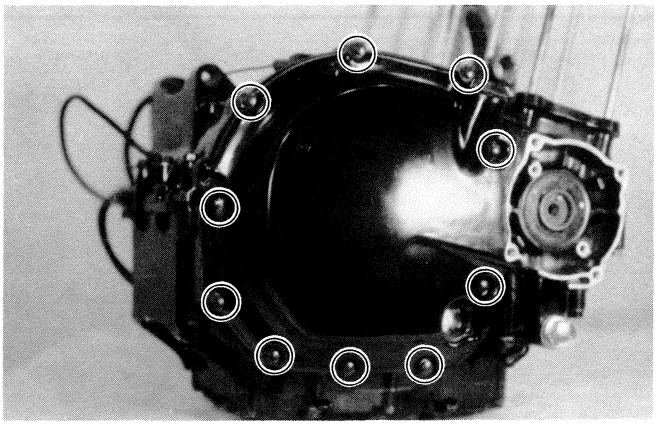
09914-25811	6 mm "T" type hexagon wrench



- Remove two mounting screws for signal generator assembly, and then remove the assembly.

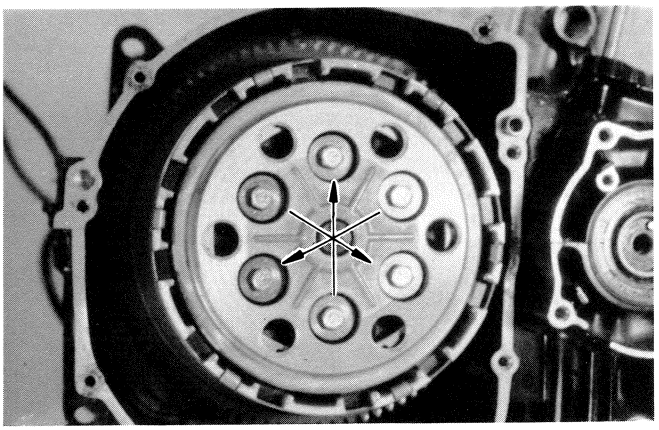


- Remove the clutch cover and gasket.



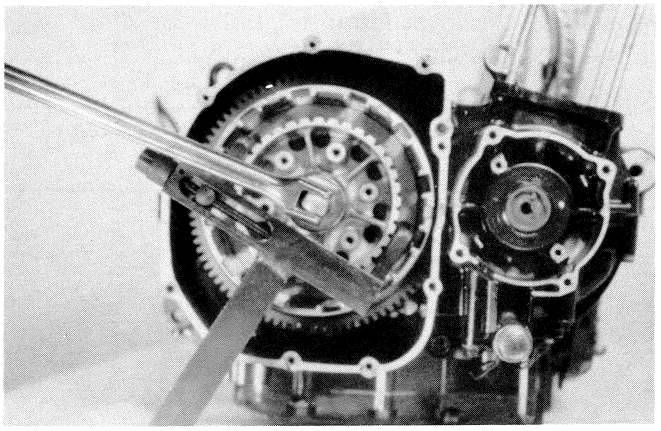
- By holding the crankshaft with conrod stopper, remove the clutch spring mounting bolts in a criss-cross manner.

09910-20116	Conrod stopper

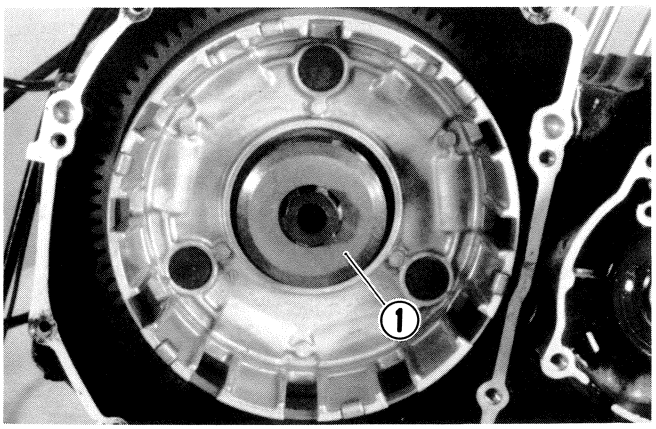


- After removal of several clutch driven and drive plates, flatten clutch sleeve hub nut lock washer by using chisel.
- Firmly secure clutch sleeve hub to remove mounting nut with clutch sleeve hub holder, and then remove the clutch sleeve hub.

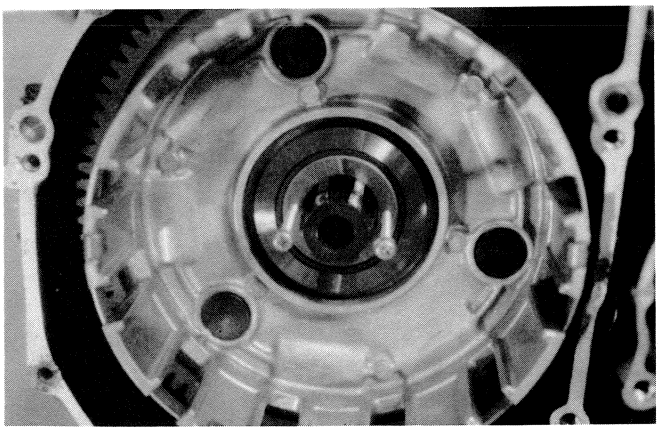
09920-53710	Clutch sleeve hub holder



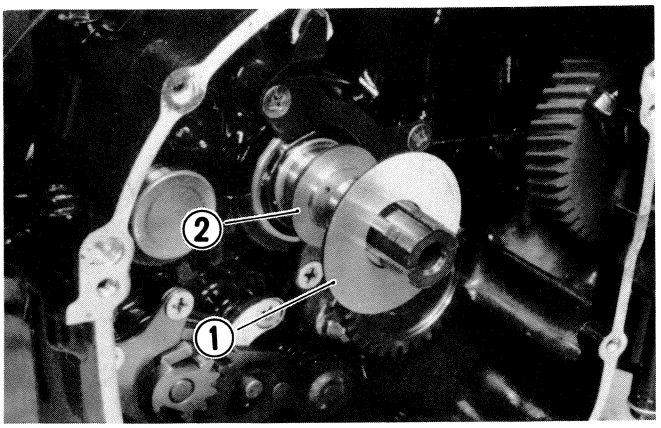
- Remove the thrust washer ①.



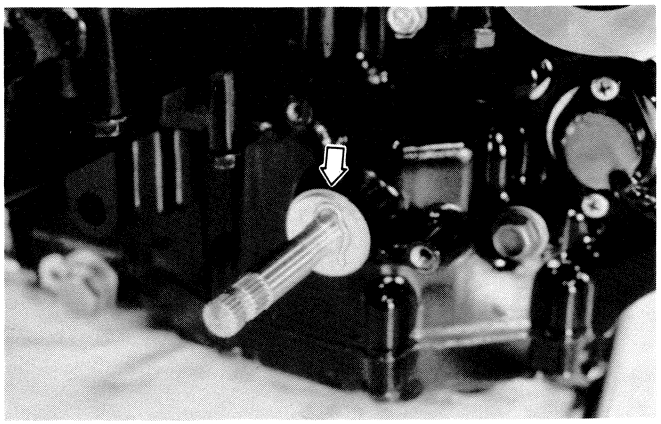
- Run two 4-mm screws into the primary driven gear spacer to ease out the spacer by pulling. With the spacer removed, the primary driven gear (integral with the clutch housing) is free to disengage from the primary drive gear.



- Remove the thrust washers ① and ② from the countershaft.



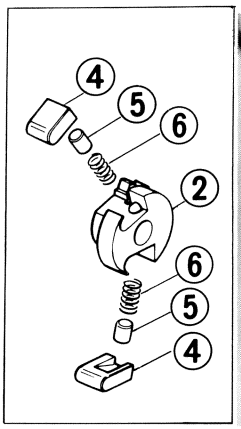
- Remove the clip and washer from the gearshift shaft.

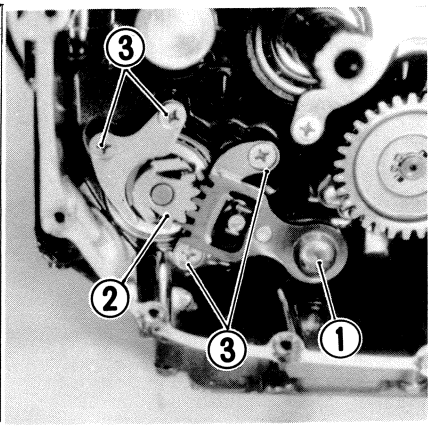


- Extract the gearshift shaft ①, and then remove the cam driven gear ② by removing the screws ③.

09900-09003	Impact driver set

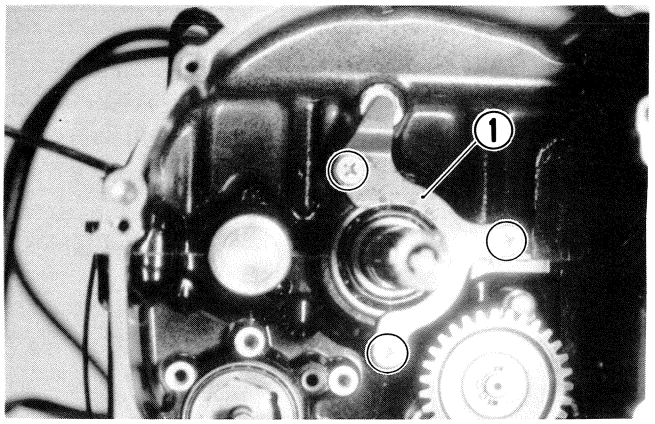
NOTE:
When removing the cam driven gear, do not lose gear shifting pawl ④, pin ⑤ and spring ⑥.





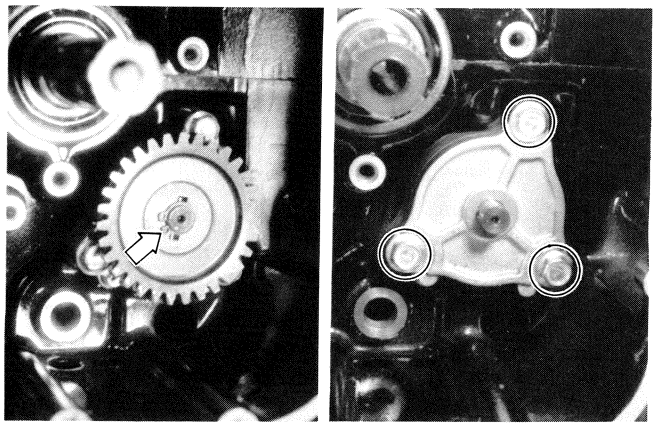
- Remove the countershaft bearing retainer ① by removing the three screws.

09900-09003	Impact driver set

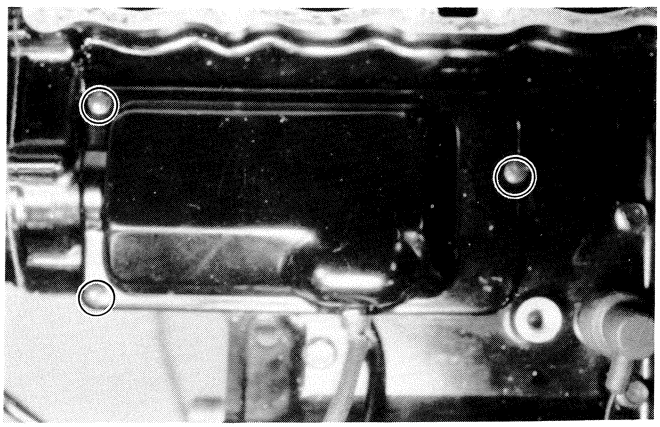


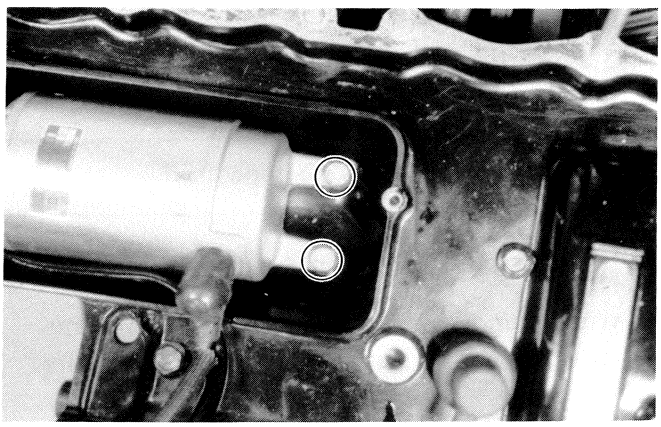
- Using snap ring pliers, remove the oil pump driven gear, drive pin and washer. Then remove the oil pump with O-ring by removing the three oil pump securing bolts.

09900-06107	Snap ring pliers

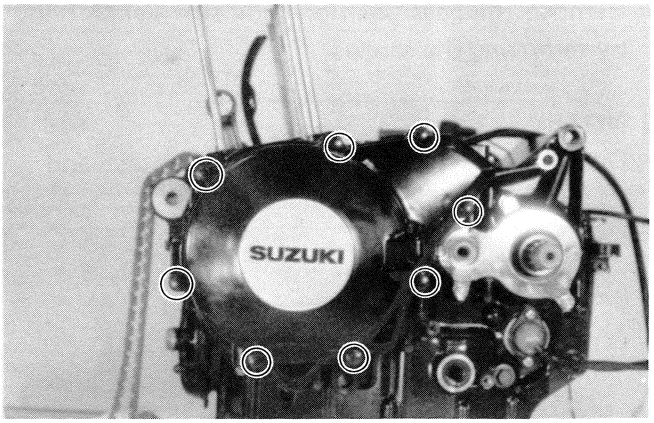


- Remove the starter motor cover and starter motor by removing the bolts.

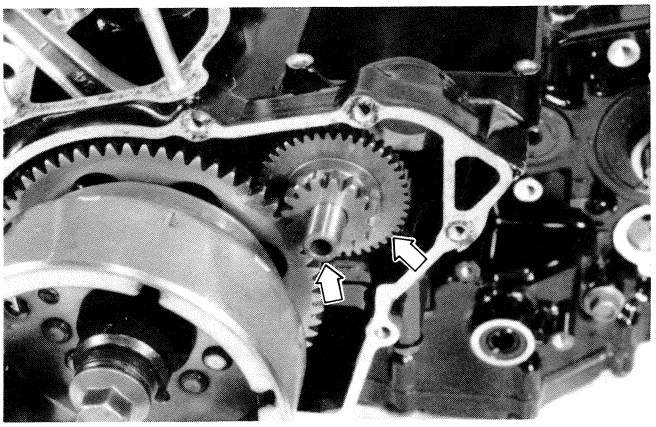




- Remove the generator cover and gasket.

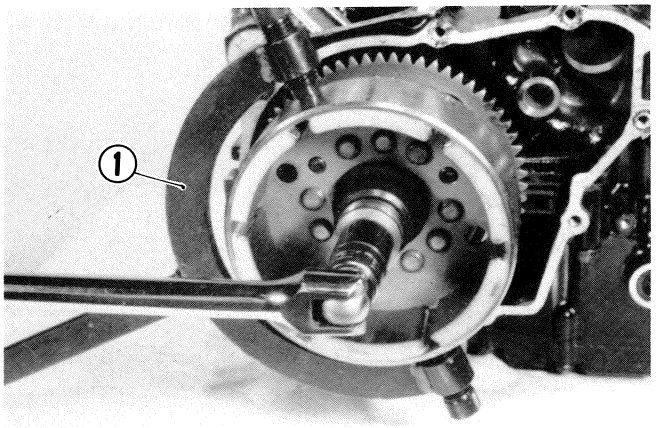


- Remove the starter idle gear shaft and idle gear.



- Using rotor holder ①, remove the rotor securing bolt.

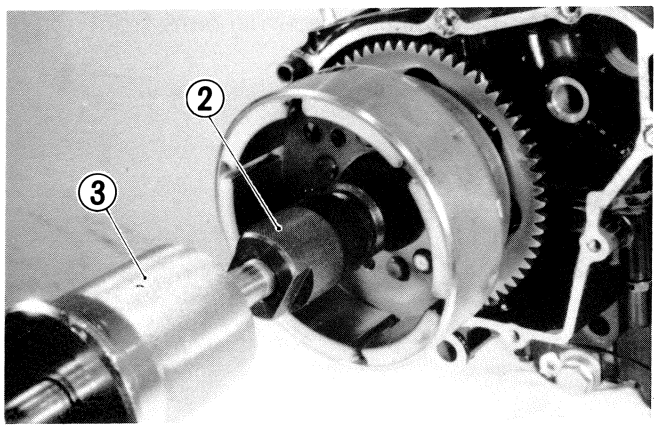
09930-44911	Rotor holder



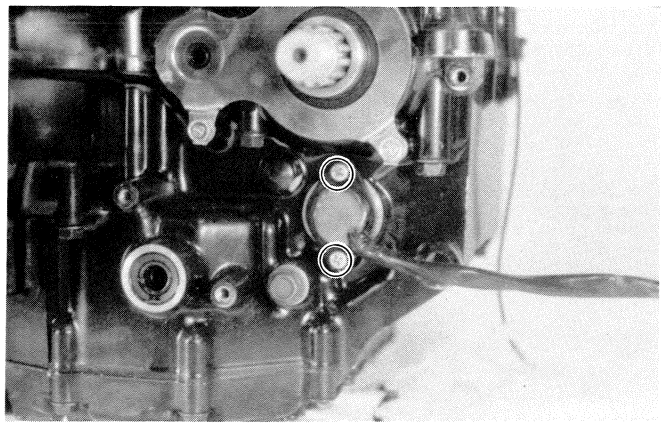
- Install the rotor remover attachment ② and sliding hammer assembly ③ into the boss of rotor and remove rotor with starter clutch assembly while sliding the remover.

NOTE:
Do not hit the rotor with a hammer.

09930-30102	Rotor remover slide shaft
09930-30180	Attachment E

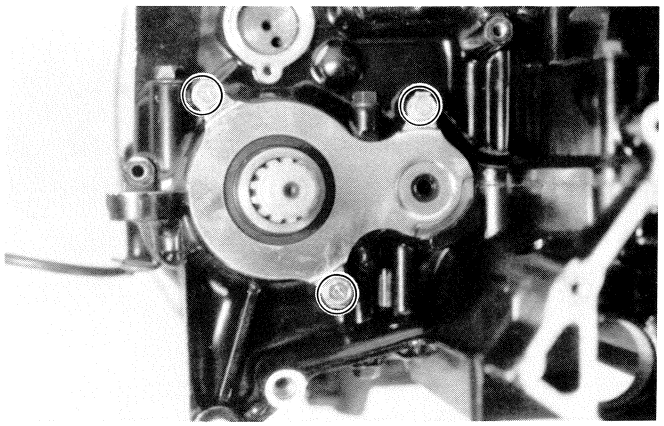


- Remove the gear position indicator switch body by removing the screws.

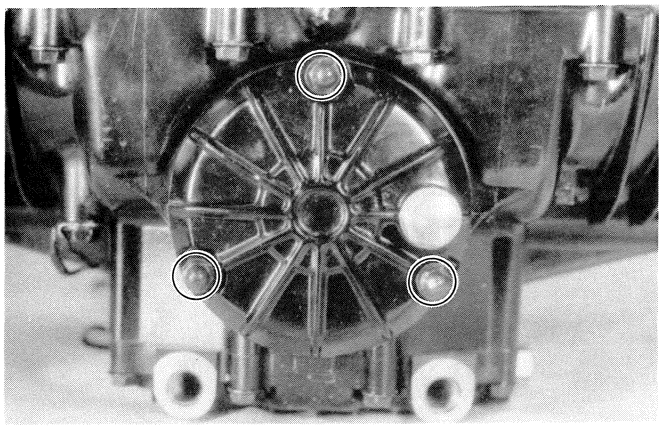


NOTE:
Do not miss the O-ring, switch contact and its spring.

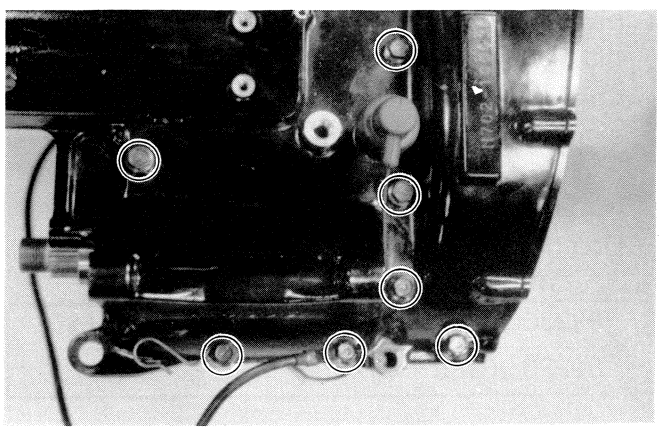
- Flatten the lock portion of oil seal retainer and remove the oil seal retainer securing bolts.



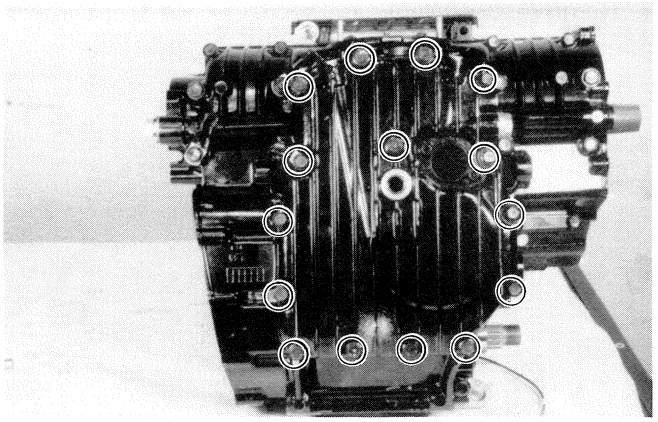
- Remove the oil filter cap by removing the three cap nuts.



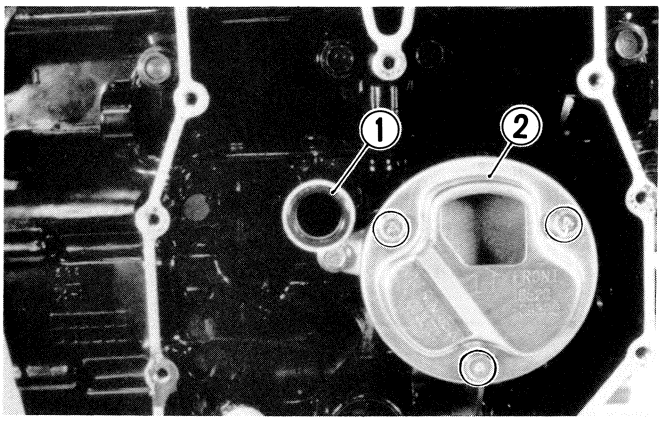
- Remove the crankcase securing bolts from upper crankcase.



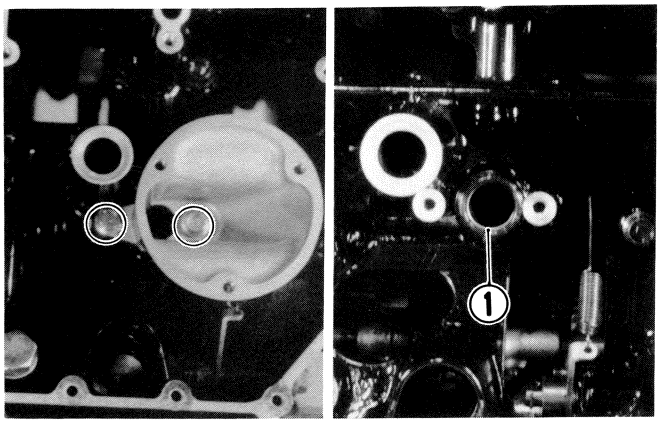
- Remove the oil pan by removing the bolts.



- Remove the O-ring ① and oil sump filter ②.

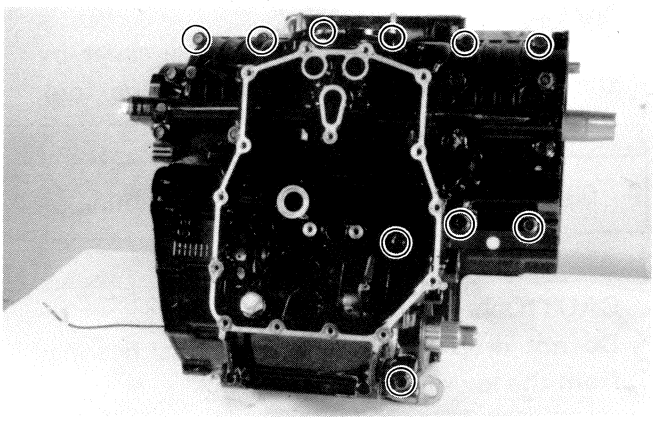


- Remove the oil guide by removing the bolts and take off the O-ring ①.

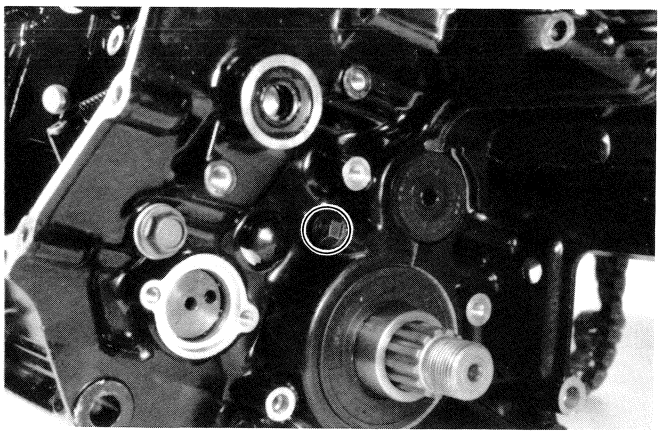


- Remove the crankcase securing bolts from lower crankcase.

NOTE:
Loosen the bolts in a criss-cross manner.



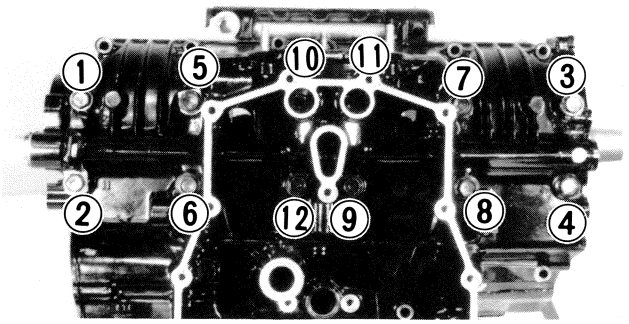
- Remove the crankcase securing nut from lower crankcase.

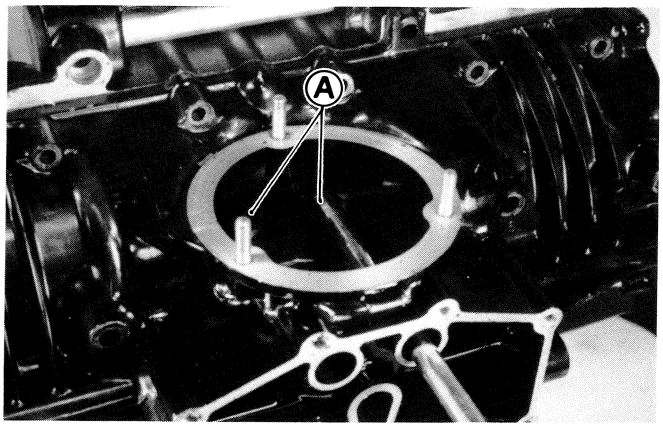


- When removing the crankshaft tightening bolts, loosen them in the descending order of numbers assigned to these bolts.

NOTE:
Two allen bolts are used for tightening crankshaft at the portion Ⓐ .

09914-25811	6 mm "T" type hexagon wrench

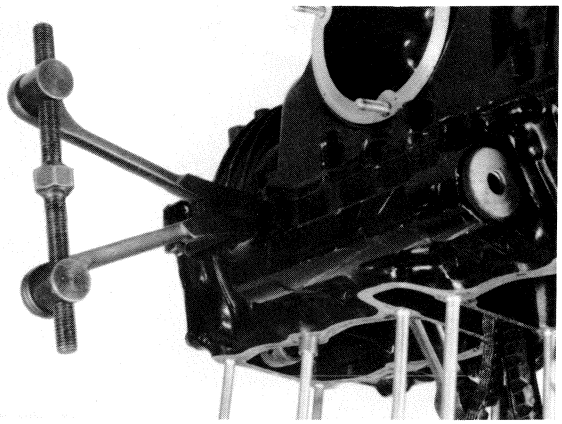




- Make sure that all bolts are removed without fail. Hammer lightly the lower crankcase side with a plastic hammer to separate the upper and lower crankcase halves and then lift the latter.

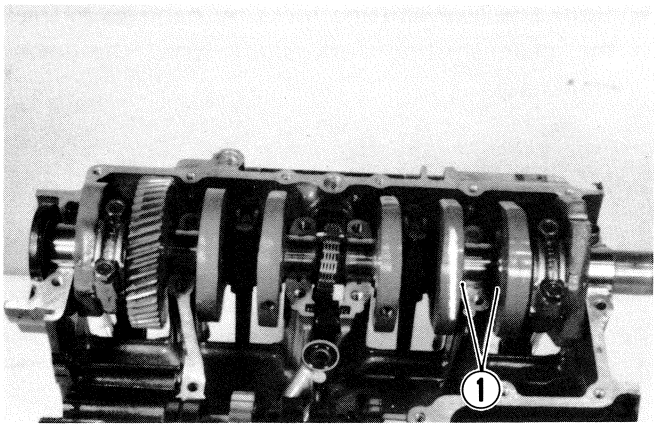
NOTE:
Separating the crankcases is made easier by the use of the cylinder disassembling tool.

09912-34510	Cylinder disassembling tool



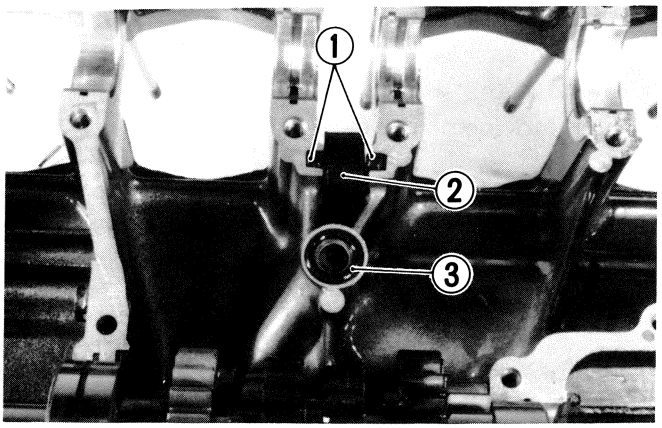
CAUTION:
Do not drop the crankshaft journal bearings from the lower crankcase.

- Remove the crankshaft assembly from the upper crankcase.

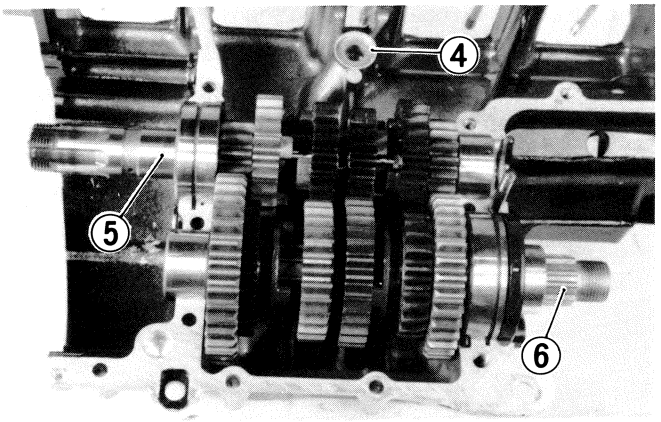


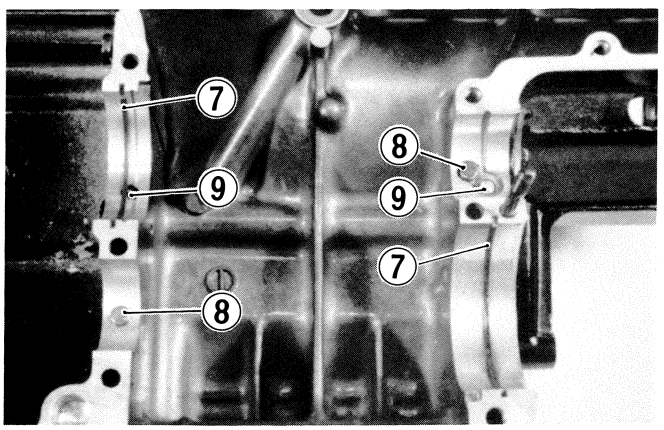
NOTE:
Bear in mind that the crankshaft thrust bearings ① are located between shaft and case.

- Pull out the two dampers ① and chain guide ②.
- Remove the O-ring ③ and washer ④.
- Remove the countershaft assembly ⑤ and drive shaft assembly ⑥.

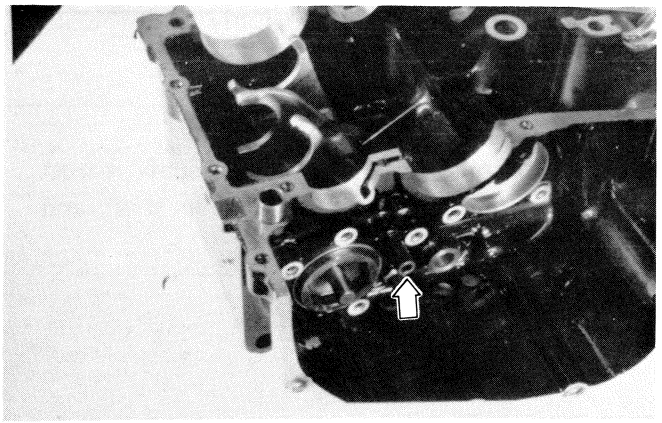


NOTE:
Do not lose the dampers ①, O-ring ③, washer ④, C-rings ⑦, bearing pins ⑧ and oil jets ⑨.

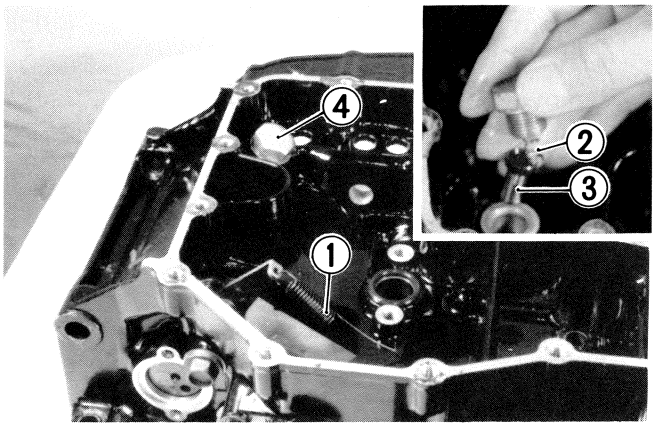




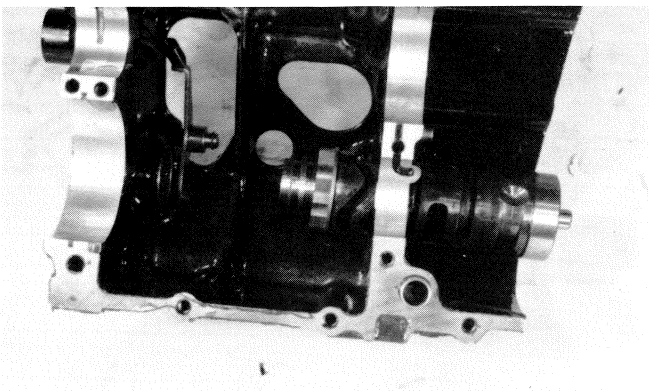
- Hold the gear shifting forks by hand to extract the gear shifting fork shaft from the lower crankcase.

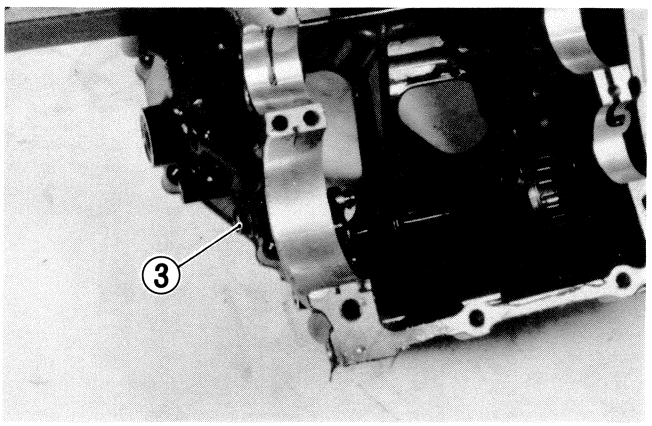


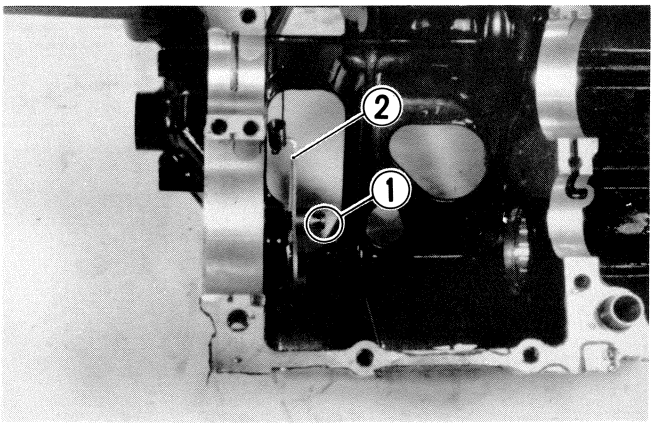
- Unhook the cam stopper spring ① from the lower crankcase.
- Remove the spring ② and neutral stopper ③ by removing neutral stopper bolt ④.



- Extract the gear shifting cam from the lower crankcase.
- Remove the circlip ①, and then remove the cam stopper arm ② by removing the bolt ③.





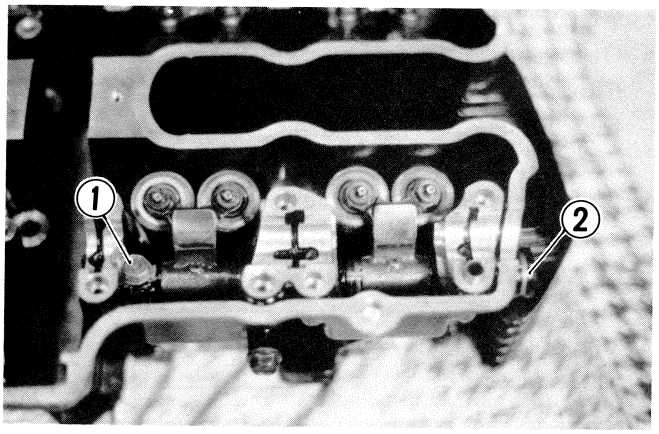


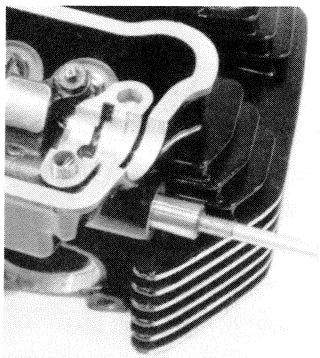
ENGINE COMPONENTS INSPECTION AND SERVICING

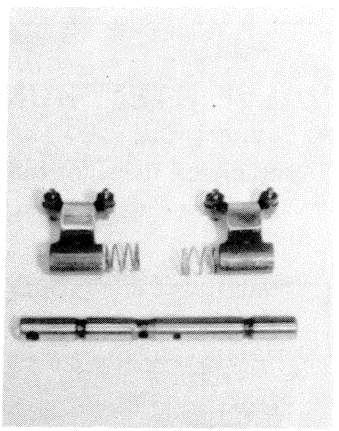
CYLINDER HEAD SERVICING

CAUTION:
Be sure to identify each removed part as to its location, and lay the parts out in groups designated as "No. 1", "No. 2", "Exhaust", "Inlet", so that each will be restored to the original location during assembly.

NOTE:
* **When removing rocker arm shaft, remove the rocker arm shaft stop bolt ① and allen bolt ②, and screw 6 mm bolt into the rocker arm shaft end and pull it out.**
* **After installing the stop bolt ① with applying thread-lock "1361A".**
* **Removal of valves completes ordinary disassembling work. If valve guides have to be removed for replacement after inspecting related parts, carry out the steps shown in valve guide servicing.**



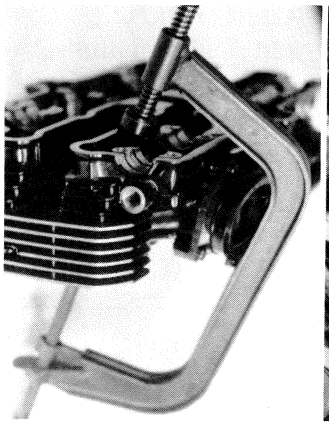


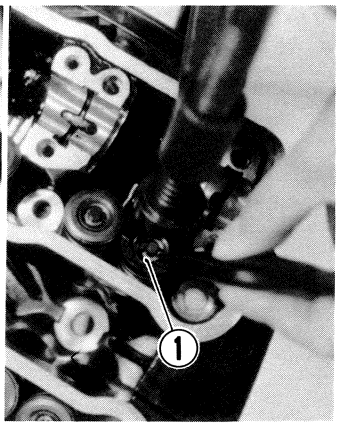


99104-32020	Thread lock super "1361A"

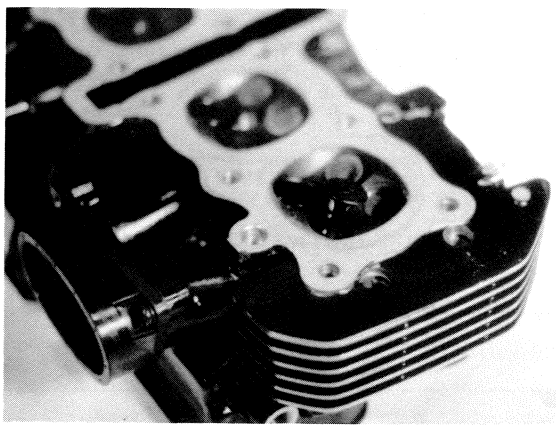
- Using the special tools, compress the valve springs and take off the two cotter halves ① from the valve stem.

09916-14510	Valve lifter
09916-14910	Valve lifter attachment
09916-84510	Tweezers





- Take out the spring retainer, inner and outer springs.
- From the other side, pull out the valve.

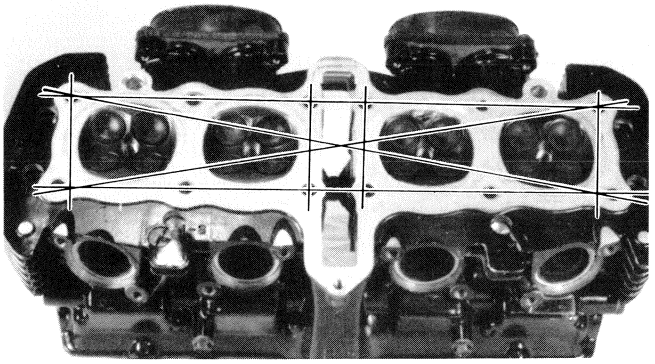


CYLINDER HEAD DISTORTION

- Decarbonize the combustion chambers.
- Check the gasketed surface of the cylinder head for distortion with a straightedge and thickness gauge, taking a clearance reading at several places indicated. If the largest reading at any position of the straightedge exceeds the limit, replace the cylinder head.

09900-20803	Thickness gauge

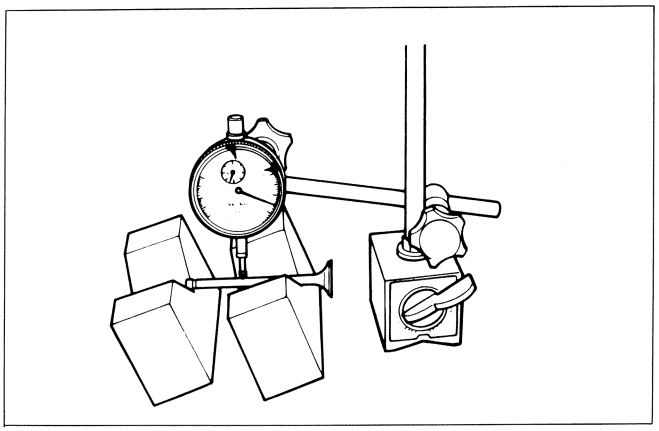
Service Limit	0.2 mm (0.008 in)



VALVE STEM RUNOUT

- Support the valve with "V" blocks, as shown, and check its runout with a dial gauge.
  The valve must be replaced if the runout exceeds the limit.

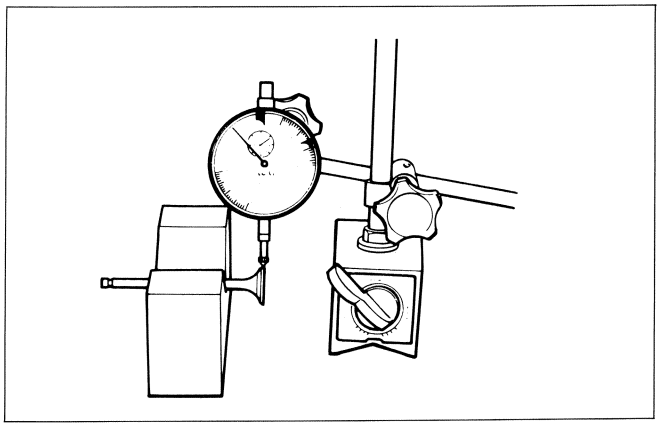
Service Limit	0.05 mm (0.002 in)



VALVE HEAD RADIAL RUNOUT

- Place the dial gauge at right angles to the valve head face, and measure the valve head radial runout.
  If it measures more than the limit, replace the valve.

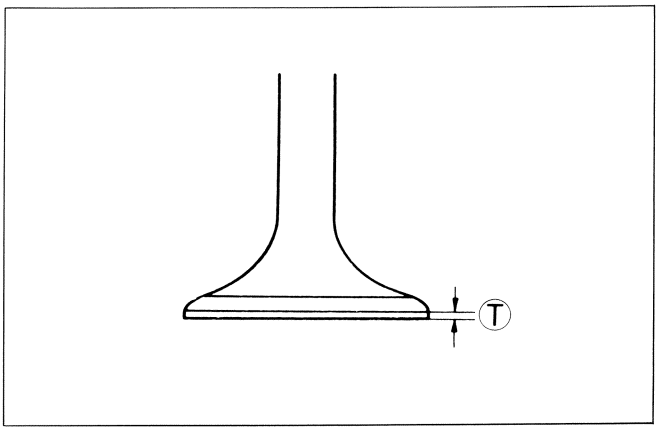
Service Limit	0.03 mm (0.001 in)



VALVE FACE WEAR

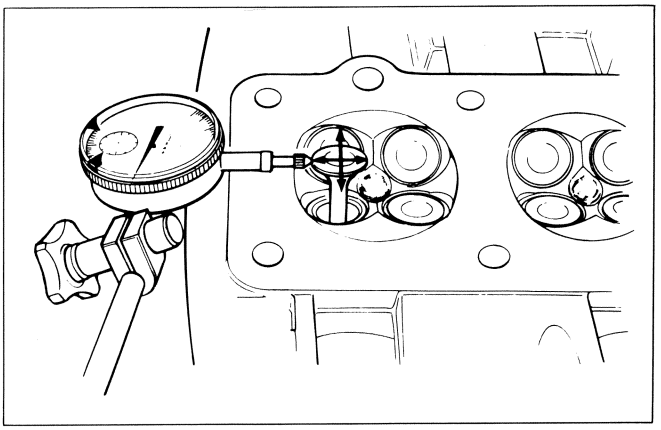
- Visually inspect each valve for wear of its seating face. Replace any valve with an abnormally worn face.
- The thickness Ⓣ decreases as the wear of the face advances. Measure the thickness and, if the thickness is found to have been reduced to the limit, replace it.

Service Limit Ⓣ	0.5 mm (0.02 in)



VALVE GUIDE-VALVE STEM CLEARANCE

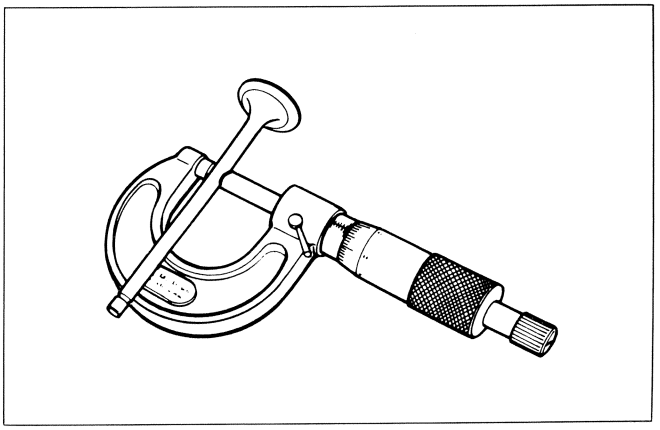
Measure the clearance in two directions, "X" and "Y", perpendicular to each other, by positioning the dial gauge as shown. If the clearance measured exceeds the limit, (see below) then determine whether the valve or the guide should be replaced to reduce the clearance to the standard range:



Valve	Service Limit
Intake valves	0.35 mm (0.014 in)
Exhaust valves	0.35 mm (0.014 in)

VALVE STEM WEAR

If the valve stem is worn down to the limit, as measured with a micrometer, where the clearance is found to be in excess of the limit indicated, replace the valve; if the stem is within the limit, then replace the guide. After replacing valve or guide, be sure to recheck the clearance.

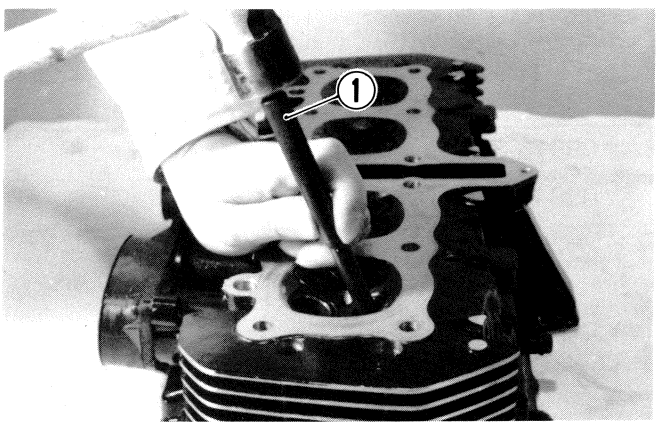


09900-20205	Micrometer (0 – 25 mm)

Valve	Standard
Intake valves	4.960 – 4.975 mm (0.1953 – 0.1959 in)
Exhaust valves	4.945 – 4.960 mm (0.1947 – 0.1953 in)

VALVE GUIDE SERVICING

- Using the valve guide remover ①, drive the valve guide out toward intake or exhaust camshaft side.

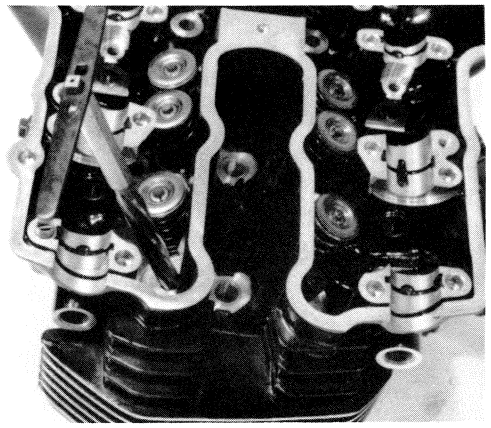


09916-44310	Valve guide remover

NOTE:
* **Discard the removed valve guide sub-assemblies.**
* **Only oversized valve guides are available as replacement parts.**

- Re-finish the valve guide holes in cylinder head with the reamer and handle.

09916-34580	Valve guide reamer
09916-34541	Reamer handle

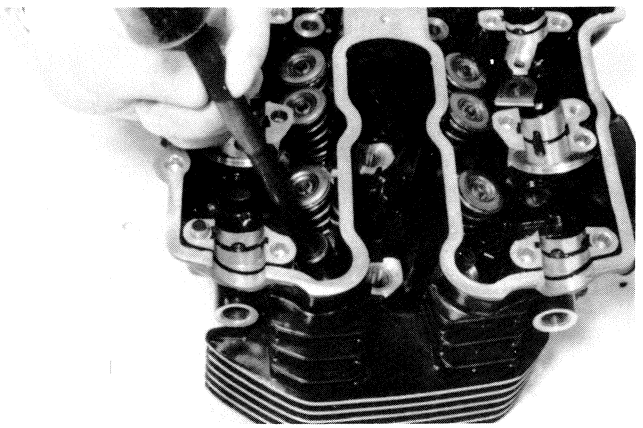


- Fit a ring to each valve guide. Be sure to use new rings and valve guides. Reuse of rings and valve guides removed during disassembly is prohibited. Remember that both valve guides for intake and exhaust and both oil seals are identical in shape.

11115-43470	Intake valve guide
11116-43470	Exhaust valve guide
09289-05007	Valve guide oil seal

- Oil the stem hole, too, of each valve guide and drive the guide into the guide hole with the valve guide remover and attachment.

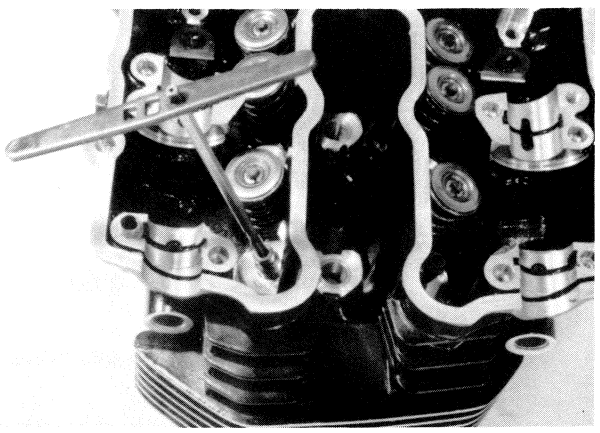
09916-44310	Valve guide remover/installer
09916-44920	Attachment



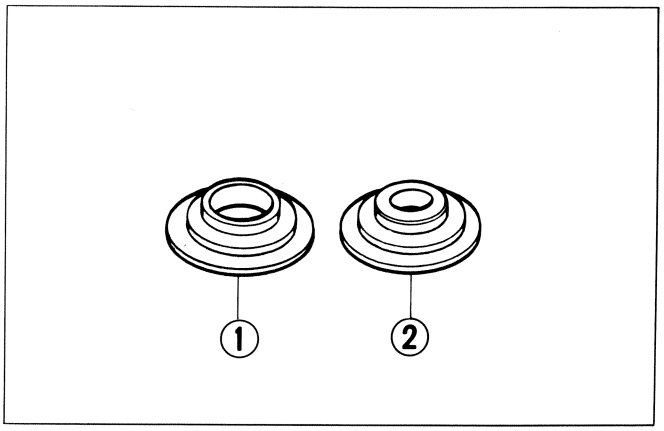
CAUTION:
Failure to oil the valve guide hole before driving the new guide into place many result in a damaged guide or head.

- After fitting the valve guides, re-finish their guiding bores with the reamer. Be sure to clean and oil the guide after reaming.

09916-34570	Valve guide reamer
09916-34541	Reamer handle

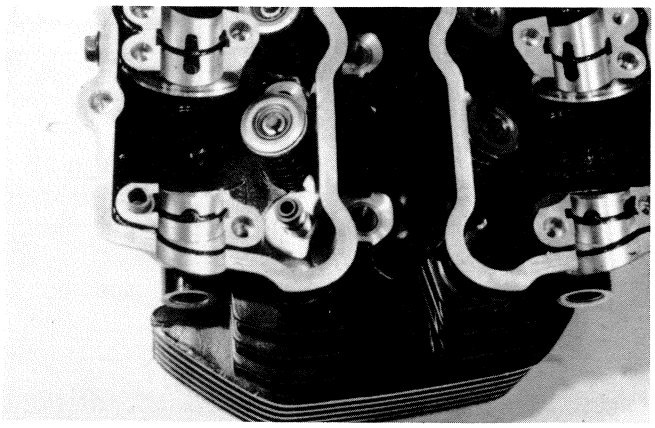


- Install the valve spring lower seat ①. Be careful not to confuse the lower seat with the spring retainer ②.



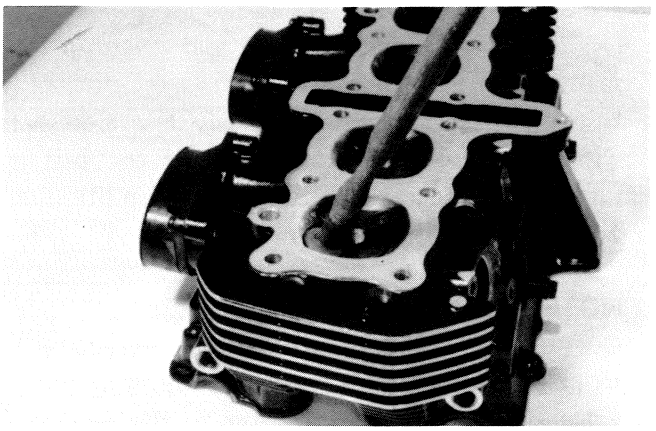
- Oil each oil seal, and drive them into position with the finger tip.

NOTE:
Do not use the oil seals removed once: Use new seals.



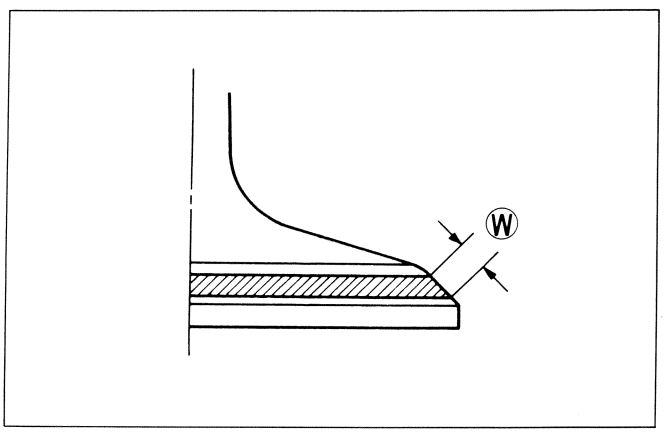
VALVE SEAT WIDTH

- Coat the valve seat with Prussian blue uniformly. Fit the valve and tap the coated seat with the valve face in a rotating manner, in order to obtain a clear impression of the seating contact. In this operation, use the valve lapper to hold the valve head.
- The ring-like dye impression left on the valve face must be continuous—without any break—and, in addition to this requirement, the width of the dye ring, which is the visualized seat "width", must be within the following specification:



Valve seat width

Seat width	Standard
Ⓦ	0.9 – 1.1 mm (0.035 – 0.043 in)



If either requirement is not met, correct the seat by servicing it as follows:

VALVE SEAT SERVICING

The valve seats for both the intake and exhaust valves are machined to two different angles. The seat contact surface is cut 45° and the area above the contact surface (closest to the combustion chamber) is cut to 15°.

Valve seat cutter (N-116)
Valve seat cutter (N-120)
Valve seat cutter (N-131)
Valve seat cutter (N-130)
Solid pilot (N-100-5.0)

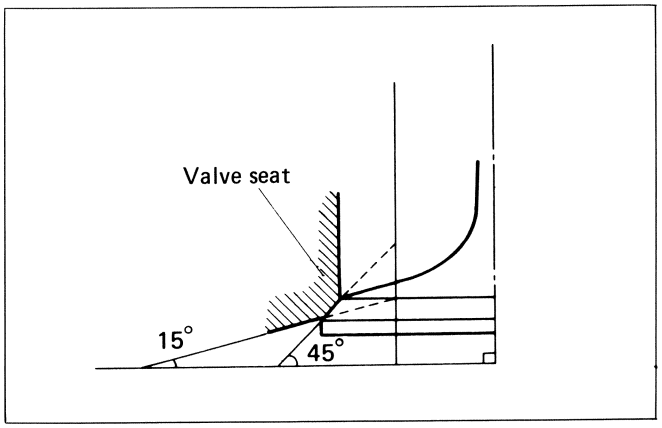
	Intake side	Exhaust side
45°	N-116	N-131
15°	N-120	N-130

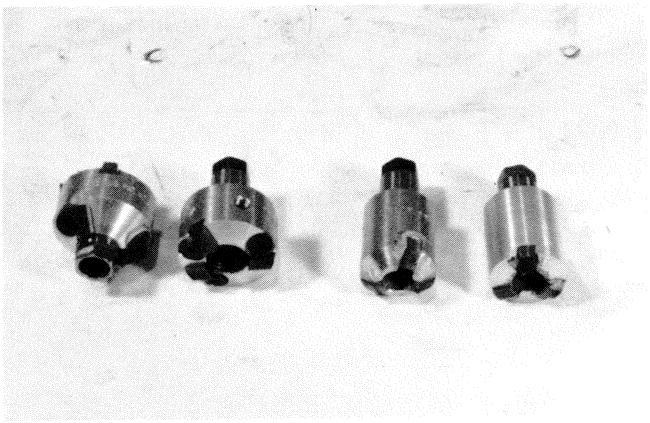
NOTE:
The valve seat contact area must be inspected after each cut.

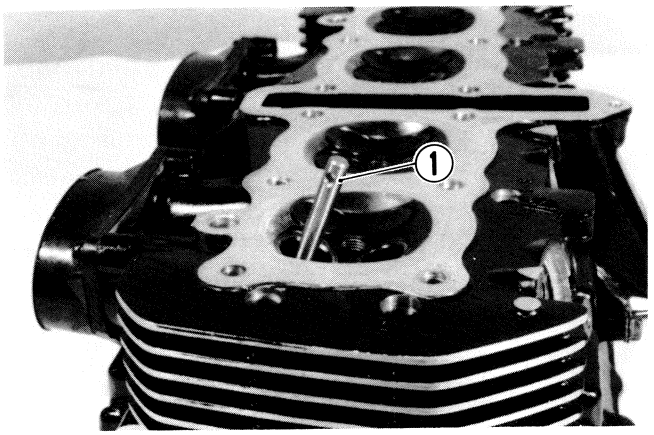
- Insert the solid pilot ① with a slight rotation. Seat the pilot snugly. Install the 45° cutter, attachment and T handle.
- Using the 45° cutter, descale and clean up the seat with one or two turns.
- Inspect the seat by the previously described seat width measurement procedure. If the seat is pitted or burned, additional seat conditioning with the 45° cutter is required.

NOTE:
Cut only the minimum amount necessary from the seat to prevent the possibility of the valve stem becoming too close to the rocker arm for correct valve contact angle.

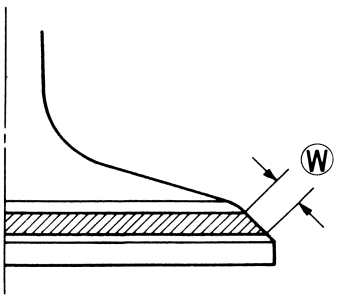
If the contact area is too high on the valve, or if it is too wide, use a 15° cutter to lower and narrow the contact area.





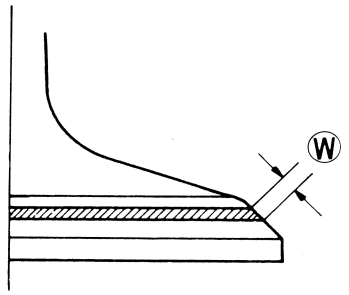


Contact area too high and too wide on face of valve

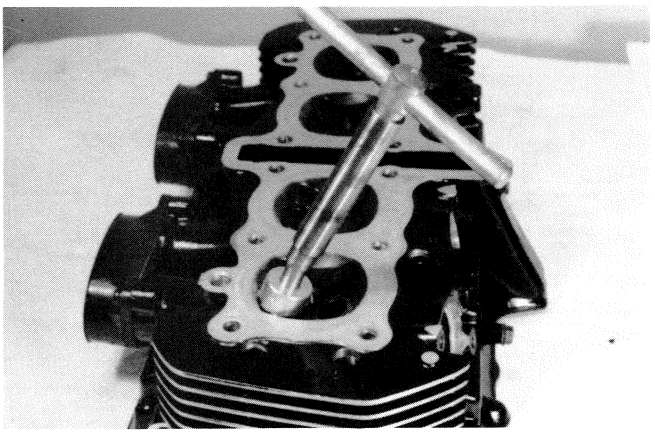


If the contact area is too low or too narrow, use the 45° cutter to raise and widen the contact area.

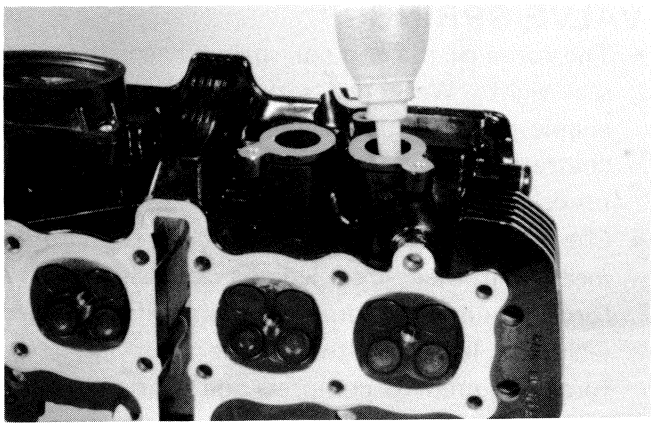
Contact area too low and too narrow on face of valve



- After the desired seat position and width is achieved, use the 45° cutter very lightly to clean up any burrs caused by the previous cutting operations. DO NOT use lapping compound after the final cut is made. The finished valve seat should have a velvety smooth finish and not a highly polished or shiny finish. This will provide a soft surface for the final seating of the valve which will occur during the first few seconds of engine operation.



- Clean and assemble the head and valve components. Fill the intake and exhaust ports with gasoline to check for leaks. If any leaks occur, inspect the valve seat and face for burrs or other things that could prevent the valve from sealing.

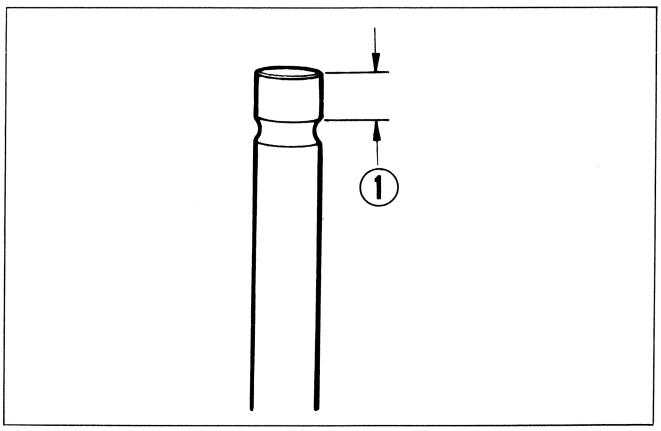


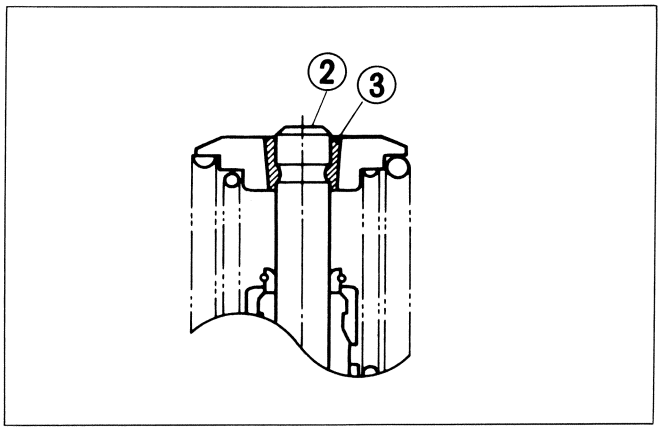
WARNING:
Always use extreme caution when handling gasoline.

NOTE:
After servicing the valve seats, be sure to adjust the valve clearance after the cylinder head has been reinstalled. (see page 2-5)

CAUTION:

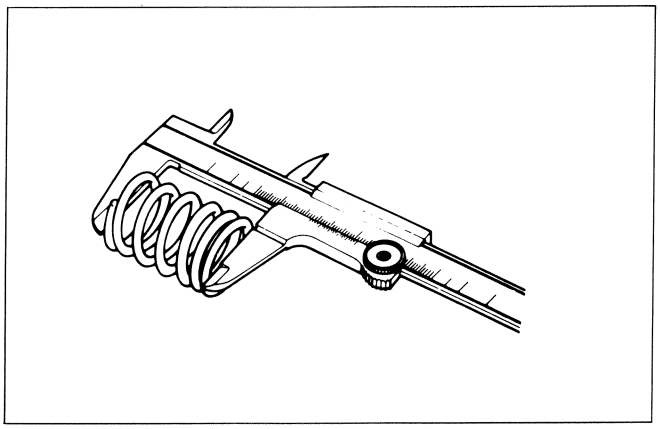
* **Refacing valve stem end face is permissible where the length ① will not be reduced to less than 2.9 mm. If this length becomes shorter than 2.9 mm (0.11 in), then the valve must be replaced.**
* **After installing the valve whose stem end has been ground off as above, check that the face ② of valve stem end is above the valve cotter ③.**





VALVE SPRINGS

- The force of the two coil springs keeps the valve seat tight. Weakened springs result in reduced engine power output, and often account for the chattering noise coming from the valve mechanism.
- Check the valve springs for proper strength by measuring their free lengths and also by the force required to compress them. If the spring length is less than the service limit, or if the force required to compress the spring does not fall within the range specified, replace both the inner and outer springs as a set.



CAUTION:

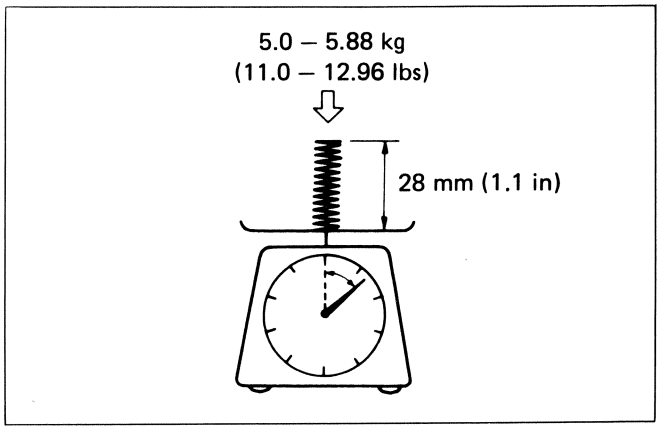
Replace both the valve springs, inner and outer, at a time, if any one of these is found to be beyond the limit.

Valve spring free length

Spring	Service Limit
INNER	31.6 mm (1.24 in)
OUTER	35.1 mm (1.38 in)

Valve spring tension

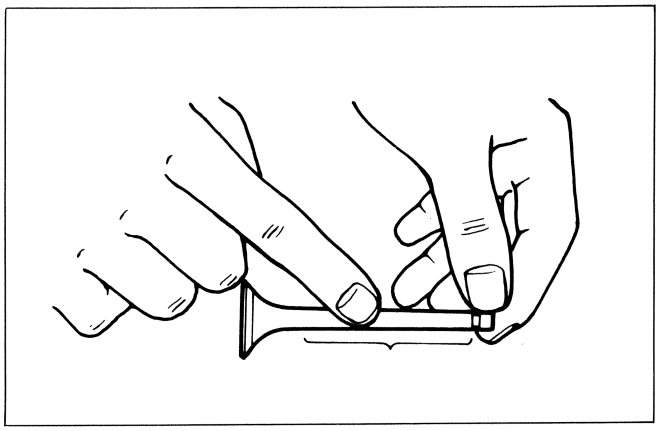
Spring	Standard
INNER	5.0 – 5.88 kg/28 mm (11.0 – 12.96 lbs/1.1 in)
OUTER	8.37 – 9.83 kg/31.5 mm (18.45 – 21.67 lbs/1.24 in)



REASSEMBLY

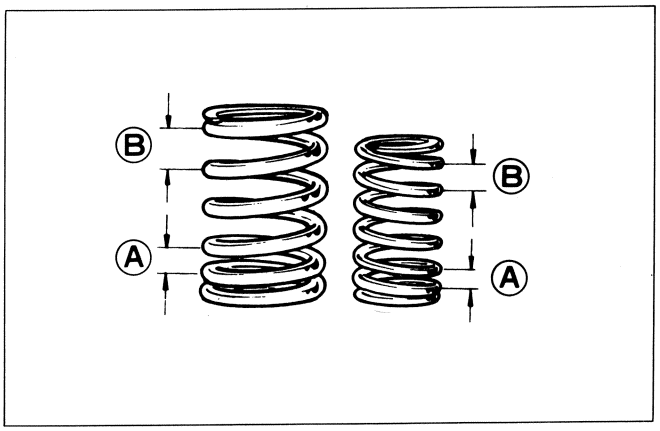
- Insert the valves, with their stems coated with high quality molybdenum disulfide lubricant (SUZUKI MOLY PASTE) all around and along the full stem length without any break.

CAUTION:
When inserting each valve, take care not to damage the lip of the stem seal.



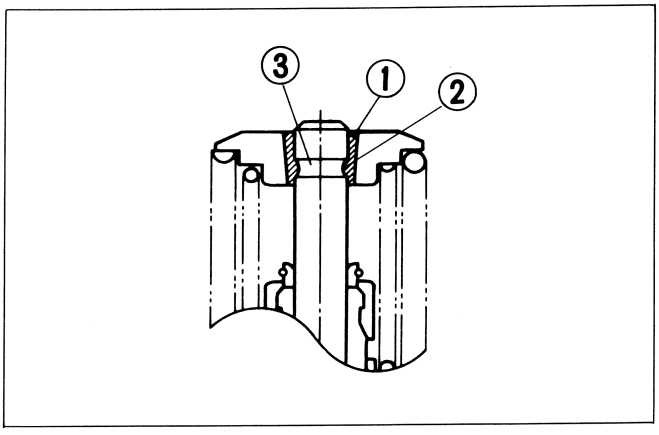
99000-25140	SUZUKI Moly Paste

- Install the valve springs with the small pitch portion Ⓐ facing cylidner head.
  Ⓑ : Large-pitch portion.



- Put on the valve retainer and, using the valve lifter, press down the springs, fit the cotter halves to the stem end, and release the lifter to allow the cotter ① to wedge in between retainer and stem. Be sure that the rounded lip ② of the cotter fits snugly into the groove ③ in the stem end.

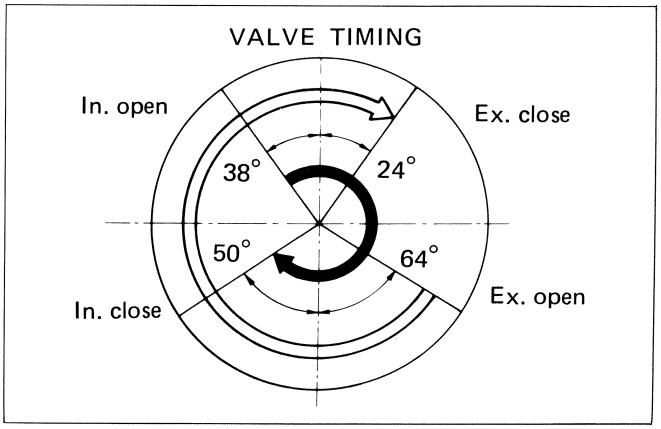
09916-14510	Valve lifter
09916-14910	Valve lifter attachment
09916-84510	Tweezers



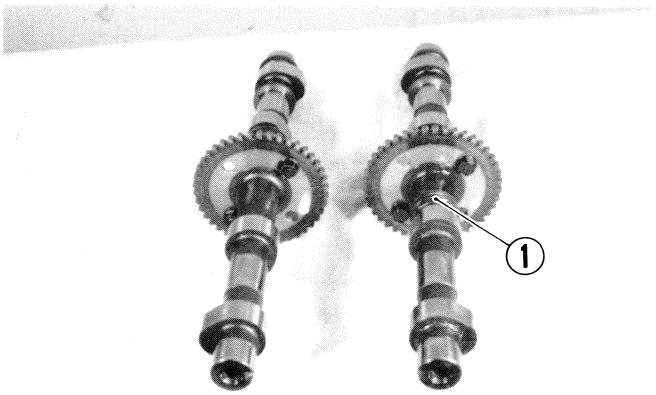
CAUTION:
Be sure to restore each spring and valve to their original positions.

CAMSHAFT

- Both camshafts should be checked for runout and also for wear of cams and journals if the engine has been noted as giving abnormal noise or vibration or lack power output. Any of these conditions may be caused by camshafts worn down or distorted to the service limit.

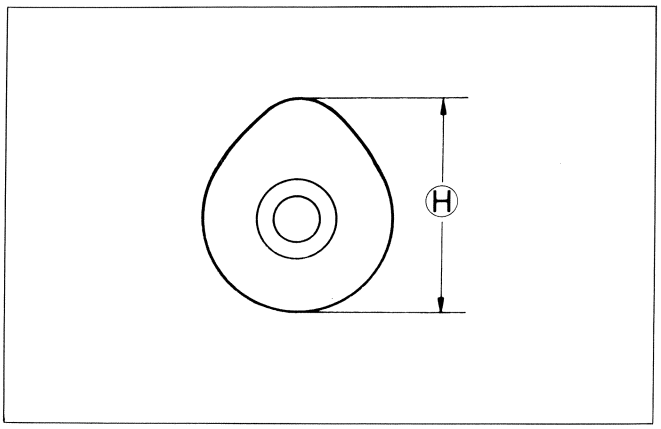


- The exhaust camshaft can be distinguished from that of the intake by the tachometer drive gear ① (for exhaust).



CAM WEAR

- Worn-down cams are often the cause of inaccurate valve operation, resulting in reduced power output. The limit of cam wear is specified for both intake and exhaust cams in terms of cam height Ⓗ, which is to be measured with a micrometer. Replace camshafts if found worn down to the limit.



Cam height

Height Ⓗ	Service Limit
Intake cams	34.640 mm (1.3638 in)
Exhaust cams	34.060 mm (1.3409 in)

CAMSHAFT JOURNAL WEAR

- Determine whether or not each journal is worn down to the limit by measuring the oil clearance with the camshaft installed in place. Use plastigauge ① to read the clearance at the widest portion, which is specified as follows:

Camshaft—Journal oil clearance (IN & EX)

Service Limit	0.15 mm (0.006 in)

NOTE:
Install each holder to their original positions.

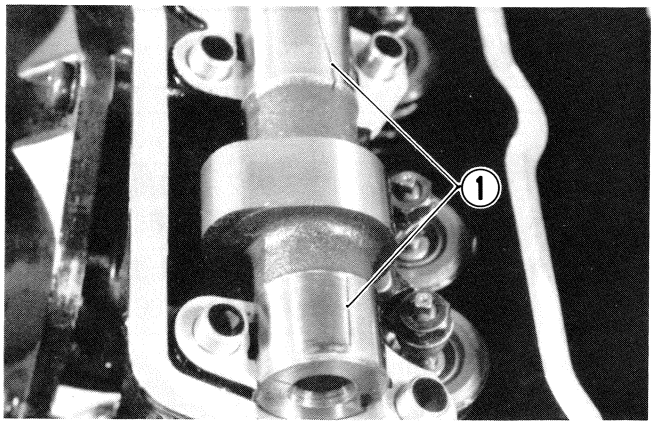
- Tighten the camshaft holder bolts evenly and diagonally to the specified torque.

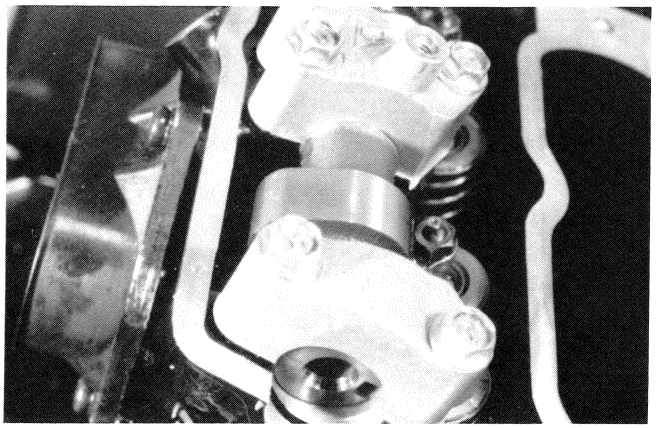
Tightening torque	8 – 12 N·m (0.8 – 1.2 kg-m 6.0 – 8.5 lb-ft)

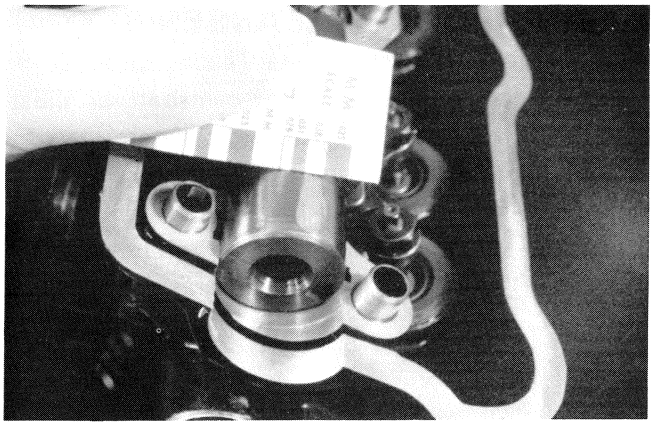
NOTE:
Do not rotate the camshafts with plastigauge in place.

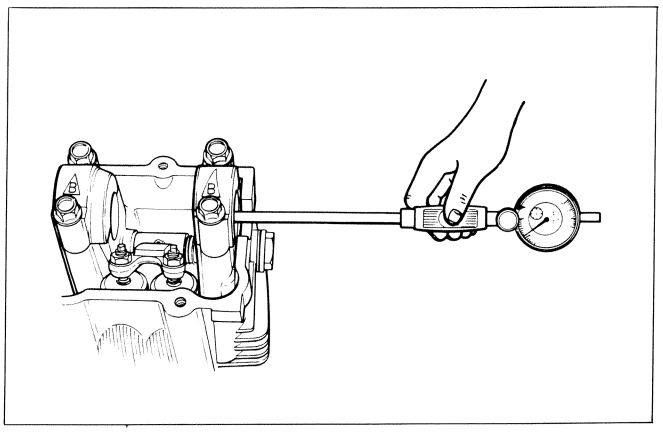
- Remove the camshaft holders, and read the width of compressed plastigauge with envelope scale. This measurement should be taken at the widest part.

- If the camshaft journal oil clearance measured exceed the limit, measure the inside diameter of camshaft journal holder and outside diameter of the camshaft journal. Replace the camshaft or cylinder head depending on which one exceeds the specification.







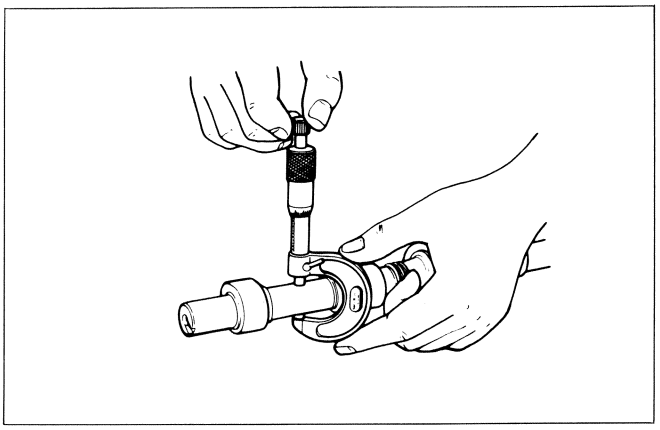


09900-20205	Micrometer (0 – 25 mm)

	Standard
Journal holder I.D. (In & Ex)	22.012 – 22.025 mm (0.8666 – 0.8671 in)
Camshaft journal O.D. (In & Ex)	21.959 – 21.980 mm (0.8645 – 0.8654 in)

Only for center journals

Journal holder I.D. (In & Ex)	22.030 – 22.043 mm (0.8673 – 0.8678 in)

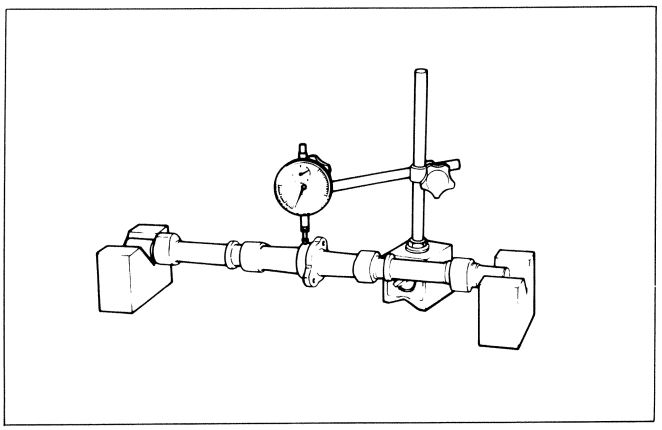


CAMSHAFT RUNOUT

- Measure the runout with a dial gauge. Replace the camshaft if the runout exceeds the limit.

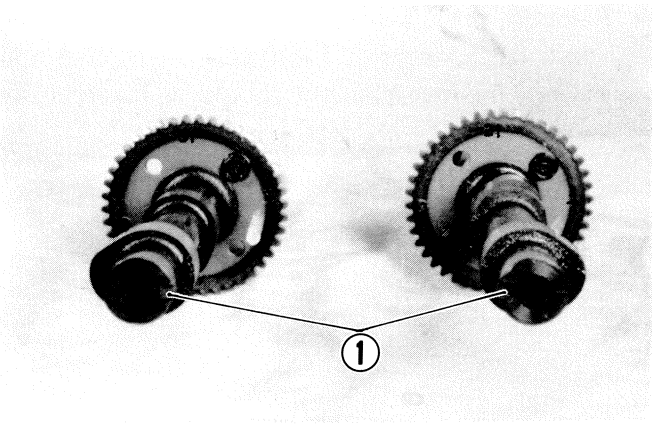
Camshaft runout (IN & EX)

Service Limit	0.1 mm (0.004 in)



CAM SPROCKET REASSEMBLY

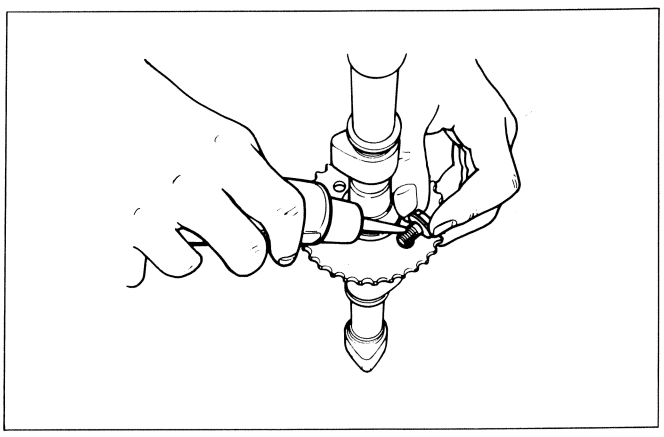
- It is very important that each sprocket be positioned angularly on its camshaft as illustrated. Its correct position is determined by arrow mark "3" (on INTAKE sprocket) or arrow marks "1" and "2" (on EXHAUST sprocket) located (as shown) in reference to the notch ① in the camshaft right end.



- Apply THREAD LOCK SUPER "1363A" to the threads of cam sprocket bolts, and tighten them to the following torque value:

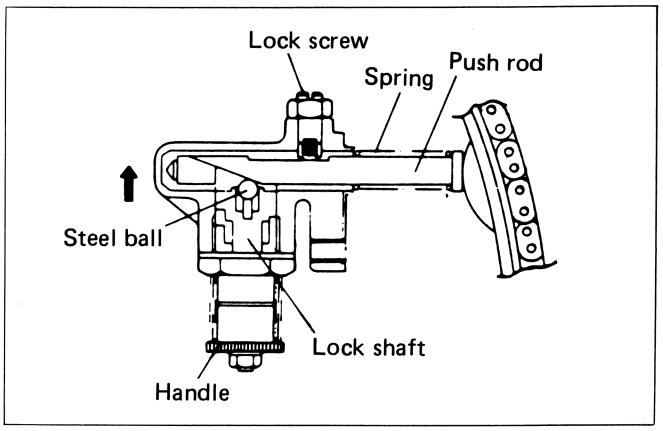
99104-32030	Thread lock super "1363A"

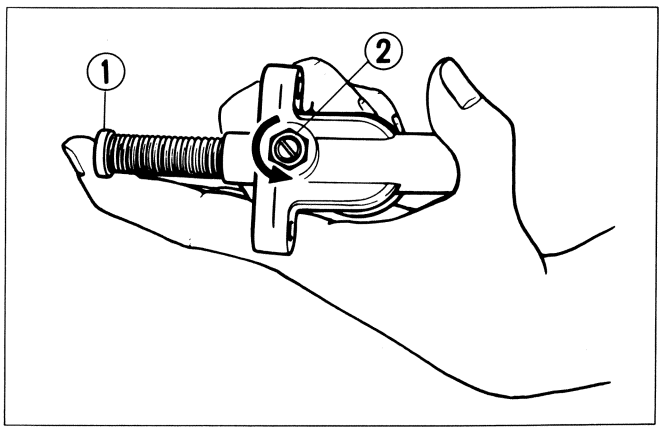
Tightening torque	24 – 26 N·m (2.4 – 2.6 kg-m / 17.5 – 19.0 lb-ft)



CAM CHAIN TENSIONER DISASSEMBLY

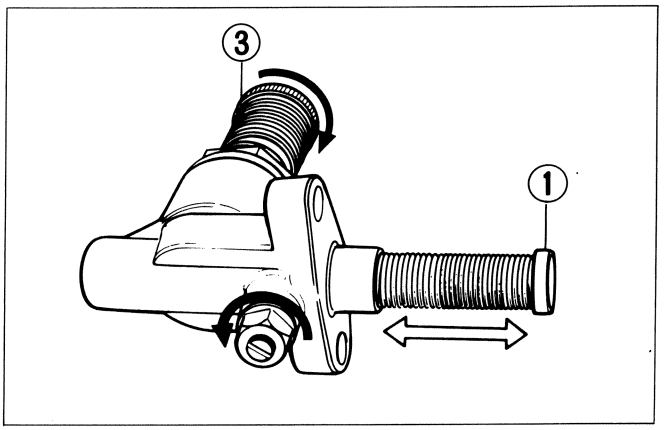
- The tension adjuster used in the GS550 is an automatic type that adjusts itself to apply a constant tensioning force to the chain by compensating for the stretch of the chain.
- The spring-loaded pushrod exerts a constant pressure on the camshaft chain. As the chain stretches, it yields to this pressure and remains in a state of tension. Once the adjuster is set after installation, there is no need to make any further adjustment.
- The pushrod effectively contends with the tendency of the camshaft chain tension to vary during driving condition as it may move to one direction only.
- While pushing the push rod ①, loosen the lock screw ② and extract the push rod.



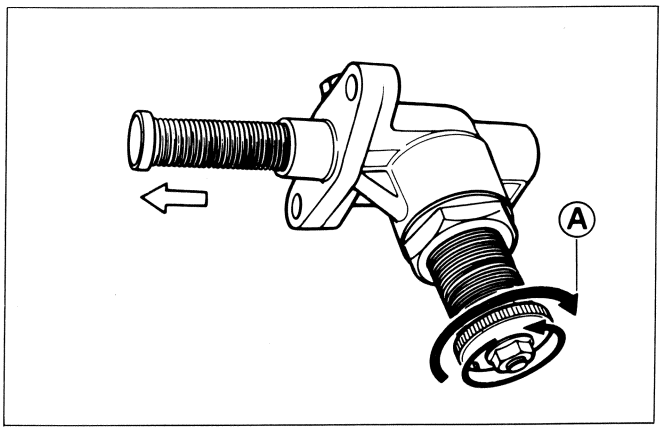


INSPECTION

- Turn the handle ③ all the way counterclockwise after loosening the lock screw, and move the push rod ① in place to see if it slides smoothly. If any stickiness is noted, remove the rod for inspection. A bent or scratched push rod must be replaced.

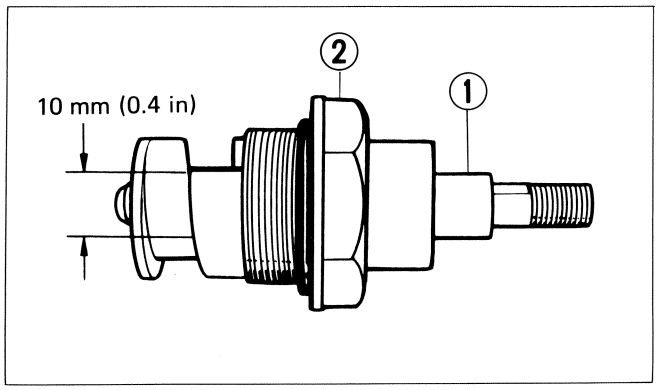


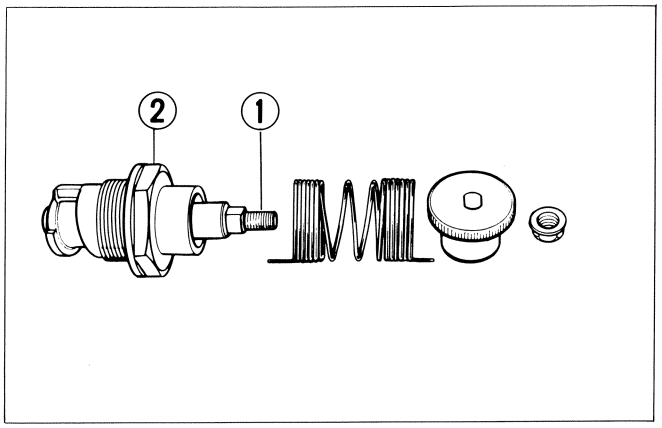
- Turn handle ③ all the way counterclockwise against the force of its coil spring and then turn it back as assisted by spring force to see if the handle returns to the original position Ⓐ without exhibiting any sticking on the way. Repeat this process several times. If any excessive sticking is felt or if the self-adjusting action is faulty, replace the whole tensioner.



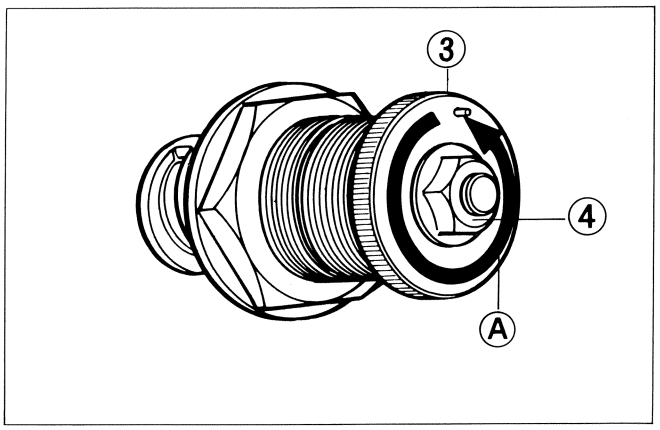
REASSEMBLING

- Apply engine oil to the lock shaft ①. Insert the shaft into the holder ②, and bring the two into the relative position indicated.





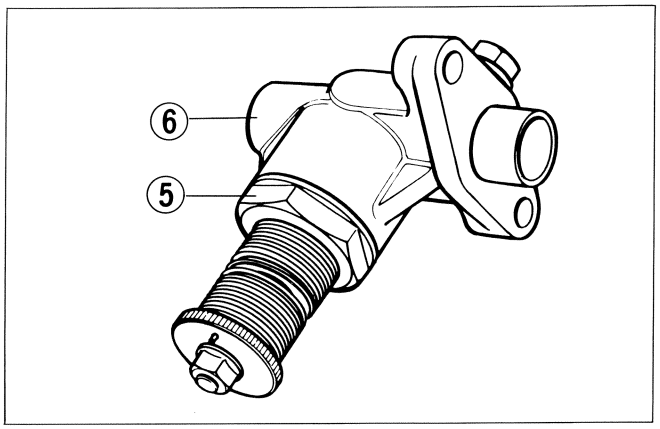
- Hook the spring onto the holder and handle ③, twist the spring by one complete rotation counterclockwise Ⓐ, fit the handle onto the shaft, and then tighten it by nut ④.



- After tightening the lock shaft nut ④, install the lock shaft assembly ⑤ on the tensioner body ⑥. Be sure to adhere to the following torque specifications:

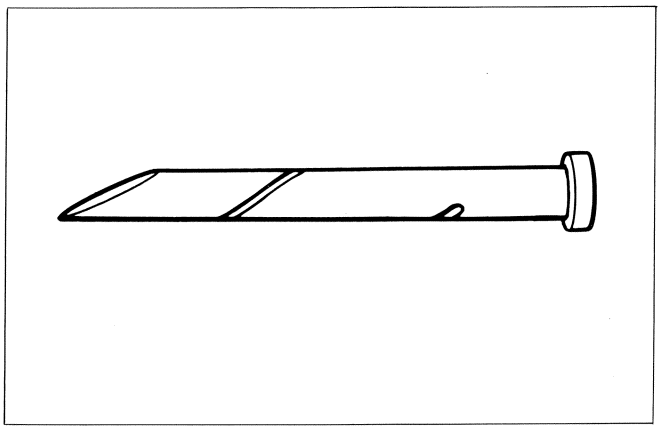
Lock shaft nut ④ tightening torque	8 – 10 N·m (0.8 – 1.0 kg-m / 6.0 – 7.0 lb-ft)

Shaft assembly ⑤ tightening torque	30 – 35 N·m (3.0 – 3.5 kg-m / 21.5 – 25.5 lb-ft)

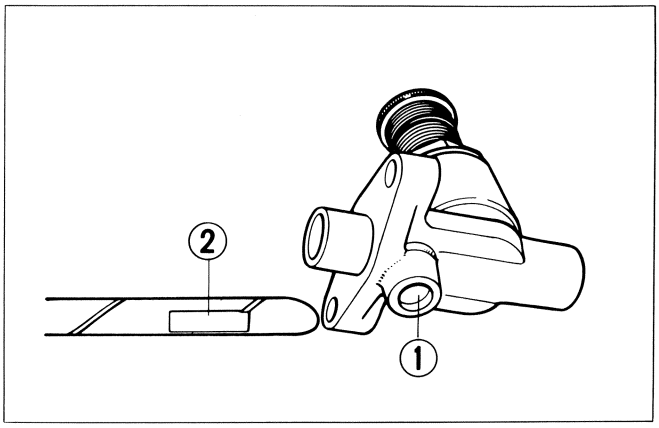


- Apply a high quality molybdenum disulfide lubricant (SUZUKI MOLY PASTE) to the push rod and engine oil to the push rod guide hole.

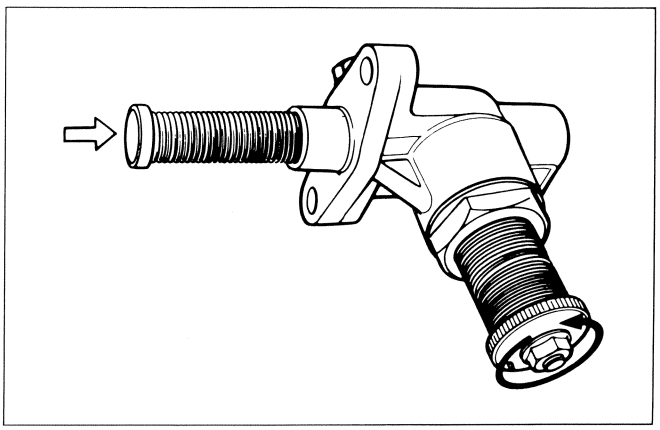
99000-25140	SUZUKI Moly Paste



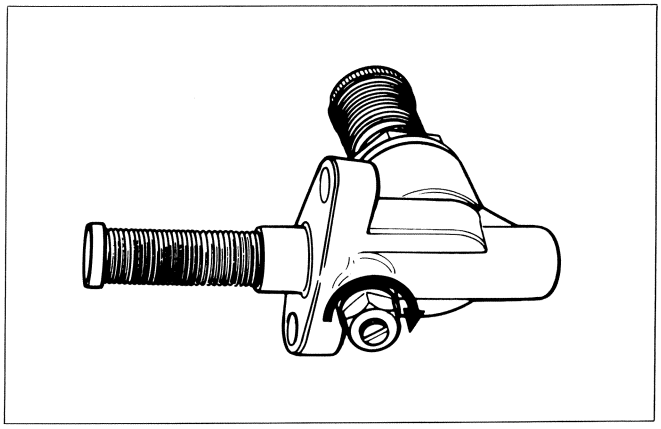
- Match the lock screw hole ① to the long groove ② in the push rod, as shown.
- Slide the push rod spring on the pushrod.



- While turning lock shaft handle counterclockwise, push in the pushrod all the way. Keep on turning the handle until it refuses to turn further.



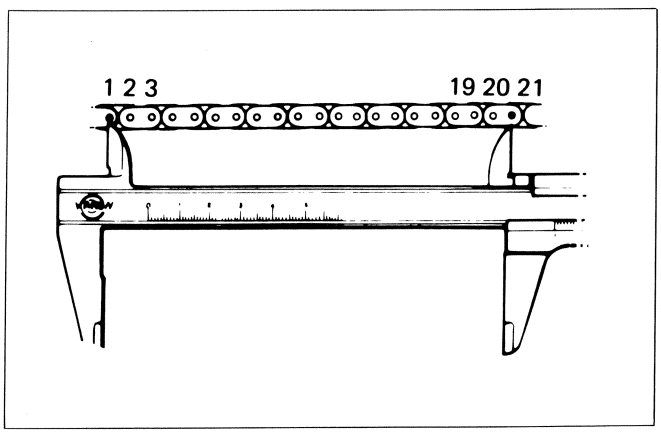
- Tighten the lock screw to lock the pushrod, so that the pushrod will not plunge out.



CAM CHAIN 20-PITCH LENGTH

Pull the chain tight to remove any slack, then using vernier calipers, measure the 20-pitch length of cam chain. If it measures more than the limit, replace the cam chain.

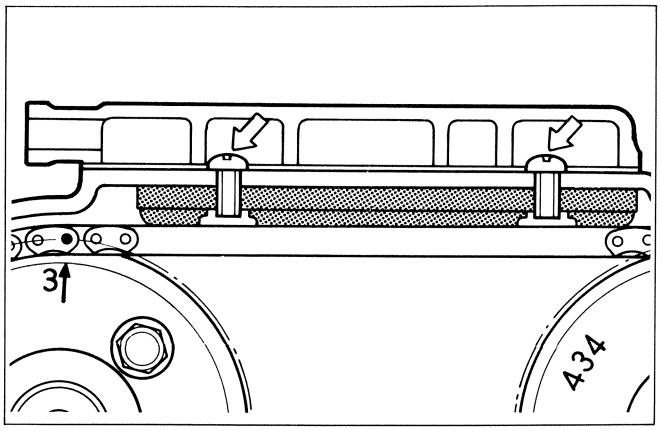
Service Limit	128.9 mm (5.07 in)



CAM CHAIN GUIDE

NOTE:
When replacing cam chain guide, apply SUZUKI Thread lock cement "1361A" to screw thread.

99104-32020	Thread lock super "1361A"

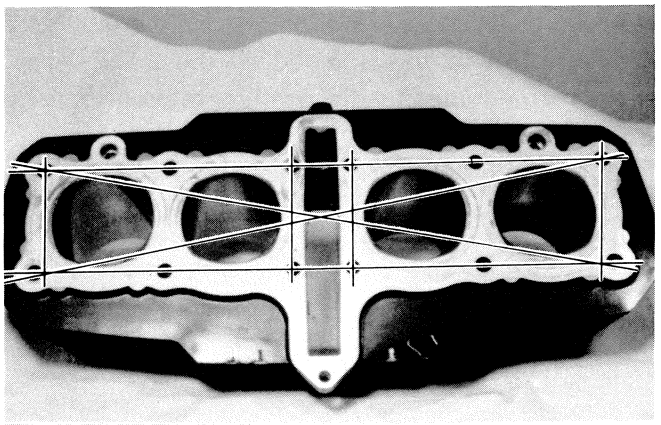


CYLINDER DISTORTION

Check the gasketed surface of the cylinder for distortion with a straightedge and thickness gauge, taking a clearance reading at several places as indicated. If the largest reading at any position of the straightedge exceeds the limit, replace the cylinder.

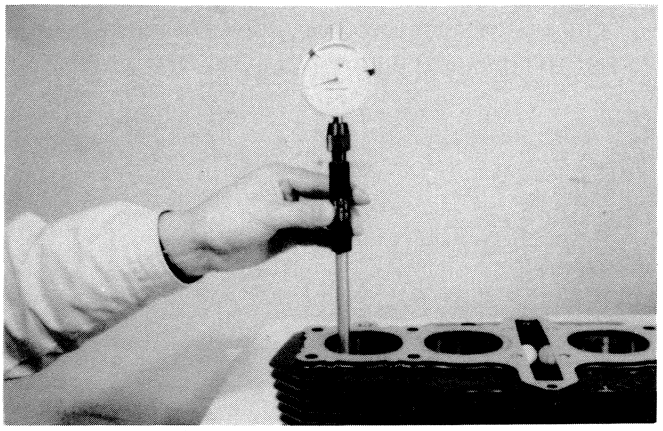
Cylinder distortion specification

Service Limit	0.2 mm (0.008 in)



CYLINDER BORE

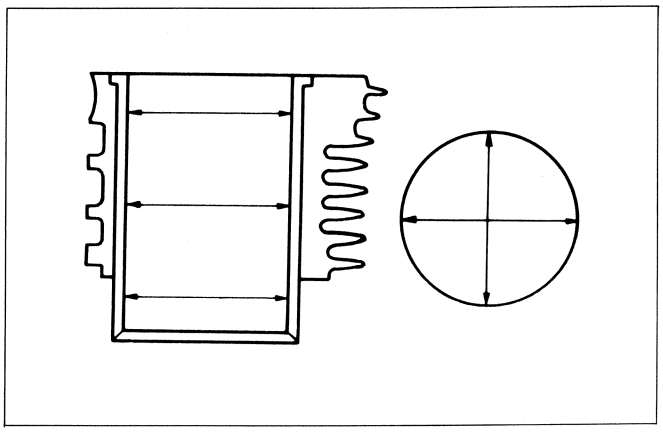
Measure the cylinder bore diameter at six places. If any one of the measurements exceeds the limit, overhaul the cylinder and replace the piston with an oversize, or replace the cylinder. Once the remaining cylinders must be also rebored accordingly. Otherwise, the imbalance might cause excess vibration.



Cylinder bore

Service Limit	60.100 mm (2.3661 in)

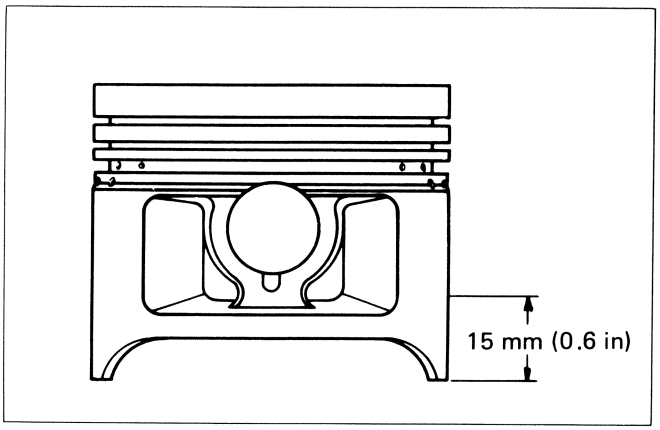
09900-20508	Cylinder gauge set (40 – 80 mm)



PISTON DIAMETER

Using a micrometer, measure the piston outside diameter at the place shown in Fig. If the measurement is less than the limit, replace the piston.

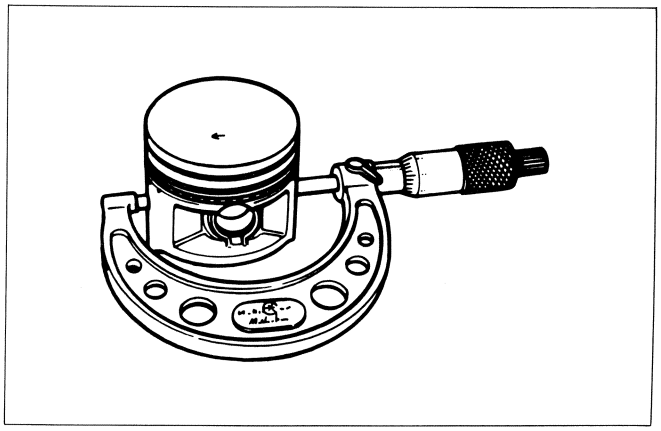
Piston oversize	0.5, 1.0 mm
Service Limit	59.880 mm (2.3575 in)
09900-20203	Micrometer (50 – 75 mm)



PISTON-CYLINDER CLEARANCE

As a result of the above measurement, if the piston clearance exceeds the following limit, overhaul the cylinder and use an oversize piston, or replace both cylinder and piston.

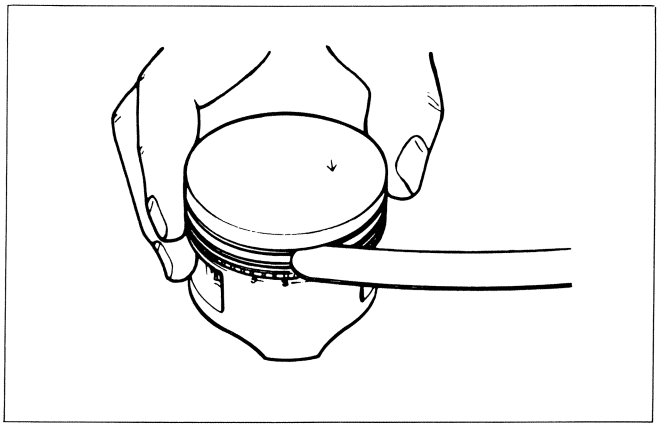
Service Limit	0.120 mm (0.005 in)



PISTON RING-GROOVE CLEARANCE

Using a thickness gauge, measure the side clearances of the 1st and 2nd rings. If any of the clearances exceeds the limit, replace both piston and piston rings.

09900-20803	Thickness gauge

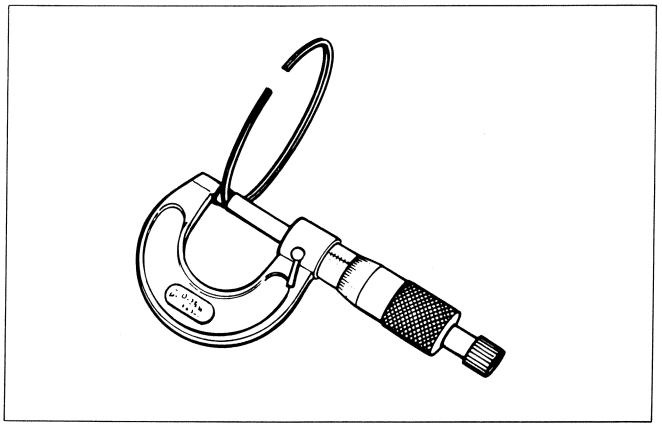


Piston ring-groove clearance

Piston ring	Service Limit
1st	0.18 mm (0.007 in)
2nd	0.15 mm (0.006 in)

Piston ring groove width

Piston ring	Standard
1st	1.01 – 1.03 mm (0.039 – 0.041 in)
2nd	1.21 – 1.23 mm (0.047 – 0.048 in)
Oil	2.51 – 2.53 mm (0.099 – 0.100 in)

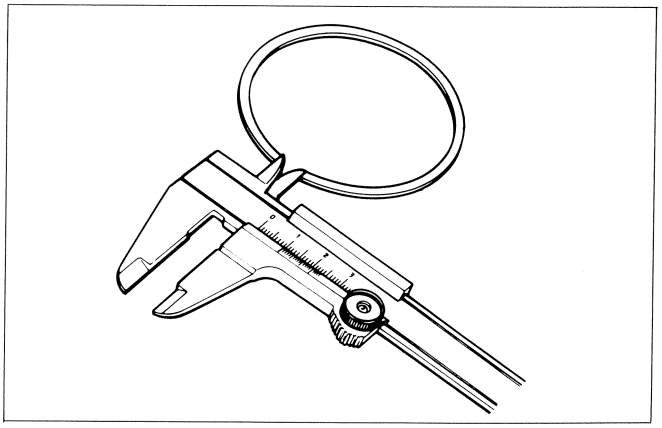


Piston ring thickness

Piston ring	Standard
1st	0.975 – 0.990 mm (0.0384 – 0.0390 in)
2nd	1.170 – 1.190 mm (0.0461 – 0.0469 in)

PISTON RING FREE END GAP AND PISTON RING END GAP

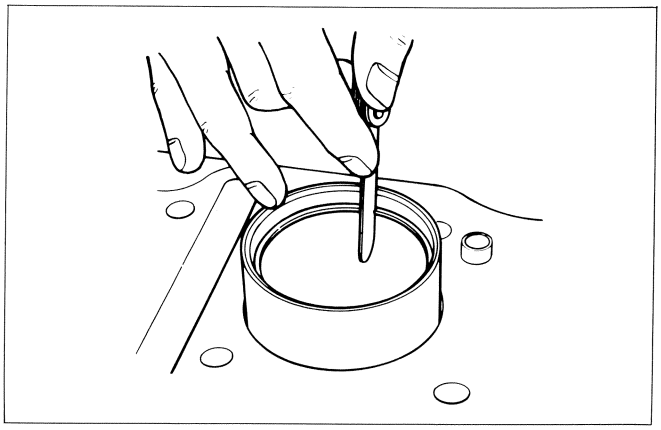
Before installing piston rings, measure the free end gap of each ring using vernier calipers. Next, fit the ring in the cylinder, and measure each ring end gap using a thickness gauge.
If any ring has an excess end gap, replace the ring.



Piston ring free end gap

Piston ring	Service Limit
1st	8.0 mm (0.31 in)
2nd	8.5 mm (0.33 in)

09900-20101	Vernier calipers



Piston ring end gap

Piston ring	Service Limit
1st & 2nd	0.7 mm (0.03 in)

09900-20803	Thickness gauge

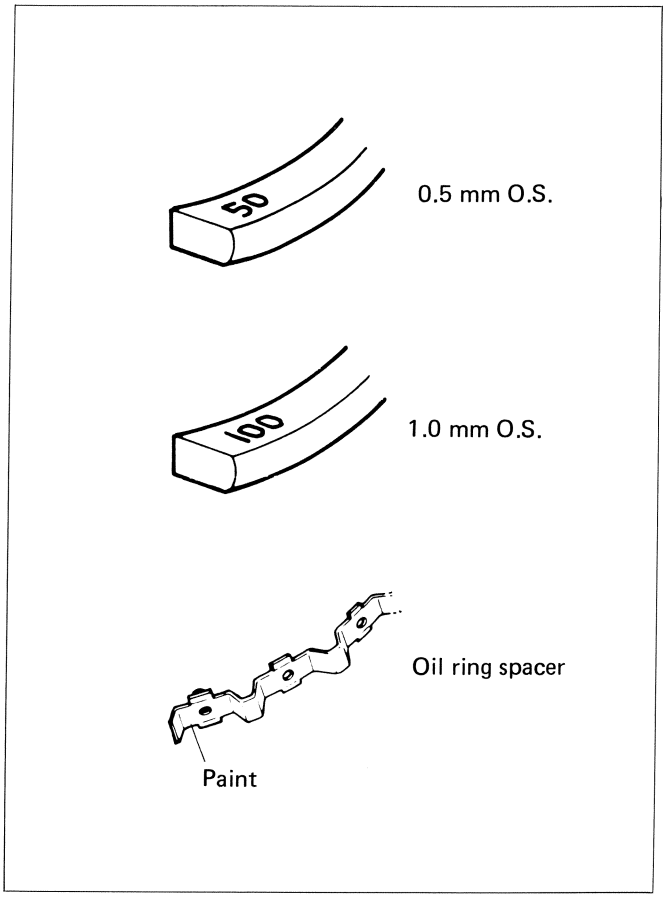
- **Oversize piston rings**
  The following two types of oversize piston rings are used. They bear the following identification numbers.

	1st	2nd
0.5 mm	50	50
1.0 mm	100	100

- **Oversize oil rings**
  The following two types of oversize oil rings are available as optional parts. They bear the following identification marks.

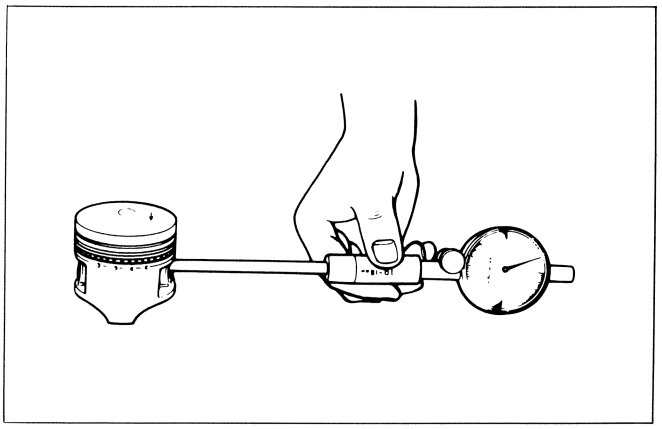
SIZE	COLOR
STD	Painted red
0.5 mm O.S.	Painted blue
1.0 mm O.S.	Painted yellow

- **Oversize side rail**
  Just measure out side diameter to identify the size.



PISTON PIN AND PIN BORE

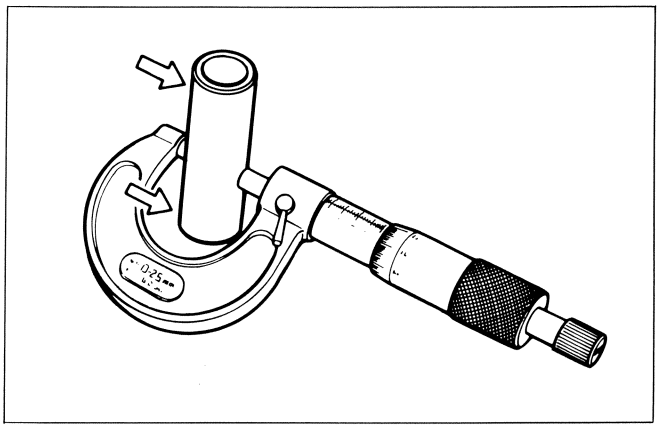
Using a small bore gauge, measure the piston pin bore inside diameter. Using a micrometer, measure the piston pin outside diameter. If the difference between these two measurements is more than the limits, replace both piston and piston pin.



Piston pin bore I.D.

Service Limit	16.030 mm (0.6311 in)

Using a micrometer, measure the piston pin outside diameter at three positions.



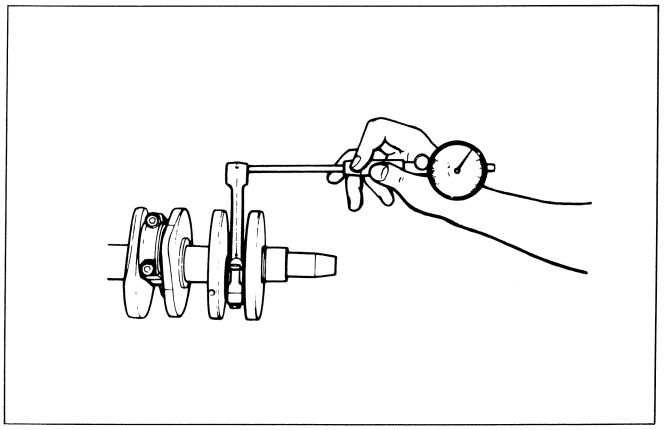
Piston pin O.D.

Service Limit	15.980 mm (0.6291 in)

09900-20205	Micrometer (0 – 25 mm)

CONNECTING ROD SMALL END I.D.

Using a small bore gauge, measure the connecting rod small end inside diameter.



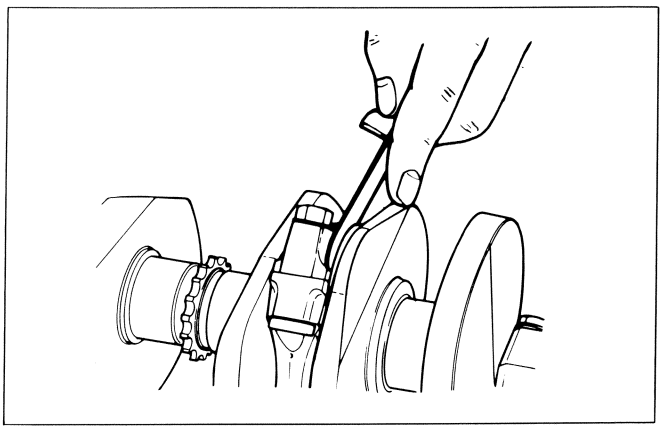
Connecting rod small end I.D.

Service Limit	16.040 mm (0.6315 in)

- If the connecting rod small end inside diameter exceeds the abovementioned limit, replace the connecting rod.

