FOREWORD

The Suzuki GS750 has been developed as a companion motorcycle to the GS models. It features highly advanced design concepts including a forged one piece crankshaft assembly. The GS750 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.

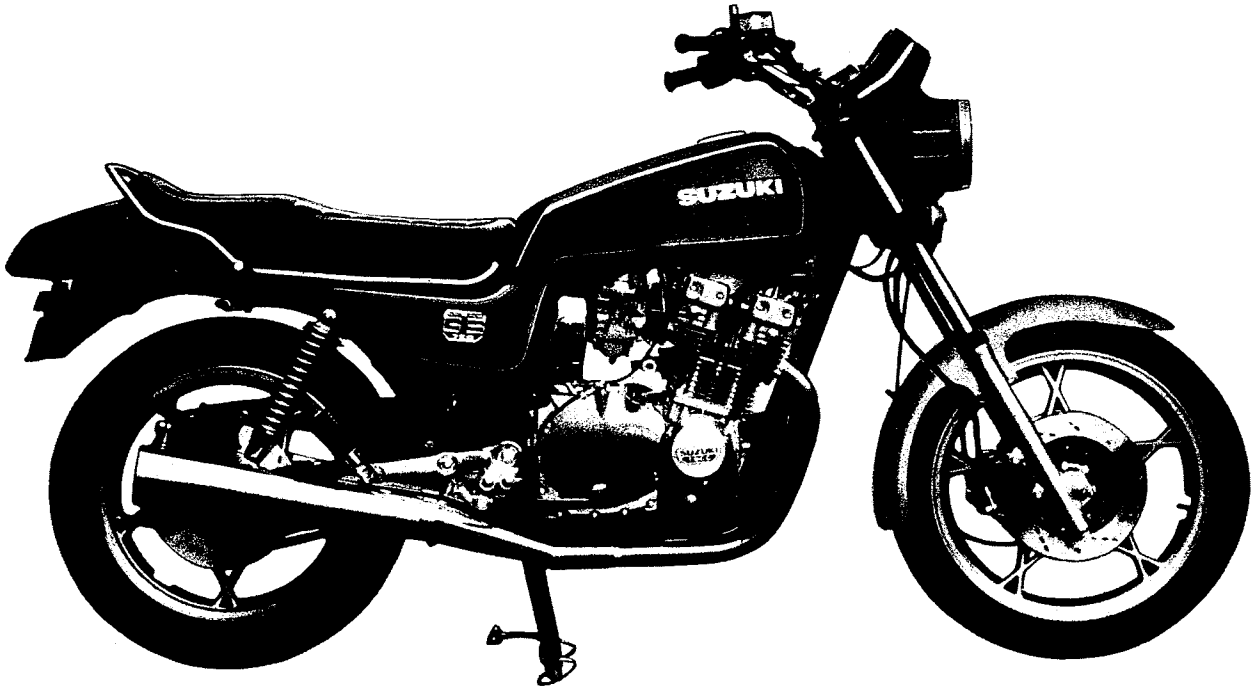
IMPORTANT

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 GS750 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.

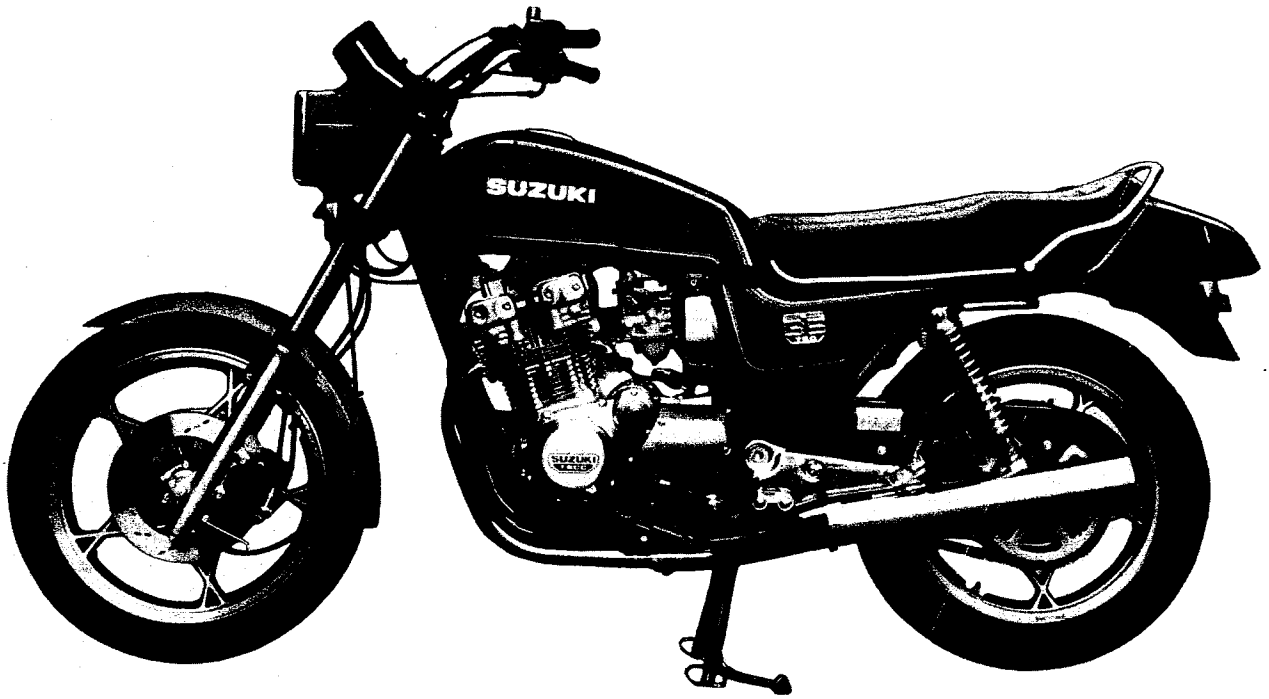
Further information concerning the EPA emission regulations and U.S. Suzuki's emission control program can be found in the U.S. SUZUKI EMISSION CONTROL PROGRAM MANUAL/ SERVICE BULLETIN.

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

VIEW OF SUZUKI GS750

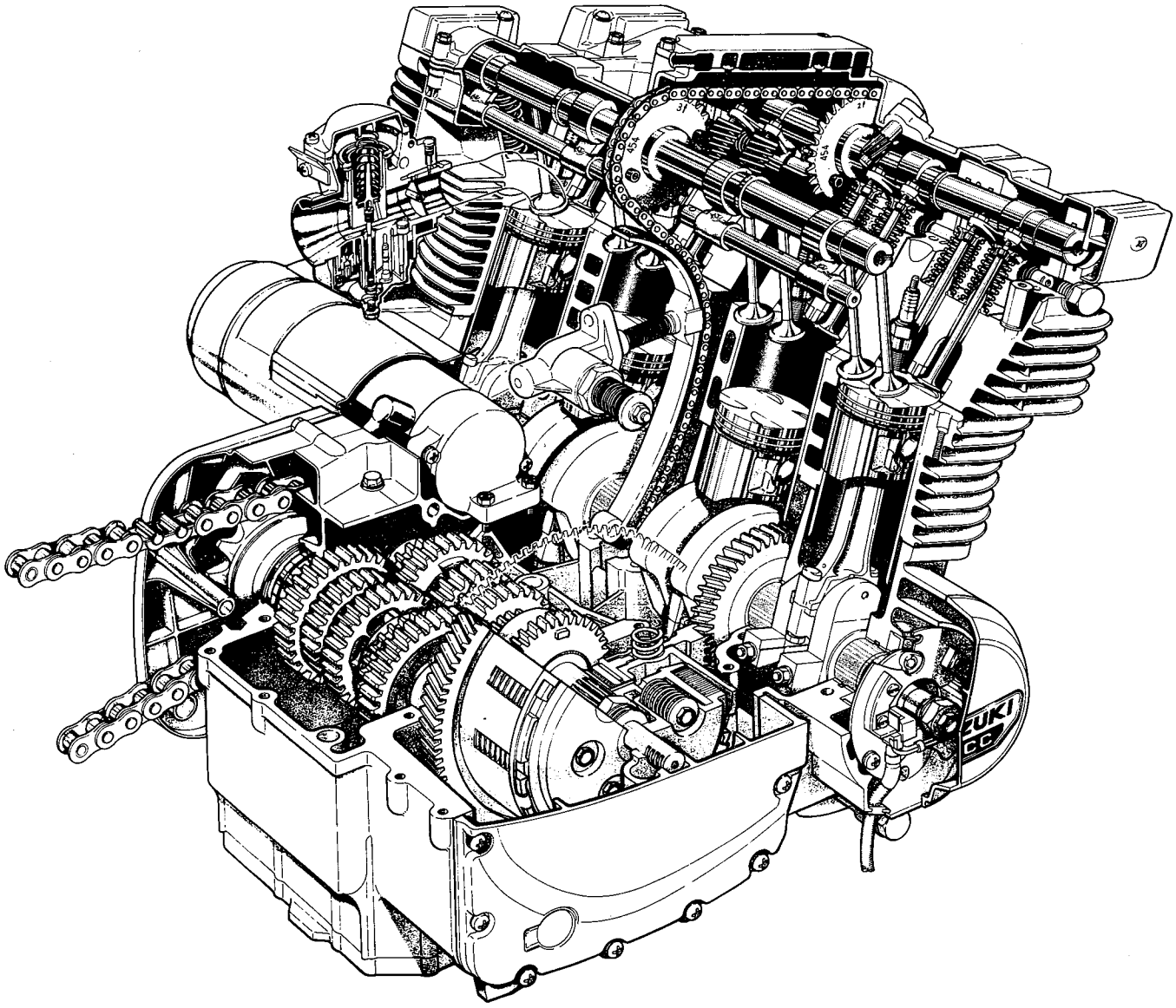


RIGHT SIDE



LEFT SIDE

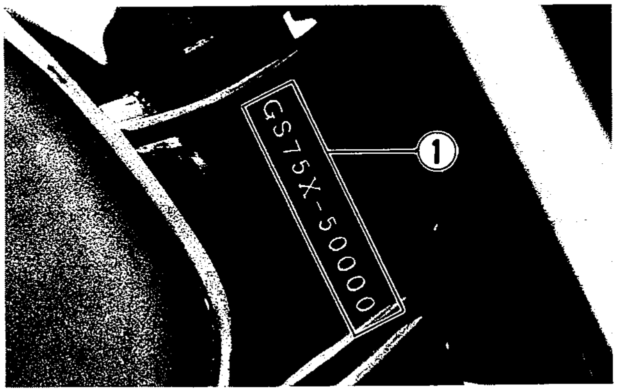
GROUP INDEX



SERIAL NUMBER LOCATIONS

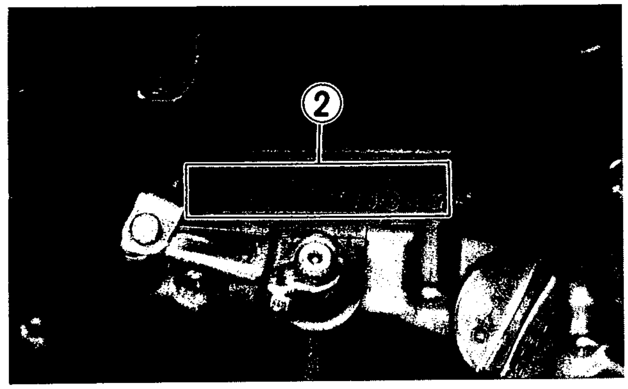
FRAME NUMBER

The frame serial number ① is stamped on the steering head pipe.



ENGINE NUMBER

The engine serial number ② is located on the right side of the crankcase.



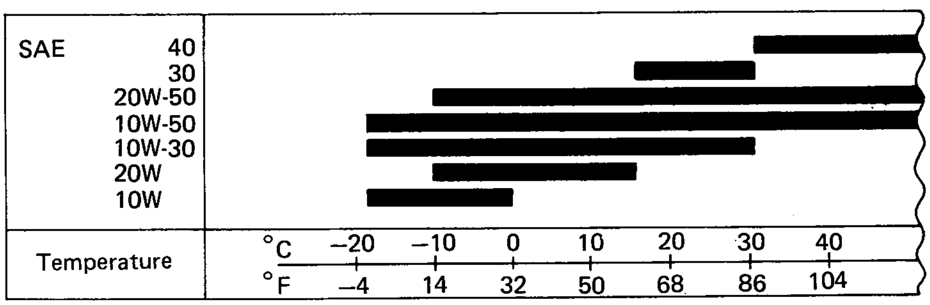
FUEL AND OIL RECOMMENDATIONS

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 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 (for front and rear brakes)

Specification and classification	DOT3, DOT4

NOTE:
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.

SERIAL NUMBER LOCATIONS

FRAME NUMBER

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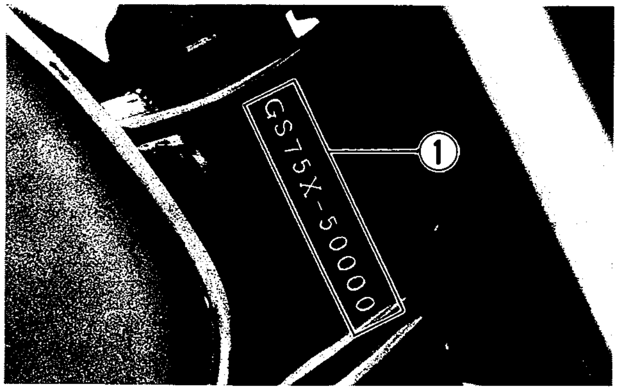

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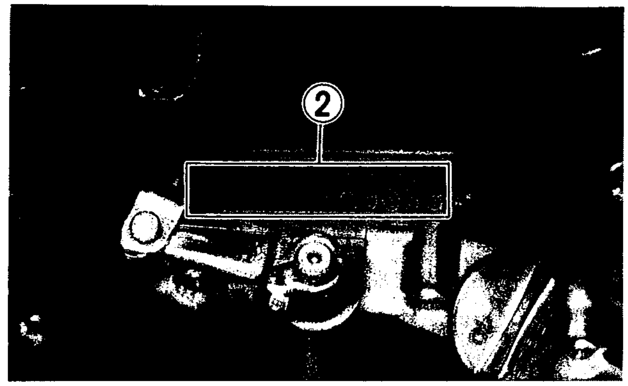

FUEL AND OIL RECOMMENDATIONS

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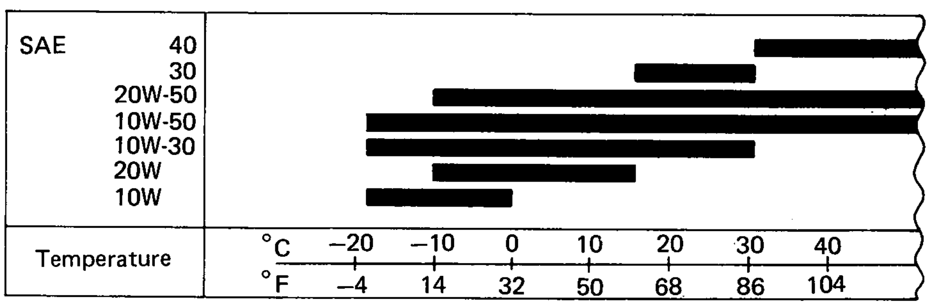

BRAKE FLUID (for front and rear brakes)

Specification and classification	DOT3, DOT4

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* 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

Use 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:

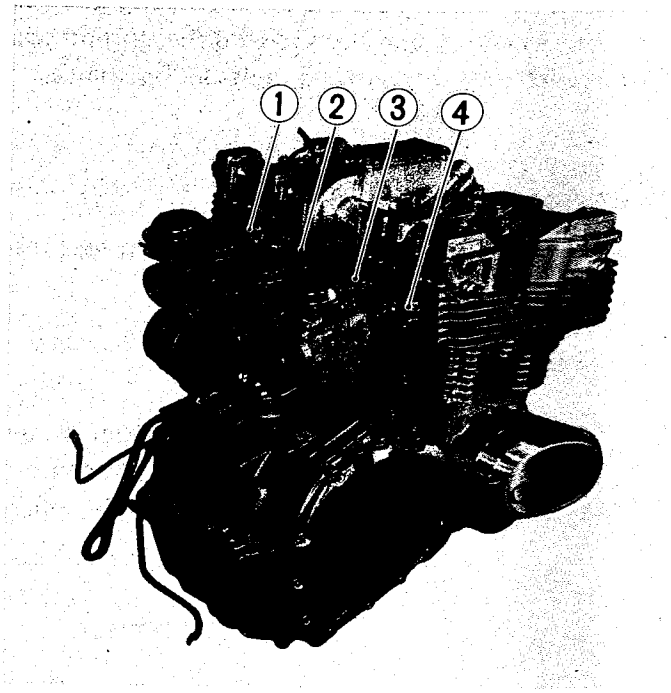
- Keep to these breaking-in engine speed limits:

Initial 500 miles (800 km)	Below 4 000 r.p.m.
Up to 1 000 miles (1 600 km)	Below 6 000 r.p.m.
Over 1 000 miles (1 600 km)	Below 9 500 r.p.m.

- Upon reaching an odometer reading of 1 000 miles (1 600 km), you can subject the motorcycle to full throttle operation.
  However, do not exceed 9 500 r.p.m. 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

FULL-TRANSISTORIZED IGNITION SYSTEM

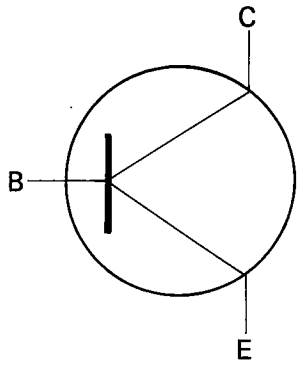
A fully transistorized ignition system is now employed on the GS750. Its primary advantages are:
* Trouble free operation due to elimination of contact breaker points which can become contaminated.
* Ignition timing is maintained properly at all times and require no maintenance.
* Free from arcing and provides the ignition coil with stable secondary voltage.
* Excellent vibration and moisture resistance.

TRANSISTOR

Transistor functions can be divided into four main functions:

1. amplification
2. switching
3. oscillation
4. modulation

These functions are utilized in the ignition system employed on the GS750.
Transistors are divided into two groups, those being of the NPN and PNP types, and the transistors used in the GS750 model is of the NPN type only, works an amplifier and switching device.



B : BASE
C : COLLECTOR
E : EMITTER

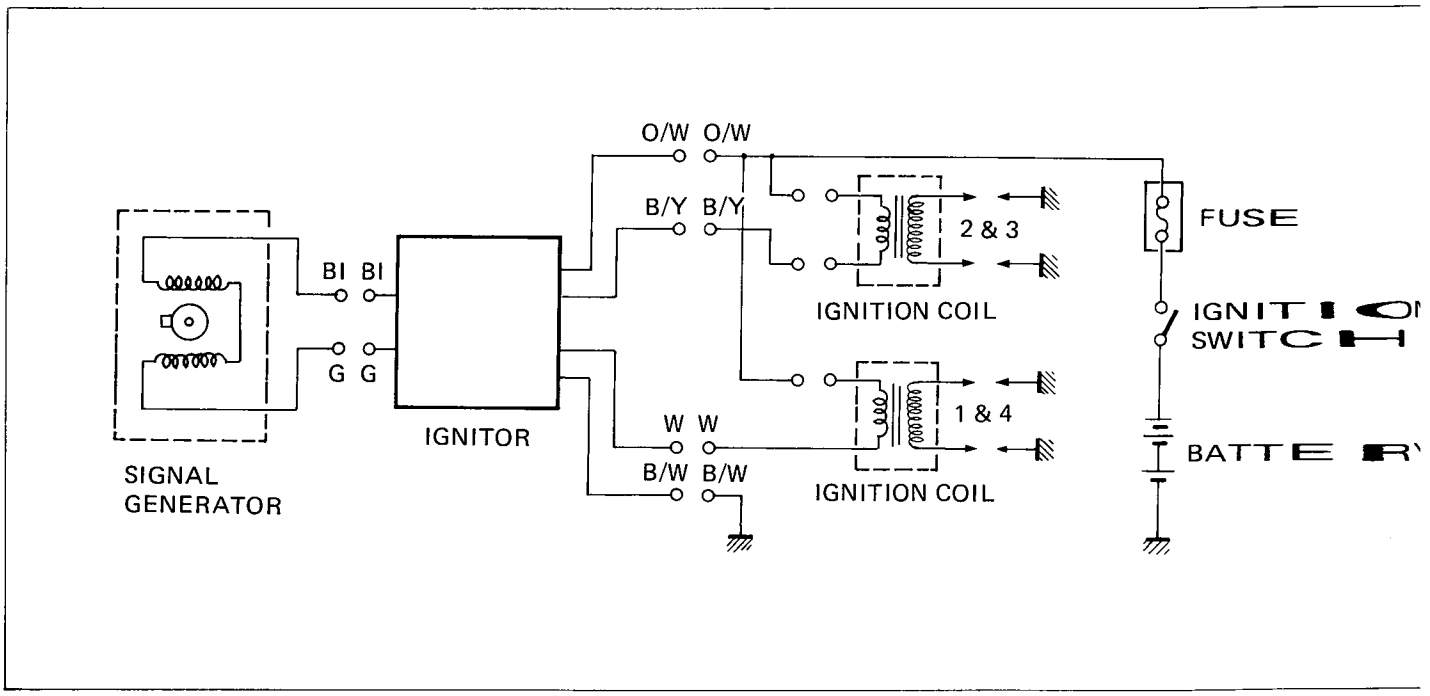
Each transistor has three terminals identified as the Base (B), Collector(C), and Emitter(E), and operation is as follows:

On a NPN type, the base is the controling terminal of the transistor operation. On this type, the base utilizes only a positive or incoming signal to do the "ON", or "OFF" switching. The collector is the terminal where voltage is supplied to the transistor and the emitter is the terminal for passing this current for usage when the base has the proper "signal". Usually the voltage applied across the collector to the emitter is much larger than that needed at the base. This allows a relatively low voltage at the base to control large working voltages across the collector to the emitter.
The transistor ignition system used on the GS750 is (the Nippon Denso brand and) consists of a signal generator, which employs a rotor and two pick-up coils, the transistor unit, ignition coils, and spark plugs.

SIGNAL GENERATOR

The signal generator is mounted on the right hand side of the engine in the area commonly used for contact breaker points. It is comprised of an iron rotor attached to a mechanical advance mechanism two pick-up coils, with magnets at their bases, affixed to a plate. Each pick-up coil consists of a coil or and a yoke or coil and is mounted 180° apart on the plate. As the rotor tip is turned past the coils, current is produced and used for switching within the transistor unit (ignitor).

The transistor unit controls power to the ignition coils and causes the spark plugs to fire at the proper t



TSCC (TWIN SWIRL COMBUSTION CHAMBER)

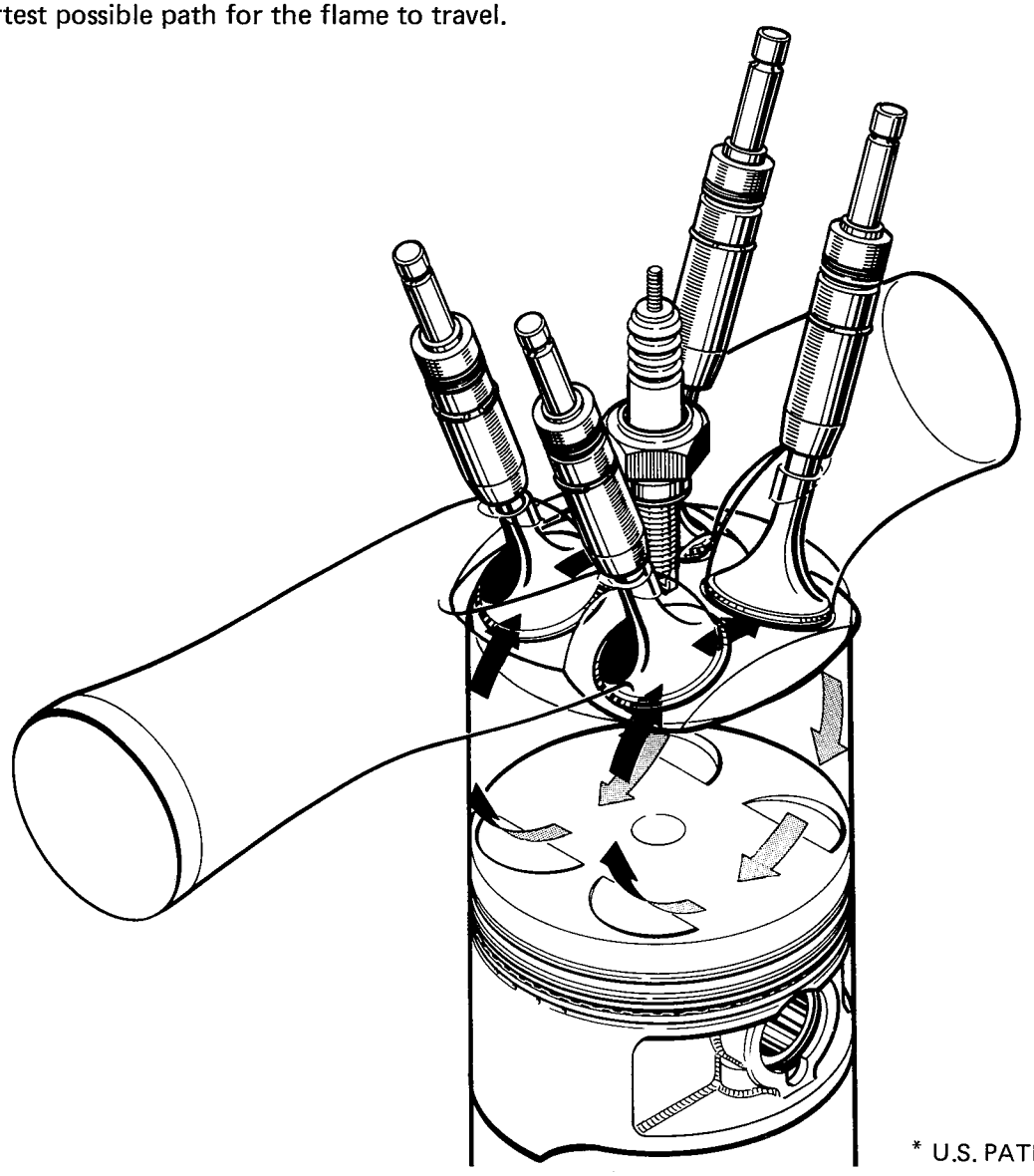
SUZUKI has introduced a new breed of 4-valves-per-cylinder high-performance 4-stroke engines--the TSCC series. TSCC describes the heart of the engine, the Twin Swirl Combustion Chamber.

What the TSCC engine series does better than convential 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 machined 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 machined 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.



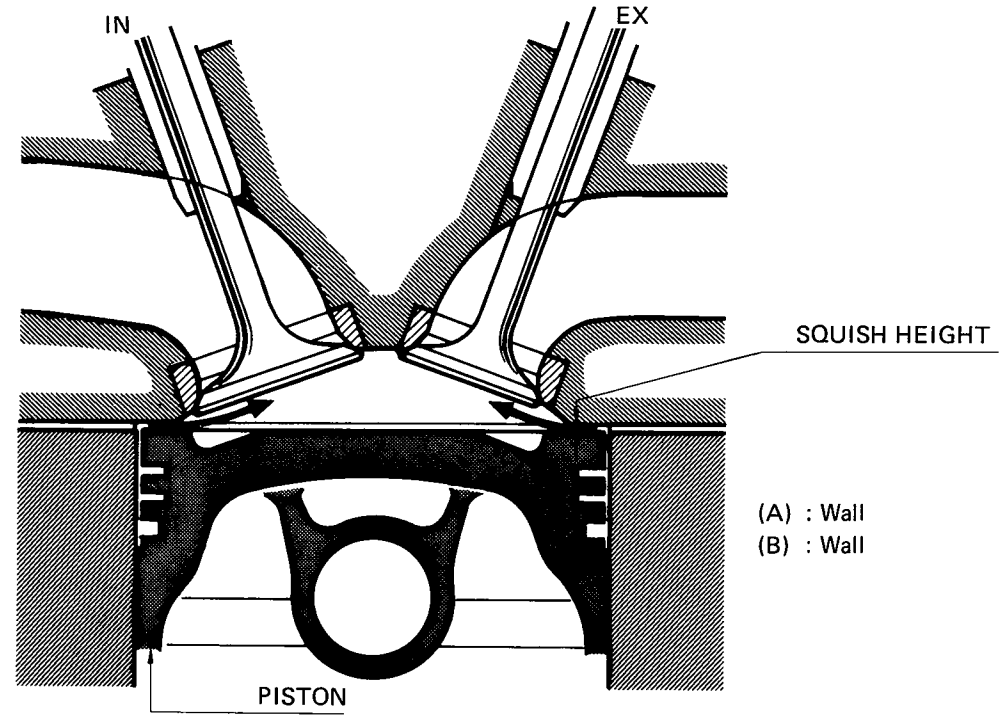
* U.S. PATENT NO. 3633577

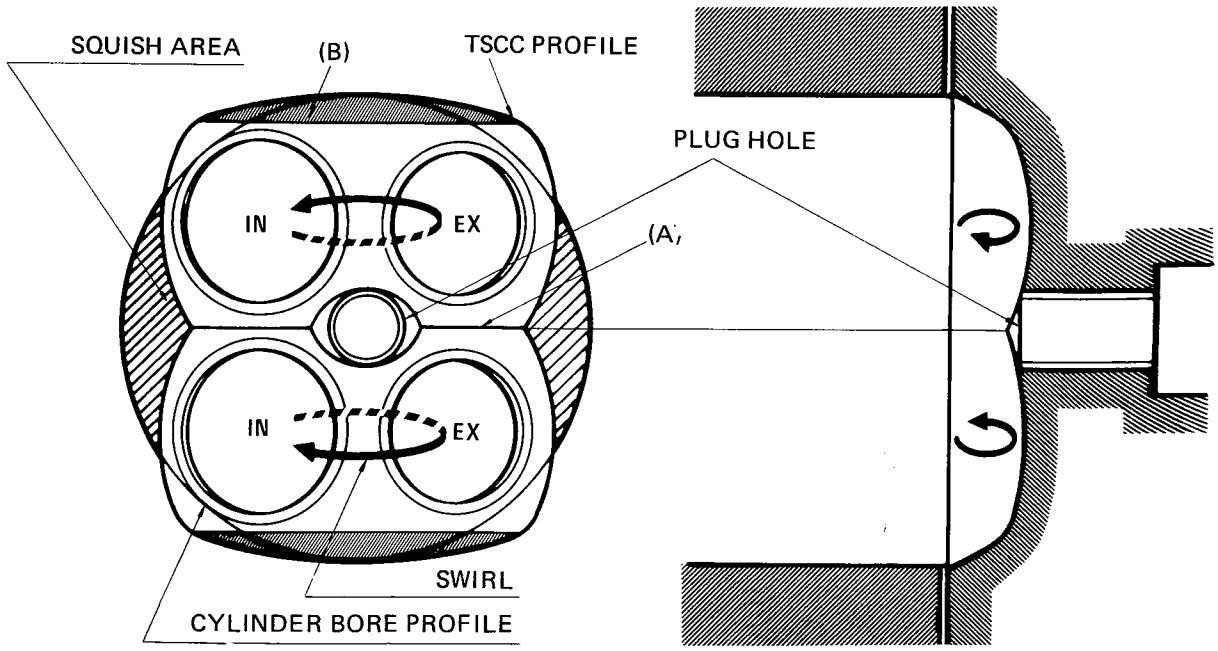
The quick completion of burning results in more energy being developed while the piston is in position to transmit maximum power to the crankshaft.

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.

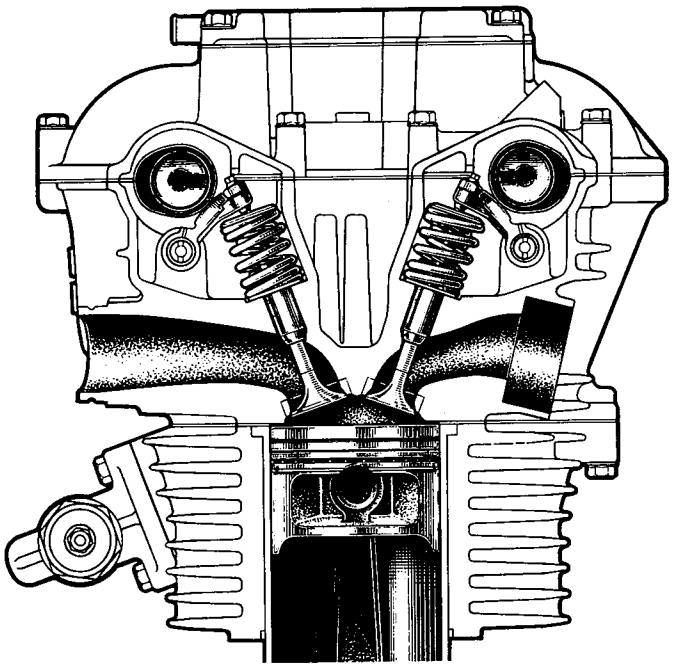
Increased burning efficiency. Increased charging efficiency. The result is more power throughout, from idle to redline. Throttle response is instant and clean. Displacement for displacement, no conventional engine, 2 valve or 4 valve, can compare. This could be enough, but SUZUKI went even further to 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 without special tools--quickly and easily.

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

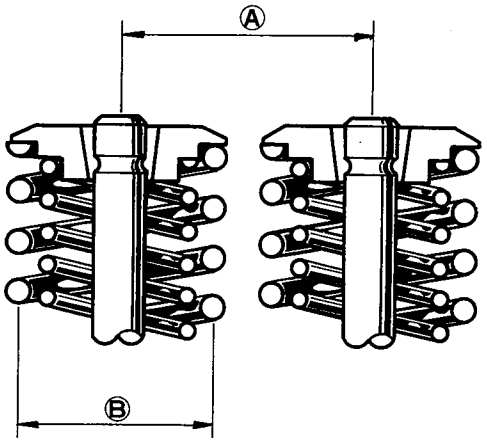
The patented TSCC combustion system combined with SUZUKI's high efficiency charging design results in power and throttle response found only in this new generation 4-stroke engine.

The SUZUKI TSCC engine series--performance without compromise.

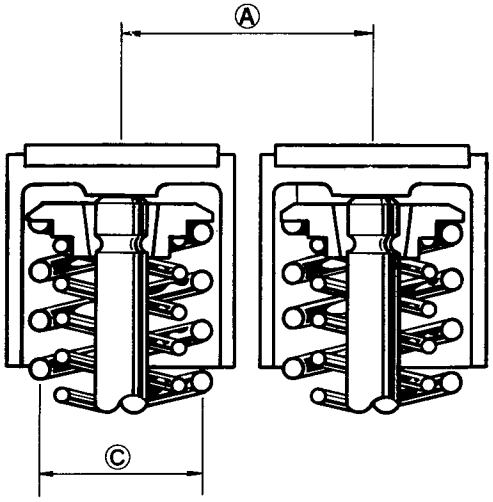


If valve pitch Ⓐ is the same, spring diameter Ⓑ is larger than Ⓒ

TSCC
4-valve

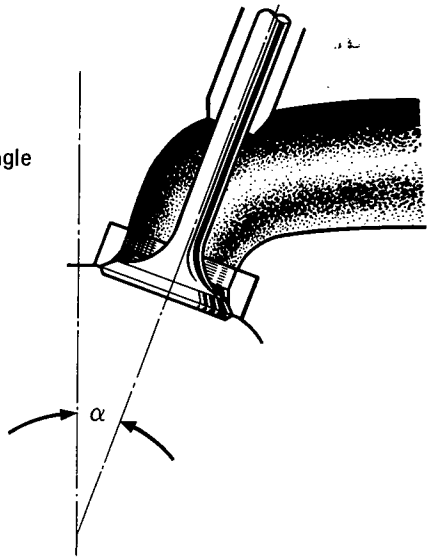


Conventional
4-valve

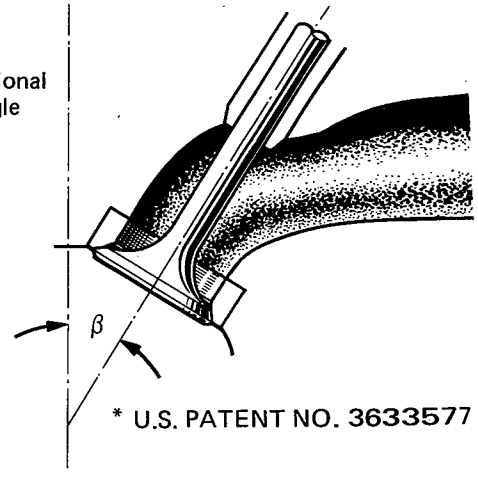


TSCC valve angle α is smaller than β.

TSCC
valve angle



Conventional
valve angle



* U.S. PATENT NO. 3633577

PRECAUTIONS AND GENERAL INSTRUCTIONS

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

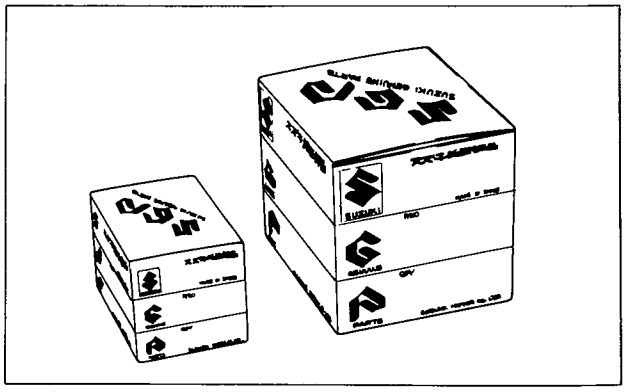
- Be sure to replace packings, gaskets, circlips, O rings and cotter pins with new ones.
- Tighten bolts and nuts from the ones of larger diameter to those of smaller diameter, and from inside to out-side diagonally, with specified tightening torque.
- Use special tools where specified.
- Use specified genuine parts and recommended oils.
- When more than 2 persons perform works in cooperation, pay attention to the safety of each other.
- After the reassembly, check parts for tightening condition 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 ..... Personal safety of the rider is involved, and disregard of the information could result in this 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.

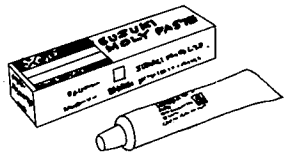
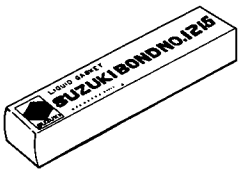
USE OF SUZUKI GENUINE PARTS

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, will reduce the machine's performance and, even worse, could induce costly mechanical trouble.



SPECIAL MATERIALS

The materials listed below are needed for maintenance work on the GS750, 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	●Oil seals ●Throttle grip ●Cables (speedometer and tachometer) ●Gearshift lever linkage and shaft ●Wheel bearings ●Center stand spacer	3-52	●Swinging arm bearing and dust seal ●Brake pedal shaft ●Governor link	7-57
 SUZUKI SILICONE GREASE 99000-25100	●Caliper axle shaft	7-12		
 SUZUKI MOLY PASTE 99000-25140	●Valve stem ●Cam shaft journal ●Chain tensioner adjuster shaft ●Crankshaft journal ●Crank pin ●Drive shaft	3-26 3-69 3-32 3-56 3-40 3-51		
 NO. 1215 99104-31110	●Mating surface of upper and lower crankcase ●Oil pressure switch ●Mating surface of crankcase and clutch cover, generator cover	3-56 4-18 3-59 3-62		
 THREAD LOCK SUPER "1361A" 99104-32020	●Gearshift shaft stopper ●Cam chain guide bolt ●Cam chain guide screw ●Starter clutch allen bolt ●Engine sprocket damper screw ●Muffler cover screw	 3-33 3-33 3-47		

MATERIAL	PART	PAGE	PART	PAGE
 THREAD LOCK SUPER "1363A" 99104-32030	●Countershaft 2nd drive gear ●Cam sprocket allen bolt	3-49 3-30		
 THREAD LOCK CEMENT 99000-32040	●Carburetor plate set screw ●Carburetor starter shaft lock screw ●Front fork damper rod bolt ●Cam shaft end cap screw ●Oil separater plate screw ●Cylinder stud bolt ●Oil filter cap nut ●Engine sprocket spacer inner surface	4-16 4-16 7-23 2-14 3-50		
 THREAD LOCK "1363C" 99104-32050	●Generator stator securing screw ●Generator stator lead wire screw ●Gearshift cam stopper bolt ●Starter motor securing bolt ●Drive shaft plate screw ●Countershaft B/g retainer screw ●Engine oil pump set screw ●Gearshift cam pawl screw ●Gearshift cam guide screw	3-46 3-46 3-58 3-60 3-60 3-48 3-54 3-54	●Engine oil sump filter screw ●Oil gallery plate screw ●Carburetor throttle stop plate screw ●Starter motor housing screw	3-53 3-60 4-15 6-14
 THREAD LOCK SUPER "1332B" 99104-32090	●Generator rotor bolt	3-58		

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 240 mm (88.2 in)
Overall width	870 mm (34.3 in)
Overall height	1 170 mm (46.1 in)
Wheelbase	1 520 mm (59.8 in)
Ground clearance	160 mm (6.3 in)
Seat height	810 mm (31.9 in)
Dry mass (weight)	233 kg (514 lbs)

ENGINE

Type	Four-stroke, air-cooled, DOHC
Number of cylinders	4
Bore	67.0 mm (2.638 in)
Stroke	53.0 mm (2.087 in)
Piston displacement	747 cm^3 (45.6 cu.in)
Compression ratio	9.4 : 1
Carburetor	MIKUNI BS32SS, four
Air cleaner	Paper element
Starter system	Electric
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction	2.162 (93/43)
Final reduction	2.733 (41/15)
Gear ratios, Low	2.571 (36/14)
2nd	1.777 (32/18)
3rd	1.380 (29/21)
4th	1.125 (27/24)
Top	0.961 (25/26)
Drive chain	DAIDO D.I.D.630V or TAKASAGO RK630SO, 96 links

CHASSIS

Front suspension	Telescopic, oil dampened
Rear suspension	Swinging arm, oil dampened, spring 5-way adjustable
Steering angle	40° (right & left)
Caster	62°00′
Trail	103 mm (4.06 in)
Turning radius	2.8 m (9.2 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	3.25H19-4PR
Rear tire size	4.00H18-4PR
Front fork stroke	160 mm (6.30 in)
Rear wheel travel	107 mm (4.21 in)
Front tire pressure	1.75 kg/cm² (25 psi) (Normal solo riding)
Rear tire pressure	2.00 kg/cm² (28 psi) (Normal solo riding)

ELECTRICAL

Ignition type	Transistorized
Ignition timing	15° B.T.D.C. below 1 500 r/min and 35° B.T.D.C. above 2 350 r/min
Spark plug	NGK D8EA or NIPPON DENSO X24ES-U
Battery	12V 50.4kC (14Ah)/10HR
Generator	Three-phase A.C. generator
Fuse	10/10/10/10/15A

CAPACITIES

Fuel tank	19L (5.0 US gal)
Engine oil	3.2 L (3.4 US qt)
Front fork oil (each leg)	237 ml (8.01 US oz)

PERIODIC MAINTENANCE AND TUNE-UP PROCEDURES

CONTENTS

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:
More frequent servicing may be performed on motorcycles that are used under extreme severe conditions, however, it is not necessary for ensuring emission level compliance.

The chart below lists the recommended intervals for all the required periodic 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.

PERIODIC MAINTENANCE CHART

INTERVAL: THIS INTERVAL SHOULD BE JUDGED BY ODOMETER READING OR MONTHS WHICHEVER COMES FIRST	**mile**	**600**	**4 000**	**7 500**	**11 000**	**15 000**
	km	**1 000**	**6 000**	**12 000**	**18 000**	**24 000**
	month	**2**	**12**	**24**	**36**	**48**
Battery		—	I	I	I	I
Cylinder head nuts and exhaust pipe bolts		T	T	T	T	T
Air cleaner element		Clean every 2 000 miles (3 000 km), and replace every 7 500 miles (12 000 km)				
Valve clearance		I	I	I	I	I
Compression		I	I	I	I	I
Spark plug		—	C	R	C	R
Carburetor		I	I	I	I	I
Fuel line		Replace every two years.				
Engine oil and oil filter		R	R	R	R	R
Oil pressure		—	I	I	I	I
Clutch		I	I	I	I	I
Drive chain		I	I	I	I	I
		Clean and lubricate every 600 miles (1 000 km)				
Brake		I	I	I	I	I
Brake hose		Replace every two years.				
Brake fluid		Change every 1 year				
Tire		I	I	I	I	I
Steering		I	I	I	I	I
Front fork		—	—	I	—	I
Front fork oil		R	—	R	R	R
Chassis bolts and nuts		T	T	T	T	T

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

LUBRICATION CHART

The maintenance schedule, which follows, is based on odometer indication and is calculated to achieve the ultimate goal of motorcycle maintenance in the most economical manner.

Interval / Item	Initial and every 3 000 miles (5 000 km)	Every 7 500 miles (12 000 km)
Throttle cable	Motor oil	–
Throttle grip	–	Grease
Clutch cable	Motor oil	–
Choke cable	Motor oil	–
Speedometer cable	–	Grease
Tachometer cable	–	Grease
Drive chain	Motor oil every 600 miles (1 000 km)	
Brake pedal shaft	Grease or oil	–
Governor link	–	Grease
Steering stem bearings	Grease every 2 years or 15 000 miles (24 000 km)	
Swinging arm bearings		

NOTE:
- Lubricate exposed parts which are subject to rust with either motor oil or grease whenever the motorcycle has been operated under wet or rainy conditions.
- Before lubricating each part, clean off any rusty spots and wipe off any grease, oil, dirt or grime.

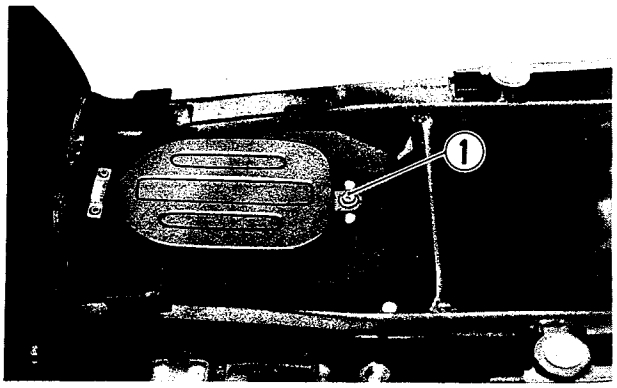
MAINTENANCE AND TUNE-UP PROCEDURES

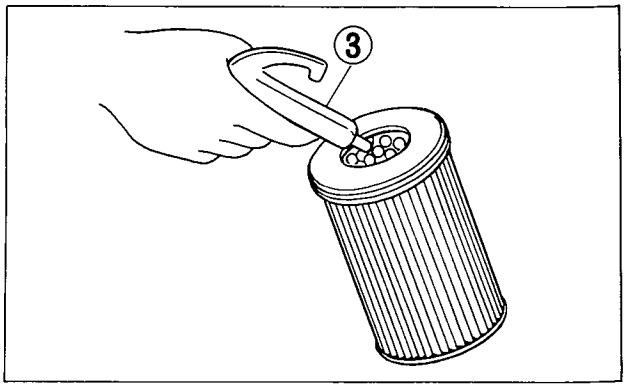
This section describes the service procedures for each section of the Periodic Maintenance requirements.

AIR CLEANER

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

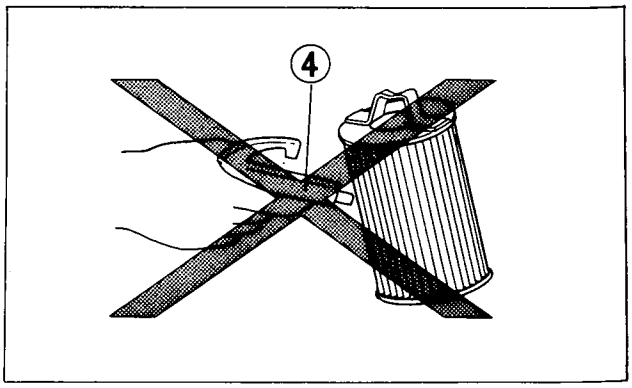
- Remove the seat and remove the air cleaner case cover by unscrewing the fixing screw ①. Take out the air cleaner element by pulling up the spring retainer bracket ②.
- Carefully use an air hose to blow the dust from the cleaner element inside.



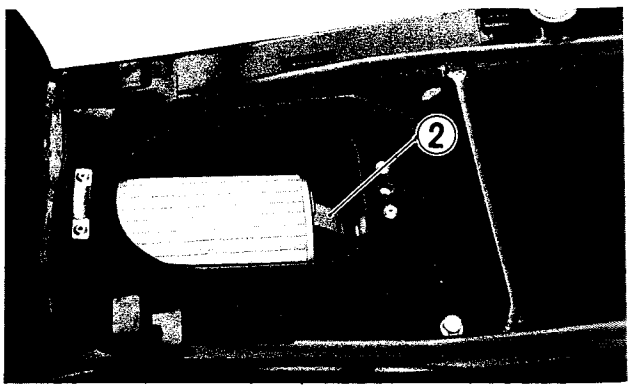


CAUTION:
Always use air pressure ③ on the inside of the cleaner element. If air pressure is used on the outside ④ dirt will be forced into the pores of the cleaner element, thus restricting air flow through the cleaner element.

- Reinstall the cleaned or new cleaner element in the reverse order of removal. Make sure that the spring retainer bracket ② is properly engaged with the securing spring.



CAUTION:
If driving under dusty conditions, clean the air cleaner element more frequently. The surest way to accelerate engine wear is to run 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!



BATTERY

Inspect Every 6 000 km (4 000 mi)

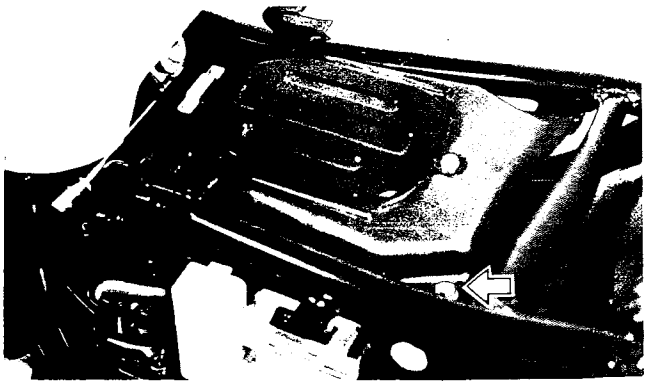
- Remove the right and left frame covers.
- Remove the rear master cylinder reservoir.
- Remove air cleaner case to check battery.
- Check electrolyte for level and specific gravity. Add distilled water, as necessary to keep the surface of the electrolyte above the LOWER level line but not above the UPPER level line.
- For checking specific gravity, use a hydrometer to determine the charged condition.

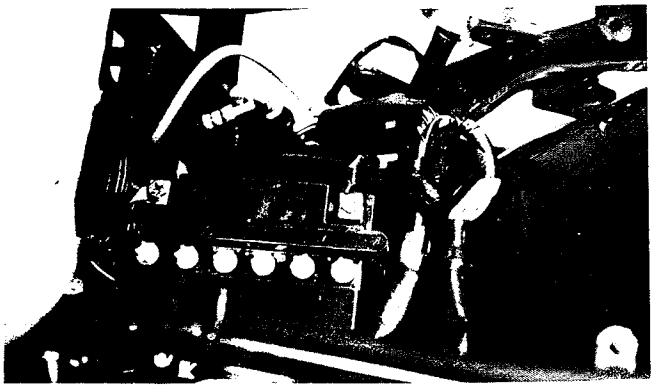
09900-28403	Hydrometer
Standard specific gravity	1.28 at 20°C

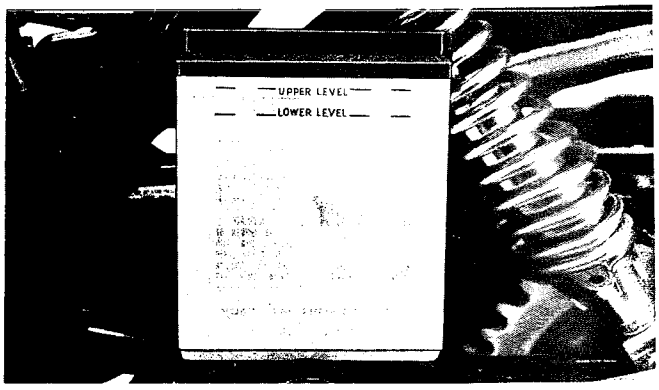
An S.G. reading of 1.22 (at 20°C) or under means the battery needs recharging.
Remove the battery from the machine and charge it with a battery charger.

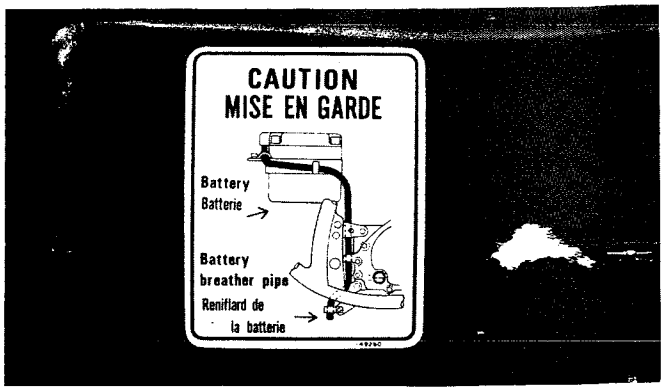
CAUTION:
Be careful not to bend, obstruct, or change the routing of the air bent tube from the battery. Make certain that the vent tube is attached to the battery vent fitting and that the opposite end is always open.

- Check that the vent pipe is tightly secured and undamaged, and is routed as shown.









VALVE CLEARANCE

Inspect Initial 1 000 km (600 mi) and Every 6 000 km (4 000 mi)

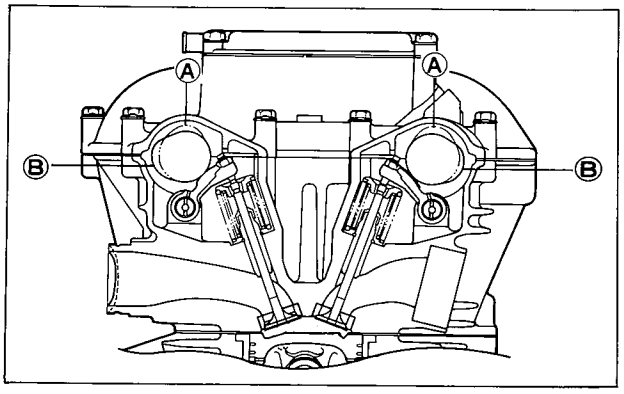
The valve clearance specification is the same for both intake and exhaust valves.

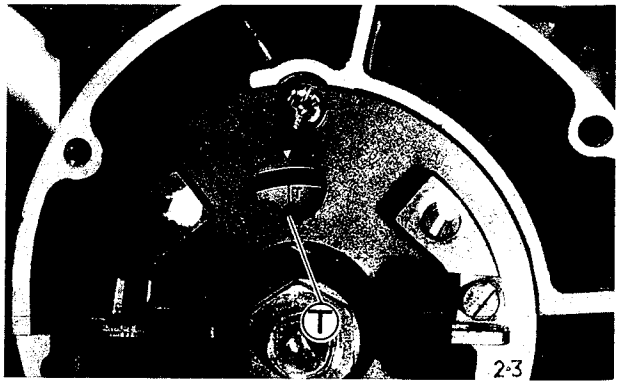
Valve clearance adjustment must be checked and adjusted 1) at the time of periodic inspection, 2) when the valve mechanism is serviced, and 3) when the camshafts are disturbed by removing them for servicing.

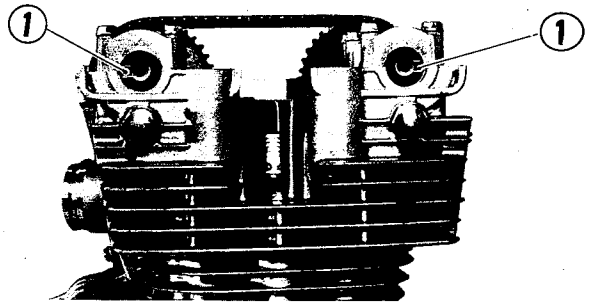
Valve clearance (when cold)	0.09–0.13 mm (0.004–0.005 in)

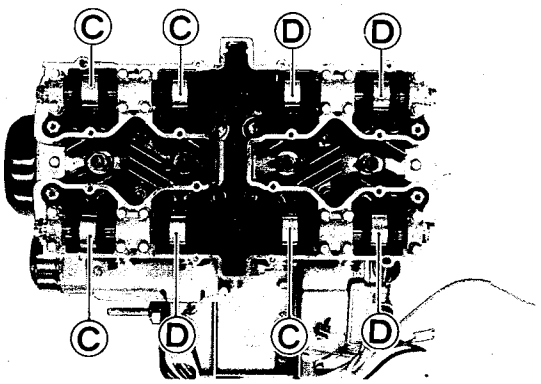
NOTE:
The cam must be at position Ⓐ in order to check the valve clearance or to adjust valve clearance. Clearance reading should not be taken with the cam in any other position than this Ⓐ position.
The clearance specification is for COLD state.
To turn the crankshaft for clearance checking, be sure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

- Turn crankshaft to bring the "T" mark on Nos. 1 and 4 side (of advance governor) to the timing mark 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).



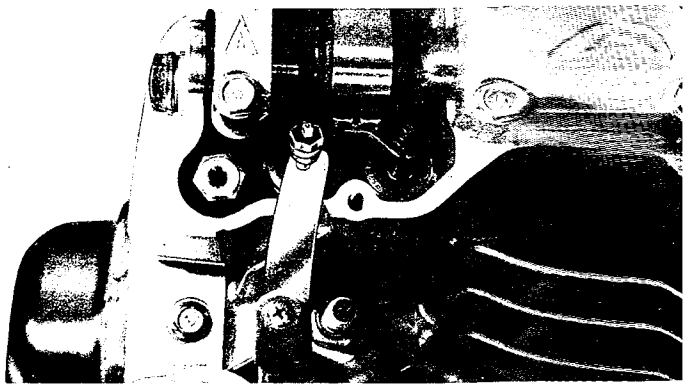




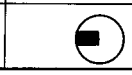


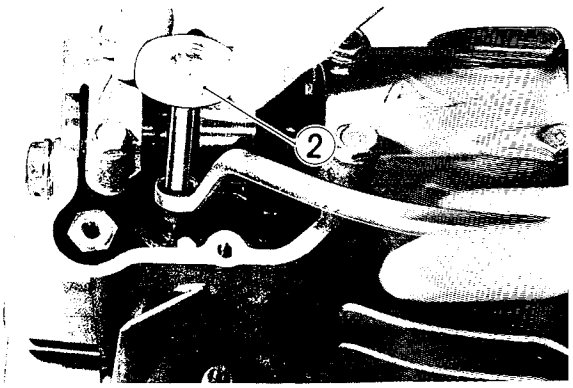
- Use thickness gauge between tappet and valve. If clearance is off the specification, bring it into the specified range by using the tappet adjusting driver ②.

09900-20803	Thickness gauge
09917-14910	Tappet adjust driver

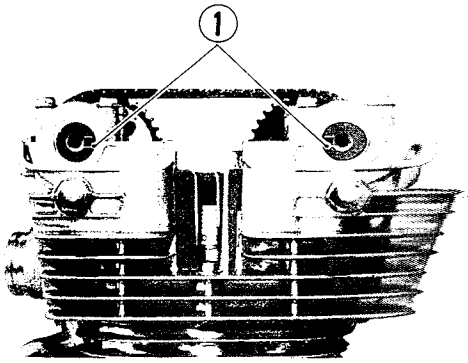


- Rotate the crankshaft in the clockwise direction 360° and realign the "T 1.4" mark. In this position the notches in the right ends of the camshafts should be facing towards each other. The valves Ⓓ can be checked and adjusted if necessary.

	Notch ① position	
Cam Position	Intake Camshaft	Exhaust Camshaft
Ⓒ		
Ⓓ		

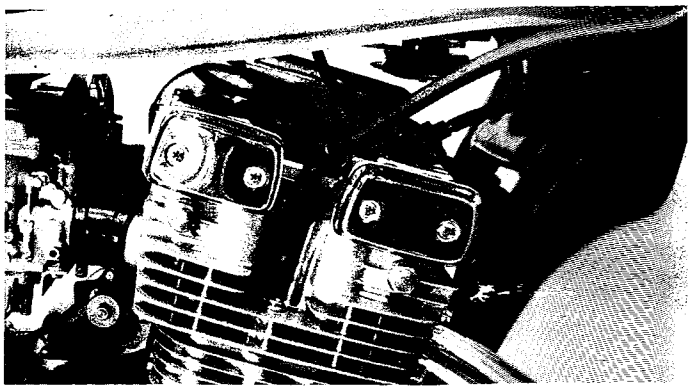


NOTE:
The cylinder head cover gasket should be replaced whenever valve adjustment is performed. A thin film of SUZUKI Bond No. 1215 on both sides of the gasket will ensure an oil tight seal. The sealing washers utilized under the four special phillips head screws that help secure the head cover should also be replaced at this time.



COMPRESSION CHECK

Inspect Initial 1 000 km (600 mi) and Every 6 000 km (4 000 mi)



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
9 – 12 kg/cm² (128–170 psi)	7 kg/cm² (100 psi)	2 kg/cm² (28.4 psi)

Low compression can indicate any of the following malconditions:
* Excessively worn cylinder wall
* Worn-down piston or piston rings
* Piston rings stuck in the grooves
* Poor sealing of valves
* Leaking or otherwise defective cylinder head gasket

Overhaul the engine in the following cases:
* Compression pressure in any one of cylinders is less than 7 kg/cm²
* Difference in compression pressure between the two, highest and lowest, is more than 2 kg/cm²
* All compression pressures are below 9 kg/cm² (standard) even when they measure more than 7 kg/cm²

COMPRESSION TEST PROCEDURE

NOTE:
Before testing the compression of engine, make sure that the cylinder nuts and bolts are torqued to the specified torque value.
Warm up the engine before testing.

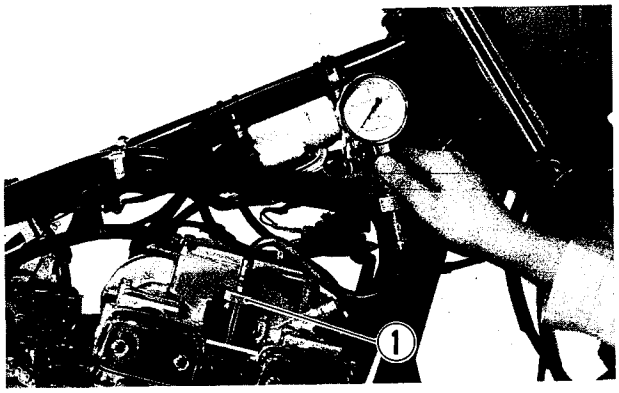
- Remove fuel tank.
- Remove all spark plugs. Ground all plug leads.

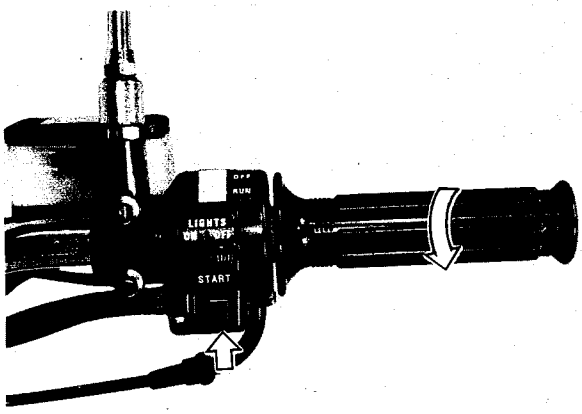
09930-13210	Socket wrench
09930-14530	Universal joint
09914-24510	T handle

- Fit the compression gauge ① to one of the plug holes, taking care that the connection is absolutely tight.

09915-64510	Compression gauge
09915-63210	Compression adapter

- Twist the throttle grip into full-open position.
- Crank the engine a few seconds with the starter, and read the maximum gauge reading as the compression of that cylinder. Repeat this procedure with the other cylinders.





SPARK PLUG

Clean and Adjust Every 6 000 km (4 000 mi), Replace Every 12 000 km (7 500 mi)

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

09930-13210	Socket wrench
09930-14530	Universal joint
09914-24510	T handle
09900-20803	Thickness gauge

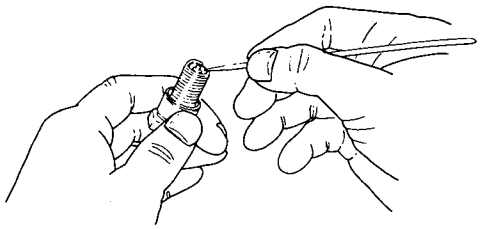
NGK D8EA or NIPPON DENSO X24ES-U listed in the table should be used as the standard plug. However, the heat range of the plug should be selected to meet the requirements of speed, actual load, fuel, etc. If the plugs need to be replaced, it is recommended that ones having a heat range closest to the standard plug in the table be selected.

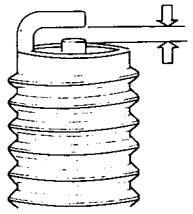
Remove the plugs and inspect the insulators. Proper heat range would be indicated if all insulators were light brown in color. If they are blackened by carbon, they should be replaced by a hot type NGK D7EA or NIPPON DENSO X22ES-U and if baked white, by NGK D9EA or NIPPON DENSO X27ES-U.

Plugs with high heat range number are used for high speed running. These plugs are designed to be sufficiently cooled to prevent overheating and are called cold type plugs.

NOTE:
To check the spark plugs, keep the engine running on unleaded gasoline, and after test ride, if the plugs are either sooty with carbon or burnt white, replace them altogether.

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 the engine will be damaged.





NGK	NIPPON DENSO	REMARKS
D7EA	X22ES-U	If the standard plug is apt to get wet, replace with this plug. Hot type.
D8EA	**X24ES-U**	**Standard**
D9EA	X27ES-U	If the standard plug is apt to overheat, replace with this plug. Cold type.

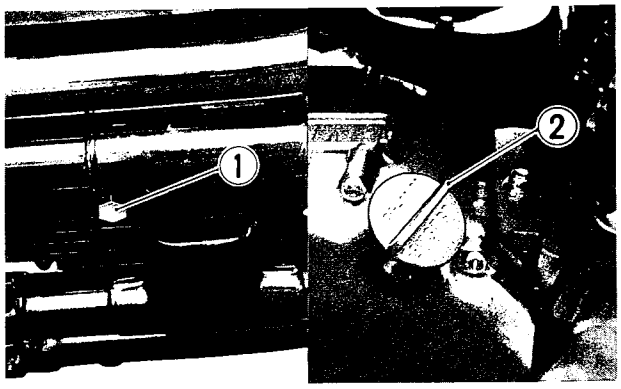
CARBURETOR

Inspect Initial 1 000 km (600 mi) and Every 6 000 km (4 000 mi)

IDLING ADJUSTMENT

NOTE:
Make this adjustment when the engine is hot.

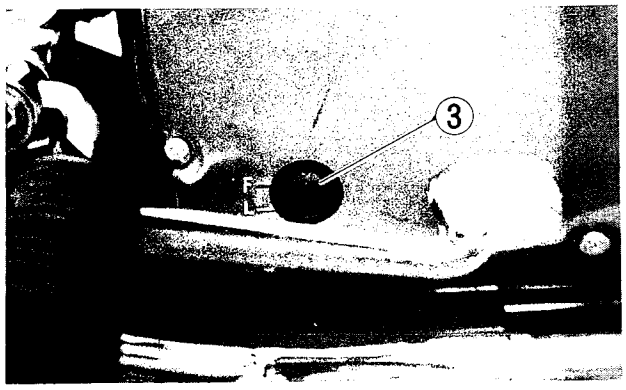
- Set idling speed at anywhere between 950 and 1 150 r/min by turning throttle stop screw ①.



THROTTLE CABLE PLAY

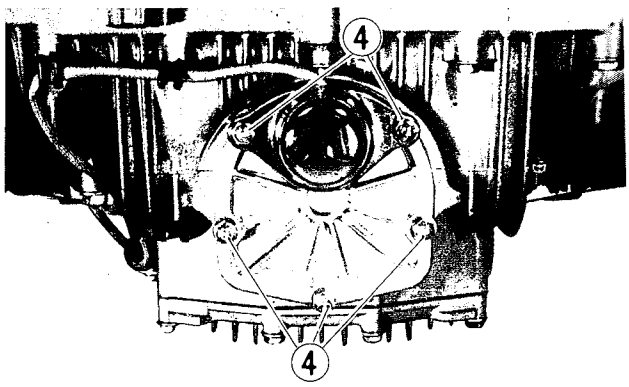
There should be 0.5 – 1.0 mm (0.02 – 0.04 in) play Ⓐ on the throttle cable. To adjust the throttle cable play:

- Tug on the throttle cable to check the amount of play.
- Loosen the lock nut ① and turn the adjuster ② in or out until the specified play is obtained.



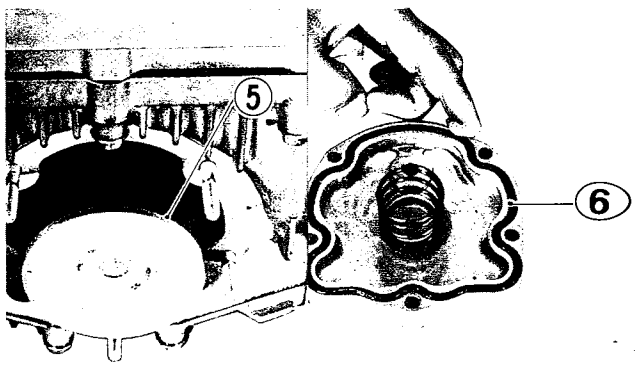
CHOKE KNOB ADJUSTMENT

When the choke knob is pulled, and if it is too stiff or too loose, raise seal cover ③ and turn adjuster ④. Turning the adjuster clockwise will make the choke knob harder to pull, and vice versa.



FUEL LINE

Replace every 2 years



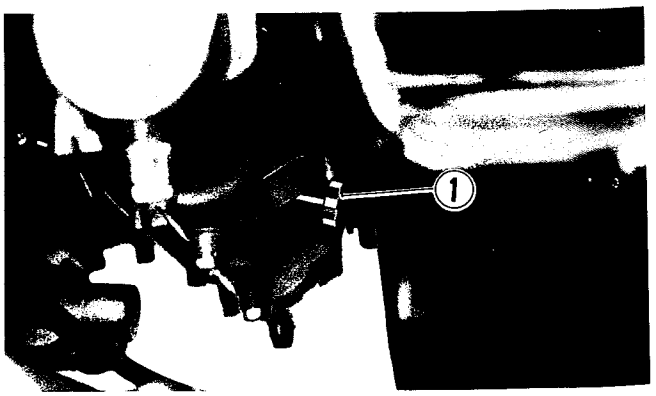
ENGINE OIL AND OIL FILTER

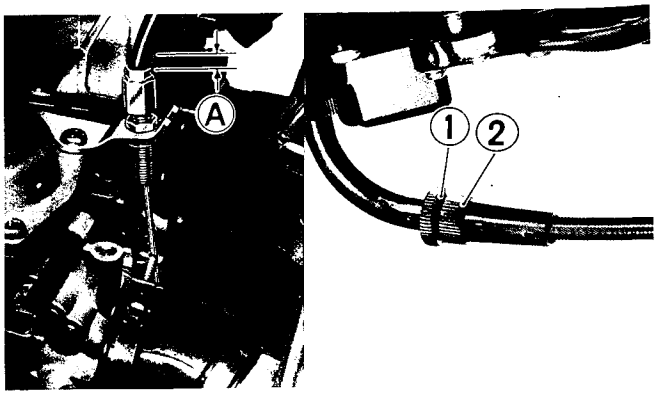
Change Initial 1 000 km (600 mi) and Every 6 000 km (4 000 mi)

ENGINE OIL

The oil should be changed while the engine is hot.

- Keep the motorcycle upright, supported on the center stand.
- Place an oil pan below the engine and drain the oil by removing drain plug ① and filler cap ②.
- Fit drain plug ① securely, and add fresh oil through the filler. The engine will hold about 3.2 L (3.4 US qt) of oil.
  Use API classification of SE oil with SAE 10W/40 viscosity.
- Start up the engine 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 ③. If the level is below mark "F", supply oil to that level.

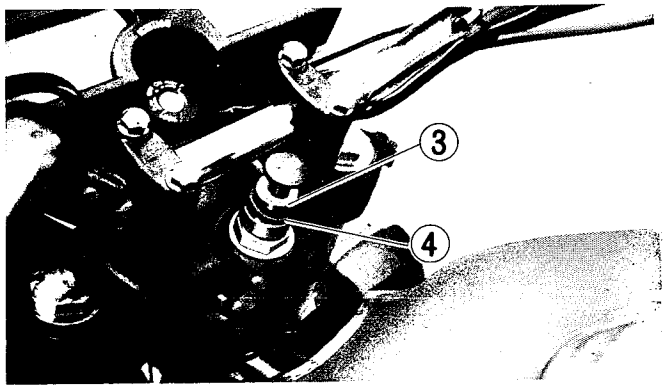




ENGINE OIL FILTER

Oil filter replacement at the above intervals should be done together with engine oil change. After draining engine oil and securely tightening the engine oil drain plug, perform the following:

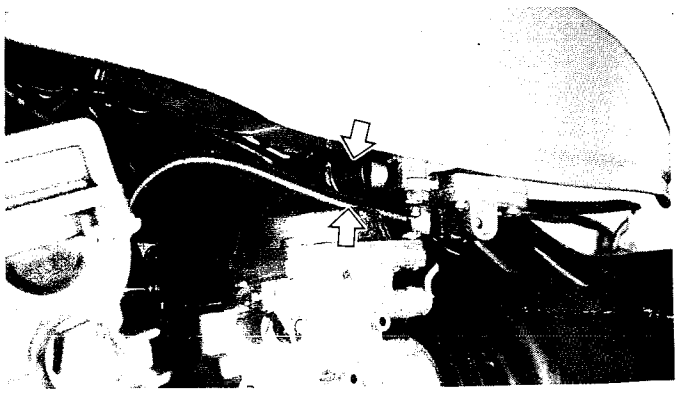
- Remove five nuts ④ and remove the cover with pressure switch and drain oil.
- Pull out old filter ⑤, and replace with new one.
- Replace O-ring, filter cover, and pressure switch cover, and secure nuts ④ with applying thread lock cement.



99000-32040	Thread lock cement

NECESSARY AMOUNT OF ENGINE OIL

Oil change	3.2 L (3.4 US qt)
Filter change	3.8 L (4.0 US qt)
Overhaul engine	4.0 L (4.2 US qt)

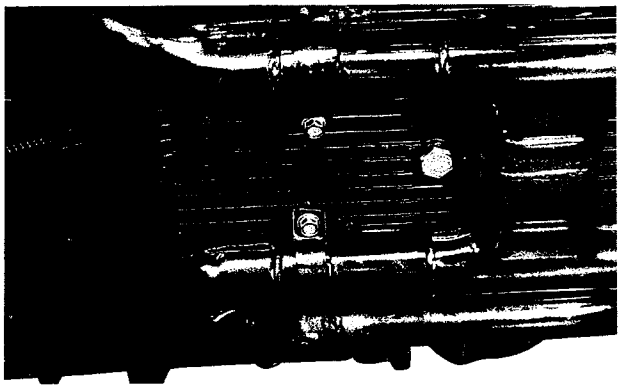


NOTE:
Be sure to take care of oil pressure switch and O-ring ⑥ to prevent any damage.

OIL PRESSURE

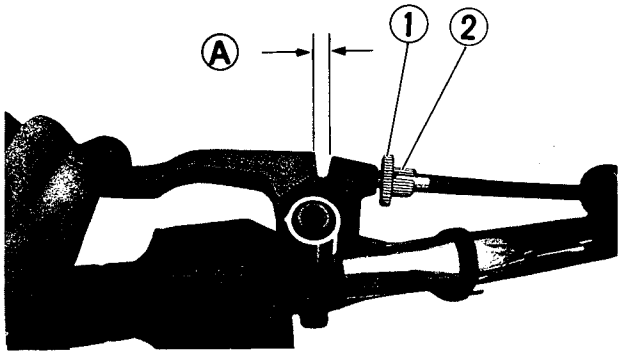
Inspect Every 6 000 km (4 000 mi)

When inspecting oil pressure, see page 4-18.



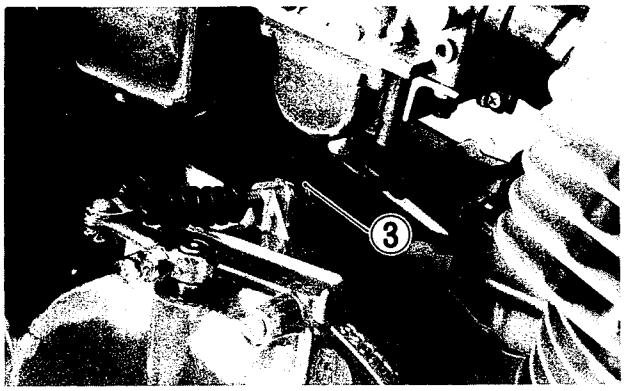
CLUTCH

Inspect Initial 1 000 km (600 mi) and Every 6 000 km (4 000 mi)



- Loosen lock nut ① on the lever side of the clutch cable and screw adjust nut ② fully in on the clutch lever side.
- Loosen the cable lock nut, tighten the adjust nut to provide play in the outer cable. Adjust the play of the cable with adjusting nut ③ until play Ⓐ of the clutch lever is 2–3 mm (0.08–0.12 in). Next, firmly secure lock nut.

Cable play Ⓐ	2 – 3 mm (0.08 – 0.12 in)



- If the specified play can not be obtained with adjusting nut ③, carry out the adjustment using the adjust nut on the clutch lever side.

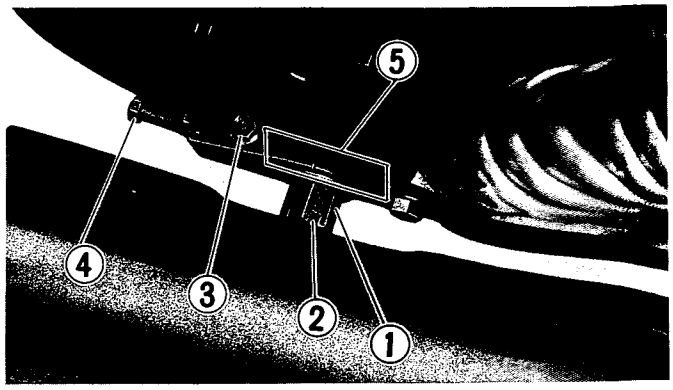
DRIVE CHAIN

Inspect Initial 1 000 km (600 mi) and Every 6 000 km (4 000 mi)
Clean and Lubricate Every 1 000 km (600 mi)

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.)

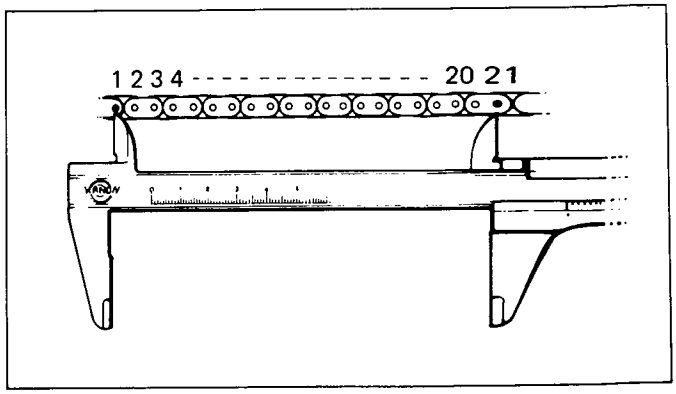
* Loose pins
* Damaged rollers
* Dry or rusted links
* Kinked or binding links
* Excessive wear
* Improper chain adjustment
* Missing O-rings

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

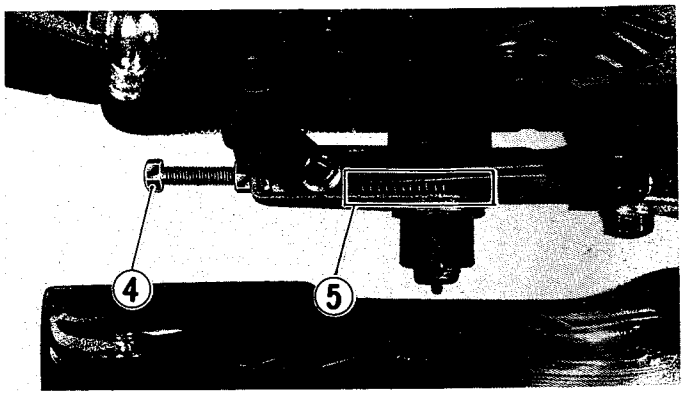


CHECKING

- Loosen axle nut ① after pulling out cotter pin ②.
- Loosen chain adjuster support bolt ③.
- Tense the drive chain fully by tightening the adjusters ④.
- Remove the chain case. 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.



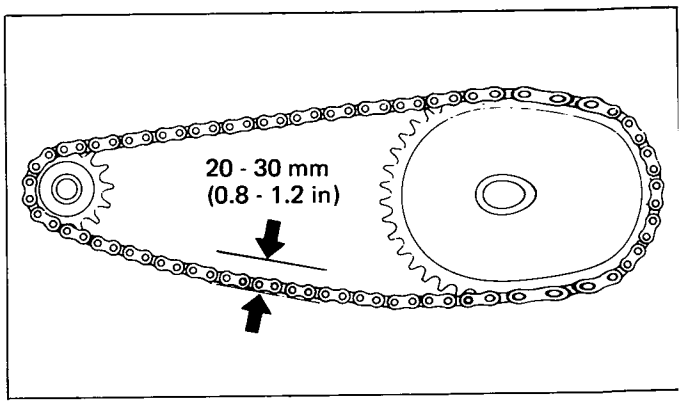
Service Limit	383.0 mm (15.08 in)



ADJUSTING

- Loosen the adjuster ④ until the chain has 20 – 30 mm (0.8 – 1.2 in) of sag at the middle between engine and rear sprockets. The mark ⑤ 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.

Standard	20 – 30 mm (0.8 – 1.2 in)



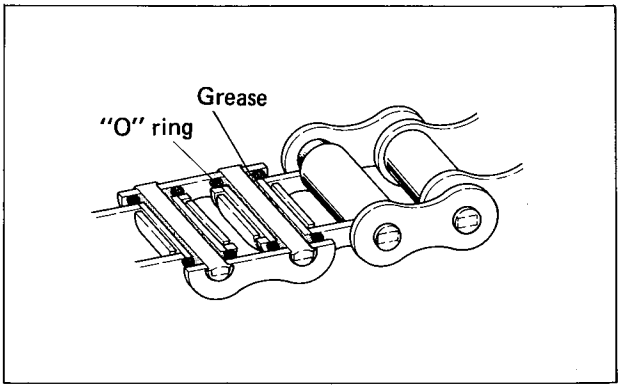
- After adjusting the drive chain, tighten the axle nut ① securely, and lock with cotter pin ②. Always use a new cotter pin.
- Tighten the chain adjuster support bolts and adjuster lock nuts good and hard.

Rear axle nut tightening torque	8.5 – 11.5 kg-m (61.5 – 83.0 lb-ft)
Support bolt	1.5 – 2.0 kg-m (11.0 – 14.5 lb-ft)

CLEANING AND LUBRICATING

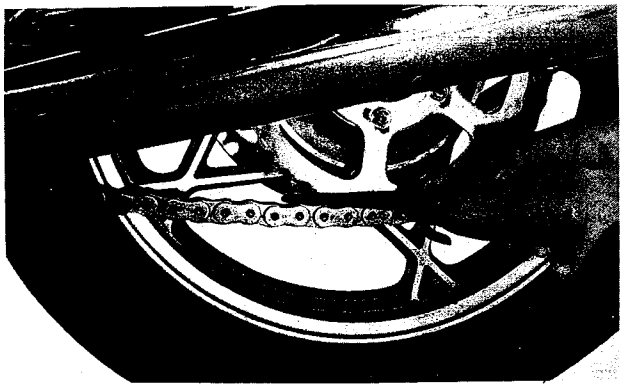
Wash the chain with kerosene. If the chain tends to rust faster, the intervals must be shortened.

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 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.



CAUTION:
The standard drive chain is DAIDO DID630V or TAKASAGO RK630SO. SUZUKI recommends that the above-mentioned standard drive chain be used for the replacement.

BRAKES

Inspect Initial 1 000 km (600 mi) and Every 6 000 km (4 000 mi)
Replace hose Every 2 years
Change fluid Every 1 year

BRAKE FLUID LEVEL

- Support the motorcycle body 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

CAUTION

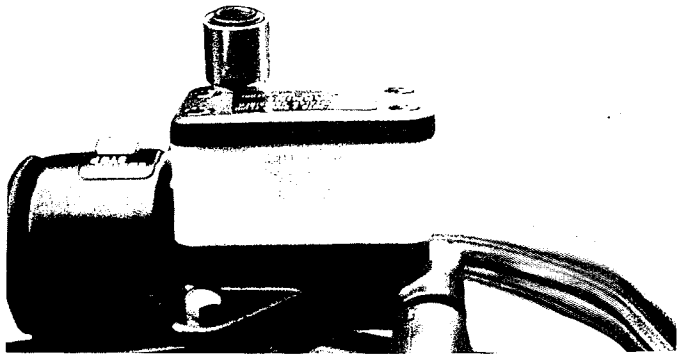
The brake system of this motorcycle is filled with a glycol-based brake fluid. Do not use or mix different types of fluid such as silicone-based and petroleum-based fluid for refilling the system, otherwise serious damage will be caused. Do not use any brake fluid taken from old or used or unsealed containers.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

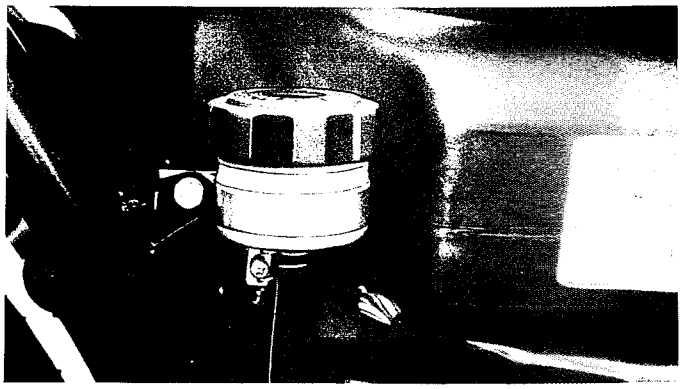
WARNING

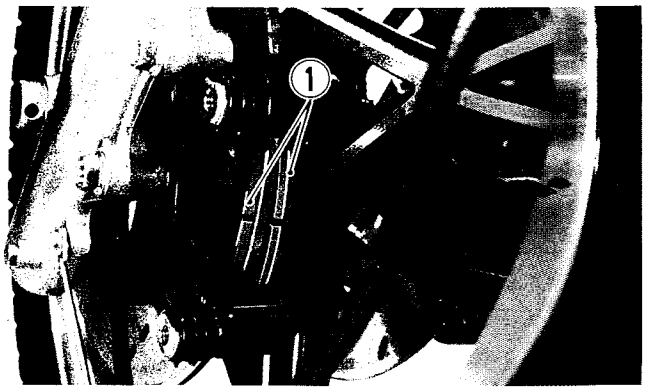
Brake fluid, if it leaks, will interfere with safe running and discolor painted surfaces. Check the brake hose for cracks and hose joint for leakage before riding.

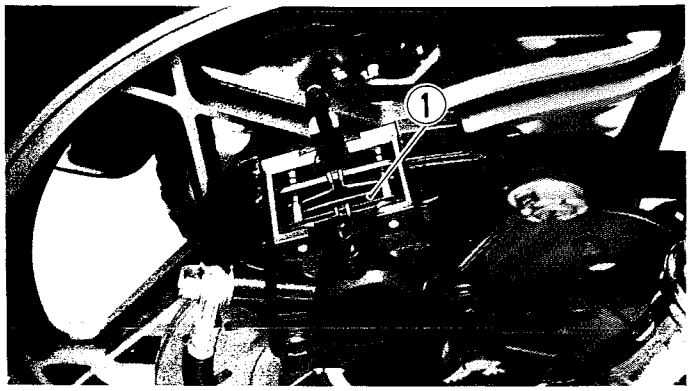
BRAKE PADS

Wearing condition of brake pads can be checked by observing the red limit line ① marked on the each pad. When the wear exceeds the limit line, replace the pads with new ones. (see page 7-7 and 7-49)





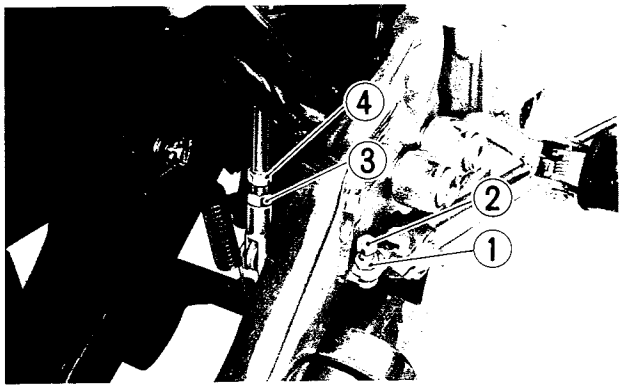


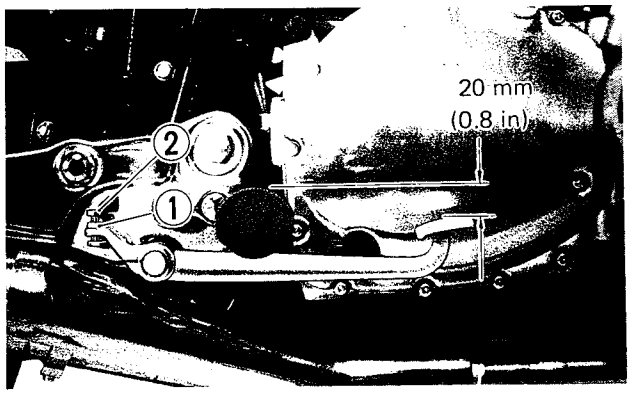


BRAKE PEDAL HEIGHT

- Loosen lock nut ①, and turn stopper bolt ② away from the stopper.
- Loosen lock nut ③, and rotate push rod ④ to locate brake pedal 20 mm (0.8 in) below the top face of the footrest.
- Turn the stopper bolt ② in so that the clearance between the stopper bolt and stopper is zero.
- Retighten both lock nuts ① and ③.

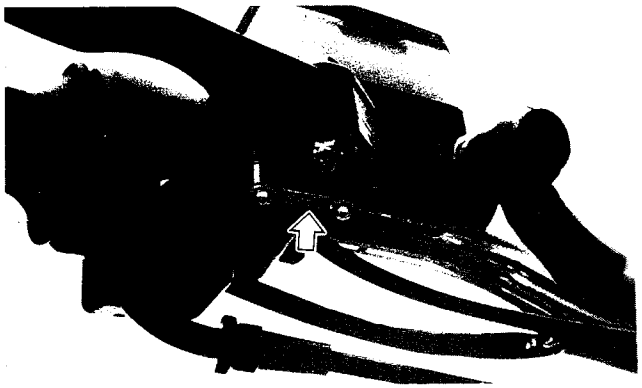
Brake pedal height	20 mm (0.8 mm)

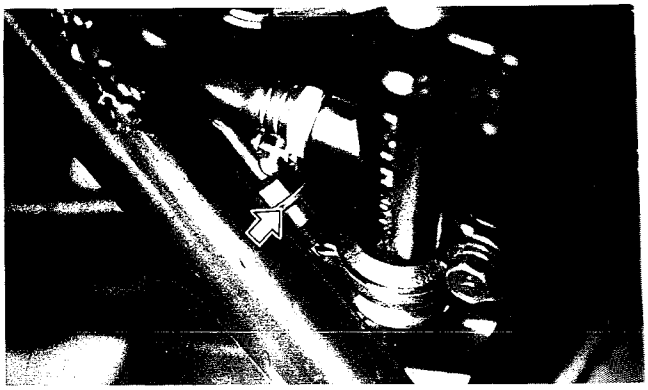




BRAKE LIGHT SWITCHES

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 damper 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:

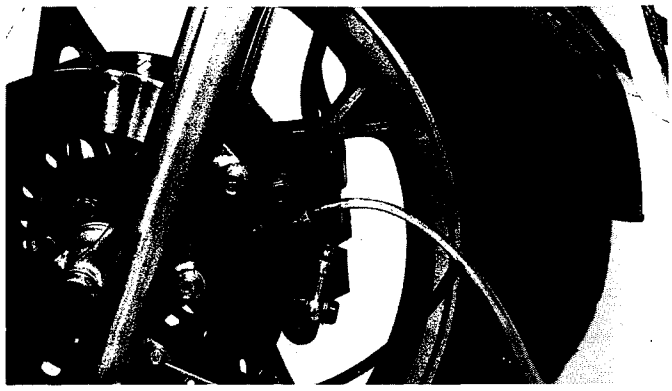
- Fill up the master cylinder reservoir to the "HIGH" level line. Replace the reservoir cap to prevent entry of dirt.
- Attach a pipe to the caliper bleeder valve, and insert the free end of the pipe into a receptacle.

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

- Bleed the left caliper first, and then the right caliper.
- 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 or so 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.

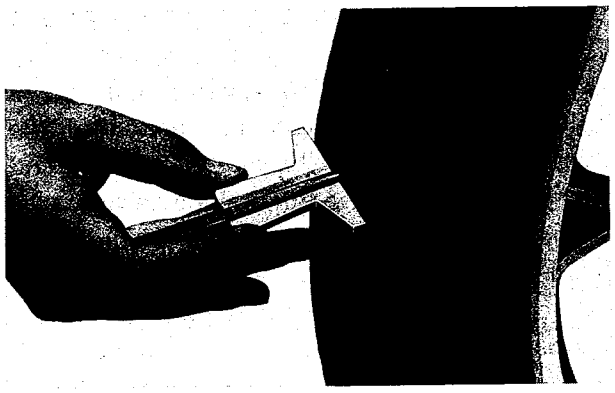
- Close the bleeder valve, and disconnect the pipe. Fill the reservoir to the "HIGH" level line.



- Differences between front and rear are that the master cylinder is actuated by a pedal and that there are two bleeder valves. Bleed air from the inboard valve first, and then from the outboard valve.

TIRES

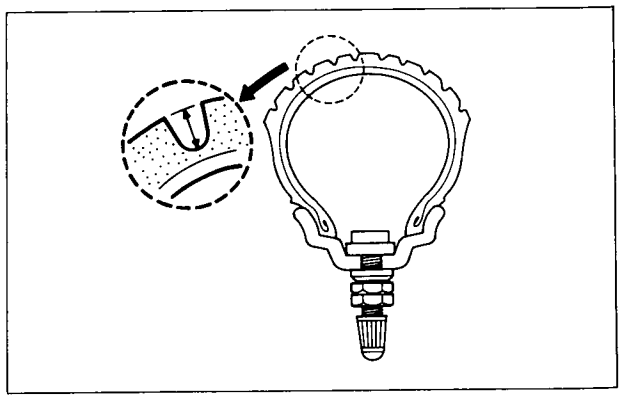
Inspect	Initial 1 000 km (600 mi) and Every 6 000 km (4 000 mi)



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)

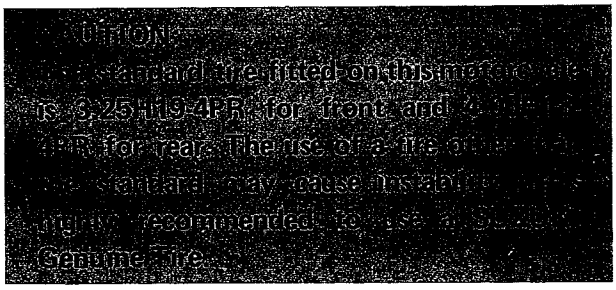


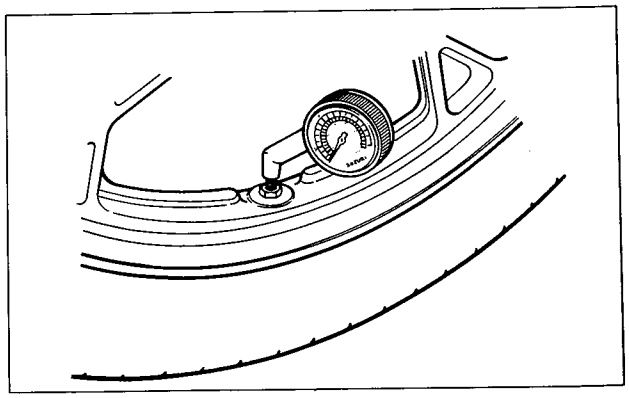
TIRE PRESSURE

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 life will result. Cold inflation tire pressure is as follows.

	Normal riding				High speed riding			
	Solo		Dual		Solo		Dual	
	kg/cm²	psi	kg/cm²	psi	kg/cm²	psi	kg/cm²	psi
FRONT	1.75	25	1.75	25	2.00	28	2.00	28
REAR	2.00	28	2.25	32	2.25	32	2.80	40

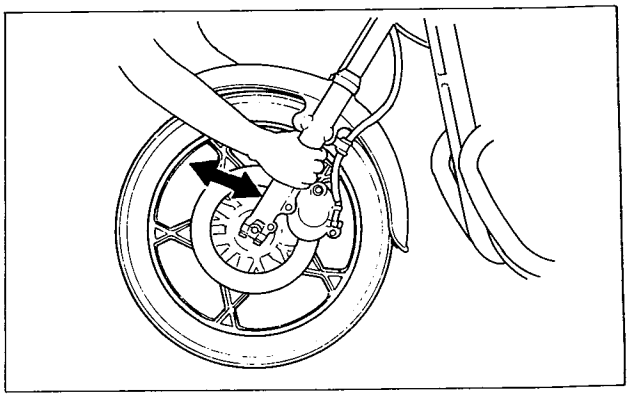




STEERING

Inspect Initial 1 000 km (600 mi) and Every 6 000 km (4 000 mi)

Taper roller type bearing 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.



CONTENTS

ENGINE COMPONENTS REMOVAL WITH ENGINE IN PLACE

Parts which can be removed without removing engine from frame.

ENGINE LEFT SIDE

ENGINE CENTER

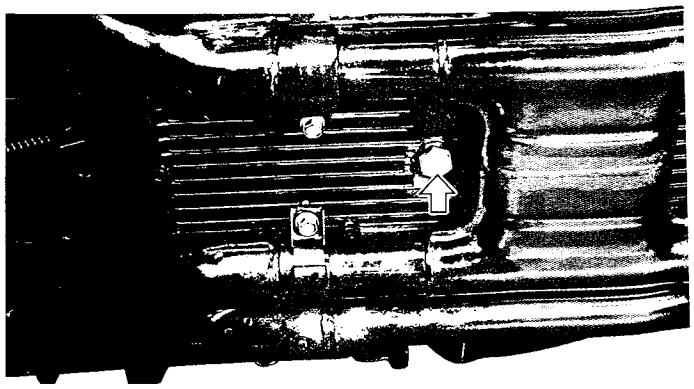
- Generator cover and starter motor lead wire should be removed from the starting motor relay side.

ENGINE RIGHT SIDE

ENGINE REMOVAL AND REINSTALLATION

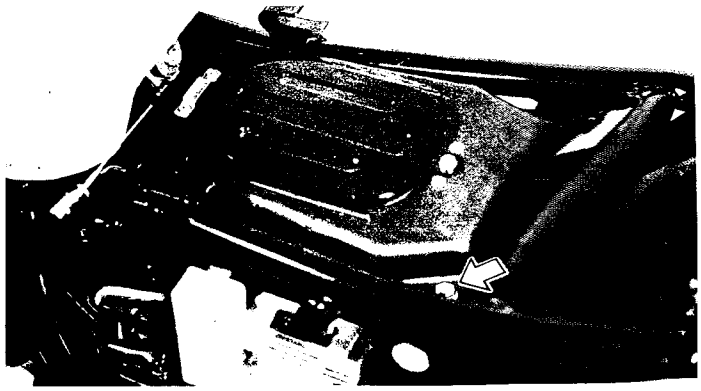
ENGINE REMOVAL

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



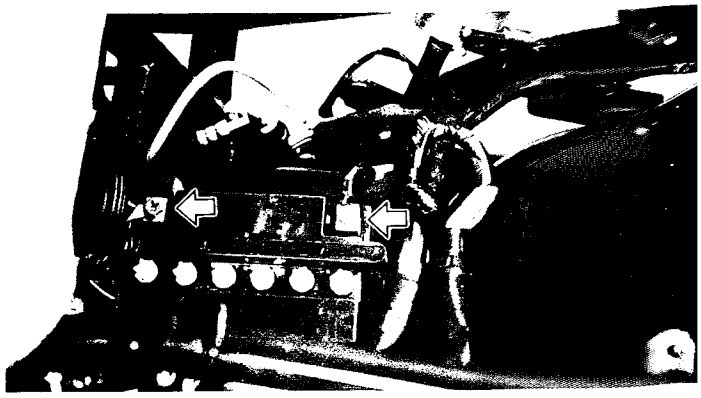
- Place an oil pan under the engine and drain oil by removing oil drain plug and filter cap.

- Remove seat, RH and LH frame covers.



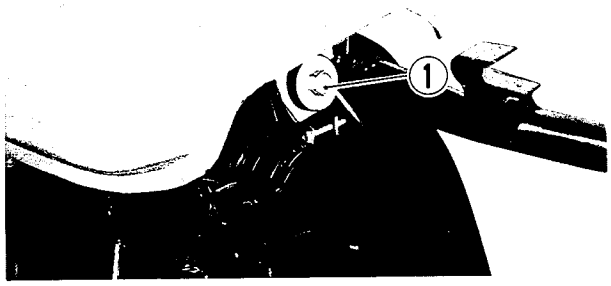
- Remove rear brake fluid reservoir and remove air cleaner case.

- Disconnect battery ⊖ and ⊕ lead wires from battery terminal.

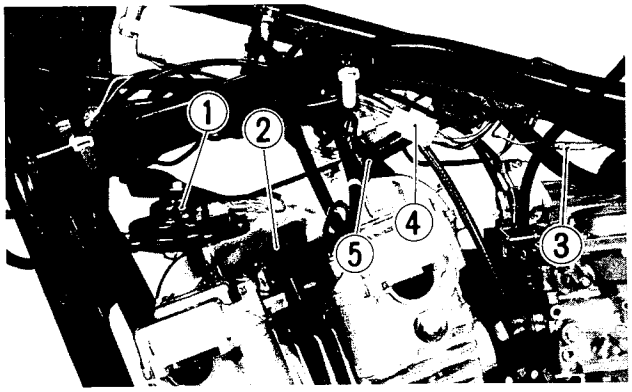


- Disconnect fuel level gauge lead wires, fuel hose and vacuum hose.

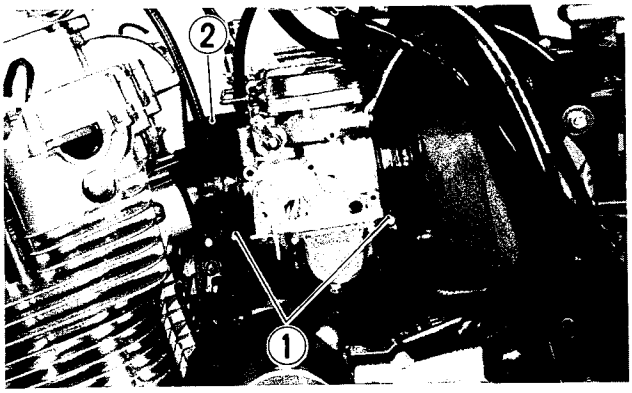
- Remove fuel tank fitting bolt ①, and draw fuel tank rearward.



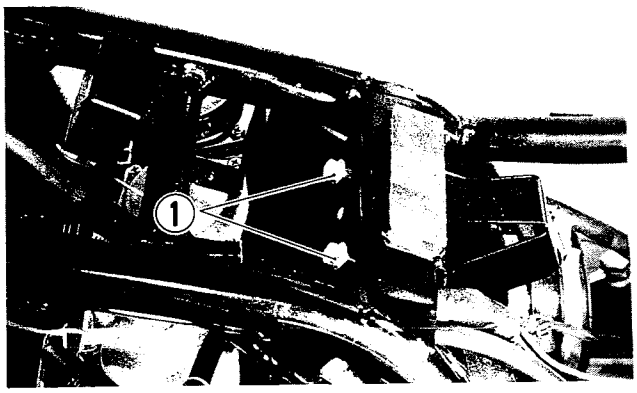
- Remove horn ass'y ① and four spark plug caps ②.
- Disconnect neutral indicator lead wire ③ and gear position indicator lead wires ④, and blow by gas breather pipe ⑤.



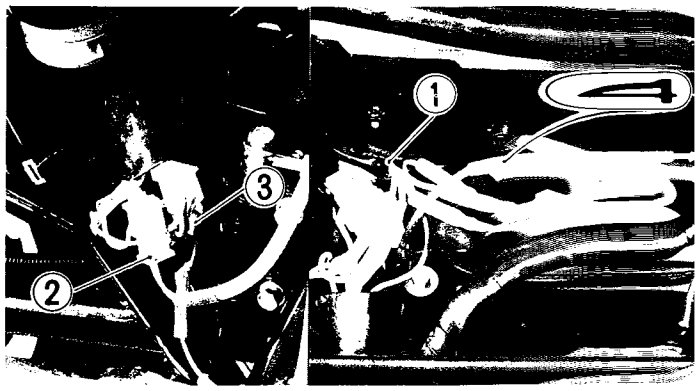
- Loosen eight screws ① for carburetor mounting, and shift carburetor assembly rearward, then remove cylinder head intake pipe No. 4 ②.
- Slightly shift carburetor assembly to right side, remove throttle and starter cables, and then remove carburetors.



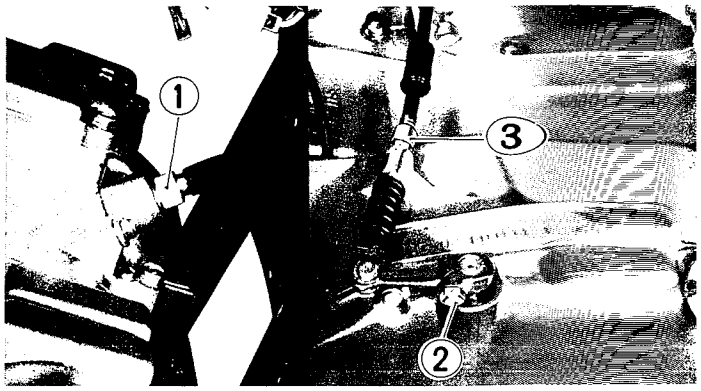
- Remove air chamber body by removing two bolts ①.

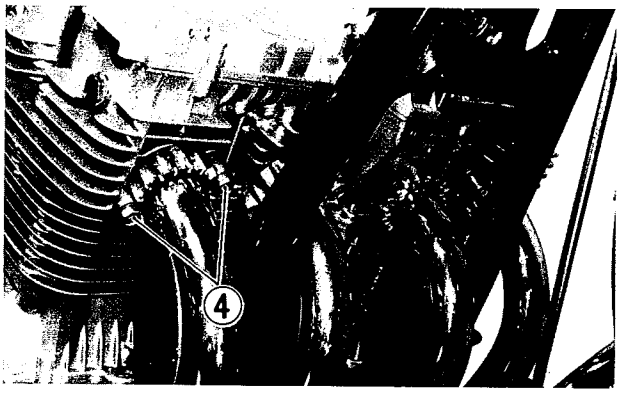


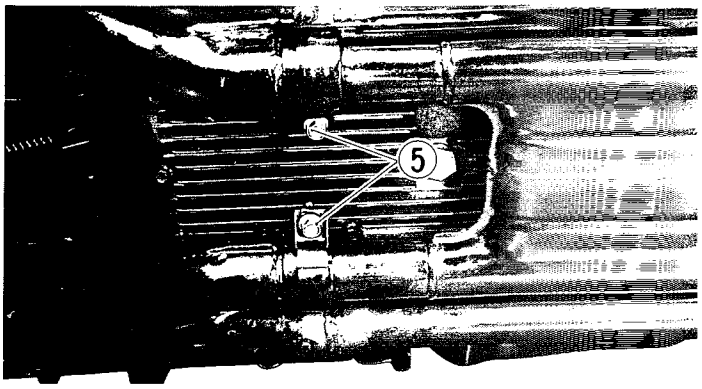
- Disconnect generator lead wires ①, signal generator lead wires ②, oil pressure switch lead wire ③, and starter motor lead wire ④.



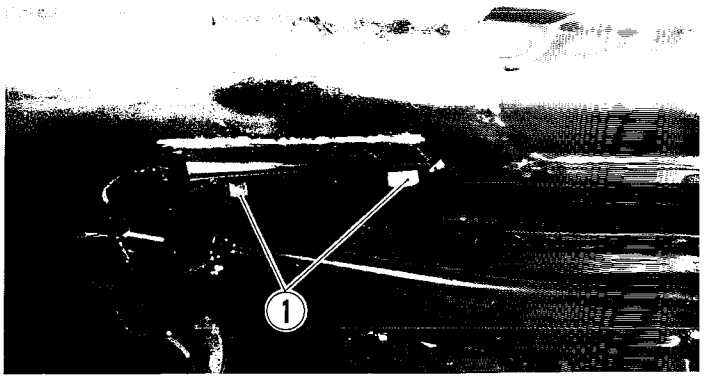
- Remove tachometer cable ① from cylinder head.
- Remove clutch cable by removing release arm bolt ② and adjuster ③.
- Remove exhaust pipe clamp bolts ④, and remove No. 2 and No. 3 exhaust pipe after removing two securing bolts ⑤.



