

**SUZUKI**

**TS200R**

**SERVICE MANUAL**



## FOREWORD

The SUZUKI TS200R has been developed as a new generation motorcycle to the TS-models. It is packed with highly advanced design concepts including a liquid cooled engine, a crankcase reed valve, a Automatic Exhaust Timing Control (A.E.T.C.) a Digital C.D. ignition system a link type rear suspension. Combined with precise control and easy handling the TS200R provides excellent performance and outstanding riding comfort.

This service manual has been produced primarily for experienced mechanics whose job is to inspect, adjust, repair and service SUZUKI motorcycle. Apprentice mechanics and "do it yourself" mechanics will also find this manual to be an extremely useful guide.

The TS200R, manufactured to standard specifications, is the main subject matter of this manual. However, the TS200R machines distributed in your country might differ in minor respects from the standard-specification and, if they do, it is because some minor modifications (which are of no consequence in most cases as far as servicing is concerned) had to be made to comply with the statutory requirements of your country.

This manual contains up-to-date information at the time of its issue. Later made modifications and changes will be explained to each SUZUKI distributor in respective markets, to whom you are kindly requested to make query about updated information, if any.

### SUZUKI MOTOR CORPORATION

Motorcycle Department  
Overseas Service Division

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## VIEW OF TS200R



For Conventional front fork model



For Inverted front fork model

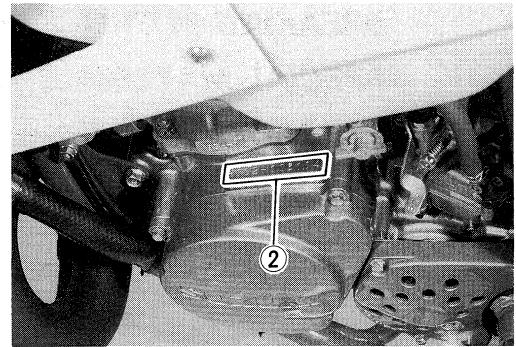
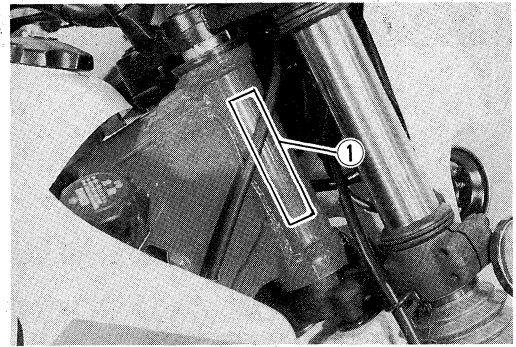
# GENERAL INFORMATION

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## VIN AND SERIAL NUMBER LOCATIONS

The frame serial number or V.I.N. (Vehicle Identification Number) ① is stamped on the steering head pipe. The engine serial number ② is located on the left side of the crankcase. These numbers are required especially for registering the machine and ordering spare parts.



## FUEL, OIL AND COOLING SOLUTION RECOMMENDATIONS

### FUEL

#### For CANADA model

Use only unleaded gasoline of at least 87 pump octane ( $\frac{R+M}{2}$  method) or 91 octane or higher rated by the Research Method.

#### For other models

Gasoline used should be graded 85—95 octane or higher. An unleaded gasoline is recommended.

### ENGINE OIL

Use SUZUKI "CCI" oil or SUZUKI CCI Super oil. They are formulated to give best engine performance with least combustion chamber deposits, least preignition, maximum spark plug life and best lubrication. If they are not available, a good quality TWO-STROKE OIL (non-diluent type) should be used.

### TRANSMISSION OIL

Use a good quality SAE 20W/40 multi-grade motor oil.

### FRONT FORK OIL

Use fork oil # 10.

**99000-99044-10G : SUZUKI FORK OIL # 10**

### BRAKE FLUID

**Specification and classification : DOT 4**

**99000-23110 : SUZUKI BRAKE FLUID**

## COOLING SOLUTION

Use an anti-freeze & Summer coolant compatible with aluminum radiator, mixed with distilled water only, at ratio of 50 : 50.

## WATER FOR MIXING

Use distilled water only. Water other than distilled water can corrode and clog the aluminum radiator.

## ANTI-FREEZE & SUMMER COOLANT

The coolant performs as corrosion and rust inhibitor as well as anti-freeze. Therefore, the coolant should be used at all times even though the atmospheric temperature in your area does not go down to freezing point.

SUZUKI recommends the use of SUZUKI GOLDEN CRUISER 1200NA anti-freeze & summer coolant. If this is not available, use an equivalent which is compatible with aluminum radiator.

99000-99032-10X : SUZUKI GOLDEN CRUISER 1200NA  
(Non-Amine type)

## REQUIRED AMOUNT OF WATER/COOLANT

Solution capacity (total) : 900 ml (0.95/0.79 US/Imp qt)

## CAUTION:

Mixing of anti-freeze & summer coolant should be limited to 60%. Mixing beyond it would reduce its efficiency. If the anti-freeze & summer coolant mixing ratio is below 30%, rust inhibiting performance is greatly reduced. Be sure to mix it above 30% even though the atmospheric temperature does not go down to freezing point.

## BREAKING-IN PROCEDURES

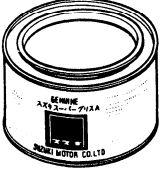
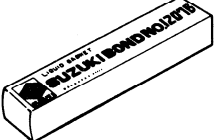




During manufacture only the best possible materials are used and all machined parts are finished to a very high standard, but it is still necessary to allow the moving parts to "BREAK-IN" before subjecting the engine to maximum stresses. The future performance and reliability of the engine depends on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







- Keep to these breaking-in engine speed limits.

Initial 800 km (500 miles) : Below 5 000 r/min  
Up to 1 600 km (1 000 miles) : Below 7 000 r/min  
Over 1 600 km (1 000 miles) : Below 12 000 r/min

## SPECIAL MATERIALS

The materials listed below are needed for maintenance work on the TS200R, and should be kept on hand for ready use. They supplement such standard materials as cleaning fluids, lubrications, 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" 99000-25010	<ul style="list-style-type: none"> <li>● Throttle grip</li> <li>● Clutch lever</li> <li>● Speedometer cable and tachometer cable</li> <li>● Speedometer gear box</li> <li>● Brake pedal shaft</li> <li>● Side stand</li> <li>● Kick starter lever</li> <li>● Crankcase oil seal</li> </ul>	2- 2 2- 2 2- 2  2- 2 7- 1 7- 2 2- 2 2- 2 2- 2 3-27	<ul style="list-style-type: none"> <li>● Wheel bearings</li> <li>● Steering stem bearing and race</li> <li>● Swingarm bearing and dust seal</li> <li>● Cushion lever and rod bearing</li> </ul>	2- 2 7- 1 7- 2 7-31 7-25 7-29 7-40 7-47 7-40 7-47
 SUZUKI BOND No. 1207B 99000-31140	<ul style="list-style-type: none"> <li>● Water pump mechanical seal</li> </ul>	4- 8		
 SUZUKI BOND No. 1215 99000-31110	<ul style="list-style-type: none"> <li>● Crankcase mating surface</li> <li>● Water thermo-gauge</li> </ul>	3-31 4- 9		
 THREAD LOCK SUPER "1322" 99000-32110	<ul style="list-style-type: none"> <li>● Engine sprocket bolt</li> <li>● Exhaust pulley bolt</li> <li>● Exhaust valve arm screw</li> <li>● 2nd drive gear</li> </ul>	3- 5 3- 6 3-18 3-26	<ul style="list-style-type: none"> <li>● Kick lever bolt</li> </ul>	3-40
 THREAD LOCK SUPER "1303" 99000-32030	<ul style="list-style-type: none"> <li>● Gearshift arm stopper</li> </ul>	3-32		
 THREAD LOCK SUPER "1324" 99000-32120	<ul style="list-style-type: none"> <li>● Magneto rotor nut</li> </ul>	3-37		

Material	Part	Page	Part	Page
 <p>THREAD LOCK SUPER "1360" 99000-32020</p>	<ul style="list-style-type: none"> <li>● Disc bolt</li> </ul>	<p>7- 1 7- 2 7-31</p>		
 <p>THREAD LOCK "1342" 99000-32050</p>	<ul style="list-style-type: none"> <li>● Gearshift retainer screw and bolt</li> <li>● Pawel lifter nut and cam guide screw</li> <li>● Cam driven gear bolt</li> <li>● Front fork damper rod bolt</li> </ul>	<p>3-32 3-33 3-33 7-13 7-16</p>		
 <p>SUZUKI SILICONE GREASE 99000-25100</p>	<ul style="list-style-type: none"> <li>● Caliper axle</li> </ul>	<p>7- 5 7-34</p>		
 <p>SUZUKI BRAKE FLUID 99000-23110 (0.5L)</p>	<ul style="list-style-type: none"> <li>● Brakes</li> </ul>	<p>1- 1 2-10</p>		
 <p>SUZUKI GOLDEN CRUISER 1200NA (Non-Amine type) 99000-99032-10X</p>	<ul style="list-style-type: none"> <li>● Cooling solution</li> </ul>	<p>1- 2</p>		
 <p>SUZUKI FORK OIL # 10 99000-99044-10G</p>	<ul style="list-style-type: none"> <li>● Front fork</li> </ul>	<p>1- 1 7-17 7-22</p>		

## PRECAUTIONS AND GENERAL INSTRUCTIONS

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

- Do not run engine indoors with little or no ventilation.
- Be sure to replace packings, gaskets, circlips, O-rings and cotter pins with new ones.

### CAUTION:

**Never reuse a circlip after a circlip has been removed from a shaft, it should be discarded and a new circlip must be installed.**

**When installing a new circlip, care must be taken not to expand the end gap larger than required to slip the circlip over the shaft.**

**After installing a circlip, always insure that is completely seated in its groove and securely fitted.**

- Tighten cylinder head and case bolts and nuts beginning with larger diameter and ending with smaller diameter, and from inside to outside diagonally, to the specified tightening torque.
- Use special tools where specified.
- Use genuine parts and recommended oils.
- When more than 2 persons perform work together, pay attention to the safety of each other.
- After the reassembly, check parts for tightness and operation.
- Treat gasoline, which is extremely flammable and highly explosive, with greatest care. Never use gasoline as cleaning solvent.

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

**WARNING..... The personal safety of the rider or bystanders may be involved. Disregarding this information could result in personal injury.**

**CAUTION..... These instructions point out special service procedures or precautions that must be followed to avoid damaging the machine.**

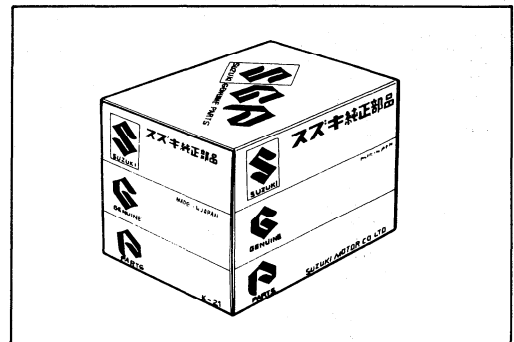
**NOTE..... This provides special information to make maintenance easier or important instructions clearer.**

## REPLACEMENT PARTS

When you replace any parts, use only genuine SUZUKI replacement parts, or their equivalent. Genuine SUZUKI parts are high quality parts which are designed and built specifically for SUZUKI vehicles.

### CAUTION:

**Use of replacement parts which are not equivalent in quality to genuine SUZUKI parts can lead to performance problems and damage.**



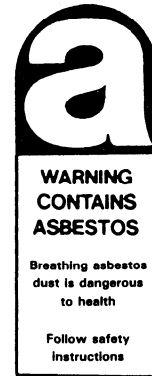
## ASBESTOS INFORMATION

Note the following when handling a supply part with the above WARNING LABEL or any part in the parts list in this section which contains asbestos.

- Operate if possible out of doors in a well ventilated place.
- Preferably use hand tools or low speed tools equipped, if necessary, with an appropriate dust extractor facility. If high speed tools are used, they should always be so equipped.
- If possible, dampen before cutting or drilling.
- Dampen dust and place it in a properly closed receptacle and dispose of it safely.

Any domestic asbestos product to which the above does not apply, but which is likely to release fibres during use should be replaced by new one when worn.

**Exhaust pipe gasket**





## SPECIFICATIONS

### DIMENSIONS AND DRY MASS

Overall length.....	2 185 mm (86.0 in)
Overall width.....	880 mm (34.6 in)
Overall height.....	1 245 mm (49.0 in)
Wheelbase.....	1 425 mm (56.1 in)
Ground clearance.....	320 mm (12.6 in)
Seat height.....	880 mm (34.6 in)
Dry mass.....	115 kg (253 lbs) ... E-24, 28
	116 kg (256 lbs) ... E-02, 04

### ENGINE

Type.....	Two-stroke, water-cooled
Intake system.....	Crankcase and reed valve
Number of cylinders... 1	
Bore.....	66.0 mm (2.598 in)
Stroke.....	57.0 mm (2.244 in)
Piston displacement ...	195 cm <sup>3</sup> (11.9 cu. in)
Corrected compression ratio .....	8.5 : 1
Carburetor.....	MIKUNI TM30SS, Single
Air cleaner.....	Polyurethane foam element
Starter system.....	Primary kick
Lubrication system.....	SUZUKI "CCI"

### TRANSMISSION

Clutch.....	Wet multi-plate type
Transmission.....	6-speed constant mesh
Gearshift pattern.....	1-down, 5-up
Primary reduction.....	3.350 (67/20)
Final reduction.....	2.600 (39/15) ... E02, 04, 24
	2.857 (40/14) ... E-28
Gear ratios, Low.....	2.636 (29/11)
2nd.....	1.857 (26/14)
3rd.....	1.400 (21/15)
4th.....	1.095 (23/21)
5th.....	0.916 (22/24)
Top.....	0.800 (20/25)
Drive chain.....	TAKASAGO RK520SO 106 links

### CHASSIS

Front suspension.....	Telescopic, coil spring, oil dampened
Rear suspension.....	Link type suspension system, gas/oil damped, damping force adjustable, spring free way adjustable
Steering angle.....	43° (right & left)
Caster.....	62° 30'
Trail.....	117 mm (4.6 in)
Turning radius.....	2.3 m (7.5 ft)
Front brake.....	Disc
Rear brake.....	Disc
Front tire size.....	80/100-21 51P
Rear tire size.....	110/90-18 61P
Front fork stroke.....	270 mm (10.6 in)
Rear wheel travel.....	270 mm (10.6 in)

### ELECTRICAL

Ignition type.....	SUZUKI "PEI" (CDI)
Ignition timing.....	8° B.T.D.C. below 2 000 r/min
Spark plug.....	NGK BR9ES or ND W27ESR
Battery.....	12V 10.8 kC (3 Ah)/ 10 HR
Fuse.....	15A

### CAPACITIES

Fuel tank	
including reserve.....	9.5 L (2.5/2.1 US/Imp gal)
reserve.....	1.4 L (0.4/0.3 US/Imp gal)
Engine oil tank.....	1.2 L (1.3/1.1 US/Imp qt)
Front fork oil.....	555 ml ... E-24, 28
	452 ml ... E-02, 04
Transmission oil.....	950 ml (1.00/0.84 US/Imp qt)
Cooling solution.....	900 ml (0.95/0.79 US/Imp qt)

These specifications are subject to change without notice.

E-02 ... For U.K.  
E-04 ... For France  
E-24 ... For Australia  
E-28 ... For Canada

# PERIODIC MAINTENANCE AND TUNE-UP PROCEDURES

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## PERIODIC MAINTENANCE SCHEDULE

The chart below lists the recommended intervals for all the required periodic service work necessary to keep the motorcycle operating at peak performance and economy. Traveling distances are expressed in terms of kilometers.

**NOTE:**

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

### PERIODIC MAINTENANCE CHART

This interval should be judged by odometer reading or months, whichever comes first.	km	1 000	6 000	12 000	18 000	24 000
	months	2	12	24	36	48
Battery		—	I	I	I	I
Cylinder nuts, cylinder head nuts and exhaust pipe nuts		T	T	T	T	T
Cylinder head, cylinder and muffler		—	C	C	C	C
Spark plug		I	R	R	R	R
Air cleaner	Clean every 3 000 km					
Transmission oil		R	—	R	—	R
Radiator hoses		I	—	I	—	I
	Replace every 4 years					
Coolant	Replace every 2 years					
Carburetor		I	I	I	I	I
Fuel line		I	I	I	I	I
	Replace every 4 years					
Oil pump		I	I	I	I	I
Clutch		I	I	I	I	I
Drive chain		I	I	I	I	I
	Clean and lubricate every 1 000 km					
Brakes		I	I	I	I	I
Brake hoses		I	I	I	I	I
	Replace every 4 years					
Brake fluid	Replace every 2 years					
Tires		I	I	I	I	I
Steering		I	I	I	I	I
Front fork		I	I	I	I	I
Rear suspension		I	I	I	I	I
Chassis bolts and nuts		T	T	T	T	T

I: Inspection and adjust, clean, lubricate or replace as necessary

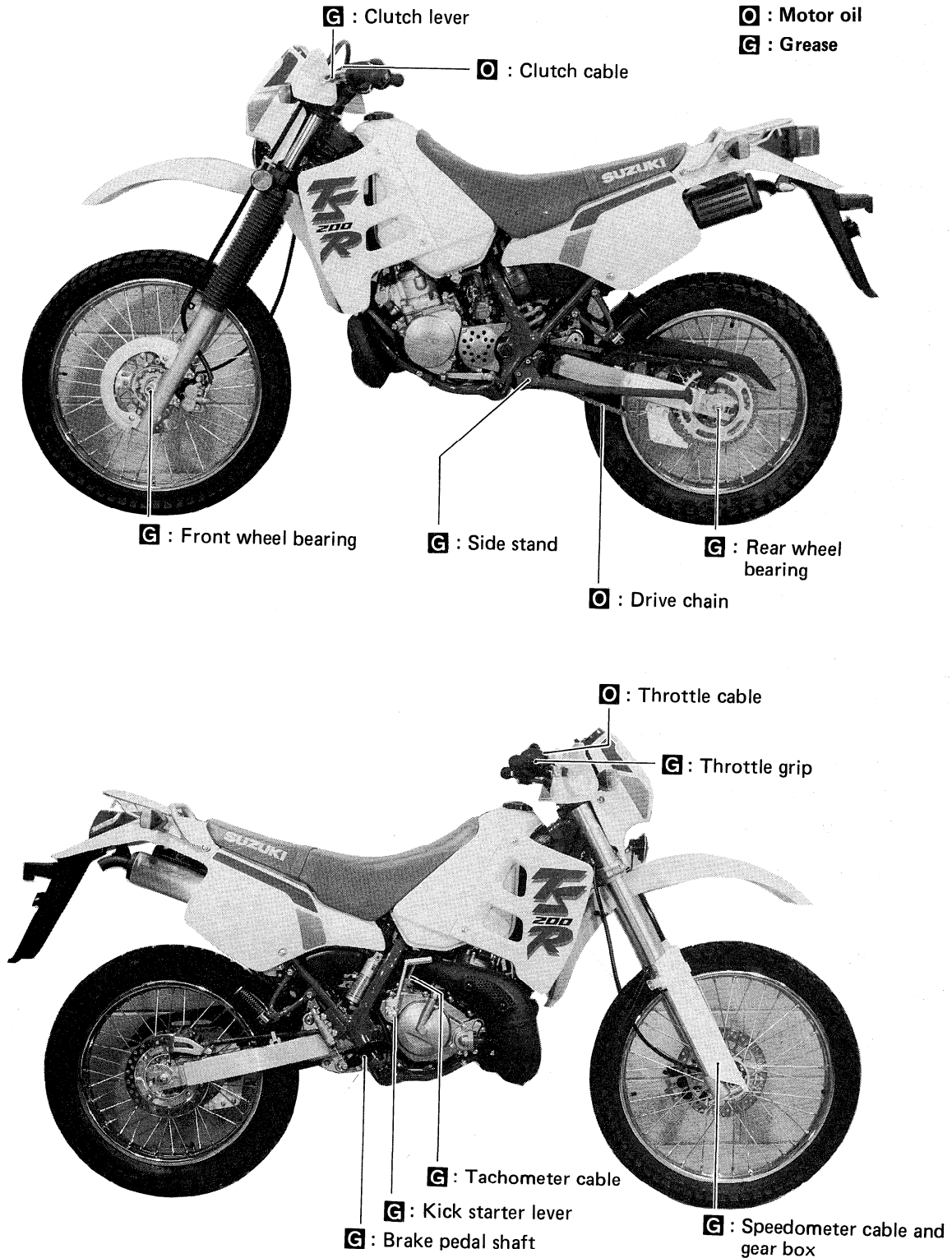
C: Clean R: Replace T: Tighten

## LUBRICATION POINTS

Proper lubrication is important for smooth operation and long life of each working parts of the motor-cycle. Major lubrication points are indicated below.

### NOTE:

- \* Before lubricating each part, clean off any rusty spots and wipe off any grease, oil, dirt or grime.
- \* Lubricate exposed parts which are subject to rust, with motor oil or grease.



## MAINTENANCE PROCEDURES

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

### BATTERY

**Inspect Every 6 000 km (12 months)**

- Remove the left frame cover.
- Check the battery voltage with the pocket tester.

#### 09900-25002 : Pocket tester

If the voltage reading is below 12.0 V, this battery needs recharging.

#### Battery voltage : Above 12.0 V

- Disconnect the battery  $\ominus$  and  $\oplus$  lead wires and remove the battery.

#### WARNING:

When disconnecting the battery lead wire,  $\ominus$  lead wire first.

#### CAUTION:

Read the "ELECTRICAL SECTION", for the servicing battery.



### CYLINDER NUTS, CYLINDER HEAD NUTS AND EXHAUST PIPE NUTS

**Tighten Initial 1 000 km (2 months) and Every 6 000 km (12 months)**

#### CYLINDER NUTS AND CYLINDER HEAD NUTS

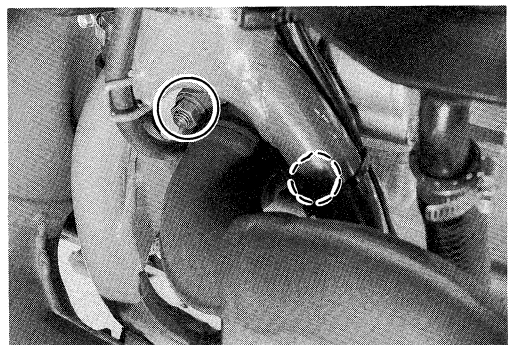
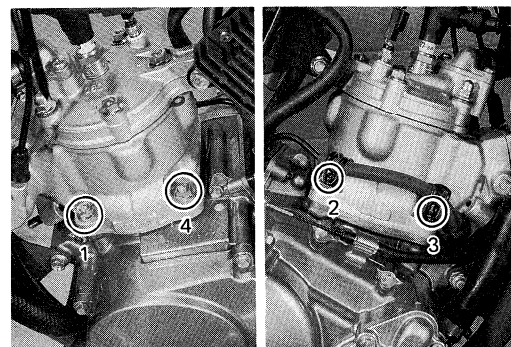
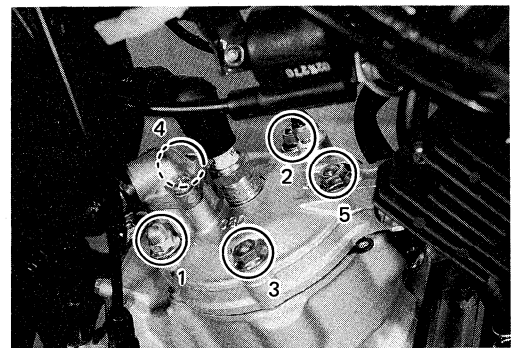
- Remove the seat and fuel tank. (Refer to page 3-2.)
- Remove the first muffler. (Refer to page 3-2.)
- First loosen the nuts and tighten the cylinder nuts and then cylinder head nuts to the specified torque in ascending numerical order as shown.

**Tightening torque : 23 – 27 N·m**  
(2.3 – 2.7 kg-m, 16.5 – 19.5 lb-ft)

#### EXHAUST PIPE NUTS

- Tighten the exhaust pipe nuts to the specified torque.

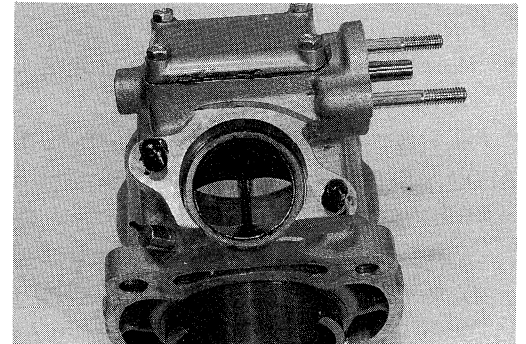
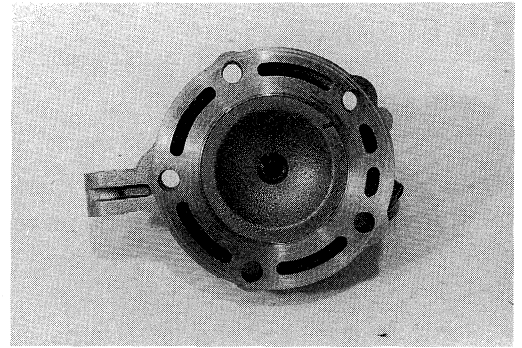
**Tightening torque : 10 – 16 N·m**  
(1.0 – 1.6 kg-m, 7.0 – 11.5 lb-ft)



## CYLINDER HEAD, CYLINDER AND MUFFLER

**Remove carbon Every 6 000 km (12 months)**

- Carbon deposits in the combustion chamber of the cylinder head and at the piston crown will raise the compression ratio and may cause preignition or overheating.
- Carbon deposited at the exhaust port of the cylinder will prevent the flow of exhaust gas, reducing the output. Remove carbon deposits periodically.

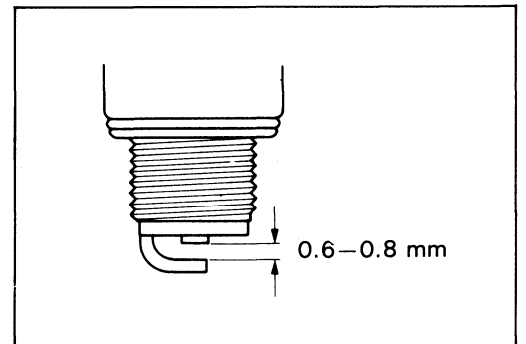
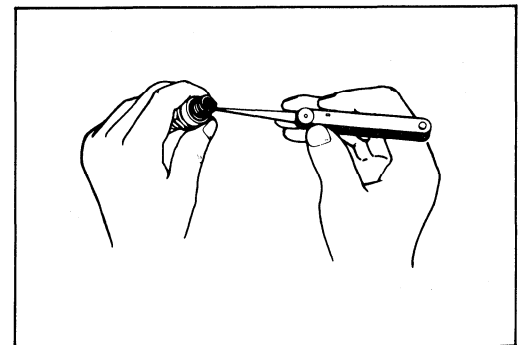


## SPARK PLUG

**Inspect 1 000 km (2 months) and Replace Every 6 000 km (12 months)**

Remove the carbon deposits with a wire or pin and adjust the spark plug gap to 0.6 – 0.8 mm (0.02 – 0.03 in) measuring with a thickness gauge.

When removing carbon deposits, be sure to observe the appearance of the plug, noting the color of the carbon deposits. The color observed indicates whether the standard plug is suitable or not. If the standard plug is apt to get wet, replace with hotter one.



	NGK	ND
<b>Standard</b>	BR9ES	W27ESR
<b>Hot type</b>	BR8ES	W24ESR

### CAUTION:

**Confirm the thread size and reach when replacing the plug.**

## AIR CLEANER

Clean Every 3 000 km

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

Check and clean the element in the following manner.

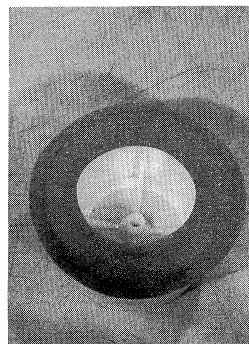
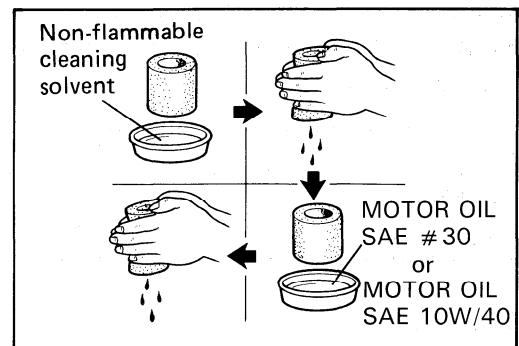
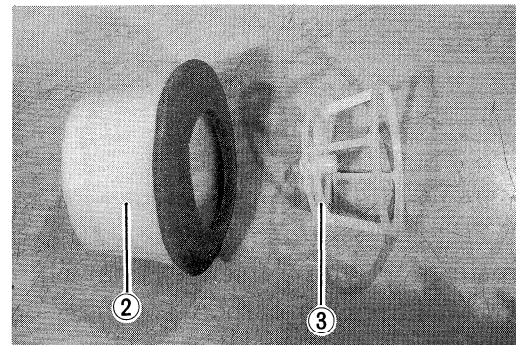
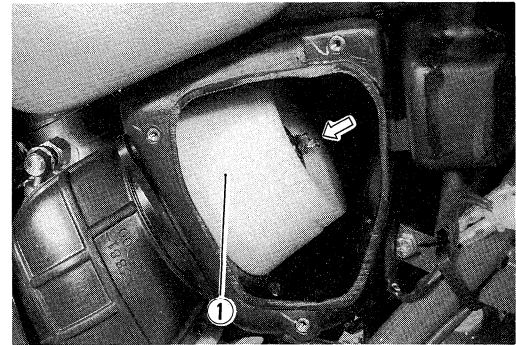
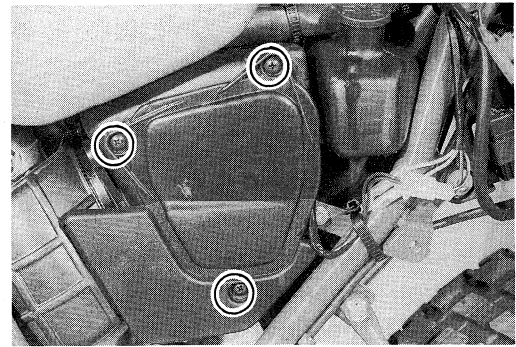
- Remove the seat and left frame cover.
- Remove the air cleaner case cover.
- Remove the air cleaner ①.
- Separate the polyurethan foam element ② from the element frame ③.
- Fill a washing pan of a proper size with nonflammable cleaning solvent. Immerse the element in the cleaning solvent and wash it clean.
- Squeeze the cleaning solvent out of the washed element by pressing it between the palms of both hands: do not twist or wring the element or it will develop tears.
- Immerse the element in MOTOR OIL SAE # 30 or 10W/40, and squeeze the oil out of the element leaving it slightly wet with oil.
- Fit the cleaner element to frame properly.

### CAUTION:

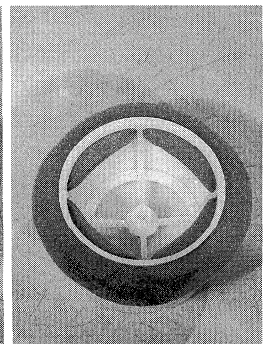
- \* Before and during the cleaning operation, inspect the element for tears. A torn element must be replaced.
- \* Be sure to position the element snugly and correctly, so that no incoming air will bypass it. Remember, rapid wear of piston rings and cylinder bore is often caused by a defective or poorly fitted element.

### CAUTION:

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



CORRECT



INCORRECT



## TRANSMISSION OIL

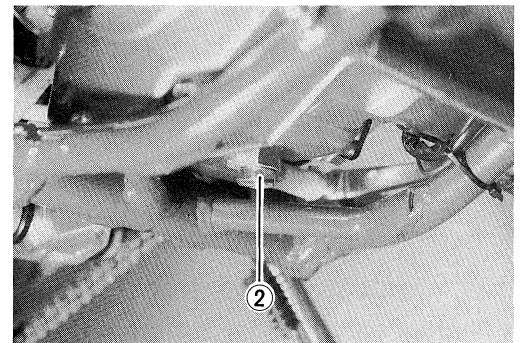
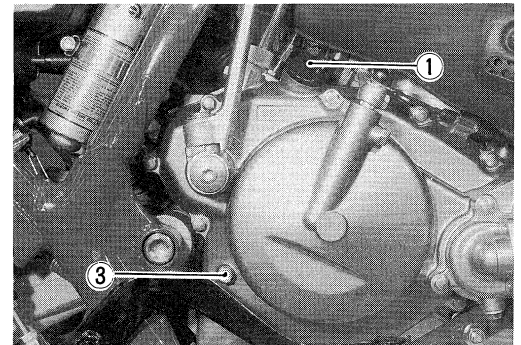
**Replace (change) Initial 1 000 km (2 months) and Every 12 000 km (24 months)**

After a long period of use, the transmission oil will deteriorate and quicken the wear of sliding and interlocking surfaces. Replace the transmission oil periodically following the procedure below.

- Keep the motorcycle upright.
- Start the engine to warm up the oil, this will facilitate draining of oil. Shut off the engine.
- Place the oil pan below the engine and drain the oil by removing the filler cap ① and drain plug ②.
- After draining the oil completely, fit the drain plug ② securely.

**Drain plug tightening torque : 20–25 N·m (2.0–2.5 kg-m, 14.5–18.0 lb-ft)**

- Add the good quality SAE 20W/40 multi-grade motor oil. The transmission will hold about 950 ml of oil.
- Install the filler cap correctly.
- Start up the engine and allow it to run for several seconds at idling speed.
- Turn off the engine and wait for about one minute, and check the oil level screw ③. If the oil does not run out from the hole, add the oil until it runs out.



## COOLING SYSTEM

**Inspect Initial 1 000 km (2 months) and Every 12 000 km (24 months)**

**Replace (change) coolant Every 2 years**

**Replace hoses Every 4 years**

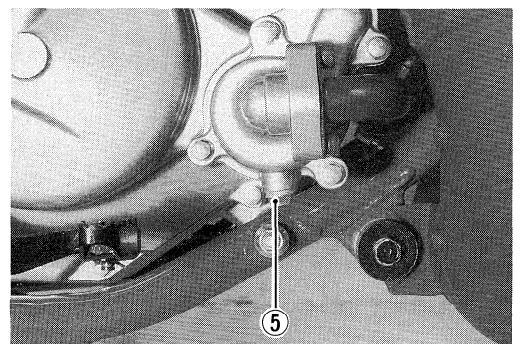
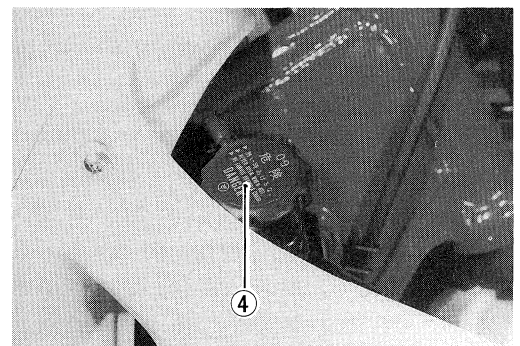
- Loosen the screw and remove the radiator cap ④.
- Remove the drain plug ⑤ and drain the coolant thoroughly while holding the motorcycle upright.

### WARNING:

**Do not open the radiator cap when the engine is hot, as you may be injured by escaping hot liquid or vapor.**

### WARNING:

**Cooling solution may be harmful if swallowed or if it comes in contact with skin or eyes. If cooling solution gets into the eyes or in contact with the skin, it should be flushed thoroughly with plenty of water. If swallowed, induce vomiting and call physician immediately.**





## 2-7 PERIODIC MAINTENANCE AND TUNE-UP PROCEDURES

- Flush the radiator with fresh water.
- Tighten the drain plug securely.
- Fill the specified coolant up to the radiator inlet hole.

### NOTE:

For coolant information, refer to "COOLING SYSTEM" section page 4-2.)

- Fill the reservoir tank to the "F" level with coolant.
- Close the radiator cap securely.
- After warming up and cooling down the engine, check the coolant level of the reservoir tank and add the coolant to the "F" level if the level is below "L".

Including reservoir tank capacity : 900 ml (0.95/0.79 US/Imp qt)

Reservoir tank capacity : 150 ml (0.16/0.13 US/Imp qt)

## CARBURETOR

Inspect Initial 1 000 km (2 months) and Every 6 000 km (12 months)

### ADJUSTING THROTTLE CABLE

- Loosen lock nut ①.
- Adjust the cable play  $\text{\textcircled{A}}$  to 0.5 – 1.0 mm by turning adjuster ②.

Throttle cable play  $\text{\textcircled{A}}$  : 0.5 – 1.0 mm (0.02 – 0.04 in)

- After adjusting the cable play, tighten the lock nut ①.

### IDLE R/MIN ADJUSTMENT

- Adjust the throttle cable play.

### NOTE:

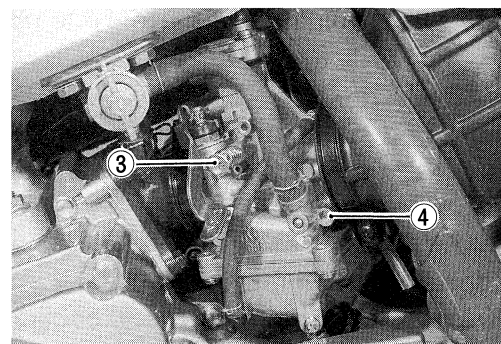
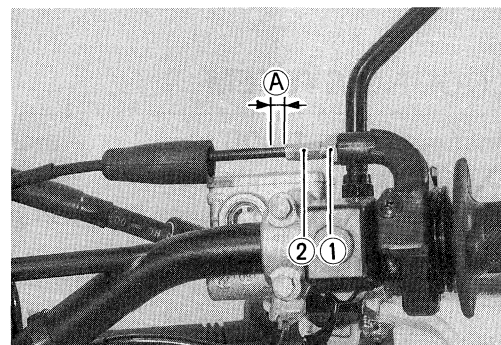
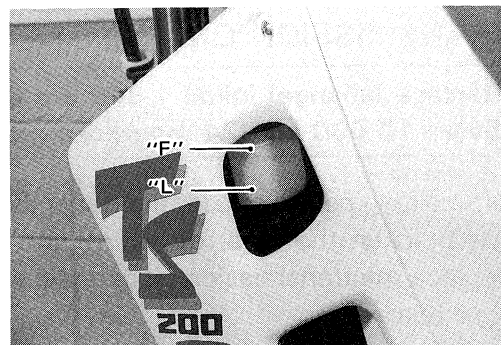
Make this adjustment when the engine is hot.

- Connect a tachometer.
- Start the engine and turn the throttle valve stop screw ③ so that engine idles at 1 500 r/min.
- Turn the air screw ④ in or out around 1/4 turn from the original setting. (Refer to page 5-3.)
- The engine r/min will increase or decrease in accordance with the turning of the air screw.
- Set this screw in a position that allows the engine to idle at the highest r/min.
- Turn the throttle valve stop screw again and adjust the specified engine idle r/min.

Engine idle r/min :  $1\,400 \pm 100$  r/min

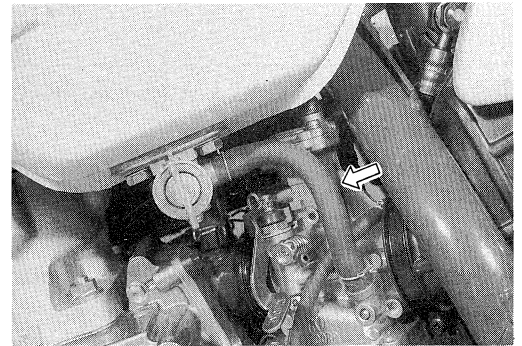
### CAUTION:

This adjustment could affect the oil pump control cable play, so readjust the oil pump control cable play if necessary.



## FUEL LINE

**Inspect Initial 1 000 km (2 months) and Every 6 000 km (12 months)**  
**Replace Every 4 years**



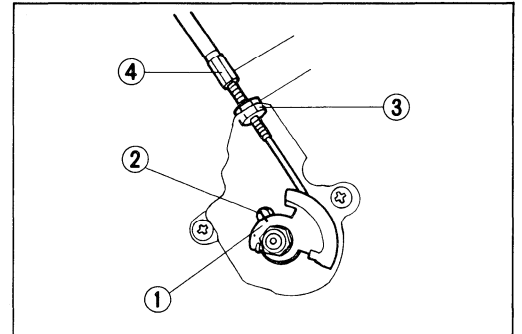
## OIL PUMP

**Inspect Initial 1 000 km (2 months) and Every 6 000 km (12 months)**

The engine oil is fed by the oil pump to the engine. The amount of oil fed to it is regulated by engine speed and the oil pump control lever which is controlled by the amount of throttle opening.

Check the oil pump in the following manner to confirm correct operation for throttle valve full opening position.

- Turn the throttle grip full open.
- Check whether the red mark ① on the oil pump control lever is aligned with the index mark ② when the throttle valve is positioned as above.
- If the marks are not aligned, loosen the lock nut ③ and turn the adjuster ④ in or out to align the marks.
- After aligning the marks, tighten the lock nut ③.



### CAUTION:

**Oil pump cable adjustment must be done after throttle cable adjustment.**

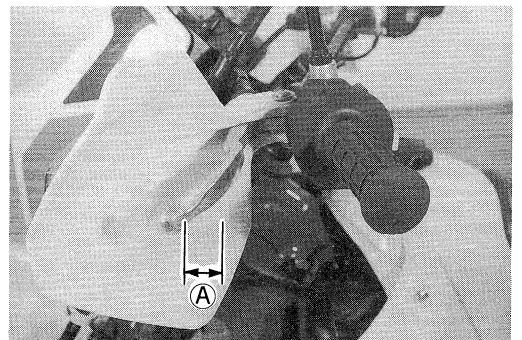
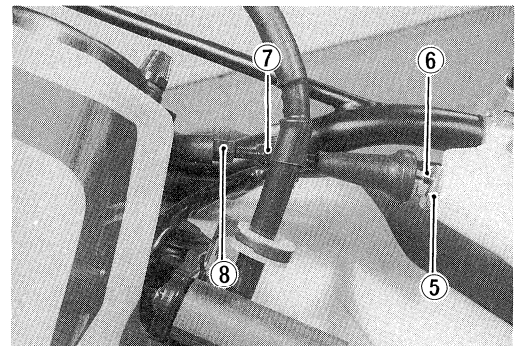
## CLUTCH

**Inspect Initial 1 000 km (2 months) and Every 6 000 km (12 months)**

- Loosen the lock nut ⑤ and turn the adjuster ⑥ fully in.
- Loosen the cable lock nut ⑦ and adjust the play of the cable with the adjuster ⑧ until play of the clutch lever is 10 – 15 mm.

**Lever play  $\text{\textcircled{A}}$  : 10 – 15 mm (0.4 – 0.6 in)**

- Tighten the lock nuts ⑤, ⑦.
- If the specified play can not be obtained with adjuster, carry out the adjustment using the adjuster on the clutch lever side.



## DRIVE CHAIN

**Inspect Initial 1 000 km (2 months) and Every 6 000 km (12 months)**  
**Clean and Lubricate Every 1 000 km**

Visually inspect the drive chain for the below listed possible malconditions. (Lift the rear wheel and place a jack or block under the engine, and turn the rear wheel slowly by hand, with the transmission in NEUTRAL).

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

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

### CHECKING

- Loosen the axle nut ①.
- Tense the drive chain fully by adjusting the chain adjusters ②.
- Count out 21 pins on the chain and measure the distance between the two. If the distance exceeds following limit, the chain must be replaced.

**Service Limit : 319.4 mm (12.57 in)**

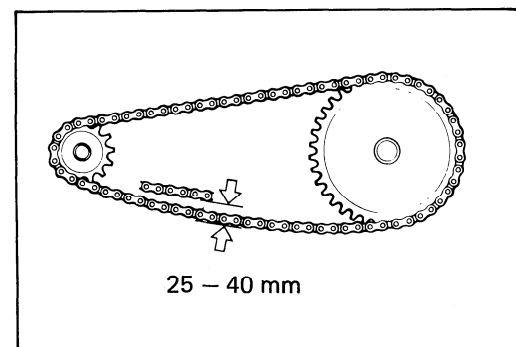
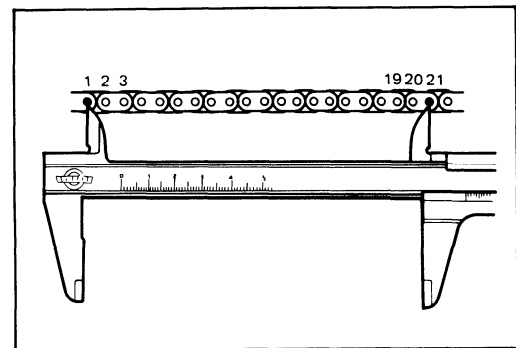
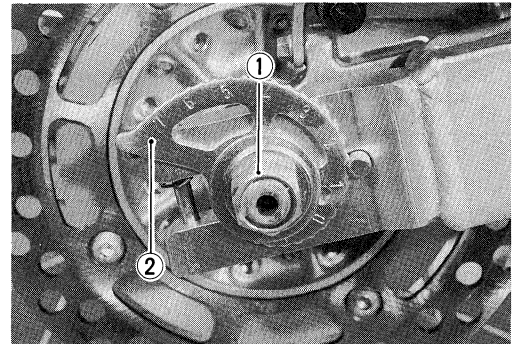
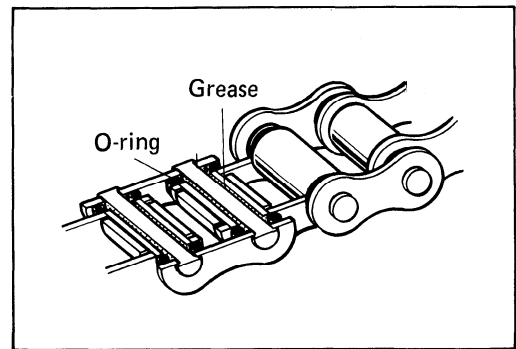
### ADJUSTING

- Adjusting the chain adjusters ② until the chain has 25 – 40 mm of slack at the middle between engine and rear sprockets. The number on both chain adjusters ② must be at the same position to ensure that the front and rear wheels are correctly aligned. Place the motorcycle on the side stand for accurate adjustment.

**Drive chain slack : 25 – 40 mm (1.0 – 1.6 in)**

- After adjusting the drive chain, tighten the axle nut ① securely.

**Tightening torque : 55 – 88 N·m  
 (5.5 – 8.8 kg-m, 40.0 – 63.5 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 (or seals) confining the grease in the bush to pin clearance. Remember, high durability comes from the presence of grease in that clearance.

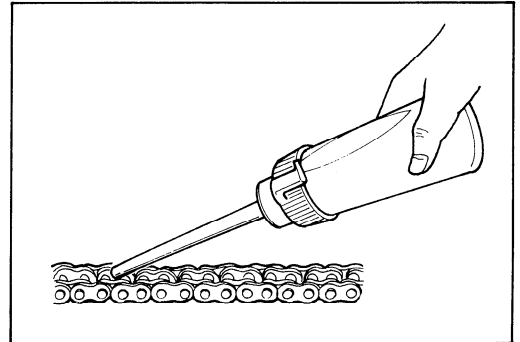
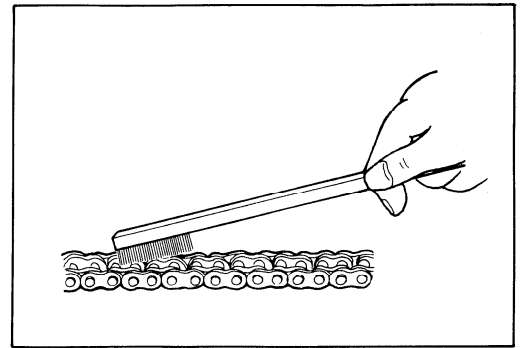
- After washing and drying the chain, oil it with a heavy-weight motor oil.

#### CAUTION:

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

#### CAUTION:

The standard drive chain is TAKASAGO RK520SO. SUZUKI recommends that the abovementioned standard drive chain be used for the replacement.



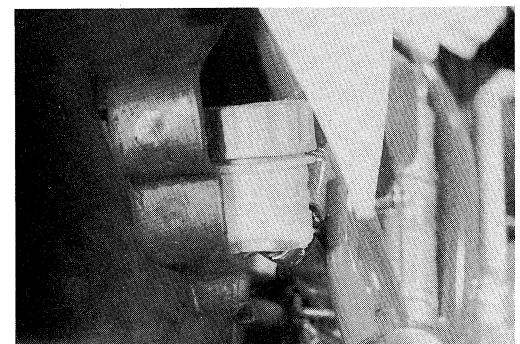
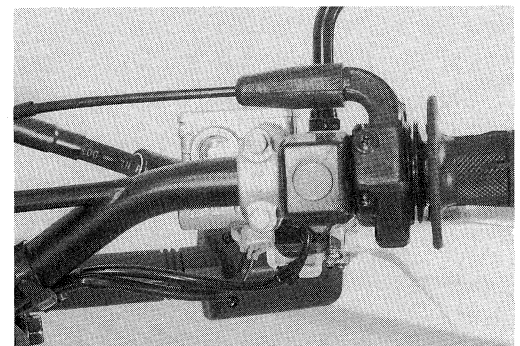
## BRAKES

Inspect Initial 1 000 km (2 months) and Every 6 000 km (12 months)  
 Replace hoses Every 4 years  
 Replace (change) fluid Every 2 years

### BRAKE FLUID LEVEL

- Keep the motorcycle upright and place the handlebar straight.
- Check the brake fluid level by observing the upper (only for rear brake) and lower (both front and rear brake) limit lines on the brake fluid reservoirs.
- When the level is below the lower limit line, replenish with brake fluid that meets the following specification.

**Specification and classification : DOT 4**  
**99000-23110 : SUZUKI BRAKE FLUID**



### WARNING:

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

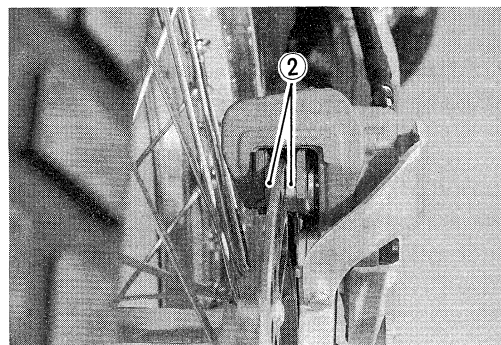
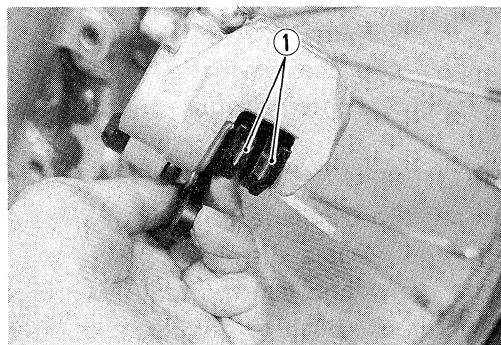
### WARNING:

Brake fluid, if it leaks, will interfere with safe running and immediately discolor painted surfaces.

Check the brake hoses for cracks and hose joints for leakage before riding.

### BRAKE PADS

Wearing condition of brake pads can be checked by observing the limit line ① (front caliper) and groove ② (rear caliper) marked on the pad. When the wear exceeds the limit mark, replace the pads with new ones. (Refer to page 7-6 and 7-35.)



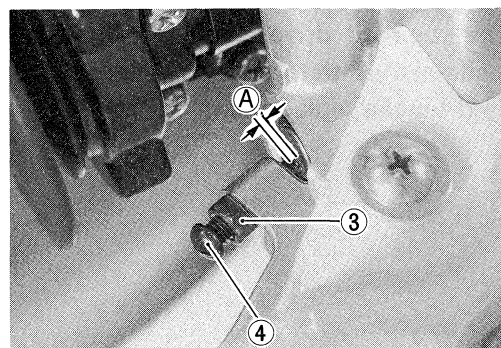
### BRAKE LEVER PLAY

Adjust the front brake lever play as follows.

- Loosen the lock nut ③.
- Turn the adjuster ④ in or out to obtain the correct play ①.

Brake lever play ① : 0 – 0.3 mm (0 – 0.01 in)

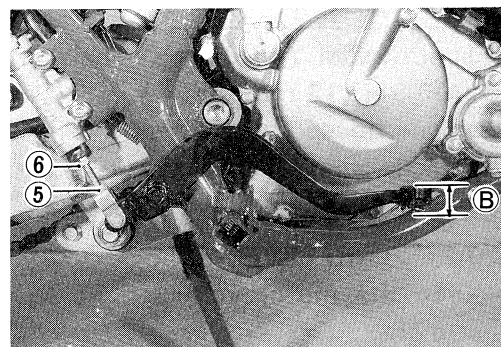
- Tighten the lock nut ③.



### BRAKE PEDAL HEIGHT

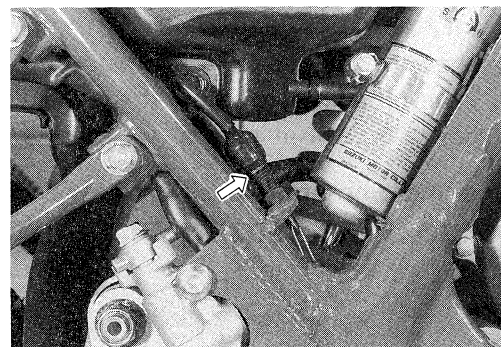
- Loosen the lock nut ⑤, and rotate push rod ⑥ to locate brake pedal 5 mm ② below the top face of the footrest.
- Retighten the lock nut ⑤ to secure the push rod ⑥ in the proper position.

Brake pedal height ② : 5 mm (0.2 in)



### REAR BRAKE LIGHT SWITCH

Adjust the rear brake light switch, so that brake light will come on just before a pressure is felt when the brake pedal is depressed.





**BLEEDING AIR FROM 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 brake caliper. The presence of air is indicated by "sponginess" of the brake lever and also by lack of braking force. Considering the danger to which such trapped air exposes the machine and rider, it is essential that, after remounting the brake and restoring the brake system to the normal condition, the brake fluid circuit be purged of air in the following manner:

- Fill up the master cylinder reservoir to the upper end of the inspection window (for front brake) and upper line (for rear brake). 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.
- Front brake : Bleed the air from the bleeder valve.
- Squeeze and release the brake lever several times in rapid succession, and squeeze the lever fully without releasing it. Loosen the bleeder valve by turning it a quarter of a turn so that the brake fluid runs into the receptacle: this will remove the tension of the brake lever causing it to touch the handlebar grip. Then, close the valve, pump and squeeze the lever, and open the valve. Repeat this process until the fluid flowing into the receptacle no longer contains air bubbles.

**NOTE:**

*Replenish the brake fluid reservoir as necessary while bleeding the brake system.*

*Make sure that there is always some fluid visible in the reservoir.*

- Close the bleeder valve, and disconnect the pipe. Fill the reservoir to the upper end of the inspection window (for front brake) and upper line (for rear brake).
- Rear brake : Differences between front and rear are that the master cylinder is actuated by a pedal.

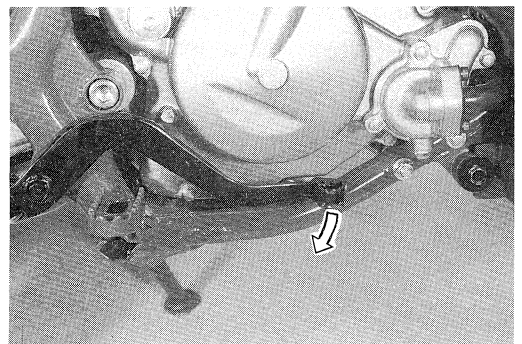
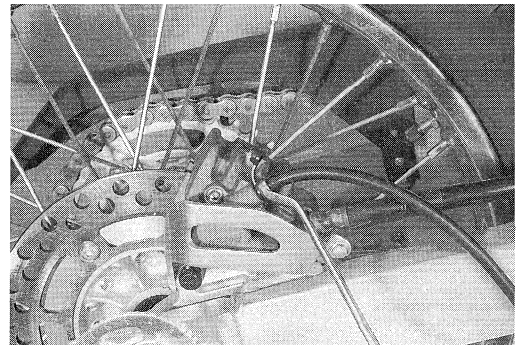
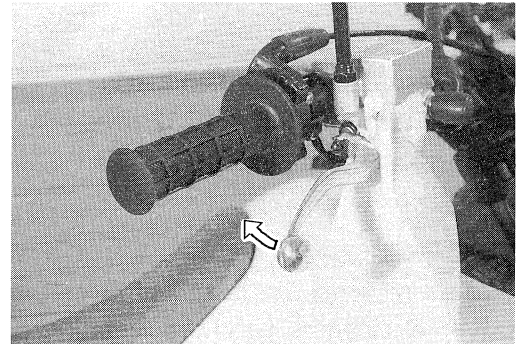
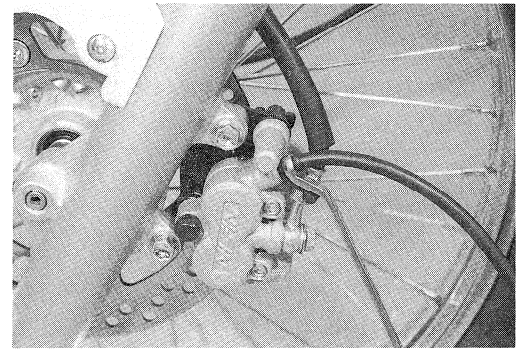
**Bleeder valve**

**Tightening torque : 6 – 9 N·m**

**(0.6 – 0.9 kg-m, 4.5 – 6.5 lb-ft)**

**CAUTION:**

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



**TIRES**

**Inspect Initial 1 000 km (2 months) and Every 6 000 km (12 months)**

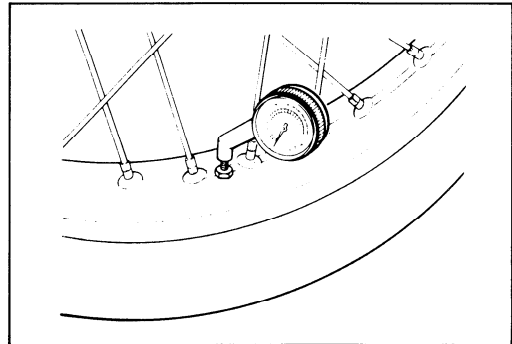
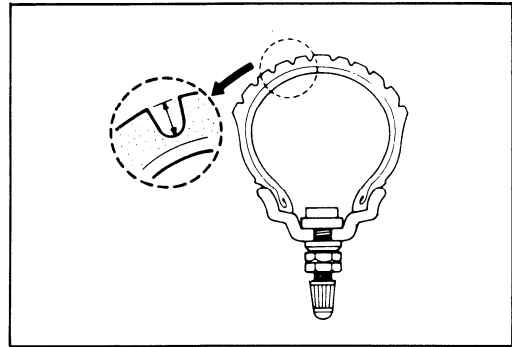
**TIRE TREAD CONDITION**

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.

**Tire tread depth (Front and Rear)**  
**Service Limit : 3.0 mm (0.12 in)**  
**09900-20805 : Tire depth gauge**

**TIRE PRESSURE**

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



	Solo riding			Dual riding		
	kPa	kg/cm <sup>2</sup>	psi	kPa	kg/cm <sup>2</sup>	psi
FRONT	150	1.50	22	150	1.50	22
REAR	150	1.50	22	175	1.75	25

**CAUTION:**

The standard tire fitted on this motorcycle is 80/100-21 51P for front and 110/90-18 61P for rear. The use of a tire other than the standard may cause instability. It is highly recommended to use a SUZUKI Genuine Tire.

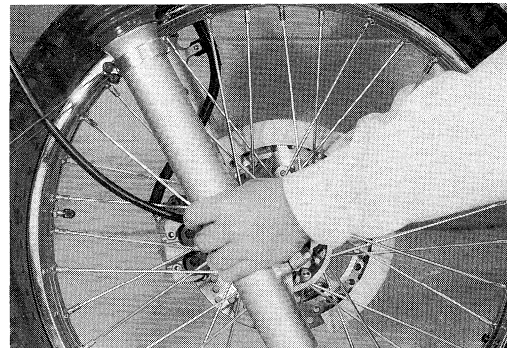
## STEERING

**Inspect Initial 1 000 km (2 months) and Every 6 000 km (12 months)**

Taper roller type bearing and steel balls are applied on the steering system for better handling.

Steering should be adjusted properly for smooth turning of handlebar and safe running. Too stiff steering prevents smooth turning of handlebar 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. (Refer to page 7-30.)



## FRONT FORK

**Inspect Initial 1 000 km (2 months) and Every 6 000 km (12 months)**

Inspect the front forks for oil leakage, scoring and scratches on the outer surface of the inner tubes.

Replace any defective parts, if necessary.

## REAR SUSPENSION

**Inspect Initial 1 000 km (2 months) and Every 6 000 km (12 months)**

Inspect the rear shock absorber for oil leakage and check that there is no play in the swingarm assembly.

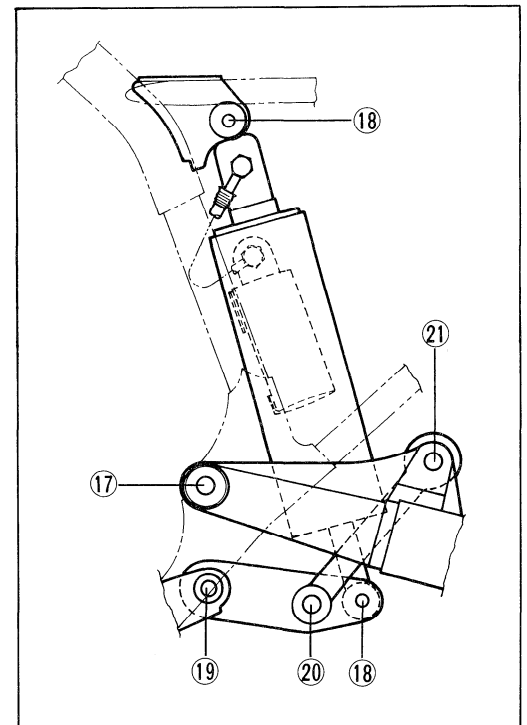
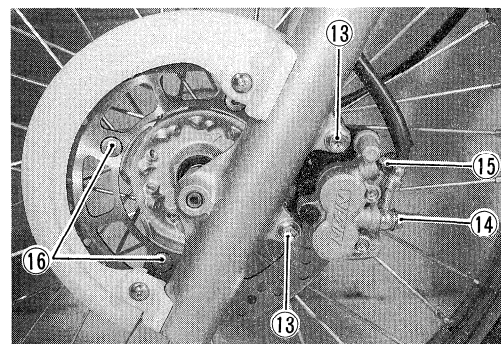
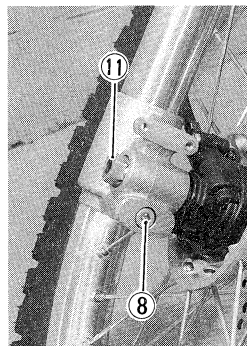
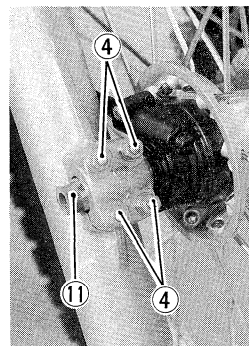
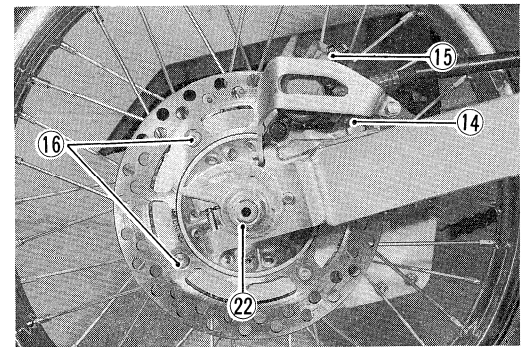
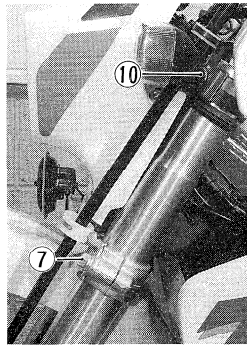
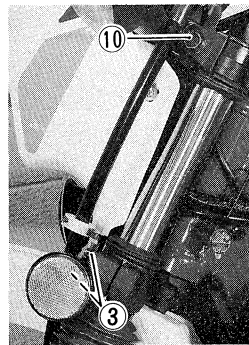
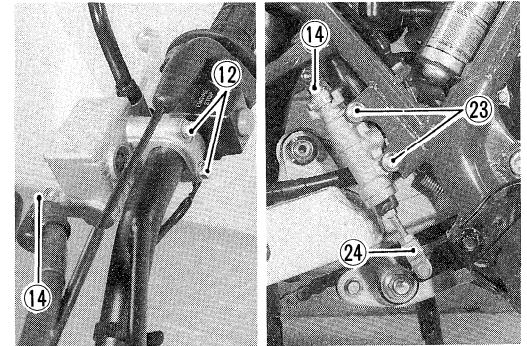
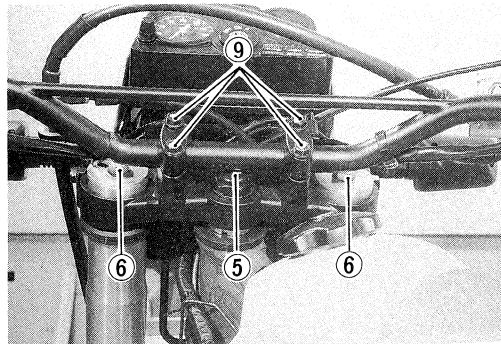
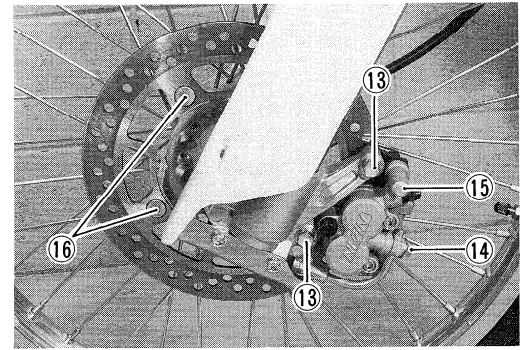
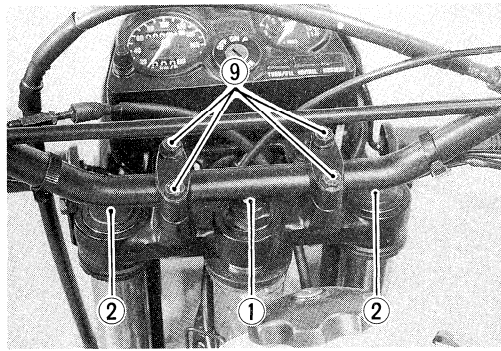


**CHASSIS BOLTS AND NUTS**

Tighten Initial 1 000 km (2 months) and Every 6 000 km (12 months)

The bolts and nuts listed below are important safety parts. They must be retightened when necessary to the specified torque.

ITEM		N-m	kg-m	lb-ft
①	Steering stem head nut	50 – 80	5.0 – 8.0	36.0 – 58.0
②	Front fork cap	15 – 30	1.5 – 3.0	11.0 – 21.5
③	Front fork lower clamp bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
④	Front axle clamp nut	9 – 11	0.9 – 1.1	6.5 – 8.0
⑤	Steering stem head nut	80 – 100	8.0 – 10.0	58.0 – 72.5
⑥	Front fork cap	30 – 40	3.0 – 4.0	21.5 – 29.0
⑦	Front fork lower clamp bolt	20 – 30	2.0 – 3.0	14.5 – 21.5
⑧	Front axle clamp bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
⑨	Handlebar clamp bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
⑩	Front fork upper clamp bolt	22 – 35	2.2 – 3.5	16.0 – 25.5
⑪	Front axle shaft	50 – 80	5.0 – 8.0	36.0 – 58.0
⑫	Front brake master cylinder bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
⑬	Front brake caliper mounting bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
⑭	Brake hose union bolt (Front & Rear)	20 – 25	2.0 – 2.5	14.5 – 18.0
⑮	Air bleeder valve (Front & Rear)	6 – 9	0.6 – 0.9	4.5 – 6.5
⑯	Disc bolt (Front & Rear)	18 – 28	1.8 – 2.8	13.0 – 20.0
⑰	Swingarm pivot nut	55 – 88	5.5 – 8.8	40.0 – 63.5
⑱	Rear shock absorber mounting nut (Upper & Lower)	48 – 72	4.8 – 7.2	34.5 – 52.0
⑲	Rear cushion lever nut (Front)	70 – 100	7.0 – 10.0	50.5 – 72.5
⑳	Rear cushion lever nut (Center)	84 – 120	8.4 – 12.0	60.5 – 87.0
㉑	Rear cushion rod nut	84 – 120	8.4 – 12.0	60.5 – 87.0
㉒	Rear axle nut	55 – 88	5.5 – 8.8	40.0 – 63.5
㉓	Rear brake master cylinder bolt	8 – 12	0.8 – 1.2	6.0 – 8.5
㉔	Rear brake rod lock nut	15 – 20	1.5 – 2.0	11.0 – 14.5



# ENGINE

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

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### ENGINE RIGHT SIDE

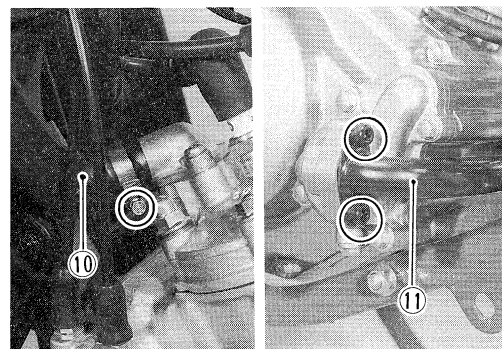
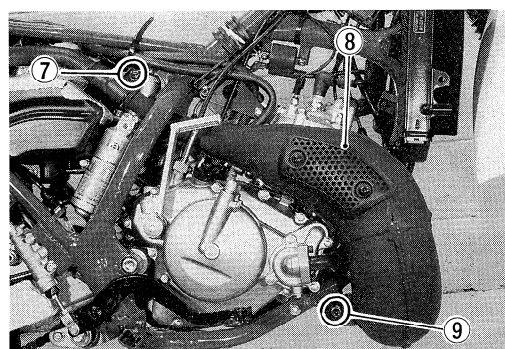
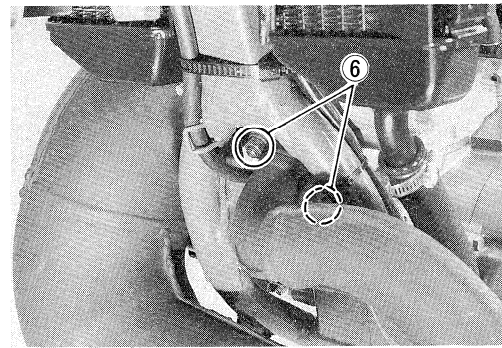
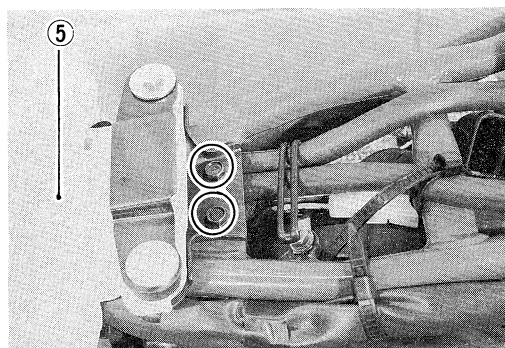
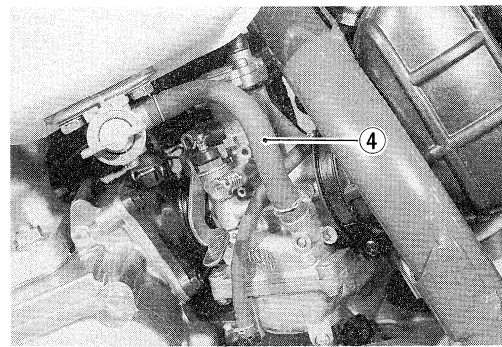
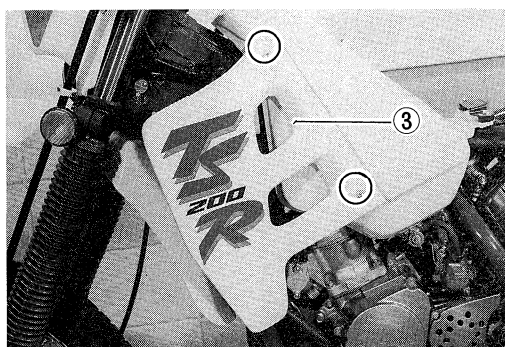
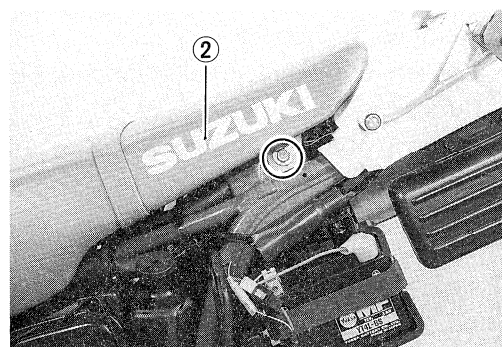
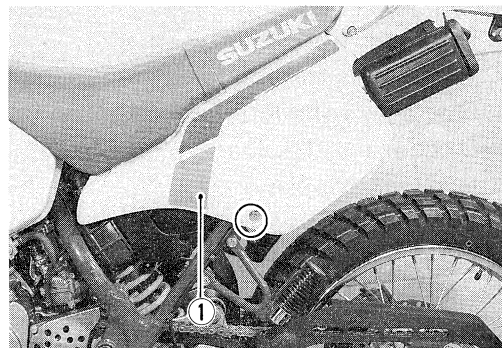
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Primary drive gear .....	3- 12
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## ENGINE REMOVAL AND REMOUNTING

### ENGINE REMOVAL

Before taking the engine out of the frame, thoroughly clean the engine with a suitable cleaner. The procedure of engine removal is sequentially explained in the following steps.