CONNECTING ROD BIG END THRUST CLEARANCE

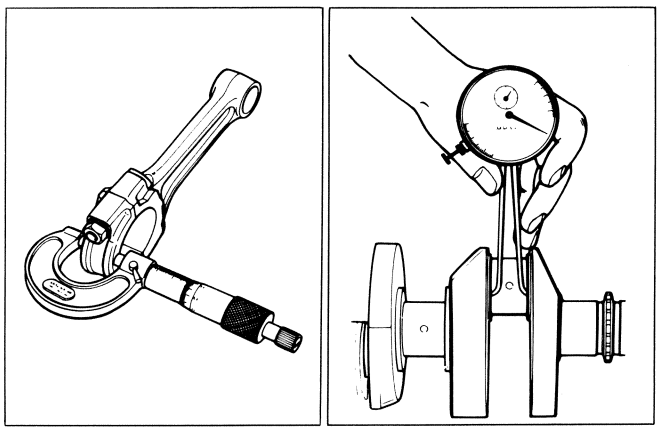
Check the connecting rod side clearance by using a thickness gauge. If the clearance exceeds the limit, replace connecting rod or crankshaft.



Service Limit	0.3 mm (0.01 in)

09900-20803	Thickness gauge

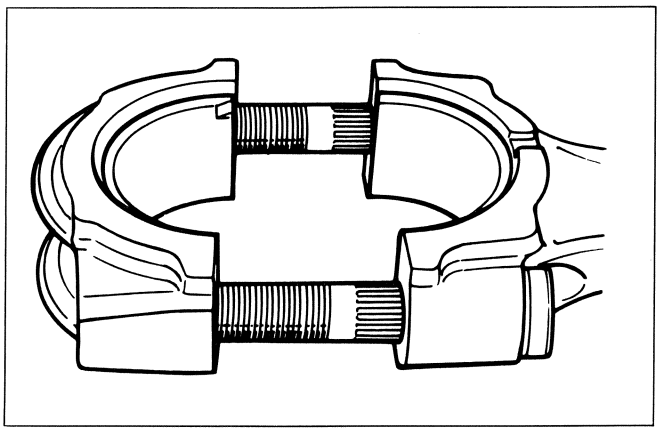
	Standard
Big end width	19.95 – 20.00 mm (0.785 – 0.787 in)
Crank pin width	20.10 – 20.15 mm (0.791 – 0.793 in)



CONNECTING ROD-CRANK PIN BEARING SELECTION

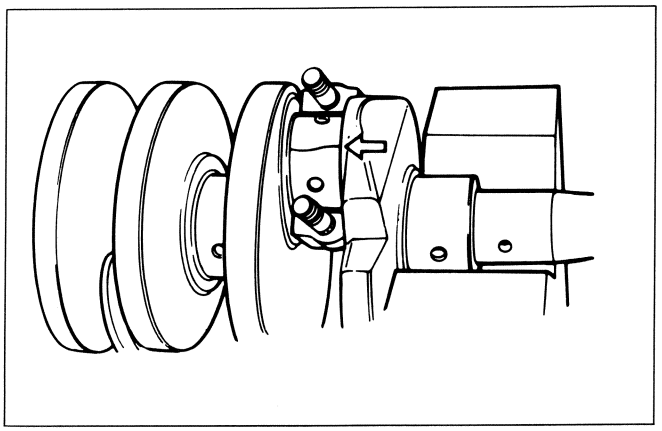
- Loosen bearing cap nuts, and tap the bolt end lightly with plastic hammer to remove bearing cap.
- Remove rods, and mark them to identify the cylinder position.
- Inspect bearing surfaces for any sign of fusion, pitting, burn, or flaws. If any, replace them with a specified set of bearings.

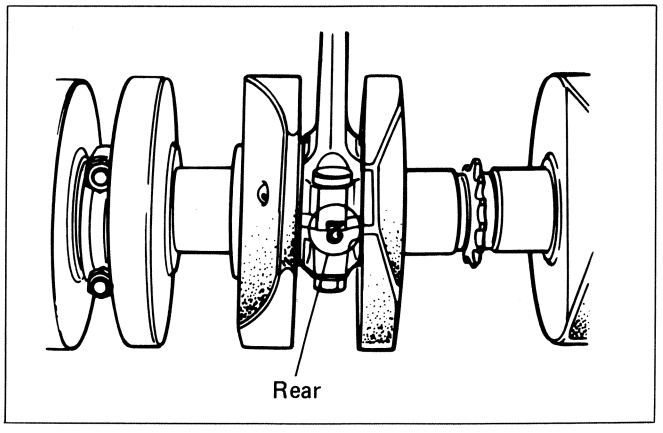
NOTE:
Never try to remove or loosen the connecting rod cap bolts due to their possible loosening in the rod. Once displaced, the bearing cap will not be fitted properly.



- Place plastigauge axially on the crank pin, avoiding oil hole and at the TDC or BDC side as shown.
- Tighten the bearing cap with two-step torque values.

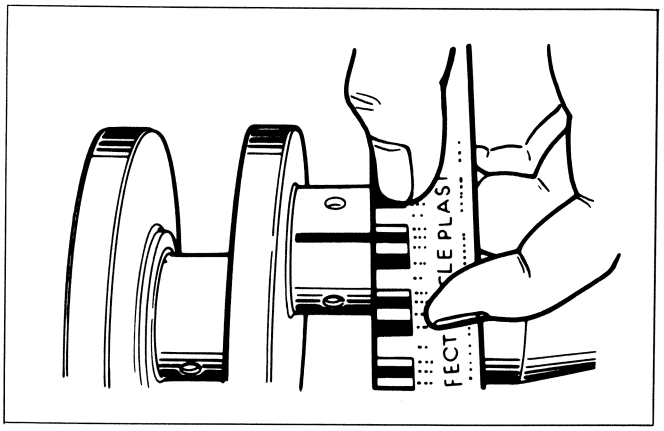
NOTE:
When fitting bearing cap to crank pin, be sure to discriminate one end from the other, namely front and rear.





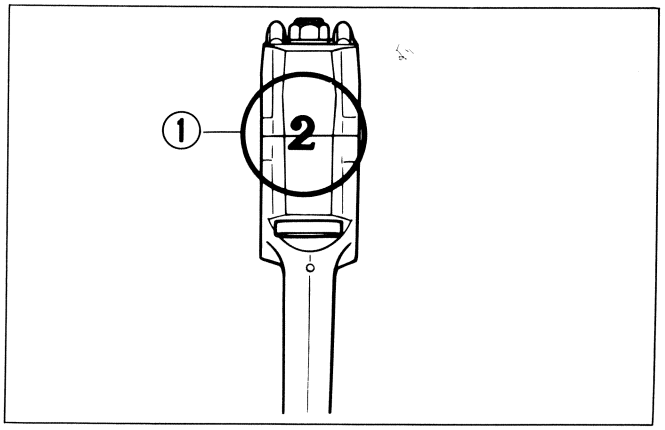
Initial tightening torque	16 – 22 N·m (1.6 – 2.2 kg-m) (11.5 – 16.0 lb-ft)
Final tightening torque	33 – 37 N·m (3.3 – 3.7 kg-m) (24.0 – 27.0 lb-ft)

NOTE:
Never rotate crankshaft or connecting rod when a piece of Plastigauge is in the clearance.



- Remove the caps, and measure the width of compressed plastigauge with envelope scale. This measurement should be taken at the widest part.

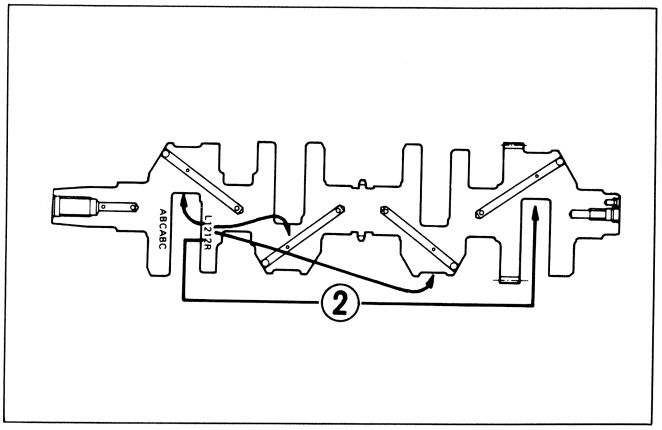
Standard	0.024 – 0.048 mm (0.0009 – 0.0019 in)
Service Limit	0.080 mm (0.0031 in)



- If oil clearance exceeds the service limit, select the specified bearings from the following table.
- Check the corresponding rod I.D. code number ①, "1" or "2".
- Check the corresponding crank pin O.D. code number ②, "1", "2" or "3".

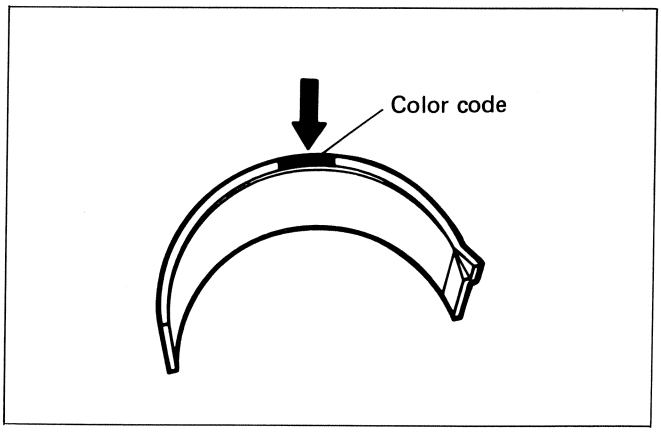
Bearing selection table

		Crank pin O.D. ②		
	Code	1	2	3
Conrod I.D. ①	1	Green	Black	Brown
	2	Black	Brown	Yellow



Crank pin bearing oil clearance

Standard	0.024 – 0.048 mm (0.0009 – 0.0019 in)

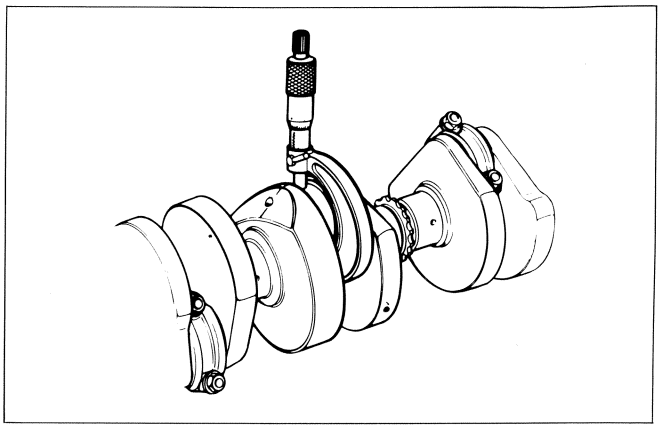


Connecting rod I.D. specification

Code	I.D. specification
1	35.000 – 35.008 mm (1.3780 – 1.3783 in)
2	35.008 – 35.016 mm (1.3783 – 1.3786 in)

Crank pin O.D. specification

Code	O.D. specification
1	31.992 – 32.000 mm (1.2595 – 1.2598 in)
2	31.984 – 31.992 mm (1.2592 – 1.2595 in)
3	31.976 – 31.984 mm (1.2589 – 1.2592 in)



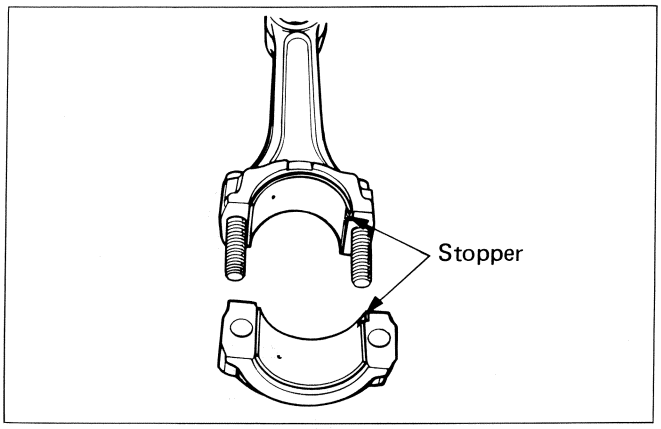
Bearing thickness

Color (Part No.)	Thickness
Green (12164-43400-010)	1.484 – 1.488 mm (0.0584 – 0.0586 in)
Black (12164-43400-020)	1.488 – 1.492 mm (0.0586 – 0.0587 in)
Brown (12164-43400-030)	1.492 – 1.496 mm (0.0587 – 0.0589 in)
Yellow (12164-43400-040)	1.496 – 1.500 mm (0.0589 – 0.0591 in)

CAUTION:
Bearing should be replace as a set.

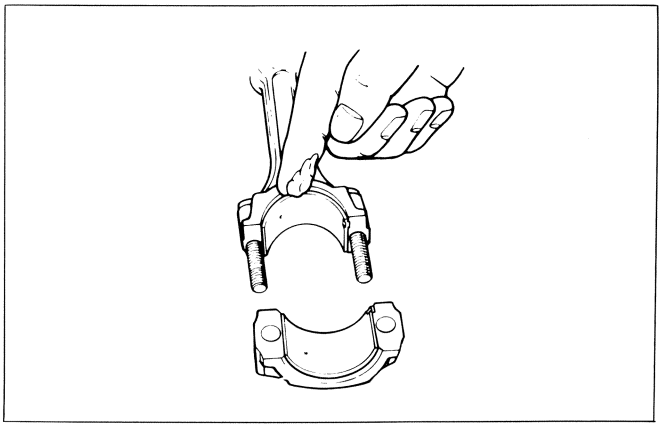
BEARING ASSEMBLY

- When fitting the bearings to the bearing cap and conrod, be sure to fix the stopper part first, and press the other end.



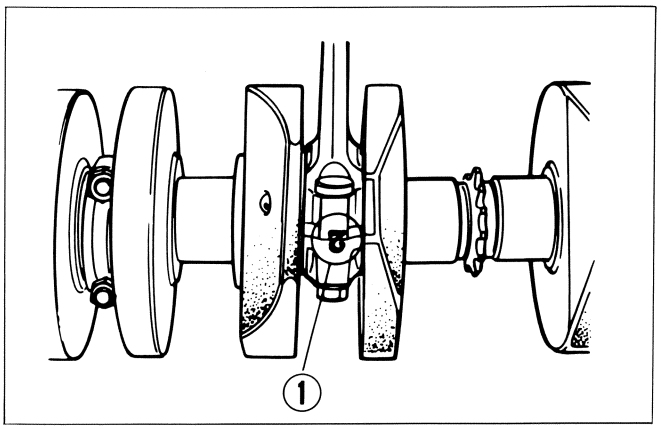
- Apply engine oil or SUZUKI Moly Paste to the crank pin and bearing surface.

99000-25140	SUZUKI Moly Paste



- When mounting connecting rod on the crankshaft, make sure that neumeral figure ① of the conrod faces rearward.
- Tighten the connecting rod fitting nuts with specified torque.

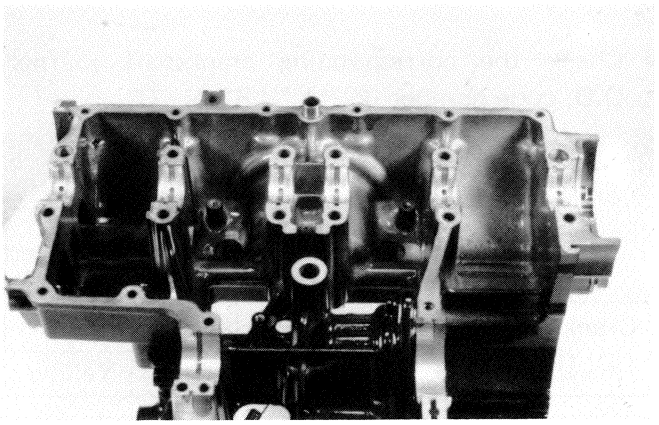
Tightening torque	33 – 37 N·m (3.3 – 3.7 kg-m 24.0 – 27.0 lb-ft)



- Check the connecting rod for smooth turning.

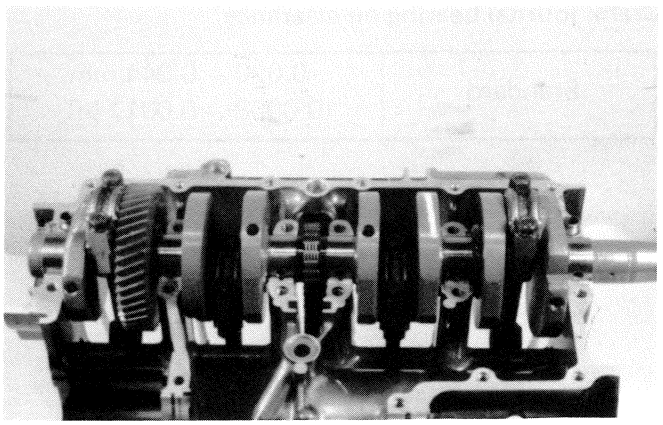
CRANKCASE-CRANKSHAFT BEARING SELECTION

- Inspect each bearing of upper and lower crank cases for any damage.



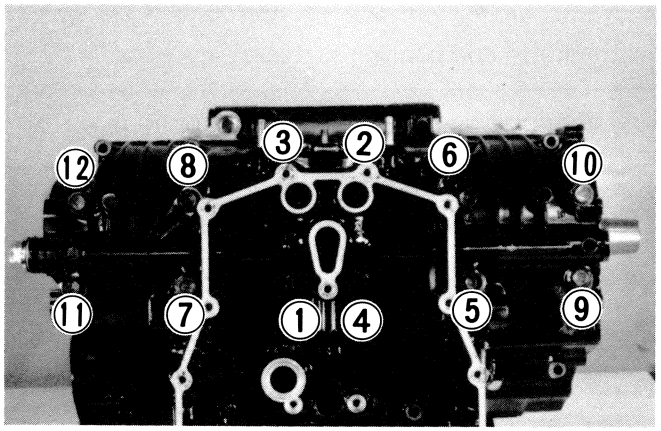
- Place plastigauge on each crankshaft journal in the usual manner.

NOTE:
Do not place the plastigauge on the oil hole, and do not rotate the shafts when plastigauge is in place.



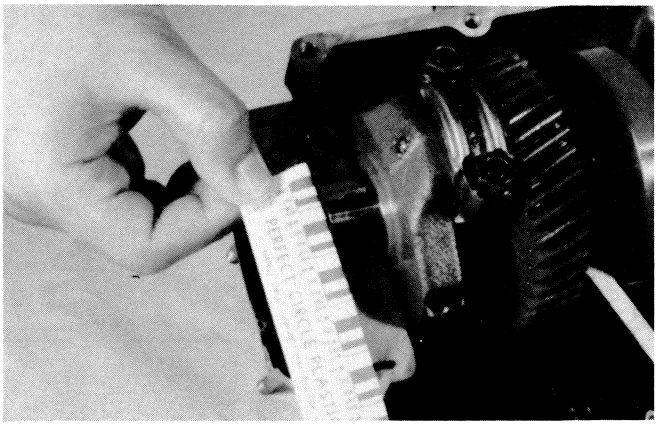
- Mate the lower crankcase with the upper crankcase, and tighten the crankshaft tightening bolts with specified torque value in the indicated order.

Tightening torque	Initial Tightening	Final Tightening
8 mm bolt	13 N·m (1.3 kg-m / 9.5 lb-ft)	20 – 24 N·m (2.0 – 2.4 kg-m / 14.5 – 17.5 lb-ft)



- Remove the lower crankcase, and measure the width of compressed plastigauge in the usual manner.

Standard	0.020 – 0.044 mm (0.0008 – 0.0017 in)
Service Limit	0.080 mm (0.0031 in)



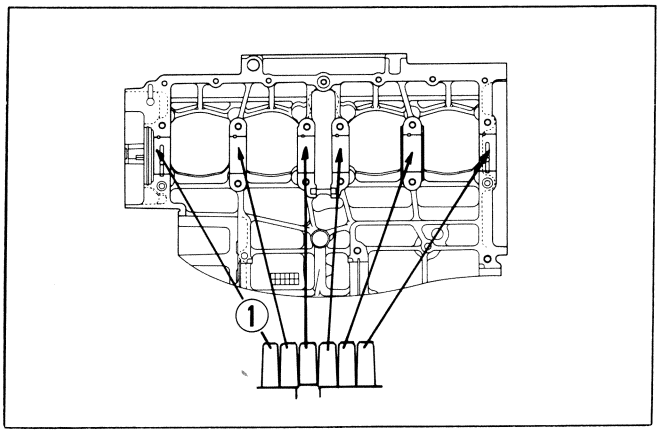
- If the width at the widest part exceeds the limit, replace the set of bearings with new ones by referring to the selection table.

- Check the corresponding crankcase journal I.D. code number ① "A" or "B" which are stamped on the rear of upper crankcase.

- Check the corresponding crankshaft journal O.D. code number ② "A", "B" or "C".

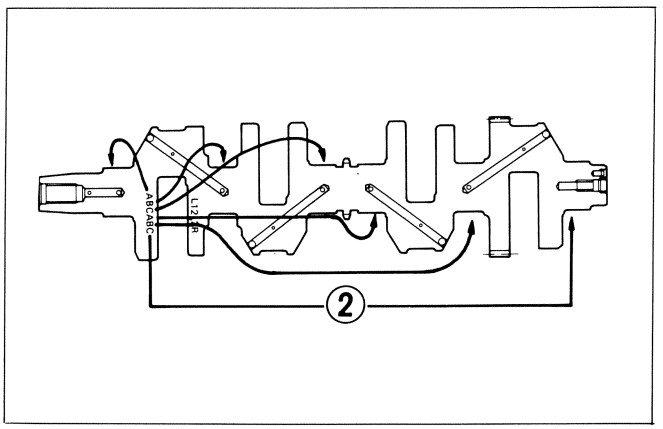
Bearing selection table

	Crankshaft O.D. ②			
	Code	A	B	C
Crankcase I.D. ①	A	Green	Black	Brown
	B	Black	Brown	Yellow



Crank journal bearing oil clearance

Standard	0.020 – 0.044 mm (0.0008 – 0.0017 in)



Crankcase I.D. specification

Code	I.D. specification
A	39.000 – 39.008 mm (1.5354 -- 1.5357 in)
B	39.008 – 39.016 mm (1.5357 – 1.5361 in)

Crankshaft journal O.D. specification

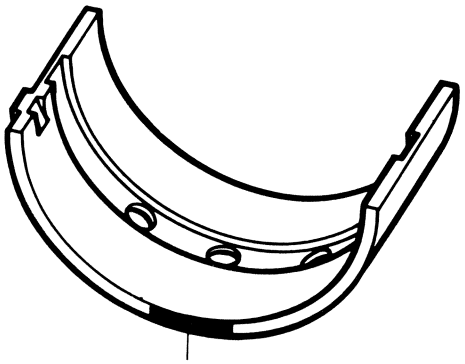
Code	O.D. specification
A	35.992 – 36.000 mm (1.4170 – 1.4173 in)
B	35.984 – 35.992 mm (1.4167 – 1.4170 in)
C	35.976 – 35.984 mm (1.4164 – 1.4167 in)

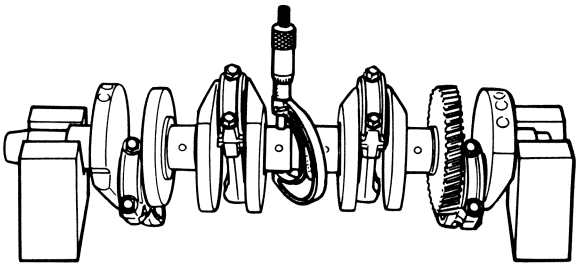
Bearing thickness specification (Grooved bearings with oil holes)

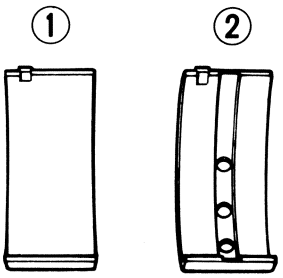
Color (Part No.)	Specification
Green (12229-43400-010)	1.486 – 1.490 mm (0.0585 – 0.0587 in)
Black (12229-43400-020)	1.490 – 1.494 mm (0.0587 – 0.0588 in)
Brown (12229-43400-030)	1.494 – 1.498 mm (0.0588 – 0.0590 in)
Yellow (12229-43400-040)	1.498 – 1.502 mm (0.0590 – 0.0591 in)

NOTE:

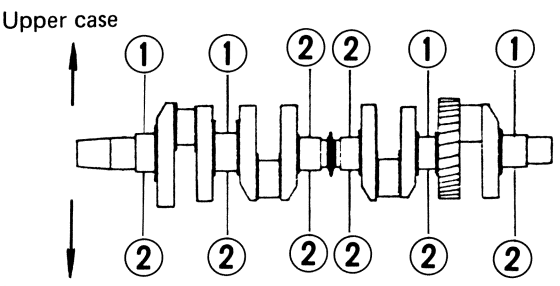
*** Non-Grooved bearings have the same specification as the Grooved bearings with oil holes.**
These parts numbers are shown as follows. 12229-43410-XXX.





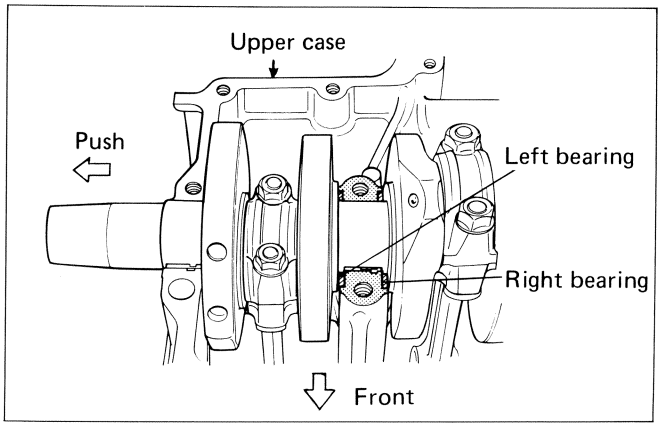


① Non-Grooved bearings
② Grooved bearings with oil holes



CRANKSHAFT THRUST CLEARANCE

- With the crankshaft, right-side thrust bearing and left-side thrust bearing inserted in the upper crankcase, use a thickness gauge to measure the thrust clearance on the left side.

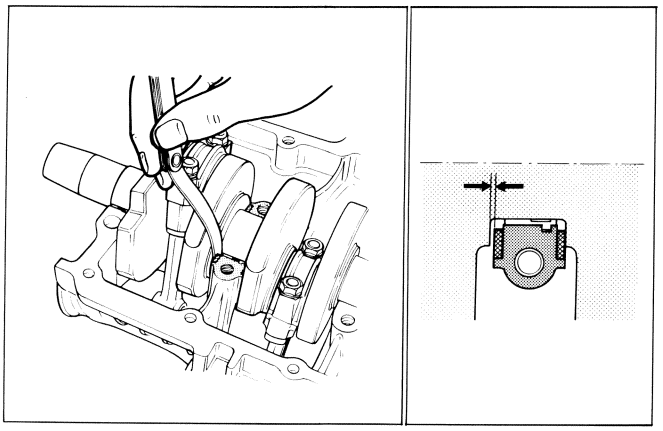


NOTE:
Push the crankshaft to the generator side, so that there is no clearance on the right-side thrust bearing.

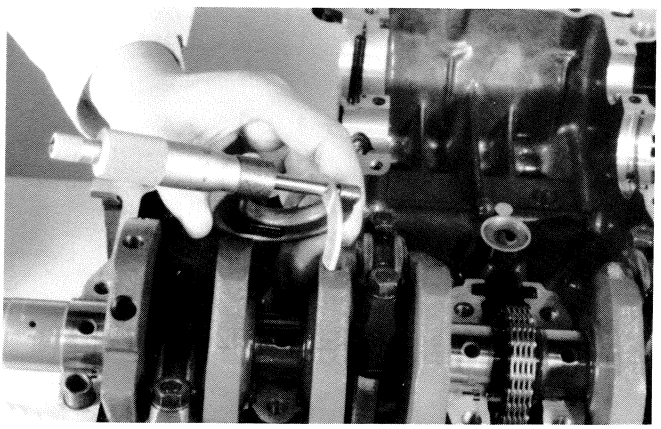
Thrust clearance

Standard	0.045 – 0.100 mm (0.0018 – 0.0039 in)

If the thrust clearance exceeds the standard range, adjust the thrust clearance by the following procedures:



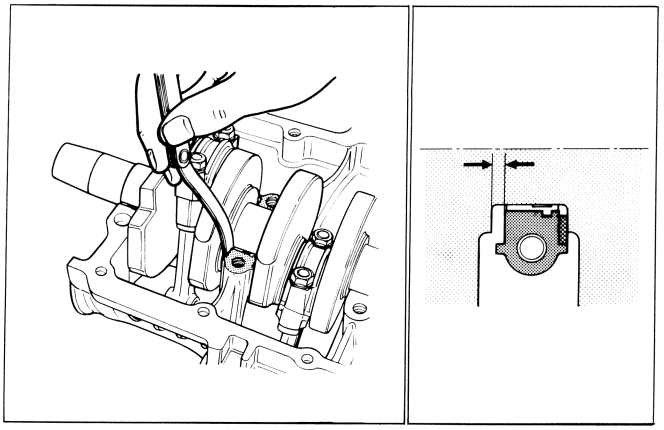
- Remove the right-side thrust bearing, and measure its thickness with a micrometer. If the thickness of the right-side thrust bearing is below standard, replace with a new bearing and once again perform the thrust clearance measurement listed above, checking to make sure it is within standards.



Right-side thrust bearing thickness

Standard	2.425 – 2.450 mm (0.0955 – 0.0965 in)

- If the right-side thrust bearing is within the standard range, reinsert the right-side thrust bearing, and remove the left-side thrust bearing.
- As shown in the illustration, use a thickness gauge to measure the clearance before inserting of the left-side thrust bearing, and select a left-side thrust bearing from the selection table.

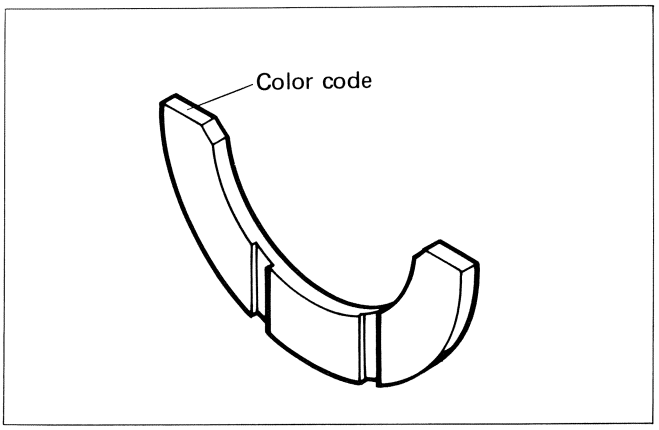


Thrust bearing selection table

Clearance before inserting of left-side thrust bearing	Color (Part No.)	Thrust bearing thickness	Thrust clearance
2.420 – 2.445 mm (0.0953 – 0.0963 in)	Red (12228-43411)	2.350 – 2.375 mm (0.0925 – 0.0935 in)	0.045 – 0.095 mm (0.0018 – 0.0037 in)
2.445 – 2.470 mm (0.0963 – 0.0972 in)	Black (12228-43412)	2.375 – 2.400 mm (0.0935 – 0.0945 in)	
2.470 – 2.495 mm (0.0972 – 0.0982 in)	Blue (12228-43413)	2.400 – 2.425 mm (0.0945 – 0.0955 in)	
2.495 – 2.520 mm (0.0982 – 0.0992 in)	Green (12228-43414)	2.425 – 2.450 mm (0.0955 – 0.0965 in)	
2.520 – 2.545 mm (0.0992 – 0.1002 in)	Yellow (12228-43415)	2.450 – 2.475 mm (0.0965 – 0.0974 in)	
2.545 – 2.575 mm (0.1002 – 0.1014 in)	White (12228-43416)	2.475 – 2.500 mm (0.0974 – 0.0984 in)	0.045 – 0.100 mm (0.0018 – 0.0039 in)

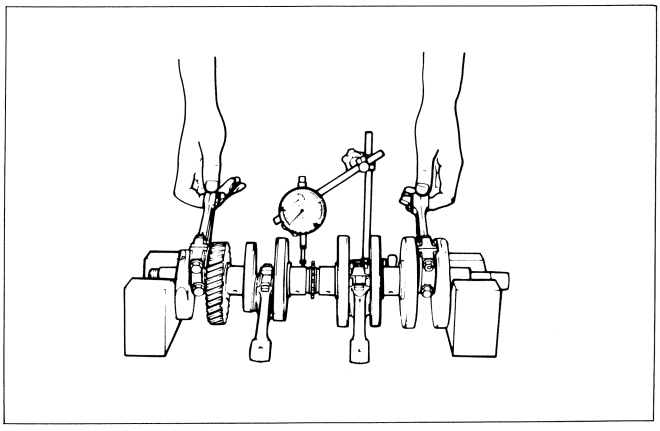
- After selecting a left-side thrust bearing, insert it and again perform the thrust clearance measurement to make sure it falls within the standard range.

NOTE:
Right-side thrust bearing has the same specification as the green of left-side thrust bearing.



CRANKSHAFT RUNOUT

Support the crankshaft with "V" blocks as shown, with the two end journals resting on the blocks. Set up the dial gauge, as shown, and rotate the crankshaft slowly to read the runout. Replace the crankshaft if the runout is greater than the limit.



Crankshaft runout specification

Service Limit	0.05 mm (0.002 in)

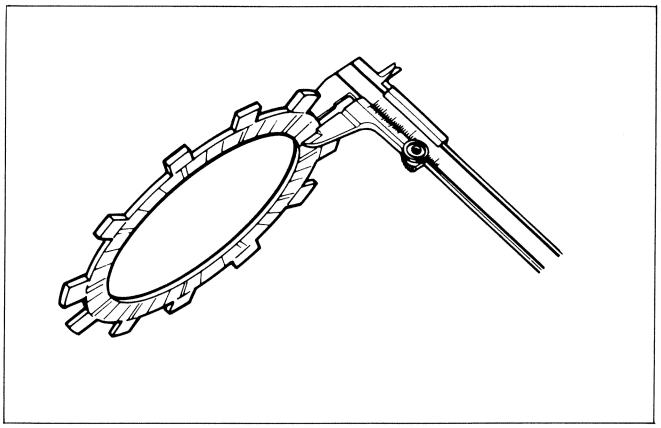
CLUTCH DRIVE PLATES AND DRIVEN PLATES

Clutch plates in service remain in oily condition as they are lubricated with oil. Because of this condition, both drive and driven plates are subject to little wearing action and therefore last much longer. Their life depends largely on the quality of oil used in the clutch and also on the way the clutch is operated.

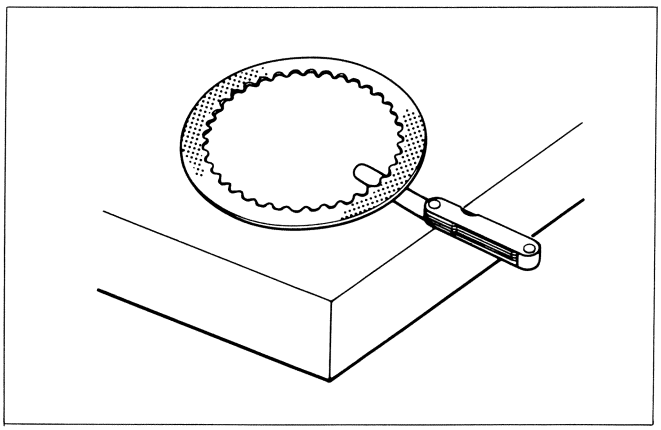
These plates are expendable: they are meant to be replaced when found worn down or distorted to the respective limit: use a caliper to check thickness and a thickness gauge and surface plate to check distortion.

09900-20101	Vernier calipers
09900-20803	Thickness gauge

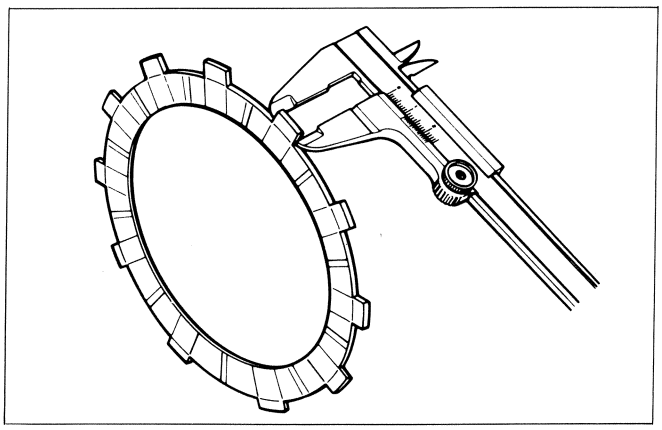
	Standard	Service Limit
Drive plate thickness	3.05 – 3.2 mm (0.12 – 0.13 in)	2.75 mm (0.11 in)
Driven plate distortion	———	0.10 mm (0.004 in)
Drive plate claw width	11.8 – 12.0 mm (0.46 – 0.47 in)	11.0 mm (0.43 in)



Checking thickness



Checking distortion



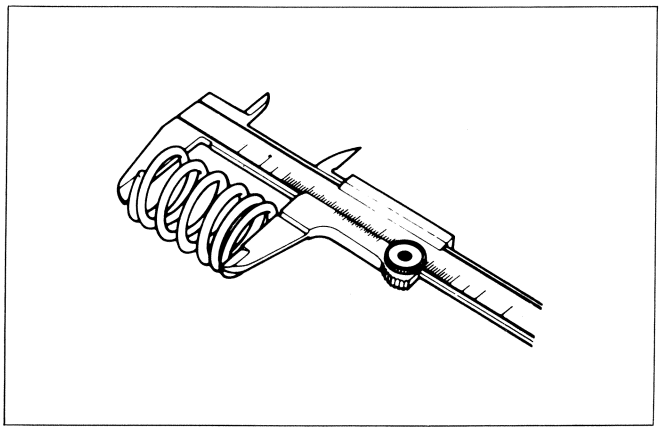
Checking claw width

CLUTCH SPRING FREE LENGTH

Measure the free length of each coil spring with vernier calipers, and compare the elastic strength of each with the specified limit. Replace all the springs if any one of springs is not within the limit.

Clutch spring free length

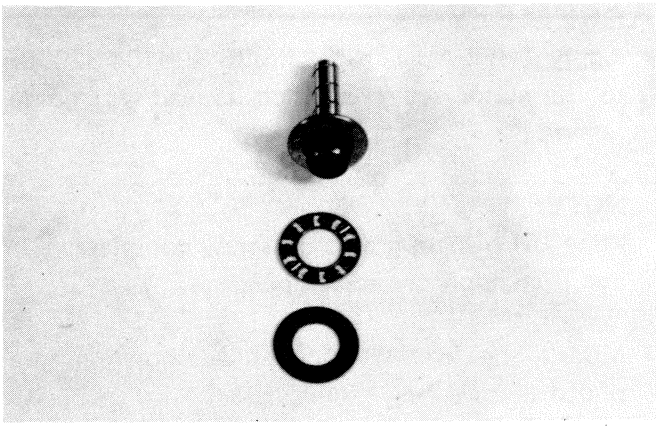
Service Limit	36.5 mm (1.44 in)



CLUTCH BEARINGS

Inspect clutch release bearing for any abnormality, particularly cracks, to decide whether it can be reused or should be replaced.

Smooth engagement and disengagement of the clutch depends much on the condition of this bearing.

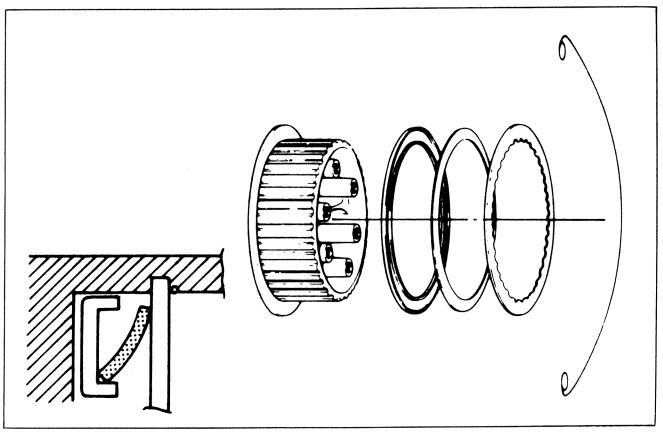


SLEEVE HUB SPRING WASHER

- Install the spring seat, spring and driven plate in the clutch sleeve hub. Check that these three parts are positioned correctly as illustrated.

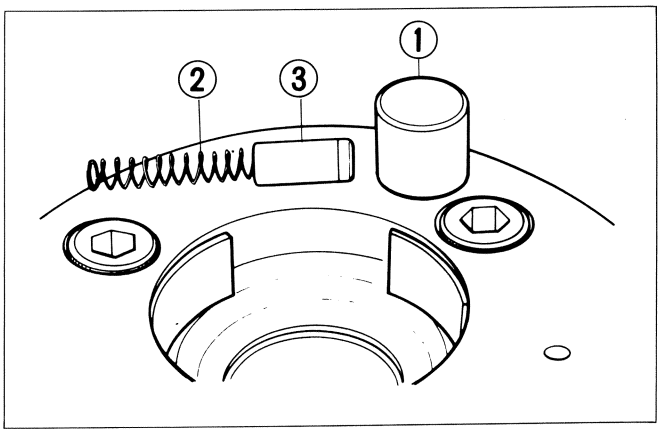
  While holding the driven plate with pliers, install the piano wire clip.

NOTE:
Always use a new piano wire clip.



STARTER CLUTCH REMOVAL

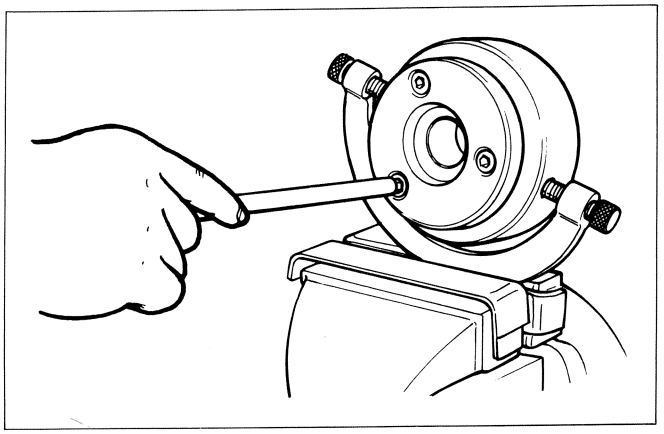
- Remove the roller ①, spring ② and push piece ③ from starter clutch.



- Clamp the rotor with the special tool and a vice taking care not to damage it and separate starter clutch from the rotor using the T type hexagon wrench.

09914-25811	6 mm "T" type hexagon wrench

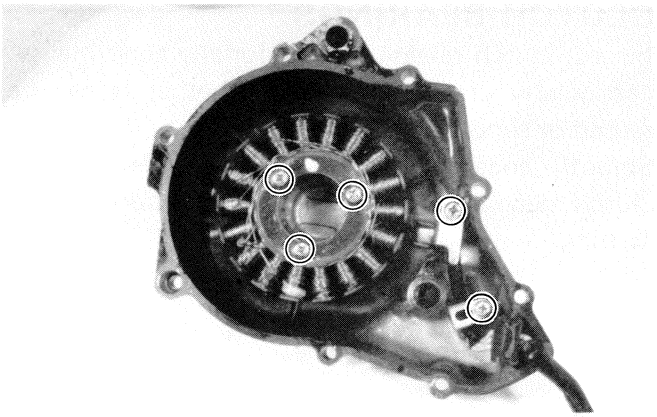
09930-44911	Rotor holder



ASSEMBLY

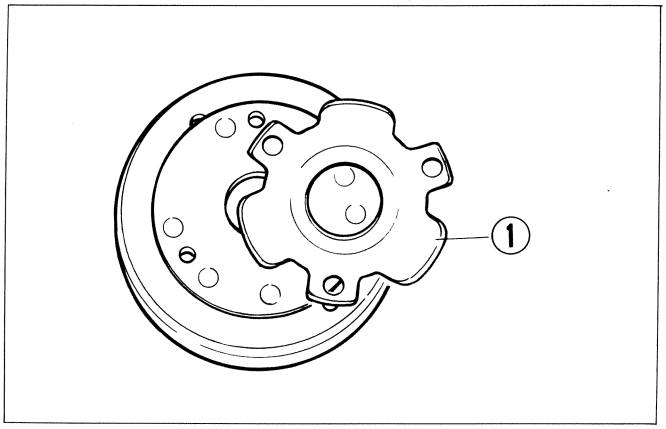
- Apply THREAD LOCK "1363C"(99104-32050) to the stator set screws and its lead wire guide screws.

NOTE:
Wipe off oil and grease on screw completely, and then apply the screw lock.

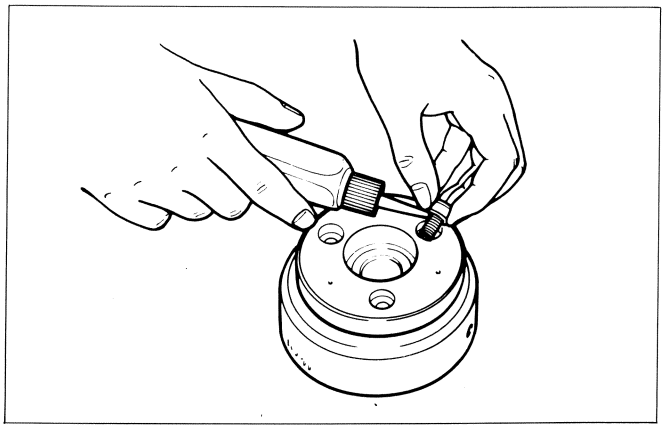


- Mount the lead wire clamp as shown in the photo.

- Locate the shim ① to the proper position.
- Apply THREAD LOCK SUPER 1363A to allen bolts. Tighten its with specified torque while holding the rotor using by special tool and vice.



99104-32030	Thread lock super "1363A"
09914-25811	6 mm "T" type hexagon wrench
09930-44911	Rotor holder
Tightening torque	23 – 28 N·m (2.3 – 2.8 kg-m / 16.5 – 20.0 lb-ft)

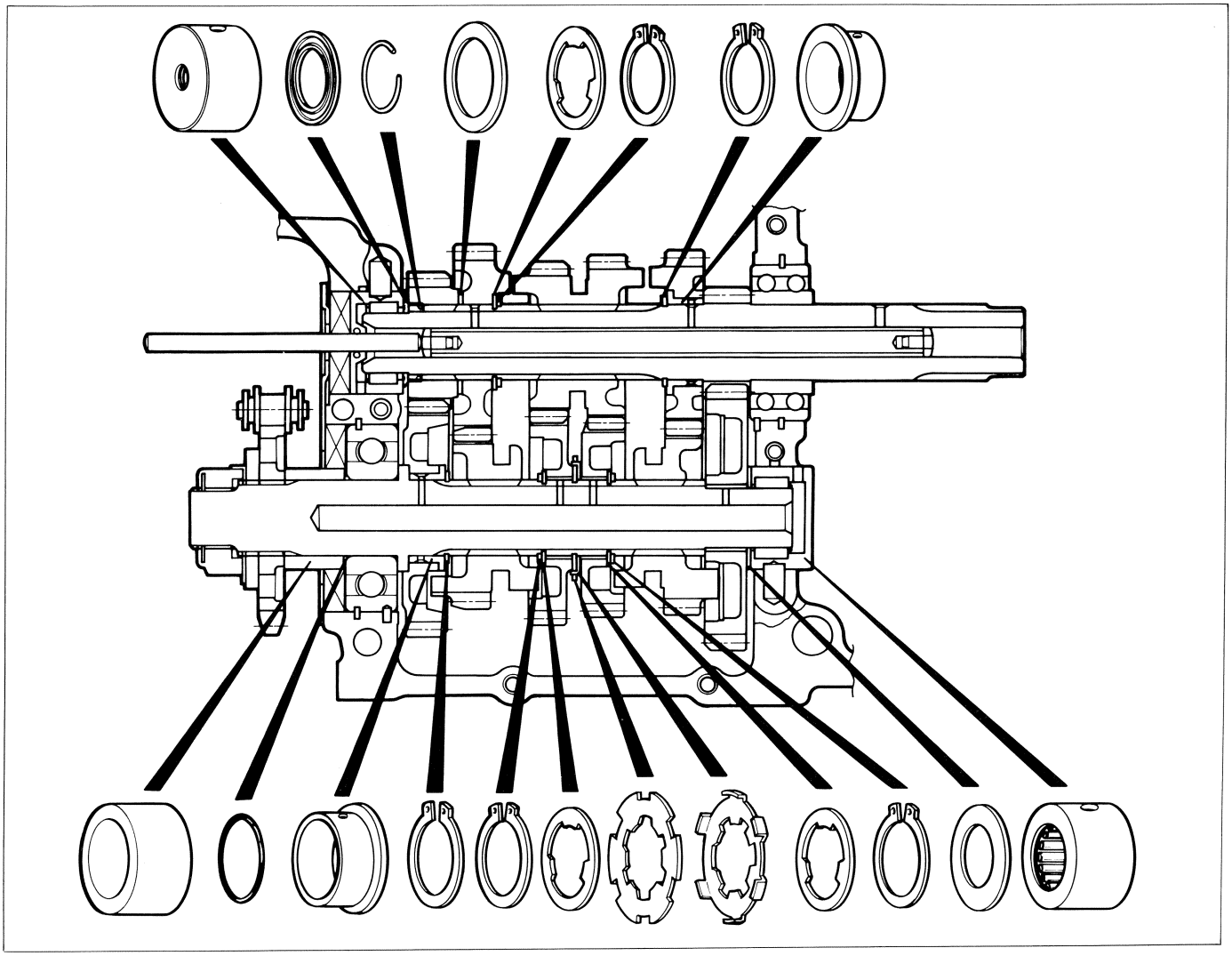


OIL PUMP

CAUTION:
The oil pump case securing screw is applied with SUZUKI THREAD LOCK SUPER "1363A". If an attempt is made to overhaul the oil pump assembly, the screw may be damaged. As a replacement, only the oil pump unit is available.



TRANSMISSION



SHIFT FORK-GROOVE CLEARANCE

Using a thickness gauge, check the shifting fork clearance in the groove of its gear.

This clearance for each of the three shifting forks plays an important role in the smoothness and positiveness of shifting action.

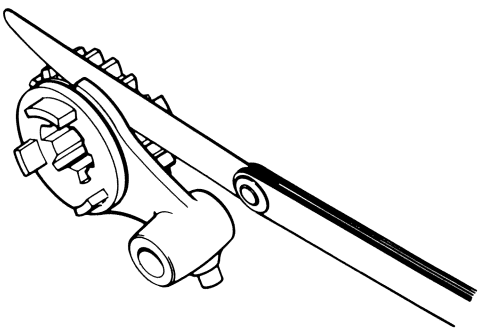
If the clearance checked is noted to exceed the limit specified, replace the fork or its gear, or both.

09900-20803	Thickness gauge

09900-20101	Vernier calipers

Shift fork-Groove clearance

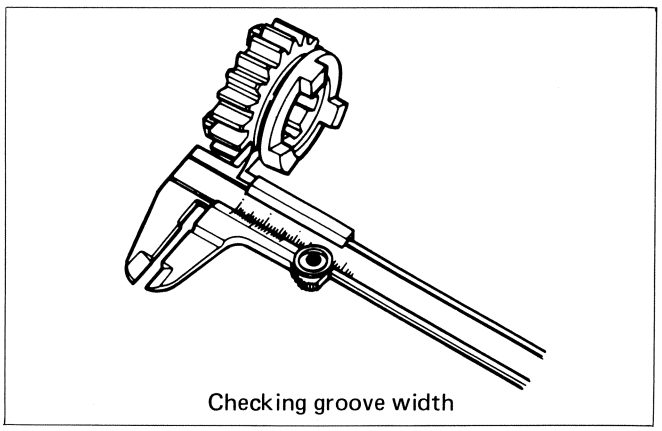
Standard	Service Limit
0.1 – 0.3 mm (0.004 – 0.012 in)	0.5 mm (0.02 in)



Checking clearance

Shift fork groove width

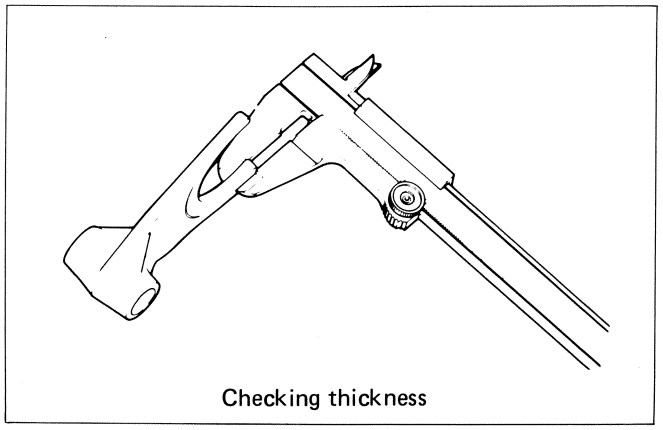
Standard	5.50 – 5.60 mm (0.217 – 0.220 in)



Checking groove width

Shift fork thickness

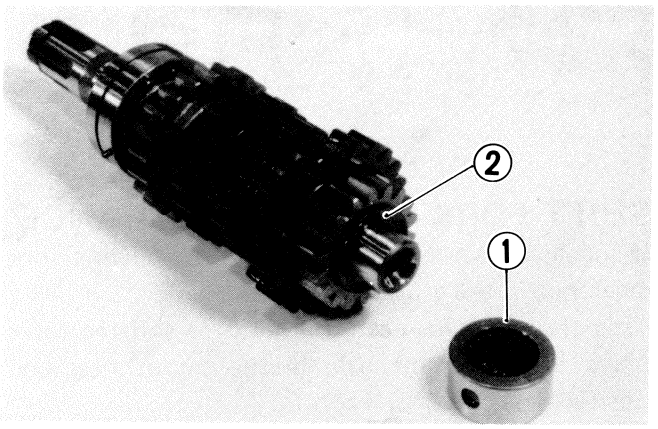
Standard	5.30 – 5.40 mm (0.209 – 0.213 in)



Checking thickness

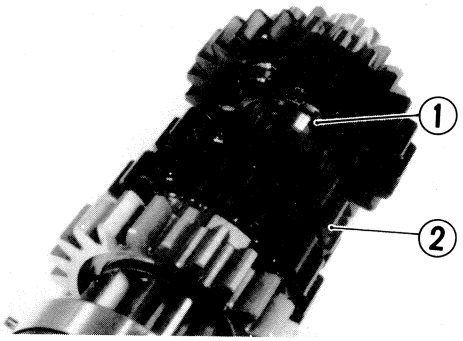
COUNTERSHAFT DISASSEMBLY

- Remove the left end bearing ① and oil seal ②.

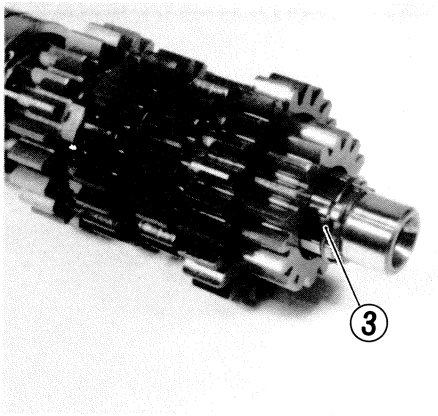


- Remove the 6th drive gear circlip ① from the groove and slide circlip toward the 3rd/4th drive gear ②.

09900-06104	Snap ring pliers

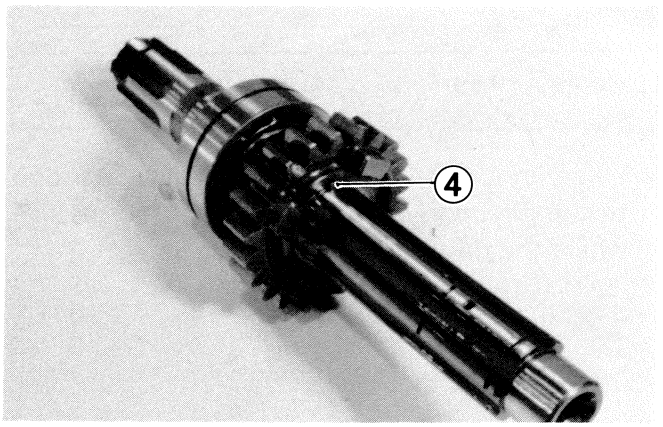


- Slide the 6th and 2nd drive gears toward the 3rd/4th drive gears and remove the 2nd drive gear circlip ③.



- After removing the 3rd/4th drive gear, remove the 5th drive gear circlip ④.

09900-06107	Snap ring pliers

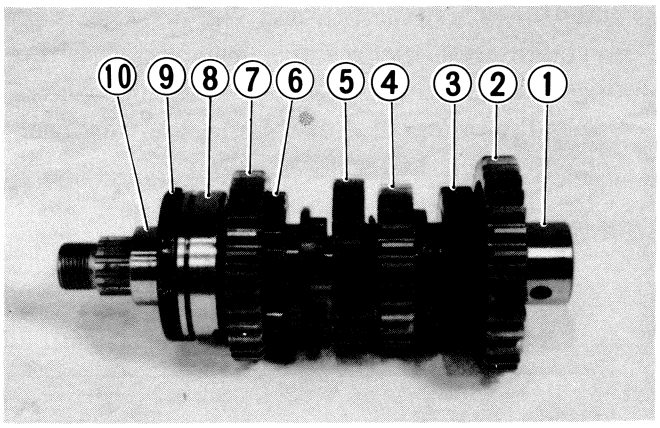


DRIVESHAFT DISASSEMBLY

- Each driven gear on the driveshaft is easily removed by using snap ring pliers.

09900-06107	Snap ring pliers

The order of disassembling is as follows:



① Right end bearing
② Low driven gear
③ 5th driven gear
④ 4th driven gear
⑤ 3rd driven gear
⑥ 6th driven gear
⑦ 2nd driven gear
⑧ Left end bearing
⑨ Oil seal
⑩ Spacer

COUNTERSHAFT AND DRIVESHAFT REASSEMBLY

Assemble the countershaft and driveshaft, in the reverse order of disassembly. Pay attention to following points.

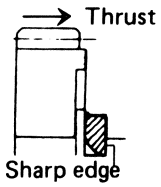
NOTE:
Always use new circlips.

NOTE:
Before installing gears, coat lightly moly paste or engine oil to the driveshaft and countershaft.

99000-25140	SUZUKI Moly paste

- When mounting a new circlip, pay attention to the direction of the circlip. Fit it to the side where the thrust is as shown in figure.

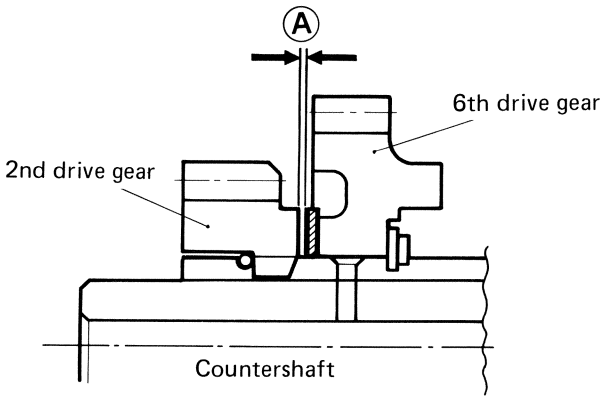
CAUTION:
* **Never reuse a circlip. After a circlip has been removed from a shaft, it should be discarded and a new circlip must be installed.**
* **When installing a new circlip, care must be taken not to expand the end gap large than required to slip the circlip over the shaft.**
* **After installing a circlip, always insure that it is completely seated in its groove and securely fitted.**



- When installing the 6th and 2nd drive gears on the countershaft, check the clearance Ⓐ with a thickness gauge as shown in the illustration. Select the proper size of shim so that the clearance between the shim and 2nd drive gear is 0.1 – 0.3 mm.

09900-20803	Thickness gauge

Thrust clearance	0.1 – 0.3 mm (0.004 – 0.012 in)

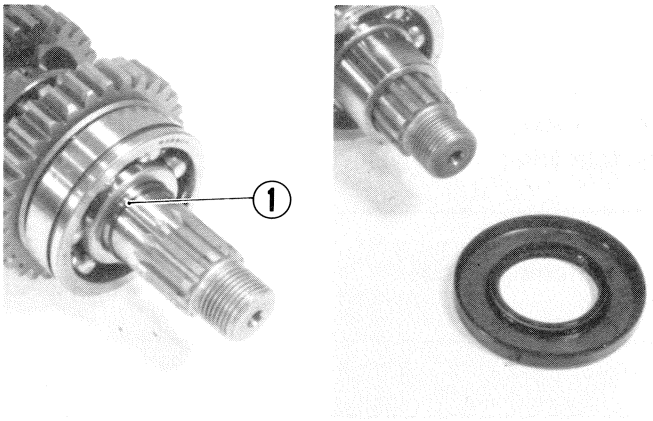


Shim selection table

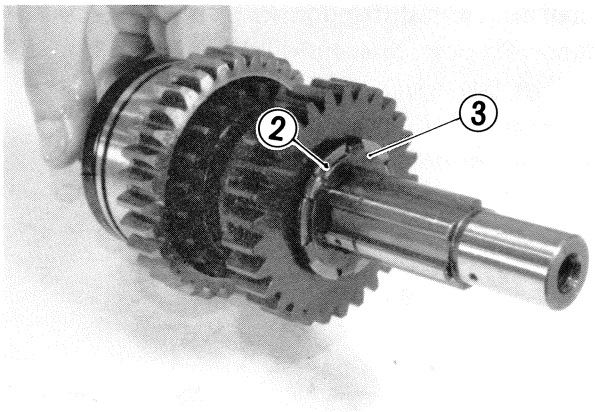
Part No.	Shim thickness
09181-25036	0.5 mm (0.019 in)
09181-25037	0.6 mm (0.023 in)
09181-25038	0.7 mm (0.027 in)
09181-25039	0.8 mm (0.031 in)

- Install the O-ring ① and spacer on the driveshaft.
- Apply grease to the oil seal lip and install the oil seal to the driveshaft.

99000-25030	SUZUKI Super grease "A"



- Insert the lock washer ② into the driveshaft, and turn it to fit it into the groove. Then fit the lock washer ③ in the lock washer ②.

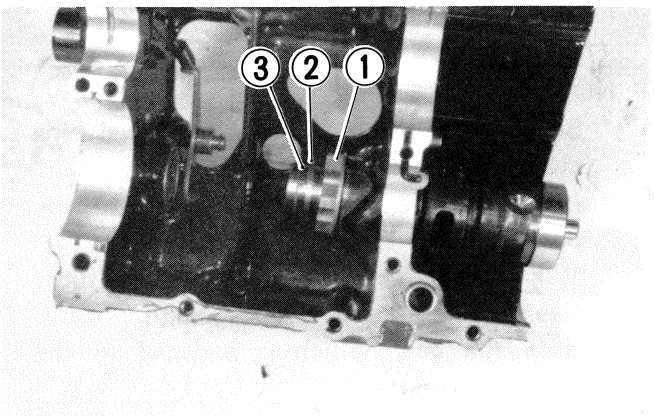


ENGINE REASSEMBLY

The engine is reassembled by carrying out the steps of disassembly in the reversed order, but there are a number of steps which demand special descriptions or precautionary measures.

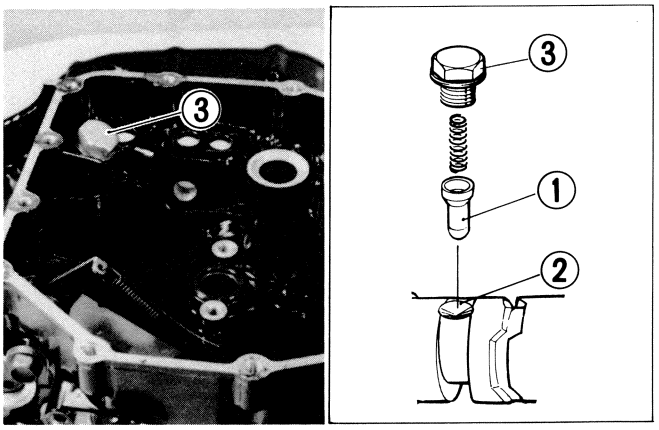
NOTE:
Apply engine oil to each running and sliding part before reinstalling.

- Install the gear shifting cam stopper ①, spacer ② and washer ③ on the gear shifting cam.

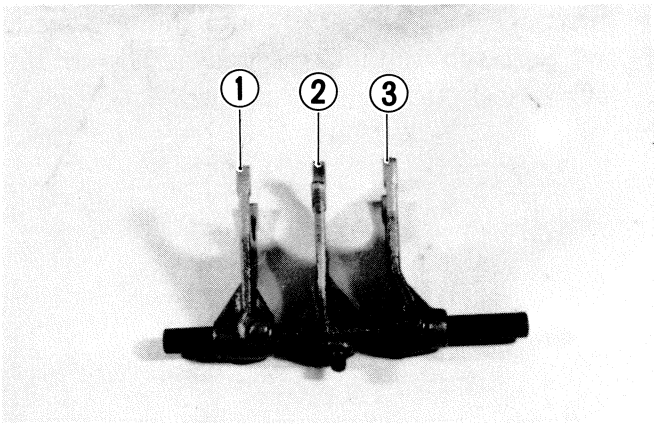


- Install the gear shifting cam with the dent for the neutral stopper directed downward, and meet the neutral stopper ① with this dent ②.
- Tighten the neutral stopper bolt ③ to the following torque value.

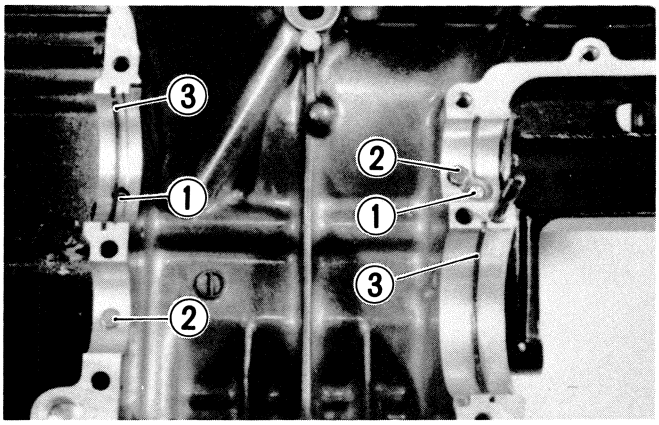
Tightening torque	18 – 28 N·m (1.8 – 2.8 kg-m 13.0 – 20.0 lb-ft)



- Install the gear shifting forks to the crankcase in the correct positions and directions.
  ① For 6th driven gear
  ② For 3rd/4th drive gears
  ③ For 5th driven gear

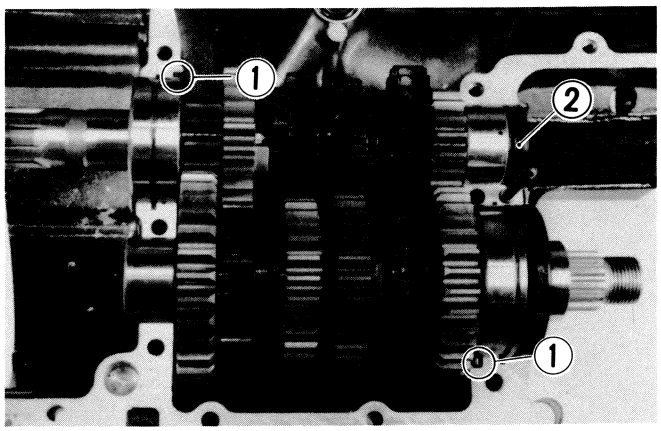


- Install the oil jets ①, bearing pins ② and C-rings ③ on the upper crankcase.

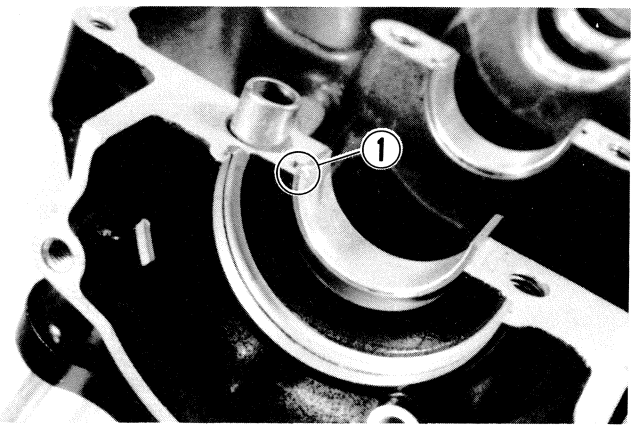


- Mount both the countershaft and driveshaft on the upper crankcase.

NOTE:
*** Be sure to install the bearing dowel pins ① in the respective positions.**
*** Install the countershaft end cap to the position ②.**
*** Make sure that the countershaft turns freely while holding the driveshaft. If not, shift the gear which is engaged to the neutral position.**

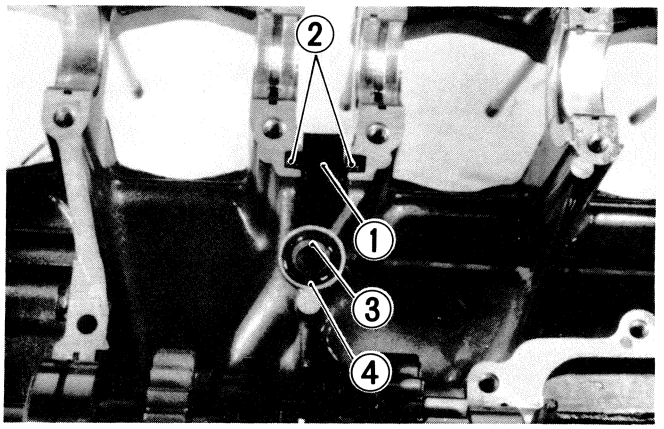


- When fitting the bearings to the upper and lower crankcases, be sure to fix the stopper part ① first and press the other end.
(Refer to page 3-49)

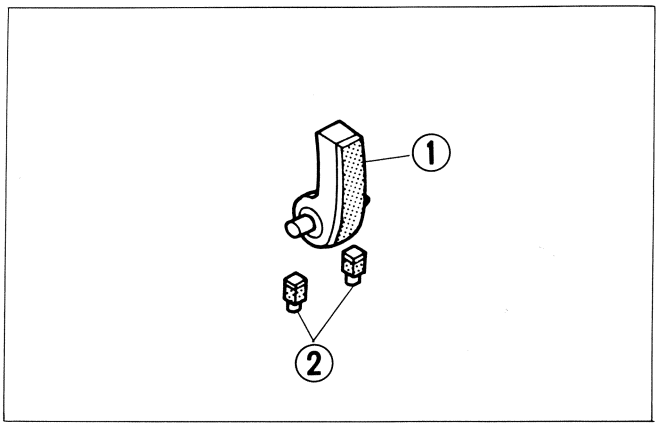


CAUTION:
Do not touch the bearing surfaces with your hands. Grasp by the edge of the bearing shell.

- Install the cam chain guide ① properly, and fix the two dampers ② so that iron side faces to the chain guide pin (inside).
- Locate the washer ③ and O-ring ④.



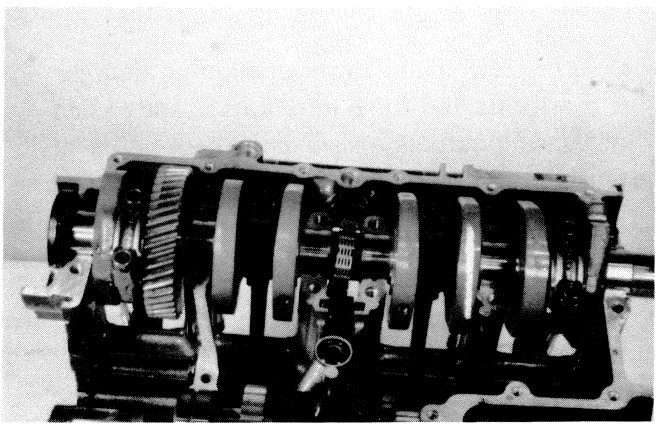
CAUTION:
Be sure to install a new O-ring.



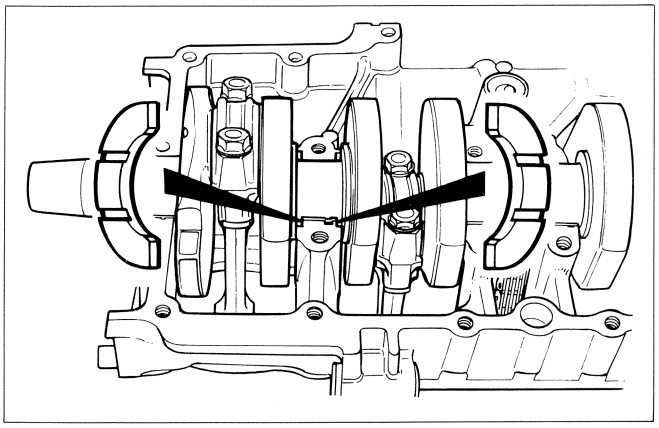
- Before mounting the crankshaft, apply SUZUKI Moly paste to each journal bearing lightly.
- Apply grease to the lip of the crankshaft oil seal.
- Mount the crankshaft with cam drive chain to the upper crankcase.

99000-25140	SUZUKI Moly Paste

99000-25030	SUZUKI Super grease "A"



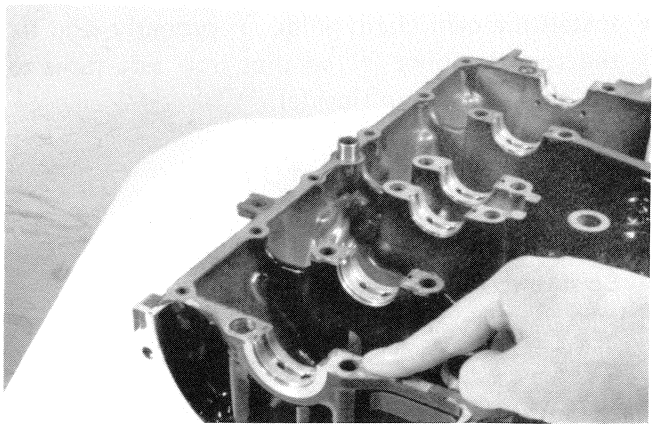
- Insert the right and left-thrust bearings with the oil grooved facing the crank web.



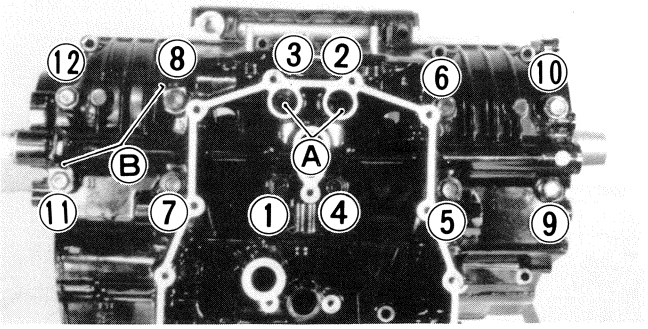
- Clean the mating surfaces of the crankcases before matching the upper and lower ones.
- Apply SUZUKI BOND NO. 1207B to the mating surface of the lower crankcase in the following procedure.
- Install the positioning pins to the upper crankcase.

99104-31140	SUZUKI Bond No. 1207B

NOTE:
Use of SUZUKI BOND NO. 1207B is as fol lows:
- *** Make surfaces free from moisture, oil, dust and other foreign materials.**
- *** Spread on surfaces thinly to form an even layer, and assemble the cases within few minutes.**
- *** Take extreme care not to apply any bond No. 1207B to the bearing surfaces.**
- *** Apply to distorted surface as it forms a comparatively thick film.**



- Locate the two allen bolts at position Ⓐ and ten 8 mm bolts.



- When securing the lower crankcase, tighten the 8 mm bolts and the 6 mm bolts in the ascending order of numbers assigned to these bolts, tightening each bolt a little at a time to equalize the pressure. Tighten all the securing bolts to the specified torque values.

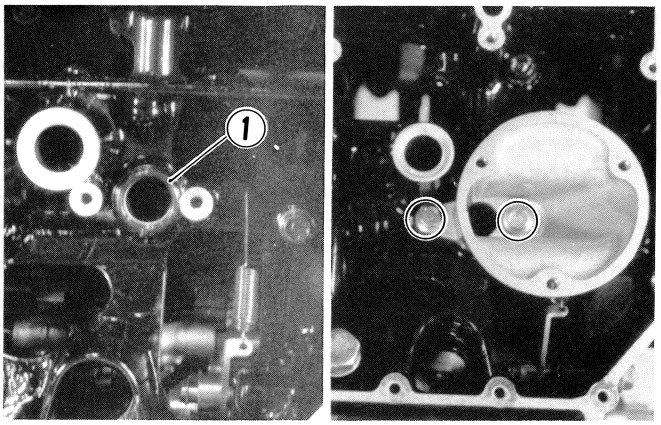
09914-25811	6 mm T-type hexagon wrench

Tightening torque	Initial tightening		Final tightening	
	kg-m	lb-ft	kg-m	lb-ft
6 mm bolt	0.6	4.5	1.3	9.5
8 mm bolt	1.3	9.5	2.4	17.5

NOTE:
Install the two clamps for signal generator lead as shown Ⓑ .

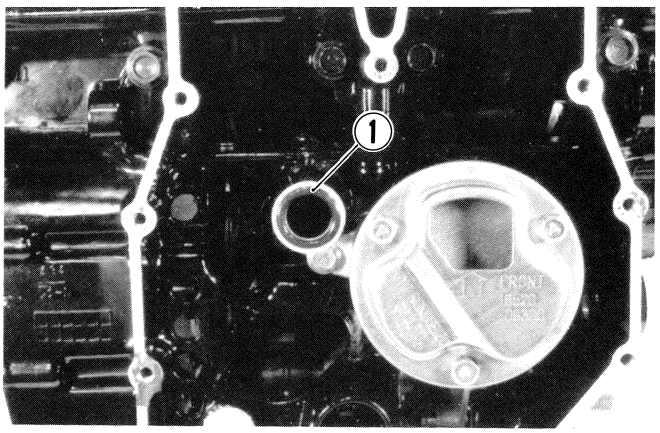
- Locate the O-ring ① and install the oil guide with two bolts.

CAUTION:
Always use new O-ring.



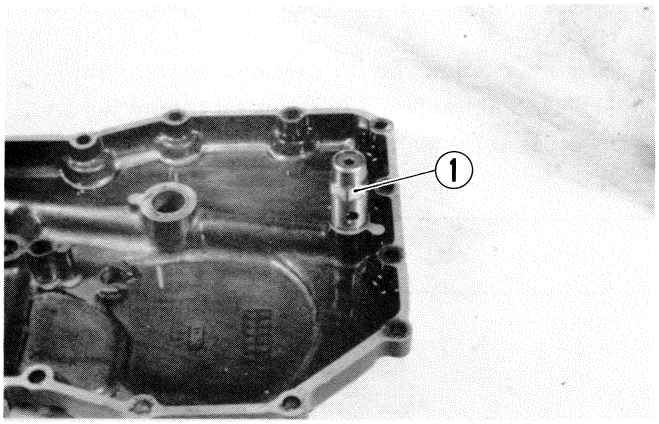
- Install the oil sump filter to face the oil inlet to the front.
- Locate the O-ring ①.

CAUTION:
Always use new O-ring.



- Seat the washer and install the oil pressure regulator ① to the oil pan.
  Tighten the regulator to the specified torque.

Tightening torque	25 – 30 N·m (2.5 – 3.0 kg-m) (18.0 – 21.5 lb-ft)

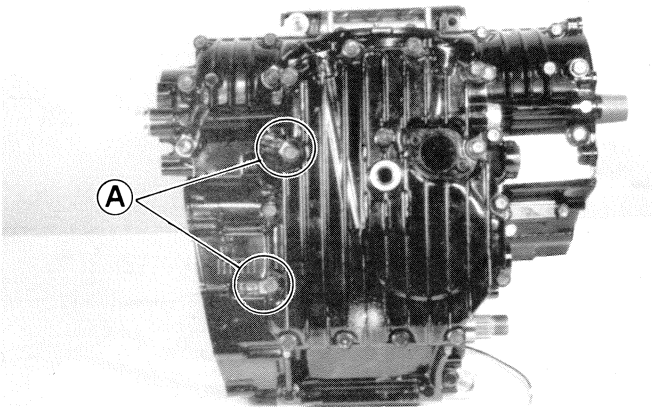


- Install the new gasket and tighten oil pan bolts to the specified torque.

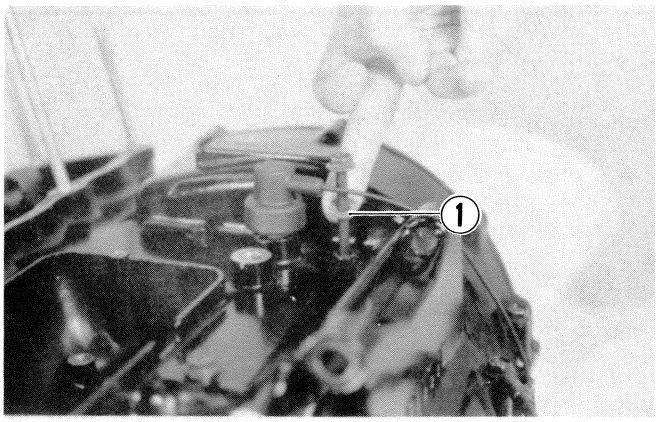
Tightening torque	12 – 16 N·m (1.2 – 1.6 kg-m) (8.5 – 11.5 lb-ft)

- Tighten the engine oil drain plug.

NOTE:
Install the two clamps for signal generator lead as shown Ⓐ.

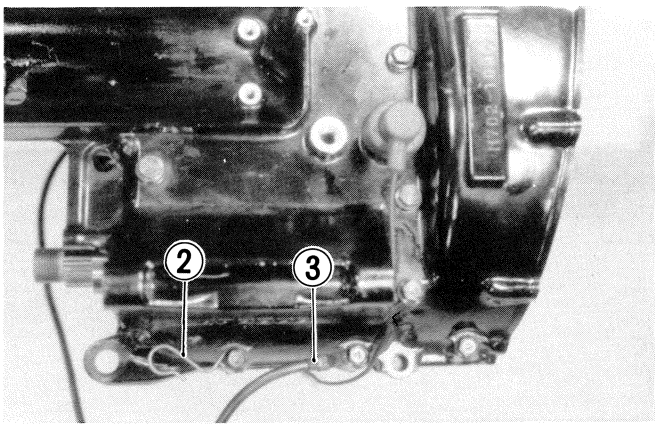


- Fit up the gasket ①, clamp ② and engine ground wire ③ to the upper crankcase bolts correctly as shown in Fig.



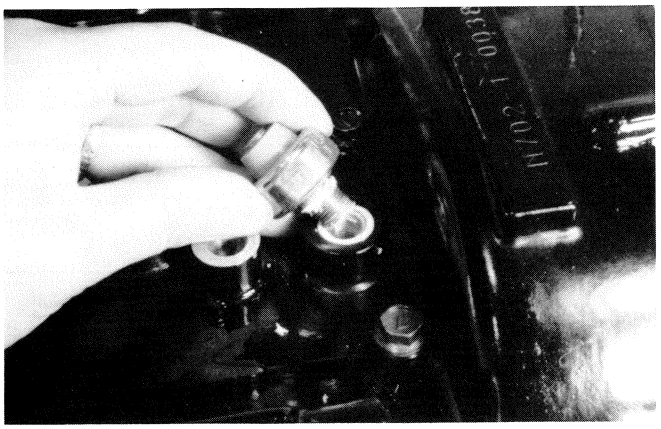
CAUTION:
Use only new gasket to prevent oil leakage.

- Tighten the upper crankcase bolts to the specified torque values.



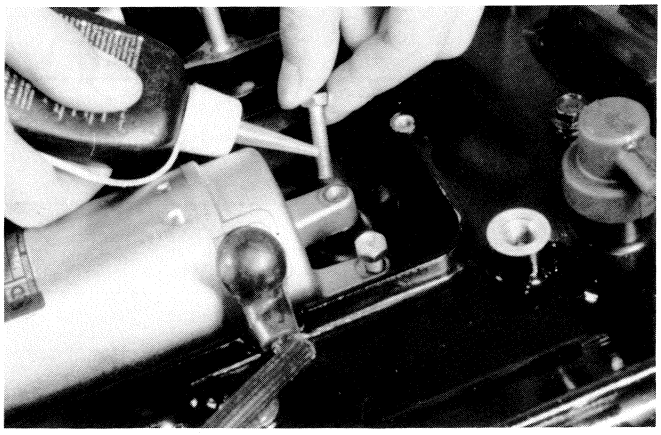
Tightening torque	kg-m	lb-ft
6 mm bolt	1.3	9.5
8 mm bolt	2.4	17.5

NOTE:
When replacing the oil pressure switch, apply SUZUKI Bond No. 1207B to its thread lightly to prevent oil leakage.



99104-31140	SUZUKI Bond No.1207B

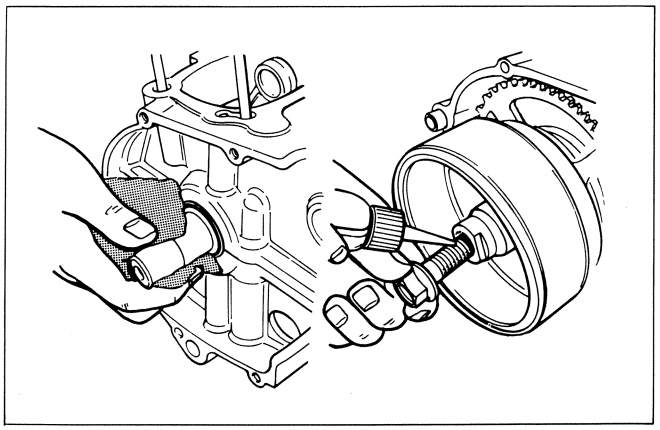
- Mount the starter motor with the two bolts.



NOTE:
Apply a small quantity of THREAD LOCK "1363C" to the two bolts.

99104-32050	Thread lock "1363C"

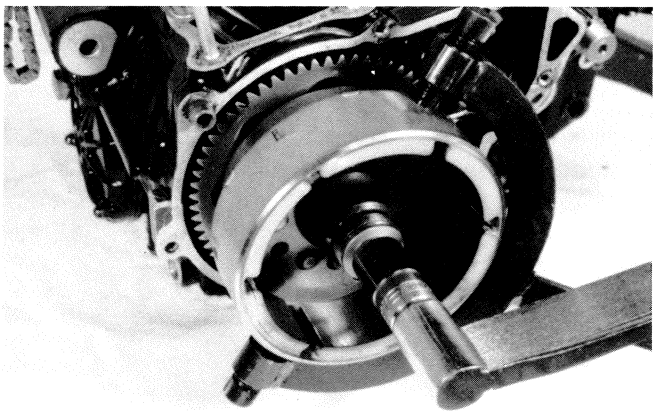
- Degrease the tapered portion of the rotor and also the crankshaft. Use nonflammable cleaning solvent to wipe off the oily or greasy matter to make these surfaces completely dry.



NOTE:
Apply a small quantity of THREAD LOCK SUPER "1363A" to the rotor bolt.

99104-32030	Thread lock super "1363A"

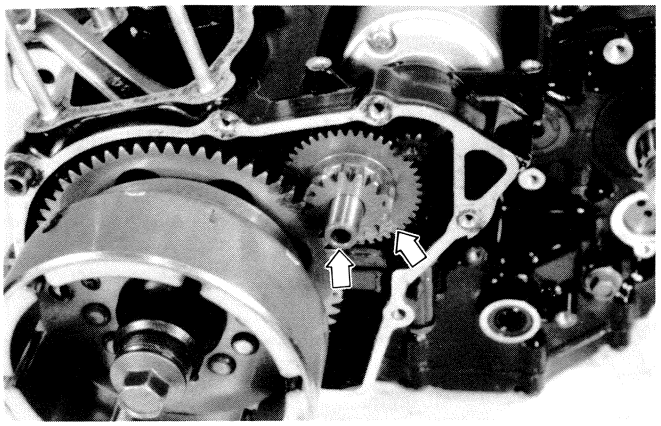
- After mounting the rotor, secure the rotor by tightening the rotor bolt to the specified torque value.



Tightening torque	140 – 160 N·m (14.0 – 16.0 kg-m 101.5 – 115.5 lb-ft)

09930-44911	Rotor holder

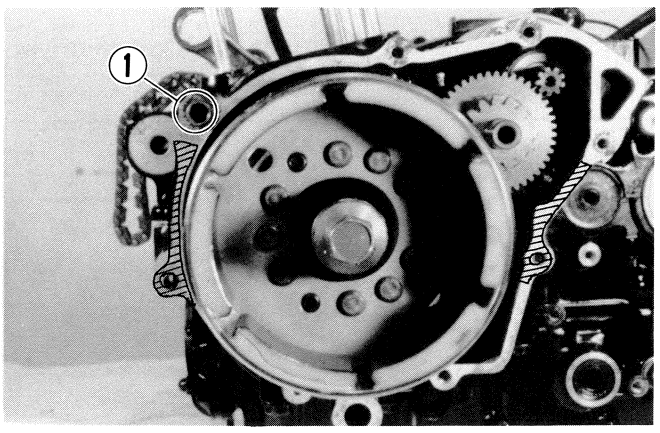
- Install the starter idle gear and its shaft.



- Coat SUZUKI Bond No. 1207B lightly to the portion around mating surface between upper and lower crankcase as shown.

99104-31140	SUZUKI Bond No. 1207B

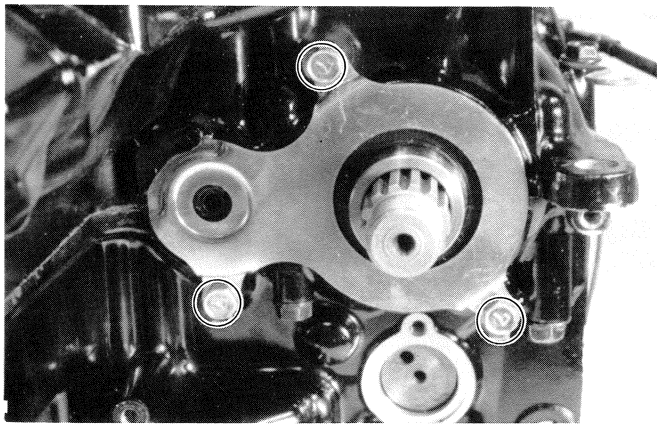
- Pass the generator stator lead wire through gasket and upper crankcase. Route its lead wire properly.



- Install the positioning pin ①, a new gasket and generator cover, and tighten the cover bolts securely.

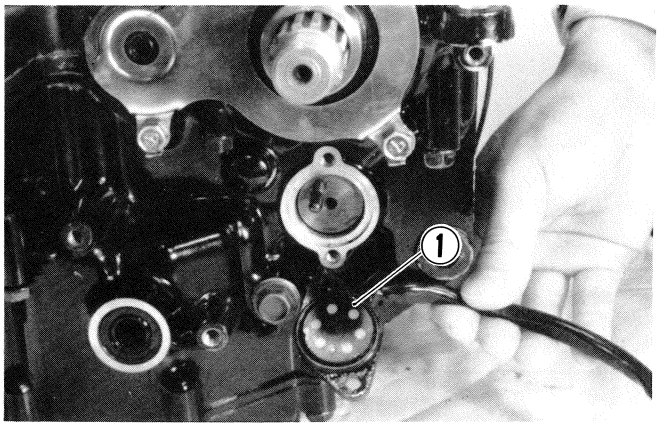
CAUTION:
Always use new gasket to prevent oil leakage.

- Install the oil seal retainer with three bolts and positively bend the lock portion of the retainer.



- Install the gear position indicator switch ①.

NOTE:
When installing the gear position indicator switch, be sure to locate spring, switch contact and O-ring.

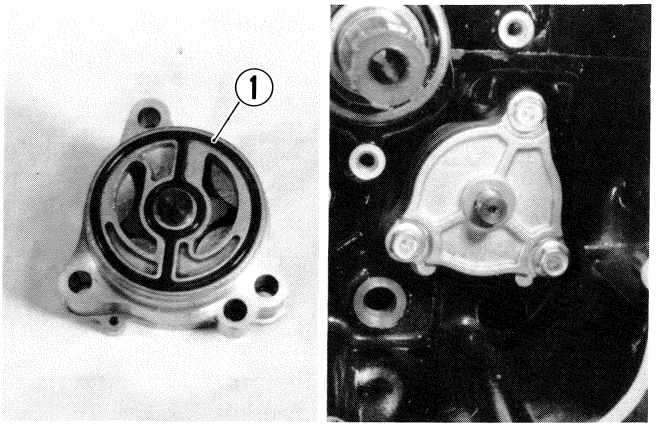


- Install the oil pump assembly insuring that a new O-ring ① is installed.

NOTE:
Apply a small quantity of THREAD LOCK "1363C" to the bolts.

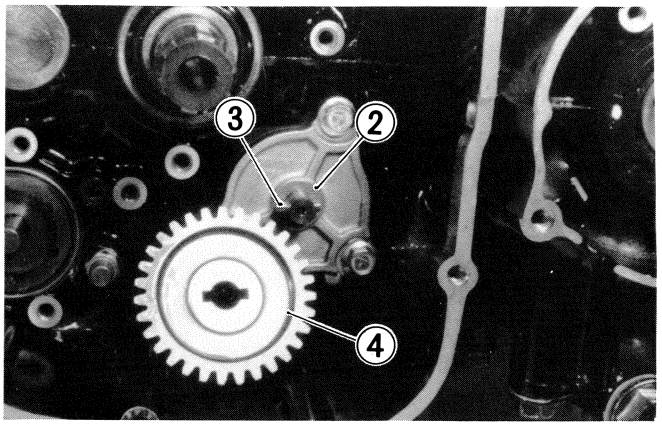
99104-32050	Thread Lock "1363C"

Tightening torque	7 – 9 N·m (0.7 – 0.9 kg-m 5.0 – 6.5 lb-ft)



- Install the washer ②, driven pin ③ and driven gear ④ by using snap ring pliers.

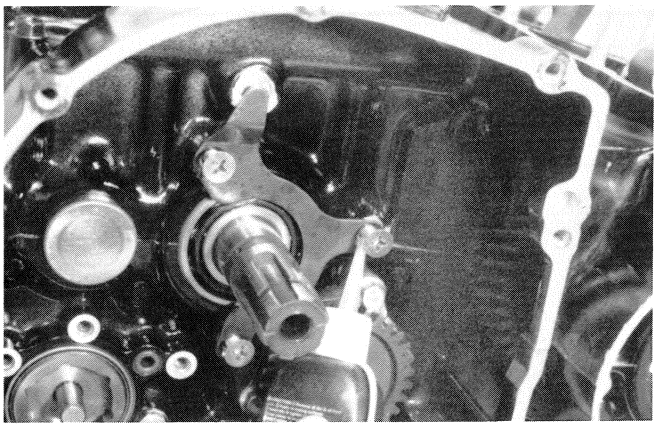
09900-06107	Snap ring pliers



- Install the countershaft bearing retainer with three screws.

NOTE:
Apply a small quantity of THREAD LOCK SUPER "1363C" to the three screws.

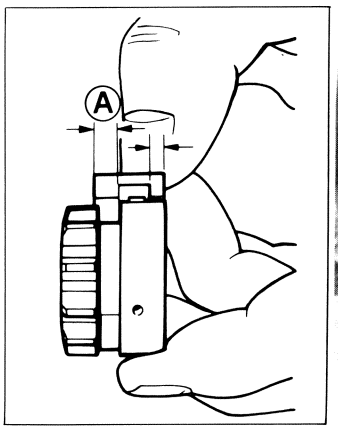
99104-32050	Thread lock "1363C"

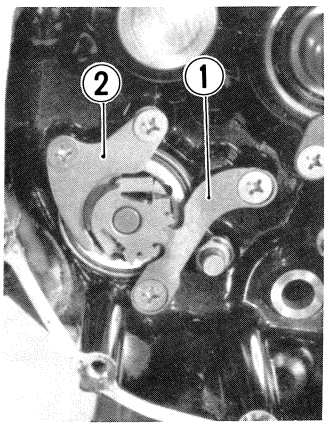


- Install each gear shifting pawl into the cam driven gear. The large shoulder Ⓐ must face to the outside as shown.
- Next, install the cam guide ① and pawl lifter ②. Apply a small quantity of THREAD LOCK "1363C" to the screws.

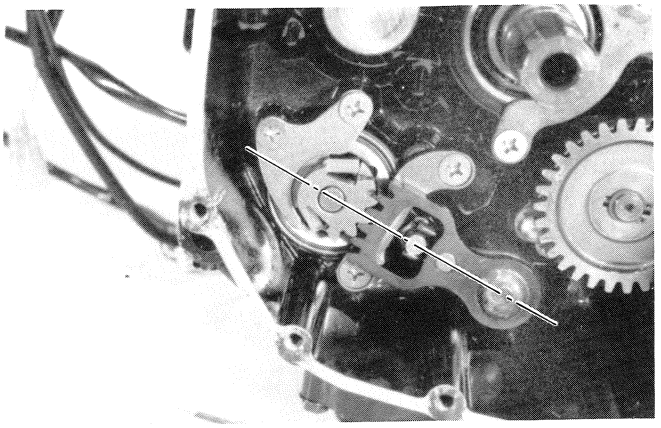
99104-32050	Thread lock "1363C"

09900-09003	Impact driver set

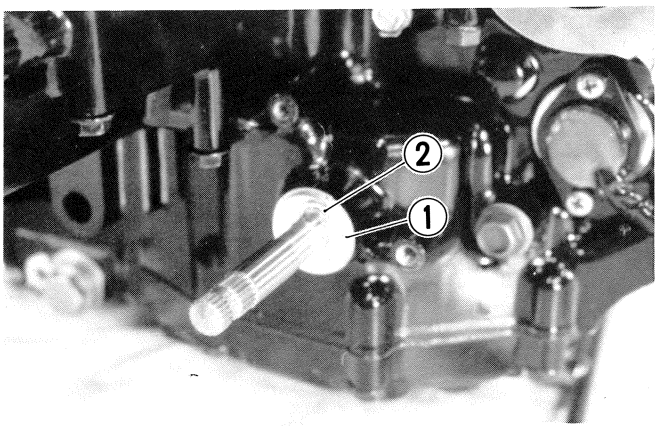




- Install the gearshift shaft with the center of the gear on shaft side aligned the center of gearshift cam driven gear.

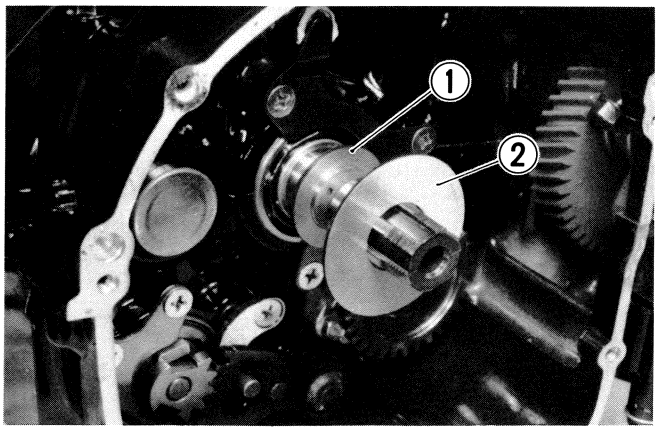


- Install the washer ① and clip ② and fix the gearshift shaft.



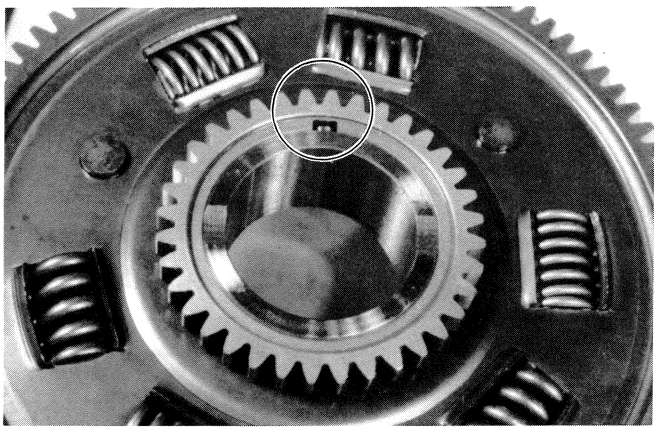
- Install the thrust washers ① and ② on the countershaft.

NOTE:
Flat surface of washer ② is positioned outside.



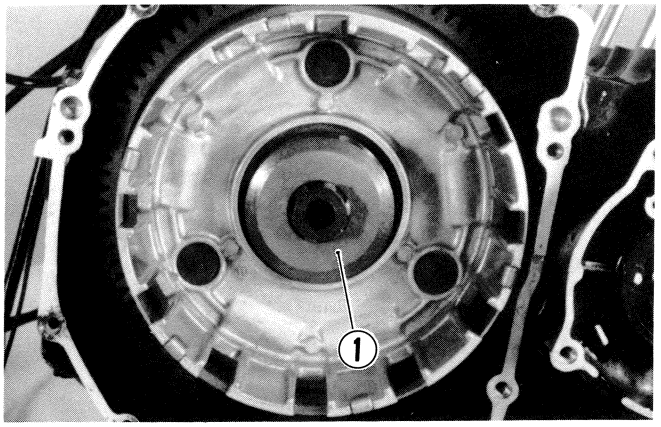
- Install the oil pump drive gear on the primary driven gear.

NOTE:
Align the knock-pin of primary driven gear with groove of oil pump drive gear.

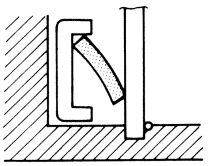


- Install the primary driven gear assembly on the countershaft, and apply engine oil to the needle bearing and spacer.
- Install the spacer so that the screw hole faces outside.
- Install the thrust washer ①.

NOTE:
Flat surface of washer ① is positioned inside.



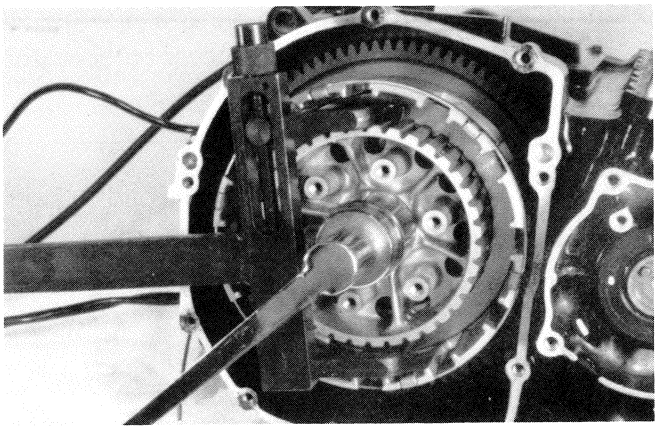
- Before installing the clutch sleeve hub, check to be sure that the piano wire, wave washer and driven plate are properly installed.



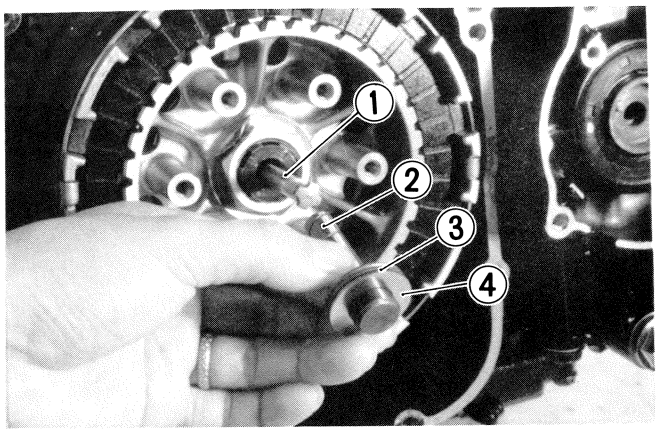
- After tightening the clutch sleeve hub nut, be sure to lock the nut by firmly bending the tongue of the washer. Tightening torque for the nut is specified.

Clutch sleeve hub nut tightening torque:	50 – 70 N·m (5.0 – 7.0 kg-m 36.0 – 50.5 lb-ft)

09920-53710	Clutch sleeve hub holder



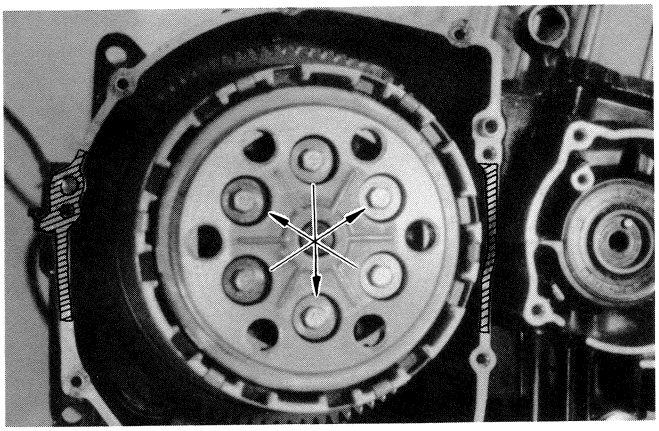
- Insert clutch driven plate and drive plate one by one into sleeve hub in the prescribed order, cork plate first. Insert the clutch push rod ①, clutch push piece ②, bearing ③ and thrust washer ④ in the countershaft. Then fit pressure plate into sleeve hub.



- Tighten the clutch spring bolts in the order shown in the photo.

NOTE:
Tighten the clutch spring set bolts in the manner indicated, tightening them by degrees until they attain a uniform tightness.

Clutch spring bolt tightening torque:	11 – 13 N·m (1.1 – 1.3 kg-m 8.5 – 9.5 lb-ft)



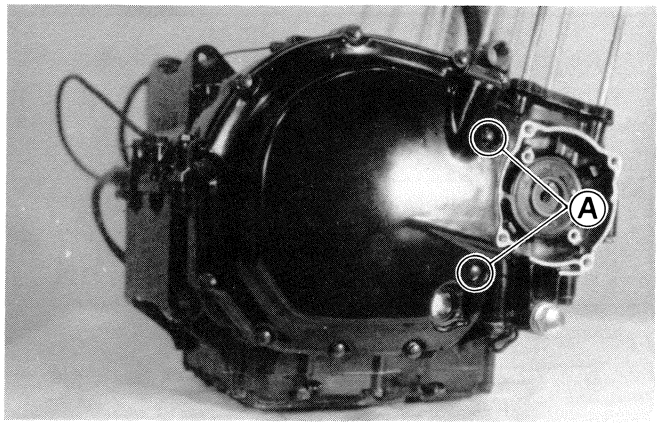
- Coat SUZUKI Bond No. 1207B lightly to the portion around mating surface between crankcases as shown.

99104-31140	SUZUKI Bond No. 1207B

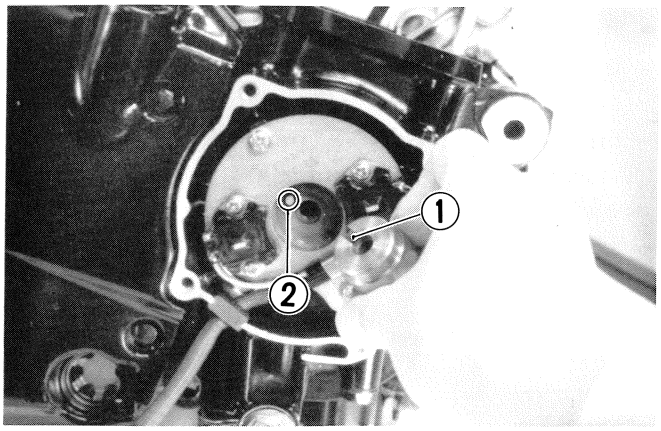
- Install the two positioning pins, a new gasket and clutch cover, and tighten cover bolts securely.

NOTE:
Fit up the gasket to the clutch cover bolts Ⓐ correctly as shown in Fig.

CAUTION:
Use only new gasket to prevent oil leakage.



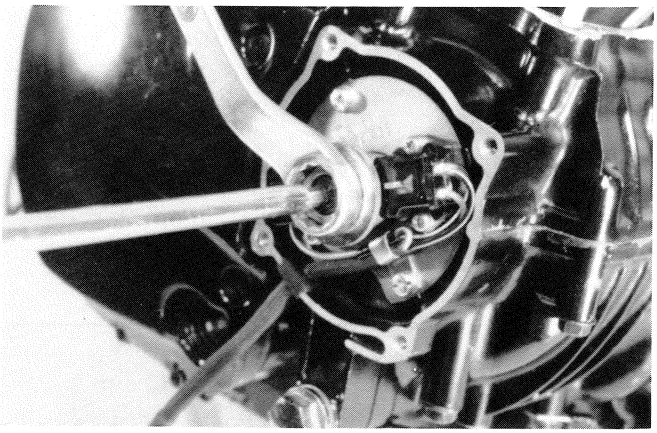
- Install the signal generator stator with two screws.
- Make sure to fit the slot ① on the back surface of the signal generator rotor over the locating pin ② at the end of crankshaft.



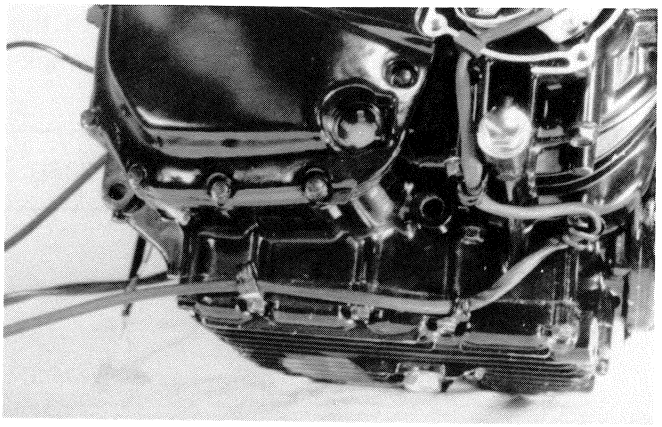
- Hold the crankshaft turning nut and tighten the rotor bolt with specified torque using 6-mm hexagon wrench.

09914-25811	6 mm "T" type hexagon wrench

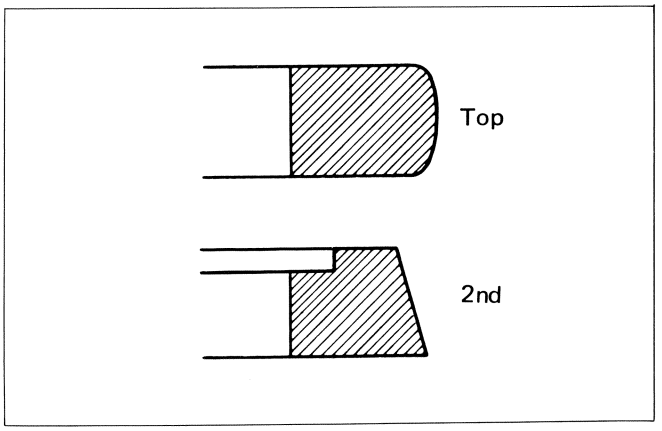
Tightening torque	25 – 35 N·m (2.5 – 3.5 kg-m 18.0 – 25.5 lb-ft)



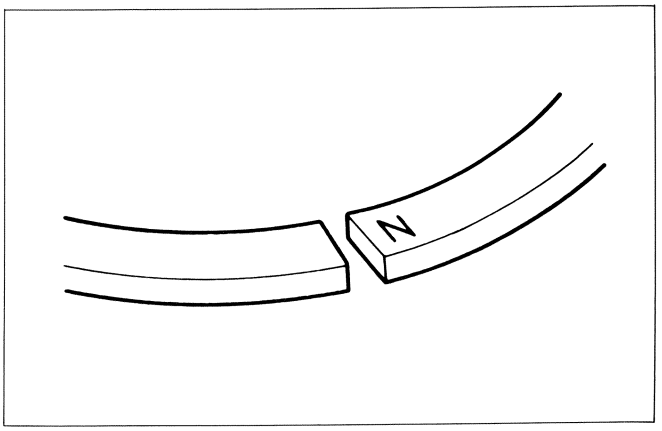
- Route the signal generator lead wire as shown in Fig.



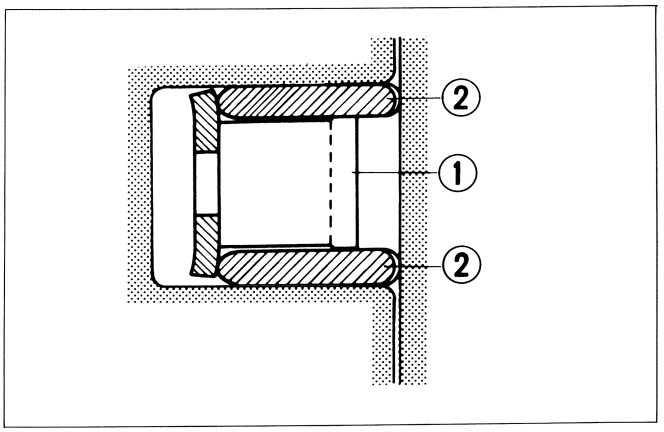
- Mount the piston rings in the order of oil ring, 2nd ring and top ring.
- Top ring and 2nd (middle) ring differ in the shape of ring face, and the face of top ring is chrome-plated whereas that of 2nd ring is not.



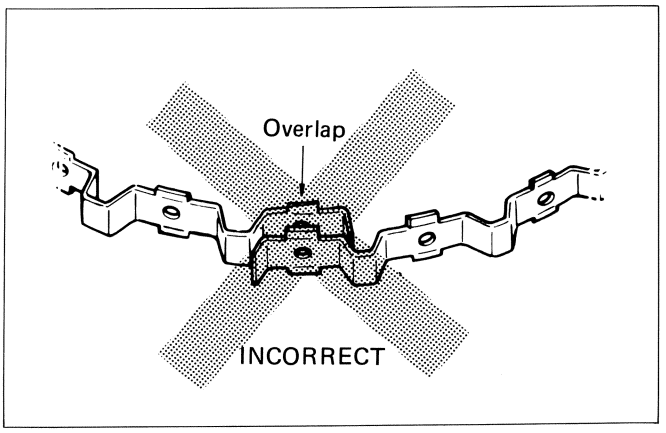
- Top and 2nd (middle) rings have letter "N" marked on the side. Be sure to bring the marked side to top when fitting them to the piston.



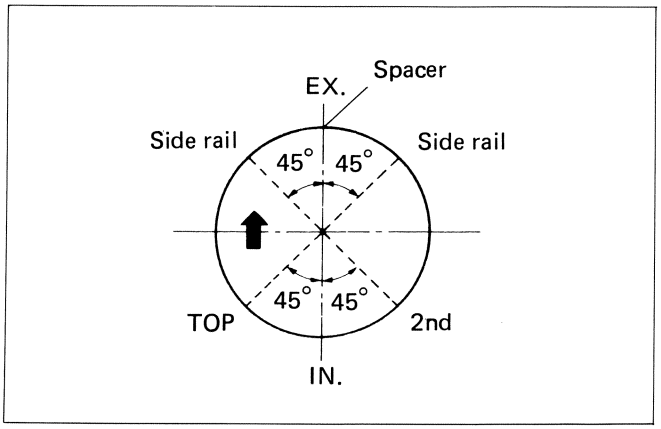
- The first member to go into the oil ring groove is spacer ①. After placing spacer, fit the two side rails ②. Side designations, top and bottom, are not applied to the spacer and side rails: you can position each either way.



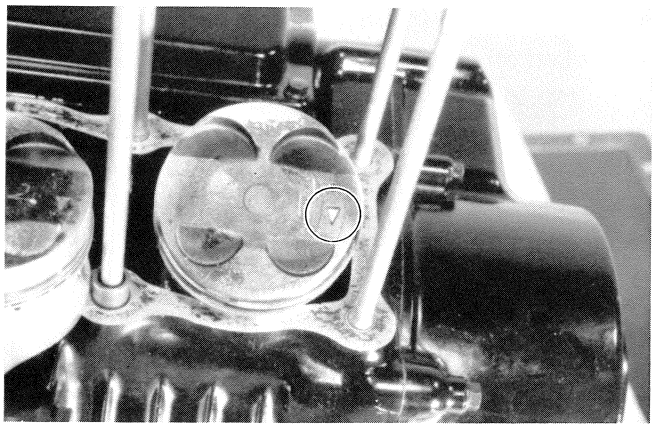
CAUTION:
When installing the spacer, be careful not to allow its two ends to overlap in the groove.

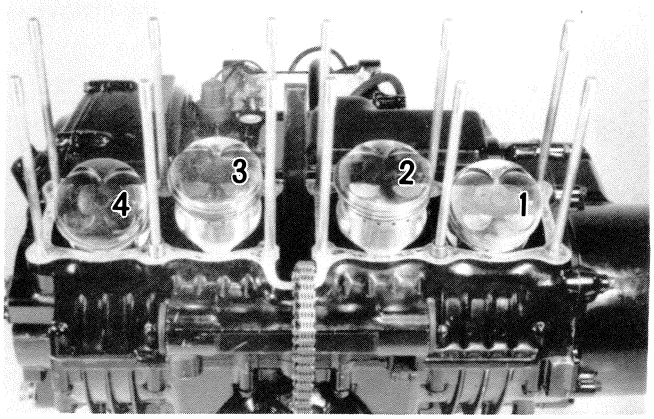


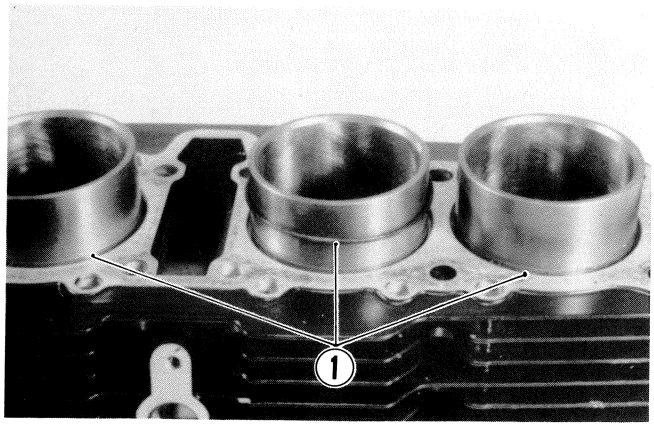
- Position the gaps of the three rings as shown. Before inserting each piston into the cylinder, check that the gaps are so located.

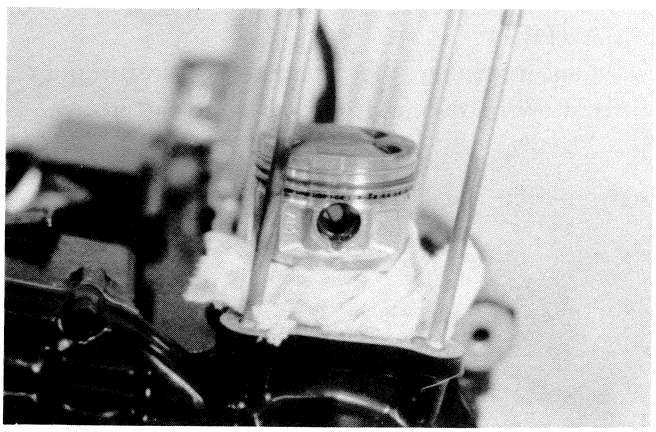


- The piston is in correct position when its arrow (on the crown) points forward.
- Be sure to install the pistons in the cylinder from which they were taken out in disassembly, refer to the letter mark, "1" through "4", scribed on the piston.
- Have each piston pin oiled lightly before installing it.
- Place a cloth beneath the piston, and install the circlips.
- Be sure to use new circlips.
- Before putting on the cylinder block, oil the big and small ends of each conrod and also the sliding surface of each piston. Check to be sure that the four "O" rings ① for each cylinder are accurately positioned in the groove.
- Place the positioning pins and new cylinder gasket on the crankcase.

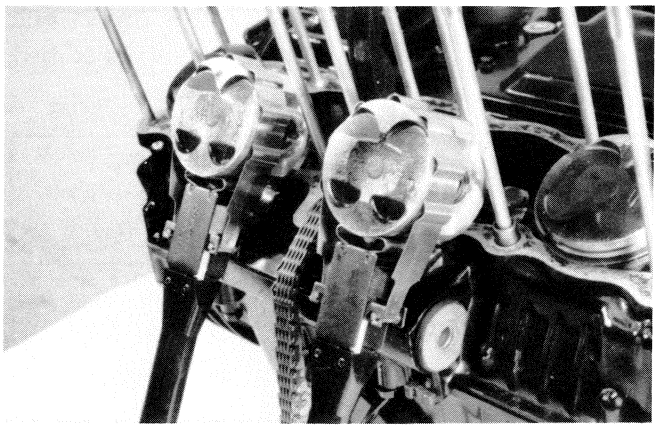






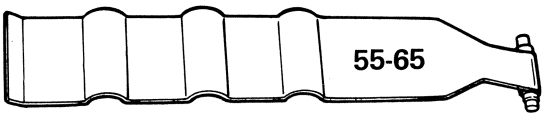


- Install piston ring holders in the indicated manner. Some light resistance must be overcome to lower the cylinder block.
- With No. 2 and No. 3 pistons in place, install No. 1 and No. 4 pistons, and insert them into the cylinder.



