

**SUZUKI**

**DR600S**

**SERVICE MANUAL**

Walter  
ONE

gait, ion key No - 257

## **FOREWORD**

*The SUZUKI DR600S was designed to offer superior performance through lightweight design, four stroke-power (TSCC engine), engine counter-balancers and full-floating suspension.*

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

**SUZUKI MOTOR CO., LTD.**  
*Motorcycle Technical Service Department*

**VIEW OF SUZUKI DR600SF ('85-MODEL)**



**RIGHT SIDE**



**LEFT SIDE**

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# GENERAL INFORMATION

1

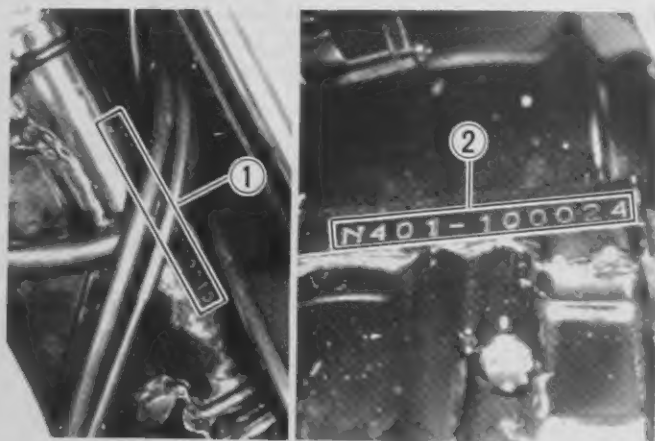
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## SERIAL NUMBER LOCATIONS

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



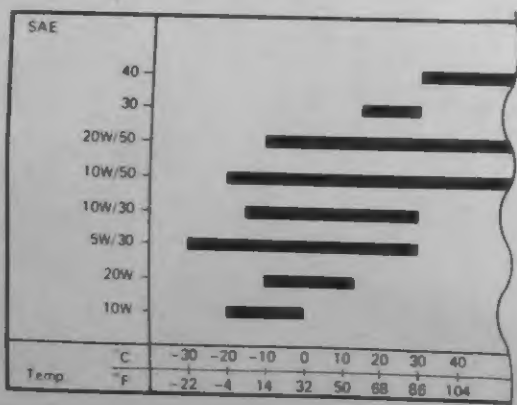
## FUEL AND OIL RECOMMENDATIONS

### FUEL

Gasoline used should be graded 85 – 95 octane or higher. An unleaded or low-lead type gasoline is recommended.

### ENGINE OIL

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



### FRONT FORK OIL

Use fork oil # 10.

### BRAKE FLUID

Specification and classification:	SAE J1703, DOT 3 or DOT 4
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#### WARNING:

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

## 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.






1. Keep to this break-in throttle position.

Up to 1 600 km (1 000 miles)	Below 4/5 throttle
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2. After the engine has been operated for 1 600 km (1 000 miles) the motorcycle can be subjected to full throttle operation for short periods of time.

## SPECIAL MATERIALS

The materials listed below are needed for maintenance work on the DR600S, and should be kept on hand for ready use. They supplement such standard materials as cleaning fluids, lubricants, emery cloth and the like. How to use them and where to use them are described in the text of this manual.

Material	Part	Page	Part	Page
 SUZUKI SUPER GREASE "A" 99000-25010	<ul style="list-style-type: none"> <li>• Oil seals</li> <li>• Throttle grip</li> <li>• Brake pedal shaft</li> <li>• Gearshift lever and shaft</li> <li>• Speedometer cable, gear-box and dust seal</li> <li>• Wheel bearings</li> <li>• Steering stem bearings</li> <li>• Sprocket drum bearing</li> </ul>	3-45  6-4  6-4, 32 6-23 6-33	<ul style="list-style-type: none"> <li>• Brake camshaft, oil seal, spacer, dust seals, bearing and bushing</li> <li>• Brake cam and pin</li> <li>• Shock absorber dust seals</li> <li>• Cushion lever dust seals, spacers and bearings</li> <li>• Swingarm dust seals, spacers and bearings</li> </ul>	6-33  6-34 6-40 6-41  6-42
 SUZUKI SILICONE GREASE 99000-25100	<ul style="list-style-type: none"> <li>• Caliper axle</li> </ul>	6-9		
 SUZUKI MOLY PASTE 99000-25140	<ul style="list-style-type: none"> <li>• Valve stems</li> <li>• De-comp. camshaft</li> <li>• Countershaft and drive-shaft gears</li> <li>• Piston pin</li> <li>• Camshaft journals</li> <li>• Rocker arm shafts</li> <li>• De-comp. shafts</li> </ul>	3-28 3-37 3-41  3-59 3-63 3-63 3-64		
 SUZUKI BOND No. 1207B 99000-31140	<ul style="list-style-type: none"> <li>• Mating surfaces of left and right halves of crankcase</li> <li>• Magneto lead wire grommet</li> <li>• Cylinder base and head gaskets</li> <li>• Cylinder head cover</li> </ul>	3-49  3-53 5-2 3-60  3-64		
 THREAD LOCK SUPER "1303" 99000-32030	<ul style="list-style-type: none"> <li>• 2nd drive gear</li> <li>• Crankcase bearing retainers</li> <li>• Kick starter pawl guide/stopper bolt and screw</li> <li>• Gearshift arm stopper</li> <li>• Cam sprocket bolts</li> </ul>	3-43 3-45  3-49  3-50 3-62		

### 1-3 GENERAL INFORMATION

Material	Part	Page	Part	Page
 <p>THREAD LOCK "1342" 99000-32050</p>	<ul style="list-style-type: none"> <li>● Gearshift cam stopper bolt</li> <li>● Gearshift cam guide/pawl lifter screws</li> <li>● Engine oil pump mounting screws</li> </ul>	<p>3-48</p> <p>3-50</p> <p>3-54</p>	<ul style="list-style-type: none"> <li>● Magneto stator coil securing screws</li> <li>● Front fork damper rod bolts</li> </ul>	<p>5-2</p> <p>6-16</p>
 <p>THREAD LOCK SUPER "1305" 99000-32100</p>	<ul style="list-style-type: none"> <li>● Magneto rotor bolt</li> </ul>	<p>3-53</p>		
 <p>THREAD LOCK SUPER "1360" 99000-32130</p>	<ul style="list-style-type: none"> <li>● Disc mounting bolts</li> </ul>	<p>6-8</p>		
 <p>SUZUKI BRAKE FLUID 99000-23021 (0.5 L)</p>	<ul style="list-style-type: none"> <li>● Front brake</li> </ul>	<p>2-13</p>		



## PRECAUTIONS AND GENERAL INSTRUCTIONS

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

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

### CAUTION.

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

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

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

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

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

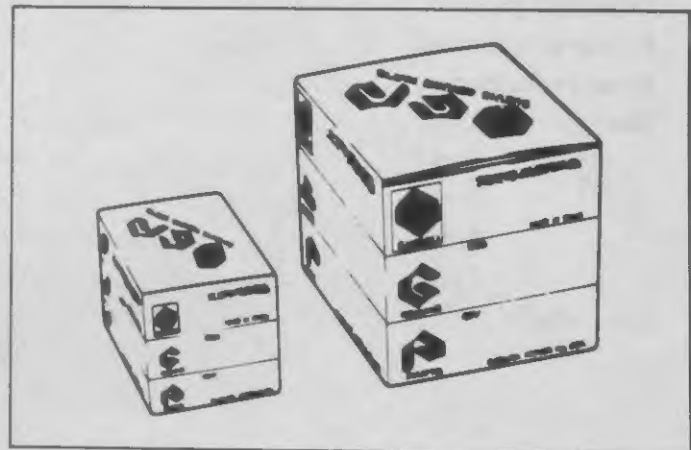
**WARNING** . . . . . Personal safety of the rider is involved, and disregard of the information could result in injury.

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

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

### USE OF SUZUKI GENUINE PARTS

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



## SPECIFICATIONS

### DIMENSIONS AND DRY MASS

Overall length .....	2 215 mm (87.2 in)
Overall width .....	875 mm (34.4 in)
Overall height .....	1 235 mm (48.6 in)
Wheelbase .....	1 465 mm (57.7 in)
Ground clearance .....	275 mm (10.8 in)
Dry mass .....	139 kg (306 lbs)

### ENGINE

Type .....	Four-stroke, air-cooled, OHC
Number of cylinders .....	1
Bore .....	94.0 mm (3.700 in)
Stroke .....	85.0 mm (3.346 in)
Piston displacement .....	589 cm <sup>3</sup> (35.9 cu. in)
Compression ratio .....	8.5 : 1
Carburetor .....	MIKUNI VM38SS, single
Air cleaner .....	Polyurethane foam element
Starter system .....	Primary kick
Lubrication system .....	Wet sump

### TRANSMISSION

Clutch .....	Wet multi-plate type
Transmission .....	5-speed constant mesh
Gearshift pattern .....	1-down, 4-up
Primary reduction .....	2.310 (67/29)
Final reduction .....	2.625 (42/16)
Gear ratios, Low .....	2.416 (29/12)
2nd .....	1.625 (26/16)
3rd .....	1.263 (24/19)
4th .....	1.000 (21/21)
Top .....	0.826 (19/23)
Drive chain .....	TAKASAGO RK520KSO or DAIDO D.I.D.520VC-5, 108 links

**ELECTRICAL**

Ignition type .....	SUZUKI "PEI"
Ignition timing .....	0° B.T.D.C. Below 2 200 r/min and 30° B.T.D.C. Above 4 300 r/min
Spark plug .....	NGK DP9EA-9 or NIPPON DENSO X27EP-U9 (For E-01, 24, 25 and 34) NGK DPR9EA-9 or NIPPON DENSO X27EPR-U9 (For others)
Battery .....	12V 18kC (5 Ah)/10 HR
Generator .....	Three-phase A.C. generator
Fuse .....	15A

**CHASSIS**

Front suspension .....	Telescopic, pneumatic/coil spring, oil dampened
Rear suspension .....	Full floating suspension system, gas/oil dampened, spring 5-way adjustable
Steering angle .....	45° (Right & Left)
Caster .....	60° 00'
Trail .....	125 mm (4.92 in)
Turning radius .....	2.3 m (7.5 ft)
Front brake .....	Disc brake, hydraulically operated
Rear brake .....	Internal expanding
Front tire size .....	100/80-21 56S
Rear tire size .....	130/80-17 65S

**CAPACITIES**

Fuel tank including reserve .....	21L (5.5/4.6 US/Imp gal)
reserve .....	4.5 L (4.8/4.0 US/Imp qt)
Engine oil .....	2.3 L (2.4/2.0 US/Imp qt)
Front fork oil .....	475 ml (16.1/16.7 US/Imp oz)

These specifications are subject to change without notice.

# PERIODIC MAINTENANCE AND TUNE-UP PROCEDURES

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## 2-1 PERIODIC MAINTENANCE AND TUNE-UP PROCEDURES

### 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. Mileages are expressed in terms of kilometers, miles and time for your convenience.

**NOTE:**

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

### PERIODIC MAINTENANCE CHART

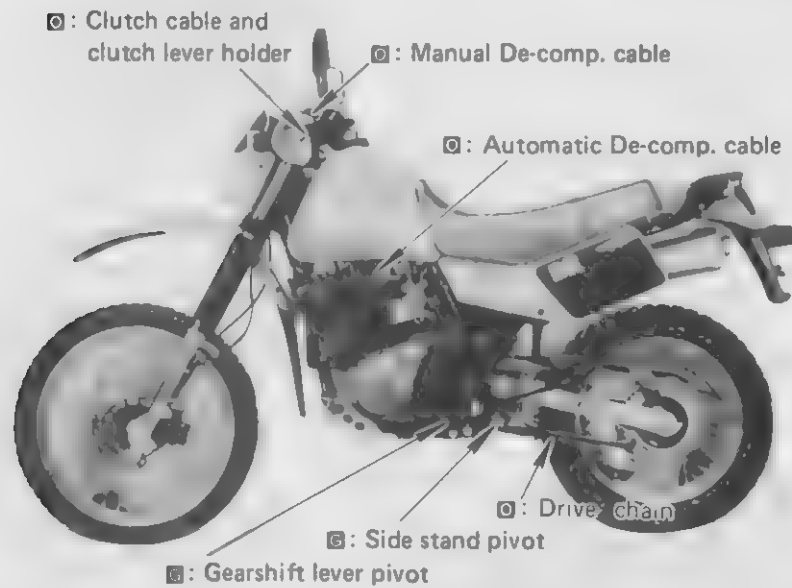
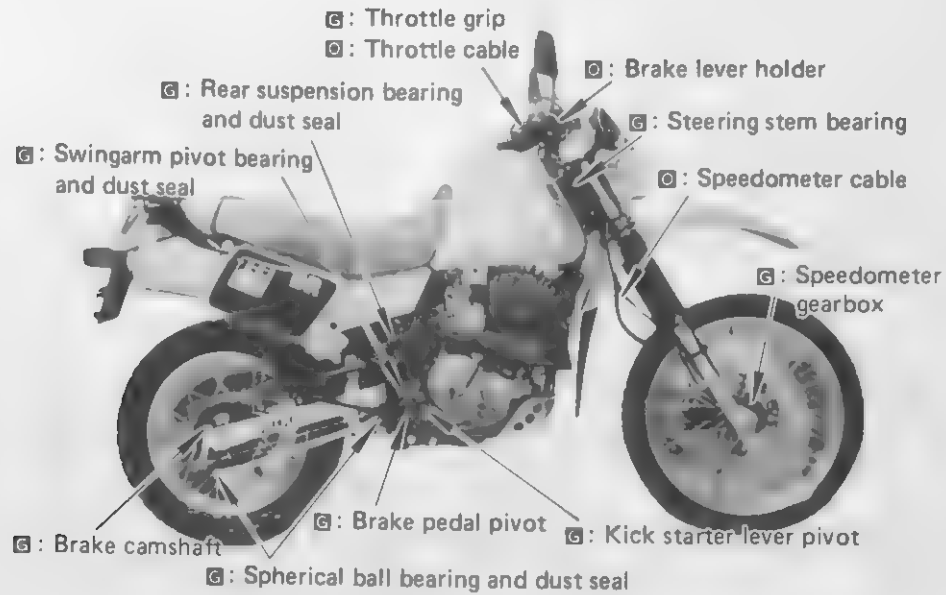
INTERVAL: THIS INTERVAL SHOULD BE JUDGED BY ODOMETER READING OR MONTHS WHICHEVER COMES FIRST	mile	600	4 000	7 500	11 000	15 000
	km	1 000	6 000	12 000	18 000	24 000
	month	2	12	24	36	48
Battery (Specific gravity of electrolyte)		—	I	I	I	I
Cylinder head nuts, exhaust pipe bolts and muffler connections		T	T	T	T	T
Air cleaner element		Clean every 3 000 km (2 000 miles).				
Automatic de-compression lever		I	I	I	I	I
Valve clearance		I	I	I	I	I
Spark plugs		—	C	R	C	R
Fuel line		I	I	I	I	I
		Replace every four years.				
Fuel strainer		C	—	C	—	C
Engine oil and oil filter		R	R	R	R	R
Carburetor idle rpm		I	I	I	I	I
Balancer chain		I	I	I	I	I
Clutch		I	I	I	I	I
Drive chain		I	I	I	I	I
		Clean and lubricate every 1 000 km (600 miles).				
Brakes		Inspect every 3 000 km (2 000 miles).				
Brake hoses		I	I	I	I	I
		Replace every four years.				
Brake fluid		Change every two years.				
Tires		I	I	I	I	I
Steering		I	I	I	I	I
Front forks		—	I	I	I	I
Chassis bolts and nuts		T	T	T	T	T

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



## OILING POINTS

Proper lubrication is important for smooth operation and long life of each working part. Major oiling points are indicated below.



- ⊗ ..... Motor oil
- ⊗ ..... Grease

**NOTE:**

- \* Lubricate exposed parts which are subject to rust, with a rust preventative spray whenever the motorcycle has been operated under wet or rainy conditions. If the spray is unavailable, use either motor oil or grease.
- \* Before lubricating each part, clean off any rusty spots and wipe off any grease, oil, dirt or grime.

**WARNING:**

Be careful not to apply too much grease to the brake cam shaft. If grease gets on the linings, brake slippage will result.

## MAINTENANCE AND TUNE-UP PROCEDURES

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

### BATTERY

Inspect Every 6 000 km (4 000 miles)

- Remove the frame covers and seat. (Refer to page 3-2)
- Check electrolyte for level and specific gravity. Add distilled water, as necessary to keep the surface of the electrolyte above the MIN. level line but not above the MAX. level line.
- For checking specific gravity, use a hydrometer to determine the charged condition.

09900-28403	Hydrometer
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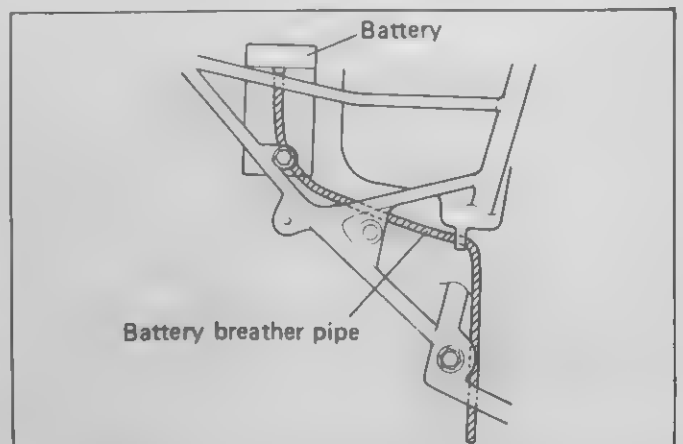
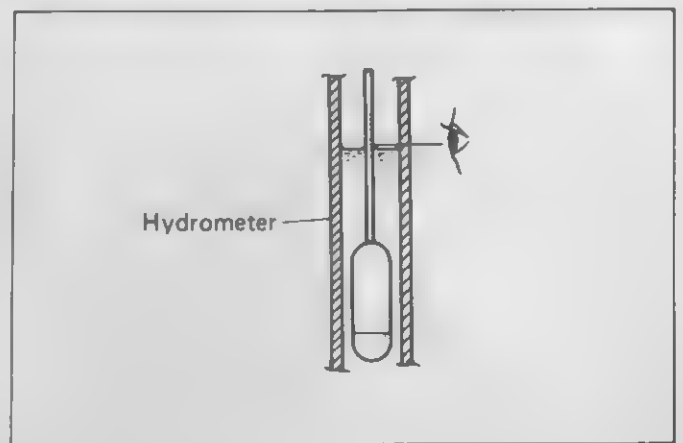
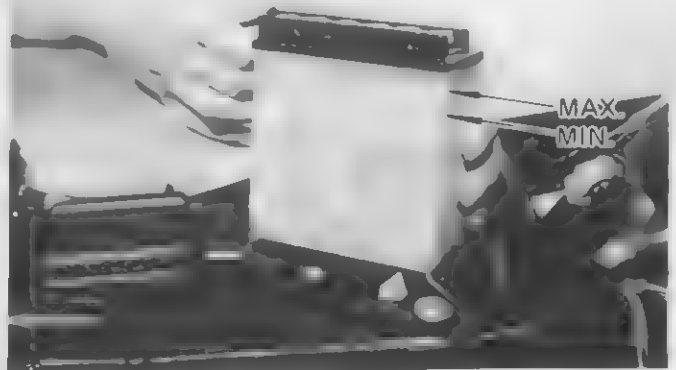
Standard specific gravity	1.28 at 20°C (68°F)
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An S.G. reading of 1.22 (at 20°C) or under means that the battery needs recharging. Remove the battery from the motorcycle and charge it with a battery charger.

#### CAUTION:

- \* When removing the battery from the motorcycle, be sure to disconnect the  $\ominus$  lead wire first.
- \* Never charge a battery while still in the motorcycle as damage may result to the battery or regulator/rectifier.
- \* Be careful not to bend, obstruct, or change the routing of the breather pipe from the battery, make certain that the breather pipe is attached to the battery vent fitting and that the opposite end is always open.
- \* When installing the battery lead wires, fix the  $\oplus$  lead first and  $\ominus$  lead last.

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



## CYLINDER HEAD NUTS, EXHAUST PIPE BOLTS AND MUFFLER CONNECTIONS

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

### CYLINDER HEAD

- Remove the frame covers, seat and fuel tank. (Refer to page 3-2)
- Remove the cylinder head cover. (Refer to page 3-11)
- Disconnect the de-comp. cables, automatic and manual. (Refer to page 3-4)
- First loosen and retighten the four 10-mm ① and two 8-mm ② nuts to the specified torque with a torque wrench sequentially in diagonally with the engine cold.

Tightening torque	10 mm Diam. ①	35 – 40 N·m (3.5 – 4.0 kg·m) (25.5 – 29.0 lb·ft)
	8 mm Diam. ②	23 – 27 N·m (2.3 – 2.7 kg·m) (16.5 – 19.5 lb·ft)

- After firmly tightening the six nuts, tighten the two 6-mm nuts (indicated as ③) to the torque value below:

Tightening torque ③	7 – 11 N·m (0.7 – 1.1 kg·m) (5.0 – 8.0 lb·ft)
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- When installing the cylinder head cover, apply SUZUKI Bond No. 1207B to the mating surface. (Refer to page 3-64)

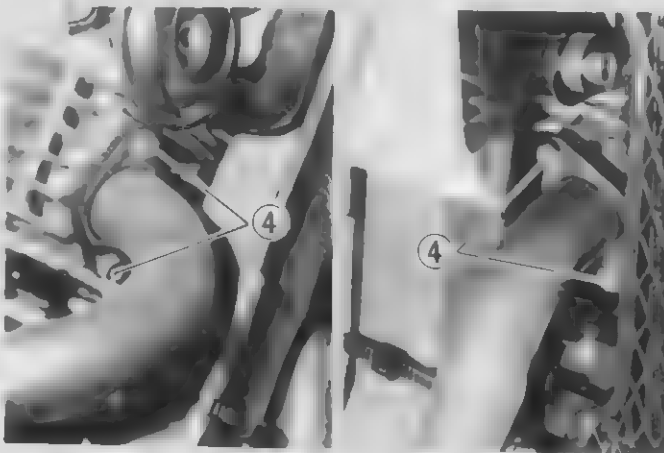
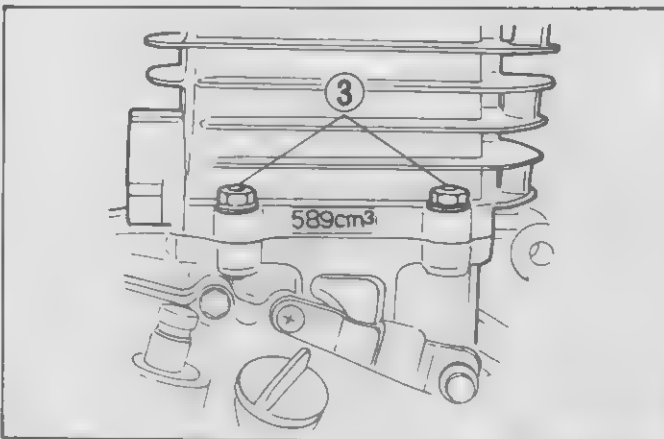
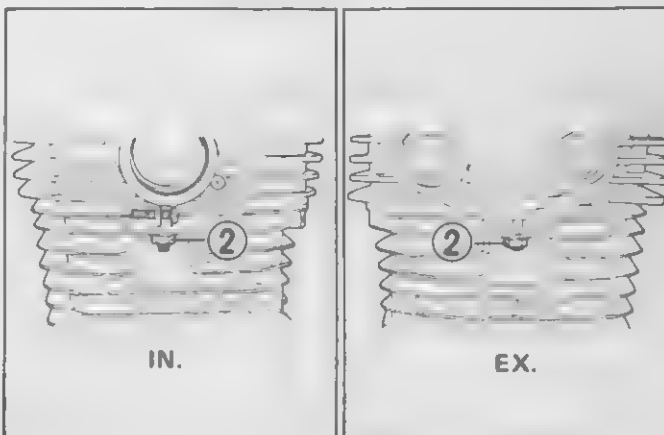
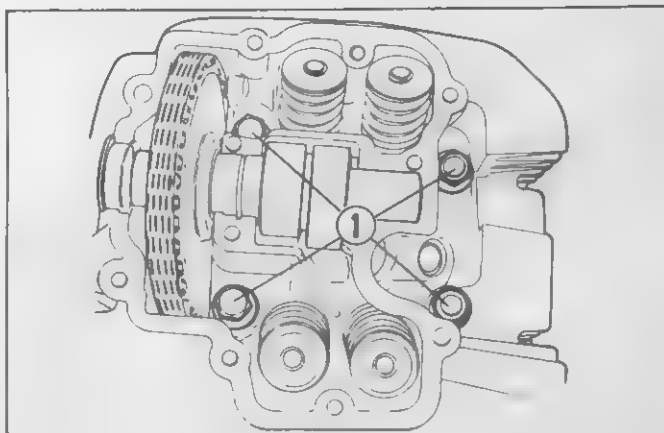
### EXHAUST PIPE AND MUFFLER

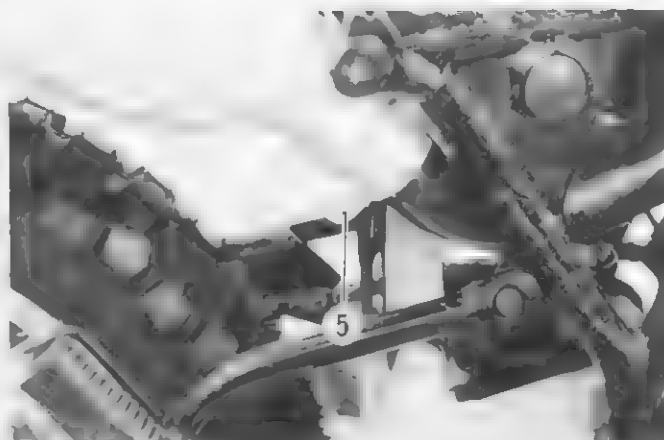
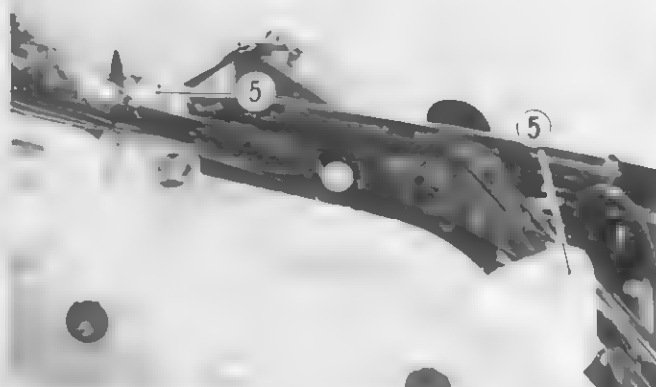
- Tighten the exhaust pipe bolts, muffler connection bolt and muffler mounting bolts to the specified torque with a torque wrench.

#### Tightening torque

Exhaust pipe bolts ④	9 – 12 N·m (0.9 – 1.2 kg·m) (6.5 – 8.5 lb·ft)
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Muffler connection and muffler mounting bolts ⑤	18 – 28 N·m (1.8 – 2.8 kg·m) (13.0 – 20.0 lb·ft)
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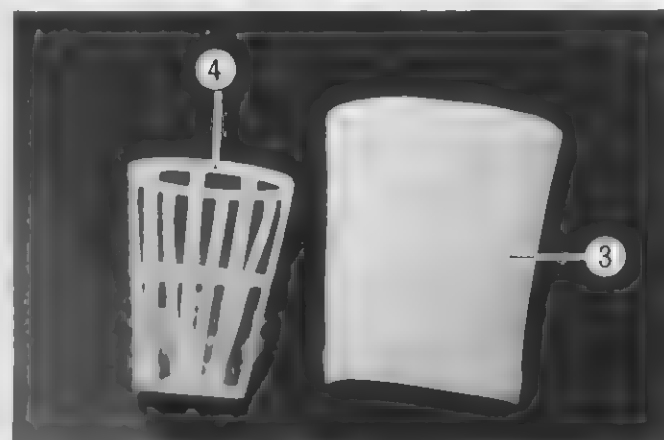
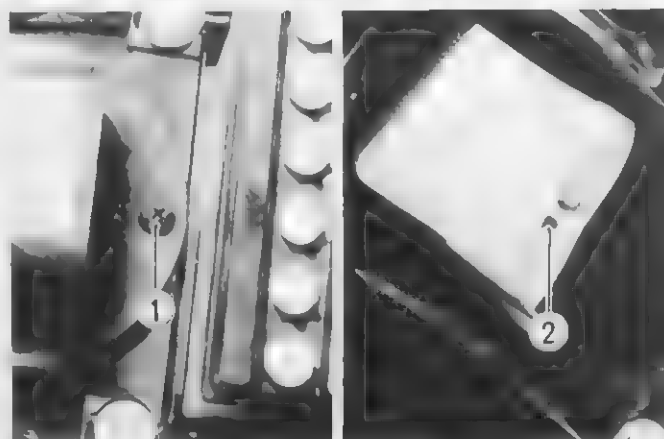
### AIR CLEANER ELEMENT

Clean Every 3 000 km (2 000 miles)

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 frame covers and seat. (Refer to page 3-2)
- Remove the air cleaner case cover by loosening screw ①.
- Remove the wing nut ② and take off the air cleaner element.
- Remove the polyurethane foam element ③ from the element frame ④.
- Fill a washing pan of a proper size with non-flammable 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.
- Immerse the element in motor oil, and squeeze the oil out of the element leaving it slightly wet with oil.

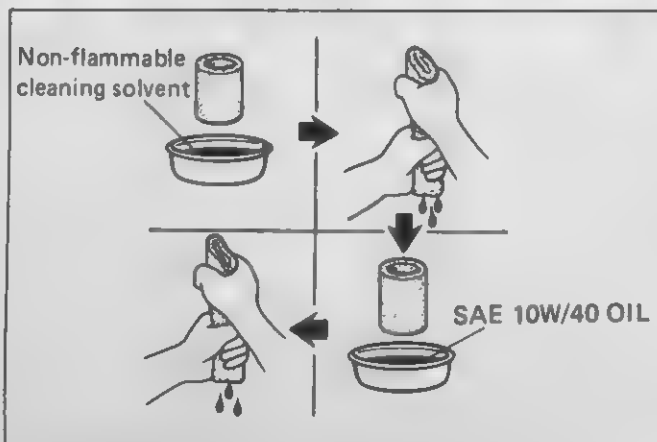


**NOTE:**

Do not twist or wring the element because it will tear or the individual cells of the element will be damaged.

**CAUTION:**

Inspect the element carefully for rips, torn seams, etc. If any damage is noted, replace the element.



## AUTOMATIC DE-COMPRESSION LEVER

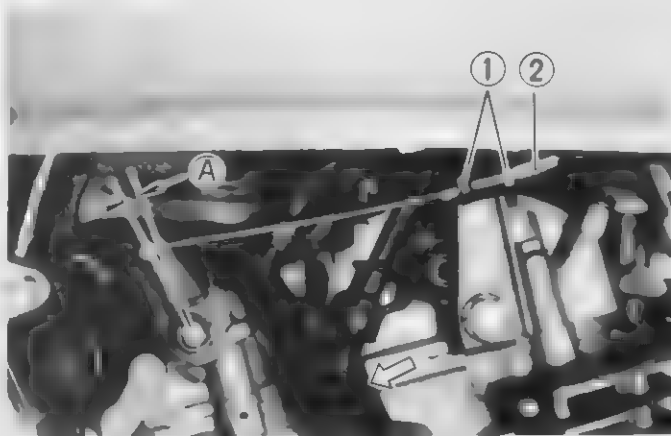
**Inspect** Initial 1 000 km (600 miles) and  
Every 6 000 km (4 000 miles)

Incorrect adjustment of the lever free play may result in starting difficulties or engine damage. Check the lever free play and if necessary, adjust as follows:

- Remove the spark plug and valve timing inspection plug.
- Remove the magneto cover cap and turn the crankshaft counterclockwise with the box wrench to set the piston at T.D.C. on the compression stroke. (Refer to page 2-7)
- Loosen both lock nuts ① on the cable adjuster 2).
- Locate the adjuster ② to provide the specified play.
- Tighten the both lock nuts ①.

When the de-compression cable play is properly adjusted, the de-compression lever should have 1 – 2 mm of free play with the piston at T.D.C. on the compression stroke.

De-compression lever play (A)	1 – 2 mm (0.04 – 0.08 in)
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## VALVE CLEARANCE

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

Excessive valve clearance results in valve noise and insufficient valve clearance results in valve damage and reduced power. At the distances indicated above, check and adjust the clearance to the specification.

The procedure for adjusting the valve clearance is as follows:

### NOTE:

Valve clearance is to be checked when the engine is cold.

Both the intake and exhaust valves must be checked and adjusted when the piston is at Top-Dead-Center (TDC) on the compression stroke.

- Remove the seat, frame covers and fuel tank. (Refer to page 3-2)
- Remove the spark plug and valve inspection caps, intake and exhaust. (Refer to page 3-11)

### CAUTION:

Before adjusting the valve clearance, check or adjust the automatic de-compression lever play.

### Valve clearance specifications

IN. and EX.	0.08 – 0.13 mm (0.003 – 0.005 in)
-------------	--------------------------------------



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

- Remove the valve timing inspection plug and magneto cover cap.
- Turn the crankshaft counterclockwise with the box wrench to set the piston at T.D.C. on the compression stroke. (Turn the crankshaft until the "T" line on the magneto rotor is aligned with the center of hole on the magneto cover.)
- Insert the thickness gauge into the clearance between the valve stem end and the adjusting screw on the rocker arm.

09900-20803

Thickness gauge

- If clearance is off the specification, bring it into the specified range by using the screw driver.
- Securely tighten the lock nut after adjustment is completed.

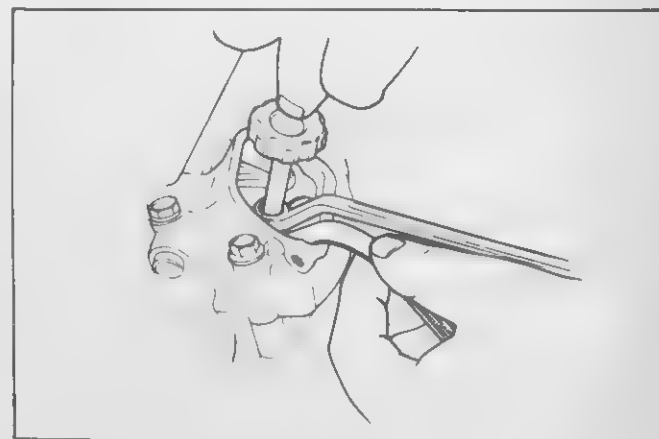
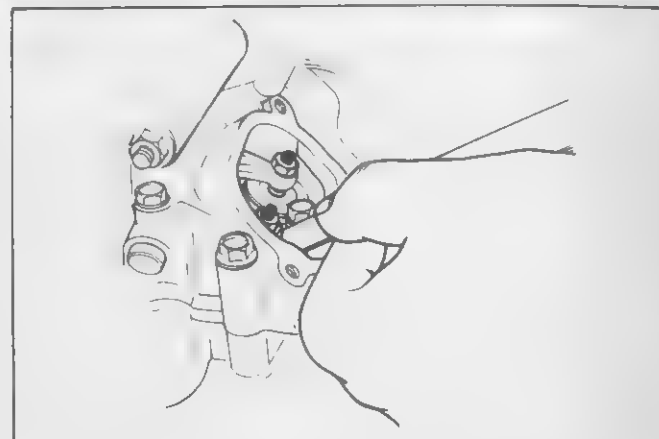
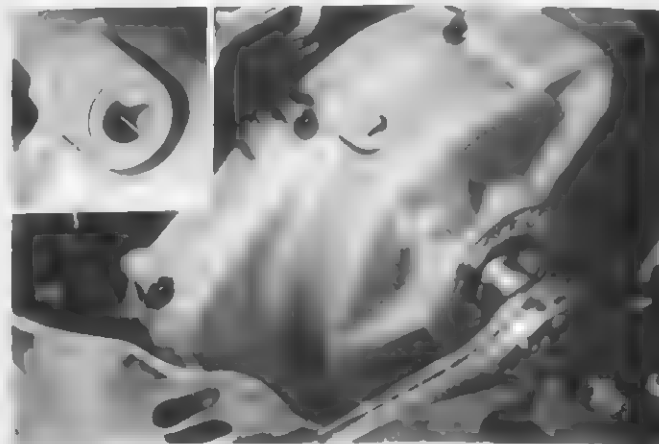
### CAUTION:

Both the right and left valve clearances, should be as closely set as possible.

### NOTE:

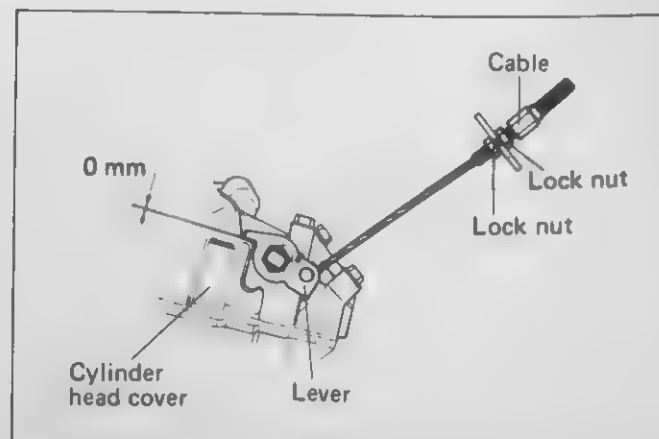
Make sure to re-check the automatic de-compression lever play, after valve clearance adjustment is made.

- Reinstall the spark plug, valve inspection caps, valve timing inspection plug and magneto cover cap.



### MANUAL DE-COMPRESSION LEVER

- After adjusting the valve clearance, adjust the de-compression cable.
- With the de-compression lever squeezed, loosen and adjust the two adjuster lock nuts so that the clearance between the lever on the engine and upper cylinder head cover becomes zero as indicated in Fig. at right.
- After adjusting the cable correctly, tighten the two lock nuts.



## SPARK PLUGS

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

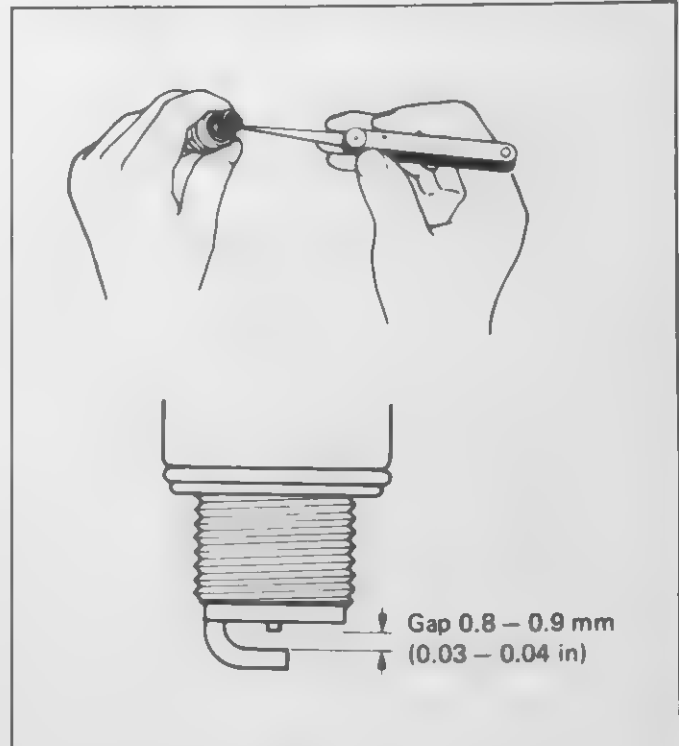
The plug gap is adjusted to 0.8 – 0.9 mm (0.03 – 0.04 in). The gap is correctly adjusted by using a thickness gauge. When carbon is deposited on the spark plug, remove the carbon with a tool with a pointed end. If the electrodes are extremely worn or burnt, replace the plug. Also replace the plug if it has a broken insulator, damaged thread, etc. NGK DP9EA-9 or NIPPON DENSO X27EP-U9 as listed in the table should be used as the standard plug. However, the heat range of the plug should be selected to meet the requirements of speed, actual load, fuel, etc. If the plugs need to be replaced, it is recommended that the standard plugs listed in the table be selected. Remove the plugs and inspect the insulators. Proper heat range would be indicated if all insulators were light brown in color. If they are blackened by carbon, they should be replaced by a hot type NGK DP8EA-9 or NIPPON DENSO X24EP-U9.

**NOTE:**

To check the spark plugs, first make sure that the fuel tank contains unleaded gasoline, and after a test ride if the plugs are either sooty with carbon or burnt white, replace them.

**NOTE:**

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



NGK	NIPPON DENSO	REMARKS
DP8EA-9	X24EP-U9	If the standard plug is apt to get wet, replace it with this hot type plug.
DP9EA-9	X27EP-U9	Standard

**"R" type spark plug**

NGK	NIPPON DENSO	REMARKS
DPR8EA-9	X24EPR-U9	If the standard plug is apt to get wet, replace it with this hot type plug.
DPR9EA-9	X27EPR-U9	Standard

**NOTE:**

"R" type spark plug is installed for some specifications. "R" type spark plug has a resistor located at the center electrode to prevent radio noise.

## FUEL LINE

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

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

## ENGINE OIL AND OIL FILTER

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

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

- Keep the motorcycle upright, supported by jack.
- Place an oil pan below the engine and remove the engine oil drain plug ① and oil filler cap ② to drain engine oil.
- Remove the oil filter cap by removing the three nuts ③.
- Pull out the old filter ④ and install the new one.
- Replace the filter cap and tighten the nuts ③ securely.

### NOTE:

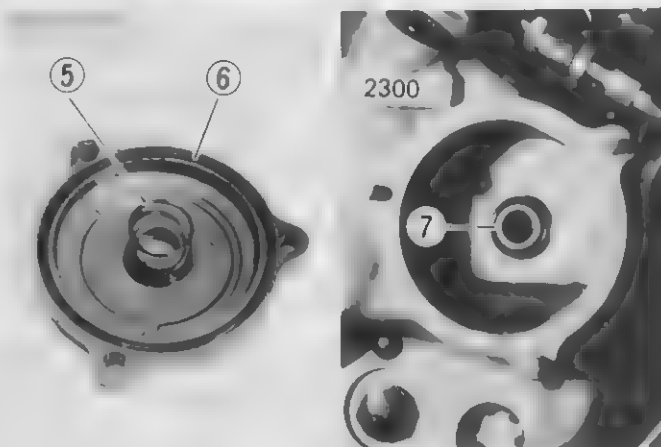
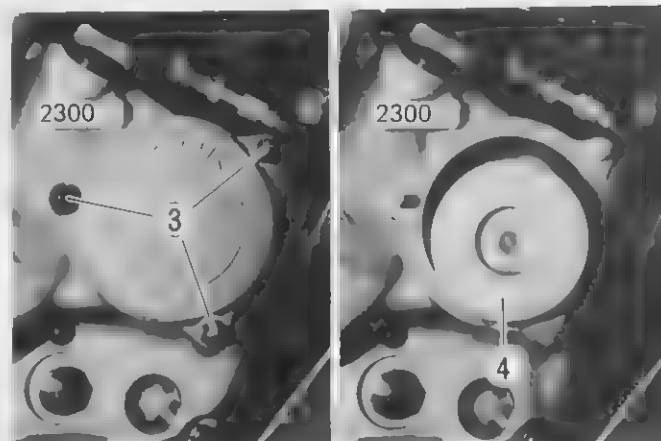
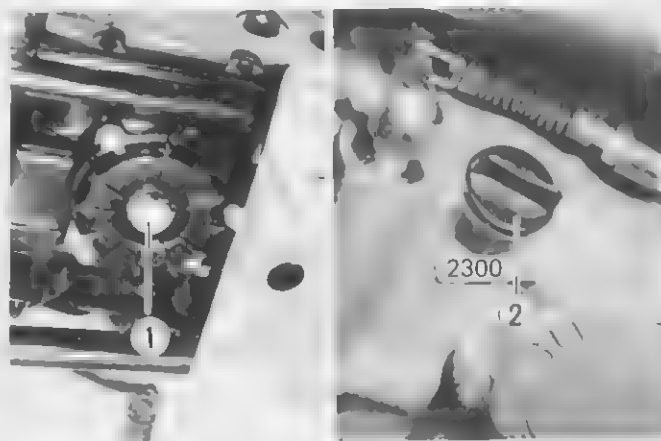
Before installing the oil filter and filter cap, check to be sure that the spring ⑤ and new O-rings (⑥ and ⑦) are installed correctly.

- Tighten the oil drain plug ① securely, and add fresh oil through the oil filler. The engine will hold about 2 450 ml of oil.  
Use an API classification of SE or SF oil with SAE 10W/40 viscosity.
- Start up the engine and allow it to run for several seconds at idling speed.
- Turn off the engine and wait about one minute, then check the oil level through the inspection window ⑧. If the level is below mark "F", add oil to that level.

## FUEL STRAINER

Clean Initial 1 000 km (600 miles) and  
Every 12 000 km (7 500 miles)

(Refer to page 4-3 for maintenance procedure)



**NECESSARY AMOUNT OF ENGINE OIL**

Oil change	2 300 ml (2.4 US qt)
Filter change	2 450 ml (2.6 US qt)
Overhaul engine	2 600 ml (2.7 US qt)

**CARBURETOR**

**IDLE RPM (Idling adjustment)**

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

**NOTE:**

Make this adjustment when the engine is hot.

- Connect a tachometer.
- Start up the engine and set its speed at anywhere between 1 200 and 1 400 r/min by turning the throttle stop screw ①.
- Turn in or out the pilot screw within 1/2 turn from the standard setting, and set it when the engine speed is at the highest possible level.
- After this adjustment, recheck the idling speed and adjust to between 1 200 and 1 400 r/min with throttle stop screw if necessary.

**THROTTLE CABLE PLAY**

**(Pulling cable play)**

The pulling cable A should be adjusted to have a play ① of 0.5 – 1.0 mm (0.02 – 0.04 in).

If the adjustment is necessary, adjust the play in the following way:

- Loosen the lock nut ② and turn the adjuster ③ in or out to obtain the correct play ① 0.5 – 1.0 mm (0.02 – 0.04 in).
- After adjusting the play, tighten the lock nut ②.

**(Returning cable slack)**

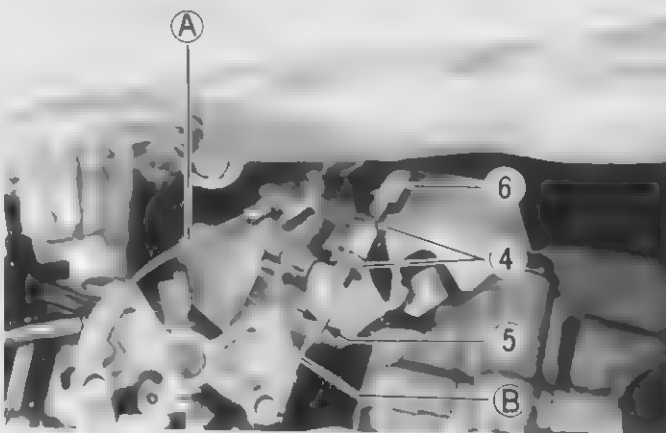
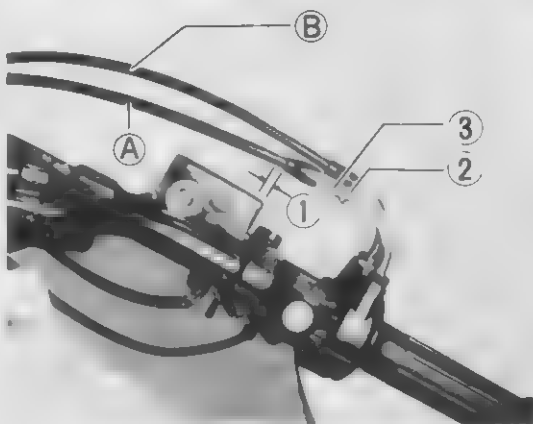
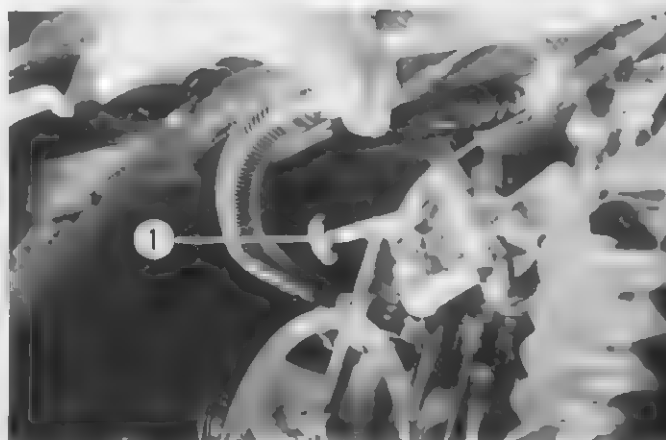
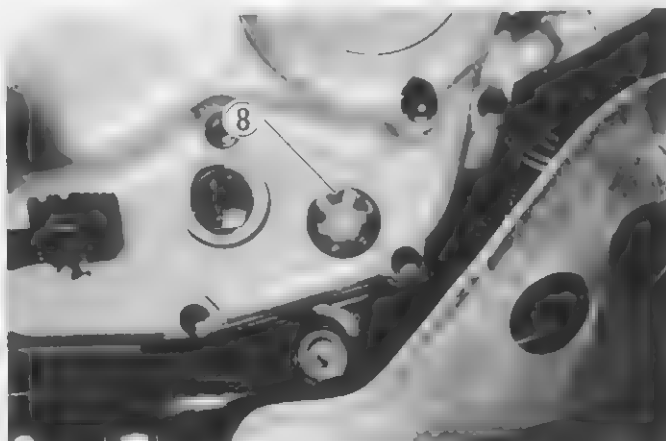
The returning cable B should be adjusted to have a little slack ⑤.

If the adjustment is necessary, adjust the slack in the following way:

- Loosen the lock nuts ④ and reduce the slack ⑤ to little by turning the adjuster ⑥.
- After adjusting the slack, tighten the lock nuts ④.

**WARNING:**

After the adjustment is completed, check that handlebar movement does not raise the engine idle speed and that the throttle grip returns smoothly and automatically.

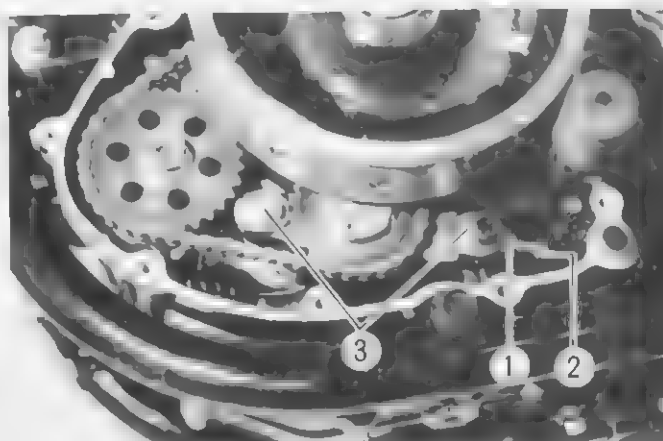


## BALANCER CHAIN

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

The balancer chain is maintained at the proper tension by a manually adjusted tensioner. To prevent chain noise, the tensioner must be adjusted at the intervals listed above. The procedure for adjusting the balancer chain tensioner is as follows:

- Drain engine oil.
- Remove the engine guard and gearshift lever.
- Remove the engine sprocket cover and magneto cover. (Refer to page 3-10)
- Loosen the lock nut ① and stopper bolt ②, and then loosen on the chain tensioner allen bolts ③. This will allow a spring to pull the chain tensioner, taking up any slack that may have existed.
- Tighten the allen bolts ③ to the specified torque, and then tighten the stopper bolt ② and lock nut ①.



**NOTE:**

When adjusting the balancer chain tensioner, change the oil at the same time.

**CAUTION:**

To prevent oil leakage, do not use the old magneto cover gasket.

Tightening torque

15 – 20 N·m  
(1.5 – 2.0 kg·m)  
(11.0 – 14.5 lb·ft)

## CLUTCH

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

Remove the left knuckle guard.

Clutch play **A** should be 2 – 3 mm as measured at the clutch lever holder before the clutch begins to disengage. If the play in the clutch is incorrect, adjust it in the following way:

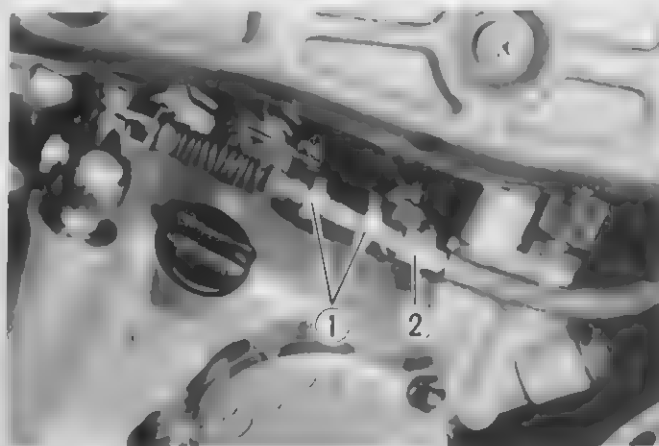
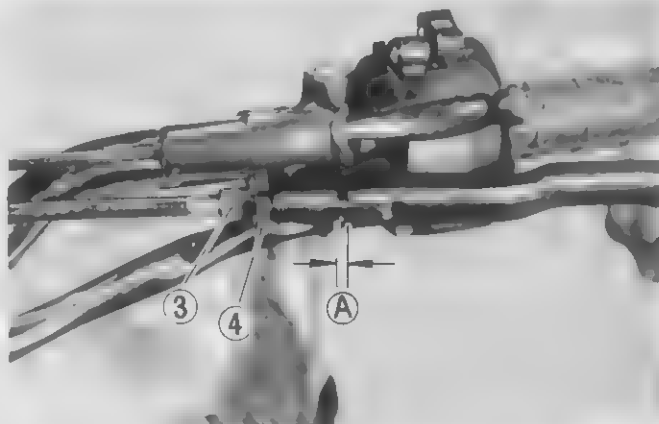
- Loosen the clutch cable adjuster lock nuts ① and slide the clutch cable adjuster ② left or right to acquire the specified play.
- Tighten the lock nuts while holding the adjuster in position.

Clutch cable  
play **A**

2 – 3 mm  
(0.08 – 0.12 in)

**NOTE:**

Minor adjustment can be made by the adjuster ③ after loosening the lock nut ④. At the same intervals, lubricate the clutch cable with motor oil.





## DRIVE CHAIN

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

Visually inspect the drive chain for the listed below possible defects. (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
- Damaged rollers
- Dry or rusted links
- Kinked or binding links
- Excessive wear
- \* Missing O-rings

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

### CHECKING

- Loosen axle nut ① after pulling out \*cotter pin ②.
- Tension the drive chain fully by turning the right and left chain adjusters ③.
- Count out 21 pins (20 pitches) on the chain and measure the distance between the two points. If the distance exceeds following limit, the chain must be replaced. (\* Canada model only)

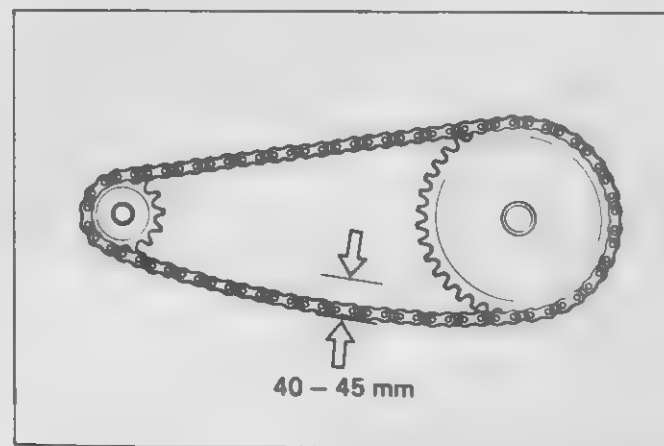
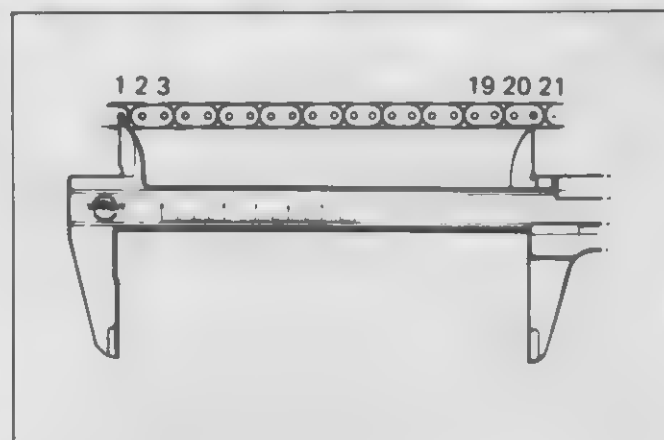
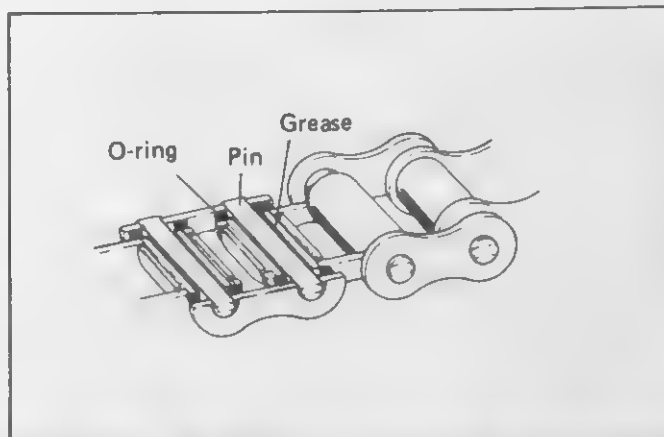
Service Limit	319.4 mm (12.57 in)
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### ADJUSTING

- Turn both chain adjusters ③ until the chain has 40 – 45 mm of sag at the middle between engine and rear sprockets. The number ④ on both chain adjusters must be at the same position to ensure that the front and rear wheels are correctly aligned. Lift the rear wheel and place a jack under the engine for accurate adjustment.

Drive chain slack	40 – 45 mm (1.6 – 1.8 in)
-------------------	------------------------------

- After adjusting the drive chain, tighten the axle nut ① to the specified torque, and lock with \*cotter pin ②. Always use a new cotter pin. (\*Canada model only)



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

### CLEANING AND LUBRICATING

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

#### CAUTION:

Do not use trichlene, gasoline or any similar fluids: These fluids have too great a dissolving power for this chain and, what is more important, can damage 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 damage the "O" rings (or seals).

The standard drive chain is DAIDO D.I.D.520 VC-5 or TAKASAGO RK520KSO. SUZUKI recommends that the above-mentioned standard drive chain be used for the replacement.



### BRAKES

Inspect Every 3 000 km (2 000 miles)  
Replace hoses Every 4 years  
Change fluid Every 2 years

#### FRONT BRAKE

##### Brake fluid level

- Support the motorcycle by jack or block, and place the handlebars straight.
- Check the brake fluid level by observing the lower limit mark on the brake fluid reservoir.
- When the level is below the lower limit mark, replenish with brake fluid that meets the following specification.

Specification and classification	SAE J1703, DOT3 or DOT 4
-------------------------------------	-----------------------------



#### 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 brake fluid left over from the last servicing or 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.

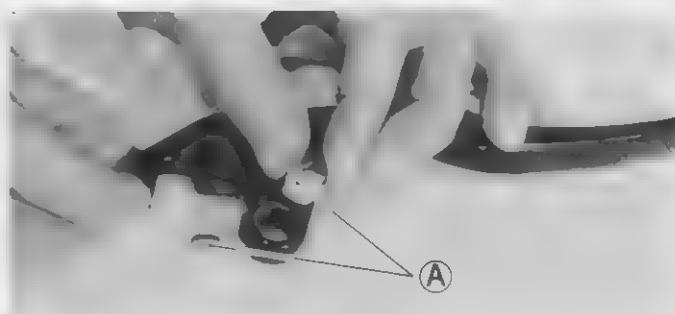
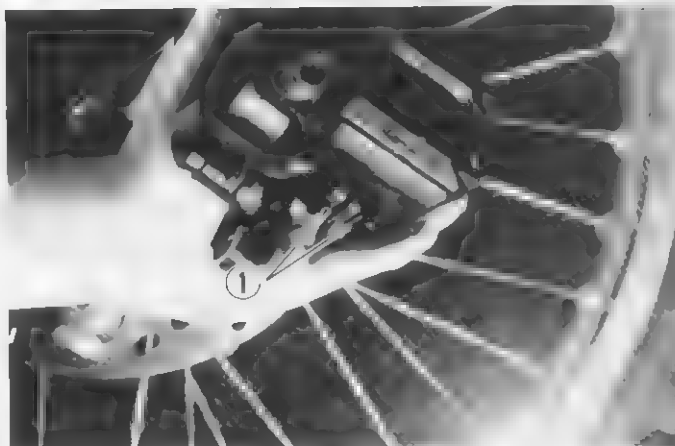
**Brake pads**

The extent of brake pad wear can be checked by observing the limit line ① marked on the pad. When the wear exceeds the limit line, replace the pads with new ones. (see page 6-6)

**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. 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.
- 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 handlebars 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.
- Close the bleeder valve, and disconnect the pipe. Fill the reservoir to the upper line in inspection window.



**NOTE:**

When bleeding air from the brake fluid circuit, remove the brake lever adjuster ① from the brake lever as shown in the Fig. above. After bleeding air from the brake system is completed, install the brake lever adjuster. Replenish the brake fluid reservoir as necessary while bleeding the brake system. Make sure that there is always some fluid visible in the reservoir.

**CAUTION:**

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

Bleeder valve tightening torque	6 – 9 N·m (0.6 – 0.9 kg·m) (4.5 – 6.5 lb·ft)
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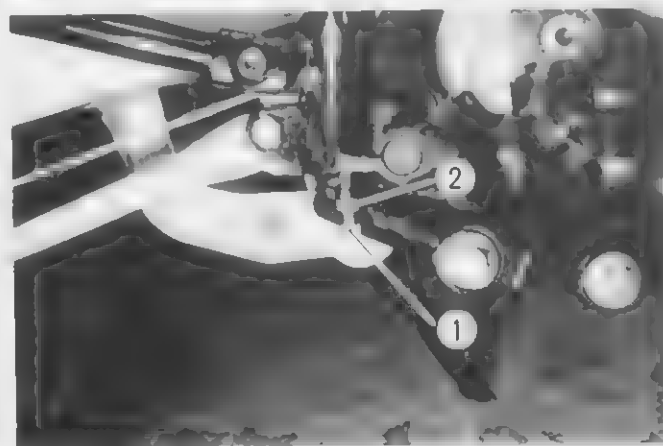
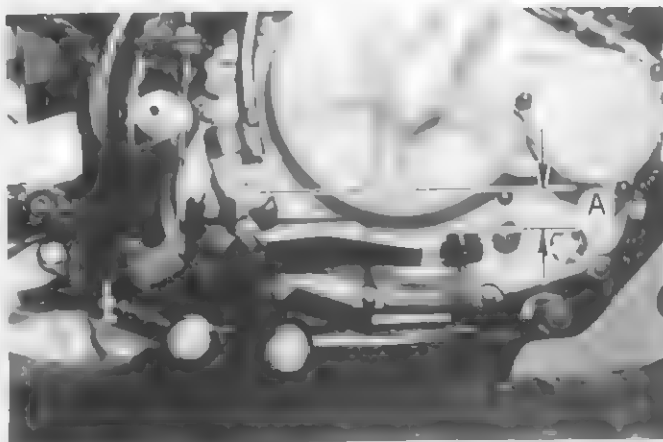
**REAR BRAKE**

**Brake pedal height and free travel**

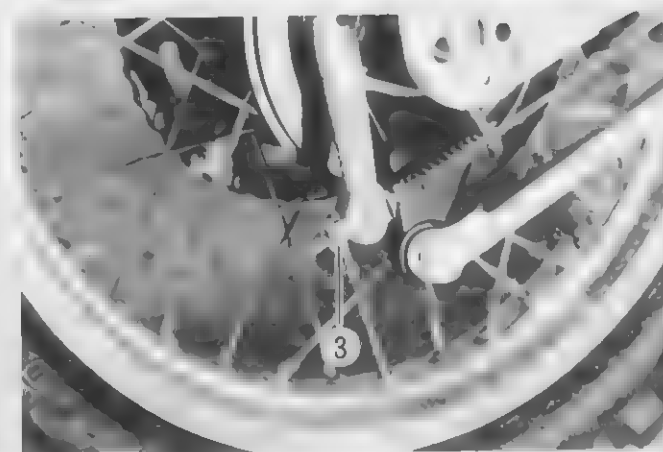
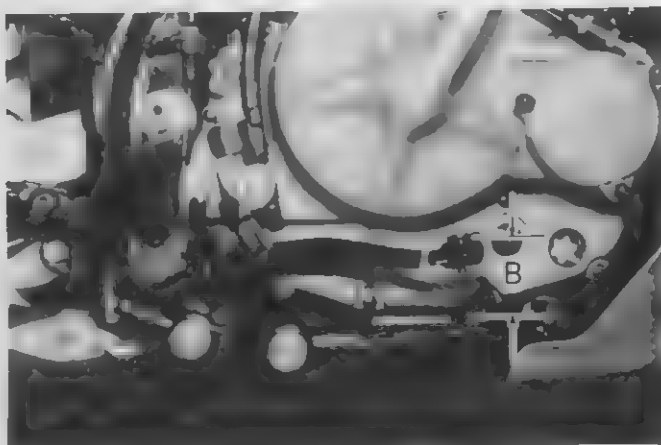
Bring the brake pedal to a position about 10 mm (A) below the footrest as shown in photo.

This is effected by turning the adjusting bolt (1). Be sure to tighten the lock nut (2) securely after setting the bolt.

By repositioning the adjusting nut (3) on the brake cable, set the pedal play to between 20 and 30 mm (B) as measured at pedal tip.

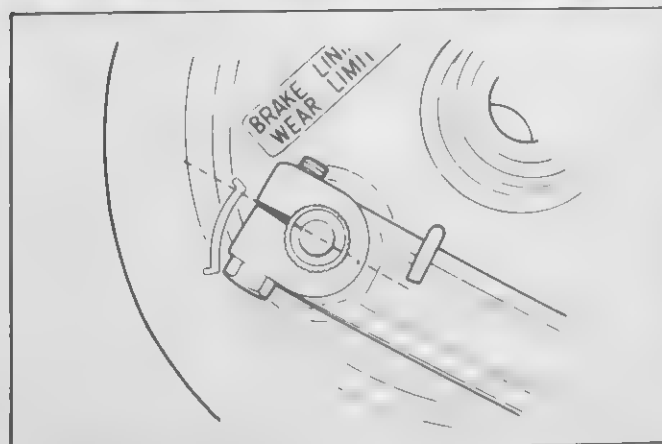


Brake pedal height A	10 mm (0.4 in)
Brake pedal free travel B	20 – 30 mm (0.8 – 1.2 in)



**Brake shoe wear**

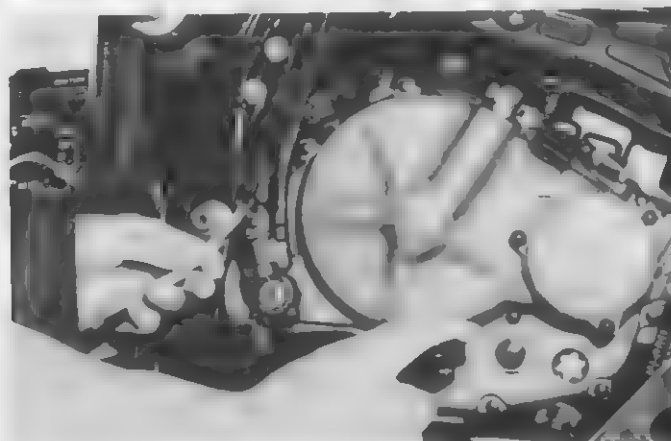
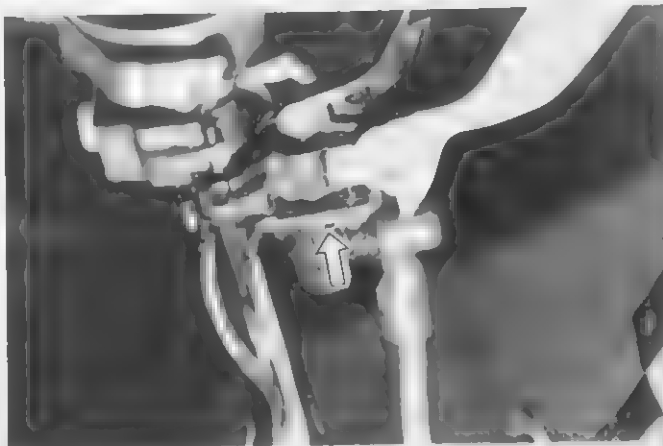
This motorcycle is equipped with brake lining wear limit indicator on the rear brake panel as shown in Fig. At the condition of normal lining wear, the extension line of the index mark on the brake cam shaft should be within the range embossed on the brake panel with brake on.



The extension line of the index mark is within the range.

### BRAKE LIGHT SWITCHES

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

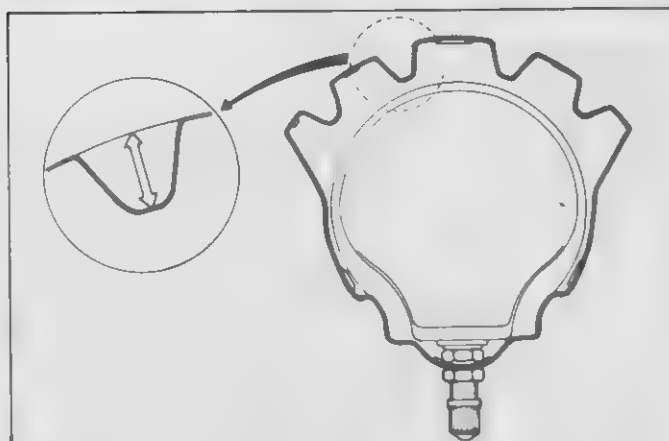


### TIRES

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

#### TIRE TREAD CONDITION

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



#### TIRE TREAD DEPTH LIMIT

FRONT & REAR	3.0 mm (0.12 in)
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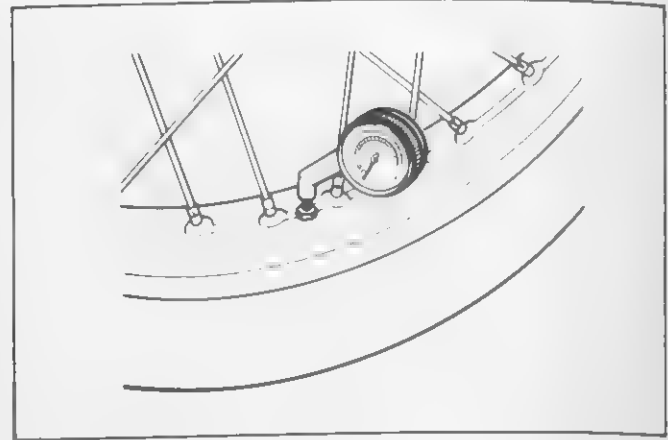
**TIRE PRESSURE**

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

	FRONT			REAR		
	kPa	kg/cm <sup>2</sup>	psi	kPa	kg/cm <sup>2</sup>	psi
Solo riding	150	1.50	21	175	1.75	25
Dual riding	175	1.75	25	200	2.00	28

**CAUTION:**

The standard tire fitted on this motorcycle is 100/80-21 56S for front and 130/80-17 65S for rear. The use of tires other than the those specified may cause instability. It is highly recommended to use a SUZUKI Genuine Tire.



**STEERING**

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

Steering should be adjusted properly for smooth turning of handlebar and safe running. Over tight steering prevents smooth turning of the handlebar and too loose steering will cause the handlebar to vibrate.

Check that there is no play in the front fork assembly by supporting the motorcycle so that the front wheel is off the ground, with the wheel straight ahead, grasp the lower fork tubes near the axle and pull forward. If play is found, perform steering bearing adjustment as described in page 6-23 of this manual.





## FRONT FORKS

Inspect Every 6 000 km (4 000 miles)

Inspect the front forks for oil leakage, scoring or scratches on the outer surface of the inner tubes. Replace any defective parts, if necessary.

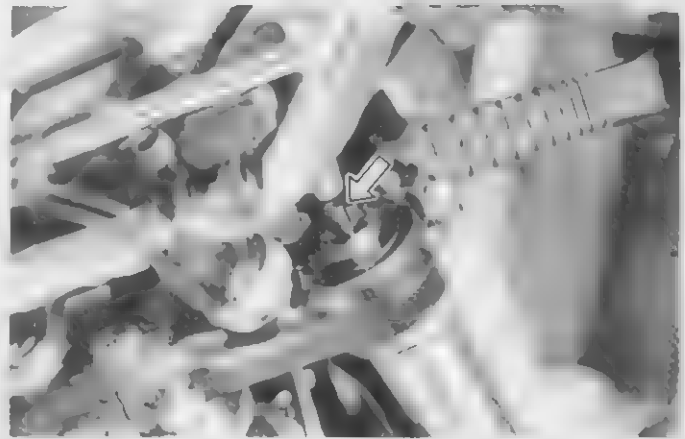
### AIR PRESSURE SERVICING

- Support the motorcycle by jack or block, and keep the front wheel off the ground.
- Remove the air valve protection caps and press the air valve to equalize the fork air pressure with atmospheric pressure. This must be done when the forks are cold.

Standard pressure	0 kPa, 0 kg/cm <sup>2</sup> (0 psi)
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#### CAUTION:

The maximum permissible air pressure is 250 kPa, 2.5 kg/cm<sup>2</sup> (35 psi) to avoid fork oil seal and valve damage.

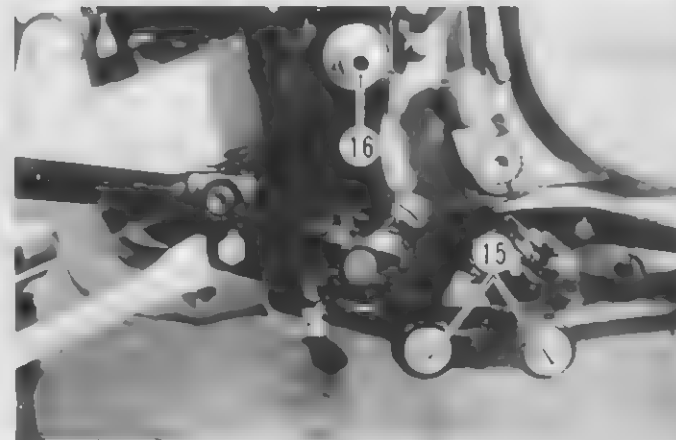
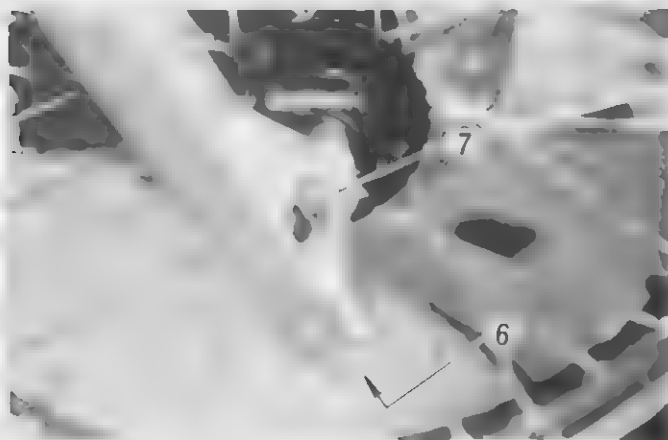
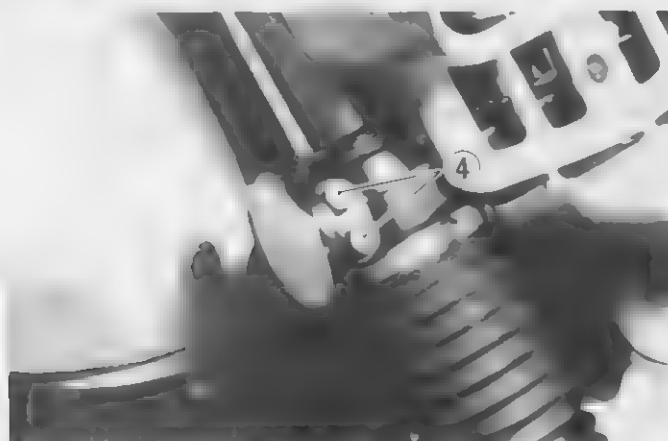
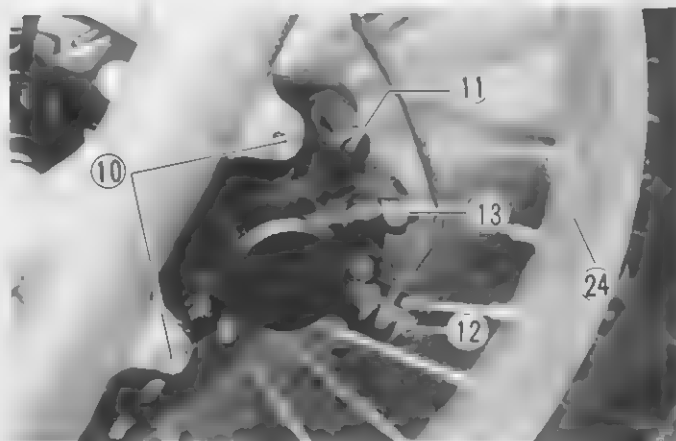
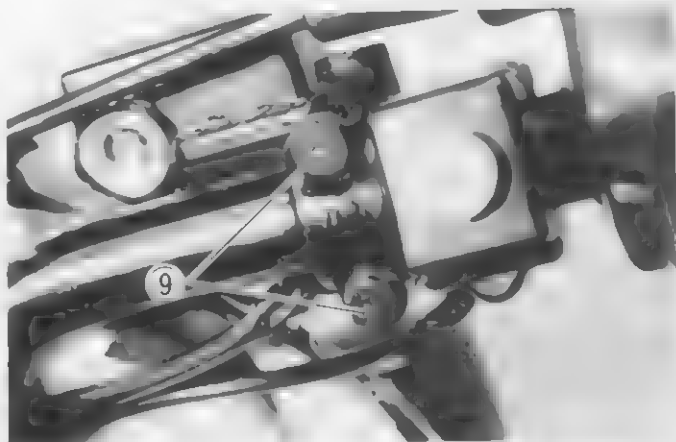
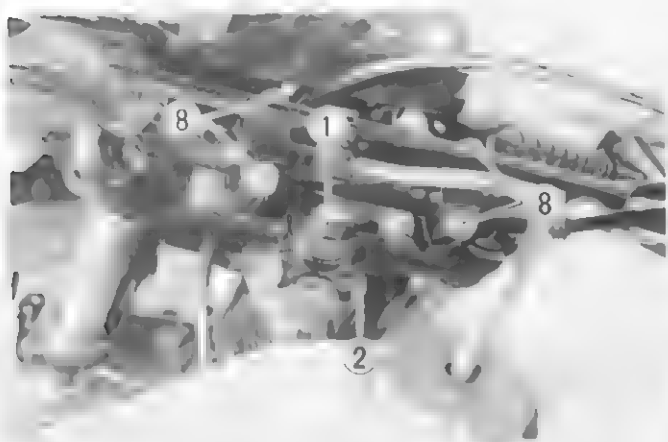


## CHASSIS BOLTS AND NUTS

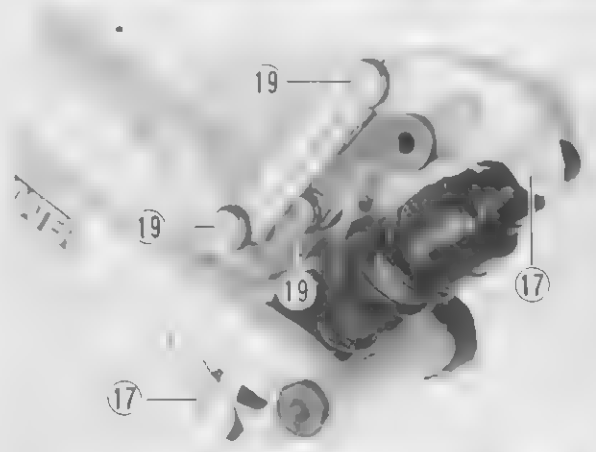
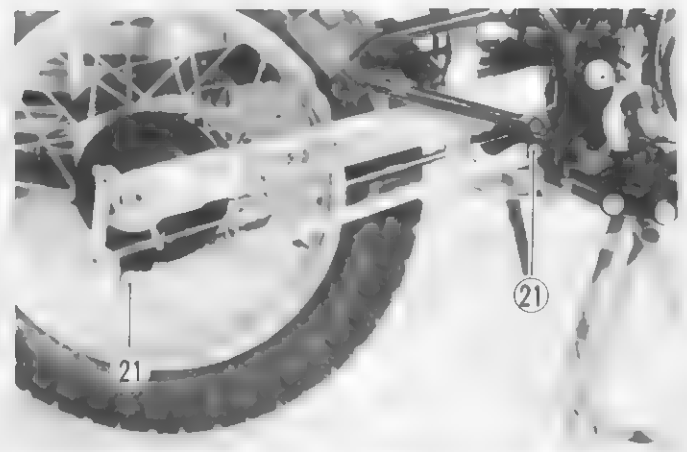
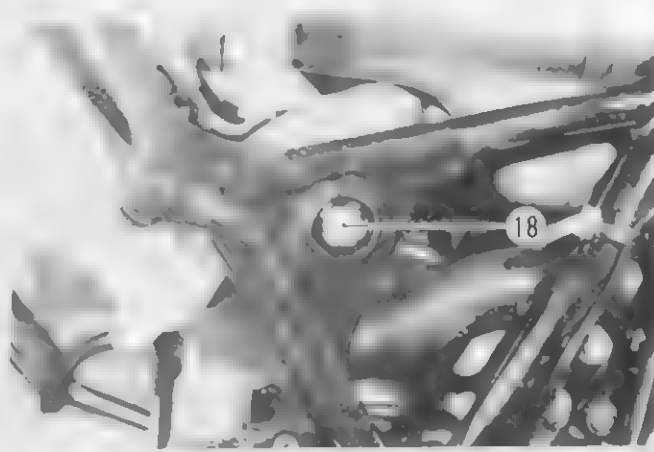
Tighten Initial 1 000 km (600 miles) and  
Every 6 000 km (4 000 miles)

The nuts and bolts listed below are important safety parts. They must be retightened when necessary to the specified torque with a torque wrench. (Refer to pages 2-20 and 2-21 for the locations of the following nuts and bolts on the motorcycle.)

	Item	N-m	kg-m	lb-ft
①	Steering stem head bolt	35 – 50	3.5 – 5.0	25.5 – 36.0
②	Steering stem head clamp bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
③	Front fork upper clamp bolt	20 – 30	2.0 – 3.0	14.5 – 21.5
④	Front fork lower clamp bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
⑤	Front fork cap bolt	25 – 35	2.5 – 3.5	18.0 – 25.5
⑥	Front fork damper rod bolt	34 – 46	3.4 – 4.6	24.5 – 33.5
⑦	Front axle nut	36 – 52	3.6 – 5.2	26.0 – 37.5
⑧	Handlebar clamp bolt	12 – 20	1.2 – 2.0	8.5 – 14.5
⑨	Front brake master cylinder mounting bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
⑩	Front brake caliper mounting bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
⑪	Front brake caliper axle bolt	15 – 20	1.5 – 2.0	11.0 – 14.5
⑫	Brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
⑬	Air bleeder valve	6 – 9	0.6 – 0.9	4.5 – 6.5
⑭	Front disc mounting bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
⑮	Front footrest bolt	27 – 43	2.7 – 4.3	19.5 – 31.0
⑯	Swingarm pivot nut	55 – 85	5.5 – 8.5	40.0 – 61.5
⑰	Shock absorber fitting nut (Upper & Lower)	40 – 60	4.0 – 6.0	29.0 – 43.5
⑱	Rear cushion lever center nut	70 – 100	7.0 – 10.0	50.5 – 72.5
⑲	Rear cushion rod nut and bolt (Upper & Lower)	70 – 100	7.0 – 10.0	50.5 – 72.5
⑳	Rear brake cam lever bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
㉑	Rear torque link bolt	10 – 15	1.0 – 1.5	7.0 – 11.0
㉒	Rear sprocket mounting nut	22 – 32	2.2 – 3.2	16.0 – 23.0
㉓	Rear axle nut	50 – 80	5.0 – 8.0	36.0 – 58.0
㉔	Spoke nipple	4 – 5	0.4 – 0.5	3.0 – 3.5



2-21 PERIODIC MAINTENANCE AND TUNE-UP PROCEDURES



# SERVICING ENGINE

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ENGINE COMPONENTS REMOVABLE WITH THE ENGINE IN PLACE

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.

ENGINE LEFT SIDE	See page	ENGINE CENTER	See page	ENGINE RIGHT SIDE	See page
Engine sprocket .....	3-6	Cylinder head cover .....	3-11	Oil filter .....	3-57
Magneto cover .....	3-10	Camshaft .....	3-12	Clutch cover .....	3-15
Magneto coil .....	5-2	Cylinder head .....	3-12	Clutch assembly .....	3-15
Magneto rotor .....	3-13	Cylinder .....	3-12	Primary driven gear assembly .....	3-16
Balancer drive chain tensioner .....	3-13	Piston .....	3-13	Primary drive gear and cam drive sprocket .....	3-16
Balancer drive and driven sprockets ..	3-14	Cam drive chain tensioner .....	3-10	Oil pump driven gear .....	3-17
Gearshifter .....	3-14	Cam drive chain .....	3-16	Oil pump assembly .....	3-17
		Oil sump filter .....	3-17		

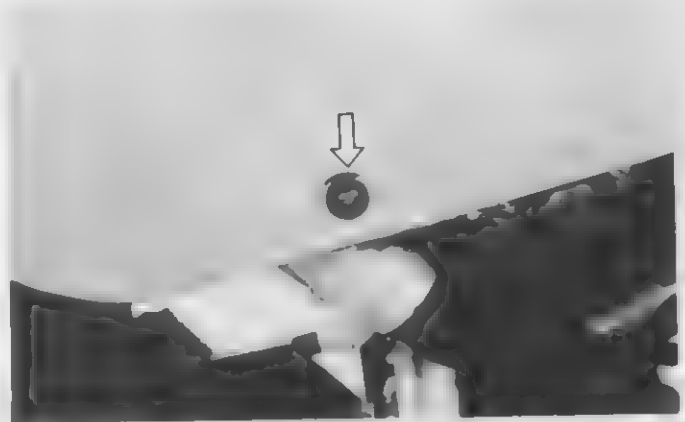


## ENGINE REMOVAL AND REMOUNTING

### 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.

- Remove the left and right frame covers by removing the screws.



- Remove the seat by removing the bolts from both sides.



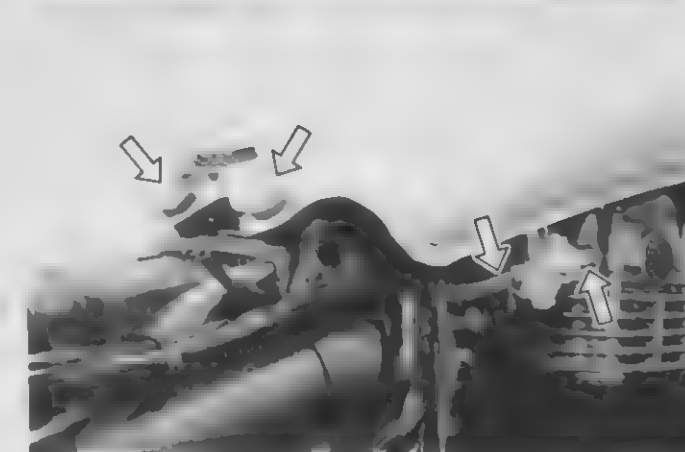
- Disconnect the battery  $\ominus$  and  $\oplus$  lead wires from the battery terminals.

**CAUTION:**

Be sure to disconnect the  $\ominus$  lead wire first.