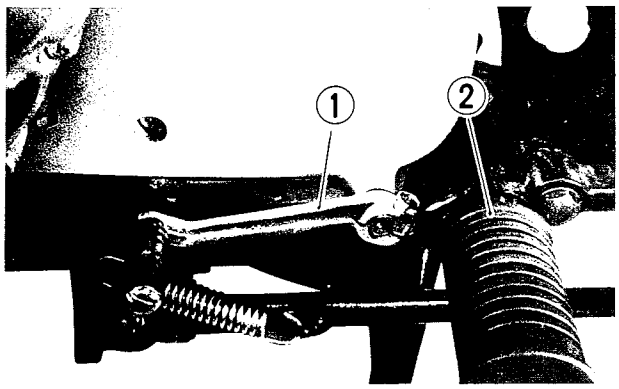




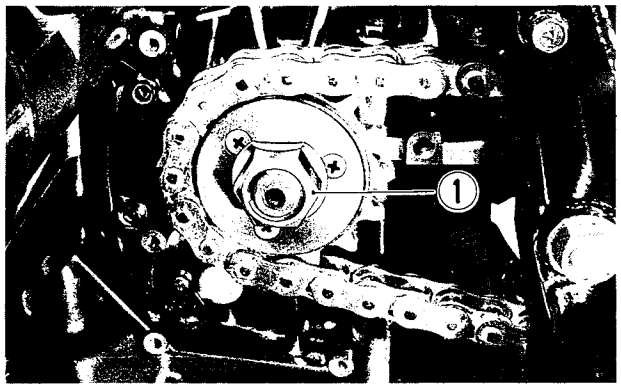
- Remove muffler mounting bolts ①, and remove right and left mufflers.



- Remove gearshift lever ① and left footrest ②, and then remove the engine sprocket cover.

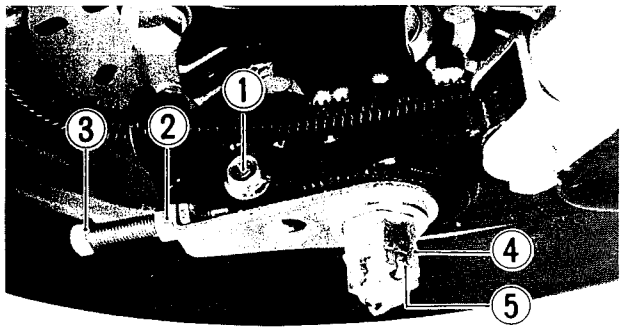


- Flatten engine sprocket lock washer, and remove engine sprocket nut ① while depressing rear brake pedal.

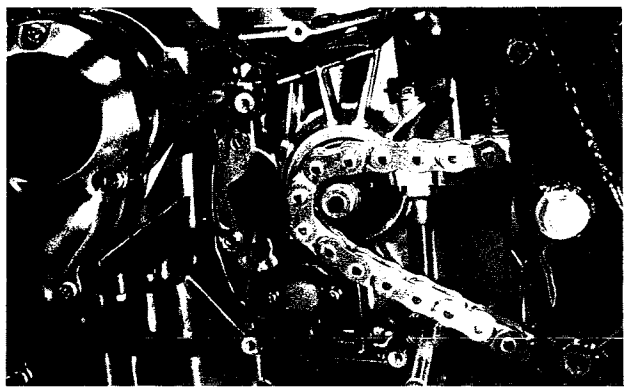


- Loosen rear axle stopper bolts ①, lock nuts ②, adjuster bolts ③, and torque link mounting nut. Then loosen rear axle nut ④ after pulling out cotter pin ⑤.

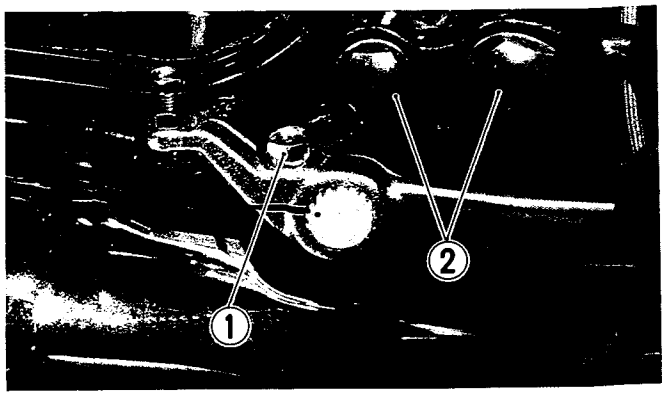
- Push rear wheel forward, and disengage drive chain from the rear sprocket.



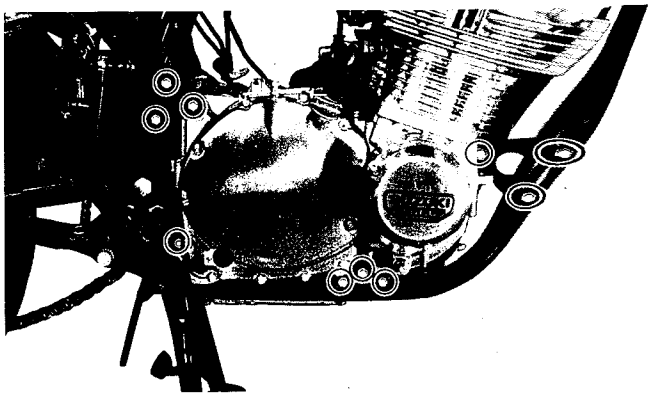
- Disengage drive chain from engine sprocket, and remove engine sprocket.



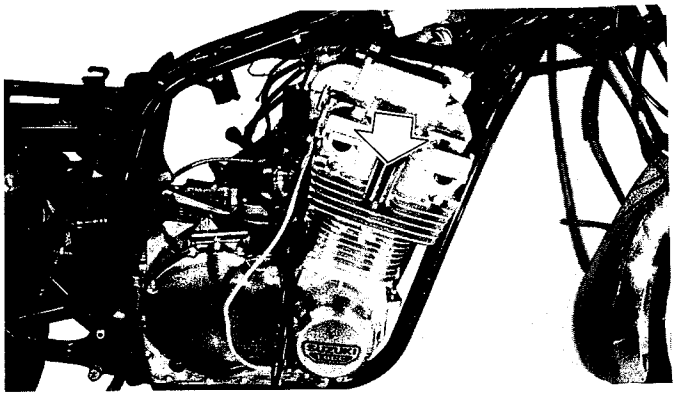
- Remove rear brake pedal ① and right footrest ②.
- Remove cylinder head cover to provide additional clearance when removing the engine from the frame.



- Extract four mounting brackets, three mounting nuts, and two mounting bolts.



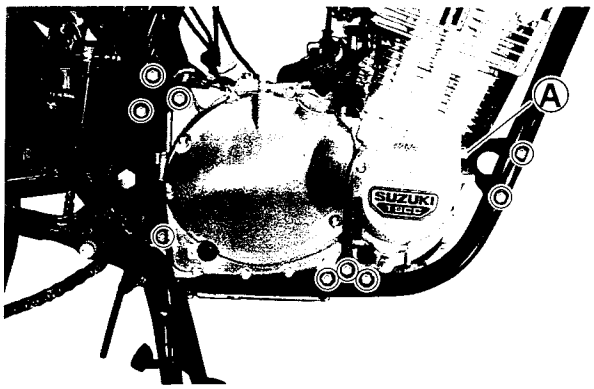
- Gradually lift up the engine, and lower the engine ass'y on the right side making sure that it does not make contact with the rear bracket.



ENGINE REINSTALLATION

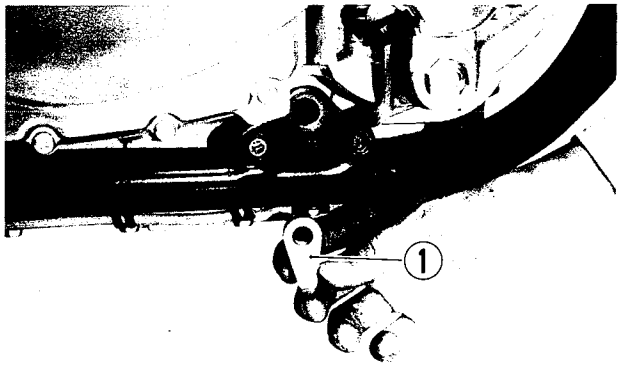
Reinstall the engine in the reverse order of engine removal.

- After inserting the engine mounting bolts, tighten engine mounting bracket bolts and engine mounting bolts. Insert all three long bolts from the left side, and insert the rear upper bolt through the spacer on the left side of the engine.

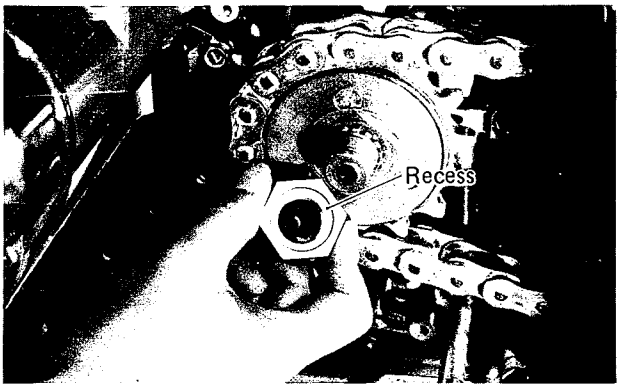


Tightening torque

	kg-m	lb-ft
Ⓐ	4.5–5.5	32.5–40.0
10mm Dia.	3.0–3.7	21.5–27.0
8mm Dia.	2.0–3.0	14.5–21.5

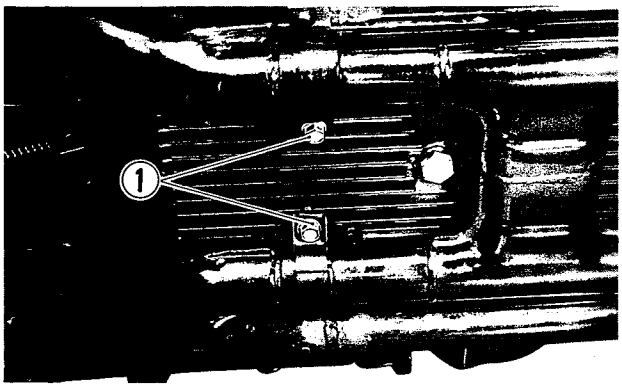


- The nut ① takes its position in the place indicated. Fit the longer bolt to the right side.
- The engine sprocket should be installed on the drive shaft beforehand as shown in the figure at the same time of the installation of drive chain. If it is difficult to assemble the engine sprocket, remove the rear axle cotter pin, loosen the axle nut, torque link mounting nut, and chain adjuster bolt 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 2-12).



Tightening torque

	kg-m	lb-ft
Engine sprocket nut	9.0–10.0	65.0–72.5
Rear axle nut	8.5–11.5	61.5–83.0
Rear torque link nut	2.0– 3.0	14.5–21.5



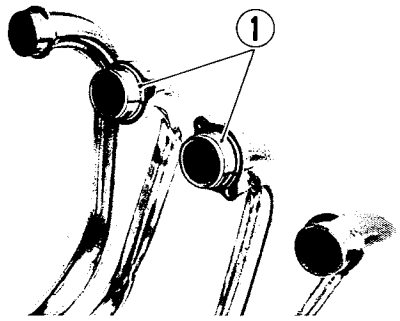
- Securely tighten bolts ① connecting exhausts and muffler of No. 2 and 3 to prevent gas leakage.

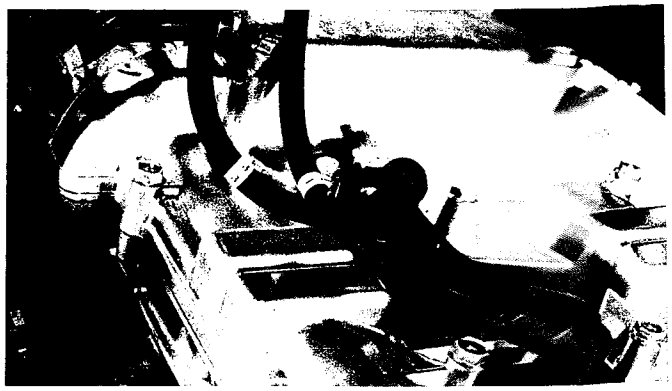
Tightening torque	0.9 – 1.4 kg-m (6.5 – 10.0 lb-ft)

- Install exhaust pipe gasket ①, and tighten exhaust pipe bolts.
- Mount mufflers, footrests and gearshift lever, and tighten bolts and nuts with specified torque.

Tightening torque

	kg-m	lb-ft
Muffler mounting bracket nut	1.5–2.0	11.0–14.5
Rear footrest mounting bolt	2.7–4.3	19.5–31.0
Front footrest mounting bolt	2.7–4.3	19.5–31.0
Gearshift lever mounting bolt	1.3–2.3	9.5–16.5

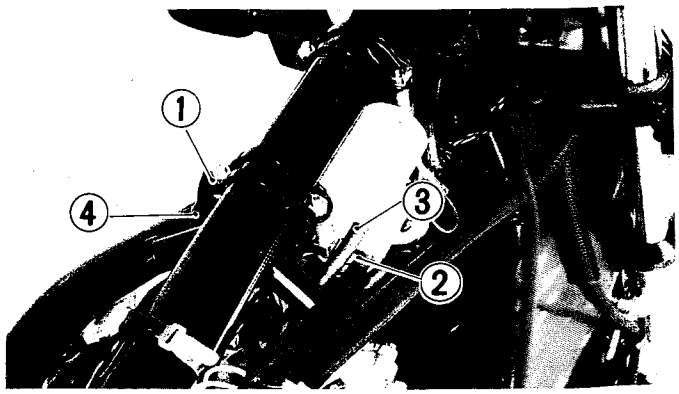




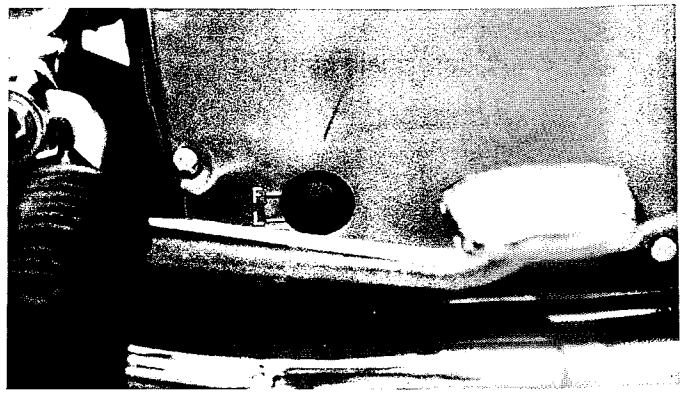
- Replace the plug caps on the spark plugs so that their code markings correspond to the cylinder numbers arranged in the order of 1, 2, 3 and 4 from the left.

- Install 3.8 L (4.0 US qt) of engine oil SAE 10W/40 under API classification SE into the engine. Several minutes after starting and stopping the engine, check that the oil level remains between the marks of oil level window.

- After remounting the engine, route wiring harness and cables properly by referring to the sections, wire routing and cable routing, and adjust the following items to the specification.

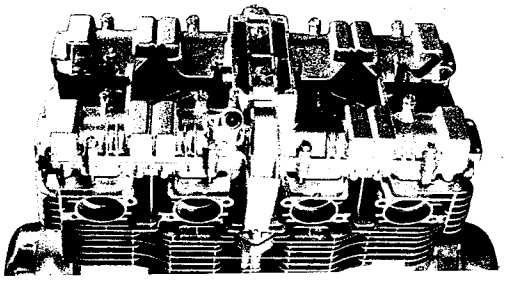


①: for No. 1 cylinder, ④: for No. 4 cylinder

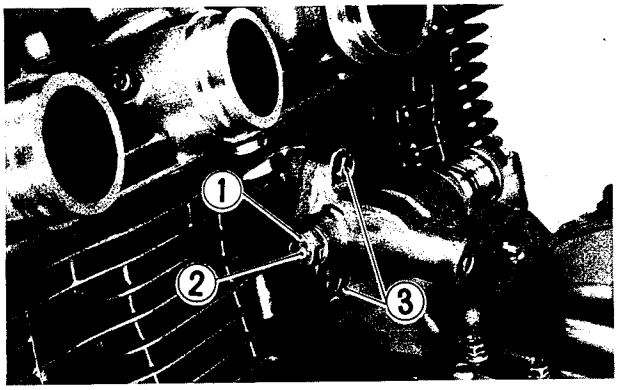


ENGINE DISASSEMBLY

- Remove cylinder head cover.

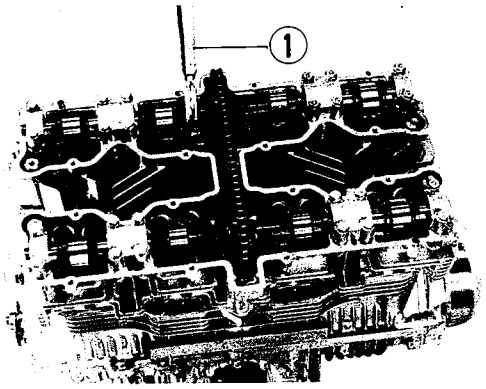


- This is accomplished by first loosening lock nut ① and tightening screw ② and then removing two mounting bolts ③ of cam chain tensioner.



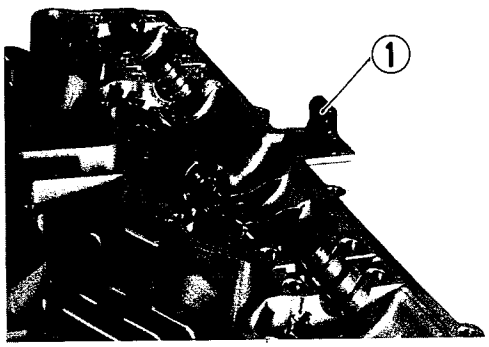
NOTE:
Tightening screw ② prevents an inside spring from leaving out of the push rod.

- Remove the two camshafts, intake and exhaust.



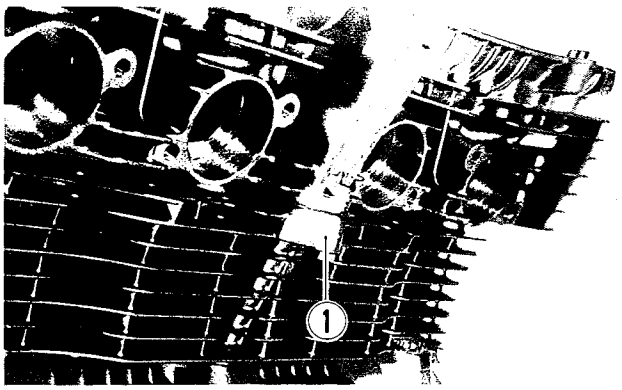
NOTE:
Be sure to loosen camshaft holder bolts evenly by shifting the wrench diagonally. Hold down each camshaft with vice pliers ①, and remove the bolts securing the camshaft holders, four on each camshaft. Then, remove the pliers and take off the camshaft.

- Pull out cam chain guide ①.

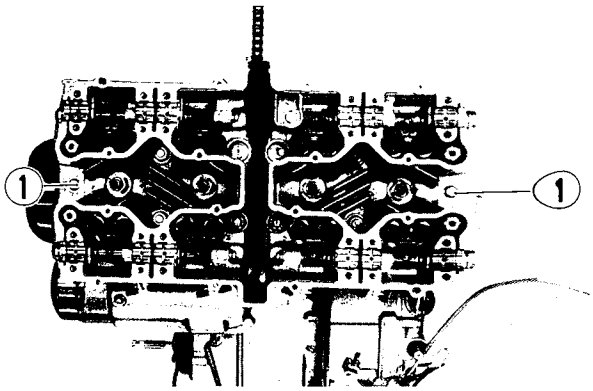


- The cylinder head becomes free for removal when its three 6-mm bolts ① and twelve 10-mm nuts are removed.

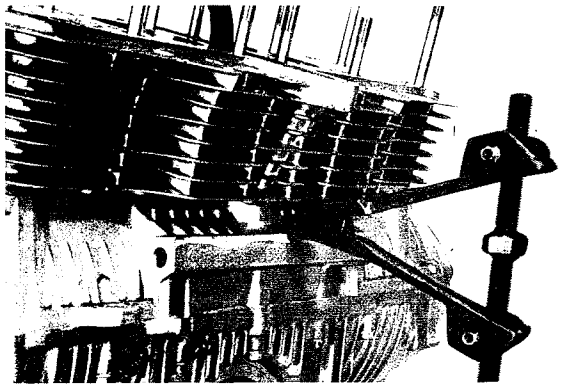
09911-74510	Long socket 14 mm
09914-24510	T handle



NOTE:
Be sure to use the special tool ("T" wrench) designed to enter the pockets formed in the head and reach the nuts down below to loosen the 10-mm nuts, and to shift the tool sequentially in the nuts descending order of numbers in order to reduce the pressure equally and evenly.

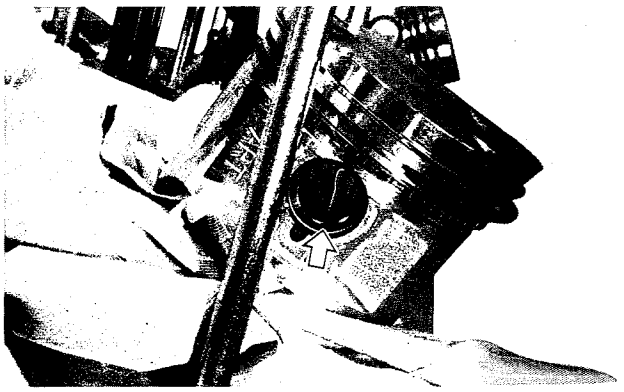


- Firmly grip the cylinder block at both ends, and lift it straight up. If the block does not come off, lightly tap on the finless portions of the block with a plastic mallet to shake the gasketed joint loose.



NOTE:
Cylinder removal from crankcase is made easier by the use of the cylinder disassembling tool. This tool can be used on the cylinder head and crankcase, too.

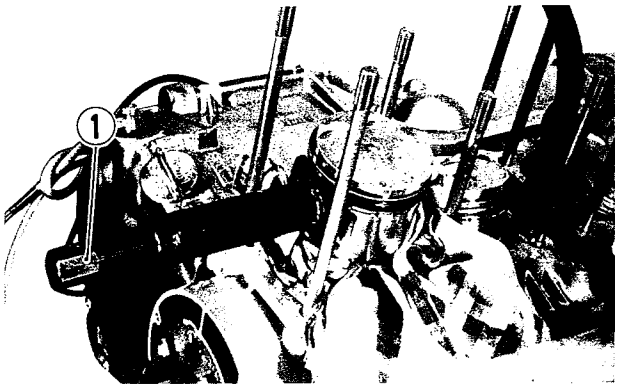
09912-34510	Cylinder disassembling tool



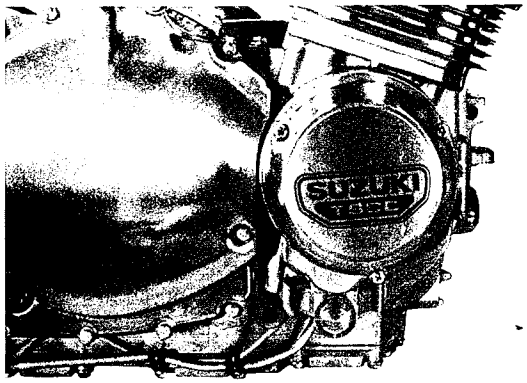
- Place a cloth beneath the piston so as not to drop the parts in the crankcase, and remove the circlip with pliers.

- Scribe the cylinder No. on the head of the piston, and draw out the piston pin with the special tool ①. Place the drawn-out piston pin in the same place as that given the cylinder No. on the head of the piston.

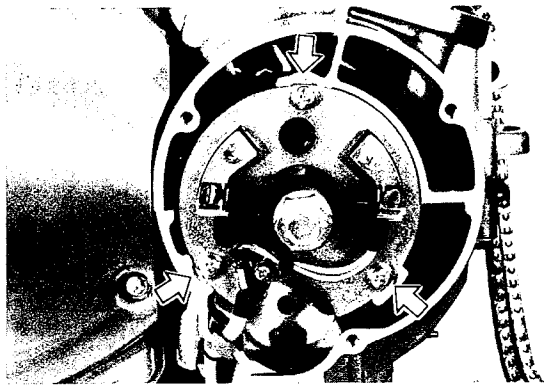
09910-34510	Piston pin puller
09910-33210	Attachment



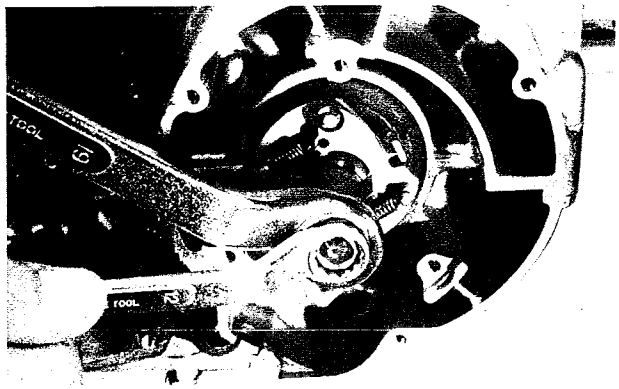
- Remove signal generator cover.



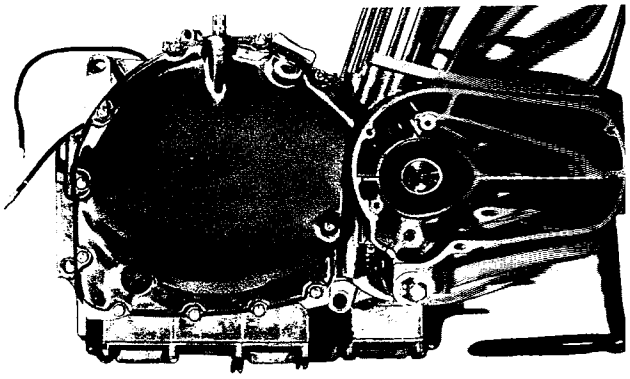
- Remove three mounting screws for signal generator assembly, and then remove the assembly.



- Apply wrench to crank turning nut to remove automatic advance governor mounting bolt and the crank turning nut.
  Remove signal generator rotor and advance governor.

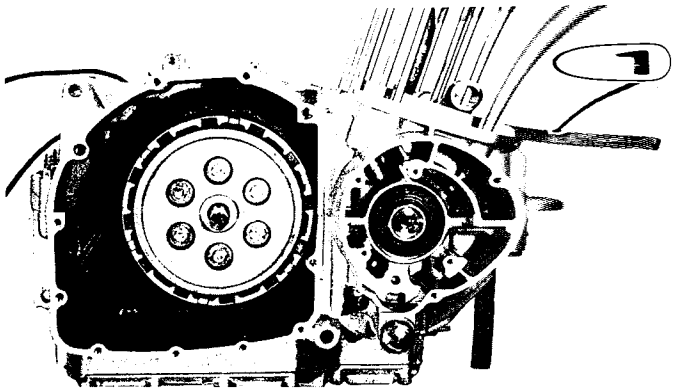


- Remove clutch cover and gasket.



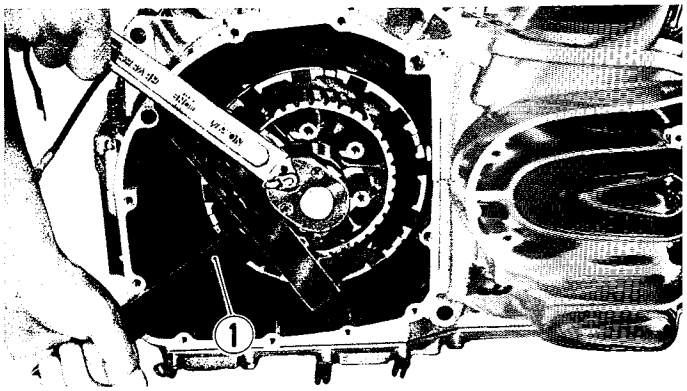
- Using conrod stopper ①, remove clutch spring mounting bolts, and remove springs and pressure plate in a criss cross manner.

09910-20115	Conrod stopper

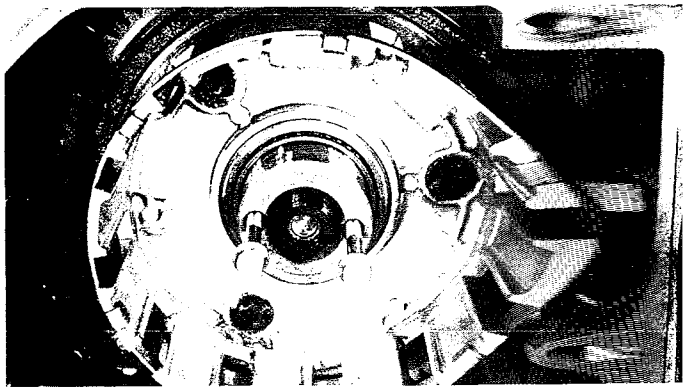


- Flatten clutch sleeve hub nut lock washer, and firmly secure clutch sleeve hub to remove mounting nut with clutch sleeve hub holder ①.

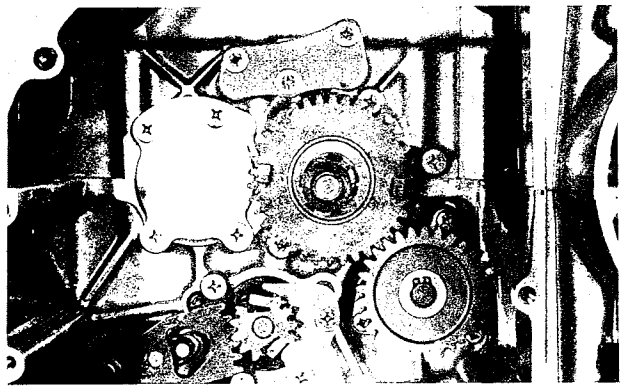
09920-53710	Clutch sleeve hub holder



- Remove washer, clutch hub, and the remaining plate.
- Run two 6-mm bolts 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.

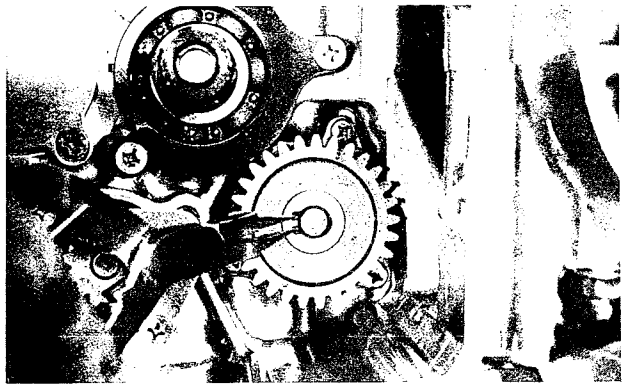


- Pull out oil pump drive gear, its spacer, and bearing.

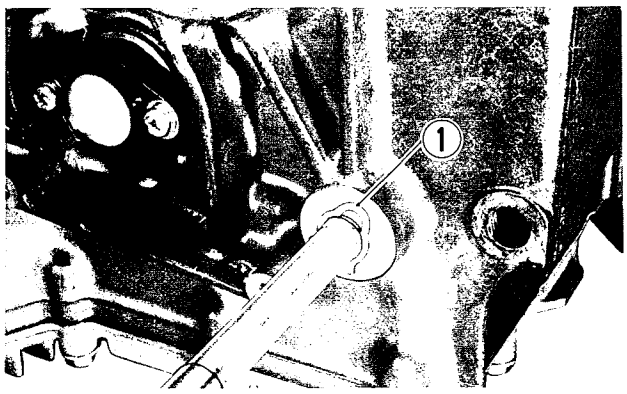


- Using circlip remover, remove oil pump driven gear and its drive pin. Then remove oil pump with O-ring.

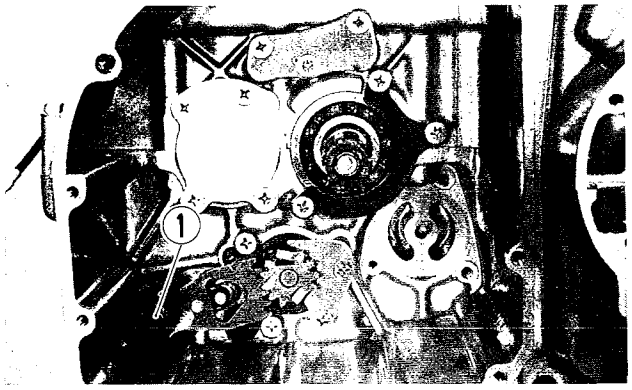
09900-06107	Circlip remover



- Remove clip ① and washer for gear shifting shaft stopper.

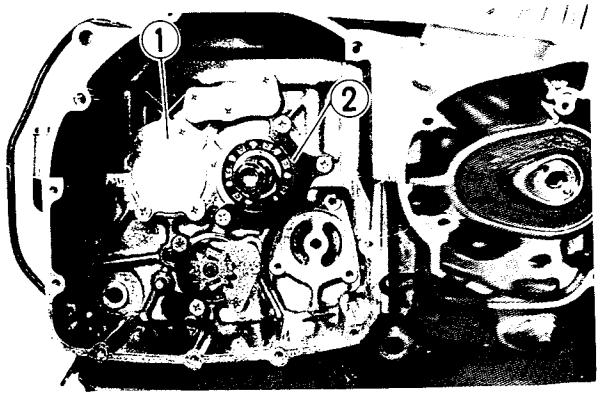


- Extract gear shifting shaft ①.

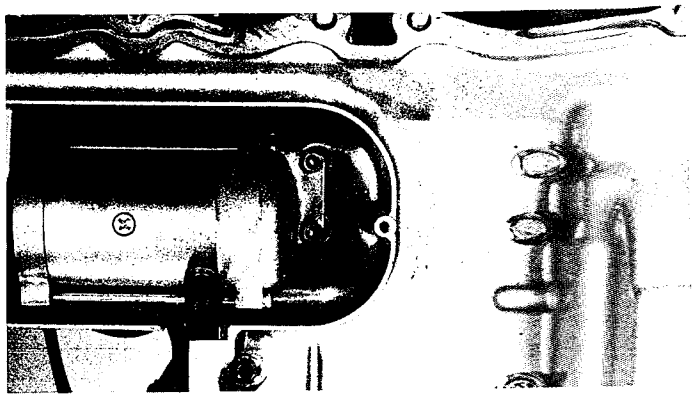


- Using shock driver, extract screws for drive shaft plate ① and countershaft bearing retainer ②.

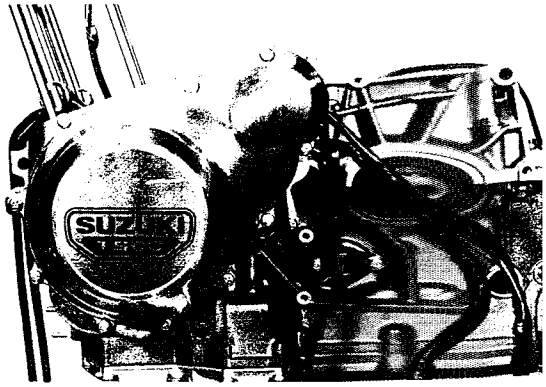
09900-09002	Shock driver set



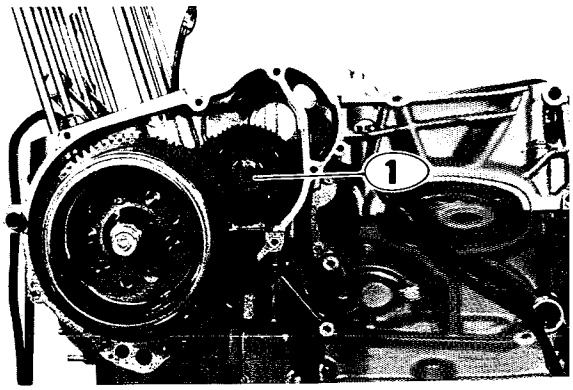
- Remove starter motor cover and starter motor.



- Remove generator cover and gasket.

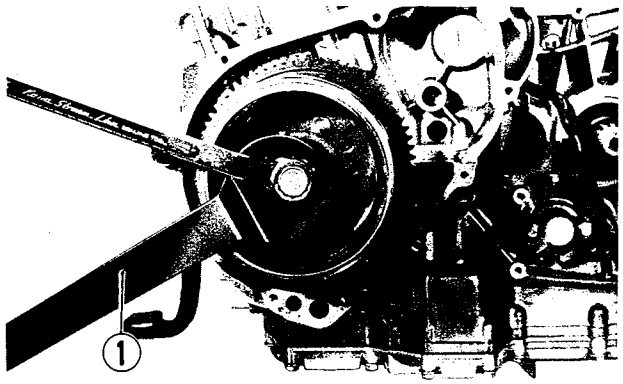


- Extract starter motor idle gear shaft ① and remove washer and idle gear.



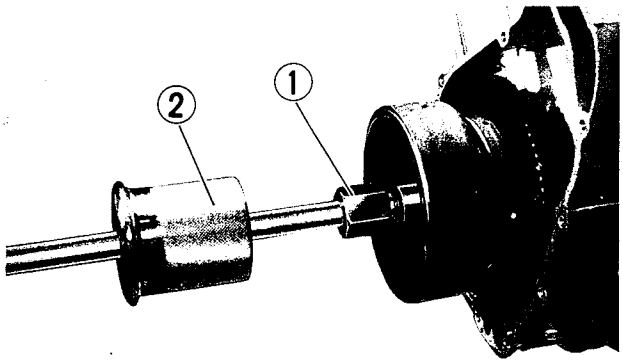
- Using rotor holder ①, remove rotor securing bolt.

09930-44510	Rotor holder



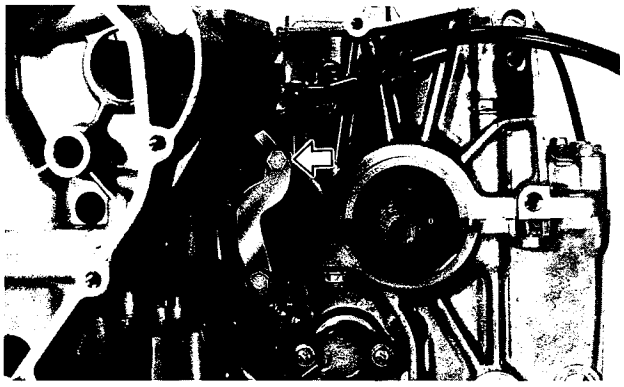
- Install rotor remover attachment ① and sliding hammer assembly ② into the boss of rotor and remove rotor with starter clutch assembly while sliding the remover.

NOTE
Do not hit the rotor with a hammer.

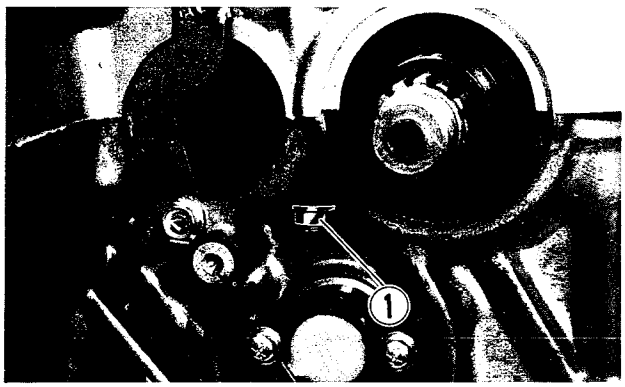


09930-30102	Rotor remover shaft
09930-33710	Attachment

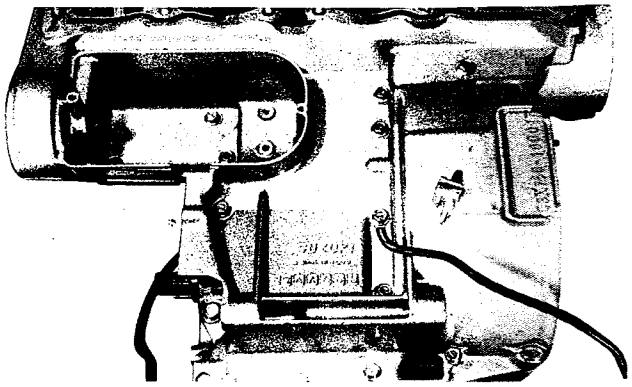
- Flatten lock portion of countershaft oil seal retainer plate and extract its bolt to make lead wire free.



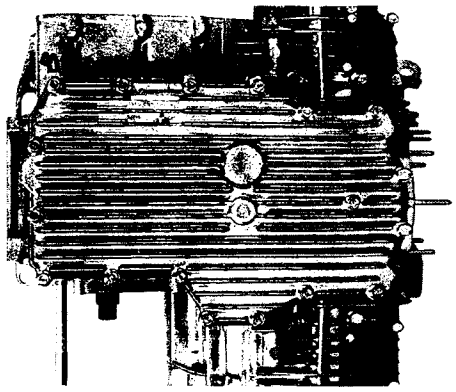
- Remove crankcase securing nut ①.
- Remove oil seal retainer plate.



- Remove crankcase securing bolts from upper crankcase.

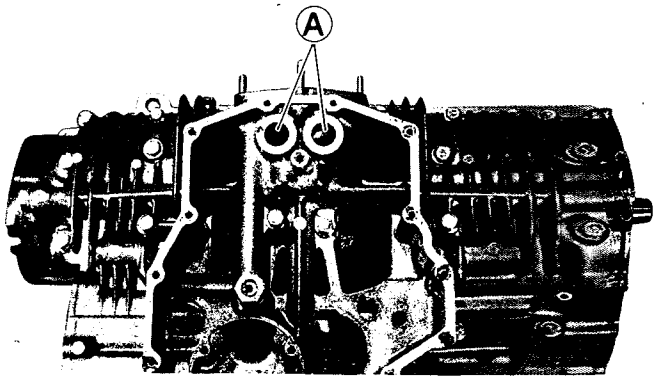


- Turn engine up side down and remove oil pan.

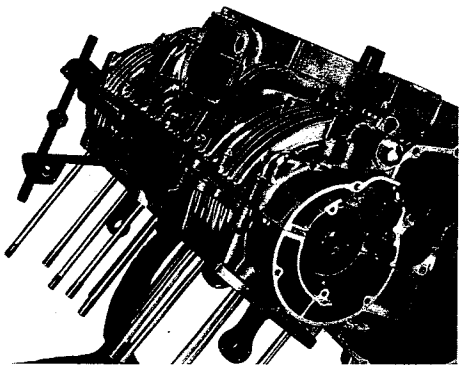


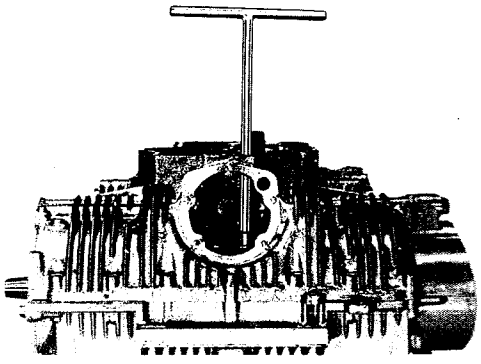
- Make sure that all bolts are removed without fail. Loosen in a criss-cross manner. Hammer lightly the lower crankcase side with a plastic hammer to separate the upper and lower crankcase halves and then lift the latter.

NOTE
Two allen bolts are used for securing crankcase at the portion Ⓐ.

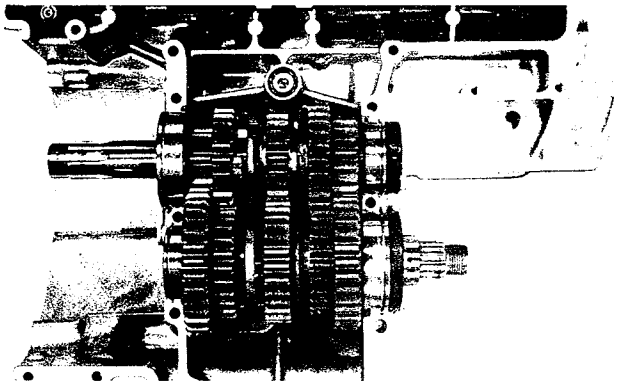


09914-25811	"T" type hexagon wrench
09912-34510	Cylinder disassembling tool





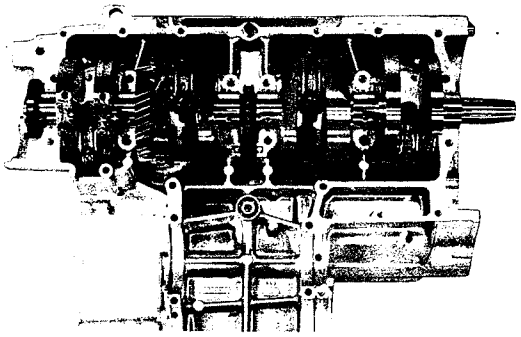
- Remove the counter shaft and drive shaft.



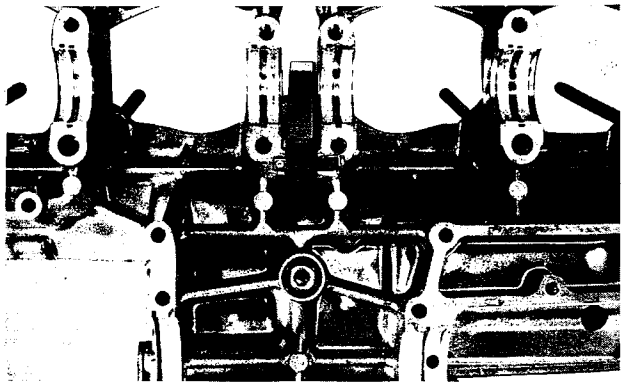
NOTE

Be careful not to drop five [illegible] the like.

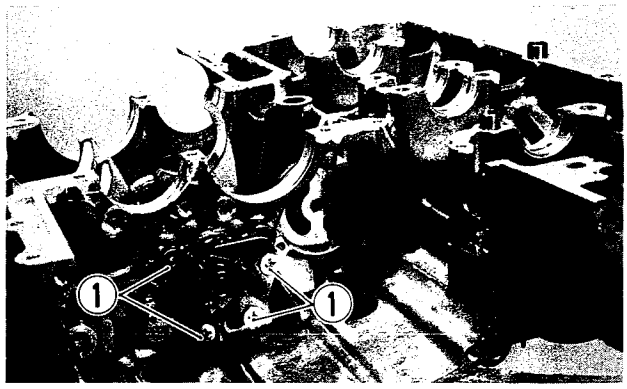
- Remove the crankshaft.



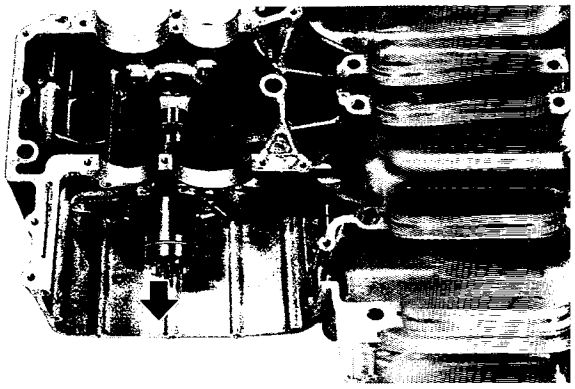
- Pull out the chain guide and two dampers.



- Remove gearshift cam guide and gearshift pawl screws ①.
- Hold gear shifting forks by hand to extract two gear shifting fork shafts from the lower crankcase.



- Remove cam stopper holder to remove cam stopper and spring.
- Extract gear shifting cam to the right side.



ENGINE COMPONENTS INSPECTION AND SERVICING

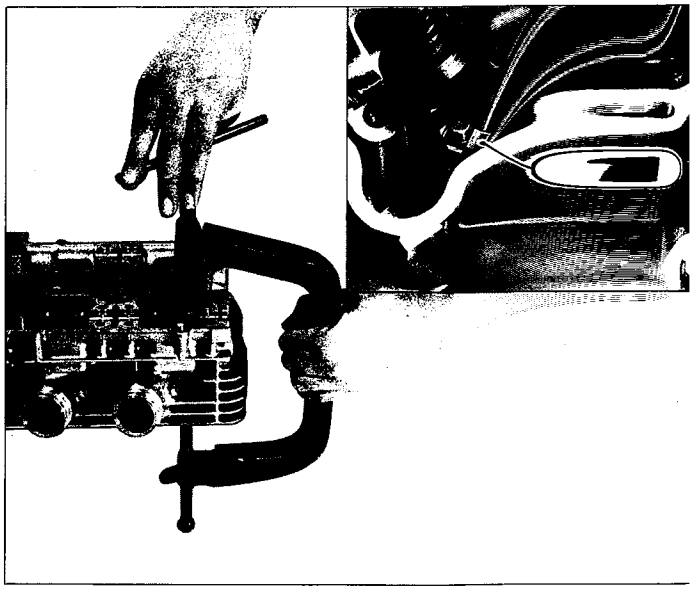
CYLINDER HEAD SERVICING

- Using valve lifter and its attachment, compress the valve springs.

09916-14510	Valve lifter
09916-14910	Valve lifter attachment

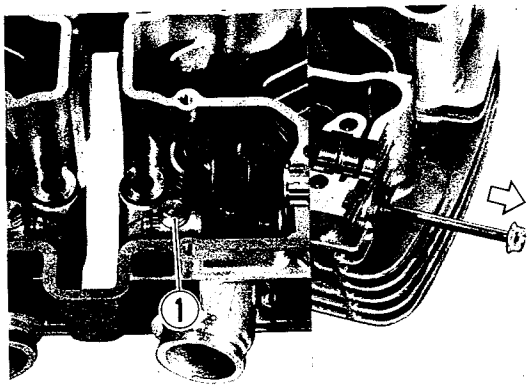
- Take off the two cotter halves ① from the valve stem, using forceps.

09916-84510	Forceps

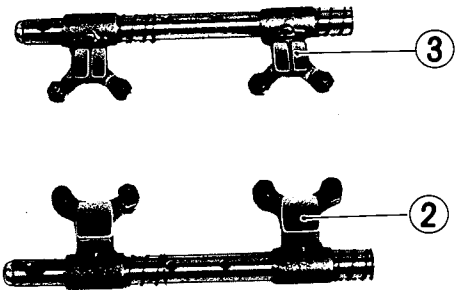


- Take out the valve spring retainer, inner spring and outer spring.
- From the other side, pull out the valve.

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

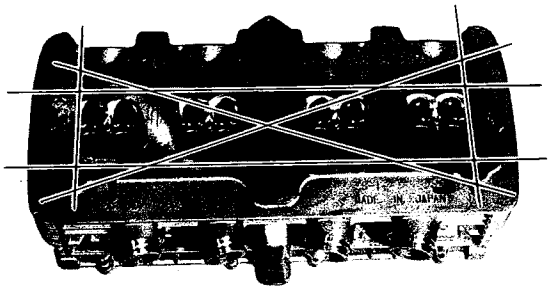


NOTE:
* Removal of valves completes ordinary disassembling work. If valve guides have to be removed for replacement after inspecting related parts, carry out the steps shown in valve guide servicing.
* When removing rocker arm shaft, remove the rocker arm shaft stop screw ① and screw 6mm bolt into the rocker arm shaft end and pull it out.
* Make sure to identify the intake rocker arm ② from the exhaust ③ which has oil groove, and to supply only exhaust rocker arm as a replacement.



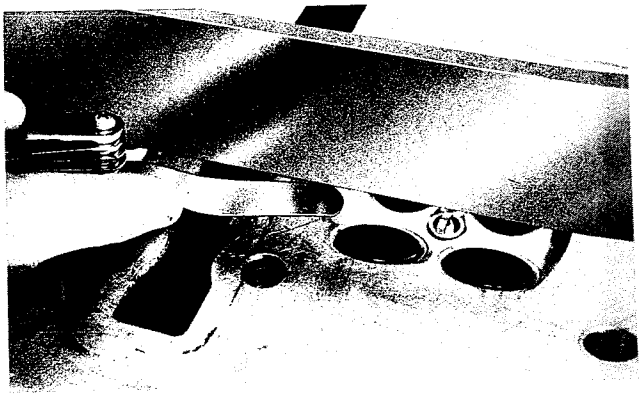
CYLINDER HEAD DISTORTION

- Decarbonize the combustion chambers.
- Check the gasket 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

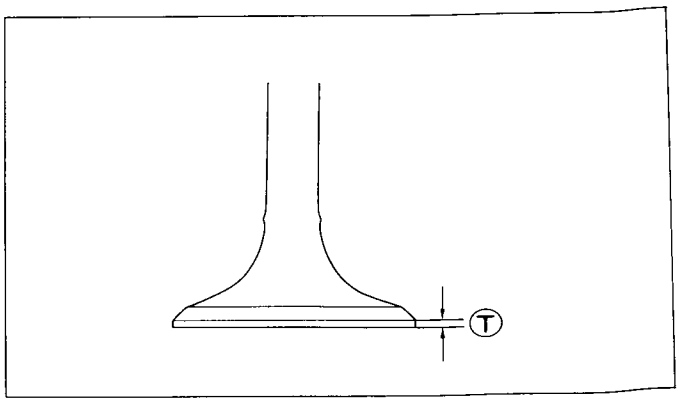
Service Limit	0.2 mm (0.008 in)



VALVE 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.

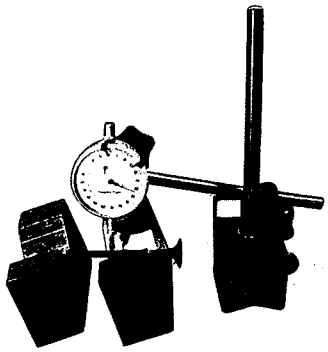
Service Limit	0.5 mm (0.02 in)



VALVE 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.

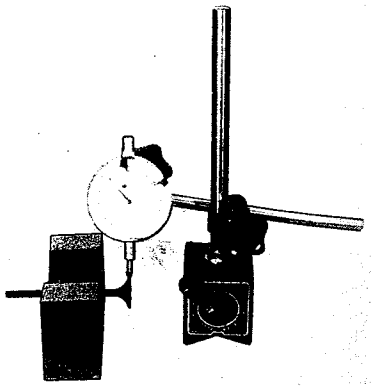
Service Limit	0.05 mm (0.002 in)



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 limit, replace the valve.

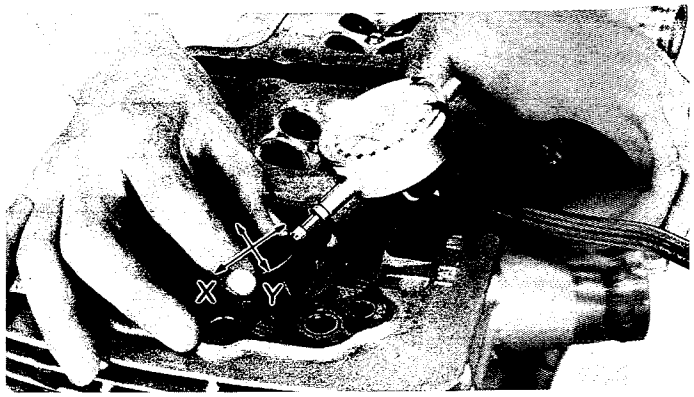
Service Limit	0.03 mm (0.001 in)



VALVE GUIDE—VALVE STEM CLEARANCE

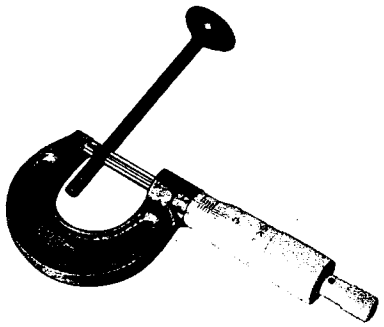
Measure the clearance in two directions, "X" and "Y", perpendicular to each other, by positioning the dial gauge as shown. If the clearance measured exceeds the limit, (see below) then determine whether the valve or the guide should be replaced to reduce the clearance to the standard range:

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.

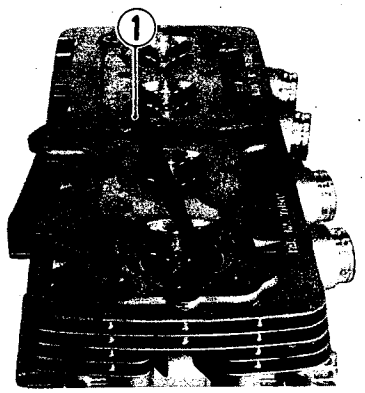


09900-20205	Micrometer (0 – 25 mm)

Valve	Standard
Intake valves	5.460 – 5.475 mm (0.2150 – 0.2156 in)
Exhaust valves	5.445 – 5.460 mm (0.2144 – 0.2150 in)

VALVE GUIDE SERVICING

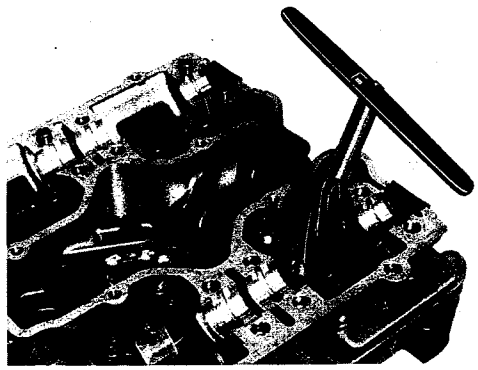
- Using valve guide remover ①, drive the valve guide out toward intake or exhaust port side.



09916-44910	Valve guide remover

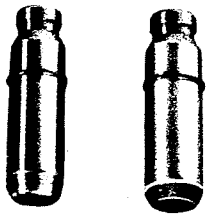
NOTE:
*** Discard the removed valve guide sub-assemblies.**
*** Only oversized valve guide is available.**

- Re-finish the valve guide holes in cylinder head with a 11.2 mm reamer.



09916-34560	Valve guide hole reamer
09916-34540	Reamer handle

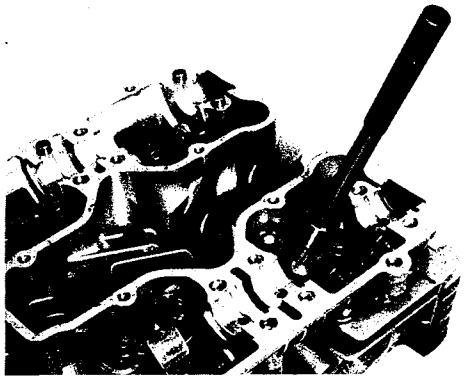
- Fit a ring to each valve guide. Be sure to use new rings and valve guides. Reuse of rings and valve guides removed during disassembly is prohibited. Remember that the guide for intake valve differs in shape from that of the exhaust valve in production, however, the replacements of valve guide and oil seal are identical in shape.



IN. EX.

11115-49290	Valve guide
09289-05003	Valve guide oil seal

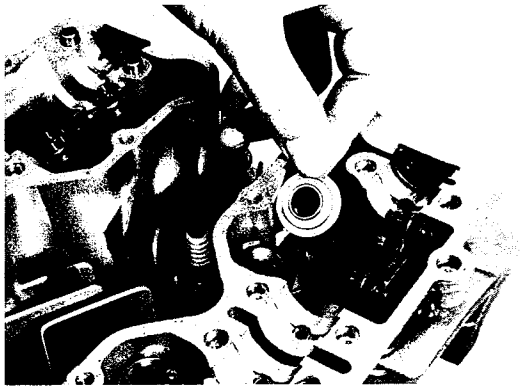
- Oil the stem hole, too, of each valve guide and drive the guide into the guide hole with the valve guide remover and attachment.



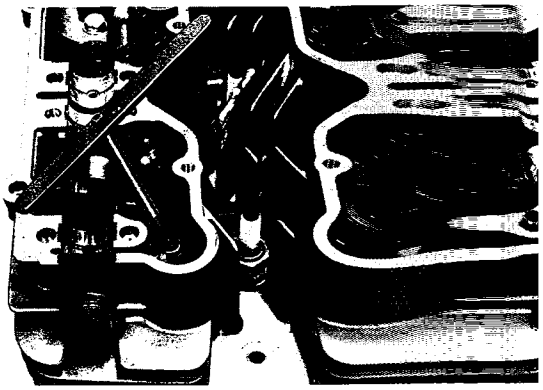
09916-44910	Valve guide remover
09916-44920	Valve guide installer attachment

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

- Install the valve spring guide.



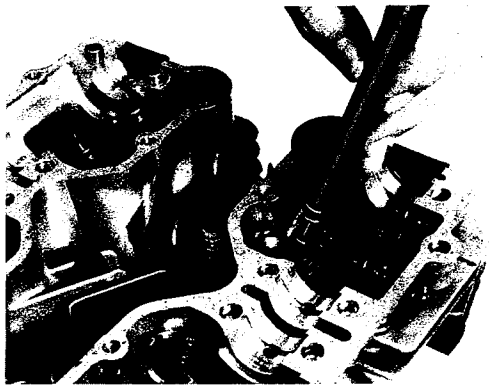
- Re-finish the valve guide inner surface with a 5.5 mm reamer.



09916-34550	Valve guide reamer
09916-34540	Reamer handle

- Oil each oil seal, and drive them into position with the valve guide remover.

09916-44910	Valve guide remover

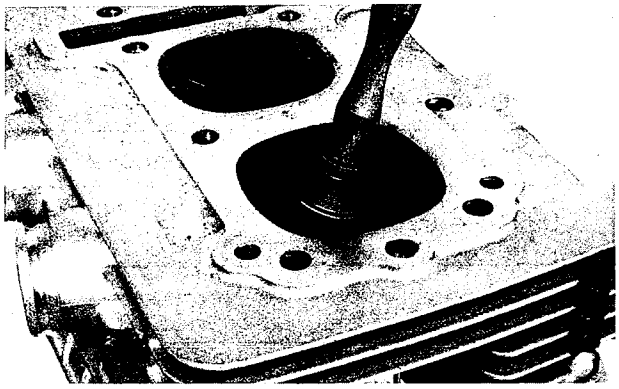


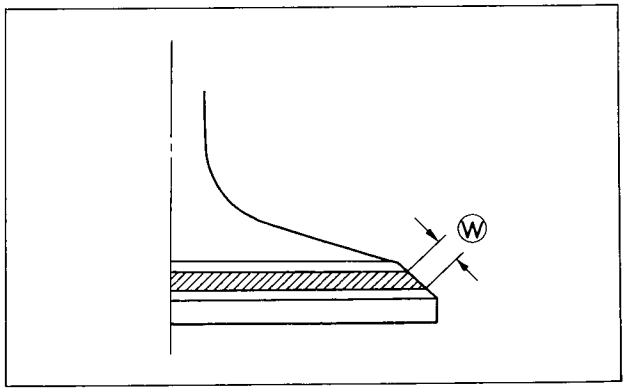
VALVE SEAT WIDTH

- 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)



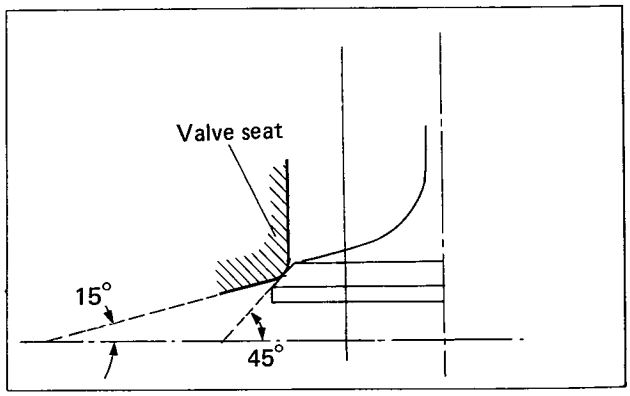


If either requirement is not met, correct the seat by servicing it as follows:

VALVE SEAT SERVICING

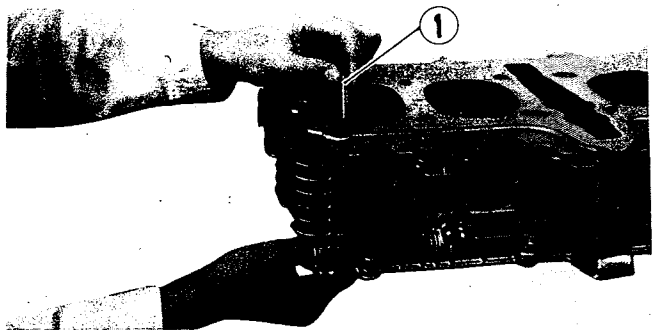
- The valve seats for both intake and exhaust valves are angled to present two bevels, 45° (seat contact surface) and 15° (top). To reface the seat, proceed as follows:

09916-21110	Valve seat cutter set

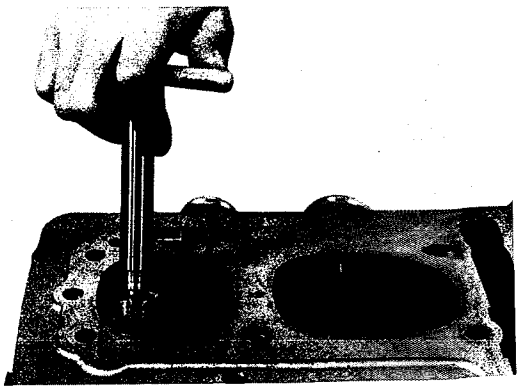


NOTE
The valve seat contact area must be inspected after each cut.

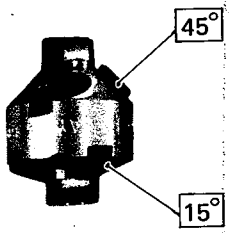
- Insert the pilot ① with a slight rotation, and then tighten the bottom screw that gives a snug fit. Install the 45° cutter, attachment and T handle.
- Using the 45° cutter, descale and cleanup the seat with one or two turns.
- Inspect the seat by the previous seat width measurement procedure. If the seat is pitted or burned, additional seat conditioning with the 45° cutter is required.



NOTE
Cut 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.



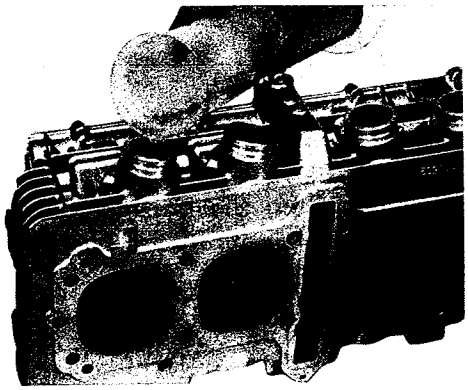
If the contact area is too low, use 15° cutter to raise and narrow the contact area. If the contact area is too high, use 45° cutter to lower the contact area. After cutting the 15° angle, it is possible that the valve seat (45°) is too narrow.



If so, re-cut the seat to the correct width.

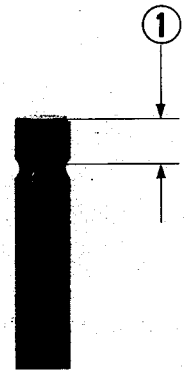
- After the desired seat position and width is achieved, use the 45° cutter very lightly to clean up any burrs caused by the previous cutting operations. DO NOT use lapping compound after the final cut is made. The finished valve seat should have a velvety smooth finish and not a highly polished or shiny 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.

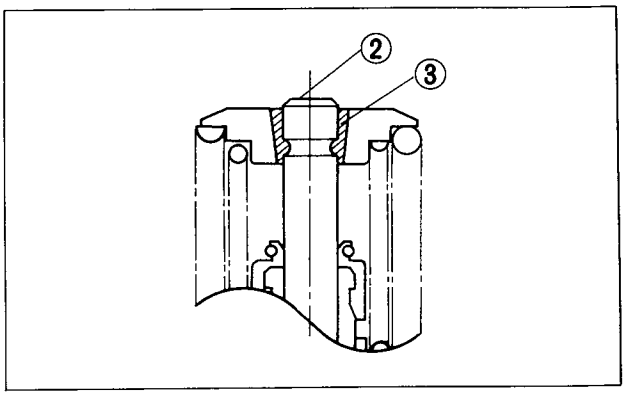
- Clean and assemble the head and valve components. Fill the intake and exhaust ports with gasoline to check for leaks. If any leaks occur, inspect the valve seat and face for burrs or other things that could prevent the valve from sealing.



NOTE:
Always use extreme caution when handling gasoline.
After servicing the valve seats, be sure to adjust the valve clearance after the cylinder head has been reinstalled. (see page 2-5)

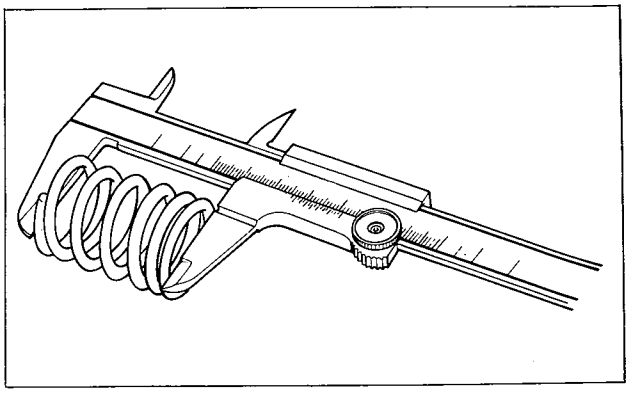
CAUTION:
* Refacing valve stem end face is permissible where the length ① will not be reduced to less than 3.6 mm. If this length becomes shorter than 3.6 mm (0.14 in), then the valve must be replaced.
* After installing the valve whose stem end has been ground off as above, check that the face ② of valve stem end is above the valve cotter ③ .



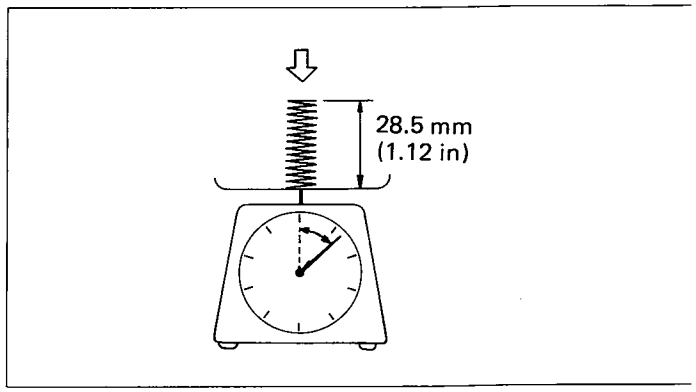


VALVE SPRINGS

- 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 springs for strength by measuring their free lengths and also the force required to compress them. If the limit indicated is exceeded by the free length reading or if the measured force does not fall within the range specified, replace with a SUZUKI spring.



CAUTION:
Replace all of the valve springs at a time, if any one of these is found to be beyond the limit.



Valve spring free length

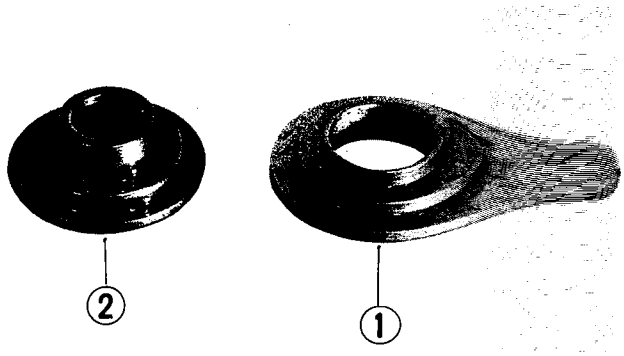
Spring	Service Limit
INNER	31.9 mm (1.26 in)
OUTER	35.6 mm (1.40 in)

Valve spring tension

Spring	Standard
INNER	4.4–6.4 kg/28.5 mm (9.7–14.1 lb/1.12 in)
OUTER	6.5–8.9 kg/32.0 mm (14.3–19.6 lb/1.26 in)

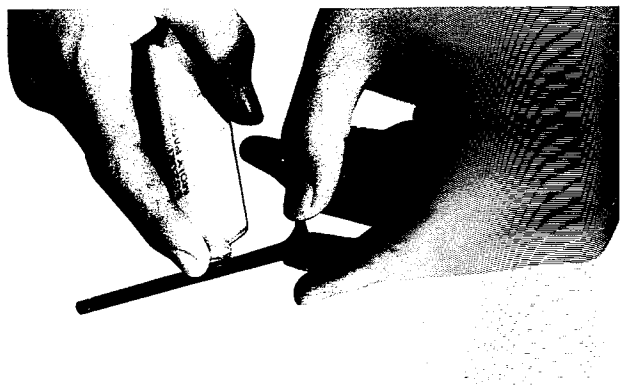
REASSEMBLY

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



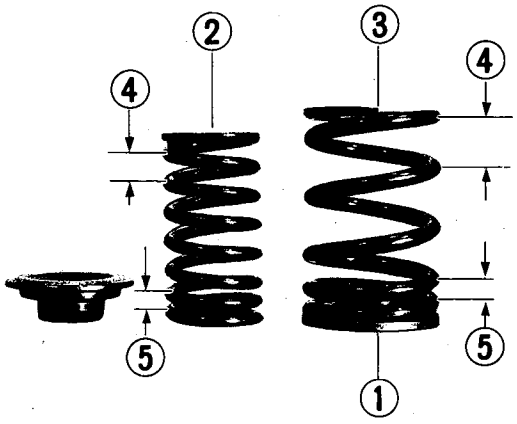
- Insert the valves, with their stems coated with high quality molybdenum disulfide lubricant (SUZUKI MOLY PASTE) all around and along the full stem length without any break.

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



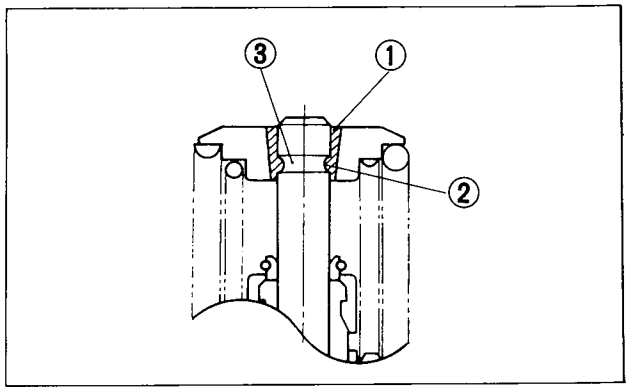
99000-25140	SUZUKI Moly Paste

- Position valve springs in place, making them rest on lower spring seat ① by their closed-pitch ends ⑤. Both springs, inner ② and outer ③, have varied coil pitches: the coil pitch progressively becomes shorter from one end to the other. Large-pitch portions are indicated as ④: small-pitch portions as ⑤.
- 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.



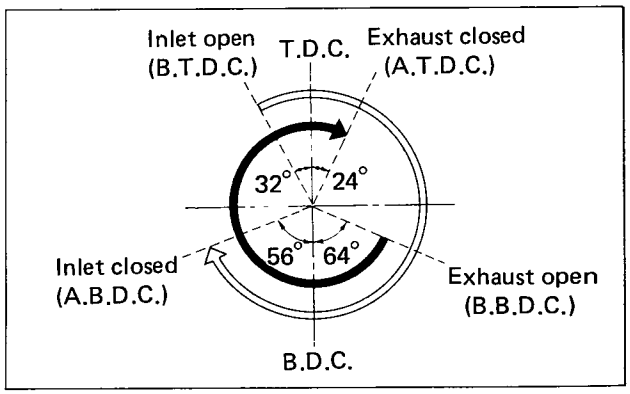
09916-14510	Valve lifter
09916-14910	Valve lifter attachment
09916-84510	Forceps

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

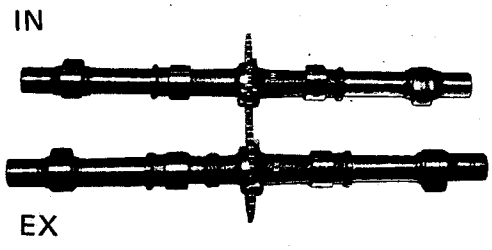


CAMSHAFT

- Both camshafts should be checked for deflection 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.

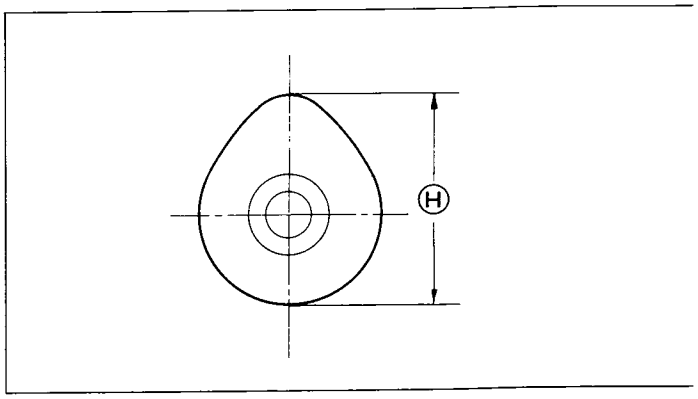


- The exhaust camshaft can be distinguished from that of the intake by the embossed letters "EX" (for exhaust) as against letters "IN" (for intake). Similarly, the right end can be distinguished by the notch from the left end.



CAM WEAR

- Worn-down cams are often the cause of mistiming 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.

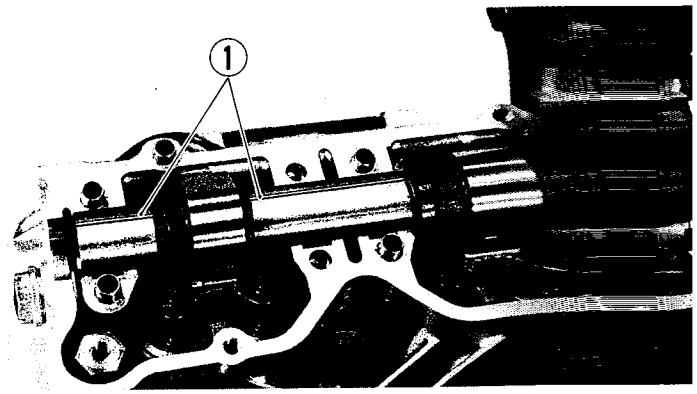


Cam height

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

CAMSHAFT JOURNAL WEAR

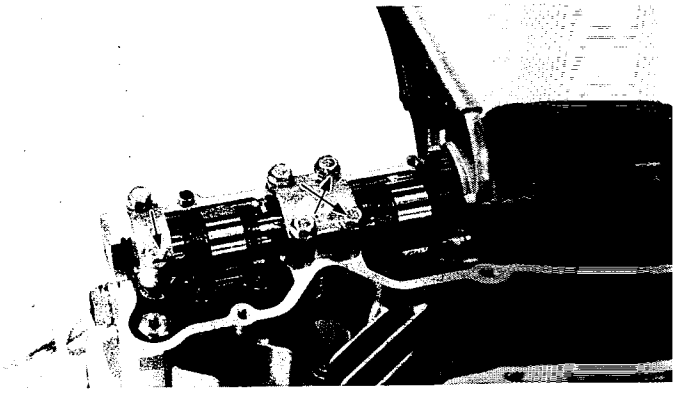
- Determine whether or not each journal is worn down to the limit by measuring the running clearance with the camshaft installed in place. Use plastigauge ① to read the clearance at the widest portion, which is specified as follows:



Camshaft—Journal clearance

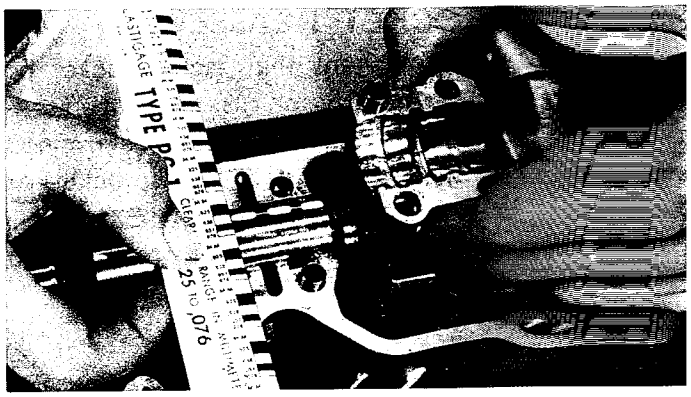
Service limit	0.15 mm (0.0059 in)

NOTE:
Install each holder to their original positions.



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

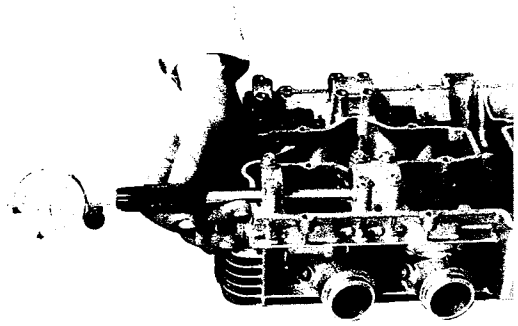
Tightening torque	1.0 kg-m (7.0 lb-ft)

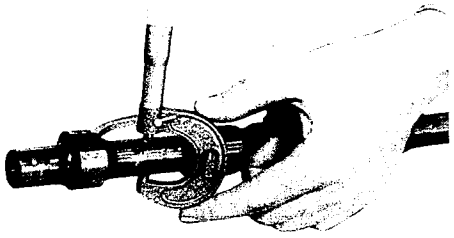


- If the camshaft journal clearance measured exceed the limit, measure the inside diameter of camshaft bearing holder and outside diameter of the camshaft journal, whichever the difference from specification is greater.

09900-20205	Micrometer (0 – 25 mm)

	Standard
Journal holder I.D. (In & Ex)	22.000 – 22.013 mm (0.8661 – 0.8667 in)
Camshaft journal O.D. (In & Ex)	21.959 – 21.980 mm (0.8645 – 0.8654 in)



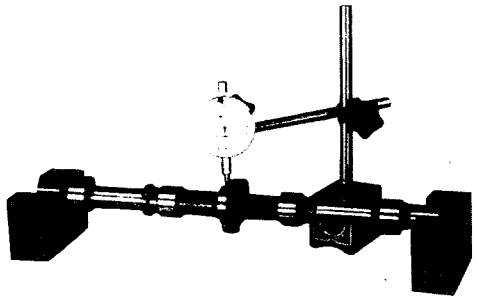


CAMSHAFT RUNOUT

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

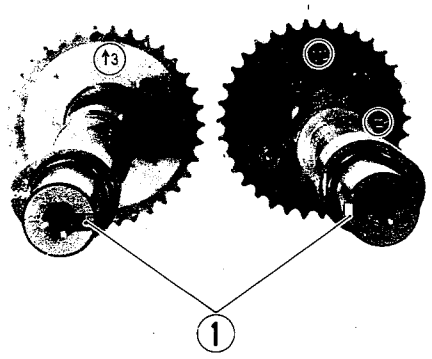
Camshaft runout (IN & EX)

Service Limit	0.1 mm (0.004 in)



CAM SPROCKET REASSEMBLY

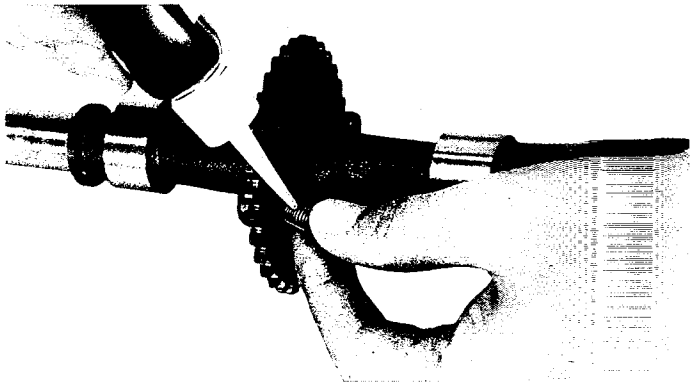
- It is very important that each sprocket be positioned angularly on its camshaft as illustrated. Its correct position is determined by arrow mark "3" (on INTAKE sprocket) or arrow marks "1" and "2" (on EXHAUST sprocket) located (as shown) in reference to the notch ① in the camshaft end.



- Apply THREAD LOCK SUPER 1363A (99104-32030) to the threads of Allen-head bolts, and tighten them to the following torque value: (See page 11-16)

99104-32030	Thread lock super 1363A

Tightening torque	0.8–1.2 kg-m (6.0–8.5 lb-ft)

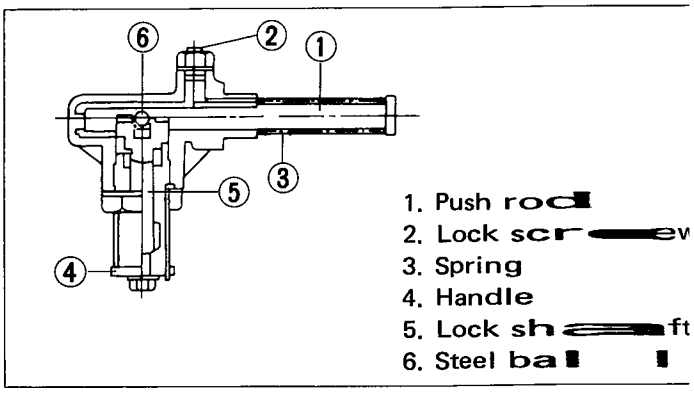


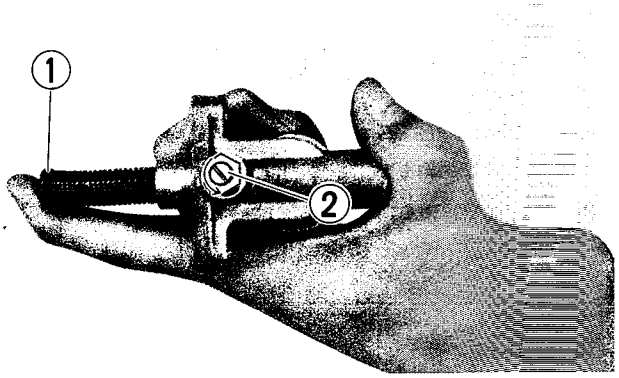
CAM CHAIN TENSIONER DISASSEMBLY

- The tension adjuster used in Model GS750 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.

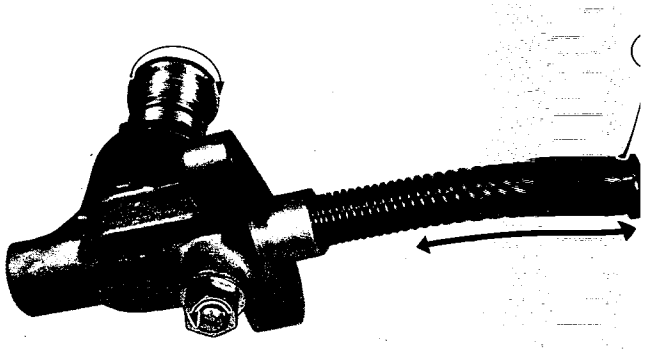




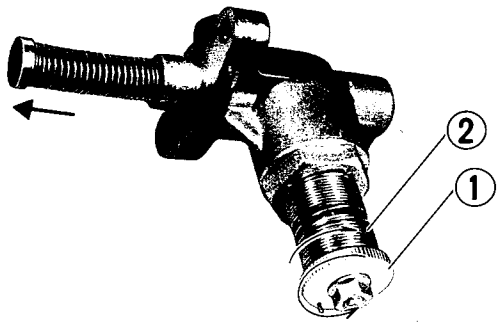
- While pushing the push rod ①, loosen the lock screw ② and extract the push rod.

INSPECTION

- Turn the handle ① all the way counterclockwise after loosening the lock screw, and move the push rod ② 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.

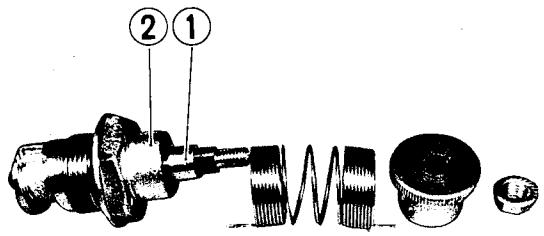


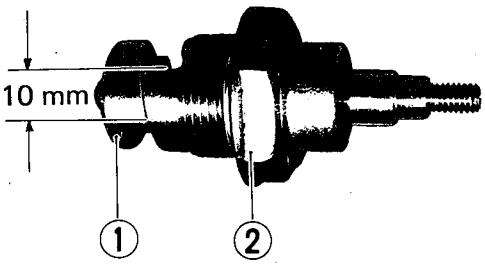
- Turn handle ① all the way counterclockwise against the force of its coil spring and then turn it back as assisted by spring force to see if the handle returns to the original position ② without exhibiting any sticking on the way. Repeat this process several times. If any excessive sticking is felt or if the self-adjusting action is faulty, replace the whole tensioner.



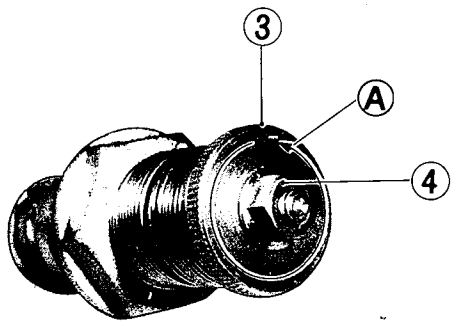
REASSEMBLING

- Apply engine oil to the lock shaft ① . Insert the shaft into the holder②, and bring the two into the relative position indicated.





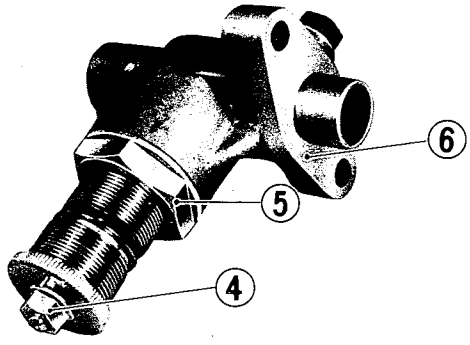
- Hook the spring onto the holder and handle ③ , twist the spring by one complete rotation counterclockwise Ⓐ , fit the handle onto the shaft, and then tighten it by nut ④.



- 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:

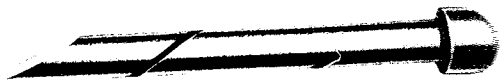
Lock shaft nut tightening torque	0.8–1.0 kg-m (6.0–7.0 lb-ft)

Shaft assembly tightening torque	3.1–3.5 kg-m (22.5–25.5 lb-ft)

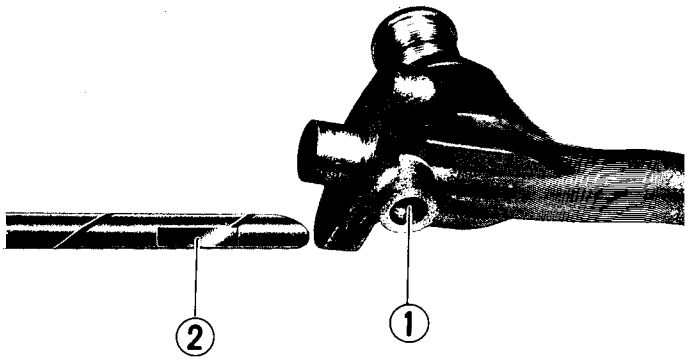


- Apply a high quality molybdenum disulfide lubricant (SUZUKI MOLY PASTE) to the push rod and engine oil to the push rod guide hole.

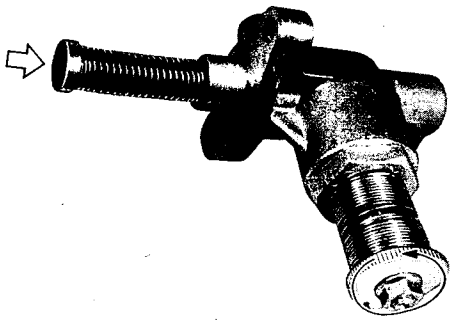
99000-25140	SUZUKI Moly Paste



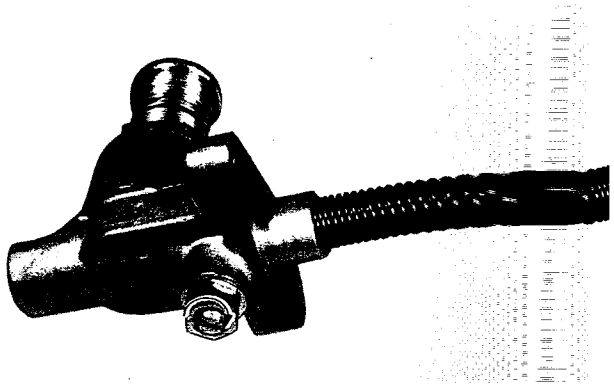
- Match the lock screw hole ① to the long groove ② in the push rod, as shown.
- Slide the push rod spring on to the pushrod.



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



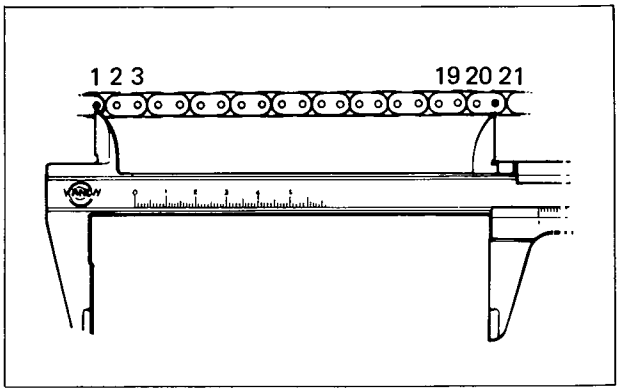
- Tighten the lock screw to lock the pushrod, so that the pushrod will not plunge out.



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 limits, replace the cam chain.

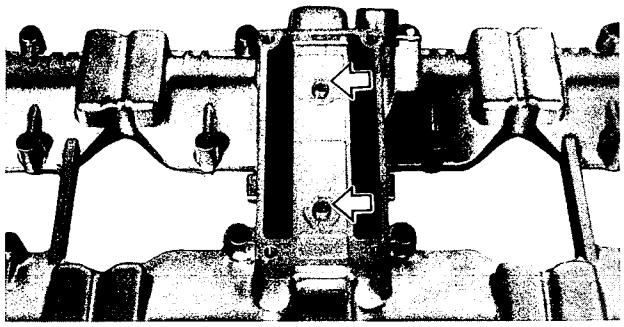
Service Limit	157.80 mm (6.213 in)



CAM CHAIN GUIDE

NOTE:
When replacing following chain guides, apply SUZUKI Thread lock cement 1361A to screws and bolts thread.

99104-32020	Thread lock super 1361A

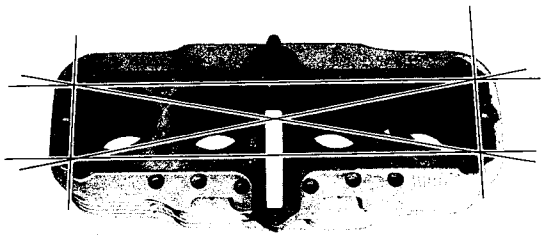


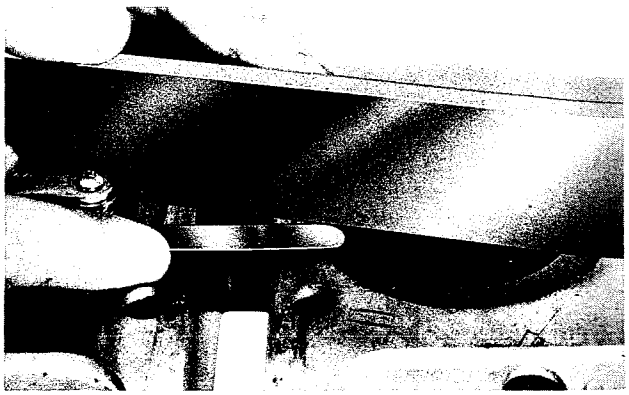
CYLINDER DISTORTION

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

Cylinder distortion specification

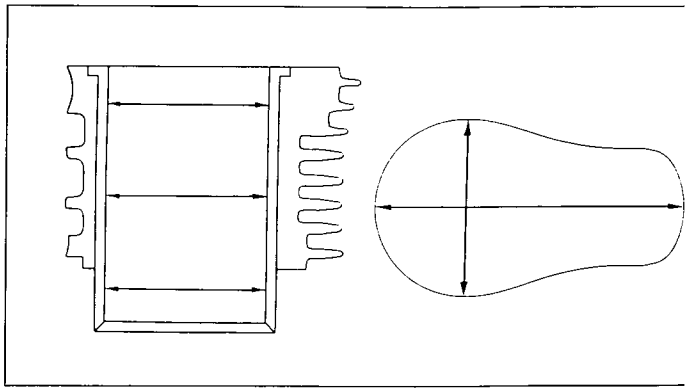
Service Limit	0.2 mm (0.008 in)





CYLINDER BORE

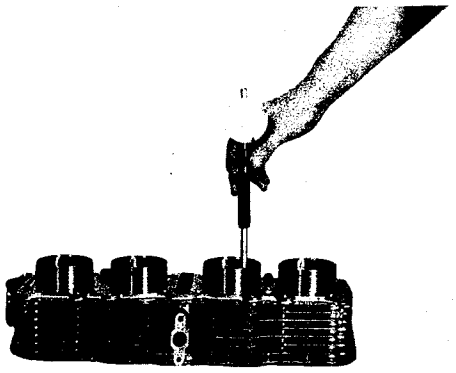
Measure the cylinder bore diameter at six places. If any one of the measurements exceeds the limit, overhaul the cylinder and replace the piston with an oversize, or replace the cylinder. Once the reboring is done on any one cylinder which measurement is beyond the limit, the remaining cylinders must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



Cylinder bore

Service Limit	67.080 mm (2.6410 in)

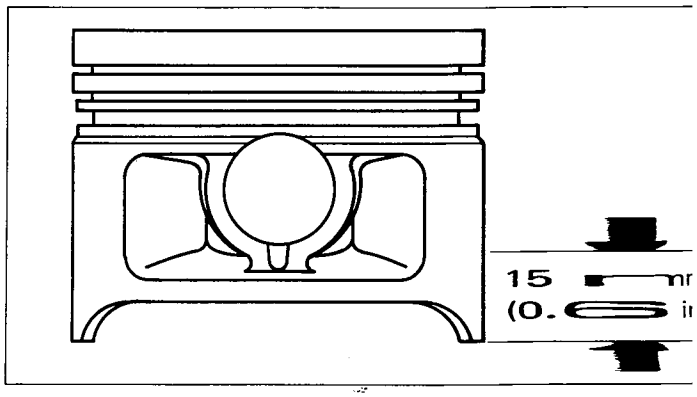
09900-20508	Cylinder gauge set.



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.

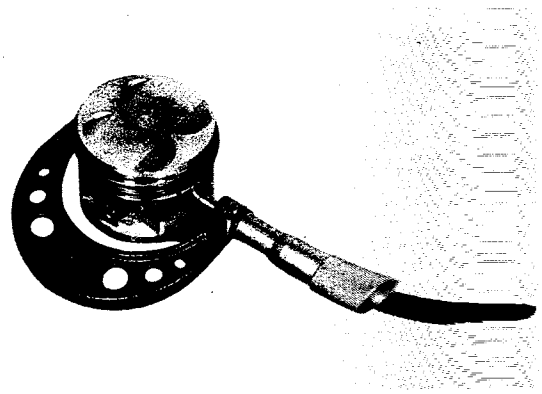
Piston oversize	0.5, 1.0 mm
Service Limit	66.880 mm (2.6331 in)
09900-20203	Micrometer (50-75 mm)



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 (0.0047 in)



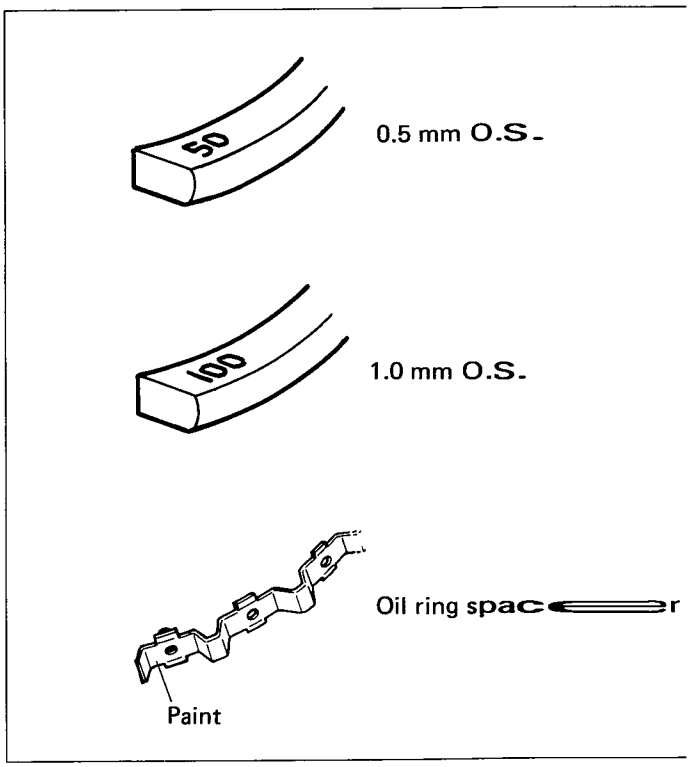
- **Oversize piston rings**
  The following two types of oversize piston rings are used. They bear the following identification numbers.

	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.

0.5 mm	Painted red
1.0 mm	Painted yellow

- **Oversize side rail**
  Just measure out side diameter.



PISTON PIN—PIN BORE CLEARANCE

Using a caliper gauge, measure the piston pin bore inside diameter, and using a micrometer, measure the piston pin outside diameter. If the difference between these two measurements is more than the piston pin-to-pin bore clearance limit, replace both piston and piston pin.

Piston pin—Pin bore clearance

Service Limit	0.12 mm (0.0047 in)

Piston pin bore I.D.

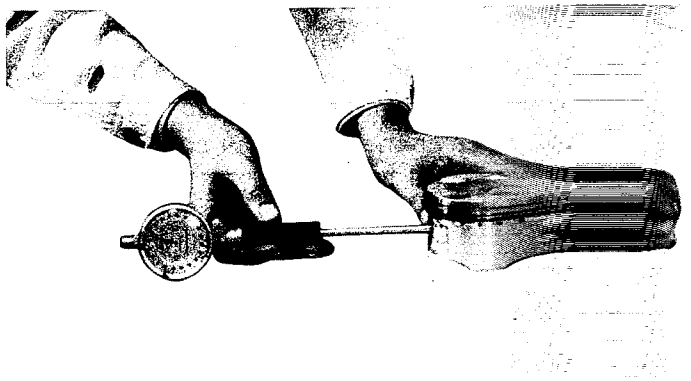
Standard	18.002 – 18.008 mm (0.7087 – 0.7090 in)

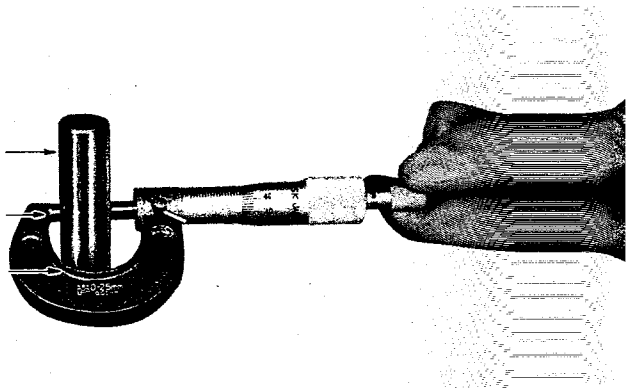
Using a micrometer, measure the piston pin outside diameter at three positions.

Piston pin O.D.

Standard	17.995 – 18.000 mm (0.7085 – 0.7087 in)

09900-20205	Micro meter (0 – 25 mm)





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.

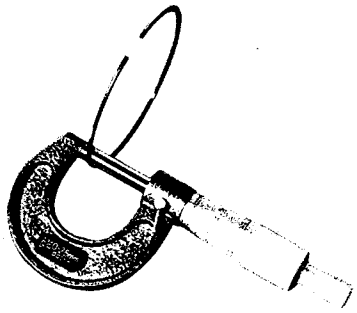
09900-20803	Thickness gauge

Piston ring—groove clearance

Piston ring	Service Limit
1st	0.180 mm (0.0071 in)
2nd	0.150 mm (0.0059 in)

Piston ring groove width

Piston ring	Standard
1st	1.21–1.23 mm (0.047–0.048 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	1.175–1.190 mm (0.0463–0.0469 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	7.6 mm (0.30 in)
2nd	8.0 mm (0.31 in)

Piston ring end gap

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

09900-20803	Thickness gauge

CONNECTING ROD SMALL END BORE I.D.

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

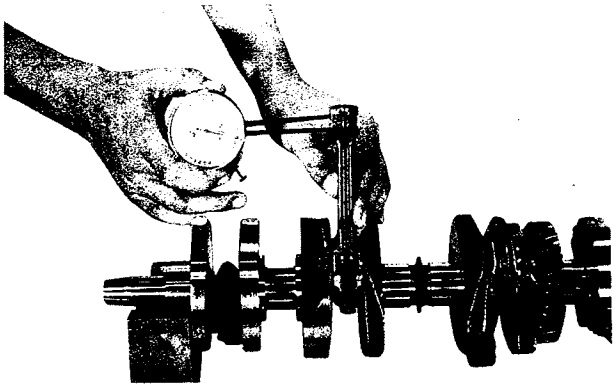
Connecting rod small end bore I.D.

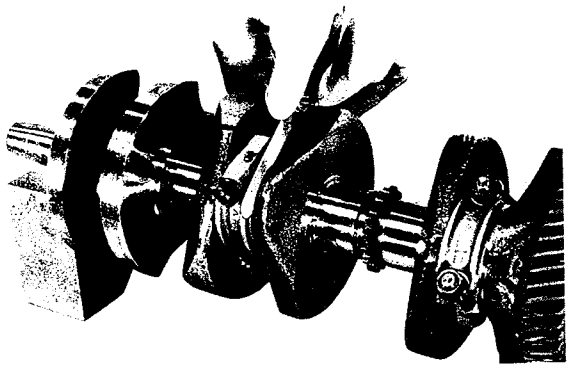
Standard	18.006–18.014 mm (0.7089–0.7092 in)

Connecting rod small end bore–Piston pin clearance.

Service Limit	0.080 mm (0.0031 in)

- If the difference between the connecting rod small end bore inside diameter and the piston pin outside diameter exceeds the abovementioned limit, replace both connecting rod and piston pin.





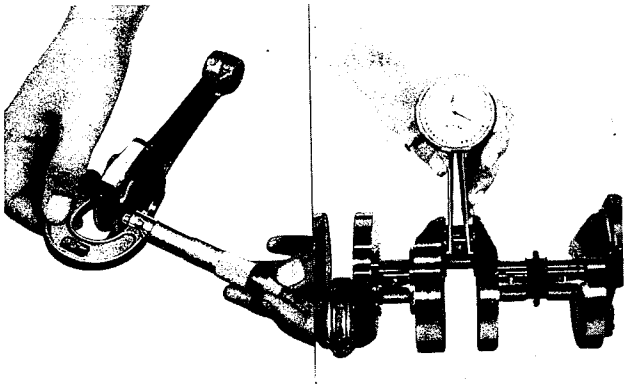
CONNECTING ROD BIG END THRUST CLEARANCE

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

Service Limit	0.3 mm (0.012 in)

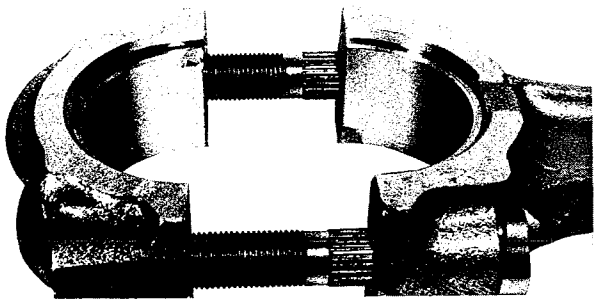
	Standard
Big end width	20.95–21.00 mm (0.825–0.827 in)
Crank pin width	21.10–21.15 mm (0.831–0.833 in)

09900-20803	Thickness gauge



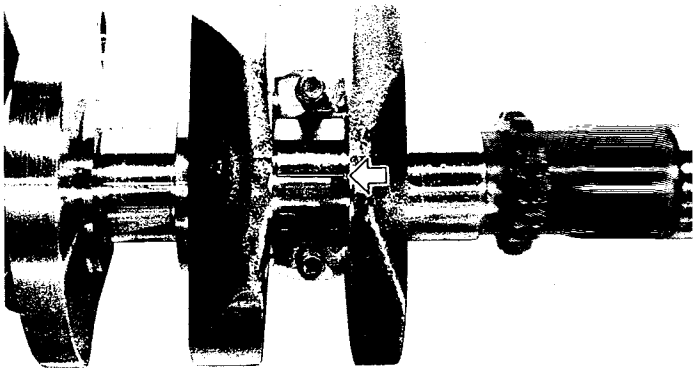
CONNECTING ROD–CRANK PIN BEARING SELECTION

- 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 specified set of bearings.



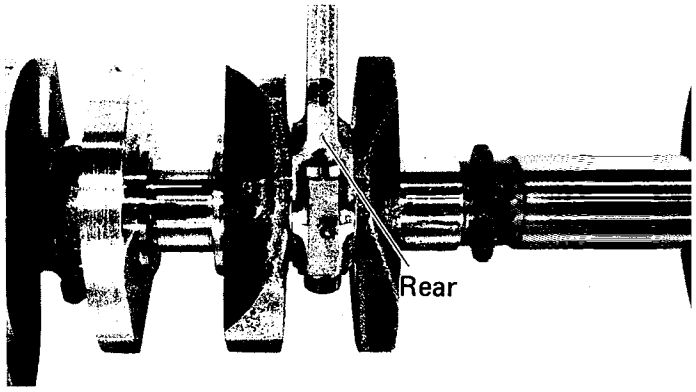
NOTE:
Never try to remove or loosen the connecting rod cap bolts due to their possible loosening. Once displaced, the bearing will not be fitted properly.

- 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.

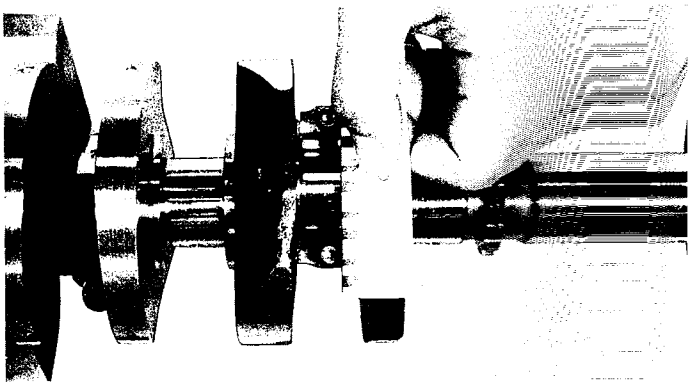
NOTE:
When fitting bearing cap to crank pin, be sure to discriminate one end from the other, namely front and rear.