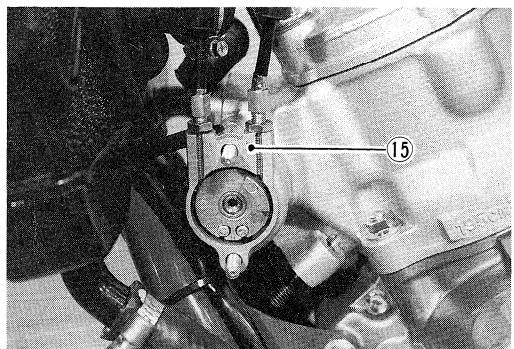
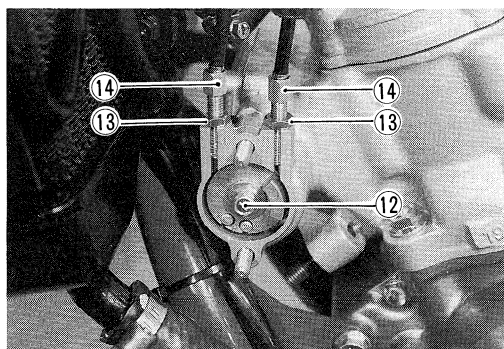
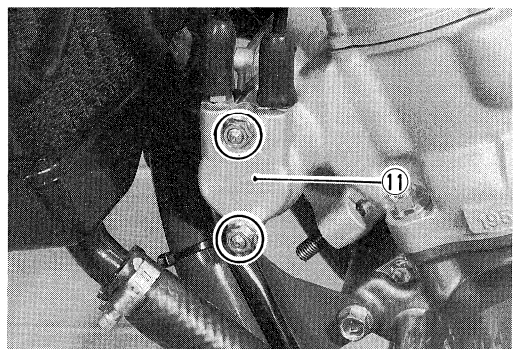
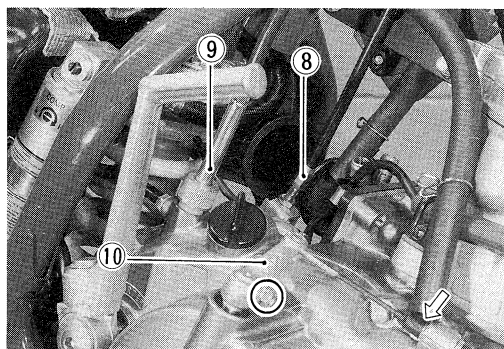
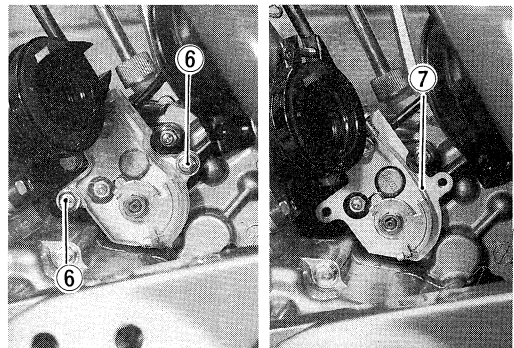
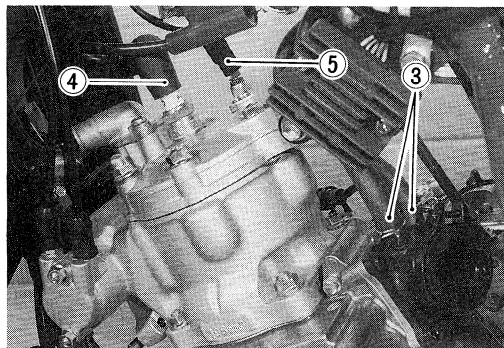
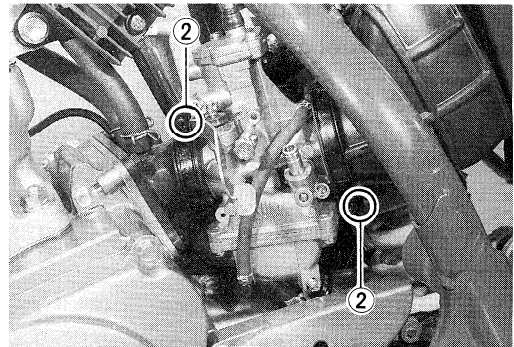
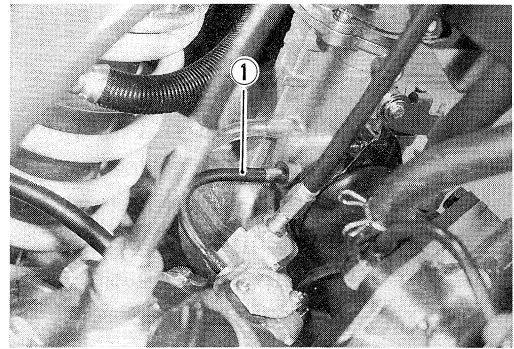
- Drain transmission oil. (Refer to page 2-6.)
- Drain coolant. (Refer to page 2-6.)
- Remove the frame covers ①.
- Remove the seat ②.
- Remove the radiator covers ③.
- Turn the fuel cock lever to "OFF" position, and disconnect the fuel hose ④.
- Remove the fuel tank ⑤.
- Remove the exhaust pipe nuts ⑥.
- Loosen the clamp screw ⑦.
- Remove the first muffler ⑧ by removing the mounting bolt ⑨.
- Disconnect the water hose ⑩ by loosening the screw.
- Disconnect the water hose pipe ⑪ by removing the bolts.





### 3-3 ENGINE

- Disconnect the oil hose ①.
- Remove the carburetor by loosening the clamp screws ②.
- Disconnect the interference hoses ③.
- Disconnect the spark plug cap ④ and water thermo-gauge lead wire coupler ⑤.
- Remove the oil pump cover by removing the screws ⑥.
- Disconnect the oil pump inner cable ⑦ and throttle cable ⑧.
- Disconnect the tachometer cable ⑨.
- Remove the clutch release arm ⑩ with the clutch cable.
- Remove the exhaust valve holder cap ⑪.
- Remove the bolt ⑫.
- Loosen the exhaust valve inner cables by loosening the lock nuts ⑬ and adjusters ⑭.
- Remove the exhaust valve holder ⑮ with the exhaust valve cables.



- Remove the exhaust valve lever ①, spacer ② and spring ③.
- Disconnect the oil hose ④ from the oil tank.

**NOTE:**

To prevent oil flow, connect the suitable cap to the oil tank outlet.

- Remove the gearshift lever ⑤ and engine sprocket cover ⑥.
- Remove the engine sprocket ⑦ with the chain.

**NOTE:**

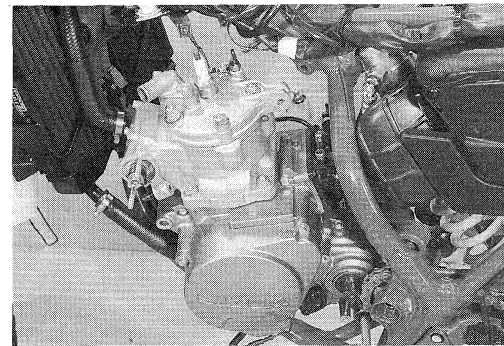
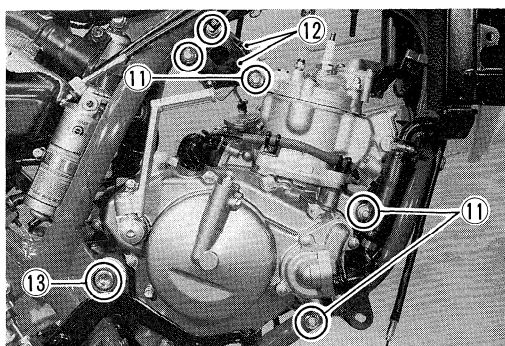
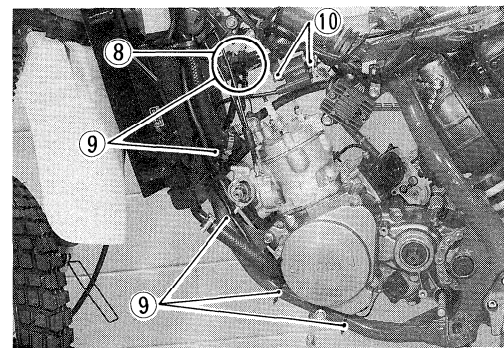
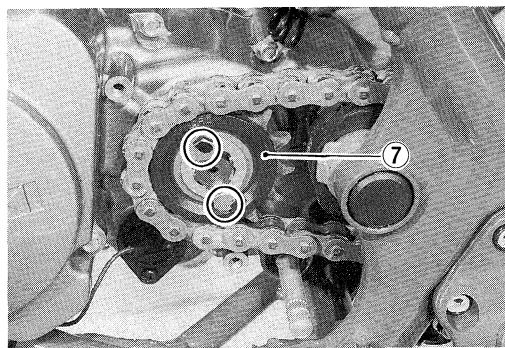
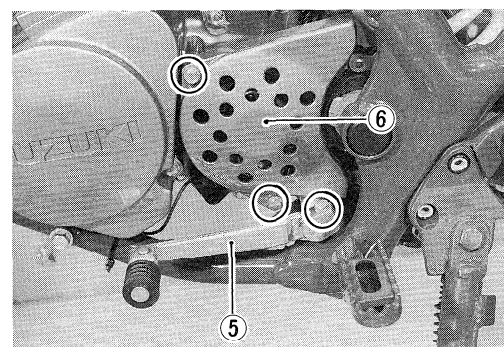
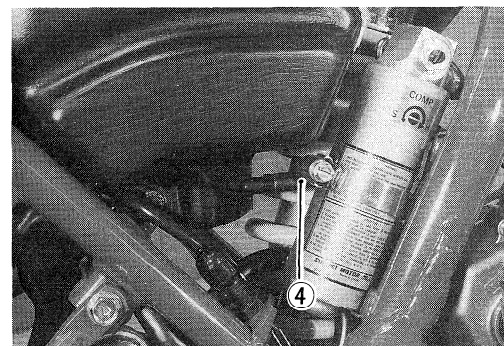
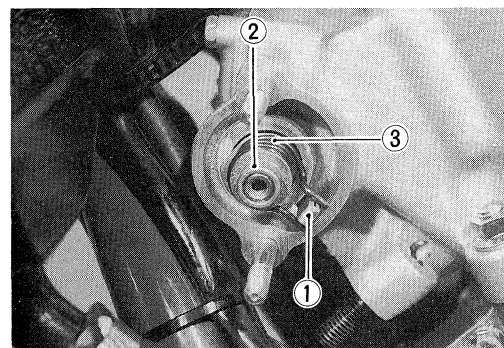
When loosening the engine sprocket bolts, apply rear brake firmly.

- Disconnect the magneto lead wires ⑧.
- Remove the magneto lead wire clamps ⑨.
- Remove the ignition coil mounting screws ⑩.
- Remove the engine mounting bolts ⑪ and brackets ⑫.
- Remove the swingarm pivot shaft ⑬.

**NOTE:**

Be careful not to draw out the swingarm pivot shaft completely from the right side swingarm pivoting hole. Insert the suitable shaft into the left side pivoting hole from the left side of the frame. To keep the alignment of the frame holes and swingarm pivoting holes.

- Remove the engine to the left side.



## ENGINE REMOUNTING

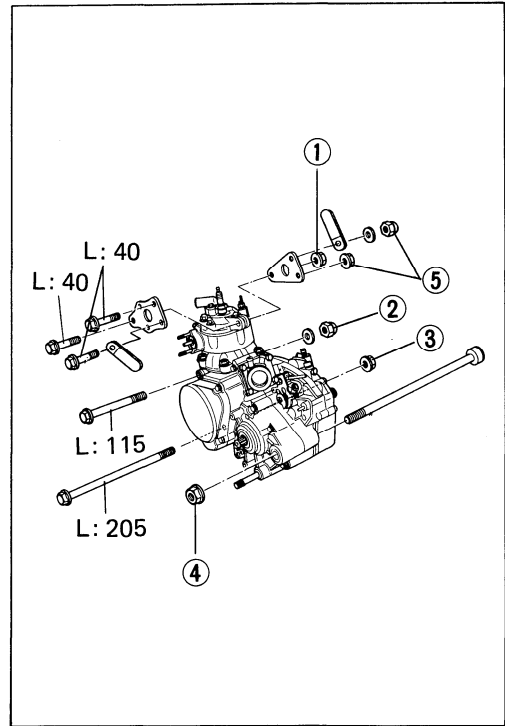
The engine can be mounted in the reverse order of removal.

**NOTE:**

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

**Tightening torque**

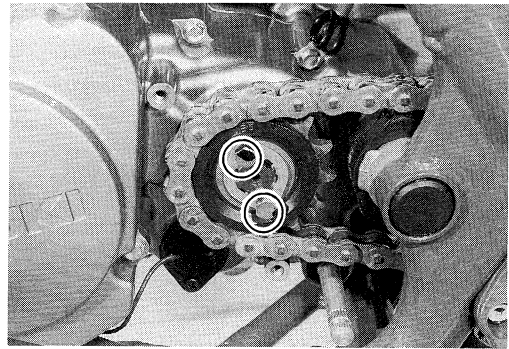
ITEM	N·m	kg·m	lb-ft
①, ②, ③	28-34	2.8-3.4	20.0-24.5
④	55-88	5.5-8.8	40.0-63.5
⑤	20-30	2.0-3.0	14.5-21.5



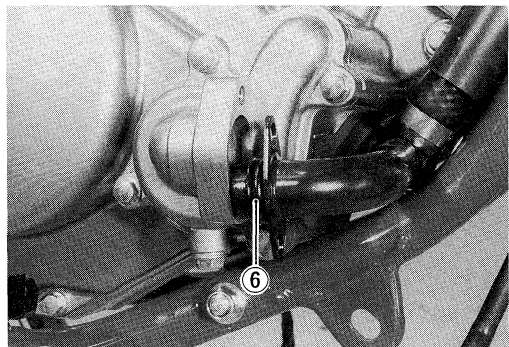
- Apply THREAD LOCK SUPER "1322" to the engine sprocket bolts and tighten them to the specified torque.

**99000-32110 : THREAD LOCK SUPER "1322"**

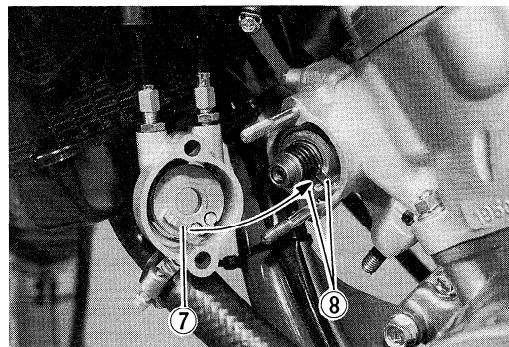
**Tightening torque : 10 – 12 N·m  
(1.0 – 1.2 kg·m, 7.5 – 8.5 lb-ft)**



- When installing the water hose pipe, use the new O-ring ⑥ to prevent the water leakage.



- When installing the exhaust valve holder to the cylinder, insert the protrusion ⑦ of the pulley to the between the springs ⑧.





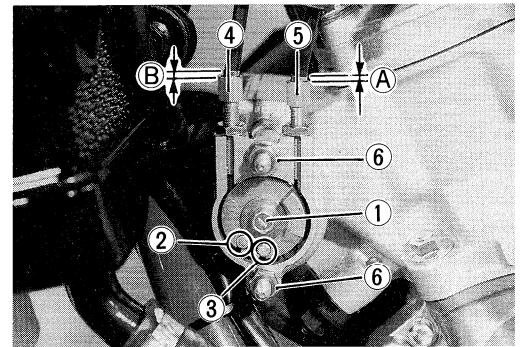
- Apply THREAD LOCK SUPER "1322" to the bolt ① and tighten it.

**99000-32110: THREAD LOCK SUPER "1322"**

- Align the mark ② on the pulley with the aligning mark ③ on the exhaust valve holder by adjusting the adjusters ④, ⑤.

**NOTE:**

When aligning the marks, tighten the nuts ⑥.



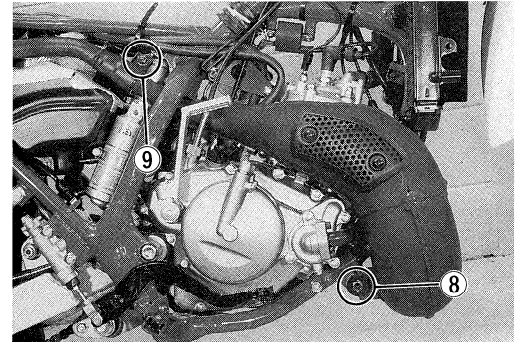
- Adjust the exhaust cable play ① to 0.3 – 0.5 mm by turning the adjuster.
- Tighten the lock nuts.

**NOTE:**

Other cable play ② is 0 mm.

**CAUTION:**

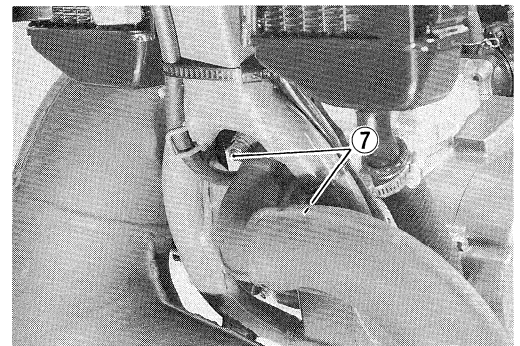
Make sure that the marks ②, ③ are align, after the ignition switch has tuned to "ON" position.



- Tighten the exhaust pipe nuts ⑦, first muffler mounting bolt ⑧ and clamp screw ⑨ to the specified torque.

**Tightening torque**

- ⑦ : 10 – 16 N·m (1.0 – 1.6 kg-m, 7.0 – 11.5 lb-ft)
- ⑧ : 18 – 28 N·m (1.8 – 2.8 kg-m, 13.0 – 20.0 lb-ft)
- ⑨ : 1.5 – 2.5 N·m (0.15 – 0.25 kg-m, 1.0 – 1.8 lb-ft)



**TRANSMISSION OIL**

- Before starting the engine, make sure to pour the specified amount of transmission oil in the crankcase.  
(Refer to page 2-6.)

**Transmission oil capacity**

Oil change : 950 ml (1.00/0.84 US/Imp qt)

Overhaul : 1 000 ml (1.1/0.9 US/Imp qt)

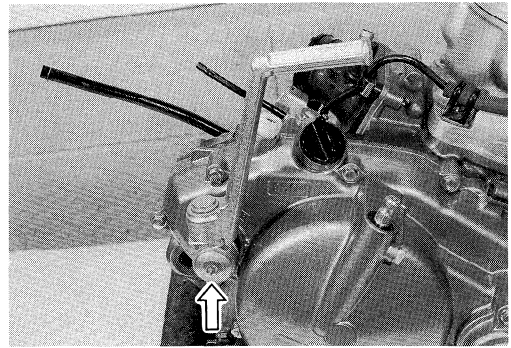
**ADJUSTMENT**

- After remounting the engine, following adjustments are necessary.

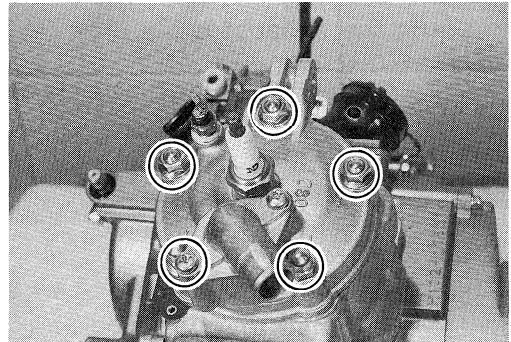
	Page
* Throttle cable play .....	2-7
* Oil pump control cable .....	2-8
* Clutch cable play .....	2-8
* Drive chain slack .....	2-9
* Air bleeding at oil pump.....	5-7
* Engine idle r/min .....	2-7
* Filling cooling solution .....	2-7

## ENGINE DISASSEMBLY

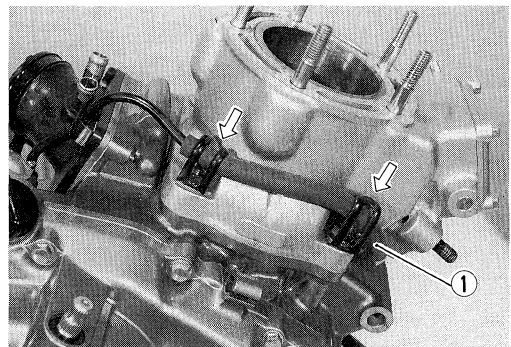
- Remove the kick starter lever.



- Loosen the cylinder head nuts in the descending order on the cylinder head.
- Remove the cylinder head.



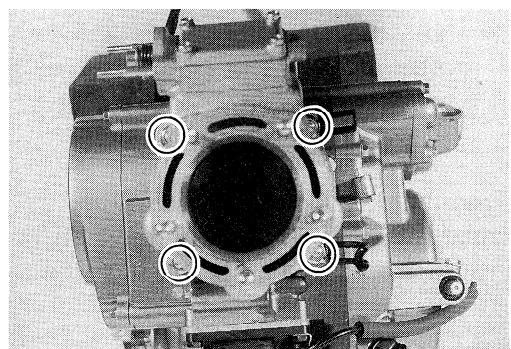
- Disconnect the oil hose ① by loosening the clamps.



- Remove the cylinder by removing the four nuts.

**NOTE:**

*For disassembling the exhaust valve related parts, refer to page 3-15.*

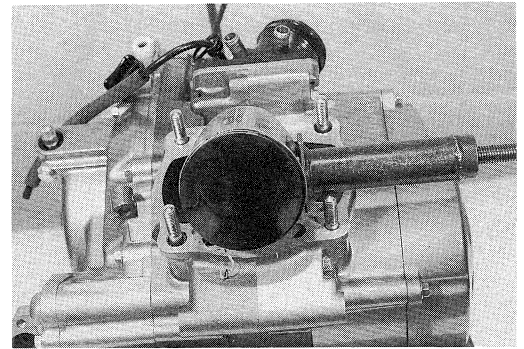


- Place a clean rag over the cylinder base to prevent piston pin circlip from dropping into the crankcase and then, remove the piston pin circlip with long-nose pliers.



- Remove the piston pin with the special tool.

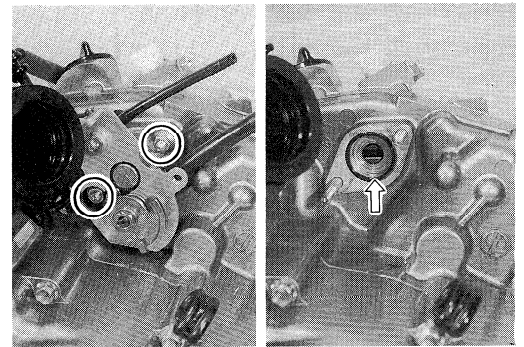
09910-34510 : Piston pin puller



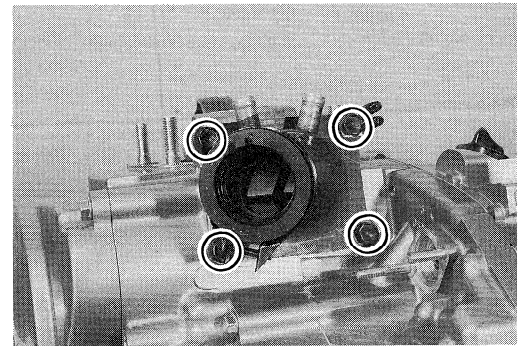
- Remove the oil pump and O-ring.

**CAUTION:**

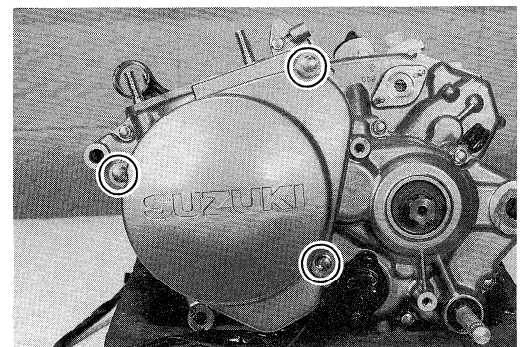
Do not use the removed O-ring.



- Remove the intake pipe and reed valve.

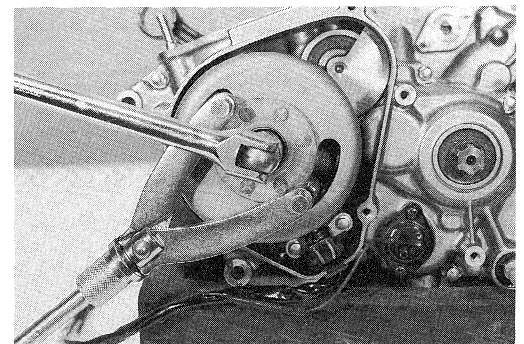


- Remove the magneto cover.



- Remove the magneto rotor nut with the special tool.

09930-40113 : Rotor holder



### 3-9 ENGINE

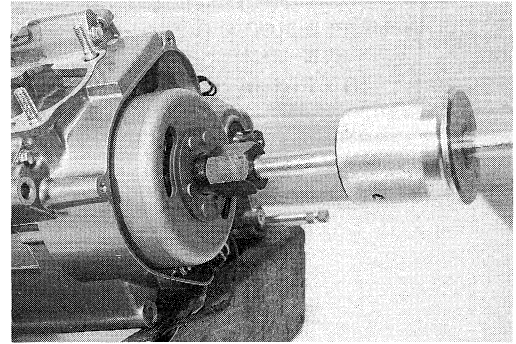
- Remove the magneto rotor with the special tools.

**09930-30102 : Sliding shaft**

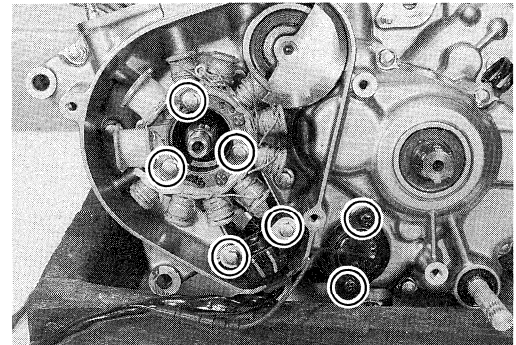
**09930-30161 : Attachment "C"**

**CAUTION:**

**Do not hit the rotor with a hammer.**



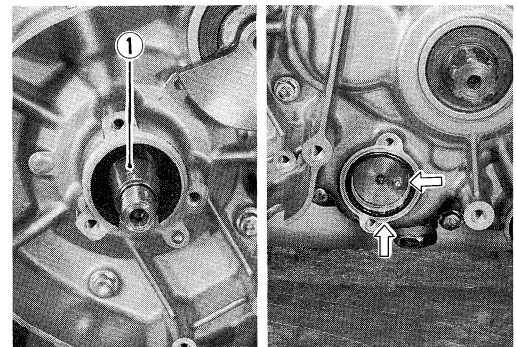
- Remove the stator coil and pick-up coil.
- Remove the neutral indicator switch.



- Remove the rotor key ①.
- Remove the O-ring, contact and spring.

**CAUTION:**

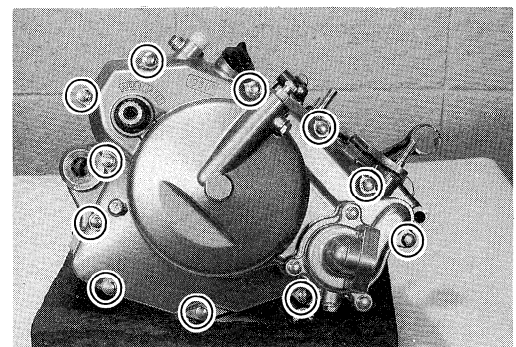
**Do not use the removed O-ring.**



- Remove the clutch cover.

**NOTE:**

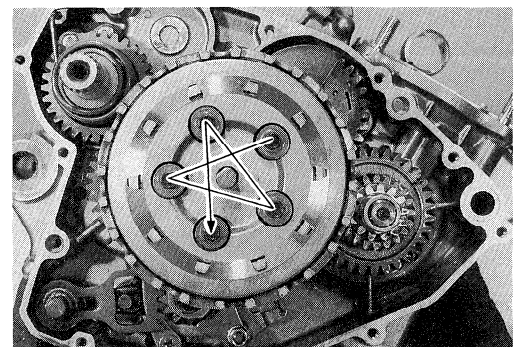
*For disassembling the water pump related parts, refer to page 4-7.*



- Remove the clutch spring bolts diagonally with the special tool.

**09910-20115 : Conrod holder**

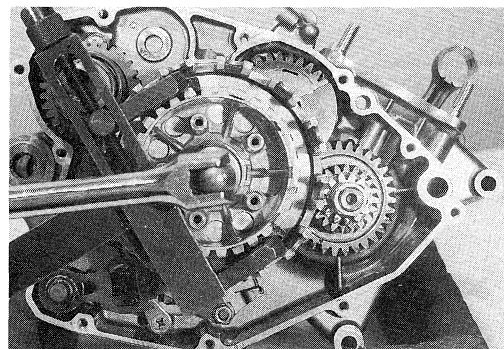
- Remove the clutch pressure plate, push piece and drive/driven plates.



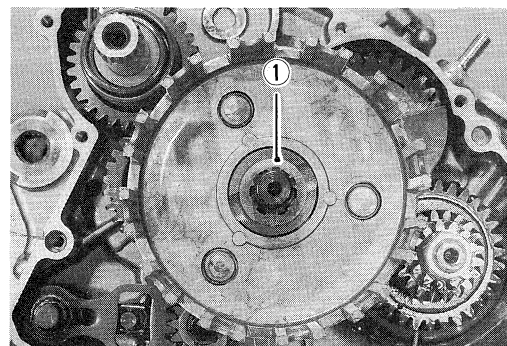


- Flatten the lock washer, and remove the clutch sleeve hub nut with the special tool.

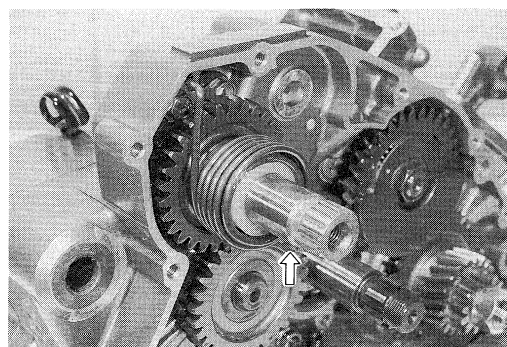
**09920-53710 : Clutch sleeve hub holder.**



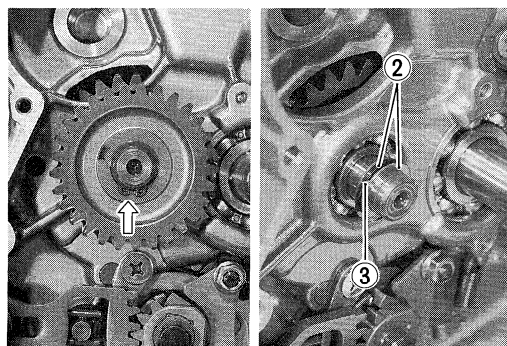
- Remove the washer ① and primary driven gear assembly.



- Remove the kick starter shaft assemblies.



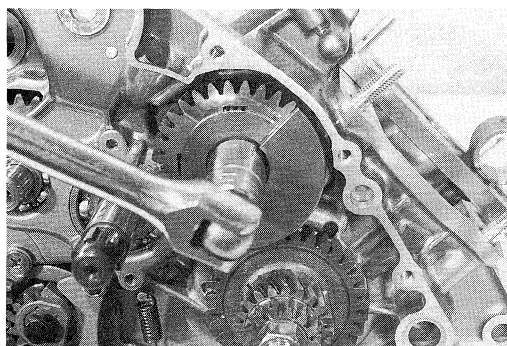
- Remove the circlip with a snap ring pliers, and remove the kick starter idle gear, washers ② and concaved washer ③.



- Remove the crank balancer nut with the special tool.

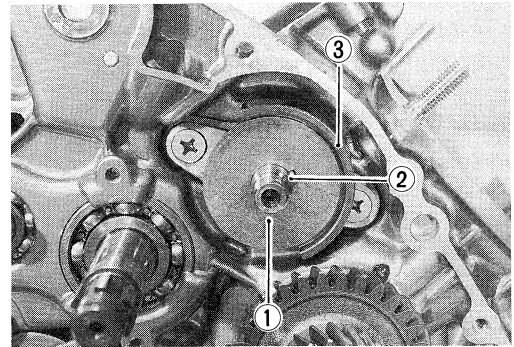
**09910-20115 : Conrod holder**

- Remove the crank balancer driven gear.

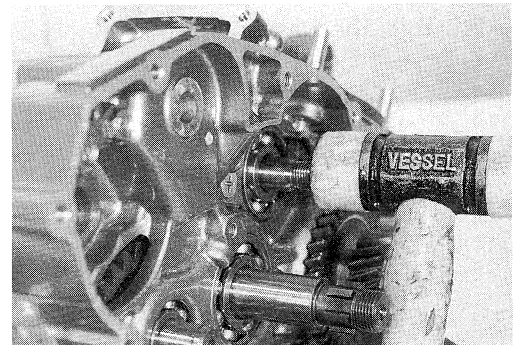


### 3-11 ENGINE

- Remove the washer ①, key ② and balancer weight ③.



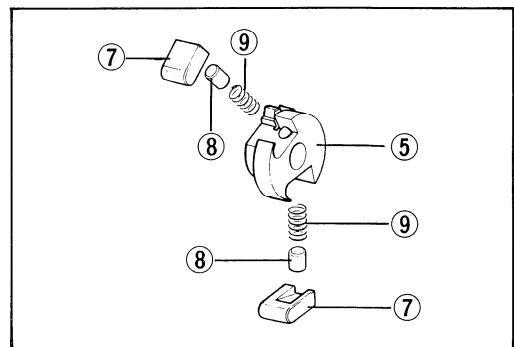
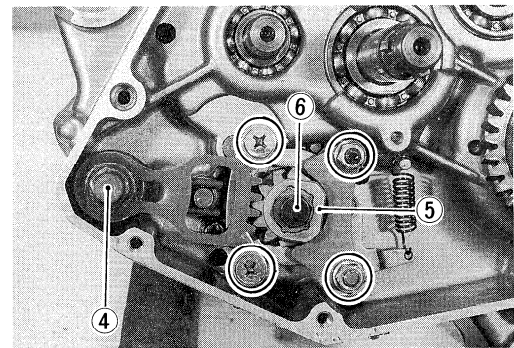
- Remove the balancer shaft with a plastic hammer.



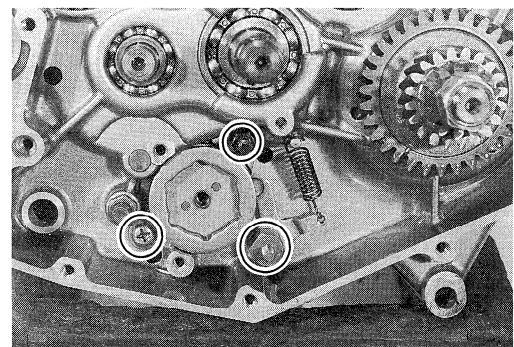
- Remove the gearshift shaft ④.
- Remove the pawl lifter and cam guide.
- Remove the cam driven gear ⑤ by removing the bolt ⑥.

**NOTE:**

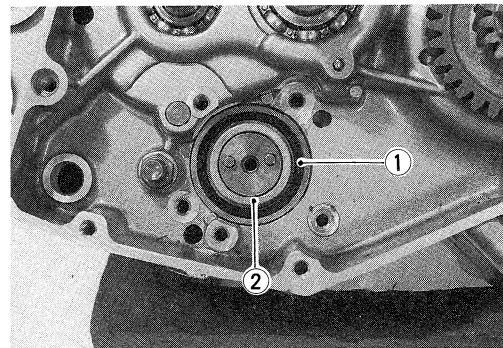
When removing the cam driven gear ⑤, do not lose the gearshift pawl ⑦, pin ⑧ and spring ⑨.



- Remove the gearshift cam stopper plate and cam stopper.



- Remove the seal washer ① and spacer ②.

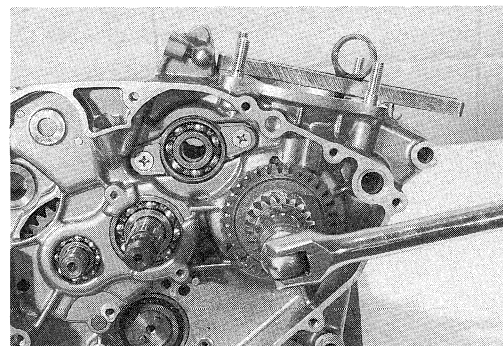


- Remove the water pump drive gear and primary drive gear by removing the nut with the special tool.

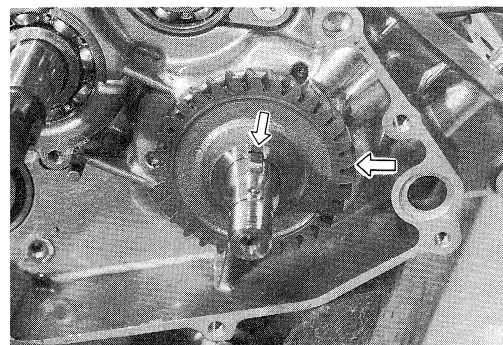
09910-20115 : Conrod holder

**CAUTION:**

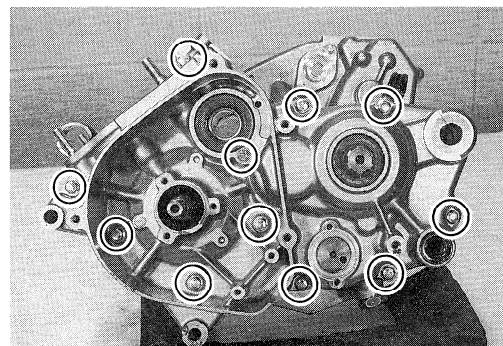
This nut has left-hand threads.



- Remove the balancer drive gear and key.



- Remove the crankcase securing bolts and screw.

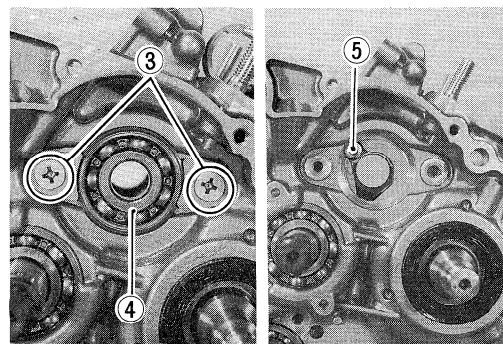


- Remove the two retainers ③, and then remove the bearing ④.

**CAUTION:**

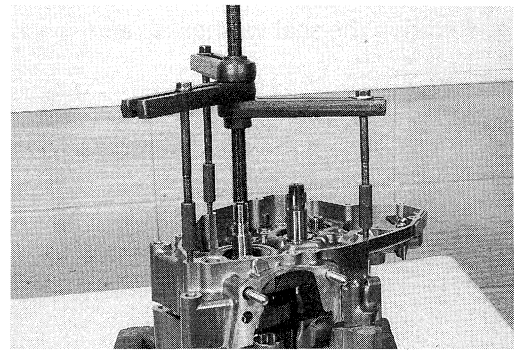
The removed screws should be replaced with new ones.

- Remove the crankcase securing bolt ⑤.

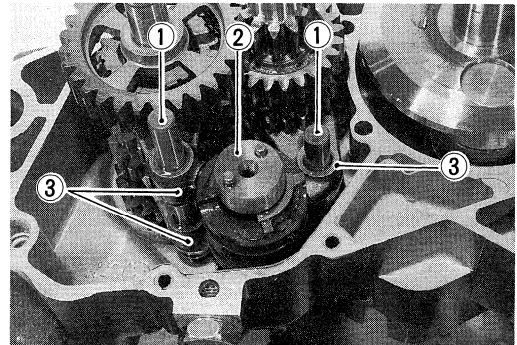


- Separate the crankcase with the special tool.

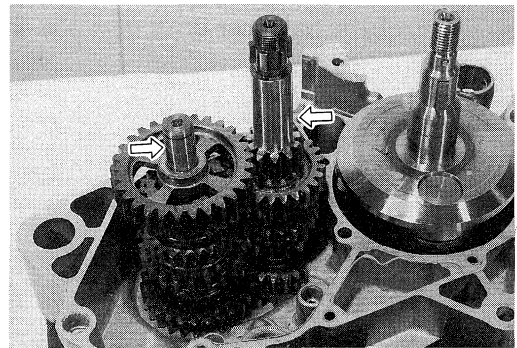
**09920-13120 : Crankcase separating tool.**



- Remove the gearshift fork shafts ①, gearshift cam ② and forks ③.

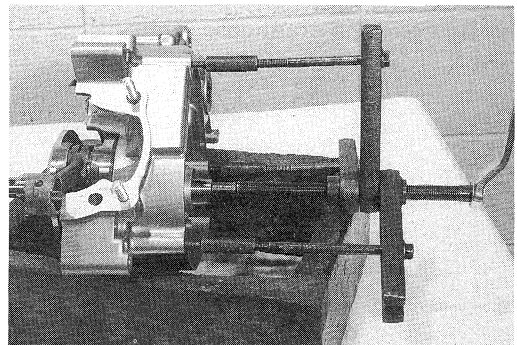


- Remove the countershaft and driveshaft together.

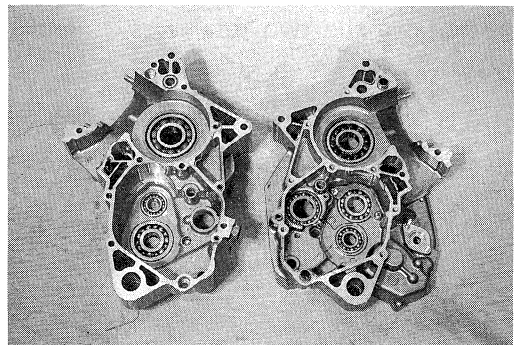


- Remove the crankshaft with the special tool.

**09920-13120 : Crankshaft remover  
(Crankcase separating tool)**

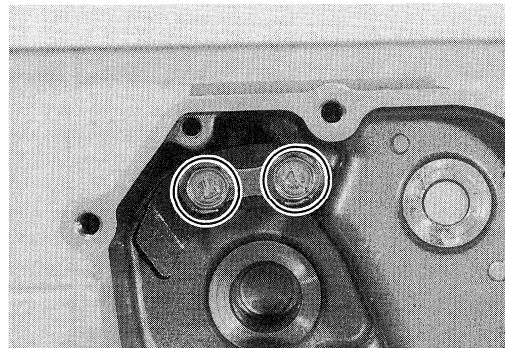


- Remove the respective oil seals and bearings with a suitable drift.

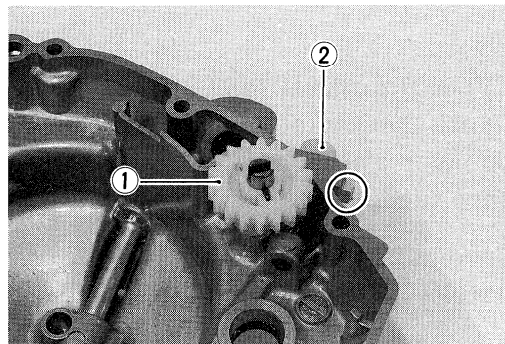




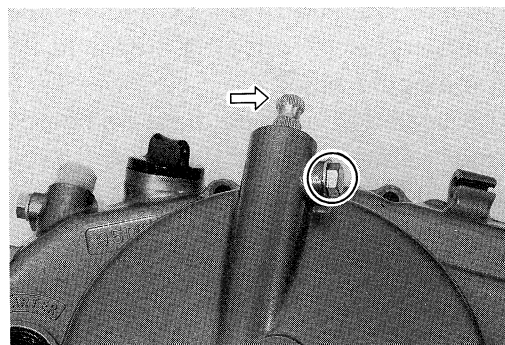
- Remove the kick starter guide and kick starter stopper.



- Remove the oil pump drive gear ① from the clutch cover.
- Remove the tachometer driven gear sleeve ② and driven gear.



- Remove the clutch release arm pinion.



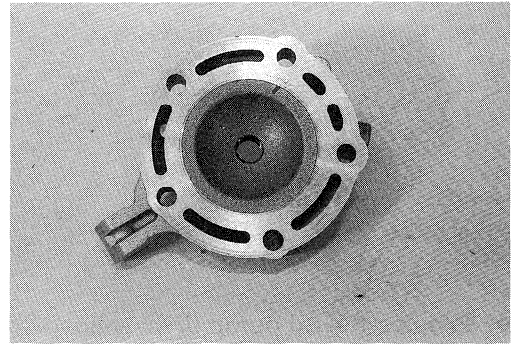
## ENGINE COMPONENTS INSPECTION AND SERVICING

### CYLINDER HEAD

Decarbon the combustion chamber and clean the cylinder head.

**NOTE:**

*For servicing the thermostat and water thermo-gauge, refer to pages 4-5 and 4-9.*



### CYLINDER HEAD DISTORTION

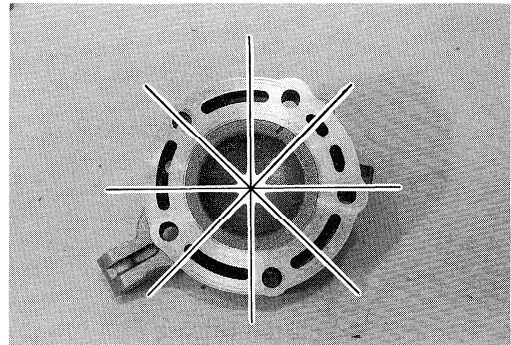
Check the gasketed surface of the cylinder head for distortion with a straightedge and thickness gauge, taking a clearance reading at several places.

**Service Limit : 0.05 mm (0.002 in)**

**09900-20803 : Thickness gauge**

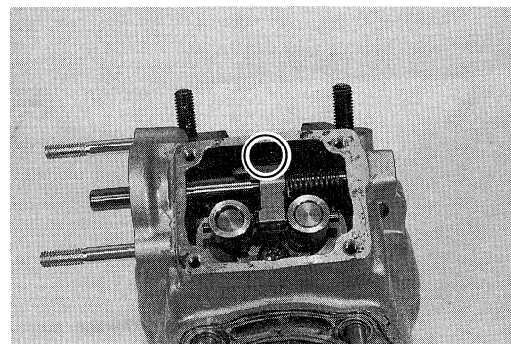
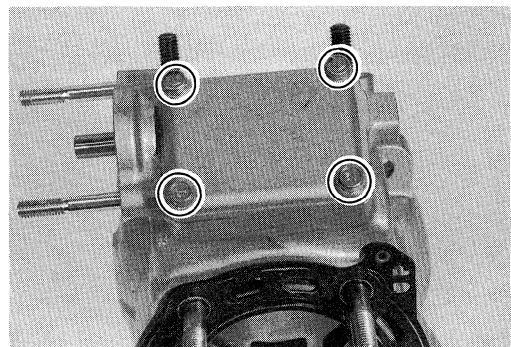
If the largest reading at any portion of the straightedge exceeds the limit, rework the surface by rubbing it against emery paper (of about #400) laid flat on the surface plate in a lapping manner.

The gasketed surface must be smooth and perfectly flat in order to secure a tight joint. A leaky joint can be the cause of reduced power output and increased fuel consumption.

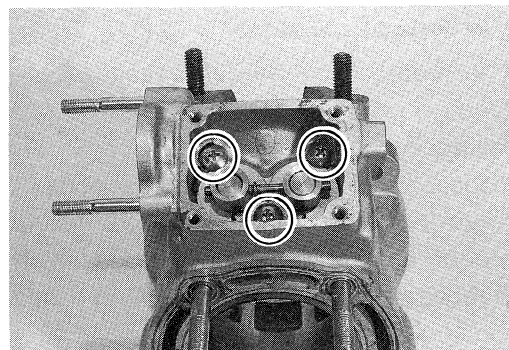


### CYLINDER AND EXHAUST VALVE

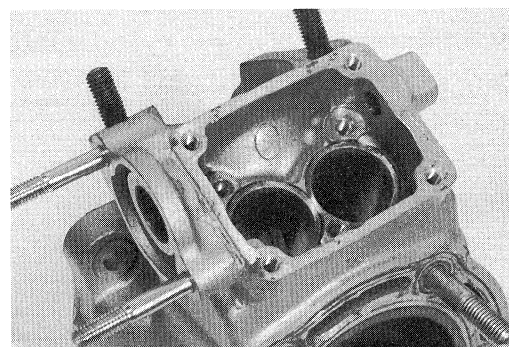
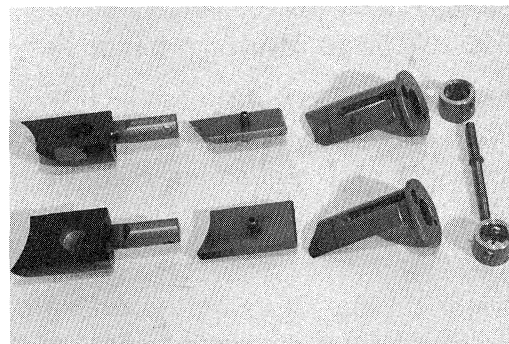
- Remove the exhaust valve cover.
- Remove the exhaust valve shaft, arm and spring by removing the screw.



- Remove the exhaust valve and spring retainer by removing the mounting screws.



- Inspect the exhaust valve and cylinder sliding surface for nicks, scratches, wear or other damage.



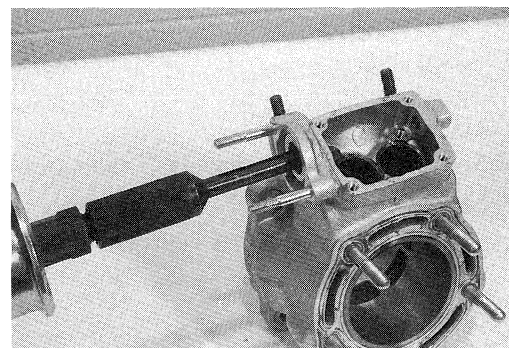
- Remove the oil seal with the special tools.

09921-20200 : Bearing remover

09930-30102 : Sliding shaft

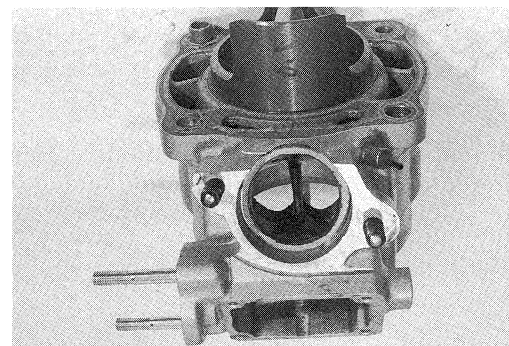
#### CAUTION:

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



#### CYLINDER DECARBON

Decarbon the exhaust port and the upper part of the cylinder, taking care not to damage the cylinder wall surface.



**CYLINDER BORE**

The wear of the cylinder wall is determined from diameter reading taken at 20 mm from the top of the cylinder with a cylinder gauge.

If the wear thus determined exceeds the limit indicated below, rework the bore to the next oversize by using a boring machine or replace the cylinder with a new one.

Oversize pistons are available in two sizes: 0.25 mm and 0.5 mm oversizes.

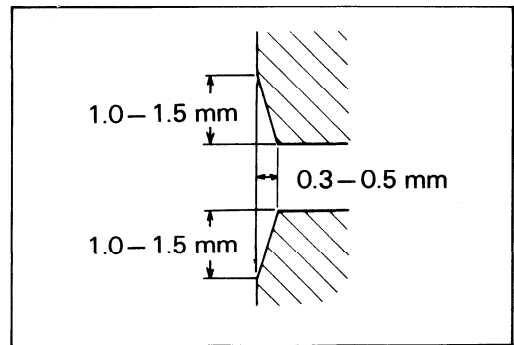
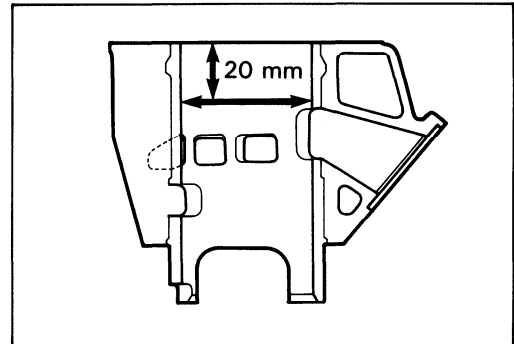
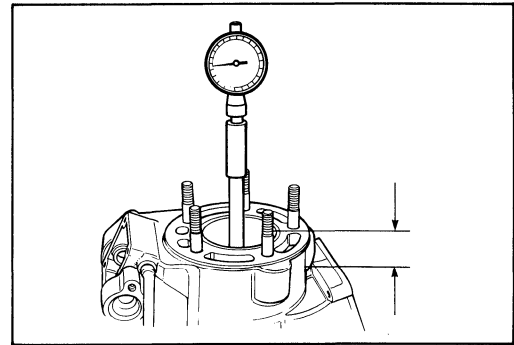
**Service Limit : 66.075 mm (2.6014 in)**

**09900-20508 : Cylinder gauge set**

After reworking the bore to an oversize, be sure to chamfer the edges of ports and smooth the chamfered edges with emery paper. To chamfer, use a scraper, taking care not to nick the wall surface.

**NOTE:**

*Minor surface flaws on the cylinder wall due to seizure or similar abnormalities can be corrected by grinding the flaws off with finegrain emery paper. If the flaws are deep grooves or otherwise persist, the cylinder must be reworked with a boring machine to the next oversize.*

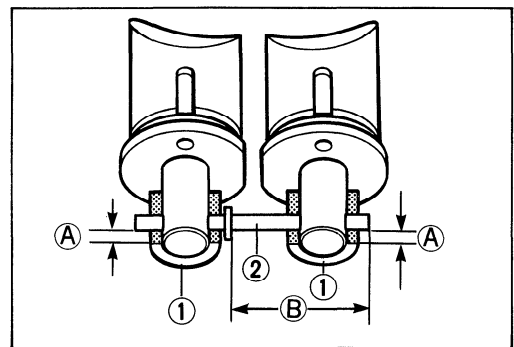


**REASSEMBLY**

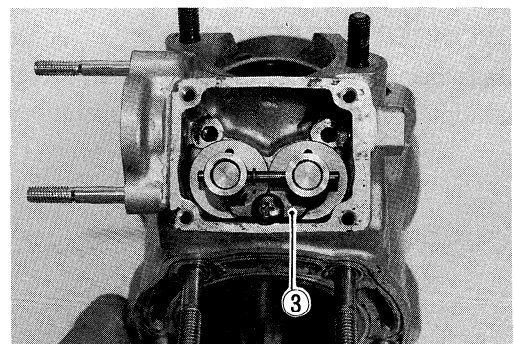
- Install the spacers ① and pin ② to the exhaust valves.

**CAUTION:**

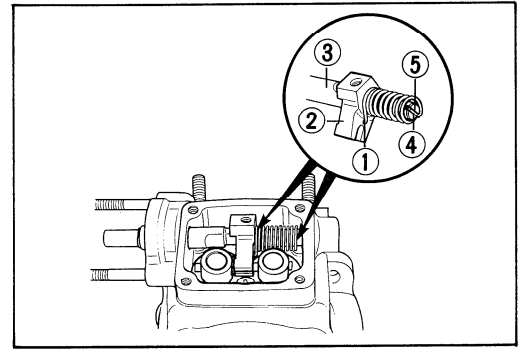
When installing the spacers ① and pin ② to the exhaust valves, face the narrow side (A) of the spacer to the outside and wide side (B) of the pin to the right hand as shown in the illustration.



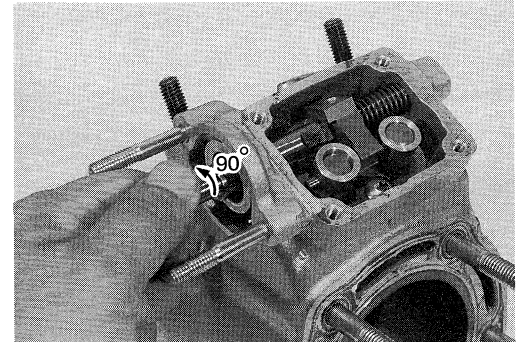
- Install the exhaust valve to the cylinder correctly.
- Install the spring retainer ③ with springs to the exhaust valve and tighten it.
- Tighten the exhaust valve mounting screws securely.



- Install the spring end ① to the arm ②.
- Install the exhaust valve shaft ③ and fit the spring end ④ to the groove ⑤ of shaft as shown in the illustration.

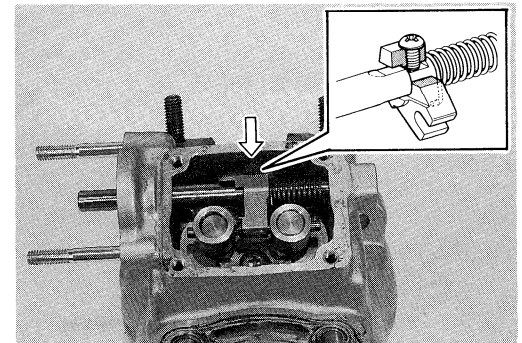


- Rotate the shaft 90 degree counterclockwise and fit it to the groove of the arm.



- Apply THREAD LOCK SUPER "1322" to the screw and tighten it.

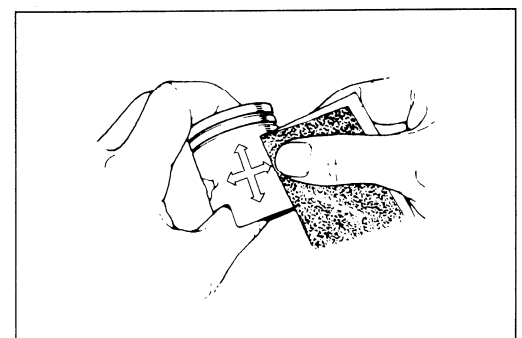
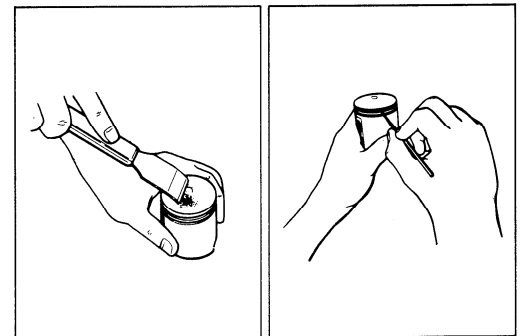
99000-32110 : THREAD LOCK SUPER "1322"



## PISTON

### PISTON DECARBON

- De-carbon the crown of the piston and piston ring grooves. After cleaning the grooves, fit the rings and rotate them in their respective grooves to be sure that they move smoothly.
- Carbon in groove is liable to cause the piston ring to get stuck in the groove, and this condition will lead to reduced engine power output.
- A piston whose sliding surface is badly grooved or scuffed due to overheating must be replaced.
- Shallow grooves or minor scuff can be removed by grinding with emery paper of about # 400.



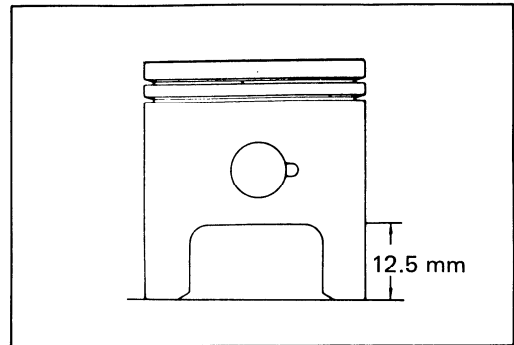
**PISTON DIAMETER**

Using a micrometer, measure the piston outside diameter at the place 12.5 mm from the skirt end as shown in Fig.  
If the measurement is less than the limit, replace the piston.

**Service Limit : 65.910 mm (2.5949 in)**

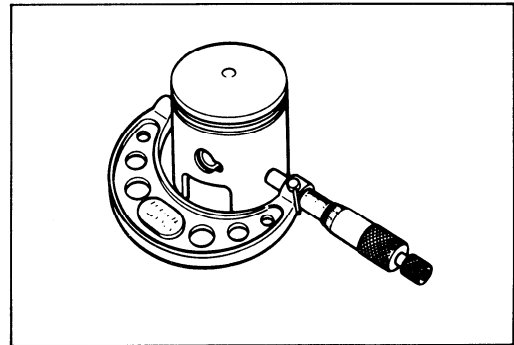
**09900-20203 : Micrometer (50 – 75 mm)**

**Piston oversize : 0.25, 0.5 mm**

**PISTON-CYLINDER CLEARANCE**

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

**Service Limit : 0.120 mm**

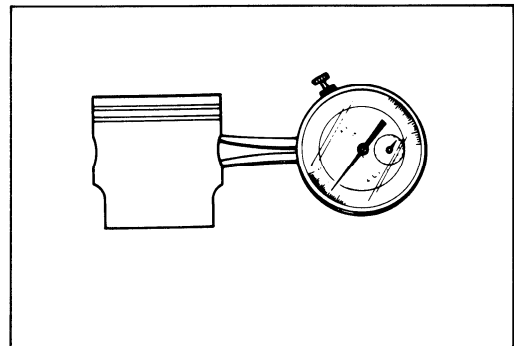
**PISTON PIN BORE I.D.**

Using a caliper gauge, measure the piston pin bore inside diameter.

If reading exceeds the following service limit, replace it with a new one.

**Service Limit : 18.030 mm (0.7098 in)**

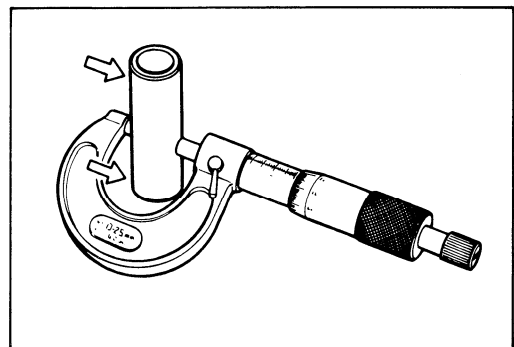
**09900-20605 : Dial calipers**

**PISTON PIN O.D.**

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

**Service Limit : 17.980 mm (0.7079 in)**

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

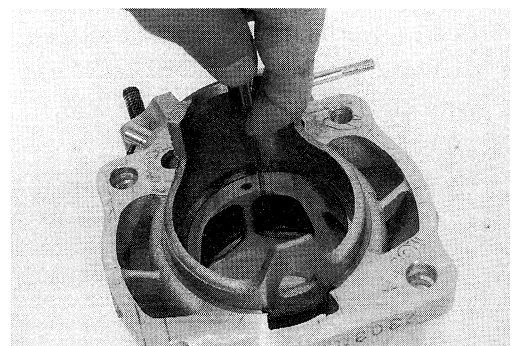
**PISTON RING END GAP**

Check each ring for end gap, reading the gap with a thickness gauge as shown in Fig. If the end gap is found to exceed the limit, indicated below, replace it with new one.

The end gap of each ring is to be measure with the ring fitted squarely into the cylinder bore and held at the least worn part near the cylinder bottom, as shown in Fig.

**Service Limit (1st & 2nd) : 0.80 mm (0.031 in)**

**09900-20803 : Thickness gauge**



**PISTON RING FREE END GAP**

As the piston ring wears, its end gap increases reducing engine power output because of the resultant blowby gas through the enlarged gap. Here lies the importance of using piston rings with end gaps within the limit.

Measure the piston ring free end gap to check the spring tension.

**Service Limit : 1st : 5.0 mm (0.20 in)**

**2nd : 4.1 mm (0.16 in)**

**PISTON RING TO GROOVE CLEARANCE**

Fix the piston ring in the piston ring groove, measure the ring side clearance with the thickness gauge while matching the sliding surface of piston and ring.

**STD clearance**

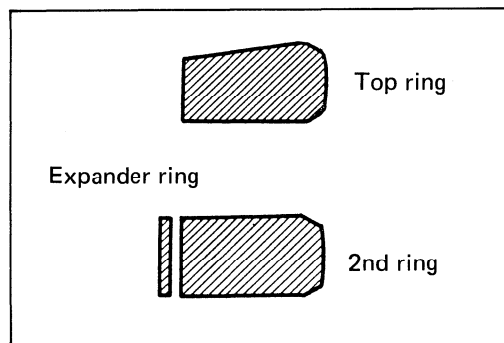
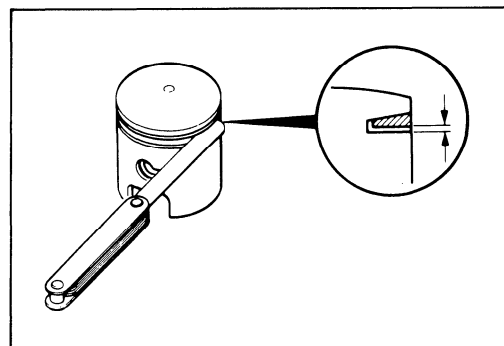
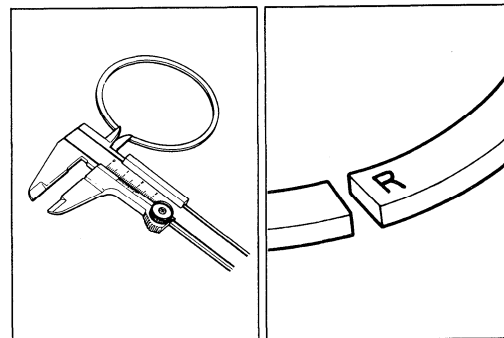
**1st : 0.050 – 0.070 mm (0.0020 – 0.0028 in)**

**2nd : 0.025 – 0.060 mm (0.0008 – 0.0024 in)**

**09900-20803 : Thickness gauge**

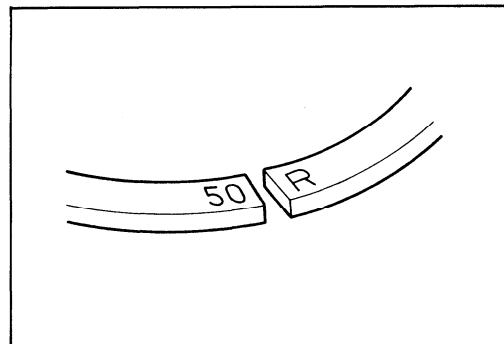
**NOTE:**

*1st ring and 2nd ring differ in the shape. Be sure to bring the "R" (1st) and "RN" (2nd) marked side to top when fitting them to the piston.*

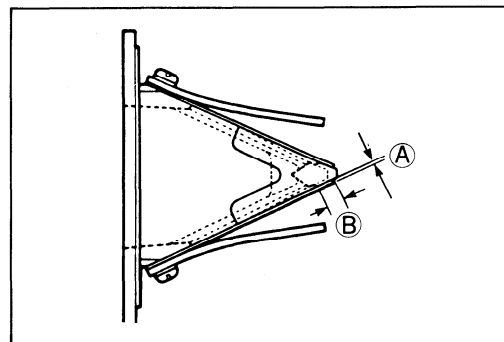
**OVERSIZE PISTON RING**

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

Oversize	Mark (1st and 2nd)
0.25 mm	25
0.5 mm	50

**REED VALVE**

Check the clearance **(A)** between reed valve and its seat and the dimension **(B)**. If the clearance **(A)** is noted to exceed 0.2 mm, replace the reed valve assembly. The dimension **(B)** is at least 1 mm.



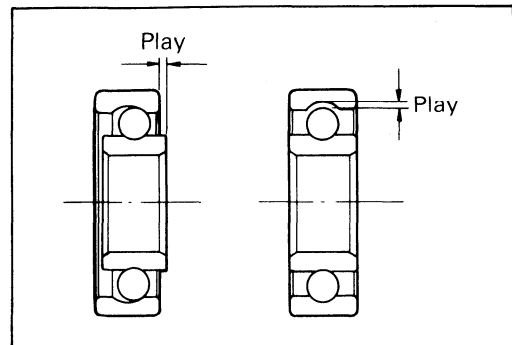


## BEARINGS

Wash the bearing with cleaning solvent and lubricate with motor oil before inspecting.

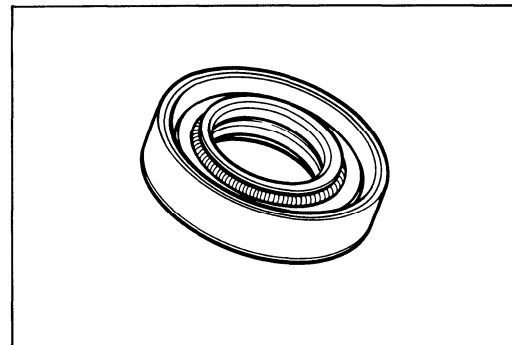
Turn the inner ring and check to see that the inner ring turns smoothly.

If it does not turn lightly, quietly and smoothly, or if noise is heard, the bearing is defective and must be replaced with a new one.



## OIL SEALS

Damage to the lip of the oil seal may result in leakage of the fuel-air mixture or oil. Inspect for damage and be sure to replace damaged parts if there are any.



## CRANKSHAFT

### CRANKSHAFT RUNOUT

Support the crankshaft by "V" blocks, with a dial gauge rigged to read the runout as shown.

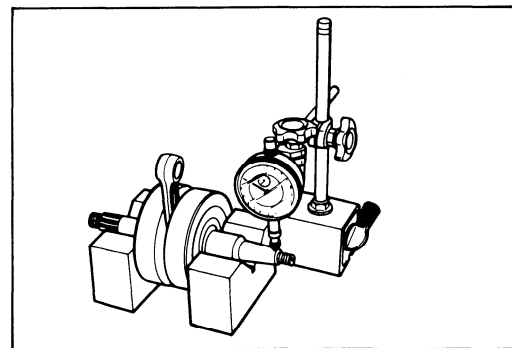
**Service Limit : 0.05 mm (0.002 in)**

Excessive crankshaft runout is often responsible for abnormal engine vibration. Such vibration shortens engine life.

09900-21303 : V-block

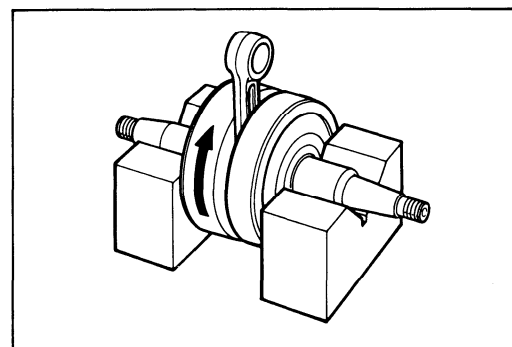
09900-20701 : Magnetic stand

09900-20606 : Dial gauge (1/100 mm)



### CONDITION OF BIG BEARING

Turn the crankshaft with the conrod to feel the smoothness of rotary motion in the big end. Move the rod up and down while holding the crankshaft rigidly to be sure that there is no rattle in the big end.

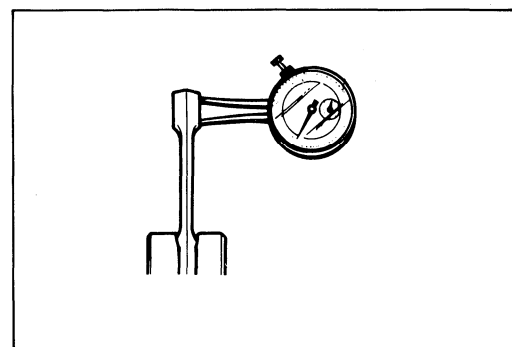


### CONROD SMALL END BORE I.D.

Using a caliper gauge, measure the conrod small end diameter.

**Service Limit : 23.040 mm (0.9071 in)**

09900-20605 : Dial calipers



## CLUTCH

### DRIVE AND DRIVEN PLATES

Clutch plates in service remain in oily condition as they were lubricated with oil. Because of this condition, both drive and driven plates are subject to little wearing action and therefore last much longer. Their life depends largely on the quality of oil used in the clutch and also on the way the clutch is operated. These plates are expandable: they are meant to be replaced when found worn down or distorted to the respective limit: use a caliper to check thickness and claw width and a thickness gauge and surface plate to check distortion.

#### Service Limit

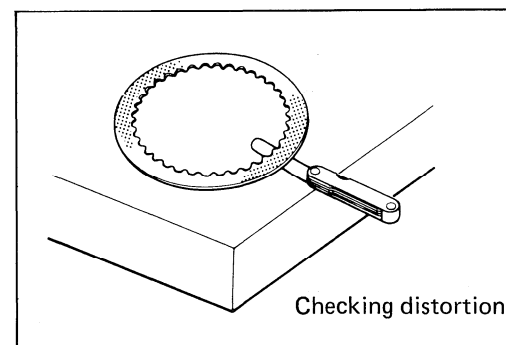
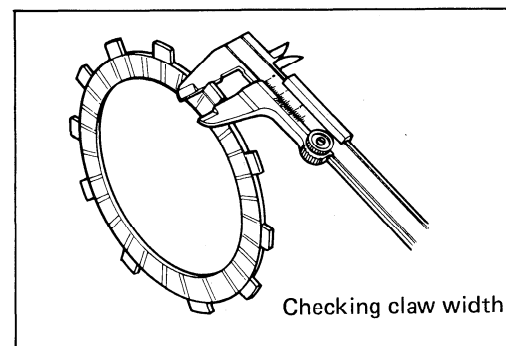
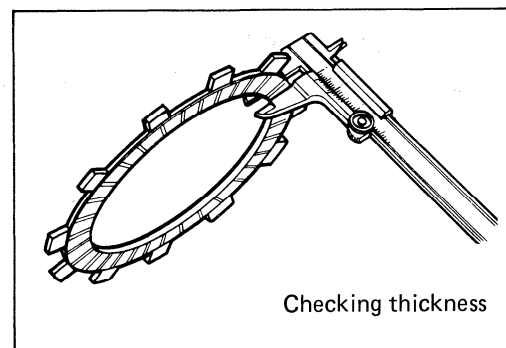
Thickness : 2.4 mm (0.094 in)

Claw width : 11.0 mm (0.43 in)

Distortion : 0.10 mm (0.004 in)

09900-20101 : Vernier calipers

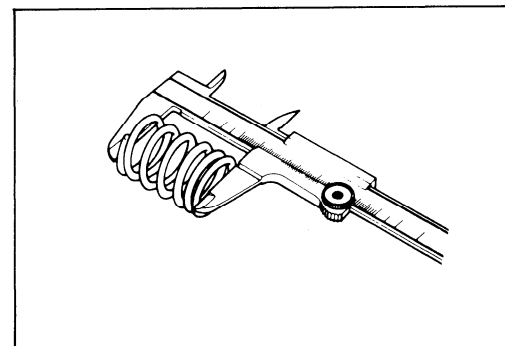
09900-20803 : Thickness gauge



### CLUTCH SPRING FREE LENGTH

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

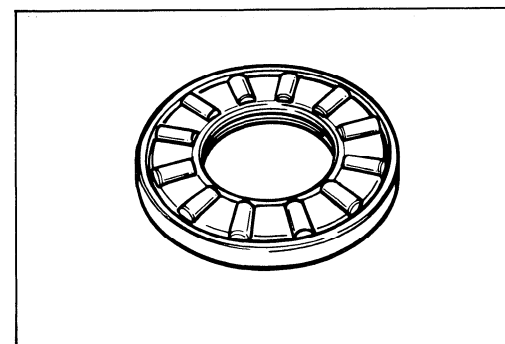
Service Limit : 30.3 mm (1.19 in)



### CLUTCH RELEASE BEARING

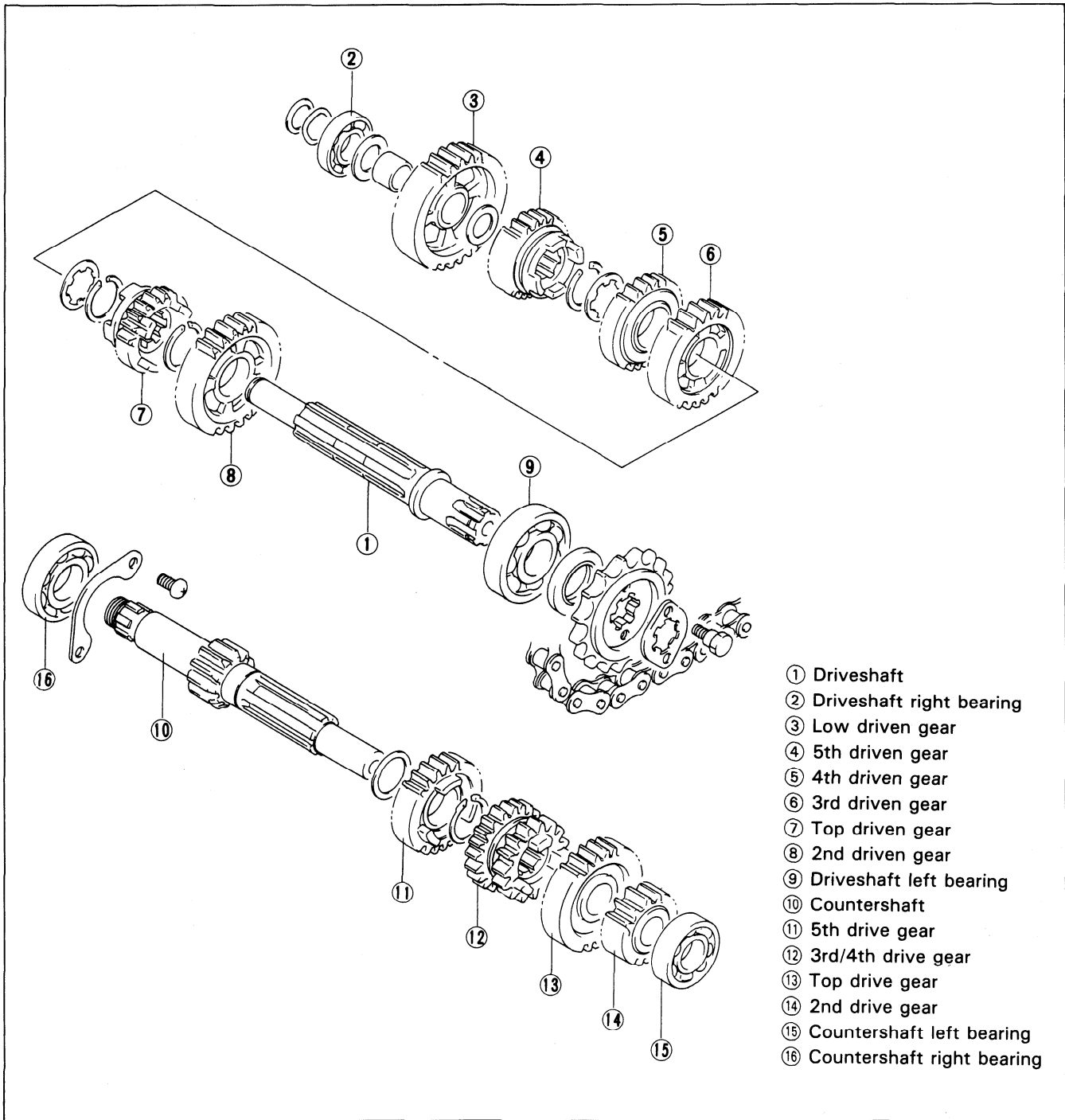
Inspect clutch bearing for any abnormality, particularly cracks, upon removal from the clutch, to decide whether it can be reused or should be replaced.

