FOREWORD

The SUZUKI DR650R/S was designed to offer superior performance through lightweight design, four stroke-power, engine counter-balancers, cooling system and full-floating suspension.

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

The DR650R/S, manufactured to standard specifications, is the main subject matter of this manual. However, the DR650R/S machines distributed in your country might differ in minor respects from the standard-specification and, if they do, it is because some minor modifications (which are of no consequence in most cases as far as servicing is concerned) had to be made to comply with the statutory requirements of your country.

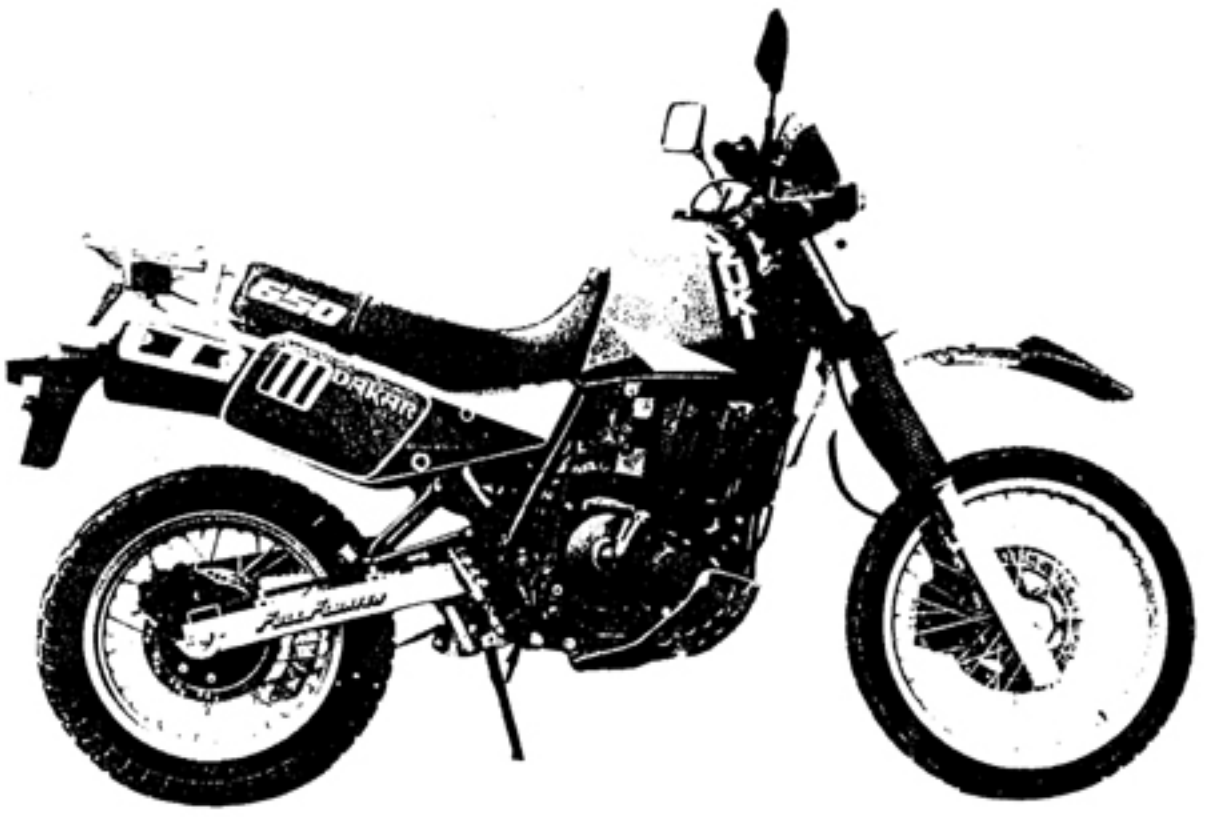
This manual contains up-to-date information at the time of its issue. Later made modifications and changes will be explained to each SUZUKI distributor in respective markets, to whom you are kindly requested to make query about updated information, if any.

SUZUKI MOTOR CORPORATION
Motorcycle Technical Service Department

GROUP INDEX

VIEW OF DR650RL/DR650SL

LEFT SIDE



RIGHT SIDE

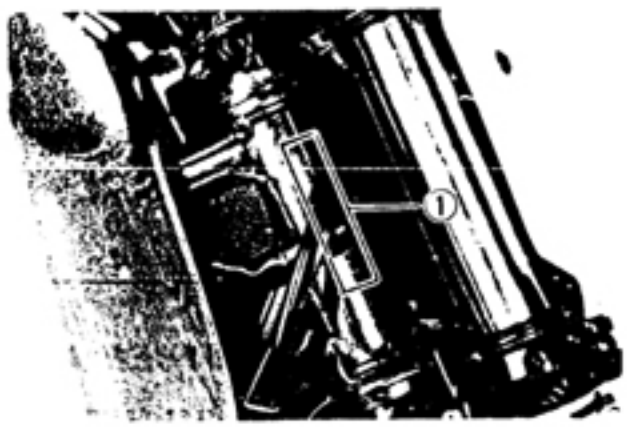
*Difference between photographs and actual motorcycles depends on markets.

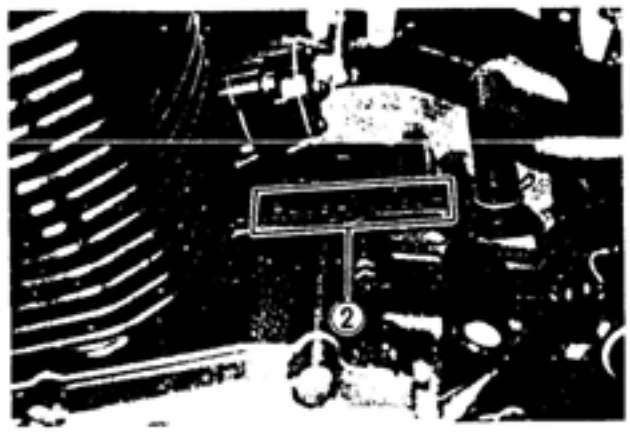
1 GENERAL INFORMATION

CONTENTS

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

For U.S.A. model

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

SUZUKI recommends that customers use alcohol free, unleaded gasoline whenever possible.

Use of blended gasoline containing MTBE (Methyl Tertiary Butyl Ether) is permitted.

Use of blended gasoline/alcohol fuel is permitted provided that it contains not more than 10% ethanol. Gasoline/alcohol fuel may contain up to 5% methanol if appropriate cosolvents and corrosion inhibitors are present.

If the performance of the vehicle is unsatisfactory while using blended gasoline/alcohol fuel, you should switch to alcohol free unleaded gasoline.

Failure to follow these guideline could possibly void applicable warranty coverage. Check with your fuel supplier to be sure that the fuel you intend to use meets the requirements listed above.

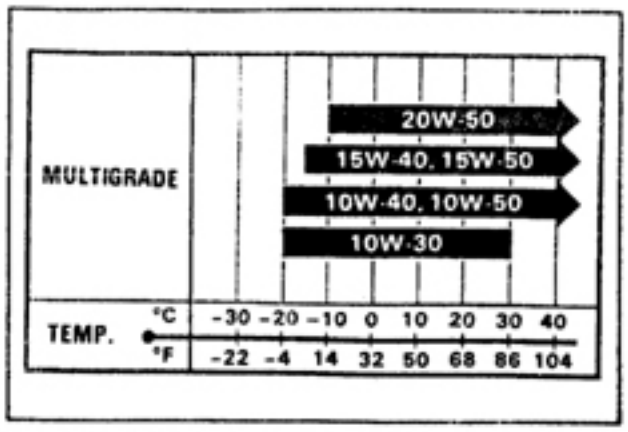
For CANADA model

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

For other models

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

ENGINE OIL



For U.S.A. model

SUZUKI recommends the use of SUZUKI PERFORMANCE 4 MOTOR OIL or an oil which is rated SE or SF under the API (American Petroleum Institute) classification system. The viscosity rating is SAE 10W/40. If an SAE 10W/40 motor oil is not available, select an alternate according to the right chart.

For other models

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 right chart.

FRONT FORK OIL

Use fork oil # 10.

99000-99044-10G: SUZUKI Fork oil # 10

BRAKE FLUID

Specification and classification: DOT 4

99000-23110: SUZUKI Brake fluid

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.

BREAK-IN PROCEDURES

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

- Keep to these break-in engine speed limits.

Initial 800 km (500 miles): Below 3 000 r/min

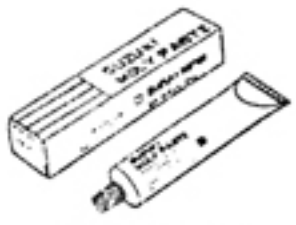
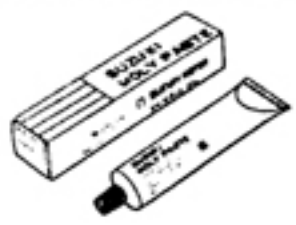
Up to 1 600 km (1 000 miles): Below 5 000 r/min

Over 1 600 km (1 000 miles): Below 7 500 r/min

- Upon reaching an odometer reading of 1 600 km (1 000 miles) you can subject the motorcycle to full throttle operation.
  However, do not exceed 7 500 r/min at any time.

