FOREWORD

This manual contains an introductory description on the SUZUKI VL800 and procedures for its inspection/service and overhaul of its main components. Other information considered as generally known is not included.
Read the GENERAL INFORMATION section to familiarize yourself with the motorcycle and its maintenance. Use this section as well as other sections to use as a guide for proper inspection and service.
This manual will help you know the motorcycle better so that you can assure your customers of fast and reliable service.

- *This manual has been prepared on the basis of the latest specifications at the time of publication. If modifications have been made since then, differences may exist between the content of this manual and the actual motorcycle.*
- *Illustrations in this manual are used to show the basic principles of operation and work procedures. They may not represent the actual motorcycle exactly in detail.*
- *This manual is written for persons who have enough knowledge, skills and tools, including special tools, for servicing SUZUKI motorcycles. If you do not have the proper knowledge and tools, ask your authorized SUZUKI motorcycle dealer to help you.*

⚠ WARNING

Inexperienced mechanics or mechanics without the proper tools and equipment may not be able to properly perform the services described in this manual. Improper repair may result in injury to the mechanic and may render the motorcycle unsafe for the rider and passenger.

IMPORTANT (For USA)

All street-legal Suzuki motorcycles with engine displacement of 50 cc or greater are subject to Environmental Protection agency emission regulations. These regulations set specific standards for exhaust emission output levels as well as particular servicing requirements. This manual includes specific imformation required to properly inspect and service VL800 in accordance with all EPA regulations. It is strongly recommended that the chapter on Emission Control, Periodic Servicing and Carburetion be thoroughly reviewed before any type of service work is performed.
Further information concerning the EPA emission regulations and U.S. Suzuki's emission control program can be found in the U.S. SUZUKI EMISSION CONTROL PROGRAM MANUAL/SERVICE BULLETIN.

SUZUKI MOTOR CORPORATION
Motorcycle Service Department

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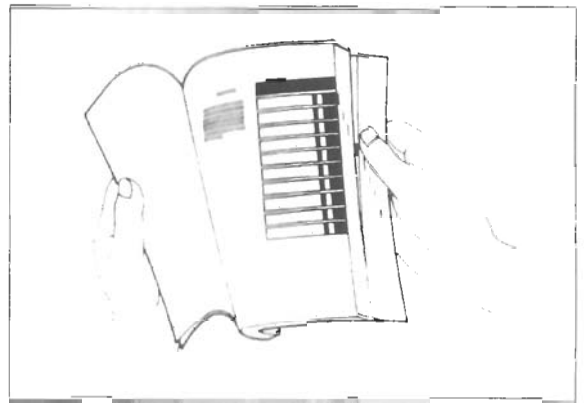
GROUP INDEX

HOW TO USE THIS MANUAL

TO LOCATE WHAT YOU ARE LOOKING FOR:

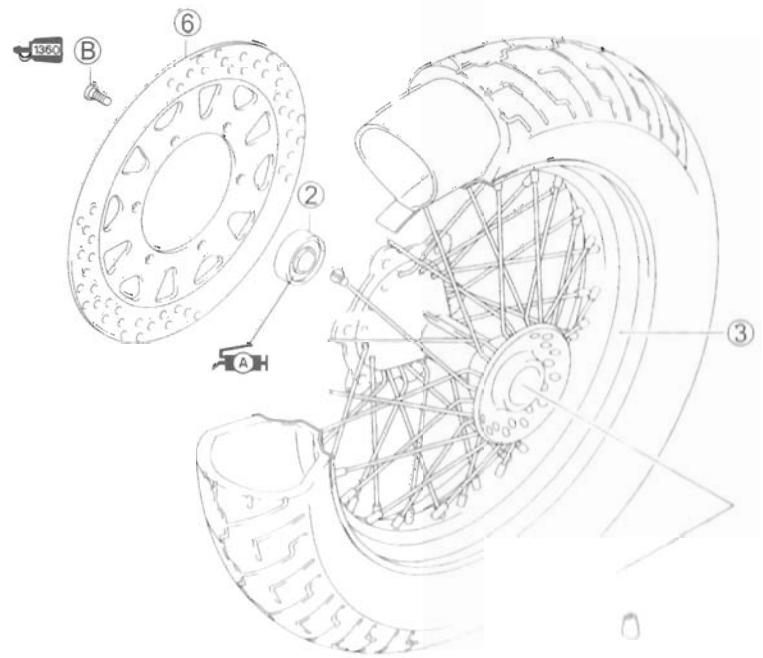
1. The text of this manual is divided into sections.
2. The section titles are listed in the GROUP INDEX.
3. Holding the manual as shown at the right will allow you to find the first page of the section easily.
4. The contents are listed on the first page of each section to help find the item and page you need.



COMPONENT PARTS AND WORK TO BE DONE

Under the name of each system or unit, is its exploded view. Work instructions and other service information such as the tightening torque, lubricating points and locking agent points, are provided.

Example: Front wheel



① Front axle
② Bearing (R)
③ Front wheel
④ Spacer
⑤ Bearing (L)
⑥ Brake disc
⑦ Spacer

A Front axle
B Brake disc mounting bolt

ITEM	N·m	kgf·m	lb-ft
A	65	6.5	47.0
B	23	2.3	16.5

SYMBOL (For USA)

Listed in the table below are the symbols indicating instructions and other information necessary for servicing. The meaning of each symbol is also included in the table.

SYMBOL	DEFINITION	SYMBOL	DEFINITION
	Torque control required. Data beside it indicates specified torque.	LLC	Use engine coolant. 99000-99032-11X
OIL	Apply oil. Use engine oil unless otherwise specified.	FORK	Use fork oil. 99000-99001-SS8
MO	Apply molybdenum oil solution. (Mixture of engine oil and SUZUKI MOLY PASTE in a ratio of 1:1)	BF	Apply or use brake fluid.
A	Apply SUZUKI SUPER GREASE "A". 99000-25030	V	Measure in voltage range.
M	Apply SUZUKI MOLY PASTE. 99000-25140	Ω	Measure in resistance range.
1207B	Apply SUZUKI BOND "1207B". 99104-31140	A	Measure in current range.
1216	Apply SUZUKI BOND "1216". 99104-31160		Measure in diode test range.
1303	Apply THREAD LOCK SUPER "1303". 99000-32030		Measure in continuity test range.
1342	Apply THREAD LOCK "1342". 99000-32050	TOOL	Use special tool.
1360	Apply THREAD LOCK SUPER "1360". 99000-32130	DATA	Indication of service data.

SYMBOL (For the other countries)

Listed in the table below are the symbols indicating instructions and other information necessary for servicing. The meaning of each symbol is also included in the table.

SYMBOL	DEFINITION	SYMBOL	DEFINITION
	Torque control required. Data beside it indicates specified torque.	LLC	Use engine coolant. 99000-99032-11X
OIL	Apply oil. Use engine oil unless otherwise specified.	FORK	Use fork oil. 99000-99001-SS8
MO	Apply molybdenum oil solution. (Mixture of engine oil and SUZUKI MOLY PASTE in a ratio of 1:1)	BF	Apply or use brake fluid.
A	Apply SUZUKI SUPER GREASE "A". 99000-25010	V	Measure in voltage range.
M	Apply SUZUKI MOLY PASTE. 99000-25140	Ω	Measure in resistance range.
1207B	Apply SUZUKI BOND "1207B". 99000-31140	A	Measure in current range.
1216	Apply SUZUKI BOND "1216". 99104-31160		Measure in diode test range.
1303	Apply THREAD LOCK SUPER "1303". 99000-32030		Measure in continuity test range.
1342	Apply THREAD LOCK "1342". 99000-32050	TOOL	Use special tool.
1360	Apply THREAD LOCK SUPER "1360". 99000-32130	DATA	Indication of service data.

GENERAL INFORMATION

1

CONTENTS

WARNING/CAUTION/NOTE

Please read this manual and follow its instructions carefully. To emphasize special information, the symbol and the words WARNING, CAUTION and NOTE have special meanings. Pay special attention to the messages highlighted by these signal words.

⚠ WARNING

Indicates a potential hazard that could result in death or injury.

⚠ CAUTION

Indicates a potential hazard that could result in motorcycle damage.

NOTE:
Indicates special information to make maintenance easier or instructions clearer.

Please note, however, that the warnings and cautions contained in this manual cannot possibly cover all potential hazards relating to the servicing, or lack of servicing, of the motorcycle. In addition to the WARNINGS and CAUTIONS stated, you must use good judgement and basic mechanical safety principles. If you are unsure about how to perform a particular service operation, ask a more experienced mechanic for advice.

GENERAL PRECAUTIONS

⚠ WARNING

* Proper service and repair procedures are important for the safety of the service mechanic and the safety and reliability of the motorcycle.
* When two or more persons work together, pay attention to the safety of each other.
* When it is necessary to run the engine indoors, make sure that exhaust gas is forced outdoors.
* When working with toxic or flammable materials, make sure that the area you work in is well-ventilated and that you follow all of the material manufacturer's instructions.
* Never use gasoline as a cleaning solvent.
* To avoid getting burned, do not touch the engine, engine oil, radiator and exhaust system until they have cooled.
* After servicing the fuel, oil, engine coolant, exhaust or brake systems, check all of the lines and fittings related to the system for leaks.

⚠ CAUTION

* If parts replacement is necessary, replace the parts with Suzuki Genuine Parts or their equivalent.
* When removing parts that are to be reused, keep them arranged in an orderly manner so that they may be reinstalled in the proper order.
* Be sure to use special tools when instructed.
* Make sure that all parts used in reassembly are clean. Lubricate them when specified.
* Use the specified lubricants, bonds, or sealants.
* When removing the battery, disconnect the ⊖ battery lead wire first and then the ⊕ battery lead wire.
* When reconnecting the battery, connect the ⊕ battery lead wire first, then the ⊖ battery lead wire. Finally, cover the ⊕ battery terminal with the terminal cover.
* When performing service to electrical parts, disconnect the ⊖ battery lead wire, unless the service procedure requires the battery power.
* When tightening cylinder head and crankcase nuts and bolts, tighten the larger sizes first. Always tighten the nuts and bolts from the inside working out, diagonally and to the specified torque.
* Whenever you remove oil seals, gaskets, packing, O-rings, self-locking nuts, locking washers, cotter pins, circlips, and other specified parts, be sure to replace them with new ones. Also, before installing these new parts, be sure to remove any left over material from the mating surfaces.
* Never reuse a circlip. When installing a new circlip, take care not to expand the end gap larger than required to slip the circlip over the shaft. After installing a circlip, always ensure it is completely seated in its groove and securely fitted.
* Use a torque wrench to tighten fasteners to the specified torque. Wipe off grease and oil if a thread is smeared with them.
* After reassembling, check parts for tightness and proper operation.