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



## TRANSMISSION

Disassemble the transmission gears as shown in the illustration.



**GEARSHIFT FORK CLEARANCE**

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

This clearance for each of the three shift forks plays an important role in the smoothness and positiveness of shifting action. Each fork has its prongs fitted into the annular groove provided in its gear. In operation, there is sliding contact between fork and gear and, when a shifting action is initiated, the fork pushes the gear axially. Too much a clearance is, therefore, liable to cause the meshed gears to slip apart. If the clearance checked is noted to exceed the limit specified, replace the fork or its gear, or both.

**Shift fork to groove clearance**

**Service Limit : 0.45 mm (0.018 in)**

**Shift fork groove width**

**Standard No. 1 & No. 3 : 4.45 — 4.55 mm  
(0.175 — 0.179 in)**

**No. 2 : 5.45 — 5.55 mm  
(0.215 — 0.219 in)**

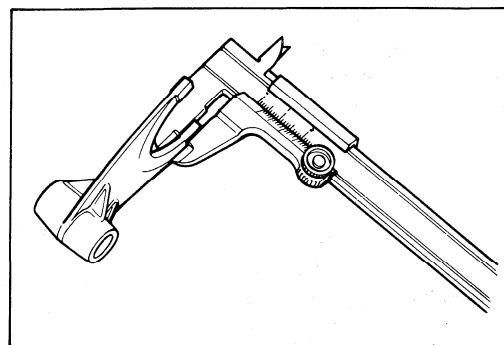
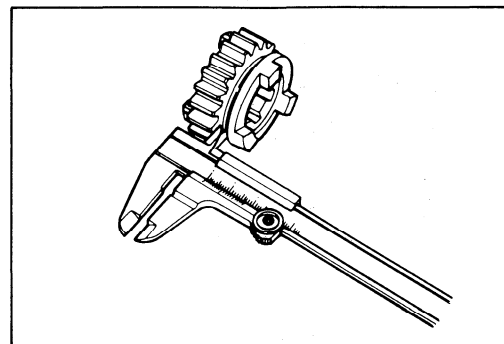
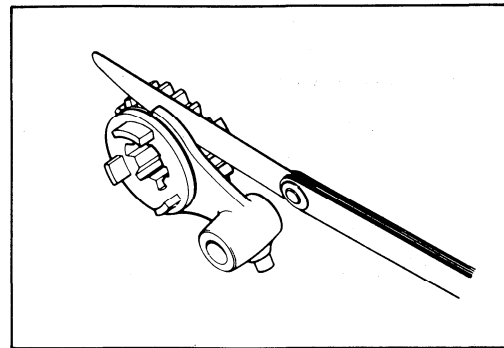
**Shift fork thickness**

**Standard No. 1 & No. 3 : 4.3 — 4.4 mm  
(0.169 — 0.173 in)**

**No. 2 : 5.3 — 5.4 mm  
(0.209 — 0.212 in)**

09900-20101 : Vernier calipers

09900-20803 : Thickness gauge

**REASSEMBLY**

Assemble the countershaft and driveshaft, in the reverse order of disassembly.

Pay attention to the following points:

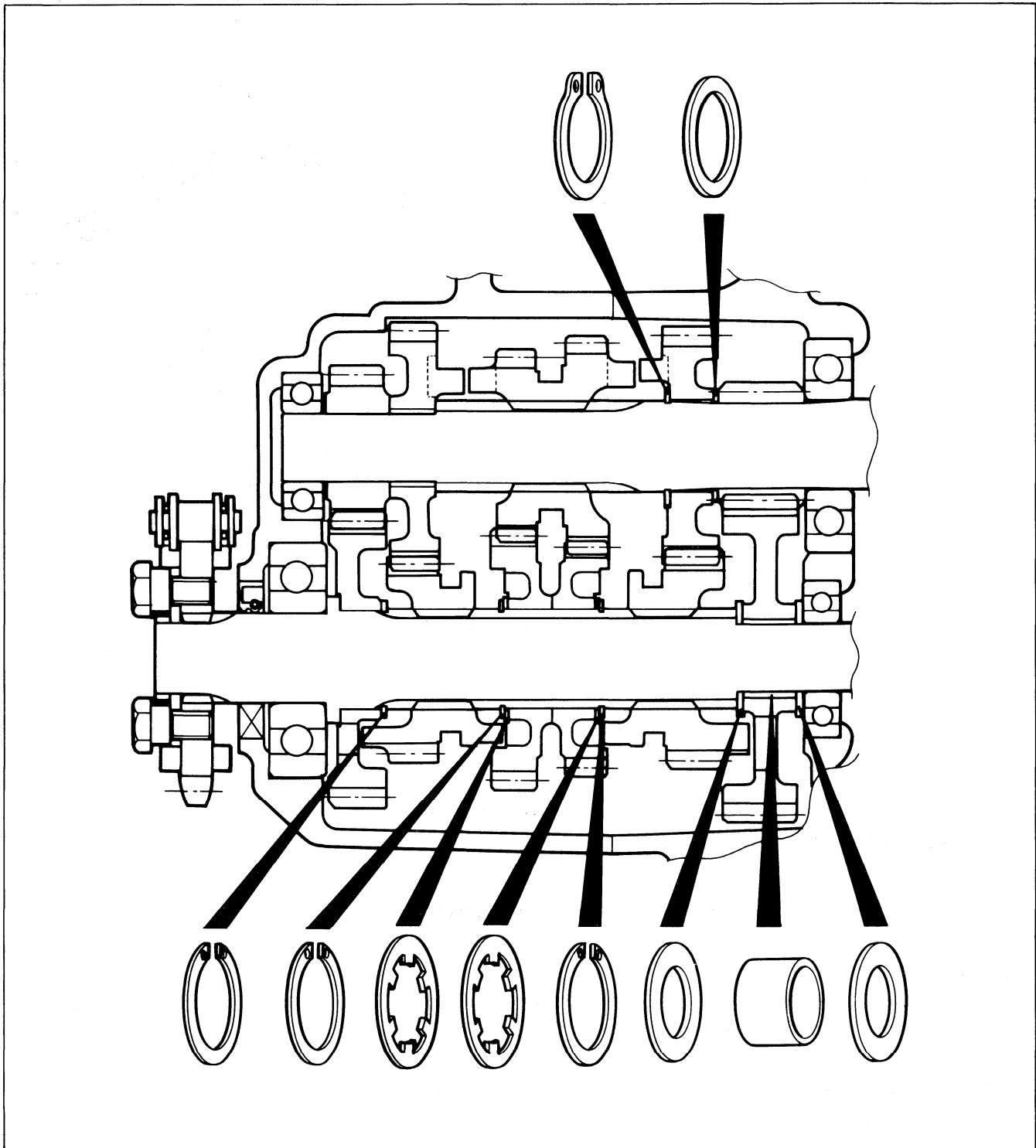
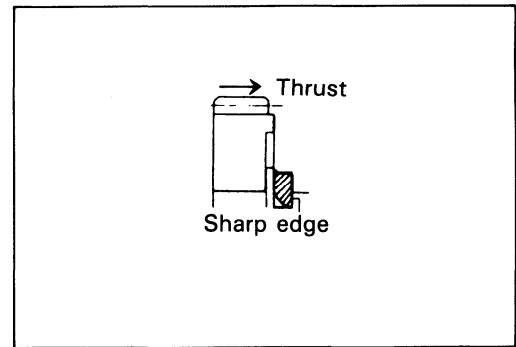
**NOTE:**

*In reassembling the transmission, attention must be given to the locations and positions of washers and circlips. The cross sectional view given here will serve as a reference for correctly mounting the gears, washers and circlips.*

**CAUTION:**

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

- When mounting the 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.



**MOUNTING THE 2ND DRIVE GEAR**

- Press fit the 2nd drive gear onto the countershaft.

Countershaft length  $\textcircled{A}$  (Low to 2nd)

$106_{-0.2}^{-0.1}$  mm ( $4.173_{-0.008}^{-0.004}$  in)

**NOTE:**

Before reassembling, coat the internal face of the 2nd drive gear with **THREAD LOCK SUPER "1322"** and install it.

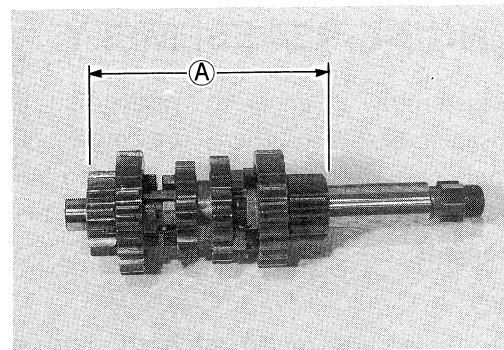
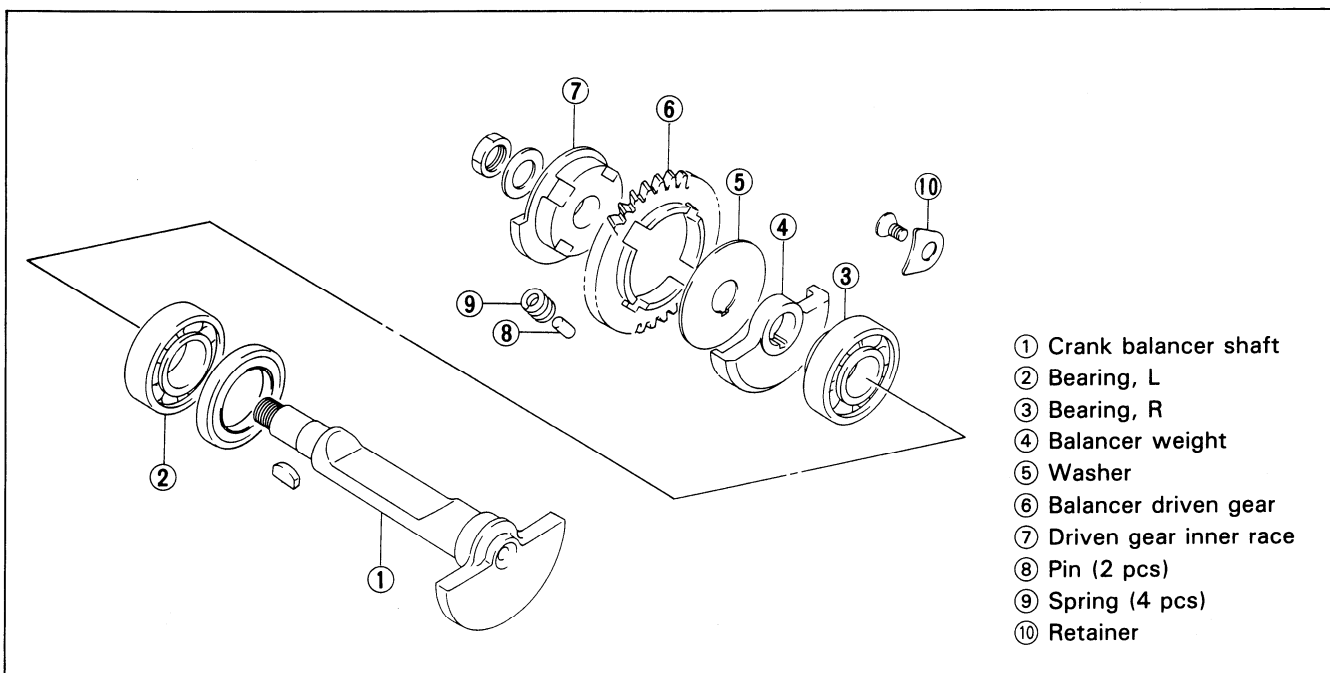
**99000-32110 : THREAD LOCK SUPER "1322"**

**NOTE:**

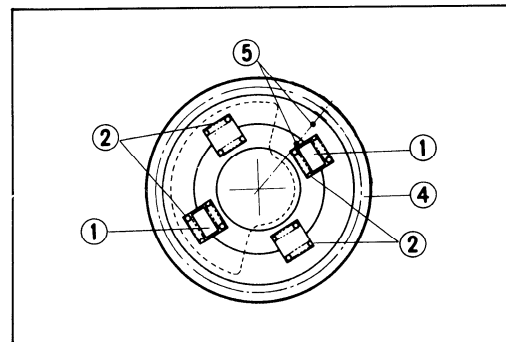
Take care not to smear **TOP** drive gear with **THREAD LOCK SUPER "1322"**

**NOTE:**

- \* After mounting the 2nd drive gear, check that **TOP** drive gear spins smoothly by moving it with your fingers.
- \* This procedure may be performed only twice before shaft replacement is required.

**CRANK BALANCER SHAFT AND DRIVEN GEAR**

- When installing the pins ①, springs ② and inner race ③ to the balancer driven gear ④, set the pins ① to the symmetrical position, and align the punched marks ⑤ as shown in the illustration.



## ENGINE REASSEMBLY

Reassembly is generally performed in the reverse order of disassembly, but there are numbers of reassembling steps that demand or deserve detailed explanation or emphasis. These steps will be taken up for respective parts and components.

**NOTE:**

*Apply engine oil to each running and sliding part before reassembling.*

### BEARINGS

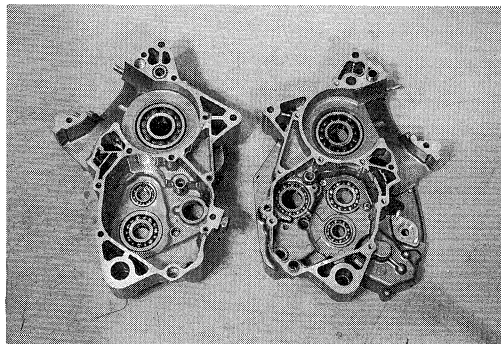
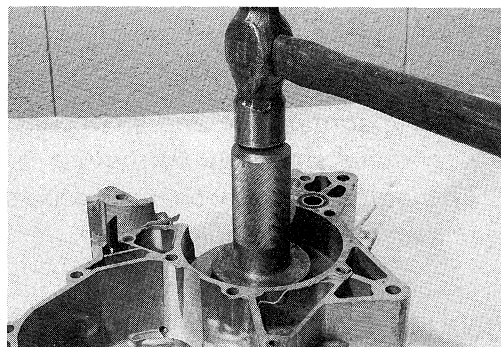
- Install the new bearings with the special tools.

09913-75520 : Bearing installer

09913-75810 : Bearing installer

09913-76010 : Bearing installer

09913-80112 : Bearing installer



### OIL SEALS

- Apply grease to the lip of oil seals.

99000-25010 : SUZUKI SUPER GREASE "A"

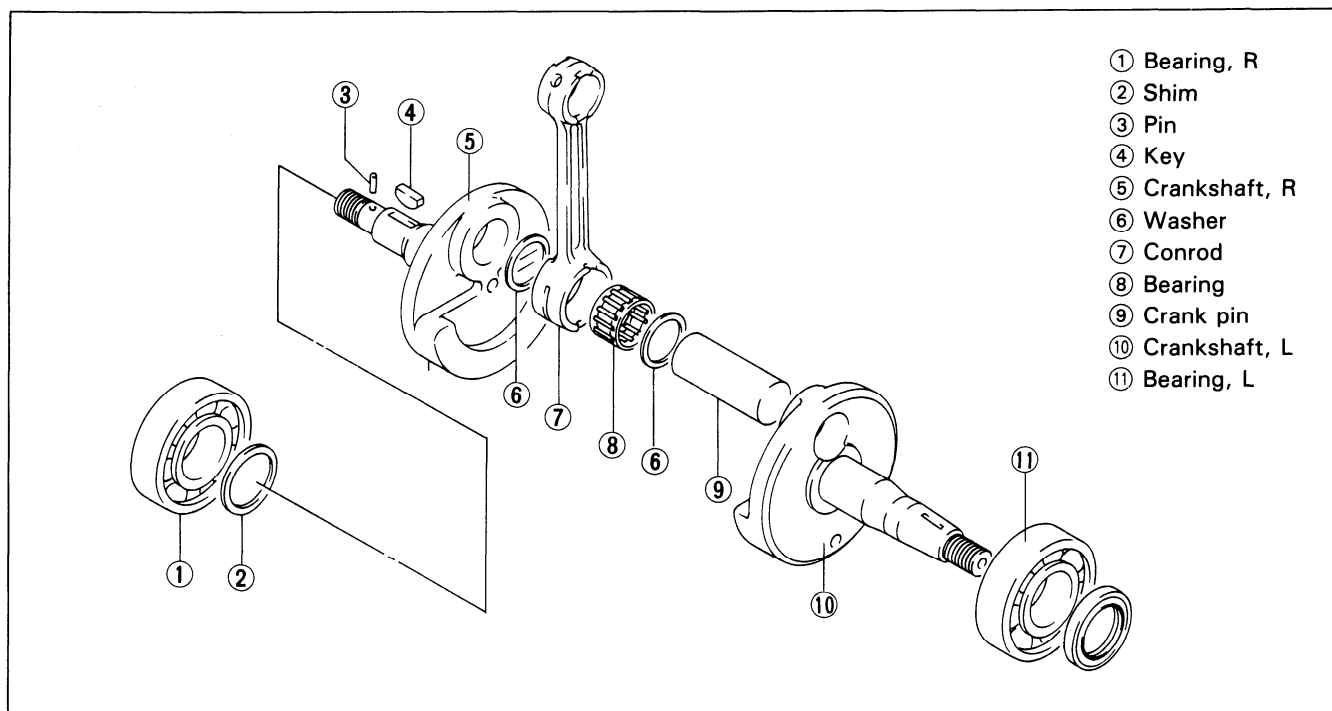
**NOTE:**

*Replace the oil seal with new ones every disassembly to prevent oil leakage.*



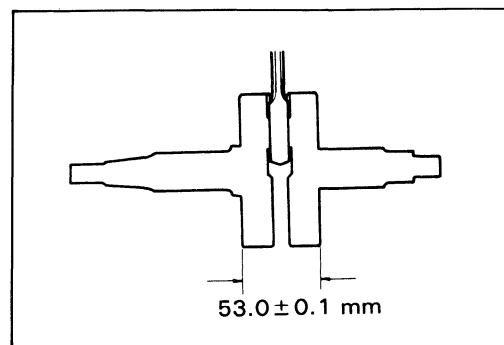


## CRANKSHAFT



- Decide the width between the webs referring to the figure at right when rebuilding the crankshaft.

**Crank web to web width :  $53.0 \pm 0.1$  mm**  
**( $2.087 \pm 0.004$  in)**



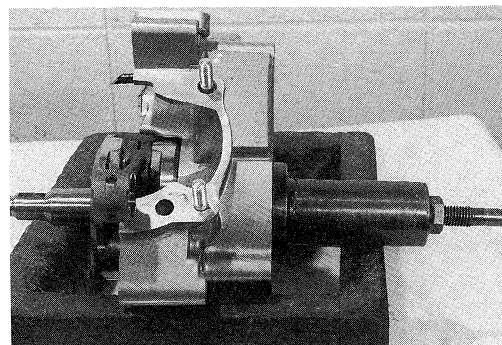
- When mounting the crankshaft in the crankcase, it is necessary to pull its left end into the crankcase with the special tools.

**09910-32812 : Crankshaft installer**  
**09910-32820 : Crankshaft installer spacer**  
**09911-11310 : Crankshaft installer attachment**

**CAUTION:**

**Never fit the crankshaft into the crankcase by tapping it with a plastic hammer.**

**Always use the special tools, otherwise crankshaft alignment accuracy will be affected.**



## CRANKSHAFT SHIM SELECTION

- Degrease the crankshaft right side web, shim and inner ring of crankshaft right side bearing.
- Place the removed shim on the right side crankshaft.
- Put the plasti-gauge (special tool) cut out about 10 mm on the shim, as shown in the illustration.

### 09900-22302 : Plastigauge

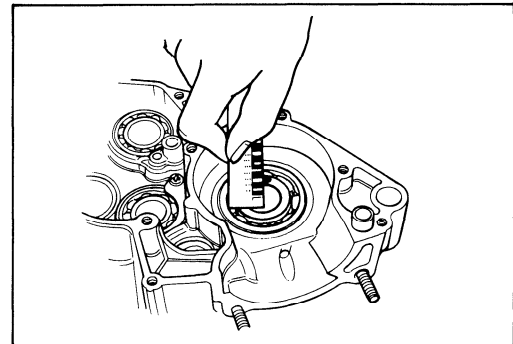
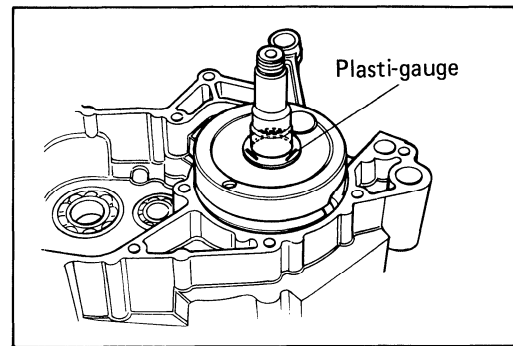
- Install the right crankcase and tighten it with the bolts.
- Remove the bolts and separate the right and left crankcase with the special tool.

### 09920-13120 : Crankcase separating tool

- Measure the width of compressed plasti-gauge with envelop scale.

**STD Thrust clearance : 0.01 – 0.07 mm**  
(0.0004 – 0.0028 in)

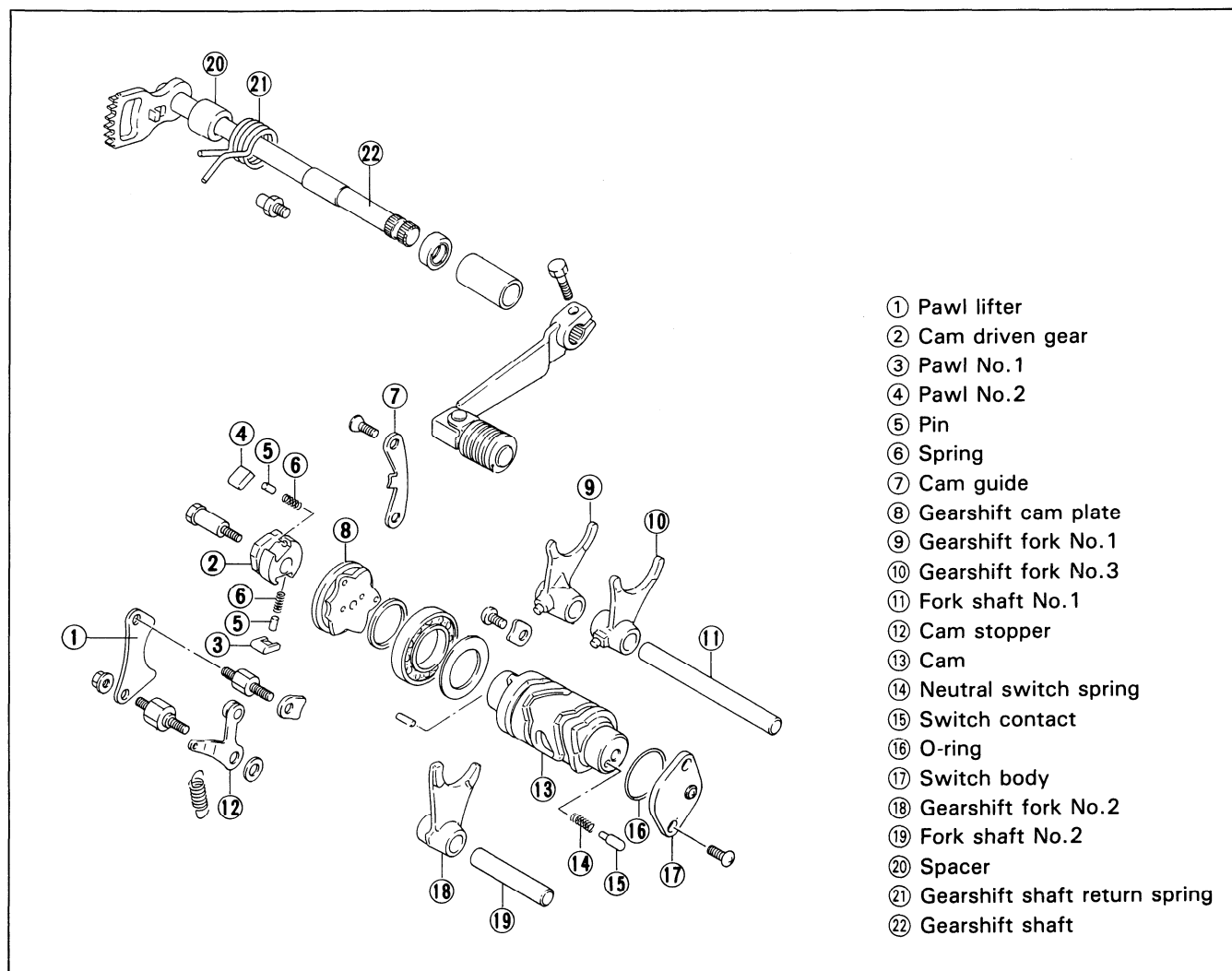
- If the clearance is not within specification, select the proper size of shim.
- After selecting the proper size of shim, place it on the crankcase.
- Recheck the clearance with the above procedure until proper clearance is obtained.



### List of shim

Part number of shim	Shim thickness
09170-25341-160	1.60 mm
09170-25341-165	1.65 mm
09170-25341-170	1.70 mm
09170-25341-175	1.75 mm
09170-25341-180	1.80 mm
09170-25341-185	1.85 mm
09170-25341-190	1.90 mm
09170-25341-195	1.95 mm
09170-25341-200	2.00 mm
09170-25341-205	2.05 mm
09170-25341-210	2.10 mm
09170-25341-215	2.15 mm
09170-25341-220	2.20 mm
09170-25341-225	2.25 mm
09170-25341-230	2.30 mm

## GEARSHIFT CAM AND FORK

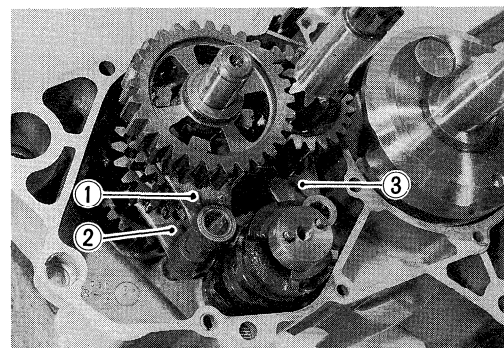


- After fitting the gearshift forks ①, ② and ③ into the gearshift grooves, fit the gearshift cam on the crankcase.

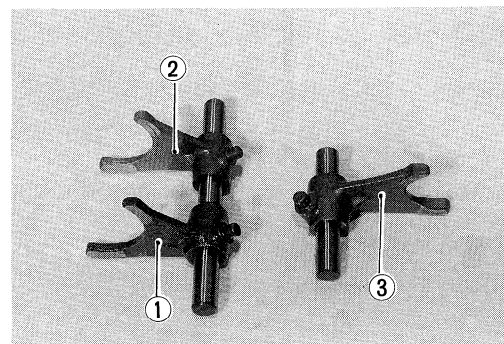
**NOTE:**

Three kinds of gearshift forks ①, ② and ③ are used. They reassemble each other very closely in external appearance and configuration.

Carefully examine the photograph for correct installing positions and directions.



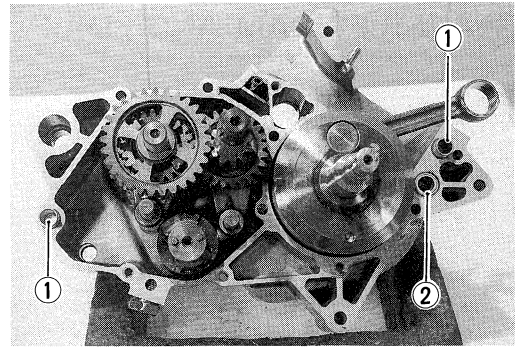
- ① For 5th driven gear (No. 1)
- ② For Top driven gear (No. 3)
- ③ For 3rd/4th drive gear (No. 2)



## CRANKCASE

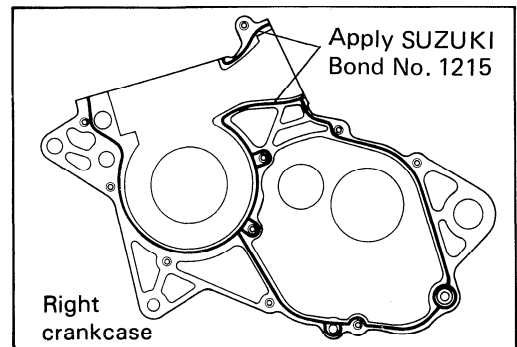
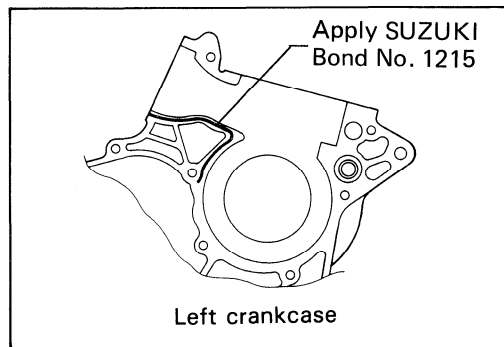
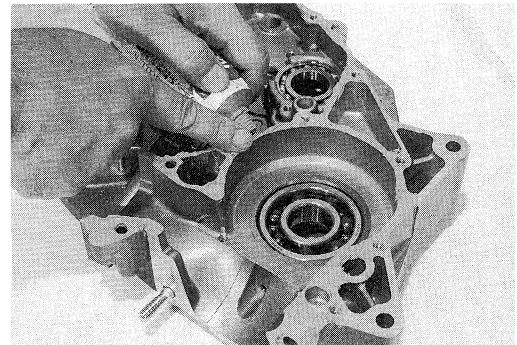
When reassembling the crankcase pay attention to following.

- Fit the dowel pins ①, new O-ring ② and selected shim ③.



- Apply SUZUKI BOND No. 1215 uniformly to the mating surfaces of the crankcase as shown in the illustration.

99000-31110 : SUZUKI BOND No. 1215

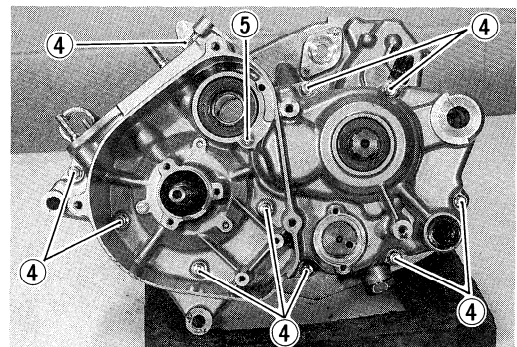


- Assemble the cases after few minutes and tighten the bolts ④ and screw ⑤ to the specified torque.

### Tightening torque

④ : 9 – 13 N·m (0.9 – 1.3 kg·m, 6.5 – 9.5 lb-ft)

⑤ : 6 – 10 N·m (0.6 – 1.0 kg·m, 4.5 – 7.0 lb-ft)



- Tighten the bolt ⑥ to the specified torque.

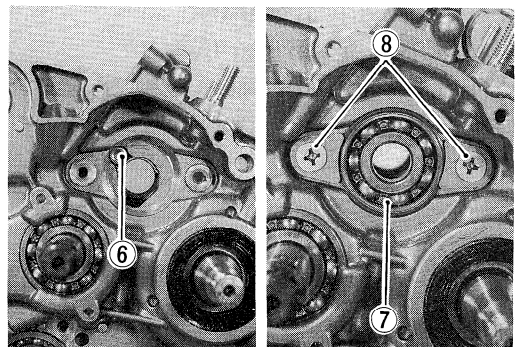
Tightening torque : 9 – 13 N·m

(0.9 – 1.3 kg·m, 6.5 – 9.5 lb-ft)

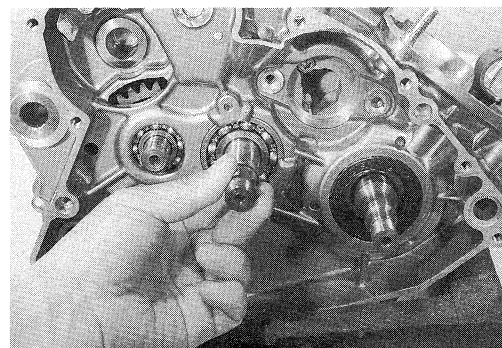
- Install the bearing ⑦ and tighten the retainer screws ⑧.

### CAUTION:

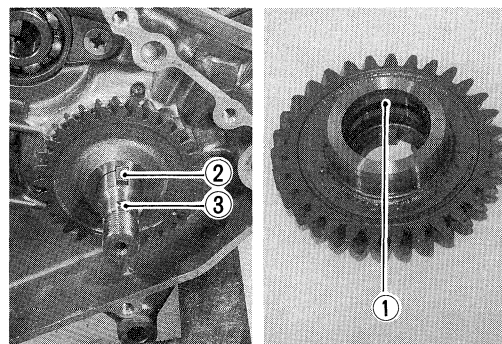
Always use new screws ⑧.



- After the crankcase bolts and screws have been tightened, check if driveshaft and countershaft rotate smoothly.
- If a large resistance is felt to rotation, try to free the shafts by tapping the driveshaft or countershaft with a plastic hammer.



- Install the new O-ring ① to the balancer drive gear.
- Fit the key ② and pin ③, install the balancer drive gear.



- Tighten the water pump drive gear nut to the specified torque with the special tool.

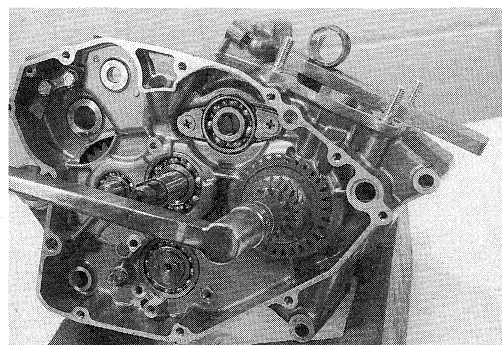
**09910-20115 : Conrod holder**

**Tightening torque : 60 – 80 N·m**

**(6.0 – 8.0 kg·m, 43.5 – 58.0 lb-ft)**

**NOTE:**

*This nut has left-hand threads.*



### **CAM DRIVEN GEAR AND GEARSHIFT SHAFT**

- Apply THREAD LOCK SUPER "1303" to the gearshift arm stopper ④, and tighten it to the specified torque.

**99000-32030 : THREAD LOCK SUPER "1303"**

**Tightening torque: 15 – 23 N·m**

**(1.5 – 2.3 kg·m, 11.0 – 16.5 lb-ft)**

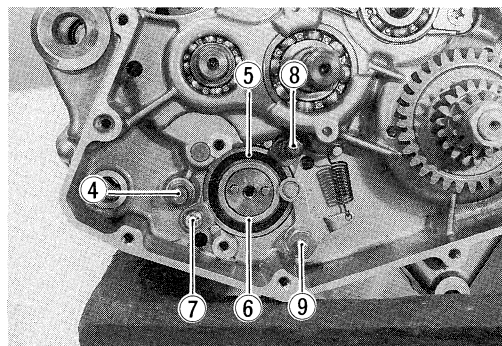
- Install the oil seat ⑤ and spacer ⑥.

**CAUTION:**

**When installing the seat ⑤, face the flat surface of the seat to the bearing.**

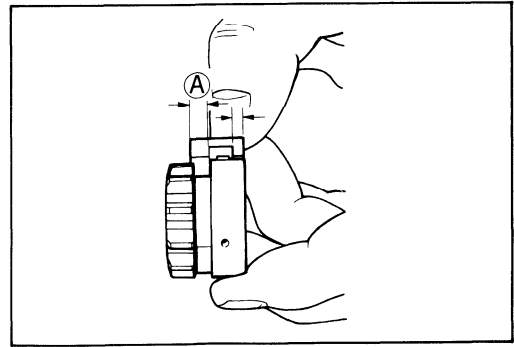
- Apply THREAD LOCK "1342" to the retainer screw ⑦, bolt ⑧ and stopper arm bolt ⑨, and tighten them.

**99000-32050 : THREAD LOCK "1342"**

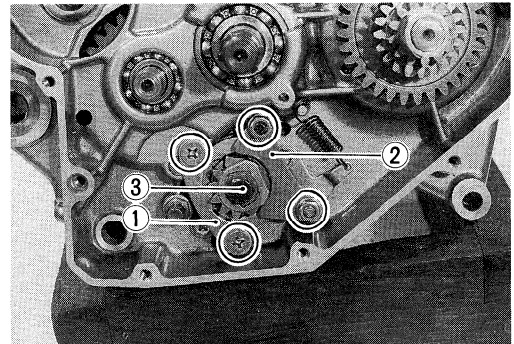


### 3-33 ENGINE

- When installing the gearshift pawls into the cam driven gear. The large shoulder **A** must face to the outside as shown.

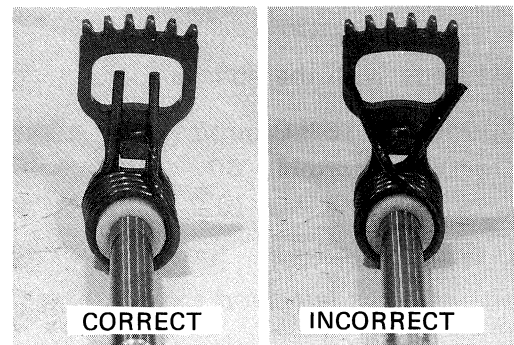


- Install the cam guide **1** and pawel lifter **2**.
- Apply THREAD LOCK "1342" to the screws and nuts, and tighten them.
- Apply THREAD LOCK "1342" to the cam driven gear bolt **3**, and tighten it.

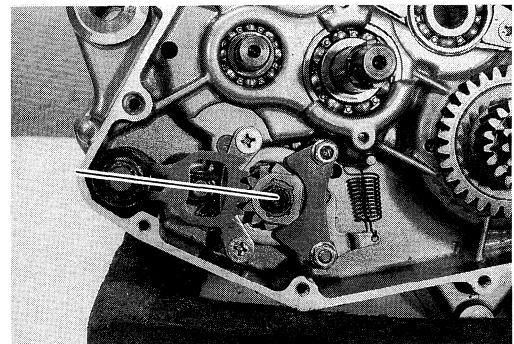


**99000-32050 : THREAD LOCK "1342"**

- Fit a spring to the gearshift shaft correctly as shown in the photo.

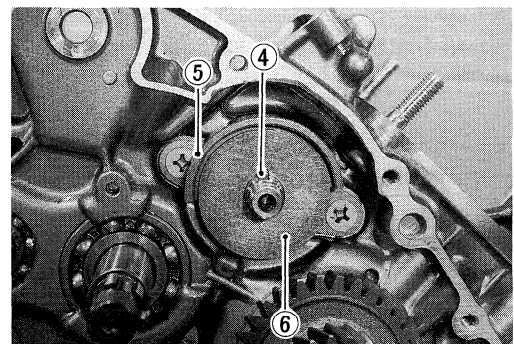


- Install the gearshift shaft. Match the center teeth of the gear on the gearshift shaft with the center teeth on the cam driven gear as shown in photo.



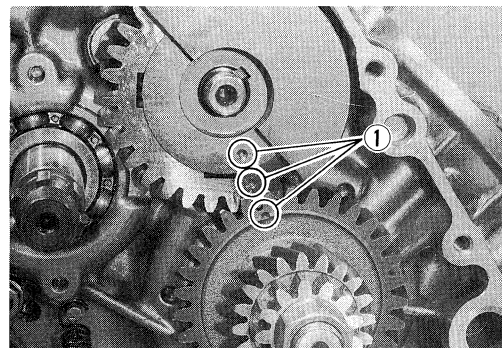
### **BALANCER SHAFT AND GEAR**

- Fit the key **4** and install the balancer weight **5** and washer **6**.





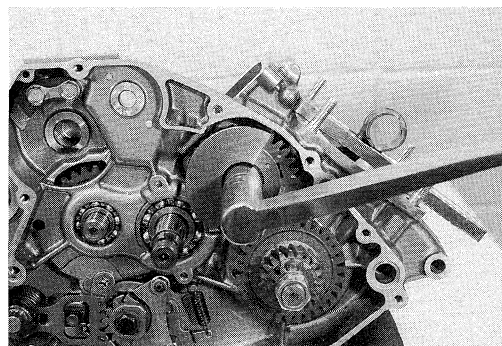
- When installing the balancer driven gear, align the three punched marks ①.



- Tighten the balancer nut to the specified torque with the special tool.

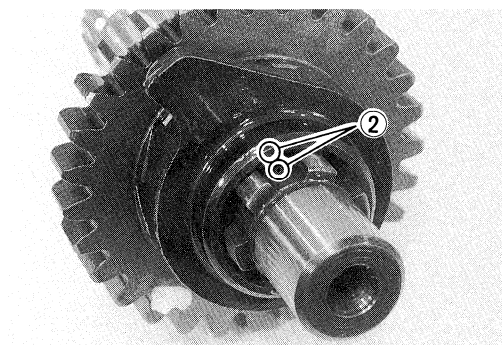
**09910-20115 : Conrod holder**

**Tightening torque : 45–55 N·m  
(4.5–5.5 kg-m, 32.5–40.0 lb-ft)**

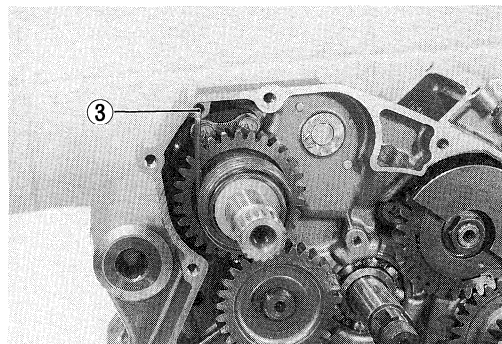


## **KICK STARTER SHAFT**

- When installing the kick starter, align the punched marks ②.

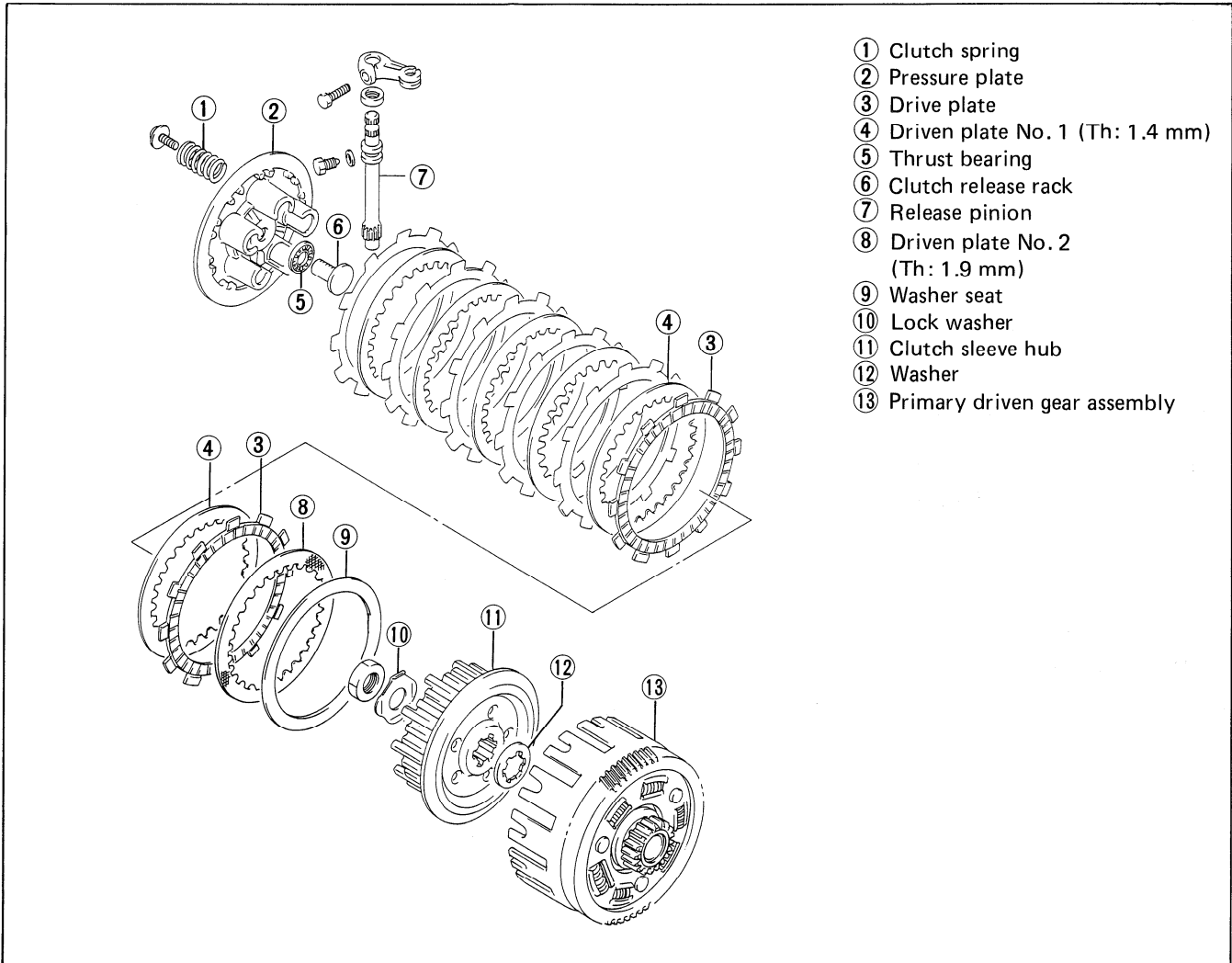


- Install the kick starter shaft assembly and rotate the end ③ of the return spring to the hole of the crankcase.

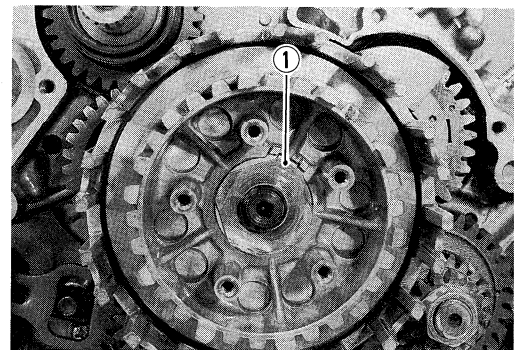




**CLUTCH**



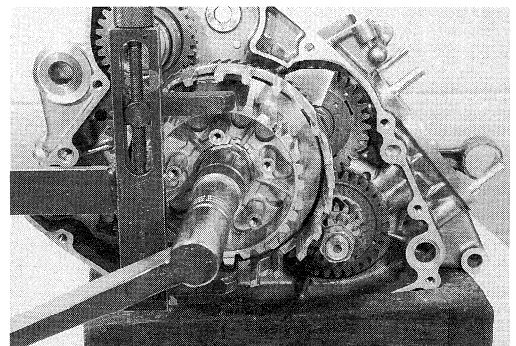
- Fit the tongue ① of the washer to the groove of the clutch sleeve hub.



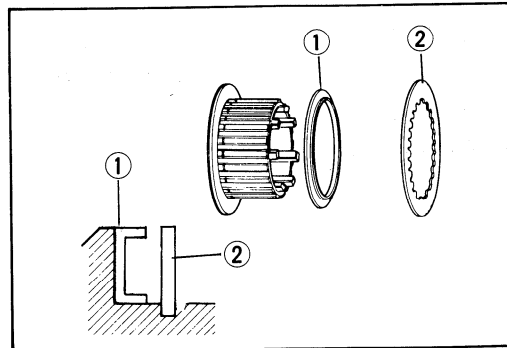
- Tighten the clutch sleeve hub nut to the specified torque with the special tool.

**Tightening torque : 40—60 N·m  
 (4.0—6.0 kg-m, 29.0—43.5 lb-ft)**

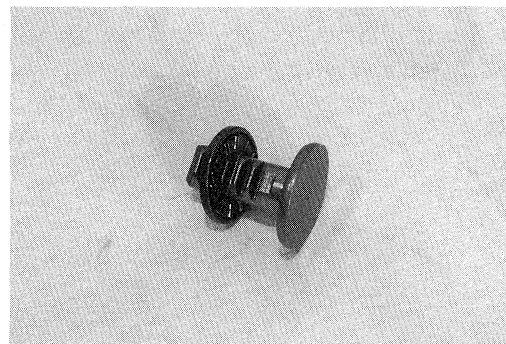
**09920-53710 : Clutch sleeve hub holder**



- Install the clutch plate seat ① and driven plate No. 2 ② as shown in the illustration.
- Install the drive plate and driven plate No. 1 one by one.

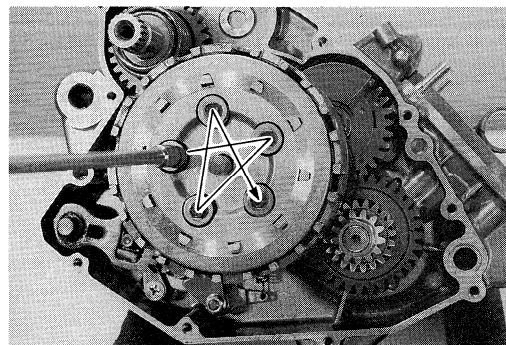


- Insert the clutch release rack and bearing into the pressure plate.



- Tighten the clutch spring bolts diagonally with the special tool.

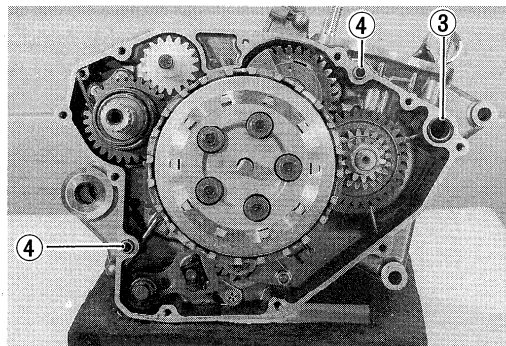
09910-20115 : Conrod holder



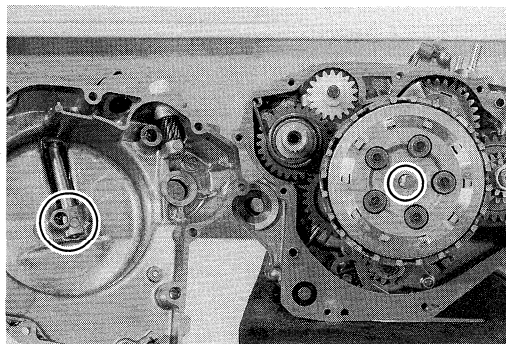
- Fit the new O-ring ③ and dowel pins ④.
- Install the oil pump drive gear with shaft.

**CAUTION:**

Use a new gasket to prevent oil leakage.

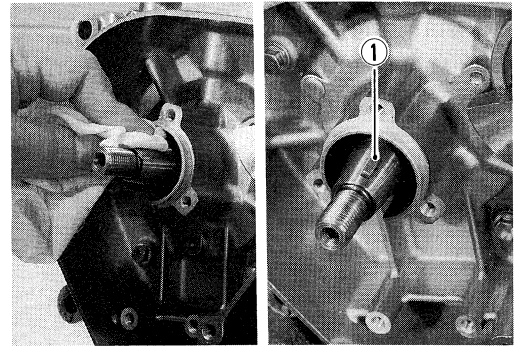


- Engage the teeth of clutch release rack with those of pinion gear at the clutch cover side, and replace the clutch cover. Make sure that the rack and pinion gears engage positively. To install the cover, tap lightly with plastic hammer, and tighten the bolts.

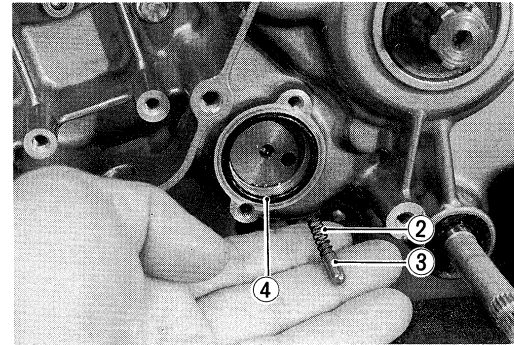


### MAGNETO

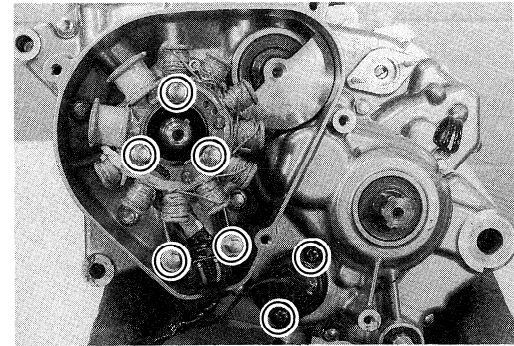
- Degrease the tapered portion of the crankshaft and also the magneto rotor.
- Fit the key ①.



- Insert the neutral indicator switch spring ② and contact ③.
- Install the new O-ring ④.



- Install the magneto stator, pick-up coil and neutral indicator switch.

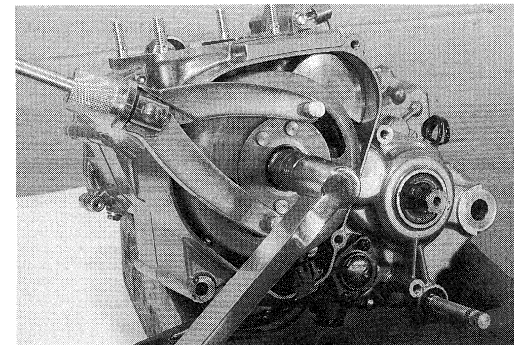


- Align the key groove with the key and install the magneto rotor to the crankshaft.
- Apply THREAD LOCK SUPER "1324" to the rotor nut and tighten it to the specified torque with the special tool.

99000-32120 : THREAD LOCK SUPER "1324"

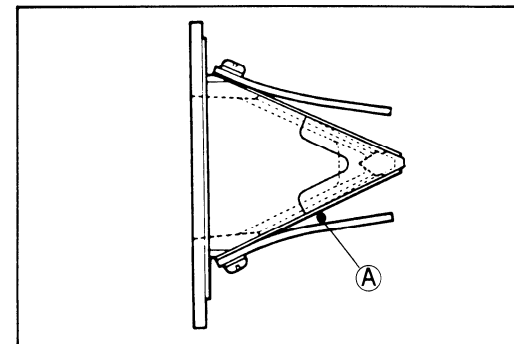
Tightening torque : 75–85 N·m  
(7.5–8.5 kg-m, 54.0–61.5 lb-ft)

09930-40113 : Rotor holder



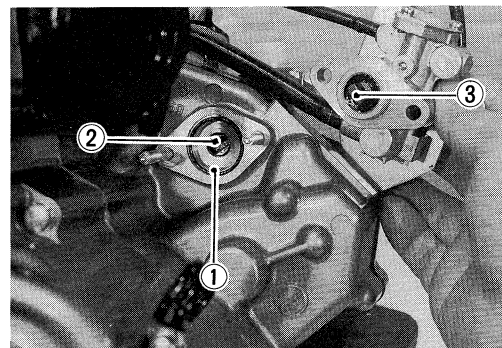
### REED VALVE

- Before installing the reed valve to the crankcase, examine the reed valve carefully, making sure there is not foreign matter (A) stuck between reed valve and reed valve stopper.



## OIL PUMP

- Install the new O-ring ①.
- When installing the oil pump, align the groove ② with protrusion ③.



## PISTON RING AND PISTON

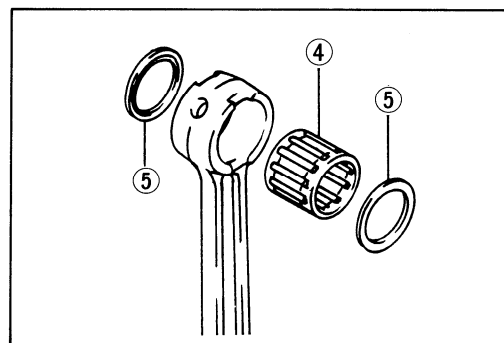
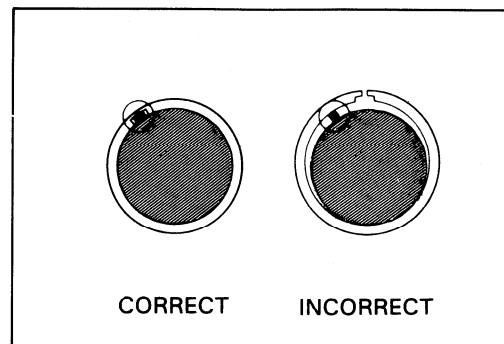
- Mount the piston rings in the order of expander ring, 2nd ring and top ring.

### NOTE:

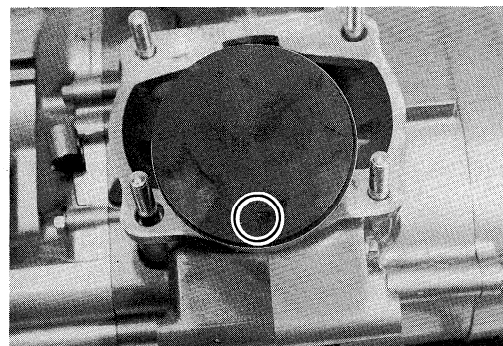
*Top and 2nd rings have letter "R" marked.*

*Be sure to bring the marked side to top when fitting them to the piston.*

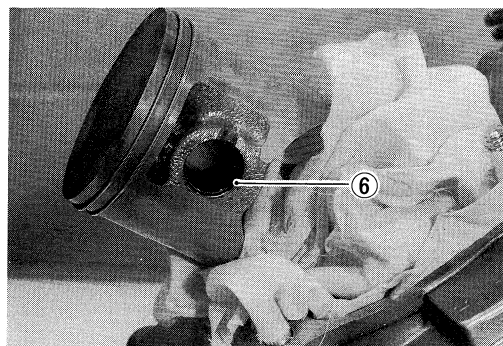
- Each ring in place should be so positioned as to hug the locating pin.
- Install the bearing ④ and two thrust washers ⑤ to the conrod.



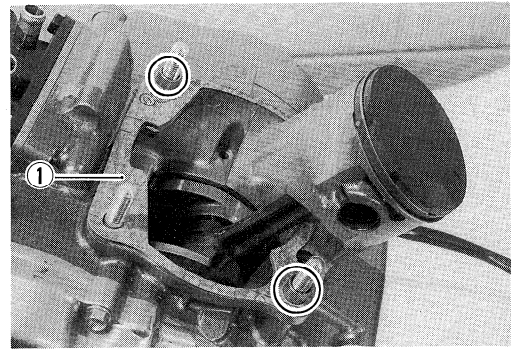
- Before installing the piston to the conrod, be sure to apply SUZUKI CCI Oil or two-stroke oil to the conrod big end and small end bearings.
- The arrow mark on the piston crown points to the cylinder exhaust port side.



- The circlip should be mounted in such a position ⑥ that the mating ends of the circlip do not coincide with the groove portion of the piston.



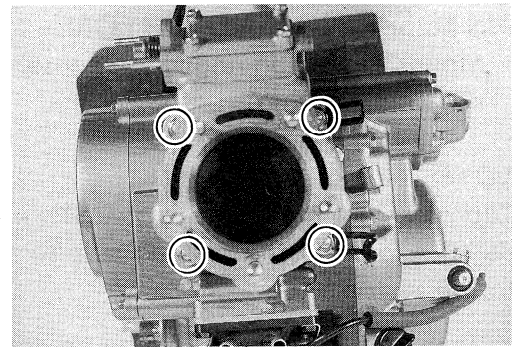
- Before inserting the piston in the cylinder, be sure to apply SUZUKI CCI Oil or two-stroke oil to the outer surface of the piston and piston ring grooves.
- Fit the two dowel pins.
- Install the new gasket ①.



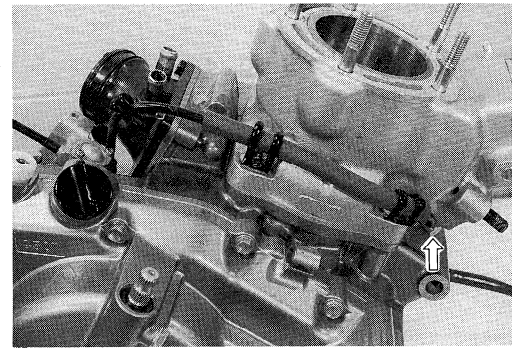
### CYLINDER AND CYLINDER HEAD

- Tighten the cylinder nut in the criss-cross manner to the specified torque.

**Tightening torque : 23 – 27 N·m  
(2.3 – 2.7 kg-m, 16.5 – 19.5 lb-ft)**



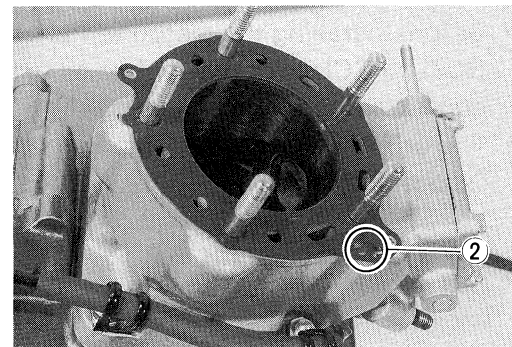
- Connect the oil hose to the cylinder and fix the hose with clamps.



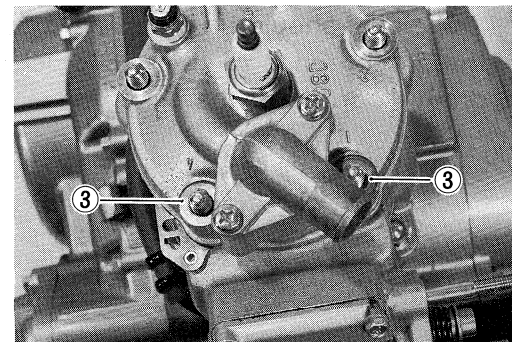
- Install the new cylinder head gasket properly position.

### CAUTION:

When installing the cylinder head gasket, be sure to bring "UP" marked ② side to the top as shown in the photograph.



- Install the copper washers ③.

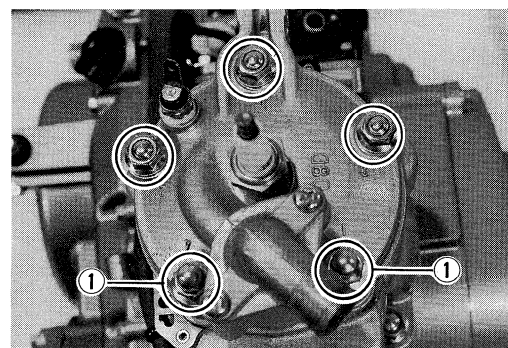


- Tighten the cylinder head nuts to the specified torque in ascending numerical order on the cylinder head.

**Tightening torque : 23 — 27 N·m**  
**(2.3 — 2.7 kg-m, 16.5 — 19.5 lb-ft)**

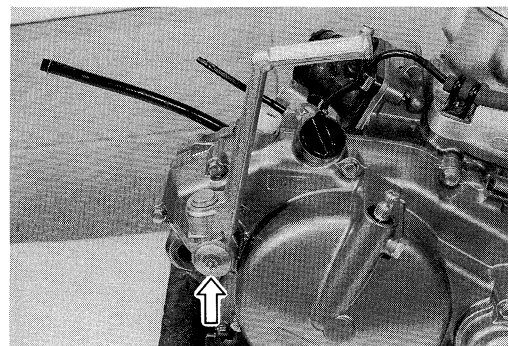
**NOTE:**

Cap nuts ① position is as shown in the photograph.



- Apply THREAD LOCK SUPER "1322" to the kick lever bolt and tighten it.

**99000-32110 : THREAD LOCK SUPER "1322"**



# **COOLING SYSTEM**

## **CONTENTS**

<b>COOLING SYSTEM .....</b>	<b>4-1</b>
<b>COOLING SOLUTION .....</b>	<b>4-2</b>
<b>RADIATOR AND RESERVOIR TANK .....</b>	<b>4-2</b>
<b>THERMOSTAT.....</b>	<b>4-5</b>
<b>WATER PUMP .....</b>	<b>4-6</b>
<b>WATER THERMO-GAUGE.....</b>	<b>4-9</b>



## COOLING SYSTEM

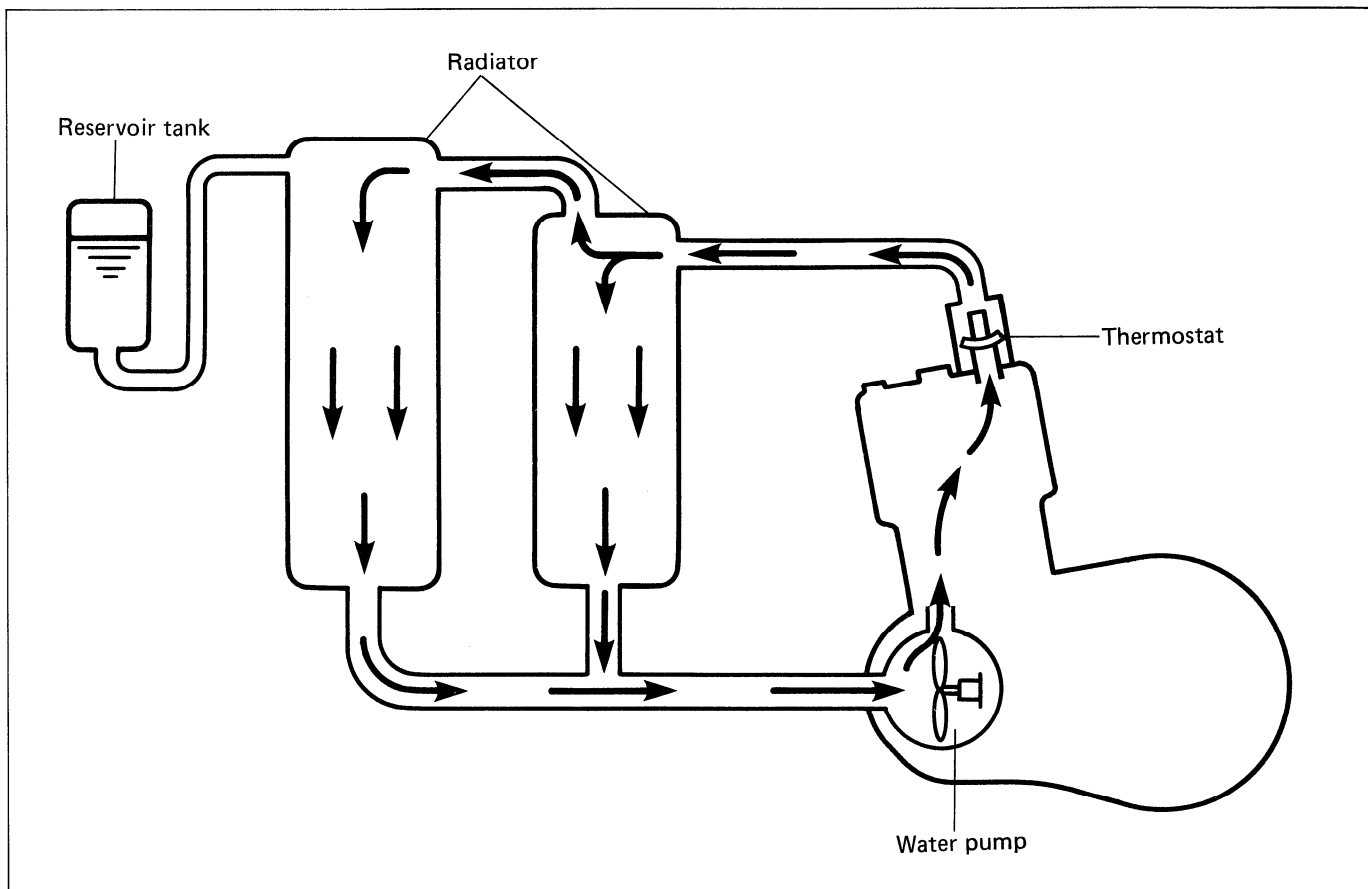
### DESCRIPTION

The engine is cooled by coolant set in forced recirculation through jackets formed in the cylinder and head, and through the radiators. For the water pump, a high-capacity centrifugal pump is used. The radiators are tube-and fin type made aluminum material, which is characterized by lightness in weight and good heat dissipation.

The thermostat is of wax pellet type, complete with a valve as the means of temperature-dependent control over the flow of coolant through the radiators. The valve is actuated by the temperature-sensitive wax contained in the pellet.

Referring to the following illustration, the thermostat is in the closed condition, so that water recirculates through the route comprising pump, engine, by-pass holes of the thermostat and radiator in the regulated condition.

As the coolant temperature rises to 50°C and the thermostat valve unseats, the normal coolant flow is established. At about 65°C of coolant temperature, the thermostat becomes completely open and the most of heat is released to the atmosphere through the radiator core.



## COOLING SOLUTION

At the time of manufacture, the cooling system is filled with a 50 : 50 solution of distilled water and anti-freeze/summer coolant. This 50 : 50 mixture will provide excellent heat protection, and will protect the cooling system from freezing at temperatures above  $-31^{\circ}\text{C}$  ( $-24^{\circ}\text{F}$ ).

If the motorcycle is to be exposed to temperatures below  $-31^{\circ}\text{C}$  ( $-24^{\circ}\text{F}$ ), this mixing ratio could be increased up to 55% or 60% according to the Fig. 2.

**NOTE:**

*The characteristics of different anti-freezes vary. Read the label to know the protection you will have.*

**CAUTION:**

Do not put in more than 60% anti-freeze or less than 50%.

Do not mix different brands of anti-freeze.