Initial tightening torque	1.2–1.8 kg-m (8.5–13.0 lb-ft)

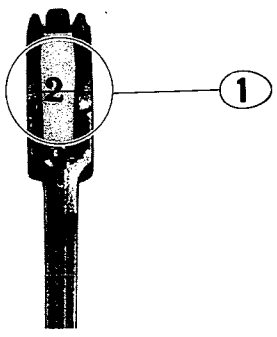
Final tightening torque	3.0–3.4 kg-m (21.5–25.0 lb-ft)

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 envelop scale. This measurement should be taken at the widest part.

Service Limit	0.080 mm (0.0031 in)



- If oil clearance is exceeded service limit, select the specified bearings from the following table.
- Check the corresponding rod I.D. code number ① , "1" or "2".

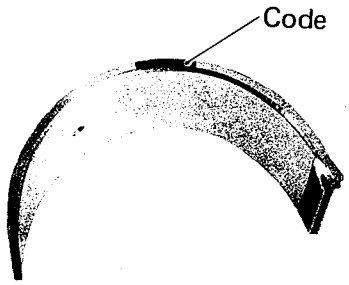
- Check the corresponding crank pin O.D. code number, "1", "2" or "3".

Bearing selection table

		Crank pin		
	Code	1	2	3
Conrod	1	Green	Black	Brown
	2	Black	Brown	Yellow

Bearing oil clearance

Standard	0.024–0.048 mm (0.0009–0.0019 in)

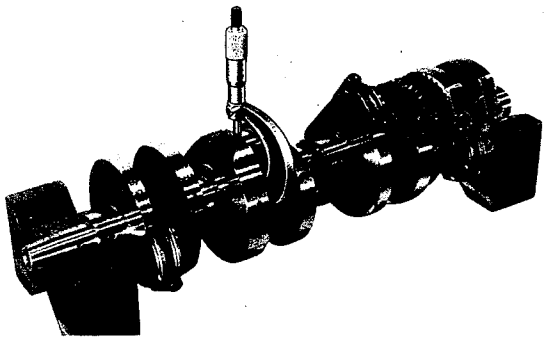


Connecting rod I.D. specification

Code	I.D.
1	39.000–39.008 mm (1.5354–1.5357 in)
2	39.008–39.016 mm (1.5357–1.5361 in)

Crank pin O.D. specification

Code	O.D.
1	35.992–36.000 mm (1.4170–1.4173 in)
2	35.984–35.992 mm (1.4167–1.4170 in)
3	35.976–35.984 mm (1.4164–1.4167 in)



Bearing thickness

Color (Part No.)	Thickness
Green (12164-45400-010)	1.484–1.488 mm (0.0584–0.0586 in)
Black (12164-45400-020)	1.488–1.492 mm (0.0586–0.0587 in)
Brown (12164-45400-030)	1.492–1.496 mm (0.0587–0.0589 in)
Yellow (12164-45400-040)	1.496–1.500 mm (0.0589–0.0591 in)

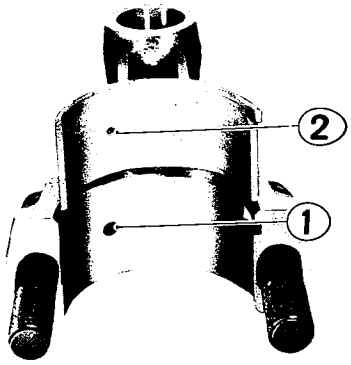
Following two kinds of under size bearings are available.

Part No.	Thickness
12164-45400-025	1.625 mm (0.25 mmU.S.)
12164-45400-050	1.750 mm (0.50 mm U.S.)

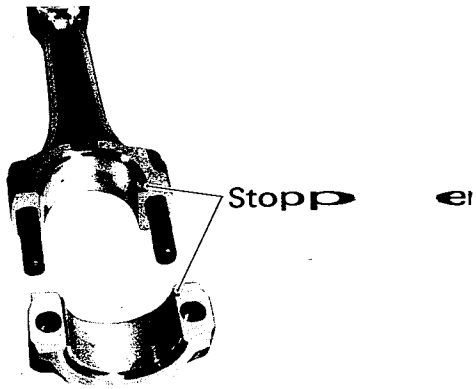
CAUTION:
Bearing should be replaced as a set.

BEARING ASSEMBLY

- Check the connecting rod oil hole ① to align with the bearing oil hole ② .

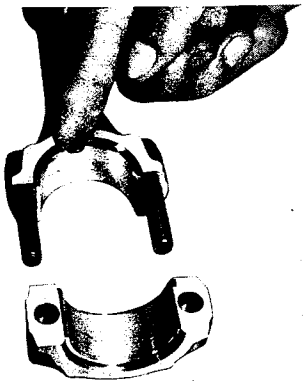


- When fitting the bearings to the bearing cap and connecting rod, be sure to fix the stopper part first, and press the other end.



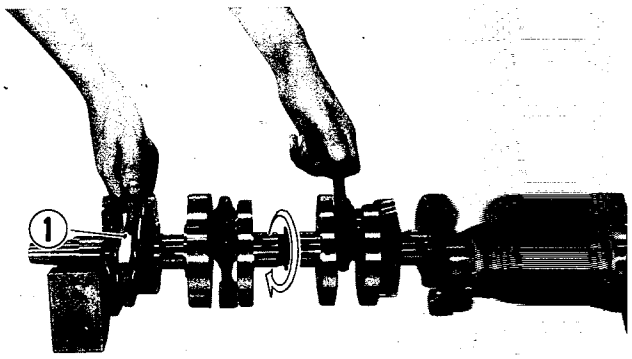
- Apply engine oil or SUZUKI Moly Paste to the crank pin and bearing surface.

99000-25140	SUZUKI Moly Paste



- When mounting connecting rod on the crank shaft, make sure that oil hole ① of the connecting rod faces rearward.
- Tighten the connecting rod fitting nuts with specified torque.

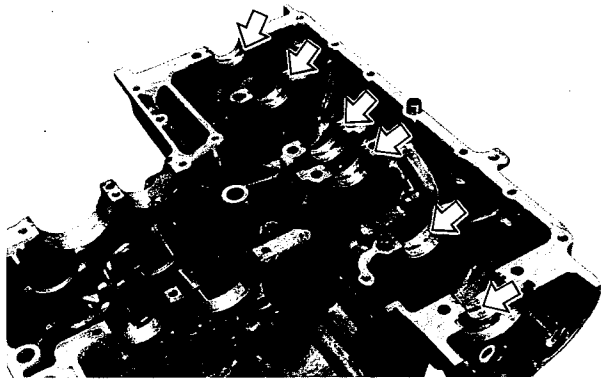
Tightening torque	3.0–3.4 kg-m (21.5–25.0 lb-ft)



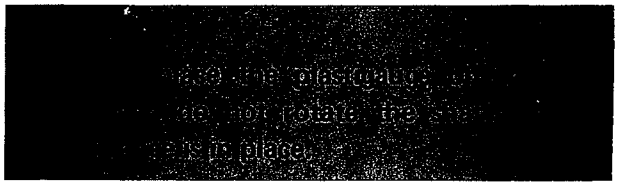
- Check the connecting rod for smooth turning.

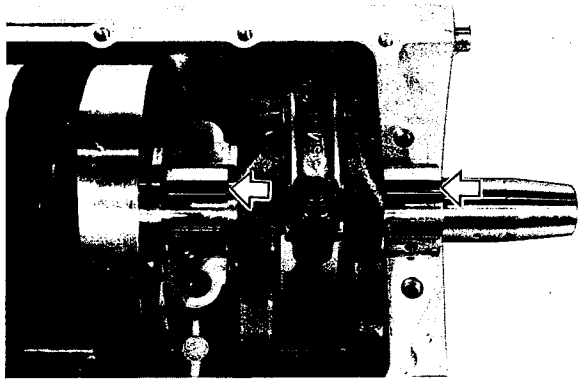
CRANKCASE—CRANKSHAFT BEARING SELECTION

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



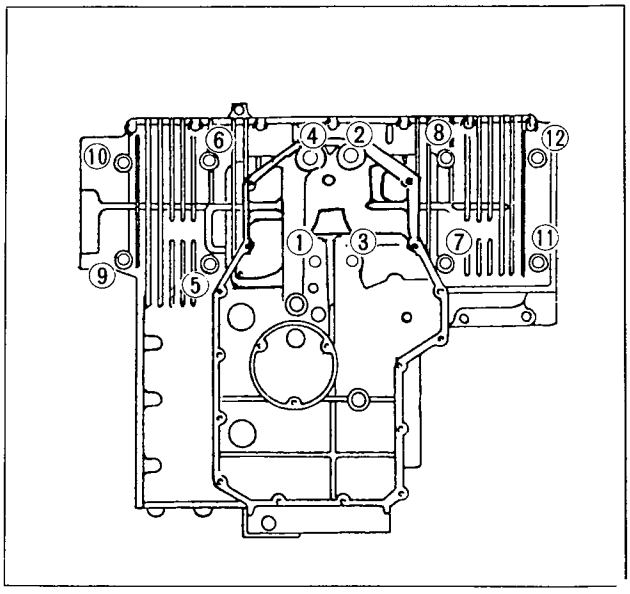
- Place plastigauge on each crankshaft journal in the usual manner.





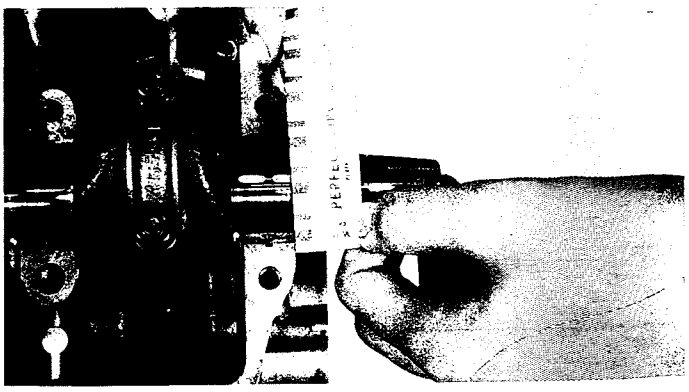
- Mate the lower crankcase with the upper crankcase, and tighten the crankcase securing bolts with specified torque value in the indicated order.

	Initial Tightening	Final Tightening
6 mm bolt	0.6 kg-m (4.5 lb-ft)	0.9—1.1 kg-m (6.5—8.0 lb-ft)
8 mm bolt	1.3 kg-m (9.5 lb-ft)	2.0—2.4 kg-m (14.5—17.5 lb-ft)

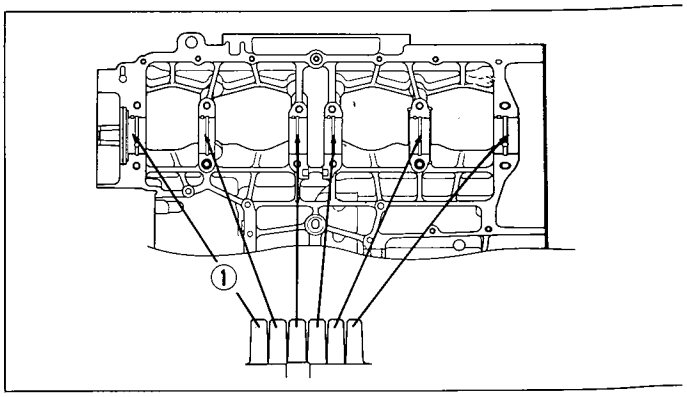


- Remove the lower crankcase, and measure the width of compressed plastigauge in the usual manner.

Service Limit	0.080 mm (0.0031 in)

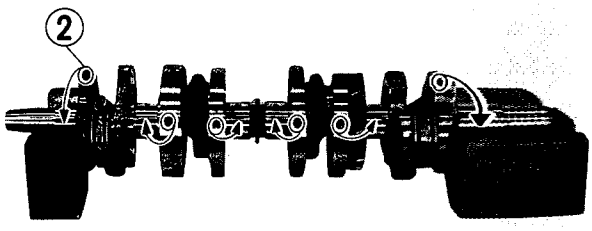


- If the width at the widest part exceeds the limit, replace the set of bearing with new ones by referring to the selection table.
- Check the corresponding crankcase journal I.D. code number ① "A" or "B" which are stamped on the rear of upper crankcase.
- Check the corresponding crankshaft journal O.D. code number ② "A", "B" or "C".



Bearing selection table

		Crankshaft		
	Code	A	B	C
Crankcase	A	Green	Black	Brown
	B	Black	Brown	Yellow

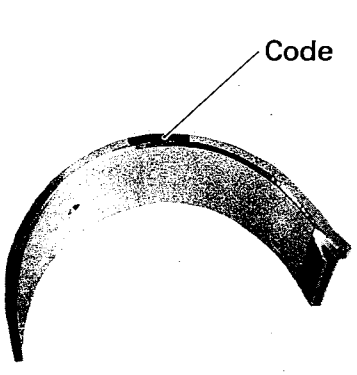


Crankcase I.D. specification

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

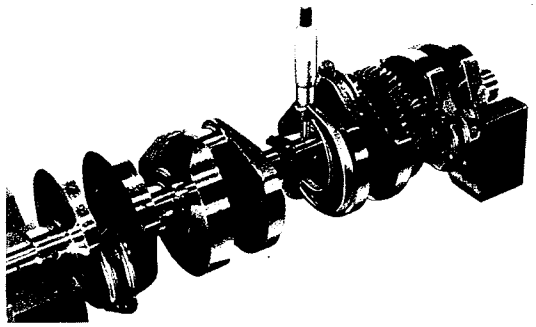
Bearing thickness specification

Color (Part number)	Specification
Green (12229-45400-010)	1.486–1.490 mm (0.0585–0.0587 in)
Black (12229-45400-020)	1.490–1.494 mm (0.0587–0.0588 in)
Brown (12229-45400-030)	1.494–1.498 mm (0.0588–0.0590 in)
Yellow (12229-45400-040)	1.498–1.502 mm (0.0590–0.0591 in)



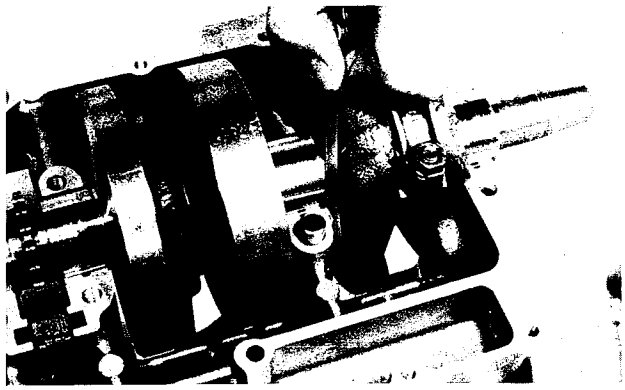
Crankshaft journal O.D. specification

Code	O.D.
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)



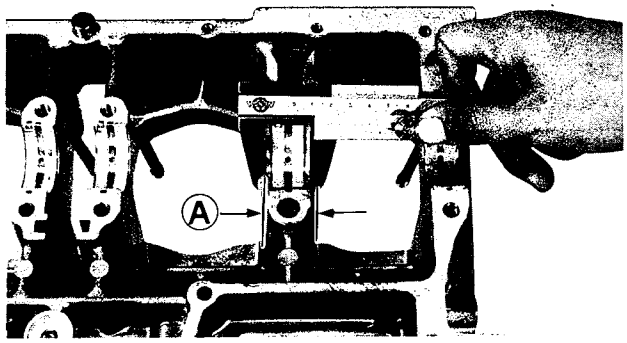
Following two kinds of under size bearings are available as an optional parts.

Part No.	Thickness
12229-45400-025	1.625 mm (0.25 U.S.)
12229-45400-050	1.750 mm (0.50 U.S.)



CRANKSHAFT THRUST CLEARANCE

- Check crankshaft thrust clearance with thickness gauge. If it exceeds the service limit, measure the crankcase width Ⓐ and crankshaft width Ⓑ, and replace crankcase or crankshaft, whichever the difference from specification is greater.

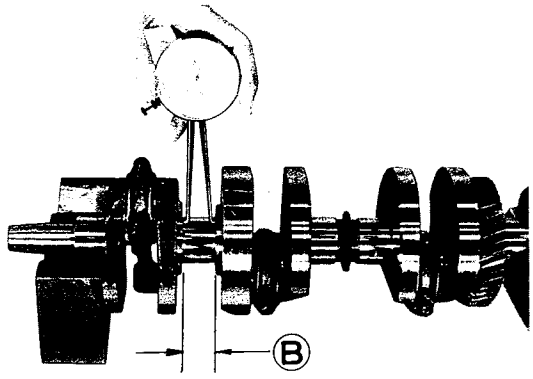


09900-20803	Thickness gauge
09900-20102	Vernier calipers

Thrust clearance

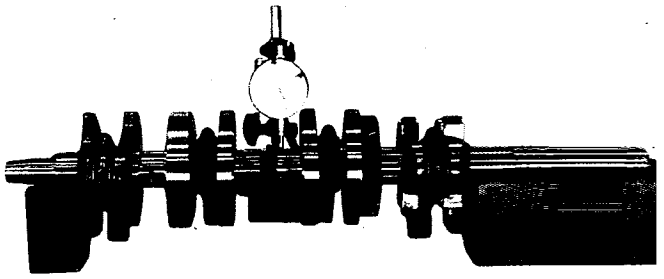
Service Limit	0.5 mm (0.02 in)

	Standard
Crankcase Ⓐ	23.84 – 23.92 mm (0.939 – 0.942 in)
Crankshaft Ⓑ	24.00 – 24.08 mm (0.945 – 0.948 in)



CRANKSHAFT RUNOUT

Support the crankshaft with "V" blocks as shown, with the two end journal resting on the blocks. Rig 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.

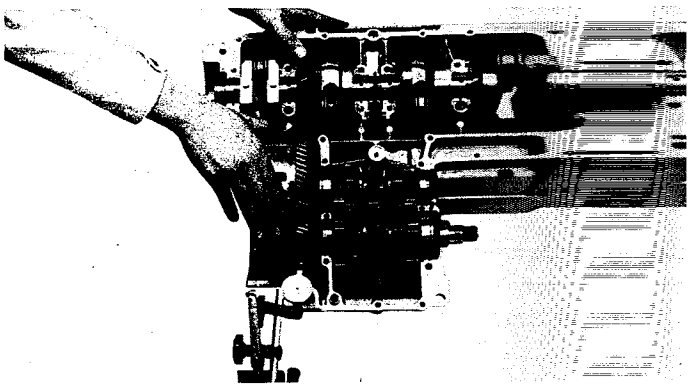


Crankshaft runout specification

Service limit	0.05 mm (0.002 in)

PRIMARY DRIVE—DRIVEN GEAR BACKLASH

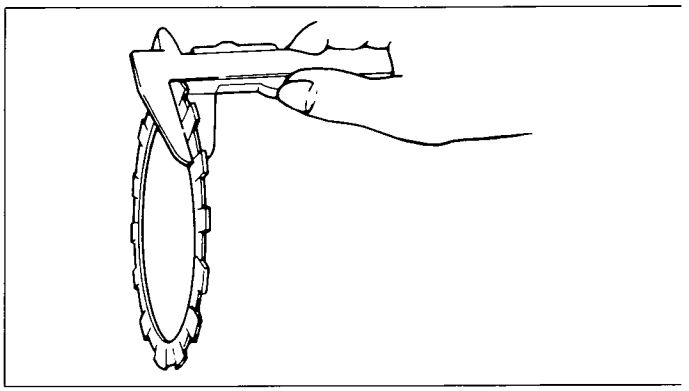
Using a dial gauge, measure the backlash. If it exceeds the limit, replace the driven gear and/or the crankshaft assembly.



Service limit	0.08 mm (0.003 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.



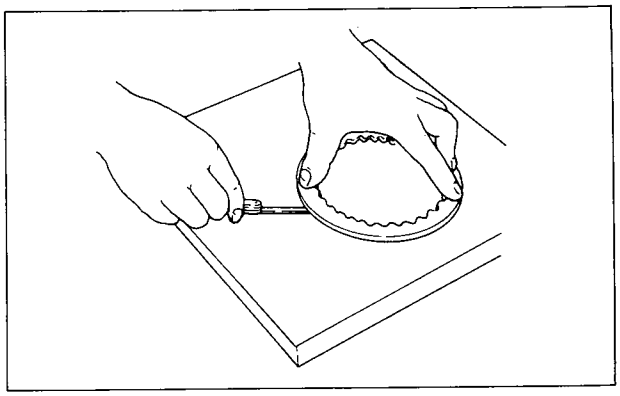
Checking thickness

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.

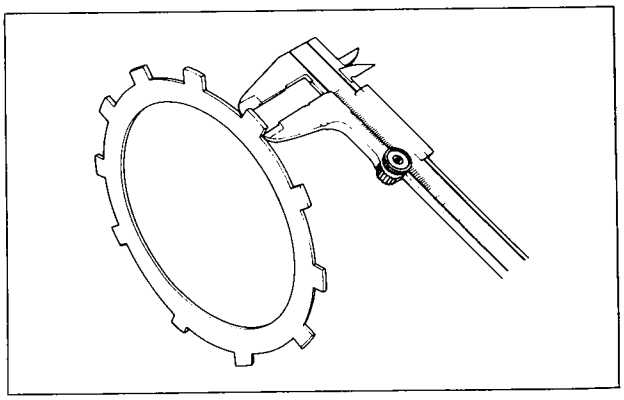
09900-20102	Vernier calipers
09900-20803	Thickness gauge

Unit: mm(in)

Service Limit	Drive plate	Driven plate
Thickness	2.4 (0.094)	———
Distortion	0.2 (0.008)	0.1 (0.004)
Claw width	11.0 (0.43)	———



Checking distortion



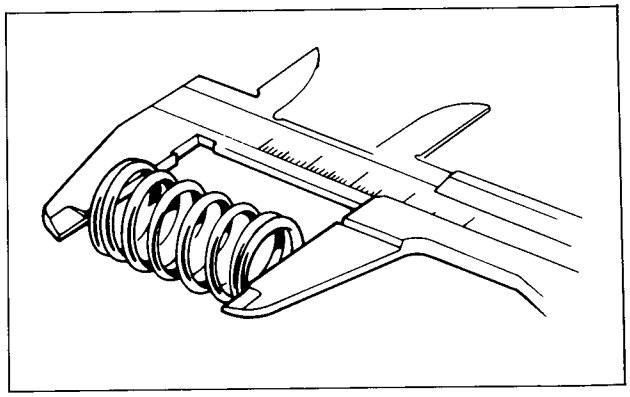
Checking Claw width

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 inner and outer springs as a set, if any one of springs is not within the limit.

Clutch spring free length

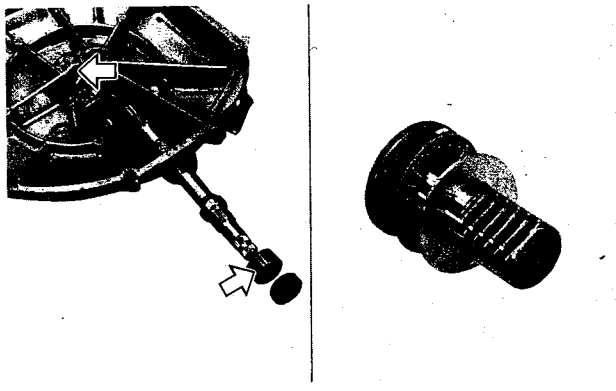
Service Limit	38.5 mm (1.52 in)



CLUTCH BEARINGS

Inspect clutch release and rack bearings for any abnormality, particularly cracks, upon removal from the clutch, to decide whether it can be reused or should be replaced.

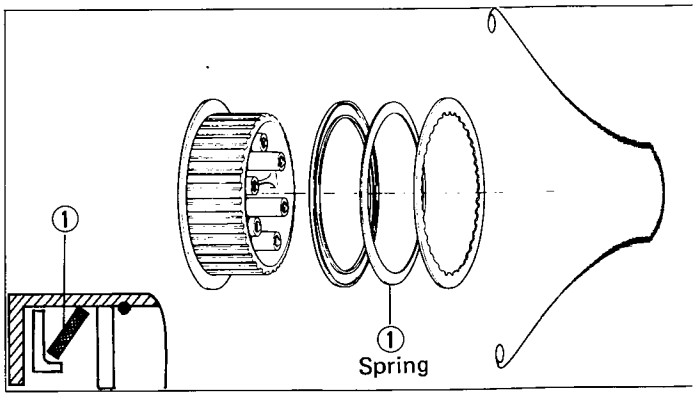
Smooth engagement and disengagement of the clutch depends much on the condition of these bearings.



SLEEVE HUB WAVE WASHER

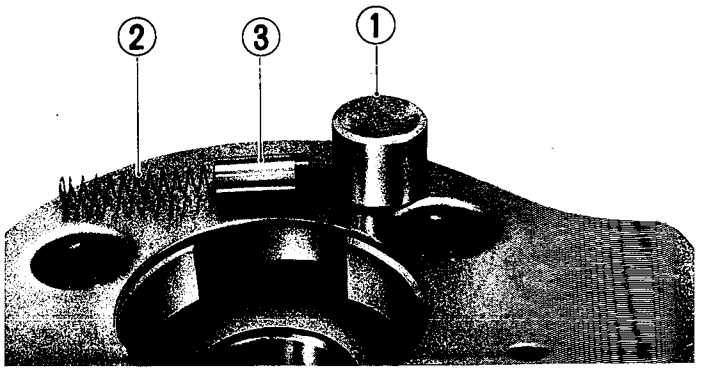
- Install the spring seat, spring, and driven plate in the clutch sleeve hub. Check that these three parts are positioned correctly as illustrated.
  While holding the driven plate with pliers, install the piano wire clip.

NOTE
Always use a new piano wire clip.



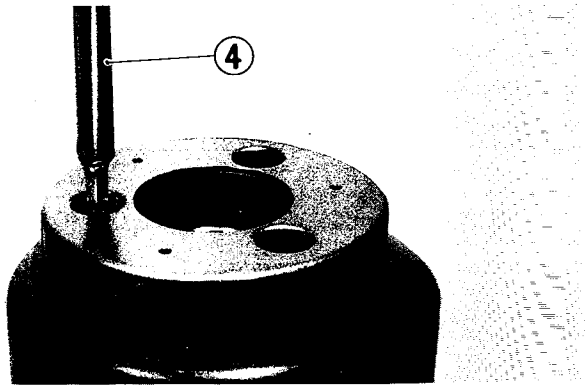
STARTER CLUTCH REMOVAL

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



- Clamp the rotor with a vise taking care not to damage it and separate starter clutch from the rotor using the T type hexagon wrench ④.

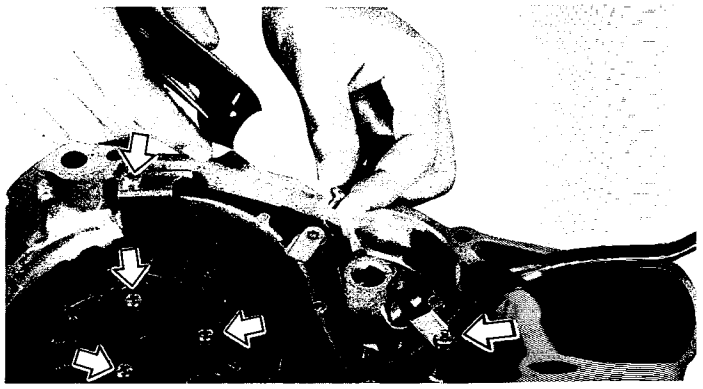
09914-25811	"T" type hexagon wrench (6 mm)



ASSEMBLY

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

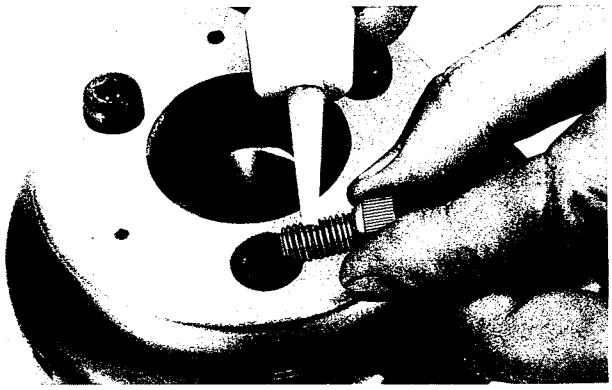
NOTE
Wipe off oil and grease on screw completely and then apply the screw lock.



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

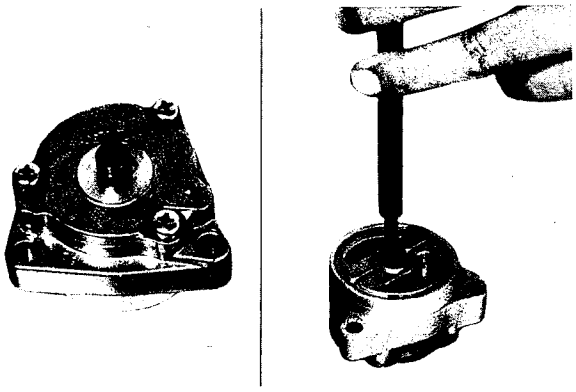
- Apply THREAD LOCK SUPER "1361A" to allen bolts and tighten with specified torque.

99104-32020	Thread lock super "1361A"
09914-25811	T-type hexagon wrench
Tightening torque	1.5–2.0 kg-m (11.0–14.5 lb-ft)



OIL PUMP

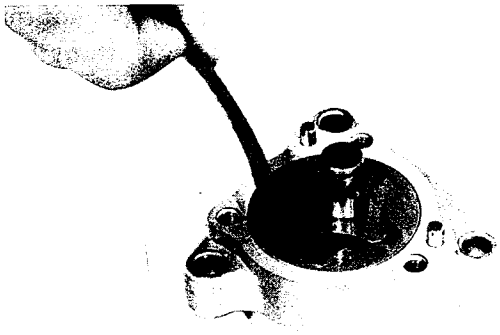
- Remove three screws fastening oil pump body, tap the rotor shaft firmly with plastic mallet, and remove the upper case.



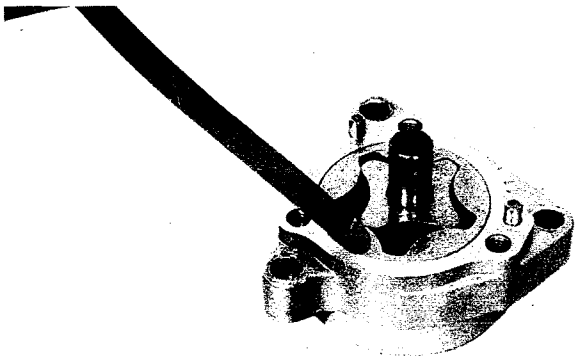
- Check oil pump tip clearance, outer rotor clearance, and side clearance by using thickness gauge and straight edge.

mm (in)

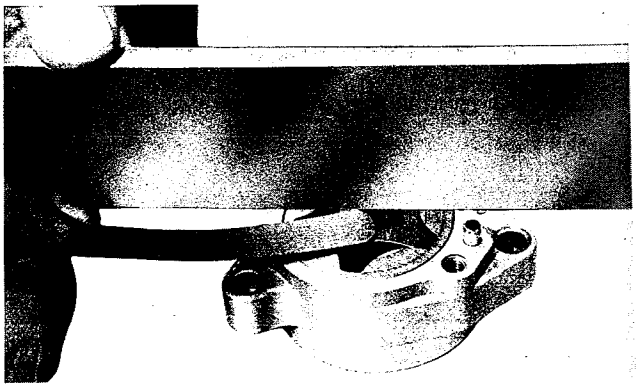
	Service Limit
Tip clearance	0.2 (0.008)
Outer rotor clearance	0.25 (0.010)
Side clearance	0.15 (0.006)



Checking tip clearance



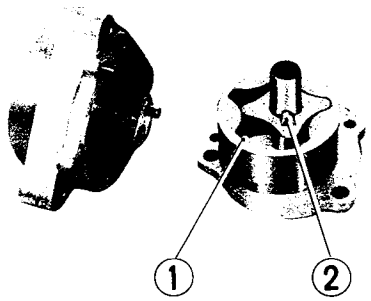
Checking outer rotor clearance



Checking side clearance

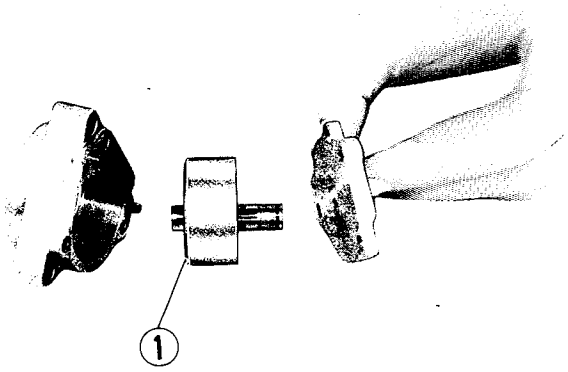
ASSEMBLY

- Thoroughly wash the oil pump, inner and outer rotors, and oil pump case with solvent. Apply engine oil to them before inserting into case.



- When installing the outer rotor into oil pump case, chamfered side ① should be positioned inside.

- Since there is a rotor shaft drive pin ②, fix the pin into rotor groove and rotor should be inserted respective of these portions.

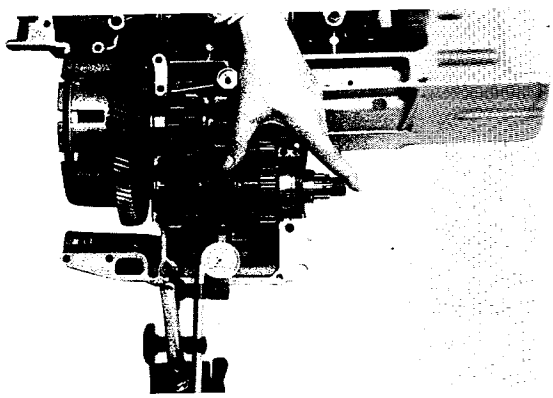


- Apply thread lock "1363C" to oil pump body fastening screw.

99104-32050	Thread lock "1363C"

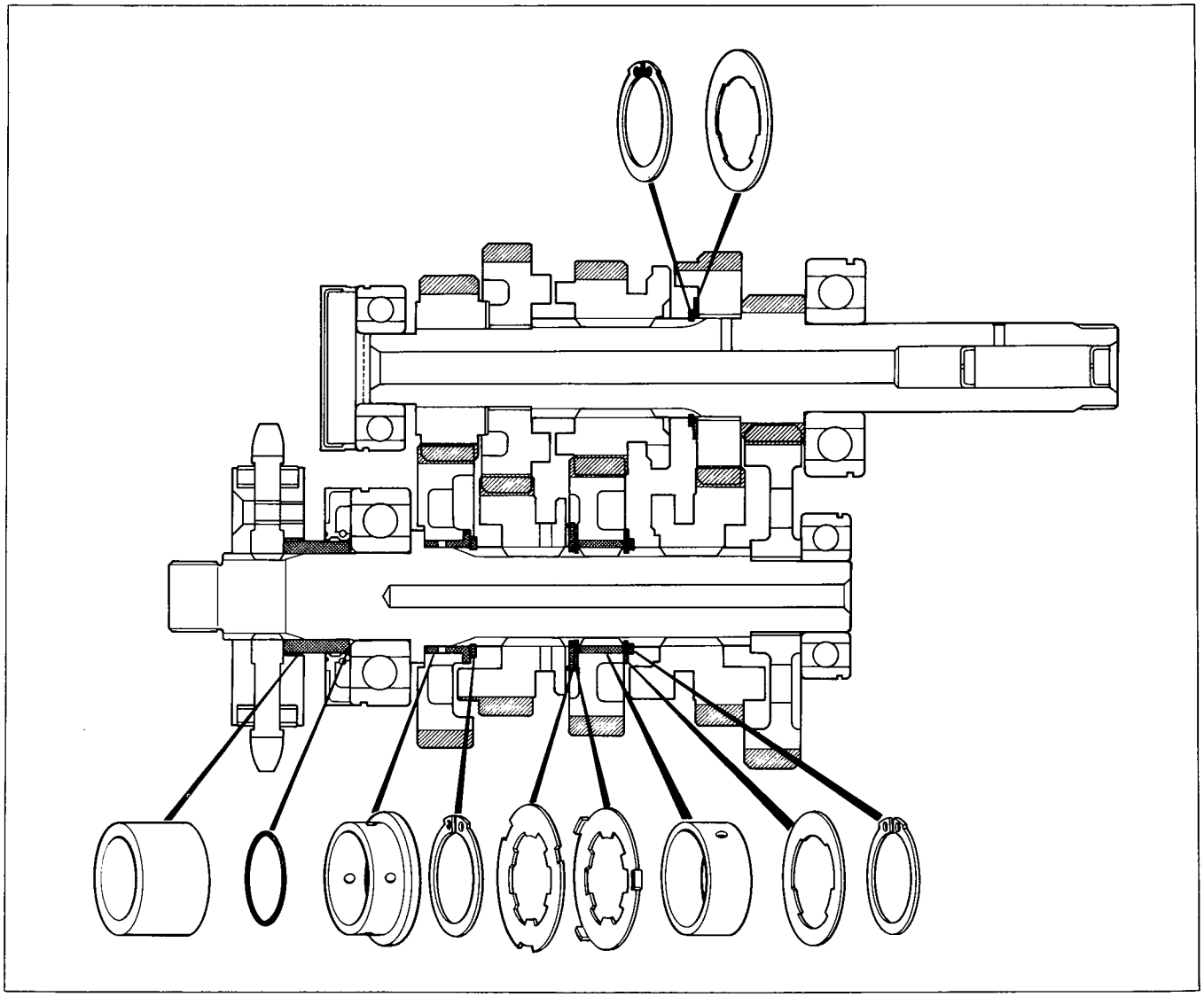
TRANSMISSION GEAR BACKLASH

Use a dial gauge to check the backlash. Drive gear and driven gear must be replaced if their backlash exceeds the limiting backlash.



Transmission gear backlash

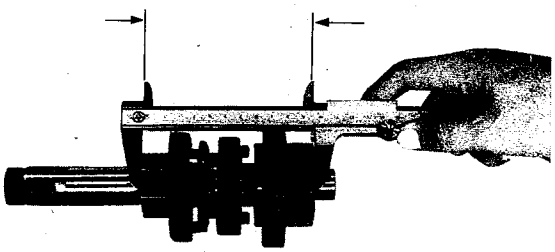
Gears	Service Limit
1st, 2nd and 3rd	0.1 mm (0.004 in)
4th and 5th	0.15 mm (0.006 in)



MOUNTING 2ND DRIVE GEAR

Force-fit 2nd drive gear to a position where the distance between this drive gear and the 1st drive gear assumes the value indicated:

109.4 – 109.5 mm
(4.307 – 4.311 in)

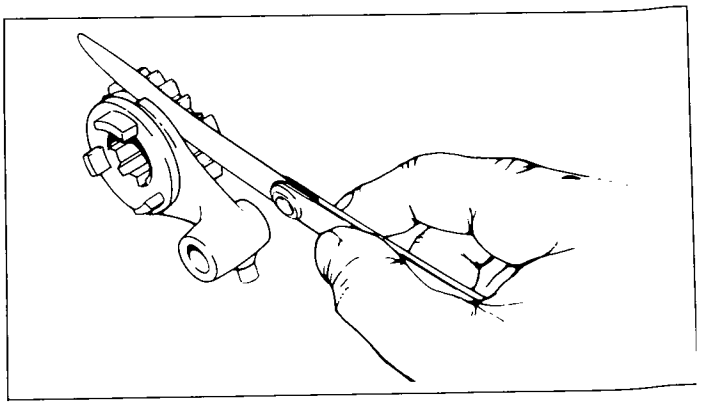


Countershaft length	109.4–109.5 mm (4.307–4.311 in)

99104-32030	Thread lock super 1363A

NOTE:
* Before mounting 2nd drive gear, apply THREAD LOCK SUPER 1363A to its bore, taking care not to smear Top drive gear with "SUPER 1363A".
* After mounting the 2nd drive gear, check that Top drive gear spins smoothly by moving it with your fingers.
* 2nd drive gear may be replaced twice before it becomes necessary to also replace the countershaft.

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

Shift fork-Groove clearance

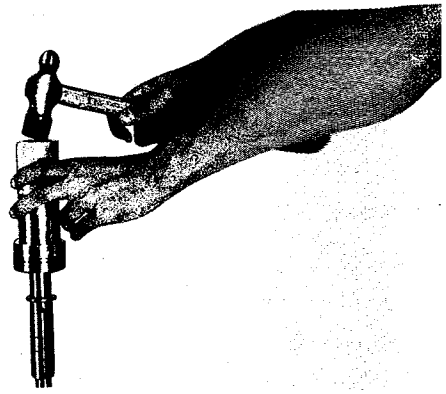
		Service Limit
No. 1	for 4th and 5th driven gears	0.80 mm (0.031 in)
No. 2	for 3rd drive gear	

Shift fork groove width

Standard	5.45 –5.55 mm (0.215–0.219 in)

Shift fork thickness

Standard	4.95–5.05 mm (0.195–0.199 in)

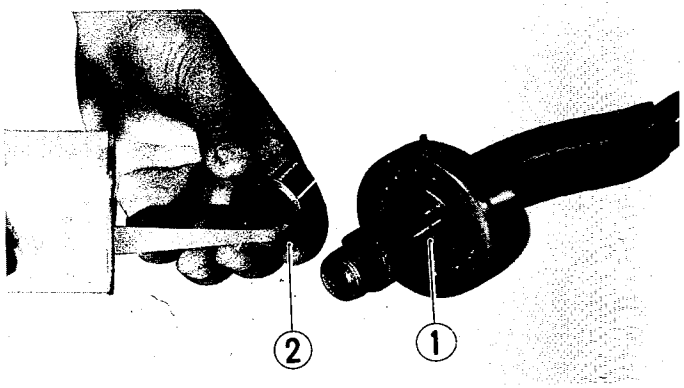


- Using bearing installing tool, install drive shaft bearing.

09913-70122	Bearing installer

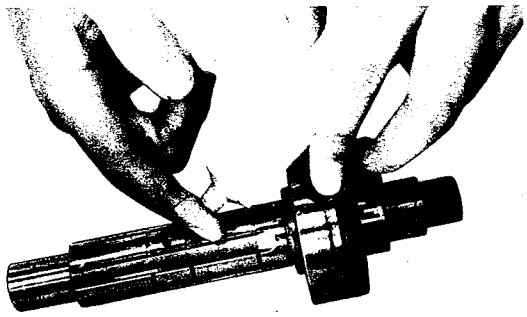
- Fix O-ring ① to the drive shaft and apply thread lock cement to the inner surface of engine sprocket spacer ②.

99000-32040	Thread lock cement

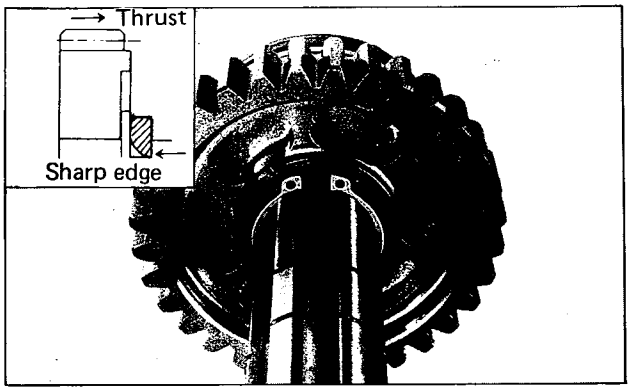


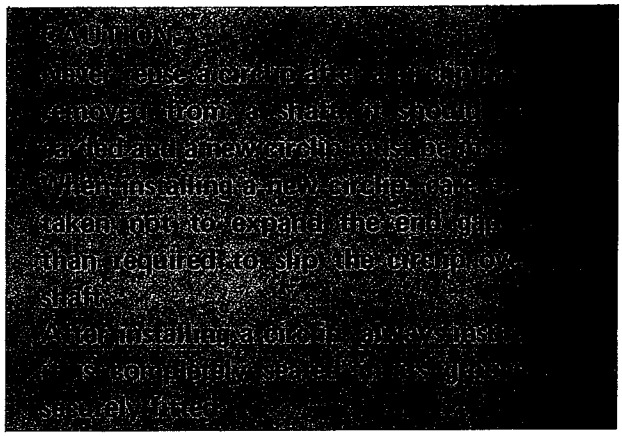
- Before installing gears, coat lightly moly paste to the drive shaft.

99000-25140	SUZUKI Moly Paste



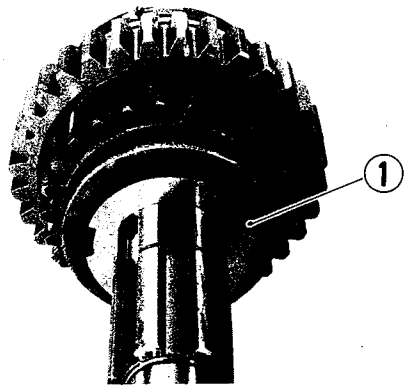
- When mounting circlip, pay attention to the direction of the circlip. Fit it to the side where the thrust is as shown in the figure with the rounded side against the gear surface.

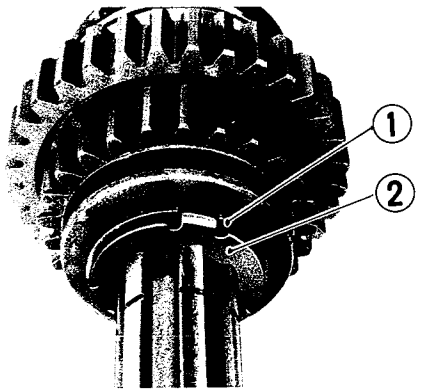




TOP DRIVEN GEAR

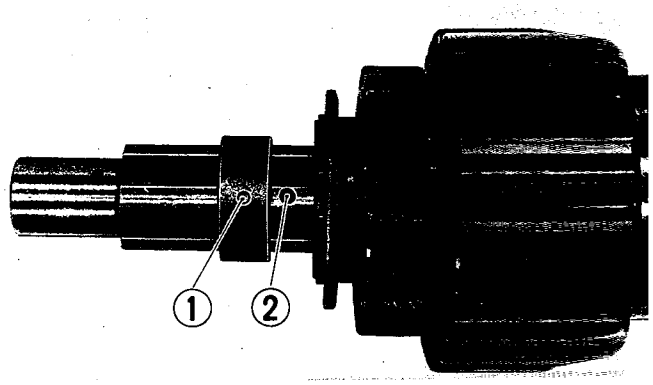
When mounting the top driven gear on the drive shaft, insert lock washer No. 2 ① into the drive shaft, and turn to fit it into the groove. Then, fit the lock washer No. 1 ② in the lock washer No. 2.





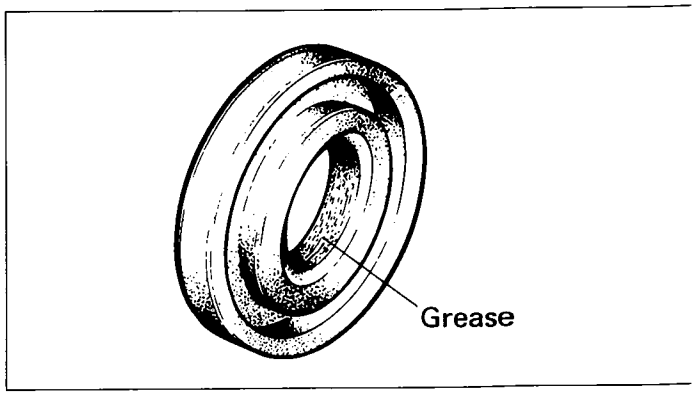
3RD DRIVEN GEAR

- When installing the 3rd driven gear bushing, align its oil hole ① with drive shaft oil hole ②.



- Coat SUZUKI super grease "A" to the lip of oil seal.

99000-25030	SUZUKI Super grease "A"

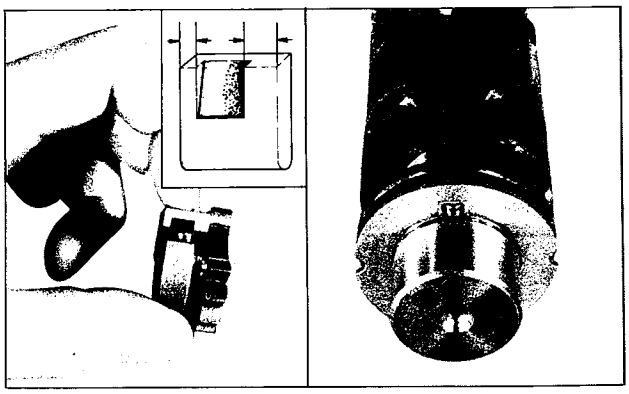


ENGINE REASSEMBLY

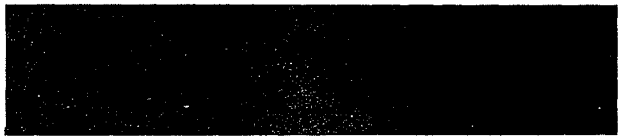
The engine is reassembled by carrying out the steps of disassembly in the reversed order, but there are a number of steps which demand special descriptions or precautionary measures.

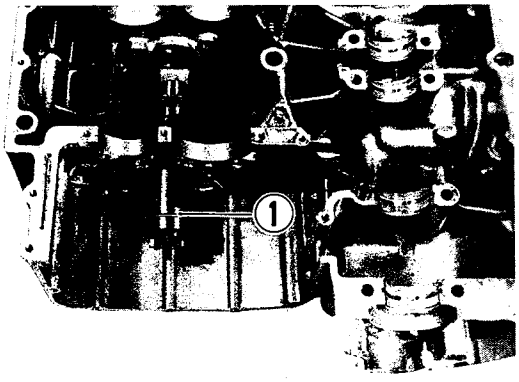
NOTE:
Apply engine oil to each running and sliding part before reinstalling.

- The shape of each gear shifting pawl is different. Mount the one with the narrower width on the gear shifting cam side.
- Mount the cam driven gear to the gearshifting cam.



- Mount the gearshifting cam on the lower crankcase.

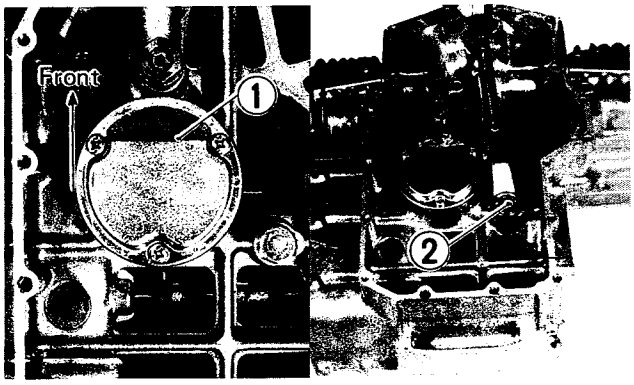


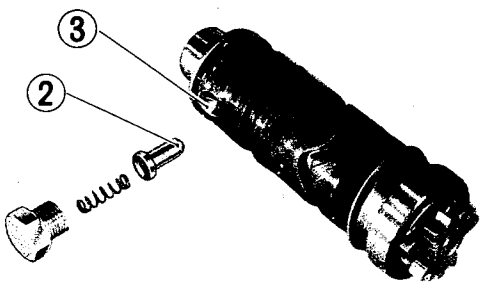


- Install sump filter to face the oil inlet ① to the front.

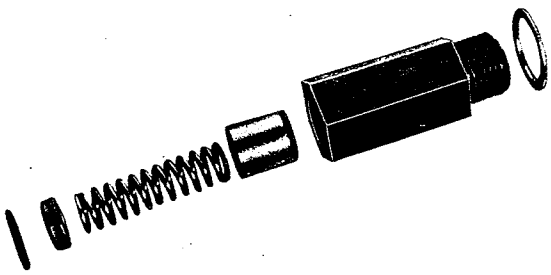
99104-32050	Thread Lock "1363C"

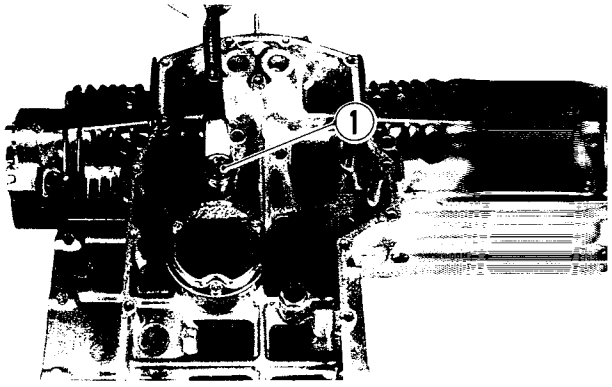
- Install the gearshifting cam with the dent for the neutral stopper directed downward, and meet the neutral stopper ② with this dent ③.





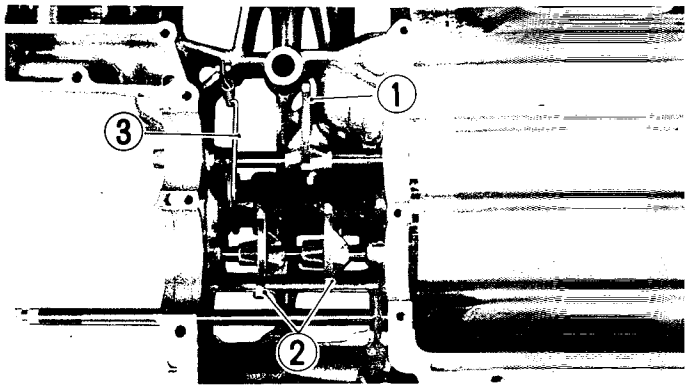
- Install oil pressure regulator ①.





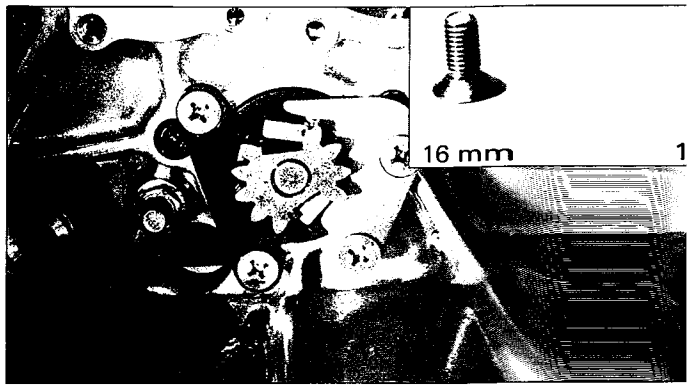
- Refer to the following figure in regard to the correct positions and orientations of the forks when installing these parts.
  ① Gear shifting fork for 3rd drive gear.
  ② Gear shifting forks for 4th and 5th driven gears.
  ③ Cam stopper.

NOTE:
Hitch the cam stopper spring to the correct position.

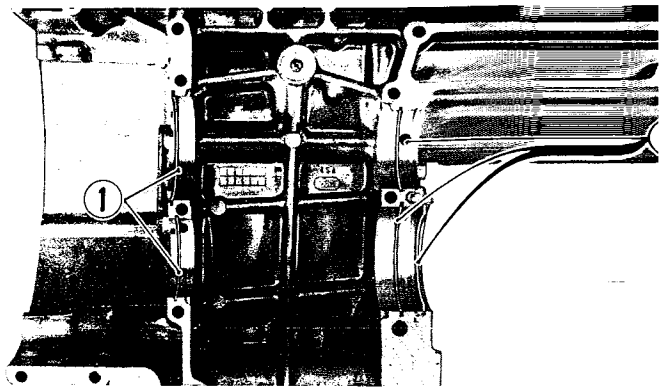


- Install both gearshift cam guide and gearshift pawl screws (overall length 12 mm) with applying thread lock "1363C".

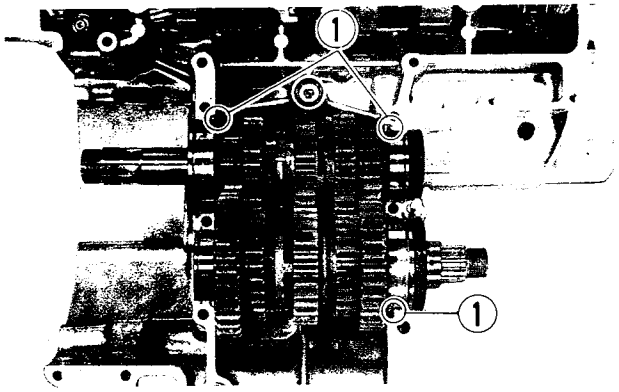
99104-32050	Thread lock "1363C"



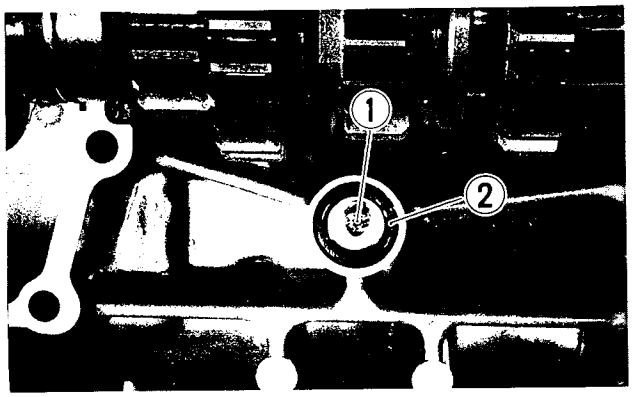
- Install five C-rings ① to the upper crankcase.



- Mount both counter and drive shafts on the upper crakcase.

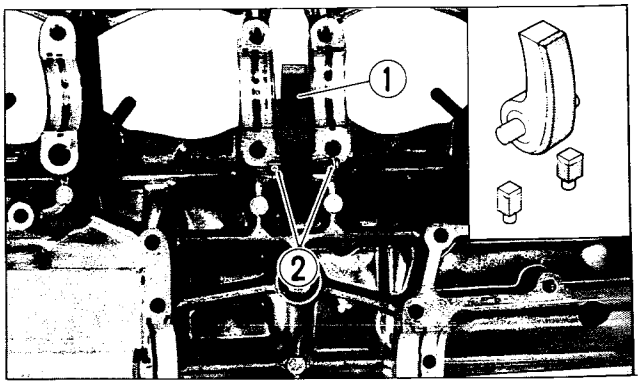


- Check oil jet ① for clogging. Locate the O-ring ② to the respective position.



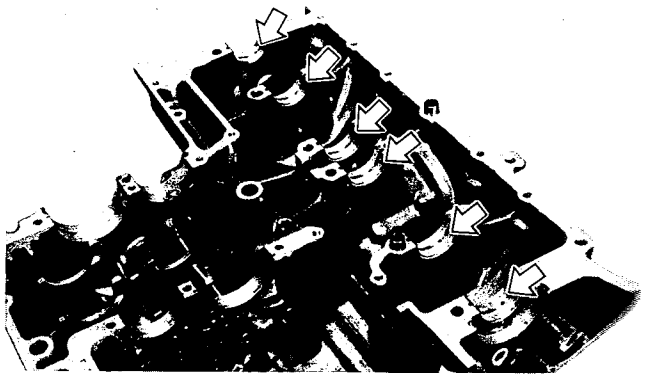
- When fitting the bearings to the crankcase, be sure to fix the stopper part ① first and press the other end.

- Place cam chain guide ① properly, and fix two dampers ② so that iron side faces to the chain guide pin (inside).



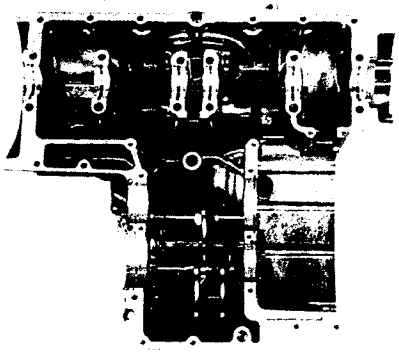
- Apply SUZUKI Moly Paste to each bearing with the camel's hair brush and journal portions of crankshaft.
- Mount the crankshaft with cam drive chain to the upper crankcase.

99000-25140	SUZUKI Moly Paste

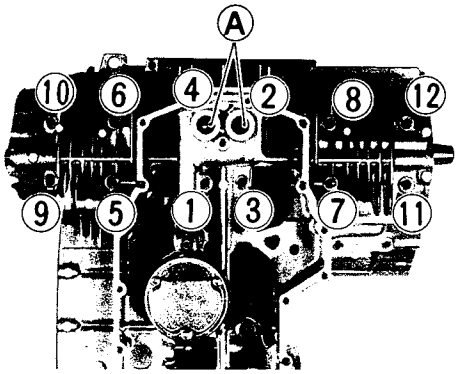


- Clean the mating surfaces of the crankcases before matching the upper and lower ones.
- Apply SUZUKI BOND No. 1215 to the mating surface of the lower crankcase in the following procedure.

99104-31110	Suzuki Bond No. 1215



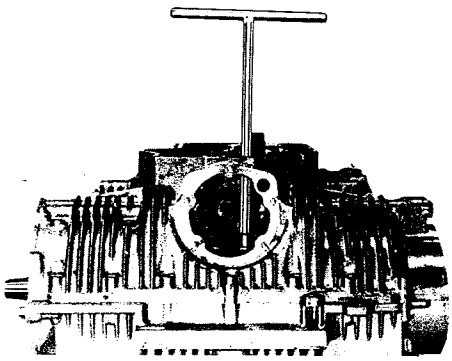
NOTE:
Use of SUZUKI BOND No. 1215 is as follows:
Make surfaces free from moisture, oil, dust and other foreign materials.
Spread on surfaces evenly to form an even layer, and wait for [illegible] minutes before assembling.
Take extreme care not to apply any bond No. 1215 to the bearing surfaces.
Apply to distorted surface as it forms a comparatively thick film.



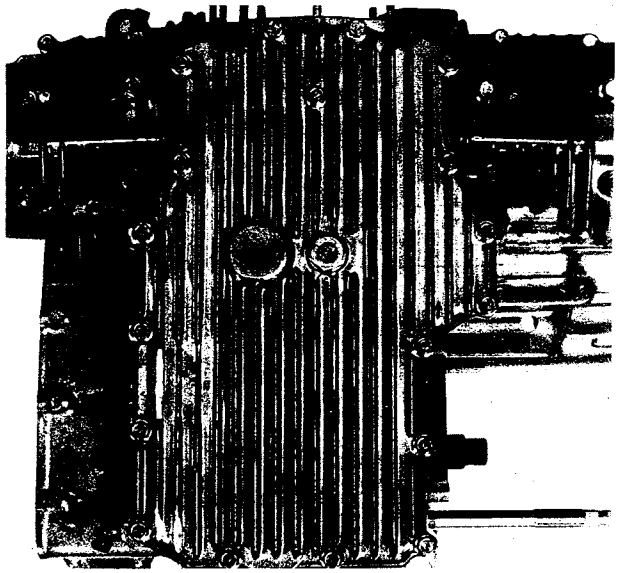
- Locate the two allen bolts at position Ⓐ and ten 8 mm bolts.

- 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



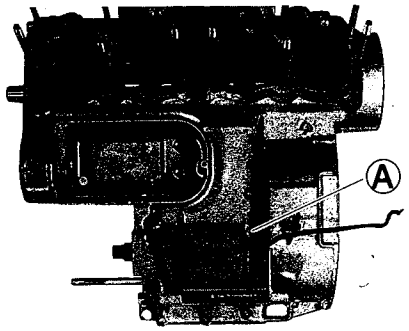
Tightening torque	Initial tightening		Final tightening	
	kg-m	lb-ft	kg-m	lb-ft
6mm bolt	0.6	4.5	1.3	9.5
8mm bolt	1.3	9.5	2.4	17.5



- Locate oil pan and new gasket, and tighten 6 mm bolts with specified torque.

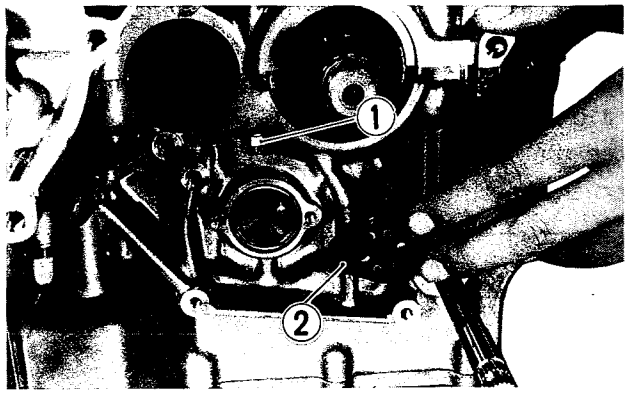
Tightening torque	1.0 kg-m (7.0 lb-ft)

- Tighten upper crankcase bolts with specified torque. Fix the engine ground wire at the respective position Ⓐ.

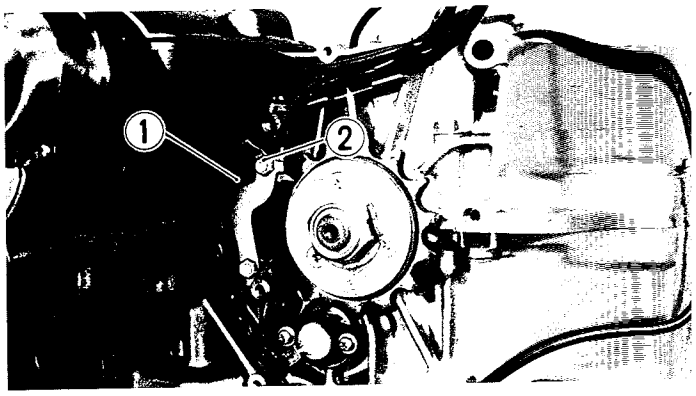


- Tighten crankcase securing nut ① and install gear position indicator switch ②.

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

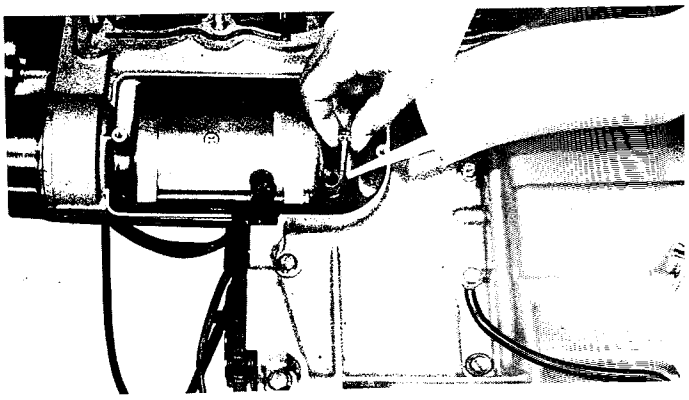


- Route the lead wire ①, and clamp it with countershaft oil seal retainer ②.



- Mount starter motor, and route the lead wire properly.

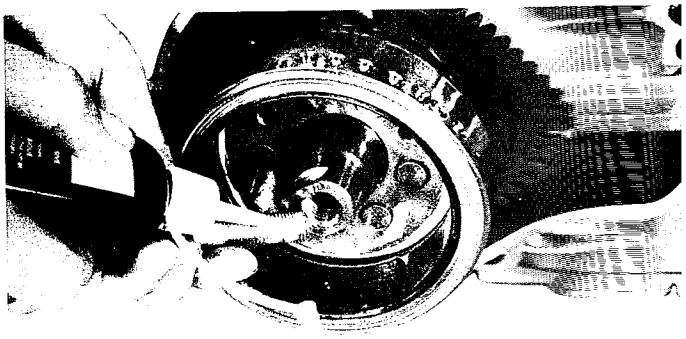
99104-32050	Thread lock "1363C"

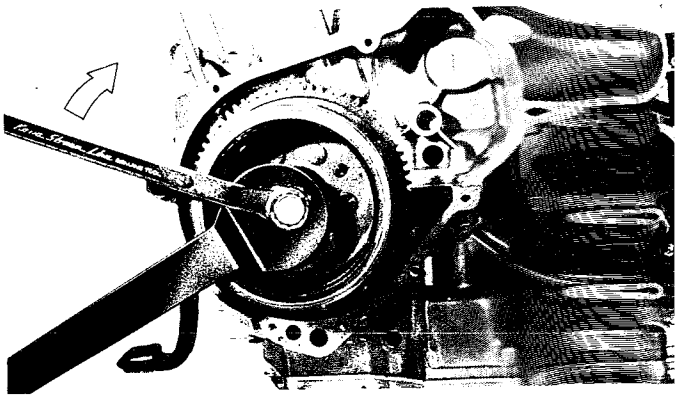


- Degrease the tapered portion of the rotor and also the crankshaft. Use nonflammable cleaning solvent to wipe off the oily or greasy matter to make these surfaces completely dry.
- After mounting the rotor, secure the rotor by tightening the center bolt to the specified torque value.

Tightening torque	9.0—10.0 kg-m (65.0—72.5 lb-ft)

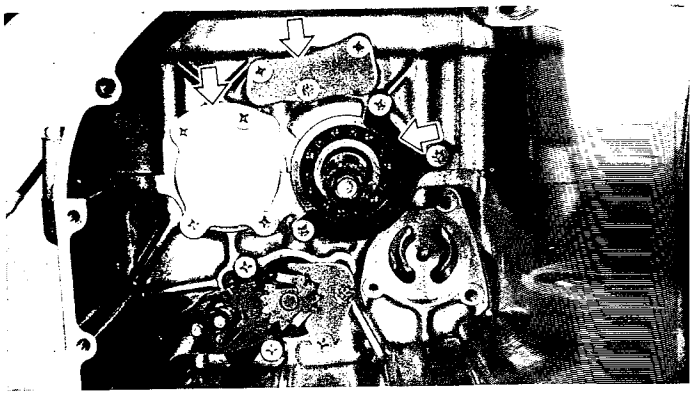
09930-44510	Rotor holder
99104-32090	Thread lock super "1332B"





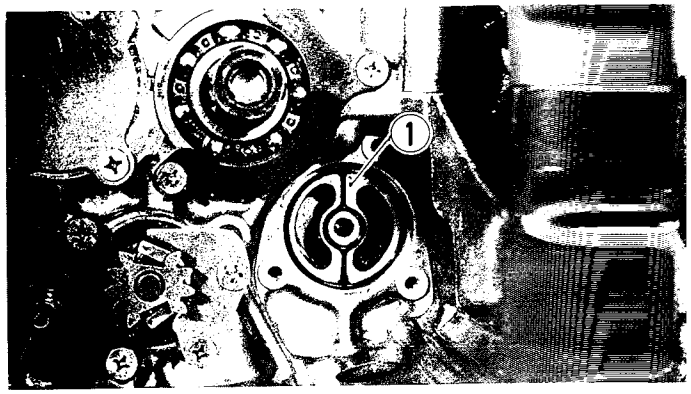
- Install the following items.
  Counter shaft bearing retainer screw
  . . . . . 3 pcs (overall length 16 mm)
  Drive shaft plate screw
  . . . . . 4 pcs (16 mm)
  Oil gallery plate screw
  . . . . . 3 pcs (16 mm)

99104-32050	Thread lock "1363C"

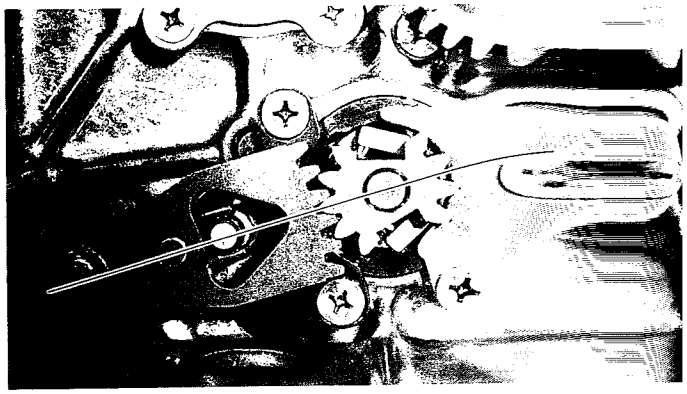


- Install oil pump assembly without fail to install O-ring ①.

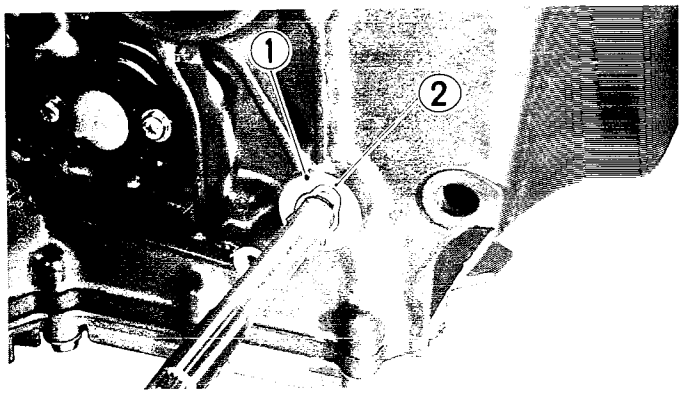
99104-32050	Thread lock "1363C"



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

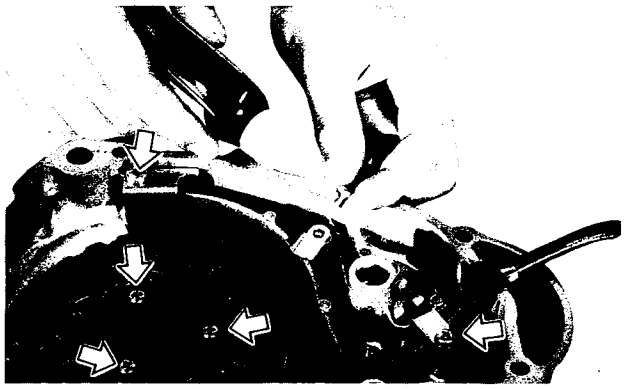


- Fix washer ① and clip ② to the gearshift shaft.



- Fit generator stator to generator cover, and route its lead wire correctly with 6 screws applying thread lock cement "1363C".

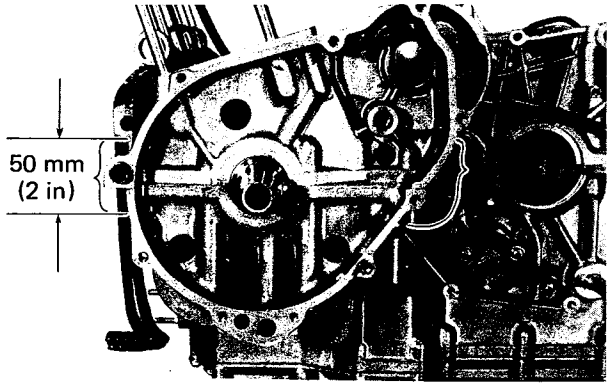
99104-32050	Thread lock "1363C"



- Install the starter idle gear and its thrust washer as shown.

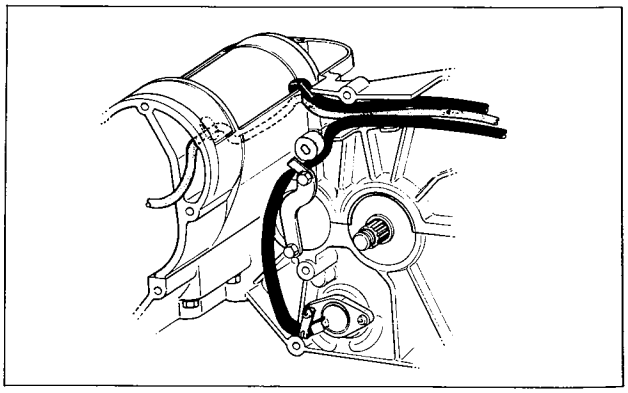
- Coat SUZUKI Bond No. 1215 lightly to the portion around mating surface between upper and lower crankcase as shown.

99104-31110	SUZUKI Bond No. 1215

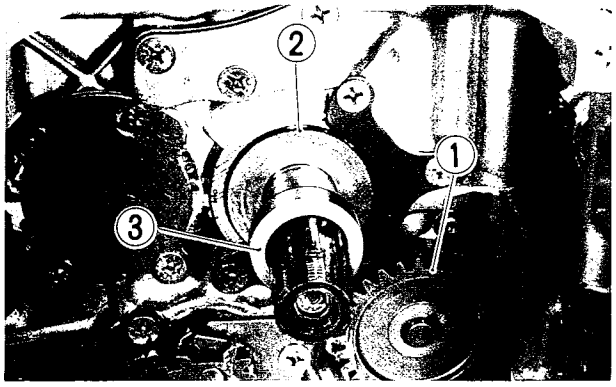


- Pass the generator stator lead wire through gasket and upper crankcase. Route its lead wire properly.

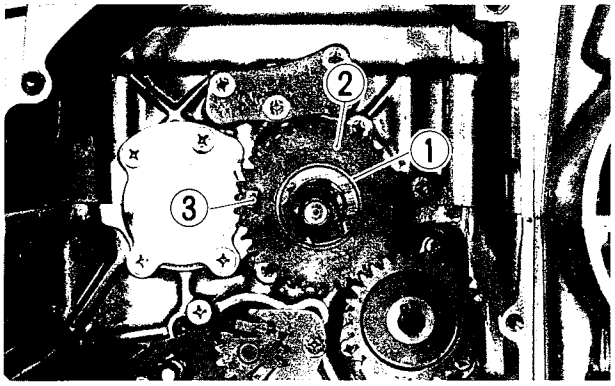
NOTE:
Always use new gasket, and install knock pin.



- Install the oil pump driven gear ① with positioning pin and circlip by using circlip opener.
- Install the washer ② and oil pump drive gear spacer ③.

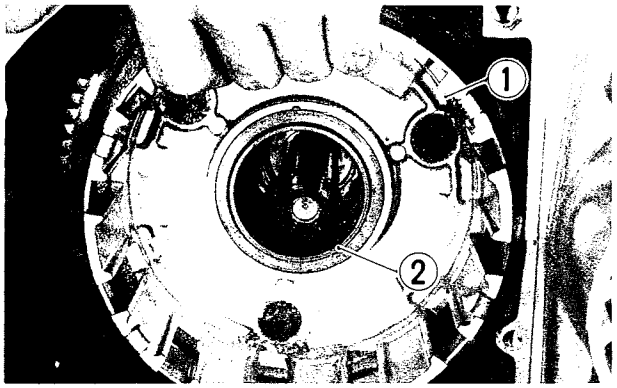


- Apply engine oil to the oil pump drive gear bearing ①, and fix the drive gear ② to face the protorusion ③ outside.

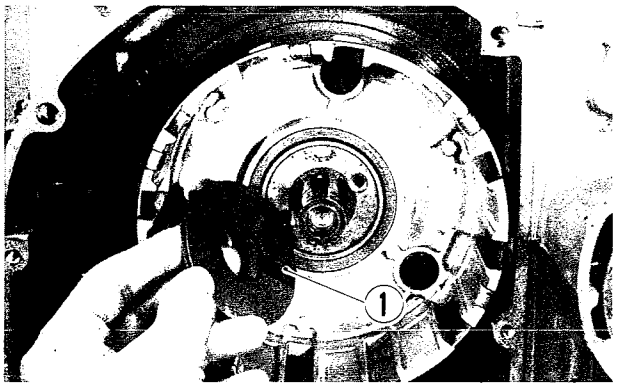


- Assemble the primary driven gear ①, and apply engine oil to the needle bearing ② and its spacer with oil groove facing inside.

NOTE
Be sure that the rubber damper plate is on behind the clutch hub.



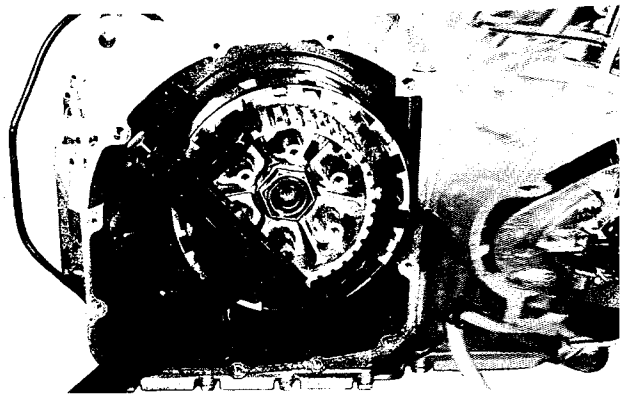
- Thrust washer must be installed with the oil groove side ① facing in.



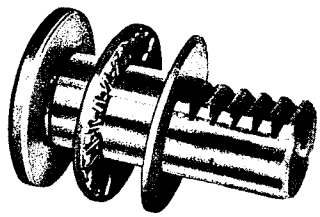
- After tightening the clutch sleeve hub nut, be sure to lock the nut by firmly bending the tongue of the washer. Tightening torque for the nut is specified.

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

09920-53710	Clutch sleeve holder



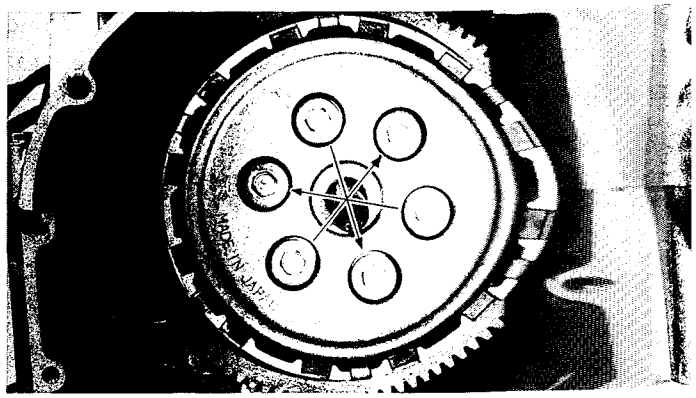
- Insert clutch driven plate and drive plate one by one into sleeve hub in the prescribed order, cork plate first. Insert clutch release rack, bearing and thrust washer into pressure plate, making sure that the thrust washer is between the bearing and the pressure plate. Then fit pressure plate into sleeve hub.



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

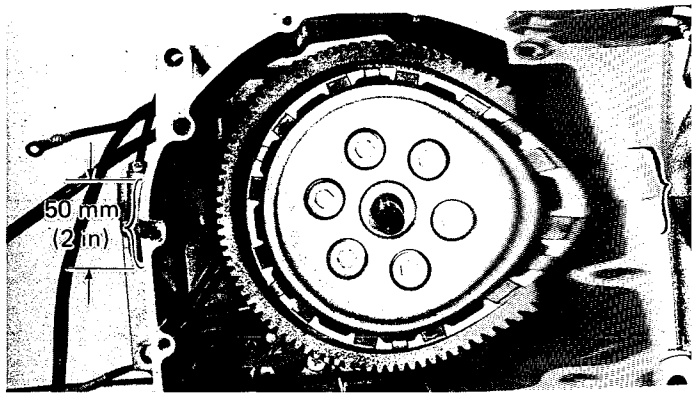
NOTE:
Tighten the clutch spring set bolts in the manner indicated, tightening them by degrees until they attain a uniform tightness.

Clutch spring bolt tightening torque:	1.1–1.3 kg-m (8.0–9.5 lb-ft)



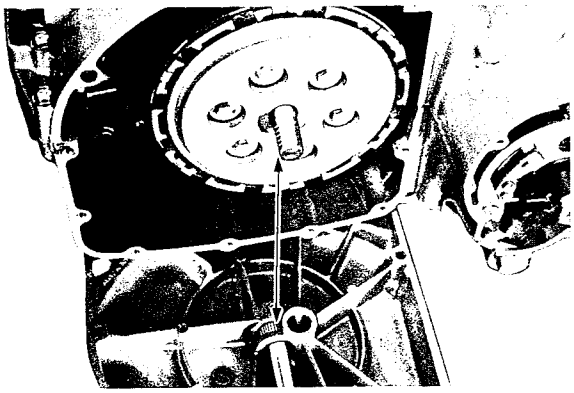
- Coat SUZUKI Bond No. 1215 lightly to the portion around mating surface between crankcases as shown.

99104-31110	SUZUKI Bond No. 1215

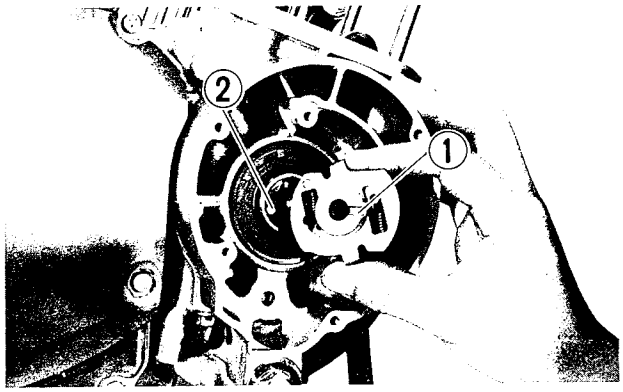


- Replace clutch cover gasket with new one to prevent oil leakage.

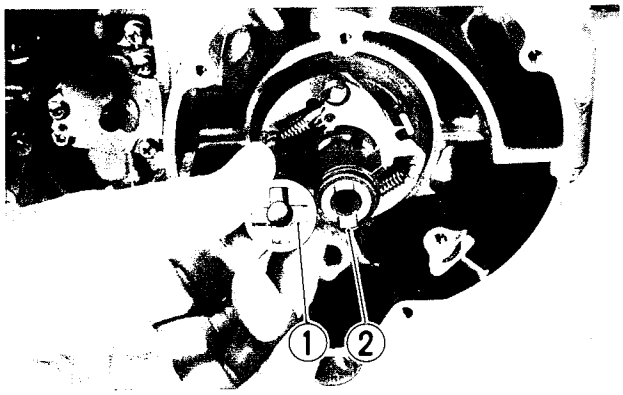
- Engage the teeth of clutch release rack with those of pinion gear at the clutch cover side, and replace clutch cover. Make sure that the rack and pinion gear engage positively. To install cover, tap lightly with plastic hammer, and tighten screws.



- Make sure to fit the slot ① on the back surface of the automatic advance governor over the locating pin ② at the end of crankshaft.

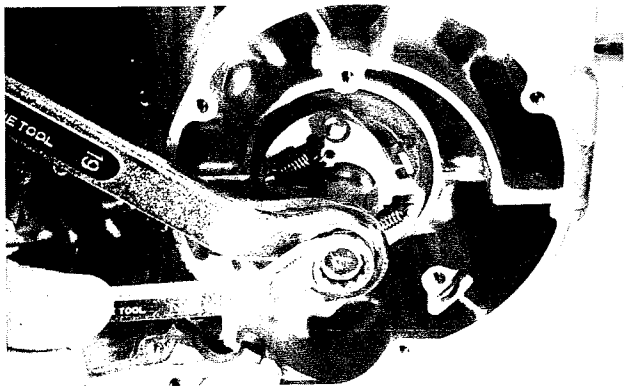


- Fit the groove ① of the crankshaft turning nut on protrusion ② of the advance governor body.

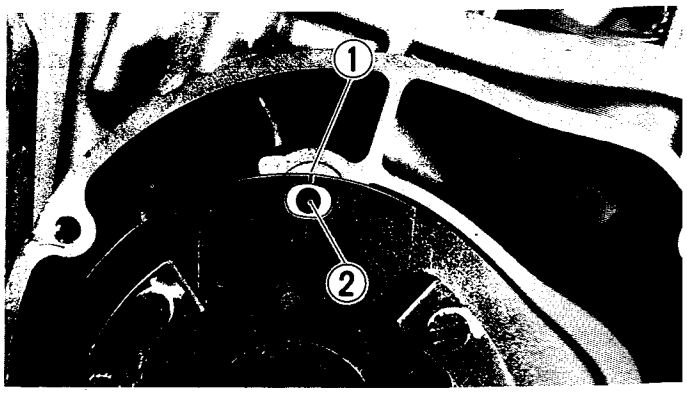


- Hold the crankshaft turning nut and tighten the governor center bolt with specified torque.

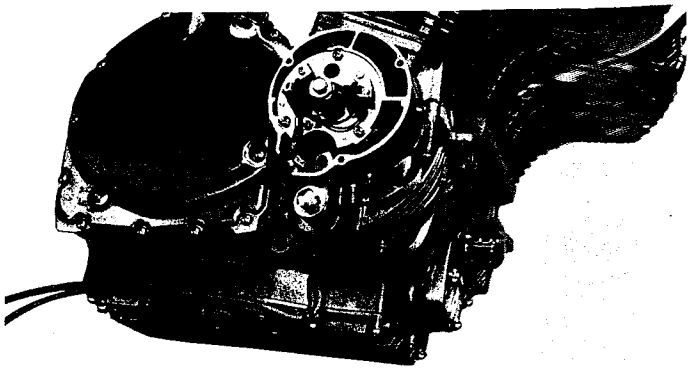
Tightening torque	1.3–2.3 kg-m (9.5–16.5 lb-ft)



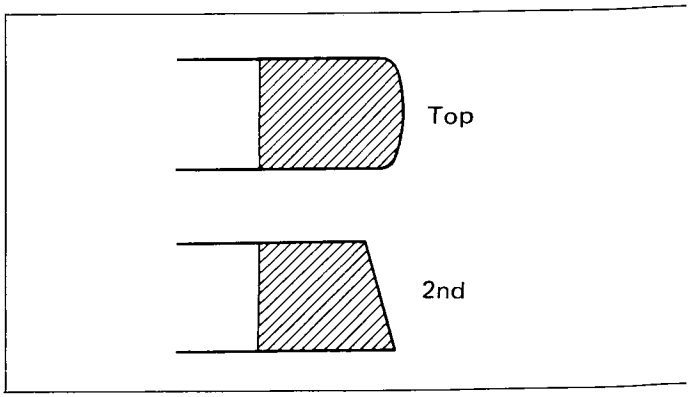
- Install the signal generator so that the index line ① aligns with the center ② of the fitting screw.



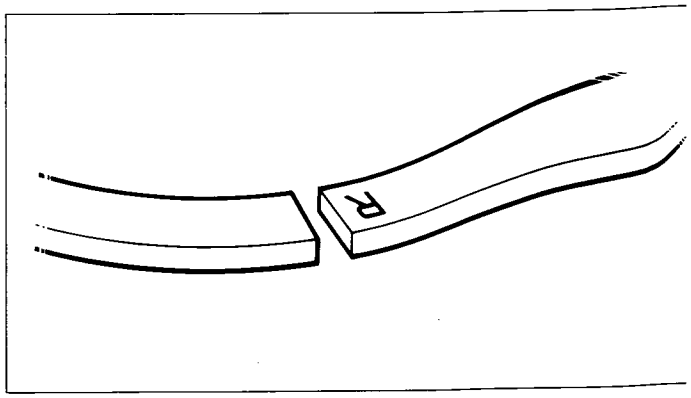
- Route the signal generator lead wire as illustrated.



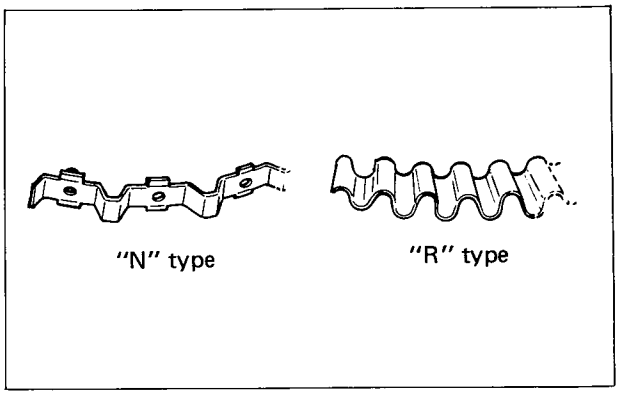
- Mount the piston ring in the order of oil ring, 2nd ring, and top ring.
- Top ring and 2nd (middle) ring differ in the shape of ring face, and the face of top ring is chrome-plated whereas that of 2nd ring is not. The color of 2nd ring appears darker than that of the top one.



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

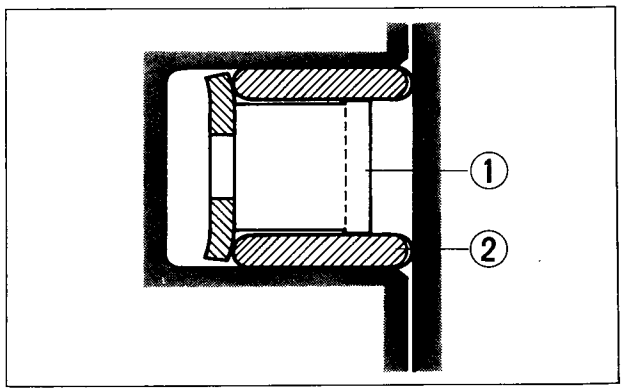


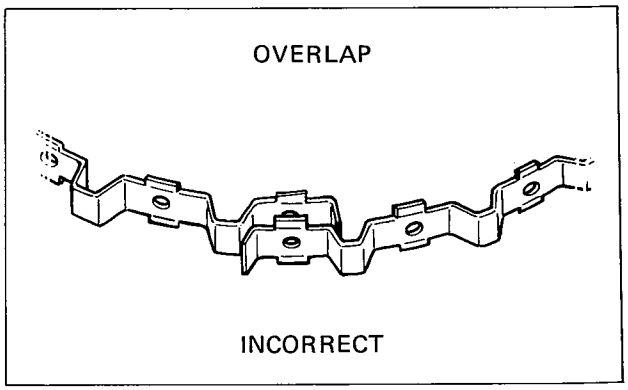
- The spacer of bottom ring (oil ring) is either of "N" type or of "R" type. Be sure that the three rings (top, 2nd, and oil) for a piston are all "N" rings or "R" rings: use of one or two "N" rings and two or one "R" rings on a piston is not permitted.



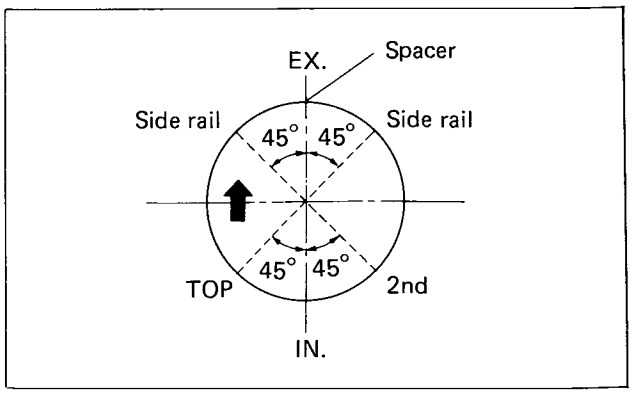
- The first member to go into the ring groove is spacer ①. After placing spacer, fit the two side rails ②. Side designations, top and bottom, are not applied to the spacer and side rails: you can position each either way.

CAUTION
If the spacer is not [illegible] to allow the two ends to overlap in the groove.

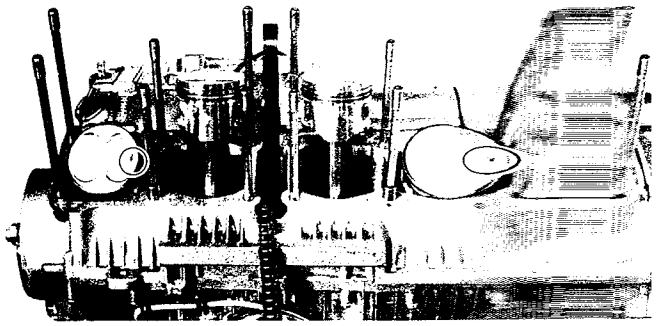




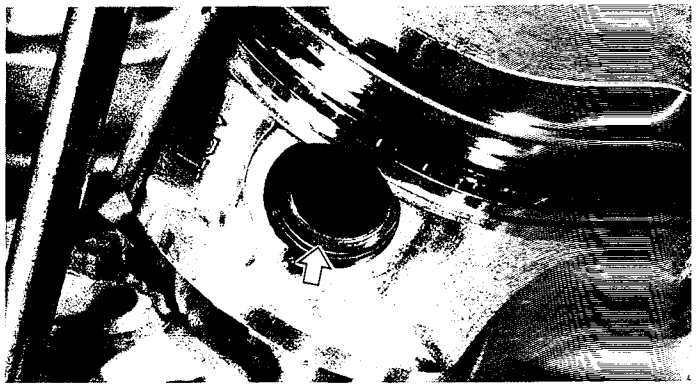
- Position the gaps of the three rings as shown. Before inserting each piston into the cylinder, check that the gaps are so located.



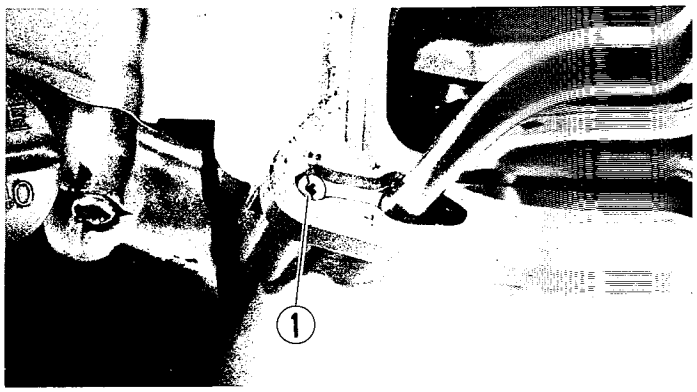
- The piston is in correct position when its arrow (on the crown) points forward.
- Be sure to install the pistons in the cylinder from which they were taken out in disassembly, refer to the letter mark, "1" through "4", scribed on the piston.



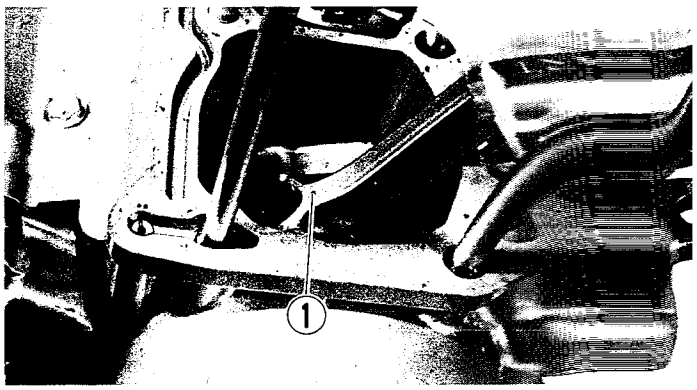
- Have each piston oiled lightly before installing it.
- Place a rag beneath the piston, and install the circlips.
- Be sure to use new circlips.



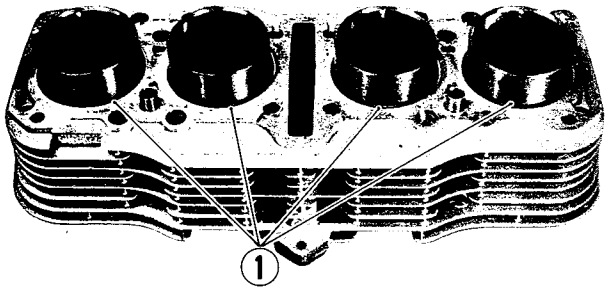
- Check to be sure two oil jet orifices ① are not clogged.



- Make sure that the conrod oil hole ① is located rearside.

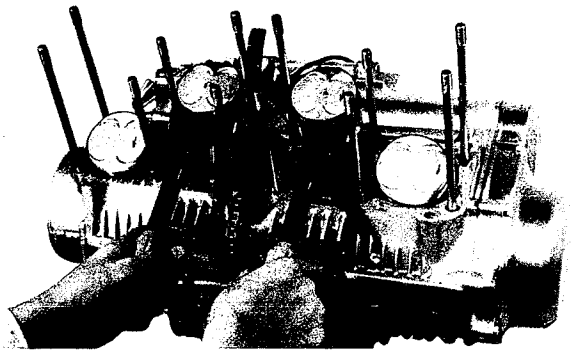


- Before putting on the cylinder block, oil the big and small ends of each connecting rod and also the sliding surface of each piston. Check to be sure that the "O" rings ① are accurately positioned in the groove.
- Place the new cylinder gasket on the crankcase.



- 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.

09916-74520	Holder body
09916-74540	Band (bore 63–75 mm)

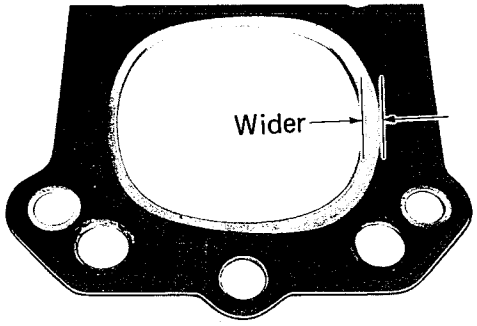


NOTE:
Do not overtighten the special tool bands or the cylinders will resist to admit the pistons.
Each band has a number punchmarked on it. The number refers to a particular range of piston sizes.

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

NOTE:
Be sure to identify the top surface of the cylinder head gasket as shown.

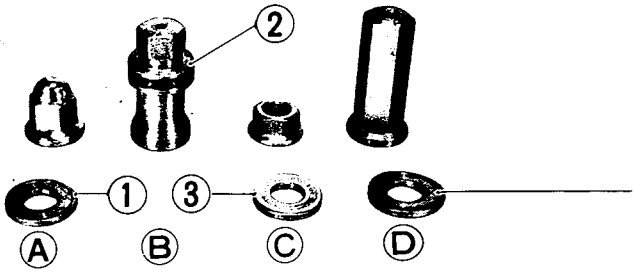
- Fix two knock pins properly.



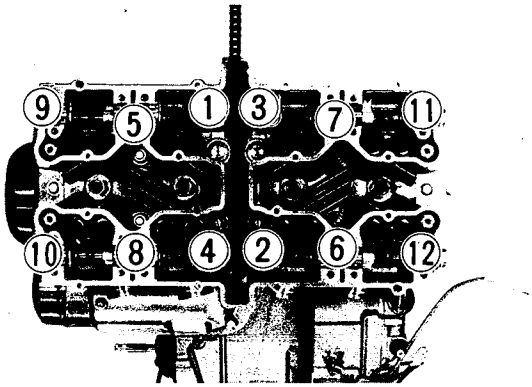
Top face

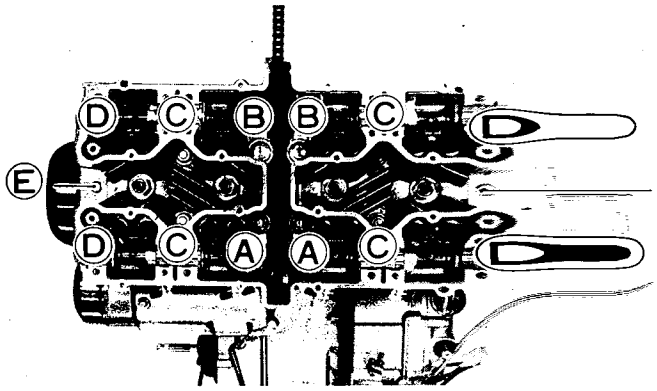
- Mount the cylinder head on the cylinder block.
- Install four kinds of cylinder head nuts in the respective positions indicated.
- Tighten the twelve 10-mm nuts to specification with a torque wrench sequentially in the ascending order of numbers.

Cylinder head nut tightening torque	3.5–4.0 kg-m (25.5–29.0 lb-ft)



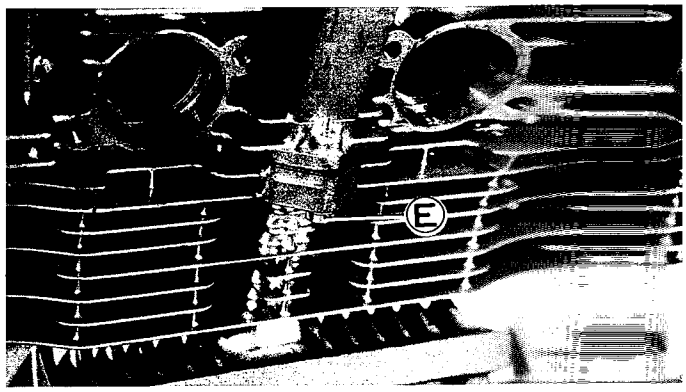
① Copper washer ② O-ring ③ Iron wa sh



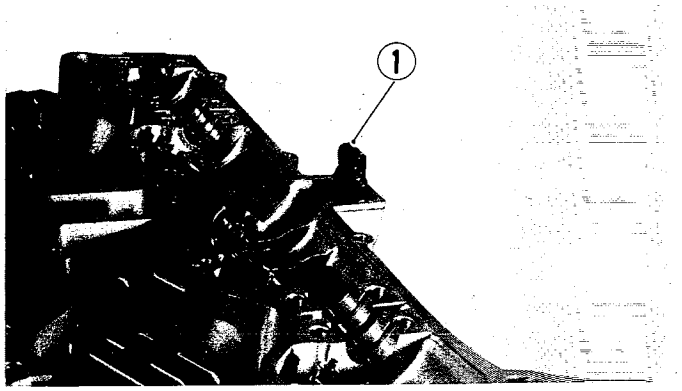


- After firmly tightening the 12-nuts, insert three 6-mm bolts Ⓔ and tighten them with specified torque.

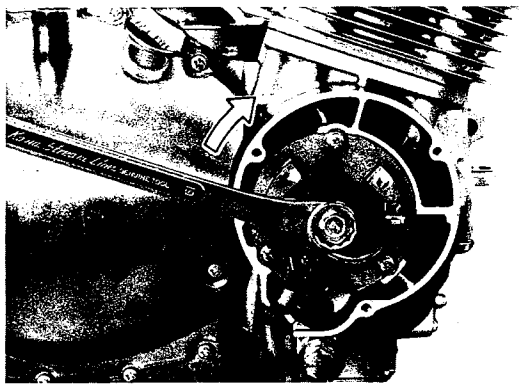
Tightening torque	0.7–1.1 kg-m (5.0–8.0 lb-ft)



- Place chain guide ① properly.



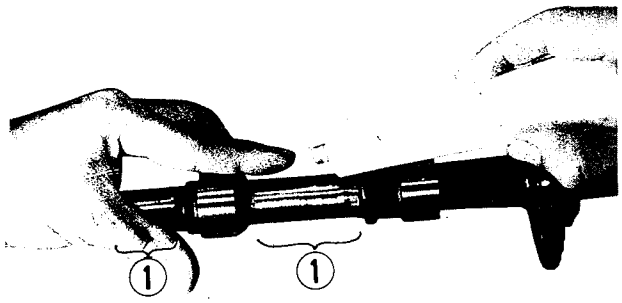
- While holding down the timing chain, rotate the crankshaft in normal direction to bring the "T" mark (on Nos. 1 and 4 cylinder side of the advance governor) to the timing mark.



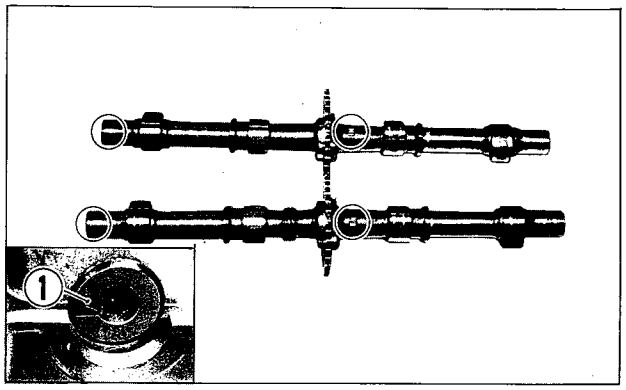
CAUTION:
To turn over crankshaft, torque nut with a 19 mm wrench. Never try to rotate crankshaft by putting a 12 mm wrench to bolt.

NOTE:
Just before placing the camshaft on the cylinder head, apply high quality molybdenum disulfide lubricant to its journals, fully coating each journal ① with the paste taking care not to leave any dry spot. Apply engine oil to the journal bearings.

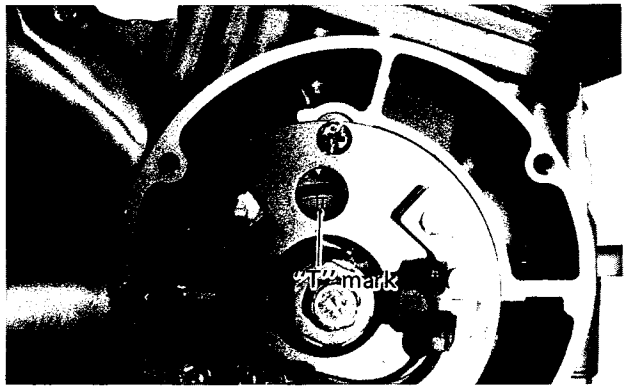
09900-25140	Suzuki Moly Paste



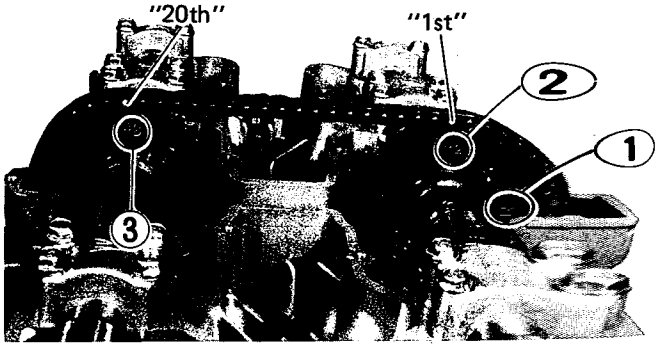
- The exhaust camshaft can be distinguished from that of the intake by the embossed letters "EX" (for exhaust) as against letters "IN" (for intake). Similarly, the right end can be distinguished by the notch ① at the right end.