SPECIAL MATERIALS

The materials listed below are needed for maintenance work on this motorcycle and should be kept on hand for ready use. These items supplement such standard materials as cleaning fluids, lubricant, 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
For U.S.A. model	For other models		
 SUZUKI SUPER GREASE "A" 99000-25030	 SUZUKI SUPER GREASE "A" 99000-25010	• Throttle grip • Speedometer gear box • Brake pedal shaft • Oil seals • O-ring • Front and rear wheel hub bearing • Steering stem bearing and steel balls • Shock absorber lower bearing • Cushion lever bearings, dust seals and spacer • Swingarm bearings	2-2 2-2 2-2 3-35 3-46, 53 2-2 6-2, 19 2-2 6-14, 17 6-28, 33 6-28, 33 6-28, 33
 SUZUKI SILICONE GREASE 99000-25100	 SUZUKI SILICONE GREASE 99000-25100	• Caliper axle	6-5 6-10
 SUZUKI MOLY PASTE 99000-25140	 SUZUKI MOLY PASTE 99000-25140	• Valve stems • Piston pin • Camshaft journals and cams • Rocker arm shafts • De-compression shaft • Countershaft and driveshaft gears	3- 3- 3- 3- 3- 3-31
 SUZUKI BOND NO. 1207B 99104-31140	 SUZUKI BOND NO. 1207B 99000-31140	• Cylinder head cover • Magneto lead wire grommet • Mating surface of left and right halves of crankcase • Neutral lead wire grommet	2-4 3-51 3-42 3-39 3-37
 THREAD LOCK "1342" 99000-32050	 THREAD LOCK "1342" 99000-32050	• Crankcase bearing retainer screws • Gearshift cam stopper bolt • Gearshift cam guide/pawl lifter screws and nuts • Engine oil pump securing screws • Neutral switch lead protector screws • Air cleaner mounting bolts • Front footrest bolt • Front fork damper rod bolt	3-34 3-38 3- 3- 3-

MATERIAL		PART	PAGE
For U.S.A. model	For other models		
 THREAD LOCK SUPER "1333B" 99000-32020	 THREAD LOCK SUPER "1333B" 99000-32020	• Kick starter pawl guide/ stopper	3-28
 THREAD LOCK SUPER "1303" 99000-32030	 THREAD LOCK SUPER "1303" 99000-32030	• Muffler mounting bolts • Gearshift arm stopper • Cam sprocket bolts • Balancer chain guide screws • 2nd drive gear • Air cleaner mounting bolts	3-4 3-40 3-51 3-40 3-33
 THREAD LOCK SUPER "1303" 99000-32030	 THREAD LOCK SUPER "1305" 99000-32100	• Magneto rotor bolt	3-42
 THREAD LOCK SUPER "1360" 99000-32130	 THREAD LOCK SUPER "1360" 99000-32130	• Brake disc bolt	6-1 6-19
 SUZUKI BRAKE FLUID 99000-23110 (0.5L)	 SUZUKI BRAKE FLUID 99000-23110 (0.5L)	• Front and rear brake	1-2 2-13

PRECAUTIONS AND GENERAL INSTRUCTIONS

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

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

CAUTION:
Never reuse a circlip. After a circlip has been removed from a shaft, it should be discarded and a new circlip must be installed.
When installing a new circlip, care must be taken not to expand the end gap larger than required to slip the circlip over the shaft.
After installing a circlip, always insure that 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, to the specified tightening torque.
- ☐ Use special tools where specified.
- ☐ Use specified genuine parts and recommended oils.
- ☐ When more than 2 persons perform work together, pay attention to the safety of each other.
- ☐ After the reassembly, check parts for tightness and operation.
- ☐ Treat gasoline, which is extremely flammable and highly explosive, with greatest care. Never use gasoline as cleaning solvent.

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

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

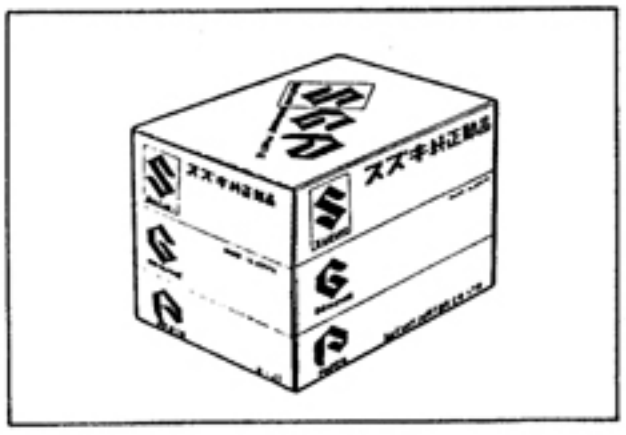
CAUTION ..... **These instructions point out special service procedures or precautions that must be followed to avoid damaging the machine.**

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

REPLACEMENT PARTS

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

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



COUNTRY OR AREA

E-02 : U.K.
E-03 : U.S.A.
E-04 : France
E-15 : Finland
E-16 : Norway
E-17 : Sweden
E-18 : Switzerland
E-21 : Belgium
E-22 : W.Germany
E-24 : Australia
E-25 : Netherlands
E-28 : Canada
E-34 : Italy
E-39 : Austria
E-53 : Spain

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 250 mm (88.6 in)
Overall width	870 mm (34.3 in)
Overall height	1 315 mm (51.8 in)
Wheelbase	1 510 mm (59.4 in)
Seat height	890 mm (35.0 in)
Ground clearance	260 mm (10.2 in)
Dry mass	152 kg (335 lbs)

ENGINE

Type	Four-stroke, air-cooled, OHC
Number of cylinders	1
Bore	95.0 mm (3.740 in)
Stroke	90.4 mm (3.559 in)
Piston displacement	640 cm^3 (39.0 cu. in)
Compression ratio	9.7 : 1
Carburetor	MIKUNI BST40SS, 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	2.200 (66/30)
Fianl 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 RK520SD or DAIDO D.I.D. 520VC-5, 114 links

ELECTRICAL

Ignition type	SUZUKI "PEI" (CDI)
Ignition timing	0° B.T.D.C. Below 2 200 r/min and 28° B.T.D.C. Above 4 300 r/min
Spark plug	NGK DP9EA-9 or NIPPON DENSO X27EP-U9 (For Italy and U.S.A.) NGK DPR9EA-9 or NIPPON DENSO X27EPR-U9 (For others)
Battery	12V 18 kC (5 Ah)/10 HR
Generator	Three-phase A.C. generator
Fuse	15A

CHASSIS

Front suspension	Telescopic, pneumatic/coil spring, oil damped
Rear suspension	Full floating suspension, coil spring, gas/oil damped, spring preload fully adjustable
Steering angle	45° (Right & Left)
Caster	61°
Trail	120 mm (4.7 in)
Turning radius	2.4 m (7.9 ft)
Front brake	Disc
Rear brake	Disc
Front tire size	90/90-21 54S
Rear tire size	120/90-17 64S

CAPACITIES

Fuel tank	
including reserve	21 L (5.5/4.6 US/Imp gal)
reserve	4.5 L (1.2/1.0 US/Imp gal)
Engine oil	2.0 L (2.1/1.8 US/Imp qt)
Front fork oil	566 ml (19.1/19.9 US/Imp oz)

These specifications are subject to change without notice.

PERIODIC MAINTENANCE AND TUNE-UP PROCEDURES

2

CONTENTS

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.