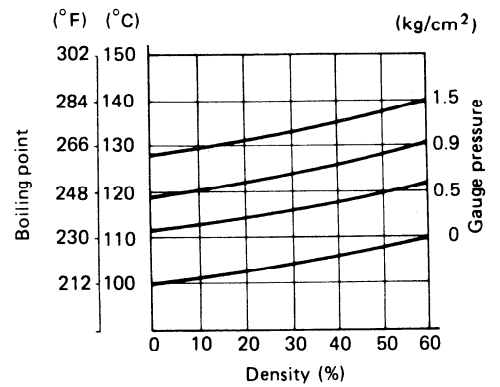


Fig. 1 Coolant density-boiling point curve

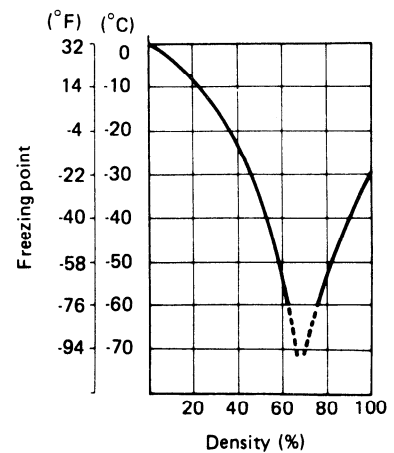
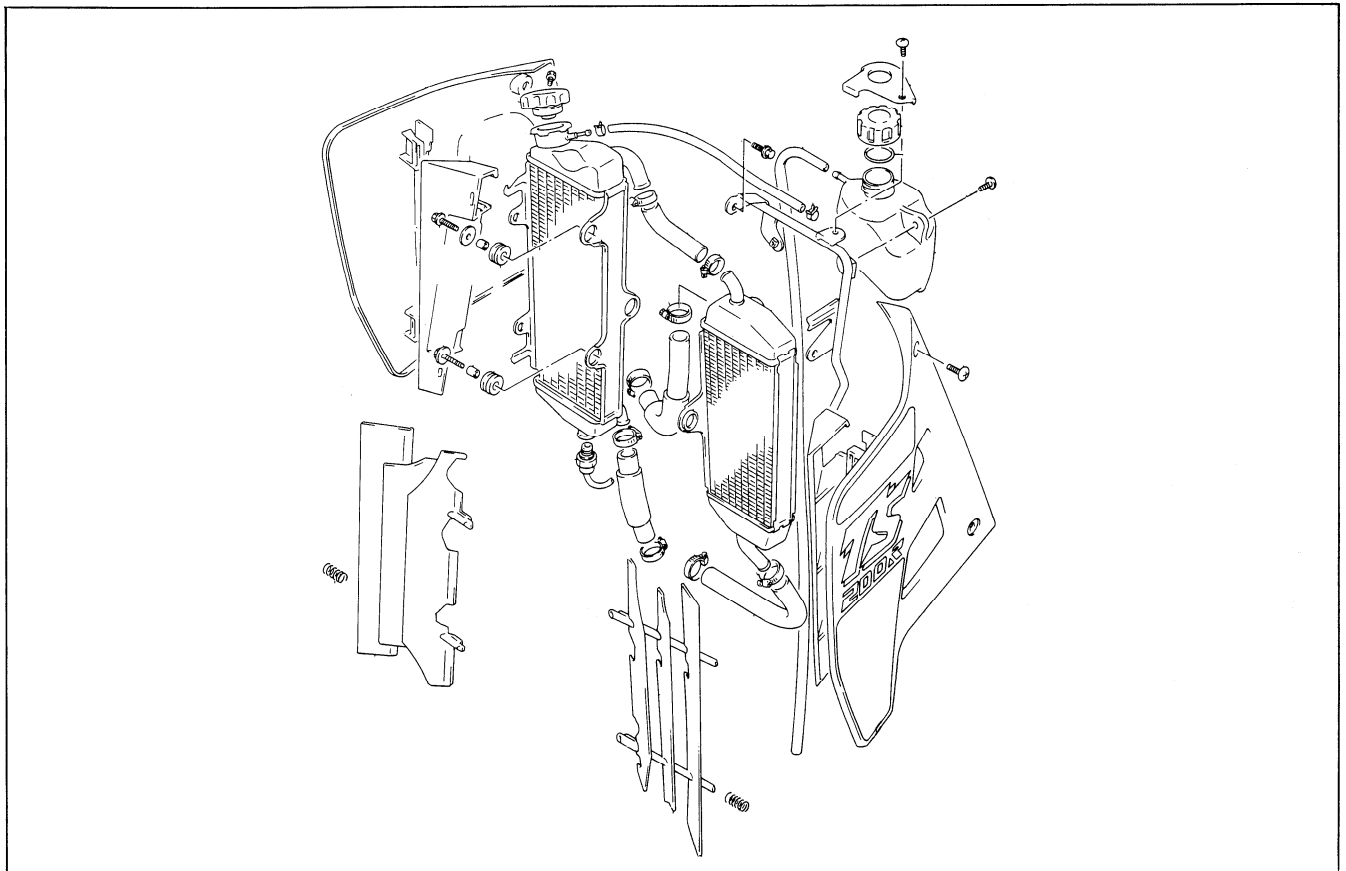


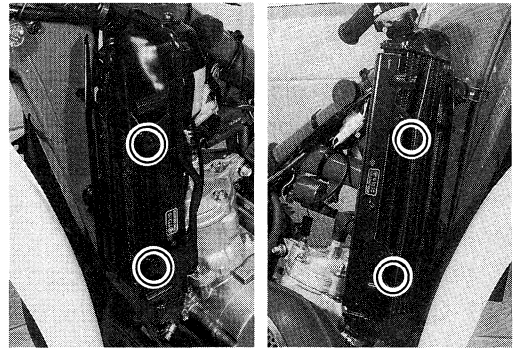
Fig. 2 Coolant density-freezing point curve

## RADIATOR AND RESERVOIR TANK

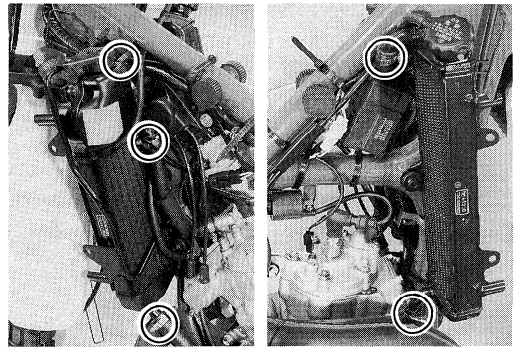


### RADIATOR REMOVAL

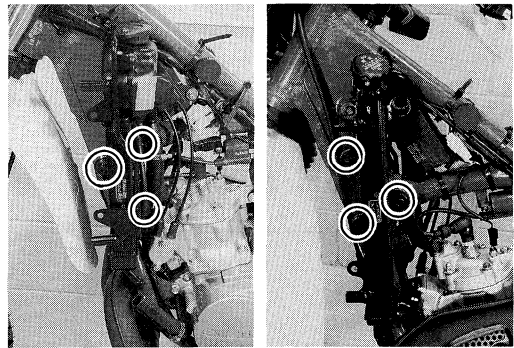
- Drain coolant. (Refer to page 2-6.)
- Remove the seat and fuel tank. (Refer to page 3-2.)
- Remove the radiator louvers.



- Disconnect the radiator hoses and reservoir hose.

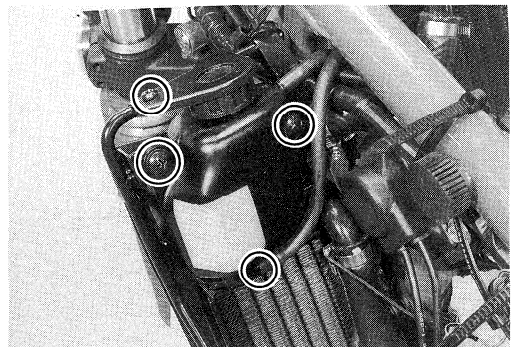


- Remove the radiators.



### RESERVOIR TANK REMOVAL

- Remove the fuel tank. (Refer to page 3-2.)
- Remove the reservoir tank.



### INSPECTION

Before removing the radiator and draining coolant, inspect the following two items.

1. Test the cooling system for tightness with a radiator tester as follows:

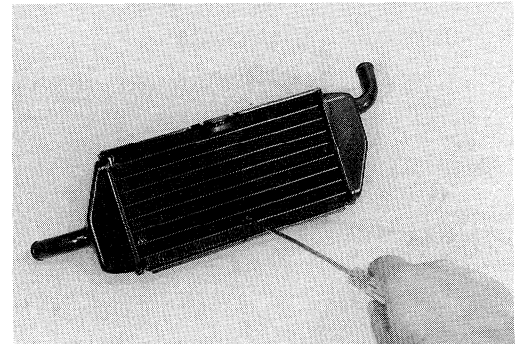
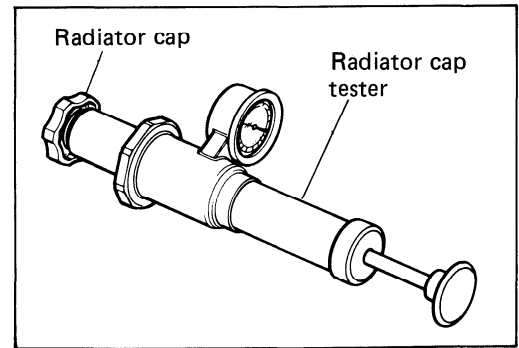
Remove the radiator cap, and connect the tester to the filter. Give a pressure of about  $1 \text{ kg/cm}^2$  ( $14.2 \text{ psi}$ ) and see if the system holds this pressure for 10 seconds. If the pressure should fall during this 10-second interval, it means that there is a leaking point in the system; In such a case, inspect the entire system and replace the leaking component or part.

2. Test the radiator cap for relieving pressure by using the radiator tester in the following manner: Fit the cap to the tester, as shown, and build up pressure slowly by operating the tester. Make sure that the pressure build-up stops at  $0.9 \pm 0.15 \text{ kg/cm}^2$  and that, with the tester held at a standstill, the cap is capable of that pressure for at least 10 seconds. Replace the cap if it is found not to satisfy either of these two requirements.

**Radiator cap valve release pressure :**

**$90 \pm 15 \text{ kPa}$  ( $0.90 \pm 0.15 \text{ kg/cm}^2$  ,  $12.8 \pm 2.1 \text{ psi}$ )**

3. Road dirt or trashes stuck to the fins must be removed. Use of compressed air is recommended for this cleaning. Fins bent down or dented can be repaired by straightening them with the blade of a small screwdriver.
4. Any water hose found in cracked condition or flattened must be replaced.



**RADIATOR HOSE**

Inspect for leakage from the radiator hose connecting (joint) section and from the radiator hose itself and fork kinks in the radiator hose.

If any leakage from the radiator hose are detected, the radiator hose should be replaced.

Any leakages from the connecting (joint) section should be corrected by proper tightening.

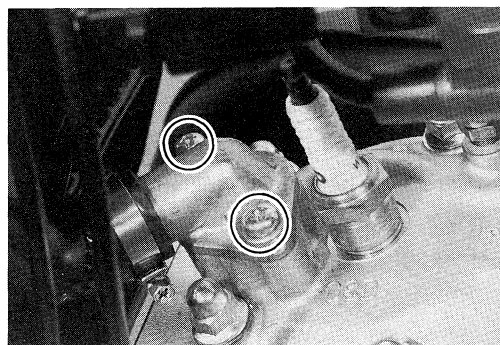
**INSTALLATION**

The radiator is to be installed in the reverse order of the removal procedure and refer to page 8-13. After installing the radiator, be sure to add coolant: refer to page 2-7 for refilling information.

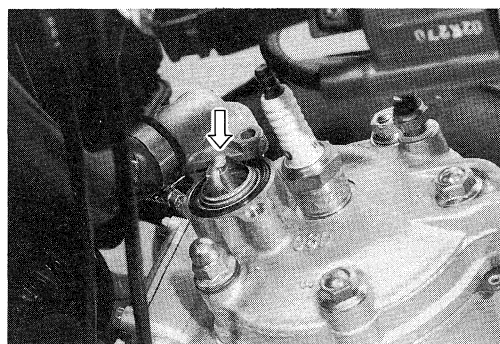
## THERMOSTAT

### REMOVAL

- Drain coolant. (Refer to page 2-6.)
- Disconnect the spark plug cap.
- Remove the thermostat cover.

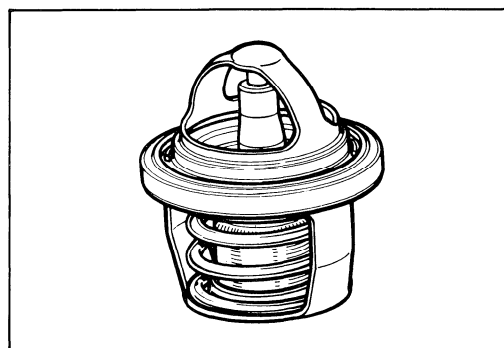


- Remove the thermostat.



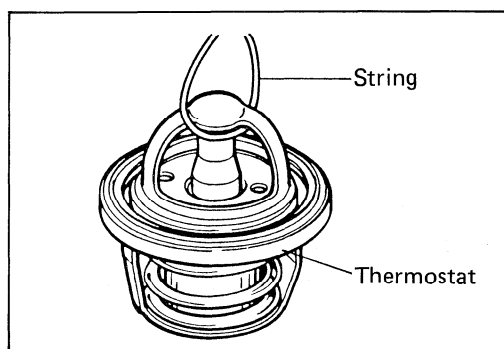
### INSPECTION

Inspect the thermostat pellet for signs of cracking.



Test the thermostat at the bench for control action, in the following manner.

- Pass a string between flange, as shown in the illustration.
- Immerse the thermostat in the water contained in the pan, as shown in the illustration. Note that the immersed thermostat is in suspension. Heat the water by placing the pan on a stove and observe the rising temperature on the thermometer.

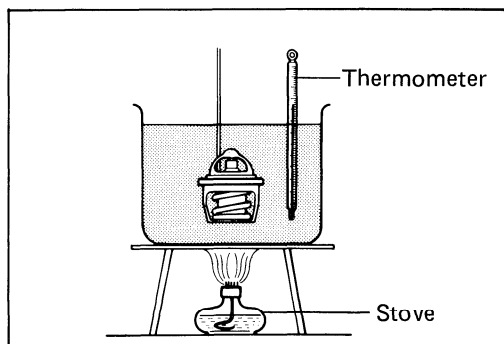


- Read the thermometer just when the thermostat drops to the bottom of the pan. This reading, which is the temperature level at which the thermostat valve begins to open, should be anywhere between 48.5°C and 51.5°C.

#### Thermostat valve opening temperature :

48.5 – 51.5°C (119.3 – 124.7°F)

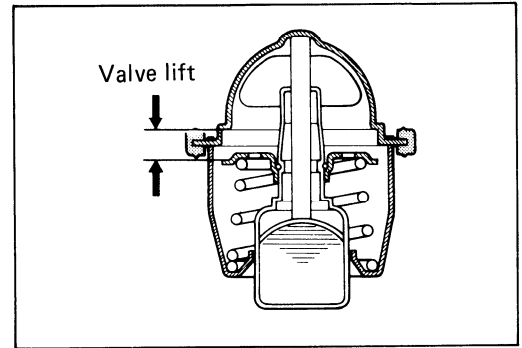
- Keep on heating the water to raise its temperature to and beyond 65°C (149°F).



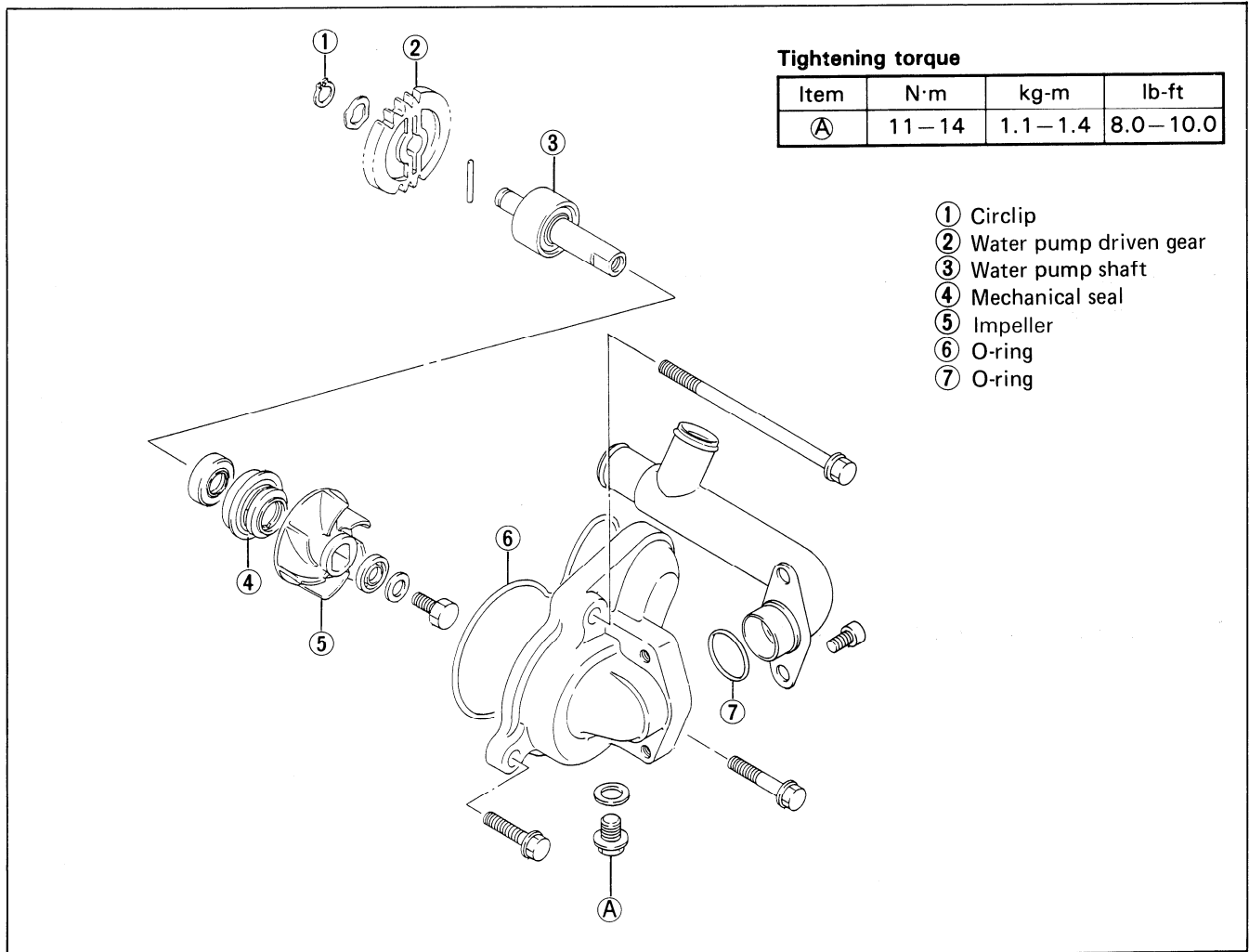
- Just when the water reaches 65 °C, the thermostat valve should have lifted by at least 3.0 mm.

Thermostat valve lift : Over 3.0 mm (0.12 in)  
at 65 °C (149 °F)

- A thermostat failing to satisfy either of the two requirements (start-to-open temperature and valve lift) must be replaced.



## WATER PUMP

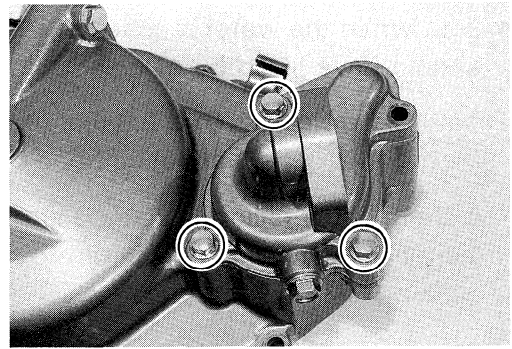


## REMOVAL AND DISASSEMBLY

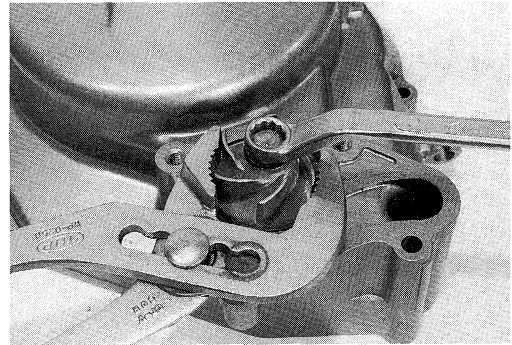
- Drain transmission oil. (Refer to page 2-6.)
- Drain coolant. (Refer to page 2-6.)
- Remove the first muffler. (Refer to page 3-2.)
- Disconnect the tachometer cable. (Refer to page 3-3.)
- Remove the kick starter lever. (Refer to page 3-7.)
- Remove the clutch release arm. (Refer to page 3-3.)
- Remove the clutch cover. (Refer to page 3-9.)

## 4-7 COOLING SYSTEM

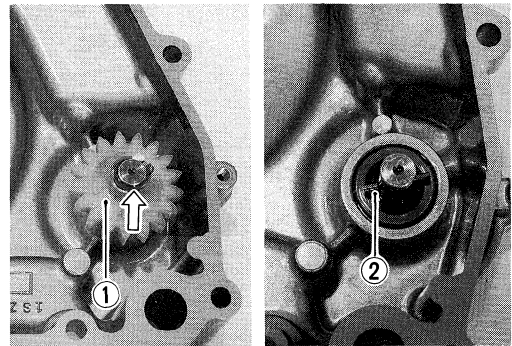
- Remove the water pump cover.



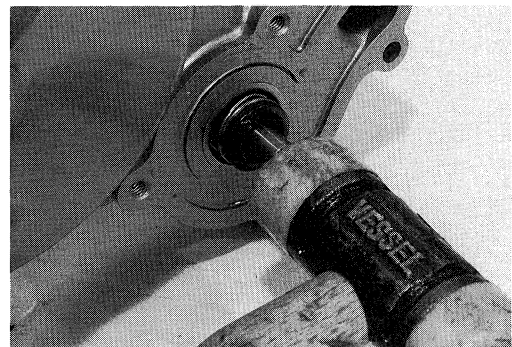
- Remove the impeller with a water pump plier.



- Remove the circlip, and remove the water pump driven gear ① and pin ②.



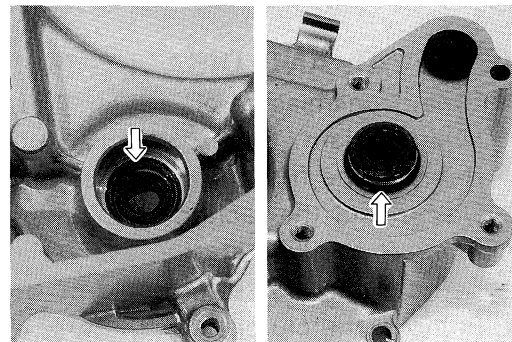
- Remove the water pump shaft with a plastic hammer.



- Remove the oil seal and mechanical seal.

### CAUTION:

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

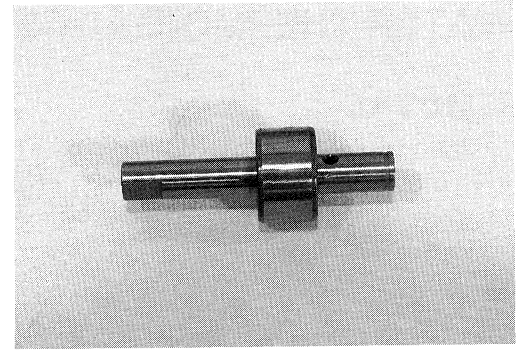




## INSPECTION

Rotate the water pump shaft by hand inspect if any abnormal noise occurs or rotating smoothly.

Replace the water pump shaft if there is anything unusual.

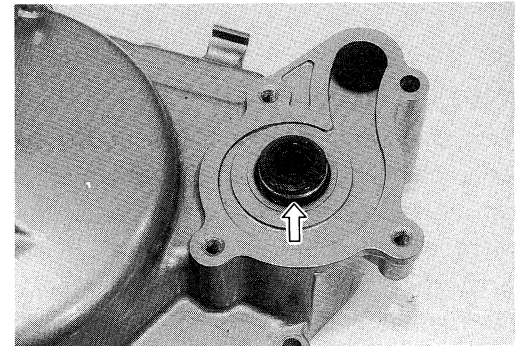


## REASSEMBLY

Reassemble and remount the water pump in the reverse order of removal and disassembly.

- Apply SUZUKI BOND NO. 1207B to the outer surface of mechanical seal and install it.

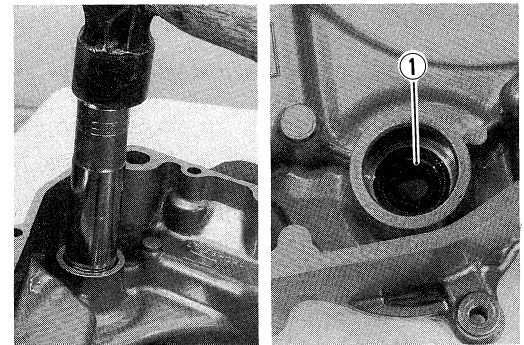
99000-31140 : SUZUKI BOND No. 1207B



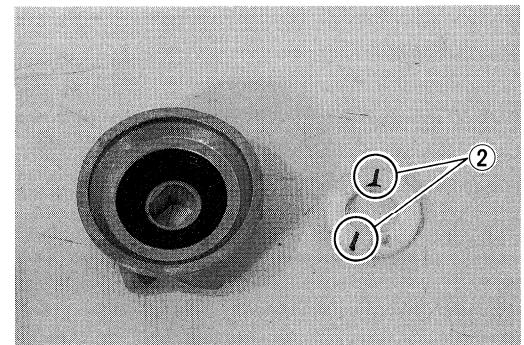
- Install the new oil seal with a suitable size sleeve.

### NOTE:

Oil seal lip ① must be installed toward the water pump driven gear.



- When installing the ring, it must be installed with its mark ② facing toward the impeller.

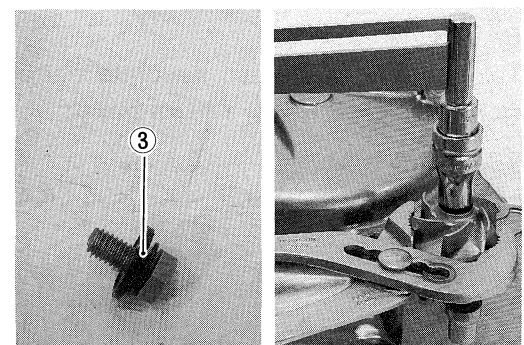


- Use a new gasket ③ for impeller center bolt. When installing the gasket, face the iron side to the spring washer and bolthead.
- Tighten the impeller mounting bolt to the specified torque with a water pump plier.

**Tightening torque : 7 – 9 N·m**

**(0.7 – 0.9 kg-m, 5.0 – 6.5 lb-ft)**

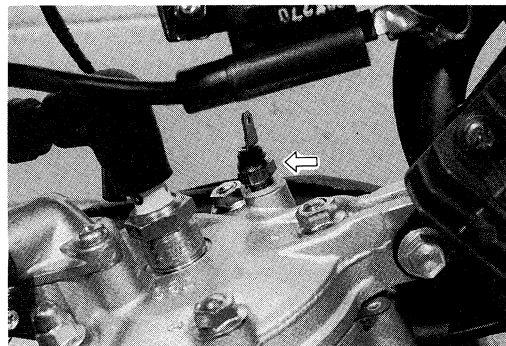
- Fill the specified coolant. (Refer to page 2-7.)



## WATER THERMO-GAUGE

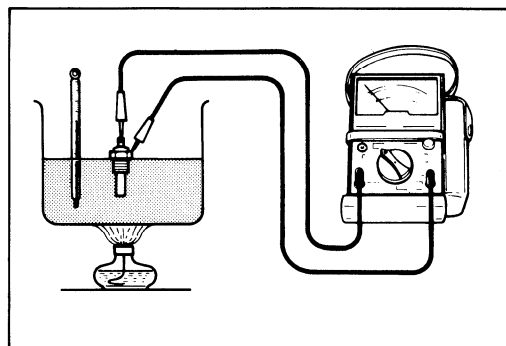
### REMOVAL

- Drain coolant. (Refer to page 2-6.)
- Remove the water thermo-gauge after disconnecting the lead wire.



### INSPECTION

Test the water thermo-gauge at the bench to see if its ohmic value changes, as specified, with temperature. The test is to be run as follows: Connect the water thermo-gauge to the ohmmeter and place it in oil contained in a pan, which is placed on a stove, heat the oil to raise its temperature slowly, reading the thermometer placed in the pan and also the ohmmeter. A water thermo-gauge whose ohmic value does not change in the proportion indicated in the table must be replaced.



#### 09900-25002 : Pocket tester

If the resistance noted to show infinity or too much difference in resistance value, water thermo-gauge must be replaced.

#### Water thermo-gauge specification

Water temp. °C (°F)	Standard resistance (Ω)
50 (122)	Approx. 226
115 (239)	Approx. 26

For inspecting the water temperature meter, refer to page 6-8.

### REASSEMBLY

- Apply SUZUKI BOND NO. 1215 to the thread portion of the water thermo-gauge and install it to the cylinder head.

#### 99000-31110 : SUZUKI BOND No. 1215

- Fill the specified coolant. (Refer to page 2-7.)

#### CAUTION:

Take special care when handling the water thermo-gauge may cause damage if it gets a sharp impact.

Tightening torque : 6 – 10 N·m

(0.6 – 1.0 kg·m, 4.5 – 7.0 lb·ft)

# FUEL AND LUBRICATION SYSTEM

## CONTENTS

<b>FUEL COCK .....</b>	<b>5-1</b>
<b>CARBURETOR.....</b>	<b>5-2</b>
<b>CARBURETOR SETTING TABLE.....</b>	<b>5-3</b>
<b>REMOVAL AND DISASSEMBLY.....</b>	<b>5-4</b>
<b>INSPECTION .....</b>	<b>5-5</b>
<b>NEEDLE VALVE INSPECTION .....</b>	<b>5-6</b>
<b>FLOAT HEIGHT ADJUSTMENT.....</b>	<b>5-6</b>
<b>REASSEMBLY AND REMOUNTING .....</b>	<b>5-6</b>
<b>OIL PUMP.....</b>	<b>5-7</b>
<b>AIR BLEEDING.....</b>	<b>5-7</b>
<b>CHECKING OIL PUMP .....</b>	<b>5-7</b>

## FUEL COCK

### REMOVAL

- Turn the fuel cock lever to "OFF" position and disconnect the fuel hose from the fuel cock.
- Place a clean oil pan under the fuel cock assembly, turn fuel cock lever to "RES" position and drain fuel.
- Remove the fuel cock assembly.

### WARNING:

Gasoline is very explosive.  
Extreme care must be taken.

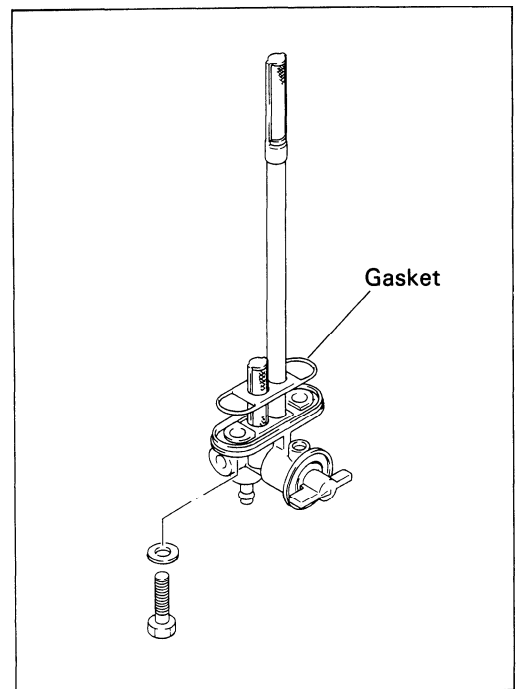
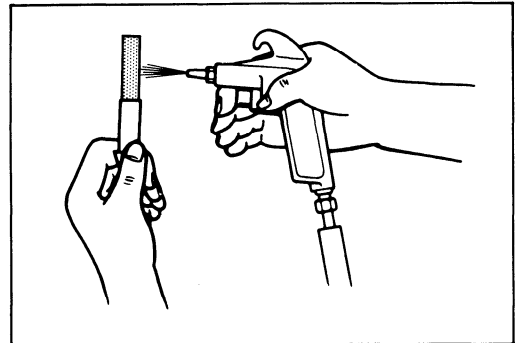
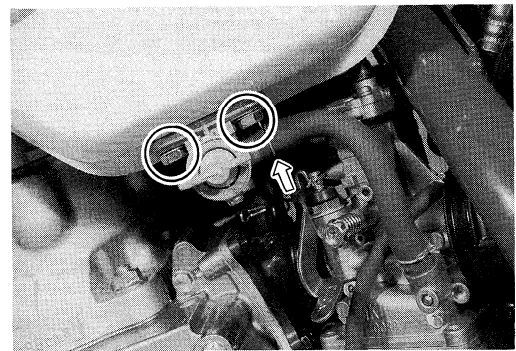
### CLEANING

Dust from the fuel tank tends to build up in the filter, which, when the filter has been neglected for a long period, inhibits the flow of fuel.

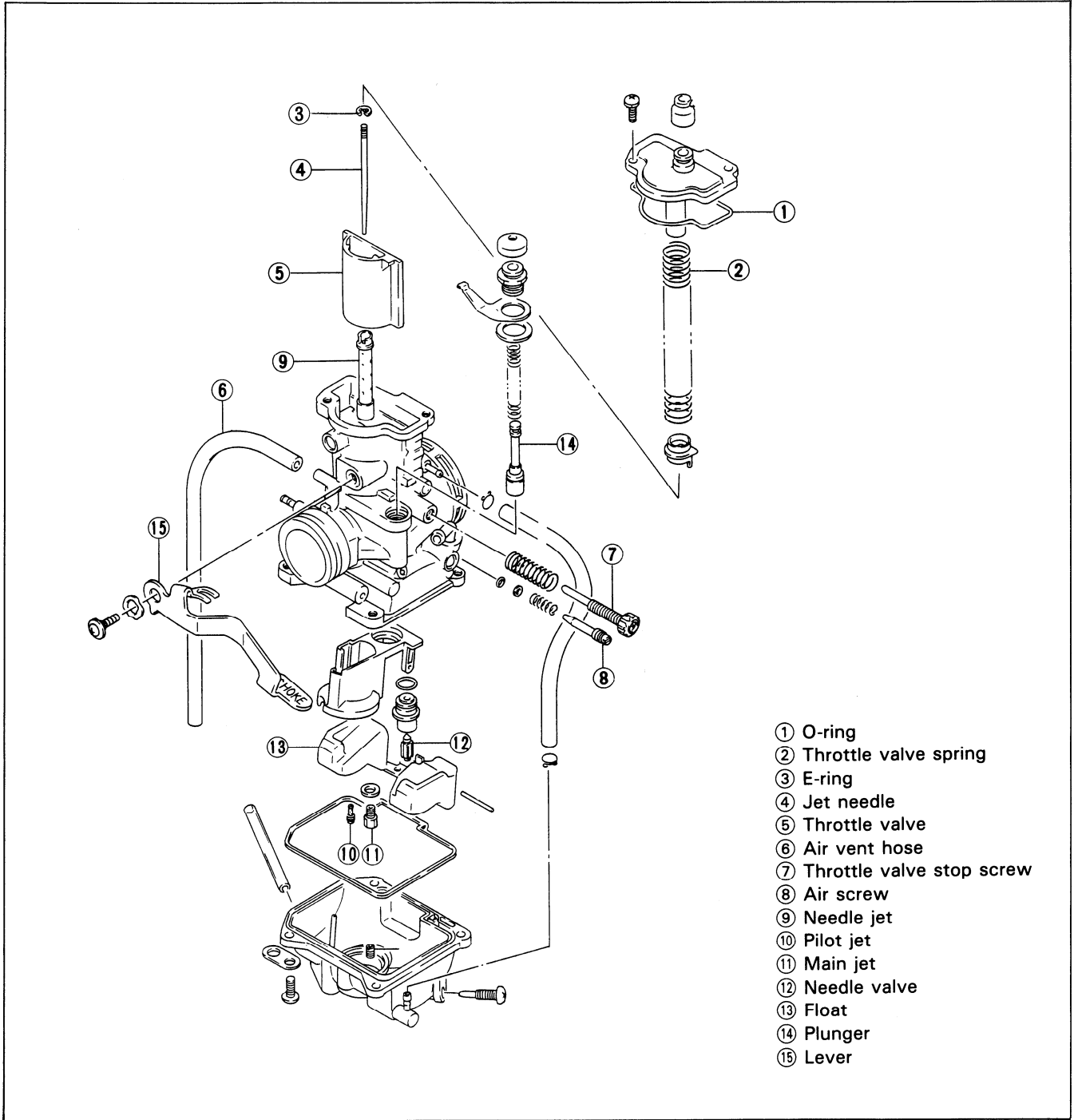
Remove the dust from the filter using compressed air.

### WARNING:

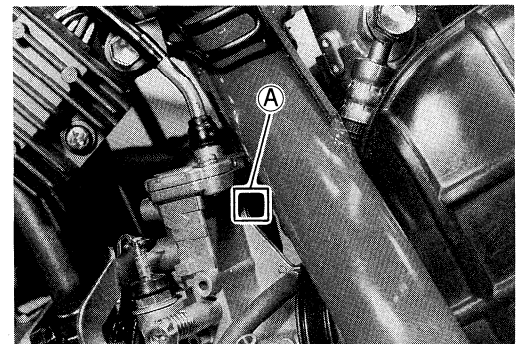
Gasket must be replaced with a new one to prevent fuel leakage.



# CARBURETOR



I.D. NO. LOCATION (A)

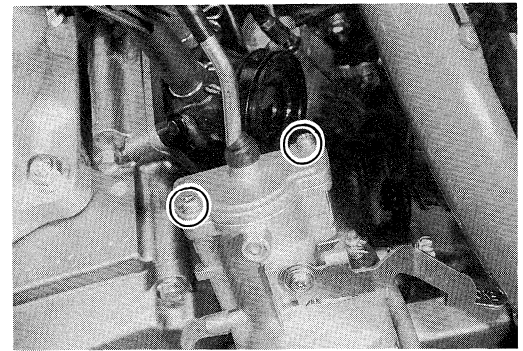


## CARBURETOR SETTING TABLE

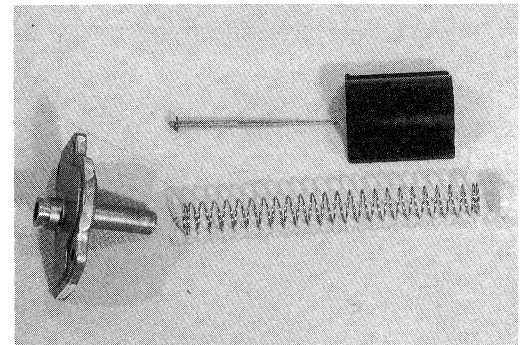
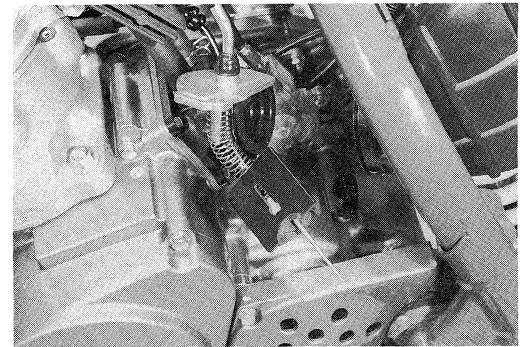
ITEM	SPECIFICATION	
	Canada, France and U.K.	Australia
Carburetor type	MIKUNI TM30SS	←
Bore size	30 mm	←
I.D. No.	08D2	08D3
Idle r/min.	1 400 ± 100 r/min	←
Float height	12.9 ± 1.0 mm (0.51 ± 0.04 in)	←
Main jet (M.J.)	# 170	←
Main air jet (M.A.J.)	0.6 mm	←
Jet needle (J.N.)	6DHY36-3rd	←
Needle jet (N.J.)	N-8	←
Cut-away (C.A.)	4.0	←
Pilot jet (P.J.)	# 35	←
By-pass (B.P.)	0.9 mm	←
Pilot outlet (P.O.)	0.6 mm	←
Air screw (A.S.)	2½ turns back	←
Starter jet (G.S.)	# 35	←
Power jet (P.W.J.)	# 80	←
Valve seat (V.S.)	2.5 mm	←
Throttle cable play	0.5 – 1.0 mm (0.02 – 0.04 in)	←

## REMOVAL AND DISASSEMBLY

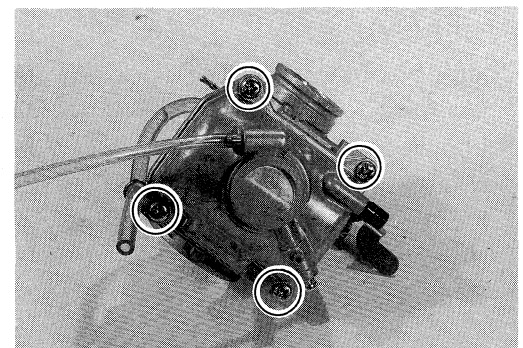
- Remove the seat and fuel tank. (Refer to page 3-2.)
- Loosen the clamp screws and remove the carburetor. (Refer to page 3-3.)
- Remove the carburetor top end cap and remove the throttle valve assembly.



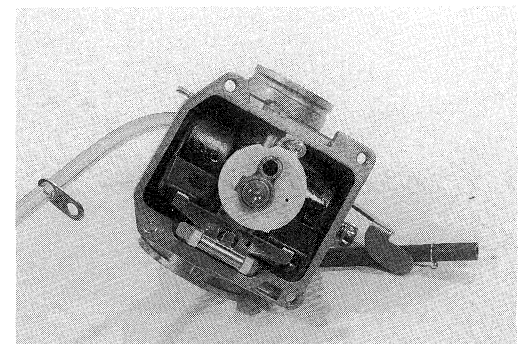
- Disconnect the throttle cable.



- Remove the float chamber.



- Remove the float assembly.

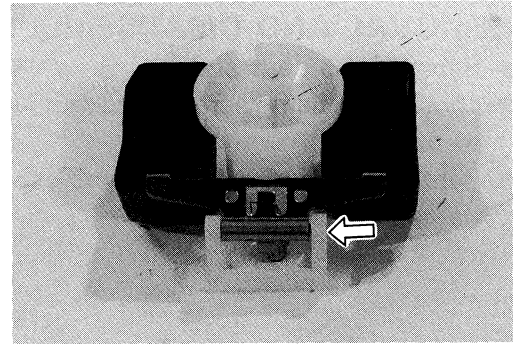




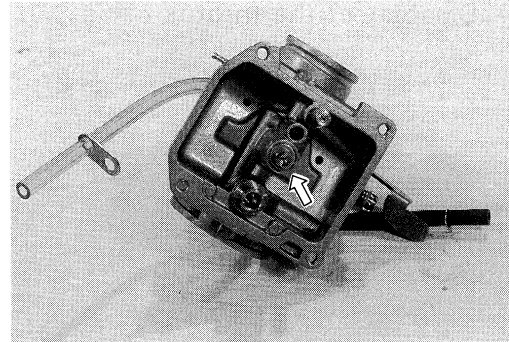
## 5-5 FUEL AND LUBRICATION SYSTEM

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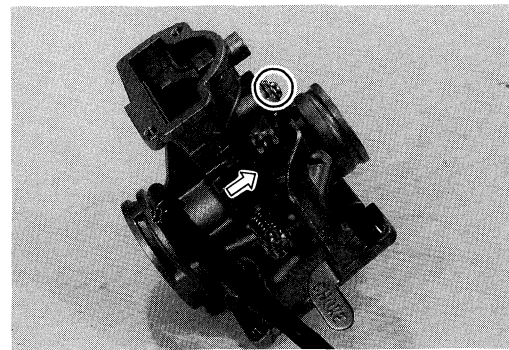
- Remove the float pin, float and needle valve.



- Remove the main jet, needle jet and pilot jet.



- Remove the starter lever and starter plunger.



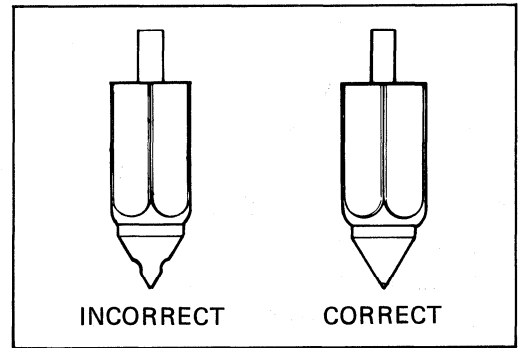
### INSPECTION

Check the following items for any damage or clogging.

- \* Main jet
- \* Pilot jet
- \* Needle jet air bleeding hole
- \* Float
- \* Needle valve mesh
- \* Gasket
- \* Throttle valve
- \* Pilot outlet and bypass holes

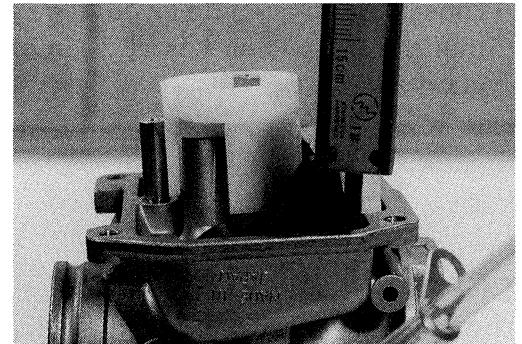
### NEEDLE VALVE INSPECTION

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



### FLOAT HEIGHT ADJUSTMENT

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



Float height : 12.9 ± 1.0 mm (0.51 ± 0.04 in)

09900-20101 : Vernier calipers

**NOTE:**

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

### REASSEMBLY AND REMOUNTING

Reassemble and remount the carburetor in the reverse order of removal and disassembly.

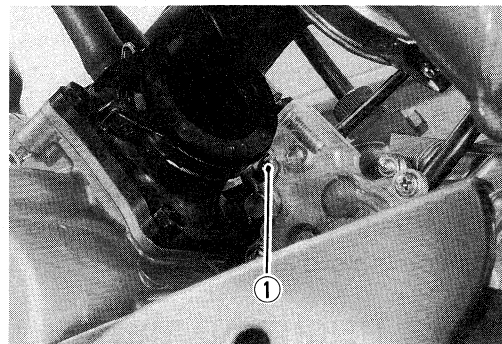
- After remounting the carburetor, the following adjustments are necessary.
- \* Throttle cable play ..... Refer to page 2-7.
- \* Engine idle r/min ..... Refer to page 2-7.

## OIL PUMP

### AIR BLEEDING

Whenever evidence is noted of some air having leaked into the oil pipe from the oil tank in a machine brought in for servicing, or if the oil pump has to be removed for servicing, be sure to carry out an air bleeding operation with the oil pump in place before returning the machine to the user.

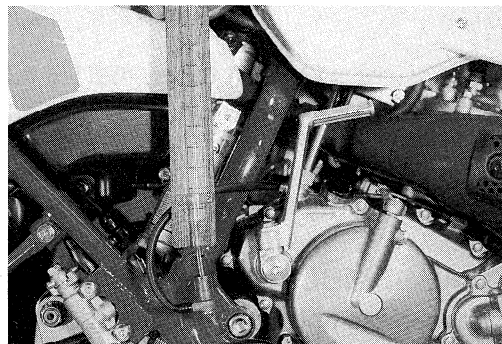
- Remove the carburetor. (Refer to page 3-3.)
- To bleed the air, hold the machine in standstill condition. Loosen the screw ① to let out the air and after making sure that the trapped air has all been bled, tighten the screw good and hard.



### CHECKING OIL PUMP

Use the special tool, to check the pump for capacity by measuring the amount of oil the pump draws during the specified interval.

- Have the tool filled with SUZUKI CCI or CCI SUPER OIL and connect it to the suction side of the pump.
- Run the engine at 2 000 r/min.
- Holding engine speed at the same 2 000 r/min., move the lever up to the fully open position by pulling up the oil pump inner cable and let the pump draw for 2 minutes. For this operation, the reading taken on the device should be 3.8 – 4.7 ml.



**09900-21602 : CCI oil gauge**

**Oil pump discharge rate (Full open) :**

**3.8 – 4.7 ml for 2 minutes at 2 000 r/min**

#### NOTE:

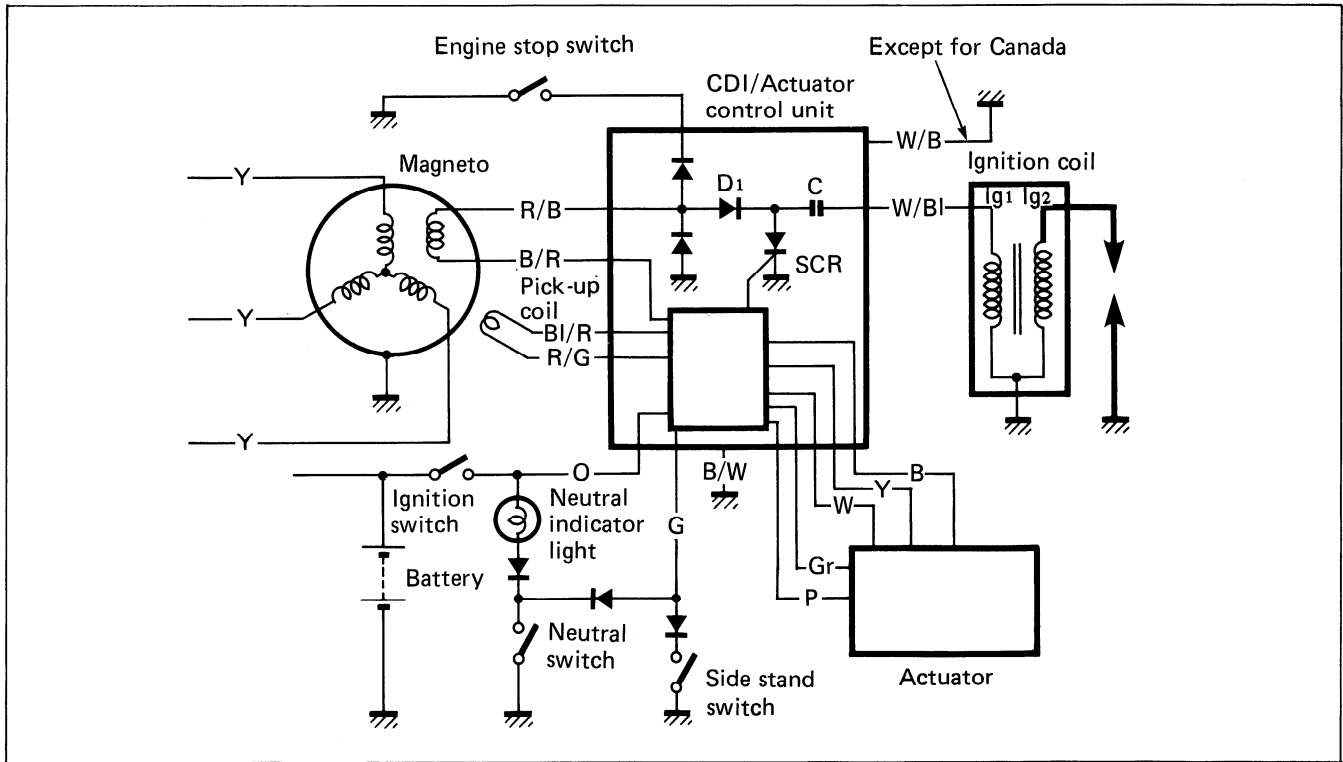
*Adjust both throttle and oil pump control cable play after checking oil pump. (Refer to pages 2-7 and 2-8).*

# ELECTRICAL SYSTEM

## CONTENTS

<b>IGNITION SYSTEM.....</b>	<b>6- 1</b>
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<b>EXHAUST VALVE ACTUATOR .....</b>	<b>6- 7</b>
<b>WATER TEMPERATURE METER .....</b>	<b>6- 8</b>
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## IGNITION SYSTEM



### DESCRIPTION

The TS200R engine is equipped with a new type ignition system. This new system further reduces timing fluctuations. It has an "ignition timing control circuit" which accurately controls ignition timing depending on the engine r/min.

When the magneto rotor rotates, an electric current is generated in the power source coils, and this current charges the capacitor "C" via diode "D1". On the other hand, when the protrusion on the rotor passes the pick-up coil, the currents are generated, they flow to the ignition timing control circuit, and they are converted into one ignition signal. This signal is sent to "SCR", the "SCR" becomes ON, the circuit "C" → "SCR" → "Ig1" is formed, and as the electric energy stored in the capacitor "C" is discharged instantly, a high voltage is induced in the ignition secondary coil "Ig2", and a spark.

This motorcycle is equipped with interlock switches for ignition circuit.

The engine can only be started if:

Transmission is in neutral or

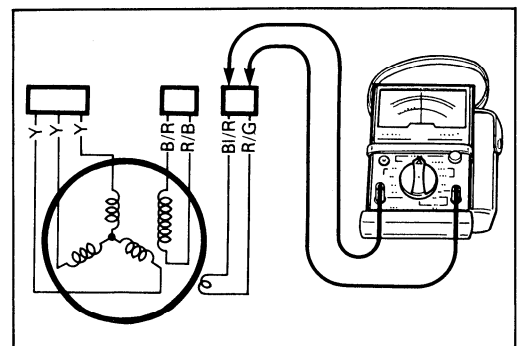
The transmission is in gear, the side stand is fully up.

### INSPECTION

#### MAGNETO COIL

- Remove the seat and fuel tank. (Refer to page 3-2.)
- Measure the resistance between the lead wires in the following table with a pocket tester.

09900-25002 : Pocket tester



**Magneto coil resistance**

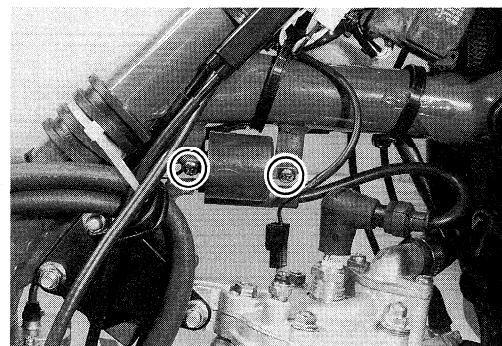
Pick-up coil	R/G – Bl/R 180 – 280 $\Omega$ (x 100 $\Omega$ range)
Power source coil	B/R – R/B 50 – 80 $\Omega$ (x 10 $\Omega$ range)
Charging coil	Y – Y 0.1 – 1.0 $\Omega$ (x 1 $\Omega$ range)

**WIRE COLOR**

R/G : Red with Green tracer  
 Bl/R : Blue with Red tracer  
 B/R : Black with Red tracer  
 R/B : Red with Black tracer  
 Y : Yellow

**IGNITION COIL**

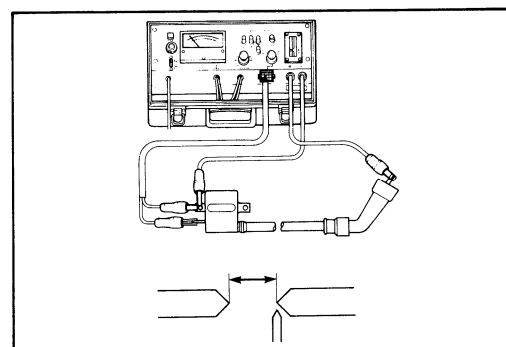
- Remove the seat and fuel tank. (Refer to page 3-2.)
- Remove the ignition coil.

**Checking with electro tester**

Test the ignition coil for sparking performance.  
 Test connection is as indicated. Make sure that the three-needle sparking distance is at least 8 mm.

**Spark performance (STD) : 8 mm (0.3 in)**

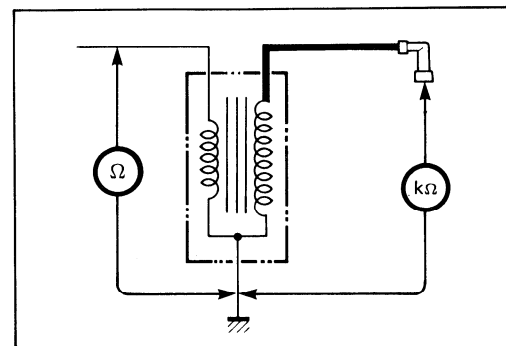
**09900-28106 : Electro tester**

**Checking with pocket tester****Ignition coil resistance**

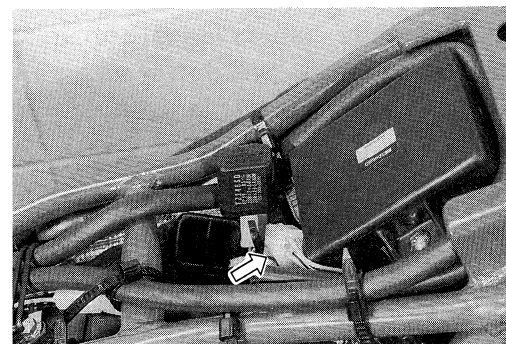
**Primary (Terminal-Ground) : 0.1 – 1.0  $\Omega$**

**Secondary (Plug cap-Ground) : 13 – 20 k $\Omega$**

**09900-25002 : Pocket tester**

**CDI/ACTUATOR CONTROL UNIT**

- Remove the seat.
- Remove the CDI/Actuator control unit.



## 6-3 ELECTRICAL SYSTEM

Measure the resistance between the lead wires in the following table with the pocket tester.

### 09900-25002 : Pocket tester

For Ignition circuit

Unit: k $\Omega$

		⊕ Probe of tester to:	
⊖ Probe of tester to:		BI/R	R/G
	BI/R		5 – 25
	R/G	$\infty$	

Unit: k $\Omega$

		⊕ Probe of tester to:			
⊖ Probe of tester to:		B/R	R/B	B/Y	W/BI
	B/R		$\infty$	1 – 6	$\infty$
	R/B	30 – 150		200 – 1000	$\infty$
	B/Y	$\infty$	$\infty$		$\infty$
	W/BI	$\infty$	$\infty$	$\infty$	

### WIRE COLOR

B : Black  
 Gr : Green  
 O : Orange  
 P : Pink  
 W : White  
 Y : Yellow

B/R : Black with Red tracer  
 B/W : Black with White tracer  
 B/Y : Black with Yellow tracer  
 BI/R : Blue with Red tracer  
 R/B : Red with Black tracer  
 R/G : Red with Green tracer  
 W/BI : White with Blue tracer

For Exhaust valve actuator circuit

Unit: k $\Omega$

		⊕ Probe of tester to:			
⊖ Probe of tester to:		O	B/W	P	Gr
	O		7 – 30	35 – 140	30 – 130
	B/W	$\infty$		1 – 6	1 – 6
	P	$\infty$	10 – 60		60 – 250
	Gr	$\infty$	10 – 60	60 – 250	

Unit: k $\Omega$

		⊕ Probe of tester to:		
⊖ Probe of tester to:		W	Y	B
	W		5 – 25	1.5 – 7
	Y	5 – 25		6 – 30
	B	1 – 5	3 – 15	

### CAUTION:

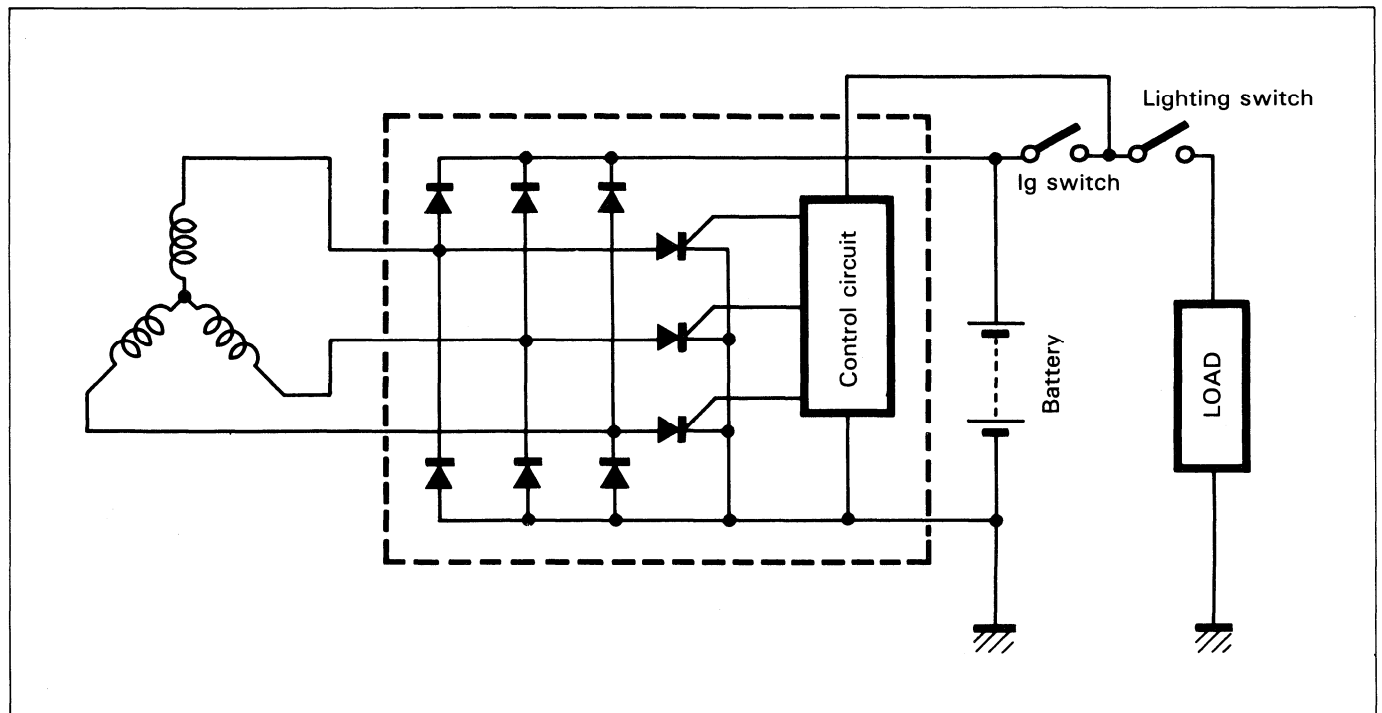
As capacitors, zener diodes, etc. are used insid this unit, the resistance values will deffer when an ohmmeter other than SUZUKI pocket tester is used.



## CHARGING SYSTEM DESCRIPTION

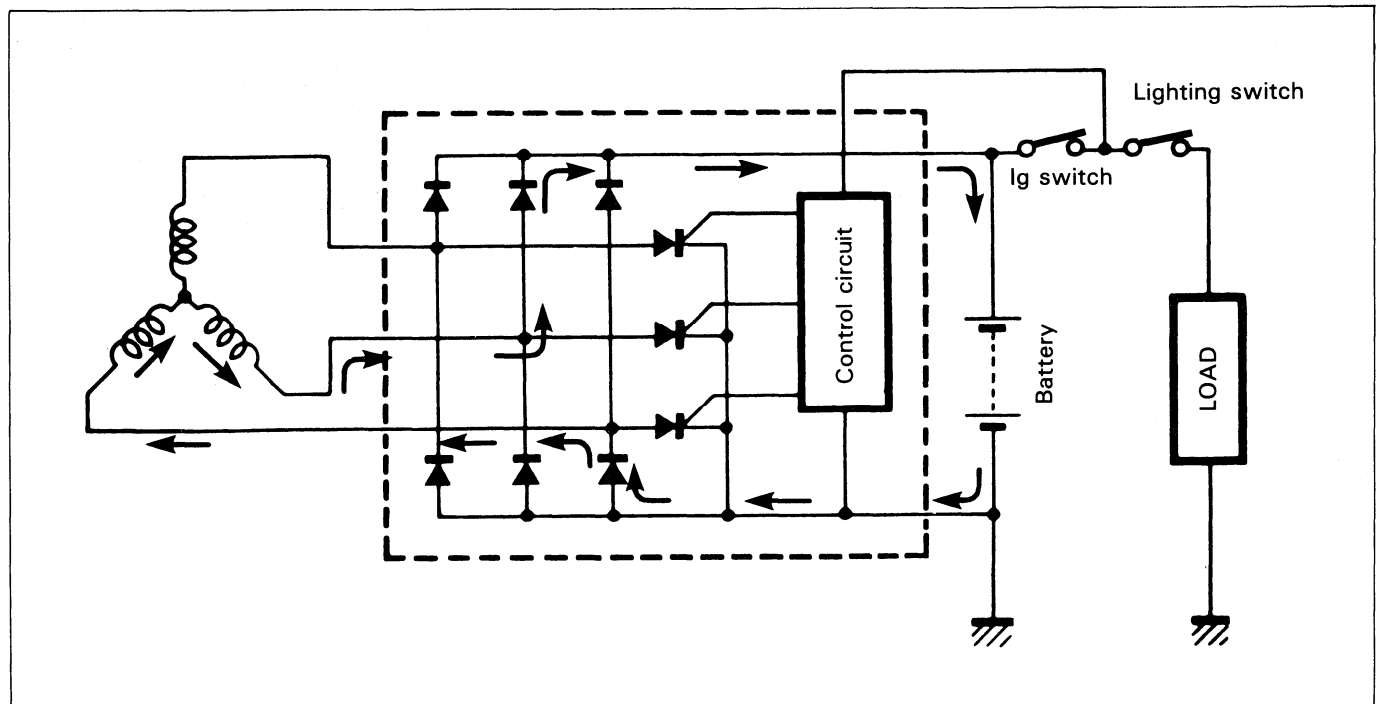
The circuit of the charging system is indicated in figure, which is composed of an AC generator, regulator/rectifier unit and battery.

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



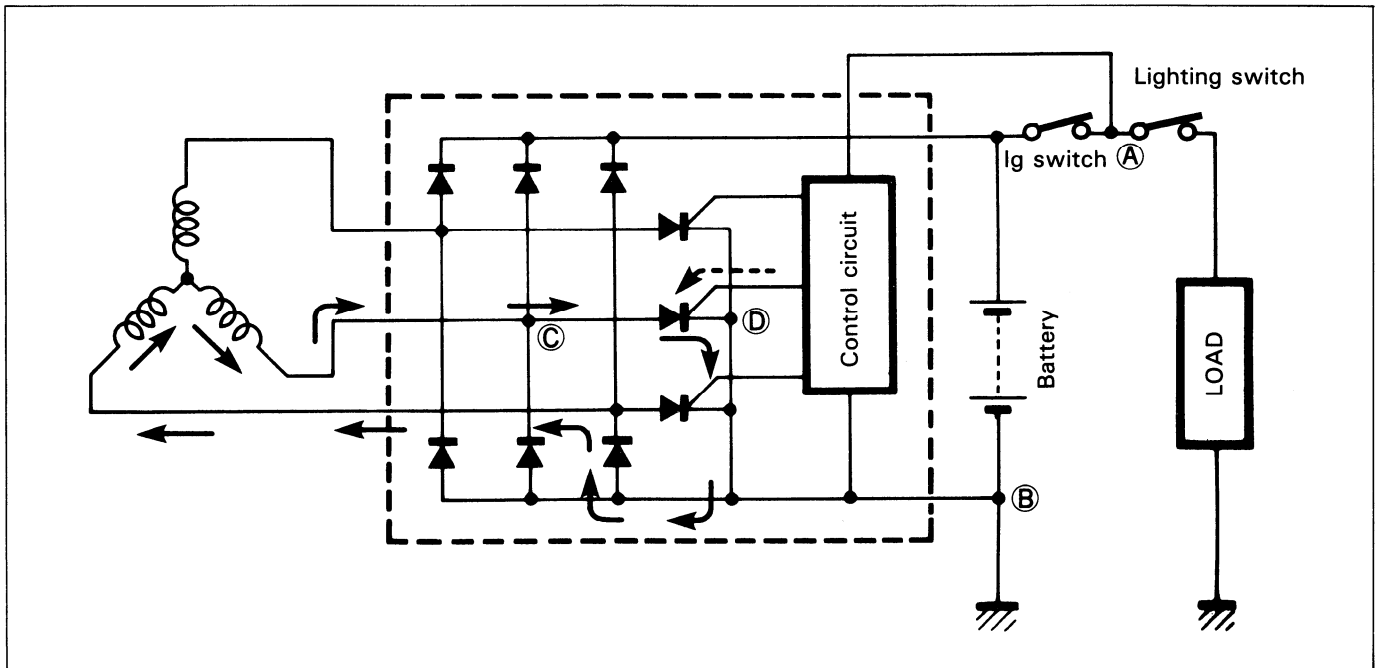
### Function of Regulator

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



When the engine speed increases and the load decreases, the battery charge voltage will increase due to the voltage generated by the generator. The battery will continue to be charged by the generated voltage until the battery voltage (voltage between ① and ②) reaches the value set of the control circuit in the regulator, then a signal from the circuit will flow to the SCR. When the SCR goes "ON", ③ – ④ will become conductive, hence the voltage does not charge the battery but returns to the generator.

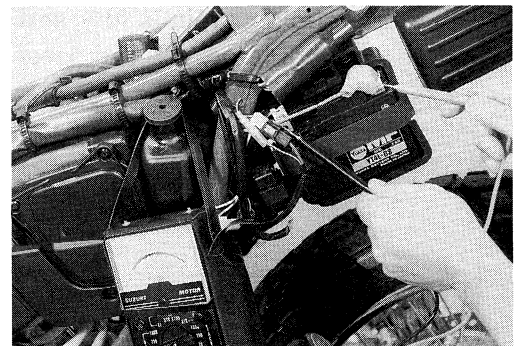
When the battery voltage falls, the signal to the SCR will be out off, causing the SCR to go "OFF". As a result, the generated voltage will start to charge the battery once again. Due to the repetition of the above operation of the regulator, the battery voltage will be maintained constant, preventing overcharging of the battery.



**INSPECTION**

**CHARGING OUTPUT CHECK**

- Remove the left frame cover.
- Start the engine and keep it running at 5 000 r/min with the lighting switch turned ON (High position).
- Using the pocket tester, measure the DC voltage between the battery ⊕ terminal and ⊖ terminal. If the tester reads under 13.0V or over 15.5V, check the AC generator no-load performance and regulator/rectifier.

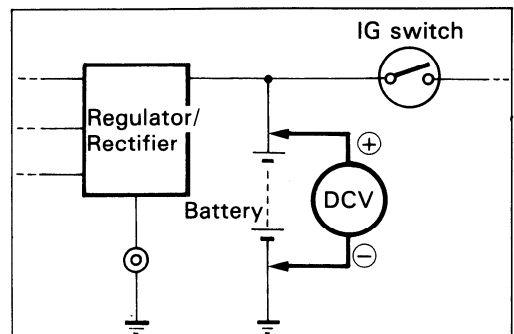


**NOTE:**

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

STD charging output : 13.0 – 15.5V (DC) at 5 000 r/min

09900-25002 : Pocket tester



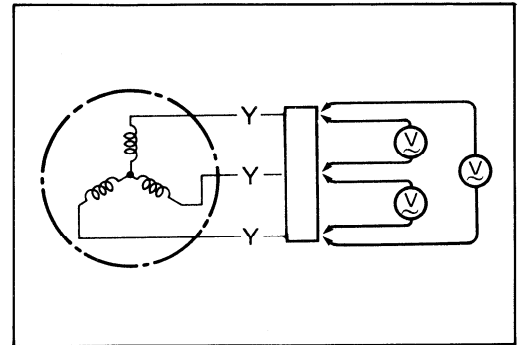
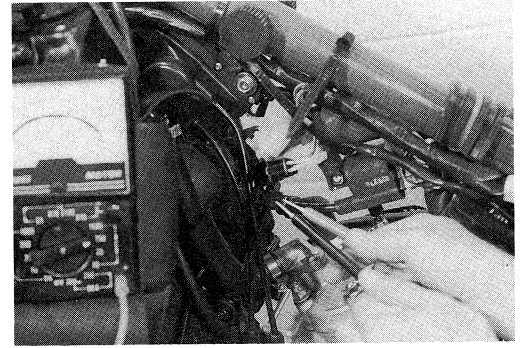
**AC GENERATOR NO-LOAD PERFORMANCE**

- Remove the seat and fuel tank. (Refer to page 3-2.)
- Disconnect the AC generator lead wire coupler.
- Start the engine and keep it running at 5 000 r/min.
- Measure the AC voltage between the three yellow lead wires with the pocket tester.

If the tester reads under 33 V, the AC generator is faulty.

**STD No-load performance : More than 33 V (AC) at 5 000 r/min**

**09900-25002 : Pocket tester**

**AC GENERATOR STATOR COIL**

Using the pocket tester, check the continuity between the lead wires of the stator.

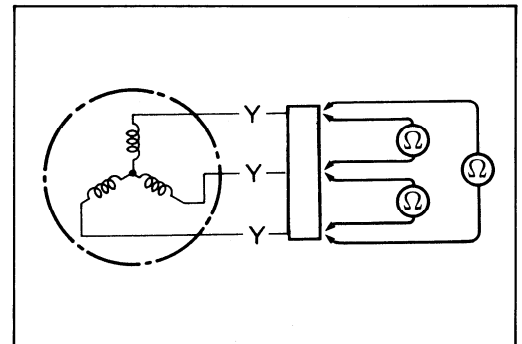
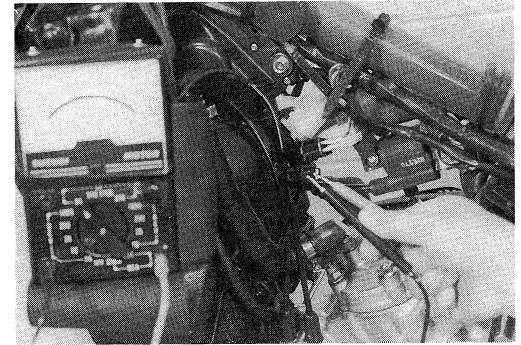
Also check that the stator core is insulated.

**STD resistance : 0.1 – 1.0  $\Omega$**

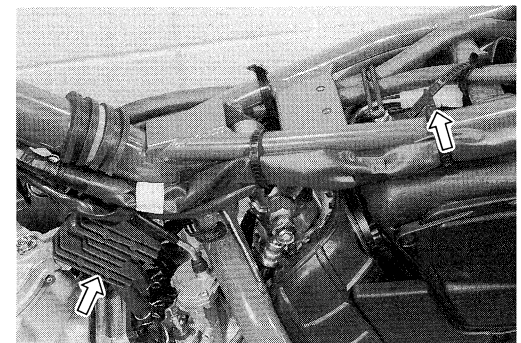
**09900-25002 : Pocket tester**

**NOTE:**

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

**REGULATOR/RECTIFIER**

- Remove the seat and fuel tank. (Refer to page 3-2.)
- Disconnect the lead wires.



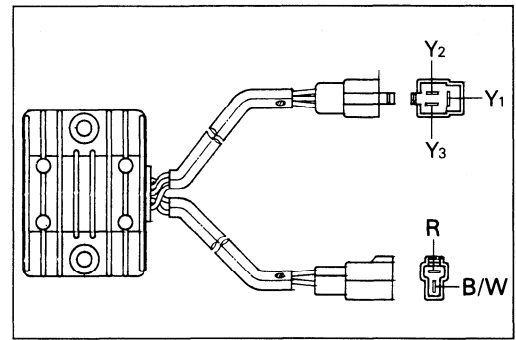
## 6-7 ELECTRICAL SYSTEM

Using the pocket tester (x 1 kΩ range); measure the resistance between the lead wires in the following table. If the reading is incorrect, replace the regulator/rectifier.

09900-25002 : Pocket tester

Unit : Approx. kΩ

⊖ Probe of tester to:	⊕ Probe of tester to:				
	Y <sub>1</sub>	Y <sub>2</sub>	Y <sub>3</sub>	R	B/W
Y <sub>1</sub>		30 – 150	30 – 150	1 – 6	20 – 100
Y <sub>2</sub>	30 – 150		30 – 150	1 – 6	20 – 100
Y <sub>3</sub>	30 – 150	30 – 150		1 – 6	20 – 100
R	20 – 100	20 – 100	20 – 100		10 – 60
B/W	1 – 6	1 – 6	1 – 6	2 – 10	



### WIRE COLOR

Y : Yellow

R : Red

B/W : Black with White tracer

### CAUTION:

As SCR and diodes are used inside this regulator/rectifier unit, the resistance values will differ when an ohmmeter other than SUZUKI pocket tester is used.

## EXHAUST VALVE ACTUATOR

- Remove the seat and fuel tank. (Refer to page 3-2.)

Using the pocket tester, measure the resistance between the lead wires in the following table.

If the reading is incorrect, replace the actuator.