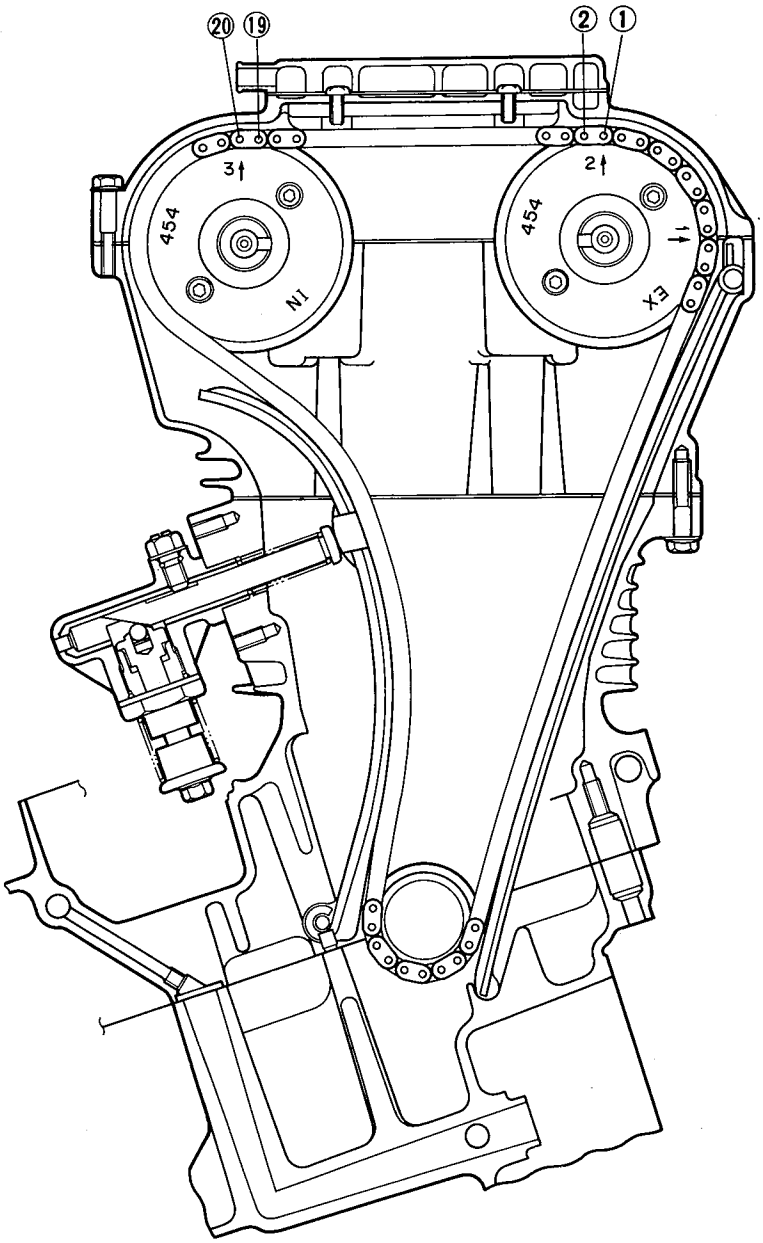
- With "T" mark accurately lined up with the timing mark, hold the crankshaft steady and lightly pull up the chain to remove the slack between the crank sprocket and exhaust sprocket.
- Exhaust sprocket bears an arrow marked "1" indicated as ①. Turn over the exhaust camshaft so that the arrow points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



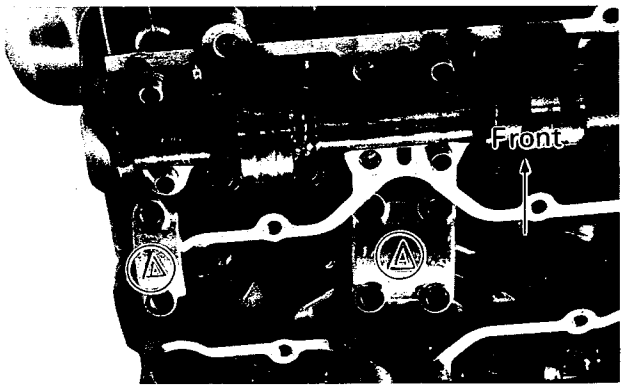
- The other arrow marked "2" is now pointing straight upward. Count the chain roller pins toward the intake camshaft, starting from the roller pin directly above this arrow marked "2" and ending with the 20th roller pin. Engage the chain with intake sprocket, locating the 20th pin at and above the arrow marked "3" on the intake sprocket.



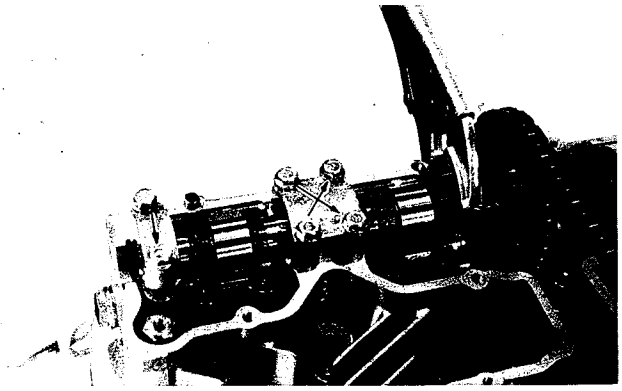
NOTE:
The timing chain is now riding on all three sprockets. Be careful not to disturb the crankshaft until the eight holders are secured.



- 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 eight camshaft bearing holders evenly by tightening the camshaft bearing holder bolts sequentially. Try to equalize the pressure by moving the wrench diagonally from one bolt to another and from one camshaft bearing holder to another, to push shafts down evenly.

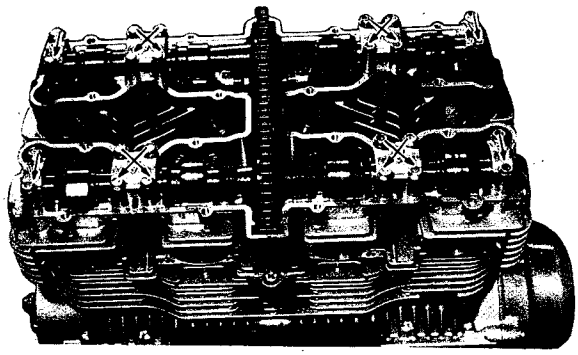


NOTE:
Damage to head or cam bearing holder thrust surfaces may result in the situation that cam bearing holders are not drawn down evenly.



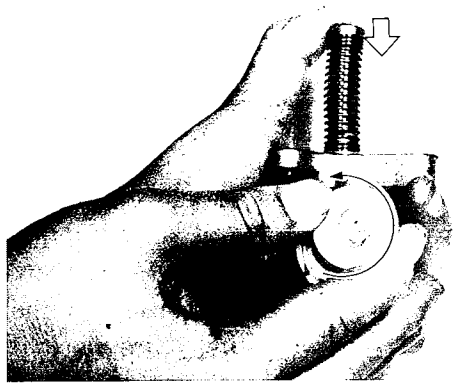
- Tighten the camshaft bearing holder bolts to the following torque value:

CAUTION:
The camshaft bearing 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.

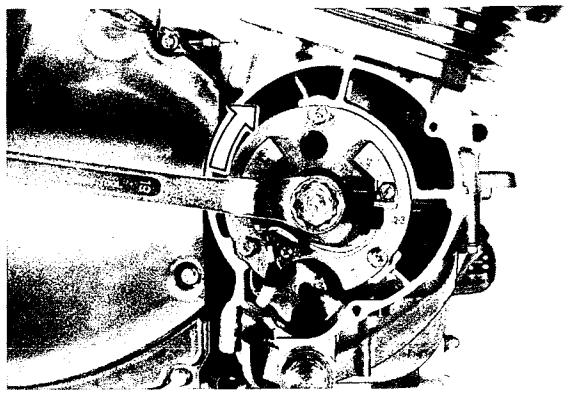


Camshft bearing holder bolt tightening torque	0.8–1.2 kg-m (6.0–8.5 lb-ft)

- 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.
- Secure the adjuster to the cylinder block.

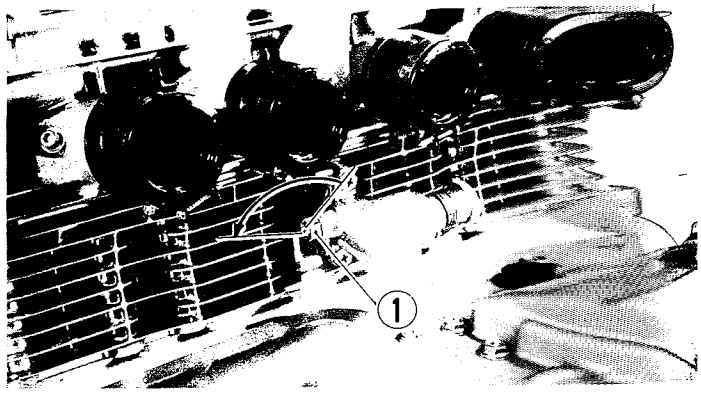


- If tensioner adjuster is not going in, turn the crankshaft slowly clockwise to get chain play at inlet side.

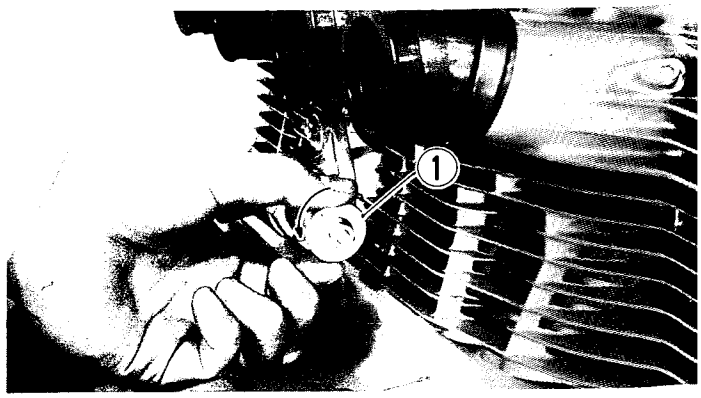


- Withdraw the lock screw by one-quarter to half a turn: this separates the tip of the screw from the pushrod, thereby allowing the pushrod to advance under spring force and to press the tensioner against the camshaft chain.
- Tighten the lock nut ①.

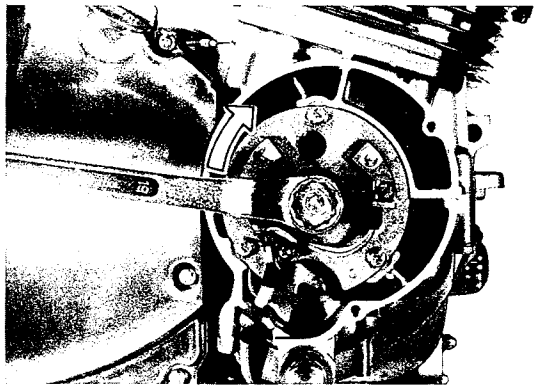
NOTE:
When tightening the lock nut, take care to prevent the lock screw from turning.



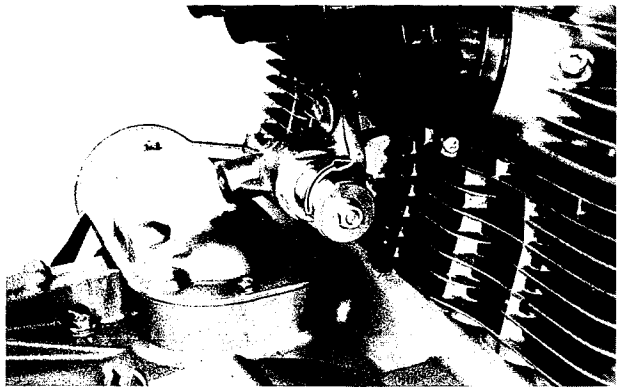
- While turning the handle ① counterclockwise, slowly rotate the crankshaft in reverse direction (thus causing the chain to push back the tensioner).



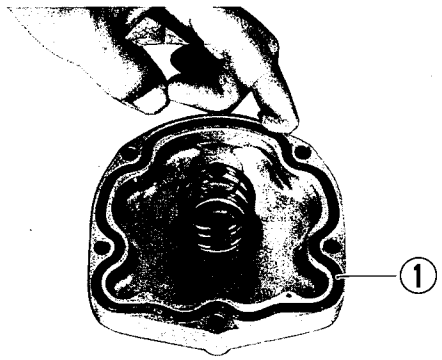
- Release the handle and slowly turn back the crankshaft in normal running direction (to slacken that portion of the chain extending along the tensioner). See if the handle rotates by itself as the chain becomes progressively slackened; if it does, then the pushrod inside is obviously moving forward 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.



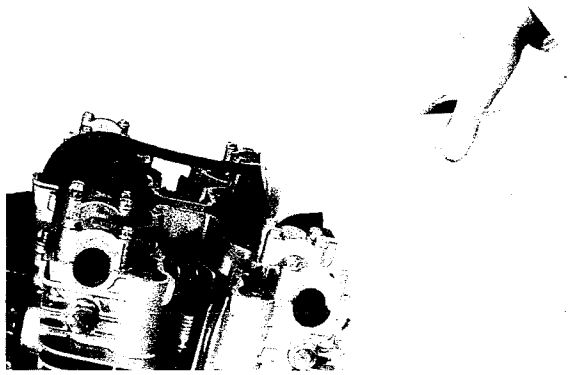
CAUTION:
After installing the tensioner and checking it in initially set condition for operation, do not attempt to turn the handle in reverse direction until the next overhaul.



- 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.
- Tighten engine oil drain plug.

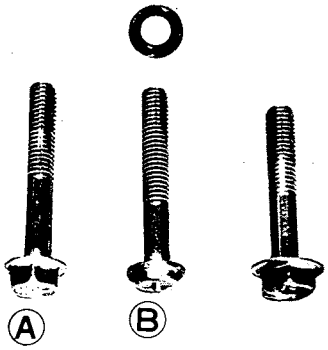


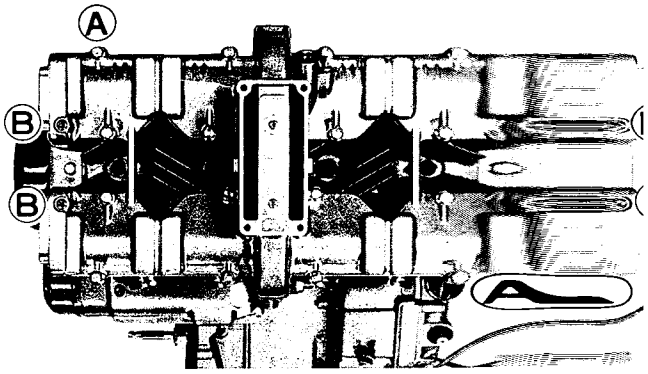
- Pour 50 ml of engine oil in four oil pockets and tachometer drive gear oil bath in the head.



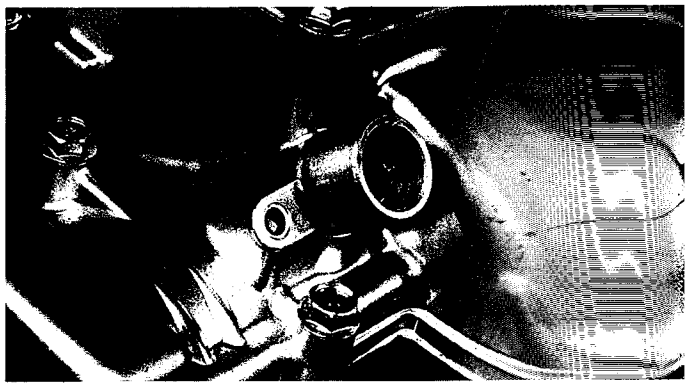
- Install the cylinder head cover.

NOTE:
Place the two longer bolts at the knock pin positions ⓐ. Place the four screws at the position Ⓑ.



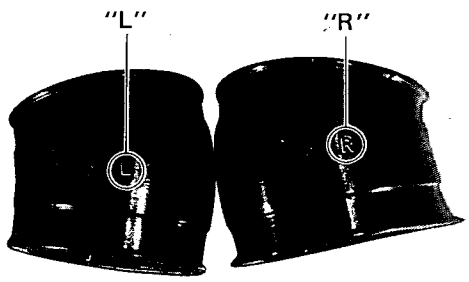


- Install the tachometer drive gear.



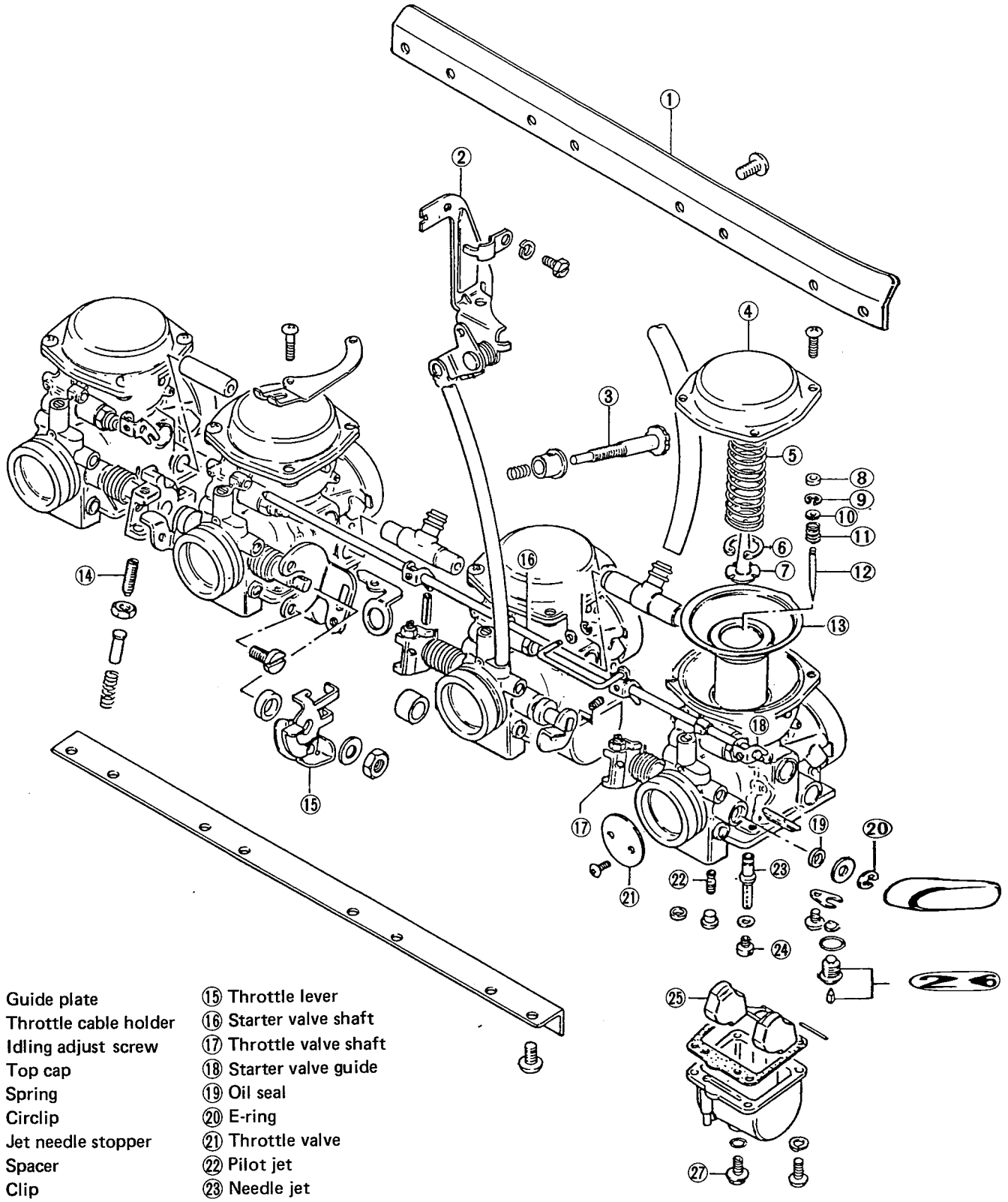
- Each cylinder head intake pipe is identified with a letter "R" or "L" on it. Fit each pipe to cylinder head properly.

CAUTION:
"MADE IN JAPAN" mark on the intake pipe faces to the cylinder head side.



CONTENTS

CARBURETOR

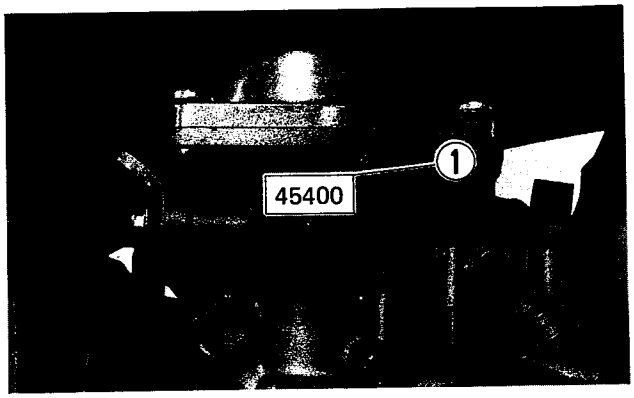


① Guide plate
② Throttle cable holder
③ Idling adjust screw
④ Top cap
⑤ Spring
⑥ Circlip
⑦ Jet needle stopper
⑧ Spacer
⑨ Clip
⑩ Washer
⑪ Spring
⑫ Jet needle
⑬ Diaphragm and piston
⑭ Synchronizer screw
⑮ Throttle lever
⑯ Starter valve shaft
⑰ Throttle valve shaft
⑱ Starter valve guide
⑲ Oil seal
⑳ E-ring
㉑ Throttle valve
㉒ Pilot jet
㉓ Needle jet
㉔ Main jet
㉕ Float
㉖ Needle valve
㉗ Drain plug

SPECIFICATIONS

ITEM	SPECIFICATIONS
Type	MIKUNI BS32SS
I.D. No.	45400
Bore	32 mm (1.26 in)
Idle r/min	1 050 ± 100 r/min
Fuel level	5.0 ± 0.5 mm (0.20 ± 0.02 in)
Float height	22.4 ± 1.0 mm (0.88 ± 0.04 in)
Main jet	# 112.5
Main air jet	1.7 mm
Jet needle	5C28
Needle jet	Y-4
Pilot jet	# 42.5
By pass	0.8, 0.8, 0.8 mm
Pilot outlet	0.7 mm
Valve seat	2.0
Starter jet	#50
Pilot screw	Pre-set
Throttle cable play	0.5–1.0 mm (0.02–0.04 in)

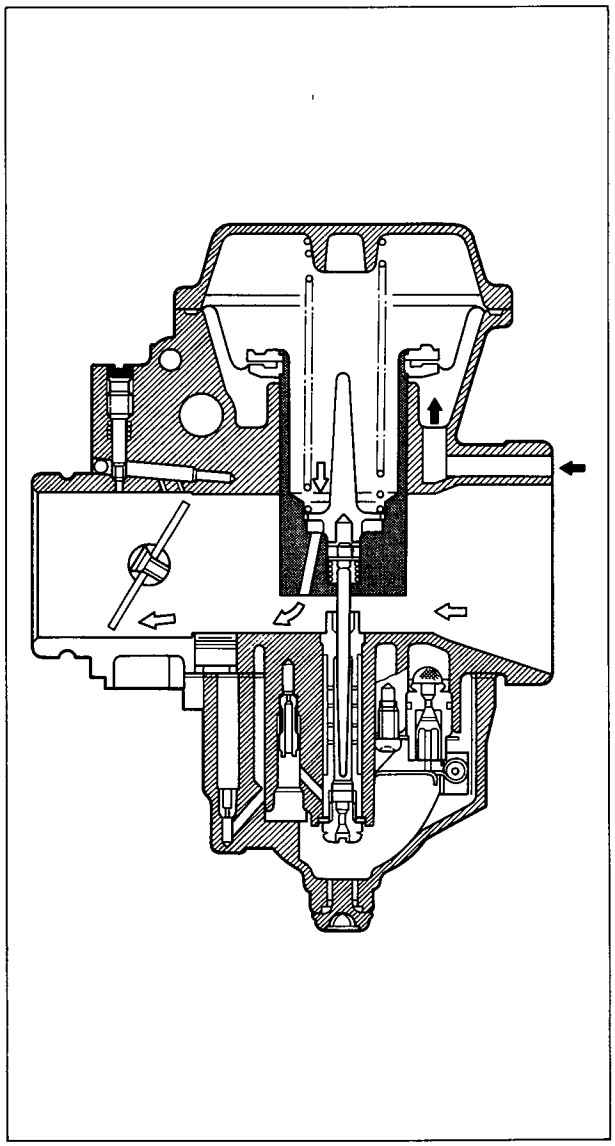
Each carburetor has I.D. Number ① printed on the carburetor body according to its specifications.

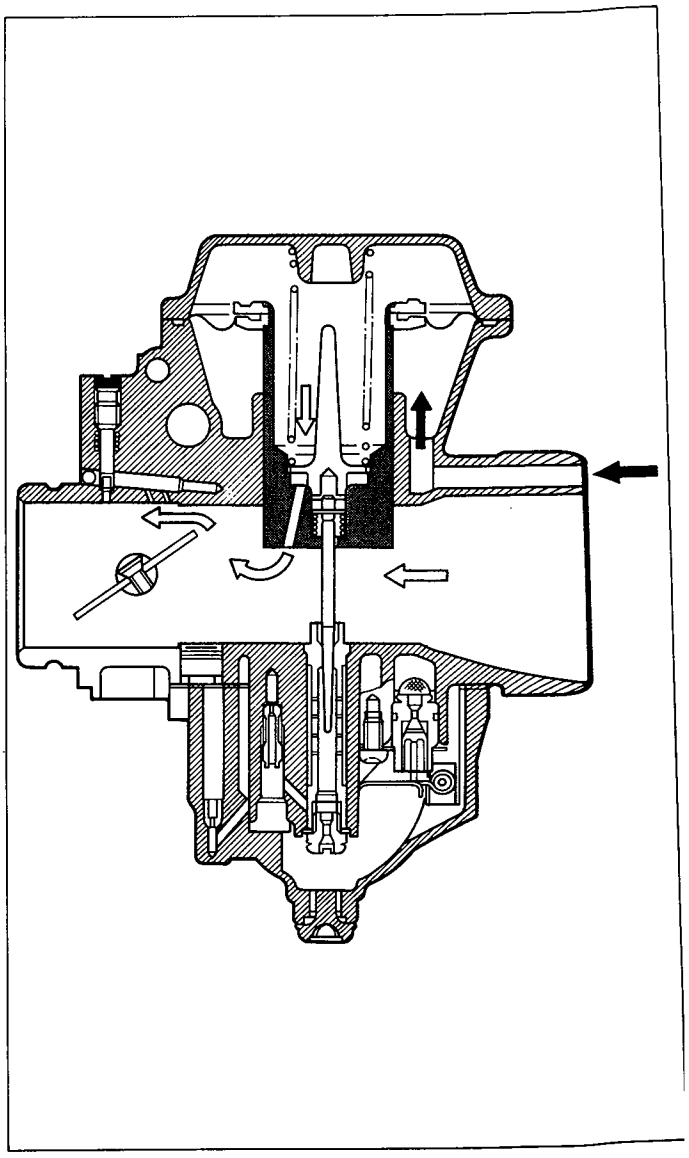


DIAPHRAGM AND PISTON OPERATION

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 diaphgram chamber through an orifice provided in the piston.

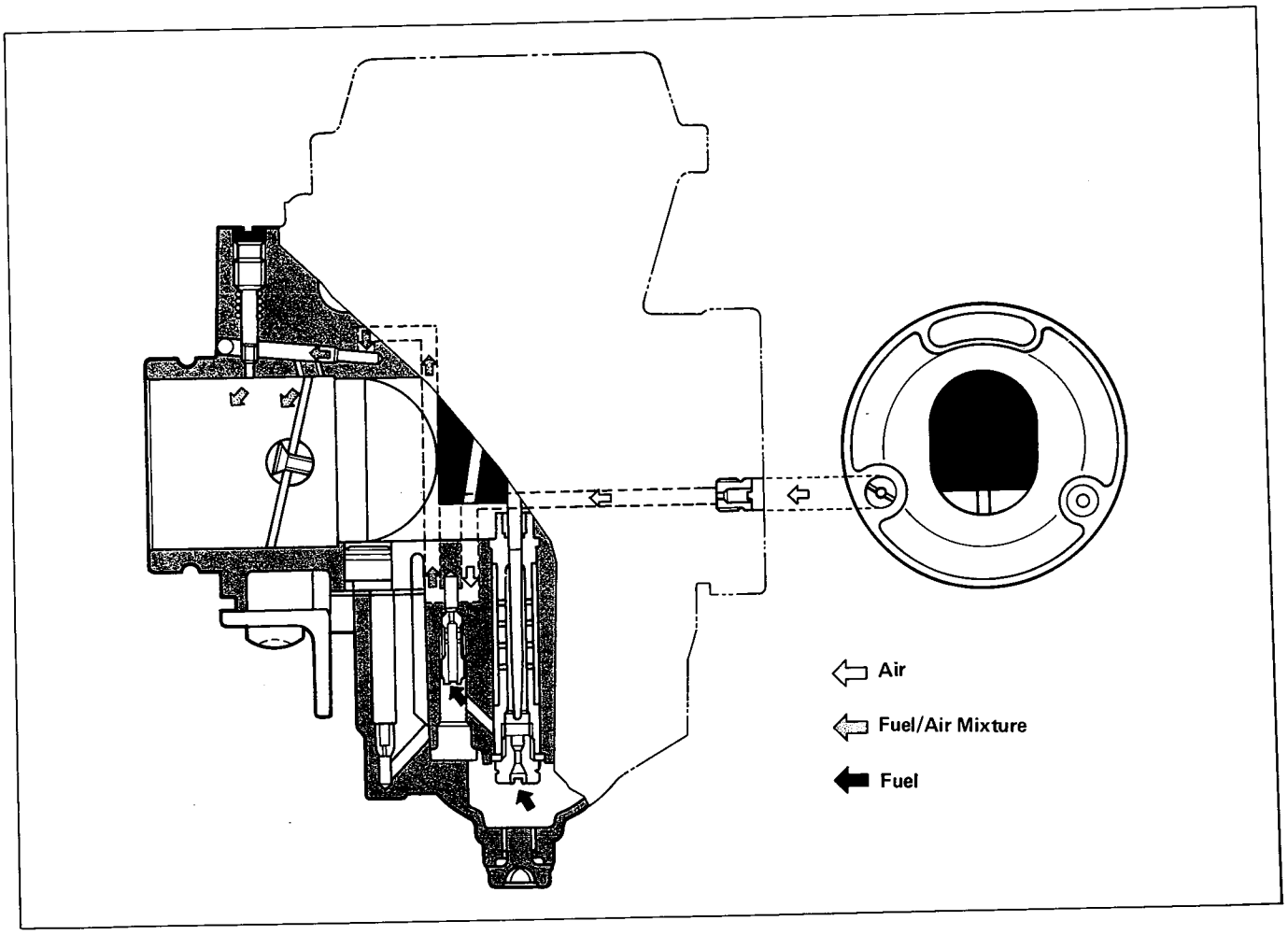
Rising vacuum overcomes the spring force, causing the piston to rise to increase the said area and thus to prevent the air velocity from increasing. Therefore, air velocity in the venturi passage is kept relatively constant for improved fuel atomization and for securing an optimum ratio of fuel to air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





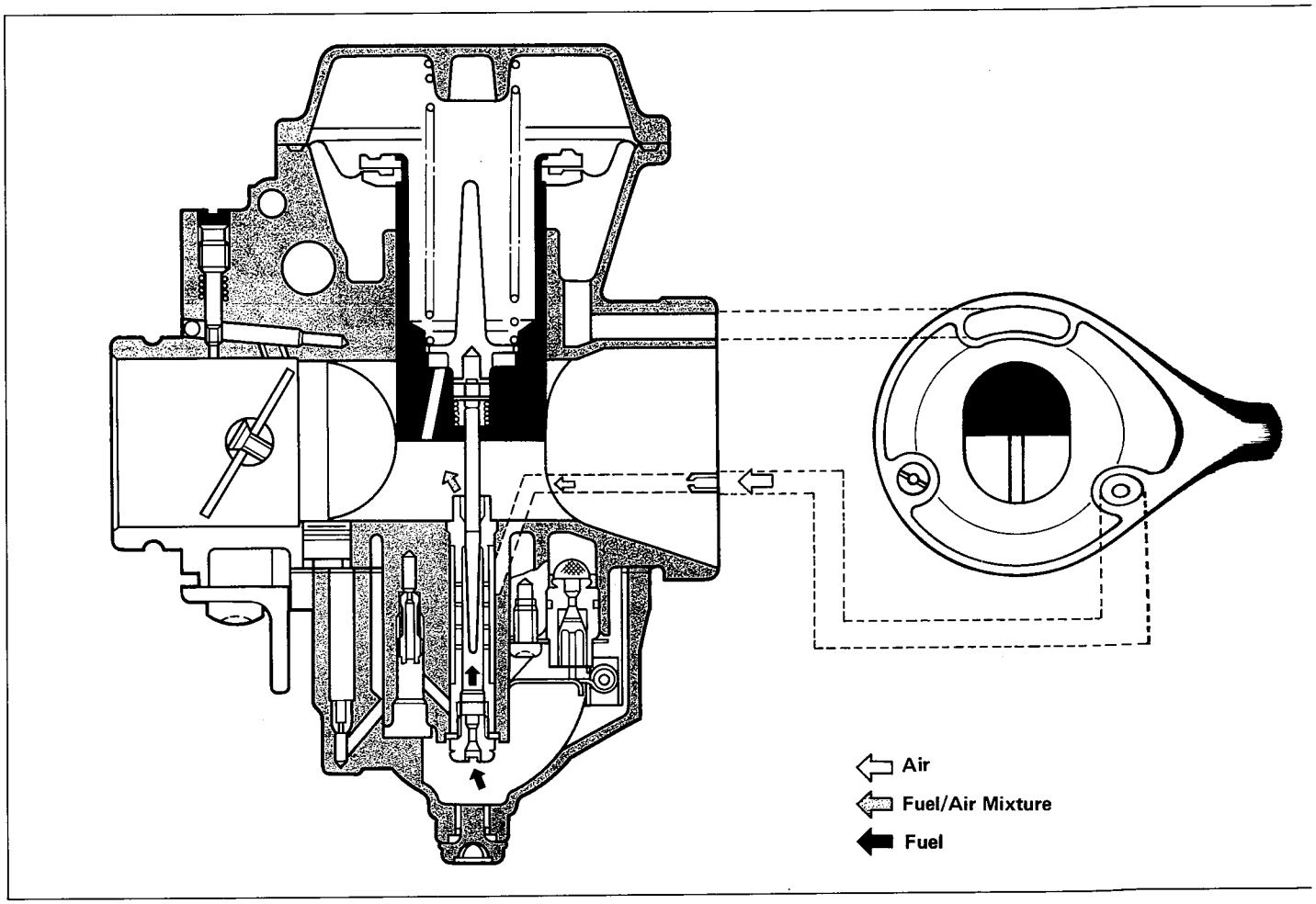
SLOW SYSTEM

This system supplies fuel during engine operation with throttle valve closed or slightly opened.
The fuel from float chamber is first passed through main jet and metered by 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 bypass port. The remainder is then metered by pilot screw and sprayed out into the main bore through pilot outlet.



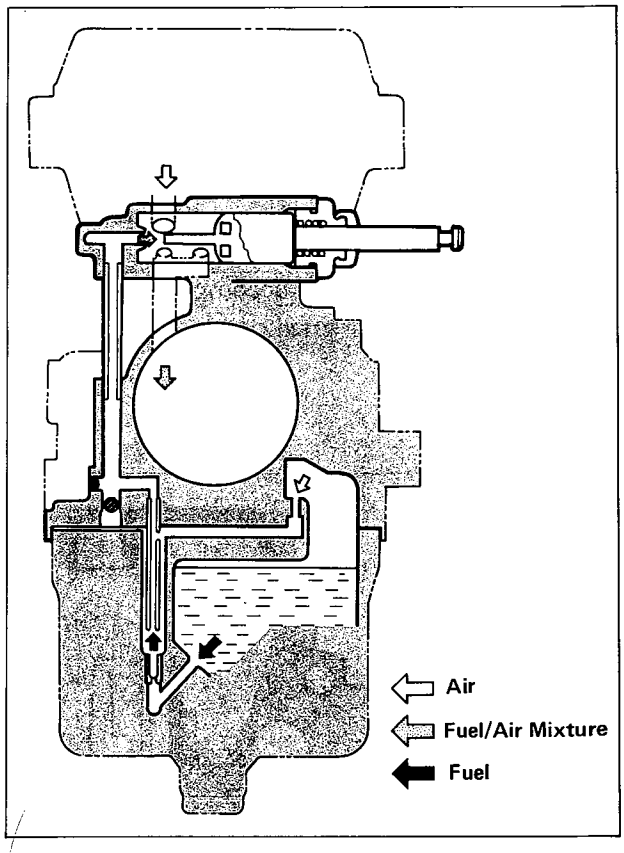
MAIN SYSTEM

As throttle valve is opened, engine speed rises, and this increases vacuum in the venturi. Consequently 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 drawn by the engine.
Mixture proportioning is accomplished in needle jet; the clearance through which the emulsified fuel flow is either large or small depending ultimately on throttle position.



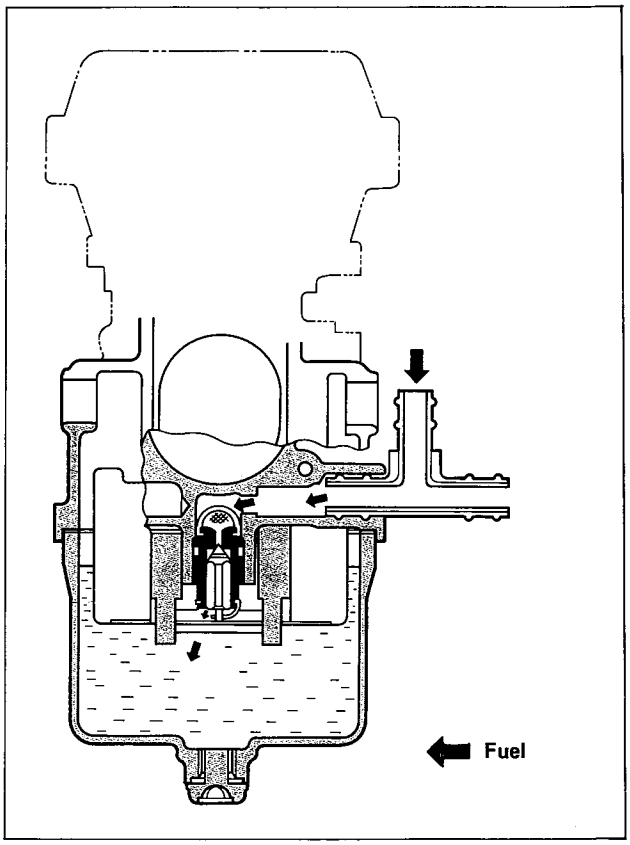
STARTER SYSTEM

Pulling up the choke knob allows the 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 extended from behind the diaphragm.
The two successive mixings of fuel with air are such that a proper air/fuel mixture for starting is produced when the mixture is sprayed out through starter outlet into the main bore.



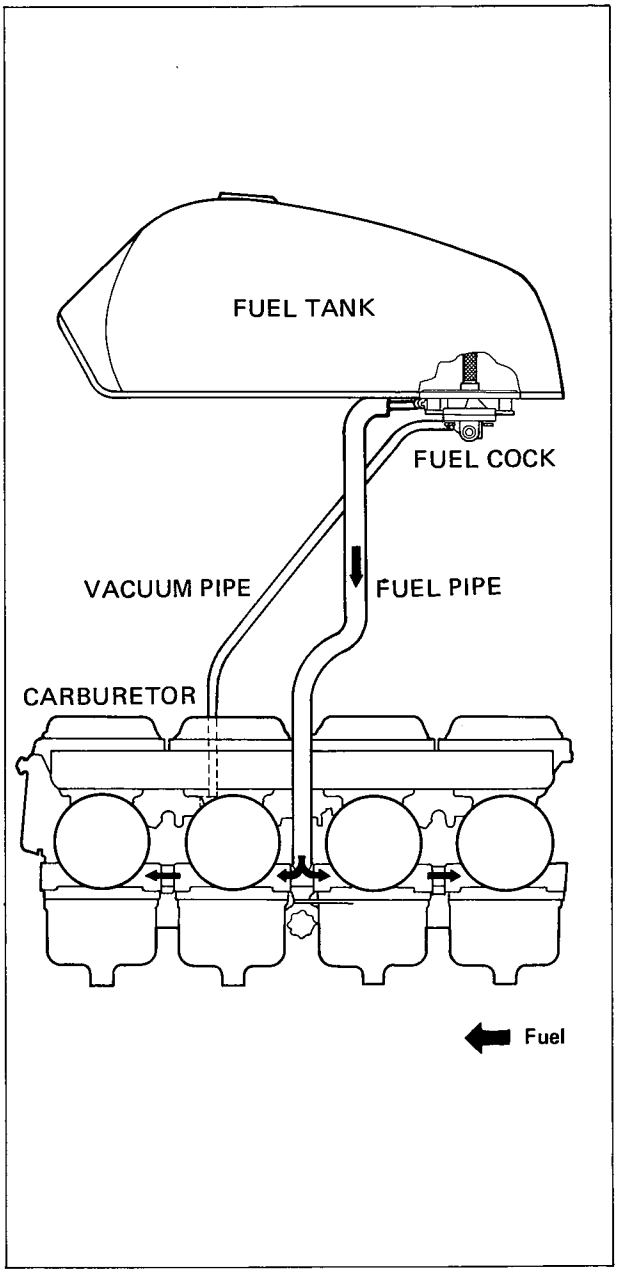
FLOAT SYSTEM

Floats and needle valve are associated with the same mechanism so that, as the floats move up and down, the needle valve too 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 into 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.



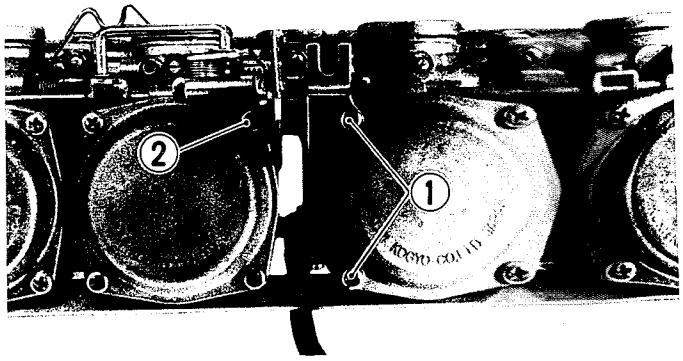
FUEL SYSTEM

When engaging 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.

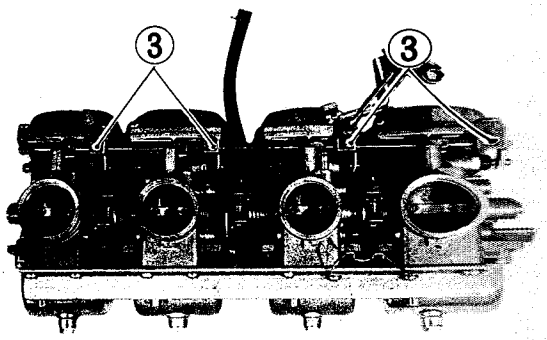


DISASSEMBLY

- Remove throttle bracket and starter bracket by unscrewing 2 throttle bracket screws ① and starter bracket screw ②.

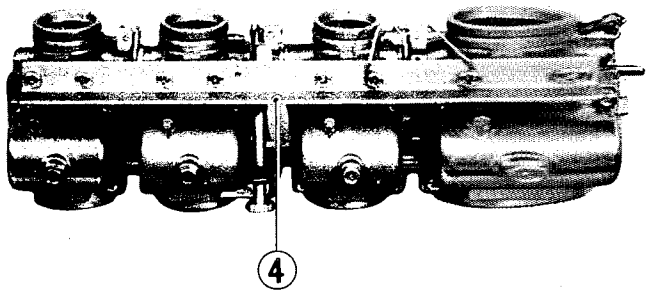


- Loosen 4 tightening screws ③ of starter shaft and pull out starter shaft to the right.

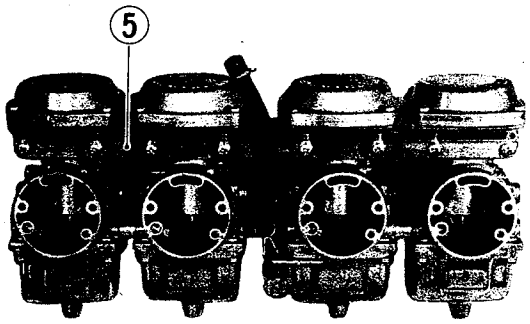


- Remove carburetor set lower plate ④ by unscrewing 8 screws.

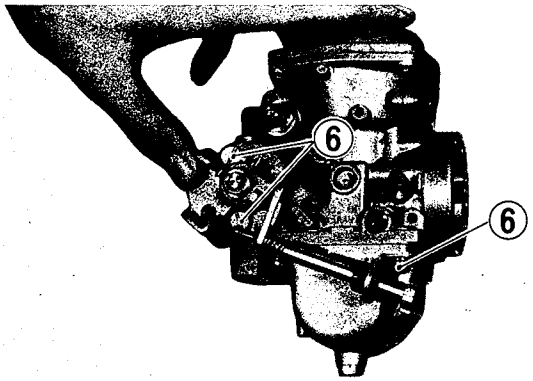
09900-09002	Shock driver set



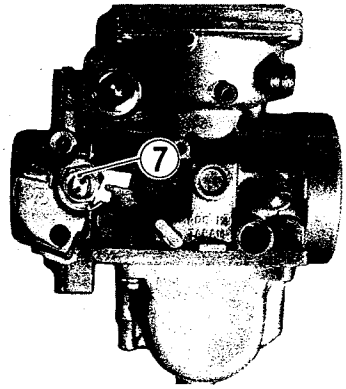
- Remove carburetor set upper plate ⑤ by unscrewing 8 screws.



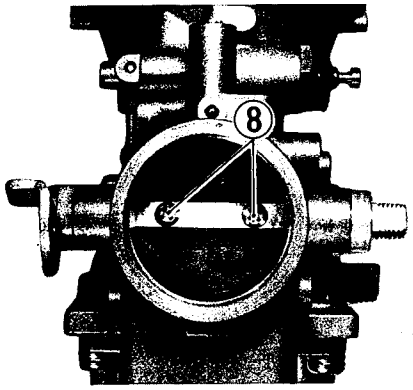
- Separate 4 carburetors each and remove throttle valve stop screw plate by unscrewing 3 screws ⑥.



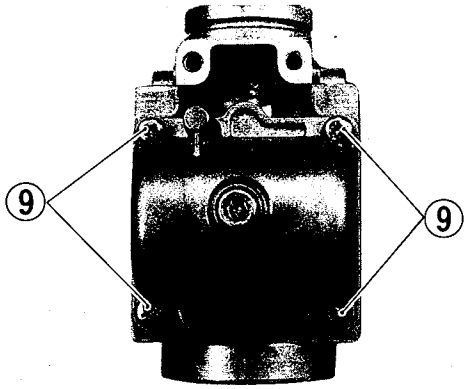
- Take off adjuster lever by removing nut ⑦.



- Remove two throttle valve screws ⑧, and pull out the throttle valve by turning throttle valve shaft.

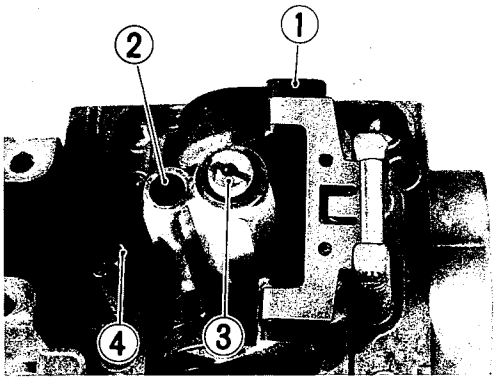


- Take out float chamber by unscrewing 4 screws ⑨.

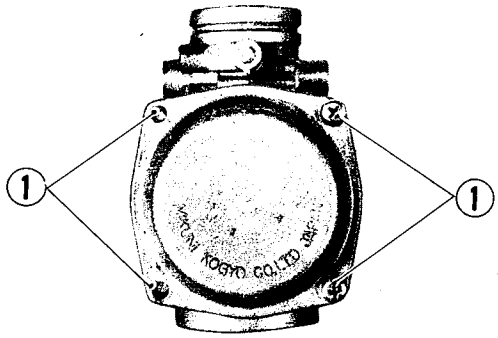


- Remove float ①, pilot jet ②, main jet ③.

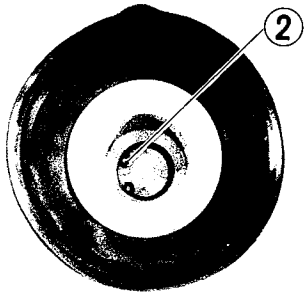
NOTE:
Do not fall down the O-ring ④.



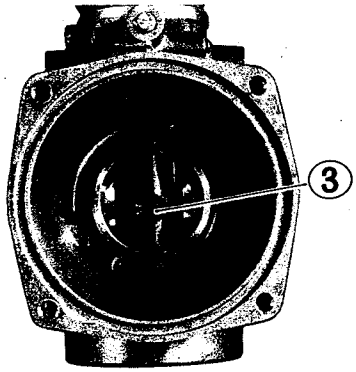
- Take off carburetor top cap by unscrewing 4 screws ①.



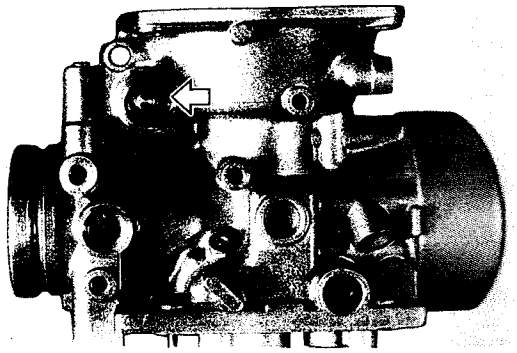
- Remove circlip ② from piston.



- Remove needle jet ③ from the top side.



- Remove starter valve housing.

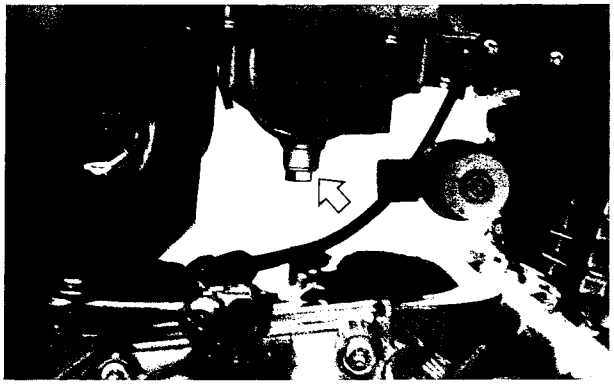


the four piston valves removed as
ough No. 4 in order to make sure
be restored to the carburetor
which it was taken out.

FUEL LEVEL INSPECTION

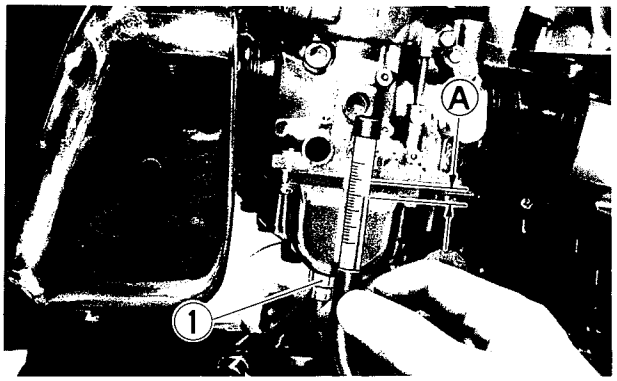
- Place machine on center stand.
- Remove carburetor drain plug and install the fuel level gauge ① .

09913-14540	Fuel gauge set

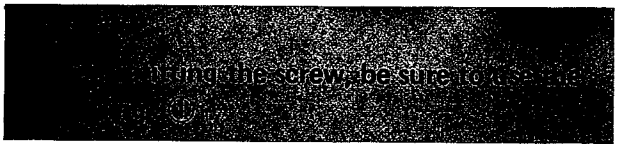


- Run the engine at the idling speed (950 – 1 150 r/min), and measure the distance with the middle line of the level gauge aligned with the lower surface of carburetor body as shown in photo. Ⓐ should be within the specified range.

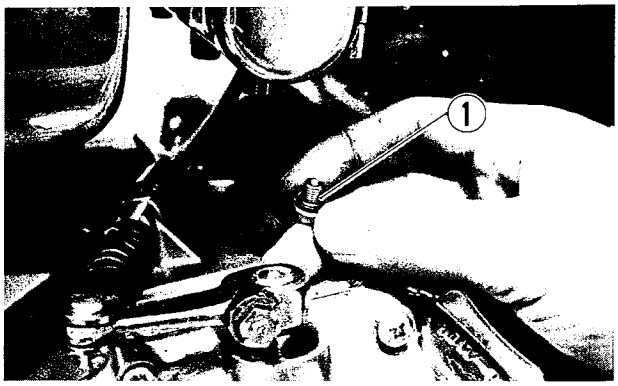
Distance Ⓐ	5.0 ± 0.5 mm (0.20 ± 0.02 in)



- Repeat the procedure on each carburetor.

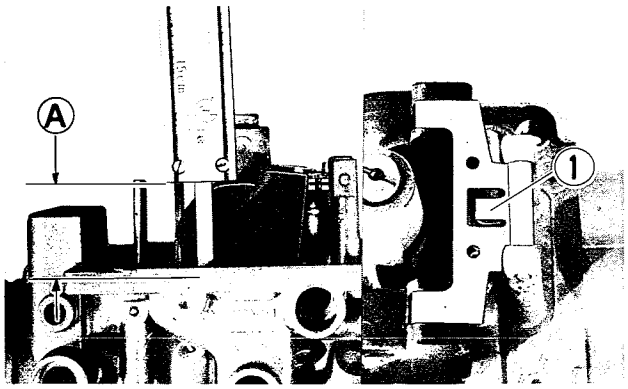


- If fuel level readjustment is necessary, see the following procedure to adjust the float height.



FLOAT HEIGHT ADJUSTMENT

To check the float height, invert the carburetor body holding the float arm pin so that the pin will not slip off. With the float arm kept free, measure the height Ⓐ while float arm is just in contact with needle valve by using the calipers. Bend the tongue ① as necessary to bring the height Ⓐ to this value.



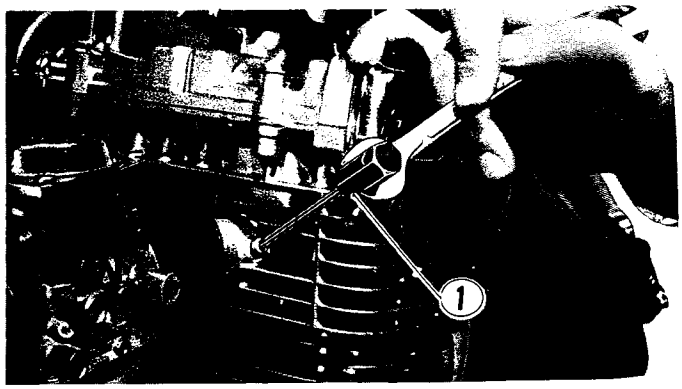
Float height	22.4 ± 1.0 mm (0.88 ± 0.04 in)

BALANCING CARBURETORS

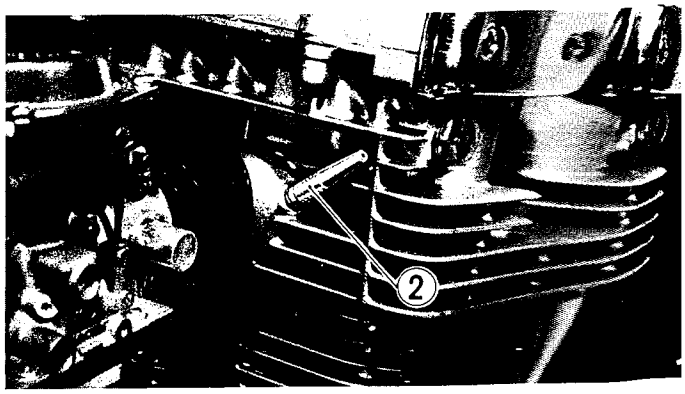
Check the four carburetors for balance according to the following procedures.

As the first step, calibrate the carburetor balancer gauge as follows:

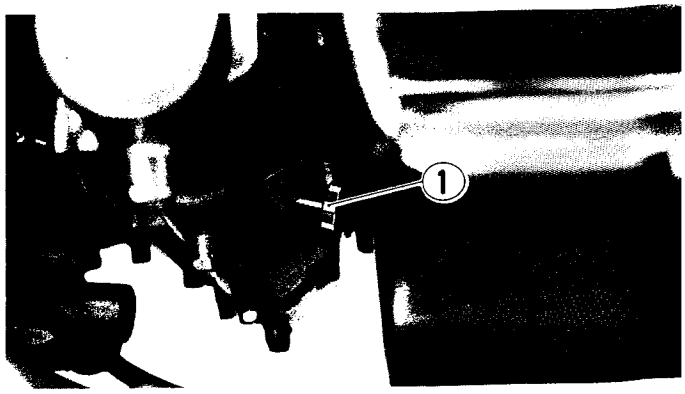
09913-13121	Carburetor balancer
09913-13140	Adaptor
09911-70130	4 mm Hexagon wrench



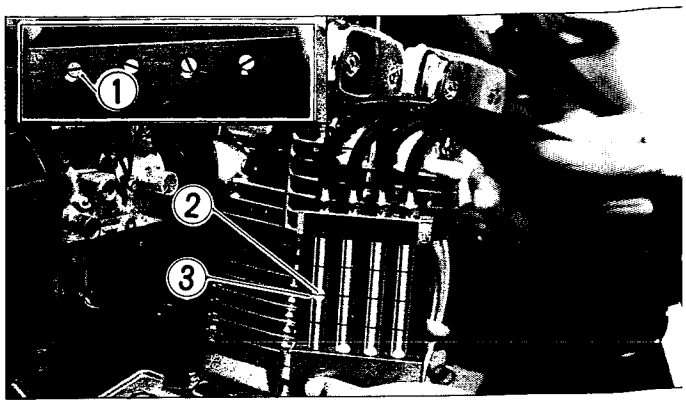
- Start up the engine and run it in idling condition for warming up.
- Stop the warmed-up engine. By using special tool ①, remove vacuum inlet screw for No. 1 or No. 4 cylinder and install adaptor ② with O ring.



- Plug one of the four rubber hoses of the balancer gauge to this adaptor, and start up the engine, and keep it running at 1 750 r/min by turning throttle stop screw ①.

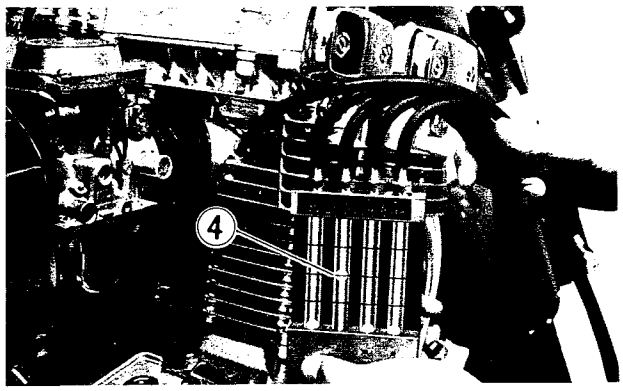


- Turn the air screw ① of the gauge so that the vacuum acting on the tube of that hose will bring the steel ball ② in the tube to the center line ③.



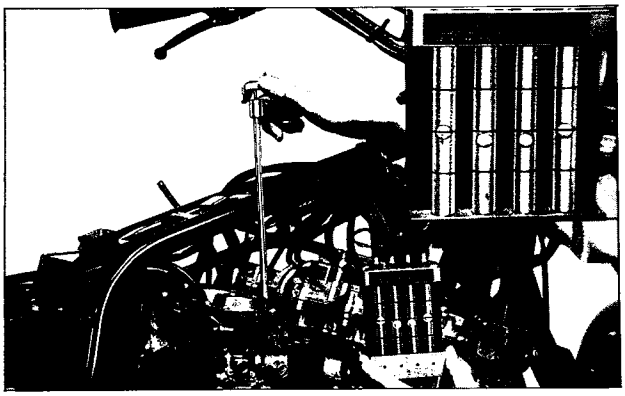
- After making sure that the steel ball stays steady at the center line, disconnect the hose from the adaptor and connect the next hose to the adaptor. Turn air screw to bring the other steel ball ④ to the center line.

- Repeat the process on the third and fourth tubes. The balancer gauge is now ready for use in balancing the carburetors.



Remove the respective vacuum inlet screws and insert the adaptors in the holes. Connect the balancer gauge hoses to these adaptors, one hose to one adaptor, and balance the four carburetors as follows:

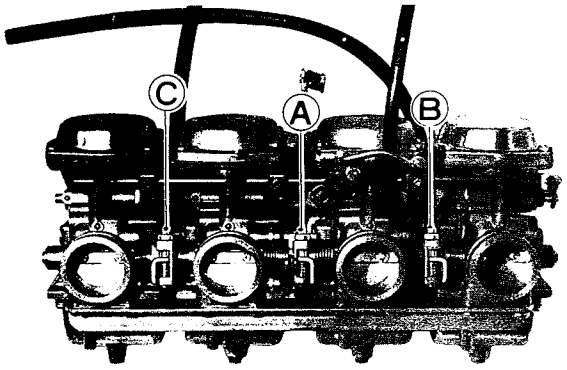
- Start up the engine, and keep it running at 1 750 r/min.
- A correctly adjusted carburetor has the steel balls in the Nos. 1 and 4 tubes at the same level, and those in the Nos. 2 and 3 tubes also at the same level, but lower by one half of the ball diameter than the Nos. 1 and 4 tubes as shown.
- If the steel balls are not in line positions, adjust the throttle valve adjusting screw correctly by using throttle valve adjust wrench.



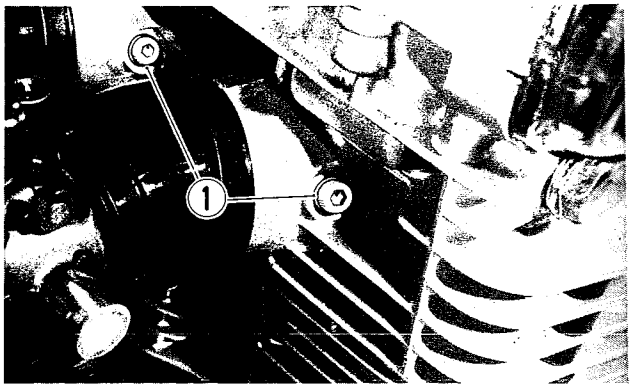
09913-14910	Throttle valve adjust wrench

Adjusting order:

Ⓐ (for No. 2 Carb) → Ⓑ (for No. 1) → Ⓒ (for No. 4)



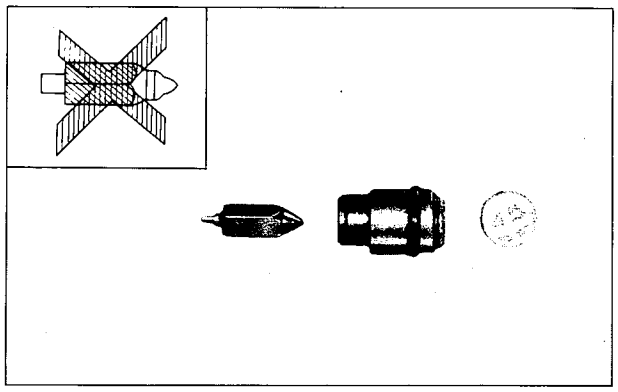
NOTE:
If an adjustment is required, it is suggested that the fuel tank is removed and fuel should be supplied by a separate fuel tank.
Be sure to plug the fuel cock vacuum hole.
Each vacuum inlet screw has a gasket. Be careful not to leave out this gasket ⑪.



NEEDLE VALVE

If foreign matter is caught between the valve seat and the needle, the gasoline will continue to flow and result in overflowing. If the seat and needle are worn out beyond the permissible limits, similar trouble will occur. Conversely, if the needle sticks, the gasoline will not flow into the float chamber.

Remove the carburetor, float chamber and floats, and clean the float chamber and float parts with gasoline. If the needle is worn as shown below, replace it together with a valve seat. Clean the fuel passage of the mixing chamber with compressed air.

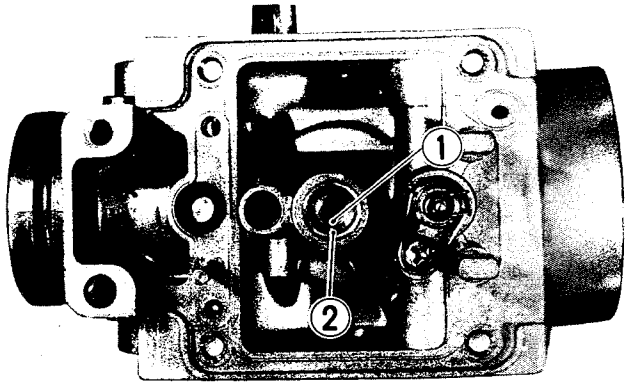


- Check following items for any damage or clogging.

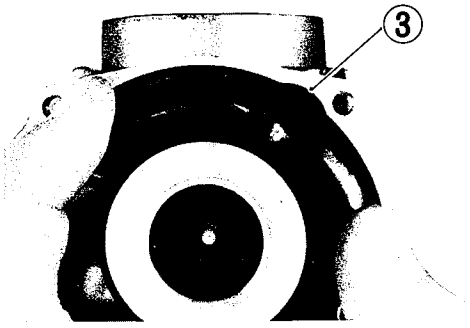
* Pilot jet
* Main jet
* Main air jet
* Pilot air jet
* Needle jet air bleeding holes
* Float
* Needle valve mesh and O-ring
* Diaphragm
* Gasket and O-ring
* Throttle valve shaft oil seals
* Drain plug O-ring
* Pilot screw bleeding hole and rubber cap
* Pilot outlet and bypass holes
* Fuel pipe O-rings

REASSEMBLY

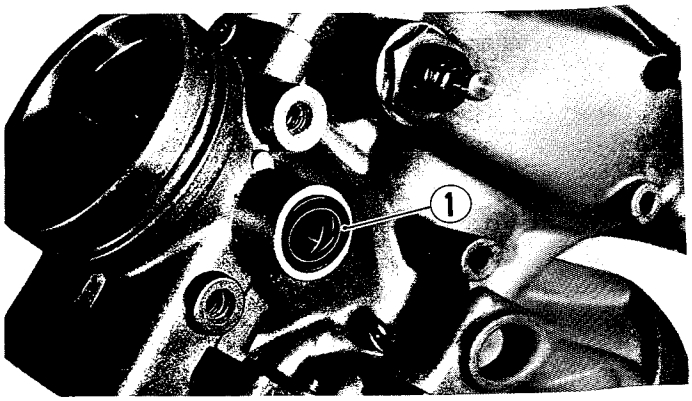
- Align the groove ① of the needle jet with the pin ② and replace it.



- Place tangue ③ of diaphragm to carburetor body properly.

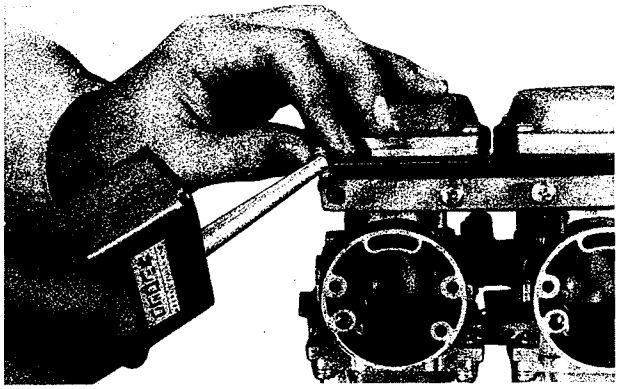


- When fitting throttle valve shaft oil seals, groove should be faced outside ①.

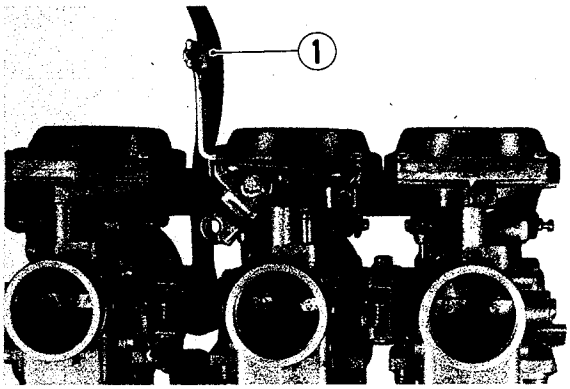


- Apply thread lock cement to the upper bracket screws.

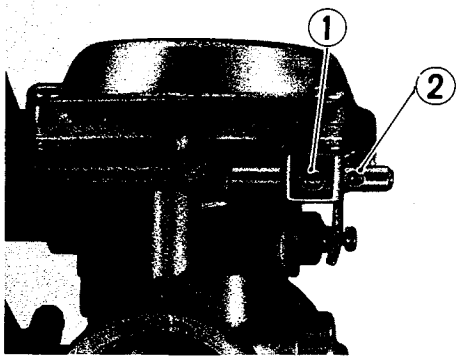
99000-32040	Thread lock cement



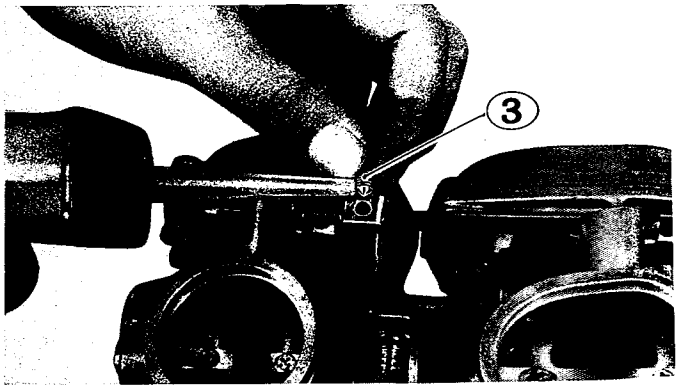
- Place the starter cable guide ① as shown.



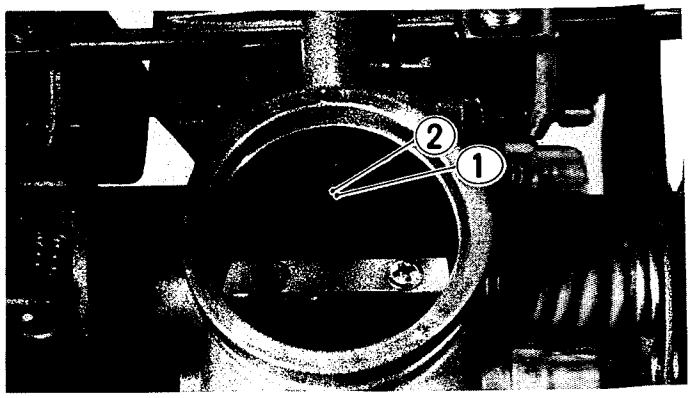
- When mounting starter shaft, align starter valve screw ① with dent mark ② on starter shaft and grease sliding portions.

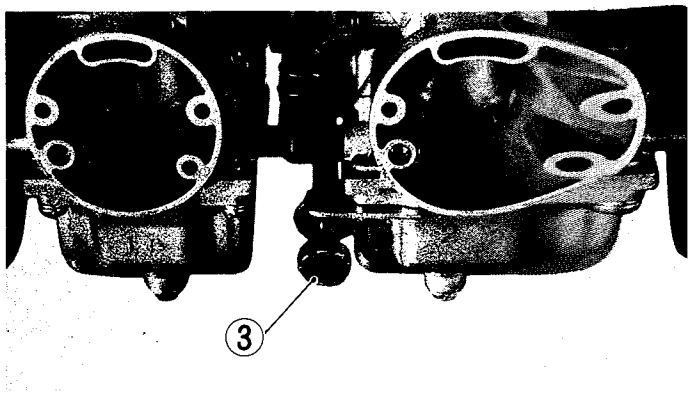


- Apply thread lock cement to starter shaft securing screws ③.

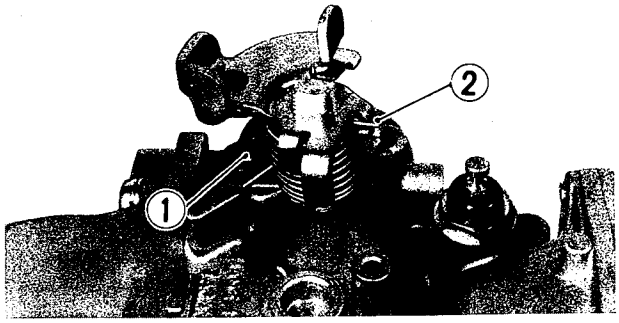


- Set each throttle valve in such a way that its top end ① meets the foremost bypass ②. This is accomplished by turning throttle valve stop screw ③ and balance screw ④.

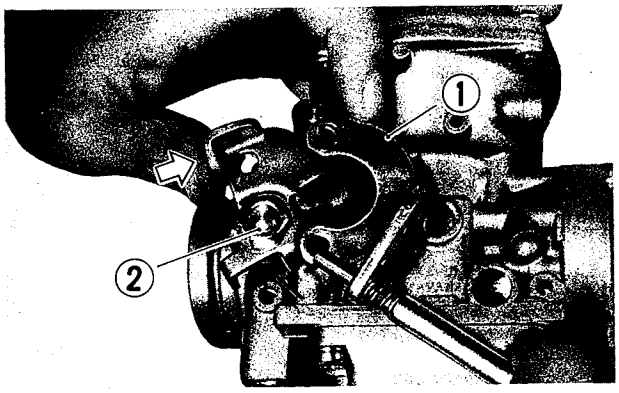




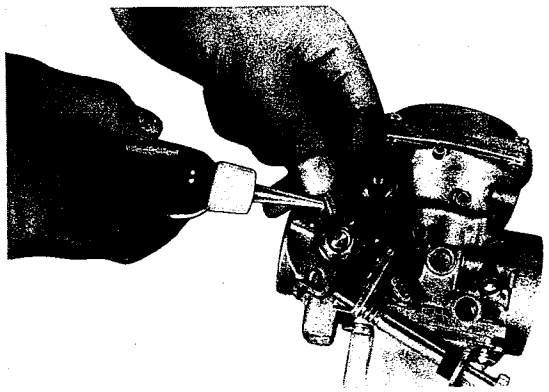
- Hook one end of spring to the boss ①, turn the other end ② clockwise by one turn, and hook it to the cable guide properly.
  Tighten lock nut and bend up lock washer.



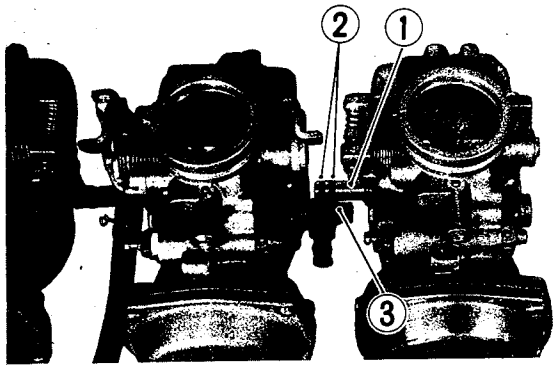
- Fit the throttle stop screw plate ① while turning the throttle valve shaft ②.



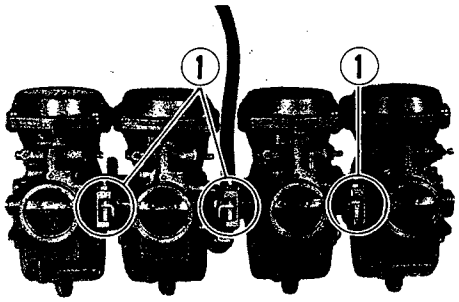
- Apply thread lock "1342" to two screws for securing throttle stop screw plate.



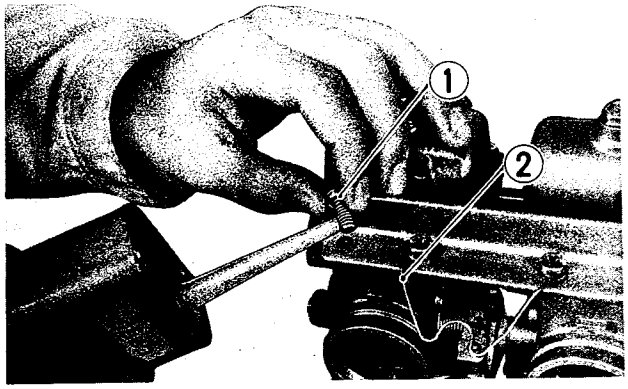
- When engaging four carburetors, be sure to fix fuel pipe ① with four O-rings ② and breather connector ③ properly.

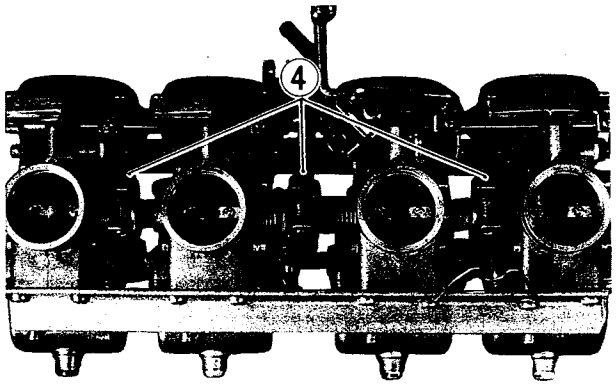


- Position throttle valve control lever ① correctly

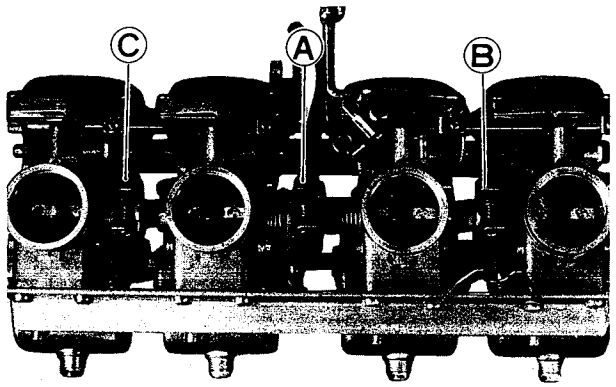


- Apply thread lock cement to lower bracket screws ①.
  Fix the clutch cable guide ② properly.





NOTE:
When adjusting the throttle balance screws, the adjusting order is as follows:
Ⓒ (for No. 2 Carb.) → Ⓑ (for No. 1) → Ⓐ (for No. 4)



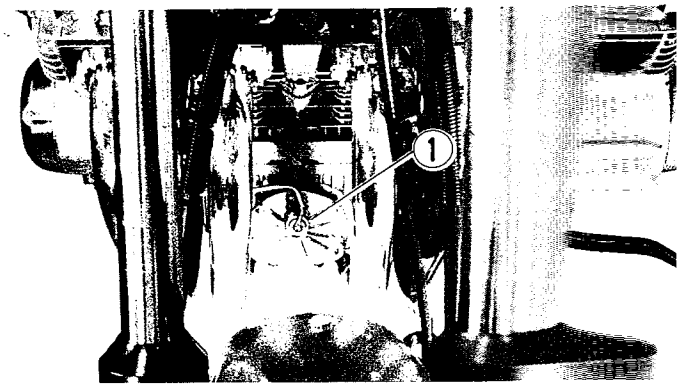
After each job is completed, mount the carburetor on the engine, and the following adjustments are necessary.

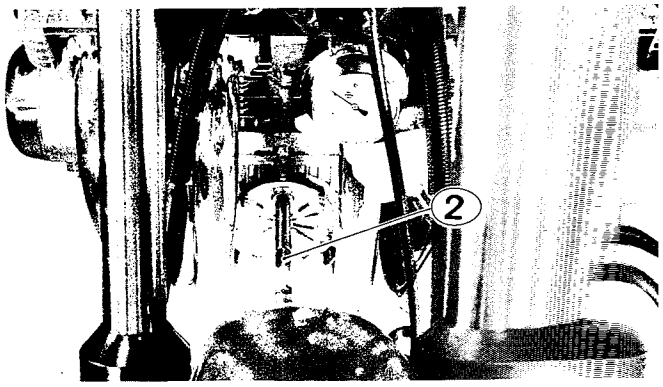
LUBRICATION SYSTEM

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 oil pressure switch ① from oil filter cap.
- Install the oil pressure gauge ② in the position shown in the figure.
- Warm up the engine as follows:
  Summer 10 min. or so at 2 000 r/min
  Winter 20 min. or so at 2 000 r/min
- After warming up operation, increase the engine speed to 3 000 r/min, and read the oil pressure gauge.



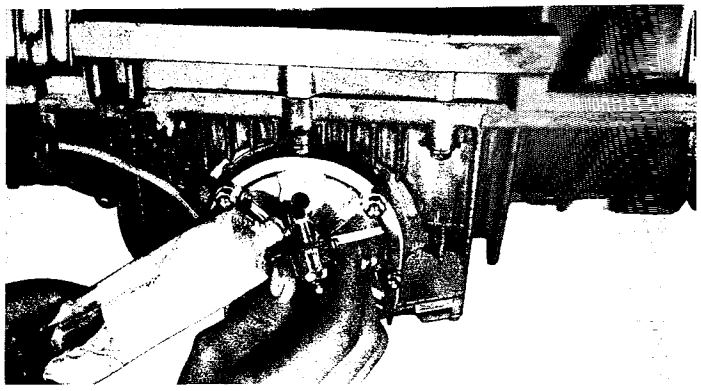


Oil pump pressure specification

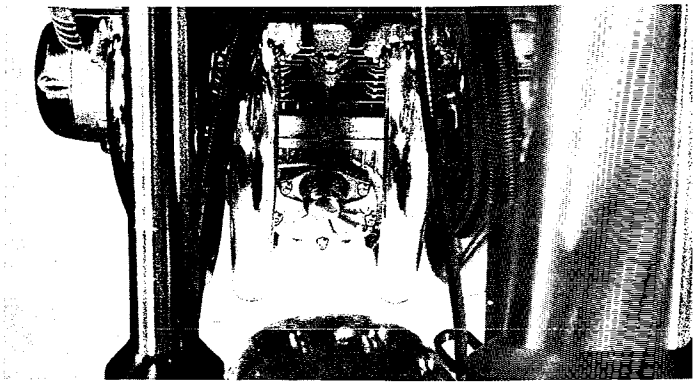
Above 3.0 kg/cm² (43 psi), Below 5.5 kg/cm² (78 psi) at 3 000 r/min

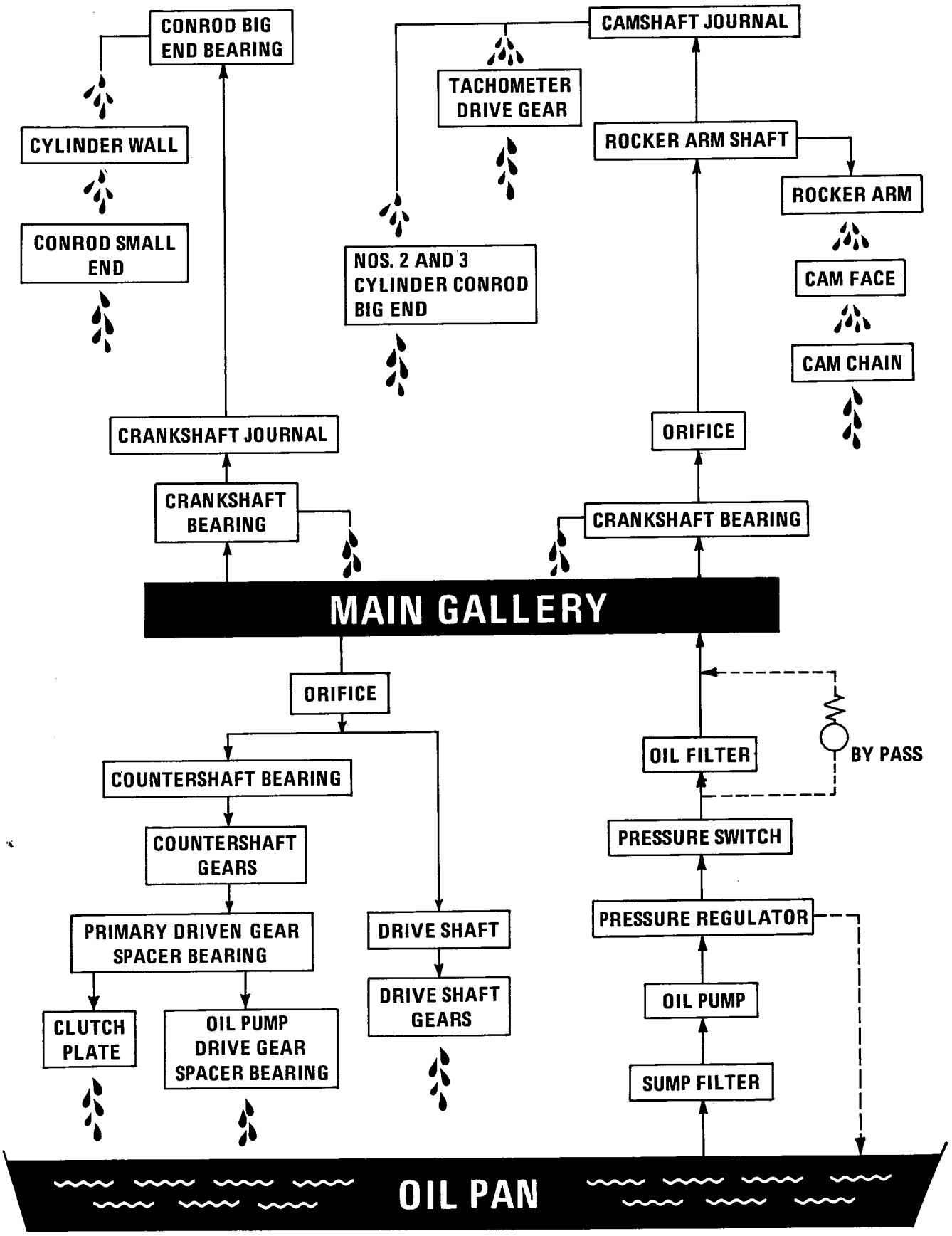
If the pressure is too low, it means that the oil pump is internally worn or otherwise defective and needs to be overhauled. If inner parts are found to be worn down to or beyond the limit, replace the complete oil pump unit. (see page 3-47)

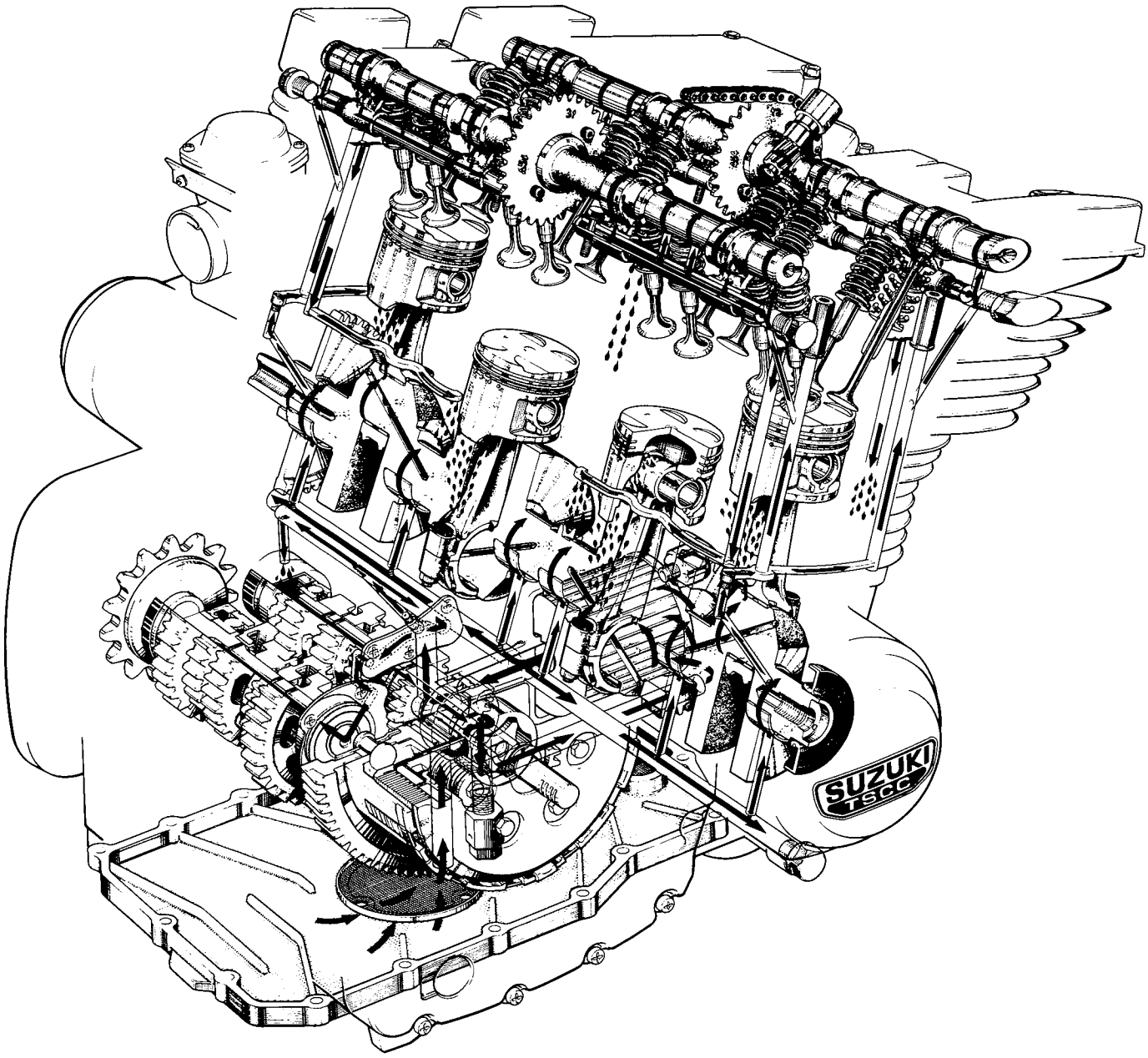
- When fitting the oil pressure switch, apply SUZUKI Bond No. 1215 to its thread lightly to prevent oil leakage.
- Install oil pressure switch cover and tighten five nuts with applying thread lock cement.



99000-32040	Thread lock cement
99000-31110	SUZUKI Bond No. 1215
Tightening torque	13 – 17 N·m (1.3 – 1.7 kg-m 9.5 – 12.5 lb-ft)




CONROD BIG END BEARING
CYLINDER WALL
CONROD SMALL END
CAMSHAFT JOURNAL
TACHOMETER DRIVE GEAR
NOS. 2 AND 3 CYLINDER CONROD BIG END
ROCKER ARM SHAFT
ROCKER ARM
CAM FACE
CAM CHAIN
CRANKSHAFT JOURNAL
ORIFICE
CRANKSHAFT BEARING
CRANKSHAFT BEARING
MAIN GALLERY
ORIFICE
OIL FILTER
BY PASS
COUNTERSHAFT BEARING
COUNTERSHAFT GEARS
PRESSURE SWITCH
PRIMARY DRIVEN GEAR SPACER BEARING
DRIVE SHAFT
PRESSURE REGULATOR
CLUTCH PLATE
OIL PUMP DRIVE GEAR SPACER BEARING
DRIVE SHAFT GEARS
OIL PUMP
SUMP FILTER
OIL PAN


SUZUKI
T500

EMISSION CONTROL & REGULATIONS

CONTENTS

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, culminating with the present 1980 emission level restrictions. For the 1980 and succeeding years one set of emission limits will be in effect. They are as follows:

1980 EMISSION LIMITS

CATEGORIES	HYDROCARBONS (HC)	CARBON MONOXIDE
All motorcycles 50 cc — Larger	5.0 Grams/Kilometer (8.0 Grams/Mile)	12 Grams/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

GS750 motorcycles are equipped with precision, manufactured carburetors for emission level cc
These carburetors require special mixture control components and other precision adjustments to ur
properly.

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

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

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

The carburetor specification for the emission-controlled GS750 are as follows.

Carburetor I.D. No.	Main Jet	Needle Jet	Jet Needle	Pilot Jet	Pilot Screw
45400	#112.5	Y-4	5C28	#42.5	PRE-SET DO NOT ADJUST

The pilot screw is pre-set by the factory utilizing specialized testing and adjusting procedures. The h
screw is not adjustable as the idle circuit is "sealed" after factory adjustment. Adjusting, interferr ng
improper replacement, or resetting of any of the carburetor components may adversely affect ca rb
performance and cause the motorcycle to exceed the exhaust emission level limits. If persons, w
unaware of these special carburetor servicing requirements tamper with the carburetors the Suzu i
should restore the carburetors to their original condition or if unable to effect repairs, contact the di
tors 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 incomplete 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 i measure the weight of the pollutants over a specific distance such as grams per mile or grams per kilo m 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 emissions are ignition system problems. If the ignition system fai ignite the fuel mixture properly, then raw gasoline vapors will pass through the engine into the exh system. Listed are the most common ignition problems which occur and which can affect HC emission put.

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 ea

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

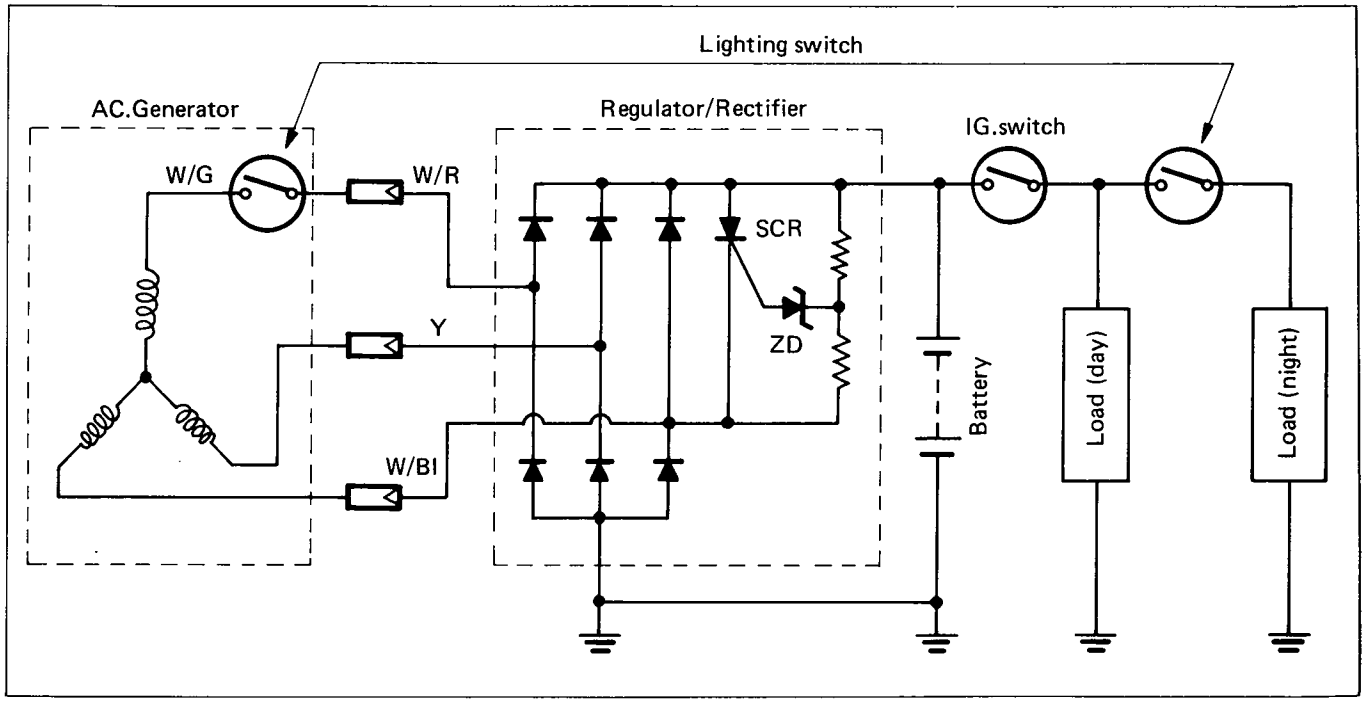
CONTENTS

DESCRIPTION

A three-phase AC generator driven by the engine is used to supply alternating current to the battery. The alternating current from the generator is rectified in the regulator/rectifier and the rectified current is supplied to the battery when the battery voltage drops below the specification.

When the battery is fully charged and the specified voltage is reached, zener diode "Ze" conducts, switching SCR (thyristor) on and the current stops flowing to the battery and instead, flows to ground. In this way, the battery is protected from overcharging.

When the battery is discharged and the voltage becomes lower, the zener diode stops conducting and SCR is switched off. This prevents the current from flowing through the regulator and the current is supplied to the battery. The above operation is continuously repeated as the battery voltage rises and falls. In this way, the regulator-rectifier controls the flow of current to the battery.



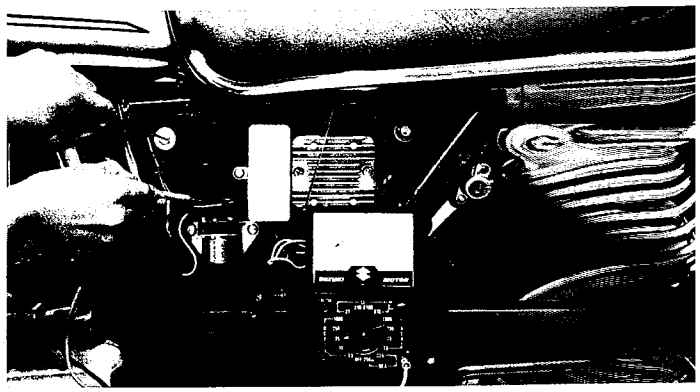
INSPECTION

CHARGING OUTPUT CHECK

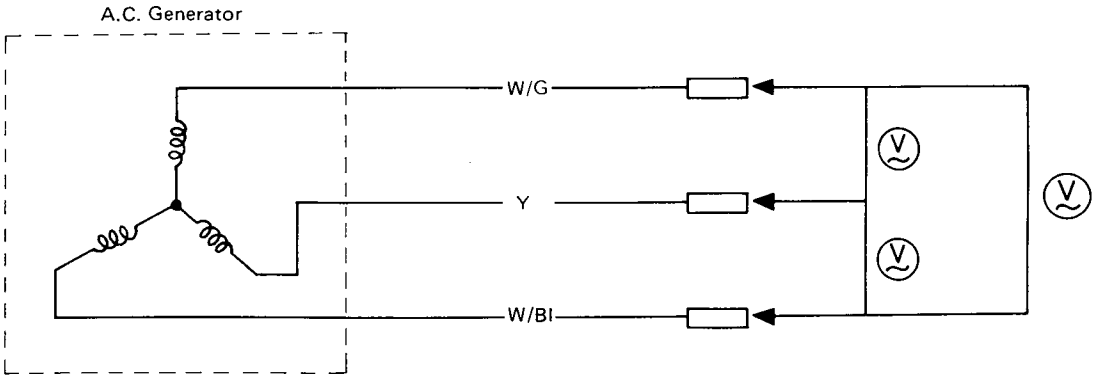
- Start the engine and keep it running at 5 000 r/min with the dimmer switch turned High position.
- Using the pocket tester, measure the DC voltage between the starter relay ⊕ terminal and ground.
- If the tester reads under 14V or over 15.5V, the regulator/rectifier is faulty.

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

09900-25002	Pocket tester



STD charging output
14 – 15.5 V (DC) at 5 000 r/min



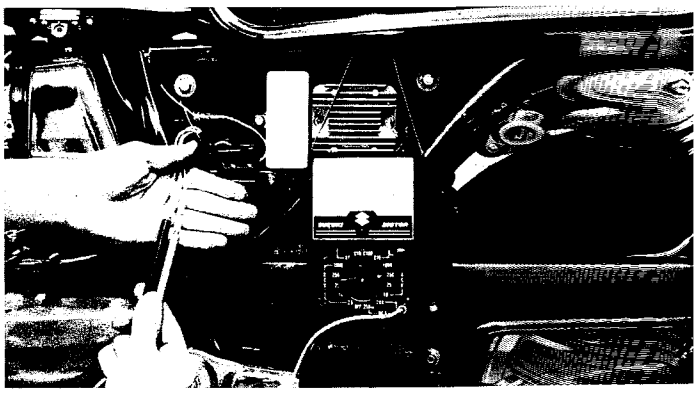
WIRE COLOR
Y ..... Yellow
W/Bl .... White with Blue tracer
W/G .... White with Green tracer

Tester Range: ACV250

AC GENERATOR NO-LOAD PERFORMANCE

- 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 80V, the AC generator is faulty.

09900-25002	Pocket tester

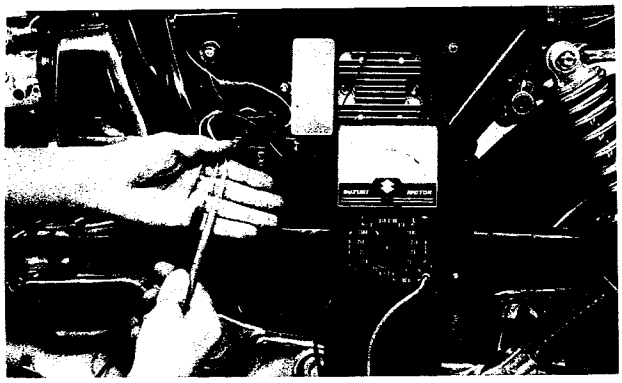


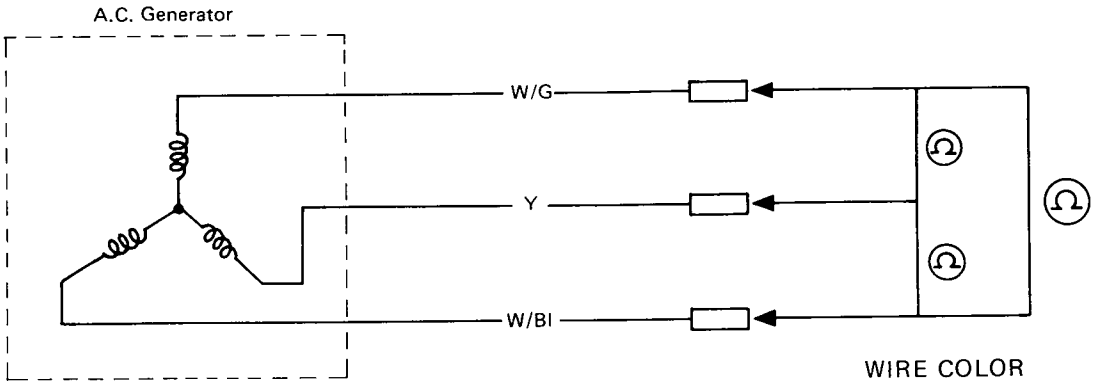
STD No–load performance
80 V (AC) or Over at 5 000 r/min

Using the pocket tester, check the continuity between the lead wires of the stator.
Also check that the stator core is insulated.

NOTE:
When making this test, it is not necessary to remove the AC generator.

09900-25002	Pocket tester





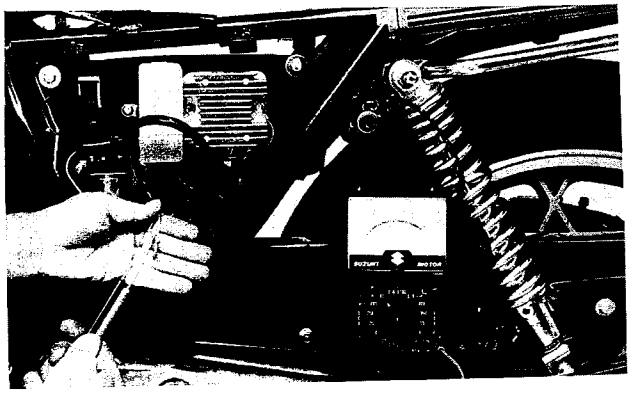
WIRE COLOR
Y ..... Yellow
W/BI .... White with Blue tracer
W/G .... White with Green tracer

Tester Range: x 1Ω

REGULATOR/RECTIFIER

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



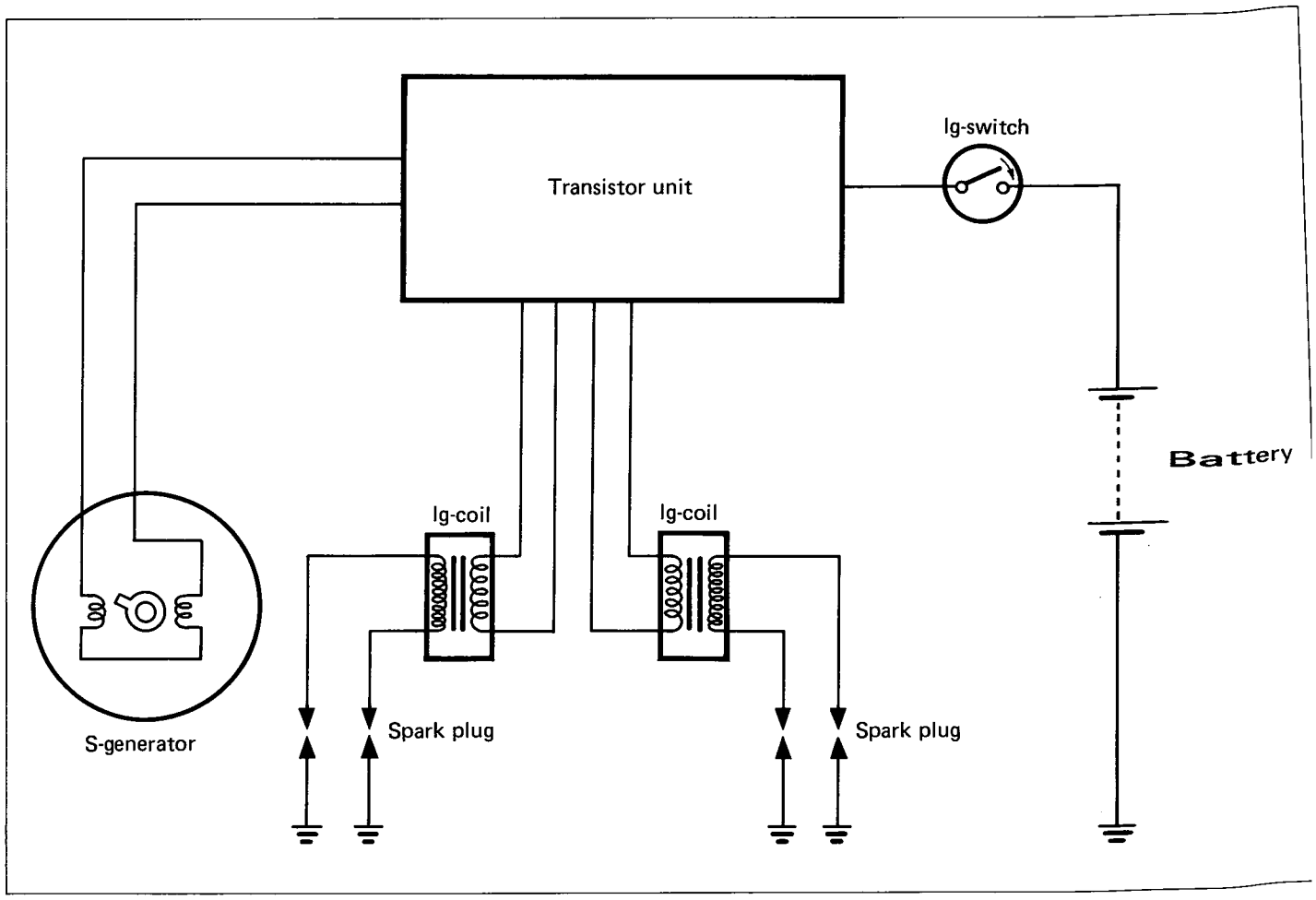
⊖ prove of tester \ ⊕ prove of tester	R	W/BI	W/R	Y	B/W
R		∞	∞	∞	∞
W/BI	5-6Ω		∞	∞	∞
W/R	5-6Ω	∞		∞	∞
Y	5-6Ω	∞	∞		∞
B/W	35-45Ω	5-6Ω	5-6Ω	5-6Ω	

IGNITION SYSTEM

DESCRIPTION

The fully transistorized ignition system consists of a signal generator, transistor unit, ignition coils, and spark plugs. The signal generator comprises one rotor and two pickup coils.

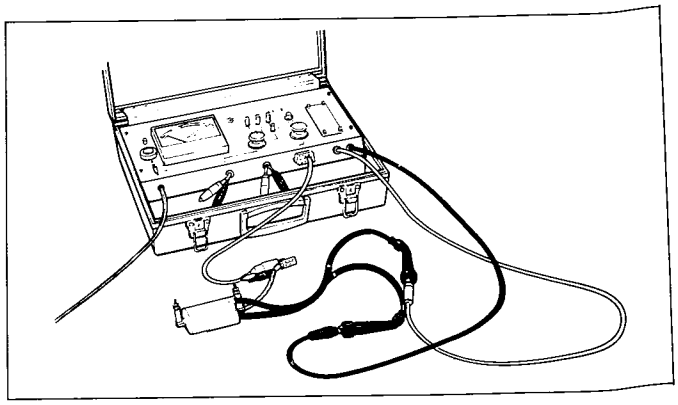
The signal generator is mounted at the right end of the crankshaft. The output of the signal generator goes to the transistor unit, where it turns ON and OFF the transistor alternately. As the transistor is turned ON and OFF, the current passing through the primary winding of the ignition coil is also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



INSPECTION

IGNITION COILS (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 (0.3 in).
If no sparking or orange color sparking occures with this much gap, then it is defective and must be replaced. Test for 5 minutes.

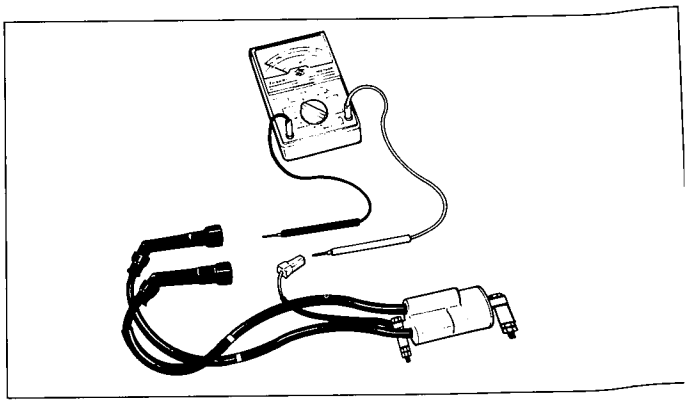


09900-28106	Electro tester

STD Spark performance	8 mm (0.3 in)

IGNITION COILS (Checking with Pocket Tester)

A SUZUKI pocket tester or an ohm meter may be used, instead of the electro tester. In either case, the ignition coil is to be checked for continuity in both primary and secondary windings. Exact ohmic readings are not necessary, but, if the windings are in sound condition, their continuity will be noted with these approximate ohmic values.