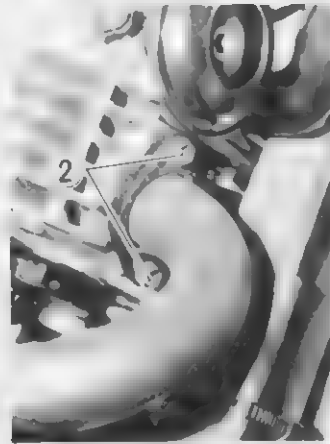
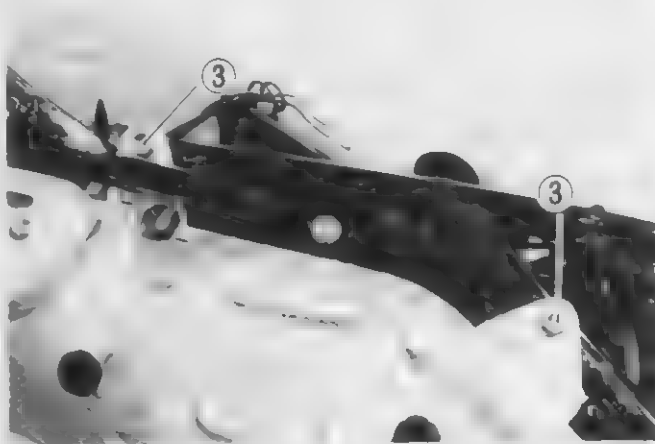
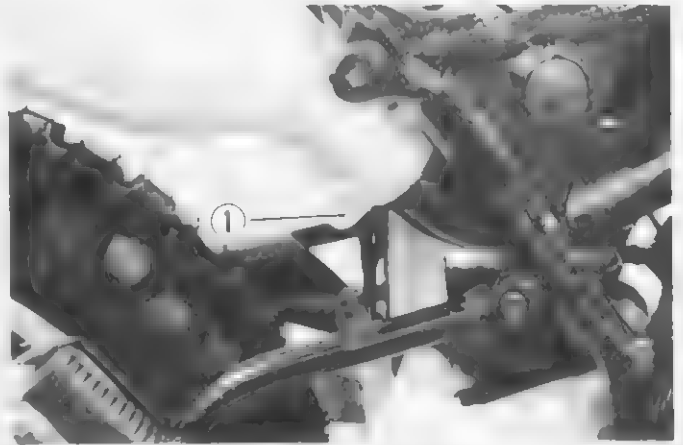


- Turn the fuel cock to OFF position and shift the fuel hose clip sideways and disconnect the fuel hose from the fuel cock.
- Remove the two bolts at the rear of the fuel tank and draw the fuel tank backward.



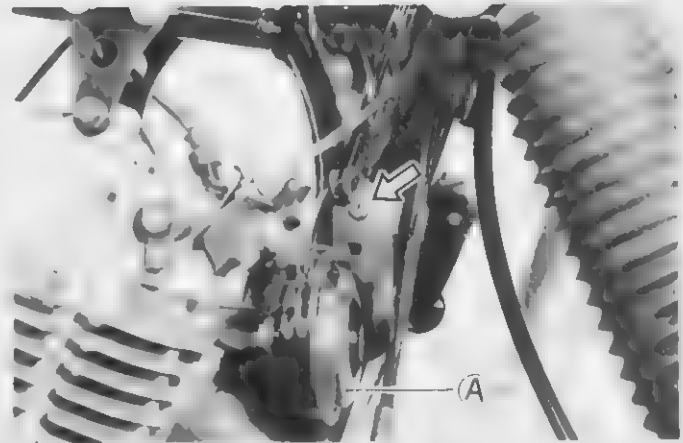
### 3-3 SERVICING ENGINE

- Loosen the muffler connection bolt ①.
- Remove the exhaust pipe bolts ② and muffler mounting bolts ③, and then take off the muffler and exhaust pipe.

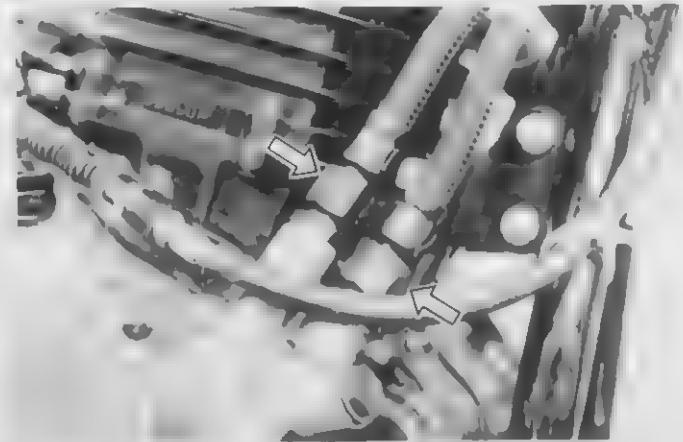


**NOTE:**

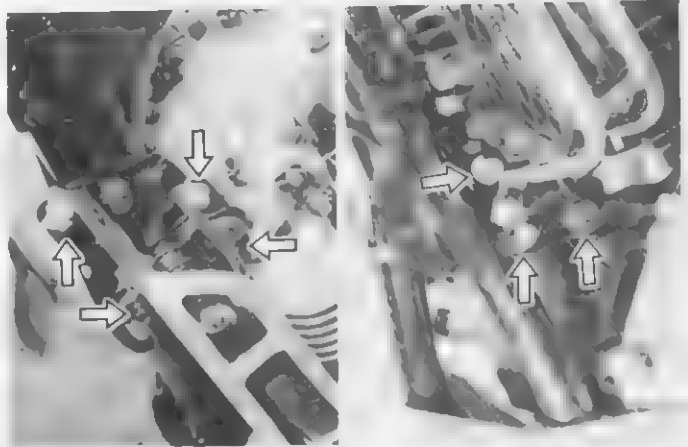
If it is difficult to take off the exhaust pipe, remove the horn (A) by removing the screw to provide additional clearance.



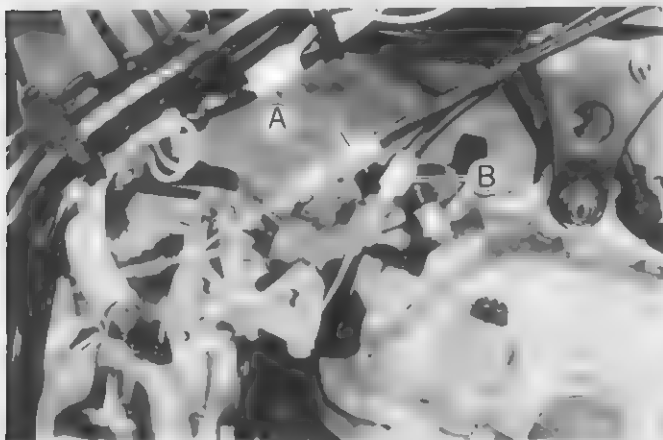
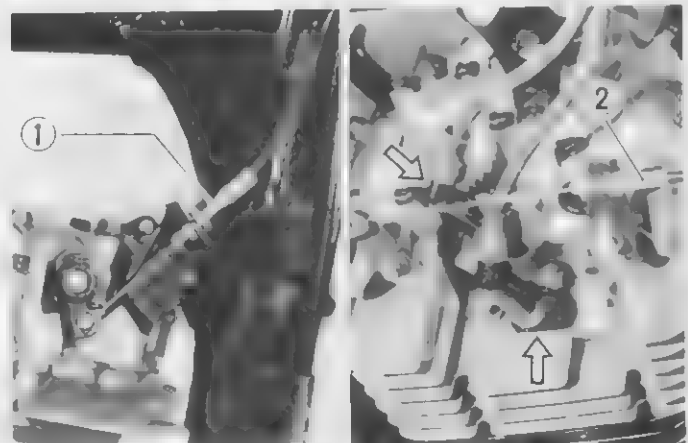
- Disconnect the two oil cooler hoses from the clutch cover.



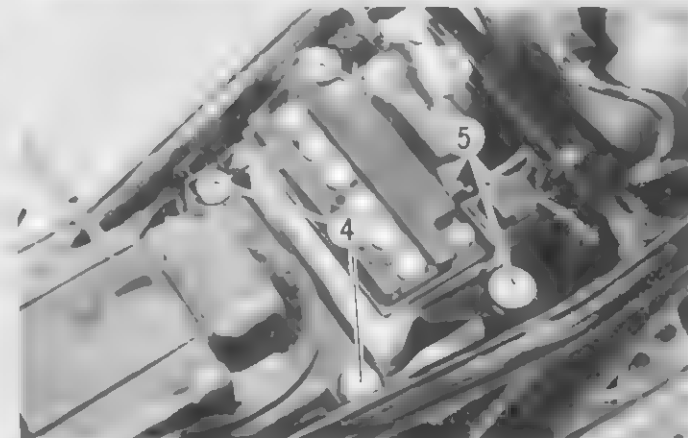
- Remove the oil cooler by removing the engine mounting bolts and oil cooler related bolts.



- Disconnect the de-compression cables, ① and ②.
- Disconnect the spark plug caps.
- Disconnect the throttle cables, (A) and (B).
  - ① Manual de-compression cable
  - ② Automatic de-compression cable
  - (A) Pulling cable
  - (B) Returning cable

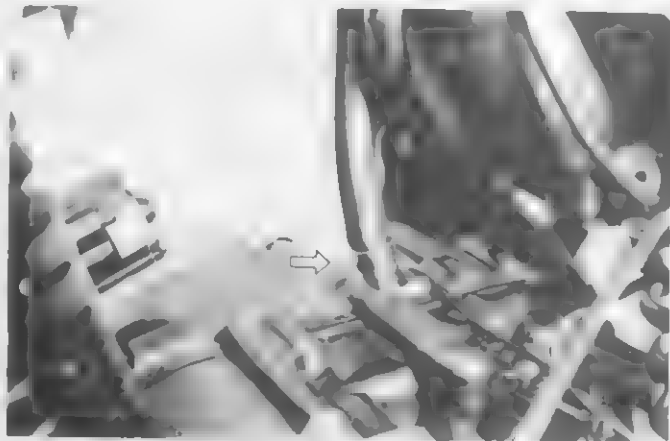


- Loosen the carburetor clamp screws ③.
- Remove the air cleaner case mounting bolts ④.
- Remove the battery holder bolts ⑤.
- Shift the air cleaner case and battery holder backward, then remove the carburetor.

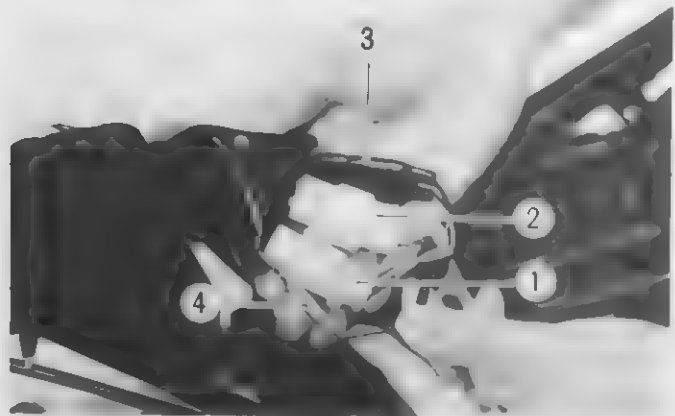


### 3-5 SERVICING ENGINE

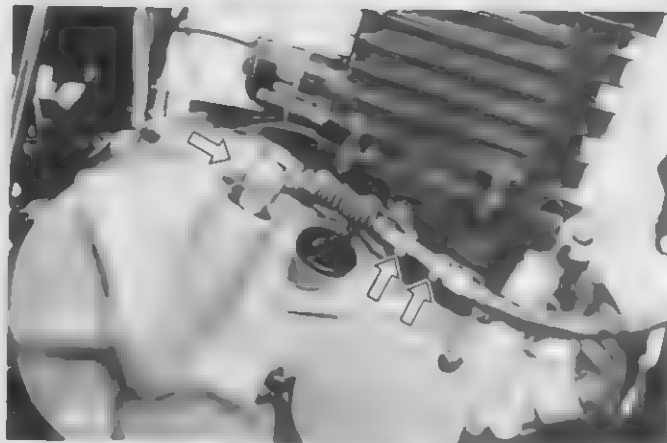
- Shift the breather hose clip sideways and disconnect the breather hose from the crankcase.



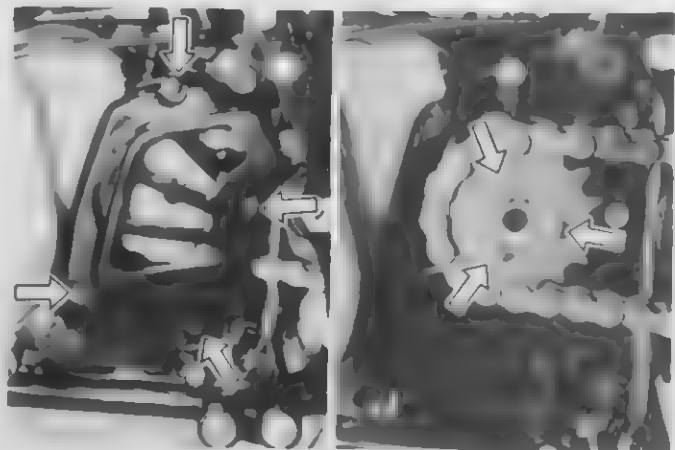
- Disconnect the various lead wires.
  - ① For Pick-up coil
  - ② For Generator coil
  - ③ For Power source coil
  - ④ For Neutral switch



- Disconnect the clutch cable by removing the release arm bolt and loosening the adjuster lock nuts.

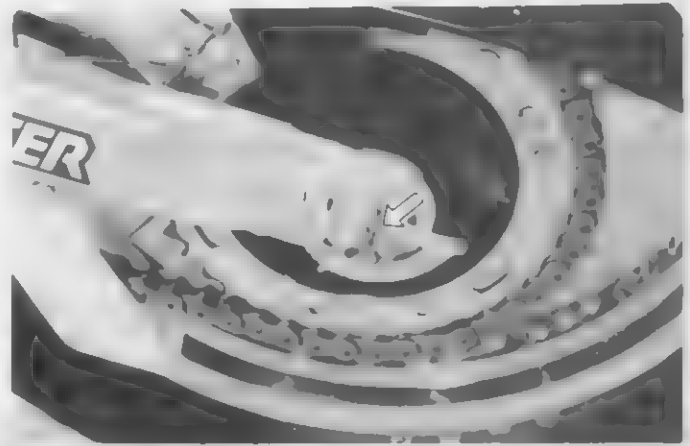


- Remove the engine sprocket cover by removing the four bolts.
- Remove the engine sprocket mounting bolts while depressing the rear brake pedal.

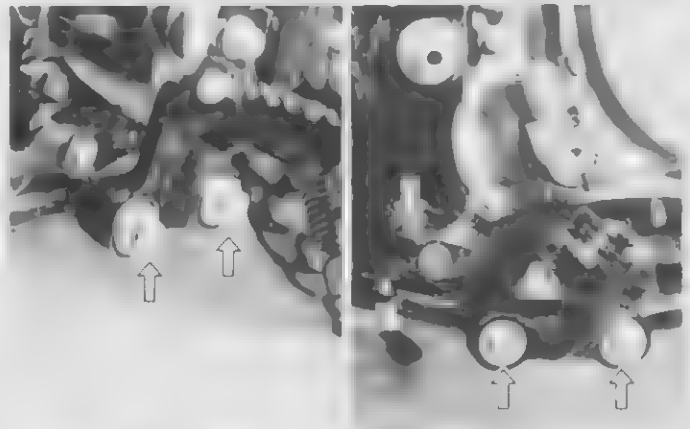


- Pull out the \*cotter pin and loosen the axle nut.
- Push the rear wheel forward and disengage the drive chain and engine sprocket from the drive shaft.

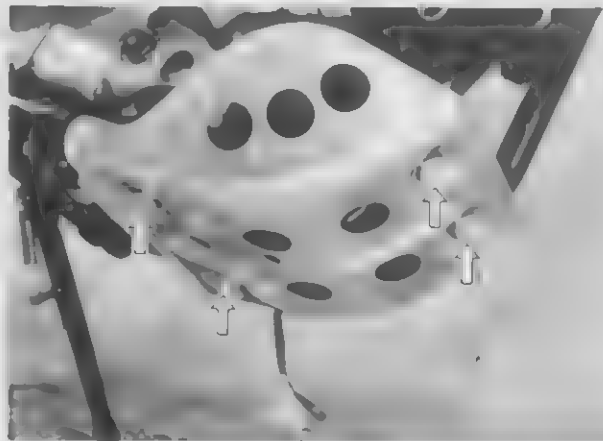
(\* Canada model only)



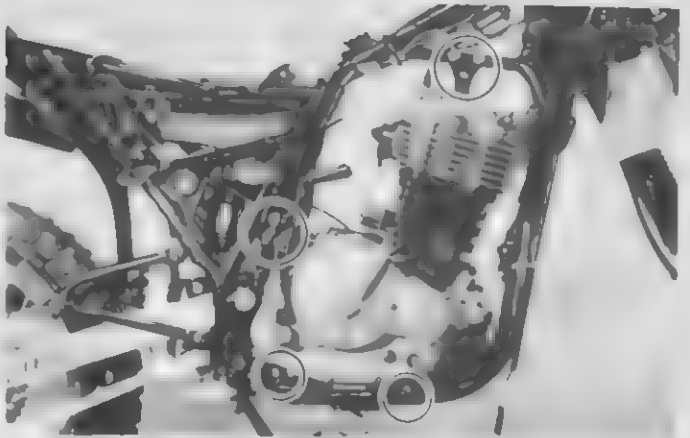
- Remove the left and right footrests and rear brake pedal by removing the respective bolts.



- Remove the engine guard by removing the four bolts.



- Remove the engine mounting bolts and brackets.
- Use both hands, and lift the engine from the frame.



**NOTE:**

The engine must be taken out from the right side.

### ENGINE REMOUNTING

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

- Insert the engine mounting bolts from left side. Install the bolts and spacers properly as shown in the following illustration.

**NOTE:**

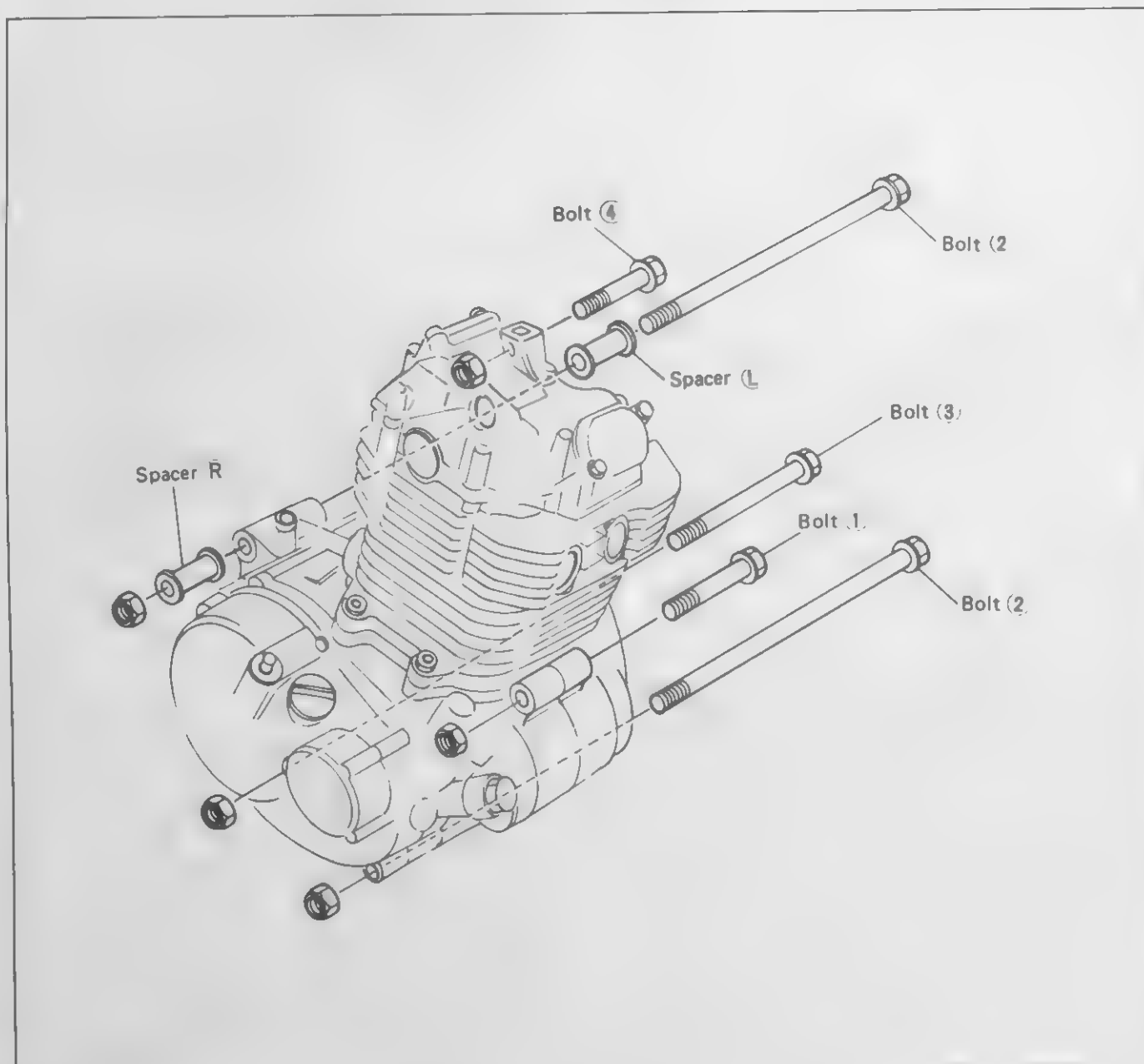
The engine mounting nuts are self-locking nut. Once the nut has been removed, it is no longer of any use. Be sure to use new nuts and tighten them to the specified torque.

### TIGHTENING TORQUE

ITEM	N-m	kg-m	lb-ft
10 mm Diam. ①, ②, ③	60 - 72	6.0 - 7.2	43.5 - 52.1
8 mm Diam. ④	37 - 45	3.7 - 4.5	27.0 - 32.5

### LENGTH

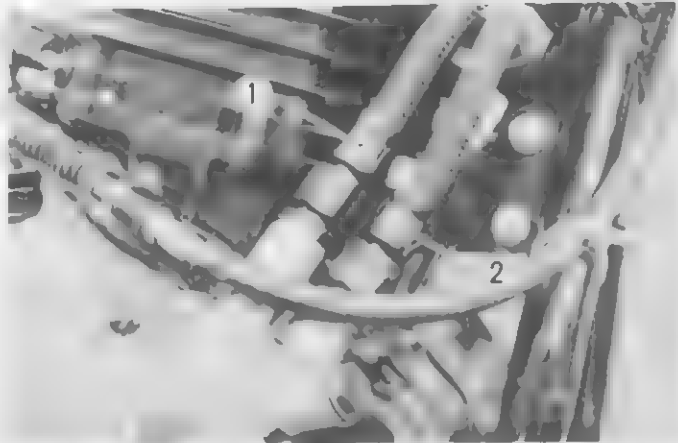
Bolt ①	80 mm (3.1 in)
Bolt ②	225 mm (8.9 in)
Bolt ③	125 mm (4.9 in)
Bolt ④	50 mm (2.0 in)
Spacer R	60 mm (2.4 in)
Spacer L	55 mm (2.2 in)



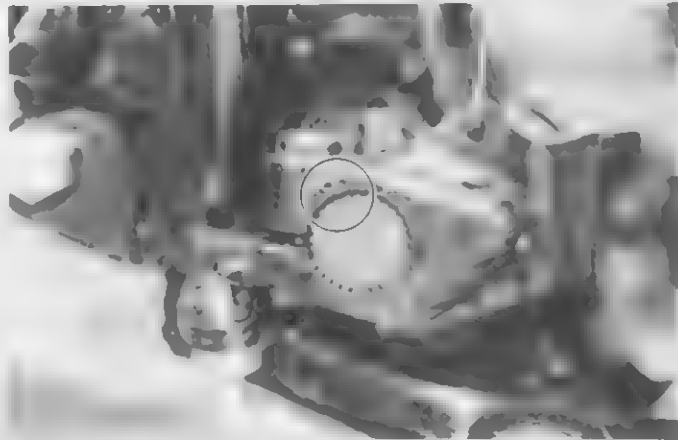


- Install the oil cooler hoses ( ① and ② ) to the clutch cover correctly as shown in Fig.
  - ① "UPPER" Oil cooler hose
  - ② "LOWER" Oil cooler hose

Tightening torque	20 – 25 N·m ( 2.0 – 2.5 kg·m ) ( 14.5 – 18.0 lb·ft )
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- When installing the brake pedal, be sure to align the punched marks.



- The engine sprocket should be installed on the driveshaft as shown in the figure at the same time of the installation of drive chain. If it is difficult to assemble the engine sprocket, remove the rear axle \*cotter pin and loosen the axle nut to push the rear wheel forward, and give the drive chain some play. When installing the engine sprocket lock washer, turn it to fit into the groove. After completing tightening of the engine mounting bolts, adjust free play of the drive chain. (See page 2-12)



(\* Canada model only)

**TIGHTENING TORQUE**

ITEM	N·m	kg·m	lb·ft
Engine sprocket mounting bolt	4 – 7	0.4 – 0.7	3.0 – 5.0
Rear axle nut	50 – 80	5.0 – 8.0	36.0 – 58.0
Exhaust pipe bolt	9 – 12	0.9 – 1.2	6.5 – 8.5
Muffler connection bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Muffler mounting bolt	18 – 28	1.8 – 2.8	13.0 – 20.0

### 3-9 SERVICING ENGINE

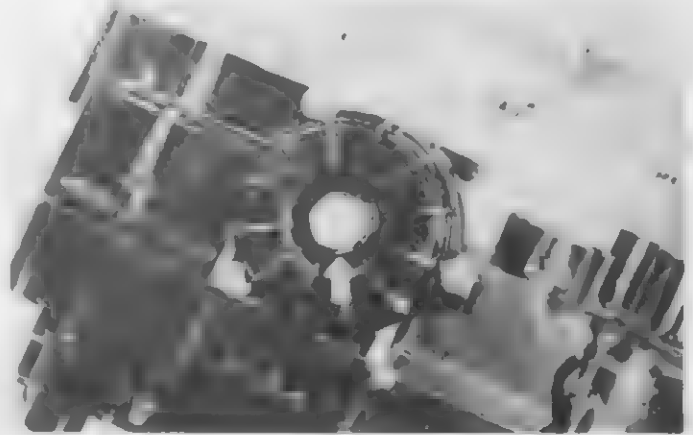
- Pour 2.6 L (2.7/2.3 US/Imp qt) of engine oil SAE 10W/40 graded SE or SF into the engine after overhauling engine.
- Start up the engine and allow it run for several seconds at idle speed. About one minute after stopping engine, check oil level. If the level is below the "F" mark, add oil until the level reaches the "F" mark.

Change	2 300 ml (2.4/2.0 US/Imp qt)
Filter change	2 450 ml (2.6/2.2 US/Imp qt)
Overhaul	2 600 ml (2.7/2.3 US/Imp qt)

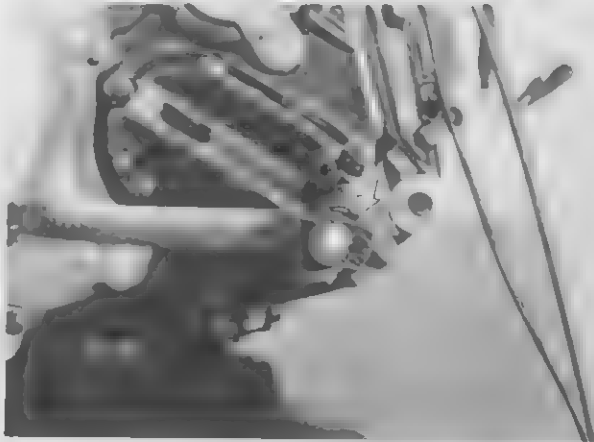
- After remounting the engine, following adjustments are necessary.
  - \* De-compression cables (Page: 2 – 6, 7)
  - \* Clutch cable (Page: 2 – 11)
  - \* Throttle cable (Page: 2 – 10)
  - \* Drive chain (Page: 2 – 12)
  - \* Rear brake pedal (Page: 2 – 15)
  - \* Idling speed (Page: 2 – 10)

## ENGINE DISASSEMBLY

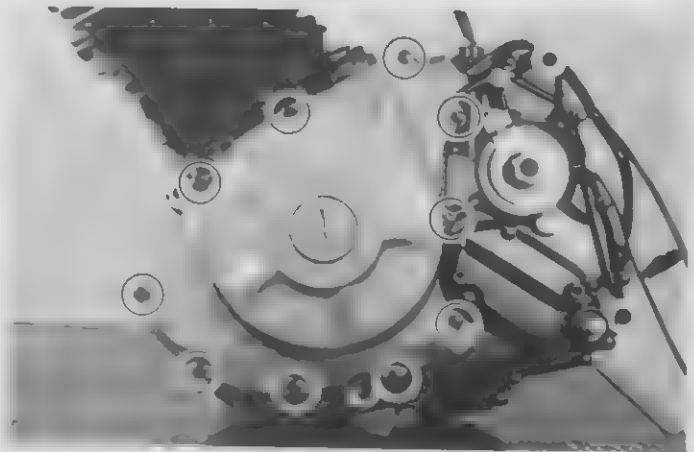
- Place an oil pan under the engine and remove the oil drain plug and drain out engine oil.



- Remove the gearshift lever by removing the bolt.



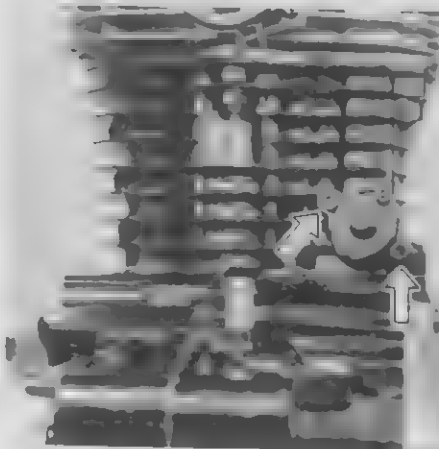
- After removing the magneto cover bolts, remove the magneto cover by tapping with a plastic hammer.



- Remove the cam drive chain tensioner by removing the bolts.

09911-73730

"T" type hexagon wrench  
(5 mm)

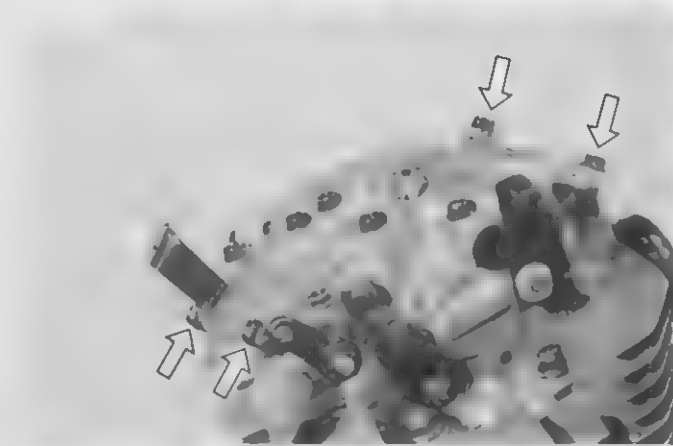


### 3-11 SERVICING ENGINE

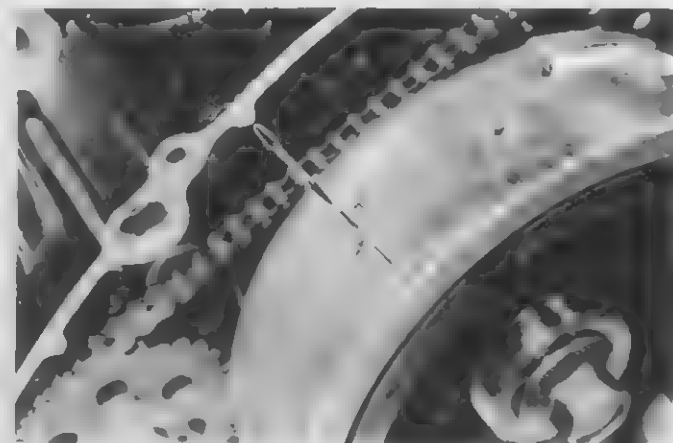
- Remove the two spark plugs.



- Remove the valve inspection caps (Intake and Exhaust) by removing the bolts.



- When removing the cylinder head cover, the piston must be at top dead center on the compression stroke.

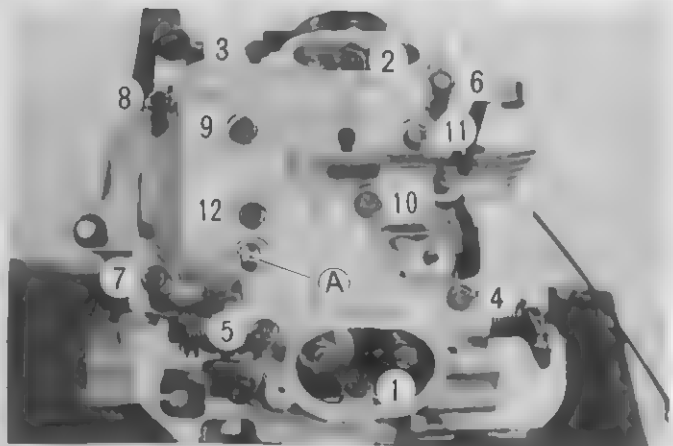


- Loosen the cylinder head cover bolts in the order indicated in the illustration and detach the cylinder head cover.

**NOTE:**

When removing the cylinder head cover, do not remove the conically recessed top bolt

Ⓐ.



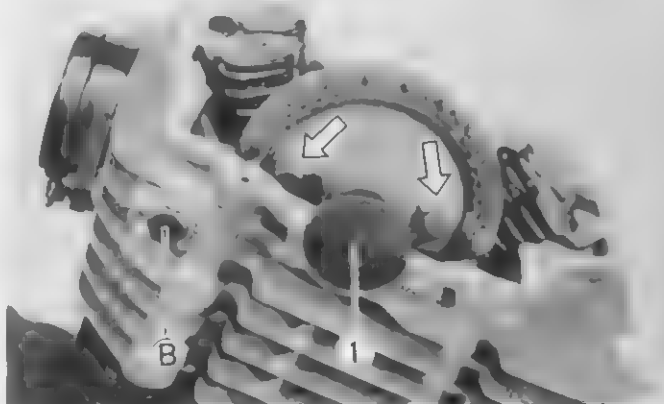
- Detach the camshaft end cap ①.
- Flatten the lock washer and remove the camshaft sprocket bolts.
- Remove the camshaft and sprocket.

**NOTE:**

The cam chain tensioner bolt ② is to be removed only when disassembling the engine.

**CAUTION:**

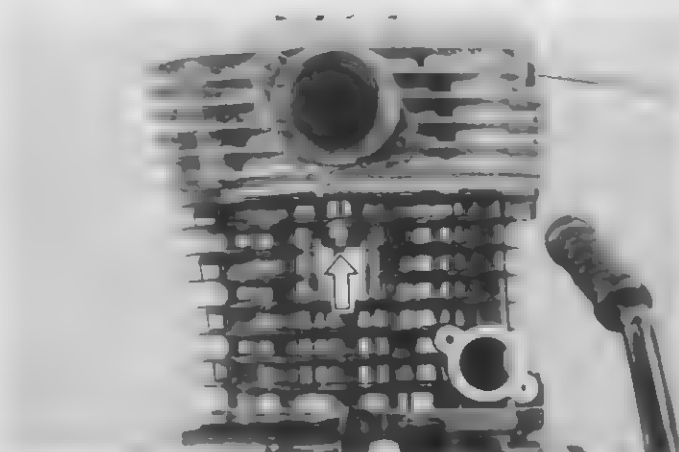
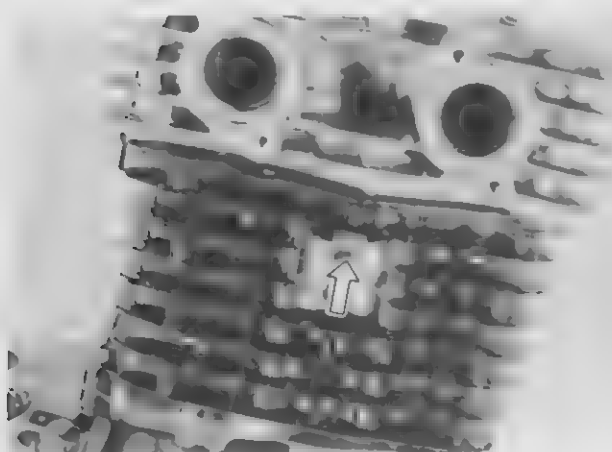
Do not drop camshaft drive chain, pin, C-ring or sprocket into the crankcase.



- Loosen the six cylinder head nuts diagonally, then detach the cylinder head.

**NOTE:**

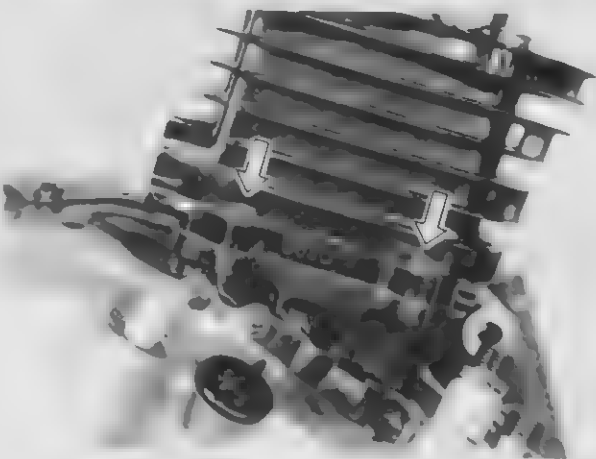
If it is difficult to remove the cylinder head, gently pry it off while tapping the finless portion of the cylinder head with a plastic hammer. Be careful not to break the fins.



- Remove the cylinder base nuts and cylinder.

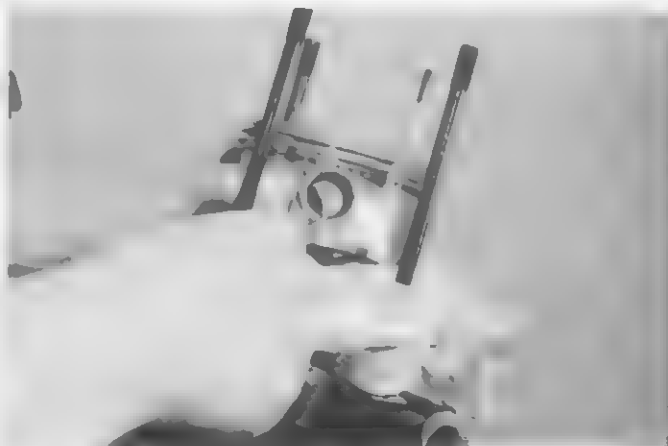
**CAUTION:**

If tapping with a plastic hammer is necessary, do not break the fins.



### 3-13 SERVICING ENGINE

- Place a clean rag over the cylinder base to prevent the piston pin circlips from dropping into crankcase. Remove the piston pin circlips with long-nose pliers.
- Drive out the piston pin by using an appropriate drift. 12151 - 14A0.

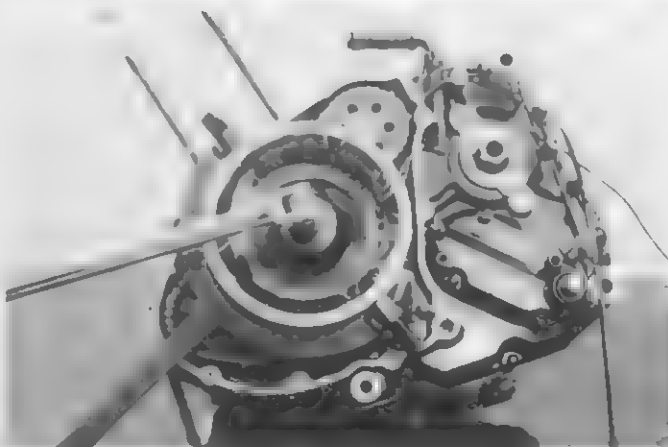


- Loosen the magneto rotor bolt by using the special tool.

09930-44912	Rotor holder
-------------	--------------

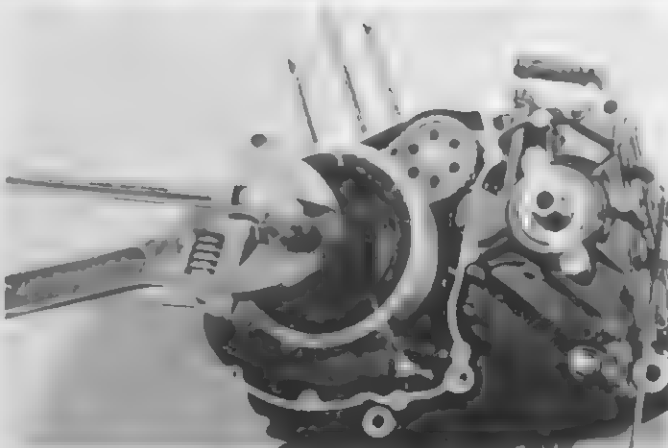
**NOTE:**

When removing the magneto rotor, do not remove the magneto rotor bolt after loosening the bolt. The magneto rotor bolt is used in conjunction with the rotor remover.



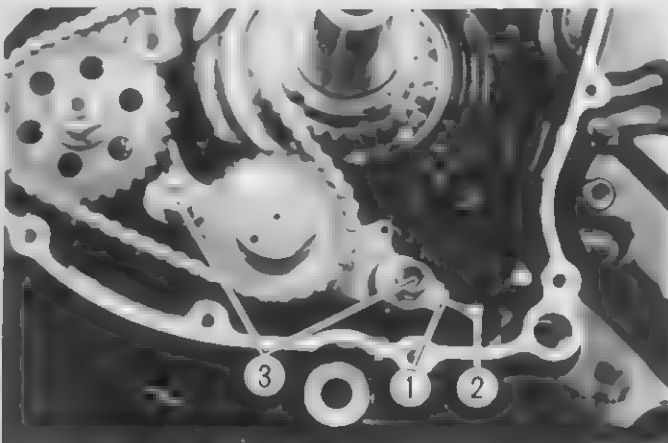
- Remove the magneto rotor by using the special tool.
- After removing the magneto rotor, remove the key from the crankshaft.

09930-33720	Rotor remover
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- Unhook the balancer drive chain tensioner spring.
- Loosen the lock nut ① and stopper bolt ②, then remove the bolts ③.

09914-25811	"T" type hexagon wrench (6 mm)
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- Remove the balancer drive chain tensioner and balancer drive chain.



- Remove the ring nut by using the special tools, then remove the wave washer, balancer drive sprocket and key from the crankshaft.

09917-23711	Ring nut socket wrench
09910-20116	Conrod holder

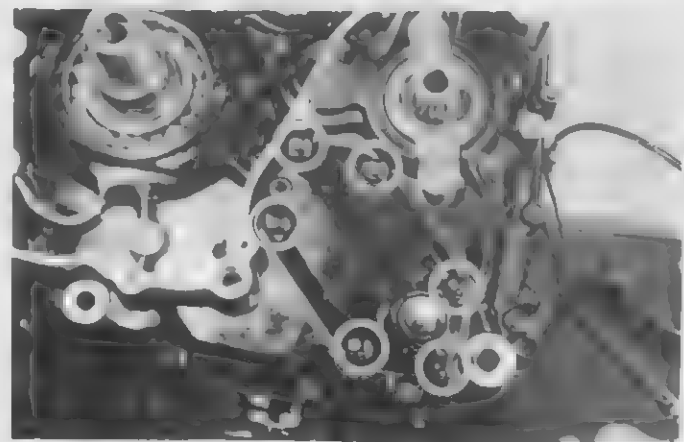


- Remove the front and rear balancer driven sprocket nuts by using the special tool, then remove the front and rear balancer driven sprockets and keys.

09917-33710	Sprocket holder
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- Remove the gearshift cover by removing the bolts.



### 3-15 SERVICING ENGINE

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

**NOTE:**

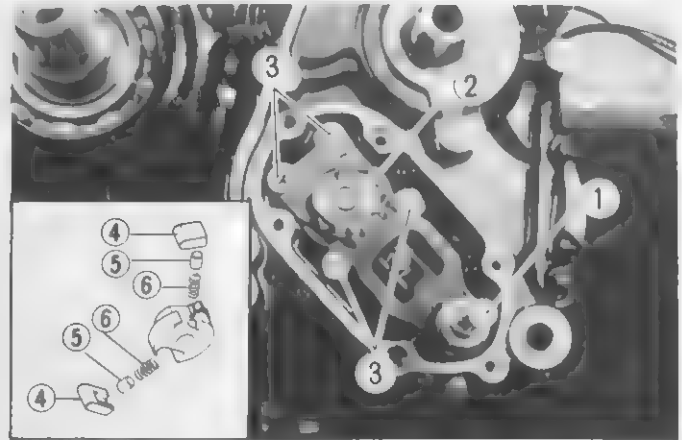
When removing the cam driven gear, do not lose gear shifting pawl ④, pin ⑤ and spring ⑥.

09900-06107

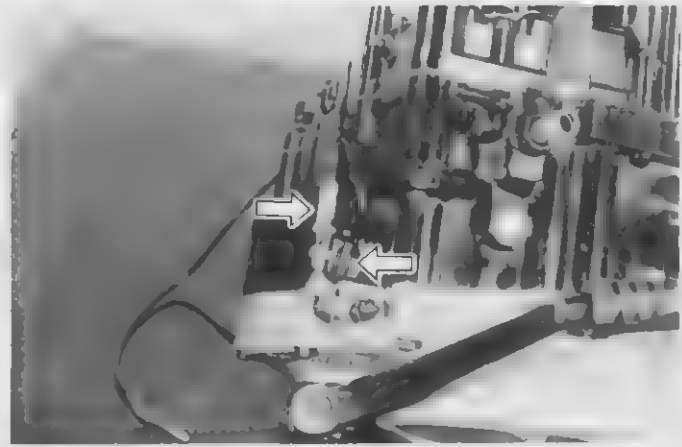
Snap ring pliers

09900-09003

Impact driver set



- Remove the de-compression cam lever return spring, then disconnect the de-compression cable.

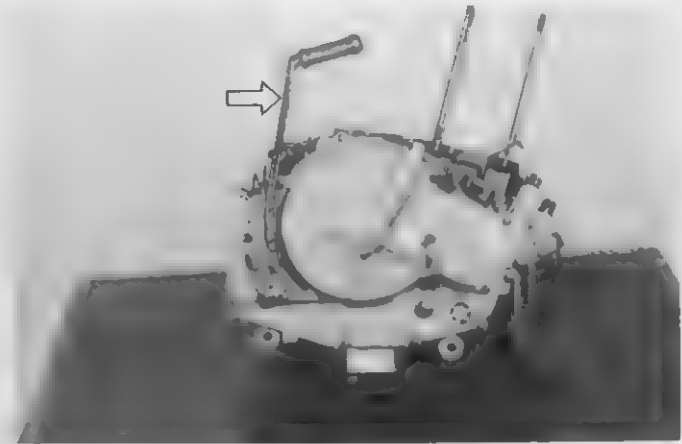


26300-14A03

- After removing the kick starter lever, remove the clutch cover bolts and detach the clutch cover by tapping with a plastic hammer.

**NOTE:**

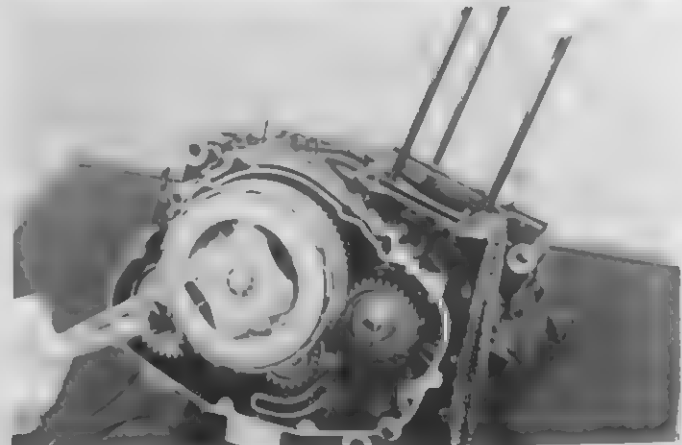
Do not remove the oil filter cap at this point.



- Remove the clutch spring mounting bolts diagonally while holding the conrod with a conrod holder.

09910-20116

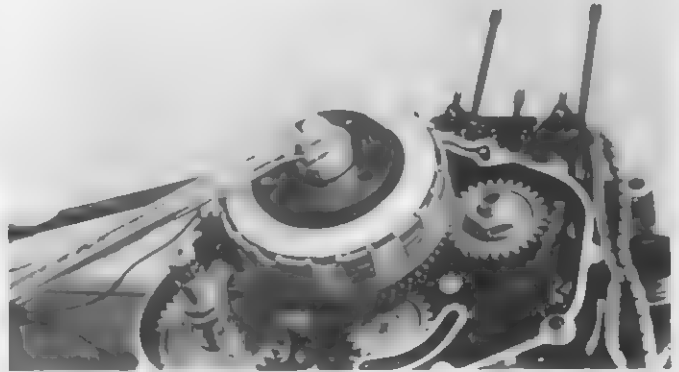
Conrod holder



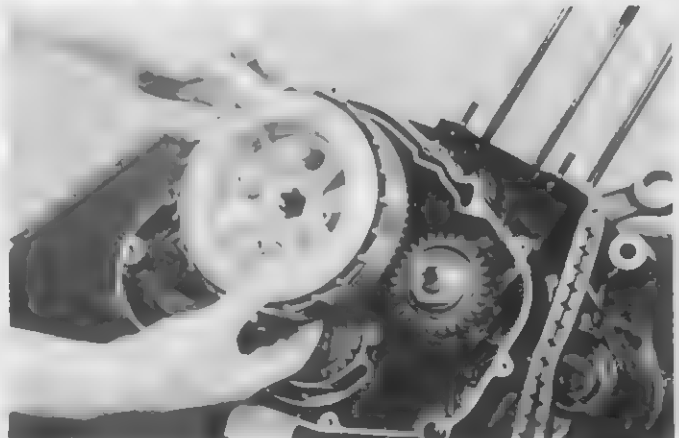
- Flatten the lock washer and remove the clutch sleeve hub nut by using the special tool.

09920-53722

Clutch sleeve hub holder



- Remove the clutch sleeve hub, clutch plates and pressure plate along with the primary driven gear assembly.



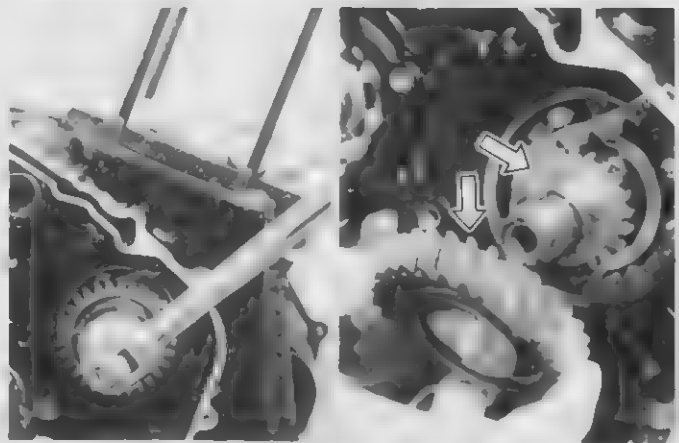
- Remove the primary drive gear nut while holding the conrod with a conrod holder.
- Remove the washer, primary drive gear and key.

09910-20116

Conrod holder

**NOTE:**

This is a left-hand thread nut.



- Remove the cam drive chain, cam drive sprocket and key.

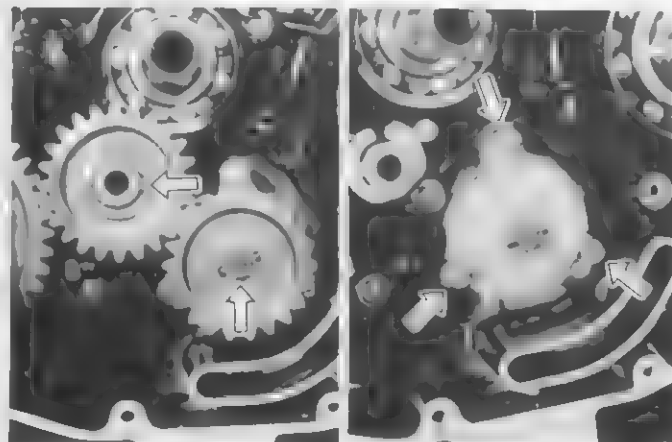


### 3-17 SERVICING ENGINE

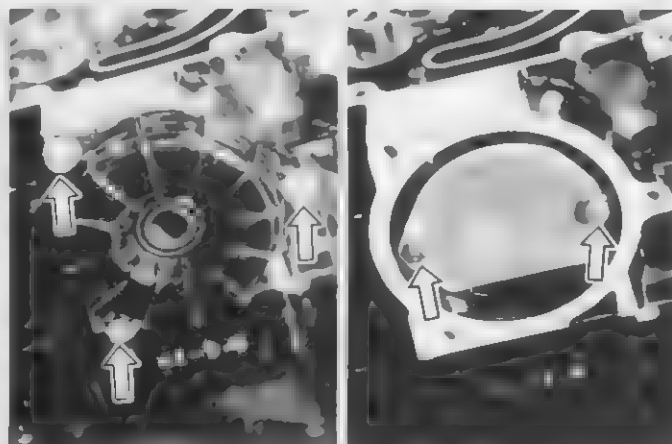
- Remove the idle gear and oil pump driven gear by removing the circlips.
- Remove the oil pump mounting screws with an impact driver.

09900-06107	Snap ring pliers
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09900-09003	Impact driver set
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- Remove the oil sump filter cap and oil sump filter by removing the bolts and screws.



- Remove the crankcase securing bolts.
- Separate the crankcase into 2 parts, right and left with a crankcase separating tool.

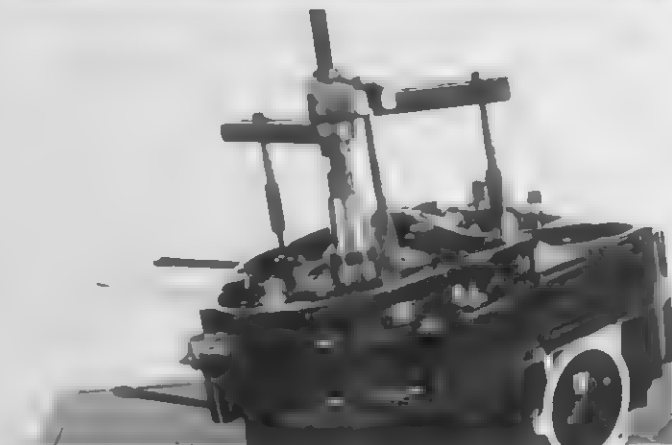
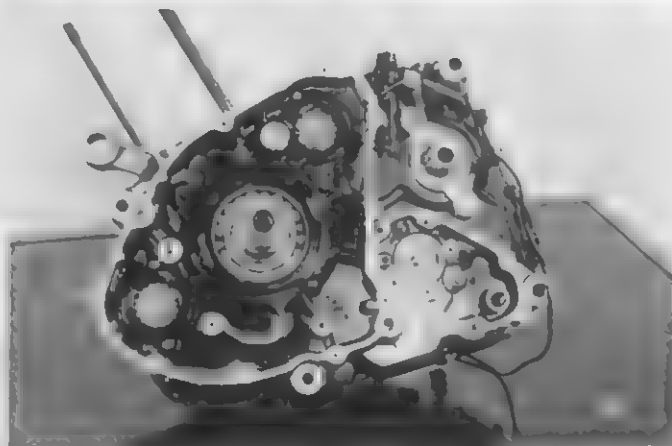
09920-13120	Crankcase separating tool
-------------	---------------------------

**NOTE:**

Fit the crankcase separating tool, so that the tool plate is parallel with the end face of the crankcase.

**CAUTION:**

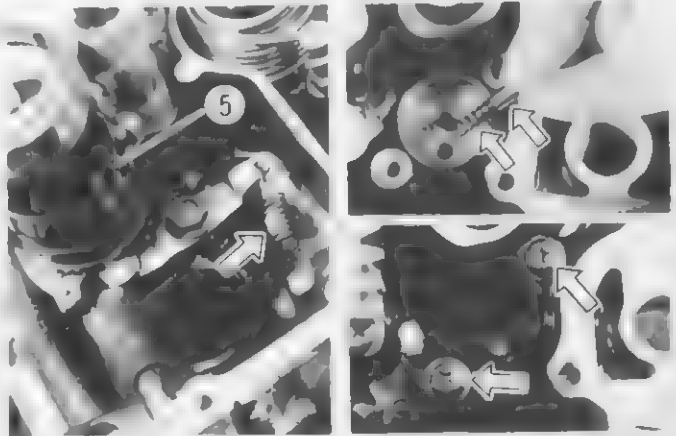
The crankshaft and transmission components must remain in the right crankcase half. This is necessary because the gearshift cam stopper is mounted on the right crankcase half and will be damaged if the transmission components remain in the left half.



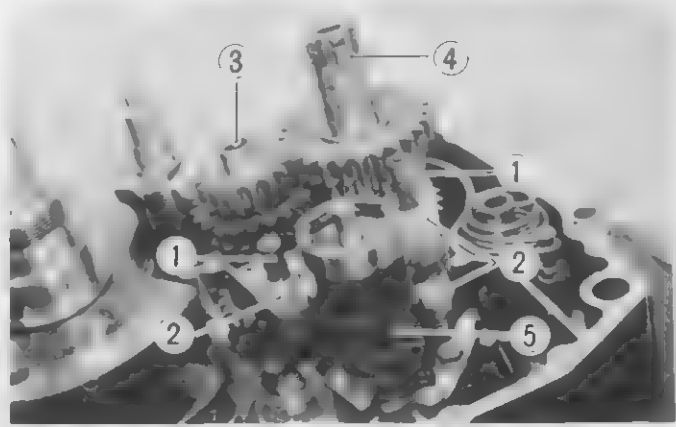
- Remove the gearshift cam stopper spring.

**NOTE:**

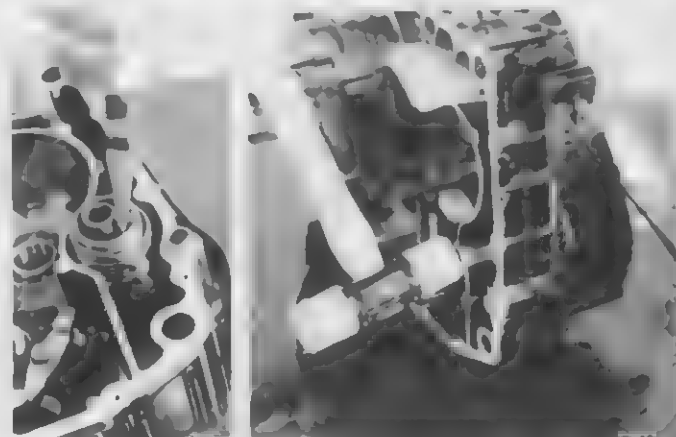
Before removing the gearshift cam ⑤, remove the neutral switch. Do not lose the switch contact and its spring.



- Draw out the gearshift fork shafts ①, and then remove the gearshift forks ②, countershaft assembly ③, driveshaft assembly ④ and gearshift cam ⑤.



- Remove the kick starter shaft return spring, then drive out the kick starter shaft with a plastic hammer.



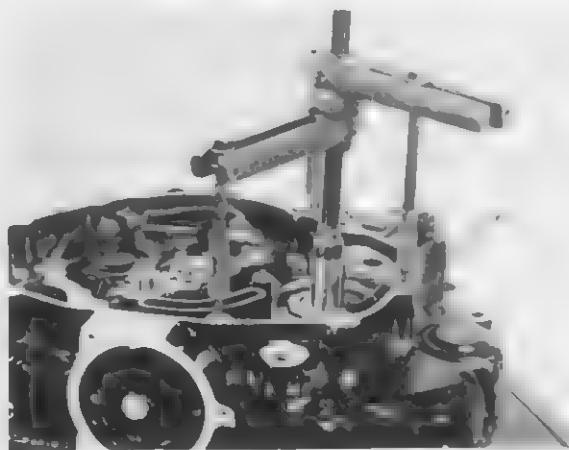
- Remove the front and rear balancershafts by using the special tools.

09930-30230	Balancer remover
09930-30102	Sliding shaft



- Remove the crankshaft from the crankcase by using a crankshaft remover.

09920-13120	Crankshaft remover (Crankcase separating tool)
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## ENGINE COMPONENTS INSPECTION AND SERVICING

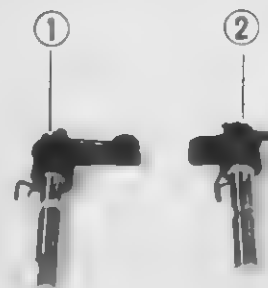
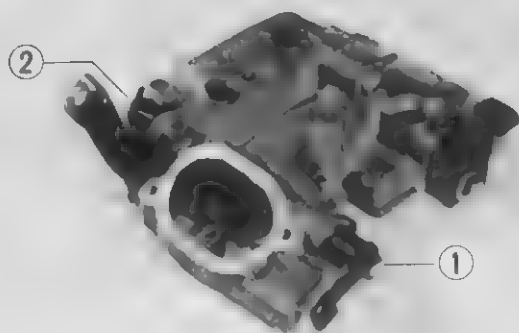
### CYLINDER HEAD SERVICING

**CAUTION:**

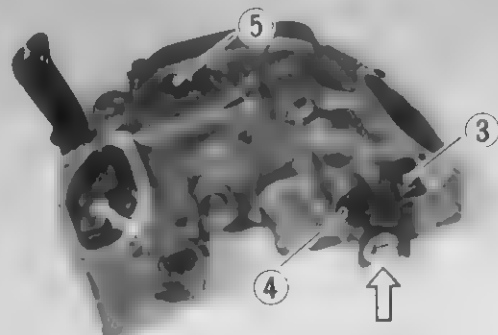
Be sure to identify each removed part as to its location, and lay the parts out in groups designated as "Exhaust", "Inlet", so that each will be restored to the original location during assembly

- Pull out the manual and automatic de-compression shafts.

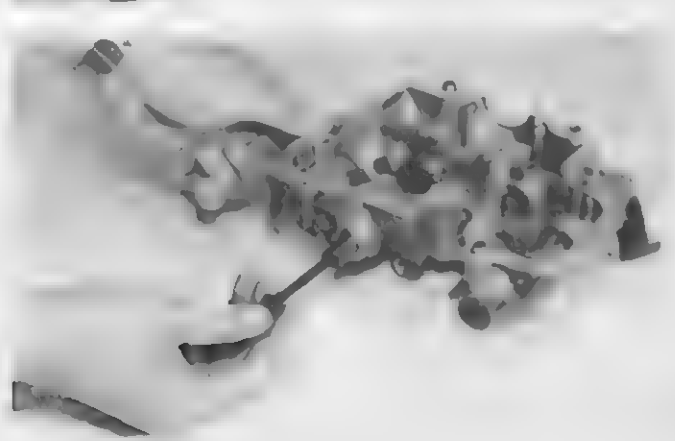
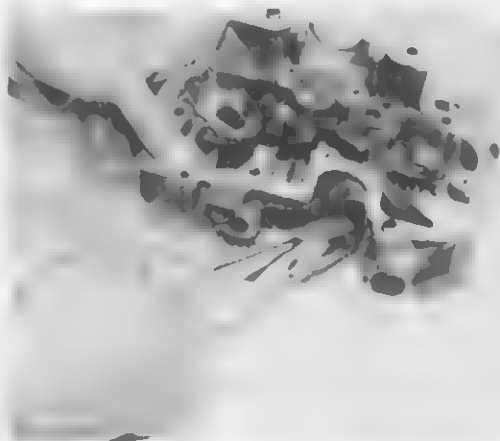
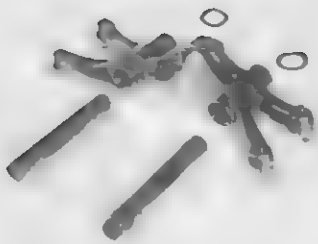
- ① Automatic de-compression shaft
- ② Manual de-compression shaft



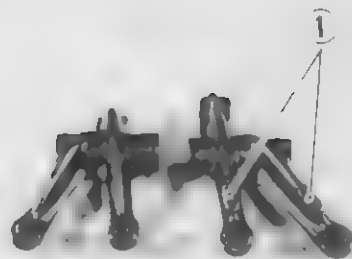
- Remove the de-compression cable bracket ③ by removing the bolt, then remove the intake rocker arm shaft set bolt ④.
- Remove the exhaust rocker arm shaft set bolt ⑤.



- Pull out the exhaust rocker arm shaft using pliers.
- Pull out the intake rocker arm shaft with a 6 mm bolt.



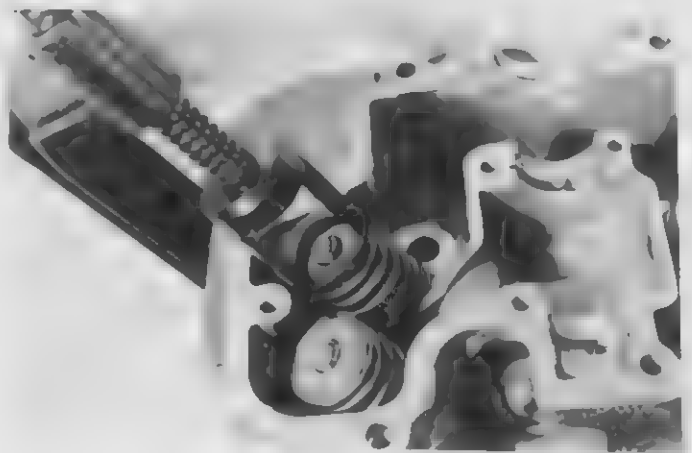
- The exhaust rocker arm can be distinguished from that of the intake by the de-compression shaft contacting surface ① (for exhaust).



- Compress the valve spring with a valve spring compressor.

09916-14510

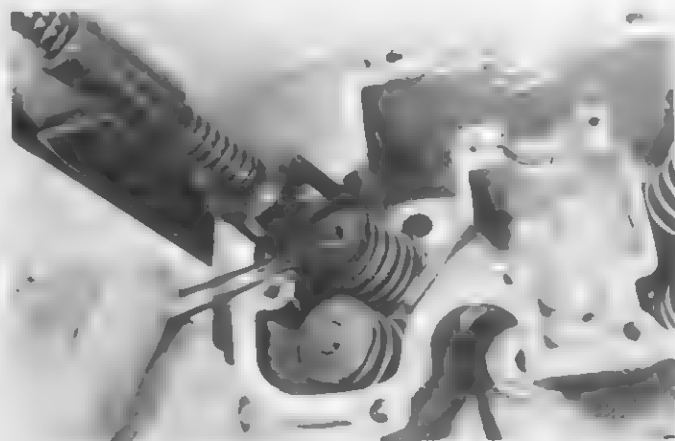
Valve spring compressor





- Take off the valve cotters from the valve stem.

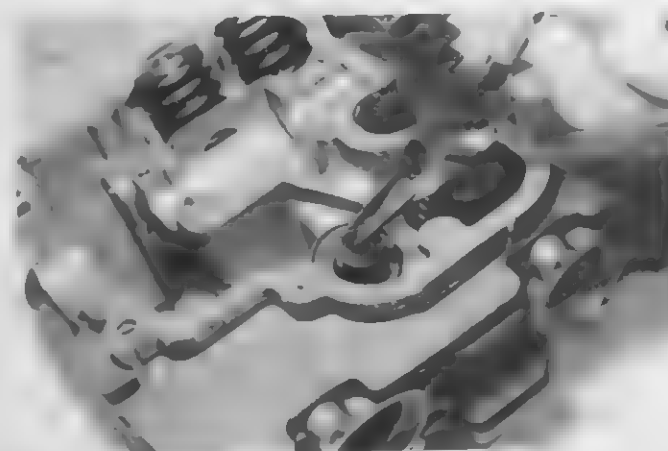
09916-84510	Tweezers
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- Take out the valve spring retainer, inner spring and outer spring.
- Pull out the valve from the other side.



- Remove the oil seal by using a long-nose pliers.
- Take out the lower spring seat.



**NOTE:**

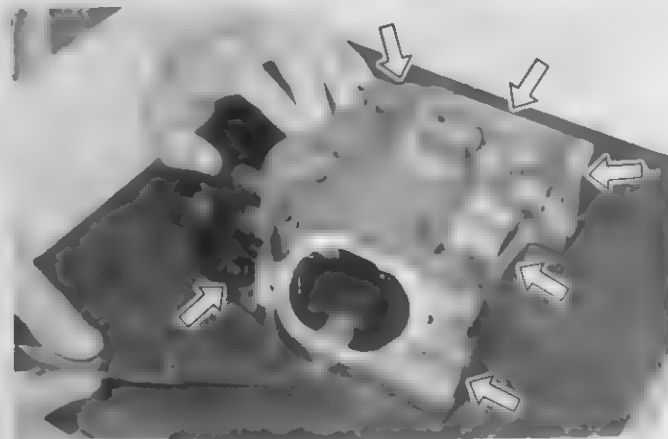
Removal of the valves completes ordinary disassembling work. If valve guides have to be removed for replacement after inspecting related parts, carry out the steps shown in valve guide servicing.

**CYLINDER HEAD COVER DISTORTION**

After removing sealant (SUZUKI BOND No. 1207B) from the fitting surface of the cylinder head cover, place the cylinder head cover on a surface plate and check for distortion with a thickness gauge. Check points are shown in illustration.

Service Limit	0.05 mm (0.002 in)
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If the distortion exceeds the limit, replace the cylinder head cover.



### ROCKER ARM SHAFT O.D.

Measure the diameter of rocker arm shaft with a micrometer.

Standard	11.966 – 11.984 mm (0.4711 – 0.4718 in)
09900-20205	Micrometer (0 – 25 mm)



### ROCKER ARM I.D.

When checking the valve rocker arm, the inside diameter of the valve rocker arm and wear of the camshaft contacting surface should be checked.

Standard	12.000 – 12.018 mm (0.4724 – 0.4731 in)
09900-20605	Dial calipers



### CYLINDER HEAD DISTORTION

Decarbon combustion chamber.

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

Service Limit	0.05 mm (0.002 in)
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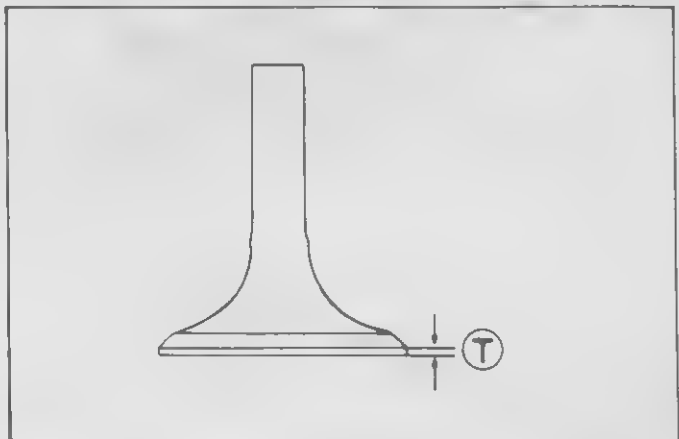


### VALVE FACE WEAR

Measure the thickness  $\text{\textcircled{T}}$  and, if the thickness is found to have been reduced to the limit, replace the valve.

**NOTE:**  
Visually inspect each valve for wear of its seating face. Replace any valve with an abnormally worn face.

Service Limit	0.5 mm (0.02 in)
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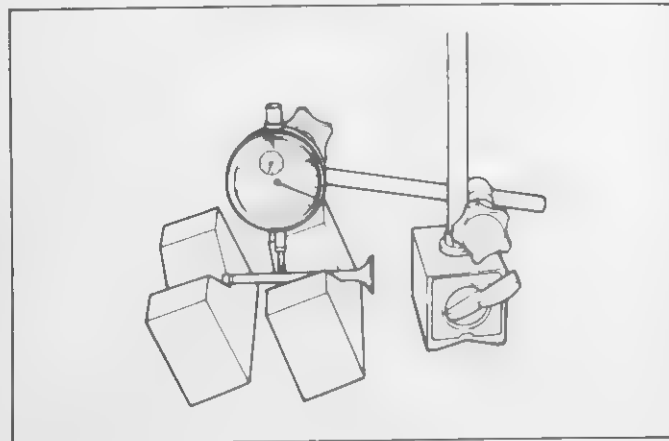


### VALVE STEM RUNOUT

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

Service Limit	0.05 mm (0.002 in)
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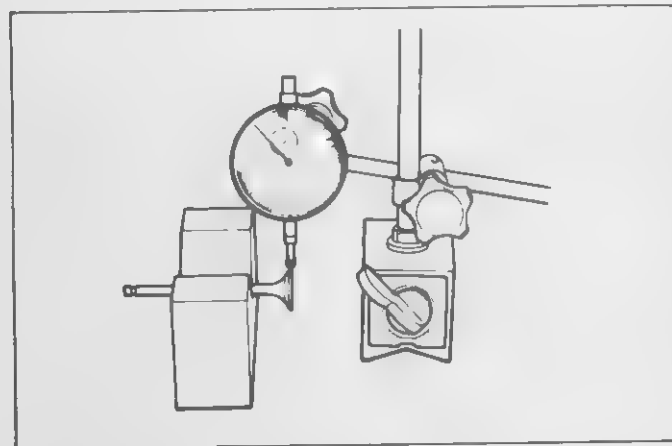
09900-20701	Magnetic stand
09900-20606	Dial gauge (1/100 mm)



### VALVE HEAD RADIAL RUNOUT

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

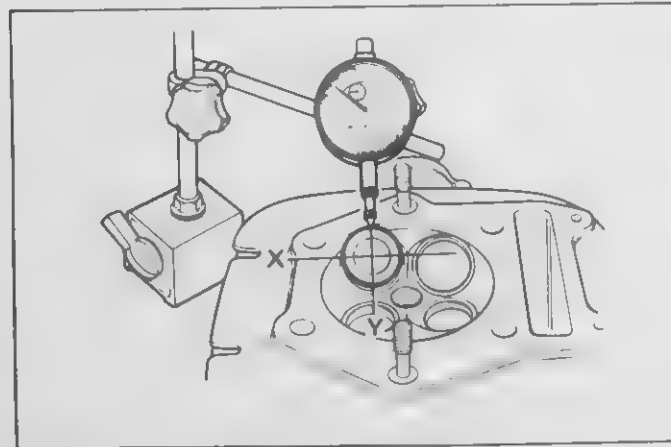
Service Limit	0.03 mm (0.001 in)
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### VALVE GUIDE-VALVE STEM CLEARANCE

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

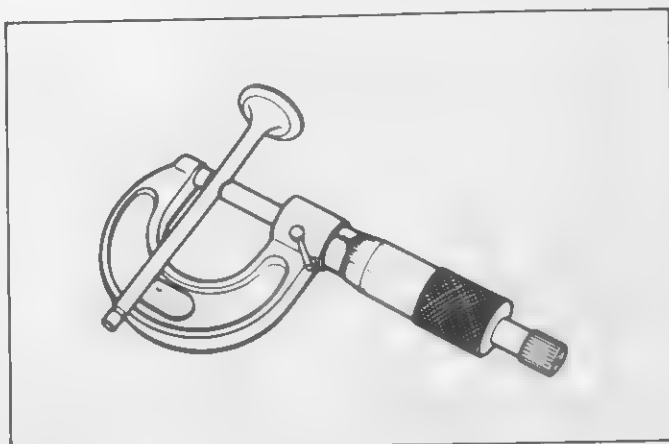
	Standard	Service Limit
IN.	0.025 – 0.055 mm (0.0010 – 0.0022 in)	0.35 mm (0.014 in)
EX.	0.040 – 0.070 mm (0.0016 – 0.0028 in)	0.35 mm (0.014 in)



### VALVE STEM WEAR

If the valve stem is worn down to the limit, when measured with a micrometer, and the clearance is found to be in excess of the limit indicated previously, replace the valve, if the stem is within the limit, then replace the guide. After replacing valve or guide, be sure to re-check the clearance.

09900-20205	Micrometer (0 – 25 mm)
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### Valve stem O.D.

	Standard
IN.	6.960 – 6.975 mm (0.2740 – 0.2746 in)
EX.	6.945 – 6.960 mm (0.2734 – 0.2740 in)

### VALVE GUIDE SERVICING

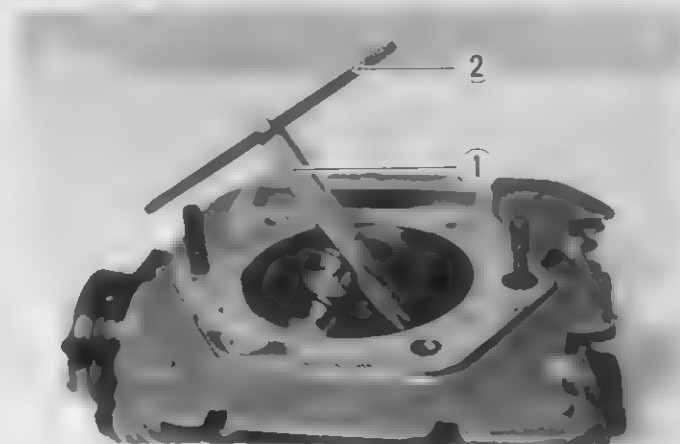
Remove the valve guide with the valve guide remover

09916-44511	Valve guide remover
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Re-finish the valve guide holes in cylinder head with a 12.3 mm reamer ① and handle ②.

09916-34531	12.3 mm reamer
09916-34541	Handle

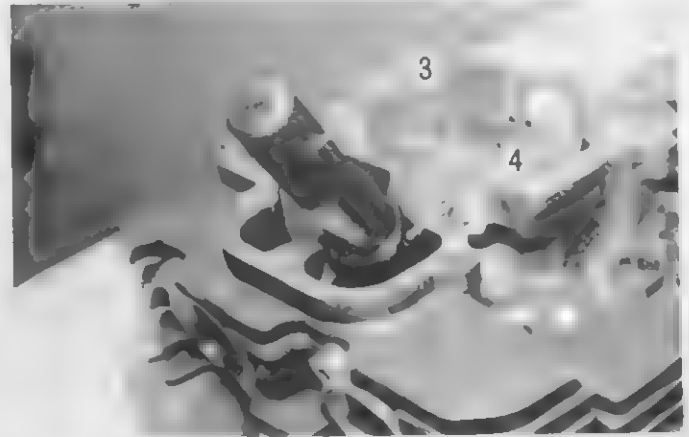


Fit a ring to each valve guide. Be sure to use new rings and valve guides. Rings and valve guides removed in disassembly must be discarded.

### 3-25 SERVICING ENGINE

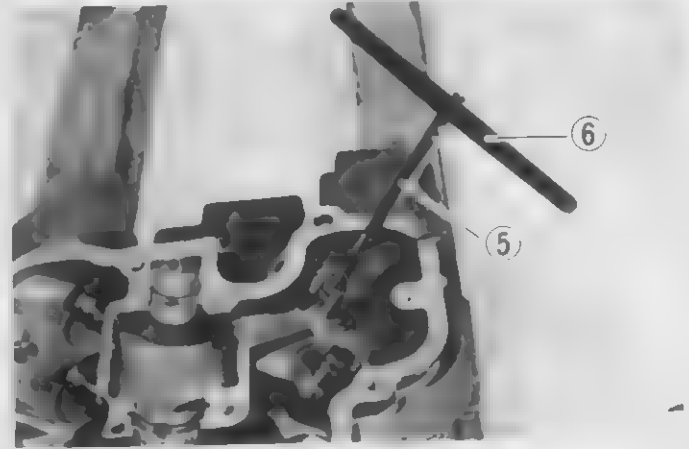
- Lubricate each valve guide, and drive the guide into the guide hole using the valve guide installer handle ③ and valve guide installer attachment ④.

09916-57320	Valve guide installer handle
09916-57311	Attachment

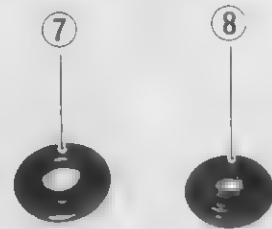


- After fitting the valve guides, re-finish their guiding bores with a 7 mm reamer ⑤ and handle ⑥. Be sure to clean and oil the guides after reaming.

09916-34520	7 mm reamer
09916-34541	Handle



- Install the valve spring lower seat ⑦. Be careful not to confuse the lower seat with the spring retainer ⑧.

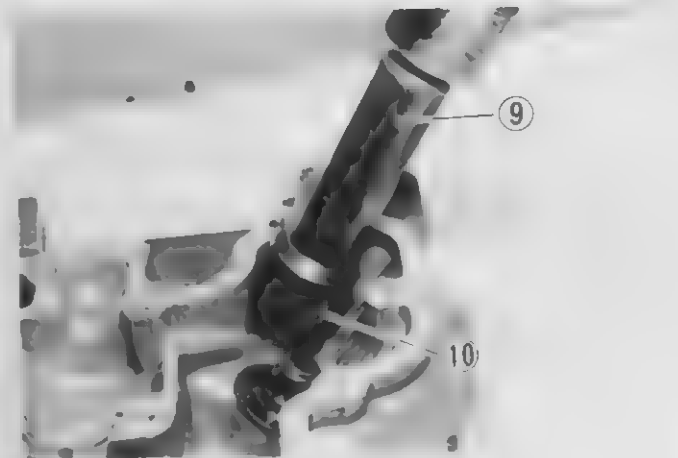


- Lubricate each seal, and drive them into position with the valve guide installer handle ⑨ and stem seal installer attachment ⑩.

**CAUTION:**

Do not reuse the oil seals.

09916-57320	Valve guide installer handle
09911-93710	Attachment



## VALVE AND SEAT CONDITION

### VALVE SEAT WIDTH

Coat the valve seat with prussian blue uniformly. Tap the valve and tap the coated seat with the valve face in a rotating manner, in order to obtain a clear impression of the seating contact. In this operation, use the valve lapper to hold the valve lead.

The ring-like dye impression left on the valve face must be continuous-without any break. In addition, the width of the dye ring, which is the actualized seat "width", must be within the specification.

#### Valve seat width

STD. (W)	1.0 – 1.2 mm (0.039 – 0.047 in)
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If either requirement is not met, correct the seat by servicing it as follows.

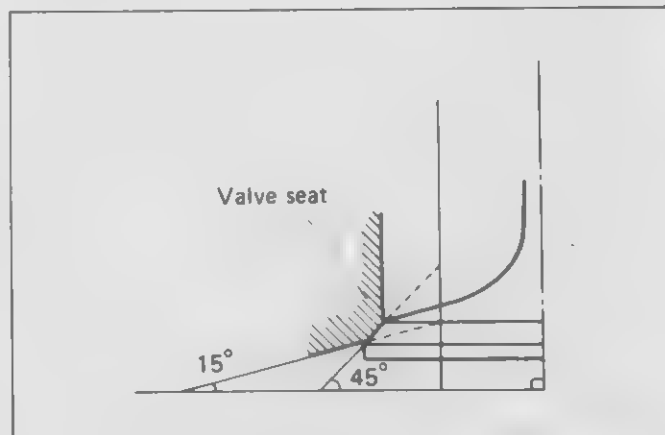
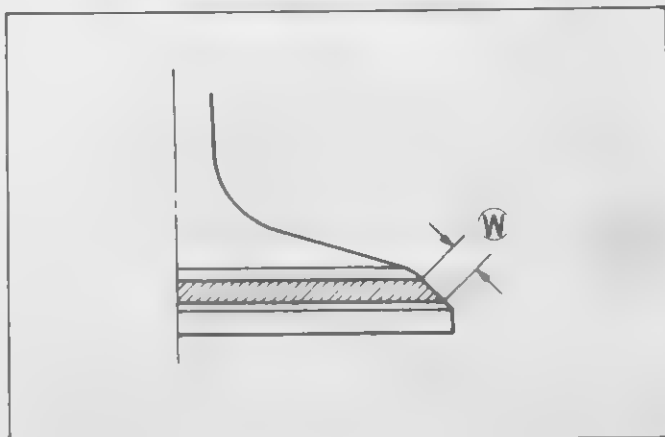
### VALVE SEAT SERVICING

The valve seats for both intake and exhaust valves are angled to present two bevels, 15° and 45°.

	Intake side	Exhaust side
45°	N-608	N-608
15°	N-212	N-212

Valve seat cutter (N-608)
Valve seat cutter (N-212)
Solid pilot (N-140)

09916-24900	Valve seat cutter set
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**NOTE:**

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

1. Insert with a slight rotation, the solid pilot that gives a snug fit.
2. Using the 45° cutter, descale and clean up the seat with one or two turns.
3. Inspect the seat by the previous seat width measurement procedure. If the seat is pitted or burned, additional seat conditioning with the 45° cutter is required.

**CAUTION:**

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

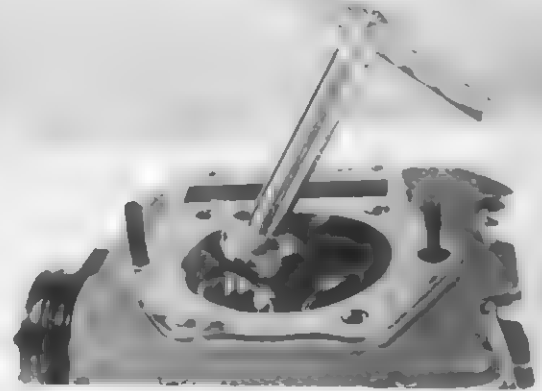
4. After the desired seat position and width is achieved, use the 45° cutter very lightly to clean up any burrs caused by the previous cutting operations. DO NOT use lapping compound after the final cut is made. The finished valve seat should have a velvety smooth finish and not a highly polished or shiny finish. This will provide a soft surface for the final seating of the valve which will occur during the first few seconds of engine operation.
5. Clean and assemble the head and valve components. Fill the intake and exhaust ports with gasoline to check for leaks. If any leaks occur, inspect the valve seat and face for burrs or other things that could prevent the valve from sealing.

**WARNING:**

Always use extreme caution when handling gasoline.

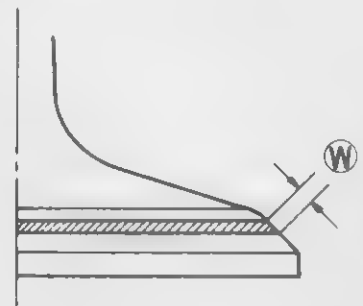
**NOTE:**

Be sure to adjust the valve clearance after reassembling the engine.



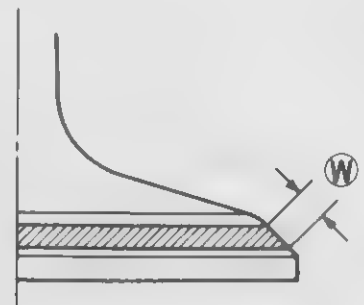
If the contact area is too low or too narrow, use the 45° cutter to raise and widen the contact area.

Contact area too low and too narrow on face of valve



If the contact area is too high or too wide, use the 15° cutter to lower and narrow the contact area.

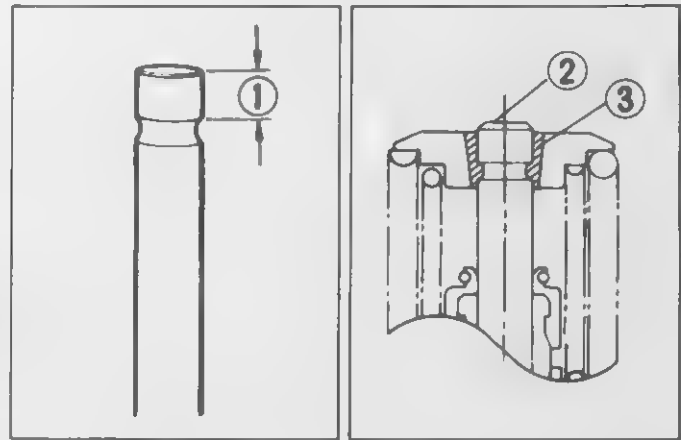
Contact area too high and too wide on face of valve





### VALVE STEM END CONDITION

Inspect the valve stem end face for pitting and wear. If pitting or wear of the stem end face are present, the valve stem end may be resurfaced, providing that the length ① will not be reduced to less than 4.3 mm (0.17 in). If this length becomes less than 4.3 mm (0.17 in), the valve must be replaced. After installing a valve whose stem end has been ground off as above, check to ensure that the face ② of the valve stem end is above the cotters ③.