* To protect the environment, do not unlawfully dispose of used motor oil, engine coolant, all other fluids, batteries, and tires.
* To protect the earth's natural resources, properly dispose of used motorcycles and parts.

SUZUKI VL800K1 (2001-MODEL)

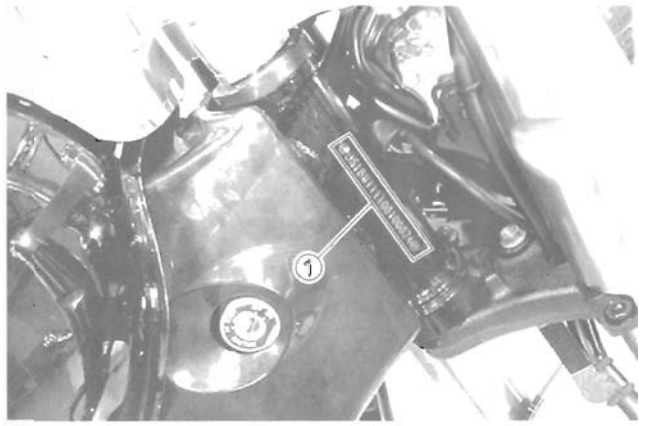
RIGHT SIDE

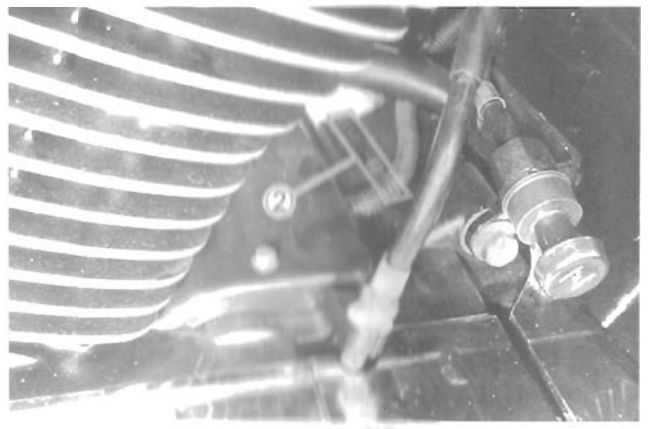
LEFT SIDE

* Difference between photograph and actual motorcycle depends on the markets.

SERIAL NUMBER LOCATION

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





FUEL, OIL AND ENGINE COOLANT RECOMMENDATION

FUEL (For USA and CANADA)

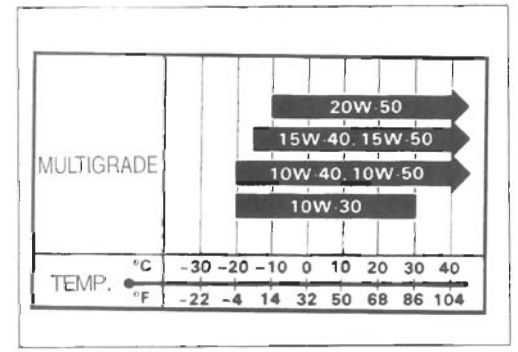
1. Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$) method or 91 octane or higher rated by the Research Method.
2. Suzuki recommends that customers use alcohol-free unleaded gasoline whenever possible.
3. Use of blended gasoline containing MTBE (Methyl Tertiary Butyl Ether) is permitted.
4. Use of blended gasoline/alcohol fuel is permitted, provided that the fuel contains not more than 10% ethanol. Gasoline/alcohol fuel may contain up to 5% methanol if appropriate cosolvents and corrosion inhibitors are present in it.
5. If the performance of the vehicle is unsatisfactory while using blended gasoline/alcohol fuel, you should switch to alcohol-free unleaded gasoline.
6. Failure to follow these guidelines could possibly void applicable warranty coverage. Check with your fuel supplier to make sure that the fuel you intend to use meets the requirements listed above.

FUEL (For the other countries)

Use unleaded gasoline that is graded 91 octane or higher by the Research Method.

ENGINE OIL (For USA)

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



ENGINE OIL (For the other countries)

Use a premium quality 4-stroke motor oil to ensure longer service life of your motorcycle. Use only oils which are rated SF or SG under the API service classification. The recommended viscosity is SAE 10W-40. If an SAE 10W-40 motor oil is not available, select an alternative according to the right chart.

GEAR OIL (FINAL DRIVE GEAR OIL)

Use SAE 90 hypoid gear oil which is reted GL-5 under API classification system. If you operate the motorcycle where ambient temperature is below 0°C (32°F), use SAE 80 hypoid gear oil.

BRAKE FLUID

Specification and classification: DOT 4

⚠ WARNING

- **This motorcycle uses a glycol-based brake fluid. Do not use or mix other types of brake fluid such as silicone-based and petroleum-based fluids for refilling the system, otherwise serious damage will result to the brake system.**
- **Do not use any brake fluid taken from old, used, or unsealed containers.**
- **Do not re-use brake fluid left over from last servicing or which has been stored for a long period of time.**

FRONT FORK OIL

Use SUZUKI FORK OIL SS-08 (#10) or an equivalent fork oil.

ENGINE COOLANT

Since antifreeze also has corrosion- and rust-inhibiting properties, always use engine coolant containing antifreeze, even if the atmospheric temperature does not go below the freezing point.
Use an antifreeze designed for aluminum radiators. Suzuki recommends the use of SUZUKI COOLANT antifreeze. If this is not available, use an equivalent antifreeze for aluminum radiators.
Mix only distilled water with the antifreeze. Other types of water can corrode and clog the aluminum radiator.

Mix distilled water and antifreeze at a ratio of 50 : 50 – 40 : 60.

For more information, refer to cooling system section. (☞ 6-2)

⚠ CAUTION

The percentage of antifreeze in the coolant should be between 50 to 60%. If the percentage of antifreeze is above or below this range the coolant's frost protection and rust-inhabiting capacities will be reduced. Always keep the antifreeze content above 50% even if the atmospheric temperature does not go below the freezing point.

BREAK-IN PROCEDURES

During manufacturing only the best possible materials are used and all machined parts are finished to a very high standard. 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. Refer to the following break-in engine speed recommendations.

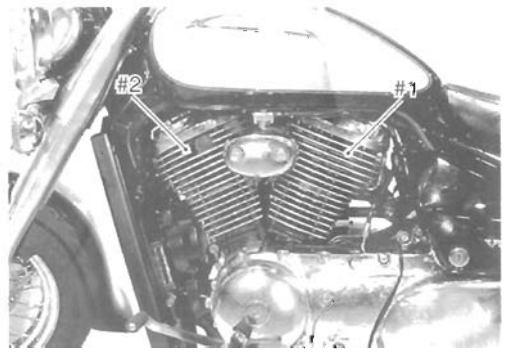
- Keep to these break-in throttle positions during the break-in period.

Break-in throttle operation
Initial 800 km (500 miles): Less than ½ throttle
Up to 1 600 km (1 000 miles): Less than ¾ throttle

- Upon reaching an odometer reading of 1 600 km (1 000 miles) you can subject the motorcycle to full throttle operation.

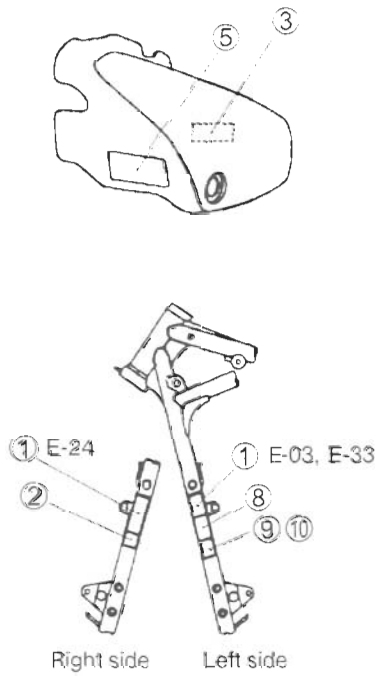
CYLINDER IDENTIFICATION

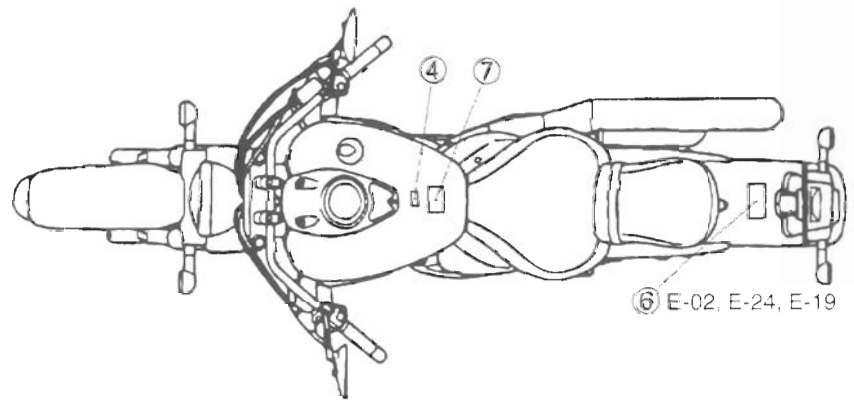
The engine cylinders are identified as #1 and #2, as counted from rear to front (as viewed by the rider on the seat).