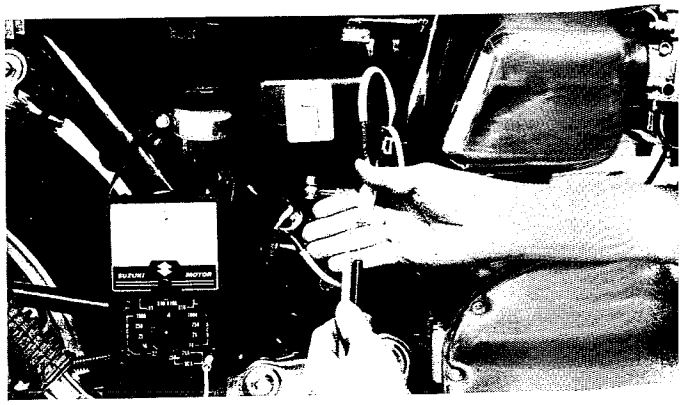


09900-25002	Pocket tester

Ignition coil resistance		
Primary	O/W – W	Approx. 3 – 5Ω
Secondary	Plug cap – Plug cap	Approx. 30 – 35kΩ

SIGNAL GENERATOR

Measure the resistance between lead wires.
If the resistance noted to show infinity or too low, a resistance value must be replaced.



09900-25002	Pocket tester

STD resistance	
Bl – G	250 – 360Ω

IGNITION TIMING

IGNITION TIMING SPECIFICATIONS

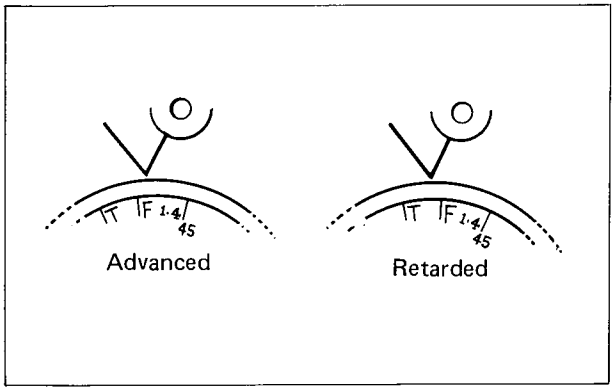
Ignition timing	15° B.T.D.C. below 1 500 r/min and 35° B.T.D.C. above 2 350 r/min

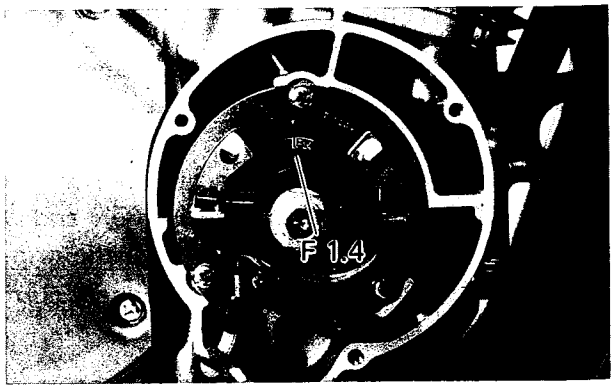
Check the performance of the timing mechanism using the timing light. Illuminate the advance governor with the timing light and vary the engine speed to see if the ignition is correctly timed or not.

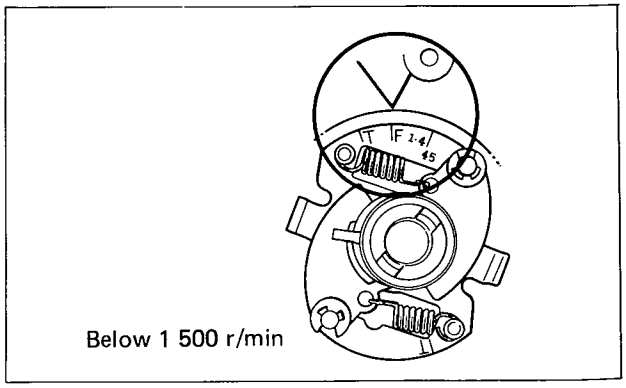
09900-27311	Timing light

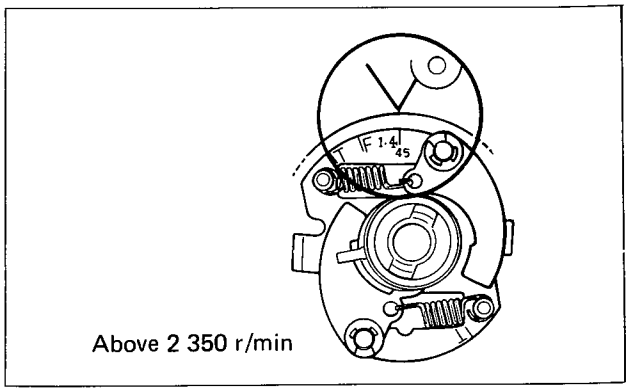
The procedure is as follows:

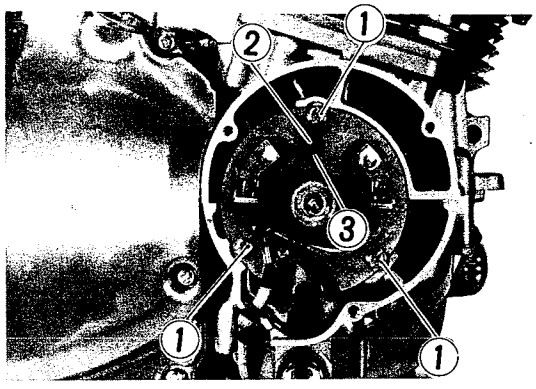
- Clip the timing light on the high tension cord of the No. 1 or No. 4 cylinder.
- Run the engine at a speed not exceeding 1 500 r/min. Under this condition, "F" mark on No. 1 and No. 4 cylinder side and timing mark should be in perfect alignment: If not, loosen three stator securing screws ① and adjust the ignition timing by turning stator base as shown.
- Run the engine in the speed range above 2 350 r/min, and similarly observe the position of mark ② relative to mark ③. If the two marks are in register, it means that the ignition is properly advanced.





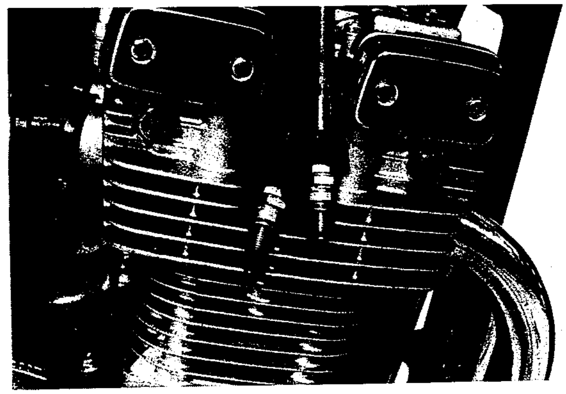






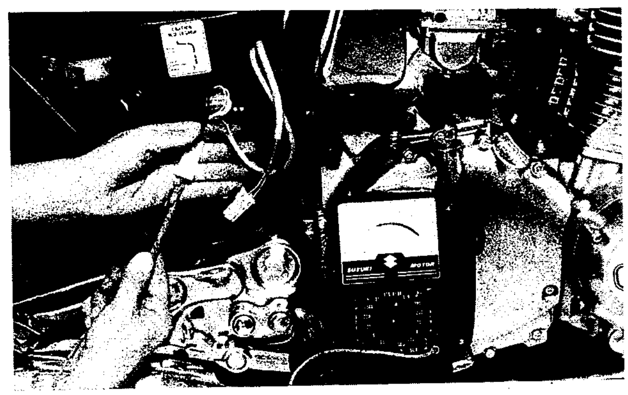
IGNITER

Remove each spark plug of Nos. 3 and 4 cylinders, fit it to respective plug cap and place it on the cylinder head.



Remove the frame cover on the right side and disconnect the lead wire from the signal generator.

Now connect ⊕ pin of SUZUKI Pocket Tester (X1Ω range) with Blue lead wire on the igniter side and ⊖ pin with Green lead wire. The igniter is in good condition if the following is observed: The moment the test pins are connected the spark plug of No. 4 cylinder sparks and the moment the tester pins are disconnected the spark plug of No. 3 cylinder sparks.



This checking presupposes that the ignition coil used for checking is a good one.

BATTERY

DESCRIPTION

YUASA YB14L-A2 vacuumsealed dry cell battery is furnished with every GS750. This battery, when properly activated and initially charged, has a capacity of amperehours on a 14-hour rating basis. No skill is required in activating this battery and charging it for the first time to place it in initial service, all necessary information is contained in the instructions given under the heading of INITIAL CHARGING METHOD. The battery's serviceable life depends mainly both on initial charge and on the attention it subsequently receives. Each GS750 user should be reminded of the importance of giving proper care to their batteries.

SPECIFICATIONS

Type designation	YB14L-A2
Battery voltage	12 volts
Standard electrolyte S.G.	1.280 (at 20°C or 68°F)

INITIAL CHARGING METHOD

Each new GS750 motorcycle is delivered with the battery in a "vacuum-sealed dry" condition. The battery can be used after conducting the four following steps:

1. Initial electrolyte filling

Take the battery off the motorcycle, and place it on a battery servicing bench. Fill each cell to the upper level with electrolyte:

Dilute sulfuric acid solution with acid concentration of 34.6% by weight, having a specific gravity of 1.26 at 20°C (68°F). Electrolyte temperature, at the time of filling, should not be higher than 30°C (86°F).

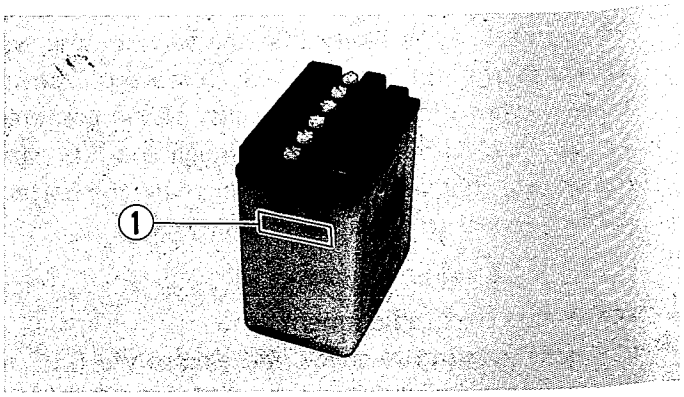
After filling, let the battery stand for about 30 minutes. Then, check electrolyte level in each cell and, if the level in any cell has fallen add more electrolyte to bring it back to the upper level.

2. Initial charging duration

The acting materials on the cell plates have a store of energy equivalent to 75% of the rated capacity if the battery is new manufactured recently. This stored energy, however, dissipates spontaneously and progressively with lapse of time, so that, after filling it with electrolyte, the charging duration must be extended if a period of more than 6 months has elapsed since the date of manufacture (which is indicated on each battery as shown in picture. The standard initial charging duration being 20 hours. The charging time is to be determined according to the following schedule.

Age of dry battery (since manufacture)	Charging time
Up to 6 months	20 hours
Over 6 months or up to 9 months	30 hours
Over 9 months and up to 12 months	40 hours
Over 12 months	50 hours

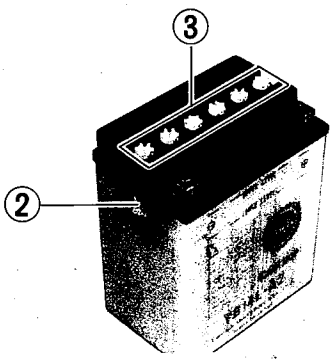
Date of manufacture ① is indicated by a three part number, the leftmost part indicating for the month, the middle part the year, and the last part the day of the month.



3. Initial charging current

The constant-current method of charging is recommended for initial charging, and is carried out in the following manner.

1) Before turning on the charger, to which the filled battery is connected, remove the seal cap ② and cell caps ③. Make sure that the polarity marks are matched correctly.



2) Start charging, with the charger set for a charging rate of amperes. While charging, occasionally check the electrolyte S.G. (specific gravity) and also the charging voltage, particularly towards the end of the charging time.
3) Towards the end of the charge, the electrolyte will start releasing gas bubbles and the voltage and S.G. will be up and leveling; if not, it is likely that the vacuum seal was damage during transit or in storage. Continue charging, even in excess of the predetermined time, until the voltage and S.G. stay level, for one or two hours, with the battery allowed to continue releasing gas.

4. Electrolyte adjustment

After charging re-check the electrolyte S.G. to make sure it is 1.280 corrected for 20°C (68°F). Add distilled water, if necessary, to adjust the S.G. of each cell. Replace the caps, and wash the surfaces of the battery container with fresh water. Let the battery dry before mounting it on the motorcycle.

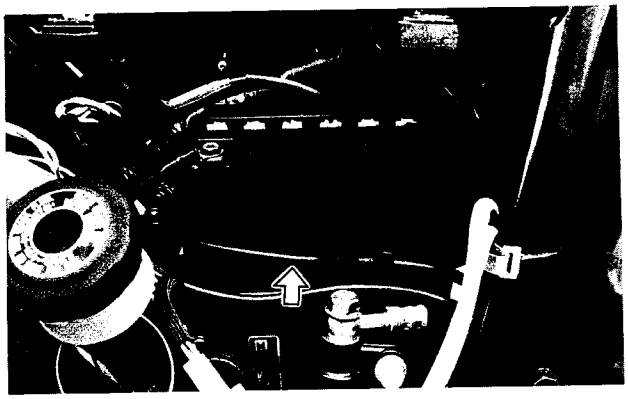
BATTERY SERVICING

Removal

1. Remove seat and right frame cover.
2. Remove rear muster cylinder reservoir mounting bolt.
3. Take off air cleaner case by removing fitting bolt and loosen clamp screw.
4. Disconnect (—) lead wire and (+) lead wire.
5. Disconnect the breather hose and take off battery.

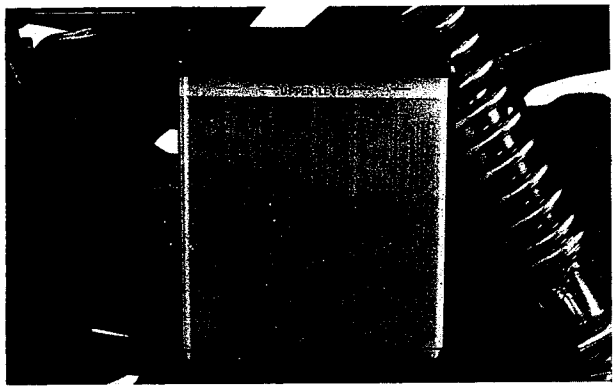
Installation

Before mounting the battery, make sure that the exterior surface of the battery container is dry and free from electrolyte. Be careful not to forget to re-connect the battery breather hose. The installing procedure is the reverse of removal.



Inspection

1. Visually inspect the surface of the battery. If signs of cracking or electrolyte leakage from the sides of the battery are noticed, replace the battery with a new one.
2. 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 or hot water, respectively.
3. Check the electrolyte level and add distilled water, if necessary, to raise the electrolyte in each cell to the upper level.



4. Check the battery for proper charge by taking an electrolyte S.G. reading. If the reading is 1.200 or less, corrected for 20°C (68°F), it means than the battery is rundown and needs recharging.

Recharging operation based on S.G. reading

To correct on S.G. reading for 20°C (68°F), use this formula:

$S_{20} = St + 0.0007 (t - 20)$,

Where S_{20} = corrected value of S.G. (20°C or 68°F),

St = value of S.G. read at temperature t°C,

0.0007 = temperature coefficient of S.G., and

t = temperature in degrees Centigrade, at which St was read.

To read the S.G. on the hydrometer, br n electrolyte in the hydrometer to eye le e read the graduation on the float scale (sponding to the meniscus (curved port i electrolyte surface), as shown in figure.

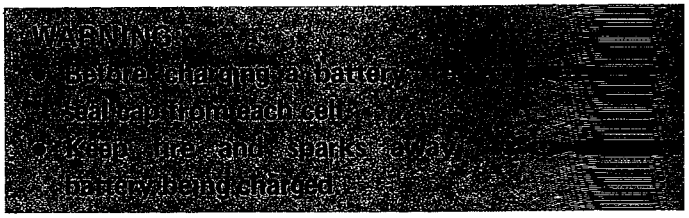
Check the reading (corrected for 20°) figure to determine the recharging time i by constant-current charging at a chargi n of 1.4 amperes (which is a tenth of the ca of the present battery).

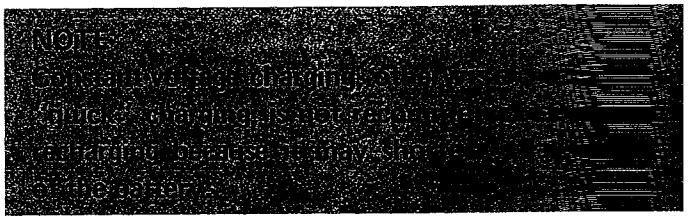
Do not permit the electrolyte tempera tu exceed 45°C (113°F), at any time, dur r recharging operation. Interrupt the opera t necessary, to let the electrolyte cool dowr n.

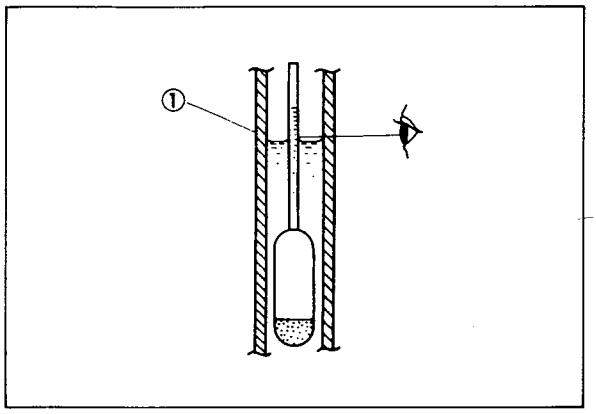
The battery is properly recharged if three tions are met:

Recharging has been carried out to the s cation indicated in the graph in figure l lyte S.G. has risen to 1.280 or higher a r remained there for at least one hou r. battery terminal voltage has risen to 1 5 volts or higher and has remained there least one hour.

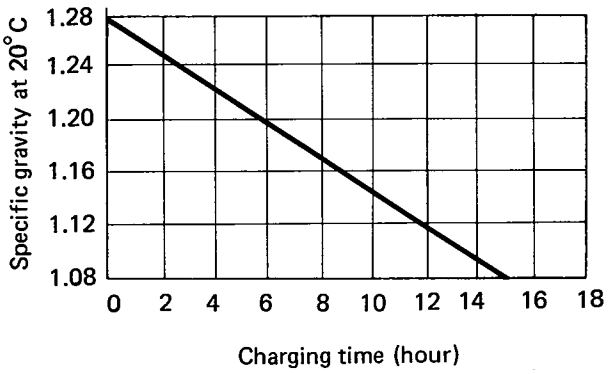
Gas bubbles are being released in every ce l







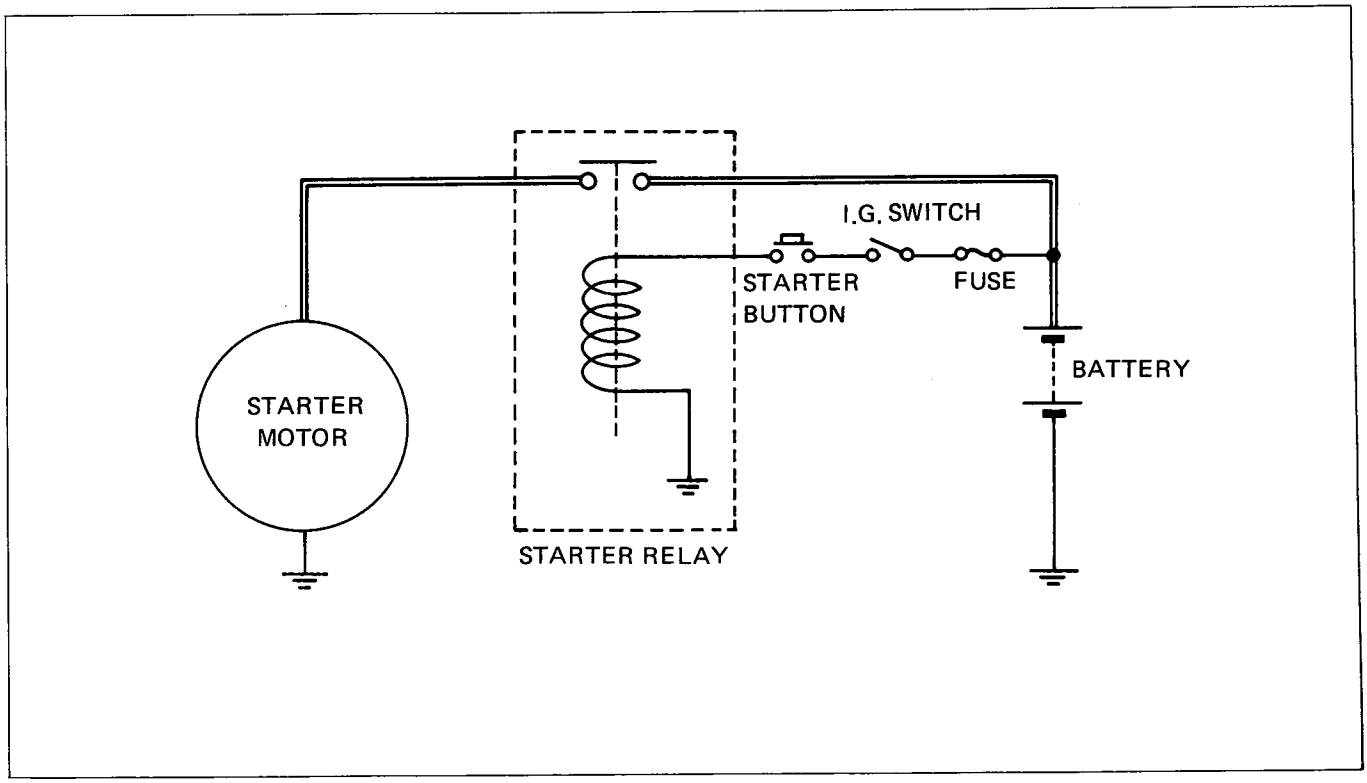
① Hydrometer



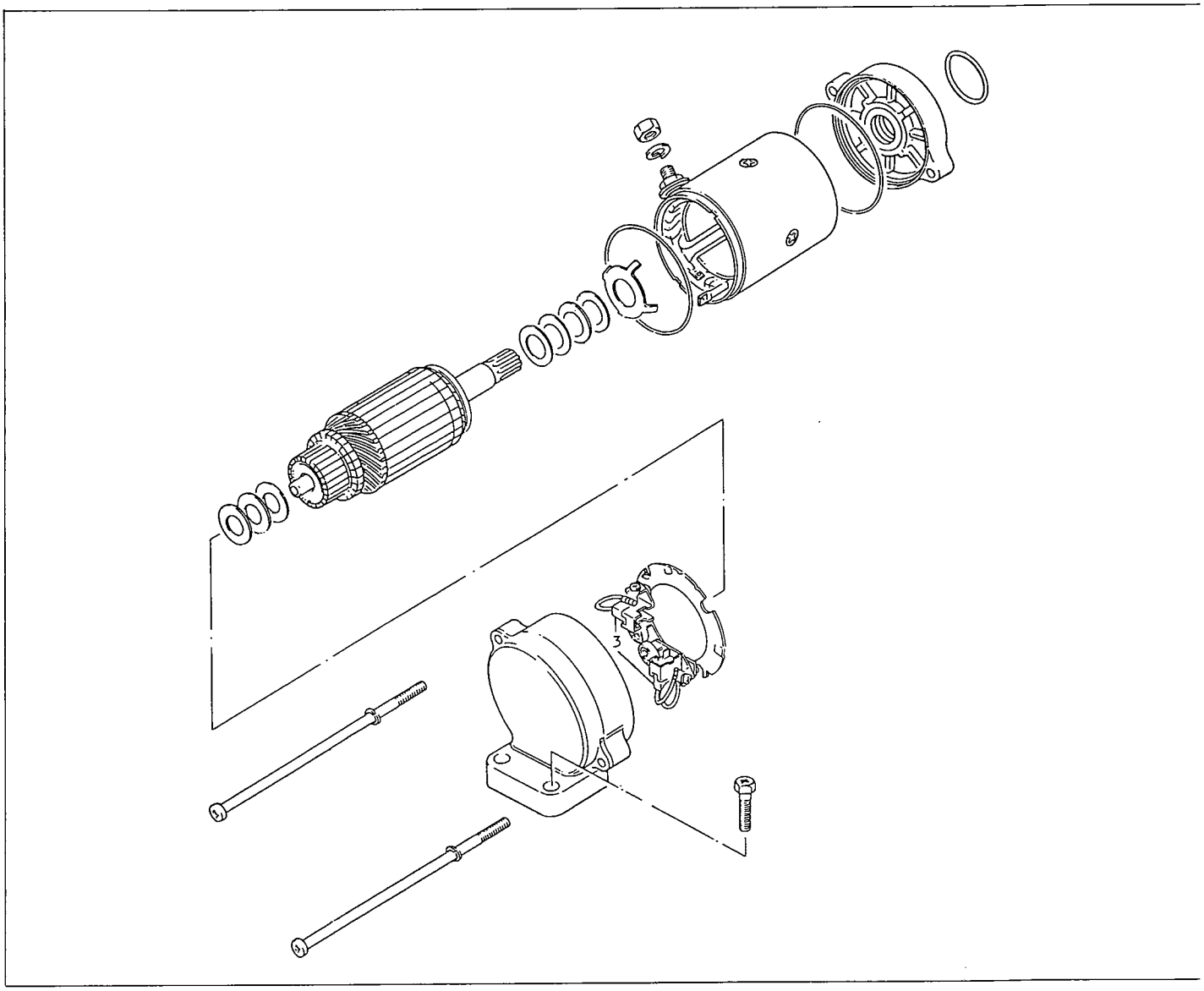
STARTER SYSTEM

DESCRIPTION

The starter system is shown in the diagram below: namely, the starter motor, relay, starter switch and battery. Depressing the starter button (on the right handlebar switch box) energizes the relay, causing the contact points to close which connects the starter motor to the battery. The motor draws about 80 amperes to start the engine.



STARTER MOTOR DISASSEMBLY

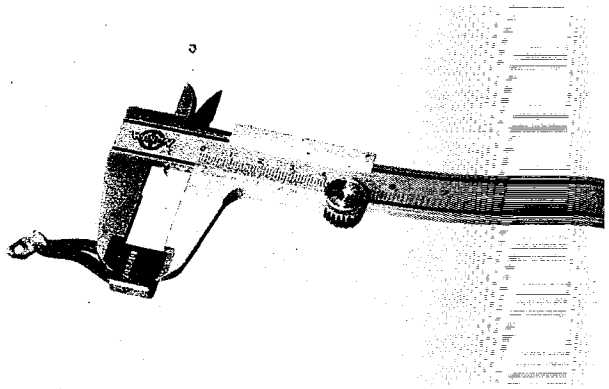


STARTER MOTOR INSPECTION

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, and replace them when they are too short or chipping.

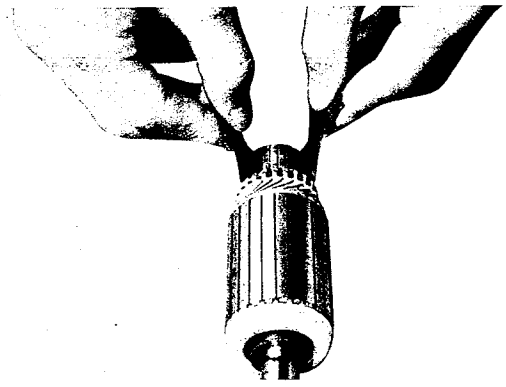
Service Limit	6 mm (0.24 in)



COMMUTATOR

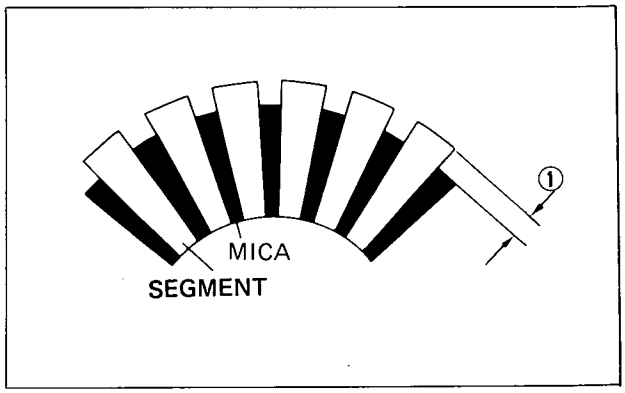
If the commutator surface is dirty, starting performance decrease. Polish the commutator with #400 or similar fine emery paper when it is dirty.

After polishing wipe the commutator with a clean dry cloth.



Measure the commutator under cut ①.

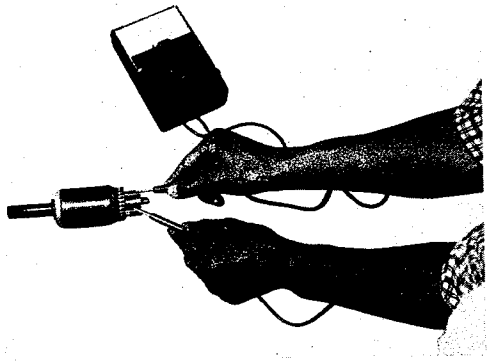
Service Limit	0.2 mm (0.008 in)



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. Continued use of a defective armature will cause the starter motor to suddenly fail.

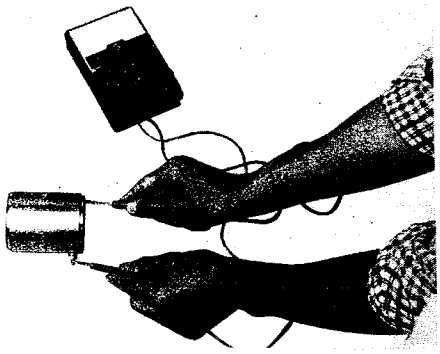


09900-25002	Pocket tester

FIELD COIL

Using a pocket tester, check the continuity between the ⊕ terminal and brush terminal.

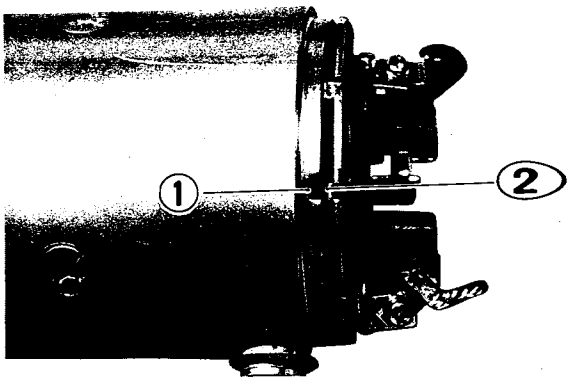
If the field coil is in sound condition, continuity is found.



STARTER MOTOR REASSEMBLY

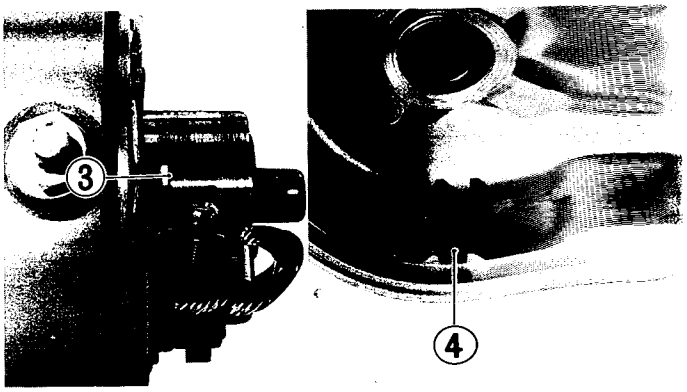
BRUSH HOLDER

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



HOUSING END

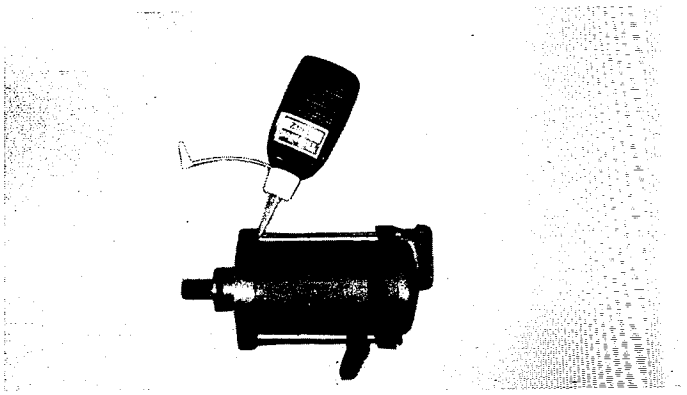
When installing housing end, fix the protrusion ③ of the brush holder to the dent ④ on the housing end.



SECURING SCREWS

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

99104-32050	Thread Lock "1363C"



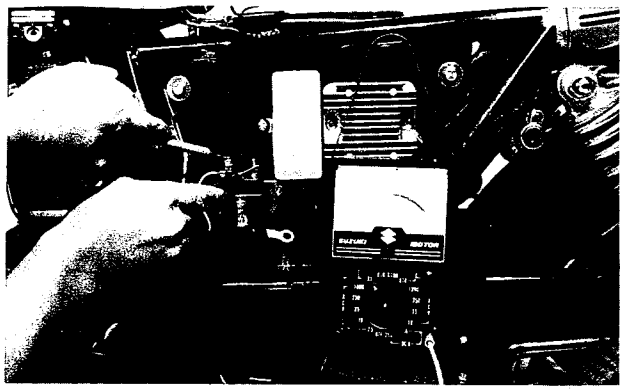
STARTER RELAY INSPECTION

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.

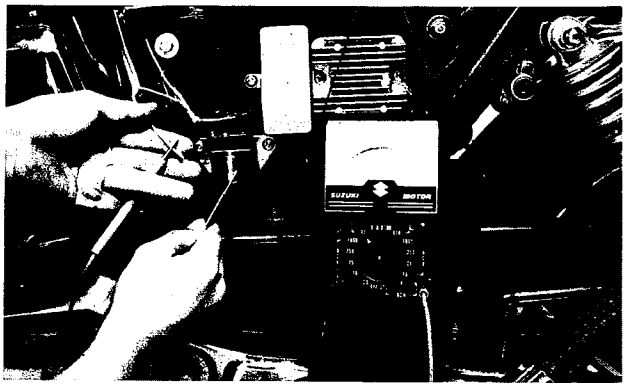
If the starter relay is in sound condition, continuity is found.

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	3 – 4Ω

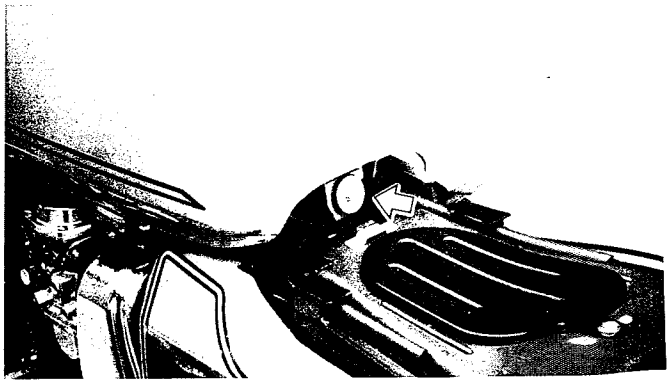


COMBINATION METER

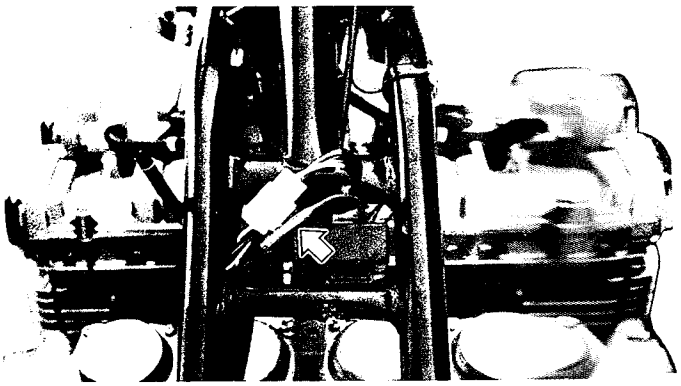
REMOVAL

Remove seat.
Take off fuel tank.

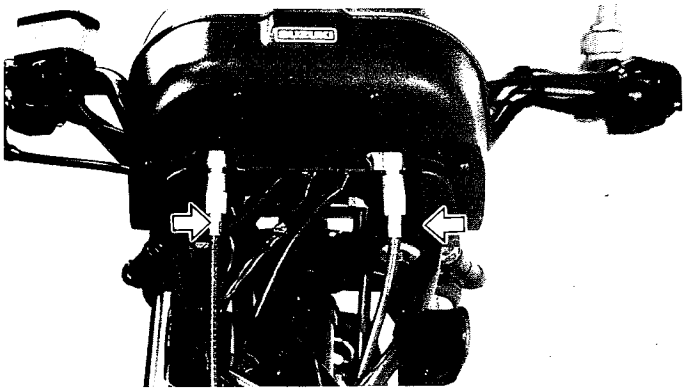
NOTE:
When taking off fuel tank, disconnect fuel hose, vacuume hose, and fuel gauge lead wires.



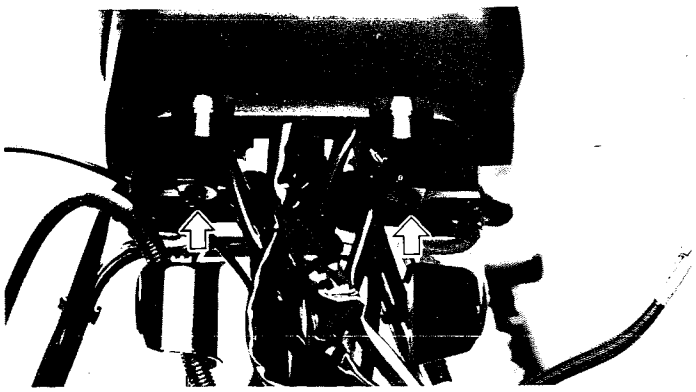
Disconnect the couplers from combination meter.



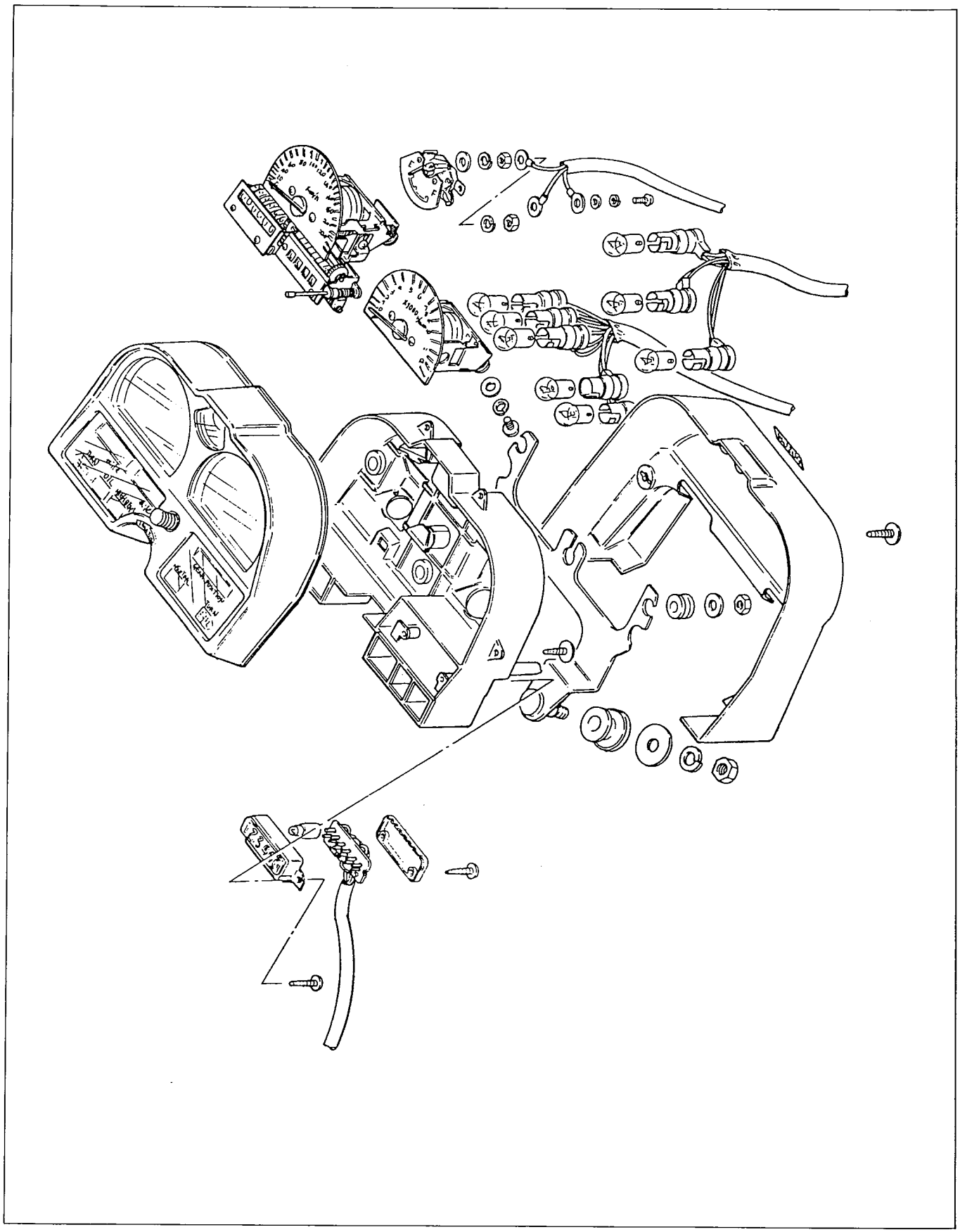
Remove headlight ass'y, disconnect speedometer and tachometer cables.



Remove two mounting bolts and take off combination meter.

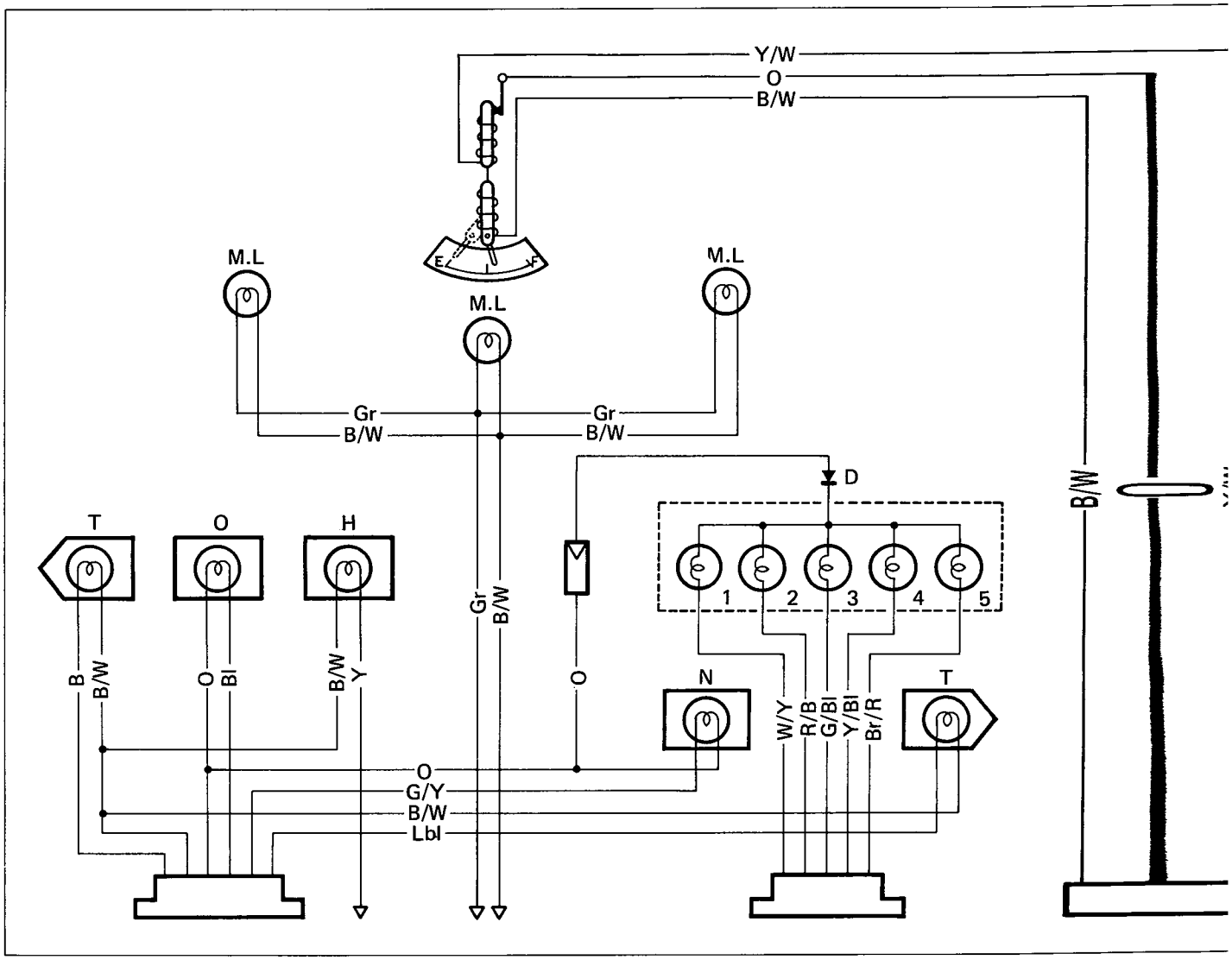


DISASSEMBLY



INSPECTION

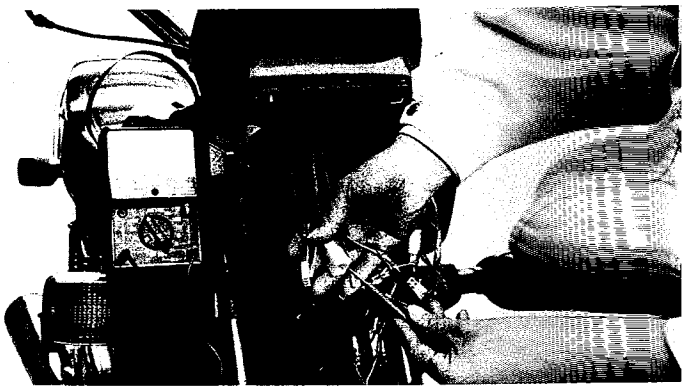
DIAGRAM



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

09900-25002	Pocket tester

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



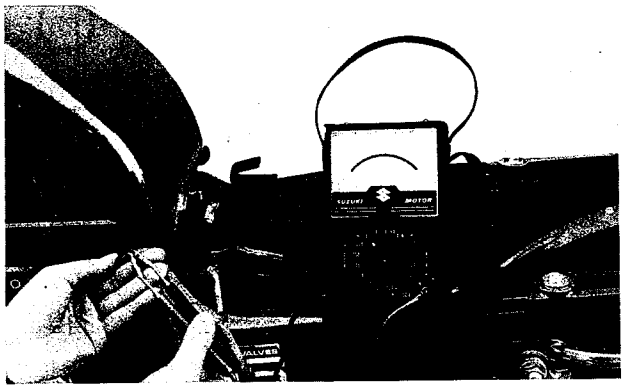
FUEL METER

With the ignition switch turned on, remove two lead wires going into the fuel gauge, connect the lead wires on the main wiring harness side, and check the fuel meter. If "F" is indicated, the fuel meter is in good condition.

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.

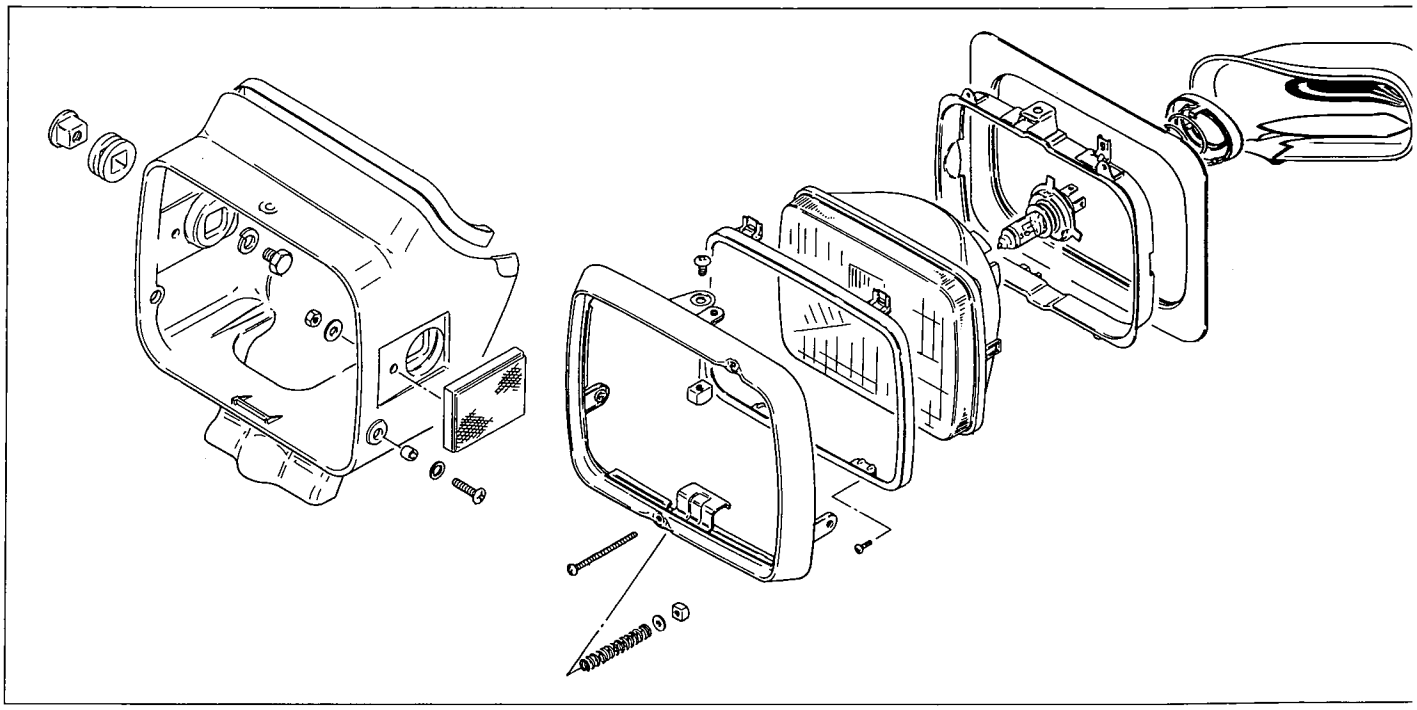


POSITION	RESISTANCE
FULL	Approx. 1 – 5Ω
1/2	Approx. 25 – 40Ω
ENP.	Approx. 105 – 110Ω

LAMPS

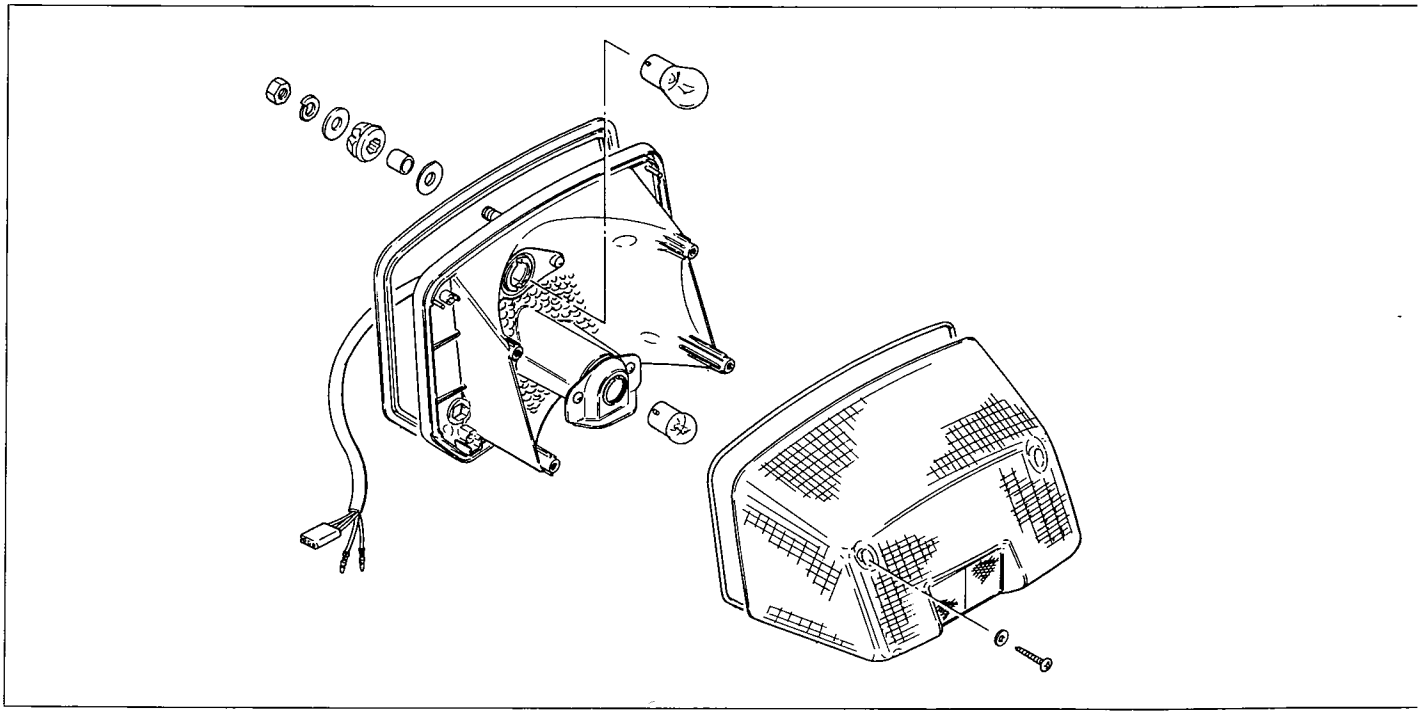
HEADLIGHT

NOTE: Adjust the headlight, both vertical and holizontal, after reassembling.



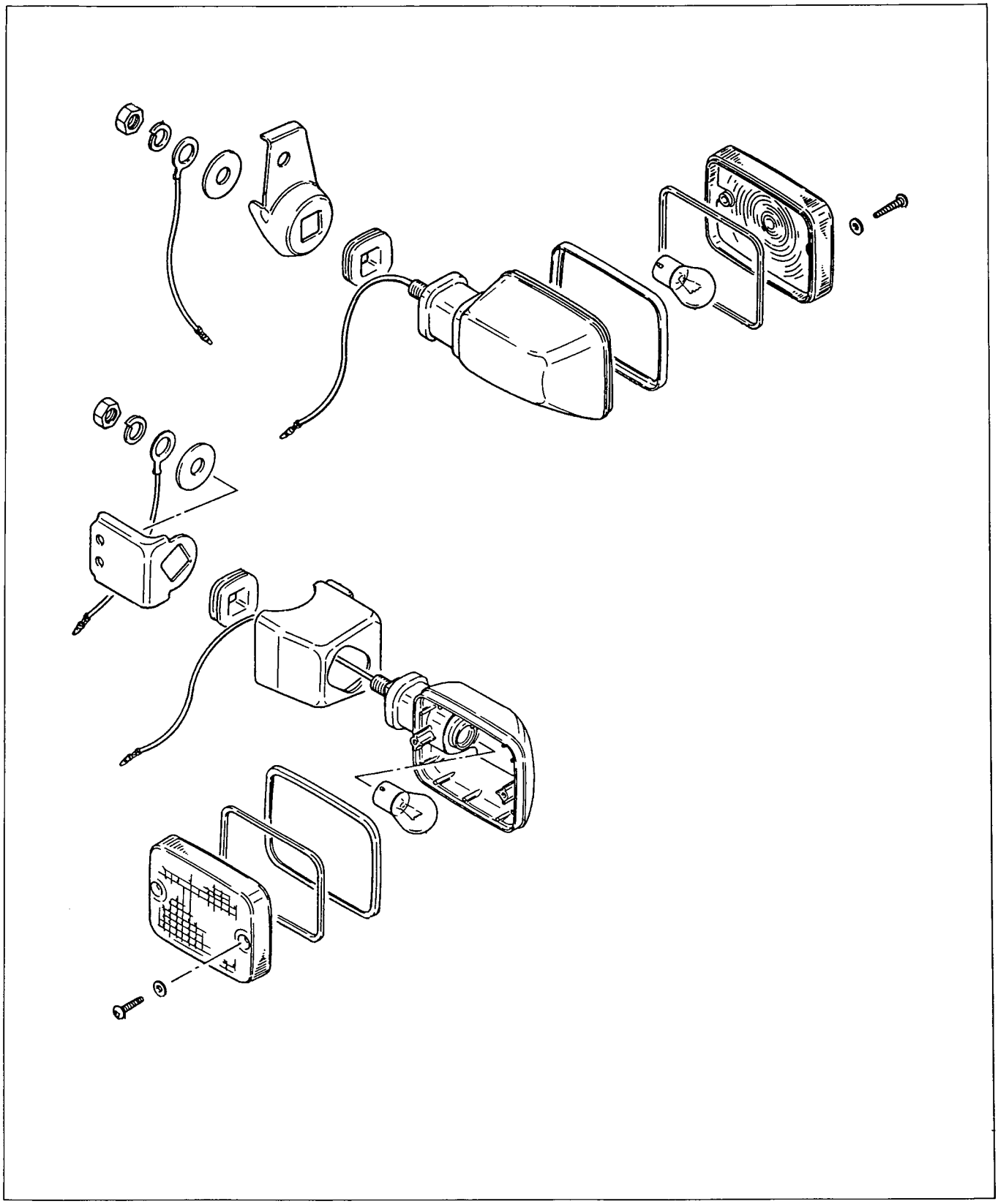
TAIL/BRAKE LIGHT

CAUTION: Do not overtighten the lens fitting screws.



TURN SIGNAL LIGHT

CAUTION: Do not overtighten lens fitting screws.



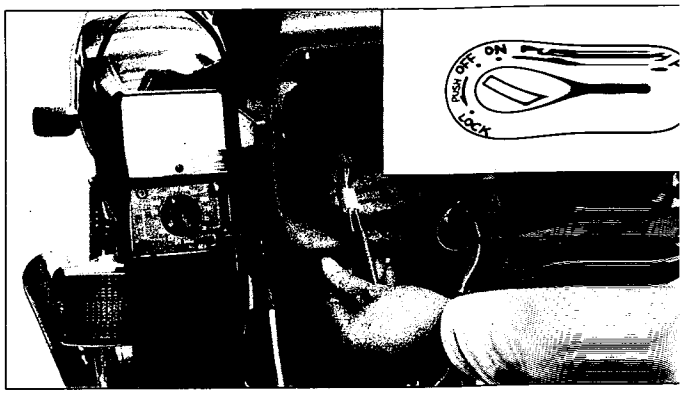
SWITCHES

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

09900-25002	Pocket tester

IGNITION SWITCH

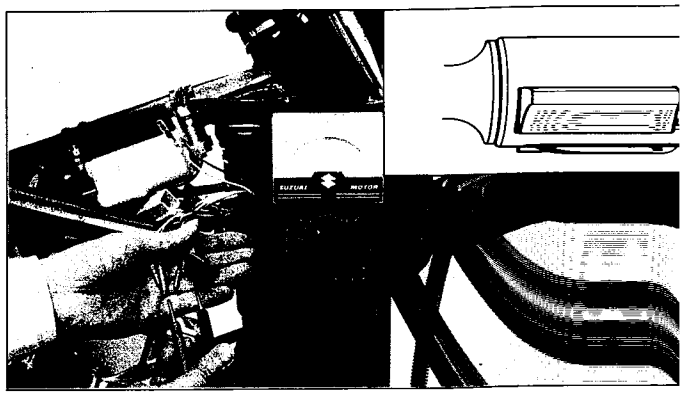
	R	O	Gr	Br
OFF				
ON	○—○		○—○	
P	○			○



LIGHTING SWITCH

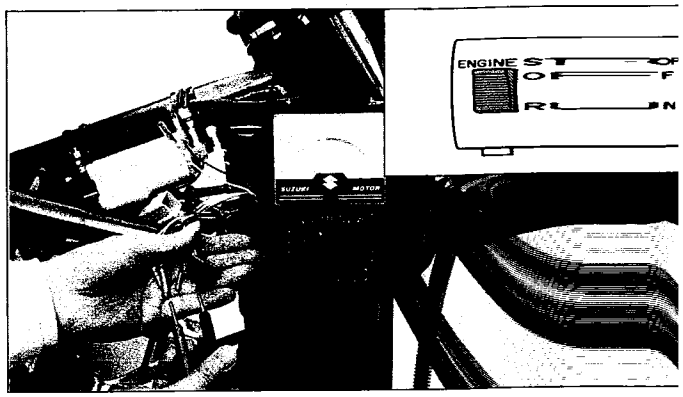
	O	Gr	Y/W	Bl/W	W	W/R	W/G
OFF	○			○			
ON	○	○	○	○	○	○	○

NOTE:
Check the lighting switch for continuity after removing the switch knob.



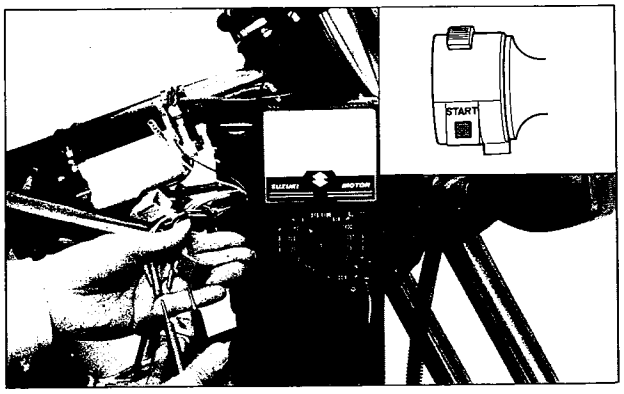
ENGINE STOP SWITCH

	O	O/W
OFF		
RUN	○	○



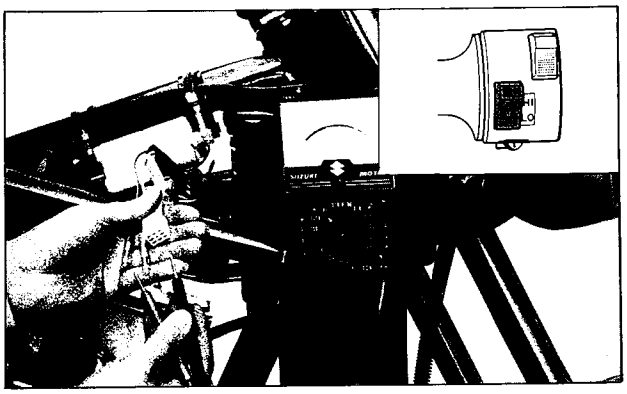
STARTER SWITCH

	Y/G	O/W
OFF		
ON(Push)	○	○



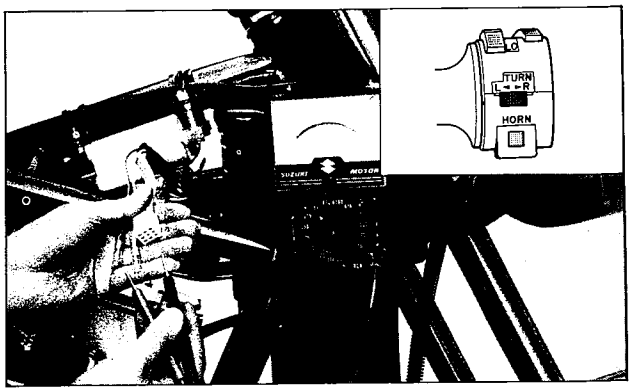
DIMMER SWITCH

	W	Y	Y/W
HI		○	○
Lo	○		○



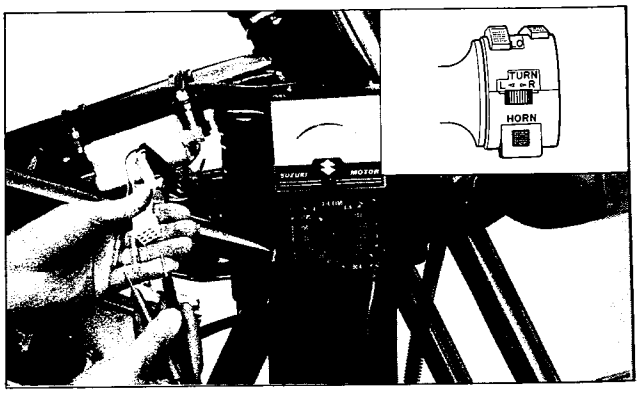
TURN SIGNAL LIGHT SWITCH

	B	Lbl	Lg
R		○	○
•			
L	○	○	



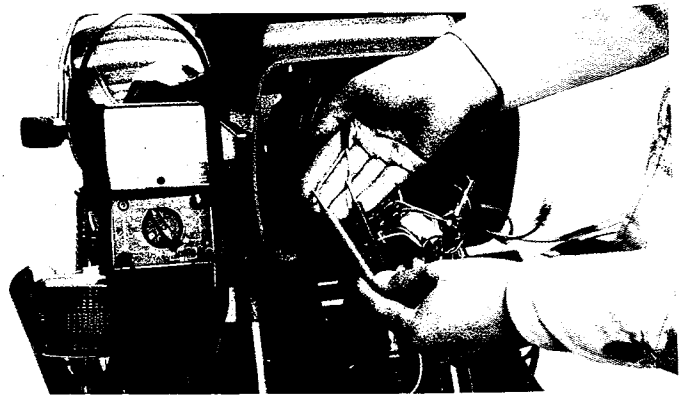
HORN SWITCH

	Y/W	Bl/W
OFF		
ON(Push)	○	○



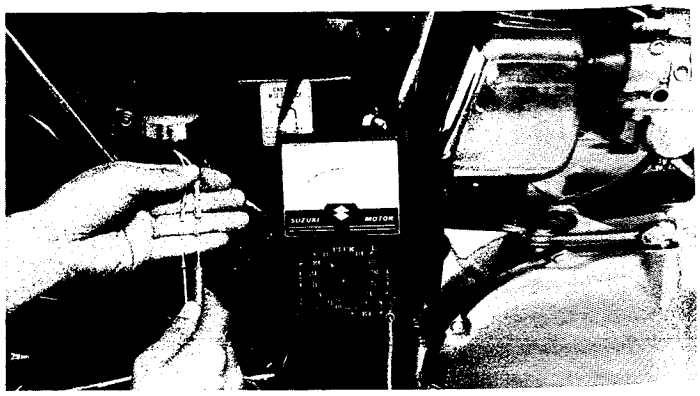
FRONT BRAKE LIGHT SWITCH

	R/Bl	O/G
OFF		
ON	○	○



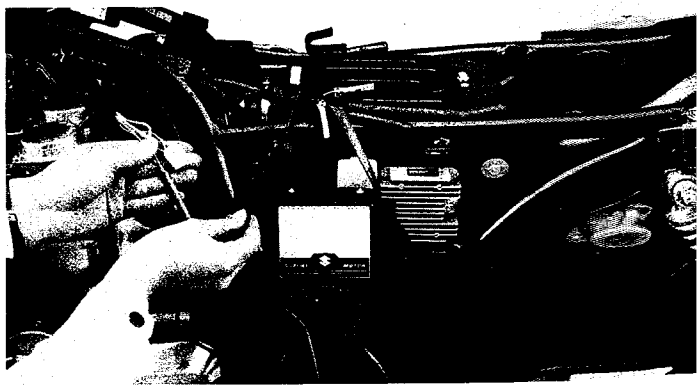
REAR BRAKE LIGHT SWITCH

	R/Bl	O/G
OFF		
ON	○	○



GEAR POSITION INDICATOR LIGHT SWITCH

Gear position	Wire color	
1st	W/Y	Ground
Neutral	Bl	
2nd	R/B	
3rd	G/Bl	
4th	Y/Bl	
Top	Br/R	

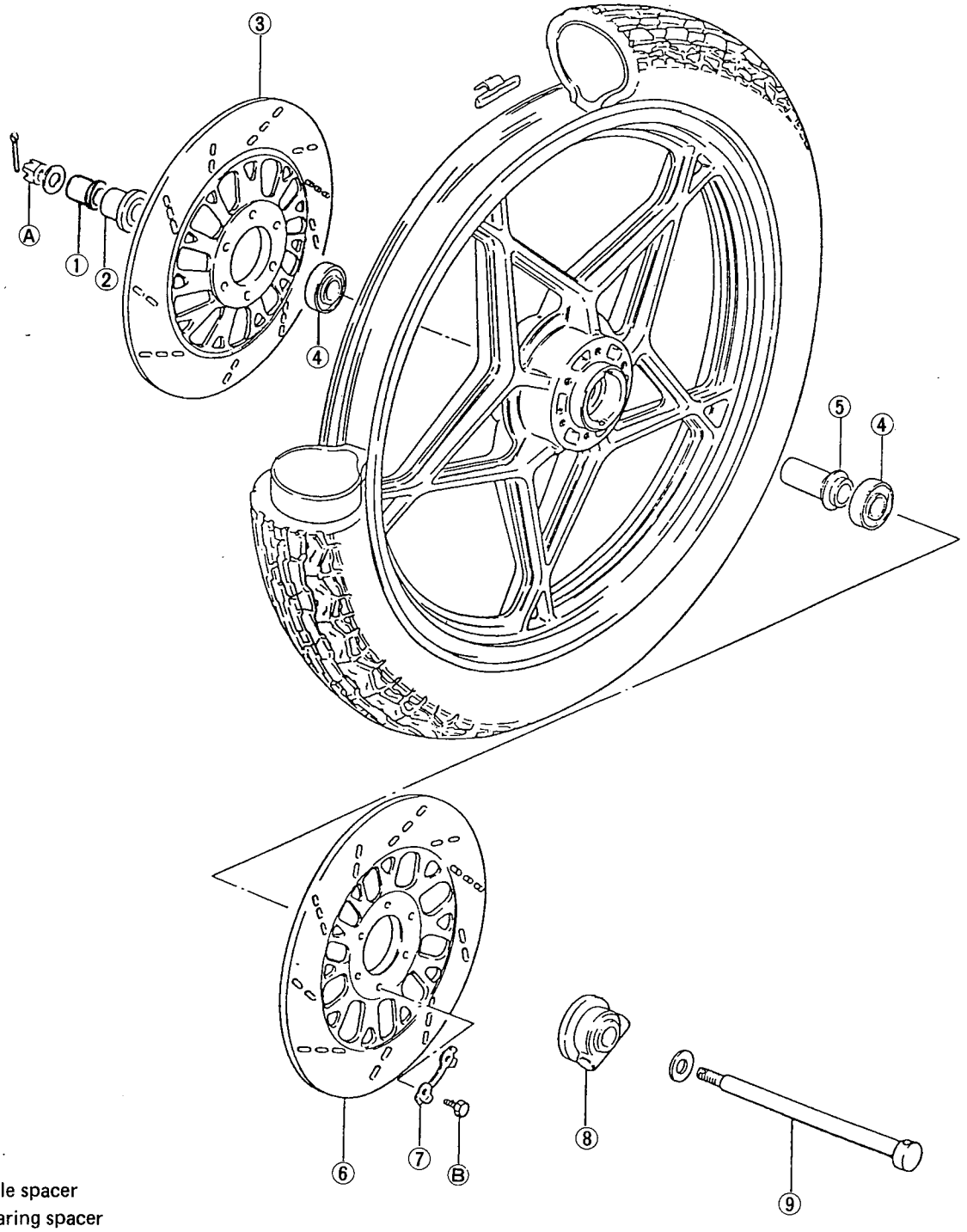


CHASSIS

CONTENTS

FRONT WHEEL

CONSTRUCTION

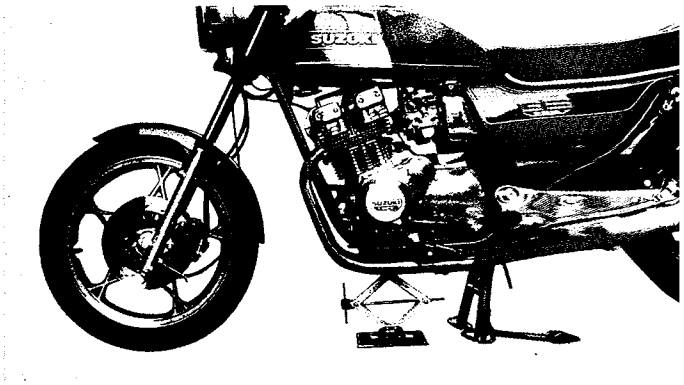


① Axle spacer
② Bearing spacer
③ Disc (R)
④ Wheel bearing
⑤ Spacer
⑥ Disc (L)
⑦ Lock washer
⑧ Speedometer gear box
⑨ Axle shaft

Tightening torque		
	kg-m	lb-ft
Ⓐ	3.6 – 5.2	26.0 – 39.5
Ⓑ	1.5 – 2.5	11.0 – 18.0

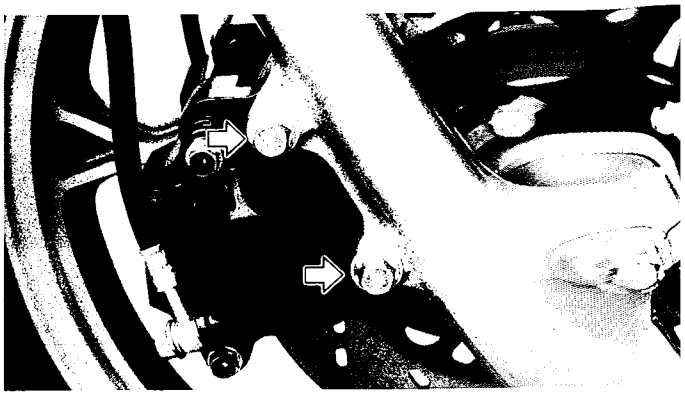
REMOVAL AND DISASSEMBLY

Support the machine by center stand and jack.

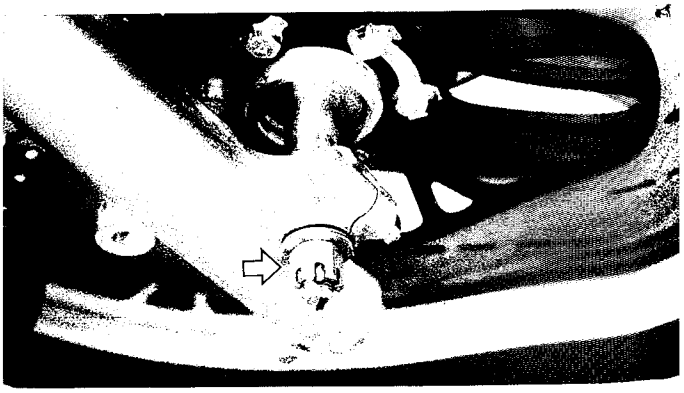


Remove caliper mounting bolts and dismount the caliper.

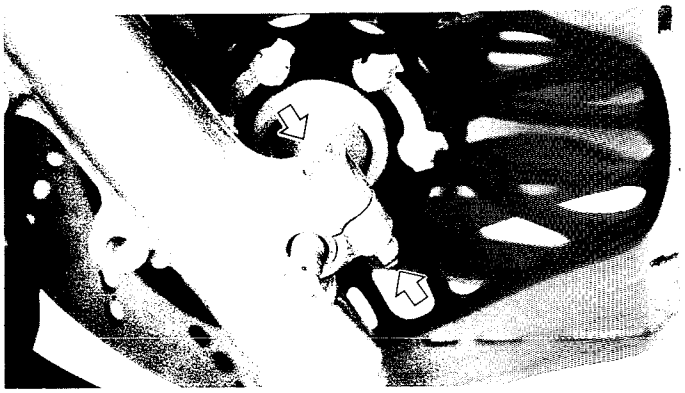
NOTE:
Do not operate the brake lever while dismounting the caliper.



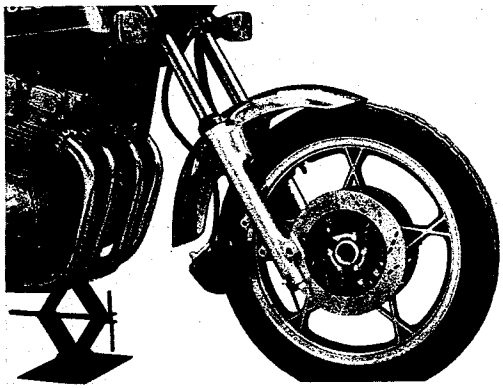
Pull off cotter pin and remove axle nut.



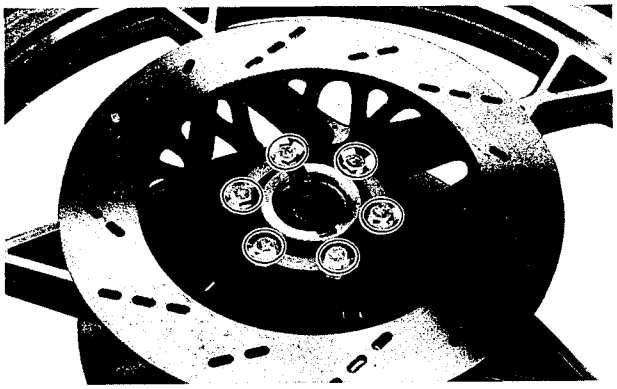
Loosen axle pinch bolt.



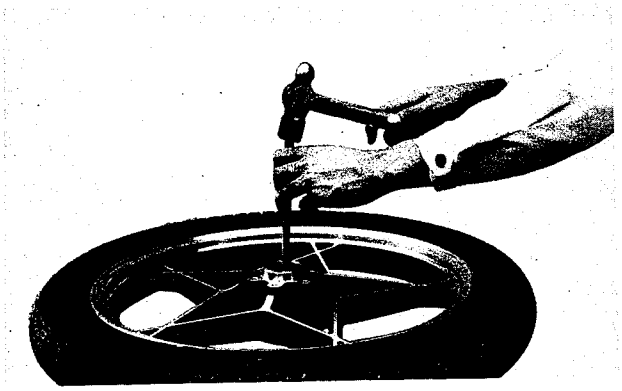
Draw out axle shaft and take off front wheel.



Unlock the lock washer.
Remove the securing bolts and separate the disc from wheel (Right and Left).



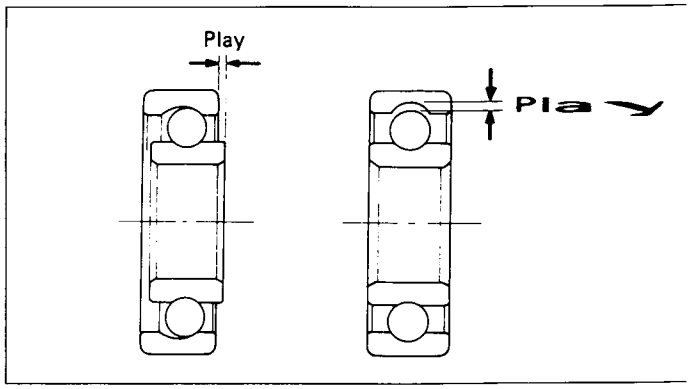
Draw out the right and left wheel bearings.



INSPECTION

WHEEL BEARINGS

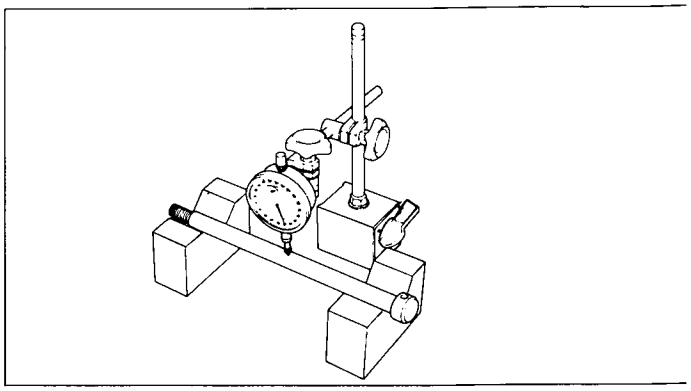
Inspect the play of wheel bearing inner race by hand while fixing it in the wheel hub or wheel. Rotate the inner race by hand to inspect an abnormal noise and a smooth rotation. Replace the bearing if there is something unusual.



AXLE SHAFT

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

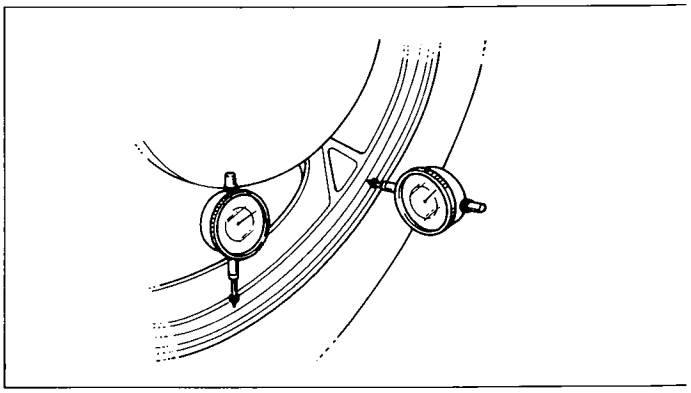
Service Limit	0.25 mm (0.010 in)



WHEEL AND WHEEL RIM

Make sure that the wheel or wheel rim runout checked 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.

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



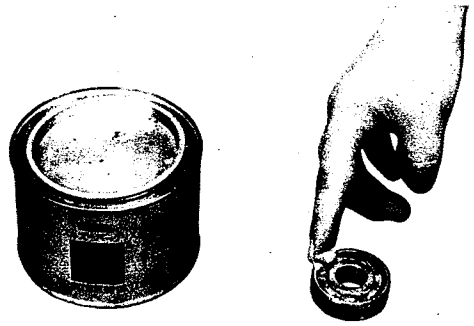
REASSEMBLY

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

WHEEL BEARING

Apply grease before install the bearings.

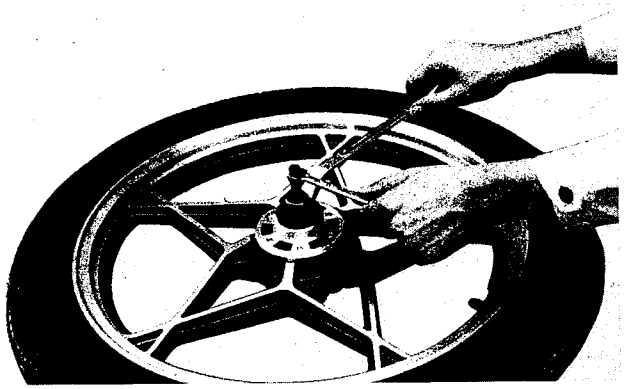
99000-25030	Suzuki super grease "A"

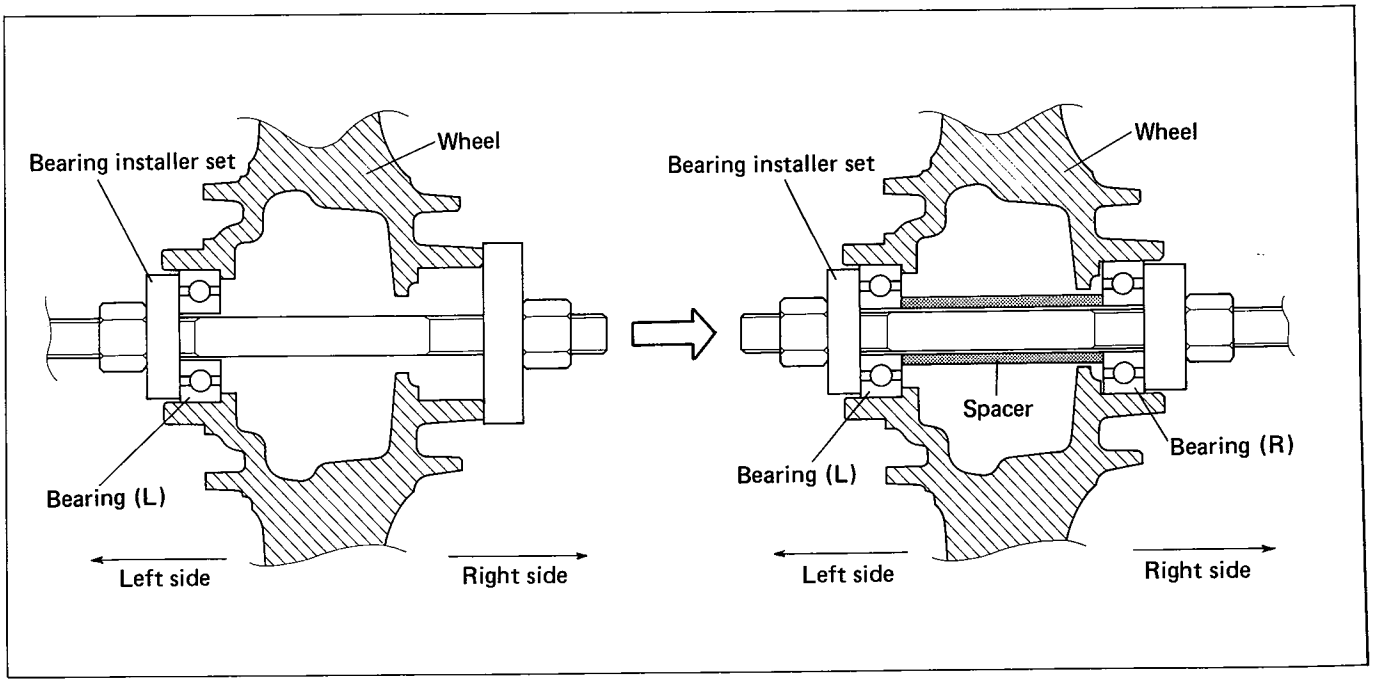


Install the wheel bearings as follows by using special tool.

CAUTION:
First install the wheel bearing for left side.

09924-84510	Bearing installer set

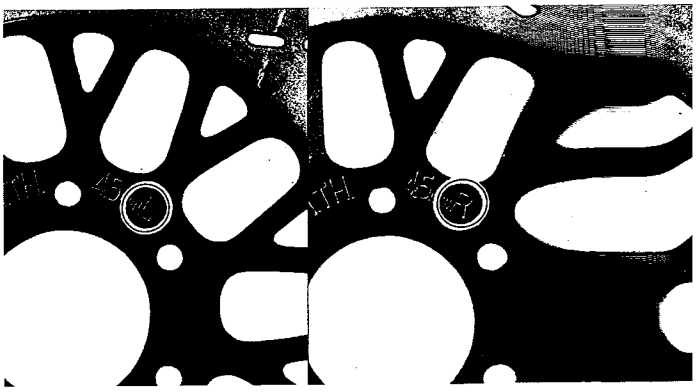




BRAKE DISC

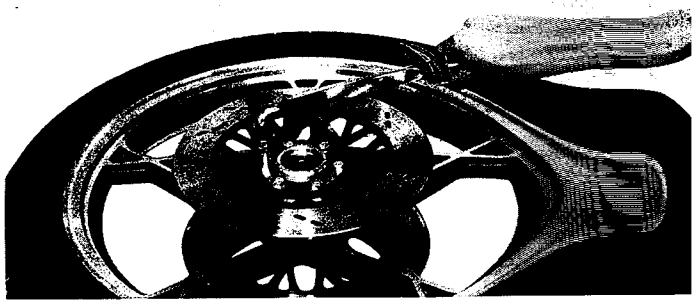
Mount each brake disc properly according to the stamped marks, "R" or "L", on the respective disc plate.

"R"	Right side
"L"	Left side



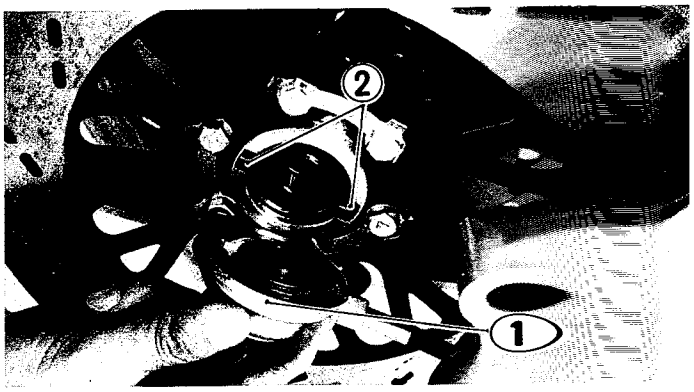
Make sure that the brake disc is clean and free from any greasy matter. After securing it in place by tightening its bolts, be sure to lock each tongue.

Tightening torque	1.5 – 2.5 kg-m (11.0 – 18.0 lb-ft)



SPEEDOMETER GEARBOX

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

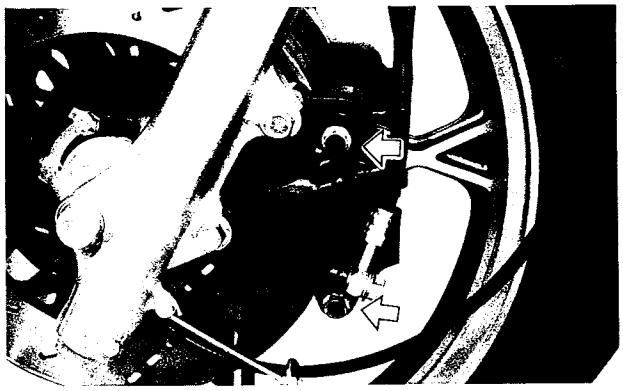


FRONT BRAKE

BRAKE PAD REPLACEMENT

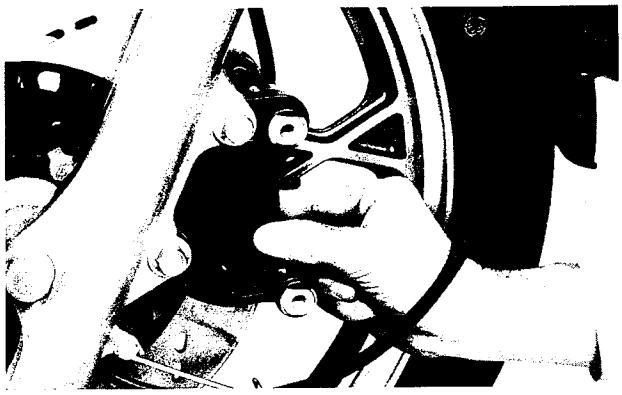
Remove caliper axle bolts and take off caliper.

CAUTION:
Do not operate the brake lever while dismounting the caliper.

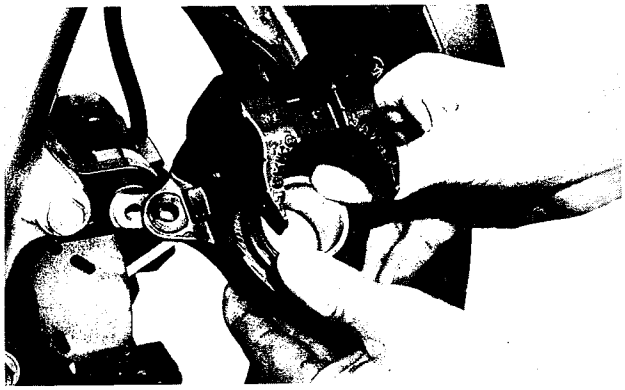


Pull out brake pads with pad shim.

CAUTION:
Replace the brake pad with a set, otherwise braking performance will be adversely affected.
Do not apply pad grease, when installing the brake pads.

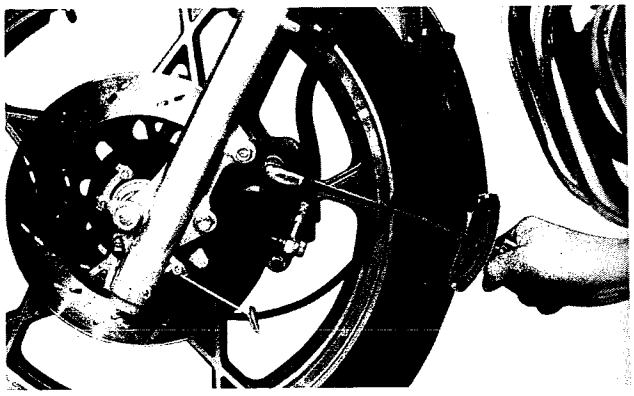


NOTE:
Push in the piston all the way to the caliper when remounting the caliper.

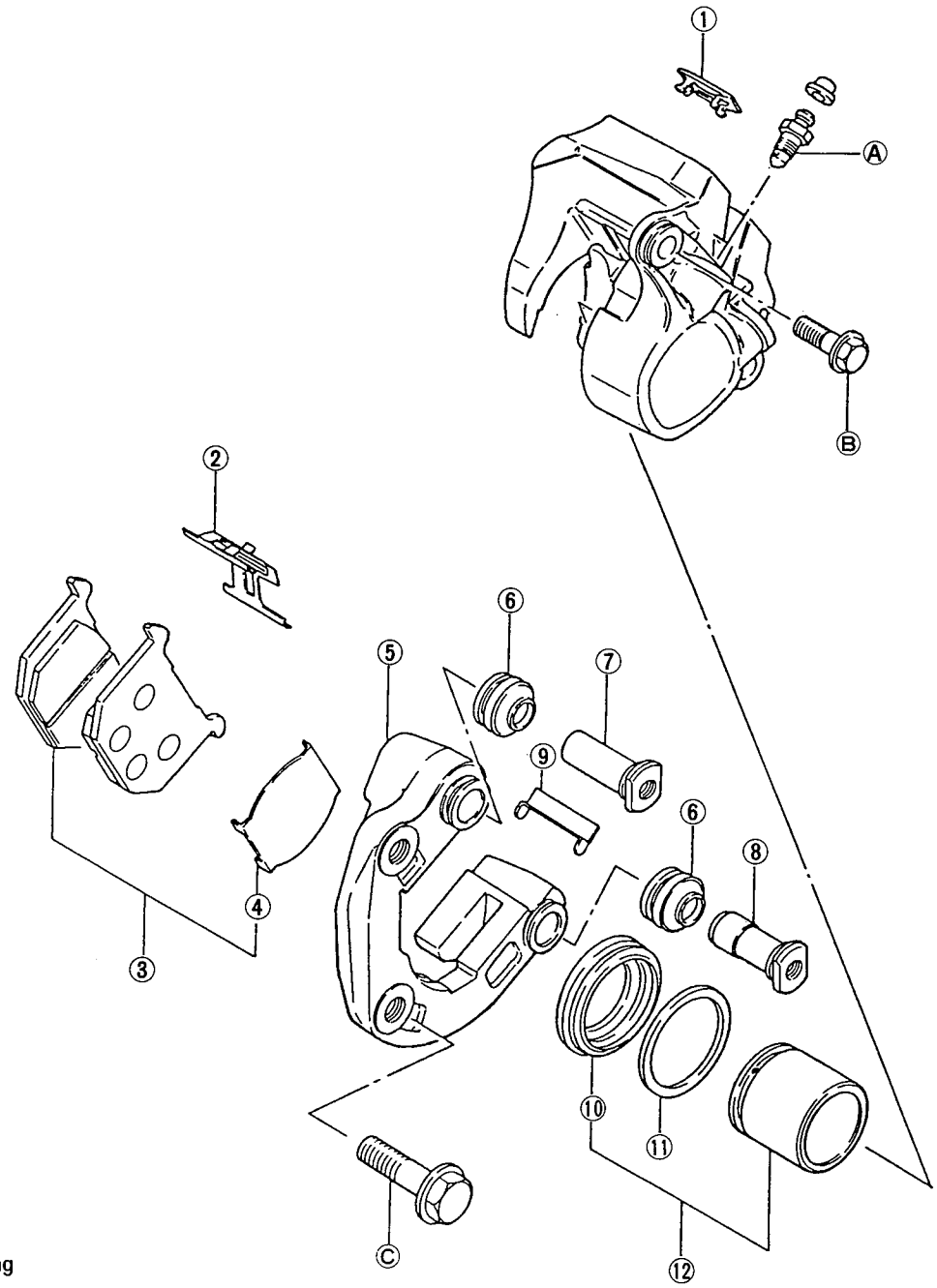


Tighten the caliper axle bolts with specified torque.

Tightening torque	1.5 – 2.0 kg-m (11.0 – 14.5 lb-ft)



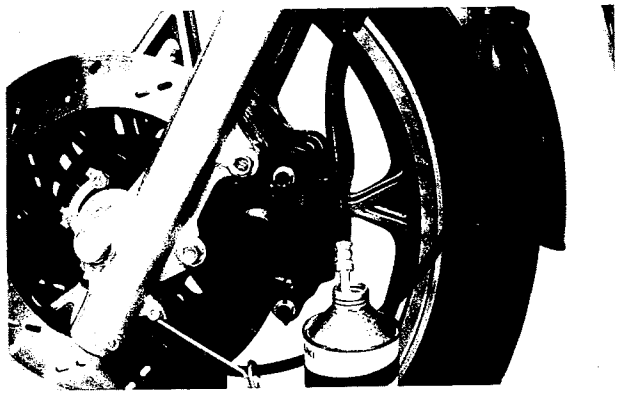
CALIPER REMOVAL AND DISASSEMBLY



① Cap
② Pad spring
③ Pad set
④ Pad shim
⑤ Caliper holder
⑥ Dust boot
⑦ Caliper axle No. 1
⑧ Caliper axle No. 2
⑨ Pad guide
⑩ Dust cover
⑪ Piston seal
⑫ Piston set

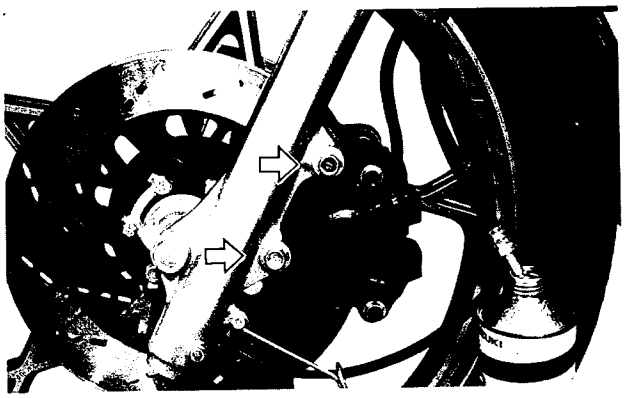
Tightening torque		
	kg-m	lb-ft
Ⓐ	0.7 – 0.9	5.0 – 6.5
Ⓑ	1.5 – 2.0	11.0 – 14.5
Ⓒ	2.5 – 4.0	18.0 – 29.0

Disconnect brake hose and catch the brake fluid in a suitable receptacle.

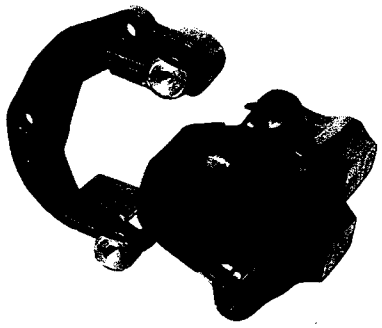


Remove caliper mounting bolts and take off caliper.

NOTE:
Slightly loosen the caliper axle bolts to facilitate later disassembly.



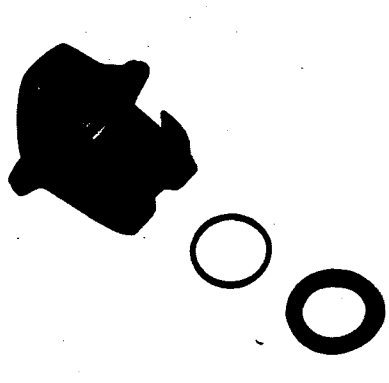
Remove caliper axle bolts, separate the caliper and caliper holder.



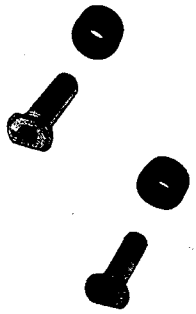
Place a rag over the piston to prevent popping up. Force out the piston by using air gun.

CAUTION:
Do not use high pressure air to prevent piston damage.

Remove piston boot and piston seal.

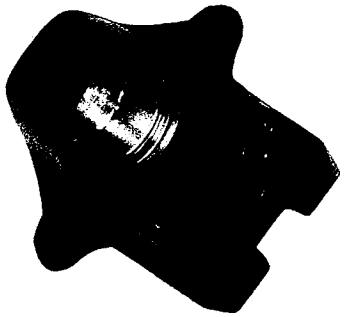


Draw out caliper axles and dust boots.

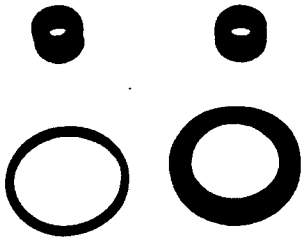


CALIPER AND DISC INSPECTION

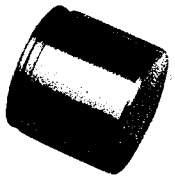
Inspect the cylinder bore wall for nicks, scratches, or other damage.



Inspect the each rubber part for damage and wear.



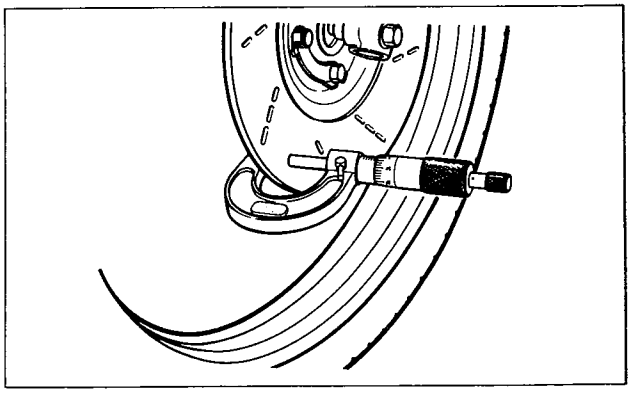
Inspect the piston surface for any scratches or other damage.



Using a micrometer check the disc for wear. Its thickness can be checked with disc and wheel in place. The service limit for the thickness of the discs:

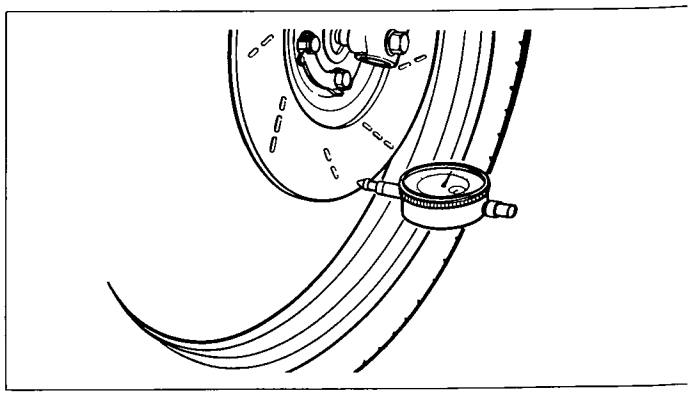
09900-20201	Micrometer (0 - 25 mm)

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.

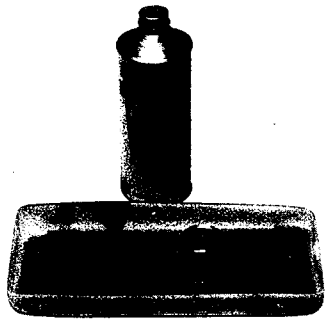
Service Limit	0.30 mm (0.012 in)



CALIPER REASSEMBLY

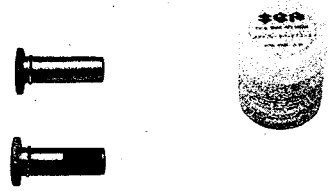
Reassemble the caliper in the reverse orders of disassembly and by taking the following steps:

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.



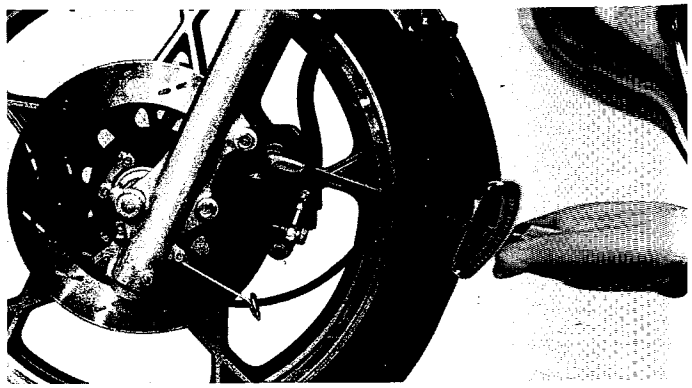
Apply grease to the caliper axles.

99000-25100	SUZUKI silicone grease

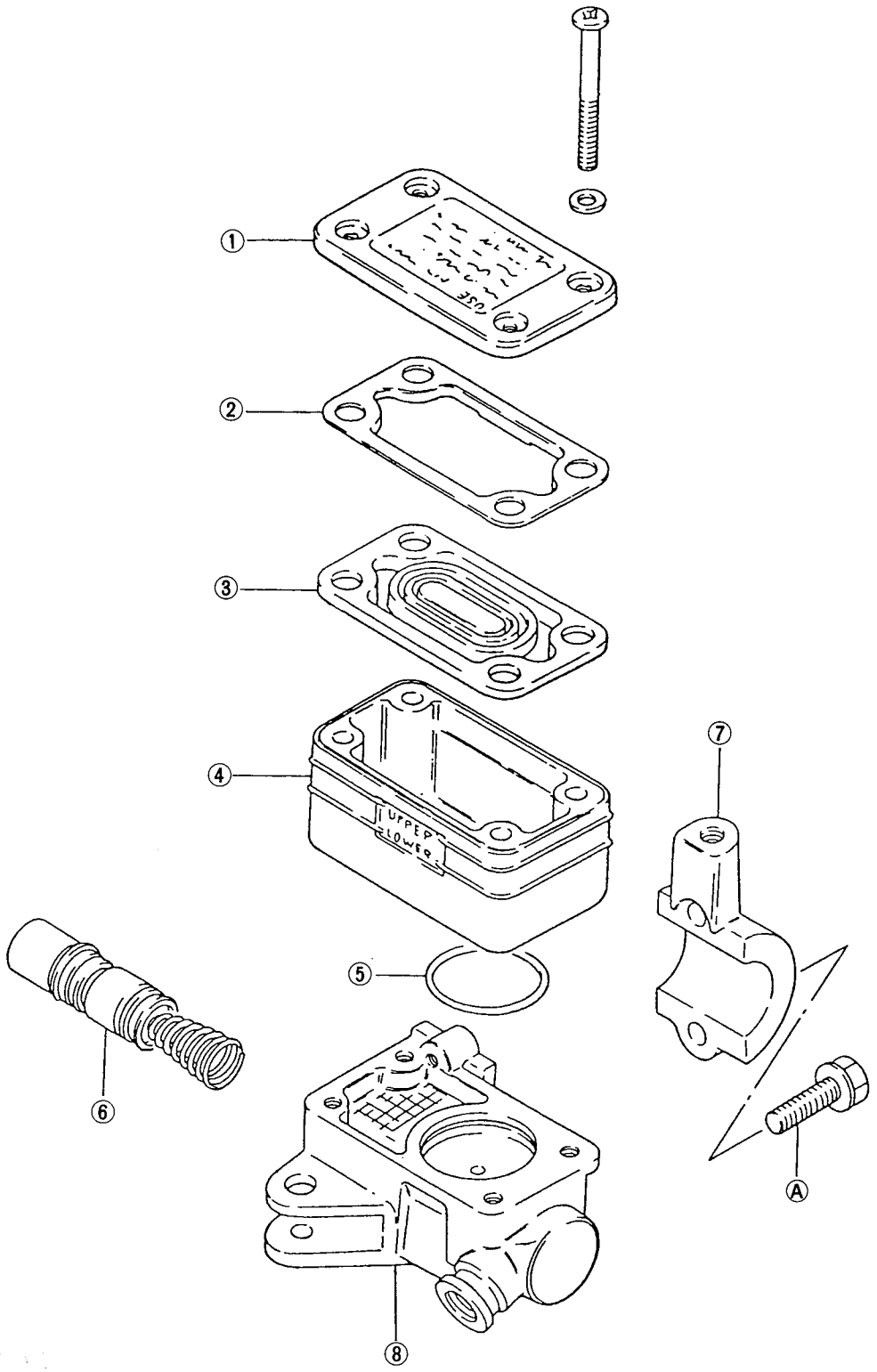


Tighten the caliper axle bolts and caliper mounting bolts with specified torque.

	Tightening torque
Caliper axle bolt	1.5 – 2.0 kg-m (11.0 – 14.5 lb-ft)
Caliper bolt	2.5 – 4.0 kg-m (18.0 – 29.0 lb-ft)



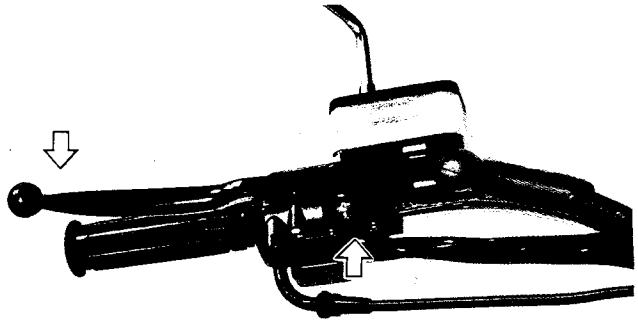
MASTER CYLINDER REMOVAL AND DISASSEMBLY



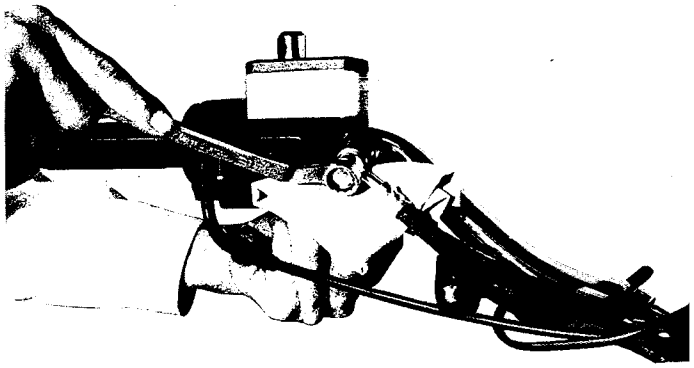
① Cap
② Plate
③ Diaphragm
④ Reservoir
⑤ "O" ring
⑥ Piston and cup set
⑦ Holder
⑧ Body

Tightening torque		
	kg-m	lb-ft
Ⓐ	0.5 – 0.8	3.5 – 6.0

Take off front brake light switch and remove front brake lever.