### Actuator coil resistance

W – B : 3.2 – 7.2 kΩ (x kΩ range)

Y – B : 0 – 7.2 kΩ (x kΩ range)

P – Gr : 4.5 – 30 Ω (x 10 Ω range)

### WIRE COLOR

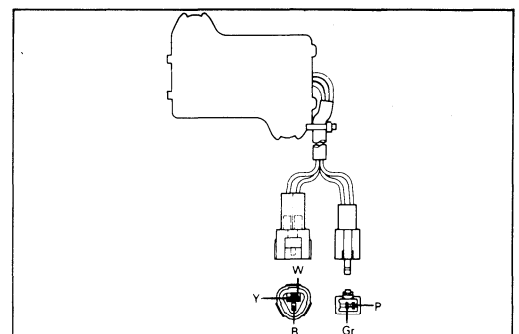
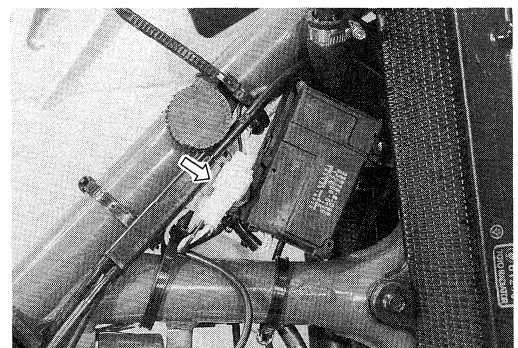
B : Black

Gr: Gray

P : Pink

W : White

Y : Yellow



## WATER TEMPERATURE METER

### INSPECTION

As the coil spring is installed on the needle shaft of the water temperature meter, the needle is forced back to the original position when ignition switch is turned OFF.

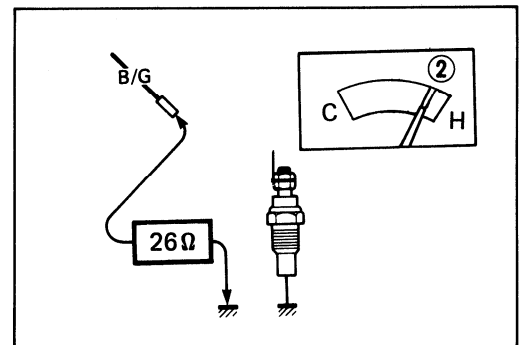
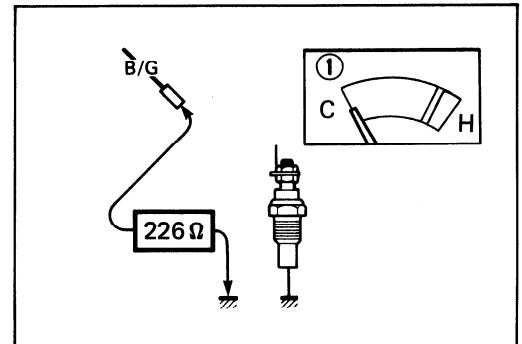
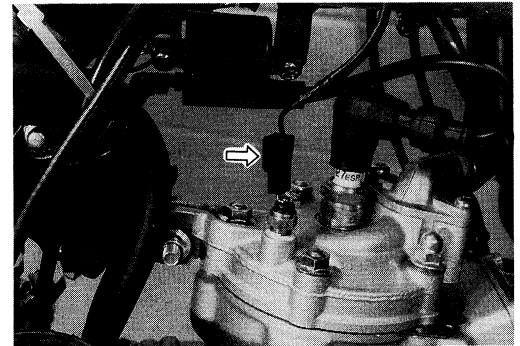
To test the water temperature meter two different checks may be used. The first, and simplest test will tell if the meter is operating but will not indicate the meters accuracy throughout the range.

To perform this test, disconnect the B/G lead wire of the water temperature meter from the water thermo-gauge. Connect a jumper wire between B/G wires coming from the main wiring harness and engine ground. With the ignition switch turned on, the water temperature meter should indicate "H". The second test will check the accuracy of the meter in the "H" and "C" positions.

Connect a 226-ohm resistor between the B/G lead wire of the water thermo-gauge and the ground lead wire. The water thermo-gauge is normal if its pointer indicates the "C" position when the specified voltage is applied to the circuit and if its pointer indicates the "H" position when the resistor is changed to 26 ohms. If either one or both indications are abnormal, replace the water temperature meter with a new one.

### WATER TEMPERATURE METER

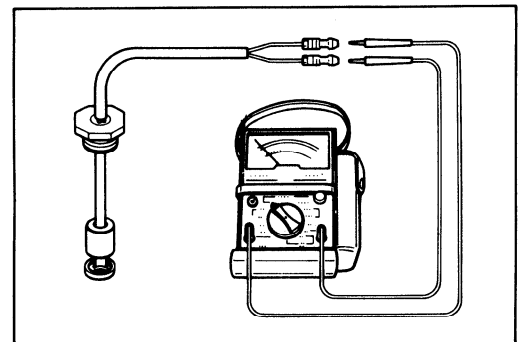
POSITION	TEMP	RESISTANCE
①	50°C	226 Ω
②	115°C	26 Ω



## OIL LEVEL GAUGE

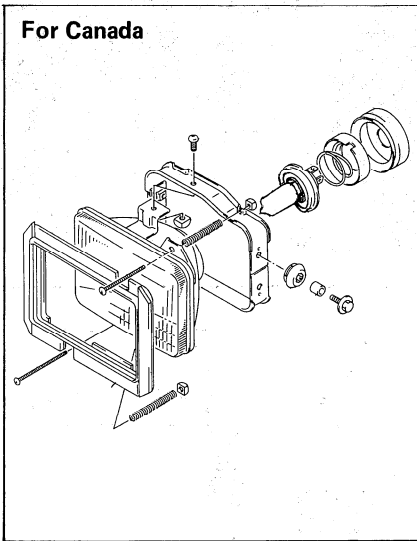
- Remove the seat and oil level gauge.

Check the oil level switch for continuity between BI/W and B/W lead wires. If the tester does not show the value of 0 – 1 ohm when the switch ring is in bottom, file the contact surface or replace the unit.

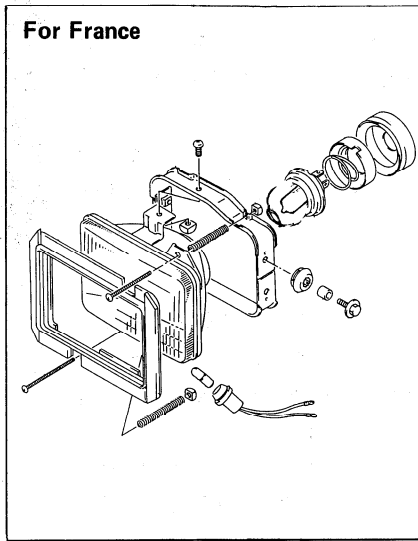


# LAMPS HEADLIGHT

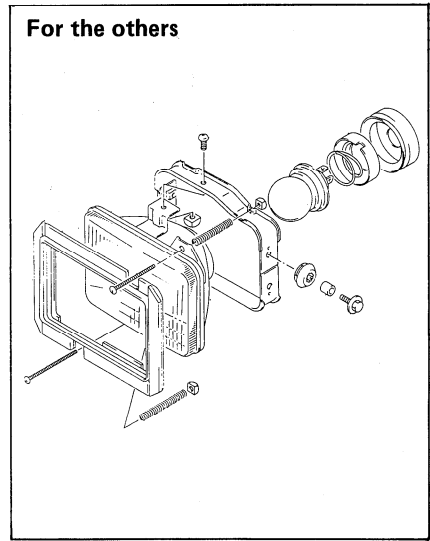
For Canada



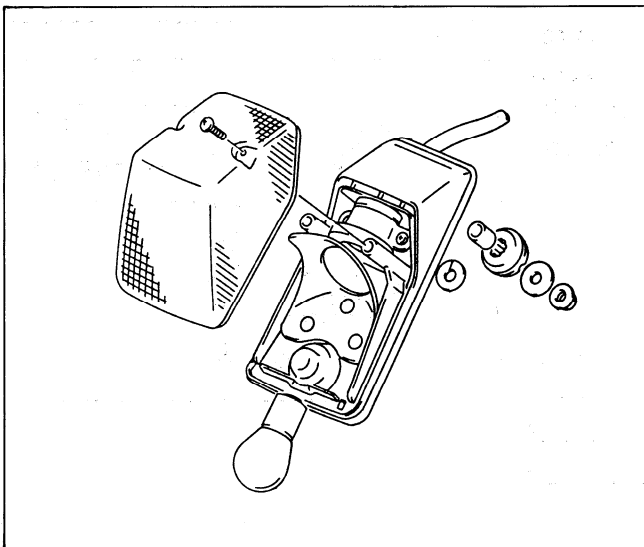
For France



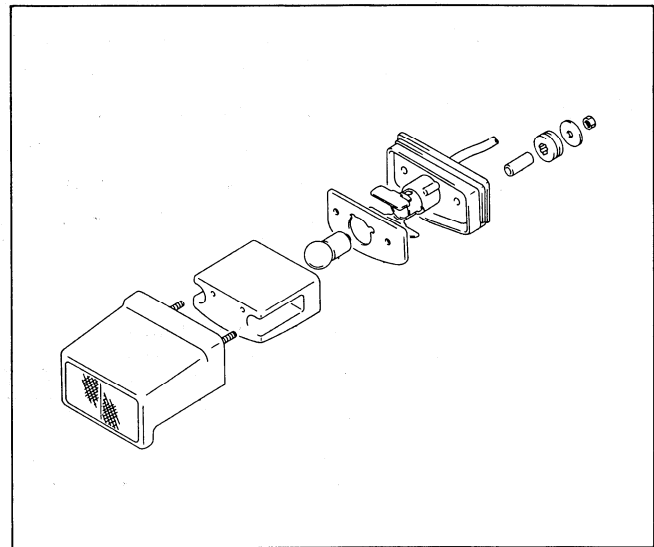
For the others



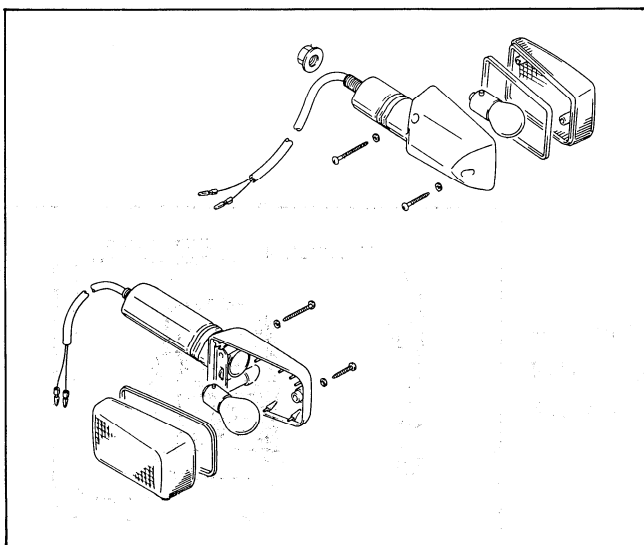
# TAIL/BRAKE LIGHT



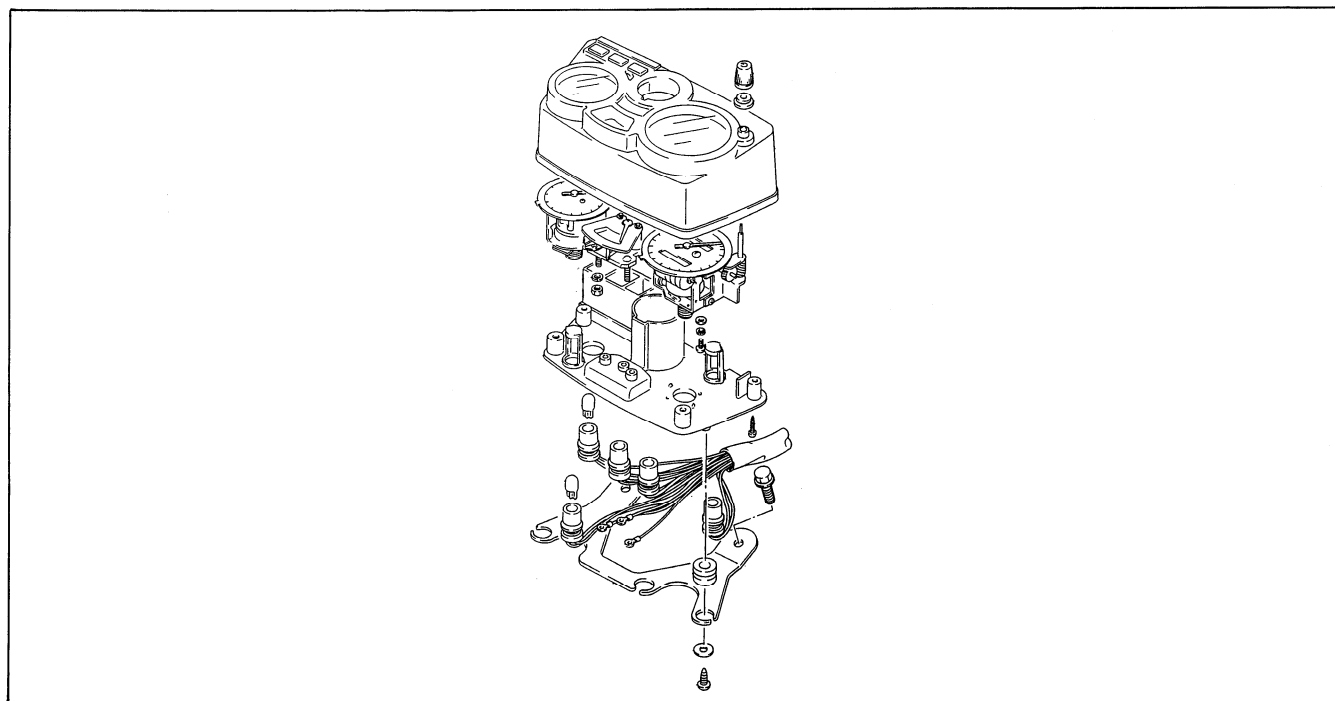
# LICENSE LIGHT



# TURN SIGNAL LIGHT



## COMBINATION METER REMOVAL (Refer to page 7-27)



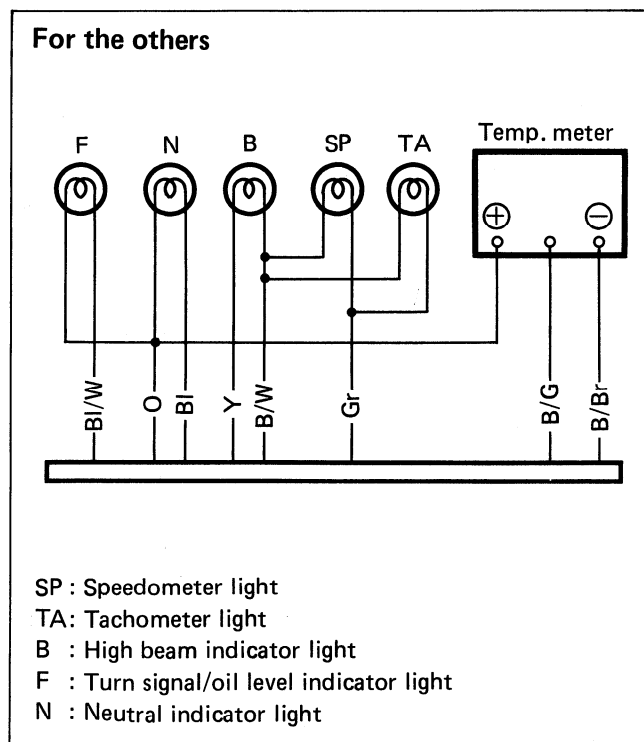
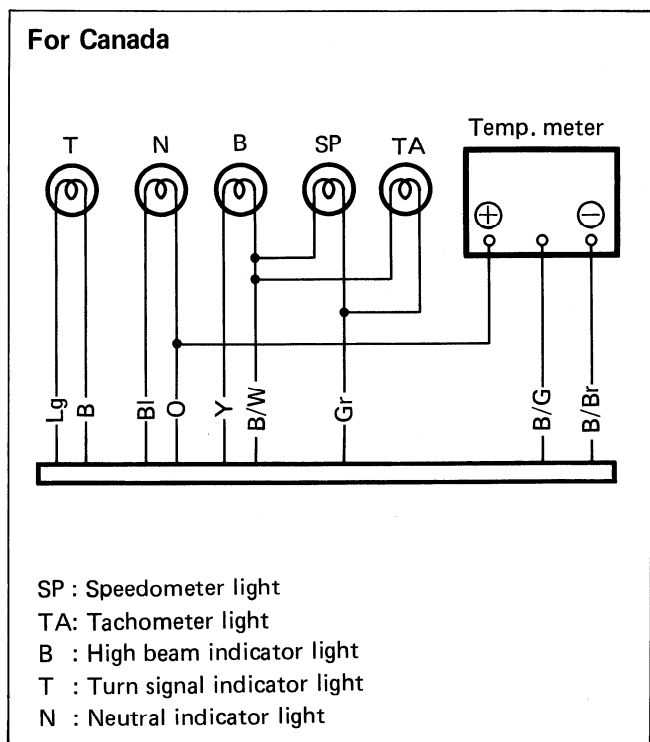
### INSPECTION

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

**09900-25002 : Pocket tester**

#### NOTE:

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





# SWITCHES

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

09900-25002 : Pocket tester

## IGNITION SWITCH

Position \ Color	B/Y	B/W	R	O	Gr	Br
OFF	○—○					
ON			○—○	○—○	○—○	○—○
P	○—○	○—○	○—○			○—○

## LIGHTING SWITCH

Position \ Color	O	Gr	Y/W
OFF			
S	○—○	○—○	
ON	○—○	○—○	○—○

## DIMMER SWITCH

Position \ Color	W	Y	Y/W
HI		○—○	○—○
LO	○—○	○—○	○—○

## TURN SIGNAL LIGHT SWITCH

Position \ Color	B	Lbl	Lg
R		○—○	○—○
L	○—○	○—○	

## ENGINE STOP SWITCH

Position \ Color	B/Y	B/W
OFF		
ON	○—○	○—○

## WIRE COLOR

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

## FRONT BRAKE LIGHT SWITCH

Position \ Color	O	W/B
OFF		
ON	○—○	○—○

## REAR BRAKE LIGHT SWITCH

Position \ Color	O	W/B
OFF		
ON	○—○	○—○

## SIDE STAND SWITCH

Position \ Color	G	B/W
ON (Upright position)	○—○	○—○
OFF (Down position)		

**NOTE:**

When inspecting the side-stand switch, connect the ⊕ probe of pocket tester to B/W lead wire and ⊖ probe to G lead wire.

## NEUTRAL INDICATOR SWITCH

Position \ Color	Bl	Ground
Neutral position	○—○	○—○

## HORN BUTTON

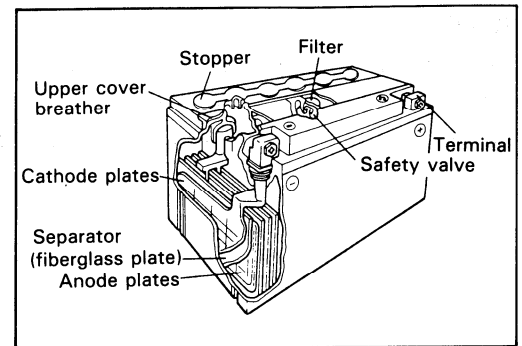
Position \ Color	B/Bl	B/W
OFF		
ON(Push)	○—○	○—○

- |                                |
|--------------------------------|
| B/W : Black with White tracer  |
| B/Y : Black with Yellow tracer |
| W/B : White with Black tracer  |
| Y/W : Yellow with White tracer |

# BATTERY

## SPECIFICATIONS

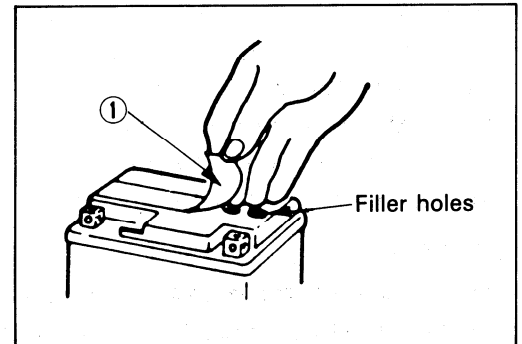
Type designation	YT4L-BS or FT4L-BS
Capacity	12V, 10.8kC (3 Ah)/10HR
Standard electrolyte S.G.	1.320 at 20°C (68°F)



## INITIAL CHARGING

### Filling electrolyte

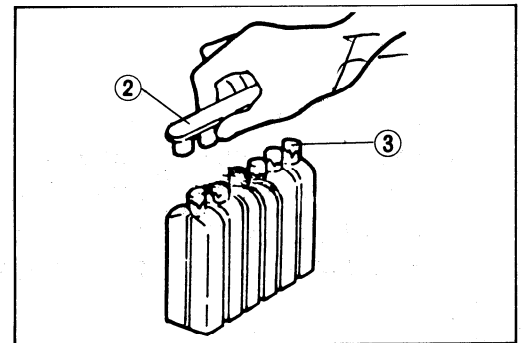
- Remove the aluminum tape ① sealing the battery electrolyte filler holes.



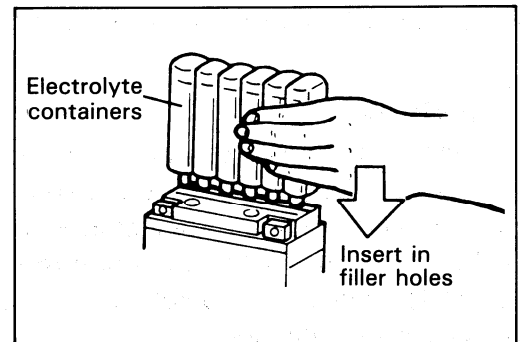
- Remove the caps ②.

### NOTE:

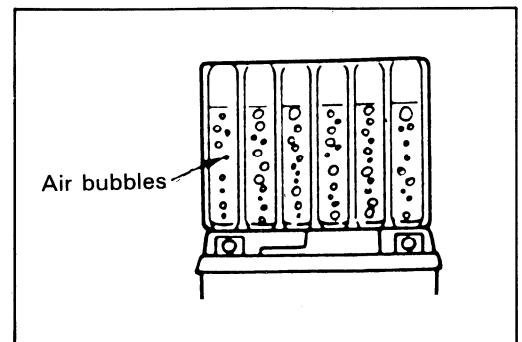
- \* After filling the electrolyte completely, use the removed cap ② as the sealed caps of battery-filler holes.
- \* Do not remove or pierce the sealed areas ③ of the electrolyte container.



- Insert the nozzles of the electrolyte container into the battery's electrolyte filler holes, holding the container firmly so that it does not fall. Take precaution not to allow any of the fluid to spill.

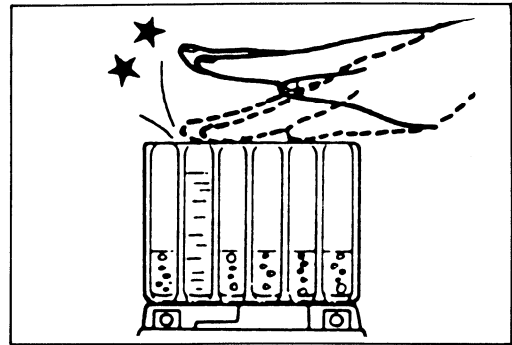


- Make sure air bubbles are coming up each electrolyte container, and leave in this position for about more than 20 minutes.

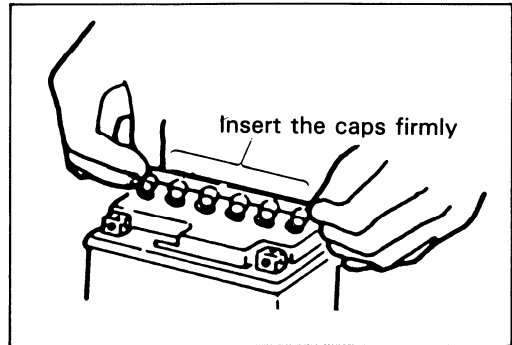


**NOTE:**

If no air bubbles are coming up from a filler port, tap the bottom of the two or three times.  
Never remove the container from the battery.



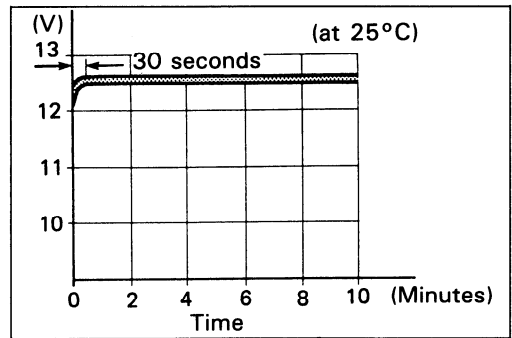
- After confirming that the electrolyte has entered the battery completely, remove the electrolyte containers from the battery. Wait for around 20 minutes.
- Insert the caps into the filler holes, pressing in firmly so that the top of the caps do not protrude above the upper surface of the battery's top cover.



**CAUTION:**

- \* Never use anything except the specified battery.
- \* Once install the caps to the battery; do not remove the caps.

- Using SUZUKI pocket tester, measure the battery voltage. The tester should indicate more than 12.5V (DC) as shown in the Fig. If the battery voltage is lower than the specification, charge the battery with a battery charger. (Refer to the recharging operation on page 6-14.)



**NOTE:**

Initial charging for a new battery is recommended if two years have elapsed since the date of manufacture.

**SERVICING**

Visually inspect the surface of the battery container. If any signs of cracking or electrolyte leakage from the sides of the battery have occurred, replace the battery with a new one. If the battery terminals are found to be coated with rust or an acidic white powdery substance, then this can be cleaned away with sandpaper.

## RECHARGING OPERATION

- Using the pocket tester, check the battery voltage. If the voltage reading is less than the 12.0V (DC), recharge the battery with a battery charger.

### CAUTION:

**When recharging the battery, remove the battery from the motorcycle.**

### NOTE:

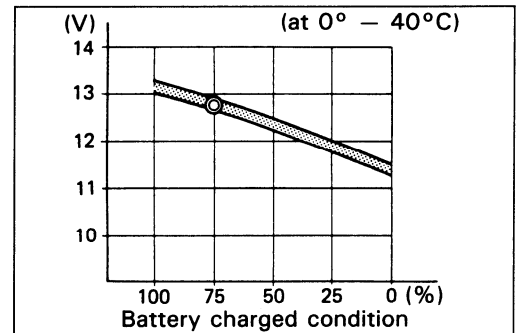
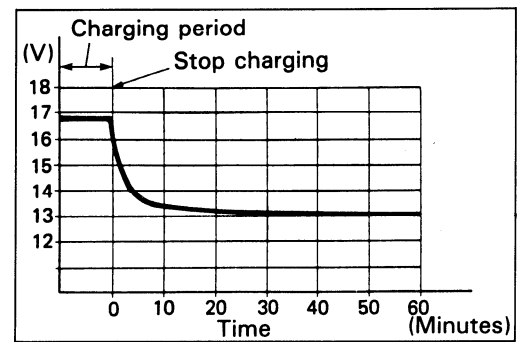
*Do not remove the stoppers on the battery top while recharging.*

**Recharging time : 5A for half an hour or 0.5A for 5 hours**

### CAUTION:

**Be careful not to permit the charging current to exceed 5A at any time.**

- After recharging, wait for more than 30 minutes and check the battery voltage with a pocket tester.
- If the battery voltage is less than the 12.5V, recharge the battery again.
- If battery voltage is still less than 12.5V after recharging, replace the battery with a new one.
- When a battery is left for a long term without using, it is subject to discharge. When the motorcycle is not used for more than 1 month (especially during the winter season), recharge the battery once a month at least.

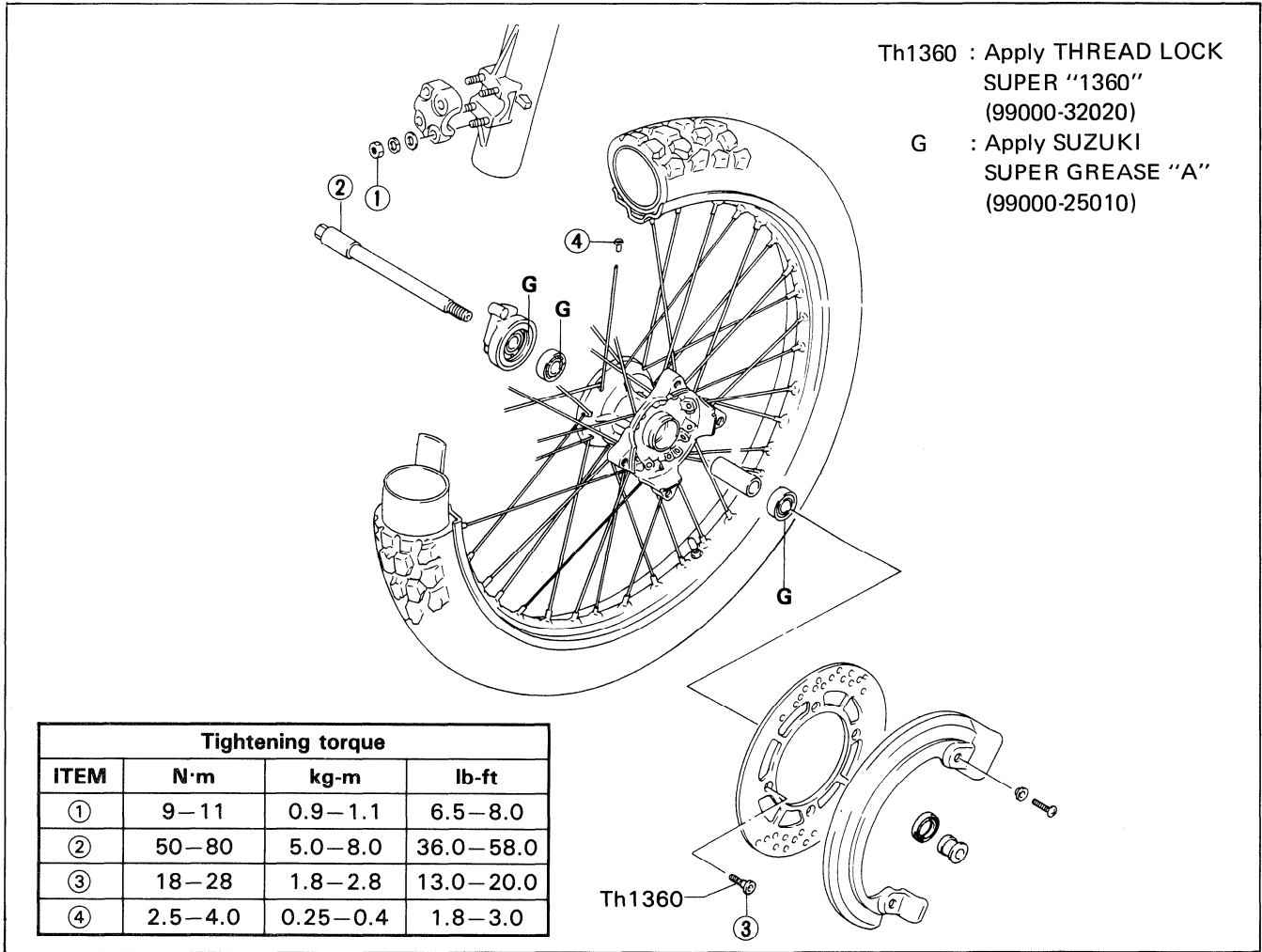


# CHASSIS

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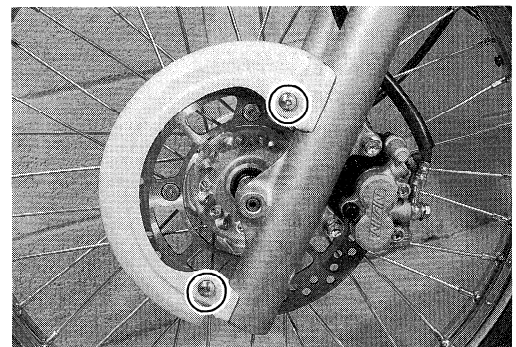
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# FRONT WHEEL FOR CONVENTIONAL FRONT FORK MODEL



## REMOVAL

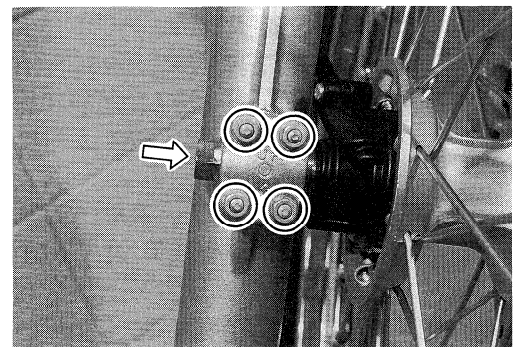
- Remove the front brake disc cover.



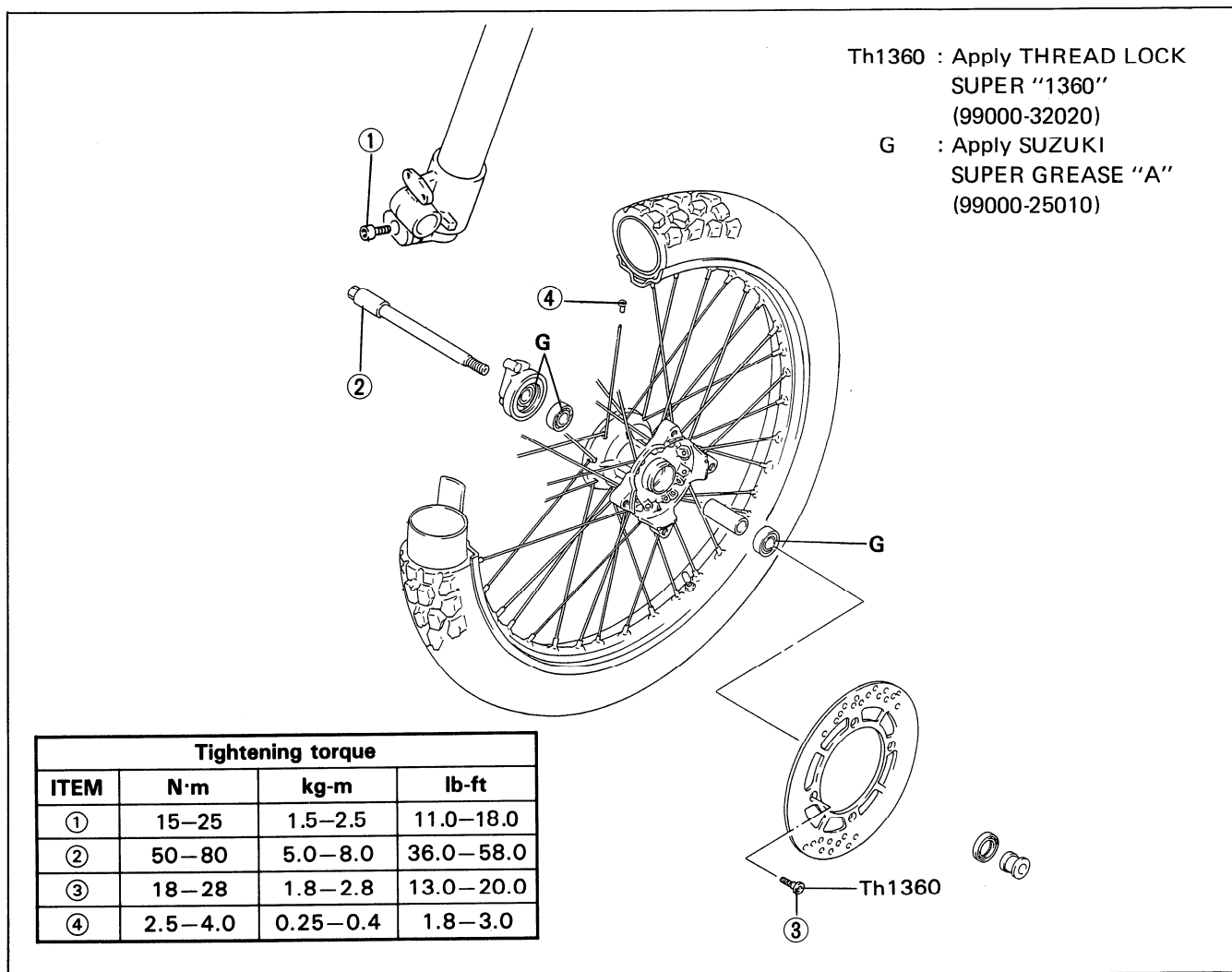
- Loosen the front axle holder nuts and axle shaft.
- Draw out the axle shaft and remove the front wheel.

**NOTE:**

*Do not operate the brake lever while dismantling the front wheel.*

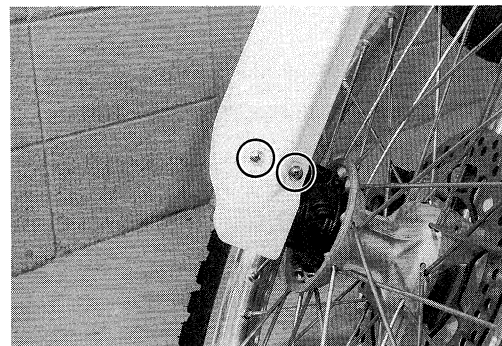


## FOR INVERTED FRONT FORK MODEL



## REMOVAL

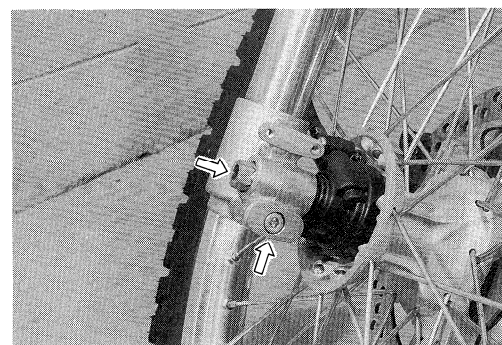
- Remove the right front fork cover.



- Loosen the front axle holder bolt and axle shaft.
- Draw out the axle shaft and remove the front wheel.

## NOTE:

*Do not operate the brake lever while dismantling the front wheel.*





## INSPECTION AND DISASSEMBLY

### WHEEL BEARING

Inspect the play of bearing inner ring by hand while mounted in the wheel.

Rotate the inner ring by hand to inspect if any abnormal noise occurs or rotating smoothly.

Replace the bearing if there is anything unusual.

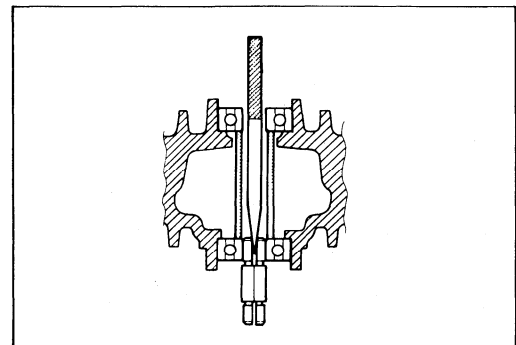
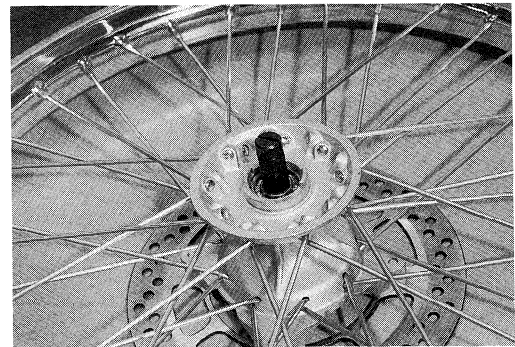
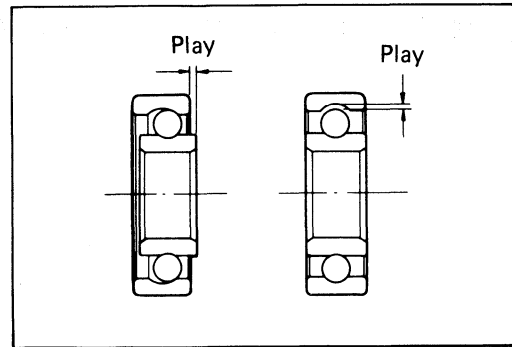
- Remove the dust seal.
- Drive out the both bearing with the special tool in the following procedures.

**09941-50110 : Bearing remover**

- Insert the adapter into the bearing.
- After inserting the wedge bar from the opposite side, lock the wedge bar in the slit of the adapter.
- Drive out the bearing by knocking the wedge bar.

#### CAUTION:

The removed dust seal and bearing should be replaced with new ones.



### AXLE SHAFT

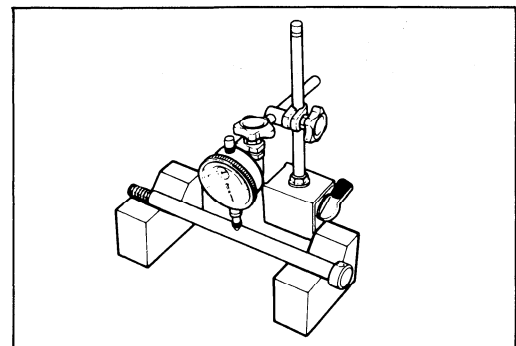
Check the axle shaft runout with a dial gauge and replace it if the runout exceeds the limit.

**Service Limit : 0.25 mm (0.010 in)**

**09900-20606 : Dial gauge (1/100 mm)**

**09900-20701 : Magnetic stand**

**09900-21303 : 'V' block set**



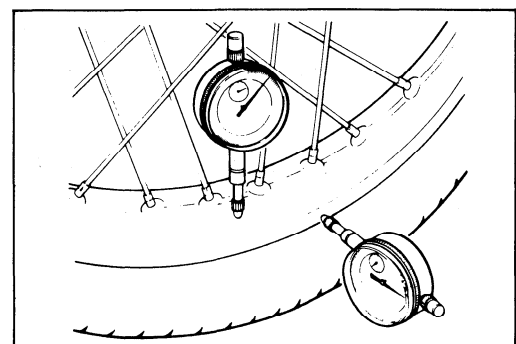
### WHEEL RIM

Make sure that the wheel rim runout does not exceed the service limit when checked as shown.

An excessive runout is usually due to worn or loose wheel bearings and can be reduced by replacing the bearings. If bearing replacement fails to reduce the runout, replace the wheel.

**Service Limit : 2.0 mm (0.08 in)**

**(Axial and Radial)**

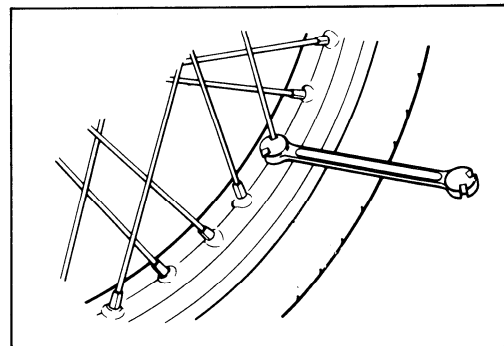


**SPOKE NIPPLE**

Check to be sure that all nipples are tight, and retighten them as necessary with the special tool.

**Tightening torque : 2.5 – 4 N·m**  
(0.25 – 0.4 kg-m, 1.8 – 3.0 lb-ft)

**09940-60113 : Spoke nipple wrench**

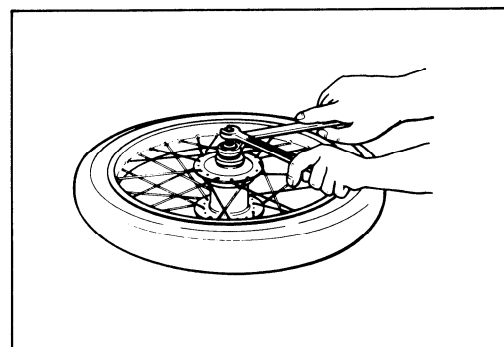
**REASSEMBLY AND REMOUNTING**

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

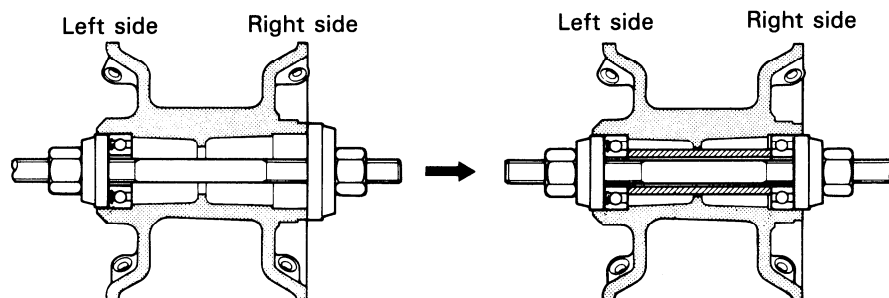
- Install the wheel bearing with the special tools.

**09924-84510 : Bearing installer set**

**09924-84521 : Bearing installer set**

**CAUTION:**

**First install the wheel bearing for left side.**

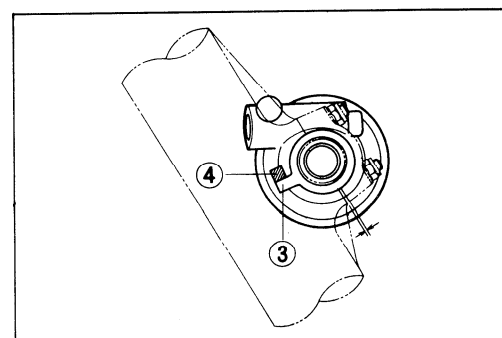
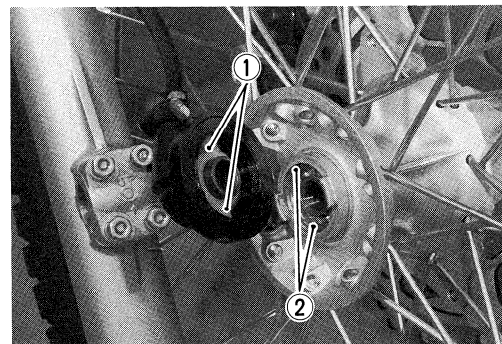


- When installing the speedometer gear box, align the two drive pawls ① with the two recesses ② of the wheel hub.

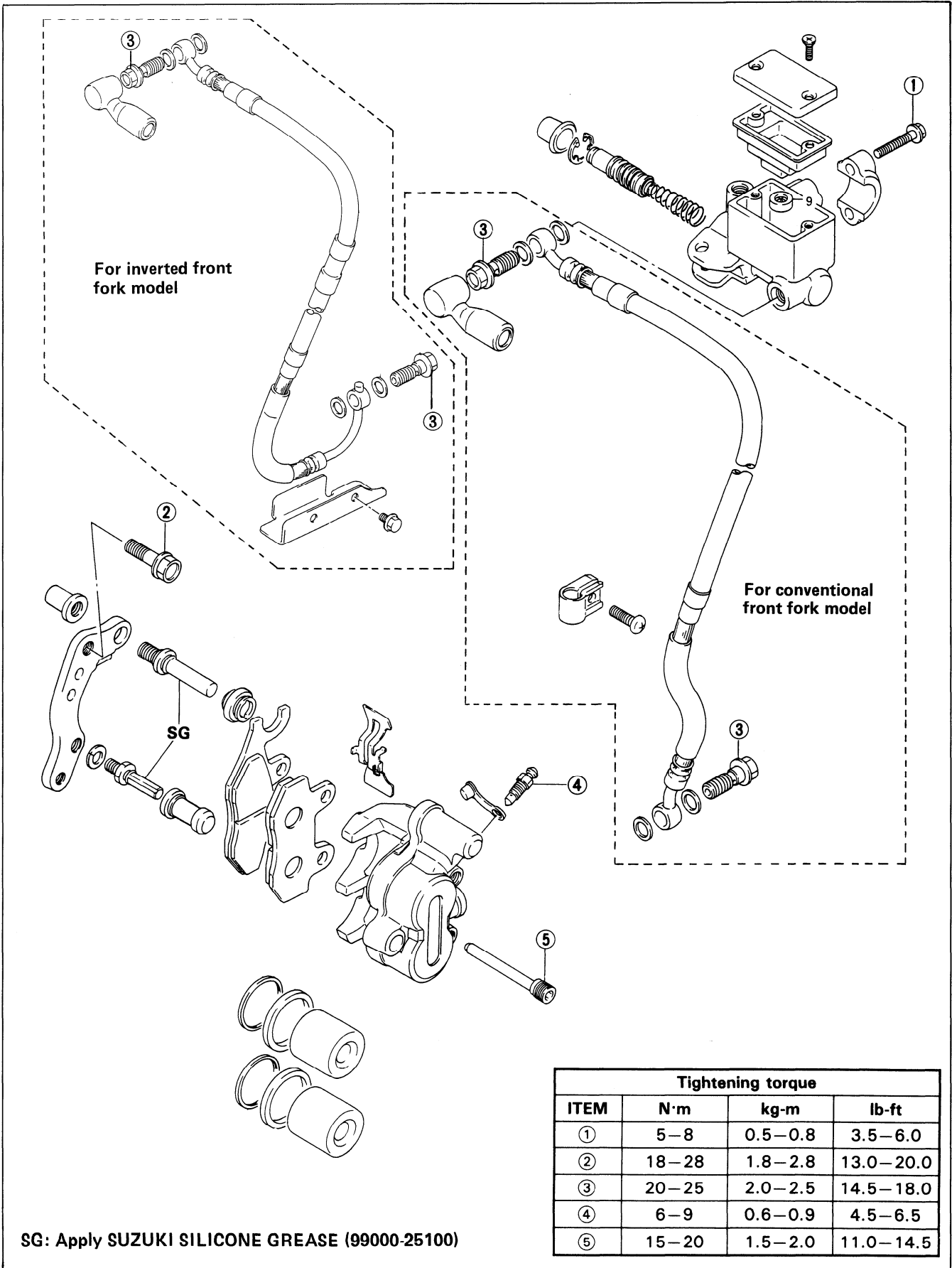
**CAUTION:**

**After touching the speedometer gear box ③ to the stopper ④, tighten the axle shaft.**

- When remounting the axle holder on the front fork, first tighten the holder nuts for upside as shown in the illustration.



# FRONT BRAKE



SG: Apply SUZUKI SILICONE GREASE (99000-25100)

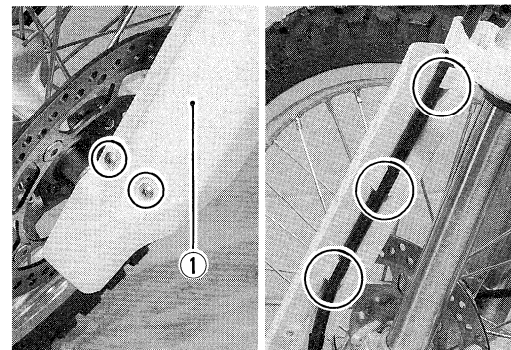
Tightening torque			
ITEM	N·m	kg-m	lb-ft
①	5-8	0.5-0.8	3.5-6.0
②	18-28	1.8-2.8	13.0-20.0
③	20-25	2.0-2.5	14.5-18.0
④	6-9	0.6-0.9	4.5-6.5
⑤	15-20	1.5-2.0	11.0-14.5

## BRAKE PAD REPLACEMENT

- Remove the left front fork cover ①. . . . . Only for inverted front fork model.
- Slightly loosen the pads mounting bolts ② to facilitate later disassembly.
- Remove the caliper by removing the caliper mounting bolts ③.

Fig. 1: For conventional front fork model

Fig. 2: For inverted front fork model



### NOTE:

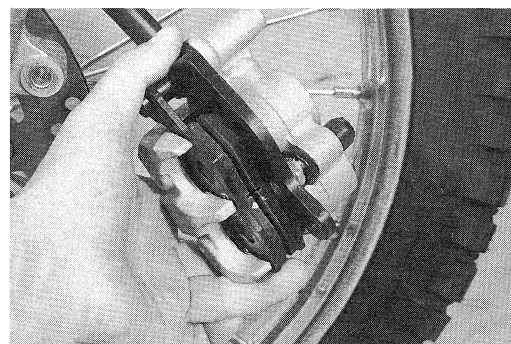
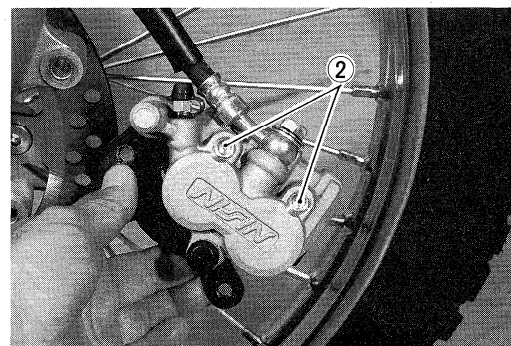
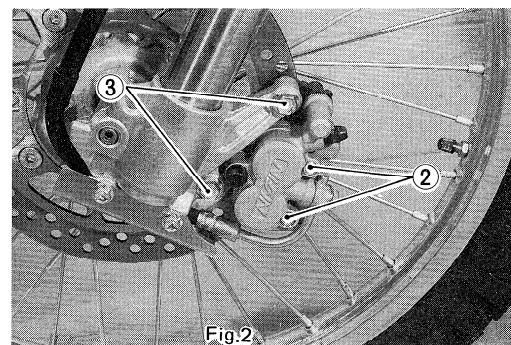
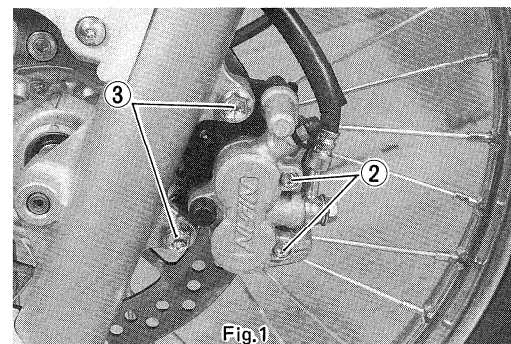
*Do not operate the brake lever while dismantling the caliper.*

- Remove the brake pads by removing the pads mounting bolts ①.

### CAUTION:

**Replace the brake pad as a set, otherwise braking performance will be adversely affected.**

- Reassemble and remount the caliper. (Refer to page 7-5.)



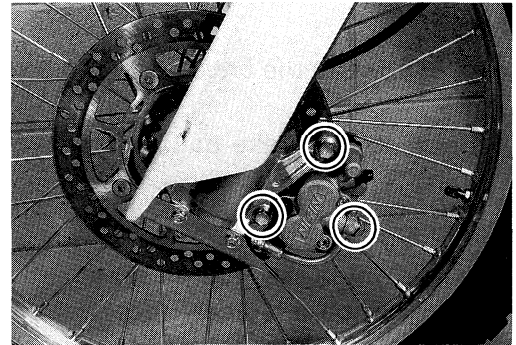
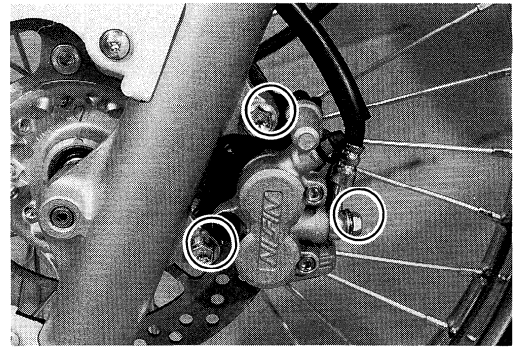
### CALIPER REMOVAL AND DISASSEMBLY

- Remove the brake hose and catch the brake fluid in a suitable receptacle.

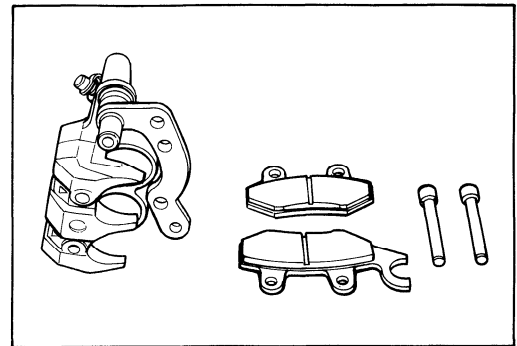
**CAUTION:**

Never re-use the brake fluid left over from the last servicing and stored for long periods.

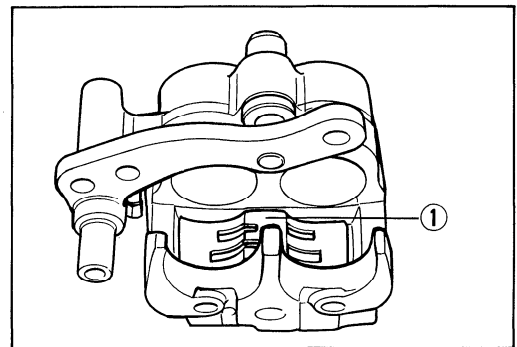
- Remove the caliper.



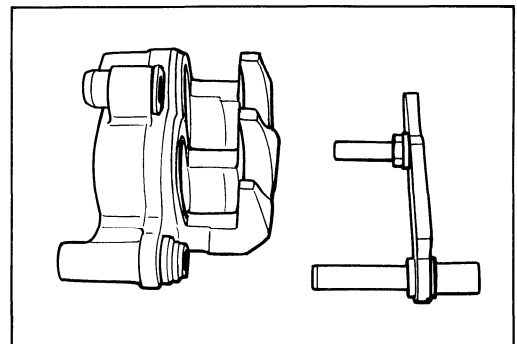
- Remove the pads by removing the mounting bolts.



- Remove the spring ①.



- Remove the caliper holder.

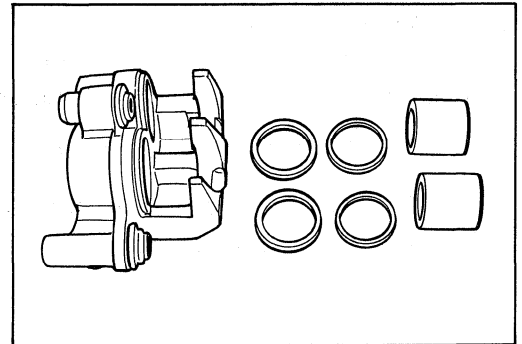
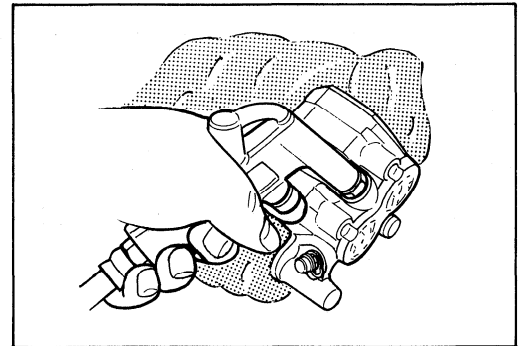


- Place a rag over the piston to prevent popping up. Force out the pistons with a air gun.

**CAUTION:**

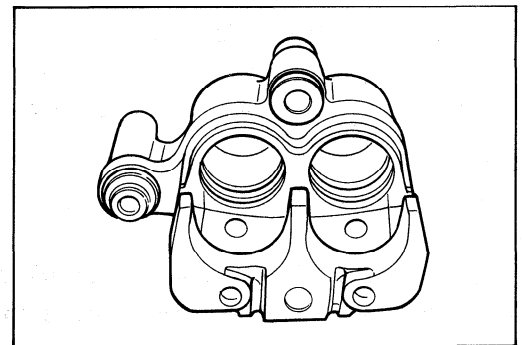
**Do not use high pressure air to prevent piston damage.**

- Remove the dust seals and piston seals.

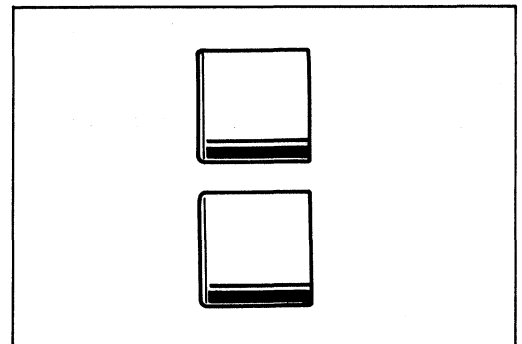


**CALIPER AND DISC INSPECTION**

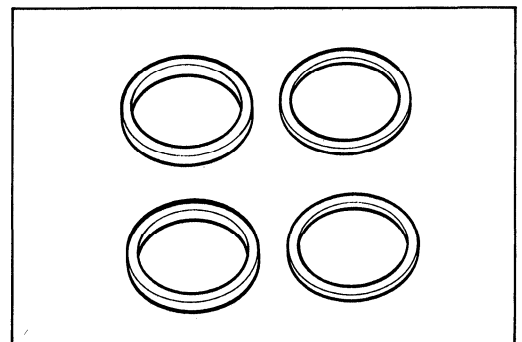
Inspect the caliper cylinder bore wall for nicks, scratches or other damage.



Inspect each piston for damage and wear.



Inspect each rubber part for damage and wear.

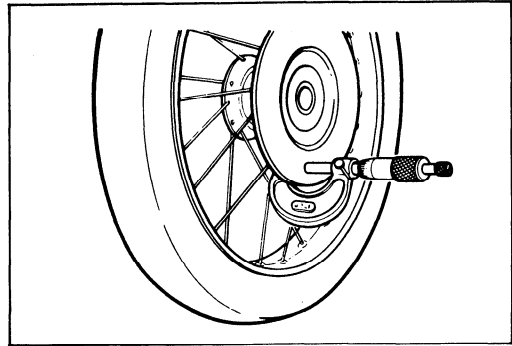


## 7-9 CHASSIS

Check the disc for wear with a micrometer. Its thickness can be checked with disc and wheel in place. Replace the disc if the thickness exceeds the service limit.

**Service Limit : 3.0 mm (0.12 in)**

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



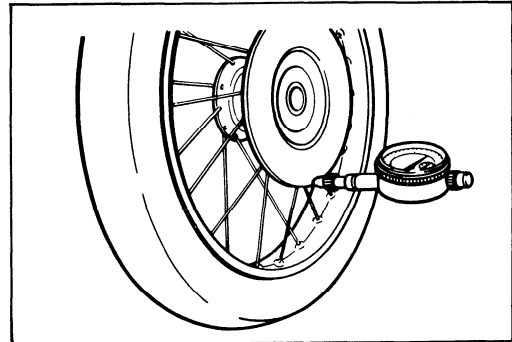
With the disc mounted on the wheel, check the disc for face runout with a dial gauge, as shown.

Replace the disc if the runout exceeds the service limit.

**Service Limit : 0.3 mm (0.012 in)**

**09900-20606 : Dial gauge (1/100 mm)**

**09900-20701 : Magnetic stand**



## CALIPER REASSEMBLY

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

### CAUTION:

**Wash the caliper components with fresh brake fluid before reassembly.**

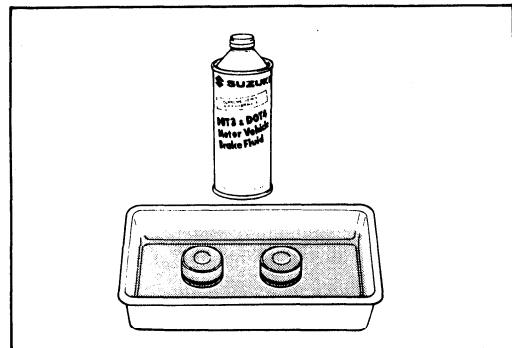
**Never use cleaning solvent or gasoline to wash them.**

**Apply brake fluid to the caliper bore and piston to be inserted into the bore.**

- Reassemble and remount the caliper. (Refer to page 7-5.)

### WARNING:

**Bleed air after reassembling the caliper. (Refer to page 2-12.)**





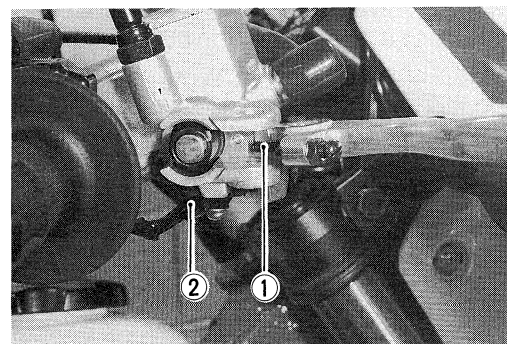
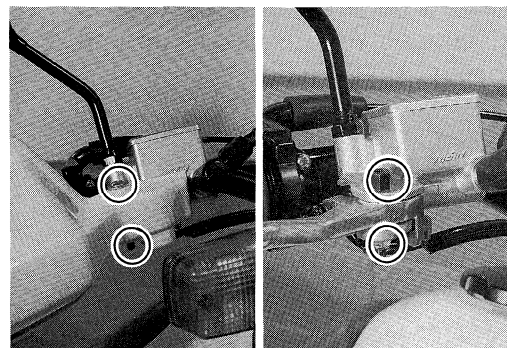
## MASTER CYLINDER REMOVAL AND DISASSEMBLY

- Remove the brake lever cover by removing the screw and nut.
- Remove the brake lever by removing the nut and bolt.

### NOTE:

When removing the brake lever, do not lose the spring ①.

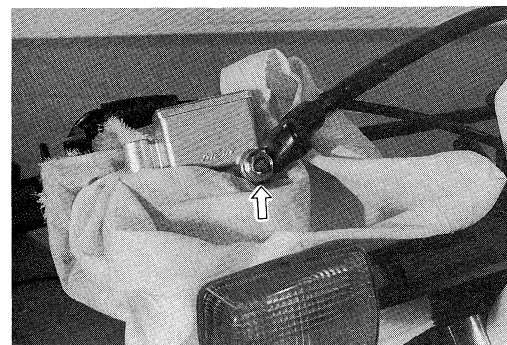
- Remove the rear view mirror.
- Disconnect the front brake switch lead wires ②.



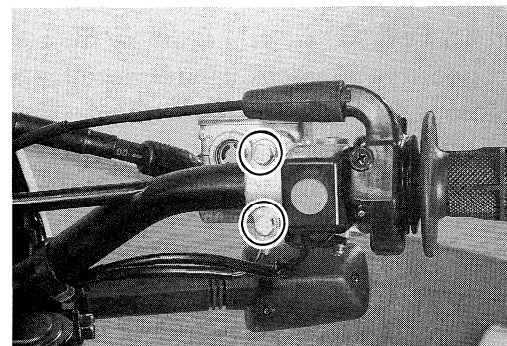
- Place a cloth underneath the union bolt on the master cylinder to catch spilled drops of brake fluid. Unscrew the union bolt and disconnect the brake hose/master cylinder joint.

### CAUTION:

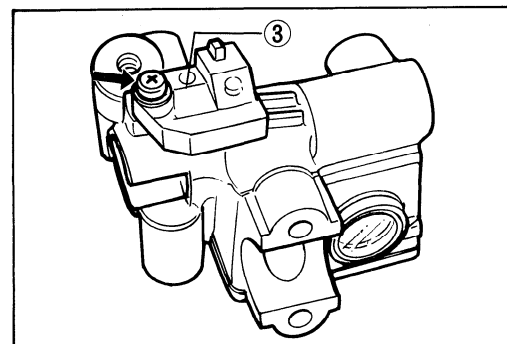
Completely wipe off any brake fluid adhering to any part of motorcycle. The fluid reacts chemically with paint, plastics, rubber materials, etc.



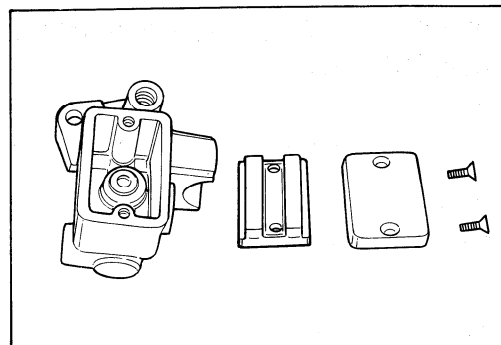
- Remove the master cylinder.



- Remove the front brake switch ③.



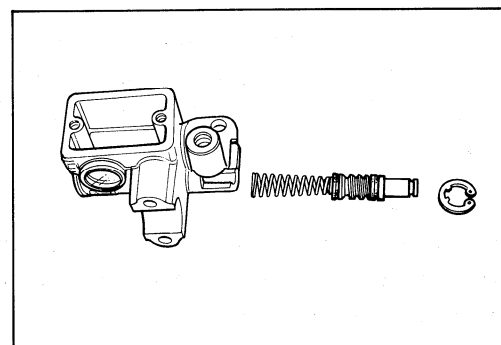
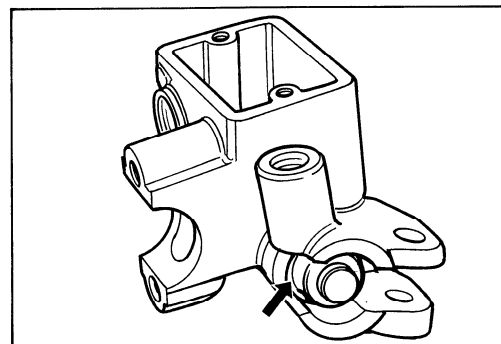
- Remove the reservoir cap and diaphragm.
- Drain brake fluid.



- Remove the dust boot.
- Remove the circlip with the special tool.

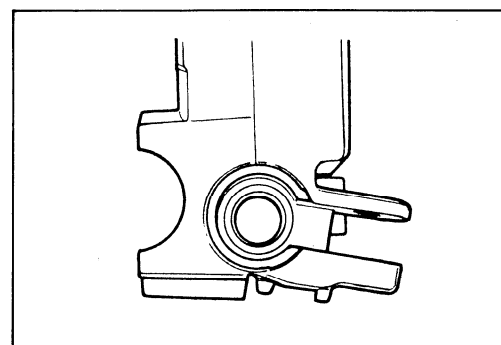
**09900-06108 : Snap ring pliers**

- Remove the piston/primary cup with return spring.

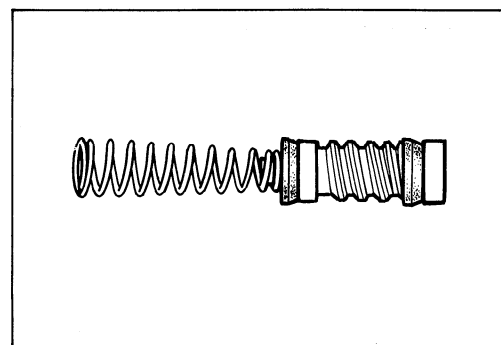


### MASTER CYLINDER INSPECTION

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



Inspect the piston surface for scratches or other damage.  
Inspect the primary cup and dust boot for wear or damage.



## MASTER CYLINDER REASSEMBLY AND REMOUNTING

Reassemble and remount the master cylinder in the reverse order of removal and disassembly, and also carry out the following steps.

### CAUTION:

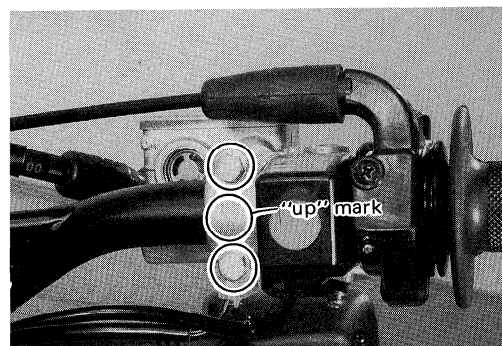
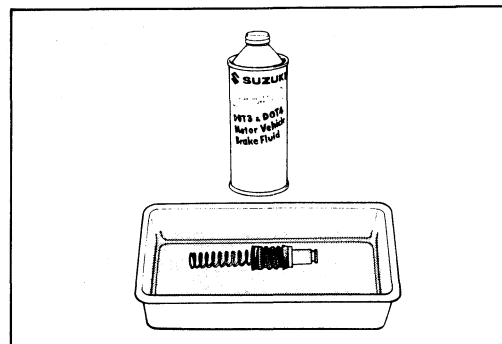
Wash the master cylinder components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them.

Apply brake fluid to the cylinder bore and all the internals to be inserted into the bore.

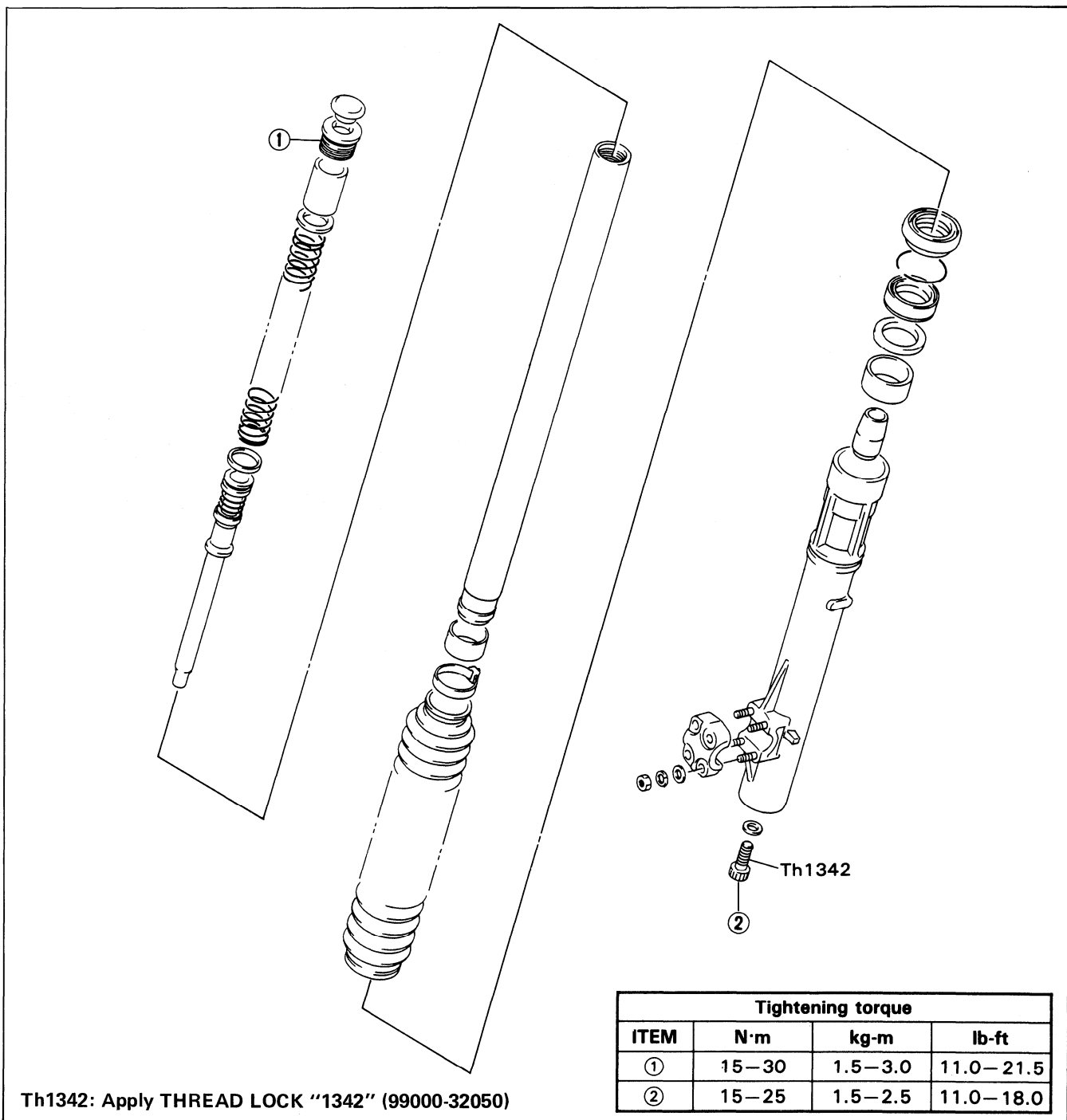
- Reassemble and remount the master cylinder. (Refer to page 7-5.)
- When remounting the master cylinder on the handlebar, first tighten the clamp bolt for upside.
- Adjust the front brake lever play. (Refer to page 2-11.)