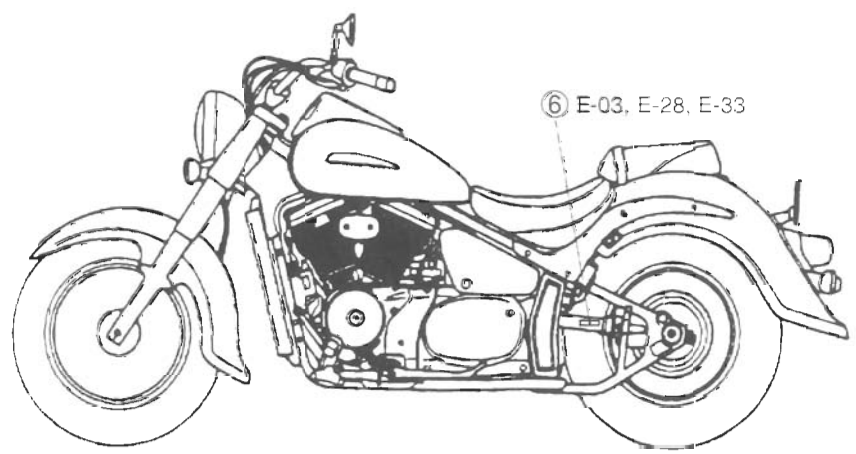


INFORMATION LABELS

NO.	LABEL or PLATE NAME	APPLIED SPECIFICATION					
		E-02	E-03	E-19	E-24	E-28	E-33
①	Noise label	–	○	–	○	–	○
②	Information label	–	○	–	–	○	○
③	Vacuum hose routing label	–	–	–	–	–	○
④	Fuel caution label	○	–	–	○	–	–
⑤	Manual notice label	–	○	–	–	–	○
⑥	Tire air pressure label	○	○	○	○	○	○
⑦	Warning safety label	○	○	○	○	○	○
⑧	ICES Canada label	–	–	–	–	○	–
⑨	ID plate	○	–	○	○	–	–
⑩	Safety plate	–	○	–	–	○	○







SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 510 mm (98.818 in)
Overall width	985 mm (38.779 in)
Overall height	1 110 mm (43.700 in)
Wheelbase	1 650 mm (64.960 in)
Ground clearnce	140 mm (5.511 in)
Seat height	700 mm (27.559 in)
Dry mass	239 kg (53.727 lbs)

ENGINE

Type	Four-stroke, Liquid-cooled, OHC
Number of cylinders	2
Bore	83 mm (3.268 in)
Stroke	74.4 mm (2.929 in)
Displacement	805 cm³ (49.1 cu. in)
Compression ratio	9.4 : 1
Carburetor	BDSR34
Air cleaner	Non-woven fabric element
Starter system	Electric
Lubrication system	Wet sump
Idle speed	1 100 ± 100 r/min

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed, constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction ratio	1.690 (71/42)
Secondary reduction ratio	1.133 (17/15)
Final reduction ratio	3.090 (34/11)
Gear ratios, Low	2.461 (32/13)
2nd	1.631 (31/19)
3rd	1.227 (27/22)
4th	1.000 (25/25)
Top	0.814 (22/27)
Drive system	Shaft drive

CHASSIS

Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Link type, coil spring, oil damped, spring pre-load 7-way adjustable
Steering angle	38° (right & left)
Caster	33° 20'
Trail	141 mm (3.55 in)
Turning radius	3.0 m (9.8 ft)
Front brake	Disc brake
Rear brake	Drum brake
Front tire size	130/90-16 67H, tube
Rear tire size	170/80-15M/C 77H, tube
Front fork stroke	140 mm (5.5 in)
Rear wheel travel	105 mm (4.1 in)

ELECTRICAL

Ignition type	Electronic ignition (Transistorized)
Ignition timing	5° B.T.D.C. at 1 110 r/min
Spark plug	NGK: DPR8EA-9 or DENSO: X24EPR-U9
Battery	12 V 36 kC (10 Ah)/10HR
Generator	Three-phase A.C. Generator
Main fuse	30 A
Fuse	15/15/10/10/10/10 A
Headlight	12 V 60/55 W
Position/parking light	12 V 4 W.....Except for E-03, 24, 28, 33
Front turn signal light	12 V 21 W
Rear turn signal light	12 V 21 W
Brake light/Taillight	12 V 21/5 W
Speedometer light	LED
Neutral indicator light	LED
High beam indicator light	LED
Turn signal indicator light	LED
Oil pressure light	LED

CAPACITIES

Fuel tank	17.0 L (4.5/3.7 US/Imp gal)
Engine oil, oil change	3 000 ml (3.2/2.6 US/Imp qt)
with filter change	3 400 ml (3.6/3.0 US/Imp qt)
overhaul	3 700 ml (3.9/3.3 US/Imp qt)
Final gear oil	200 – 220 ml (6.8/7.0 – 7.4/7.7 US/Imp qt)
Engine coolant	1 500 ml (1.5/1.3 US/Imp qt)
Front fork oil (each leg)	412 ml (13.9/14.5 US/Imp oz)

These specifications are subject to change without notice.

COUNTRY AND AREA CODES

The following codes stand for the applicable country(-ies) and area(-s).

CODE	COUNTRY or AREA
E-02	England (UK)
E-03	USA
E-19	EU
E-24	Australia
E-28	Canada
E-33	California

PERIODIC MAINTENANCE

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. Maintenance intervals are expressed in terms of kilometer, miles and months, whichever comes first.

IMPORTANT (USA only):

The periodic maintenance intervals and service requirements have been established in accordance with EPA regulations. Following these instructions will ensure that the motorcycle will not exceed emission standards and it will also ensure the reliability and performance of the motorcycle. 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 kilometer, miles and time for your convenience.

NOTES:

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

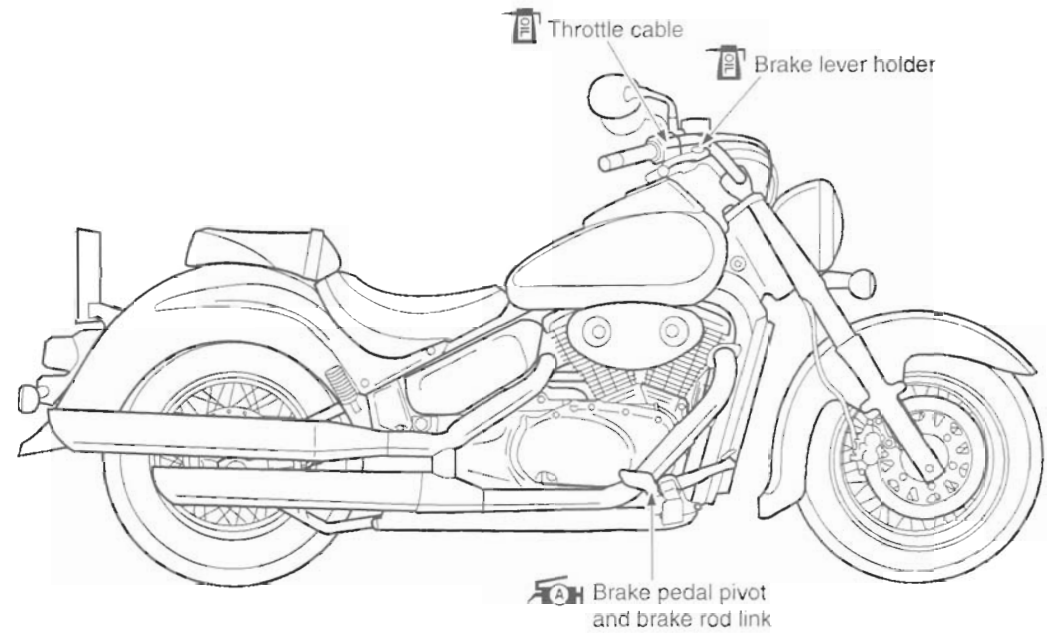
PERIODIC MAINTENANCE CHART

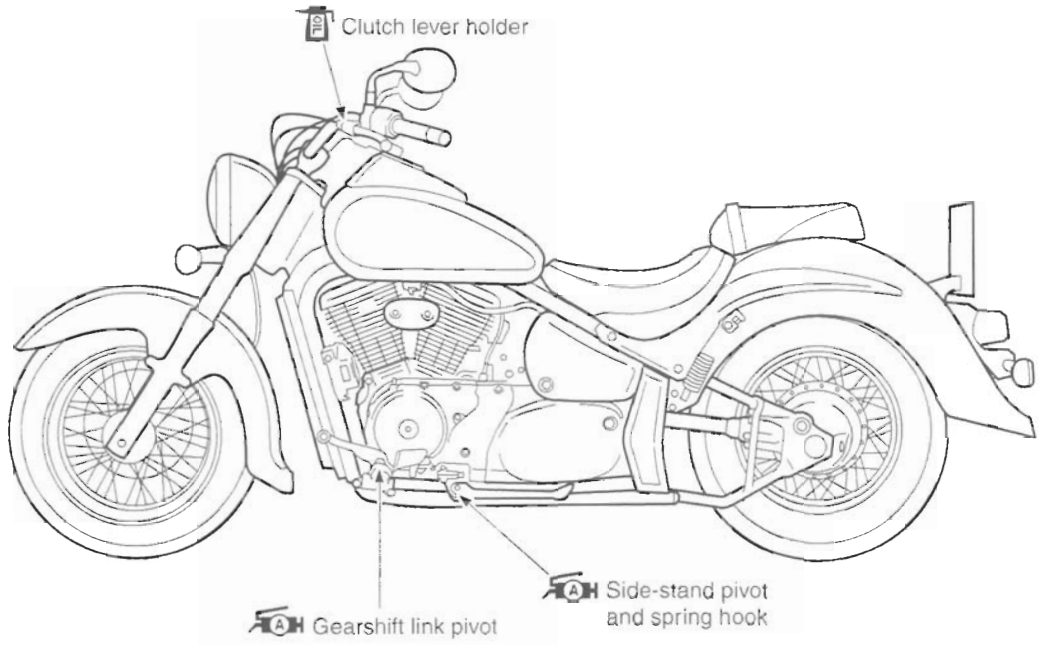
Item \ Interval		1 000	6 000	12 000	18 000	24 000
	km	600	4 000	7 500	11 000	15 000
	miles	1	6	12	18	24
	months					
Air cleaner element		-	I	I	R	I
Spark plugs		-	I	R	I	R
Valve clearance		I	-	I	-	I
Engine oil		R	R	R	R	R
Engine oil filter		R	-	-	R	-
Fuel line		-	I	I	I	I
		Replace fuel hose every 4 years.				
Idle speed		I	I	I	I	I
Evaporative emission control system (E-33 only)		-	-	I	-	I
		Replace vapor hose every 4 years.				
PAIR (air supply) system		-	-	I	-	I
Throttle cable play		I	I	I	I	I
Clutch		-	I	I	I	I
Radiator hoses		-	I	I	I	I
Engine coolant		Replace every 2 years.				
Final gear oil		R	-	I	-	I
Brakes		I	I	I	I	I
Brake hoses		-	I	I	I	I
		Replace every 4 years.				
Brake fluid		-	I	I	I	I
		Replace every 2 years.				
Tires		-	I	I	I	I
Steering		I	I	I	-	I
Front forks		-	I	I	-	I
Rear suspension		-	I	I	-	I
Exhaust pipe bolts and muffler bolt and nut		T	-	I	-	T
Chassis bolts and nuts		T	T	I	T	T

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 of the motorcycle. Major lubrication points are indicated below.