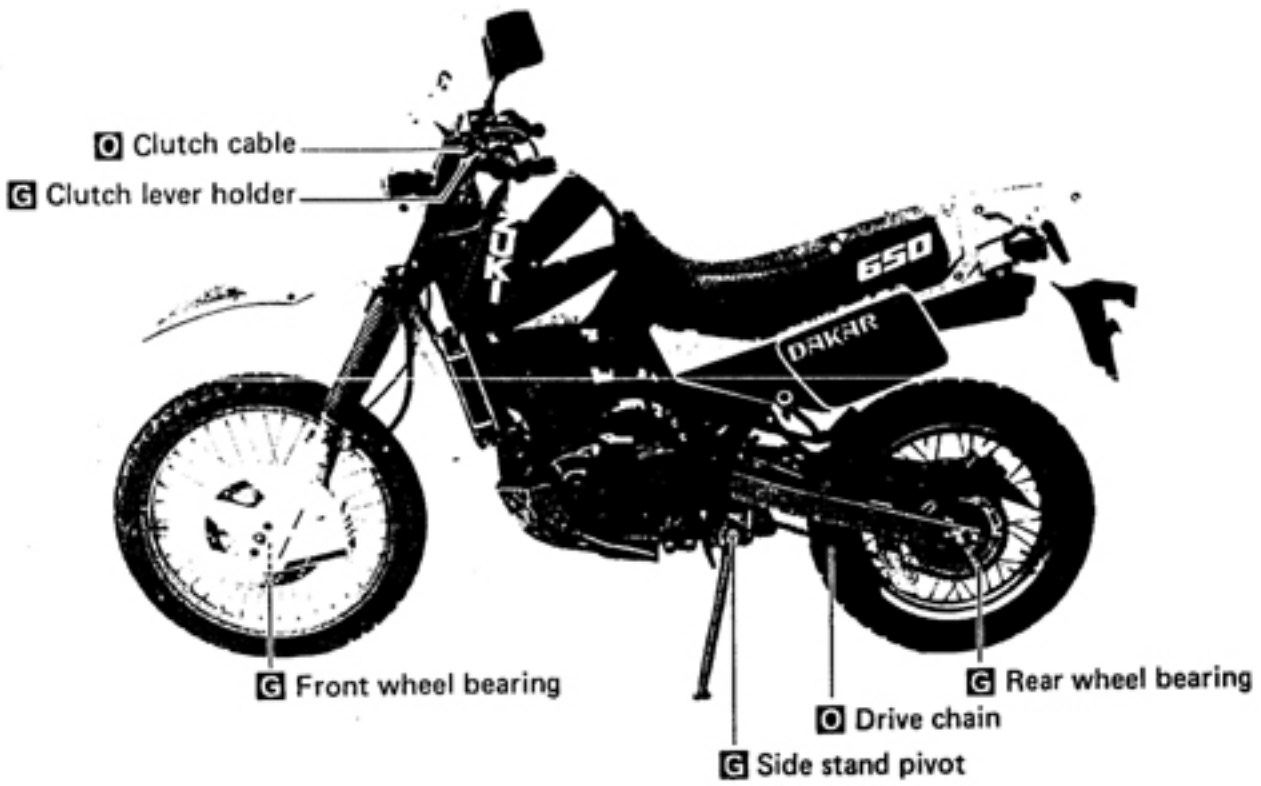
PERIODIC MAINTENANCE CHART

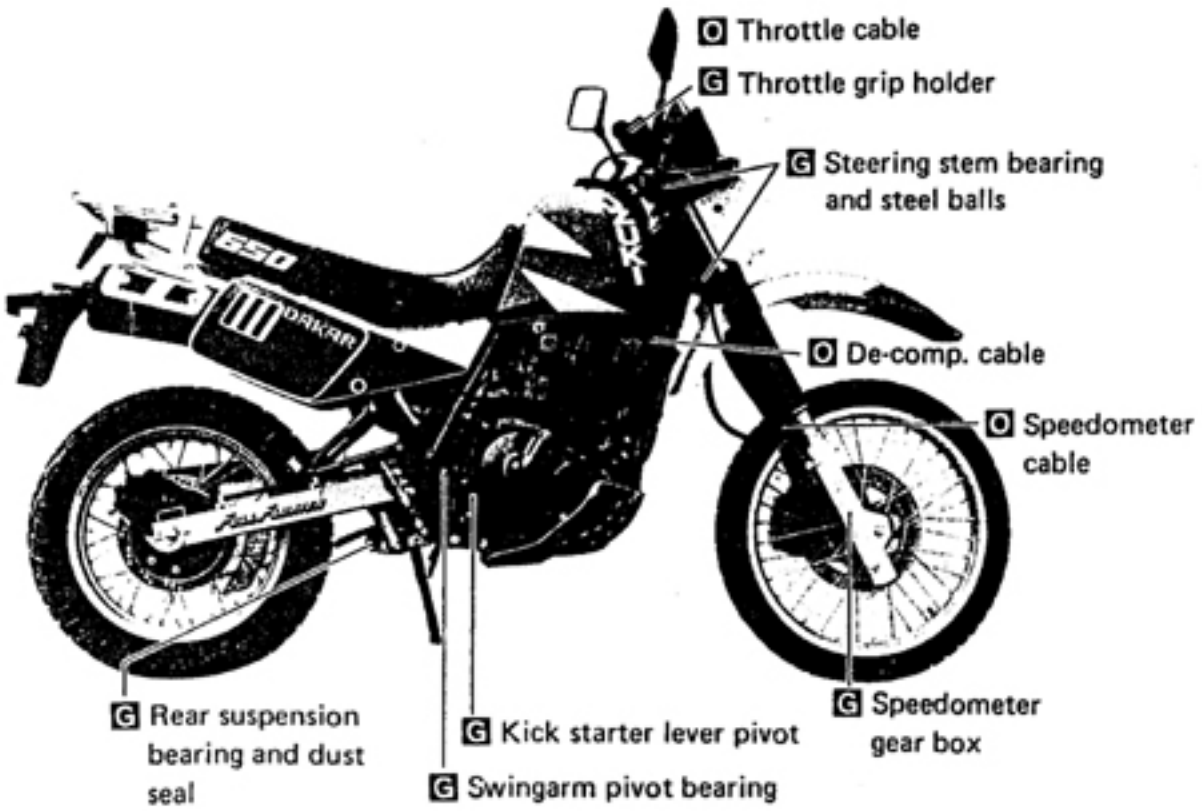
INTERVAL: THIS INTERVAL SHOULD BE JUDGED BY ODOMETER READING OR MONTHS WHICHEVER COMES FIRST	km	1 000	6 000	12 000	18 000	24 000
	miles	600	4 000	7 500	11 000	15 000
	months	2	12	24	36	48
Battery (Specific gravity of electrolyte)		–	I	I	I	I
Cylinder head bolts and nuts, exhaust pipe nuts and muffler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

NOTE: I: Inspect and adjust, clean, lubricate or replace as necessary.
R: Replace T: Tighten

LUBRICATION POINTS

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





O ..... Motor oil
G ..... 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.*

MAINTENANCE AND TUNE-UP PROCEDURES

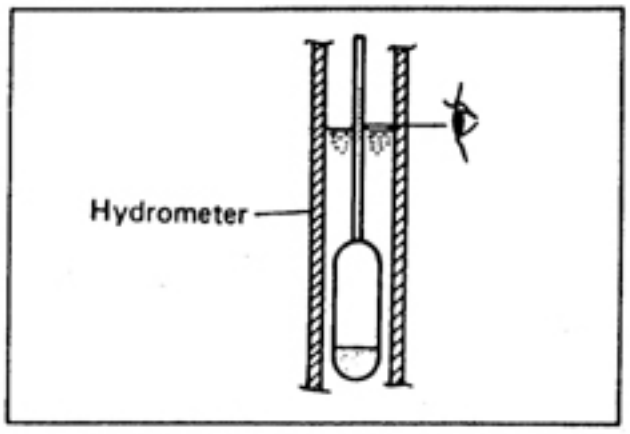
This section describes the servicing procedures for each item of the Periodic Maintenance requirements.

BATTERY

Inspect every 6 000 km (4 000 miles, 12 months)

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

09900-28403: Hydrometer

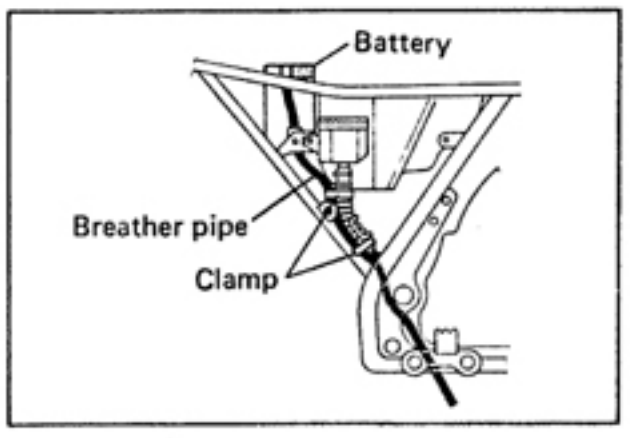


Standard specific gravity: 1.28 at 20°C (68°F)

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:

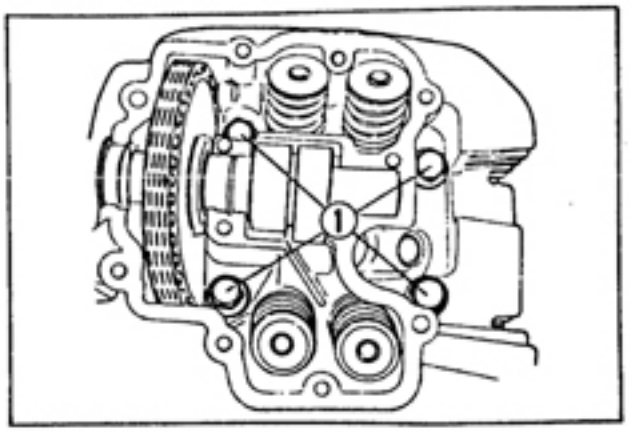
* **When removing the battery from the motorcycle, be sure to disconnect the ⊖ lead wire first.**
* **Never charge a battery while still in the motorcycle as damage may result to the battery or regulator/rectifier.**
* **Be careful not to bend, obstruct, or change the routing of the breather pipe from 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 ⊕ lead first and ⊖ lead last.**



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

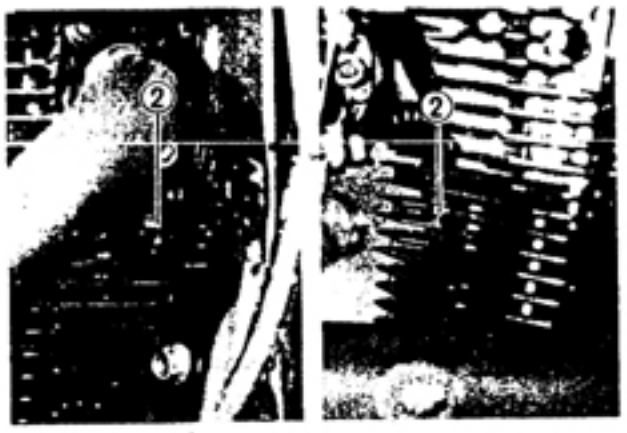
CYLINDER HEAD BOLTS AND NUTS, EXHAUST PIPE NUTS AND MUFFLER CONNECTIONS

Tighten Initial 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months)