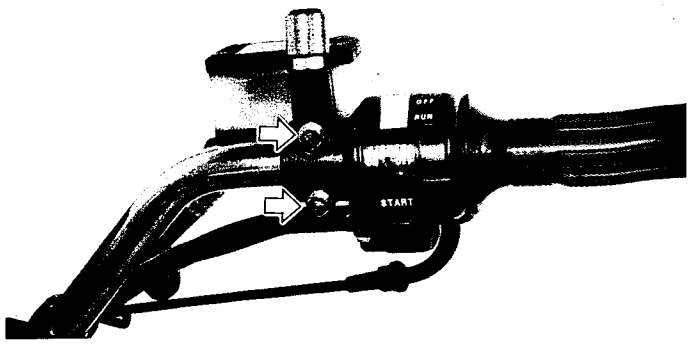


Place a cloth underneath the union bolt on the master cylinder to catch spilled drops of brake fluid. Unscrew the union bolt and disconnect the brake hose/master cylinder joint.

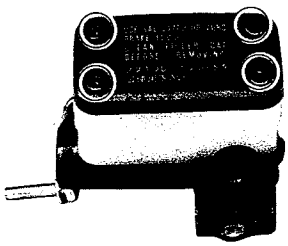


CAUTION:
Completely wipe off any brake fluid adhering to any part of motorcycle. The fluid reacts chemically with paint, plastics, rubber materials, etc.

Remove two clamp bolts and take off master cylinder ass'y.

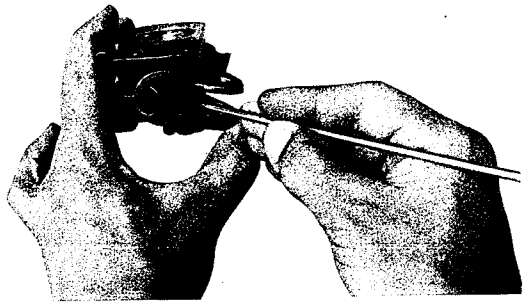


Remove filler cap and drain brake fluid.



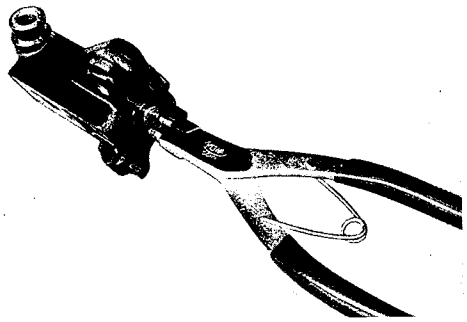
Pull out the reservoir and O ring.

Remove the dust boot.

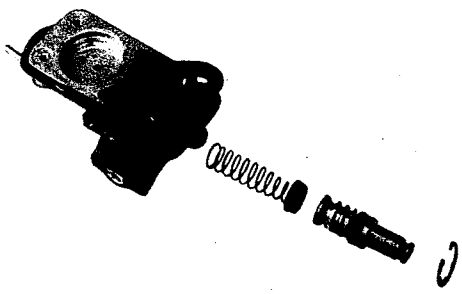


Remove circlip by using special tool.

09900-06108	Snap ring pliers

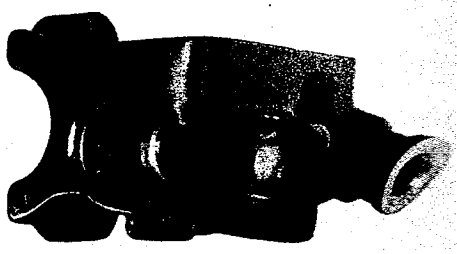


Pull out piston, primary cup and spring.

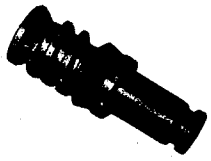


MASTER CYLINDER INSPECTION

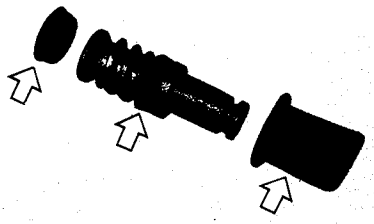
Inspect the cylinder bore wall for any scratches or other damage.



Inspect the piston surface for scratches or other damage.



Inspect the primary cup, secondary cup, and each rubber parts for damage.

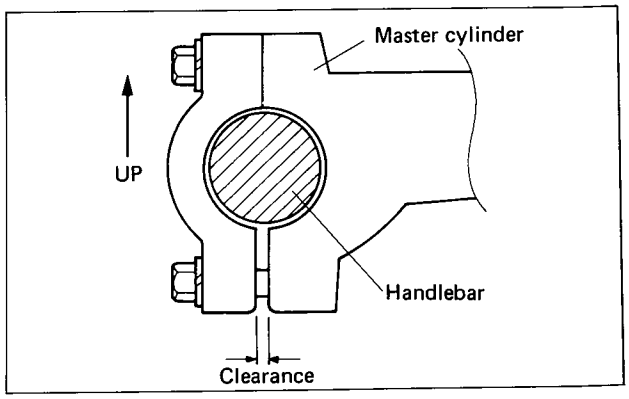


MASTER CYLINDER REASSEMBLY

Reassemble the master cylinder in the reverse orders of disassembly and by taking the following steps:

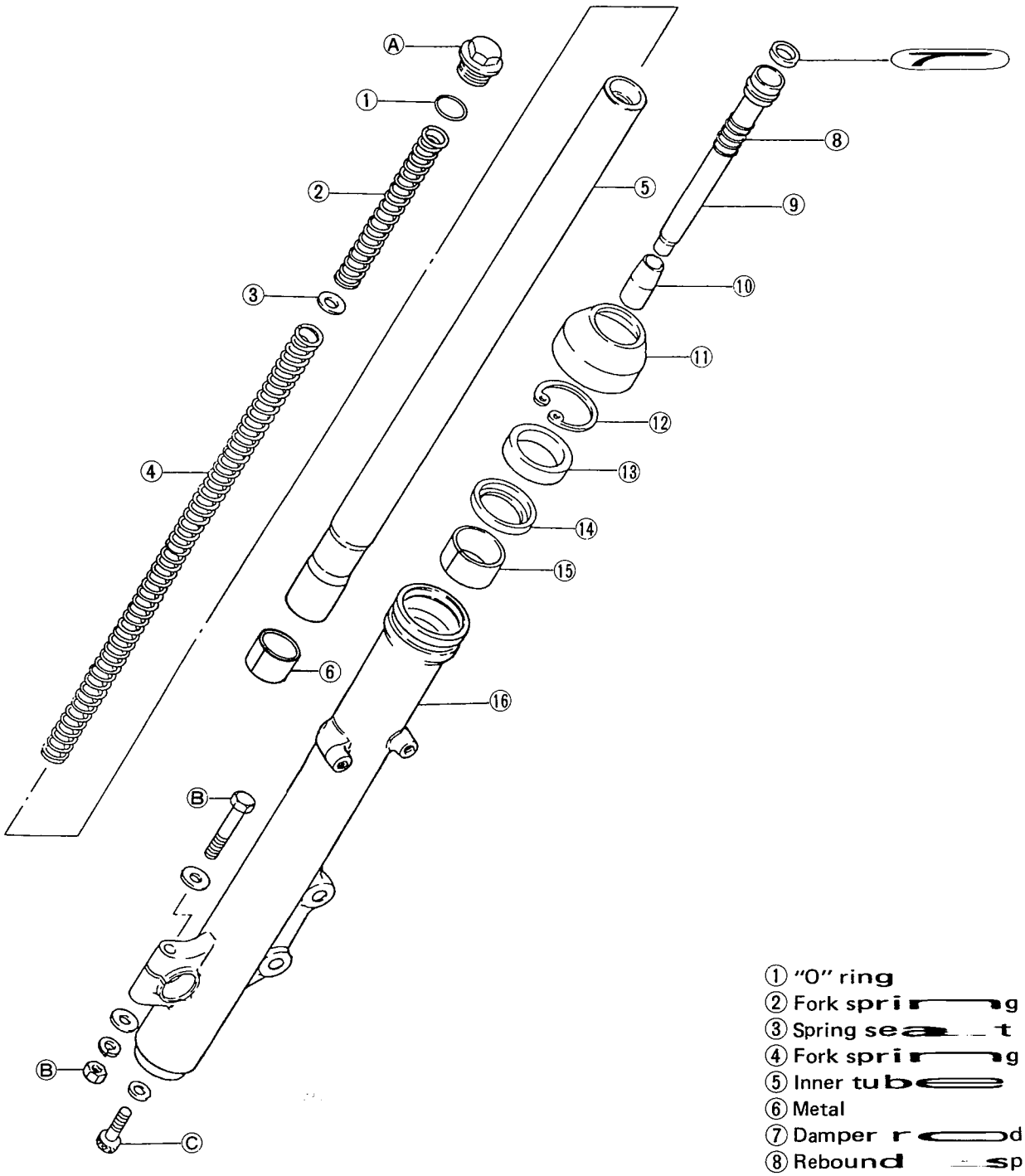
CAUTION:
Wash the master cylinder components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them.
Apply brake fluid to the cylinder bore and all the internals when insenting components into the bore.

When remounting the master cylinder to the handlebars, first tighten the clamp bolt for upside as shown.



CAUTION:
Adjust the front brake light switch after installation.
Bleed the air after reassembling master cylinder. (See page 2-16)

FRONT FORK

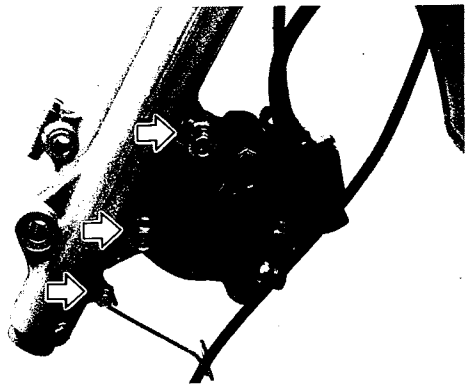


Tightening torque		
	kg-m	lb-ft
Ⓐ	1.5 – 3.0	11.0 – 21.5
Ⓑ	1.5 – 2.5	11.0 – 18.0
Ⓒ	1.5 – 2.5	11.0 – 18.0

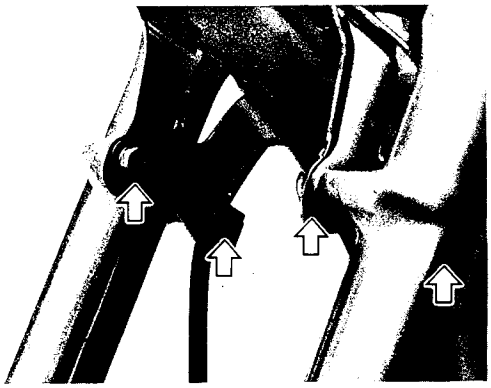
① "O" ring
② Fork spring
③ Spring seat
④ Fork spring
⑤ Inner tube
⑥ Metal
⑦ Damper rod
⑧ Rebound spring
⑨ Damper rod
⑩ Oil lock piece
⑪ Dust cover
⑫ Snap ring
⑬ Oil seal
⑭ Washer
⑮ Metal
⑯ Outer tube

REMOVAL AND DISASSEMBLY

Remove front wheel (See page 7-2).
Take off the front brake caliper (R and L) and speedometer cable guide.

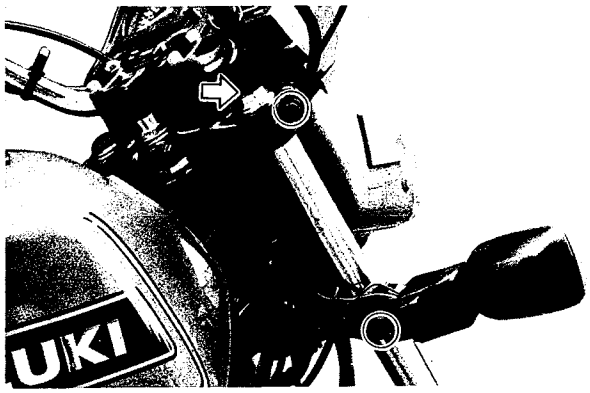


Remove front fender.

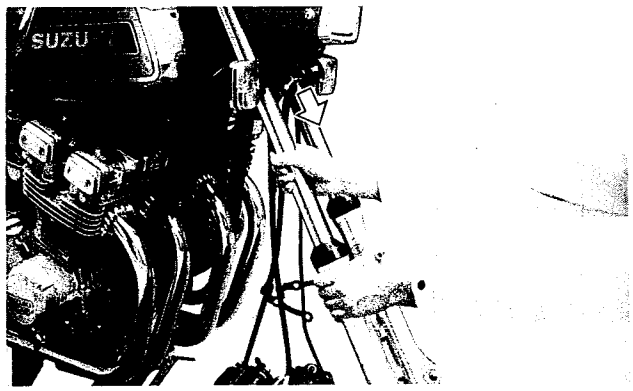


Loosen the front fork upper clamp bolts.
Loosen the front fork cap bolt slightly.
Loosen the lower clamp bolts.

[redacted]



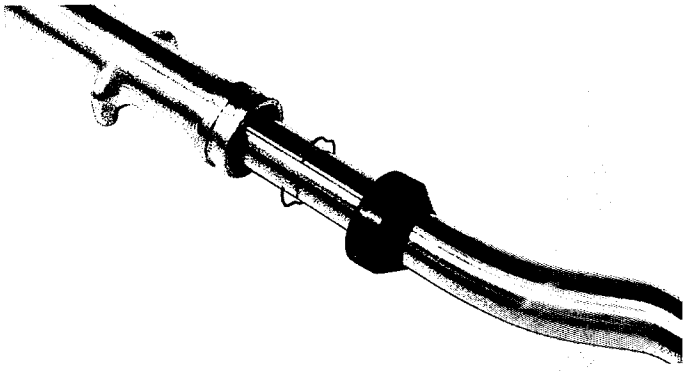
Pull down right and left front fork ass'y.



Remove front fork cap bolt, and draw out fork springs and spring guide.

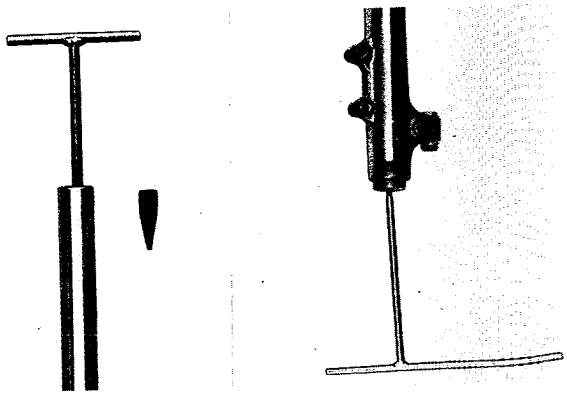
Invert the fork and stroke it several times to let out the oil inside.
Under this condition (inverted condition), hold the fork for a few minutes.

Draw out dust seal and snap ring.



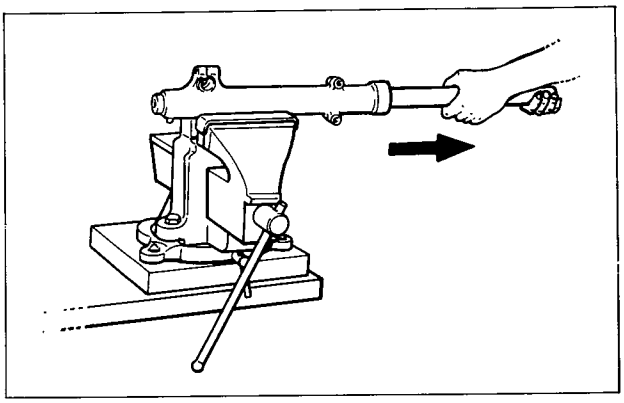
Remove damper rod securing bolt by using special tools.

09940-34520	"T" handle
09940-34561	Attachment "D"
09914-25811	"T" type hexagon wrench

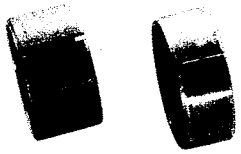


Draw out damper rod and rebound spring.

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



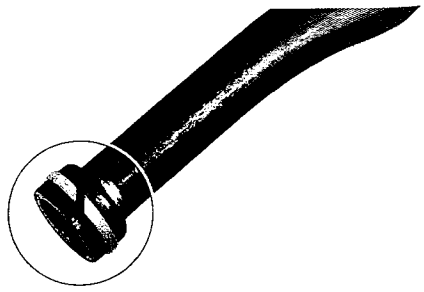
CAUTION:
The outer tube and inner tube "DU" rings or metal slide rings must be replaced along with the oil seal any time the fork is disassembled.



INSPECTION

DAMPER ROD RING

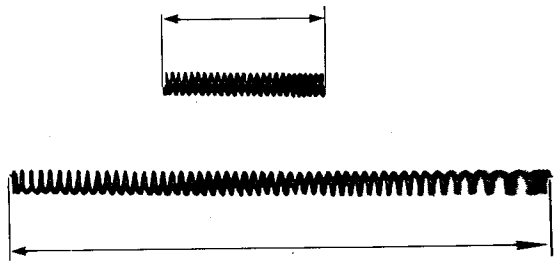
Inspect damper rod ring for wear and damage.



FORK SPRING

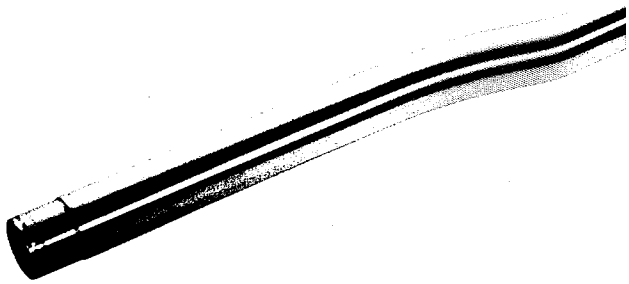
Measure the fork spring free length. If it is shorter than service limit, replace it.

Service Limit	Upper: 153 mm (6.02 in)
	Lower: 451 mm (17.76 in)



INNER TUBE

Inspect inner tube outer surface for any scuffing.



OUTER TUBE

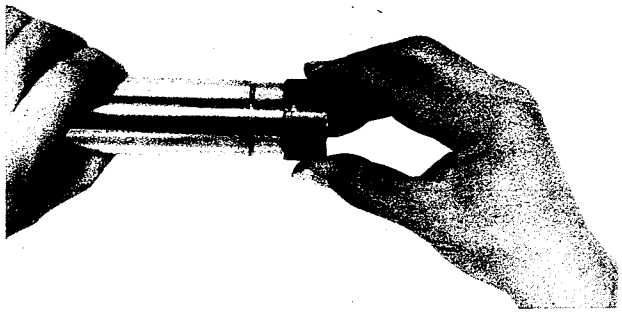
Inspect outer tube inner surface for any scuffing.

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

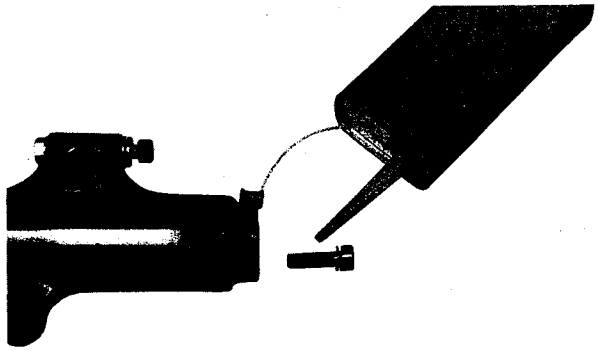
Install the metal by hand as shown.



CAUTION:
Use special care to prevent damage to the Teflon coated surface of the "DU" metal when mounting it.

DAMPER ROD BOLT

Apply Thread Lock Cement to the damper rod bolt and tighten with specified torque.



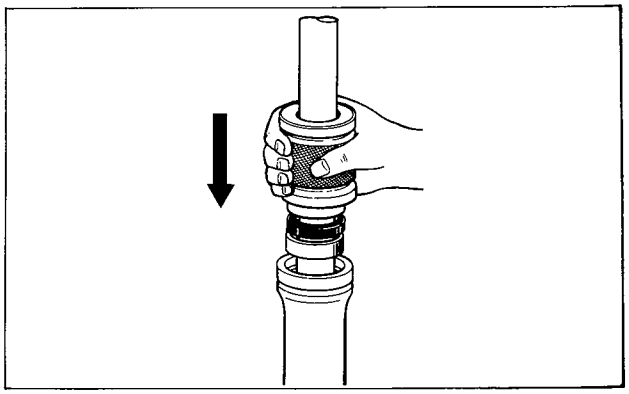
99000-32040	Thread Lock Cement

09940-34520	"T" handle
09940-34561	Attachment "D"
09914-25811	"T" type hexagon wrench

Tightening torque	1.5 – 2.5 kg-m (11.0 – 18.0 lb-ft)

OUTER TUBE METAL, SPACER AND OIL SEAL

Mounting outer tube metal, spacer and oil seal by using special tool as shown.



CAUTION:
Use special care to prevent damage to the Teflon coated surface of the "DU" metal when mounting it.

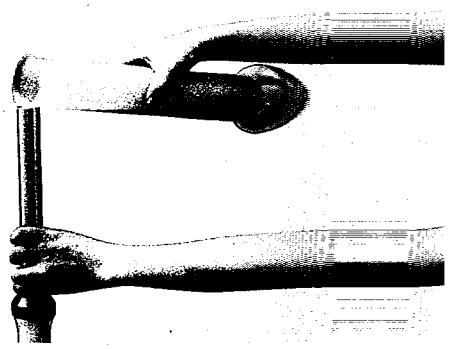
09940-54910	Oil seal installing tool driver
09940-54920	Attachment

FORK OIL

For the fork oil, be sure to use a motor oil whose viscocity rating meets specifications below.

Fork oil	Front fork oil #15

Capacity	237 ml (8.01/8.34 US/Imp oz)

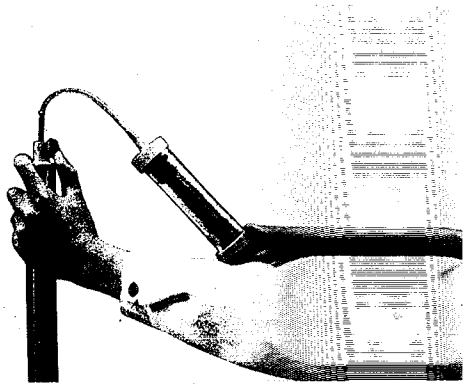


Hold the front fork vertical and adjust the fork oil level with a special tool.

NOTE:
When adjusting oil level, remove the fork spring and compress the inner tube fully.

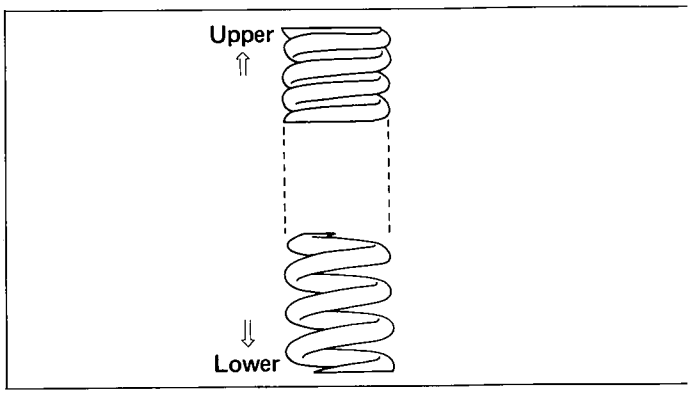
09943-74111	Fork oil level gauge

Oil level	229 mm (9.02 in)



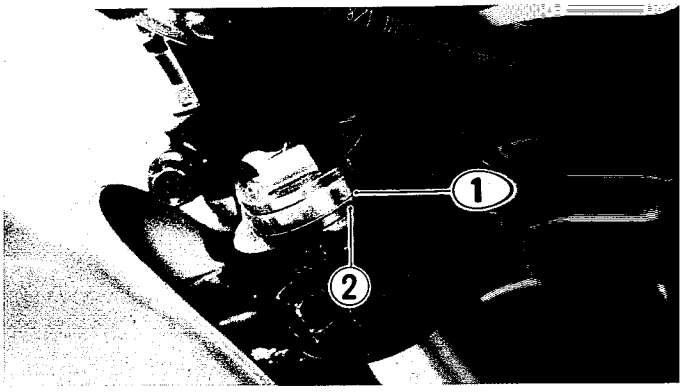
FORK SPRING

When installing the upper fork spring, large diameter end should position in bottom.

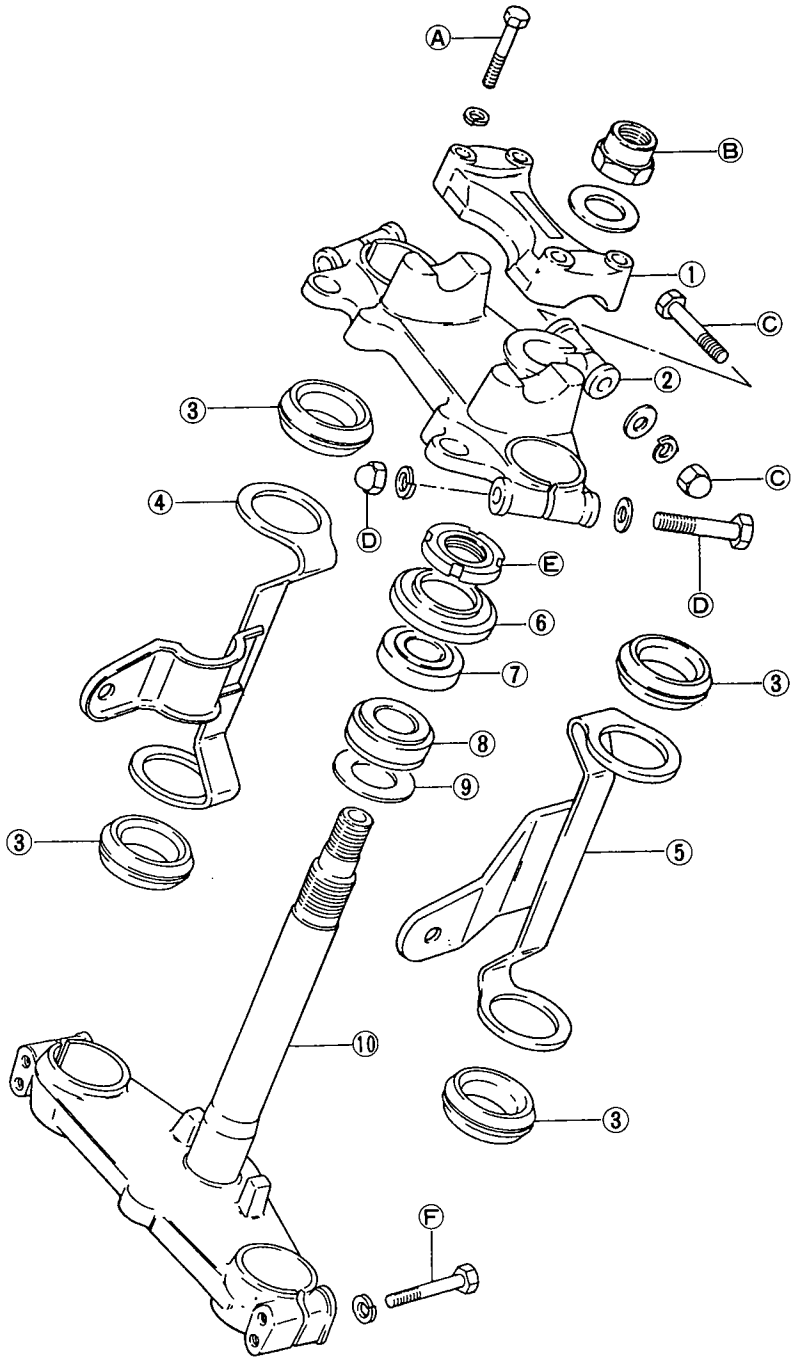


INNER TUBE

Install the front fork assembly with alighning engraved line ① on the inner tube to the upper surface ② of the steering stem upper bracket.



STEERING STEM



① Handlebar clamp
② Steering stem upper bracket
③ Seat rubber
④ Headlight bracket (R)
⑤ Headlight bracket (L)
⑥ Dust cover
⑦ Bearing (U)
⑧ Bearing (L)
⑨ Shim
⑩ Steering stem lower bracket

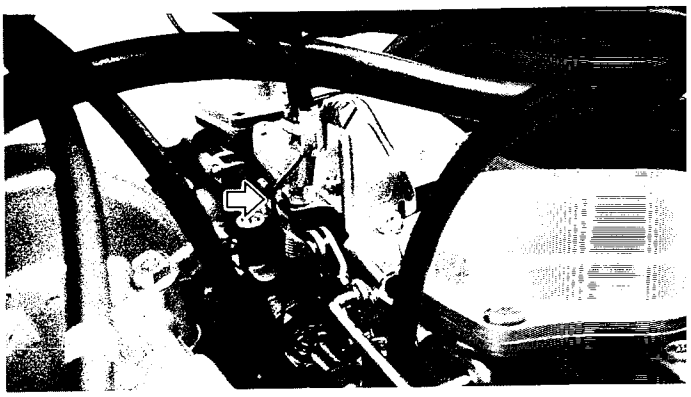
Tightening torque		
	kg-m	lb-ft
Ⓐ	1.2 – 2.0	8.5 – 14.5
Ⓑ	3.6 – 5.2	26.0 – 37.5
Ⓒ	1.5 – 2.5	11.0 – 18.0
Ⓓ	2.0 – 3.0	14.5 – 21.5
Ⓔ	4.0 – 5.0	29.0 – 36.0
Ⓕ	1.5 – 2.5	11.0 – 18.0

REMOVAL AND DISASSEMBLY

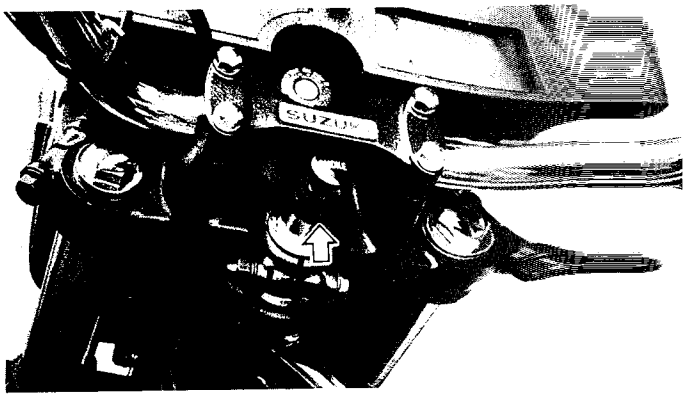
Remove seat.
Take off fuel tank.

NOTE:
When taking off fuel tank, disconnect fuel hose, vinyl hose and fuel gauge lead wires.
Petcock must be in the on position.

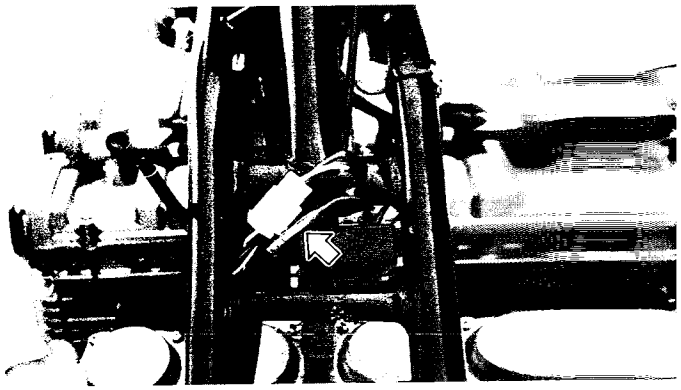
Disconnect choke cable for carburetor side.



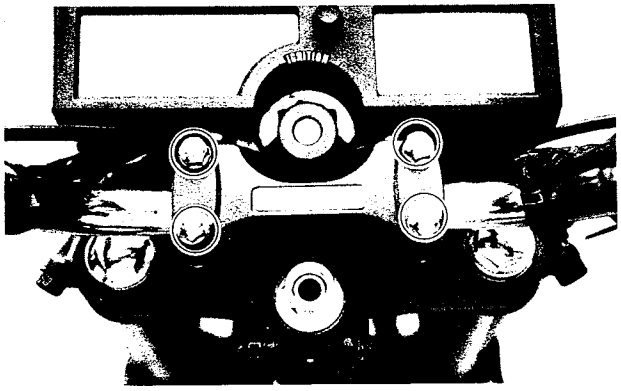
Loosen the lock nut and remove choke cable.



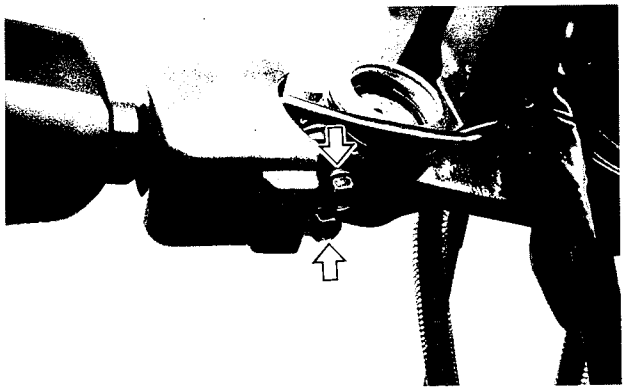
Disconnect the couplers from combination meter.



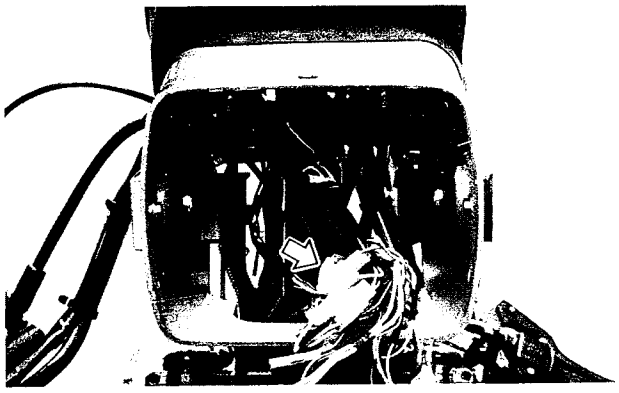
Remove handlebars clamp bolts and take off handlebars.



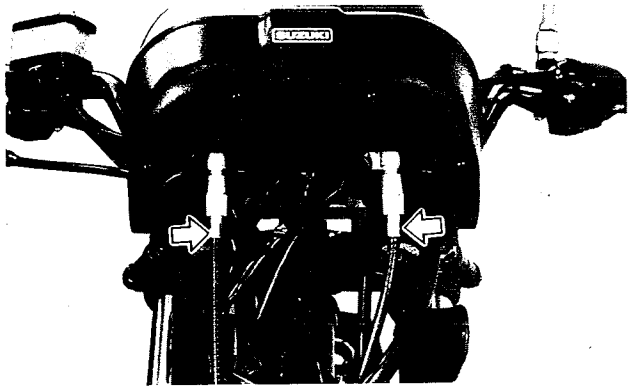
Remove right and left turn signal light.



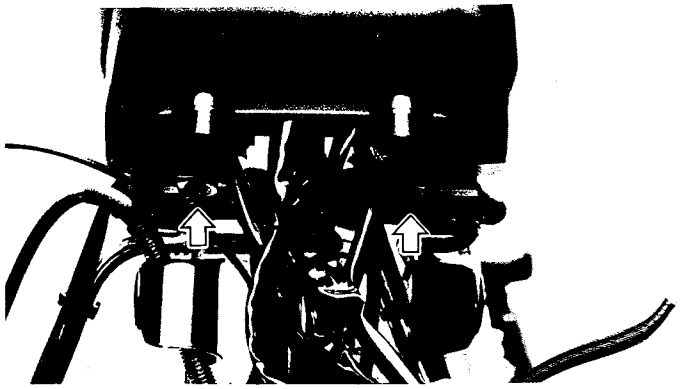
Remove headlight ass'y.
Disconnect each couplers and each lead wires.



Remove headlight housing.
Disconnect speedometer cable and tachometer cables.

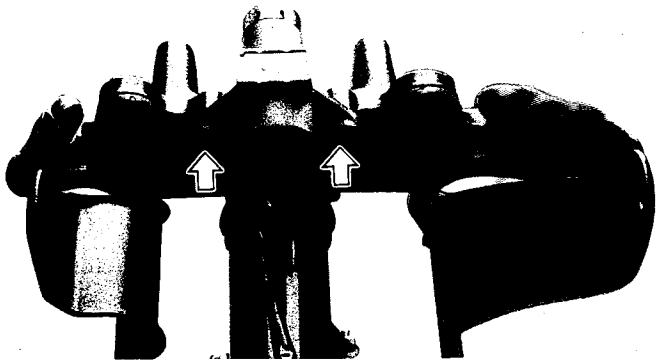


Remove combination meter mounting nuts and take off combination meter ass'y.

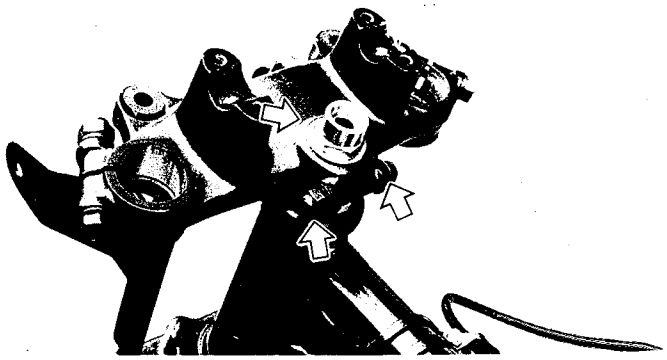


Remove ignition switch by using special tool.

09911-73730	"T" type hexagon wrench



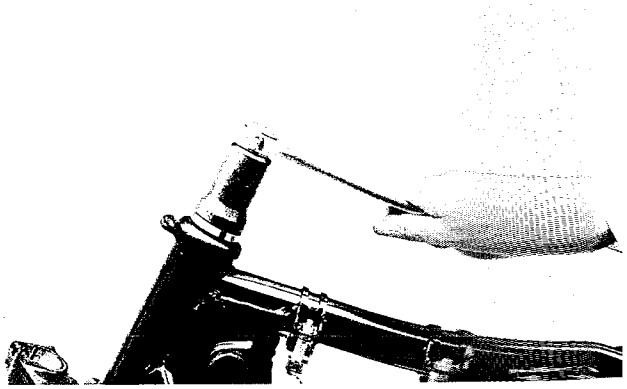
Loosen the steering stem clamp bolt and remove steering stem head nut.
Take off steering stem upper bracket.



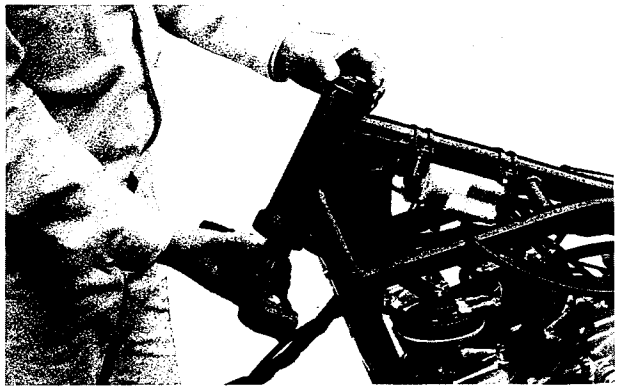
Remove steering stem nut by using special tool.

NOTE:
Hold the steering stem lower bracket by hand to prevent from dropping.

09940-14910	Steering nut socket wrench



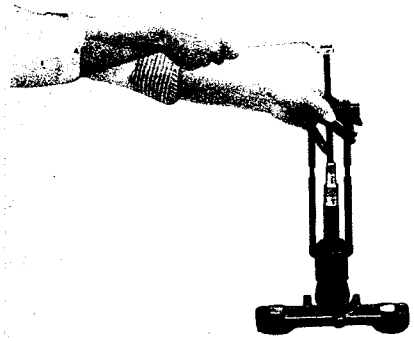
Draw out upper bearing and steering stem lower bracket.



Draw out lower steering stem bearing by using special tool.

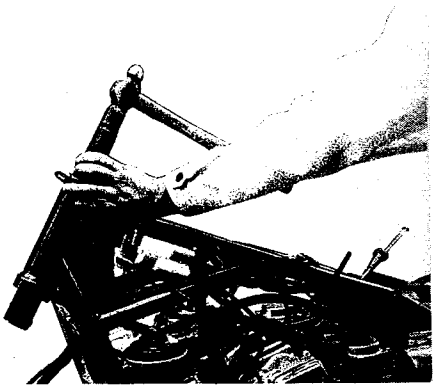
CAUTION
The removed bearing should be replaced.

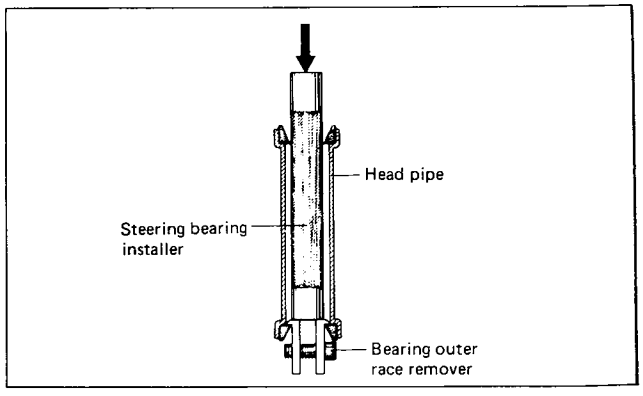
09941-84510	Bearing inner race remover



Push out steering stem bearing outer races, upper and lower, by using special tools.

09941-54910	Steering race remover
09941-74910	Steering bearing installer





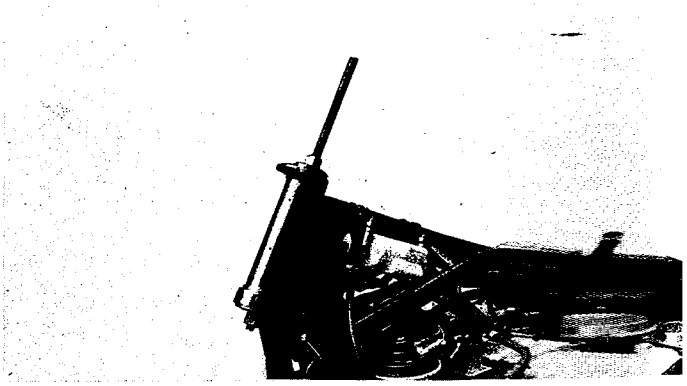
REASSEMBLY

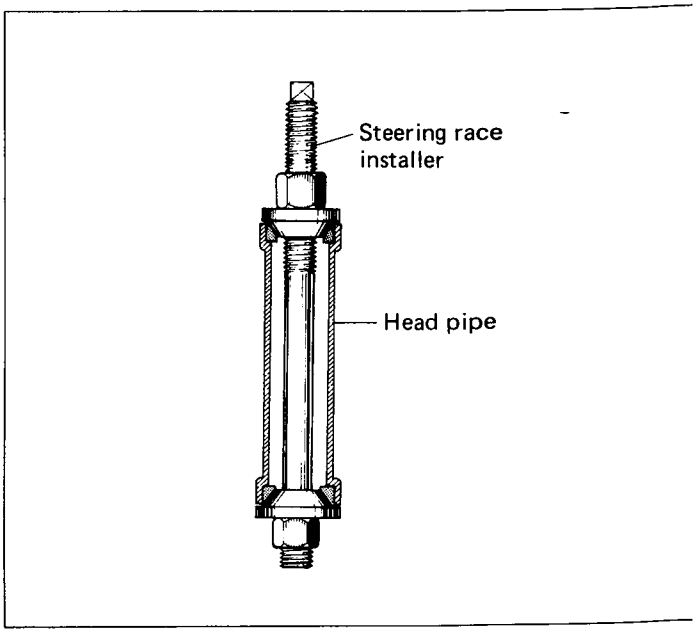
Reassemble and remount the steering stem in the reverse order of disassembly and removal, and also carry out the following steps:

OUTER RACES

Press in the upper and lower outer races using special tool.

09941-34511	Steering outer race installer

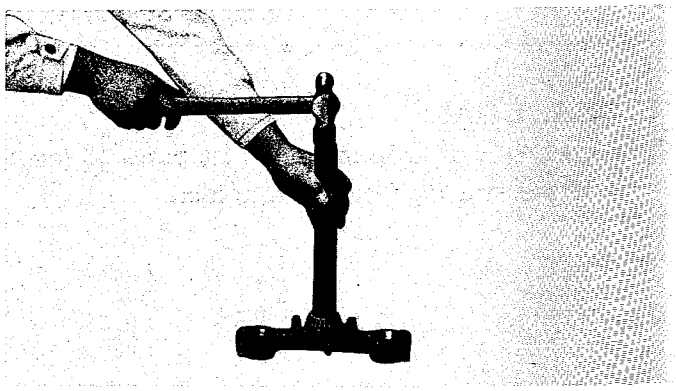




BEARINGS

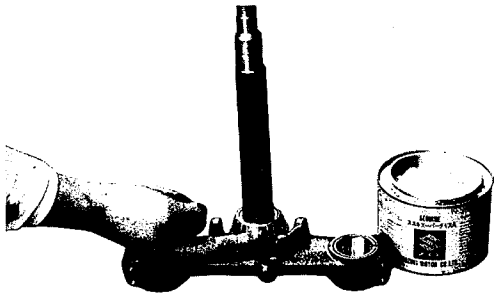
Press in the lower bearing by using special tool.

09941-74910	Steering bearing installer



Apply grease upper and lower bearing before remounting the steering stem.

99000-25030	SUZUKI super grease "A"



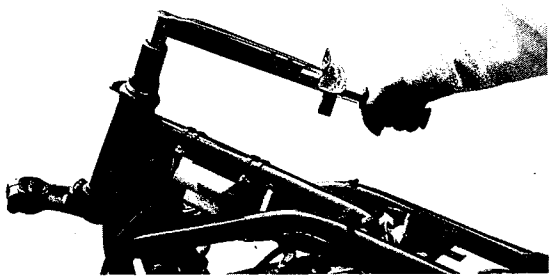
STEM NUT

Tighten the steering stem nut by using special tool with specified torque.

Turn the steering stem right and left 5 or 6 times to seat the bearings. Turn out the steering stem nut 1/4 – 1/2 turn.

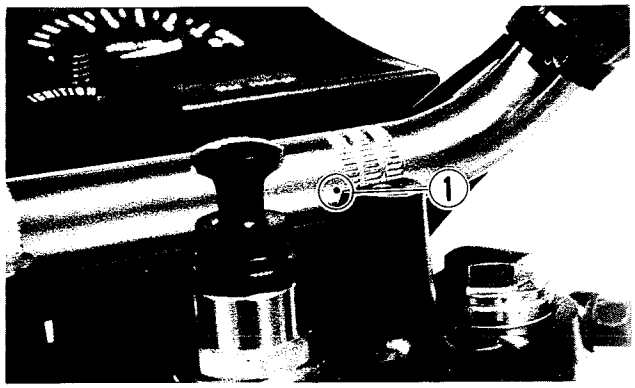
09940-14910	Steering nut socket wrench

Tightening torque	4.0 – 5.0 kg-m (29.0 – 36.0 lb-ft)



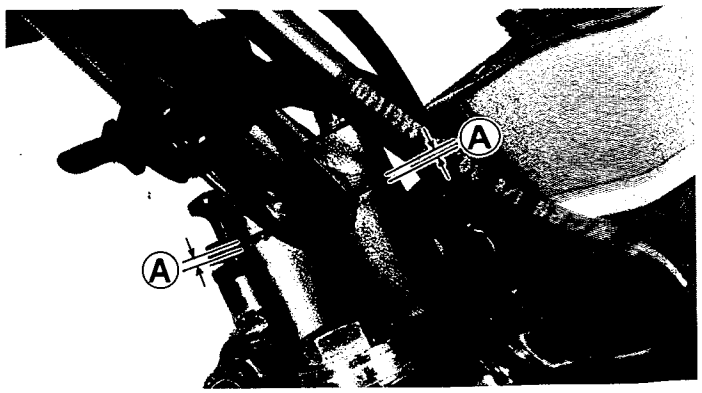
HANDLEBARS

Set the handlebars to match its punched mark ① to the mating face of the holder.



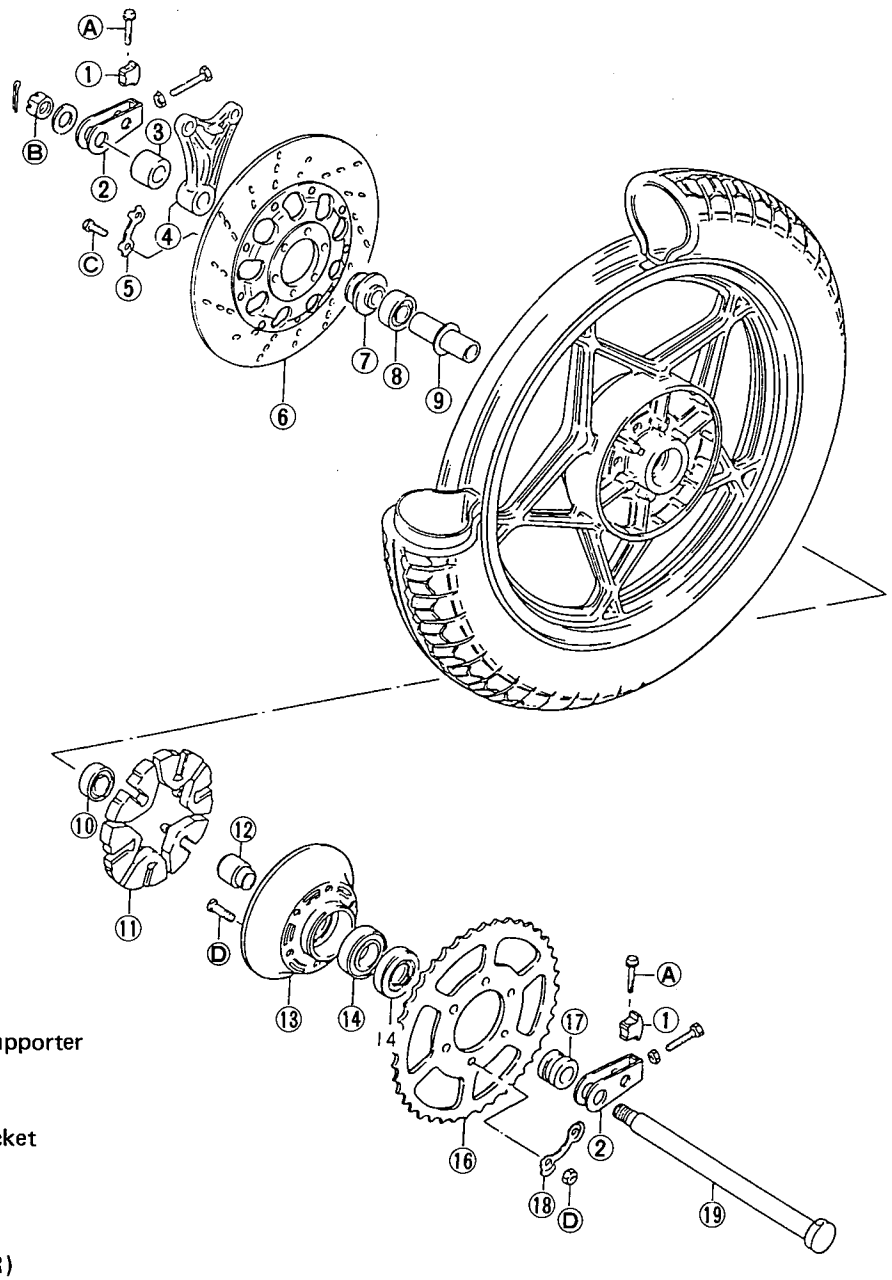
Secure the each handlebars clamp in such a way that the clearances Ⓐ ahead of and behind the handlebars are equalized.

Clamp bolt tightening torque	1.2 – 2.0 kg-m (8.5 – 14.5 lb-ft)



REAR WHEEL

CONSTRUCTION

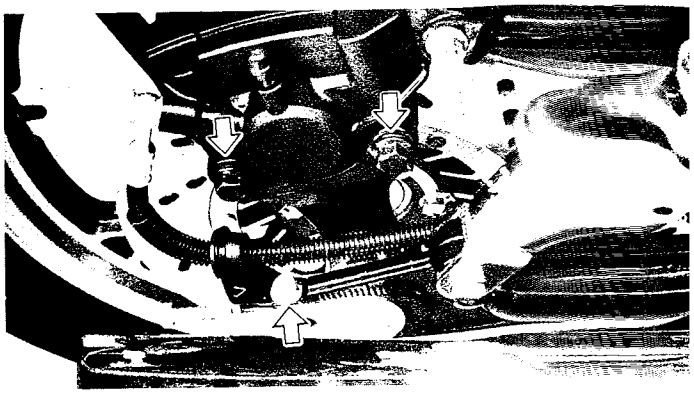


① Chain adjuster supporter
② Chain adjuster
③ Spacer
④ Rear caliper bracket
⑤ Lock washer
⑥ Disc
⑦ Bearing spacer
⑧ Wheel bearing (R)
⑨ Spacer
⑩ Wheel bearing (L)
⑪ Cushion
⑫ Bearing holder
⑬ Sprocket drum
⑭ Sprocket drum bearing
⑮ Oil seal
⑯ Sprocket
⑰ Spacer
⑱ Lock washer
⑲ Axle shaft

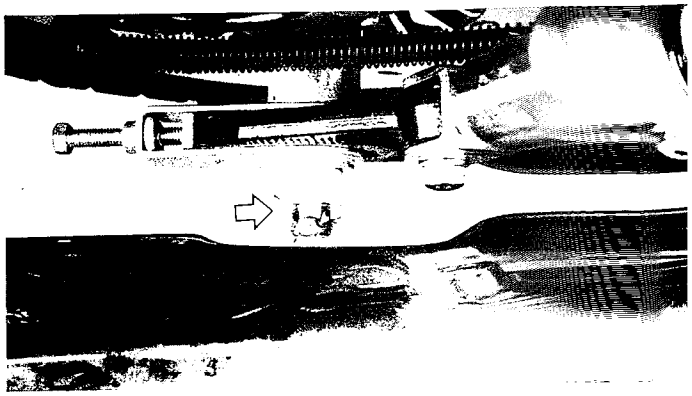
Tightening torque		
	kg-m	lb-ft
Ⓐ	1.5 – 2.5	11.0 – 14.5
Ⓑ	8.5 – 11.5	61.5 – 83.0
Ⓒ	1.5 – 2.5	11.0 – 14.5
Ⓓ	2.5 – 4.0	18.0 – 29.0

REMOVAL AND DISASSEMBLY

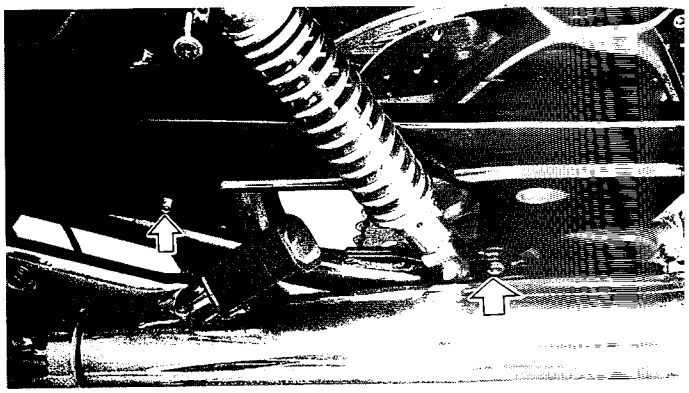
Support the machine by center stand.
Remove caliper mounting bolts and axle support bolt (Right and Left). Lift up the caliper.



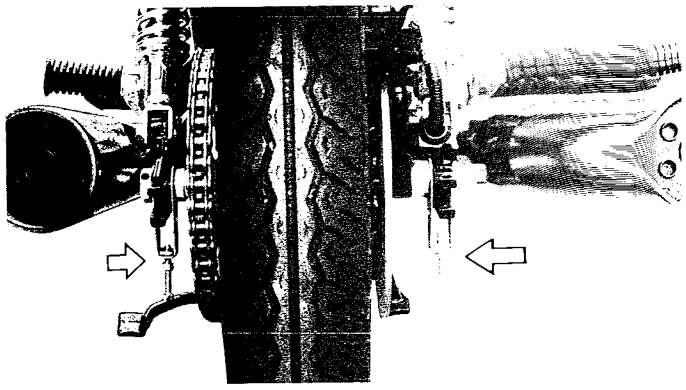
Pull off cotter pin and loosen axle nut.



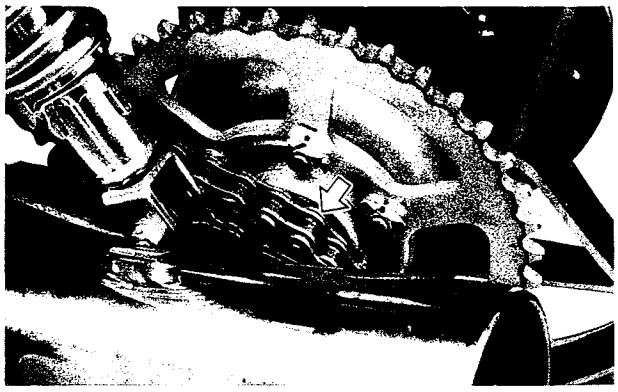
Loosen the two fitting bolts and take off chain case.



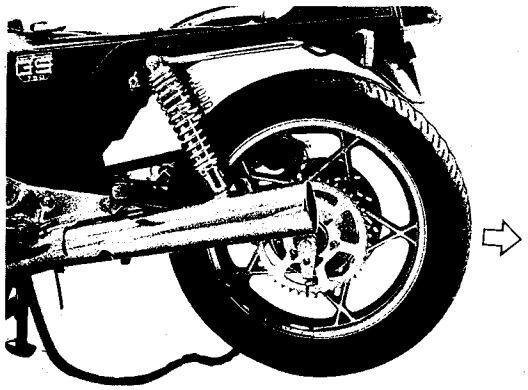
Pull the rear wheel rearward and push down chain adjusters.



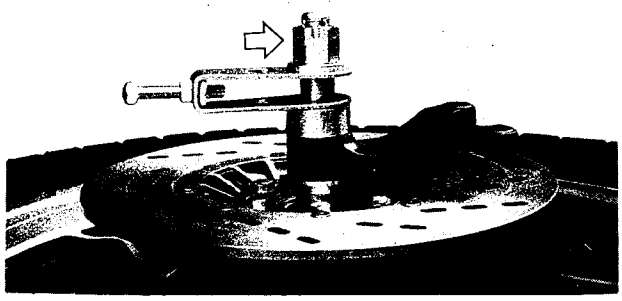
Push the rear wheel foreward and dismount the drive chain from rear sprocket.



Take off rear wheel rearward.

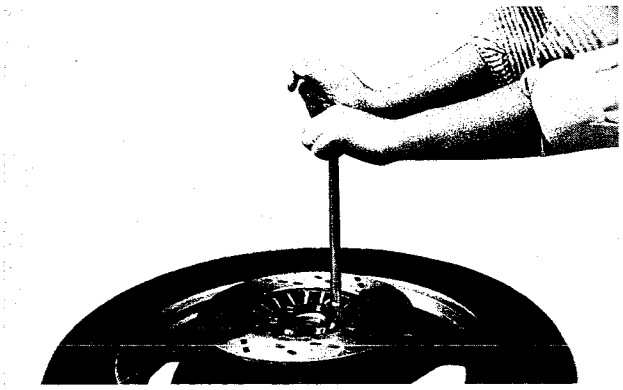


Remove axle nut and draw out axle shaft.

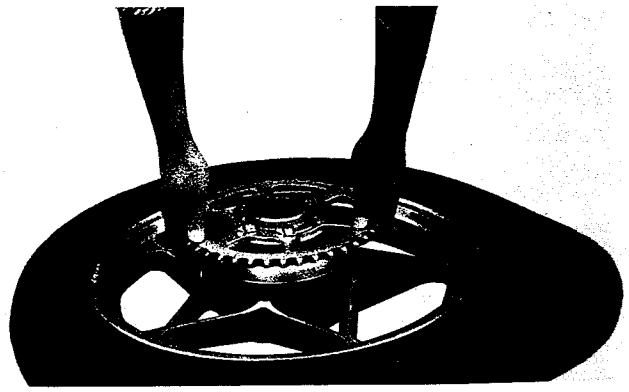


Unlock the lock washers.
Remove the fitting bolts and separate the disc from the wheel.

CAUTION
Do not reuse the lock washers.

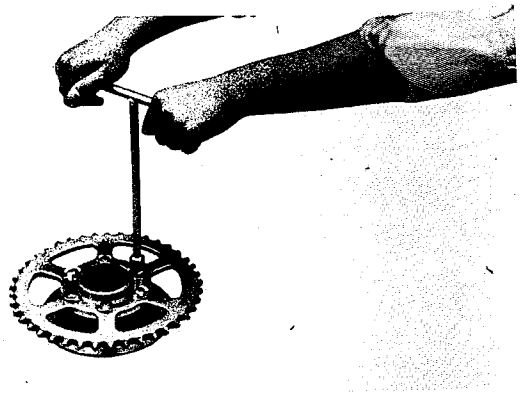


Draw out rear sprocket with sprocket mounting drum from the wheel.



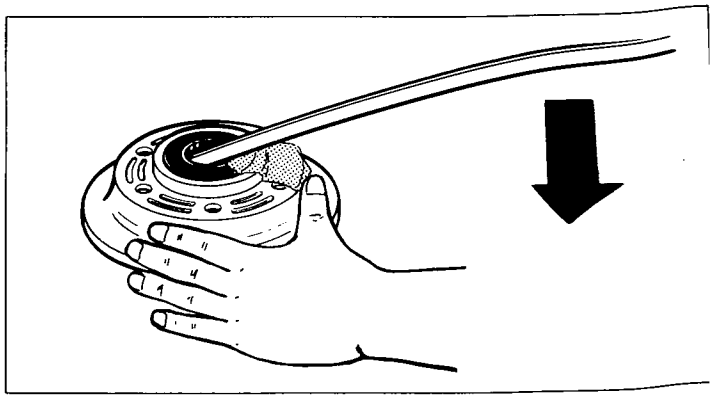
Unlock the lock washers.
Remove fitting bolts and separate the rear sprocket from the wheel.

CAUTION:
Do not reuse the lock washers.



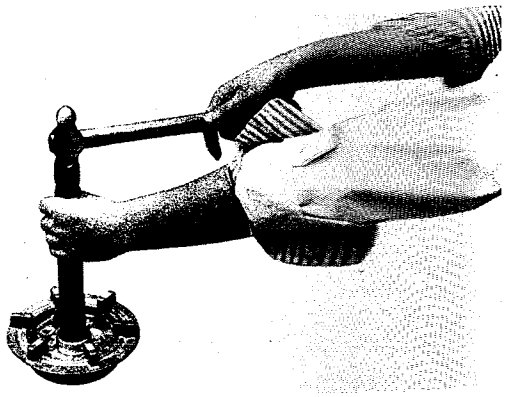
Draw out rear sprocket mounting drum oil seal by using special tool.

09913-50110	Oil seal remover



Draw out sprocket mounting drum bearing.

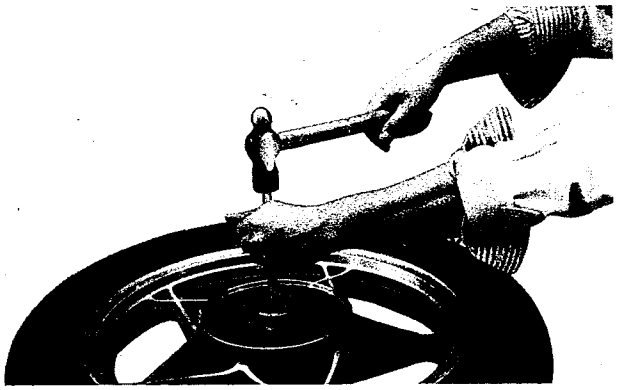
CAUTION:
The removed bearing should be replaced.



Draw out wheel bearings right and left.

[redacted]

[redacted]

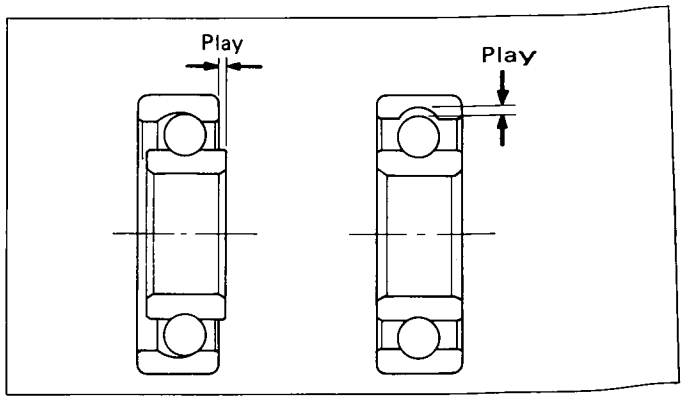


INSPECTION

WHEEL BEARINGS

Inspect the play of wheel bearing inner race by hand while fixing it in the wheel hub or wheel. Rotate the inner race by hand to inspect an abnormal noise and a smooth rotation. Replace the bearing if there is something unusual.

Replace the bearing if there is something unusual.



SPROCKET MOUNTING DRUM BEARING

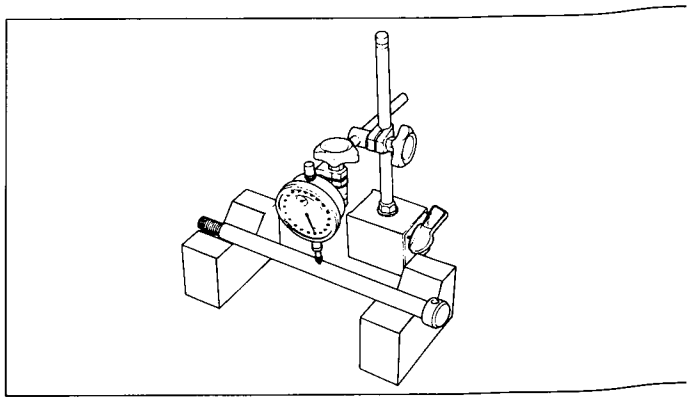
Inspect the play of sprocket mounting drum bearing inner race by hand while fixing it in the sprocket mounting drum.

Rotate the inner race by hand to inspect an abnormal noise and a smooth roration.

Replace the bearing if there is something unusual.

AXLE SHAFT

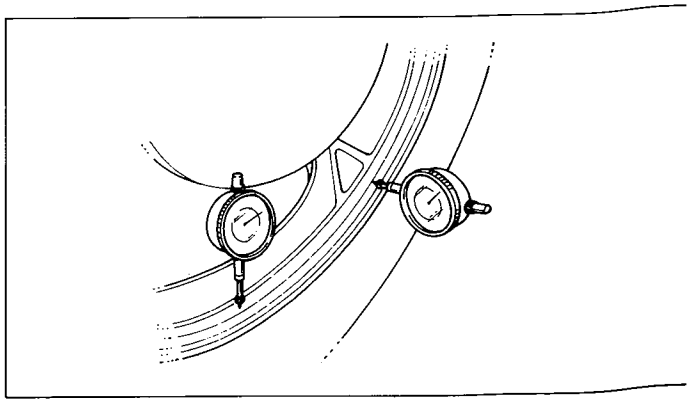
Using a dial gauge, check the axle shaft for runout and replace it if the runout exceeds the limit.



09900-20606	Dial gauge (1/100)
09900-20701	Magnetic stand
Service Limit	0.25 mm (0.010 in)

WHEEL OR WHEEL RIM

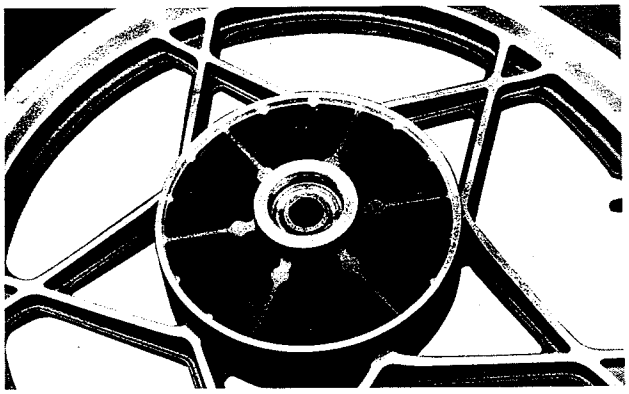
Make sure that the wheel (casting type) or wheel rim (spoke type) runout checked as shown does not exceed the service limit. An excessive runout is usually due to worn or loose wheel bearings and can be reduced by replacing the bearings. If bearing replacement fails to reduce the runout.



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

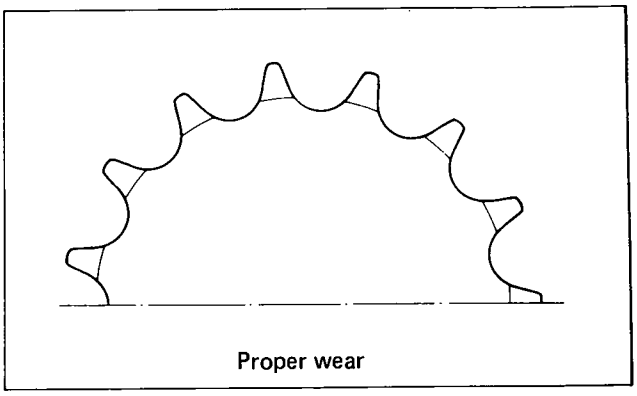
REAR DRUM SHOCK ABSORBERS

Inspect the rear drum shock absorbers for damage. If they are damaged, replace the shock absorbers.

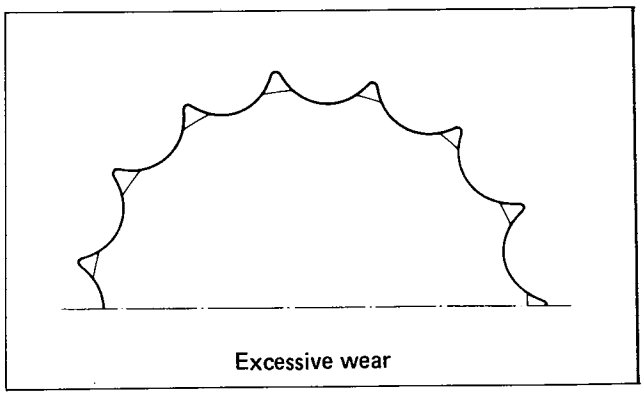


SPROCKET

Inspect the sprocket teeth for wear. If they are worn as illustrated, replace the sprocket.



Proper wear



Excessive wear

REASSEMBLY

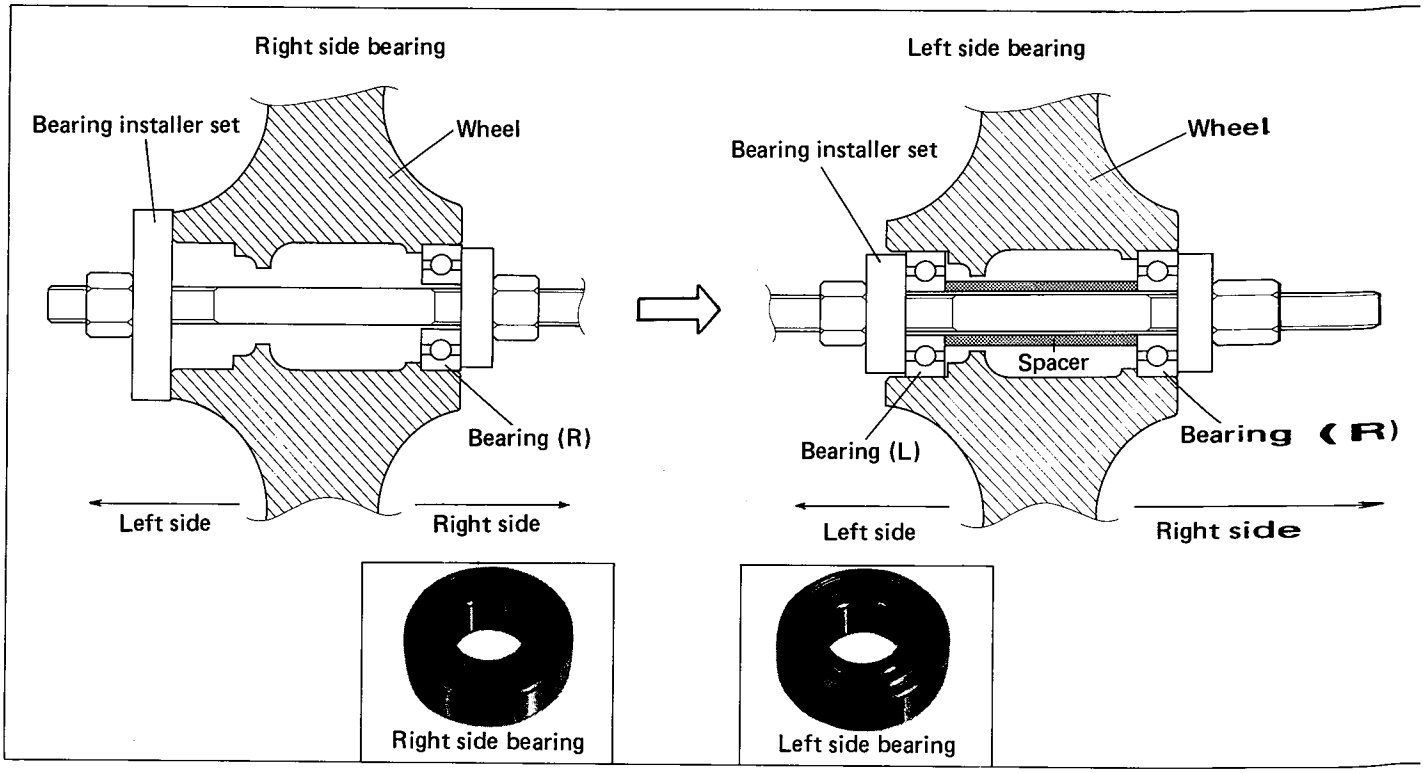
Reassemble and remount the rear wheel in the reverse order of disassembly and removal, and also carry out the following steps:

WHEEL BEARINGS

Install the wheel bearings by using special tool as shown.

CAUTION:
First install the wheel bearing for right side.

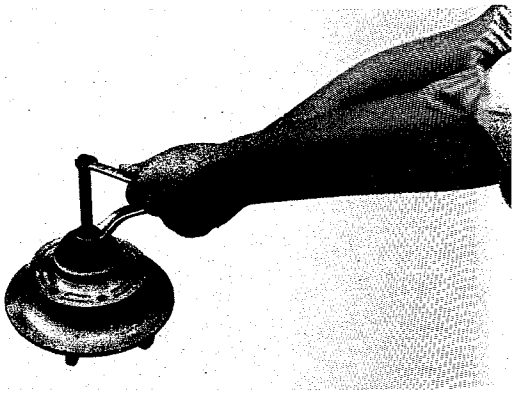
09924-84510	Bearing installer set

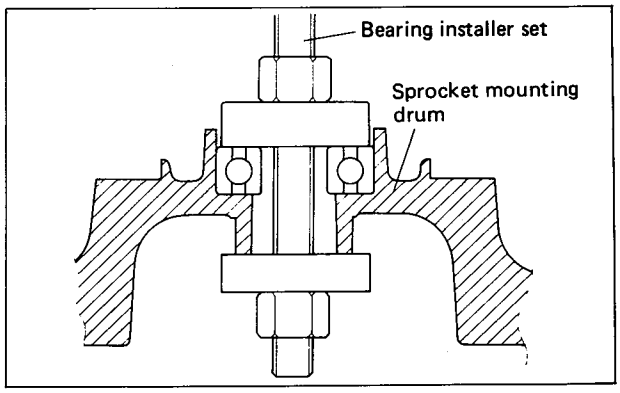


SPROCKET MOUNTING DRUM BEARING

Install the sprocket mounting drum bearing by using special tool as shown.

09924-84510	Bearing installer set

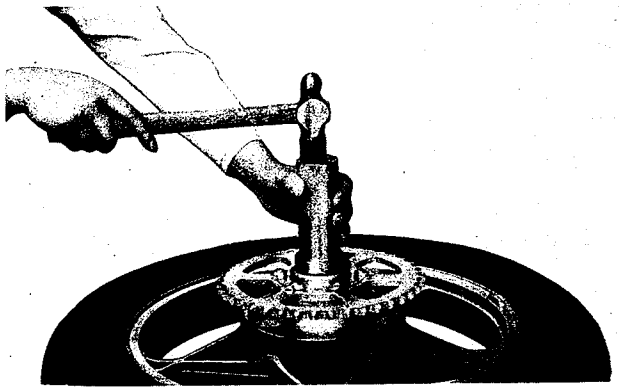




SPROCKET MOUNTING DRUM OIL SEAL

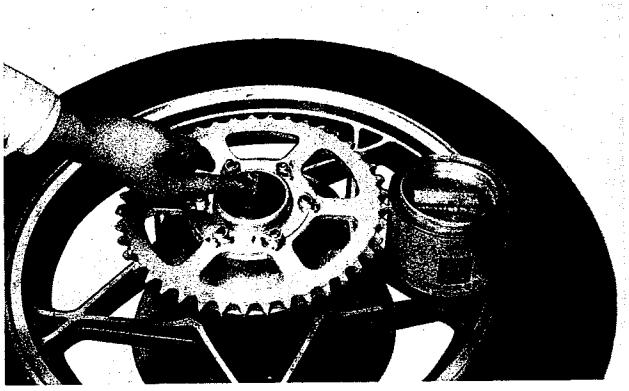
Install the sprocket mounting drum oil seal by using special tool.

09913-76010	Oil seal installer



Apply grease to sprocket mounting drum oil seal.

99000-25030	SUZUKI super grease "A"



REAR DRUM SHOCK ABSORBERS

NOTE:
When installing the rear drum shock absorbers and sprocket mounting drum into the wheel hub, apply detergent soapy water to ease the job.

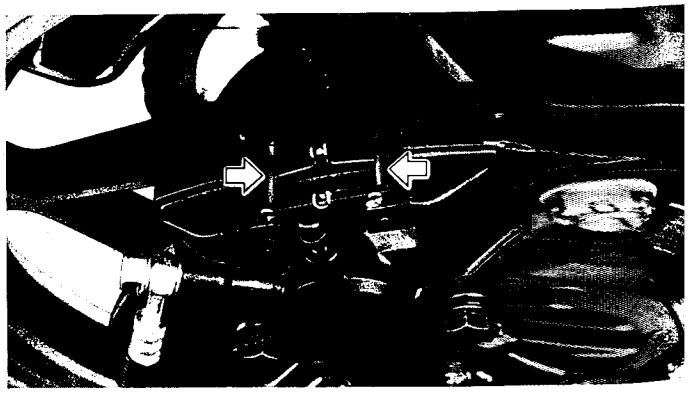
CAUTION:
Adjust the drive chain slack and rear brake pedal play after installation of the rear wheel.

REAR BRAKE

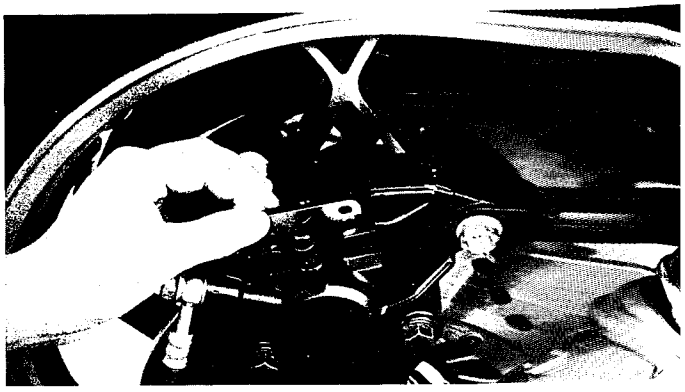
BRAKE PAD REPLACEMENT

Remove dust cover.

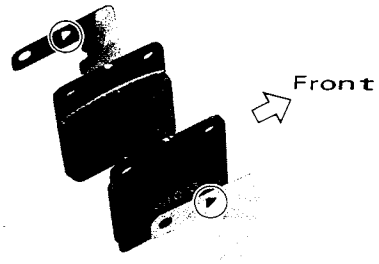
Remove clips and pull off pins.



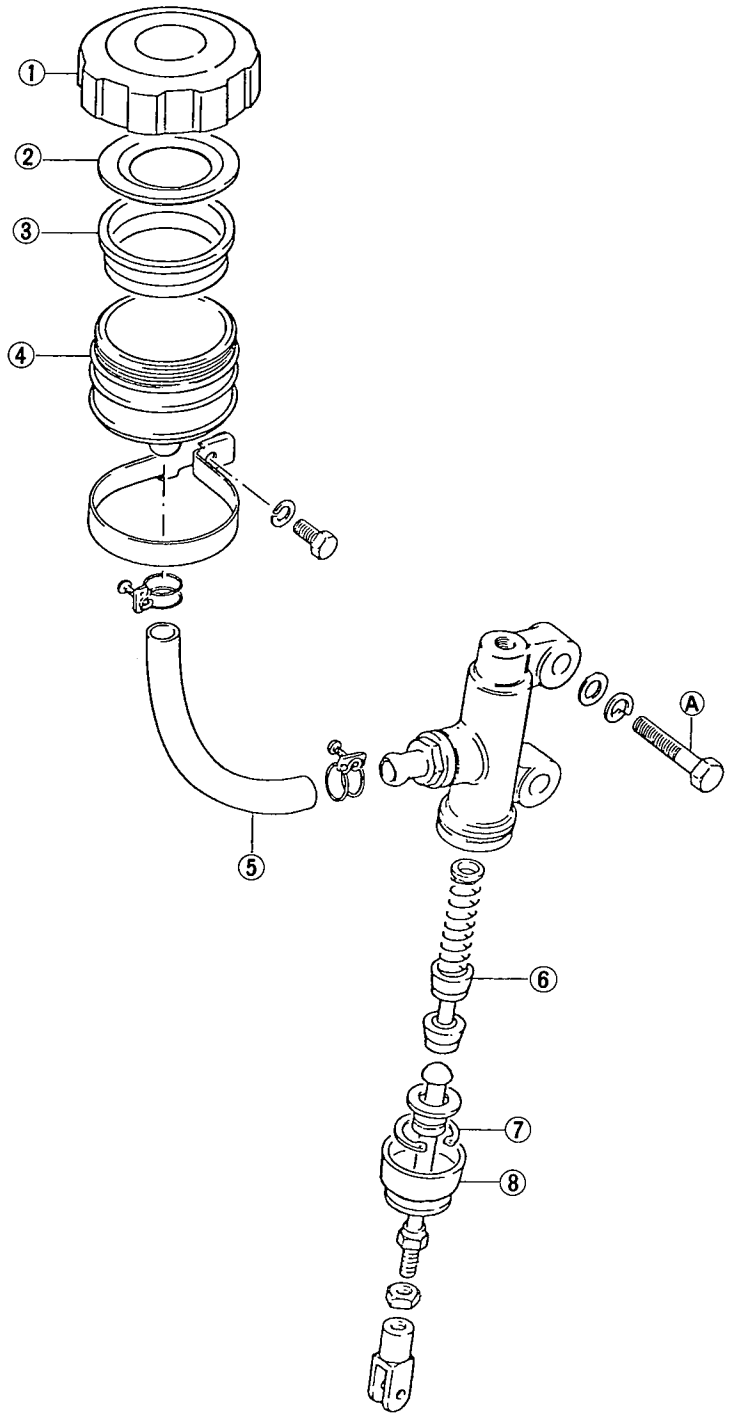
Draw out brake pads with pad shims.



Fit brake pad shim to the rear of each brake pad so that the "▶ hole" in the shim points to the front.



MASTER CYLINDER

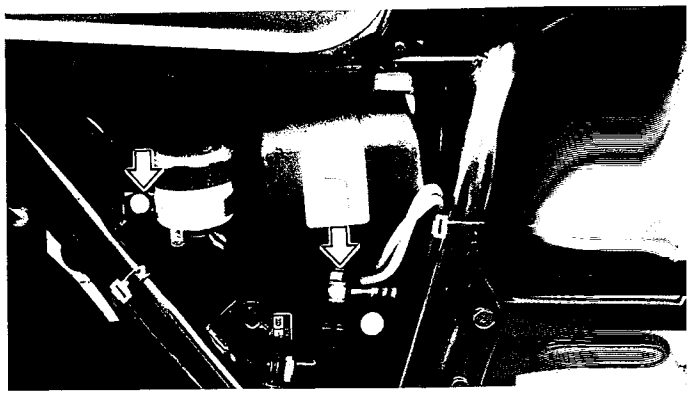


① Cap
② Diaphragm plate
③ Diaphragm
④ Reservoir
⑤ Brake hose
⑥ Piston and cap set
⑦ Snap ring
⑧ Dust boot

Tightening torque		
	kg-m	lb-ft
Ⓐ	1.5 – 2.5	11.0 – 18.0

MASTER CYLINDER REMOVAL AND DISASSEMBLY

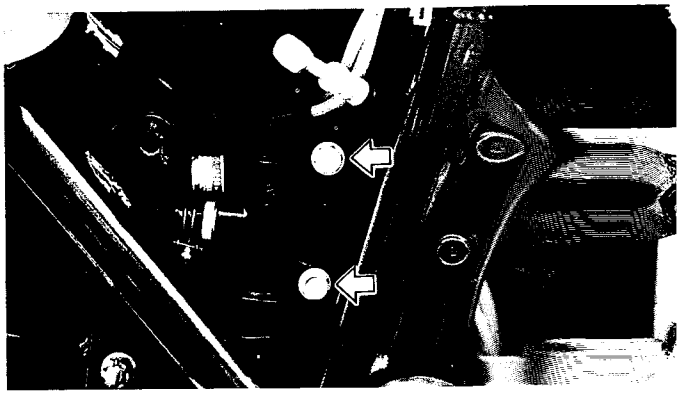
Disconnect brake hose by removing union bolt, and remove reservoir mounting bolt.



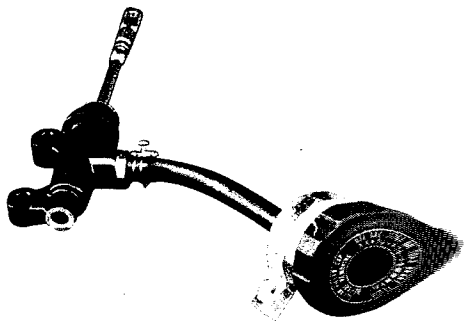
Remove brake pedal arm pin.

CAUTION:
Do not reuse the cotter pin.

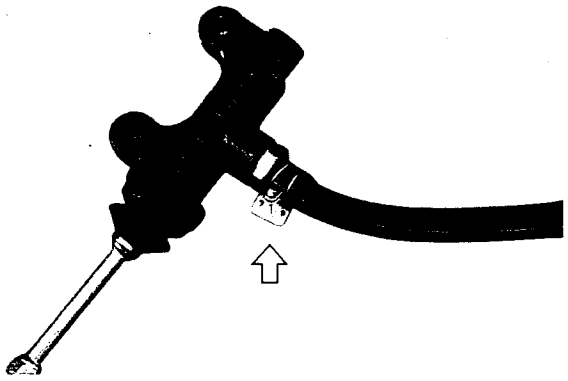
Remove two mounting bolts and take off master cylinder.



Remove filler cap and drain brake fluid.

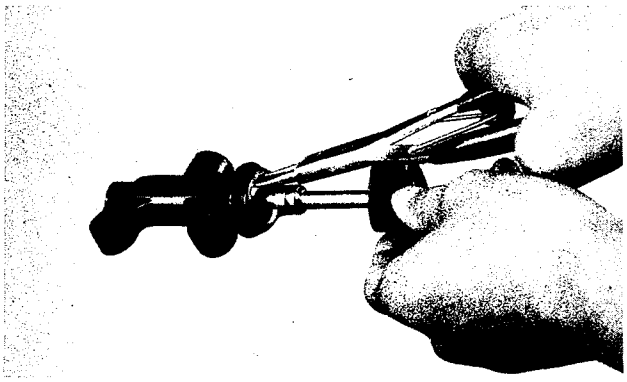


Disconnect reservoir hose.

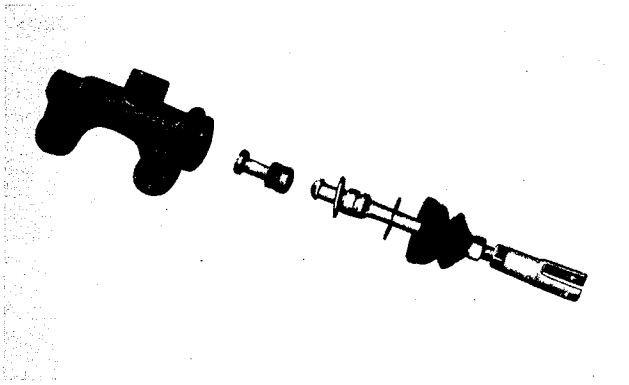


Draw out dust seal boot and remove circlip by using special tool.

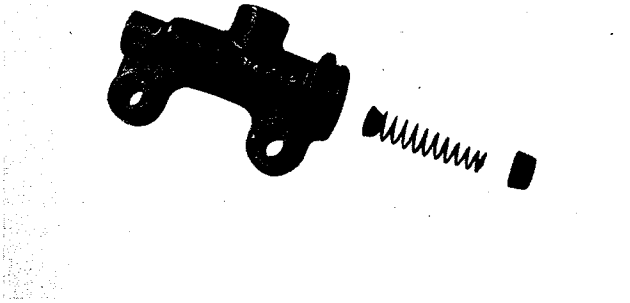
09900-06108	Snap ring pliers



Pull out push rod and piston.



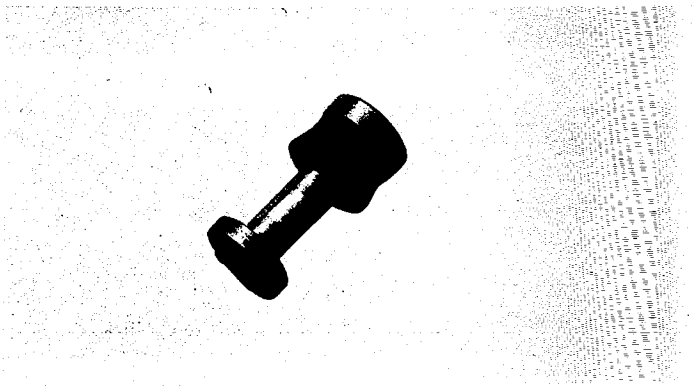
Draw out primary cup and spring.



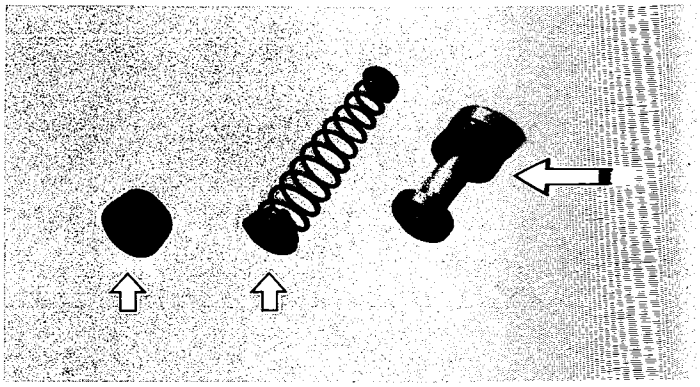
MASTER CYLINDER INSPECTION

Inspect the cylinder bore wall for any scratch or other damage.

Inspect the piston surface for scratch or other damage.



Inspect the primary cup, secondary cup, and each rubber parts for damage.



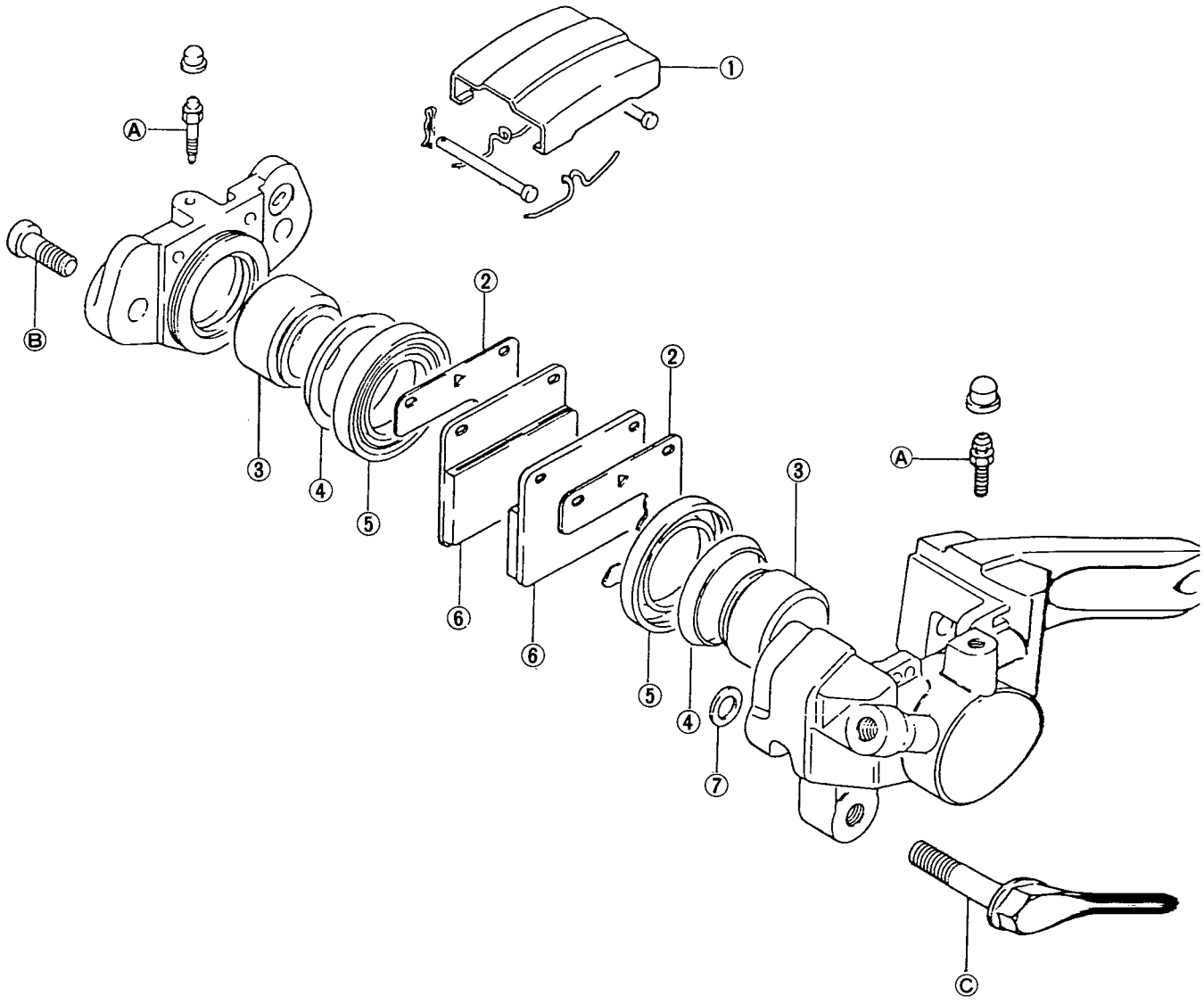
MASTER CYLINDER REASSEMBLY

Reassemble the master cylinder in the reverse orders of disassembly with the following steps:

CAUTION:
Wash the master cylinder components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them.
Appiy brake fluid to the cylinder bore and all the internals when inserting components into the bore.

CAUTION:
Adjust the front brake light switch and brake pedal height after installation.
Bleed the air after reassembling master cylinder. (See page 2-16)
Use only DOT 3 or DOT 4 brake fluid.

CALIPER

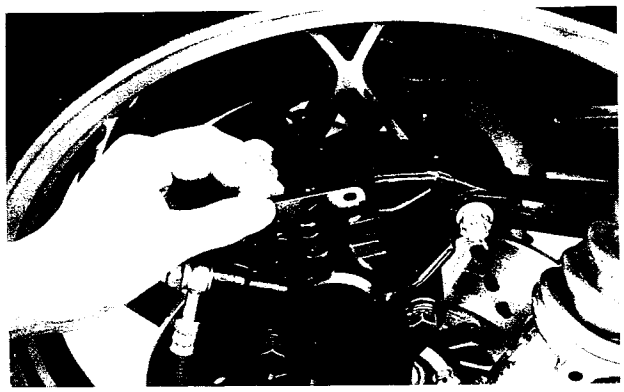


① Dust cover
② Pad shim
③ Piston
④ Piston seal
⑤ Dust boot
⑥ Pad
⑦ "O" ring

Tightening torque		
	kg-m	lb-ft
Ⓐ	0.7 – 0.9	5.0 – [redacted]
Ⓑ	2.0 – 3.0	14.5 – 2[redacted]
Ⓒ	2.5 – 4.0	18.0 – 2[redacted]

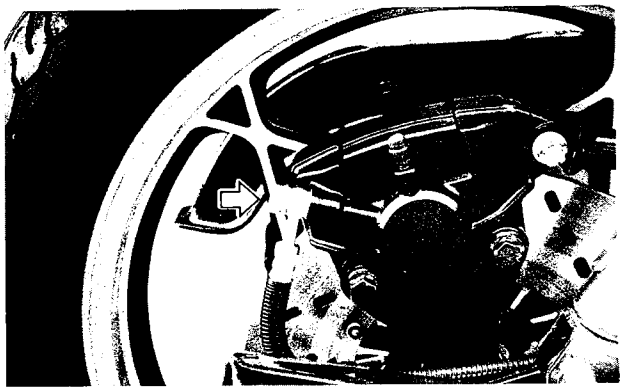
CALIPER REMOVAL

Remove brake pads.

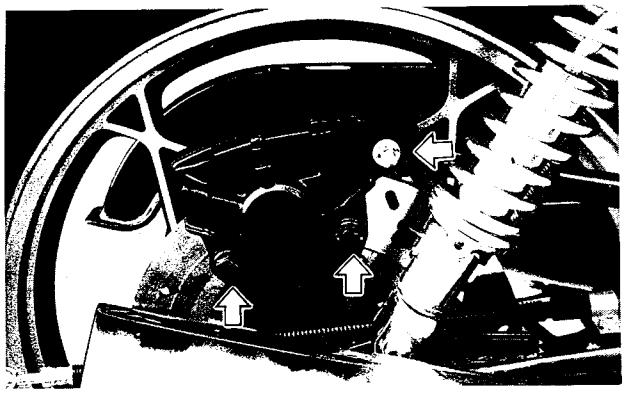


Disconnect brake hose by removing union bolt.

NOTE:
Do not operate the brake pedal when connecting the brake hose.

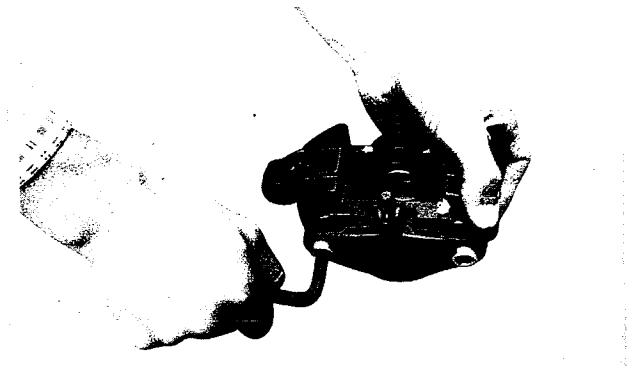


Remove two caliper mounting bolts and torque link nut after pulling off cotter pin, and take off caliper.



Separate the caliper after removing caliper bolts by using special tool.

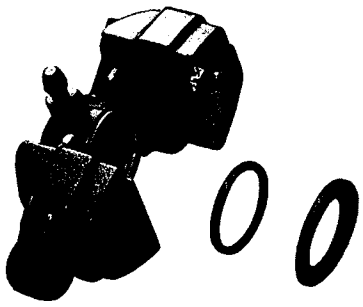
09911-71510	"L" type hexagon wrench

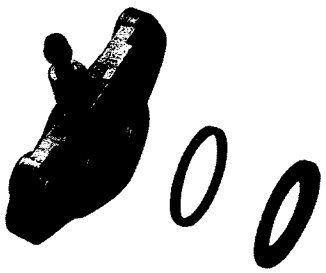


Place a rag over the piston to prevent from popping out. Push out the piston (Right and Left) by using air gun.

CAUTION:
Do not use high pressure air for preventing piston damage.

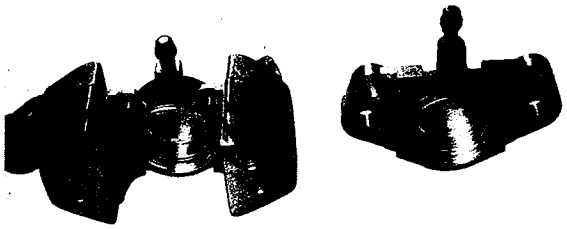
Draw out dust seal cover and piston seal.





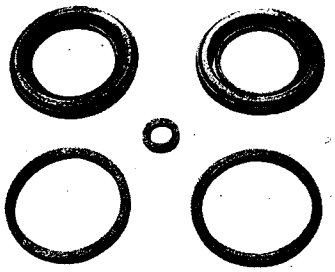
CALIPER AND DISC INSPECTION

Inspect the cylinder bore wall for nick, scratch, or other damage.



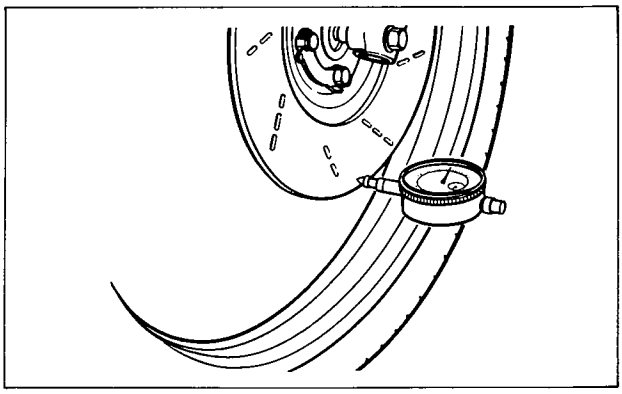
Inspect the piston surface for any flow or other damage.

Inspect the each rubber parts for damage and wear.



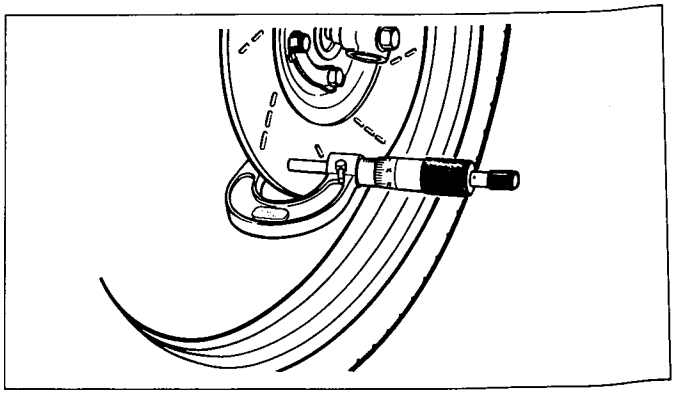
Using a micrometer check the disc for wear. Its thickness can be checked with disc and wheel in place. The service limit is specified for the thickness of the disc:

09900-20201	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.

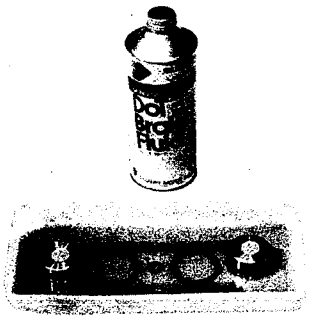
Service Limit	0.30 mm (0.012 in)



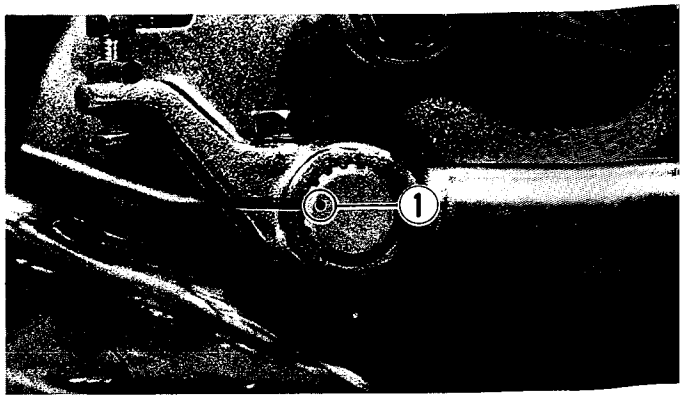
CALIPER REASSEMBLY

Reassemble the caliper in the reverse orders of disassembly and by taking 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 when inserting components into the bore.
Bleed the air after reassembling master cylinder.

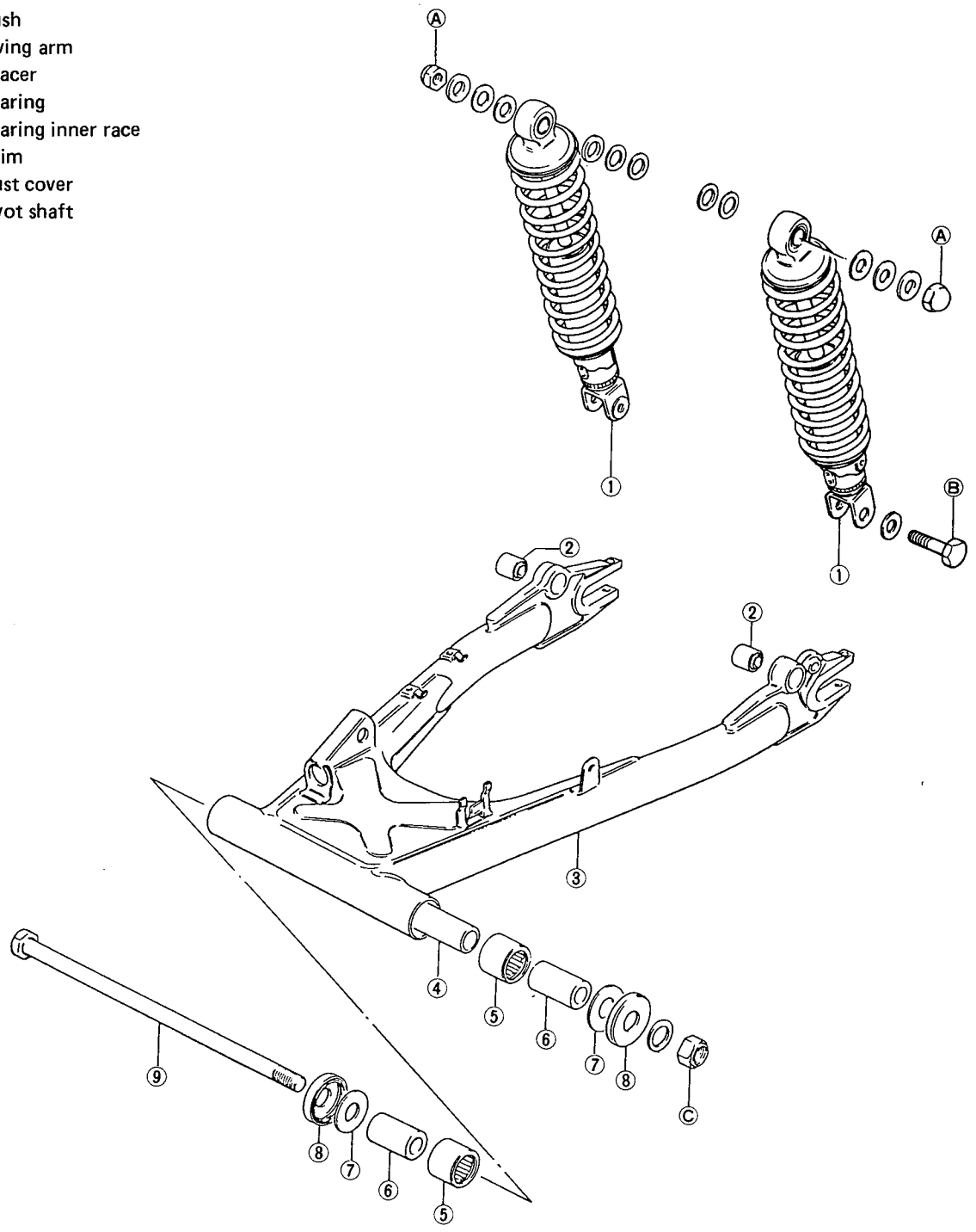


When installing the rear brake pedal, align the brake pedal groove with punched mark ① provided on the end face of brake pedal shaft.



REAR SUSPENSION

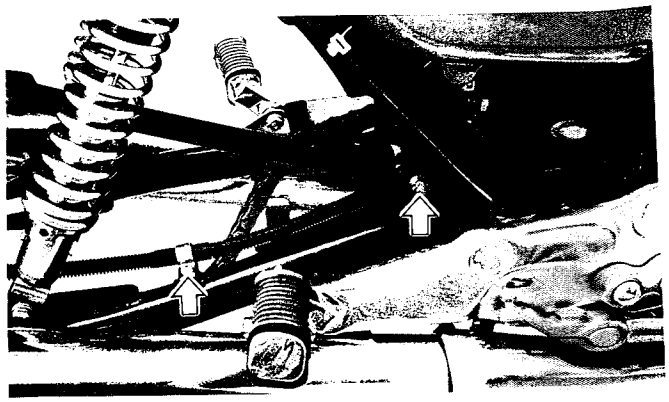
① Rear shock absorber
② Bush
③ Swing arm
④ Spacer
⑤ Bearing
⑥ Bearing inner race
⑦ Shim
⑧ Dust cover
⑨ Pivot shaft



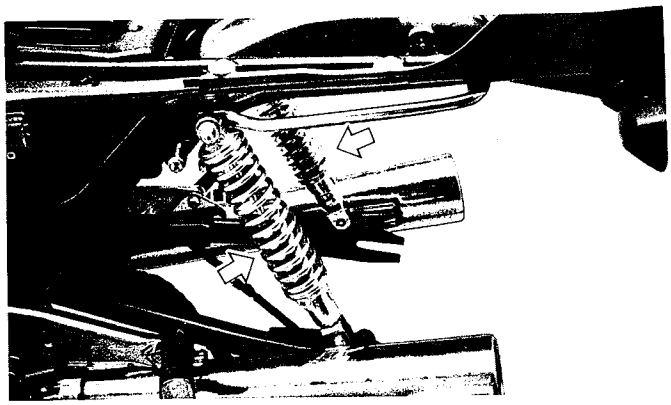
Tightening torque		
	kg-m	lb-ft
Ⓐ	2.3 – 3.0	14.5 – 21.5
Ⓑ	2.3 – 3.0	14.5 – 21.5
Ⓒ	5.0 – 8.0	36.0 – 58.0

REMOVAL AND DISASSEMBLY

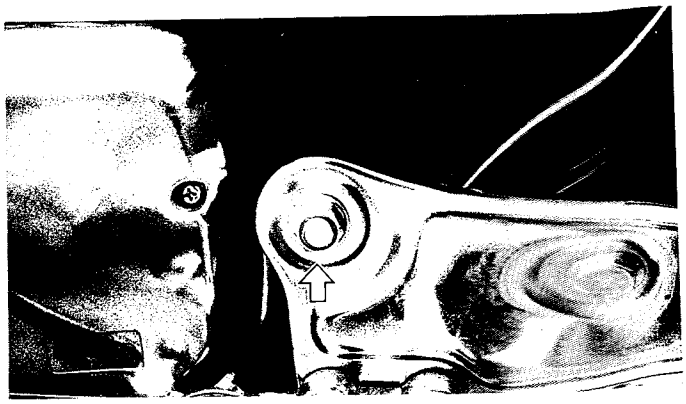
Remove rear wheel (See page 7-34)
Disconnect brake hose clamp and torque link nut.