NOTE:

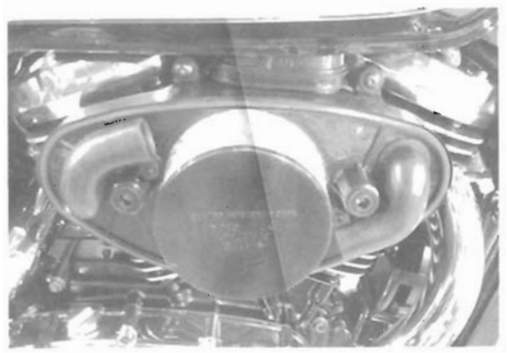
- *Before lubricating each part, clean off any rusty spots and wipe off any grease, oil, dirt or grime.*
- *Lubricate exposed parts which are subject to rust, with a rust preventative spray, especially whenever the motorcycle has been operated under wet or rainy conditions.*

MAINTENANCE AND TUNE-UP PROCEDURES

This section describes the servicing procedures for each item mentioned in the Periodic Maintenance chart.

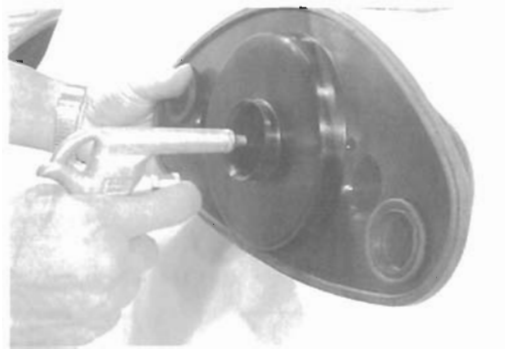
AIR CLEANER

- Remove the screws and air cleaner case cover.
- Remove the air cleaner element.



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

NOTE:
Always apply air pressure on the engine side of the air cleaner element. If air pressure is applied improperly, dirt will be forced into the pores of the air cleaner element thus restricting air flow through the air cleaner element.



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

NOTE:
If driving under dusty conditions, clean the air cleaner element more frequently. Make sure that the air cleaner is in good condition at all times. The life of the engine depends largely on this component.

- Remove the drain plugs from the air cleaner box to allow any water to drain out.

SPARK PLUG

SPARK PLUG AND IGNITION COIL/PLUG CAP REMOVAL

- Remove the front and rear seat. (☞7-2)
- Remove the fuel tank. (☞5-3)

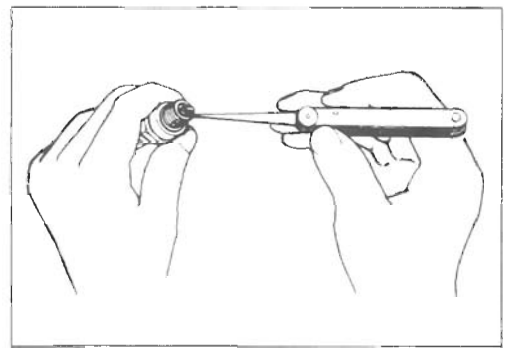
- Remove the spark plug caps.
- Remove the spark plugs with a spark plug wrench.

HEAT RANGE

- Check spark plug heat range by observing electrode color. If the electrode of the spark plug is wet appearing or dark color, replace the spark plug with hotter type one. If it is white or glazed appearing, replace the spark plug with colder type one.

	NGK	DENSO
Standard	DPR7EA-9	X22EPR-U9
Colder type	DPR8EA-9	X24EPR-U9

NOTE:
"R" type spark plug has a resistor located at the center electrode to prevent radio noise.



CARBON DEPOSITS

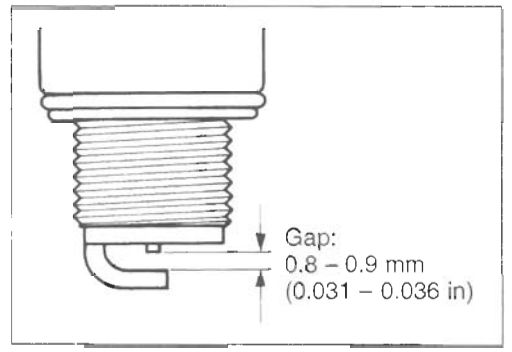
- Check carbon deposits on the spark plug.
- If carbon is deposited, remove it using a spark plug cleaner machine or carefully use a tool with a pointed end.

SPARK PLUG GAP

- Measure the spark plug gap with a thickness gauge.
- Adjust the spark plug gap if necessary.

DATA **Spark plug gap:**
Standard: 0.8 – 0.9 mm (0.031 – 0.036 in)

TOOL **09900-20803: Thickness gauge**



ELECTRODE'S CONDITION

- Check the condition of the electrode.
- If it is extremely worn or burnt, replace the spark plug. Replace the spark plug if it has a broken insulator, damaged thread, etc.

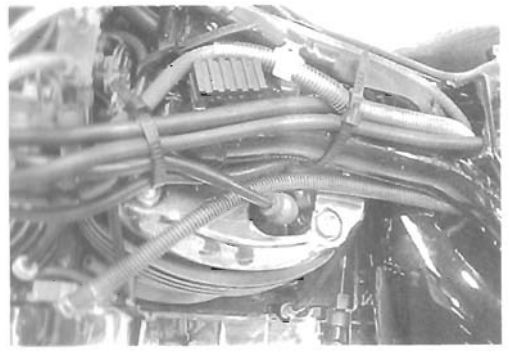
⚠ CAUTION

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

SPARK PLUG AND IGNITION COIL/PLUG CAP INSTALLATION

- Install the spark plugs to the cylinder head with fingers, and then tighten them to the specified torque with a wrench.

Spark plug: 11 N·m (1.1 kgf·m, 8.0 lb-ft)



⚠ CAUTION

Do not crossthread or over tighten the spark plug, or the spark plug will damage the aluminum threads of the cylinder head.

- Install the spark plug caps.

VALVE CLEARANCE

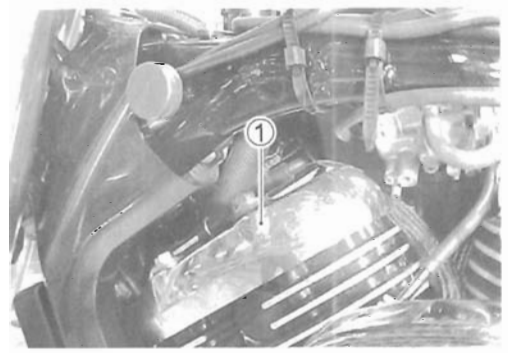
Valve clearance must be checked and adjusted when:
(1) the valve mechanism is service, and
(2) the camshafts are serviced.
Check and adjust the clearance to the specification.

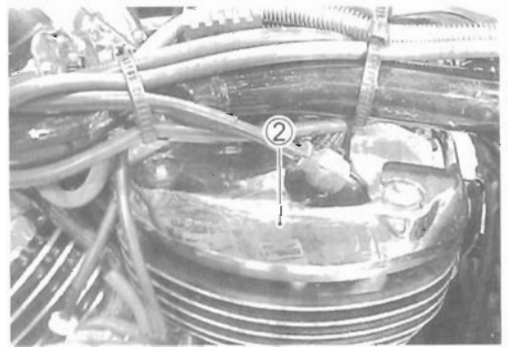
DATA Valve clearance (when cold): IN. 0.08 – 0.13 mm (0.003 – 0.005 in)
EX. 0.17 – 0.22 mm (0.007 – 0.009 in)

NOTE:

- *The clearance specification is for COLD state.*
- *Both intake and exhaust valves must be checked and adjusted when the piston is at Top Dead Center (TDC) of the compression stroke.*

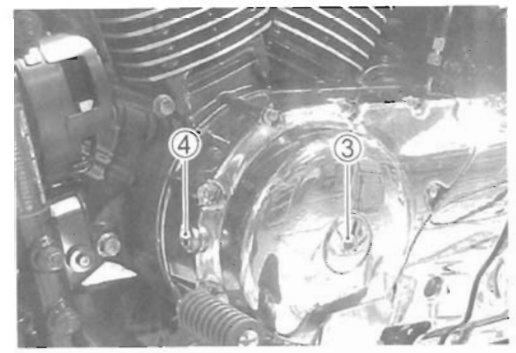
- Remove the front and rear seats. (☞7-2)
- Remove the fuel tank. (☞5-3)
- Remove the cylinder head cover caps (1), (2).
- Remove the spark plug caps.





- Remove all the inspection caps.
- Remove all the spark plugs.

- Remove the generator cover plug ③ and the timing inspection plug ④.



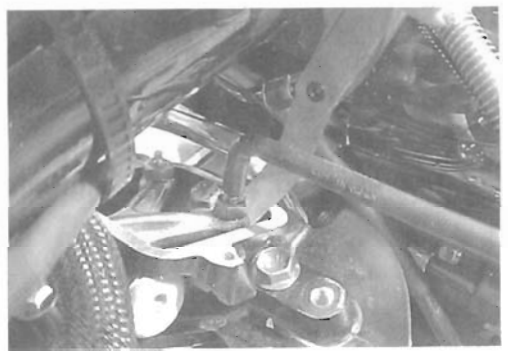
- Rotate the generator rotor to set the No.1 engine's piston at TDC of the compression stroke. (Rotate the rotor until the "RIF I T" line on the rotor is aligned with the center of hole on the generator cover.

- To inspect the No.1 engine's valve clearance, insert the thickness gauge to the clearance between the valve stem end and the adjusting screw on the rocker arms.

TOOL 09900-20806: Thickness gauge

- If the clearance is out of the specification, bring it into the specified range by using the special tool.