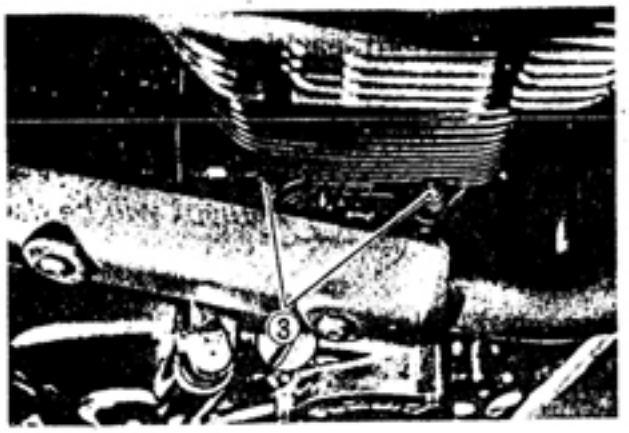
CYLINDER HEAD

- Remove the seat and fuel tank.
- Disconnect the spark plug caps.
- Disconnect the de-comp. cable.
- Remove the upper side of engine mounting bolts. (Refer to page 3-3.)
- Remove the cylinder head cover. (Refer to page 3-6.)
- First loosen and retighten the four bolts ①, and two nuts ② to the specified torque with a torque wrench sequentially in diagonally, when the engine is cold.



Tightening torque
①: 35 – 40 N·m (3.5 – 4.0 kg-m, 25.5 – 29.0 lb-ft)
②: 23 – 27 N·m (2.3 – 2.7 kg-m, 16.5 – 19.5 lb-ft)

- After firmly tightening the cylinder head bolts and nuts, tighten the two cylinder base nuts ③ to the specified torque.

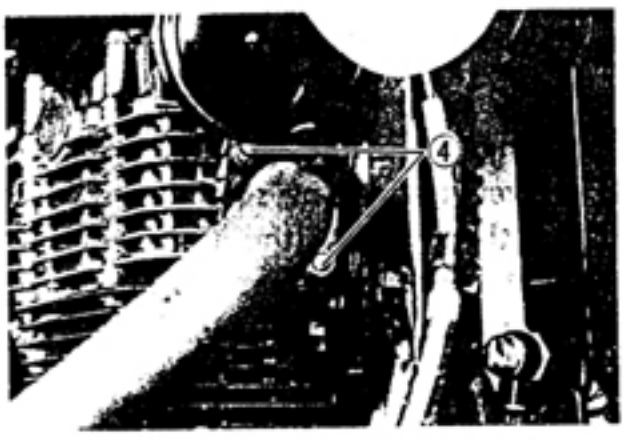


Tightening torque
③: 7 – 11 N·m (0.7 – 1.1 kg-m, 5.0 – 8.0 lb-ft)

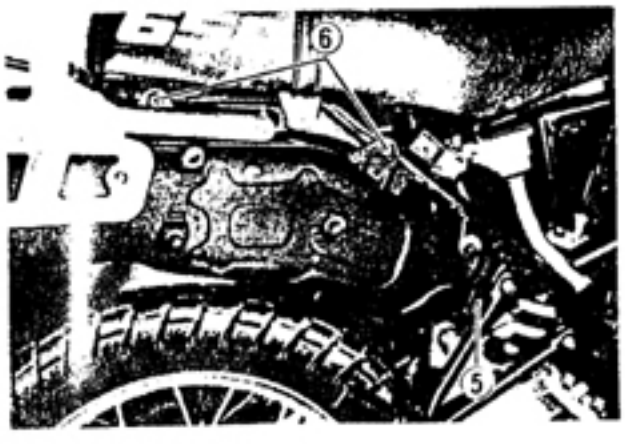
- When installing the cylinder head cover, apply SUZUKI BOND NO. 1207B to the mating surface. (Refer to page 3-51.)

EXHAUST PIPE AND MUFFLER

- Tighten the exhaust pipe nuts ④, muffler connection bolt ⑤ and muffler mounting bolts ⑥ to the specified torque.



Tightening torque
④: 23 – 28 N·m (2.3 – 2.8 kg-m, 16.5 – 20.0 lb-ft)
⑤: 23 – 28 N·m (2.3 – 2.8 kg-m, 16.5 – 20.0 lb-ft)
⑥: 23 – 28 N·m (2.3 – 2.8 kg-m, 16.5 – 20.0 lb-ft)



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.

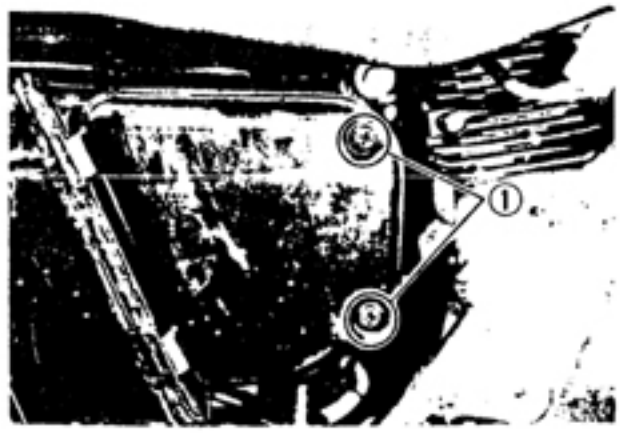
- Remove the left frame cover.
- Remove the air cleaner case cover by removing screws ①.
- Remove the air cleaner element by removing bolt ②.
- Remove the polyurethane foam element ③ from the element frame ④.
- Fill a washing pan of a proper size with non-flammable cleaning solvent. Immerse the element 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.

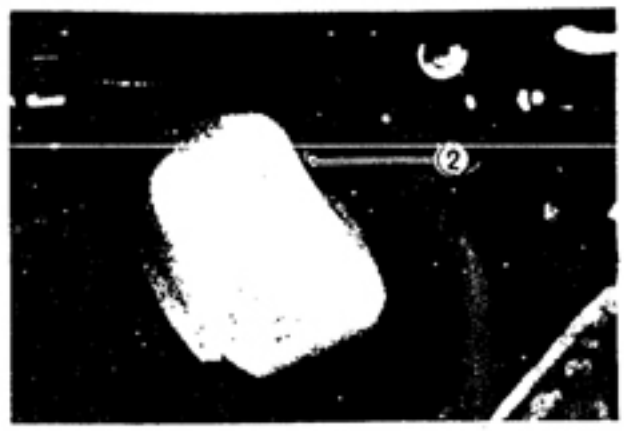
NOTE:
Do not twist or wring the element because it will tear or the individual cells of the element will be damaged.

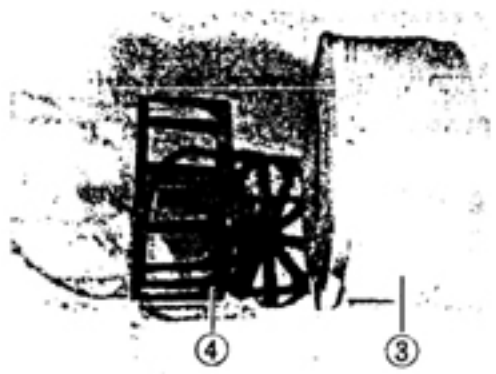
CAUTION:
Inspect the element carefully for rips, torn seams, etc. If any damage is noted, replace the element.

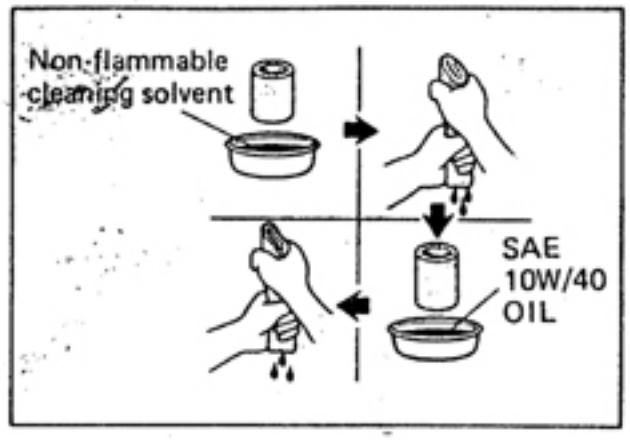
- Reinstall the cleaned or new cleaner element in the reverse order of removal.

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









VALVE CLEARANCE

Inspect Initial 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months)

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.

Valve clearance specifications: 0.08 – 0.13 mm
(IN. and EX.) (0.003 – 0.005 in)

The procedure for adjusting the valve clearance is as follows:

NOTE:
Valve clearance is to be checked when the engine is cold.
Both intake and exhaust valves must be checked and adjusted when the piston is at Top–Dead–Center (TDC) on the compression stroke.