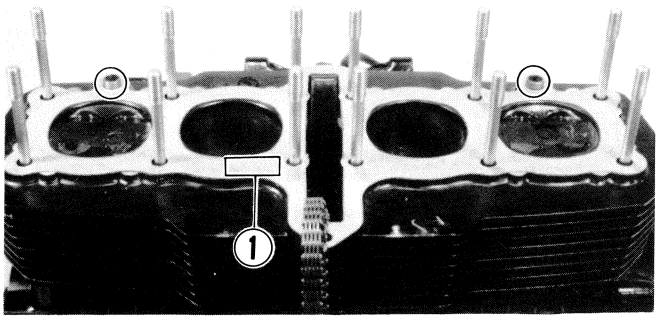
09916-74521	Holder body
09916-74530	Band (bore 55 – 65 mm)

NOTE:
* **Do not overtighten the special tool bands or the cylinders will resist to admit the pistons.**
* **Each band has a number punchmarked on it. The number refers to a particular range of piston sizes.**



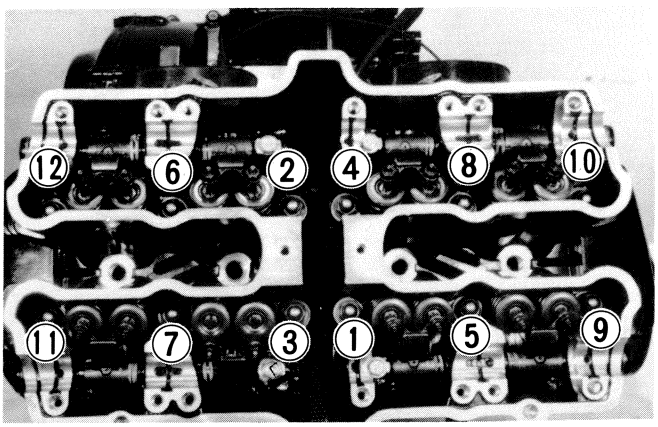
- Be sure to replace the cylinder head gasket with new one to prevent gas leakage.

NOTE:
Be sure to identify the top surface by "HEAD" mark ① of the cylinder head gasket as shown.



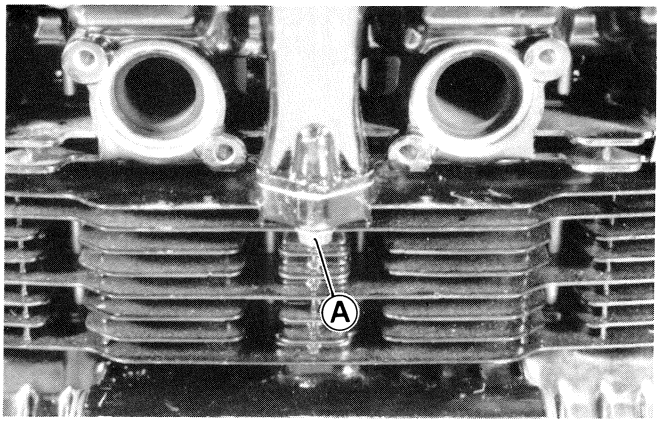
- Place the two positioning pins on the cylinder.
- Tighten the twelve 10 mm nuts to specification with a torque wrench sequentially in the ascending order of numbers.

Cylinder head nut tightening torque	23 – 28 N·m (2.3 – 2.8 kg-m 16.5 – 20.0 lb-ft)

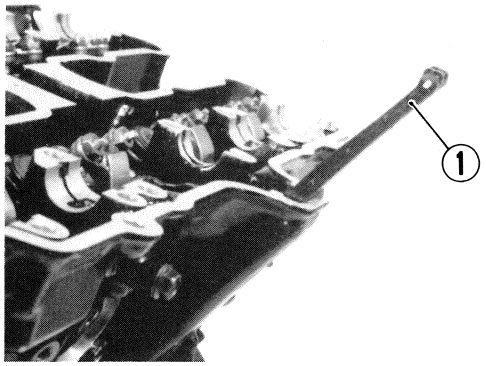


- After firmly tightening the 12-nuts, insert one 6 mm bolt Ⓐ and tighten it with specified torque.

Tightening torque	7 – 11 N·m (0.7 – 1.1 kg-m) 5.0 – 8.0 lb-ft

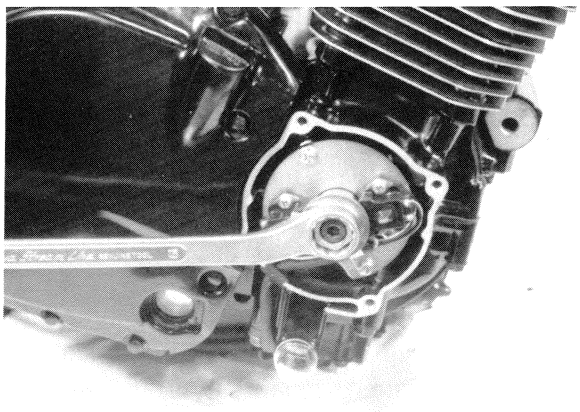


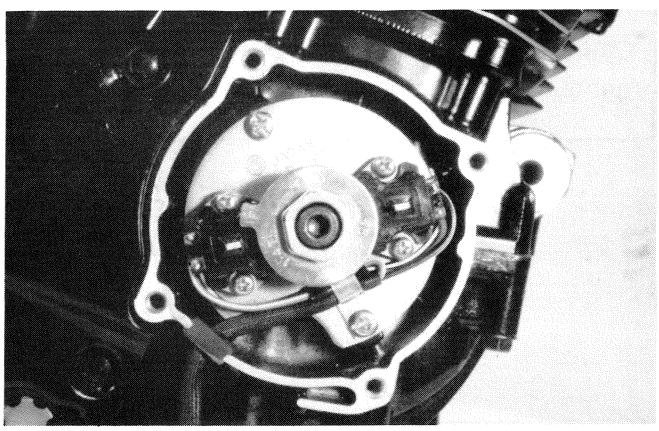
- Place the chain guide ① properly.



- While holding down the timing chain, rotate the crankshaft in normal direction to bring the "T" mark on the rotor to the center of left pick up coil.

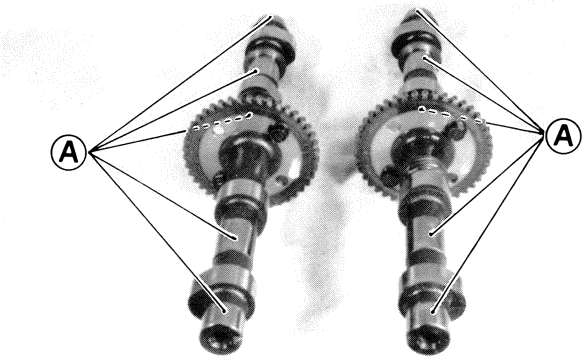
CAUTION:
To turn over crankshaft, torque nut with a 19 mm wrench. Never try to rotate crankshaft by putting a 6 mm T-type wrench to bolt.



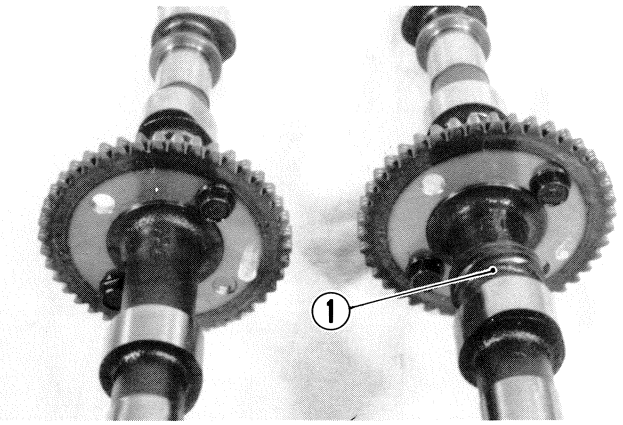


NOTE:
Just before placing the camshaft on the cylinder head, apply SUZUKI Moly paste to its journals, fully coating each journal Ⓐ with the paste taking care not to leave any dry spot. Apply engine oil to the journal bearings.

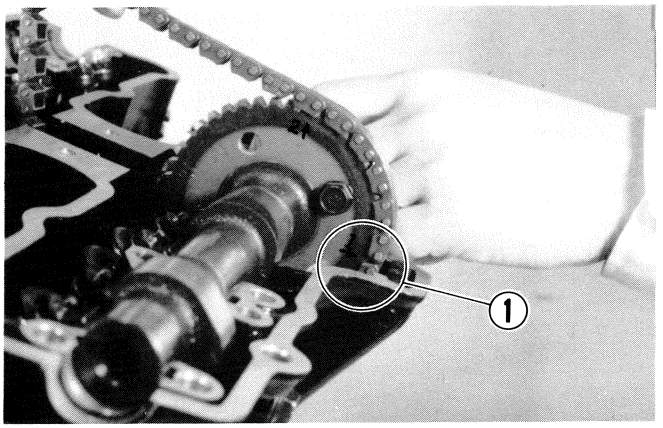
09900-25140	Suzuki Moly Paste



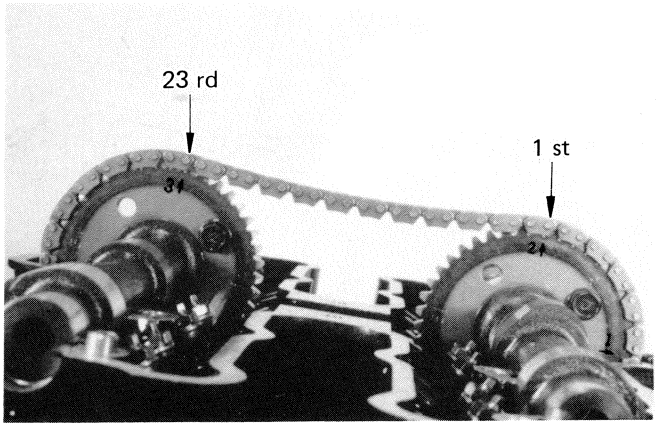
- The exhaust camshaft can be distinguished from that of the intake by the tachometer drive gear ① (for exhaust). Similarly, the right end can be distinguished by the notch ② at the right end.



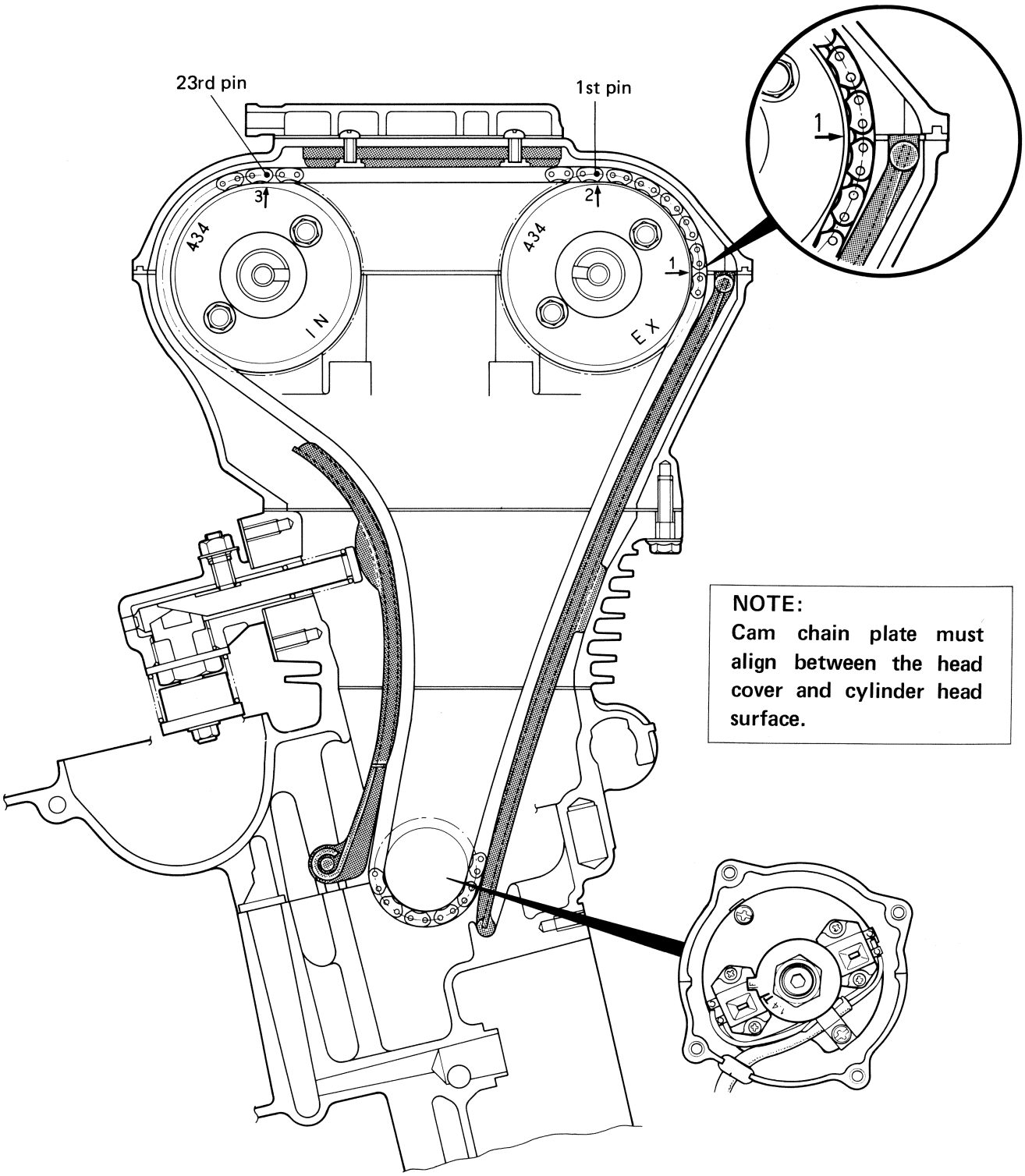
- With "T" mark accurately lined up with the timing mark, hold the crankshaft steady and lightly pull up the chain to remove the slack between the crank sprocket and exhaust sprocket.
- Exhaust sprocket bears an arrow marked "1" indicated as ①. Turn over the exhaust camshaft so that the arrow points flush with the gasketed surface of the cylinder head. Engage the timing chain with this sprocket.



- The other arrow marked "2" is now pointing straight upward. Count the chain roller pins toward the intake camshaft, starting from the roller pin directly above this arrow marked "2" and ending with the 23rd roller pin. Engage the chain with intake sprocket, locating the 23rd pin at and above the arrow marked "3" on the intake sprocket.

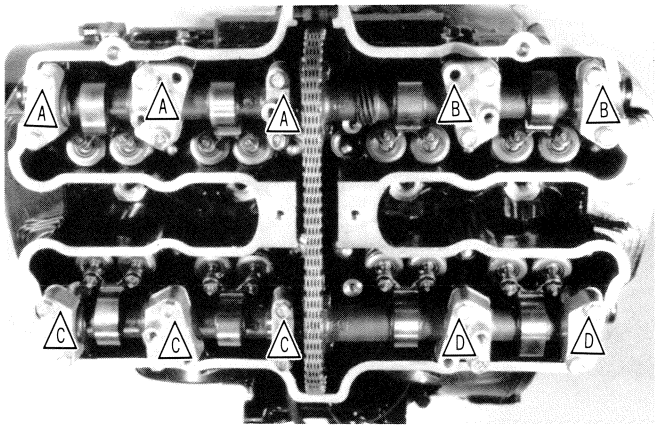


NOTE:
The timing chain is now riding on all three sprockets. Be careful not to disturb the crankshaft until the ten holders and chain tensioner adjuster are secured.



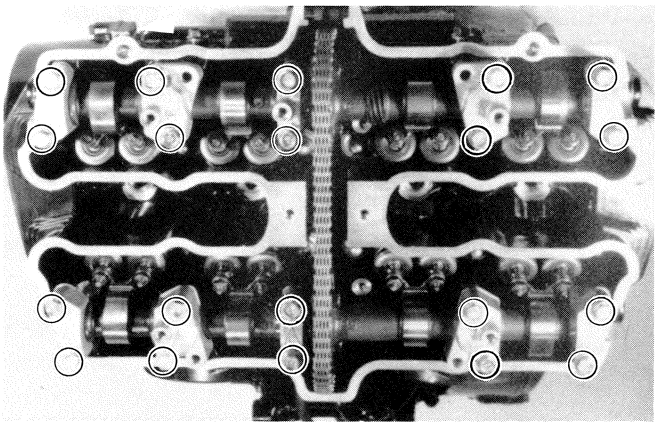
NOTE:
Cam chain plate must align between the head cover and cylinder head surface.

- Each camshaft holder is identified with a cast-on letter with a triangle. A matching cast-on symbol appears on the head. Install each holder at it's matching letter, with triangle symbols pointing forward.
- Secure the ten camshaft journal holders evenly by tightening the camshaft journal holder bolts sequentially. Try to equalize the pressure by moving the wrench diagonally from one bolt to another and from one camshaft journal holder to another, to push shafts down evenly.



NOTE:
Damage to head or cam journal holder thrust surfaces may result if the cam journal holders are not drawn down evenly.

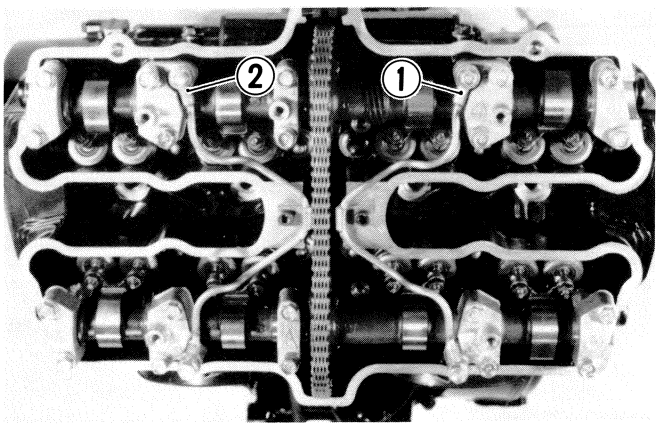
- Tighten the camshaft journal holder bolts to the following torque value:



CAUTION:
The camshaft journal holder bolts are made of a special material and much superior in strength campared with other type of high strength bolts.
Take special care not to use other types of bolts instead of these special bolts. To identify these bolts, each of them has a figure "9" on its head.

Camshaft journal holder bolt tightening torque	8 – 12 N·m (0.8 – 1.2 kg-m) (6.0 – 8.5 lb-ft)

- Place the oil pipes on the holders, and tighten the union bolts and allen bolts to the specified torque.

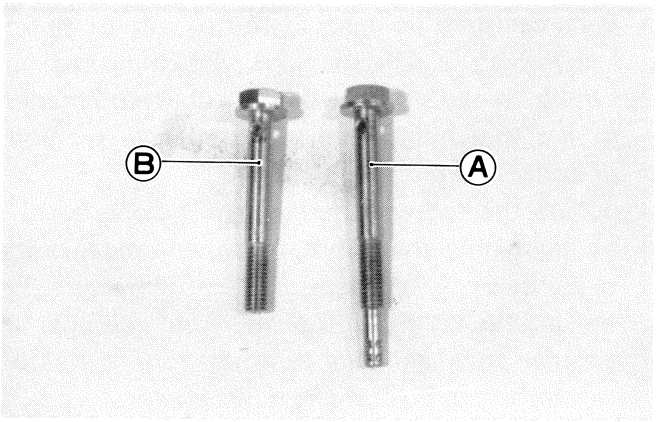


NOTE:
Right and left oil pipes differ in the color of oil pipe end face. Right side oil pipe is yellow surface finishing ①, and left side oil pipe is white surface finishing ②.

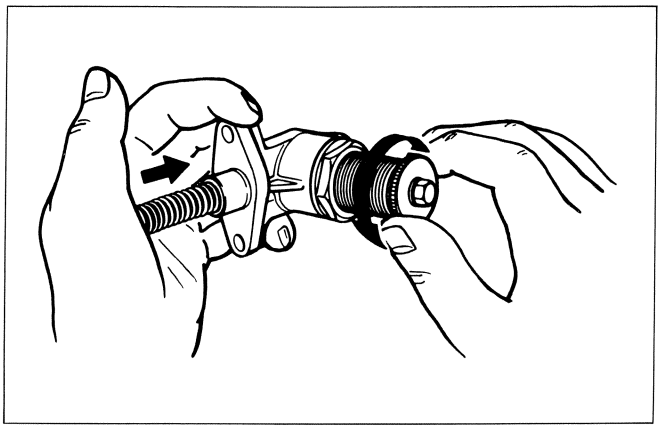
Union bolt tightening torque	8 – 12 N·m (0.8 – 1.2 kg-m) (6.0 – 8.5 lb-ft)
Allen bolt tightening torque	10 – 14 N·m (1.0 – 1.4 kg-m) (7.0 – 10.0 lb-ft)

09911-73730	5 mm "T" type hexagon wrench

NOTE:
Two kinds of union bolts are used. Ⓐ bolt is intake side, and Ⓑ bolt is exhaust side.

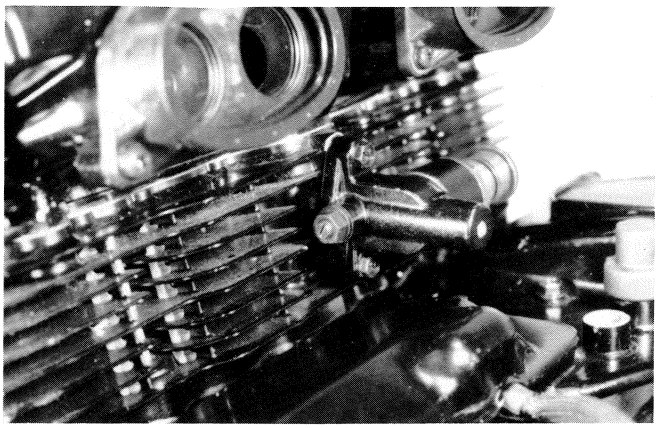


- While turning lock shaft handle counterclockwise, push in the pushrod all the way. Keep on turning the handle until it refuses to turn further.
- Tighten the lock screw to lock the pushrod, so that the pushrod will not plunge out.
  (Refer to page 3-38 for details)

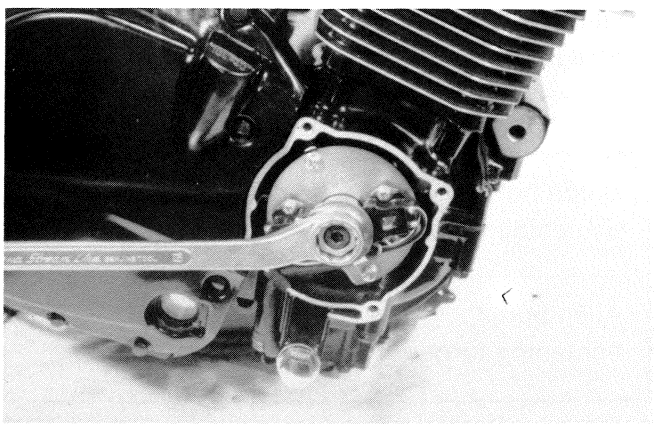


- Mount the cam chain tensioner to the cylinder block.

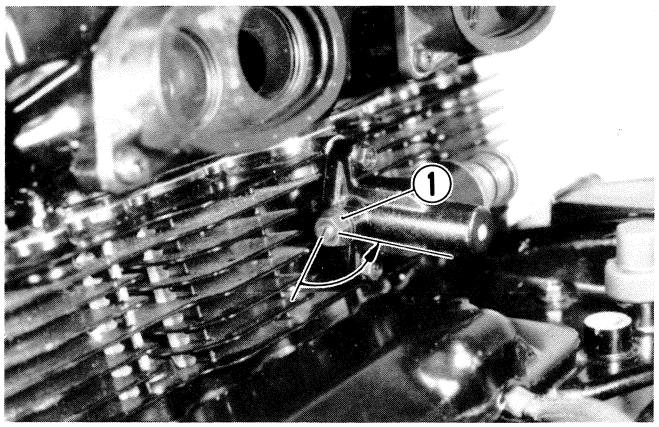
Tightening torque	6 – 8 N·m (0.6 – 0.8 kg-m) (4.5 – 6.0 lb-ft)



- If tensioner adjuster is not going in, turn the crankshaft slowly clockwise to get chain play at inlet side.

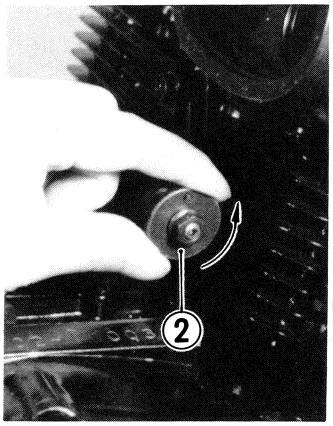


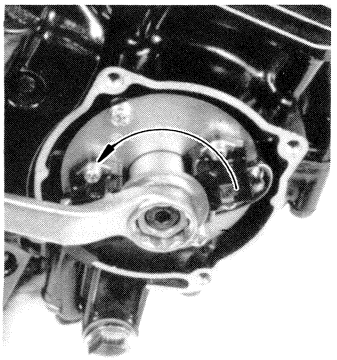
- Withdraw the lock screw by one-quarter to half a turn: this separates the tip of the screw from the pushrod, thereby allowing the pushrod to advance under spring force and to press the tensioner against the camshaft chain.
- Tighten the lock nut ①.



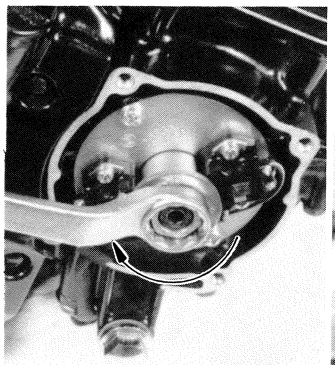
NOTE:
When tightening the lock nut, take care to prevent the lock screw from turning.

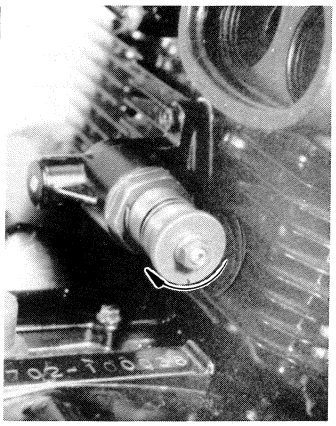
- While turning the handle ② counterclockwise, slowly rotate the crankshaft in reverse direction (thus causing the chain to push back the tensioner).
- Release the handle and slowly turn back the crankshaft in normal running direction (to slacken that portion of the chain extending along the tensioner). See if the handle rotates by itself as the chain becomes progressively slackened; if it does, then the pushrod inside is obviously moving forward under spring force as it should, thus signifying that the tensioner is in good operable condition. If the handle rotates, but sluggishly, it means that the pushrod or lock shaft is sticking and, in such a case, remove the tensioner and service the pushrod and lock shaft to make them move smoothly.



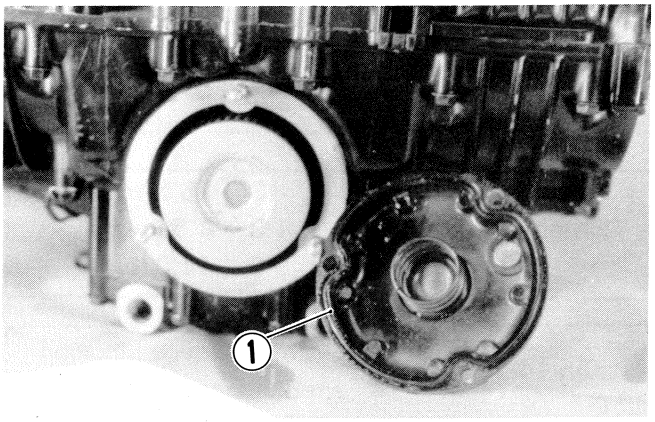


CAUTION:
After installing the tensioner and checking it in initially set condition for operation, do not attempt to turn the handle in either direction until the next overhaul.

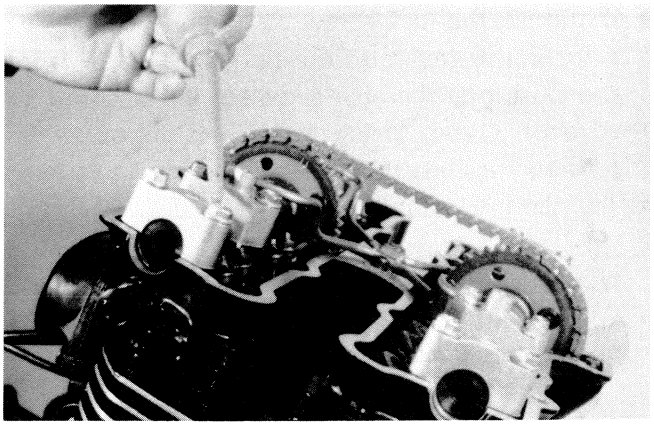




- Adjust the valve clearance. (see page 2-5)
- In fitting the seal ring to the oil filter chamber cap, lightly coat grease on the seal ring groove ① to avoid any chance of dropping or mislocating the ring during the installation work.

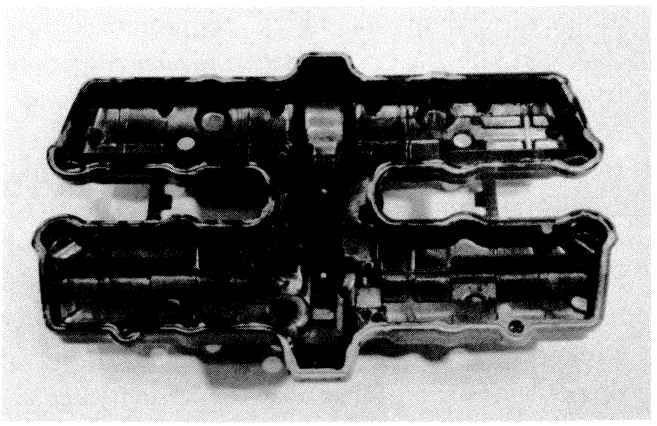


- Pour 50 ml of engine oil in eight oil pockets in the head.



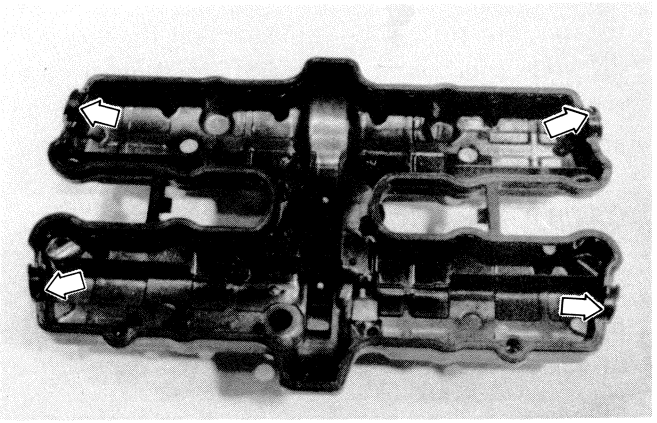
- Before installing the cylinder head cover gasket on the cylinder head cover, apply SUZUKI Bond No. 1207B to the head cover groove as shown.

99104-31140	SUZUKI Bond No. 1207B



- Apply SUZUKI Bond No. 1207B to the four end cam caps of gasket as shown.

99104-31140	SUZUKI Bond No. 1207B

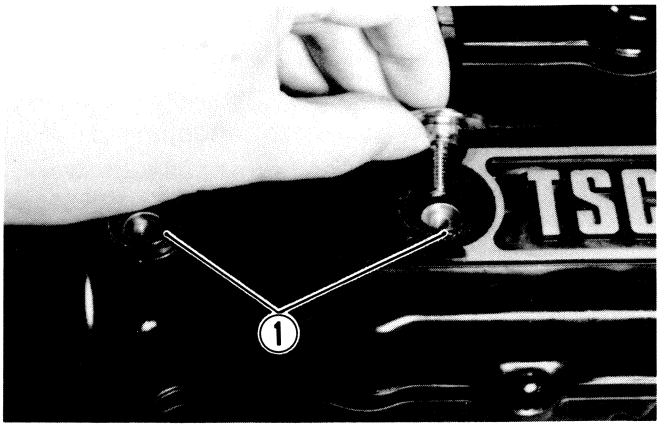


- Install the cylinder head cover with specific torque value.

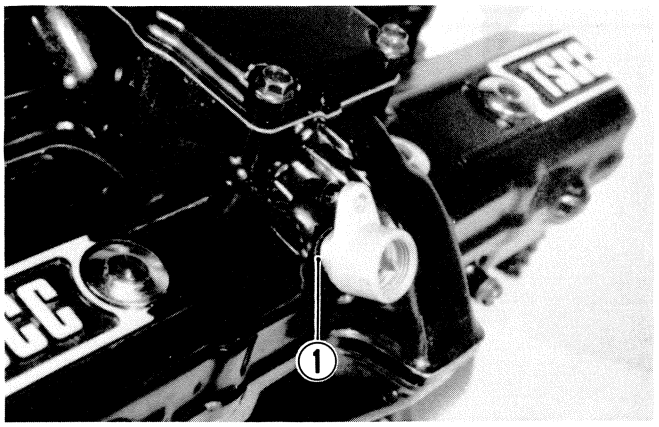
NOTE:
Be sure the O-rings ① are installed on the head cover.

Tightening torque	13 – 15 N·m (1.3 – 1.5 kg-m 9.5 – 11.0 lb-ft)

09914-25811	6 mm "T" type hexagon wrench

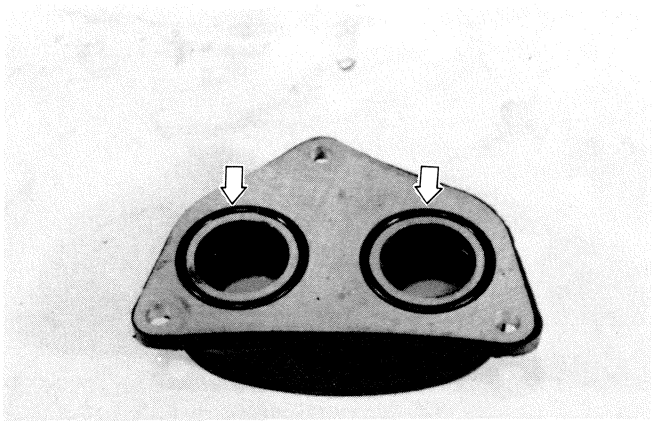


- Install the new O-ring ① to the sleeve.
- Apply engine oil to the tachometer driven gear shaft and insert together with sleeve and tighten the securing bolt.
  (Only for GS550E)



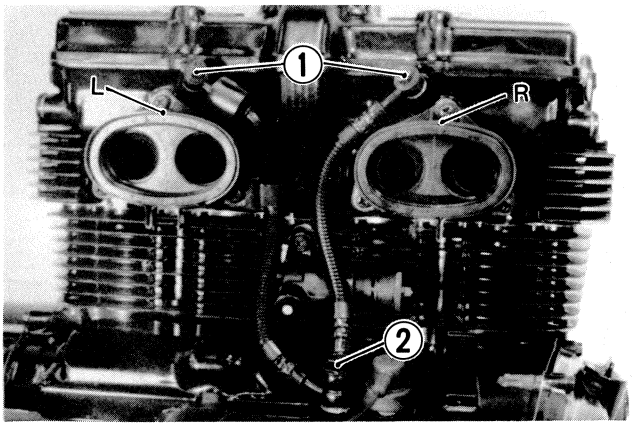
- Install the new O-rings to the intake pipe groove as shown.

CAUTION:
Use new O-rings to prevent sucking air from the joint.

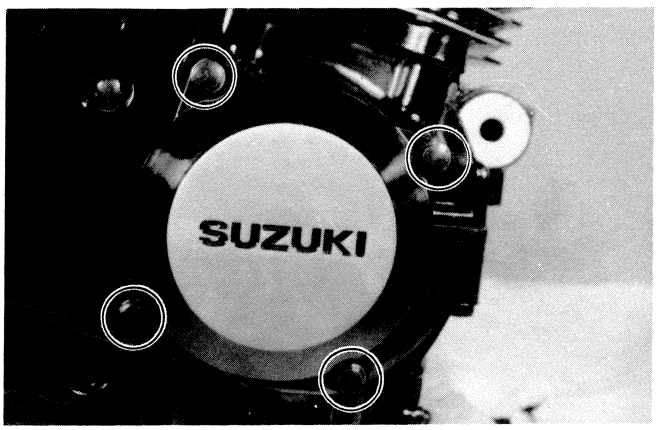


- Right and left intake pipes are identified with the letters of "R" or "L".
- Place the right and left oil hoses correctly, and tighten the union bolts ① and ② to the specified torque. (Refer to page 8-16)

Union bolt ① tightening torque	8 – 12 N·m (0.8 – 1.2 kg-m / 6.0 – 8.5 lb-ft)
Union bolt ② tightening torque	20 – 24 N·m (2.0 – 2.4 kg-m / 14.5 – 17.5 lb-ft)



CAUTION:
- *** Install the copper gaskets to both sides of union.**
- *** Use new copper gaskets to prevent oil leakage.**



- Install the signal generator cover with four bolts.

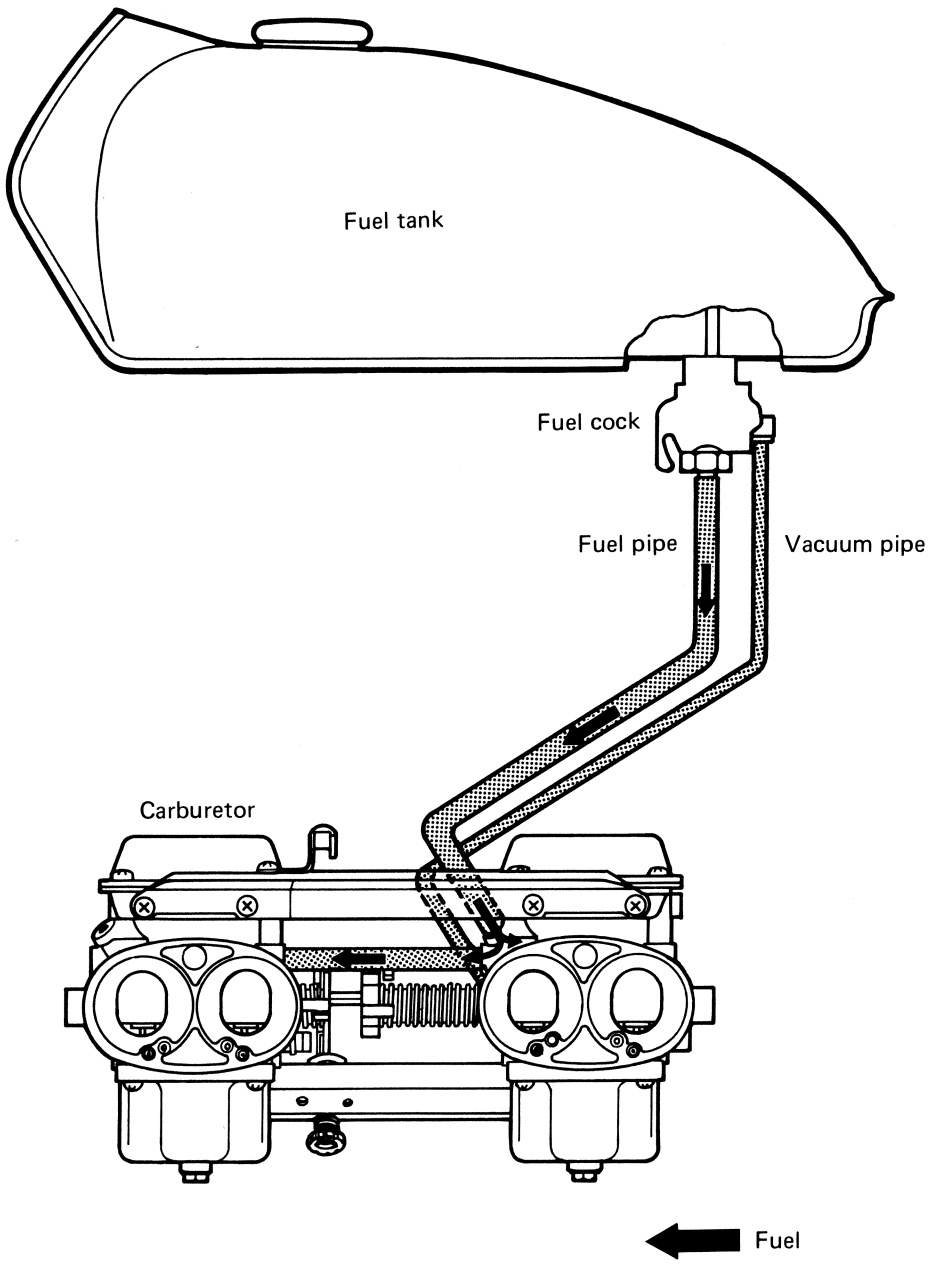
FUEL AND LUBRICATION SYSTEM

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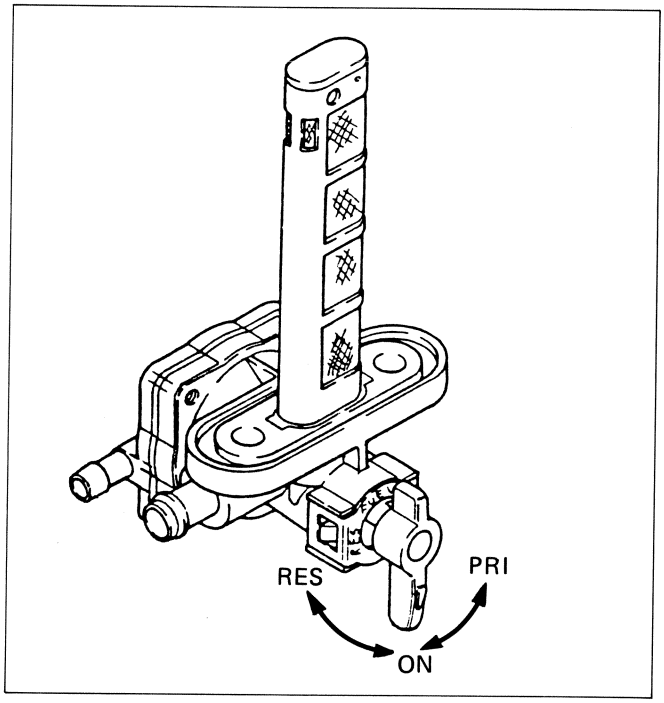
FUEL SYSTEM 4- 1
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LUBRICATION SYSTEM CHART 4-18
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OIL COOLER 4-20
OIL PRESSURE 4-21
OIL SUMP FILTER 4-21

FUEL SYSTEM

When turning starter motor, negative pressure is generated in the combustion chamber. This negative pressure works on the diaphragm of fuel cock through passageway provided in the carburetor main bore and vacuum pipe, and diaphragm builds up a negative pressure which is higher than the spring pressure. Fuel valve is forced to open due to diaphragm operation, and thus allow fuel to flow into carburetor float chamber.

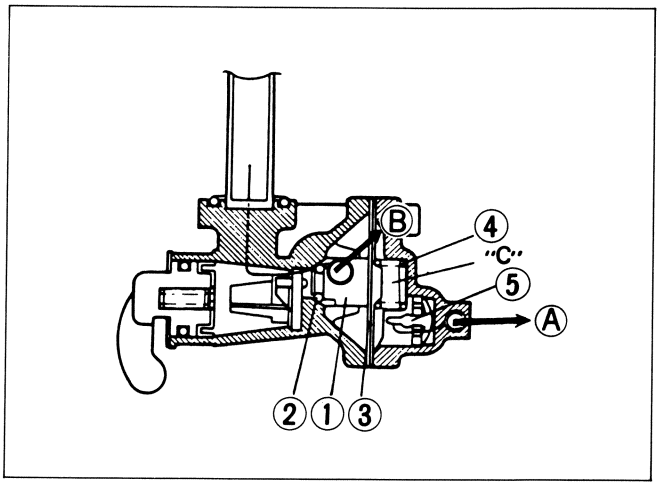


FUEL COCK



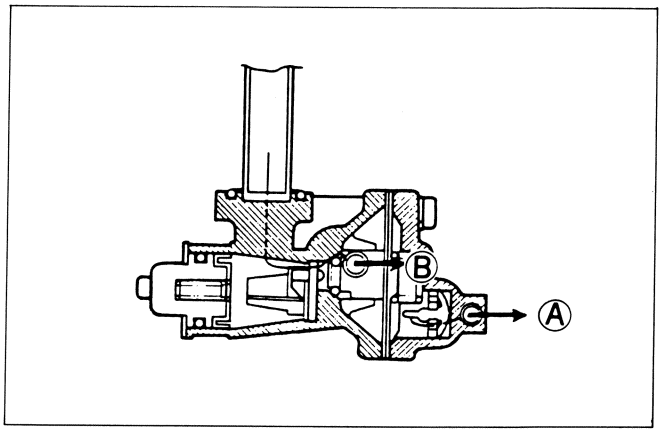
When the engine is not running and the valve in the ON or RES position, the fuel valve is kept in the closed position by applying pressure utilizing a spring so that no fuel will flow to the carburetors. When the engine is engaged, a negative pressure is generated in the diaphragm chamber "C" through the vacuum (negative pressure) pipe which is connected to the right carburetor, and builds up a negative pressure which is higher than the spring pressure so that the diaphragm is forced to open the fuel valve and thus allow the fuel to flow to the carburetors.

When the lever is set to PRI position, the protrusion ⑥ located on the lever end pushes back the fuel valve mechanically against the spring force and it allows fuel to flow to the carburetors directly, whether the engine is running or not, through the RES side fuel filter and fuel valve clearance.

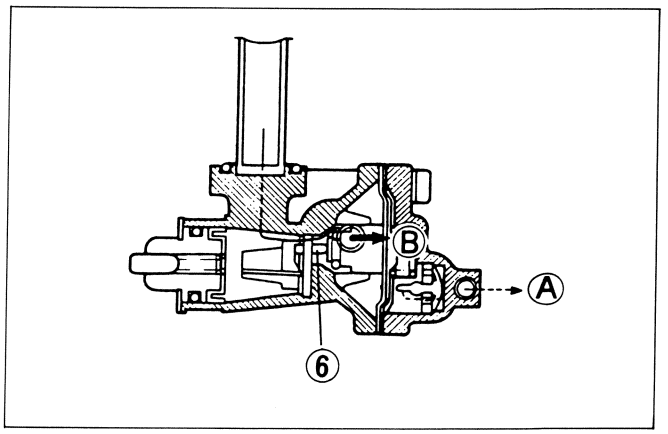


"ON"

① Fuel valve ② O-ring ③ Diaphragm
④ Spring ⑤ One way valve
Ⓐ Vacuum Ⓑ Fuel flow



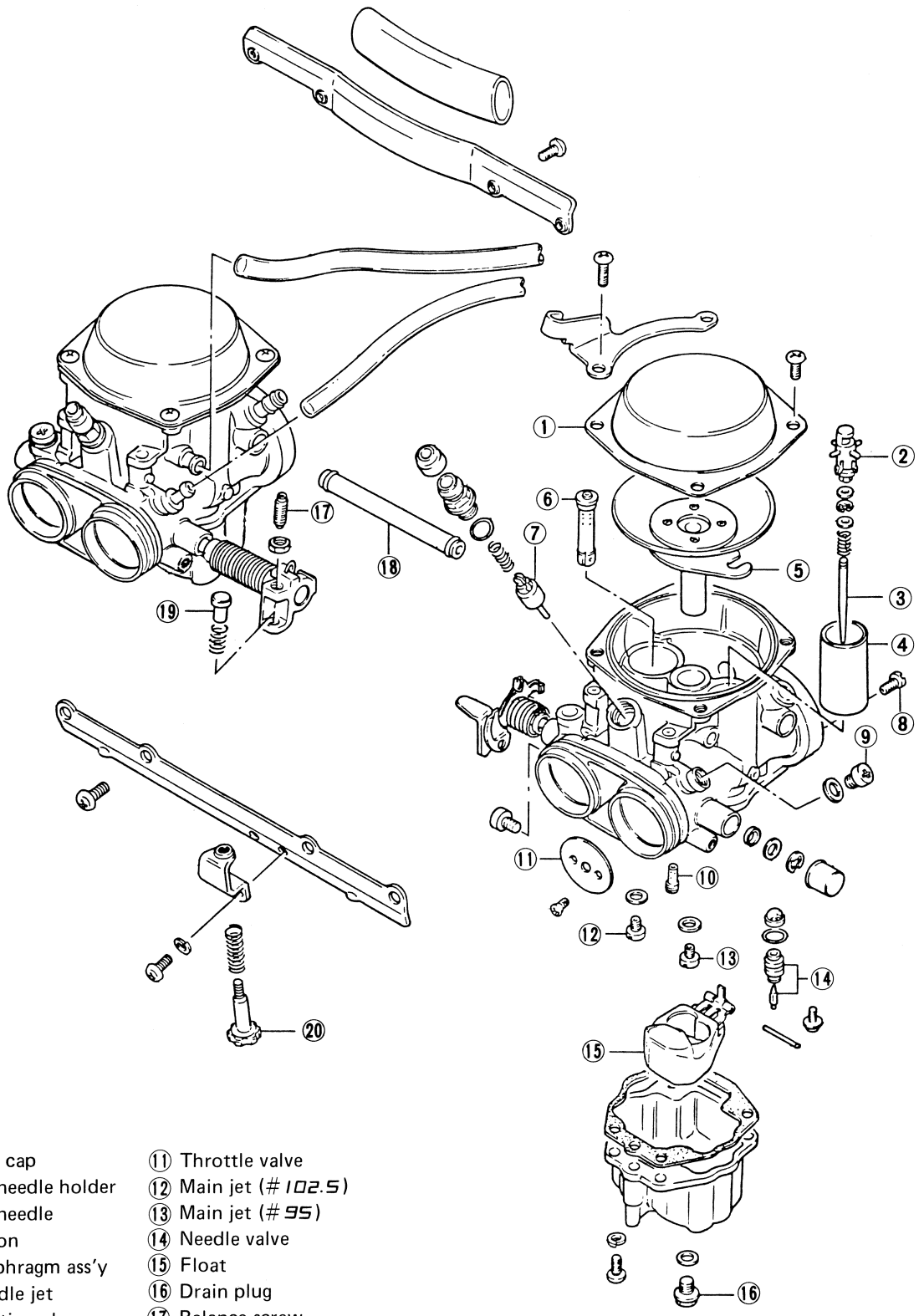
"RES"



"PRI"

CARBURETOR

CARBURETOR CONSTRUCTION



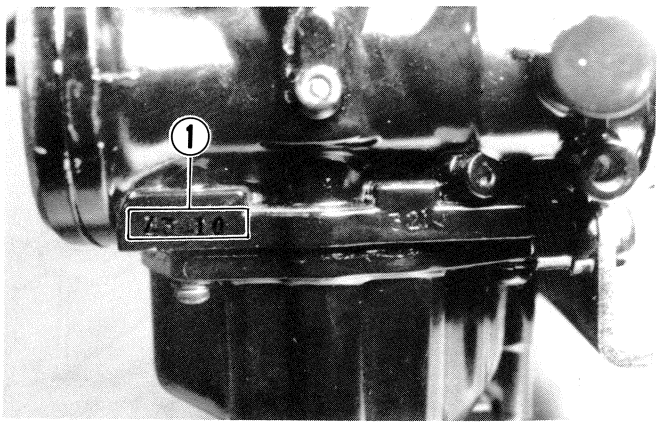
① Top cap
② Jet needle holder
③ Jet needle
④ Piston
⑤ Diaphragm ass'y
⑥ Needle jet
⑦ Starting plunger
⑧ Pilot air jet
⑨ Vacuum screw
⑩ Pilot jet
⑪ Throttle valve
⑫ Main jet (#102.5)
⑬ Main jet (#95)
⑭ Needle valve
⑮ Float
⑯ Drain plug
⑰ Balance screw
⑱ Fuel pipe
⑲ Pin
⑳ Throttle stop screw

SPECIFICATIONS

ITEM	SPECIFICATIONS
Type	MIKUNI BSW30SS
I.D. No.	43410
Bore	30 mm (1.2 in)
Idle r/min	1 100 ± 100 r/min.
Fuel level	6.5 ± 0.5 mm (0.26 ± 0.02 in)
Float height	20.5 ± 1.0 mm (0.81 ± 0.04 in)
Main jet	No. 1, No. 4 # 95 No. 2, No. 3 # 102.5
Main air jet	1.0 mm (0.04 in)
Jet needle	5C64 – 1
Needle jet	P-2
Throttle valve	# 120
Pilot jet	# 35
By pass	0.8, 0.7, 0.8, 0.8 mm (0.03, 0.02, 0.03, 0.03 in)
Pilot outlet	0.7 mm (0.02 in)
Valve seat	2.5 mm (0.10 in)
Starter jet	#55
Pilot screw	PRE – SET
Pilot air jet	# 145
Throttle cable play	0.5 – 1.0 mm (0.02 – 0.04 in)

I.D. NO. LOCATION

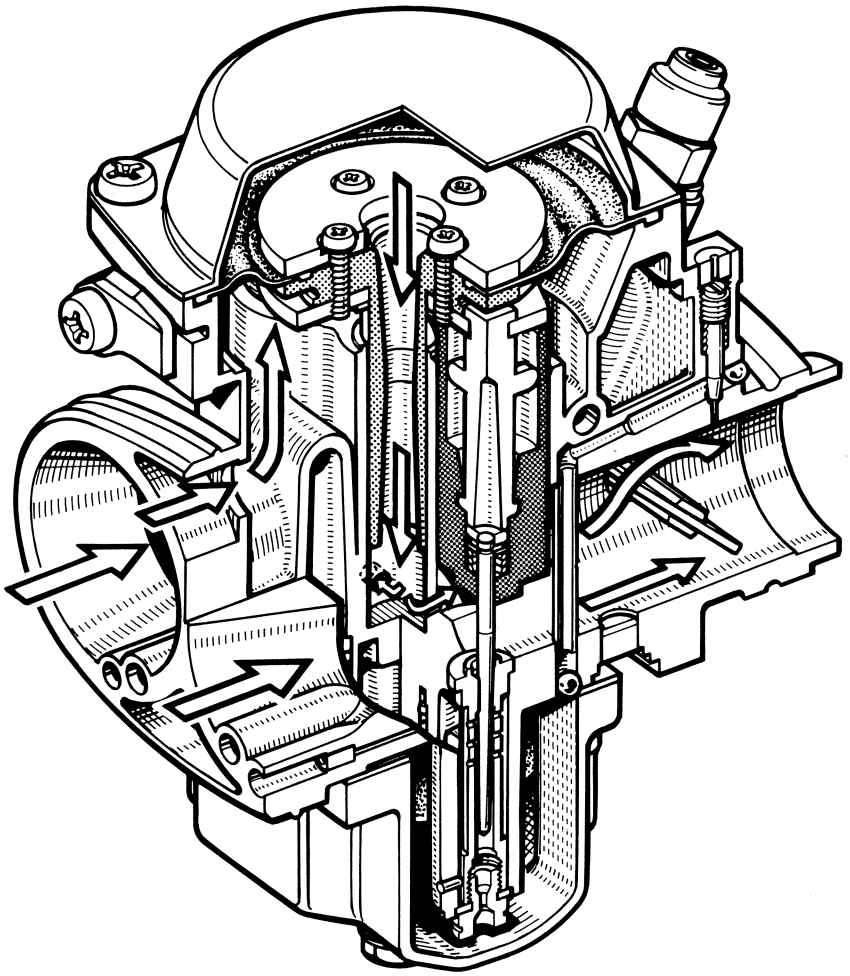
Each carburetor has I.D. Number ① stamped on the carburetor body according to its specifications.



DIAPHRAGM AND PISTON OPERATION

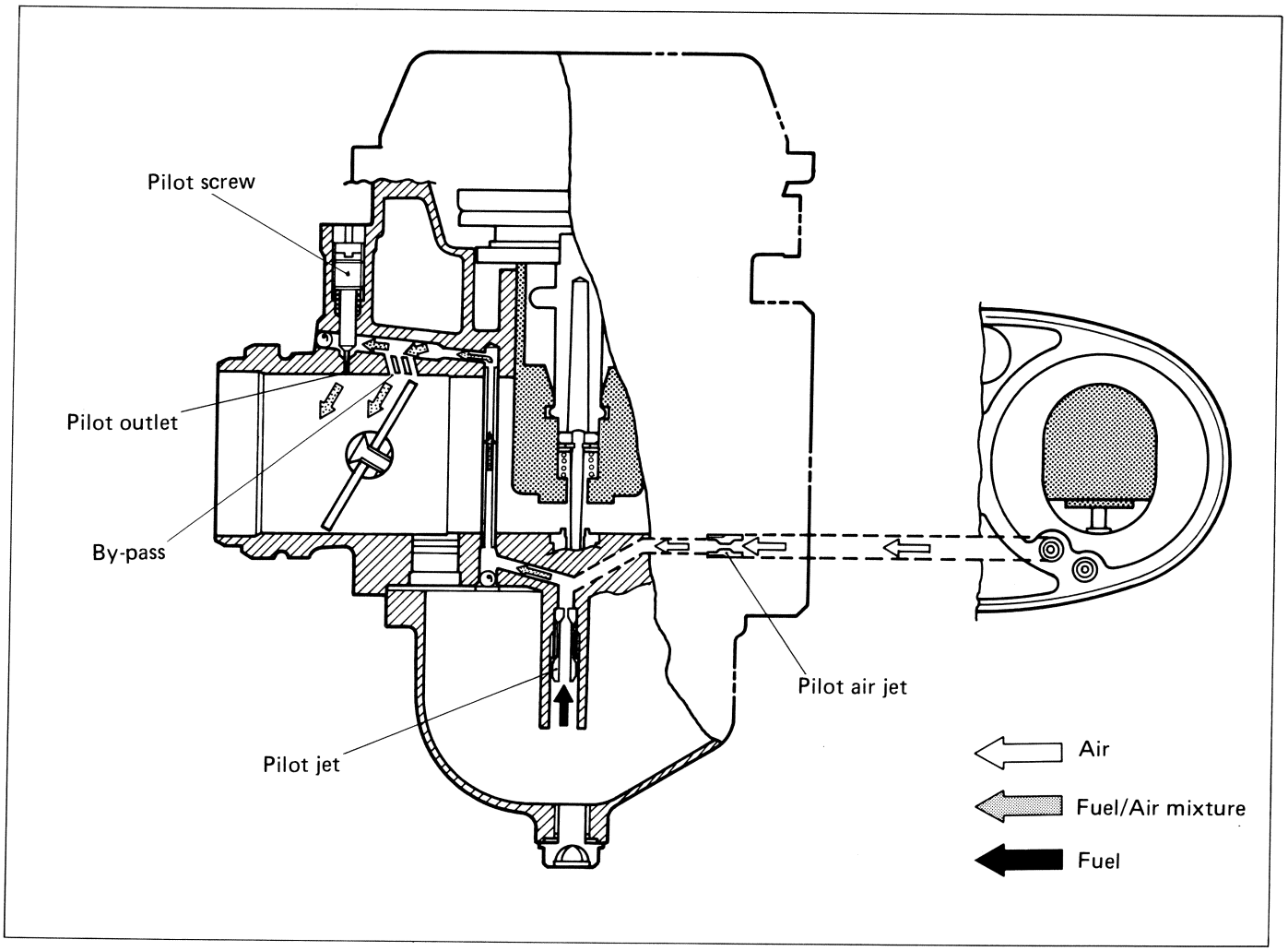
The carburetor is of a variable-venturi type, whose venturi cross section area is increased or decreased automatically by the piston according to the vacuum present on the downstream side of the venturi. Vacuum is admitted into the diaphragm chamber through an orifice provided in the sliding shaft guide.

Rising vacuum controls the diaphragm movement, causing the piston to rise to increase the said area and thus prevent the air velocity from increasing. Thus, air velocity in the venturi passage is kept relatively constant for improved fuel atomization and for securing an optimum ratio of fuel to air in the mixture.



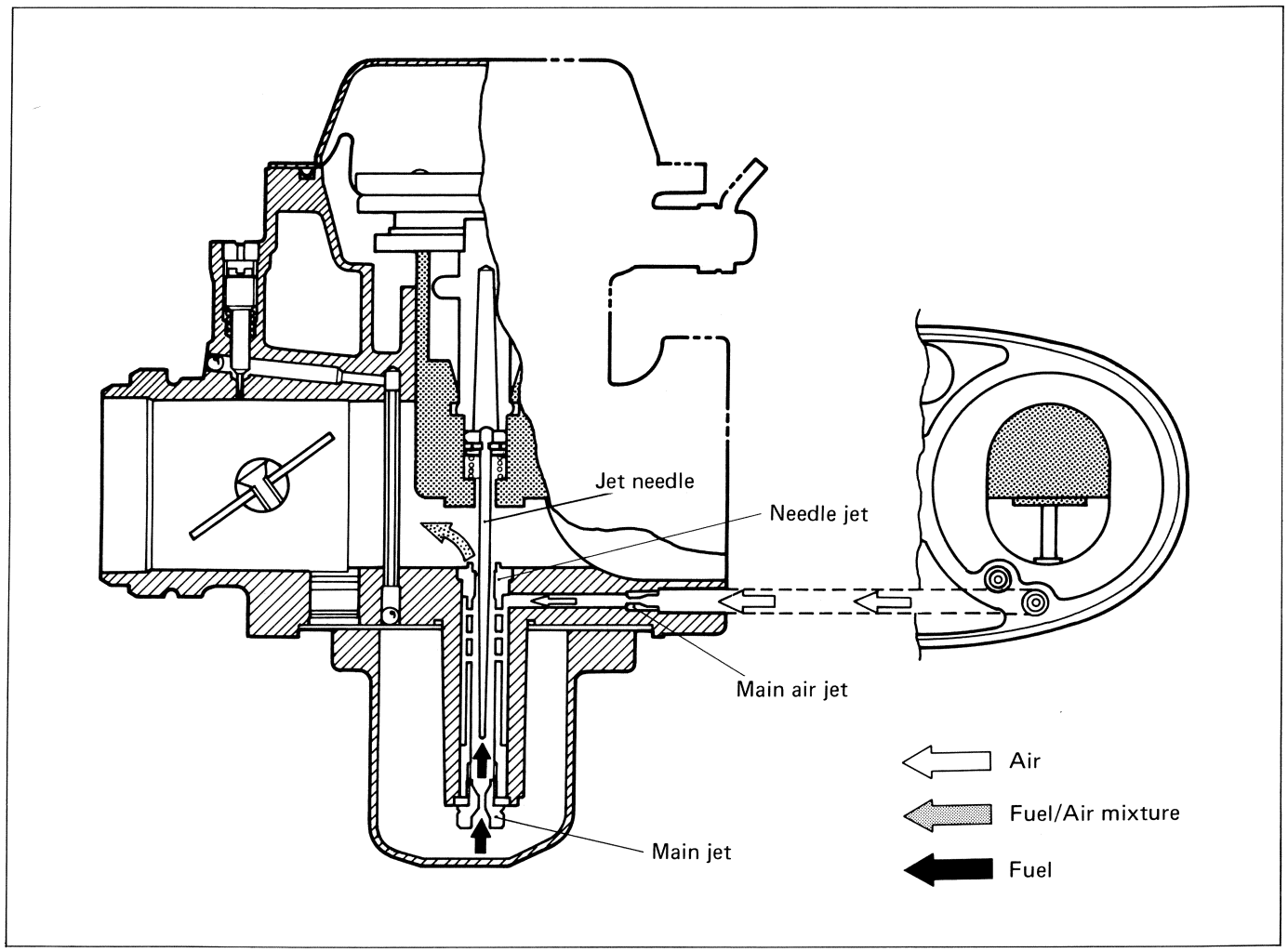
SLOW SYSTEM

This system supplies fuel during engine operation with throttle valve closed or slightly opened.
The fuel from the float chamber is first passed and metered by the pilot jet where it mixes with air coming in through pilot air jet.
This mixture, rich with fuel, then goes up through pilot pipe to pilot screw. A part of the mixture is discharged into the main bore out of by-pass ports. The remainder is then metered by pilot screw and sprayed out into the main bore through pilot outlet.



MAIN SYSTEM

As throttle valve is opened, engine speed rises, and this increases vacuum in the venturi. Consequently the piston valve moves upward.
Meanwhile, the fuel in float chamber is metered by main jet, and the metered fuel enters needle jet, in which it mixes with the air admitted through main air jet to form an emulsion.
The emulsified fuel then passes through the clearance between needle jet and jet needle, and is discharged into the venturi, in which it meets main air stream being drawn by the engine.
Mixture proportioning is accomplished in needle jet; the clearance through which the emulsified fuel must flow is large or small, depending ultimately on throttle position.

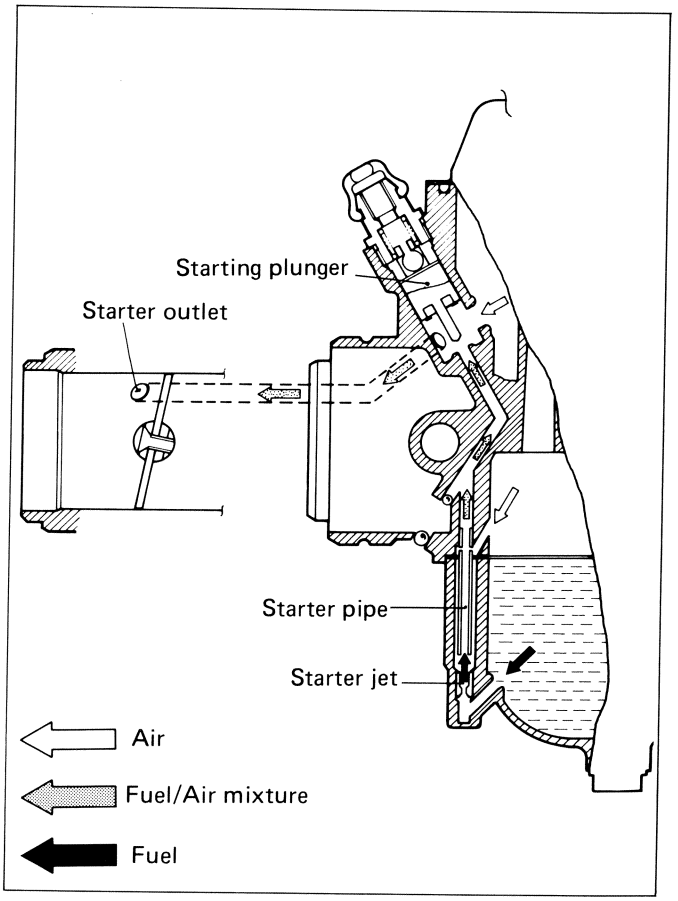


STARTER SYSTEM

Turning the choke lever allows starting plunger to draw fuel into the starter circuit from the float chamber through starter jet.

Starter jet meters this fuel, which then flows into starter pipe and mixes with the air coming from the float chamber. The mixture, rich in fuel content, reaches starting plunger and mixes again with the air coming through a passage extending from behind the diaphragm.

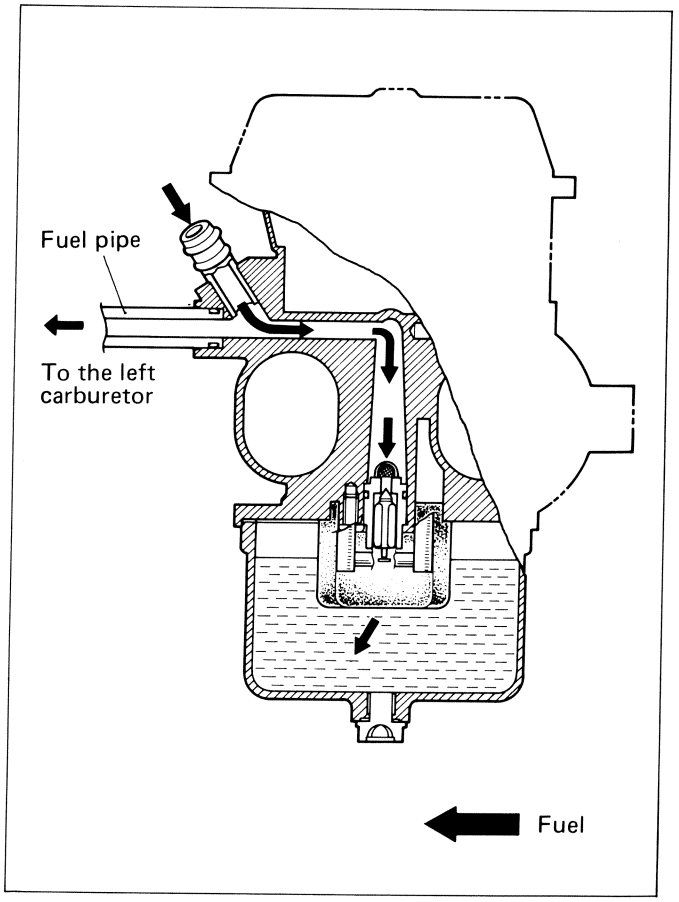
The two successive mixings of fuel with air are such that a proper fuel/air mixture for starting is produced when the mixture is sprayed out through starter outlet into the main bore.



FLOAT SYSTEM

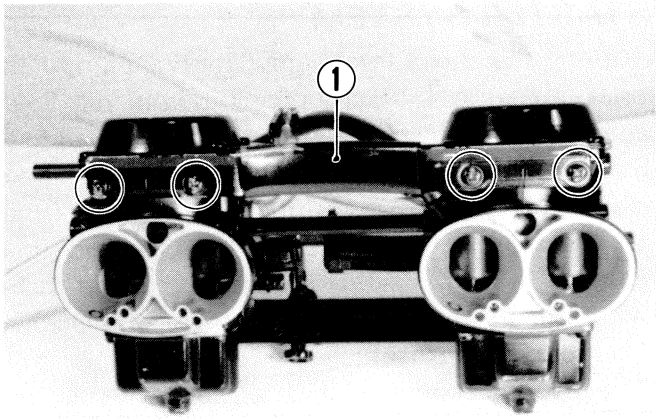
Floats and needle valve are associated with the same mechanism, so that, as the floats move up and down, the needle valve also moves likewise. When fuel level is up in float chamber, floats are up and needle valve remains pushed up against valve seat. Under this condition, no fuel enters the float chamber.

As the fuel level falls, floats go down and needle valve unseats itself to admit fuel into the chamber. In this manner, needle valve admits and shuts off fuel alternately to maintain a practically constant fuel level inside the float chamber.

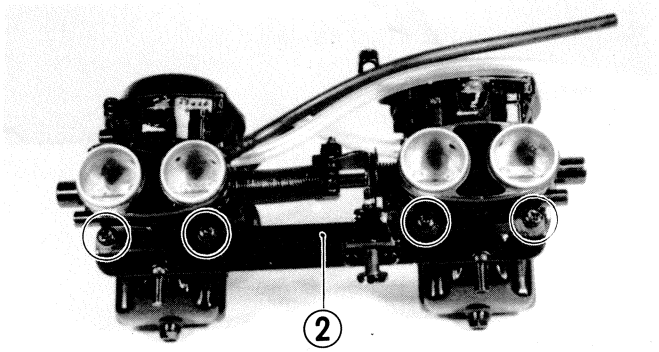


DISASSEMBLY

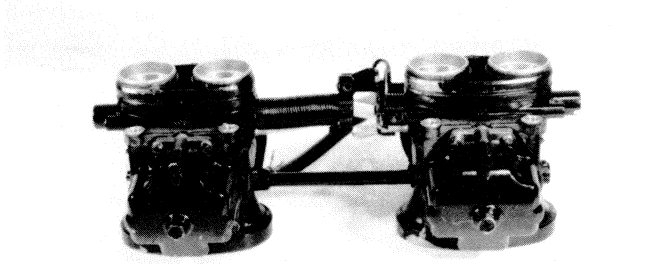
- Remove the carburetor set upper plate ① by unscrewing four screws.



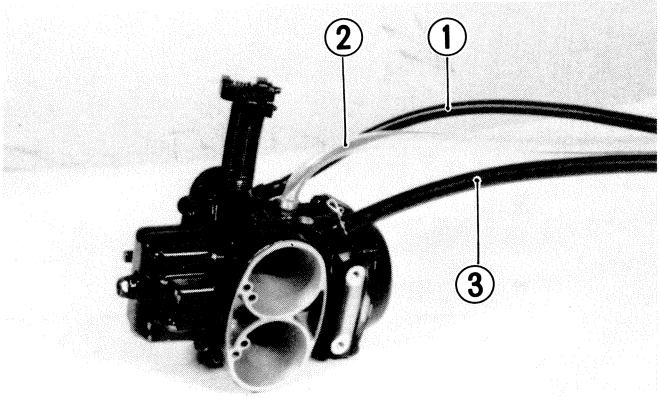
- Remove the carburetor set lower plate ② by unscrewing four screws.



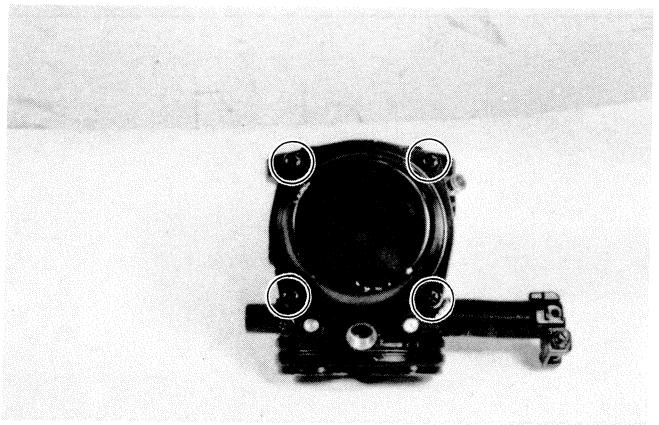
- Separate the two carburetors.



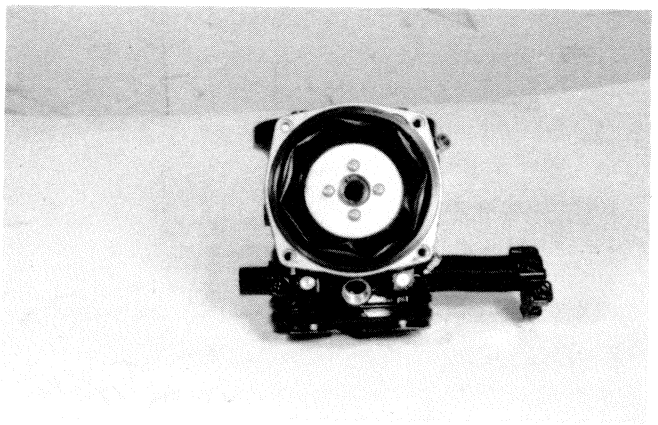
- Disconnect the three hoses (vacuum ①, breather ② and fuel ③).



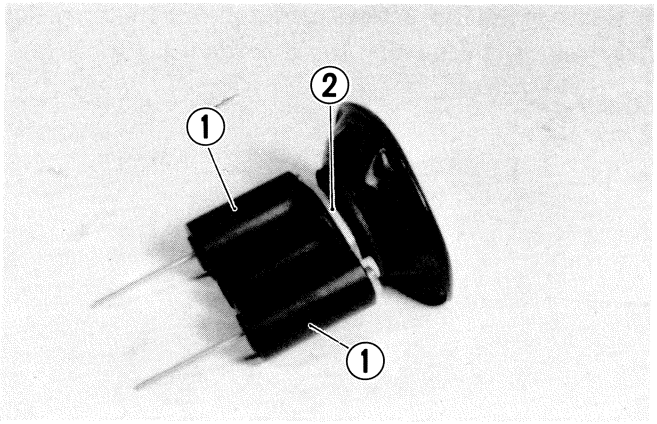
- Remove the top cap by unscrewing four screws.



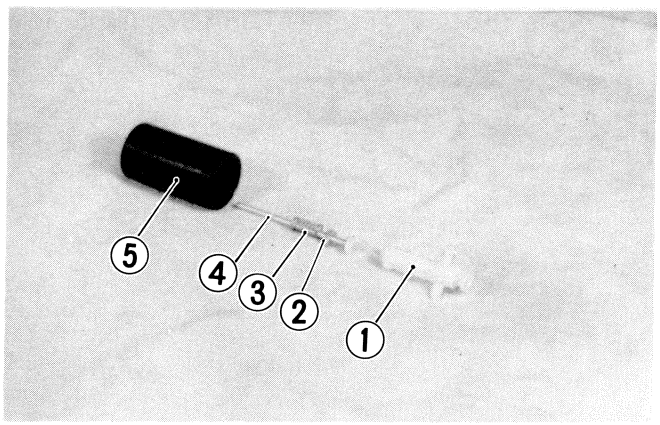
- Pull out the diaphragm assembly.



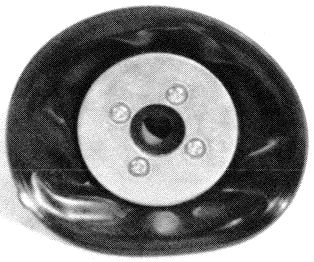
- Remove the two pistons ① from piston holder ②.



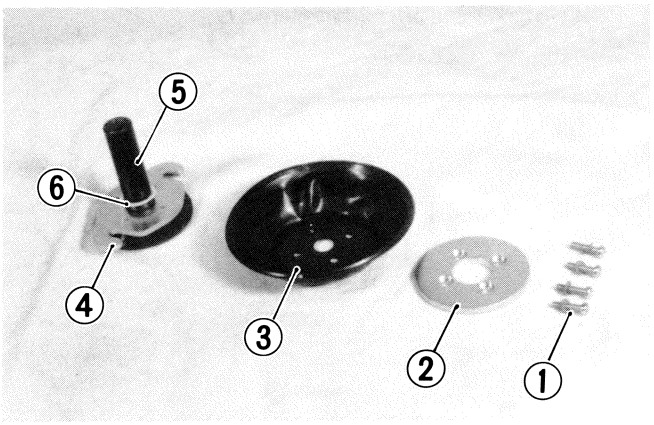
- After removing the jet needle holder ① with long-nose pliers, take out the jet needle related parts.
  - ① Jet needle holder
  - ② Washer (spring seat)
  - ③ Spring
  - ④ Jet needle
  - ⑤ Piston



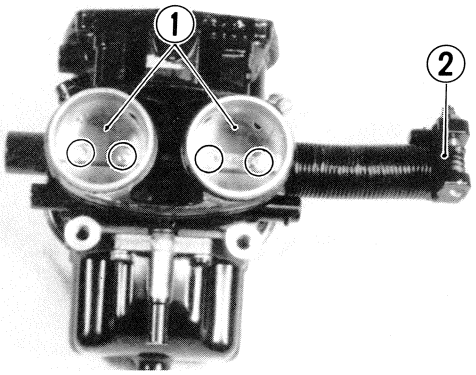
- Remove the four screws.



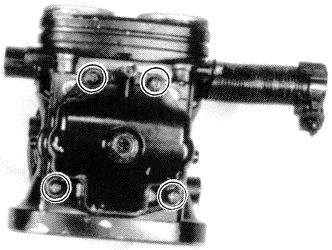
- Separate the diaphragm related parts.
  - ① Screws
  - ② Plate
  - ③ Diaphragm
  - ④ Piston holder
  - ⑤ Sliding shaft
  - ⑥ Plastic washer



- Remove the four screws, and pull out the throttle valves ① by turning the throttle valve shaft ②.

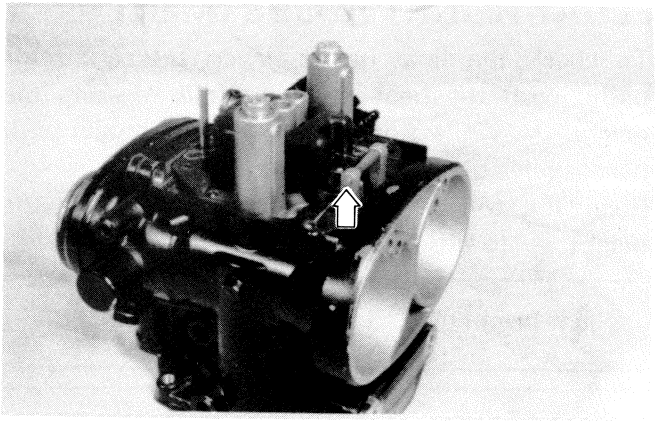


- Remove the float chamber body by unscrewing four screws.

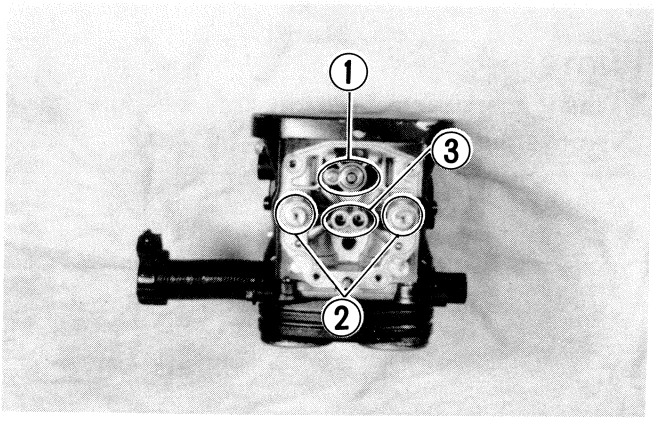


- Pull out the float pin and remove the float.

CAUTION:
When removing the float pin be careful not to damage the carburetor body.



- Remove the needle valve ①, main jets ② and pilot jets ③.

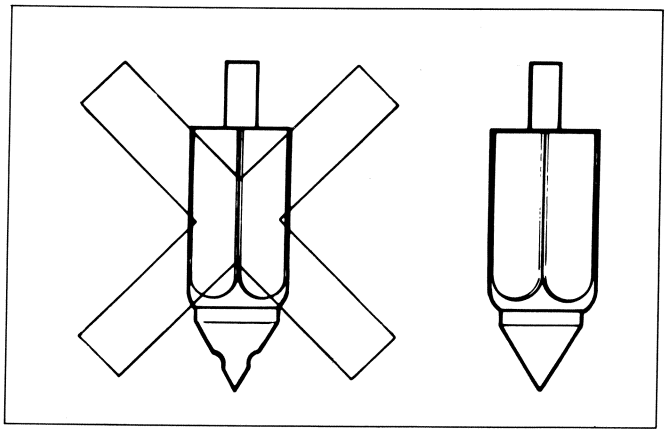


- Check following items for any damage or clogging.

* Pilot jet
* Main jet
* Main air jet
* Pilot air jet
* Needle jet air bleeding hole
* Float
* Needle valve mesh
* Diaphragm
* Gasket
* Throttle valve shaft oil seals
* Drain plug gasket
* Pilot outlet and bypass holes
* Fuel pipe O-ring

NEEDLE VALVE INSPECTION

If foreign matter is caught between the valve seat and the needle, the gasoline will continue flowing and cause it to overflow. If the seat and needle are worn beyond the permissible limits, similar trouble will occur. Conversely, if the needle sticks, the gasoline will not flow into the float chamber. Clean the float chamber and float parts with gasoline. If the needle is worn as shown in the illustration, replace it together with a valve seat. Clean the fuel passage of the mixing chamber with compressed air.



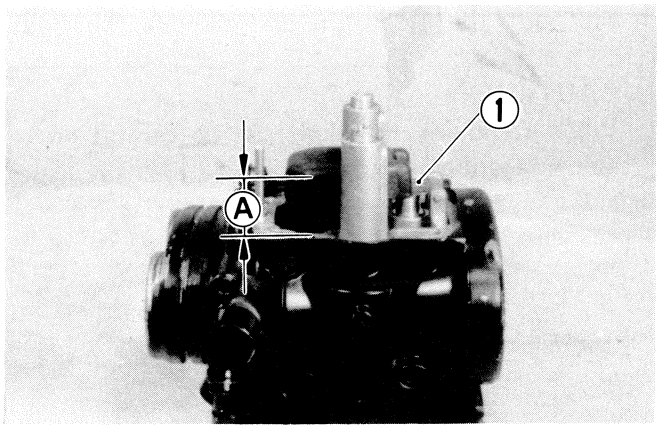
FLOAT HEIGHT ADJUSTMENT

To check the float height, invert the carburetor body, with the float arm kept free, measure the height Ⓐ while float arm is just in contact with needle valve by using calipers.
Bend the tongue ① as necessary to bring the height Ⓐ to this value.

Float height Ⓐ	20.5 ± 1.0 mm (0.81 ± 0.04 in)

09900-20101	Vernier calipers

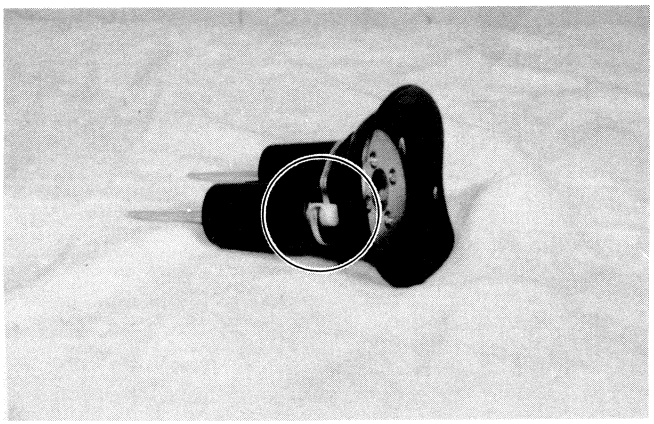
NOTE:
When measuring float height, be sure to remove the gasket.



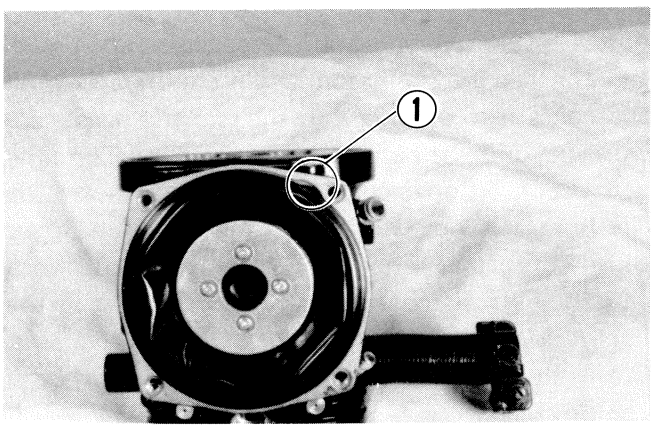
REASSEMBLY

Reassemble the carburetor, in the reverse order of disassembly.
Pay attention to the following points.

- Engage the two pistons to the piston holder properly.

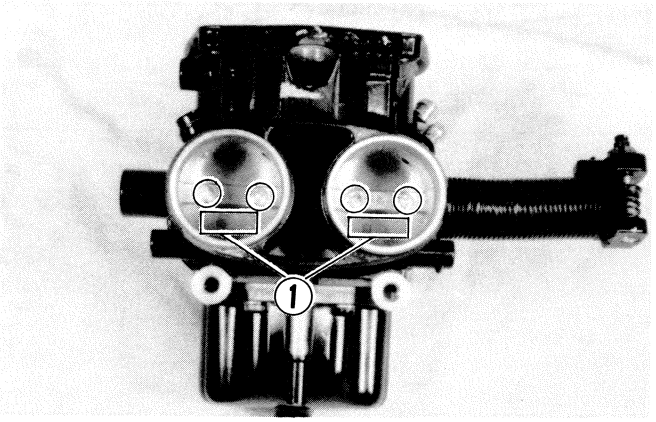


- Place tongue ① of diaphragm to the carburetor body properly.

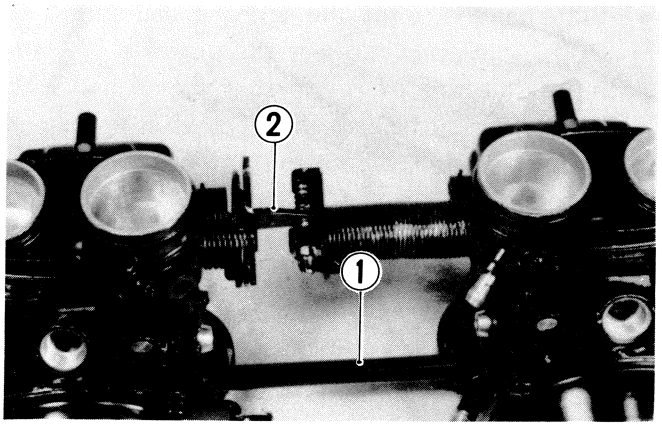


- While turning the throttle valve shaft, place the throttle valve in the groove so that the I.D. number ① of the throttle valve faces downside. Tighten the throttle valve securing screws with applying thread lock cement.

99000-32040	Thread lock cement

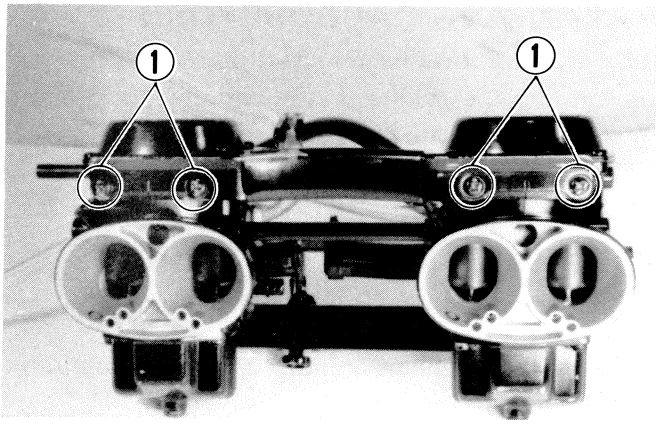


- When engaging the two carburetors, be sure to fix the fuel pipe ① and position throttle valve control lever ② correctly.

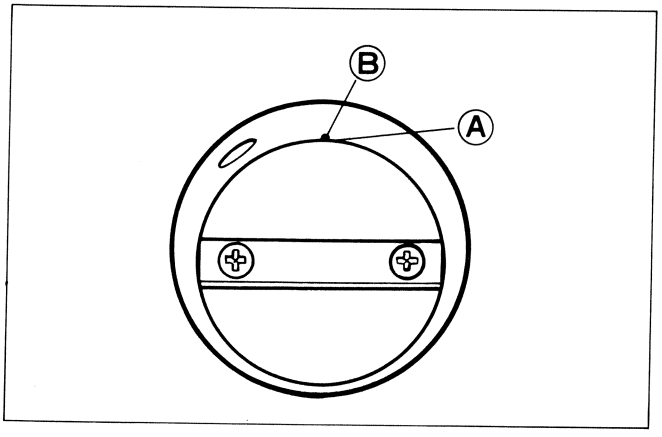


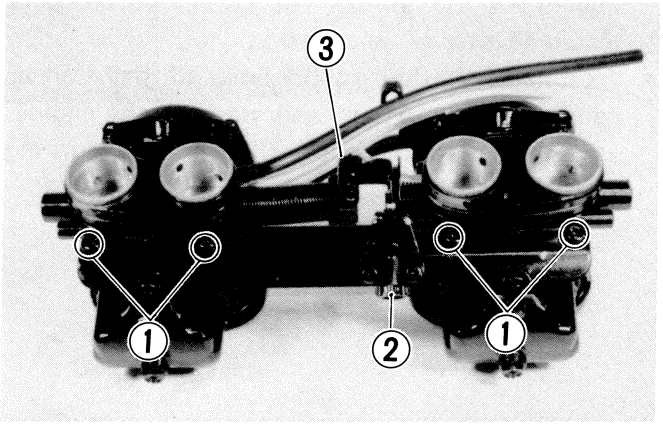
- Apply thread lock cement to the upper and lower plate screws ①.

99000-32040	Thread lock cement



- Set each throttle valve in such a way that its top end Ⓐ meets the foremost bypass Ⓑ. This is accomplished by turning throttle valve stop screw ② and balance screw ③.

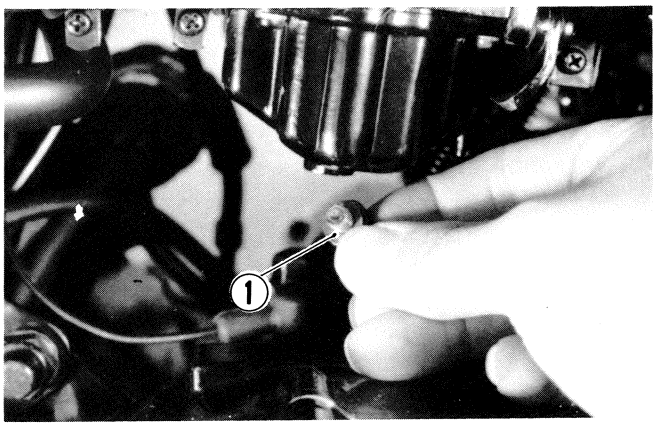




FUEL LEVEL INSPECTION

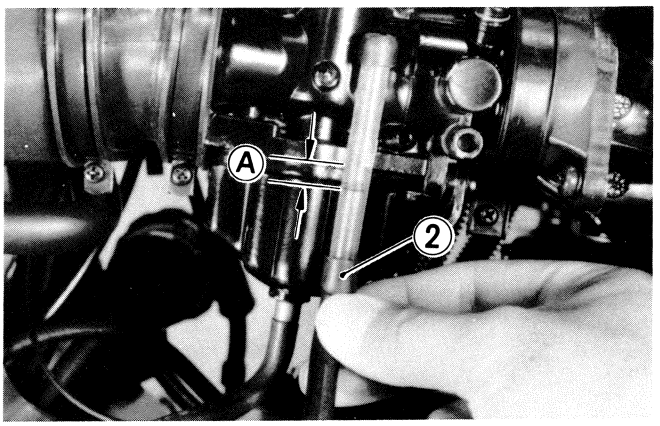
- Remove carburetor drain plug ① and install the fuel level gauge ②.

09913-14511	Fuel level gauge



- Run the engine at the idling speed (1000 – 1200 r/min), and measure the distance Ⓐ with the middle line of the level gauge aligned with the mating surface of float bowl as shown in photo. Ⓐ should be within the specified range.

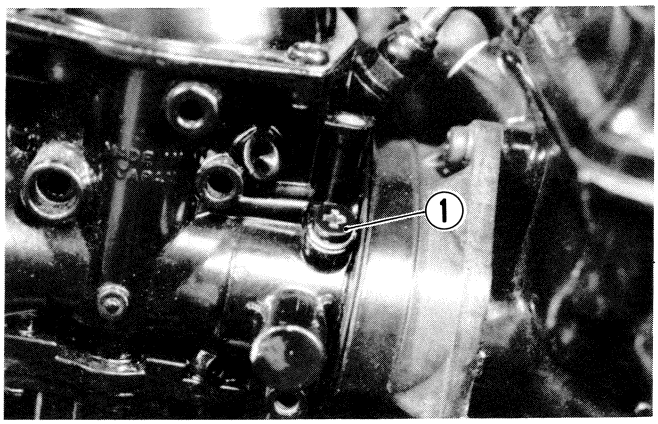
Distance Ⓐ	6.5 ± 0.5 mm (0.26 ± 0.02 in)



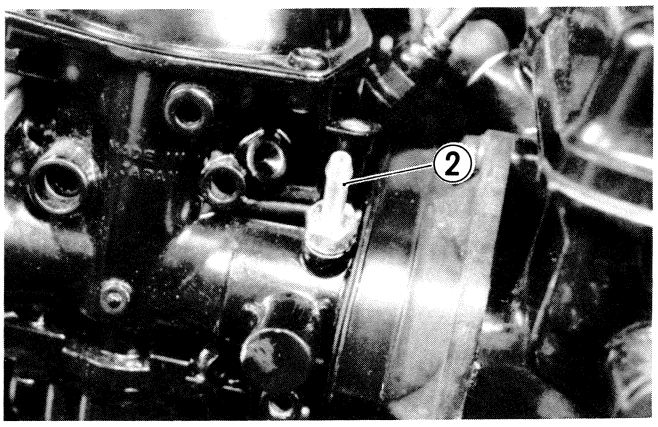
BALANCING CARBURETORS

The two carburetors must be balanced after disassembling the engine or the carburetors. As the first step, calibrate the carburetor balancer gauge, as follows:

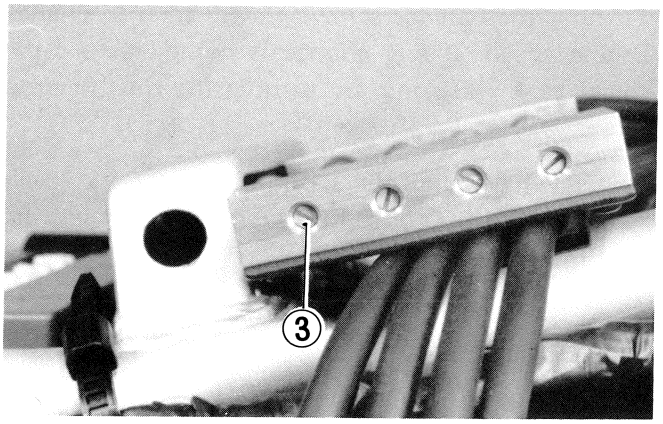
09913-13121	Carburetor balancer
09915-94511	Adapter

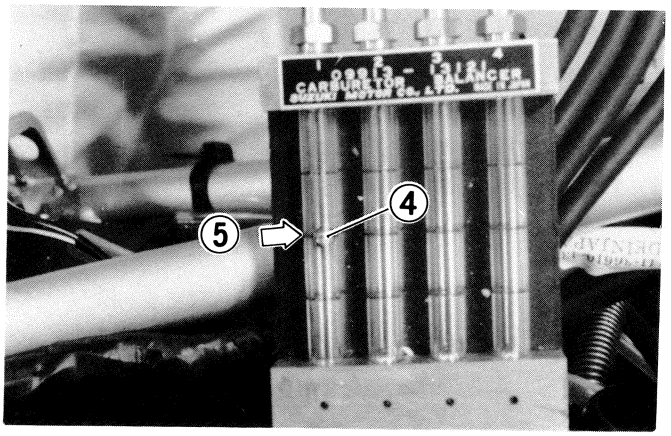


- Start up the engine and run it in idling condition for warming up.
- Stop the warmed-up engine. Remove vacuum inlet screw ① for "R" or "L" carburetor and install adapter ② with gasket.
- Tie one of the four rubber hoses of the balancer gauge to this adapter, and start up the engine, and keep it running at 1 750 r/min by turning throttle stop screw.

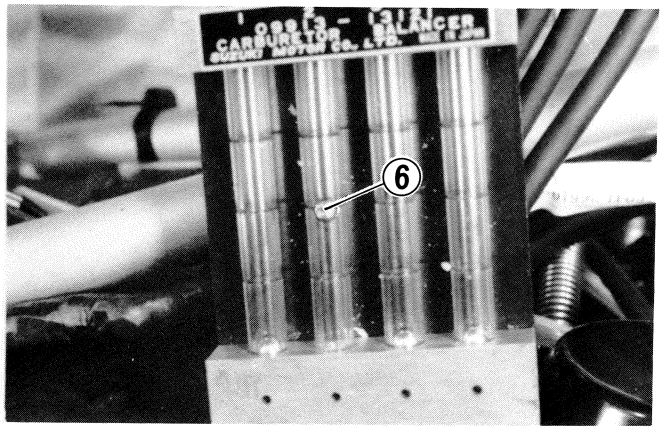


- Turn the air screw ③ of the gauge so that the vaccuum acting on the tube of that hose will bring the steel ball ④ in the tube to the center line ⑤.

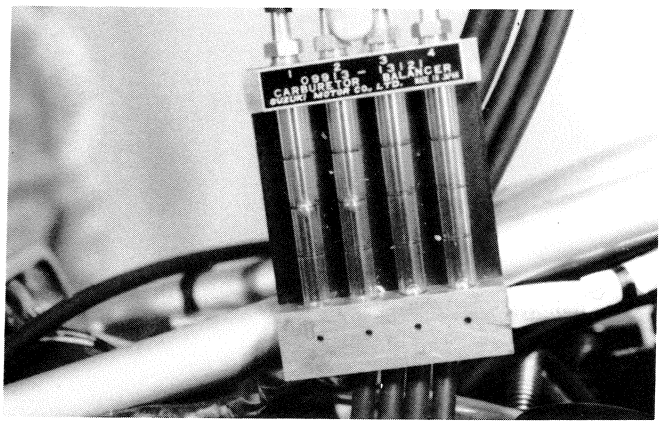




- After making sure that the steel ball stays steady at the center line, disconnect the hose from the adapter and connect the next hose to the adapter. Turn air screw to bring the other steel ball ⑥ to the center line.

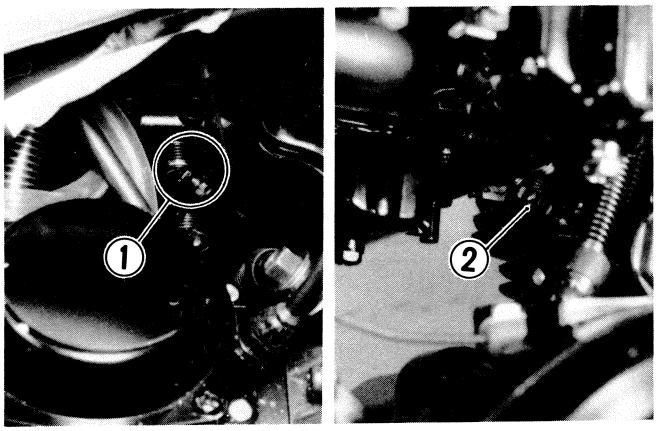


- Remove the vacuum inlet screw for the other carburetor, and install the other adapter.
- Have the two hoses, mentioned above, connected to the two, "R" and "L", adapters. Run the engine at steady 1 750 r/min and, under this running condition, see if the two steel balls stay equally at the center level line, as they should, to signify that the two carburetors, "R" and "L", are in balance: if not, loosen lock nut and turn throttle balance screw ① to adjust the throttle valve setting in "L" carburetor to bring its steel ball to the center level line.

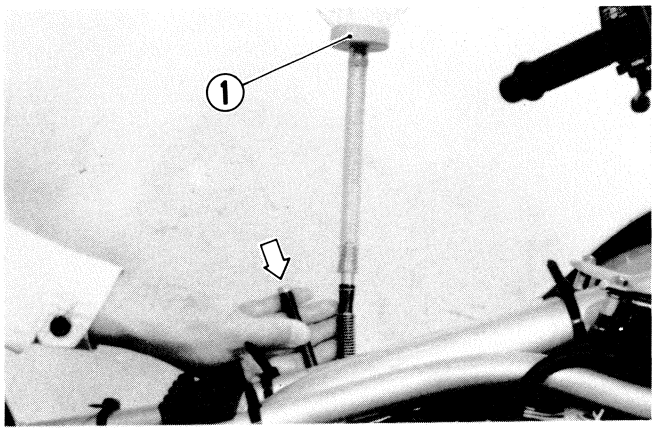


Turning the balance screw ① will tend to change engine speed; if any change is noted, restore the speed to 1 750 r/min by turning the throttle stop screw ②.

- After balancing the carburetors, set its speed between 1 000 and 1 200 r/min by turning the throttle stop screw.

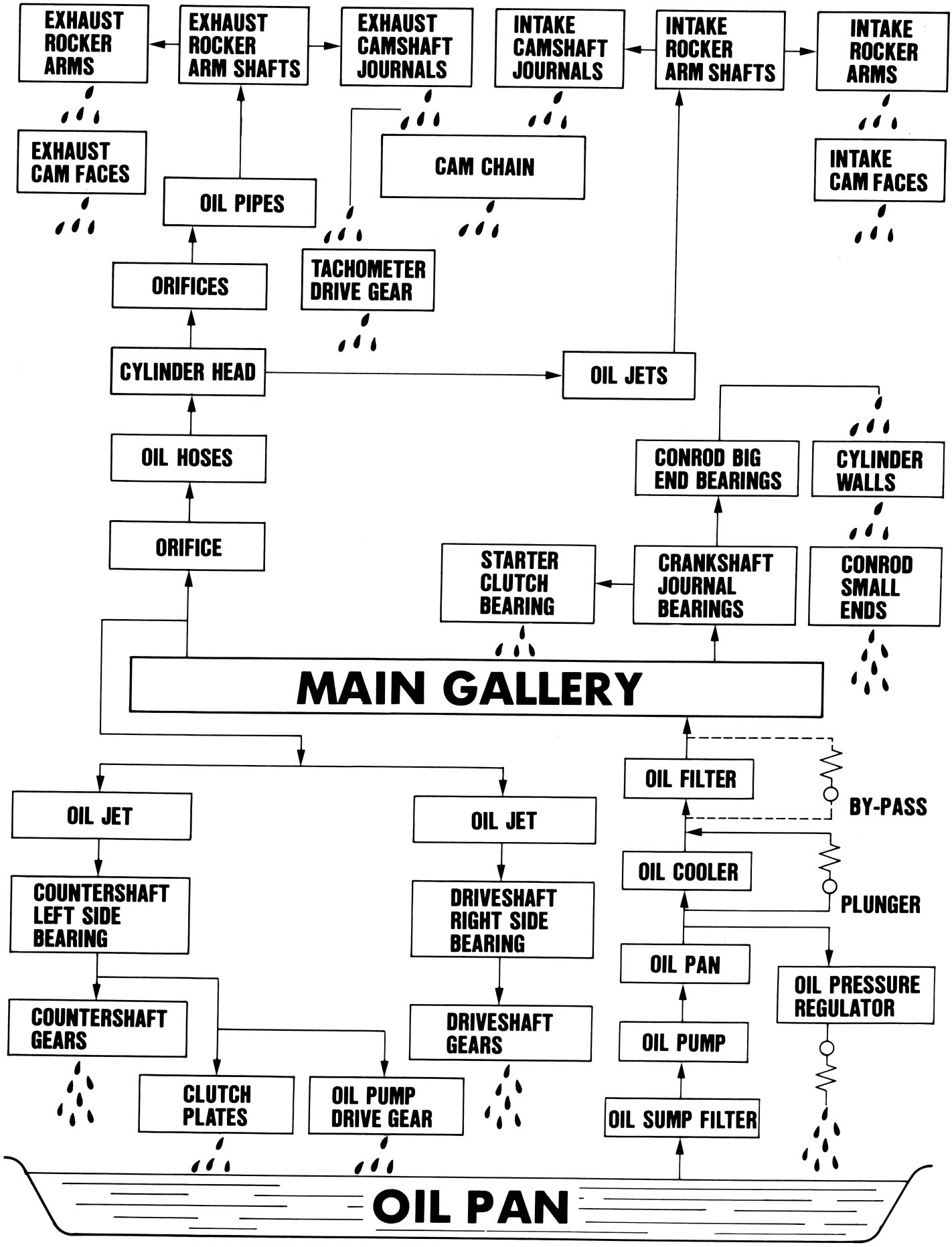


NOTE:
When balancing the carburetors, remove the fuel tank and fuel should be supplied by a separate fuel tank ① and be sure to plug the fuel cock vacuum line.

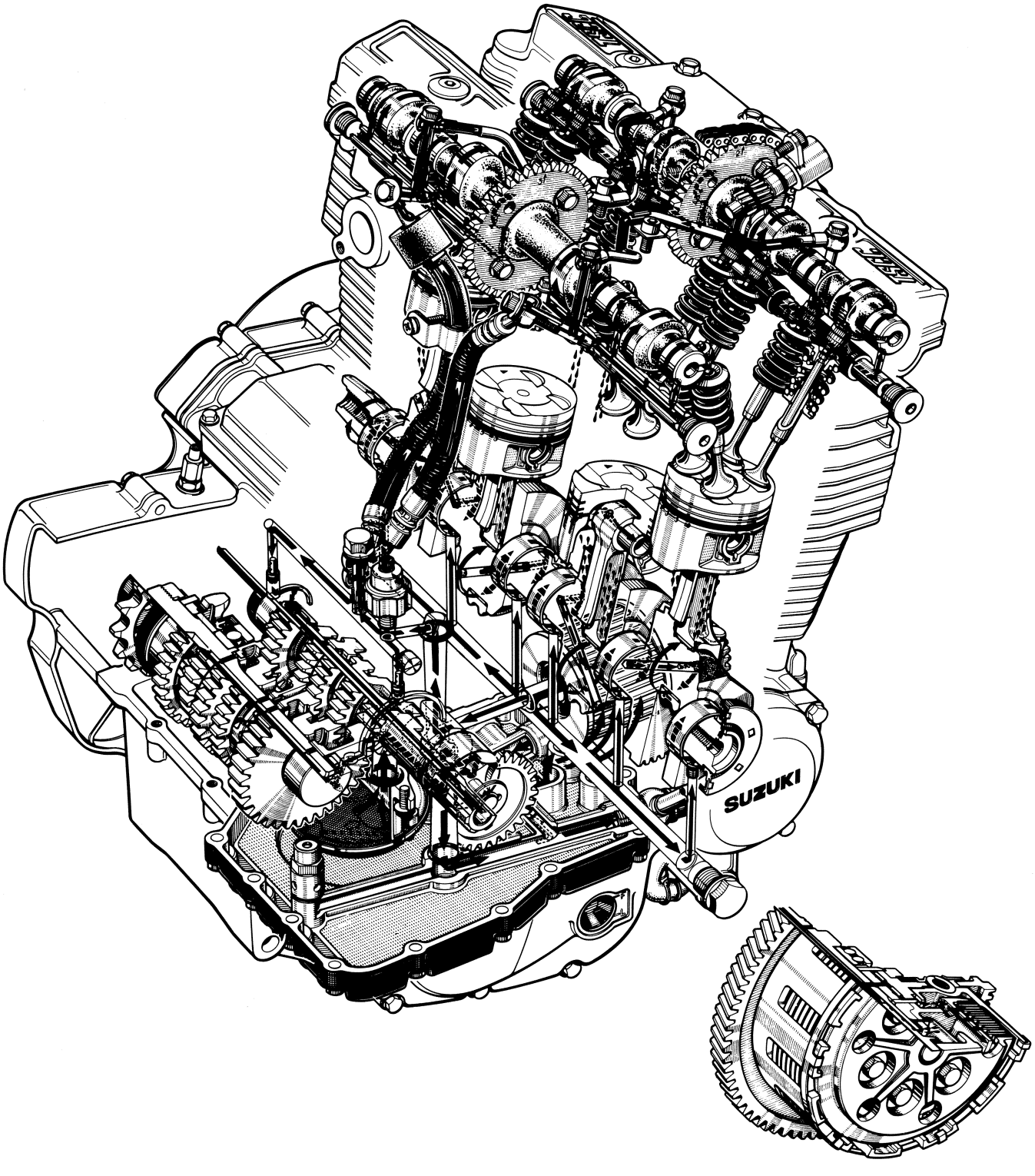


LUBRICATION SYSTEM

LUBRICATION SYSTEM CHART



ENGINE LUBRICATION SYSTEM

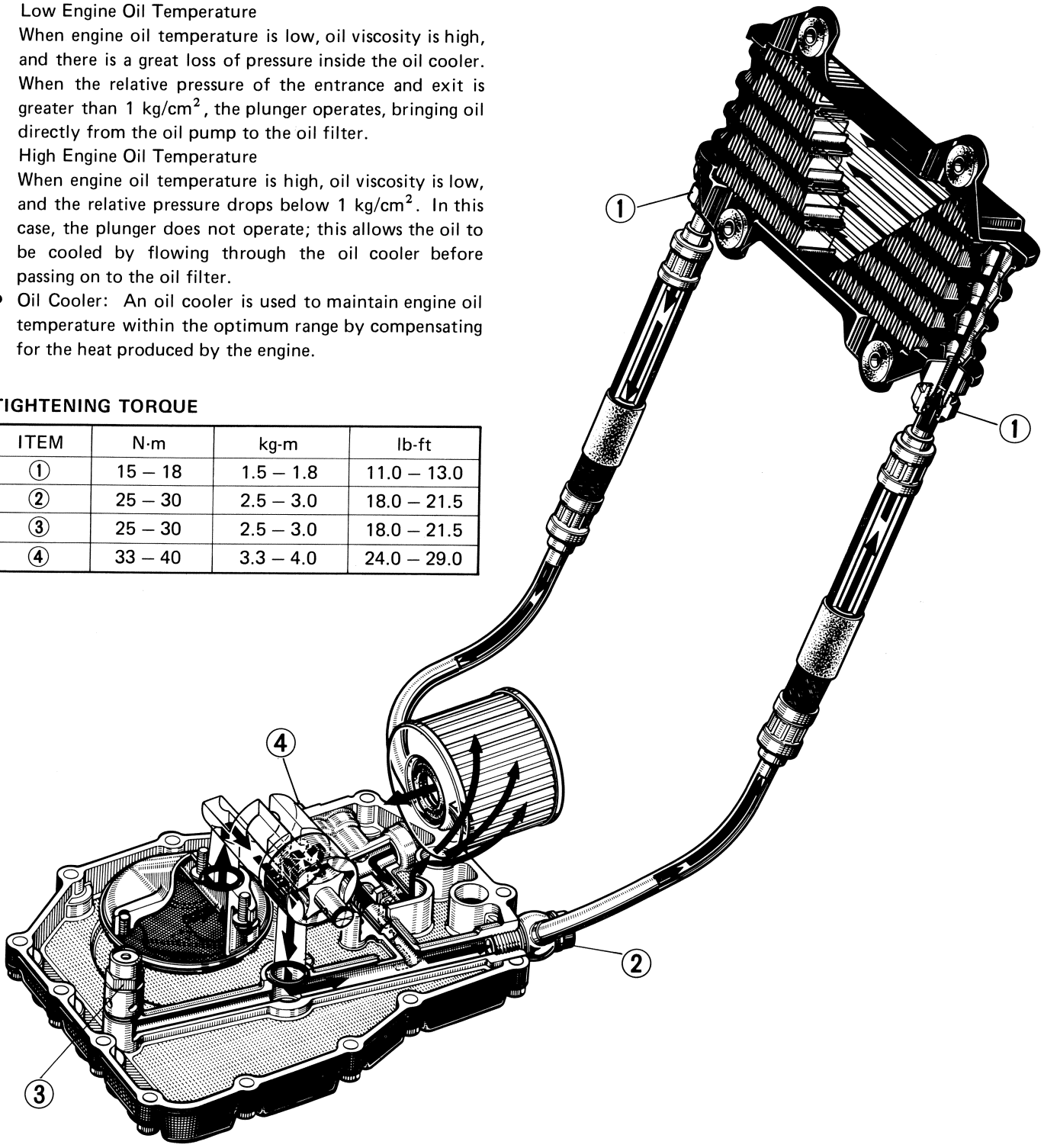


OIL COOLER

- Oil Pressure Regulator: The oil pressure regulator is threaded into the oil passage in the oil pan. There is an O-ring used to seal the oil passage from the crankcase to the oil pan.
- Plunger: A plunger is mounted in the oil pan, in a parallel circuit with the oil cooler; when the relative oil pressure between the entrance and exit to the oil cooler exceeds 1 kg/cm^2, the plunger operates.
  Low Engine Oil Temperature
  When engine oil temperature is low, oil viscosity is high, and there is a great loss of pressure inside the oil cooler. When the relative pressure of the entrance and exit is greater than 1 kg/cm^2, the plunger operates, bringing oil directly from the oil pump to the oil filter.
  High Engine Oil Temperature
  When engine oil temperature is high, oil viscosity is low, and the relative pressure drops below 1 kg/cm^2. In this case, the plunger does not operate; this allows the oil to be cooled by flowing through the oil cooler before passing on to the oil filter.
- Oil Cooler: An oil cooler is used to maintain engine oil temperature within the optimum range by compensating for the heat produced by the engine.

TIGHTENING TORQUE

ITEM	N·m	kg-m	lb-ft
①	15 – 18	1.5 – 1.8	11.0 – 13.0
②	25 – 30	2.5 – 3.0	18.0 – 21.5
③	25 – 30	2.5 – 3.0	18.0 – 21.5
④	33 – 40	3.3 – 4.0	24.0 – 29.0



OIL PRESSURE

Start the engine and check if the oil pump pressure indicator light is turned on. If it keeps on lighting, check the oil pump pressure indicator light circuit and oil level.

If it is in good condition, check the oil pump pressure in the following manner:

- Install the oil pressure gauge ① in the position shown in the figure.
- Warm up the engine as follows:
  Summer 10 min. at 2 000 r/min.
  Winter 20 min. at 2 000 r/min.
- After warming up operation, increase the engine speed to 3 000 r/min, and read the oil pressure gauge.
- The oil pump pressure is specified below:

OIL PRESSURE SPECIFICATION

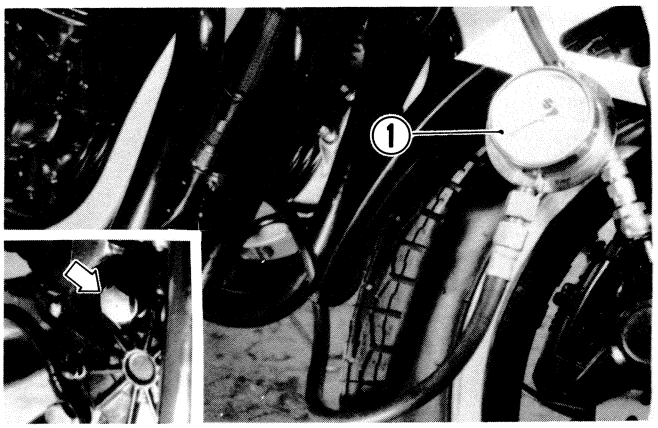
Above 2.5 kg/cm² (36 psi), Below 5.5 kg/cm² (78 psi) at 3 000 r/min Oil temp. at 60°C (140°F)

09915-74510	Oil pressure gauge
09915-77330	Gauge (0 – 10 kg/cm²)

OIL SUMP FILTER

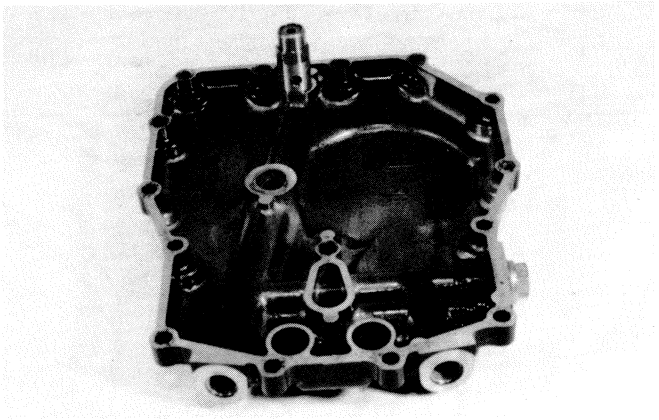
At the same time wash the oil pan. Check to be sure that the strainer screen is free from any sign of rupture and wash the strainer clean periodically. When installing oil sump filter, be sure to face the oil inlet to the front.

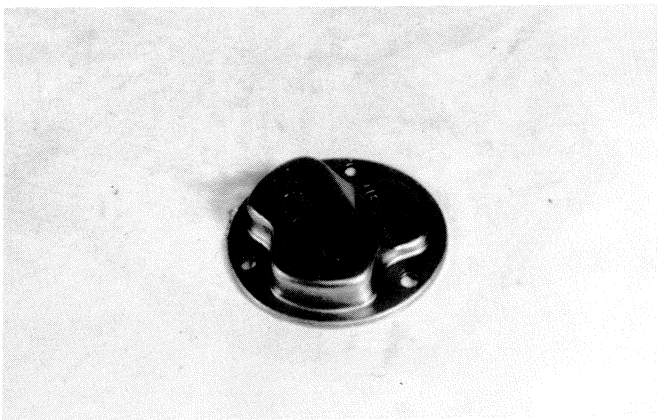
CAUTION:
Replace oil pan gasket with new one to prevent oil leakage.



CAUTION:
The recommended engine oil is, API classification SE or SF, 10W-40 motor oil.

If the pressure is too low, it means that the oil pump is internally worn or otherwise defective and the complete oil pump unit needs to be replaced.





EMISSION CONTROL AND REGULATIONS

CONTENTS

EMISSION REGULATIONS 5- 1
EMISSION CONTROL CARBURETOR COMPONENTS 5- 2
GENERAL EMISSION INFORMATION 5- 3

5

EMISSION REGULATIONS

On February 4, 1977, Federal Emission Regulations for motorcycles that may be licensable took effect. The regulations provided for a gradual, multi-step application of stricter emission limits beginning with all effected motorcycles manufactured after January 1, 1978, cluminating with the present 1980 emission level restrictions. For the 1980 and succeeding years one set of emission limits is in effect. They are as follows:

1980 EMISSION LIMITS

CATEGORIES	HYDROCARBONS (HC)	CARBON MONOXIDE (CO)
All motorcycles 50 cc – Larger	5.0 Grams/Kilometer (8.0 Grams/Mile)	12 Gams/Kilometer (19.3 Grams/Mile)

Emission-controlled motorcycles which are subject to the emission regulations are those motorcycles which are equipped with a headlight, taillight, stop light and which have an engine displacement larger than 50 cc.

Suzuki Motor Company performed all the necessary testing and certification of emission-controlled models in strict compliance with the E.P.A. testing regulations. Suzuki motorcycle dealers are not required to either test or certify emission levels on any motorcycles as Suzuki Motor Company is legally responsible for the entire certification procedure.

E.P.A. regulations also provide fines for individuals who alter, render inoperative or improperly service emission-controlled motorcycles ranging up to $10,000.00 per motorcycle. It is essential that the individual servicing this emission-controlled motorcycle review thoroughly all the service procedures presented in this manual. Under no circumstances should the recommended service procedures be deviated from nor adjustments made which are not in accordance with the factory specifications or service procedures.

EMISSION CONTROL CARBURETOR COMPONENTS

GS550 motorcycles are equipped with precision, manufactured carburetors for emission level control. These carburetors require special mixture control components and other precision adjustments to function properly.

There are several carburetor mixture control components in each carburetor assembly. Three (3) of these components are machined to much closer tolerances than standard machined carburetor jets. These three (3) particular jets – MAIN JET, NEEDLE JET, PILOT JET – must not be replaced by standard jets. To aid in identifying these three (3) jets a different design of letter and number are used. If replacement of these close tolerance jets becomes necessary, be sure to replace them with the same type close tolerance jets marked as in the examples shown below.

The jet needle is also of special manufacture. Only one clip position is provided on the jet needle. If replacement becomes necessary the jet needle may only be replaced with an equivalent performing replacement component. Suzuki recommends that Genuine Suzuki Parts be utilized whenever possible for the best possible performance and durability.