### VALVE SPRINGS

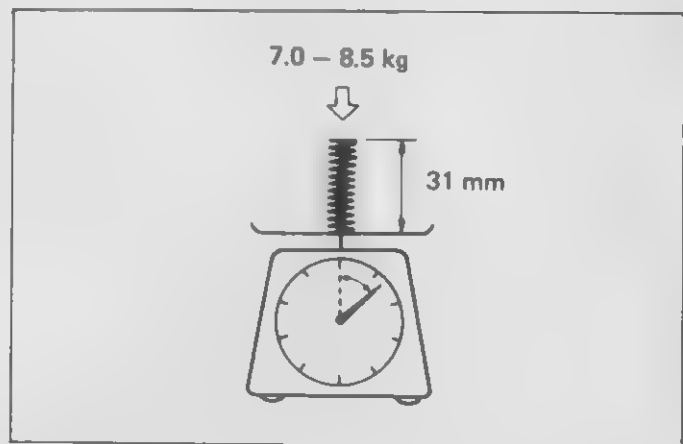
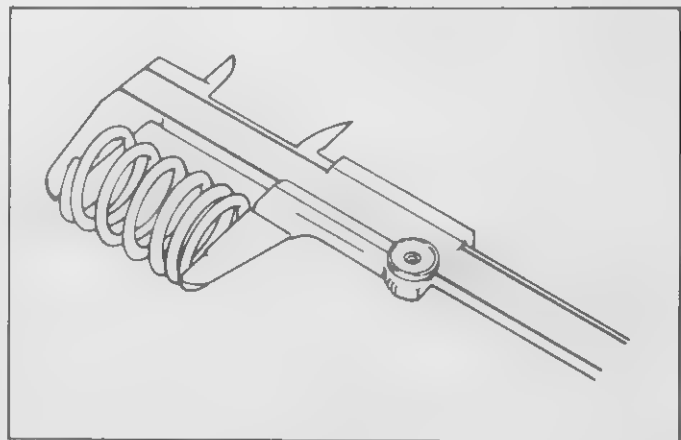
Check the springs for strength by measuring their free lengths and also the force required to compress them. If the limit indicated below is exceeded by the free length reading or if the measured force does not fall within the range specified, replace both the inner and outer springs as a set.

#### Valve spring free length

Spring	Service Limit
INNER	35.5 mm (1.40 in)
OUTER	40.3 mm (1.59 in)

#### Valve spring tension

Spring	Standard
INNER	7.0 – 8.5 kg/31 mm (15.4 – 18.7 lbs/1.2 in)
OUTER	16.4 – 18.8 kg/33 mm (36.2 – 41.4 lbs/1.3 in)

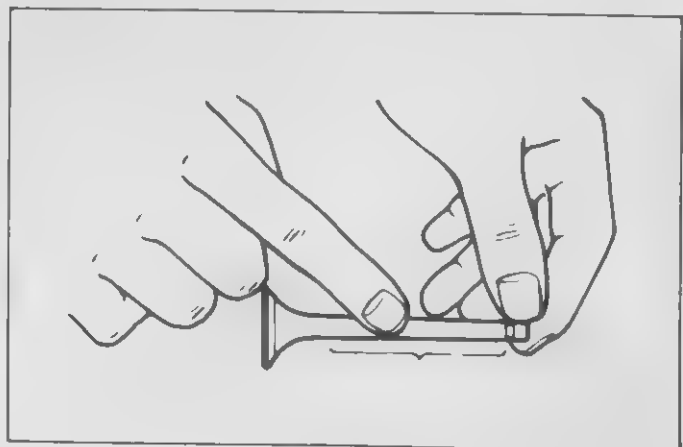


### REASSEMBLY

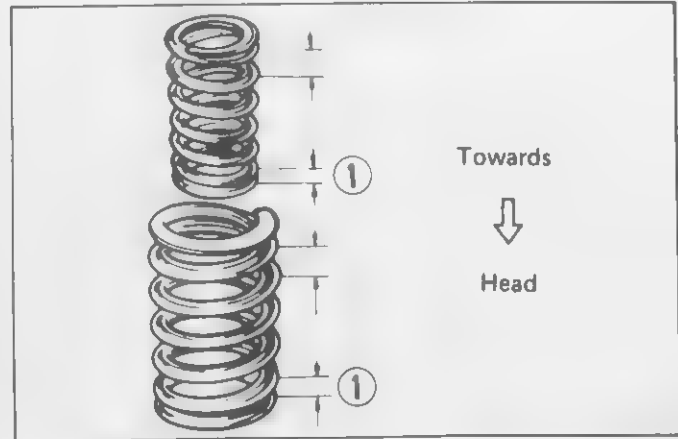
- Insert the valves, with their stems coated with (SUZUKI MOLY PASTE) all around and along the full stem length without any break. Similarly oil the lip of the stem seal.

99000-25140	Suzuki moly paste
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**CAUTION:**  
When inserting each valve, take care not to damage the lip of the stem seal.



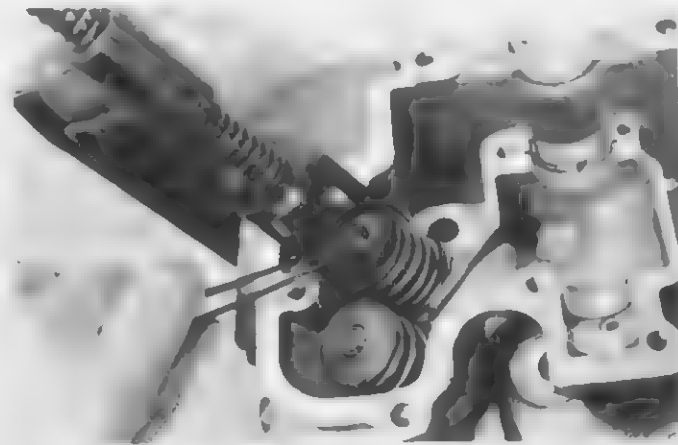
- Install the valve springs, making sure that the close-pitch end ① of each spring goes in first to rest on the head. The coil pitch of both the inner and outer springs vary: the pitch decreases from top to bottom, as shown in the illustration.



- Fit a valve spring retainer, compress the springs with a valve spring compressor and fit the cotter halves to the stem end.

09916-14510	Valve spring compressor
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09916-84510	Tweezers
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### CAMSHAFT

The camshaft should be checked for runout and also for wear of cams and journals if the engine has been noted to produce abnormal noise or vibration or to lack output power. Any of these malconditions could be caused by a worn camshaft.

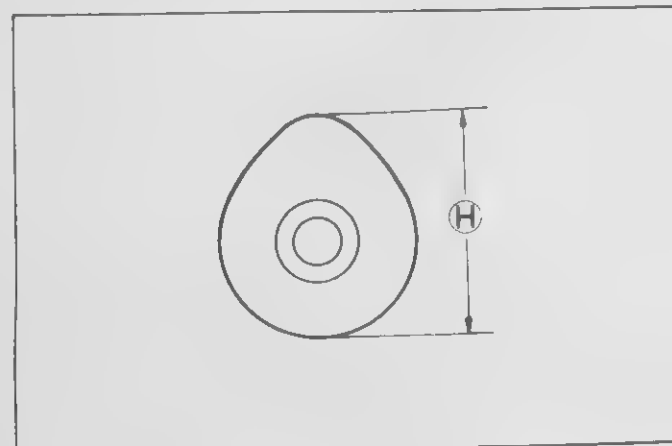
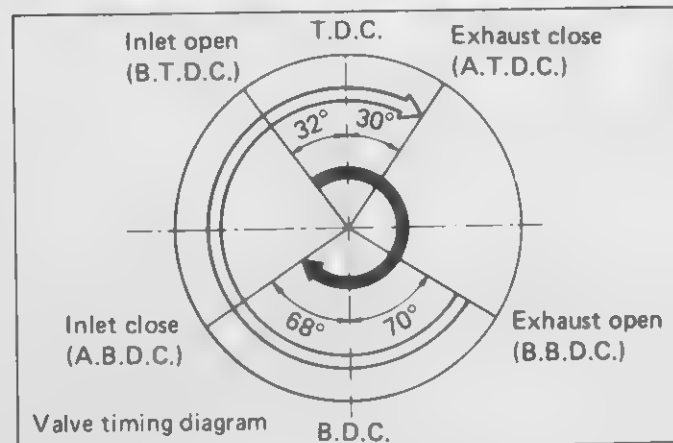
### CAMSHAFT CAM WEAR

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

09900-20202	Micrometer (25 – 50 mm)
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#### Cam height

Height $H$	Service Limit
Intake cam	36.230 mm (1.4264 in)
Exhaust cam	36.460 mm (1.4354 in)



### CAMSHAFT JOURNAL WEAR

Determine whether each journal is worn down to the limit or not by measuring camshaft journal oil clearance with the camshaft installed. Use plasti-gauge to read the clearance, which is specified as follows:

#### Camshaft journal oil clearance

Service Limit	0.150 mm (0.0059 in)
---------------	-------------------------

- Tighten the cylinder head cover bolts evenly and diagonally to the specified torque.

#### Cylinder head cover tightening torque

Tightening torque	9 – 11 N·m (0.9 – 1.1 kg·m) (6.5 – 8.0 lb·ft)
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09900-22301	Plastigauge
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If the camshaft journal oil clearance measured exceeds the limit, measure the outside diameter of camshaft.

Replace either the cylinder head set or the camshaft if the clearance is incorrect.

09900-20205	Micrometer (0 – 25 mm)
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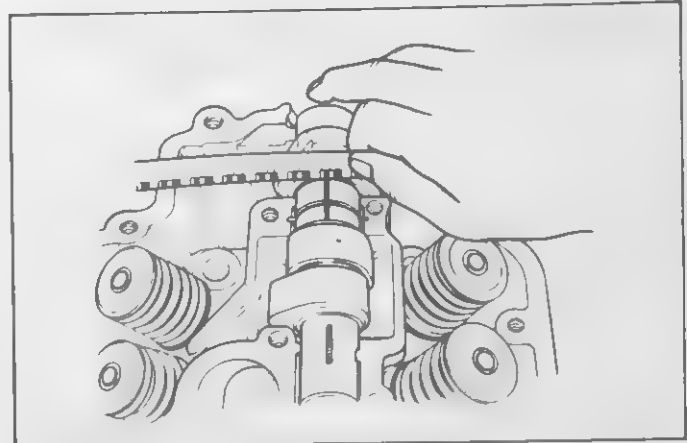
Camshaft journal O.D. (Right & Center)	24.959 – 24.980 mm (0.9826 – 0.9835 in)
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Camshaft journal O.D. (Left)	19.959 – 19.980 mm (0.7858 – 0.7866 in)
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### CAMSHAFT RUNOUT

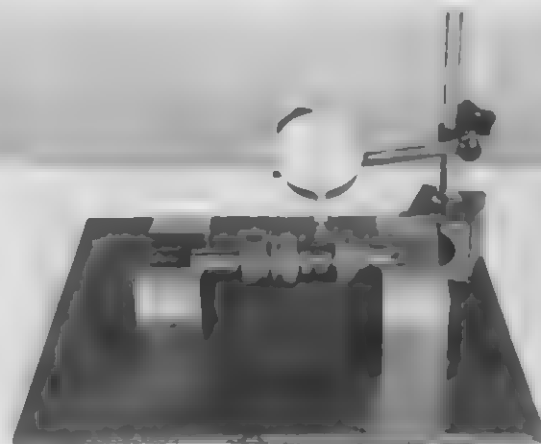
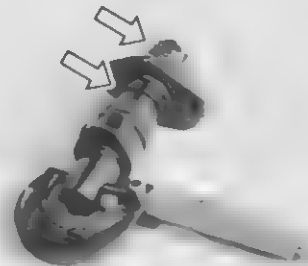
Measure the runout with a dial gauge. Replace the camshaft if the runout exceeds the limit.

Service Limit	0.10 mm (0.004 in)
---------------	-----------------------



#### NOTE:

To properly measure the oil clearance with plasti-gauge, all gasket material must be removed from fitting surfaces of cylinder head and cover. Do not apply SUZUKI BOND No. 1207B until after the oil clearance has been determined.

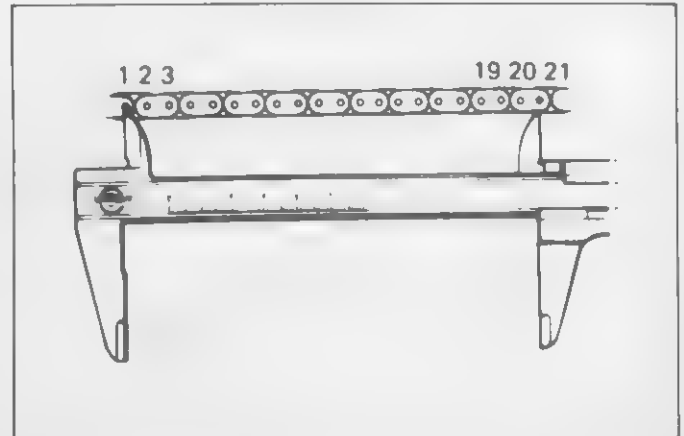


### CAM DRIVE CHAIN AND BALANCER DRIVE CHAIN 20-PITCH LENGTH

Pull the chain tight to remove any slack, then using vernier calipers, measure the 20-pitch (21 pins) length of chain. If it measures more than the limits, replace the chain.

CAM DRIVE CHAIN Service Limit	129.0 mm (5.08 in)
----------------------------------	-----------------------

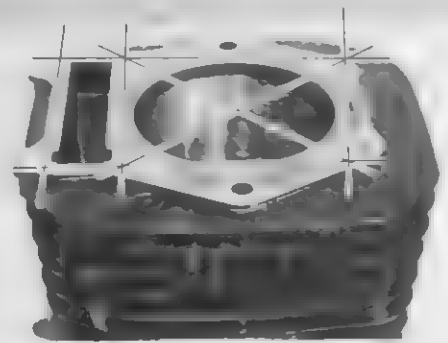
BALANCER DRIVE CHAIN Service Limit	129.0 mm (5.08 in)
---------------------------------------	-----------------------



### CYLINDER DISTORTION

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

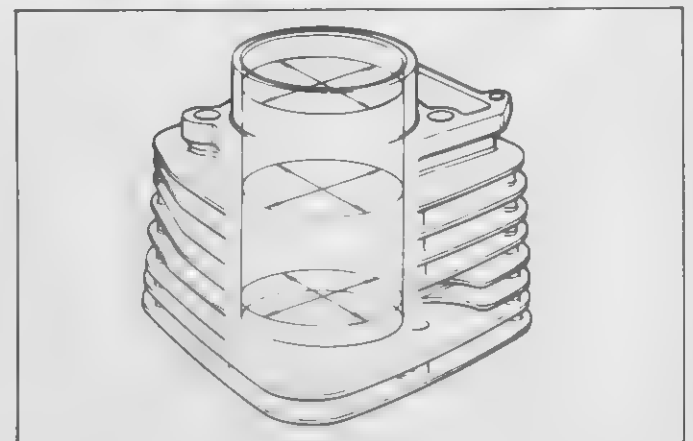
Service Limit	0.05 mm (0.002 in)
---------------	-----------------------



### CYLINDER BORE

Measure the cylinder bore diameter at six places. If any one of the measurements exceeds the limit, overhaul the cylinder and replace the piston with an oversize, or replace the cylinder.

Service Limit	94.070 mm (3.7035 in)
---------------	--------------------------



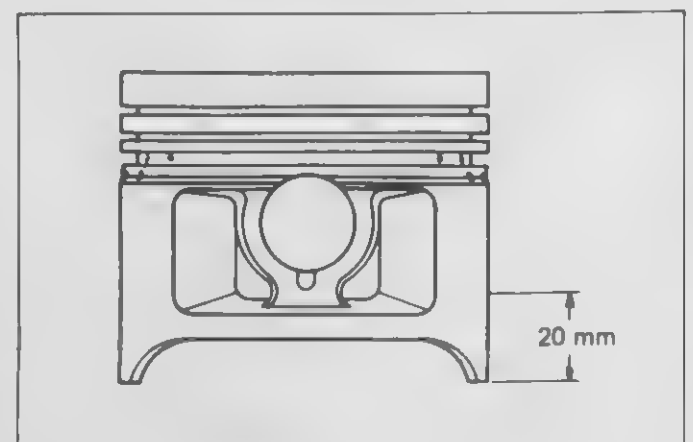
### PISTON DIAMETER

Using a micrometer, measure the piston outside diameter at the place 20 mm (0.79 in) from the skirt end as shown in Fig. If the measurement is less than the limit, replace the piston.

09900-20204	Micrometer (75 - 100 mm)
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Service Limit	93.880 mm (3.6961 in)
---------------	--------------------------

Piston oversize	0.5, 1.0 mm
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### PISTON-CYLINDER CLEARANCE

As a result of the previous measurement, if the piston to cylinder clearance exceeds the limit shown in the table below, overhaul the cylinder and use an oversize piston, or replace both cylinder and piston.

Service Limit	0.120 mm (0.0047 in)
---------------	-------------------------

### PISTON RING-GROOVE CLEARANCE

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

09900-20803	Thickness gauge
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#### Piston ring-groove clearance

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

#### Piston ring groove width

Piston ring	Standard
1st	1.21 – 1.24 mm (0.047 – 0.049 in)
2nd	1.21 – 1.23 mm (0.047 – 0.048 in)
Oil	2.81 – 2.83 mm (0.110 – 0.111 in)

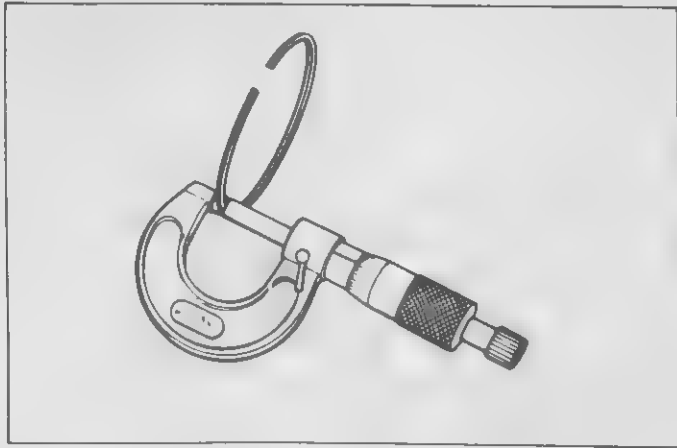
#### Piston ring thickness

Piston ring	Standard
1st and 2nd	1.175 – 1.190 mm (0.0463 – 0.0469 in)

1.2140 - 40.11 - 0.050

**NOTE:**

Using a soft-metal scraper, decarbon the crown of the piston. Clean the ring grooves similarly.



### PISTON RING FREE END GAP AND PISTON RING END GAP

Before installing piston rings, measure the free end gap of each ring using vernier calipers.

Next, fit the ring in the cylinder, and measure each ring end gap using a thickness gauge.

If any ring has an excess end gap, replace the ring.

#### Piston ring free end gap

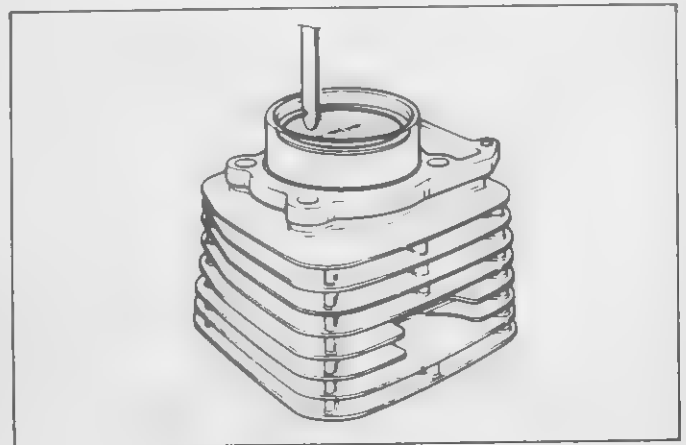
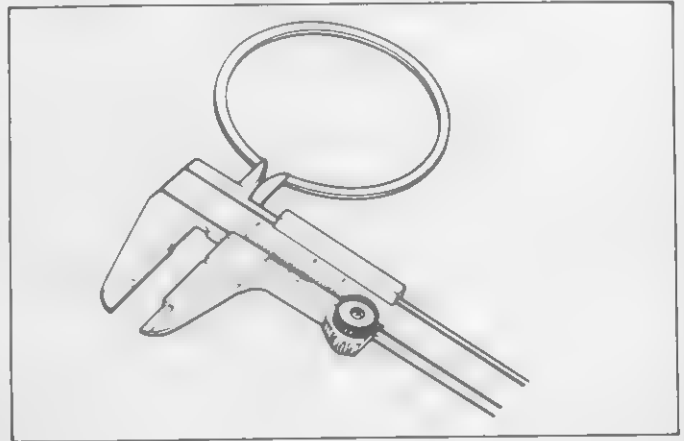
Piston ring	Service Limit
1st	9.2 mm (0.36 in)
2nd	11.2 mm (0.44 in)

09900-20101	Vernier calipers
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#### Piston ring end gap

Piston ring	Service Limit
1st and 2nd	0.70 mm (0.028 in)

09900-20803	Thickness gauge
-------------	-----------------



### OVERSIZE RINGS

#### • Oversize piston ring

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

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

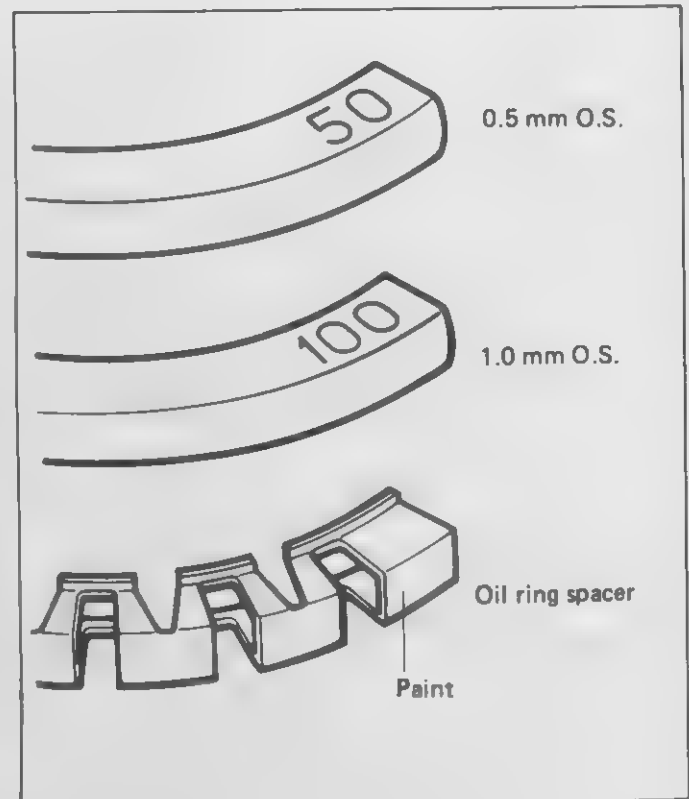
#### • Oversize oil ring

The following two types of oversize oil rings are used. They bear the following identification marks.

0.5 mm	Painted blue
1.0 mm	Painted yellow

#### • Oversize side rail

Just measure outside diameter to identify the side rail as there is no mark or numbers on it.



## PISTON PIN AND PIN BORE

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

09900-20605	Dial calipers
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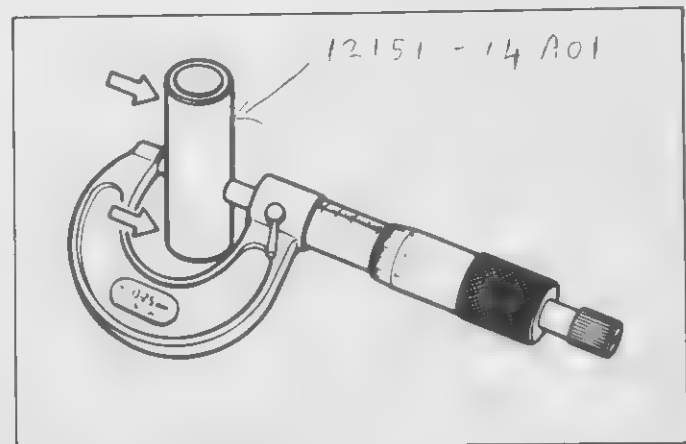
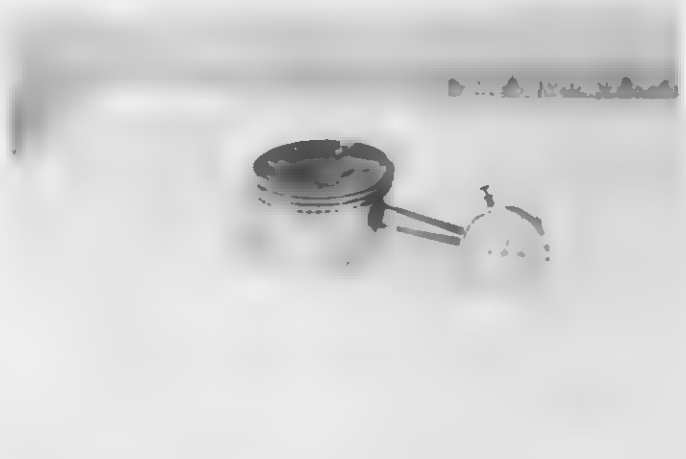
09900-20205	Micrometer (0 – 25 mm)
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### Piston pin bore

Service Limit	23.030 mm (0.9067 in)
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### Piston pin O.D.

Service Limit	22.980 mm (0.9047 in)
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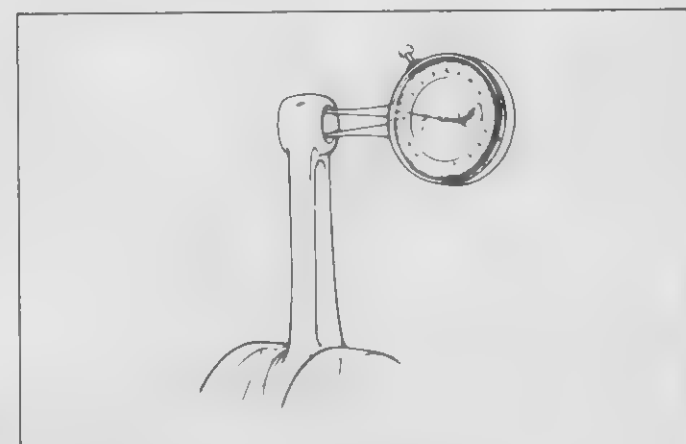


## CONROD SMALL END I.D.

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

Service Limit	23.040 mm (0.9071 in)
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If the conrod small end bore inside diameter exceeds the limit, replace conrod.

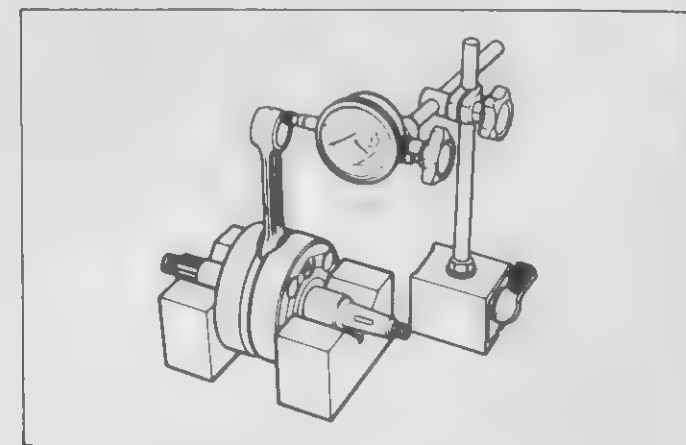


## CONROD DEFLECTION AND CONROD BIG END SIDE CLEARANCE

Wear on the big end of the conrod can be estimated by checking the movement of the small end of the rod. This method can also check the extent of wear on the parts of the conrod's big end.

Service Limit	3.0 mm (0.12 in)
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09900-20701	Magnetic stand
09900-20606	Dial gauge (1/100 mm)
09900-21304	V-block





### 3-35 SERVICING ENGINE

Push the big end of the conrod to one side and measure the side clearance with a thickness gauge.

09900-20803	Thickness gauge
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Standard	Service Limit
0.15 – 0.60 mm (0.006 – 0.024 in)	1.00 mm (0.039 in)

Where the limit is exceeded, replace crankshaft assembly or reduce the deflection and the side clearance to within the limit by replacing the worn parts – conrod, big end bearing and crankpin etc.

#### CRANKSHAFT RUNOUT

Support the crankshaft with "V" blocks as shown, with the two end journals resting on the blocks. Position the dial gauge, as shown, and rotate the crankshaft slowly to read the runout.

Correct or replace the crankshaft if the runout is greater than the limit.

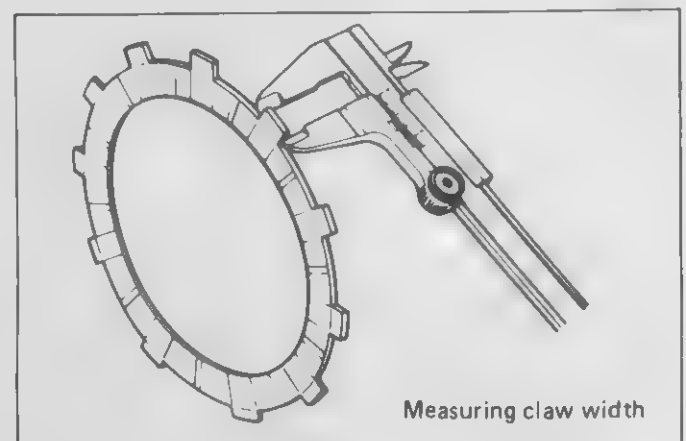
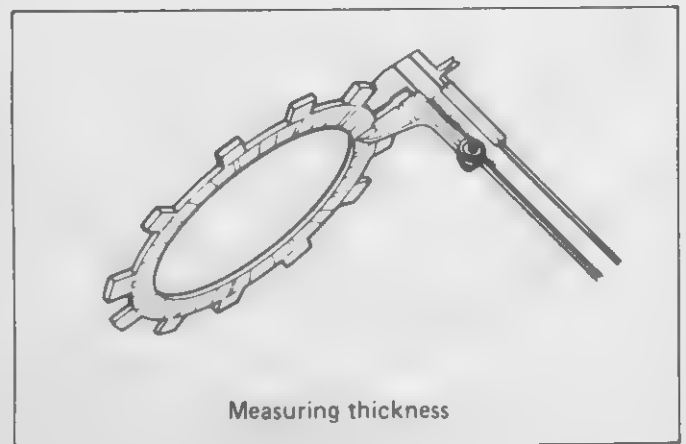
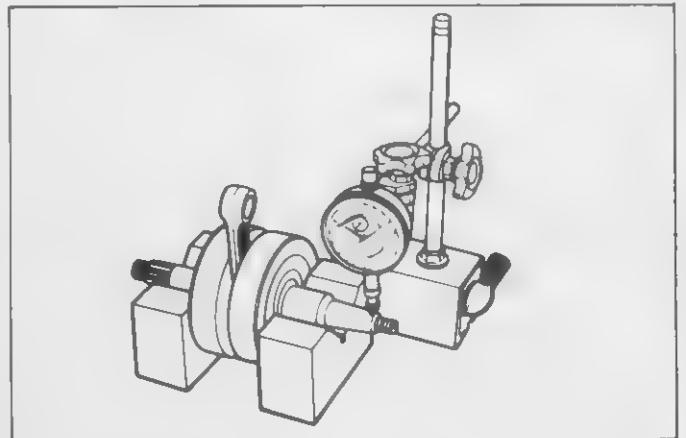
Service Limit	0.05 mm (0.002 in)
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#### CLUTCH DRIVE PLATE

Measure the thickness and claw width of each drive plate with vernier calipers. Replace drive plates found to have worn down to the limit.

09900-20101	Vernier calipers
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Item	Standard	Service Limit
Thickness	No. 1 2.92 – 3.08 mm (0.115 – 0.121 in)	2.62 mm (0.103 in)
	No. 2 3.45 – 3.55 mm (0.136 – 0.140 in)	3.15 mm (0.124 in)
Claw width	15.8 – 16.0 mm (0.62 – 0.63 in)	15.0 mm (0.59 in)

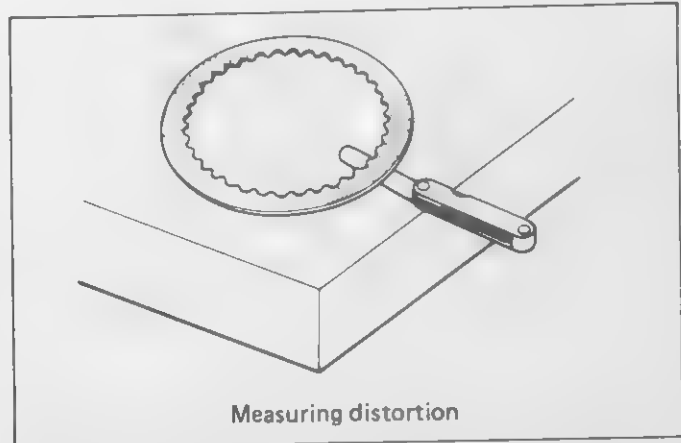


### CLUTCH DRIVEN PLATE

Measure each driven plate for distortion with a thickness gauge. Replace driven plates which exceed the limit.

09900-20803	Thickness gauge
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Service Limit	0.1 mm (0.004 in)
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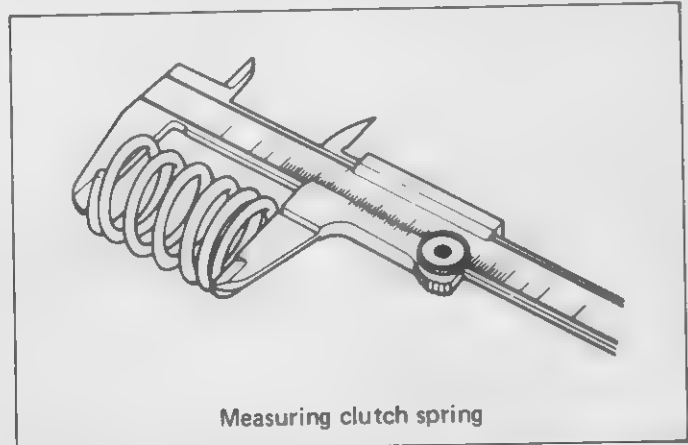


### CLUTCH SPRING FREE LENGTH

Measure the free length of each coil spring with a vernier calipers, and determine the elastic strength of each. Replace any spring not within the limit.

09900-20101	Vernier calipers
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Service Limit	34.0 mm (1.34 in)
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### CLUTCH RELEASE BEARING

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

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

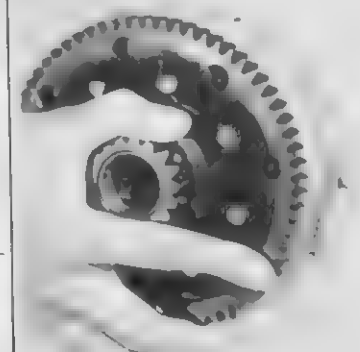
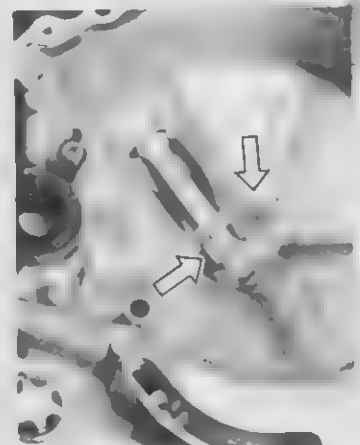
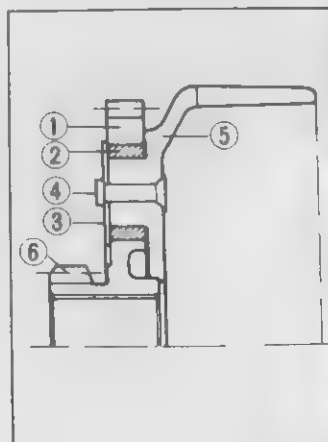
### CLUTCH RELEASE PINION AND RACK

Rotate the clutch release pinion by hand to inspect for a smooth rotation. If a large resistance is felt to rotation, inspect the pinion and rack for damage or wear. If the defect is found, replace them as a set.

### PRIMARY DRIVEN GEAR ASS'Y

If the internal damper wears, play is generated between gear and housing, causing abnormal noise. If the play is extreme, replace the primary driven gear ass'y with a new one.

- ① Primary driven gear
- ② Damper
- ③ Plate
- ④ Rivet
- ⑤ Clutch housing
- ⑥ Oil pump drive gear



### AUTOMATIC DE-COMP. CAMSHAFT

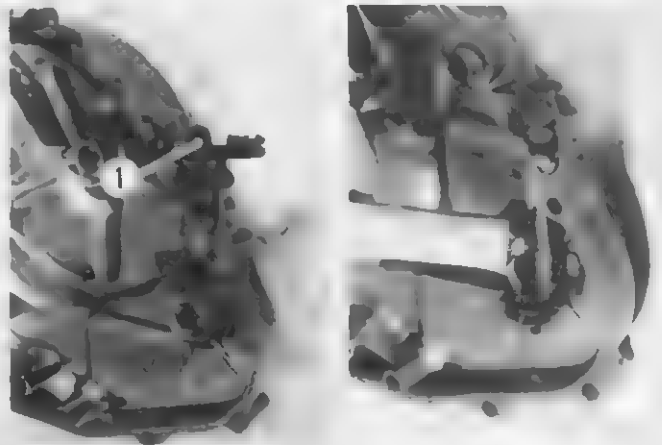
Move the automatic de-compression camshaft by hand to inspect for smooth movement.

If a large resistance is felt to movement, remove the automatic de-compression camshaft by removing the nut ①.

Inspect the camshaft visually for distortion. If the distortion is found, replace it with a new one.

- Apply moly paste to the camshaft before installing.

99000-25140	Suzuki moly paste
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### BALANCER DRIVE CHAIN TENSIONER

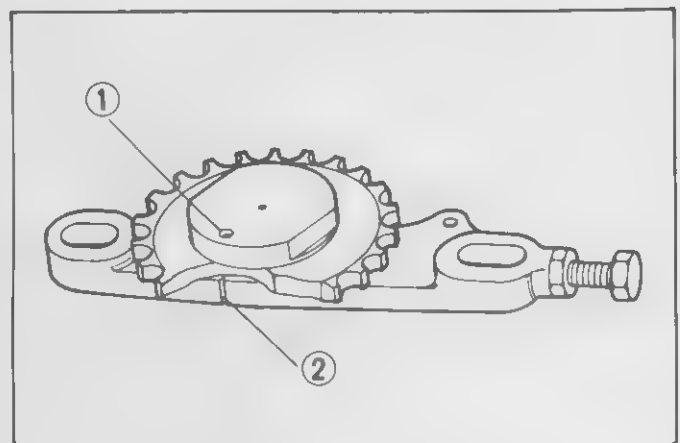
Rotate the sprocket by hand to inspect the bearing for an abnormal noise and a smooth rotation. Replace the bearing if there is anything unusual.

- Remove the nut by holding the shaft.

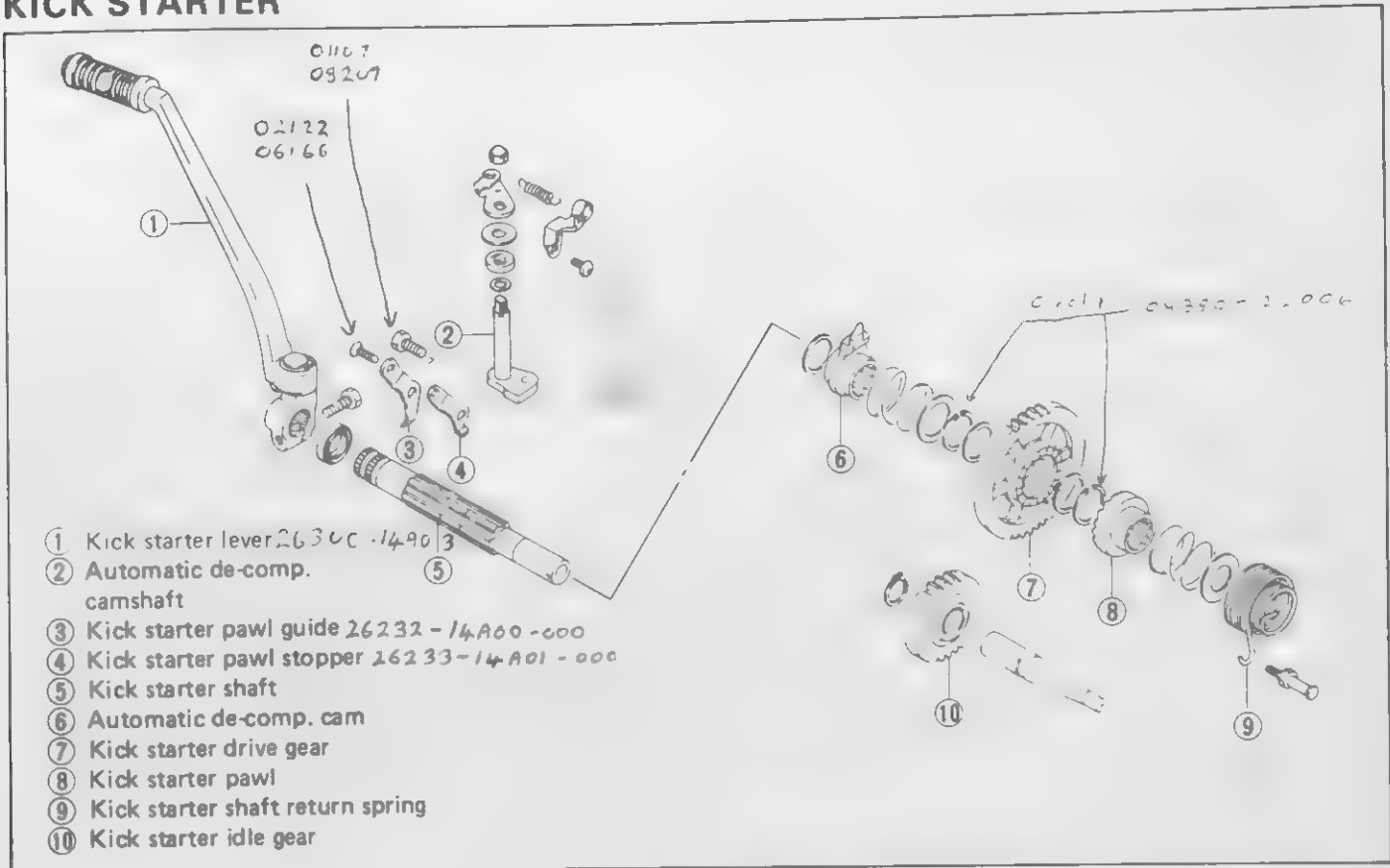


**NOTE:**  
Before tightening the nut, align the hole ① on the shaft with the notch ② on the tensioner bracket.

Tightening torque	45 – 70 N·m ( 4.5 – 7.0 kg·m ) ( 32.5 – 50.5 lb·ft )
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## KICK STARTER



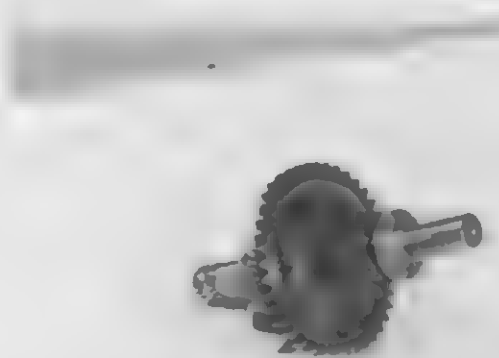
### DISASSEMBLY

- Remove the thrust washer, spring and kick starter pawl from the kick starter shaft.

- Remove the kick starter drive gear by removing the circlip.

09900-06107

Snap ring pliers



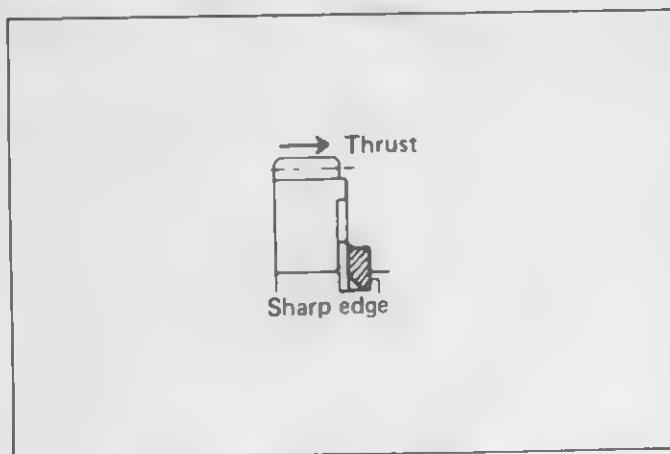
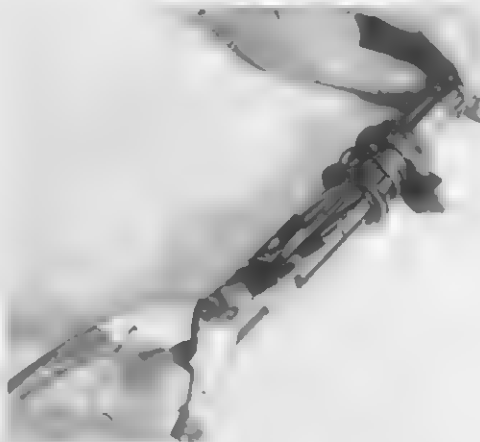
- After removing the circlip, remove the thrust washer, spring, de-compression cam and thrust washer from the kick starter shaft.

**REASSEMBLY**

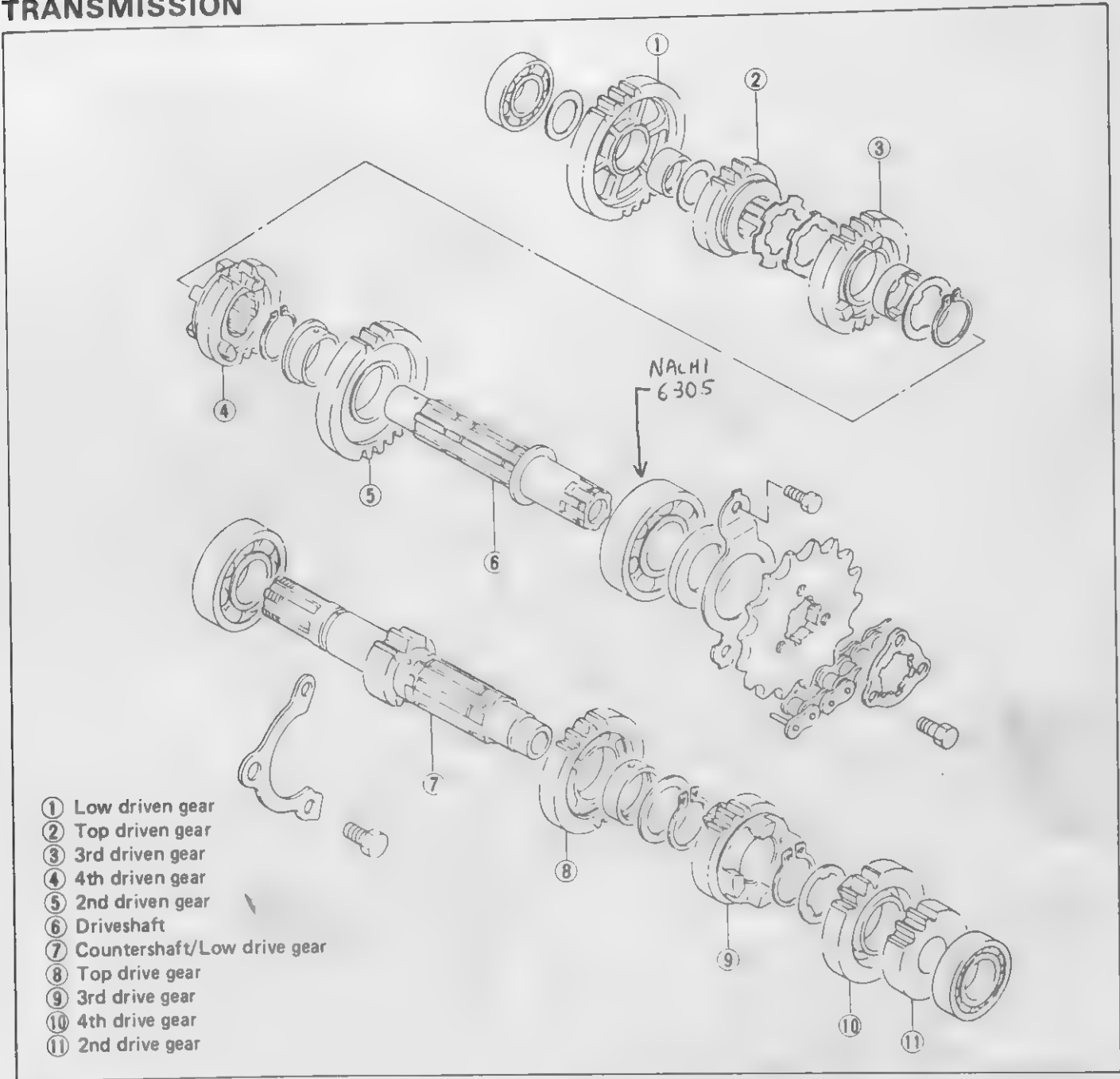
- When fitting the de-compression cam onto the kick starter shaft, be sure to align the punched marks.

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

- When fitting the kick starter pawl onto the kick starter shaft, be sure to align the punched marks.



## TRANSMISSION



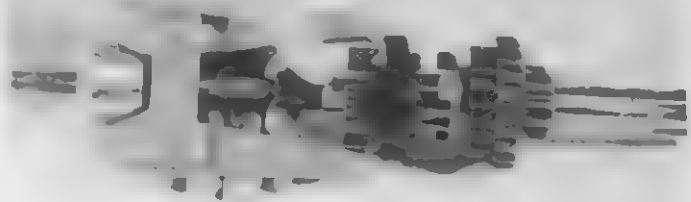
## COUNTERSHAFT DISASSEMBLY

- Remove the 2nd drive gear by using the gear puller and appropriate attachment.

09913-60910	Gear puller
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- After removing the 2nd drive gear, remove the each drive gear by using the snap ring pliers.

09900-06107	Snap ring pliers
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**DRIVESHAFT****DISASSEMBLY**

- After removing the Low driven gear and Top driven gear, remove the 3rd driven gear circlip ① from the groove and slide circlip toward the 4th driven gear ②.

09900-06104

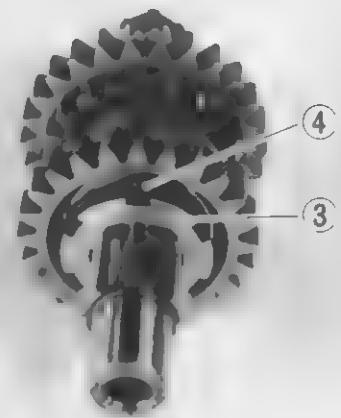
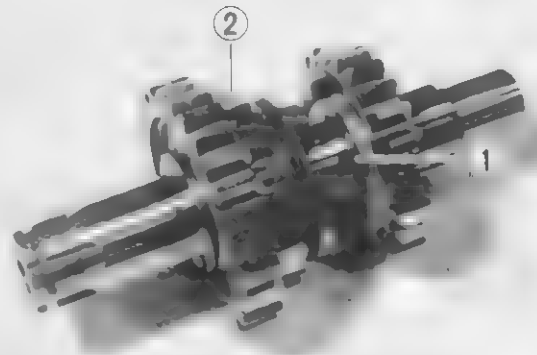
Snap ring pliers

Then, remove the 3rd driven gear by removing the lock washers, ③ and ④.

- After removing the 4th driven gear, remove the 2nd driven gear by removing the circlip.

09900-06107

Snap ring pliers

**COUNTERSHAFT AND DRIVESHAFT REASSEMBLY**

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

**NOTE:**

Always use new circlips.

**NOTE:**

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

99000-25140

Suzuki moly paste

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

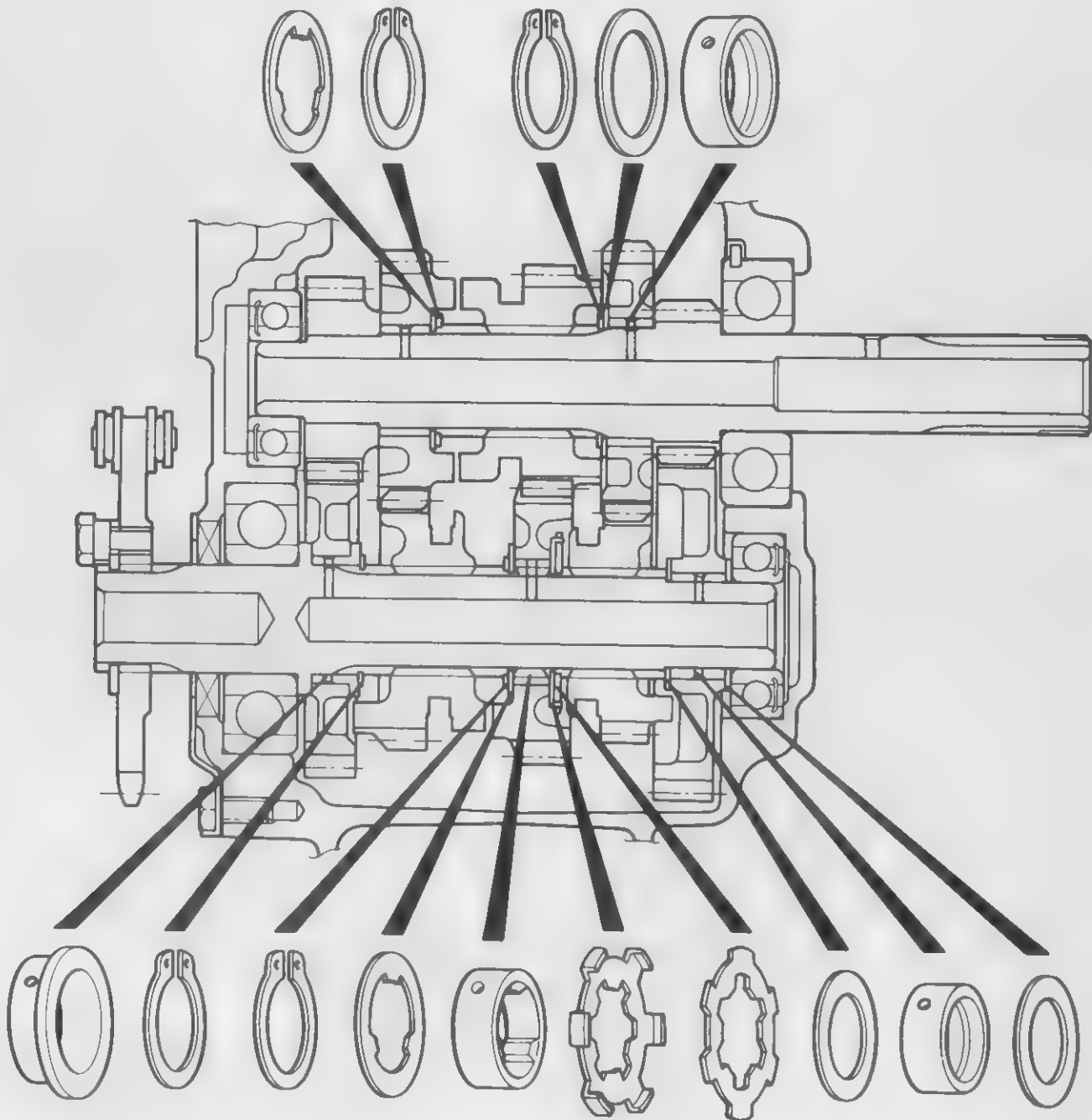
**CAUTION:**

- \* Never reuse a circlip. After a circlip has been removed from a shaft, it should be discarded and a new circlip must be installed.
- When installing a new circlip, care must be taken not to expand the end gap 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.



**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.





### 2ND DRIVE GEAR

- Press-fit 2nd drive gear ① onto the countershaft.

**NOTE:**

Before reassembling, coat the internal face of the 2nd drive gear with **THREAD LOCK SUPER "1303."**

99000-32030

Thread lock super  
"1303"

**NOTE:**

Take care not to smear 4th drive gear with **THREAD LOCK SUPER "1303"**.

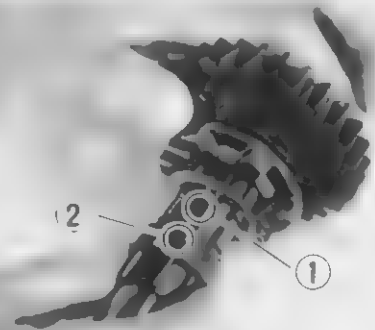


**NOTE:**

- \* After mounting the 2nd drive gear, check that 4th drive gear spins smoothly by moving it with your fingers.
- \* This procedure may be performed only twice before shaft replacement is required.

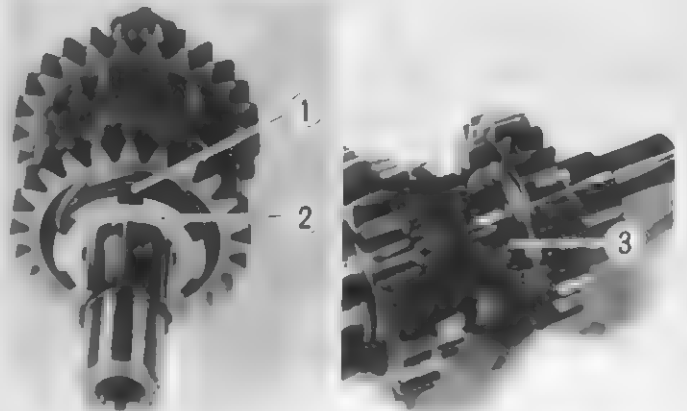
### 3RD DRIVEN GEAR BUSHING

- When installing the 3rd driven gear bushing onto the driveshaft, align the oil hole ① of the driveshaft with the bushing oil hole ②.



### 3RD DRIVEN GEAR LOCK WASHERS

- When mounting the 3rd driven gear onto the driveshaft, install the lock washer ① onto the driveshaft, and then install the lock washer ② onto the driveshaft and turn it to fit into the groove to lock the washer ①. After installing the pair of lock washers, fit the 3rd driven gear circlip ③ into the groove.



### SHIFT FORK-GROOVE CLEARANCE

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

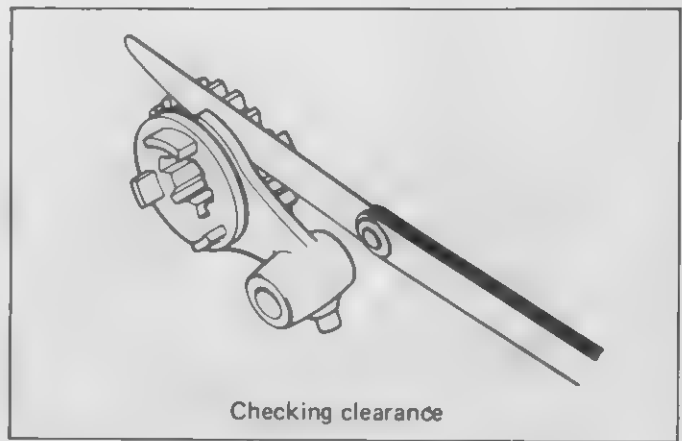
The clearance for each of the three shifting forks plays an important role in the smoothness and positiveness of shifting action.

#### Shift fork-Groove clearance

Standard	Service Limit
0.10 – 0.30 mm (0.004 – 0.012 in)	0.50 mm (0.020 in)

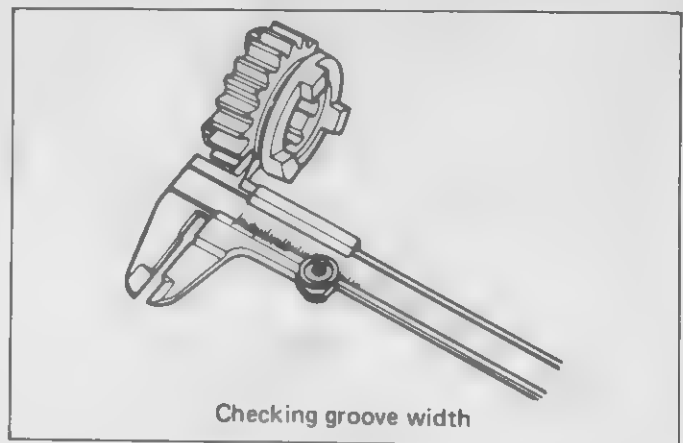
If the clearance checked is noted to exceed the limit specified, replace the fork or its gear, or both.

09900-20803	Thickness gauge
09900-20101	Vernier calipers



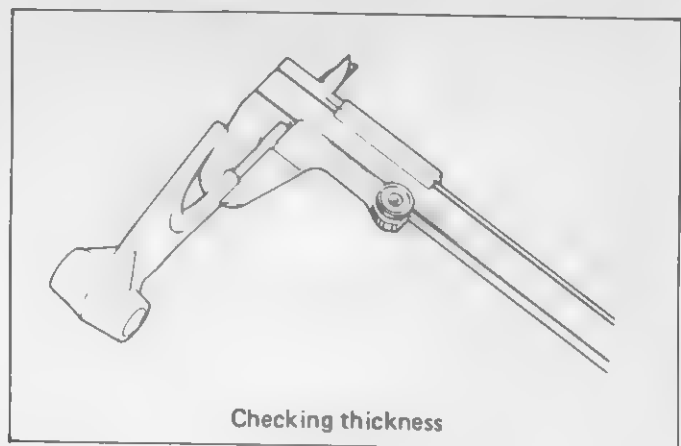
#### Shift fork groove width

Standard	5.00 – 5.10 mm (0.197 – 0.201 in)
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#### Shift fork thickness

Standard	4.80 – 4.90 mm (0.189 – 0.193 in)
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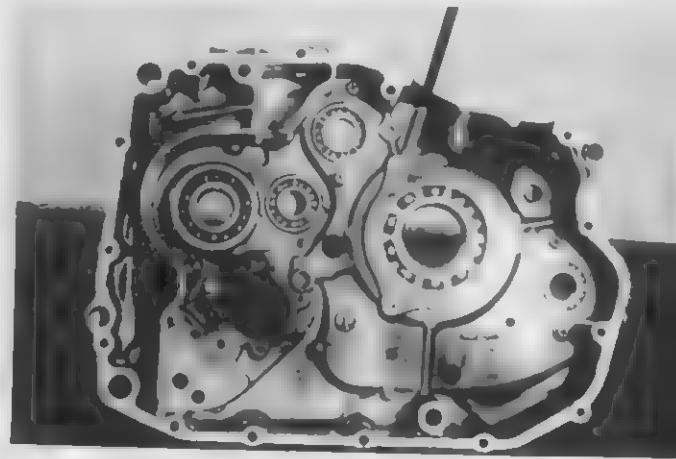
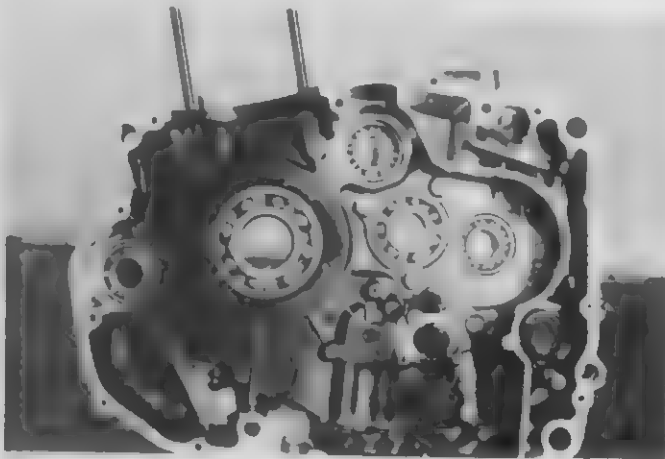
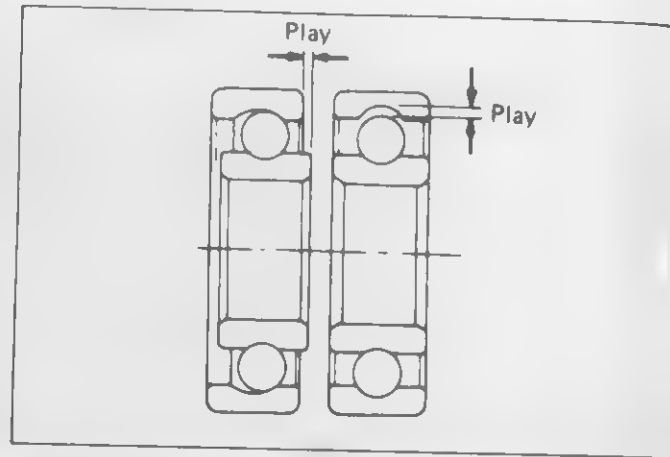


### CRANKCASE BEARINGS

Inspect the play of the crankcase bearing inner race by hand while it is in the case. Rotate the crankcase bearing inner race by hand to inspect for abnormal noise and smooth rotation. Replace the bearing if there is anything unusual.

**NOTE:**

When reassembling the bearing retainer, apply a small quantity of **THREAD LOCK "1303"** to the bearing retainer screws and bolts.



### ENGINE REASSEMBLY

Reassembly is generally performed in the reverse order to disassembly, but there are a number 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.

### OIL SEALS

- Fit the oil seals to the cylinder head cover, crankcase, clutch cover and gearshifter cover.
- Coat **SUPER GREASE "A"** to the lip of oil seals.

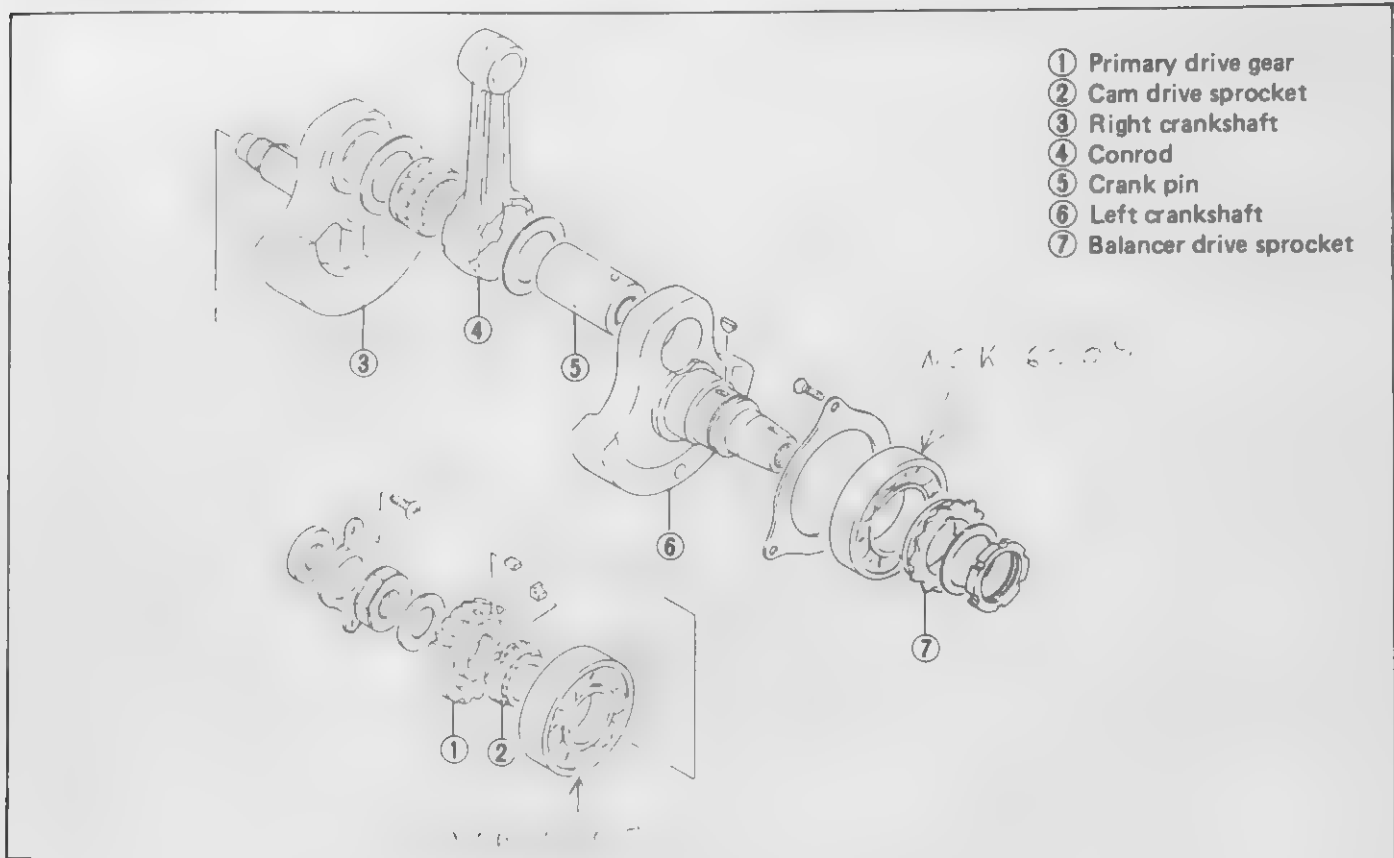
99000-25010

Suzuki super grease "A"

**CAUTION:**

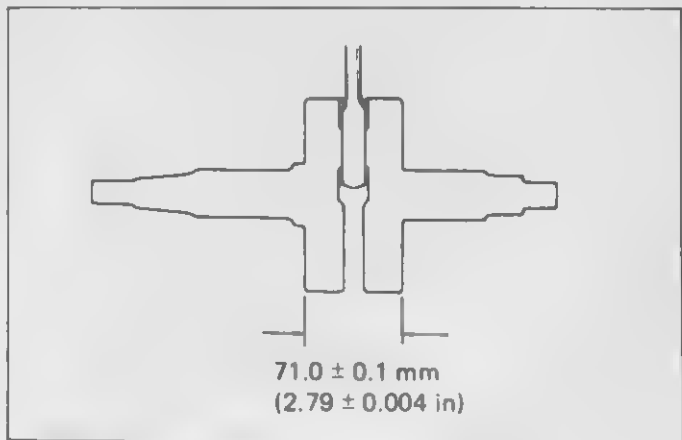
Replace the oil seals with new ones every disassembly to prevent oil leakage.

## CRANKSHAFT



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

STD width between webs	71.0 ± 0.1 mm (2.79 ± 0.004 in)
------------------------	------------------------------------

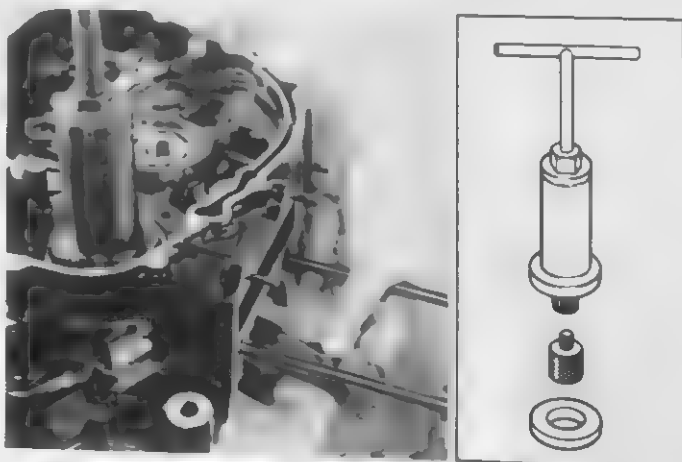


- When mounting the crankshaft in the crankcase, it is necessary to pull its right end into the crankcase.

09910-32812	Crankshaft installer
09910-32830	Attachment
09910-32820	Spacer

**CAUTION:**

Never fit the crankshaft into the crankcase by striking it with a plastic hammer. Always use the special tool, otherwise crankshaft alignment accuracy will be affected.

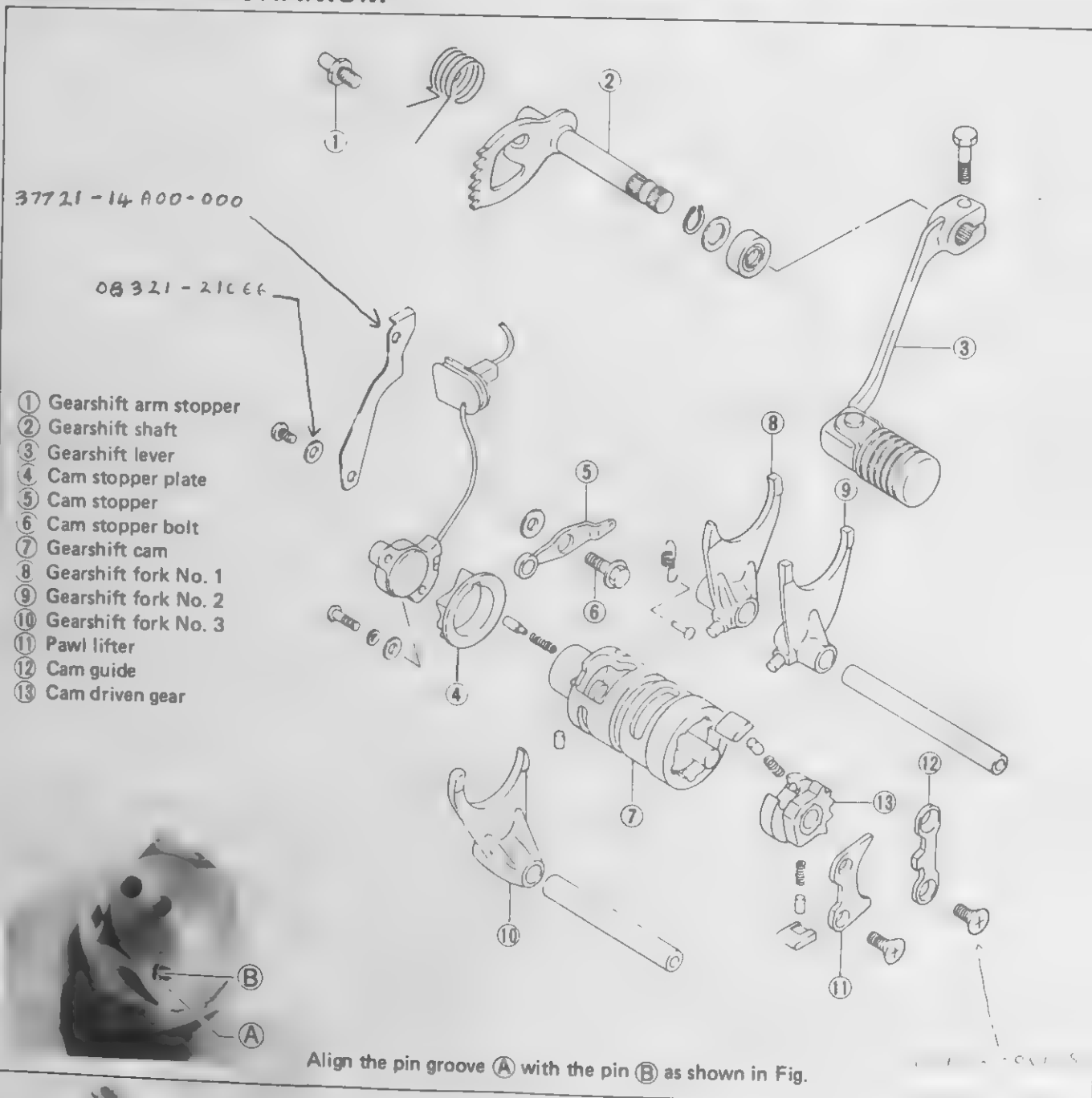


### BALANCERSHAFT

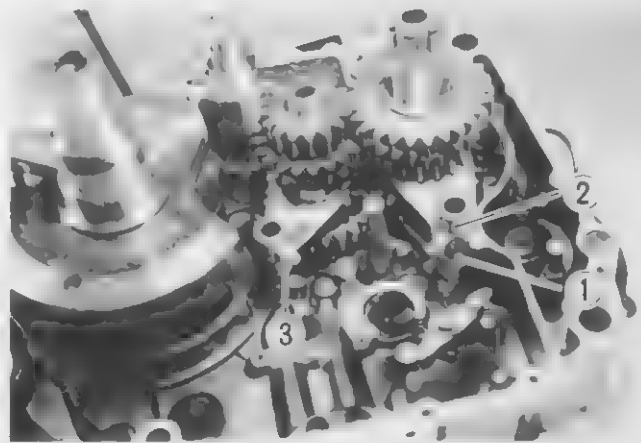
- Install the front and rear balancershafts into the right crankcase by tapping with a plastic hammer.



### GEARSHIFT MECHANISM



- After installing the countershaft assembly and driveshaft assembly into the right crankcase, fit the gearshift forks ①, ② and ③ into the gearshift fork grooves.

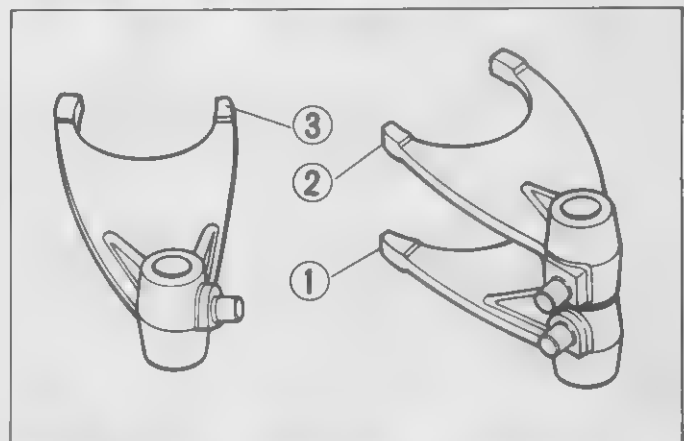


- ① For Top driven gear (No. 1)
- ② For 4th driven gear (No. 2)
- ③ For 3rd drive gear (No. 3)

**NOTE:**

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

Carefully examine the illustration for correct installing positions and directions.



- Position the gearshift cam as shown in Fig. so that the gearshift fork shafts can be installed easily.

**NOTE:**

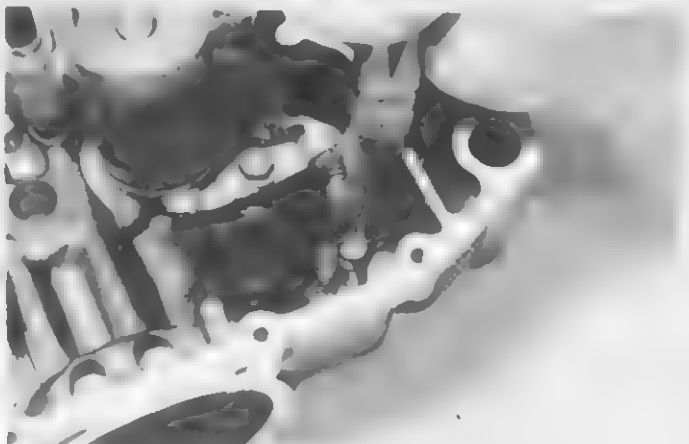
When replacing the gearshift cam stopper bolt ①, apply a small quantity of **THREAD LOCK "1342"** to the threaded part of the bolt.



- After installing the gearshift fork shafts, hook the gearshift cam stopper spring.

**NOTE:**

After installing the gearshift cam stopper spring, install the neutral switch. (See page 3-18)



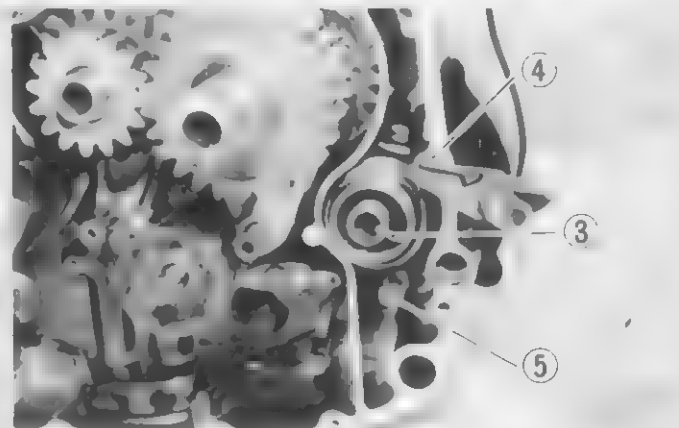
### KICK STARTER

- When inserting the kick starter shaft into the crankcase, engage the pawl ① of the kick starter with the starter pawl guide ②.

**NOTE:**

When replacing the kick starter pawl guide/stopper, apply a small quantity of **THREAD LOCK SUPER "1303"** to the bolt and screw.

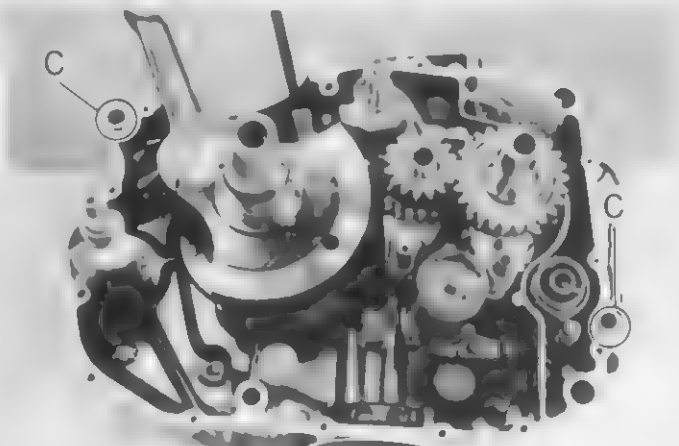
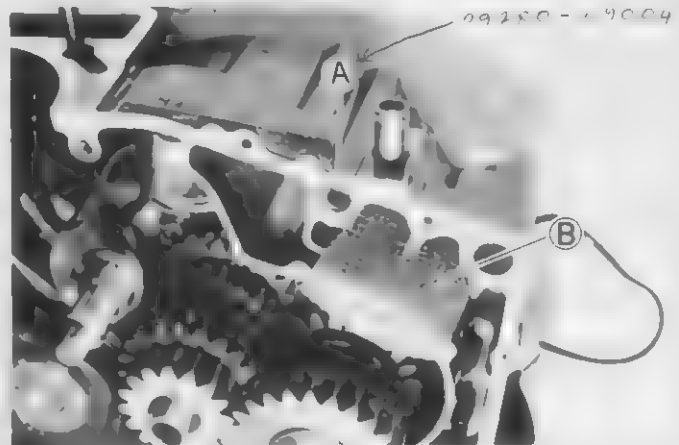
- When fitting the kick starter shaft return spring, fit the part ③ of return spring into the hole of kick starter shaft, and turn it counterclockwise with pliers and hook the hooked part ④ of return spring onto the bolt ⑤.



### CRANKCASE

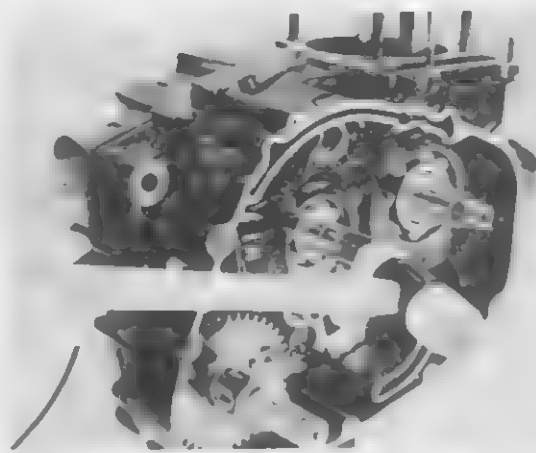
When reassembling the crankcase pay attention to the following.

- Remove sealant material on the mating surfaces of right and left halves of crankcase and thoroughly remove oil stains.
- Fit the O-ring (A), oil separator (B) and dowel pins (C) on the right half as shown in Fig.
- Apply engine oil to the conrod big end of the crankshaft and all parts of the transmission gears.
- Apply SUZUKI BOND No. 1207B uniformly to the mating surface of the right half of the crankcase, and assemble the cases within few minutes.



99000-31140	Suzuki bond No. 1207B
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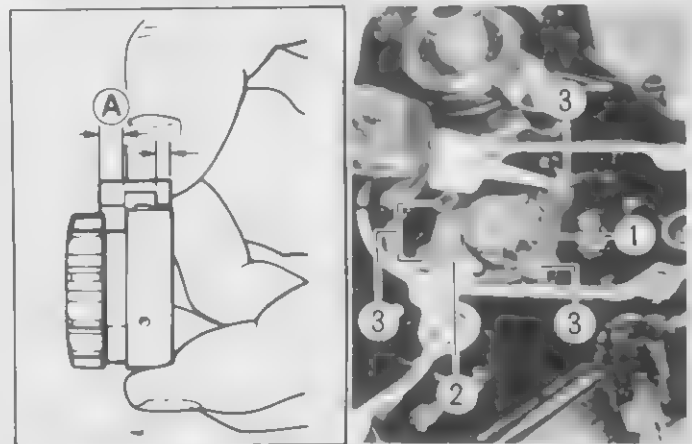
- After the crankcase bolts have been tightened, check if driveshaft and countershaft rotate smoothly.
- If a large resistance is felt to rotation, try to free the shafts by tapping the driveshaft or countershaft with a plastic hammer as shown in the Fig.



### CAM DRIVEN GEAR

- Install the gear shifting pawls into the cam driven gear. The large shoulder **A** must face to the outside as shown in the illustration.
- When installing the cam guide **1** and pawl lifter **2**, apply a small quantity of **THREAD LOCK "1342"** to the securing screws **3**.

99000-32050	Thread lock "1342"
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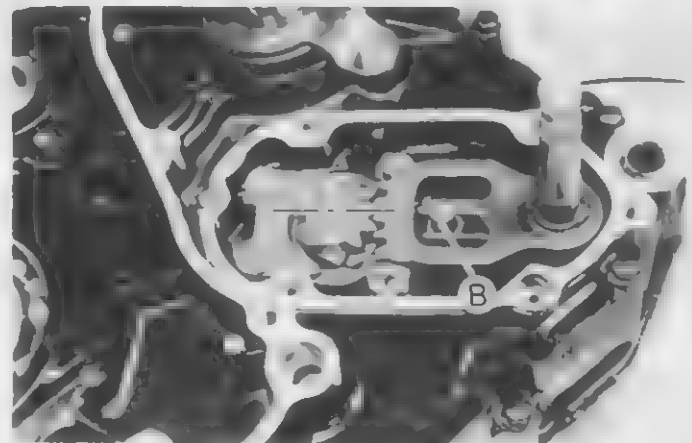


### GEARSHIFT SHAFT

- Fit a spring to the gearshift shaft correctly.
- 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.

**NOTE:**

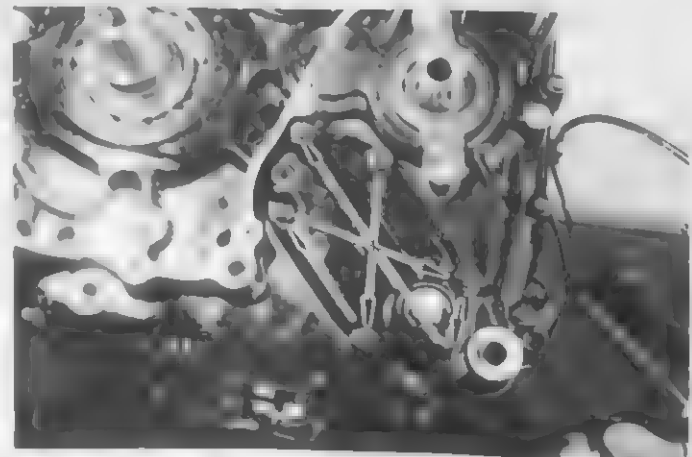
When replacing the gearshift arm stopper **B**, apply a small quantity of **THREAD LOCK SUPER "1303"** to the threaded part of the stopper and tighten it to the specified torque. (See page 7-18)



- Fit the gearshift cover and tighten the bolts diagonally. *GASKET 11485-12800*

**NOTE:**

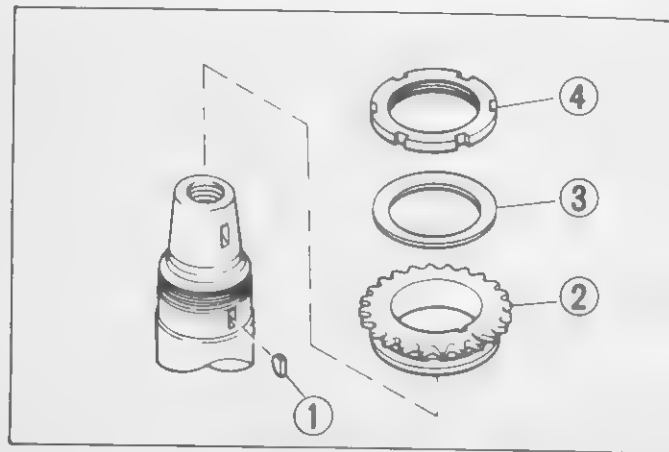
After the gearshift cover and gearshift lever have been fitted, confirm that gear change is normal while turning the countershaft and driveshaft. If gear change is not obtained, it means that assembly of gears or installation of gearshift fork is incorrect. If this is the case, disassemble and trace the mistake.