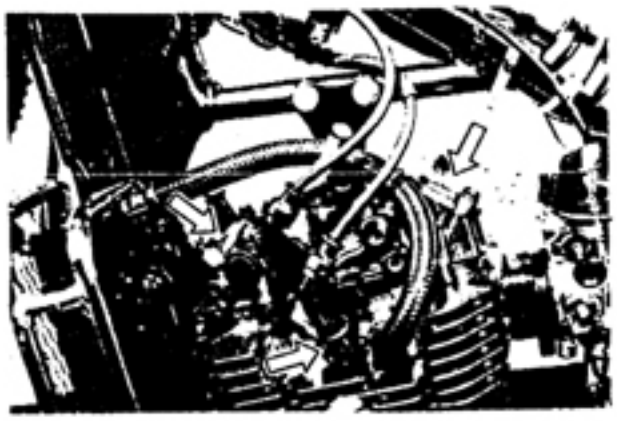
- Remove the seat and fuel tank.
- Remove the spark plug and valve inspection caps, intake and exhaust.
- Remove the valve timing inspection plug and magneto cover cap.
- Turn the crankshaft counterclockwise with the box wrench to set the piston at T.D.C. on the compression stroke. (Turn the crankshaft until the "T" line ① 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.

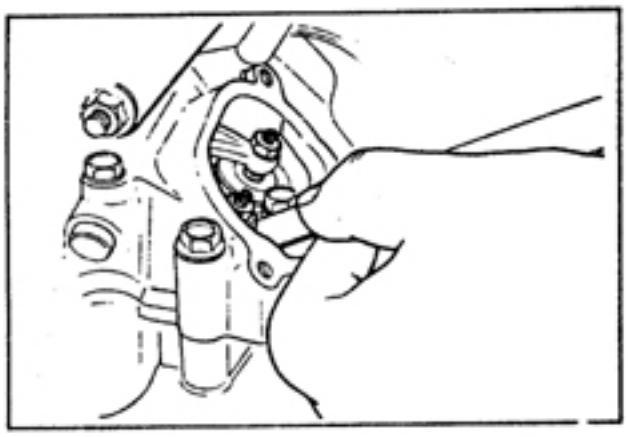
09900-20803: Thickness gauge

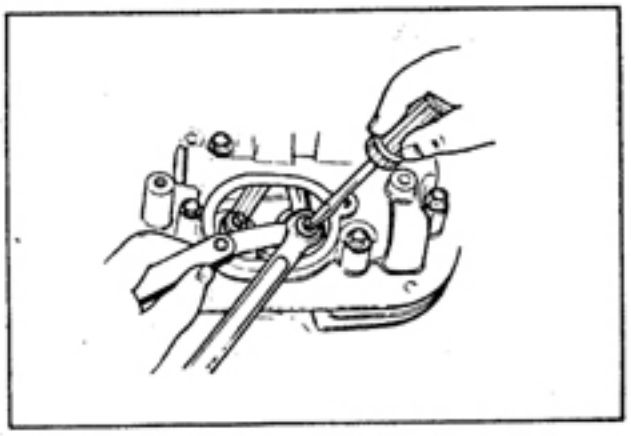
- If clearance is off the specification, bring it into the specified range with the screwdriver.
- Securely tighten the lock nut after adjustment is completed.

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

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

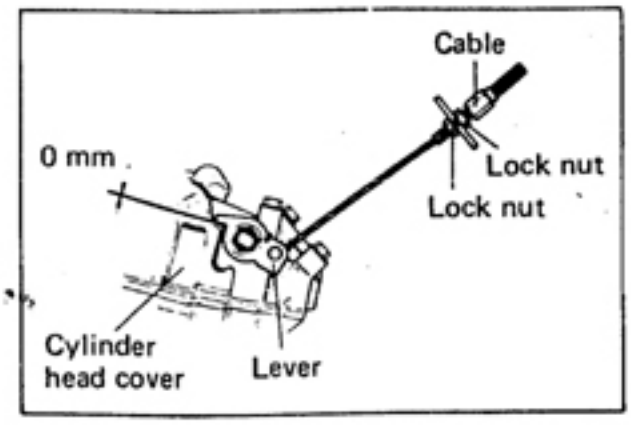






DE-COMPRESSION LEVER

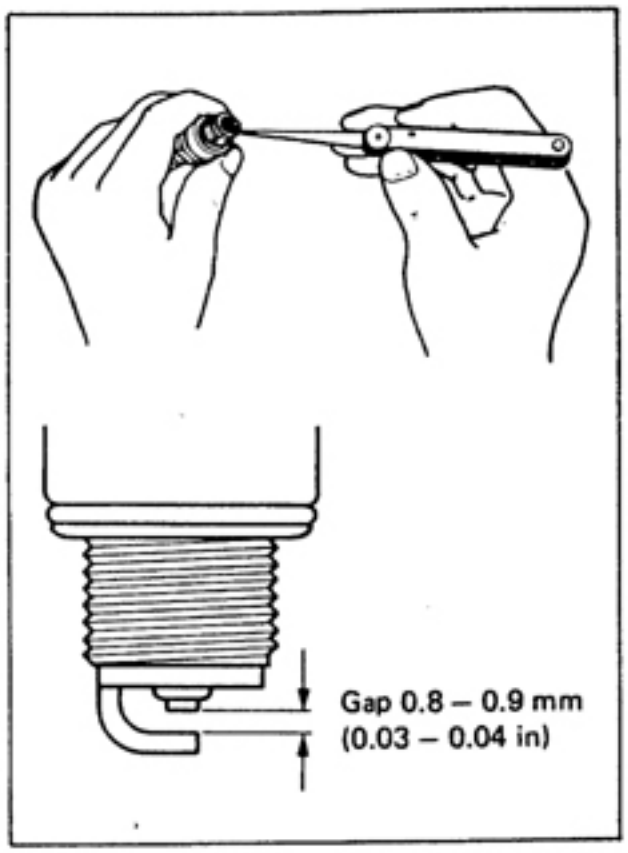
Inspect Initial 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months)



- 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

Inspect Every 6 000 km (4 000 miles, 12 months) and Replace Every 12 000 km (7 500 miles, 24 months)



The plug gap is adjusted to 0.8 – 0.9 mm (0.03 – 0.04 in). The gap is correctly adjusted with 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 DPR9EA-9 or NIPPON DENSO X27EP-U9 or X27EPR-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 DPR8EA-9 or NIPPON DENSO X24EP-U9 or X24EPR-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 resister located at the center electrode to prevent radio noise.

FUEL LINE

Inspect Initial 1 000 km (600 miles, 2 months) and
Every 6 000 km (4 000 miles, 12 months)
Replace Every 4 years

ENGINE OIL AND OIL FILTER

Replace (Change) Initial 1 000 km (600 miles, 2 months) Every 6 000 km (4 000 miles, 12 months)

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.

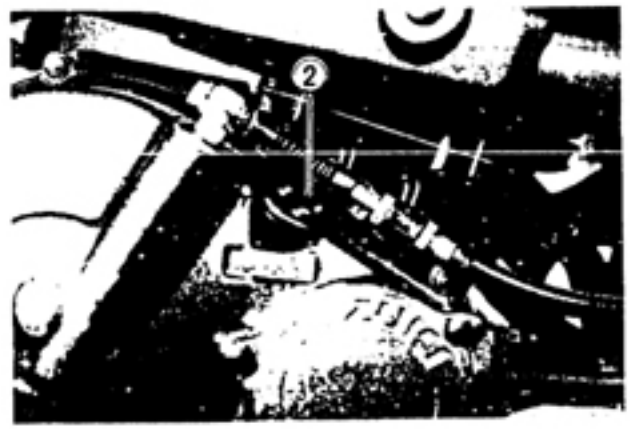
- Keep the motorcycle upright, supported by jack or wooden block.
- Place an oil pan below the engine and remove the engine oil drain plug ① and oil filler cap ② to drain engine oil.
- Remove the oil filter cap by removing the three bolts ③.
- Remove the oil filter ④ and install the new one.
- Replace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

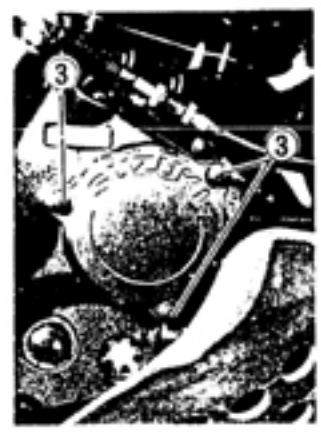
NOTE:
Before installing the oil filter and oil filter cap, check to be sure that the spring ⑤ and new O-rings (⑥ and ⑦) are installed correctly.

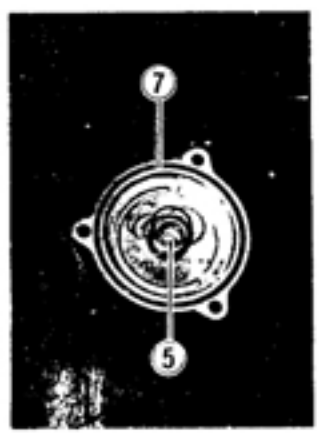
- Tighten the oil drain plug ① securely, and add fresh oil through the oil filler. The engine will hold about 2 150 ml of oil.
  Use an API classification of SE or SF oil with SAE 10W/40 viscosity.
- Start up the engine and allow it to run for several minutes at idling speed.
- Turn off the engine and wait about five minutes, then check the oil level through the inspection window ⑧. If the level is below mark "F", add oil to that level.