Conventional Figures Used on Standard Tolerance Jet Components	1 2 3 4 5 6 7 8 9 0
Emission Type Figures Used on Close Tolerance Jet Components	1 2 3 4 5 6 7 8 9 0

The carburetor specification for the emission-controlled GS550 are as follows.

Carburetor I.D. No.	Main Jet	Needle Jet	Jet Needle	Pilot Jet	Pilot Screw
43410	No. 1, No. 4 # 95 No. 2, No. 3 # 102.5	P-2	5C64-1	# 35	PRE-SET DO NOT ADJUST

The pilot screw is pre-set by the facotry utilizing specialized testing and adjusting procedures. The pilot screw is not adjustable as the idle circuit is "sealed" after factory adjustment. Adjusting, interferring with, improper replacement, or resetting of any of the carburetor components may adversely affect carburetor performance and cause the motorcycle to exceed the exhaust emission level limits. If persons, who are unaware of these special carburetor servicing requirements tamper with the carburetors the Suzuki dealer should restore the carburetors to their original condition or if unable to effect repairs, contact the distributors representative for further technical information and assistance.

GENERAL EMISSION INFORMATION

There are three different types of regulated exhaust emissions. They are:

Hydrocarbons (HC)
Carbon Monoxide (CO)
Oxides of Nitrogen (NOx)

Automobiles must meet specific emission standards for all three of these pollutants. Motorcycles must only meet the requirements for the following.

Hydrocarbons (HC)
Carbon Monoxide (CO)

HC exhaust emissions are basically unburned fuel vapors which have passed through the engine and escaped the combustion process.

CO exhaust emissions are formed during an incomplete combustion cycle as a result of a rich air/fuel mixture. The only way that CO can be produced is by the combustion cycle.

Total NOx emissions from all motorcycles is considered negligible. The EPA states that total NOx emission from motorcycles by 1990 will only amount to approximately 0.5%. NOx is formed during the combustion process at high combustion chamber temperatures.

CARBON MONOXIDE

Carbon monoxide is a product of an imcomplete combustion cycle. CO is measured in grams per mile or kilometer and also in percentage (%).

The most common cause of CO is rich carburetion. As the mixture is richened excessively, the CO amount increases proportionately. Engine oil is also a hydrocarbon, so engine problems which lead to oil burning increase carbon monoxide.

CARBURETION MALFUNCTION

1. Air Cleaner – Dirty or over oiled.
2. Idle Mixture – Adjusted incorrectly.
3. Idle Speed – Too high or low.
4. Fuel Level – Sticking float, leaking needle, incorrect setting.
5. Choke – Leaking or linkage sticking.
6. Synchronization – Improper balance on multi cylinders.

ENGINE MALFUNCTIONS

1. Valve Seals – Leaking or torn.
2. Valve Guide – Worn and leaking excess oil.
3. Gaskets – Leaking oil into combustion chamber.

HYDROCARBONS

Hydrocarbons are unburnt gasoline vapors and can be measured in two different ways. The first is to measure the weight of the pollutants over a specific distance such as grams per mile or grams per kilometer. The second method is to measure the concentration of HC in the exhaust gas in parts per million (PPM).

The most common cause of high HC emission are ignition system problems. If the ignition system fails to ignite the fuel mixture properly, then raw gasoline vapors will pass through the engine into the exhaust system. Listed are the most common ignition problems which occur and which can affect HC emission output.

IGNITION SYSTEM MALFUNCTIONS

1. Spark Plugs – Fouled, dirty, improper type or improperly gapped.
2. Ignition Timing – Advanced or Retarded.
3. Timing Advance – Too fast or too slow an advance rate.
4. Battery – Low charge or faulty.

Carburetion can also lead to high HC emissions if the mixture is either excessively rich or excessively lean.

MIXTURE-RELATED MALFUNCTIONS

1. Air Cleaner – Dirty, over oiled or torn.
2. Jets – Clogged, restricted or incorrect size.
3. Float Level – Level too low (lean) or too high (rich).
4. Choke – Leaking choke plunger or sticking linkage.
5. Air Leaks – Intake manifolds, engine gaskets and other sealing surfaces.
6. Synchronization – Unbalanced on multi-cylinder machines.
7. Exhaust System – Restricted flow or improper exhaust system.

Engine wear or damage can also cause high HC emissions.

1. Rings – Low compression, leakage into crankcase.
2. Valves – Improper adjustment, bent stem or burnt.
3. Gaskets – Leaking, loss of compression.
4. Crank Seals – Leaking.
5. Oil Consumption – Worn valve guides, worn rings, clogged crankcase breather.
6. Oil – Improper engine oil.

ELECTRICAL SYSTEM

CONTENTS

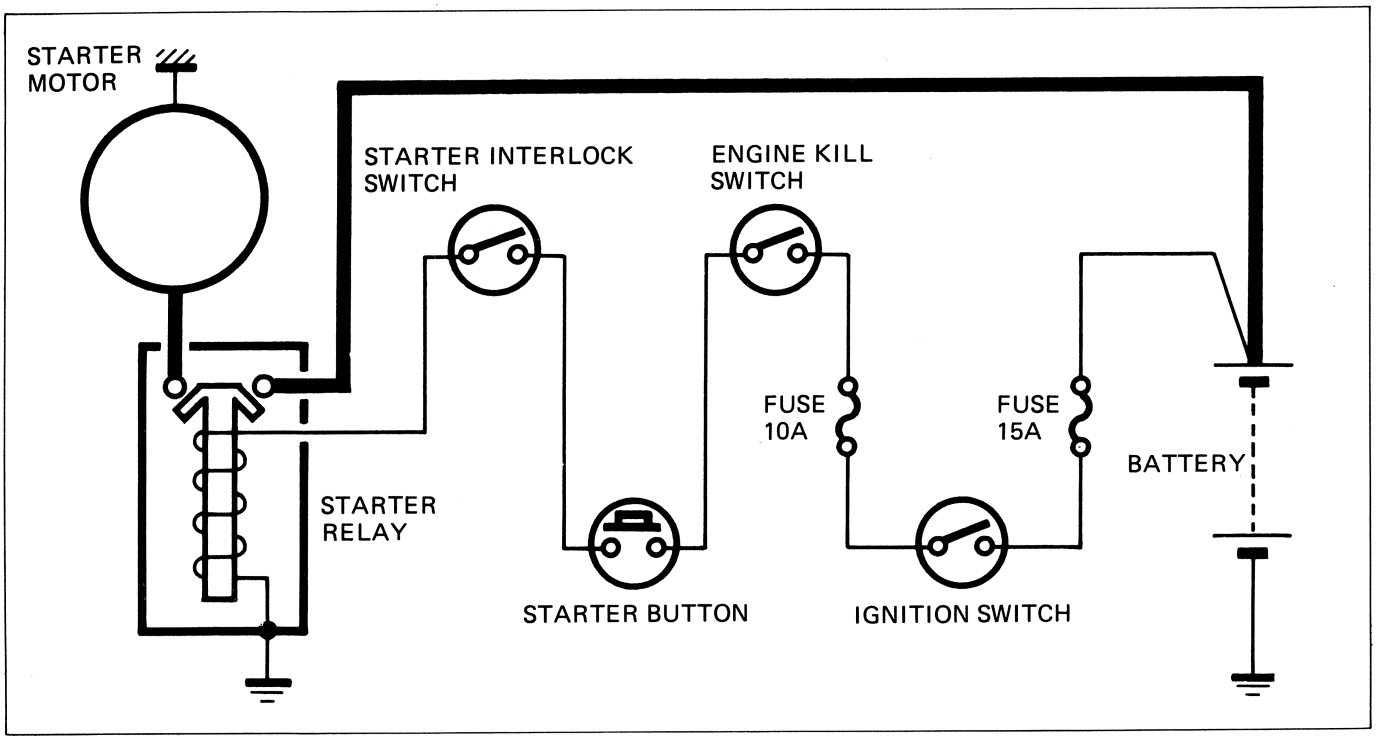
STARTER SYSTEM 6- 1
IGNITION SYSTEM 6- 6
CHARGING SYSTEM 6- 9
BATERY 6-13
SWITCHES 6-16
COMBINATION METER 6-19
FUEL METER AND FUEL GAUGE 6-21

STARTER SYSTEM

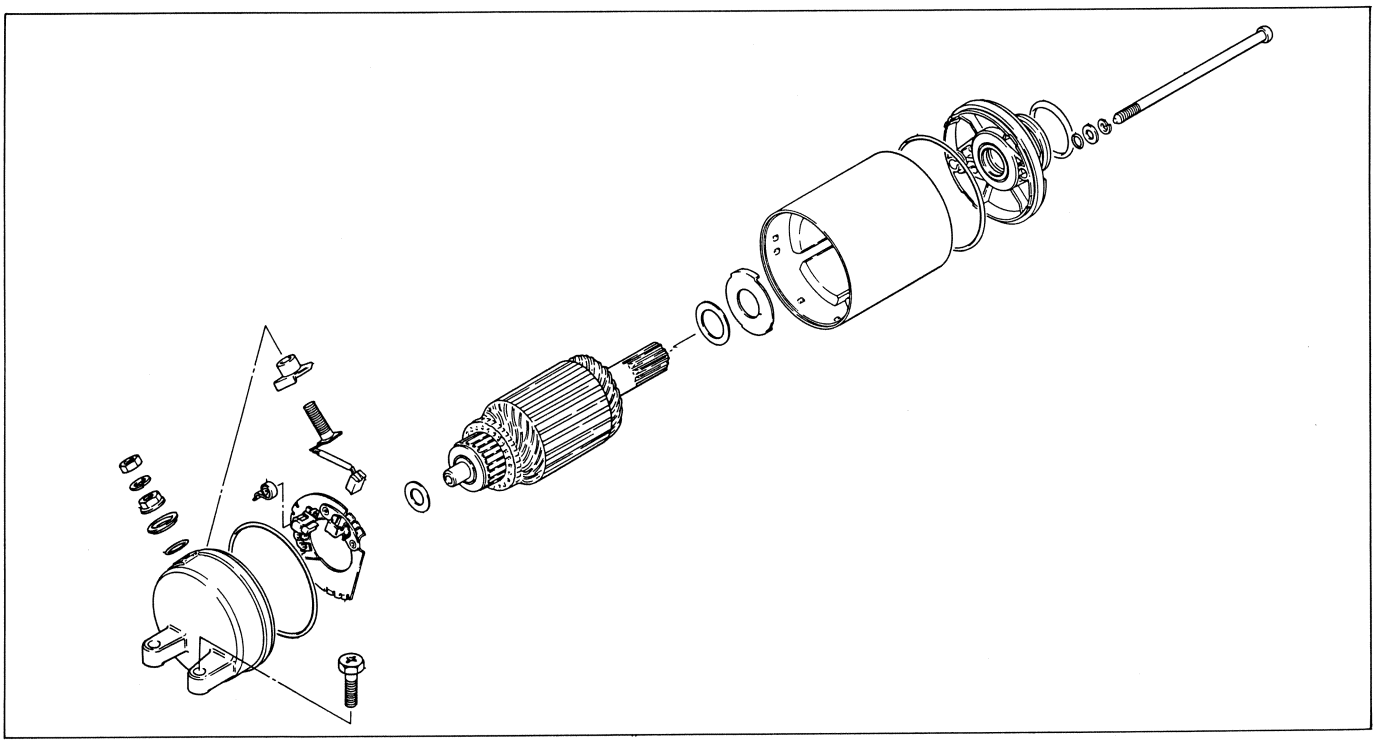
DESCRIPTION

The starter system is shown in the diagram below: namely, the starter motor, relay, interlock switch, starter button, engine kill switch, IG switch and battery. Depressing the starter button (on the right handlebar switch box) energizes the relay, when clutch lever is depressed. This causes the contact points to close which connects the starter motor to the battery. The motor draws about 80 amperes to start the engine.

STARTING SYSTEM DIAGRAM

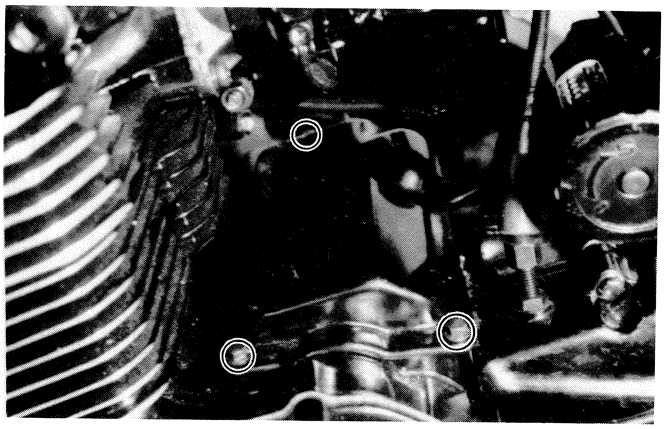


STARTER MOTOR

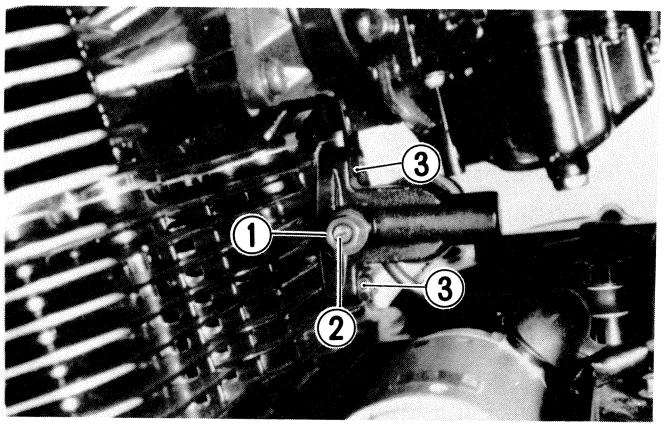


STARTER MOTOR REMOVAL

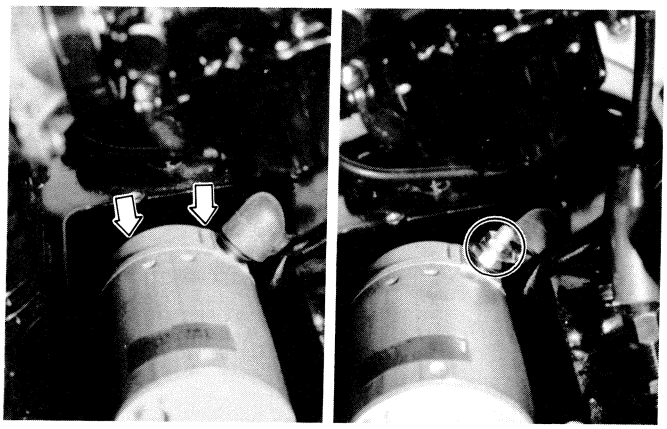
- Remove the three bolts and take off the starter motor cover.



- Loosen the lock nut ① and tighten the stop screw ② and then remove the two cam chain tensioner mounting bolts ③.
- Take off the cam chain tensioner.



- Remove the two starter motor mounting bolts.
- Disconnect the starter motor lead wire and take off the starter motor.



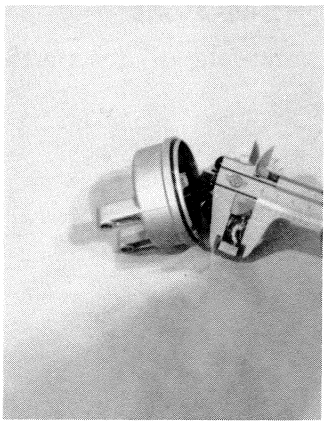
- Remove the two screws and disassemble the starter motor as shown in illustration (See page 6-1).

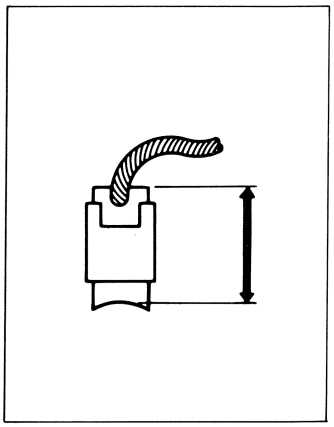
STARTER MOTOR INSPECTION

CARBON BRUSHES

When the brushes are worn, the motor will be unable to produce sufficient torque and the engine will be difficult to turn over. To prevent this, periodically, inspect the length of the brushes, replacing them when they are too short or chipping.

Service Limit	9 mm (3.5 in)



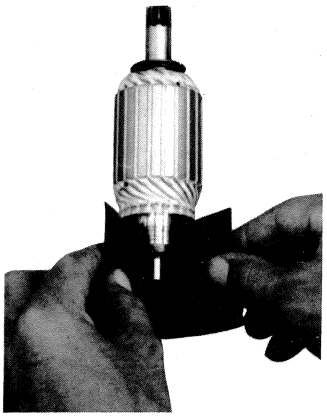


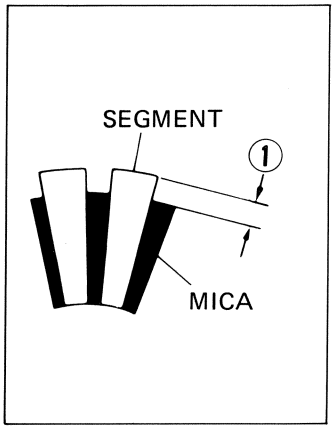
COMMUTATOR

If the commutator surface is dirty, starting performance decreases. Polish the commutator with #400 or similar fine emery paper when it is dirty. After polishing wipe the commutator with a clean dry cloth.

Measure the commutator under cut ①.

Service Limit	0.2 mm (0.01 in)



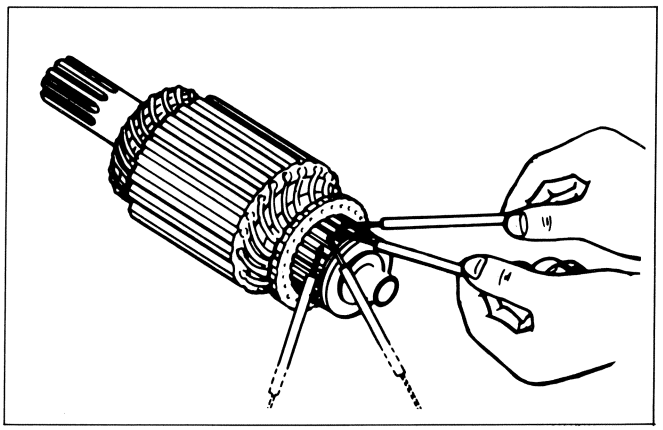


ARMATURE COIL

Using a pocket tester, check the coil for open and ground by placing probe pins on each commutator segment and rotor core (to test for ground) and on any two segments at various places (to test for open), with the brushes lifted off the commutator surface.

If the coil is found to be open-circuited or grounded, replace the armature. Continuous use of a defective armature will cause the starter motor to suddenly fail.

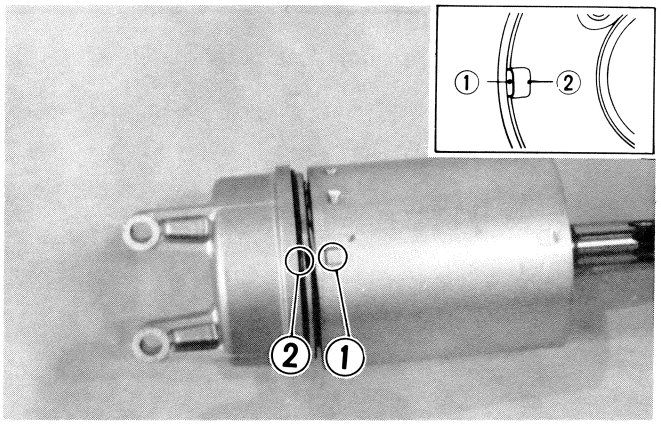
09900-25002	Pocket tester



STARTER MOTOR REASSEMBLY

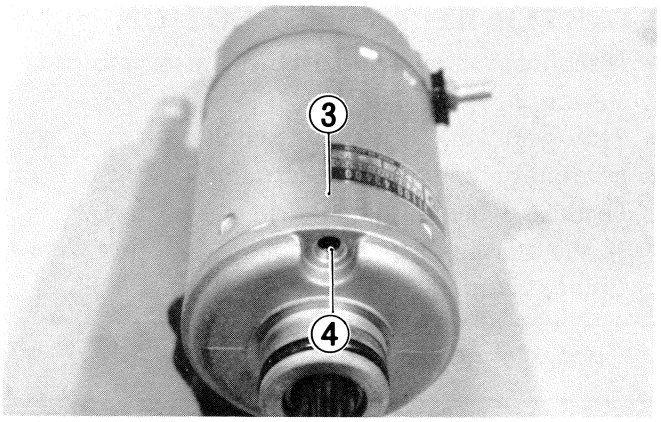
BRUSH HOLDER

When fixing brush holder to starter motor case, align the protrusion ① of the starter motor case with the notch ② of the brush holder.



HOUSING TOP

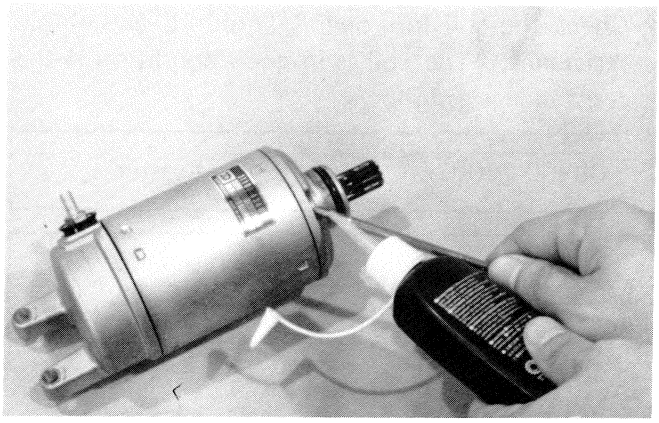
When installing housing top, align the index line ③ on the starter motor case with center of screw ④ on the housing top.



SECURING SCREWS

Apply Thread Lock "1363C" to starter motor securing screws.

99104-32050	THREAD LOCK "1363C"



STARTER MOTOR MOUNTING BOLT

Apply Thread Lock "1363C" to the starter motor mounting bolts.

99104-32050	THREAD LOCK "1363C"

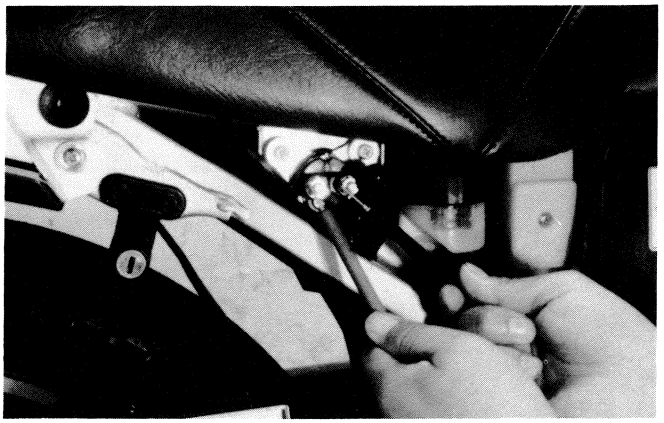
CHAIN TENSIONER

Install the chain tensioner (See page 3-79).

STARTER RELAY INSPECTION

- Disconnect lead wire of the starter motor at starter relay.
- Turn on the ignition switch, inspect the continuity between the terminals, positive and negative, when pushing the starter button.
- If the starter relay is in sound condition, continuity is found.

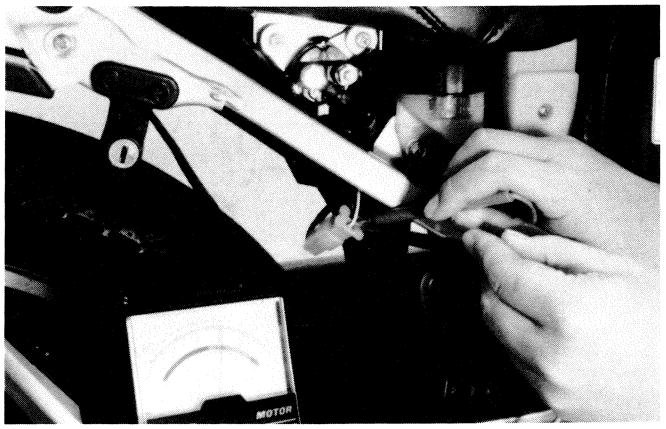
09900-25002	Pocket tester



- Check the coil for "open", "ground" and ohmic resistance. The coil is in good condition if the resistance is as follows.

09900-25002	Pocket tester

	STD resistance
Y/G – B/W	Approx. 3 – 4 Ω

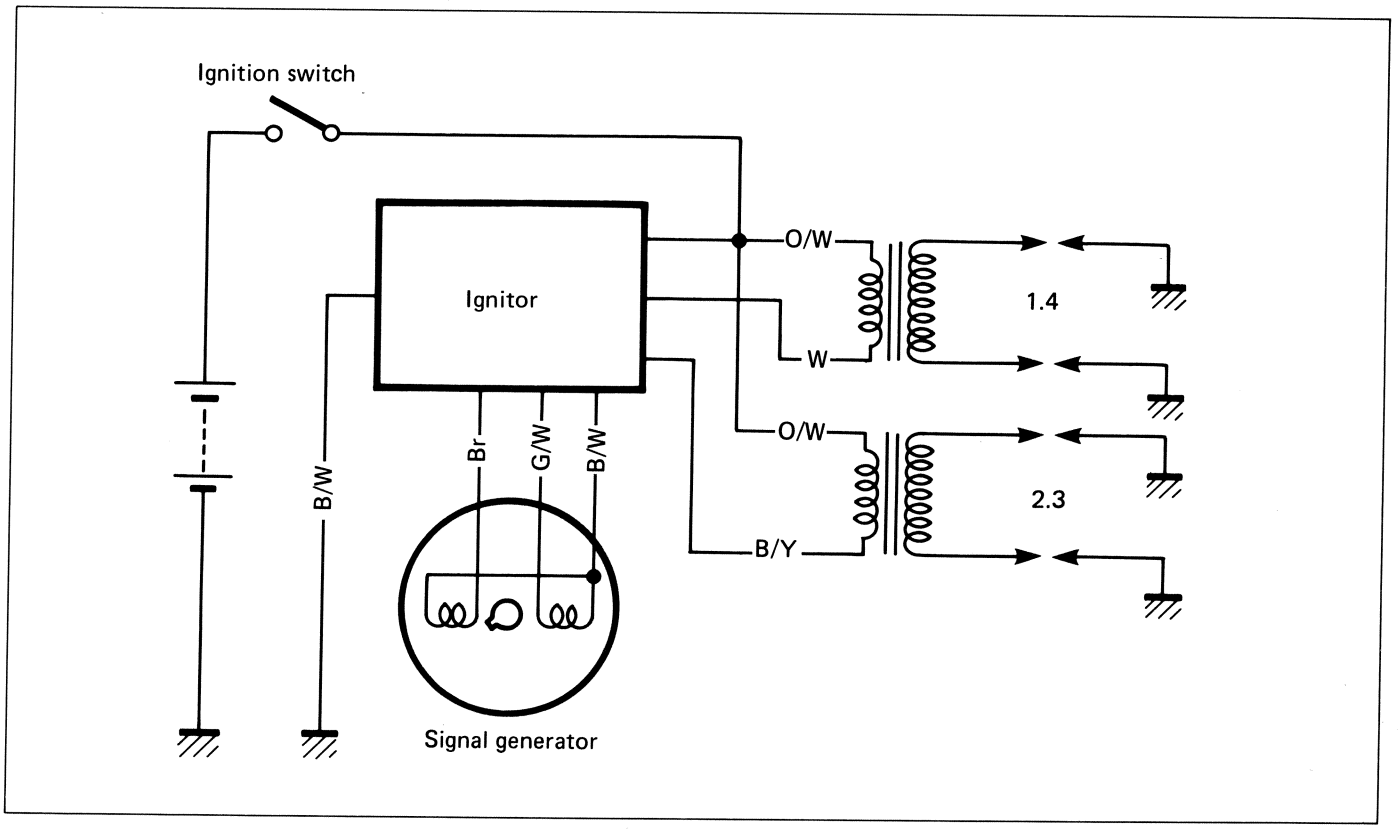


IGNITION SYSTEM

DESCRIPTION

The fully transistorized ignition system consists of a signal generator, igniter, ignition coils, and spark plugs. The signal generator is comprised of one rotor and two pickup coils.

The signal generator is mounted at the right end of the crankshaft. The output of the signal generator goes to the igniter, unit, where it turns ON and OFF the transistor alternately. As the transistor is turned ON and OFF, the current passing through the primary windings of the ignition coil is also turned OFF and ON accordingly, thus it induces the secondary current in the ignition coil secondary windings and produce the spark between spark plug gaps.



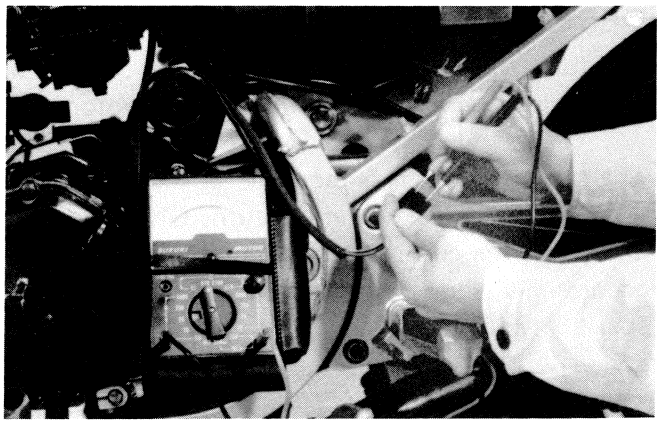
INSPECTION

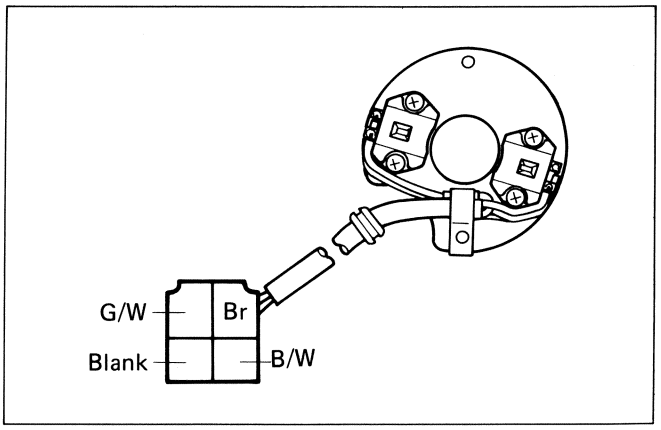
SIGNAL GENERATOR

- Disconnect the coupler.
- Measure the resistance between lead wires.
- If the resistance is infinity or less than the specifications, the signal generator must be replaced.

09900-25002	Pocket tester

Wire color	STD resistance
G/W – B/W	250 – 500 Ω
Br – B/W	

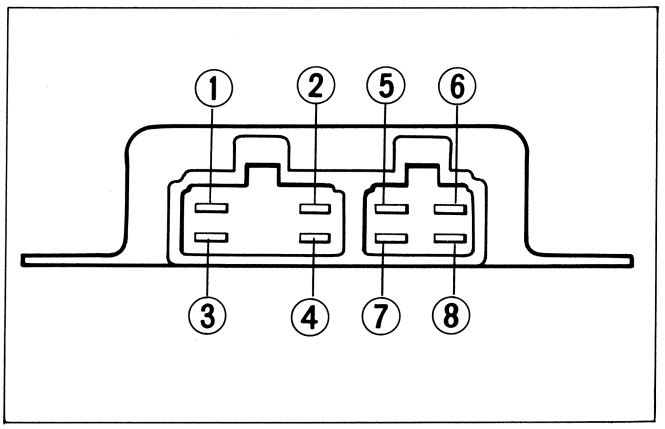




IGNITOR

- Using the pocket tester (R x 1kΩ range), measure the resistance between the terminals in the following table.

09900-25002	Pocket tester



Unit: kΩ

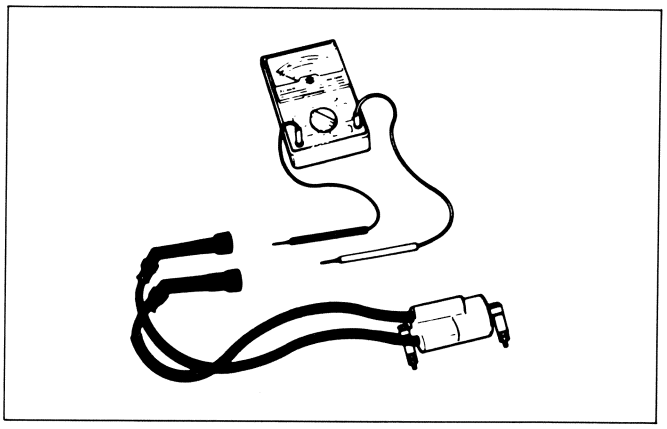
⊖ Probe of tester	⊕ Probe of tester ①	②	③	④	⑤	⑥	⑦	⑧
①		OFF	OFF	OFF	OFF	OFF	OFF	OFF
②	9-20		9-20	6-10	50-150	50-150	5-10	OFF
③	OFF	OFF		OFF	OFF	OFF	OFF	OFF
④	2-4	OFF	2-4		15-40	15-40	ON	OFF
⑤	25-50	OFF	25-50	15-30		50-200	15-30	OFF
⑥	25-50	OFF	25-50	15-30	50-200		15-30	OFF
⑦	2-4	OFF	2-4	ON	15-40	15-40		OFF
⑧	OFF	OFF	OFF	OFF	OFF	OFF	OFF	

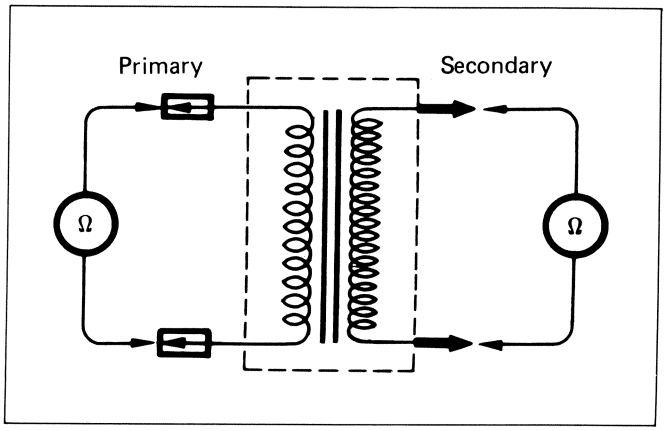
IGNITION COIL (Checking with Pocket Tester)

- Check the ignition coil with pocket tester.

09900-25002	Pocket tester

Ignition coil resistance	
Primary	3 – 5 Ω
Secondary	30 – 60 kΩ



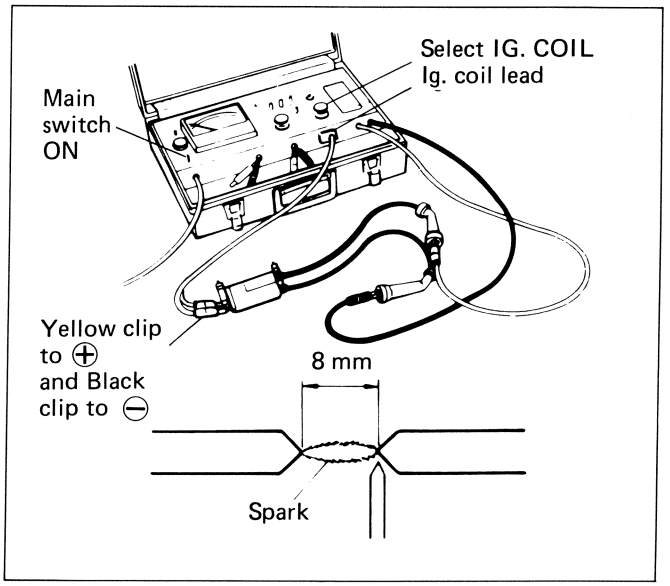


IGNITION COIL (Checking with Electro Tester)

- Using the electro tester, test each ignition coil for sparking performance. The test connection is as indicated. Make sure that the three-needle sparking distance is at least 8 mm.
- If no sparking or orange color sparking occurs with this much gap, then it is defective and must be replaced. Test for 5 minutes.

09900-28106	Electro tester

STD spark performance	8 mm

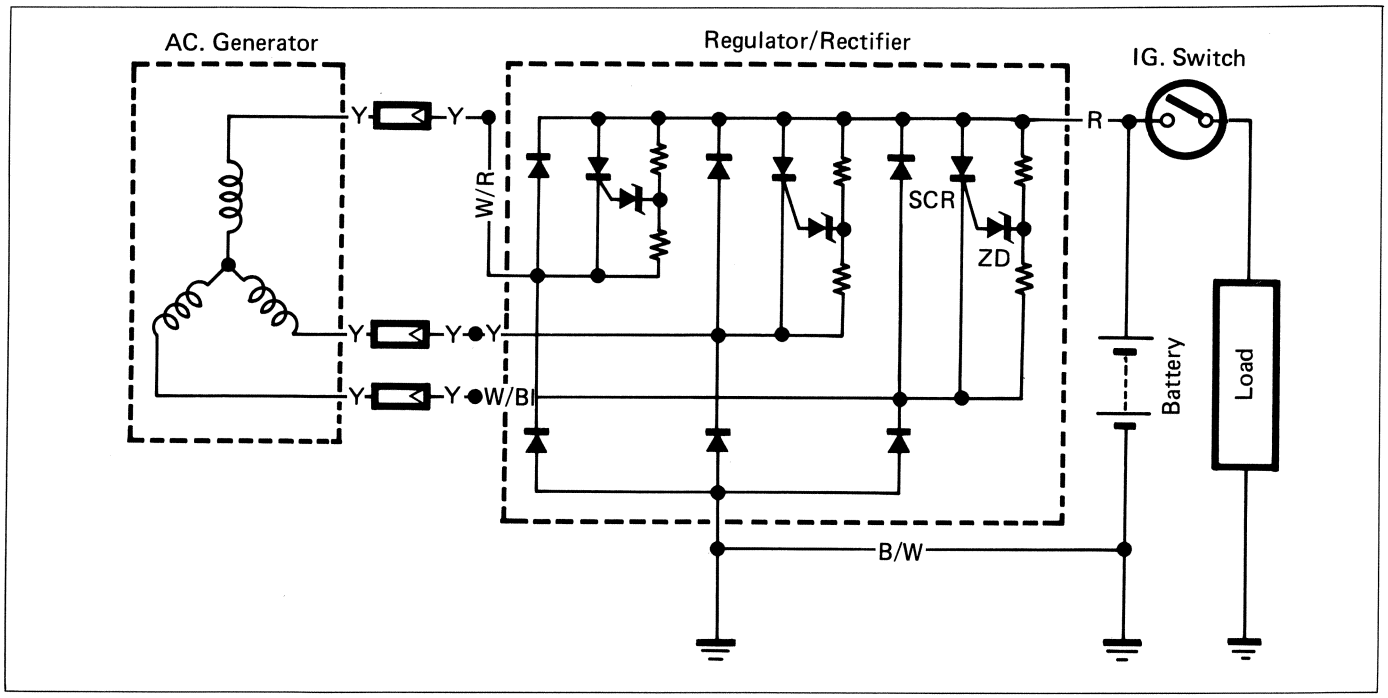


CHARGING SYSTEM

DESCRIPTION

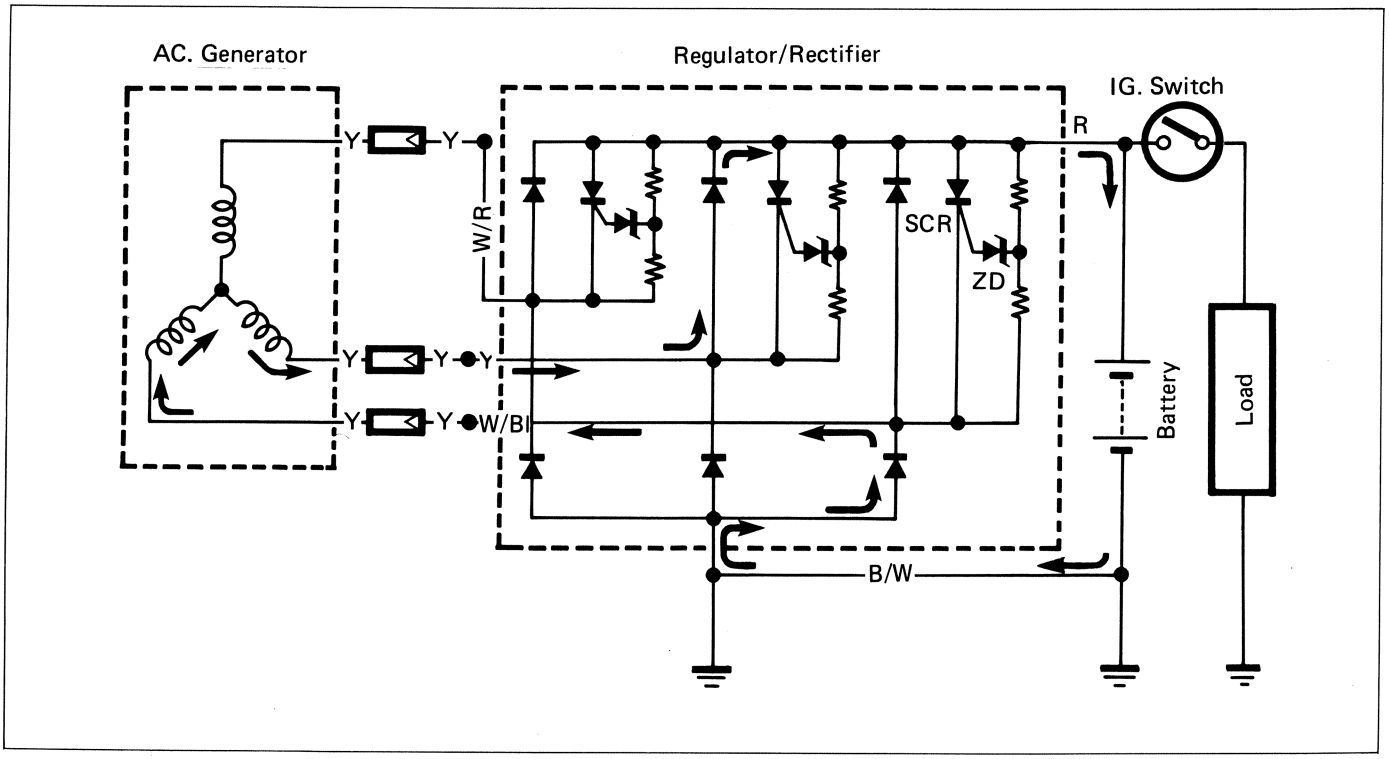
The circuit of the charging system is indicated in figure, which is composed of an AC generator, regulator/rectifier unit and battery.

The AC current generated from AC generator is converted by rectifier and is turned into DC current, then it charges the battery.

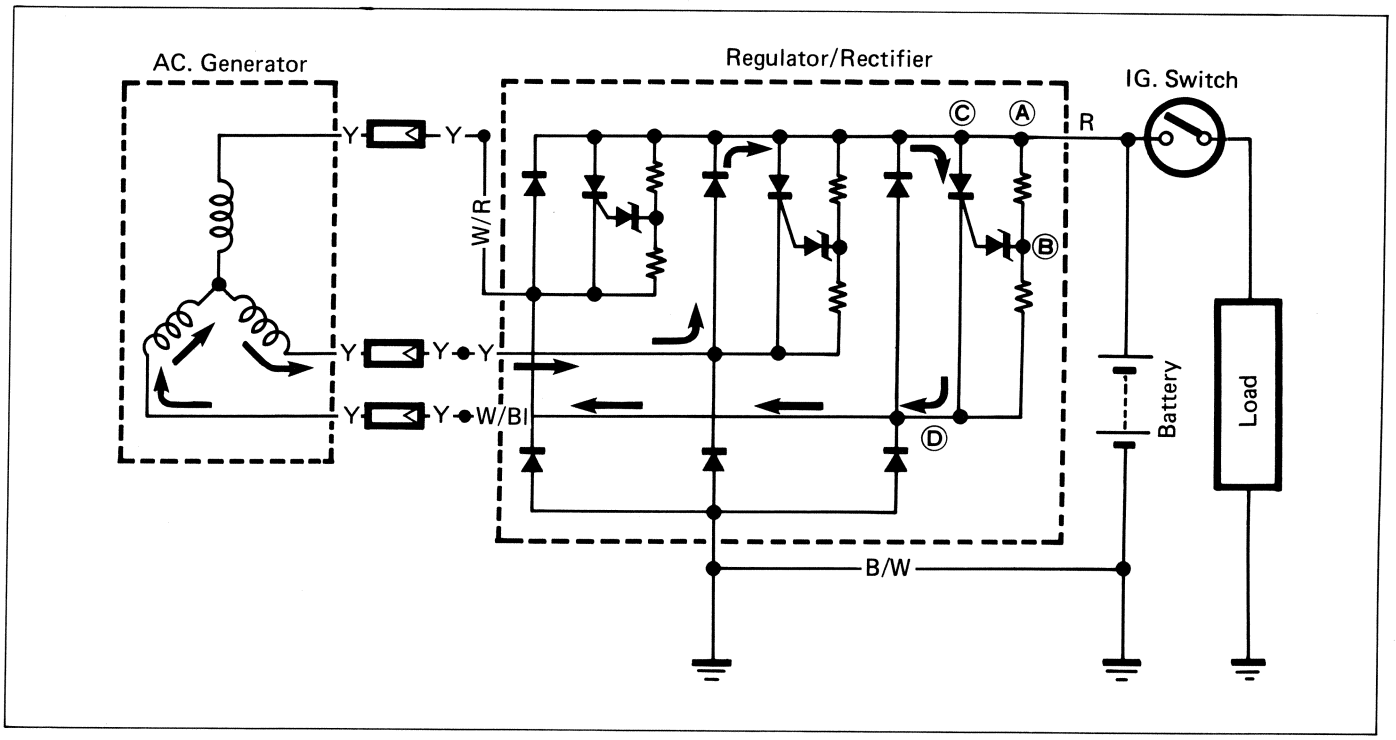


Function of Regulator

While the engine r/min is low and the generated voltage of AC generator is lower than the adjusted voltage of regulator, the regulator does not function, incidentally the generated current charges the battery directly.



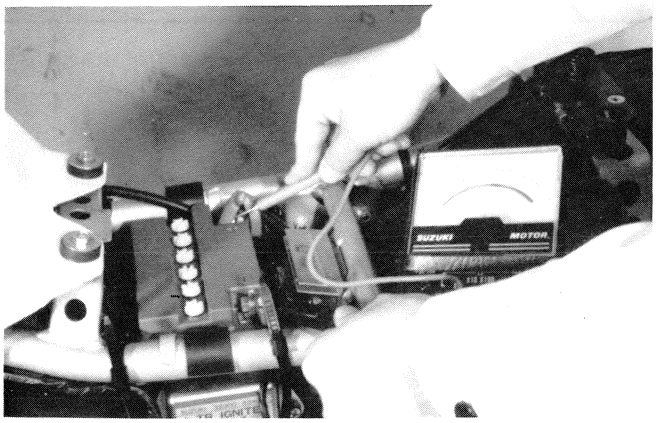
When the engine r/min becomes higher, the generated voltage of AC generator also becomes higher and the voltage between points Ⓐ and Ⓑ of regulator becomes high accordingly, and when it reaches the adjusted voltage of regulator, ZD (Zener diode) sends signal to the gate of SCR (Thyristor). Then the SCR becomes conductive to the direction from point Ⓒ to point Ⓓ. Namely at the state of this, the current generated from the AC generator gets through SCR without charging the battery and returns to AC generator again. At the end of this state, since the AC current generated from AC generator flows into the point Ⓓ, reverse current tends to flow to SCR, then the circuit of SCR turns to OFF mode and begins to charge the battery again. Thus these repetitions maintain charging voltage to the battery constant and protect it from over-charging.



INSPECTION

CHARGING OUTPUT CHECK

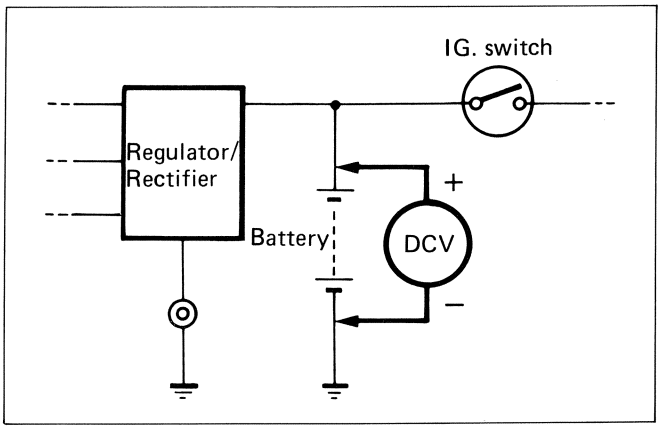
- Remove the seat.
- Start the engine and keep it running at 5 000 r/min with dimmer switch turned HI position.
- Using the pocket tester, measure the DC voltage between the battery terminal ⊕ and ⊖.
- If the tester reads under 13.5V or over 15.5V, check the AC generator no-load performance and regulator/rectifier.



NOTE:
When making this test, be sure that the battery is fully-charged condition.

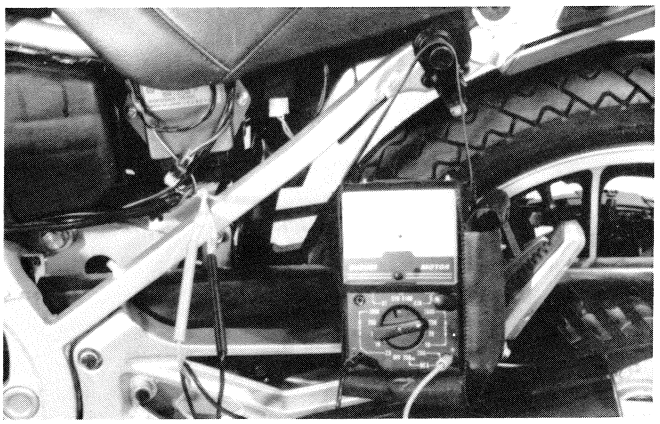
STD charging output
13.5 – 15.5V (DC) at 5 000 r/min.

09900-25002	Pocket tester



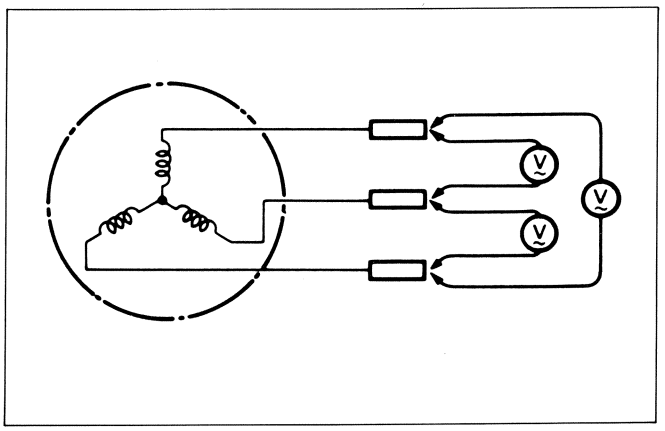
AC GENERATOR NO-LOAD PERFORMANCE

- Remove the left frame cover.
- Disconnect the three lead wires from the AC generator terminal.
- Start the engine and keep it running at 5 000 r/min.
- Using the pocket tester, measure the AC voltage between the three lead wires.
- If the tester reads under 75V, the AC generator is faulty.



STD No-load performance
More than 75V (AC) at 5 000 r/min.

09900-25002	Pocket tester

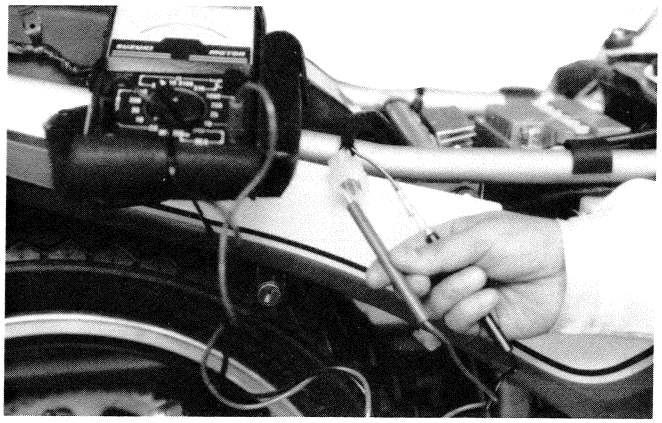


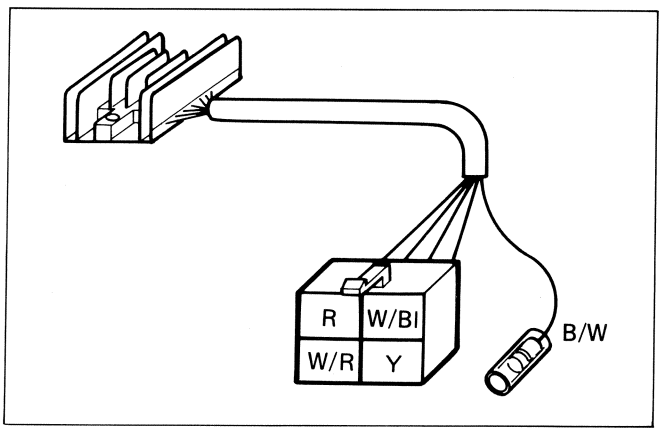
REGULATOR/RECTIFIER

- Remove the seat.
- Using the pocket tester (X1Ω range), measure the resistance between the lead wires in the following table.
- If the resistance checked is incorrect, replace the regulator/rectifier.

09900-25002	Pocket tester

⊖ Probe of tester	⊕ Probe of tester					
		R	W/Bl	W/R	Y	B/W
R			OFF	OFF	OFF	OFF
W/Bl	4-10Ω			OFF	OFF	OFF
W/R	4-10Ω	OFF			OFF	OFF
Y	4-10Ω	OFF	OFF			OFF
B/W	30-80Ω	4-10Ω	4-10Ω	4-10Ω		



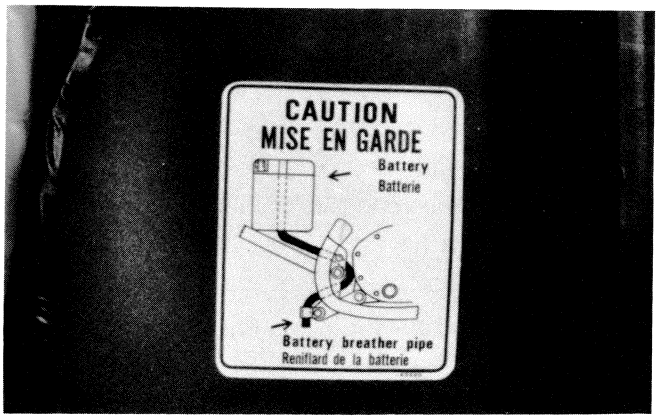


BATTERY

SPECIFICATIONS

Type designation	YB10L-B
Capacity	43.2 kC (12 Ah)/10 HR
Standard electrolyte S.G.	1.28 at 20°C

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

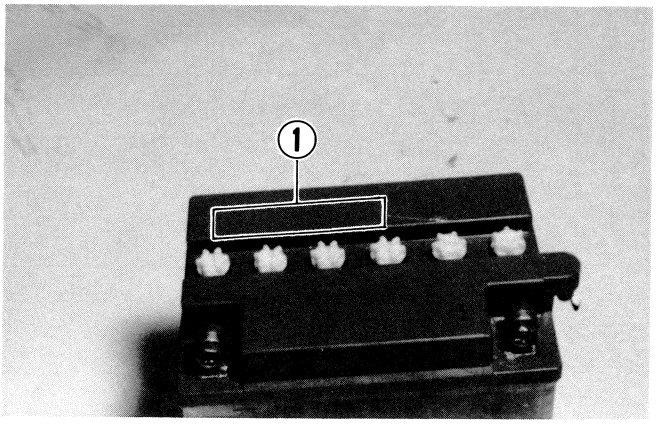


INITIAL CHARGING

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 up to indicated UPPER LEVEL. Filling electrolyte should be always cooled below 30°C 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.



Ⓐ Sealed tube

Maximum charging current	1.2A

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 ①, as follows, each indicating month, date and year.

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.

Months after manufacturing	Within 6	Within 9	Within 12	Over 12
Necessary charging hours	20	30	40	60

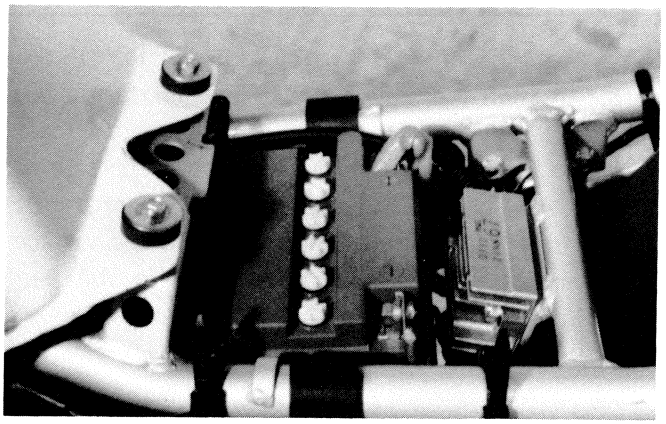
SERVICING

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.

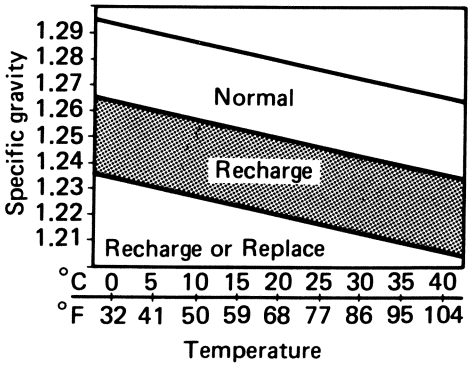
Check the electrolyte level and add distilled water, as necessary, to raise the electrolyte to each cell's upper level.
Check the battery for proper charge by taking an electrolyte S.G. reading. If the reading is 1.22 or less, as corrected to 20°C, it means that the battery is still in a run-down condition and needs re-charging.

NOTE:
First, remove the ⊖ lead wire.

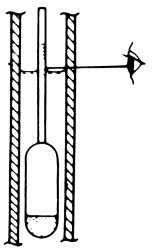


BASED ON S.G. READING RECHARGING OPERATION

To correct an S.G. reading 20°C, 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.

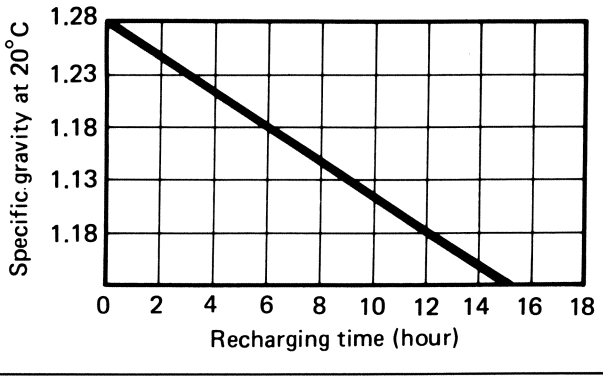


Check the reading (as corrected to 20°C) with chart to determine the recharging time in hours by constant-current charging at a charging rate of 1.2 amperes (which is a tenth of the capacity of the present battery).

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

Electrolyte specific gravity	1.28 at 20°C

CAUTION:
Constant-voltage charging, otherwise called "quick" charging, is not recommendable for it could shorten the life of the battery.



09900-28403	Hydrometer

SERVICE LIFE

Lead oxide is applied to the pole plates of the battery which will come off gradually during the service. When the bottom of the battery case becomes full of the sediment, the battery cannot be used any more. If the battery is not charged for a long time, lead sulfate is generated on the surface of the pole plates and will deteriorate the performance (sulfation). Replace the battery with new one in such a case.

When a battery is left for a long term without using, it is subject to sulfation. When the motorcycle is not used for more than 1 month (especially during the winter season), recharge the battery once a month at least.

WARNING:

- **Before charging a battery, remove the seal cap from each cell.**
- **Keep fire and sparks away from a battery being charged.**
- **When removing a battery from the motorcycle, be sure to remove the ⊖ terminal first.**

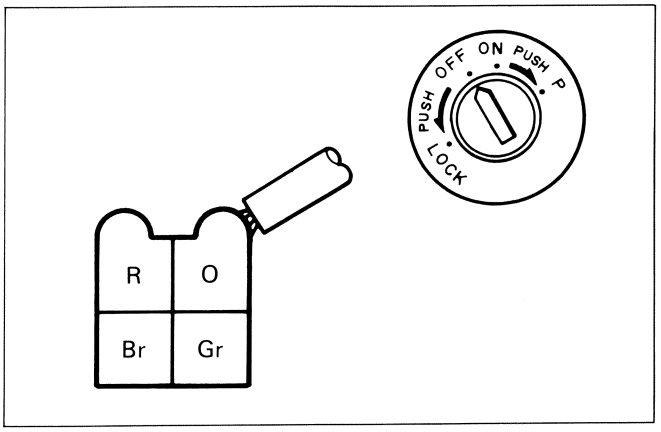
SWITCHES

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

09900-25002	Pocket tester

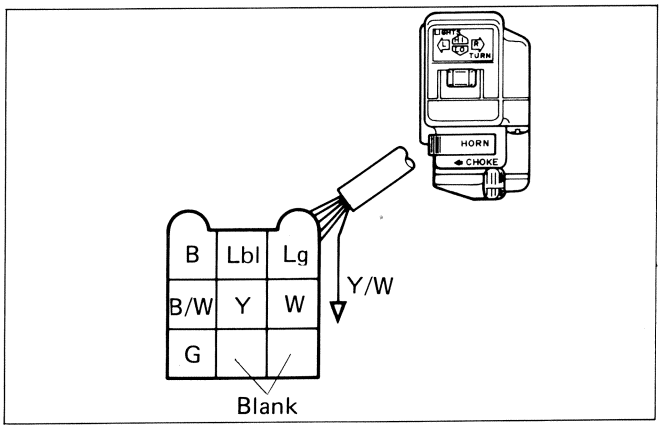
IGNITION SWITCH

POSITION \ COLOR	R	O	Gr	Br
OFF				
ON	○	○	○	○
P	○			○



DIMMER SWITCH

POSITION \ COLOR	W	Y	Y/W
HI		○	○
LO	○		○



HORN SWITCH

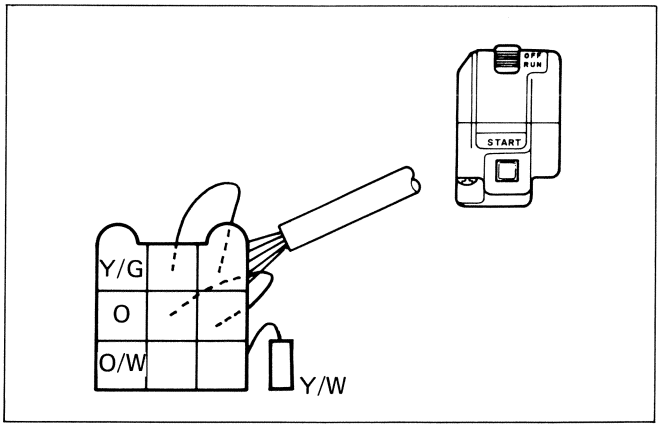
POSITION \ COLOR	G	B/W
ON	○	○
OFF		

TURN SIGNAL LIGHT SWITCH

POSITION \ COLOR	B	Lbl	Lg
R		○	○
•			
L	○	○	

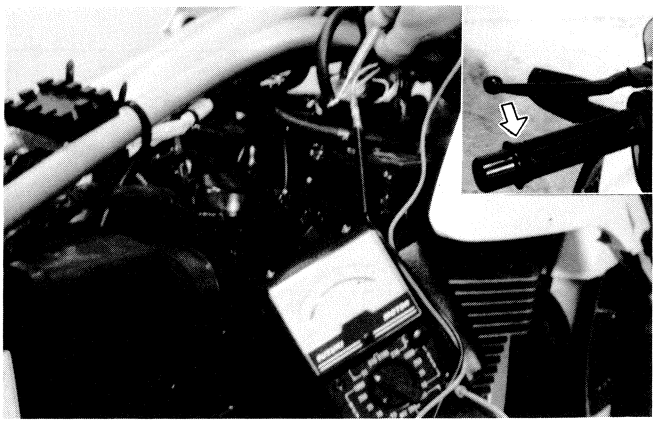
ENGINE KILL SWITCH

COLOR / POSITION	O	O/W
RUN	○———	———○
OFF		



STARTER SWITCH

COLOR / POSITION	O/W	G/Y
ON	○———	———○
OFF		

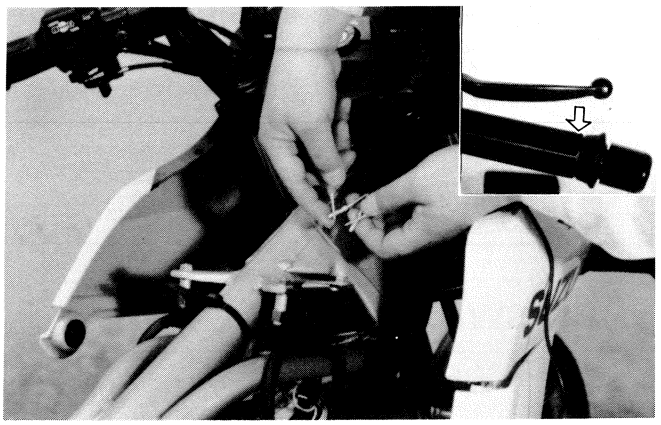


STARTER INTERLOCK SWITCH

COLOR / POSITION	Y/G	Y/G
ON	○———	———○
OFF		

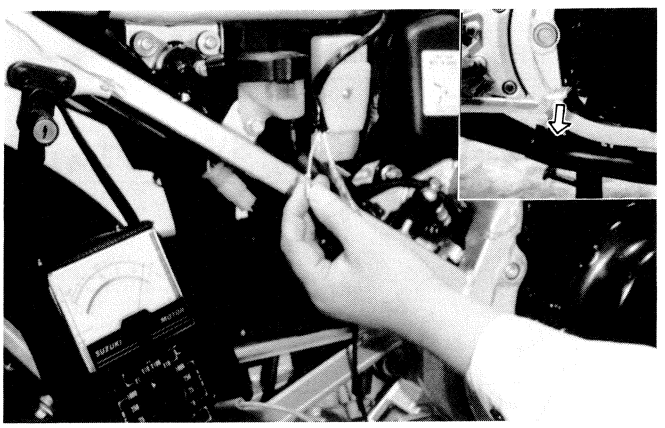
FRONT BRAKE LIGHT SWITCH

COLOR / POSITION	O/G	W
ON	○———	———○
OFF		



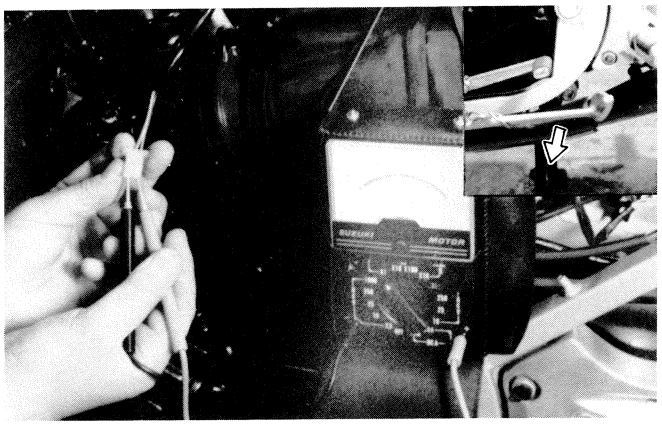
REAR BRAKE LIGHT SWITCH

COLOR / POSITION	O/G	W
ON	○———	———○
OFF		



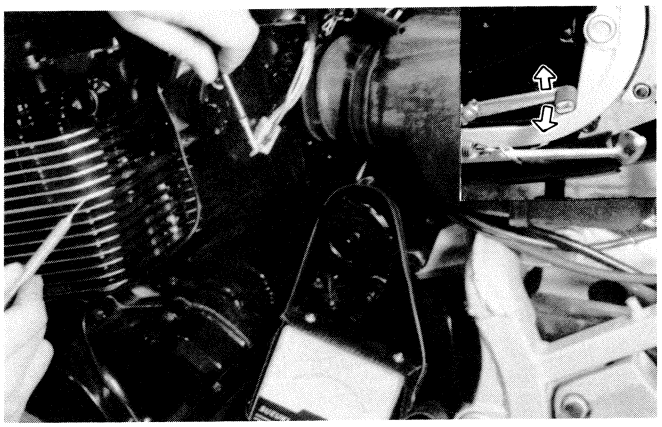
SIDE STAND CHECK LIGHT SWITCH

POSITION \ COLOR	G/W	B/W
ON	○	○
OFF		



GEAR POSITION LIGHT SWITCH

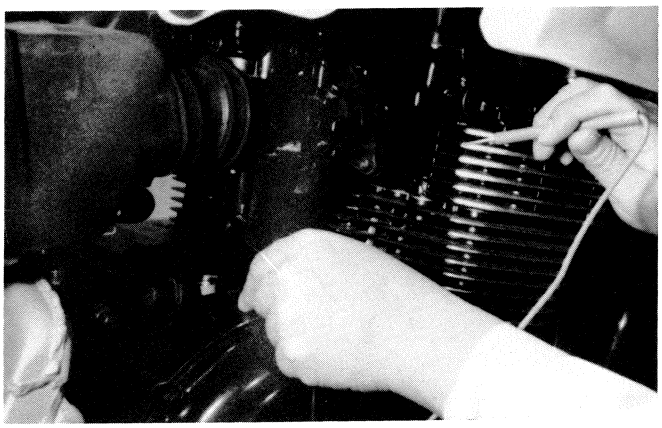
POSITION \ COLOR	W/Y	Bl	R/B	G/Bl	Y/Bl	Br/R	Gr	Ground
Low	○							○
Neutral		○						○
2nd			○					○
3rd				○				○
4th					○			○
5th						○		○
Top							○	○



OIL PRESSURE SWITCH

- Continuity, when engine is stopped.
- No continuity, when engine is running.

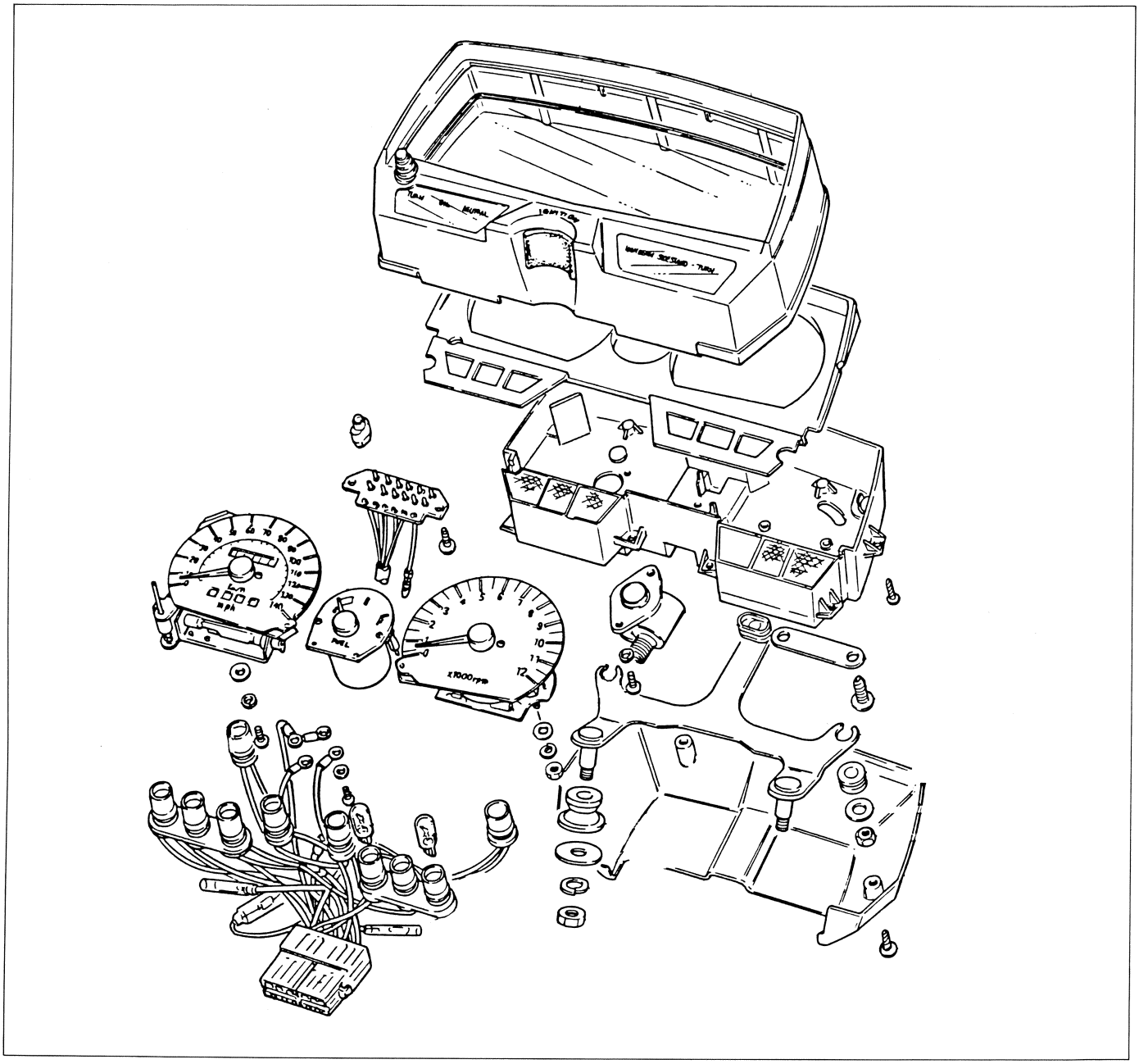
NOTE:
Before testing the oil pressure switch, check the engine oil level.



WIRE COLOR

B	:	Black	B/W	:	Black with White tracer
Bl	:	Blue	Br/R	:	Brown with Red tracer
Br	:	Brown	G/Bl	:	Green with Blue tracer
G	:	Green	G/W	:	Green with White tracer
Gr	:	Gray	G/Y	:	Green with Yellow tracer
Lbl	:	Light blue	O/G	:	Orange with Green tracer
Lg	:	Light green	O/W	:	Orange with White tracer
O	:	Orange	R/B	:	Red with Black tracer
R	:	Red	W/Y	:	White with Yellow tracer
W	:	White	Y/Bl	:	Yellow with Blue tracer
Y	:	Yellow	Y/G	:	Yellow with Green tracer
			Y/W	:	Yellow with White tracer

COMBINATION METER



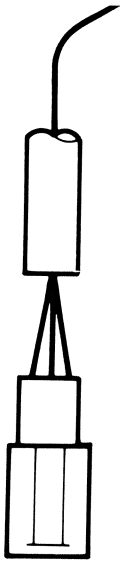
INSPECTION

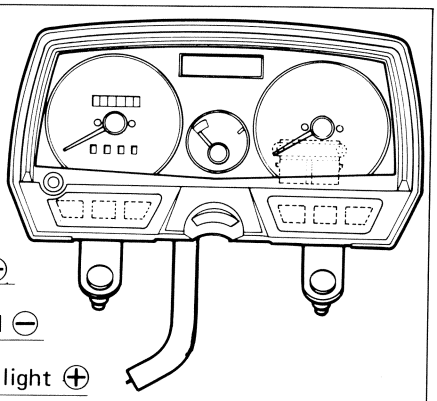
Using the pocket tester, check the continuity between lead wires in the following illustration.
If the continuity measured is incorrect, replace the respective part.

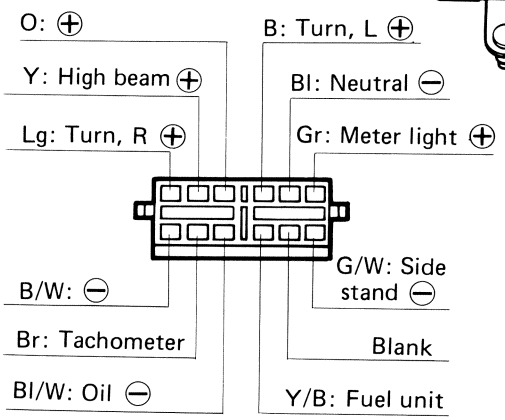
09900-25002	Pocket tester

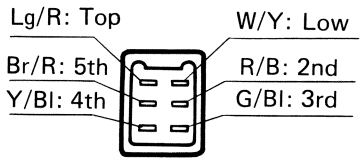
NOTE:
When making this test, it is not necessary to remove the combination meter.

GS550ES



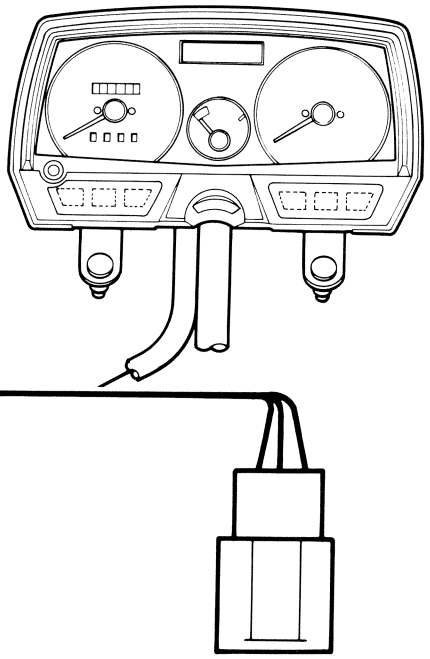


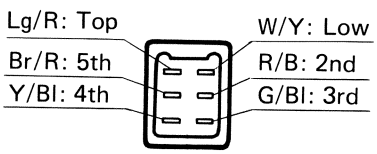


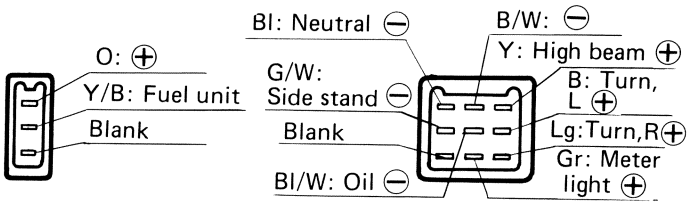


GS550E

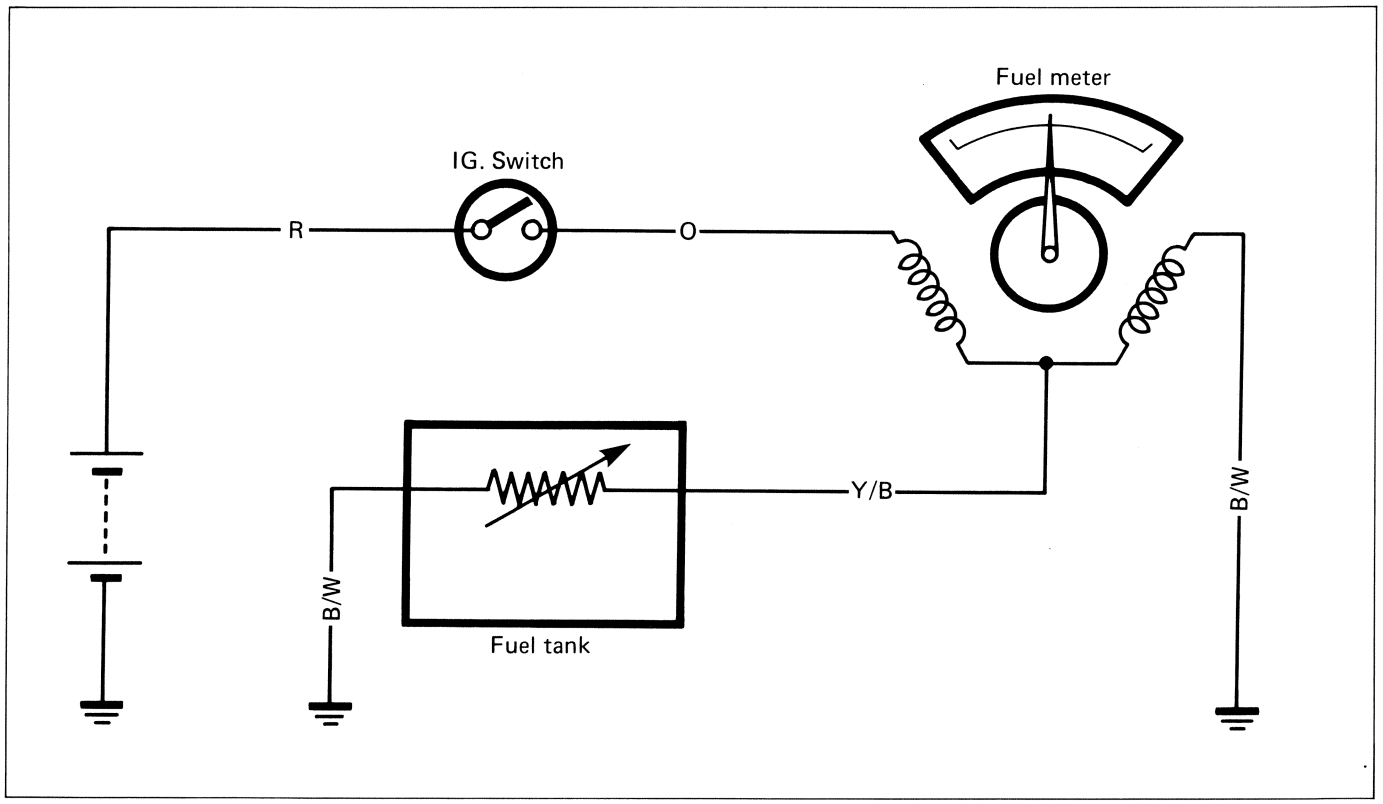








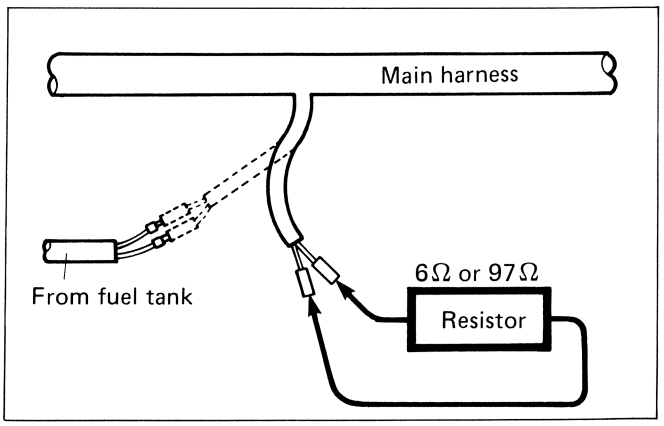
FUEL METER AND FUEL GAUGE



FUEL METER

With the ignition switch turned on, remove the two lead wires going into the fuel gauge, and connect the resistor between the main wiring harness side, and check the fuel meter.

"F"	Connect the 6 Ω resistor
"E"	Connect the 97 Ω resistor



FUEL GAUGE

Remove the lead wires coming out of the fuel gauge and check resistance of each of them.
If the resistance measured is incorrect, replace the fuel gauge assembly with new one.

09900-25002	Pocket tester

POSITION	RESISTANCE
FULL	Approx. 6Ω
1/2	Approx. 32.5Ω
EMPTY	Approx. 97Ω

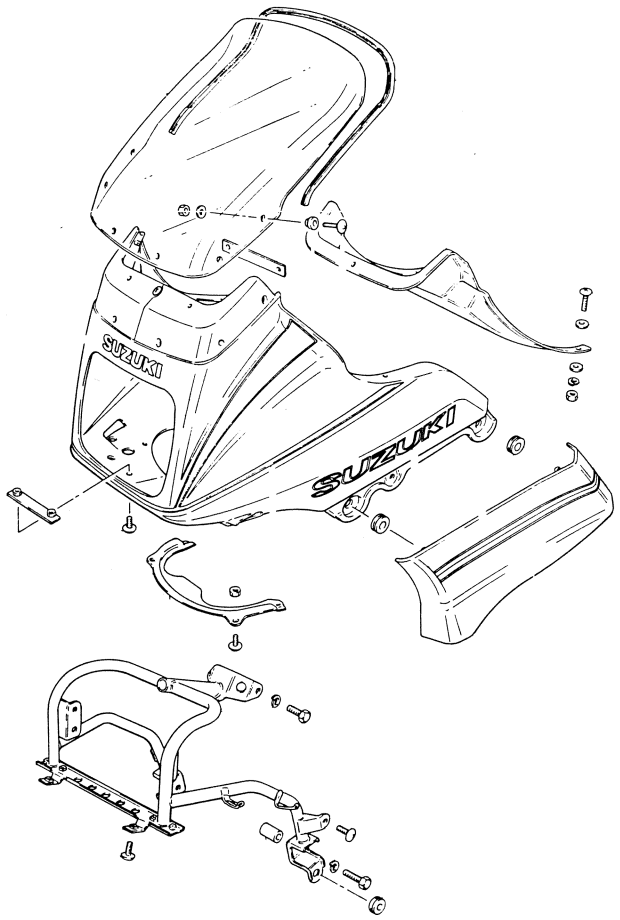


CHASSIS

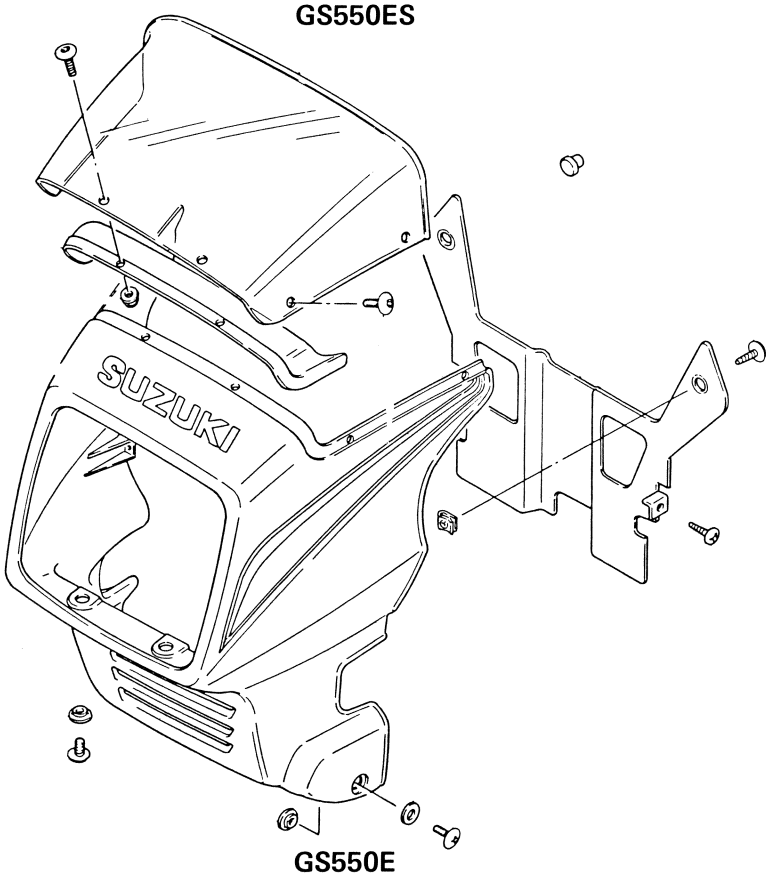
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FAIRING



GS550ES

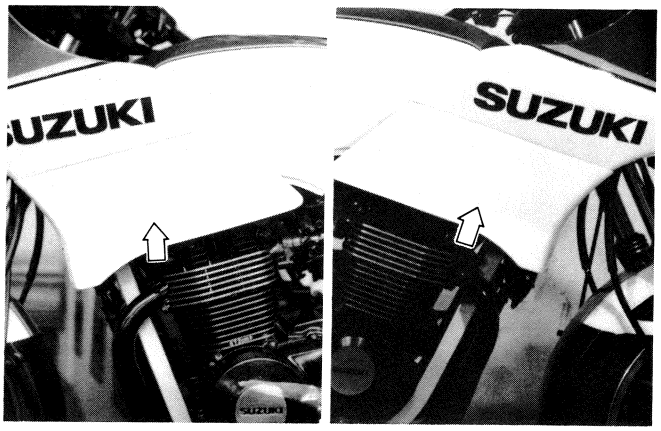


GS550E

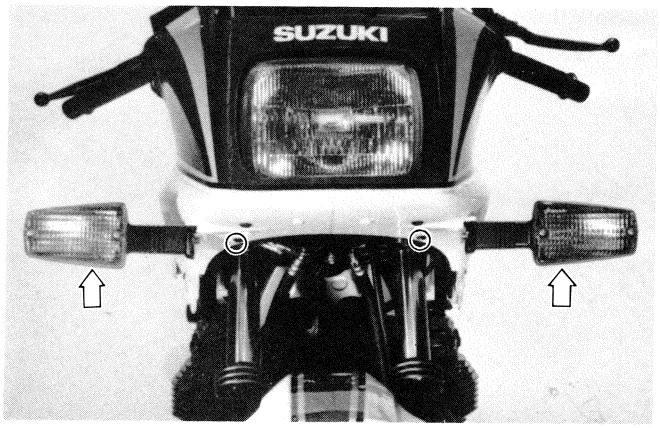
REMOVAL

GS550ES

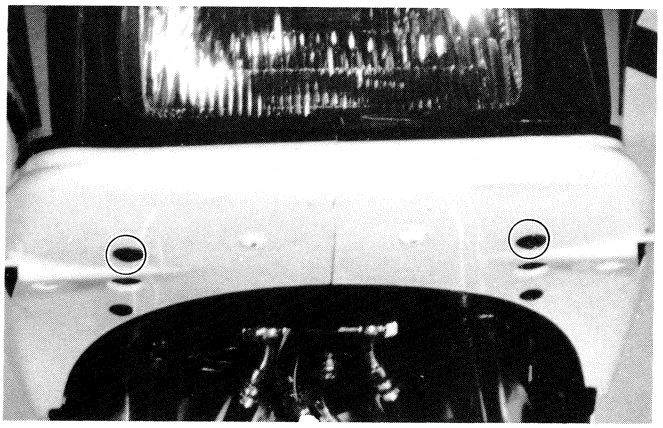
- Remove the fairing covers, right and left.



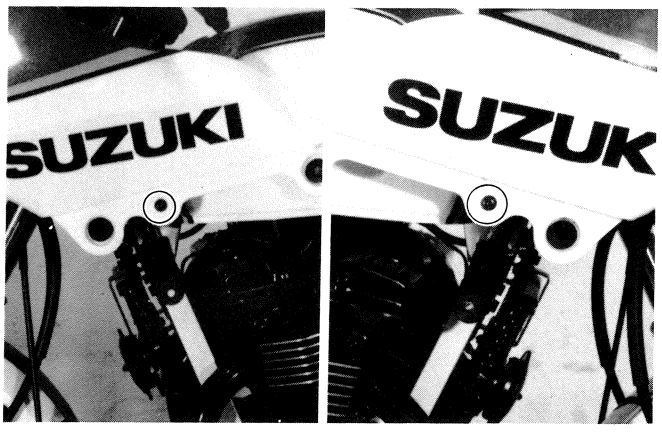
- Disconnect the front turn signal light lead wires, right and left.
- Loosen the two screws and take off the turn signal lights.



- Remove the two screws.



- Remove the screws, right and left.

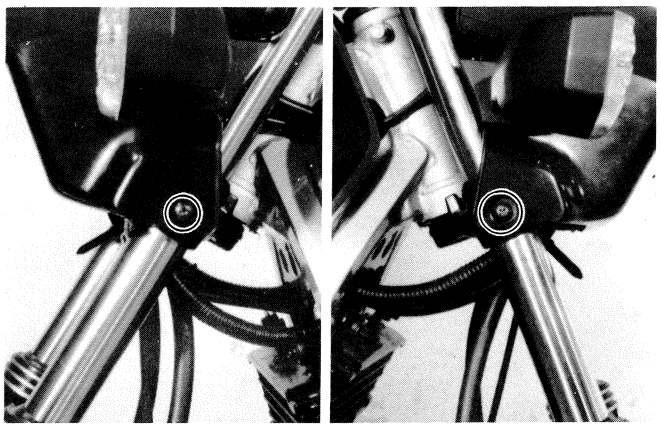


- Take off the fairing.



GS550E

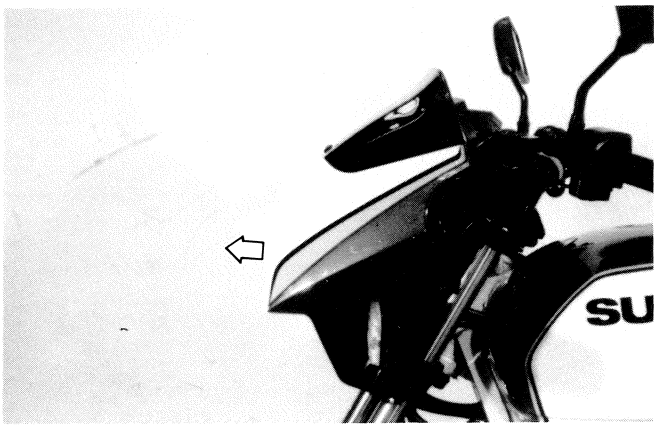
- Remove the two screws.



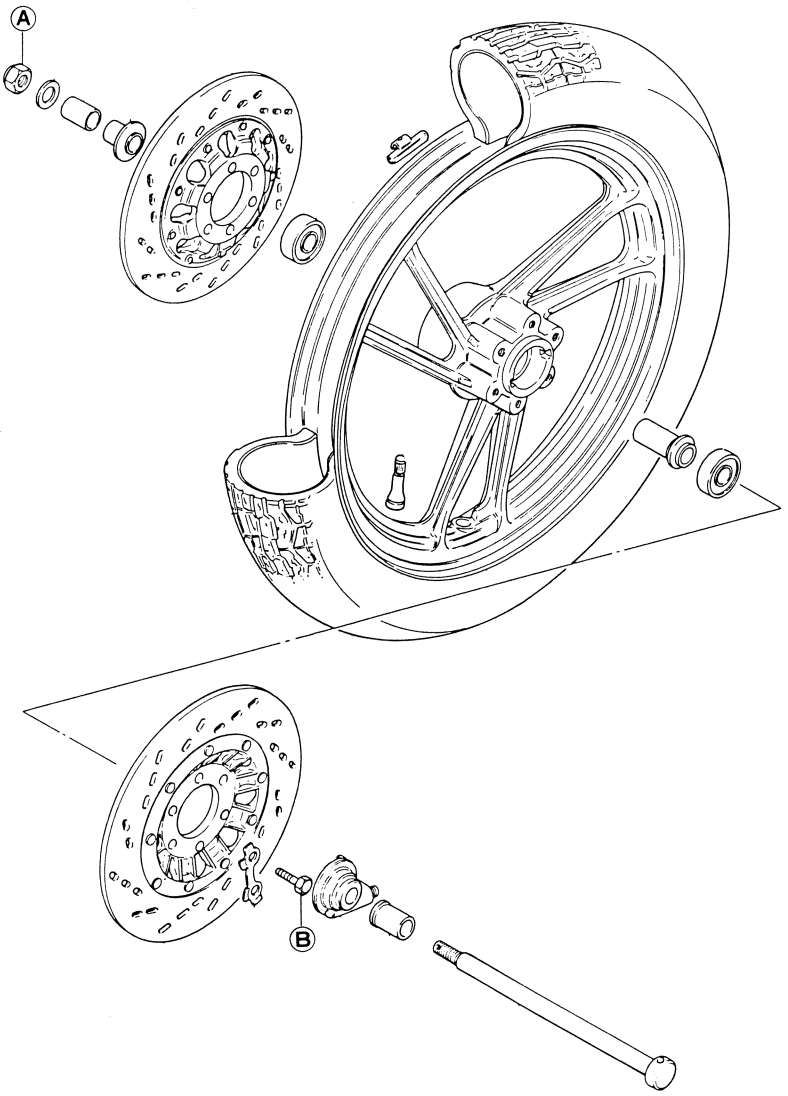
- Remove the two screws.



- Take off the fairing.



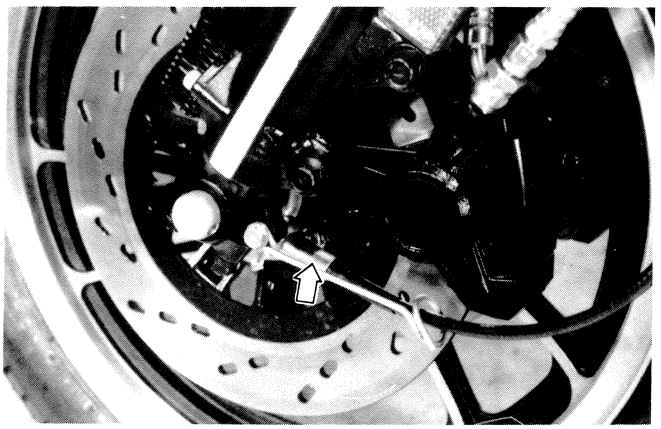
FRONT WHEEL



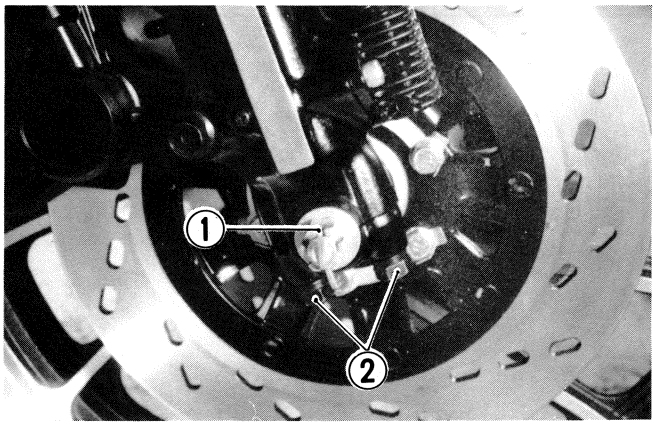
Item	Tightening torque		
	N·m	kg-m	lb-ft
Ⓐ	36 – 52	3.6 – 5.2	26.0 – 37.5
Ⓑ	15 – 25	1.5 – 2.5	11.0 – 18.0

REMOVAL AND DISASSEMBLY

- Remove the speedometer cable.

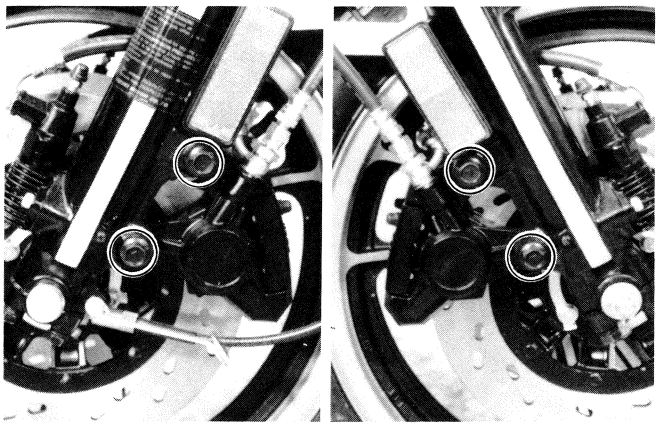


- Pull out the cotter pin ① and loosen the axle nut.
- Remove the axle holder nuts ②, right and left.

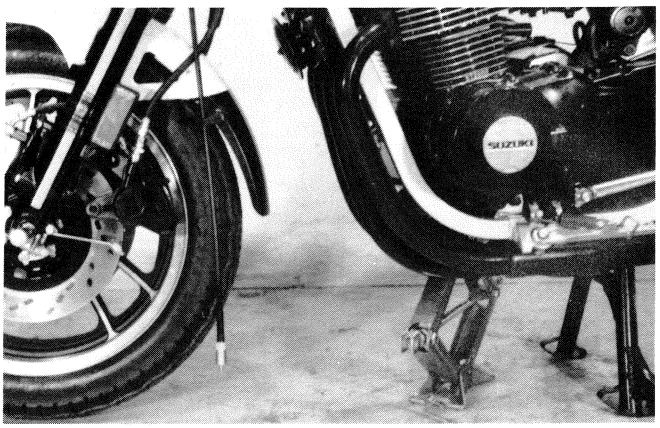


- Remove the caliper mounting bolts, right and left.

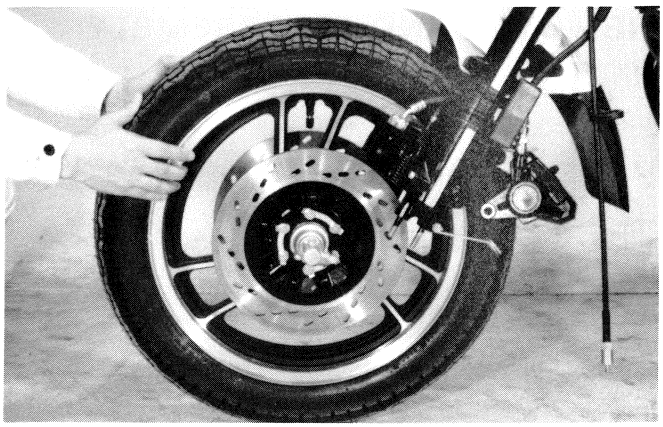
NOTE:
Do not operate the brake lever while dismounting the calipers.



- Support the machine by the center stand and a jack or block.

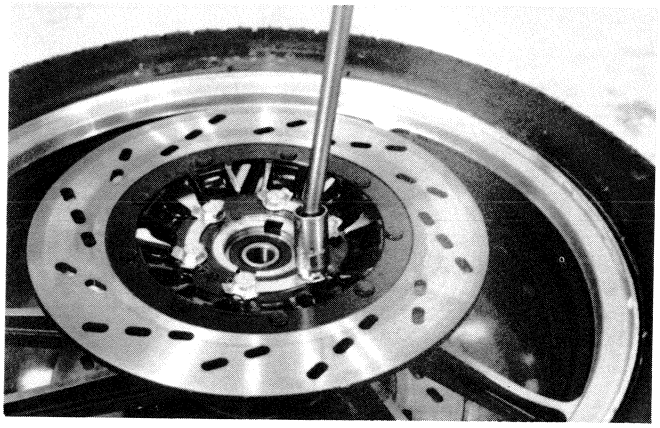


- Draw out the axle shaft and remove the front wheel.



- Unlock the washers and remove the bolts.
- Take off the disc from the wheel.

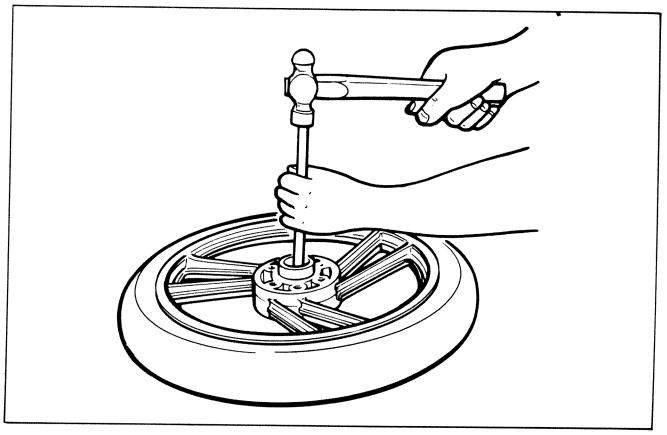
CAUTION:
Do not reuse the lock washers.



- Draw out the wheel bearings by using the appropriate drift.

NOTE:
Removing the right side bearing first, makes the job easier.

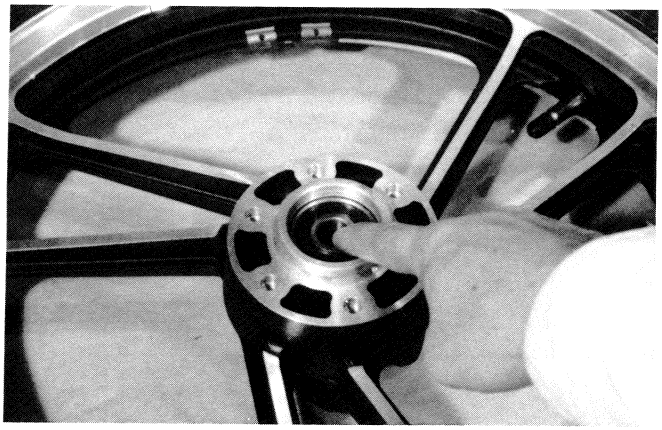
CAUTION:
The removed bearing should be replaced.



INSPECTION

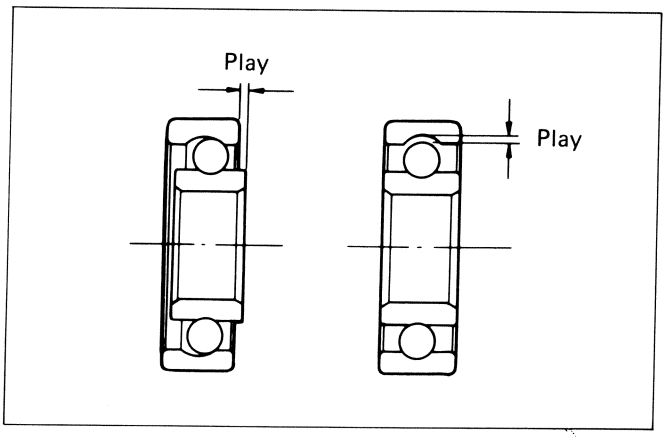
WHEEL BEARING

Inspect the play of wheel bearings inner race by hand while fixing it in the wheel.
Rotate the inner race by hand to inspect whether abnormal noise occurs or rotating smoothly. Replace the bearing if there is anything unusual.



TIRE

(See pages 2-15, 7-13)

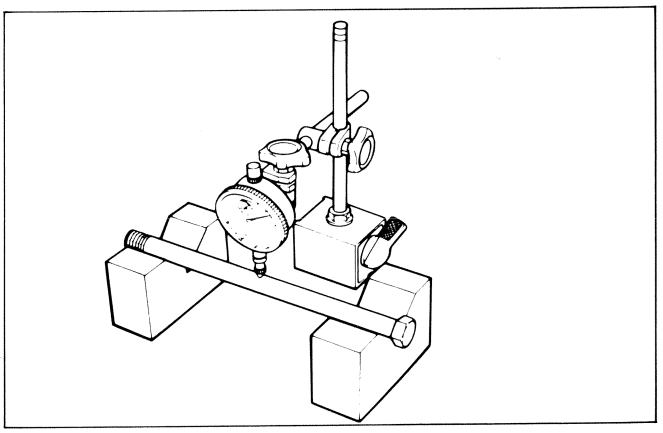


AXLE SHAFT

Using a dial gauge, check the axle shaft for runout and replace it if the runout exceeds the limit.

09900-20606	Dial gauge (1/100)

Service Limit	0.25 mm (0.010 in.)

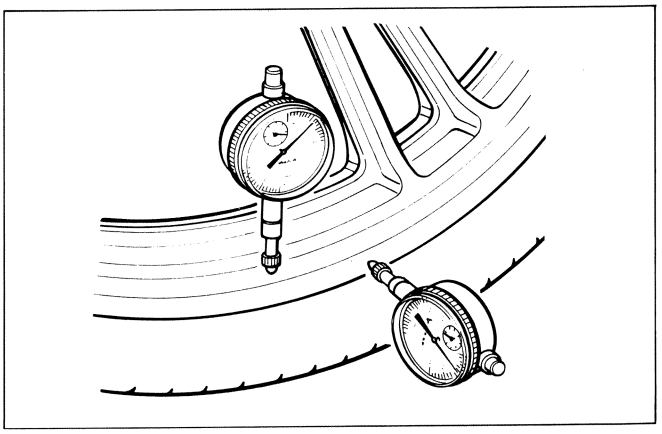


WHEEL

Make sure that the wheel runout checked as shown, does not exceed the service limit. An excessive runout is usually due to worn or loose wheel bearings and will be reduced by replacing the bearings.

If bearing replacement fails to reduce the runout, replace the wheel.

Service Limit (Axial and Radial)	2.0 mm (0.08 in)



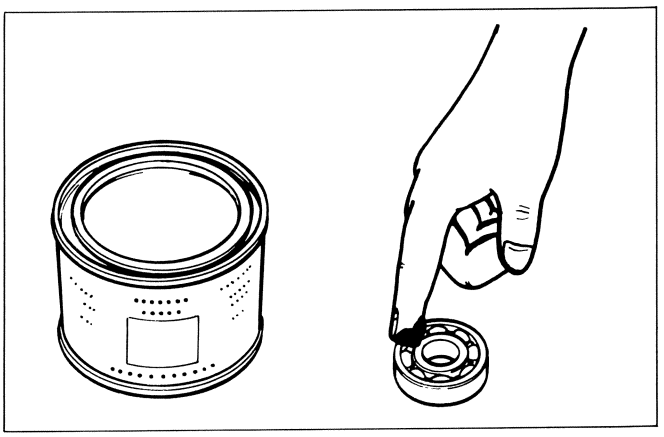
REASSEMBLY

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

WHEEL BEARINGS

- Apply grease to the bearings before installing.

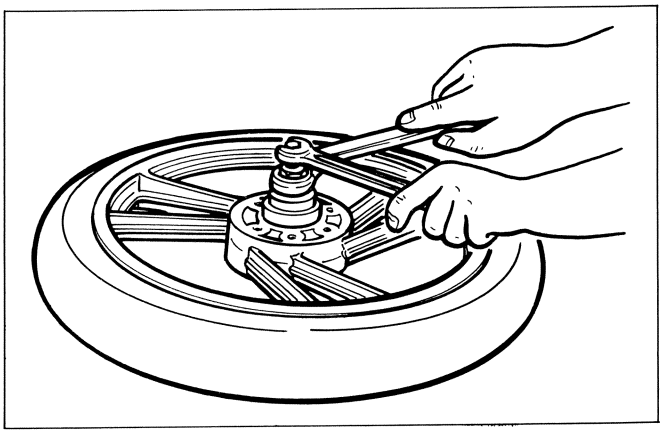
99000-25030	SUZUKI Super grease "A"

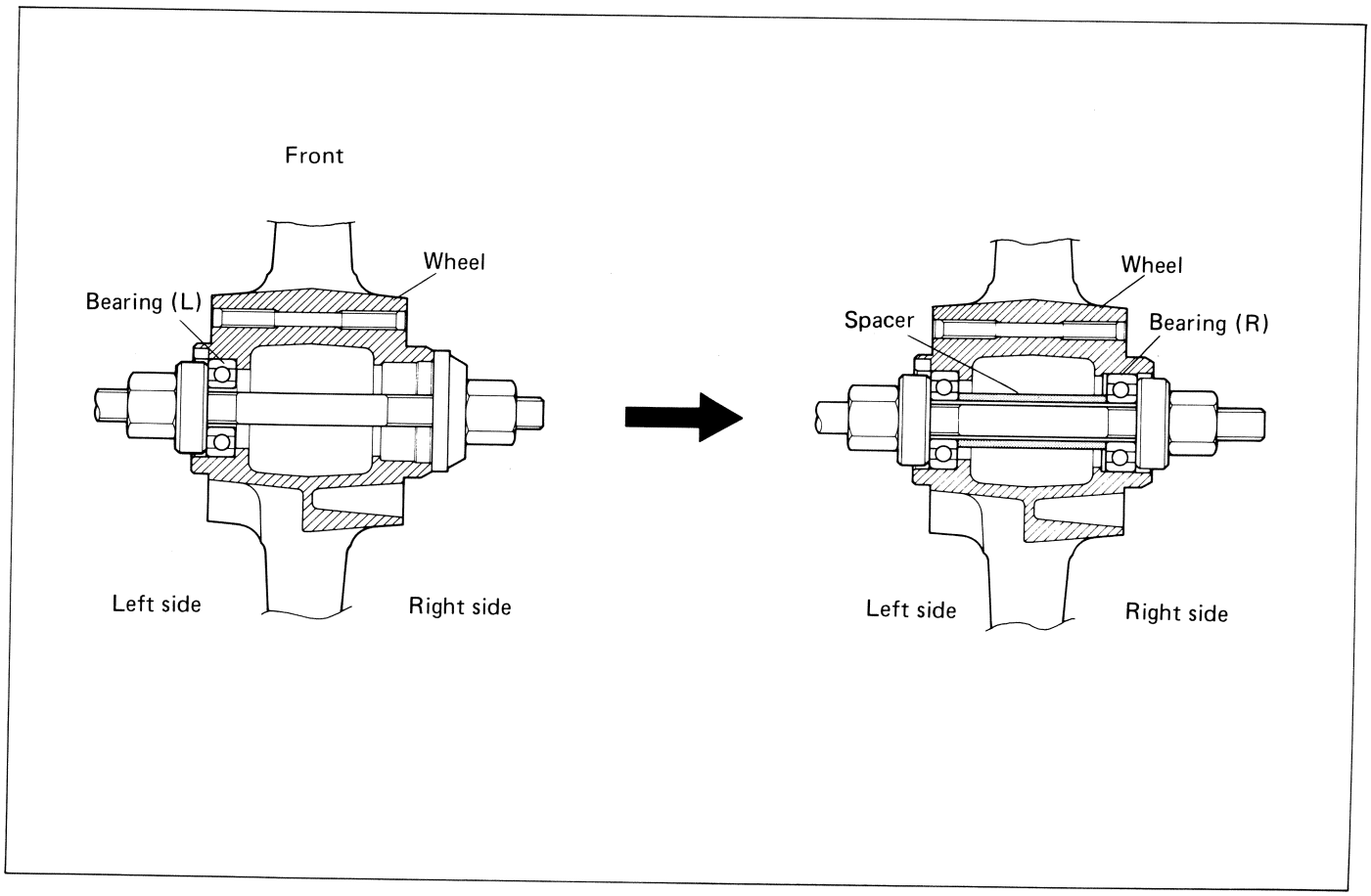


- Install the wheel bearings as follows by using the special tools.

NOTE:
First install the wheel bearing for left side.

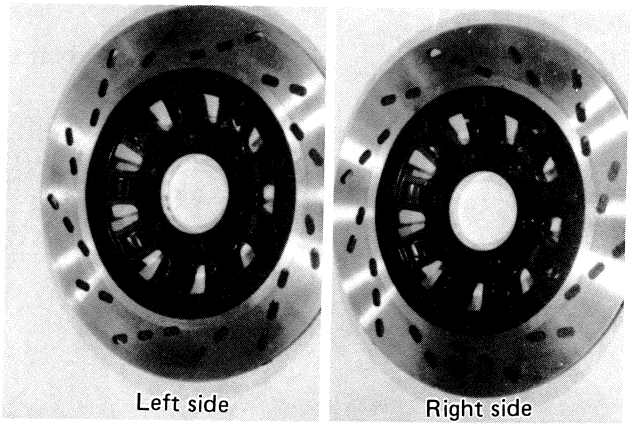
09924-84510	Bearing installer set
09941-34510	Bearing installer set





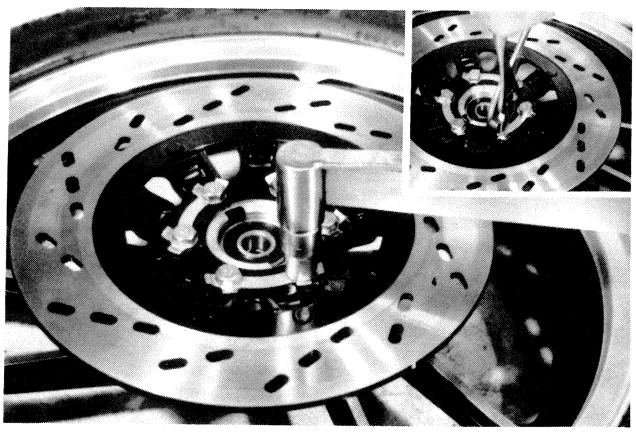
BRAKE DISC

- Mount each brake disc as shown in photograph.

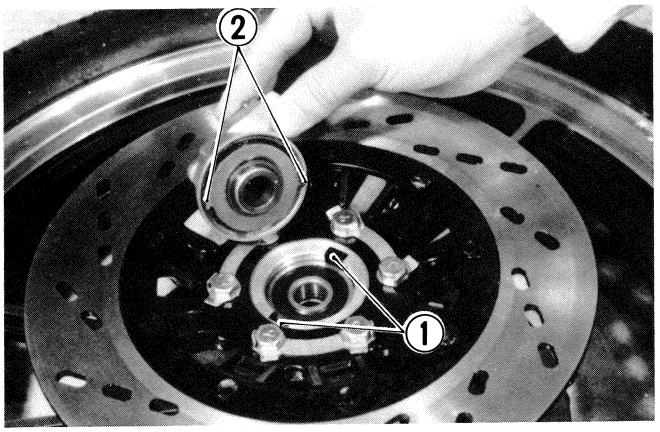


- Make sure that the brake disc is clean and free of any greasy matter. After securing it in place by tightening its bolts, be sure to lock each tongue.

Tightening torque	15 – 25 N·m (1.5 – 2.5 kg-m) (11.0 – 18.0 lb-ft)



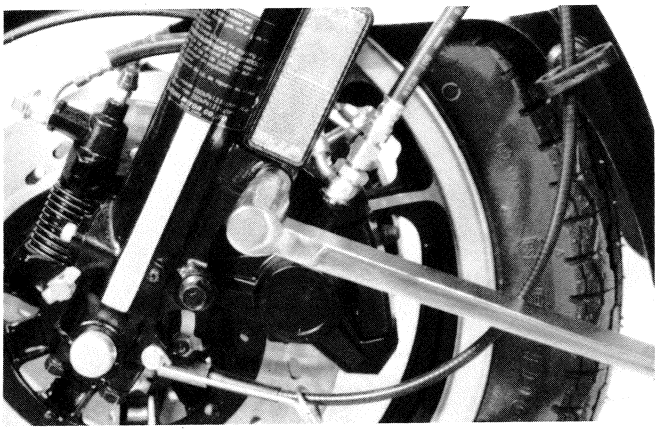
- Before installing the speedometer gearbox ①, grease it and align its groove ②, for fitting the two drive pawls to the hub with the hub to insert the gearbox to the wheel.



CALIPER

Tighten the caliper mounting bolts to the specification.

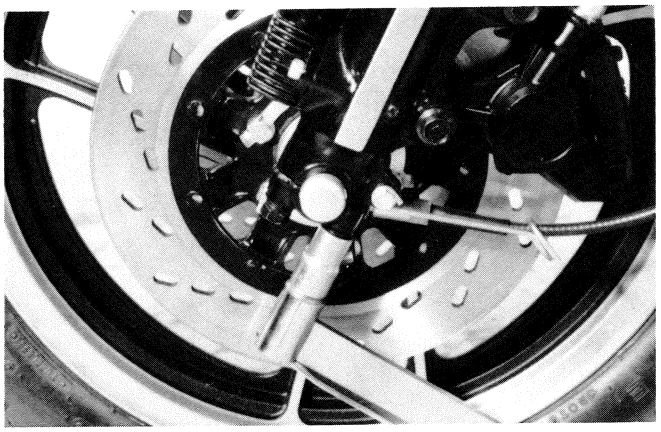
Tightening torque	25 – 40 N·m (2.5 – 4.0 kg-m) (18.0 – 29.0 lb-ft)



FRONT AXLE

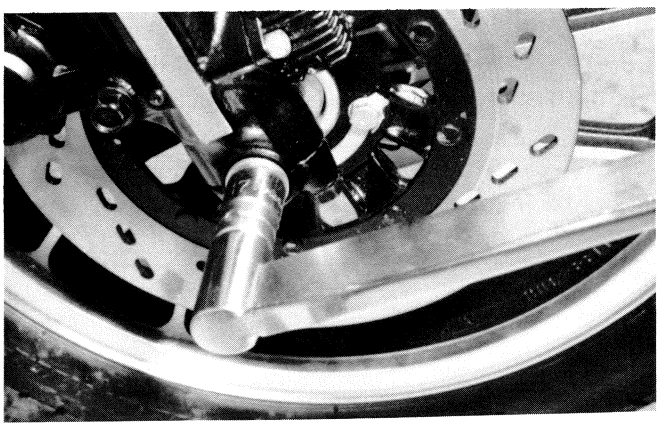
- Tighten the axle holder clamp nuts to the specification.

Tightening torque	15 – 25 N·m (1.5 – 2.5 kg-m) (11.0 – 18.0 lb-ft)



- Tighten the axle nut to the specification.