### BALANCER

- Fit the key ① in the key slot on the crankshaft, then install the balancer drive sprocket ②, wave washer ③ and ring nut ④.
- Tighten the ring nut to the specified torque by using the special tools and torque wrench.



09917-23711	Ring nut socket wrench
09910-20116	Conrod holder

Tightening torque	25 – 35 N·m (2.5 – 3.5 kg-m) (18.0 – 25.5 lb-ft)
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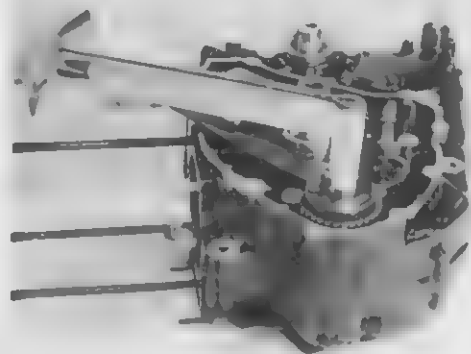
- Fit the key in the each key slot on the front and rear balancershafts.
- Install the each balancer driven sprocket onto the front and rear balancershafts.

**NOTE:**  
Front and rear balancer driven sprockets are identified with the letters of "F" or "R".

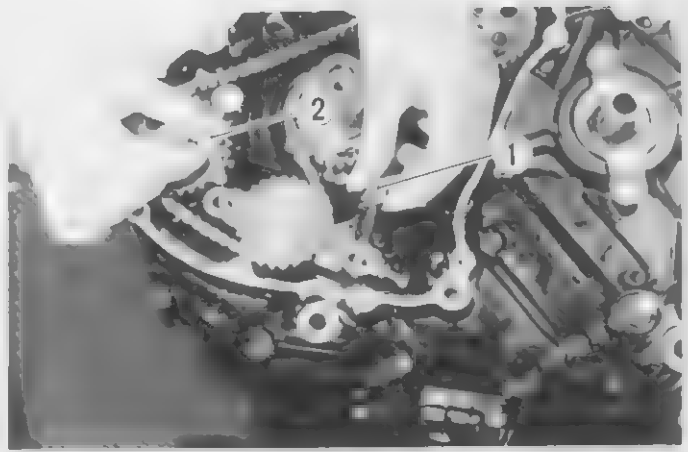
- Tighten the each nut to the specified torque by using the special tool and torque wrench.

09917-33710	Sprocket holder
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Tightening torque	25 – 40 N·m (2.5 – 4.0 kg-m) (18.0 – 29.0 lb-ft)
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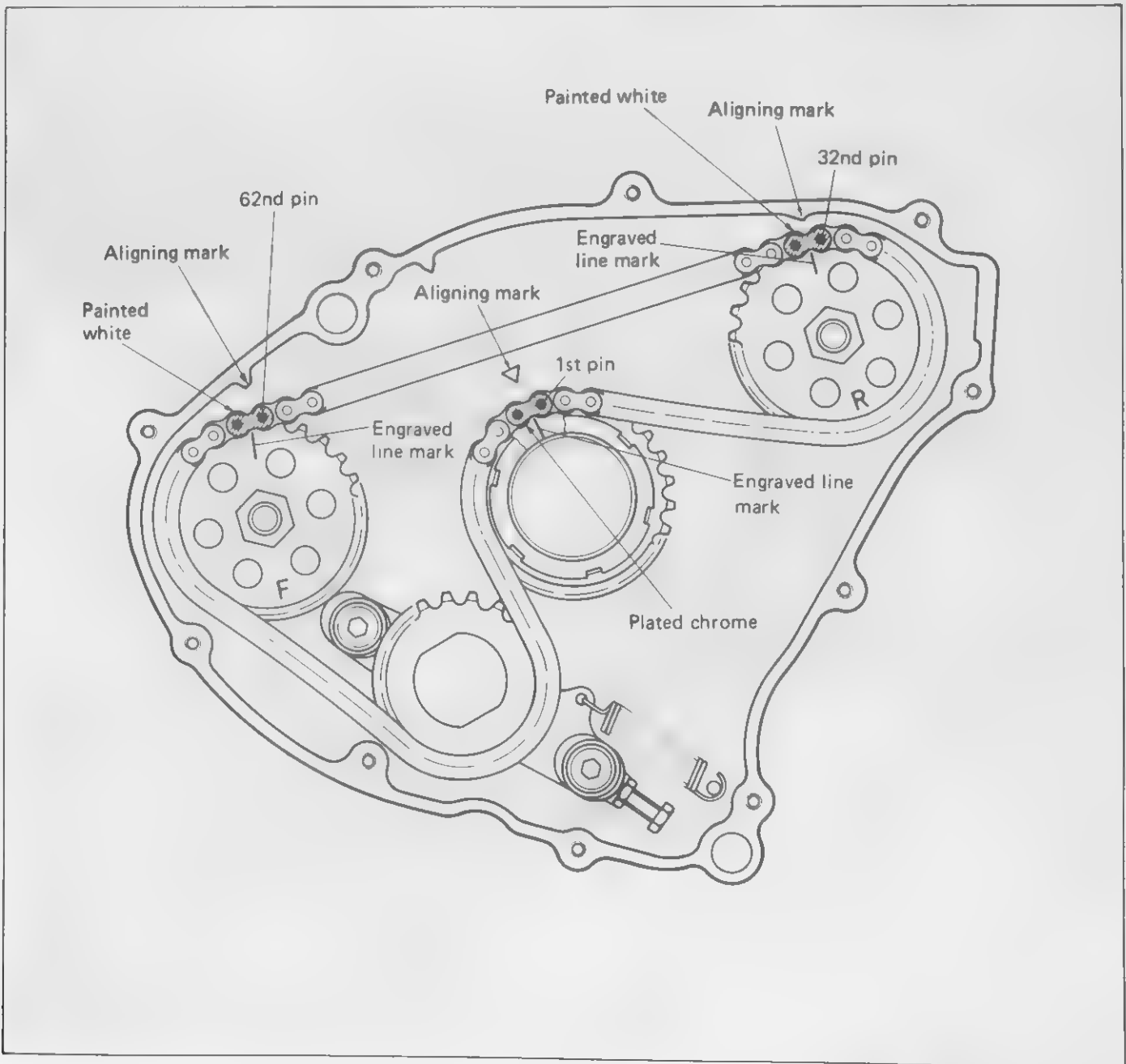


- Be sure to align the aligning marks on the crankcase with the engraved line marks on the drive and driven sprockets as shown in the illustration.
- Engage the balancer drive chain onto the each drive and driven sprocket as shown in the illustration.
- Install the balancer drive chain tensioner and temporarily fasten the two bolts.



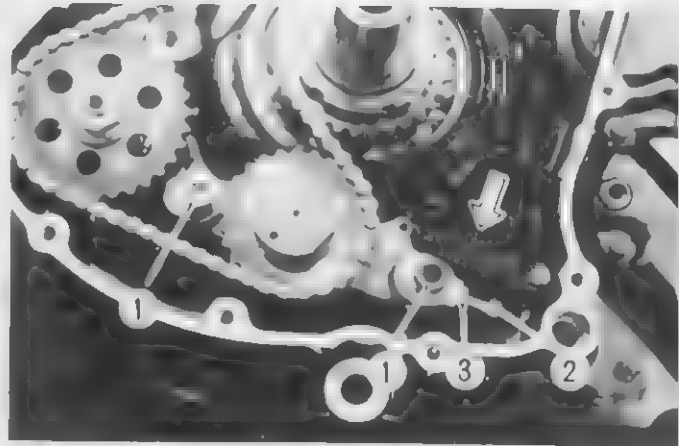
**NOTE:**

Bolt ① is longer than the bolt ②.



- Hook the tensioner spring onto the hooked part of crankcase.
- Tighten the two bolts ① to the specified torque, and then tighten the stopper bolt ② and lock nut ③.

Tightening torque (Bolts ①)	15 – 20 N·m ( 1.5 – 2.0 kg·m ) ( 11.0 – 14.5 lb·ft )
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### MAGNETO

- Fit the key in the key slot on the crankshaft, then install the magneto rotor.
- Apply a small quantity of THREAD LOCK SUPER "1305" to the threaded part of rotor bolt.
- Tighten the magneto rotor bolt to the specified torque by using the special tool and torque wrench.

99000-32100	Thread lock super "1305"
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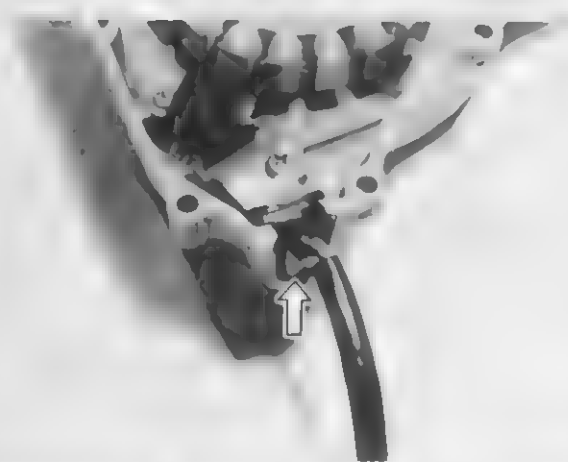
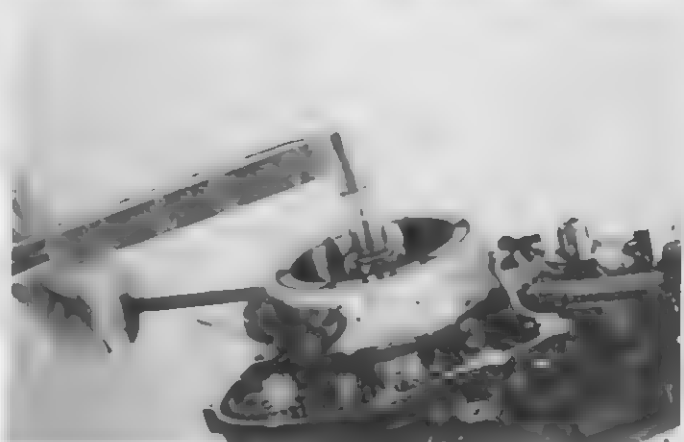
09930-44912	Rotor holder
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Tightening torque	110 – 130 N·m ( 11.0 – 13.0 kg·m ) ( 79.5 – 94.0 lb·ft )
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**NOTE:**

- \* Bond No. 1207B should be applied to the groove of magneto lead wire grommet.
- \* Do not install the magneto cover at this point. When installing the magneto cover, fit the two dowel pins ① and attach a new gasket.

99000-31140	Suzuki bond No. 1207B
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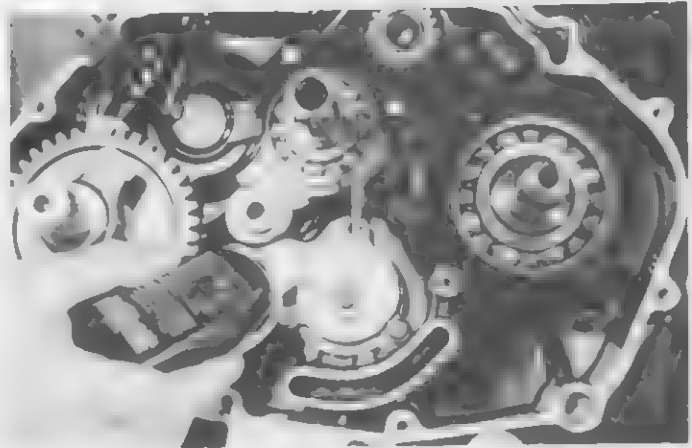


## OIL PUMP

- Before mounting the oil pump, apply engine oil to the sliding surfaces of the case, outer rotor, inner rotor and shaft.
- Apply a small quantity of **THREAD LOCK "1342"** to the oil pump mounting screws.

99000-32050

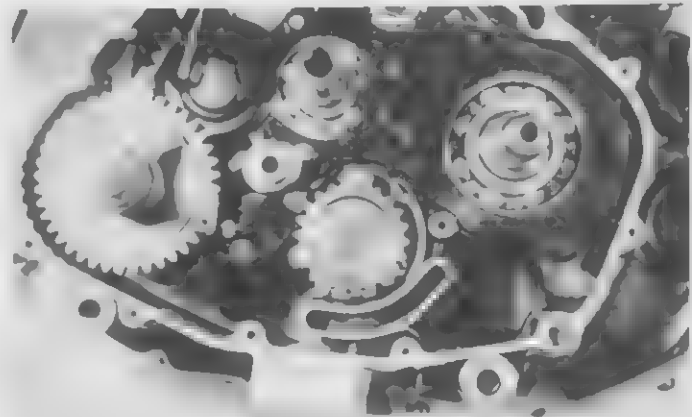
Thread lock "1342"



- Tighten the oil pump mounting screws.

09900-09003

Impact driver set



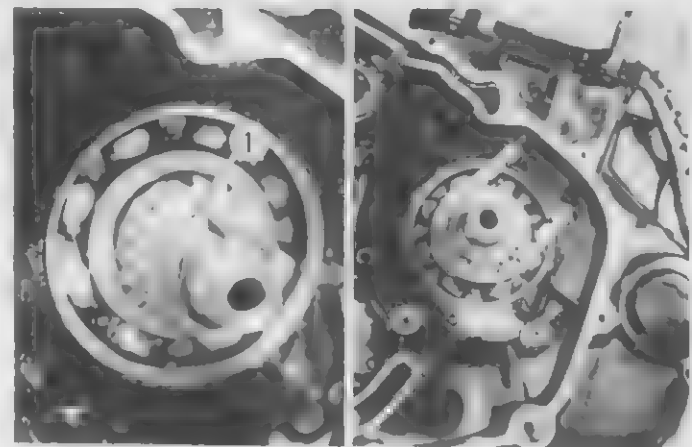
### NOTE:

After installing the oil pump driven gear, rotate the pump gear by hand to see if it turns smoothly.

## CAM DRIVE SPORCKET

- Install the cam drive sprocket onto the crankshaft, then fit the key ① in the key slot on the crankshaft.
- Engage the cam drive chain onto the cam drive sprocket.

Cam drive sprocket 12700-37400

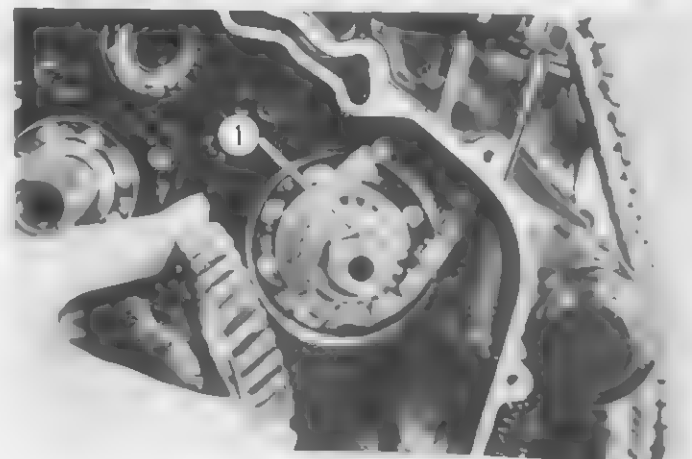


## PRIMARY DRIVE GEAR

- Fit the key ① in the key slot on the crankshaft, then install the primary drive gear, washer and nut.
- Tighten the primary drive gear nut to the specified torque by using the special tool and torque wrench.

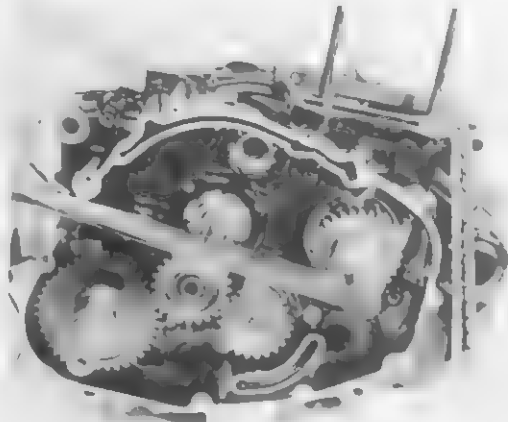
09910-20116

Conrod holder

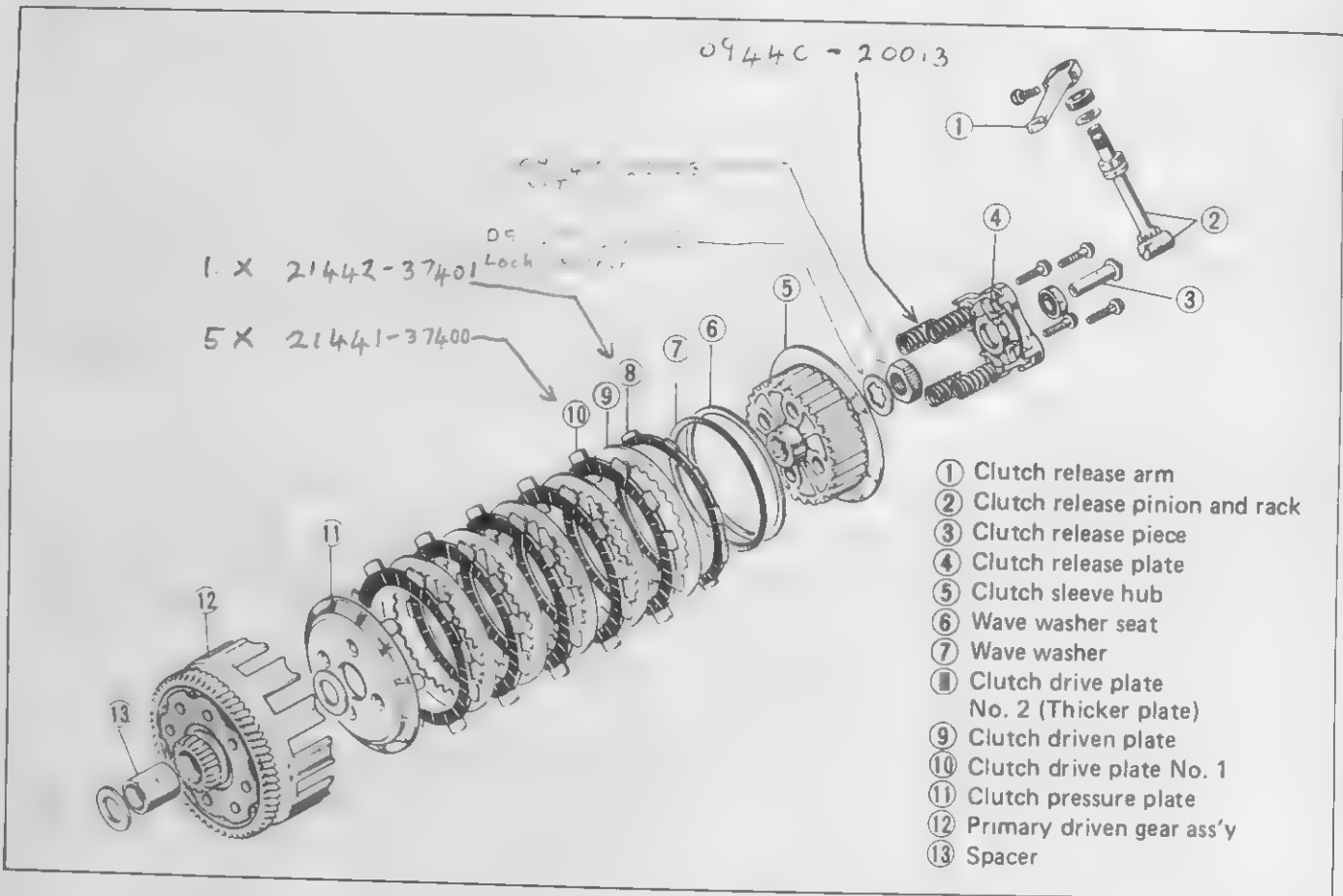


**NOTE:**  
This is a left-hand thread nut.

Tightening torque	90 – 110 N.m 9.0 – 11.0 kg-m (65.0 – 79.5 lb-ft)
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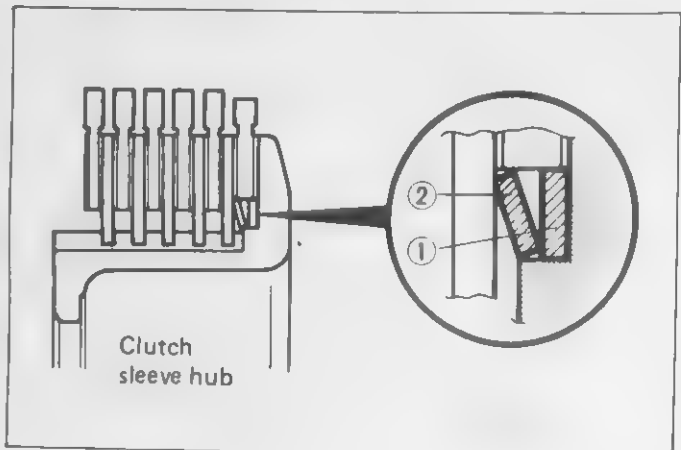
**CLUTCH**



Assemble the clutch in the reverse order of disassembly. Pay attention to the following points:

**NOTE:**  
When inserting the spacer into the primary driven gear, apply a small quantity of engine oil to both inside and outside of the spacer.

- Before installing the clutch drive and driven plates onto the clutch sleeve hub, check to be sure that the wave washer seat ① and wave washer ② are properly installed.

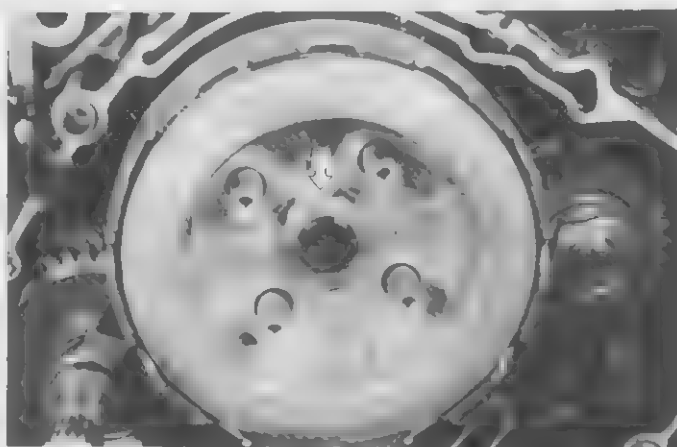
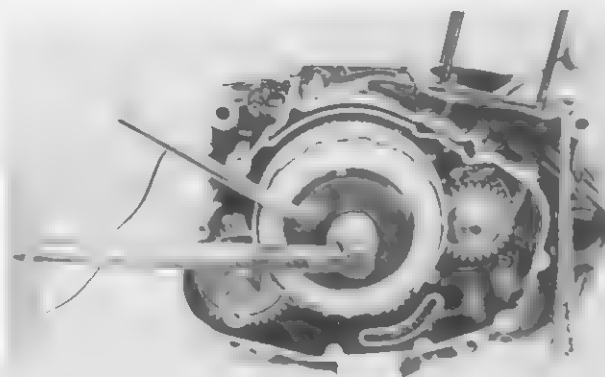


- After installing the primary driven gear assembly and related clutch parts onto the countershaft, tighten the clutch sleeve hub nut to the specified torque by using the special tool and torque wrench.

09920-53722	Clutch sleeve hub holder
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Tightening torque	40 – 60 N·m ( 4.0 – 6.0 kg-m ) ( 29.0 – 43.0 lb-ft )
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- After tightening the clutch sleeve hub nut, be sure to lock the nut by firmly bending the tongue of the lock washer.



- Tighten the clutch spring mounting bolts diagonally to the specified torque by using the special tool and torque wrench.

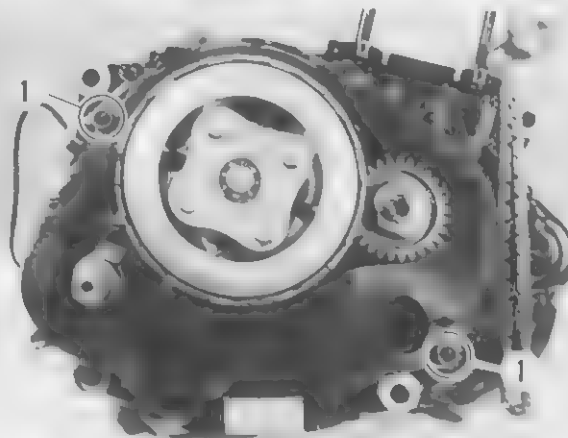
Tightening torque	11 – 13 N·m ( 1.1 – 1.3 kg-m ) ( 8.0 – 9.5 lb-ft )
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- Fit the two dowel pins ① to the crankcase and attach a new gasket.

**CAUTION:**

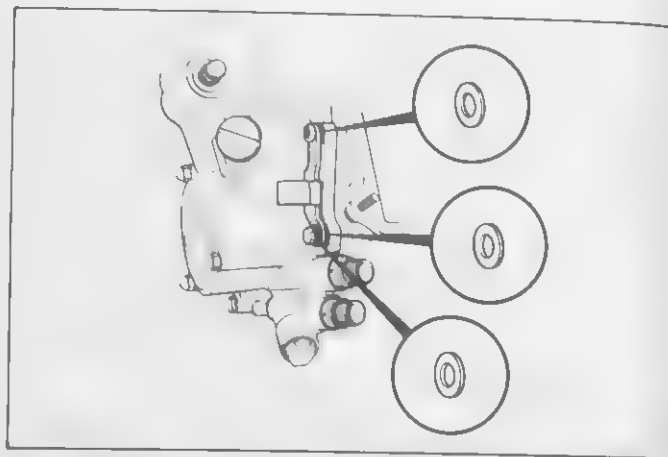
Use a new gasket to prevent oil leakage.



- When reassembling the clutch cover, fit the gaskets to the correct position as shown in the illustration.

**CAUTION:**

Use a new gasket to prevent oil leakage.



**OIL FILTER**

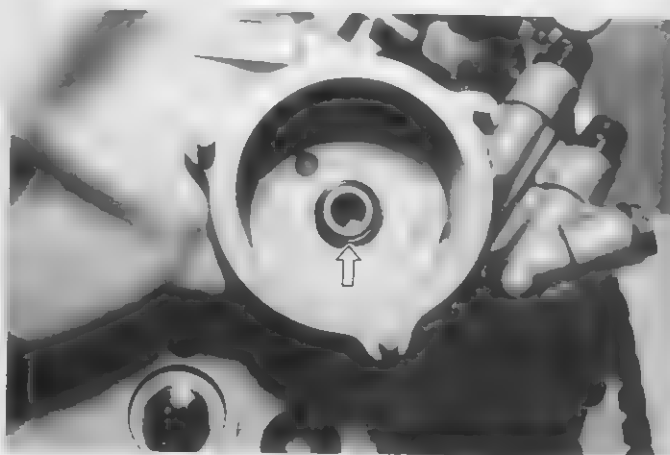
- Before installing the oil filter, check to be sure that the O-rings and spring are installed correctly.

**CAUTION:**

Replace the O-rings with new ones to prevent oil leakage.

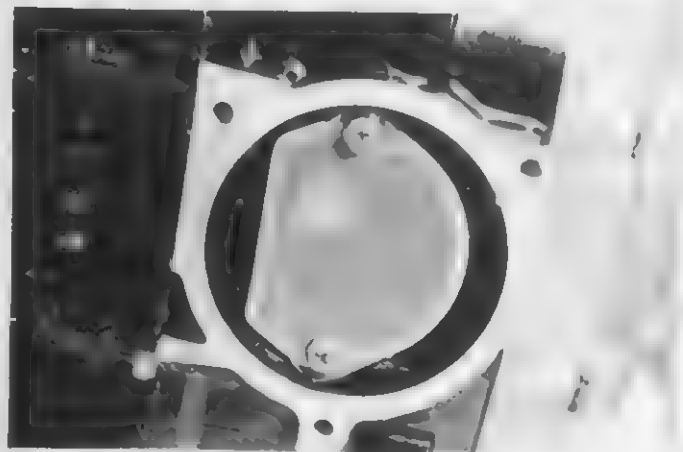
**NOTE:**

Coat the O-ring of filter cap with grease.



**OIL SUMP FILTER**

- Before installing the sump filter, wash the sump filter with cleaning solvent, and then blow compressed air through it to dry off solvent.



- Fit the O-ring to the O-ring groove as shown in Fig.

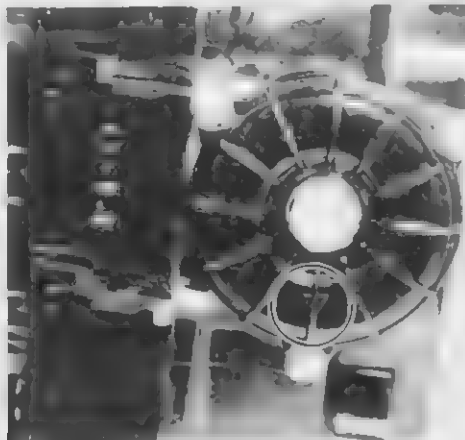
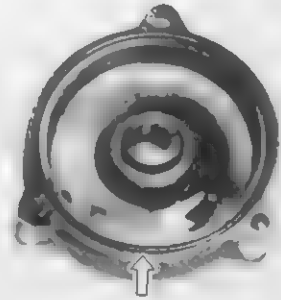
**CAUTION:**

Use a new O-ring to prevent oil leakage.

**NOTE:**

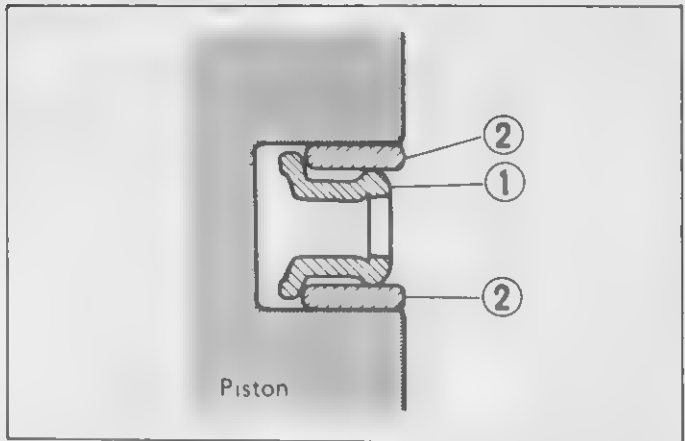
Coat the O-ring of sump filter cap with grease.

- When installing the oil sump filter cap, be sure to face the arrow mark on the cap to the front.



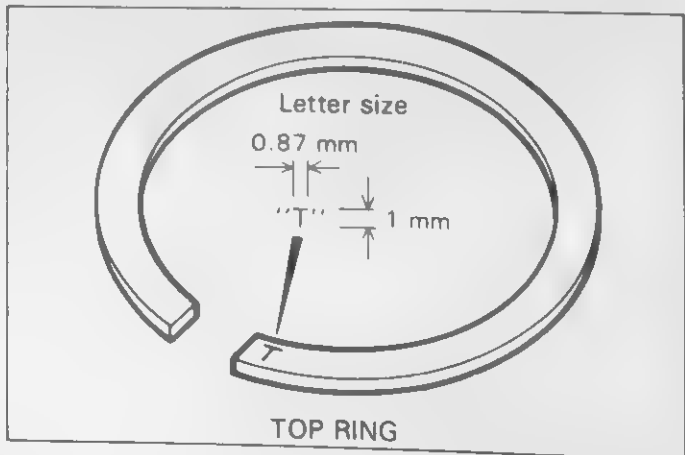
**OIL RING**

Install the spacer ① into the oil ring groove first. Then, install both side rails ②, one on each side of the spacer. The spacer and side rails do not have a specific top or bottom when they are new. When reassembling used parts, install them in their original place and direction.

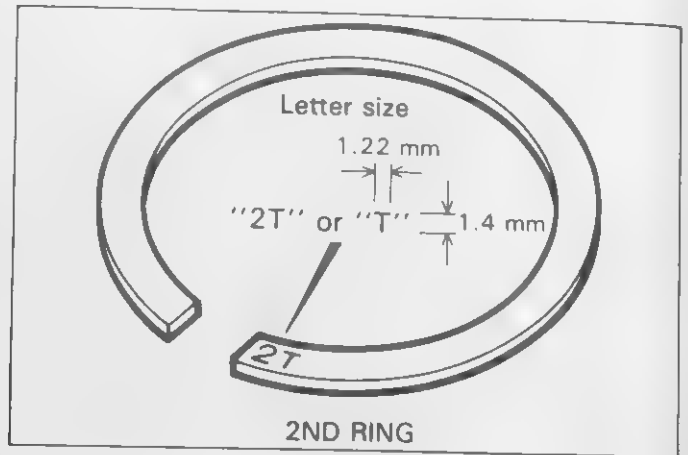


**TOP RING AND 2ND RING**

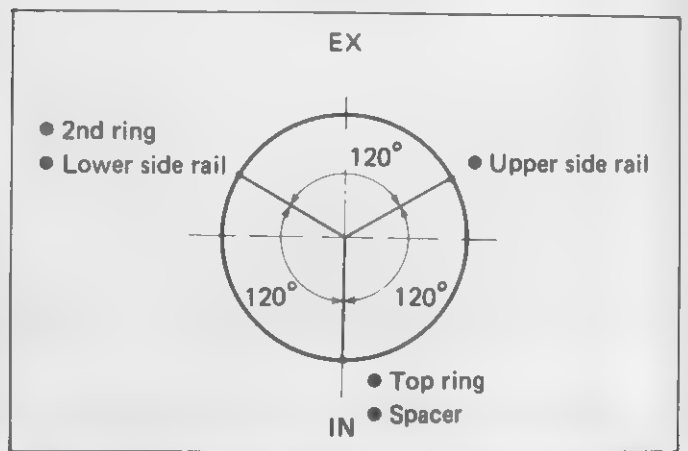
The top ring and 2nd ring differ in the letter of the top mark. The 2nd ring letter size is larger than the top one. Be sure to bring the marked side to top when fitting them to the piston.







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



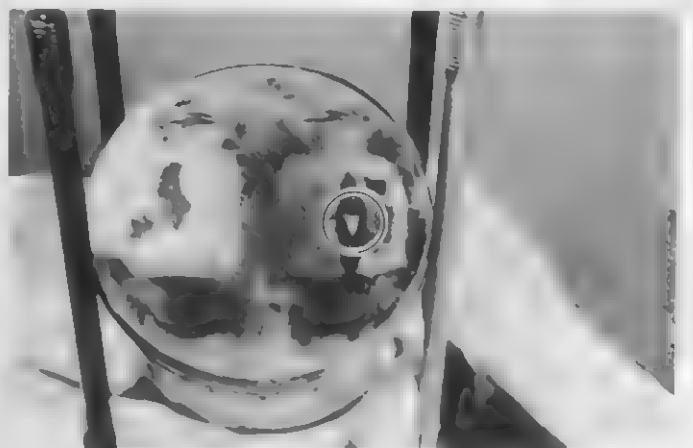
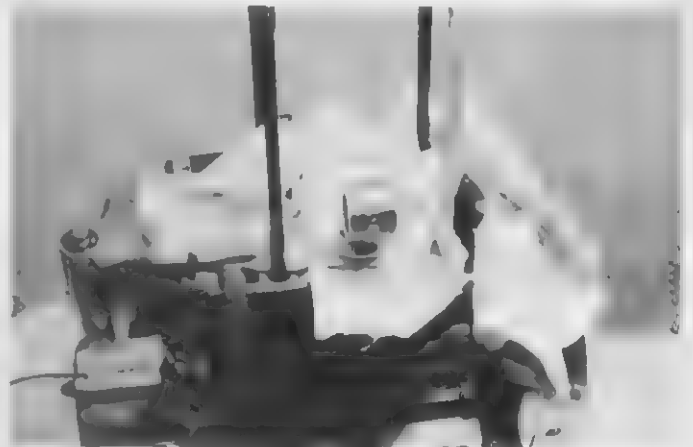
## PISTON

The following are reminders for piston installation:

- Rub a small quantity of SUZUKI MOLY PASTE onto the piston pin.
- Place a clean rag over the cylinder base to prevent the piston pin circlips from dropping into the crankcase.
- When fitting the piston, turn arrow mark on the piston head to exhaust side.
- Fit the piston pin circlips with long-nose pliers.

### CAUTION:

Use new piston pin circlip to prevent circlip failure which will occur with a bent one.



## CYLINDER

Before mounting the cylinder, oil the big end and small end of the conrod and also the sliding surface of the piston.

- Fit the dowel pins ① to the crankcase and attach new gasket.

**CAUTION:**

To prevent oil leakage, do not use the old gasket again, always use new one.

- Uniformly apply SUZUKI BOND NO. 1207B to the cylinder base gasket.

99000-31140

Suzuki bond No. 1207B

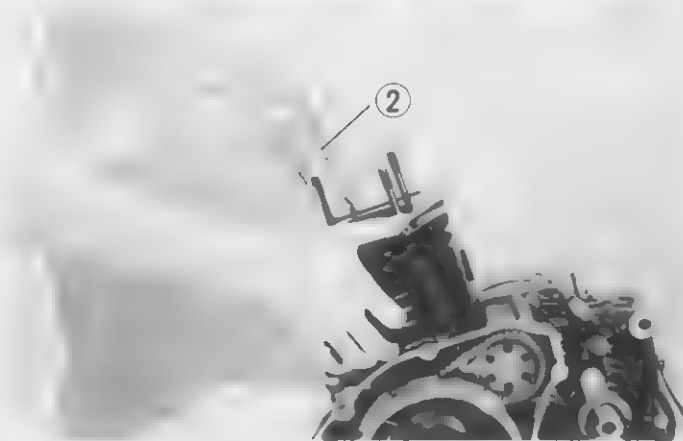
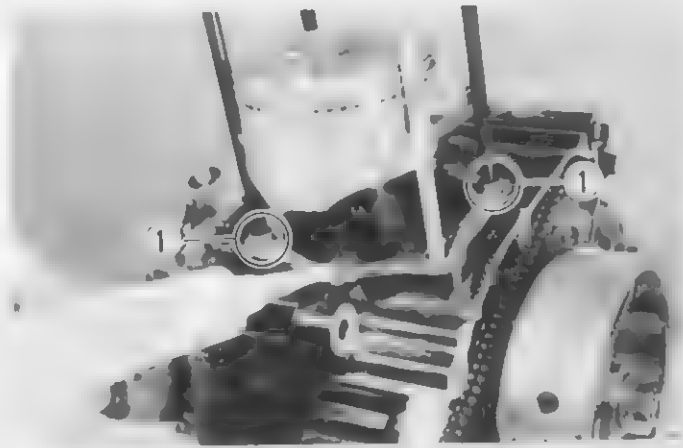
- Hold each piston ring with properly position, and insert the piston into the cylinder.

**NOTE:**

When mounting the cylinder, keep the camshaft drive chain ② taut. The camshaft drive chain must not be caught between cam drive chain sprocket and crankcase when crankshaft is rotated.

**NOTE:**

There is a holder for the bottom end of the cam chain guide cast in the crankcase. Be sure that the cam chain guide is inserted properly.



BASE Gasket 11241-14A02  
 HEAD " 11141-14A01

## CYLINDER HEAD

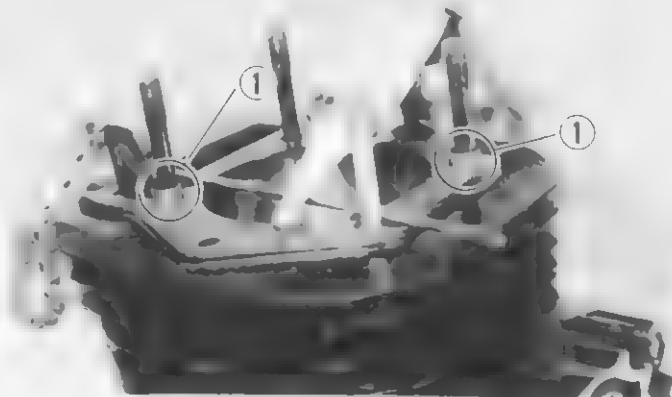
- Fit the dowel pins ① to the cylinder and attach a new gasket. 11141-14A01
- Uniformly apply SUZUKI BOND NO. 1207B to the cylinder head gasket.

99000-31140

Suzuki bond No. 1207B

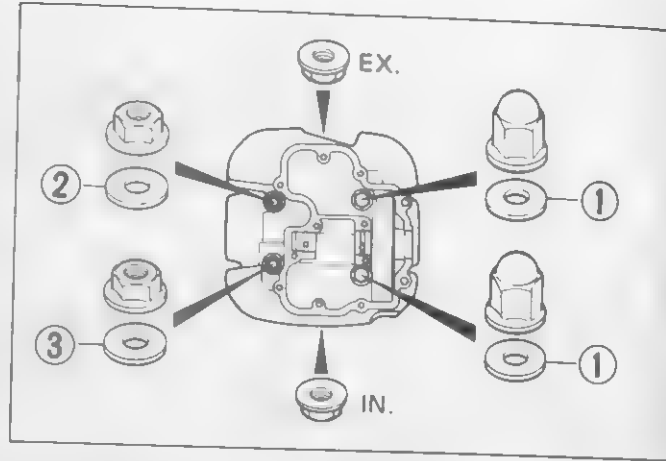
**CAUTION:**

Use a new cylinder head gasket to prevent oil leakage. Do not use the old gasket.



- Copper washers and cap nuts are also used to secure the cylinder head. These parts must be fitted in the correct position, as shown in the illustration.

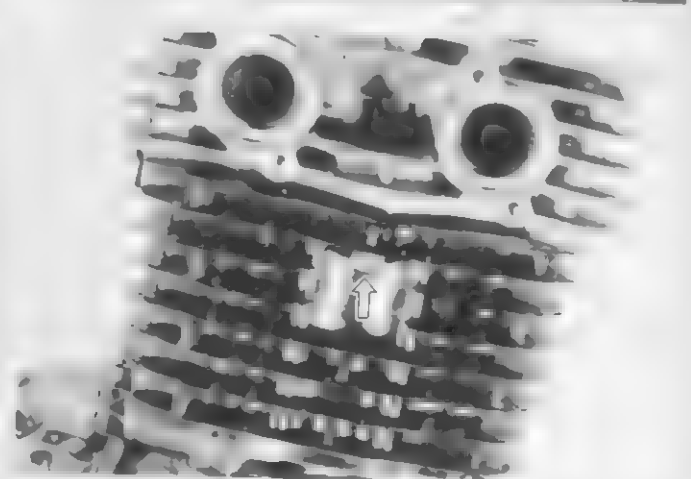
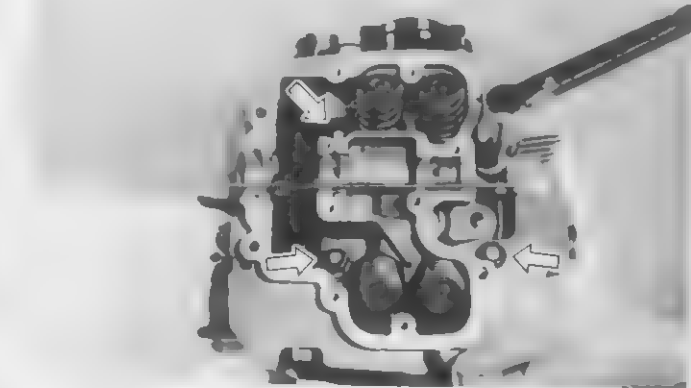
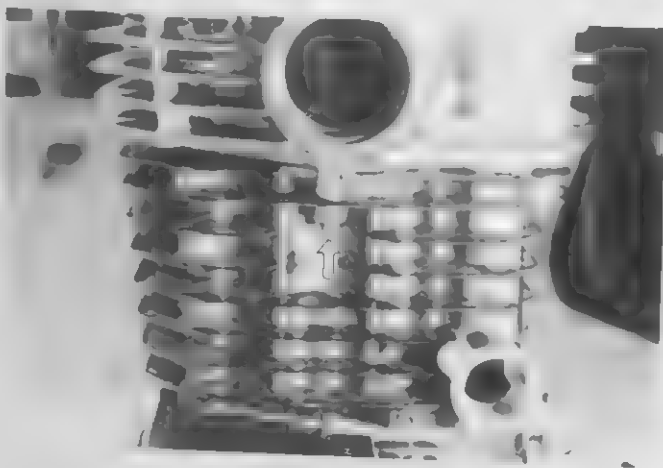
- ① Copper washer
- ② Steel washer (O.D.: 24 mm)
- ③ Steel washer (O.D.: 22 mm)



- With the head snugly seated on the cylinder, secure it by tightening the nuts diagonally. Tighten each nut to the torque value specified below:

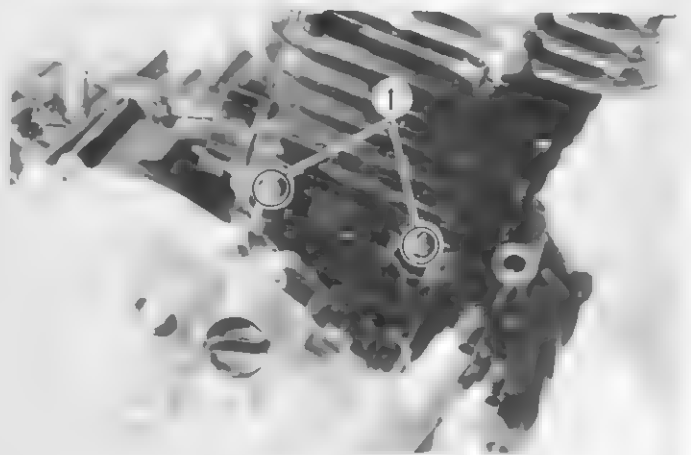
**Cylinder head nuts tightening torque**

10 mm Diam.	35 – 40 N·m (3.5 – 4.0 kg·m) (25.5 – 29.0 lb·ft)
.8 mm Diam.	23 – 27 N·m (2.3 – 2.7 kg·m) (16.5 – 19.5 lb·ft)



- After tightening the cylinder head nuts to the specified torque, tighten the cylinder base nuts ①.

Cylinder base nuts tightening torque	7 – 11 N·m (0.7 – 1.1 kg·m) (5.0 – 8.0 lb·ft)
--------------------------------------	---



## CAMSHAFT

- Align "T" line on the magneto rotor with the index mark on the crankcase keeping the camshaft drive chain pulled upward.

**CAUTION:**

If crankshaft is turned without drawing the camshaft drive chain upward, the chain will be caught between crankcase and cam chain drive sprocket.

**NOTE:**

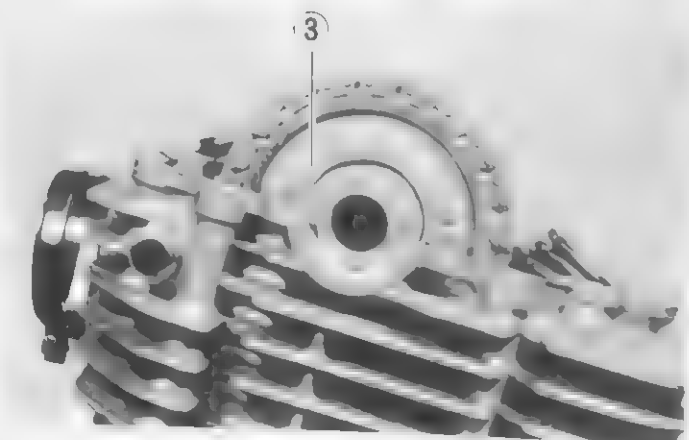
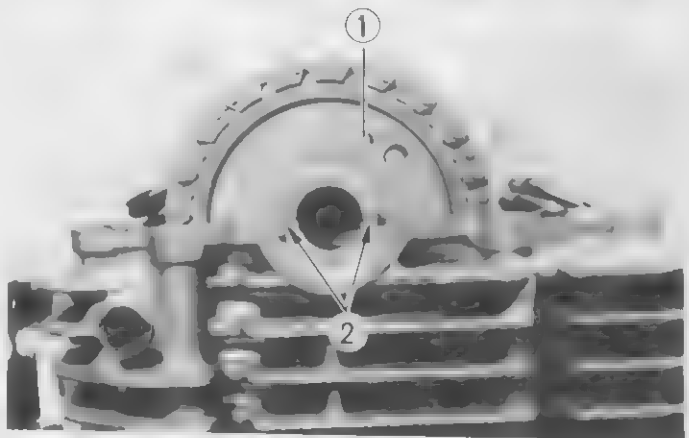
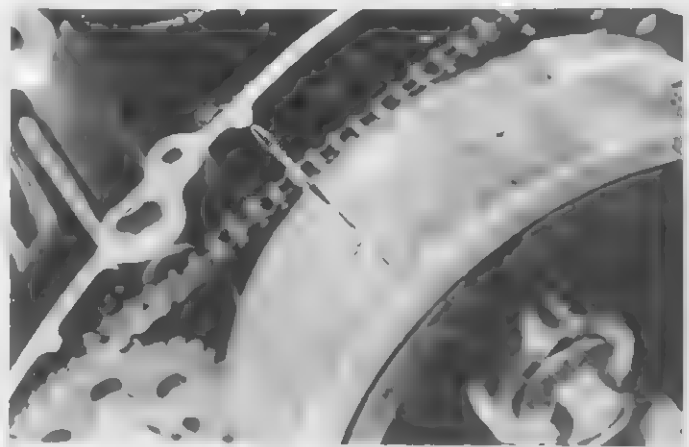
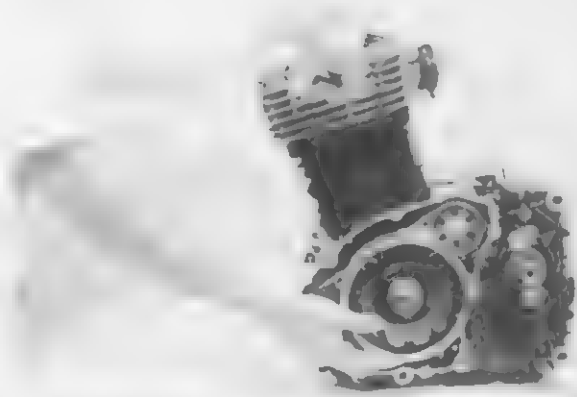
Apply grease on the cam sprocket locating pin and install the pin into the camshaft.

- Engage the chain on the cam sprocket with the locating pin hole ① at one o'clock position.

**NOTE:**

Do not rotate the magneto rotor while doing this. When the sprocket is not positioned correctly, turn the sprocket. When installing the camshaft into the cam sprocket, pay attention not to dislodge the locating pin or it may fall into the crankcase.

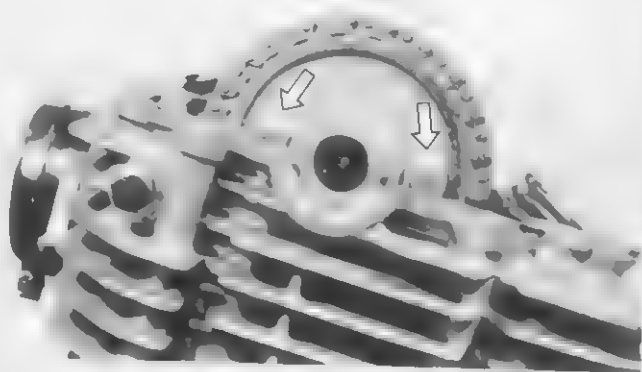
- Align the engraved line mark ② on the camshaft so it is parallel with the surface of the cylinder head.
- Install the C-ring into the ring groove of the cylinder head.
- Fit the lock washer ③ so that it is covering the locating pin. 12747 - 44000
- Apply THREAD LOCK SUPER "1303" to the bolts and tighten them.



Tightening torque	14 - 16 N·m
	( 1.4 - 1.6 kg·m 10.0 - 11.5 lb-ft )

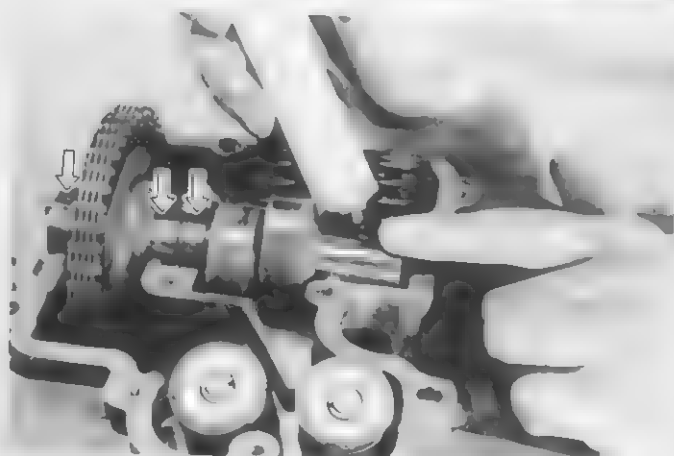
99000-32030	Thread lock super "1303"
-------------	--------------------------

- Bend up the washer tongue positively to lock the bolts.



- Apply SUZUKI MOLY PASTE to the camshaft journals.

99000-25140	Suzuki moly paste
-------------	-------------------



### VALVE ROCKER ARM AND SHAFT

- Apply SUZUKI MOLY PASTE to the rocker arm shafts.

**CAUTION:**

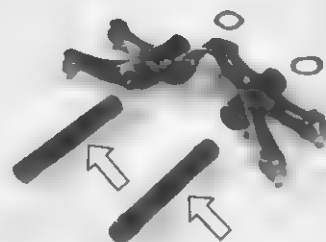
- \* Use a new O-ring on the exhaust rocker arm shaft to prevent oil leakage.
- \* Use a new gasket on the set bolts ( ① and ② ) to prevent oil leakage.

99000-25140	Suzuki moly paste
-------------	-------------------

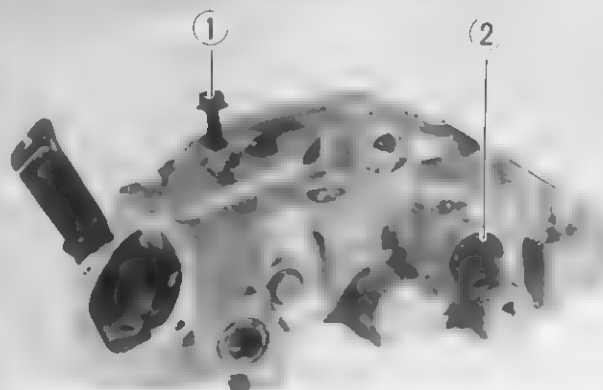
- After inserting the rocker arm shafts, tighten the set bolts, ① and ②.

**NOTE:**

Use a conically recessed top bolt ① to retain the exhaust rocker arm shaft.



Tightening torque	
Set bolt ①	8 – 10 N·m (0.8 – 1.0 kg·m) (6.0 – 7.0 lb·ft)
Set bolt ②	25 – 30 N·m (2.5 – 3.0 kg·m) (18.0 – 21.5 lb·ft)



### DE-COMPRESSION SHAFTS

- Apply SUZUKI MOLY PASTE to the manual and automatic de-compression shafts.

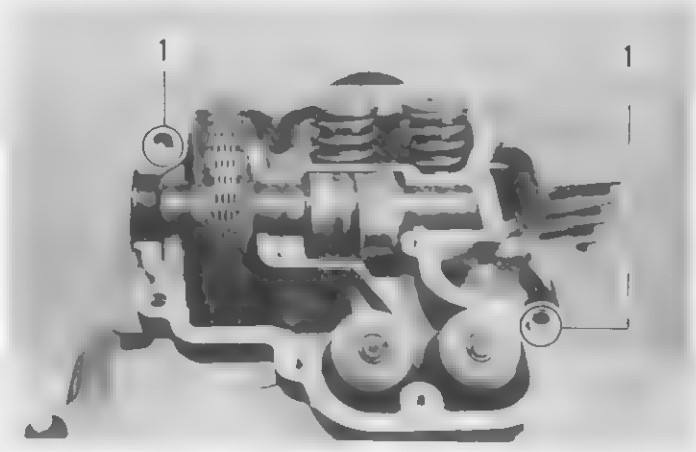
99000-25140	Suzuki moly paste
-------------	-------------------



### CYLINDER HEAD COVER

- Thoroughly wipe off oil from the fitting surfaces of cylinder head and cover.
- Fit the two dowel pins ① to the cylinder head side.
- Uniformly apply SUZUKI BOND No. 1207B to the cylinder head surface.

99000-31140	Suzuki bond No. 1207B
-------------	-----------------------



**NOTE:**  
Do not apply SUZUKI BOND No. 1207B to the camshaft end cap.

- Fit the four gaskets to the head cover bolts correctly as shown in the Fig. 09168-0602.

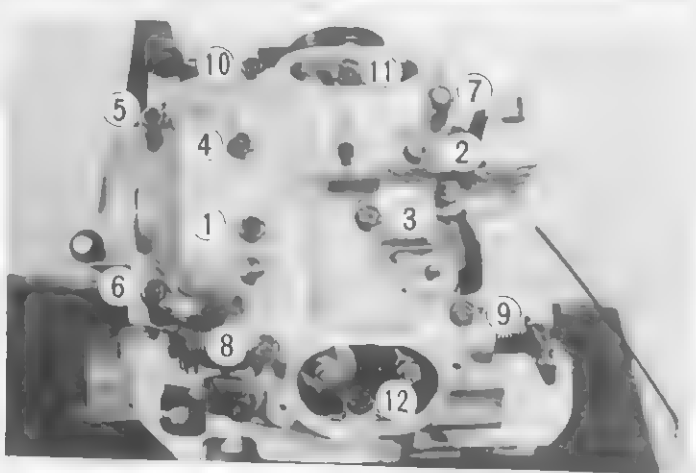
**CAUTION:**  
Use a new gasket to prevent oil leakage.

**NOTE:**  
When tightening the cylinder head cover bolts, the piston must be at top dead center on the compression stroke.



- Lightly tighten the cylinder head cover bolts sequentially in the ascending order of numbers, and then if everything is satisfactory, tighten securely with a torque wrench to the specified torque.

Tightening torque	9 – 11 N·m (0.9 – 1.1 kg·m) (6.5 – 8.0 lb·ft)
-------------------	---



### CAM DRIVE CHAIN TENSIONER

Install the cam drive chain tensioner following the procedure below.

- Remove the cap ① and turn the slotted end of the cylinder shaft with a screw driver in the clockwise direction.
- Install the chain tensioner on the cylinder with the fitting bolts.

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

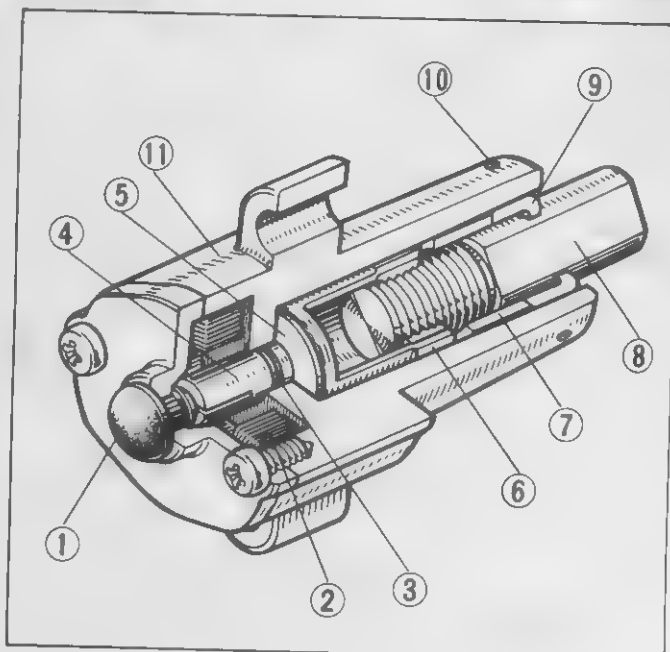
09911-73730	"T" type hexagon wrench (5 mm)
-------------	-----------------------------------

- Pull out the screw driver from cylinder shaft. As the cylinder turns, the tensioner rod is advanced under spring force and pushes the tensioner against the cam drive chain.

**NOTE:**

The cam drive chain tensioner is maintained at the proper tension by an automatically adjusted tensioner. Before installing the cam drive chain tensioner, inspect the smooth movement.

- ① Cap
- ② Spring
- ③ O-ring
- ④ Cylinder shaft
- ⑤ Thrust washer
- ⑥ Cylinder
- ⑦ Spacer
- ⑧ Tensioner rod
- ⑨ Rod guide
- ⑩ Guide locating pin
- ⑪ Case



### VALVE CLEARANCE

- After tightening the head cover bolts, check and adjust the valve clearance. Refer to page 2 – 6 for procedures.

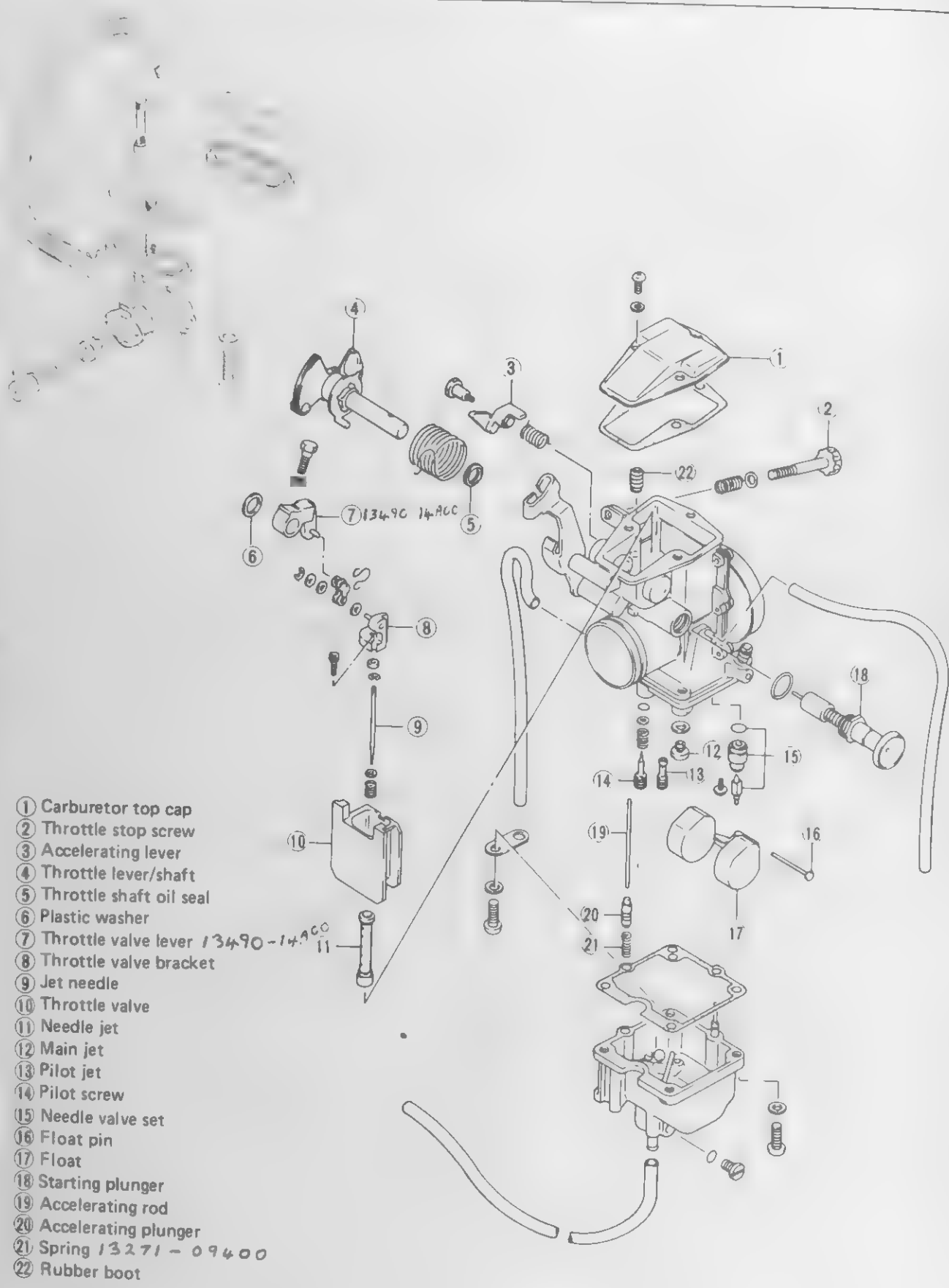
# FUEL AND LUBRICATION SYSTEM

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# FUEL COCK AND CARBURETOR CONSTRUCTIONS



- ① Carburetor top cap
- ② Throttle stop screw
- ③ Accelerating lever
- ④ Throttle lever/shaft
- ⑤ Throttle shaft oil seal
- ⑥ Plastic washer
- ⑦ Throttle valve lever 13490-14ACC
- ⑧ Throttle valve bracket
- ⑨ Jet needle
- ⑩ Throttle valve
- ⑪ Needle jet
- ⑫ Main jet
- ⑬ Pilot jet
- ⑭ Pilot screw
- ⑮ Needle valve set
- ⑯ Float pin
- ⑰ Float
- ⑱ Starting plunger
- ⑲ Accelerating rod
- ⑳ Accelerating plunger
- ㉑ Spring 13271-09400
- ㉒ Rubber boot

**SPECIFICATIONS**

ITEM	SPECIFICATION
Carburetor type	MIKUNI VM38SS
Bore size	38 mm (1.5 in)
I.D. No.	14A00
Idle r/min.	1 300 ± 100 r/min.
Fuel level	3.5 ± 0.5 mm (0.14 ± 0.02 in)
Float height	23.0 ± 1.0 mm (0.91 ± 0.04 in)
Main jet (M.J.)	# 135
Main air jet (M.A.J.)	0.6 mm
Jet needle (J.N.)	6CM1-3rd
Cut-away (C.A.)	1.5
Needle jet (N.J.)	0 - 0
Pilot jet (P.J.)	# 20
By-pass (B.P.)	1.0 mm
Pilot outlet (P.O.)	1.0 mm
Valve seat (V.S.)	2.8 mm
Starter jet (G.S.)	# 32.5
Pilot screw (P.S.)	2 turns out (PRE-SET)
Pilot air jet (P.A.J.)	1.2 mm
Throttle cable play	0.5 - 1.0 mm (0.02 - 0.04 in)

**I.D. NO. LOCATION**



## FUEL COCK

### INSPECTION AND CLEANING

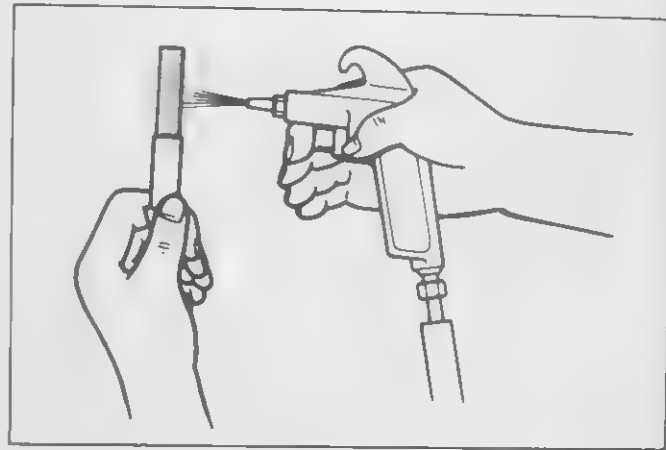
If the fuel strainer is dirty with sediment or rust, fuel will not flow smoothly and loss in engine power may result. Clean the fuel strainer in the following manner:

- Turn the fuel cock to OFF position.
- Shift the fuel hose clip sideways and disconnect the fuel hose from the fuel cock.
- Turn the fuel cock to ON position and drain the fuel.
- Remove the fuel cock assembly by removing the two bolts.
- Clean the fuel strainer with compressed air.

**WARNING:**

Gasoline is very explosive. Extreme care must be taken.

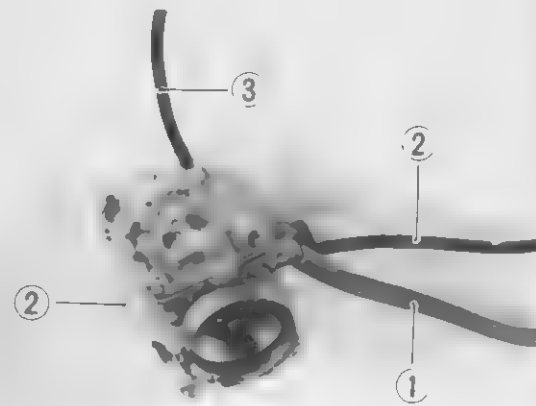
Gasket must be replaced with a new one to prevent fuel leakage.



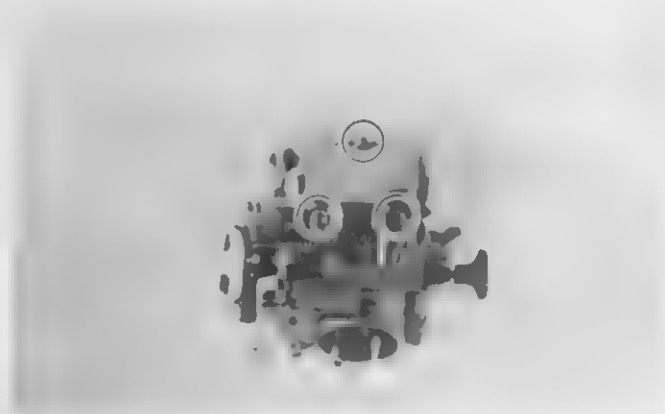
## CARBURETOR

### DISASSEMBLY

- Take off the carburetor from the motorcycle.  
(Refer to page 3-4)
- Disconnect the hoses, ①, ② and ③.
  - ① Fuel hose
  - ② Air vent hose
  - ③ Fuel overflow hose



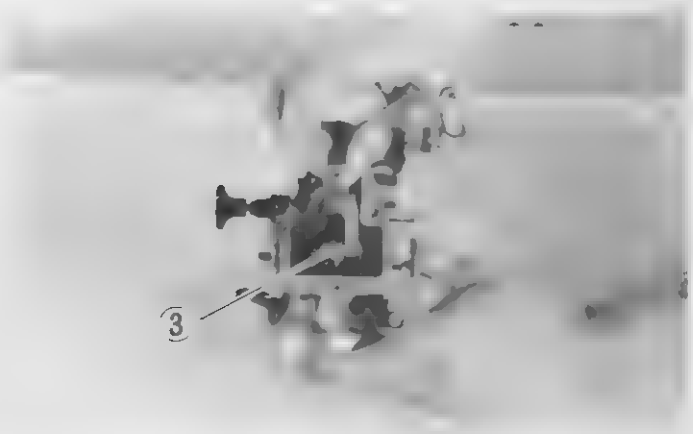
- Remove the carburetor top cap by removing the three screws.



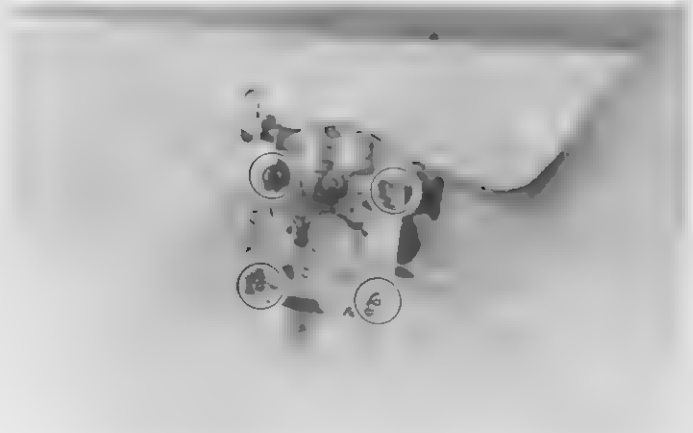
- Draw out the throttle lever/shaft ① by removing the bolt ②.



- Draw out the throttle valve ③.

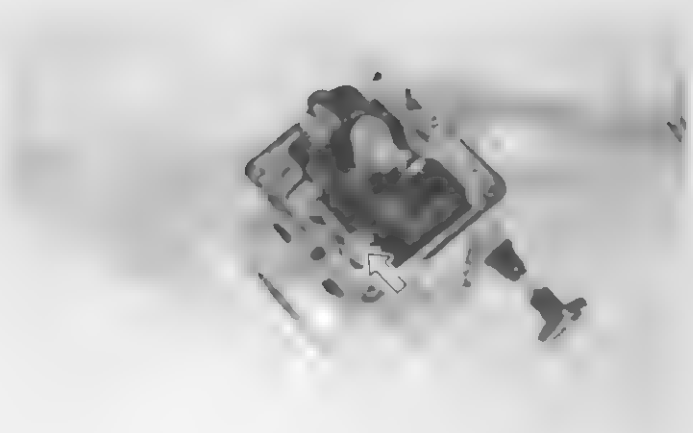


- Remove the float chamber body by removing the four screws.



- Pull out the float pin and remove the float.

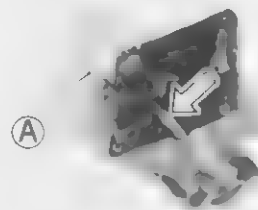
**CAUTION:**  
When removing the float pin, be careful not to damage the carburetor body.



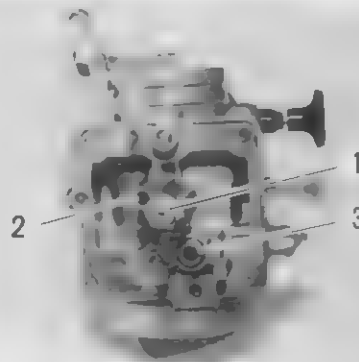
## 4-5 FUEL AND LUBRICATION SYSTEM

- Remove the accelerating plunger and spring.

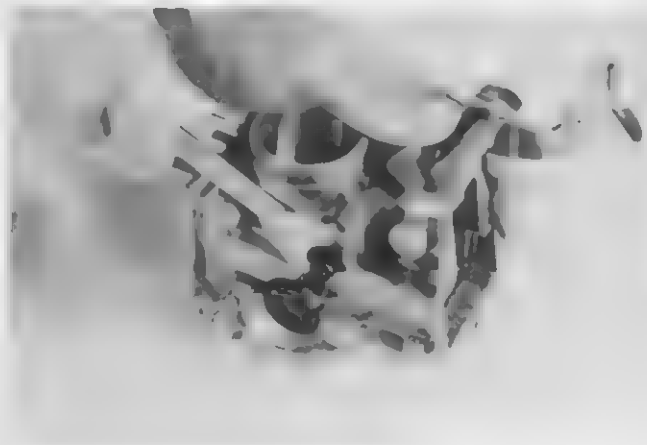
Ⓐ Accelerating nozzle



- Remove the main jet ① (Needle jet), pilot jet ② and needle valve ③.
- Remove the needle jet from the bore side.



- Remove the starting plunger assembly.



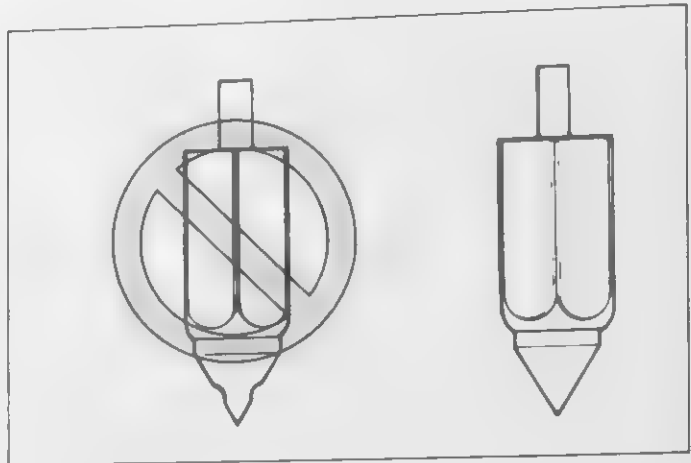
### INSPECTION

Check following items for any damage or clogging.

- \* Pilot jet
- \* Main jet
- \* Main air jet
- \* Pilot air jet
- \* Needle jet air bleeding hole
- \* Float
- \* Needle valve
- \* Starter jet
- \* Gasket
- \* Throttle shaft oil seal
- \* Drain plug gasket
- \* Pilot outlet and bypass holes
- \* Accelerating nozzle

### NEEDLE VALVE INSPECTION

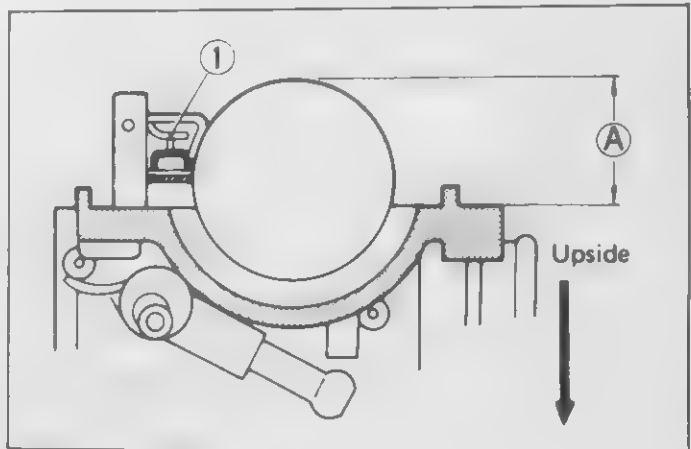
If foreign matter is caught between the valve seat and the needle, the gasoline will continue flowing and cause it to overflow. If the seat and needle are worn beyond the permissible limits, similar trouble will occur. Conversely, if the needle sticks, the gasoline will not flow into the float chamber.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



### FLOAT HEIGHT ADJUSTMENT

To check the float height, invert the carburetor body, with the float arm kept free, measure the height **A** while float arm is just in contact with needle valve by using calipers.

Bend the tongue **1** as necessary to bring the height **A** to this value.



Float height <b>A</b>	23.0 ± 1.0 mm (0.91 ± 0.04 in)
09900-20101	Vernier calipers

**NOTE:**

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

### REASSEMBLY

Reassemble the carburetor in the reverse order of disassembly.

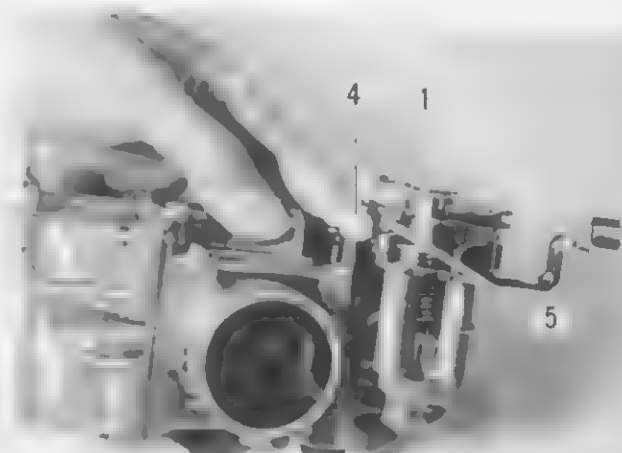
Pay attention to the following points.

- When installing the throttle lever/shaft **1**, put the plastic washer **2** between the throttle valve lever **3** and carburetor body.



## 4-7 FUEL AND LUBRICATION SYSTEM

- When installing the throttle lever/shaft ①, set the accelerating lever ④ to contact with protrusion ⑤ of the throttle lever/shaft.

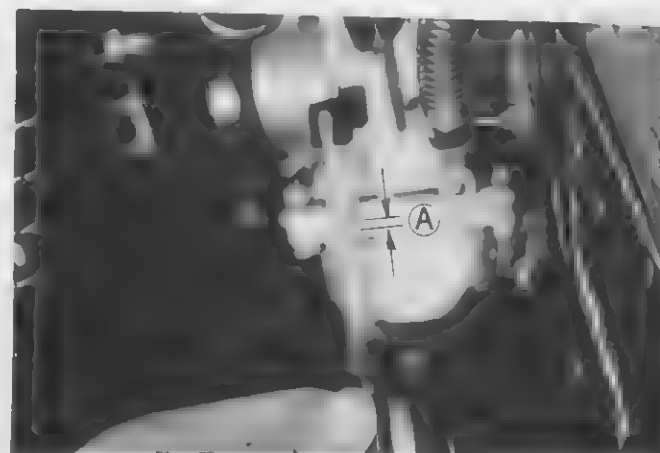


### FUEL LEVEL INSPECTION

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

09913-14511	Fuel level gauge
-------------	------------------

- Run the engine at the idling speed (1200 – 1400 r/min), and measure the distance ① with the middle line of the level gauge aligned with the mating surface of float bowl as shown in illustration. ① should be within the specified range.



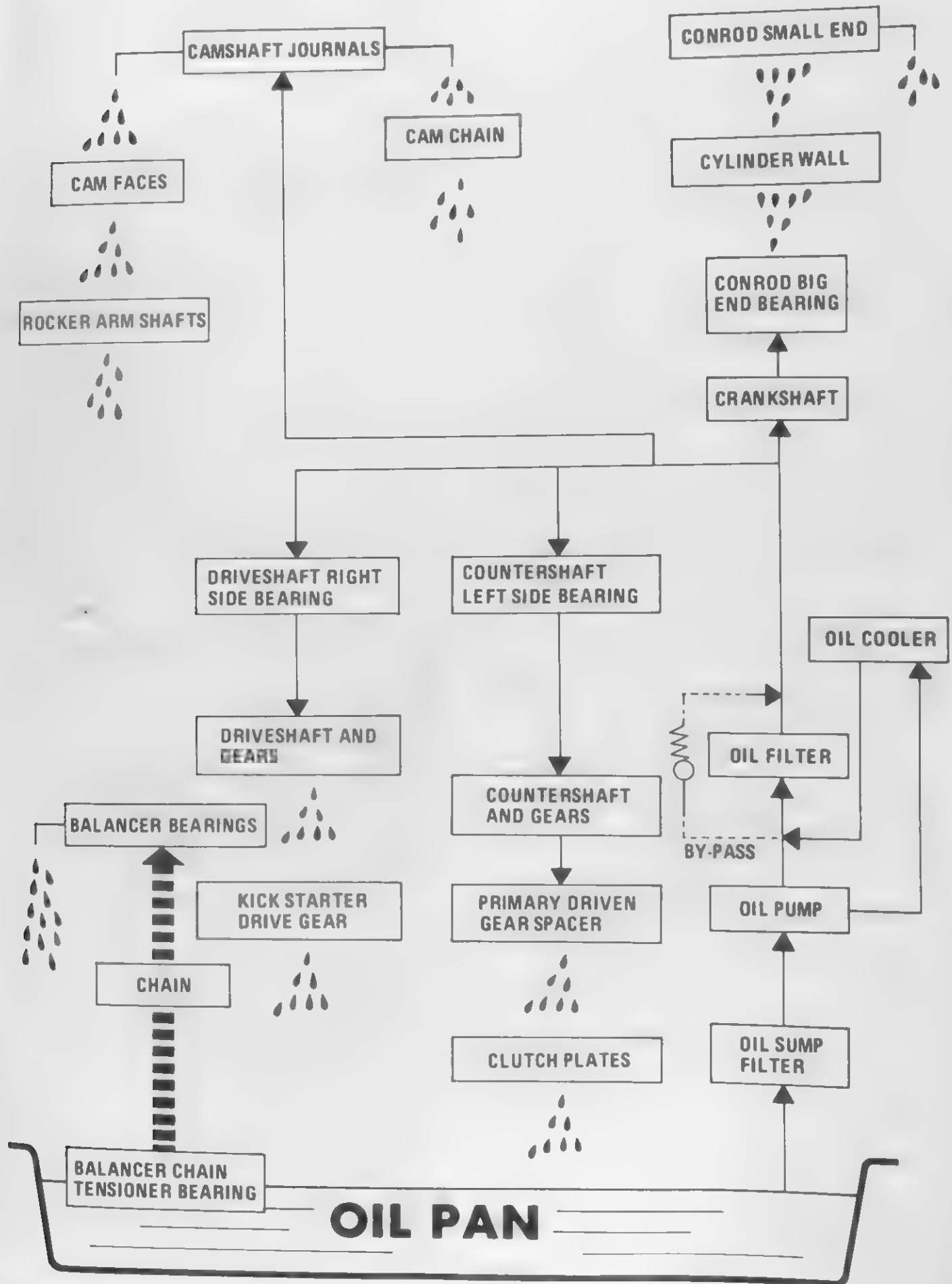
Distance ①	3.5 ± 0.5 mm (0.14 ± 0.02 in)
------------	----------------------------------

### CARBURETOR REMOUNTING

Remount the carburetor by reversing the sequence of removal steps, and following adjustments and inspection are necessary after remounting the carburetor.

- Throttle cable play (Refer to page 2-10)
- Idling adjustment (Refer to page 2-10)
- Fuel level inspection (This page)

LUBRICATION SYSTEM





### OIL PRESSURE

- Connect an electric tachometer to the engine.
- Install the oil pressure gauge ① in the position shown in the Fig.
- Warm up the engine as follows.  
Summer approx. 10 min. at 2 000 r/min.  
Winter approx. 20 min. at 2 000 r/min.
- After the warming up operation, increase the engine speed to 3 000 r/min, and read the oil pressure gauge.

**NOTE:**

\* Engine oil must be warmed up to 60°C (140°F) when checking the oil pressure.

09915-74510	Oil pressure gauge
-------------	--------------------

**Oil pressure specification**

Above 30 kPa, 0.30 kg/cm <sup>2</sup> (4.3 psi), Below 70 kPa, 0.70 kg/cm <sup>2</sup> (10 psi) at 3 000 r/min. Oil temp. at 60°C (140°F)
---

### OIL SUMP FILTER

Clean the oil sump filter in the following manner:

- Drain engine oil by removing the drain plug and filler cap. (Refer to page 2-9)
- Remove the oil sump filter cap by removing the three bolts. (Refer to page 3-17)
- Remove the oil sump filter by removing the two screws. (Refer to page 3-17)
- Wash the oil sump filter with cleaning solvent, and then blow compressed air through it to dry off solvent.

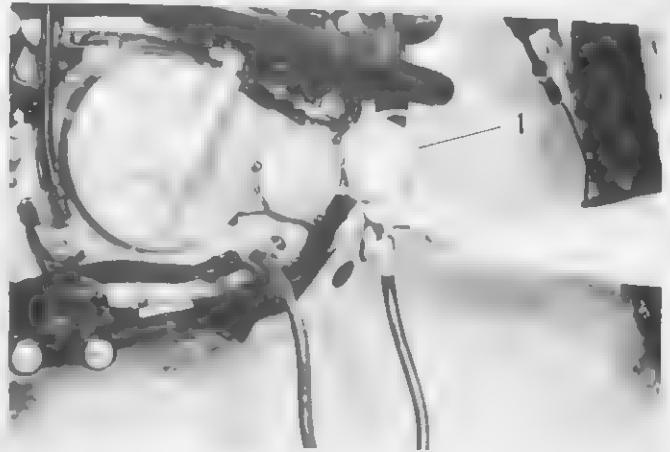
**REASSEMBLY**

- Fit the O-ring to the O-ring groove.
- Coat the O-ring with grease.