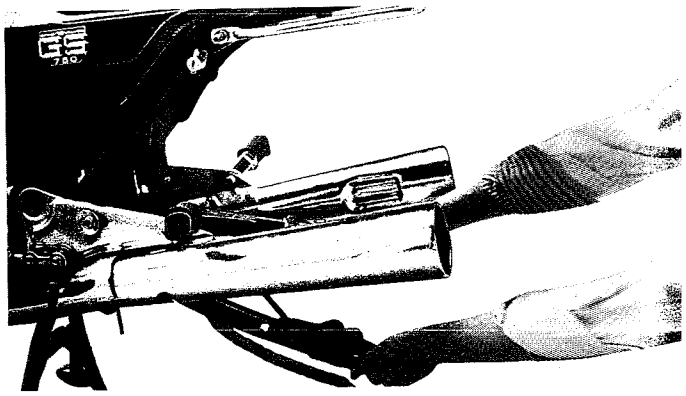
Remove right and left rear shock absorbers.



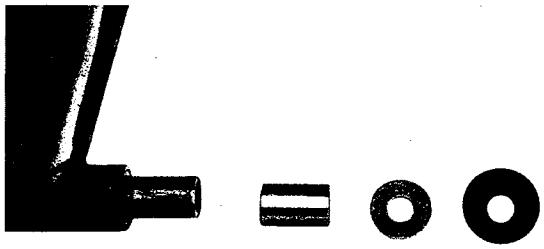
Remove swing arm pivot nut and draw out swing arm pivot shaft.



Pull off swing arm.



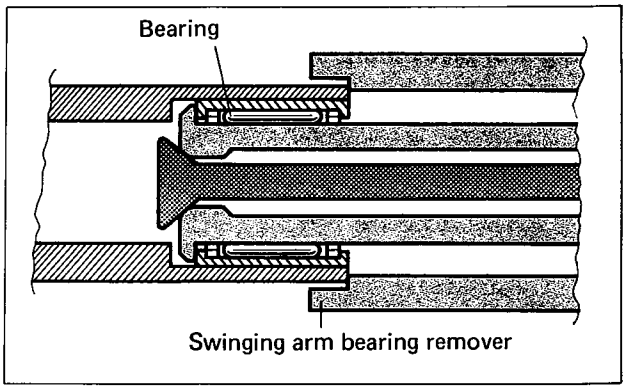
Draw out dust seal cover, shim, inner race and spacer.



Draw out swing arm bearings by using special tool.

09941-44510	Swinging arm bearing remover

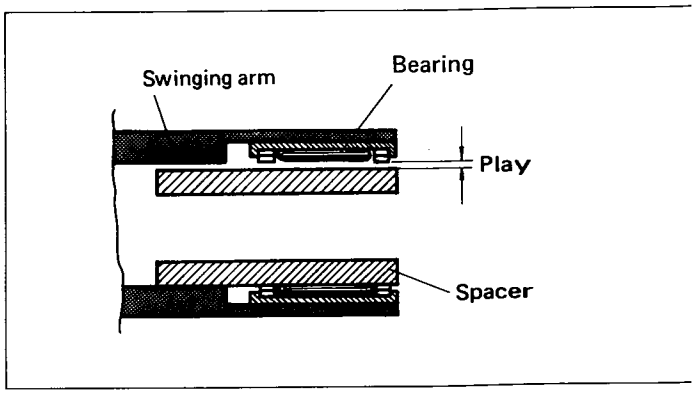
CAUTION
The removed bearing should be replaced.



INSPECTION

SWING ARM BEARINGS

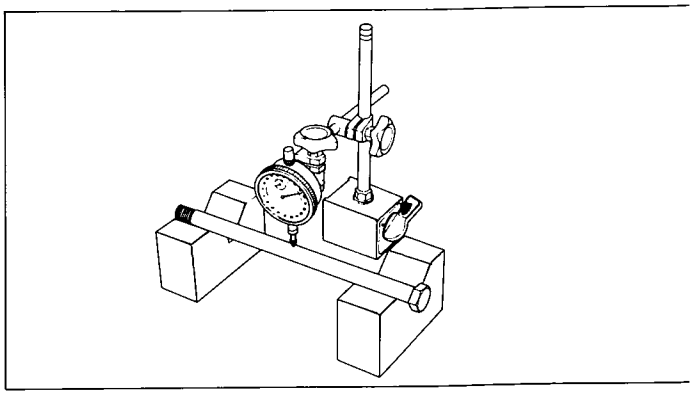
Inspect the play of swinging arm bearing inner spacer by hand while fixing it in the swinging arm. Rotate the spacer by hand to inspect an abnormal noise and a smooth rotation. Replace the bearing and spacer if there is something unusual.



SWINGING ARM PIVOT SHAFT

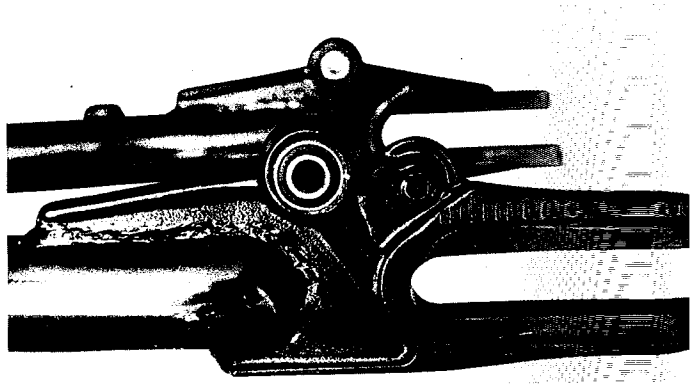
Using dial gauge, check the pivot shaft for runout and replace it if the runout exceeds the limit.

Service Limit	0.30 mm (0.012 in)



SHOCK ABSORBER BUSHING

Inspect the rear shock absorbers bushes for damage and wear.



CONTENTS

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".
	7. Poor seating of spark plug.	Retighten.
	Plugs not sparking	
	1. Fouled spark plugs.	Clean.
	2. Wet spark plugs.	Clean and dry.
	3. Defective signal generator.	Replace.
	4. Defective transistor unit.	Replace.
	5. Defective ignition coil.	Replace.
	6. Open or short circuit in high-tension cords.	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 or replace.
Engine stalls easily.	1. Fouled spark plugs.	Clean.
	2. Defective signal generator.	Replace.
	3. Defective transistor unit.	Replace.
	4. Clogged fuel pipe.	Clean.
	5. Clogged jets in carburetors.	Clean.
	6. 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.
	4. Clutch dampers weakened.	Replace.
	Noise seems to come from crankshaft	
	1. Worn or burn bearings.	Replace.
	2. Big-end bearings worn and burn.	Replace.
	3. Thrust clearance too large.	Replace.
	Noise seems to come from transmission	
	1. Gears worn or rubbing.	Replace.
	2. Badly worn splines.	Replace.
	3. Primary gears worn or rubbing.	Replace.
	4. Damper spring weakened.	Replace.

Complaint	Symptom and possible causes	Remedy
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.
	5. Wave washer weaken or broken piano wire.	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.
	3. Worn gearshift powl.	Replace.
Transmission will not shift back.	1. Broken return spring on shift shaft.	Replace.
	2. Shift shafts are rubbing or sticky.	Repair.
	3. Distorted or worn gearshift forks.	Replace.
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 powl spring on gearshift cam.	Replace.
	4. Worn gearshift powl.	Replace.
Engine idles poorly.	1. Valve clearance out of adjustment.	Adjust.
	2. Poor seating of valves.	Replace.
	3. Defective valve guides.	Replace.
	4. Worn rocker arm or arm shaft.	Replace.
	5. Defective signal generator.	Replace.
	6. Defective transistor unit.	Replace.
	7. Spark plug gaps too wide.	Adjust or replace.
	8. Defective ignition coil resulting in weak sparking.	Replace.
	9. Float-chamber fuel level out of adjustment in carburetors.	Adjust.
	10. Clogged jets.	Clean.
Engine runs poorly in high-speed range.	1. Valve springs weakened.	Replace.
	2. Valve timing out of adjustment.	Adjust.
	3. Worn cams or rocker arms.	Replace.
	4. Spark plug gaps too narrow.	Repair.
	5. Ignition not advanced sufficiently due to poorly working advancer.	Repair.
	6. Defective ignition coil.	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 or sucking air vacuum pipe.	Clean or replace.
Dirty or heavy exhaust smoke.	1. Too much engine oil in the engine.	Check with inspection window drain out excess
	2. Worn piston rings or cylinders.	Replace.
	3. Worn valve guides.	Replace.
	4. Cylinder walls scored or scuffed.	Replace.
	5. Worn valves stems.	Replace.
	6. Defective stem seal.	Replace.
	7. Worn side rails.	Replace.

Complaint	Symptom and possible causes	Remedy
Engine lacks Power	1. Loss of valve clearance. 2. Weakened valve springs. 3. Valve timing out of adjustment. 4. Worn piston rings or cylinders. 5. Poor seating of valves. 6. Fouled spark plugs. 7. Worn rocker arms or its shafts. 8. Spark plug gaps incorrect. 9. Clogged jets in carburetors. 10. Float-chamber fuel level out of adjustment. 11. Clogged air cleaner element. 12. Carburetor balancing screw loose. 13. Too much engine oil.	Adjust. Replace. Adjust. Replace. Repair. Clean or replace. Replace. Adjust or replace. Clean. Adjust. Clean. Retighten. Drain out excess oil.
Engine overheats.	1. Heavy carbon deposit on piston crowns. 2. Not enough oil in the engine. 3. Defective oil pump or clogged oil circuit. 4. Fuel level too low in float chambers. 5. Suck air from intake pipes. 6. Use incorrect engine oil.	Clean. Add oil. Repair or clean. Adjust. Retighten or replace. Change.

ELECTRICAL

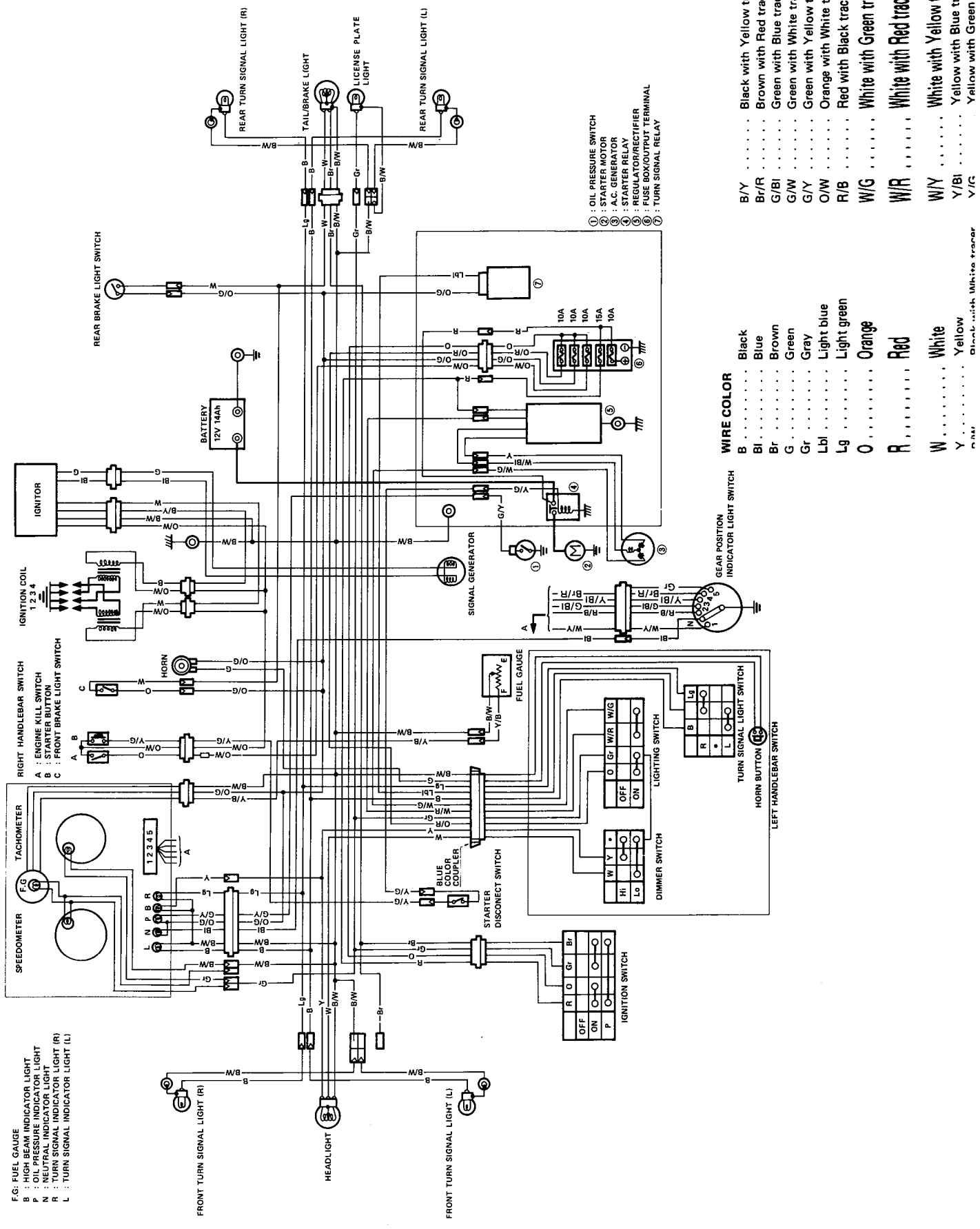
Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking	1. Defective ignition coil. 2. Defective spark plugs. 3. Defective signal generator. 4. Defective transistor unit.	Replace. Replace. Replace. Replace.
Spark plugs soon become fouled with carbon.	1. Mixture too rich. 2. Idling speed 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 change, 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.

Complaint	Symptom and possible causes	Remedy
Generator overcharges.	1. Internal short-circuit in the battery. 2. Resister 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 "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.) 2. Battery electrolyte excessive or insufficient, or its specific gravity too high or too low. 3. The battery left unused for too long in cold climate.	Replace the battery. Keep the electrolyte up to the prescribed level, or adjust the S.G. by consulting the battery maker's directions. Replace the battery, if badly sulfated.
Battery discharges too rapidly.	1. Dirty container top and sides. 2. Impurities in the electrolyte or electrolyte S.G. is too high.	Clean. Change the electrolyte by consulting the battery maker's directions.

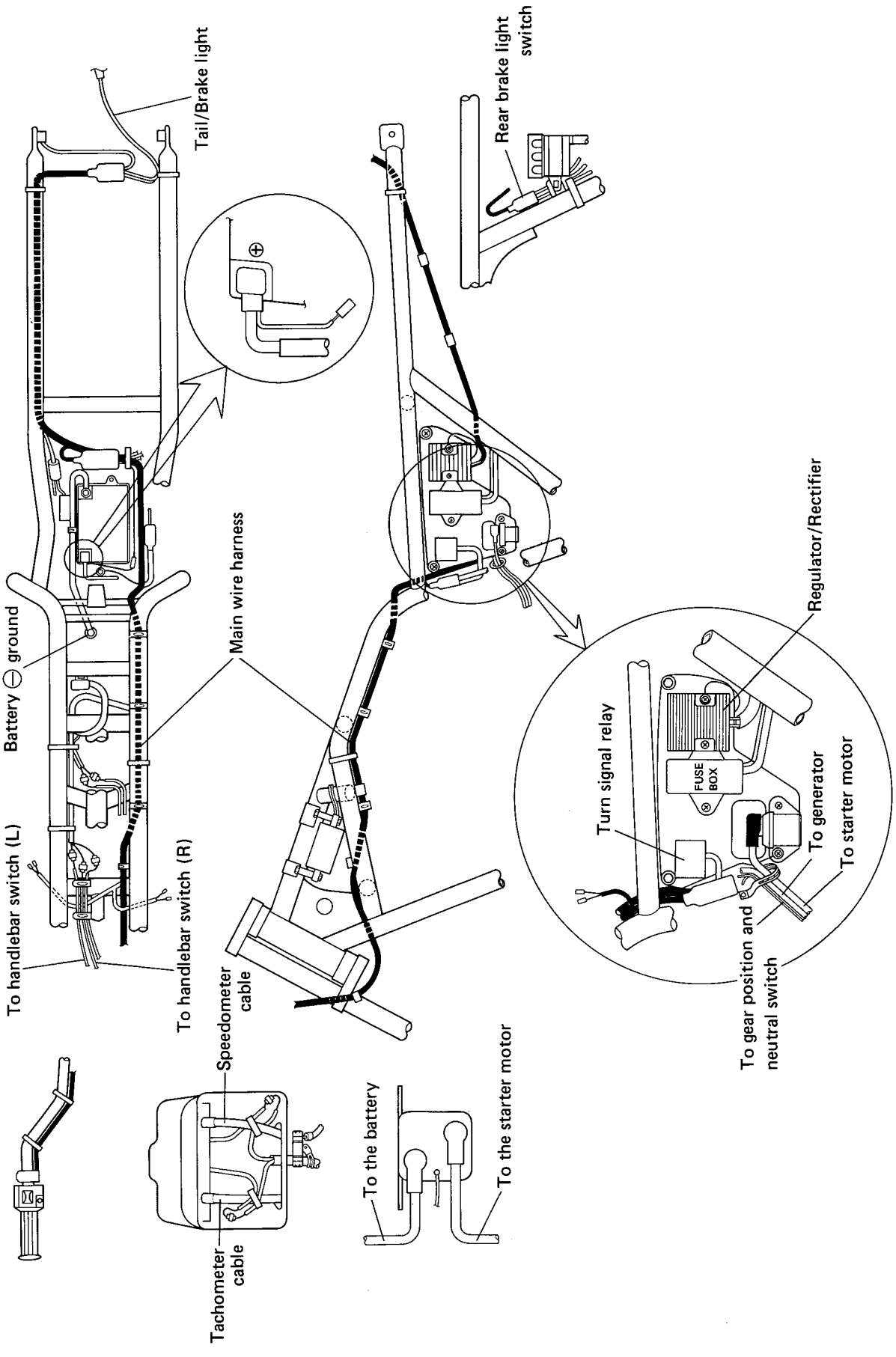
CHASSIS

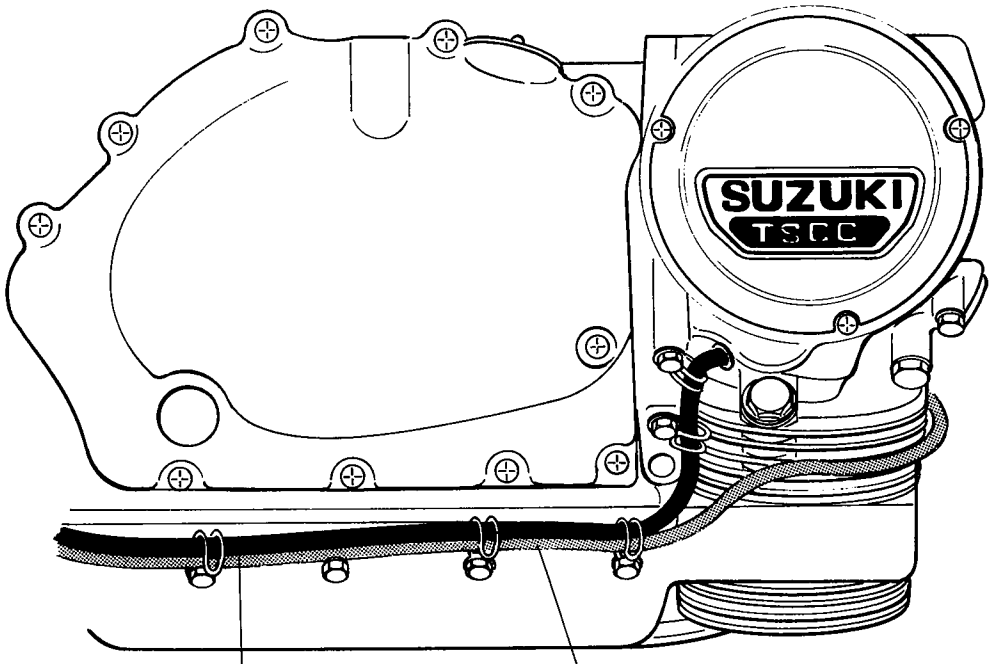
Complaint	Symptom and possible causes	Remedy
Handle feels too heavy.	1. Steering stem nut overtightened. 2. Worn roller bearing or race in steering stem. 3. Distorted steering stem. 4. Not enough pressure in tires. 5. Overtightened steering races.	Adjust. Replace. Replace. Adjust. Adjust.
Wobbly handle	1. Loss of balance between right and left suspension. 2. Distorted front fork. 3. Distorted front axle or cocked tire.	Adjust or replace. Repair or replace. Replace.
Wobbly front wheel	1. Distorted wheel rim. 2. Worn-down front wheel bearings. 3. Loose wheel spokes. 4. Defective or incorrect tire. 5. Loose nut on axle.	Replace. Replace. Retighten. Replace. Retighten.
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.	Replace. Remove excess oil.
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. Loose wheel spokes. 4. Defective or incorrect tire. 5. Worn swinging arm bearing.	Replace. Replace. Retighten. Replace. Replace.
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.

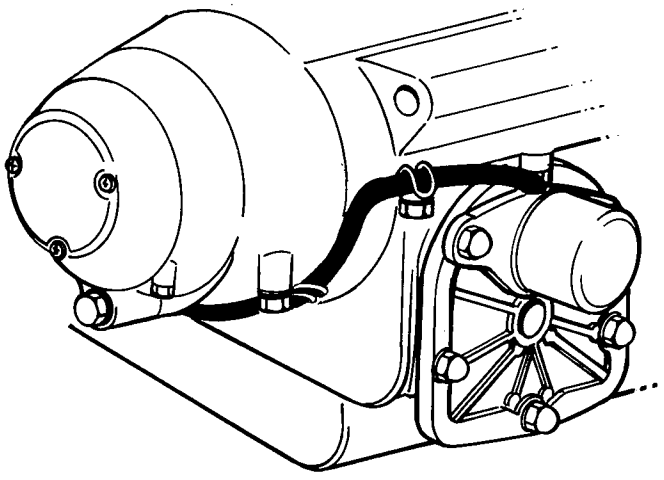
WIRING DIAGRAM

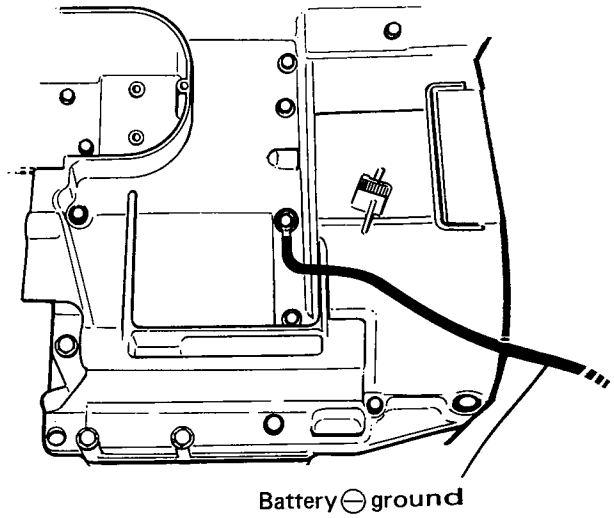


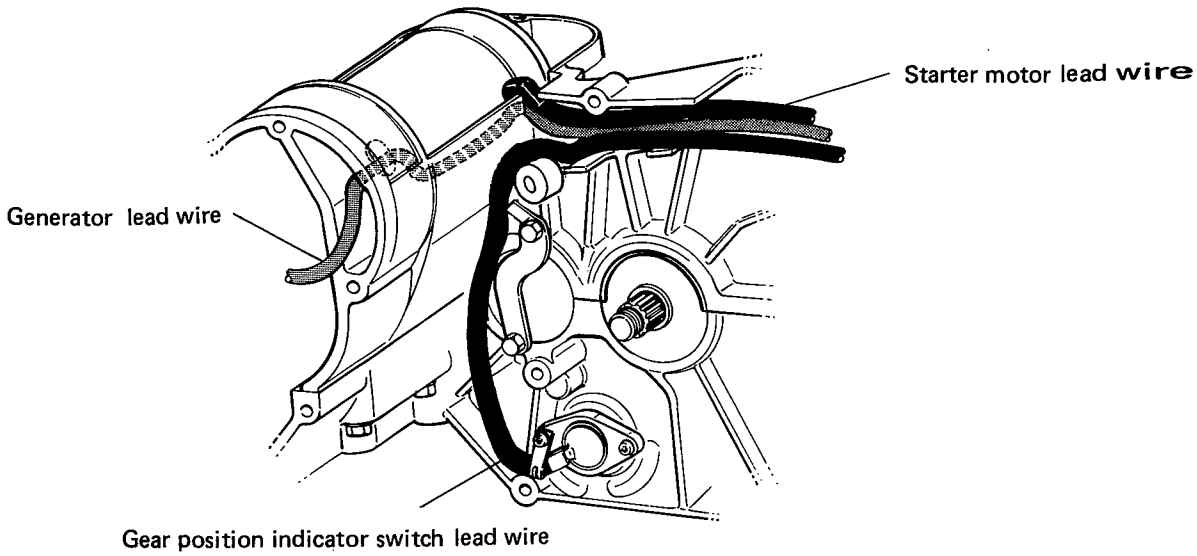
WIRE ROUTING



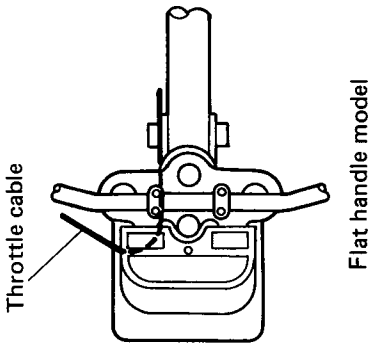

SUZUKI
TSCC
Signal generator lead wire
Oil pressure switch lead wire

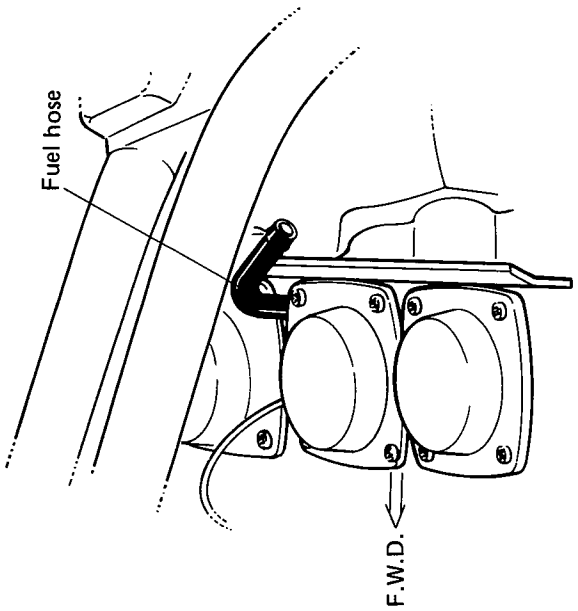

Oil pressure switch lead wire

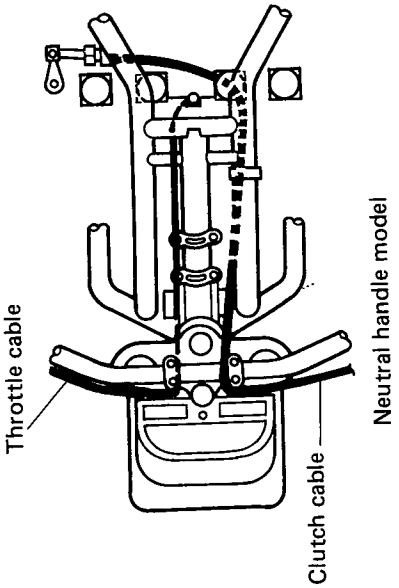

Battery ⊖ ground

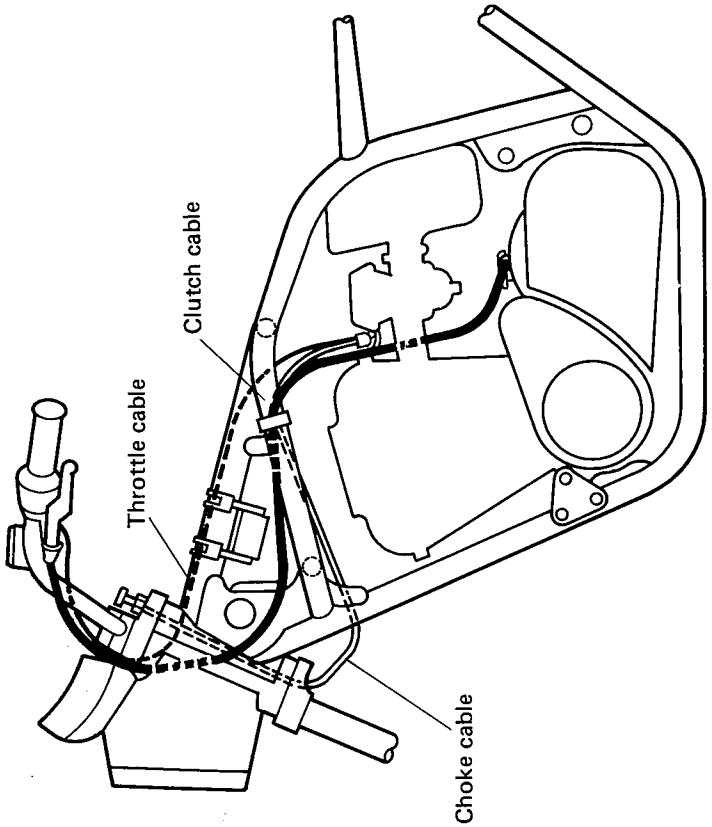

Starter motor lead wire
Generator lead wire
Gear position indicator switch lead wire

CABLE ROUTING







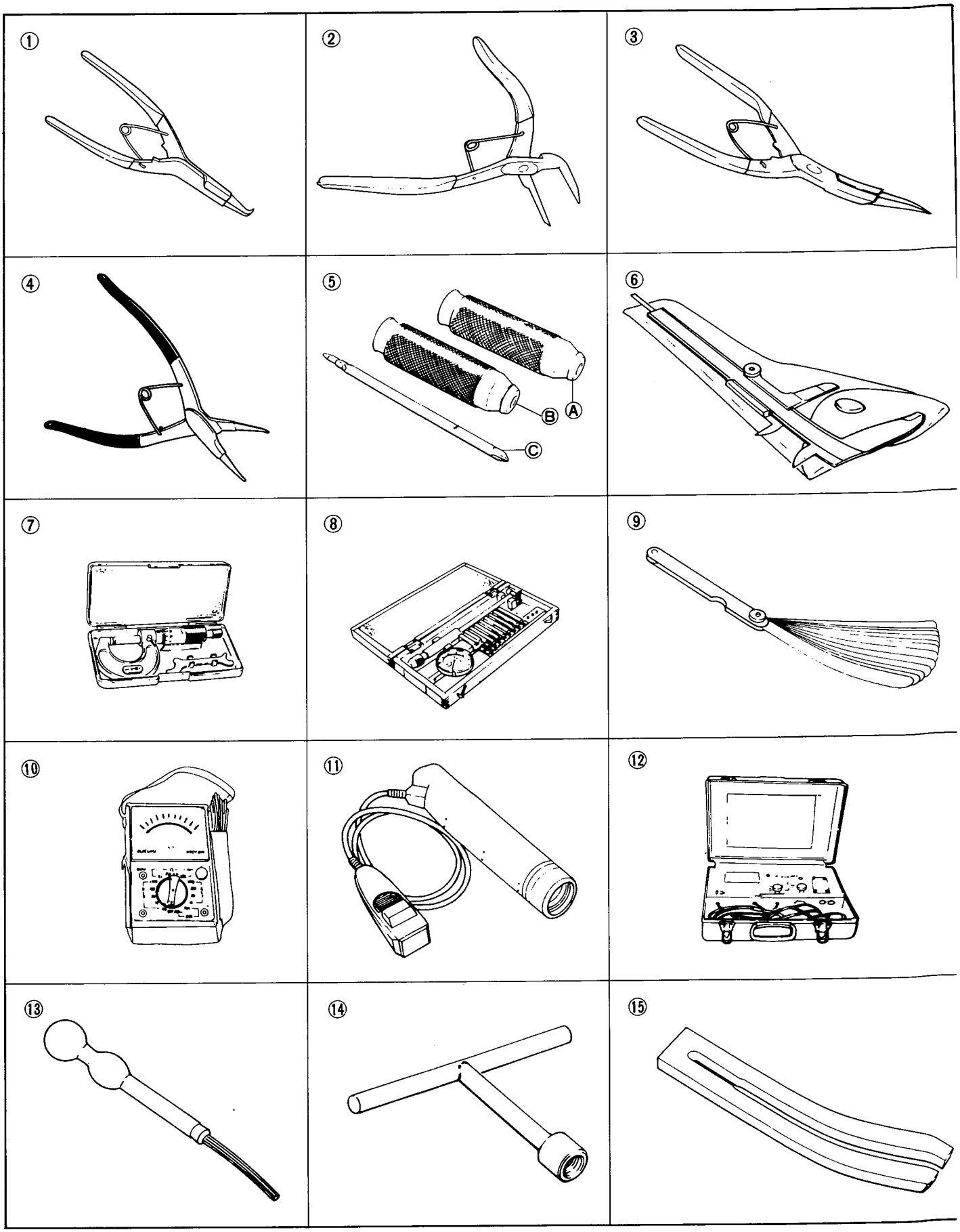


SPECIAL TOOLS

Item	Part No.	Part Name
1	09900-06104	Snap ring pliers
2	09900-06105	Snap ring pliers (closing type)
3	09900-06107	Snap ring pliers
4	09900-06108	Snap ring pliers (closing type)
5	09900-09002	Shock driver set
		Ⓐ 09900-09101 Body (untightening)
		Ⓑ 09900-09102 Body (tightening)
		Ⓒ 09900-09202 Bit
6	09900-20102	Vernier calipers (200 mm)
7	09900-20201	Micrometer (0 – 25 mm)
	-20202	Micrometer (25 – 50 mm)
	-20203	Micrometer (50 – 75 mm)
8	09900-20508	Cylinder gauge set
9	09900-20803	Thickness gauge
10	09900-25002	Pocket tester
11	09900-27311	Timing light
12	09900-28106	Electro tester
13	09900-28403	Hydrometer
14	09910-11510	Stud bolt installer
15	09910-20115	Conrod stopper
16	09910-34510	Piston pin puller set.
		Ⓐ 09910-33210 Attachment
17	09911-70130	4 mm hexagon wrench
18	09911-73730	"T" type hexagon wrench (5 mm)
	09914-25811	"T" type hexagon wrench (6 mm)
19	09912-34510	Cylinder disassembling tool
20	09913-13121	Carburetor balancer set
21	09913-14540	Fuel level gauge set
		Ⓐ 09913-14410 Attachment 16 mm
		Ⓑ 09913-14530 Attachment 10 mm
		Ⓒ 09913-14511 Gauge body 6 mm
22	* 09913-14910	Throttle valve adjust wrench
23	09913-50121	Oil seal remover
24	09913-70122	Bearing installer (50 mm)
25	09913-85210	Bearing installer (62 mm)
26	09913-84510	Bearing installer (38 mm)

Item	Part No.	Part Name
27	09930-14511	Cylinder head nut and spark plug wrench set
		Ⓐ 09914-24510 T handle
		Ⓑ 09911-74510 Long socket 14 mm
		Ⓒ 09911-74520 Long socket 12 mm
		Ⓓ 09930-14530 Universal joint
		Ⓔ 09930-13210 Spark plug socket wrench
28	09915-64510	Compression gauge
29	* 09915-63210	Compression gauge adaptor
30	09915-74510	Oil pressure gauge (0 – 3 kg/cm^2)
	* 09915-77330	Meter (0 – 10 kg/cm^2)
	* 09915-17410	Oil pressure gauge adaptor
31	09916-14510	Valve lifter
32	* 09916-14910	Valve lifter attachment
33	* 09916-21110	Valve seat cutter set
34	* 09916-34560	Ⓐ Valve guide hole reamer (11.2 mm)
	* -34540	Ⓑ Reamer handle
	* -34550	Ⓒ Valve guide reamer (5.5 mm)
35	* 09916-44910	Valve guide remover
36	* 09916-44920	Valve guide installer attachment
37	09916-74520	Piston ring holder body
	09916-74540	Band (63 – 75 mm)
38	09916-84510	Forceps
39	* 09917-14910	Valve adjust driver
40	09920-53710	Clutch sleeve hub holder
41	09924-84510	Bearing installer set
42	09930-44510	Rotor remover shaft
	09930-30102	Attachment
43	09930-44510	Rotor holder
44	09940-14910	Steering nut socket wrench
45	09940-34520	Front fork assembling "T" handle
	34561	Attachment D
46	09940-54910	Front fork oil seal installing driver
	09940-54920	Attachment
47	09941-34511	Steering race and swinging arm bearing installer
48	09941-44510	Swinging arm bearing remover
49	09941-54911	Bearing inner race remover
50	09941-74910	Steering bearing installer
51	09941-84510	Bearing outer race remover
52	09941-94510	Rim protector
53	09943-74111	Front fork oil level gauge
54	96200-41330	Tire pressure gauge

NOTE: (*) Mark shows newly applied for GS750.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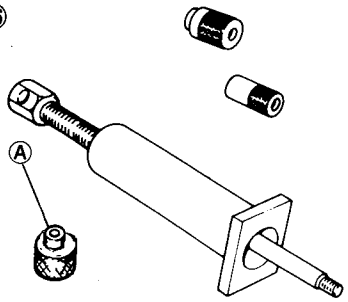

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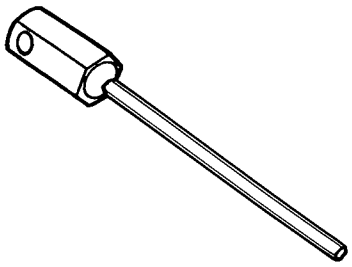

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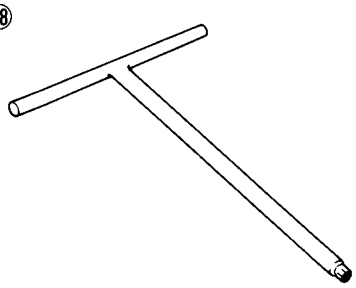

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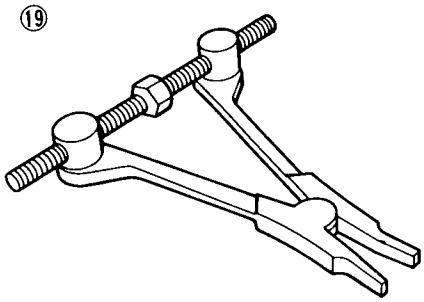

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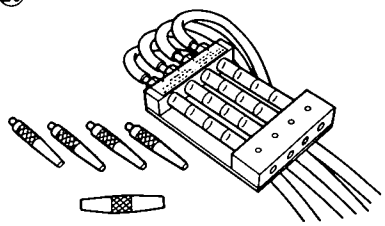

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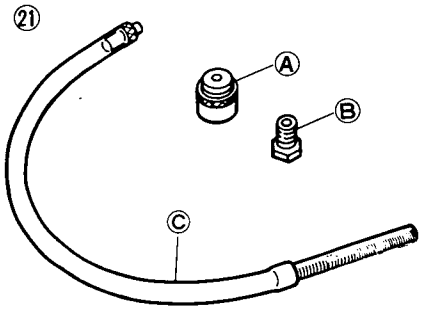

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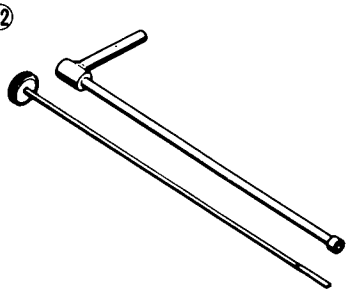

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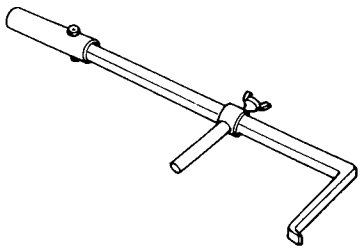

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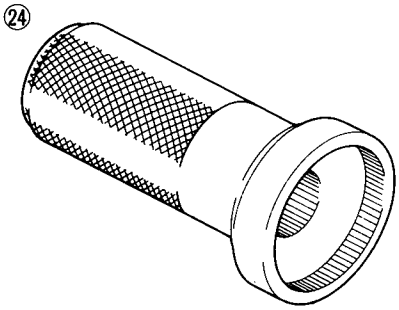

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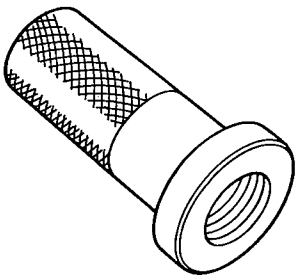

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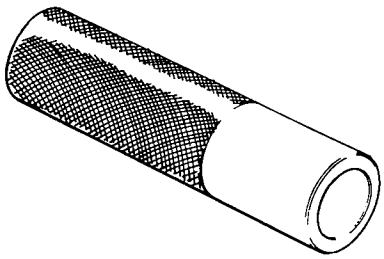

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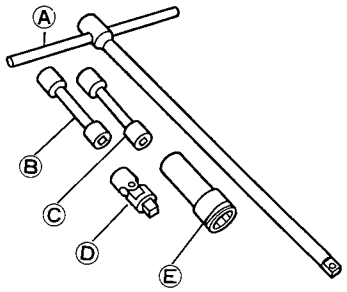

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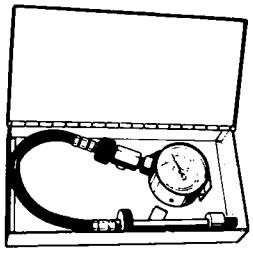

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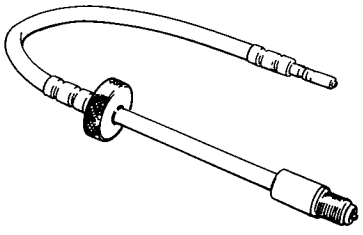

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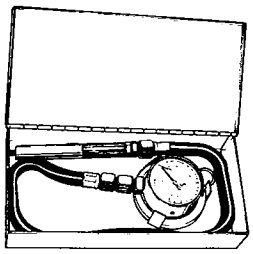

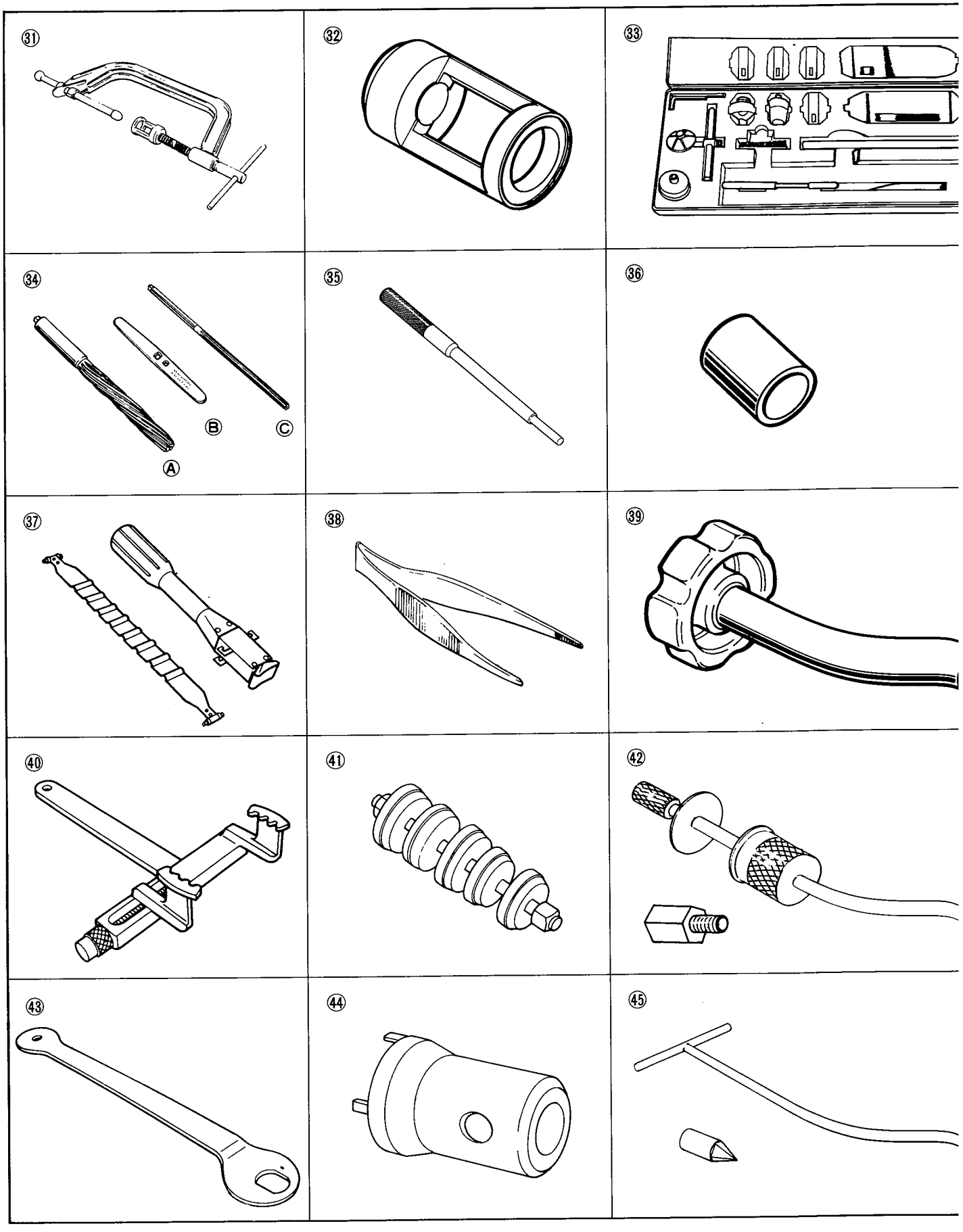
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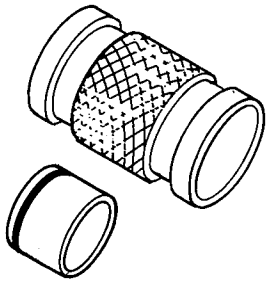
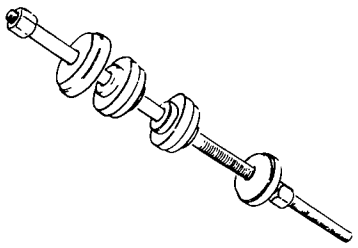
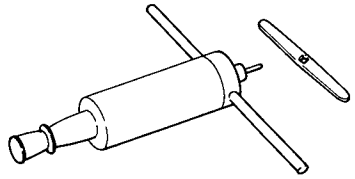
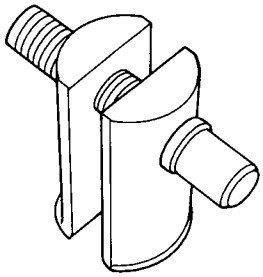
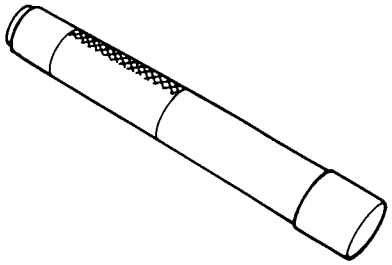
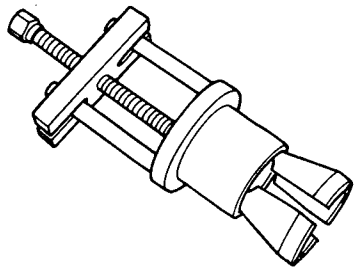
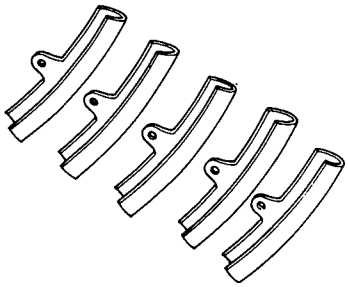
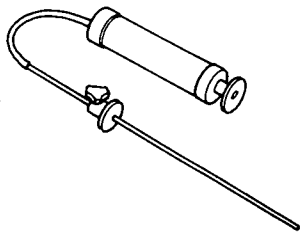
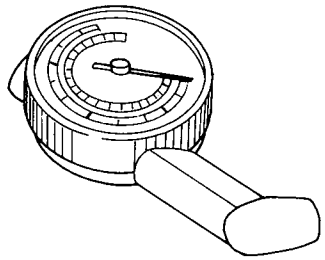
㊻ 	㊼ 	㊽ 
㊾ 	㊿ 	(51) 
(52) 	(53) 	(54) 

TIGHTENING TORQUE

ENGINE

ITEM	N·m	kg-m	lb-ft
Cylinder head cover bolt	9 – 10	0.9 – 1.0	6.5 – 7
Cylinder head bolt	7 – 11	0.7 – 1.1	5.0 – 8
Cylinder head nut	35 – 40	3.5 – 4.0	25.5 – 29
Rocker arm shaft stopper bolt	8 – 10	0.8 – 1.0	6.0 – 7
Valve clearance adjuster lock nut	9 – 11	0.9 – 1.1	6.5 – 8
Cam shaft holder bolt	8 – 12	0.8 – 1.2	6.0 – 8
Cam shaft sprocket bolt	9 – 12	0.9 – 1.2	6.5 – 8
Cam chain tensioner fitting bolt	6 – 8	0.6 – 0.8	4.5 – 6
Cam chain tensioner shaft ass'y	31 – 35	3.1 – 3.5	22.0 – 25
Cam chain tensioner lock shaft nut	8 – 10	0.8 – 1.0	6.0 –
Cam chain tensioner adjuster lock nut	9 – 14	0.9 – 1.4	6.5 – 10
Generator rotor bolt	90 – 100	9.0 – 10.0	65.0 – 7
Starter clutch allen bolt	15 – 20	1.5 – 2.0	11.0 – 1
Con rod nut	30 – 34	3.0 – 3.4	21.5 – 2
Crank web No. 4 nut	26 – 30	2.6 – 3.0	19.0 – 2
Governer center bolt	13 – 23	1.3 – 2.3	9.5 – 1
Crankcase bolt (6 mm)	9 – 13	0.9 – 1.3	6.5 –
(8 mm)	20 – 24	2.0 – 2.4	14.5 – 1
Starter motor bolt	4 – 7	0.4 – 0.7	3.0 –
Oil pan bolt	10	1.0	7 –
Oil pressure switch	13 – 17	1.3 – 1.7	9.5 – 1
Oil filter cover nut	6 – 8	0.6 – 0.8	4.5 –
Neutral stopper housing	18 – 28	1.8 – 2.8	13.0 – 2
Gearshift arm stopper	15 – 23	1.5 – 2.3	11.0 – 1
Clutch steeve hub nut	50 – 70	5.0 – 7.0	36.0 – 5
Clutch spring bolt	11 – 13	1.1 – 1.3	8.0 –
Engine sprocket nut	90 – 100	9.0 – 10.0	65.0 – 7
Engine mounting bolt (8 mm)	20 – 30	2.0 – 3.0	14.5 – 2
(10 mm)	30 – 37	3.0 – 3.7	21.5 – 2
Ⓐ	45 – 55	4.5 – 5.5	32.5 – 4
Gearshift lever bolt	13 – 23	1.3 – 2.3	9.5 – 1
Clutch release arm bolt	6 – 10	0.6 – 1.0	4.5 –

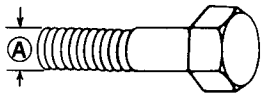
CHASSIS

ITEM	N·m	kg-m	lb-ft
Spoke nipple	4 – 5	0.4 – 0.5	3.0 – 3.5
Disc bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front axle nut	36 – 52	3.6 – 5.2	26.0 – 37.5
Front axle pinch bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front caliper mounting bolt	25 – 40	2.5 – 4.0	18.0 – 29.0
Front caliper axle bolt	15 – 20	1.5 – 2.0	11.0 – 14.5
Brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Caliper bleeder	7 – 9	0.7 – 0.9	5.0 – 6.5
Damper rod bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front fork lower 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 cap bolt	15 – 30	1.5 – 3.0	11.0 – 21.5
Steering stem nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Steering stem clamp bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Steering stem head nut	36 – 52	3.6 – 5.2	26.0 – 37.5
Handlebar clamp bolt	12 – 20	1.2 – 2.0	8.5 – 14.5
Master cylinder clamp bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
Front master cylinder clamp bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
Front footrest bolt	27 – 43	2.7 – 4.3	19.5 – 31.0
Swinging arm pivot nut	50 – 80	5.0 – 8.0	36.0 – 58.0
Brake pedal arm bolt	10 – 15	1.0 – 1.5	7.0 – 11.0
Rear master cylinder mounting 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 caliper mounting bolt	25 – 40	2.5 – 4.0	18.0 – 29.0
Rear caliper bolt	20 – 30	2.0 – 3.0	14.5 – 21.5
Muffler bracket nut	15 – 20	1.5 – 2.0	11.0 – 14.5
Rear shock absorber fitting bolt or nut	20 – 30	2.0 – 3.0	14.5 – 21.5
Rear footrest bolt	27 – 43	2.7 – 4.3	19.5 – 31.0
Rear sprocket nut	25 – 40	2.5 – 4.0	18.0 – 29.0
Rear axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Chain adjuster support bolt	15 – 20	1.5 – 2.0	11.0 – 14.5

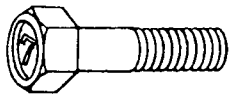
TIGHTENING TORQUE CHART

For other bolts and nuts not listed prescribed, refer to this chart:

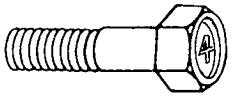
Bolt Diameter (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	kg-m	lb-ft	N·m	kg-m	lb-ft	N·m
4	0.1 – 0.2	0.7 – 1.5	1 – 2	0.15 – 0.3	1.0 – 2.0	1.5
5	0.2 – 0.4	1.5 – 3.0	2 – 4	0.3 – 0.6	2.0 – 4.5	3
6	0.4 – 0.7	3.0 – 5.0	4 – 7	0.8 – 1.2	6.0 – 8.5	8
8	1.0 – 1.6	7.0 – 11.5	10 – 16	1.8 – 2.8	13.0 – 20.0	18
10	2.2 – 3.5	16.0 – 25.5	22 – 35	4.0 – 6.0	29.0 – 43.5	40
12	3.5 – 5.5	25.5 – 40.0	35 – 55	7.0 – 10.0	50.5 – 72.5	70
14	5.0 – 8.0	36.0 – 58.0	50 – 80	11.0 – 16.0	79.5 – 115.5	110
16	8.0 – 13.0	58.0 – 94.0	80 – 130	17.0 – 25.0	123.0 – 181.0	170
18	13.0 – 19.0	94.0 – 137.5	130 – 190	20.0 – 28.0	144.5 – 202.5	200



Conventional Bolt



"7" Marked Bolt



"4" Marked Bolt

SERVICE DATA

VALVE+GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve dia.	IN.	22.9 – 23.1 (0.90 – 0.91)	———
	EX.	19.9 – 20.1 (0.78 – 0.79)	———
Valve lift	IN.	6.5 (0.26)	———
	EX.	6.5 (0.26)	———
Valve clearance (when cold)	IN. & EX.	0.09 – 0.13 (0.004 – 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.	5.500 – 5.512 (0.2165 – 0.2170)	———
Valve stem O.D.	IN.	5.460 – 5.475 (0.2150 – 0.2156)	———
	EX.	5.445 – 5.460 (0.2144 – 0.2150)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve stem end length	IN. & EX.	———	3.6 (0.14)
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 (IN. & EX.)	INNER	———	31.9 (1.26)
	OUTER	———	35.6 (1.40)
Valve spring tension (IN. & EX.)	INNER	4.4 – 6.4 kg (9.7 – 14.1 lbs) at length 28.5 mm (1.12 in)	———
	OUTER	6.5 – 8.9 kg (14.3 – 19.6 lbs) at length 32.0 mm (1.26 in)	———

CAMSHAFT + CYLINDER HEAD

Unit: mm

ITEM	STANDARD		LIMIT
Cam height	IN.	34.360 – 34.400 (1.3528 – 1.3543)	34.060 (1.3409)
	EX.	34.360 – 34.400 (1.3528 – 1.3543)	34.060 (1.3409)
Camshaft journal oil clearance	IN. & EX.	0.020 – 0.054 (0.0008 – 0.0021)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.000 – 22.013 (0.8661 – 0.8667)	———
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		———	157.80 (6.213)
Cam chain pin (at arrow "3")		20th 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)

PISTON + RING + CYLINDER

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure	9 – 12 kg/cm² (128 – 170 psi)			7 kg/cm² (100 psi)
Compression pressure difference	———			2 kg/cm² (28.4 psi)
Piston to Cylinder clearance	0.050 – 0.060 (0.0020 – 0.0024)			0.120 (0.0047)
Cylinder bore	67.000 – 67.015 (2.6378 – 2.6384)			67.080 (2.6410)
Piston dia.	66.945 – 66.960 (2.6356 – 2.6362) Measure the 15.0 (0.6) from piston skirt end.			66.880 (2.6331)
Cylinder distortion	———			0.2 (0.008)
Piston ring free end gap	1st	N	Approx. 9.5 (0.37)	7.6 (0.30)
		R	Approx. 9.5 (0.37)	7.6 (0.30)
	2nd	N	Approx. 10.0 (0.39)	8.0 (0.31)
		R	Approx. 10.0 (0.39)	8.0 (0.31)
Piston ring end gap	1st		0.10 – 0.30 (0.004 – 0.012)	0.7 (0.03)
	2nd		0.10 – 0.30 (0.004 – 0.012)	0.7 (0.03)
Piston ring-groove clearance	1st		———	0.180 (0.0071)
	2nd		———	0.150 (0.0059)
Piston ring-groove width	1st		1.21 – 1.23 (0.047 – 0.048)	———
	2nd		1.21 – 1.23 (0.047 – 0.048)	———
	Oil		2.51 – 2.53 (0.099 – 0.100)	———
Piston ring thickness	1st		1.175 – 1.190 (0.0463 – 0.0469)	———
	2nd		1.170 – 1.190 (0.0461 – 0.0469)	———
Piston pin bore	18.002 – 18.008 (0.7087 – 0.7090)			18.030 (0.7098)
Piston pin O.D.	17.995 – 18.000 (0.7085 – 0.7087)			17.980 (0.7079)

CRANKSHAFT + CRANKCASE

Unit: mm (

ITEM	STANDARD	LIMIT
Conrod small end I.D.	18.006 – 18.014 (0.7089 – 0.7092)	18.040 (0.7102)
Conrod big end side clearance	0.10 – 0.20 (0.004 – 0.008)	0.30 (0.012)
Conrod big end width	20.95 – 21.00 (0.825 – 0.827)	———
Crank pin width	21.10 – 21.15 (0.831 – 0.833)	———
Conrod big end oil clearance	0.024 – 0.048 (0.0009 – 0.0019)	0.080 (0.0031)
Crank pin O.D.	35.976 – 36.000 (1.4164 – 1.4173)	———
Crankshaft journal oil clearance	0.020 – 0.044 (0.0008 – 0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	35.976 – 36.000 (1.4164 – 1.4173)	———
Crankshaft thrust clearance	0.08 – 0.24 (0.003 – 0.009)	0.50 (0.020)
Crankshaft journal holder width (Crankcase)	23.84 – 23.92 (0.939 – 0.942)	———
Crankshaft journal width (Crankshaft)	24.00 – 24.08 (0.945 – 0.948)	———
Crankshaft runout	———	0.10 (0.004)

OIL PUMP

Unit: mm

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.650 (93 / 43 x 29 / 38)	———
Oil pressure (at 60°C, 140°F)	Above 3.0 kg/cm² (43 psi)	———
	Below 5.5 kg/cm² (78 psi) at 3 000 r/min.	———
Tip clearance	———	0.2 (0.008)
Outer rotor clearance	———	0.25 (0.010)
Side clearance	———	0.15 (0.006)

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	2 – 3 (0.08 – 0.12)	——
Drive plate thickness	2.7 – 2.9 (0.10 – 0.11)	2.4 (0.09)
Drive plate claw width	11.8 – 12.0 (0.46 – 0.47)	11.0 (0.43)
Drive plate distortion	——	0.2 (0.008)
Driven plate thickness	1.94 – 2.06 (0.076 – 0.081)	——
Driven plate distortion	——	0.1 (0.004)
Clutch spring free length	——	38.5 (1.52)
Primary drive to Driven gear backlash	0 – 0.02. (0 – 0.0008)	0.08 (0.003)

TRANSMISSION

Unit: mm (i

ITEM	STANDARD		LIMIT
Primary reduction	2.162 (93 / 43)		———
Final reduction	2.733 (41 / 15)		———
Gear ratios	Low	2.571 (36 / 14)	———
	2nd	1.777 (32 / 18)	———
	3rd	1.380 (29 / 21)	———
	4th	1.125 (27 / 24)	———
	Top	0.961 (25 / 26)	———
Gear backlash	Low	0.05 (0.002)	0.10 (0.004)
	2nd	0.05 (0.002)	0.10 (0.004)
	3rd	0.05 (0.002)	0.10 (0.004)
	4th	0.10 (0.004)	0.15 (0.006)
	Top	0.10 (0.004)	0.15 (0.006)
Shift fork to Groove clearance	0.40 – 0.60 (0.016 – 0.024)		0.80 (0.031)
Shift fork groove width	5.45 – 5.55 (0.215 – 0.219)		———
Shift fork thickness	4.95 – 5.05 (0.195 – 0.199)		———
Counter shaft length (Low to 2nd)	$109.5 \pm \frac{0}{0.1}$ $\left(4.31 \pm \frac{0}{0.004}\right)$		———
Drive chain	Type	DAIDO: D.I.D. 630V TAKASAGO: RK630SO	———
	Links	96	———
	20 pitch length	———	383.0 (15.08)
Drive chain slack	20 – 30 (0.8 – 1.2)		———

CARBURETOR

Unit: mm (in)

ITEM	SPECIFICATION
Carburetor type	MIKUNI BS32SS
Bore size	32 (1.26)
I.D. No.	45400
Idle r/min.	1 050 ± 100 r/min.
Fuel level	5.0 ± 0.5 (0.20 ± 0.02)
Float height	22.4 ± 1.0 (0.88 ± 0.04)
Main jet	# 112.5
Main air jet	1.7
Jet needle	5C28
Needle jet	Y-4
Pilot jet	# 42.5
By pass	0.8, 0.8, 0.8
Pilot outlet	0.7
Valve seat	2.0
Starter jet	#50
Pilot screw	PRE-SET
Throttle cable play	0.5 – 1.0 (0.02 – 0.04)

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION		
Ignition timing	15° B.T.D.C. Below 1 500 ± 150 rpm and 35° B.T.D.C. Above 2 350 ± 150 rpm		
Firing order	1 · 2 · 4 · 3		
Spark plug	Type	NGK: D8EA N.D.: X24ES-U	
	Gap	0.6 – 0.7 (0.024 – 0.028)	
Spark performance	Over 8 (0.3) at 1 atm		
Signal coil resistance	Approx. 290 – 360 Ω (Bl–G)		
Ignition coil resistance	Primary	O/W – W or B/Y Approx. 3 – 5 Ω	
	Secondary	Plug cap – Plug cap Approx. 30 – 35 kΩ	
Generator No-Load voltage	More than 80V (AC) at 5 000 rpm		
Regulated voltage	14.0 – 15.5V at 5 000 rpm		
Starter motor	Brush length	Limit: 6 (0.24)	
	Commutator under cut	Limit: 0.2 (0.008)	
Starter relay resistance	Approx. 3 – 4 Ω		
Battery	Type designation	YB14L – A2	
	Capacity	12V50.4kC(14Ah)/10HR	
	Standard electrolyte S.G.	1.28 at 20°C (68°F)	
Fuse size	Head	10A	
	Signal	10A	
	Ignition	10A	
	Main	15A	
	Power source	10A	

SUSPENSION

Unit: mm (i

ITEM	STANDARD		LIMIT
Front fork stroke	160 (6.30)		
Front fork spring free length	Upper	———	153 (6.02)
	Lower	———	451 (17.76)
Front fork oil level	229 (9.02)		———
Rear wheel travel	107 (4.21)		———
Swing arm pivot shaft runout	———		0.3 (0.012)

FUEL + OIL + CAPACITY

Unit: mm (

ITEM	SPECIFICATION	
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	19L (5.0 US gal)	
Engine oil type	SAE 10W/40	
Engine oil capacity	Change	3 200 ml (3.4 US qt)
	Filter change	3 800 ml (4.0 US qt)
	Overhaul	4 000 ml (4.2 US qt)
Front fork oil type	Fork oil #15	
Front fork oil capacity (each leg)	237 ml (8.01 US oz)	
Brake fluide type	DOT3 or DOT4	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	NORMAL RIDING				CONTINUOUS HIGH SPEED RIDING			
	SOLO		DUAL		SOLO		DUAL	
	kg/cm²	p.s.i.	kg/cm²	p.s.i.	kg/cm²	p.s.i.	kg/cm²	p.s.i.
FRONT	1.75	25	1.75	25	2.00	28	2.00	28
REAR	2.00	28	2.25	32	2.25	32	2.80	40

BULB 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		3.4
Neutral indicator light		3.4
Oil pressure indicator light		3.4
License light		8 (4)

FOREWORD

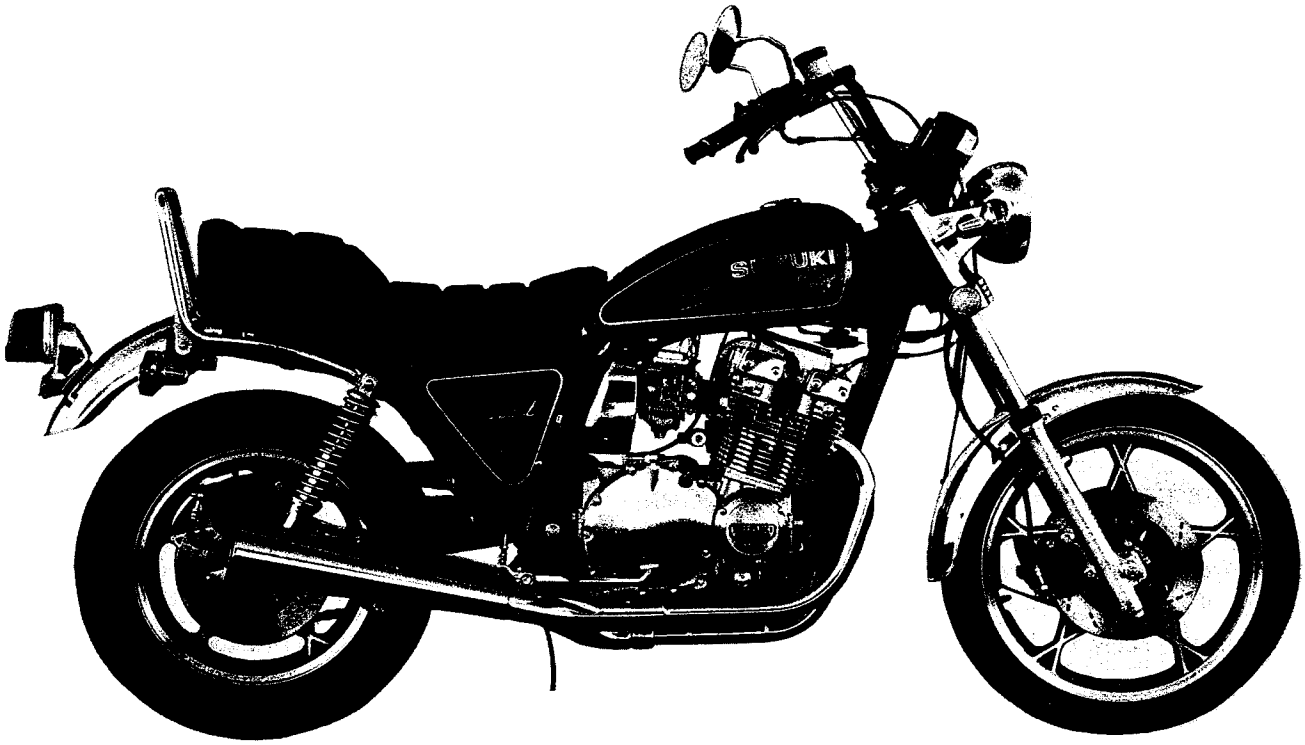
The GS750LT model was introduced as a new model in 1980. Many innovative refinements were incorporated in the new model. The 1981 GS750LX model utilizes the same technical innovations that were introduced on the "T" model. This supplementary service manual has been produced to aid Suzuki mechanics in properly maintaining and repairing both the 1980 "T" and 1981 "X" models.

This manual has been written primarily for the experienced Suzuki mechanic but will also be very useful even for the amateur, do-it-yourself mechanic. The entire manual should be thoroughly reviewed before any servicing is performed.

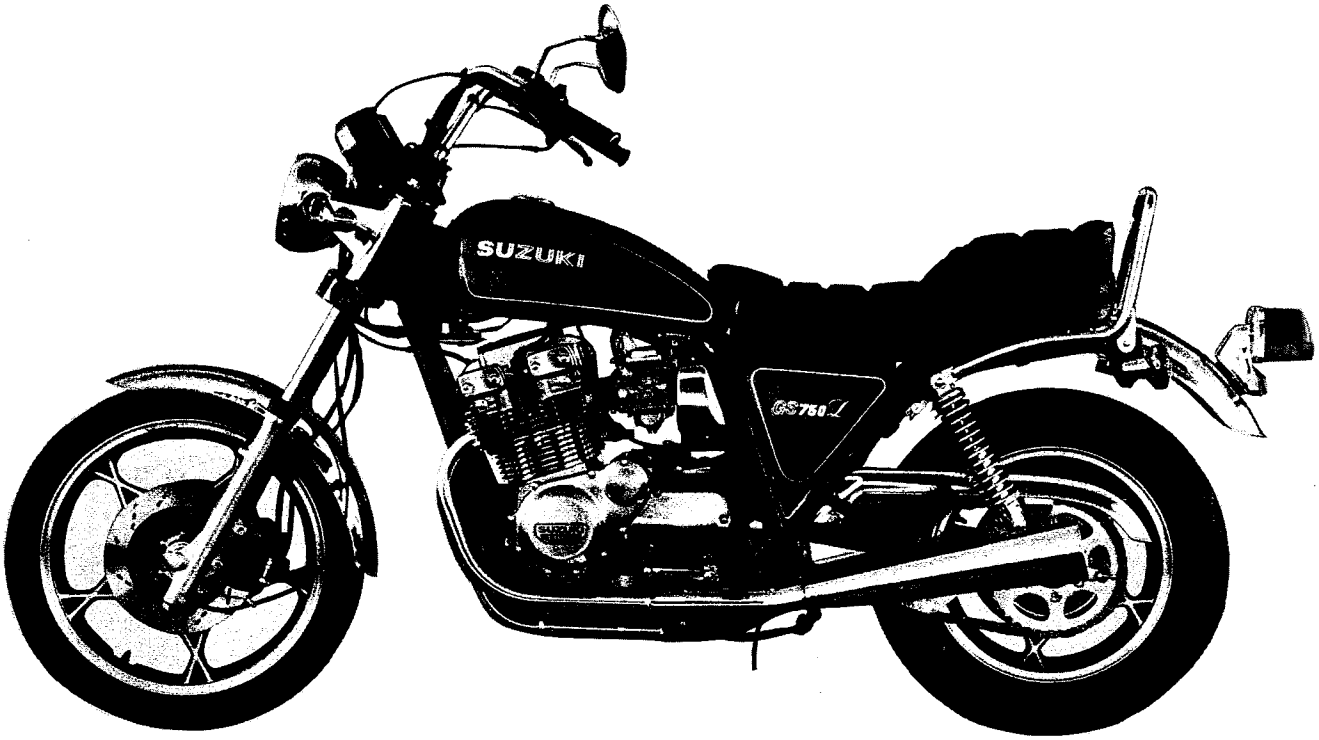
Please also refer to the Sections 1 through 87 for all other areas of information not covered in this publication.

CONTENTS

VIEW OF SUZUKI GS750LT



RIGHT SIDE



LEFT SIDE

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 290 mm (90.2 in)
Overall width	855 mm (33.7 in)
Overall height	1 170 mm (46.1 in)
Wheelbase	1 530 mm (60.2 in)
Ground clearance	140 mm (5.5 in)
Seat height	750 mm (29.5 in)
Dry mass	230 kg (507 lbs)
Gross vehicle weight	486 kg (1 071 lbs)

ENGINE

Type	Four-stroke, air-cooled, DOHC
Number of cylinders	4
Bore	67.0 mm (2.638 in)
Stroke	53.0 mm (2.087 in)
Piston displacement	747 cm^3 (45.6 cu.in)
Compression ratio	9.4 : 1
Carburetor	MIKUNI BS32SS, four
Air cleaner	Paper element
Starter system	Electric
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction	2.162 (93/43)
Final reduction	2.666 (40/15)
Gear ratios, Low	2.571 (36/14)
2nd	1.777 (32/18)
3rd	1.380 (29/21)
4th	1.125 (27/24)
Top	0.961 (25/26)
Drive chain	DAIDO D.I.D.630V or TAKASAGO RK630SO, 96 links

CHASSIS

Front suspension	Telescopic, oil dampened
Rear suspension	Swinging arm, oil dampened, spring 5-way adjustable
Steering angle	40° (right & left)
Caster	61° 00′
Trail	103 mm (4.06 in)
Turning radius	2.8 m (9.2 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	90/90-19 52H
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	2.00 kg/cm² (28 psi) (Normal solo riding)
Rear tire pressure	2.00 kg/cm² (28 psi) (Normal solo riding)

ELECTRICAL

Ignition type	Transistorized
Ignition timing	15° B.T.D.C. below 1 500 r/min and 35° B.T.D.C. above 2 350 r/min
Spark plug	NGK D8EA or NIPPON DENSO X24ES-U
Battery	12V 50.4kC (14Ah)/10HR
Generator	Three-phase A.C. generator
Fuse	10/10/10/10/15A

CAPACITIES

Fuel tank including reserve	15 L (4.0 US gal)
reserve	4.0 L (4.2 US qt)
Engine oil	3.2 L (3.4 US qt)
Front fork oil (each leg)	237 ml (8.01 US oz)

** These specifications are subject to change without notice.

SERVICE DATA

VALVE + GUIDE

Unit: mm

ITEM		STANDARD	LIMIT
Valve dia.	IN.	22.9 – 23.1 (0.90 – 0.91)	—
	EX.	19.9 – 20.1 (0.78 – 0.79)	—
Valve lift	IN.	6.5 (0.26)	—
	EX.	6.5 (0.26)	—
Valve clearance (when cold)	IN. & EX.	0.09 – 0.13 (0.004 – 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.	5.500 – 5.512 (0.2165 – 0.2170)	—
Valve stem O.D.	IN.	5.460 – 5.475 (0.2150 – 0.2156)	—
	EX.	5.445 – 5.460 (0.2144 – 0.2150)	—
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve stem end length	IN. & EX.	—	3.6 (0.14)
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 (IN. & EX.)	INNER	—	31.9 (1.26)
	OUTER	—	35.6 (1.40)
Valve spring tension (IN. & EX.)	INNER	4.4 – 6.4 kg (9.7 – 14.1 lbs) at length 28.5 mm (1.12 in)	—
	OUTER	6.5 – 8.9 kg (14.3 – 19.6 lbs) at length 32.0 mm (1.26 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM		STANDARD	LIMIT
Cam height	IN.	34.360 – 34.400 (1.3528 – 1.3543)	34.060 (1.3409)
	EX.	34.360 – 34.400 (1.3528 – 1.3543)	34.060 (1.3409)
Camshaft journal oil clearance	IN. & EX.	0.020 – 0.054 (0.0008 – 0.0021)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.000 – 22.013 (0.8661 – 0.8667)	——
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		——	157.80 (6.213)
Cam chain pin (at arrow "3")		20th 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)

PISTON + RING + CYLINDER

Unit: mm

ITEM	STANDARD			LIMIT
Compression pressure	9 – 12 kg/cm² (128 – 170 psi)			7 kg/cm² (100 psi)
Compression pressure difference	——			2 kg/cm² (28.4 psi)
Piston to Cylinder clearance	0.050 – 0.060 (0.0020 – 0.0024)			0.120 (0.0047)
Cylinder bore	67.000 – 67.015 (2.6378 – 2.6384)			67.080 (2.6410)
Piston dia.	66.945 – 66.960 (2.6356 – 2.6362) Measure the 15.0 (0.6) from piston skirt end.			66.880 (2.6331)
Cylinder distortion	——			0.2 (0.008)
Piston ring free end gap	1st	N	Approx. 9.5 (0.37)	7.6 (0.30)
		R	Approx. 9.5 (0.37)	7.6 (0.30)
	2nd	N	Approx. 10.0 (0.39)	8.0 (0.31)
		R	Approx. 10.0 (0.39)	8.0 (0.31)
Piston ring end gap	1st		0.10 – 0.30 (0.004 – 0.012)	0.7 (0.03)
	2nd		0.10 – 0.30 (0.004 – 0.012)	0.7 (0.03)
Piston ring-groove clearance	1st		——	0.180 (0.0071)
	2nd		——	0.150 (0.0059)
Piston ring-groove width	1st		1.21 – 1.23 (0.047 – 0.048)	——
	2nd		1.21 – 1.23 (0.047 – 0.048)	——
	Oil		2.51 – 2.53 (0.099 – 0.100)	——
Piston ring thickness	1st		1.175 – 1.190 (0.0463 – 0.0469)	——
	2nd		1.170 – 1.190 (0.0461 – 0.0469)	——
Piston pin bore	18.002 – 18.008 (0.7087 – 0.7090)			18.030 (0.7098)
Piston pin O.D.	17.995 – 18.000 (0.7085 – 0.7087)			17.980 (0.7079)

CRANKSHAFT + CRANKCASE

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	18.006 – 18.014 (0.7089 – 0.7092)	18.040 (0.7102)
Conrod big end side clearance	0.10 – 0.20 (0.004 – 0.008)	0.30 (0.012)
Conrod big end width	20.95 – 21.00 (0.825 – 0.827)	———
Crank pin width	21.10 – 21.15 (0.831 – 0.833)	———
Conrod big end oil clearance	0.024 – 0.048 (0.0009 – 0.0019)	0.080 (0.0031)
Crank pin O.D.	35.976 – 36.000 (1.4164 – 1.4173)	———
Crankshaft journal oil clearance	0.020 – 0.044 (0.0008 – 0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	35.976 – 36.000 (1.4164 – 1.4173)	———
Crankshaft thrust clearance	0.08 – 0.24 (0.003 – 0.009)	0.50 (0.020)
Crankshaft journal holder width (Crankcase)	23.84 – 23.92 (0.939 – 0.942)	———
Crankshaft journal width (Crankshaft)	24.00 – 24.08 (0.945 – 0.948)	———
Crankshaft runout	———	0.10 (0.004)

OIL PUMP

Unit: mm (in)

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.650 (93 / 43 x 29 / 38)	———
Oil pressure (at 60°C, 140°F)	Above 3.0 kg/cm² (43 psi) Below 5.5 kg/cm² (78 psi) at 3 000 r/min.	———
Tip clearance	———	0.2 (0.008)
Outer rotor clearance	———	0.25 (0.010)
Side clearance	———	0.15 (0.006)

CLUTCH

Unit: mm

ITEM	STANDARD	LIMIT
Clutch cable play	2 – 3 (0.08 – 0.12)	—
Drive plate thickness	2.7 – 2.9 (0.10 – 0.11)	2.4 (0.09)
Drive plate claw width	11.8 – 12.0 (0.46 – 0.47)	11.0 (0.43)
Driven plate thickness	1.94 – 2.06 (0.076 – 0.081)	—
Driven plate distortion	—	0.1 (0.004)
Clutch spring free length	—	38.5 (1.52)

TRANSMISSION

Unit: mm

ITEM		STANDARD	LIMIT
Primary reduction		2.162 (93 / 43)	—
Final reduction		2.666 (40 / 15)	—
Gear ratios	Low	2.571 (36 / 14)	—
	2nd	1.777 (32 / 18)	—
	3rd	1.380 (29 / 21)	—
	4th	1.125 (27 / 24)	—
	Top	0.961 (25 / 26)	—
Shift fork to Groove clearance		0.40 – 0.60 (0.016 – 0.024)	0.80 (0.031)
Shift fork groove width		5.45 – 5.55 (0.215 – 0.219)	—
Shift fork thickness		4.95 – 5.05 (0.195 – 0.199)	—
Counter shaft length (Low to 2nd)		$109.5 \pm {}^{0}_{0.1}$ $\left(4.31 \pm {}^{0}_{0.004}\right)$	—
Drive chain	Type	DAIDO: D.I.D. 630V TAKASAGO: RK630SO	—
	Links	96	—
	20 pitch length	—	383.0 (15.08)
Drive chain slack		20 – 30 (0.8 – 1.2)	—

CARBURETOR

Unit: mm (in)

ITEM	SPECIFICATION
Carburetor type	MIKUNI BS32SS
Bore size	32 (1.26)
I.D. No.	45400
Idle r/min.	1 050 ± 100 r/min.
Fuel level	5.0 ± 0.5 (0.20 ± 0.02)
Float height	22.4 ± 1.0 (0.88 ± 0.04)
Main jet	# 112.5
Main air jet	1.7
Jet needle	5C28
Needle jet	Y-4
Pilot jet	# 42.5
By pass	0.8, 0.8, 0.8
Pilot outlet	0.7
Valve seat	2.0
Starter jet	#50
Pilot screw	PRE-SET
Throttle cable play	0.5 – 1.0 (0.02 – 0.04)

ELECTRICAL

Unit: mm

ITEM	SPECIFICATION		
Ignition timing	15° B.T.D.C. Below 1 500 ± 150 r/min and 35° B.T.D.C. Above 2 350 ± 150 r/min		
Firing order	1 · 2 · 4 · 3		
Spark plug	Type	NGK: D8EA N.D.: X24ES-U	
	Gap	0.6 – 0.7 (0.024 – 0.028)	
Spark performance	Over 8 (0.3) at 1 atm		
Signal coil resistance	Approx. 290 – 360 Ω (Bl–G)		
Ignition coil resistance	Primary	O/W – W or B/Y Approx. 3 – 5 Ω	
	Secondary	Plug cap – Plug cap Approx. 31 – 33 kΩ	
Generator No-Load voltage	More than 80V (AC) at 5 000 r/min		
Regulated voltage	14.0 – 15.5V at 5 000 r/min		
Starter motor	Brush length	Limit: 6 (0.24)	
	Commutator under cut	Limit: 0.2 (0.008)	
Starter relay resistance	Approx. 3 – 4 Ω		
Battery	Type designation	YB14L – A2	
	Capacity	12V 50.4kC (14Ah)/10HR	
	Standard electrolyte S.G.	1.28 at 20°C (68° F)	
Fuse size	Head	10A	
	Signal	10A	
	Ignition	10A	
	Main	15A	
	Power source	10A	

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD	LIMIT
Rear brake pedal height		15 (0.6)	—
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		—	0.30 (0.012)
Master cylinder bore	Front	15.870 – 15.913 (0.6248 – 0.6265)	—
	Rear	14.000 – 14.043 (0.5512 – 0.5529)	—
Master cylinder piston dia.	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 dia.	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	90/90-19 52H	—
	Rear	130/90-16 67H	—
Tire tread depth	Front	—	1.6 (0.06)
	Rear	—	2.0 (0.08)

SUSPENSION

Unit: mm

ITEM	STANDARD		LIMIT
Front fork stroke	160 (6.30)		—
Front fork spring free length	Upper	—	153 (6.02)
	Lower	—	451 (17.76)
Front fork oil level	229 (9.02)		—
Rear wheel travel	107 (4.21)		—
Swing arm pivot shaft runout	—		0.3 (0.012)

FUEL + OIL + CAPACITY

Unit: mm

ITEM	SPECIFICATION	
Fuel type	Use only unleaded or low-lead type gasoline of at least 85—[illegible] pump octane ($\frac{R+M}{2}$ method) or 89 octane or higher rated by the Research Method.	
Fuel tank	15 L (4.0 US gal)	
Engine oil type	SAE 10W/40	
Engine oil capacity	Change	3 200 ml (3.4 US qt)
	Filter change	3 800 ml (4.0 US qt)
	Overhaul	4 000 ml (4.2 US qt)
Front fork oil type	Fork oil #15	
Front fork oil capacity (each leg)	237 ml (8.01 US oz)	
Brake fluid type	DOT3 or DOT4	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	NORMAL RIDING				CONTINUOUS HIGH SPEED RIDING			
	SOLO		DUAL		SOLO		DUAL	
	kg/cm²	p.s.i.	kg/cm²	p.s.i.	kg/cm²	p.s.i.	kg/cm²	p.s.i.
FRONT	2.00	28	2.25	32	2.00	28	2.50	36
REAR	2.00	28	2.25	32	2.25	32	2.80	40

BULB 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		3.4
Neutral indicator light		3.4
Oil pressure indicator light		3.4
Fuel gauge light		3.4

TIGHTENING TORQUE

ENGINE

ITEM	N·m	kg-m	lb-ft
Cylinder head cover bolt	9 – 10	0.9 – 1.0	6.5 – 7.0
Cylinder head bolt	7 – 11	0.7 – 1.1	5.0 – 8.0
Cylinder head nut	35 – 40	3.5 – 4.0	25.5 – 29.0
Rocker arm shaft stopper bolt	8 – 10	0.8 – 1.0	6.0 – 7.0
Valve clearance adjuster lock nut	9 – 11	0.9 – 1.1	6.5 – 8.0
Cam shaft holder bolt	8 – 12	0.8 – 1.2	6.0 – 8.5
Cam shaft sprocket bolt (page 11 – **16**)	9 – 12	0.9 – 1.2	6.5 – 8.5
Cam chain tensioner fitting bolt	6 – 8	0.6 – 0.8	4.5 – 6.0
Cam chain tensioner shaft ass'y	31 – 35	3.1 – 3.5	22.0 – 25.5
Cam chain tensioner lock shaft nut	8 – 10	0.8 – 1.0	6.0 – 7.0
Cam chain tensioner adjuster lock nut	9 – 14	0.9 – 1.4	6.5 – 10.0
Generator rotor bolt	90 – 100	9.0 – 10.0	65.0 – 72.5
Starter clutch allen bolt	15 – 20	1.5 – 2.0	11.0 – 14.5
Con rod nut	30 – 34	3.0 – 3.4	21.5 – 25.0
Crank web No. 4 nut	26 – 30	2.6 – 3.0	19.0 – 21.5
Governer center bolt	13 – 23	1.3 – 2.3	9.5 – 16.5
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
Starter motor bolt	4 – 7	0.4 – 0.7	3.0 – 5.0
Oil pan bolt	10	1.0	7.0
Oil pressure switch	13 – 17	1.3 – 1.7	9.5 – 12.5
Oil filter cover nut	6 – 8	0.6 – 0.8	4.5 – 6.0
Neutral stopper housing	18 – 28	1.8 – 2.8	13.0 – 20.0
Gearshift arm stopper	15 – 23	1.5 – 2.3	11.0 – 16.0
Clutch steeve hub nut	50 – 70	5.0 – 7.0	36.0 – 50.0
Clutch spring bolt	11 – 13	1.1 – 1.3	8.0 – 9.5
Engine sprocket nut	90 – 100	9.0 – 10.0	65.0 – 72.5
Engine mounting bolt (8 mm)	20 – 30	2.0 – 3.0	14.5 – 21.5
(10 mm)	30 – 37	3.0 – 3.7	21.5 – 27.0
Ⓐ	45 – 55	4.5 – 5.5	32.5 – 40.0
Gearshift lever bolt	13 – 23	1.3 – 2.3	9.5 – 16.5
Clutch release arm bolt	6 – 10	0.6 – 1.0	4.5 – 7.0

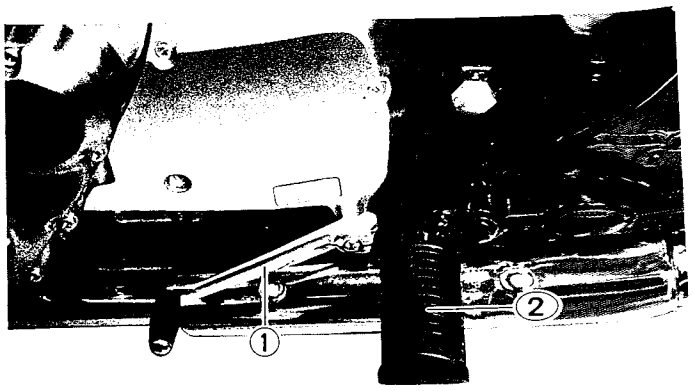
CHASSIS

ITEM	N·m	kg-m	lb-ft
Spoke nipple	4 – 5	0.4 – 0.5	3.0 – 3.5
Disc bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front axle nut	36 – 52	3.6 – 5.2	26.0 – 37.5
Front axle pinch bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front caliper mounting bolt	25 – 40	2.5 – 4.0	18.0 – 29.0
Front caliper axle bolt	15 – 20	1.5 – 2.0	11.0 – 14.5
Brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Caliper bleeder	7 – 9	0.7 – 0.9	5.0 – 6.5
Damper rod bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front fork lower 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 cap bolt	15 – 30	1.5 – 3.0	11.0 – 21.5
Steering stem nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Steering stem clamp bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Steering stem head nut	36 – 52	3.6 – 5.2	26.0 – 37.5
Handlebar clamp bolt	12 – 20	1.2 – 2.0	8.5 – 14.5
Master cylinder clamp bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
Front master cylinder clamp bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
Front footrest bolt	27 – 43	2.7 – 4.3	19.5 – 31.0
Swinging arm pivot nut	50 – 80	5.0 – 8.0	36.0 – 58.0
Brake pedal arm bolt	10 – 15	1.0 – 1.5	7.0 – 11.0
Rear master cylinder mounting 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 caliper mounting bolt	25 – 40	2.5 – 4.0	18.0 – 29.0
Rear caliper bolt	20 – 30	2.0 – 3.0	14.5 – 21.5
Muffler bracket nut	15 – 20	1.5 – 2.0	11.0 – 14.5
Rear shock absorber fitting bolt or nut	20 – 30	2.0 – 3.0	14.5 – 21.5
Rear footrest bolt	27 – 43	2.7 – 4.3	19.5 – 31.0
Rear sprocket nut	25 – 40	2.5 – 4.0	18.0 – 29.0
Rear axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Chain adjuster support bolt	15 – 20	1.5 – 2.0	11.0 – 14.5

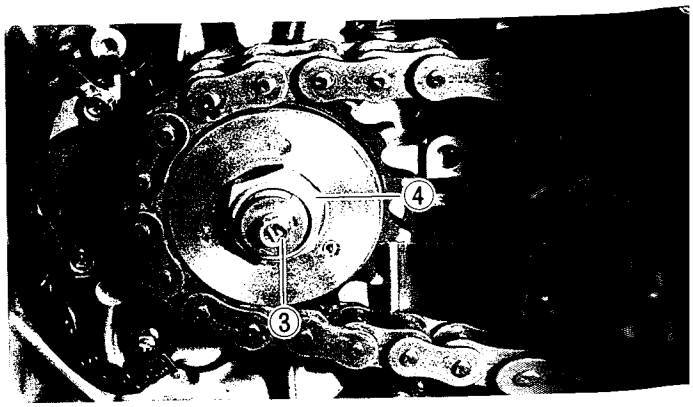
ENGINE SPROCKET

REMOVAL

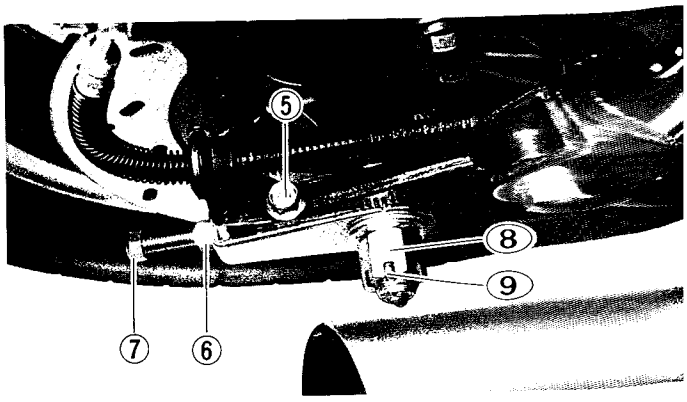
- Remove gearshift lever ① and left footrest ② , and then remove the engine sprocket cover.



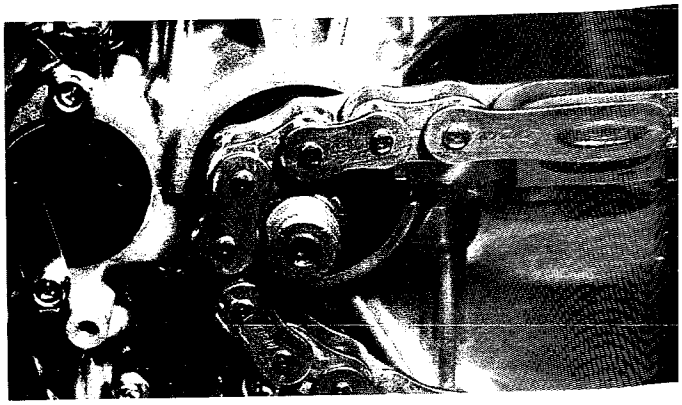
- Remove the sprocket nut stopper bolt ③ , and remove engine sprocket nut ④ while depressing rear brake pedal.



- Loosen rear axle stopper bolts ⑤ , lock nuts ⑥ , adjuster bolts ⑦ , and torque link mounting nut. Then loosen rear axle nut ⑧ after pulling out cotter pin ⑨ .
- Push rear wheel forward, and disengage drive chain from rear sprocket.



- Disengage drive chain from engine sprocket, and remove engine sprocket.

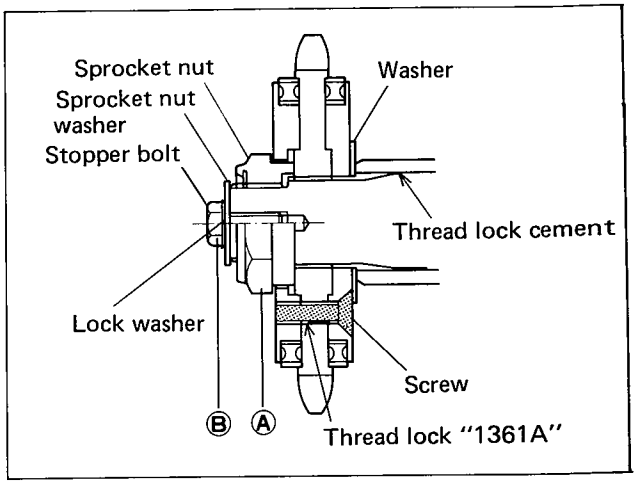


INSTALLATION

Reinstall the engine sprocket in the reverse of engine sprocket removal.

NOTE:
Install the engine sprocket with the sprocket screw head facing inward, and tighten it with the engine sprocket nut, as shown in the below figure. Be sure to place the washer between the spacer and the engine sprocket.

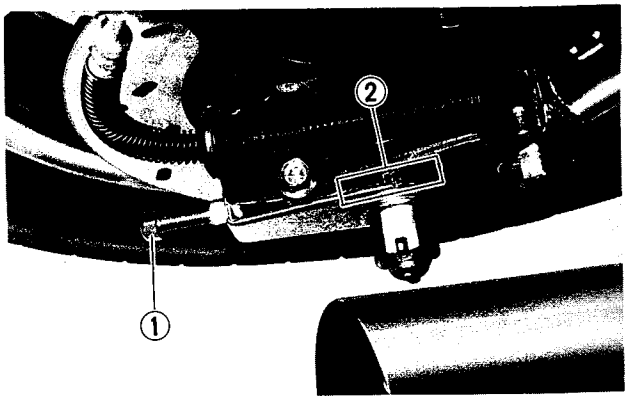
	N-m	kg-m	lb-ft
Engine sprocket nut Ⓐ	90 – 100	9.0 – 10.0	56.0 – 72.5
Sprocket nut stopper bolt Ⓑ	6 – 9	0.6 – 0.9	4.5 – 6.5



DRIVE CHAIN ADJUSTING

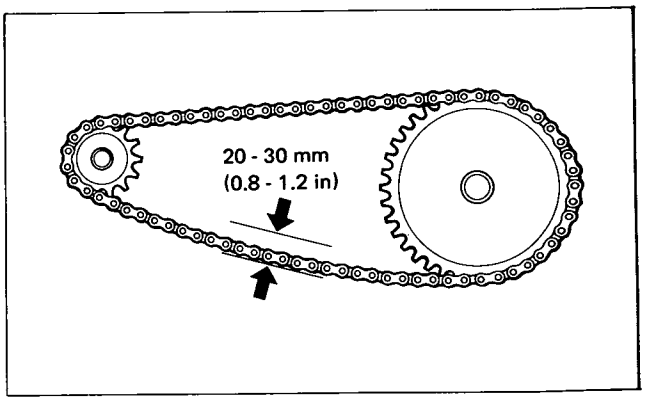
- Tighten the adjuster bolt ① until the chain has 20 – 30 mm (0.8 – 1.2 in) of sag at the middle between engine and rear sprockets. The mark ② on both chain adjusters must be at the same position on the scale to ensure that the front and rear wheels are correctly aligned. Place on center stand for accurate adjustment.

Standard	20 – 30 mm (0.8 – 1.2 in)



Tightening torque

	N-m	kg-m	lb-ft
Rear axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Rear torque link nut	20 – 30	2.0 – 3.0	14.5 – 21.5

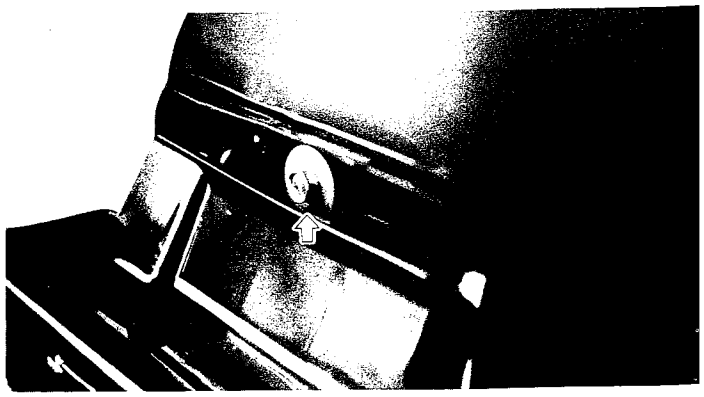


INSTRUMENTS

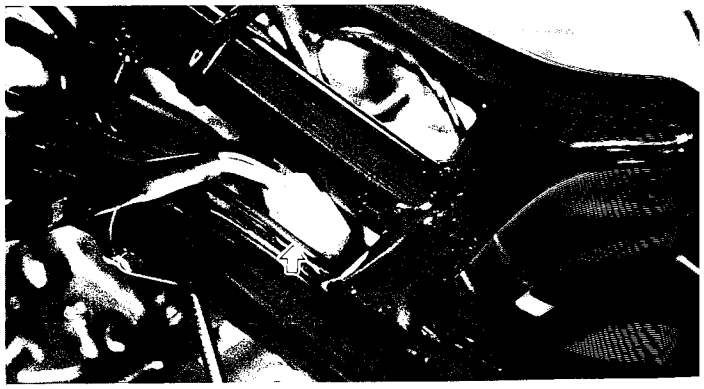
REMOVAL

- Remove the seat.
- Take off the fuel tank.

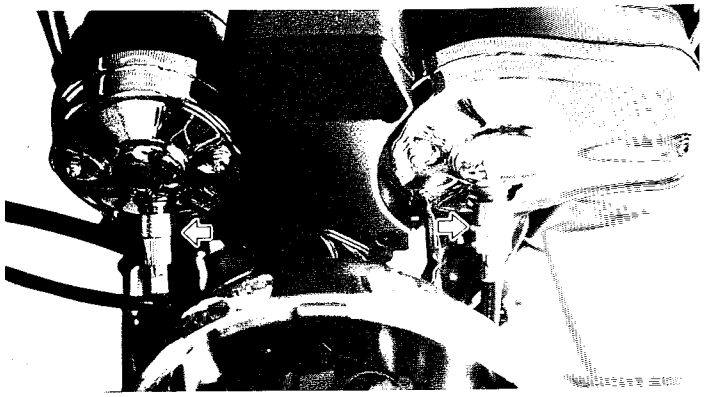
NOTE:
When taking off the fuel tank, disconnect fuel hose, vacuume hose, and fuel gauge lead wires.



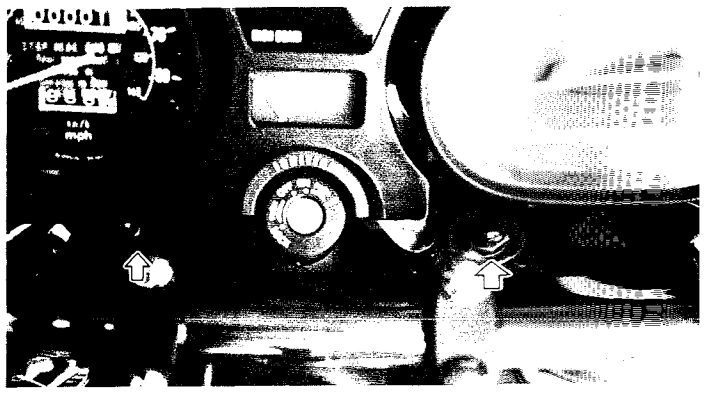
- Disconnect the coupler from combination meter.



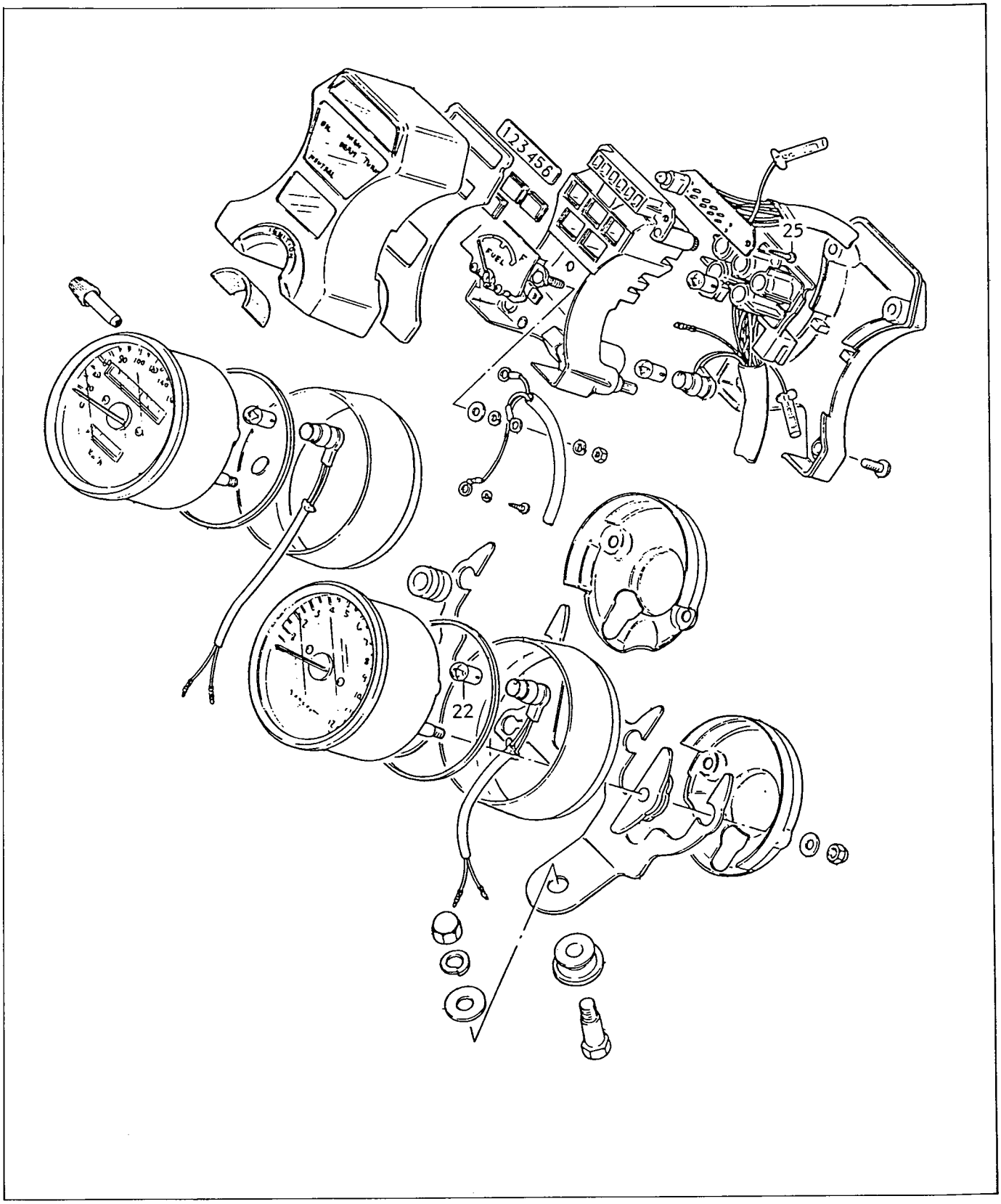
- Remove the headlight from headlight housing and disconnect the couplers from combination meter.
- Disconnect speedometer and tachometer cables.



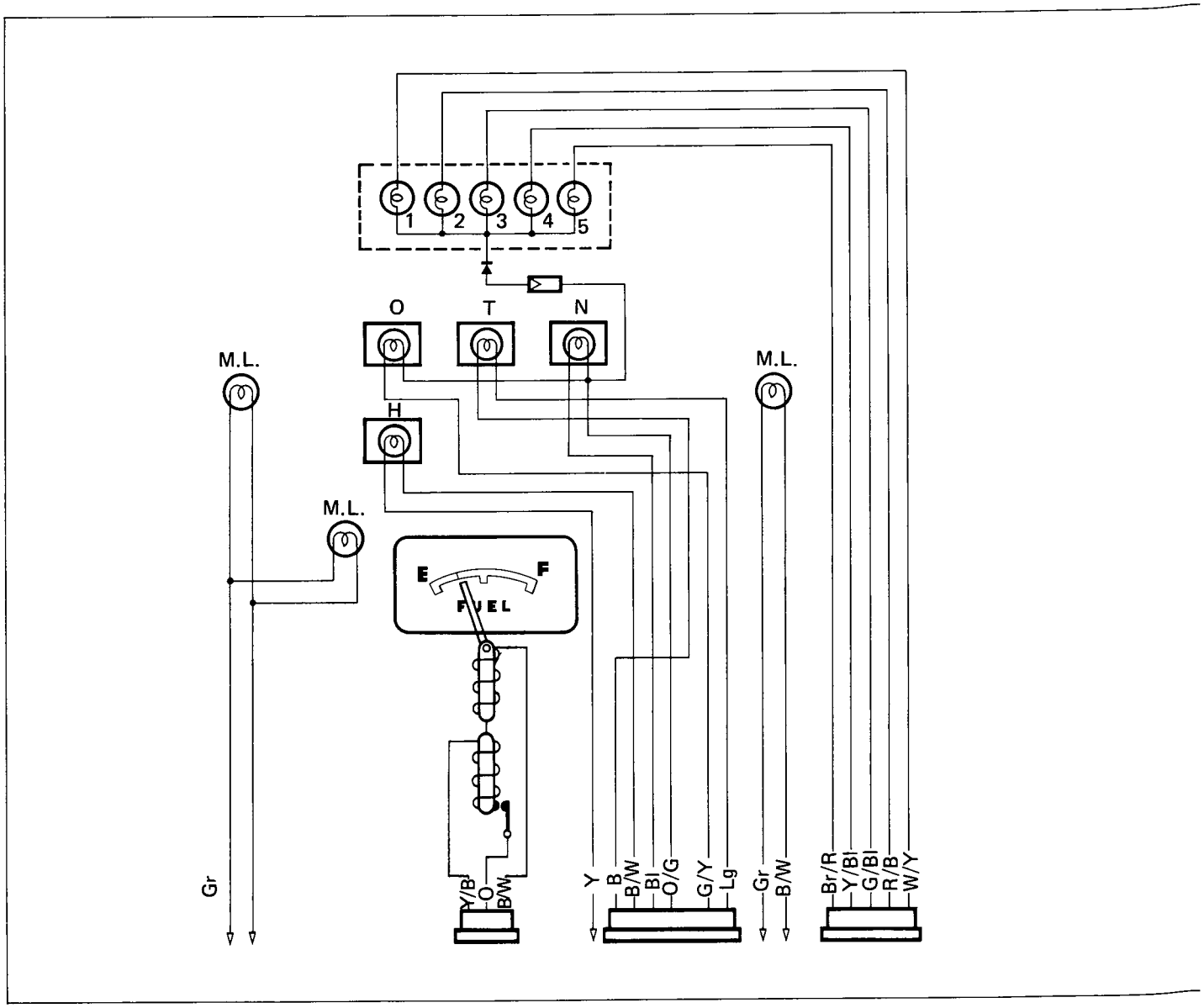
- Remove two mounting nuts and take off the combination meter.