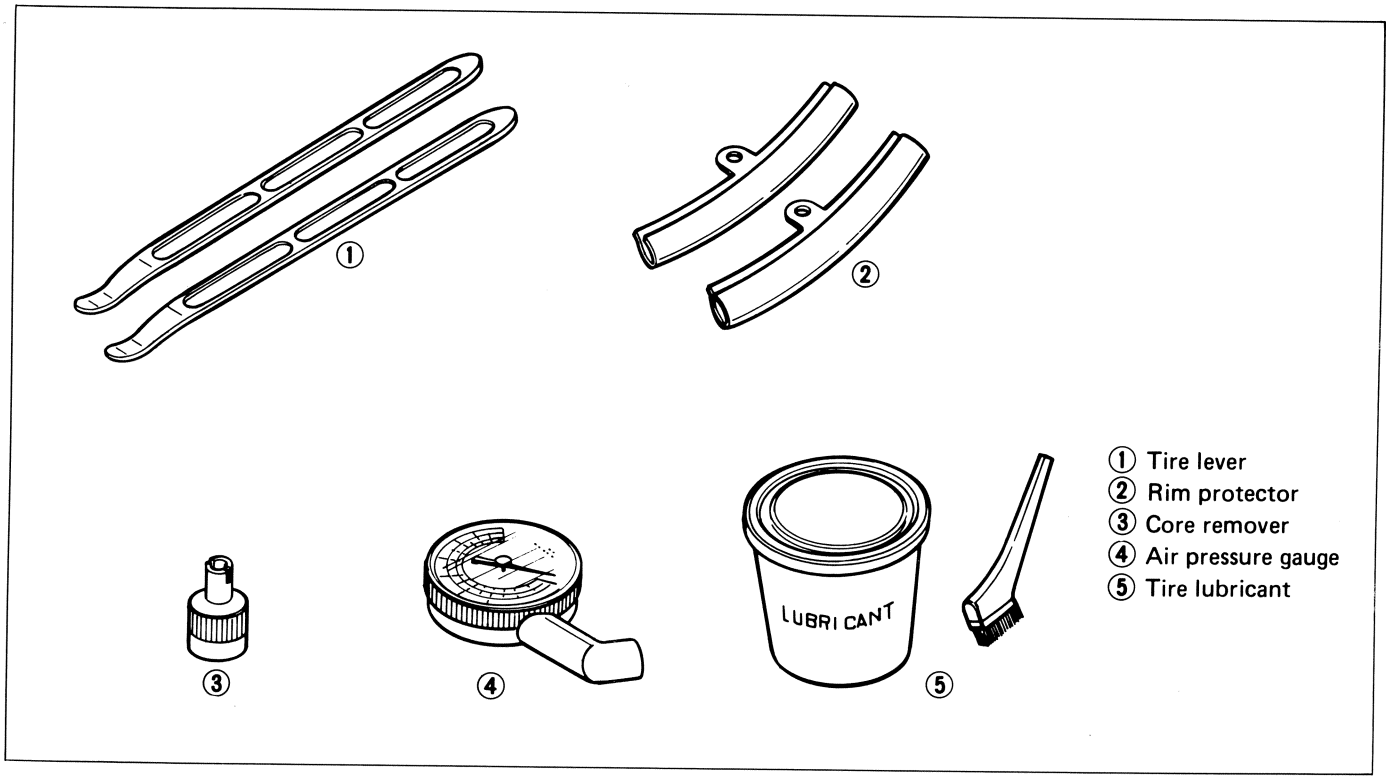
Tightening torque	36 – 52 N·m (3.6 – 5.2 kg-m) (26.0 – 37.5 lb-ft)



TIRE AND WHEEL

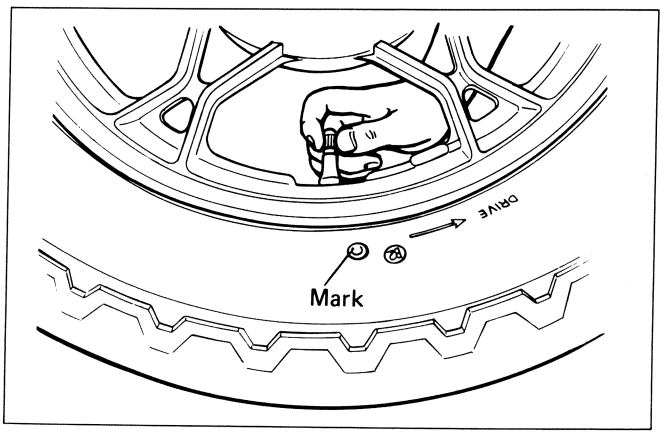
TIRE REMOVAL

When removing a tubeless tire from the rim, be very careful not to damage the tire bead, the inner liner, or the rim flange. For tire removal following tools are required.



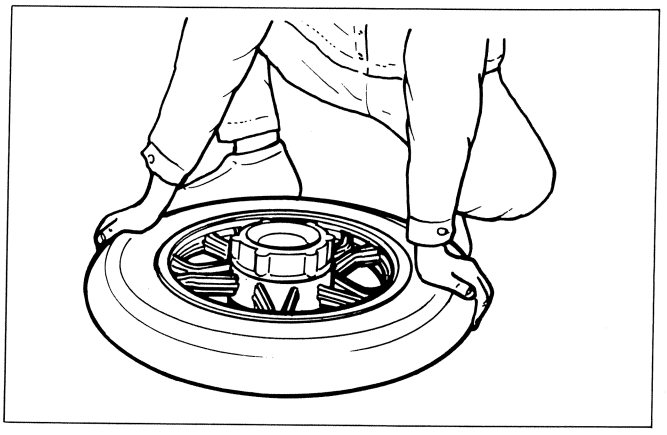
- Take the valve core out of the valve stem, and deflate the tire completely.

NOTE:
Mark tire with chalk to note the position of the tire on the rim and rotational direction of the tire.



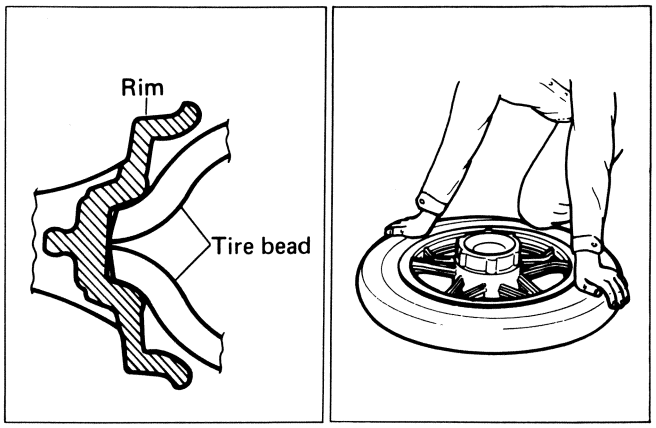
- Unseat the tire bead from the wheel rim.

NOTE:
It makes job easier to use a tire bead breaker.



- Unseat the tire bead all the way around on both sides.

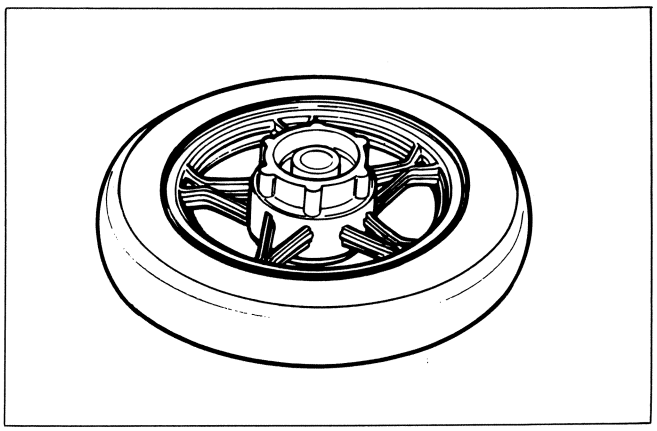
NOTE:
As the illustration shows, push the tire beads for the both sides down into the center of rim.



- Hook rim protectors on the bead portion of wheel rim.

CAUTION:
Failure to use rim protectors can cause permanent damage to the wheel rim.

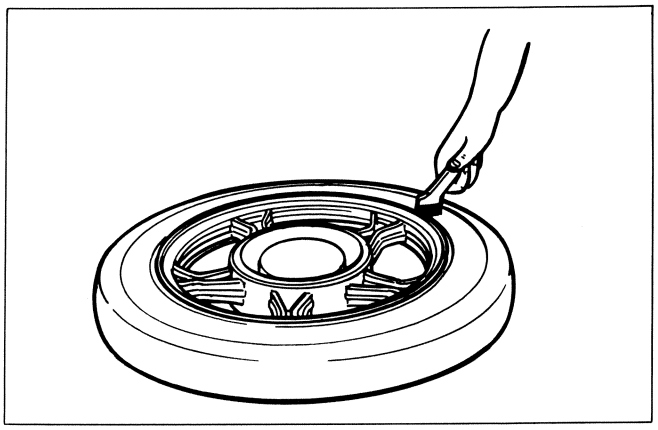
09941-94510	Rim protector



- Apply a special tire lubricant or a neutral soapy liquid to the tire bead.

CAUTION:
Never apply oil, grease or gasoline.

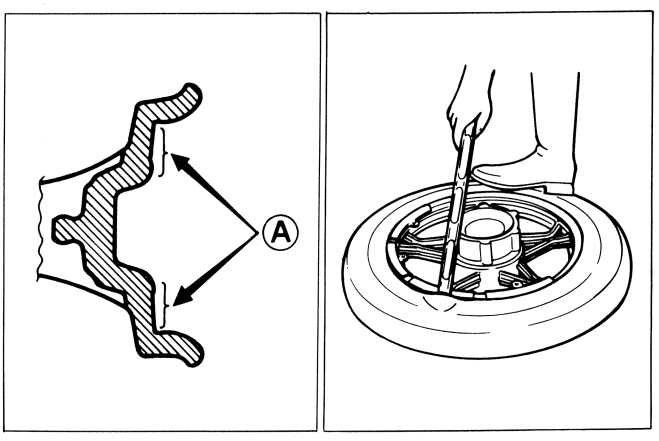
CAUTION:
Do not try to remove tubeless tire without proper tools. You may damage the rim sealing surface or disfigure the rim.



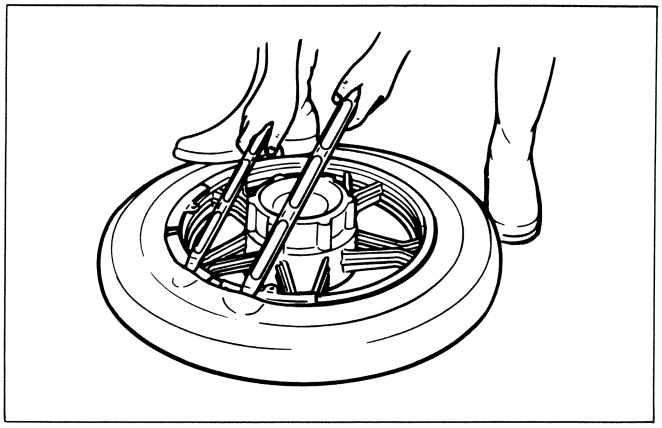
- Raise the tire bead using the tire lever.

NOTE:
Before inserting the lever between the bead and the wheel rim make sure that the bead of the other side is completely pushed down into the center rim. Do not raise the bead forcebly.

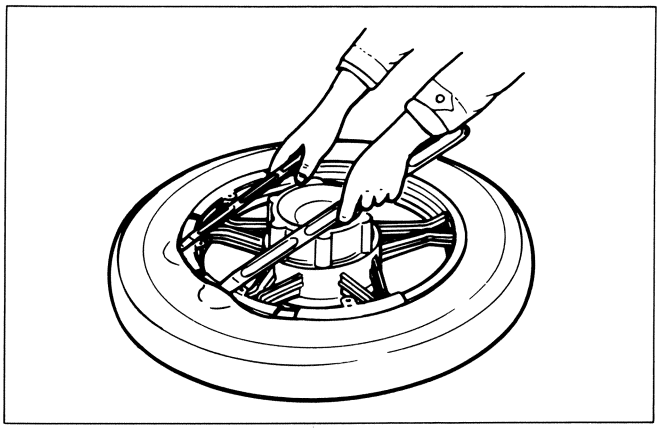
CAUTION:
Do not let the lever make contact with the portion Ⓐ where indicates the illustration.



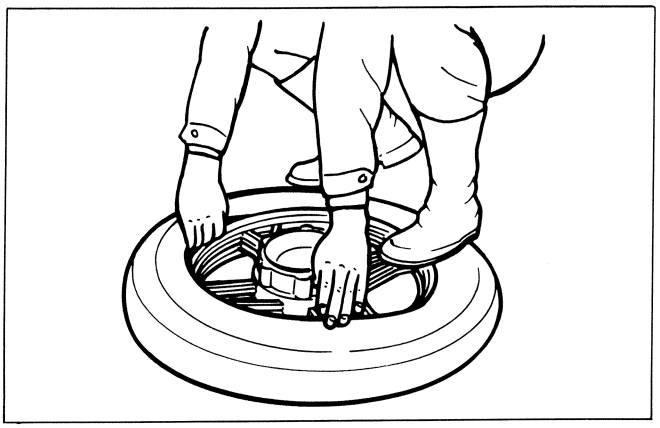
- Insert another tire lever 30 – 50 mm (1.2 – 2.0 in) from the inserted lever using one hand, and raise the bead with the lever.



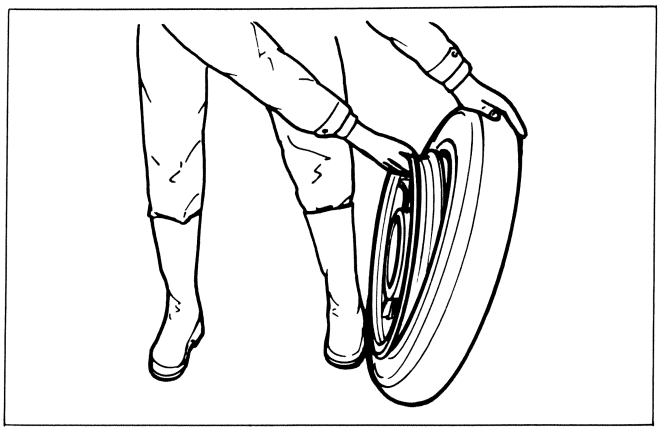
- Move the levers around the rim by keeping the same distance 30 – 50 mm (1.2 – 2.0 in) between the levers.



NOTE:
After the bead is unseated about halfway around the rim you can use your hands to remove the bead completely.



- After the bead of one side is off from the wheel rim, unseat the other side as shown in the illustration.

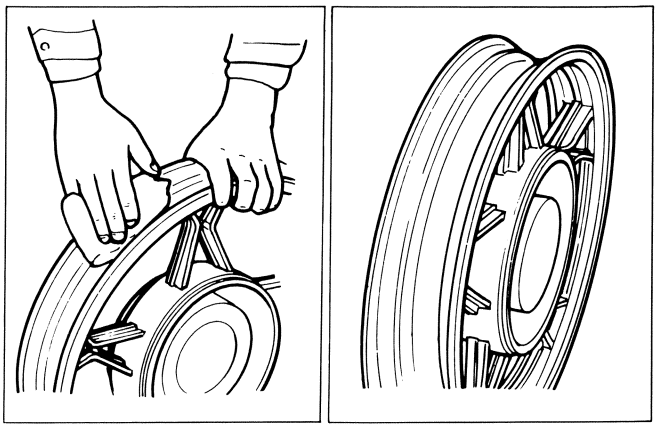


INSPECTION

WHEEL

Wipe off any rubber substance or rust from the wheel, and inspect the wheel rim. If any one of the following items is observed, replace it with a new wheel.

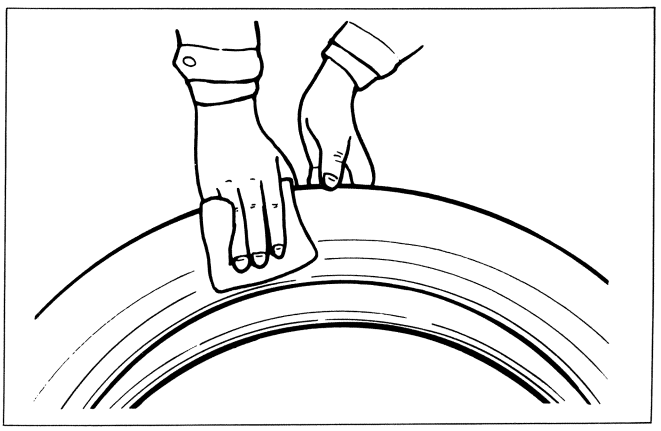
* A distortion or crack.
* Any scratches or flaws in the bead seating area.
* Wheel runout (Axial & Radial) of more than 2.0 mm (0.08 in).



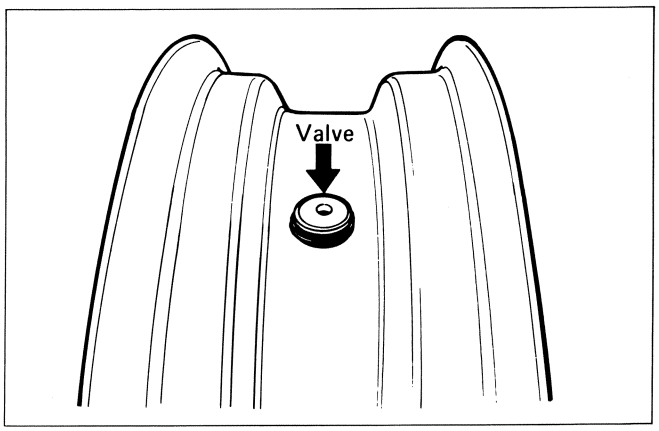
TIRE

Thoroughly inspect the removed tire and if any one of the following items is observed, do not repair the tire. Replace with a new one.

* A puncture or a split whose total length or diameter exceeds 6 mm (0.24 in).
* A scratch or split at the side wall.
* Tread depth less than 1.6 mm (0.06 in) in the front tire and less than 2.0 mm (0.08 in) in the rear tire.
* Ply separation.
* Tread wear is extraordinarily deformed or distributed around the tire.
* Scratches at the bead.
* Cord is cut.
* Damage from skidding (flat spots).
* Abnormality in the inner liner.



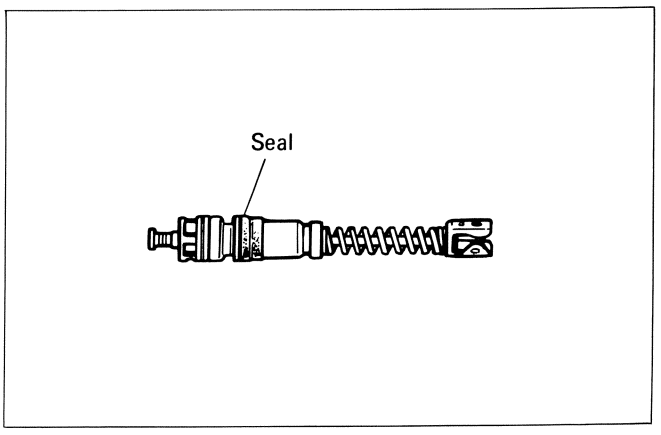
NOTE:
When repairing a flat tire, follow the repair instructions and use only recommended repairing materials.



VALVE

Inspect the valve after the tire is removed from the rim, and replace with the new valve if the seal rubber has any split or scratch.

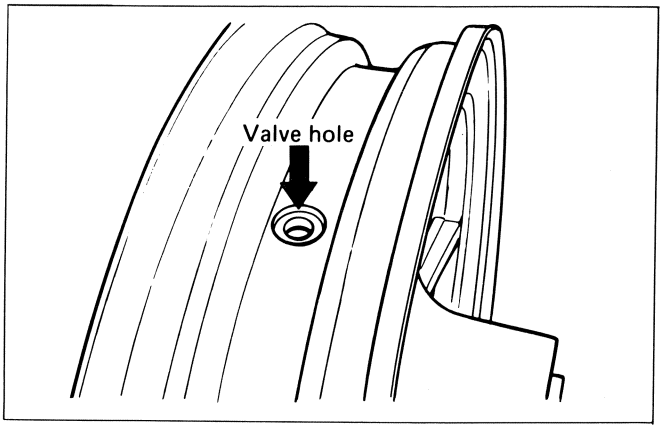
Inspect the removed valve core and replace with the new one if seal rubber is abnormally deformed or worn.



VALVE INSTALLATION

Any dust or rust around the valve hole must be cleaned off. Then install the valve in the rim.

CAUTION:
When installing the valve, tighten the nut ① by hand as much as possible. Holding the nut under this condition, tighten the lock nut ②. Do not overtighten nut ① as this may distort the rubber packing and cause an air leak.

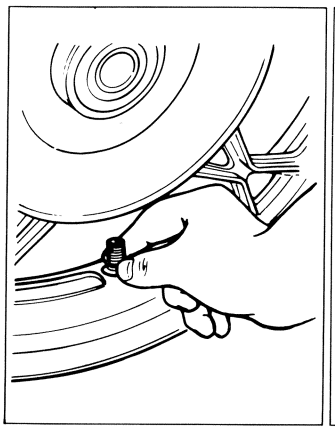


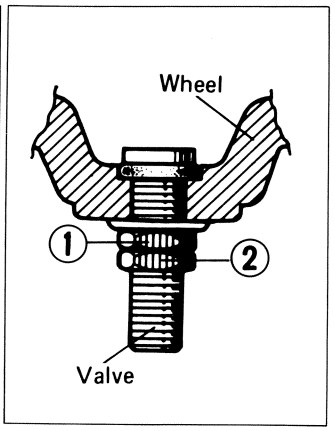
TIRE MOUNTING

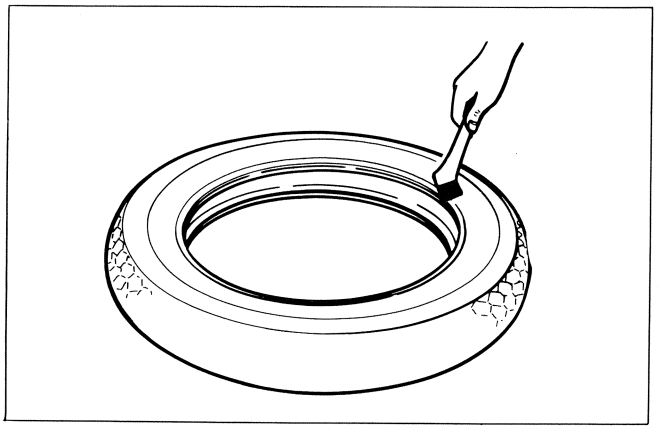
Before mounting the tire to the wheel rim, thoroughly inspect both the tire and the rim (See page 7-13).

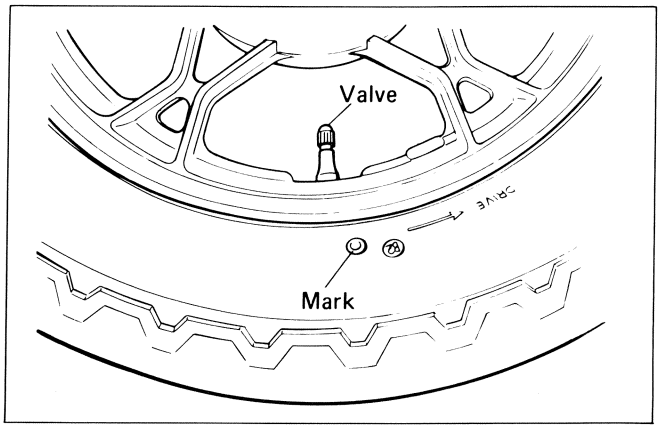
- Apply a special tire lubricant or neutral soapy liquid to the tire bead.

CAUTION:
Never apply oil, grease or gasoline.



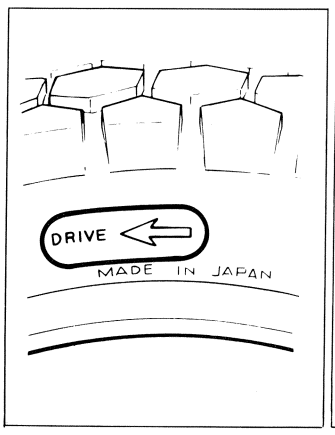


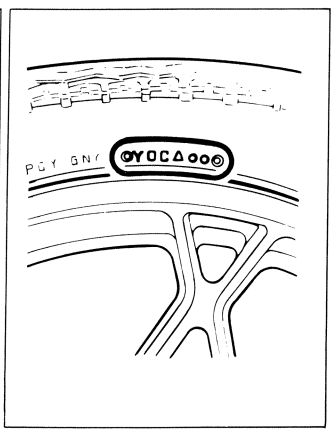




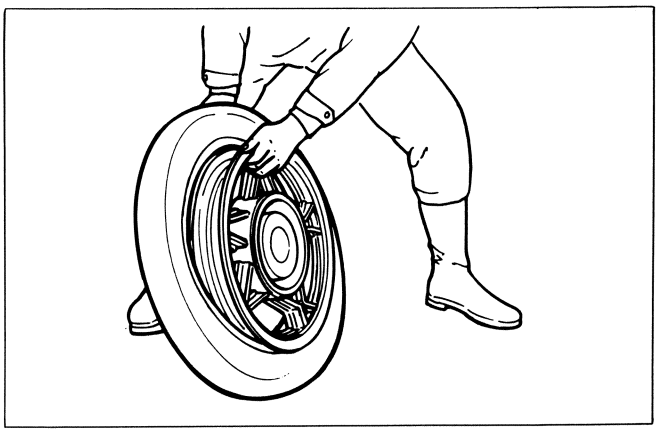
- When installing the tire, make certain that the directional arrow faces the direction of wheel rotation and align the balancing dot of the tire with the valve stem as shown.

CAUTION:
There is no directional arrow on the front tire, so mount the tire so that the I.D. number faces to the left side when the tire is in the forward running direction.

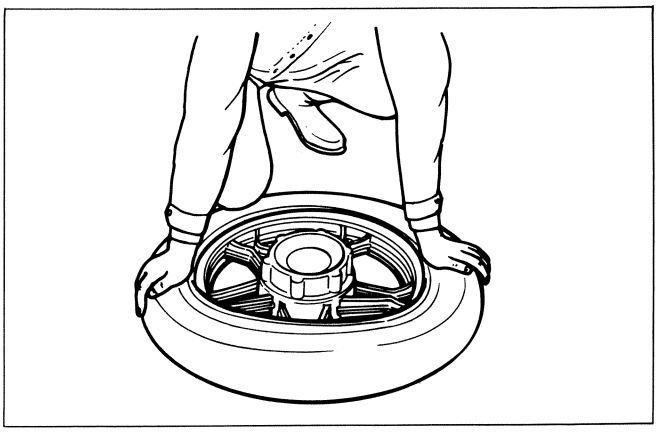




- Place the bead in around the wheel rim as shown.

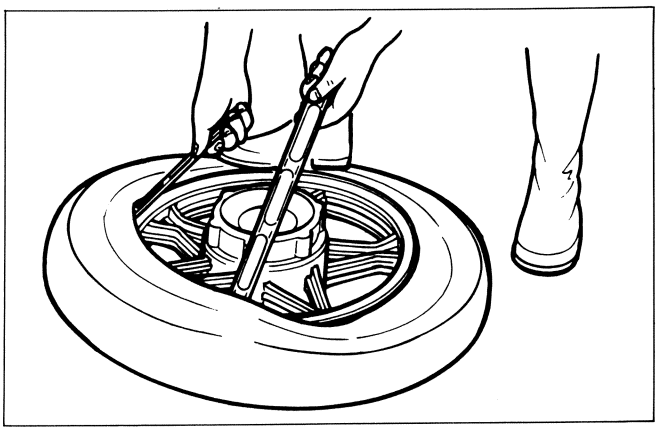


- Weight the side wall by both hands, and seat the bead into the wheel rim as much as possible.



- Use the flat portion of the tire lever, and seat the resting bead into the wheel rim.

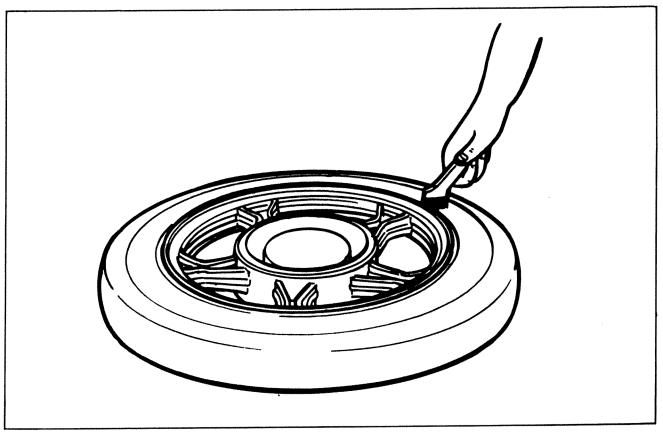
NOTE:
The tire bead of one side must be seated completely into the wheel rim before using the tire levers to seat the other side.



CAUTION:
Rim protector should be used.
Never twist the bead forcibly.

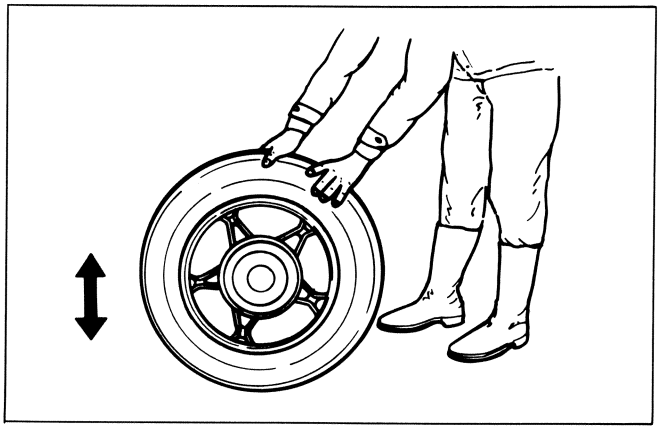
09941-94510	Rim protector

- Again apply to the tire bead the special tire lubricant or neutral soapy liquid.



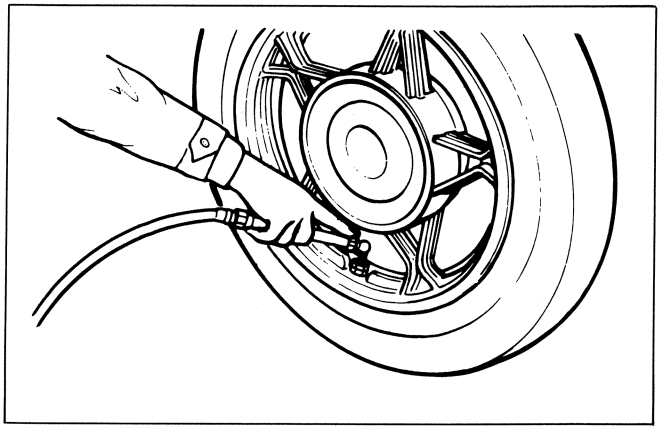
CAUTION:
Never apply oil, grease or gasoline.

- Bounce the tire several times while rotating. This makes the tire bead expand outwards, and thus makes inflation easier.



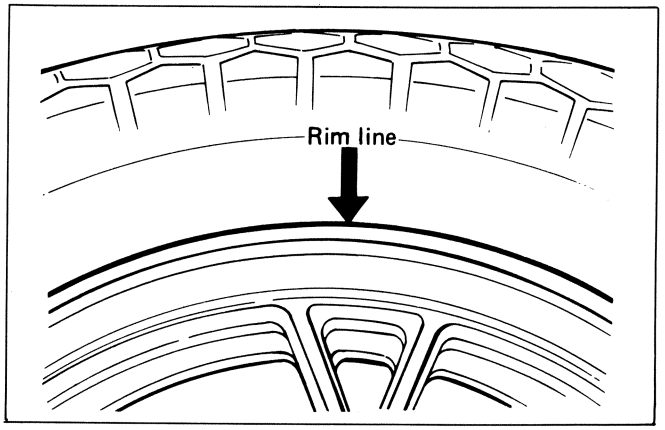
NOTE:
Before inflating, confirm that the balance mark lines up with the valve stem.

- Pump up the tire with air.



WARNING:
Do not inflate the tire to more than 4.0 kg/cm² (56 psi). The tire could burst with sufficient force to cause severe injury. Never stand directly over the tire while inflating it.

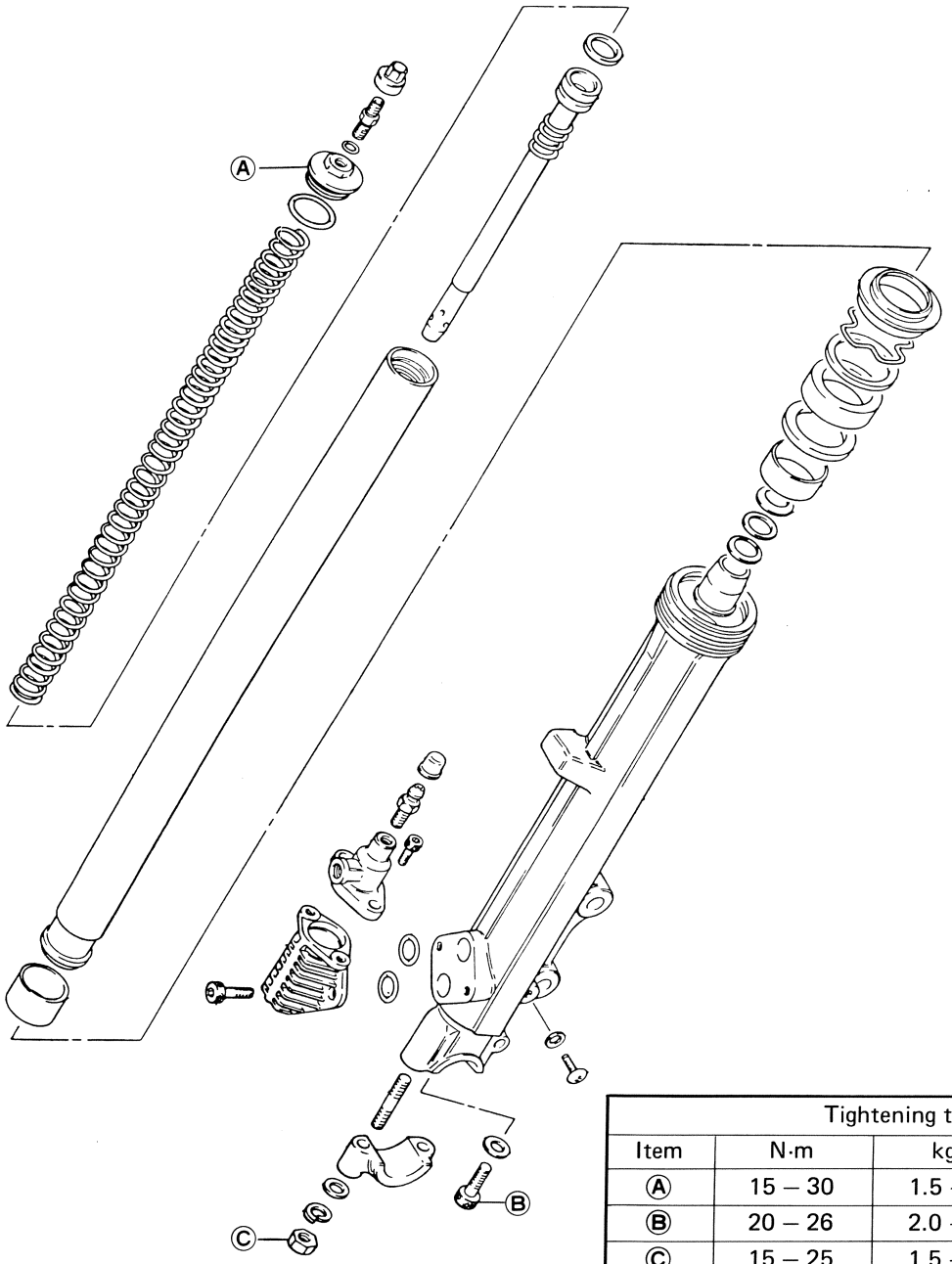
NOTE:
Check the "rim line" cast on the tire side walls. It must be equidistant from the wheel rim all the way around. If the distance between the rim line and the wheel rim varies, this indicates that the bead is not properly seated. If this is so, deflate the tire completely, and unseat the bead for the both sides. Coat the bead with lubricant, and try again.



- After tire is properly seated to the wheel rim, adjust the pressure to the recommended pressure. Correct the wheel balance if necessary.

WARNING:
Do not run a repaired tire more than 50 km/h (30 mph) within 24 hours after tire repairing, since the patch may not be completely cured. Do not exceed 130 km/h (80 mph) with a repaired tire.

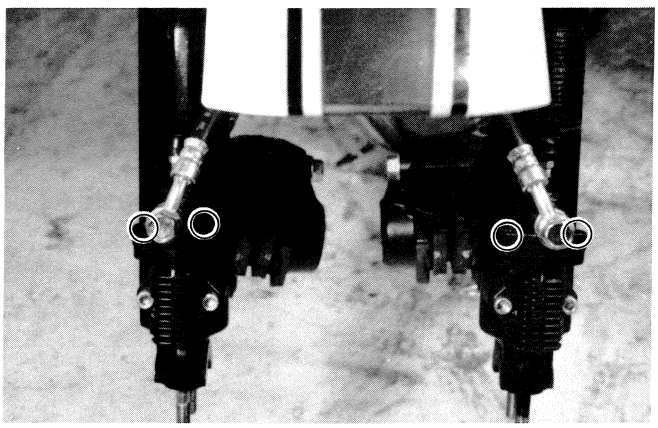
FRONT FORK



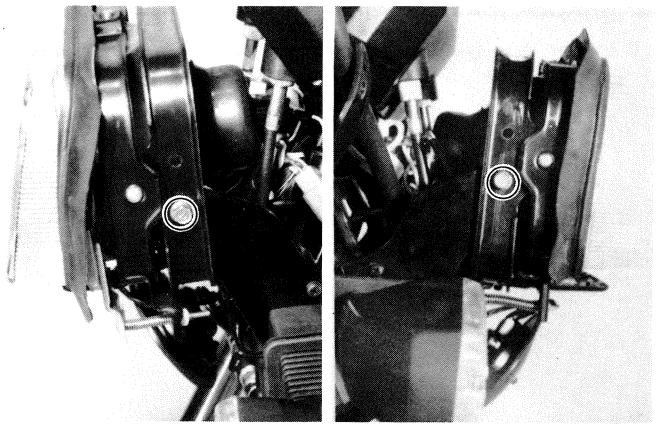
Tightening torque			
Item	N·m	kg-m	lb-ft
Ⓐ	15 – 30	1.5 – 3.0	11.0 – 21.5
Ⓑ	20 – 26	2.0 – 2.6	14.5 – 19.0
Ⓒ	15 – 25	1.5 – 2.5	11.0 – 18.0

REMOVAL AND DISASSEMBLY

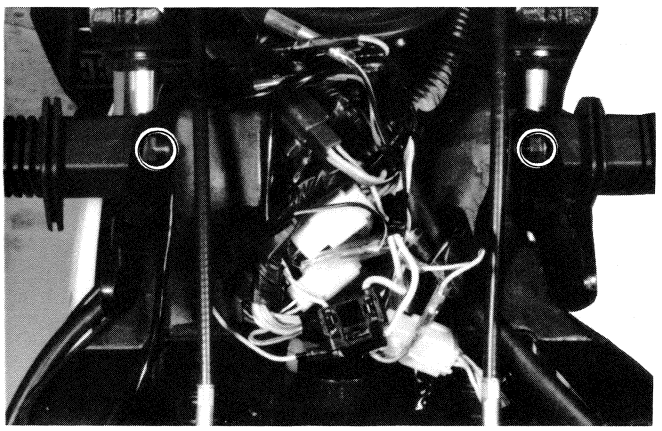
- Remove the fairing (See pages 7-2, 3).
- Remove the front wheel (See page 7-4).
- Remove the modulator plunger from the forks by using the 4 mm hexagon wrench.



- Disconnect the headlight coupler and remove the two bolts and then take off the headlight. (GS550E)

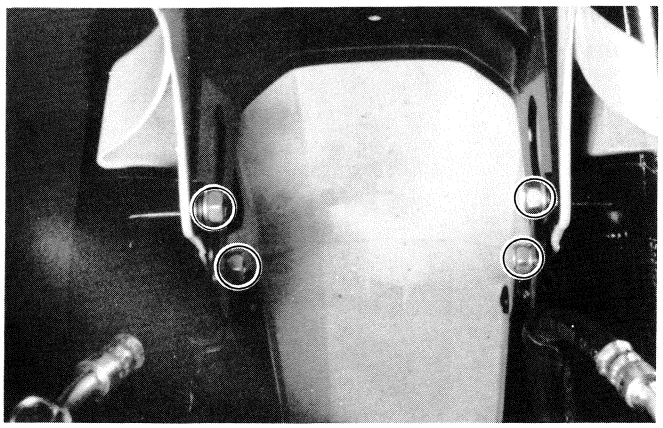


- Disconnect the turn signal light lead wires and remove the two nuts and then take off the turn signal lights. (GS550E)

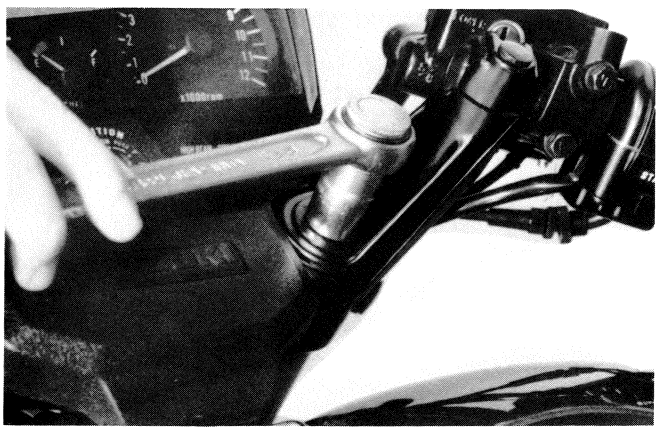


- Remove the four bolts and take off the front fender with front fender brace.

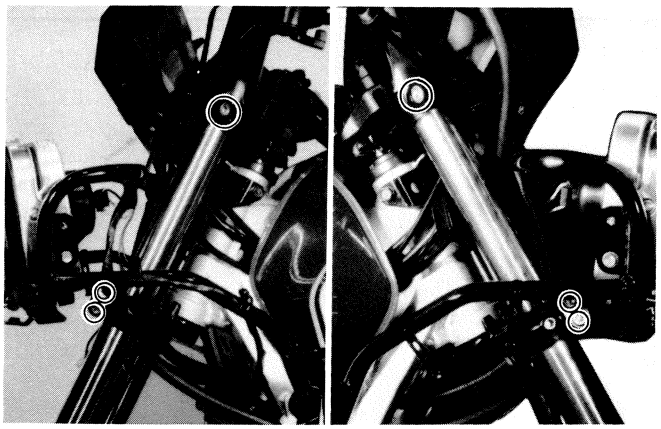
CAUTION:
Hang the calipers from the motorcycle frame using string, etc., taking care not to bend the brake hoses.



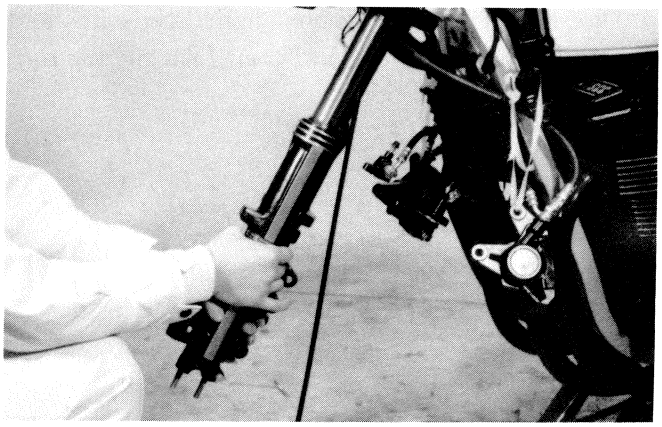
- Slightly loosen the front fork cap bolts to facilitate later disassembly.



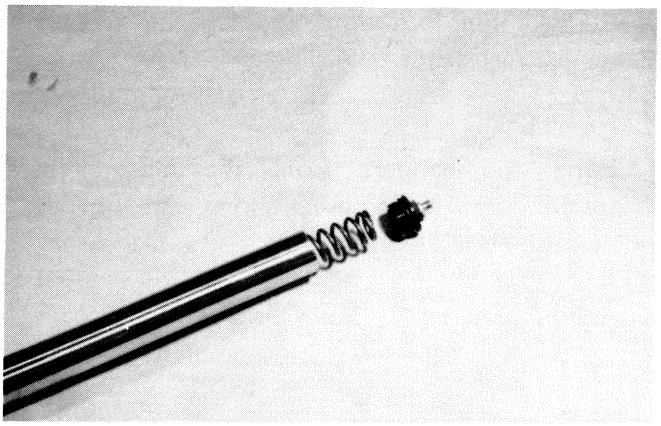
- Loosen the front fork clamp bolts, upper and lower by using the 6 mm and 8 mm hexagon wrench.



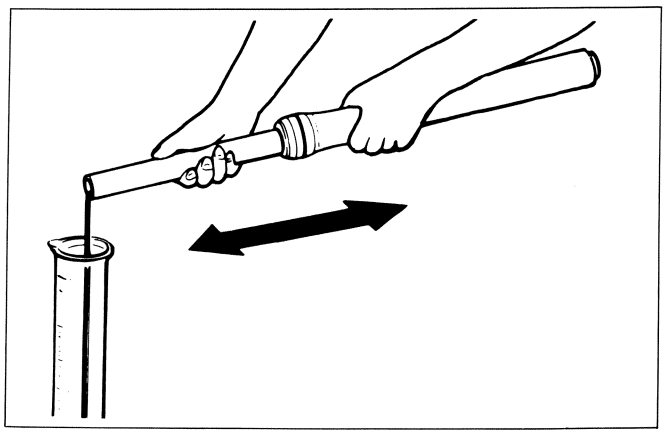
- Pull down the right and left front fork assemblies.



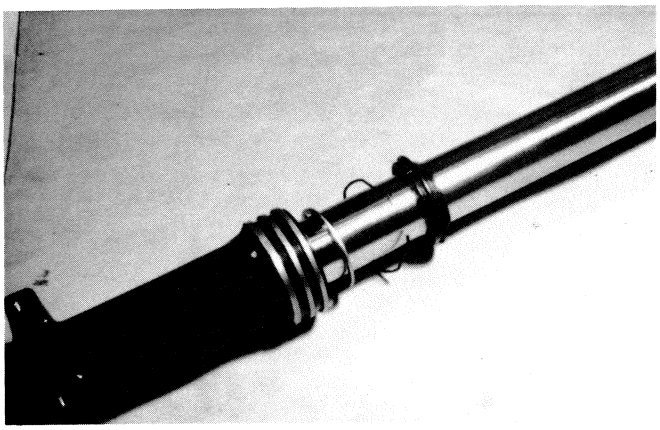
- Remove the front fork cap bolt and draw out the fork spring.



- Invert the fork and stroke it several times to remove the oil.
- Hold the fork inverted for a few minutes.

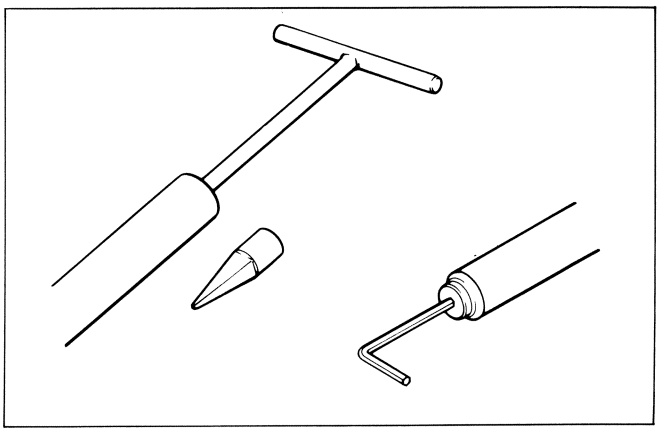


- Remove the dust seal, stopper ring and washer.

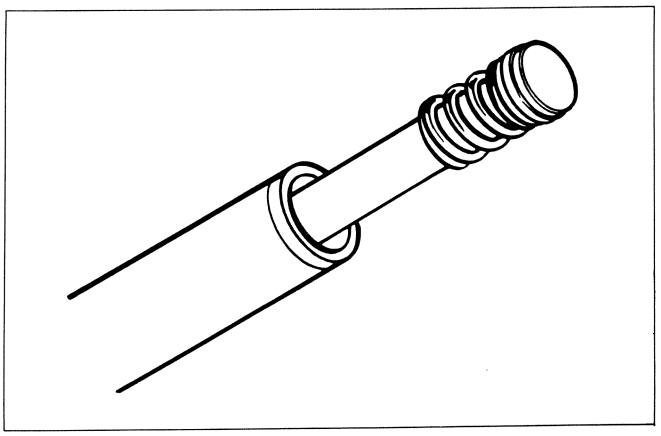


- Remove the damper rod securing bolt by using the 8 mm hexagon wrench and special tools.

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

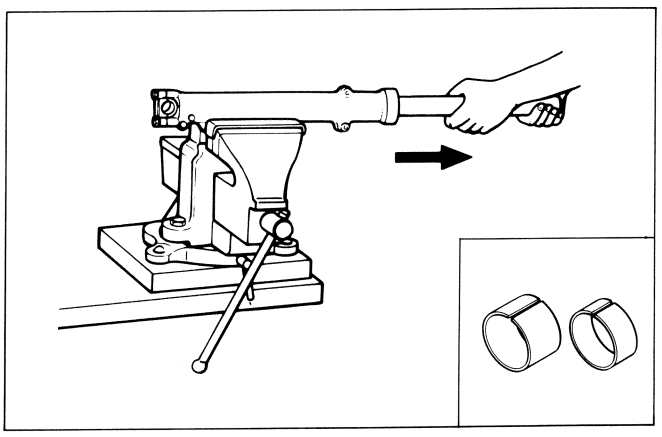


- Draw out the damper rod and rebound spring.

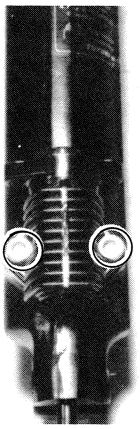


- While holding the caliper mounting portion of the outer tube by vise, separate the inner tube from the outer tube as shown.

CAUTION:
The outer tube and inner tube "anti-friction" metals must be replaced along with the oil seal any time the fork is disassembled.



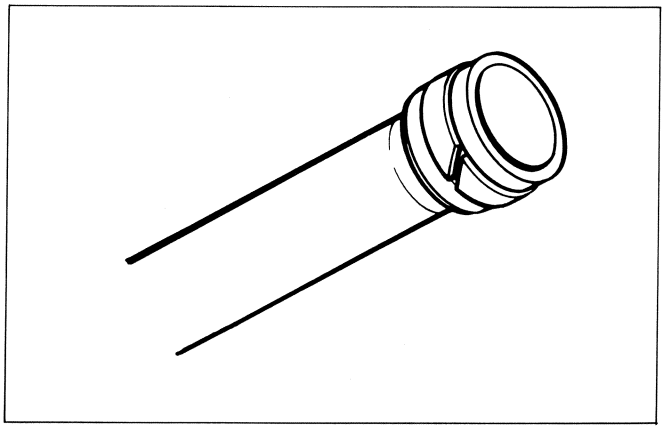
- Remove the modulator valve assembly, by using 5 mm hexagon wrench.



INSPECTION

DAMPER ROD RING

Inspect the damper rod ring for wear and damage.



OIL LOCK PIECE

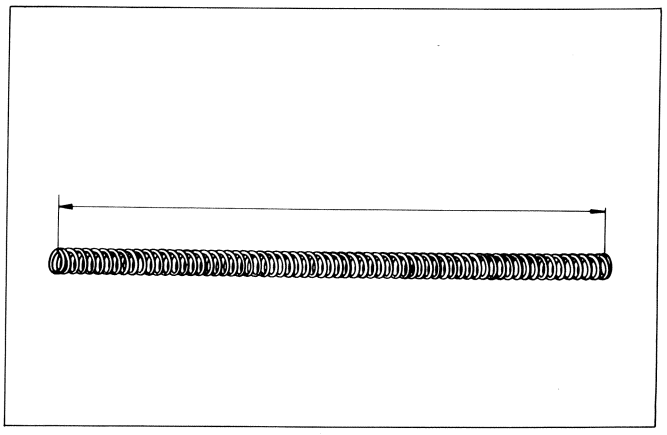
Inspect the oil lock piece for wear and damage.



FORK SPRING

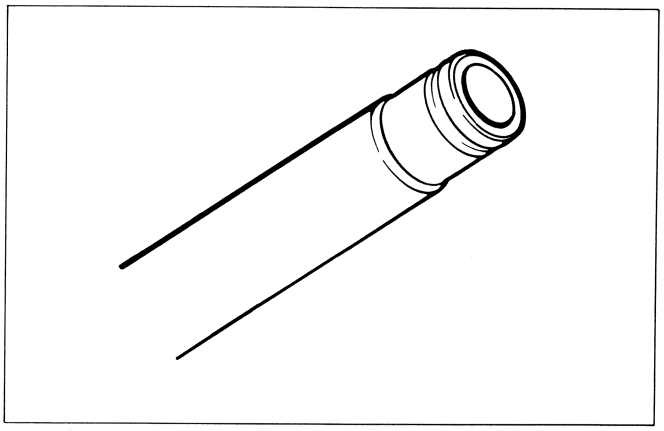
Measure the fork spring free length. If it is shorter than the service limit, replace it.

Service Limit	490 mm (193 in.)



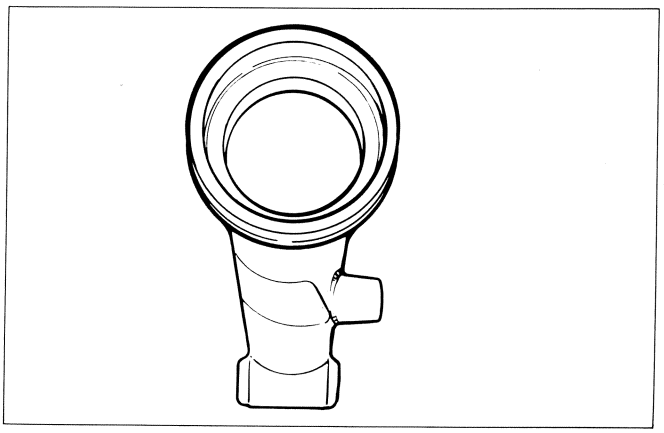
INNER TUBE

Inspect the inner tube outer surface for any scuffing.



OUTER TUBE

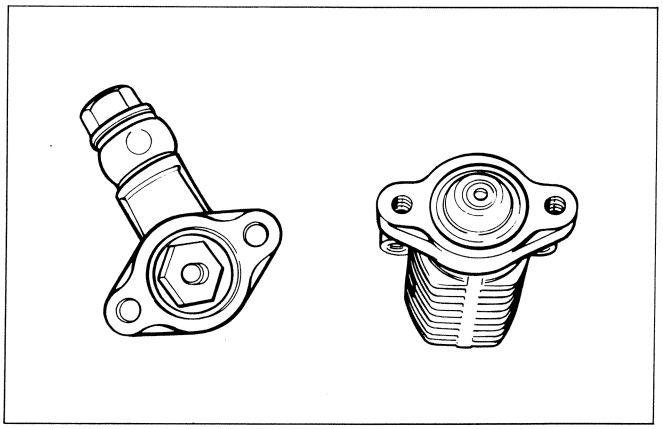
Inspect the outer tube inner surface for any scuffing.



MODULATOR PLUNGER ASSEMBLY AND VALVE ASSEMBLY

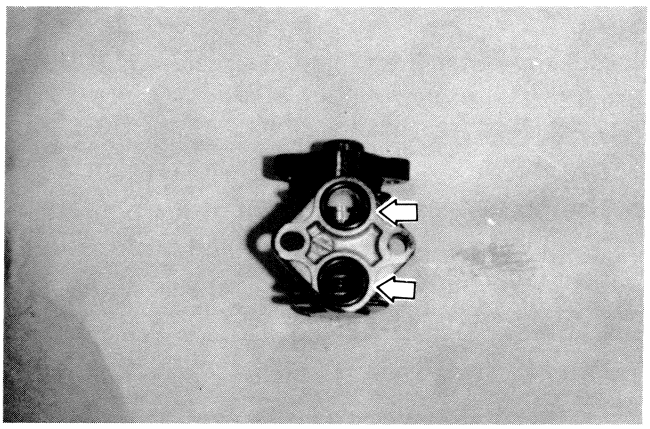
After separating the modulator plunger from the modulator valve, inspect each sliding part for leakage of brake fluid or fork oil. If any defect is found, replace affected unit with new one.

NOTE:
Modulator plunger and valve is only available as a replacement unit.



MODULATOR VALVE O-RINGS

Inspect the O-rings located between modulator valve and front fork for wear or damage.

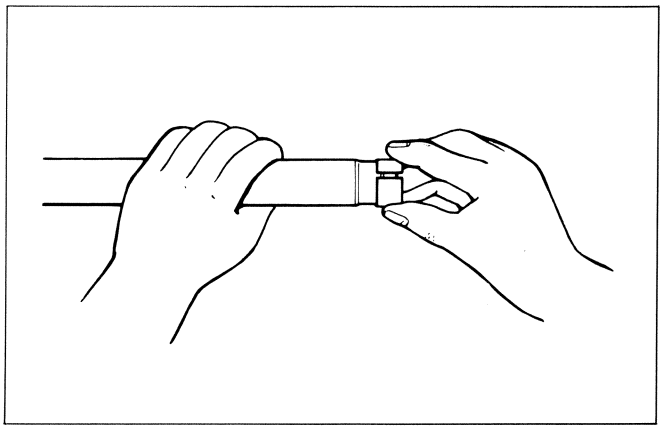


REASSEMBLY

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

INNER TUBE METAL

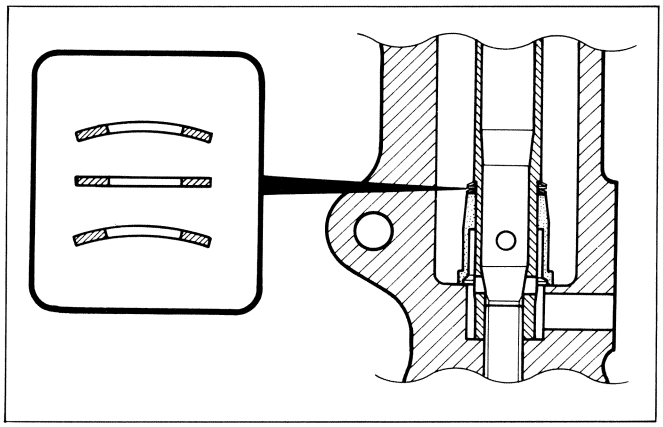
Install the metal by hand as shown.



CAUTION:
Use special care to prevent damage to the "Teflon" coated surface of the Anti-friction metal when mounting it.

OIL LOCK PIECE AND WASHER

Install the oil lock piece, washer and wave washers as shown in illustration.



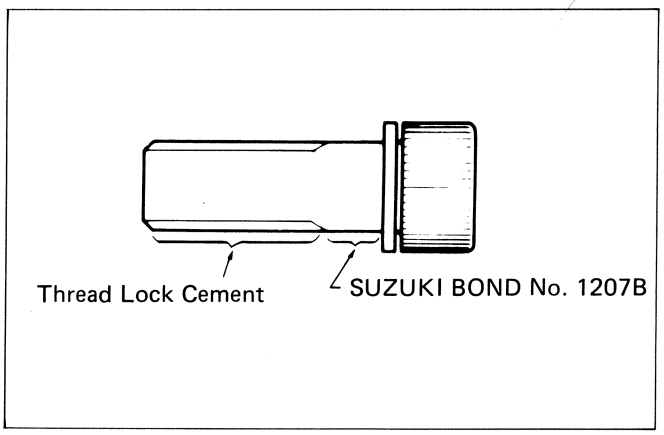
DAMPER ROD BOLT

Apply SUZUKI Bond No. 1207B and Thread Lock Cement to the damper rod bolt and tighten with specified torque by using the 8 mm hexagon wrench and special tools.

99104-31140	SUZUKI Bond No. 1207B
99000-32040	Thread Lock Cement

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

Tightening torque	20 – 26 N·m (2.0 – 2.6 kg-m 14.5 – 19.0 lb-ft)

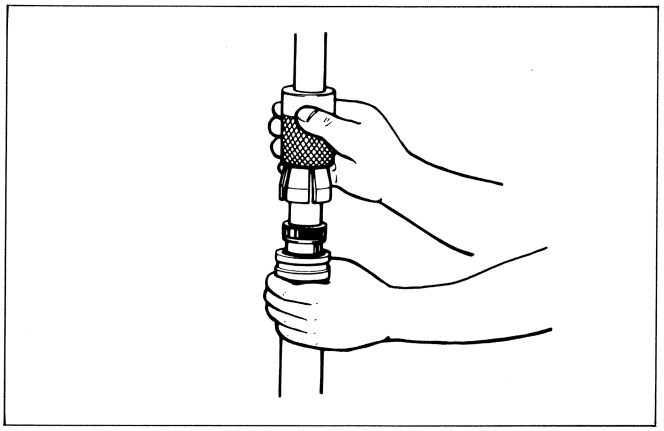


OUTER TUBE METAL, WASHER AND OIL SEAL

Install the outer tube metal, washer and oil seal by using special tool as shown.

CAUTION:
Use special care to prevent damage to the "Teflon" coated surface of the anti-friction metal when mounting it.

09940-50112	Front fork oil seal installer

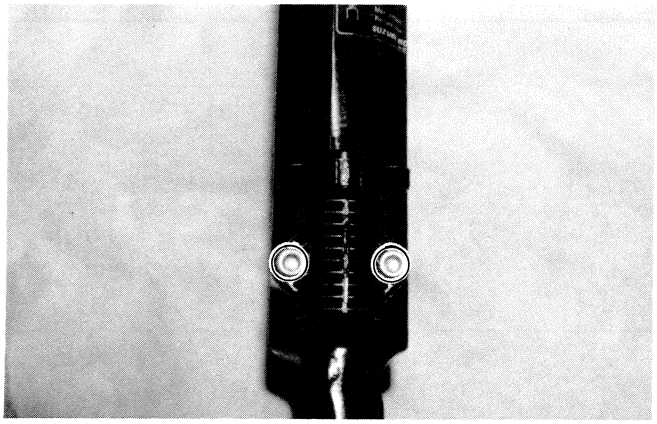


MODULATOR VALVE

Apply Thread Lock 1363C to the bolts and tighten to the specified torque.

99104-32050	Thread Lock "1363C"

Tightening tirque	6 – 8 N·m (0.6 – 0.8 kg-m) (4.5 – 6.0 lb-ft)

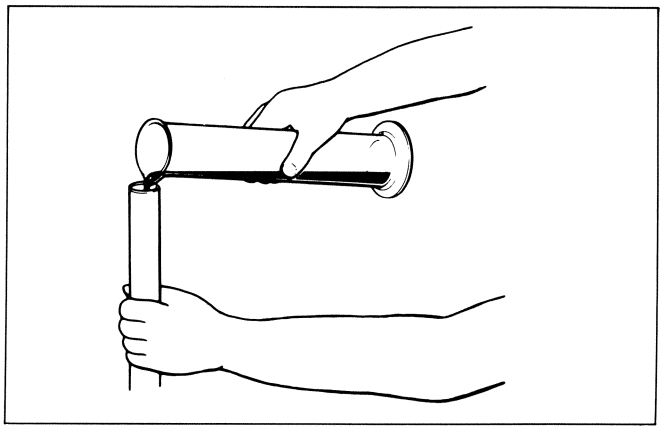


FORK OIL

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

Fork oil	Fork oil # 15

Capacity	321 ml (10.8 US oz)

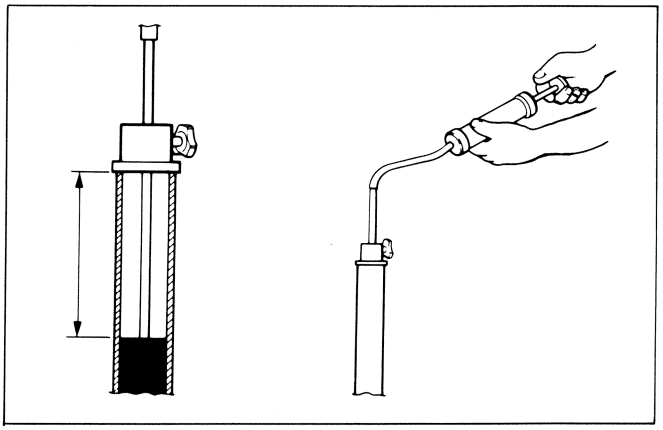


- Hold the front fork vertical and adjust the fork oil level with the special tool.

NOTE:
When adjusting oil level, remove the fork springs and compress the inner tube fully.

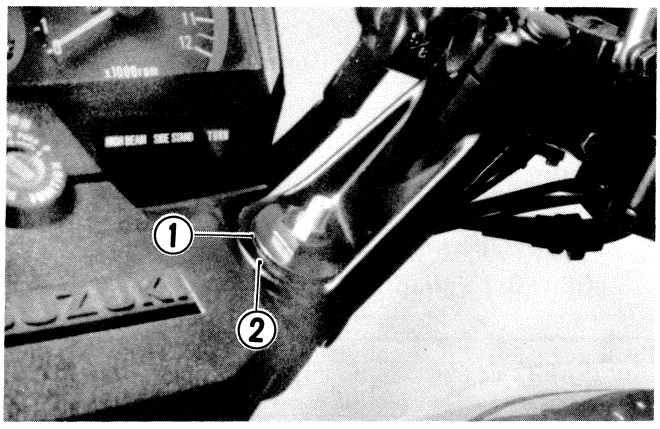
09943-74111	Fork oil level gauge

Oil level	125 mm (4.9 in)



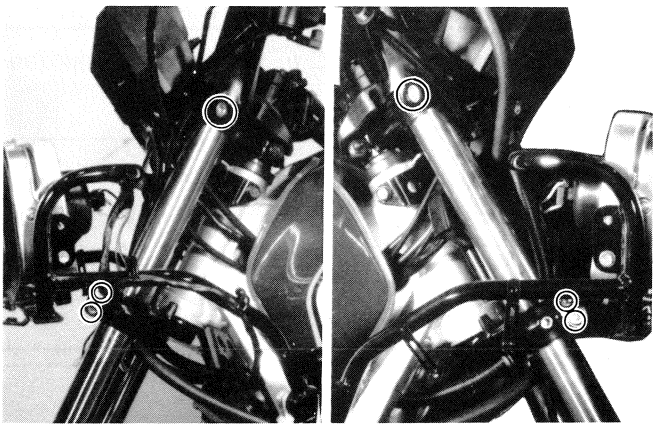
INNER TUBE

- Install the front fork assembly aligning the upper surface ① of the inner tube with the upper surface ② of the steering stem upper bracket.



- Tighten the upper and lower clamp bolts to the specification.

Tightening torque	Upper	20 – 30 N·m (2.0 – 3.0 kg-m 14.5 – 21.5 lb-ft)
	Lower	15 – 25 N·m (1.5 – 2.5 kg-m 11.0 – 18.0 lb-ft)



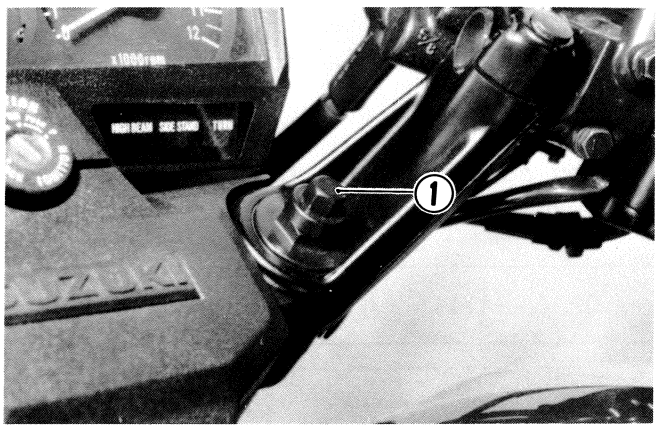
- Tighten the front fork cap bolt to the specification.

Tightening torque	15 – 30 N·m (1.5 – 3.0 kg-m 11.0 – 21.5 lb-ft)



FORK AIR

- Lift up the front wheel by a jack till it becomes free from any burden, and loosen the air lock screw ①.

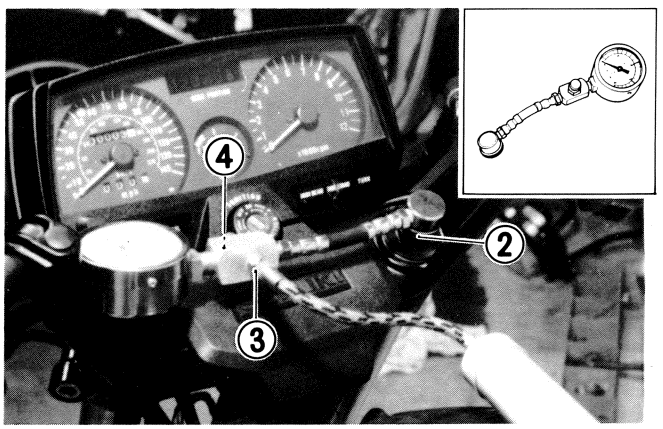


- Attach the air pressure gauge to the valve ②. Attach the hand pump to the valve ③, turn the valve handle ④ clockwise, and charge the air. Let the air out by loosening the handle ④ till the specified air pressure is left inside, and remove the valve ②.

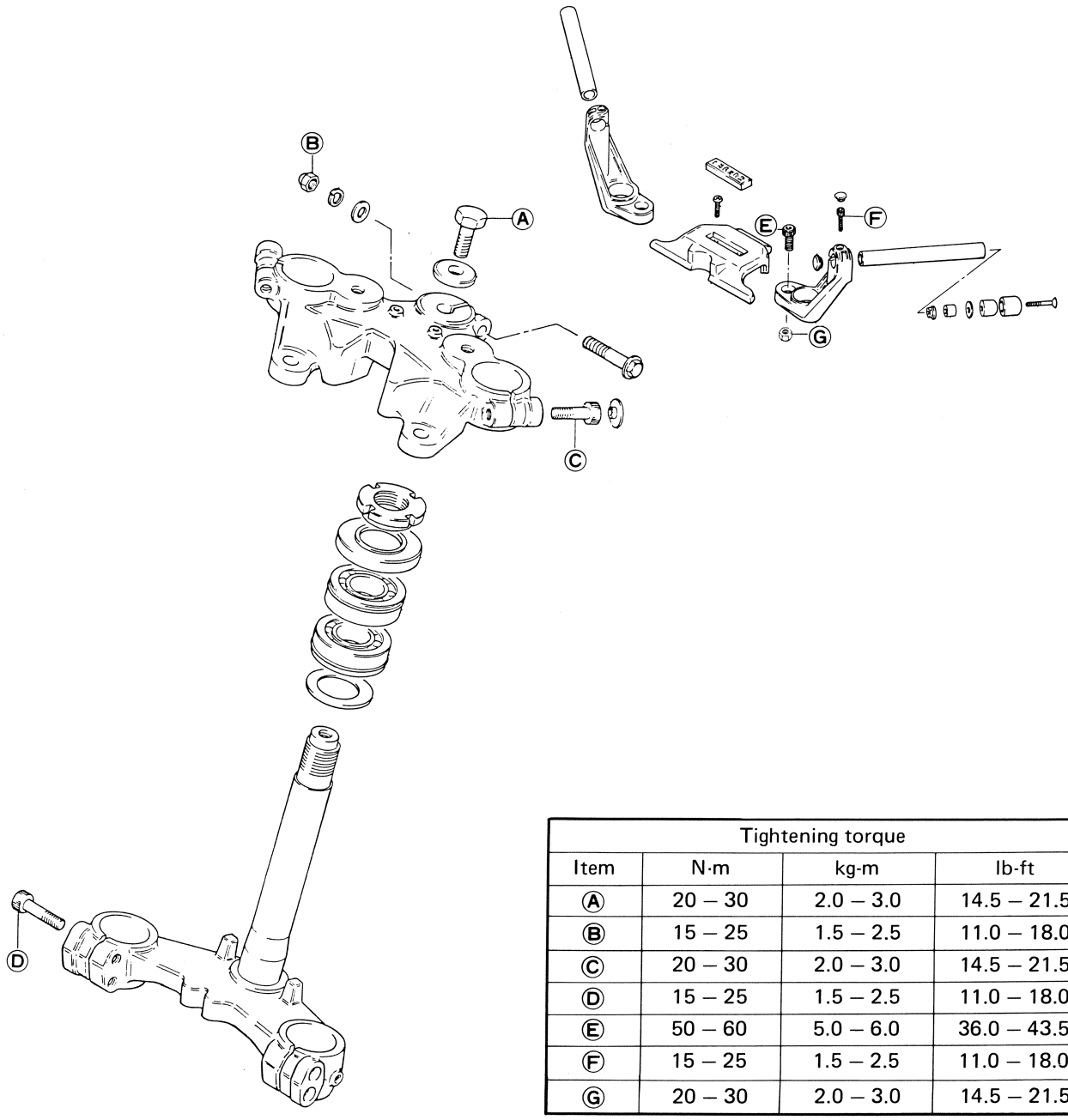
STD Air pressure	30 kPa (0.3 kg/cm², 4.2 psi)

CAUTION:
Do not charge air more than 250 kPa (2.5 kg/cm², 35.5 psi). Balance the air pressure of both right and left forks within specification (0.1 kg/cm²).

09940-44120	Air pressure gauge



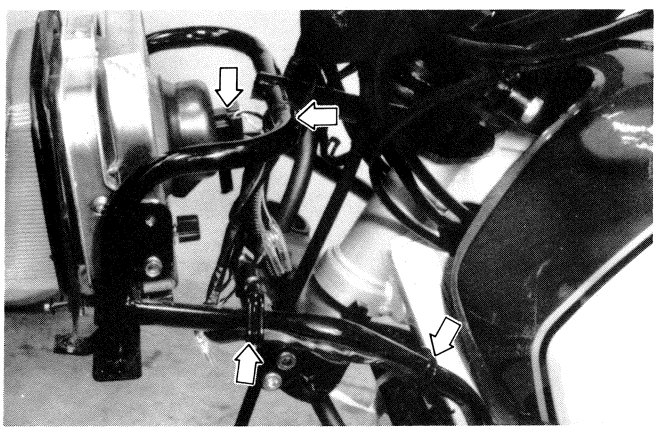
STEERING STEM



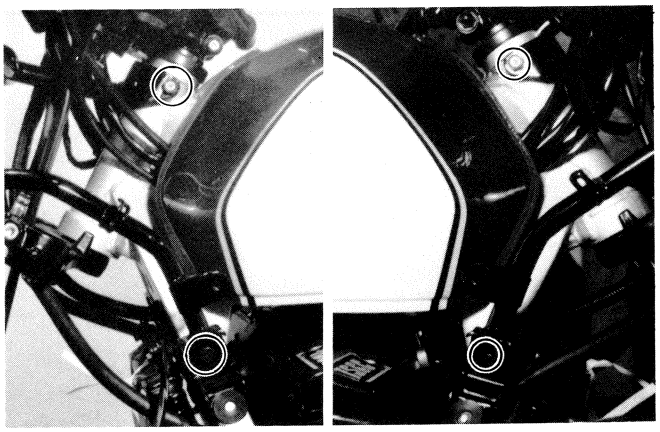
Tightening torque			
Item	N·m	kg-m	lb-ft
Ⓐ	20 – 30	2.0 – 3.0	14.5 – 21.5
Ⓑ	15 – 25	1.5 – 2.5	11.0 – 18.0
Ⓒ	20 – 30	2.0 – 3.0	14.5 – 21.5
Ⓓ	15 – 25	1.5 – 2.5	11.0 – 18.0
Ⓔ	50 – 60	5.0 – 6.0	36.0 – 43.5
Ⓕ	15 – 25	1.5 – 2.5	11.0 – 18.0
Ⓖ	20 – 30	2.0 – 3.0	14.5 – 21.5

REMOVAL AND DISASSEMBLY

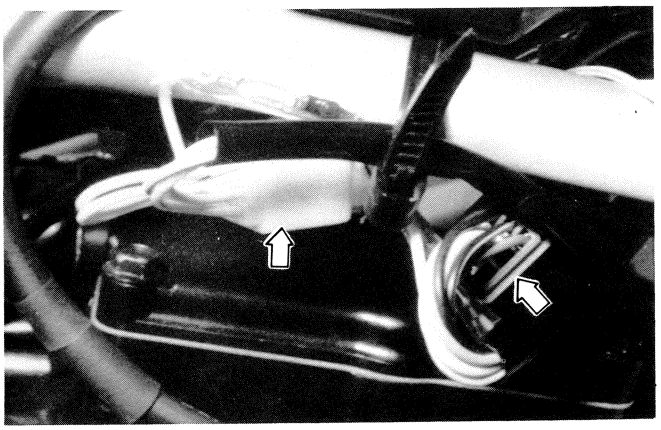
- Remove the fairing (See page 7-2).
- Remove the front wheel (See page 7-4).
- Remove the front fork (See page 7-17).
- Disconnect the headlight coupler and unclamp the lead wire clamps (GS550ES).



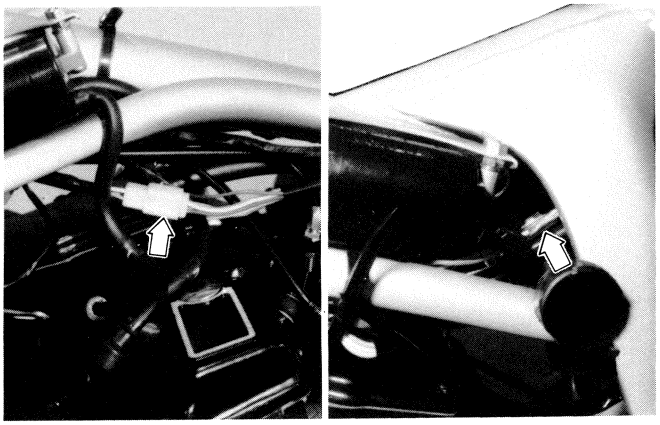
- Remove the four bolts and take off the fairing brace with headlight (GS550ES).
- Remove the frame covers, seat and fuel tank (See page 3-3).



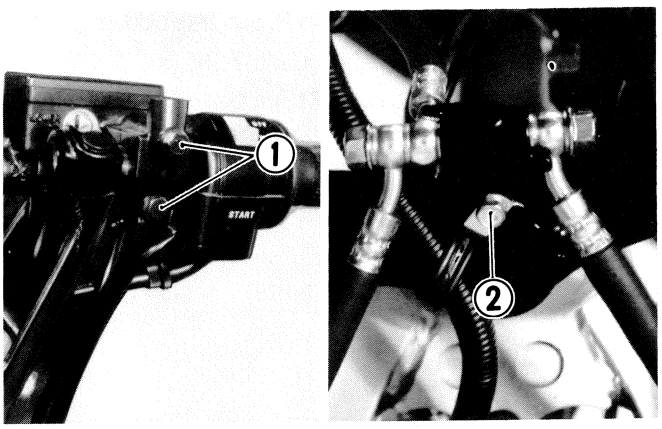
- Disconnect the headlight coupler.



- Disconnect the lead wires (gear position switch, front brake light switch, R&L handlebars switches and starter interlock switch).



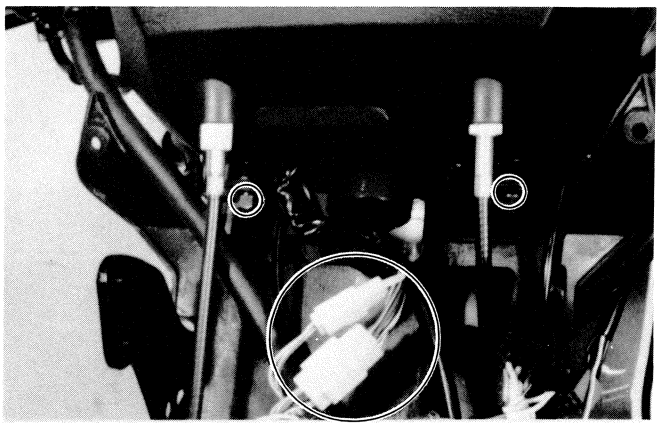
- Remove the two clamp bolts ① and brake hose joint bolt ②, and take off the front brake assembly.



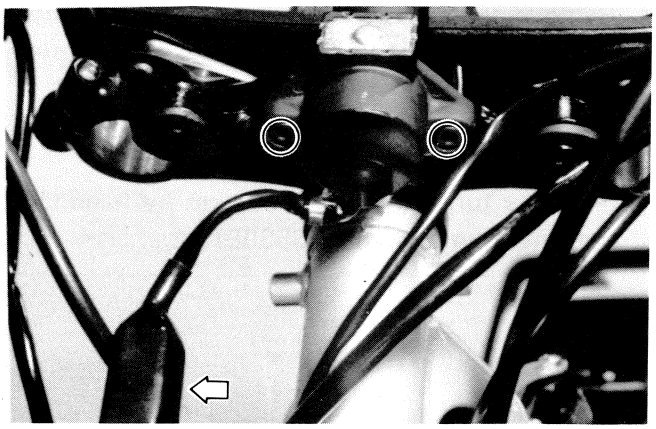
- Disconnect the speedo/tachometer coupler and remove the two nuts and take off the meter assembly (GS550ES).



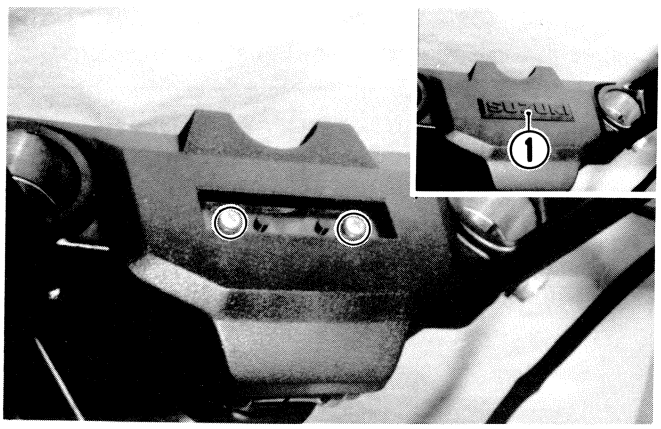
- Disconnect the speedo/tachometer coupler and tachometer cable (GS550E).
- Remove the two nuts and take off the meter assembly.



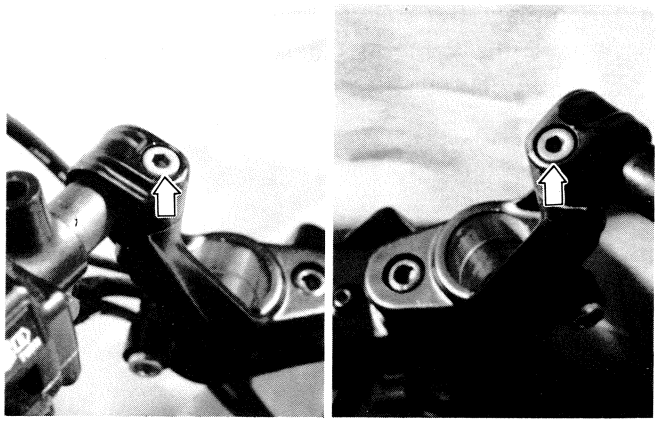
- Disconnect the coupler and remove the ignition switch by using the 5 mm hexagon wrench.



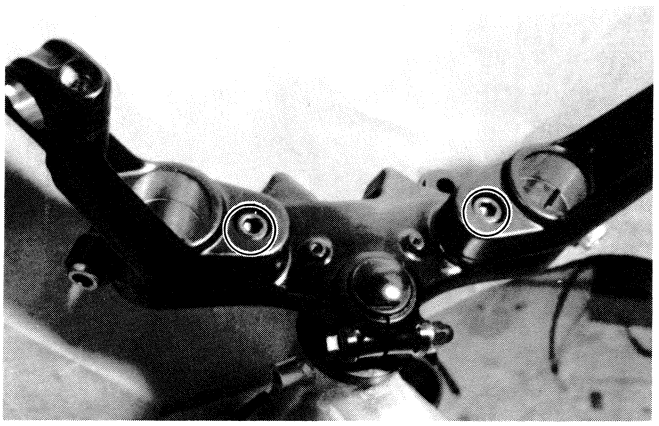
- Remove the steering head cover cap ①.
- Remove the two screws and take off the steering head cover.



- Remove the handlebars securing bolts by using the 6 mm hexagon wrench.

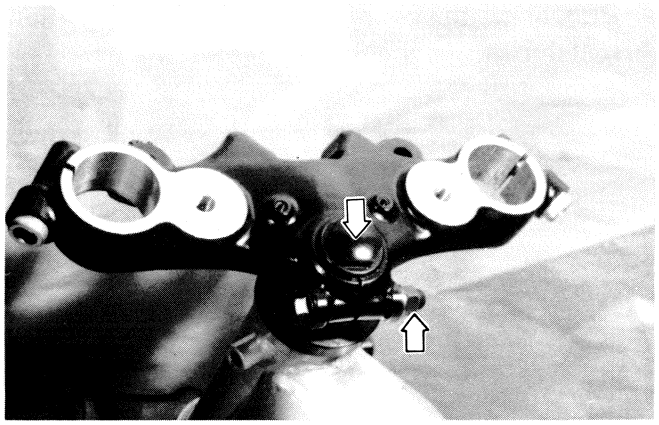


- Remove the handlebars holder bolts by using the special tool.



- Remove the steering stem head bolt and loosen the clamp nut, then take off the steering stem upper bracket.

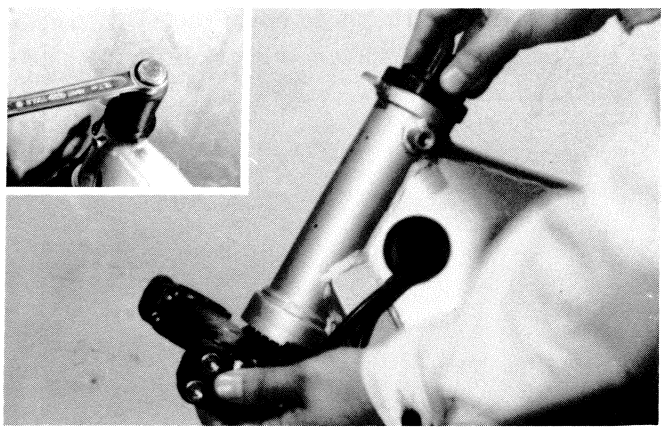
NOTE:
Hold the turn signal light bracket by hand to prevent from falling. (GS550E)



- Remove the steering stem nut by using the special tool, then draw out the steering stem.

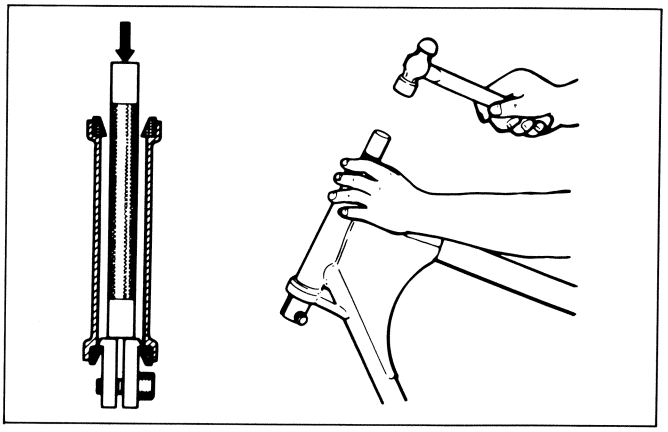
09940-14911	Steering nut socket wrench

NOTE:
Hold the steering stem lower bracket by hand to prevent from falling.



- Push out the steering stem bearing outer races, upper and lower, by using the special tools.

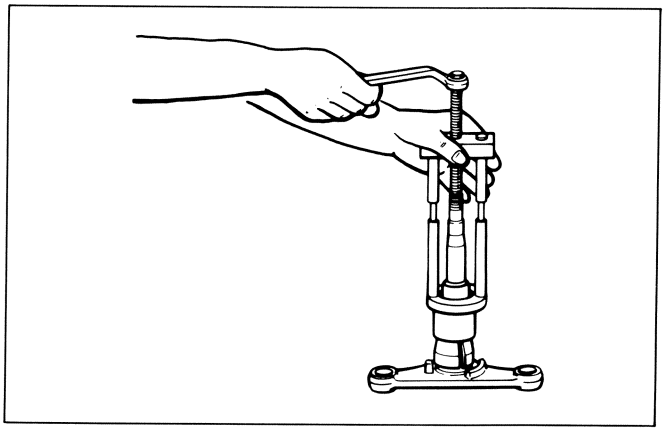
09941-54911	Steering race remover
09941-74910	Steering bearing installer



- Remove the steering stem bearing by using the special tool.

CAUTION:
The removed bearing should be replaced.

09941-84510	Bearing inner race remover



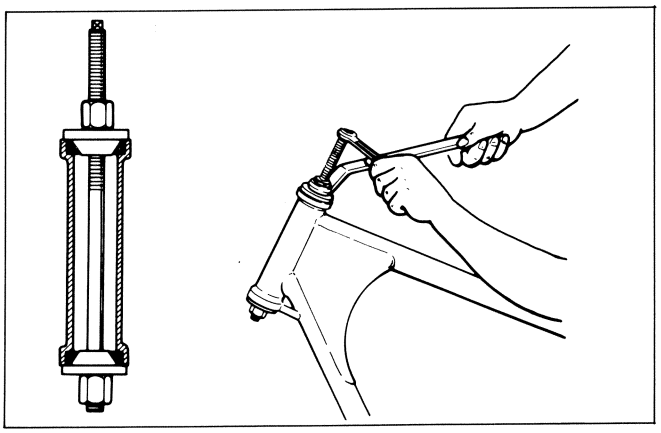
REASSEMBLY

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

OUTER RACES

Press in the upper and lower outer races using the special tool.

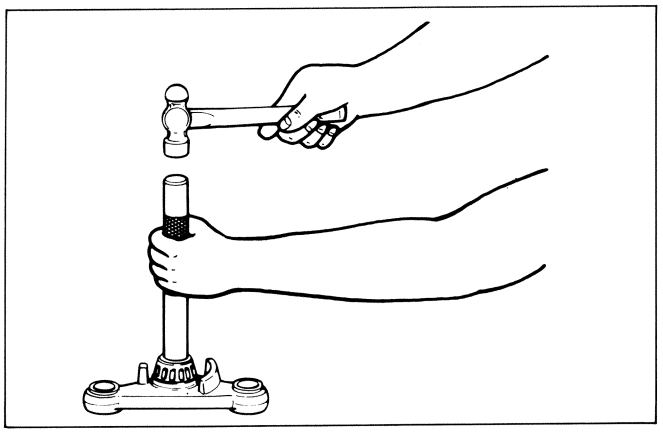
09941-34511	Steering race installer



BEARING

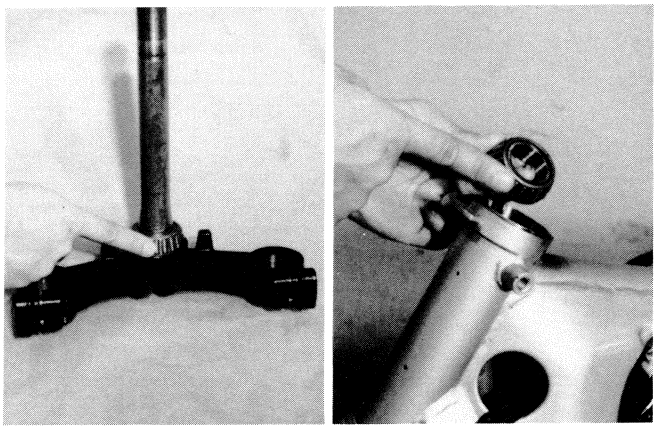
- Press in the lower bearings by using the special tool.

09941-74910	Steering bearing installer



- Apply grease to the upper and lower bearings before remounting the steering stem.

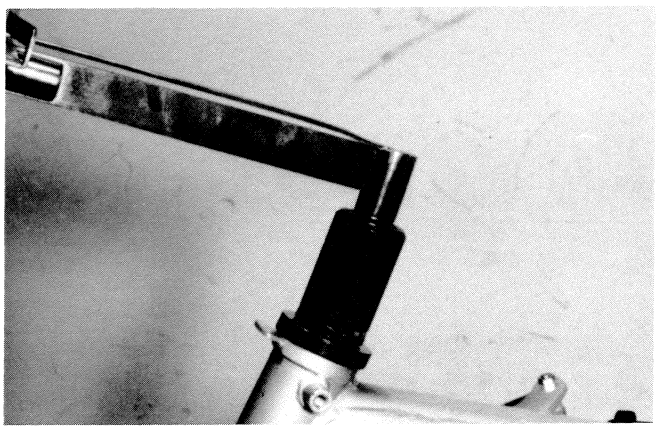
99000-25030	SUZUKI Super grease "A"



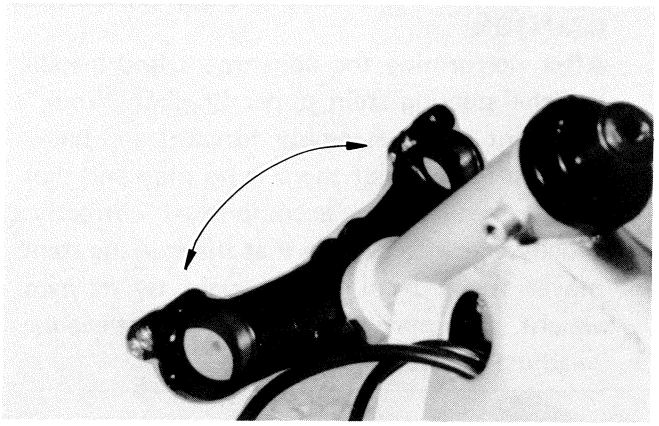
STEERING STEM NUT

- Tighten the steering stem nut to 40 – 50 N·m (4.0 – 5.0 kg-m, 29.0 –36.0 lb-ft) by using the special tool.

09940-14911	Steering nut socket wrench

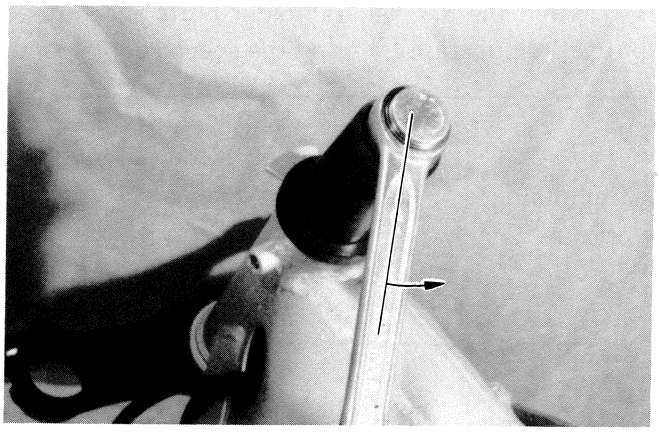


- Turn the steering stem right and left, lock-to-lock, five or six times to "seat" the bearings.

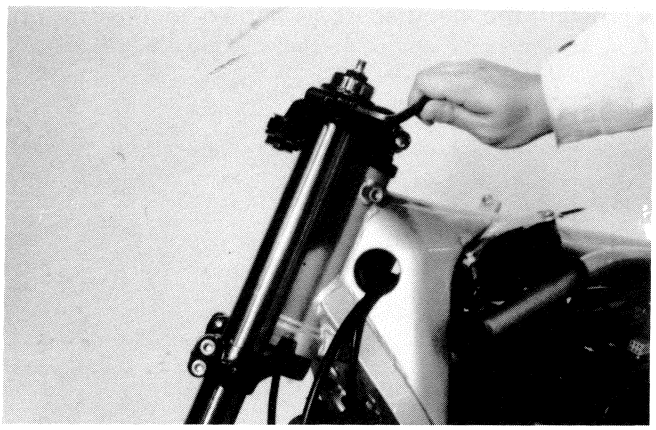


- Turn back the stem nut by 1/4 – 1/2 turn.

NOTE:
This adjustment will vary from motorcycle to motorcycle.

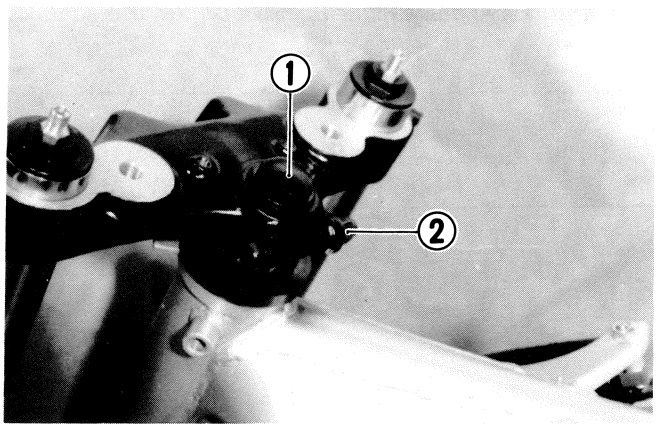


- Install the front forks and tighten the upper and lower clamps.

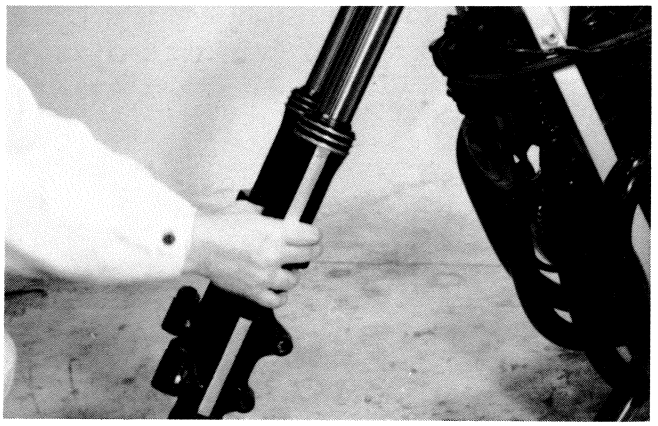


- Tighten the steering stem head bolt ① and clamp nut ② with specified torque.

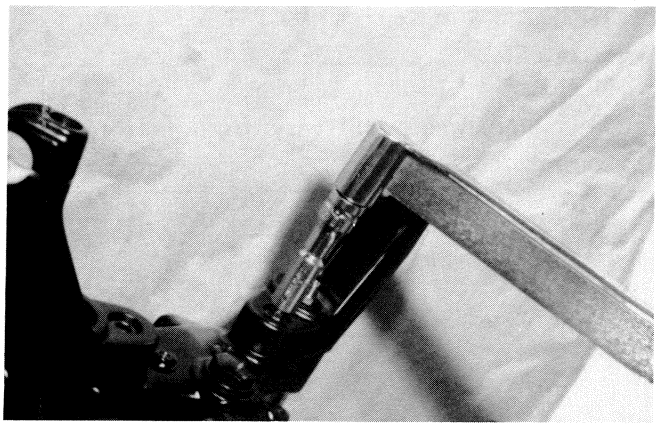
Tightening torque	①	20 – 30 N·m (2.0 – 3.0 kg-m 14.5 – 21.5 lb-ft)
	②	15 – 25 N·m (1.5 – 2.5 kg-m 11.0 – 18.0 lb-ft)



CAUTION:
After performing the adjustment and installing the steering stem upper bracket, "rock" the front wheel assembly forward and backward to ensure that there is no play and that the procedure was accomplished correctly. Finally check to be sure that the steering stem moves freely from left to right by its own weight. If play or stiffness is noticeable, re-adjust the steering stem nut.

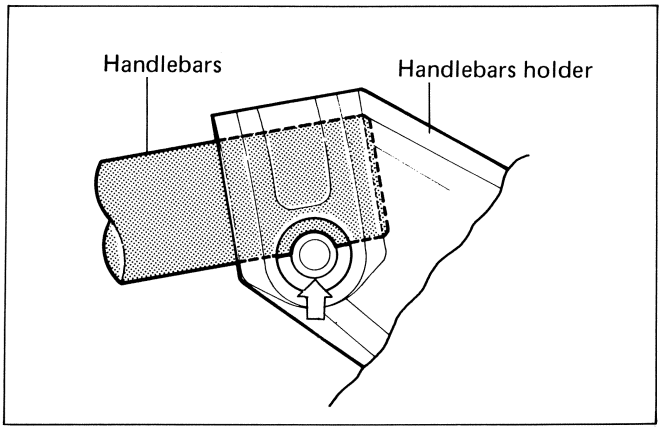


- Tighten the handlebars holder bolts and nuts to the specification by using the special tool.



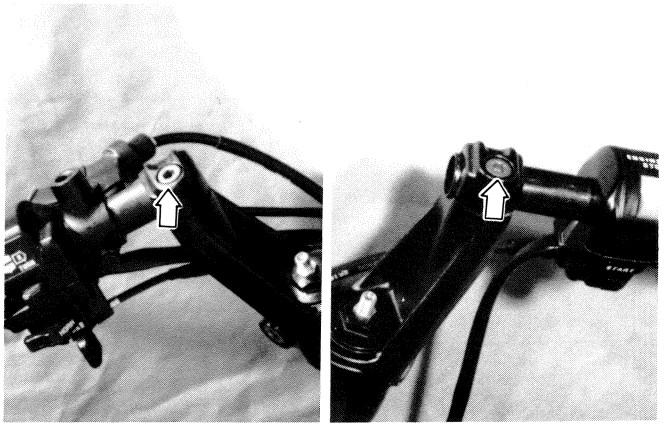
Tightening torque	Bolt	50 – 60 N·m (5.0 – 6.0 kg-m) (36.0 – 43.5 lb-ft)
	Nut	20 – 30 N·m (2.0 – 3.0 kg-m) (14.5 – 21.5 lb-ft)

- Install the handlebars as shown in illustration.

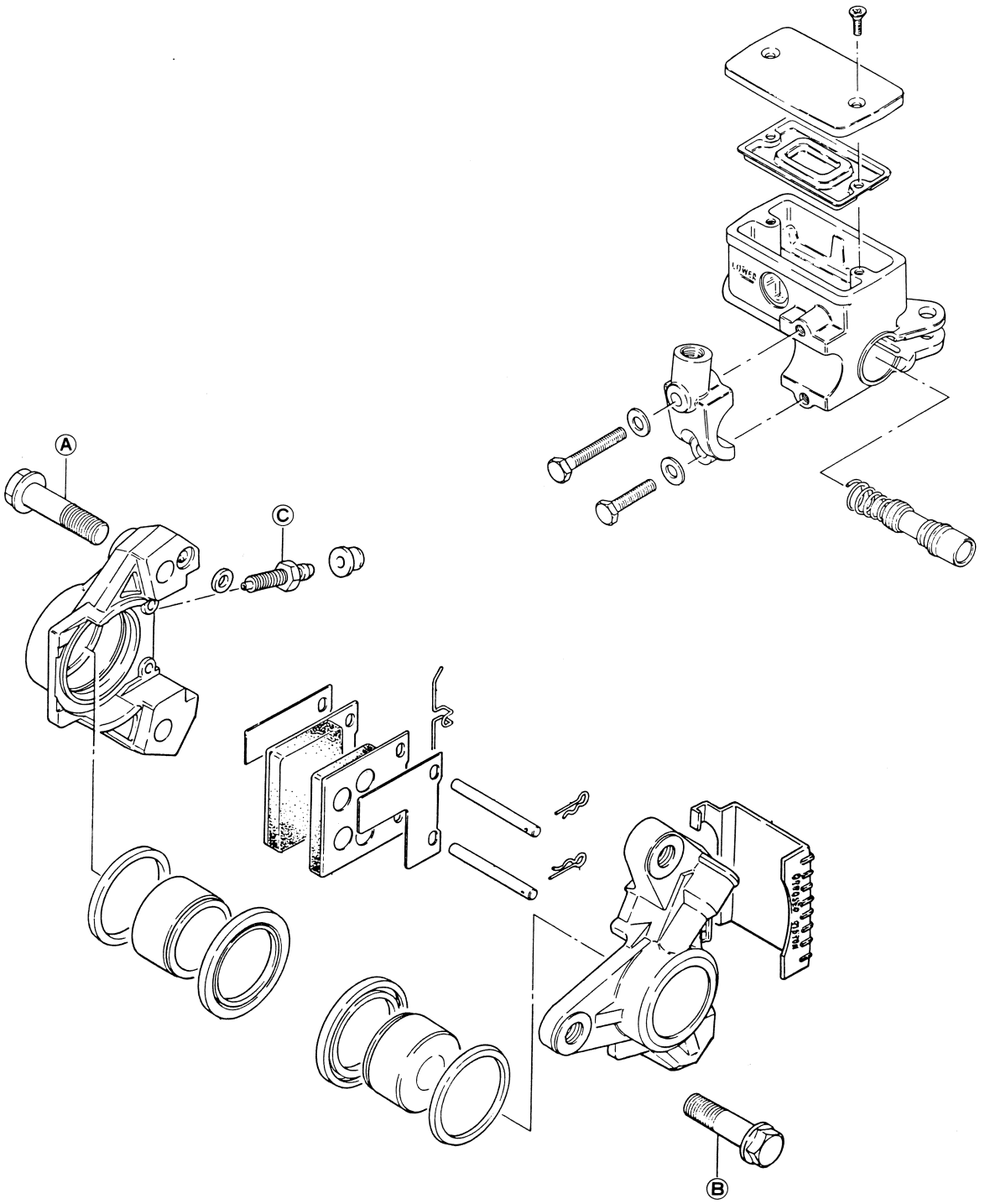


- Tighten the handlebars set bolts to the specification.

Tightening torque	15 – 25 N·m (1.5 – 2.5 kg-m) (11.0 – 18.0 lb-ft)



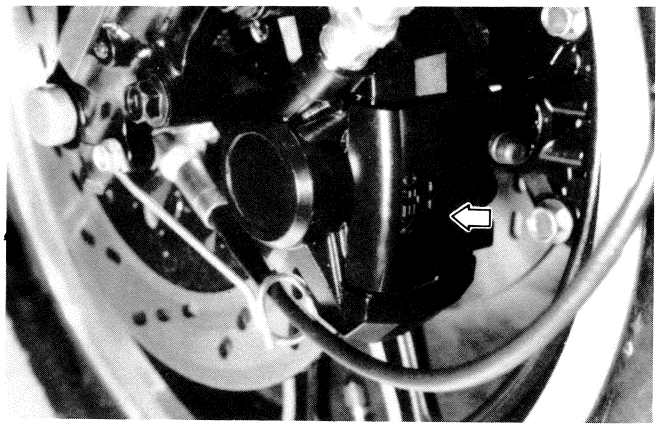
FRONT BRAKE



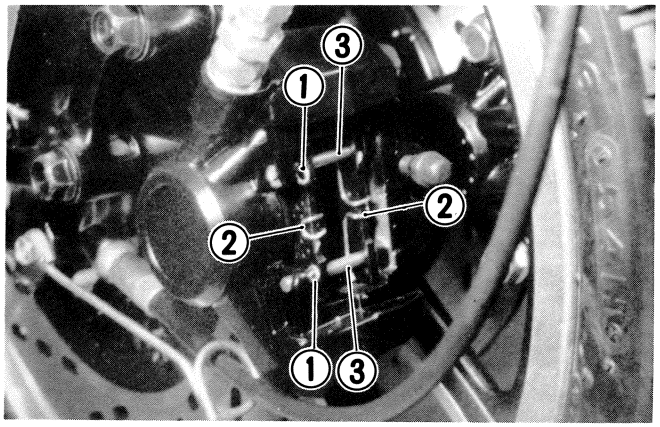
Tightening torque			
Item	N·m	kg-m	lb-ft
Ⓐ	30 – 36	3.0 – 3.6	21.5 – 26.0
Ⓑ	25 – 40	2.5 – 4.0	18.0 – 29.0
Ⓒ	7 – 9	0.7 – 0.9	5.0 – 6.0

BRAKE PAD REPLACEMENT

- Remove the dust covers, right and left.

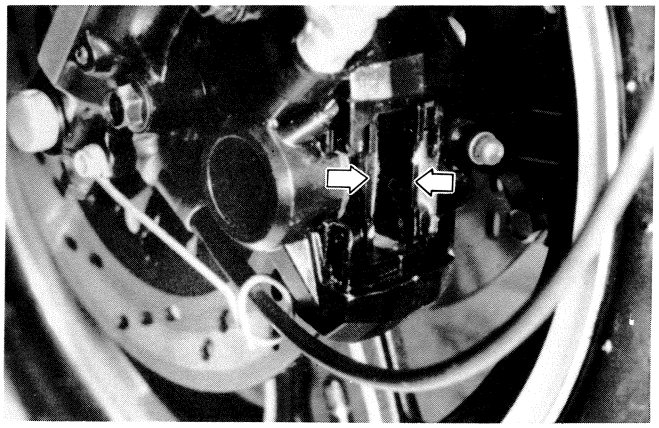


- Remove the clips ① and springs ②, and draw out the pins ③.

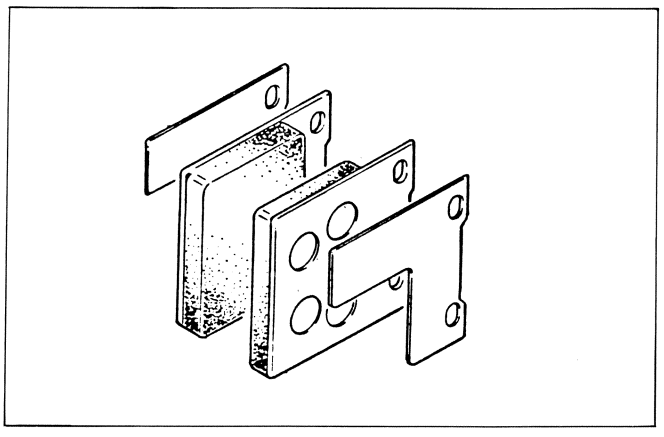


- Take off the pads and shims.

CAUTION:
*** Do not operate the brake lever while dismounting the pads.**
*** Replace the brake pad as a set, otherwise braking performance will be adversely affected.**

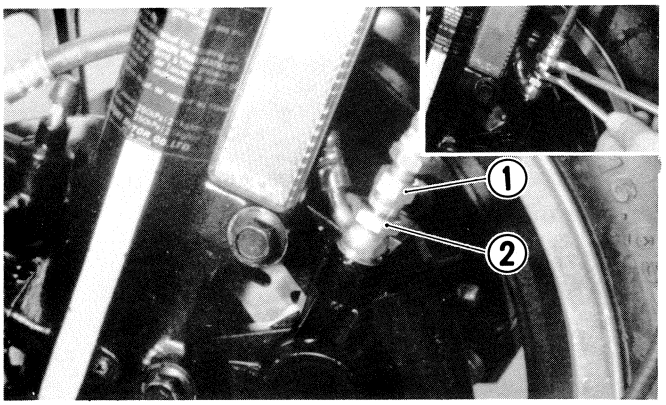


- Install the pads and shims as shown in illustration.

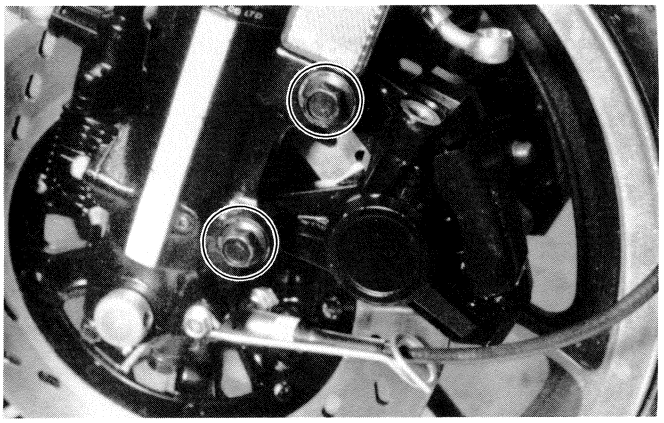


CALIPER REMOVAL AND DISASSEMBLY

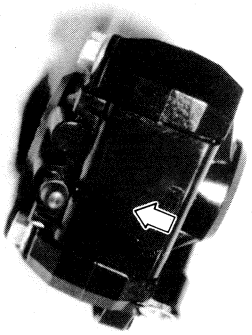
- Loosen the union bolt adapter ① and then remove the union bolt ②.
- Catch the brake fluid in a suitable receptacle.

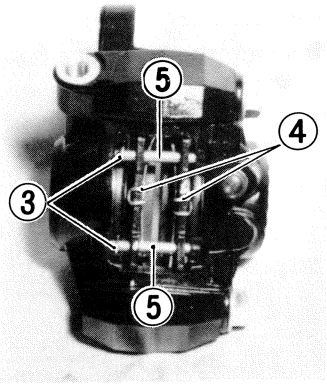


- Remove the caliper mounting bolts and take off the caliper.

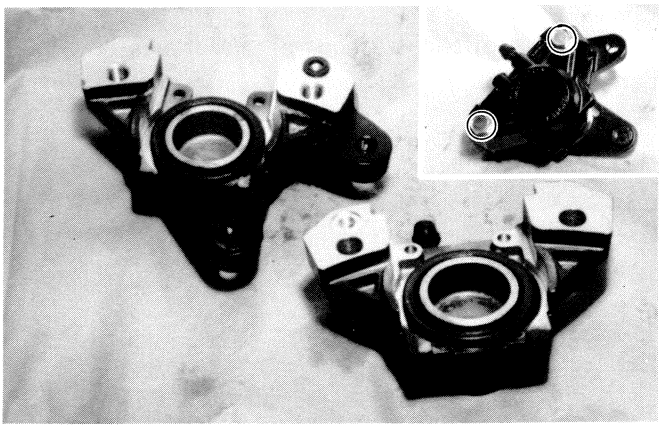


- Remove the dust cover.
- Remove the clips ③ and springs ④, and draw out the pins ⑤.
- Take off the pads.



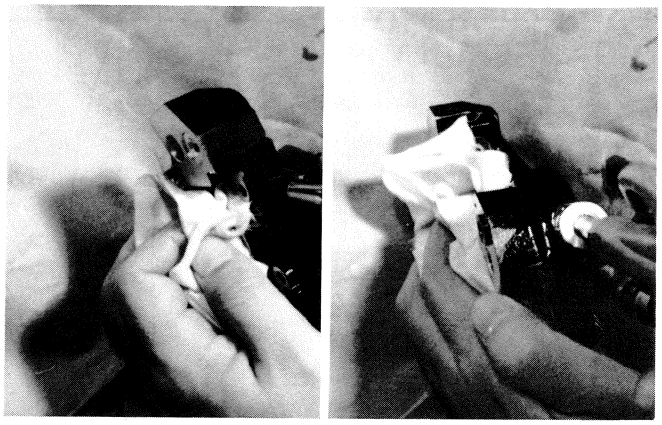


- Remove the caliper housing bolts and separate the caliper halves.

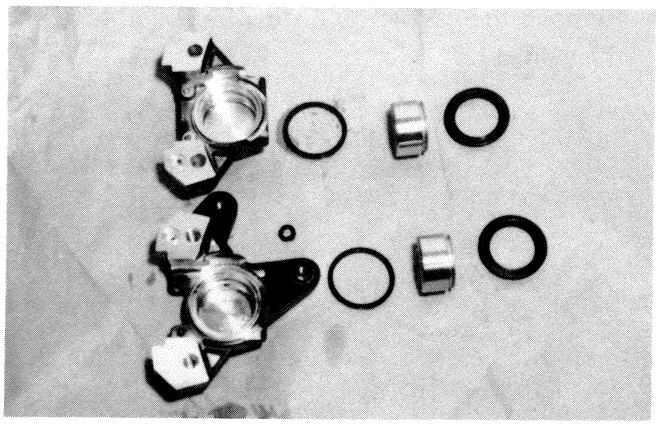


- Place a rag over the piston to prevent it from popping out.
  Push out the piston by using air gun.

CAUTION:
To prevent piston damage, do not use high pressure air.



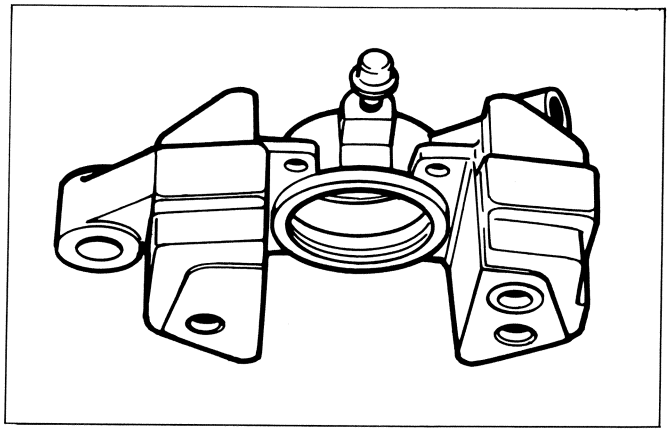
- Remove the dust boots pistons, O-ring and piston seal from the caliper housing.



INSPECTION

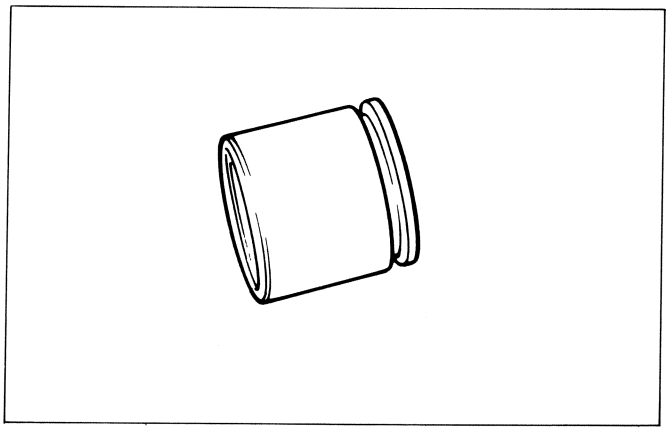
CYLINDER

Inspect the cylinder bore wall for nicks, scratches or other damage.



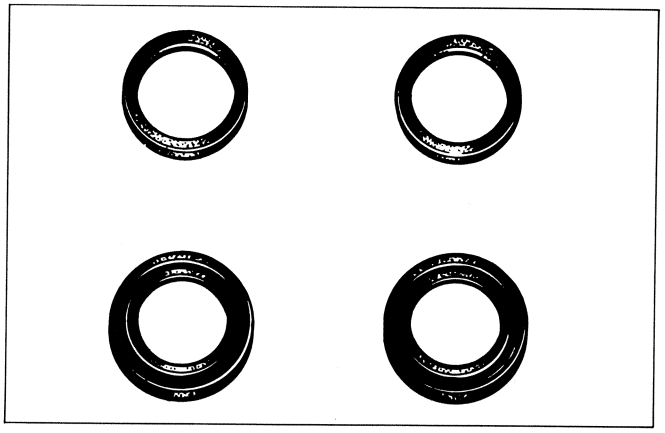
PISTON

Inspect the piston surface for any flaws or other damage.



DUST BOOT AND PISTON SEAL

Inspect the each rubber part for damage and wear.

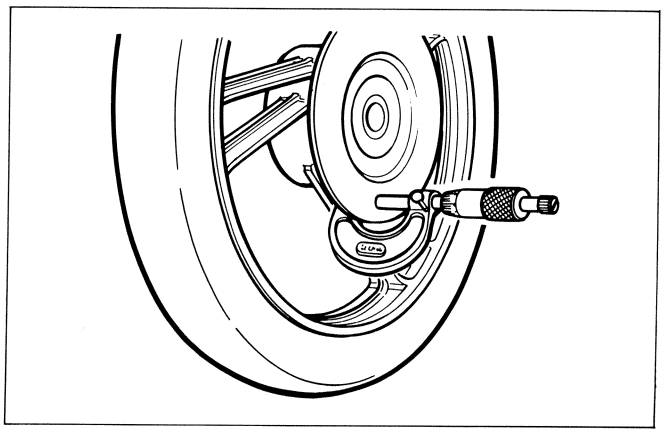


DISC

- Measure the disc thickness by using the micrometer.

09900-20205	Micrometer (0–25 mm)

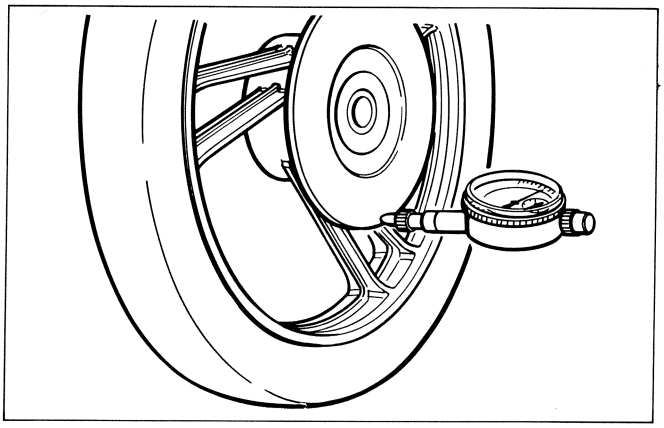
Service Limit	4.5 mm (0.18 in)



- With the disc mounted on the wheel, check the disc for face runout with a dial gauge, as shown.