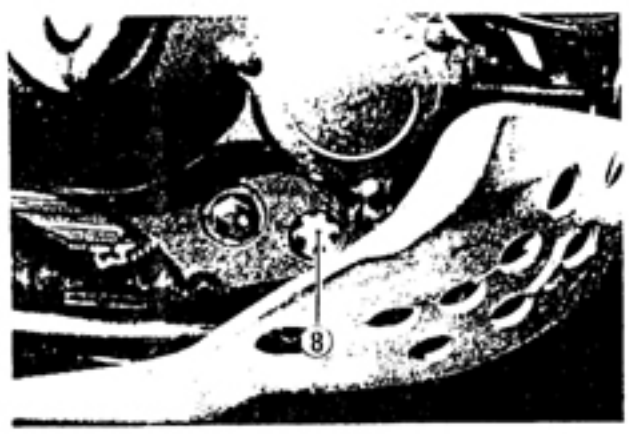
NECESSARY AMOUNT OF ENGINE OIL

Oil change	: 2 000 ml (2.1/1.8 US/Imp qt)
Filter change	: 2 150 ml (2.3/1.9 US/Imp qt)
Overhaul engine	: 2 600 ml (2.7/2.3 US/Imp qt)









CARBURETOR

Inspect Initial 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months)

THROTTLE CABLE PLAY

The throttle cable should be adjusted to have a play Ⓐ 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 ① and turn the adjuster ② fully in.
- Remove the seat and fuel tank.
- Loosen the lock nut ③ and turn the adjuster ④ to acquire the specified play Ⓐ.

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

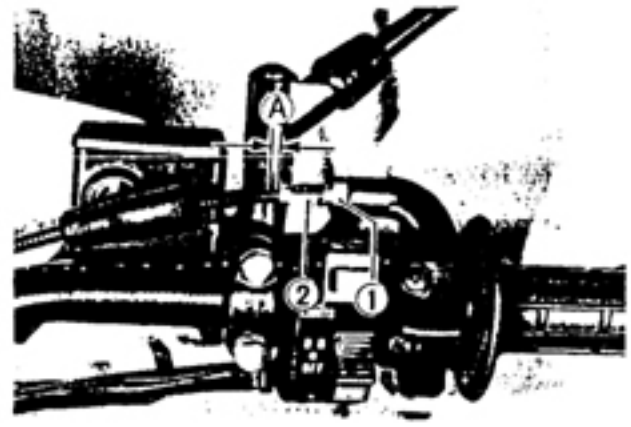
- After adjusting the play, tighten the lock nuts (① and ③).

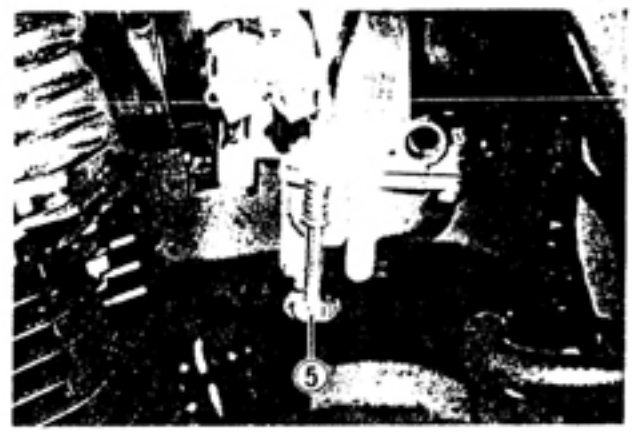
NOTE:

Minor adjustment can be made by the adjuster ② after loosening the lock nut ①.

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.





IDLE R/MIN ADJUSTMENT

- Adjust the throttle cable play.

NOTE:

Make this adjustment when the engine is hot.

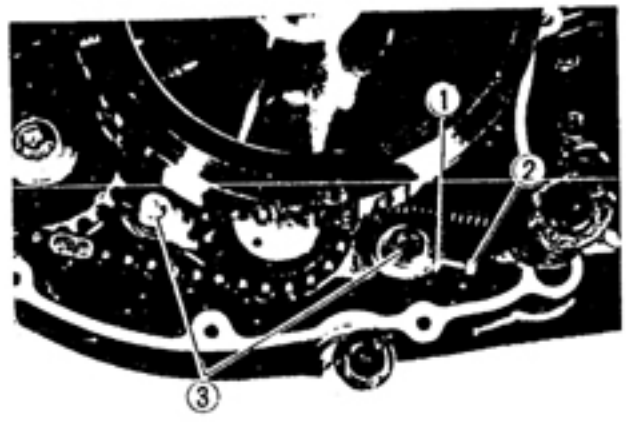
- Connect a tachometer.
- Start up the engine and seat its speed at anywhere between 1 300 and 1 500 r/min by turning the throttle stop screw ⑤.
- Turn in or out the pilot screw within 1/2 turn from the standard setting, and set it when the engine speed is at the highest possible level.
- After this adjustment, recheck the idling speed and adjust to between 1 300 and 1 500 r/min with throttle stop screw if necessary.

IDLE R/MIN

- **1 300 – 1 500 r/min**
- **1 350 – 1 450 r/min (Only for Switzerland)**

BALANCER CHAIN

Inspect Initial 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months)



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:

- Remove the engine under cover and gearshift lever.
- Drain engine oil.
- Remove the engine sprocket cover and magneto cover. (Refer to page 3-5.)
- 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.

Tightening torque
Bolt ③ : 15 – 20 N·m (1.5 – 2.0 kg-m, 11.0 – 14.5 lb-ft)

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.

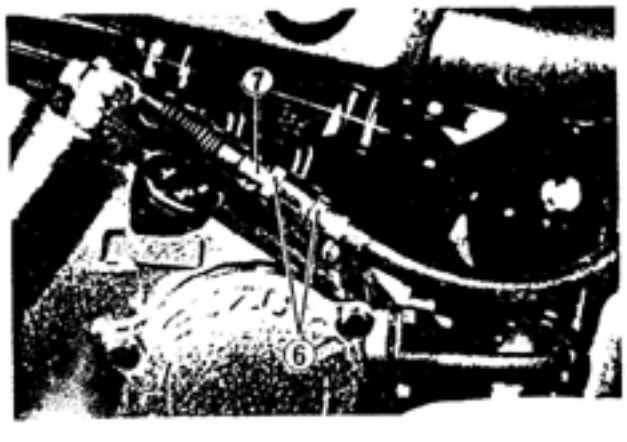
CLUTCH

Inspect Initial 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months)

- Loosen the lock nut ④ and turn the adjuster ⑤ fully in.
- Loosen the clutch cable adjuster lock nuts ⑥ and slide the cable adjuster ⑦ to acquire the specified clutch lever play Ⓐ.

Clutch lever play Ⓐ : 10 – 15 mm (0.4 – 0.6 in)

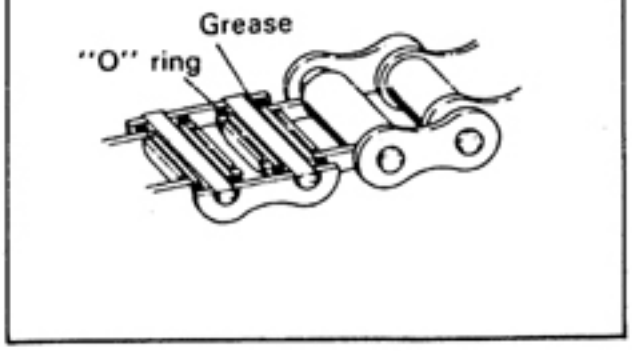
- Tighten the lock nuts (④ and ⑥) while holding the adjuster in position.



NOTE:
Minor adjustment can be made by the adjuster ⑤ after loosening the lock nut ④. At the same intervals, lubricate the clutch cable with motor oil.

DRIVE CHAIN

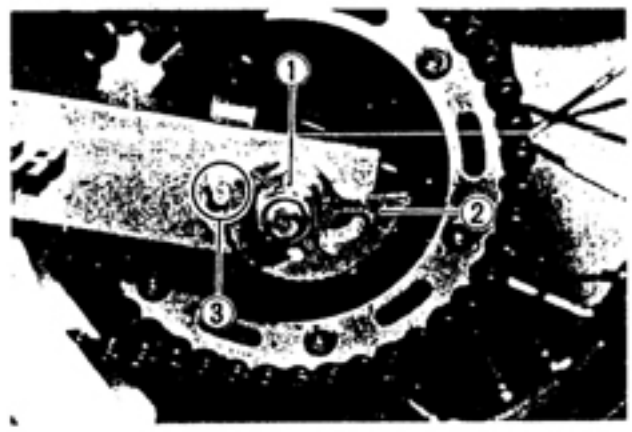
Inspect Initial 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months)
Clean and Lubricate Every 1 000 km (600 miles)



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.)