**CAUTION:**

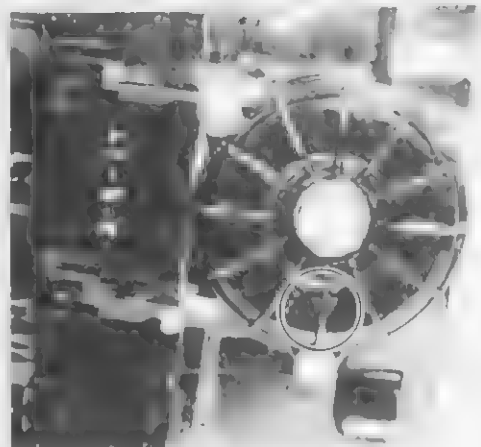
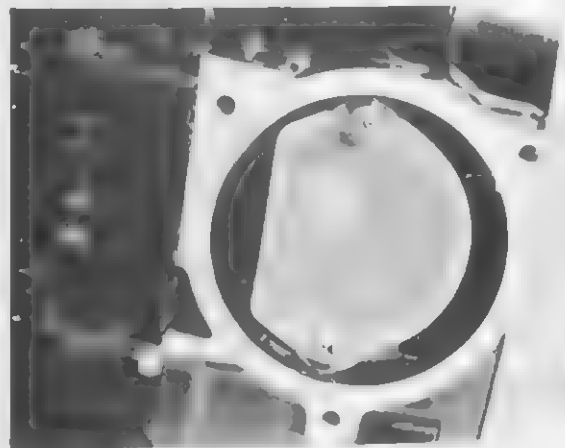
Use a new O-ring to prevent oil leakage.

- When installing the oil sump filter cap, be sure to face the arrow mark on the cap to the front.
- Fit the drain plug securely, and add fresh oil through the filler.  
(Refer to page 2-9)



If the oil pressure is lower or higher than the specifications, several causes may be considered.

- \* Low oil pressure is usually the result of a clogged oil filter, oil leakage from the oil passageway, damaged oil seal, a defective oil pump or a combination of these items.
- \* High oil pressure is usually caused by a engine oil which is too heavy a weight, a clogged oil passage, improper installation of the oil filter or a combination of these items.



# ELECTRICAL SYSTEM

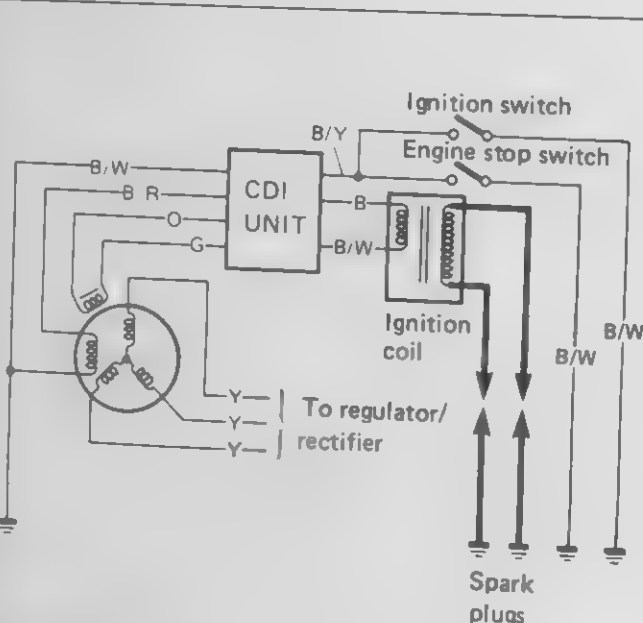
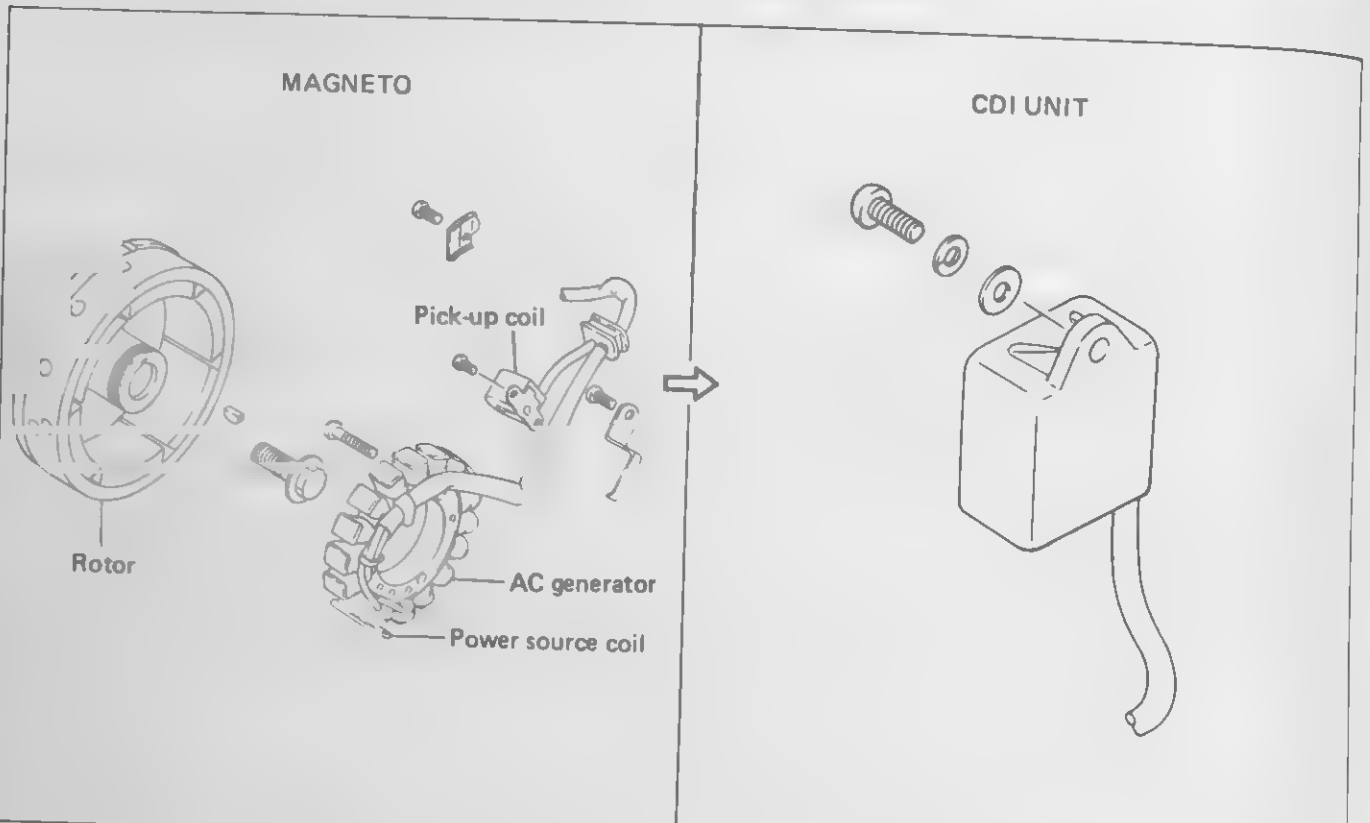
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<b>DESCRIPTION</b> .....	<b>5- 1</b>
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# IGNITION SYSTEM

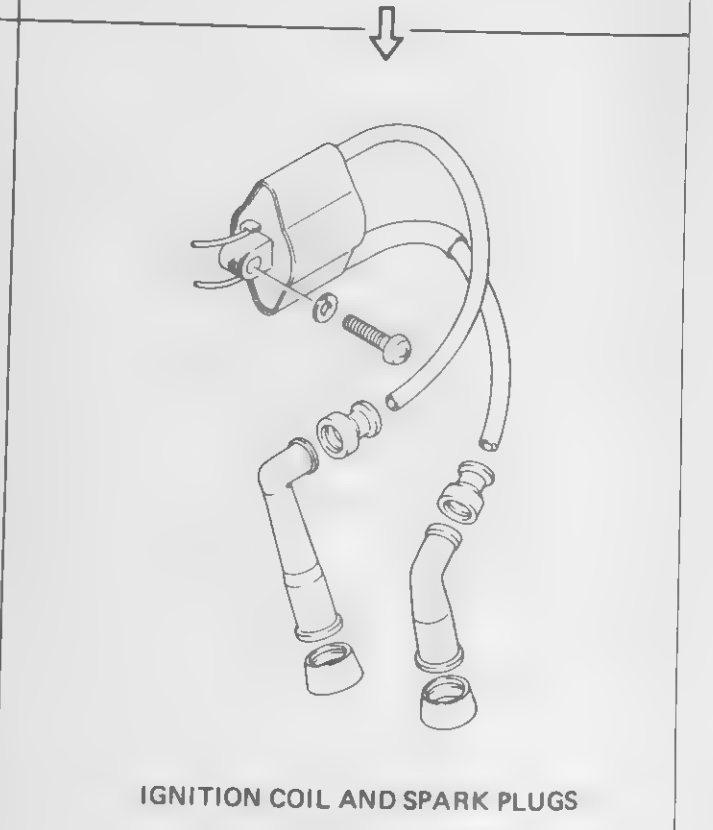
## DESCRIPTION

In the capacitor discharged ignition system, the electrical energy generated by the magneto charges the capacitor. This energy is released in a single surge at the specified ignition timing point, and current flows through the primary side of the ignition coil. A high voltage current is induced in the secondary windings of the ignition coil resulting in strong spark between the spark plug gap.



WIRE COLOR

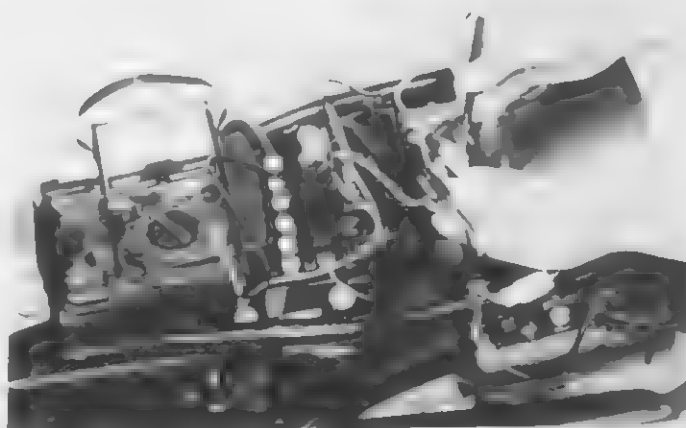
B	: Black	B/R	: Black with Red tracer
G	: Green	B/W	: Black with White tracer
O	: Orange	B/Y	: Black with Yellow tracer
Y	: Yellow		



## INSPECTION

## MAGNETO COIL

- Remove the left and right frame covers and seat. (Refer to page 3-2)
- Disconnect the pick-up, power source and charging lead wires.
- Using the pocket tester, measure the resistance between the lead wires in the following table.



09900-25002	Pocket tester
-------------	---------------

## Magneto coil resistance

Pick-up	O - G 185 - 250 $\Omega$ (Range: x 100 $\Omega$ )
Power source	B/R - B/W 170 - 230 $\Omega$ (Range: x 100 $\Omega$ )
Charging	Y - Y 0.1 - 1.2 $\Omega$ (Range: x 1 $\Omega$ )

## WIRE COLOR

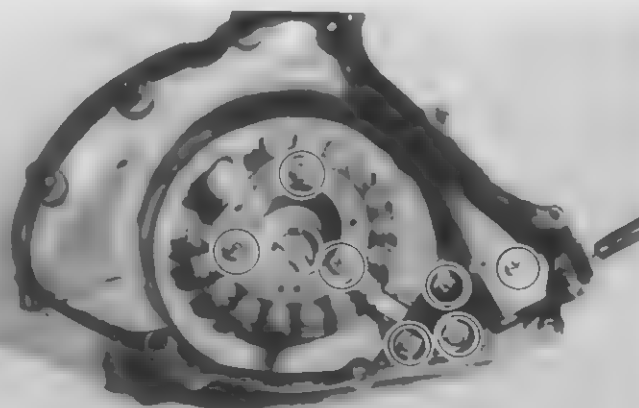
- O : Orange
- G : Green
- B/R : Black with Red tracer
- B/W : Black with White tracer
- Y : Yellow

## CAUTION:

When replacing the magneto coils, apply a small quantity of THREAD LOCK "1342" to the threaded parts of screws.

99000-32050

Thread Lock "1342"



## CAUTION:

Bond No. 1207B should be applied to the groove of magneto lead wire grommet.

99000-31140

Suzuki Bond No. 1207B



**IGNITION COIL**

**Checking with electro tester**

- Remove the left and right frame covers, seat and fuel tank. (Refer to page 3-2)
- Remove the ignition coil from the frame.
- 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.

09900-28106	Electro tester
-------------	----------------

STD Spark performance	8 mm (0.3 in)
-----------------------	---------------

**Checking with pocket tester**

09900-25002	Pocket tester
-------------	---------------

Ignition coil resistance	
Primary	Black – Black 0 – 1 $\Omega$ (Range: X 1 $\Omega$ )
Secondary	Plug cap – Plug cap 20 – 27 k $\Omega$ (Range: X k $\Omega$ )

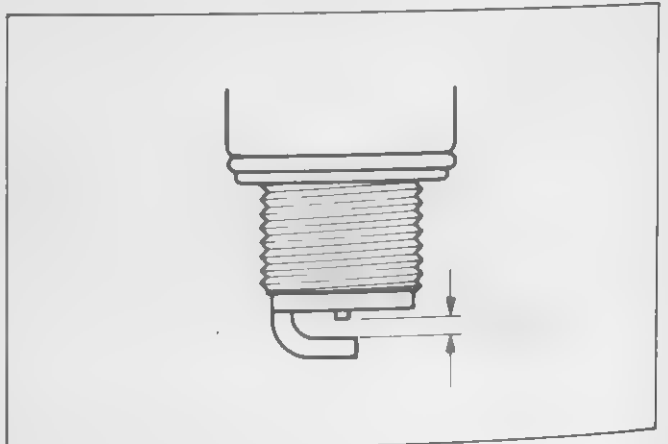
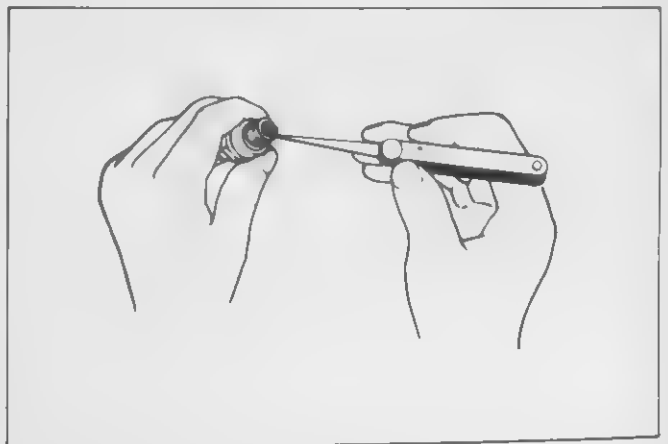
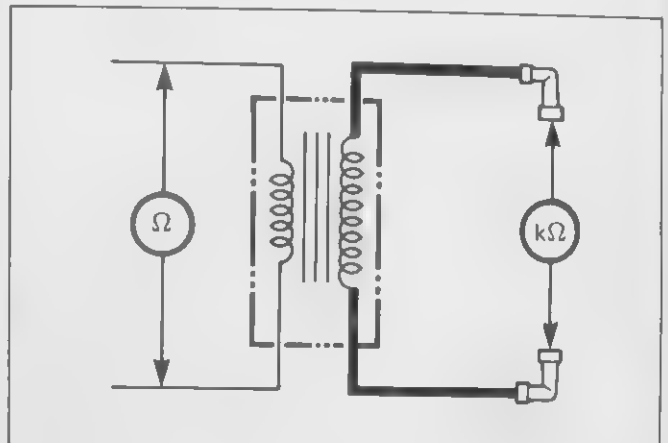
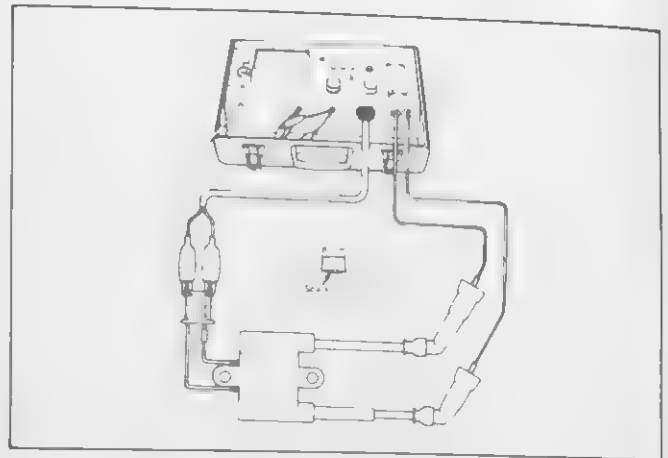
**SPARK PLUG**

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

Spark plug gap	0.8 – 0.9 mm (0.031 – 0.035 in.)
----------------	-------------------------------------

**NOTE:**

If no sparking at spark plug gap, replace the CDI unit or inspect the magneto coils, ignition coil and spark plug. If the magneto coils, ignition coil and spark plug checked are correct, the CDI unit may be faulty, replace the CDI unit with a new one.



## CHARGING SYSTEM

### INSPECTION

#### CHARGING OUTPUT CHECK

- Remove the left and right frame covers and seat. (Refer to page 3-2)
- Start the engine and keep it running at 5 000 r/min with lighting switch turned ON and dimmer switch turned HI position.
- Using the pocket tester, measure the DC voltage between the battery terminals, ⊕ and ⊖. If the tester reads under 13.5V or over 15.5V, check the AC generator no-load performance or replace the regulator/rectifier.

#### NOTE:

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

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

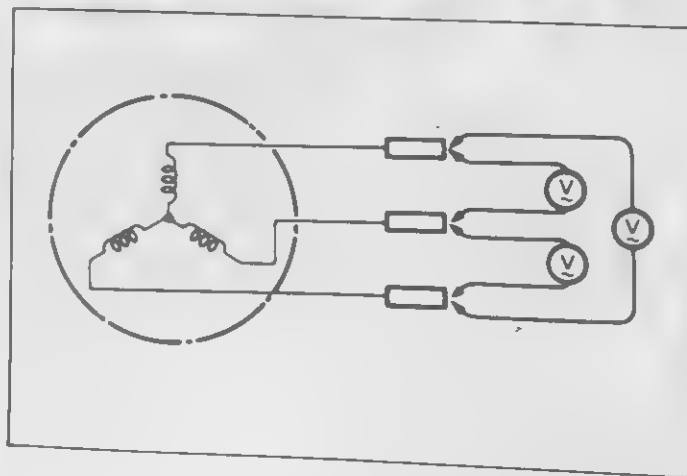
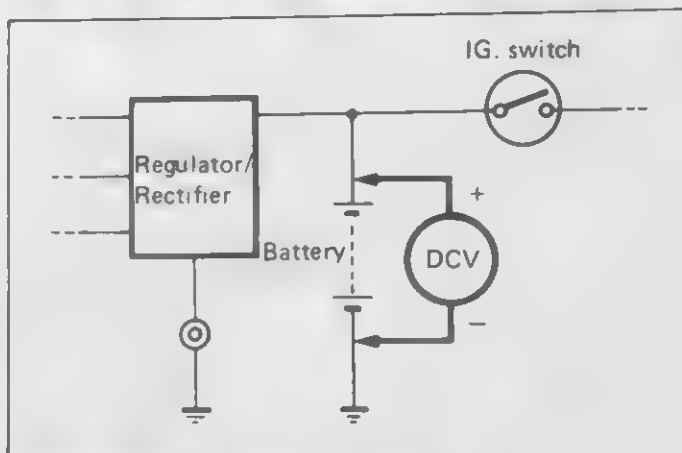
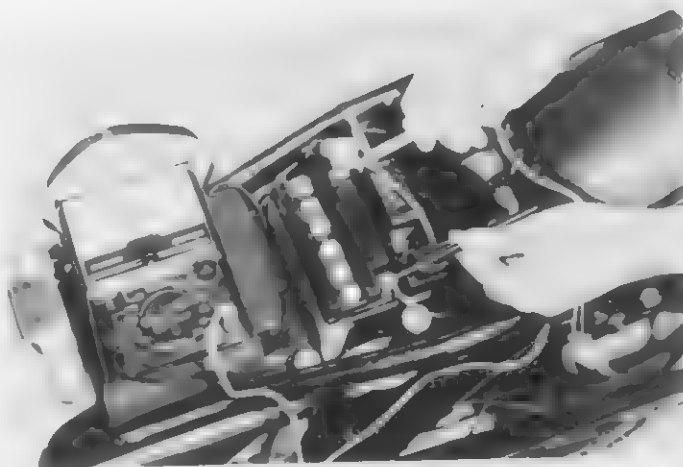
09900-25002	Pocket tester
-------------	---------------

#### AC GENERATOR NO-LOAD PERFORMANCE

- Remove the left frame cover.
- Disconnect the AC generator lead wire connector from the regulator/rectifier.
- Start the engine and keep it running at 5 000 r/min.
- Using the pocket tester, measure the AC voltage between the three yellow lead wires. If the tester reads under 80V, the AC generator (stator or rotor) is faulty.

STD No-load performance (when engine is cold)	More than 80V (AC) at 5 000 r/min
---	--------------------------------------

09900-25002	Pocket tester
-------------	---------------

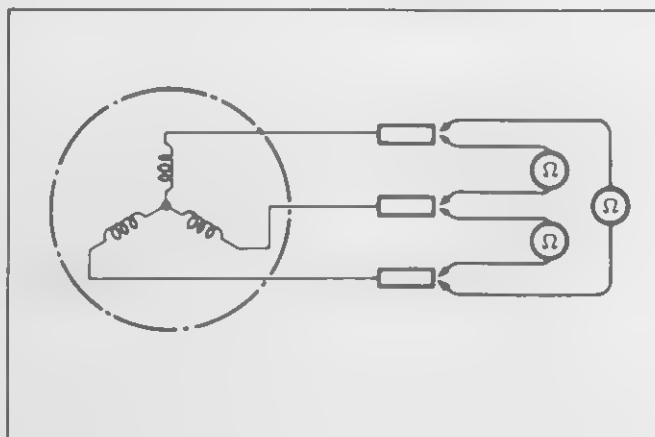


### AC GENERATOR CONTINUITY CHECK

- Using the pocket tester, check the continuity between the three yellow lead wires. Also check that the stator core is insulated. Check that there is no continuity between the yellow leads and ground.

**NOTE:**

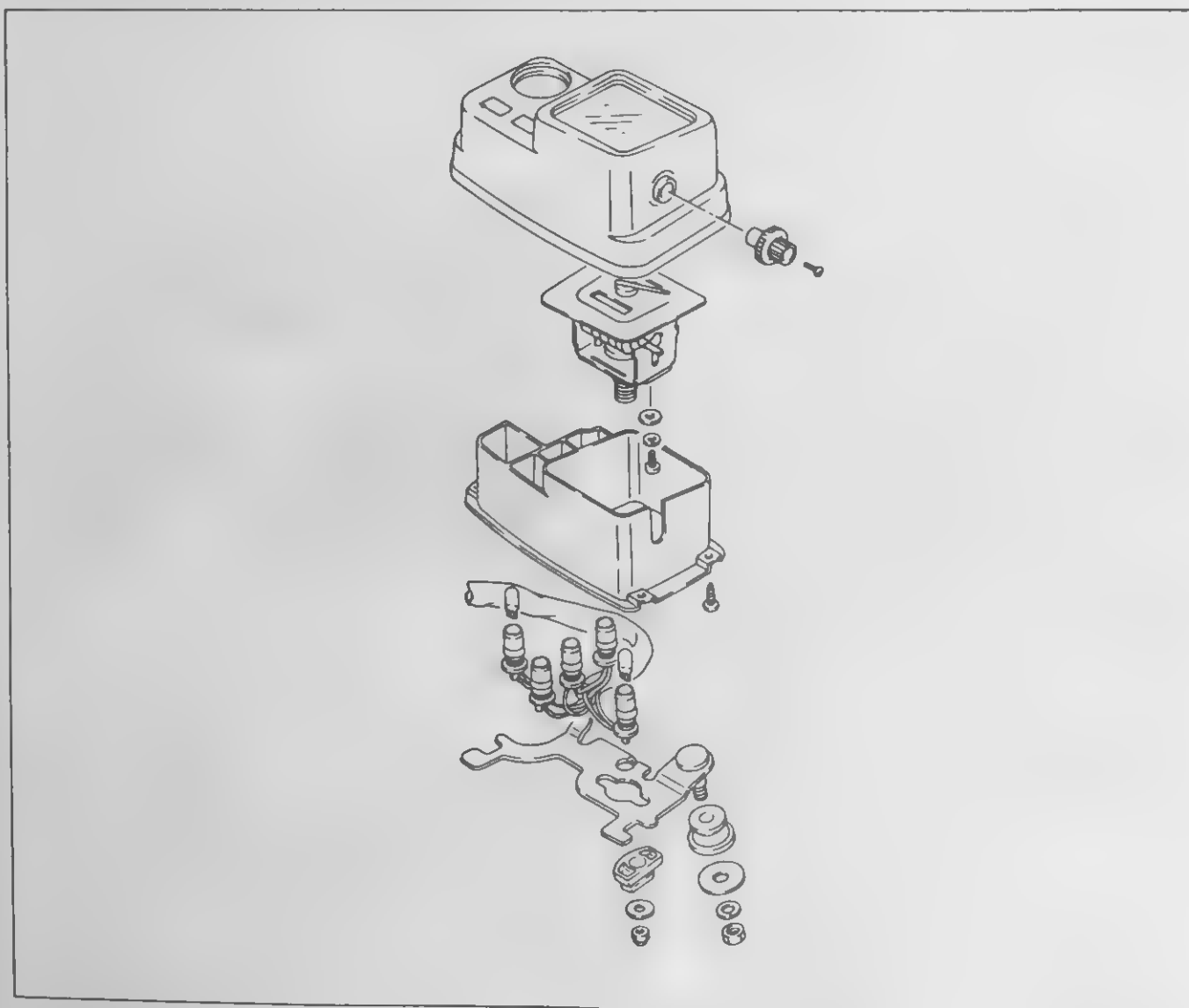
When making this test, it is not necessary to remove the AC generator.



## INSTRUMENT PANEL

### REMOVAL AND DISASSEMBLY

- Remove the instrument panel. (See page 6-21)
- Disassemble the instrument panel as follows.



**INSPECTION**

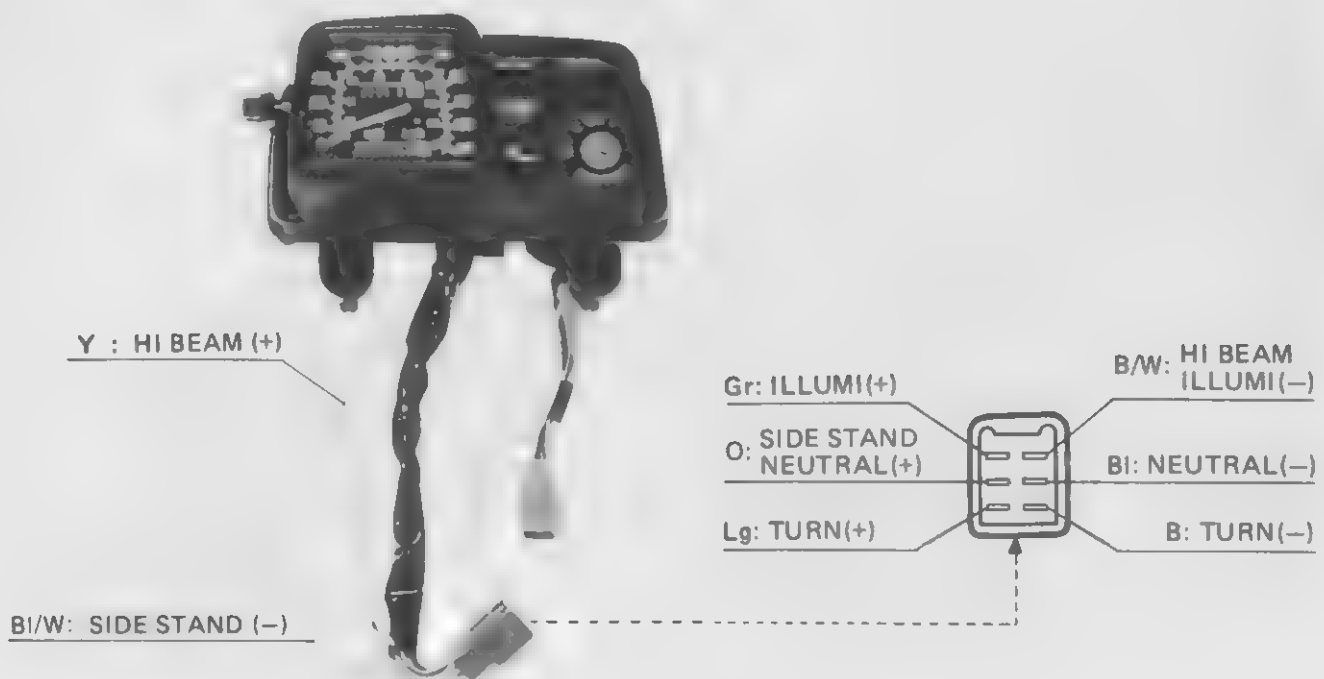
Using the pocket tester, check the continuity between lead wires in the following diagram. If the continuity measured is incorrect, replace the respective parts.

09900-25002

Pocket tester

**NOTE:**

When making this test, it is not necessary to remove the instrument panel.

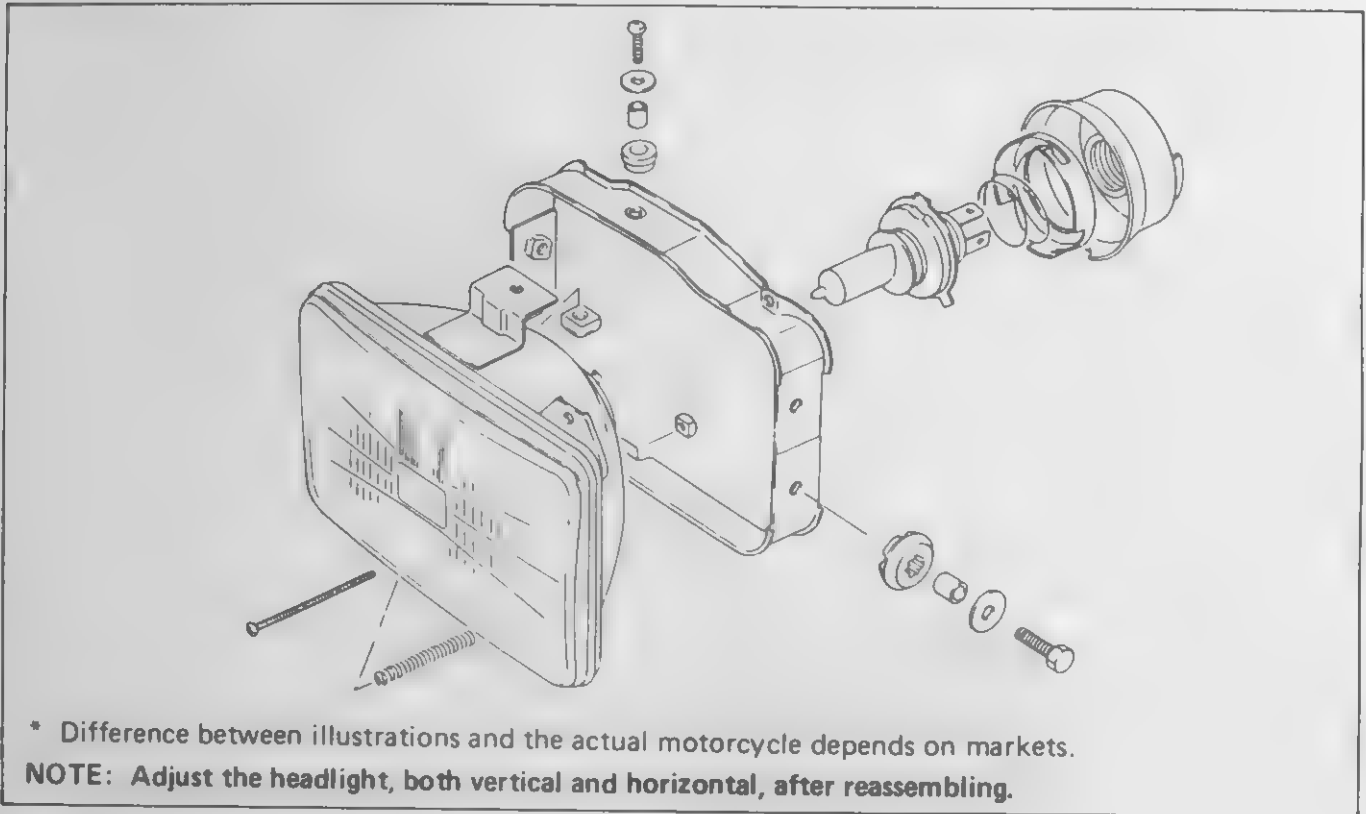


ITEM	⊕ Probe of tester to:	⊖ Probe of tester to:
TURN SIGNAL	Lg	B
SIDE STAND (Canada model only)	O	BI/W
NEUTRAL	O	BI
ILLUMI	Gr	B/W
HI BEAM	Y	B/W

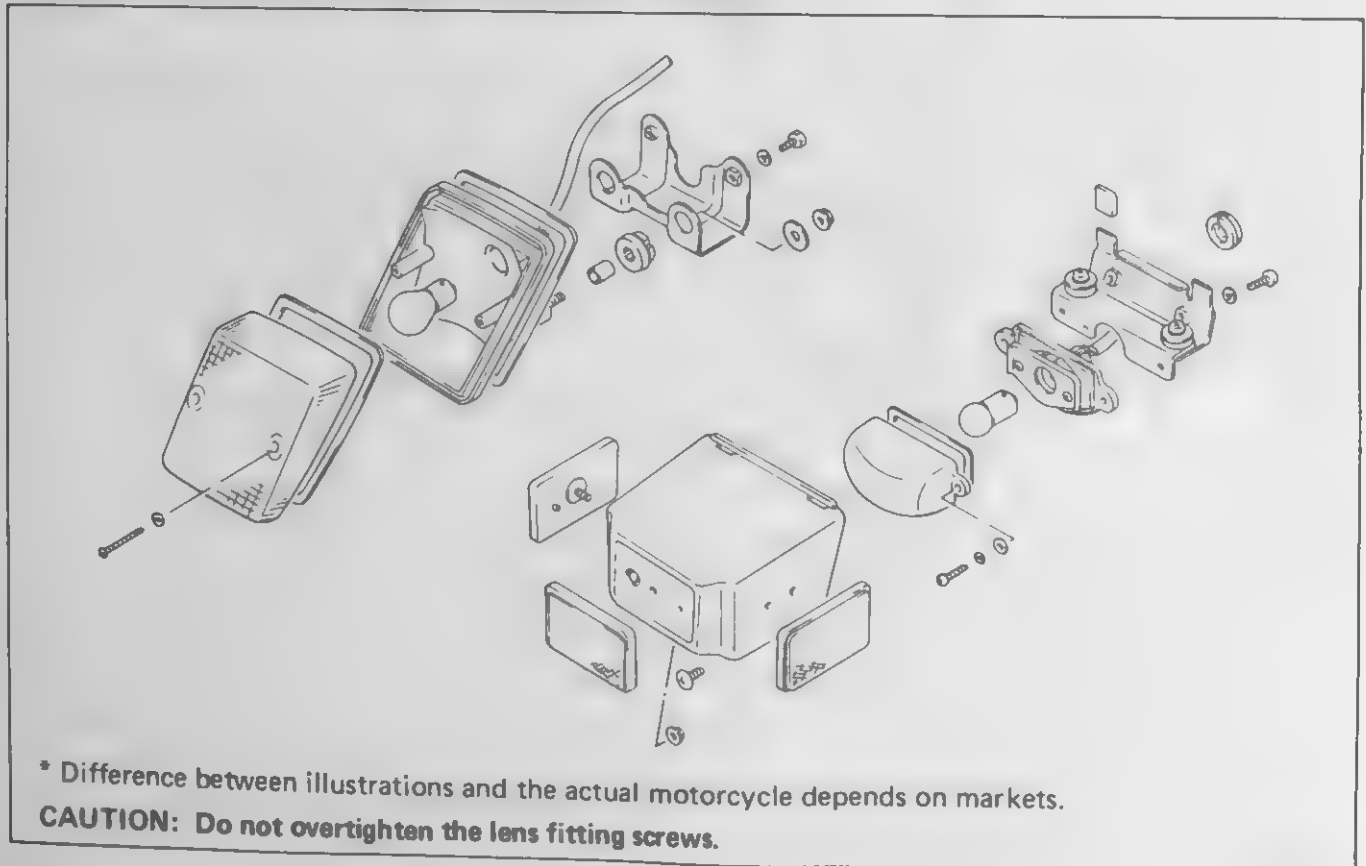


## LAMPS

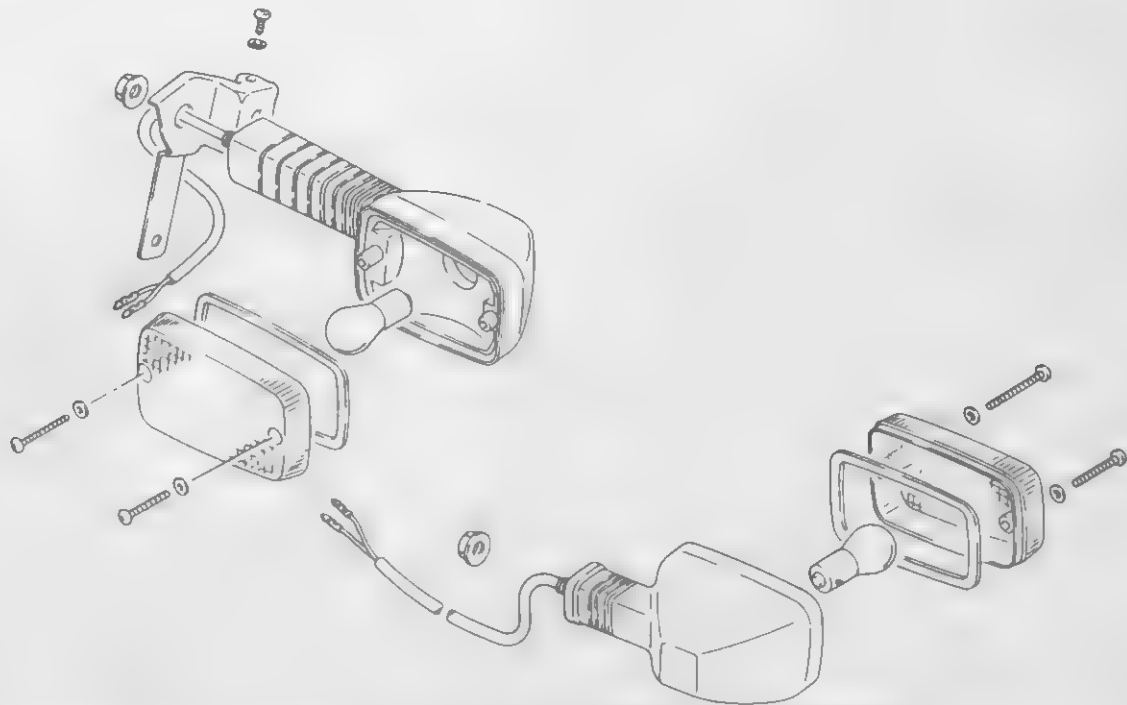
### HEADLIGHT



### TAIL/BRAKE LIGHT AND LICENSE LIGHT



## TURN SIGNAL LIGHT



\* Difference between illustrations and the actual motorcycle depends on markets.  
**CAUTION:** Do not overtighten the lens fitting screws.

## 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
-------------	---------------

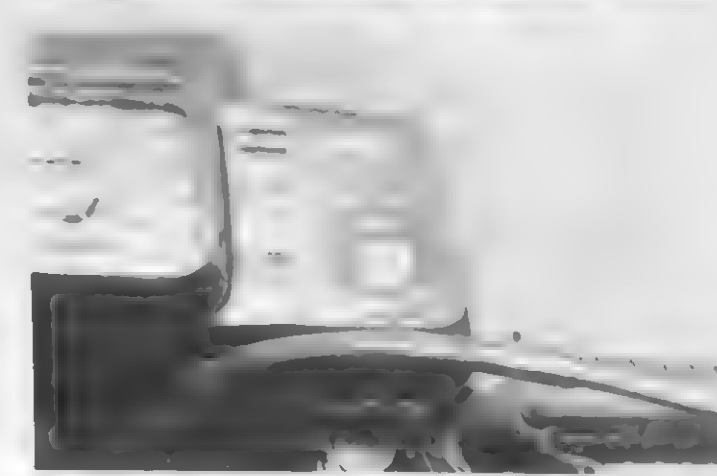
## IGNITION SWITCH

(For E-01, 06, 24 and 28)

	Bl/W	B/Y	B/W	R	O	Gr	Br
OFF		○—○	○—○				
C	○—○	○—○	○—○	○—○	○—○		
ON				○—○	○—○	○—○	
P		○—○	○—○	○—○			○—○

(For other models)

	B/Y	B/W	R	O	Gr	Br
OFF	○—○					
C	○—○		○—○	○—○		
ON			○—○	○—○	○—○	
P	○—○	○—○	○—○			○—○



### LIGHTING SWITCH

(For E-01, 06, 24 and 28)

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

(For other models)

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

### DIMMER SWITCH

	W	Y	Y/W
HI		○	○
LO	○		○

### TURN SIGNAL SWITCH

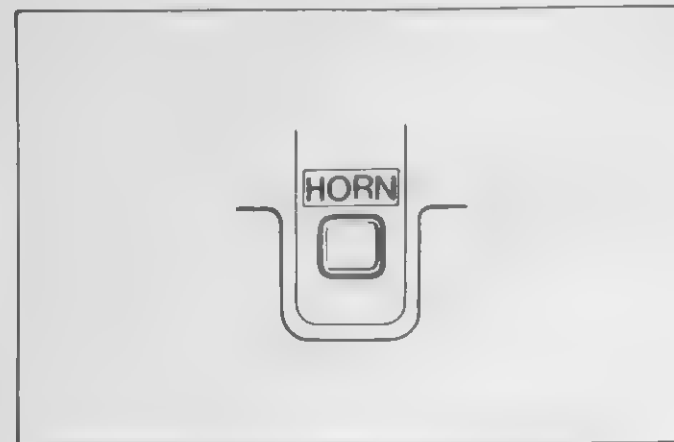
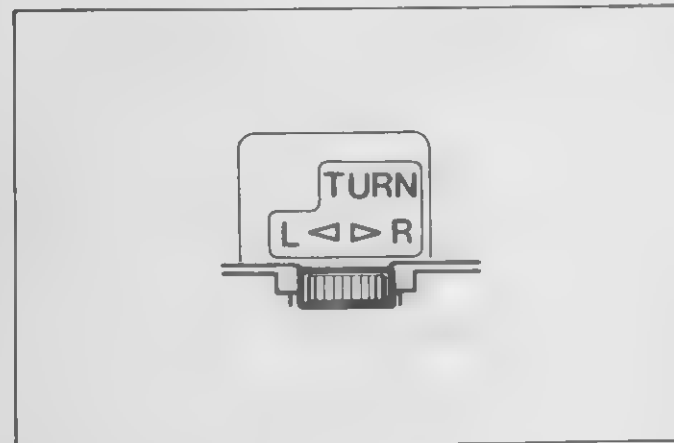
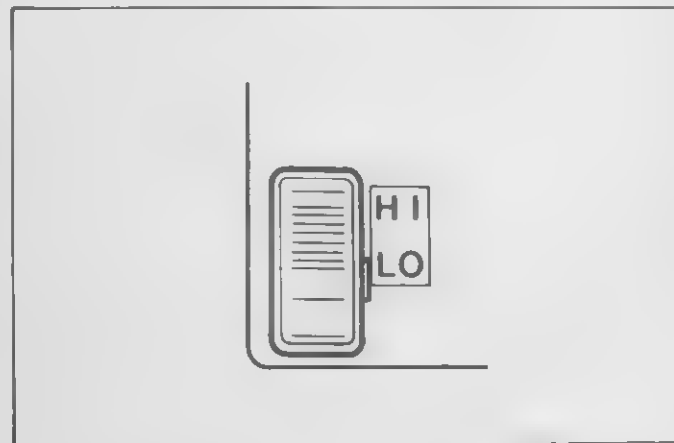
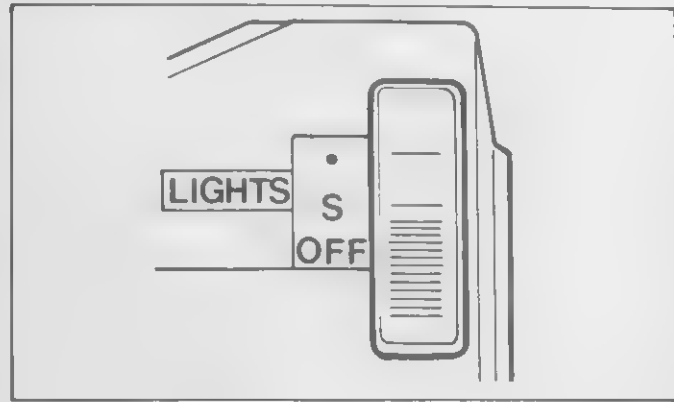
	B	Lbl	Lg
R		○	○
•			
L	○	○	

### HORN SWITCH

	G	B/W
ON (Push)	○	○
OFF		

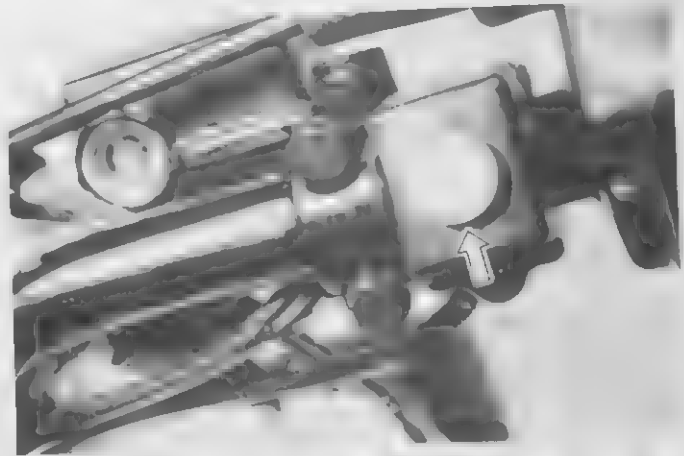
(Canada model only)

Switch knob must be removed to place the lighting switch in the OFF position.



**ENGINE STOP SWITCH**

	B/Y	B/W
OFF		
RUN		

**FRONT BRAKE SWITCH**

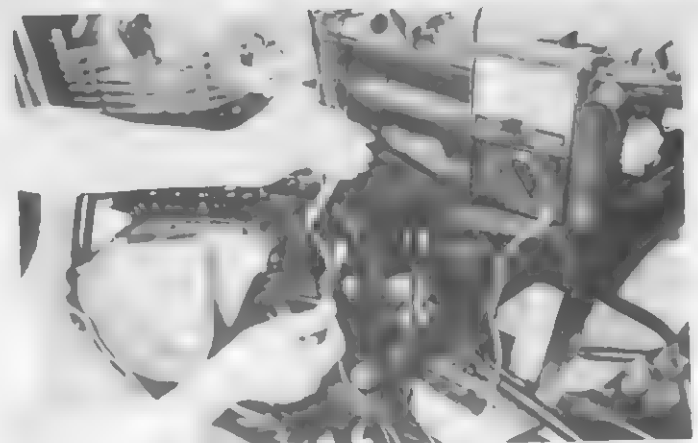
	O	W
ON (Squeeze lever)		
OFF		

**REAR BRAKE SWITCH**

	O	W
ON (Depress pedal)		
OFF		



**NEUTRAL INDICATOR SWITCH**

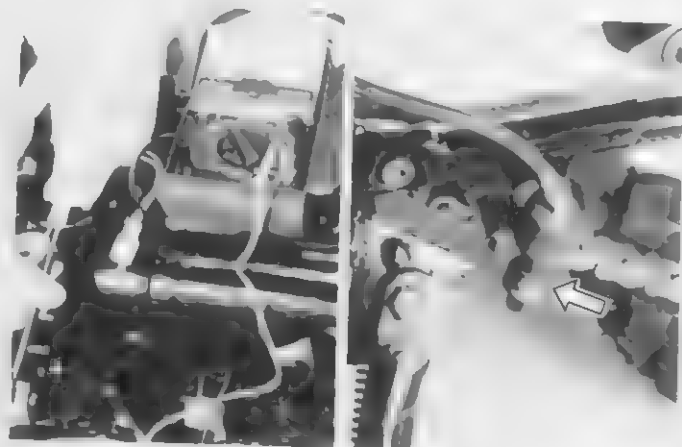
	Bl	Ground
ON (Neutral position)		
OFF		



**SIDE STAND CHECK SWITCH**

(Canada model only)

	G/W	B/W
ON (Down position)		
OFF (Upright position)		

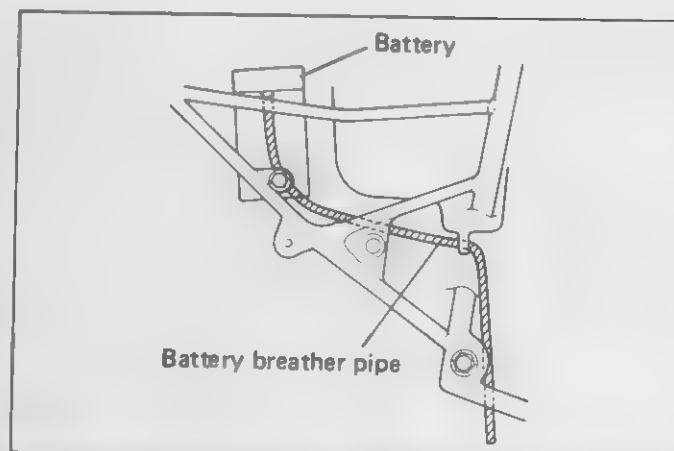
**WIRE COLOR**

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

**BATTERY****SPECIFICATIONS**

Type designation	12N5-3B
Capacity	12V, 18 kC (5 Ah)/ 10HR
Standard electrolyte S.G.	1.28 at 20°C (68°F)

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

**INITIAL CHARGING****Filling electrolyte**

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



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

Maximum charging current	1.4A
--------------------------	------

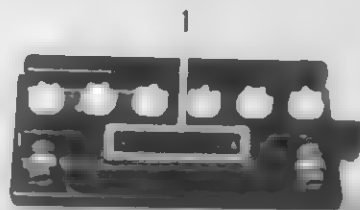
#### Charging time

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

#### Confirmation for date of manufacture

Date of manufacture is indicated by a three-part number ①, as shown in the photograph, each indicating month, date and year.

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



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

## SERVICING

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

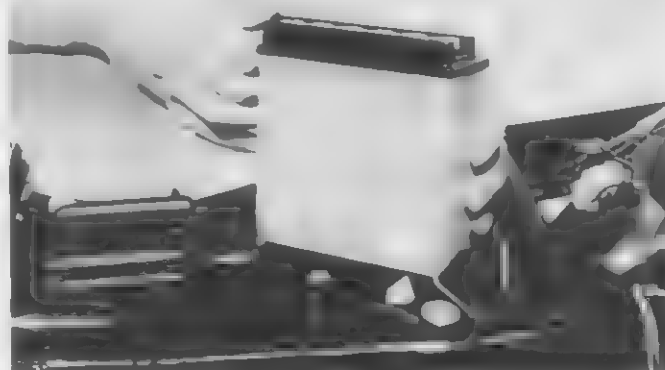
If the battery terminals are found to be coated with rust or an acidic white powdery substance, then this can be cleaned away with sandpaper.

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

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

#### NOTE:

First, remove the ⊖ lead wire.



## RECHARGING OPERATION BASED ON S.G. READING

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

Check the reading (as corrected to 20°C) with chart to determine the recharging time in hour by constant-current charging at a charging rate of 1.4 amperes (which is tenth of the capacity of the present battery).

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

Electrolyte specific gravity	1.28 at 20°C (68°F)
------------------------------	---------------------

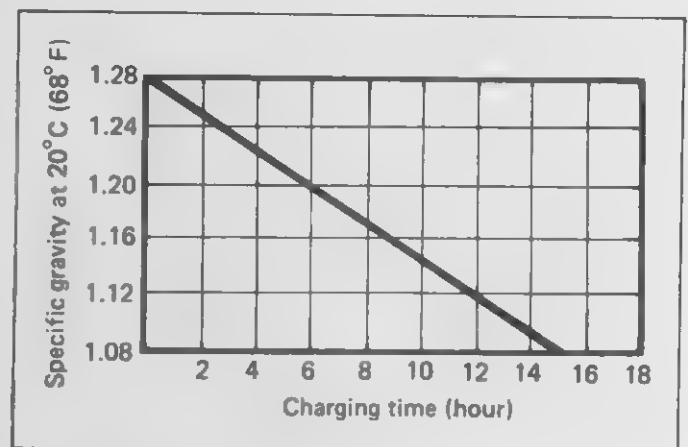
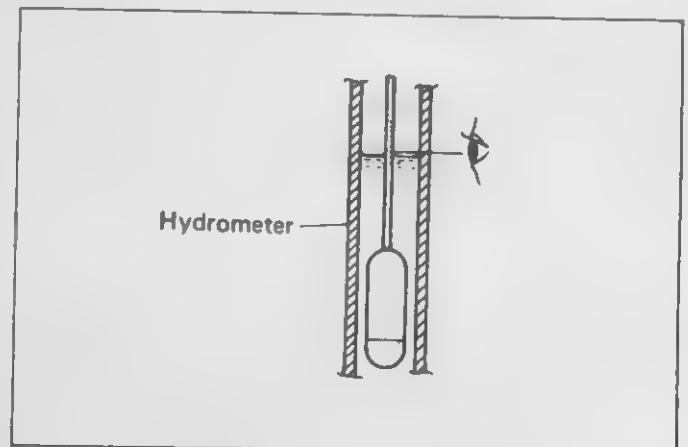
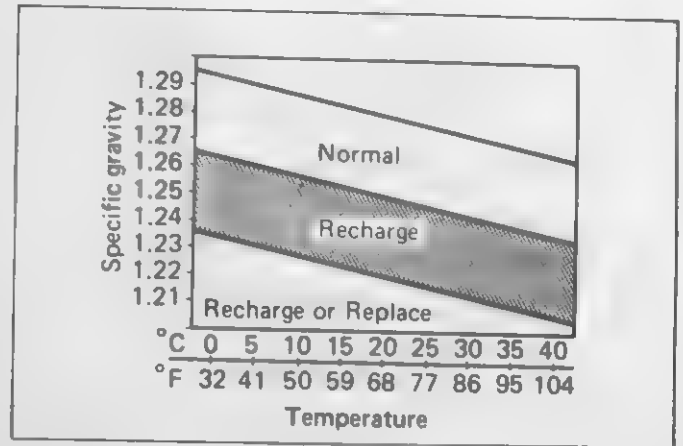
**CAUTION:**  
Constant-voltage charging, otherwise called "quick" charging, is not recommendable for it could shorten the life of the battery.

09900-28403	Hydrometer
-------------	------------

## SERVICE LIFE

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

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



## WARNING:

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

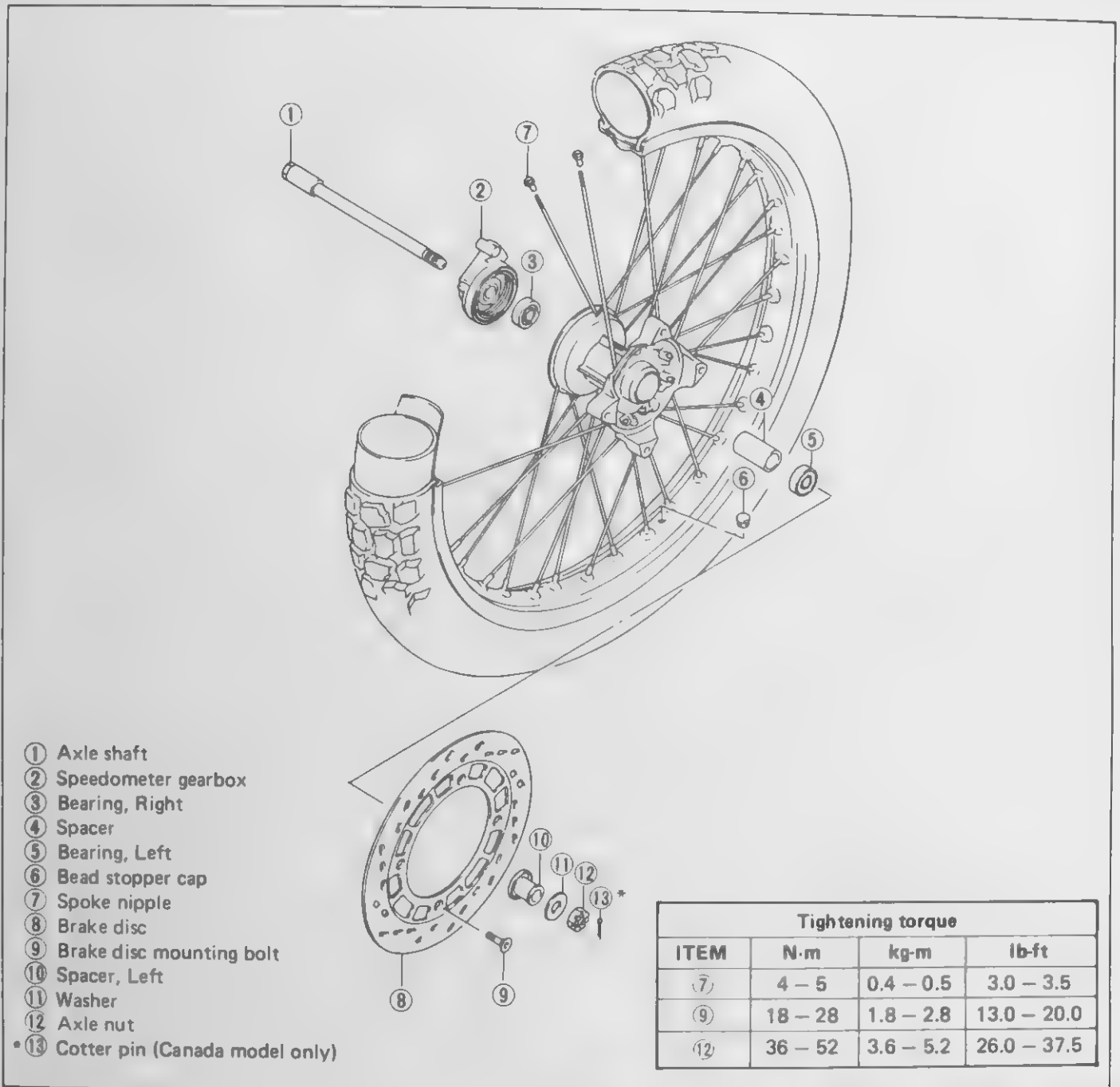
# CHASSIS

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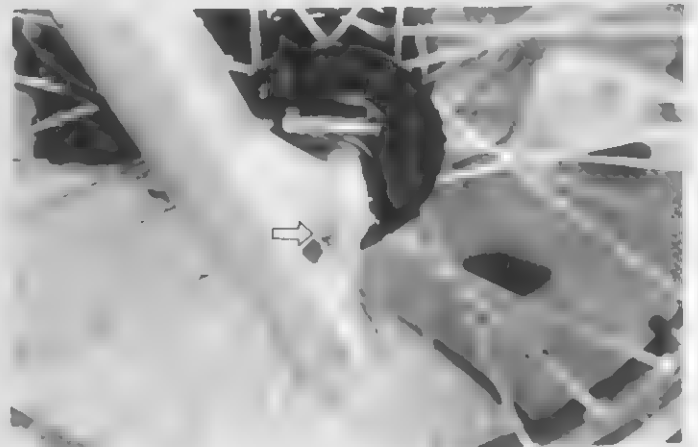


## FRONT WHEEL



## REMOVAL

- Support the motorcycle by jack or block, and keep the front wheel off the ground.
- Pull out the cotter pin and remove the axle nut. (\* Canada model only)
- Draw out the axle shaft and take off the front wheel.



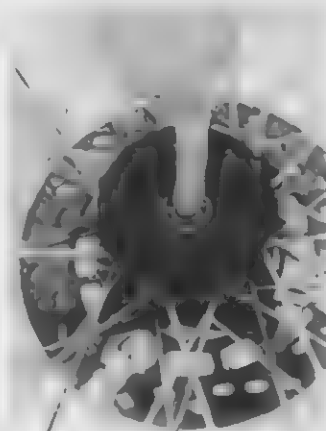
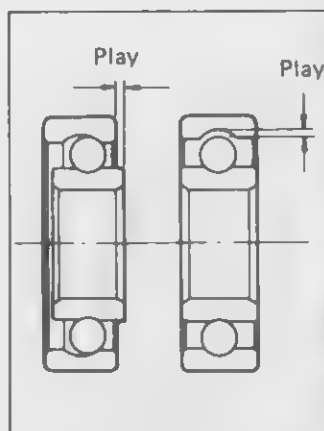
## INSPECTION

### WHEEL HUB BEARING

Inspect the play of the wheel hub bearing inner race by hand while it is in the wheel hub.

Rotate the inner race by hand to inspect for abnormal noise occurs and rotating smoothly.

Replace the bearing if there is anything unusual.

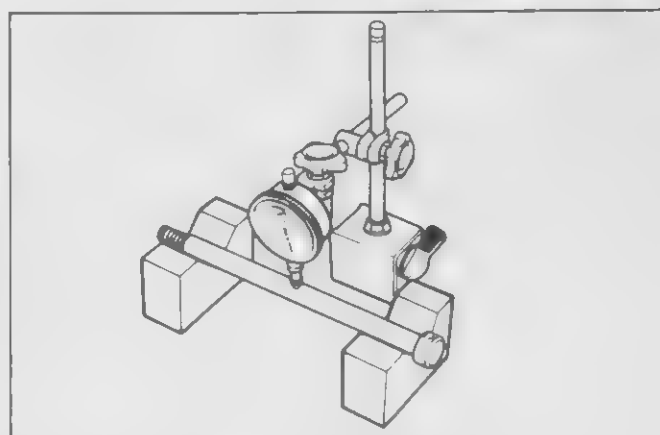


### AXLE SHAFT

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

09900-20606	Dial gauge (1/100)
09900-20701	Magnetic stand

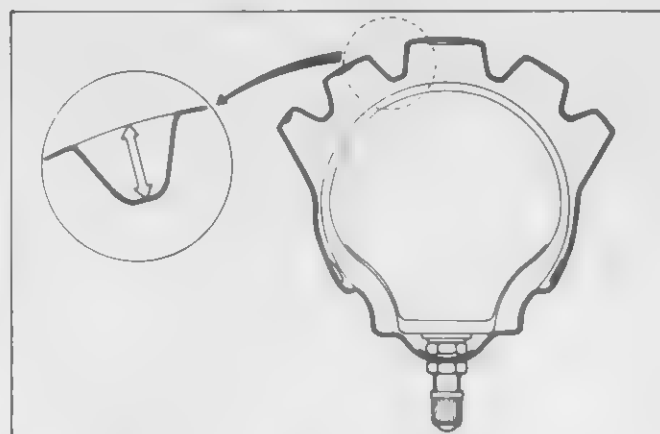
Service Limit	0.25 mm (0.010 in)
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### TIRE

For proper braking and riding stability, the tire should have sufficient groove depth from the tread surface. If the groove depth, measured as shown in the figure, reaches the wear limit, replace the tire.

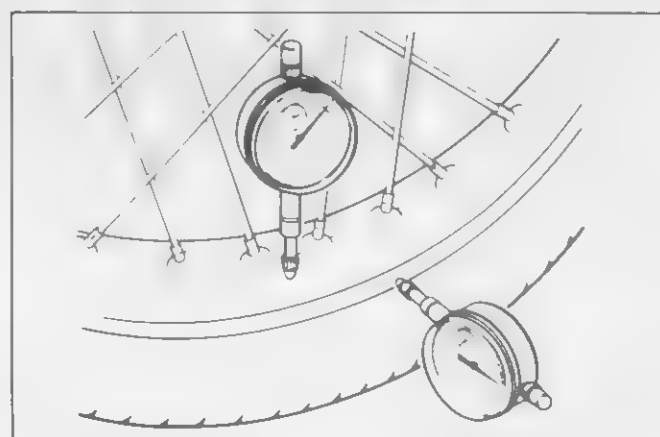
Service Limit	3.0 mm (0.12 in)
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### WHEEL RIM

Make sure that the wheel rim runout checked as shown, does not exceed the service limit. An excessive runout is usually due to worn or loose wheel hub bearings and can be reduced by replacing the bearings. If bearing replacement fails to reduce the the runout, adjust the tension of the spokes and, if this proves to be of no effect, replace the wheel rim.

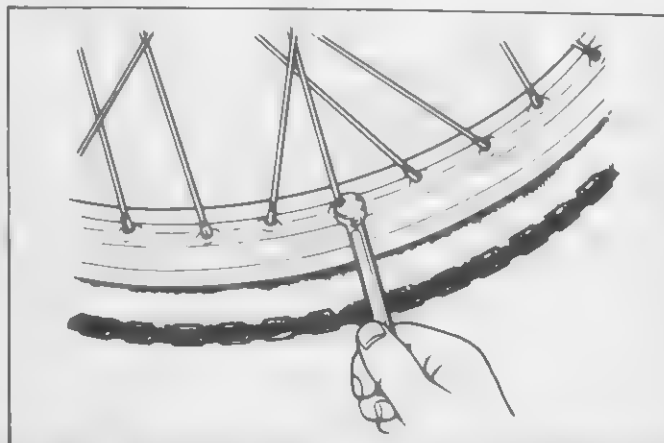
Service Limit (Axial and Radial)	2.0 mm (0.08 in)
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**SPOKE NIPPLE**

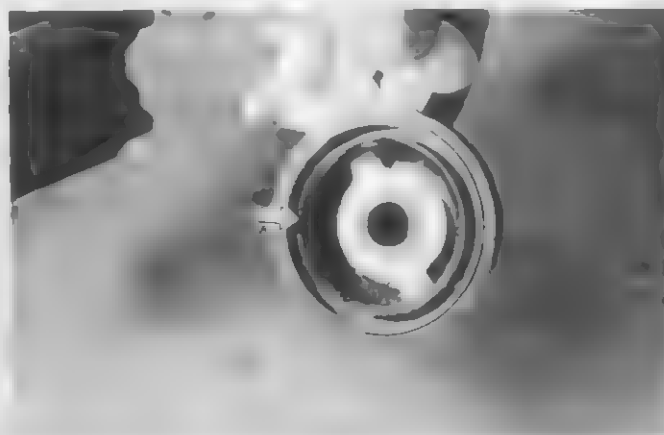
Check to be sure that all nipples are tight, and retighten them as necessary using special tool.

Tightening torque	4 – 5 N·m (0.4 – 0.5 kg·m) (3.0 – 3.5 lb·ft)
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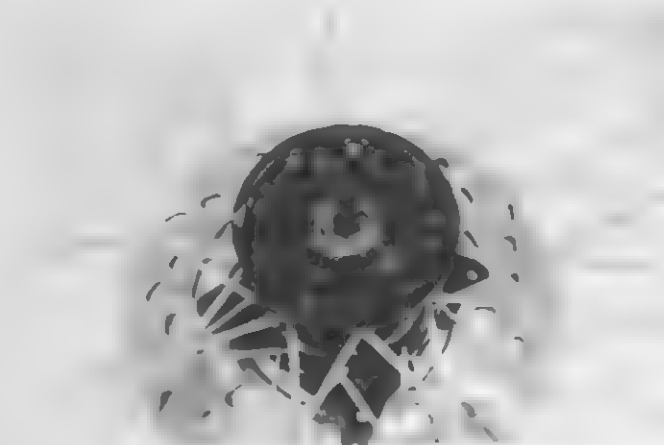
**DUST SEAL OF SPEEDOMETER GEARBOX**

Inspect the lip of dust seal for damage. If any damage is found, replace it with a new one.



**DISASSEMBLY**

- Drive out the wheel hub bearings by using the special tool in the following procedures.
- Insert the adapter into the wheel hub bearing.



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



**CAUTION:**  
The removed bearing should be replaced.

09941-50110	Bearing remover
-------------	-----------------

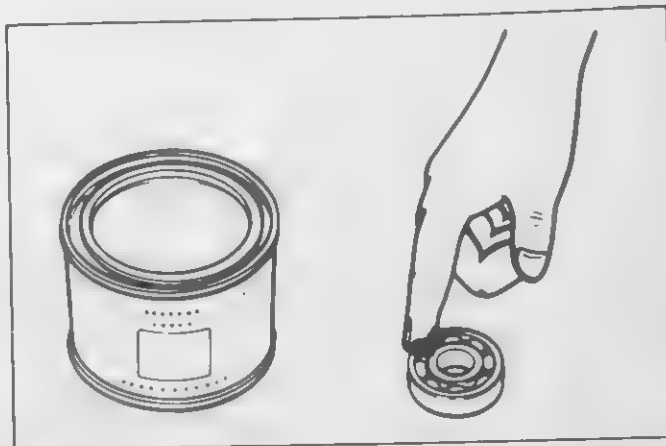
## REASSEMBLY AND REMOUNTING

Reassemble and remount the wheel and wheel hub in the reverse order of disassembly and removal. Pay attention to the following points:

- Apply grease to the bearing before installing.

99000-25010

Suzuki super grease "A"



- Install the wheel hub bearings by using a bearing installer.

09924-84520

Bearing installer

**NOTE:**

First install the bearing for left side.  
Seal side of bearing goes toward outside.



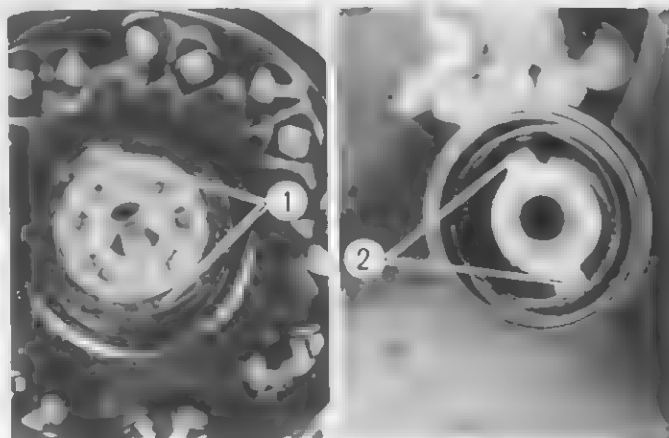
- Apply grease to the speedometer gear and dust seal.

99000-25010

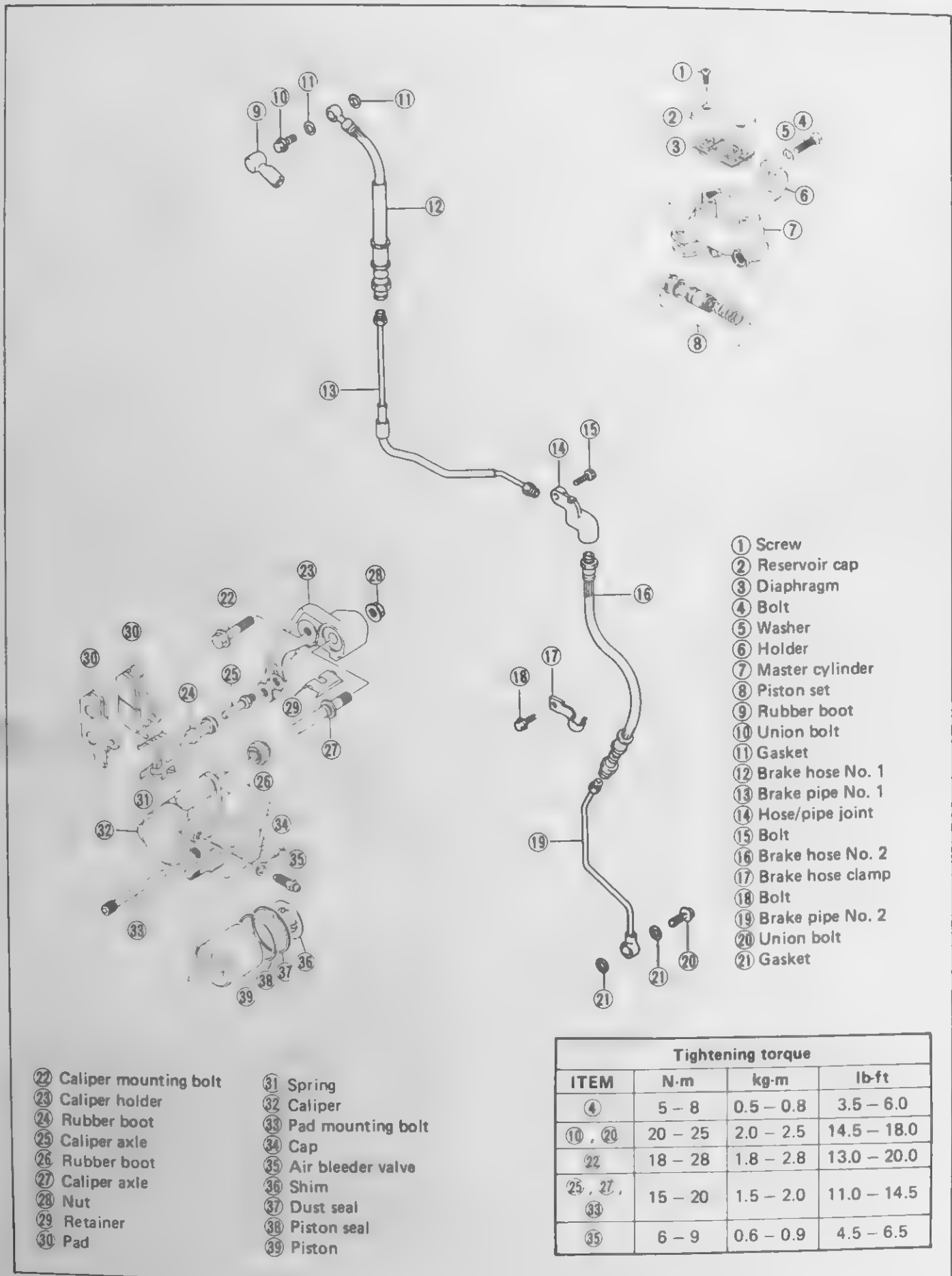
Suzuki super grease "A"



- When installing the speedometer gearbox to the wheel hub, be sure to align between the two protrusions ① on the wheel hub with the two tabs ② of the speedometer gear.



# FRONT BRAKE



- ① Screw
- ② Reservoir cap
- ③ Diaphragm
- ④ Bolt
- ⑤ Washer
- ⑥ Holder
- ⑦ Master cylinder
- ⑧ Piston set
- ⑨ Rubber boot
- ⑩ Union bolt
- ⑪ Gasket
- ⑫ Brake hose No. 1
- ⑬ Brake pipe No. 1
- ⑭ Hose/pipe joint
- ⑮ Bolt
- ⑯ Brake hose No. 2
- ⑰ Brake hose clamp
- ⑱ Bolt
- ⑲ Brake pipe No. 2
- ⑳ Union bolt
- ㉑ Gasket

- ㉒ Caliper mounting bolt
- ㉓ Caliper holder
- ㉔ Rubber boot
- ㉕ Caliper axle
- ㉖ Rubber boot
- ㉗ Caliper axle
- ㉘ Nut
- ㉙ Retainer
- ㉚ Pad
- ㉛ Spring
- ㉜ Caliper
- ㉝ Pad mounting bolt
- ㉞ Cap
- ㉟ Air bleeder valve
- ㊱ Shim
- ㊲ Dust seal
- ㊳ Piston seal
- ㊴ Piston

Tightening torque			
ITEM	N.m	kg-m	lb-ft
④	5 - 8	0.5 - 0.8	3.5 - 6.0
⑩ , ⑳	20 - 25	2.0 - 2.5	14.5 - 18.0
㉒	18 - 28	1.8 - 2.8	13.0 - 20.0
㉕ , ㉗ , ㉚	15 - 20	1.5 - 2.0	11.0 - 14.5
㉟	6 - 9	0.6 - 0.9	4.5 - 6.5

## BRAKE PAD REPLACEMENT

- Loosen the pad mounting bolt ① and remove the caliper by removing the caliper mounting bolts ②.

### Tightening torque

Pad mounting bolt ①	15 – 20 N·m (1.5 – 2.0 kg·m) (11.0 – 14.5 lb·ft)
Caliper mounting bolt ②	18 – 28 N·m (1.8 – 2.8 kg·m) (13.0 – 20.0 lb·ft)

- Remove the pad mounting bolt ① and take out the pads.

### CAUTION:

- Do not operate the brake lever while dismounting the pads.
- Replace the brake pad as a set, otherwise braking-performance will be adversely affected.

### NOTE:

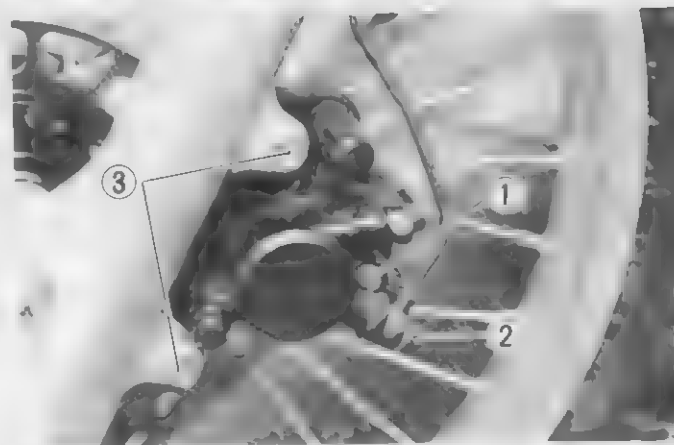
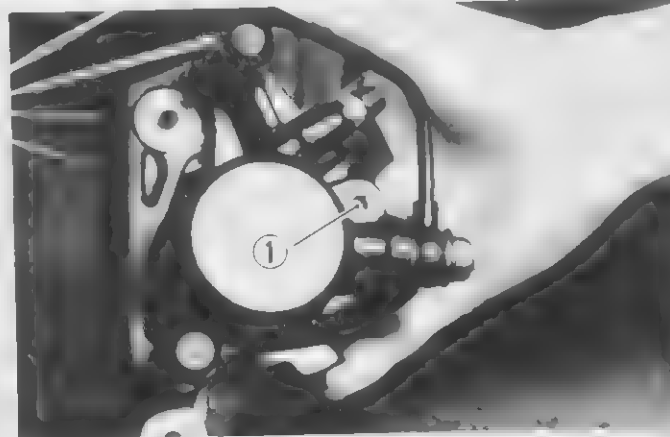
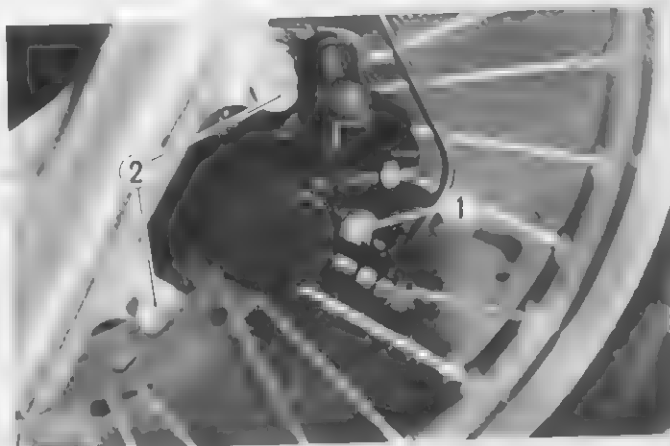
Push in the piston all the way to the caliper when remounting the caliper.

## CALIPER REMOVAL AND DISASSEMBLY

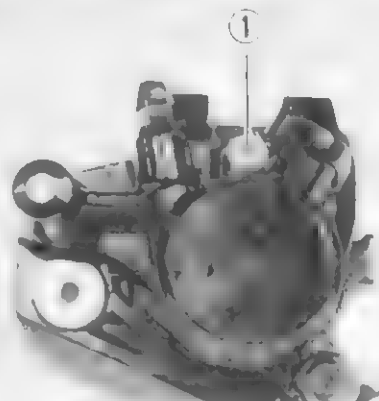
- Remove the caliper by removing the union bolt ② and caliper mounting bolts ③.

### NOTE:

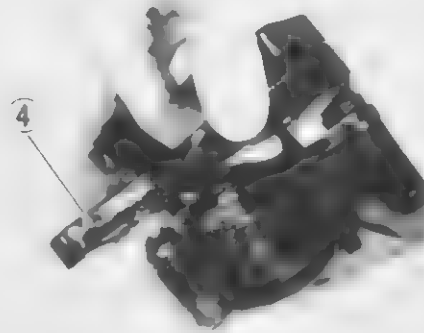
Slightly loosen the pad mounting bolt ① to facilitate later disassembly.



- Remove the pad mounting bolt ① and take out the pads.



- Remove the caliper holder ④ from the caliper.



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

**CAUTION:**

Do not use high pressure air to prevent piston damage.



- Remove the dust seal and piston seal.



**CALIPER AND DISC INSPECTION**

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

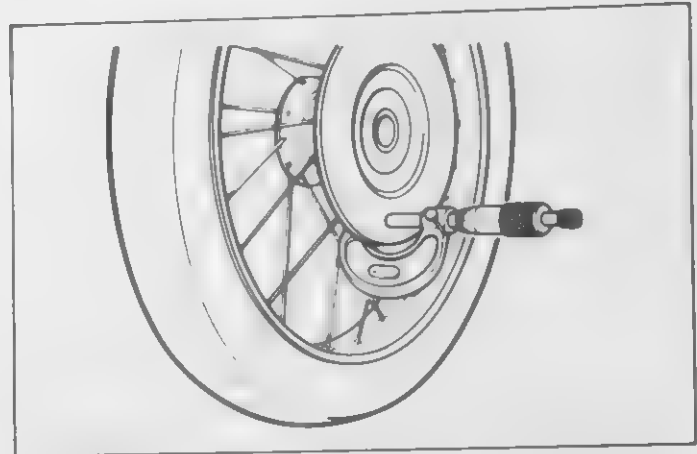
Inspect the rubber parts for damage and wear.

Inspect the piston surface for any scratches or other damage.



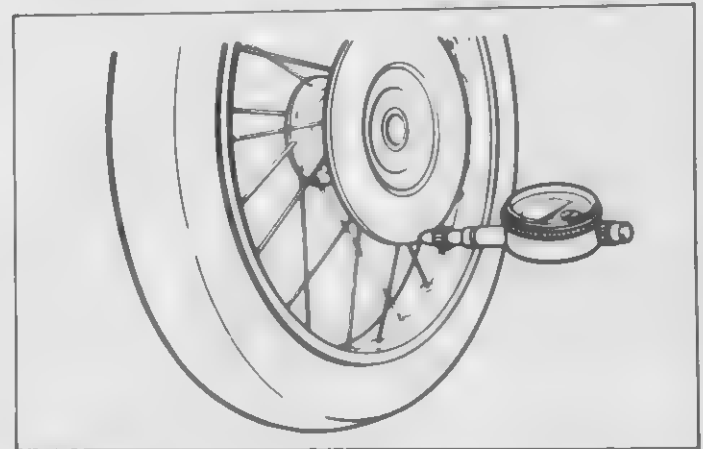
Check the disc for wear by using a micrometer. Its thickness can be checked with disc and wheel in place. Replace the disc if the thickness exceeds the service limit.

09900-20205	Micrometer (0 – 25 mm)
Service Limit	3.0 mm (0.12 in)



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.

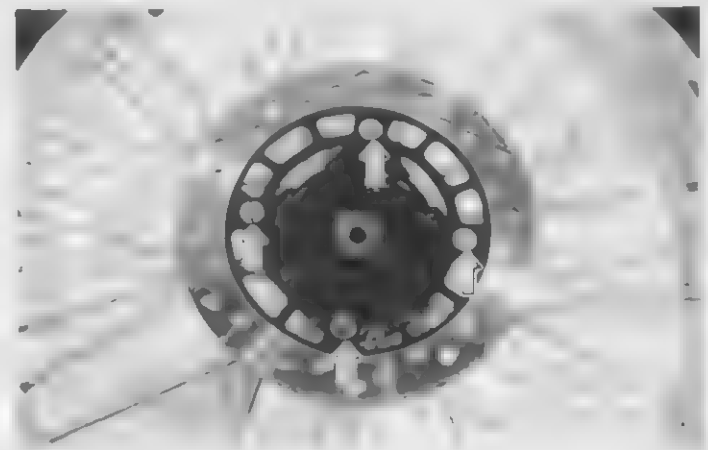
09900-20606	Dial gauge (1/100)
09900-20701	Magnetic stand
Service Limit	0.30 mm (0.012 in)



## DISC SERVICING

- Take off the front wheel. (Refer to page 6-1)
- Remove the disc mounting bolts and separate the disc from the wheel hub.
- Make sure that the brake disc is clean and free of any greasy matter. Apply thread lock "1360" to the disc mounting bolts and tighten them to the specified torque.

99000-32130	Thread lock "1360"
Tightening torque	18 – 28 N·m (1.8 – 2.8 kg·m) (13.0 – 20.0 lb·ft)





## CALIPER REASSEMBLY AND REMOUNTING

Reassemble and remount the caliper in the reverse order of disassembly and removal. Pay attention to the following points:

### CAUTION:

- Wash the caliper components with fresh brake fluid before reassembly.
- Never use cleaning solvent or gasoline to wash them.
- Apply brake fluid to the caliper bore and piston to be inserted into the bore.

- Apply SUZUKI silicone grease to the caliper axles.

99000-25100

SUZUKI silicone grease

### WARNING:

Bleed the air after reassembling the caliper.  
(See page 2-14)

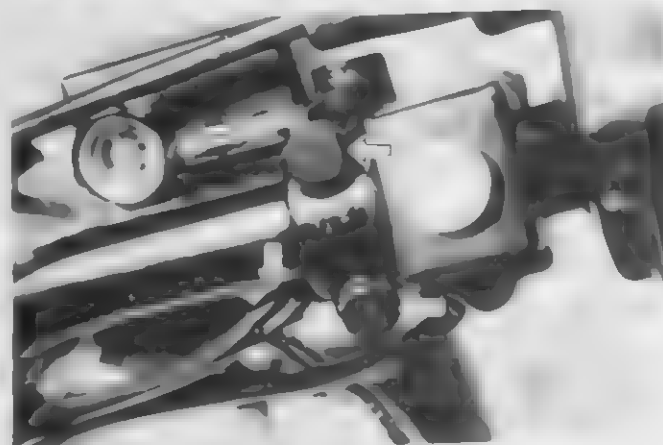
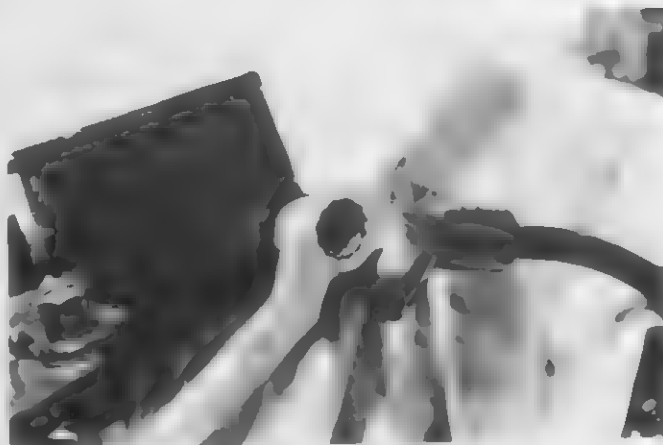
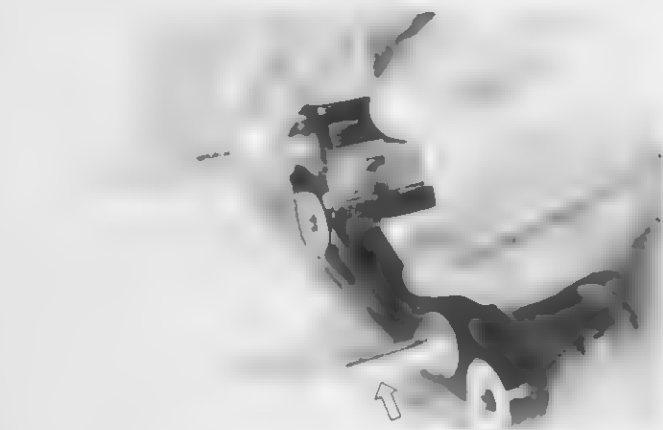
## MASTER CYLINDER REMOVAL AND DISASSEMBLY

- After removing the knuckle guard, 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.