09900-20606	Dial gauge (1/100)

Service Limit	0.30 mm (0.012 in)



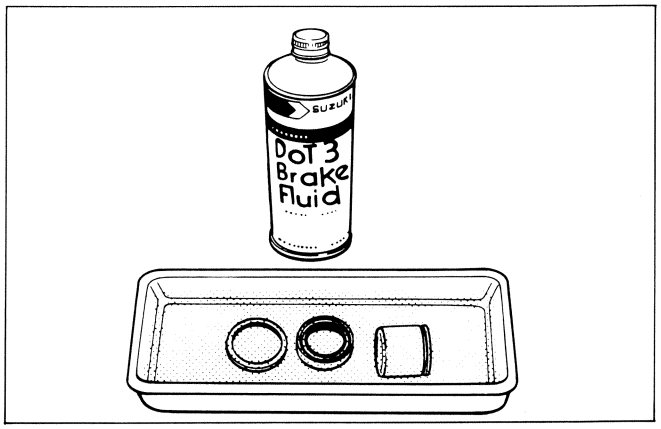
REASSEMBLY

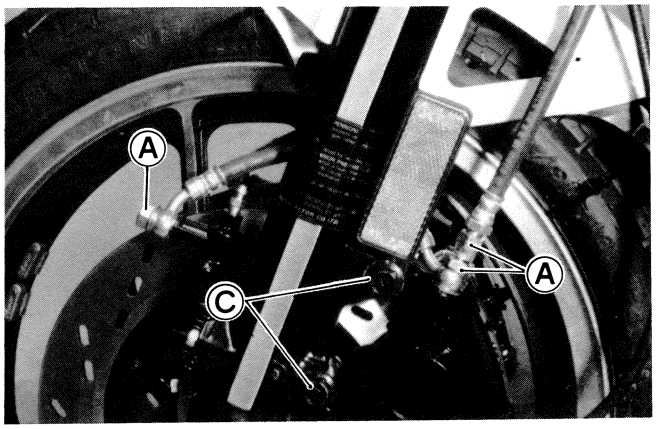
Reassemble and remount the caliper in the reverse order of disassembly and removal, and also carry out the following steps:

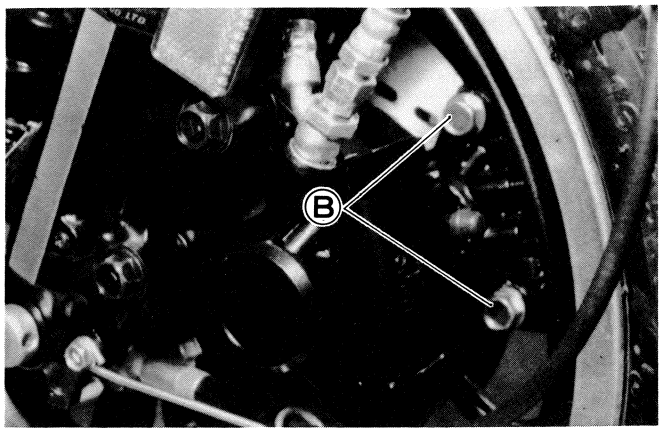
CAUTION:
- *** Wash the caliper components with fresh brake fluid before reassembly.**
- *** Never use cleaning solvent or gasoline to wash them.**
- *** Apply brake fluid to the caliper bore and piston to be inserted into the bore.**
- *** Bleed the air after reassembling the caliper (See page 2-14).**

TIGHTENING TORQUE

Item	N·m	kg-m	lb-ft
Union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Caliper housing bolt	30 – 36	3.0 – 3.6	21.5 – 26.0
Caliper mounting bolt	25 – 40	2.5 – 4.0	18.0 – 29.0

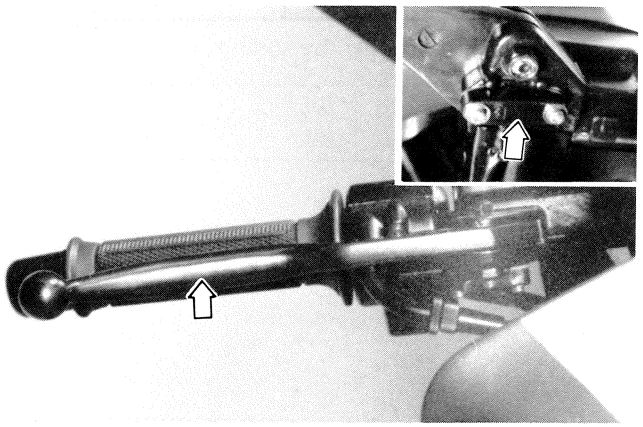






MASTER CYLINDER REMOVAL AND DISASSEMBLY

- Remove the front brake light switch and front brake lever.

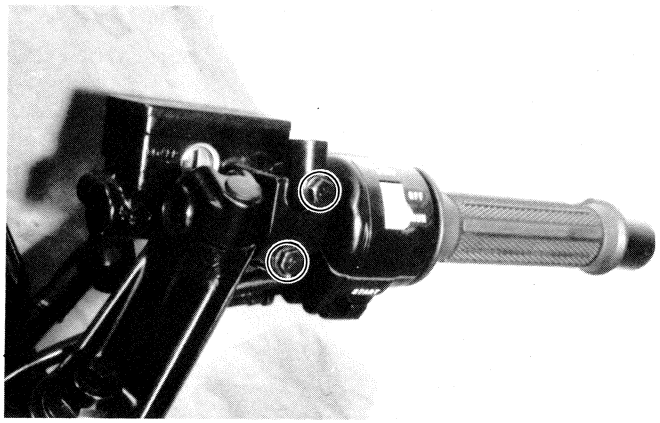


- Place a cloth underneath the union bolt on the master cylinder to catch spiled drops of brake fluid. Unscrew the union bolt and disconnect the brake hose from the master cylinder joint.

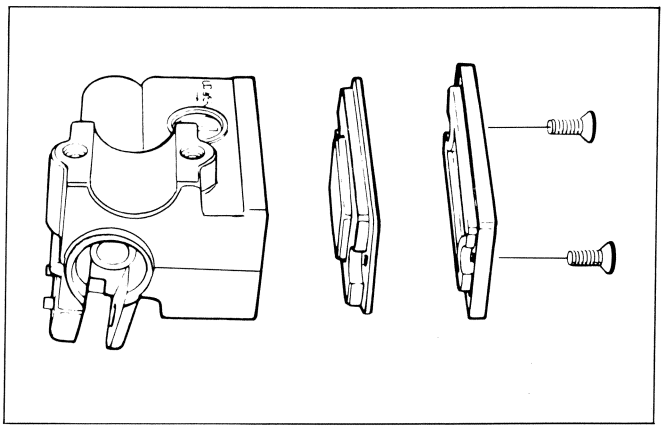


CAUTION:
Immediately and completely wipe off any brake fluid contacting any part of the motorcycle. The fluid reacts chemically with paint, plastics and rubber materials, etc. and will damage them severely.

- Remove the two clamp bolts and take off master cylinder.

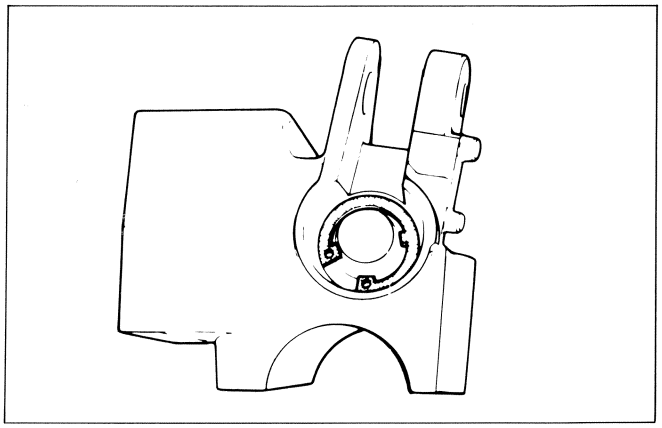


- Remove the two fitting screws, and take off the cap and diaphragm.
- Drain brake fluid.

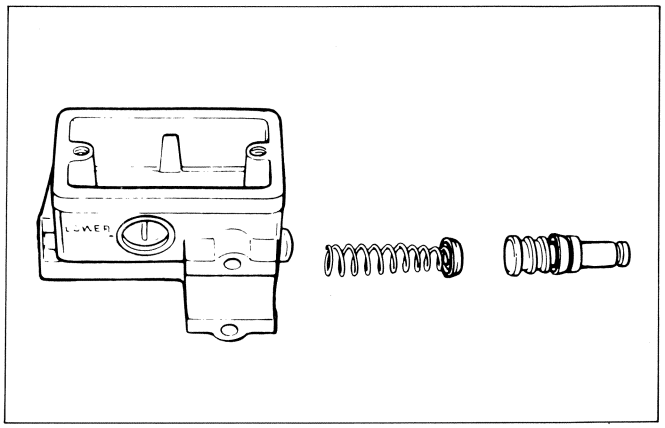


- Remove the dust seal boot.
- Remove the circlip by using the special tool.

09900-06108	Snap ring pliers

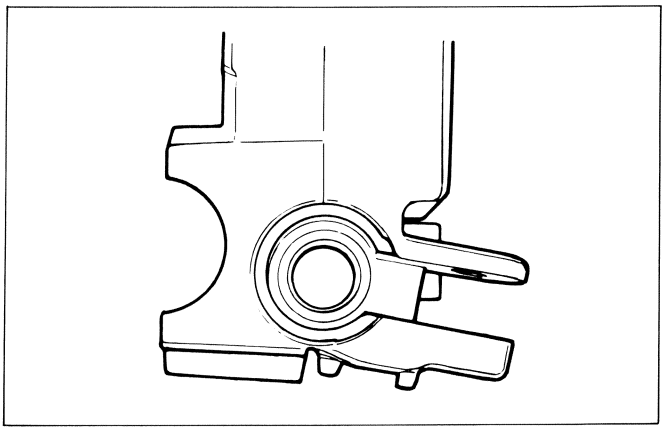


- Remove the piston, primary cup and spring.

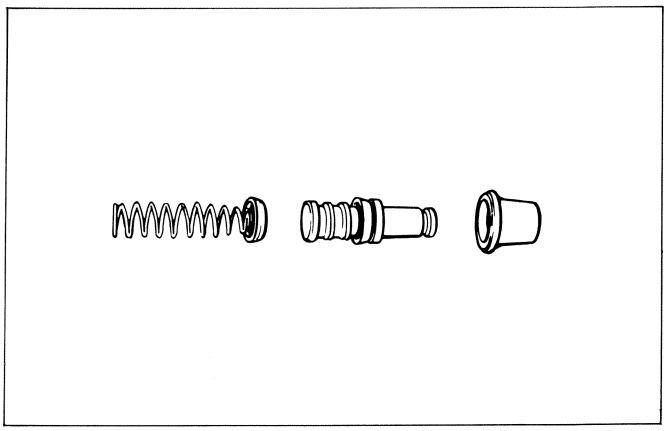


MASTER CYLINDER INSPECTION

- Inspect the master cylinder bore for any scratches or other damage.



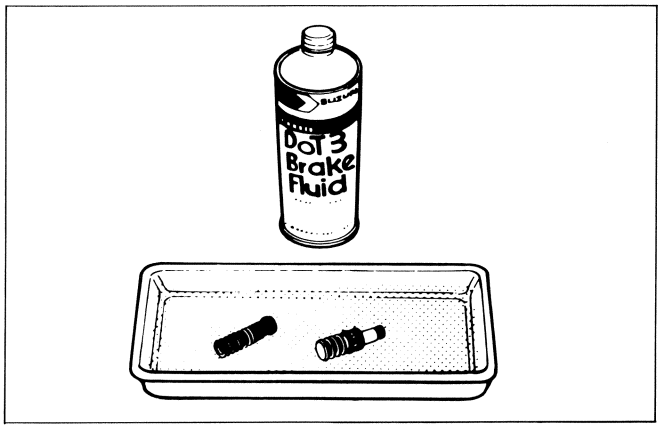
- Inspect the piston surface for scratches or other damage.
- Inspect the primary cup, secondary cup and dust seal boot for wear or damage.



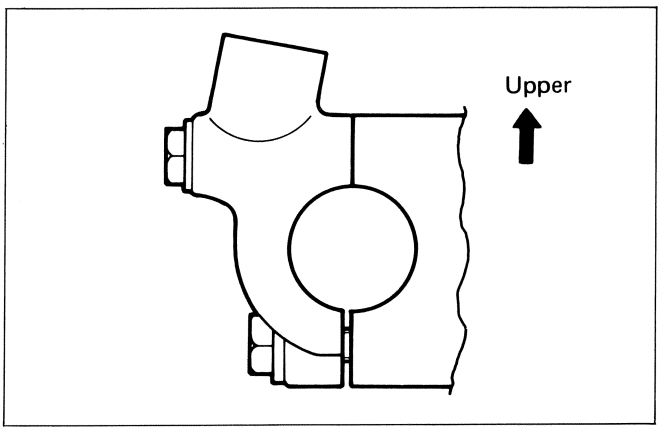
MASTER CYLINDER REASSEMBLY

Reassemble the master cylinder in the reverse orders of disassembly and removal and also carry out the following steps:

CAUTION:
Wash the master cylinder components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them. Apply brake fluid to the cylinder bore and all internal parts before inserting into the bore.

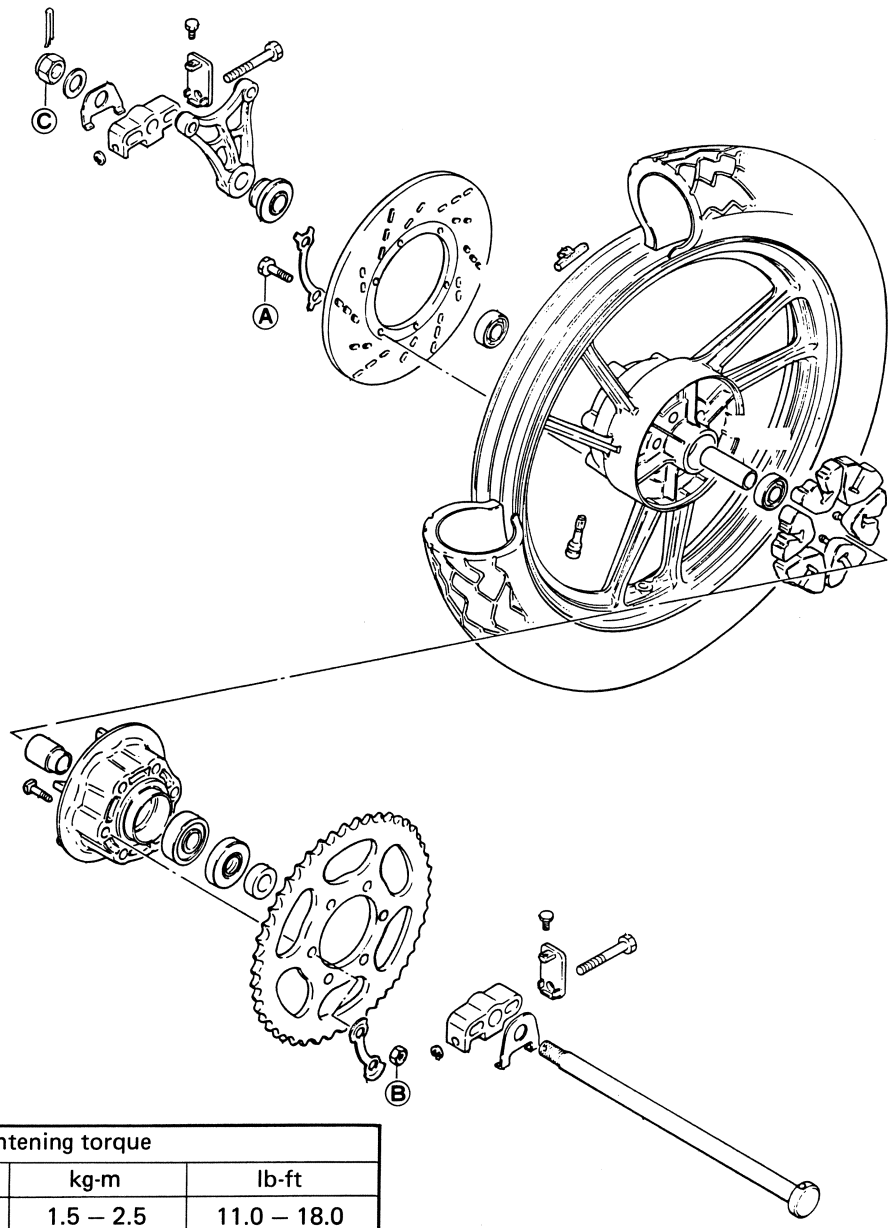


- When remounting the master cylinder on the handlebars, first tighten the clamp bolt for upside as shown.



WARNING:
Bleed the air after reassembling master cylinder (See page 2-14).
Adjust the front brake light switch after installation.

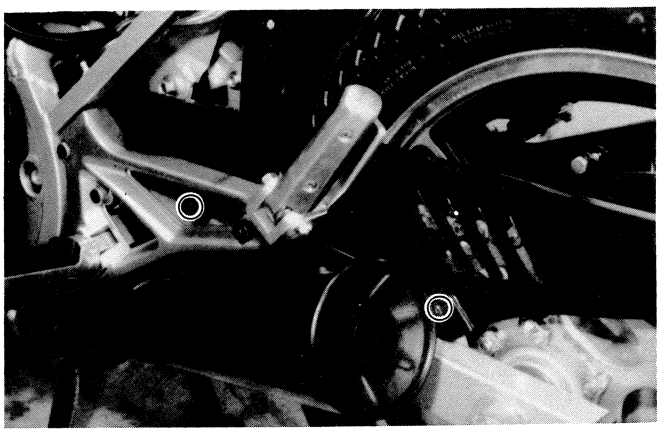
REAR WHEEL



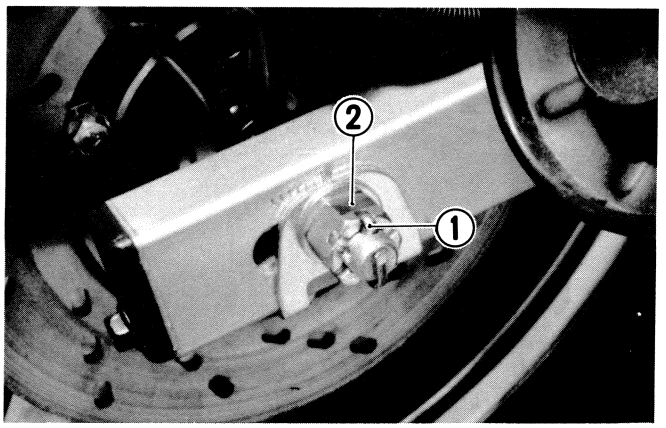
Tightening torque			
Item	N·m	kg-m	lb-ft
Ⓐ	15 – 25	1.5 – 2.5	11.0 – 18.0
Ⓑ	25 – 40	2.5 – 4.0	18.0 – 29.0
Ⓒ	50 – 80	5.0 – 8.0	36.0 – 58.0

REMOVAL AND DISASSEMBLY

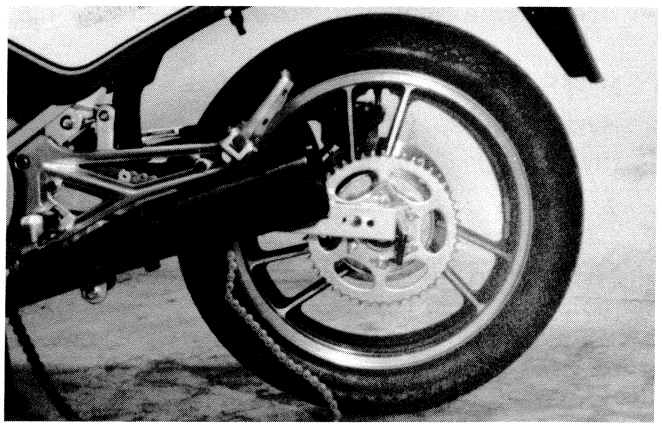
- Support the machine by the center stand.
- Remove the two bolts and take off the chain case.



- Pull out the cotter pin ① and remove the axle nut ②.



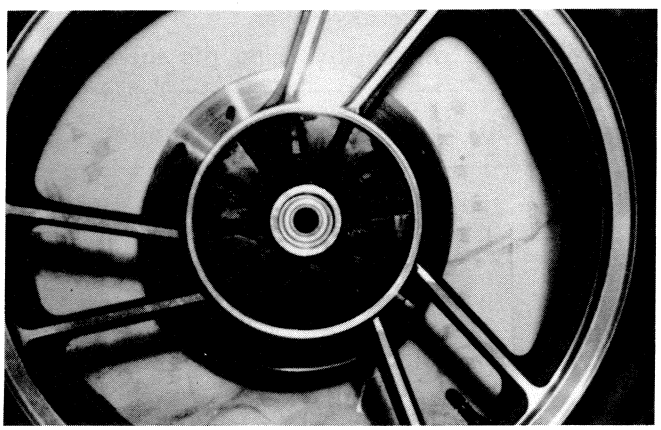
- Draw out the axle shaft and take off the drive chain from the rear sprocket.
- Remove the rear wheel.



- Draw out the rear sprocket mounting drum from the wheel.

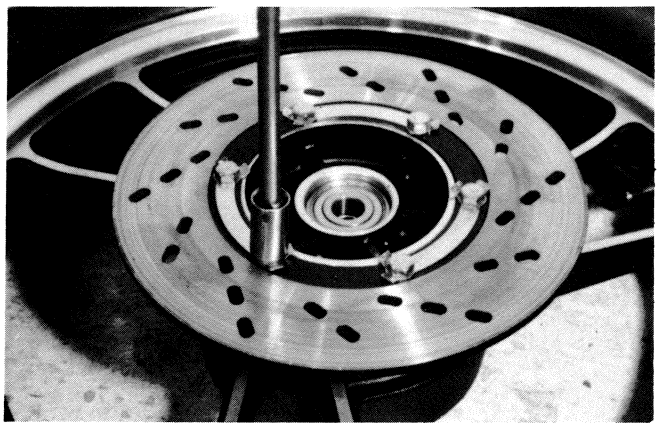


- Remove the six cushions.



- Flatten the washers and loosen the six bolts.

CAUTION:
Do not reuse the lock washers.

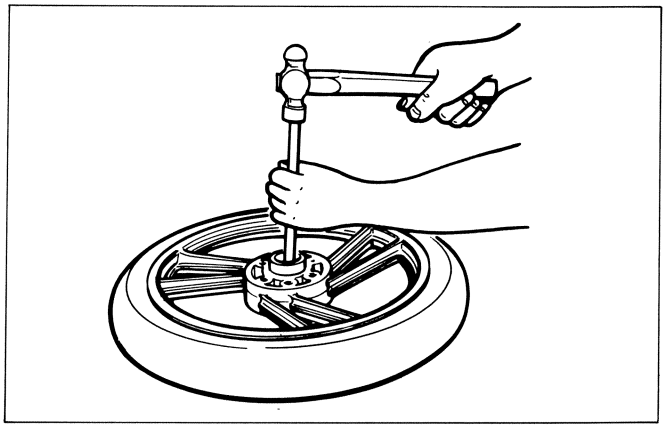


- Separate the disc from wheel.

- Remove the right and left side wheel bearings.

NOTE:
Removing the left side bearing first makes the job easier.

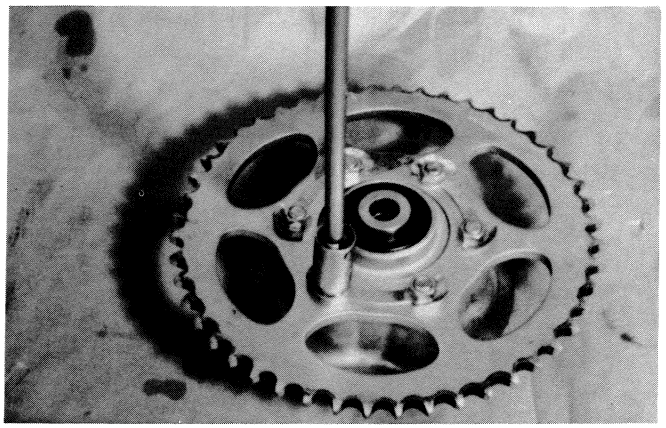
CAUTION:
The removed bearings should be replaced.



- Flatten the washers and loosen the six nuts.

CAUTION:
Do not reuse the lock washers.

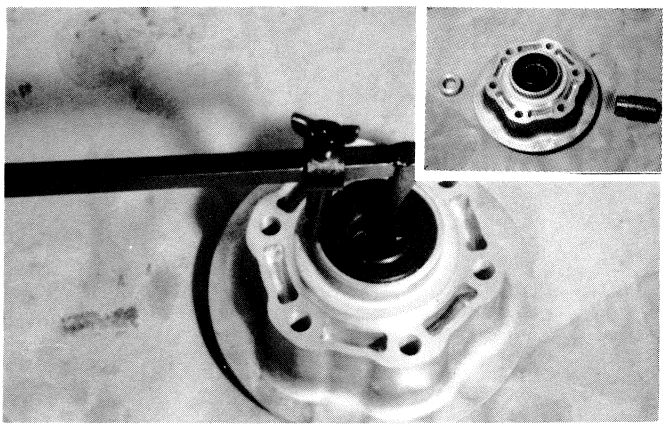
- Separate the rear sprocket from mounting drum.



- Remove the two spacers.
- Remove the oil seal by using the special tool.

09913-50121	Oil seal remover

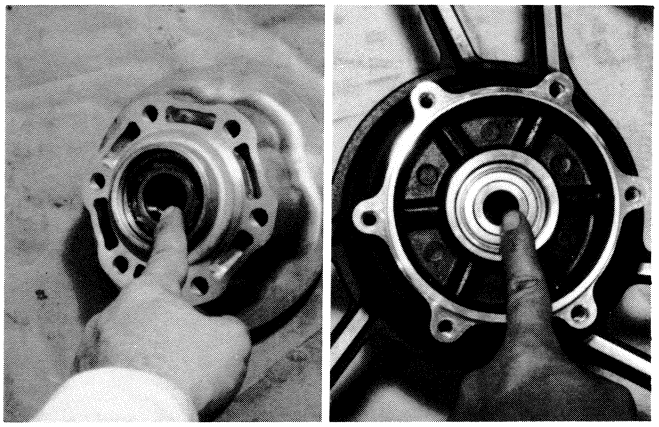
- Remove the bearing by using the bearing remover.



INSPECTION

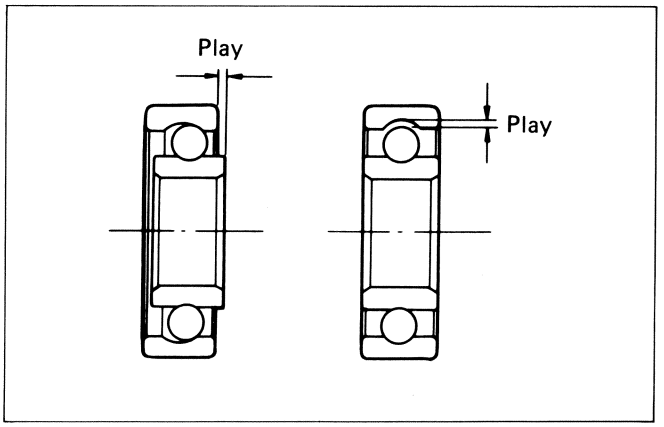
REAR WHEEL AND MOUNTING DRUM BEARINGS

Inspect the play of bearing inner race by hand while fixing it in the wheel and mounting drum. Rotate the inner race by hand to inspect whether abnormal noise occurs or rotating smoothly. Replace the bearing if there is anything unusual.



TIRE

(See pages 2-15, 7-13).

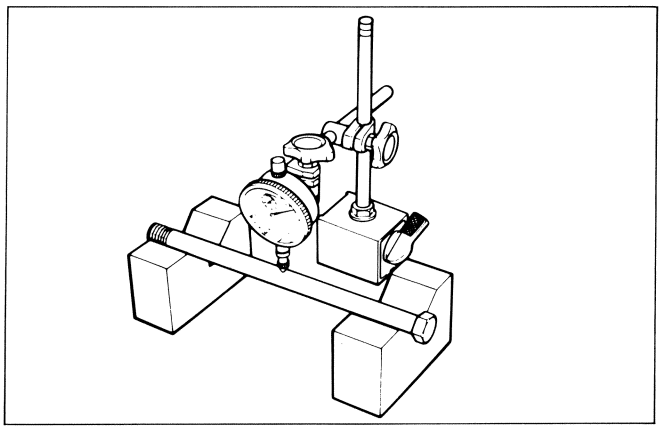


AXLE SHAFT

Using a dial gauge, check the axle shaft for run-out and replace it if the runout exceeds the limit.

09900-20606	Dial gauge (1/100)

Service Limit	0.25 mm (0.010 in.)

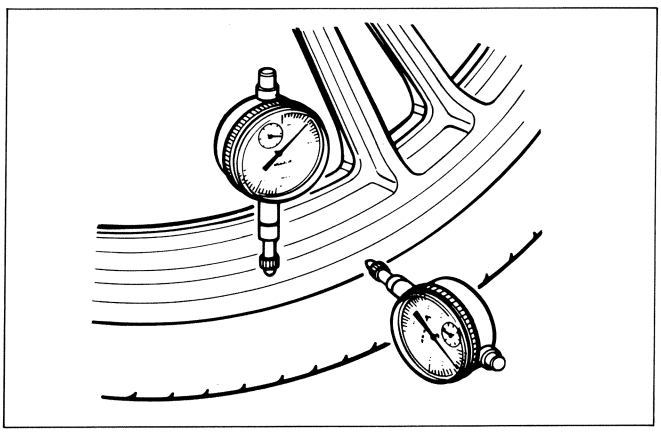


WHEEL

Make sure that the wheel runout checked an shown, does not exceed the service limit. An excessive runout is usually due to worn or loose wheel bearings and can be reduced by replacing the bearings.

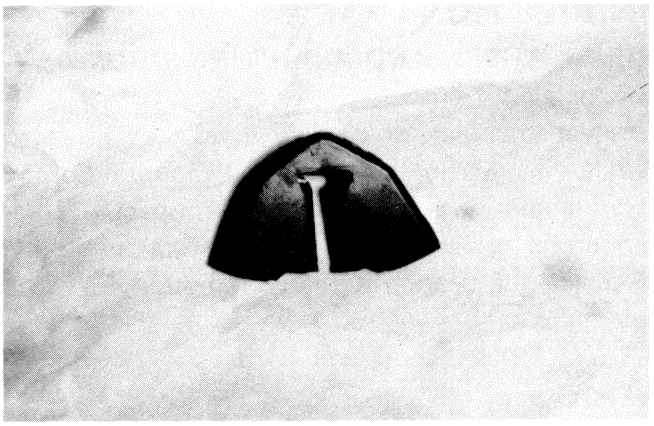
If bearing replacement fails to reduce the runout, replace the wheel.

Service Limit (Axial and Radial)	2.0 mm (0.08 in.)



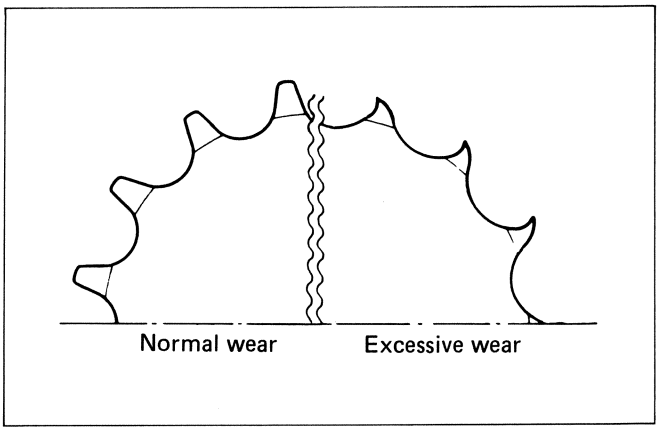
CUSHION

Inspect the cushions for wear and damage.



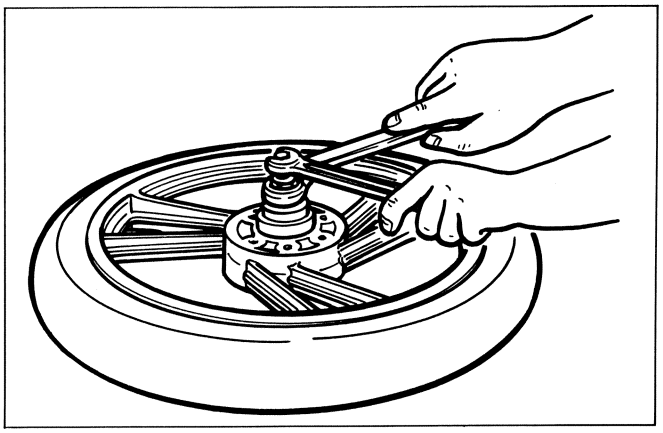
SPROCKET

Inspect the sprocket teeth for wear. If they are worn as illustrated, replace the sprocket and drive chain.



REASSEMBLY

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

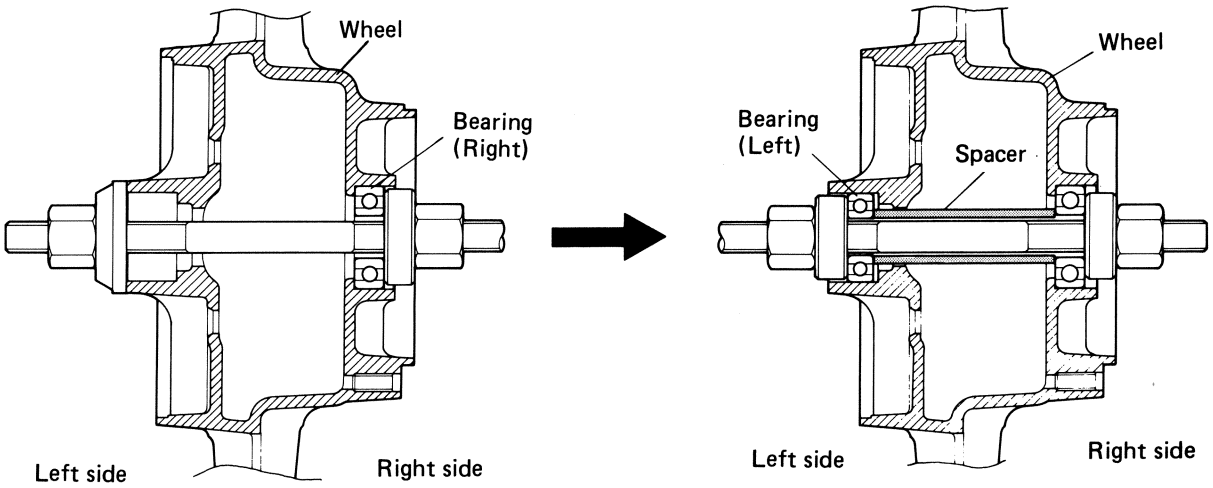


WHEEL BEARINGS

Install the wheel bearings by using the special tools.

09924-84510	Bearing installer
09941-34510	Bearing installer

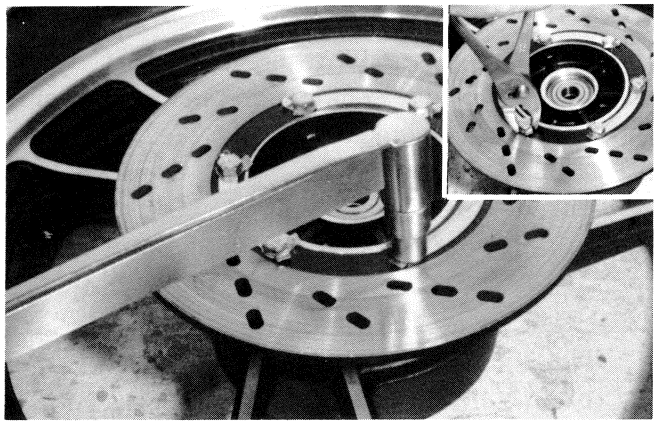
NOTE:
First install the wheel bearing for right side.



BRAKE DISC

- Make sure that the brake disc is clean and free of any greasy matter.
  After securing it in place by tightening its bolts, be sure to lock each tongue.

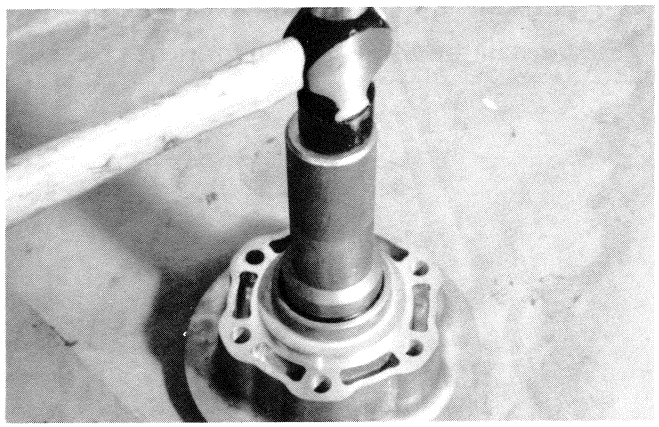
Tightening torque	15 – 25 N·m (1.5 – 2.5 kg-m) (11.0 – 18.0 lb-ft)



MOUNTING DRUM BEARING

Install the bearing by using the special tool.

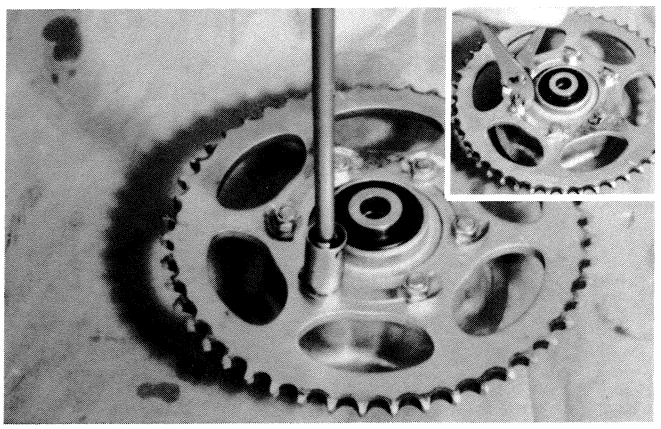
09913-70122	Bearing installer



REAR SPROCKET

After tightening the six nuts to specification, bend the washers to lock nuts.

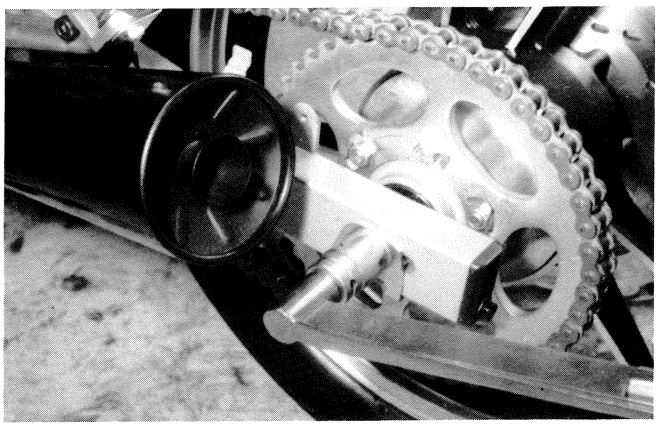
Tightening torque	25 – 40 N·m (2.5 – 4.0 kg-m) (18.0 – 29.0 lb-ft)



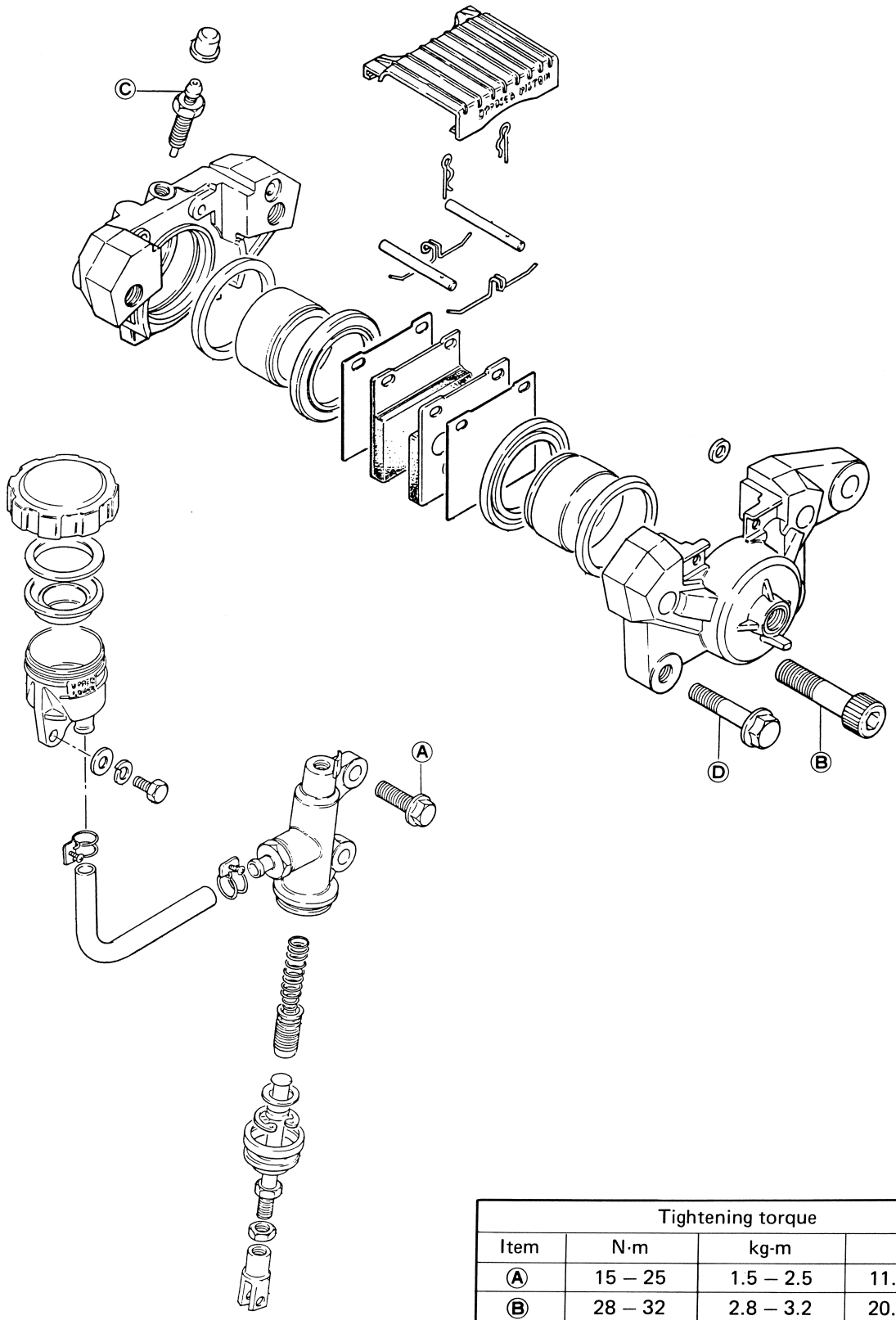
REAR AXLE SHAFT

- Adjust the chain slack after rear wheel installation (See page 2-11).
- Tighten the rear axle nut to the specification.

Tightening torque	50 – 80 N·m (5.0 – 8.0 kg-m) (36.0 – 58.0 lb-ft)



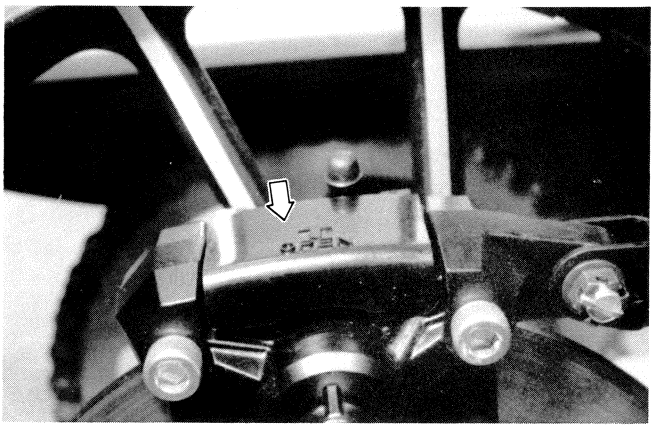
REAR BRAKE



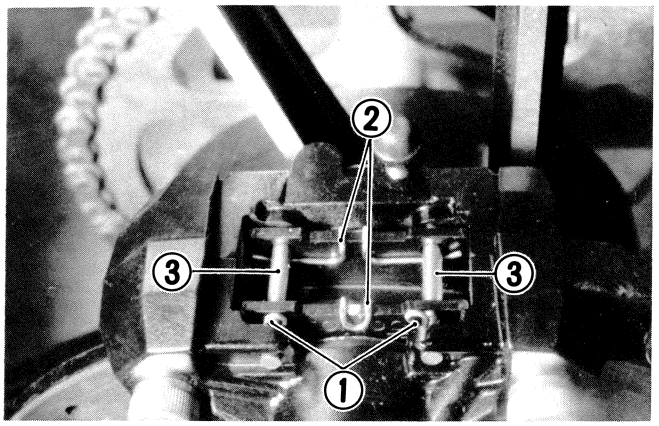
Tightening torque			
Item	N·m	kg-m	lb-ft
Ⓐ	15 – 25	1.5 – 2.5	11.0 – 18.0
Ⓑ	28 – 32	2.8 – 3.2	20.0 – 23.0
Ⓒ	7 – 9	0.7 – 0.9	5.0 – 6.5
Ⓓ	15 – 25	1.5 – 2.5	11.0 – 18.0

BRAKE PAD REPLACEMENT

- Remove the dust cover.



- Remove the clip ① and springs ②, and draw out the pins ③.
- Take off the pads with shims.



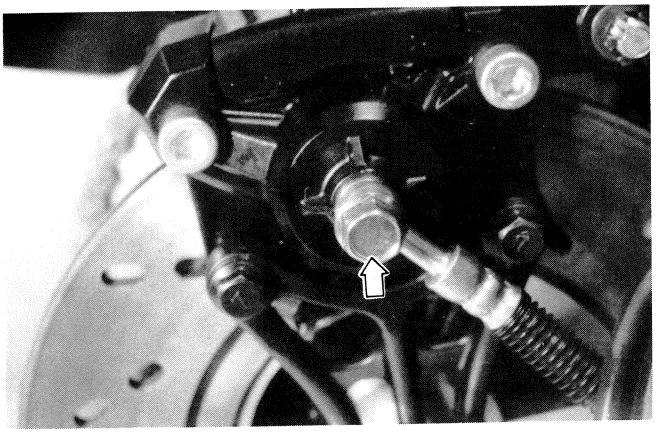
CAUTION:

*** Do not operate the brake pedal while dismounting the pads.**

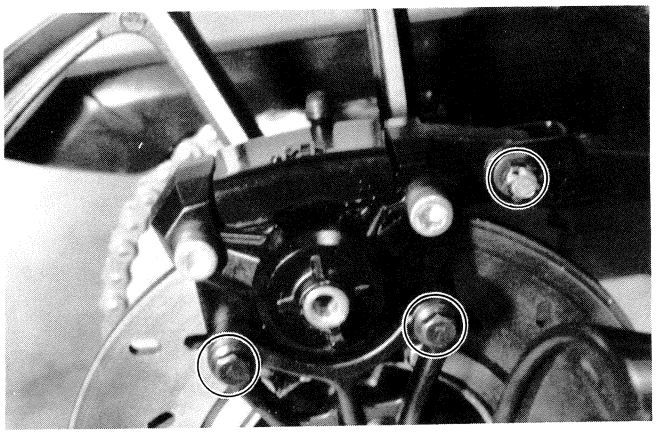
*** Replace the brake pad as a set, otherwise braking performance will be adversely affected.**

CALIPER REMOVAL AND DISASSEMBLY

- Remove the union bolt and catch the brake fluid in a suitable receptacle.

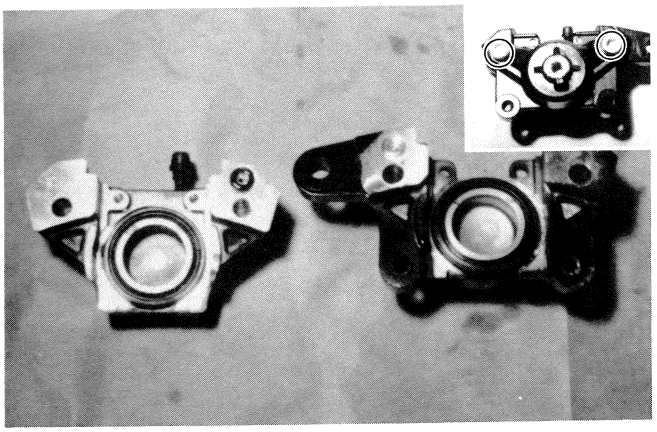


- Pull out the cotter pin and remove the torque link bolt and nut.
- Remove the caliper mounting bolts and take off the caliper.

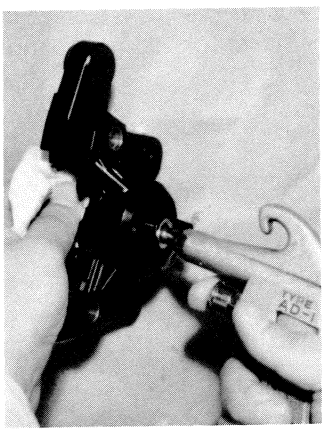


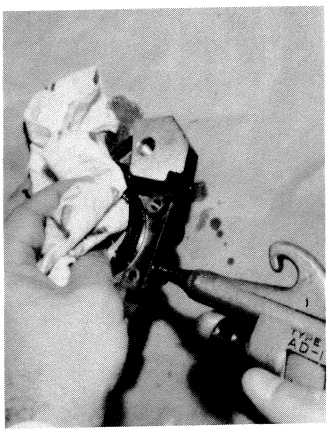
NOTE:
Slightly loosen the caliper housing bolts to facilitate later disassembly before loosening the caliper mounting bolts.

- Remove the caliper housing bolts by using the 8 mm hexagon wrench and separate the caliper halves.



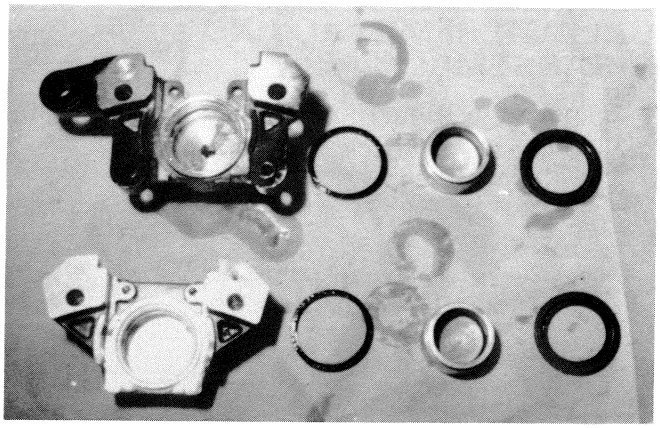
- Place a rag over the piston to prevent it from popping out.
  Push out the piston by using air gun.





CAUTION:
To prevent piston damage, do not use high pressure air.

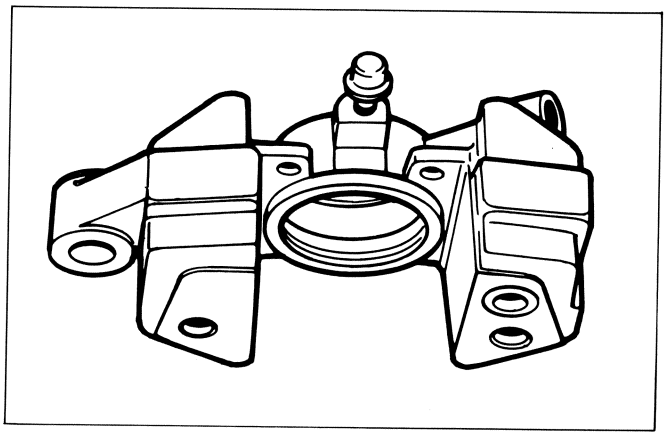
- Remove the piston, O-ring, dust boot and piston seal.



INSPECTION

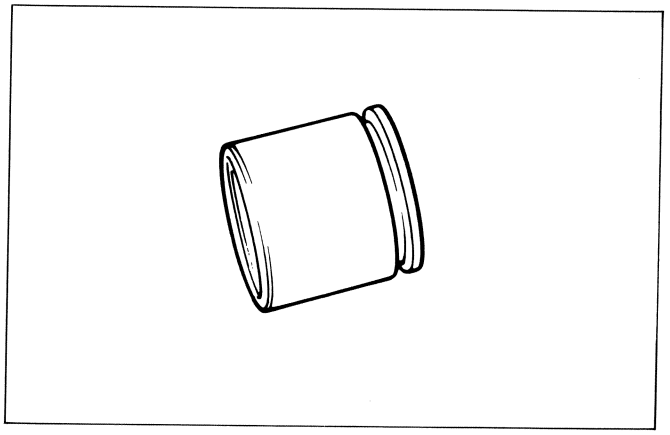
CYLINDER

Inspect the cylinder bore wall for nicks, scratches or other damage.



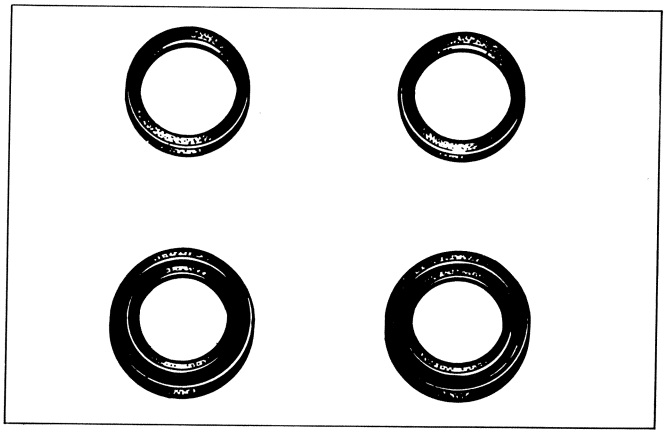
PISTON

Inspect the piston surface for any flaws or other damage.



DUST BOOT AND PISTON SEAL

Inspect the each rubber part for damage and wear.

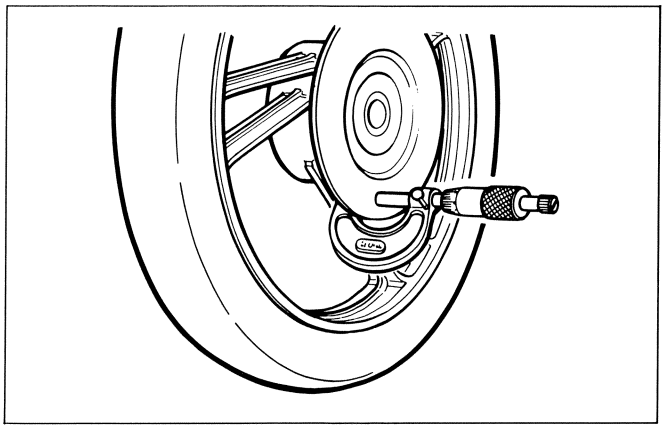


DISC

- Measure the disc thickness by using the micrometer.

09900-20205	Micrometer (0–25 mm)

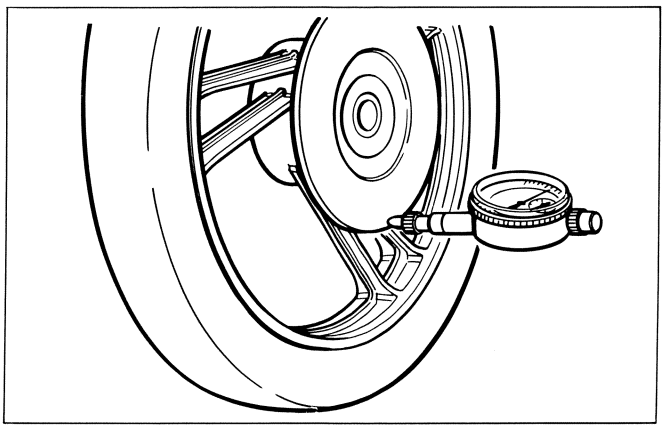
Service Limit	6.0 mm (0.24 in)



- With the disc mounted on the wheel, check the disc for face runout with a dial gauge, as shown.

09900-20606	Dial gauge (1/100 mm)

Service Limit	0.3 mm (0.012 in)

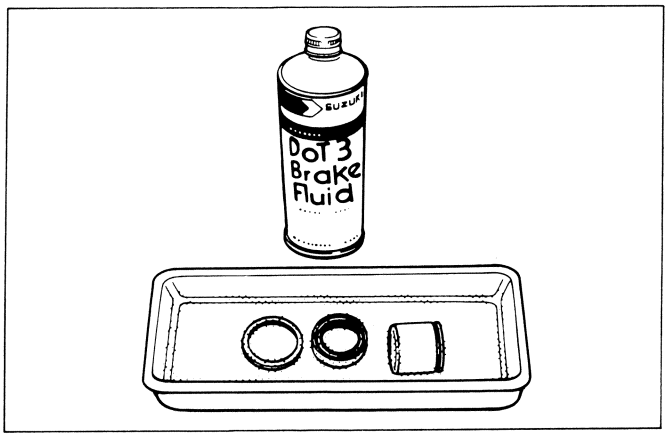


REASSEMBLY

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

CAUTION:

- *** Wash the caliper components with fresh brake fluid before reassembly.**
- *** Never use cleaning solvent or gasoline to wash them.**
- *** Apply brake fluid to the caliper bore and piston to be inserted into the bore.**
- *** Bleed the air after reassembling the caliper (See page 2-14).**



TIGHTENING TORQUE

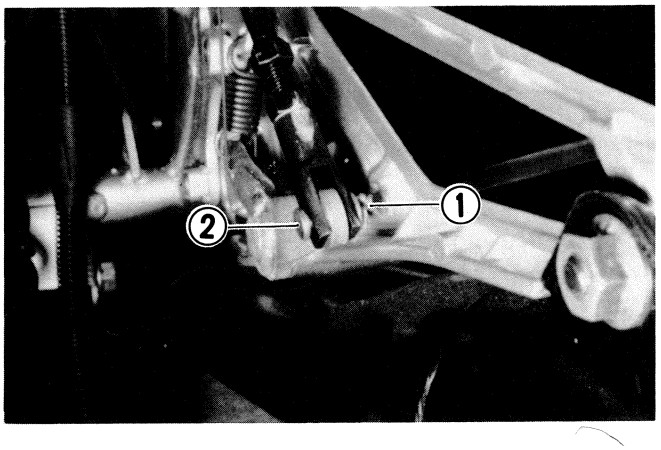
Item	N·m	kg-m	lb-ft
Union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Torque link nut	20 – 30	2.0 – 3.0	14.5 – 21.5
Caliper housing bolt	28 – 32	2.8 – 3.2	20.0 – 23.0
Caliper mounting bolt	15 – 25	1.5 – 2.5	11.0 – 18.0

MASTER CYLINDER REMOVAL

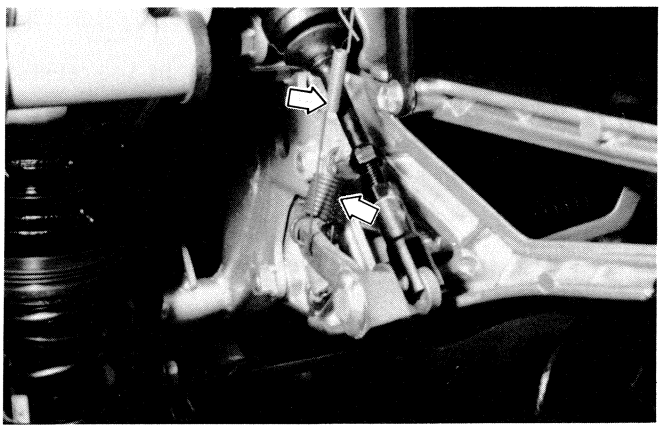
- Remove the rear wheel (See page 7-43).
- Remove the swing arm (See page 7-59).
- Remove the brake pedal bolt and take off the brake pedal.



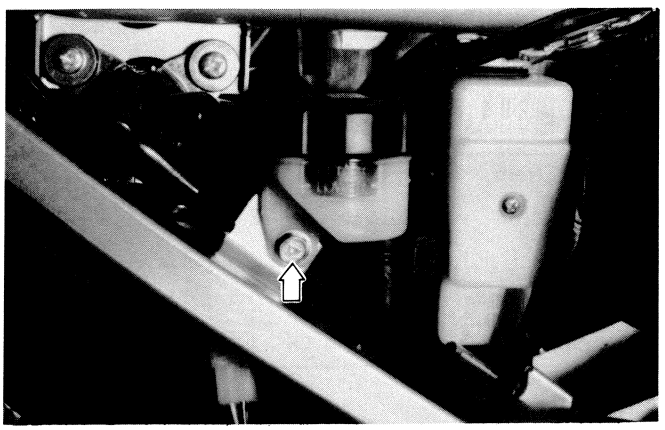
- Pull out the cotter pin ① and take off the pin ②.



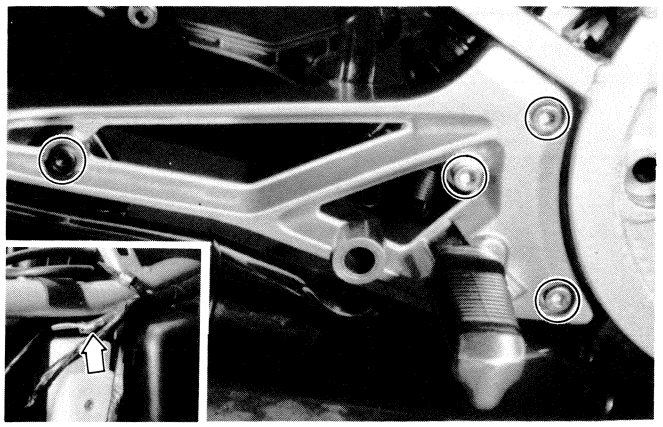
- Remove the brake light switch spring and brake pedal return spring.



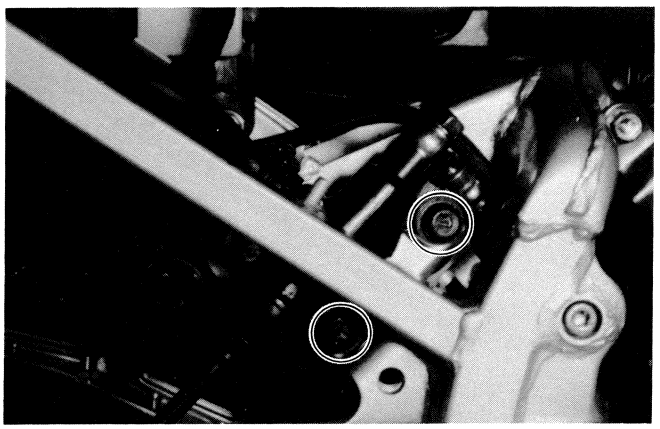
- Remove the reservoir tank fitting bolt.



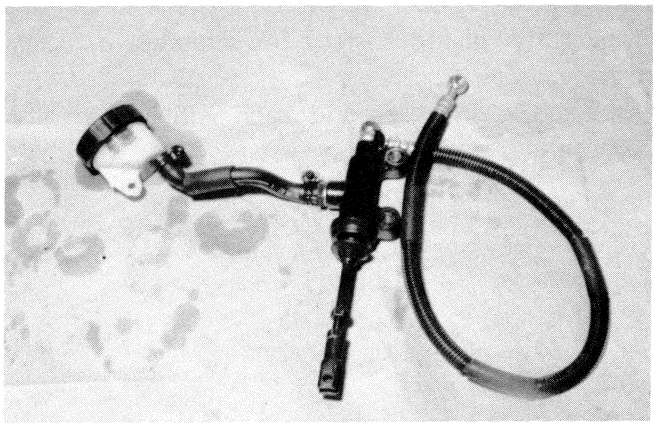
- Disconnect the brake light switch lead wires.
- After removing the bolt caps remove the three bolts by using the 8 mm hexagon wrench and take off the muffler bracket with brake light switch.



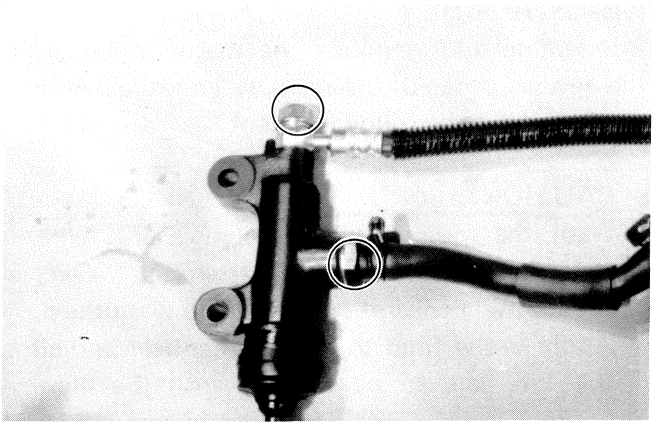
- Remove the master cylinder fitting bolts.



- Remove the master cylinder with reservoir tank.
- Drain the brake fluid from the reservoir tank.

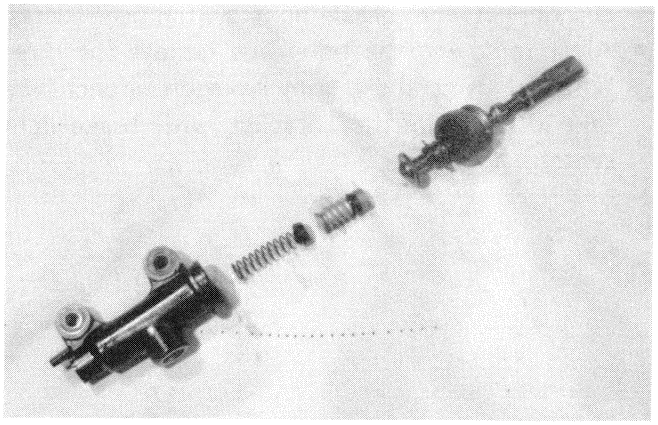


- Remove the union bolt and reservoir tank hose connecting nut.



- Remove the circlip, rod, piston, primary cup and spring by using the special tool.

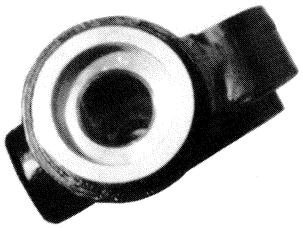
09900-06105	Snap ring pliers



INSPECTION

CYLINDER

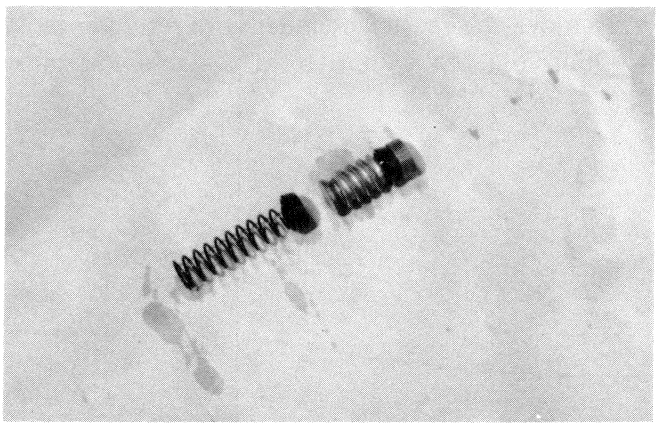
Inspect the cylinder bore wall for any scratches or other damage.



PISTON AND CUP SET

Inspect the piston surface for scratches or other damage.

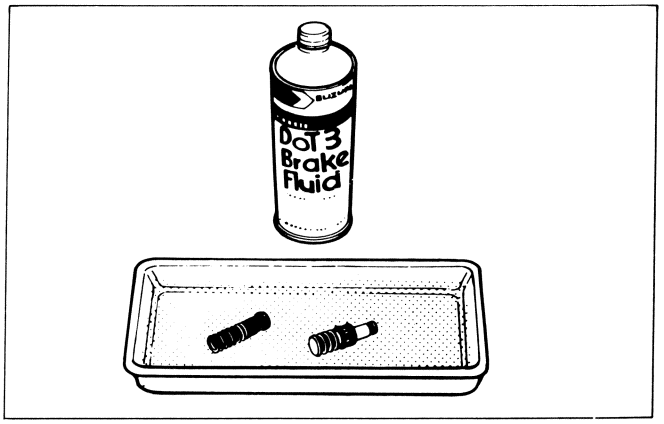
Inspect the cup set and each rubber part for damage.



REASSEMBLY

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

CAUTION:
Wash the master cylinder components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them. Apply brake fluid to the cylinder bore and all the internals to be inserted into the bore.



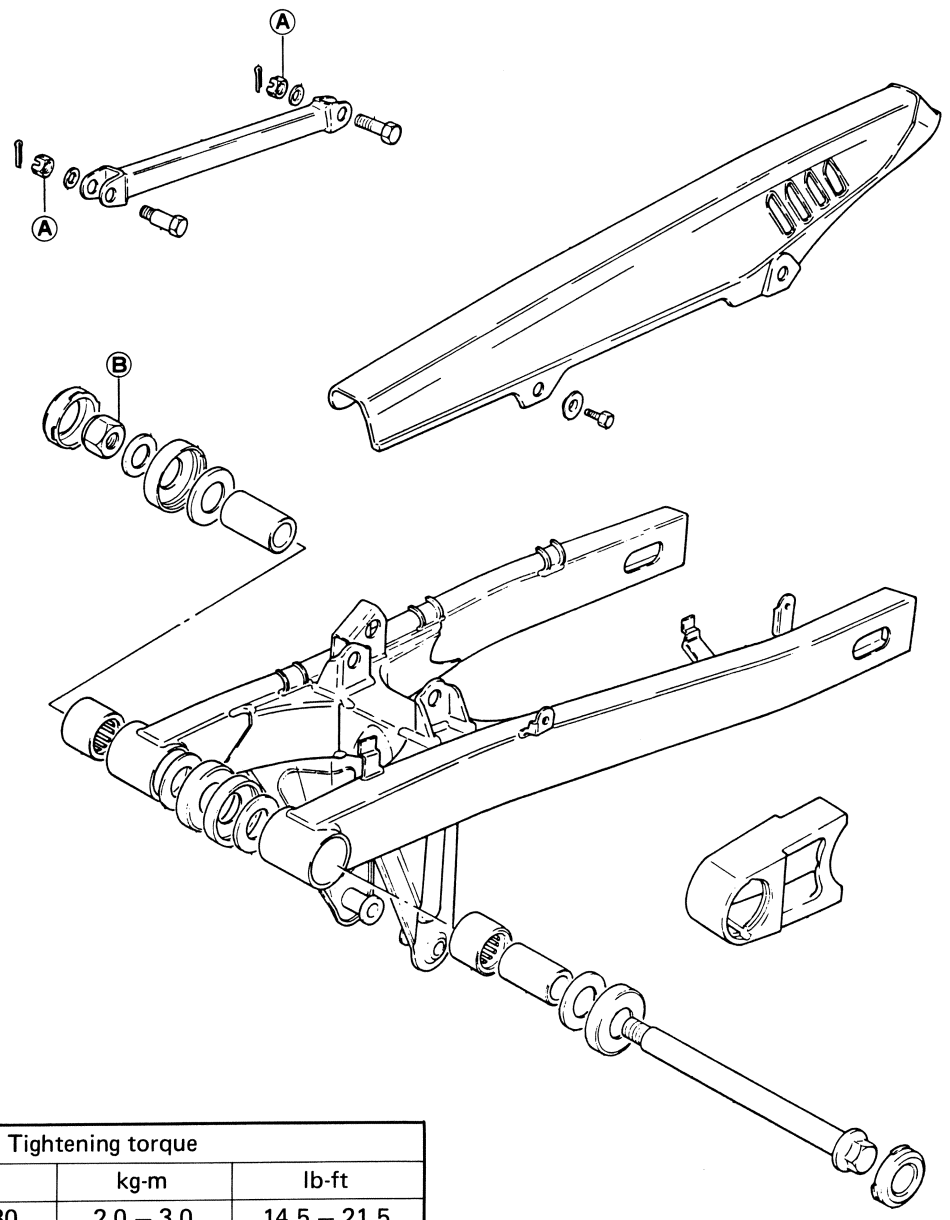
CAUTION:
Bleed the air after reassembling master cylinder (See page 2-14).
Adjust the rear brake light switch and brake pedal height after installation.(See page 2-13).

REAR BRAKE PEDAL

When installing the rear brake pedal, align the brake pedal groove with punched mark provided on the end face of the brake pedal rod arm.



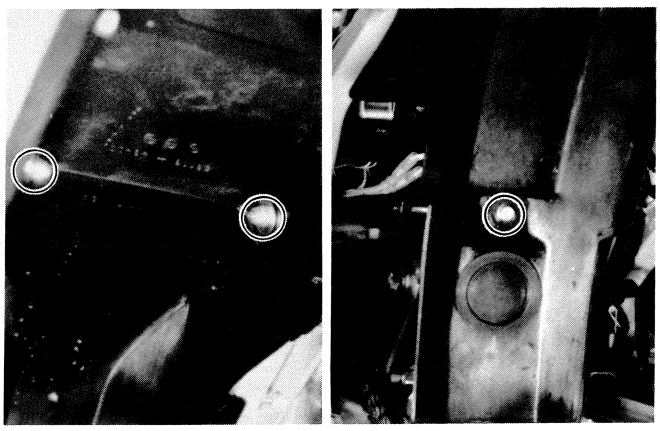
REAR SWING ARM



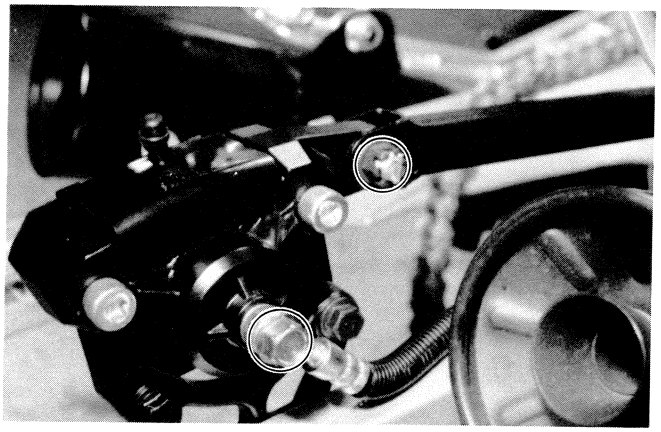
Tightening torque			
Item	N·m	kg-m	lb-ft
Ⓐ	20 – 30	2.0 – 3.0	14.5 – 21.5
Ⓑ	55 – 88	5.5 – 8.8	40.0 – 63.5

REMOVAL AND DISASSEMBLY

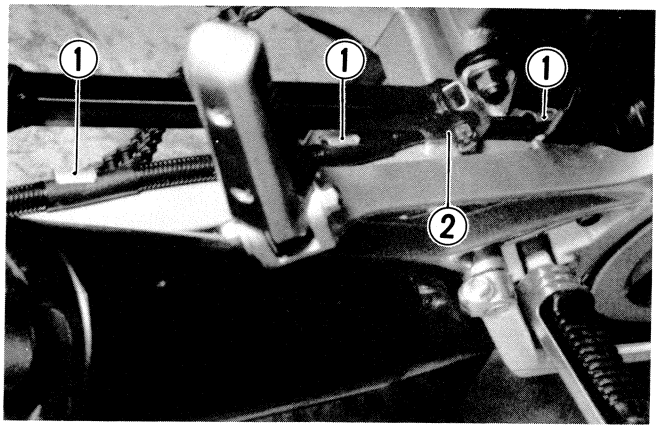
- Remove the right and left frame covers and seat.
- Remove the rear wheel (See page 7-43).
- Remove the three screws and take off the fender.



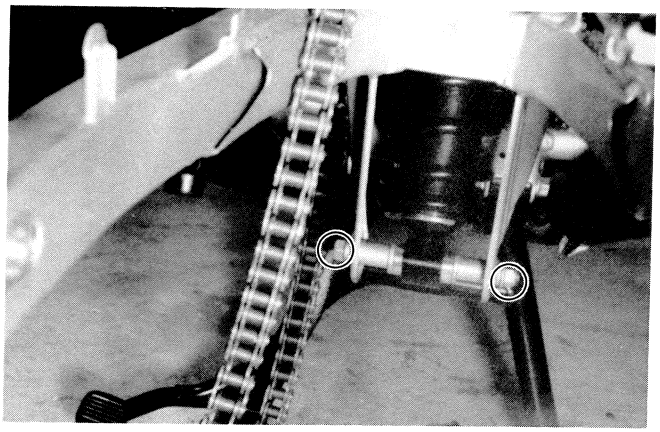
- Remove the union bolt and catch the brake fluid in a suitable receptacle.
- Pull out the cotter pin and remove the torque link bolt and nut.



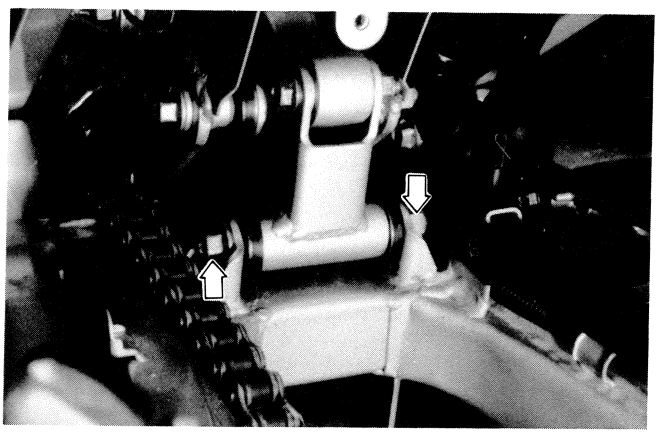
- Draw out the brake hose from the clamps ① and guide ②.



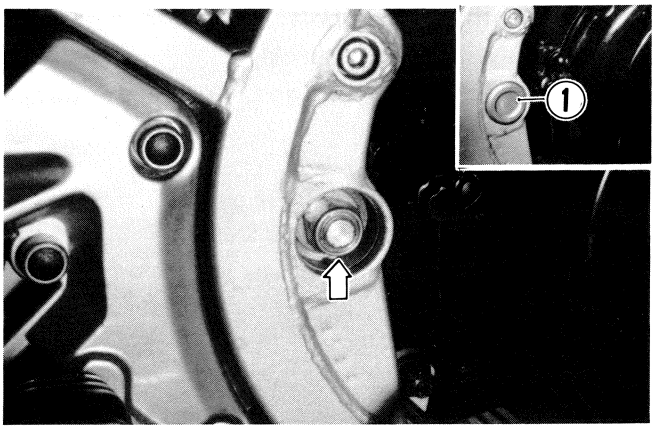
- Remove the rear shock absorber unit lower fitting bolt and nut.



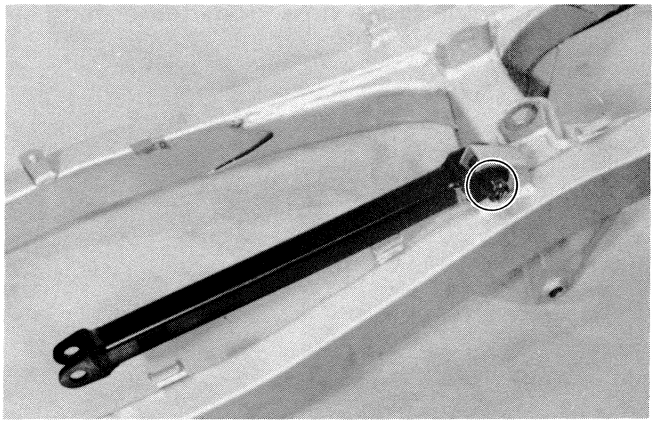
- Remove the cushion rod lower fitting bolt and nut.



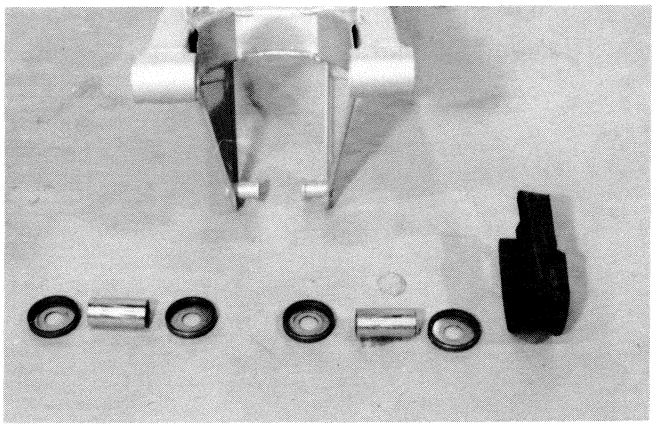
- After removing the caps ①, right and left remove the swing arm pivot nut.
- Draw out the swing arm pivot shaft and take off the swing arm.



- Pull out the cotter pin.
- Remove the nut and bolt, and take off the rear torque link.

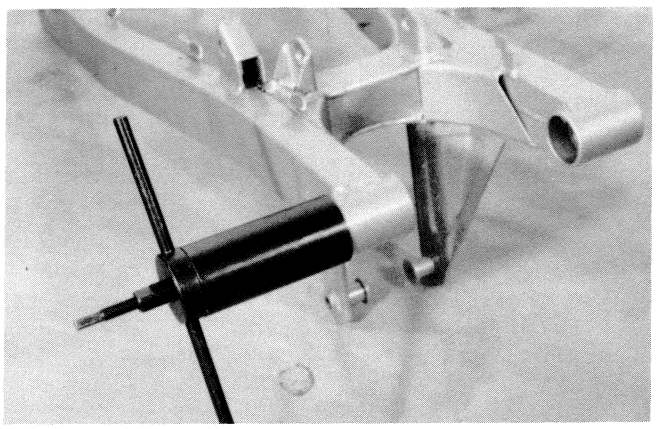


- Remove the chain defence buffer, dust seals and spacers from the swing arm.



- Draw out the swing arm bearings by using the special tool.

09941-44910	Swing arm bearing remover



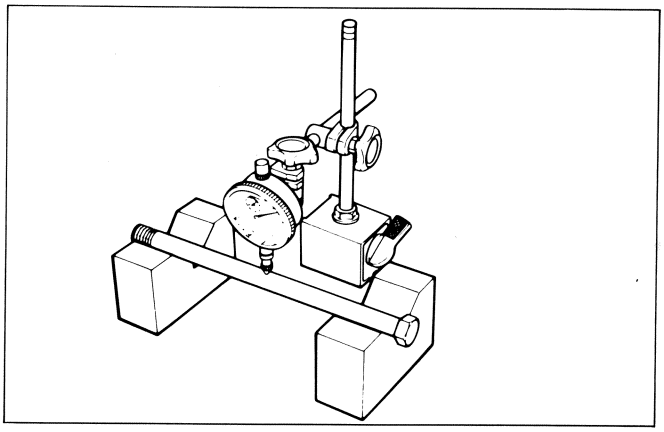
INSPECTION

SWING ARM PIVOT SHAFT

Using a dial gauge, check the pivot shaft for runout and replace it if the runout exceeds the limit.

09900-20606	Dial gauge (1/100 mm)

Service Limit	0.3 mm (0.012 in)



REASSEMBLY

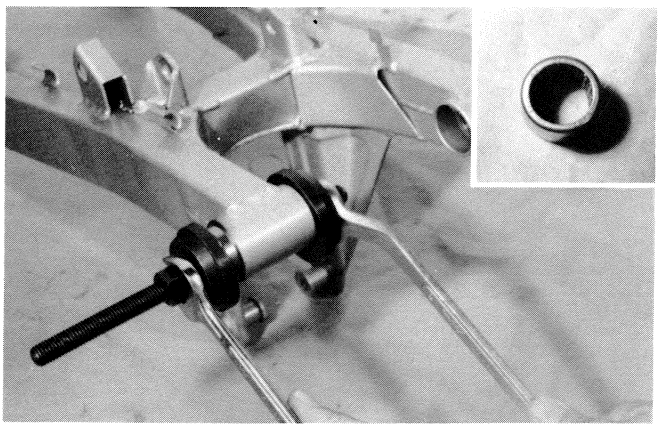
Reassemble and remount the swing arm in the reverse order of disassembly and removal, and also carry out the following steps:

SWING ARM BEARINGS

Force-fit the bearings into the swing arm by using the special tool.

09924-84510	Swing arm bearing installer set

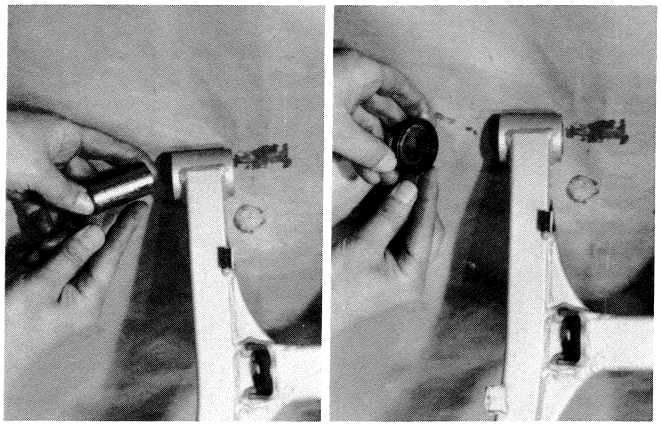
NOTE:
When installing two bearings, punch-marked side of bearing faces outside.



SPACER AND DUST SEAL COVER

Apply grease to the spacer and dust seal cover when installing them.

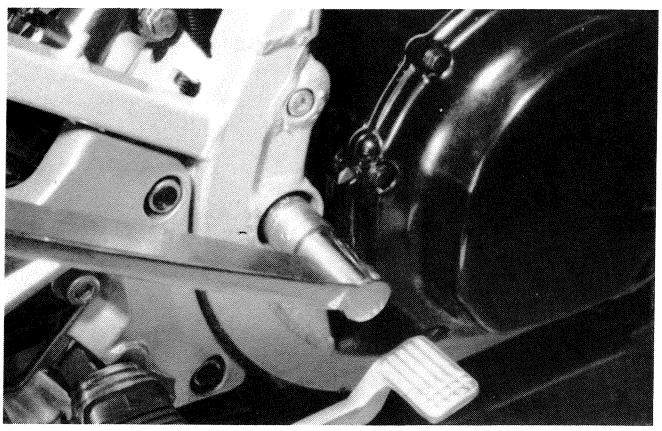
99000-25030	SUZUKI Super grease "A"



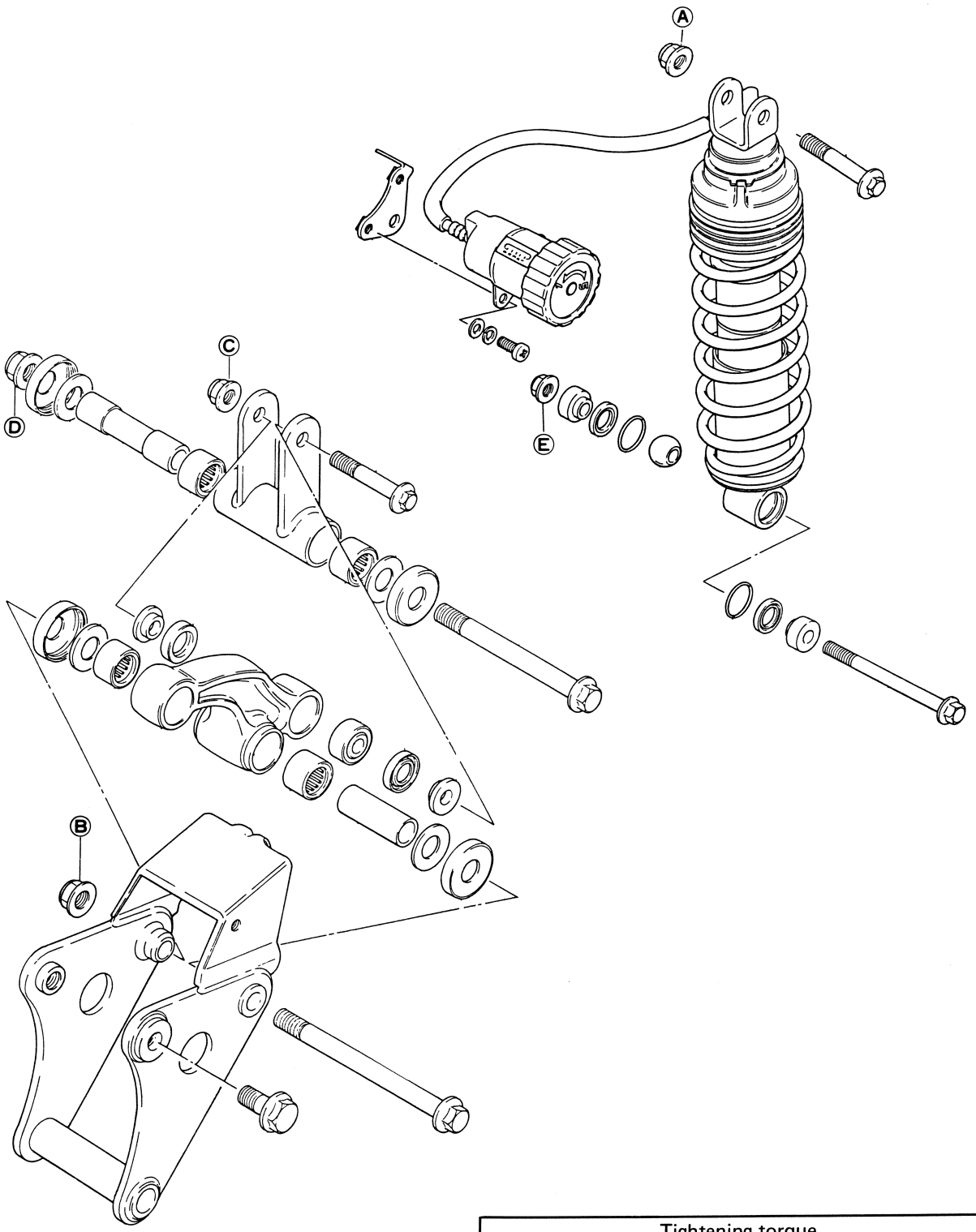
SWING ARM PIVOT SHAFT

Tighten the swing arm pivot shaft to the specification.

Tightening torque	55 – 88 N·m (5.5 – 8.8 kg-m 40.0 – 63.5 lb-ft)



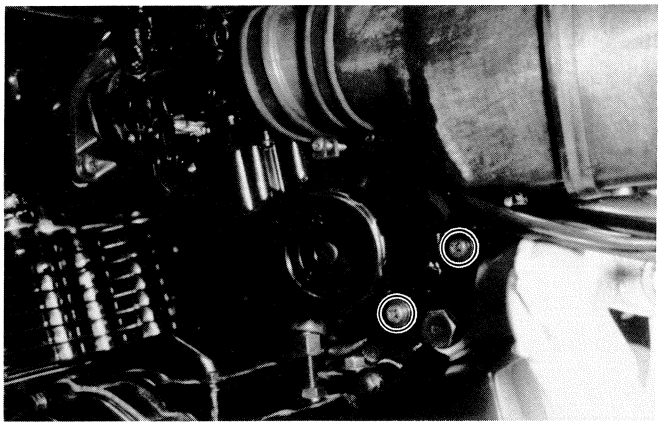
FULL FLOATING SUSPENSION



Item	Tightening torque		
	N·m	kg-m	lb-ft
Ⓐ Ⓒ Ⓔ	48.0 – 72.0	4.8 – 7.2	34.5 – 52.0
Ⓑ Ⓓ	84.0 – 100.0	8.4 – 10.0	60.5 – 72.5

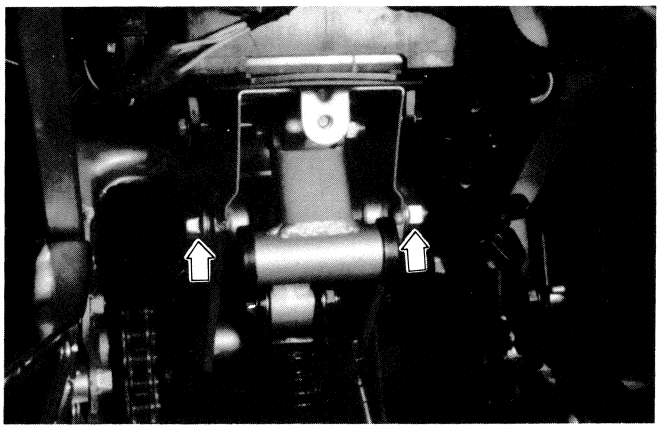
REMOVAL AND DISASSEMBLY

- Remove the rear wheel (See page 7-43).
- Remove the rear swing arm (See page 7-59).
- Remove the two screws and take off the rear shock absorber unit oil tank.

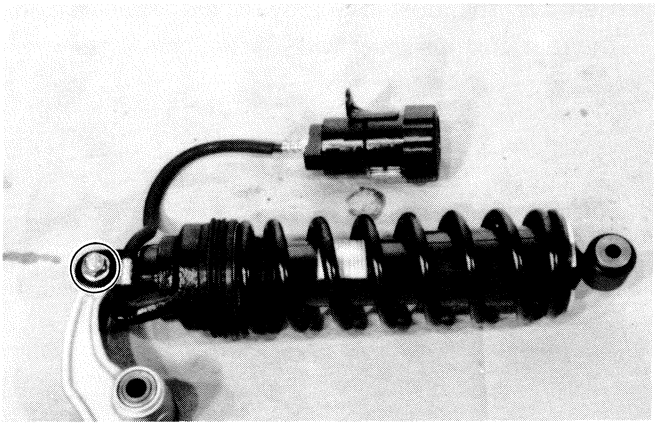


- Remove the rear cushion lever fitting bolt and nut, and take off the rear shock absorber with oil tank.

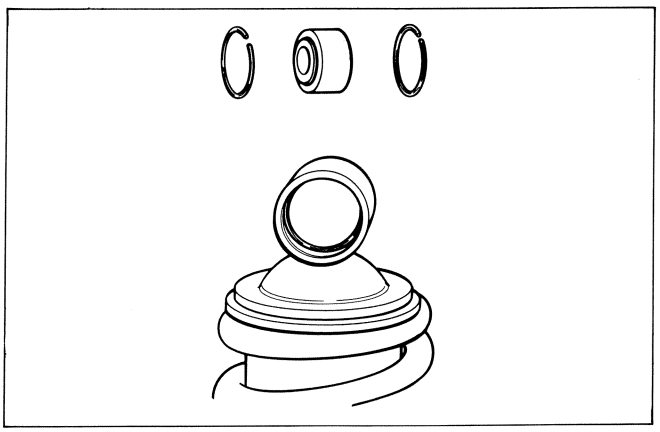
CAUTION:
When removing rear shock absorber unit do not separate the rear shock absorber and oil tank. They are not serviceable.



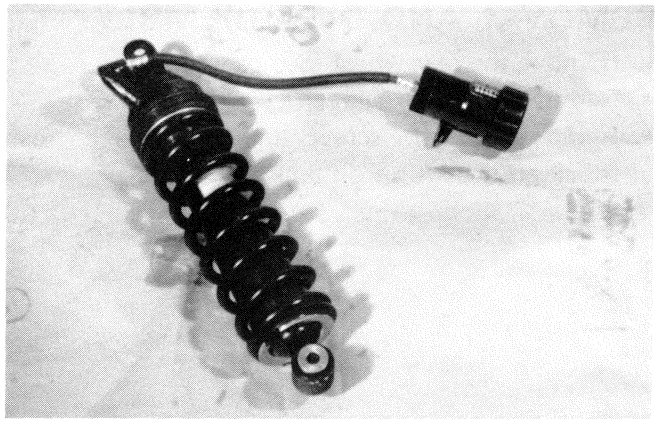
- Remove the rear shock absorber upper fitting bolt and nut.



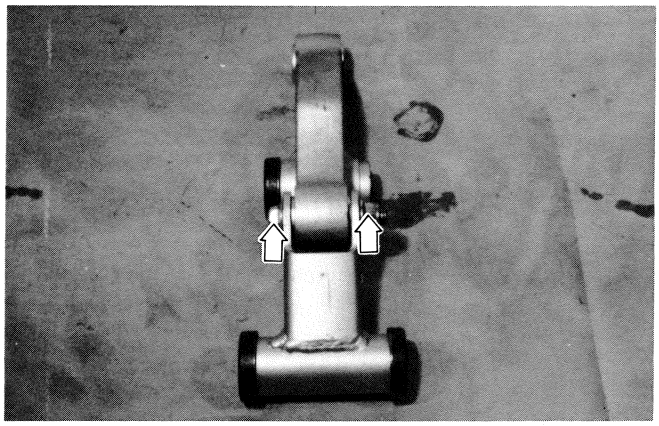
- Remove the stopper rings and draw out the spherical ball bearing by using the bearing remover.



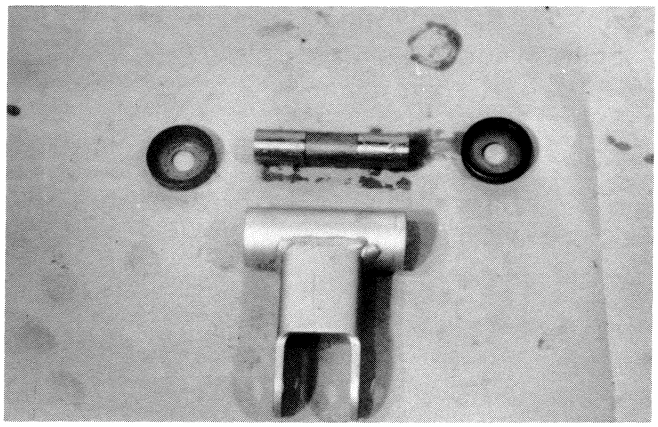
CAUTION:
Do not attempt to disassemble the rear shock absorber unit. Other than spherical ball bearing replacement, it is not serviceable.



- Remove the rear cushion lever rod fitting bolt and nut.

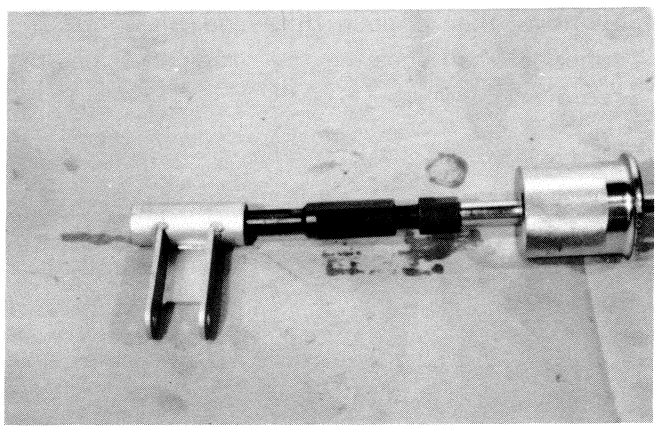


- Remove the dust seal covers and spacer from the rear cushion lever rod.



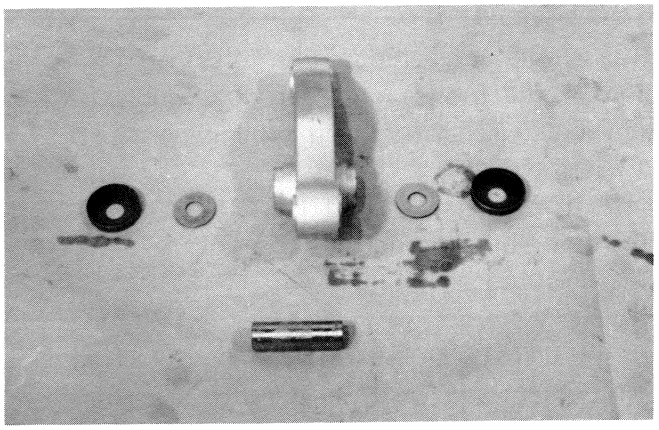
- Remove the bearings by using the special tools.

09923-73210	Bearing puller
09930-30102	Rotor remover slide shaft



CAUTION:
The removed bearings should be replaced.

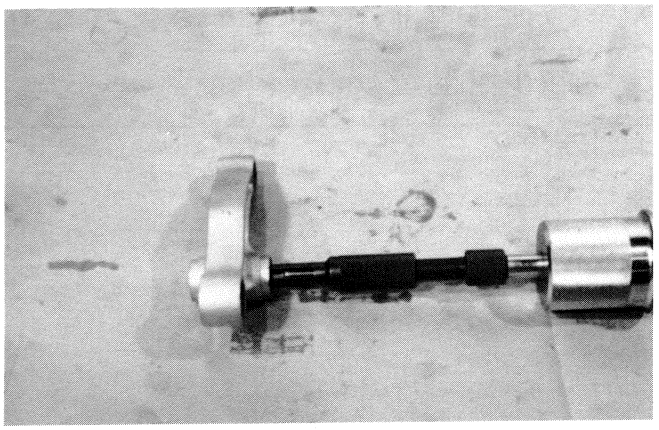
- Remove the dust seal covers, thrust washers and spacer from the rear cushion lever.



- Remove the bearing by using the special tools.

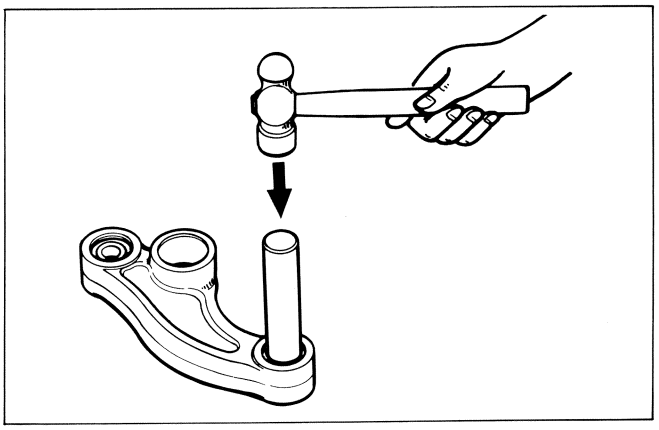
09923-73210	Bearing puller
09930-30102	Rotor remover slide shaft

CAUTION:
The removed bearings should be replaced.



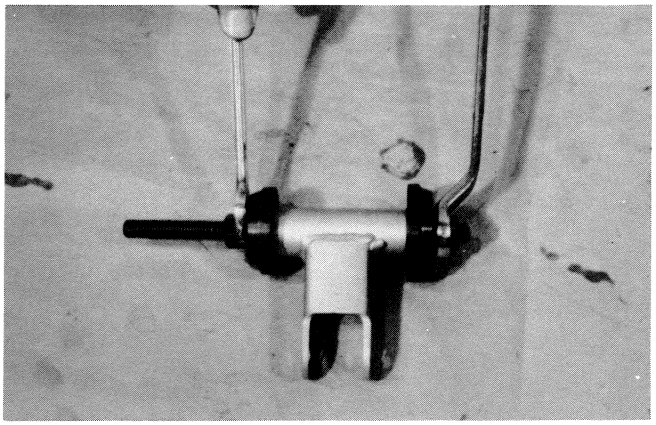
- Remove the two spherical ball bearings by using the bearing remover.

CAUTION:
The removed bearing should be replaced.



REASSEMBLY

Reassemble and remount the full floating suspension in the reverse order of disassembly and removal, and also carry out the following steps:



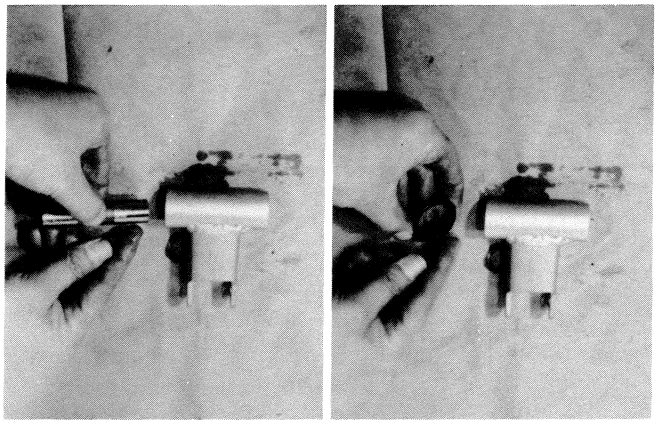
CUSHION LEVER ROD BEARINGS

- Install the right and left bearings by using the special tool.

09924-84510	Bearing installer set

- Apply grease to the spacer.

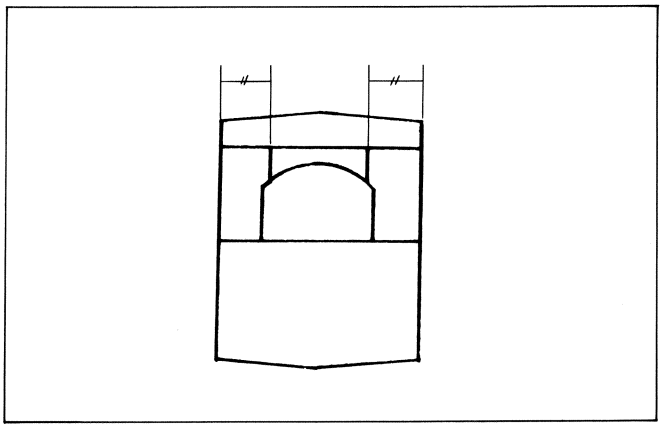
99000-25030	SUZUKI super grease "A"



CUSHION LEVER BEARINGS

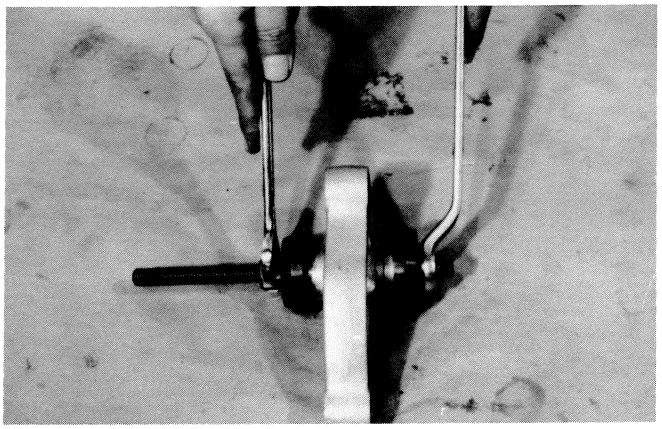
- Install the spherical ball bearings by using the bearing installer.

NOTE:
Install the spherical ball bearings as shown in illustration.



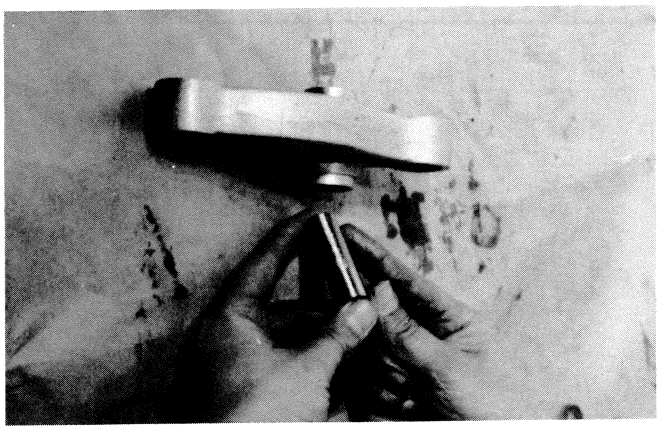
- Install the right and left bearings by using the special tool.

09924-84510	Bearing installer set

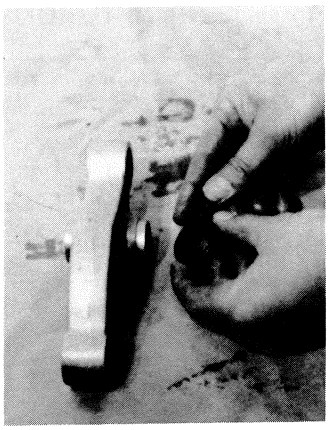


- Apply SUZUKI Super grease "A" to the spacer, surface of thrust washer and lip of dust seal.

99000-25030	SUZUKI Super grease "A"

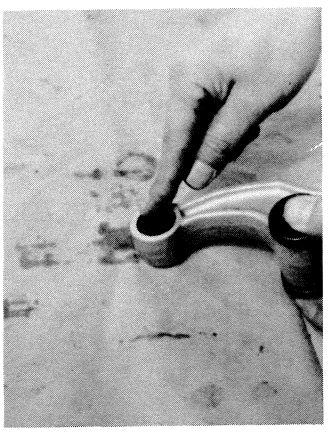


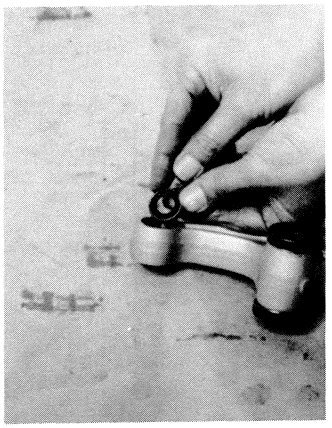




- Apply SUZUKI Moly paste to the two spherical ball bearings and lip of dust seals.

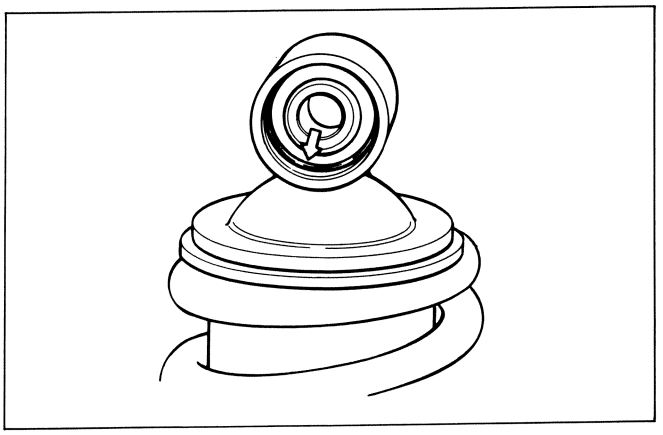
99000-25140	SUZUKI Moly paste





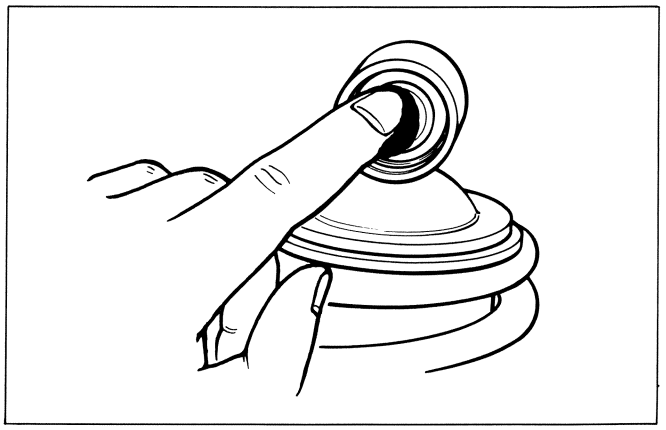
REAR SHOCK ABSORBER

- Install the spherical ball bearing by using the bearing installer and fit the stopper ring to the correct position.



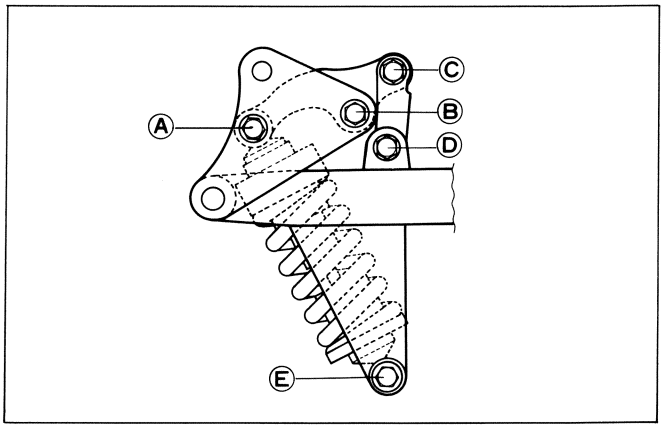
- Apply SUZUKI Moly paste to the spherical ball bearing.

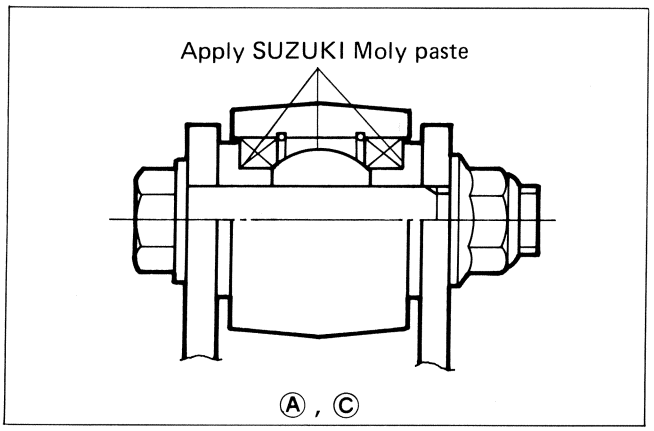
99000-25140	SUZUKI Moly paste

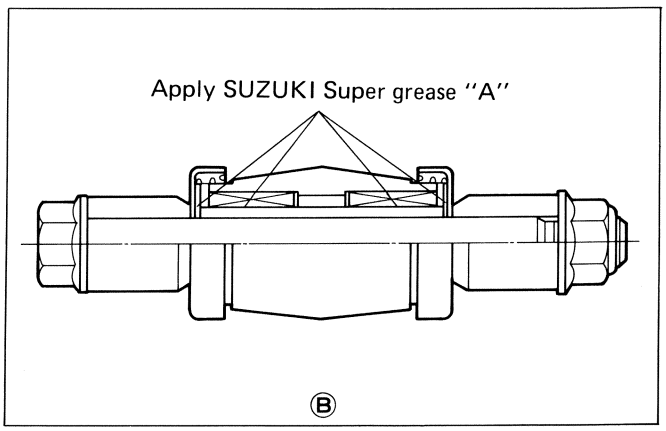


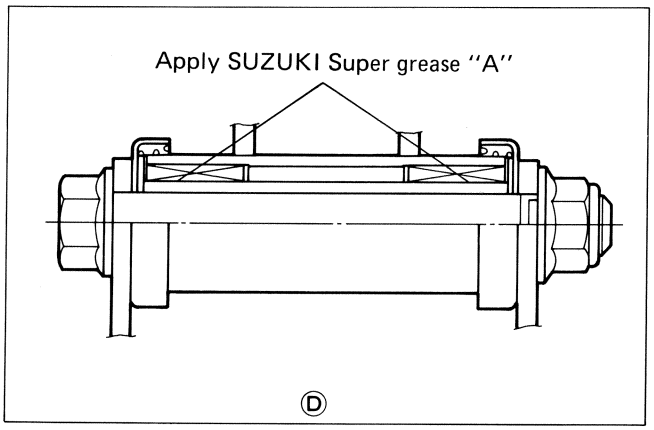
TIGHTENING TORQUE

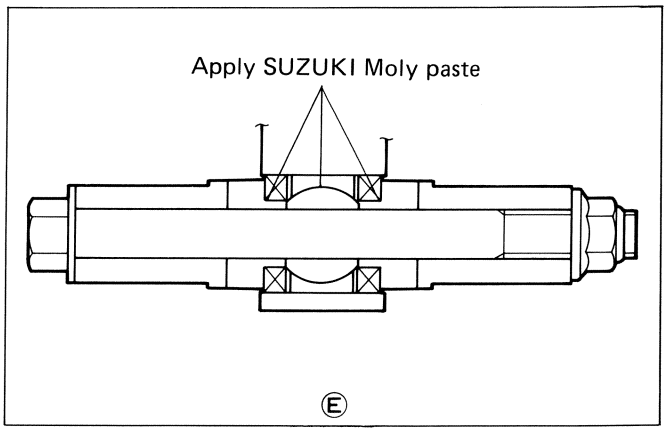
Item	N·m	kg-m	lb-ft
Ⓐ Ⓒ Ⓔ	48.0 – 72.0	4.8 – 7.2	34.5 – 52.0
Ⓑ Ⓓ	84.0 – 100.0	8.4 – 10.0	60.5 – 72.5











SERVICING INFORMATION

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TROUBLESHOOTING

ENGINE

Complaint	Symptom and possible causes	Remedy
Engine will not start, or is hard to start.	**Compression too low**	
	1. Valve clearance out of adjustment.	Adjust.
	2. Worn valve guides or poor seating of valves.	Repair, or replace.
	3. Valves mistiming.	Adjust.
	4. Piston rings excessively worn.	Replace.
	5. Worn-down cylinder bores.	Replace, or rebore.
	6. Starter motor cranks but too slowly.	Consult "electrical complaints".
	Plugs not sparking	
	1. Fouled spark plugs.	Clean.
	2. Wet spark plugs.	Clean and dry.
	3. Defective ignition coil.	Replace.
	4. Open or short in high-tension cords.	Replace.
	5. Defective signal generator or transistor unit.	Replace.
	No fuel reaching the carburetors	
	1. Clogged hole in the fuel tank cap.	Clean.
	2. Clogged or defective fuel cock.	Clean or replace.
	3. Defective carburetor float valve.	Replace.
	4. Clogged fuel pipe or defective vacuum pipe.	Clean.
	5. Defective fuel cock diaphragm.	Replace.
Engine stalls easily.	1. Fouled spark plugs.	Clean.
	2. Defective signal generator or transistor unit.	Replace.
	3. Clogged fuel pipe.	Clean.
	4. Clogged jets in carburetors.	Clean.
	5. Valve clearance out of adjustment.	Adjust.
Noisy engine.	**Excessive valve chatter**	
	1. Valve clearance too large.	Adjust.
	2. Weakened or broken valve springs.	Replace.
	3. Worn down rocker arm or rocker arm shaft.	Replace.
	Noise appears to come from pistons	
	1. Pistons or cylinders worn down.	Replace.
	2. Combustion chambers fouled with carbon.	Clean.
	3. Piston pins or piston pin bore worn.	Replace.
	4. Piston rings or ring groove worn.	Replace.
	Noise seems to come from timing chain	
	1. Stretched chain.	Replace.
	2. Worn sprockets.	Replace.
	3. Tension adjuster not working.	Repair or replace.
	Noise seems to come from clutch	
	1. Worn splines of countershaft or hub.	Replace.
	2. Worn teeth of clutch plates.	Replace.
	3. Distorted clutch plates, driven and drive.	Replace.
	Noise seems to come from crankshaft	
	1. Rattling bearings due to wear.	Replace.
	2. Big-end bearings worn and burnt.	Replace.
	3. Journal bearings worn and burnt.	Replace.

Complaint	Symptom and possible causes	Remedy
Noisy engine.	**Noise seems to come from transmission**	
	1. Gears worn or rubbing.	Replace.
	2. Badly worn splines.	Replace.
	3. Primary gears worn or rubbing.	Replace.
Slipping clutch.	1. Clutch control out of adjustment or loss of play.	Adjust.
	2. Weakened clutch springs.	Replace.
	3. Worn or distorted pressure plate.	Replace.
	4. Distorted clutch plates, driven and drive.	Replace.
Dragging clutch.	1. Clutch control out of adjustment or too much play.	Adjust.
	2. Some clutch springs weakened while others are not.	Replace.
	3. Distorted pressure plate or clutch plates.	Replace.
Transmission will not shift.	1. Broken gearshift cam.	Replace.
	2. Distorted gearshift forks.	Replace.
Transmission will not shift back.	1. Broken return spring on shift shaft.	Replace.
	2. Shift shaft is rubbing or sticky.	Repair.
Transmission jumps out of gear.	1. Worn shifting gears on drive shaft or countershaft.	Replace.
	2. Distorted or worn gearshift forks.	Replace.
	3. Weakened stopper spring on gearshift stopper.	Replace.
Engine idles poorly.	1. Valve clearance out of adjustment.	Adjust.
	2. Poor seating of valves.	Replace.
	3. Defective valve guides.	Replace.
	4. Spark plug gaps too wide.	Adjust or replace.
	5. Defective ignition coil.	Replace.
	6. Defective signal generator or transistor unit.	Replace.
	7. Float-chamber fuel level out of adjustment in carburetors.	Adjust.
	8. Clogged jets or imbalance of carburetors.	Clean or adjust.
Engine runs poorly in highspeed range.	1. Valve springs weakened.	Replace.
	2. Valve timing out of adjustment.	Adjust.
	3. Spark plug gaps too narrow.	Adjust.
	4. Ignition not advanced sufficiently due to poorly working timing advance circuit.	Replace.
	5. Defective ignition coil.	Replace.
	6. Defective signal generator or transistor unit.	Replace.
	7. Float-chamber fuel level too low.	Adjust.
	8. Clogged air cleaner element.	Clean.
	9. Clogged fuel pipe, resulting in inadequate fuel supply to carburetors.	Clean, and prime.
	10. Clogged suction cock pipe.	Clean.
Dirty or heavy exhaust smoke.	1. Too much engine oil in the engine.	Check with level window drain out excess oil.
	2. Worn piston rings or cylinders.	Replace.
	3. Worn valve guides.	Replace.
	4. Cylinder walls scored or scuffed.	Rebore or replace.
	5. Worn valves stems.	Replace.
	6. Defective stem seal.	Replace.

Complaint	Symptom and possible causes	Remedy
Engine lacks power.	1. Loss of valve clearance.	Adjust.
	2. Weakened valve sorings.	Replace.
	3. Valve timing out of adjustment.	Adjust.
	4. Worn piston rings or cylinders.	Replace.
	5. Poor seating of valves.	Repair.
	6. Ignition timing out of adjustment.	Adjust.
	7. Spark plug gaps incorrect.	Adjust or replace.
	8. Clogged jets in carburetors.	Clean.
	9. Float-chamber fuel level out of adjustment.	Adjust.
	10. Clogged air cleaner element.	Clean.
	11. Carburetor balancing screw loose.	Retighten.
	12. Sucking air from intake pipe.	Retighten or replace.
	13. Too much engine oil in the enine.	Drain out excess oil.
Engine overheats.	1. Heavy carbon deposit on piston crowns.	Clean.
	2. Not enough oil in the engine.	Add oil.
	3. Defective oil pump or clogged oil circuit.	Replace or clean.
	4. Fuel level too low in float chambers.	Adjust.
	5. Sucking air from intake pipes.	Retighten or replace.
	6. Use incorrect engine oil.	Change.

CARBURETOR

Complaint	Symptom and possible causes	Remedy
Trouble with starting.	1. Starter jet is clogged.	Clean.
	2. Starter pipe is clogged.	Clean.
	3. Air leaking from a joint between starter body and carburetor.	Check starter body and carburetor for tightness, adjust and replace gasket.
	4. Air leaking from carburetor's joint or vacuum gauge joint.	Check and adjust.
	5. Starter plunger is not operating properly.	Check and adjust.
Idling or low-speed trouble.	1. Pilot jet, pilot air jet are clogged or loose.	Check and clean.
	2. Air leaking from carburetor's joint, vacuum gauge joint, or starter.	Check and adjust.
	3. Pilot outlet or bypass is clogged.	Check and clean.
	4. Starter plunger is not fully closed.	Check and adjust.
Medium- or high-speed trouble.	1. Main jet or main air jet is clogged.	Check and clean.
	2. Needle jet is clogged.	Check and clean.
	3. Throttle valve is not operating properly.	Check throttle valve for operation.
	4. Filter is clogged.	Check and clean.
Overflow and fuel level fluctuations.	1. Needle valve is worn or damaged.	Replace.
	2. Spring in needle valve is broken.	Replace.
	3. Float is not working properly.	Check and adjust.
	4. Foreign matter has adhered to needle valve.	Clean.
	5. Fuel level is too high or low.	Adjust float height.