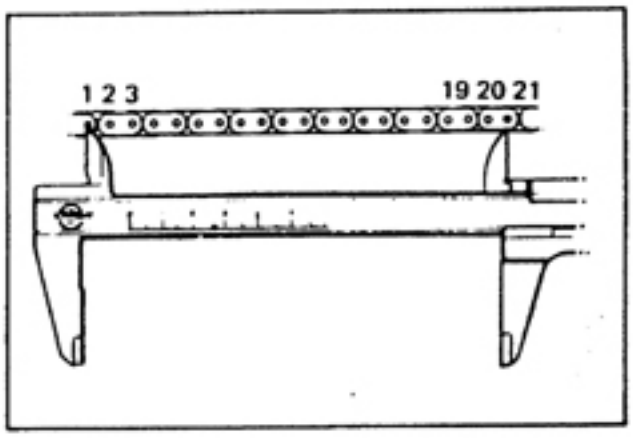
* Loose pins
* Damaged rollers
* Dry or rusted links
* Kinked or binding links
* Excessive wear
* Missing O-rings

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



CHECKING

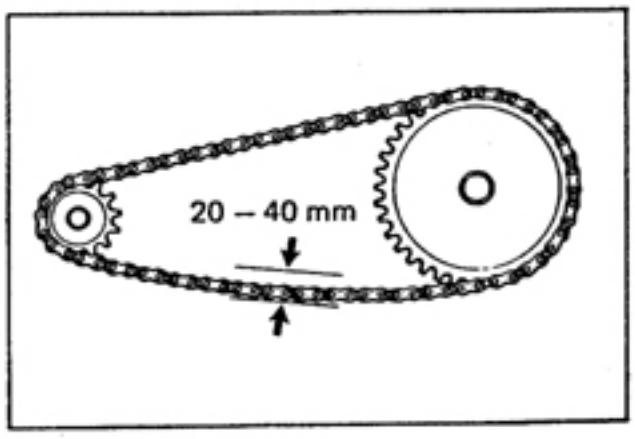
- Loosen axle nut ① after pulling out the cotter pin (For Canada and U.S.A.).
- Tension the drive chain fully by turning the right and left chain adjusters ②.
- Count out 21 pins (20 pitches) on the chain and measure the distance between the two points. If the distance exceeds following limit, the chain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



Service Limit: 319.4 mm (12.57 in)

ADJUSTING

- Turn both chain adjusters ② until the chain has 40 – 45 mm of slack at the middle between engine and rear sprockets. The number ③ on both chain adjusters must be at the same position to ensure that the front and rear wheels are correctly aligned.
- Place on side stand for accurate adjustment.



Drive chain slack: 20 – 40 mm (0.8 – 1.6 in)

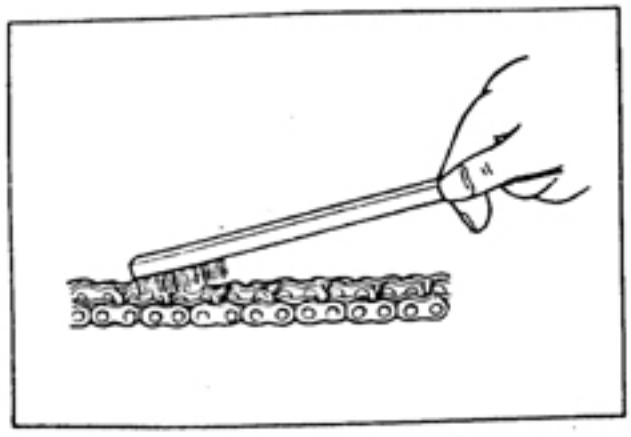
- After adjusting the drive chain, tighten the axle nut ① to the specified torque. Always use a new cotter pin (For Canada and U.S.A.).

Tightening torque: 50 – 80 N·m
(5.0 – 8.0 kg-m, 36.0 – 58.0 lb-ft)

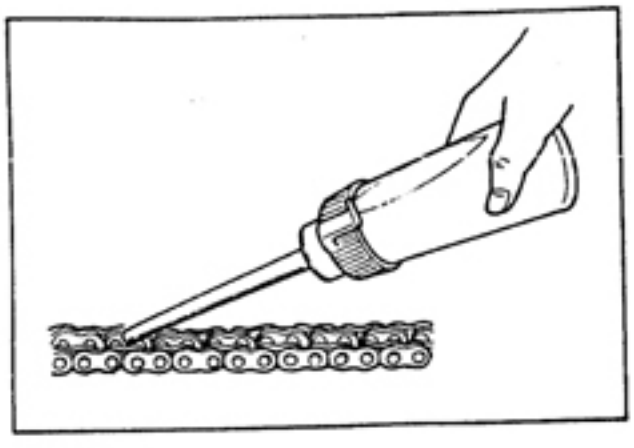
CLEANING AND LUBRICATING

- Wash the drive 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. 520VC-5 or TAKASAGO RK520SD. SUZUKI recommends that the above-mentioned standard drive chain be used for the replacement.

BRAKES

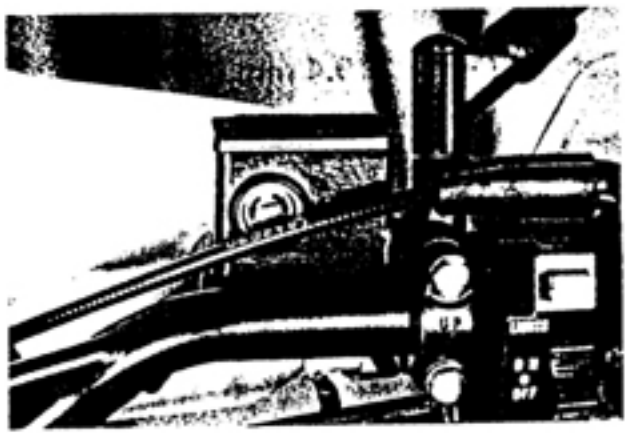
Inspect	Initial 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months)
Replace hoses	Every 4 years
Replace (Change) fluid	Every 2 years

BRAKE FLUID LEVEL

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

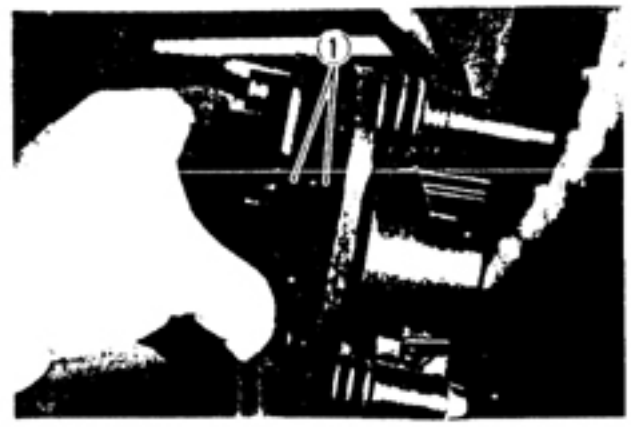
Specification and classification: DOT 4

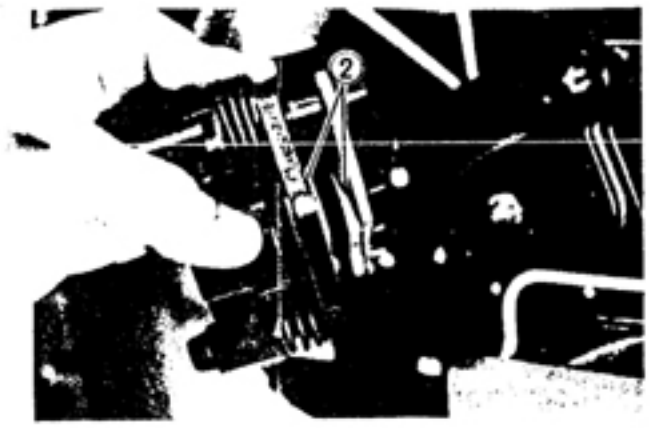
99000-23110: SUZUKI BRAKE FLUID



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

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





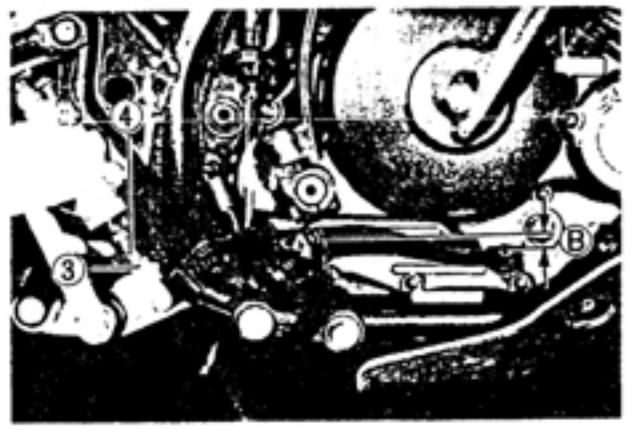
BRAKE PADS

Wearing condition of brake pads can be checked by observing the limit line ① (front caliper) and groove ② (rear caliper) marked on the pad. When the wear exceeds the limit mark, replace the pads with new ones. (Refer to pages 6-6 and 6-24.)