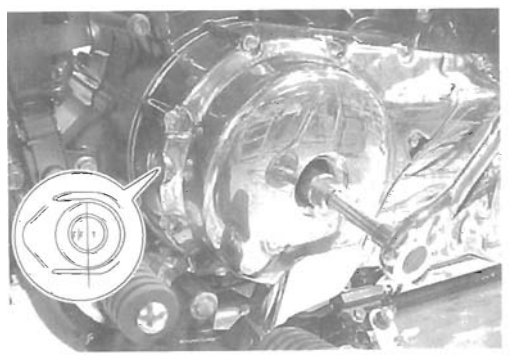
TOOL 09917-10410: Valve adjust driver



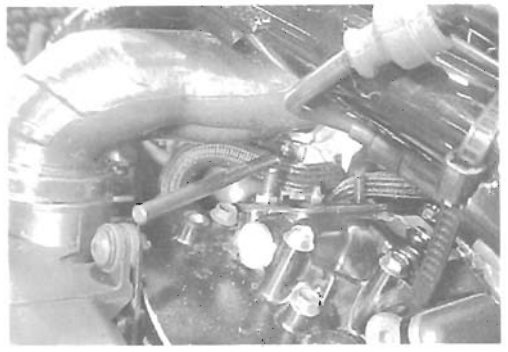
⚠ CAUTION

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

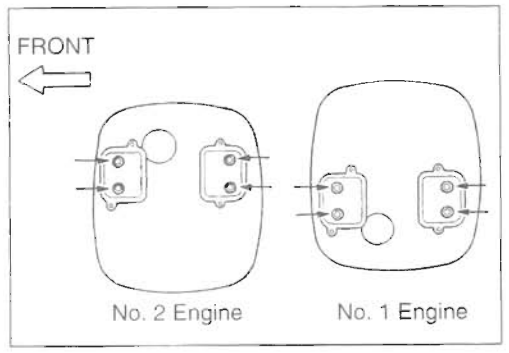
- Rotate the generator rotor 450 degrees (1-¼ turns) and align the "FIF I T" line on the rotor with the center of hole on the generator cover.



Inspect the No.2 engine's valve clearance as the same manner above.



NOTE:
Use the thickness gauge from the arrow marks as shown in the illustration.



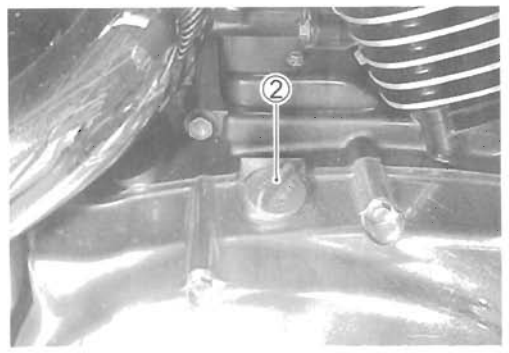
ENGINE OIL AND OIL FILTER

ENGINE OIL REPLACEMENT

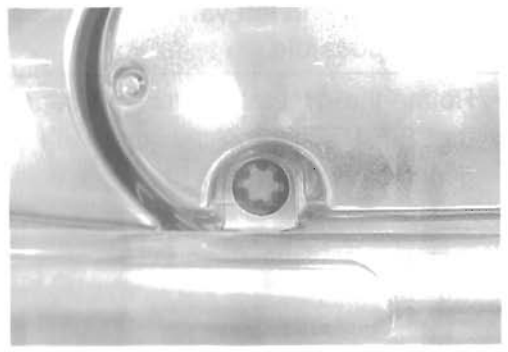
- Keep the motorcycle upright.
- Place an oil pan below the engine, and drain oil by removing the oil drain plug ① and filler cap ②.

- Tighten the drain plug ① to the specified torque, and pour fresh oil through the oil filler. The engine will hold about 3.0 L (3.2/2.6 US/Imp qt) of oil. Use an API classification of SF or SG oil with SAE 10W/40 viscosity.

Oil drain plug: 23 N·m (2.3 kgf·m, 16.5 lb-ft)



- Start up the engine and allow it to run for several minutes at idling speed.
- Turn off the engine and wait about three minutes, then check the oil level through the inspection window. If the level is below mark "L", add oil to "F" level. If the level is above mark "F", drain oil to "F" level.



OIL FILTER REPLACEMENT

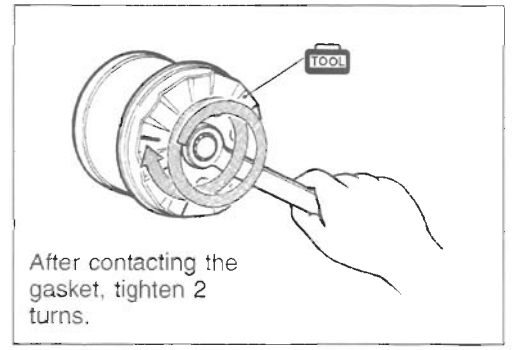
- Drain the engine oil as described in the engine oil replacement procedure.
- Remove the oil filter with the special tool.

09915-40610: Oil filter wrench

- Apply engine oil lightly to the gasket of the new oil filter before installation.

- Install the new oil filter. Turn it by hand until you feel that the oil filter gasket contacts the oil filter mounting surface. Then, tighten the oil filter two full turns with the special tool.

NOTE:
To properly tighten the oil filter, use the special tool. Never tighten the oil filter by hand.



- Add new engine oil and check the oil level as described in the engine oil replacement procedure.

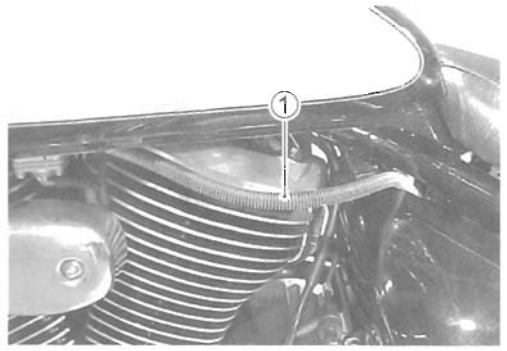
NECESSARY AMOUNT OF ENGINE OIL:
Oil change: 3.0 L (3.2/2.6 US/Imp qt)
Oil and filter change: 3.4 L (3.6/3.0 US/Imp qt)
Engine overhaul: 3.7 L (3.9/3.3 US/Imp qt)

⚠ CAUTION

ONLY USE A GENUINE SUZUKI MOTORCYCLE OIL FILTER. Other manufacturer's oil filters may differ in thread specifications (thread diameter and pitch), filtering performance and durability which may lead to engine damage or oil leaks. Also, do not use a genuine Suzuki automobile oil filter on this motorcycle.

FUEL HOSE

Inspect the fuel hose ① for damage and fuel leakage. If any defects are found, replace the fuel hose.

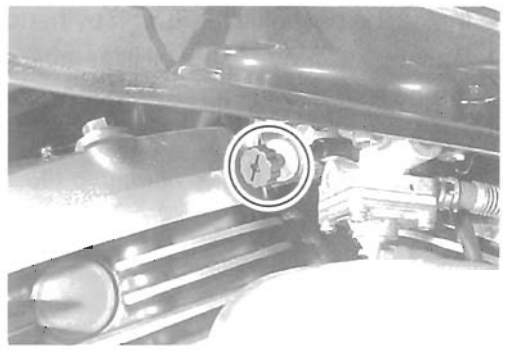


ENGINE IDLE SPEED

NOTE:
Warm up the engine before adjusting the engine idle speed.

- Start the engine, turn the throttle stop screw and set the engine idle speed as follows.

DATA **Engine idle speed: 1 100 ± 100 rpm**

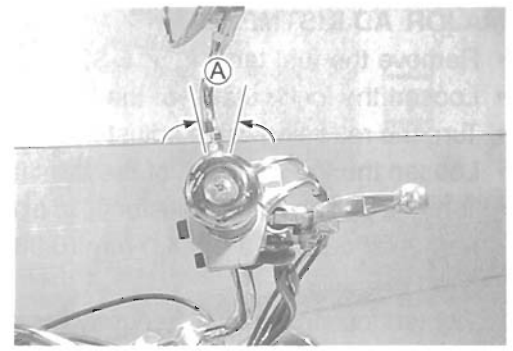


PAIR (AIR SUPPLY) SYSTEM

Inspect the PAIR (air supply) system periodically. (☞5-27)

THROTTLE CABLE PLAY

Adjust the throttle cable play Ⓐ as follows.



MINOR ADJUSTMENT

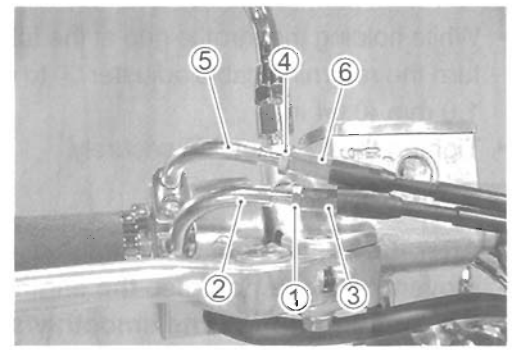
1st step:

- Loosen the lock nut ① of the throttle returning cable ② and fully turn in the adjuster ③.

2nd step:

- Loosen the lock nut ④ of the throttle pulling cable ⑤.
- Turn the adjuster ⑥ in or out until the throttle cable play (at the throttle grip) Ⓐ is between 2.0 – 4.0 mm (0.08 – 0.16 in).
- Tighten the lock nut ④ while holding the adjuster ⑥.

DATA **Throttle cable play Ⓐ: 2.0 – 4.0 mm (0.08 – 0.16 in)**



3rd step:

- While holding the throttle grip at the fully closed position, slowly turn out the adjuster ③ of the throttle returning cable ② until resistance is felt.
- Tighten the lock nut ① while holding the adjuster ③.

⚠ 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.

NOTE:
Major adjustment can be made at the throttle body side adjuster.

MAJOR ADJUSTMENT

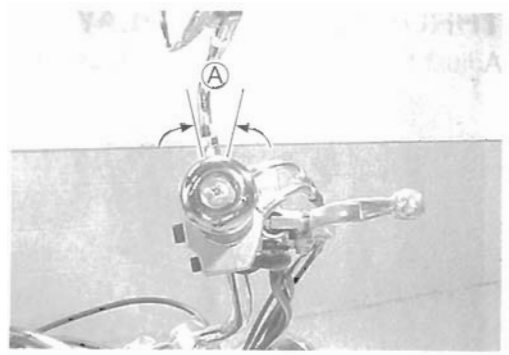
- Remove the fuel tank. (☞5-3)
- Loosen the lock nuts ① of the throttle returning cable ②.
- Turn the returning cable adjuster ③ to obtain proper cable play.
- Loosen the lock nuts ④ of the throttle pulling cable ⑤.
- Turn the pulling cable adjuster ⑥ in or out until the throttle cable play Ⓐ should be 2.0 – 4.0 mm (0.08 – 0.16 in) at the throttle grip.
- Tighten the lock nuts ④ securely while holding the adjuster ⑥.