ELECTRICAL

Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking.	1. Defective ignition coil. 2. Defective spark plugs. 3. Defective signal generator or transistor unit.	Replace. Replace. Replace.
Spark plugs soon become fouled with carbon.	1. Mixture too rich. 2. Idling speed set too high. 3. Incorrect gasoline. 4. Dirty element in air cleaner. 5. Spark plugs too cold.	Adjust carburetors. Adjust carburetors. Change. Clean. Replace by hot type plugs.
Spark plugs become fouled too soon.	1. Worn piston rings. 2. Pistons or cylinders worn. 3. Excessive clearance of valve stems in valve guides. 4. Worn stem oil seal.	Replace. Replace. Replace. Replace.
Spark plug electrodes overheat or burn.	1. Spark plugs too hot. 2. The engine overheats. 3. Spark plugs loose. 4. Mixture too lean.	Replace by cold type plugs. Tune up. Retighten. Adjust carburetors.
Generator does not charge.	1. Open or short in lead wires, or loose lead connections. 2. Shorted, grounded or open generator coils. 3. Shorted or panctured regulator/rectifier.	Repair or replace or retighten. Replace. Replace.
Generator does charge, but charging rate is below the specification.	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.	Repair, or retighten. Replace. Replace. Add distilled water to the upper level. Replace the battery.
Generator Overcharges.	1. Internal short-circuit in the battery. 2. Resistor element in the regulator/rectifier damaged or defective. 3. Regulator/rectifier poorly grounded.	Replace the battery. Replace. Clean and tighten ground connection.
Unstable charging.	1. Lead wire insulation frayed due to vibration, resulting in intermittent shorting. 2. Generator internally shorted. 3. Defective regulator/rectifier.	Repair or replace. Replace. Replace.
Starter button is not effective.	1. Battery run down. 2. Defective switch contacts. 3. Brushes not seating properly on commutator in starter motor. 4. Defective starter relay.	Recharge or replace. Replace. Repair or replace. Replace.

BATTERY

Symptom	Probable cause	Remedy
"Sulfation", acidic white powdery substance or spots on surfaces of cell plates.	1. Not enough electrolyte.	Add distilled water, if the battery has not been damaged and "sulfation" has not advanced too far, and recharge.
	2. Battery case is cracked.	Replace the battery.
	3. Battery has been left in a run-down condition for a long time.	Replace the battery.
	4. Contaminated electrolyte (Foreign matter has entered the battery and become mixed with the electrolyte).	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.
Battery runs down quickly.	1. The charging method is not correct.	Check the generator, regulator/rectifier and circuit connections, and make necessary adjustments to obtain specified charging operation.
	2. Cell plates have lost much of their active material as a result of over-charging.	Replace the battery, and correct the charging system.
	3. A short-circuit condition exists within the battery due to excessive accumulation of sediments caused by the high electrolyte S.G.	Replace the battery.
	4. Electrolyte S.G. is too low.	Recharge the battery fully and adjust electrolyte S.G.
	5. Contaminated electrolyte.	Replace the electrolyte, recharge the battery and then adjust S.G.
	6. Battery is too old.	Replace the battery.
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".	1. Charging rate too low or too high. (When not in use batteries should be recharged at least once a month to avoid sulfation.)	Replace the battery.
	2. Battery electrolyte excessive or insufficient, or its specific gravity too high or too low.	Keep the electrolyte up to the prescribed level, or adjust the S.G. by consulting the battery maker's directions.
	3. The battery left unused for too long in cold climate.	Replace the battery, if badly sulfated.
Battery discharges too rapidly.	1. Dirty container top and sides.	Clean.
	2. Impurities in the electrolyte or electrolyte S.G. is too high.	Change the electrolyte by consulting the battery maker's directions.

CHASSIS

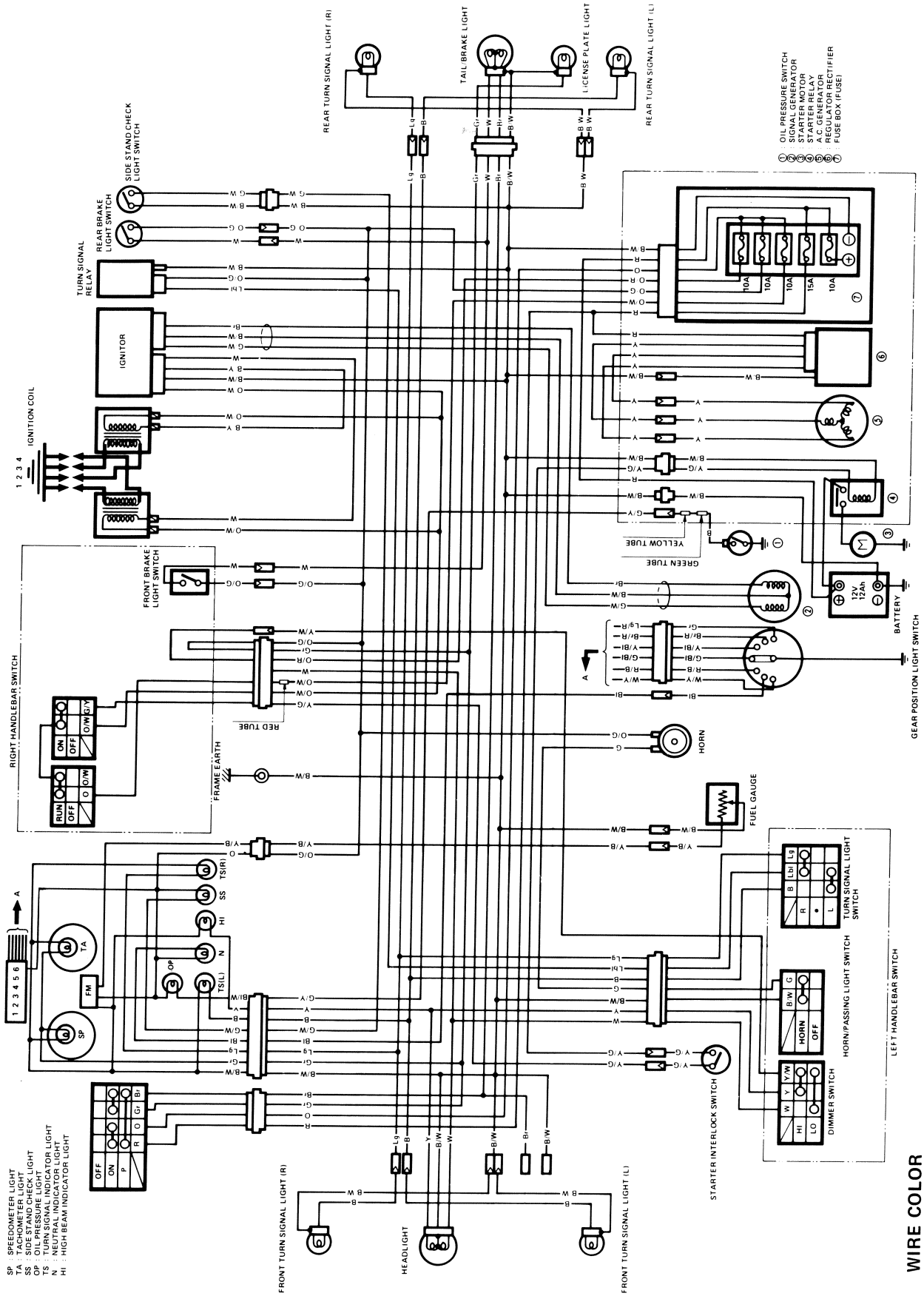
Complaint	Symptom and possible causes	Remedy
Heavy steering.	1. Steering stem nut overtightened. 2. Broken bearing in steering stem. 3. Distorted steering stem. 4. Not enough pressure in tires.	Adjust. Replace. Replace. Adjust.
Wobbly handle.	1. Loss of balance between right and left suspension. 2. Distorted front fork. 3. Distorted front axle or crooked tire. 4. Incorrect front fork air pressure.	Replace. Repair or replace. Replace. Adjust.
Wobbly front wheel.	1. Distorted wheel rim. 2. Worn-down front wheel bearings. 3. Defective or incorrect tire. 4. Loose nut on axle. 5. Incorrect front fork oil or air pressure.	Replace. Replace. Replace. Retighten. Adjust.
Front suspension too soft.	1. Weakened springs. 2. Not enough fork oil.	Replace. Refill.
Front suspension too stiff.	1. Fork oil too viscous. 2. Too much fork oil. 3. Incorrect air pressure in front fork.	Replace. Drain excess oil. Adjust.
Noisy front suspension.	1. Not enough fork oil. 2. Loose nuts on suspension.	Refill. Retighten.
Wobbly rear wheel.	1. Distorted wheel rim. 2. Worn-down rear wheel bearings. 3. Defective or incorrect tire. 4. Worn-down rear swing arm bearings. 5. Loose nuts on rear suspension.	Replace. Replace. Replace. Replace. Retighten.
Rear suspension too soft.	1. Weakened springs. 2. Rear suspension adjusters improperly set.	Replace. Adjust.
Rear suspension too stiff.	Rear suspension adjusters improperly set.	Adjust.
Noisy rear suspension.	Loose nuts on suspension.	Retighten.
Poor braking (FRONT and REAR)	1. Not enough brake fluid in the reservoir. 2. Air trapped in brake fluid circuit. 3. Pads worn down.	Refill to level mark. Bleed air out. Replace.

BRAKES

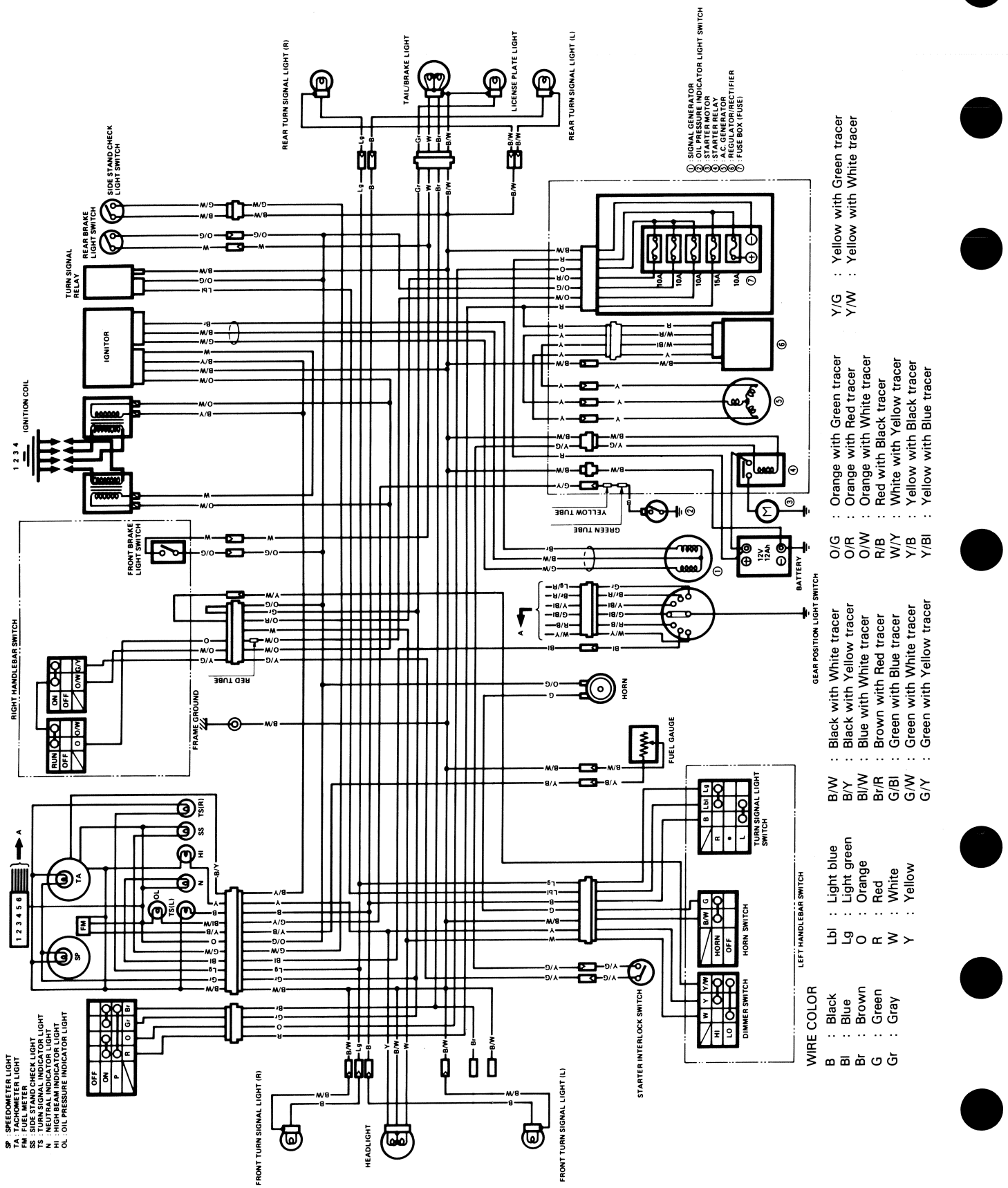
Complaint	Symptom and possible causes	Remedy
Insufficient brake power.	1. Leakage of brake fluid from hydraulic system. 2. Worn pads. 3. Oil adhesion on engaging surface of pads. 4. Worn disc. 5. Air in hydraulic system.	Repair or replace. Replace. Clean disc and pads. Replace. Bleed air.
Brake squeaking.	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 master 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 stroke.	1. Air in hydraulic system. 2. Insufficient brake fluid. 3. Improper quality of brake fluid.	Bleed air. Replenish fluid to specified level; bleed air. Replace with correct fluid.
Leakage of brake fluid.	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.

WIRING DIAGRAM

GS550E

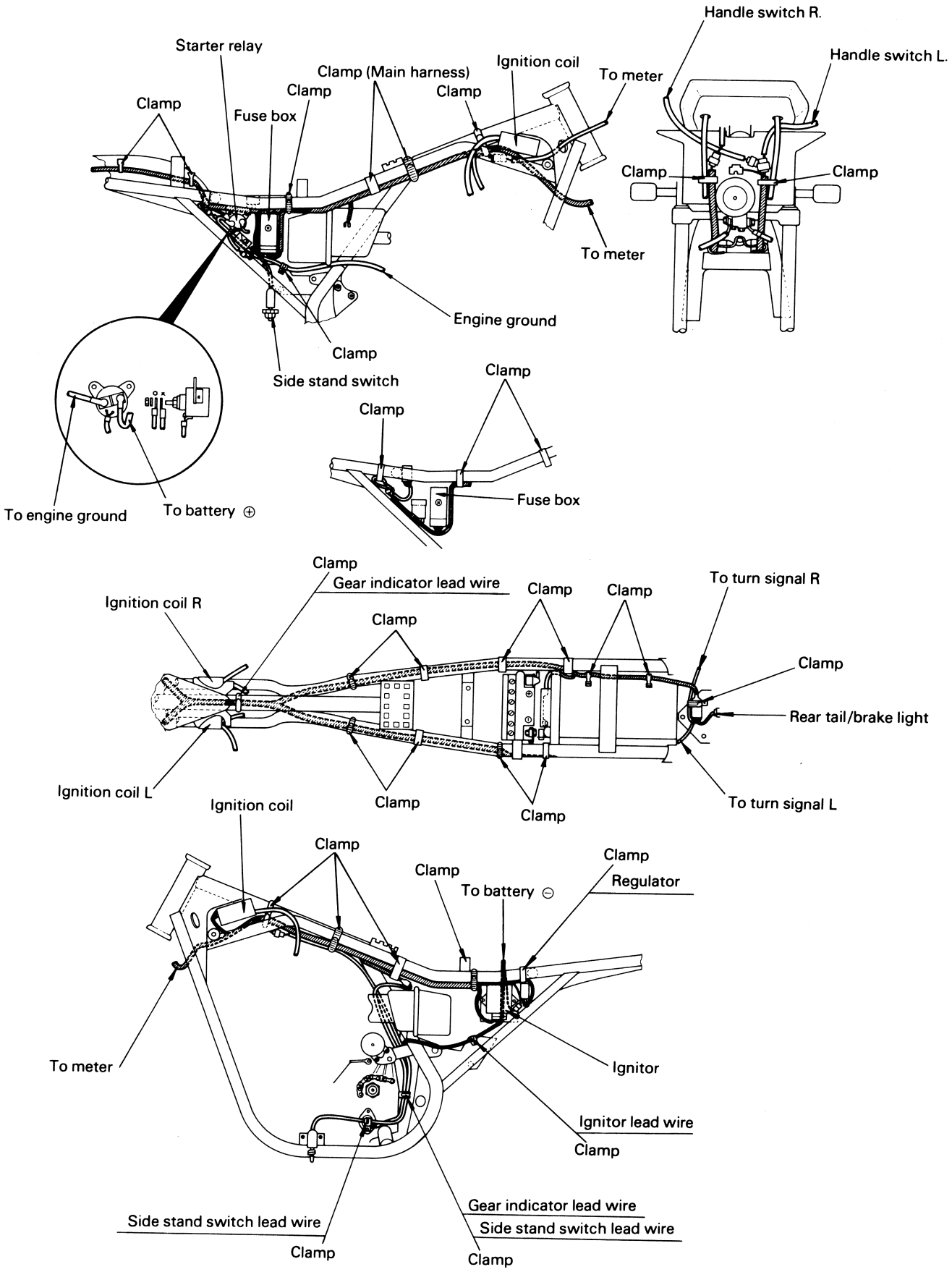


GS550ES

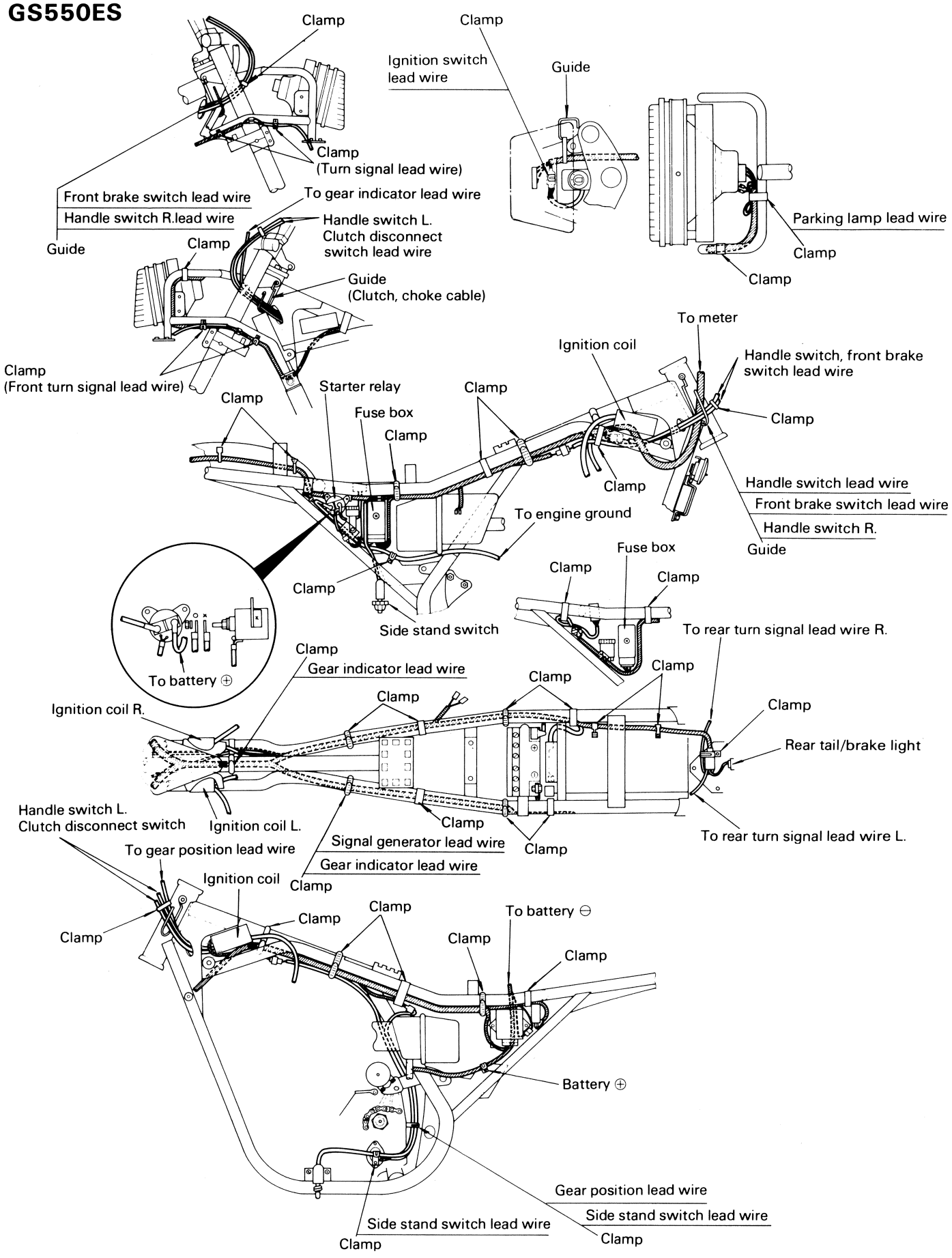

SP : SPEEDOMETER LIGHT
TA : TACHOMETER LIGHT
FM : FUEL METER
SS : SIDE STAND CHECK LIGHT
TS : TURN SIGNAL INDICATOR LIGHT
N : NEUTRAL INDICATOR LIGHT
HI : HIGH BEAM INDICATOR LIGHT
OL : OIL PRESSURE INDICATOR LIGHT
① SIGNAL GENERATOR
② OIL PRESSURE INDICATOR LIGHT SWITCH
③ STARTER MOTOR
④ STARTER RELAY
⑤ A.C.G. STATOR COIL
⑥ REGULATOR/RECTIFIER
⑦ FUSE BOX (FUSE)
REAR TURN SIGNAL LIGHT (R)
TAIL/BRAKE LIGHT
LICENSE PLATE LIGHT
REAR TURN SIGNAL LIGHT (L)
SIDE STAND CHECK LIGHT SWITCH
REAR BRAKE LIGHT SWITCH
TURN SIGNAL RELAY
IGNITOR
IGNITION COIL
FRONT BRAKE LIGHT SWITCH
RIGHT HANDLEBAR SWITCH
FRAME GROUND
RED TUBE
YELLOW TUBE
GREEN TUBE
BATTERY
12V 12Ah
GEAR POSITION LIGHT SWITCH
HORN
FUEL GAUGE
TURN SIGNAL LIGHT SWITCH
HORN SWITCH
DIMMER SWITCH
LEFT HANDLEBAR SWITCH
STARTER INTERLOCK SWITCH
FRONT TURN SIGNAL LIGHT (R)
HEADLIGHT
FRONT TURN SIGNAL LIGHT (L)
WIRE COLOR
B : Black
Bl : Blue
Br : Brown
G : Green
Gr : Gray
Lbl : Light blue
Lg : Light green
O : Orange
R : Red
W : White
Y : Yellow
B/W : Black with White tracer
B/Y : Black with Yellow tracer
Bl/W : Blue with White tracer
Br/R : Brown with Red tracer
G/Bl : Green with Blue tracer
G/W : Green with White tracer
G/Y : Green with Yellow tracer
O/G : Orange with Green tracer
O/R : Orange with Red tracer
O/W : Orange with White tracer
R/B : Red with Black tracer
W/Y : White with Yellow tracer
Y/B : Yellow with Black tracer
Y/Bl : Yellow with Blue tracer
Y/G : Yellow with Green tracer
Y/W : Yellow with White tracer

WIRE, CABLE AND HOSE ROUTING

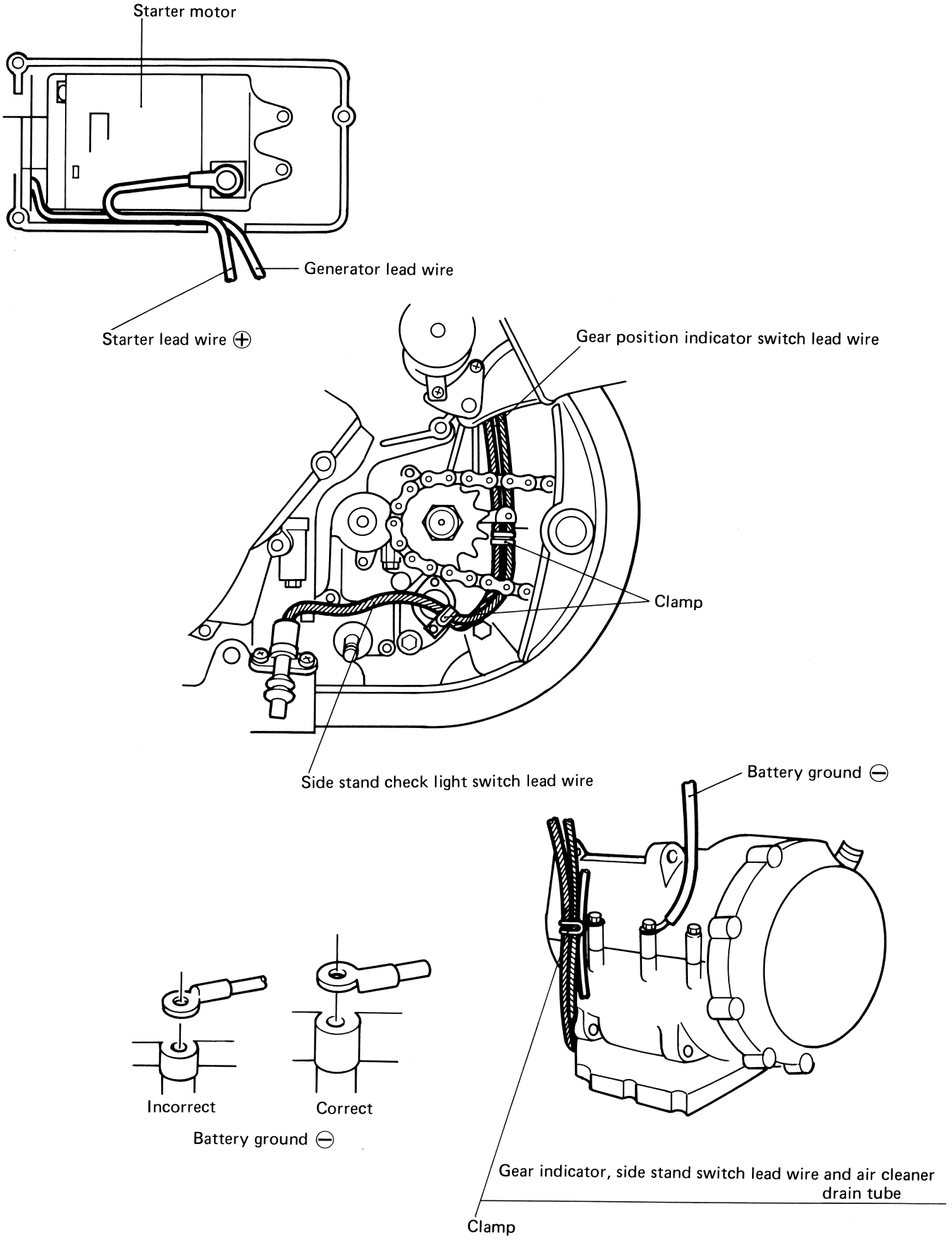
WIRE ROUTING: GS550E

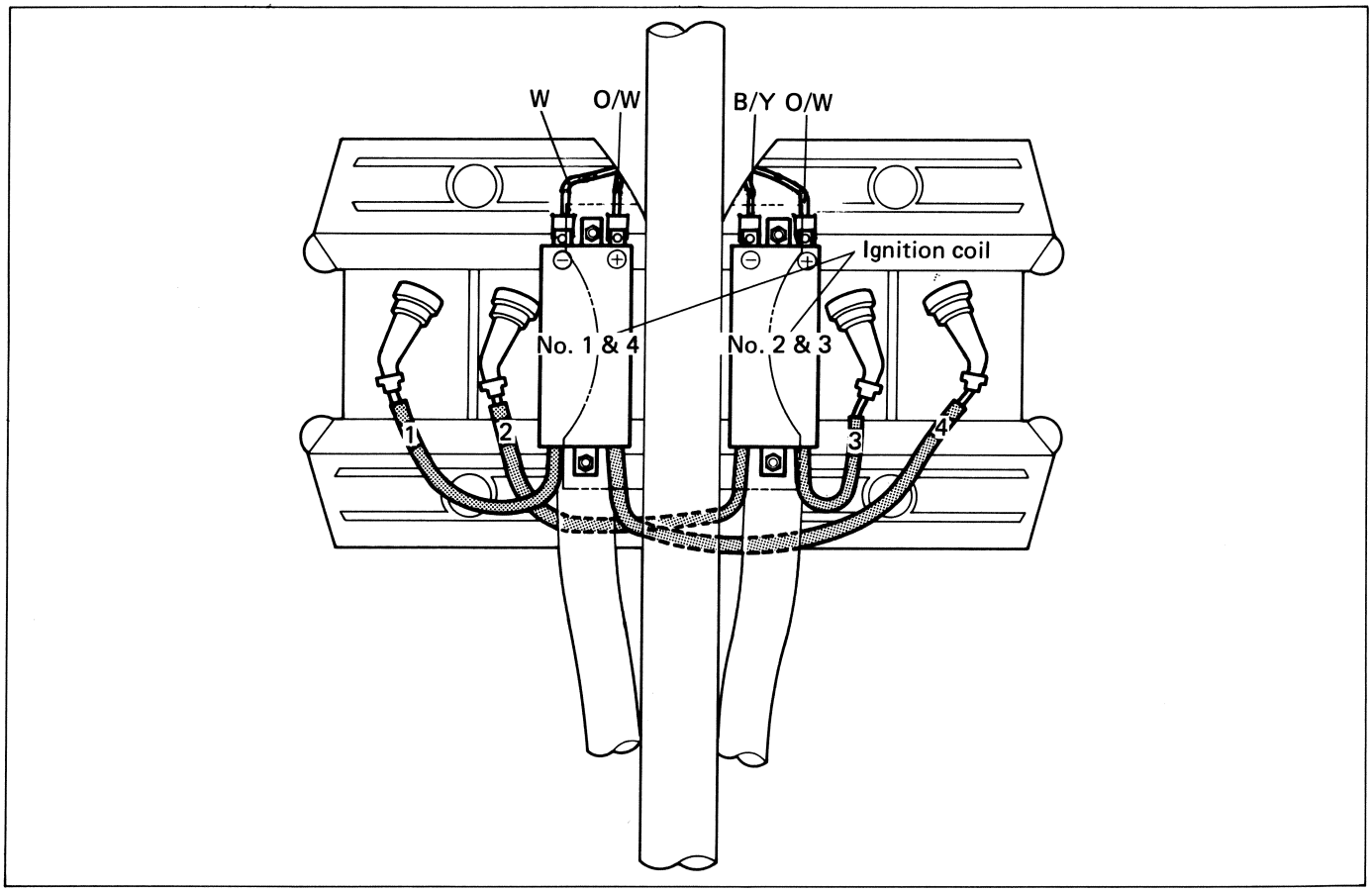


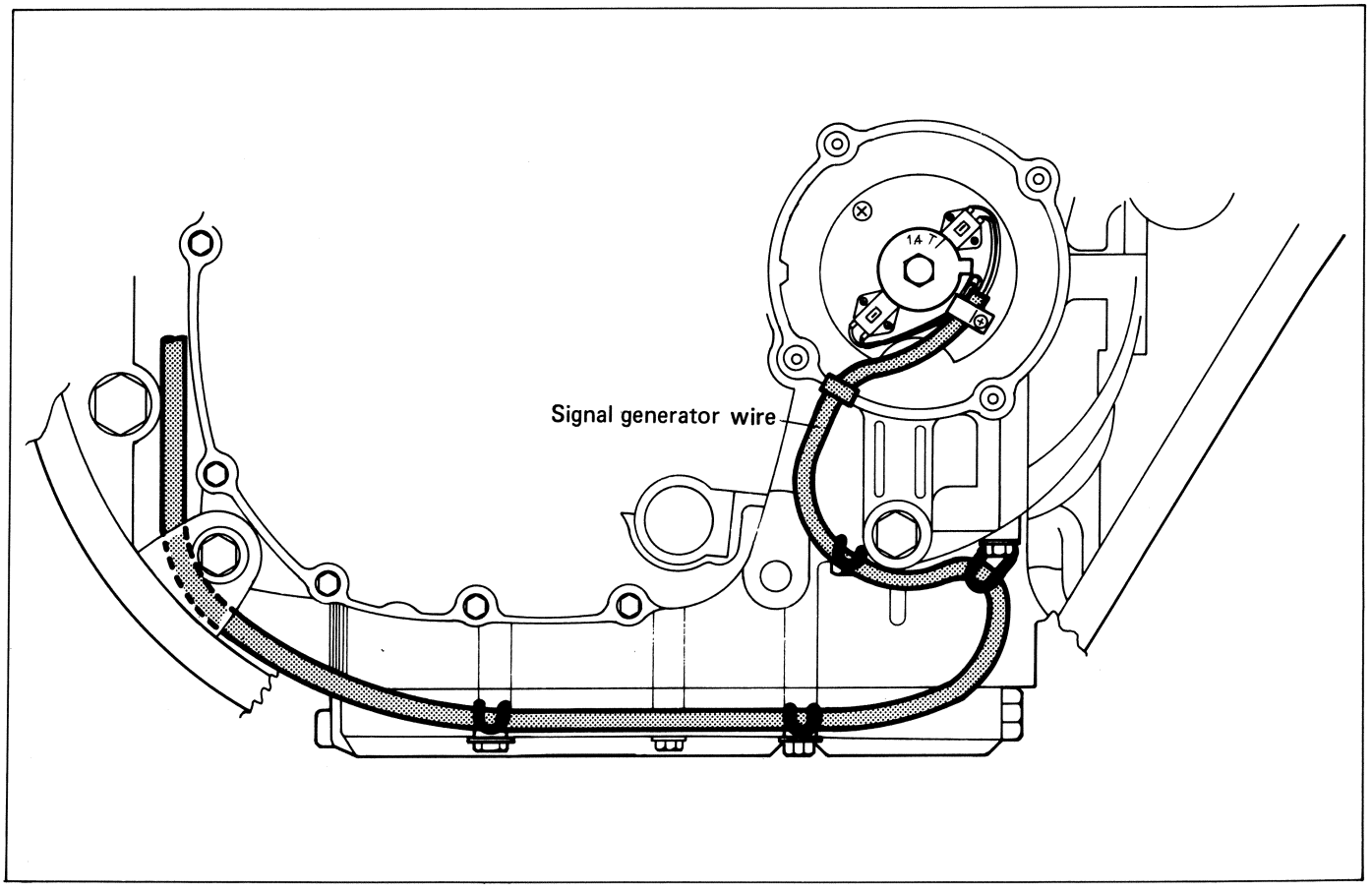
GS550ES


Clamp
Clamp
Ignition switch lead wire
Guide
Clamp (Turn signal lead wire)
Front brake switch lead wire
Handle switch R.lead wire
Guide
To gear indicator lead wire
Handle switch L. Clutch disconnect switch lead wire
Clamp
Guide (Clutch, choke cable)
Parking lamp lead wire
Clamp
Clamp
Clamp (Front turn signal lead wire)
To meter
Ignition coil
Handle switch, front brake switch lead wire
Clamp
Starter relay
Clamp
Clamp
Fuse box
Clamp
Clamp
Handle switch lead wire
Front brake switch lead wire
Handle switch R.
Guide
To engine ground
Clamp
Side stand switch
Fuse box
Clamp
Clamp
To battery ⊕
Clamp
Gear indicator lead wire
To rear turn signal lead wire R.
Clamp
Clamp
Ignition coil R.
Clamp
Clamp
Rear tail/brake light
Handle switch L. Clutch disconnect switch
Ignition coil L.
Clamp
To rear turn signal lead wire L.
To gear position lead wire
Signal generator lead wire
Gear indicator lead wire
Clamp
Clamp
Ignition coil
Clamp
Clamp
Clamp
To battery ⊖
Clamp
Clamp
Battery ⊕
Gear position lead wire
Side stand switch lead wire
Side stand switch lead wire
Clamp
Clamp

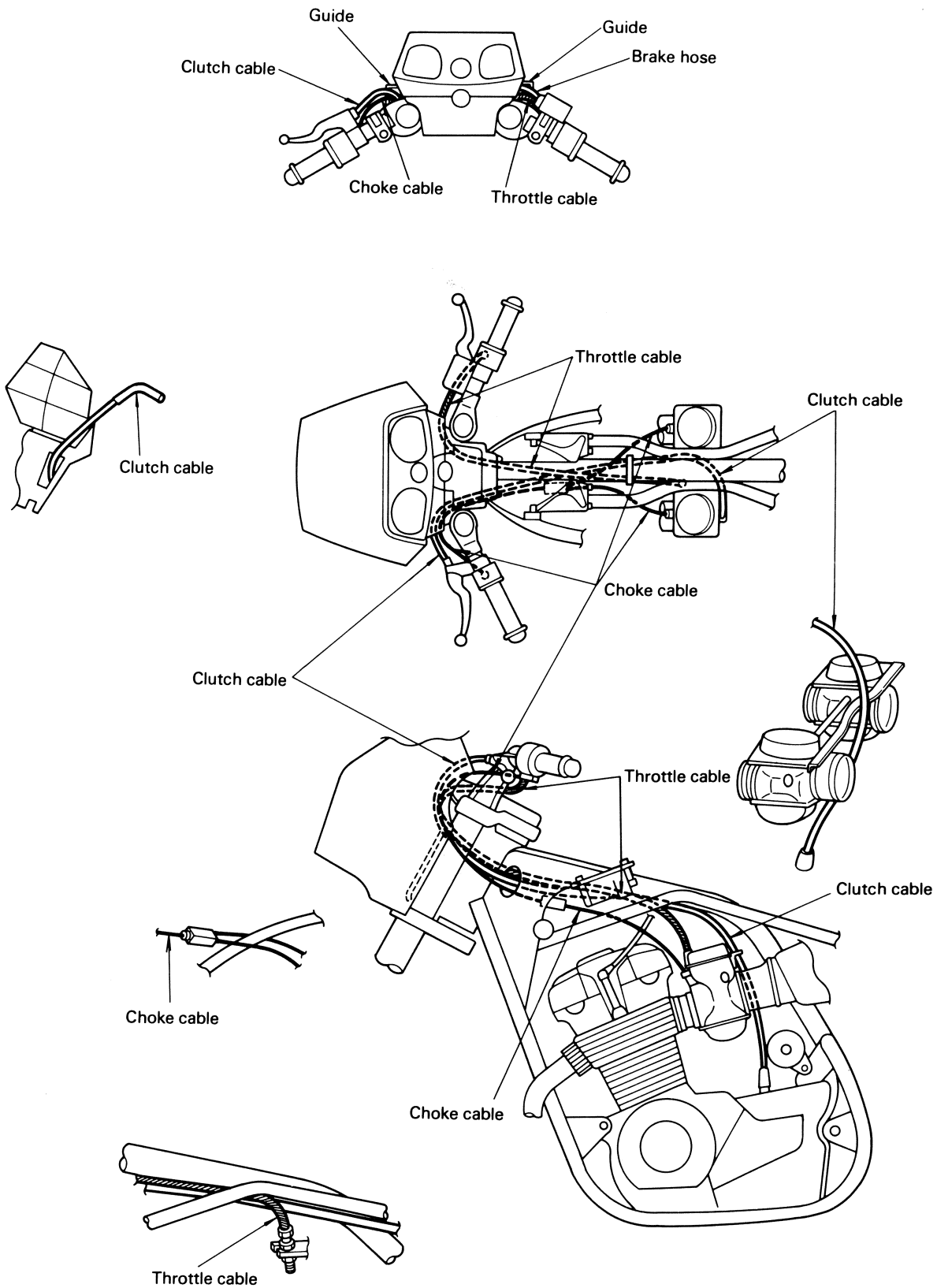
GS550E AND GS550ES



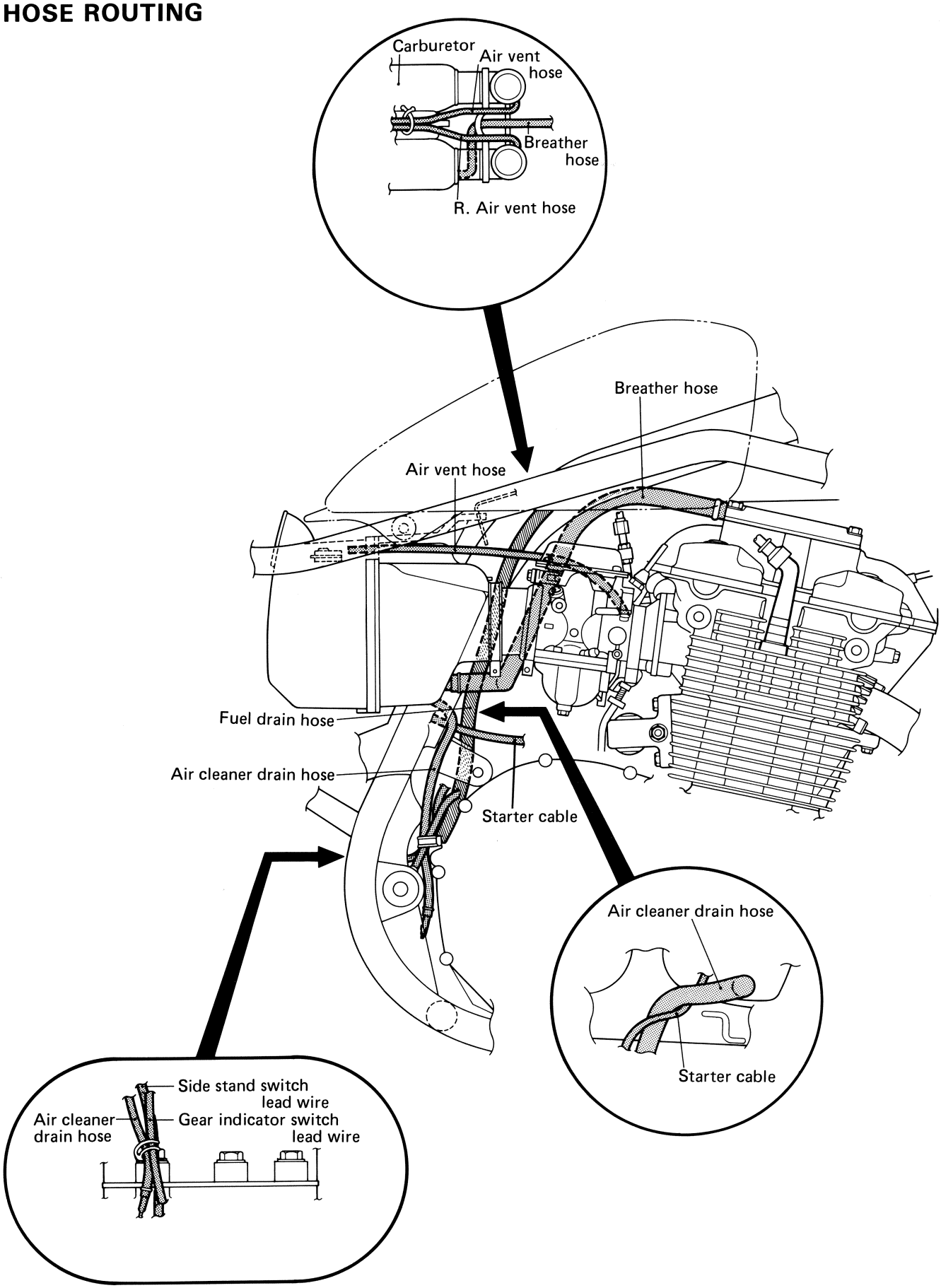

W
O/W
B/Y
O/W
Ignition coil
No. 1 & 4
No. 2 & 3
1
2
3
4


Signal generator wire

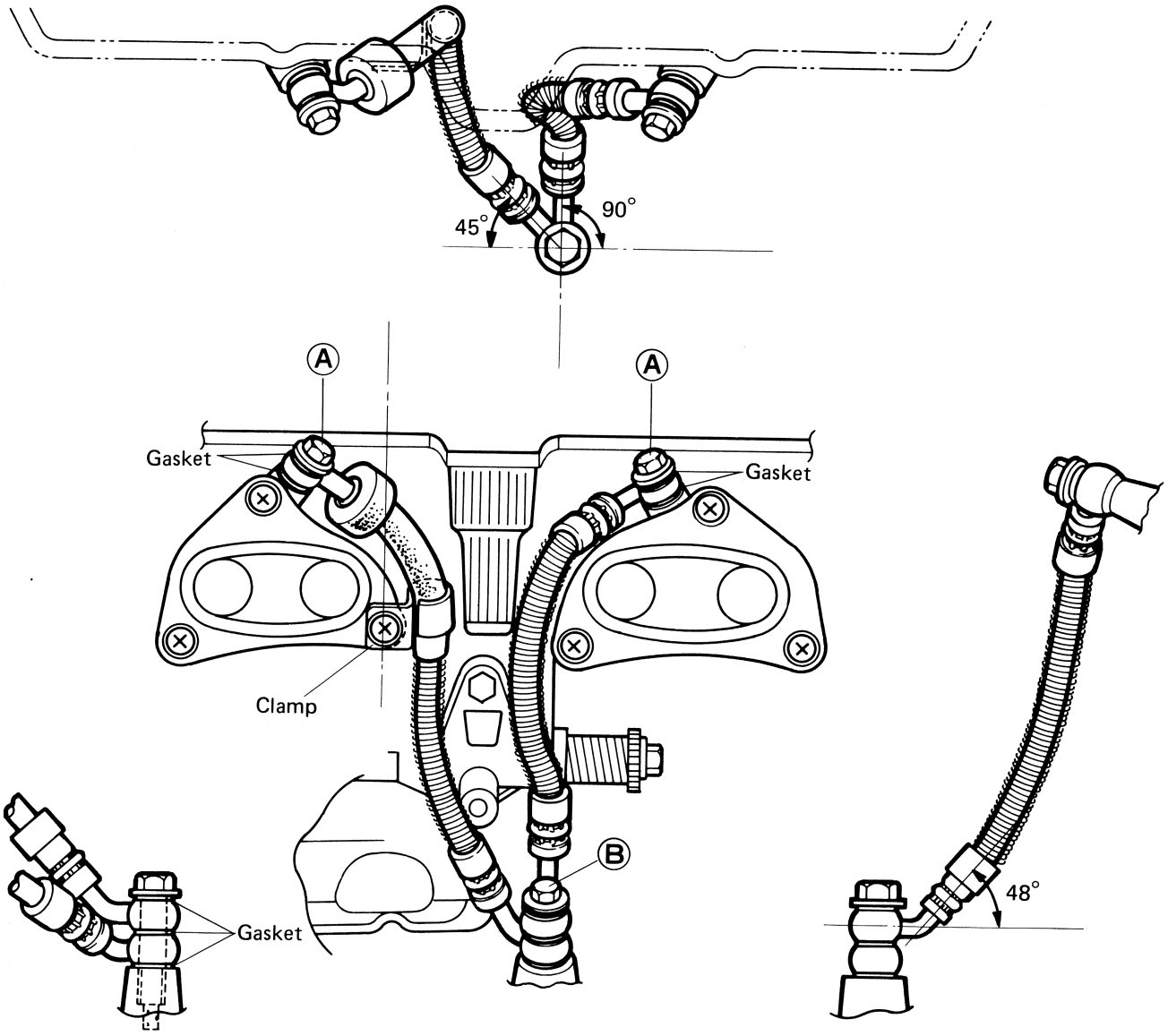
CABLE ROUTING



HOSE ROUTING

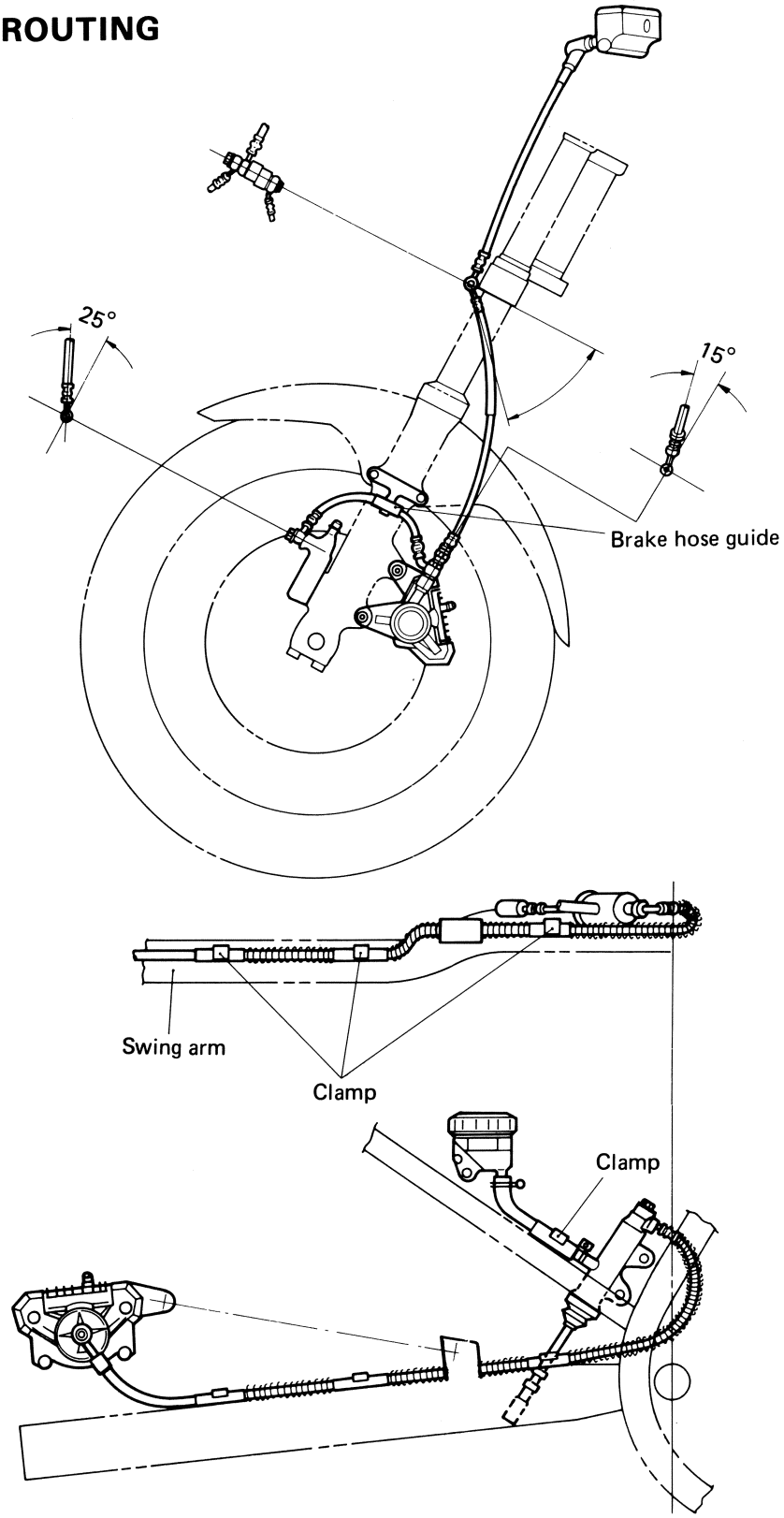


OIL HOSE ROUTING



Tightening torque			
Item	N·m	kg-m	lb-ft
Ⓐ	8 – 12	0.8 – 1.2	6.0 – 8.5
Ⓑ	20 – 24	2.0 – 2.4	14.5 – 17.5

BRAKE HOSE ROUTING



CAUTION:

1. **Turning radius of the brake hose should be more than 30 mm at the center of brake hose.**
2. **Hose winding should be less than 15° at the length of 300 mm.**
3. **Do not fix the hose to the caliper/master cylinder with the extended condition.**
4. **Make sure that no protective part contacts with the other parts.**

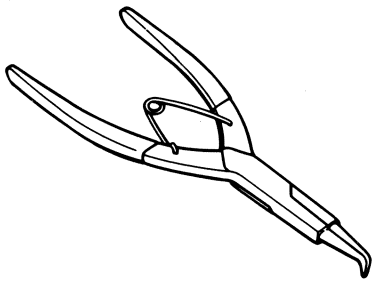
SPECIAL TOOLS

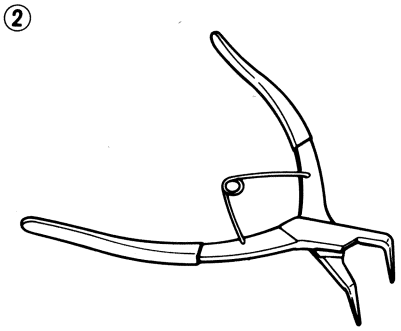
ITEM	PART NO.	PART NAME
①	09900-06104	Snap ring pliers (Opening type)
②	09900-06105	Snap ring pliers (Closing type)
③	09900-06107	Snap ring pliers (Opening type)
④	09900-06108	Snap ring pliers (Closing type)
⑤	09900-09003	Impact driver set
⑥	09900-20101	Vernier calipers (150 mm)
⑦	09900-20205	Micrometer (0 – 25 mm)
	09900-20202	Micrometer (25 – 50 mm)
	09900-20203	Micrometer (50 – 75 mm)
⑧	09900-20508	Cylinder gauge set
⑨	09900-20606	Dial gauge (1/100 mm)
⑩	09900-20803	Thickness gauge
⑪	09900-25002	Pocket tester
⑫	09900-27311	Timing light
⑬	09900-28106	Electrotester
⑭	09900-28403	Hydrometer
⑮	09910-10710	Stud bolt installer
⑯	09910-20116	Conrod stopper
⑰	09910-34510	Piston pin puller
⑱	09911-73730	"T" type hexagon wrench (5 mm)
	09914-25811	"T" tye hexagon wrench (6 mm)
⑲	09912-34510	Cylinder disassembling tool
⑳	09913-13121	Carburetor balancer gauge set
㉑	09913-14541	Fuel level gauge set
㉒	09913-50121	Oil seal remover
㉓	09913-70122	Bearing installer
㉔	09915-17410	Ⓐ Oil pressure gauge adapter
	09915-74510	Ⓑ Oil pressure gauge
㉕	09915-77330	Gauge (0 – 10 kg/cm^2)
㉖	09915-94511	Carburetor balancer adapter
㉗	09916-14510	Valve lifter
㉘	09916-14910	Ⓐ Attachment
㉙	*09916-34541	Ⓐ Reamer handle
	*09916-34570	Ⓑ Valve guide reamer
	*09916-34580	Ⓒ Valve guide hole reamer
㉚	*09916-44310	Valve guide remover/installer

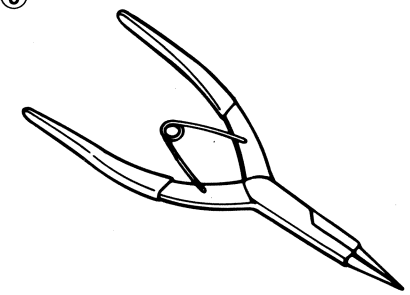
NOTE: (*) marke shows newly applied for GS550E/ES.

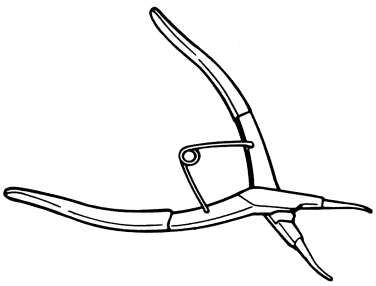
ITEM	PART NO.	PART NAME
㉛	09916-44920	Valve guide installer attachment
㉜	09916-74521	Ⓐ Piston ring holder body
	09916-74530	Ⓑ Band (Bore: 55 – 65 mm)
㉝	09916-84510	Tweezers
㉞	09917-14910	Valve adjust driver
㉟	09920-53710	Clutch sleeve hub holder
㊱	09923-73210	Bearing puller
㊲	09924-84510	Bearing installer set
㊳	09930-14511	Cylinder head nut and spark plug wrench set
㊴	09930-13210	Spark plug socket wrench (18 mm)
㊵	09930-30102	Rotor remover sliding shaft
㊶	09930-30180	Attachment Attachment E
㊷	09930-44911	Rotor holder
㊸	09940-14911	Steering nut socket wrench
㊹	09940-34520	Ⓐ Front fork assembling "T" handle
	09940-34561	Ⓑ Attachment "D"
㊺	09940-44120	Front fork air pressure regulating gauge
㊻	09940-50112	Front fork oil seal installer
㊼	09941-34513	Steering race installer
㊽	09941-44910	Swing arm bearing remover
㊾	09941-54911	Bearing outer race remover
㊿	09941-74910	Steering bearing installer
(51)	09941-84510	Bearing inner race remover
(52)	09941-94510	Rim protector
(53)	09943-74111	Front fork oil level gauge
(54)	N-116	Valve seat cutter head (45°)
	N-120	Valve seat cutter head (15°)
(55)	*N-131	Valve seat cutter head (45°)
	*N-130	Valve seat cutter head (15°)
(56)	*N-100-5.0	Solid pilot

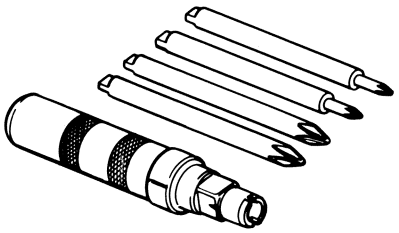
NOTE: (*) mark shows newly applied for GS550E/ES.

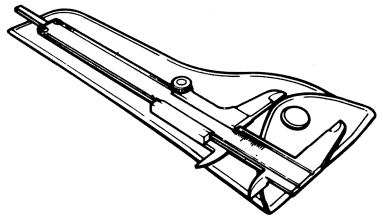
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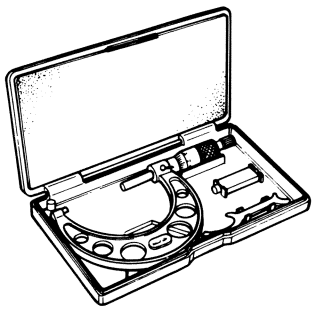
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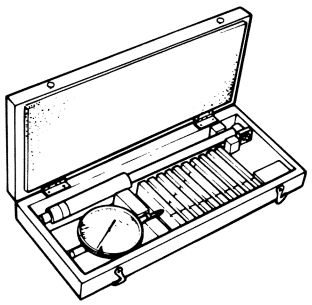
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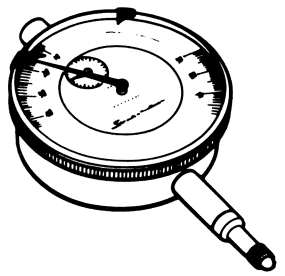
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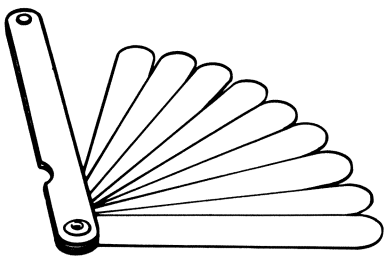
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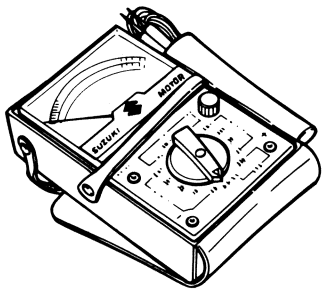
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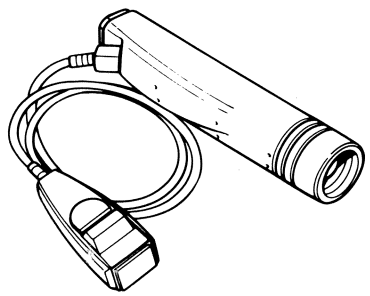
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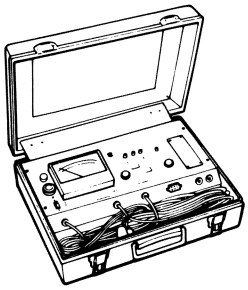
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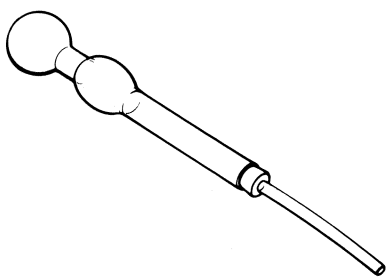
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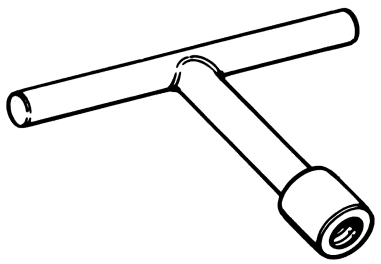
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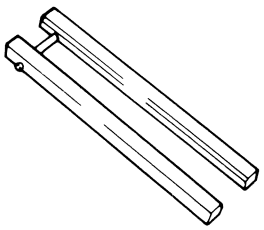
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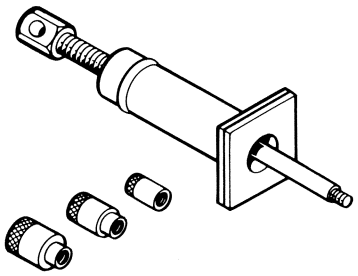
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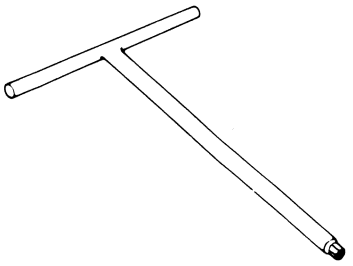
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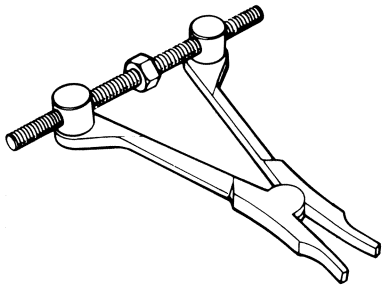
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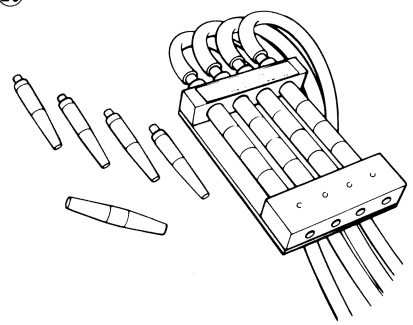
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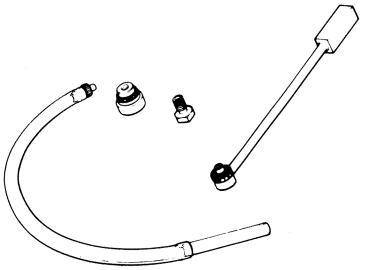
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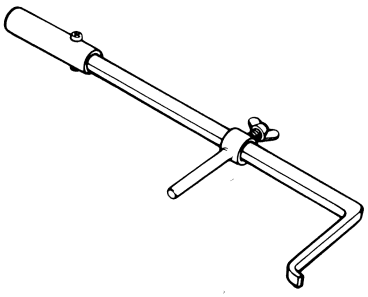
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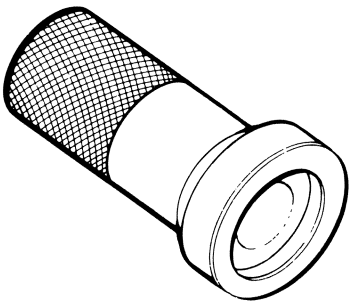
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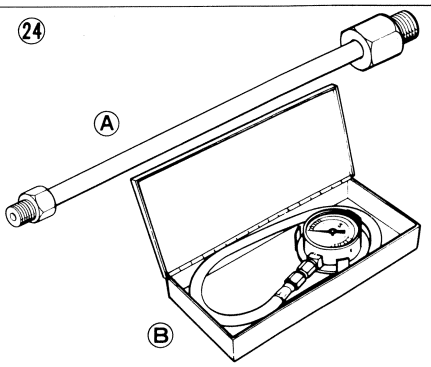
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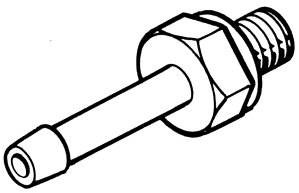
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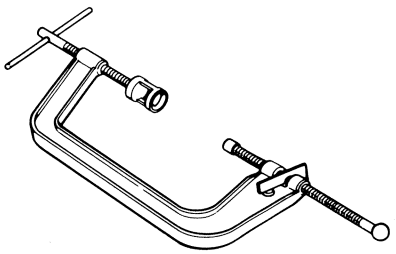
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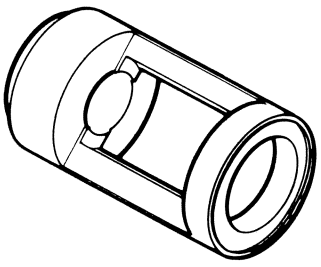
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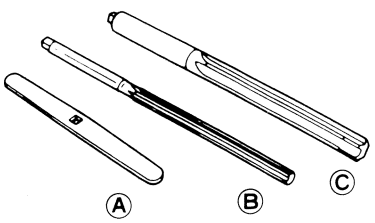
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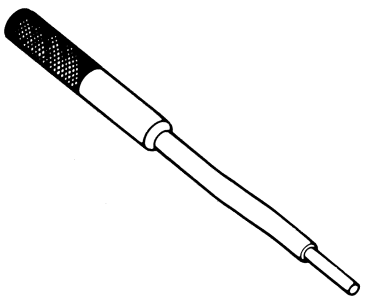
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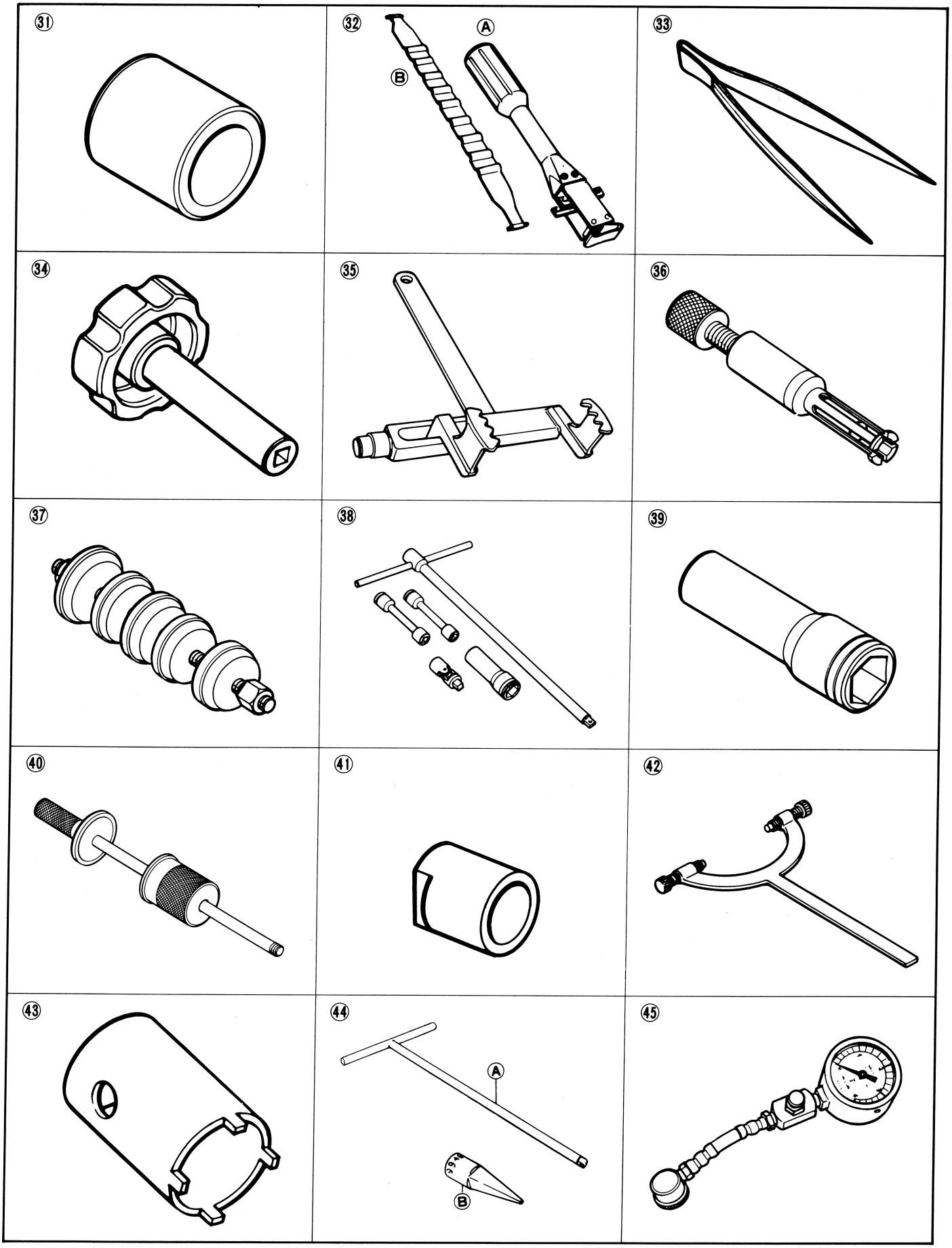


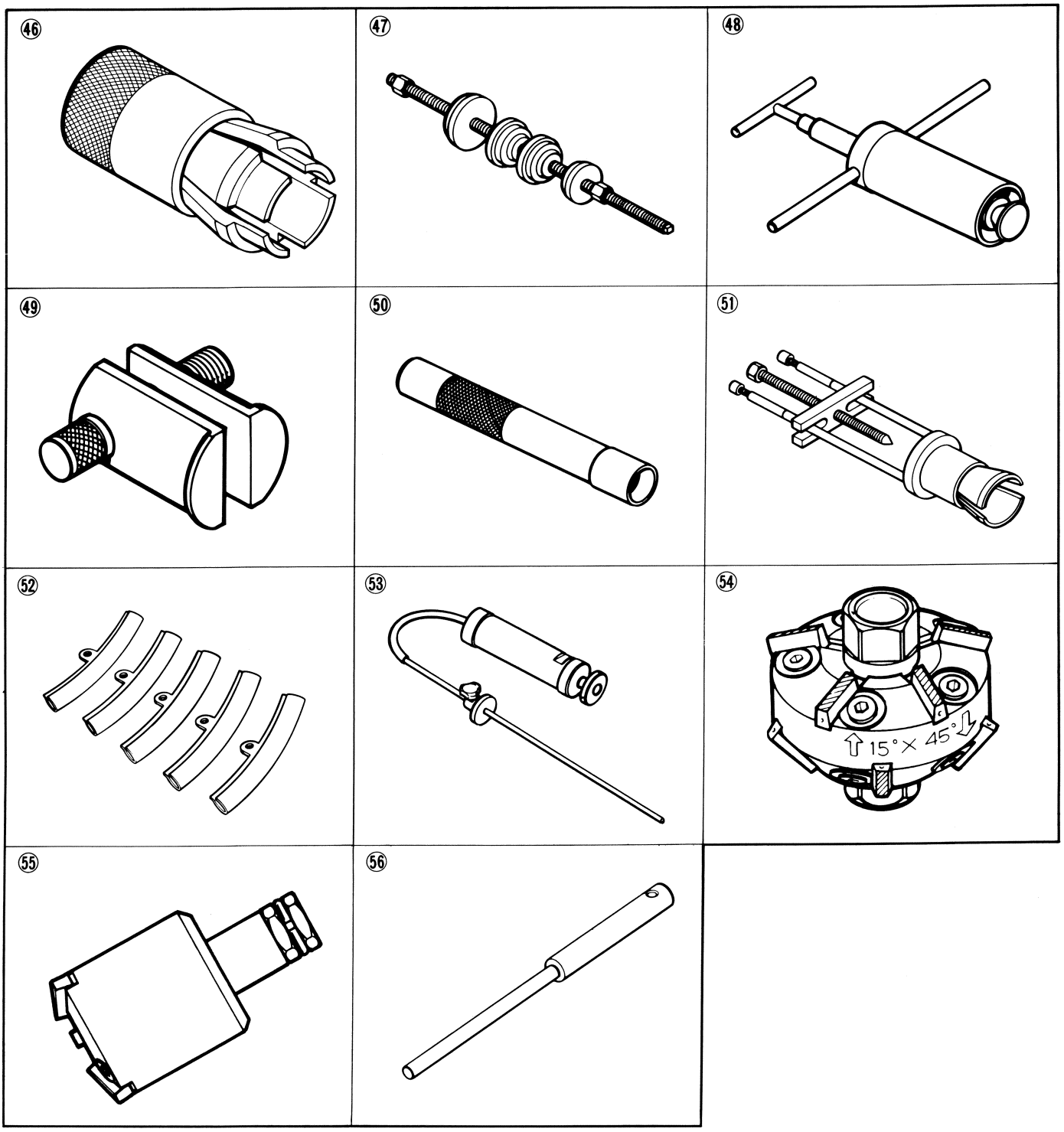
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31
32
A
B
33
34
35
36
37
38
39
40
41
42
43
44
A
B
45


46
47
48
49
50
51
52
53
54
15° × 45°
55
56

TIGHTENING TORQUE

ENGINE

ITEM	N·m	kg-m	lb-ft
Cylinder head cover bolt	13 – 15	1.3 – 1.5	9.5 – 11.0
Cylinder head nut	23 – 28	2.3 – 2.8	16.5 – 20.0
Cylinder head bolt	7 – 11	0.7 – 1.1	5.0 – 8.0
Valve clearance adjuster lock nut	9 – 11	0.9 – 1.1	6.5 – 8.0
Camshaft holder bolt	8 – 12	0.8 – 1.2	6.0 – 8.5
Cam sprocket bolt	24 – 26	2.4 – 2.6	17.5 – 19.0
Cylinder head oil pipe clamp bolt	10 – 14	1.0 – 1.4	7.0 – 10.0
Cylinder head oil pipe union bolt (IN. side)	8 – 12	0.8 – 1.2	6.0 – 8.5
Cylinder head oil pipe union bolt (EX. side)	8 – 12	0.8 – 1.2	6.0 – 8.5
Rocker arm shaft stopper bolt	8 – 10	0.8 – 1.0	6.0 – 7.0
Oil hose union bolt (Cylinder head side)	8 – 12	0.8 – 1.2	6.0 – 8.5
Oil hose union bolt (Crankcase side)	20 – 24	2.0 – 2.4	14.5 – 17.5
Cam chain tensioner mounting bolt	6 – 8	0.6 – 0.8	4.5 – 6.0
Cam chain tensioner adjuster lock nut	9 – 14	0.9 – 1.4	6.5 – 10.0
Conrod bearing cap nut	33 – 37	3.3 – 3.7	24.0 – 27.0
Generator rotor bolt	140 – 160	14.0 – 16.0	101.5 – 115.5
Starter clutch allen bolt	23 – 28	2.3 – 2.8	16.5 – 20.0
Signal generator bolt	25 – 35	2.5 – 3.5	18.0 – 25.5
Crankcase bolt (6 mm)	9 – 13	0.9 – 1.3	6.5 – 9.5
(8 mm)	20 – 24	2.0 – 2.4	14.5 – 17.5
Oil pump securing bolt	7 – 9	0.7 – 0.9	5.0 – 6.5
Neutral cam stopper bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Gearshift arm stopper	15 – 23	1.5 – 2.3	11.0 – 16.5
Clutch sleeve hub nut	50 – 70	5.0 – 7.0	36.0 – 50.5
Clutch spring bolt	11 – 13	1.1 – 1.3	8.0 – 9.5
Engine sprocket nut	100 – 150	10.0 – 15.0	72.5 – 108.5
Engine mounting bolt (L: 35 mm and 165 mm)	600 – 720	6.0 – 7.2	43.5 – 52.0
(L: 160 mm and 195 mm)	670 – 800	6.7 – 8.0	48.5 – 58.0

CHASSIS

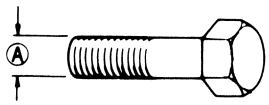
ITEM	N·m	kg-m	lb-ft
Steering stem head bolt	20 – 30	2.0 – 3.0	14.5 – 21.5
Steering stem head clamp bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front fork upper clamp bolt	20 – 30	2.0 – 3.0	14.5 – 21.5
Front fork lower clamp bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front fork cap bolt	15 – 30	1.5 – 3.0	11.0 – 21.5
Front fork damper rod bolt	20 – 26	2.0 – 2.6	14.5 – 19.0
Front axle nut	36 – 52	3.6 – 5.2	26.0 – 37.5
Front axle pinch nut	15 – 25	1.5 – 2.5	11.0 – 18.0
Handlebars set bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Handlebars holder bolt	50 – 60	5.0 – 6.0	36.0 – 43.5
Handlebars holder nut	20 – 30	2.0 – 3.0	14.5 – 21.5
Front master cylinder clamp bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
Front caliper mounting bolt	25 – 40	2.5 – 4.0	18.0 – 29.0
Front caliper housing bolt	30 – 36	3.0 – 3.6	21.5 – 26.0
Brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Caliper air bleeder	7 – 9	0.7 – 0.9	5.0 – 6.5
Anti-dive modulator valve bolt	6 – 8	0.6 – 0.8	4.5 – 6.0
Anti-dive modulator plunger bolt	4 – 5	0.4 – 0.5	3.0 – 3.5
Front disc bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Swing arm pivot nut	55 – 88	5.5 – 8.8	40.0 – 63.5
Rear unit fitting nut (Upper & Lower)	48 – 72	4.8 – 7.2	34.5 – 52.0
Rear cushion lever nut	84 – 100	8.4 – 10.0	60.5 – 72.5
Rear cushion rod-upper nut	48 – 72	4.8 – 7.2	34.5 – 52.0
Rear cushion rod-lower nut	84 – 100	8.4 – 10.0	60.5 – 72.5
Rear caliper mounting bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Rear caliper housing bolt	28 – 32	2.8 – 3.2	20.0 – 23.0
Rear brake pedal bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Rear torque link nut	20 – 30	2.0 – 3.0	14.5 – 21.5
Rear master cylinder mounting bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Rear axle nut	50 – 80	5.0 – 8.0	36.0 – 58.0

TIGHTENING TORQUE CHART

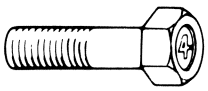
For other bolts and nuts not listed above, refer to this chart:

Tightening torque

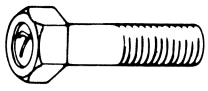
Bolt Diameter (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	N·m	kg-m	lb-ft	N·m	kg-m	lb-ft
4	1 – 2	0.1 – 0.2	0.7 – 1.5	1.5 – 3	0.15 – 0.3	1.0 – 2.0
5	2 – 4	0.2 – 0.4	1.5 – 3.0	3 – 6	0.3 – 0.6	2.0 – 4.5
6	4 – 7	0.4 – 0.7	3.0 – 5.0	8 – 12	0.8 – 1.2	6.0 – 8.5
8	10 – 16	1.0 – 1.6	7.0 – 11.5	18 – 28	1.8 – 2.8	13.0 – 20.0
10	22 – 35	2.2 – 3.5	16.0 – 25.5	40 – 60	4.0 – 6.0	29.0 – 43.5
12	35 – 55	3.5 – 5.5	25.5 – 40.0	70 – 100	7.0 – 10.0	50.5 – 72.5
14	50 – 80	5.0 – 8.0	36.0 – 58.0	110 – 160	11.0 – 16.0	79.5 – 115.5
16	80 – 130	8.0 – 13.0	58.0 – 94.0	170 – 250	17.0 – 25.0	123.0 – 181.0
18	130 – 190	13.0 – 19.0	94.0 – 137.5	200 – 280	20.0 – 28.0	144.5 – 202.5



Conventional Bolt



"4" Marked Bolt



"7" Marked Bolt

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	21 (0.83)	———
	EX.	18 (0.71)	———
Valve lift	IN.	7.5 (0.30)	———
	EX.	6.5 (0.26)	———
Valve clearance (when cold)	IN. & EX.	0.08—0.13 (0.003—0.005)	———
Valve guide to valve stem clearance	IN.	0.025—0.052 (0.0010—0.0020)	0.35 (0.014)
	EX.	0.040—0.067 (0.0016—0.0026)	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000—5.012 (0.1969—0.1973)	———
Valve stem O.D.	IN.	4.960—4.975 (0.1953—0.1959)	———
	EX.	4.945—4.960 (0.1947—0.1953)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve stem end length	IN. & EX.	———	2.9 (0.11)
Valve seat width	IN. & EX.	0.9—1.1 (0.035—0.043)	———
Valve head radial runout	IN. & EX.	———	0.03 (0.001)
Valve spring free length (INTAKE)	INNER	———	31.6 (1.24)
	OUTER	———	35.1 (1.38)
Valve spring free length (EXHAUST)	INNER	———	31.6 (1.24)
	OUTER	———	35.1 (1.38)

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve spring tension (INTAKE)	INNER	5.0—5.88 kg (11.0—12.96 lbs) at length 28 mm (1.10 in)	———
	OUTER	8.37—9.83 kg (18.45—21.67 lbs) at length 31.5 mm (1.24 in)	———
Valve spring tension (EXHAUST)	INNER	5.0—5.88 kg (11.0—12.96 lbs) at length 28 mm (1.10 in)	———
	OUTER	8.37—9.83 kg (18.45—21.67 lbs) at length 31.5 mm(1.24 in)	———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM		STANDARD		LIMIT
Cam height		IN.	34.940—34.980 (1.3756—1.3772)	34.640 (1.3638)
		EX.	34.360—34.400 (1.3528—1.3543)	34.060 (1.3409)
Camshaft journal oil clearance	Center journals	IN. & EX.	0.050—0.084 (0.0020—0.0033)	0.150 (0.0059)
Camshaft journal holder I.D.	Center journals	IN. & EX.	22.030—22.043 (0.8673—0.8678)	———
Camshaft journal oil clearance	Other journals	IN. & EX.	0.032—0.066 (0.0013—0.0026)	0.150 (0.0059)
Camshaft journal holder I.D.	Other journals	IN. & EX.	22.012—22.025 (0.8666—0.8671)	———
Camshaft journal O.D.		IN. & EX.	21.959—21.980 (0.8645—0.8654)	———
Camshaft runout		IN. & EX.	———	0.10 (0.004)
Cam chain 20 pitch length		———		128.9 (5.07)
Cam chain pin (at arrow "3")		23rd pin		———
Rocker arm I.D.		IN. & EX.	12.000—12.018 (0.4724—0.4731)	———
Rocker arm shaft O.D.		IN. & EX.	11.973—11.984 (0.4714—0.4718)	———
Cylinder head distortion		———		0.2 (0.008)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD	LIMIT
Compression pressure	10—14 kg/cm² (142—199 psi)	8 kg/cm² (114 psi)
Compression pressure difference	———	2 kg/cm² (28 psi)
Piston to cylinder clearance	0.030—0.040 (0.0012—0.0016)	0.120 (0.0047)
Cylinder bore	60.000—60.015 (2.3622—2.3628)	60.100 (2.3661)
Piston diam.	59.965—59.980 (2.3608—2.3614) Measure at 15 (0.59) from the skirt end.	59.880 (2.3575)
Cylinder distortion	———	0.2 (0.008)
Piston ring free end gap	1st N Approx. 8.0 (0.31)	6.4 (0.25)
	2nd N Approx. 8.5 (0.33)	6.8 (0.27)
Piston ring end gap	1st 0.10—0.25 (0.004—0.010)	0.7 (0.028)
	2nd 0.10—0.30 (0.004—0.012)	0.7 (0.028)
Piston ring to groove clearance	1st ———	0.180 (0.0071)
	2nd ———	0.150 (0.0059)
Piston ring groove width	1st 1.01—1.03 (0.039—0.041)	———
	2nd 1.21—1.23 (0.047—0.048)	———
	Oil 2.51—2.53 (0.099—0.100)	———
Piston ring thickness	1st 0.975—0.990 (0.0384—0.0390)	———
	2nd 1.170—1.190 (0.0461—0.0469)	———
Piston pin bore	16.000—16.006 (0.6299—0.6302)	16.030 (0.6311)
Piston pin O.D.	15.995—16.000 (0.6297—0.6299)	15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	16.010—16.018 (0.6303—0.6306)	16.040 (0.6315)
Conrod big end side clearance	0.10—0.20 (0.004—0.008)	0.30 (0.120)
Conrod big end width	19.95—20.00 (0.785—0.787)	———
Crank pin width	20.10—20.15 (0.791—0.793)	———
Conrod big end oil clearance	0.024—0.048 (0.0009—0.0019)	0.080 (0.0031)
Crank pin O.D.	31.976—32.000 (1.2589—1.2598)	———
Crankshaft journal oil clearance	0.020—0.044 (0.0008—0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976—32.000 (1.2589—1.2598)	———
Crankshaft thrust bearing thickness	Left side: 2.350—2.500 (0.0925—0.0984)	———
	Right side: 2.425—2.450 (0.0955—0.0965)	———
Crankshaft thrust clearance	0.045—0.100 (0.0018—0.0039)	
Crankshaft runout	———	0.05 (0.002)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.703 (89/45 x 31/36)	———
Oil pressure (at 60°C, 140°F)	Above 2.5 kg/cm² (35.5 psi) Below 5.5 kg/cm² (78.1 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD		LIMIT
Clutch cable play	4 (0.16)		———
Clutch release screw	1/4 turn back		———
Drive plate thickness	3.05—3.2 (0.12—0.13)		2.75 (0.11)
Drive plate claw width	11.8—12.0 (0.46—0.47)		11.0 (0.43)
Driven plate thickness	No.1	1.6 ± 0.06 (0.06 ± 0.002)	———
	No.2	2.0 ± 0.06 (0.08 ± 0.002)	———
Driven plate distortion	———		0.10 (0.004)
Clutch spring free length	———		36.5 (1.44)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM	STANDARD		LIMIT
Primary reduction ratio	1.977 (89/45)		———
Final reduction ratio	3.428 (48/14)		———
Gear ratios	Low	2.666 (32/12)	———
	2nd	1.777 (32/18)	———
	3rd	1.380 (29/21)	———
	4th	1.173 (27/23)	———
	5th	1.045 (23/22)	———
	Top	0.956 (22/23)	———
Shift fork to groove clearance	No.1, No.2 & No.3	0.1—0.3 (0.004—0.012)	0.5 (0.02)
Shift fork groove width	No.1, No.2 & No.3	5.5—5.6 (0.217—0.220)	———
Shift fork thickness	No.1, No.2 & No.3	5.3—5.4 (0.209—0.213)	———

Unit: mm (in)

ITEM	STANDARD		LIMIT
Drive chain	Type	D.I.D.: 50HDL TAKASAGO: RK50SMO	———
	Links	112 links	———
	20-pitch length	———	323.8 (12.75)
Drive chain slack	20—30 (0.8—1.2)		———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		MIKUNI BSW30SS
Bore size		30 mm (1.2 in)
I.D. No.		43410
Idle r/min.		1 100 ± 100 r/min.
Fuel level		6.5 ± 0.5 mm (0.26 ± 0.02 in)
Float height		20.5 ± 1.0 mm (0.81 ± 0.04 in)
Main jet	(M.J.)	No.1, No.4 # 95 No.2, No.3 # 102.5
Main air jet	(M.A.J.)	1.0 mm (0.04 in)
Jet needle	(J.N.)	5C64-1
Needle jet	(N.J.)	P-2
Throttle valve	(Th.V.)	# 120
Pilot jet	(P.J.)	# 35
By pass	(B.P.)	0.8, 0.7, 0.8, 0.8 mm (0.03, 0.02, 0.03, 0.03 in)
Pilot outlet	(P.O.)	0.7 mm (0.02 in)
Valve seat	(V.S.)	2.5 mm (0.10 in)
Starter jet	(G.S.)	# 55
Pilot screw	(P.S.)	PRE-SET
Pilot air jet	(P.A.J.)	# 145
Throttle cable play		0.5—1.0 mm (0.02—0.04 in)
Choke cable play		0.5—1.0 mm (0.02—0.04 in)

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION			NOTE
Ignition timing	11° B.T.D.C. Below 1 650 ± 100 r/min and 31° B.T.D.C. Above 3 000 ± 100 r/min.			
Firing order	1, 2, 4, 3			
Spark plug	Type	NGK: D9EA N.D.: X27ES-U		
	Gap	0.6—0.7 (0.024—0.028)		
Spark performance	Over 8 (0.3) at 1 atm.			
Signal coil resistance	Approx.	250—500 Ω		G/W, Br—B/W
Ignition coil resistance	Primary	⊕ tap— ⊖ tap Approx. 3—5 Ω		
	Secondary	Plug cap—Plug cap Approx. 30—60 kΩ		
Generator no-load voltage	more than 75 V (AC) at 5 000 r/min.			
Regulated voltage	13.5 — 15.5 V at 5 000 r/min.			
Starter motor	Brush length	N. D.	Limit: 9 (0.35)	
	Commutator under cut		Limit: 0.2 (0.008)	
Starter relay resistance	Approx.	3—4 Ω		
Battery	Type designation	YB10L-B		
	Capacity	43.2kC(12Ah)/10HR		
	Standard electrolyte S. G.	1.28 at 20°C (68°F)		
Fuse size	Headlight	10 A		
	Turn signal	10 A		
	Ignition	10 A		
	Main	15 A		
	Output terminal	10 A		

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD	LIMIT
Rear brake pedal height		35 (1.4)	———
Brake disc thickness	Front	5.0 ± 0.2 (0.20 ± 0.008)	4.5 (0.18)
	Rear	6.7 ± 0.2 (0.26 ± 0.008)	6.0 (0.24)
Brake disc runout		———	0.3 (0.012)
Master cylinder bore	Front	15.870—15.913 (0.6248—0.6266)	———
	Rear	14.000—14.043 (0.5512—0.5529)	———
Master cylinder piston diam.	Front	15.827—15.854 (0.6231—0.6242)	———
	Rear	13.957—13.984 (0.5495—0.5506)	———
Brake caliper cylinder bore	Front	38.180—38.256 (1.5031—1.5061)	———
	Rear	38.180—38.256 (1.5031—1.5061)	———
Brake caliper piston diam.	Front	38.098—38.148 (1.4999—1.5019)	———
	Rear	38.098—38.148 (1.4999—1.5019)	———
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.010)
	Rear	———	0.25 (0.010)
Tire size	Front	100/90-16 54H	———
		110/90-18 61H	———
Tire tread depth	Front	———	1.6 (0.06)
	Rear	———	2.0 (0.08)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	150 (5.9)	———	
Front fork spring free length	———	490 (19.3)	
Front fork oil level	125 (4.9)	———	
Front fork air pressure	30 kPa (0.3 kg/cm², 4.2 psi)	———	
Rear wheel travel	117 (4.6)	———	
Swing arm pivot shaft runout	———	0.3 (0.012)	

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded or low-lead type gasoline of at least 85-95 pump octane ($\frac{R+M}{2}$ method) or 89 octane or higher rated by the Research Method.		
Fuel tank including reserve	18 L (4.8/4.0 US/Imp gal)		
reserve	3.5 L (3.7/3.1 US/Imp qt)		
Engine oil type	SAE 10W/40 SE or SF		
Engine oil capacity	Change	2 400 ml (2.5/2.1 US/Imp qt)	
	Filter change	2 900 ml (3.1/2.6 US/Imp qt)	
	Overhaul	3 100 ml (3.3/2.7 US/Imp qt)	
Front fork oil type	Fork oil # 15		
Front fork oil capacity (each leg)	321 ml (10.8/11.3 US/Imp oz)		
Brake fluid type	DOT3 or DOT4		

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm^2	psi	kPa	kg/cm^2	psi
FRONT	200	2.00	28	200	2.00	28
REAR	225	2.25	32	280	2.80	40

WATTAGE

Unit: W (cp)

ITEM		SPECIFICATION
Headlight	HI	60
	LO	55
Tail/Brake light		8/23 (3/32)
Turn signal light		23 (32)
Speedometer light		3.4
Tachometer light		3.4
Turn signal indicator light		3.4
High beam indicator light		1.7
Neutral indicator light		3.4
Oil pressure indicator light		3.4
Side stand check light		3.4
License light		8 (4)
Gear position indicator light		1.12

GS550L

This section gives only service data and servicing procedures which differ from those of the GS550E/ES Models and describes the new features of the GS550L. Refer to the sections 1 through 8 except for the items described in this section.

NOTE:
How the section is complied.
Any differences in service data and service specifications with those that apply to the GS550L Model are clearly indicated with an asterisk (*).

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VIEW OF SUZUKI GS550L



RIGHT SIDE



LEFT SIDE

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	*2 085 mm (82.1 in)
Overall width	*880 mm (34.6 in)
Overall height	*1 150 mm (45.3 in)
Wheelbase	*1 445 mm (56.9 in)
Ground clearance	*145 mm (5.7 in)
Seat height	*760 mm (29.9 in)
Dry mass	*186 kg (410 lbs)

ENGINE

Type	4-stroke, air-cooled, DOHC
Number of cylinders	4
Bore	60.0 mm (2.362 in)
Stroke	50.6 mm (1.992 in)
Piston displacement	572 cm^3 (34.9 cu.in)
Compression ratio	9.8 : 1
Carburetor	MIKUNI BSW30, twin
Air cleaner	Paper element
Starter system	Electric
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	6-speed constant mesh
Gearshift pattern	1-down, 5-up
Primary reduction	1.977 (89/45)
Final reduction	*3.357 (47/14)
Gear ratios, Low	2.666 (32/12)
2nd	1.777 (32/18)
3rd	1.380 (29/21)
4th	1.173 (27/23)
5th	1.045 (23/22)
Top	0.956 (22/23)
Drive chain	*DAIDO D.I.D. 50HDL or TAKASAGO RK50SMO 110 links

Specifications marked with asterisks (*) are exclusive to GS550L.

CHASSIS

Front suspension	*Telescopic, pneumatic/coil spring, oil dampened
Rear suspension	Full-floating suspension system, spring 5-way adjustable
Steering angle	*40° (right & left)
Caster	*61° 10′
Trial	*111 mm (4.37 in)
Turning radius	*2.5 m (8.2 ft)
Front brake	*Disc brake
Rear brake	*Internal expanding
Front tire size	100/90-16 54H
Rear tire size	*130/90-16 67H
Front fork stroke	*160 mm (6.30 in)
Rear wheel travel	*100 mm (3.94 in)
Front tire pressure	200 kPa (2.00 kg/cm², 28 psi) (Normal solo riding)
Rear tire pressure	225 kPa (2.25 kg/cm², 32 psi) (Normal solo riding)

ELECTRICAL

Ignition type	Transistorized
Ignition timing	11° B.T.D.C. below 1 650 r/min and 31° B.T.D.C. above 3 000 r/min
Spark plug	NGK: D9EA or NIPPON DENSO: X27ES-U
Battery	12V 43.2 kC (12 Ah)/10HR
Generator	Three-phase A.C. generator
Fuse	10/10/10/10 15A

CAPACITIES

Fuel tank including reserve	*12 L (3.2 US gal)
reserve	*2.5 L (2.6 US qt)
Engine oil	*2.6 L (2.7 US qt)
Front fork oil (each leg)	*288 ml (9.7 US oz)

Specifications marked with asterisks (*) are exclusive to GS550L.

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	21 (0.83)	———
	EX.	18 (0.71)	———
Valve lift	IN.	7.5 (0.30)	———
	EX.	6.5 (0.26)	———
Valve clearance (when cold)	IN. & EX.	0.08—0.13 (0.003—0.005)	———
Valve guide to valve stem clearance	IN.	0.025—0.052 (0.0010—0.0020)	0.35 (0.014)
	EX.	0.040—0.067 (0.0016—0.0026)	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000—5.012 (0.1969—0.1973)	———
Valve stem O.D.	IN.	4.960—4.975 (0.1953—0.1959)	———
	EX.	4.945—4.960 (0.1947—0.1953)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve stem end length	IN. & EX.	———	2.9 (0.11)
Valve seat width	IN. & EX.	0.9—1.1 (0.035—0.043)	———
Valve head radial runout	IN. & EX.	———	0.03 (0.001)
Valve spring free length (INTAKE)	INNER	———	31.6 (1.24)
	OUTER	———	35.1 (1.38)
Valve spring free length (EXHAUST)	INNER	———	31.6 (1.24)
	OUTER	———	35.1 (1.38)

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve spring tension (INTAKE)	INNER	5.0—5.88 kg (11.0—12.96 lbs) at length 28 mm (1.10 in)	———
	OUTER	8.37—9.83 kg (18.45—21.67 lbs) at length 31.5 mm (1.24 in)	———
Valve spring tension (EXHAUST)	INNER	5.0—5.88 kg (11.0—12.96 lbs) at length 28 mm (1.10 in)	———
	OUTER	8.37—9.83 kg (18.45—21.67 lbs) at length 31.5 mm (1.24 in)	———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM		STANDARD		LIMIT
Cam height		IN.	34.940—34.980 (1.3756—1.3772)	34.640 (1.3638)
		EX.	34.360—34.400 (1.3528—1.3543)	34.060 (1.3409)
Camshaft journal oil clearance	Center journals	IN. & EX.	0.050—0.084 (0.0020—0.0033)	0.150 (0.0059)
Camshaft journal holder I.D.		IN. & EX.	22.030—22.043 (0.8673—0.8678)	———
Camshaft journal oil clearance	Other journals	IN. & EX.	0.032—0.066 (0.0013—0.0026)	0.150 (0.0059)
Camshaft journal holder I.D.		IN. & EX.	22.012—22.025 (0.8666—0.8671)	———
Camshaft journal O.D.		IN. & EX.	21.959—21.980 (0.8645—0.8654)	———
Camshaft runout		IN. & EX.	———	0.10 (0.004)
Cam chain 20 pitch length		———		128.9 (5.07)
Cam chain pin (at arrow "3")		23rd pin		———
Rocker arm I.D.		IN. & EX.	12.000—12.018 (0.4724—0.4731)	———
Rocker arm shaft O.D.		IN. & EX.	11.973—11.984 (0.4714—0.4718)	———
Cylinder head distortion		———		0.2 (0.008)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure	10—14 kg/cm² (142—199 psi)			8 kg/cm² (114 psi)
Compression pressure difference	———			2 kg/cm² (28 psi)
Piston to cylinder clearance	0.030—0.040 (0.0012—0.0016)			0.120 (0.0047)
Cylinder bore	60.000—60.015 (2.3622—2.3628)			60.100 (2.3661)
Piston diam.	59.965—59.980 (2.3608—2.3614) Measure at 15 (0.59) from the skirt end.			59.880 (2.3575)
Cylinder distortion	———			0.2 (0.008)
Piston ring free end gap	1st	N	Approx. 8.0 (0.31)	6.4 (0.25)
	2nd	N	Approx. 8.5 (0.33)	6.8 (0.27)
Piston ring end gap	1st		0.10—0.25 (0.004—0.010)	0.7 (0.028)
	2nd		0.10—0.30 (0.004—0.012)	0.7 (0.028)
Piston ring to groove clearance	1st		———	0.180 (0.0071)
	2nd		———	0.150 (0.0059)
Piston ring groove width	1st		1.01—1.03 (0.039—0.041)	———
	2nd		1.21—1.23 (0.047—0.048)	———
	Oil		2.51—2.53 (0.099—0.100)	———
Piston ring thickness	1st		0.975—0.990 (0.0384—0.0390)	———
	2nd		1.170—1.190 (0.0461—0.0469)	———
Piston pin bore	16.000—16.006 (0.6299—0.6302)			16.030 (0.6311)
Piston pin O.D.	15.995—16.000 (0.6297—0.6299)			15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	16.010—16.018 (0.6303—0.6306)	16.040 (0.6315)
Conrod big end side clearance	0.10—0.20 (0.004—0.008)	0.30 (0.120)
Conrod big end width	19.95—20.00 (0.785—0.787)	———
Crank pin width	20.10—20.15 (0.791—0.793)	———
Conrod big end oil clearance	0.024—0.048 (0.0009—0.0019)	0.080 (0.0031)
Crank pin O.D.	31.976—32.000 (1.2589—1.2598)	———
Crankshaft journal oil clearance	0.020—0.044 (0.0008—0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976—32.000 (1.2589—1.2598)	———
Crankshaft thrust bearing thickness	Left side: 2.350—2.500 (0.0925—0.0984)	———
	Right side: 2.425—2.450 (0.0955—0.0965)	———
Crankshaft thrust clearance	0.045—0.100 (0.0018—0.0039)	———
Crankshaft runout	———	0.05 (0.002)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.703 (89/45 x 31/36)	———
Oil pressure (at 60°C, 140°F)	Above 2.5 kg/cm² (35.5 psi) Below 5.5 kg/cm² (78.1 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD		LIMIT
Clutch cable play	4 (0.16)		———
Clutch release screw	1/4 turn back		———
Drive plate thickness	3.05—3.20 (0.12—0.13)		2.75 (0.11)
Drive plate claw width	11.8—12.0 (0.46—0.47)		11.0 (0.43)
Driven plate thickness	No.1	1.6 ± 0.06 (0.06 ± 0.002)	———
	No.2	2.0 ± 0.06 (0.08 ± 0.002)	———
Driven plate distortion	———		0.10 (0.004)
Clutch spring free length	———		36.5 (1.44)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM	STANDARD		LIMIT
Primary reduction ratio	1.977 (89/45)		———
Final reduction ratio	*3.357 (47/14)		———
Gear ratios	Low	2.666 (32/12)	———
	2nd	1.777 (32/18)	———
	3rd	1.380 (29/21)	———
	4th	1.173 (27/23)	———
	5th	1.045 (23/22)	———
	Top	0.956 (22/23)	———
Shift fork to groove clearance	No.1, No.2 & No.3	0.1—0.3 (0.004—0.012)	0.5 (0.02)
Shift fork groove width	No.1, No.2 & No.3	5.5—5.6 (0.217—0.220)	———
Shift fork thickness	No.1, No.2 & No.3	5.3—5.4 (0.209—0.213)	———

Specification marked with asterisk (*) is exclusive to GS550L

Unit: mm (in)

ITEM	STANDARD		LIMIT
Drive chain	Type	D.I.D.: 50HDL TAKASAGO: RK50SMO	———
	Links	112 links	———
	20-pitch length	———	323.8 (12.75)
Drive chain slack	20—30 (0.8—1.2)		———

CARBURETOR

ITEM	SPECIFICATION
Carburetor type	MIKUNI BSW30SS
Bore size	30 mm (1.2 in)
I.D. No.	*43510
Idle r/min.	1 100 ± 100 r/min.
Fuel level	6.5 ± 0.5 mm (0.26 ± 0.02 in)
Float heigth	20.5 ± 1.0 mm (0.81 ± 0.04 in)
Main jet (M.J.)	*No.1, No.4 # 95 No.2, No.3 # 105
Main air jet (M.A.J.)	1.0 mm (0.04 in)
Jet needle (J.N.)	5C64-1
Needle jet (N.J.)	*P-3
Throttle valve (Th.V.)	# 120
Pilot jet (P.J.)	# 35
By pass (B.P.)	0.8, 0.7, 0.8, 0.8 mm (0.03, 0.02, 0.03, 0.03 in)
Pilot outlet (P.O.)	0.7 mm (0.02 in)
Valve seat (V.S.)	2.5 mm (0.10 in)
Starter jet (G.S.)	# 55
Pilot screw (P.S.)	PRE-SET
Pilot air jet (P.A.J.)	*# 150
Throttle cable play	0.5—1.0 mm (0.02—0.04 in)
Choke cable play	0.5—1.0 mm (0.02—0.04 in)

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ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION			NOTE
Ignition timing	11° B.T.D.C. Below 1 650 ± 100 r/min and 31° B.T.D.C. Above 3 000 ± 100 r/min.			
Firing order	1, 2, 4, 3			
Spark plug	Type	NGK: D9EA N.D.: X27ES-U		
	Gap	0.6—0.7 (0.024—0.028)		
Spark performance	Over 8 (0.3) at 1 atm.			
Signal coil resistance	Approx.	250—500 Ω		G/W, Br—B/W
Ignition coil resistance	Primary	⊕ tap— ⊖ tap Approx. 3—5 Ω		
	Secondary	Plug cap—Plug cap Approx. 30—60 kΩ		
Generator no-load voltage	more than 75 V (AC) at 5 000 r/min.			
Regulated voltage	13.5 — 15.5 V at 5 000 r/min.			
Starter motor	Brush length	N. D.	Limit: 9 (0.35)	
	Commutator under cut		Limit: 0.2 (0.008)	
Starter relay resistance	Approx.	3—4 Ω		
Battery	Type designation	YB10L-B		
	Capacity	43.2kC(12Ah)/10HR		
	Standard electrolyte S. G.	1.28 at 20°C (68°F)		
Fuse size	Headlight	10 A		
	Turn signal	10 A		
	Ignition	10 A		
	Main	15 A		
	Output terminal	10 A		

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD	LIMIT
Rear brake pedal free travel		*5—15 (0.2—0.6)	———
Rear brake pedal height		*10 (0.4)	———
Brake drum I.D.	Rear	———	*160.7 (6.33)
Brake lining thickness	Rear	———	*1.5 (0.06)
Brake disc thickness	Front	5.0 ± 0.2 (0.20 ± 0.008)	4.5 (0.18)
Brake disc runout	Front	———	0.3 (0.012)
Master cylinder bore	Front	*12.700—12.743 (0.5000—0.5017)	———
Master cylinder piston diam.	Front	*12.657—12.684 (0.4983—0.4994)	———
Brake caliper cylinder bore	Front	38.180—38.256 1.5031—1.5061	———
Brake caliper piston diam.	Front	38.098—38.148 1.4999—1.5019	———
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.010)
	Rear	———	0.25 (0.010)
Tire size	Front	100/90-16 54H	———
	Rear	*130/90-16 67H	———
Tire tread depth	Front	———	1.6 (0.06)
	Rear	———	2.0 (0.08)

Specification marked with asterisks (*) are exclusive to GS550L

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	*160 (6.3)	———	
Front fork spring free length	———	*513 (20.2)	
Front fork oil level	*190 (7.5)	———	
Front fork air pressure	30 kPa (0.3 kg/cm², 4.2 psi)	———	
Rear wheel travel	*100 (3.9)	———	
Swing arm pivot shaft runout	———	0.3 (0.012)	

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded or low-lead type gasoline of at least 85-95 pump octane ($\frac{R+M}{2}$ method) or 89 octane or higher rated by the Research Method.		
Fuel tank including reserve	*12 L (3.2 US gal)		
reserve	*2.5 L (2.6 US qt)		
Engine oil type	SAE 10W/40, SE or SF		
Engine oil capacity	Change	*2 600 ml (2.7 US qt)	
	Filter change	*3 100 ml (3.3 US qt)	
	Overhaul	*3 300 ml (3.5 US qt)	
Front fork oil type	Fork oil # 15		
Front fork oil capacity (each leg)	*288 ml (9.7 US oz)		
Brake fluid type	DOT3 or DOT4		

Specification marked with asterisks (*) are exclusive to GS550L

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm^2	psi	kPa	kg/cm^2	psi
FRONT	200	2.00	28	200	2.00	28
REAR	225	2.25	32	*250	*2.50	*36

WATTAGE

Unit: W (cp)

ITEM		SPECIFICATION
Headlight	HI	60
	LO	55
Position light		*4 (2)
Tail/Brake light		8/23 (3/32)
Turn signal light		23 (32)
Speedometer light		*1.7
Tachometer light		*1.7
Turn signal indicator light		3.4
High beam indicator light		1.7
Neutral indicator light		3.4
Oil pressure indicator light		3.4
Side stand check light		3.4
Gear position indicator light		1.12

Specification marked with asterisks (*) are exclusive to GS550L

TIGHTENING TORQUE

ENGINE

ITEM	N·m	kg-m	lb-ft
Cylinder head cover bolt	13 – 15	1.3 – 1.5	9.5 – 11.0
Cylinder head nut	23 – 28	2.3 – 2.8	16.5 – 20.0
Cylinder head bolt	7 – 11	0.7 – 1.1	5.0 – 8.0
Valve clearance adjuster lock nut	9 – 11	0.9 – 1.1	6.5 – 8.0
Camshaft holder bolt	8 – 12	0.8 – 1.2	6.0 – 8.5
Cam sprocket bolt	24 – 26	2.4 – 2.6	17.5 – 19.0
Cylinder head oil pipe clamp bolt	10 – 14	1.0 – 1.4	7.0 – 10.0
Cylinder head oil pipe union bolt (IN. side)	8 – 12	0.8 – 1.2	6.0 – 8.5
Cylinder head oil pipe union bolt (EX. side)	8 – 12	0.8 – 1.2	6.0 – 8.5
Rocker arm shaft stopper bolt	8 – 10	0.8 – 1.0	6.0 – 7.0
Oil hose union bolt (Cylinder head side)	8 – 12	0.8 – 1.2	6.0 – 8.5
Oil hose union bolt (Crankcase side)	20 – 24	2.0 – 2.4	14.5 – 17.5
Cam chain tensioner mounting bolt	6 – 8	0.6 – 0.8	4.5 – 6.0
Cam chain tensioner adjuster lock nut	9 – 14	0.9 – 1.4	6.5 – 10.0
Conrod bearing cap nut	33 – 37	3.3 – 3.7	24.0 – 27.0
Generator rotor bolt	140 – 160	14.0 – 16.0	101.5 – 115.5
Starter clutch allen bolt	23 – 28	2.3 – 2.8	16.5 – 20.0
Signal generator bolt	25 – 35	2.5 – 3.5	18.0 – 25.5
Crankcase bolt (6 mm)	9 – 13	0.9 – 1.3	6.5 – 9.5
(8 mm)	20 – 24	2.0 – 2.4	14.5 – 17.5
Oil pump securing bolt	7 – 9	0.7 – 0.9	5.0 – 6.5
Neutral cam stopper bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Gearshift arm stopper	15 – 23	1.5 – 2.3	11.0 – 16.5
Clutch sleeve hub nut	50 – 70	5.0 – 7.0	36.0 – 50.5
Clutch spring bolt	11 – 13	1.1 – 1.3	8.0 – 9.5
Engine sprocket nut	100 – 150	10.0 – 15.0	72.5 – 108.5
Engine mounting bolt (L: 35 mm and 165 mm)	600 – 720	6.0 – 7.2	43.5 – 52.0
(L: 160 mm and 195 mm)	670 – 800	6.7 – 8.0	48.5 – 58.0

CHASSIS

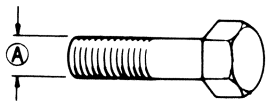
ITEM	N·m	kg-m	lb-ft
Steering stem head bolt	20 – 30	2.0 – 3.0	14.5 – 21.5
Steering stem head clamp nut	*12 – 20	*1.2 – 2.0	*8.5 – 14.5
Front fork upper clamp bolt	20 – 30	2.0 – 3.0	14.5 – 21.5
Front fork lower clamp bolt	*12 – 20	*1.2 – 2.0	*8.5 – 14.5
Front fork damper rod bolt	*15 – 25	*1.5 – 2.5	*11.0 – 21.5
Front axle nut	36 – 52	3.6 – 5.2	26.0 – 37.5
Front axle pinch nut	15 – 25	1.5 – 2.5	11.0 – 18.0
Handlebars holder bolt	*15 – 25	*1.5 – 2.5	*11.0 – 18.0
Handlebars holder nut	*10 – 15	*1.0 – 1.5	*7.0 – 11.0
Front master cylinder clamp bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
Front caliper mounting bolt	25 – 40	2.5 – 4.0	18.0 – 29.0
Front caliper housing bolt	30 – 36	3.0 – 3.6	21.5 – 26.0
Brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Caliper air bleeder	7 – 9	0.7 – 0.9	5.0 – 6.5
Front disc bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Swing arm pivot nut	*50 – 80	*5.0 – 8.0	*36.0 – 58.0
Rear unit fitting nut (Upper & Lower)	48 – 72	4.8 – 7.2	34.5 – 52.0
Rear cushion lever nut	84 – 100	8.4 – 10.0	60.5 – 72.5
Rear cushion rod-upper nut	48 – 72	4.8 – 7.2	34.5 – 52.0
Rear cushion rod-lower nut	84 – 100	8.4 – 10.0	60.5 – 72.5
Rear brake pedal bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Rear torque link nut	20 – 30	2.0 – 3.0	14.5 – 21.5
Rear brake cam lever bolt	*5 – 8	*0.5 – 0.8	*3.5 – 6.0
Rear axle nut	50 – 80	5.0 – 8.0	36.0 – 58.0

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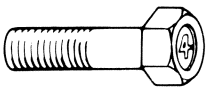
TIGHTENING TORQUE CHART

For other bolts and nuts not listed above, refer to this chart:
Tightening torque

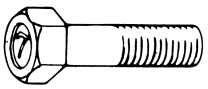
Bolt Diameter (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	N·m	kg-m	lb-ft	N·m	kg-m	lb-ft
4	1 – 2	0.1 – 0.2	0.7 – 1.5	1.5 – 3	0.15 – 0.3	1.0 – 2.0
5	2 – 4	0.2 – 0.4	1.5 – 3.0	3 – 6	0.3 – 0.6	2.0 – 4.5
6	4 – 7	0.4 – 0.7	3.0 – 5.0	8 – 12	0.8 – 1.2	6.0 – 8.5
8	10 – 16	1.0 – 1.6	7.0 – 11.5	18 – 28	1.8 – 2.8	13.0 – 20.0
10	22 – 35	2.2 – 3.5	16.0 – 25.5	40 – 60	4.0 – 6.0	29.0 – 43.5
12	35 – 55	3.5 – 5.5	25.5 – 40.0	70 – 100	7.0 – 10.0	50.5 – 72.5
14	50 – 80	5.0 – 8.0	36.0 – 58.0	110 – 160	11.0 – 16.0	79.5 – 115.5
16	80 – 130	8.0 – 13.0	58.0 – 94.0	170 – 250	17.0 – 25.0	123.0 – 181.0
18	130 – 190	13.0 – 19.0	94.0 – 137.5	200 – 280	20.0 – 28.0	144.5 – 202.5



Conventional Bolt



"4" Marked Bolt



"7" Marked Bolt

EMISSION CONTROL AND REGULATIONS

EMISSION REGULATIONS

On February 4, 1977, Federal Emission Regulations for motorcycles that may be licensable took effect. The regulations provided for a gradual, multi-step application of stricter emission limits beginning with all effected motorcycles manufactured after January 1, 1978, cluminating with the present 1980 emission level restrictions. For the 1980 and succeeding years one set of emission limits is in effect. They are as follows:

1980 EMISSION LIMITS

CATEGORIES	HYDROCARBONS (HC)	CARBON MONOXIDE (CO)
All motorcycles 50 cc – Larger	5.0 Grams/Kilometer (8.0 Grams/Mile)	12 Gams/Kilometer (19.3 Grams/Mile)

Emission-controlled motorcycles which are subject to the emission regulations are those motorcycles which are equipped with a headlight, taillight, stop light and which have an engine displacement larger than 50 cc.

Suzuki Motor Company performed all the necessary testing and certification of emission-controlled models in strict compliance with the E.P.A. testing regulations. Suzuki motorcycle dealers are not required to either test or certify emission levels on any motorcycles as Suzuki Motor Company is legally responsible for the entire certification procedure.

E.P.A. regulations also provide fines for individuals who alter, render inoperative or improperly service emission-controlled motorcycles ranging up to $10,000.00 per motorcycle. It is essential that the individual servicing this emission-controlled motorcycle review thoroughly all the service procedures presented in this manual. Under no circumstances should the recommended service procedures be deviated from nor adjustments made which are not in accordance with the factory specifications or service procedures.

EMISSION CONTROL CARBURETOR COMPONENTS

GS550L motorcycles are equipped with precision, manufactured carburetors for emission level control. These carburetors require special mixture control components and other precision adjustments to function properly.

There are several carburetor mixture control components in each carburetor assembly. Three (3) of these components are machined to much closer tolerances than standard machined carburetor jets. These three (3) particular jets — MAIN JET, NEEDLE JET, PILOT JET — must not be replaced by standard jets. To aid in identifying these three (3) jets a different design of letter and number are used. If replacement of these close tolerance jets becomes necessary, be sure to replace them with the same type close tolerance jets marked as in the examples shown below.

The jet needle is also of special manufacture. Only one clip position is provided on the jet needle. If replacement becomes necessary the jet needle may only be replaced with an equivalent performing replacement component. Suzuki recommends that Genuine Suzuki Parts be utilized whenever possible for the best possible performance and durability.

Conventional Figures Used on Standard Tolerance Jet Components	1 2 3 4 5 6 7 8 9 0
Emission Type Figures Used on Close Tolerance Jet Components	1 2 3 4 5 6 7 8 9 0

The carburetor specification for the emission-controlled GS550L are as follows.

Carburetor I.D. No.	Main Jet	Needle Jet	Jet Needle	Pilot Jet	Pilot Screw
43510	No. 1, No. 4 # 95 No. 2, No. 3 # 105	P-3	5C64-1	# 35	PRE-SET DO NOT ADJUST

The pilot screw is pre-set by the facotry utilizing specialized testing and adjusting procedures. The pilot screw is not adjustable as the idle circuit is "sealed" after factory adjustment. Adjusting, interferring with, improper replacement, or resetting of any of the carburetor components may adversely affect carburetor performance and cause the motorcycle to exceed the exhaust emission level limits. If persons, who are unaware of these special carburetor servicing requirements tamper with the carburetors the Suzuki dealer should restore the carburetors to their original condition or if unable to effect repairs, contact the distributors representative for further technical information and assistance.

GENERAL EMISSION INFORMATION

There are three different types of regulated exhaust emissions. They are:

Hydrocarbons (HC)
Carbon Monoxide (CO)
Oxides of Nitrogen (NOx)

Automobiles must meet specific emission standards for all three of these pollutants. Motorcycles must only meet the requirements for the following.

Hydrocarbons (HC)
Carbon Monoxide (CO)

HC exhaust emissions are basically unburned fuel vapors which have passed through the engine and escaped the combustion process.

CO exhaust emissions are formed during an incomplete combustion cycle as a result of a rich air/fuel mixture. The only way that CO can be produced is by the combustion cycle.

Total NOx emissions from all motorcycles is considered negligible. The EPA states that total NOx emission from motorcycles by 1990 will only amount to approximately 0.5%. NOx is formed during the combustion process at high combustion chamber temperatures.

CARBON MONOXIDE

Carbon monoxide is a product of an imcomplete combustion cycle. CO is measured in grams per mile or kilometer and also in percentage (%).

The most common cause of CO is rich carburetion. As the mixture is richened excessively, the CO amount increases proportionately. Engine oil is also a hydrocarbon, so engine problems which lead to oil burning increase carbon monoxide.

CARBURETION MALFUNCTION

1. Air Cleaner – Dirty or over oiled.
2. Idle Mixture – Adjusted incorrectly.
3. Idle Speed – Too high or low.
4. Fuel Level – Sticking float, leaking needle, incorrect setting.
5. Choke – Leaking or linkage sticking.
6. Synchronization – Improper balance on multi cylinders.

ENGINE MALFUNCTIONS

1. Valve Seals – Leaking or torn.
2. Valve Guide – Worn and leaking excess oil.
3. Gaskets – Leaking oil into combustion chamber.

HYDROCARBONS

Hydrocarbons are unburnt gasoline vapors and can be measured in two different ways. The first is to measure the weight of the pollutants over a specific distance such as grams per mile or grams per kilometer. The second method is to measure the concentration of HC in the exhaust gas in parts per million (PPM).

The most common cause of high HC emission are ignition system problems. If the ignition system fails to ignite the fuel mixture properly, then raw gasoline vapors will pass through the engine into the exhaust system. Listed are the most common ignition problems which occur and which can affect HC emission output.

IGNITION SYSTEM MALFUNCTIONS

1. Spark Plugs — Fouled, dirty, improper type or improperly gapped.
2. Ignition Timing — Advanced or Retarded.
3. Timing Advance — Too fast or too slow an advance rate.
4. Battery — Low charge or faulty.

Carburetion can also lead to high HC emissions if the mixture is either excessively rich or excessively lean.

MIXTURE-RELATED MALFUNCTIONS

1. Air Cleaner — Dirty, over oiled or torn.
2. Jets — Clogged, restricted or incorrect size.
3. Float Level — Level too low (lean) or too high (rich).
4. Choke — Leaking choke plunger or sticking linkage.
5. Air Leaks — Intake manifolds, engine gaskets and other sealing surfaces.
6. Synchronization — Unbalanced on multi-cylinder machines.
7. Exhaust System — Restricted flow or improper exhaust system.

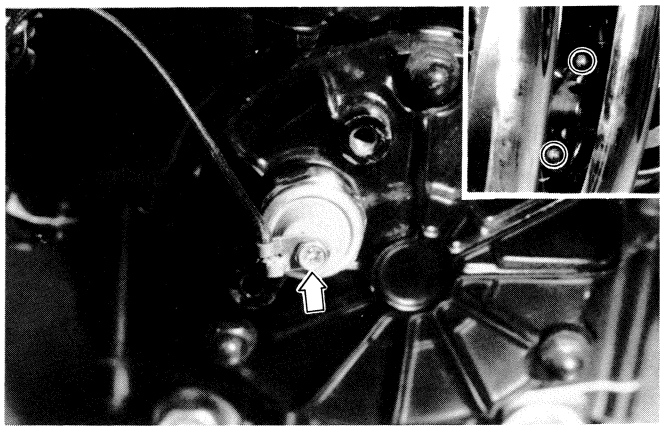
Engine wear or damage can also cause high HC emissions.