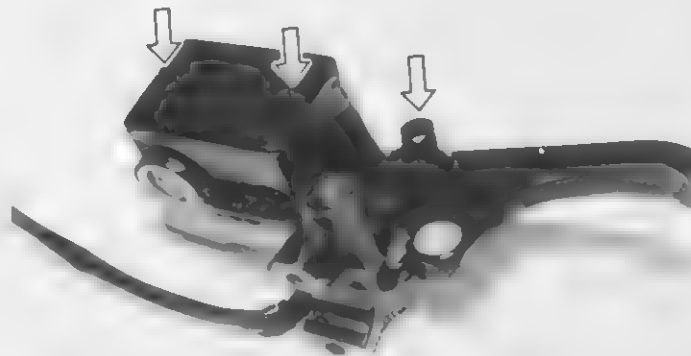
### CAUTION:

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

- Disconnect the brake light switch lead wire.
- Remove the two clamp bolts and take off the master cylinder assembly.



- Remove the front brake lever by removing the bolt.
- Remove the reservoir cap and diaphragm by removing the two screws.
- Drain the brake fluid.



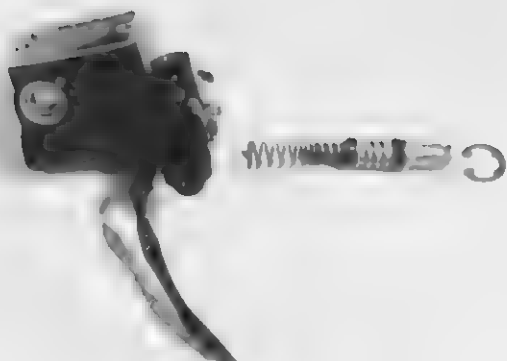
- Remove the brake fluid separator/plate.



- Remove the dust seal boot.
- Remove the circlip by using the special tool.
- Take out the spring/piston/primary cup/secondary cup from the master cylinder.

09900-06108

Snap ring pliers



## MASTER CYLINDER INSPECTION

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

Inspect the piston surface for scratches or other damage.

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



## MASTER CYLINDER REASSEMBLY AND REMOUNTING

Reassemble and remount the master cylinder in the reverse order of disassembly and removal. Pay attention to the following points:

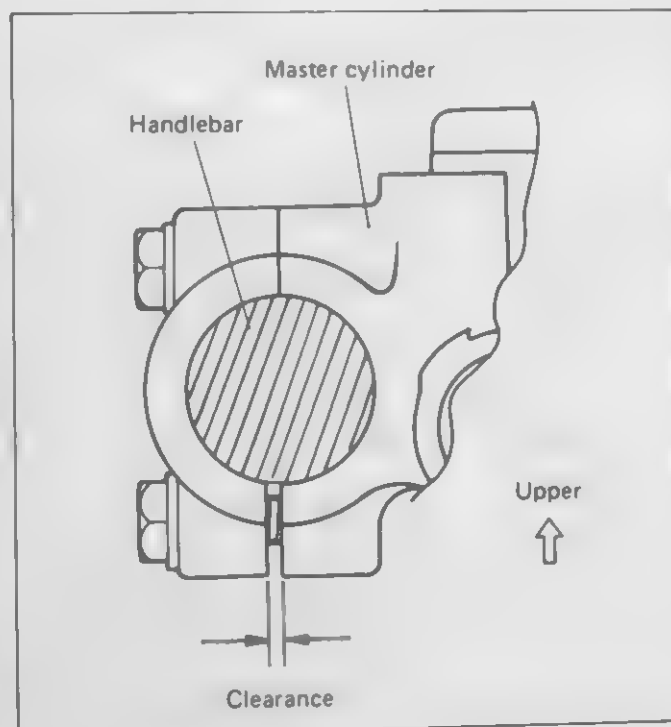
### CAUTION:

- 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.

- Remount the master cylinder on the handlebar as shown in the illustration.

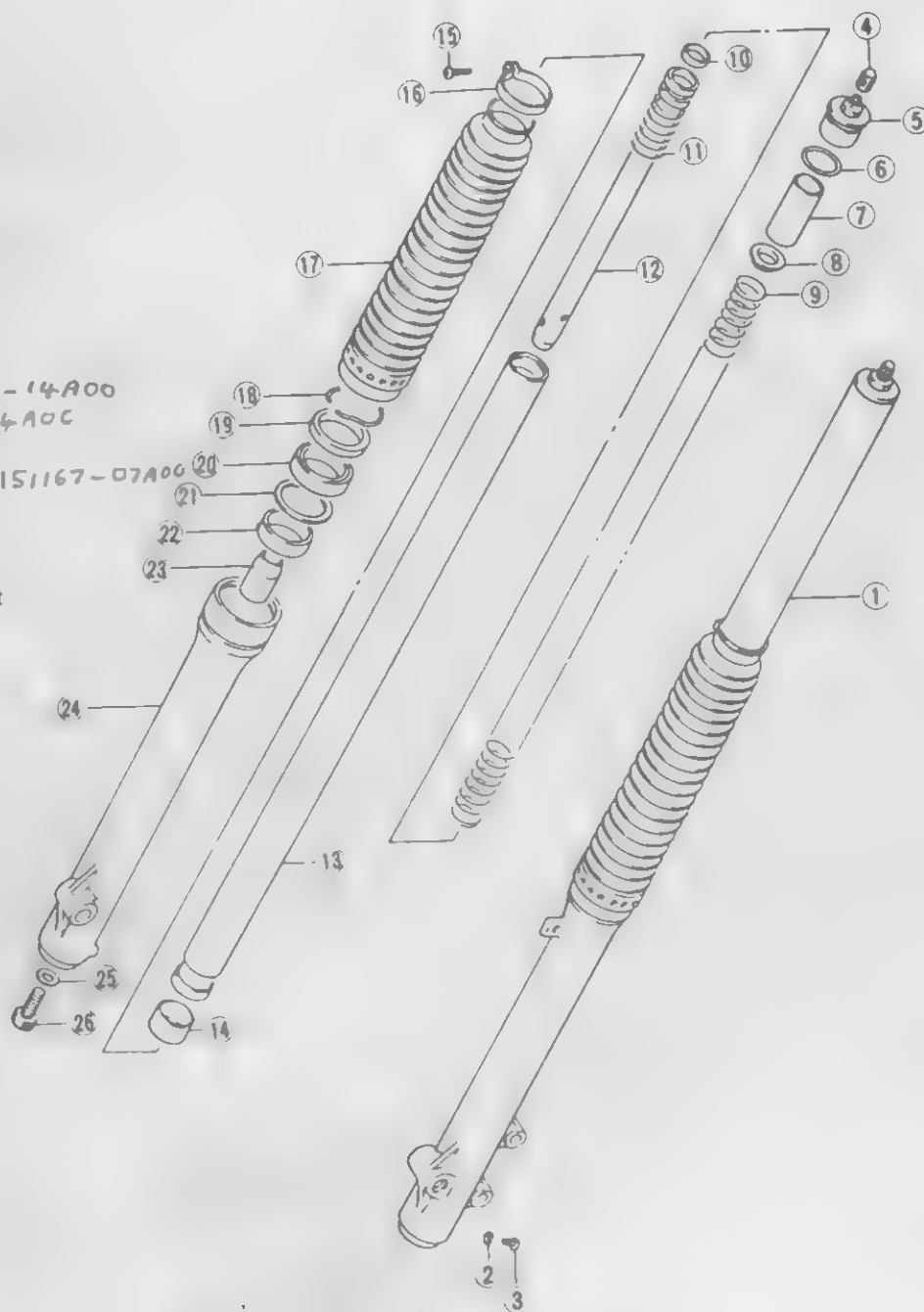
### WARNING:

Bleed the air after reassembling the master cylinder. (See page 2-14)  
Inspect the front brake light switch after installation.



# FRONT FORK

- ① Front fork, Left
- ② Gasket
- ③ Screw
- ④ Cap
- ⑤ Cap bolt
- ⑥ O-ring
- ⑦ Spacer
- ⑧ Spring guide
- ⑨ Spring
- ⑩ Damper rod ring
- ⑪ Rebound spring
- ⑫ Damper rod
- ⑬ Inner tube
- ⑭ Inner tube metal
- ⑮ Clamp screw
- ⑯ Clamp
- ⑰ Rubber boot
- ⑱ Stopping ring
- ⑲ Dust seal 51173-14A00
- ⑳ Oil seal 51153-14A0C
- ㉑ Oil seal retainer
- ㉒ Outer tube metal 51167-07A00
- ㉓ Oil lock piece
- ㉔ Outer tube
- ㉕ Gasket
- ㉖ Damper rod bolt



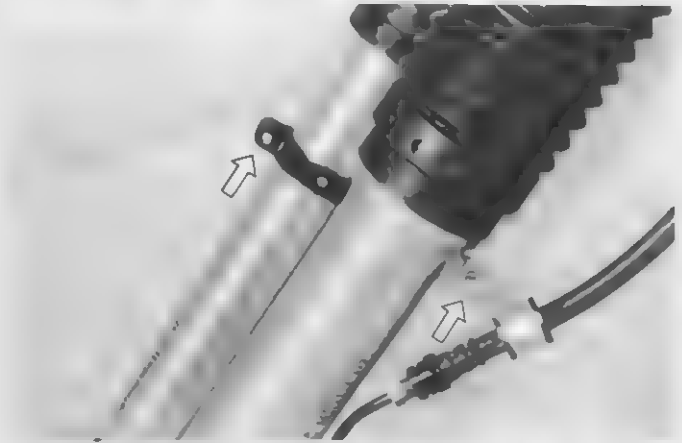
ITEM	Tightening torque		
	N·m	kg·m	lb·ft
5	25 - 35	2.5 - 3.5	18.0 - 25.5
26	34 - 46	3.4 - 4.6	24.5 - 33.5

### REMOVAL AND DISASSEMBLY

- Take off the front wheel. (Refer to page 6-1)
- Remove the speedometer gearbox from the speedometer cable by removing the bolt.



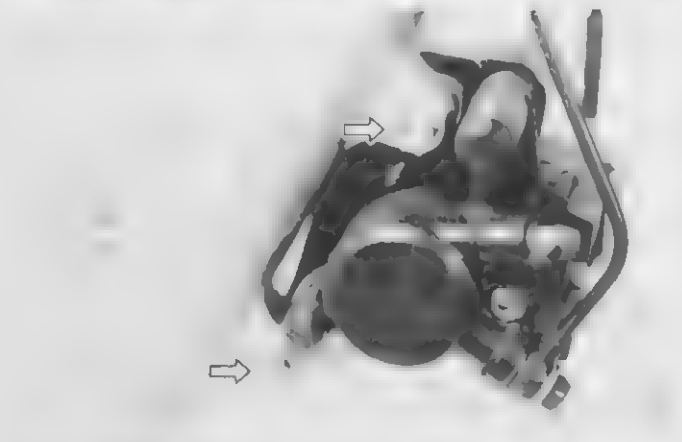
- Remove the brake hose clamp and speedometer cable clamp by removing the bolt and screw.



- Remove the caliper by removing the caliper mounting bolts.

**CAUTION:**

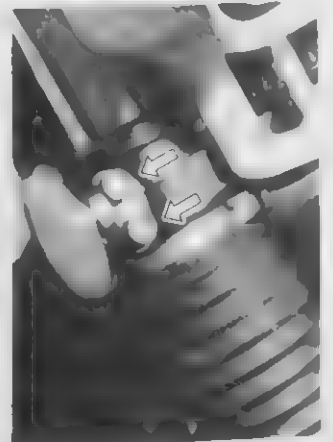
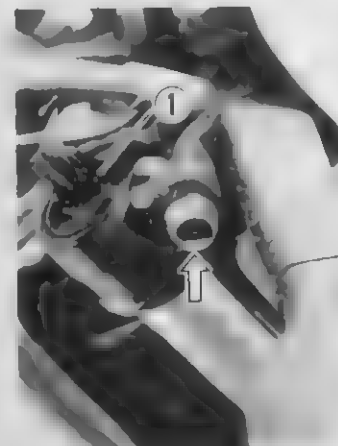
Hang the caliper from the motorcycle frame by using the string, etc., taking care not to bend the brake hose.



- Loosen the front fork upper and lower clamp bolts, right and left.
- Pull off the right and left front forks.

**NOTE:**

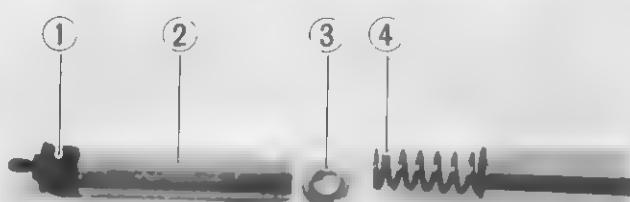
Slightly loosen the front fork cap bolt ① to facilitate later disassembly after loosening the upper clamp bolt.



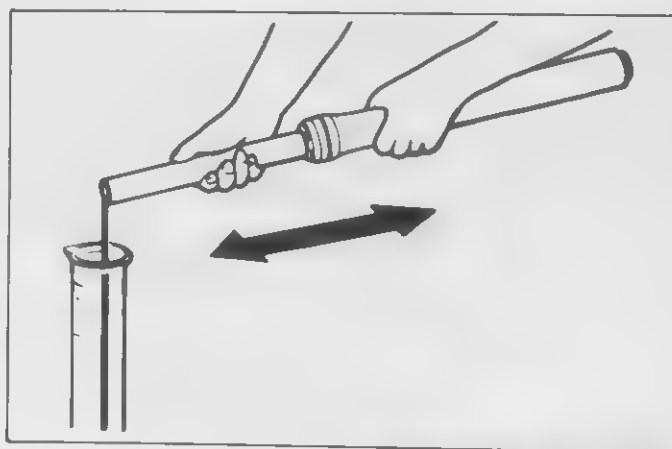
- Loosen the clamp screw and take off the rubber boot.
- Remove the dust seal stopper ring.



- Remove the cap bolt ① and draw out the spacer ②, spring guide ③ and spring ④ from the inner tube.

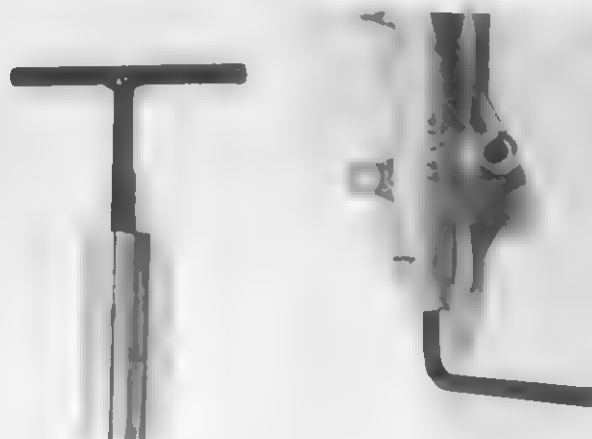


- Invert the fork and stroke it several times to let out fork oil.
- Under the condition (inverted condition), hold the fork for a few minutes.



- Remove the damper rod securing bolt by using the special tools.
- Draw out the damper rod and rebound spring from the inner tube.

09940-34520	"T" handle
09940-34581	Attachment "F"
09900-00401	"L" type hexagon wrench set



- Separate the inner tube from the outer tube.

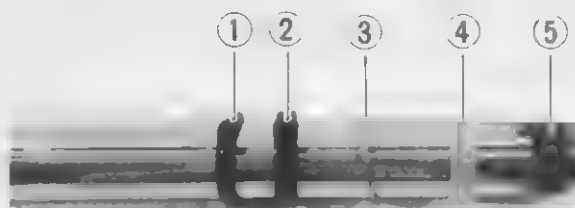
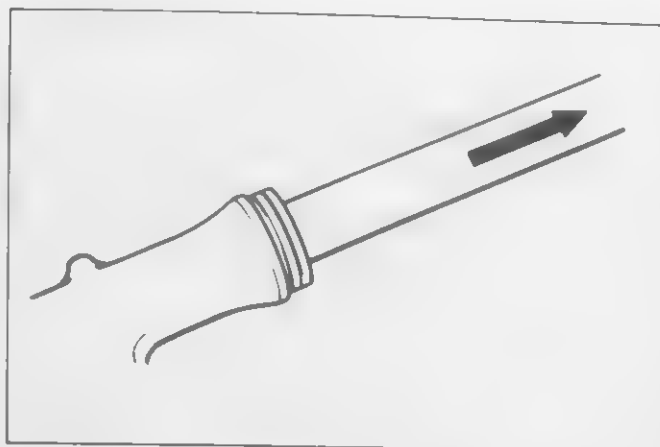
**NOTE:**

When separating the inner tube from the outer tube, both anti-friction metals may be damaged and must be replaced with new ones.

**CAUTION:**

The removed dust seal and oil seal should be replaced.

- ① Dust seal
- ② Oil seal
- ③ Oil seal retainer
- ④ Anti-friction metal (Outer tube)
- ⑤ Anti-friction metal (Inner tube)



- Remove the inner tube anti-friction metal.

**CAUTION:**

The removed metal should be replaced.

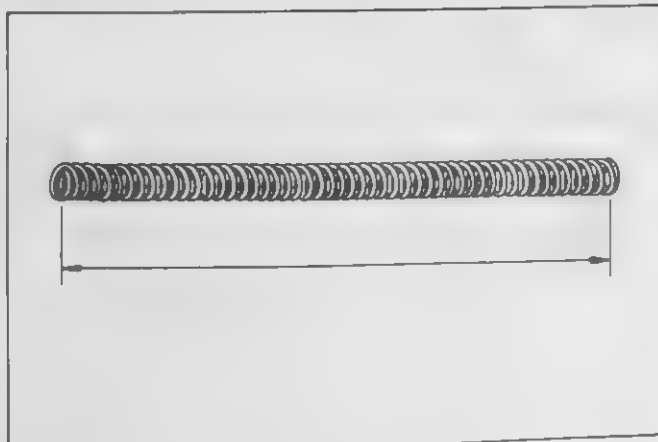


**INSPECTION**

**FORK SPRING**

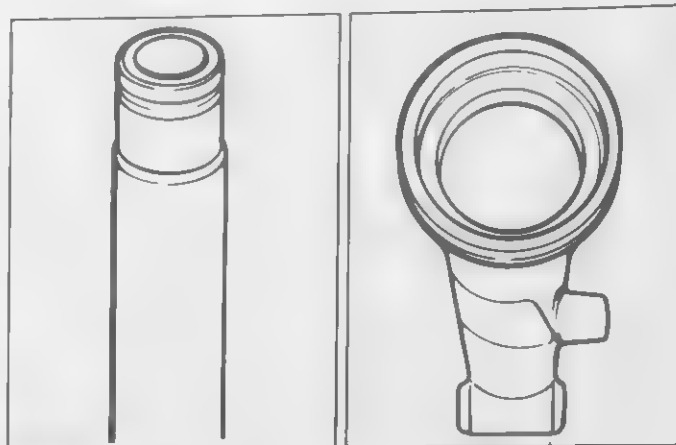
Measure the fork spring free length. If it is shorter than service limit, replace it.

Service Limit	502 mm (19.8 in)
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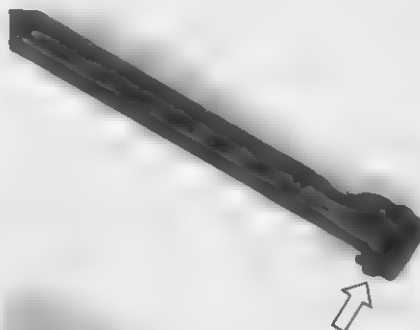
**INNER TUBE AND OUTER TUBE**

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



**DAMPER ROD RING**

Inspect the damper rod ring for wear and damage.

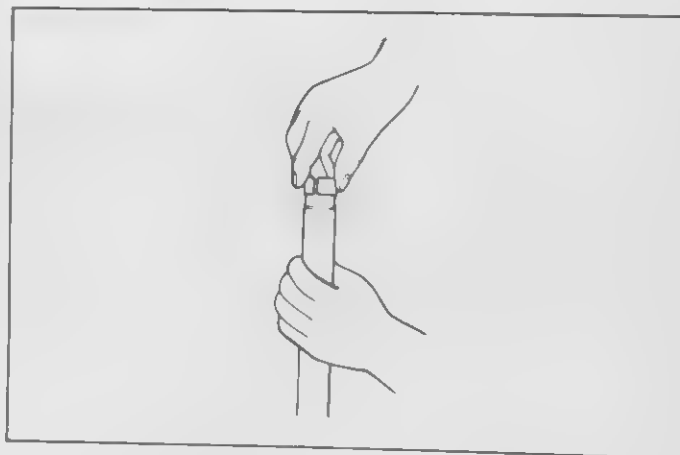


**REASSEMBLY AND REMOUNTING**

Reassemble and remount the front fork in the reverse order of disassembly and removal. Pay attention to the following points:

**INNER TUBE METAL**

- Hold the inner tube vertically and clean the metal groove.
- Clean the metal inner and outer surfaces and install it to the metal groove of the inner tube as shown.



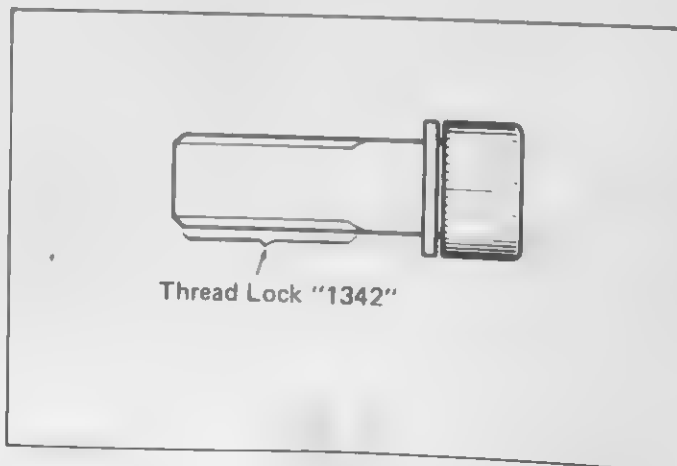
**CAUTION:**  
Use special care to prevent damage to the Teflon coated surface of the Anti-friction metal when mounting it.

**DAMPER ROD BOLT**

- Apply **THREAD LOCK "1342"** to the damper rod bolt.
- Tighten the damper rod bolt to the specified torque.

99000-32050	Thread lock "1342"
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Tightening torque	34 – 46 N·m ( 3.4 – 4.6 kg·m ) (24.5 – 33.5 lb·ft)
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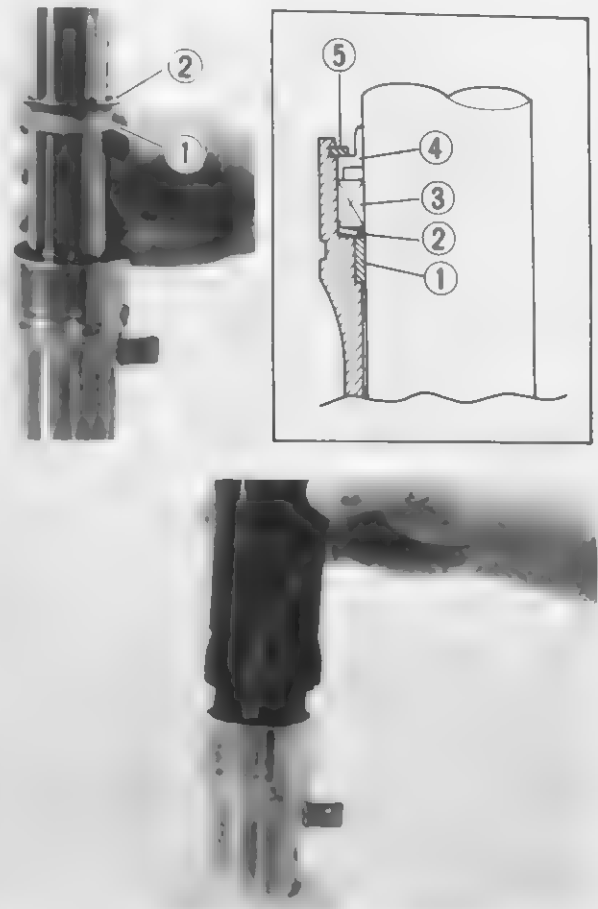
**OUTER TUBE METAL, OIL SEAL AND DUST SEAL**

- Clean the metal groove of outer tube and metal outer surface.
- Install the outer tube metal ①, oil seal retainer ②, oil seal ③ and dust seal ④.

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

09940-50112	Front fork oil seal installer
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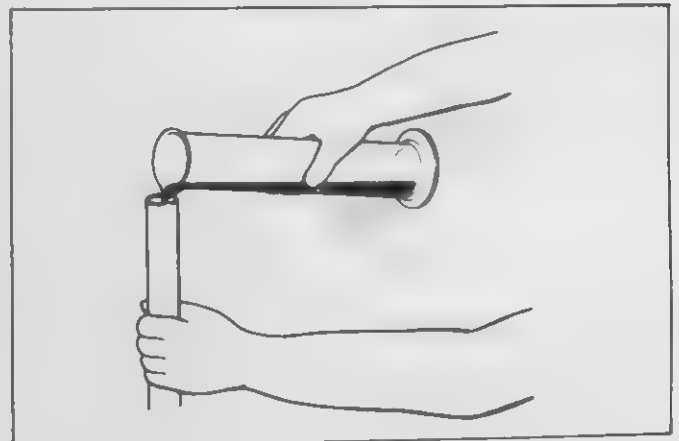
**NOTE:**  
After installing the dust seal ④, install the dust seal stopper ring ⑤.



**FORK OIL**

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

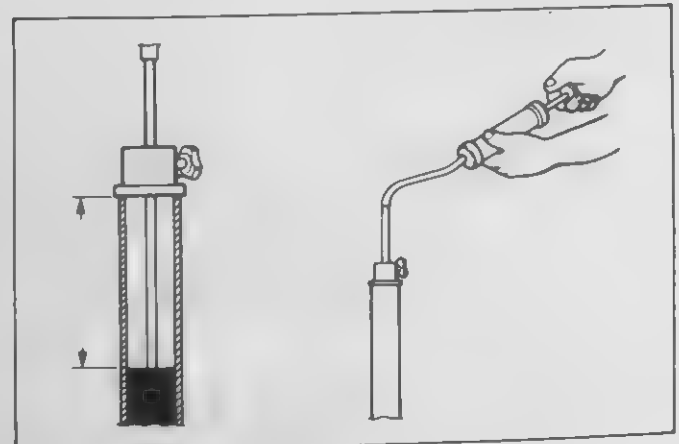
Fork oil type	Fork oil # 10
Fork oil capacity	475 ml (16.1 US oz)



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

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

09943-74111	Fork oil level gauge
STD oil level	170 mm (6.7 in)



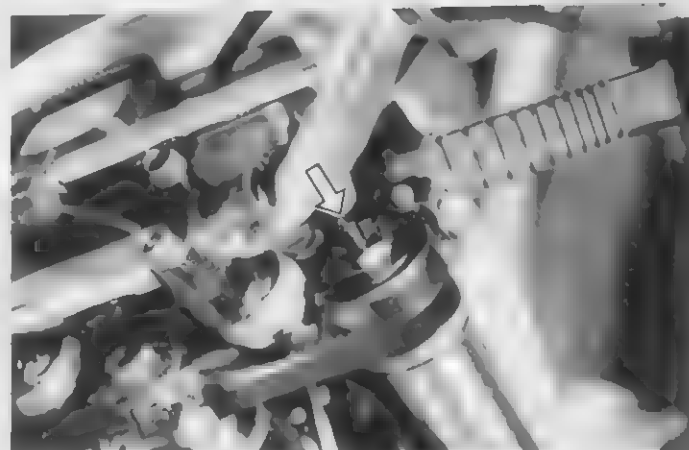
### FRONT FORK REMOUNTING

- When installing the front fork assembly, align the top surface ① of the cap bolt to the top surface ② of the steering stem upper bracket.



### AIR PRESSURE SERVICING

- Support the motorcycle by jack or block, and keep the front wheel off the ground.
- Remove the air valve protection caps and press the air valve to equalize the fork air pressure with atmospheric pressure. This must be done when the forks are cold.



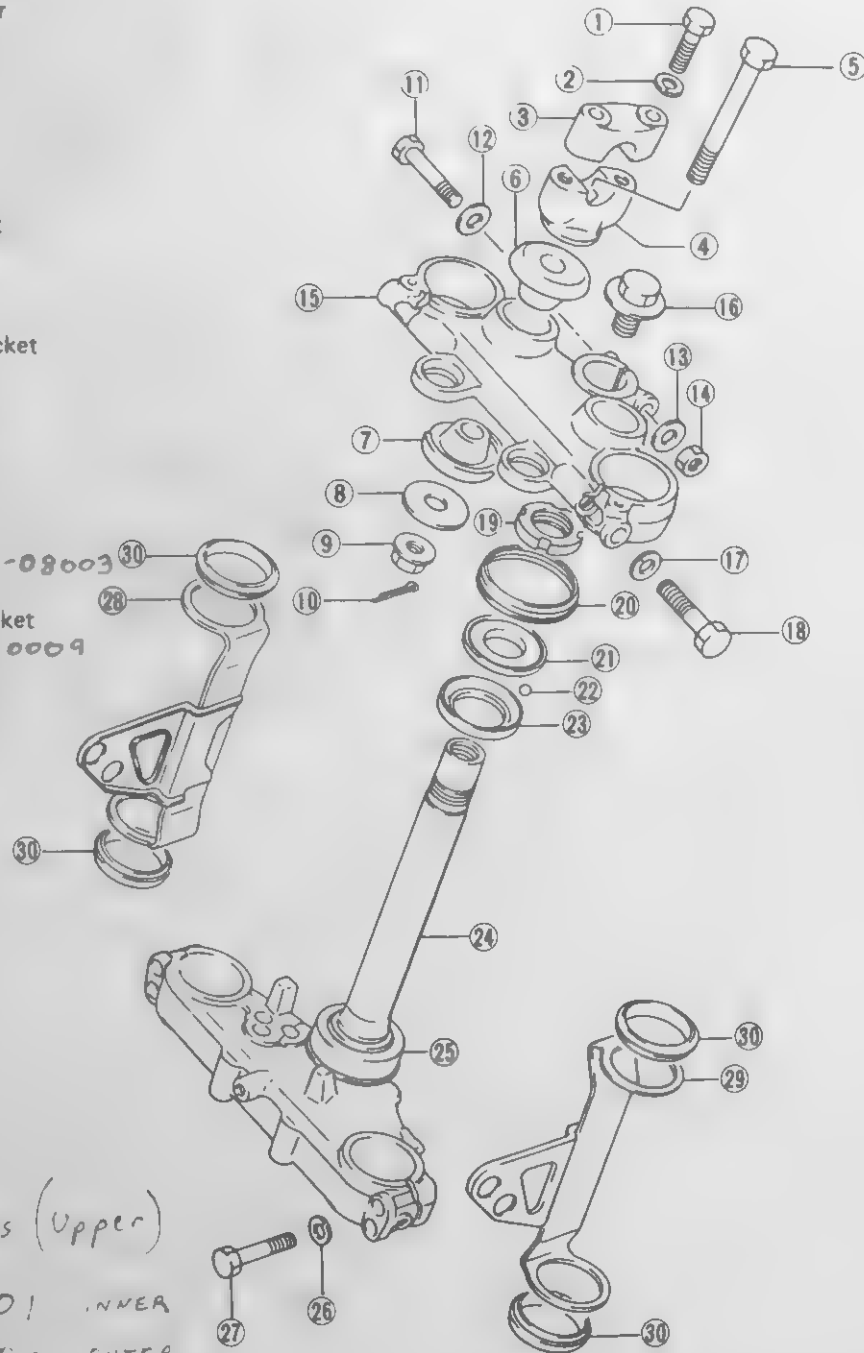
Standard pressure	0 kPa, 0 kg/cm <sup>2</sup> (0 psi)
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#### CAUTION:

The maximum permissible air pressure is 250 kPa, 2.5 kg/cm<sup>2</sup> (35 psi) to avoid fork oil seal and valve damage.

# STEERING

- ① Clamp bolt
- ② Lock washer
- ③ Handlebar holder, Upper
- ④ Handlebar holder, Lower
- ⑤ Holder bolt
- ⑥ Damper, Upper
- ⑦ Damper, Lower
- ⑧ Washer
- ⑨ Nut
- ⑩ Cotter pin
- ⑪ Steering stem clamp bolt
- ⑫ Washer
- ⑬ Washer
- ⑭ Nut
- ⑮ Steering stem upper bracket
- ⑯ Steering stem head bolt
- ⑰ Lock washer
- ⑱ Fork upper clamp bolt
- ⑲ Steering stem nut
- ⑳ Dust seal
- ㉑ Bearing race
- ㉒ Steel ball (18 pcs) 06111-08003
- ㉓ Bearing race
- ㉔ Steering stem lower bracket
- ㉕ Bearing set 09265-30009
- ㉖ Lock washer
- ㉗ Fork lower clamp bolt
- ㉘ Headlight bracket, Right
- ㉙ Headlight bracket, Left
- ㉚ Cushion rubber



Bearing races Nos (Upper)

51611-40201 INNER

51621-40200 OUTER

ITEM	Tightening torque		
	N-m	kg-m	lb-ft
①	12 - 20	1.2 - 2.0	8.5 - 14.5
⑪, ⑲	15 - 25	1.5 - 2.5	11.0 - 18.0
⑯	35 - 50	3.5 - 5.0	25.5 - 36.0
⑱	20 - 30	2.0 - 3.0	14.5 - 21.5
⑲	40 - 50	4.0 - 5.0	29.0 - 36.0

## REMOVAL AND DISASSEMBLY

- Take off the front wheel. (Refer to page 6-1)
- Remove the brake caliper and front forks. (Refer to page 6-13)
- Remove the brake hose/pipe joint by removing the bolt ①.

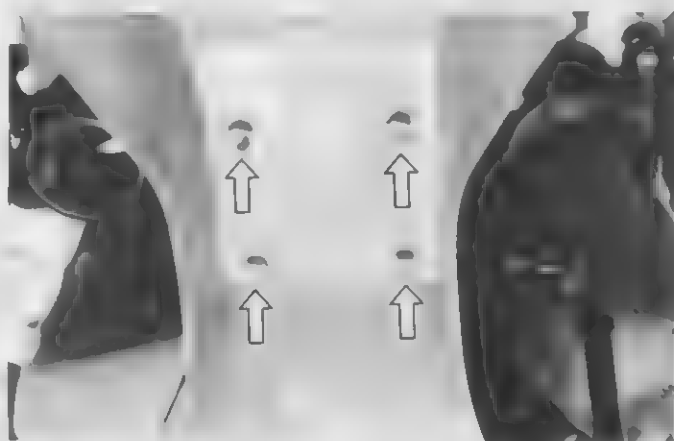
### CAUTION:

Hang the caliper from the motorcycle frame by using the string, etc., taking care not to bend the brake hose.

- Remove the front fender by removing the four bolts.

- Remove the headlight cover by removing the three screws.

- Remove the headlight assembly with the headlight brackets.



- Remove the right and left turn signal lights by removing the front fork upper clamp bolts and screws.



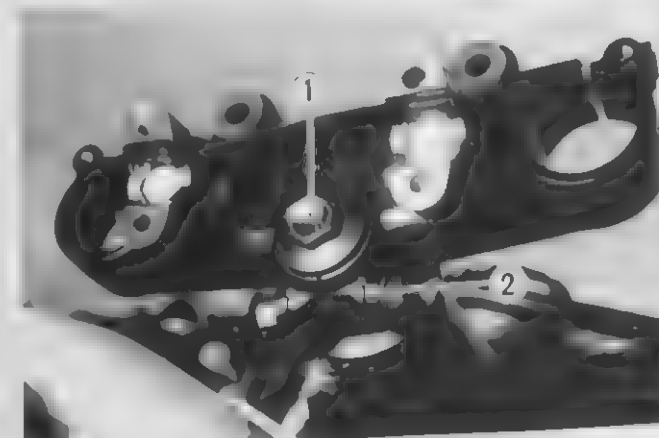
- Remove the instrument panel assembly by removing the two nuts.



- Remove the handlebar by removing the four clamp bolts.



- Remove the steering stem upper bracket by removing the stem head bolt ① and stem clamp bolt ②.



- Loosen the steering stem nut ① by using the special tool.

09940-14920	Steering nut socket wrench
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- Remove the steering stem nut, dust seal and upper race, and draw out the steering stem.

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

- Remove the upper steering stem steel balls.

Number of balls	18 pcs
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- Draw out the lower steering stem bearing by using the special tool.

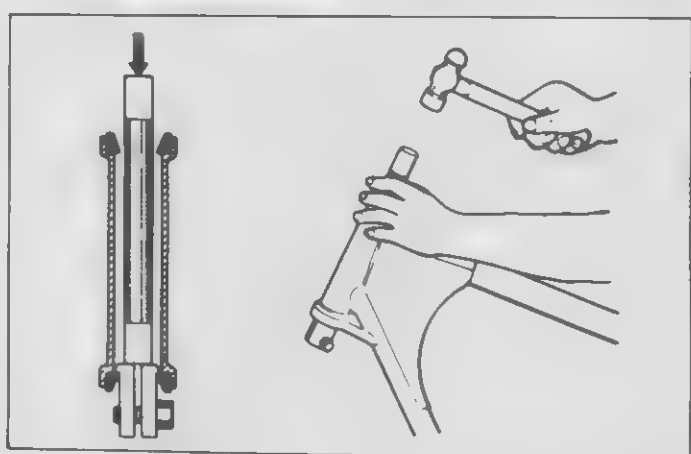
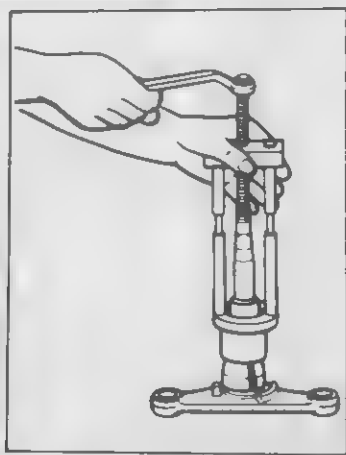
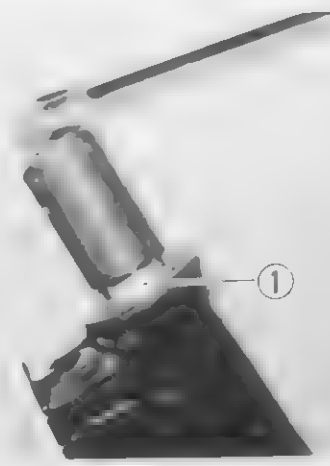
**CAUTION:**  
The removed bearing should be replaced.

09941-84510	Bearing inner race remover
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- Drive out the steering stem bearing races, upper and lower, by using the special tools.

09941-54911	Steering race remover
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09941-74910	Steering bearing installer
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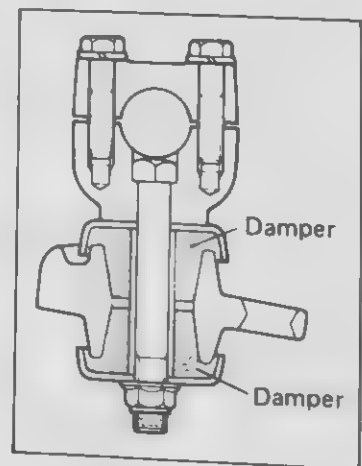
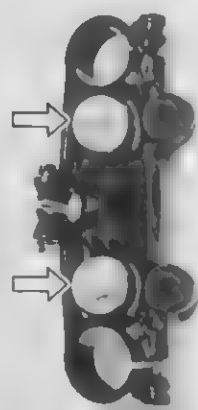


**INSPECTION**

Inspect the removed parts for the following abnormalities.

- \* Handlebar distortion
- \* Handlebar clamp wear
- \* Race wear and brinelling
- \* Steel balls wear or damage
- \* Abnormal noise of bearing
- \* Distortion of steering stem

Inspect the play of dampers by hands while fixing it in the steering stem upper bracket. If the play can be found, replace the dampers.



## REASSEMBLY AND REMOUNTING

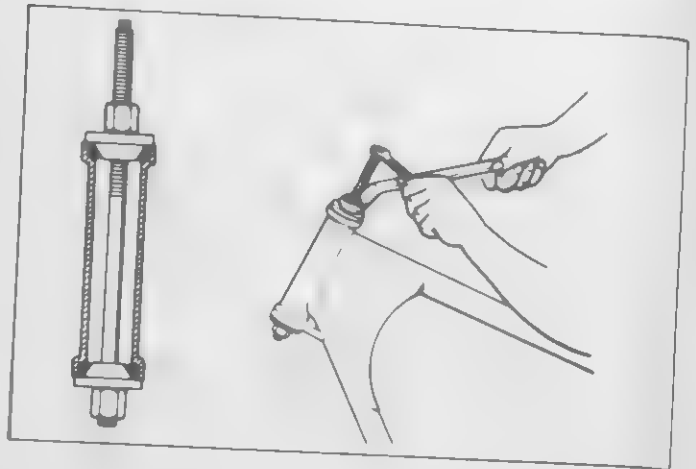
Reassemble and remount the steering stem in the reverse order of disassembly and removal. Pay attention to the following points:

### BEARING RACES

- Press in the upper and lower bearing races by using the special tool.

09941-34513

Steering outer race installer

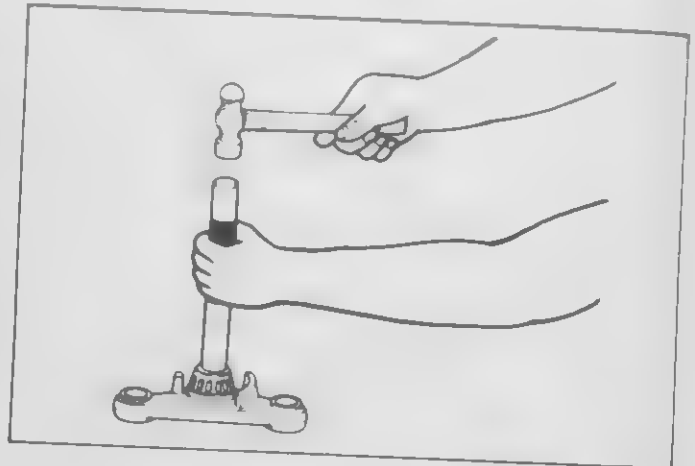


### BEARING

- Press in the lower bearing by using the special tool.

09941-74910

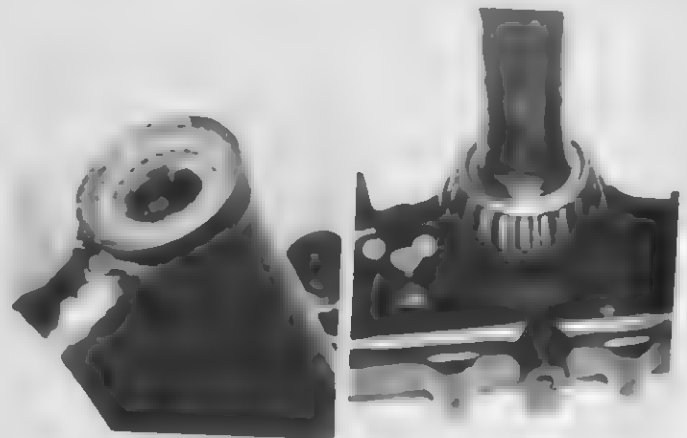
Steering bearing installer



- Apply grease to the steel balls and bearing before remounting the steering stem.

99000-25010

SUZUKI super grease "A"



### STEERING STEM NUT

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

09940-14920

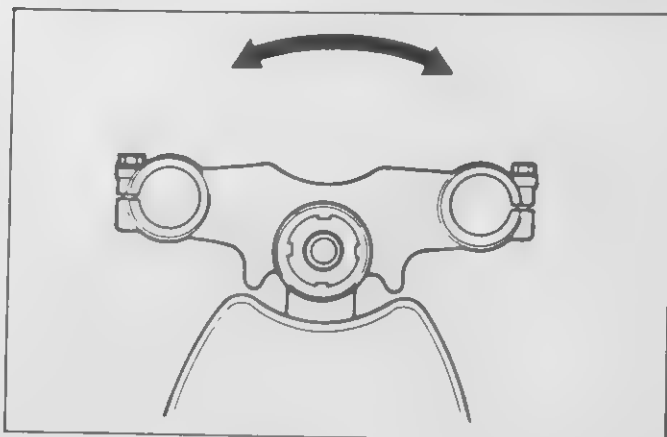
Steering nut socket wrench

Tightening torque

40 – 50 N·m  
(4.0 – 5.0 kg·m)  
(29.0 – 36.0 lb·ft)



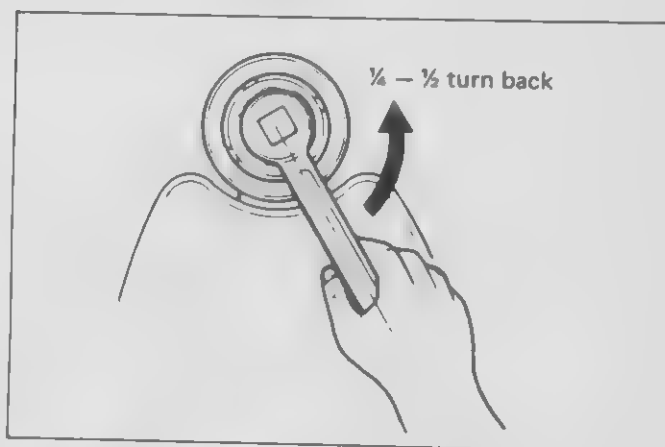
- Turn the steering stem right and left, lock-to-lock, five or six times to "seat" the steel balls and bearing.



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

**NOTE:**

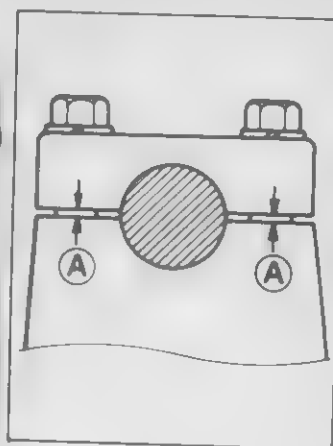
This adjustment will vary from motorcycle to motorcycle.

**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 clearances (A) ahead of and behind the handlebar are equalized.

Tightening torque

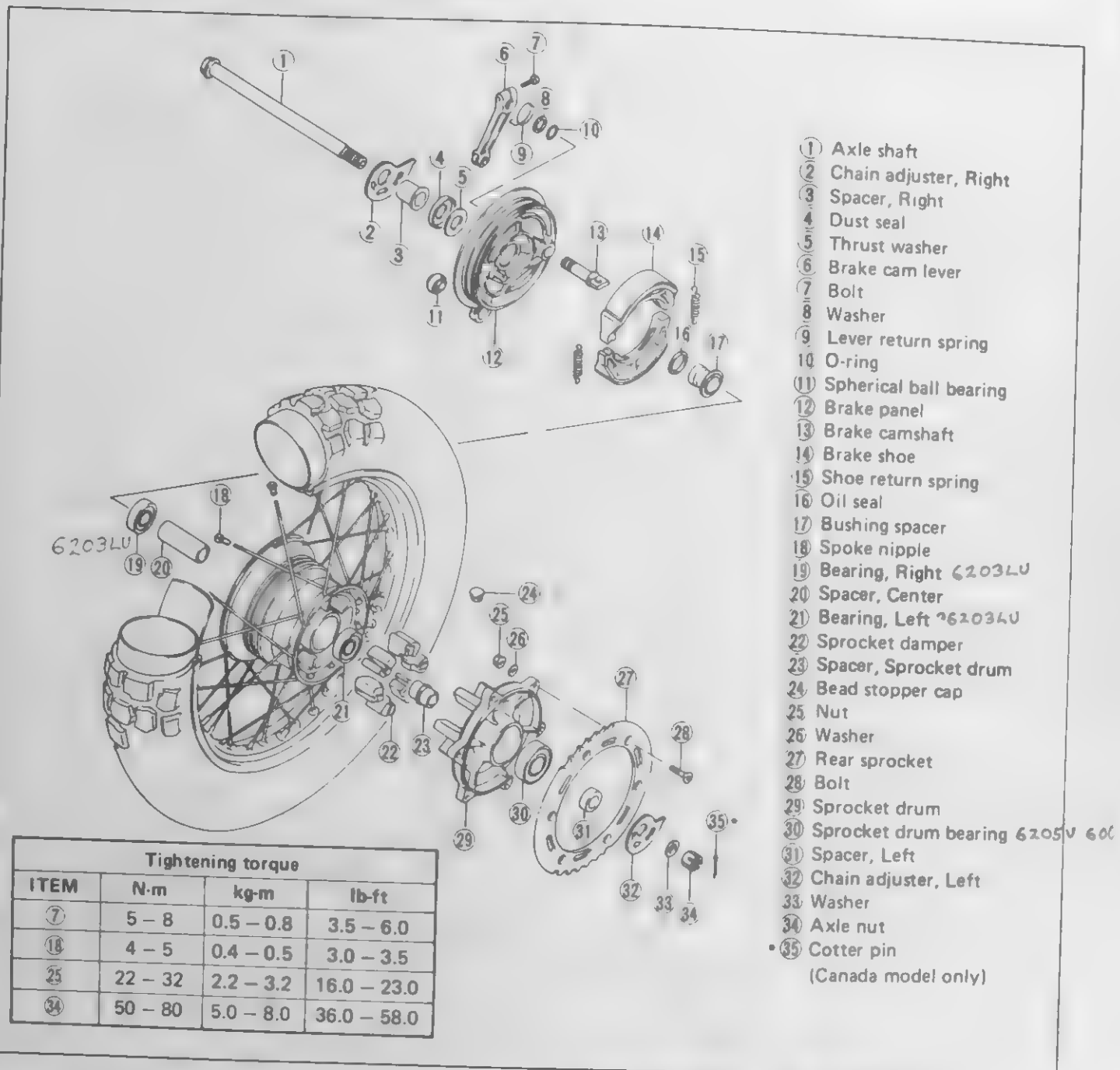
12 – 20 N·m  
(1.2 – 2.0 kg·m)  
(8.5 – 14.5 lb·ft)

**CAUTION:**

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

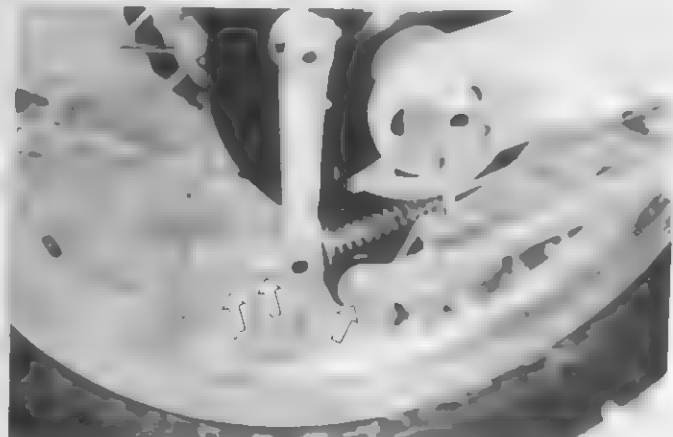


## REAR WHEEL AND REAR BRAKE

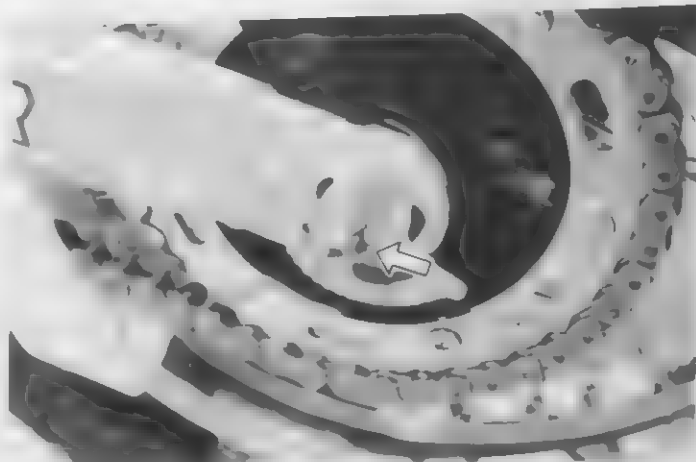


## REMOVAL

- Support the motorcycle by jack or block, and keep the rear wheel off the ground.
- Pull out the cotter pin and remove the brake adjuster nut.
- Pull out the cotter pin and remove the torque link nut and bolt.



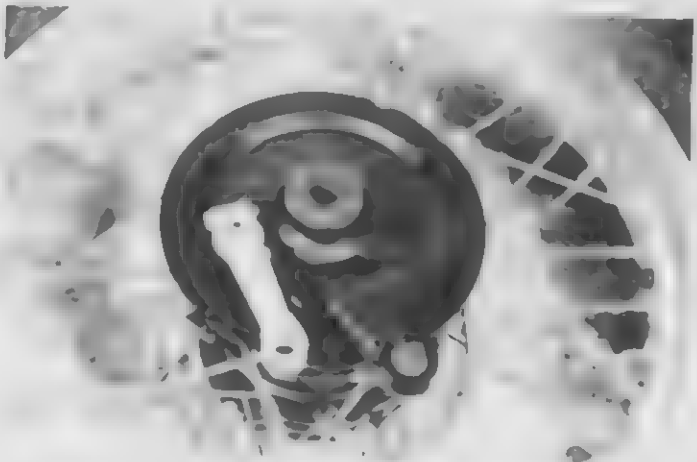
- Pull out the cotter pin and remove the axle nut. (\* Canada model only)



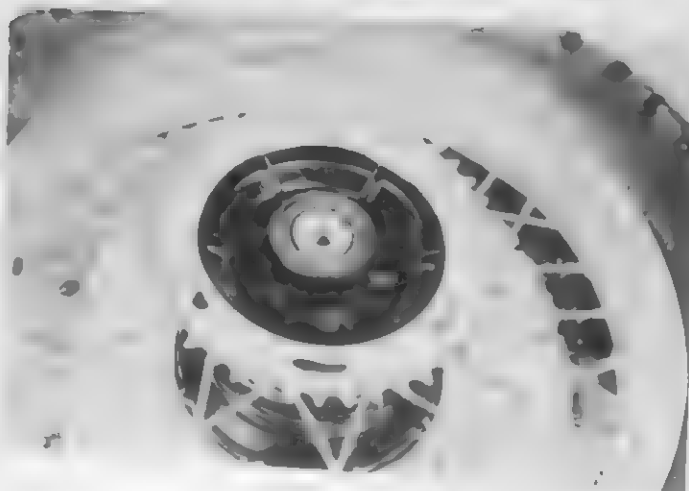
- Draw out the axle shaft and disengage the drive chain from the rear sprocket.
- Take off the rear wheel with the rear brake panel.



- Remove the rear brake panel from the rear wheel hub.

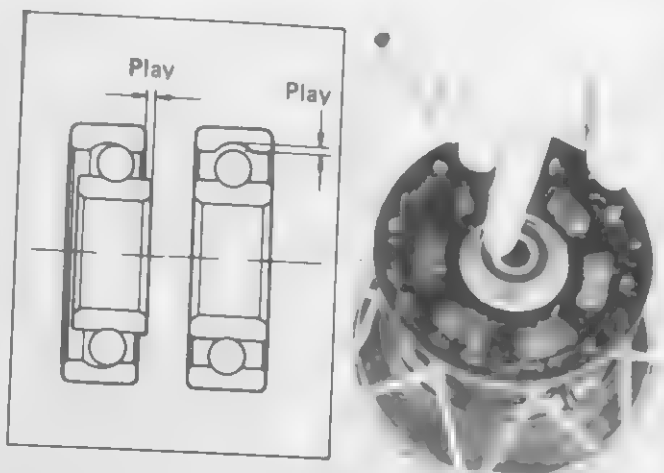


- Remove the rear sprocket from the rear wheel hub.



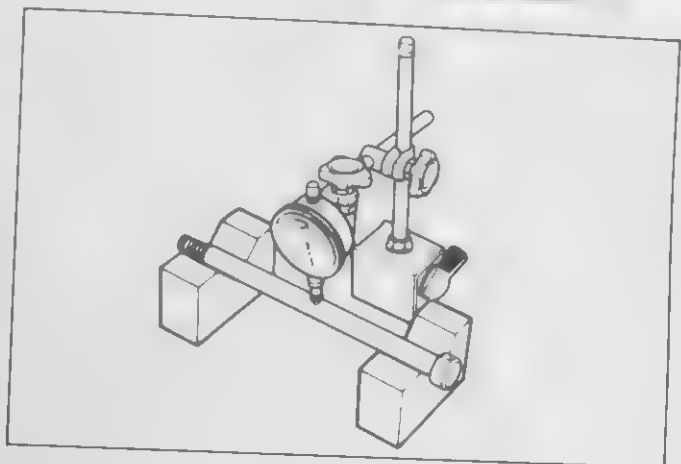
**INSPECTION****WHEEL HUB BEARING**

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

**AXLE SHAFT**

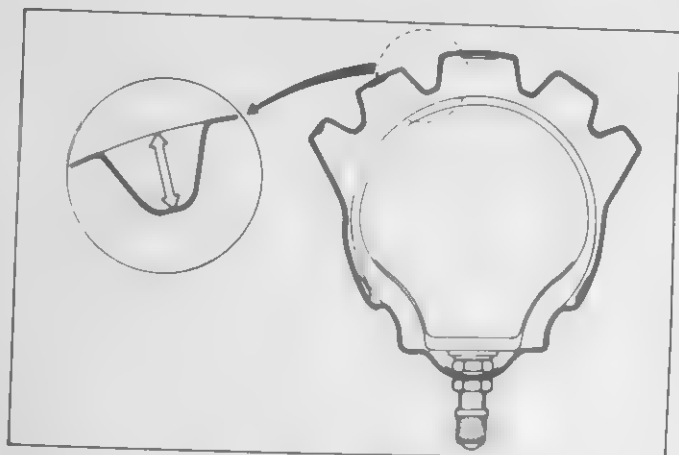
Using a dial gauge, check the axle shaft for runout and replace it if the runout exceeds the limit.

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

**TIRE**

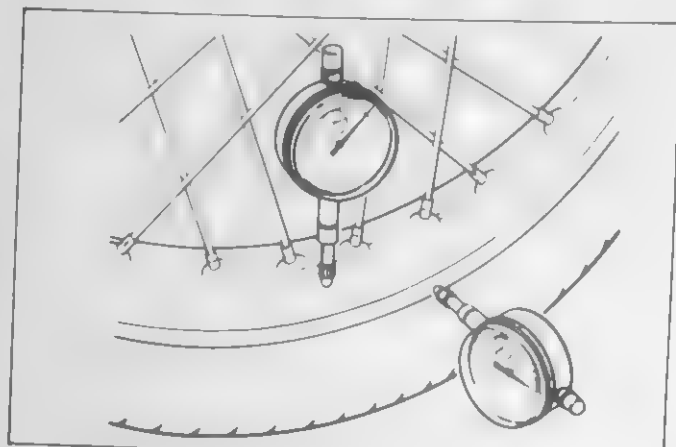
For proper braking and riding stability, the tire should have sufficient groove depth from the tread surface. If the groove depth, measured as shown in the figure, reaches the wear limit, replace the tire.

Service Limit	3.0 mm (0.12 in)
---------------	------------------

**WHEEL RIM**

Make sure that the wheel rim runout checked as shown, does not exceed the service limit. An excessive runout is usually due to worn or loose wheel hub bearings and can be reduced by replacing the bearings. If bearing replacement fails to reduce the runout, adjust the tension of the spokes and, if this proves to be of no effect, replace the wheel rim.

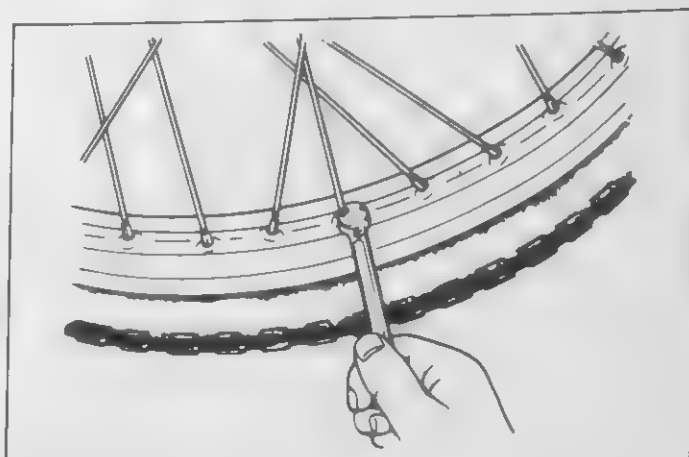
Service Limit (Axial and Radial)	2.0 mm (0.08 in)
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**SPOKE NIPPLE**

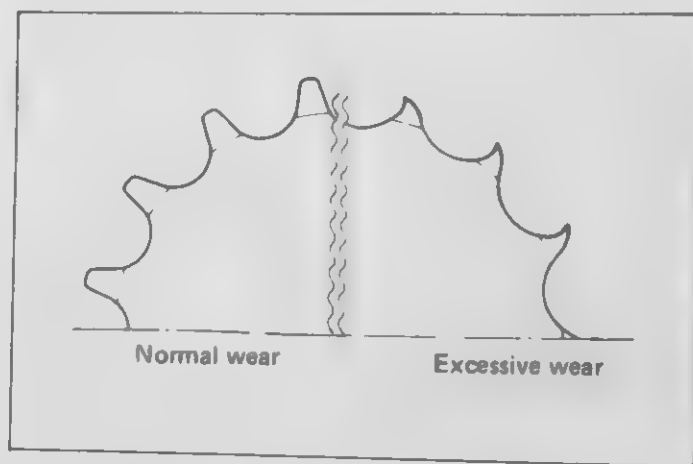
Check to be sure that all nipples are tight, and retighten them as necessary using special tool.

Tightening torque	4 – 5 N.m (0.4 – 0.5 kg-m) 3.0 – 3.5 lb-ft
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**REAR SPROCKET**

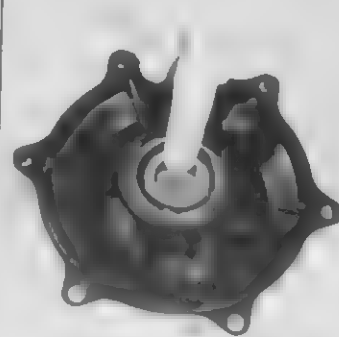
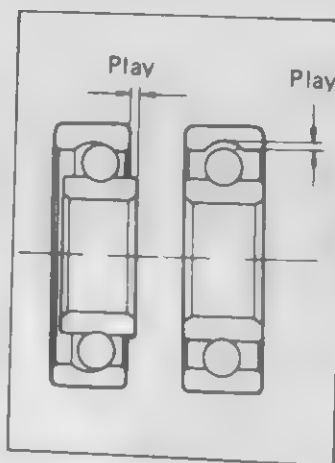
Inspect the sprocket teeth for wear. If they are worn as illustrated, replace the sprocket and drive chain.



**REAR SPROCKET DRUM BEARING**

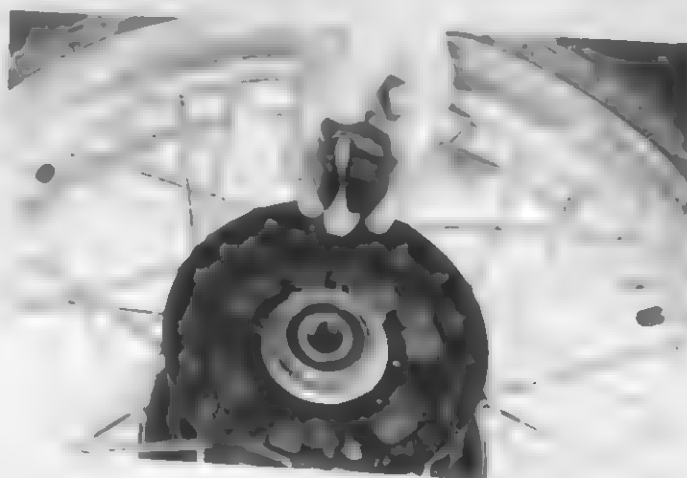
Inspect the play of the rear sprocket drum bearing inner race by hand while it is in the sprocket drum.

Rotate the inner race by hand to inspect for abnormal noise occurs and rotating smoothly. Replace the bearing if there is anything unusual.



**REAR SPROCKET DAMPER**

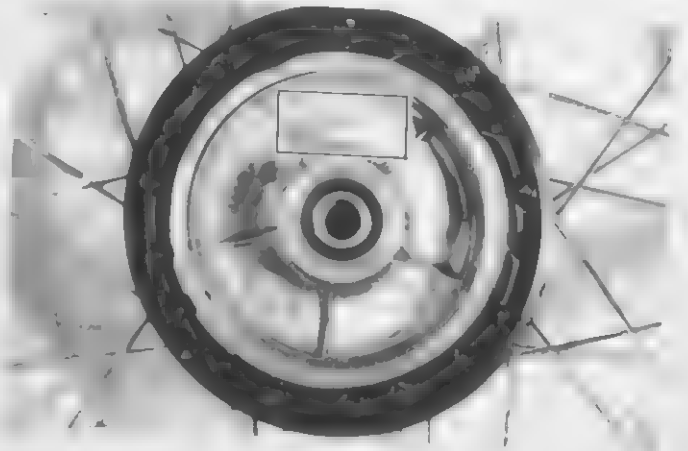
Inspect the dampers for wear and damage. If any defects are found, replace the dampers as a set.



**BRAKE DRUM**

Measure the brake drum I.D. to determine the extent of wear. If the limit is exceeded by the wear noted, replace the drum. The value of this limit is indicated inside the drum.

Service Limit	130.7 mm (5.15 in)
---------------	--------------------

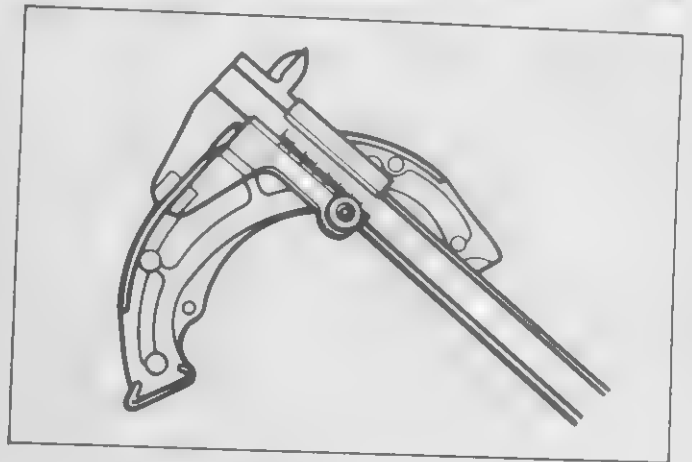
**BRAKE SHOE**

Check the brake shoes and decide whether they should be replaced or not from the thickness of the brake shoe linings.

Service Limit	1.5 mm (0.06 in)
---------------	------------------

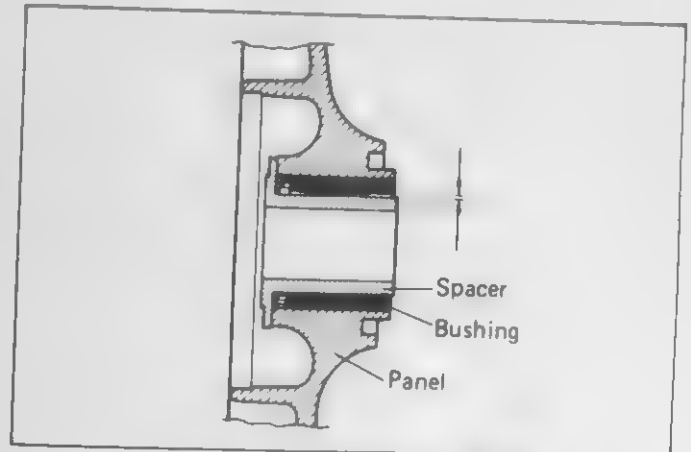
**CAUTION:**

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

**BRAKE PANEL BUSHING**

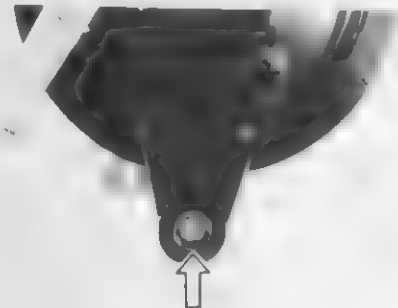
Inspect the panel bushing by hand while it is in the panel.

Rotate the spacer by hand to inspect for abnormal noise and smooth rotation. Replace the bushing with panel set if there is anything unusual.

**BRAKE PANEL SPHERICAL BALL BEARING**

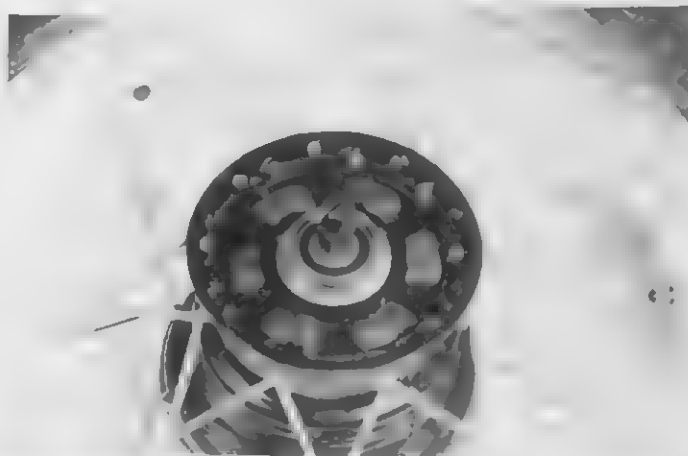
Inspect the panel spherical ball bearing by hand while it is in the panel.

Move the bearing by hand to inspect for abnormal noise and smooth movement. Replace the bearing or panel set if there is anything unusual.



## DISASSEMBLY WHEEL HUB BEARING

- Drive out the wheel hub bearings by using the special tool in the following procedures.
- Insert the adapter into the wheel hub bearing.



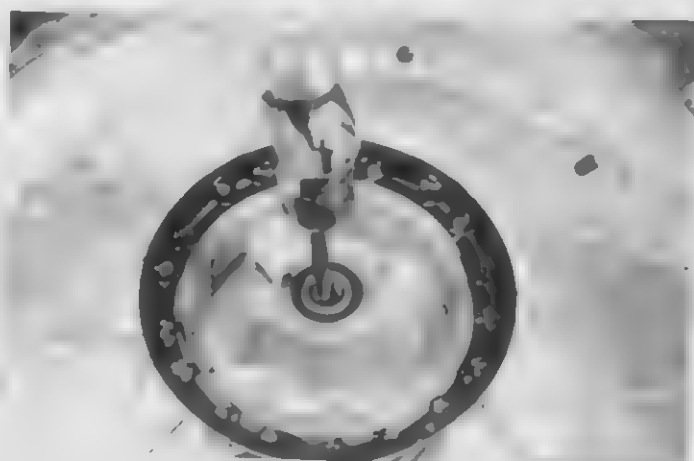
- After inserting the wedge bar from the opposite side, lock the wedge bar in the slit of the adapter.
- Drive out the wheel hub bearing by knocking the wedge bar.

### CAUTION:

The removed bearing should be replaced.

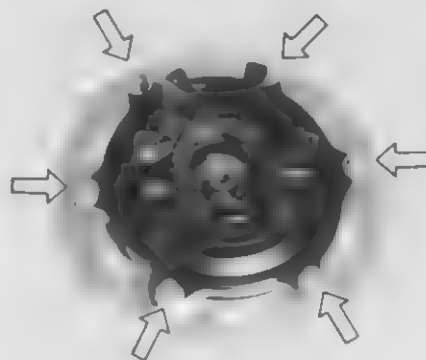
09941-50110

Bearing remover

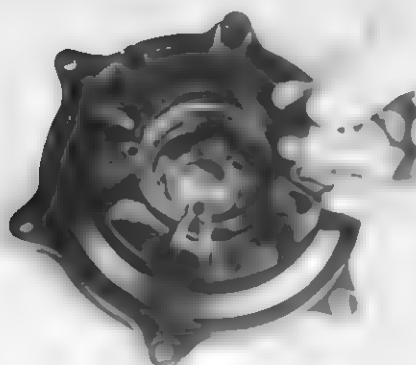


## REAR SPROCKET AND BEARING

- Remove the rear sprocket by removing the nuts and bolts.



- Pull off the bearing spacer.



- Drive out the rear sprocket drum bearing by using the special tool.

**CAUTION:**

The removed bearing should be replaced.

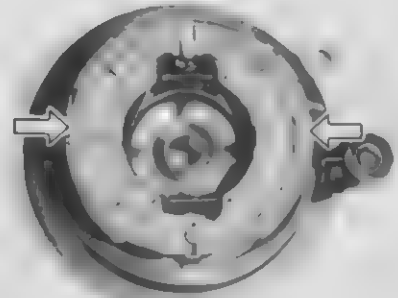
09913-75830

Bearing installer/remover

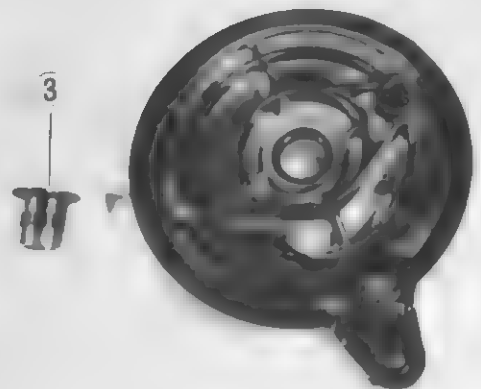
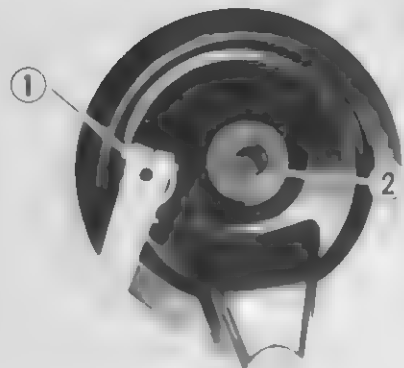


**REAR BRAKE**

- Remove the brake shoes.



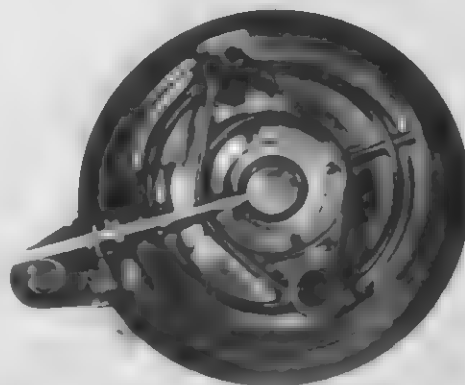
- Remove the brake cam lever and lever return spring by removing the bolt ①.
- Pull out the brake camshaft from the opposite side.
- Remove the dust seal ②.
- Pull out the spacer ③ from the opposite side.



- Remove the brake panel oil seal.

**CAUTION:**

The removed oil seal should be replaced.



**REASSEMBLY AND REMOUNTING**

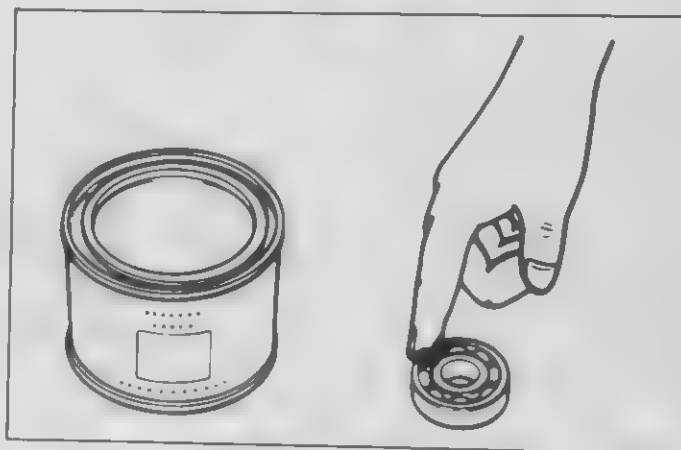
Reassemble and remount the wheel, wheel hub, rear sprocket and rear brake in the reverse order of disassembly and removal. Pay attention to the following points:

**WHEEL HUB BEARING**

- Apply grease to the bearing before installing.

99000-25010

Suzuki super grease "A"



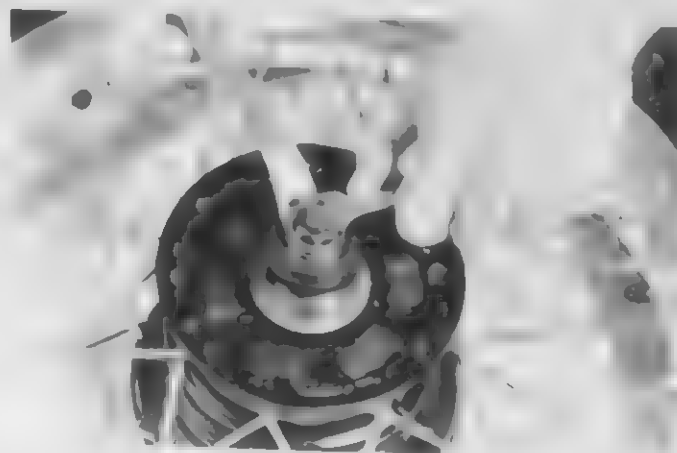
- Install the wheel hub bearings by using a bearing installer.

09941-34513

Bearing installer

**NOTE:**

First install the bearing for right side. Seal side of bearing goes toward outside.

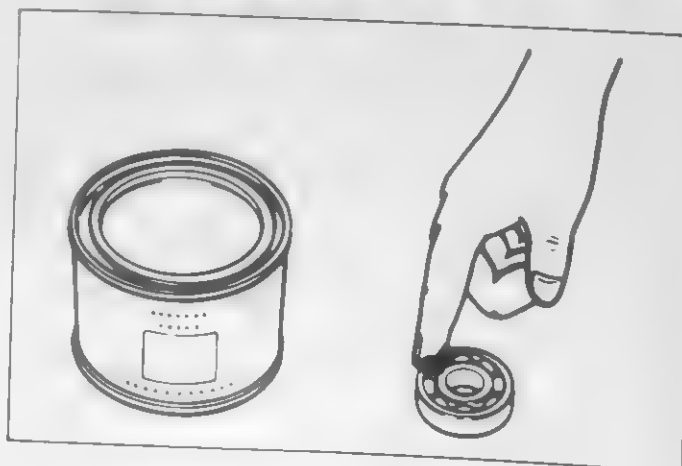


**REAR SPROCKET**

- Apply grease to the rear sprocket drum bearing before installing.

99000-25010

Suzuki super grease "A"





## 6-33 CHASSIS

- Install the rear sprocket drum bearing by using a bearing installer.

**NOTE:**

Seal side of bearing goes toward outside.

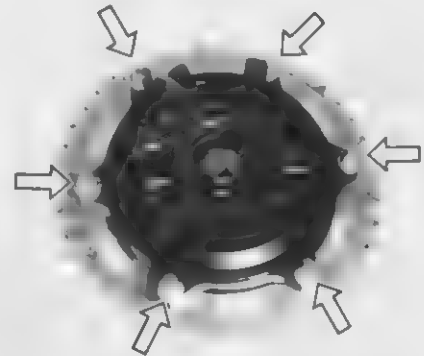
09941-34513

Bearing installer

- Install the bearing spacer.
  
- Tighten the sprocket mounting bolts and nuts to the specified torque.

Tightening torque

22 – 32 N·m  
( 2.2 – 3.2 kg·m )  
( 16.0 – 23.0 lb-ft )

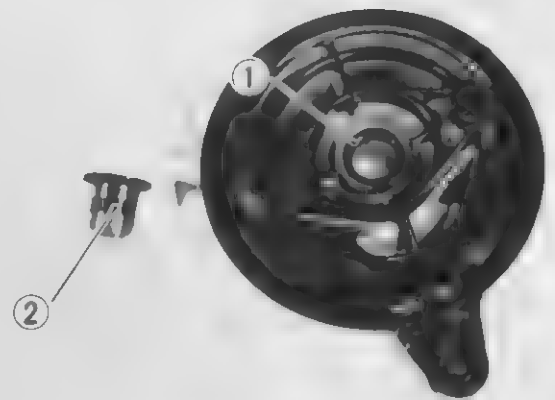


### REAR BRAKE

- Install new oil seal ① into the brake panel with the tip of fingers.
- Apply grease to the lip of oil seal.
- Apply grease to the oil groove of the spacer ② before installing.

99000-25010

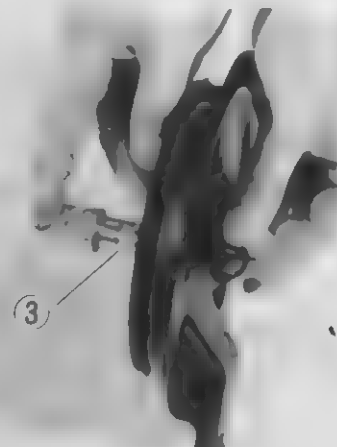
Suzuki super grease "A"



- Before installing the brake camshaft and new O-ring to the brake panel, apply grease to the oil groove of the brake camshaft ③.

99000-25010

Suzuki super grease "A"

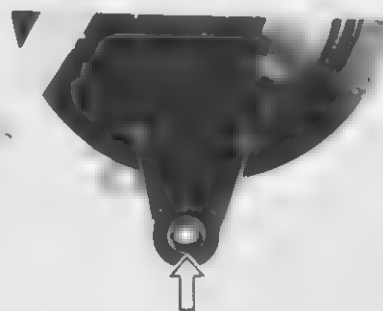
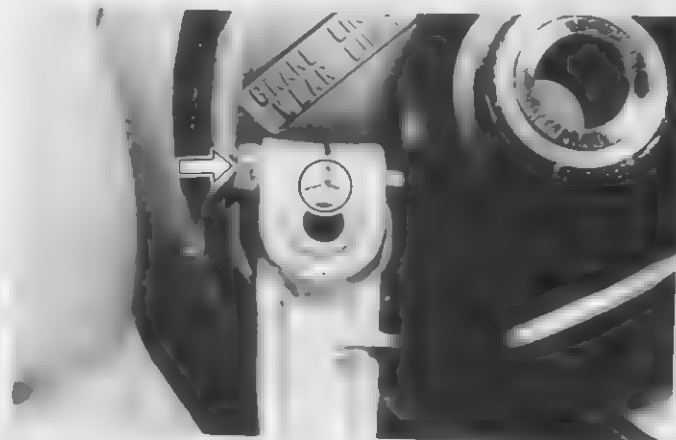


- When installing the brake cam lever, be sure to align the engraved line on the brake camshaft with the slit of the brake cam lever.
- Tighten the brake cam lever bolt to the specified torque.

Tightening torque	5 – 8 N·m (0.5 – 0.8 kg·m) (3.5 – 6.0 lb·ft)
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- Apply grease to the brake panel spherical ball bearing and dust seals.

99000-25010	Suzuki super grease "A"
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- Apply grease to the brake cam ① and pin ② before installing the brake shoes.

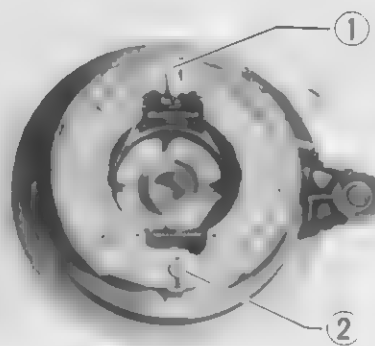
09900-25010	Suzuki super grease "A"
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**WARNING:**

Be careful not to apply too much grease to the brake cam and pin. If grease gets on the lining, brake slippage will result.