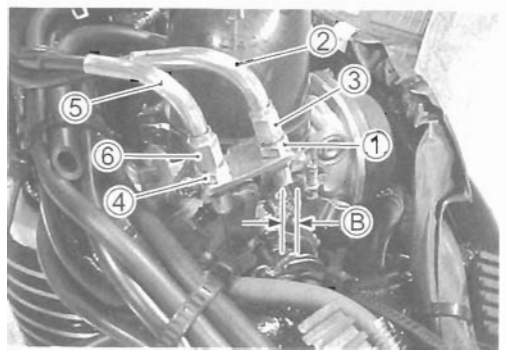
DATA **Throttle cable play Ⓐ: 2.0 – 4.0 mm (0.08 – 0.16 in)**

- While holding the throttle grip at the fully closed position, slowly turn the returning cable adjuster ③ to obtain a cable slack Ⓑ of 1.0 mm (0.04 in).
- Tighten the lock nuts ① securely.

⚠ 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.

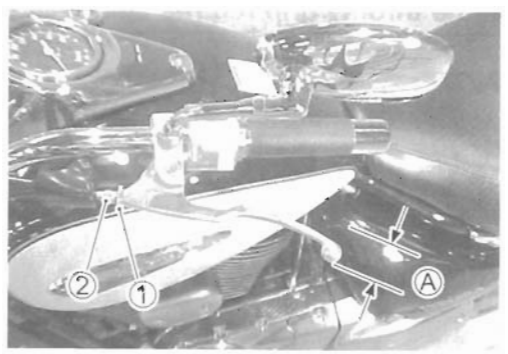


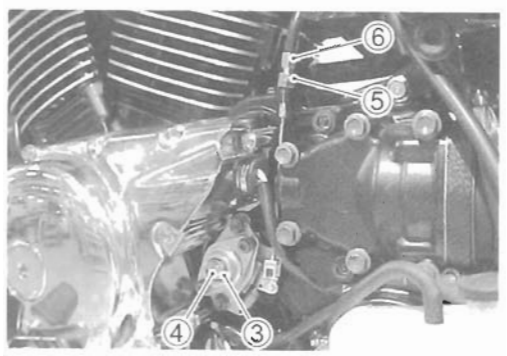


CLUTCH

- Loosen the lock nut ①.
- Turn in the adjuster ② all the way into the clutch lever assembly.
- Remove the clutch release cover.
- Loosen the lock nut ③ and turn out the adjusting screw ④ two or three rotations.
- From that position, slowly turn in the adjusting screw ④ to feel resistance.
- From this position, turn out the adjusting screw ④ ¼ rotations, and tighten the lock nut ③.
- Loosen the lock nut ⑤, and turn the cable adjuster ⑥ to obtain 10 – 15 mm (0.4 – 0.6 in) of free play Ⓐ at the clutch lever end.
- Tighten the lock nuts ⑤.
- Tighten the lock nut ①.

DATA **Clutch lever play Ⓐ: 10 – 15 mm (0.4 – 0.6 in)**
Clutch release screw: ¼ turn out

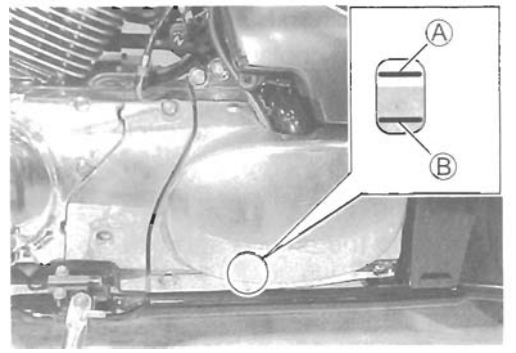




COOLING SYSTEM

ENGINE COOLANT LEVEL CHECK

- Keep the motorcycle upright.
- Check the engine coolant level by observing the full and lower lines on the engine coolant reservoir.
  Ⓐ Full line Ⓑ Lower line
- If the level is below the lower line, add engine coolant to the full line from the engine coolant reservoir filler.

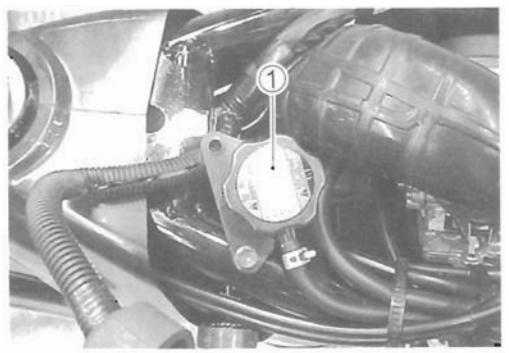


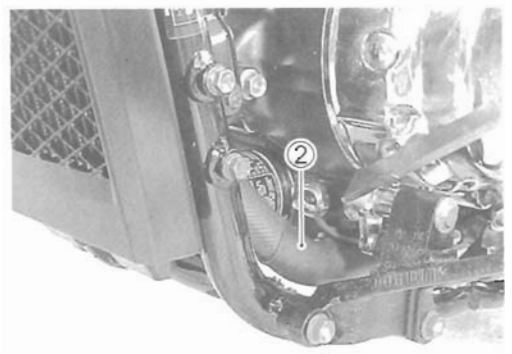
ENGINE COOLANT CHANGE

- Remove the fuel tank.
- Remove the radiator cap ①.
- Drain engine coolant by disconnecting the radiator hose ② from the pump.

⚠ WARNING

- **Do not open the radiator cap when the engine is hot, as you may be injured by escaping hot liquid or vapor.**
- **Engine coolant may be harmful if swallowed or if it comes in contact with skin or eyes. If engine coolant gets into the eyes or in contact with the skin, flush thoroughly with plenty of water. If swallowed, induce vomiting and call physician immediately!**





- Flush the radiator with fresh water if necessary.
- Connect the radiator hose ② securely.
- Pour the specified engine coolant up to the radiator inlet.

LLC **Engine coolant capacity (without reservoir):**
1 500 ml (1.6/1.3 Us/Imp qt)

ENGINE COOLANT INFORMATION: ☞6-2

AIR BLEEDING THE COOLING CIRCUIT

- Add engine coolant up to the radiator inlet.
- Support the motorcycle upright.
- Slowly swing the motorcycle, right and left, to bleed the air trapped in the cooling circuit.
- Add engine coolant up to the radiator inlet.
- Start up the engine and bleed air from the radiator inlet completely.
- Add engine coolant up to the radiator inlet.
- Repeat the above procedure until bleed no air from the radiator inlet.
- Close the radiator cap securely.
- After warming up and cooling down the engine several times, add the engine coolant up to the full level of the reservoir.

⚠ CAUTION

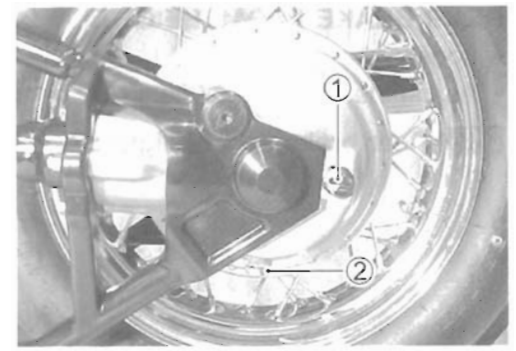
Repeat the above procedure several times and make sure that the radiator is filled with engine coolant up to the reservoir full level.

LLC Engine coolant capacity (Without reservoir):
2.150 ml (2.3/1.9 US/Imp qt)

RADIATOR HOSES

- Check to see the radiator hoses for crack, damage or engine coolant leakage.
- If any defects are found, replace the radiator hoses with new ones.

FINAL GEAR OIL

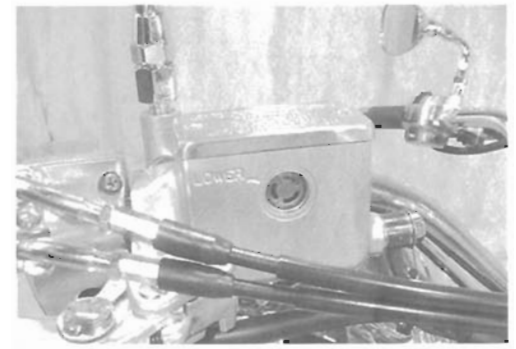


- Keep the motorcycle upright.
- Place an oil pan under the final gear case.
  Remove the filler cap ① and drain plug ② to drain oil.
- Refit the drain plug ②. Pour the specified oil (SAE 90 hypoid gear oil with GL-5 under API classification) through the filler hole until the oil level reaches the filler hole.
- Refit the filler cap ①.

DATA Final gear oil: 200 – 220 ml (6.8/7.0 – 7.4/7.7 US/Imp oz)

BRAKE

BRAKE FLUID LEVEL CHECK



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

BF Specification and Classification: 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 fluids. 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 a long period of time.**
*** Brake fluid, if it leaks, will interfere with safe running and immediately discolor painted surfaces. Check the brake hoses and hose joints for cracks and fluid leakage before riding.**

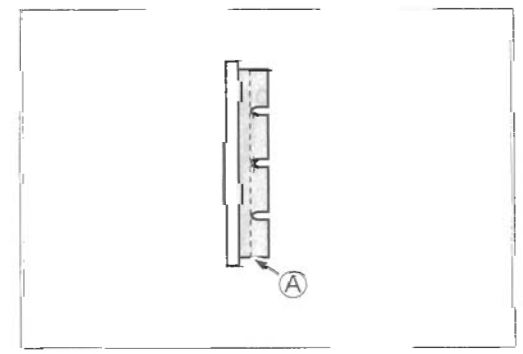
BRAKE PADS

FRONT BRAKE

- The extent of brake pad wear can be checked by observing the grooved limit line Ⓐ on the pad. When the wear exceeds the grooved limit line, replace the pads with new ones. (☞7-10)

⚠ CAUTION

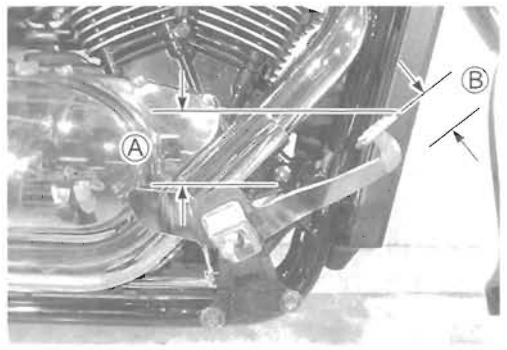
Replace the brake pads as a set, otherwise braking performance will be adversely affected.