1. Ring — Low compression, leakage into crankcase.
2. Valves — Improper adjustment, bent stem or burnt.
3. Gaskets — Leaking, loss of compression.
4. Crank Seals — Leaking.
5. Oil Consumption — Worn valve guides, worn rings, clogged crankcase breather.
6. Oil — Improper engine oil.

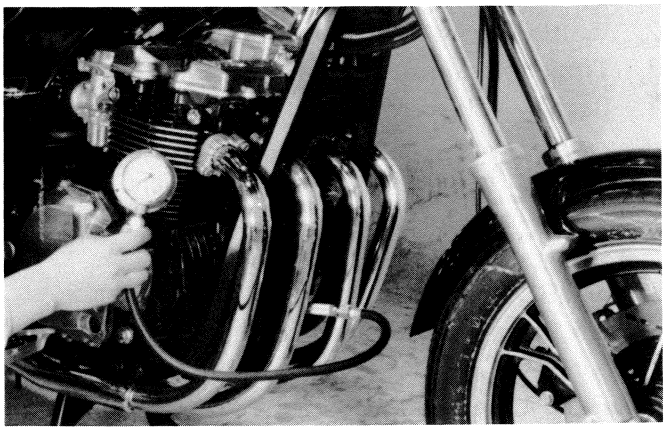
OIL PRESSURE

Start the engine and check if the oil pump pressure indicator light is turned on. If it keeps on lighting, check the oil pump pressure indicator light circuit. If it is in good condition, check the oil pump pressure in the following manner:

- Remove the two screws and take off the cap.
- Disconnect the lead wire and remove the oil pressure switch.
- Install the special tools in the position shown in the figure.



09915-17410	Oil pressure gauge adapter
09915-77330	Gauge (0 – 10 kg/cm^2)
09915-77320	Oil pressure hose



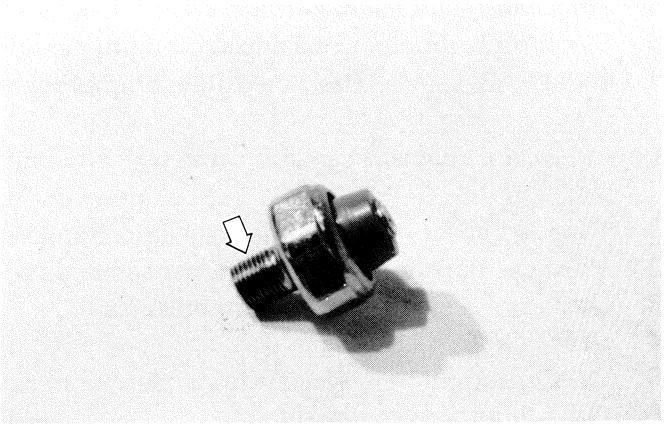
- Warm up the engine as follows:
  Summer approx. 10 min. at 2 000 r/min
  Winter approx. 20 min. at 2 000 r/min
- After warming up operation, increase the engine speed to 3 000 r/min, and read the oil pressure gauge.
- The oil pump pressure is specified below:

Oil pump pressure:

Above 2.5 kg/cm^2 (35.5 psi) Below 5.5 kg/cm^2 (78.1 psi) at 3 000 r/min

If the pressure is too low, it means that the oil pump is internally worn or otherwise defective and needs to be replaced with a new one.

CAUTION:
The recommended engine oil is, API classification SE or SF, 10W-40 motor oil.

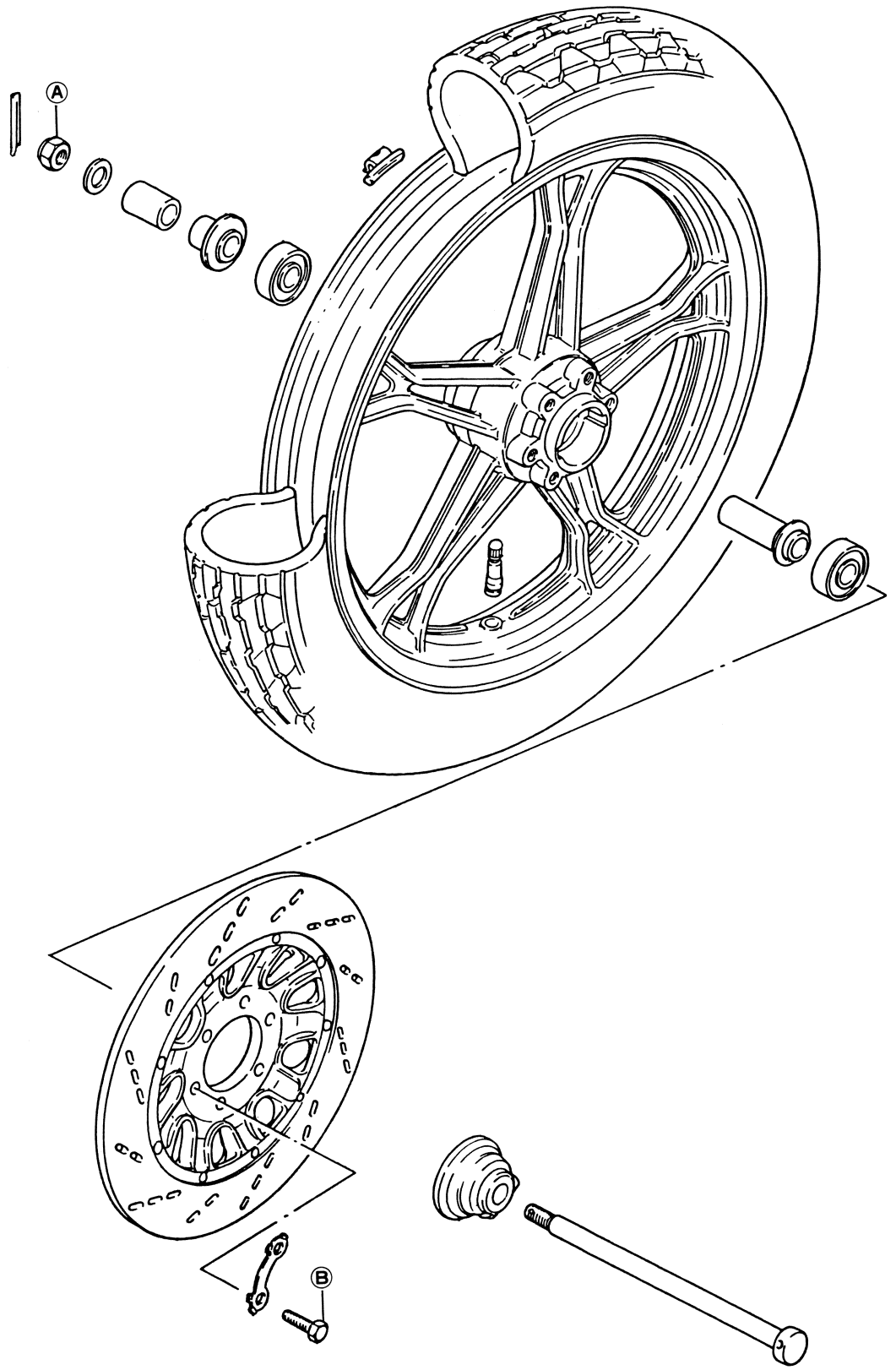


- When installing the oil pressure switch, apply SUZUKI Bond No. 1207B to the threads of pressure switch.

99104-31140	SUZUKI Bond No. 1207B

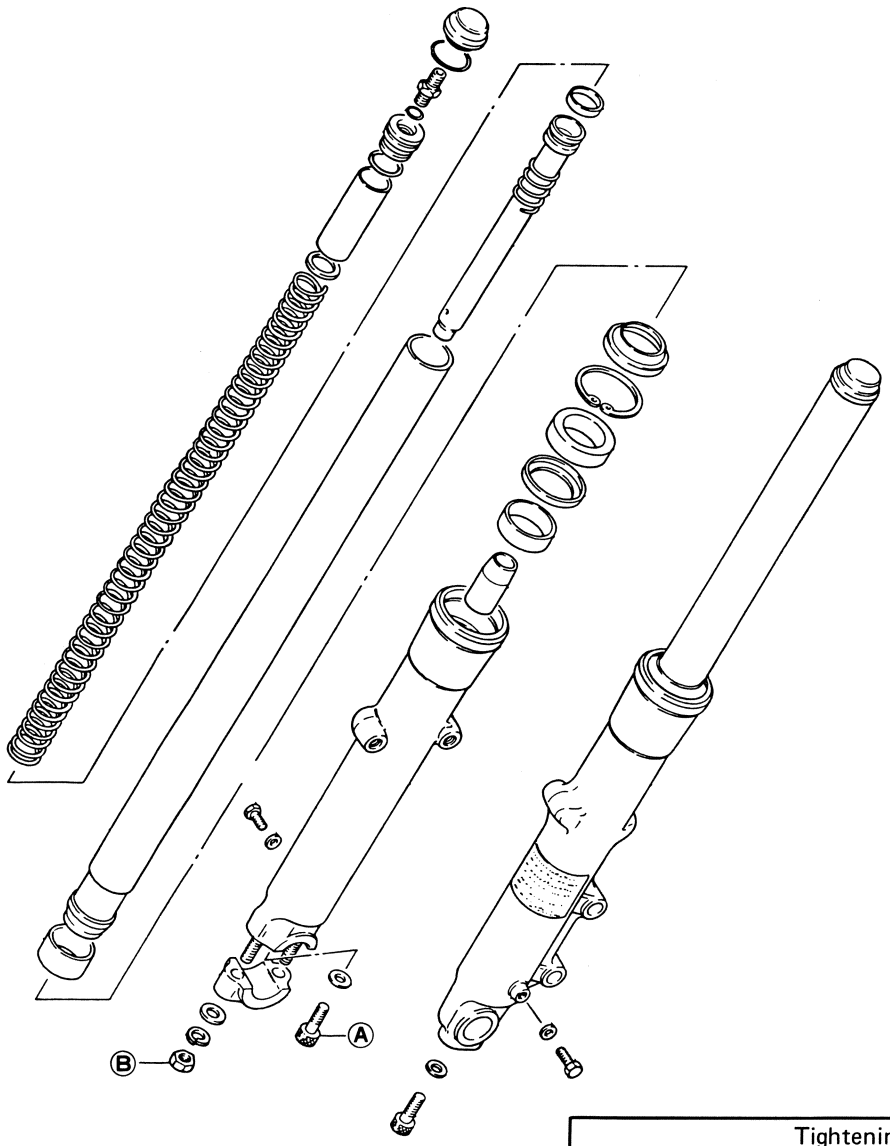
WARNING:
The engine parts become very hot and so care should be taken not to tauch them.

FRONT WHEEL



Tightening torque			
Item	N·m	kg-m	lb-ft
Ⓐ	36 – 52	3.6 – 5.2	26.0 – 37.5
Ⓑ	15 – 25	1.5 – 2.5	11.0 – 18.0

FRONT FORK



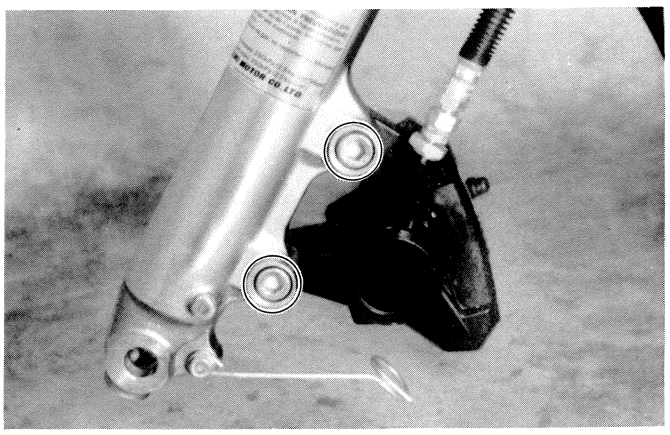
Tightening torque			
Item	N·m	kg-m	lb-ft
Ⓐ	15 – 25	1.5 – 2.5	11.0 – 21.5
Ⓑ	12 – 20	1.2 – 2.0	8.5 – 14.5

REMOVAL AND DISASSEMBLY

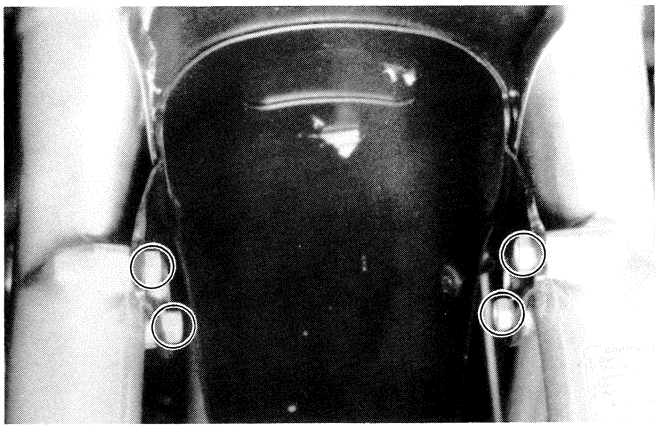
- Remove the front wheel.
- Remove the caliper mounting bolts by using the 8 mm hexagon wrench.

CAUTION:
Hang the caliper from the motorcycle frame using string etc., taking care not to bend the brake hose.

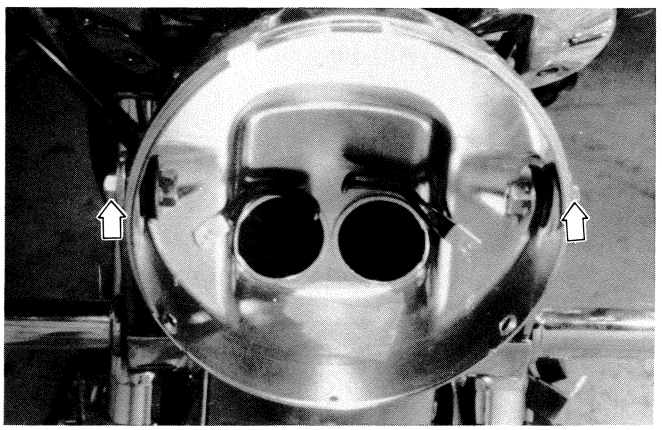
NOTE:
Do not operate the brake lever while dismounting the caliper.



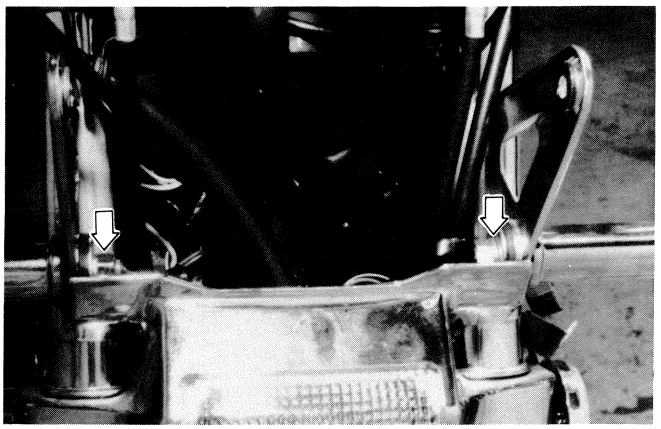
- Remove the four bolts and take off the front fender.



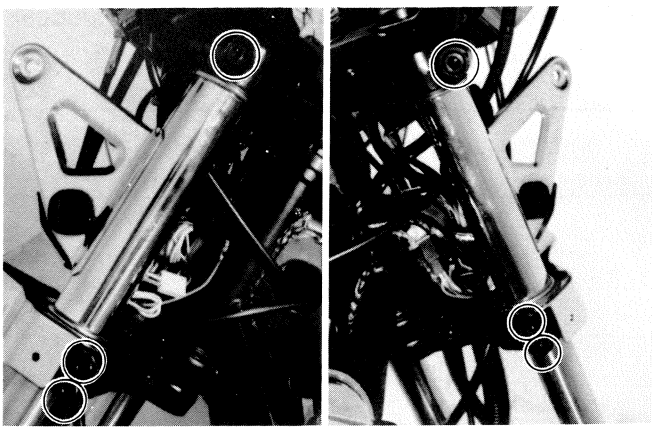
- Remove the two screws and take off the headlight.
- Disconnect the lead wires and take off the lead wires from the headlight housing.
- Remove the two bolts and take off the headlight housing.



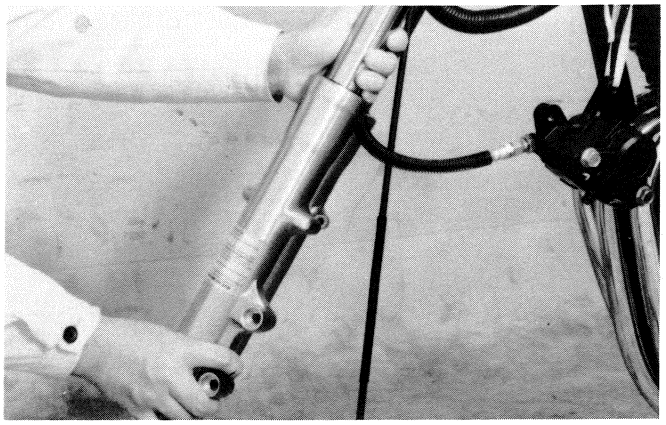
- Remove the two nuts and take off the turn signal light, right and left.



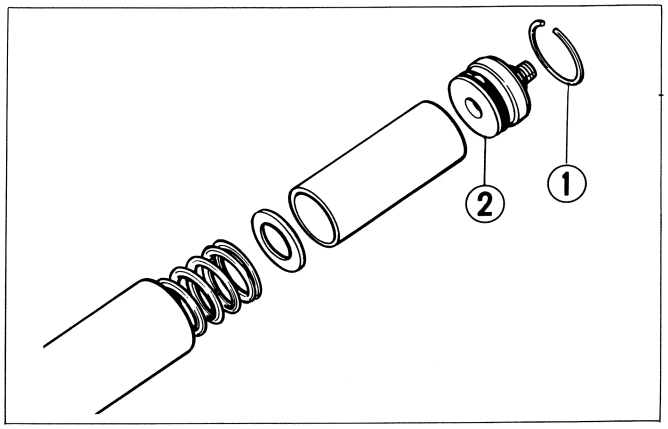
- Remove the front reflectors.
- Loosen the front fork clamp bolts, upper and lower by using the 6 mm and 8 mm hexagon wrenches.



- Pull down the right and left front fork assemblies.

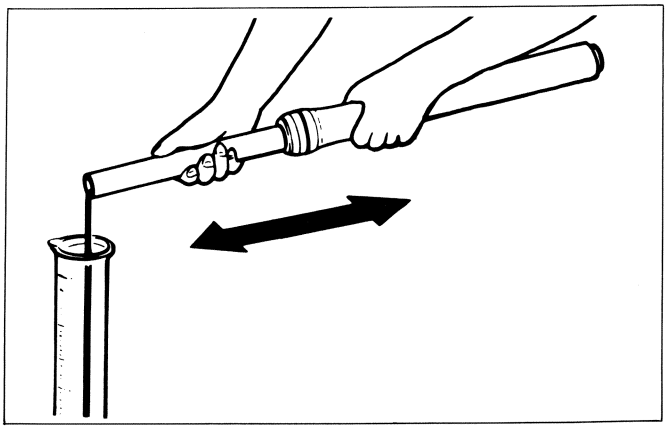


- Remove the front fork cap, stopper ring ① and spring seat ②, and take off the spacer, washer and spring.



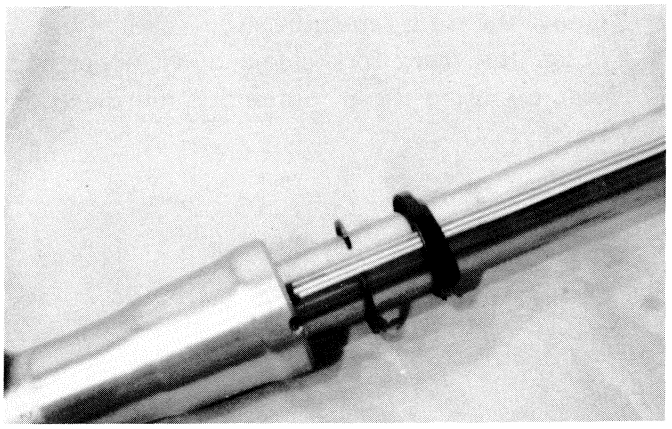
NOTE:
*** To remove the stopper ring ①, it will be necessary to push the spring seat ② inwards, to remove spring pressure from the stopper ring ①.**
*** The removed stopper ring ① should be replaced with a new one.**

- Invert the fork and stroke it several times to remove the oil.
- Hold the fork inverted for a few minutes.



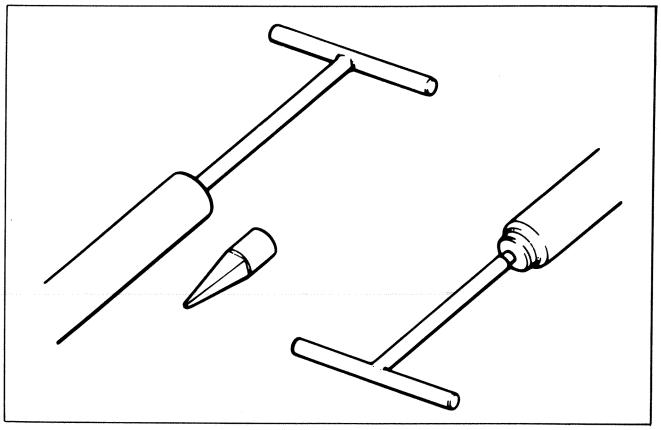
- Remove the dust seal cover and oil seal stopper ring by using the special tool.

09900-06108	Snap ring pliers (closing type)

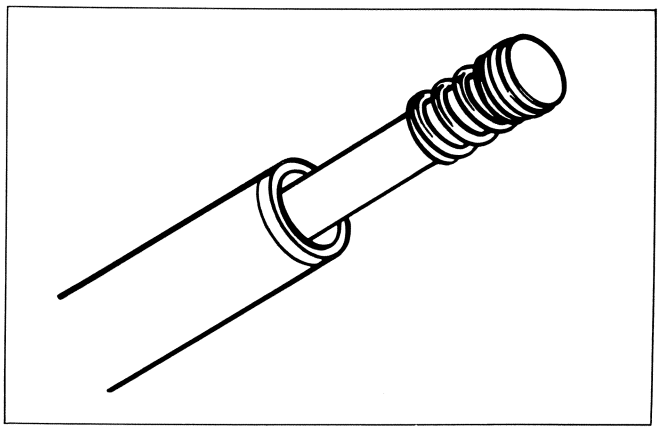


- Remove damper rod bolt by using the special tools.

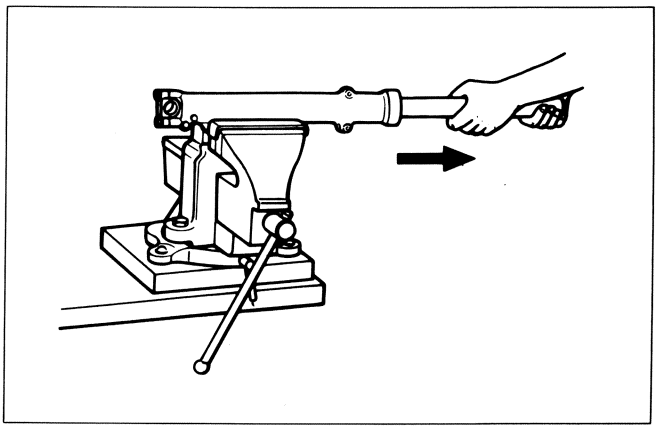
09940-34520	"T" handle
09940-34561	Attachment "D"
09914-25811	"T" type hexagon wrench (6 mm)



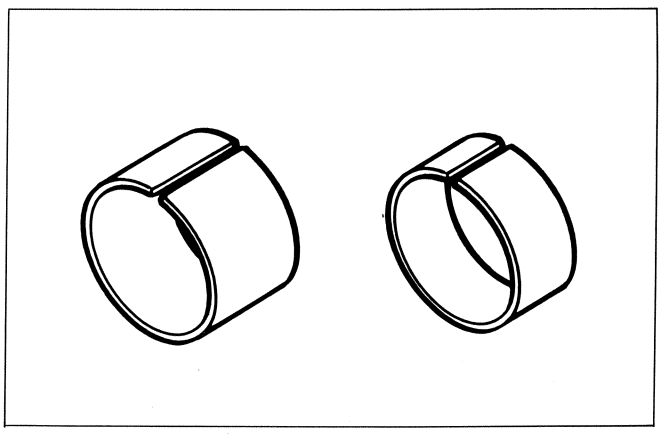
- Draw out the damper rod and rebound spring.



- While holding the caliper mounting portion of the outer tube by vise, separate the inner tube from the outer tube as shown.



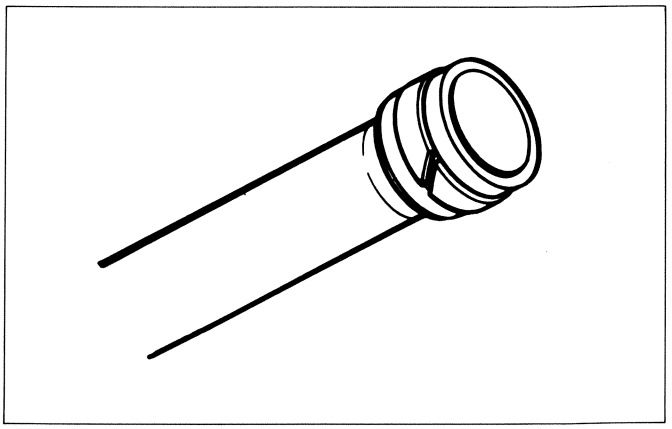
CAUTION:
The outer tube and inner tube "anti-friction" metals must be replaced along with the oil seal any time the fork is disassembled.



INSPECTION

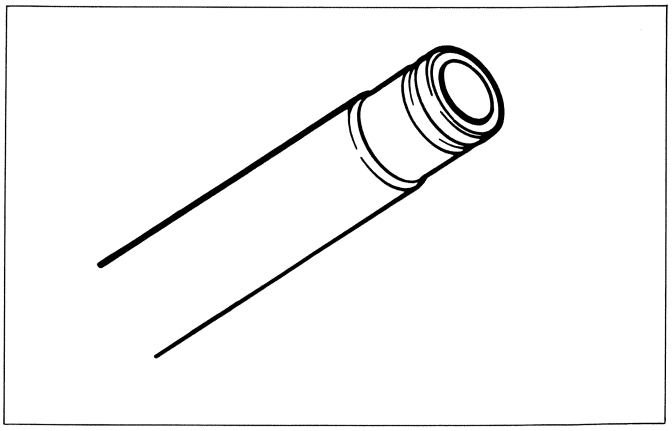
DAMPER ROD RING

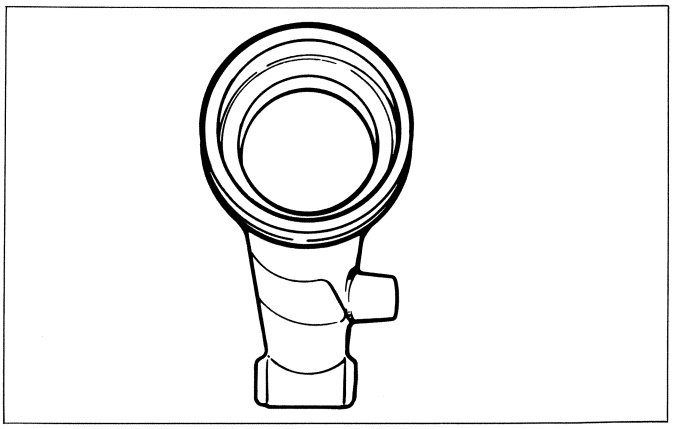
Inspect the damper rod ring for wear and damage.



INNER TUBE AND OUTER TUBE

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

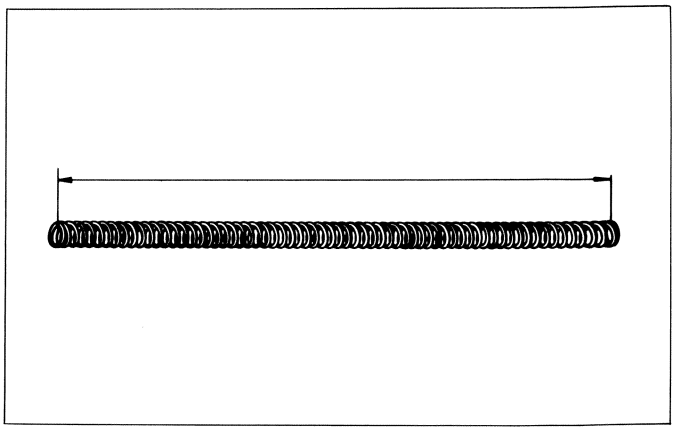




FORK SPRING

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

Service limit	513 mm (20.2 in)

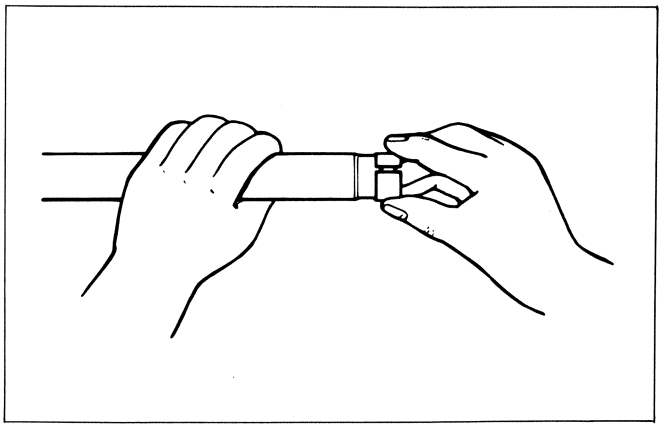


REASSEMBLY

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

INNER TUBE METAL

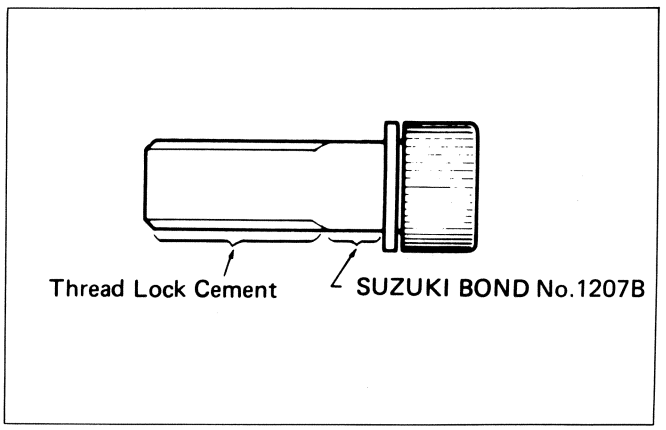
Install the metal by hand as shown.



CAUTION:
Use special care to prevent damage to the "Teflon" coated surface of the anti-friction metal when mounting it.

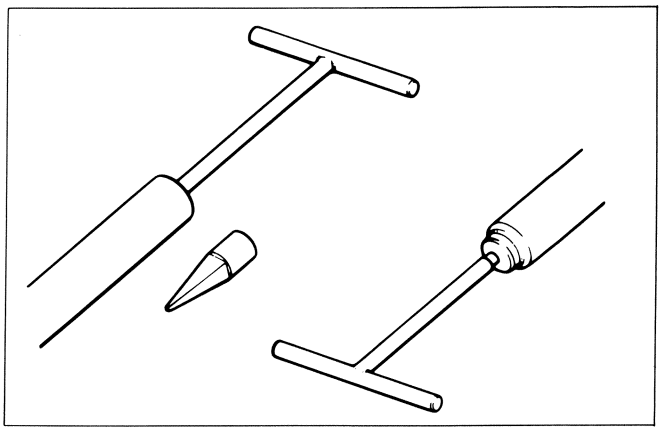
DAMPER ROD BOLT

- Apply SUZUKI Bond No. 1207B and Thread Lock Cement to the damper rod bolt and tighten the bolt with specified torque.



99104-31140	SUZUKI Bond No. 1207B
99000-32040	Thread Lock Cement

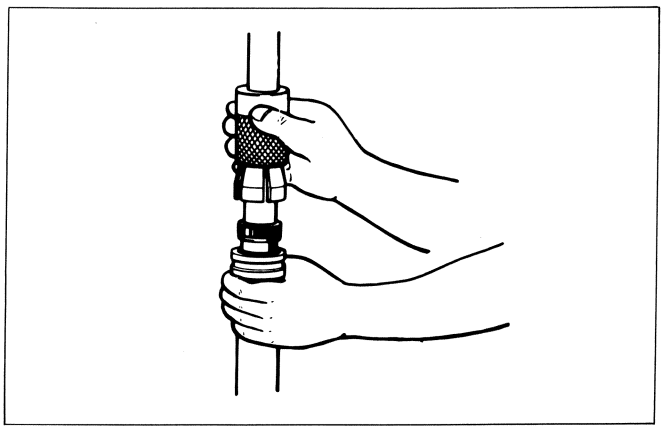
09940-34520	"T" handle
09940-34561	Attachment "D"
09914-25811	"T" type hexagon wrench (6 mm)



Tightening torque	15 – 25 N·m (1.5 – 2.5 kg-m) (11.0 – 18.0 lb-ft)

OUTER TUBE METAL, WASHER AND OIL SEAL

Install the outer tube metal, washer and oil seal by using the special tool.



CAUTION:
Use special care to prevent damage to the "Teflon" coated surface of the anti-friction metal when mounting it.

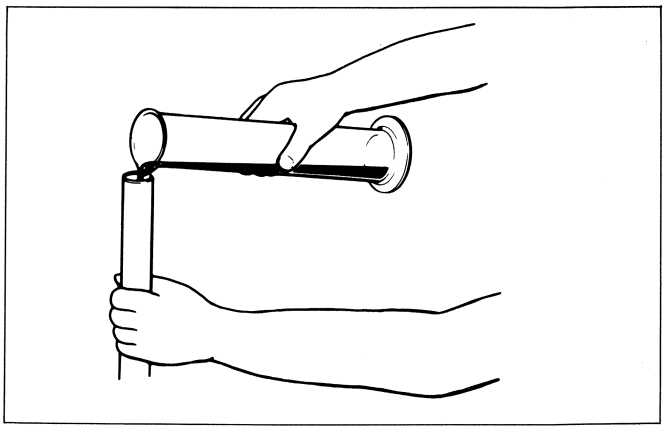
09940-50112	Front fork oil seal installer

FORK OIL

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

Fork oil type	FORK OIL #15

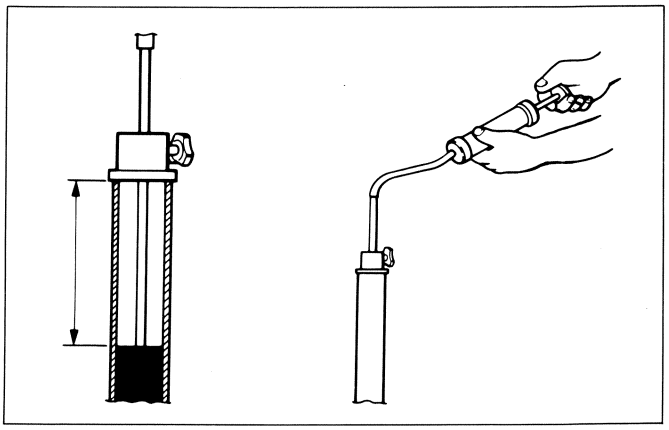
Capacity (each leg)	288 ml (9.7 US oz)



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

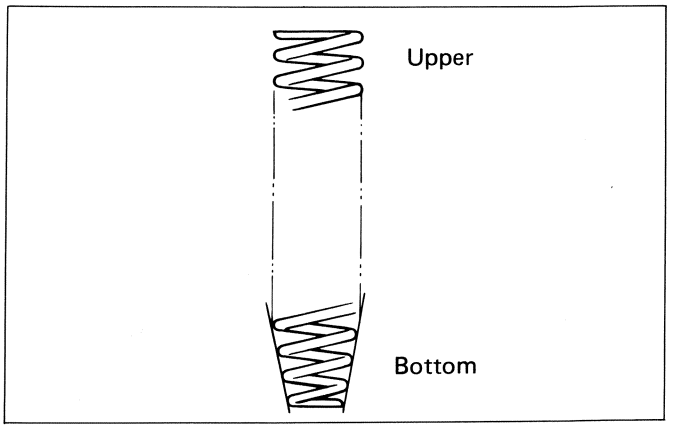
NOTE:
When adjusting oil level, remove the fork spring and compress the inner tube fully.

09943-74111	Fork oil level gauge
Oil level	190 mm (7.5 in)



FORK SPRING

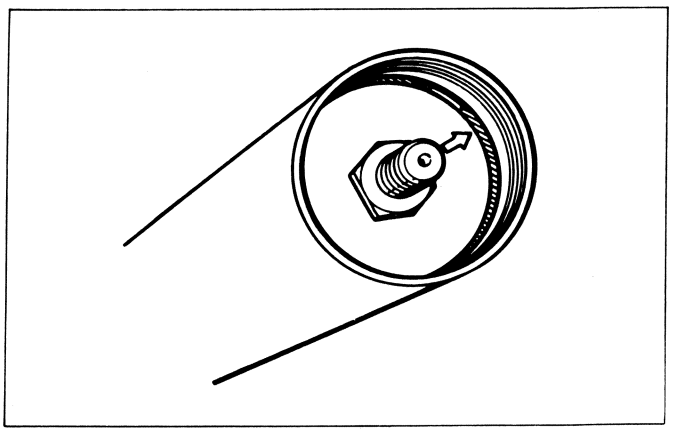
Install the fork spring, as shown in figure.



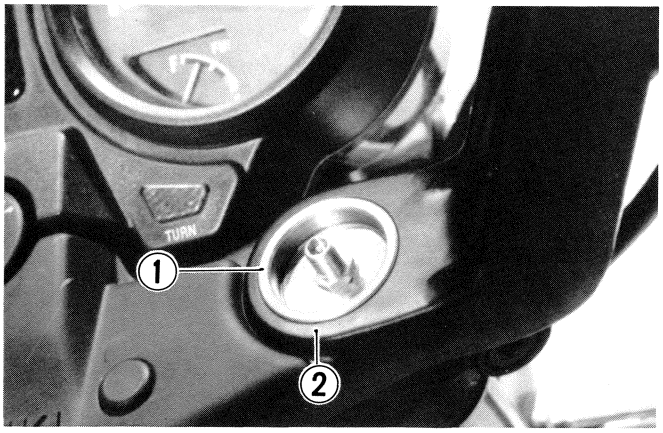
STOPPER RING

- To install a new stopper ring, it will be necessary to push the spring seat inward.

CAUTION:
- **Always use a new stopper ring.**
- **After installing a stopper ring, always insure that it is completely seated in its groove and securely fitted.**

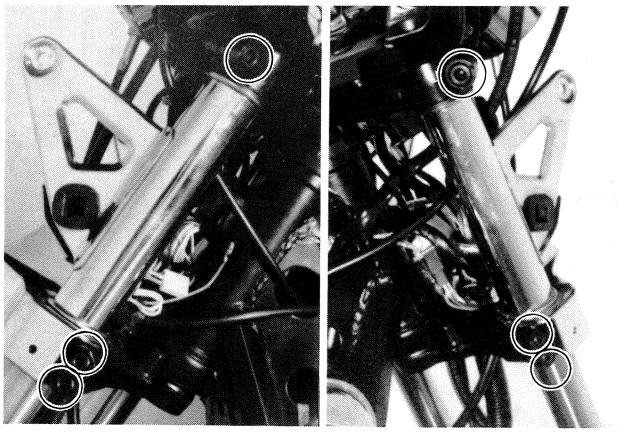


- When installing the front fork assembly, align the top ① of inner tube to the upper surface ② of the handlebars holder.



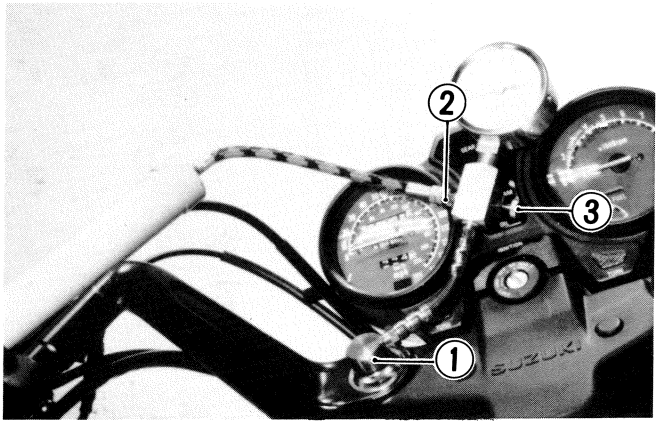
- Tighten the upper and lower clamp bolts to the specification.

Tightening torque	Upper	20 – 30 N·m (2.0 – 3.0 kg-m 14.5 – 21.5 lb-ft)
	Lower	12 – 20 N·m (1.2 – 2.0 kg-m 8.5 – 14.5 lb-ft)



FORK AIR

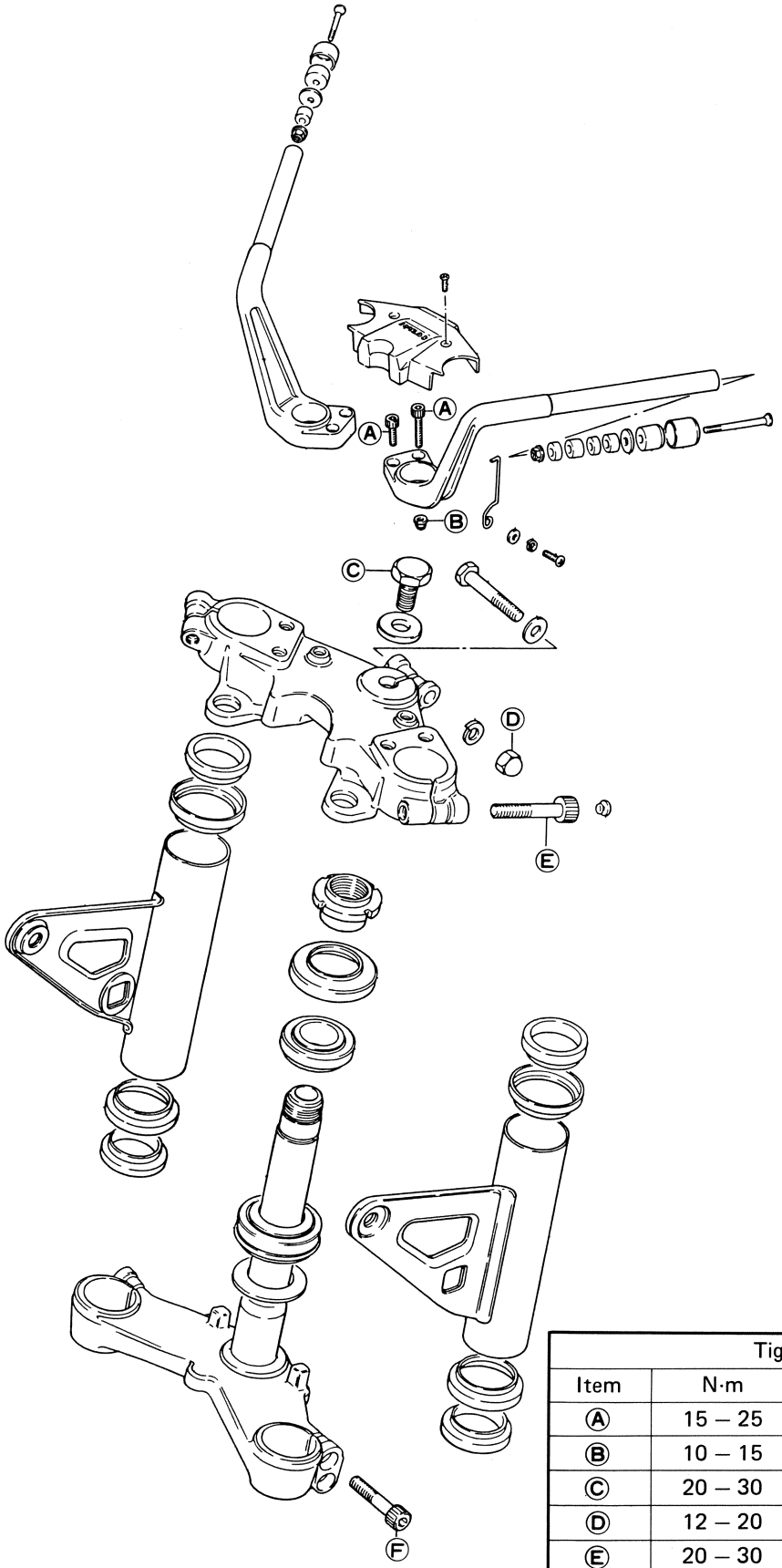
- Support the machine by the center stand and lift up the front wheel by jack or block.
- Set the air pressure gauge to the valve ①. Set the hand pump to the valve ②, turn the valve ③ clockwise, and charge the air.
  Let the air out by loosening the valve ③ till the specified air pressure is left inside, and remove the air lock screw ①.



STD Air pressure	30 kPa (0.3 kg/cm², 4.2 psi)

CAUTION:
Do not charge air more than 250 kPa (2.5 kg/cm², 35.5 psi).
Balance the air pressure of both right and left forks within specification (0.1 kg/cm²).

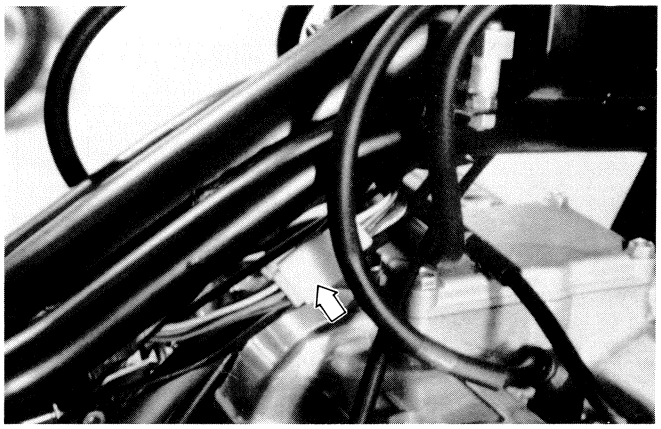
STEERING STEM



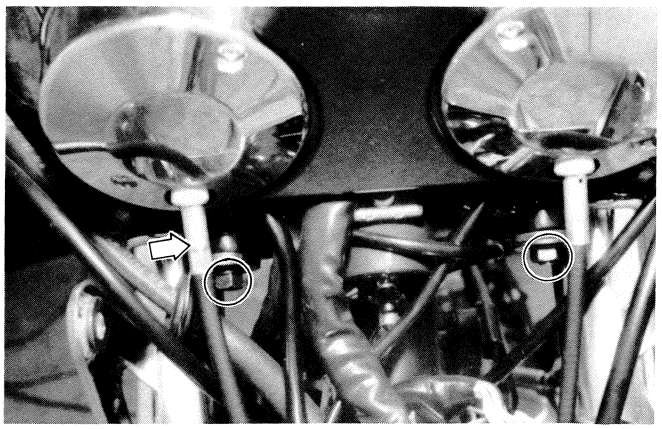
Tightening torque			
Item	N·m	kg-m	lb-ft
Ⓐ	15 – 25	1.5 – 2.5	11.0 – 18.0
Ⓑ	10 – 15	1.0 – 1.5	7.0 – 11.0
Ⓒ	20 – 30	2.0 – 3.0	14.5 – 21.5
Ⓓ	12 – 20	1.2 – 2.0	8.5 – 14.5
Ⓔ	20 – 30	2.0 – 3.0	14.5 – 21.5
Ⓕ	12 – 20	1.2 – 2.0	8.5 – 14.5

REMOVAL AND DISASSEMBLY

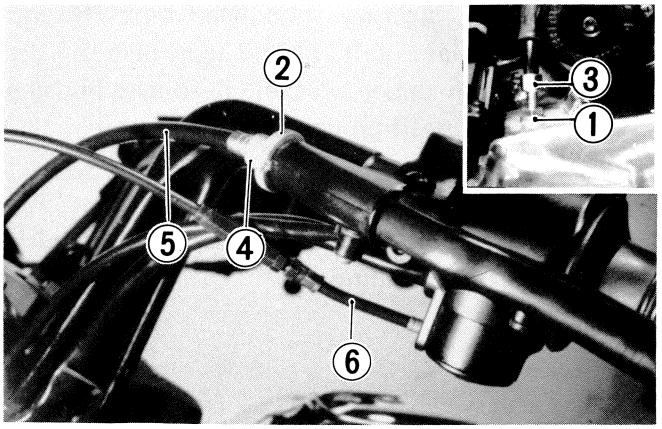
- Remove the front wheel.
- Remove the front fork (See page 9-23).
- Remove the frame covers, seat and fuel tank.
- Disconnect the gear position switch coupler.



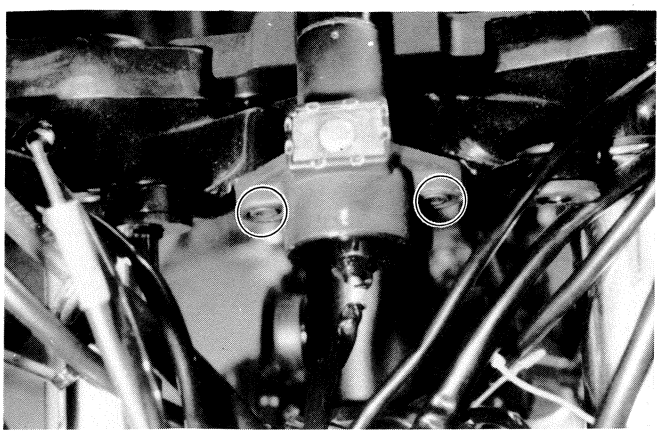
- Remove the tachometer cable and two nuts and take off the meter assembly.



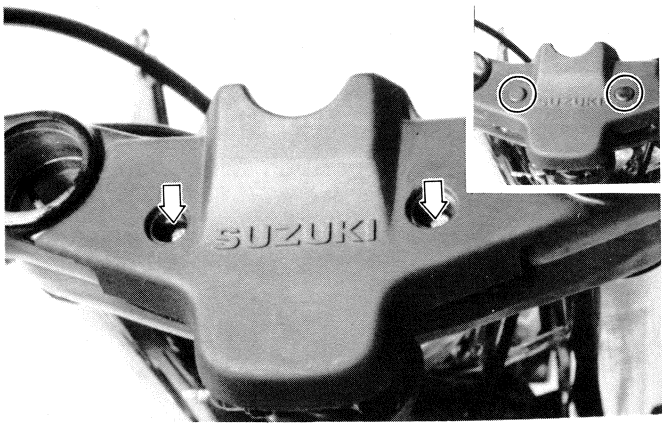
- Loosen the lock nuts ①, ② and tighten the adjuster ③, ④ and disconnect the clutch cable ⑤ from the clutch lever.
- Remove the screw and disconnect the starter cable ⑥.



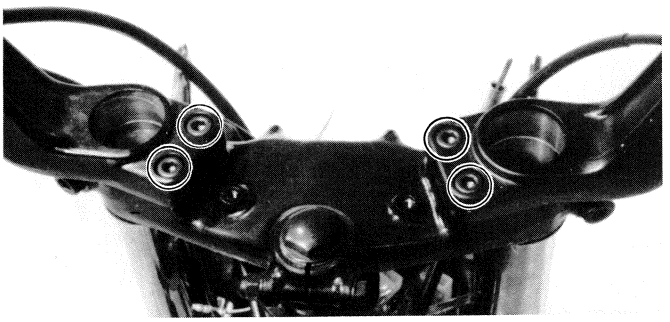
- Remove the two bolts by using the 5 mm hexagon wrench and take off the ignition switch.



- Take off the two caps.
- Remove the two screws and take off the pad.

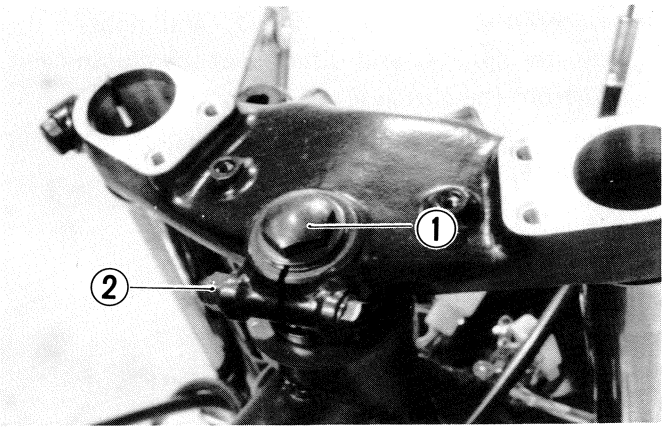


- Remove the four handlebars mounting bolts by using the 6 mm hexagon wrench after removing the two nuts.

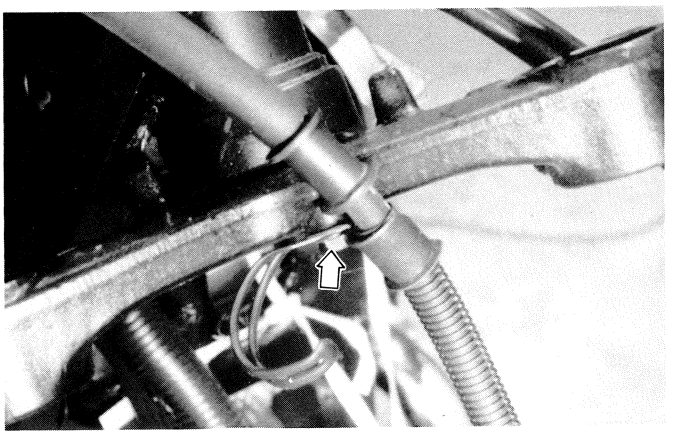


- Remove the steering stem head bolt ① and loosen the clamp nut ② and then take off the steering stem upper bracket, headlight housing brackets and position light.

NOTE:
Hold the headlight housing brackets by hand to prevent from falling.



- Remove the brake hose clamp bolt.
- Remove the steering stem and bearings. (See page 7-26).



REASSEMBLY

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

OUTER RACES

See page 7-31.

BEARING

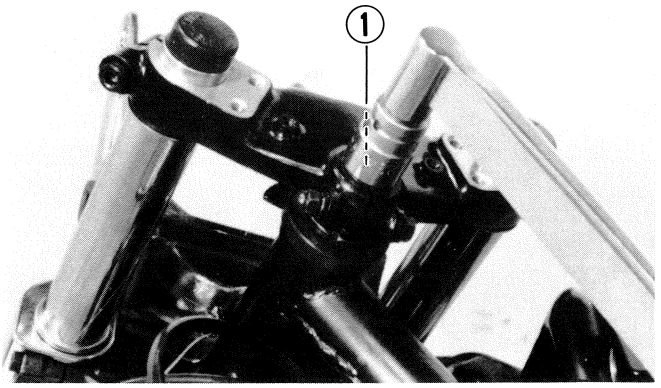
See page 7-31.

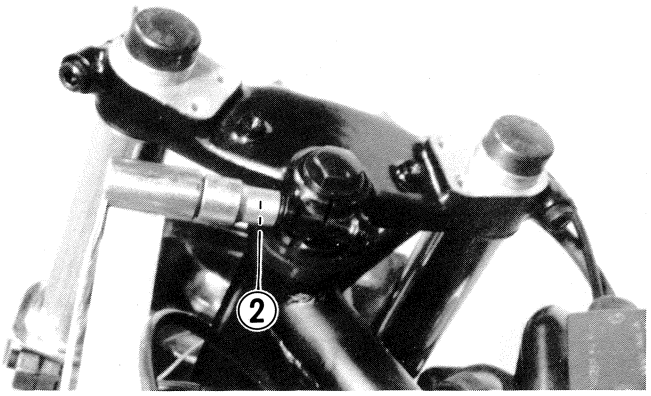
STEERING STEM NUT

See pages 7-31, 7-32.

- Tighten the steering stem head bolt ① and clamp nut ② to the specification.

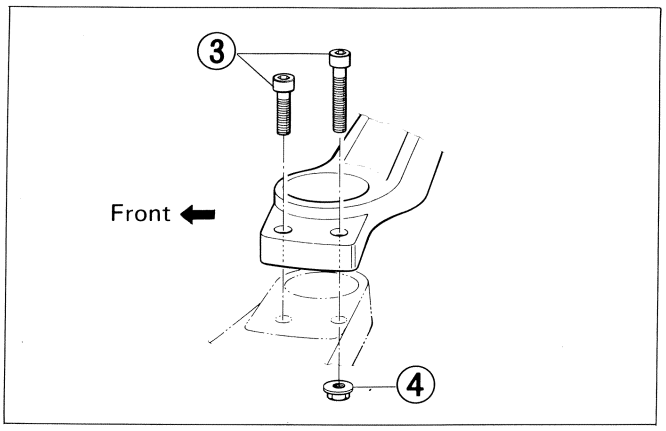
Tightening torque	①	20 – 30 N·m (2.0 – 3.0 kg-m, 14.5 – 21.5 lb-ft)
	②	12 – 20 N·m (1.2 – 2.0 kg-m, 8.5 – 14.5 lb-ft)



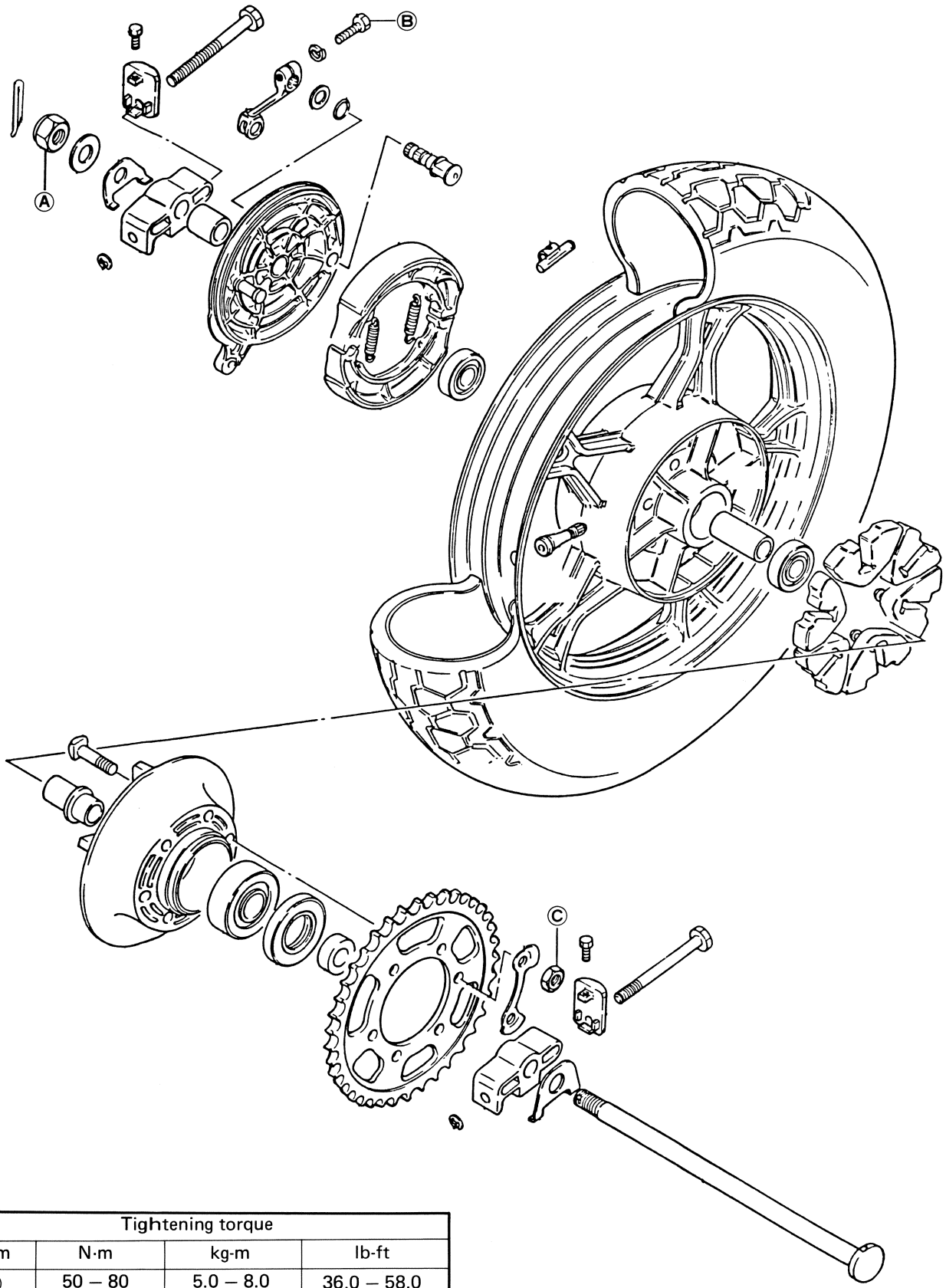


- Tighten the handlebars holder bolts and nuts to the specification.

Tightening torque	③	15 – 25 N·m (1.5 – 2.5 kg-m, 11.0 – 18.0 lb-ft)
	④	10 – 15 N·m (1.0 – 1.5 kg-m, 7.0 – 11.0 lb-ft)



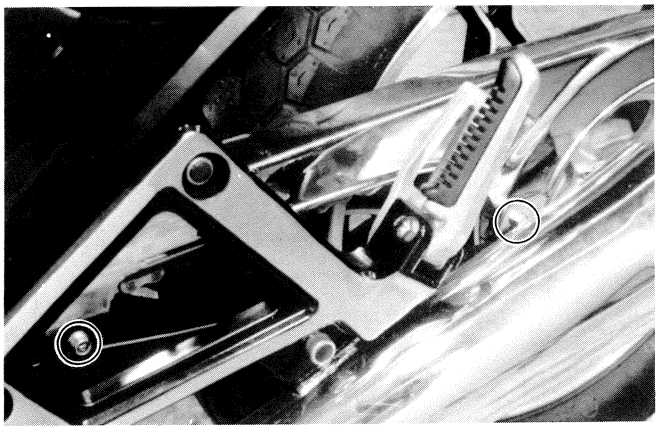
REAR WHEEL AND BRAKE



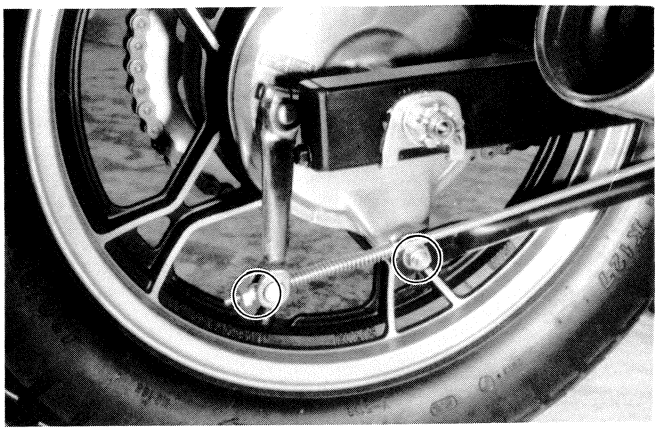
Tightening torque			
Item	N·m	kg-m	lb-ft
Ⓐ	50 – 80	5.0 – 8.0	36.0 – 58.0
Ⓑ	5 – 8	0.5 – 0.8	3.5 – 6.0
Ⓒ	25 – 40	2.5 – 4.0	18.0 – 29.0

REMOVAL

- Support the machine by the center stand.
- Remove the two bolts and take off the chain case.



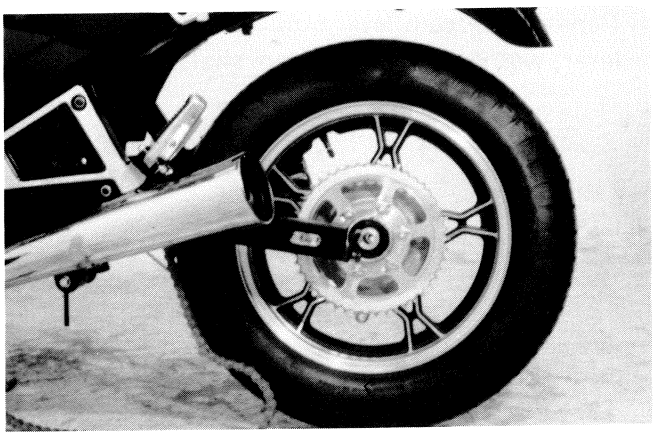
- Pull out the cotter pin and remove the rear torque link bolt and nut.
- Remove the rear brake adjuster nut.



- Pull out the cotter pin and remove the axle nut.
- Loosen the chain adjuster bolts.



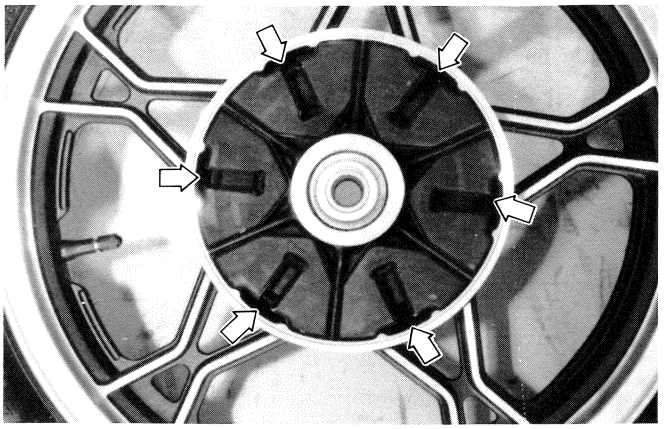
- Draw out the axle shaft and take off the drive chain from the rear sprocket.
- Remove the rear wheel.
- Take off the rear brake and rear sprocket mounting drum from the wheel.



DISASSEMBLY

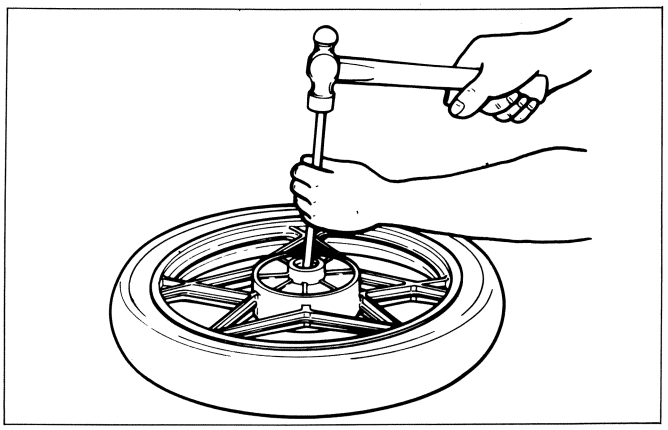
REAR WHEEL

- Remove the six cushions.



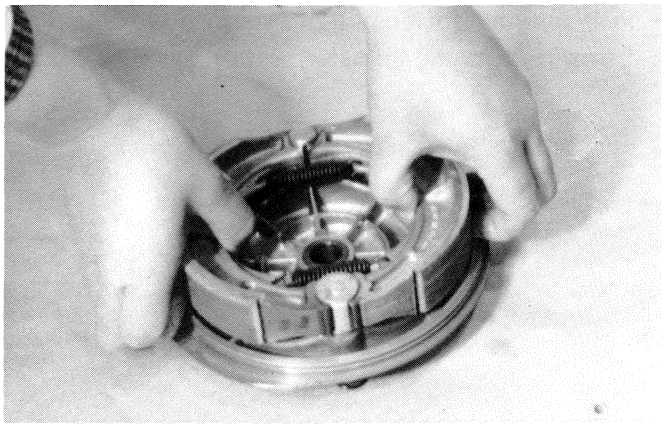
- Remove the right and left side wheel bearings.

NOTE:
Removing the right side bearing first makes the job easier.

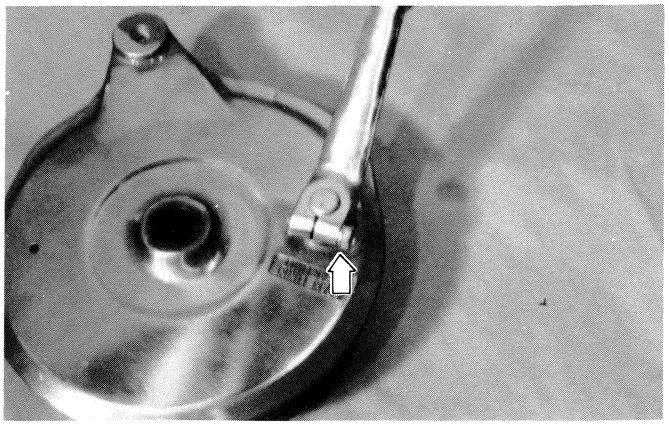


REAR BRAKE

- Take off the brake shoes.



- Remove the cam lever bolt and take off the cam lever, washer, O-ring and cam shaft.

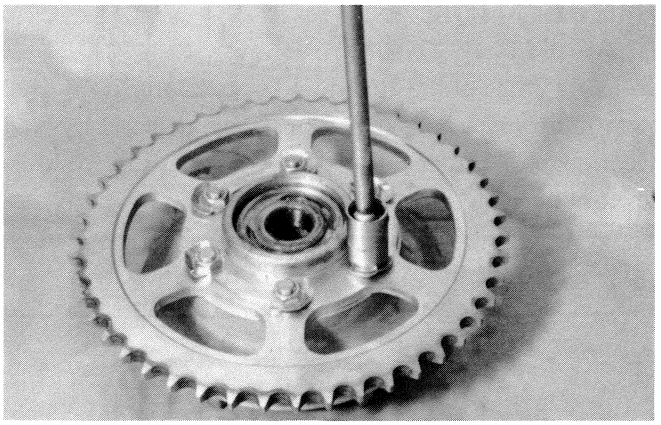


REAR SPROCKET MOUNTING DRUM

- Flatten the washers and remove the six bolts and nuts.

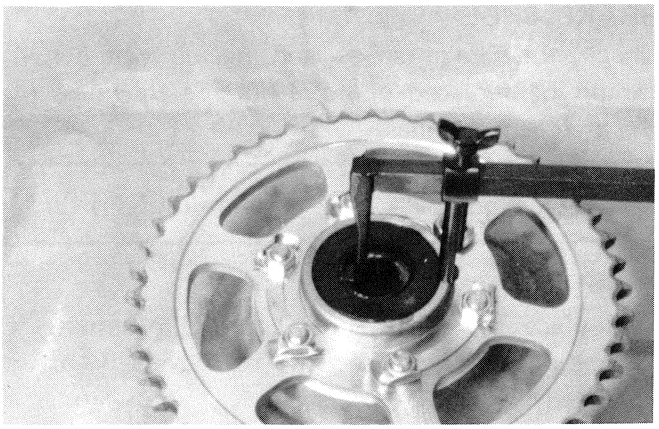
CAUTION:
Do not reuse the lock washers.

- Separate the rear sprocket from the mounting drum.

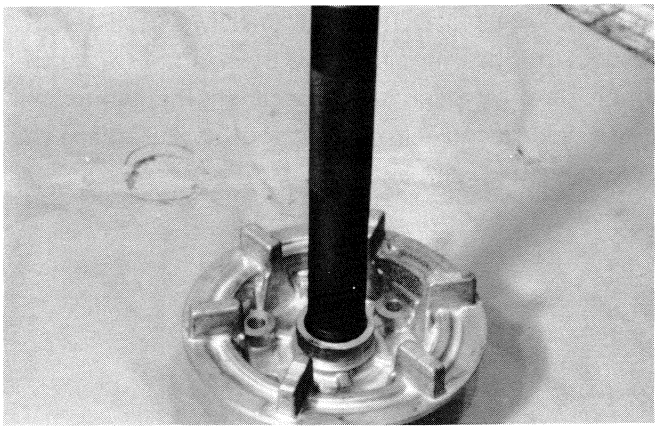


- Remove the two spacers.
- Remove the oil seal by using the special tool.

09913-50121	Oil seal remover



- Remove the bearing by using the bearing remover.

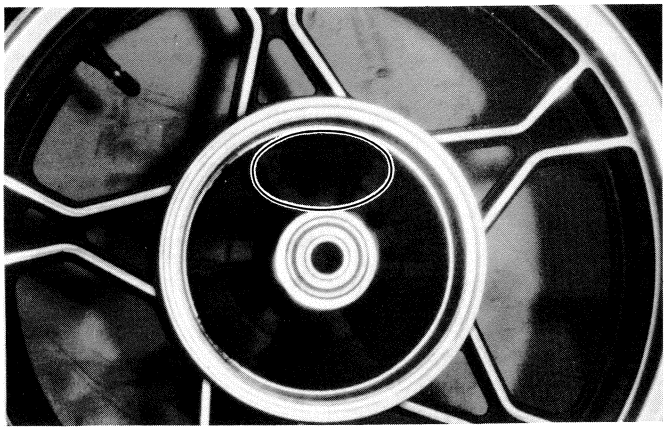


INSPECTION

REAR BRAKE DRUM

Measure the brake drum I.D. to determine the extent of wear and, if the limit is exceeded by the wear noted, replace the drum. The value of this limit is indicated inside the drum.

Service limit	160.7 mm (6.33 in)

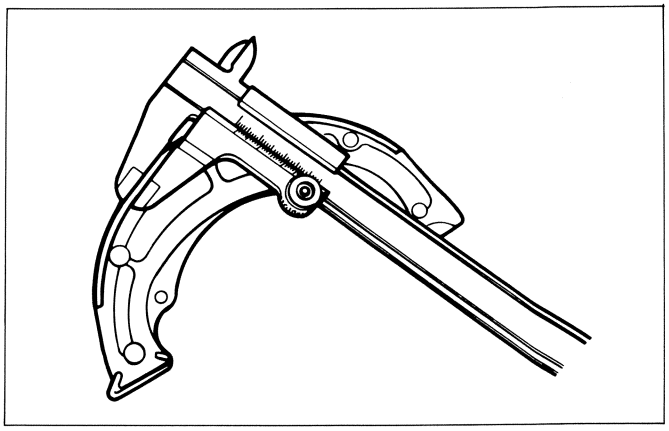


BRAKE SHOE

Check the brake shoes and decide whether it should be replaced or not from the thickness of the brake shoe linings.

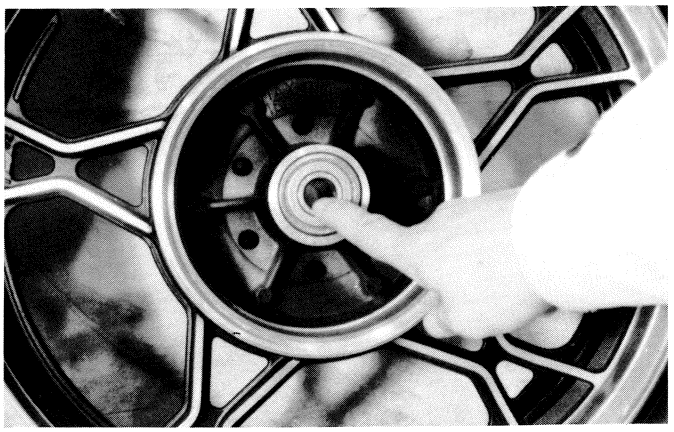
Service limit	1.5 mm (0.06 in)

CAUTION:
Replace the brake shoes as a set, otherwise braking performance will be adversely affected.



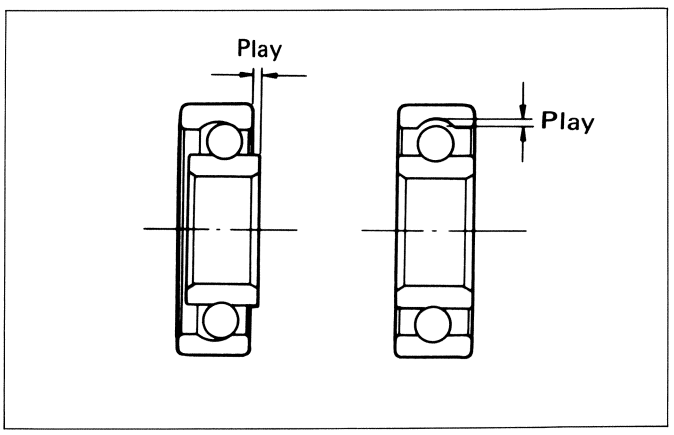
WHEEL AND MOUNTING DRUM BEARINGS

Inspect the bearings for play by hand. Rotate the inner race by hand to inspect whether abnormal noise occurs and it rotates smoothly. Replace the bearing if there are any defects.



TIRE

(See pages 2-15, 7-13)

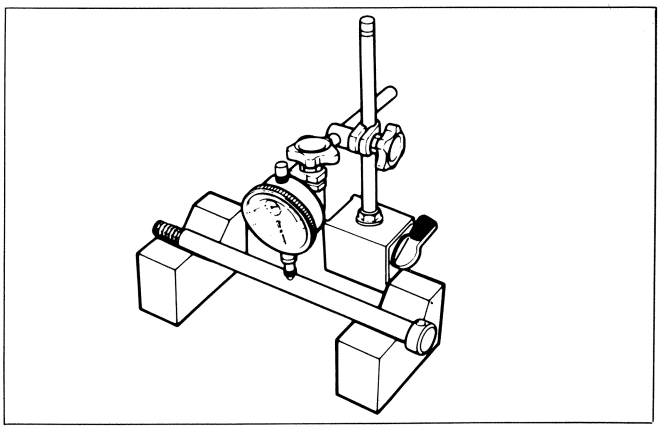


AXLE SHAFT

Using a dial gauge, check the axle shaft for runout and replace it if the runout exceeds the limit.

09900-20606	Dial gauge (1/100 mm)

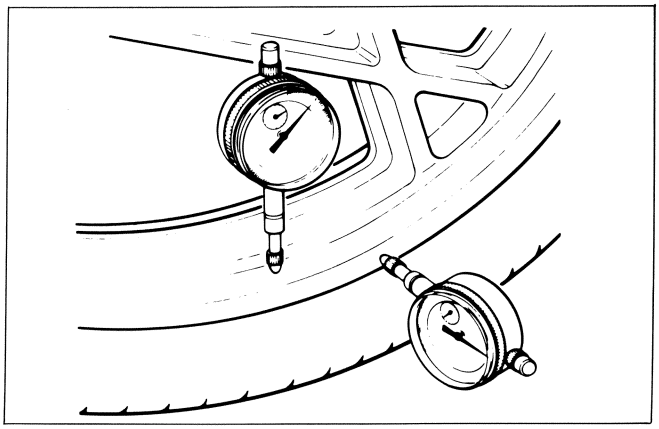
Service limit	0.25 mm (0.010 in)



WHEEL

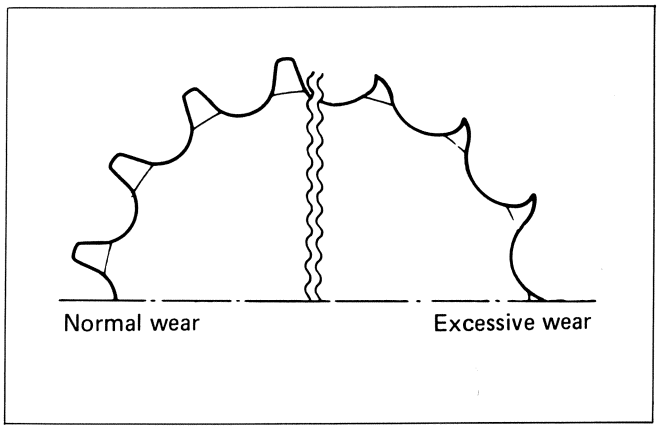
Make sure that the wheel runout ckecked as shown, does not exceed the service limit. An excessive runout is usually due to worn or loose wheel bearings and can be reduced by replacing the bearings. If bearing replacement fails to reduce the runout, replace the wheel.

Service limit (Axial and Radial)	2.0 mm (0.08 in)



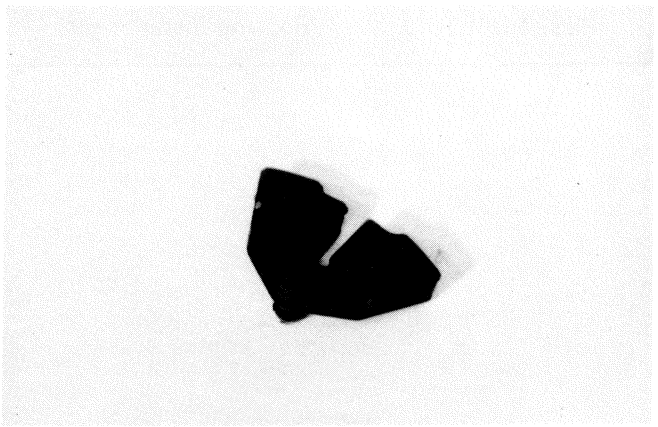
SPROCKET

Inspect the sprocket teeth for wear. If they are worn as illustrated, replace the sprocket and drive chain.



CUSHION

Inspect the cushions for wear and damage.



REASSEMBLY

Reassemble and remount the rear wheel and rear brake in the reverse order of disassembly and removal, and also carry out the following steps:

BRAKE CAMSHAFT

Apply grease to the brake camshaft.

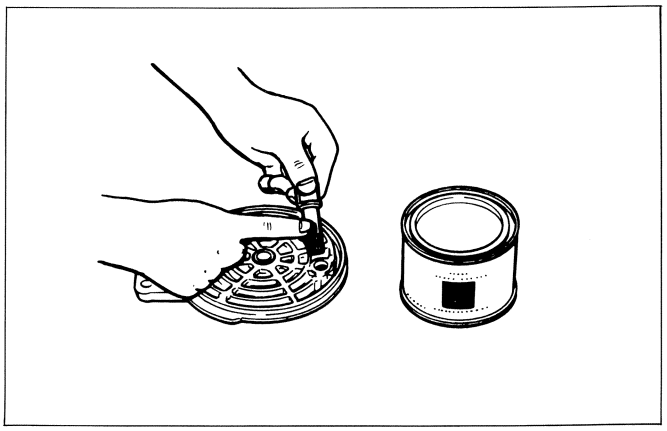
99000-25030	SUZUKI Super grease "A"

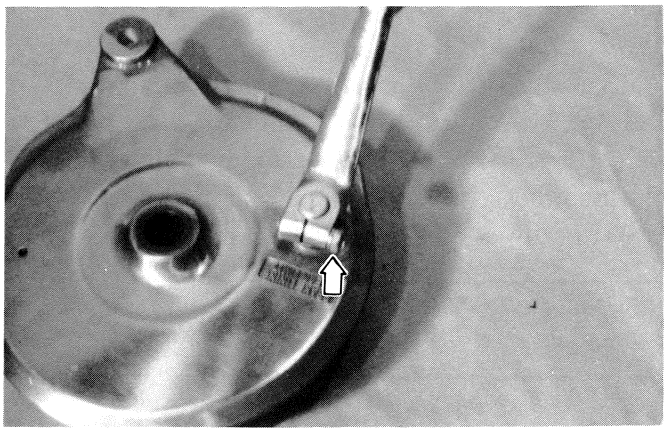
WARNING:
Be careful not to apply too much grease to the brake camshaft. If grease gets on the lining, brake slippage will result.

Tighten the cam lever bolt with specified torque.

Tightening torque	5 – 8 N·m (0.5 – 0.8 kg-m) (4.0 – 6.0 lb-ft)

CAUTION:
Adjust the rear brake pedal play after installation of the rear wheel.





WHEEL BEARING

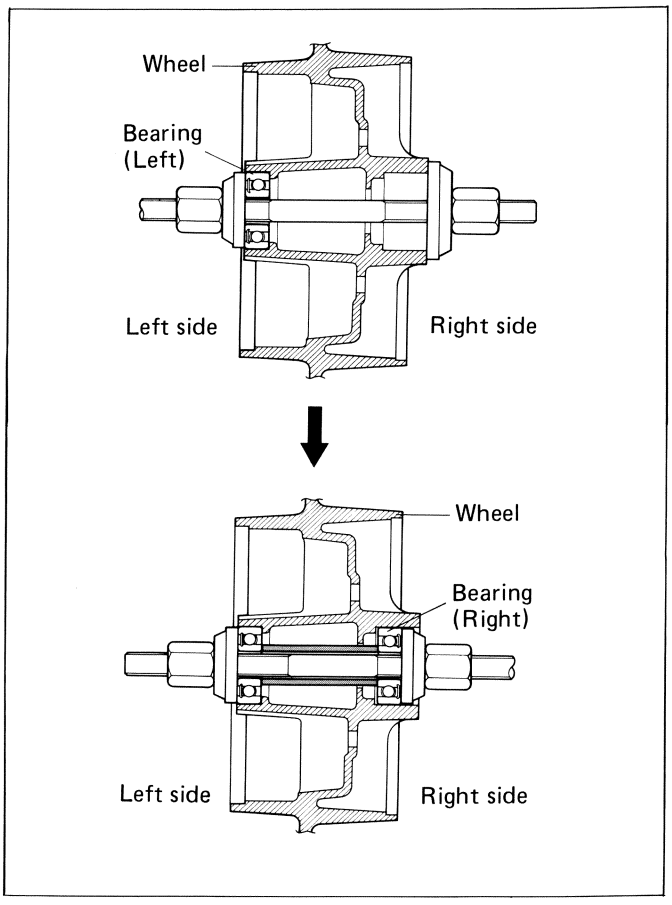
- Apply grease to the bearings before installing.

99000-25030	SUZUKI Super grease "A"

- Install the wheel bearings by using the special tool.

NOTE:
First install the wheel bearing for left side.

09924-84510	Bearing installer set

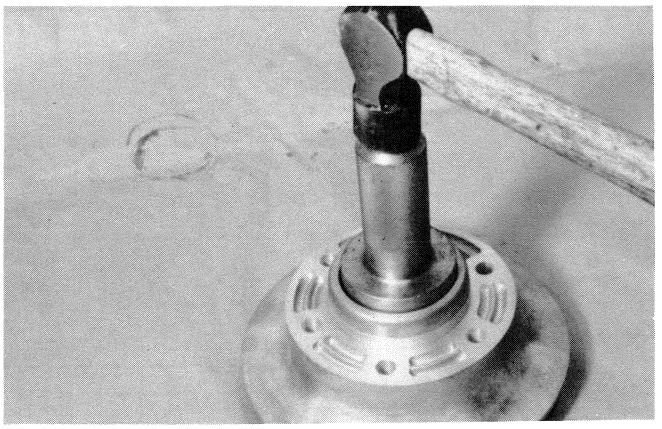


MOUNTING DRUM BEARING

- Apply grease to the bearings befor installing.

99000-25030	SUZUKI Super grease "A"

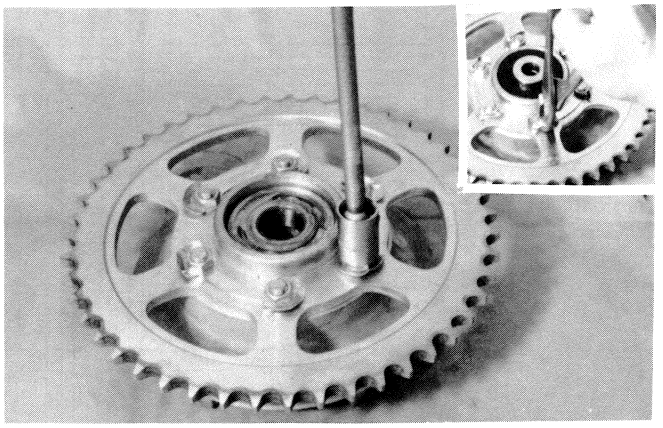
- Install the bearing by using the bearing installer.



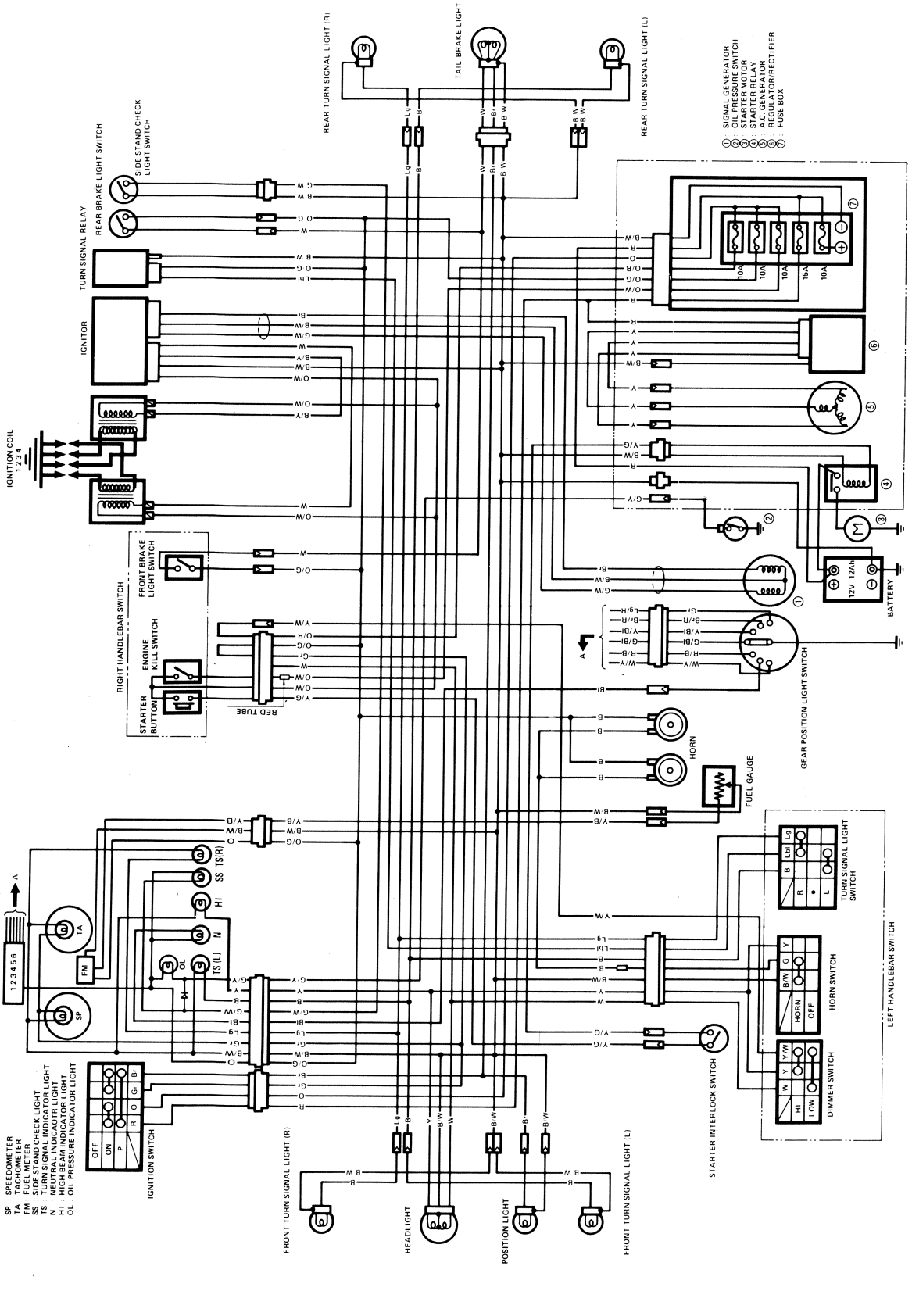
SPROCKET

- After tightening the six nuts to specification, bend the washers to lock nuts.

Tightening torque	25 – 40 N·m (2.5 – 4.0 kg-m 18.0 – 29.0 lb-ft)



WIRING DIAGRAM

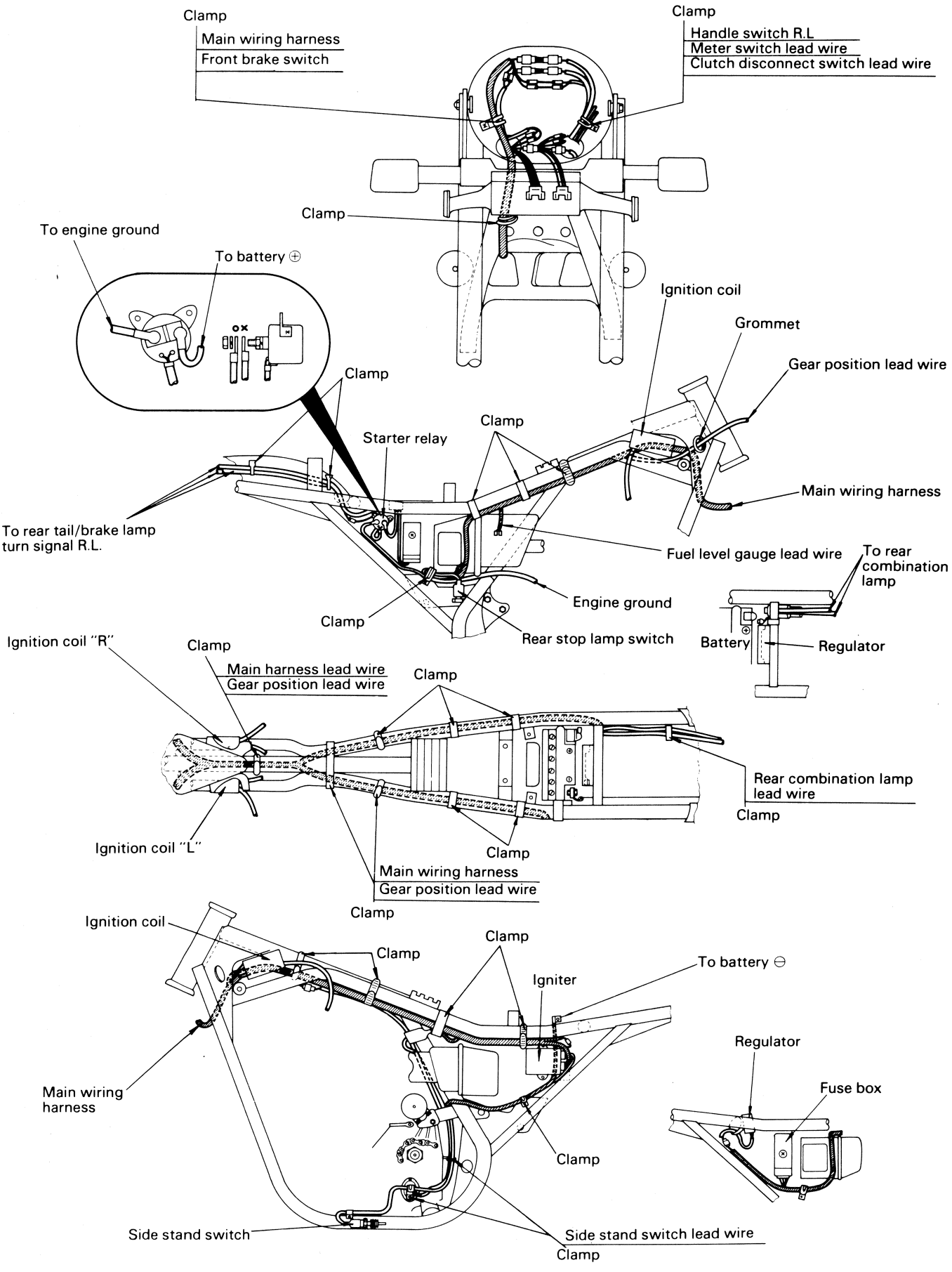


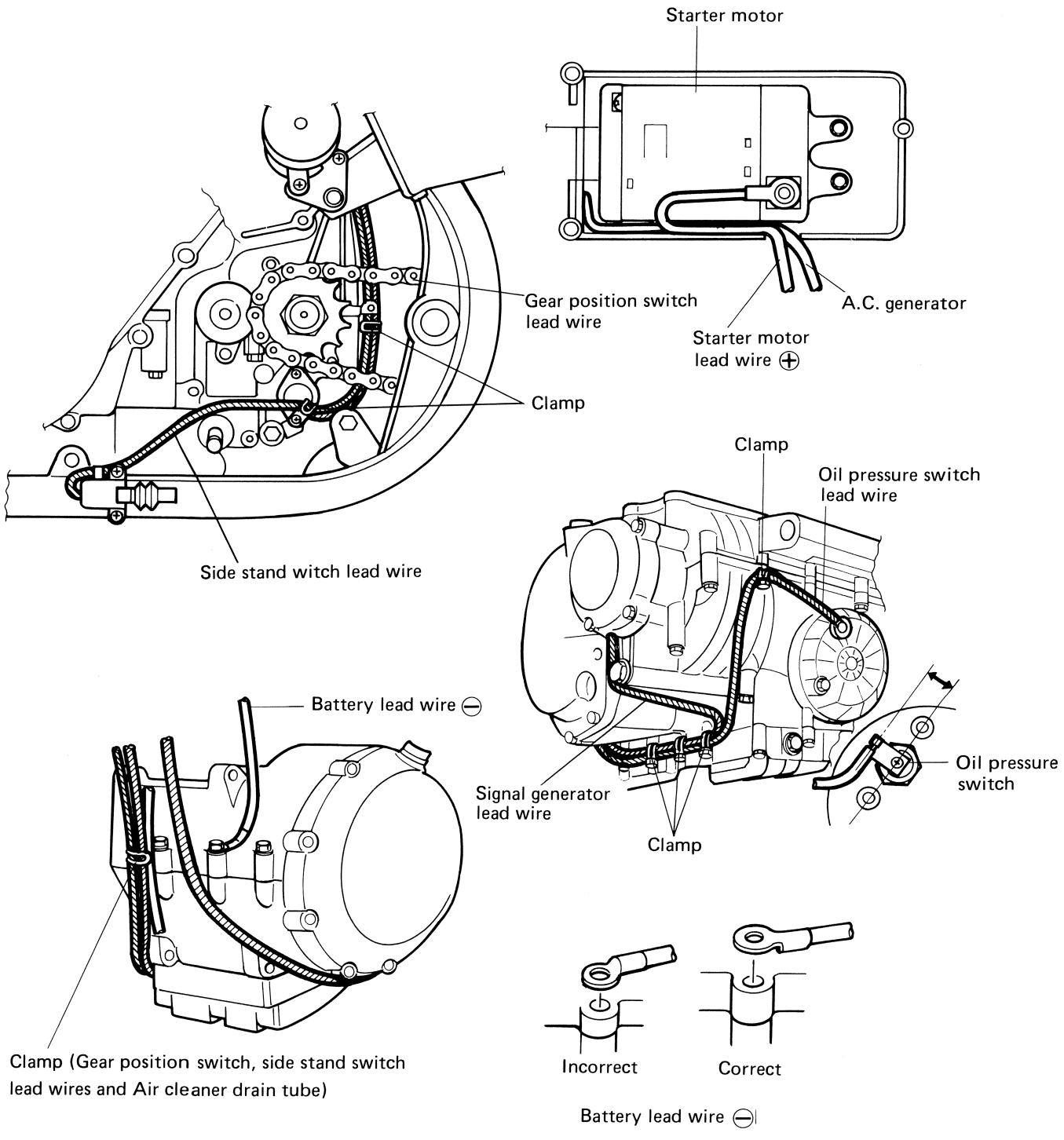
WIRE COLOR

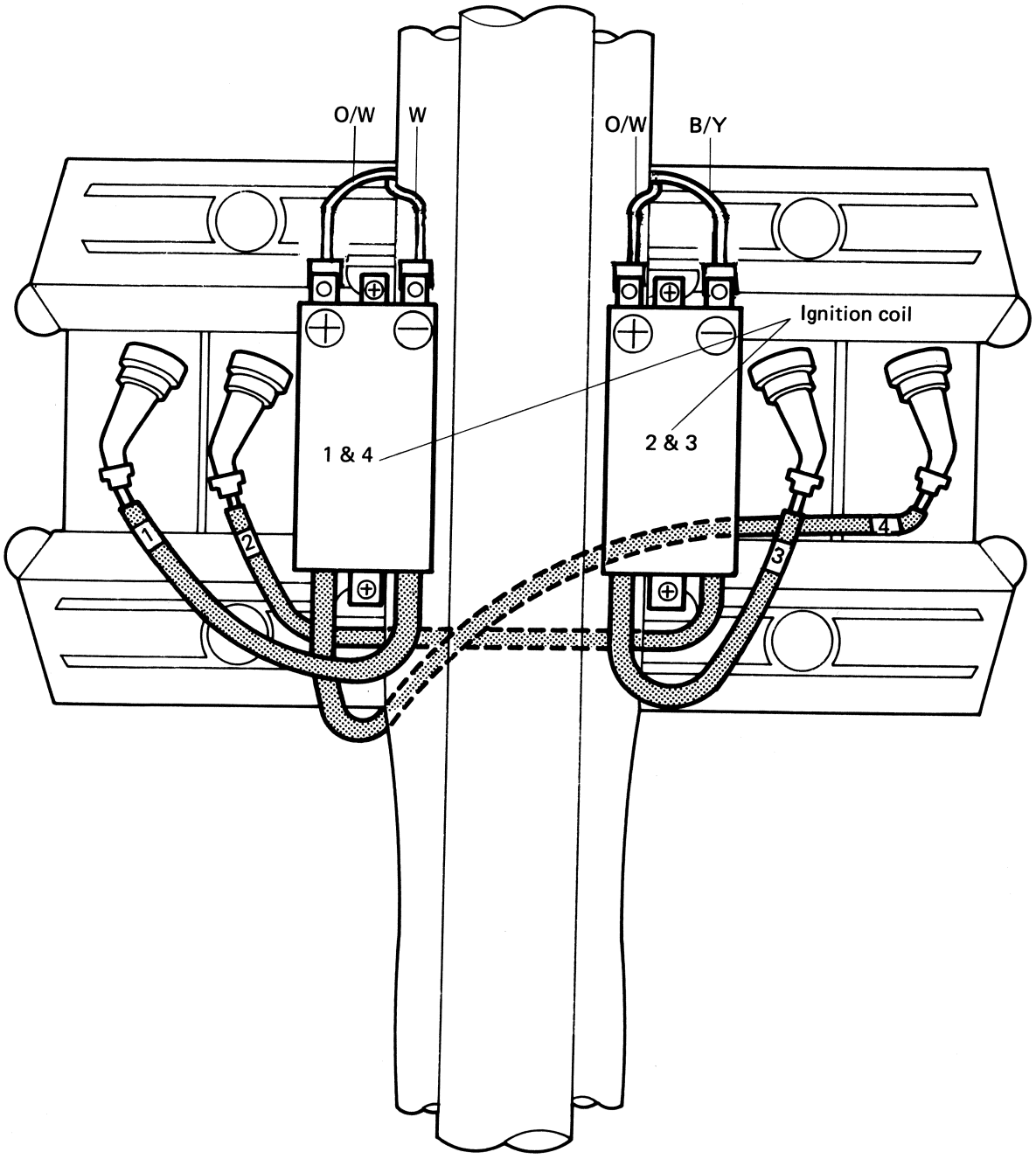
B : Black	Lg : Light green	B/W : Black with White tracer	Lg/R : Light green with Red tracer	Y/Bl : Yellow with Blue tracer
Bl : Blue	O : Orange	B/Y : Black with Yellow tracer	O/G : Orange with Green tracer	Y/B : Yellow with Black tracer
Br : Brown	R : Red	Br/R : Brown with Red tracer	O/R : Orange with Red tracer	Y/G : Yellow with Green tracer
G : Green	W : White	G/Bl : Green with Blue tracer	O/W : Orange with White tracer	Y/W : Yellow with White tracer
Gr : Gray	Y : Yellow	G/W : Green with White tracer	R/B : Red with Black tracer	
Lbl : Light blue		G/Y : Green with Yellow tracer	W/Y : White with Yellow tracer	

WIRE, CABLE AND HOSE ROUTING

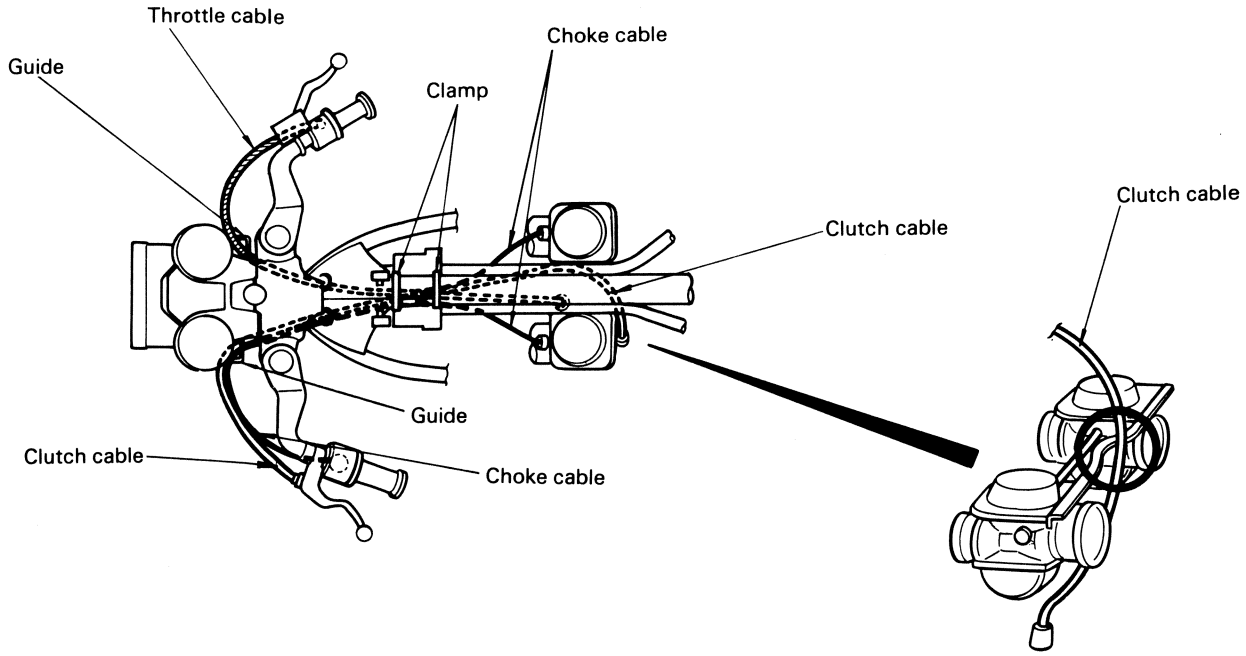
WIRE ROUTING

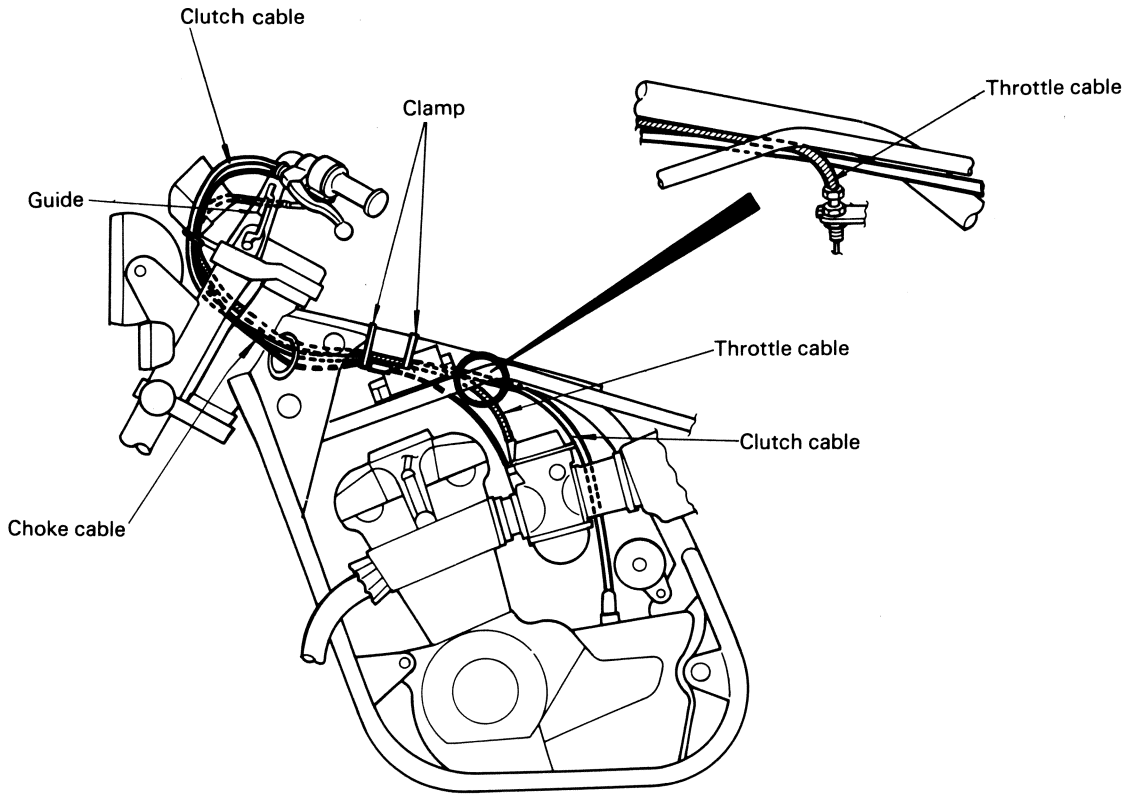



Starter motor
A.C. generator
Starter motor lead wire ⊕
Gear position switch lead wire
Clamp
Side stand witch lead wire
Clamp
Oil pressure switch lead wire
Oil pressure switch
Signal generator lead wire
Clamp
Battery lead wire ⊖
Clamp (Gear position switch, side stand switch lead wires and Air cleaner drain tube)
Incorrect
Correct
Battery lead wire ⊖

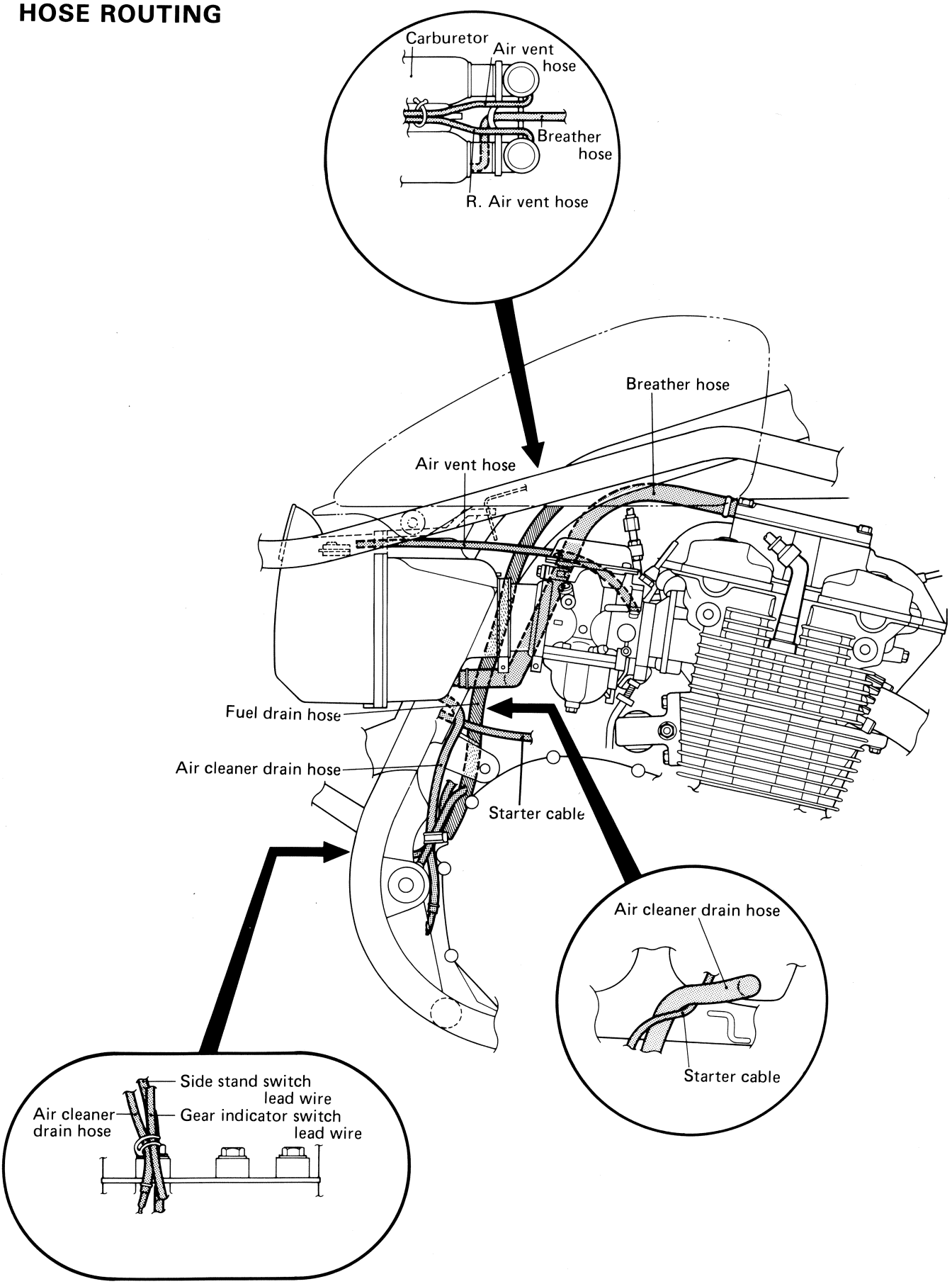

O/W
W
O/W
B/Y
Ignition coil
1 & 4
2 & 3
1
2
3
4

CABLE ROUTING

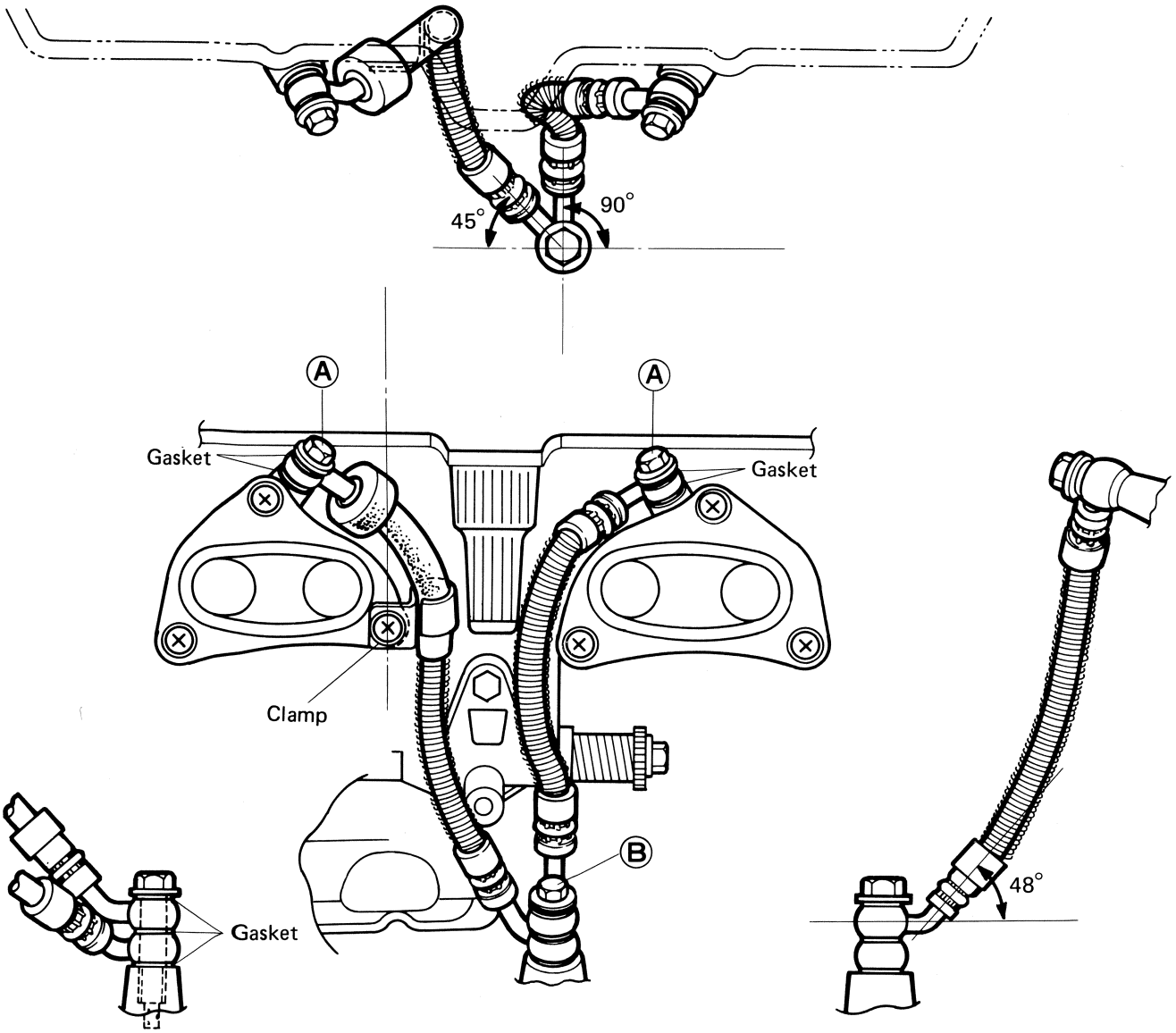




HOSE ROUTING

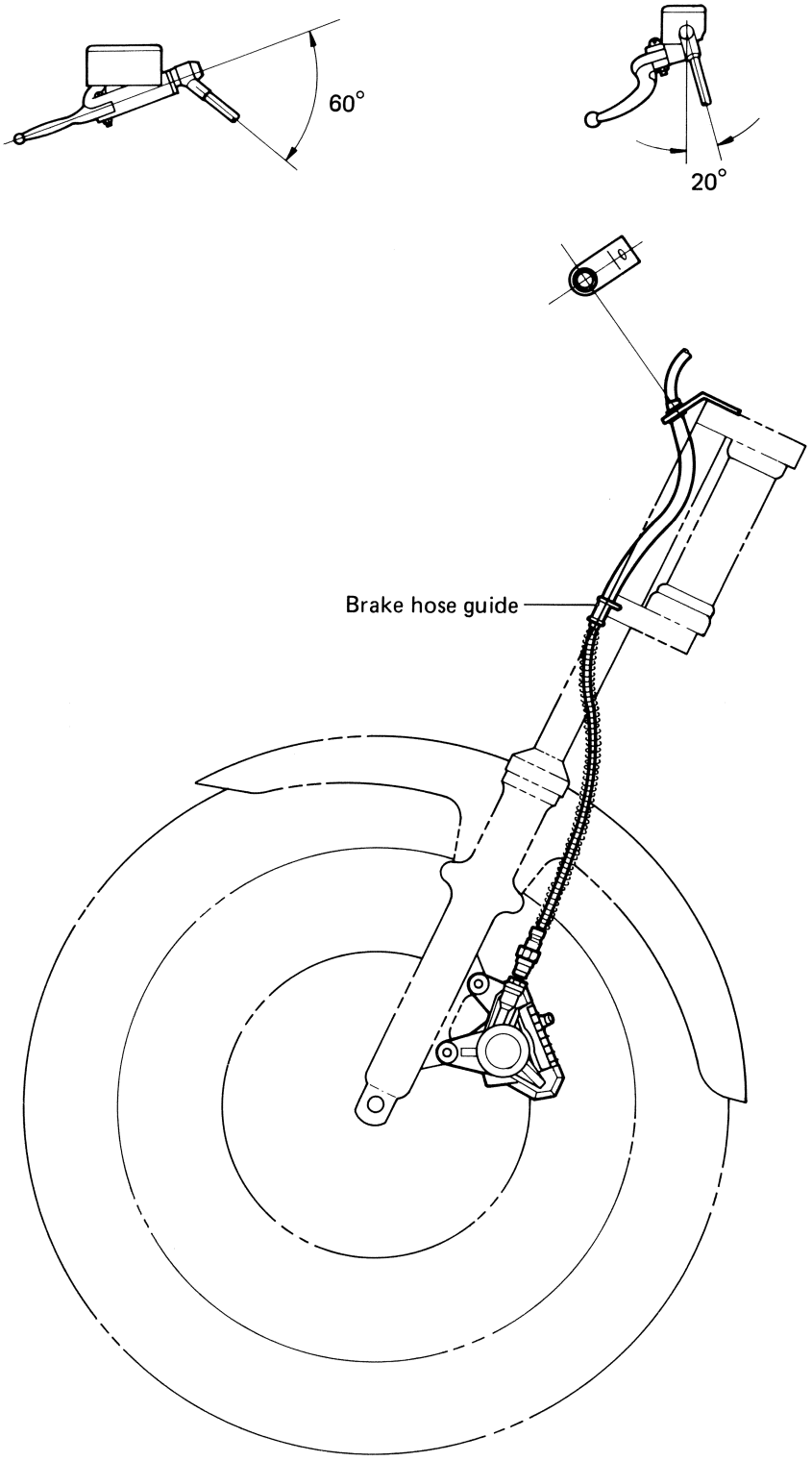


OIL HOSE ROUTING



Tightening torque			
Item	N·m	kg-m	lb-ft
Ⓐ	8 – 12	0.8 – 1.2	6.0 – 8.5
Ⓑ	20 – 24	2.0 – 2.4	14.5 – 17.5

BRAKE HOSE ROUTING



CAUTION:

1. Turning radius of the brake hose should be more than 30 mm at the center of brake hose.
2. Hose winding should be less than 15° at the length of 300 mm.
3. Do not fix the hose to the caliper/master cylinder with the extended condition.
4. Make sure that no protective part contacts with the other parts.

Prepared by

SUZUKI MOTOR CO., LTD.

Administration Department
Overseas Service Division

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