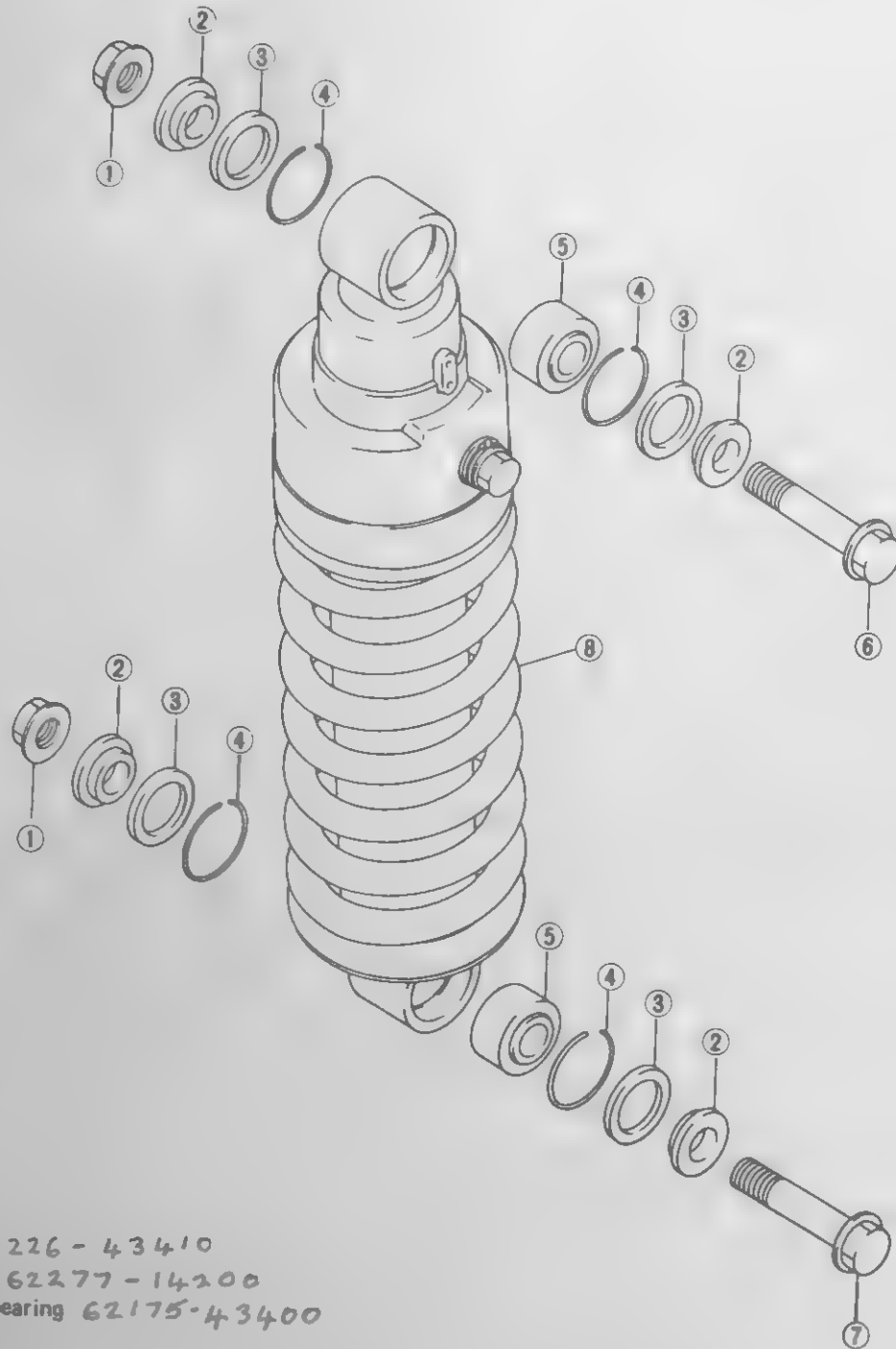
**CAUTION:**

Adjust the rear brake pedal play after installation of the rear wheel. (See page 2-15)



# REAR SUSPENSION

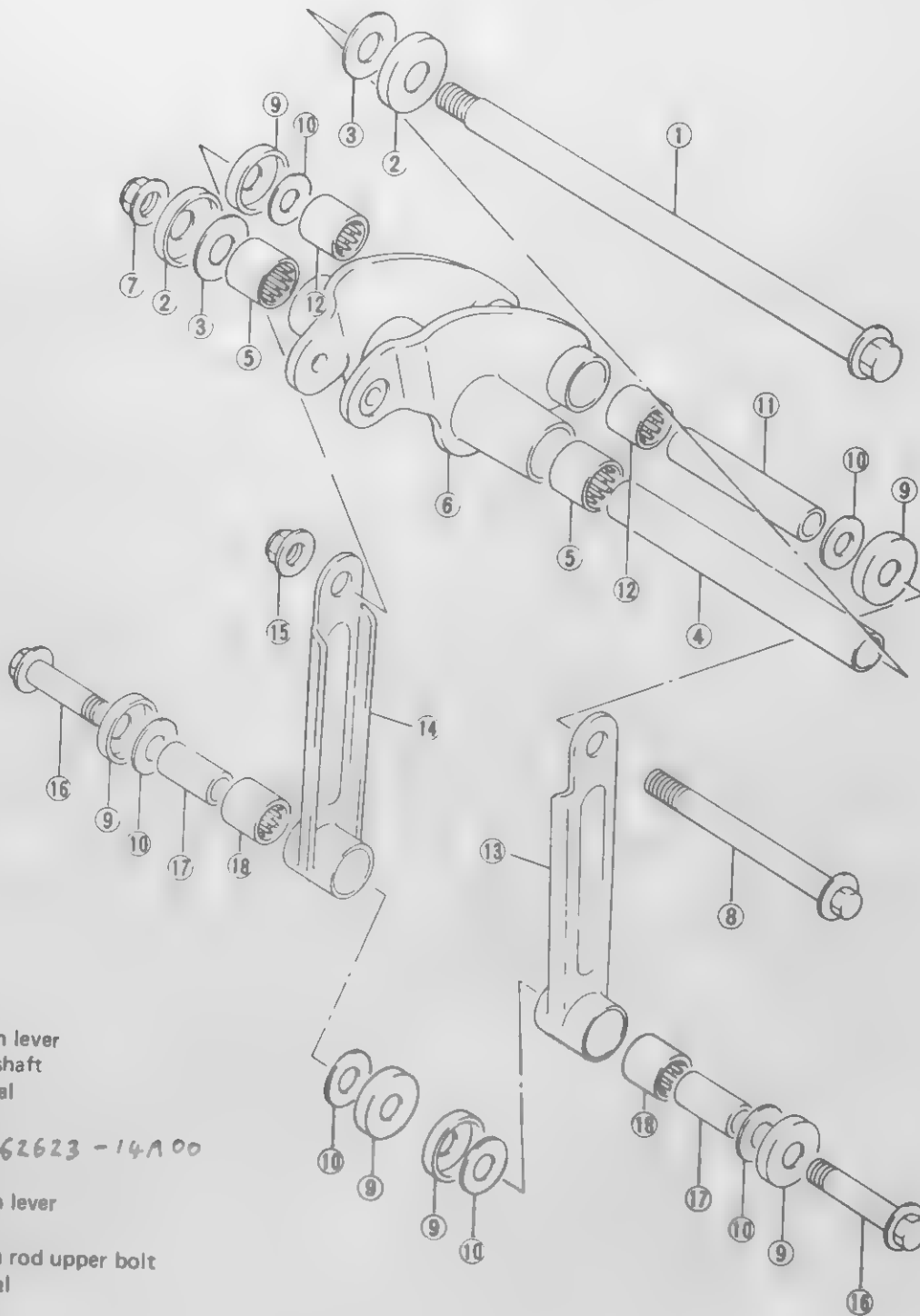
## SHOCK ABSORBER



- ① Nut
- ② Spacer
- ③ Dust seal 62226-43410
- ④ Stopper ring 62277-14200
- ⑤ Spherical ball bearing 62175-43400
- ⑥ Upper bolt
- ⑦ Lower bolt
- ⑧ Shock absorber

Tightening torque			
ITEM	N·m	kg·m	lb·ft
⑥, ⑦	40 - 60	4.0 - 6.0	29.0 - 43.5

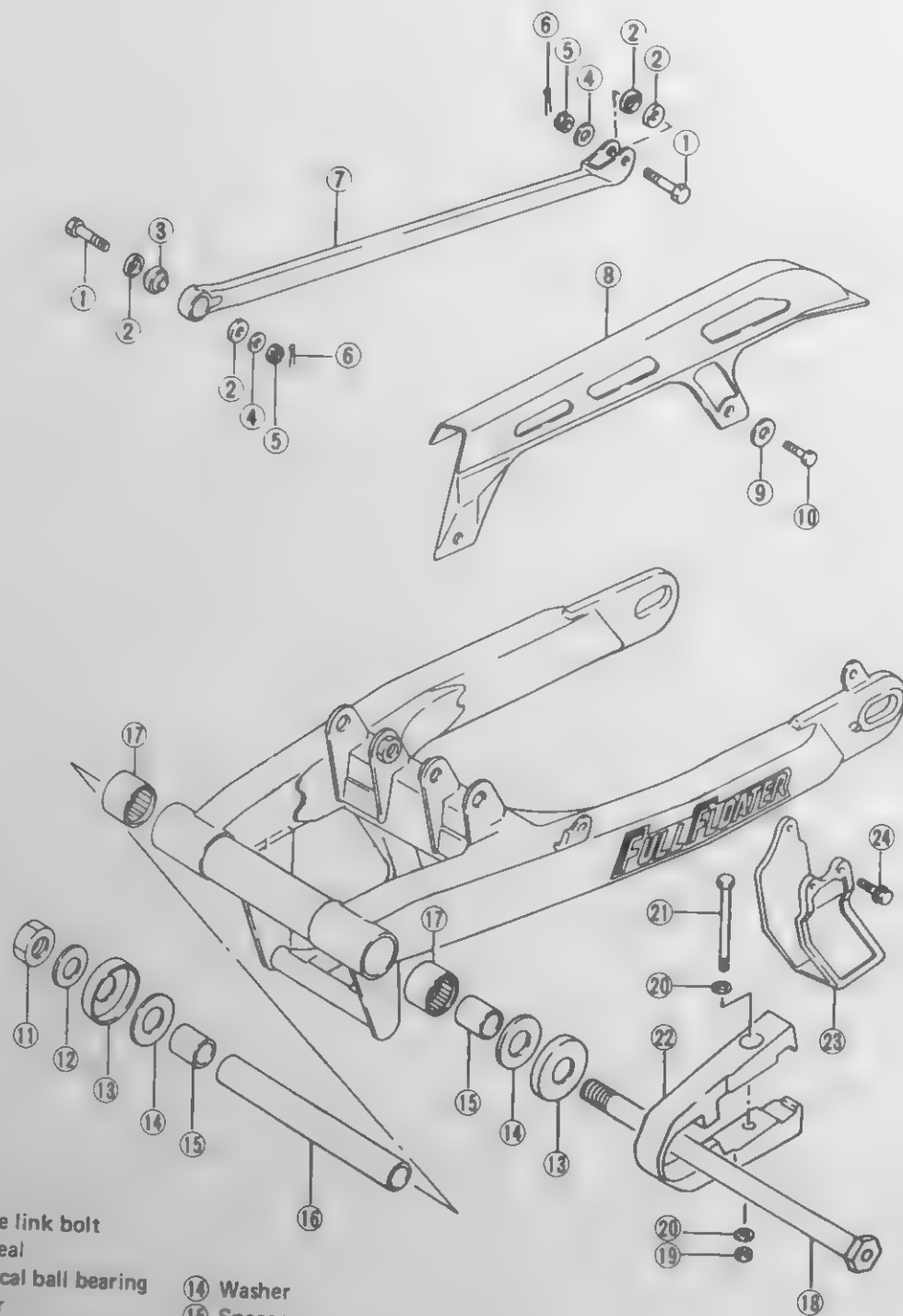
CUSHION LEVER AND CUSHION ROD



- ① Cushion lever center shaft
- ② Dust seal
- ③ Washer
- ④ Spacer 62623-14A00
- ⑤ Bearing
- ⑥ Cushion lever
- ⑦ Nut
- ⑧ Cushion rod upper bolt
- ⑨ Dust seal
- ⑩ Washer
- ⑪ Spacer
- ⑫ Bearing
- ⑬ Cushion rod, Left
- ⑭ Cushion rod, Right
- ⑮ Nut
- ⑯ Cushion rod lower bolt
- ⑰ Spacer
- ⑱ Bearing

Tightening torque			
ITEM	N·m	kg·m	lb·ft
①, ⑧, ⑯	70 - 100	7.0 - 10.0	50.5 - 72.5

SWINGARM

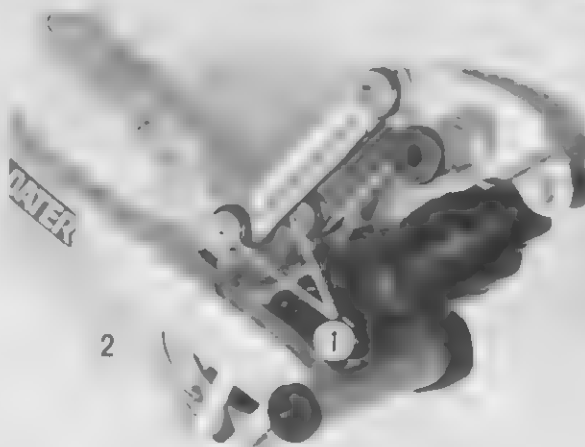
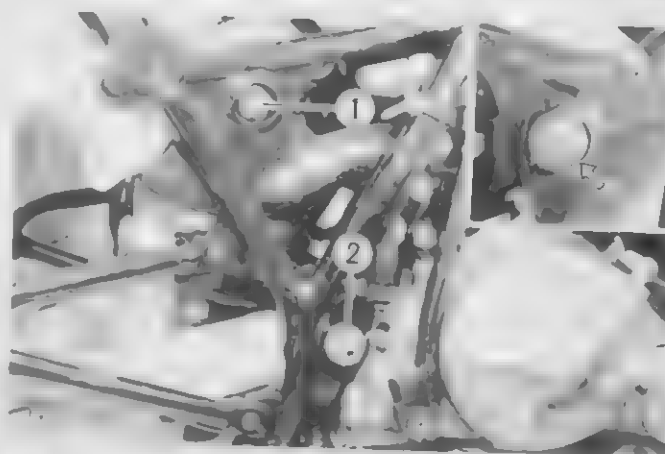


- ① Torque link bolt
- ② Dust seal
- ③ Spherical ball bearing
- ④ Washer
- ⑤ Nut
- ⑥ Cotter pin
- ⑦ Torque link
- ⑧ Drive chain case
- ⑨ Washer
- ⑩ Bolt
- ⑪ Swingarm pivot nut
- ⑫ Washer
- ⑬ Dust seal
- ⑭ Washer
- ⑮ Spacer
- ⑯ Center spacer
- ⑰ Bearing
- ⑱ Swingarm pivot shaft
- ⑲ Nut
- ⑳ Washer
- ㉑ Bolt
- ㉒ Chain buffer
- ㉓ Drive chain guide
- ㉔ Bolt

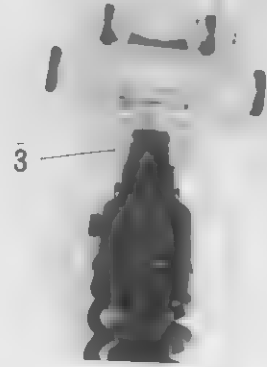
Tightening torque			
ITEM	N-m	kg-m	lb-ft
①	10 - 15	1.0 - 1.5	7.0 - 11.0
⑪	55 - 85	5.5 - 8.5	40.0 - 61.5

## REMOVAL

- Take off the rear wheel. (Refer to pages 6-25 and 26)
  - Remove the right and left frame covers.
  - Remove the drive chain case by removing the two bolts.
  - Remove the drive chain guide by removing the three bolts.
- 
- Remove the cushion lever center caps, right and left.
  - Remove the cushion lever center nut ① and swingarm pivot nut ②.
- 
- Draw out the cushion lever center shaft and swingarm pivot shaft.
  - Remove the rear suspension assembly.
- 
- Separate the shock absorber and cushion lever from the swingarm by removing the cushion rod lower bolts ① and shock absorber lower bolt ②.



- Separate the shock absorber from the cushion lever by removing the shock absorber upper bolt ③.



### INSPECTION AND DISASSEMBLY SHOCK ABSORBER

- Remove the spacers ① and dust seals ②, upper and lower.

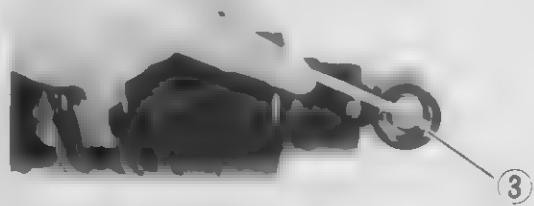
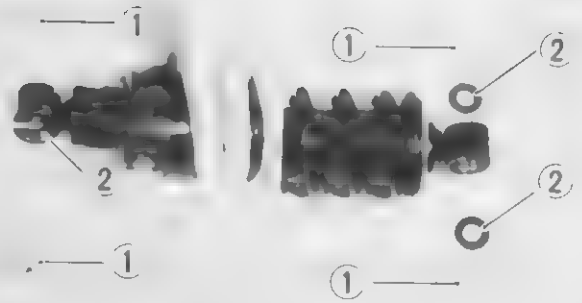
**CAUTION:**

The removed dust seals should be replaced with new ones.

- Inspect the spherical ball bearing by hand while it is in the absorber. Move the bearing by hand to inspect for abnormal noise and smooth movement. Replace the bearing if there is anything unusual.
- Remove the stopper rings ③, upper and lower.

**CAUTION:**

The removed stopper rings should be replaced with new ones.

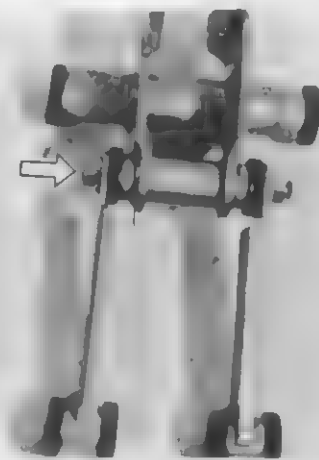


- Drive out the upper and lower spherical ball bearings by using an appropriate socket wrench.

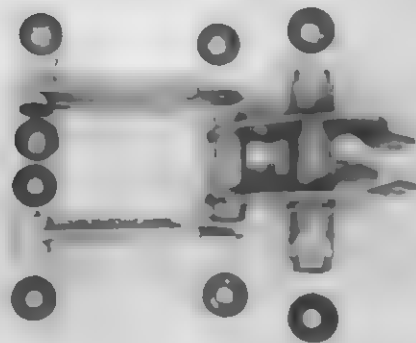


**CUSHION LEVER AND CUSHION ROD**

- Remove the cushion rod upper bolt.



- Remove the dust seals and spacers from the cushion lever and cushion rod.
- Inspect the dust seals, if they are found to be damaged, replace them with new ones.
- Inspect the cushion lever and cushion rod bearings by hand while they are in the cushion lever and cushion rod. Rotate the spacer by hand to inspect for abnormal noise and smooth rotation. Replace the bearing if there is anything unusual.

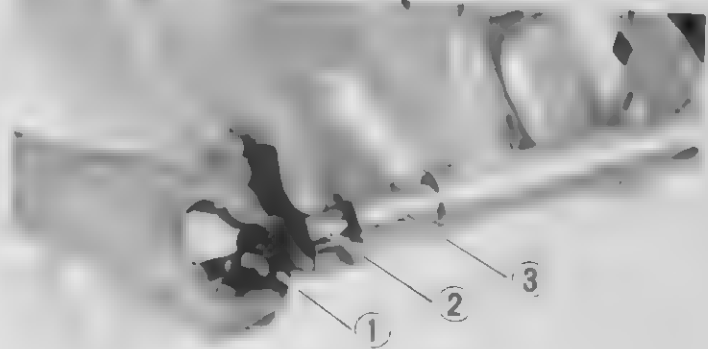


- Remove the cushion lever and cushion rod bearings by using the special tools.

09923-73210	Bearing puller
09930-30102	Sliding shaft

**SWINGARM**

- Remove the dust seals ①, spacers ② and center spacer ③ from the swingarm.
- Inspect the dust seals, if they are found to be damaged, replace them with new ones.
- Inspect the swingarm pivot bearing by hand while it is in the swingarm. Rotate the spacer by hand to inspect for abnormal noise and smooth rotation. Replace the bearing if there is anything unusual.





- Remove the swingarm pivot bearings by using a bearing remover.

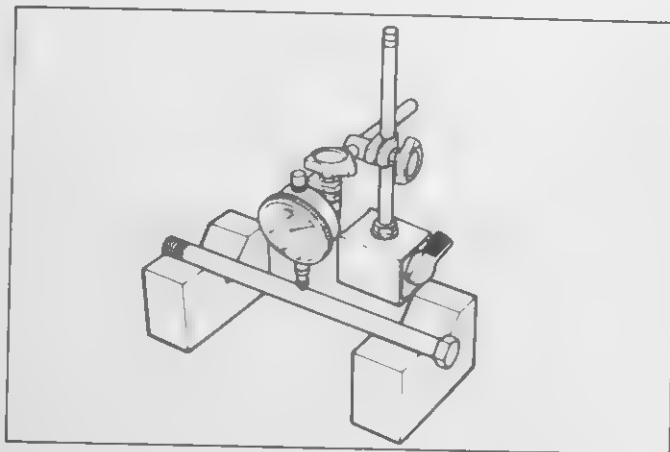
09941-44510	Swingarm pivot bearing remover
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- Using a dial gauge, check the pivot shaft for runout and replace it if the runout exceeds the limit.

09900-20606	Dial gauge (1/100)
09900-20701	Magnetic stand

Service Limit	0.3 mm (0.01 in)
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### REASSEMBLY AND REMOUNTING

Reassemble and remount the rear suspension in the reverse order of disassembly and removal. Pay attention to the following points:

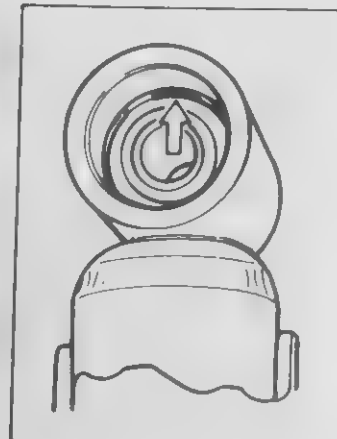
#### SHOCK ABSORBER

- Apply grease to the dust seals before installing.

99000-25010	Suzuki super grease "A"
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(Refer to page 6-43)

- Install the upper and lower spherical ball bearings by using an appropriate socket wrench.
- Install new stopper rings into the correct position, as shown in the illustration.



**CUSHION LEVER AND CUSHION ROD**

- Install the cushion lever and cushion rod bearings by using a bearing installer and an appropriate socket wrench.

09941-34513	Bearing installer
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**NOTE:**

When installing the bearing, the stamped mark on the bearing is positioned outside.

- Apply grease to the bearings, spacers and dust seals. (Refer to page 6-43)

99000-25010	Suzuki super grease "A"
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- Tighten the cushion rod upper bolt and nut to the specified torque. (Refer to page 6-43)

Tightening torque	70 – 100 N·m (7.0 – 10.0 kg·m) (50.5 – 72.5 lb·ft)
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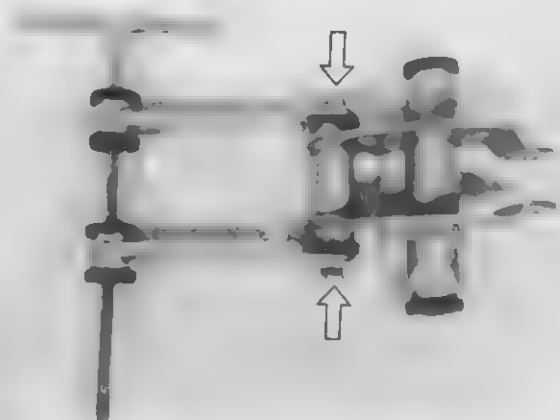
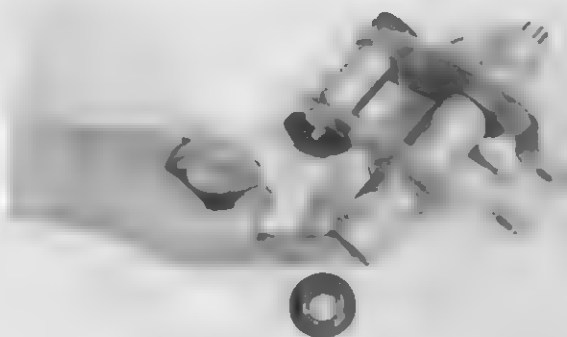
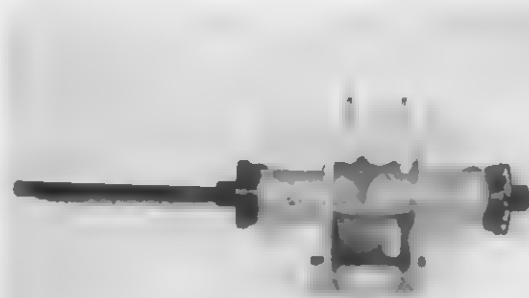
**SWINGARM**

- Install the swingarm pivot bearings by using a bearing installer.

09941-34513	Bearing installer
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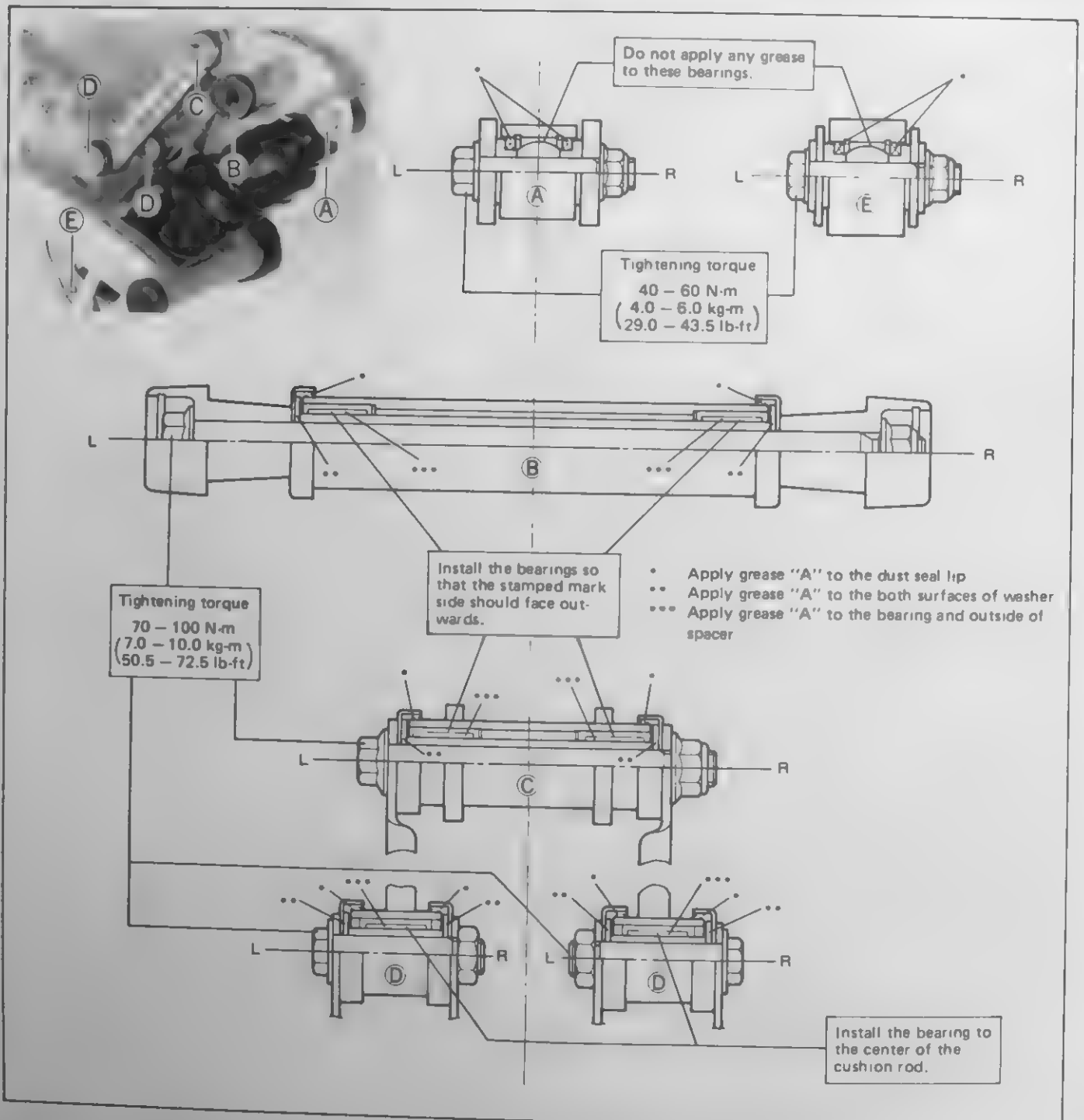
**NOTE:**

When installing the bearing, the stamped mark on the bearing is positioned outside.



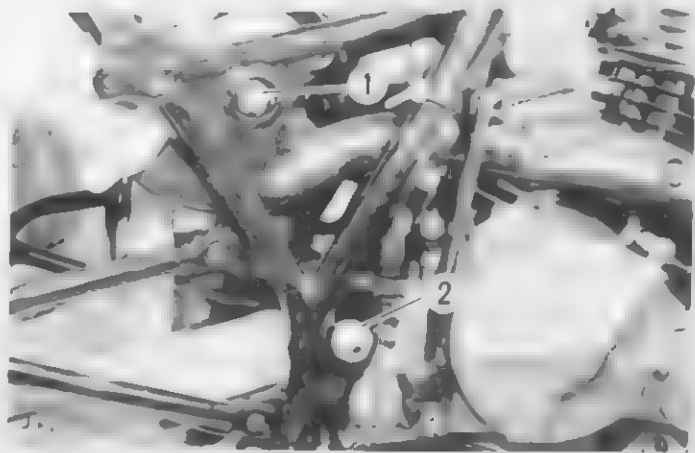
- Apply grease to the bearings, spacers and dust seals.

99000-25010	Suzuki super grease "A"
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- When installing the rear suspension, tighten the cushion lever center nut ① and swingarm pivot nut ② to the specified torque.

Tightening torque	①	70 – 100 N·m (7.0 – 10.0 kg·m) (50.5 – 72.5 lb·ft)
	②	55 – 85 N·m (5.5 – 8.5 kg·m) (40.0 – 61.5 lb·ft)



**NOTE:**

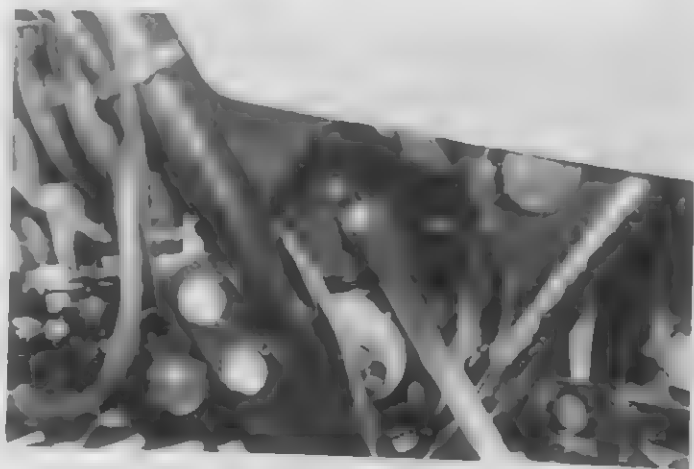
After remounting the rear suspension, the following adjustments are necessary.

	Page
• Drive chain slack .....	2-12
• Rear brake pedal play .....	2-15
• Tire pressure .....	2-17
• Shock absorber .....	This page

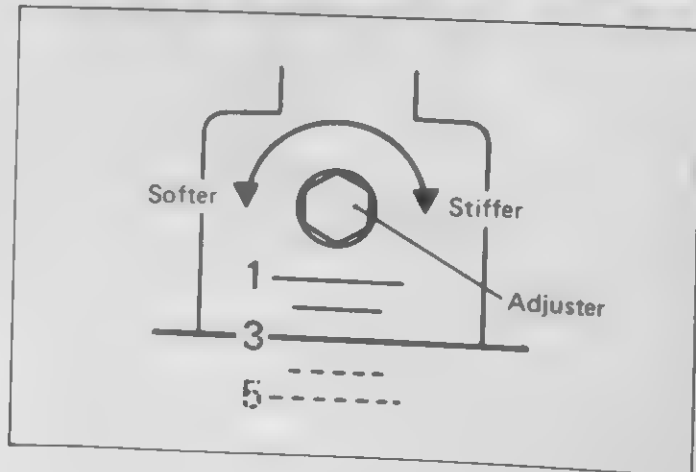
**SHOCK ABSORBER SPRING PRE-LOAD ADJUSTMENT**

Using the 12 mm "T" type box wrench, adjust the spring tension of the shock absorber by turning the spring pre-load adjuster as follows.

Standard setting	3 position
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- Position "1" provides the softest spring tension.
- Position "5" provides the stiffest spring tension.



# SERVICING INFORMATION

## CONTENTS

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## TROUBLESHOOTING

## ENGINE

Complaint	Symptom and possible causes	Remedy
<b>Engine will not start or is hard to start.</b>	<ol style="list-style-type: none"> <li>1. Valve clearance out of adjustment.</li> <li>2. Worn valve guides or poor seating of valves.</li> <li>3. Valves mistiming.</li> <li>4. Piston rings excessively worn.</li> <li>5. Worn-down cylinder bore</li> <li>6. Poor seating of spark plug.</li> </ol> <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 magneto.</li> <li>4. Defective CDI unit.</li> <li>5. Defecitve ignition coil.</li> <li>6. Open or short circuit in high-tension cord</li> </ol> <p><b>No fuel reaching the carburetor</b></p> <ol style="list-style-type: none"> <li>1. Clogged fuel tank vent hose.</li> <li>2. Clogged or defective fuel cock.</li> <li>3. Defective carburetor float valve.</li> <li>4. Clogged fuel hose.</li> <li>5. Clogged fuel filter.</li> </ol>	<p>Adjust Repair or replace. Adjust. Replace. Replace or rebore. Retighten.</p> <p>Clean or replace. Clean and dry. Replace Replace. Replace. Replace.</p> <p>Clean. Clean or replace. Replace Clean or replace. Clean or replace.</p>
<b>Engine stalls easily.</b>	<ol style="list-style-type: none"> <li>1. Fouled spark plug.</li> <li>2. Defective magneto.</li> <li>3. Defective CDI unit.</li> <li>4. Clogged fuel hose.</li> <li>5. Clogged jets in carburetor.</li> <li>6. Valve clearance out of adjustment.</li> </ol>	<p>Clean. Replace. Replace. Clean. Clean. Adjust.</p>
<b>Noisy engine.</b>	<p><b>Excessive valve chatter</b></p> <ol style="list-style-type: none"> <li>1. Valve clearance too large.</li> <li>2. Weakened or broken valve springs.</li> <li>3. Worn down rocker arm or rocker arm shaft.</li> </ol> <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 rings or ring groove worn.</li> </ol> <p><b>Noise seems to come from timing chain</b></p> <ol style="list-style-type: none"> <li>1. Stretched chain.</li> <li>2. Worn sprockets.</li> <li>3. Chain tensioner not working.</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> <li>4. Worn clutch release bearing.</li> <li>5. Clutch dampers weakened.</li> </ol> <p><b>Noise seems to come from crankshaft</b></p> <ol style="list-style-type: none"> <li>1. Worn or burnt bearings.</li> <li>2. Big-end bearing worn or burnt.</li> <li>3. Thrust clearance too large.</li> </ol>	<p>Adjust. Replace. Replace.</p> <p>Replace. Clean. Replace. Replace.</p> <p>Replace. Replace. Repair or replace.</p> <p>Replace. Replace. Replace. Replace. Replace the primary driven gear.</p> <p>Replace. Replace. Replace.</p>

Complaint	Symptom and possible causes	Remedy
Noisy engine.	<p>Noise seems to come from transmission</p> <ul style="list-style-type: none"> <li>1 Gears worn or rubbing</li> <li>■ Badly worn splines</li> <li>3 Primary gears worn or rubbing</li> <li>■ Badly worn bearings</li> </ul>	<p>Replace. Replace. Replace. Replace.</p>
Slipping clutch.	<ul 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> </ul>	<p>Adjust. Replace. Replace. Replace.</p>
Dragging clutch.	<ul 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>■ Distorted pressure plate or clutch plates</li> </ul>	<p>Adjust. Replace. Replace.</p>
Transmission will not shift.	<ul style="list-style-type: none"> <li>1. Broken gearshift cam</li> <li>2 Distorted gearshift forks</li> <li>3 Worn gearshift pawl</li> </ul>	<p>Replace. Replace. Replace.</p>
Transmission will not shift back.	<ul style="list-style-type: none"> <li>1 Broken return spring on shift shaft</li> <li>2 Gearshift fork shafts are rubbing or sticky.</li> <li>3. Distorted or worn gearshift forks</li> </ul>	<p>Replace. Repair. Replace.</p>
Transmission jumps out of gear.	<ul 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 cam stopper spring of gearshift cam.</li> <li>■ Worn gearshift pawl.</li> </ul>	<p>Replace. Replace. Replace. Replace.</p>
Engine idles poorly.	<ul style="list-style-type: none"> <li>1. Valve clearance out of adjustment</li> <li>2. Poor seating of valves.</li> <li>3. Defective valve guides</li> <li>■ Worn rocker arms or arm shafts.</li> <li>5 Defective magneto</li> <li>6 Defective CDI unit</li> <li>7 Spark plug gap too wide</li> <li>8 Spark plug too cold</li> <li>■ Defective ignition coil resulting in weak sparking.</li> <li>10 Float chamber fuel level out of adjustment in carburetor</li> <li>11 Clogged jets in carburetor.</li> </ul>	<p>Adjust. Replace. Replace. Replace. Replace. Replace. Adjust or replace. Replace by hot type plug. Replace. Adjust.  Clean.</p>
Engine runs poorly in high speed range.	<ul style="list-style-type: none"> <li>1 Valve springs weakened</li> <li>2 Valve timing out of adjustment.</li> <li>3 Worn cams or rocker arms</li> <li>4 Spark plug gap too narrow.</li> <li>5. Defective ignition coil</li> <li>■ Defective CDI unit</li> <li>7 Float chamber fuel level too low.</li> <li>8. Clogged air cleaner element</li> <li>■ Clogged fuel hose, resulting in inadequate fuel supply to carburetor</li> </ul>	<p>Replace. Adjust. Replace. Adjust or replace. Replace. Replace. Adjust. Clean or replace. Clean and prime.</p>

## 7-3 SERVICING INFORMATION

Complaint	Symptom and possible causes	Remedy
Dirty or heavy exhaust smoke.	<ol style="list-style-type: none"> <li>1. Too much engine oil in the engine.</li> <li>2. Worn piston rings or cylinder.</li> <li>3. Worn valve guides.</li> <li>4. Cylinder wall scored or scuffed.</li> <li>5. Worn valve stems.</li> <li>6. Defective stem seals.</li> <li>7. Worn oil ring or side rails.</li> </ol>	<p>Check with inspection window, drain out excess oil.</p> <p>Replace. Replace. Replace. Replace. Replace.</p>
Engine lacks power.	<ol style="list-style-type: none"> <li>1. Loss of valve clearance.</li> <li>2. Weakened valve springs.</li> <li>3. Valve timing out of adjustment.</li> <li>4. Worn piston ring or cylinder.</li> <li>5. Poor seating of valves.</li> <li>6. Fouled spark plug.</li> <li>7. Worn rocker arms or shafts.</li> <li>■ Spark plug gap incorrect.</li> <li>9. Clogged jets in carburetor.</li> <li>10. Float-chamber fuel level out of adjustment.</li> <li>11. Clogged air cleaner element.</li> <li>12. Too much engine oil.</li> <li>13. Sucking air from intake pipe.</li> </ol>	<p>Adjust. Replace. Adjust. Replace. Repair. Clean or replace. Replace. Adjust or replace. Clean. Adjust. Clean. Drain out excess oil. Retighten or replace.</p>
Engine overheats.	<ol style="list-style-type: none"> <li>1. Heavy carbon deposit on piston crown.</li> <li>2. Not enough oil in the engine.</li> <li>3. Defective oil pump or clogged oil circuit.</li> <li>4. Fuel level too low in float chamber.</li> <li>5. Air leak from intake pipe.</li> <li>6. Use of incorrect engine oil.</li> </ol>	<p>Clean. Add oil. Repair or clean. Adjust. Retighten or replace. Change.</p>

## 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. Air leaking from a joint between starter body and carburetor.</li> <li>4. Starter plunger is not operating properly.</li> </ol>	<p>Clean. Clean. Check starter body and carburetor for tightness, adjust and replace gasket. Check and adjust.</p>
Idling or low-speed trouble.	<ol style="list-style-type: none"> <li>1. Pilot jet, pilot air jet are clogged or loose.</li> <li>2. Pilot outlet or by-pass is clogged.</li> <li>3. Starter plunger is not fully closed.</li> </ol>	<p>Check and clean. Check and clean. Check and adjust.</p>
Medium- or high-speed trouble.	<ol style="list-style-type: none"> <li>1. Main jet or main air jet is clogged.</li> <li>2. Needle jet is clogged.</li> <li>3. Throttle valve is not operating properly.</li> <li>4. Fuel filter is clogged.</li> </ol>	<p>Check and clean. Check and clean. Check throttle valve for operation. Check and clean.</p>
Overflow and fuel level fluctuations.	<ol style="list-style-type: none"> <li>1. Needle valve is worn or damaged.</li> <li>2. Spring in needle valve is broken.</li> <li>3. Float is not working properly.</li> <li>4. Foreign matter has adhered to needle valve.</li> <li>5. Fuel level is too high or low.</li> </ol>	<p>Replace. Replace. Check and adjust. Clean. Adjust float height.</p>



**ELECTRICAL**

Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking.	<ol style="list-style-type: none"> <li>1. Defective ignition coil.</li> <li>2. Defective spark plug.</li> <li>3. Defective magneto rotor.</li> <li>4. Defective CDI unit.</li> <li>5. Defective pick-up coil or power source coil.</li> </ol>	Replace. Replace. Replace. Replace. Replace.
Spark plug soon becomes fouled with carbon.	<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.
Spark plug becomes fouled with oil.	<ol style="list-style-type: none"> <li>1. Worn piston rings.</li> <li>2. Piston or cylinder worn.</li> <li>3. Excessive clearance of valve stems in valve guides.</li> <li>4. Worn stem oil seals.</li> </ol>	Replace. Replace. Replace. Replace.
Spark plug electrodes overheat or burn.	<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.
Generator does not charge.	<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 or replace or retighten. Replace. Replace.
Generator does charge, but charging rate is below the specification.	<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. Not enough electrolyte in the battery.</li> <li>5. Defective cell plates in the battery.</li> </ol>	Repair or retighten. Replace. Replace. Add distilled water to the upper level. Replace the battery.
Generator Overcharges.	<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.
Unstable charging.	<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
"Sulfation", acidic white powdery substance or spots on surfaces of cell plates.	<ol style="list-style-type: none"> <li>1. Not enough electrolyte.</li> <li>2. Battery case is cracked.</li> <li>3. Battery has been left in a run-down condition for a long time.</li> <li>4. Contaminated electrolyte (Foreign matter has entered the battery and become mixed with the electrolyte).</li> </ol>	<p>Add distilled water, if the battery has not been damaged and "sulfation" has not advanced too far, and recharge. Replace the battery. Replace the battery.</p> <p>If "sulfation" has not advanced too far, try to restore the battery by replacing the electrolyte, recharging it fully with the battery detached from the motorcycle and then adjusting electrolyte S.G.</p>
Battery runs down quickly.	<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 high electrolyte S.G.</li> <li>4. Electrolyte S.G. is too low.</li> <li>5. Contaminated electrolyte.</li> <li>6. Battery is too old.</li> </ol>	<p>Check the generator, regulator/rectifier and circuit connections, and make necessary adjustments to obtain specified charging operation. Replace the battery, and correct the charging system. Replace the battery.</p> <p>Recharge the battery fully and adjust electrolyte S.G. Replace the electrolyte, recharge the battery and then adjust S.G. Replace the battery.</p>
Reversed battery polarity.	The battery has been connected the wrong way round in the system, so that it is being charged in the reverse direction.	Replace the battery and be sure to connect the battery properly.
Battery "sulfation".	<ol style="list-style-type: none"> <li>1. Charging rate too low or too high. (When not in use batteries should be recharged at least once a month to avoid sulfation.)</li> <li>2. Battery electrolyte excessive or insufficient, or its specific gravity too high or too low.</li> <li>3. The battery left unused for too long in cold climate.</li> </ol>	<p>Replace the battery.</p> <p>Keep the electrolyte up to the prescribed level, or adjust the S.G. by consulting the battery maker's directions. Replace the battery, if badly sulfated.</p>
Battery discharges too rapidly	<ol style="list-style-type: none"> <li>1. Dirty container top and sides.</li> <li>2. Impurities in the electrolyte or electrolyte S.G. is too high.</li> </ol>	<p>Clean. Change the electrolyte by consulting the battery maker's directions.</p>

## CHASSIS

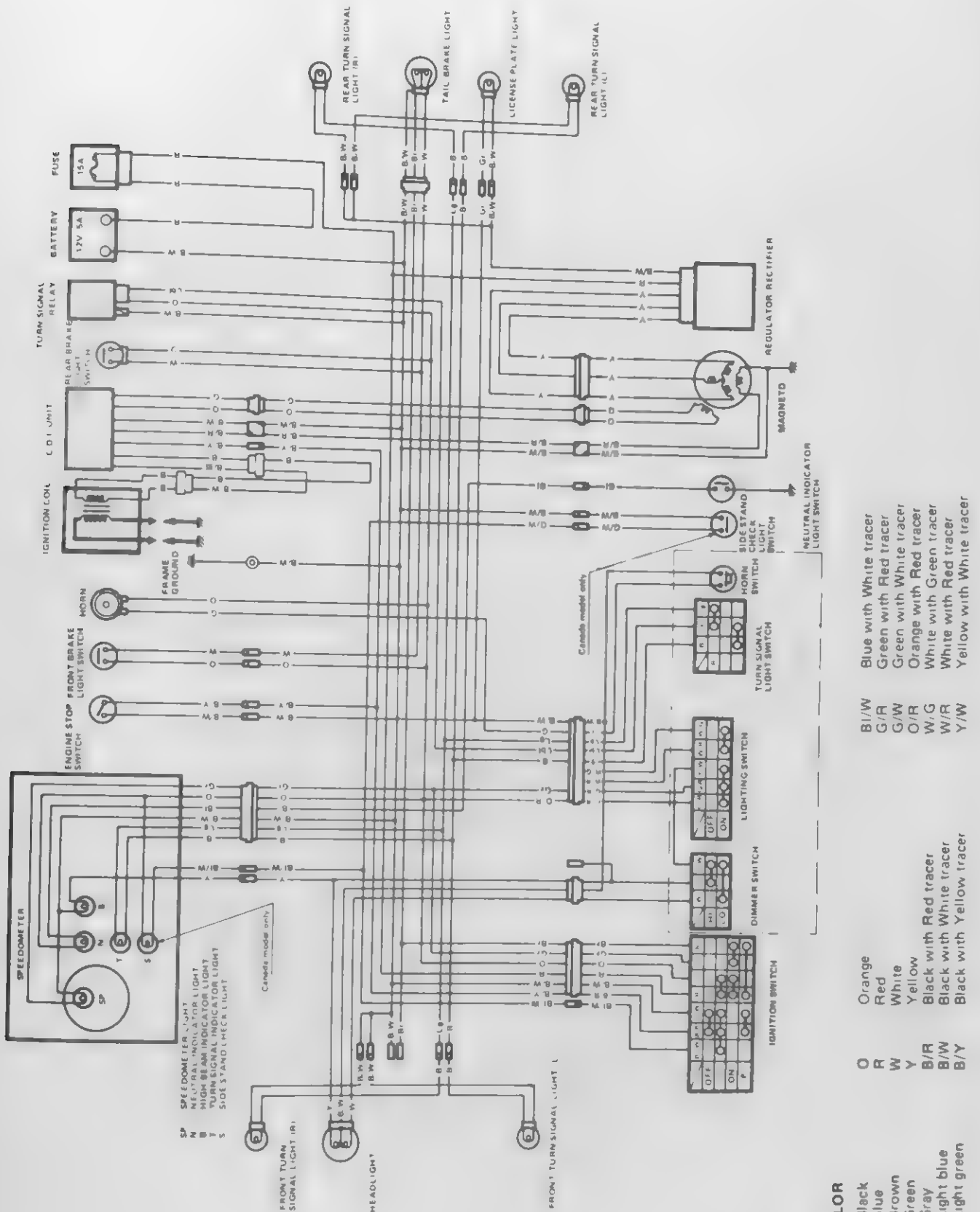
Complaint	Symptom and possible causes	Remedy
Heavy steering.	<ol style="list-style-type: none"> <li>1. Steering stem nut overtightened.</li> <li>2. Broken bearing in steering stem.</li> <li>3. Distorted steering stem.</li> <li>4. No enough pressure in tires.</li> </ol>	Adjust. Replace. Replace. Adjust.
Wobbly handle.	<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> <li>4. Incorrect front fork air pressure.</li> </ol>	Replace. Repair or replace. Replace. Adjust.
Wobbly front wheel.	<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 nut on axle.</li> <li>5. Incorrect front fork oil or air pressure.</li> </ol>	Replace. Replace. Replace. Retighten. Adjust.
Front suspension too soft.	<ol style="list-style-type: none"> <li>1. Weakened springs.</li> <li>2. Not enough fork oil.</li> </ol>	Replace. Refill.
Front suspension too stiff.	<ol style="list-style-type: none"> <li>1. Fork oil too viscous.</li> <li>2. Too much fork oil.</li> <li>3. Incorrect air pressure in front fork.</li> </ol>	Replace. Drain excess oil. Adjust.
Noisy front suspension.	<ol style="list-style-type: none"> <li>1. Not enough fork oil.</li> <li>2. Loose nuts on suspension.</li> </ol>	Refill. Retighten.
Wobbly rear wheel.	<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> <li>6. Loose nut on axle.</li> </ol>	Replace. Replace. Replace. Replace. Retighten. Retighten.
Rear suspension too soft.	<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.
Rear suspension too stiff.	<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.
Noisy rear suspension.	<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.

**BRAKES**

Complaint	Symptom and possible causes	Remedy
Poor braking. (FRONT)	<ol style="list-style-type: none"> <li>1. Not enough brake fluid in the reservoir.</li> <li>2. Air trapped in brake fluid circuit.</li> <li>3. Pads worn down.</li> </ol>	Refill to level mark. Bleed air out. Replace.
Poor braking. (REAR)	<ol style="list-style-type: none"> <li>1. Linings worn down.</li> <li>2. Too much play on brake pedal.</li> </ol>	Replace. Adjust.
Insufficient brake power.	<ol style="list-style-type: none"> <li>1. Leakage of brake fluid from hydraulic system.</li> <li>2. Worn pads. Worn lining.</li> <li>3. Oil adhesion on engaging surface of pads.</li> <li>4. Worn disc. Worn brake drum.</li> <li>5. Air entered into hydraulic system.</li> </ol>	Repair or replace. Replace. Clean disc and pads. Replace. Bleed air.
Brake squeaking.	<ol style="list-style-type: none"> <li>1. Carbon adhesion on pad surface. Carbon adhesion on lining surface.</li> <li>2. Tilted pad.</li> <li>3. Damaged wheel bearings.</li> <li>4. Loose front wheel axle or rear wheel axle.</li> <li>5. Worn pads and linings.</li> <li>6. Foreign material in brake fluid.</li> <li>7. Clogged return port of master cylinder.</li> <li>8. Wrongly fixed pad shim, retainer or spring.</li> <li>9. Caliper binding on caliper axles.</li> </ol>	Repair surface with sandpaper. Modify pad fitting. Replace. Tighten to specified torque. Replace. Replace brake fluid. Disassemble and clean master cylinder. Set correctly. Clean and lubricate.
Excessive brake lever stroke.	<ol style="list-style-type: none"> <li>1. Air entered into hydraulic system.</li> <li>2. Worn brake lever cam.</li> <li>3. Insufficient brake fluid.</li> <li>4. Improper quality of brake fluid.</li> </ol>	Bleed air. Replace brake cam. Replenish fluid to specified level; bleed air. Replace with correct fluid.
Leakage of brake fluid.	<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>	Tighten to specified torque. Replace. Replace piston and/or cup.

# WIRING DIAGRAM

(For E-01, 06, 24 and 28)



- WIRE COLOR**
- B . . . Black
  - Bl . . . Blue
  - Br . . . Brown
  - G . . . Green
  - Gr . . . Gray
  - Lbl . . . Light blue
  - Lg . . . Light green

- O . . . Orange
- R . . . Red
- W . . . White
- Y . . . Yellow
- B/R . . . Black with Red tracer
- B/W . . . Black with White tracer
- B/Y . . . Black with Yellow tracer

- B/W . . . Blue with White tracer
- G/R . . . Green with Red tracer
- G/W . . . Green with White tracer
- O/R . . . Orange with Red tracer
- W/G . . . White with Green tracer
- W/R . . . White with Red tracer
- Y/W . . . Yellow with White tracer

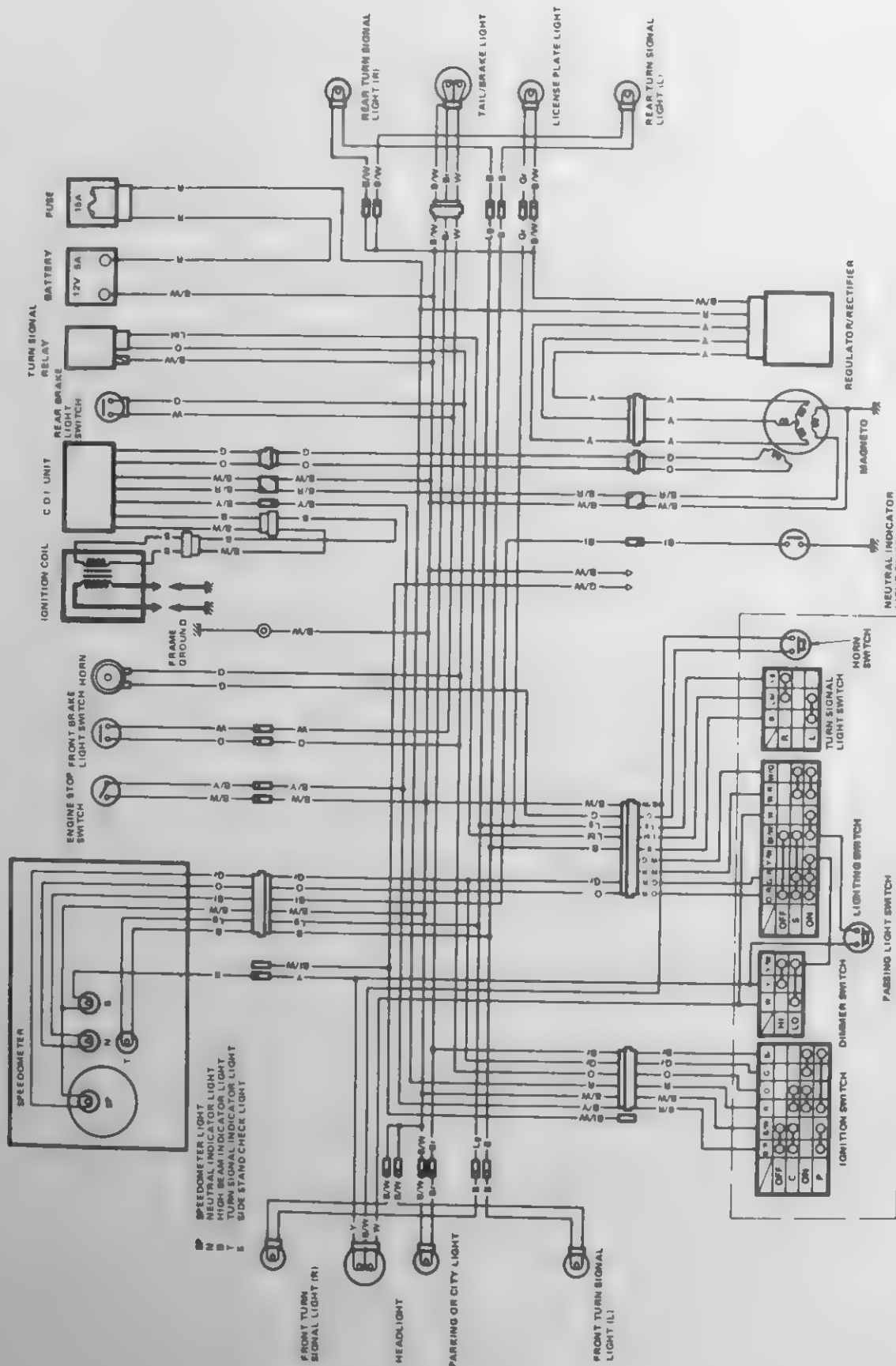
SP SPEEDOMETER LIGHT  
 M HEADLIGHT  
 B HIGH BEAM INDICATOR LIGHT  
 Y TURN SIGNAL INDICATOR LIGHT  
 T TURN SIGNAL LIGHT  
 S SIDE STAND CHECK LIGHT

*Cannoli model only*

*Cannoli model only*

# 7-9 SERVICING INFORMATION

(For other models)

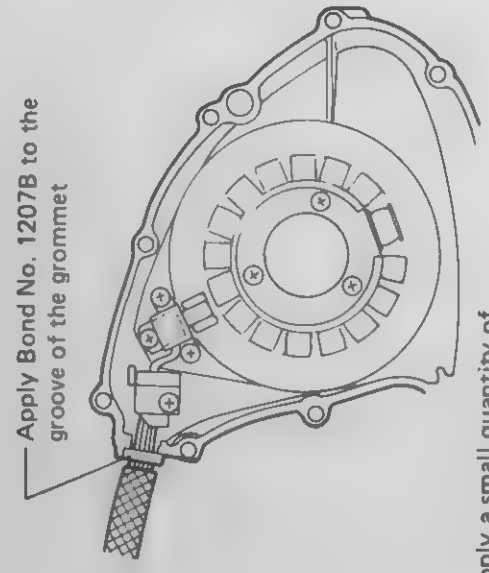
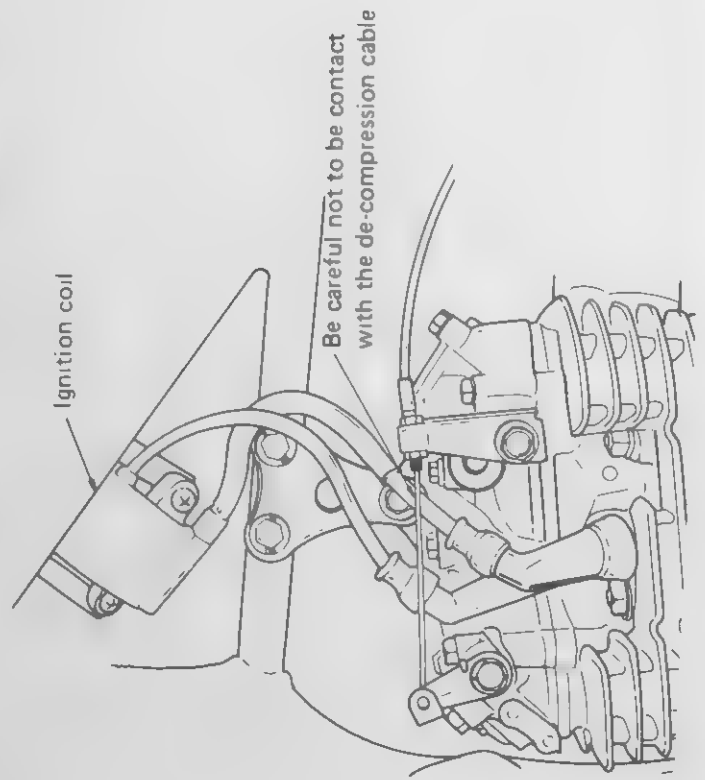
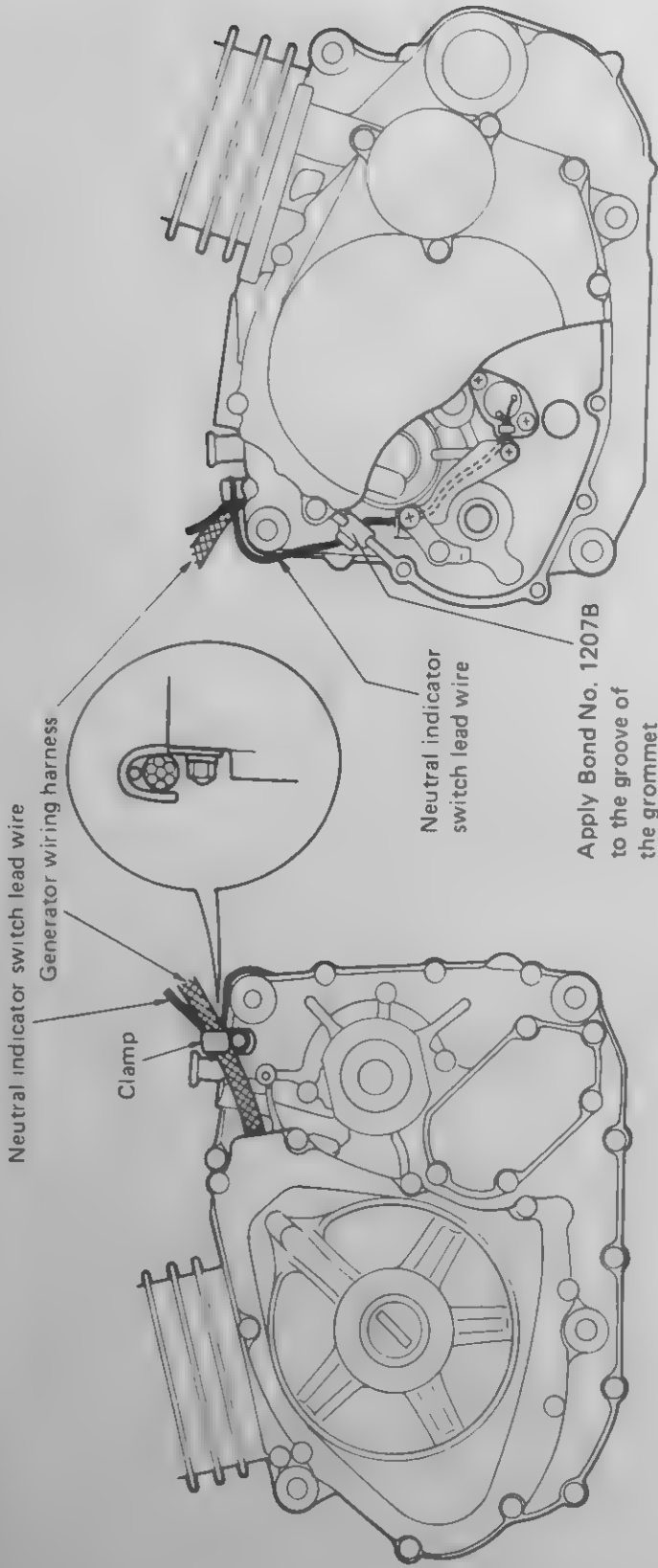


- WIRE COLOR**
- B . . . . . Black
  - Bl . . . . . Blue
  - Br . . . . . Brown
  - G . . . . . Green
  - Gr . . . . . Gray
  - Lbl . . . . . Light blue
  - Lg . . . . . Light green

- O . . . . . Orange
- R . . . . . Red
- W . . . . . White
- Y . . . . . Yellow
- B/R . . . . . Black with Red tracer
- B/W . . . . . Black with White tracer
- B/Y . . . . . Black with Yellow tracer

- B/W . . . . . Blue with White tracer
- G/R . . . . . Green with Red tracer
- O/R . . . . . Orange with Red tracer
- W/G . . . . . White with Green tracer
- W/R . . . . . White with Red tracer
- Y/W . . . . . Yellow with White tracer

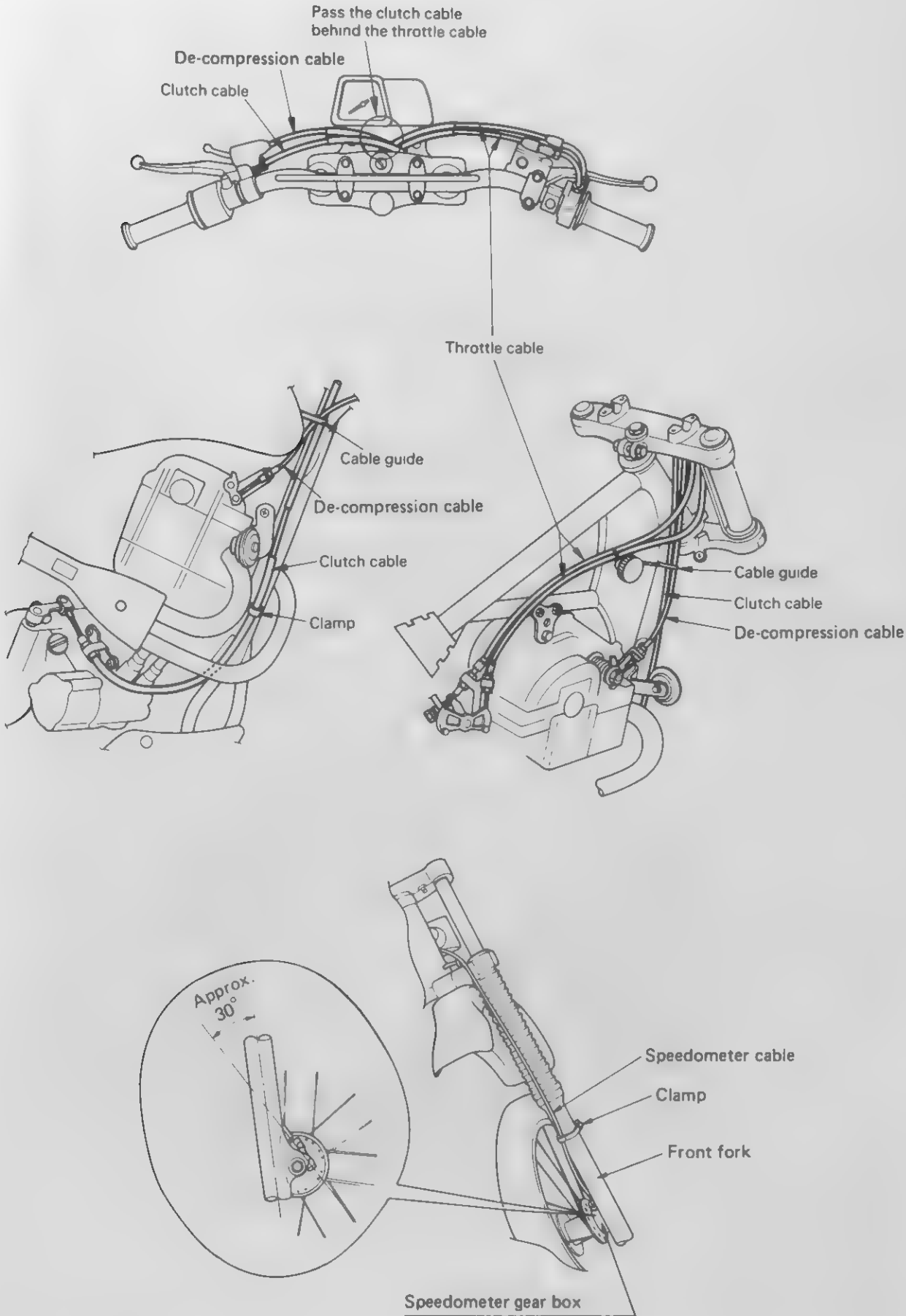




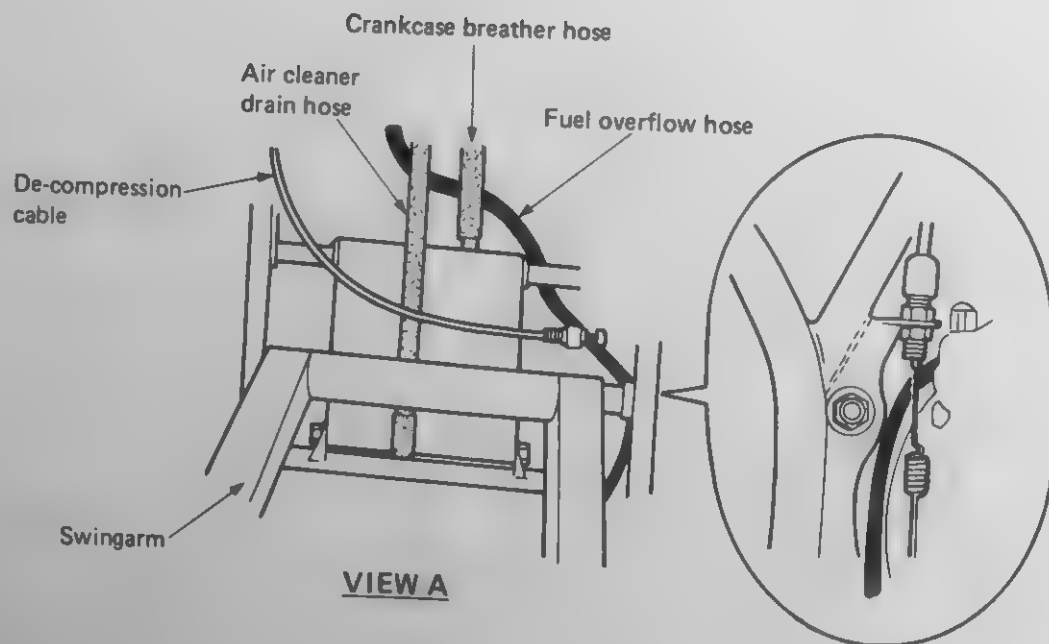
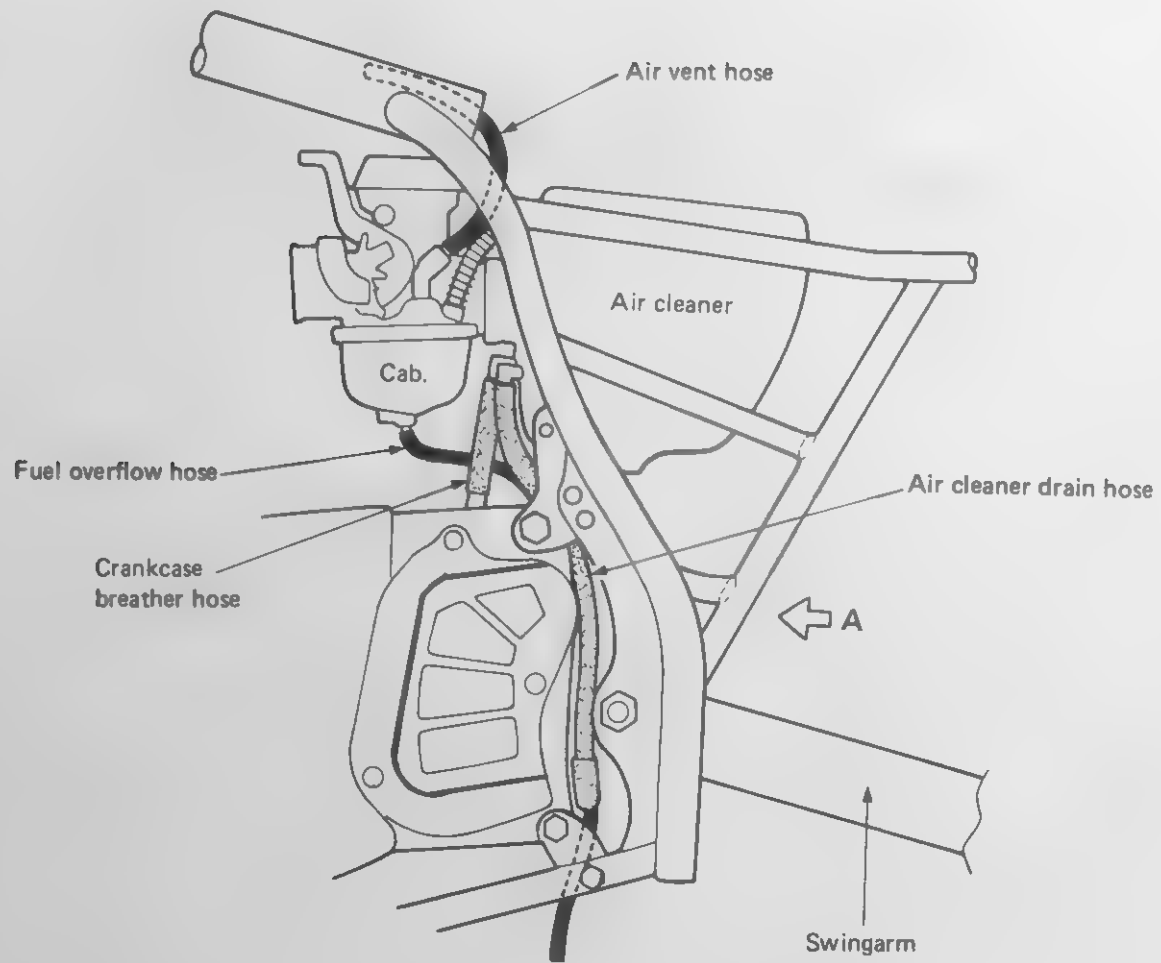
\* Apply a small quantity of Thread lock "1342" to the screws.



CABLE ROUTING



# HOSE ROUTING

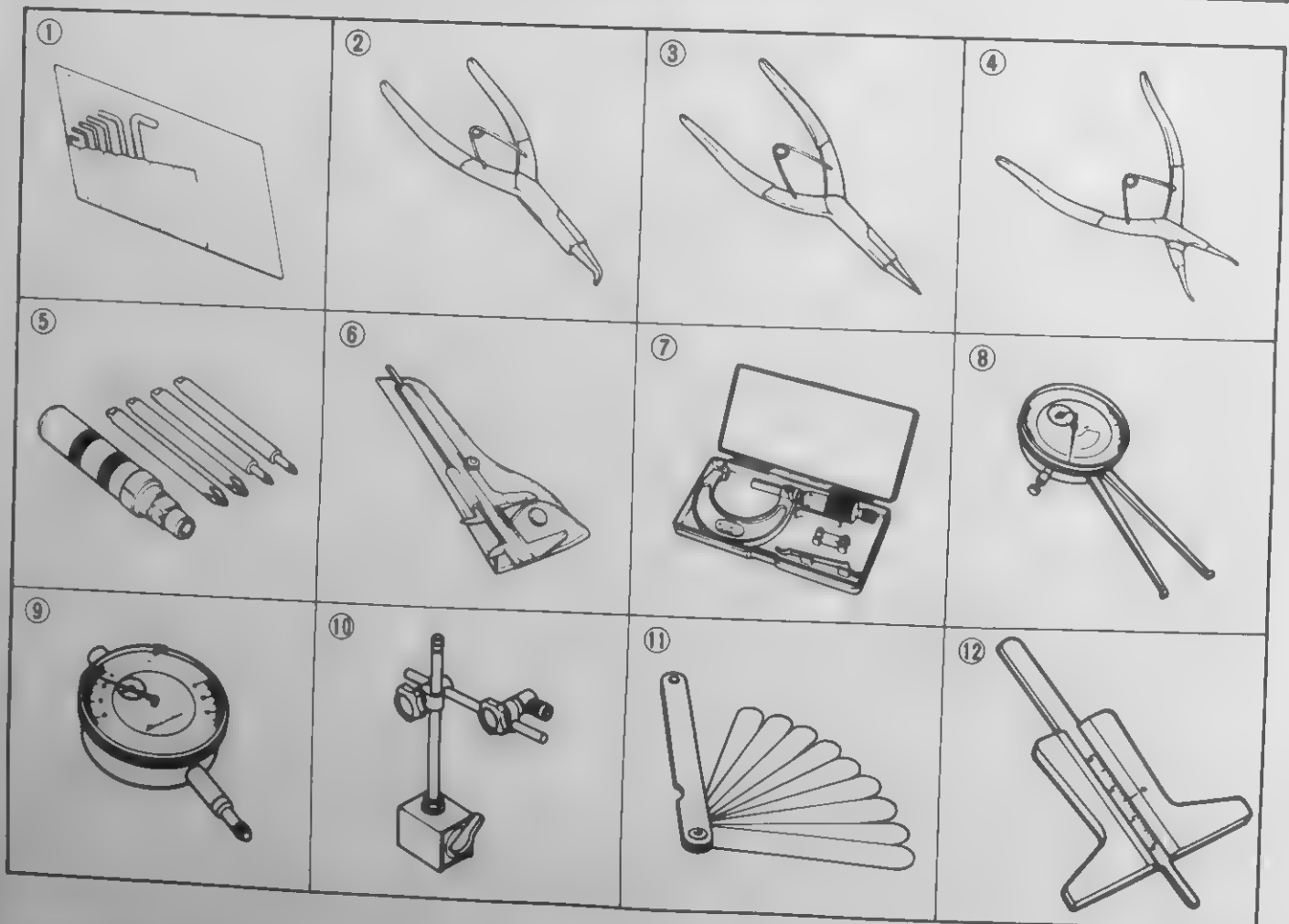


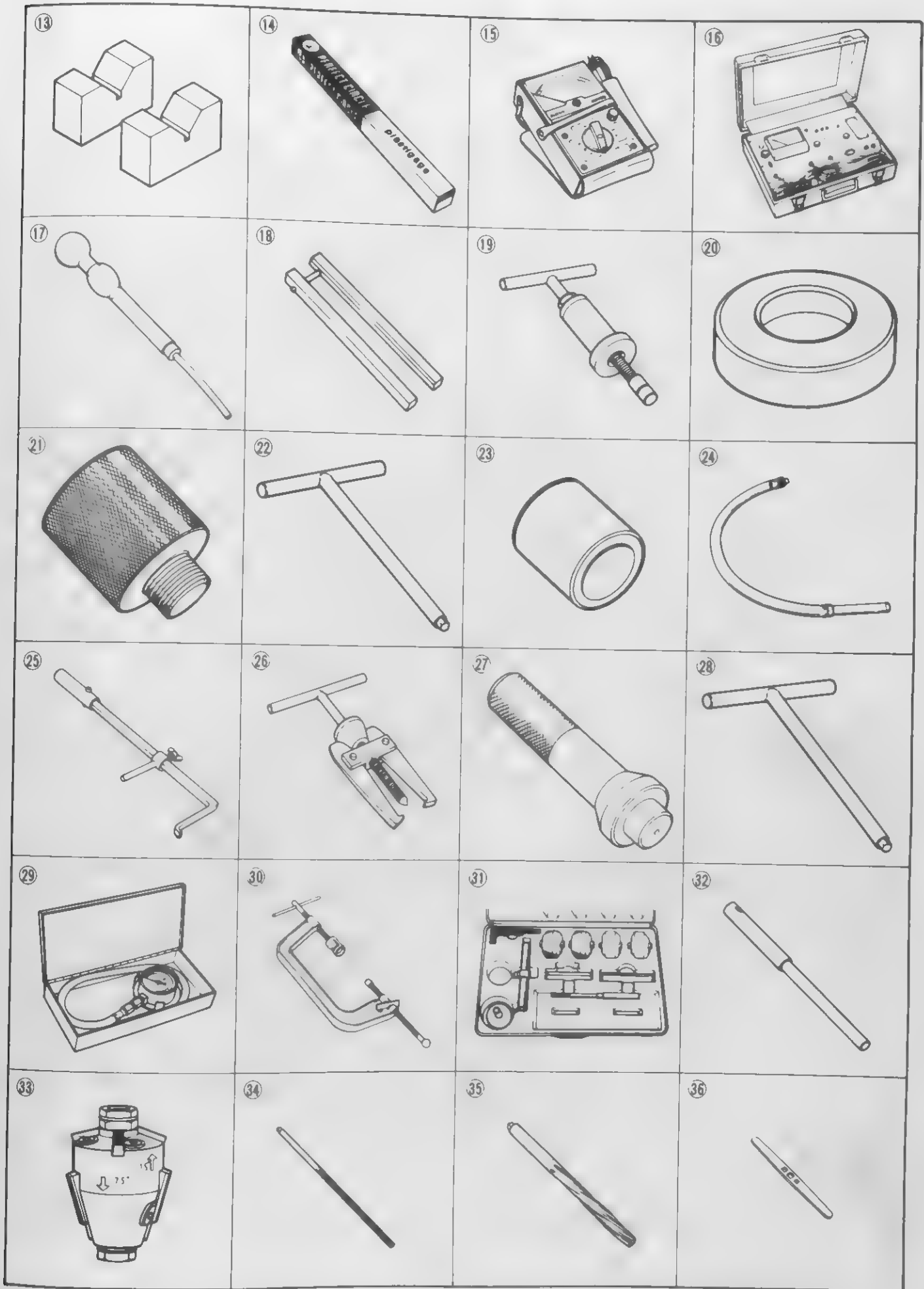
## SPECIAL TOOLS

ITEM	PART NO.	PART NAME
①	09900-00401	L type hexagon wrench set
②	09900-06104	Snap ring pliers
③	09900-06107	Snap ring pliers
④	09900-06108	Snap ring pliers
⑤	09900-09003	Impact driver set
⑥	09900-20101	Vernier calipers (150 mm)
⑦	09900-20202	Micrometer (25 – 50 mm)
	09900-20204	Micrometer (75 – 100 mm)
	09900-20205	Micrometer (0 – 25 mm)
⑧	09900-20605	Dial calipers
⑨	09900-20606	Dial gauge (1/100 mm)
⑩	09900-20701	Magnetic stand
⑪	09900-20803	Thickness gauge
⑫	09900-20805	Tire depth gauge
⑬	09900-21304	V-block (100 mm)
⑭	09900-22301	Plastigauge
⑮	09900-25002	Pocket tester
⑯	09900-28106	Electro tester
⑰	09900-28403	Hydrometer
⑱	09910-20116	Conrod holder
⑲	09910-32812	Crankshaft installer
⑳	09910-32820	Crankshaft installer spacer
㉑	09910-32830	Crankshaft installer attachment
㉒	09911-73730	T type hexagon wrench (5 mm)
㉓	09911-93710	Valve stem seal installer attachment
㉔	09913-14511	Fuel level gauge
㉕	09913-50121	Oil seal remover
㉖	09913-60910	Gear puller
㉗	09913-75830	Bearing installer/remover
㉘	09914-25811	T type hexagon wrench (6 mm)
㉙	09915-74510	Oil pressure gauge
㉚	09916-14510	Valve spring compressor
㉛	09916-24900	Valve seat cutter set
㉜		Solid pilot N-140 – 7.0
㉝		Valve seat cutter N-212, N-608
㉞	09916-34520	7 mm reamer
㉟	09916-34531	12.3 mm reamer
㊱	09916-34541	Reamer handle
㊲	09916-44511	Valve guide remover
㊳	09916-57311	Valve guide installer attachment
㊴	09916-57320	Valve guide installer handle
㊵	09916-84510	Tweezers
㊶	09917-23711	Ring nut socket wrench

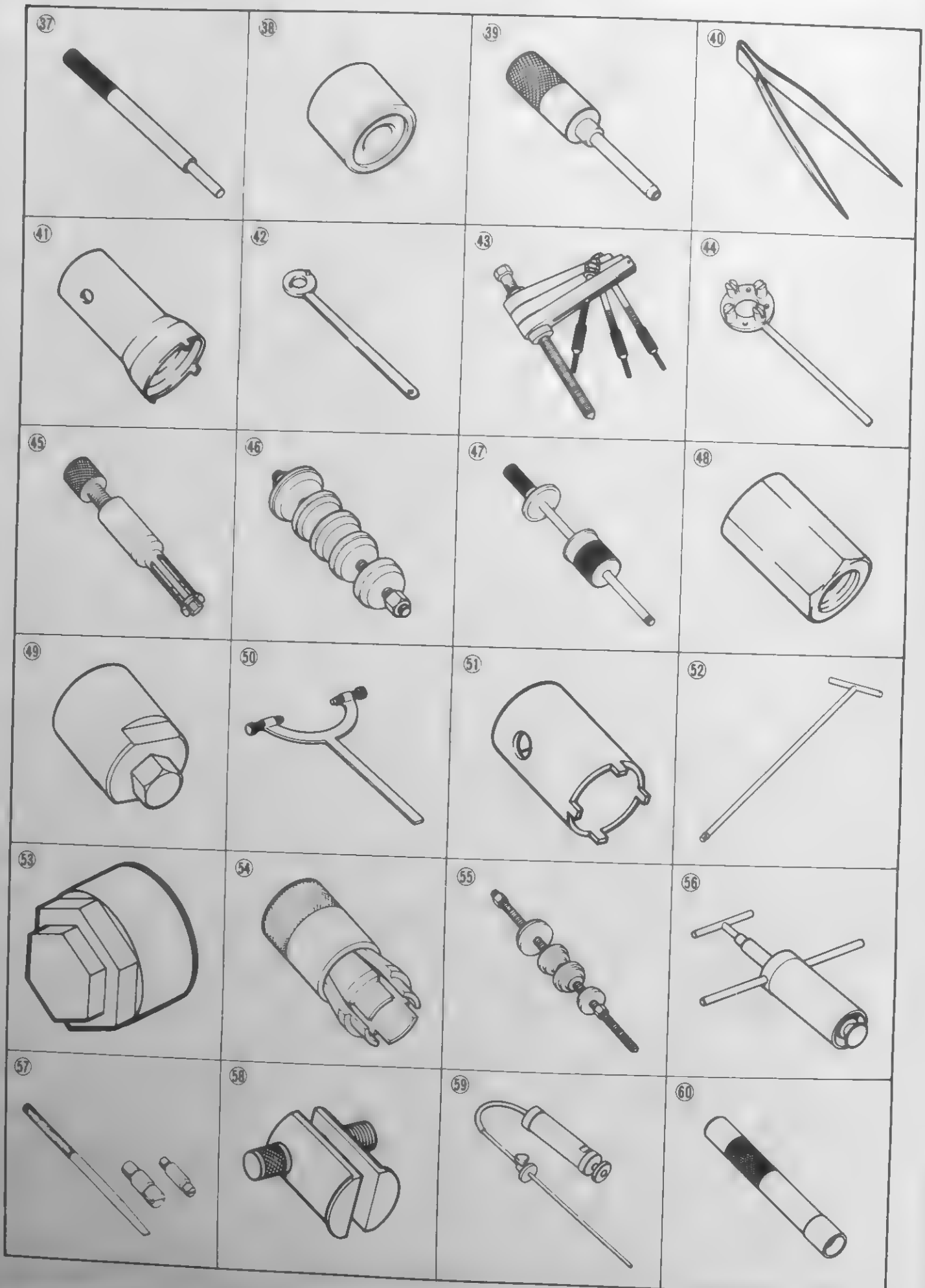
7-15 SERVICING INFORMATION

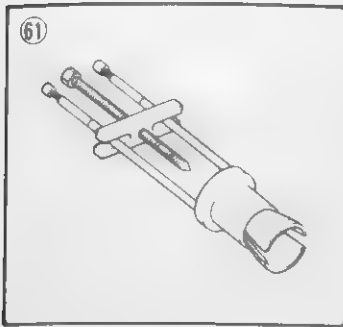
ITEM	PART NO.	PART NAME
42	09917-33710	Sprocket holder
43	09920-13120	Crankcase separating tool/crankshaft remover
44	09920-53722	Clutch sleeve hub holder
45	09923-73210	Bearing puller
46	09924-84520	Bearing installer
47	09930-30102	Sliding shaft
48	09930-30230	Balancer remover attachment
49	09930-33720	Rotor remover
50	09930-44912	Rotor holder
51	09940-14920	Steering stem nut socket wrench
52	09940-34520	Fork tool handle
53	09940-34581	Fork tool attachment F
54	09940-50112	Oil seal installer
55	09941-34513	Bearing installer
56	09941-44510	Swingarm pivot bearing remover
57	09941-50110	Bearing remover
58	09941-54911	Bearing outer race remover
59	09943-74111	Fork oil level gauge
60	09941-74910	Steering stem bearing installer
61	09941-84510	Bearing inner race remover





7-17 SERVICING INFORMATION





## TIGHTENING TORQUE

### ENGINE

ITEM	N·m	kg·m	lb·ft
Cylinder head cover bolt	9 – 11	0.9 – 1.1	6.5 – 8.0
Camshaft sprocket bolt	14 – 16	1.4 – 1.6	10.0 – 11.5
Cylinder head nut 10 mm Diam.	35 – 40	3.5 – 4.0	25.5 – 29.0
Cylinder head nut 8 mm Diam.	23 – 27	2.3 – 2.7	16.5 – 19.5
Cylinder base nut	7 – 11	0.7 – 1.1	5.0 – 8.0
Cam drive chain tensioner fitting bolt	6 – 8	0.6 – 0.8	4.5 – 6.0
Magneto rotor bolt	110 – 130	11.0 – 13.0	79.5 – 94.0
Balancer drive sprocket ring nut	25 – 35	2.5 – 3.5	18.0 – 25.5
Balancer driven sprocket nut (Front and Rear)	25 – 40	2.5 – 4.0	18.0 – 29.0
Balancer drive chain tensioner sprocket nut	45 – 70	4.5 – 7.0	32.5 – 50.5
Balancer drive chain tensioner allen bolt	15 – 20	1.5 – 2.0	11.0 – 14.5
Primary drive gear nut	90 – 110	9.0 – 11.0	65.0 – 79.5
Clutch spring mounting bolt	11 – 13	1.1 – 1.3	8.0 – 9.5
Clutch sleeve hub nut	40 – 60	4.0 – 6.0	29.0 – 43.0
Gearshift arm stopper	15 – 23	1.5 – 2.3	11.0 – 16.5
Engine oil drain plug	18 – 20	1.8 – 2.0	13.5 – 14.0
Oil filter cap nut and oil sump filter cap bolt	6 – 8	0.6 – 0.8	4.5 – 6.0
Engine sprocket bolt	4 – 7	0.4 – 0.7	3.0 – 5.0
Engine mounting bolt 8 mm Diam.	37 – 45	3.7 – 4.5	27.0 – 32.5
Engine mounting bolt 10 mm Diam.	60 – 72	6.0 – 7.2	43.5 – 52.0
Exhaust pipe bolt	9 – 12	0.9 – 1.2	6.5 – 8.5
Muffler bolt	18 – 28	1.8 – 2.8	13.0 – 20.0

## CHASSIS

ITEM	N-m	kg-m	lb-ft
Front axle nut	36 – 52	3.6 – 5.2	26.0 – 37.5
Front fork damper rod bolt	34 – 46	3.4 – 4.6	24.5 – 33.5
Front fork lower clamp bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front fork upper clamp bolt	20 – 30	2.0 – 3.0	14.5 – 21.5
Front fork cap bolt	25 – 35	2.5 – 3.5	18.0 – 25.5
Steering stem head clamp bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Steering stem head bolt	35 – 50	3.5 – 5.0	25.5 – 36.0
Handlebar clamp bolt	12 – 20	1.2 – 2.0	8.5 – 14.5
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
Front brake caliper axle bolt	15 – 20	1.5 – 2.0	11.0 – 14.5
Brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Air bleeder valve	6 – 9	0.6 – 0.9	4.5 – 6.5
Front disc mounting bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Swingarm pivot nut	55 – 85	5.5 – 8.5	40.0 – 61.5
Front footrest bolt	27 – 43	2.7 – 4.3	19.5 – 31.0
Rear torque link nut	10 – 15	1.0 – 1.5	7.0 – 11.0
Rear shock absorber fitting nut (Upper & Lower)	40 – 60	4.0 – 6.0	29.0 – 43.5
Rear cushion lever center nut	70 – 100	7.0 – 10.0	50.5 – 72.5
Rear cushion rod nut and bolt (Upper & Lower)	70 – 100	7.0 – 10.0	50.5 – 72.5
Rear axle nut	50 – 80	5.0 – 8.0	36.0 – 58.0
Rear sprocket mounting nut	22 – 32	2.2 – 3.2	16.0 – 23.0
Rear brake cam lever bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
Spoke nipple	4 – 5	0.4 – 0.5	3.0 – 3.5