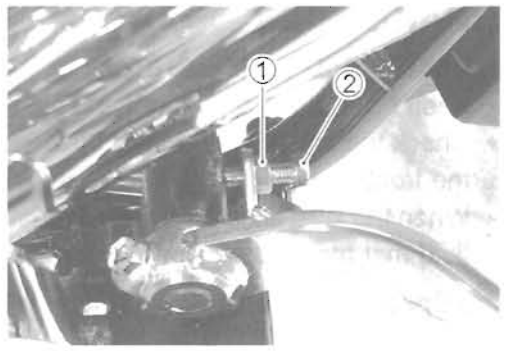


REAR BRAKE PEDAL HEIGHT

- Loosen the lock nut ①.
- Adjust the brake pedal height Ⓐ by turning the adjuster ②.

DATA **Rear brake pedal height : 75 – 85 mm**

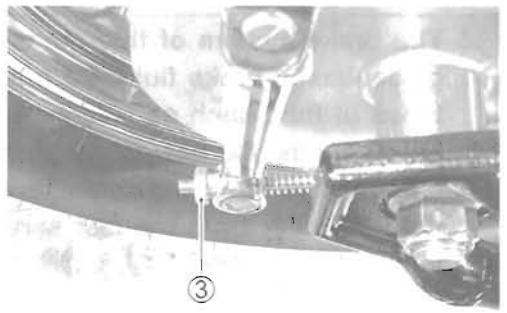




REAR BRAKE ADJUSTING

- Adjust the free travel Ⓑ to 20 – 30 mm by turning the adjusting nut ③.

DATA **Rear brake pedal free travel Ⓑ: 20 – 30 mm**

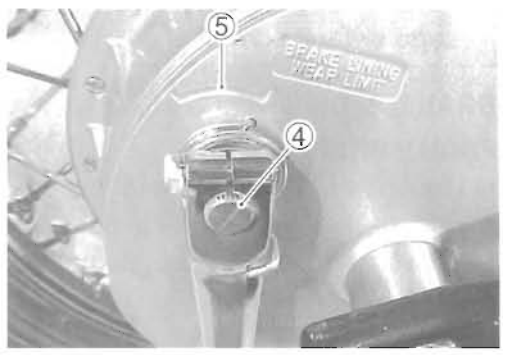


REAR BRAKE SHOE WEAR

This motorcycle is equipped with brake lining wear limit indicator on the rear brake.

To check brake lining wear, perform the following steps.

- Make sure that the rear brake is properly adjusted.
- Depress the rear brake pedal. Make sure that the index mark ④ is within the range ⑤ embossed on the brake panel.
- If the index mark goes beyond the range, the brake shoe assembly should be replaced with a new set of shoes.



BRAKE LIGHT SWITCH

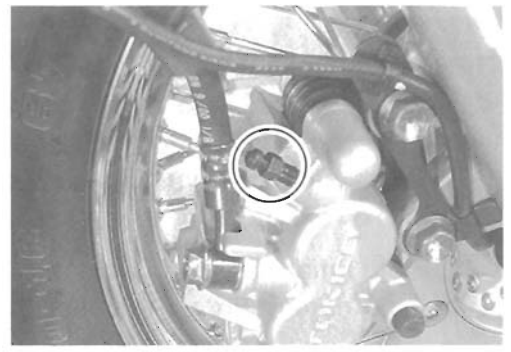
- Adjust the rear brake light switch so that the brake light will come on just before pressure is felt when the brake pedal is depressed.

AIR BLEEDING THE BRAKE FLUID CIRCUIT

Air trapped in the brake 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:

FRONT BRAKE

- Fill the master cylinder reservoir to the top of the inspection window. Replace the reservoir cap to prevent dirt from entering.
- Attach a hose to the air bleeder valve and insert the free end of the hose into a receptacle.
- Squeeze and release the brake lever several times in rapid succession and squeeze the lever fully without releasing it. Loosen the air 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 air bleeder valve, pump and squeeze the lever, and open the valve. Repeat this process until fluid flowing into the receptacle no longer contains air bubbles.



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

- Close the air bleeder valve and disconnect the hose. Fill the reservoir with brake fluid to the top of the inspection window.

Air bleeder valve: 8 N·m (0.8 kgf·m, 6.0 lb-ft)

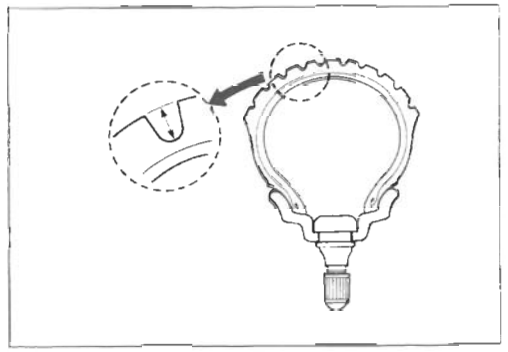
⚠ CAUTION

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

TIRES

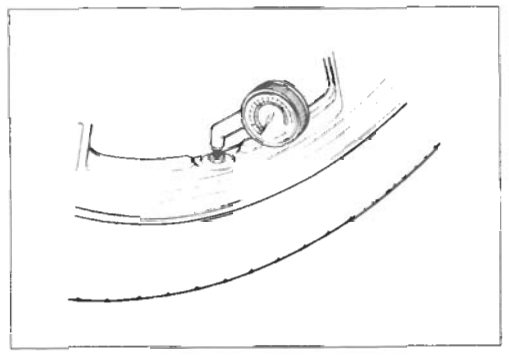
TIRE TREAD CONDITION

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.



TOOL **09900-20805: Tire depth gauge**

DATA **Tire tread depth:**
Service Limit: **FRONT 1.6 mm (0.06 in)**
REAR 2.0 mm (0.08 in)



TIRE PRESSURE

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

DATA **Cold inflation tire pressure**

Solo riding:	Front:	200 kPa (2.00 kgf/cm², 29 psi)
	Rear:	250 kPa (2.50 kgf/cm², 36 psi)
Dual riding:	Front:	200 kPa (2.00 kgf/cm², 29 psi)
	Rear:	250 kPa (2.50 kgf/cm², 36 psi)

⚠ CAUTION

The standard tire fitted on this motorcycle is a 130/90-15 67H for the front and a 170/80-15 H/C 77H for the rear. The use of tires other than those specified may cause instability. It is highly recommended to use the specified tires.

DATA TIRE TYPE
IRC
FRONT: GS-23F
REAR : GS-23R

STEERING

The steering should be adjusted properly for smooth turning of the handlebars and safe operation. Overtight steering prevents smooth turning of the handlebars and too loose steering will cause poor stability. Check that there is no play in the front fork. Support the motorcycle so that the front wheel is off the ground. With the wheel facing straight ahead, grasp the lower fork tubes near the axle and pull forward. If play is found, readjust the steering. (☞7-35)

FRONT FORK

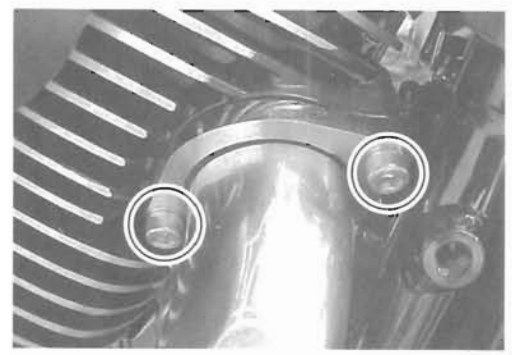
Inspect the front forks for oil leakage, scoring or scratches on the outer surface of the inner tubes. Replace any defective parts, if necessary. (☞7-18)

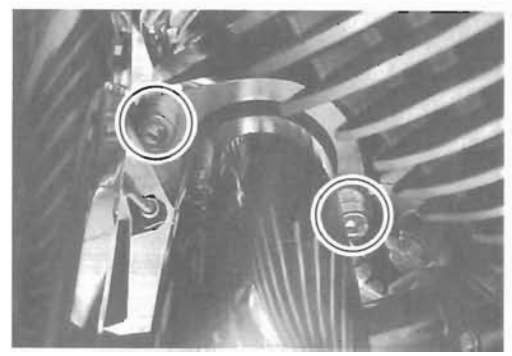
REAR SUSPENSION

Inspect the rear shock absorbers for oil leakage and check that there is no play in the swingarm. Replace any defective parts if necessary. (☞7-46)

EXHAUST PIPE BOLT AND NUT

Tighten the exhaust pipe bolts and muffler bolts and nuts.

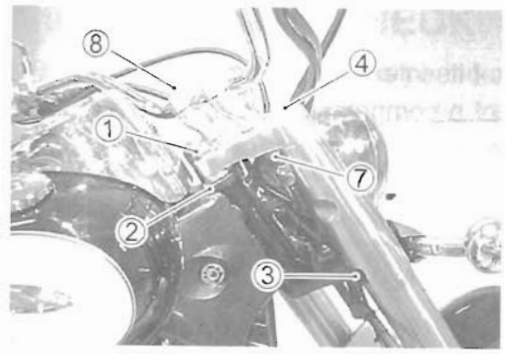


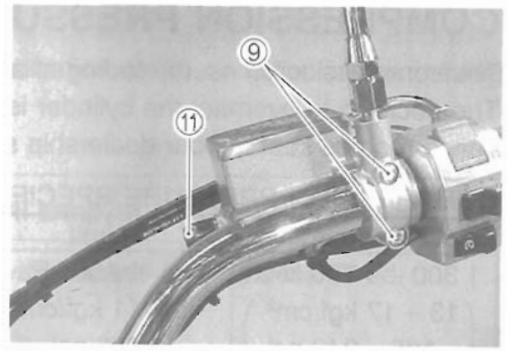


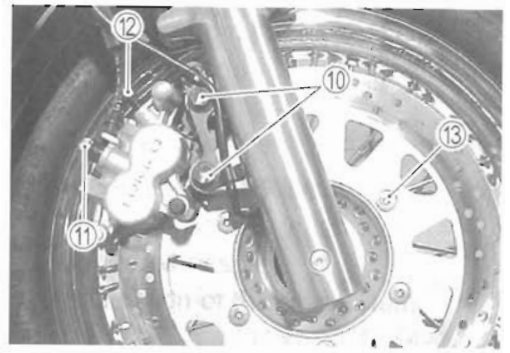
CHASSIS BOLTS AND NUTS

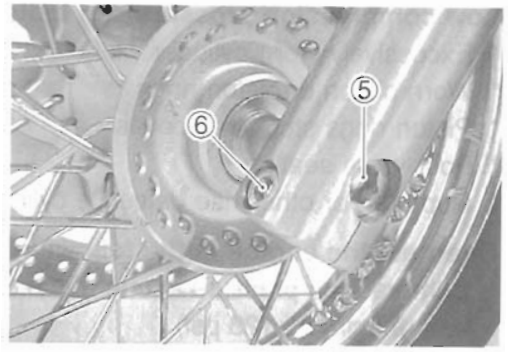
Check that all chassis bolts and nuts are tightened to their specified torque. The locations of the following nuts and bolts on the motorcycle.