DISASSEMBLY

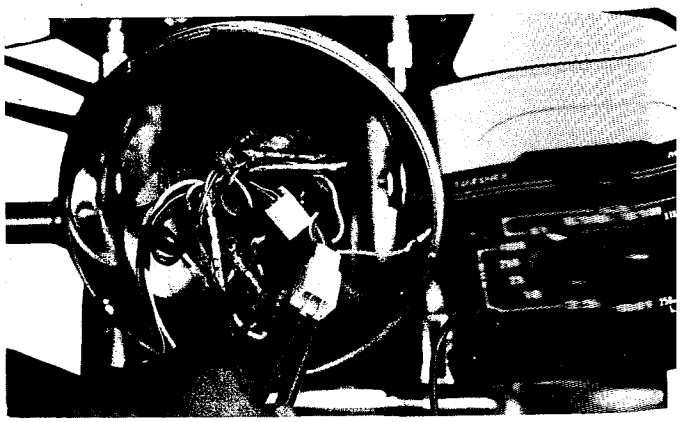


INSPECTION



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

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

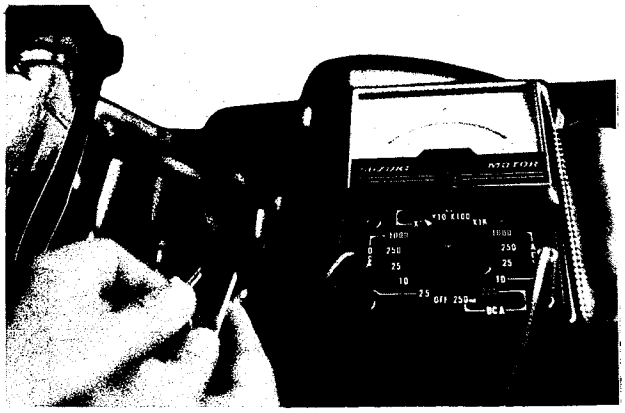


FUEL ~~METER~~ GAUGE

With the ignition switch turned on, remove two lead wires going into the fuel gauge, connect the lead wires on the main wiring harness side, and check the fuel meter. If "F" is indicated, the fuel meter is in good condition.

FUEL GAUGE (SENDING UNIT)

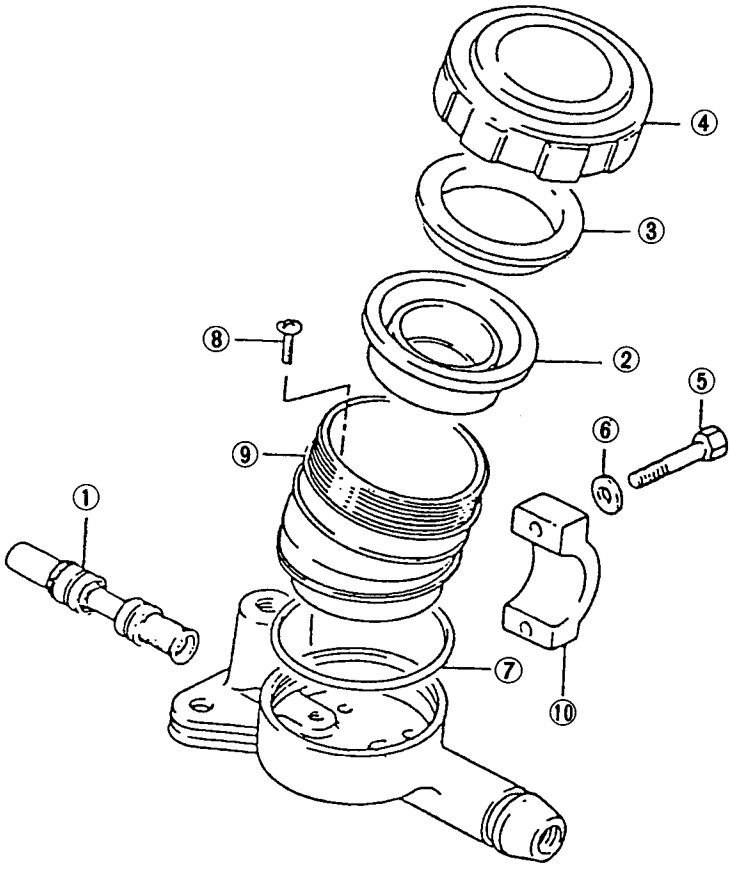
Remove the lead wires coming out of the fuel gauge and check resistance of each of them.
If the resistance measured is incorrect, replace the fuel gauge assembly with new one.



09900-25002	Pocket tester

POSITION	RESISTANCE
FULL	Approx. 7 Ω
1/2	Approx. 32.5 Ω
ENP	Approx. 95 Ω

FRONT MASTER CYLINDER

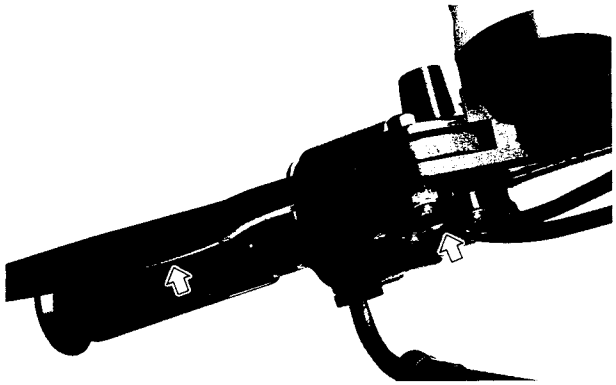


1. Piston & cup set
2. Diaphragm
3. Plate
4. Cap
5. Bolt
6. Washer
7. O-ring
8. Screw
9. Reservoir
10. Holder

	Tightening torque		
	N·m	kg-m	lb-ft
⑤	5 – 8	0.5 – 0.8	3.5 – 6.0
⑧	3 – 5	0.3 – 0.5	2.0 – 3.5

MASTER CYLINDER REMOVAL AND DISASSEMBLY

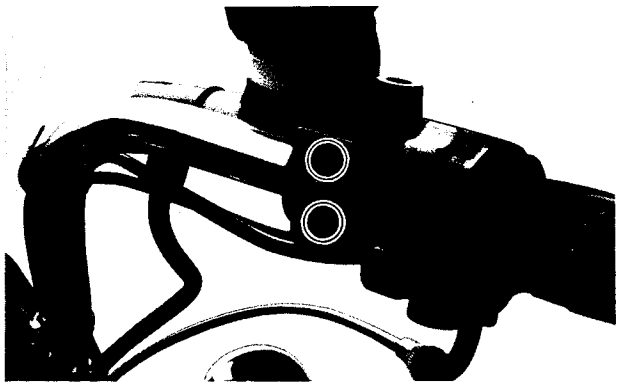
- Remove the front brake light switch and front brake lever.



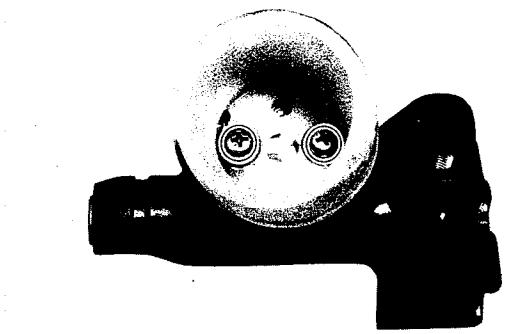
- Place a rag under neath the union bolt on the master cylinder to catch spilled drops of brake fluid. Unscrew the union bolt and disconnect the brake hose/master cylinder joint.

CAUTION
Immediately completely wipe off any brake fluid adhering to any part of motorcycle. Brake fluid reacts chemically with paints, plastics, rubber materials, etc. and will damage them severally.

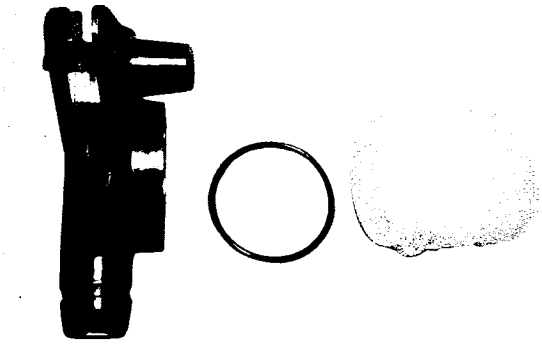
- Remove master cylinder ass'y after removing two fitting bolts.



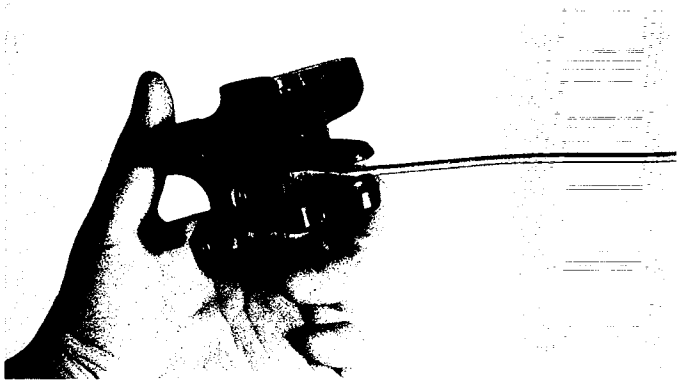
- Remove the two screws.



- Pull out the reservoir and O-ring.

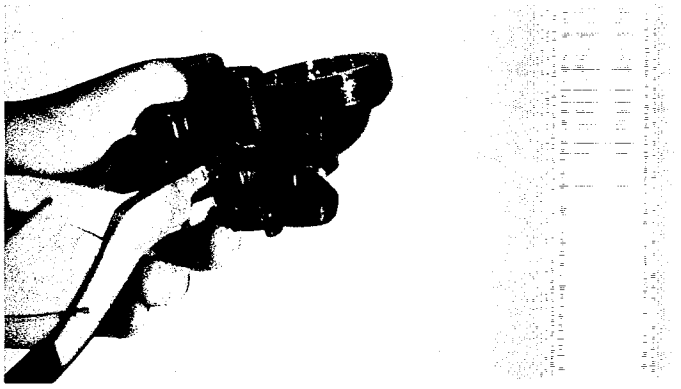


- Draw out dust seal boot.

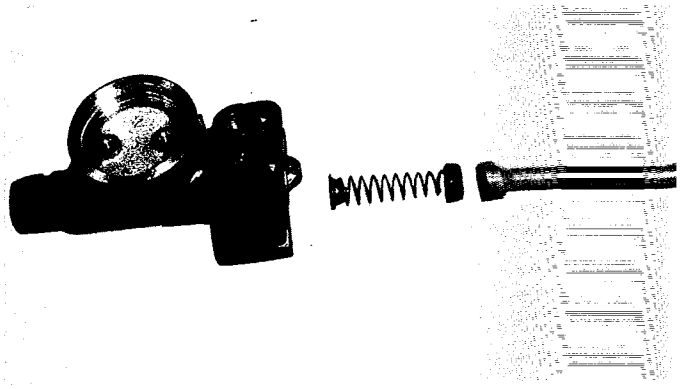


- Remove circlip by using special tool.

09900-06108	Snap ring pliers

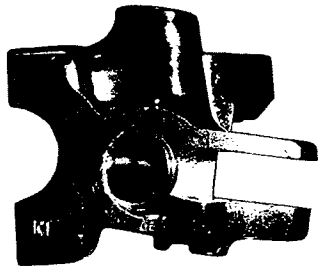


- Pull out piston, primary cup and spring.



MASTER CYLINDER INSPECTION

- Inspect the cylinder bore wall for any scratch or other damage.



- Inspect the piston surface for scratch or other damage.

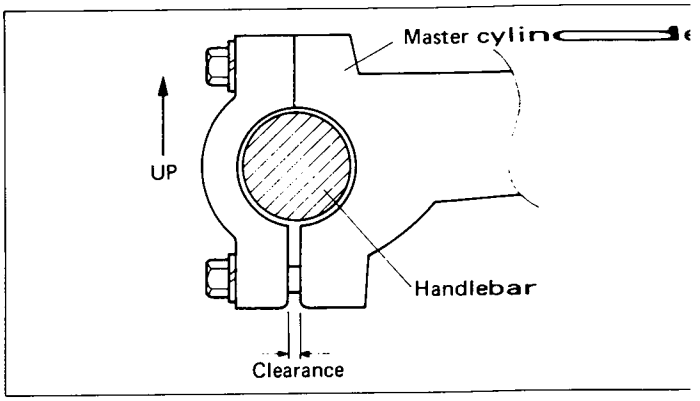
- Inspect the primary cup, secondary cup and dust seal boot for damage.

MASTER CYLINDER REASSEMBLY

- Reassemble the master cylinder in the reverse order of disassembly and by taking the following ste

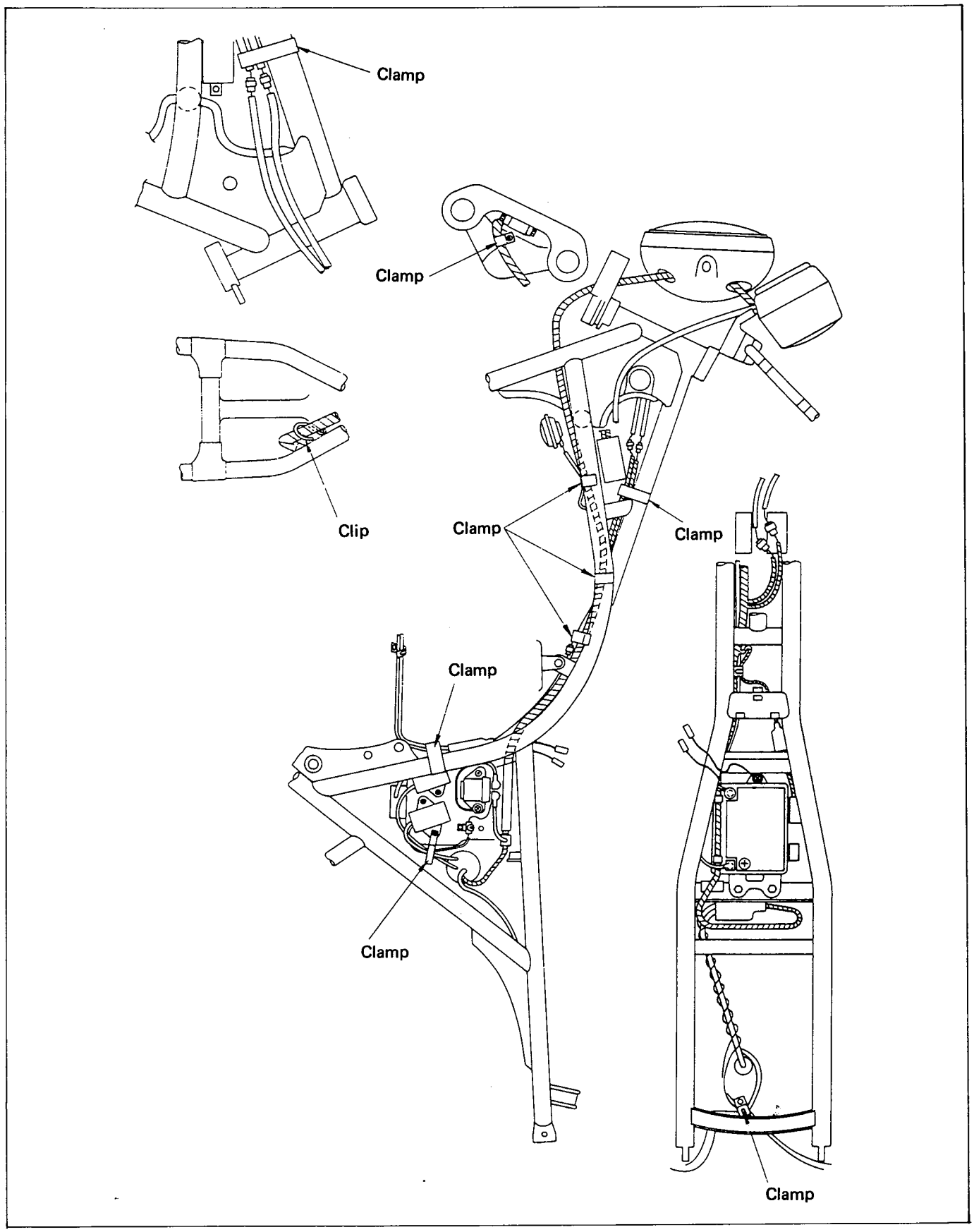
WARNING
Wash the master cylinder components with fresh brake fluid before reassembly. Never use cle
solvent or gasoline to wash them.
Apply brake fluid to the cylinder bore and all the internals to be inserted into the bore.

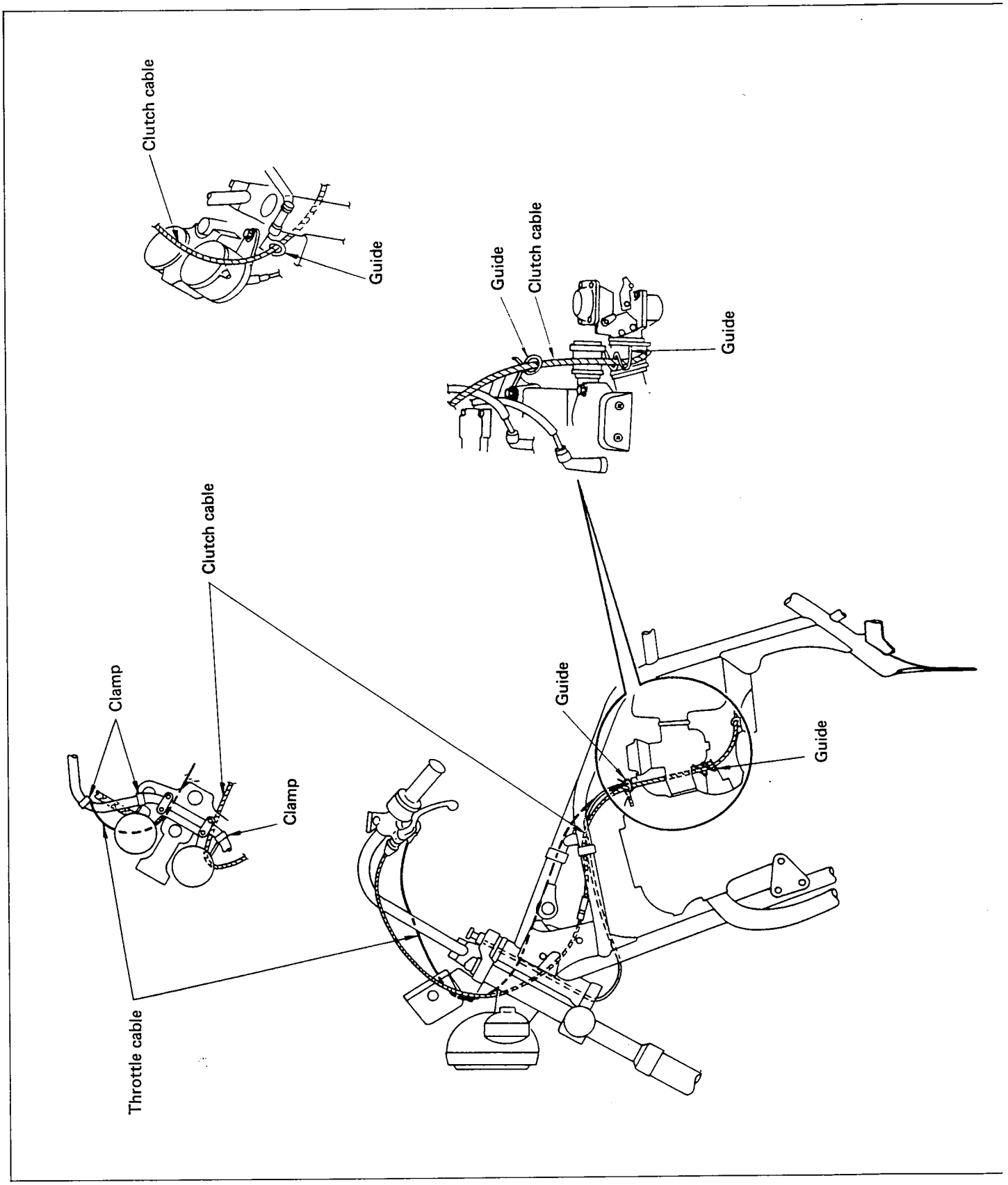
- When installing the master cylinder on the handlebars, first tighten the clamp bolt on the upper side.



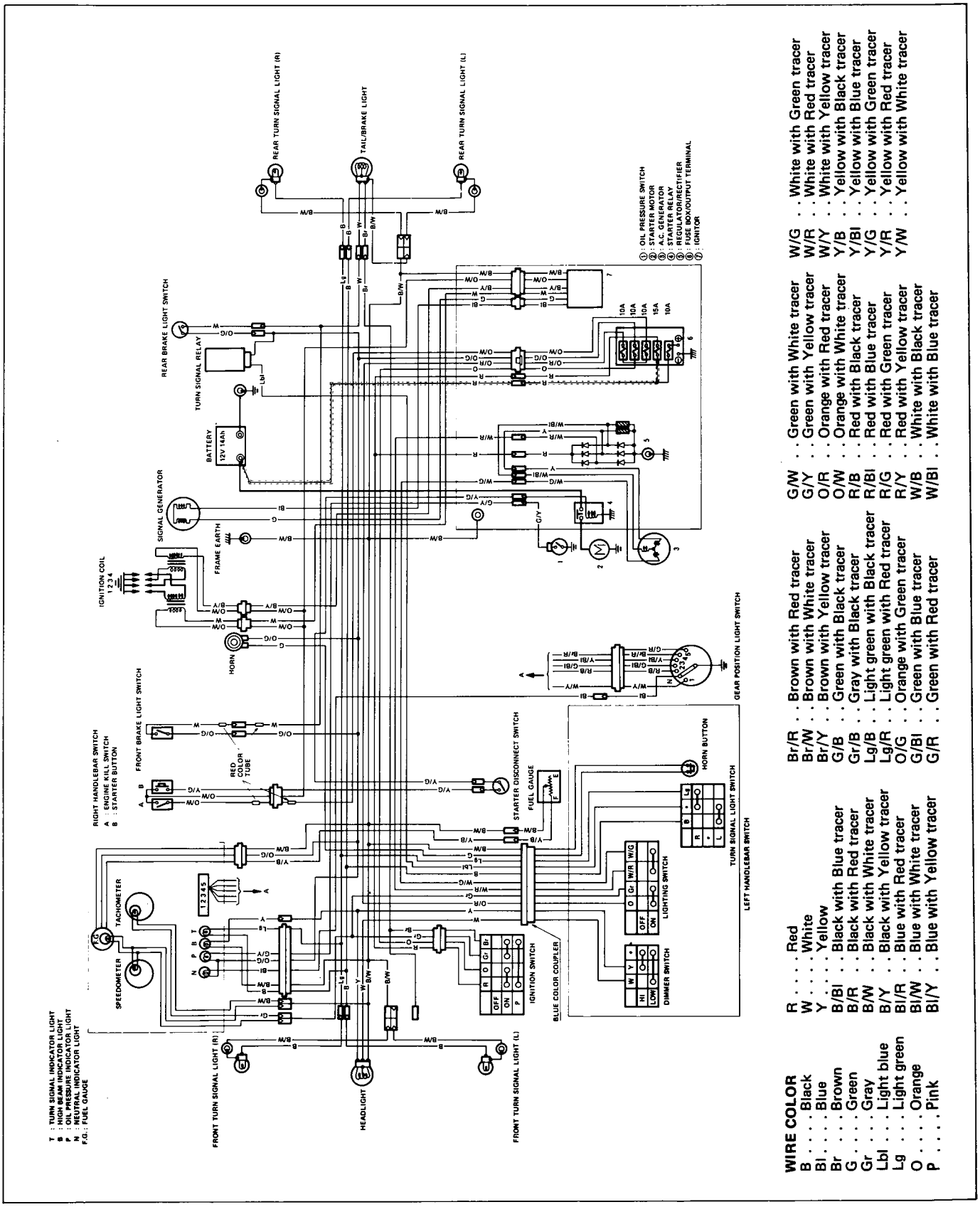
WARNING
Adjust the front brake light switch after installation.
Bleeding the air after reassembling master cylinder.

WIRE AND CABLE ROUTING




Clutch cable
Guide
Guide
Clutch cable
Guide
Clutch cable
Clamp
Clamp
Guide
Guide
Throttle cable

WIRING DIAGRAM

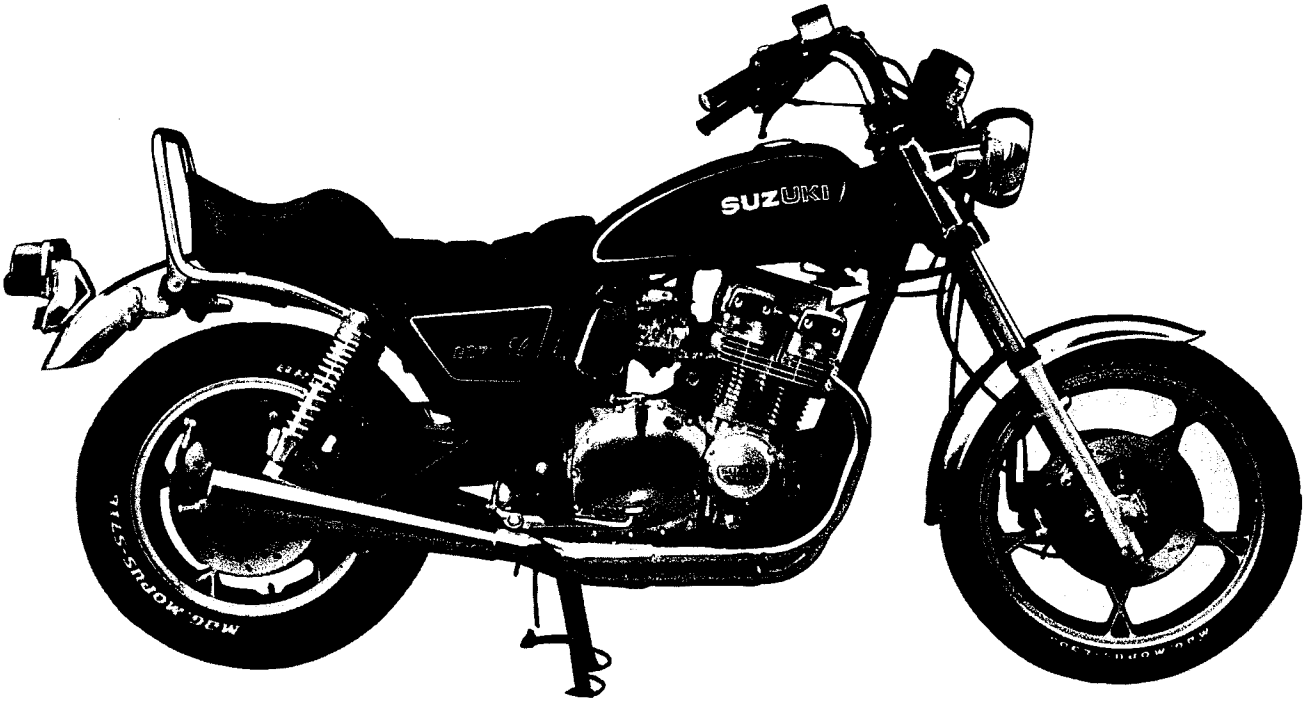


WIRE COLOR

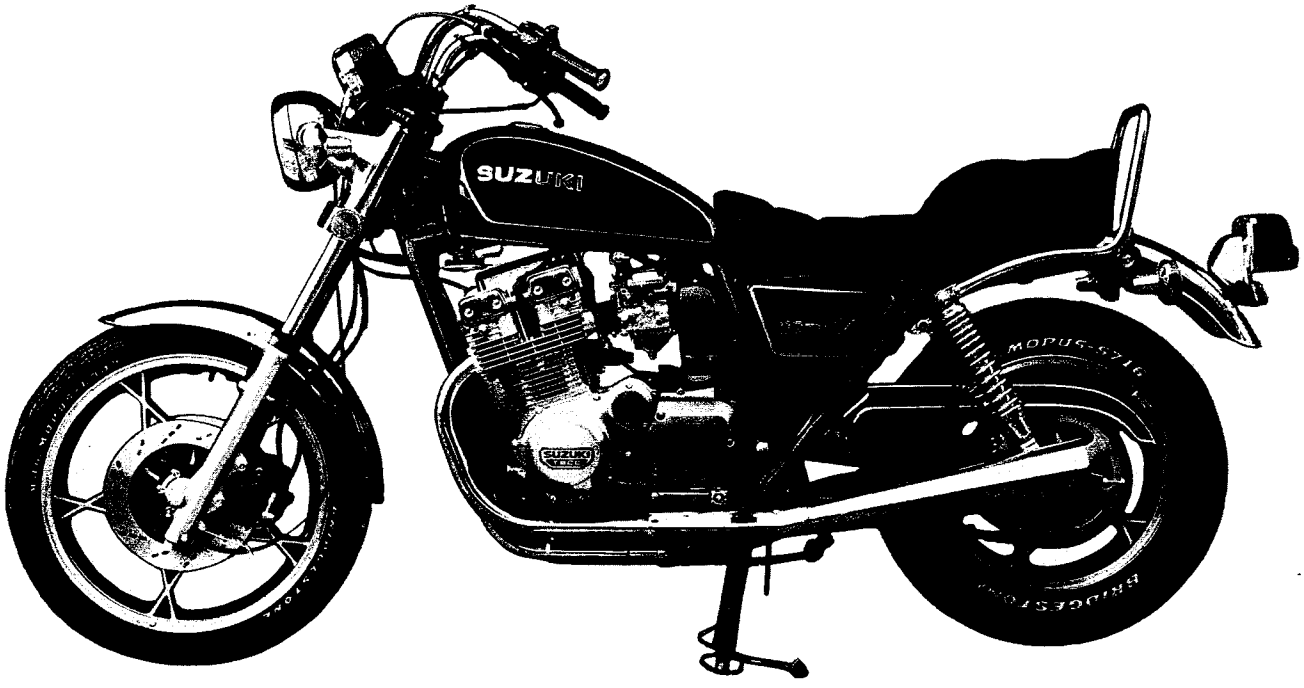
B . . . . Black	R . . . . Red	Br/R . . Brown with Red tracer	G/W . . Green with White tracer	W/G . . White with Green tracer
Bl . . . . Blue	W . . . . White	Br/W . . Brown with White tracer	G/Y . . Green with Yellow tracer	W/R . . White with Red tracer
Br . . . . Brown	Y . . . . Yellow	Br/Y . . Brown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

CONTENTS

VIEW OF SUZUKI GS750LX



Right side



Left side

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 290 mm (90.2 in)
Overall width	855 mm (33.7 in)
Overall height	1 230 mm (48.4 in)
Wheelbase	1 530 mm (60.2 in)
Ground clearance	150 mm (5.9 in)
Dry mass	230 kg (507 lbs)
Gross vehicle weight	486 kg (1 071 lbs)

ENGINE

Type	Four-stroke, air-cooled, DOHC
Number of cylinders	4
Bore	67.0 mm (2.638 in)
Stroke	53.0 mm (2.087 in)
Piston displacement	747 cm^3 (45.6 cu.in)
Compression ratio	9.4 : 1
Carburetor	MIKUNI BS32SS, four
Air cleaner	Paper element
Starter system	Electric
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction	2.162 (93/43)
Final reduction	2.666 (40/15)
Gear ratios, Low	2.571 (36/14)
2nd	1.777 (32/18)
3rd	1.380 (29/21)
4th	1.125 (27/24)
Top	0.961 (25/26)
Drive chain	DAIDO D.I.D. 630V or TAKASAGO RK630SO, 96 links

CHASSIS

Front suspension	Telescopic, oil dampened
Rear suspension	Swinging arm, oil dampened, spring 5-way adjustable
Steering angle	40° (right & left)
Caster	61°00′
Trail	103 mm (4.06 in)
Turning radius	2.8 m (9.2 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	90/90-19 52H
Rear tire size	130/90-16 67H
Front fork stroke	160 mm (6.30 in)
Rear wheel travel	107 mm (4.21 in)
Front tire pressure	2.00 kg/cm² (28 psi) (Normal solo riding)
Rear tire pressure	2.00 kg/cm² (28 psi) (Normal solo riding)

ELECTRICAL

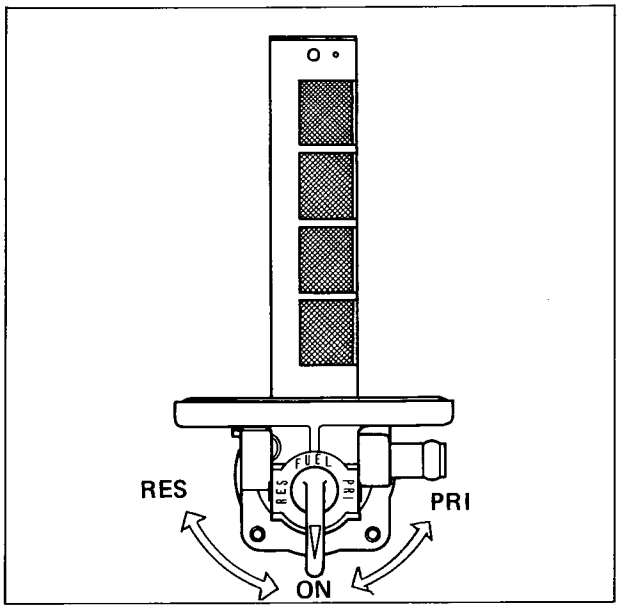
Ignition type	Transistorized
Ignition timing	15° B.T.D.C. below 1 500 r/min and 35° B.T.D.C. above 2 350 r/min
Spark plug	NGK D8EA or NIPPON DENSO X24ES-U
Battery	12V 50.4kC (14Ah)/10HR
Generator	Three-phase A.C. generator
Fuse	10/10/10/10/15A

CAPACITIES

Fuel tank	15 L (4.0 US gal)
Engine oil	3.2 L (3.4 US qt)
Front fork oil (each leg)	237 ml (8.01 US oz)

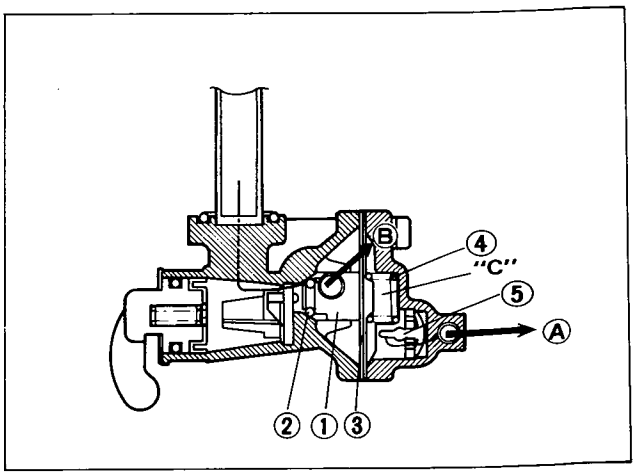
** These specifications are subject to change without notice.

FUEL COCK



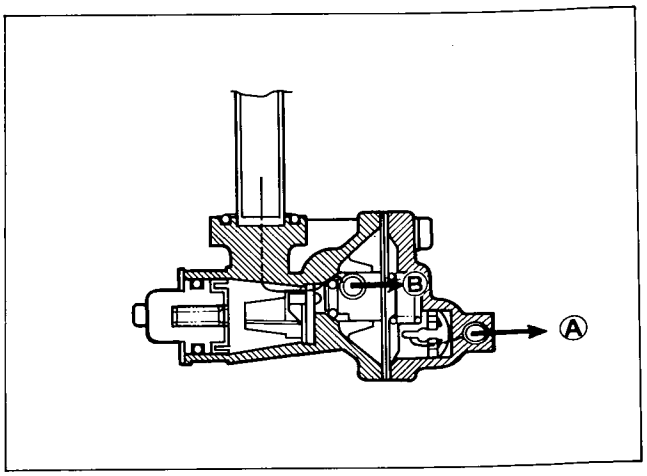
This fuel cock is provided three positions, ON, RES and PRI.
When the engine is not running and the lever is in the ON or RES position, the fuel valve is kept in the closed position by applying pressure utilizing a spring so that no fuel will flow to the carburetors. When the engine is engaged, a negative pressure is generated in the diaphragm chamber "C" through the vacuum (negative pressure) pipe which is connected to the carburetors, and builds up a negative pressure which is stronger than the spring pressure so that the disphragm 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.

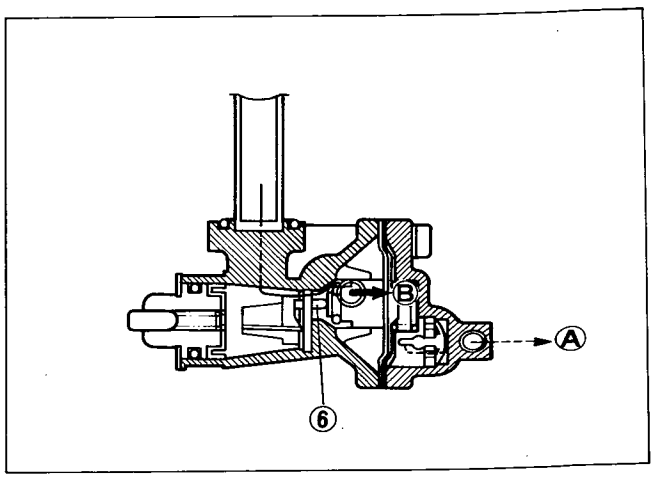


"ON"

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



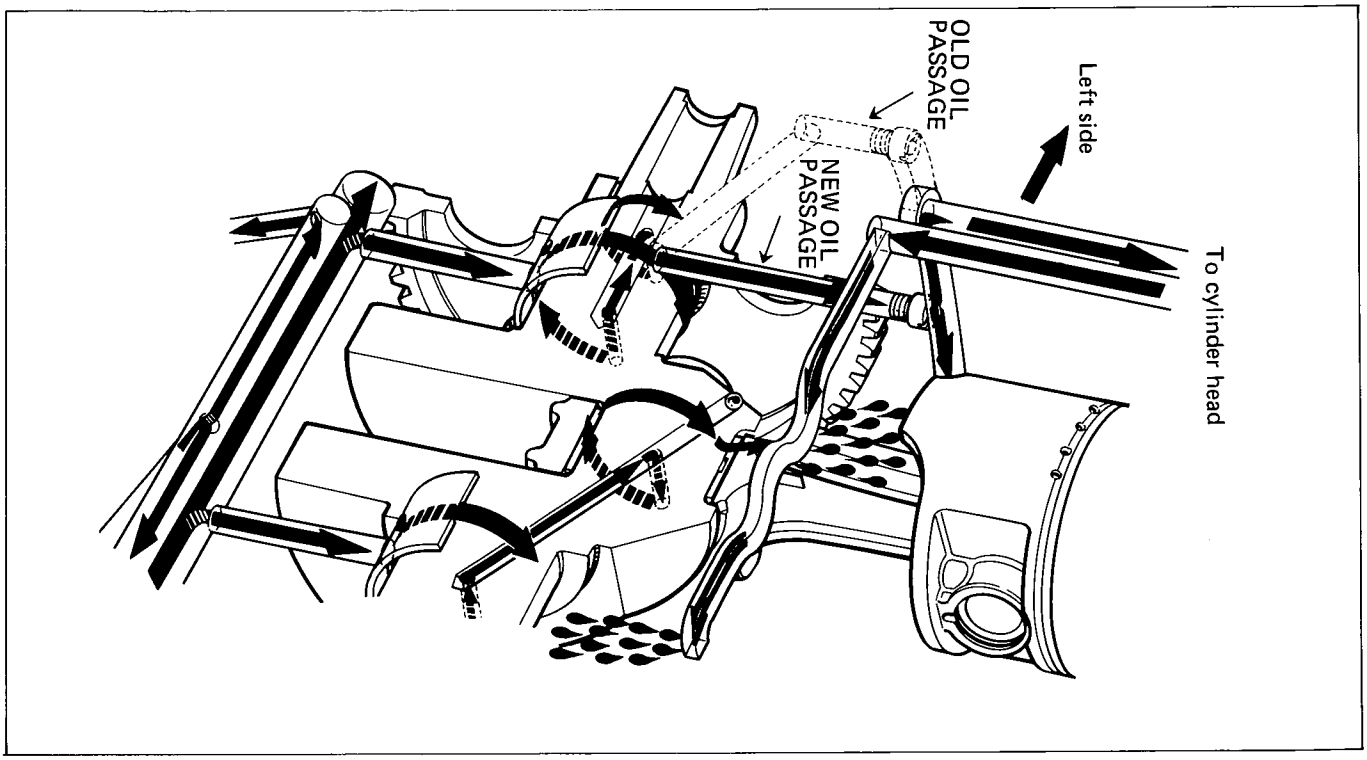
"RES"

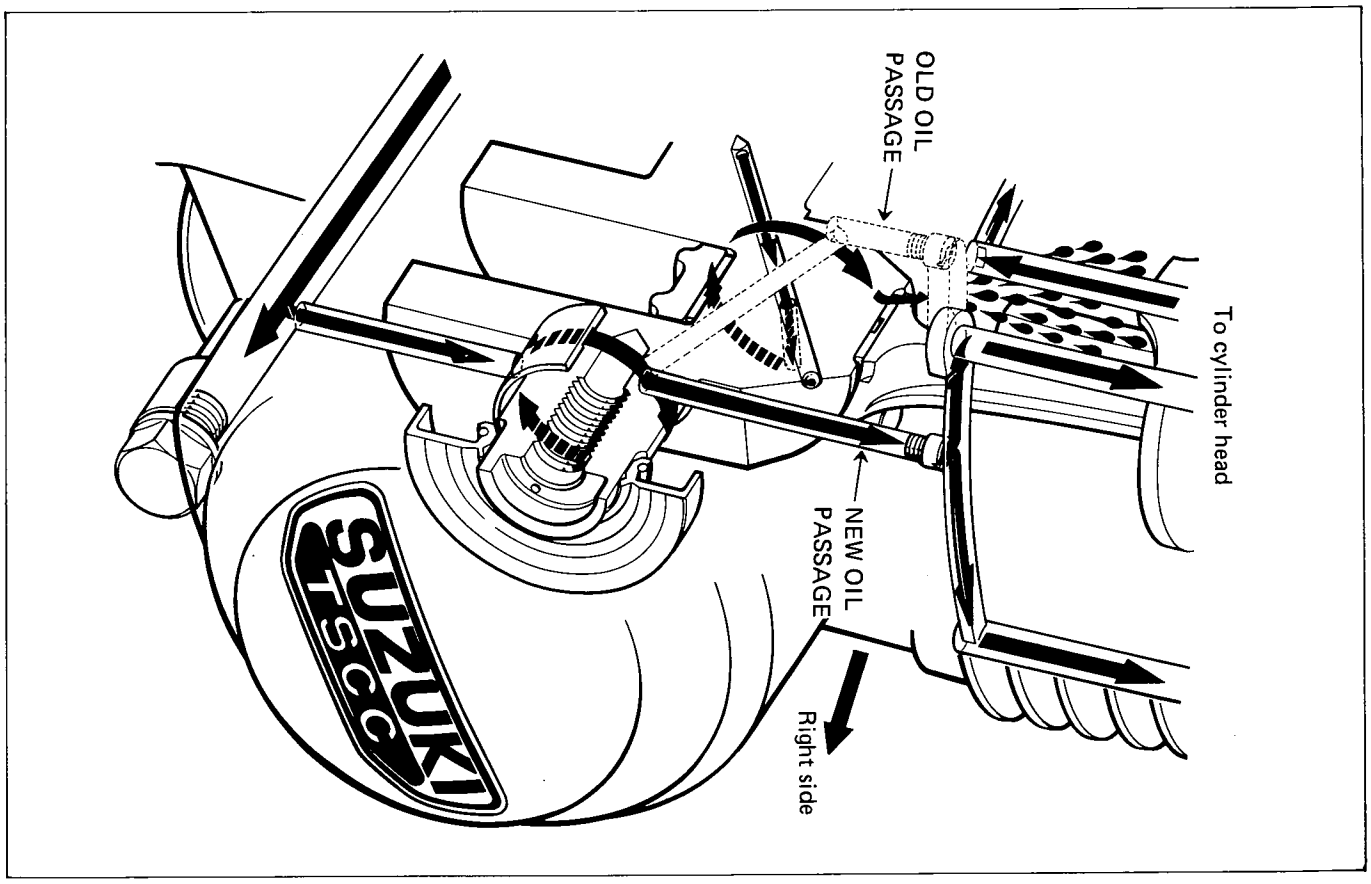


"PRI"

LUBRICATION SYSTEM

Oil passage has been changed at mid point of "T" MODEL.





FOREWORD

The GS750EX model was introduced as a new model in 1981. Many innovative refinements were incorporated in the new model. This supplementary section has been produced to aid Suzuki mechanics in properly maintaining and repairing the 1981 "X" model.
This section has been written primarily for the experienced Suzuki mechanic but will also be very useful even for the amateur, do-it-yourself mechanics. The entire manual should be thoroughly reviewed before any servicing is performed.

Please also refer to the GS750 "T" MODEL (1980 MODEL), sections 1 through 8 for all other areas of information not covered in this section.

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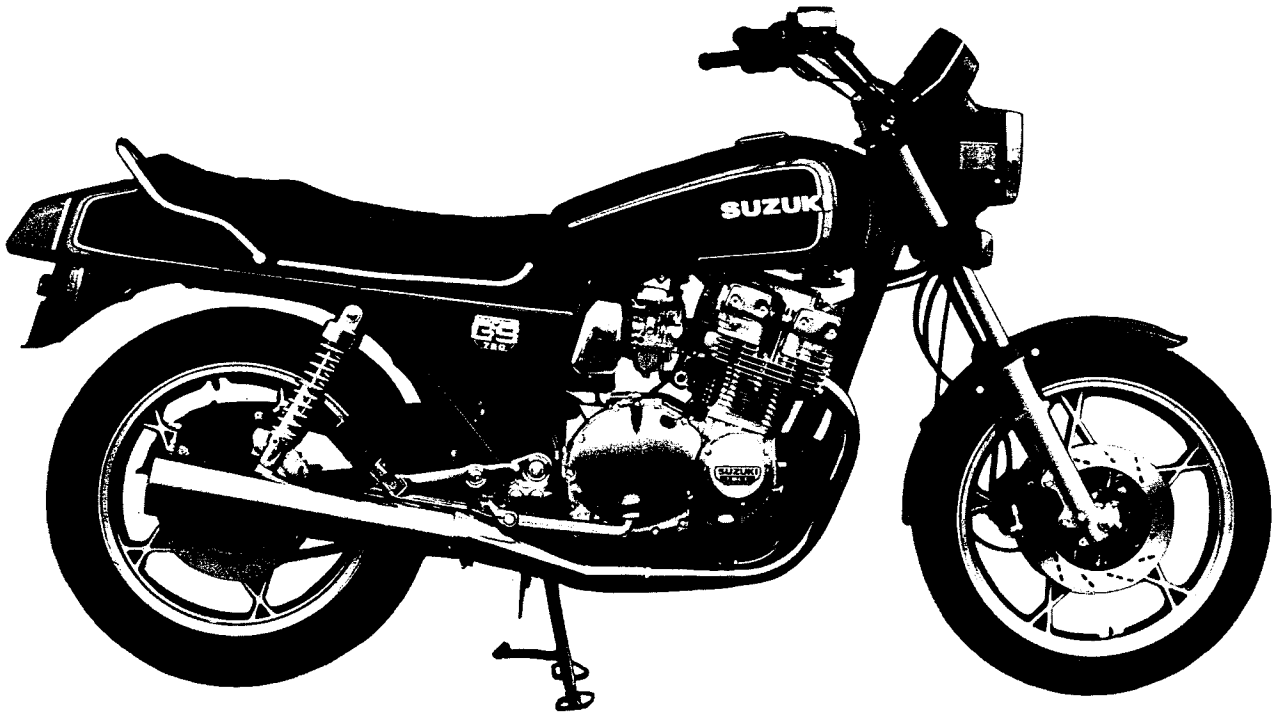
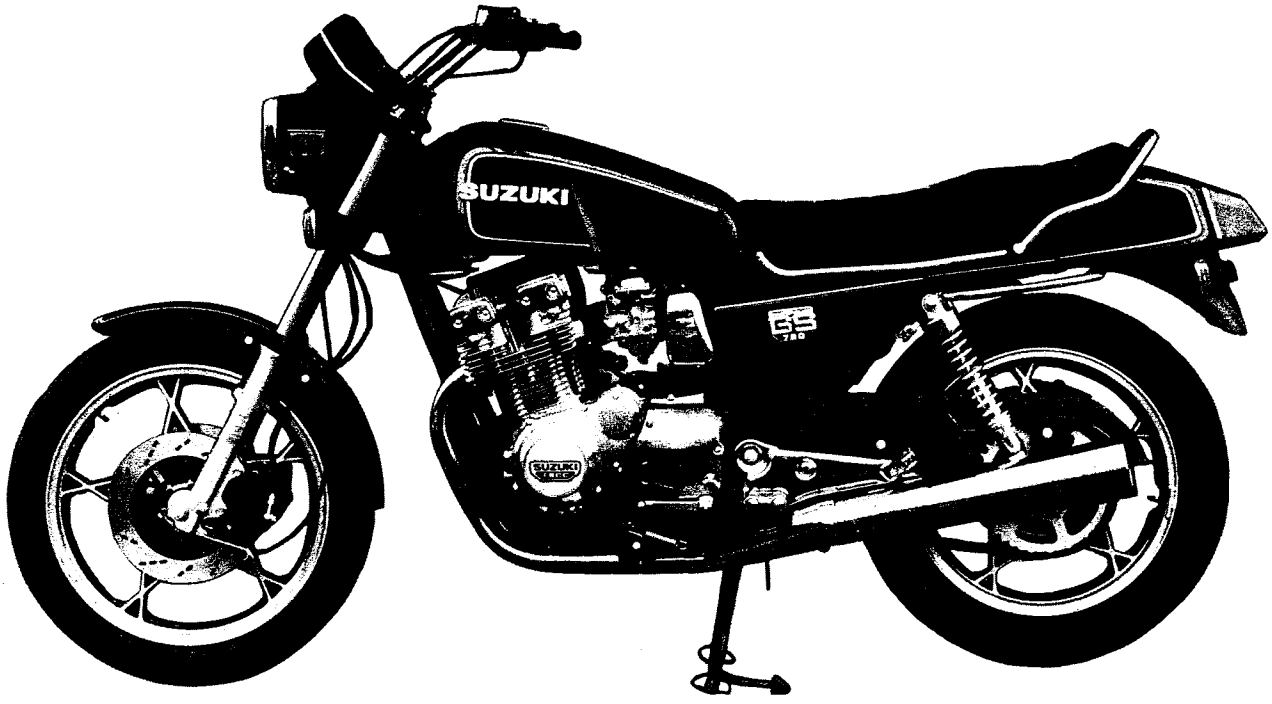
VIEW OF SUZUKI GS750EX



RIGHT SIDE



LEFT SIDE

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 240 mm (88.2 in)
Overall width	870 mm (34.3 in)
Overall height	1 170 mm (46.1 in)
Wheelbase	1 520 mm (59.8 in)
Ground clearance	160 mm (6.3 in)
Dry mass	233 kg (514 lbs)
Gross vehicle weight	465 kg (1 026 lbs)

ENGINE

Type	Four-stroke, air-cooled, DOHC, TSCC
Number of cylinders	4
Bore	67.0 mm (2.638 in)
Stroke	53.0 mm (2.087 in)
Piston displacement	747 cm^3 (45.6 cu.in)
Compression ratio	9.4 : 1
Carburetor	MIKUNI BS32SS, four
Air cleaner	Paper element
Starter system	Electric
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction	2.162 (93/43)
Final reduction	2.733 (41/15)
Gear ratios, Low	2.571 (36/14)
2nd	1.777 (32/18)
3rd	1.380 (29/21)
4th	1.125 (27/24)
Top	0.961 (25/26)
Drive chain	DAIDO D.I.D. 630V or TAKASAGO RK630SO, 96 links

CHASSIS

Front suspension	Telescopic, pneumatic/coil spring, oil dampened
Rear suspension	Swinging arm, oil dampened, damper 4-way/spring 5-way adjustable
Steering angle	40° (right & left)
Caster	62°00′
Trail	103 mm (4.06 in)
Turning radius	2.8 m (9.2 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	3.25H19 4PR
Rear tire size	4.00H18 4PR
Front fork stroke	160 mm (6.30 in)
Rear wheel travel	107 mm (4.21 in)
Front tire pressure	175 kPa (1.75 kg/cm², 25 psi) (Normal solo riding)
Rear tire pressure	200 kPa (2.00 kg/cm², 28 psi) (Normal solo riding)

ELECTRICAL

Ignition type	Transistorized
Ignition timing	15° B.T.D.C. below 1 500 r/min and 35° B.T.D.C. above 2 350 r/min
Spark plug	NGK D8EA or NIPPON DENSO X24ES-U
Battery	12V 50.4kC (14Ah)/10HR
Generator	Three-phase A.C. generator
Fuse	10/10/10/10/15A

CAPACITIES

Fuel tank including reserve	19 L (5.0 US gal)
reserve	4.0 L (4.2 US qt)
Engine oil	3.2 L (3.4 US qt)
Front fork oil (each leg)	191 ml (6.46 US oz)

* Specifications subject to change without notice.

SERVICE DATA

VALVES + GUIDES

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve dia.	IN.	22.9 – 23.1 (0.90 – 0.91)	—
	EX.	19.9 – 20.1 (0.78 – 0.79)	—
Valve lift	IN.	6.5 (0.26)	—
	EX.	6.5 (0.26)	—
Valve clearance (when cold)	IN. & EX.	0.09 – 0.13 (0.004 – 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.	5.500 – 5.512 (0.2165 – 0.2170)	—
Valve stem O.D.	IN.	5.460 – 5.475 (0.2150 – 0.2156)	—
	EX.	5.445 – 5.460 (0.2144 – 0.2150)	—
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve stem end length	IN. & EX.	—	3.6 (0.14)
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 (IN. & EX.)	INNER	—	31.9 (1.26)
	OUTER	—	35.6 (1.40)
Valve spring tension (IN. & EX.)	INNER	4.4 – 6.4 kg (9.7 – 14.1 lbs) at length 28.5 mm (1.12 in)	—
	OUTER	6.5 – 8.9 kg (14.3 – 19.6 lbs) at length 32.0 mm (1.26 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	34.360 – 34.400 (1.3528 – 1.3543)	34.060 (1.3409)
	EX.	34.360 – 34.400 (1.3528 – 1.3543)	34.060 (1.3409)
Camshaft journal oil clearance	IN. & EX.	0.020 – 0.054 (0.0008 – 0.0021)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.000 – 22.013 (0.8661 – 0.8667)	——
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		———	157.80 (6.213)
Cam chain pin (at arrow "3")		20th 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)

PISTON + RING + CYLINDER

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure	900 – 1200 kPa (9 – 12 kg/cm², 128 – 170 psi)			700 kPa (7 kg/cm², 100 psi)
Compression pressure difference	———			200 kPa (2 kg/cm², 28.4 psi)
Piston to Cylinder clearance	0.050 – 0.060 (0.0020 – 0.0024)			0.120 (0.0047)
Cylinder bore	67.000 – 67.015 (2.6378 – 2.6384)			67.080 (2.6410)
Piston dia.	66.945 – 66.960 (2.6356 – 2.6362) Measure the 15.0 (0.6) from piston skirt end.			66.880 (2.6331)
Cylinder distortion	———			0.2 (0.008)
Piston ring free end gap	1st	N	Approx. 9.5 (0.37)	7.6 (0.30)
		R	Approx. 9.5 (0.37)	7.6 (0.30)
	2nd	N	Approx. 10.0 (0.39)	8.0 (0.31)
		R	Approx. 10.0 (0.39)	8.0 (0.31)
Piston ring end gap	1st		0.10 – 0.30 (0.004 – 0.012)	0.7 (0.03)
	2nd		0.10 – 0.30 (0.004 – 0.012)	0.7 (0.03)
Piston ring-groove clearance	1st		———	0.180 (0.0071)
	2nd		———	0.150 (0.0059)
Piston ring-groove width	1st		1.21 – 1.23 (0.047 – 0.048)	———
	2nd		1.21 – 1.23 (0.047 – 0.048)	———
	Oil		2.51 – 2.53 (0.099 – 0.100)	———
Piston ring thickness	1st		1.175 – 1.190 (0.0463 – 0.0469)	———
	2nd		1.170 – 1.190 (0.0461 – 0.0469)	———
Piston pin bore	18.002 – 18.008 (0.7087 – 0.7090)			18.030 (0.7098)
Piston pin O.D.	17.995 – 18.000 (0.7085 – 0.7087)			17.980 (0.7079)

CRANKSHAFT + CRANKCASE

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	18.006 – 18.014 (0.7089 – 0.7092)	18.040 (0.7102)
Conrod big end side clearance	0.10 – 0.20 (0.004 – 0.008)	0.30 (0.012)
Conrod big end width	20.95 – 21.00 (0.825 – 0.827)	———
Crank pin width	21.10 – 21.15 (0.831 – 0.833)	———
Conrod big end oil clearance	0.024 – 0.048 (0.0009 – 0.0019)	0.080 (0.0031)
Crank pin O.D.	35.976 – 36.000 (1.4164 – 1.4173)	———
Crankshaft journal oil clearance	0.020 – 0.044 (0.0008 – 0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	35.976 – 36.000 (1.4164 – 1.4173)	———
Crankshaft thrust clearance	0.08 – 0.24 (0.003 – 0.007)	0.50 (0.020)
Crankshaft journal holder width	23.84 – 23.92 (0.939 – 0.942)	———
Crankshaft journal width	24.00 – 24.08 (0.945 – 0.948)	———
Crankshaft runout	———	0.10 (0.004)

OIL PUMP

Unit: mm (in)

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.650 (93 / 43 x 29 / 38)	———
Oil pressure (at 60°C, 140°F)	Above 300 kPa (3.0 kg/cm², 43 psi) Below 550 kPa (5.5 kg/cm², 78 psi) at 3 000 r/min.	———
Tip clearance	———	0.2 (0.008)
Outer rotor clearance	———	0.25 (0.010)
Side clearance	———	0.15 (0.006)

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	2 – 3 (0.08 – 0.12)	———
Drive plate thickness	2.7 – 2.9 (0.10 – 0.11)	2.4 (0.09)
Drive plate claw width	11.8 – 12.0 (0.46 – 0.47)	11.0 (0.43)
Driven plate thickness	1.94 – 2.06 (0.076 – 0.081)	———
Driven plate distortion	———	0.1 (0.004)
Clutch spring free length	———	38.5 (1.52)

TRANSMISSION

Unit: mm (in)

ITEM		STANDARD	LIMIT
Primary reduction		2.162 (93 / 43)	———
Final reduction		2.733 (41 / 15)	———
Gear ratios	Low	2.571 (36 / 14)	———
	2nd	1.777 (32 / 18)	———
	3rd	1.380 (29 / 21)	———
	4th	1.125 (27 / 24)	———
	Top	0.961 (25 / 26)	———
Shift fork to Groove clearance		0.40 – 0.60 (0.016 – 0.024)	0.80 (0.031)
Shift fork groove width		5.45 – 5.55 (0.215 – 0.219)	———
Shift fork thickness		4.95 – 5.05 (0.195 – 0.199)	———
Counter shaft length (Low to 2nd)		$109.5 \pm \begin{smallmatrix}0\\0.1\end{smallmatrix}$ $\left(4.31 \pm \begin{smallmatrix}0\\0.004\end{smallmatrix}\right)$	———
Drive chain	Type	DAIDO: D.I.D. 630V TAKASAGO: RK630SO	———
	Links	96	———
	20 pitch length	———	383.0 (15.08)
Drive chain slack		20 – 30 (0.8 – 1.2)	———

CARBURETOR

Unit: mm (in)

ITEM	SPECIFICATION
Carburetor type	MIKUNI BS32SS
Bore size	32 (1.26)
I.D. No.	45400
Idle r/min.	1 050 ± 100 r/min.
Fuel level	5.0 ± 0.5 (0.20 ± 0.02)
Float height	22.4 ± 1.0 (0.88 ± 0.04)
Main jet	# 112.5
Main air jet	1.7
Jet needle	5C28
Needle jet	Y-4
Pilot jet	# 42.5
By pass	0.8, 0.8, 0.8
Pilot outlet	0.7
Valve seat	2.0
Starter jet	#50
Pilot screw	PRE-SET
Throttle cable play	0.5 – 1.0 (0.02 – 0.04)

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION		
Ignition timing	15° B.T.D.C. Below 1 500 ± 150 r/min and 35° B.T.D.C. Above 2 350 ± 150 r/min		
Firing order	1 · 2 · 4 · 3		
Spark plug	Type	NGK: D8EA N.D.: X24ES-U	
	Gap	0.6 – 0.7 (0.024 – 0.028)	
Spark performance	Over 8 (0.3) at 1 atm		
Signal coil resistance	Approx. 290 – 360 Ω (Bl–G)		
Ignition coil resistance	Primary	O/W – W or B/Y Approx. 3 – 5 Ω	
	Secondary	Plug cap – Plug cap Approx. 30 – 35 kΩ	
Generator No-Load voltage	More than 80V (AC) at 5 000 r/min		
Regulated voltage	14.0 – 15.5V at 5 000 r/min		
Starter motor	Brush length	Limit: 6 (0.24)	
	Commutator under cut	Limit: 0.2 (0.008)	
Starter relay resistance	Approx. 3 – 4 Ω		
Battery	Type designation	YB14L – A2	
	Capacity	12V 50.4kC (14Ah)/10HR	
	Standard electrolyte S.G.	1.28 at 20°C (68° F)	
Fuse size	Head	10A	
	Signal	10A	
	Ignition	10A	
	Main	15A	
	Power source	10A	

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD	LIMIT
Rear brake pedal height		20 (0.8)	—
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		—	0.30 (0.012)
Master cylinder bore	Front	15.870 – 15.913 (0.6248 – 0.6265)	—
	Rear	14.000 – 14.043 (0.5512 – 0.5529)	—
Master cylinder piston dia.	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 dia.	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	3.25H19 4PR	—
	Rear	4.00H18 4PR	—
Tire tread depth	Front	—	1.6 (0.06)
	Rear	—	2.0 (0.08)

SUSPENSION

Unit: mm (i

ITEM	STANDARD		LIMIT
Front fork stroke	160 (6.30)		———
Front fork spring free length	Upper	———	62 (2.44)
	Lower	———	466 (18.35)
Front fork oil level	227 (8.94)		———
Front fork air pressure	50 kPa (0.5 kg/cm², 7.11 psi)		———
Rear wheel travel	107 (4.21)		———
Swing arm pivot shaft runout	———		0.3 (0.012)

FUEL + OIL + CAPACITY

ITEM	SPECIFICATION	
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	19 L (5.0 US gal)	
reserve	4.0 L (4.2 US qt)	
Engi ıe oil type	SAE 10W/40	
Engine oil capacity	Change	3 200 ml (3.4 US qt)
	Filter change	3 800 ml (4.0 US qt)
	Overhaul	4 000 ml (4.2 US qt)
Front fork oil type	# 15	
Front fork oil capacity (each leg)	191 ml (6.46 US oz)	
Brake fluid type	DOT3 or DOT4	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	NORMAL RIDING						CONTINUOUS HIGH SPEED RIDING					
	SOLO			DUAL			SOLO			DUAL		
	kPa	kg/cm²	p.s.i.	kPa	kg/cm²	p.s.i.	kPa	kg/cm²	p.s.i.	kPa	kg/cm²	p.s.i.
FRONT	175	1.75	25	175	1.75	25	200	2.00	28	200	2.00	28
REAR	200	2.00	28	225	2.25	32	225	2.25	32	280	2.80	40

BULB 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		3.4
Neutral indicator light		3.4
Oil pressure indicator light		3.4
Fuel gauge light		3.4
License light		8 (4)

TIGHTENING TORQUE

ENGINE

ITEM	N·m	kg-m	lb-ft
Cylinder head cover bolt	9 – 10	0.9 – 1.0	6.5 – 7.0
Cylinder head bolt	7 – 11	0.7 – 1.1	5.0 – 8.0
Cylinder head nut	35 – 40	3.5 – 4.0	25.5 – 29.0
Rocker arm shaft stopper bolt	8 – 10	0.8 – 1.0	6.0 – 7.0
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
Camshaft sprocket bolt (page 11 – 16)	9 – 12	0.9 – 1.2	6.5 – 8.5
Cam chain tensioner fitting bolt	6 – 8	0.6 – 0.8	4.5 – 6.0
Cam chain tensioner shaft ass'y	31 – 35	3.1 – 3.5	22.0 – 25.5
Cam chain tensioner lock shaft nut	8 – 10	0.8 – 1.0	6.0 – 7.0
Cam chain tensioner adjuster lock nut	9 – 14	0.9 – 1.4	6.5 – 10.0
Generator rotor bolt	90 – 100	9.0 – 10.0	65.0 – 72.5
Starter clutch allen bolt	15 – 20	1.5 – 2.0	11.0 – 14.5
Con rod nut	30 – 34	3.0 – 3.4	21.5 – 25.0
Crank web No. 4 nut	26 – 30	2.6 – 3.0	19.0 – 21.5
Governer center bolt	13 – 23	1.3 – 2.3	9.5 – 16.5
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
Starter motor bolt	4 – 7	0.4 – 0.7	3.0 – 5.0
Oil pan bolt	10	1.0	7.0
Oil pressure switch	13 – 17	1.3 – 1.7	9.5 – 12.5
Oil filter cover nut	6 – 8	0.6 – 0.8	4.5 – 6.0
Neutral stopper housing	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	90 – 100	9.0 – 10.0	65.0 – 72.5
Engine mounting bolt (8 mm)	20 – 30	2.0 – 3.0	14.5 – 21.5
(10 mm)	30 – 37	3.0 – 3.7	21.5 – 27.0
Ⓐ	45 – 55	4.5 – 5.5	32.5 – 40.0
Gearshift lever bolt	13 – 23	1.3 – 2.3	9.5 – 16.5
Clutch release arm bolt	6 – 10	0.6 – 1.0	4.5 – 7.0

CHASSIS

ITEM	N·m	kg-m	lb-ft
Disc bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front axle nut	36 – 52	3.6 – 5.2	26.0 – 37.5
Front axle pinch bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front caliper mounting bolt	25 – 40	2.5 – 4.0	18.0 – 29.0
Front caliper axle bolt	15 – 20	1.5 – 2.0	11.0 – 14.5
Brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Caliper bleeder	7 – 9	0.7 – 0.9	5.0 – 6.5
Damper rod bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front fork lower 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 cap bolt	15 – 30	1.5 – 3.0	11.0 – 21.5
Steering stem nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Steering stem clamp bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Steering stem head nut	36 – 52	3.6 – 5.2	26.0 – 37.5
Handlebar clamp bolt	12 – 20	1.2 – 2.0	8.5 – 14.5
Master cylinder clamp bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
Front master cylinder clamp bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
Front footrest bolt	27 – 43	2.7 – 4.3	19.5 – 31.0
Swinging arm pivot nut	50 – 80	5.0 – 8.0	36.0 – 58.0
Brake pedal arm bolt	10 – 15	1.0 – 1.5	7.0 – 11.0
Rear master cylinder mounting 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 caliper mounting bolt	25 – 40	2.5 – 4.0	18.0 – 29.0
Rear caliper bolt	20 – 30	2.0 – 3.0	14.5 – 21.5
Muffler bracket nut	15 – 20	1.5 – 2.0	11.0 – 14.5
Rear shock absorber fitting bolt or nut	20 – 30	2.0 – 3.0	14.5 – 21.5
Rear footrest bolt	27 – 43	2.7 – 4.3	19.5 – 31.0
Rear sprocket nut	25 – 40	2.5 – 4.0	18.0 – 29.0
Rear axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Chain adjuster support bolt	15 – 20	1.5 – 2.0	11.0 – 14.5

CAMSHAFT AND SPROCKET

This is to inform you of the change of cam shaft, cam sprocket and bolt.

1) Material required

	Part Number
Torque wrench	09900-21101
SUZUKI Thread lock "1363A"	99104-32030

2) Contents of modification

A) Type

Part Name	Tightening torque
6mm Allen bolt + Thread lock "1363A"	0.8 – 1.2 kg-m (6.0 – 8.5 lb-ft)

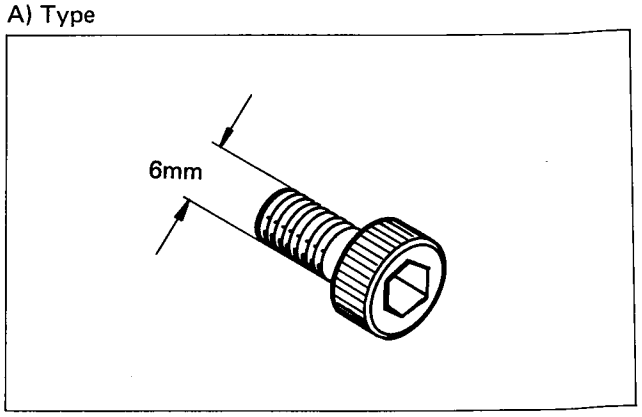
B) Type

Part Name	Tightening torque
6mm blot + lock washer + thread lock "1363A"	1.5 – 2.0 kg-m (11.0 – 14.5 lb-ft)

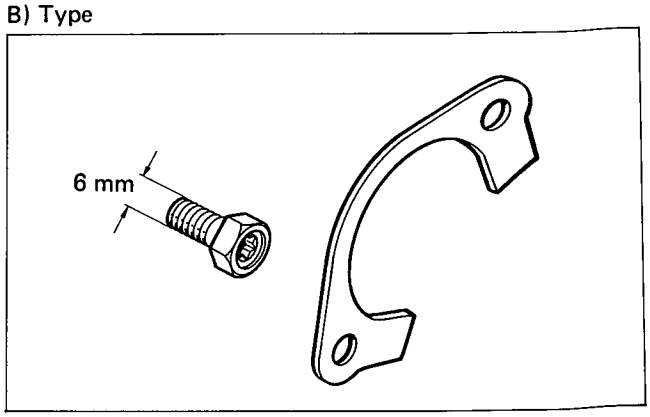
C) Type

Part Name	Tightening torque
7mm flange bolt + Thread lock "1363A"	2.4 – 2.6 kg-m (17.5 – 19.0 lb-ft)

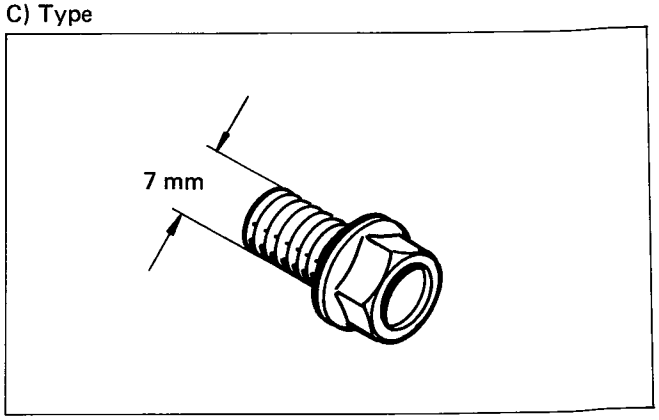
A) Type



B) Type



C) Type



UNDER SIZE BEARING FOR CRANKSHAFT

- For the bearing of standard parts, the color code on part is marked as shown in Fig. 1. Also for the under size bearing, the stamped mark of 0.25 or 0.50 is marked as shown in Fig. 2 according to their under size.

NOTE
0.25 or 0.50 represents respective under size.

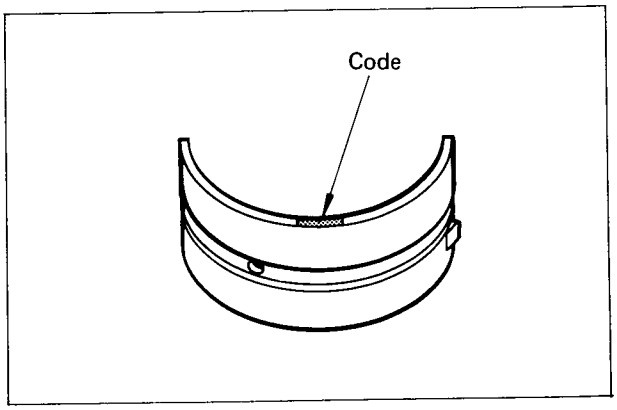


Fig. 1

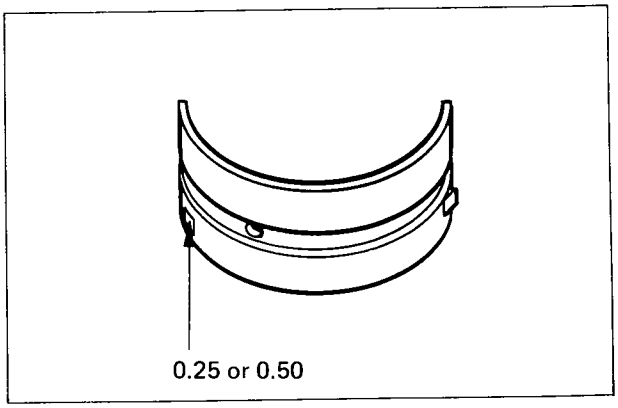
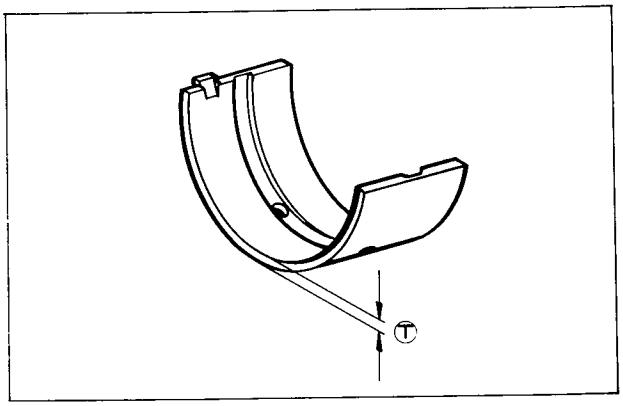


Fig. 2

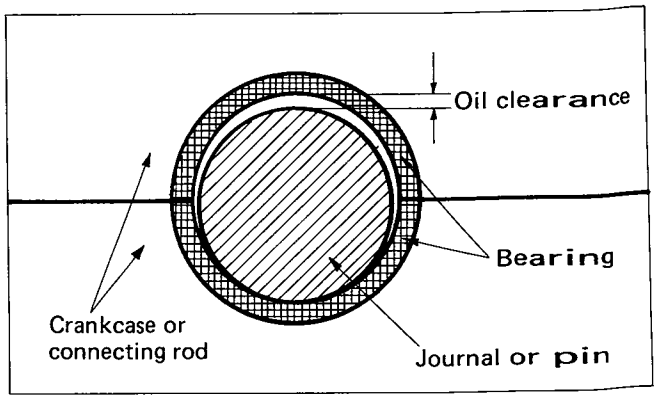
- The thickness of bearings are as shown below;

SIZE	THICKNESS Ⓣ
Standard	1.500 mm
0.25 under size	1.625 mm
0.50 under size	1.750 mm



SERVICING

- When grinding off the crankshaft journal and the crank pin, use a plastic gauge to be sure that each oil clearance is kept to a specific value.



Oil clearance specification

Crankshaft journal	0.020 – 0.044 mm (0.0008 – 0.0017 in)
Crank pin	0.024 – 0.048 mm (0.0009 – 0.0019 in)

- When mounting, be sure to apply SUZUKI MOLY PASTE on the bearing surface and journal surface.

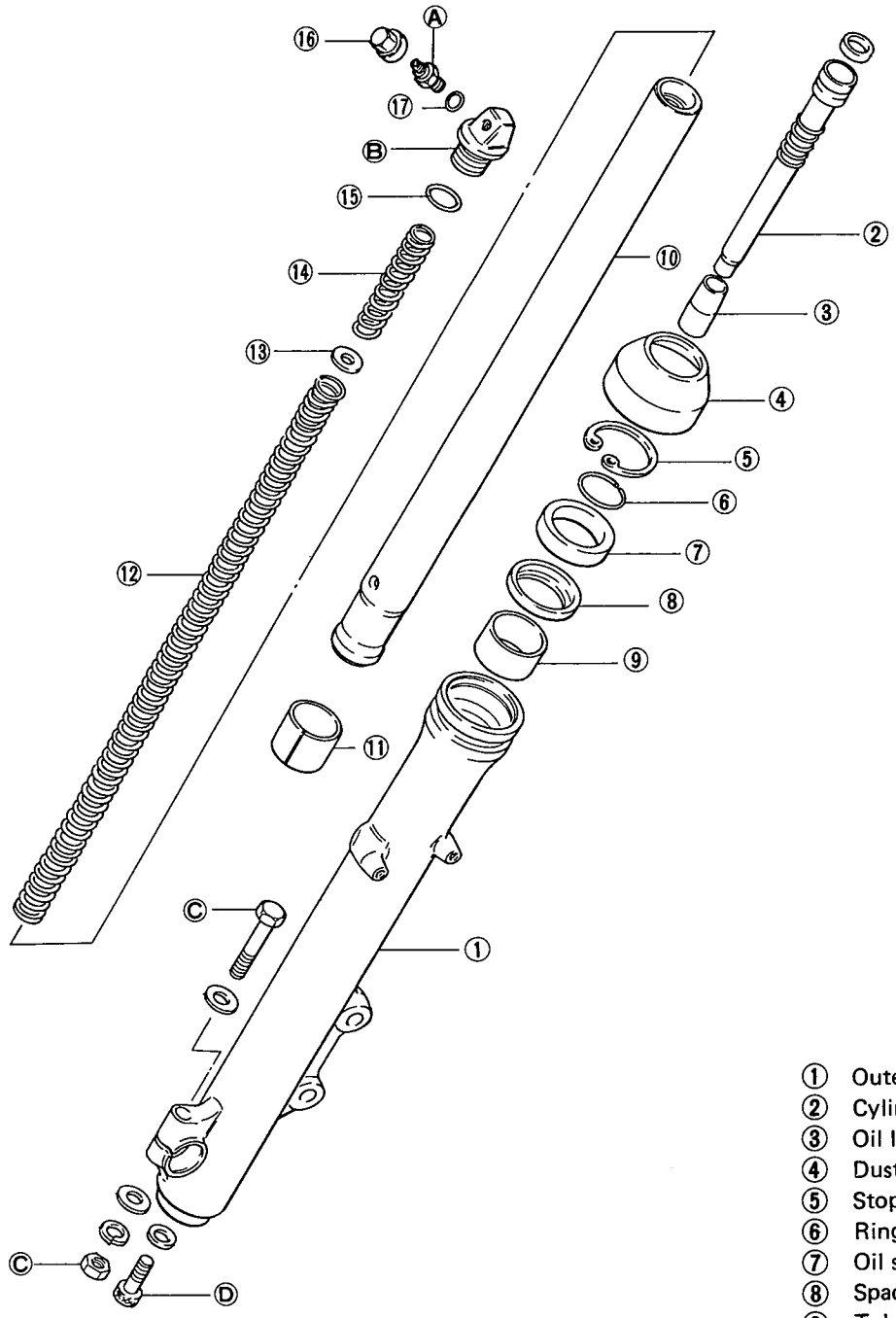
99000-25140	SUZUKI MOLY PASTE

PARTS SUPPLY DATA

The parts number for under size bearings are similar to the standard part number, so do not mix them.

SIZE	CRANKSHAFT JOURNAL BEARING	CONNECTING ROD BIG END BEARING
0.25 U.S.	12229-45400-025	12164-45400-025
0.50 U.S.	12229-45400-050	12164-45400-050

FRONT FORK

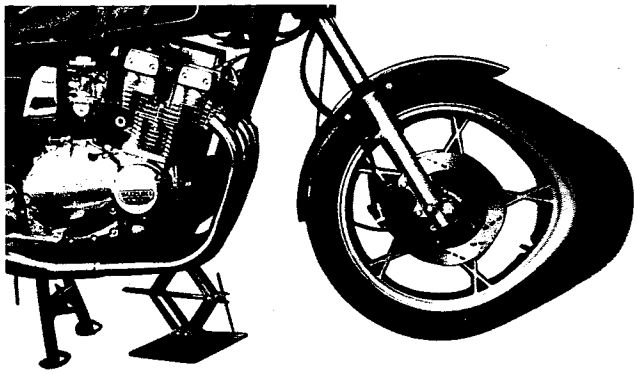


Tightening torque			
	N·m	kg-m	lb-ft
Ⓐ	10 – 13	1.0 – 1.3	7.0 – 9.5
Ⓑ	15 – 30	1.5 – 3.0	11.0 – 21.5
Ⓒ	15 – 25	1.5 – 2.5	11.0 – 18.0
Ⓓ	20 – 25	2.0 – 2.5	14.5 – 18.0

① Outer tube
② Cylinder
③ Oil lock piece
④ Dust seal
⑤ Stopper ring
⑥ Ring
⑦ Oil seal
⑧ Spacer
⑨ Tube guide
⑩ Inner tube
⑪ Slide metal
⑫ Spring
⑬ Spring guide
⑭ Spring
⑮ O-ring
⑯ Cap
⑰ O-ring

REMOVAL AND DISASSEMBLY

- Support the machine by the centerstand and a jack.



- Remove the caliper (Right or Left side).

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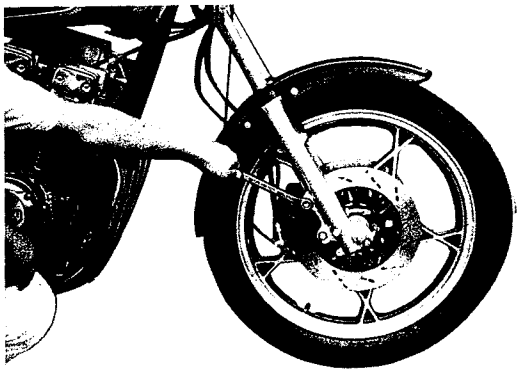
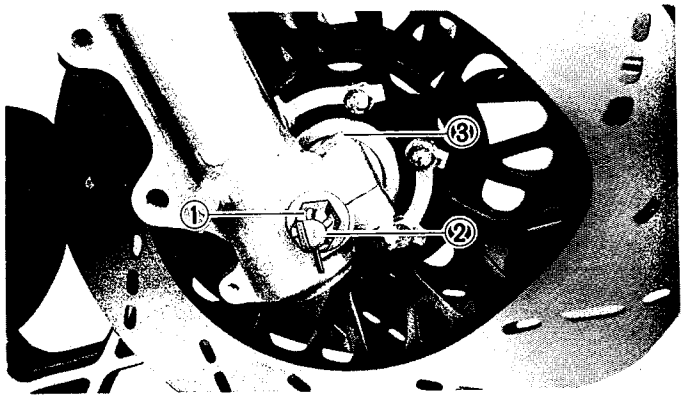
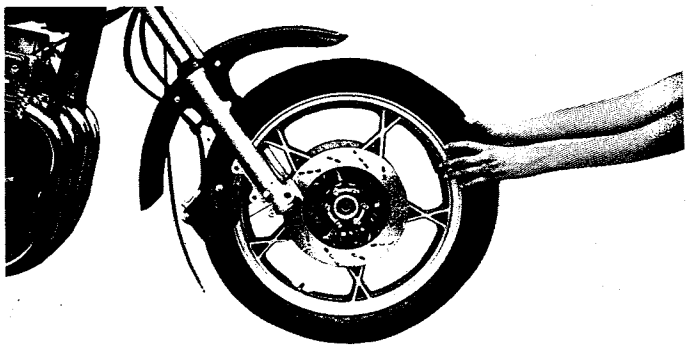


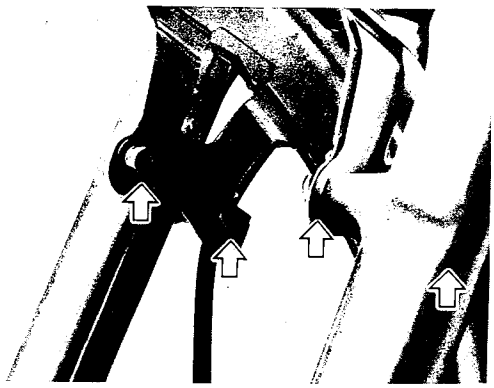
- Pull off cotter pin ① and remove axle nut ② .
- Loosen axle pinch bolt ③



- Draw out axle shaft and take off front wheel.

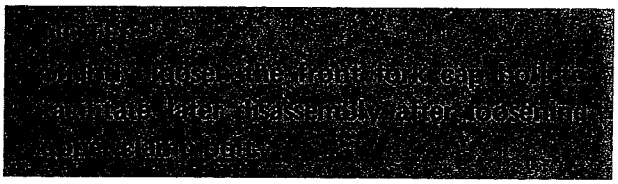


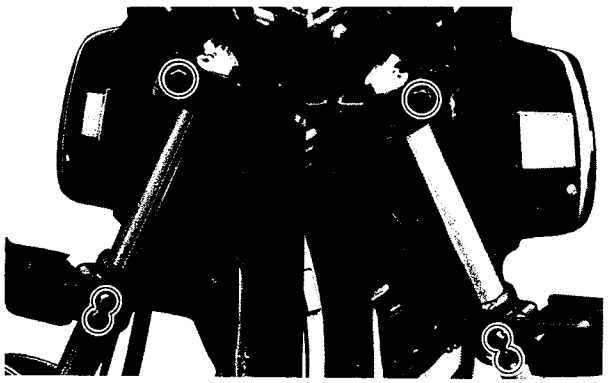
- Take off the other side caliper and disconnect speedometer cable guide.
- Remove front fender.



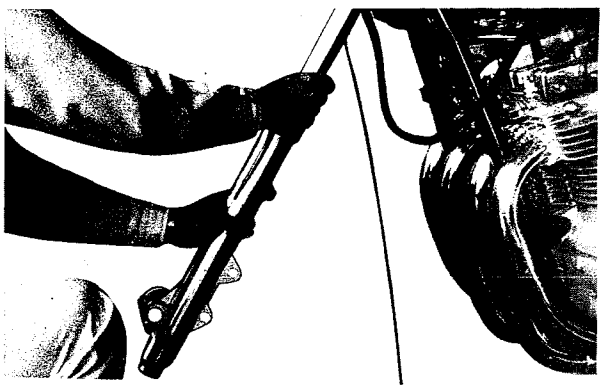
- Remove valve cap and push in the air valve to relieve the air pressure completely.

- Loosen the steering stem upper and lower clamp bolts.



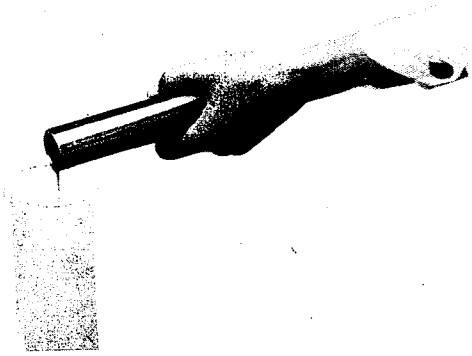


- Pull down right and left front fork assemblies.

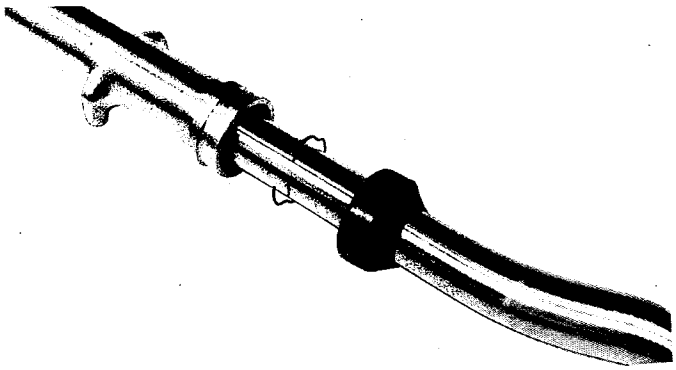


- Remove front fork cap bolt and draw out fork springs and spring guide.

- Invert the fork and stroke it several times to remove the oil inside.
  Under the condition (inverted condition), hold the fork for a few minutes.

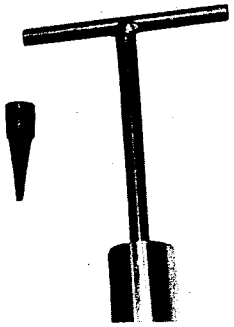


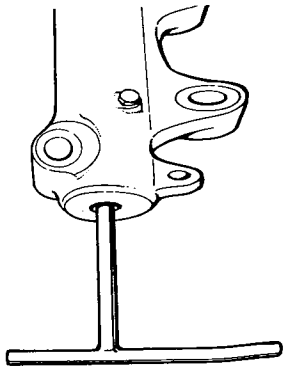
- Draw out dust seal and snap ring.



- Remove damper rod securing bolt by using special tools.

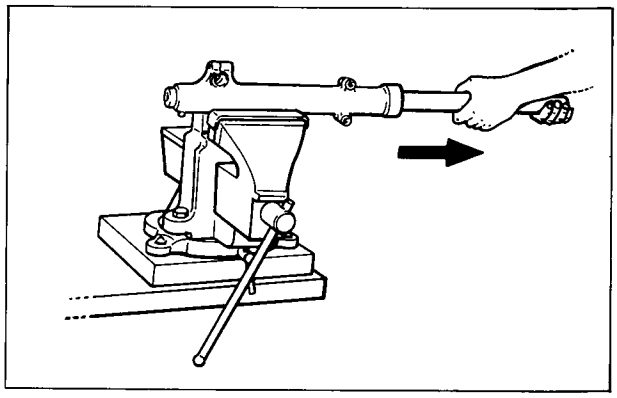
09940-34520	"T" handle
09940-34561	Attachment "D"
09914-25811	"T" type hexagon wrench





- Draw out 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.



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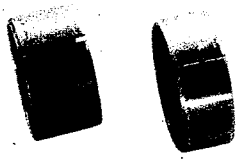


INSPECTION

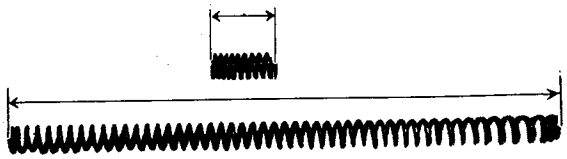
DAMPER ROD RING

- Inspect damper rod ring for wear and damage.

FORK SPRING

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

Service Limit	Upper: 62 mm (2.44 in)
	Lower: 466 mm (18.35 in)



INNER TUBE

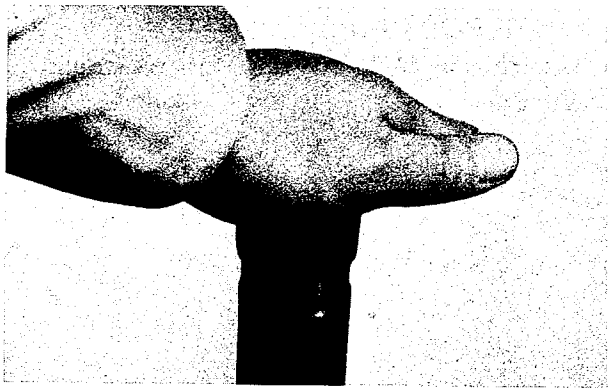
- Inspect inner tube outer surface for any scuffing.

OUTER TUBE

- Inspect outer tube inner surface for any scuffing.

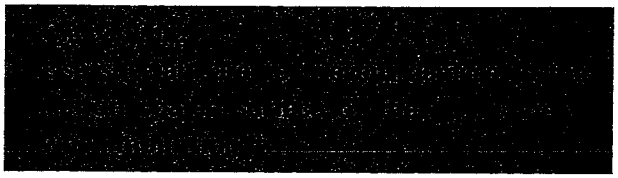
REASSEMBLY

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



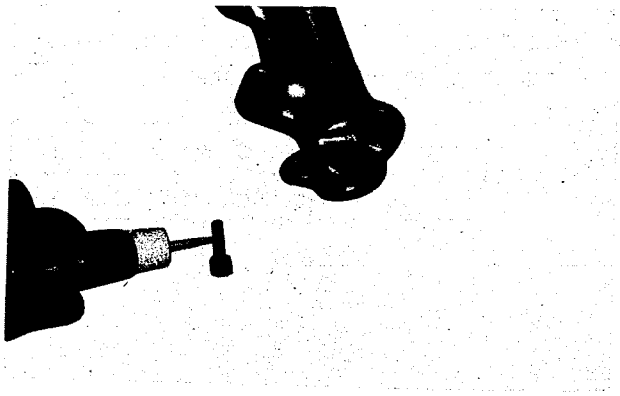
INNER TUBE METAL

- Install the metal by hand as shown.



DAMPER ROD BOLT

- Apply Thread Lock Cement to the damper rod bolt and tighten with specified torque.



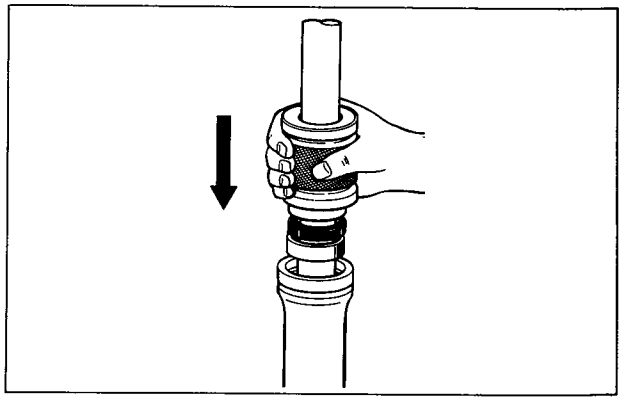
99000-32040	Thread Lock Cement

09940-34520	"T" handle
09940-34561	Attachment "D"
09914-25811	"T" type hexagon wrench

Tightening torque	1.5 – 2.5 kg-m (11.0 – 18.0 lb-ft)

OUTER TUBE METAL, SPACER AND OIL SEAL

- Mounting outer tube metal, spacer and oil seal by using special tool as shown.



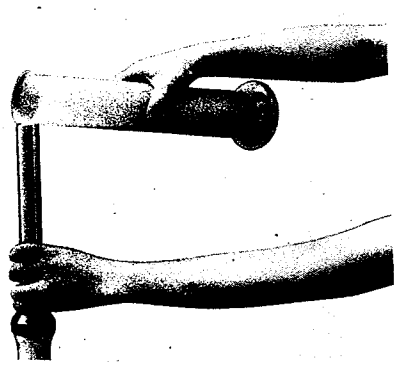
09940-54910	Oil seal installing tool driver
09940-54920	Attachment

FORK OIL

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

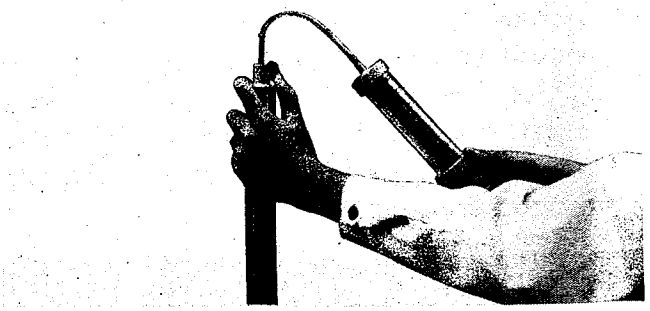
Fork oil	# 15

Capacity	191 ml (6.46 US oz)



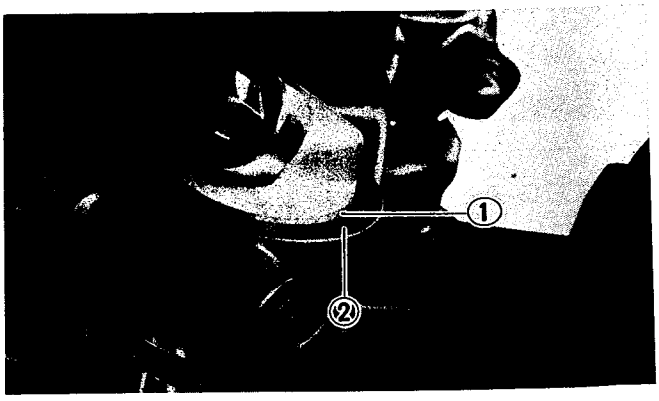
- Hold the front fork vertical and adjust the fork oil level with a special tool.

09943-74111	Fork oil level gauge
Oil level	227 mm (8.94 in)



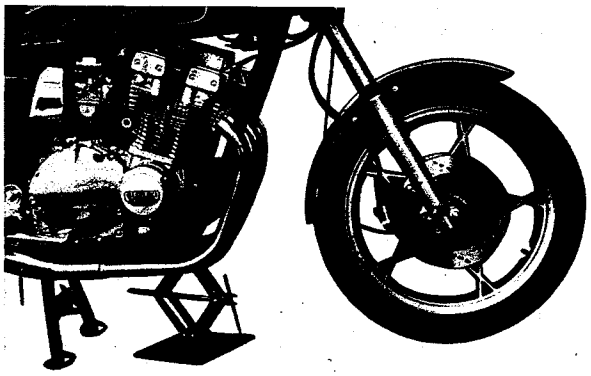
INNER TUBE

- Install the front fork assembly, align engraved line ① on the inner tube to the upper surface ② of the steering stem upper bracket.

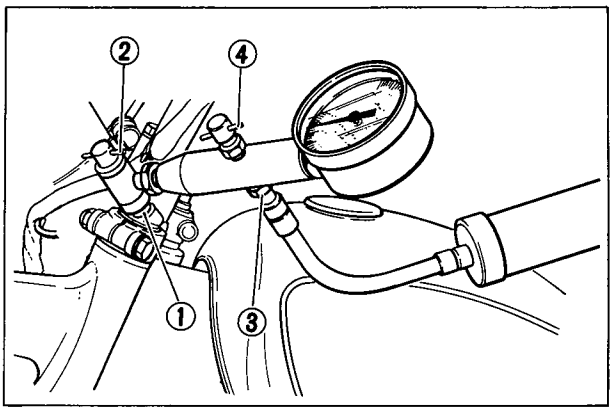


FORK AIR

- Lift up the front wheel by jack.



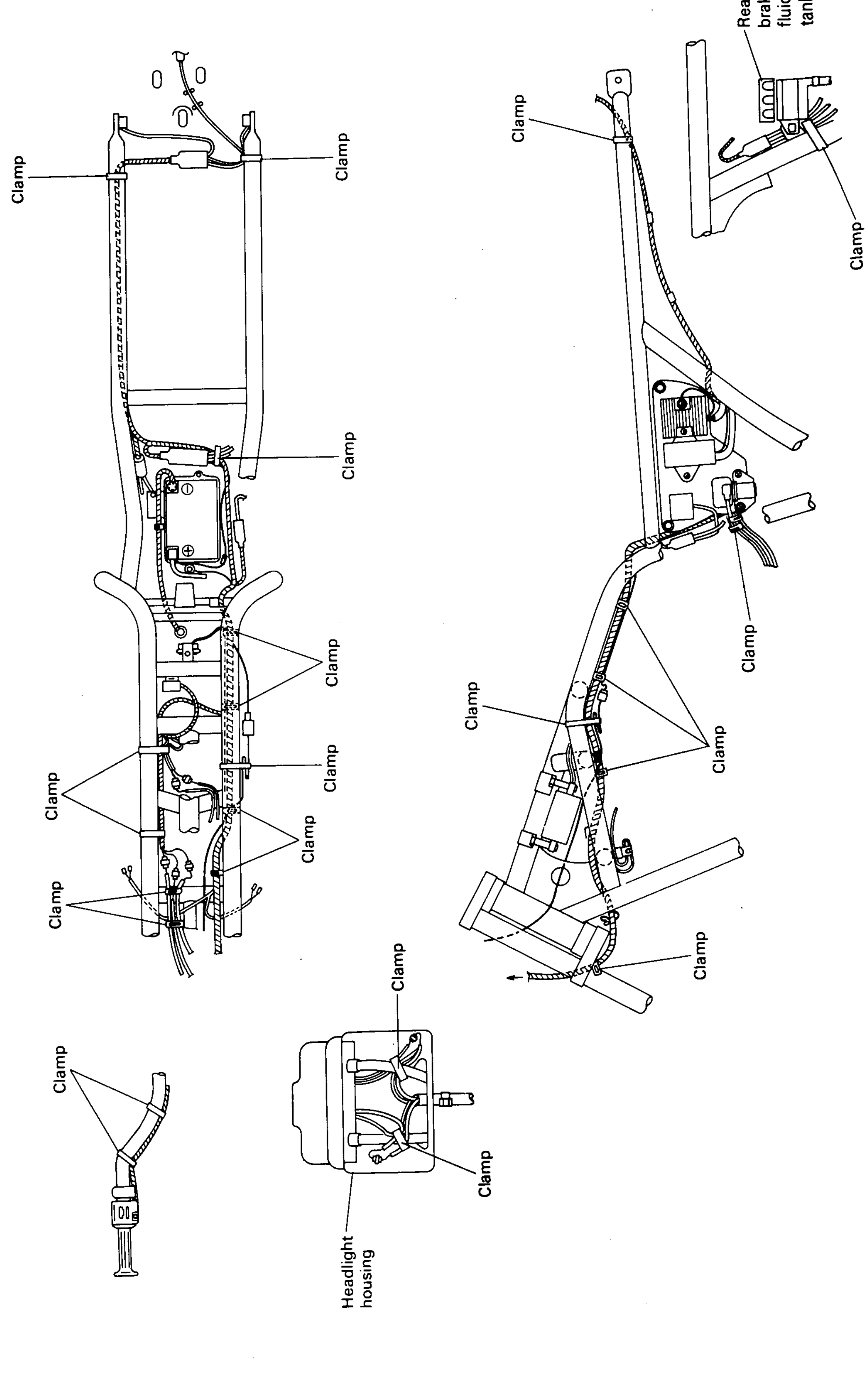
- Connect the air pressure gauge to the valve ① , and turn the valve handle ② clockwise. Connect the hand pump to the valve ③ , turn the valve handle ④ clockwise, and pump the air. Let the air out by loosening the handle ④ till the specified air pressure is left inside. Loosen the valve handle ② , and remove the air pressure gauge.

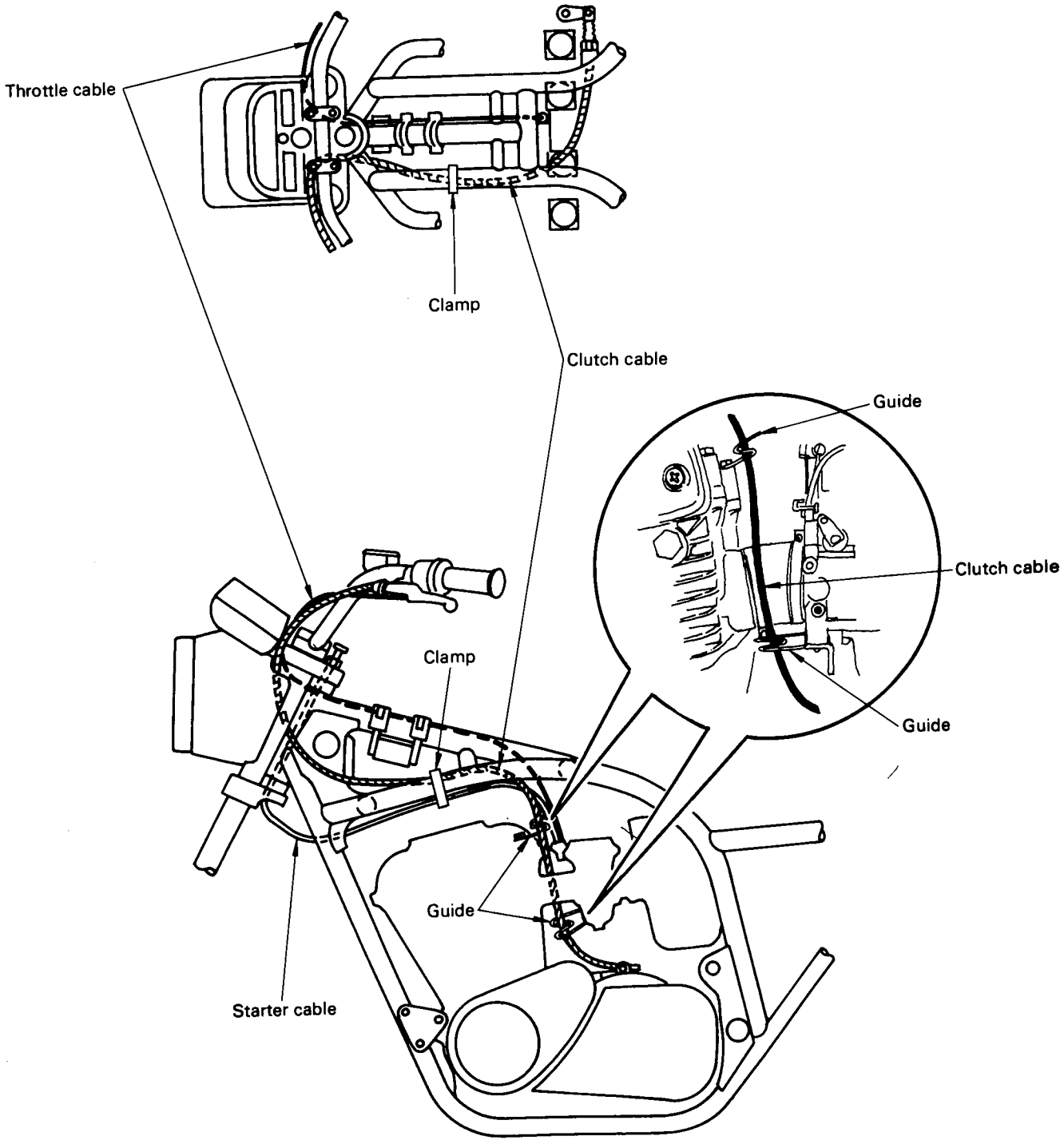


[redacted]

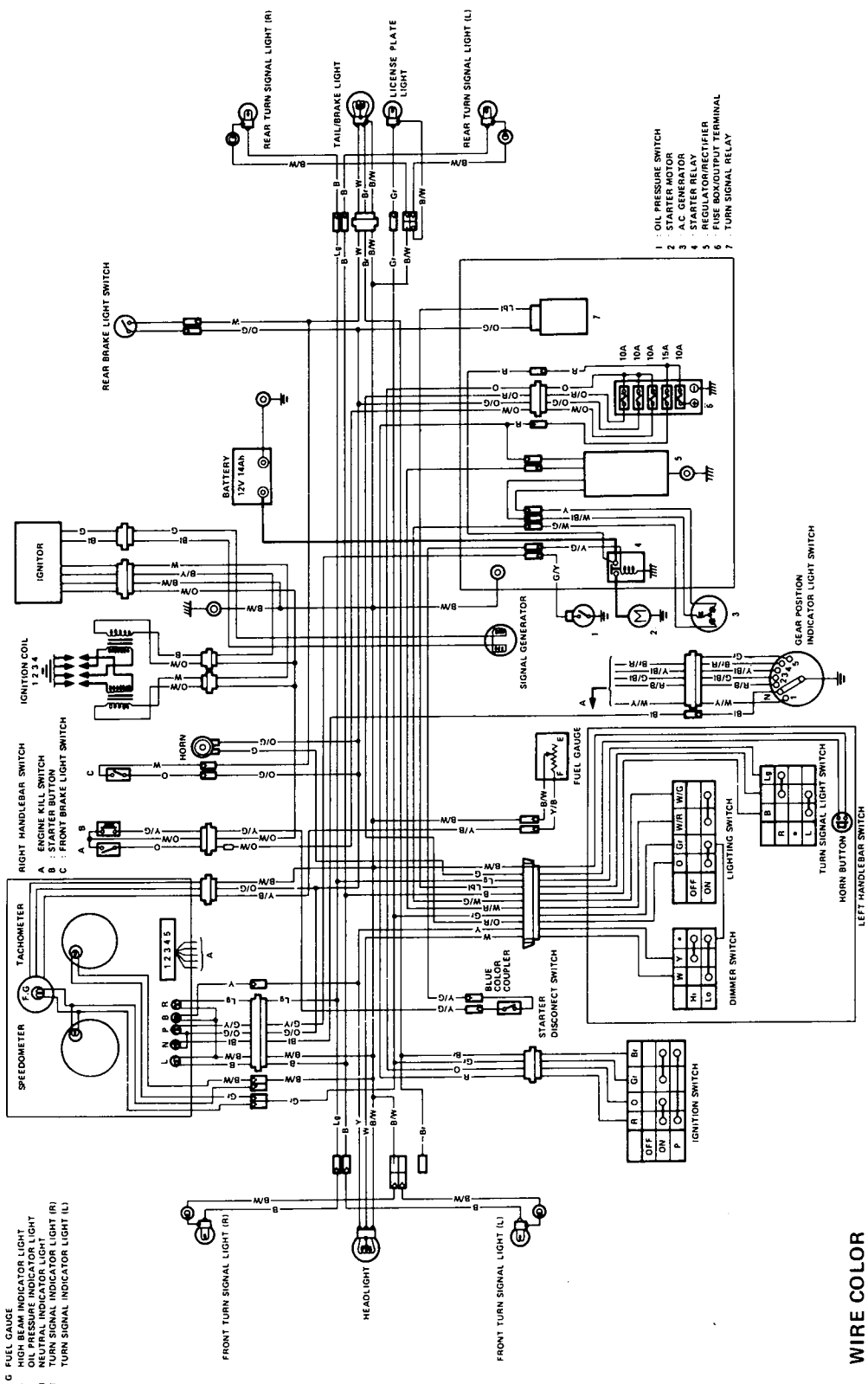
STD Air pressure	50 kPa (0.5 kg/cm², 7.11 psi)

WIRE AND CABLE ROUTING




Throttle cable
Clamp
Clutch cable
Guide
Clutch cable
Guide
Clamp
Guide
Starter cable

WIRING DIAGRAM



WIRE COLOR

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