### CAUTION:

Bleed air after reassembling the master cylinder. (Refer to page 2-12).

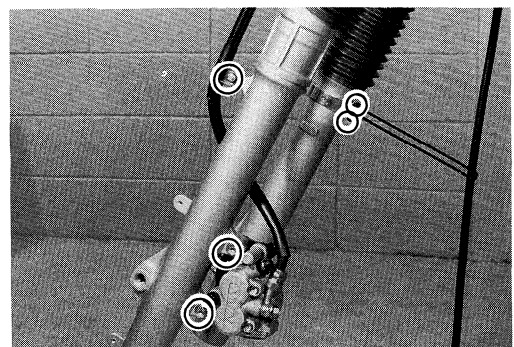


## FRONT FORK (FOR CONVENTIONAL TYPE)



### REMOVAL AND DISASSEMBLY

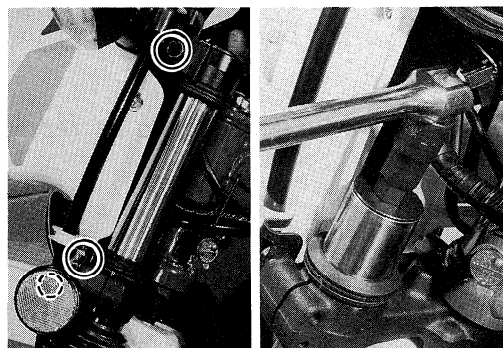
- Remove the front wheel. (Refer to page 7-1.)
- Remove the front brake caliper and brake hose clamp.
- Remove the speedometer cable guide clamp.



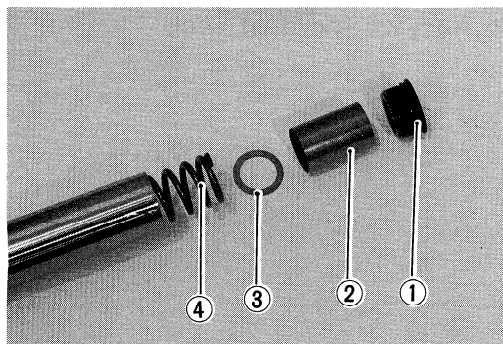
- Loosen the front fork upper and lower clamp bolts and pull down the front fork assembly.
- Slightly loosen the front fork cap bolt to facilitate later disassembly with special tool after tightening the lower clamp bolts.

09940-30230 : Hexagon socket (17 mm)

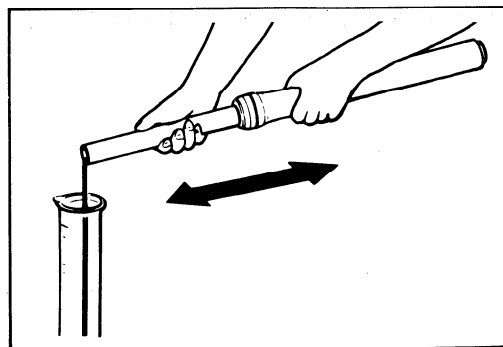
- Remove the front fork assembly.



- Remove the front fork cap bolt ①, spacer ②, spring seat ③ and spring ④.



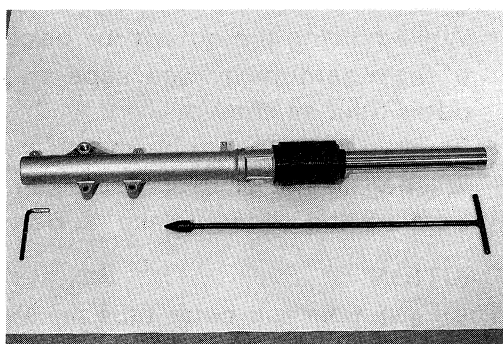
- Invert the fork and stroke it several times to remove oil.
- Hold the fork inverted for a few minutes to drain oil.



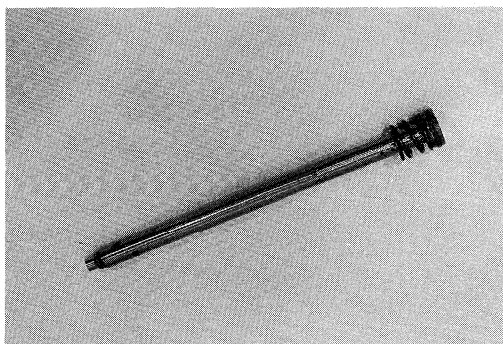
- Remove the damper rod securing bolt with a 6 mm hexagon wrench and special tools.

09940-34520 : "T" handle

09940-34530 : Attachment "A"



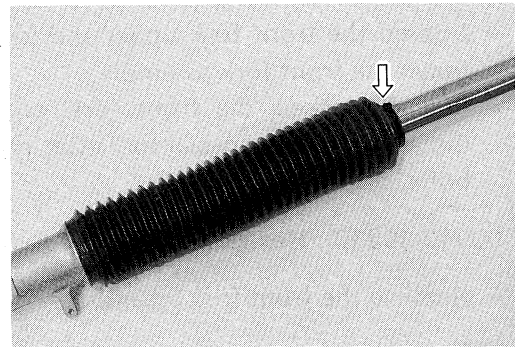
- Remove the damper rod with the spring.



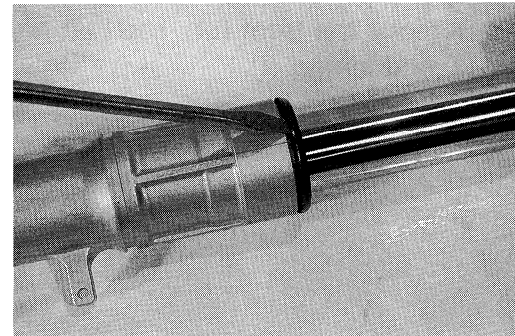
- Remove the boot by removing the clamp.

**NOTE:**

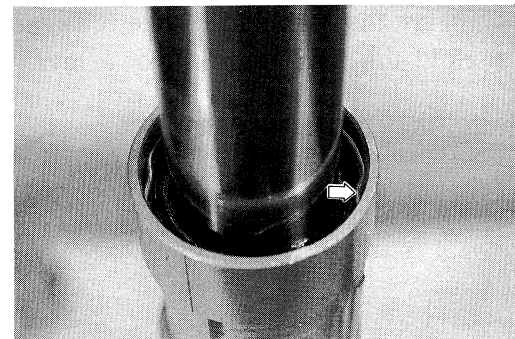
*The removed clamp should be replaced with a new one.*



- Remove the dust seal.



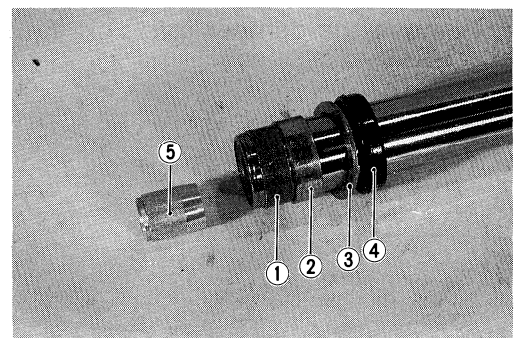
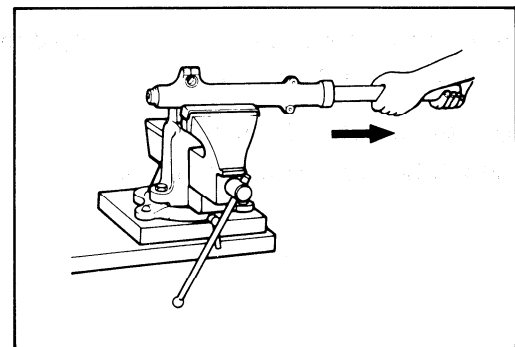
- Remove the oil seal stopper ring.



- While holding the outer tube or caliper mounting portion of the outer tube by vise, separate the inner tube from the outer tube as shown.
- Remove the inner tube metal ①, outer tube metal ②, washer ③ and oil seal ④.
- Remove the oil lock piece ⑤ from the outer tube.

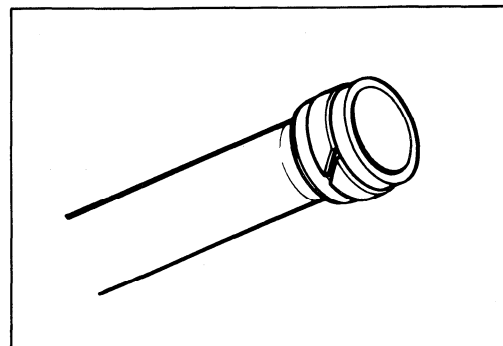
**CAUTION:**

The inner tube and outer tube metals must be replaced along with the oil seal any time the fork is disassembled.

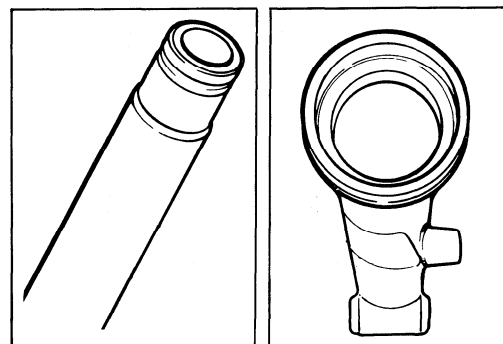


**INSPECTION****DAMPER ROD RING**

Inspect the damper rod ring for wear and damage.

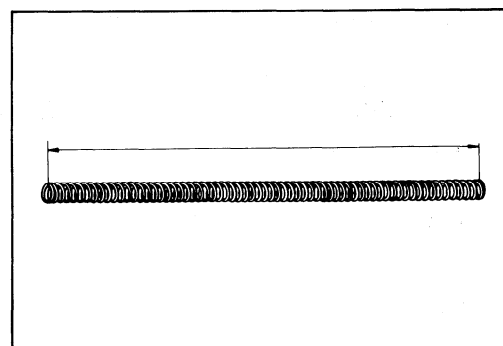
**INNER TUBE AND OUTER TUBE**

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

**FORK SPRING**

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

**Service Limit : 565 mm (22.2 in)**

**REASSEMBLY AND REMOUNTING**

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

- Install the front fork. (Refer to page 7-13.)

**INNER TUBE METAL**

- Install the metal by hand as shown.

**CAUTION:**

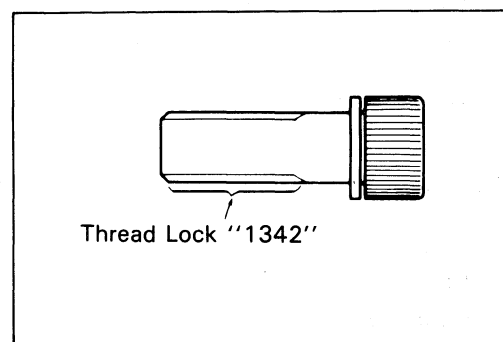
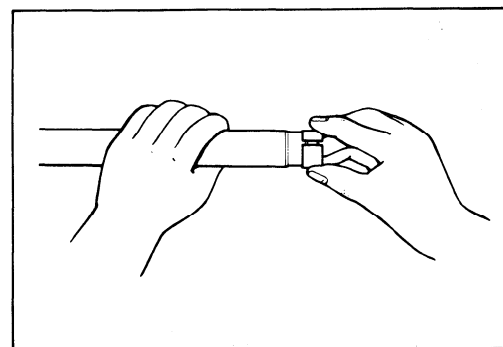
Use special care to prevent damage to the "Teflon" coated surface of the Anti-friction metal when mounting it.

**DAMPER ROD BOLT**

- Apply THREAD LOCK "1342" to the damper rod bolt and tighten it to the specified torque with the special tools.

09940-34520 : "T" handle

09940-34530 : Attachment "A"





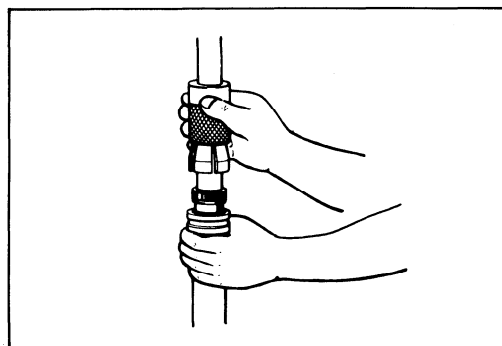
**OUTER TUBE METAL, WASHER AND OIL SEAL**

- Install the outer tube metal ①, washer ② and oil seal ③ with the special tool.

09940-50112 : Front fork oil seal installer

**CAUTION:**

Use special care to prevent damage to the "Teflon" coated surface of the anti-friction metal when mounting it.



**OIL SEAL STOPPER RING AND DUST SEAL**

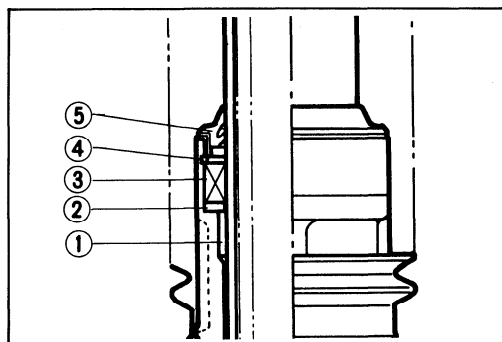
- Install the oil seal stopper ring ④.

**CAUTION:**

Make sure that the oil seal stopper ring fitted securely.

- Install the dust seal ⑤ with the special tool.

09940-50112 : Front fork oil seal installer



**FORK OIL**

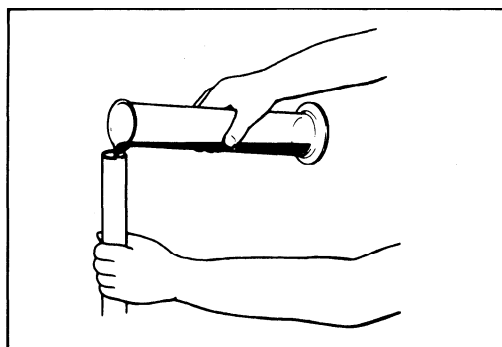
- For the fork oil, be sure to use a front fork oil whose viscosity rating meets specifications below.

Fork oil type : Fork oil # 10

99000-99044-10G : SUZUKI FORK OIL # 10

Capacity (each leg) : 555 ml (18.8/19.5 US/Imp oz)

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

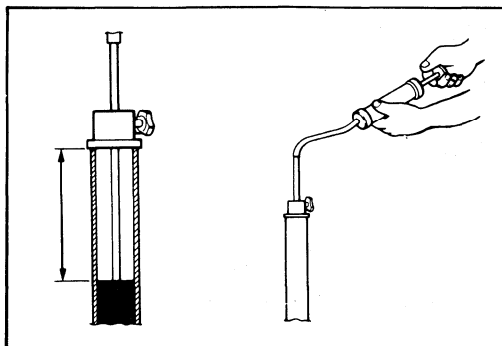


09943-74111 : Fork oil level gauge

Oil level : 131 mm (5.2 in)

**NOTE:**

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



**CAP BOLT AND INNER TUBE**

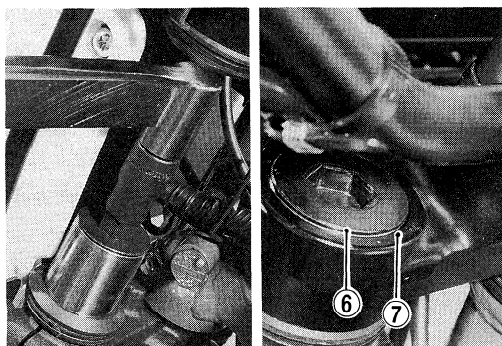
- Tighten the cap bolt to the specified torque with the special tool after tightening the lower clamp bolts.

Tightening torque : 15 – 30 N·m

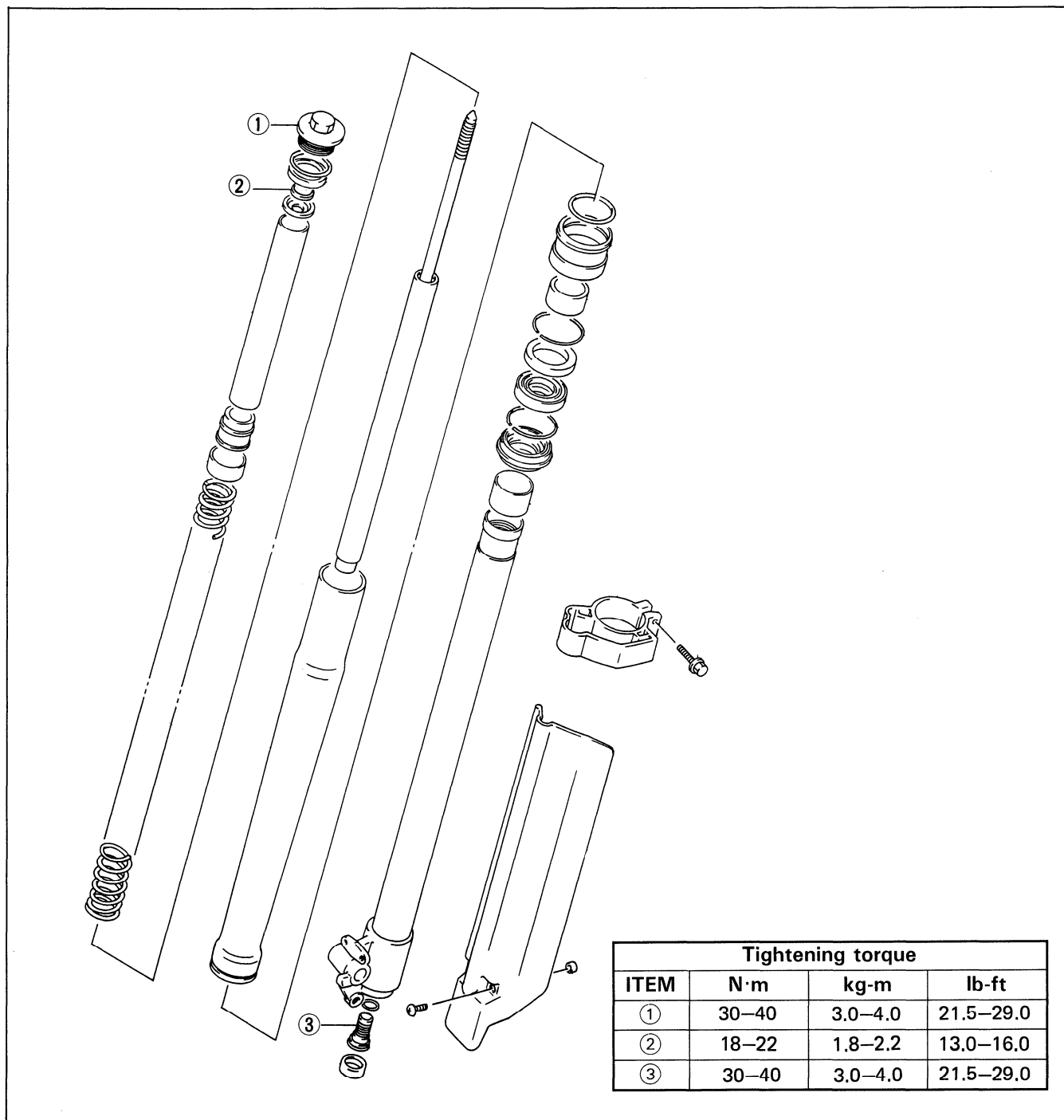
(1.5 – 3.0 kg·m, 11.0 – 21.5 lb·ft)

09940-30230 : Hexagon socket (17 mm)

- When installing the front fork assembly, align the top ⑥ of the inner tube to the upper surface ⑦ of the steering stem upper bracket.

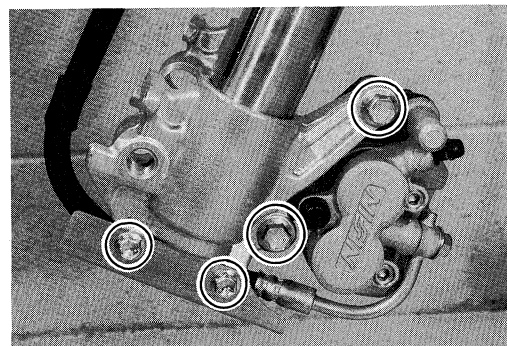


## FRONT FORK (FOR INVERTED TYPE)



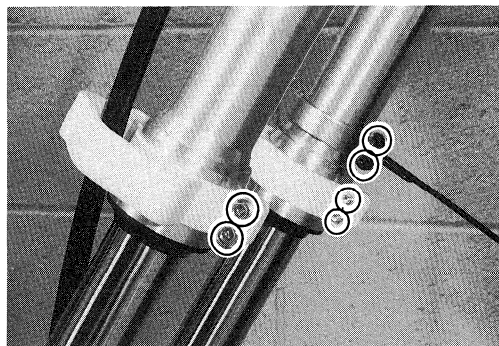
### REMOVAL AND DISASSEMBLY

- Remove the front wheel. (Refer to page 7-1.)
- Remove the left front fork cover. (Refer to page 7-6.)
- Remove the brake hose cover and brake caliper.

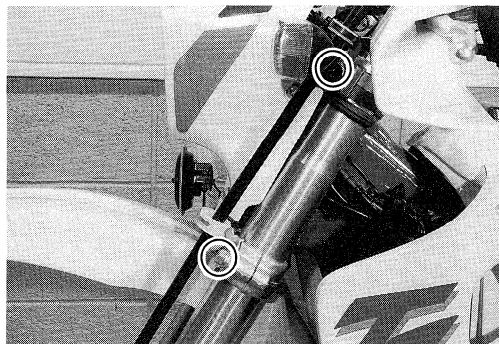


## 7-19 CHASSIS

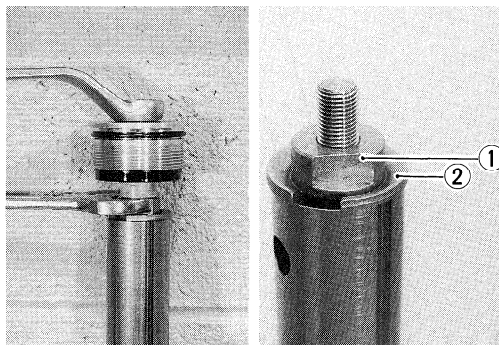
- Remove the front fork cover guides.
- Remove the speedometer cable guide clamp.



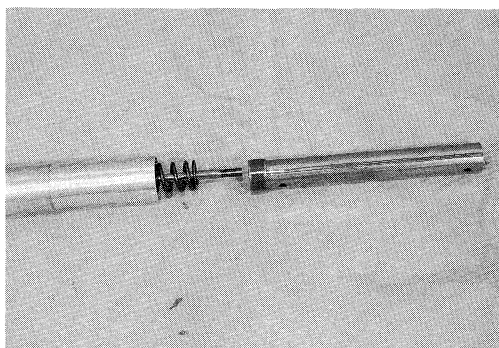
- Slightly loosen the front fork cap bolt to facilitate later disassembly after loosening the upper clamp bolt.
- Remove the front fork assembly by loosening the lower clamp bolt.



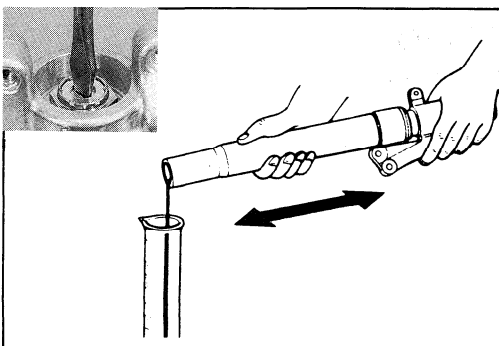
- Remove the cap.
- Remove the nut ① and spacer guide ②.



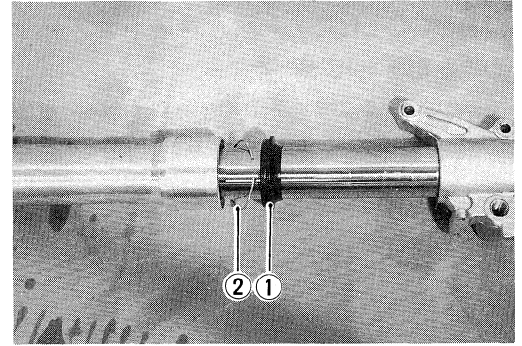
- Remove the spacer ③ and spring ④.



- Adjust the compression adjuster to Min. position.
- Invert the fork and stroke the inner tube and inner rod several times to drain oil.
- Hold the fork inverted for a few minutes to drain oil.



- Remove the dust seal ① and oil seal stopper ring ②.



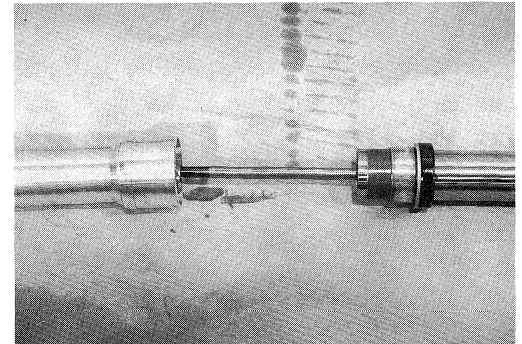
- Remove the oil seal by slowly pulling out the inner tube.

**NOTE:**

*Be careful not to damage the inside of the tube.*

**CAUTION:**

The outer tube and inner tube metals must be replaced along with oil seal and dust seal, when assembling the front fork.



- Remove the damper rod bolt.

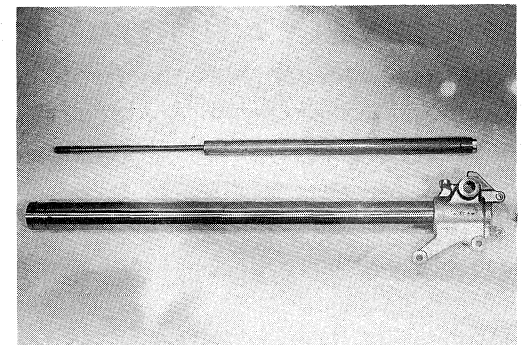
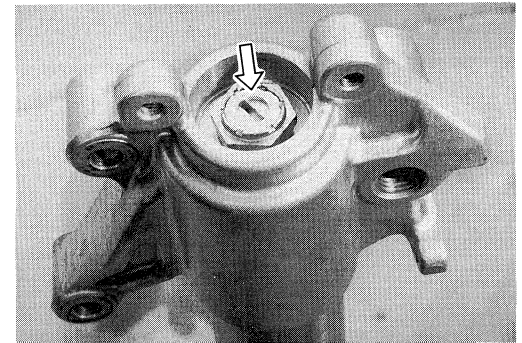
**NOTE:**

*If it is difficult to loosen the damper rod bolt, use the air impact wrench.*

- Remove the inner rod with the damper.

**CAUTION:**

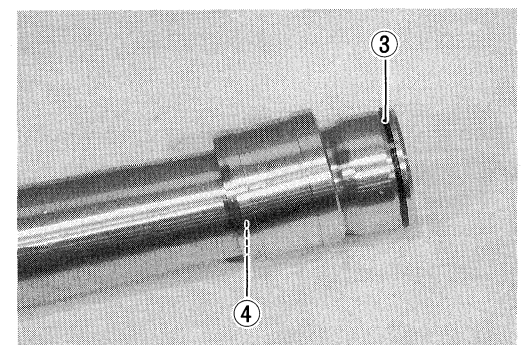
Do not attempt to disassemble the damper rod. It is not serviceable.



- Remove the oil seal case by removing the stopper ring ③.

**NOTE:**

*The removed O-ring ④ should be replaced with a new one.*

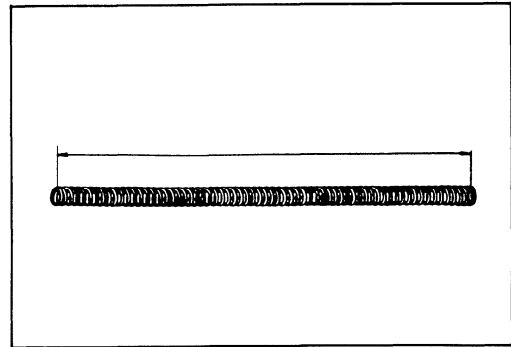


## INSPECTION

### FORK SPRING

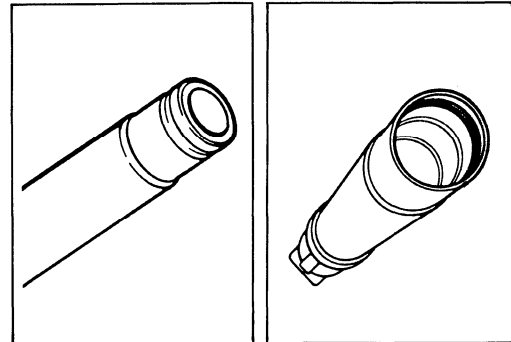
Measure the fork spring free length. If it is shorter than the service limit, replace it with a new one.

**Service Limit : 574 mm (22.6 in)**



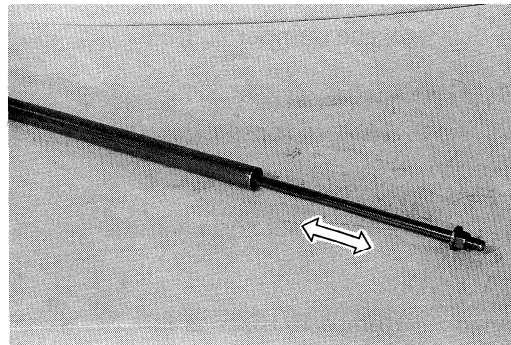
### INNER AND OUTER TUBE

Inspect the inner tube sliding surface and outer tube sliding surface for any scuffing.



### DAMPER ROD

Move the inner rod by hand to inspect if operating smoothly.



## REASSEMBLY AND REMOUNTING

Reassemble and remount the front fork in the reverse order of removal and disassembly. Also observe the following instructions:

### OIL SEAL CASE

- Install the new O-ring ① onto the oil seal case after apply grease to it.

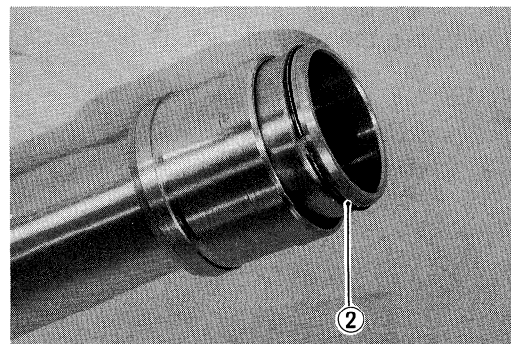
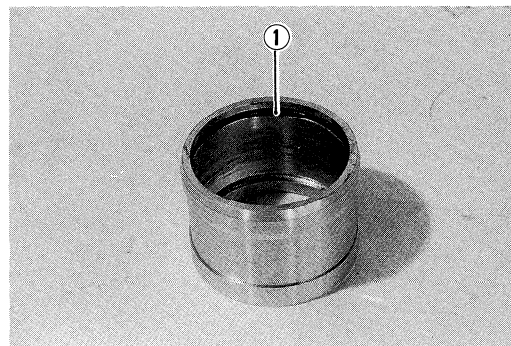
**99000-25010 : SUZUKI Super grease "A"**

- Install the oil seal case to the outer tube.

### CAUTION:

When installing the oil seal case to the outer tube, be careful not to damage the O-ring.

- Install the stopper ring ② onto the outer tube.

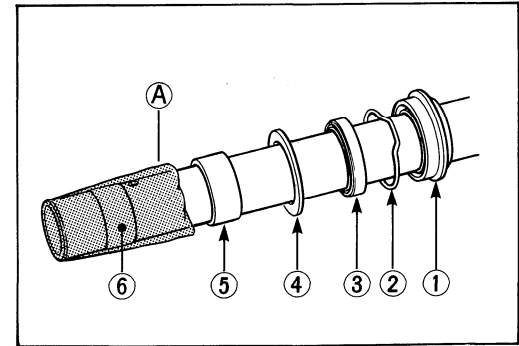


**TUBE METALS AND SEALS**

- Apply grease to the lip of oil seal.

**99000-25010 : SUZUKI Super grease "A"**

- Install the dust seal ①, oil seal stopper ring ②, oil seal ③, oil seal retainer ④, outer tube metal ⑤ and inner tube metal ⑥ onto the inner tube in that order.

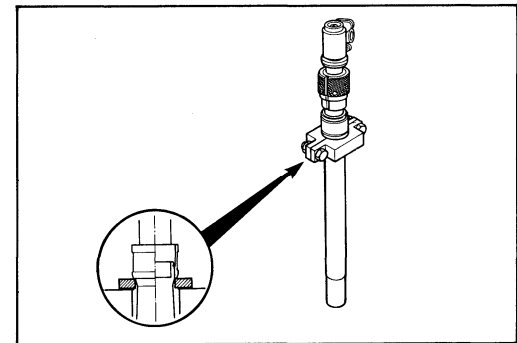
**CAUTION:**

- \* When installing the dust seal ① and oil seal ③ onto the inner tube, protect their seal lips with the vinyl film A to prevent seals damage.
- \* When installing the oil seal onto the inner tube, ID mark on the oil seal comes to outside.
- \* Do not use solvents for washing to prevent oil seal damage.

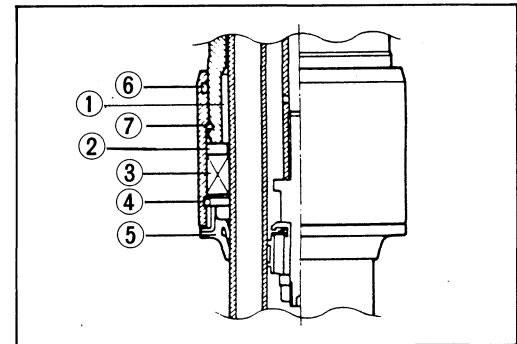
- Clean the metal groove of outer tube and metal outer surface, and install the outer tube metal.
- Install the oil seal retainer and oil seal with the special tools.

**09940-52820 : Front fork oil seal installer****09940-52830 : Front fork seal case stopper****CAUTION:**

Use special care to prevent damage to the "Teflon" coated surface of the Anti-Friction outer tube metal when installing it.



- After installing the oil seal ③, install the oil seal stopper ring ④ and dust seal ⑤.
  - ① Anti-friction metal
  - ② Oil seal retainer
  - ③ Oil seal
  - ④ Oil seal stopper ring
  - ⑤ Dust seal
  - ⑥ O-ring
  - ⑦ Oil seal case stopper ring

**FORK OIL**

- Place the front fork vertically with fully compressed position and without spring.
- Pour specified front fork oil up to the top level of the outer tube.

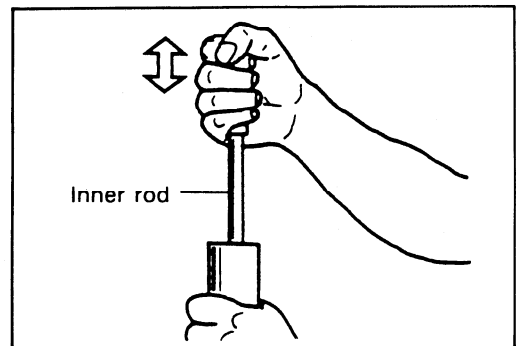
Fork oil type : Fork oil # 10

**Fork oil air bleeding**

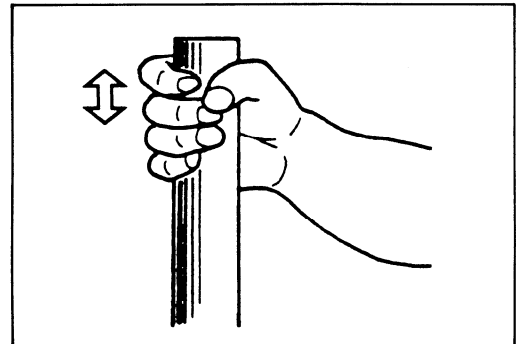
- Move the rod slowly more than ten times until bubbles do not come out from the oil.

**NOTE:**

*Pour front fork oil up to the top of the outer tube to find bubbles while bleeding air.*



- Pour specified front fork oil up to the top level of the outer tube again. Move the outer tube up and down fully stroke until bubbles do not come out from the oil.
- Keep the front fork vertically and wait 5 – 6 minutes.



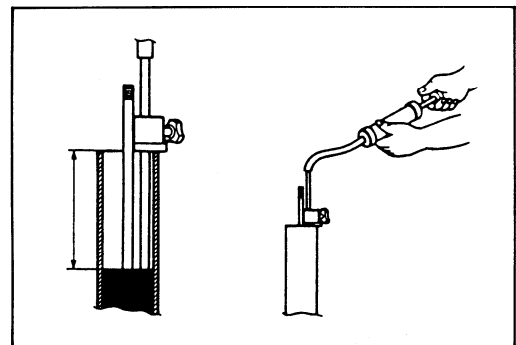
**Fork oil level adjusting**

- Set the oil level gauge with the front fork fully compressed and adjust the oil level to the specification.

**09943-74111 : Fork oil level gauge**

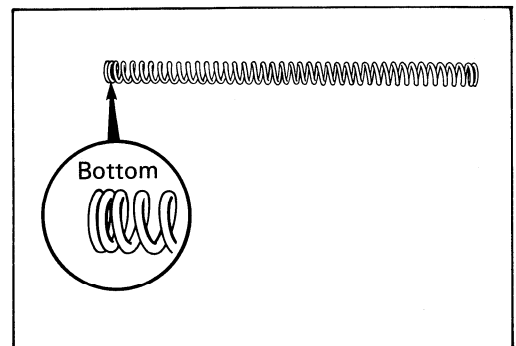
**Fork oil level : 137 mm (5.4 in)**

**Fork oil capacity : 452 ml (15.3/15.9 US/Imp oz)**  
**(each leg)**



**FORK SPRING**

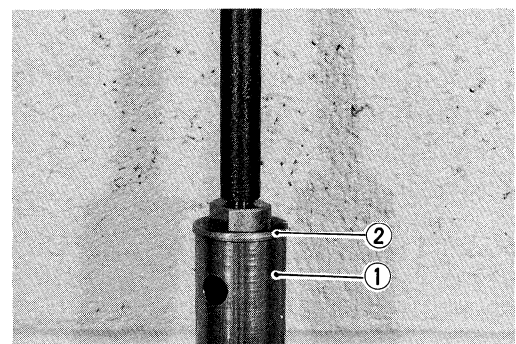
- Install the fork spring close pitch spring to bottom as shown in the illustration.



**SPACER AND INNER ROD LOCK NUT**

- Install the spacer ① and spacer seal ② with the special tool.

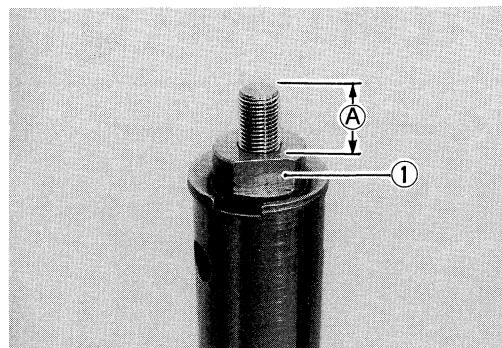
**09940-52840 : Front fork inner rod holder**





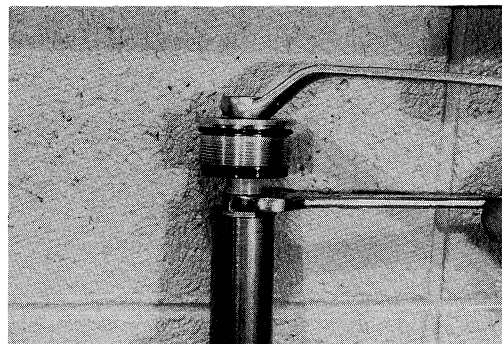
- Adjust the height **A** of the inner rod by adjusting the lock nut **1**.

Height **A** : 14 mm (1.57 in)

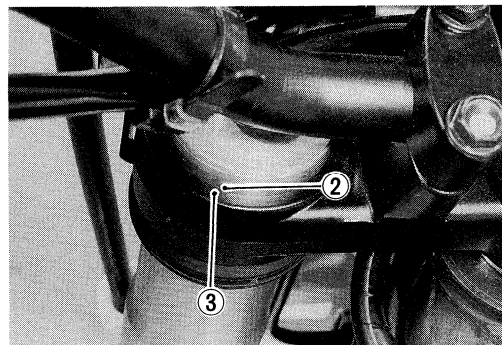


- Tighten the fork cap to the specified torque.

Tightening torque : 17.5 – 22.5 N·m  
(1.75 – 2.25 kg·m, 0.0 – 0.0 lb-ft)



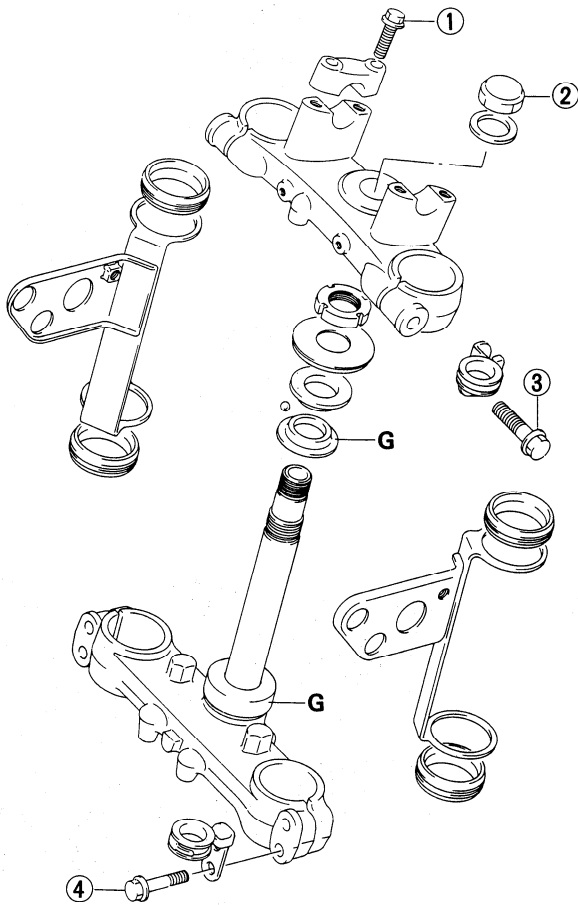
- When installing the front fork assembly, align the line **2** on the outer tube with the upper surface **3** of the steering stem upper bracket.



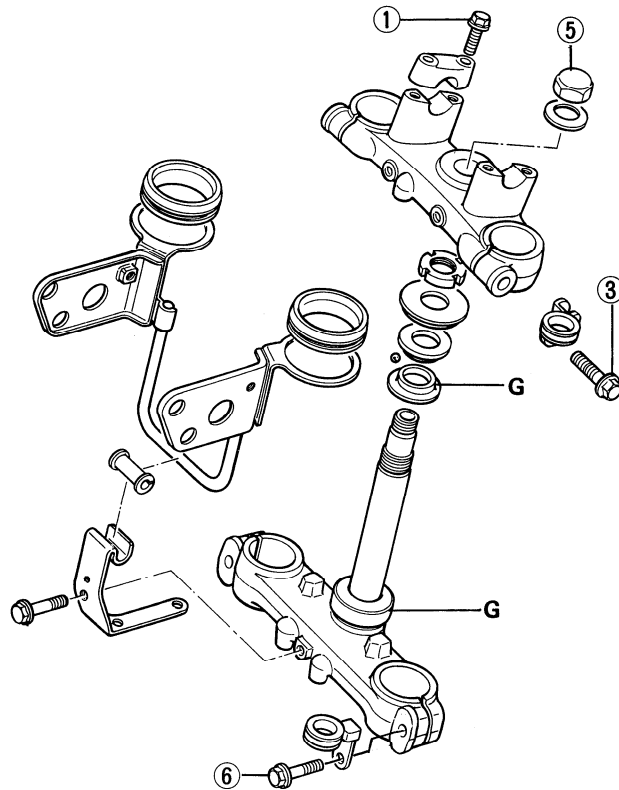


# STEERING STEM

For conventional front fork model



For inverted front fork model

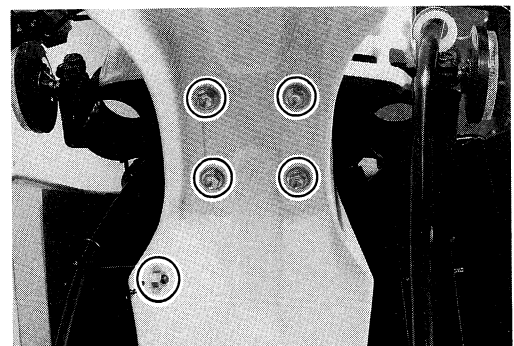


G: Apply SUZUKI SUPER GREASE "A" (99000-25010)

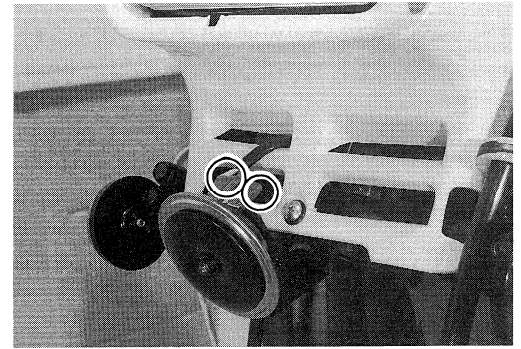
Tightening torque			
ITEM	N-m	kg-m	lb-ft
①	18 - 28	1.8 - 2.8	13.0 - 20.0
②	50 - 80	5.0 - 8.0	36.0 - 58.0
③	22 - 35	2.2 - 3.5	16.0 - 25.5
④	18 - 28	1.8 - 2.8	13.0 - 20.0
⑤	80 - 100	8.0 - 10.0	58.0 - 72.5
⑥	20 - 30	2.0 - 3.0	14.5 - 21.5

## REMOVAL AND DISASSEMBLY

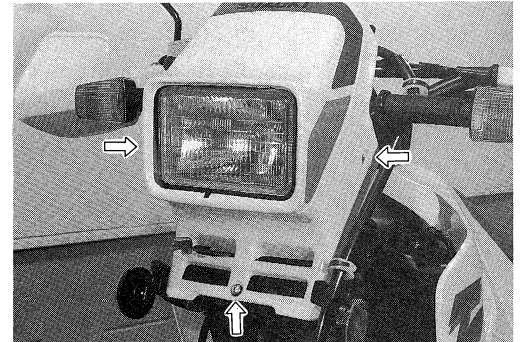
- Remove the front wheel. (Refer to page 7-1.)
- Remove the front fork. (Refer to pages 7-13 or 7-18.)
- Remove the speedometer cable clamp.
- Remove the front fender.



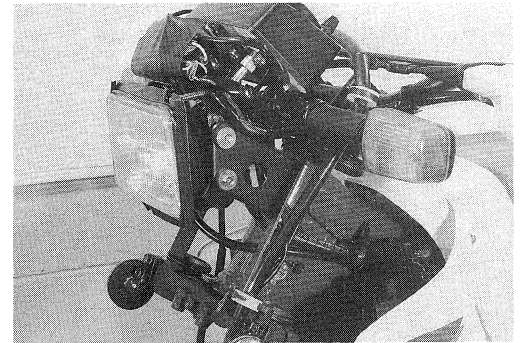
- Disconnect the horn lead wires.



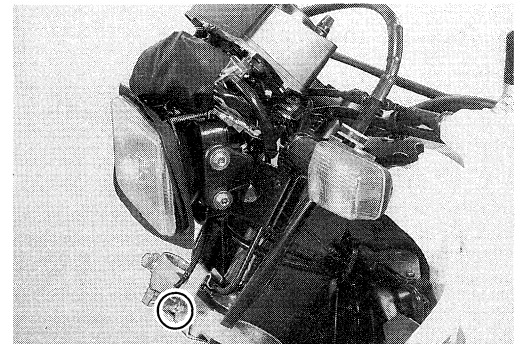
- Remove the headlight cover.



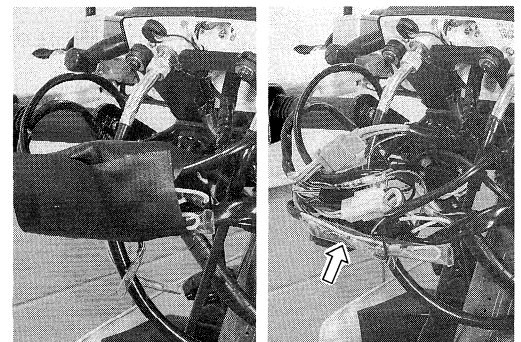
- Remove the headlight holder with the headlight by disconnecting the headlight and position light lead wires . . . . . For conventional front fork model.



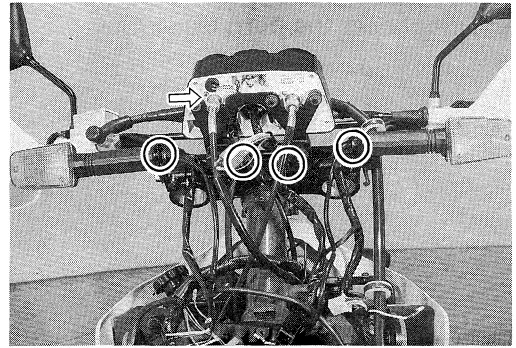
- Remove the headlight holder by removing the lower bracket and disconnecting the headlight and position light lead wires . . . . . For inverted front fork model.



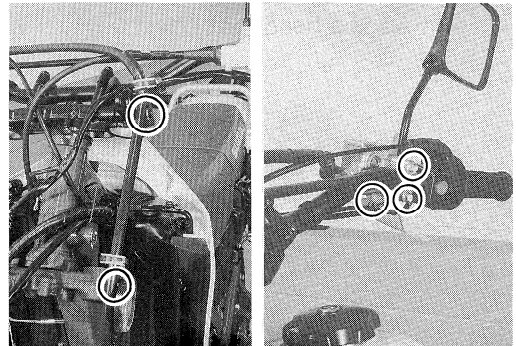
- Remove the lead wire cover.
- Disconnect the lead wires.



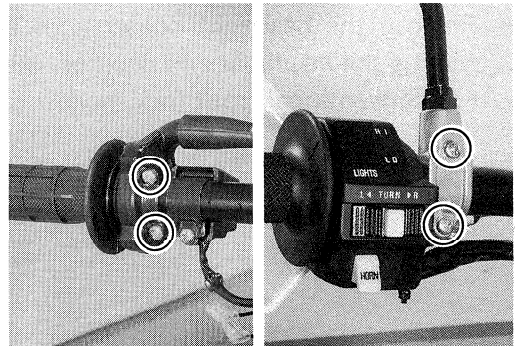
- Disconnect the tachometer cable.
- Remove the speedometer/tachometer assembly.
- Remove the turn signal light.



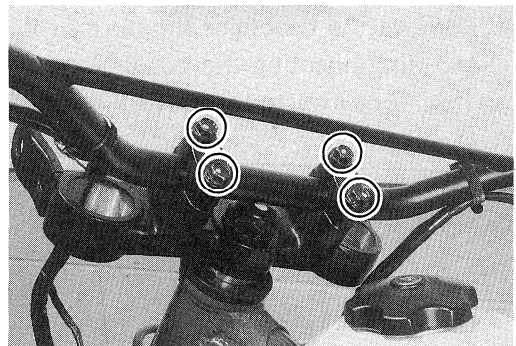
- Remove the front brake hose guide.
- Disconnect the front brake light switch lead wires.
- Remove the master cylinder with brake lever.



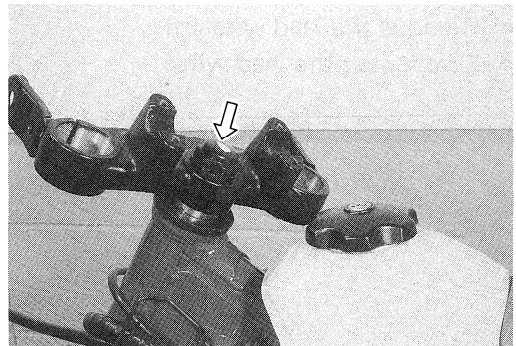
- Remove the throttle cable case.
- Remove the clutch lever holder.



- Remove the handlebar.



- Remove the steering stem upper bracket.

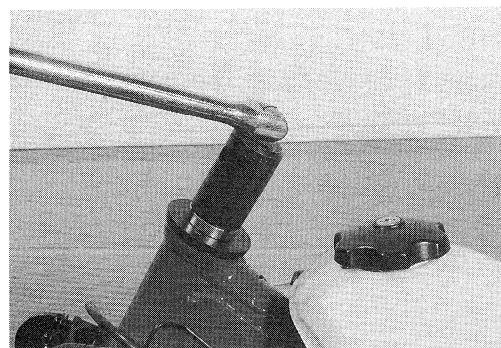


- Remove the steering stem nut with the special tool.

**09940-14920 : Steering nut socket wrench**

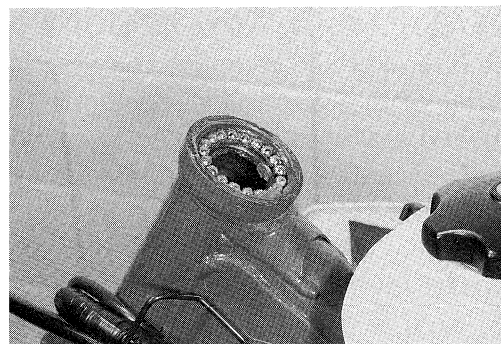
**NOTE:**

*Hold the steering stem lower bracket by hand to prevent it from falling.*



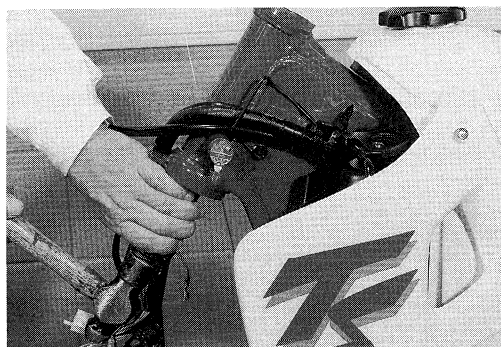
- Remove the steel balls.

**Number of balls : 18 pcs**



- Remove the steering stem upper bearing race with the special tool.

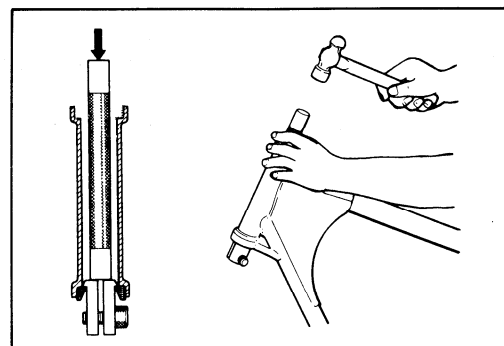
**09941-74910 : Steering bearing installer and remover**



- Remove the steering stem lower bearing race with the special tools.

**09941-54911 : Bearing outer race remover**

**09941-74910 : Steering bearing installer and remover**

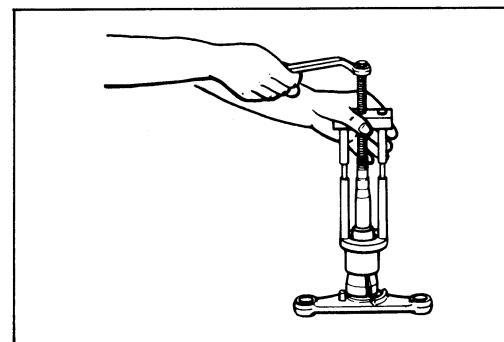


- Remove the steering stem lower bearing with the special tool.

**09941-84510 : Bearing remover**

**CAUTION:**

**The removed bearing should be replaced with a new one.**



## INSPECTION

Inspect and check the removed parts for the following abnormalities.

- \* Bearing race wear and brinelling.
- \* Worn or damaged steel balls.
- \* Distortion of steering stem upper and lower brackets.

## REASSEMBLY AND REMOUNTING

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

- Reassemble and remount the steering stem. (Refer to page 7-16.)

### INNER AND OUTER RACES

- Press in the upper and lower inner races with the special tool.

### 09941-34513 : Steering race installer

- Install the lower bearing with the special tool.

### 09941-74910 : Steering bearing installer

- Apply grease to the upper race and lower bearing.

### 99000-25010 : SUZUKI Super grease "A"

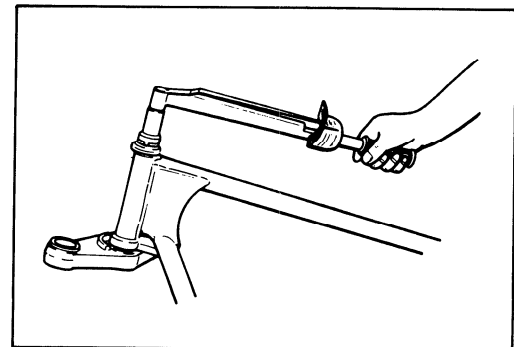
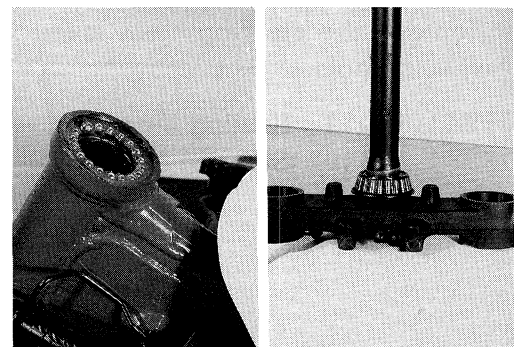
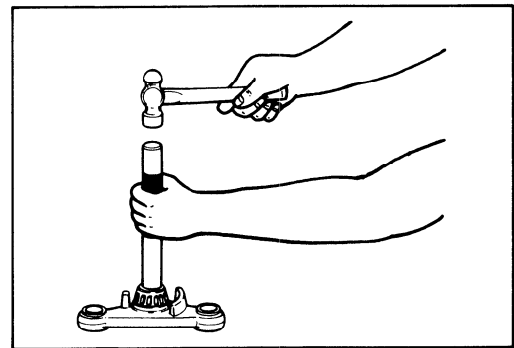
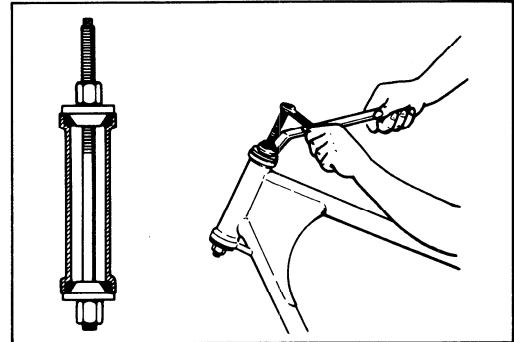
- Install the steel balls to the upper race.

Number of balls : 18 pcs

### STEM NUT

- Tighten the steering stem nut to 40 – 50 N·m (4.0 – 5.0 kg-m, 29.0 – 36.0 lb-ft)

### 09940-14920 : Steering stem nut wrench



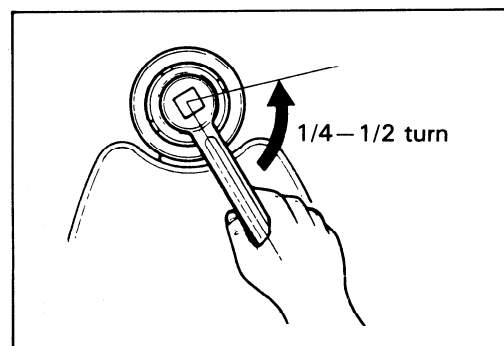
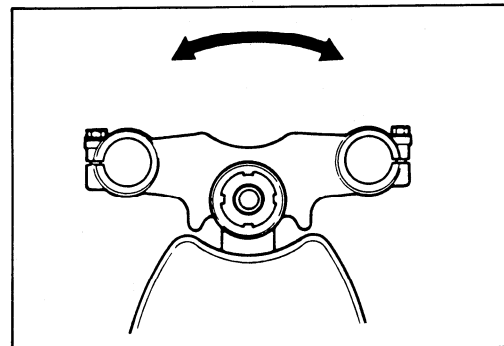
- Turn the steering stem bracket about five or six times to the left and right until it locks in position so that the taper roller bearing will be seated properly.
- Turn back the stem nut by 1/4 – 1/2 turn.

**NOTE:**

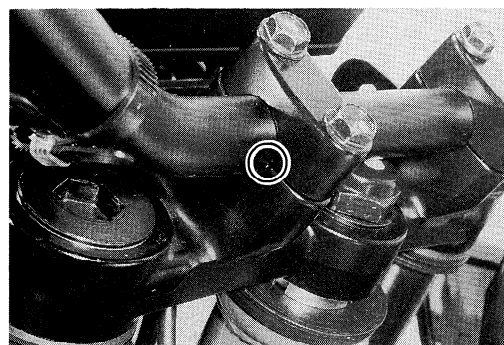
*This adjustment will vary from motorcycle to motorcycle.*

**CAUTION:**

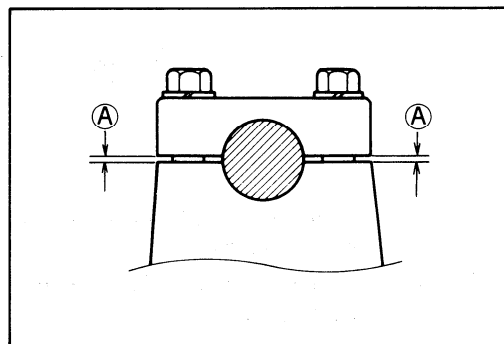
**After performing the adjustment and installing the steering stem upper bracket, "rock" the front wheel assembly forward and back to ensure that there is no play and that the procedure was accomplished correctly. Finally check to be sure that the steering stem moves freely from left to right with own weight. If play or stiffness is noticeable, re-adjust the steering stem nut.**

**HANDLEBAR**

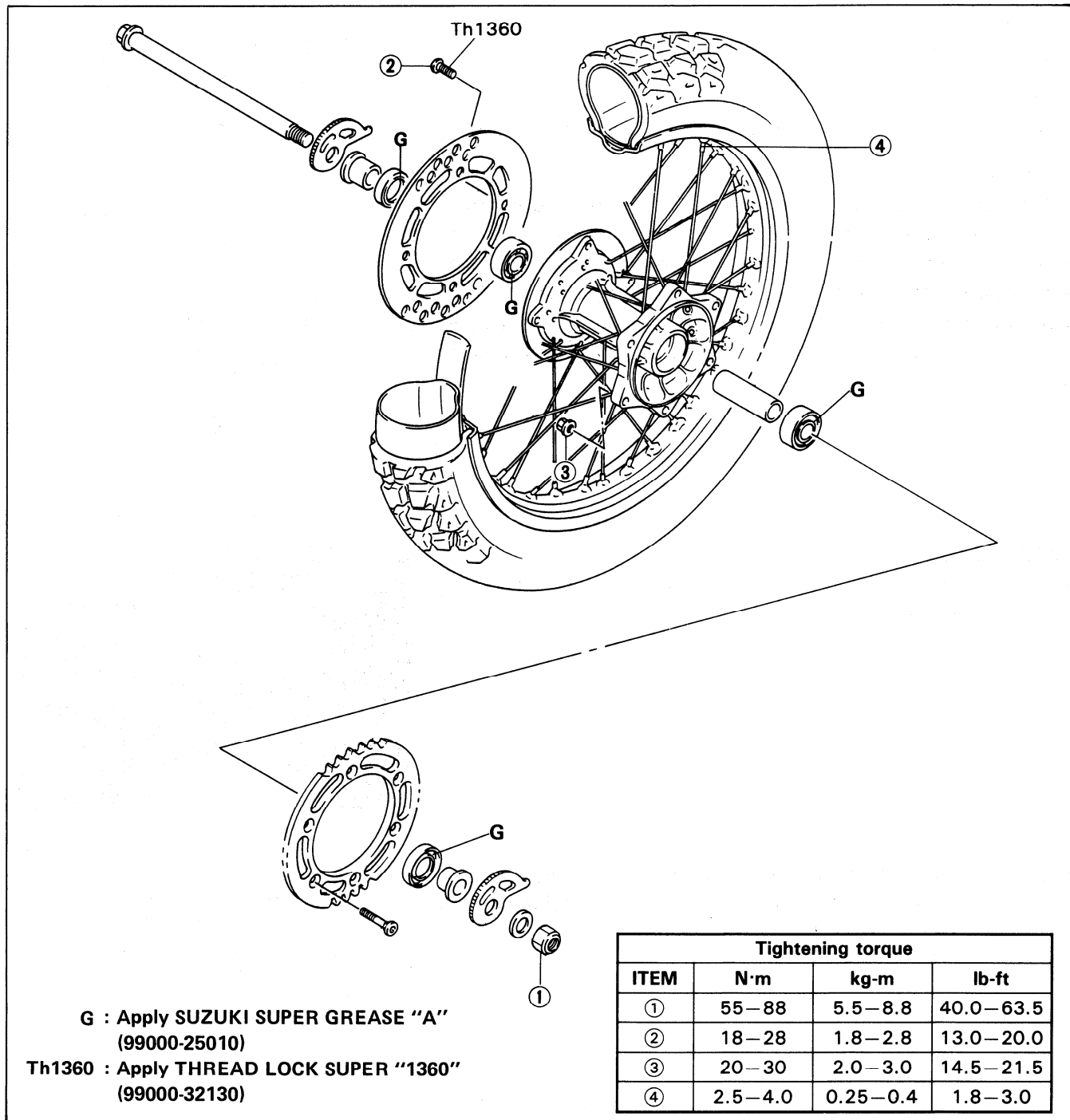
- Set the handlebar to match its punched mark to the mating face of the holder.



- Secure the each handlebar clamp in such a way that the clearance  $\textcircled{A}$  ahead of and behind the handlebar should be equalized.

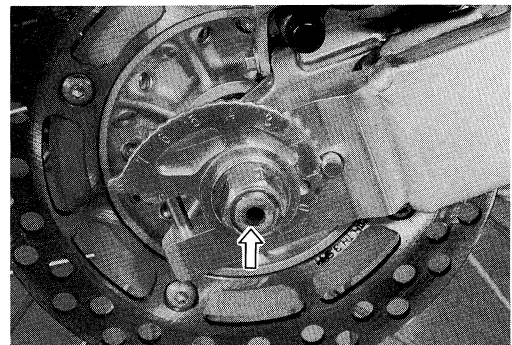


## REAR WHEEL



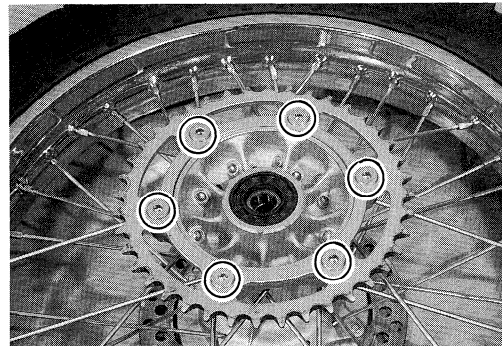
## REMOVAL

- Support the motorcycle with the jack or wooden block.
- Loosen the rear axle nut, and adjust the drive chain adjusters to loosenest position.
- Remove the rear axle shaft.
- Disengage the drive chain from the rear sprocket and remove the rear wheel.

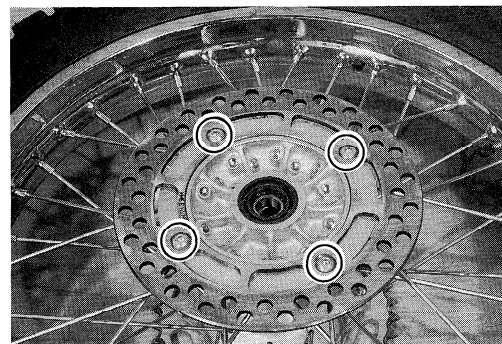




- Remove the rear sprocket.



- Remove the rear disc.



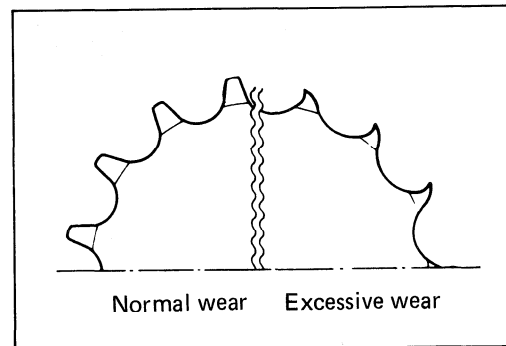
## INSPECTION AND DISASSEMBLY

### WHEEL BEARING (Refer to page 7-3.)

#### SPROCKET

Inspect the sprocket teeth for wear.

If they are worn as illustrated, replace the sprocket and drive chain.



**AXLE SHAFT** ..... Refer to page 7- 3

**WHEEL RIM**..... Refer to page 7- 3

**REAR TIRE** ..... Refer to page 2-13

**THREAD DEPTH** Service Limit : 3.0 mm (0.12 in)

**SPOKE NIPPLE**..... Refer to page 7- 4



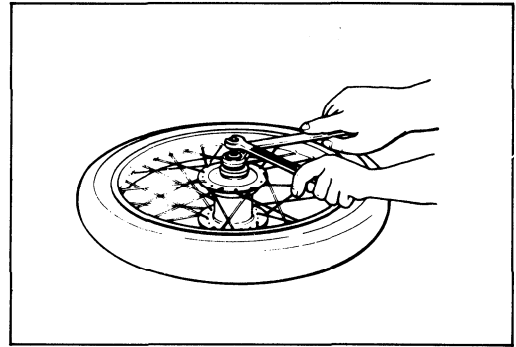
## REASSEMBLY AND REMOUNTING

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

- Reassemble and remount the rear wheel. (Refer to page 7-22.)
- Install the wheel bearing with the special tools.

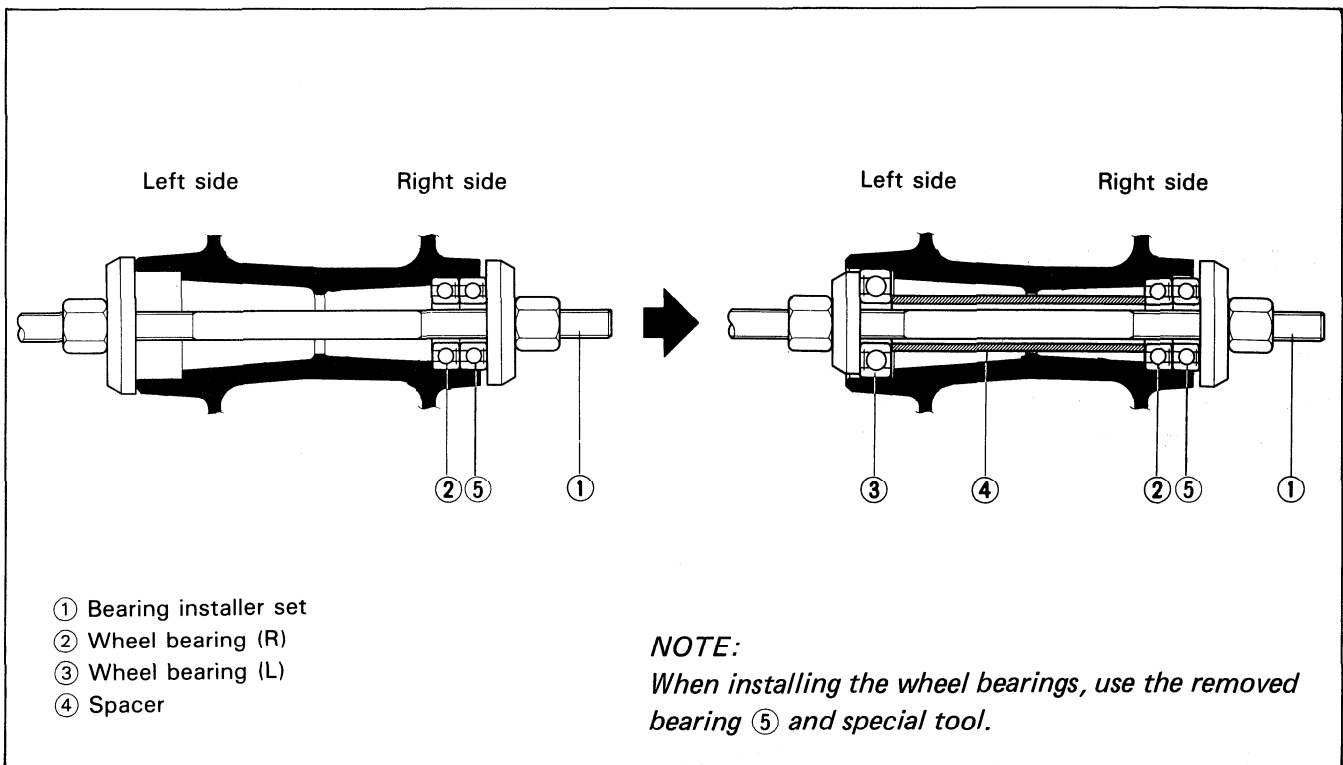
**09924-84510 : Bearing installer**

**09924-84521 : Bearing installer**



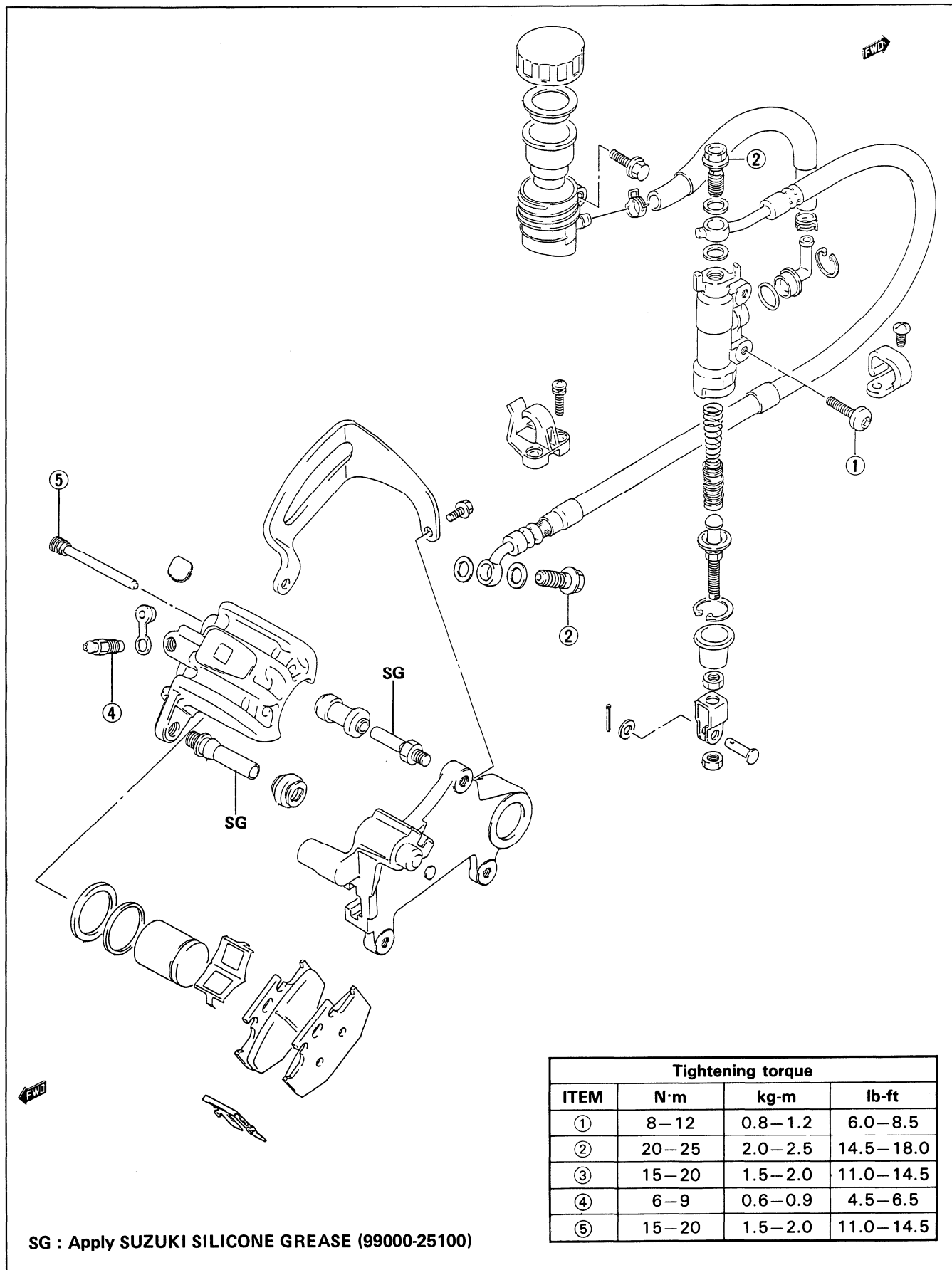
### CAUTION:

First install the wheel bearing for right side.