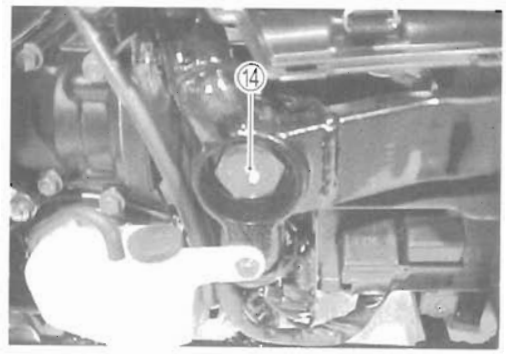
Item	N·m	kgf·m	lb-ft
① Steering stem head nut	90	9.0	65.0
② Steering stem lock nut	80	8.0	58.0
③ Front fork lower clamp bolt	33	3.3	24.0
④ Front fork cap bolt	35	3.5	25.5
⑤ Front axle	65	6.5	47.0
⑥ Front axle pinch bolt	33	3.3	24.0
⑦ Handlebar set bolt	70	7.0	50.5
⑧ Handlebar clamp bolt	23	2.3	16.5
⑨ Front brake master cylinder mounting bolt	10	1.0	7.0
⑩ Front brake caliper mounting bolt	39	3.9	28.0
⑪ Brake hose union bolt	23	2.3	16.5
⑫ Caliper air bleeder valve	8	0.8	6.0
⑬ Brake disc bolt	23	2.3	16.5
⑭ Swingarm pivot nut	100	10.0	72.5
⑮ Torque link bolt and nut (Front)	35	3.5	25.5
⑯ Torque link bolt and nut (Rear)	25	2.5	18.0
⑰ Rear shock absorber mounting bolt/nut (Upper & Lower)	50	5.0	36.0
⑱ Rear cushion lever/rod mounting nut	78	7.8	56.5
⑲ Rear axle nut	65	6.5	47.0
⑳ Brake cam lever nut	10	1.0	7.0

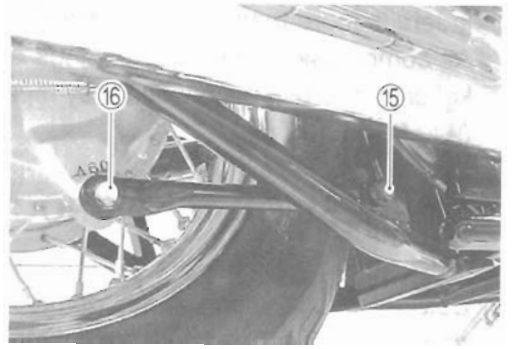


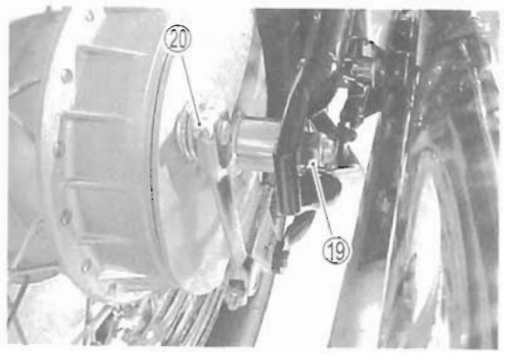


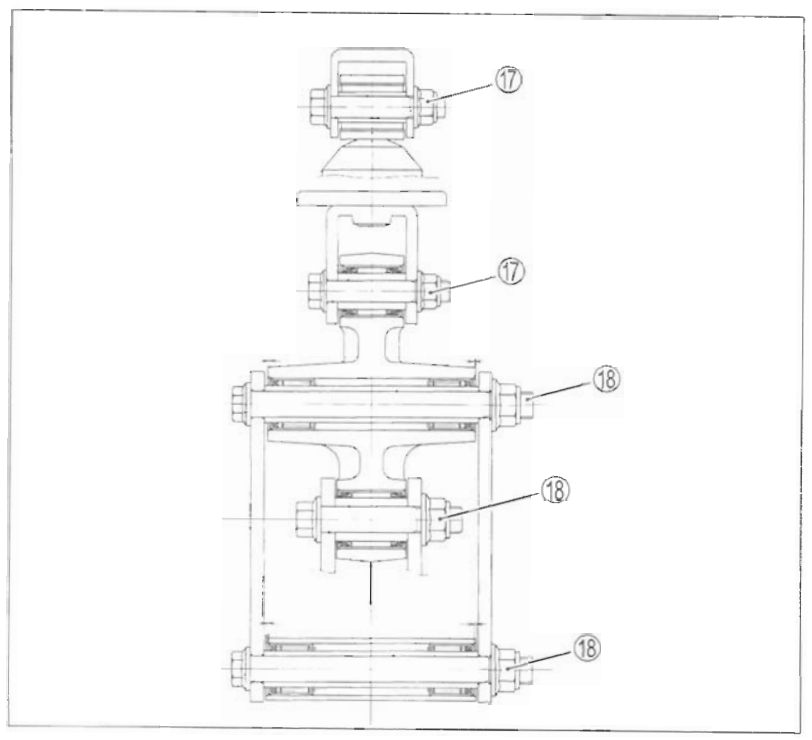












COMPRESSION PRESSURE CHECK

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

COMPRESSION PRESSURE SPECIFICATION

Standard	Limit	Difference
1 300 – 1 700 kPa (13 – 17 kgf/cm², 185 – 242 psi)	1 100 kPa (11 kgf/cm², 156 psi)	200kPa (2 kgf/cm², 28 psi)

Low compression pressure can indicate any of the following conditions:

- Excessively worn cylinder walls
- Worn piston or piston rings
- Piston rings stuck in grooves
- Poor valve seating
- Ruptured or otherwise defective cylinder head gasket

Overhaul the engine in the following cases:

- Compression pressure in one of the cylinders is less than 900 kPa (9 kgf/cm², 128 psi).
- The difference in compression pressure between any two cylinders is more than 200 kPa (2 kgf/cm², 28 psi).
- All compression pressure readings are below 1 100 kPa (11 kgf/cm², 156 psi) even when they measure more than 900 kPa (9 kgf/cm², 128 psi).

COMPRESSION TEST PROCEDURE

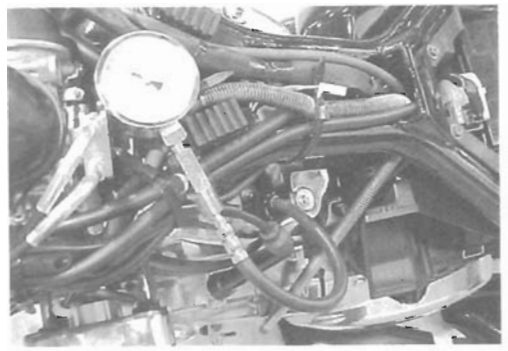
NOTE:

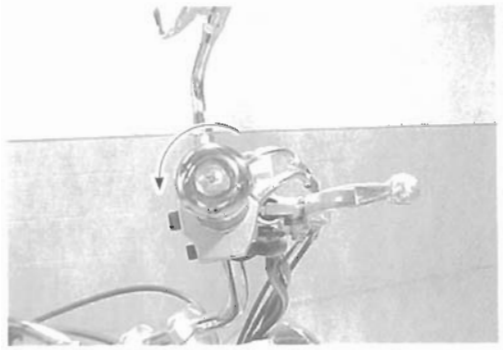
- *Before testing the engine for compression pressure, make sure that the cylinder head nuts are tightened to the specified torque values and the valves are properly adjusted.*
- *Have the engine warmed up before testing.*
- *Make sure that the battery is fully-charged.*

Remove the related parts and test the compression pressure in the following manner.

- Remove the fuel tank. (☞5-3)
- Remove all the spark plugs. (☞2-4)
- Install the compression gauge and adaptor in the spark plug hole. Make sure that the connection is tight.
- Keep the throttle grip in the fully opened position.
- Press the starter button and crank the engine for a few seconds. Record the maximum gauge reading as the cylinder compression.
- Repeat this procedure with the other cylinders.

TOOL **09915-64510: Compression gauge set**
09915-63210: Adaptor





OIL PRESSURE CHECK

Check the engine oil pressure periodically. This will give a good indication of the condition of the moving parts.

OIL PRESSURE SPECIFICATION

350 – 650 kPa (3.5 – 6.5 kgf/cm², 50 – 92 psi) at 3 000 r/min., Oil temp. at 60°C (140°F)

If the oil pressure is lower or higher than the specification, the following causes may be considered.

LOW OIL PRESSURE

- Clogged oil filter
- Oil leakage from the oil passage
- Damaged O-ring
- Defective oil pump
- Combination of the above items

HIGH OIL PRESSURE

- Engine oil viscosity is too high
- Clogged oil passage
- Combination of the above items

OIL PRESSURE TEST PROCEDURE

Start the engine and check if the oil pressure indicator light is turned on. If the light stays on, check the oil pressure indicator light circuit. If the circuit is OK, check the oil pressure in the following manner.

- Remove the main oil gallery plug ①.
- Install the oil pressure gauge and adaptor into the main oil gallery.
- Warm up the engine as follows:
  Summer: 10 min. at 2 000 r/min.
  Winter: 20 min. at 2 000 r/min.
- After warming up, increase the engine speed to 3 000 r/min. (observe the tachometer), and read the oil pressure gauge.

TOOL **09915-74510: Oil pressure gauge hose**
09915-74531: Oil pressure gauge attachment
09915-77330: Meter (for high pressure)