## TIGHTENING TORQUE CHART

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

Bolt Diameter Ⓐ (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	N.m	kg-m	lb-ft	N.m	kg-m	lb-ft
4	1.0 - 2.0	0.1 - 0.2	0.7 - 1.5	1.5 - 3.0	0.15 - 0.3	1.0 - 2.0
5	2.0 - 4.0	0.2 - 0.4	1.5 - 3.0	3.0 - 6.0	0.3 - 0.6	2.0 - 4.5
6	4.0 - 7.0	0.4 - 0.7	3.0 - 5.0	8.0 - 12.0	0.8 - 1.2	6.0 - 8.5
8	10.0 - 16.0	1.0 - 1.6	7.0 - 11.5	18.0 - 28.0	1.8 - 2.8	13.0 - 20.0
10	22.0 - 35.0	2.2 - 3.5	16.0 - 25.5	40.0 - 60.0	4.0 - 6.0	29.0 - 43.5
12	35.0 - 55.0	3.5 - 5.5	25.5 - 40.0	70.0 - 100.0	7.0 - 10.0	50.5 - 72.5
14	50.0 - 80.0	5.0 - 8.0	36.0 - 58.0	110.0 - 160.0	11.0 - 16.0	79.5 - 115.5
16	80.0 - 130.0	8.0 - 13.0	58.0 - 94.0	170.0 - 250.0	17.0 - 25.0	123.0 - 181.0
18	130.0 - 190.0	13.0 - 19.0	94.0 - 137.5	200.0 - 280.0	20.0 - 28.0	144.5 - 202.5



Conventional bolt



"4" marked bolt



"7" marked bolt

## SERVICE DATA

## VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	33 ( 1.3 )	—
	EX.	28 ( 1.1 )	—
Valve lift	IN.	9 ( 0.4 )	—
	EX.	9 ( 0.4 )	—
Valve clearance (when engine is cold)	IN. & EX.	0.08–0.13 ( 0.003–0.005 )	—
Valve guide to valve stem clearance	IN.	0.025–0.055 ( 0.0010–0.0022 )	0.35 ( 0.014 )
	EX.	0.040–0.070 ( 0.0016–0.0028 )	0.35 ( 0.014 )
Valve guide I.D.	IN. & EX.	7.000–7.015 ( 0.2756–0.2762 )	—
Valve stem O.D.	IN.	6.960–6.975 ( 0.2740–0.2746 )	—
	EX.	6.945–6.960 ( 0.2734–0.2740 )	—
Valve stem runout	IN. & EX.	—	0.05 ( 0.002 )
Valve head thickness	IN. & EX.	—	0.5 ( 0.02 )
Valve stem end length	IN. & EX.	—	4.3 ( 0.17 )
Valve seat width	IN. & EX.	1.0–1.2 ( 0.04–0.05 )	—
Valve head radial runout	IN. & EX.	—	0.03 ( 0.001 )
Valve spring free length (IN. & EX.)	INNER	—	35.5 ( 1.40 )
	OUTER	—	40.3 ( 1.59 )
Valve spring tension (IN. & EX.)	INNER	7.0–8.5 kg ( 15.4–18.7 lbs ) at length 31 mm ( 1.2 in )	—
	OUTER	16.4–18.8 kg ( 36.2–41.4 lbs ) at length 33 mm ( 1.3 in )	—

## CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	36.529–36.569 ( 1.4381–1.4397 )	36.230 ( 1.4264 )
	EX.	36.755–36.795 ( 1.4470–1.4486 )	36.460 ( 1.4354 )
Camshaft journal oil clearance		0.032–0.066 ( 0.0013–0.0026 )	0.150 ( 0.0059 )

ITEM	STANDARD		LIMIT
Camshaft journal holder I.D.	Right side & Center side	25.012–25.025 ( 0.9847–0.9852 )	—
	Left side	20.012–20.025 ( 0.7879–0.7884 )	—
Camshaft journal O.D.	Right side & Center side	24.959–24.980 ( 0.9826–0.9835 )	—
	Left side	19.959–19.980 ( 0.7858–0.7866 )	—
Camshaft runout	—		0.10 ( 0.004 )
Cam chain 20-pitch length	—		129 ( 5.08 )
Rocker arm I.D.	IN. & EX.	12.000–12.018 ( 0.4724–0.4731 )	—
Rocker arm shaft O.D.	IN. & EX.	11.966–11.984 ( 0.4711–0.4718 )	—
Cylinder head distortion	—		0.05 ( 0.002 )
Manual de-compression lever play	0		—
Automatic de-compression lever play	1–2 ( 0.04–0.08 )		—

**CYLINDER + PISTON + PISTON RING**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Piston to cylinder clearance	0.060–0.077 ( 0.0024–0.0030 )		0.120 ( 0.0047 )
Cylinder bore	94.000–94.015 ( 3.7008–3.7014 )		94.070 ( 3.7035 )
Piston diam.	93.930–93.950 ( 3.6980–3.6988 ) Measure at 20mm (0.79in) from the skirt end.		93.880 ( 3.6961 )
Cylinder distortion	—		0.05 ( 0.002 )
Piston ring free end gap	1st	T Approx. 11.5 ( 0.45 )	9.2 ( 0.36 )
	2nd	T Approx. 14.0 ( 0.55 )	11.2 ( 0.44 )
Piston ring end gap	1st	0.30–0.45 ( 0.012–0.018 )	0.7 ( 0.03 )
	2nd	0.25–0.40 ( 0.010–0.016 )	0.7 ( 0.03 )
Piston ring to groove clearance	1st	—	0.18 ( 0.007 )
	2nd	—	0.15 ( 0.006 )
Piston ring groove width	1st	1.21–1.24 ( 0.047–0.049 )	—
	2nd	1.21–1.23 ( 0.047–0.048 )	—
	Oil	2.81–2.83 ( 0.110–0.111 )	—

7-23 SERVICING INFORMATION

ITEM	STANDARD		LIMIT
Piton ring thickness	1st	1.175–1.190 ( 0.046–0.047 )	—
	2nd	1.175–1.190 ( 0.046–0.047 )	—
Piston pin bore	23.002–23.008 ( 0.9056–0.9058 )		23.030 ( 0.9067 )
Piston pin O.D.	22.997–23.003 ( 0.9054–0.9056 )		22.980 ( 0.9047 )

**CONROD + CRANKSHAFT + BALANCER**

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	23.006–23.014 ( 0.9057–0.9061 )	23.040 ( 0.9071 )
Conrod deflection	—	3.0 ( 0.12 )
Conrod big end side clearance	0.15–0.60 ( 0.006–0.024 )	1.00 ( 0.039 )
Conrod big end width	24.95–25.00 ( 0.982–0.984 )	—
Crankshaft runout	—	0.05 ( 0.002 )
Crankshaft web to web width	71.0 ± 0.1 ( 2.79 ± 0.004 )	—
Balancer chain 20-pitch length	—	129 ( 5.08 )

**OIL PUMP**

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.823 ( 67/29 × 24/18 × 22/24 )	—
Oil pressure (at 60°C, 140°F)	Above 30 kPa, 0.3 kg/cm <sup>2</sup> ( 4.3 psi ) Below 70 kPa, 0.7 kg/cm <sup>2</sup> ( 10 psi ) at 3 000 r/min.	—

**CLUTCH**

Unit: mm (in)

ITEM	STANDARD	LIMIT	
Clutch cable play	2–3 ( 0.08–0.12 )	—	
Drive plate thickness	No.1	2.92–3.08 ( 0.115–0.121 )	2.62 ( 0.103 )
	No.2	3.45–3.55 ( 0.136–0.140 )	3.15 ( 0.124 )
Drive plate claw width	15.8–16.0 ( 0.62–0.63 )	15.0 ( 0.59 )	
Driven plate distortion	—	0.1 ( 0.004 )	
Clutch spring free length	—	34.0 ( 1.34 )	

## TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		2.310 ( 67/29 )	—
Final reduction ratio		2.625 ( 42/16 )	—
Gear ratios	Low	2.416 ( 29/12 )	—
	2nd	1.625 ( 26/16 )	—
	3rd	1.263 ( 24/19 )	—
	4th	1.000 ( 21/21 )	—
	Top	0.826 ( 19/23 )	—
Shift fork to groove clearance		0.10–0.30 ( 0.004–0.012 )	0.50 ( 0.020 )
Shift fork groove width		5.0–5.1 ( 0.19–0.20 )	—
Shift fork thickness		4.8–4.9 ( 0.18–0.19 )	—
Drive chain	Type	TAKASAGO: RK520KSO DAIDO: D.I.D.520VC-5	—
	Links	108 links	—
	20-pitch length	—	319.4 ( 12.57 )
Drive chain slack		40–45 ( 1.6–1.8 )	—

## CARBURETOR

ITEM	SPECIFICATION
Carburetor type	MIKUNI VM38SS
Bore size	38 mm (1.5 in)
I.D. No.	14A00
Idle r/min.	1 300 ± 100 r/min.
Fuel level	3.5 ± 0.5 mm (0.14 ± 0.02 in)
Float height	23.0 ± 1.0 mm (0.91 ± 0.04 in)
Main jet (M.J.)	# 135
Main air jet (M.A.J.)	0.6 mm
Jet needle (J.N.)	6CM1-3rd
Cut-away (C.A.)	1.5
Needle jet (N.J.)	0 – 0
Pilot jet (P.J.)	# 20
By-pass (B.P.)	1.0 mm
Pilot outlet (P.O.)	1.0 mm
Valve seat (V.S.)	2.8 mm
Starter jet (G.S.)	# 32.5
Pilot screw (P.S.)	2 turns out (PRE-SET)
Pilot air jet (P.A.J.)	1.2 mm
Throttle cable play	0.5 – 1.0 mm (0.02 – 0.04 in)

## ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	0° B.T.D.C. below 2 200 r/min. and 30° B.T.D.C. Above 4 300 r/min.		
Spark plug	Type	NGK: DP9EA-9 NIPPON DENSO: X27EP-U9	E-01, 24, 25 and 34
	Gap	0.8 – 0.9 ( 0.031 – 0.035 )	
	Type	NGK: DPR9EA-9 NIPPON DENSO: X27EPR-U9	For other models
	Gap	0.8 – 0.9 (0.031 – 0.035)	
Spark performance	Over 8 (0.3) at 1 atm.		
Ignition coil resistance	Primary	B – B 0 – 1 Ω	(X 1 Ω)
	Secondary	Plug cap – Plug cap 20 – 27 kΩ	(X 1 kΩ)
Magneto coil resistance	Pick-up	O – G 185 – 250 Ω	(X 100 Ω)
	Power source	B/R – B/W 170 – 230 Ω	(X 100 Ω)
	Charging	Y – Y 0.1 – 1.2 Ω	(X 1 Ω)
Generator no-load performance (when engine is cold)	More than 80V (AC) at 5 000 r/min.		
Regulated voltage	13.5 – 15.5V (DC) at 5 000 r/min.		
Battery	Type designation	12N5-3B	
	Capacity	12V 18kC (5Ah)/10HR	
	Standard electrolyte S.G.	1.28 at 20° C (68° F)	
Fuse size	Main	15A	

## BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD	LIMIT
Master cylinder bore	11.000 – 11.043 ( 0.4331 – 0.4348 )	—
Master cylinder piston diam.	10.850 – 10.908 ( 0.4272 – 0.4294 )	—

\* W. Germany model only

Master cylinder bore	* 12.700 – 12.743 ( 0.4999 – 0.5017 )	—
Master cylinder piston diam.	* 12.657 – 12.684 ( 0.4983 – 0.4994 )	—

ITEM	STANDARD		LIMIT
Caliper cylinder bore	38.180–38.256 ( 1.5031–1.5061 )		—
Caliper piston diam.	38.098–38.148 ( 1.4999–1.5019 )		—
Brake disc thickness	3.3–3.7 ( 0.13–0.15 )		3.0 ( 0.12 )
Brake disc runout	—		0.3 ( 0.01 )
Rear brake pedal free travel	20–30 ( 0.8–1.2 )		—
Rear brake pedal height	10 ( 0.4 )		—
Brake drum I.D.	—		130.7 ( 5.15 )
Brake lining thickness	—		1.5 ( 0.06 )
Wheel rim runout	Axial	—	2.0 ( 0.08 )
	Radial	—	2.0 ( 0.08 )
Wheel axel runout	Front	—	0.25 ( 0.010 )
	Rear	—	0.25 ( 0.010 )
Tire size	Front	100/80-21 56S	—
	Rear	130/80-17 65S	—
Tire tread depth	Front	—	3.0 ( 0.12 )
	Rear	—	3.0 ( 0.12 )

### SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	240 ( 9.4 )	—	
Front fork spring free length	—	502 ( 19.8 )	
Front fork oil level	170 ( 6.7 )	—	
Front fork air pressure	0 kPa, 0 kg/cm <sup>2</sup> (0 psi)		
Rear wheel travel	222 ( 8.7 )	—	
Swingarm pivot shaft runout	—	0.3 ( 0.01 )	

### 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	21	175	1.75	25
REAR	175	1.75	25	200	2.00	28

## FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Gasoline used should be graded 85 – 95 octane or higher. An unleaded or low-lead type gasoline is recommended.		
Fuel tank including reserve	21 L ( 5.5/4.6 US/Imp gal )		
reserve	4.5 L ( 4.8/4.0 US/Imp qt )		
Engine oil type	SAE 10W/40, API SE or SF		
Engine oil capacity	Change	2 300 ml ( 2.4/2.0 US/Imp qt )	
	Filter change	2 450 ml ( 2.6/2.2 US/Imp qt )	
	Overhaul	2 600 ml ( 2.7/2.3 US/Imp qt )	
Front fork oil type	Fork oil #10		
Front fork oil capacity (each leg)	475 ml ( 16.1/16.7 US/Imp oz )		
Brake fluid type	SAE J1703, DOT 3 or DOT 4		

## WATTAGE

Unit: W

ITEM	SPECIFICATION			
		E-01,06,24 and 28	E-02	For other models
Headlight	HI	60	←	←
	LO	55	←	←
Parking or city light			3.4	4
Tail/Brake light		8/23	5/21	←
Turn signal light		23	21	←
License plate light		8	5	←
Speedometer light		3.4	←	←
Turn signal indicator light		3.4	←	←
High beam indicator light		1.7	←	←
Neutral indicator light		3.4	←	←
*Side stand check light		3.4		

(\* Canada model only)



# DR600SG ('86-model)

*This DR600SG section describes only service data, service specifications and servicing procedures which differ from those of the DR600SF model.*

**NOTE:**

*Any differences in service data and service specifications with those that apply to the DR600SG model are clearly indicated with an asterisk (\*).*

*Refer to the sections 1 through 7 for details which are not given in this section.*

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VIEW OF SUZUKI DR600SG



RIGHT SIDE



LEFT SIDE

## SPECIFICATIONS

### DIMENSIONS AND DRY MASS

Overall length .....	2 215 mm (87.2 in)
Overall width .....	875 mm (34.4 in)
Overall height .....	1 235 mm (48.6 in)
Wheelbase .....	1 465 mm (57.7 in)
Ground clearance .....	275 mm (10.8 in)
Dry mass .....	139 kg (306 lbs)

### ENGINE

Type .....	Four-stroke, air-cooled, OHC, TSCC
Number of cylinders .....	1
Bore .....	94.0 mm (3.700 in)
Stroke .....	85.0 mm (3.346 in)
Piston displacement .....	589 cm <sup>3</sup> (35.9 cu. in)
Compression ratio .....	8.5 : 1
Carburetor .....	MIKUNI VM38SS, single
Air cleaner .....	Polyurethane foam element
Starter system .....	Primary kick
Lubrication system .....	Wet sump

### TRANSMISSION

Clutch .....	Wet multi-plate type
Transmission .....	5-speed constant mesh
Gearshift pattern .....	1-down, 4-up
Primary reduction .....	2.310 (67/29)
Final reduction .....	2.625 (42/16)
Gear ratios, Low .....	2.416 (29/12)
2nd .....	1.625 (26/16)
3rd .....	1.263 (24/19)
4th .....	1.000 (21/21)
Top .....	0.826 (19/23)
Drive chain .....	TAKASAGO RK520KSO or DAIDO D.I.D.520VC-5, 108 links

**ELECTRICAL**

Ignition type .....	SUZUKI "PEI"
Ignition timing .....	0° B.T.D.C. Below 2 200 r/min and 30° B.T.D.C. Above 4 300 r/min
Spark plug .....	NGK DP9EA-9 or NIPPON DENSO X27EP-U9 (For E-01, 24, 25 and 34) NGK DPR9EA-9 or NIPPON DENSO X27EPR-U9 (For others)
Battery .....	12V 18kC (5 Ah)/10 HR
Generator .....	Three-phase A.C. generator
Fuse .....	15A

**CHASSIS**

Front suspension .....	Telescopic, pneumatic/coil spring, oil dampened
Rear suspension .....	Full-floating suspension system, gas/oil dampened, spring pre-load 5-way adjustable
Steering angle .....	45° (Right & Left)
Caster .....	60° 00'
Trail .....	125 mm (4.92 in)
Turning radius .....	2.3 m (7.5 ft)
Front brake .....	Disc brake, hydraulically operated
Rear brake .....	Internal expanding
Front tire size .....	100/80-21 56S
Rear tire size .....	130/80-17 65S

**CAPACITIES**

Fuel tank including reserve .....	21L (5.5/4.6 US/Imp gal)
reserve .....	4.5 L (4.8/4.0 US/Imp qt)
Engine oil .....	2.3 L (2.4/2.0 US/Imp qt)
Front fork oil .....	475 ml (16.1/16.7 US/Imp oz)

These specifications are subject to change without notice.

## SERVICE DATA

## VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	33 ( 1.3 )	—
	EX.	28 ( 1.1 )	—
Valve lift	IN.	9 ( 0.4 )	—
	EX.	9 ( 0.4 )	—
Valve clearance (when engine is cold)	IN. & EX.	0.08–0.13 ( 0.003–0.005 )	—
Valve guide to valve stem clearance	IN.	0.025–0.055 ( 0.0010–0.0022 )	0.35 ( 0.014 )
	EX.	0.040–0.070 ( 0.0016–0.0028 )	0.35 ( 0.014 )
Valve guide I.D.	IN. & EX.	7.000–7.015 ( 0.2756–0.2762 )	—
Valve stem O.D.	IN.	6.960–6.975 ( 0.2740–0.2746 )	—
	EX.	6.945–6.960 ( 0.2734–0.2740 )	—
Valve stem runout	IN. & EX.	—	0.05 ( 0.002 )
Valve head thickness	IN. & EX.	—	0.5 ( 0.02 )
Valve stem end length	IN. & EX.	—	4.3 ( 0.17 )
Valve seat width	IN. & EX.	1.0–1.2 ( 0.04–0.05 )	—
Valve head radial runout	IN. & EX.	—	0.03 ( 0.001 )
Valve spring free length (IN. & EX.)	INNER	—	35.5 ( 1.40 )
	OUTER	—	40.3 ( 1.59 )
Valve spring tension (IN. & EX.)	INNER	7.0–8.5 kg ( 15.4–18.7 lbs ) at length 31 mm ( 1.2 in )	—
	OUTER	16.4–18.8 kg ( 36.2–41.4 lbs ) at length 33 mm ( 1.3 in )	—

## CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	36.529–36.569 ( 1.4381–1.4397 )	36.230 ( 1.4264 )
	EX.	36.755–36.795 ( 1.4470–1.4486 )	36.460 ( 1.4354 )
Camshaft journal oil clearance	0.032–0.066 ( 0.0013–0.0026 )		0.150 ( 0.0059 )

ITEM	STANDARD		LIMIT
	Camshaft journal holder I.D.	Right side & Center side	
	Left side	20.012–20.025 ( 0.7879–0.7884 )	—
Camshaft journal O.D.	Right side & Center side	24.959–24.980 ( 0.9826–0.9835 )	—
	Left side	19.959–19.980 ( 0.7858–0.7866 )	—
Camshaft runout	—		0.10 ( 0.004 )
Cam chain 20-pitch length	—		129 ( 5.08 )
Rocker arm I.D.	IN. & EX.	12.000–12.018 ( 0.4724–0.4731 )	—
Rocker arm shaft O.D.	IN. & EX.	11.966–11.984 ( 0.4711–0.4718 )	—
Cylinder head distortion	—		0.05 ( 0.002 )
Manual de-compression lever play	0		—
Automatic de-compression lever play	1–2 ( 0.04–0.08 )		—

**CYLINDER + PISTON + PISTON RING**

Unit: mm (in)

ITEM	STANDARD		LIMIT
	Piston to cylinder clearance	0.060–0.077 ( 0.0024–0.0030 )	
Cylinder bore	94.000–94.015 ( 3.7008–3.7014 )		94.070 ( 3.7035 )
Piston diam.	93.930–93.950 ( 3.6980–3.6988 ) Measure at 20mm (0.79in) from the skirt end.		93.880 ( 3.6961 )
Cylinder distortion	—		0.05 ( 0.002 )
Piston ring free end gap	1st	T Approx. 11.5 ( 0.45 )	9.2 ( 0.36 )
	2nd	T Approx. 14.0 ( 0.55 )	11.2 ( 0.44 )
Piston ring end gap	1st	0.30–0.45 ( 0.012–0.018 )	0.7 ( 0.03 )
	2nd	0.25–0.40 ( 0.010–0.016 )	0.7 ( 0.03 )
Piston ring to groove clearance	1st	—	0.18 ( 0.007 )
	2nd	—	0.15 ( 0.006 )
Piston ring groove width	1st	1.21–1.24 ( 0.047–0.049 )	—
	2nd	1.21–1.23 ( 0.047–0.048 )	—
	Oil	2.81–2.83 ( 0.110–0.111 )	—

ITEM	STANDARD		LIMIT
Piston ring thickness	1st	1.175–1.190 ( 0.046–0.047 )	—
	2nd	1.175–1.190 ( 0.046–0.047 )	—
Piston pin bore	23.002–23.008 ( 0.9056–0.9058 )		23.030 ( 0.9067 )
Piston pin O.D.	22.997–23.003 ( 0.9054–0.9056 )		22.980 ( 0.9047 )

**CONROD + CRANKSHAFT + BALANCER**

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	23.006–23.014 ( 0.9057–0.9061 )	23.040 ( 0.9071 )
Conrod deflection	—	3.0 ( 0.12 )
Conrod big end side clearance	0.15–0.60 ( 0.006–0.024 )	1.00 ( 0.039 )
Conrod big end width	24.95–25.00 ( 0.982–0.984 )	—
Crankshaft runout	—	0.05 ( 0.002 )
Crankshaft web to web width	71.0 ± 0.1 ( 2.79 ± 0.004 )	—
Balancer chain 20-pitch length	—	129 ( 5.08 )

**OIL PUMP**

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.823 ( 67/29 × 24/18 × 22/24 )	—
Oil pressure (at 60°C, 140°F)	Above 30 kPa, 0.3 kg/cm <sup>2</sup> ( 4.3 psi ) Below 70 kPa, 0.7 kg/cm <sup>2</sup> ( 10 psi ) at 3 000 r/min.	—

**CLUTCH**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Clutch cable play	2–3 ( 0.08–0.12 )		—
Drive plate thickness	No.1	2.92–3.08 ( 0.115–0.121 )	2.62 ( 0.103 )
	No.2	3.45–3.55 ( 0.136–0.140 )	3.15 ( 0.124 )
Drive plate claw width	15.8–16.0 ( 0.62–0.63 )		15.0 ( 0.59 )
Driven plate distortion	—		0.1 ( 0.004 )
Clutch spring free length	—		*35.0 ( 1.38 )

\* Asterisk mark indicates the new G model specifications.

**TRANSMISSION + DRIVE CHAIN**

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		2.310 ( 67/29 )	—
Final reduction ratio		2.625 ( 42/16 )	—
Gear ratios	Low	2.416 ( 29/12 )	—
	2nd	1.625 ( 26/16 )	—
	3rd	1.263 ( 24/19 )	—
	4th	1.000 ( 21/21 )	—
	Top	0.826 ( 19/23 )	—
Shift fork to groove clearance		0.10–0.30 ( 0.004–0.012 )	0.50 ( 0.020 )
Shift fork groove width		5.0–5.1 ( 0.19–0.20 )	—
Shift fork thickness		4.8–4.9 ( 0.18–0.19 )	—
Drive chain	Type	TAKASAGO: RK520KSO DAIDO: D.I.D.520VC-5	—
	Links	108 links	—
	20-pitch length	—	319.4 ( 12.57 )
Drive chain slack		40–45 ( 1.6–1.8 )	—

**CARBURETOR**

ITEM		SPECIFICATION
Carburetor type		MIKUNI VM38SS
Bore size		38 mm (1.5 in)
I.D. No.		14A00
Idle r/min.		1 300 ± 100 r/min.
Fuel level		3.5 ± 0.5 mm (0.14 ± 0.02 in)
Float height		23.0 ± 1.0 mm (0.91 ± 0.04 in)
Main jet	(M.J.)	# 135
Main air jet	(M.A.J.)	0.6 mm
Jet needle	(J.N.)	6CM1-3rd
Cut-away	(C.A.)	1.5
Needle jet	(N.J.)	0 – 0
Pilot jet	(P.J.)	# 20
By-pass	(B.P.)	1.0 mm
Pilot outlet	(P.O.)	1.0 mm
Valve seat	(V.S.)	2.8 mm
Starter jet	(G.S.)	# 32.5
Pilot screw	(P.S.)	2 turns out (PRE-SET)
Pilot air jet	(P.A.J.)	1.2 mm
Throttle cable play		0.5 – 1.0 mm (0.02 – 0.04 in)



**ELECTRICAL**

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	0° B.T.D.C. below 2 200 r/min. and 30° B.T.D.C. Above 4 300 r/min.		
Spark plug	Type	NGK: DP9EA-9 NIPPON DENSO: X27EP-U9	E-01, 24, 25 and 34
	Gap	0.8 – 0.9 ( 0.031 – 0.035 )	
	Type	NGK: DPR9EA-9 NIPPON DENSO: X27EPR-U9	For other models
	Gap	0.8 – 0.9 (0.031 – 0.035)	
Spark performance	Over 8 (0.3) at 1 atm.		
Ignition coil resistance	Primary	B – B 0 – 1 Ω	(X 1 Ω)
	Secondary	Plug cap – Plug cap 20 – 27 kΩ	(X 1 kΩ)
Magneto coil resistance	Pick-up	*No. 1: O – G, No. 2: Br – Gr 185 – 250 Ω	(X 100 Ω)
	Power source	B/R – B/W 170 – 230 Ω	(X 100 Ω)
	Charging	Y – Y 0.1 – 1.2 Ω	(X 1 Ω)
Generator no-load performance (when engine is cold)	More than 80V (AC) at 5 000 r/min.		
Regulated voltage	13.5 – 15.5V (DC) at 5 000 r/min.		
Battery	Type designation	12N5-3B	
	Capacity	12V 18kC (5Ah)/10HR	
	Standard electrolyte S.G.	1.28 at 20°C (68°F)	
Fuse size	Main	15A	

**BRAKE + WHEEL**

Unit: mm (in)

ITEM	STANDARD	LIMIT
Master cylinder bore	11.000 – 11.043 ( 0.4331 – 0.4348 )	—
Master cylinder piston diam.	10.850 – 10.908 ( 0.4272 – 0.4294 )	—

W. Germany model only

Master cylinder bore	12.700 – 12.743 ( 0.4999 – 0.5017 )	—
Master cylinder piston diam.	12.657 – 12.684 ( 0.4983 – 0.4994 )	—

\* Asterisk mark indicates the new G model specifications.

ITEM	STANDARD		LIMIT
Caliper cylinder bore	38.180—38.256 ( 1.5031—1.5061 )		—
Caliper piston diam.	38.098—38.148 ( 1.4999—1.5019 )		—
Brake disc thickness	3.3—3.7 ( 0.13—0.15 )		3.0 ( 0.12 )
Brake disc runout	—		0.3 ( 0.01 )
Rear brake pedal free travel	20—30 ( 0.8—1.2 )		—
Rear brake pedal height	10 ( 0.4 )		—
Brake drum I.D.	—		130.7 ( 5.15 )
Brake lining thickness	—		1.5 ( 0.06 )
Wheel rim runout	Axial	—	2.0 ( 0.08 )
	Radial	—	2.0 ( 0.08 )
Wheel axel runout	Front	—	0.25 ( 0.010 )
	Rear	—	0.25 ( 0.010 )
Tire size	Front	100/80-21 56S	—
	Rear	130/80-17 65S	—
Tire tread depth	Front	—	3.0 ( 0.12 )
	Rear	—	3.0 ( 0.12 )

**SUSPENSION**

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	240 ( 9.4 )	—	
Front fork spring free length	—	502 ( 19.8 )	
Front fork oil level	170 ( 6.7 )	—	
Front fork air pressure	0 kPa, 0 kg/cm <sup>2</sup> (0 psi)		—
Rear wheel travel	222 ( 8.7 )	—	
Swingarm pivot shaft runout	—	0.3 ( 0.01 )	

**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	21	175	1.75	25
REAR	175	1.75	25	200	2.00	28

**FUEL + OIL**

ITEM	SPECIFICATION		NOTE
Fuel type	Gasoline used should be graded 85 – 95 octane or higher. An unleaded or low-lead type gasoline is recommended.		
Fuel tank including reserve	21 L ( 5.5/4.6 US/Imp gal )		
reserve	4.5 L ( 4.8/4.0 US/Imp qt )		
Engine oil type	SAE 10W/40, API SE or SF		
Engine oil capacity	Change	2 300 ml ( 2.4/2.0 US/Imp qt )	
	Filter change	2 450 ml ( 2.6/2.2 US/Imp qt )	
	Overhaul	2 600 ml ( 2.7/2.3 US/Imp qt )	
Front fork oil type	Fork oil #10		
Front fork oil capacity (each leg)	475 ml ( 16.1/16.7 US/Imp oz )		
Brake fluid type	SAE J1703, DOT 3 or DOT 4		

**WATTAGE**

Unit: W

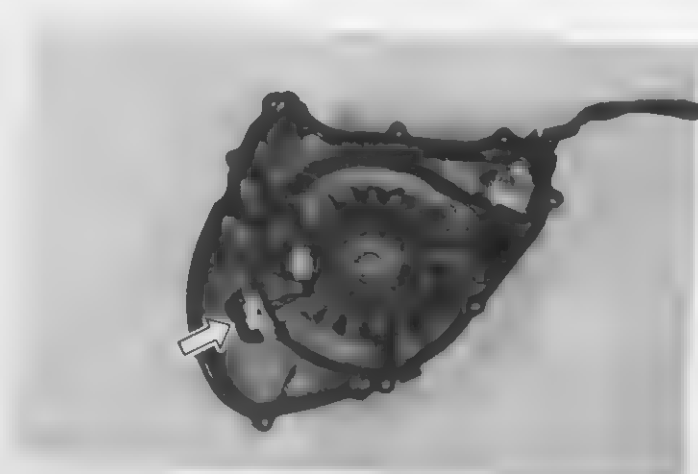
ITEM		SPECIFICATION		
		E-01, 06, 24	E-02	For other models
Headlight	HI	60	←	←
	LO	55	←	←
Parking or city light			3.4	4
Tail/Brake light		8/23	5/21	←
Turn signal light		23	21	←
License plate light		8	5	←
Speedometer light		3.4	←	←
Turn signal indicator light		3.4	←	←
High beam indicator light		1.7	←	←
Neutral indicator light		3.4	←	←

## CHANGES

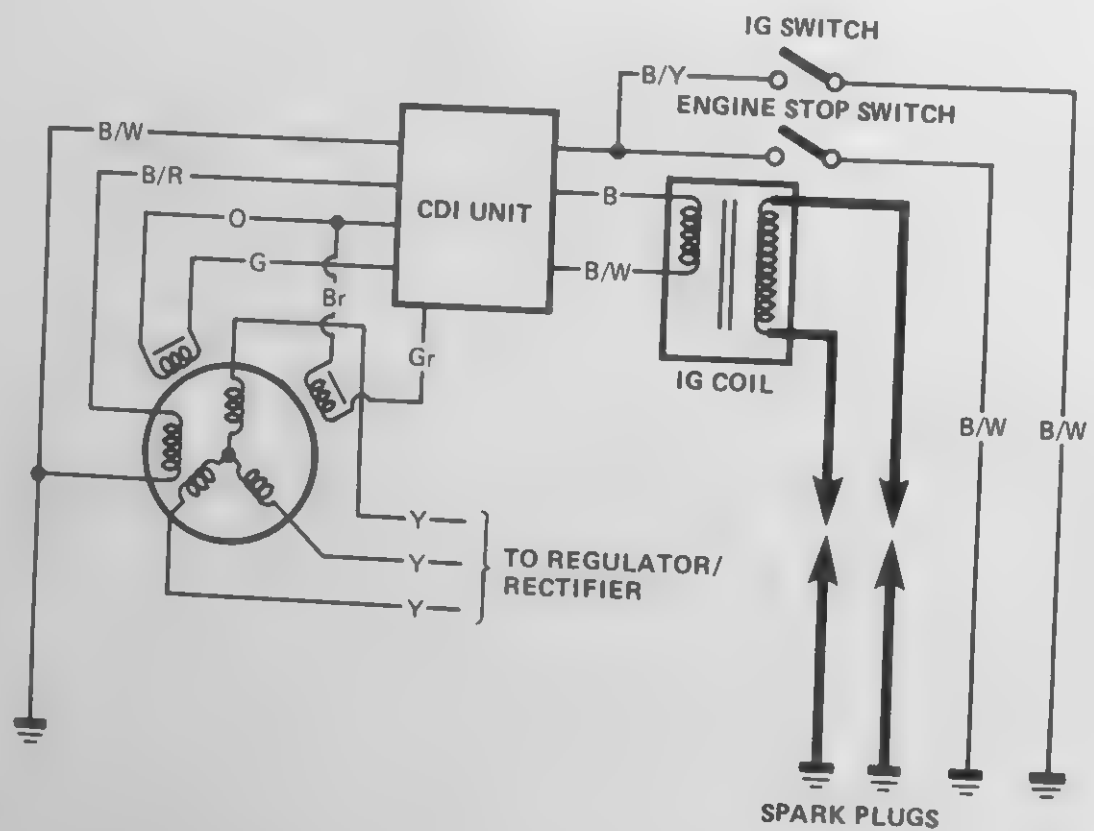
The following changes have been made, beginning with the DR600SG (1986 model).

### 1. IGNITION SYSTEM

The No. 2 pick-up coil has been added to the magneto cover. Together with this, the CDI unit has been changed for easy starting.



### WIRING DIAGRAM OF IGNITION SYSTEM



#### WIRE COLOR

O . . . . . Orange  
 G . . . . . Green  
 Br . . . . . Brown  
 Gr . . . . . Gray  
 Y . . . . . Yellow

B . . . . . Black  
 B/R . . . . . Black with Red tracer  
 B/W . . . . . Black with White tracer  
 B/Y . . . . . Black with Yellow tracer

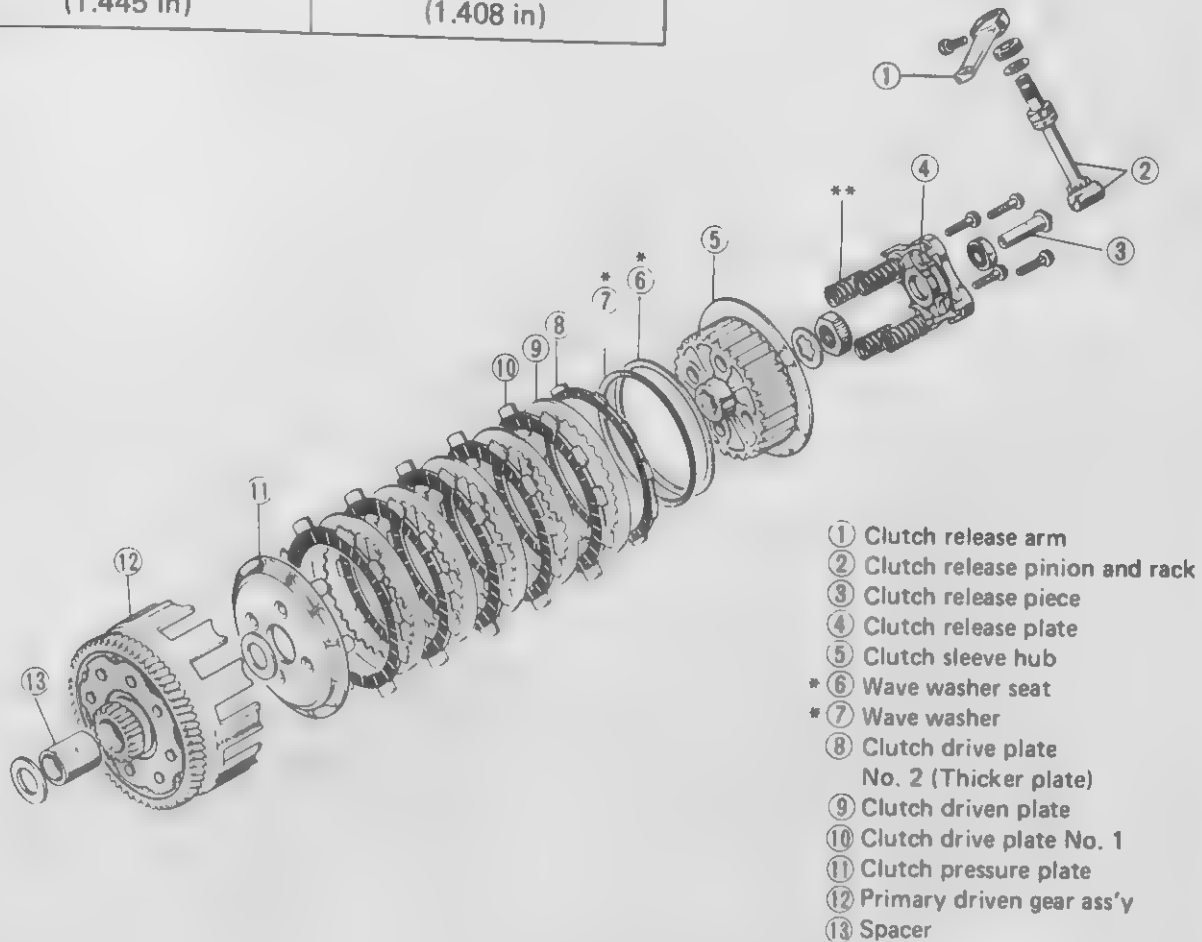
## 2. CLUTCH

The free length of the clutch springs has been increased and clutch wave washer ⑦ and seat ⑥ are eliminated as shown in the following illustration.

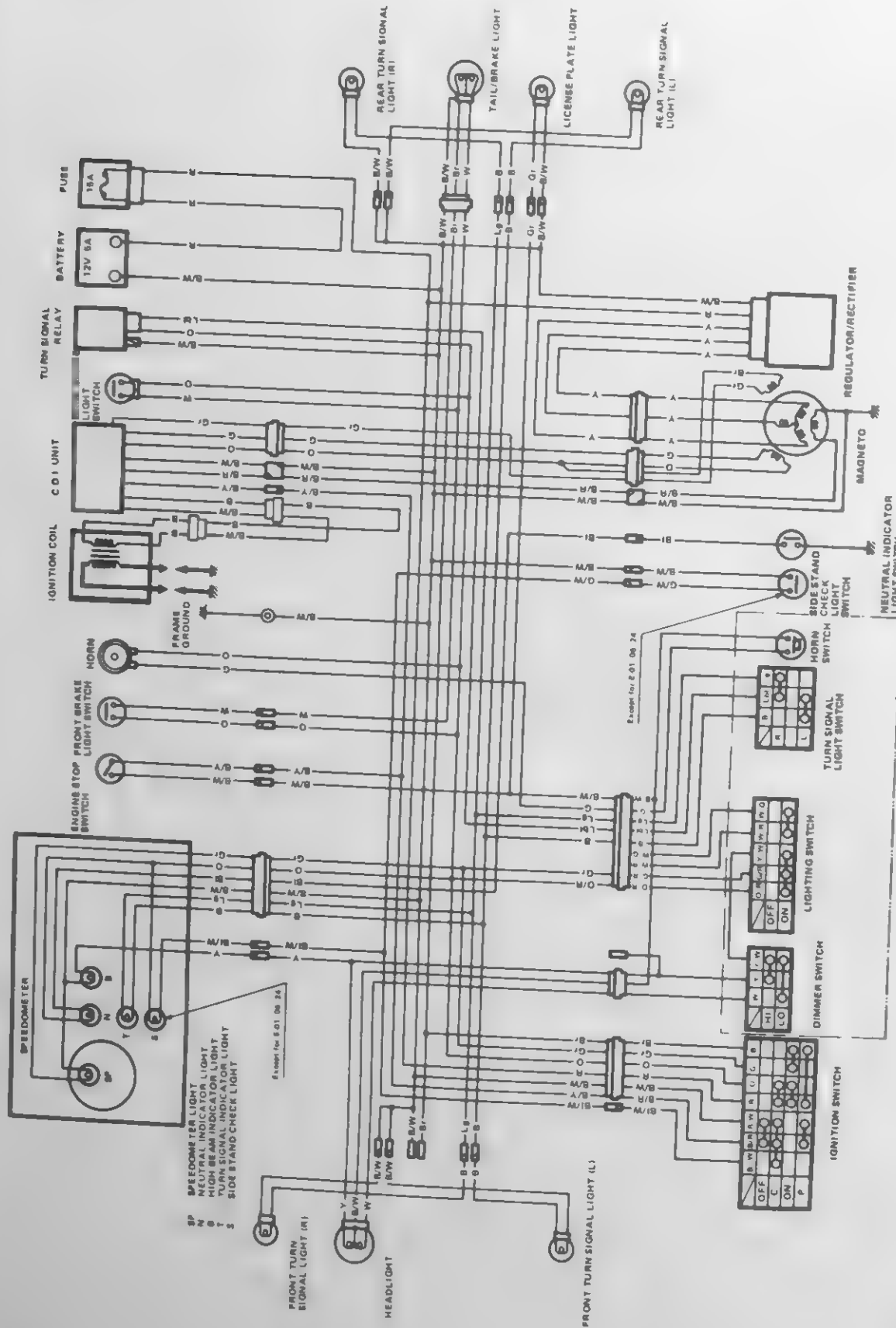
\*\* Clutch spring has been increased in length by 0.94 mm (0.037 in).

### CLUTCH SPRING FREE LENGTH

G-MODEL	F-MODEL
36.70 mm (1.445 in)	35.76 mm (1.408 in)



# WIRING DIAGRAM (For E-01, 06 and 24)



- WIRE COLOR**
- B . . . . . Black
  - Bl . . . . . Blue
  - Br . . . . . Brown
  - G . . . . . Green
  - Gr . . . . . Gray
  - Lbl . . . . . Light blue
  - Lg . . . . . Light green

- O . . . . . Orange
- R . . . . . Red
- W . . . . . White
- Y . . . . . Yellow
- B/R . . . . . Black with Red tracer
- B/W . . . . . Black with White tracer
- B/Y . . . . . Black with Yellow tracer

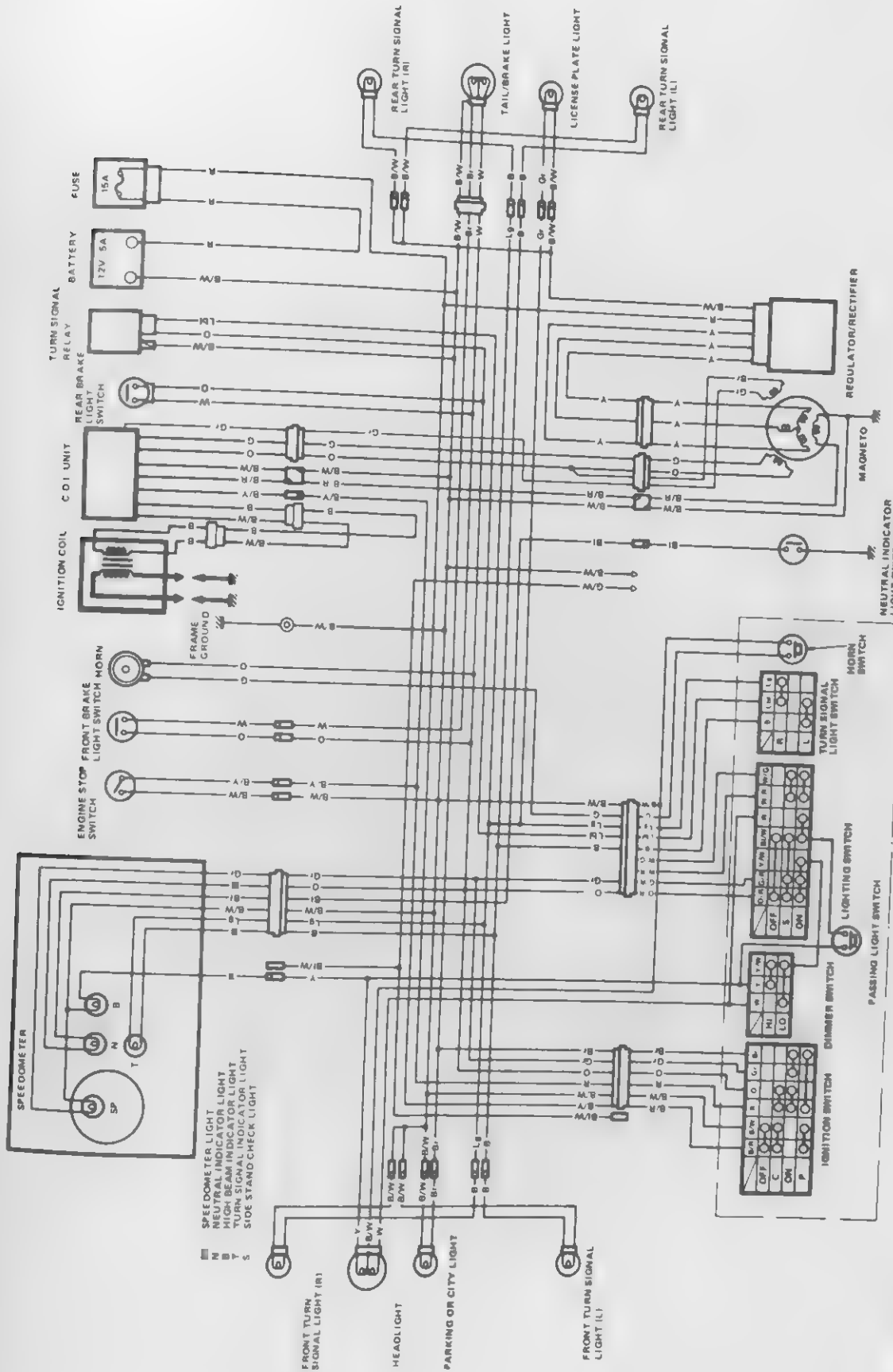
- B/W . . . . . Blue with White tracer
- G/R . . . . . Green with Red tracer
- G/W . . . . . Green with White tracer
- O/G . . . . . Orange with Green tracer
- W/G . . . . . White with Green tracer
- W/R . . . . . White with Red tracer
- Y/W . . . . . Yellow with White tracer

SP SPEEDOMETER LIGHT  
 N NEUTRAL INDICATOR LIGHT  
 S SIDE STAND CHECK LIGHT  
 T TURN SIGNAL LIGHT  
 Y TURN SIGNAL LIGHT

Except for E-01, 06, 24

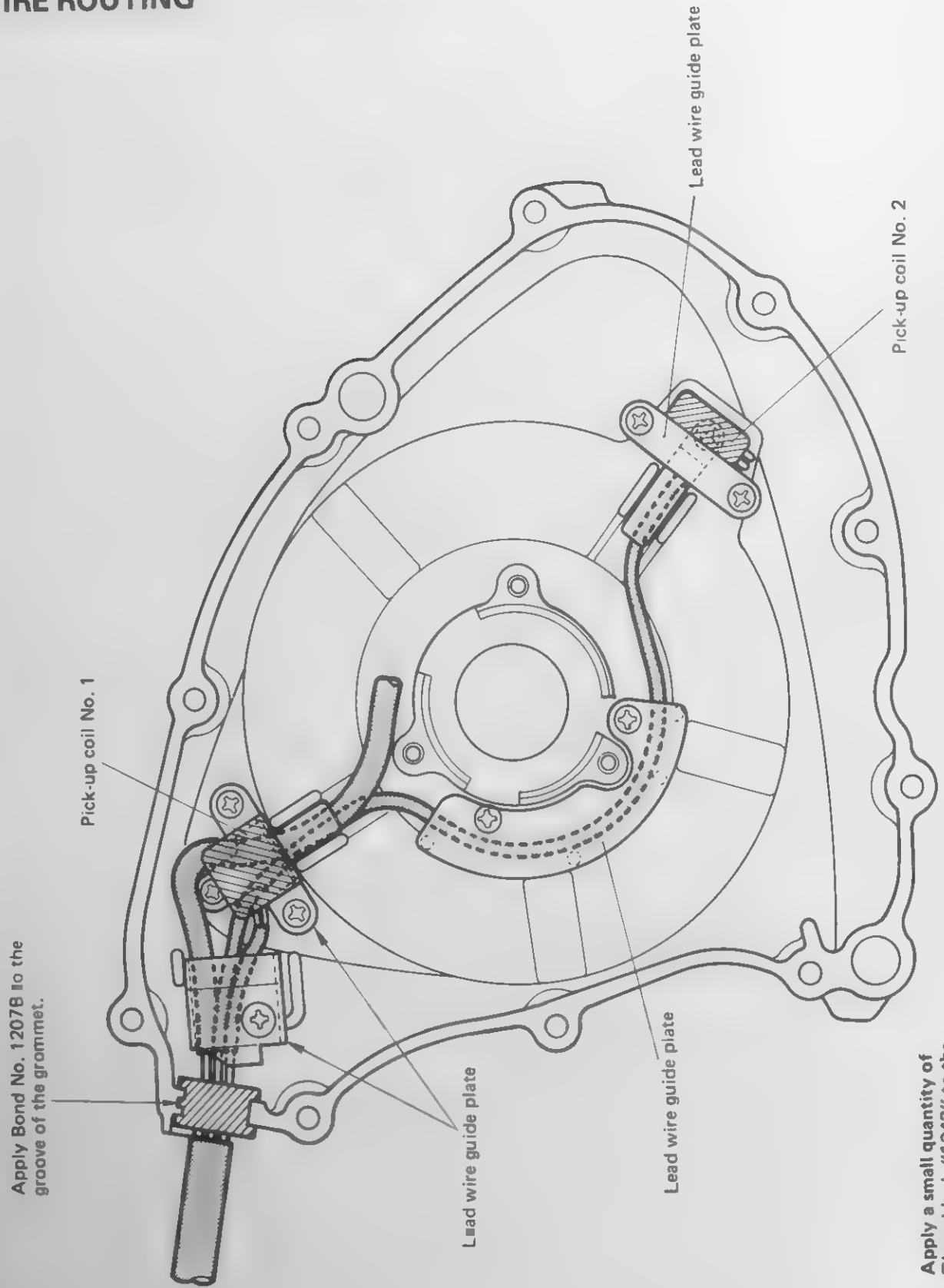
Except for E-01, 06, 24

(For other models)



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

## WIRE ROUTING



Apply Bond No. 1207B to the groove of the grammet.

Pick-up coil No. 1

Pick-up coil No. 2

Lead wire guide plate

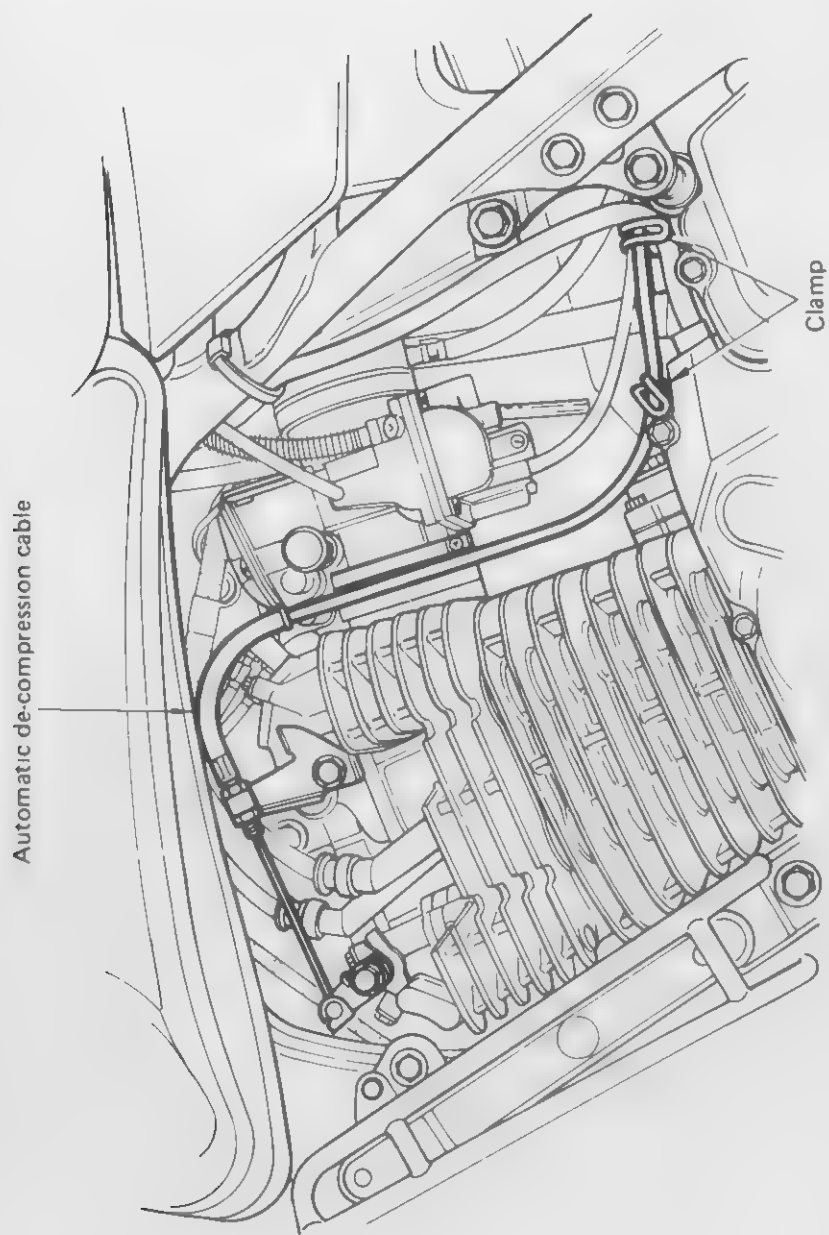
Lead wire guide plate

Lead wire guide plate

NOTE: Apply a small quantity of Thread lock "1342" to the screws.



# CABLE ROUTING

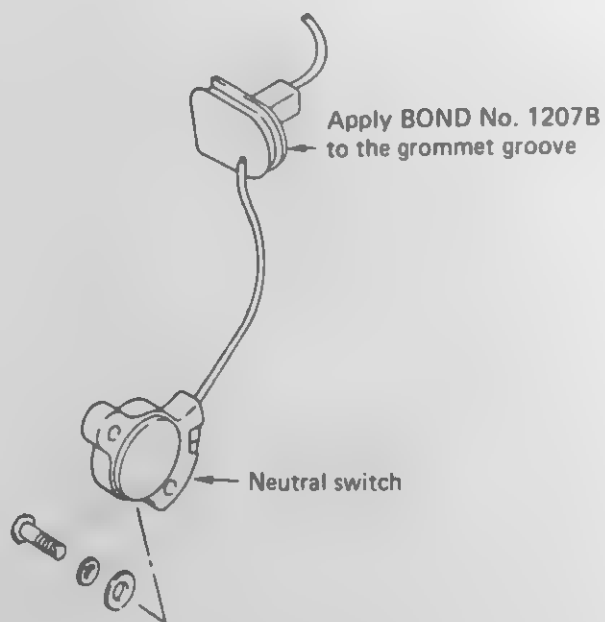


\* Automatic de-compression cable has been changed, together with this, its routing has been changed.

## APPENDIX

### SEALING OF THE NEUTRAL LEAD WIRE GROMMET

SUZUKI BOND No. 1207B should be applied to the groove of the neutral lead wire grommet through which the neutral lead wire is routed outside. The purpose of this sealant application is to provide thorough oil-tight of the neutral lead wire grommet.

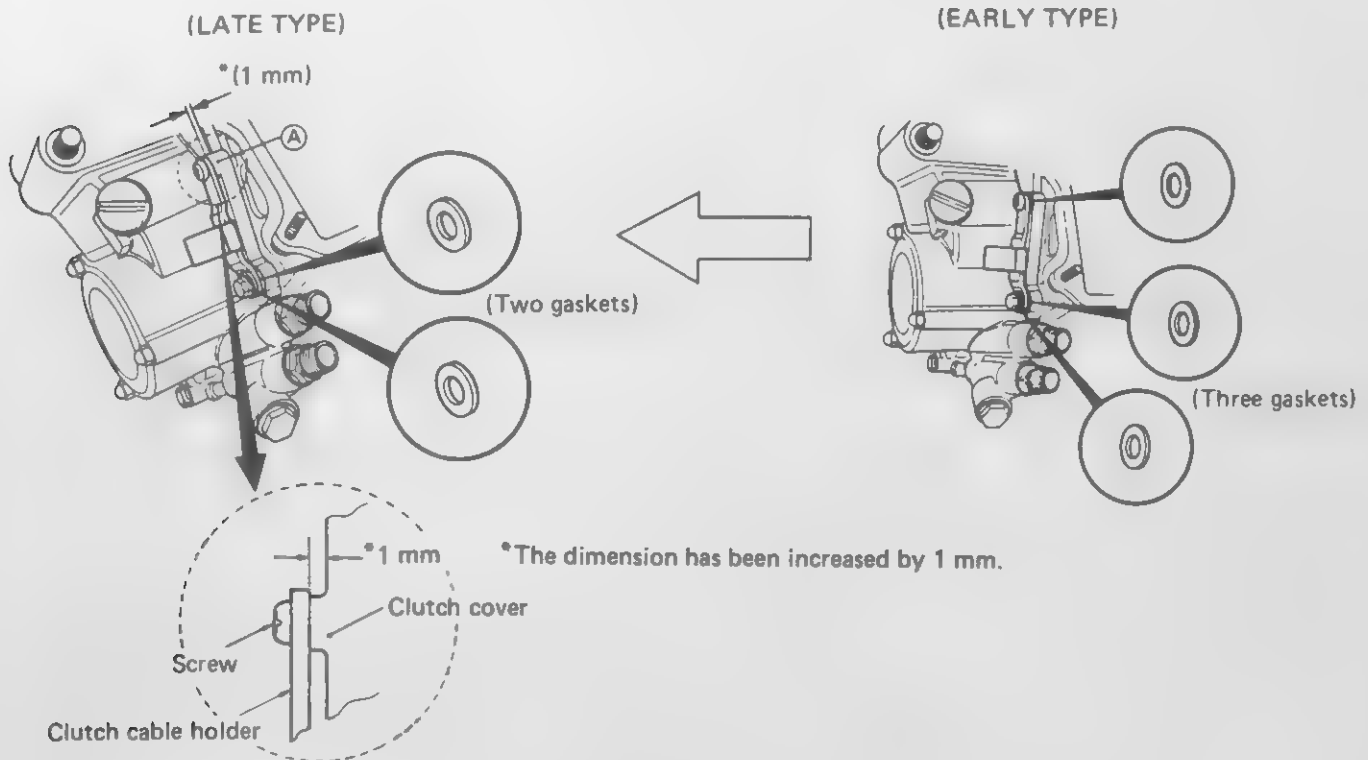


99000-31140	BOND No. 1207B
-------------	----------------

## CHANGE OF THE CLUTCH COVER

EFFECTIVE ENGINE NUMBERS: From No. 102821

The dimension of the part (A) of the clutch cover has been changed and gasket is eliminated as shown in the following illustration.



- \* Clutch cover part No. is unchanged.
- \* Interchangeability: Late  $\begin{matrix} \text{--- Yes ---} \\ \text{--- No ---} \end{matrix}$  Early
- \* When replacing the clutch cover with a new one, do not use the gasket at part (A).

**CHANGE OF THE CLUTCH COVER GASKET**

EFFECTIVE ENGINE NUMBERS: From No. 113005

Sealant material is coated on the upper part of the late type gasket. The purpose of this sealant application is to provide thorough oil-tight of the gasket.

**PARTS SUPPLY DATA**

PART NAME	LATE PART No.	EARLY PART No.
Clutch cover gasket	11482-14A01	11482-14A00
Gasket set	11401-14821	11401-14820

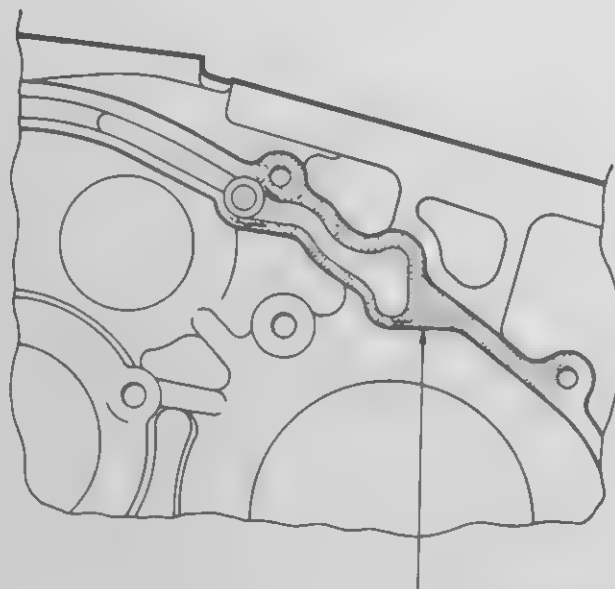
INTERCHANGEABILITY: LATE  $\begin{matrix} \text{--- Yes ---} \\ \text{--- Yes ---} \end{matrix}$  EARLY

PARTS AVAILABILITY: Only late gasket and gasket set are available.

**NOTE:**

When using the EARLY type gasket on hand, apply BOND No. 1207B to the crankcase as shown in the following illustration.

99000-31140	BOND No. 1207B
-------------	----------------



Apply BOND No. 1207B to this place.

# DR500SG ('86-model)

Only for Austria  
model

*This DR500SG model describes only service data and service specifications which differ from those of the DR600SG model.*

**NOTE:**

*Any differences in service data and service specifications with those that apply to the DR500SG model are clearly indicated with an asterisk (\*).*

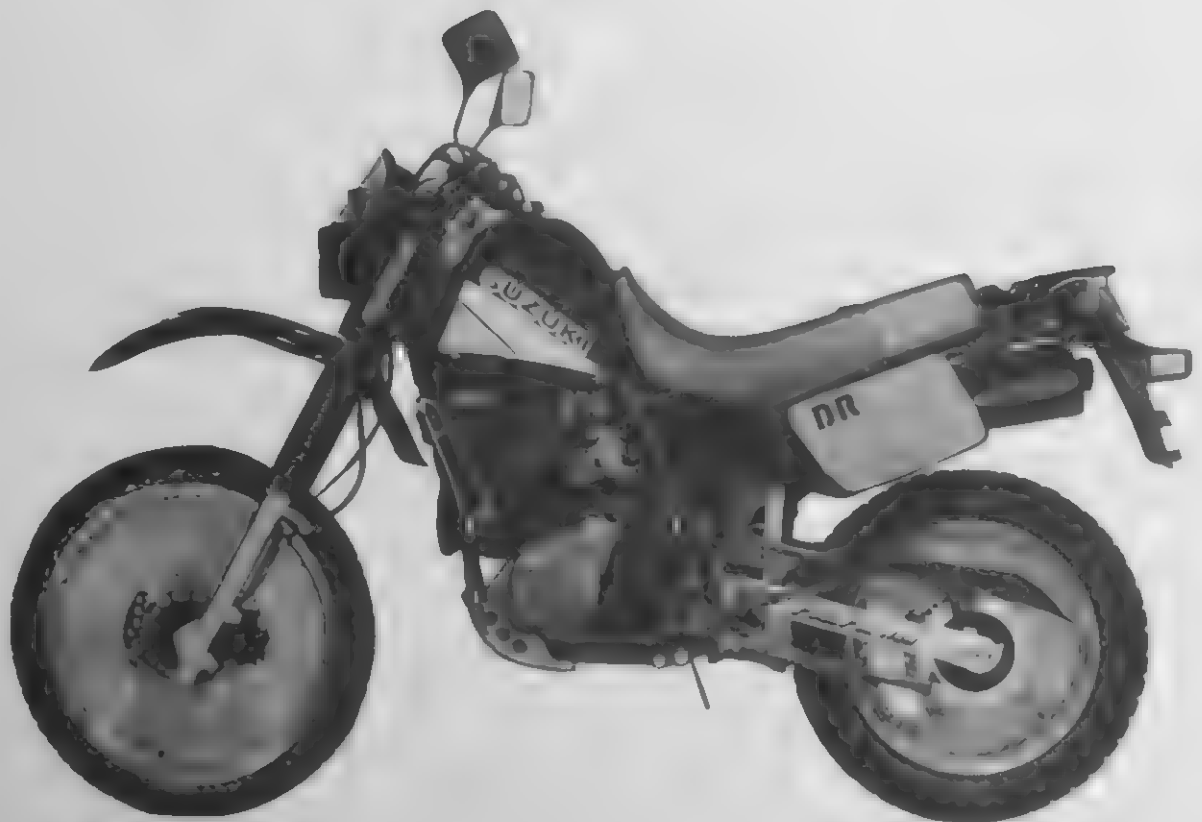
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VIEW OF SUZUKI DR500SG



RIGHT SIDE



LEFT SIDE

## SPECIFICATIONS

### DIMENSIONS AND DRY MASS

Overall length .....	.2 215 mm (87.2 in)
Overall width.....	875 mm (34.4 in)
Overall height .....	.1 235 mm (48.6 in)
Wheelbase .....	.1 465 mm (57.7 in)
Ground clearance .....	275 mm (10.8 in)
Dry mass.....	*136 kg (300 lbs)

### ENGINE

Type .....	Four-stroke, air-cooled, OHC, TSCC
Number of cylinders .....	1
Bore .....	.94.0 mm (3.700 in)
Stroke .....	*72.0 mm (2.835 in)
Piston displacement.....	*499 cm <sup>3</sup> (30.4 cu. in)
Compression ratio .....	8.5 : 1
Carburetor.....	MIKUNI VM38SS, single
Air cleaner.....	Polyurethane foam element
Starter system .....	Primary kick
Lubrication system .....	Wet sump

### TRANSMISSION

Clutch .....	Wet multi-plate type
Transmission .....	5-speed constant mesh
Gearshift pattern.....	1-down, 4-up
Primary reduction .....	2.310 (67/29)
Final reduction .....	2.625 (42/16)
Gear ratios, Low.....	2.416 (29/12)
2nd .....	1.625 (26/16)
3rd .....	1.263 (24/19)
4th .....	1.000 (21/21)
Top.....	0.826 (19/23)
Drive chain .....	TAKASAGO RK520KSO or DAIDO D.I.D.520VC-5, 108 links

**ELECTRICAL**

Ignition type .....	SUZUKI "PEI"
Ignition timing .....	0° B.T.D.C. Below 2 200 r/min and 30° B.T.D.C. Above 4 300 r/min
Spark plug .....	NGK DPR9EA-9 or NIPPON DENSO X27EPR-U9
Battery .....	12V 18kC (5 Ah)/10 HR
Generator .....	Three-phase A.C. generator
Fuse .....	15A

**CHASSIS**

Front suspension .....	Telescopic, pneumatic/coil spring, oil dampened
Rear suspension .....	Full-floating suspension system, gas/oil dampened, spring pre-load 5-way adjustable
Steering angle .....	45° (Right & Left)
Caster .....	60° 00'
Trail .....	125 mm (4.92 in)
Turning radius .....	2.3 m (7.5 ft)
Front brake .....	Disc brake, hydraulically operated
Rear brake .....	Internal expanding
Front tire size .....	100/80-21 56S
Rear tire size .....	130/80-17 65S

**CAPACITIES**

Fuel tank including reserve .....	.21 L (5.5/4.6 US/Imp gal)
reserve .....	4.5 L (4.8/4.0 US/Imp qt)
Engine oil .....	2.3 L (2.4/2.0 US/Imp qt)
Front fork oil .....	475 ml (16.1/16.7 US/Imp oz)

Specifications marked with asterisks (\*) are exclusively for DR500SG.  
These specifications are subject to change without notice.



**SERVICE DATA****VALVE + GUIDE**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	33 ( 1.3 )	—
	EX.	28 ( 1.1 )	—
Valve lift	IN.	9 ( 0.4 )	—
	EX.	9 ( 0.4 )	—
Valve clearance (when engine is cold)	IN. & EX.	0.08–0.13 ( 0.003–0.005 )	—
Valve guide to valve stem clearance	IN.	0.025–0.055 ( 0.0010–0.0022 )	0.35 ( 0.014 )
	EX.	0.040–0.070 ( 0.0016–0.0028 )	0.35 ( 0.014 )
Valve guide I.D.	IN. & EX.	7.000–7.015 ( 0.2756–0.2762 )	—
Valve stem O.D.	IN.	6.960–6.975 ( 0.2740–0.2746 )	—
	EX.	6.945–6.960 ( 0.2734–0.2740 )	—
Valve stem runout	IN. & EX.	—	0.05 ( 0.002 )
Valve head thickness	IN. & EX.	—	0.5 ( 0.02 )
Valve stem end length	IN. & EX.	—	4.3 ( 0.17 )
Valve seat width	IN. & EX.	1.0–1.2 ( 0.04–0.05 )	—
Valve head radial runout	IN. & EX.	—	0.03 ( 0.001 )
Valve spring free length (IN. & EX.)	INNER	—	35.5 ( 1.40 )
	OUTER	—	40.3 ( 1.59 )
Valve spring tension (IN. & EX.)	INNER	7.0–8.5 kg ( 15.4–18.7 lbs ) at length 31 mm ( 1.2 in )	—
	OUTER	16.4–18.8 kg ( 36.2–41.4 lbs ) at length 33 mm ( 1.3 in )	—

**CAMSHAFT + CYLINDER HEAD**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	36.529–36.569 ( 1.4381–1.4397 )	36.230 ( 1.4264 )
	EX.	36.755–36.795 ( 1.4470–1.4486 )	36.460 ( 1.4354 )
Camshaft journal oil clearance	0.032–0.066 ( 0.0013–0.0026 )		0.150 ( 0.0059 )

ITEM	STANDARD		LIMIT
Camshaft journal holder I.D.	Right side & Center side	25.012–25.025 ( 0.9847–0.9852 )	—
	Left side	20.012–20.025 ( 0.7879–0.7884 )	—
Camshaft journal O.D.	Right side & Center side	24.959–24.980 ( 0.9826–0.9835 )	—
	Left side	19.959–19.980 ( 0.7858–0.7866 )	—
Camshaft runout	—		0.10 ( 0.004 )
Cam chain 20-pitch length	—		129 ( 5.08 )
Rocker arm I.D.	IN. & EX.	12.000–12.018 ( 0.4724–0.4731 )	—
Rocker arm shaft O.D.	IN. & EX.	11.966–11.984 ( 0.4711–0.4718 )	—
Cylinder head distortion	—		0.05 ( 0.002 )
Manual de-compression lever play	0		—
Automatic de-compression lever play	1–2 ( 0.04–0.08 )		—

### CYLINDER + PISTON + PISTON RING

ITEM	STANDARD		LIMIT
Piston to cylinder clearance	0.060–0.077 ( 0.0024–0.0030 )		0.120 ( 0.0047 )
Cylinder bore	94.000–94.015 ( 3.7008–3.7014 )		94.070 ( 3.7035 )
Piston diam.	93.930–93.950 ( 3.6980–3.6988 ) Measure at 20mm (0.79in) from the skirt end.		93.880 ( 3.6961 )
Cylinder distortion	—		0.05 ( 0.002 )
Piston ring free end gap	1st	T Approx. 11.5 ( 0.45 )	9.2 ( 0.36 )
	2nd	T Approx. 14.0 ( 0.55 )	11.2 ( 0.44 )
Piston ring end gap	1st	0.30–0.45 ( 0.012–0.018 )	0.7 ( 0.03 )
	2nd	0.25–0.40 ( 0.010–0.016 )	0.7 ( 0.03 )
Piston ring to groove clearance	1st	—	0.18 ( 0.007 )
	2nd	—	0.15 ( 0.006 )
Piston ring groove width	1st	1.21–1.24 ( 0.047–0.049 )	—
	2nd	1.21–1.23 ( 0.047–0.048 )	—
	Oil	2.81–2.83 ( 0.110–0.111 )	—

Unit: mm (in)

ITEM	STANDARD		LIMIT
	Piston ring thickness	1st	
	2nd	1.175-1.190 ( 0.046-0.047 )	—
Piston pin bore	23.002-23.008 ( 0.9056-0.9058 )		23.030 ( 0.9067 )
Piston pin O.D.	22.997-23.003 ( 0.9054-0.9056 )		22.980 ( 0.9047 )

**CONROD + CRANKSHAFT + BALANCER**

ITEM	STANDARD		LIMIT
	Unit: mm (in)		
Conrod small end I.D.	23.006-23.014 ( 0.9057-0.9061 )		23.040 ( 0.9071 )
Conrod deflection	—		3.0 ( 0.12 )
Conrod big end side clearance	0.15-0.60 ( 0.006-0.024 )		1.00 ( 0.039 )
Conrod big end width	24.95-25.00 ( 0.982-0.984 )		—
Crankshaft runout	—		0.05 ( 0.002 )
Crankshaft web to web width	71.0 ± 0.1 ( 2.79 ± 0.004 )		—
Balancer chain 20-pitch length	—		129 ( 5.08 )

**OIL PUMP**

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.823 ( 67/29 × 24/18 × 22/24 )	—
Oil pressure (at 60°C, 140°F)	Above 30 kPa, 0.3 kg/cm <sup>2</sup> ( 4.3 psi ) Below 70 kPa, 0.7 kg/cm <sup>2</sup> ( 10 psi ) at 3 000 r/min.	—

**CLUTCH**

ITEM	STANDARD		LIMIT
	Unit: mm (in)		
Clutch cable play	2-3 ( 0.08-0.12 )		—
Drive plate thickness	No.1	2.92-3.08 ( 0.115-0.121 )	2.62 ( 0.103 )
	No.2	3.45-3.55 ( 0.136-0.140 )	3.15 ( 0.124 )
Drive plate claw width	15.8-16.0 ( 0.62-0.63 )		15.0 ( 0.59 )
Driven plate distortion	—		0.1 ( 0.004 )
Clutch spring free length	—		34.0 ( 1.34 )

The free length of the clutch springs has the same specification as the DR600SF model.

## TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		2.310 ( 67/29 )	—
Final reduction ratio		2.625 ( 42/16 )	—
Gear ratios	Low	2.416 ( 29/12 )	—
	2nd	1.625 ( 26/16 )	—
	3rd	1.263 ( 24/19 )	—
	4th	1.000 ( 21/21 )	—
	Top	0.826 ( 19/23 )	—
Shift fork to groove clearance		0.10–0.30 ( 0.004–0.012 )	0.50 ( 0.020 )
Shift fork groove width		5.0–5.1 ( 0.19–0.20 )	—
Shift fork thickness		4.8–4.9 ( 0.18–0.19 )	—
Drive chain	Type	TAKASAGO: RK520KSO DAIDO: D.I.D.520VC-5	
	Links	108 links	
	20-pitch length	—	319.4 ( 12.57 )
Drive chain slack		40–45 ( 1.6–1.8 )	—

## CARBURETOR

ITEM	SPECIFICATION
Carburetor type	MIKUNI VM38SS
Bore size	38 mm (1.5 in)
I.D. No.	*15A01
Idle r/min.	1 300 ± 100 r/min.
Fuel level	3.5 ± 0.5 mm (0.14 ± 0.02 in)
Float height	23.0 ± 1.0 mm (0.91 ± 0.04 in)
Main jet (M.J.)	# 135
Main air jet (M.A.J.)	0.6 mm
Jet needle (J.N.)	6CM1-3rd
Cut-away (C.A.)	1.5
Needle jet (N.J.)	0 – 0
Pilot jet (P.J.)	*#15
By-pass (B.P.)	1.0 mm
Pilot outlet (P.O.)	1.0 mm
Valve seat (V.S.)	2.8 mm
Starter jet (G.S.)	# 32.5
Pilot screw (P.S.)	2 turns out (PRE-SET)
Pilot air jet (P.A.J.)	1.2 mm
Throttle cable play	0.5 – 1.0 mm (0.02 – 0.04 in)

Specifications marked with asterisks (\*) are exclusively for DR500SG.

**ELECTRICAL**

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	0° B.T.D.C. below 2 200 r/min. and 30° B.T.D.C. Above 4 300 r/min.		
Spark plug	Type	NGK: DPR9EA-9 NIPPON DENSO: X27EPR-U9	
	Gap	0.8 – 0.9 (0.031 – 0.035)	
Spark performance	Over 8 (0.3) at 1 atm.		
Ignition coil resistance	Primary	B – B 0 – 1 Ω	(X 1 Ω)
	Secondary	Plug cap – Plug cap 20 – 27 kΩ	(X 1 kΩ)
Magneto coil resistance	Pick-up	No. 1: O – G, No. 2: Br – Gr 185 – 250 Ω	(X 100 Ω)
	Power source	B/R – B/W 170 – 230 Ω	(X 100 Ω)
	Charging	Y – Y 0.1 – 1.2 Ω	(X 1 Ω)
Generator no-load performance (when engine is cold)	More than 80V (AC) at 5 000 r/min.		
Regulated voltage	13.5 – 15.5V (DC) at 5 000 r/min.		
Battery	Type designation	12N5-3B	
	Capacity	12V 18kC (5Ah)/10HR	
	Standard electrolyte S.G.	1.28 at 20°C (68° F)	
Fuse size	Main	15A	

**BRAKE + WHEEL**

Unit: mm (in)

ITEM	STANDARD	LIMIT
Master cylinder bore	11.000 – 11.043 ( 0.4331 – 0.4348 )	—
Master cylinder piston diam.	10.850 – 10.908 ( 0.4272 – 0.4294 )	—
Caliper cylinder bore	38.180 – 38.256 ( 1.5031 – 1.5061 )	—
Caliper piston diam.	38.098 – 38.148 ( 1.4999 – 1.5019 )	—
Brake disc thickness	3.3 – 3.7 ( 0.13 – 0.15 )	3.0 ( 0.12 )
Brake disc runout	—	0.3 ( 0.01 )
Rear brake pedal free travel	20 – 30 ( 0.8 – 1.2 )	—
Rear brake pedal height	10 ( 0.4 )	—
Brake drum I.D.	—	130.7 ( 5.15 )

ITEM	STANDARD		LIMIT
Brake lining thickness	—		1.5 ( 0.06 )
Wheel rim runout	Axial	—	2.0 ( 0.08 )
	Radial	—	2.0 ( 0.08 )
Wheel axel runout	Front	—	0.25 ( 0.010 )
	Rear	—	0.25 ( 0.010 )
Tire size	Front	100/80-21 56S	—
	Rear	130/80-17 65S	—
Tire tread depth	Front	—	3.0 ( 0.12 )
	Rear	—	3.0 ( 0.12 )

**SUSPENSION**

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	240 ( 9.4 )	—	
Front fork spring free length	—	502 ( 19.8 )	
Front fork oil level	170 ( 6.7 )	—	
Front fork air pressure	0 kPa, 0 kg/cm <sup>2</sup> (0 psi)		—
Rear wheel travel	222 ( 8.7 )	—	
Swingarm pivot shaft runout	—	0.3 ( 0.01 )	

**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	21	175	1.75	25
REAR	175	1.75	25	200	2.00	28

**FUEL + OIL**

ITEM	SPECIFICATION	NOTE
Fuel type	Gasoline used should be graded 85 – 95 octane or higher. An unleaded or low-lead type gasoline is recommended.	
Fuel tank including reserve	21 L ( 5.5/4.6 US/Imp gal )	
reserve	4.5 L ( 4.8/4.0 US/Imp qt )	
Engine oil type	SAE 10W/40, API SE or SF	
Engine oil capacity	Change           2 300 ml ( 2.4/2.0 US/Imp qt )	
	Filter change    2 450 ml ( 2.6/2.2 US/Imp qt )	
	Overhaul           2 600 ml ( 2.7/2.3 US/Imp qt )	
Front fork oil type	Fork oil #10	
Front fork oil capacity (each leg)	475 ml ( 16.1/16.7 US/Imp oz )	
Brake fluid type	SAE J1703, DOT 3 or DOT 4	

**WATTAGE**

Unit: W

ITEM	SPECIFICATION
Headlight	HI                   60
	LO                   55
Parking or city light	4
Tail/Brake light	5/21
Turn signal light	21
License plate light	5
Speedometer light	3.4
Turn signal indicator light	3.4
High beam indicator light	1.7
Neutral indicator light	3.4

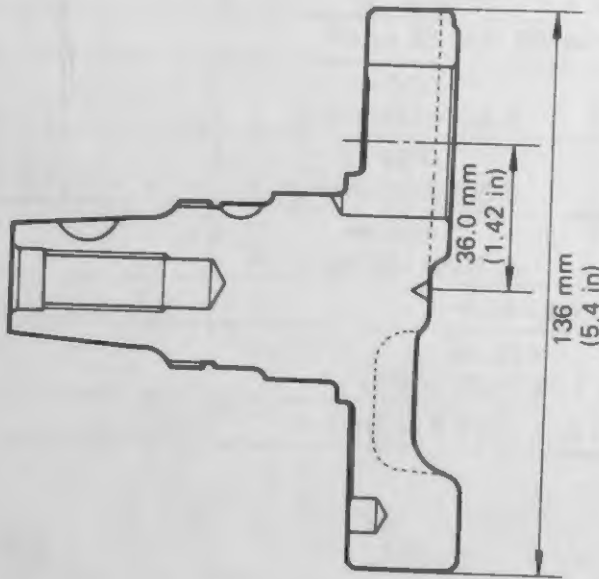
## FEATURES

The following parts have been changed from the DR600SG.

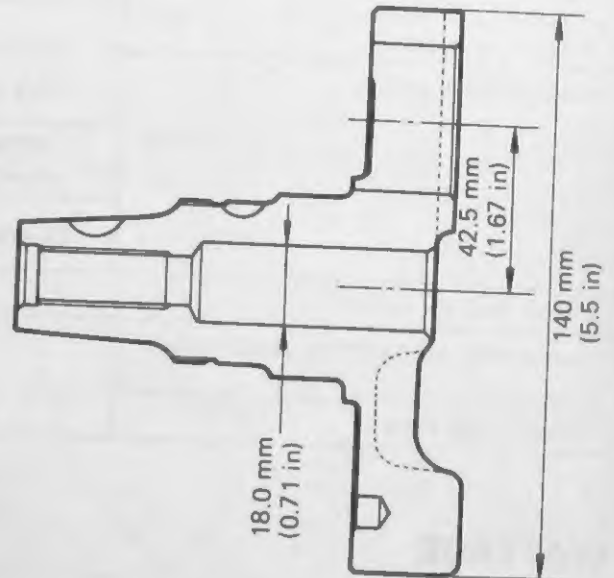
### 1. CRANKSHAFT

The dimensions of the crankshaft have been changed as follows.

#### LEFT CRANKSHAFT

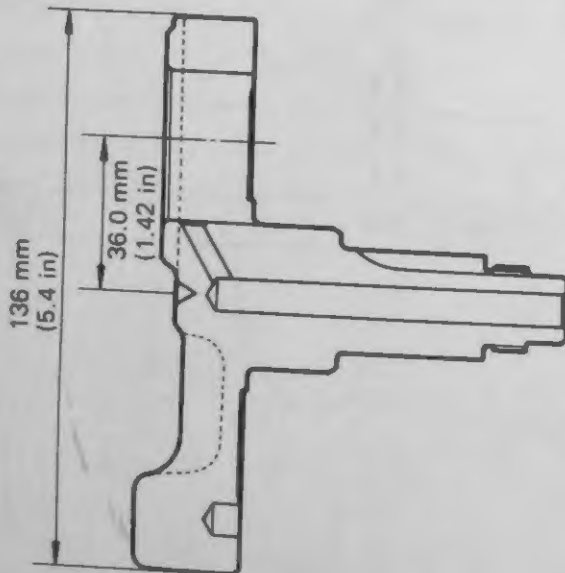


DR500SG

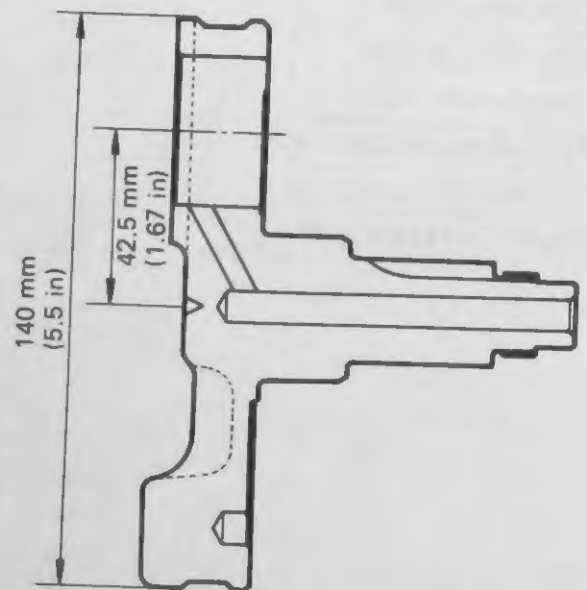


DR600SG

#### RIGHT CRANKSHAFT



DR500SG

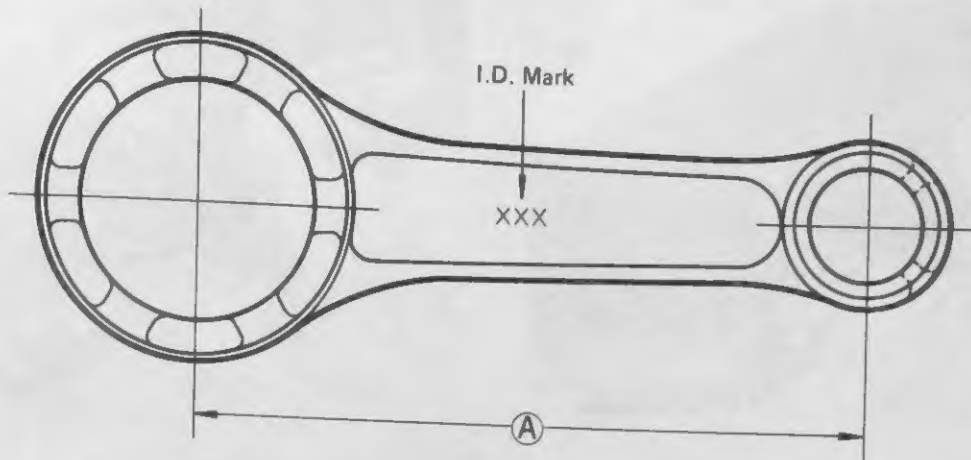


DR600SG



## 2. CONROD

The length  $\text{\textcircled{A}}$  of the conrod has been changed as follows.



	DR500SG	DR600SG
$\text{\textcircled{A}}$	143.6 mm (5.65 in)	135.6 mm (5.34 in)

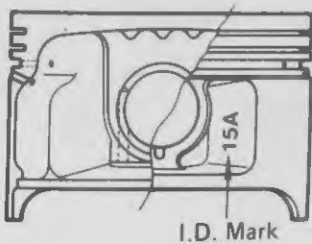
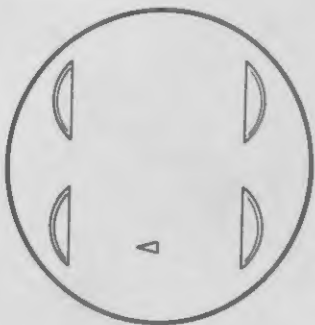
	DR500SG	DR600SG
I.D. Mark	15A	14A1

## 3. PISTON

The shape of the piston has been changed as follows.

### DR500SG

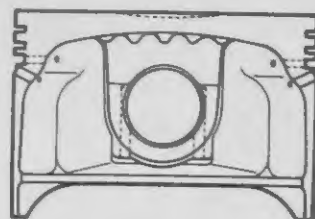
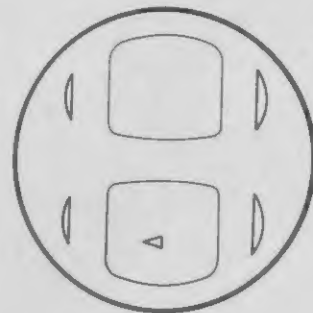
Piston crown



I.D. Mark

### DR600SG

Piston crown



#### 4. CYLINDER

The DR500SG cylinder can be distinguished from that of the DR600SG by embossed letters.

DR500SG



DR600SG



#### 5. CLUTCH

The following clutch parts have the same specification as the DR600SF model.

- Clutch spring
- Clutch wave washer and seat