- After remounting the rear wheel, adjust the drive chain slack. (Refer to page 2-9.)

# REAR BRAKE



Tightening torque			
ITEM	N·m	kg·m	lb·ft
①	8-12	0.8-1.2	6.0-8.5
②	20-25	2.0-2.5	14.5-18.0
③	15-20	1.5-2.0	11.0-14.5
④	6-9	0.6-0.9	4.5-6.5
⑤	15-20	1.5-2.0	11.0-14.5

SG : Apply SUZUKI SILICONE GREASE (99000-25100)

## BRAKE PAD REPLACEMENT

- Remove the rear wheel. (Refer to page 7-31.)
- Remove the caliper cover.

### NOTE:

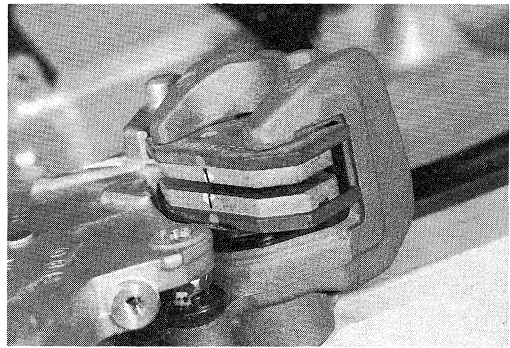
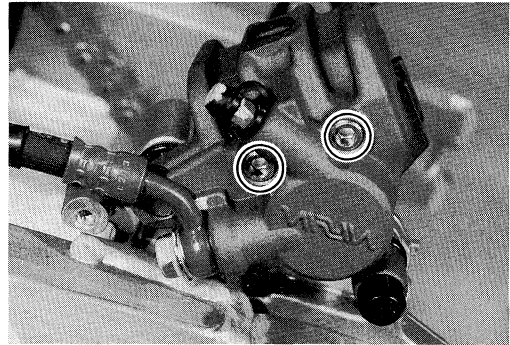
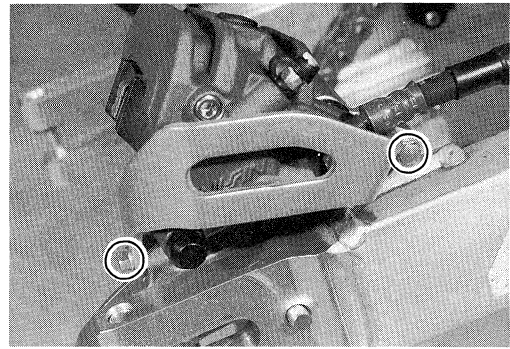
*Do not operate the brake pedal while dismantling the rear wheel.*

- Remove the brake pads by removing the pads mounting bolts.

### CAUTION:

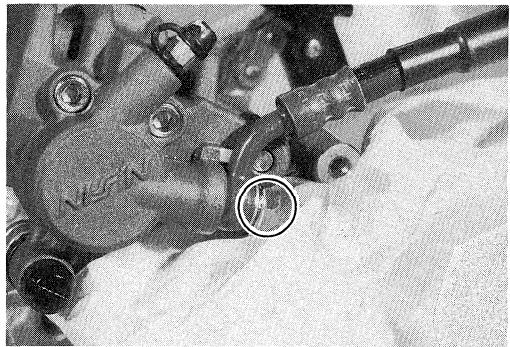
Replace the brake pad as a set, otherwise braking performance will be adversely affected.

- Reassemble and remount the caliper. (Refer to page 7-26.)

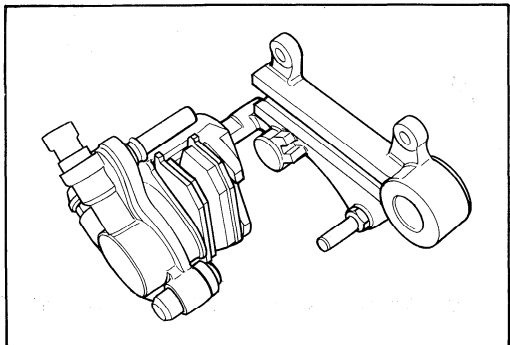


## CALIPER REMOVAL AND DISASSEMBLY

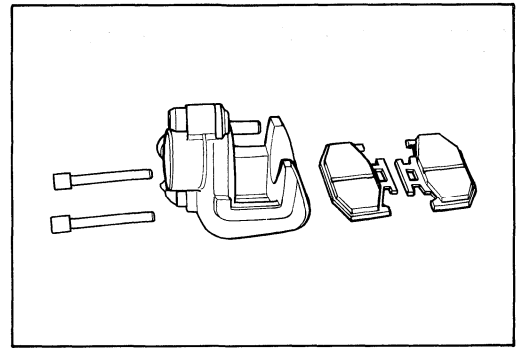
- Remove the rear wheel. (Refer to page 7-22.)
- Remove the caliper cover.
- Place a cloth underneath the union bolt on the caliper.
- Disconnect the brake hose and catch the brake fluid in a suitable receptacle.
- Remove the caliper.



- Remove the caliper holder.



- Remove the pads by removing the mounting bolts.

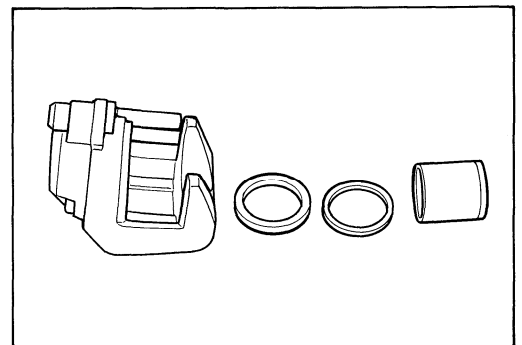
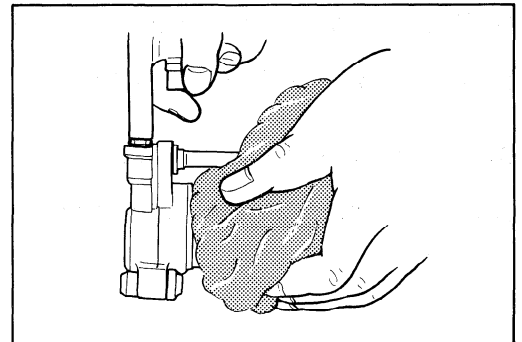


- Place a rag over the piston to prevent popping up. Force out the piston with a air gun.

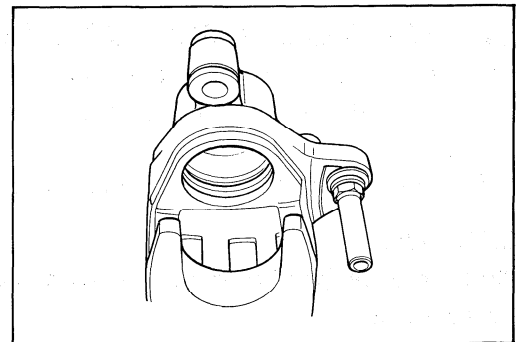
**CAUTION:**

**Do not use high pressure air to prevent piston damage.**

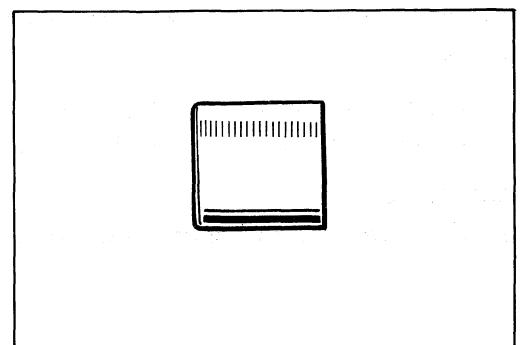
- Remove the dust seal and piston seal.

**CALIPER AND DISC INSPECTION**

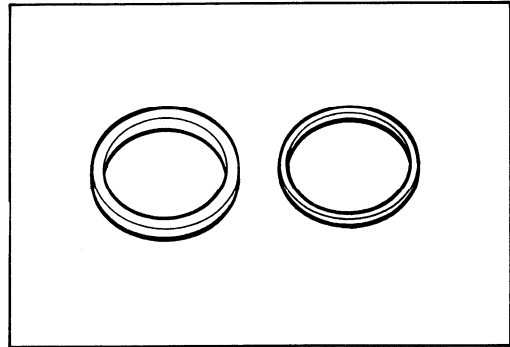
Inspect the caliper cylinder bore wall for nicks, scratches or other damage.



Inspect the piston for damage and wear.



Inspect each rubber part for damage and wear.



**DISC THICKNESS** (Refer to page 7-9.)

**Service Limit : 3.5 mm (0.14 in)**

**DISC RUNOUT** (Refer to page 7-9.)

**Service Limit : 0.3 mm (0.012 in)**

### CALIPER REASSEMBLY AND REMOUNTING

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

- Reassemble and remount the caliper. (Refer to page 7-34.)

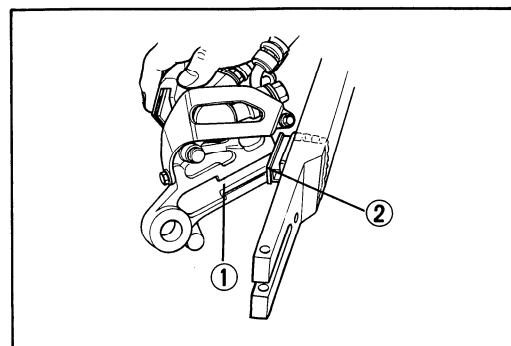
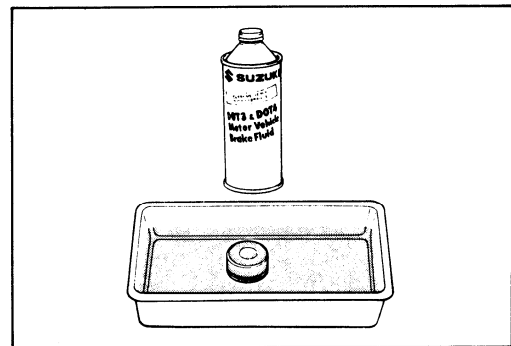
#### CAUTION:

**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.**

- When remounting the caliper, align the groove ① of the caliper holder with guide ② of the swingarm.



#### WARNING:

**Bleed air after reassembling the caliper (Refer to page 2-12.)**

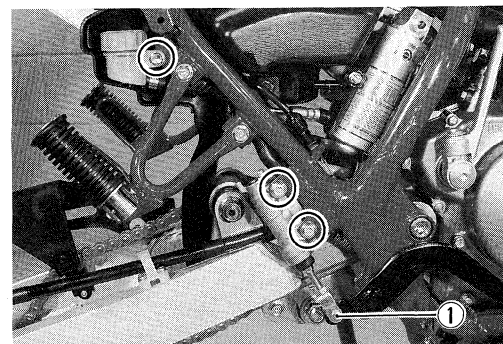
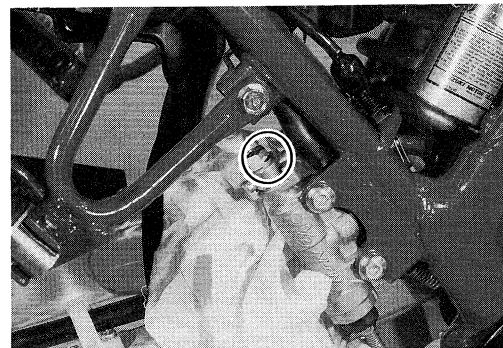
## MASTER CYLINDER REMOVAL AND DISASSEMBLY

- 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.

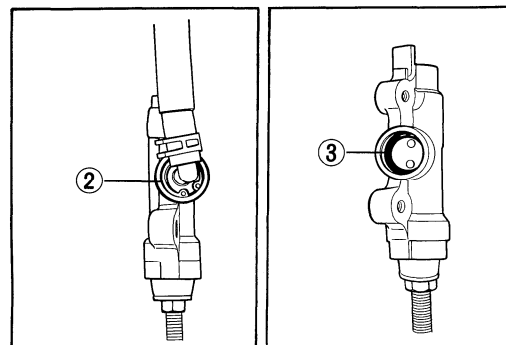
- Remove the reservoir tank mounting bolt.
- Remove the cotter pin and pin ①.



- Remove the connector by removing the circlip ② with the special tool.

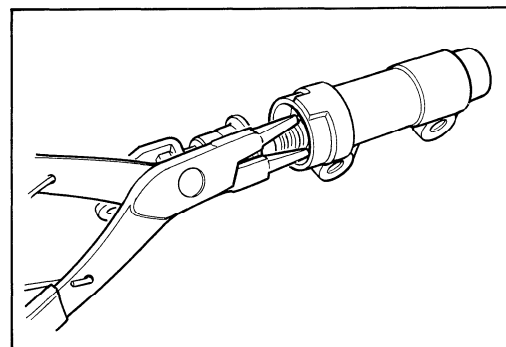
**09900-06108 : Snap ring pliers**

- Remove the O-ring ③.

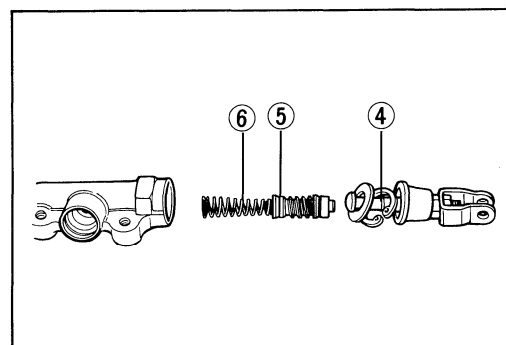


- Remove the dust boot.
- Remove the circlip with the special tool.

**09900-06108 : Snap ring pliers**

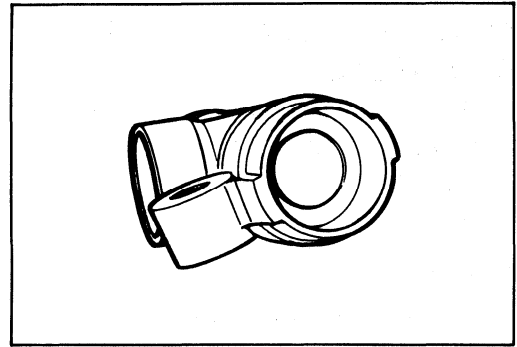


- Remove the rod ④, piston/primary cup ⑤ and spring ⑥.

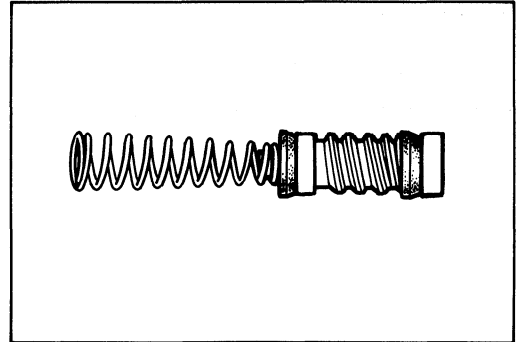


## MASTER CYLINDER INSPECTION

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



Inspect the piston surface for scratches or other damage.  
Inspect the primary cup for damage.



## MASTER CYLINDER REASSEMBLY AND REMOUNTING

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

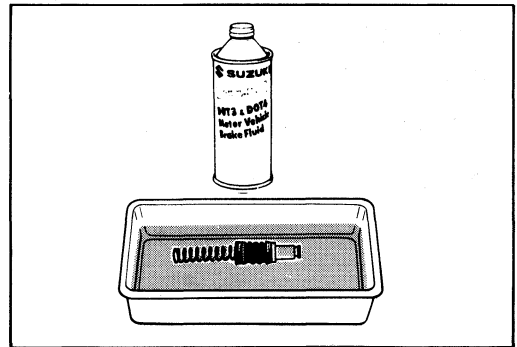
### CAUTION:

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

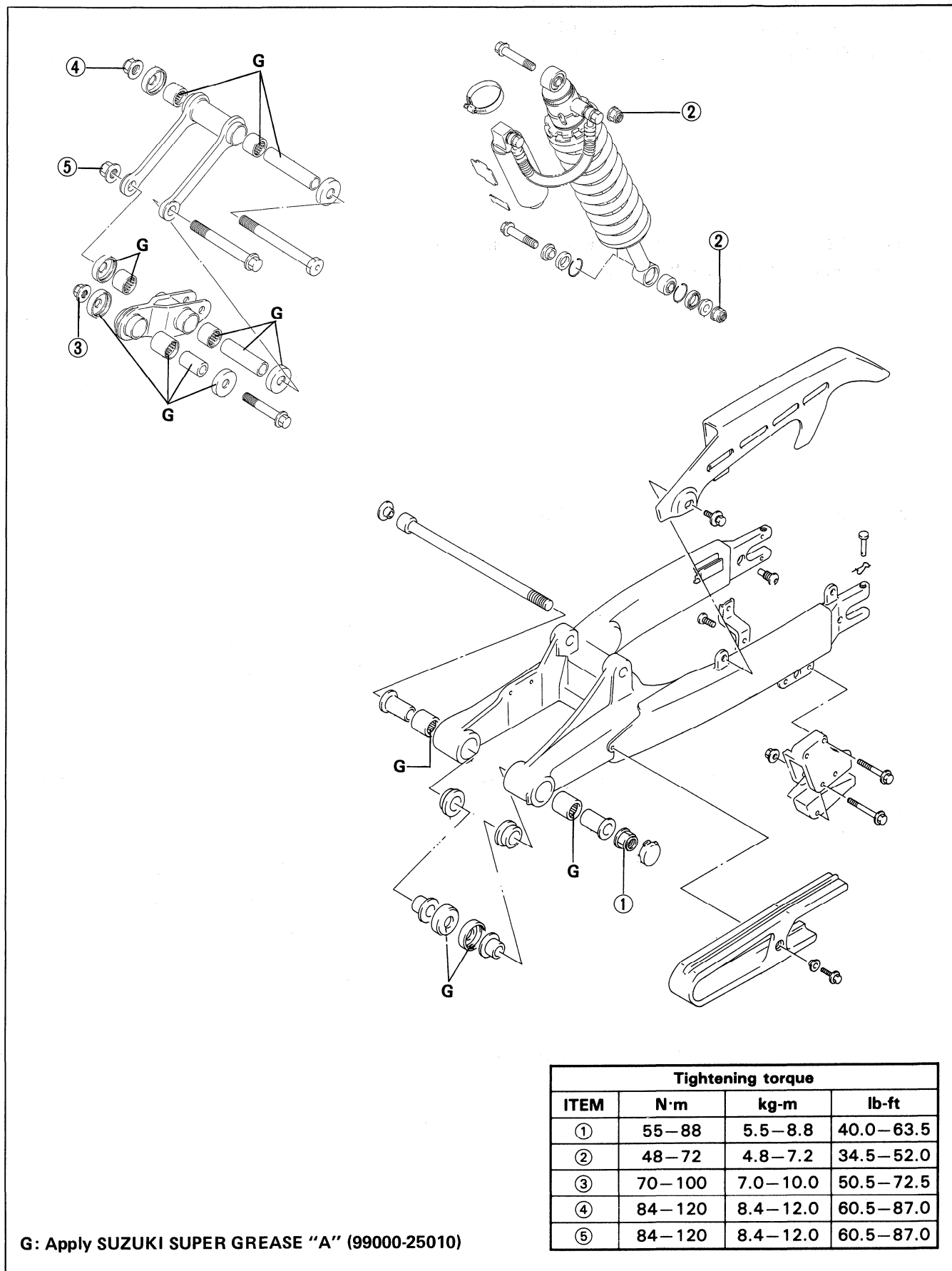
- Remount the master cylinder. (Refer to page 7-34.)

### CAUTION:

- \* Bleed air after reassembling the master cylinder. (Refer to page 2-12.)
- \* Adjust the rear brake light switch and brake pedal height after installation. (Refer to page 2-11.)



# REAR SWINGARM AND SUSPENSION



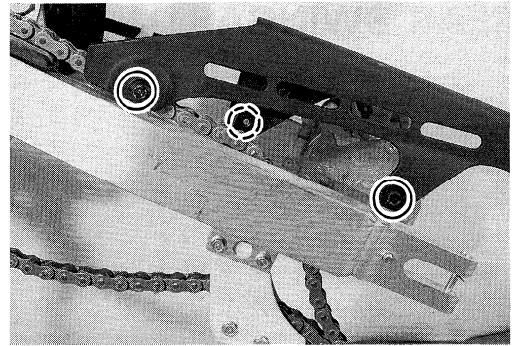
ITEM	Tightening torque		
	N·m	kg·m	lb·ft
①	55-88	5.5-8.8	40.0-63.5
②	48-72	4.8-7.2	34.5-52.0
③	70-100	7.0-10.0	50.5-72.5
④	84-120	8.4-12.0	60.5-87.0
⑤	84-120	8.4-12.0	60.5-87.0

G: Apply SUZUKI SUPER GREASE "A" (99000-25010)

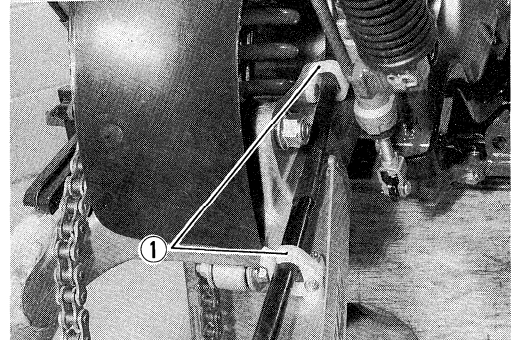


## REMOVAL

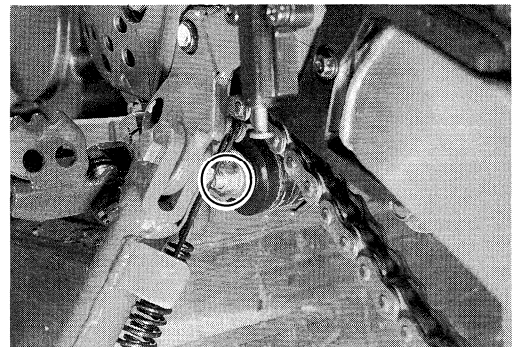
- Remove the seat and fuel tank. (Refer to page 3-2.)
- Remove the rear wheel. (Refer to page 7-31.)
- Remove the chain cover and chain guide.



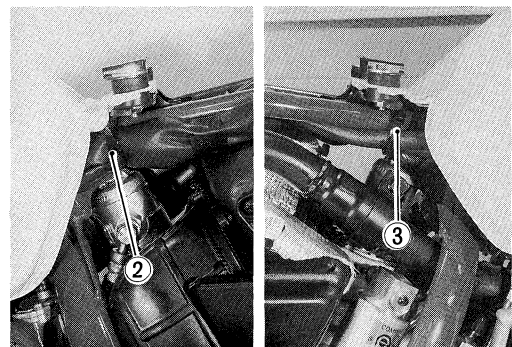
- Remove the rear brake caliper with the brake hose by separating the brake hose from the hose guide ①.



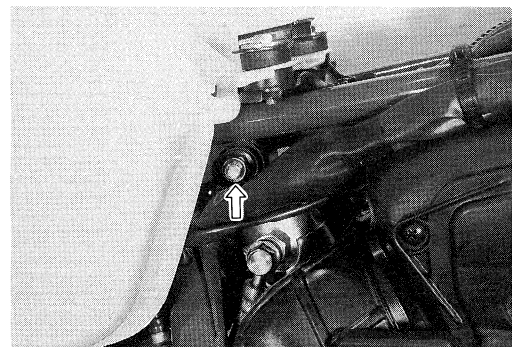
- Remove the chain roller and cushion rod bolt.



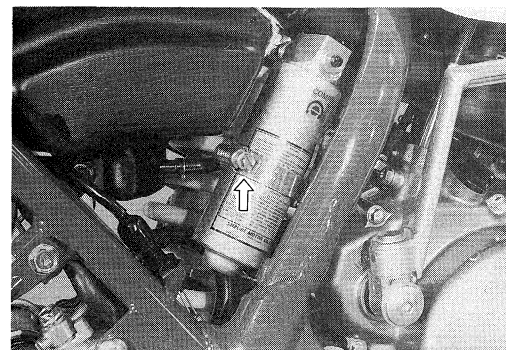
- Remove the wiring harness clamp ② and interference hose clamp ③.



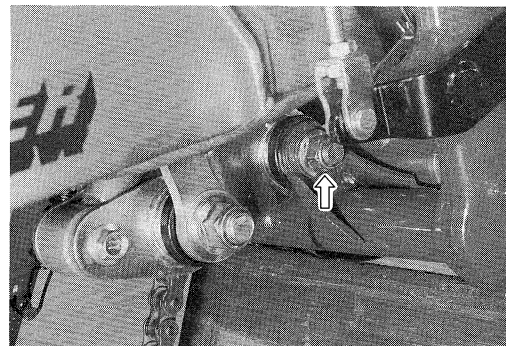
- Remove the rear shock absorber upper mounting bolt.



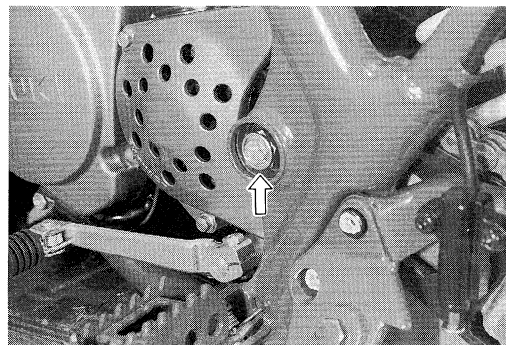
- Loosen the rear shock absorber reservoir tank mounting clamp.



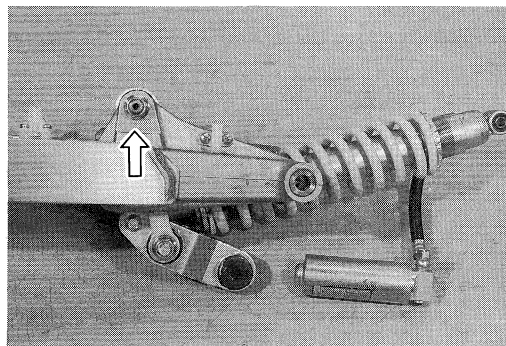
- Remove the cushion lever mounting nut and bolt.



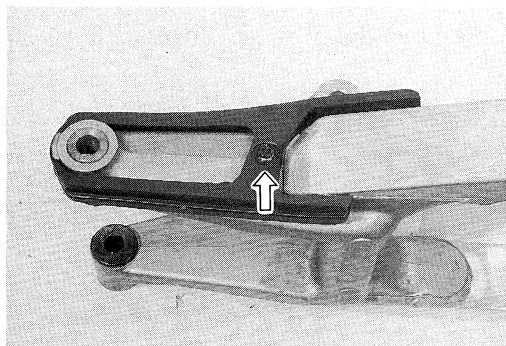
- Remove the rear swingarm with suspension by removing the swingarm pivot shaft.



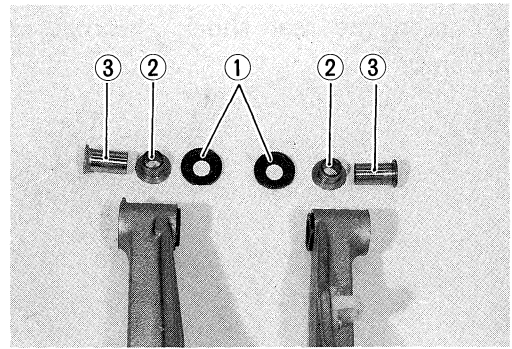
- Remove the suspension mounting nut and bolt.



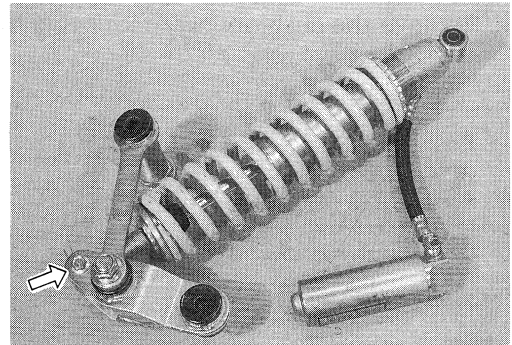
- Remove the chain buffer by removing the bolts.



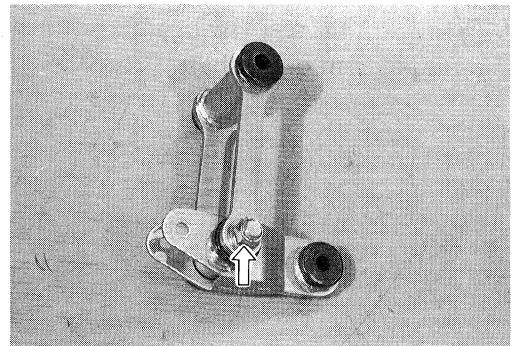
- Remove the dust seal covers ① and spacers ( ② , ③ ).



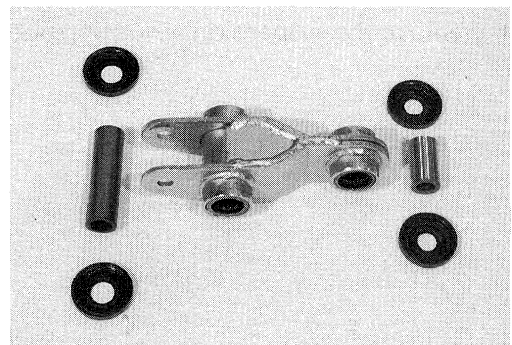
- Remove the shock absorber.



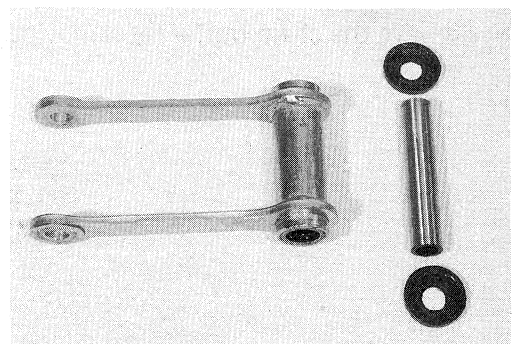
- Remove the cushion lever.



- Remove the dust seal covers and spacers.



- Remove the dust seal covers and spacer.



## INSPECTION AND DISASSEMBLY BEARING

Inspect the rotates of the swingarm bearing, shock absorber bearing, and cushion rod bearing by hand while fixing it in the swingarm and cushion rod.

Rotate the needle roller bearing by hand to inspect whether abnormal noise occurs or it rotates smoothly.

Replace the bearing if there is anything unusual.

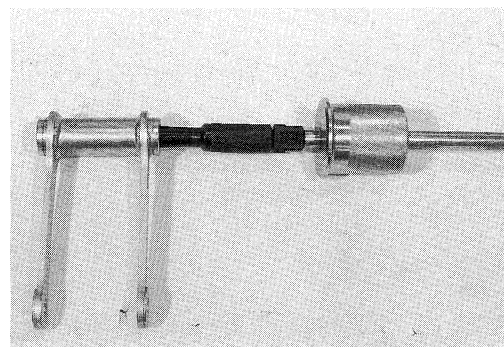
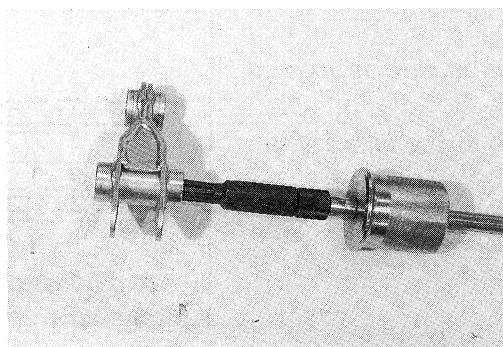
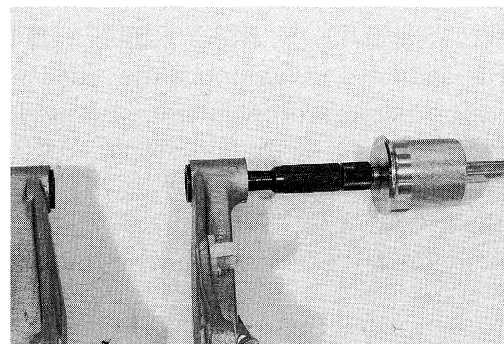
- Remove the bearings from the swingarm, cushion lever and cushion rod with the special tools.

**09923-73210 : Bearing remover**

**09930-30102 : Sliding shaft**

### CAUTION:

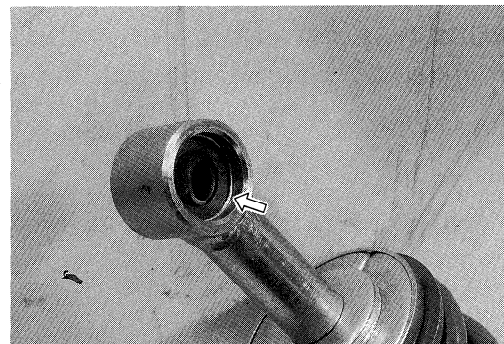
**The removed bearings should be replaced with new ones.**



- Remove the stopper ring and bearing.

### CAUTION:

**The removed bearing should be replaced with new one.**

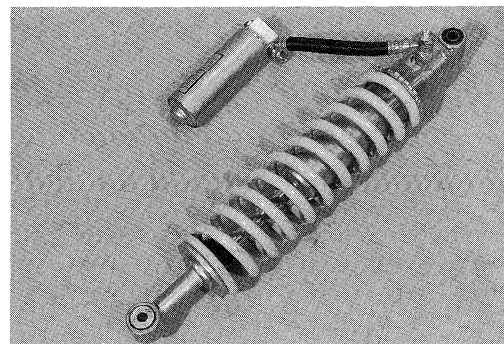


## SHOCK ABSORBER

Inspect the shock absorber for oil leakage or other damage.

### CAUTION:

**Do not attempt to disassemble the shock absorber unit. It is not serviceable.**



### SWINGARM PIVOT SHAFT

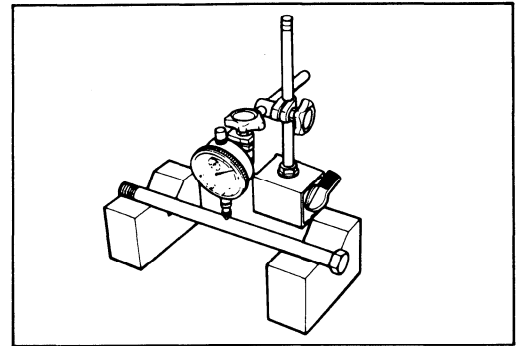
Check the pivot shaft for runout with the special tools.

**Service Limit : 0.3 mm (0.01 in)**

**09900-20606 : Dial gauge**

**09900-20701 : Magnetic stand**

**09900-21303 : V-block**



### REASSEMBLY AND REMOUNTING

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

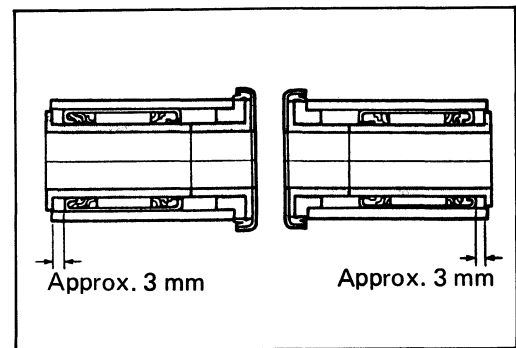
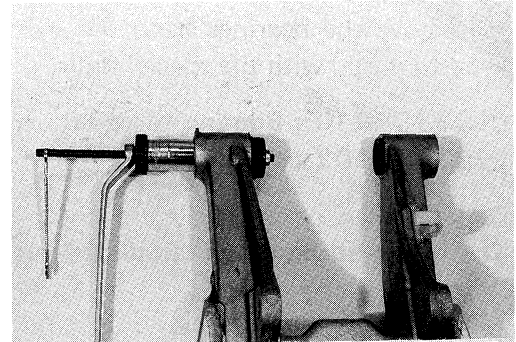
#### SWINGARM BEARING

- Install the new bearing with the suitable socket and special tool.

**09924-84510 : Bearing installer**

#### NOTE:

- \* *When installing the bearing, punch-marked side of bearing faces outside.*
- \* *The bearing fixed position is as shown in the illustration.*



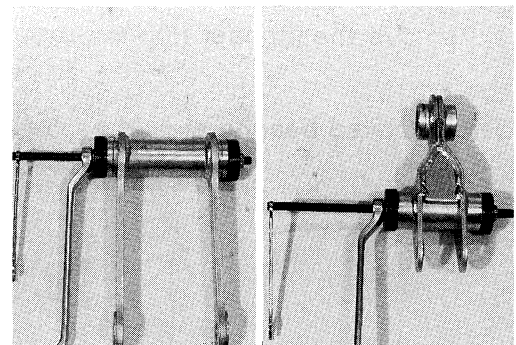
#### CUSION LEVER AND CUSION ROD BEARING

- Install the new bearing with the special tool.

**09924-84510 : Bearing installer**

#### NOTE:

*When installing the bearing, punch-mark side of bearing faces outside.*



- Remount the rear swingarm and suspension. (Refer to pages 7-40 and 7-47.)



## SHOCK ABSORBER SPRING PRE-LOAD ADJUSTMENT

Adjust the spring tension of the shock absorber by turning the spring pre-load adjuster ring with the special tool.

Standard spring pre-set length : 260 mm (10.2 in)

09910-60611 : Universal clamp wrench

### CAUTION:

After adjusting the pre-load, tighten the spring adjuster lock ring securely.

### SETTING TABLE

Spring length

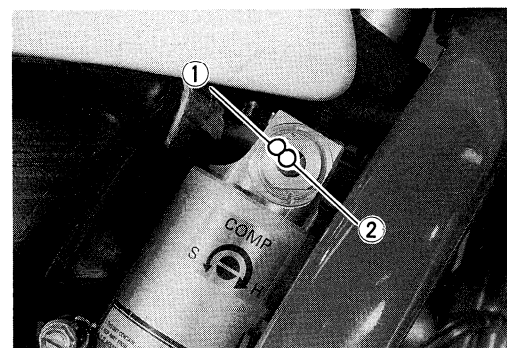
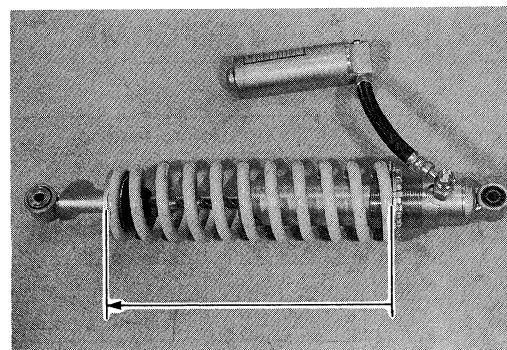
STD : 260 mm (10.2 in)

Damping force adjuster

STD : Max.  $-1\frac{1}{4}$

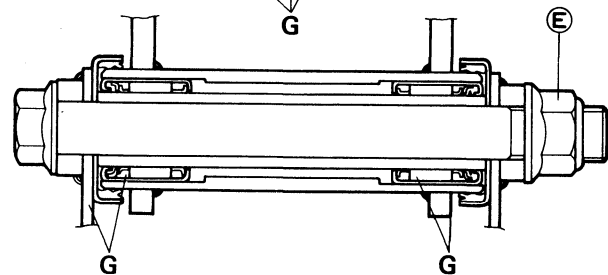
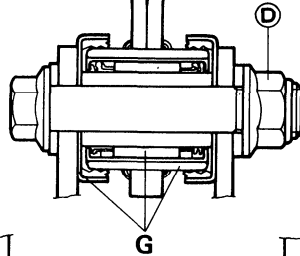
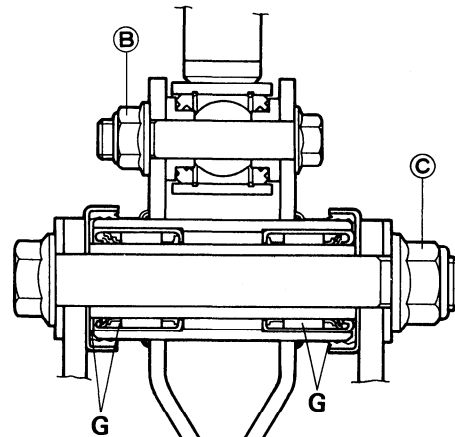
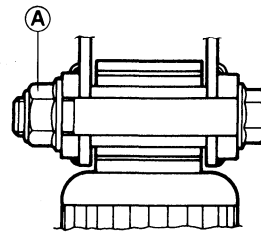
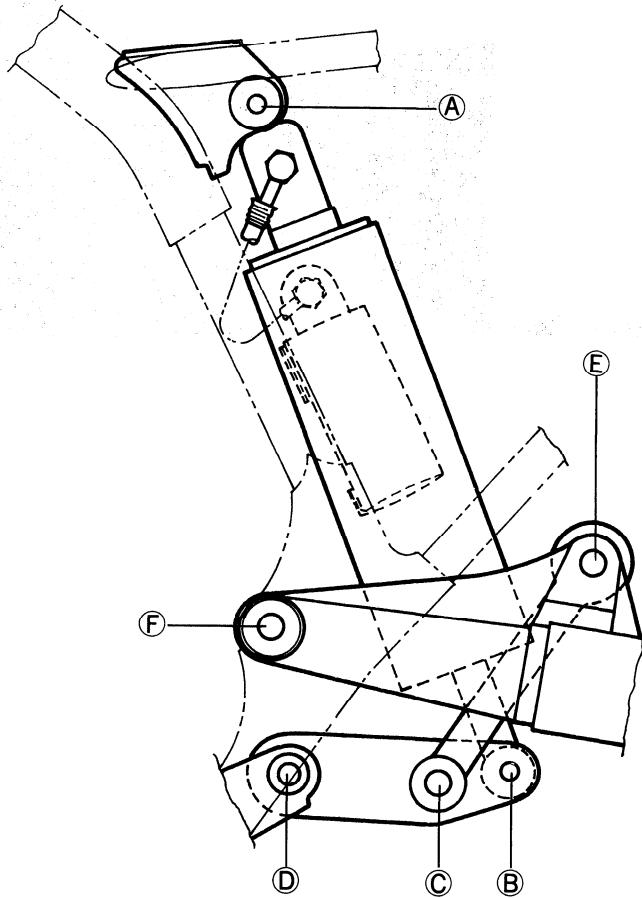
### CAUTION:

Make sure that the punched marks ( ① , ② ) are aligned after adjusting the damping force adjuster.

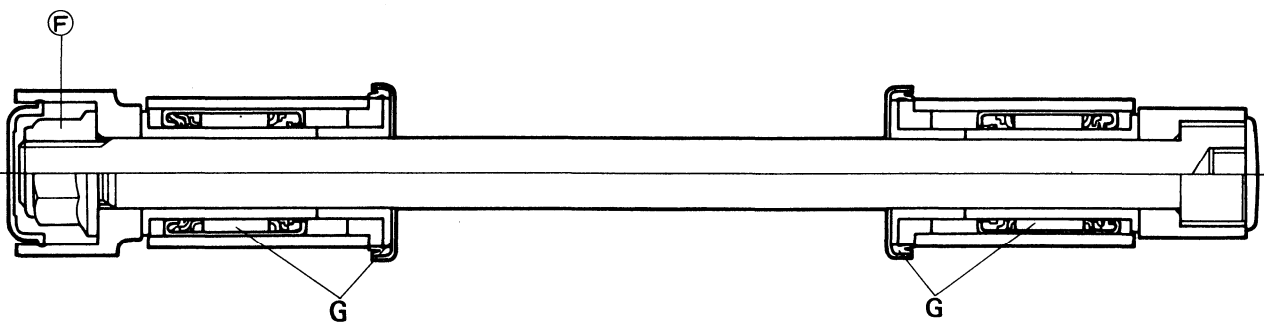


REASSEMBLING INFORMATION

Tightening torque			
ITEM	N·m	kg-m	lb-ft
(A, B)	48-72	4.8-7.2	34.5-52.0
(C, E)	84-120	8.4-12.0	60.5-87.0
(D)	70-100	7.0-10.0	50.5-72.5
(F)	55-88	5.5-8.8	40.0-63.5



G : Apply SUZUKI SUPER GREASE "A"  
(99000-25010)



# SERVICING INFORMATION

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## TROUBLESHOOTING

### ENGINE

Complaint	Symptom and possible causes	Remedy
<b>Engine will not start, or is hard to start.</b>	<p><b>Plug not sparking</b></p> <ol style="list-style-type: none"> <li>1. Fouled spark plug.</li> <li>2. Wet spark plug.</li> <li>3. Defective ignition coil.</li> <li>4. Open or short in high-tension cord.</li> <li>5. Defective pick-up coil, primary coil or CDI unit.</li> </ol> <p><b>No fuel reaching the carburetor</b></p> <ol style="list-style-type: none"> <li>1. Clogged hole in the fuel tank cap.</li> <li>2. Clogged or defective fuel cock.</li> <li>3. Defective carburetor needle valve.</li> <li>4. Clogged fuel pipe.</li> </ol> <p><b>Compression too low</b></p> <ol style="list-style-type: none"> <li>1. Excessively worn cylinder or piston rings.</li> <li>2. Stiff piston ring in place.</li> <li>3. Gas leaks from the joint in crankcase, cylinder or cylinder head.</li> <li>4. Damaged reed valve.</li> <li>5. Spark plug too loose.</li> <li>6. Worn crankshaft oil seal.</li> </ol>	<p>Clean. Clean and dry. Replace. Replace. Replace.</p> <p>Clean. Clean or replace. Replace. Clean.</p> <p>Replace Repair or replace Repair or replace</p> <p>Replace Retighten. Replace.</p>
<b>Engine stalls easily.</b>	<ol style="list-style-type: none"> <li>1. Fouled spark plug.</li> <li>2. Defective pick-up coil, primary coil or CDI unit.</li> <li>3. Clogged fuel pipe.</li> <li>4. Clogged jets in carburetor.</li> </ol>	<p>Clean. Replace. Replace. Clean.</p>
<b>Noisy engine.</b>	<p><b>Noise appears to come from piston</b></p> <ol style="list-style-type: none"> <li>1. Piston or cylinder worn down.</li> <li>2. Combustion chamber fouled with carbon.</li> <li>3. Piston pin or piston pin bore worn.</li> <li>4. Piston ring groove worn.</li> <li>5. Piston pin bearing worn.</li> </ol> <p><b>Noise seems to come from clutch</b></p> <ol style="list-style-type: none"> <li>1. Worn splines of countershaft or hub.</li> <li>2. Worn teeth of clutch plates.</li> <li>3. Distorted clutch plates, driven and drive.</li> </ol> <p><b>Noise seems to come from crankshaft</b></p> <ol style="list-style-type: none"> <li>1. Rattling bearings due to wear.</li> <li>2. Big-end bearings worn and burnt.</li> <li>3. Journal bearing worn and burnt.</li> </ol> <p><b>Noise seems to come from transmission</b></p> <ol style="list-style-type: none"> <li>1. Gears worn or rubbing.</li> <li>2. Badly worn splines.</li> <li>3. Primary gears worn or rubbing.</li> </ol>	<p>Replace. Clean. Replace. Replace. Replace.</p> <p>Replace. Replace. Replace.</p> <p>Replace. Replace. Replace.</p> <p>Replace. Replace. Replace.</p>
<b>Slipping clutch</b>	<ol style="list-style-type: none"> <li>1. Clutch control out of adjustment or loss of play.</li> <li>2. Weakened clutch springs.</li> <li>3. Worn or distorted pressure plate.</li> <li>4. Distorted clutch plates, driven and drive.</li> </ol>	<p>Adjust. Replace. Replace. Replace.</p>

Complaint	Symptom and possible causes	Remedy
<b>Dragging clutch</b>	<ol style="list-style-type: none"> <li>1. Clutch control out of adjustment or too much play.</li> <li>2. Some clutch springs weakened while others are not.</li> <li>3. Distorted pressure plate or clutch plates.</li> </ol>	Adjust. Replace. Replaces.
<b>Transmission will not shift.</b>	<ol style="list-style-type: none"> <li>1. Broken gearshift cam.</li> <li>2. Distorted gearshift forks.</li> <li>3. Worn gearshift shaft.</li> </ol>	Replace. Replace. Replace.
<b>Transmission will not shift back.</b>	<ol style="list-style-type: none"> <li>1. Broken return spring on gearshift shaft.</li> <li>2. Fork shafts are rubbing or sticky.</li> </ol>	Replace. Repair or replace.
<b>Transmission jumps out of gear.</b>	<ol style="list-style-type: none"> <li>1. Worn shifting gears on driveshaft or countershaft.</li> <li>2. Distorted or worn gearshift forks.</li> <li>3. Weakened stopper spring on gearshift stopper.</li> </ol>	Replace. Replace. Replace.
<b>Engine idles poorly.</b>	<ol style="list-style-type: none"> <li>1. Spark plug gaps too wide.</li> <li>2. Defective ignition coil.</li> <li>3. Defective pick-up coil, primary coil or CDI unit.</li> <li>4. Float-chamber fuel level out of adjustment in carburetor.</li> <li>5. Clogged jets.</li> </ol>	Adjust. Replace. Replace. Adjust. Clean or adjust.
<b>Engine runs poorly in highspeed range.</b>	<ol style="list-style-type: none"> <li>1. Spark plug gaps too narrow.</li> <li>2. Clogged jets.</li> <li>3. Defective ignition coil.</li> <li>4. Defective pick-up coil, primary coil or CDI unit.</li> <li>5. Float-chamber fuel level too low.</li> <li>6. Clogged air cleaner element.</li> <li>7. Clogged fuel pipe, resulting in inadequate fuel supply to carburetor.</li> </ol>	Adjust. Clean. Replace. Replace. Adjust. Clean. Clean and prime.
<b>Dirty or heavy exhaust smoke.</b>	<ol style="list-style-type: none"> <li>1. Oil pump out of adjustment.</li> <li>2. Damage or worn crankshaft oil seal.</li> </ol>	Adjust. Replace.
<b>Engine lacks power.</b>	<ol style="list-style-type: none"> <li>1. Worn piston rings or cylinder.</li> <li>2. Spark plug gaps incorrect.</li> <li>3. Clogged jets in carburetor.</li> <li>4. Float-chamber fuel level out of adjustment.</li> <li>5. Clogged air cleaner element.</li> <li>6. Sucking air from intake pipe.</li> <li>7. Supplying too much engine oil.</li> </ol>	Replace. Adjust or replace. Clean. Adjust. Clean. Retighten or replace. Adjust oil pump.
<b>Engine overheats.</b>	<ol style="list-style-type: none"> <li>1. Heavy carbon deposit on piston crown.</li> <li>2. Not enough oil supply.</li> <li>3. Defective oil pump or clogged oil circuit.</li> <li>4. Fuel level too low in float chamber.</li> <li>5. Suck air from intake pipe.</li> <li>6. Using incorrect engine oil.</li> <li>7. Defective cooling system.</li> </ol>	Clean. Adjust oil pump. Replace or clean. Adjust. Retighten or replace. Change. See cooling section.

**CARBURETOR**

Complaint	Symptom and possible causes	Remedy
Trouble with starting.	<ol style="list-style-type: none"> <li>1. Starter jet is clogged.</li> <li>2. Starter pipe is clogged.</li> <li>3. Starter plunger is not operating properly.</li> </ol>	Clean. Clean. Repair.
Idling or low-speed trouble.	<ol style="list-style-type: none"> <li>1. Pilot jet is clogged or loose.</li> <li>2. Pilot outlet is clogged.</li> <li>3. Starter plunger is not fully closed.</li> </ol>	Check and clean. Check and clean. Check and adjust.
Medium- or highspeed trouble.	<ol style="list-style-type: none"> <li>1. Main jet is clogged.</li> <li>2. Needle jet is clogged.</li> <li>3. Throttle valve is not operating properly.</li> <li>4. Filter is clogged.</li> </ol>	Check and clean. Check and clean. Check throttle valve for operation. Check and clean.
Overflow and fuel level fluctuations.	<ol style="list-style-type: none"> <li>1. Needle valve is worn or damaged.</li> <li>2. Float is not working properly.</li> <li>3. Foreign matter has adhered to needle valve.</li> <li>4. Fuel level is too high or low.</li> <li>5. Clogged carburetor air vent pipe.</li> </ol>	Replace. Check and adjust. Clean. Adjust float height. Clean.

**RADIATOR**

Complaint	Symptom and possible causes	Remedy
Engine overheats.	<ol style="list-style-type: none"> <li>1. Not enough cooling water.</li> <li>2. Radiator core is clogged with dirt or trashes.</li> <li>3. Erratic thermostat, stuck in closed position.</li> <li>4. Clogged water passage.</li> <li>5. Defective water pump.</li> <li>6. Use incorrect cooling water.</li> </ol>	Add. Clean. Replace. Clean. Replace. Change.
Engine overcools.	<ol style="list-style-type: none"> <li>1. Erratic thermostat, stuck in full-open position.</li> <li>2. Extremely cold weather.</li> </ol>	Replace. Put on the radiator cover.

**ELECTRICAL**

Complaint	Symptom and possible causes	Remedy
<b>No sparking or poor sparking.</b>	<ol style="list-style-type: none"> <li>1. Defective ignition coil.</li> <li>2. Defective spark plug.</li> <li>3. Defective pick-up coil, primary coil or CDI unit.</li> </ol>	Replace. Replace. Replace.
<b>Spark plug soon become fouled with carbon.</b>	<ol style="list-style-type: none"> <li>1. Mixture too rich.</li> <li>2. Idling speed set too high.</li> <li>3. Incorrect gasoline.</li> <li>4. Dirty element in air cleaner.</li> <li>5. Spark plug too cold.</li> </ol>	Adjust carburetor. Adjust carburetor. Change. Clean. Replace by hot type plug.
<b>Spark plug become fouled too soon.</b>	<ol style="list-style-type: none"> <li>1. Worn piston rings.</li> <li>2. Piston or cylinder worn.</li> </ol>	Replace. Replace.
<b>Spark plug electrodes overheat or burn.</b>	<ol style="list-style-type: none"> <li>1. Spark plug too hot.</li> <li>2. The engine overheats.</li> <li>3. Spark plug loose.</li> <li>4. Mixture too lean.</li> </ol>	Replace by cold type plug. Tune up. Retighten. Adjust carburetor.
<b>Generator does not charge.</b>	<ol style="list-style-type: none"> <li>1. Open or short in lead wires, or loose lead connections.</li> <li>2. Shorted, grounded or open generator coils.</li> <li>3. Shorted or punctured regulator/rectifier.</li> </ol>	Repair, replace or retighten. Replace. Replace.
<b>Generator charges, but charging rate is below the specification.</b>	<ol style="list-style-type: none"> <li>1. Lead wires tend to get shorted or open-circuited or loosely connected at terminals.</li> <li>2. Grounded or open-circuited stator coils of generator.</li> <li>3. Defective regulator/rectifier.</li> <li>4. Defective battery.</li> </ol>	Repair or retighten.  Replace. Replace. Replace.
<b>Generator overcharges.</b>	<ol style="list-style-type: none"> <li>1. Internal short-circuit in the battery.</li> <li>2. Resistor element in the regulator/rectifier damaged or defective.</li> <li>3. Regulator/rectifier poorly grounded.</li> </ol>	Replace the battery. Replace.  Clean and tighten ground connection.
<b>Unstable charging.</b>	<ol style="list-style-type: none"> <li>1. Lead wire insulation frayed due to vibration, resulting in intermittent shorting.</li> <li>2. Generator internally shorted.</li> <li>3. Defective regulator/rectifier.</li> </ol>	Repair or replace.  Replace. Replace.

**BATTERY**

Complaint	Symptom and possible causes	Remedy
<b>Battery runs down quickly.</b>	<ol style="list-style-type: none"> <li>1. The charging method is not correct.</li> <li>2. Cell plates have lost much of their active material as a result of over-charging.</li> <li>3. A short-circuit condition exists within the battery due to excessive accumulation of sediments caused by the incorrect electrolyte.</li> <li>4. Battery is too old.</li> </ol>	<p>Check the generator, regulator/rectifier and circuit connections, and make necessary adjustments to obtain specified charging operation.</p> <p>Replace the battery, and correct the charging system.</p> <p>Replace the battery.</p> <p>Replace the battery.</p>
<b>Reversed battery polarity.</b>	The battery has been connected the wrong way round in the system, so that it is being charged in the reverse direction.	Replace the battery and be sure to connect the battery properly.
<b>Battery discharges too rapidly.</b>	<ol style="list-style-type: none"> <li>1. Dirty container top and sides.</li> <li>2. Battery is too old.</li> </ol>	<p>Clean.</p> <p>Replace.</p>

**BRAKES**

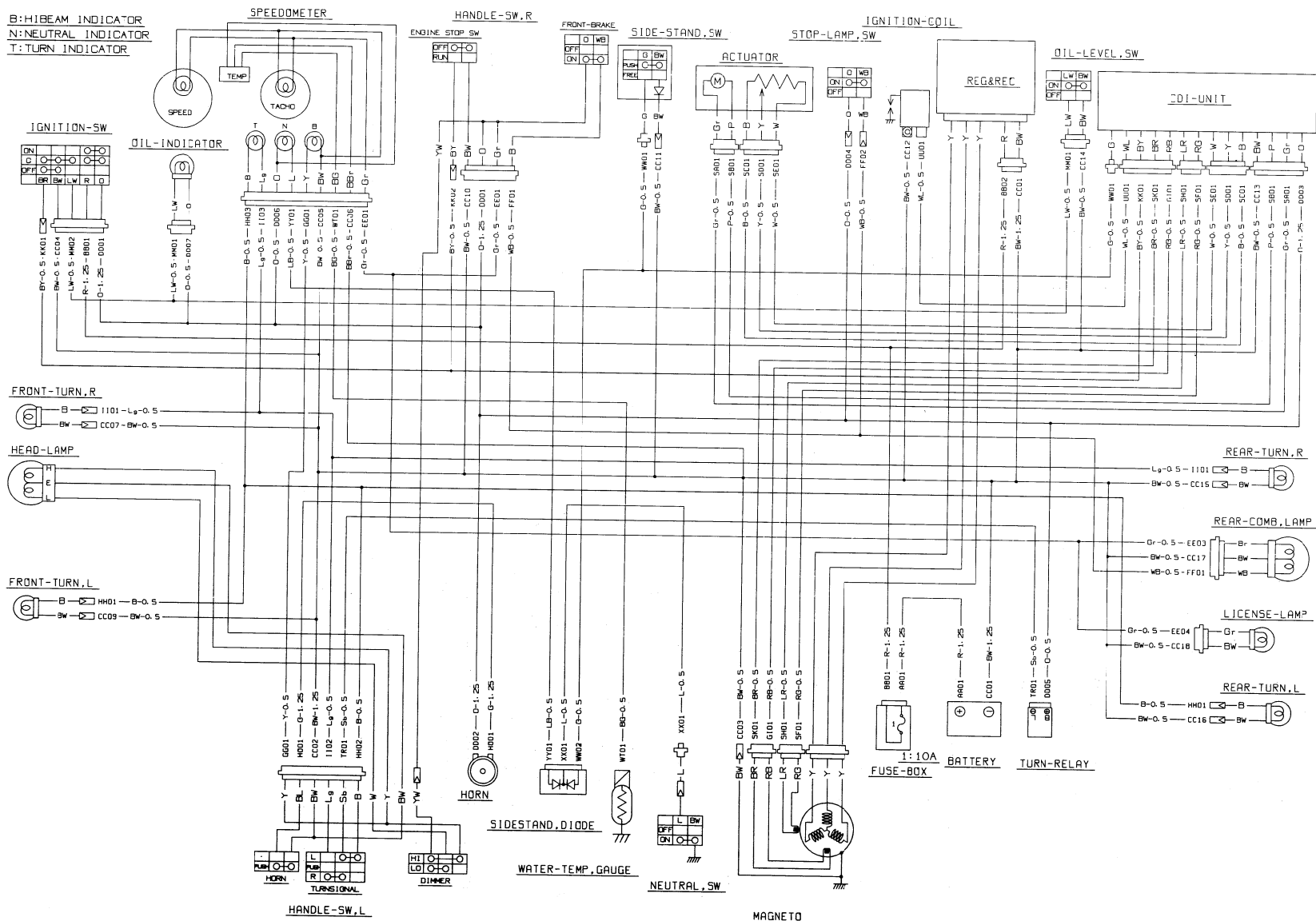
Complaint	Symptom and possible causes	Remedy
<b>Insufficient brake power.</b>	<ol style="list-style-type: none"> <li>1. Leakage of brake fluid from hydraulic system.</li> <li>2. Worn pads.</li> <li>3. Oil adhesion on engaging surface of pads.</li> <li>4. Worn disc.</li> <li>5. Air in hydraulic system.</li> </ol>	<p>Repair or replace.</p> <p>Replace.</p> <p>Clean disc and pads.</p> <p>Replace.</p> <p>Bleed air.</p>
<b>Brake squeaking.</b>	<ol style="list-style-type: none"> <li>1. Carbon adhesion on pad surface.</li> <li>2. Tilted pad.</li> <li>3. Damaged wheel bearing.</li> <li>4. Loosen front-wheel axle or rear-wheel axle.</li> <li>5. Worn pads.</li> <li>6. Foreign material in brake fluid.</li> <li>7. Clogged return port of master cylinder.</li> </ol>	<p>Repair surface with sandpaper.</p> <p>Modify pad fitting.</p> <p>Replace.</p> <p>Tighten to specified torque.</p> <p>Replace.</p> <p>Change brake fluid.</p> <p>Disassemble and clean master cylinder.</p>
<b>Excessive brake lever stroke.</b>	<ol style="list-style-type: none"> <li>1. Air in hydraulic system.</li> <li>2. Insufficient brake fluid.</li> <li>3. Improper quality of brake fluid.</li> </ol>	<p>Bleed air.</p> <p>Replenish fluid to specified level; bleed air.</p> <p>Replace with correct fluid.</p>
<b>Leakage of brake fluid.</b>	<ol style="list-style-type: none"> <li>1. Insufficient tightening of connection joints.</li> <li>2. Cracked hose.</li> <li>3. Worn piston and/or cup.</li> </ol>	<p>Tighten to specified torque.</p> <p>Replace.</p> <p>Replace piston and/or cup.</p>

**CHASSIS**

Complaint	Symptom and possible causes	Remedy
<b>Heavy steering.</b>	<ol style="list-style-type: none"> <li>1. Steering stem nut overtightened.</li> <li>2. Broken bearing in steering stem.</li> <li>3. Distorted steering stem.</li> <li>4. Not enough pressure in tires.</li> </ol>	Adjust. Replace. Replace. Adjust.
<b>Wobbly handle.</b>	<ol style="list-style-type: none"> <li>1. Loss of balance between right and left front forks.</li> <li>2. Distorted front fork.</li> <li>3. Distorted front axle or crooked tire.</li> </ol>	Adjust. Replace. Replace.
<b>Wobbly front wheel.</b>	<ol style="list-style-type: none"> <li>1. Distorted wheel rim.</li> <li>2. Worn-down front wheel bearings.</li> <li>3. Defective or incorrect tire.</li> <li>4. Loose axle shaft.</li> <li>5. Incorrect front fork oil.</li> </ol>	Replace. Replace. Replace. Retighten. Adjust.
<b>Front suspension too soft.</b>	<ol style="list-style-type: none"> <li>1. Weakened springs.</li> <li>2. Not enough fork oil.</li> <li>3. Front fork adjuster improperly set. (Inverted front fork)</li> </ol>	Replace. Refill. Adjust.
<b>Front suspension too stiff.</b>	<ol style="list-style-type: none"> <li>1. Fork oil too viscous.</li> <li>2. Too much fork oil.</li> <li>3. Front fork adjuster improperly set. (Inverted front fork)</li> </ol>	Replace. Drain excess oil. Adjust.
<b>Noisy front suspension.</b>	<ol style="list-style-type: none"> <li>1. Not enough fork oil.</li> <li>2. Loose nuts on suspension.</li> </ol>	Refill. Retighten.
<b>Wobbly rear wheel.</b>	<ol style="list-style-type: none"> <li>1. Distorted wheel rim.</li> <li>2. Worn-down rear wheel bearings or swingarm bearings.</li> <li>3. Defective or incorrect tire.</li> <li>4. Worn swingarm and rear cushion related bearings.</li> <li>5. Loose nuts or bolts on rear suspension.</li> </ol>	Replace. Replace. Replace. Replace. Retighten.
<b>Rear suspension too soft.</b>	<ol style="list-style-type: none"> <li>1. Weakened shock absorber spring.</li> <li>2. Rear suspension adjuster improperly set.</li> <li>3. Oil leakage of shock absorber.</li> </ol>	Replace. Adjust. Replace.
<b>Rear suspension too stiff.</b>	<ol style="list-style-type: none"> <li>1. Rear suspension adjuster improperly set.</li> <li>2. Shock absorber shaft bent.</li> <li>3. Swingarm bent.</li> <li>4. Worn swingarm and rear cushion related bearings.</li> </ol>	Adjust. Replace. Replace. Replace.
<b>Noisy rear suspension.</b>	<ol style="list-style-type: none"> <li>1. Loose nuts or bolts on rear suspension.</li> <li>2. Worn swingarm and rear cushion related bearings.</li> </ol>	Retighten. Replace.