BRAKE PEDAL HEIGHT

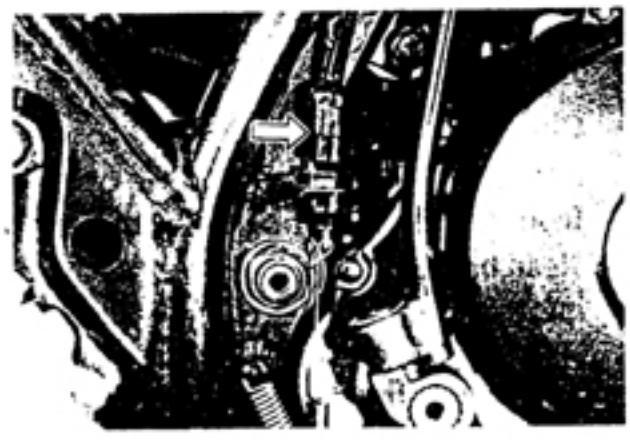
- Loosen the lock nut ③, and rotate the push rod ④ to locate brake pedal 5 mm below the top face of the footrest.
- Retighten the lock nut ③ to secure the push rod ④ in the proper position.

Brake pedal height Ⓑ: 5 mm (0.2 in)



REAR BRAKE LIGHT SWITCH

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



BLEEDING AIR FROM THE BRAKE FLUID CIRCUIT

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

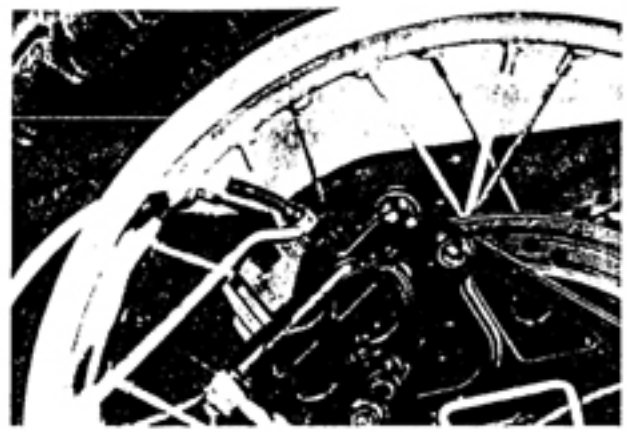
- Fill up the master cylinder reservoir to the upper end of the inspection window (for front brake) and upper line (for rear brake). Replace the reservoir cap to prevent entry of dirt.
- Attach a pipe to the caliper bleeder valve, and insert the free end of the pipe into a receptacle.
- Front brake: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

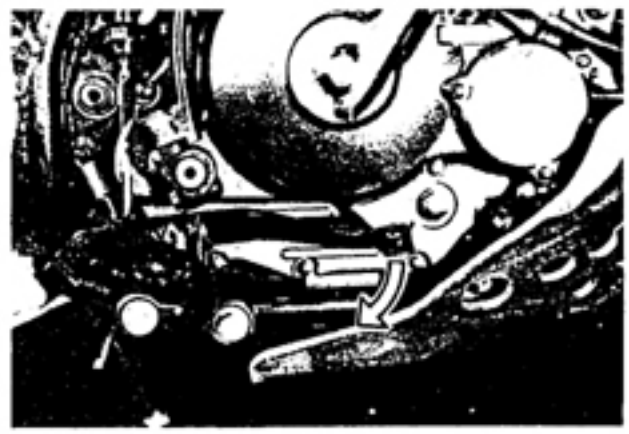
NOTE:
Replenish the brake fluid reservoir as necessary while bleeding the brake system.
Make sure that there is always some fluid visible in the reservoir.

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

Tightening torque
Bleeder valve: 6 – 9 N·m (0.6 – 0.9 kg·m, 4.5 – 6.5 lb·ft)

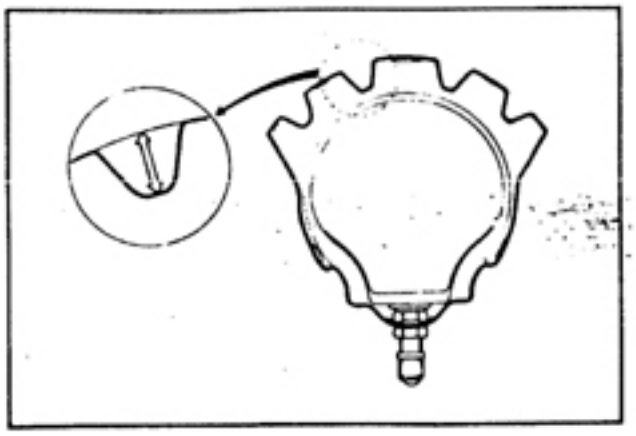
CAUTION:
Handle the brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials, etc.





TIRES

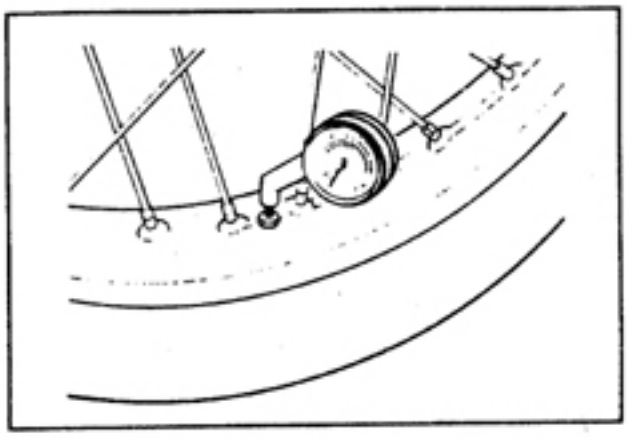
Inspect Initial 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months)



TIRE TREAD CONDITION

Operating the motorcycle with excessively worn tires will decrease riding stability and consequently invite a dangerous situation. It is highly recommended to replace 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)



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/cm²	psi	kPa	kg/cm²	psi
Solo riding	150	1.50	22	175	1.75	25
Dual riding	175	1.75	25	200	2.00	29

CAUTION:
The standard tire fitted on this motorcycle is 90/90-21 54S for front and 120/90-17 64S 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, 2 months) and Every 6 000 km (4 000 miles, 12 months)

Taper roller type bearing and steel balls are applied on the steering system for better handling.
Steering should be adjusted properly for smooth turning of handlebar and safe running. Too stiff steering prevents smooth turning of handlebar and too loose steering will cause poor stability.
Check that there is no play in the front fork assembly by supporting the machine so that the front wheel is off the ground, with wheel straight ahead, grasp lower fork tubes near the axle and pull forward. If play is found, perform steering bearing adjustment. (Refer to page 6-18.)

FRONT FORK

Inspect Initial 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months)

Inspect the front forks for oil leakage, scoring and scratches on the outer surface of the inner tubes.
Replace any defective parts, if necessary. (Refer to page 6-10.)

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 air pressure: 0 kPa (0 kg/cm², 0 psi)

CAUTION:
The maximum permissible air pressure is 250 kPa (2.5 kg/cm², 35 psi) to avoid fork oil seal and valve damage.

REAR SUSPENSION

Inspect Initial 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months)

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

CHASSIS BOLTS AND NUTS

Inspect Initial 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months)

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 page 2-19 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 – 55	3.5 – 5.5	25.5 – 40.0
② Front fork upper clamp bolt	25 – 39	2.5 – 3.9	18.0 – 28.0
③ Front fork lower clamp bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
④ Front fork cap bolt	25 – 35	2.5 – 3.5	18.0 – 25.5
⑤ Front fork damper rod bolt	34 – 46	3.4 – 4.6	24.5 – 33.5
⑥ Front axle nut	36 – 52	3.6 – 5.2	26.0 – 37.5
⑦ Front axle pinch bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
⑧ Handlebar clamp bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
⑨ Front brake master cylinder mounting bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
⑩ Front brake caliper mounting bolt	20 – 31	2.0 – 3.1	14.5 – 22.5
⑪ Brake hose union bolt (Front & Rear)	20 – 25	2.0 – 2.5	14.5 – 18.0
⑫ Air bleeder valve (Front & Rear)	6 – 9	0.6 – 0.9	4.5 – 6.5
⑬ Brake disc mounting bolt (Front & Rear)	18 – 28	1.8 – 2.8	13.0 – 20.0
⑭ Front footrest bolt	27 – 43	2.7 – 4.3	19.5 – 31.0
⑮ Swingarm pivot nut	61 – 94	6.1 – 9.4	44.0 – 68.0
⑯ Shock absorber mounting nut (Upper & Lower)	48 – 72	4.8 – 7.2	34.5 – 52.0
⑰ Rear cushion lever nut (Front)	60 – 96	6.0 – 9.6	43.5 – 69.5
⑱ Rear cushion lever nut (Center)	84 – 120	8.4 – 12.0	60.5 – 87.0
⑲ Rear cushion rod bolt	84 – 120	8.4 – 12.0	60.5 – 87.0
⑳ Rear brake caliper mounting bolt	20 – 31	2.0 – 3.1	14.5 – 22.5
㉑ Rear sprocket mounting nut	22 – 32	2.2 – 3.2	16.0 – 23.0
㉒ Rear axle nut	50 – 80	5.0 – 8.0	36.0 – 58.0
㉓ Spoke nipple	4 – 5	0.4 – 0.5	3.0 – 3.5
㉔ Steering stem clamp nut	18 – 28	1.8 – 2.8	13.0 – 20.0