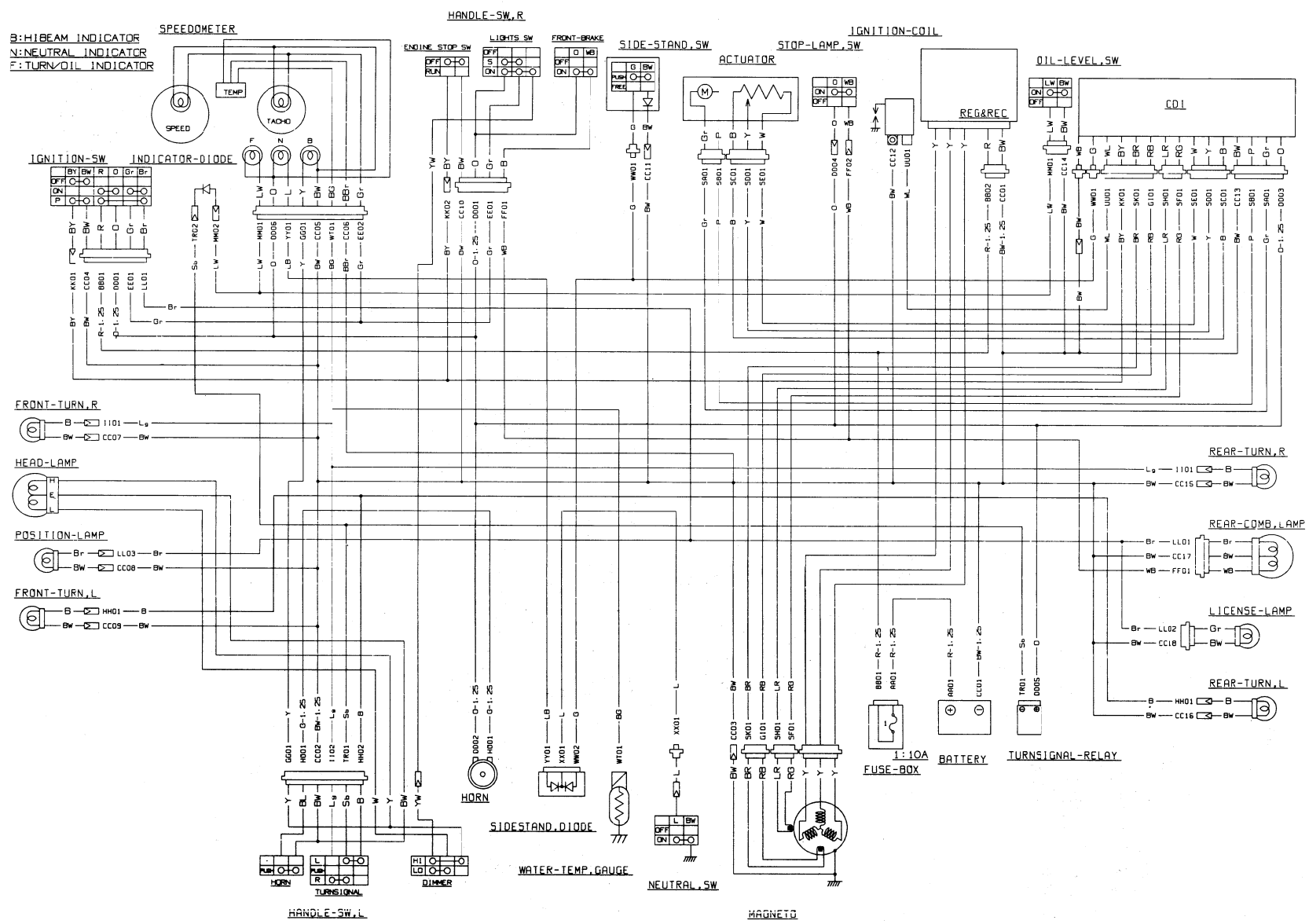
# WIRING DIAGRAM

For Canada



**WIRE COLOR**

- |                        |                                   |                                     |                                    |
|------------------------|-----------------------------------|-------------------------------------|------------------------------------|
| B . . . . . Black      | O . . . . . Orange                | BG . . . . Black with Green tracer  | RB . . . . Red with Black tracer   |
| L . . . . . Blue       | P . . . . . Pink                  | BR . . . . Black with Red tracer    | RG . . . . Red with Green tracer   |
| Br . . . . Brown       | R . . . . . Red                   | BW . . . . Black with White tracer  | WB . . . . White with Black tracer |
| G . . . . . Green      | W . . . . . White                 | BY . . . . Black with Yellow tracer | WL . . . . White with Blue tracer  |
| Gr . . . . Gray        | Y . . . . . Yellow                | LR . . . . Bleu with Red tracer     | Y/W . . . Yellow with White tracer |
| Sb . . . . Light blue  | BBr . . . Black with Brown tracer | LW . . . . Blue with White tracer   |                                    |
| Lg . . . . Light green | BL . . . . Black with Blue tracer | LB . . . . Blue with Black tracer   |                                    |



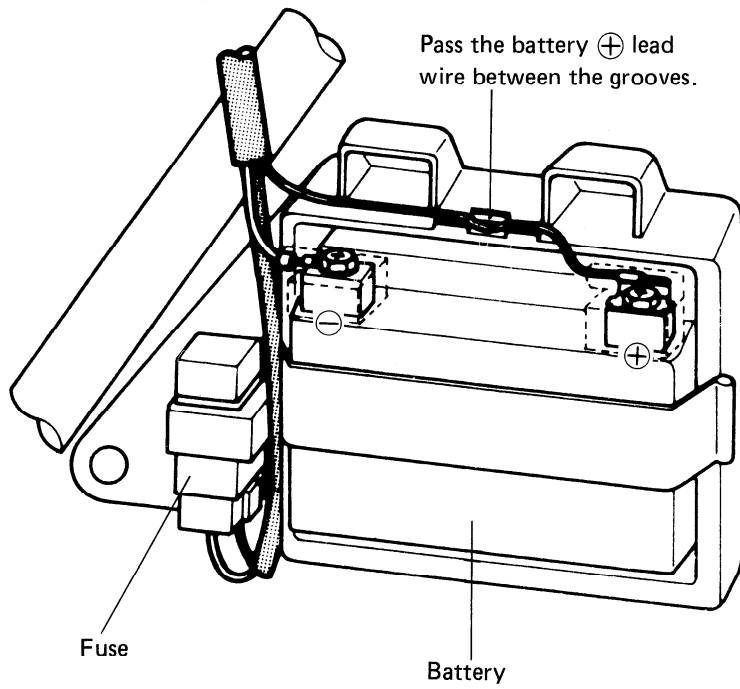
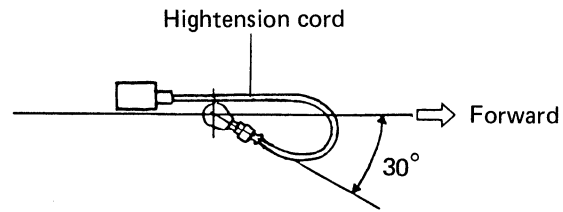
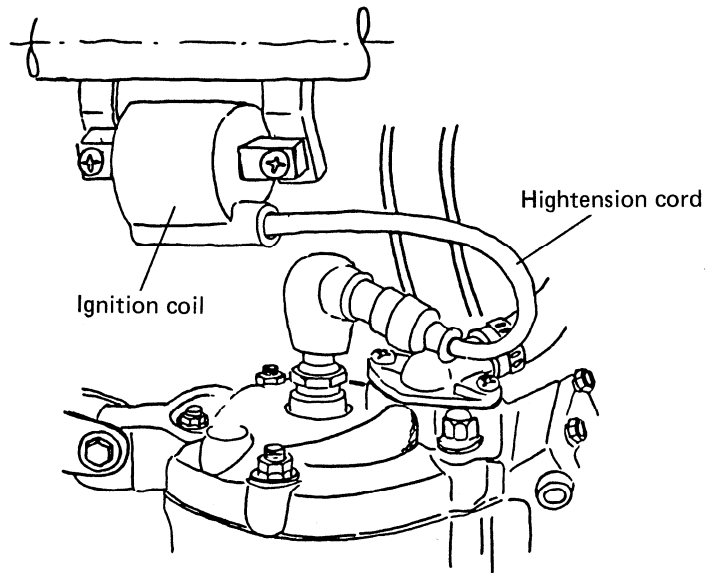
**WIRE COLOR**

B . . . . .	Black	O . . . . .	Orange	BG . . . . .	Black with Green tracer	RB . . . . .	Red with Black tracer
L . . . . .	Blue	P . . . . .	Pink	BR . . . . .	Black with Red tracer	RG . . . . .	Red with Green tracer
Br . . . . .	Brown	R . . . . .	Red	BW . . . . .	Black with White tracer	WB . . . . .	White with Black tracer
G . . . . .	Green	W . . . . .	White	BY . . . . .	Black with Yellow tracer	WL . . . . .	White with Blue tracer
Gr . . . . .	Gray	Y . . . . .	Yellow	LR . . . . .	Blue with Red tracer	Y/W . . . . .	Yellow with White tracer
Sb . . . . .	Light blue	BBr . . . . .	Black with Brown tracer	LW . . . . .	Blue with White tracer		
Lg . . . . .	Light green	BL . . . . .	Black with Blue tracer	LB . . . . .	Blue with Black tracer		

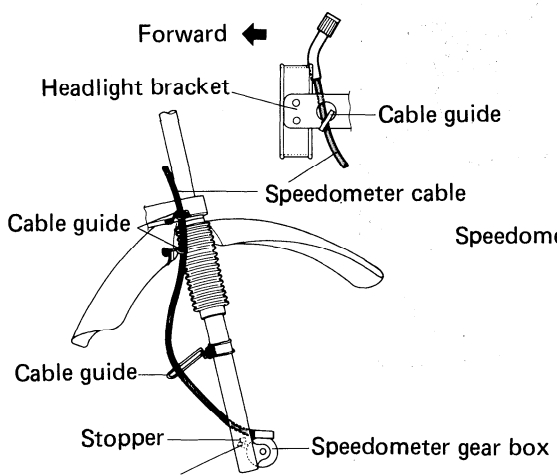
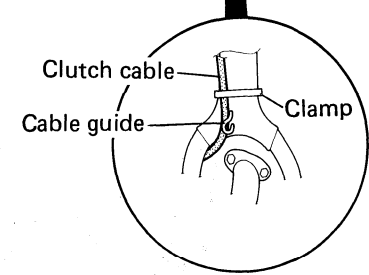
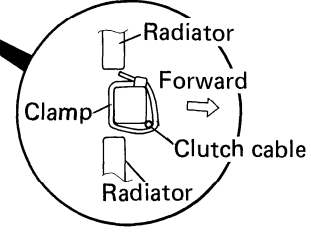
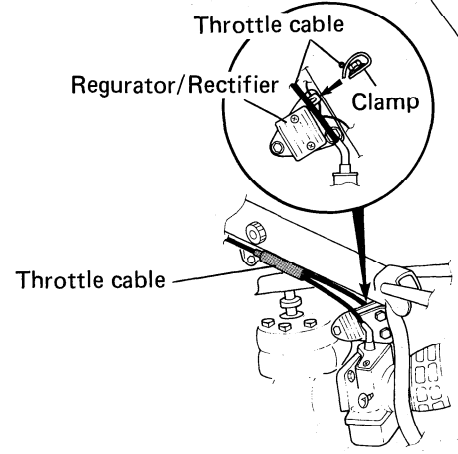
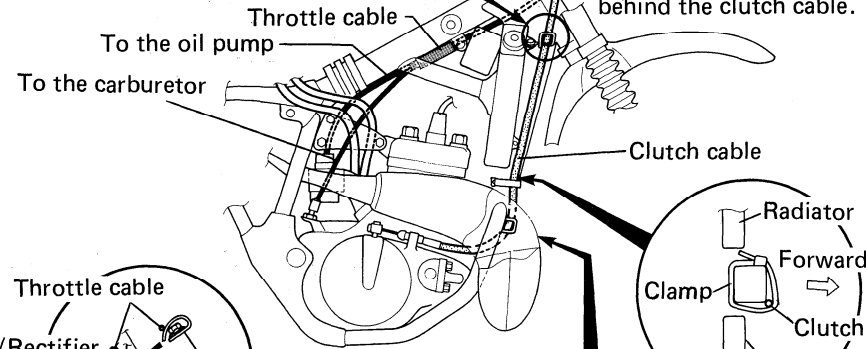
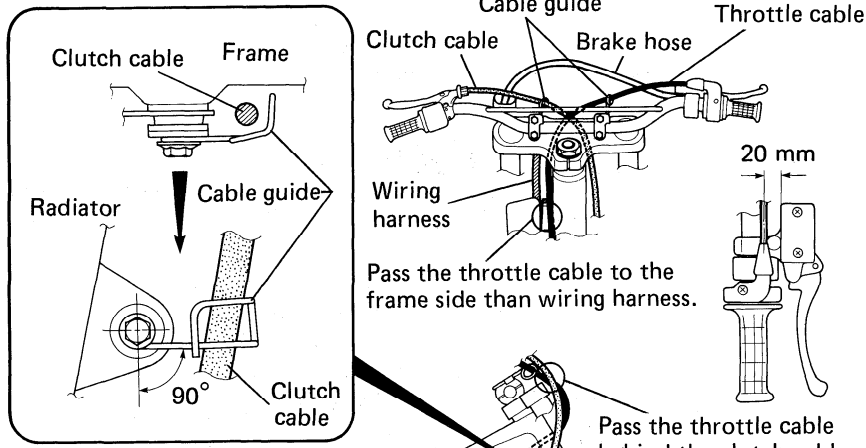
For the others



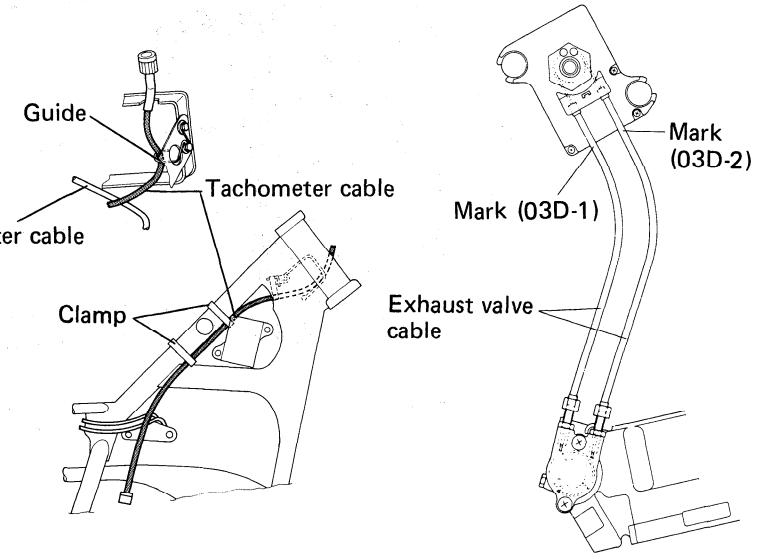




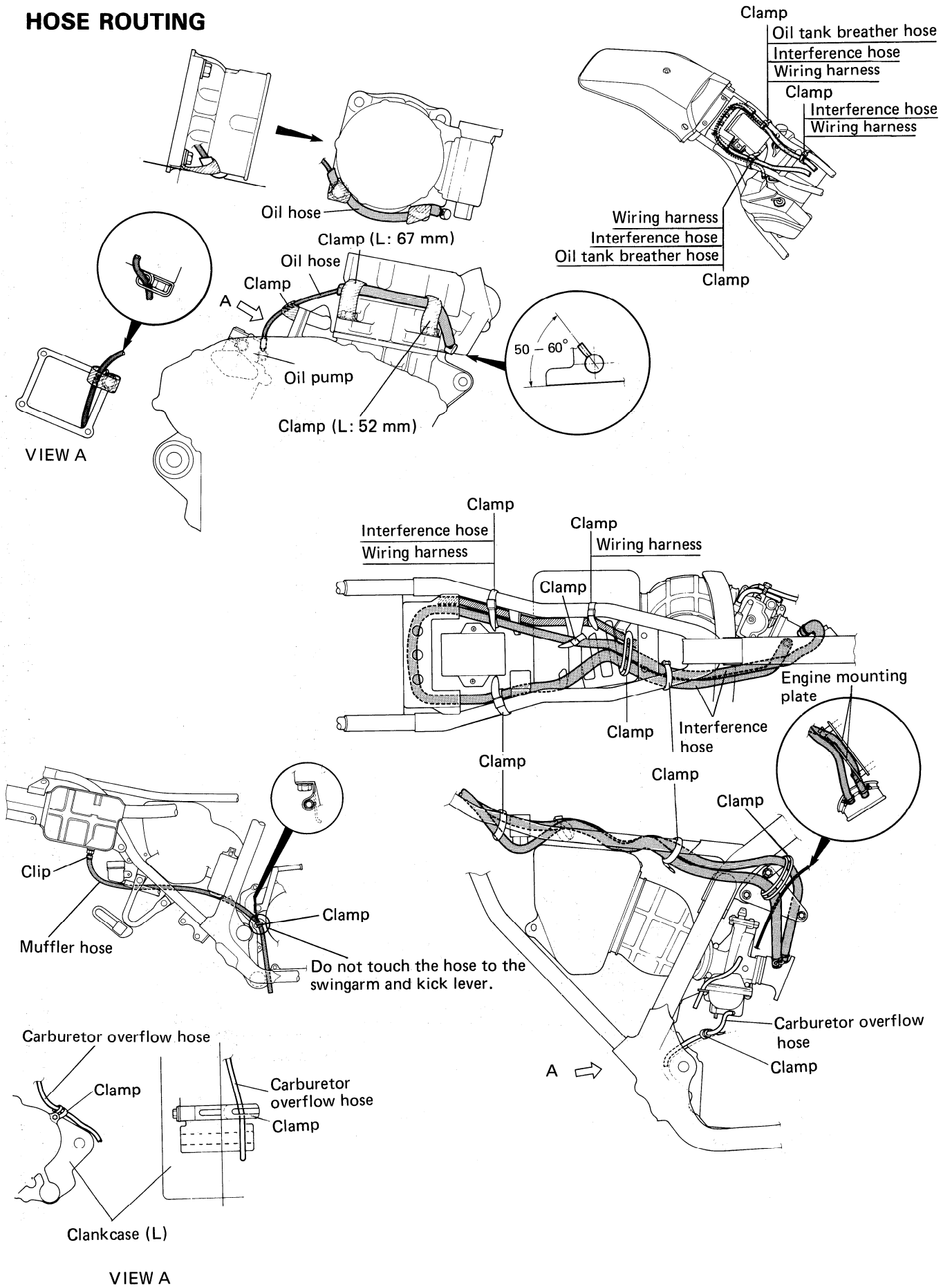
**CABLE ROUTING**

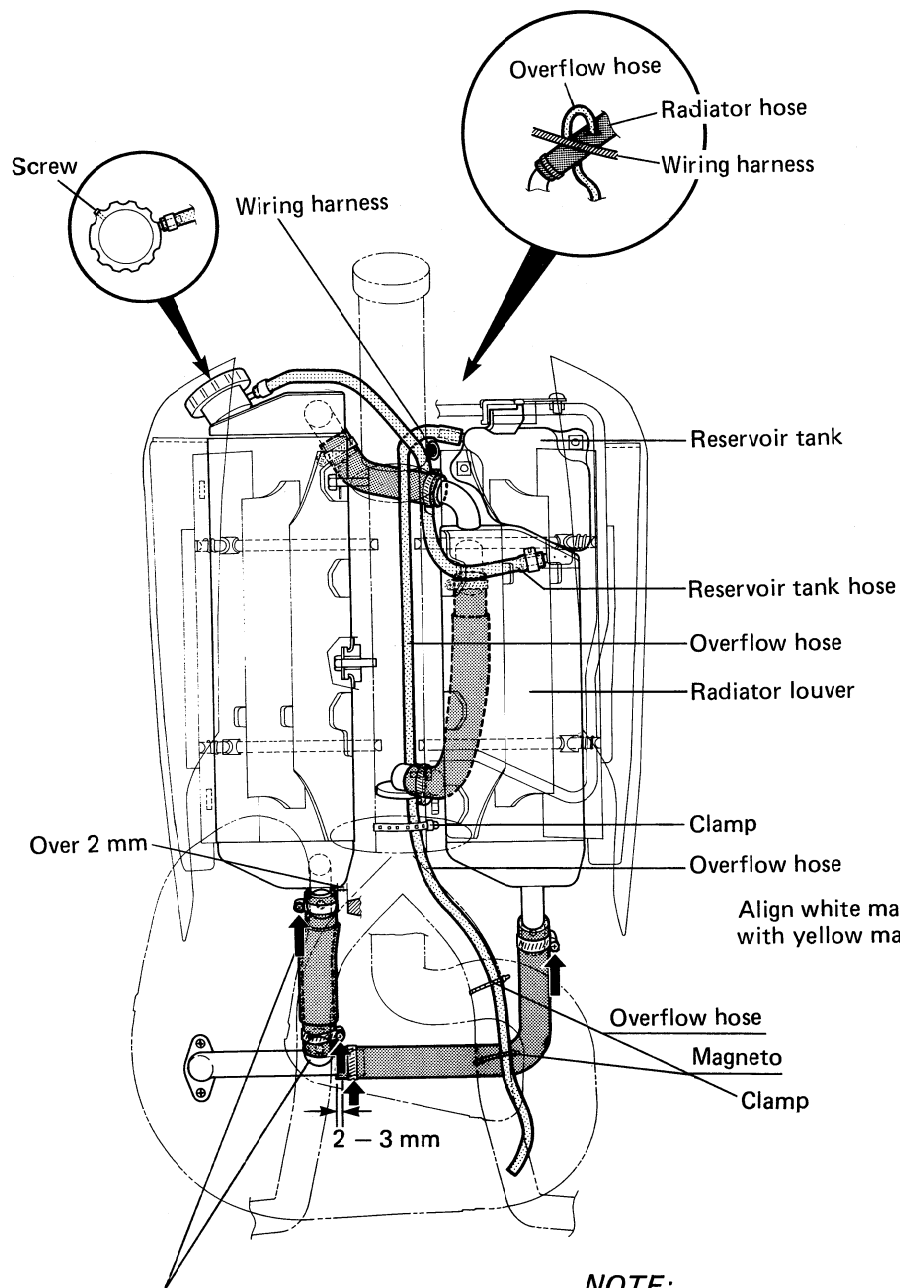


After touching the speedometer gear box to the stopper, tighten the axle shaft.



# HOSE ROUTING



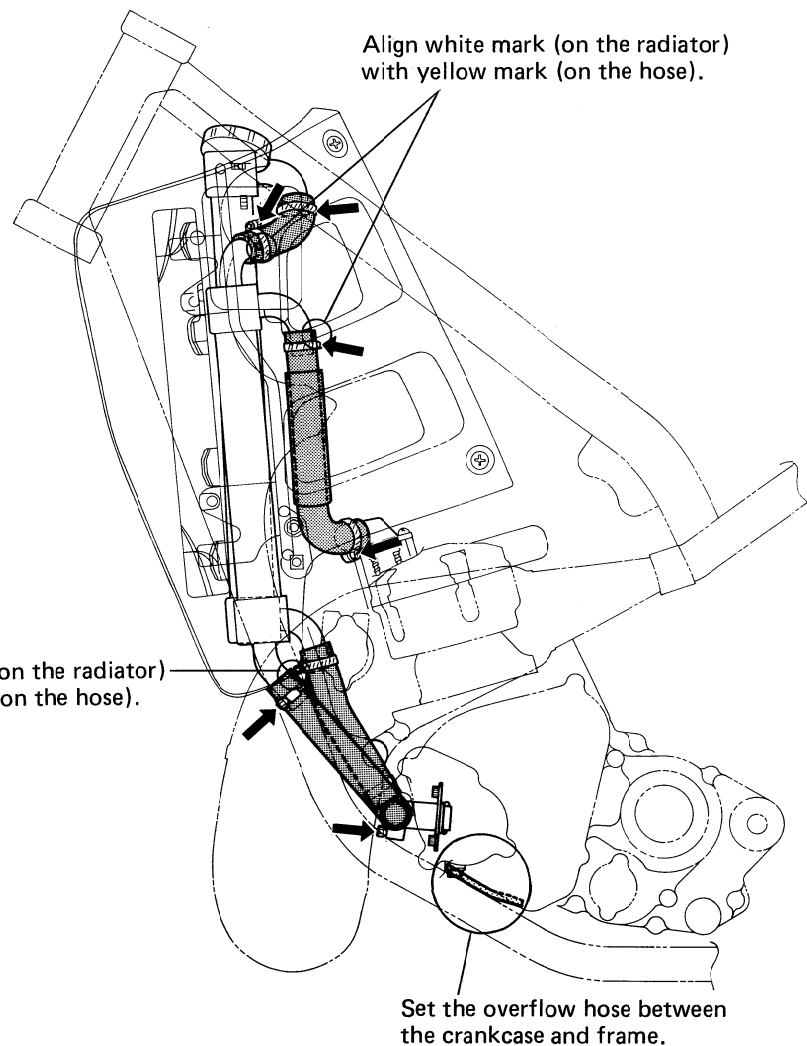


Align white mark (on the radiator) with yellow mark (on the hose).

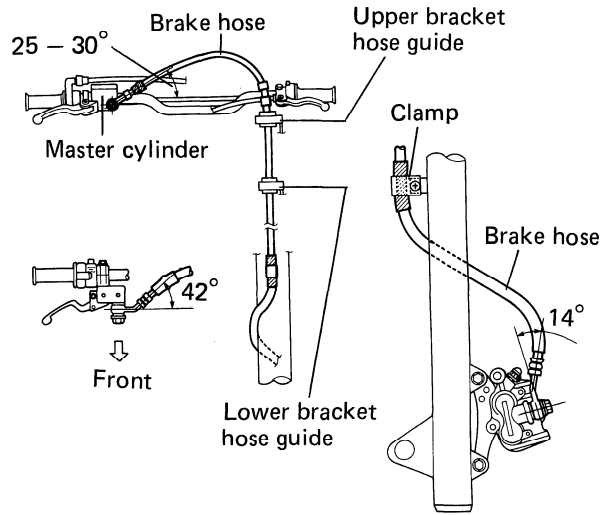
**NOTE:**

Allow mark ( ← ) is tightening direction of the screw.

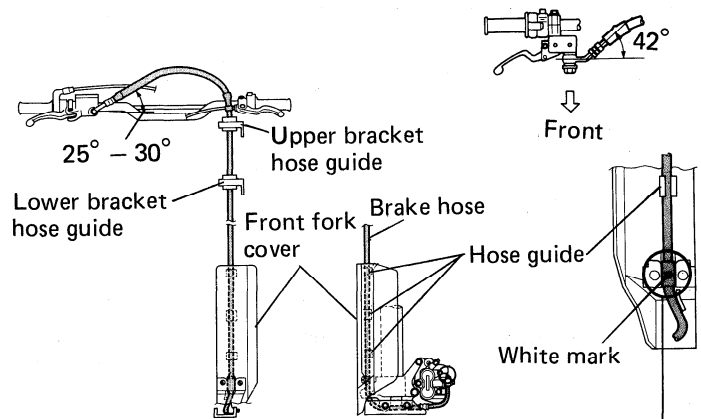
Water hose clamp screw tightening torque: 2 - 2.5 N·m (0.2 - 0.25 kg·m, 1.5 - 1.8 lb·ft)



For Conventional front fork model

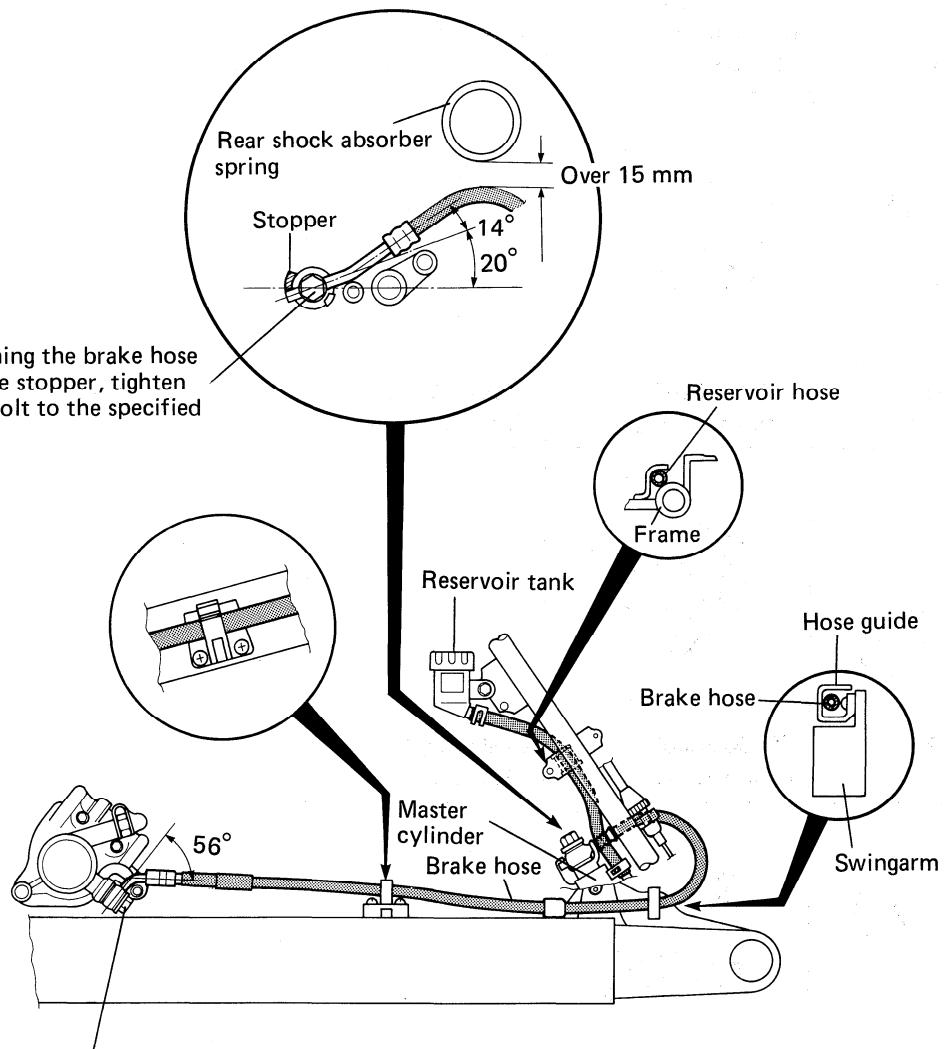


For Inverted front fork model



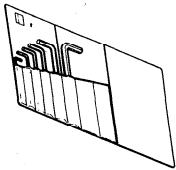
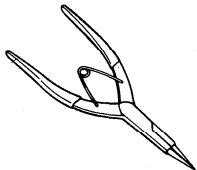
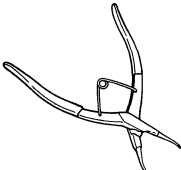
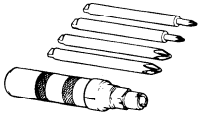
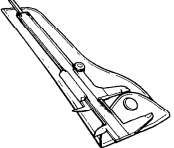



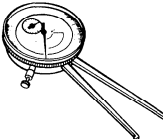
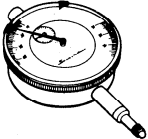

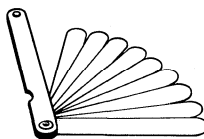
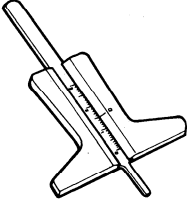
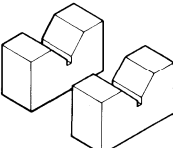
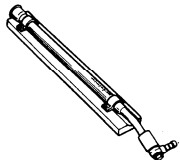



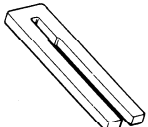
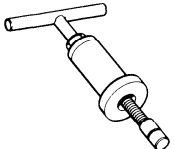
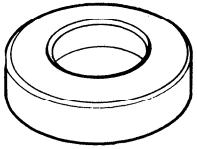
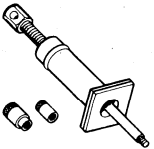
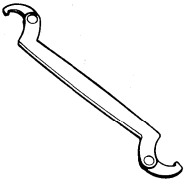
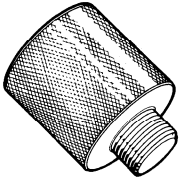
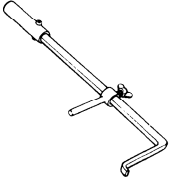
When fix the brake hose to the hose guides of the front fork cover, align the white mark on the brake hose with the fork cover mounting holes.

After touching the brake hose union to the stopper, tighten the union bolt to the specified torque.



After touching the brake hose union to the stopper, tighten the union bolt to the specified torque.

**SPECIAL TOOLS**

 <p><b>09900-00401</b> Hexagon wrench set</p>	 <p><b>09900-06107</b> Snap ring pliers</p>	 <p><b>09900-06108</b> Snap ring pliers</p>	 <p><b>09900-09003</b> Impact driver set</p>	 <p><b>09900-20101</b> Vernier calipers</p>
 <p><b>09900-20203</b> Micrometer (50 – 75 mm)</p>	 <p><b>09900-20205</b> Micrometer (0 – 25 mm)</p>	 <p><b>09900-20508</b> Cylinder gauge set</p>	 <p><b>09900-20605</b> Dial calipers</p>	 <p><b>09900-20606</b> Dial gauge (1/100 mm)</p>
 <p><b>09900-20701</b> Magnetic stand</p>	 <p><b>09900-20803</b> Thickness gauge</p>	 <p><b>09900-20805</b> Tire depth gauge</p>	 <p><b>09900-21303</b> "V" block set (75 mm)</p>	 <p><b>09900-21602</b> CCI oil gauge</p>
 <p><b>09900-22302</b> Plastigauge</p>	 <p><b>09900-25002</b> Pocket tester</p>	 <p><b>09900-28106</b> Electro tester</p>	 <p><b>09910-20115</b> Conrod holder</p>	 <p><b>09910-32812</b> Crankshaft installer</p>
 <p><b>09910-32820</b> Crankshaft installer spacer</p>	 <p><b>09910-34510</b> Piston pin puller</p>	 <p><b>09910-60611</b> Universal clamp wrench</p>	 <p><b>09911-11310</b> Crankshaft installer attachment</p>	 <p><b>09913-50121</b> Oil seal remover</p>

 <p><b>09913-75520</b> Bearing installer</p>	 <p><b>09913-75810</b> Bearing installer</p>	 <p><b>09913-76010</b> Bearing installer</p>	 <p><b>09913-80112</b> Bearing installer</p>	 <p><b>09920-13120</b> Crankcase separator</p>
 <p><b>09920-53710</b> Clutch sleeve hub holder</p>	 <p><b>09921-20200</b> Bearing remover</p>	 <p><b>09923-73210</b> Bearing remover</p>	 <p><b>09924-84510</b> Bearing installer set</p>	 <p><b>09924-84521</b> Bearing installer set</p>
 <p><b>09930-30102</b> Sliding shaft</p>	 <p><b>09930-30161</b> Attachment "C"</p>	 <p><b>09930-40113</b> Rotor holder</p>	 <p><b>09940-14920</b> Steering stem nut socket wrench</p>	 <p><b>09940-30230</b> 17 mm hexagon wrench</p>
 <p><b>09940-34520</b> "T" handle</p>	 <p><b>09940-34530</b> Attachment "A"</p>	 <p><b>09940-50113</b> Front fork oil seal installer</p>	 <p><b>09940-52820</b> Front fork inner rod holder</p>	 <p><b>09940-52830</b> Front fork seal case stopper</p>
 <p><b>09940-52820</b> Front fork oil seal installer</p>	 <p><b>09940-60113</b> Spoke nipple wrench</p>	 <p><b>09941-34513</b> Steering race installer</p>	 <p><b>09941-50110</b> Wheel bearing remover</p>	 <p><b>09941-54911</b> Steering outer race remover</p>

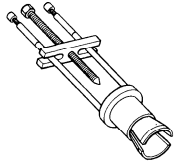


**8-17 SERVICING INFORMATION**

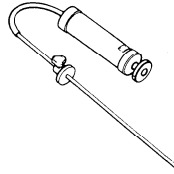
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**09941-74910**  
**Steering bearing**  
**installer**



**09941-84510**  
**Bearing remover**



**09943-74111**  
**Front fork oil level**  
**gauge**

## TIGHTENING TORQUE

### ENGINE

ITEM	N·m	kg·m	lb·ft
Cylinder head nut	23 – 27	2.3 – 2.7	16.5 – 19.5
Cylinder nut	23 – 27	2.3 – 2.7	16.5 – 19.5
Exhaust pipe nut	10 – 16	1.0 – 1.6	7.0 – 11.5
Crankcase bolt	9 – 13	0.9 – 1.3	6.5 – 9.5
Crankcase screw	6 – 10	0.6 – 1.0	4.5 – 7.0
Transmission oil drain plug	20 – 25	2.0 – 2.5	14.5 – 18.0
Magneto rotor nut	75 – 85	7.5 – 8.5	54.0 – 61.5
Clutch sleeve hub nut	40 – 60	4.0 – 6.0	29.0 – 43.5
Water pump drive gear nut	60 – 80	6.0 – 8.0	43.5 – 58.0
Crank balancer nut	45 – 55	4.5 – 5.5	32.5 – 40.0
Engine sprocket bolt	10 – 12	1.0 – 1.2	7.0 – 8.5
Transmission oil check bolt	4 – 7	0.4 – 0.7	3.0 – 5.0
Water drain plug	11 – 14	1.1 – 1.4	8.0 – 10.0
Impeller bolt	7 – 9	0.7 – 0.9	5.0 – 6.5
Water thermo-gauge	6 – 10	0.6 – 1.0	4.5 – 7.0
Water hose clamp screw	2 – 2.5	0.2 – 0.25	1.5 – 1.8

### CHASSIS

ITEM	N·m	kg·m	lb·ft
Handlebar clamp bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Front axle shaft	50 – 80	5.0 – 8.0	36.0 – 58.0
Front fork upper clamp bolt	22 – 35	2.2 – 3.5	16.0 – 25.5
Steering stem head nut	50 – 80	5.0 – 8.0	36.0 – 58.0
Front fork lower clamp bolt	Conventional front fork model	18 – 28	13.0 – 20.0
Front fork cap		15 – 30	11.0 – 21.5
Front fork damper rod bolt		15 – 25	11.0 – 18.0
Front axle clamp nut		9 – 11	6.5 – 8.0
Steering stem head nut		80 – 100	58.0 – 72.5
Front fork lower clamp bolt	Inverted front fork model	20 – 30	14.5 – 21.5
Front fork cap		30 – 40	21.5 – 29.0
Front fork damper rod bolt		30 – 40	21.5 – 29.0
Front axle clamp bolt		15 – 25	11.0 – 18.0
Front fork inner rod lock nut	18 – 22	1.8 – 2.2	13.0 – 16.0
Front brake master cylinder mounting bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
Front brake caliper mounting bolt	18 – 28	1.8 – 2.8	13.0 – 20.0

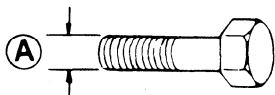
## 8-19 SERVICING INFORMATION

ITEM	N·m	kg·m	lb-ft
Front brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Air bleeder valve (Front & Rear)	6 – 9	0.6 – 0.9	4.5 – 6.5
Disc bolt (Front & Rear)	18 – 28	1.8 – 2.8	13.0 – 20.0
Swingarm pivot nut	55 – 88	5.5 – 8.8	40.0 – 63.5
Side stand bracket bolt	37 – 45	3.7 – 4.5	27.0 – 32.5
Rear axle nut	55 – 88	5.5 – 8.8	40.0 – 63.5
Rear shock absorber nut (Upper & Lower)	48 – 72	4.8 – 7.2	34.5 – 52.0
Spoke nipple (Front & Rear)	2.5 – 4.0	0.25 – 0.4	1.8 – 3.0
Rear cushion lever nut (Front)	70 – 100	7.0 – 10.0	50.5 – 72.5
Rear cushion lever nut (Center)	84 – 120	8.4 – 12.0	60.5 – 87.0
Rear cushion rod nut	84 – 120	8.4 – 12.0	60.5 – 87.0
Rear brake master cylinder bolt	8 – 12	0.8 – 1.2	6.0 – 8.5
Rear brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Rear sprocket nut	20 – 30	2.0 – 3.0	14.5 – 21.5
Rear brake rod lock nut	15 – 20	1.5 – 2.0	11.0 – 14.5
Brake pad mounting bolt (Front & Rear)	15 – 20	1.5 – 2.0	11.0 – 14.5

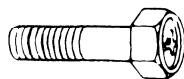
## TIGHTENING TORQUE CHART

For other bolts and nuts not listed in the preceding page, refer to this chart.

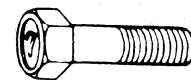
Bolt Diameter Ⓐ (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	N·m	kg·m	lb-ft	N·m	kg·m	lb-ft
4	1–2	0.1–0.2	0.7–1.5	1.5–3	0.15–0.3	1.0–2.0
5	2–4	0.2–0.4	1.5–3.0	3–6	0.3–0.8	2.0–4.5
6	4–7	0.4–0.7	3.0–5.0	8–12	0.8–1.2	6.0–8.5
8	10–16	1.0–1.6	7.0–11.5	18–28	1.8–2.8	13.0–20.0
10	22–35	2.2–3.5	16.0–25.5	40–60	4.0–6.0	29.0–43.5
12	35–55	3.5–5.5	25.5–40.0	70–100	7.0–10.0	50.5–72.5
14	50–80	5.0–8.0	36.0–58.0	110–160	11.0–16.0	79.5–115.5
16	80–130	8.0–13.0	58.0–94.0	170–250	17.0–25.0	123.0–181.0
18	130–190	13.0–19.0	94.0–137.5	200–280	20.0–28.0	144.5–202.5



Conventional bolt



"4" marked bolt



"7" marked bolt

## SERVICE DATA

## CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD		LIMIT
Piston to cylinder clearance	0.085–0.095 (0.0033–0.0037)		0.120 (0.0047)
Cylinder bore	66.030–66.045 (2.5996–2.6002) Measure at 20 (0.8) from the top surface		66.075 (2.6014)
Piston diam.	65.940–65.955 (2.5961–2.5966) Measure at 12.5 (0.5) from the skirt end		65.910 (2.5949)
Cylinder distortion	—		0.05 (0.002)
Cylinder head distortion	—		0.05 (0.002)
Piston ring free end gap	1st	Approx. 6.3 (0.25)	5.0 (0.20)
	2nd	Approx. 5.1 (0.20)	4.1 (0.16)
Piston ring end gap	1st & 2nd	0.20–0.40 (0.008–0.016)	0.80 (0.031)
Piston ring to groove clearance	1st	0.050–0.070 (0.0020–0.0028)	—
	2nd	0.020–0.060 (0.0008–0.0024)	—
Piston pin bore	18.000–18.006 (0.7087–0.7089)		18.030 (0.7098)
Piston pin O.D.	17.995–18.000 (0.7085–0.7087)		17.980 (0.7079)

## CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	23.003–23.011 (0.9056–0.9059)	23.040 (0.9071)
Crank web to web width	53.0±0.1 (2.087±0.004)	—
Crankshaft runout	—	0.05 (0.002)

## OIL PUMP

ITEM	SPECIFICATION
Oil pump reduction ratio	3.547 (67/20 x 29/17 x 29/29 x 18/29)
CCI pump discharge rate (Full open)	3.8–4.7 ml (0.13/0.13–0.16/0.17 US/lmp oz) for 2 minutes at 2 000 r/min.

**CLUTCH**

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch lever play	10–15 (0.4–0.6)	—
Drive plate thickness	2.7–2.9 (0.106–0.114)	2.4 (0.094)
Drive plate claw width	11.8–12.0 (0.46–0.47)	11.0 (0.43)
Driven plate distortion	—	0.10 (0.004)
Clutch spring free length	—	30.3 (1.19)

**THERMOSTAT + RADIATOR**

ITEM	STANDARD	LIMIT
Thermostat valve opening temperature	48.5–51.5°C (119.3–124.7 °F)	—
Thermostat valve lift	Over 3.0 mm (0.12 in) at 65°C (149°F)	—
Radiator cap valve opening pressure	90 ± 15 kPa (0.9 ± 0.15 kg/cm <sup>2</sup> , 12.8 ± 2.1 psi)	—

**TRANSMISSION**

Unit: mm (in) Except ratio

ITEM	STANDARD	LIMIT
Primary reduction ratio	3.350 (67/20)	—
Final reduction ratio	E-02,04,24	2.600 (39/15)
	E-28	2.857 (40/14)
Gear ratios	Low	2.636 (29/11)
	2nd	1.857 (26/14)
	3rd	1.400 (21/15)
	4th	1.095 (23/21)
	5th	0.916 (22/24)
	Top	0.800 (20/25)
Shift fork to groove clearance	No.1 & No.3	0.05–0.25 (0.002–0.010)
	No.2	0.05–0.25 (0.002–0.010)
Shift fork groove width	No.1 & No.3	4.45–4.55 (0.175–0.179)
	No.2	5.45–5.55 (0.215–0.219)
Shift fork thickness	No.1 & No.3	4.3–4.4 (0.169–0.173)
	No.2	5.3–5.4 (0.209–0.212)
Countershaft length (Low to 2nd)	106 <sup>-0.1</sup> <sub>-0.2</sub> (4.173 <sup>-0.004</sup> <sub>-0.008</sub> )	—

NOTE: E-02 . . . U.K., E-04 . . . France, E-24 . . . Australia, E-28 . . . Canada

**DRIVE CHAIN**

ITEM		STANDARD		LIMIT
Drive chain	Type	TAKASAGO: RK520SO		—
	Links	106		—
		20-pitch length	—	319.4 (12.57)
Drive chain slack		25—40 (1.0—1.6)		—

**CARBURETOR**

ITEM	SPECIFICATION	
	For Canada, France and U.K.	For Australia
Carburetor type	MIKUNI TM30SS	←
Bore size	30 mm	←
I.D. No.	08D2	08D3
Idle r/min.	1 400±100 r/min.	←
Float height	12.9±1.0 mm (0.51±0.04 in)	←
Main jet (M.J.)	# 170	←
Main air jet (M.A.J.)	0.6 mm	←
Jet needle (J.N.)	6DHY36-3rd	←
Needle jet (N.J.)	N-8	←
Cut-away (C.A.)	4.0	←
Pilot jet (P.J.)	# 35	←
By-pass (B.P.)	0.9 mm	←
Pilot outlet (P.O.)	0.6 mm	←
Air screw (A.S.)	2½ turns back	←
Starter jet (G.S.)	# 35	←
Power jet (P.W.J.)	# 80	←
Valve seat (V.S.)	2.5 mm	←
Throttle cable play	0.5—1.0 mm (0.02—0.04 in)	←

**ELECTRICAL**

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	8° B.T.D.C. below 2 000 r/min		
Exhaust valve	Close→Half open	6 400±150 r/min	
	Half open→Full open	7 400±150 r/min	
	Full open→Half open	6 900±150 r/min	
	Half open→Close	5 900±150 r/min	
Spark plug	Type	N.D.: W27ESR N.G.K: BR9ES	
	Gap	0.6—0.8 (0.02—0.03)	
Spark performance	Over 8 (0.3) at 1 atm.		

**8-23 SERVICING INFORMATION**

ITEM		SPECIFICATION		NOTE
Ignition coil resistance		Primary	0.1–1.0 Ω	Terminal–Ground
		Secondary	13–20 kΩ	Plug cap–Ground
Magneto coil resistance		Pick-up coil	180–280 Ω	R/G–BI/R
		Power source coil	50–80 Ω	B/R–R/B
		Charging	0.1–1.0 Ω	Y–Y
Generator no-load voltage		More than 33 V (AC) at 5 000 r/min.		
Regulated voltage		13.0–15.5 V at 5 000 r/min.		
Water thermo-gauge		Approx.226 Ω at 50°C (122°F)		
		Approx.26 Ω at 115°C (239°F)		
Exhaust valve actuator		3.2–7.2 kΩ		W–B
		0–7.2 kΩ		Y–B
		4.5–30 Ω		P–Gr
Battery	Type designation	YT4L-BS or FT4L-BS		
	Capacity	12 V 10.8 kC (3 Ah)/10 HR		
	Standard electrolyte S.G.	1.320 at 20° C (68°F)		
Fuse size		15 A		

**WATTAGE**

Unit: W

ITEM		SPECIFICATION			
		For U.K.	For France	For Australia	For Canada
Headlight	HI	45	60	45	←
	LO	40	55	40	45
Position light		4	←	←	/
Tail/Brake light		5/21	←	←	←
License light		5	←	←	←
Turn signal light		21	←	←	←
Tachometer light		3.4	←	←	←
Speedometer light		3.4	←	←	←
Turn signal/Oil indicator light		3.4	←	←	/
Turn signal indicator light		/	/	/	3.4
High beam indicator light		1.7	←	←	←
Neutral indicator light		3.4	←	←	←
Oil level indicator light		/	/	/	3.4

**BRAKE + WHEEL**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Brake lever play	0-0.3 (0-0.01)		—
Rear brake pedal height	5 (0.2)		—
Brake disc thickness	Front	3.5 ± 0.2 (0.138 ± 0.008)	3.0 (0.12)
	Rear	4.0 ± 0.2 (0.157 ± 0.008)	3.5 (0.14)
Brake disc runout	—		0.30 (0.012)
Master cylinder bore	Front	12.700-12.743 (0.5000-0.5017)	—
	Rear	12.700-12.743 (0.5000-0.5017)	—
Master cylinder piston diam.	Front	12.657-12.684 (0.4983-0.4994)	—
	Rear	12.657-12.684 (0.4983-0.4994)	—
Brake caliper cylinder bore	Front	27.000-27.050 (1.0630-1.0650)	—
	Rear	30.23-30.28 (1.190-1.192)	—
Brake caliper piston diam.	Front	26.900-26.950 (1.0591-1.0610)	—
	Rear	30.16-30.18 (1.187-1.188)	—
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	80/100-21 51P	—
	Rear	110/90-18 61P	—
Tire tread depth	Front	—	3.0 (0.12)
	Rear	—	3.0 (0.12)

**SUSPENSION**

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	270 (10.6)	—	—
Front fork spring free length	—	565 (22.2)	Conventional front fork
	—	574 (22.6)	Inverted front fork



ITEM	STANDARD	LIMIT	NOTE
Front fork oil level	131 (5.1)	—	Conventional front fork
	137 (5.4)	—	Inverted front fork
Rear shock absorber spring pre-set length	260 (10.2)	—	
Rear wheel travel	270 (10.6)	—	
Swingarm pivot shaft runout	—	0.3 (0.11)	

## TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm <sup>2</sup>	psi	kPa	kg/cm <sup>2</sup>	psi
FRONT	150	1.50	22	150	1.50	22
REAR	150	1.50	22	175	1.75	25

## FUEL + OIL + COOLANT

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded gasoline of at least 87 pump octane ( $\frac{R+M}{2}$ method) or 91 octane or higher rated by the Research Method.		For Canada
	Gasoline used should be graded 85-95 octane or higher. An unleaded or low-lead type gasoline is recommended.		For the others
Fuel tank including reserve	9.5 L (2.5/2.1 US/Imp gal)		
reserve	1.4 L (1.5/1.2 US/Imp qt)		
Engine oil type	SUZUKI CCI or CCI SUPER OIL		
Engine oil capacity	1.2 L (1.3/1.1 US/Imp qt)		
Transmission oil type	SAE 20W/40		
Transmission oil capacity	Change	950 ml (1.0/0.8 US/Imp qt)	
	Overhaul	1 000 ml (1.1/0.9 US/Imp qt)	
Front fork oil type	Fork oil # 10		
Front fork oil capacity (each leg)	555 ml (18.8/19.5 US/Imp oz)		Conventional front fork
	452 ml (15.3/15.9 US/Imp oz)		Inverted front fork
Coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50 : 50		
Coolant including reserve	900 ml (0.95/0.79 US/Imp qt)		
Brake fluid type	DOT 4		

# **TS200RN ('92-MODEL)**

This chapter describes service data, service specifications and servicing procedures which differ from those of the TS200RM ('91-model).

**NOTE:**

- *Any differences between TS200RM ('91-model) and TS200RN ('92-model) in specifications and service data are clearly indicated with the asterisk marks (\*).*
- *Please refer to the chapters 1 through 8 for details which are not given in this chapter.*

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# SPECIFICATIONS

## DIMENSIONS AND DRY MASS

Overall length . . . . .	2185 mm (86.0 in)
Overall width . . . . .	880 mm (34.6 in)
Overall height . . . . .	1245 mm (49.0 in)
Wheelbase . . . . .	1425 mm (56.1 in)
Ground clearance . . . . .	320 mm (12.6 in)
Dry mass . . . . .	116 kg (256 lbs) . . . . . E02, 04 115 kg (254 lbs) . . . . . Others

## ENGINE

Type . . . . .	Two-stroke, water-cooled
Intake system . . . . .	Crankcase reed valve
Number of cylinders . . . . .	1
Bore . . . . .	66.0 mm (2.598 in)
Stroke . . . . .	57.0 mm (2.244 in)
Piston displacement . . . . .	195 cm <sup>3</sup> (11.9 cu. in)
Compression ratio . . . . .	6.4/7.1/7.75 : 1
Carburetor . . . . .	MIKUNI TM30SS, single
Air cleaner . . . . .	Polyurethane foam element
Starter system . . . . .	Primary kick
Lubrication system . . . . .	SUZUKI "CCI"

## TRANSMISSION

Clutch . . . . .	Wet multi-plate type
Transmission . . . . .	6-speed constant mesh
Gearshift pattern . . . . .	1-down, 5-up
Primary reduction ratio . . . . .	3.350 (67/20)
Gear ratios, Low . . . . .	2.636 (29/11)
2nd . . . . .	1.857 (26/14)
3rd . . . . .	1.400 (21/15)
4th . . . . .	1.095 (23/21)
5th . . . . .	0.916 (22/24)
Top . . . . .	0.800 (20/25)
Final reduction ratio . . . . .	2.600 (39/15) 2.857 (40/14) . . . . . E28
Drive chain . . . . .	TAKASAGO RK520SO, 106 links

## CHASSIS

Front suspension . . . . .	Telescopic, coil spring, oil damped
Rear suspension . . . . .	Link type suspension system, gas/oil damped, damping force adjustable, spring free way adjustable
Front suspension stroke . . . . .	270 mm (10.6 in)
Rear wheel travel . . . . .	270 mm (10.6 in)
Caster . . . . .	62° 30'
Trail . . . . .	117 mm (4.61 in)
Steering angle . . . . .	43° (right & left)
Turning radius . . . . .	2.3 m (7.5 ft)
Front brake . . . . .	Disc, hydraulically operated
Rear brake . . . . .	Disc, hydraulically operated
Front tire size . . . . .	80/100-21 51P
Rear tire size . . . . .	110/90-18 61P

## ELECTRICAL

Ignition type . . . . .	SUZUKI "PEI"
Ignition timing . . . . .	8° B.T.D.C. below 2000 r/min
Spark plug . . . . .	NGK BR9ES or NIPPONDENSO W27ESR
Battery . . . . .	12V 10.8 kC (3 Ah)/10 HR
Fuse . . . . .	15A
Generator . . . . .	Three-phase A.C. generator

## CAPACITIES

Fuel tank including reserve . . . . .	9.0 L (2.4/2.0 US/Imp. gal)
Reserve . . . . .	1.4 L (0.4/0.3 US/Imp. gal)
Engine oil tank . . . . .	1.2 L (1.3/1.1 US/Imp. qt)
Transmission oil, oil change . . . . .	950 ml (1.0/0.8 US/Imp. qt)
overhaul . . . . .	1000 ml (1.1/0.9 US/Imp. qt)
Cooling solution . . . . .	900 ml (1.0/0.8 US/Imp qt)

These specifications are subject to change without notice.

**SERVICE DATA****CYLINDER + PISTON + PISTON RING**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Piston to cylinder clearance	0.085–0.095 (0.0033–0.0037)		0.120 (0.0047)
Cylinder bore	66.030–66.045 (2.5996–2.6002) Measure at 20 (0.8) from the top surface		66.075 (2.6014)
Piston diam.	65.940–65.955 (2.5961–2.5966) Measure at 12.5 (0.5) from the skirt end		65.910 (2.5949)
Cylinder distortion	—		0.05 (0.002)
Cylinder head distortion	—		0.05 (0.002)
Piston ring free end gap	1st	Approx. 6.3 (0.25)	5.0 (0.20)
	2nd	Approx. 5.1 (0.20)	4.1 (0.16)
Piston ring end gap	1st & 2nd	0.20–0.40 (0.008–0.016)	0.80 (0.031)
Piston ring to groove clearance	1st	0.050–0.070 (0.0020–0.0028)	—
	2nd	0.020–0.060 (0.0008–0.0024)	—
Piston pin bore	18.000–18.006 (0.7087–0.7089)		18.030 (0.7098)
Piston pin O.D.	17.995–18.000 (0.7085–0.7087)		17.980 (0.7079)

**CONROD + CRANKSHAFT**

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	23.003–23.011 (0.9056–0.9059)	23.040 (0.9071)
Crank web to web width	53.0±0.1 (2.087±0.004)	—
Crankshaft runout	—	0.05 (0.002)

**OIL PUMP**

ITEM	SPECIFICATION
Oil pump reduction ratio	3.547 (67/20 x 29/17 x 29/29 x 18/29)
Oil pump discharge rate (Full open)	3.8–4.7 ml (0.13/0.13–0.16/0.17 US/lmp oz) for 2 minutes at 2 000 r/min.

**CLUTCH**

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch lever play	10–15 (0.4–0.6)	—
Drive plate thickness	2.7–2.9 (0.106–0.114)	2.4 (0.094)
Drive plate claw width	11.8–12.0 (0.46–0.47)	11.0 (0.43)
Driven plate distortion	—	0.10 (0.004)
Clutch spring free length	—	30.3 (1.19)

**THERMOSTAT + RADIATOR**

ITEM	STANDARD	LIMIT
Thermostat valve opening temperature	48.5–51.5°C (119.3–124.7 °F)	—
Thermostat valve lift	Over 3.0 mm (0.12 in) at 65°C (149°F)	—
Radiator cap valve opening pressure	90 ± 15 kPa (0.9 ± 0.15 kg/cm <sup>2</sup> , 12.8 ± 2.1 psi)	—

**TRANSMISSION**

Unit: mm (in) Except ratio

ITEM	STANDARD	LIMIT
Primary reduction ratio	3.350 (67/20)	—
Final reduction ratio	E-02,04,24	2.600 (39/15)
	E-28	2.857 (40/14)
Gear ratios	Low	2.636 (29/11)
	2nd	1.857 (26/14)
	3rd	1.400 (21/15)
	4th	1.095 (23/21)
	5th	0.916 (22/24)
	Top	0.800 (20/25)
Shift fork to groove clearance	No.1 & No.3	0.05–0.25 (0.002–0.010)
	No.2	0.05–0.25 (0.002–0.010)
Shift fork groove width	No.1 & No.3	4.45–4.55 (0.175–0.179)
	No.2	5.45–5.55 (0.215–0.219)
Shift fork thickness	No.1 & No.3	4.3–4.4 (0.169–0.173)
	No.2	5.3–5.4 (0.209–0.212)
Countershaft length (Low to 2nd)	105.8–105.9 (4.1653–4.1693)	—

**DRIVE CHAIN**

ITEM		STANDARD		LIMIT
Drive chain	Type	TAKASAGO: RK520SO		—
	Links	106		—
		20-pitch length	—	319.4 (12.57)
Drive chain slack		25—40 (1.0—1.6)		—

**CARBURETOR**

ITEM	SPECIFICATION	
	E-02,04,28	E-24
Carburetor type	MIKUNI TM30SS	←
Bore size	30 mm	←
I.D. No.	08D2	08D3
Idle r/min.	1 300 ± 100 r/min.	←
Float height	12.9 ± 1.0 mm (0.51 ± 0.04 in)	←
Main jet (M.J.)	# 170	←
Main air jet (M.A.J.)	0.6 mm	←
Jet needle (J.N.)	6DHY36-3rd	←
Needle jet (N.J.)	N-8	←
Cut-away (C.A.)	4.0	←
Pilot jet (P.J.)	# 35	←
By-pass (B.P.)	0.9 mm	←
Pilot outlet (P.O.)	0.6 mm	←
Air screw (A.S.)	2½ turns back	←
Starter jet (G.S.)	# 35	←
Power jet (P.W.J.)	# 80	←
Valve seat (V.S.)	2.5 mm	←
Throttle cable play	0.5—1.0 mm (0.02—0.04 in)	←

**ELECTRICAL**

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	8° B.T.D.C. below 2 000 r/min.		
Exhaust valve	Close→Half open	6 400 ± 150 r/min	
	Half open→Full open	7 400 ± 150 r/min	
	Full open→Half open	6 900 ± 150 r/min	
	Half open→Close	5 900 ± 150 r/min.	
Spark plug	Type	N.D.: W27ESR N.G.K: BR9ES	
	Gap	0.6—0.8 (0.02—0.03)	
Spark performance	Over 8 (0.3) at 1 atm.		

ITEM		SPECIFICATION		NOTE
Ignition coil resistance		Primary	0.1 – 1.0 $\Omega$	Terminal – Ground
		Secondary	13 – 20 k $\Omega$	Plug cap – Ground
Magneto coil resistance		Pick-up coil	180 – 280 $\Omega$	R/G – BI/R
		Power source coil	50 – 80 $\Omega$	B/R – R/B
		Charging	0.1 – 1.0 $\Omega$	Y – Y
Generator no-load voltage		More than 33 V (AC) at 5 000 r/min.		
Regulated voltage		13.0 – 15.5 V at 5 000 r/min.		
Water thermo-gauge		Approx. 226 $\Omega$ at 50°C (122°F)		
		Approx. 26 $\Omega$ at 115°C (239°F)		
Exhaust valve actuator		3.2 – 7.2 k $\Omega$		W – B
		0 – 7.2 k $\Omega$		Y – B
		4.5 – 30 $\Omega$		P – Gr
Battery	Type designation	YT4L-BS or FT4L-BS		
	Capacity	12 V 10.8 kC (3 Ah)/10 HR		
	Standard electrolyte S.G.	1.320 at 20° C (68°F)		
Fuse size		15 A		

**WATTAGE**

Unit: W

ITEM		SPECIFICATION			
		E-02	E-04	E-24	E-28
Headlight	HI	45	60	45	←
	LO	40	55	* 45	←
Position light		4	←	←	/
Tail/Brake light		5/21	←	←	←
License light		5	←	←	←
Turn signal light		21	←	←	←
Tachometer light		3.4	←	←	←
Speedometer light		3.4	←	←	←
Turn signal/Oil indicator light		3.4	←		
Turn signal indicator light		/	/	3.4	←
High beam indicator light		1.7	←	←	←
Neutral indicator light		3.4	←	←	←
Oil level indicator light		/	/	3.4	←

\* Asterisk mark (\*) indicates the New "N" model specification.

**BRAKE + WHEEL**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Brake lever play	0—0.3 (0—0.01)		—
Rear brake pedal height	5 (0.2)		—
Brake disc thickness	Front	3.5 ± 0.2 (0.138 ± 0.008)	3.0 (0.12)
	Rear	4.0 ± 0.2 (0.157 ± 0.008)	3.5 (0.14)
Brake disc runout	—		0.30 (0.012)
Master cylinder bore	Front	12.700—12.743 (0.5000—0.5017)	—
	Rear	12.700—12.743 (0.5000—0.5017)	—
Master cylinder piston diam.	Front	12.657—12.684 (0.4983—0.4994)	—
	Rear	12.657—12.684 (0.4983—0.4994)	—
Brake caliper cylinder bore	Front	27.000—27.050 (1.0630—1.0650)	—
	Rear	30.23—30.28 (1.190—1.192)	—
Brake caliper piston diam.	Front	26.900—26.950 (1.0591—1.0610)	—
	Rear	30.16—30.18 (1.187—1.188)	—
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	80/100-21 51P	—
	Rear	110/90-18 61P	—
Tire tread depth	Front	—	3.0 (0.12)
	Rear	—	3.0 (0.12)

**SUSPENSION**

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	270 (10.6)	—	
Front fork spring free length	—	565 (22.2)	E-24,28
	—	574 (22.6)	E-02,04



ITEM	STANDARD	LIMIT	NOTE
Front fork oil level	131 (5.1)	—	E-24,28
	137 (5.4)	—	E-02,04
Rear shock absorber spring pre-set length	260 (10.2)	—	
Rear wheel travel	270 (10.6)	—	
Swingarm pivot shaft runout	—	0.3 (0.11)	

## TIRE PRESSURE

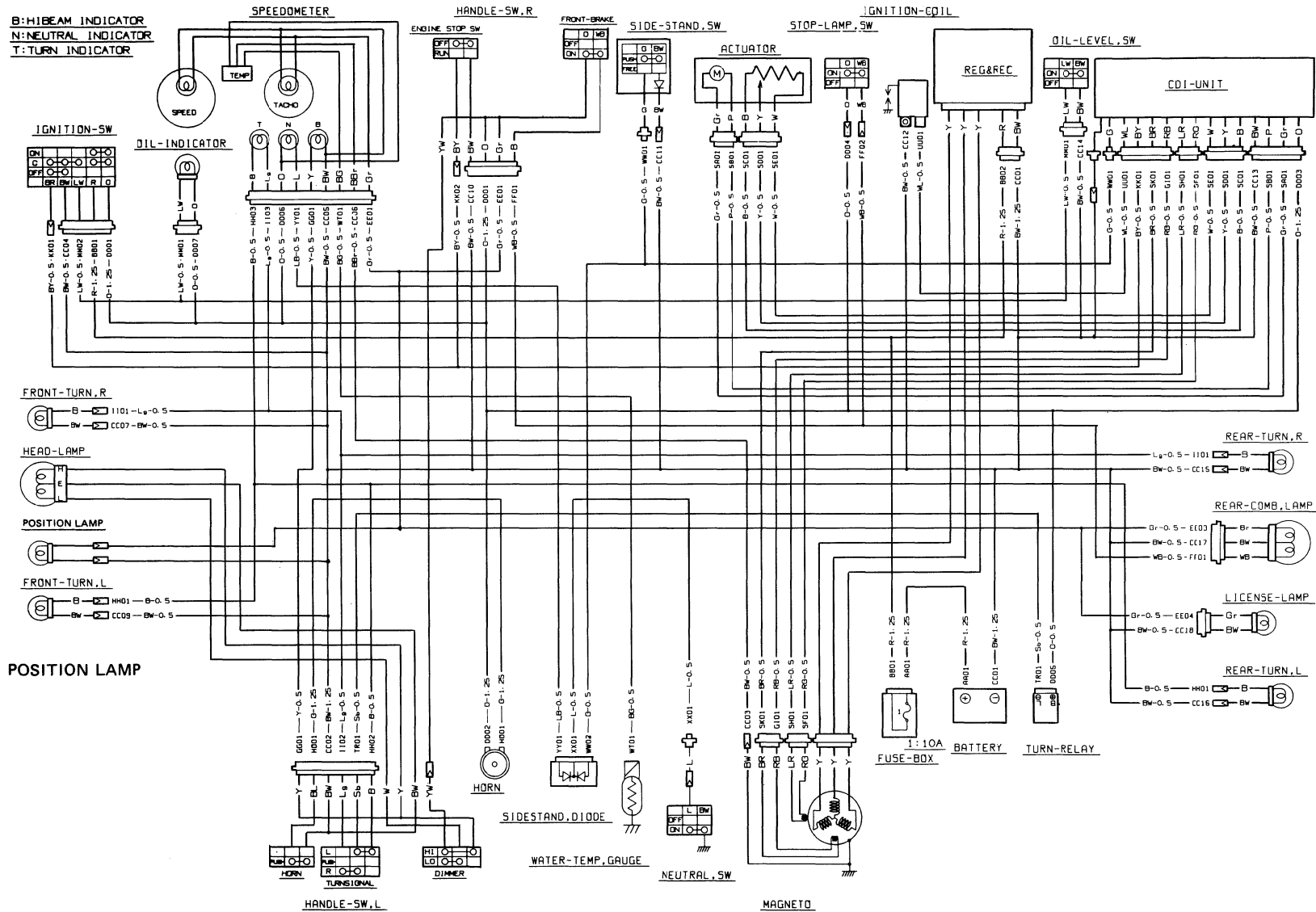
COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm <sup>2</sup>	psi	kPa	kg/cm <sup>2</sup>	psi
FRONT	150	1.50	22	150	1.50	22
REAR	150	1.50	22	175	1.75	25

## FUEL + OIL + COOLANT

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded gasoline of at least 87 pump octane ( $\frac{R+M}{2}$ method) or 91 octane or higher rated by the Research Method.		E-28
	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		The others
Fuel tank including reserve	9.0 L (2.4/2.0 US/lmp gal)		
reserve	1.4 L (1.5/1.2 US/lmp qt)		
Engine oil type	SUZUKI CCI or CCI SUPER OIL		
Engine oil capacity	1.2 L (1.3/1.1 US/lmp qt)		
Transmission oil type	SAE 20W/40		
Transmission oil capacity	Change	950 ml (1.0/0.8 US/lmp qt)	
	Overhaul	1 000 ml (1.1/0.9 US/lmp qt)	
Front fork oil type	Fork oil # 10		
Front fork oil capacity (each leg)	555 ml (18.8/19.5 US/lmp oz)		E-24,28
	452 ml (15.3/15.9 US/lmp oz)		E-02,04
Coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50 : 50		
Coolant including reserve	900 ml (0.95/0.79 US/lmp qt)		
Brake fluid type	DOT 4		

# WIRING DIAGRAM

For Australia



## WIRE COLOR

B . . . . . Black  
 L . . . . . Blue  
 Br . . . . . Brown  
 G . . . . . Green  
 Gr . . . . . Gray  
 Sb . . . . . Light blue  
 Lg . . . . . Light green

O . . . . . Orange  
 P . . . . . Pink  
 R . . . . . Red  
 W . . . . . White  
 Y . . . . . Yellow  
 BBr . . . . . Black with Brown tracer  
 BL . . . . . Black with Blue tracer

BG . . . . . Black with Green tracer  
 BR . . . . . Black with Red tracer  
 BW . . . . . Black with White tracer  
 BY . . . . . Black with Yellow tracer  
 LR . . . . . Blue with Red tracer  
 LW . . . . . Blue with White tracer  
 LB . . . . . Blue with Black tracer

RB . . . . . Red with Black tracer  
 RG . . . . . Red with Green tracer  
 WB . . . . . White with Black tracer  
 WL . . . . . White with Blue tracer  
 Y/W . . . . . Yellow with White tracer

# ***TS200RP ('93-MODEL)***

## **CONTENTS**

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# SPECIFICATIONS

## DIMENSIONS AND DRY MASS

Overall length.....	2 185 mm (86.0 in)
Overall width.....	880 mm (34.6 in)
Overall height.....	1 245 mm (49.0 in)
Wheelbase.....	1 425 mm (56.1 in)
Ground clearance.....	320 mm (12.6 in)
Seat height.....	890 mm (35.0 in)
Dry mass.....	116 kg (256 lbs)..... E04
	115 kg (254 lbs)..... E28
	113 kg (249 lbs)..... E24

## ENGINE

Type.....	Two-stroke, liquid-cooled
Intake system.....	Crankcase reed valve
Number of cylinder.....	1
Bore.....	66.0 mm (2.598 in)
Stroke.....	57.0 mm (2.244 in)
Piston displacement.....	195 cm <sup>3</sup> (11.9 cu. in)
Compression ratio.....	6.4/7.1/7.8 : 1
Carburetor.....	TM30SS, single
Air cleaner.....	Polyurethane foam element
Starter system.....	Primary kick
Lubrication system.....	SUZUKI "CCI"

## TRANSMISSION

Clutch.....	Wet multi-plate type
Transmission.....	6-speed constant mesh
Gearshift pattern.....	1-down, 5-up
Primary reduction ratio.....	3.350 (67/20)
Gear ratios, Low.....	2.636 (29/11)
2nd.....	1.857 (26/14)
3rd.....	1.400 (21/15)
4th.....	1.095 (23/21)
5th.....	0.916 (22/24)
Top.....	0.800 (20/25)
Final reduction ratio.....	2.600 (39/15)..... Others
	2.857 (40/14)..... E28
Drive chain.....	RK52SOZ <sub>2</sub> , 106 links

## CHASSIS

Front suspension.....	Telescopic, coil spring, oil damped
Rear suspension.....	Link type, coil spring, oil damped, compression damping force fully adjustable
Front suspension stroke.....	270 mm (10.6 in)
Rear wheel travel.....	270 mm (10.6 in)
Caster.....	62° 30'
Trail.....	117 mm (4.61 in)
Steering angle.....	43° (right & left)
Turning radius.....	2.3 m (7.5 ft)
Front brake.....	Disc brake, hydraulically operated
Rear brake.....	Disc brake, hydraulically operated
Front tire size.....	80/100-21 51P
Rear tire size.....	110/90-18 61P

## ELECTRICAL

Ignition type.....	SUZUKI "PEI"
Ignition timing.....	8° B.T.D.C. below 2000 r/min
Spark plug.....	NGK BR9ES or NIPPONDENSO W27ESR
Battery.....	12V 10.8 kC (3Ah)/10HR
Generator.....	Three-phase A.C. generator
Headlight.....	12V 45/45W..... E28
	12V 60/55W..... E04, 24
Parking or city light.....	12V 4W..... Except E28
Turn signal light.....	12V 21W
Tail/Brake light.....	12V 5/21W
License plate light.....	12V 5W
Speedometer light.....	12V 3.4W
Tachometer light.....	12V 3.4W
Neutral indicator light.....	12V 3.4W
High beam indicator light.....	12V 1.7W
Turn signal or oil level indicator light.....	12V 3.4W..... E04
Turn signal indicator light.....	12V 3.4W..... E24, 28
Oil level indicator light.....	12V 3.4W..... E24, 28

## CAPACITIES

Fuel tank, including reserve.....	9.0 L (2.4/2.0 US/Imp gal)
Reserve.....	1.4 L (0.4/0.3 US/Imp gal)
Engine oil tank.....	1.2 L (1.3/1.1 US/Imp qt)
Transmission oil, oil change.....	950 ml (1.0/0.8 US/Imp qt)
overhaul.....	1000 ml (1.1/0.9 US/Imp qt)
Coolant.....	900 ml (1.0/0.8 US/Imp qt)

**SERVICE DATA****CYLINDER + PISTON + PISTON RING**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Piston to cylinder clearance	0.085–0.095 (0.0033–0.0037)		0.120 (0.0047)
Cylinder bore	66.030–66.045 (2.5996–2.6002) Measure at 20 (0.8) from the top surface		66.075 (2.6014)
Piston diam.	65.940–65.955 (2.5961–2.5966) Measure at 12.5 (0.5) from the skirt end		65.910 (2.5949)
Cylinder distortion	—		0.05 (0.002)
Cylinder head distortion	—		0.05 (0.002)
Piston ring free end gap	1st	Approx. 6.3 (0.25)	5.0 (0.20)
	2nd	Approx. 5.1 (0.20)	4.1 (0.16)
Piston ring end gap	1st & 2nd	0.20–0.40 (0.008–0.016)	0.80 (0.031)
Piston ring to groove clearance	1st	0.050–0.070 (0.0020–0.0028)	—
	2nd	0.020–0.060 (0.0008–0.0024)	—
Piston pin bore	18.000–18.006 (0.7087–0.7089)		18.030 (0.7098)
Piston pin O.D.	17.995–18.000 (0.7085–0.7087)		17.980 (0.7079)

**CONROD + CRANKSHAFT**

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	23.003–23.011 (0.9056–0.9059)	23.040 (0.9071)
Crank web to web width	53.0±0.1 (2.087±0.004)	—
Crankshaft runout	—	0.05 (0.002)

**OIL PUMP**

ITEM	SPECIFICATION
Oil pump reduction ratio	3.547 (67/20 x 29/17 x 29/29 x 18/29)
Oil pump discharge rate (Full open)	3.8–4.7 ml (0.13/0.13–0.16/0.17 US/lmp oz) for 2 minutes at 2 000 r/min.

**CLUTCH**

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch lever play	10–15 (0.4–0.6)	—
Drive plate thickness	2.7–2.9 (0.106–0.114)	2.4 (0.094)
Drive plate claw width	11.8–12.0 (0.46–0.47)	11.0 (0.43)
Driven plate distortion	—	0.10 (0.004)
Clutch spring free length	—	30.3 (1.19)

**THERMOSTAT + RADIATOR**

ITEM	STANDARD	LIMIT
Thermostat valve opening temperature	48.5–51.5°C (119.3–124.7 °F)	—
Thermostat valve lift	Over 3.0 mm (0.12 in) at 65°C (149°F)	—
Radiator cap valve opening pressure	90±15 kPa (0.9±0.15 kg/cm <sup>2</sup> , 12.8±2.1 psi)	—

**TRANSMISSION**

Unit: mm (in) Except ratio

ITEM	STANDARD		LIMIT
Primary reduction ratio	3.350 (67/20)		—
Final reduction ratio	E-04,24	2.600 (39/15)	—
	E-28	2.857 (40/14)	—
Gear ratios	Low	2.636 (29/11)	—
	2nd	1.857 (26/14)	—
	3rd	1.400 (21/15)	—
	4th	1.095 (23/21)	—
	5th	0.916 (22/24)	—
	Top	0.800 (20/25)	—
Shift fork to groove clearance	No.1 & No.3	0.05–0.25 (0.002–0.010)	0.45 (0.018)
	No.2	0.05–0.25 (0.002–0.010)	0.45 (0.018)
Shift fork groove width	No.1 & No.3	4.45–4.55 (0.175–0.179)	—
	No.2	5.45–5.55 (0.215–0.219)	—
Shift fork thickness	No.1 & No.3	4.3–4.4 (0.169–0.173)	—
	No.2	5.3–5.4 (0.209–0.212)	—
Countershaft length (Low to 2nd)	105.8–105.9 (4.1653–4.1693)		—

**DRIVE CHAIN**

ITEM		STANDARD		LIMIT
Drive chain	Type	TAKASAGO: RK520SO		—
	Links	106		—
		20-pitch length	—	319.4 (12.57)
Drive chain slack		25—40 (1.0—1.6)		—

**CARBURETOR**

ITEM	SPECIFICATION	
	E-04,28	E-24
Carburetor type	MIKUNI TM30SS	←
Bore size	30 mm	←
I.D. No.	08D2	08D3
Idle r/min.	1 400 ± 100 r/min.	←
Float height	12.9 ± 1.0 mm (0.51 ± 0.04 in)	←
Main jet (M.J.)	# 170	←
Main air jet (M.A.J.)	0.6 mm	←
Jet needle (J.N.)	6DHY36-3rd	←
Needle jet (N.J.)	N-8	←
Cut-away (C.A.)	4.0	←
Pilot jet (P.J.)	# 35	←
By-pass (B.P.)	0.9 mm	←
Pilot outlet (P.O.)	0.6 mm	←
Air screw (A.S.)	2½ turns back	←
Starter jet (G.S.)	# 35	←
Power jet (P.W.J.)	# 80	←
Valve seat (V.S.)	2.5 mm	←
Throttle cable play	0.5—1.0 mm (0.02—0.04 in)	←

**ELECTRICAL**

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	8° B.T.D.C. below 2 000 r/min.		
Exhaust valve	Close→Half open	6 400 ± 150 r/min	
	Half open→Full open	7 400 ± 150 r/min	
	Full open→Half open	6 900 ± 150 r/min	
	Half open→Close	5 900 ± 150 r/min.	
Spark plug	Type	N.D.: W27ESR N.G.K: BR9ES	
	Gap	0.6—0.8 (0.02—0.03)	
Spark performance	Over 8 (0.3) at 1 atm.		





**BRAKE + WHEEL**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Brake lever play	0—0.3 (0—0.01)		—
Rear brake pedal height	5 (0.2)		—
Brake disc thickness	Front	3.5 ± 0.2 (0.138 ± 0.008)	3.0 (0.12)
	Rear	4.0 ± 0.2 (0.157 ± 0.008)	3.5 (0.14)
Brake disc runout	—		0.30 (0.012)
Master cylinder bore	Front	12.700—12.743 (0.5000—0.5017)	—
	Rear	12.700—12.743 (0.5000—0.5017)	—
Master cylinder piston diam.	Front	12.657—12.684 (0.4983—0.4994)	—
	Rear	12.657—12.684 (0.4983—0.4994)	—
Brake caliper cylinder bore	Front	27.000—27.050 (1.0630—1.0650)	—
	Rear	30.23—30.28 (1.190—1.192)	—
Brake caliper piston diam.	Front	26.900—26.950 (1.0591—1.0610)	—
	Rear	30.16—30.18 (1.187—1.188)	—
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	80/100-21 51P	—
	Rear	110/90-18 61P	—
Tire tread depth	Front	—	3.0 (0.12)
	Rear	—	3.0 (0.12)

**SUSPENSION**

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	270 (10.6)	—	
Front fork spring free length	—	565 (22.2)	E-24,28
	—	574 (22.6)	E-04

ITEM	STANDARD	LIMIT	NOTE
Front fork oil level	131 (5.1)	—	E-24,28
	137 (5.4)	—	E-04
Rear shock absorber spring pre-set length	260 (10.2)	—	
Rear wheel travel	270 (10.6)	—	
Swingarm pivot shaft runout	—	0.3 (0.11)	

## TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm <sup>2</sup>	psi	kPa	kg/cm <sup>2</sup>	psi
FRONT	150	1.50	22	150	1.50	22
REAR	150	1.50	22	175	1.75	25

## FUEL + OIL + COOLANT

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded gasoline of at least 87 pump octane ( $\frac{R+M}{2}$ method) or 91 octane or higher rated by the Research Method.		E-28
	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		The others
Fuel tank including reserve	9.0 L (2.4/2.0 US/Imp gal)		
reserve	1.4 L (1.5/1.2 US/Imp qt)		
Engine oil type	SUZUKI CCI or CCI SUPER OIL		
Engine oil capacity	1.2 L (1.3/1.1 US/Imp qt)		
Transmission oil type	SAE 20W/40		
Transmission oil capacity	Change	950 ml (1.0/0.8 US/Imp qt)	
	Overhaul	1 000 ml (1.1/0.9 US/Imp qt)	
Front fork oil type	Fork oil # 10		
Front fork oil capacity (each leg)	555 ml (18.8/19.5 US/Imp oz)		E-24,28
	452 ml (15.3/15.9 US/Imp oz)		E-04
Coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50 : 50		
Coolant including reserve	900 ml (0.95/0.79 US/Imp qt)		
Brake fluid type	DOT 4		

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